



Full wwPDB X-ray Structure Validation Report

Jun 16, 2014 – 06:20 PM BST

PDB ID : 4V4H
Title : Crystal structure of the bacterial ribosome from Escherichia coli in complex with the antibiotic kasugamyin at 3.5Å resolution.
Authors : Schuwirth, B.S.; Vila-Sanjurjo, A.; Cate, J.H.D.
Deposited on : 2006-08-04
Resolution : 3.46 Å(reported)

This is a full wwPDB validation report for a publicly released PDB entry.
We welcome your comments at validation@mail.wwpdb.org
A user guide is available at <http://wwpdb.org/ValidationPDFNotes.html>

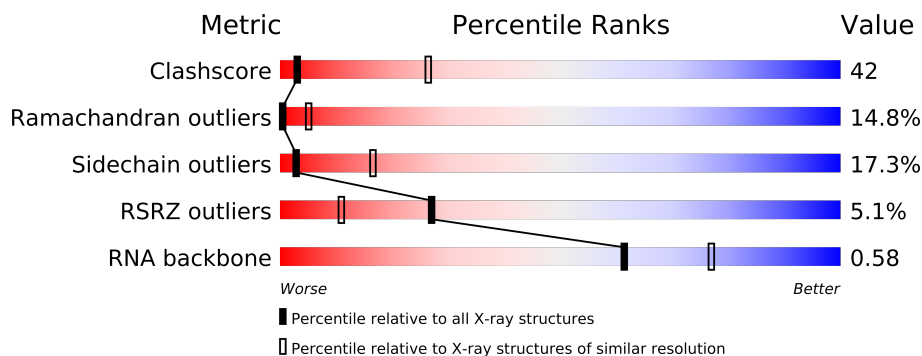
The following versions of software and data (see [references](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.16 November 2013
Xtriage (Phenix) : dev-1323
EDS : stable23397
Percentile statistics : 21963
Refmac : 5.8.0049
CCP4 : 6.3.0 (Settle)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et. al. (1996)
Validation Pipeline (wwPDB-VP) : stable23397

1 Overall quality at a glance

The reported resolution of this entry is 3.46 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



| Metric | Whole archive (#Entries) | Similar resolution (#Entries, resolution range(Å)) |
|-----------------------|-----------------------------|---|
| Clashscore | 79885 | 1012 (3.60-3.32) |
| Ramachandran outliers | 78287 | 1401 (3.62-3.30) |
| Sidechain outliers | 78261 | 1401 (3.62-3.30) |
| RSRZ outliers | 66119 | 1149 (3.62-3.30) |
| RNA backbone | 1838 | 1004 (4.10-2.76) |

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density.

| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 1 | AA | 1542 | |
| 1 | CA | 1542 | |
| 2 | AC | 233 | |
| 2 | CC | 233 | |
| 3 | AD | 206 | |
| 3 | CD | 206 | |
| 4 | AE | 167 | |
| 4 | CE | 167 | |
| 5 | AF | 135 | |
| 5 | CF | 135 | |
| 6 | AG | 179 | |
| 6 | CG | 179 | |
| 7 | AH | 130 | |
| 7 | CH | 130 | |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 8 | AI | 130 | |
| 8 | CI | 130 | |
| 9 | AJ | 103 | |
| 9 | CJ | 103 | |
| 10 | AK | 129 | |
| 10 | CK | 129 | |
| 11 | AL | 124 | |
| 11 | CL | 124 | |
| 12 | AM | 118 | |
| 12 | CM | 118 | |
| 13 | AN | 101 | |
| 13 | CN | 101 | |
| 14 | AO | 89 | |
| 14 | CO | 89 | |
| 15 | AP | 82 | |
| 15 | CP | 82 | |
| 16 | AQ | 84 | |
| 16 | CQ | 84 | |
| 17 | AR | 75 | |
| 17 | CR | 75 | |
| 18 | AS | 92 | |
| 18 | CS | 92 | |
| 19 | AT | 87 | |
| 19 | CT | 87 | |
| 20 | AB | 241 | |
| 20 | CB | 241 | |
| 21 | AU | 71 | |
| 21 | CU | 71 | |
| 22 | BA | 120 | |
| 22 | DA | 120 | |
| 23 | BB | 2904 | |
| 23 | DB | 2904 | |
| 24 | BV | 94 | |
| 24 | DV | 94 | |
| 25 | BC | 273 | |
| 25 | DC | 273 | |
| 26 | BD | 209 | |
| 26 | DD | 209 | |
| 27 | BE | 201 | |
| 27 | DE | 201 | |
| 28 | BF | 179 | |
| 28 | DF | 179 | |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 29 | BG | 177 | |
| 29 | DG | 177 | |
| 30 | BH | 149 | |
| 30 | DH | 149 | |
| 31 | BJ | 142 | |
| 31 | DJ | 142 | |
| 32 | BK | 123 | |
| 32 | DK | 123 | |
| 33 | BL | 144 | |
| 33 | DL | 144 | |
| 34 | BM | 136 | |
| 34 | DM | 136 | |
| 35 | BN | 127 | |
| 35 | DN | 127 | |
| 36 | BO | 117 | |
| 36 | DO | 117 | |
| 37 | BP | 115 | |
| 37 | DP | 115 | |
| 38 | BQ | 118 | |
| 38 | DQ | 118 | |
| 39 | BR | 103 | |
| 39 | DR | 103 | |
| 40 | BS | 110 | |
| 40 | DS | 110 | |
| 41 | BT | 100 | |
| 41 | DT | 100 | |
| 42 | BU | 104 | |
| 42 | DU | 104 | |
| 43 | BW | 85 | |
| 43 | DW | 85 | |
| 44 | BX | 63 | |
| 44 | DX | 63 | |
| 45 | BY | 59 | |
| 45 | DY | 59 | |
| 46 | BZ | 70 | |
| 46 | DZ | 70 | |
| 47 | B0 | 57 | |
| 47 | D0 | 57 | |
| 48 | B1 | 55 | |
| 48 | D1 | 55 | |
| 49 | B2 | 46 | |
| 49 | D2 | 46 | |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 50 | B3 | 65 | |
| 50 | D3 | 65 | |
| 51 | B4 | 38 | |
| 51 | D4 | 38 | |
| 52 | BI | 142 | |
| 52 | DI | 142 | |

The following table lists non-polymeric compounds that are outliers for geometric or electron-density-fit criteria:

| Mol | Type | Chain | Res | Geometry | Electron density |
|-----|------|-------|------|----------|------------------|
| 53 | KSG | AA | 1601 | - | X |
| 53 | KSG | CA | 1601 | - | X |
| 54 | MG | AA | 1625 | - | X |
| 54 | MG | AA | 1627 | - | X |
| 54 | MG | AA | 1637 | - | X |
| 54 | MG | AA | 1647 | - | X |
| 54 | MG | AA | 1650 | - | X |
| 54 | MG | AA | 1657 | - | X |
| 54 | MG | BB | 3028 | - | X |
| 54 | MG | BB | 3033 | - | X |
| 54 | MG | BB | 3043 | - | X |
| 54 | MG | BB | 3047 | - | X |
| 54 | MG | BB | 3082 | - | X |
| 54 | MG | BB | 3086 | - | X |
| 54 | MG | BB | 3089 | - | X |
| 54 | MG | BB | 3100 | - | X |
| 54 | MG | CA | 1616 | - | X |
| 54 | MG | CA | 1622 | - | X |
| 54 | MG | CA | 1624 | - | X |
| 54 | MG | CA | 1628 | - | X |
| 54 | MG | CA | 1629 | - | X |
| 54 | MG | CA | 1631 | - | X |
| 54 | MG | CA | 1637 | - | X |
| 54 | MG | CA | 1660 | - | X |
| 54 | MG | DB | 3058 | - | X |
| 54 | MG | DB | 3064 | - | X |
| 54 | MG | DB | 3082 | - | X |
| 54 | MG | DB | 3093 | - | X |

2 Entry composition

There are 55 unique types of molecules in this entry. The entry contains 284160 atoms, of which 0 are hydrogen and 0 are deuterium.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a RNA chain called 16S RIBOSOMAL RNA.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-------|------|-------|------|---------|---------|-------|
| 1 | AA | 1530 | Total | C | N | O | P | 0 | 0 | 0 |
| | | | 32831 | 14642 | 6024 | 10635 | 1530 | | | |
| 1 | CA | 1530 | Total | C | N | O | P | 0 | 0 | 0 |
| | | | 32831 | 14642 | 6024 | 10635 | 1530 | | | |

- Molecule 2 is a protein called 30S RIBOSOMAL PROTEIN S3.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 2 | AC | 206 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1624 | 1028 | 305 | 288 | 3 | | | |
| 2 | CC | 206 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1624 | 1028 | 305 | 288 | 3 | | | |

- Molecule 3 is a protein called 30S RIBOSOMAL PROTEIN S4.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 3 | AD | 205 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1643 | 1026 | 315 | 298 | 4 | | | |
| 3 | CD | 205 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1643 | 1026 | 315 | 298 | 4 | | | |

- Molecule 4 is a protein called 30S RIBOSOMAL PROTEIN S5.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 4 | AE | 150 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1105 | 687 | 211 | 201 | 6 | | | |
| 4 | CE | 150 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1105 | 687 | 211 | 201 | 6 | | | |

- Molecule 5 is a protein called 30S RIBOSOMAL PROTEIN S6.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 5 | AF | 100 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 817 | 515 | 148 | 148 | 6 | | | |
| 5 | CF | 100 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 817 | 515 | 148 | 148 | 6 | | | |

- Molecule 6 is a protein called 30S RIBOSOMAL PROTEIN S7.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 6 | AG | 150 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1174 | 730 | 226 | 214 | 4 | | | |
| 6 | CG | 152 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1196 | 745 | 230 | 217 | 4 | | | |

- Molecule 7 is a protein called 30S RIBOSOMAL PROTEIN S8.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 7 | AH | 129 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 979 | 616 | 173 | 184 | 6 | | | |
| 7 | CH | 129 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 979 | 616 | 173 | 184 | 6 | | | |

- Molecule 8 is a protein called 30S RIBOSOMAL PROTEIN S9.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 8 | AI | 127 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1022 | 634 | 206 | 179 | 3 | | | |
| 8 | CI | 127 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1022 | 634 | 206 | 179 | 3 | | | |

- Molecule 9 is a protein called 30S RIBOSOMAL PROTEIN S10.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 9 | AJ | 98 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 786 | 493 | 150 | 142 | 1 | | | |
| 9 | CJ | 98 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 786 | 493 | 150 | 142 | 1 | | | |

- Molecule 10 is a protein called 30S RIBOSOMAL PROTEIN S11.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 10 | AK | 117 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 877 | 540 | 174 | 160 | 3 | | | |

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| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 10 | CK | 117 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 877 | 540 | 174 | 160 | 3 | | | |

- Molecule 11 is a protein called 30S RIBOSOMAL PROTEIN S12.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 11 | AL | 123 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 955 | 590 | 196 | 165 | 4 | | | |
| 11 | CL | 123 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 955 | 590 | 196 | 165 | 4 | | | |

- Molecule 12 is a protein called 30S RIBOSOMAL PROTEIN S13.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 12 | AM | 114 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 883 | 546 | 178 | 156 | 3 | | | |
| 12 | CM | 113 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 876 | 541 | 177 | 155 | 3 | | | |

- Molecule 13 is a protein called 30S RIBOSOMAL PROTEIN S14.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 13 | AN | 96 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 774 | 483 | 160 | 128 | 3 | | | |
| 13 | CN | 96 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 774 | 483 | 160 | 128 | 3 | | | |

- Molecule 14 is a protein called 30S RIBOSOMAL PROTEIN S15.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 14 | AO | 88 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 716 | 440 | 146 | 129 | 1 | | | |
| 14 | CO | 88 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 716 | 440 | 146 | 129 | 1 | | | |

- Molecule 15 is a protein called 30S RIBOSOMAL PROTEIN S16.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 15 | AP | 82 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 649 | 406 | 128 | 114 | 1 | | | |
| 15 | CP | 80 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 638 | 400 | 126 | 111 | 1 | | | |

- Molecule 16 is a protein called 30S RIBOSOMAL PROTEIN S17.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 16 | AQ | 80 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 648 | 411 | 121 | 113 | 3 | | | |
| 16 | CQ | 81 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 657 | 417 | 122 | 115 | 3 | | | |

- Molecule 17 is a protein called 30S RIBOSOMAL PROTEIN S18.

| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---------|---------|-------|
| 17 | AR | 55 | Total | C | N | O | 0 | 0 | 0 |
| | | | 455 | 288 | 86 | 81 | | | |
| 17 | CR | 55 | Total | C | N | O | 0 | 0 | 0 |
| | | | 455 | 288 | 86 | 81 | | | |

- Molecule 18 is a protein called 30S RIBOSOMAL PROTEIN S19.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 18 | AS | 79 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 637 | 408 | 120 | 107 | 2 | | | |
| 18 | CS | 80 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 644 | 413 | 121 | 108 | 2 | | | |

- Molecule 19 is a protein called 30S RIBOSOMAL PROTEIN S20.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 19 | AT | 85 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 665 | 411 | 137 | 114 | 3 | | | |
| 19 | CT | 85 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 665 | 411 | 137 | 114 | 3 | | | |

- Molecule 20 is a protein called 30S RIBOSOMAL PROTEIN S2.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 20 | AB | 218 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1704 | 1081 | 305 | 311 | 7 | | | |
| 20 | CB | 218 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1704 | 1081 | 305 | 311 | 7 | | | |

- Molecule 21 is a protein called 30S RIBOSOMAL PROTEIN S21.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|---------|-------|
| 21 | AU | 51 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 425 | 265 | 86 | 73 | 1 | | | |
| 21 | CU | 51 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 425 | 265 | 86 | 73 | 1 | | | |

- Molecule 22 is a RNA chain called 5S RIBOSOMAL RNA.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|-----|---------|---------|-------|
| 22 | BA | 117 | Total | C | N | O | P | 0 | 0 | 0 |
| | | | 2507 | 1116 | 459 | 815 | 117 | | | |
| 22 | DA | 117 | Total | C | N | O | P | 0 | 0 | 0 |
| | | | 2507 | 1116 | 459 | 815 | 117 | | | |

- Molecule 23 is a RNA chain called 23S RIBOSOMAL RNA.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-------|-------|-------|------|---------|---------|-------|
| 23 | BB | 2841 | Total | C | N | O | P | 0 | 0 | 0 |
| | | | 60995 | 27210 | 11229 | 19715 | 2841 | | | |
| 23 | DB | 2841 | Total | C | N | O | P | 0 | 0 | 0 |
| | | | 60995 | 27210 | 11229 | 19715 | 2841 | | | |

- Molecule 24 is a protein called 50S RIBOSOMAL PROTEIN L25.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 24 | BV | 94 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 753 | 479 | 137 | 134 | 3 | | | |
| 24 | DV | 94 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 753 | 479 | 137 | 134 | 3 | | | |

- Molecule 25 is a protein called 50S RIBOSOMAL PROTEIN L2.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 25 | BC | 267 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 2053 | 1271 | 416 | 359 | 7 | | | |
| 25 | DC | 267 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 2053 | 1271 | 416 | 359 | 7 | | | |

- Molecule 26 is a protein called 50S RIBOSOMAL PROTEIN L3.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 26 | BD | 209 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1565 | 979 | 288 | 294 | 4 | | | |

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| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 26 | DD | 209 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1565 | 979 | 288 | 294 | 4 | | | |

- Molecule 27 is a protein called 50S RIBOSOMAL PROTEIN L4.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 27 | BE | 201 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1552 | 974 | 283 | 290 | 5 | | | |
| 27 | DE | 201 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1552 | 974 | 283 | 290 | 5 | | | |

- Molecule 28 is a protein called 50S RIBOSOMAL PROTEIN L5.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 28 | BF | 178 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1420 | 905 | 251 | 258 | 6 | | | |
| 28 | DF | 178 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1420 | 905 | 251 | 258 | 6 | | | |

- Molecule 29 is a protein called 50S RIBOSOMAL PROTEIN L6.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 29 | BG | 176 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1323 | 832 | 243 | 246 | 2 | | | |
| 29 | DG | 176 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1323 | 832 | 243 | 246 | 2 | | | |

- Molecule 30 is a protein called 50S RIBOSOMAL PROTEIN L9.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 30 | BH | 149 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1111 | 699 | 197 | 214 | 1 | | | |
| 30 | DH | 149 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1111 | 699 | 197 | 214 | 1 | | | |

- Molecule 31 is a protein called 50S RIBOSOMAL PROTEIN L13.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 31 | BJ | 140 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1112 | 704 | 210 | 194 | 4 | | | |
| 31 | DJ | 140 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1112 | 704 | 210 | 194 | 4 | | | |

- Molecule 32 is a protein called 50S RIBOSOMAL PROTEIN L14.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 32 | BK | 121 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 930 | 582 | 179 | 164 | 5 | | | |
| 32 | DK | 121 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 930 | 582 | 179 | 164 | 5 | | | |

- Molecule 33 is a protein called 50S RIBOSOMAL PROTEIN L15.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 33 | BL | 144 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1053 | 654 | 207 | 190 | 2 | | | |
| 33 | DL | 144 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1053 | 654 | 207 | 190 | 2 | | | |

- Molecule 34 is a protein called 50S RIBOSOMAL PROTEIN L16.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 34 | BM | 136 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1074 | 686 | 205 | 177 | 6 | | | |
| 34 | DM | 136 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1074 | 686 | 205 | 177 | 6 | | | |

- Molecule 35 is a protein called 50S RIBOSOMAL PROTEIN L17.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 35 | BN | 127 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1008 | 621 | 204 | 178 | 5 | | | |
| 35 | DN | 127 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1008 | 621 | 204 | 178 | 5 | | | |

- Molecule 36 is a protein called 50S RIBOSOMAL PROTEIN L18.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 36 | BO | 117 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 900 | 557 | 179 | 163 | 1 | | | |
| 36 | DO | 117 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 900 | 557 | 179 | 163 | 1 | | | |

- Molecule 37 is a protein called 50S RIBOSOMAL PROTEIN L19.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 37 | BP | 114 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 917 | 574 | 179 | 163 | 1 | | | |
| 37 | DP | 114 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 917 | 574 | 179 | 163 | 1 | | | |

- Molecule 38 is a protein called 50S RIBOSOMAL PROTEIN L20.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 38 | BQ | 117 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 947 | 604 | 192 | 151 | | | | |
| 38 | DQ | 117 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 947 | 604 | 192 | 151 | | | | |

- Molecule 39 is a protein called 50S RIBOSOMAL PROTEIN L21.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 39 | BR | 103 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 816 | 516 | 153 | 145 | 2 | | | |
| 39 | DR | 103 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 816 | 516 | 153 | 145 | 2 | | | |

- Molecule 40 is a protein called 50S RIBOSOMAL PROTEIN L22.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 40 | BS | 110 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 857 | 532 | 166 | 156 | 3 | | | |
| 40 | DS | 110 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 857 | 532 | 166 | 156 | 3 | | | |

- Molecule 41 is a protein called 50S RIBOSOMAL PROTEIN L23.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 41 | BT | 99 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 777 | 491 | 145 | 139 | 2 | | | |
| 41 | DT | 99 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 777 | 491 | 145 | 139 | 2 | | | |

- Molecule 42 is a protein called 50S RIBOSOMAL PROTEIN L24.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 42 | BU | 102 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 779 | 492 | 146 | 141 | | | | |

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| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|---------|-------|
| 42 | DU | 102 | Total | C | N | O | | | |
| | | | 779 | 492 | 146 | 141 | 0 | 0 | 0 |

- Molecule 43 is a protein called 50S RIBOSOMAL PROTEIN L27.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 43 | BW | 84 | Total | C | N | O | S | | | |
| | | | 634 | 391 | 129 | 113 | 1 | 0 | 0 | 0 |
| 43 | DW | 84 | Total | C | N | O | S | | | |
| | | | 634 | 391 | 129 | 113 | 1 | 0 | 0 | 0 |

- Molecule 44 is a protein called 50S RIBOSOMAL PROTEIN L29.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|---------|-------|
| 44 | BX | 63 | Total | C | N | O | S | | | |
| | | | 509 | 313 | 99 | 95 | 2 | 0 | 0 | 0 |
| 44 | DX | 63 | Total | C | N | O | S | | | |
| | | | 509 | 313 | 99 | 95 | 2 | 0 | 0 | 0 |

- Molecule 45 is a protein called 50S RIBOSOMAL PROTEIN L30.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|---------|-------|
| 45 | BY | 58 | Total | C | N | O | S | | | |
| | | | 449 | 281 | 87 | 79 | 2 | 0 | 0 | 0 |
| 45 | DY | 58 | Total | C | N | O | S | | | |
| | | | 449 | 281 | 87 | 79 | 2 | 0 | 0 | 0 |

- Molecule 46 is a protein called 50S RIBOSOMAL PROTEIN L31.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 46 | BZ | 70 | Total | C | N | O | S | | | |
| | | | 549 | 339 | 104 | 100 | 6 | 0 | 0 | 0 |
| 46 | DZ | 70 | Total | C | N | O | S | | | |
| | | | 549 | 339 | 104 | 100 | 6 | 0 | 0 | 0 |

- Molecule 47 is a protein called 50S RIBOSOMAL PROTEIN L32.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|---------|-------|
| 47 | B0 | 56 | Total | C | N | O | S | | | |
| | | | 444 | 269 | 94 | 80 | 1 | 0 | 0 | 0 |
| 47 | D0 | 56 | Total | C | N | O | S | | | |
| | | | 444 | 269 | 94 | 80 | 1 | 0 | 0 | 0 |

- Molecule 48 is a protein called 50S RIBOSOMAL PROTEIN L33.

| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---------|---------|-------|
| 48 | B1 | 54 | Total | C | N | O | 0 | 0 | 0 |
| | | | 441 | 284 | 81 | 76 | | | |
| 48 | D1 | 54 | Total | C | N | O | 0 | 0 | 0 |
| | | | 441 | 284 | 81 | 76 | | | |

- Molecule 49 is a protein called 50S RIBOSOMAL PROTEIN L34.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|---------|-------|
| 49 | B2 | 46 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 377 | 228 | 90 | 57 | 2 | | | |
| 49 | D2 | 46 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 377 | 228 | 90 | 57 | 2 | | | |

- Molecule 50 is a protein called 50S RIBOSOMAL PROTEIN L35.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|---------|-------|
| 50 | B3 | 64 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 504 | 323 | 105 | 74 | 2 | | | |
| 50 | D3 | 64 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 504 | 323 | 105 | 74 | 2 | | | |

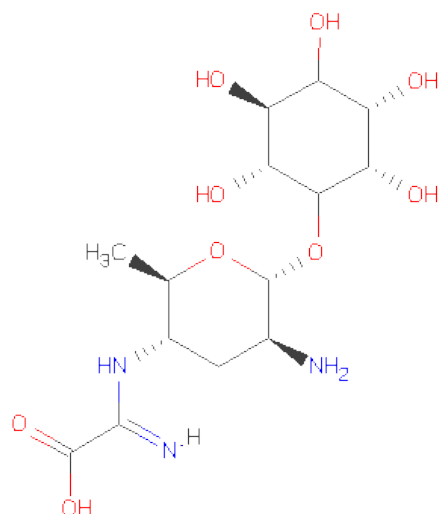
- Molecule 51 is a protein called 50S RIBOSOMAL PROTEIN L36.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|---------|-------|
| 51 | B4 | 38 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 302 | 185 | 65 | 48 | 4 | | | |
| 51 | D4 | 38 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 302 | 185 | 65 | 48 | 4 | | | |

- Molecule 52 is a protein called 50S RIBOSOMAL PROTEIN L11.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 52 | BI | 141 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1032 | 651 | 179 | 196 | 6 | | | |
| 52 | DI | 141 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1032 | 651 | 179 | 196 | 6 | | | |

- Molecule 53 is (1S,2R,3S,4R,5S,6S)-2,3,4,5,6-PENTAHYDROXYCYCLOHEXYL2-AMINO-4-[[CARBOXY(IMINO)METHYL]AMINO]-2,3,4,6-TETRADEOXY-ALPHA-D-ARABIN O-HEXOPYRANOSIDE (three-letter code: KSG) (formula: C₁₄H₂₅N₃O₉).



| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf |
|-----|-------|----------|-------|----|---|---|---------|---------|
| 53 | AA | 1 | Total | C | N | O | 0 | 0 |
| | | | 26 | 14 | 3 | 9 | | |
| 53 | CA | 1 | Total | C | N | O | 0 | 0 |
| | | | 26 | 14 | 3 | 9 | | |

- Molecule 54 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

| Mol | Chain | Residues | Atoms | | ZeroOcc | AltConf |
|-----|-------|----------|-------|-----|---------|---------|
| 54 | BB | 110 | Total | Mg | 0 | 0 |
| | | | 110 | 110 | | |
| 54 | DE | 1 | Total | Mg | 0 | 0 |
| | | | 1 | 1 | | |
| 54 | CA | 62 | Total | Mg | 0 | 0 |
| | | | 62 | 62 | | |
| 54 | AA | 60 | Total | Mg | 0 | 0 |
| | | | 60 | 60 | | |
| 54 | DN | 1 | Total | Mg | 0 | 0 |
| | | | 1 | 1 | | |
| 54 | DB | 109 | Total | Mg | 0 | 0 |
| | | | 109 | 109 | | |

- Molecule 55 is water.

| Mol | Chain | Residues | Atoms | | ZeroOcc | AltConf |
|-----|-------|----------|-------|-----|---------|---------|
| 55 | AA | 289 | Total | O | 0 | 0 |
| | | | 289 | 289 | | |

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| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|-----|-------|----------|--------------------|---------|---------|
| 55 | AE | 3 | Total O 3 3 | 0 | 0 |
| 55 | AK | 2 | Total O 2 2 | 0 | 0 |
| 55 | AN | 3 | Total O 3 3 | 0 | 0 |
| 55 | AP | 2 | Total O 2 2 | 0 | 0 |
| 55 | AT | 1 | Total O 1 1 | 0 | 0 |
| 55 | BB | 497 | Total O 497 497 | 0 | 0 |
| 55 | BC | 1 | Total O 1 1 | 0 | 0 |
| 55 | BE | 5 | Total O 5 5 | 0 | 0 |
| 55 | BH | 1 | Total O 1 1 | 0 | 0 |
| 55 | BL | 2 | Total O 2 2 | 0 | 0 |
| 55 | BN | 1 | Total O 1 1 | 0 | 0 |
| 55 | CA | 293 | Total O 293 293 | 0 | 0 |
| 55 | CE | 3 | Total O 3 3 | 0 | 0 |
| 55 | CK | 1 | Total O 1 1 | 0 | 0 |
| 55 | CL | 4 | Total O 4 4 | 0 | 0 |
| 55 | CN | 3 | Total O 3 3 | 0 | 0 |
| 55 | CP | 1 | Total O 1 1 | 0 | 0 |
| 55 | CT | 3 | Total O 3 3 | 0 | 0 |
| 55 | DB | 501 | Total O 501 501 | 0 | 0 |
| 55 | DC | 1 | Total O 1 1 | 0 | 0 |
| 55 | DD | 1 | Total O 1 1 | 0 | 0 |

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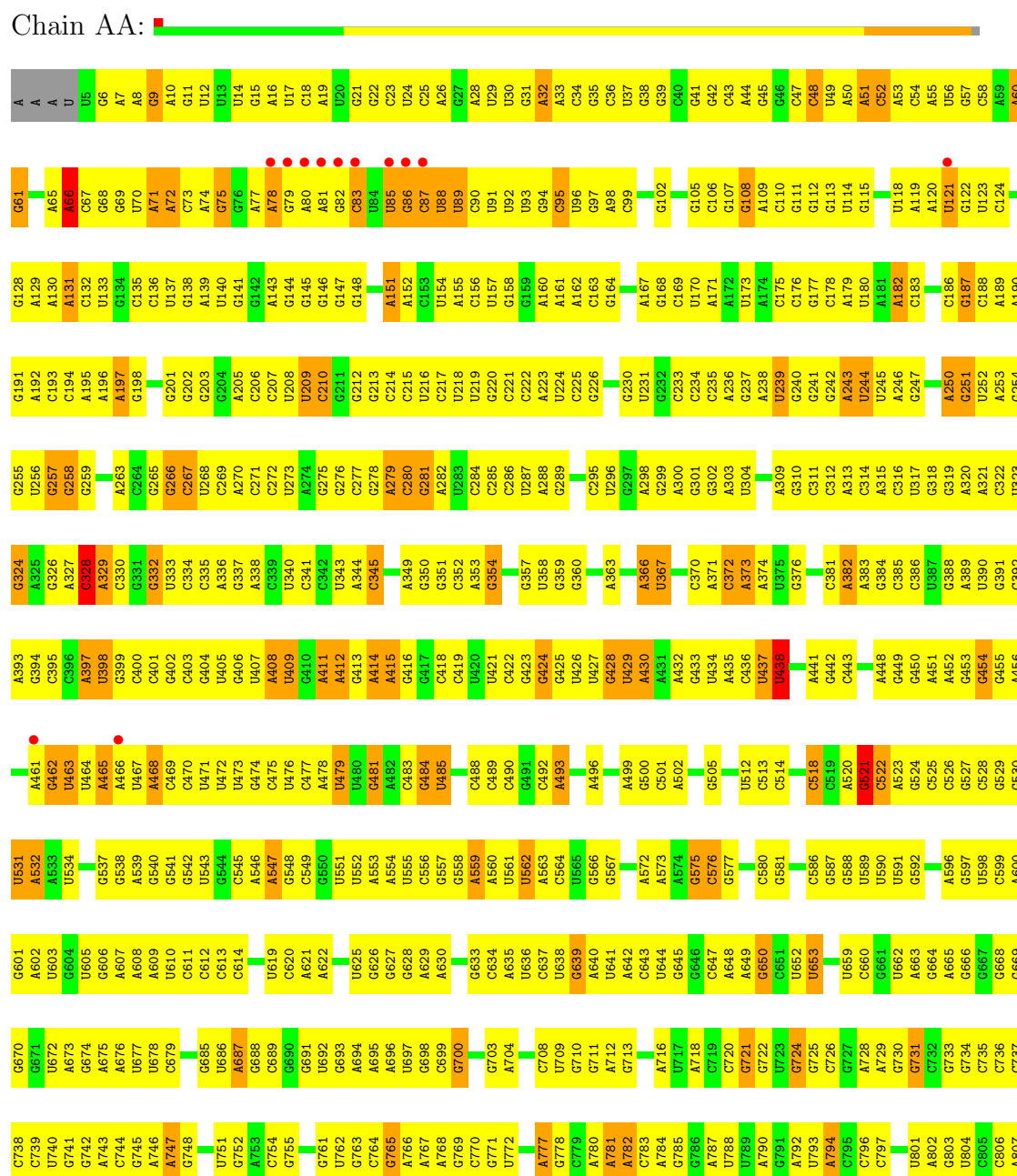
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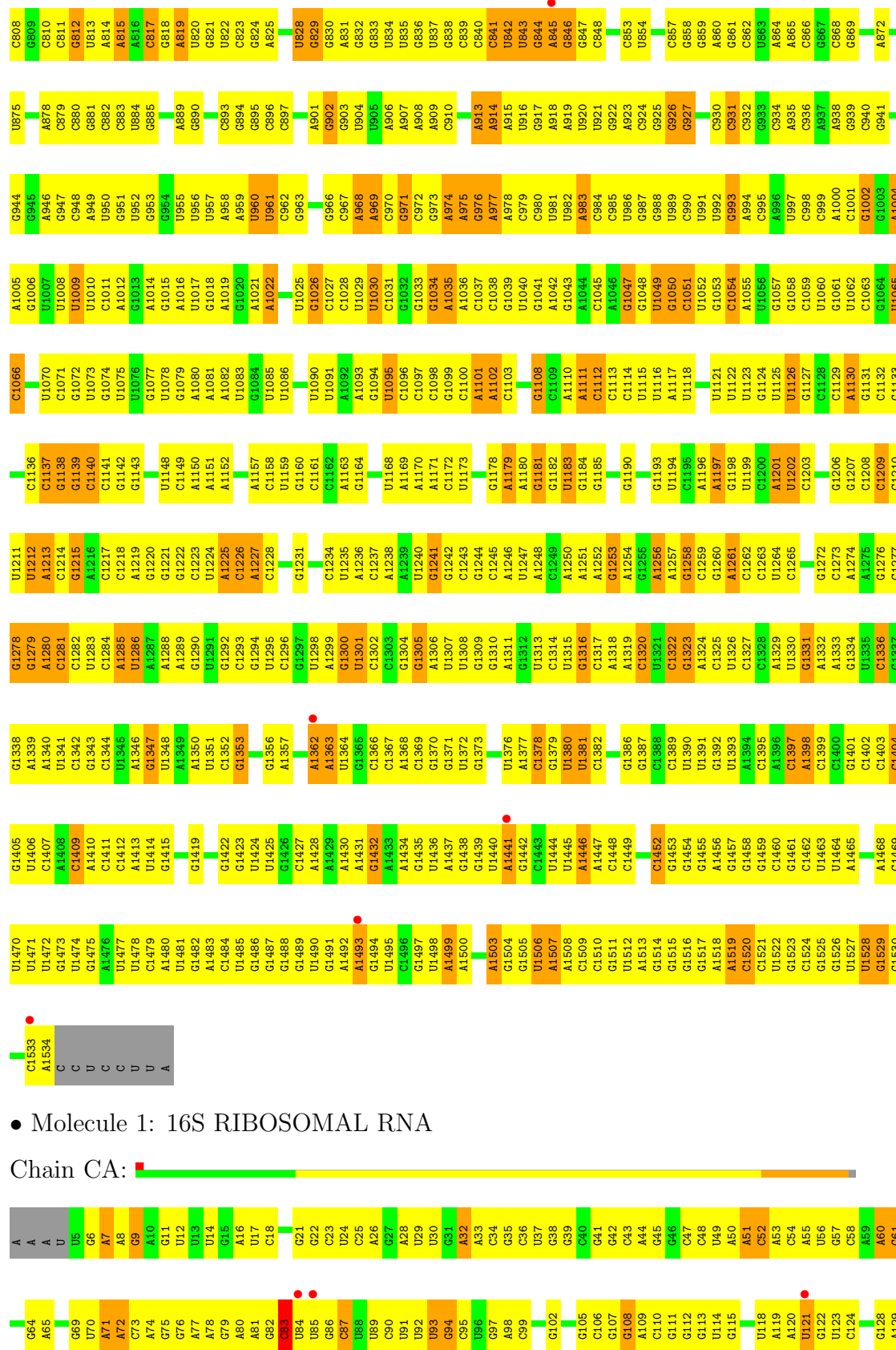
| Mol | Chain | Residues | Atoms | | ZeroOcc | AltConf |
|-----|-------|----------|------------|--------|---------|---------|
| 55 | DE | 3 | Total 3 | O 3 | 0 | 0 |
| 55 | DL | 1 | Total 1 | O 1 | 0 | 0 |
| 55 | DN | 2 | Total 2 | O 2 | 0 | 0 |
| 55 | DT | 1 | Total 1 | O 1 | 0 | 0 |
| 55 | D2 | 2 | Total 2 | O 2 | 0 | 0 |

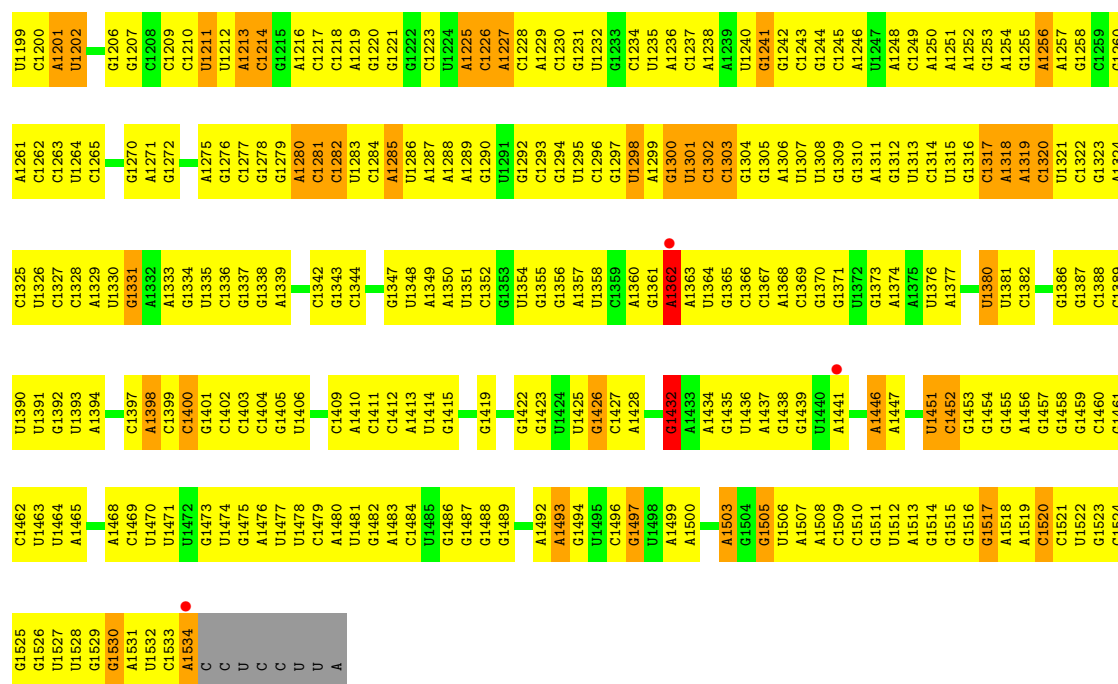
3 Residue-property plots

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

• Molecule 1: 16S RIBOSOMAL RNA

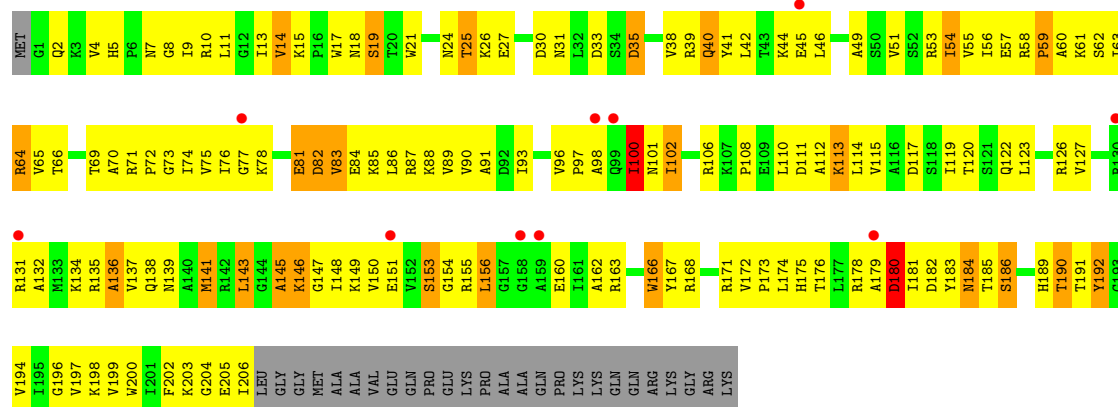






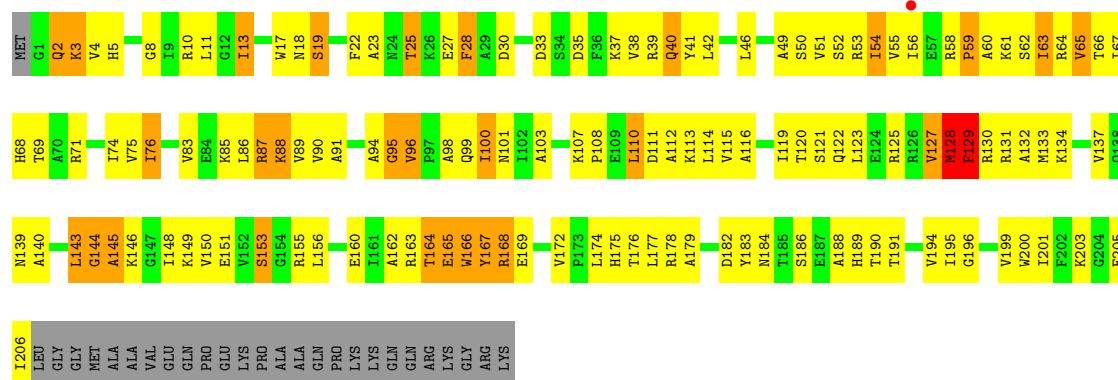
• Molecule 2: 30S RIBOSOMAL PROTEIN S3

Chain AC:



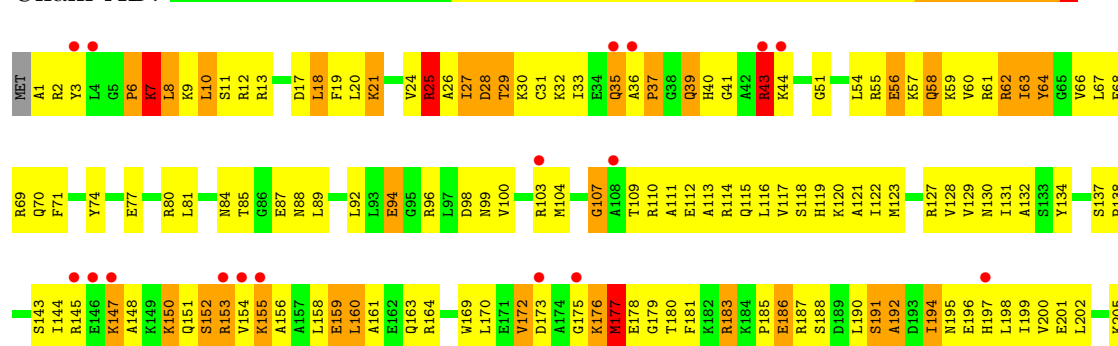
• Molecule 2: 30S RIBOSOMAL PROTEIN S3

Chain CC:



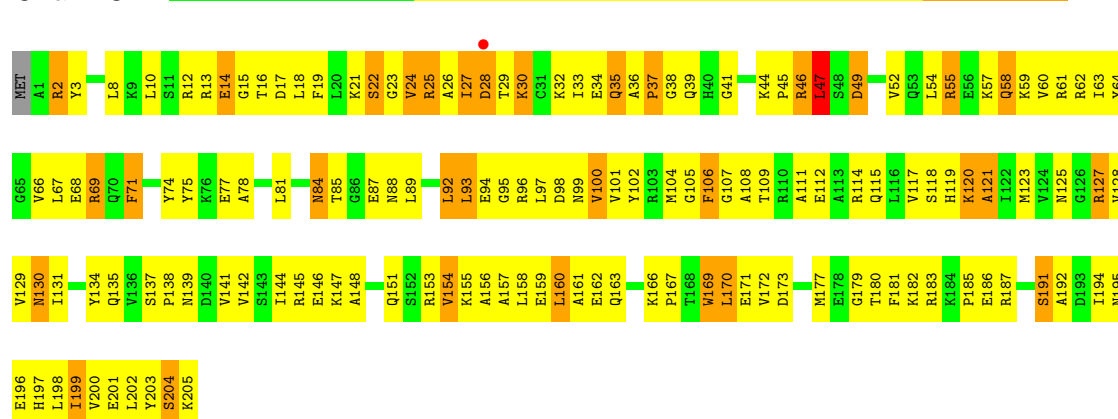
- Molecule 3: 30S RIBOSOMAL PROTEIN S4

Chain AD:



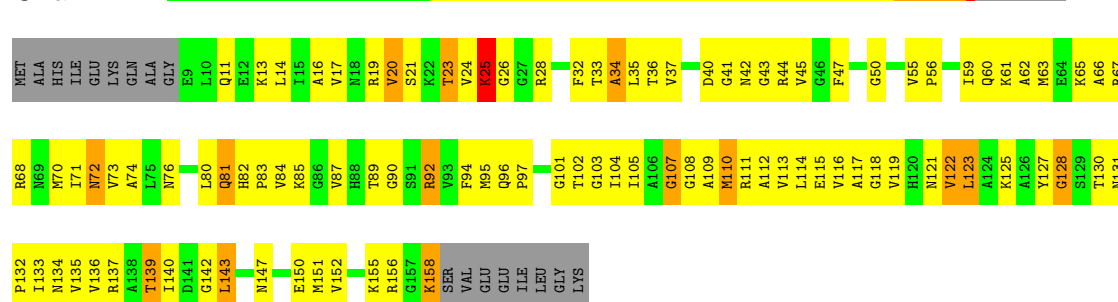
- Molecule 3: 30S RIBOSOMAL PROTEIN S4

Chain CD:



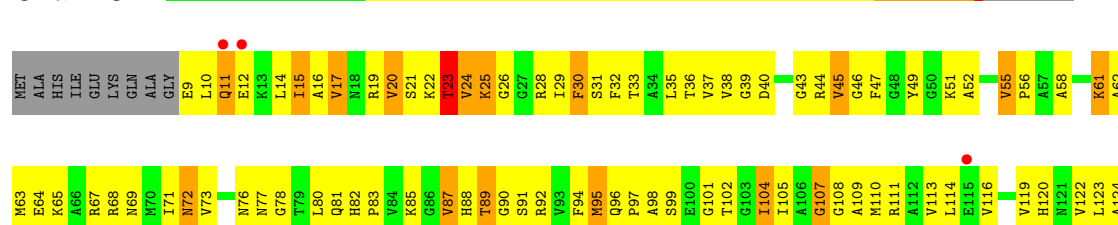
- Molecule 4: 30S RIBOSOMAL PROTEIN S5

Chain AE:



- Molecule 4: 30S RIBOSOMAL PROTEIN S5

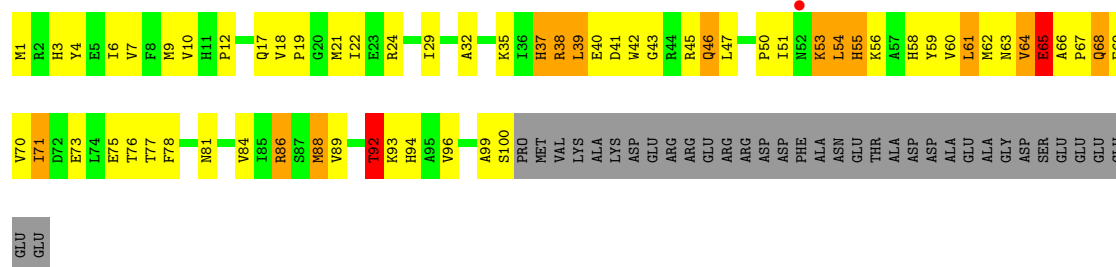
Chain CE:





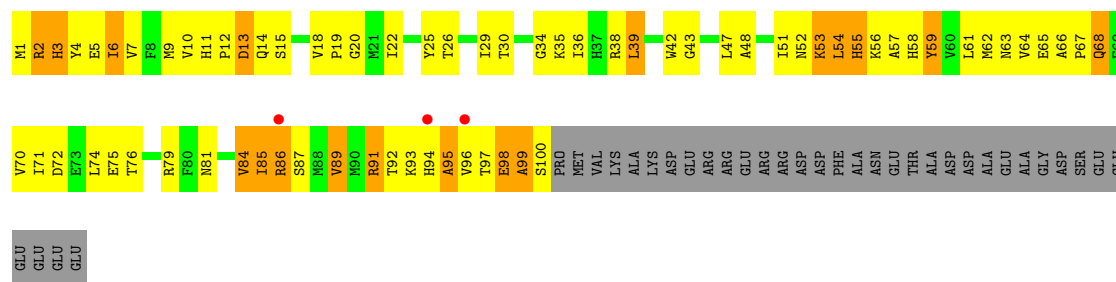
• Molecule 5: 30S RIBOSOMAL PROTEIN S6

Chain AF:



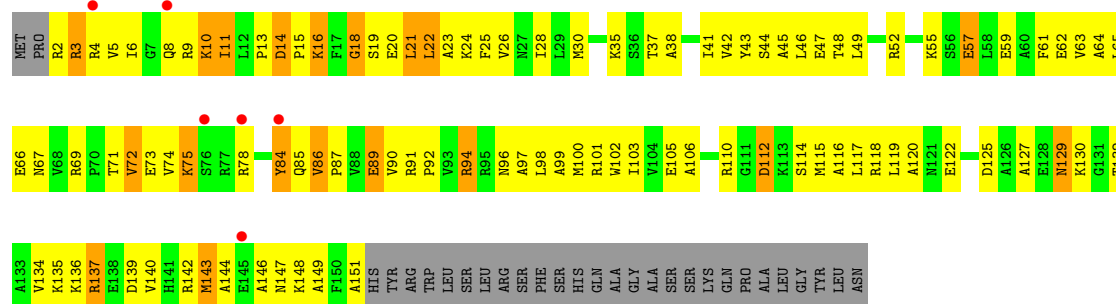
• Molecule 5: 30S RIBOSOMAL PROTEIN S6

Chain CF:



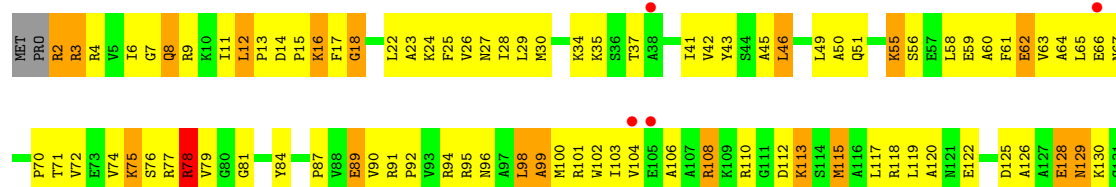
• Molecule 6: 30S RIBOSOMAL PROTEIN S7

Chain AG:



• Molecule 6: 30S RIBOSOMAL PROTEIN S7

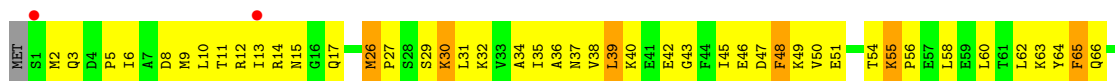
Chain CG:





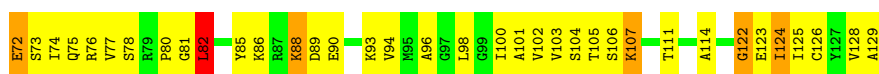
• Molecule 7: 30S RIBOSOMAL PROTEIN S8

Chain AH:



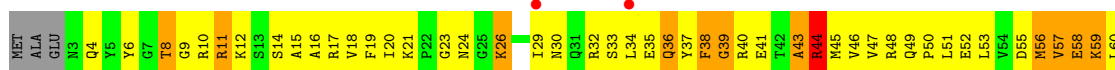
• Molecule 7: 30S RIBOSOMAL PROTEIN S8

Chain CH:



• Molecule 8: 30S RIBOSOMAL PROTEIN S9

Chain AI:



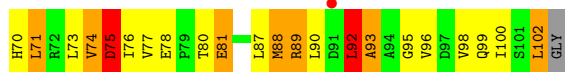
• Molecule 8: 30S RIBOSOMAL PROTEIN S9

Chain CI:



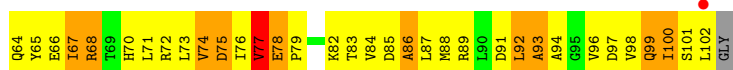
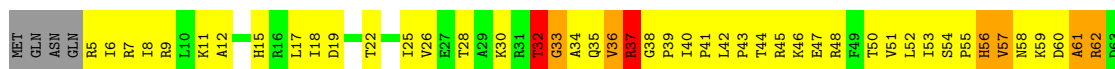
• Molecule 9: 30S RIBOSOMAL PROTEIN S10

Chain AJ:



• Molecule 9: 30S RIBOSOMAL PROTEIN S10

Chain CJ:



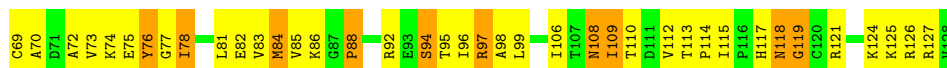
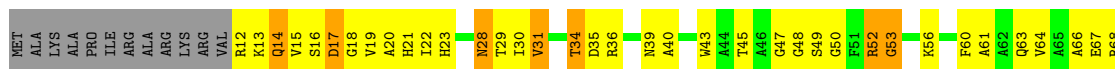
• Molecule 10: 30S RIBOSOMAL PROTEIN S11

Chain AK:



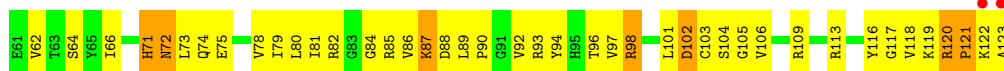
• Molecule 10: 30S RIBOSOMAL PROTEIN S11

Chain CK:



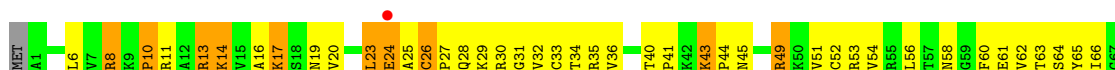
• Molecule 11: 30S RIBOSOMAL PROTEIN S12

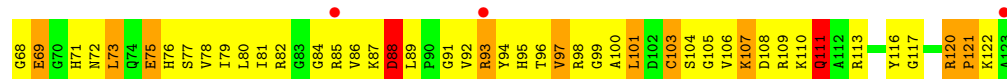
Chain AL:



• Molecule 11: 30S RIBOSOMAL PROTEIN S12

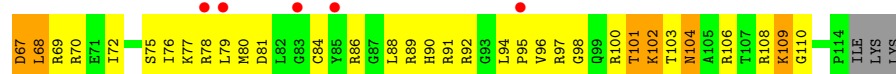
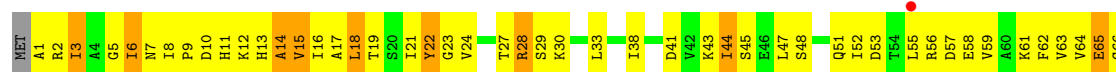
Chain CL:





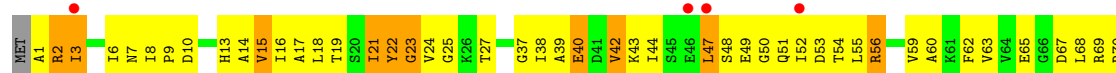
• Molecule 12: 30S RIBOSOMAL PROTEIN S13

Chain AM:



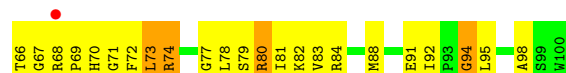
• Molecule 12: 30S RIBOSOMAL PROTEIN S13

Chain CM:



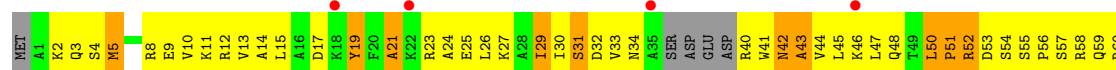
• Molecule 13: 30S RIBOSOMAL PROTEIN S14

Chain AN:



• Molecule 13: 30S RIBOSOMAL PROTEIN S14

Chain CN:



• Molecule 14: 30S RIBOSOMAL PROTEIN S15

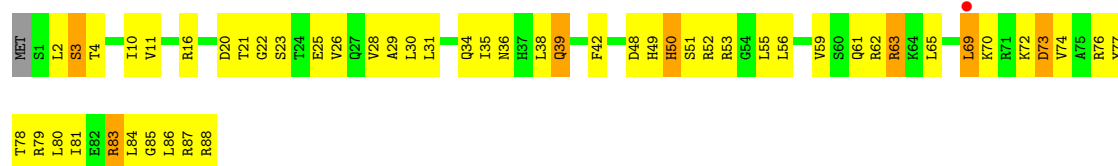
Chain AO:





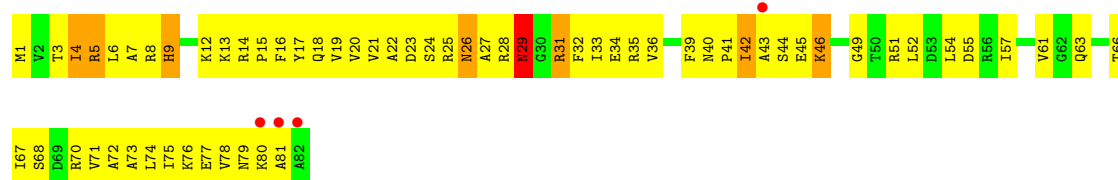
• Molecule 14: 30S RIBOSOMAL PROTEIN S15

Chain CO:



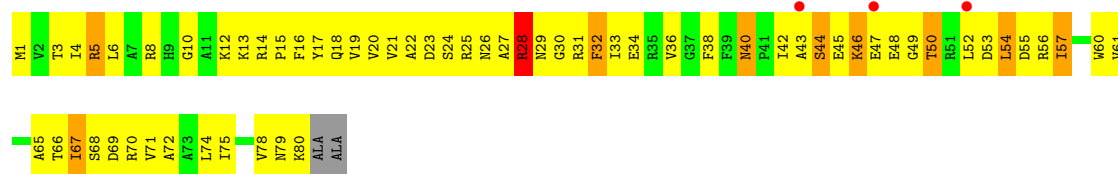
• Molecule 15: 30S RIBOSOMAL PROTEIN S16

Chain AP:



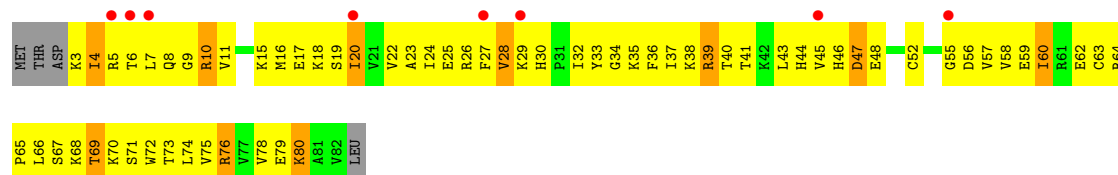
• Molecule 15: 30S RIBOSOMAL PROTEIN S16

Chain CP:



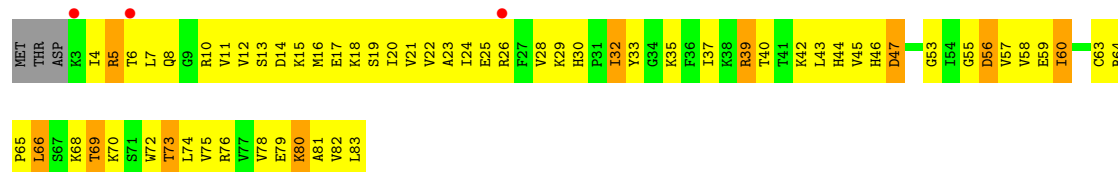
• Molecule 16: 30S RIBOSOMAL PROTEIN S17

Chain AQ:

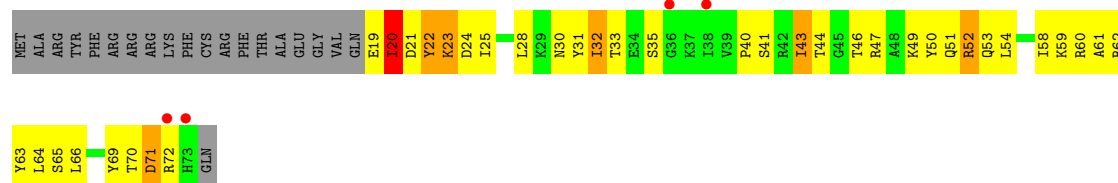


• Molecule 16: 30S RIBOSOMAL PROTEIN S17

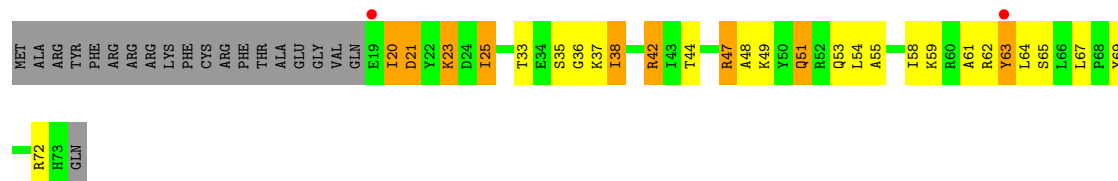
Chain CQ:



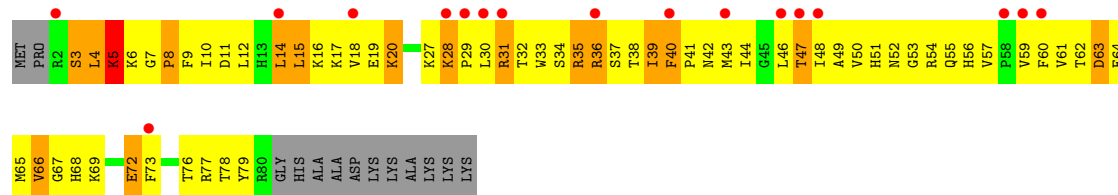
• Molecule 17: 30S RIBOSOMAL PROTEIN S18

Chain AR: 

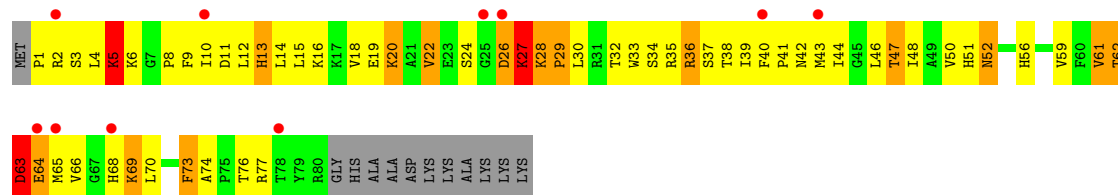
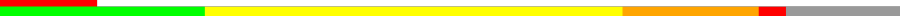
• Molecule 17: 30S RIBOSOMAL PROTEIN S18

Chain CR: 

• Molecule 18: 30S RIBOSOMAL PROTEIN S19

Chain AS: 

• Molecule 18: 30S RIBOSOMAL PROTEIN S19

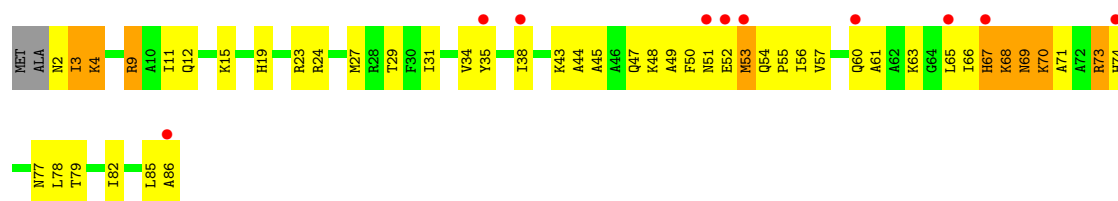
Chain CS: 

• Molecule 19: 30S RIBOSOMAL PROTEIN S20

Chain AT: 

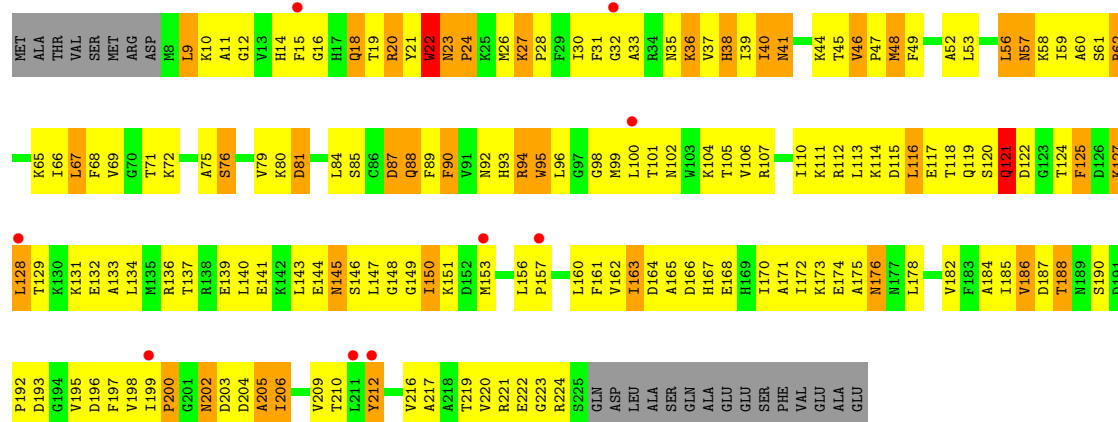
• Molecule 19: 30S RIBOSOMAL PROTEIN S20

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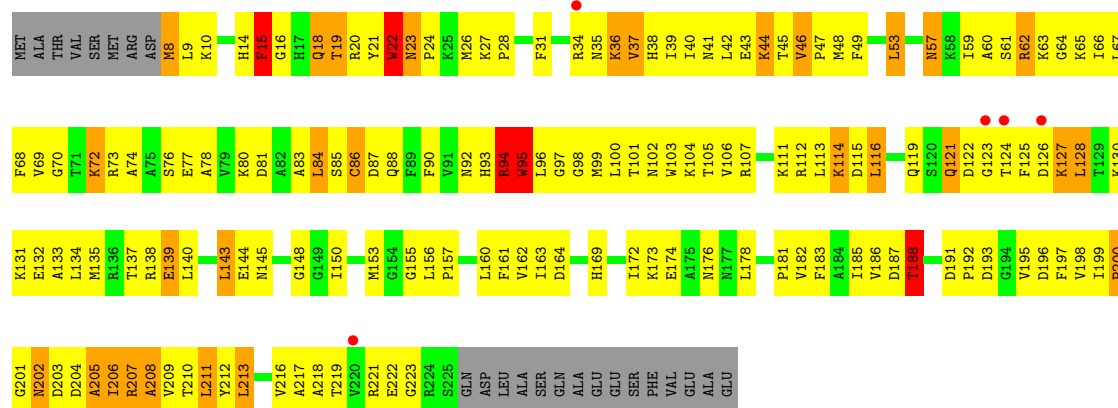
• Molecule 20: 30S RIBOSOMAL PROTEIN S2

Chain AB:



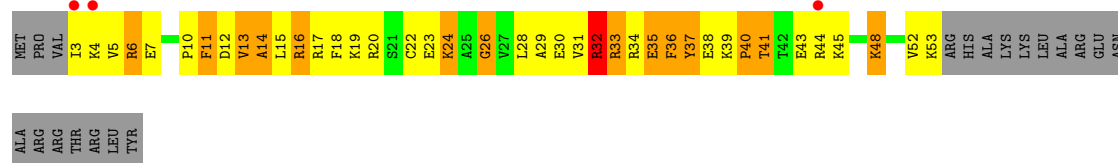
- Molecule 20: 30S RIBOSOMAL PROTEIN S2

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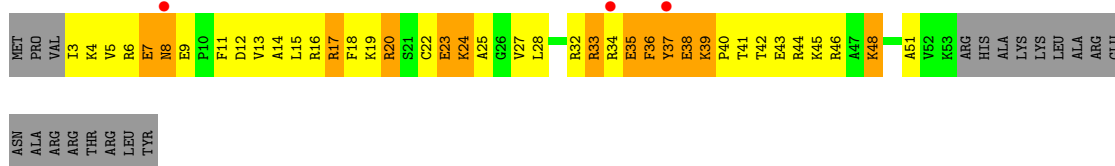
- Molecule 21: 30S RIBOSOMAL PROTEIN S21

Chain AU:



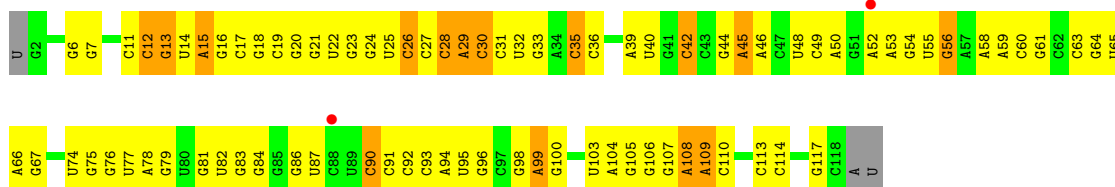
● Molecule 21: 30S RIBOSOMAL PROTEIN S21

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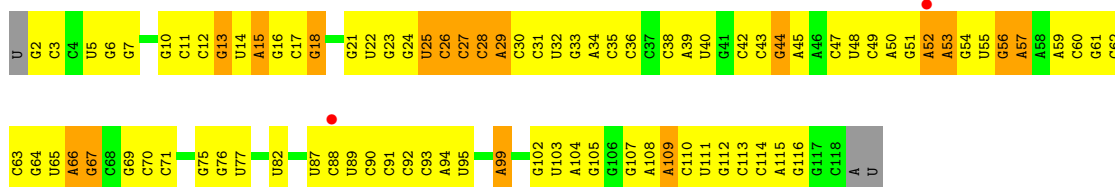
• Molecule 22: 5S RIBOSOMAL RNA

Chain BA:



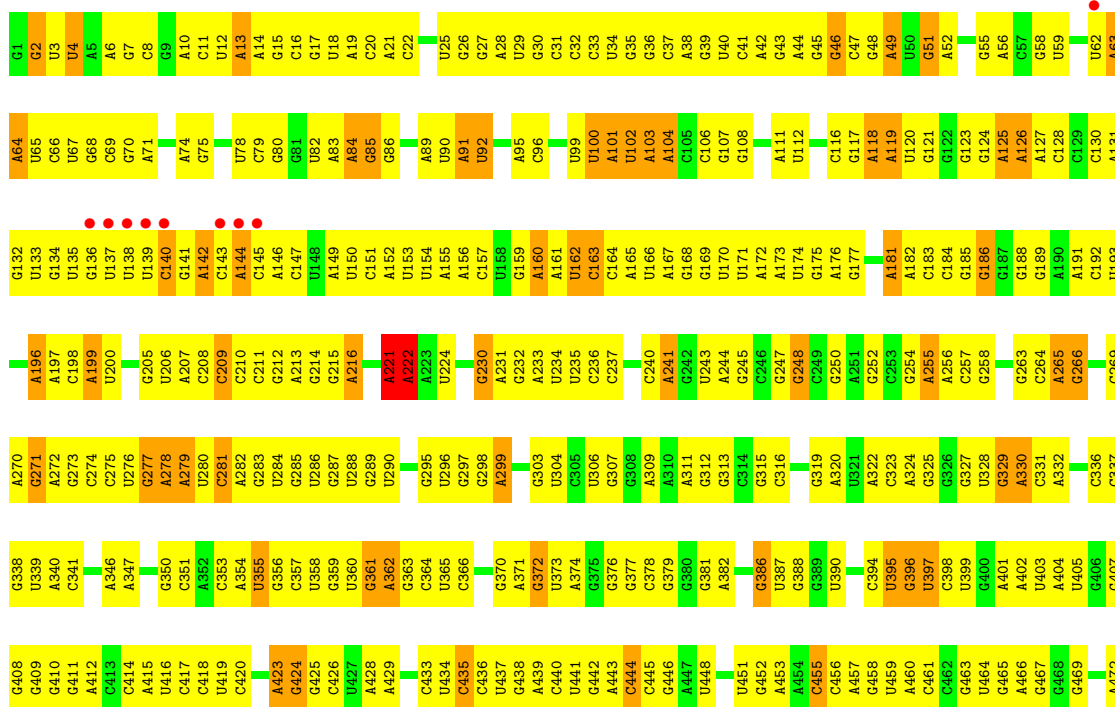
• Molecule 22: 5S RIBOSOMAL RNA

Chain DA:



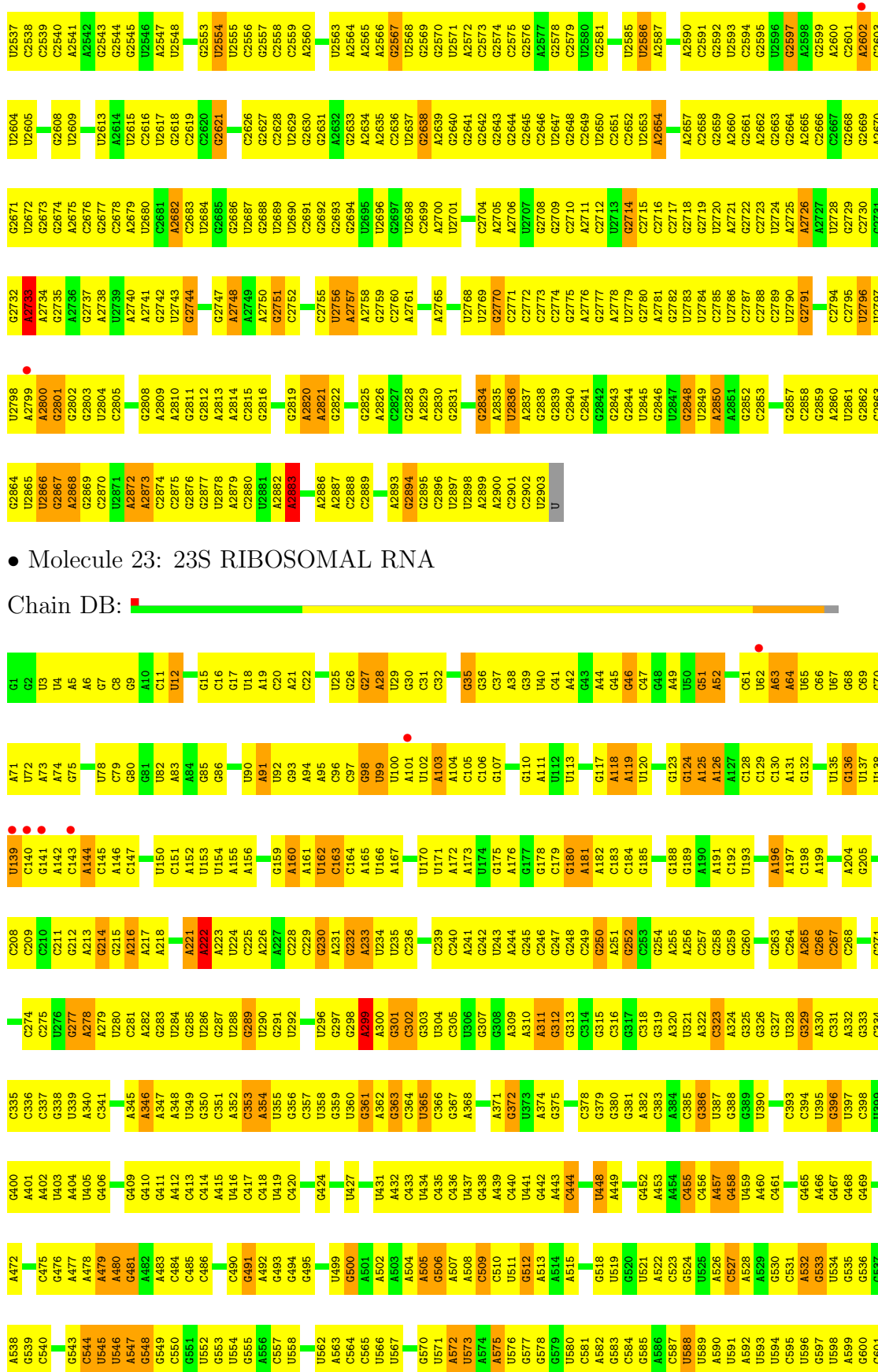
• Molecule 23: 23S RIBOSOMAL RNA

Chain BB:



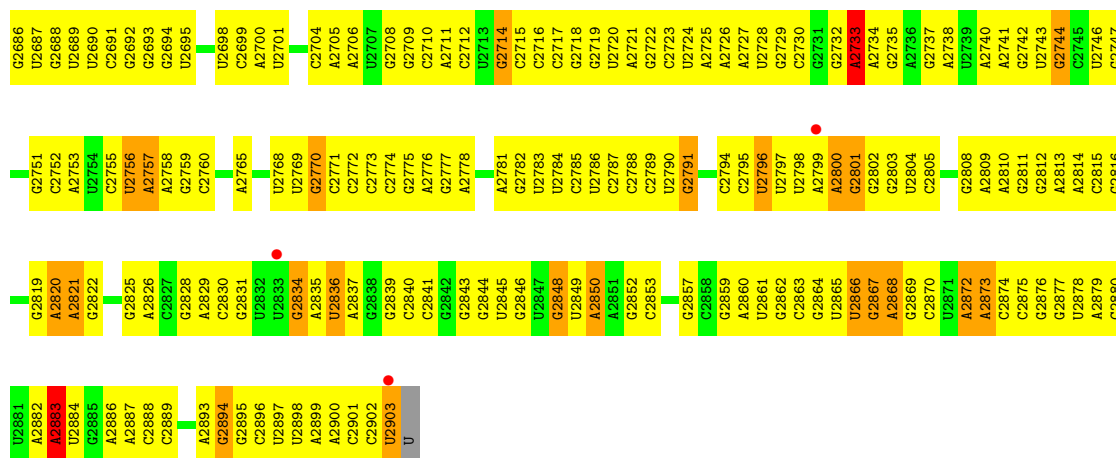
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| U1255 | C1256 | C1257 | U1258 | C1259 | C1260 | U1261 | U1262 | C1263 | C1264 | C1265 | C1266 | C1267 | C1268 | C1269 | C1270 | C1271 | C1272 | C1273 | C1274 | C1275 | C1276 | C1277 | C1278 | C1279 | C1280 | C1281 | C1282 | C1283 | C1284 | C1285 | C1286 | C1287 | C1288 | C1289 | C1290 | C1291 | C1292 | C1293 | C1294 | C1295 | C1296 | C1297 | C1298 | C1299 | C1300 | C1301 | C1302 | C1303 | C1304 | C1305 | C1306 | C1307 | C1308 | C1309 | C1310 | C1311 | C1312 | C1313 | C1314 | C1315 | C1316 | C1317 | C1318 | C1319 | C1320 | C1321 | C1322 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| G1192 | G1193 | A1194 | U1195 | C1196 | C1197 | U1198 | C1199 | C1200 | U1201 | C1202 | C1203 | C1204 | C1205 | C1206 | C1207 | C1208 | C1209 | C1210 | C1211 | C1212 | C1213 | C1214 | C1215 | C1216 | C1217 | C1218 | C1219 | C1220 | C1221 | C1222 | C1223 | C1224 | C1225 | C1226 | C1227 | C1228 | C1229 | C1230 | C1231 | C1232 | C1233 | C1234 | C1235 | C1236 | C1237 | C1238 | C1239 | C1240 | C1241 | C1242 | C1243 | C1244 | C1245 | C1246 | C1247 | C1248 | C1249 | C1250 | C1251 | C1252 | C1253 | C1254 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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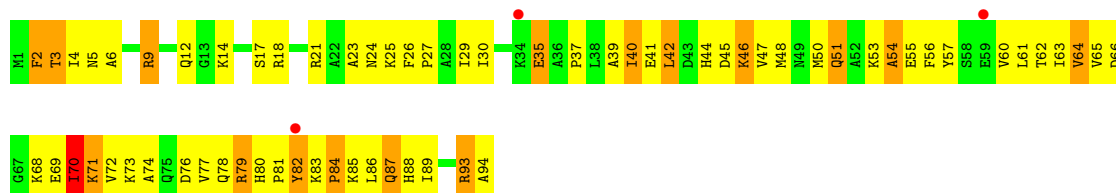
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| G1421 | G1422 | G1423 | G1424 | G1425 | G1426 | A1427 | G1428 | G1429 | G1430 | G1431 | G1432 | G1433 | A1434 | C1437 | U1438 | A1439 | U1440 | G1441 | U1442 | U1443 | G1444 | G1445 | G1446 | G1447 | G1448 | G1449 | G1450 | G1451 | G1452 | G1453 | G1454 | G1455 | G1456 | U1457 | U1458 | G1459 | U1460 | G1461 | G1462 | G1463 | G1464 | G1465 | U1466 | U1467 | U1468 | A1469 | A1470 | G1471 | U1474 | G1475 | U1476 | G1477 | G1478 | G1479 | C1480 | U1481 | G1482 | | |
| G1356 | C1357 | G1358 | C1359 | G1360 | G1361 | A1366 | A1366 | A1367 | G1368 | G1369 | G1370 | G1371 | U1372 | U1373 | U1374 | U1375 | U1379 | U1380 | U1381 | G1382 | A1383 | A1384 | A1385 | U1386 | A1387 | U1388 | G1389 | U1390 | U1391 | U1394 | A1395 | U1396 | U1397 | C1398 | C1399 | U1400 | G1401 | U1402 | A1403 | A1404 | U1405 | U1406 | G1407 | U1408 | U1409 | G1410 | U1411 | U1412 | A1413 | U1414 | U1415 | U1416 | U1417 | U1418 | U1419 | U1420 | | | |
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| U1083 | A1084 | A1085 | A1086 | G1087 | A1088 | A1089 | A1090 | U1091 | A1092 | G1093 | U1097 | A1098 | G1099 | U1100 | U1101 | U1105 | G1106 | G1107 | U1108 | C1109 | G1110 | A1111 | G1112 | U1113 | G1116 | U1117 | U1118 | U1119 | G1120 | C1121 | G1125 | G1128 | A1129 | U1130 | G1131 | U1132 | A1133 | A1134 | C1135 | G1136 | G1137 | U1138 | G1139 | C1140 | U1141 | A1142 | A1143 | A1144 | U1145 | C1146 | A1147 | U1148 | A1149 | C1150 | | | | | |
| A1151 | C1152 | G1153 | G1154 | A1155 | A1083 | A1083 | A1090 | U1091 | G1162 | G1163 | C1164 | A1165 | G1166 | C1167 | G1168 | A1169 | G1171 | C1172 | U1173 | U1174 | U1175 | U1176 | G1177 | C1178 | U1179 | U1180 | U1181 | G1182 | U1183 | U1184 | G1185 | G1186 | G1187 | U1188 | A1189 | G1190 | G1191 | G1192 | A1193 | U1194 | G1195 | C1196 | G1197 | U1198 | U1199 | C1200 | U1201 | U1202 | U1203 | A1204 | A1205 | G1206 | G1210 | C1211 | G1212 | A1213 | A1214 | | |
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| A947 | C948 | G949 | G950 | C951 | G952 | G953 | U954 | U955 | U956 | C957 | U958 | A959 | A960 | G961 | U967 | G968 | G969 | G970 | C971 | C972 | G973 | A974 | A975 | G976 | G977 | A978 | G979 | G981 | A981 | C982 | A983 | A984 | C987 | A988 | G989 | A990 | C991 | C992 | G993 | C994 | C995 | A996 | G997 | C998 | U999 | A1000 | A1001 | G1002 | C1005 | C1006 | A1007 | A1008 | A1009 | | | | | | |
| A818 | A819 | A820 | A821 | C822 | C823 | U824 | A825 | U826 | U827 | U828 | G831 | U832 | A833 | C834 | C835 | C836 | C837 | C838 | C839 | C840 | C844 | A845 | U846 | U847 | C848 | G849 | U850 | C851 | U852 | C853 | A854 | C855 | C856 | C857 | C858 | C859 | U860 | A861 | C862 | A863 | C864 | C865 | A866 | G869 | U870 | U871 | U872 | C873 | U874 | C875 | C876 | C877 | A878 | G | G | | | | |
| A668 | G669 | C670 | C671 | C672 | C673 | C674 | A675 | C678 | A613 | C679 | A614 | C680 | A681 | C682 | A685 | U686 | C687 | U688 | A689 | C691 | C692 | A693 | U694 | G695 | C696 | C697 | C698 | A699 | C699 | C700 | A705 | U709 | U710 | U714 | C717 | A718 | C719 | U720 | A721 | C723 | U724 | G725 | U726 | A727 | G728 | U729 | A730 | C737 | G738 | U741 | A742 | | | | | | | | |
| A743 | U744 | U747 | U747 | G748 | A753 | U754 | U755 | U756 | A757 | C757 | C758 | G763 | A764 | C765 | U766 | U767 | G768 | U769 | U770 | G771 | C772 | A773 | U774 | G775 | G776 | G777 | C778 | U779 | A699 | U780 | A781 | A782 | A783 | G784 | C785 | C786 | C787 | C791 | A794 | C795 | C796 | G797 | A802 | G805 | C806 | U807 | G808 | G809 | U810 | U811 | C812 | U813 | C814 | C817 | | | | | |
| A802 | A803 | U807 | A808 | A809 | C810 | C811 | G812 | A813 | A814 | C880 | A816 | G817 | G818 | G819 | A835 | U836 | U837 | A838 | A839 | C891 | C892 | A893 | U894 | G895 | C896 | C897 | C898 | A910 | C898 | G936 | A637 | G838 | U703 | G704 | A705 | U642 | A643 | A644 | C645 | U646 | C647 | G648 | G649 | C650 | G651 | A654 | A655 | G656 | U657 | U658 | G659 | G660 | A661 | G662 | G663 | G664 | U665 | A666 | U667 |

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|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| G2626 | G2627 | G2628 | G2629 | G2630 | G2631 | A2632 | G2633 | A2634 | A2635 | G2636 | G2637 | A2638 | A2639 | G2640 | G2641 | G2642 | G2643 | G2644 | G2645 | A2646 | G2647 | G2648 | C2649 | G2650 | G2651 | G2652 | G2653 | G2654 | G2655 | A2656 | G2657 | G2658 | G2659 | G2660 | G2661 | G2662 | G2663 | G2664 | G2665 | G2666 | G2667 | G2668 | G2669 | G2670 | G2671 | G2672 | G2673 | G2674 | G2675 | G2676 | G2677 | G2678 | A2679 | G2680 | G2681 | A2682 | G2683 | G2684 | G2685 | G2686 | G2687 | G2688 | G2689 | G2690 | G2691 | G2692 | G2693 | G2694 | G2695 | G2696 | G2697 | G2698 | G2699 | G2700 | G2701 | G2702 | G2703 | G2704 | G2705 | G2706 | G2707 | G2708 | G2709 | G2710 | G2711 | G2712 | G2713 | G2714 | G2715 | G2716 | G2717 | G2718 | G2719 | G2720 | G2721 | G2722 | G2723 | G2724 | G2725 | G2726 | G2727 | G2728 | G2729 | G2730 | G2731 | G2732 | G2733 | G2734 | G2735 | G2736 | G2737 | G2738 | G2739 | G2740 | G2741 | G2742 | G2743 | G2744 | G2745 | G2746 | G2747 | G2748 | G2749 | G2750 | G2751 | G2752 | G2753 | G2754 | G2755 | G2756 | G2757 | G2758 | G2759 | G2760 | G2761 | G2762 | G2763 | G2764 | G2765 | G2766 | G2767 | G2768 | G2769 | G2770 | G2771 | G2772 | G2773 | G2774 | G2775 | G2776 | G2777 | G2778 | G2779 | G2780 | G2781 | G2782 | G2783 | G2784 | G2785 | G2786 | G2787 | G2788 | G2789 | G2790 | G2791 | G2792 | G2793 | G2794 | G2795 | G2796 | G2797 | G2798 | G2799 | G2800 | G2801 | G2802 | G2803 | G2804 | G2805 | G2806 | G2807 | G2808 | G2809 | G2810 | G2811 | G2812 | G2813 | G2814 | G2815 | G2816 | G2817 | G2818 | G2819 | G2820 | G2821 | G2822 | G2823 | G2824 | G2825 | G2826 | G2827 | G2828 | G2829 | G2830 | G2831 | G2832 | G2833 | G2834 | G2835 | G2836 | G2837 | G2838 | G2839 | G2840 | G2841 | G2842 | G2843 | G2844 | G2845 | G2846 | G2847 | G2848 | G2849 | G2850 | G2851 | G2852 | G2853 | G2854 | A2855 | G2857 | G2858 | G2859 | G2860 | G2861 | G2862 | G2863 | G2864 | G2865 | G2866 | G2867 | G2868 | G2869 | G2870 | G2871 | G2872 | G2873 | G2874 | G2875 | G2876 | G2877 | G2878 | G2879 | G2880 | G2881 | A2882 | G2883 | G2884 | G2885 | G2886 | G2887 | G2888 | G2889 | G2890 | G2891 | G2892 | G2893 | G2894 | G2895 | G2896 | G2897 | G2898 | G2899 | G2900 | G2901 | G2902 | G2903 | G2904 | G2905 | G2906 | G2907 | G2908 | G2909 | G2910 | G2911 | G2912 | G2913 | G2914 | G2915 | G2916 | G2917 | G2918 | G2919 | G2920 | G2921 | G2922 | G2923 | G2924 | G2925 | G2926 | G2927 | G2928 | G2929 | G2930 | G2931 | G2932 | G2933 | G2934 | G2935 | G2936 | G2937 | G2938 | G2939 | G2940 | G2941 | G2942 | G2943 | G2944 | G2945 | G2946 | G2947 | G2948 | G2949 | G2950 | G2951 | G2952 | G2953 | G2954 | G2955 | G2956 | G2957 | G2958 | G2959 | G2960 | G2961 | G2962 | G2963 | G2964 | G2965 | G2966 | G2967 | G2968 | G2969 | G2970 | G2971 | G2972 | G2973 | G2974 | G2975 | G2976 | G2977 | G2978 | G2979 | G2980 | G2981 | G2982 | G2983 | G2984 | G2985 | G2986 | G2987 | G2988 | G2989 | G2990 | G2991 | G2992 | G2993 | G2994 | G2995 | G2996 | G2997 | G2998 | G2999 | G3000 | G3001 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| G3127 | G3128 | G3129 | G3130 | G3131 | G3132 | G3133 | G3134 | G3135 | G3136 | G3137 | G3138 | G3139 | G3140 | G3141 | G3142 | G3143 | G3144 | G3145 | G3146 | G3147 | G3148 | G3149 | G3150 | G3151 | G3152 | G3153 | G3154 | G3155 | G3156 | G3157 | G3158 | G3159 | G3160 | G3161 | G3162 | G3163 | G3164 | G3165 | G3166 | G3167 | G3168 | G3169 | G3170 | G3171 | G3172 | G3173 | G3174 | G3175 | G3176 | G3177 | G3178 | G3179 | G3180 | G3181 | G3182 | G3183 | G3184 | G3185 | G3186 | G3187 | G3188 | G3189 | G3190 | G3191 | G3192 | G3193 | G3194 | G3195 | G3196 | G3197 | G3198 | G3199 | G3200 | G3201 | G3202 | G3203 | G3204 | G3205 | G3206 | G3207 | G3208 | G3209 | G3210 | G3211 | G3212 | G3213 | G3214 | G3215 | G3216 | G3217 | G3218 | G3219 | G3220 | G3221 | G3222 | G3223 | G3224 | G3225 | G3226 | G3227 | G3228 | G3229 | G3230 | G3231 | G3232 | G3233 | G3234 | G3235 | G3236 | G3237 | G3238 | G3239 | G3240 | G3241 | G3242 | G3243 | G3244 | G3245 | G3246 | G3247 | G3248 | G3249 | G3250 | G3251 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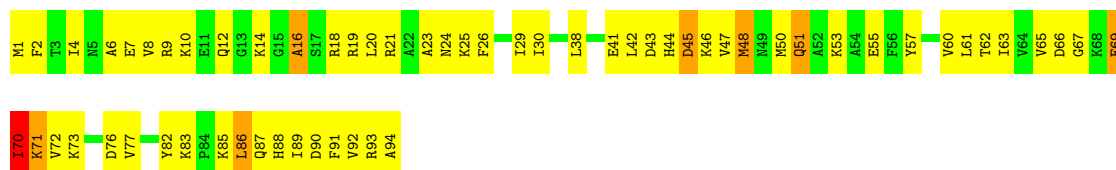
• Molecule 24: 50S RIBOSOMAL PROTEIN L25

Chain BV:



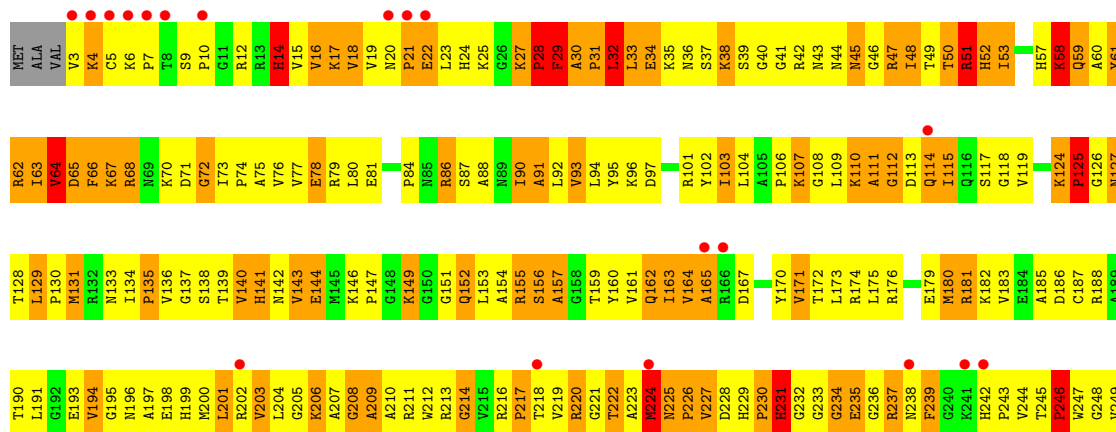
• Molecule 24: 50S RIBOSOMAL PROTEIN L25

Chain DV:



• Molecule 25: 50S RIBOSOMAL PROTEIN L2

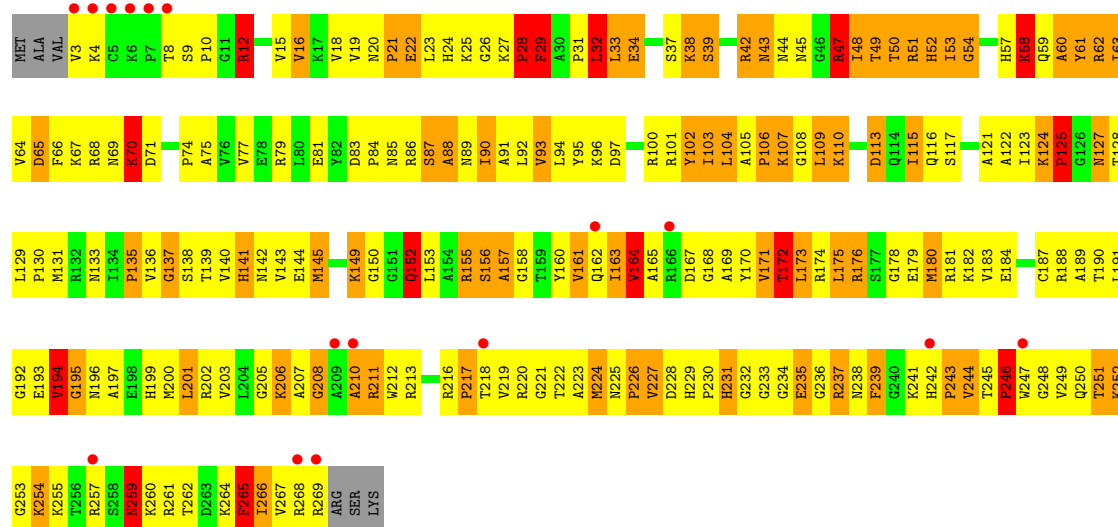
Chain BC:





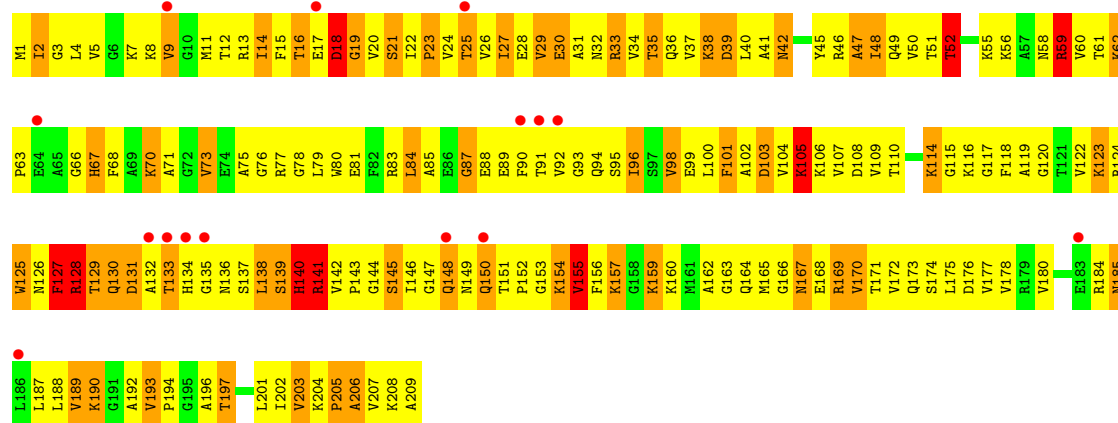
• Molecule 25: 50S RIBOSOMAL PROTEIN L2

Chain DC:



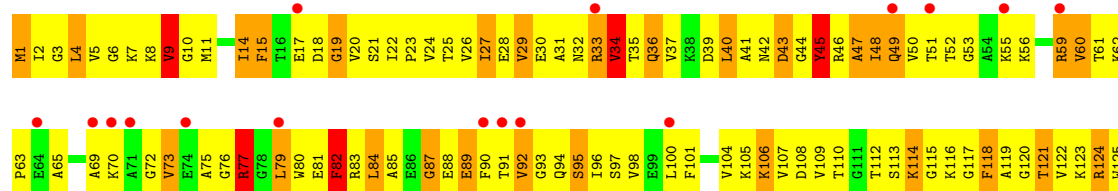
• Molecule 26: 50S RIBOSOMAL PROTEIN L3

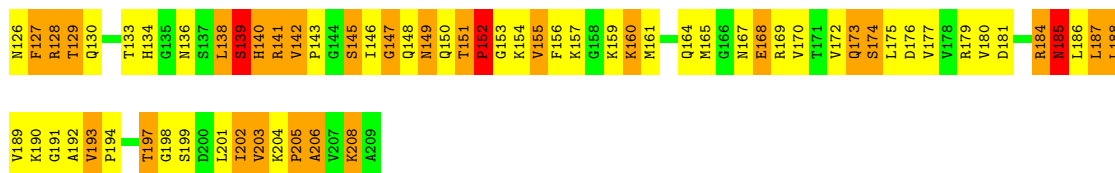
Chain BD:



• Molecule 26: 50S RIBOSOMAL PROTEIN L3

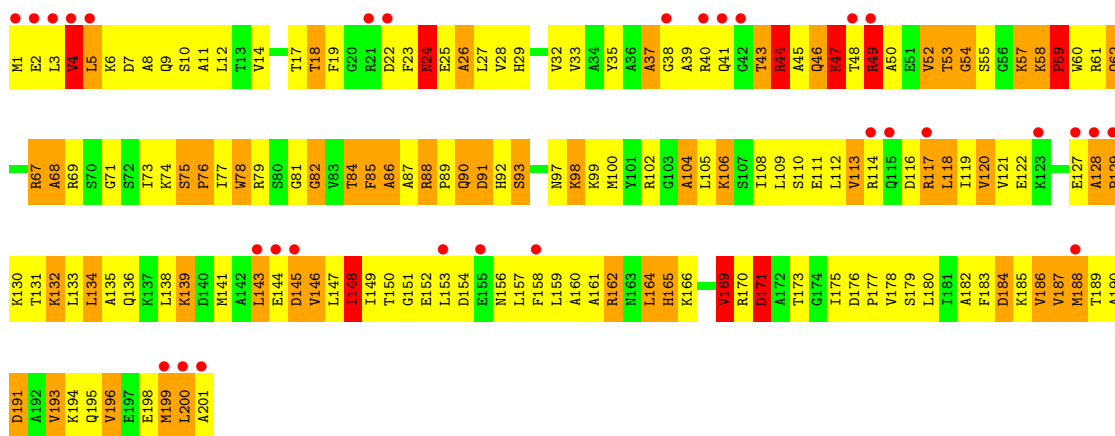
Chain DD:





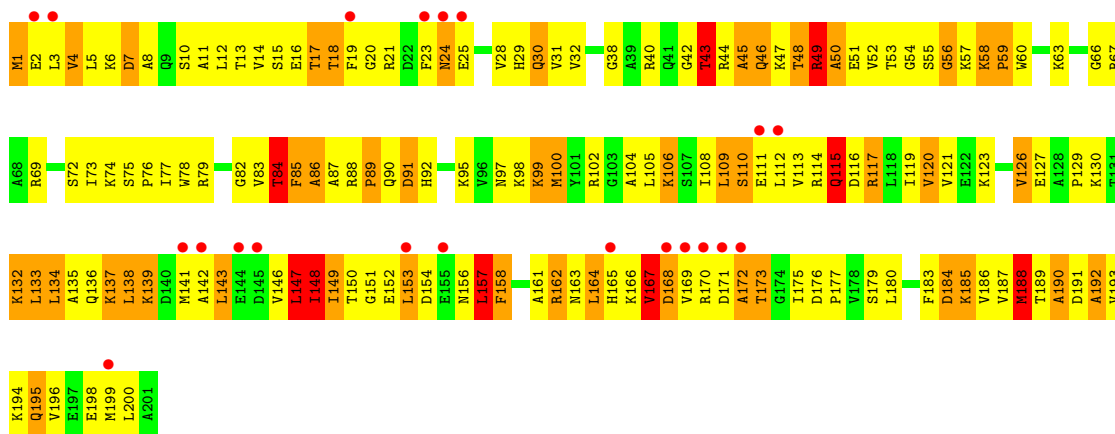
• Molecule 27: 50S RIBOSOMAL PROTEIN L4

Chain BE:



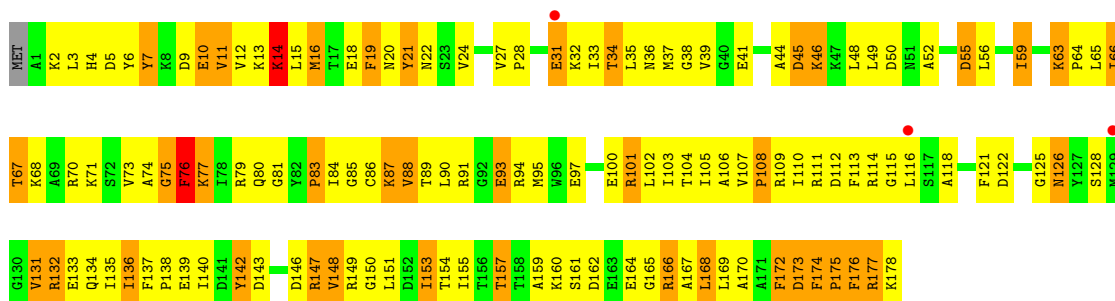
• Molecule 27: 50S RIBOSOMAL PROTEIN L4

Chain DE:



• Molecule 28: 50S RIBOSOMAL PROTEIN L5

Chain BF:



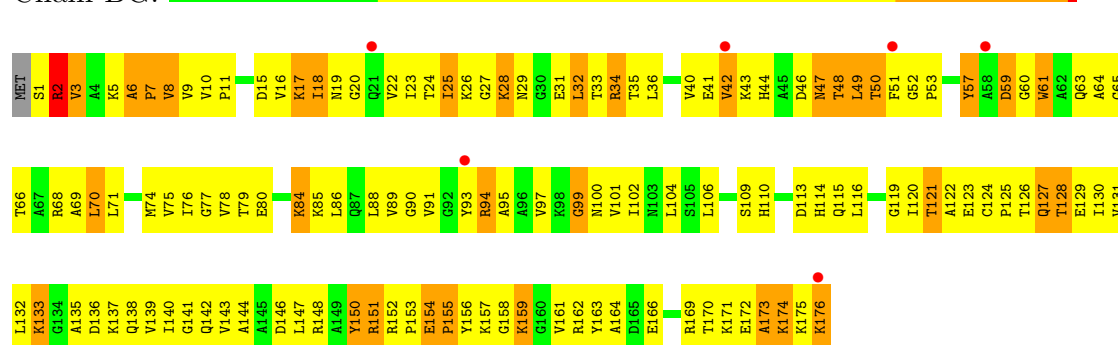
- Molecule 28: 50S RIBOSOMAL PROTEIN L5

Chain DF:



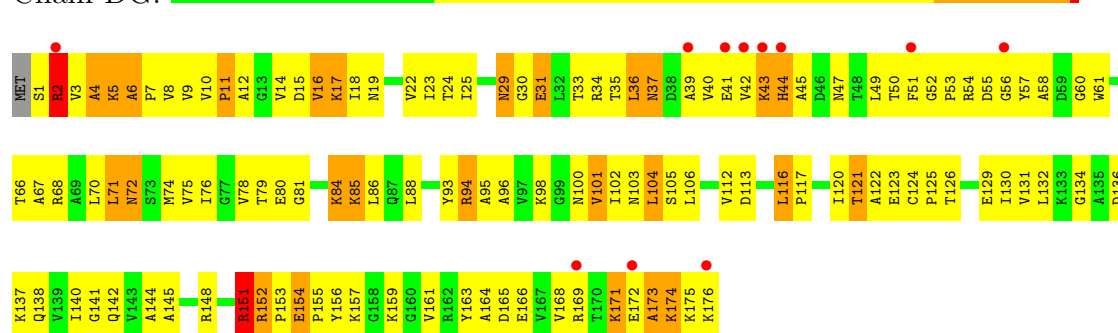
- Molecule 29: 50S RIBOSOMAL PROTEIN L6

Chain BG:



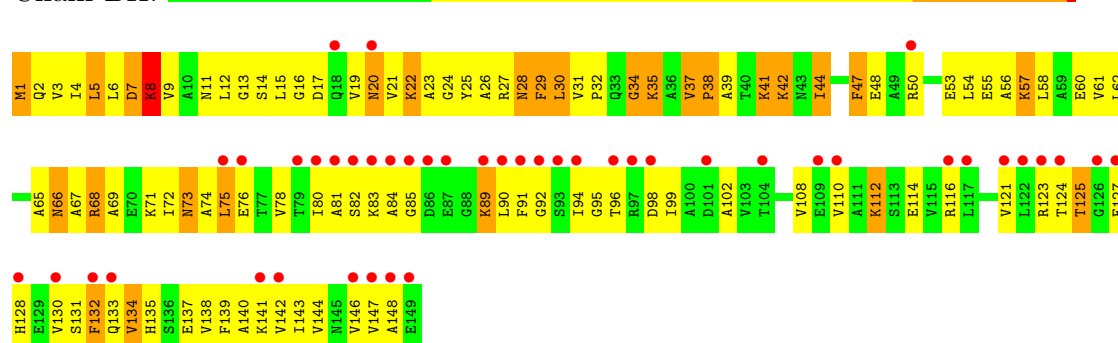
- Molecule 29: 50S RIBOSOMAL PROTEIN L6

Chain DG:



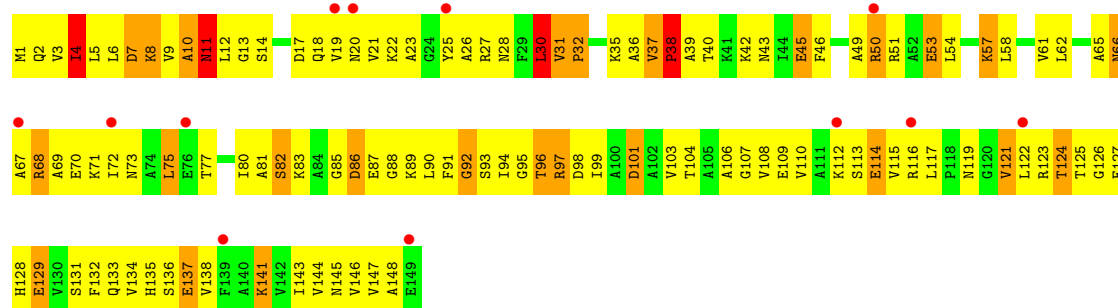
- Molecule 30: 50S RIBOSOMAL PROTEIN L9

Chain BH:



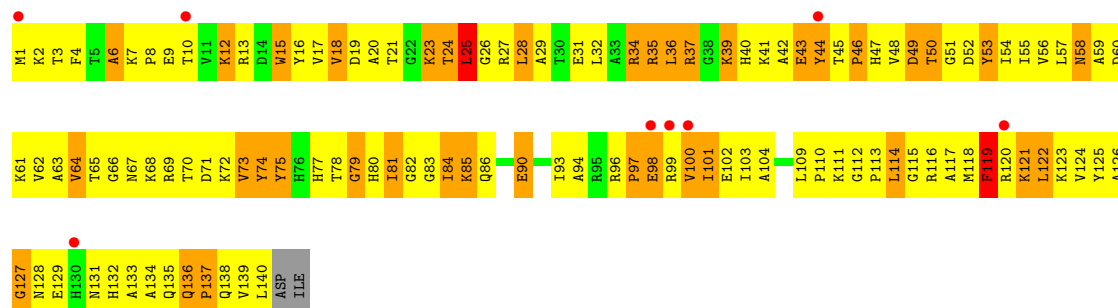
- Molecule 30: 50S RIBOSOMAL PROTEIN L9

Chain DH:



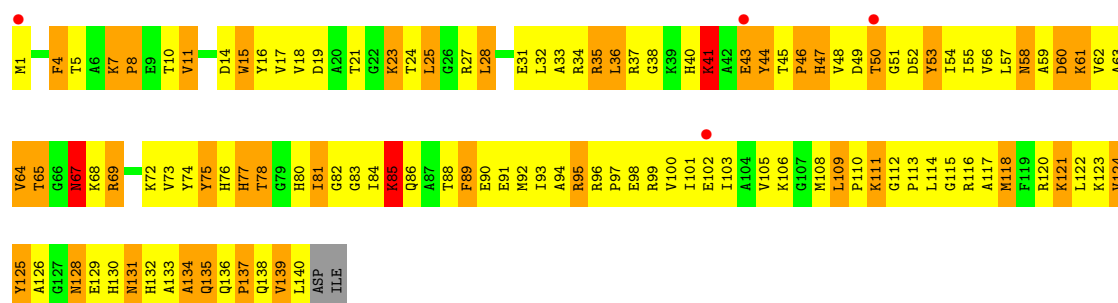
- Molecule 31: 50S RIBOSOMAL PROTEIN L13

Chain BJ:



- Molecule 31: 50S RIBOSOMAL PROTEIN L13

Chain DJ:



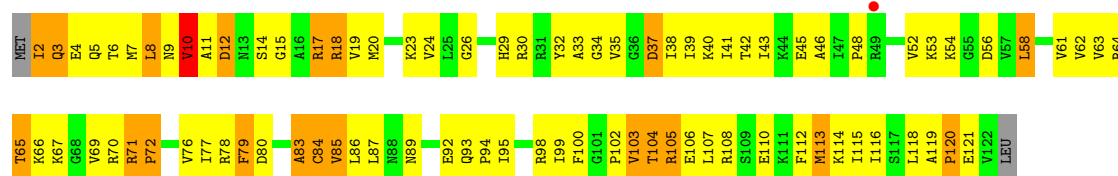
- Molecule 32: 50S RIBOSOMAL PROTEIN L14

Chain BK:



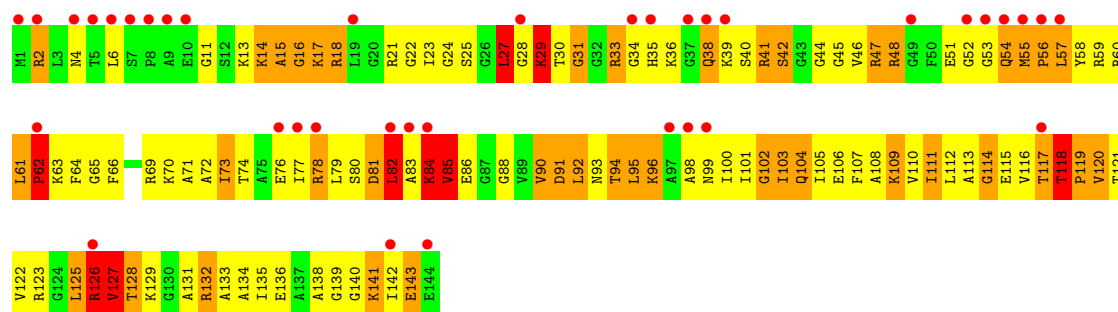
- Molecule 32: 50S RIBOSOMAL PROTEIN L14

Chain DK:



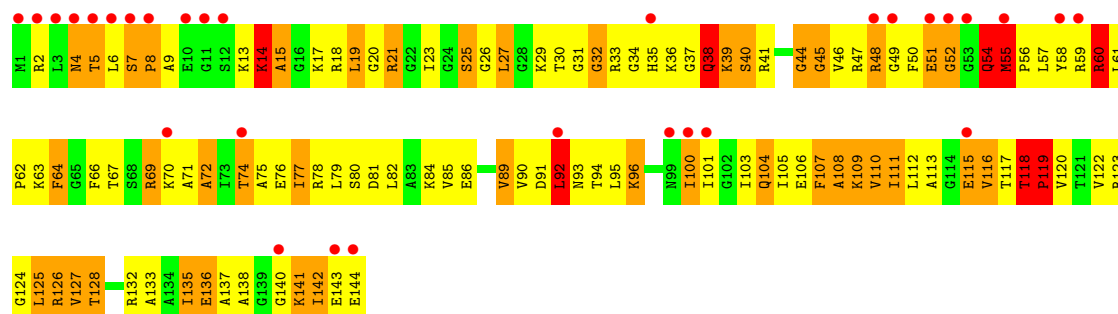
• Molecule 33: 50S RIBOSOMAL PROTEIN L15

Chain BL:



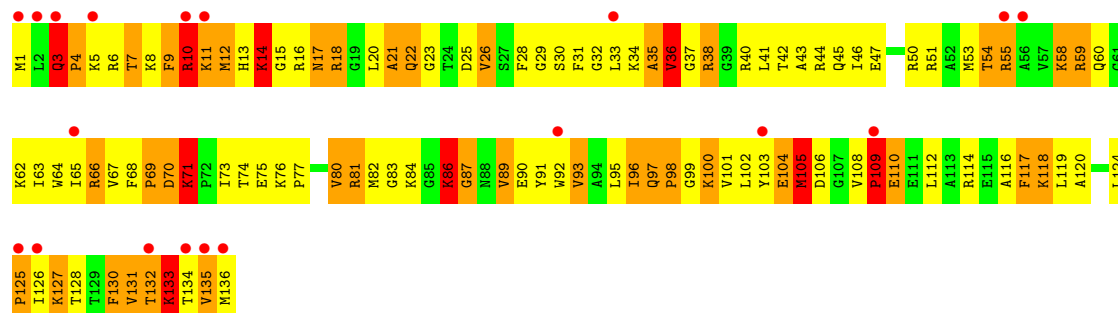
• Molecule 33: 50S RIBOSOMAL PROTEIN L15

Chain DL:



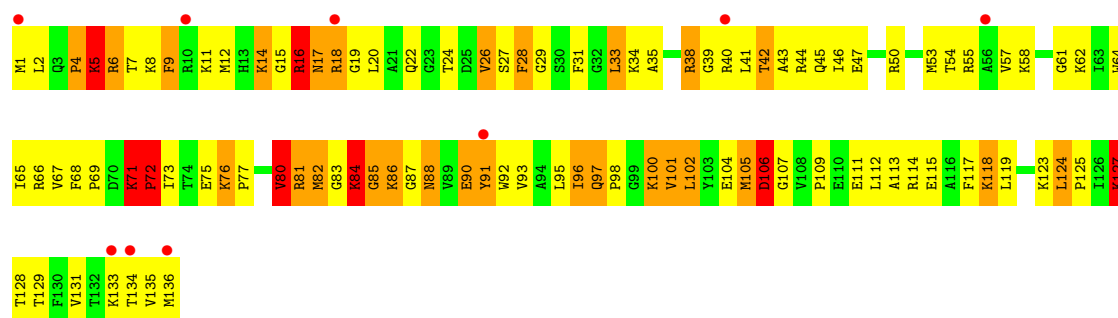
• Molecule 34: 50S RIBOSOMAL PROTEIN L16

Chain BM:



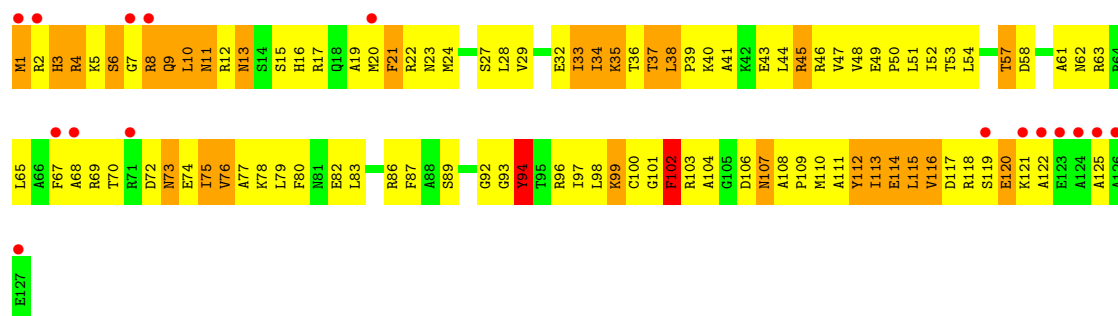
• Molecule 34: 50S RIBOSOMAL PROTEIN L16

Chain DM:



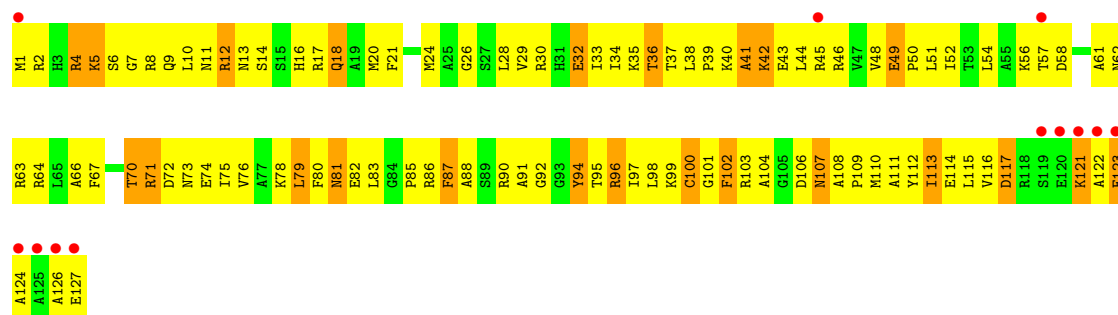
• Molecule 35: 50S RIBOSOMAL PROTEIN L17

Chain BN:



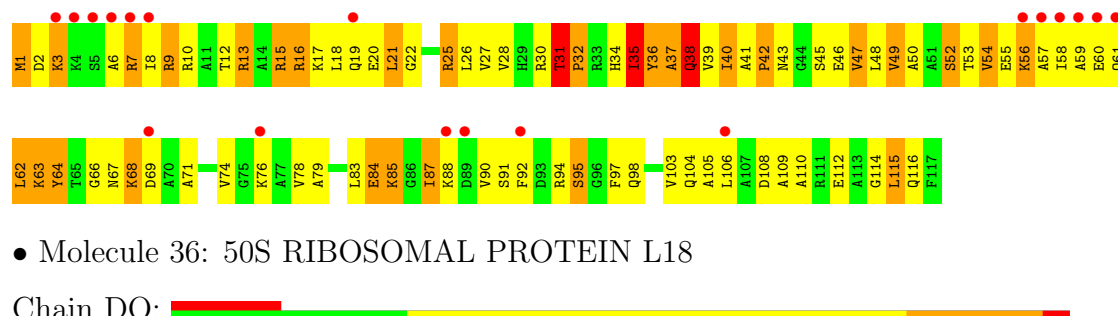
• Molecule 35: 50S RIBOSOMAL PROTEIN L17

Chain DN:



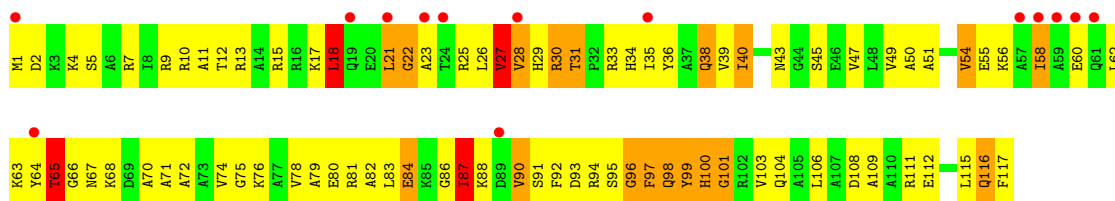
• Molecule 36: 50S RIBOSOMAL PROTEIN L18

Chain BO:



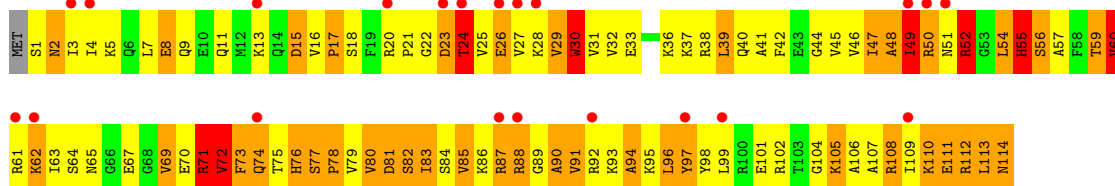
• Molecule 36: 50S RIBOSOMAL PROTEIN L18

Chain DO:



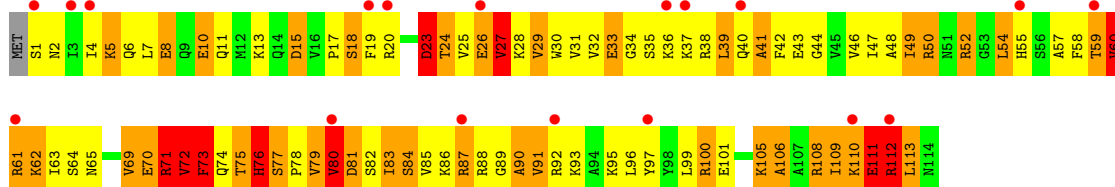
• Molecule 37: 50S RIBOSOMAL PROTEIN L19

Chain BP:



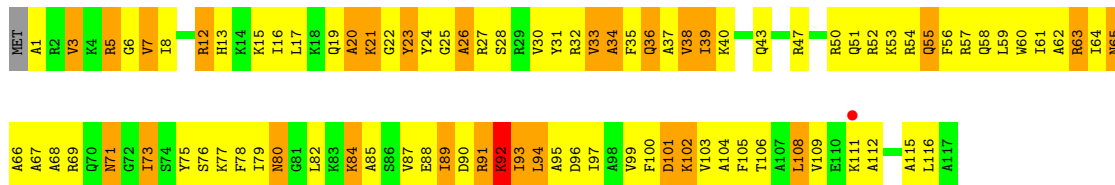
• Molecule 37: 50S RIBOSOMAL PROTEIN L19

Chain DP:



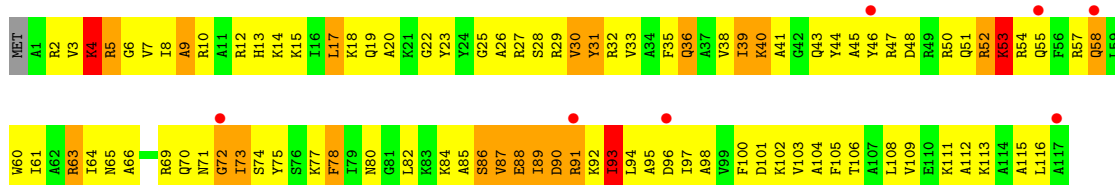
• Molecule 38: 50S RIBOSOMAL PROTEIN L20

Chain BQ:



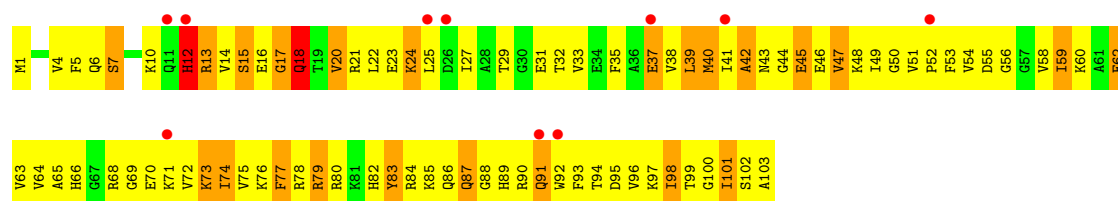
• Molecule 38: 50S RIBOSOMAL PROTEIN L20

Chain DQ:



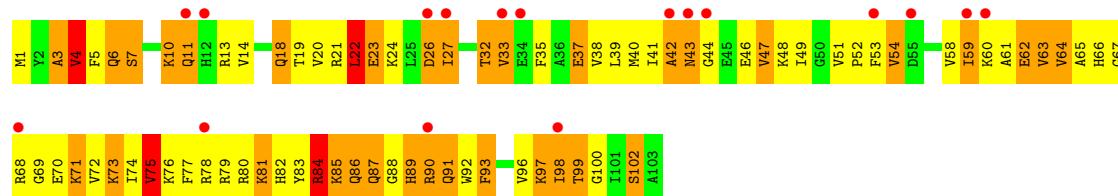
• Molecule 39: 50S RIBOSOMAL PROTEIN L21

Chain BR:



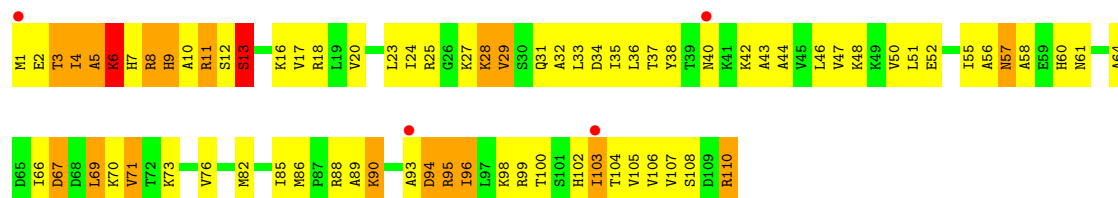
• Molecule 39: 50S RIBOSOMAL PROTEIN L21

Chain DR:



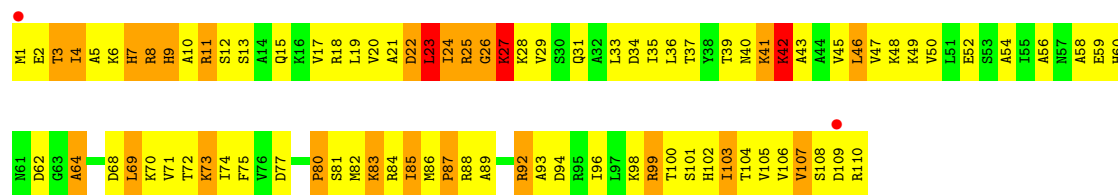
• Molecule 40: 50S RIBOSOMAL PROTEIN L22

Chain BS:



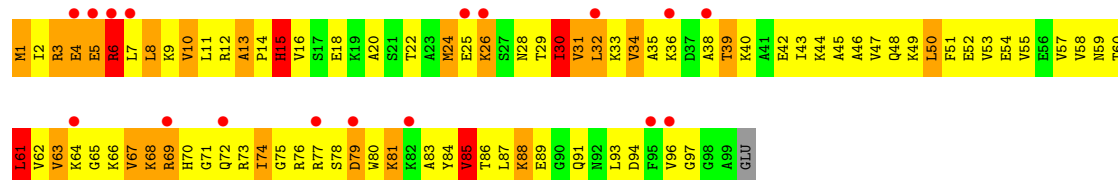
• Molecule 40: 50S RIBOSOMAL PROTEIN L22

Chain DS:



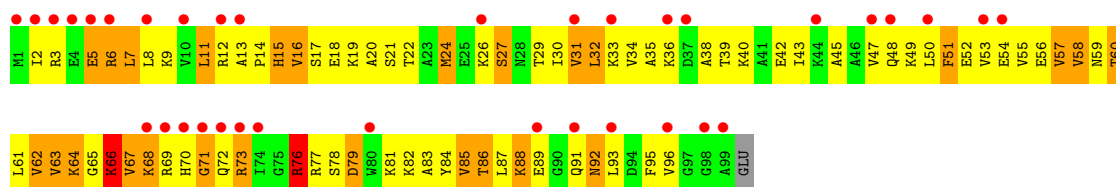
• Molecule 41: 50S RIBOSOMAL PROTEIN L23

Chain BT:



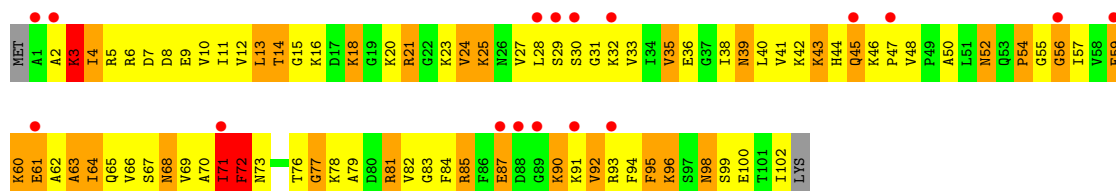
• Molecule 41: 50S RIBOSOMAL PROTEIN L23

Chain DT:



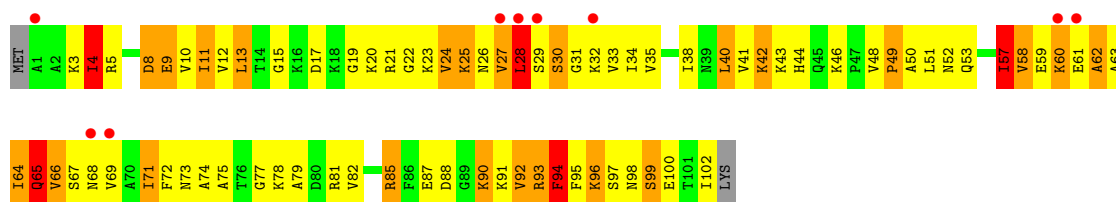
• Molecule 42: 50S RIBOSOMAL PROTEIN L24

Chain BU:



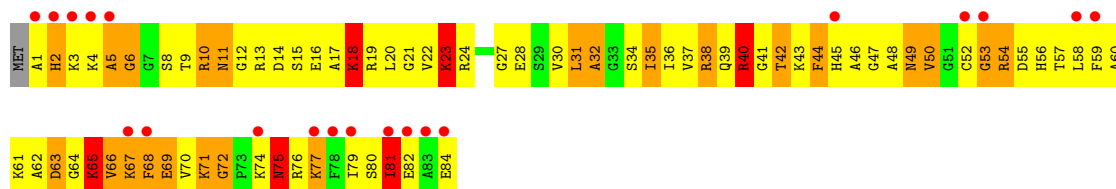
• Molecule 42: 50S RIBOSOMAL PROTEIN L24

Chain DU:



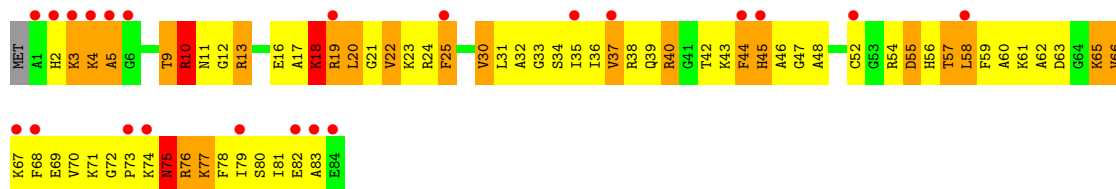
• Molecule 43: 50S RIBOSOMAL PROTEIN L27

Chain BW:



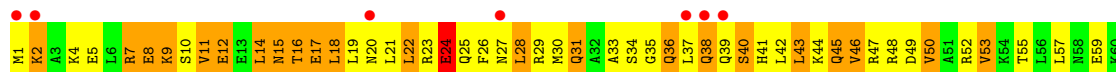
• Molecule 43: 50S RIBOSOMAL PROTEIN L27

Chain DW:



• Molecule 44: 50S RIBOSOMAL PROTEIN L29

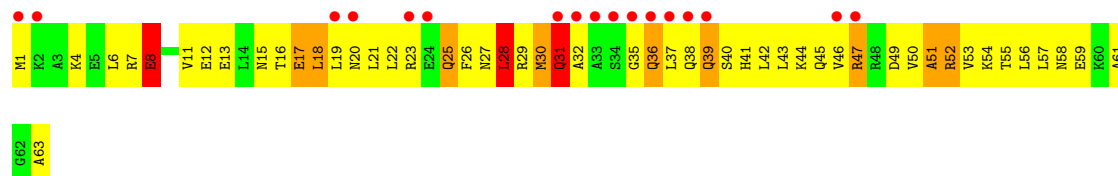
Chain BX:





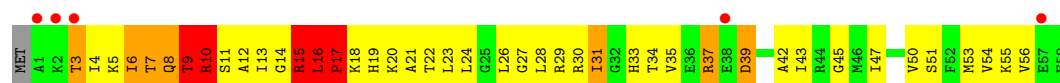
• Molecule 44: 50S RIBOSOMAL PROTEIN L29

Chain DX:



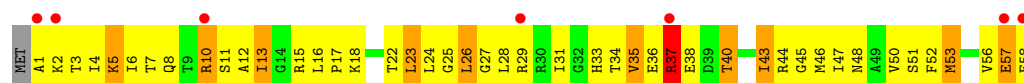
• Molecule 45: 50S RIBOSOMAL PROTEIN L30

Chain BY:



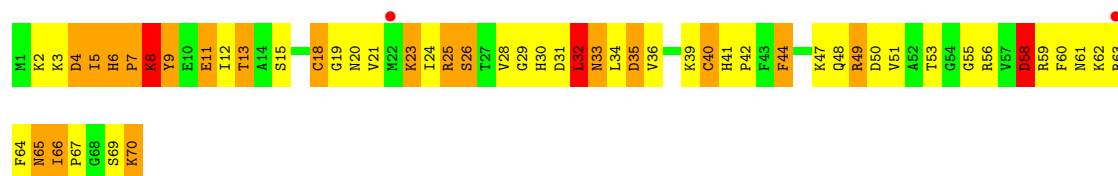
• Molecule 45: 50S RIBOSOMAL PROTEIN L30

Chain DY:



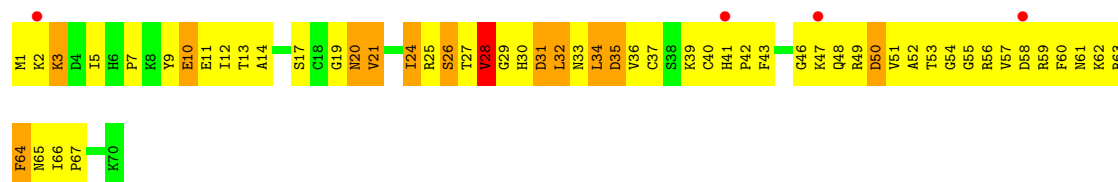
• Molecule 46: 50S RIBOSOMAL PROTEIN L31

Chain BZ:



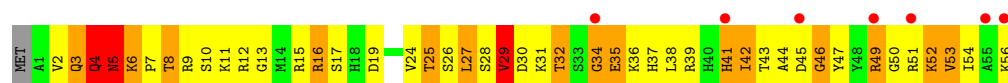
• Molecule 46: 50S RIBOSOMAL PROTEIN L31

Chain DZ:



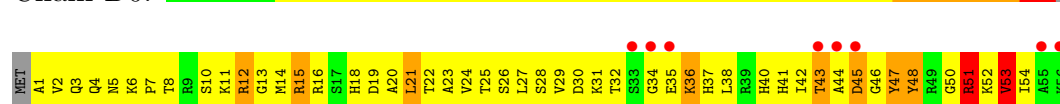
• Molecule 47: 50S RIBOSOMAL PROTEIN L32

Chain B0:



- Molecule 47: 50S RIBOSOMAL PROTEIN L32

Chain D0:



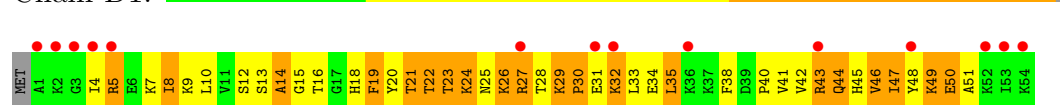
- Molecule 48: 50S RIBOSOMAL PROTEIN L33

Chain B1:



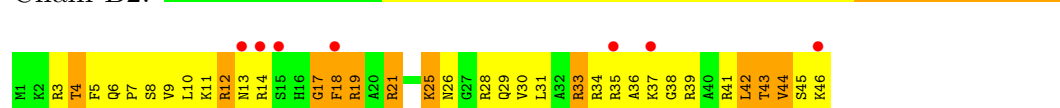
- Molecule 48: 50S RIBOSOMAL PROTEIN L33

Chain D1:



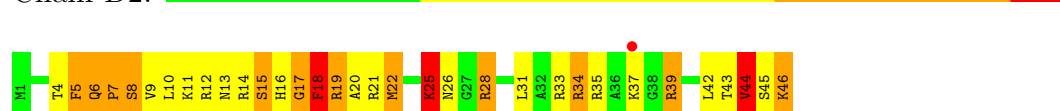
- Molecule 49: 50S RIBOSOMAL PROTEIN L34

Chain B2:



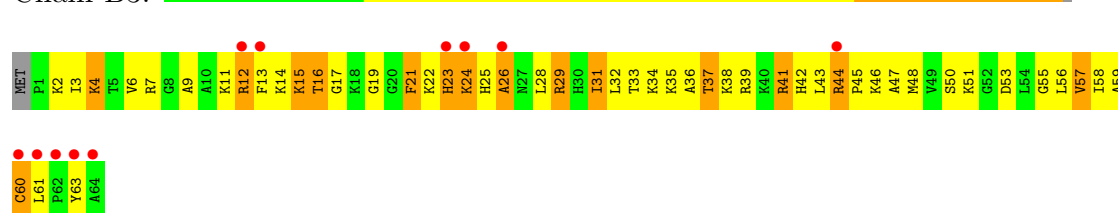
- Molecule 49: 50S RIBOSOMAL PROTEIN L34

Chain D2:



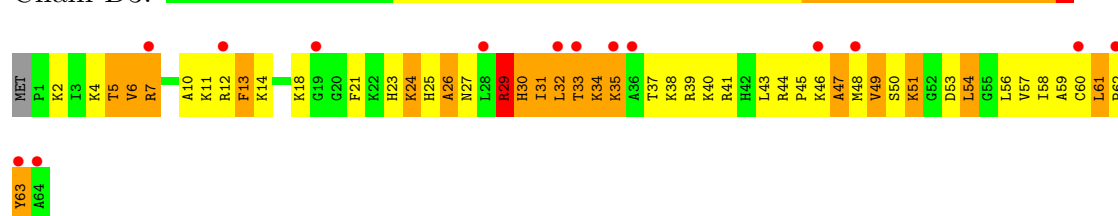
- Molecule 50: 50S RIBOSOMAL PROTEIN L35

Chain B3:



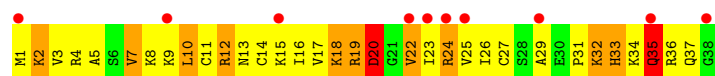
- Molecule 50: 50S RIBOSOMAL PROTEIN L35

Chain D3:



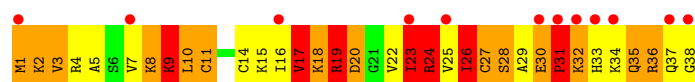
- Molecule 51: 50S RIBOSOMAL PROTEIN L36

Chain B4: 



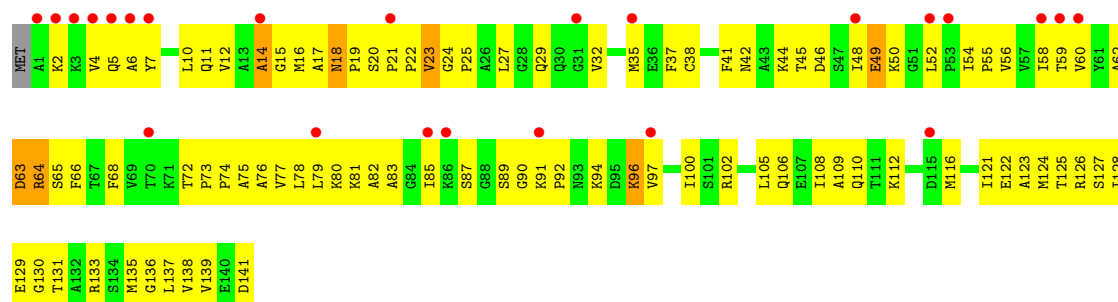
- Molecule 51: 50S RIBOSOMAL PROTEIN L36

Chain D4: 



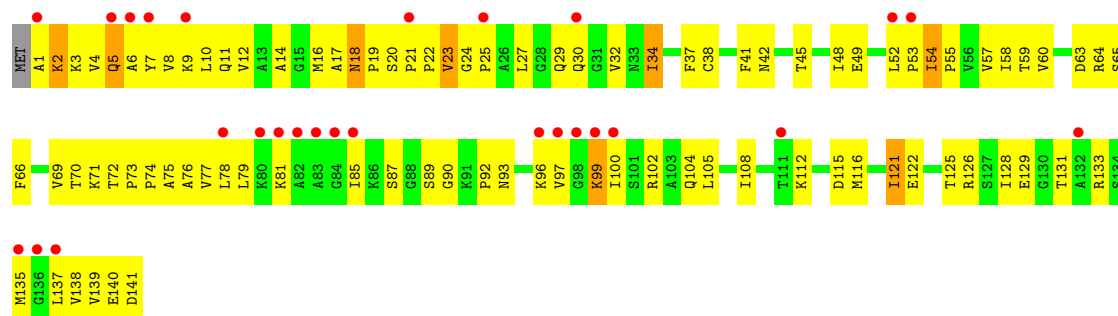
- Molecule 52: 50S RIBOSOMAL PROTEIN L11

Chain B1: 



- Molecule 52: 50S RIBOSOMAL PROTEIN L11

Chain D1: 



4 Data and refinement statistics

| Property | Value | Source |
|---|---|------------------|
| Space group | P 21 21 21 | Depositor |
| Cell constants a, b, c, α , β , γ | 208.85Å 379.20Å 739.28Å 90.00° 90.00° 90.00° | Depositor |
| Resolution (Å) | 70.00 – 3.46 112.47 – 3.53 | Depositor EDS |
| % Data completeness (in resolution range) | 91.6 (70.00-3.46) 93.1 (112.47-3.53) | Depositor EDS |
| R_{merge} | 0.14 | Depositor |
| R_{sym} | (Not available) | Depositor |
| $\langle I/\sigma(I) \rangle$ ¹ | 1.56 (at 3.58Å) | Xtriage |
| Refinement program | CNS | Depositor |
| R, R_{free} | 0.279 , 0.331 0.290 , (Not available) | Depositor DCC |
| R_{free} test set | No test flags present. | DCC |
| Wilson B-factor (Å ²) | 83.5 | Xtriage |
| Anisotropy | 0.179 | Xtriage |
| Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²) | 0.24 , 25.3 | EDS |
| Estimated twinning fraction | No twinning to report. | Xtriage |
| L-test for twinning | $\langle L \rangle = 0.46$, $\langle L^2 \rangle = 0.29$ | Xtriage |
| Outliers | 0 of 661147 reflections | Xtriage |
| F_o, F_c correlation | 0.85 | EDS |
| Total number of atoms | 284160 | wwPDB-VP |
| Average B, all atoms (Å ²) | 69.0 | wwPDB-VP |

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.37% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: KSG, MG

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Chain | Bond lengths | | Bond angles | |
|-----|-------|--------------|-------------|-------------|----------------|
| | | RMSZ | $\# Z > 5$ | RMSZ | $\# Z > 5$ |
| 1 | AA | 0.23 | 0/36762 | 0.71 | 5/57350 (0.0%) |
| 1 | CA | 0.23 | 0/36762 | 0.72 | 7/57350 (0.0%) |
| 2 | AC | 0.23 | 0/1651 | 0.44 | 0/2225 |
| 2 | CC | 0.23 | 0/1651 | 0.47 | 0/2225 |
| 3 | AD | 0.23 | 0/1665 | 0.46 | 0/2227 |
| 3 | CD | 0.23 | 0/1665 | 0.45 | 0/2227 |
| 4 | AE | 0.23 | 0/1118 | 0.44 | 0/1504 |
| 4 | CE | 0.24 | 0/1118 | 0.45 | 0/1504 |
| 5 | AF | 0.24 | 0/835 | 0.46 | 0/1128 |
| 5 | CF | 0.24 | 0/835 | 0.47 | 0/1128 |
| 6 | AG | 0.23 | 0/1187 | 0.44 | 0/1591 |
| 6 | CG | 0.23 | 0/1211 | 0.45 | 0/1624 |
| 7 | AH | 0.23 | 0/989 | 0.44 | 0/1326 |
| 7 | CH | 0.24 | 0/989 | 0.45 | 0/1326 |
| 8 | AI | 0.24 | 0/1034 | 0.45 | 0/1375 |
| 8 | CI | 0.24 | 0/1034 | 0.45 | 0/1375 |
| 9 | AJ | 0.23 | 0/796 | 0.49 | 0/1077 |
| 9 | CJ | 0.22 | 0/796 | 0.49 | 0/1077 |
| 10 | AK | 0.24 | 0/893 | 0.46 | 0/1205 |
| 10 | CK | 0.24 | 0/893 | 0.46 | 0/1205 |
| 11 | AL | 0.22 | 0/969 | 0.46 | 0/1300 |
| 11 | CL | 0.22 | 0/969 | 0.47 | 0/1300 |
| 12 | AM | 0.21 | 0/892 | 0.47 | 0/1193 |
| 12 | CM | 0.21 | 0/884 | 0.46 | 0/1181 |
| 13 | AN | 0.24 | 0/785 | 0.45 | 0/1043 |
| 13 | CN | 0.24 | 0/785 | 0.44 | 0/1043 |
| 14 | AO | 0.23 | 0/724 | 0.45 | 0/966 |
| 14 | CO | 0.23 | 0/724 | 0.44 | 0/966 |
| 15 | AP | 0.26 | 0/659 | 0.44 | 0/884 |
| 15 | CP | 0.25 | 0/648 | 0.45 | 0/870 |
| 16 | AQ | 0.23 | 0/657 | 0.46 | 0/881 |
| 16 | CQ | 0.24 | 0/666 | 0.47 | 0/892 |

| Mol | Chain | Bond lengths | | Bond angles | |
|-----|-------|--------------|----------------|-------------|------------------|
| | | RMSZ | # Z >5 | RMSZ | # Z >5 |
| 17 | AR | 0.23 | 0/462 | 0.45 | 0/621 |
| 17 | CR | 0.23 | 0/462 | 0.45 | 0/621 |
| 18 | AS | 0.25 | 0/652 | 0.47 | 0/877 |
| 18 | CS | 0.25 | 0/660 | 0.46 | 0/888 |
| 19 | AT | 0.23 | 0/671 | 0.41 | 0/888 |
| 19 | CT | 0.23 | 0/671 | 0.42 | 0/888 |
| 20 | AB | 0.25 | 0/1735 | 0.46 | 0/2338 |
| 20 | CB | 0.25 | 0/1735 | 0.46 | 0/2338 |
| 21 | AU | 0.26 | 0/430 | 0.49 | 0/570 |
| 21 | CU | 0.26 | 0/430 | 0.48 | 0/570 |
| 22 | BA | 0.23 | 0/2803 | 0.69 | 0/4371 |
| 22 | DA | 0.25 | 0/2803 | 0.71 | 0/4371 |
| 23 | BB | 0.26 | 5/68314 (0.0%) | 0.73 | 22/106569 (0.0%) |
| 23 | DB | 0.26 | 5/68314 (0.0%) | 0.73 | 18/106569 (0.0%) |
| 24 | BV | 0.25 | 0/766 | 0.44 | 0/1025 |
| 24 | DV | 0.25 | 0/766 | 0.44 | 0/1025 |
| 25 | BC | 0.24 | 0/2092 | 0.56 | 0/2813 |
| 25 | DC | 0.23 | 0/2092 | 0.56 | 0/2813 |
| 26 | BD | 0.26 | 0/1586 | 0.54 | 0/2134 |
| 26 | DD | 0.26 | 0/1586 | 0.54 | 0/2134 |
| 27 | BE | 0.25 | 0/1571 | 0.54 | 0/2113 |
| 27 | DE | 0.25 | 0/1571 | 0.53 | 0/2113 |
| 28 | BF | 0.27 | 0/1444 | 0.62 | 0/1937 |
| 28 | DF | 0.26 | 0/1444 | 0.59 | 0/1937 |
| 29 | BG | 0.23 | 0/1343 | 0.52 | 0/1816 |
| 29 | DG | 0.23 | 0/1343 | 0.52 | 0/1816 |
| 30 | BH | 0.25 | 0/1122 | 0.51 | 0/1515 |
| 30 | DH | 0.25 | 0/1122 | 0.53 | 0/1515 |
| 31 | BJ | 0.24 | 0/1135 | 0.49 | 0/1529 |
| 31 | DJ | 0.23 | 0/1135 | 0.56 | 0/1529 |
| 32 | BK | 0.24 | 0/939 | 0.63 | 0/1258 |
| 32 | DK | 0.23 | 0/939 | 0.61 | 0/1258 |
| 33 | BL | 0.27 | 0/1062 | 0.72 | 0/1413 |
| 33 | DL | 0.28 | 0/1062 | 0.76 | 2/1413 (0.1%) |
| 34 | BM | 0.27 | 0/1093 | 0.60 | 0/1460 |
| 34 | DM | 0.26 | 0/1093 | 0.58 | 0/1460 |
| 35 | BN | 0.24 | 0/1021 | 0.52 | 0/1364 |
| 35 | DN | 0.24 | 0/1021 | 0.47 | 0/1364 |
| 36 | BO | 0.24 | 0/910 | 0.50 | 0/1219 |
| 36 | DO | 0.23 | 0/910 | 0.46 | 0/1219 |
| 37 | BP | 0.26 | 0/929 | 0.84 | 3/1242 (0.2%) |
| 37 | DP | 0.27 | 0/929 | 0.86 | 3/1242 (0.2%) |
| 38 | BQ | 0.25 | 0/960 | 0.47 | 0/1278 |

| Mol | Chain | Bond lengths | | Bond angles | |
|-----|-------|--------------|------------------|-------------|------------------|
| | | RMSZ | # Z >5 | RMSZ | # Z >5 |
| 38 | DQ | 0.26 | 0/960 | 0.50 | 0/1278 |
| 39 | BR | 0.30 | 0/829 | 0.60 | 0/1107 |
| 39 | DR | 0.26 | 0/829 | 0.55 | 0/1107 |
| 40 | BS | 0.22 | 0/864 | 0.50 | 0/1156 |
| 40 | DS | 0.22 | 0/864 | 0.51 | 0/1156 |
| 41 | BT | 0.24 | 0/784 | 0.50 | 0/1048 |
| 41 | DT | 0.25 | 0/784 | 0.54 | 0/1048 |
| 42 | BU | 0.26 | 0/787 | 0.54 | 0/1051 |
| 42 | DU | 0.25 | 0/787 | 0.61 | 1/1051 (0.1%) |
| 43 | BW | 0.27 | 0/642 | 0.59 | 0/848 |
| 43 | DW | 0.27 | 0/642 | 0.53 | 0/848 |
| 44 | BX | 0.24 | 0/510 | 0.55 | 0/677 |
| 44 | DX | 0.23 | 0/510 | 0.50 | 0/677 |
| 45 | BY | 0.25 | 0/453 | 0.51 | 0/605 |
| 45 | DY | 0.24 | 0/453 | 0.54 | 0/605 |
| 46 | BZ | 0.28 | 0/559 | 0.67 | 0/745 |
| 46 | DZ | 0.28 | 0/559 | 0.61 | 0/745 |
| 47 | B0 | 0.24 | 0/450 | 0.52 | 0/599 |
| 47 | D0 | 0.25 | 0/450 | 0.58 | 0/599 |
| 48 | B1 | 0.27 | 0/448 | 0.51 | 0/594 |
| 48 | D1 | 0.27 | 0/448 | 0.50 | 0/594 |
| 49 | B2 | 0.26 | 0/380 | 0.48 | 0/498 |
| 49 | D2 | 0.26 | 0/380 | 0.47 | 0/498 |
| 50 | B3 | 0.25 | 0/513 | 0.54 | 0/676 |
| 50 | D3 | 0.25 | 0/513 | 0.51 | 0/676 |
| 51 | B4 | 0.24 | 0/303 | 0.54 | 0/397 |
| 51 | D4 | 0.24 | 0/303 | 0.53 | 0/397 |
| 52 | BI | 0.24 | 0/1046 | 0.50 | 0/1410 |
| 52 | DI | 0.26 | 0/1046 | 0.53 | 0/1410 |
| All | All | 0.25 | 10/306470 (0.0%) | 0.68 | 61/458101 (0.0%) |

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 1 | AA | 0 | 14 |
| 1 | CA | 0 | 16 |
| 23 | BB | 0 | 41 |
| 23 | DB | 1 | 41 |
| 47 | D0 | 0 | 1 |
| All | All | 1 | 113 |

All (10) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|--------|-------------|----------|
| 23 | BB | 1086 | A | C5-C6 | -17.07 | 1.25 | 1.41 |
| 23 | DB | 1086 | A | C5-C6 | -17.02 | 1.25 | 1.41 |
| 23 | DB | 1088 | A | C6-N1 | -10.55 | 1.28 | 1.35 |
| 23 | BB | 1088 | A | C6-N1 | -10.45 | 1.28 | 1.35 |
| 23 | BB | 1060 | U | C2-N3 | 7.88 | 1.43 | 1.37 |
| 23 | DB | 1060 | U | C2-N3 | 7.88 | 1.43 | 1.37 |
| 23 | DB | 1086 | A | N7-C5 | -7.07 | 1.35 | 1.39 |
| 23 | BB | 1086 | A | N7-C5 | -7.03 | 1.35 | 1.39 |
| 23 | BB | 1086 | A | N3-C4 | -5.24 | 1.31 | 1.34 |
| 23 | DB | 1086 | A | N3-C4 | -5.11 | 1.31 | 1.34 |

All (61) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|--------|-------------|----------|
| 23 | DB | 2791 | G | O5'-P-OP2 | -26.15 | 79.33 | 110.70 |
| 23 | BB | 2791 | G | O5'-P-OP1 | -26.11 | 79.37 | 110.70 |
| 23 | DB | 2791 | G | O5'-P-OP1 | 19.42 | 134.01 | 110.70 |
| 23 | BB | 2791 | G | O5'-P-OP2 | 19.11 | 133.63 | 110.70 |
| 23 | DB | 2790 | U | OP2-P-O3' | 15.02 | 138.25 | 105.20 |
| 23 | BB | 2790 | U | OP1-P-O3' | 14.91 | 138.01 | 105.20 |
| 23 | BB | 2272 | U | C5-C4-O4 | -9.03 | 120.48 | 125.90 |
| 23 | DB | 2272 | U | N3-C4-O4 | -8.62 | 113.36 | 119.40 |
| 23 | DB | 1088 | A | N1-C6-N6 | -8.31 | 113.62 | 118.60 |
| 23 | BB | 1088 | A | N1-C6-N6 | -8.21 | 113.67 | 118.60 |
| 23 | BB | 1552 | A | N9-C1'-C2' | -8.18 | 103.00 | 112.00 |
| 23 | DB | 1552 | A | N9-C1'-C2' | -8.12 | 103.07 | 112.00 |
| 23 | DB | 2076 | U | C2'-C3'-O3' | 8.12 | 127.35 | 109.50 |
| 1 | CA | 765 | G | N9-C1'-C2' | -7.70 | 103.53 | 112.00 |
| 1 | AA | 765 | G | N9-C1'-C2' | -7.67 | 103.57 | 112.00 |
| 33 | DL | 118 | THR | N-CA-C | 7.50 | 131.26 | 111.00 |
| 23 | BB | 2733 | A | N9-C1'-C2' | -7.46 | 103.79 | 112.00 |
| 23 | DB | 2733 | A | N9-C1'-C2' | -7.45 | 103.81 | 112.00 |
| 23 | DB | 1060 | U | C5-C4-O4 | -7.35 | 121.49 | 125.90 |
| 37 | BP | 71 | ARG | N-CA-C | 7.26 | 130.61 | 111.00 |
| 23 | BB | 1060 | U | C5-C4-O4 | -7.19 | 121.59 | 125.90 |
| 37 | DP | 71 | ARG | N-CA-C | 7.02 | 129.96 | 111.00 |
| 23 | BB | 1086 | A | C4-C5-C6 | 6.85 | 120.42 | 117.00 |
| 37 | BP | 79 | VAL | N-CA-C | 6.84 | 129.46 | 111.00 |
| 23 | DB | 1439 | A | N9-C1'-C2' | -6.83 | 104.49 | 112.00 |
| 37 | DP | 72 | VAL | N-CA-C | 6.83 | 129.43 | 111.00 |
| 23 | DB | 1086 | A | C4-C5-C6 | 6.81 | 120.40 | 117.00 |
| 23 | BB | 1439 | A | N9-C1'-C2' | -6.76 | 104.56 | 112.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 23 | DB | 2790 | U | O3'-P-O5' | -6.72 | 91.22 | 104.00 |
| 33 | DL | 117 | THR | N-CA-C | -6.70 | 92.92 | 111.00 |
| 1 | AA | 438 | U | N1-C1'-C2' | -6.67 | 104.66 | 112.00 |
| 1 | CA | 438 | U | N1-C1'-C2' | -6.65 | 104.69 | 112.00 |
| 1 | CA | 576 | C | O5'-P-OP1 | -6.57 | 99.79 | 105.70 |
| 23 | BB | 1086 | A | C6-C5-N7 | -6.52 | 127.73 | 132.30 |
| 23 | DB | 1086 | A | C6-C5-N7 | -6.48 | 127.76 | 132.30 |
| 37 | BP | 72 | VAL | N-CA-C | 6.44 | 128.39 | 111.00 |
| 23 | DB | 1088 | A | C5-C6-N6 | 6.41 | 128.83 | 123.70 |
| 23 | BB | 1088 | A | C5-C6-N6 | 6.38 | 128.80 | 123.70 |
| 23 | BB | 2790 | U | O3'-P-O5' | -6.36 | 91.92 | 104.00 |
| 23 | DB | 2272 | U | C5-C4-O4 | -5.80 | 122.42 | 125.90 |
| 23 | BB | 1060 | U | N1-C2-O2 | -5.68 | 118.82 | 122.80 |
| 23 | DB | 1060 | U | N1-C2-O2 | -5.67 | 118.83 | 122.80 |
| 1 | CA | 1432 | G | N9-C1'-C2' | -5.64 | 105.79 | 112.00 |
| 23 | BB | 2267 | A | C5-C6-N6 | -5.63 | 119.20 | 123.70 |
| 23 | BB | 2267 | A | O4'-C1'-N9 | -5.61 | 103.72 | 108.20 |
| 23 | BB | 2267 | A | C4-N9-C1' | 5.46 | 136.13 | 126.30 |
| 1 | AA | 521 | G | N9-C1'-C2' | -5.43 | 106.03 | 112.00 |
| 23 | BB | 2272 | U | N3-C4-O4 | -5.41 | 115.61 | 119.40 |
| 1 | CA | 521 | G | N9-C1'-C2' | -5.41 | 106.05 | 112.00 |
| 1 | CA | 328 | C | C2'-C3'-O3' | 5.39 | 122.33 | 113.70 |
| 23 | DB | 1060 | U | N3-C2-O2 | 5.38 | 125.97 | 122.20 |
| 23 | BB | 2267 | A | C8-N9-C1' | -5.38 | 118.02 | 127.70 |
| 1 | AA | 328 | C | C2'-C3'-O3' | 5.36 | 122.28 | 113.70 |
| 23 | BB | 1060 | U | N3-C2-O2 | 5.34 | 125.94 | 122.20 |
| 23 | BB | 2272 | U | N1-C1'-C2' | -5.33 | 106.14 | 112.00 |
| 1 | CA | 1534 | A | C2'-C3'-O3' | -5.30 | 97.84 | 109.50 |
| 23 | BB | 1086 | A | C2-N3-C4 | -5.28 | 107.96 | 110.60 |
| 23 | DB | 1086 | A | C2-N3-C4 | -5.16 | 108.02 | 110.60 |
| 1 | AA | 66 | A | N9-C1'-C2' | -5.09 | 106.40 | 112.00 |
| 37 | DP | 70 | GLU | N-CA-C | 5.07 | 124.67 | 111.00 |
| 42 | DU | 49 | PRO | N-CA-C | -5.05 | 98.96 | 112.10 |

All (1) chirality outliers are listed below:

| Mol | Chain | Res | Type | Atom |
|-----|-------|------|------|------|
| 23 | DB | 2076 | U | C3' |

All (113) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group |
|-----|-------|------|------|-----------|
| 1 | AA | 1047 | G | Sidechain |
| 1 | AA | 1319 | A | Sidechain |
| 1 | AA | 1331 | G | Sidechain |
| 1 | AA | 1441 | A | Sidechain |
| 1 | AA | 187 | G | Sidechain |
| 1 | AA | 281 | G | Sidechain |
| 1 | AA | 324 | G | Sidechain |
| 1 | AA | 437 | U | Sidechain |
| 1 | AA | 438 | U | Sidechain |
| 1 | AA | 454 | G | Sidechain |
| 1 | AA | 496 | A | Sidechain |
| 1 | AA | 521 | G | Sidechain |
| 1 | AA | 575 | G | Sidechain |
| 1 | AA | 703 | G | Sidechain |
| 23 | BB | 1047 | G | Sidechain |
| 23 | BB | 1060 | U | Sidechain |
| 23 | BB | 1086 | A | Sidechain |
| 23 | BB | 1088 | A | Sidechain |
| 23 | BB | 1119 | U | Sidechain |
| 23 | BB | 1240 | U | Sidechain |
| 23 | BB | 1250 | G | Sidechain |
| 23 | BB | 1419 | A | Sidechain |
| 23 | BB | 1439 | A | Sidechain |
| 23 | BB | 1450 | G | Sidechain |
| 23 | BB | 1462 | C | Sidechain |
| 23 | BB | 1546 | G | Sidechain |
| 23 | BB | 1572 | A | Sidechain |
| 23 | BB | 1828 | G | Sidechain |
| 23 | BB | 2108 | A | Sidechain |
| 23 | BB | 221 | A | Sidechain |
| 23 | BB | 2213 | U | Sidechain |
| 23 | BB | 222 | A | Sidechain |
| 23 | BB | 2267 | A | Sidechain |
| 23 | BB | 2272 | U | Sidechain |
| 23 | BB | 2318 | G | Sidechain |
| 23 | BB | 2413 | G | Sidechain |
| 23 | BB | 2471 | A | Sidechain |
| 23 | BB | 2638 | G | Sidechain |
| 23 | BB | 2733 | A | Sidechain |
| 23 | BB | 2770 | G | Sidechain |
| 23 | BB | 2834 | G | Sidechain |
| 23 | BB | 2848 | G | Sidechain |
| 23 | BB | 2857 | G | Sidechain |

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| Mol | Chain | Res | Type | Group |
|-----|-------|------|------|-----------|
| 23 | BB | 2868 | A | Sidechain |
| 23 | BB | 2883 | A | Sidechain |
| 23 | BB | 299 | A | Sidechain |
| 23 | BB | 361 | G | Sidechain |
| 23 | BB | 500 | G | Sidechain |
| 23 | BB | 51 | G | Sidechain |
| 23 | BB | 630 | G | Sidechain |
| 23 | BB | 633 | A | Sidechain |
| 23 | BB | 727 | A | Sidechain |
| 23 | BB | 729 | G | Sidechain |
| 23 | BB | 757 | G | Sidechain |
| 23 | BB | 942 | G | Sidechain |
| 1 | CA | 1133 | G | Sidechain |
| 1 | CA | 1319 | A | Sidechain |
| 1 | CA | 1362 | A | Sidechain |
| 1 | CA | 1432 | G | Sidechain |
| 1 | CA | 1441 | A | Sidechain |
| 1 | CA | 187 | G | Sidechain |
| 1 | CA | 281 | G | Sidechain |
| 1 | CA | 324 | G | Sidechain |
| 1 | CA | 437 | U | Sidechain |
| 1 | CA | 438 | U | Sidechain |
| 1 | CA | 454 | G | Sidechain |
| 1 | CA | 496 | A | Sidechain |
| 1 | CA | 521 | G | Sidechain |
| 1 | CA | 575 | G | Sidechain |
| 1 | CA | 703 | G | Sidechain |
| 1 | CA | 83 | C | Sidechain |
| 47 | D0 | 48 | TYR | Sidechain |
| 23 | DB | 1047 | G | Sidechain |
| 23 | DB | 1060 | U | Sidechain |
| 23 | DB | 1086 | A | Sidechain |
| 23 | DB | 1088 | A | Sidechain |
| 23 | DB | 1247 | A | Sidechain |
| 23 | DB | 136 | G | Sidechain |
| 23 | DB | 1419 | A | Sidechain |
| 23 | DB | 1439 | A | Sidechain |
| 23 | DB | 1450 | G | Sidechain |
| 23 | DB | 1462 | C | Sidechain |
| 23 | DB | 1546 | G | Sidechain |
| 23 | DB | 1572 | A | Sidechain |
| 23 | DB | 1828 | G | Sidechain |

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| Mol | Chain | Res | Type | Group |
|-----|-------|------|------|-----------|
| 23 | DB | 2062 | A | Sidechain |
| 23 | DB | 2108 | A | Sidechain |
| 23 | DB | 214 | G | Sidechain |
| 23 | DB | 221 | A | Sidechain |
| 23 | DB | 222 | A | Sidechain |
| 23 | DB | 2267 | A | Sidechain |
| 23 | DB | 2272 | U | Sidechain |
| 23 | DB | 232 | G | Sidechain |
| 23 | DB | 2413 | G | Sidechain |
| 23 | DB | 2471 | A | Sidechain |
| 23 | DB | 2503 | A | Sidechain |
| 23 | DB | 2638 | G | Sidechain |
| 23 | DB | 2733 | A | Sidechain |
| 23 | DB | 2770 | G | Sidechain |
| 23 | DB | 28 | A | Sidechain |
| 23 | DB | 2834 | G | Sidechain |
| 23 | DB | 2848 | G | Sidechain |
| 23 | DB | 2857 | G | Sidechain |
| 23 | DB | 2868 | A | Sidechain |
| 23 | DB | 2883 | A | Sidechain |
| 23 | DB | 299 | A | Sidechain |
| 23 | DB | 500 | G | Sidechain |
| 23 | DB | 630 | G | Sidechain |
| 23 | DB | 633 | A | Sidechain |
| 23 | DB | 727 | A | Sidechain |
| 23 | DB | 729 | G | Sidechain |
| 23 | DB | 757 | G | Sidechain |
| 23 | DB | 858 | G | Sidechain |

5.2 Close contacts

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogens added by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, and the number in parentheses is this value normalized per 1000 atoms of the molecule in the chain. The Symm-Clashes column gives symmetry related clashes, in the same way as for the Clashes column.

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1 | AA | 32831 | 0 | 16521 | 1330 | 0 |
| 1 | CA | 32831 | 0 | 16521 | 1382 | 0 |
| 2 | AC | 1624 | 0 | 1699 | 184 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 2 | CC | 1624 | 0 | 1699 | 162 | 0 |
| 3 | AD | 1643 | 0 | 1710 | 173 | 0 |
| 3 | CD | 1643 | 0 | 1710 | 175 | 0 |
| 4 | AE | 1105 | 0 | 1148 | 108 | 0 |
| 4 | CE | 1105 | 0 | 1148 | 143 | 0 |
| 5 | AF | 817 | 0 | 808 | 73 | 0 |
| 5 | CF | 817 | 0 | 808 | 102 | 0 |
| 6 | AG | 1174 | 0 | 1230 | 104 | 0 |
| 6 | CG | 1196 | 0 | 1246 | 101 | 0 |
| 7 | AH | 979 | 0 | 1034 | 85 | 0 |
| 7 | CH | 979 | 0 | 1034 | 80 | 0 |
| 8 | AI | 1022 | 0 | 1070 | 156 | 0 |
| 8 | CI | 1022 | 0 | 1070 | 125 | 0 |
| 9 | AJ | 786 | 0 | 828 | 95 | 0 |
| 9 | CJ | 786 | 0 | 828 | 111 | 0 |
| 10 | AK | 877 | 0 | 887 | 104 | 0 |
| 10 | CK | 877 | 0 | 887 | 106 | 0 |
| 11 | AL | 955 | 0 | 1019 | 105 | 0 |
| 11 | CL | 955 | 0 | 1019 | 91 | 0 |
| 12 | AM | 883 | 0 | 944 | 88 | 0 |
| 12 | CM | 876 | 0 | 937 | 113 | 0 |
| 13 | AN | 774 | 0 | 827 | 104 | 0 |
| 13 | CN | 774 | 0 | 827 | 121 | 0 |
| 14 | AO | 716 | 0 | 742 | 53 | 0 |
| 14 | CO | 716 | 0 | 742 | 55 | 0 |
| 15 | AP | 649 | 0 | 666 | 78 | 0 |
| 15 | CP | 638 | 0 | 656 | 79 | 0 |
| 16 | AQ | 648 | 0 | 691 | 101 | 0 |
| 16 | CQ | 657 | 0 | 702 | 90 | 0 |
| 17 | AR | 455 | 0 | 478 | 42 | 0 |
| 17 | CR | 455 | 0 | 478 | 45 | 0 |
| 18 | AS | 637 | 0 | 665 | 87 | 0 |
| 18 | CS | 644 | 0 | 675 | 96 | 0 |
| 19 | AT | 665 | 0 | 714 | 59 | 0 |
| 19 | CT | 665 | 0 | 714 | 58 | 0 |
| 20 | AB | 1704 | 0 | 1732 | 195 | 0 |
| 20 | CB | 1704 | 0 | 1732 | 167 | 0 |
| 21 | AU | 425 | 0 | 449 | 68 | 0 |
| 21 | CU | 425 | 0 | 449 | 65 | 0 |
| 22 | BA | 2507 | 0 | 1270 | 84 | 0 |
| 22 | DA | 2507 | 0 | 1270 | 117 | 0 |
| 23 | BB | 60995 | 0 | 30678 | 2753 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 23 | DB | 60995 | 0 | 30677 | 2695 | 0 |
| 24 | BV | 753 | 0 | 780 | 100 | 0 |
| 24 | DV | 753 | 0 | 780 | 69 | 0 |
| 25 | BC | 2053 | 0 | 2122 | 451 | 0 |
| 25 | DC | 2053 | 0 | 2122 | 389 | 0 |
| 26 | BD | 1565 | 0 | 1616 | 379 | 0 |
| 26 | DD | 1565 | 0 | 1616 | 309 | 0 |
| 27 | BE | 1552 | 0 | 1619 | 279 | 0 |
| 27 | DE | 1552 | 0 | 1619 | 256 | 0 |
| 28 | BF | 1420 | 0 | 1460 | 170 | 0 |
| 28 | DF | 1420 | 0 | 1460 | 157 | 0 |
| 29 | BG | 1323 | 0 | 1374 | 166 | 0 |
| 29 | DG | 1323 | 0 | 1374 | 158 | 0 |
| 30 | BH | 1111 | 0 | 1148 | 173 | 0 |
| 30 | DH | 1111 | 0 | 1148 | 166 | 0 |
| 31 | BJ | 1112 | 0 | 1147 | 220 | 0 |
| 31 | DJ | 1112 | 0 | 1147 | 207 | 0 |
| 32 | BK | 930 | 0 | 1000 | 123 | 0 |
| 32 | DK | 930 | 0 | 1000 | 124 | 0 |
| 33 | BL | 1053 | 0 | 1129 | 277 | 0 |
| 33 | DL | 1053 | 0 | 1129 | 250 | 0 |
| 34 | BM | 1074 | 0 | 1157 | 238 | 0 |
| 34 | DM | 1074 | 0 | 1157 | 169 | 0 |
| 35 | BN | 1008 | 0 | 1045 | 186 | 0 |
| 35 | DN | 1008 | 0 | 1045 | 158 | 0 |
| 36 | BO | 900 | 0 | 935 | 128 | 0 |
| 36 | DO | 900 | 0 | 935 | 137 | 0 |
| 37 | BP | 917 | 0 | 965 | 198 | 0 |
| 37 | DP | 917 | 0 | 965 | 196 | 0 |
| 38 | BQ | 947 | 0 | 1022 | 199 | 0 |
| 38 | DQ | 947 | 0 | 1022 | 175 | 0 |
| 39 | BR | 816 | 0 | 839 | 170 | 0 |
| 39 | DR | 816 | 0 | 839 | 166 | 0 |
| 40 | BS | 857 | 0 | 922 | 124 | 0 |
| 40 | DS | 857 | 0 | 922 | 116 | 0 |
| 41 | BT | 777 | 0 | 840 | 148 | 0 |
| 41 | DT | 777 | 0 | 840 | 133 | 0 |
| 42 | BU | 779 | 0 | 834 | 163 | 0 |
| 42 | DU | 779 | 0 | 834 | 121 | 0 |
| 43 | BW | 634 | 0 | 656 | 161 | 0 |
| 43 | DW | 634 | 0 | 656 | 169 | 0 |
| 44 | BX | 509 | 0 | 543 | 77 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 44 | DX | 509 | 0 | 543 | 83 | 0 |
| 45 | BY | 449 | 0 | 491 | 60 | 0 |
| 45 | DY | 449 | 0 | 491 | 81 | 0 |
| 46 | BZ | 549 | 0 | 552 | 111 | 0 |
| 46 | DZ | 549 | 0 | 552 | 102 | 0 |
| 47 | B0 | 444 | 0 | 461 | 74 | 0 |
| 47 | D0 | 444 | 0 | 461 | 91 | 0 |
| 48 | B1 | 441 | 0 | 485 | 80 | 0 |
| 48 | D1 | 441 | 0 | 485 | 77 | 0 |
| 49 | B2 | 377 | 0 | 418 | 59 | 0 |
| 49 | D2 | 377 | 0 | 418 | 67 | 0 |
| 50 | B3 | 504 | 0 | 574 | 115 | 0 |
| 50 | D3 | 504 | 0 | 574 | 107 | 0 |
| 51 | B4 | 302 | 0 | 343 | 63 | 0 |
| 51 | D4 | 302 | 0 | 343 | 75 | 0 |
| 52 | BI | 1032 | 0 | 1088 | 121 | 0 |
| 52 | DI | 1032 | 0 | 1088 | 183 | 0 |
| 53 | AA | 26 | 0 | 23 | 3 | 0 |
| 53 | CA | 26 | 0 | 23 | 1 | 0 |
| 54 | AA | 60 | 0 | 0 | 0 | 0 |
| 54 | BB | 110 | 0 | 0 | 0 | 0 |
| 54 | CA | 62 | 0 | 0 | 0 | 0 |
| 54 | DB | 109 | 0 | 0 | 0 | 0 |
| 54 | DE | 1 | 0 | 0 | 0 | 0 |
| 54 | DN | 1 | 0 | 0 | 0 | 0 |
| 55 | AA | 289 | 0 | 0 | 1 | 0 |
| 55 | AE | 3 | 0 | 0 | 0 | 0 |
| 55 | AK | 2 | 0 | 0 | 0 | 0 |
| 55 | AN | 3 | 0 | 0 | 0 | 0 |
| 55 | AP | 2 | 0 | 0 | 0 | 0 |
| 55 | AT | 1 | 0 | 0 | 0 | 0 |
| 55 | BB | 497 | 0 | 0 | 11 | 0 |
| 55 | BC | 1 | 0 | 0 | 0 | 0 |
| 55 | BE | 5 | 0 | 0 | 0 | 0 |
| 55 | BH | 1 | 0 | 0 | 0 | 0 |
| 55 | BL | 2 | 0 | 0 | 0 | 0 |
| 55 | BN | 1 | 0 | 0 | 0 | 0 |
| 55 | CA | 293 | 0 | 0 | 1 | 0 |
| 55 | CE | 3 | 0 | 0 | 0 | 0 |
| 55 | CK | 1 | 0 | 0 | 0 | 0 |
| 55 | CL | 4 | 0 | 0 | 0 | 0 |
| 55 | CN | 3 | 0 | 0 | 0 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|--------|----------|----------|---------|--------------|
| 55 | CP | 1 | 0 | 0 | 0 | 0 |
| 55 | CT | 3 | 0 | 0 | 0 | 0 |
| 55 | D2 | 2 | 0 | 0 | 0 | 0 |
| 55 | DB | 501 | 0 | 0 | 10 | 0 |
| 55 | DC | 1 | 0 | 0 | 0 | 0 |
| 55 | DD | 1 | 0 | 0 | 0 | 0 |
| 55 | DE | 3 | 0 | 0 | 0 | 0 |
| 55 | DL | 1 | 0 | 0 | 0 | 0 |
| 55 | DN | 2 | 0 | 0 | 0 | 0 |
| 55 | DT | 1 | 0 | 0 | 0 | 0 |
| All | All | 284160 | 0 | 190815 | 19652 | 0 |

Clashscore is defined as the number of clashes calculated for the entry per 1000 atoms (including hydrogens) of the entry. The overall clashscore for this entry is 42.

All (19652) close contacts within the same asymmetric unit are listed below.

| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:DB:1099:G:O5' | 52:DI:4:VAL:N | 1.71 | 1.23 |
| 32:DK:78:ARG:HG2 | 37:DP:72:VAL:HG21 | 1.24 | 1.15 |
| 23:DB:1098:A:H3' | 52:DI:3:LYS:CA | 1.76 | 1.15 |
| 23:DB:587:C:H3' | 33:DL:29:LYS:HD2 | 1.20 | 1.14 |
| 48:D1:29:LYS:HB2 | 48:D1:30:PRO:HD3 | 1.30 | 1.14 |
| 1:AA:699:C:H2' | 1:AA:700:G:H5'' | 1.28 | 1.14 |
| 23:BB:662:G:H4' | 33:BL:24:GLY:H | 1.11 | 1.13 |
| 42:DU:60:LYS:HE3 | 42:DU:61:GLU:H | 1.08 | 1.13 |
| 23:DB:458:G:H5'' | 49:D2:39:ARG:HB2 | 1.30 | 1.12 |
| 44:DX:43:LEU:HB2 | 44:DX:45:GLN:HE22 | 1.13 | 1.12 |
| 23:BB:85:G:H5' | 42:BU:28:LEU:HA | 1.30 | 1.11 |
| 1:CA:243:A:H4' | 1:CA:244:U:H5' | 1.29 | 1.11 |
| 20:AB:163:ILE:HG23 | 20:AB:164:ASP:H | 1.14 | 1.11 |
| 33:DL:7:SER:HB2 | 33:DL:8:PRO:HD3 | 1.24 | 1.11 |
| 36:BO:57:ALA:HB2 | 36:BO:62:LEU:HD22 | 1.30 | 1.10 |
| 32:BK:108:ARG:HH21 | 37:BP:36:LYS:HG3 | 1.06 | 1.10 |
| 30:BH:82:SER:H | 30:BH:146:VAL:HG13 | 1.16 | 1.10 |
| 23:BB:2750:A:H4' | 29:BG:1:SER:HB2 | 1.34 | 1.09 |
| 34:BM:3:GLN:H | 34:BM:4:PRO:HD2 | 1.04 | 1.09 |
| 34:DM:57:VAL:HG21 | 34:DM:112:LEU:HD21 | 1.33 | 1.09 |
| 23:BB:38:A:O4' | 27:BE:46:GLN:HG3 | 1.53 | 1.08 |
| 20:CB:46:VAL:HG13 | 20:CB:47:PRO:HD3 | 1.35 | 1.08 |
| 25:DC:33:LEU:HD22 | 25:DC:34:GLU:HG3 | 1.35 | 1.08 |
| 11:CL:43:LYS:HB3 | 11:CL:44:PRO:HD2 | 1.28 | 1.08 |
| 1:CA:974:A:H4' | 1:CA:975:A:H5' | 1.28 | 1.08 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:DB:2527:C:H5'' | 51:D4:34:LYS:HG3 | 1.35 | 1.08 |
| 1:CA:699:C:H2' | 1:CA:700:G:H5'' | 1.28 | 1.08 |
| 1:AA:243:A:H4' | 1:AA:244:U:H5' | 1.29 | 1.07 |
| 26:BD:24:VAL:HG21 | 26:BD:193:VAL:HG11 | 1.36 | 1.06 |
| 43:DW:38:ARG:HH21 | 43:DW:40:ARG:HD3 | 1.16 | 1.06 |
| 25:BC:42:ARG:HG2 | 25:BC:43:ASN:H | 1.14 | 1.06 |
| 23:BB:100:U:H4' | 42:BU:90:LYS:HE2 | 1.36 | 1.05 |
| 23:DB:1098:A:H3' | 52:DI:3:LYS:HA | 1.37 | 1.05 |
| 25:BC:107:LYS:HB2 | 25:BC:194:VAL:HG11 | 1.39 | 1.05 |
| 23:BB:161:A:H3' | 23:BB:162:U:H5'' | 1.35 | 1.05 |
| 23:BB:2204:G:H5' | 25:BC:149:LYS:HE3 | 1.36 | 1.04 |
| 23:DB:45:G:H5'' | 23:DB:46:G:H5' | 1.36 | 1.04 |
| 23:BB:2333:A:H4' | 23:BB:2334:U:H5'' | 1.40 | 1.04 |
| 23:DB:1099:G:H8 | 52:DI:3:LYS:N | 1.56 | 1.04 |
| 30:DH:3:VAL:HG22 | 30:DH:21:VAL:HG11 | 1.39 | 1.04 |
| 33:BL:14:LYS:HA | 33:BL:14:LYS:HZ3 | 1.20 | 1.04 |
| 35:DN:45:ARG:HH22 | 35:DN:113:ILE:HG23 | 1.21 | 1.04 |
| 25:DC:107:LYS:HB2 | 25:DC:194:VAL:HG21 | 1.38 | 1.04 |
| 31:DJ:102:GLU:HG3 | 31:DJ:124:VAL:HG12 | 1.40 | 1.03 |
| 31:BJ:135:GLN:HG2 | 31:BJ:137:PRO:HD2 | 1.40 | 1.03 |
| 43:BW:47:GLY:HA3 | 43:BW:55:ASP:HB3 | 1.39 | 1.03 |
| 37:BP:52:ARG:HB3 | 37:BP:60:VAL:HG11 | 1.37 | 1.03 |
| 38:DQ:48:ASP:HA | 38:DQ:51:GLN:HE21 | 1.20 | 1.03 |
| 18:AS:18:VAL:HG21 | 18:AS:43:MET:HG2 | 1.35 | 1.03 |
| 36:DO:56:LYS:HE2 | 36:DO:81:ARG:HE | 1.16 | 1.03 |
| 23:BB:923:G:H1' | 43:BW:23:LYS:HD3 | 1.38 | 1.03 |
| 27:BE:128:ALA:HB3 | 27:BE:129:PRO:HD3 | 1.36 | 1.03 |
| 20:AB:46:VAL:HG13 | 20:AB:47:PRO:HD3 | 1.38 | 1.03 |
| 42:DU:28:LEU:HD13 | 42:DU:30:SER:H | 1.24 | 1.03 |
| 30:BH:37:VAL:H | 30:BH:38:PRO:HD2 | 1.23 | 1.03 |
| 51:D4:26:ILE:HG13 | 51:D4:35:GLN:H | 1.22 | 1.02 |
| 33:DL:51:GLU:HG2 | 33:DL:52:GLY:H | 1.24 | 1.02 |
| 23:DB:323:C:H1' | 27:DE:164:LEU:HB3 | 1.39 | 1.02 |
| 30:DH:6:LEU:HD12 | 30:DH:36:ALA:H | 1.24 | 1.02 |
| 37:DP:93:LYS:HG2 | 37:DP:96:LEU:HA | 1.41 | 1.02 |
| 33:BL:61:LEU:HB3 | 33:BL:62:PRO:HD2 | 1.42 | 1.02 |
| 15:AP:42:ILE:HB | 15:AP:46:LYS:HD2 | 1.42 | 1.02 |
| 32:BK:71:ARG:HB3 | 32:BK:72:PRO:HD2 | 1.04 | 1.02 |
| 45:BY:16:LEU:HB2 | 45:BY:17:PRO:HD3 | 1.37 | 1.02 |
| 33:BL:13:LYS:HG3 | 33:BL:14:LYS:H | 1.25 | 1.02 |
| 46:BZ:8:LYS:HD2 | 46:BZ:9:TYR:H | 1.22 | 1.02 |
| 32:BK:71:ARG:HB3 | 32:BK:72:PRO:CD | 1.90 | 1.01 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 32:BK:8:LEU:HD23 | 32:BK:82:ASN:HB3 | 1.41 | 1.01 |
| 23:DB:1099:G:P | 52:DI:4:VAL:H | 1.83 | 1.01 |
| 37:DP:47:ILE:HG22 | 37:DP:48:ALA:H | 1.22 | 1.01 |
| 23:DB:2091:C:H3' | 23:DB:2092:U:H5'' | 1.43 | 1.01 |
| 23:DB:2333:A:H4' | 23:DB:2334:U:H5'' | 1.40 | 1.00 |
| 8:CI:27:ILE:HG23 | 8:CI:34:LEU:HB2 | 1.42 | 1.00 |
| 48:D1:46:VAL:HG13 | 48:D1:47:ILE:HG13 | 1.41 | 1.00 |
| 34:BM:38:ARG:HB2 | 34:BM:38:ARG:HH11 | 1.26 | 1.00 |
| 23:BB:2052:A:H4' | 26:BD:148:GLN:H | 1.24 | 1.00 |
| 23:DB:1025:G:H1' | 23:DB:1135:C:H5' | 1.43 | 1.00 |
| 24:DV:63:ILE:H | 24:DV:70:ILE:HD11 | 1.23 | 1.00 |
| 23:BB:1454:C:H5' | 35:BN:63:ARG:HH21 | 1.24 | 1.00 |
| 23:BB:442:G:H1' | 27:BE:44:ARG:HD2 | 1.38 | 1.00 |
| 23:BB:692:C:H5' | 25:BC:42:ARG:HB2 | 1.40 | 1.00 |
| 16:AQ:76:ARG:HE | 16:AQ:78:VAL:HG22 | 1.27 | 1.00 |
| 11:AL:8:ARG:HG3 | 11:AL:9:LYS:H | 1.24 | 1.00 |
| 5:CF:3:HIS:HB3 | 5:CF:92:THR:HA | 1.41 | 1.00 |
| 23:DB:136:G:H2' | 23:DB:137:U:C6 | 1.97 | 0.99 |
| 25:DC:107:LYS:HE3 | 25:DC:108:GLY:H | 1.23 | 0.99 |
| 20:AB:67:LEU:HD11 | 20:AB:157:PRO:HB3 | 1.44 | 0.99 |
| 26:DD:197:THR:HG23 | 26:DD:198:GLY:H | 1.28 | 0.99 |
| 46:DZ:55:GLY:HA2 | 46:DZ:59:ARG:HB2 | 1.43 | 0.99 |
| 25:DC:230:PRO:HG2 | 25:DC:245:THR:H | 1.27 | 0.99 |
| 3:AD:7:LYS:HE2 | 3:AD:20:LEU:HD13 | 1.43 | 0.99 |
| 25:DC:171:VAL:HB | 25:DC:182:LYS:HB3 | 1.45 | 0.99 |
| 1:CA:973:G:H3' | 1:CA:974:A:H5'' | 1.45 | 0.99 |
| 43:DW:13:ARG:HE | 43:DW:13:ARG:H | 1.08 | 0.98 |
| 25:BC:139:THR:HG22 | 25:BC:193:GLU:HB3 | 1.44 | 0.98 |
| 13:AN:60:ARG:HD3 | 13:AN:60:ARG:H | 1.28 | 0.98 |
| 23:DB:2377:A:H61 | 36:DO:13:ARG:HH21 | 1.07 | 0.98 |
| 27:DE:169:VAL:HG13 | 27:DE:170:ARG:H | 1.29 | 0.98 |
| 9:AJ:35:GLN:HB3 | 9:AJ:77:VAL:HG23 | 1.40 | 0.98 |
| 41:DT:66:LYS:H | 41:DT:76:ARG:HH21 | 1.11 | 0.98 |
| 23:DB:858:G:N3 | 23:DB:2268:A:H2' | 1.78 | 0.98 |
| 39:BR:78:ARG:HB3 | 39:BR:87:GLN:HA | 1.45 | 0.97 |
| 25:DC:48:ILE:HG22 | 25:DC:49:THR:H | 1.26 | 0.97 |
| 51:D4:11:CYS:HB2 | 51:D4:14:CYS:HB2 | 1.46 | 0.97 |
| 23:BB:2266:A:H4' | 23:BB:2267:A:N7 | 1.80 | 0.97 |
| 50:D3:49:VAL:HG22 | 50:D3:50:SER:H | 1.28 | 0.97 |
| 33:BL:29:LYS:HD2 | 33:BL:31:GLY:H | 1.27 | 0.97 |
| 40:BS:6:LYS:HA | 40:BS:104:THR:HA | 1.46 | 0.97 |
| 23:BB:396:G:H4' | 46:BZ:28:VAL:HG21 | 1.46 | 0.97 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:BB:2478:A:H5' | 51:B4:32:LYS:HD2 | 1.47 | 0.97 |
| 45:BY:10:ARG:HE | 45:BY:31:ILE:HG13 | 1.27 | 0.97 |
| 25:BC:53:ILE:HD13 | 25:BC:218:THR:HG23 | 1.45 | 0.97 |
| 23:DB:1099:G:C8 | 52:DI:3:LYS:N | 2.32 | 0.97 |
| 46:BZ:3:LYS:HB2 | 46:BZ:51:VAL:HG21 | 1.45 | 0.97 |
| 46:BZ:33:ASN:HB2 | 46:BZ:44:PHE:HB2 | 1.44 | 0.97 |
| 39:DR:63:VAL:HG22 | 39:DR:64:VAL:H | 1.28 | 0.97 |
| 32:BK:26:GLY:HA3 | 32:BK:30:ARG:HE | 1.29 | 0.97 |
| 23:BB:482:A:H5'' | 42:BU:43:LYS:HE3 | 1.47 | 0.97 |
| 40:DS:46:LEU:HA | 40:DS:49:LYS:HB2 | 1.45 | 0.97 |
| 41:DT:48:GLN:HA | 41:DT:53:VAL:HG22 | 1.46 | 0.97 |
| 23:BB:528:A:N1 | 23:BB:2042:A:H2' | 1.80 | 0.97 |
| 23:BB:1450:G:H21 | 23:BB:1452:G:H1 | 1.12 | 0.97 |
| 32:BK:71:ARG:CB | 32:BK:72:PRO:HD2 | 1.95 | 0.96 |
| 22:BA:75:G:H1' | 24:BV:29:ILE:HD13 | 1.44 | 0.96 |
| 26:BD:170:VAL:HG13 | 26:BD:171:THR:H | 1.29 | 0.96 |
| 23:BB:858:G:H21 | 23:BB:2268:A:H3' | 1.31 | 0.96 |
| 8:AI:29:ILE:HG22 | 8:AI:64:ILE:HB | 1.47 | 0.96 |
| 31:DJ:35:ARG:HH12 | 31:DJ:40:HIS:H | 0.98 | 0.96 |
| 45:DY:18:LYS:HD2 | 45:DY:18:LYS:H | 1.28 | 0.96 |
| 38:DQ:53:LYS:HE2 | 38:DQ:53:LYS:H | 1.30 | 0.96 |
| 31:DJ:124:VAL:HG23 | 31:DJ:125:TYR:H | 1.27 | 0.96 |
| 28:BF:36:ASN:HB2 | 28:BF:87:LYS:HA | 1.47 | 0.96 |
| 1:CA:1320:C:H5'' | 18:CS:2:ARG:HD3 | 1.47 | 0.96 |
| 35:BN:113:ILE:HG22 | 35:BN:114:GLU:H | 1.30 | 0.96 |
| 31:BJ:81:ILE:HG13 | 31:BJ:82:GLY:H | 1.26 | 0.96 |
| 51:D4:3:VAL:HG12 | 51:D4:4:ARG:H | 1.30 | 0.96 |
| 21:CU:17:ARG:H | 21:CU:17:ARG:HD2 | 1.29 | 0.96 |
| 25:BC:28:PRO:HD2 | 25:BC:79:ARG:HH21 | 1.27 | 0.96 |
| 1:CA:1003:G:H21 | 1:CA:1005:A:H5' | 1.27 | 0.96 |
| 39:BR:74:ILE:HA | 39:BR:90:ARG:HE | 1.27 | 0.96 |
| 37:DP:25:VAL:HG11 | 37:DP:87:ARG:HA | 1.47 | 0.96 |
| 23:BB:858:G:N3 | 23:BB:2268:A:H2' | 1.81 | 0.96 |
| 42:DU:66:VAL:HG22 | 42:DU:67:SER:H | 1.29 | 0.96 |
| 1:CA:1151:A:HO2' | 1:CA:1152:A:H8 | 1.12 | 0.96 |
| 34:DM:5:LYS:HE3 | 34:DM:6:ARG:N | 1.80 | 0.96 |
| 10:CK:78:ILE:HD13 | 10:CK:78:ILE:H | 1.28 | 0.96 |
| 5:CF:29:ILE:HD13 | 5:CF:64:VAL:HG11 | 1.48 | 0.95 |
| 38:BQ:92:LYS:HG2 | 38:BQ:93:ILE:H | 1.29 | 0.95 |
| 46:DZ:54:GLY:H | 46:DZ:57:VAL:HG23 | 1.31 | 0.95 |
| 13:AN:63:CYS:HB3 | 13:AN:67:GLY:H | 1.30 | 0.95 |
| 31:DJ:40:HIS:HB2 | 38:DQ:69:ARG:HH22 | 1.29 | 0.95 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 20:CB:156:LEU:HD11 | 20:CB:178:LEU:HD13 | 1.47 | 0.95 |
| 25:BC:28:PRO:HD2 | 25:BC:79:ARG:NH2 | 1.82 | 0.95 |
| 23:DB:1368:G:H5'' | 49:D2:25:LYS:HG2 | 1.46 | 0.95 |
| 23:BB:1392:A:H62 | 41:BT:18:GLU:HG2 | 1.30 | 0.95 |
| 41:BT:88:LYS:HG2 | 41:BT:89:GLU:H | 1.30 | 0.95 |
| 23:BB:2576:G:P | 26:BD:149:ASN:HB2 | 2.07 | 0.95 |
| 19:AT:68:LYS:HG3 | 19:AT:69:ASN:H | 1.29 | 0.95 |
| 31:DJ:84:ILE:HD12 | 31:DJ:85:LYS:H | 1.31 | 0.95 |
| 27:DE:127:GLU:HA | 27:DE:157:LEU:HD13 | 1.49 | 0.95 |
| 18:AS:49:ALA:HB1 | 18:AS:56:HIS:HB3 | 1.49 | 0.94 |
| 5:AF:53:LYS:HD3 | 5:AF:54:LEU:H | 1.30 | 0.94 |
| 12:AM:48:SER:H | 12:AM:51:GLN:HB2 | 1.33 | 0.94 |
| 1:CA:437:U:H2' | 1:CA:438:U:O4' | 1.67 | 0.94 |
| 46:DZ:30:HIS:HB2 | 46:DZ:48:GLN:HG2 | 1.48 | 0.94 |
| 23:DB:2377:A:H61 | 36:DO:13:ARG:NH2 | 1.64 | 0.94 |
| 40:BS:71:VAL:HG22 | 40:BS:107:VAL:HG12 | 1.45 | 0.94 |
| 44:BX:24:GLU:HA | 44:BX:28:LEU:HB2 | 1.47 | 0.94 |
| 1:AA:764:C:H3' | 1:AA:765:G:H21 | 1.33 | 0.94 |
| 39:DR:65:ALA:HB3 | 39:DR:99:THR:HG23 | 1.48 | 0.94 |
| 8:CI:118:ARG:HH21 | 8:CI:122:ARG:HE | 1.13 | 0.94 |
| 43:BW:35:ILE:HG23 | 43:BW:36:ILE:H | 1.32 | 0.94 |
| 27:BE:116:ASP:HB2 | 27:BE:185:LYS:HA | 1.50 | 0.94 |
| 38:BQ:93:ILE:HG23 | 38:BQ:94:LEU:HD13 | 1.50 | 0.94 |
| 27:BE:47:LYS:HD3 | 27:BE:47:LYS:H | 1.30 | 0.94 |
| 23:DB:918:A:H2' | 23:DB:919:U:H5' | 1.46 | 0.94 |
| 3:CD:167:PRO:HG2 | 3:CD:170:LEU:HD11 | 1.48 | 0.94 |
| 46:BZ:36:VAL:HA | 46:BZ:42:PRO:HB3 | 1.45 | 0.94 |
| 51:B4:12:ARG:HD2 | 51:B4:12:ARG:H | 1.32 | 0.94 |
| 21:AU:3:ILE:HA | 21:AU:19:LYS:HG2 | 1.50 | 0.94 |
| 34:DM:57:VAL:HG12 | 34:DM:58:LYS:H | 1.30 | 0.94 |
| 10:CK:19:VAL:HG22 | 10:CK:34:THR:HG22 | 1.49 | 0.94 |
| 37:DP:47:ILE:HG23 | 37:DP:63:ILE:HA | 1.46 | 0.94 |
| 28:BF:133:GLU:HG2 | 28:BF:147:ARG:HG2 | 1.49 | 0.94 |
| 1:AA:437:U:H2' | 1:AA:438:U:O4' | 1.67 | 0.94 |
| 23:DB:972:A:H3' | 23:DB:973:A:H5'' | 1.48 | 0.93 |
| 24:BV:4:ILE:HB | 24:BV:63:ILE:HA | 1.49 | 0.93 |
| 31:DJ:41:LYS:HZ1 | 38:DQ:63:ARG:HD2 | 1.33 | 0.93 |
| 23:DB:1199:U:H2' | 23:DB:1200:C:H6 | 1.31 | 0.93 |
| 26:DD:77:ARG:HH21 | 26:DD:79:LEU:HB2 | 1.30 | 0.93 |
| 1:AA:1313:U:H5'' | 18:AS:5:LYS:HG2 | 1.49 | 0.93 |
| 23:DB:1450:G:H21 | 23:DB:1452:G:H1 | 1.12 | 0.93 |
| 30:DH:125:THR:HA | 30:DH:146:VAL:HB | 1.51 | 0.93 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 13:CN:50:LEU:H | 13:CN:51:PRO:HD2 | 1.33 | 0.93 |
| 23:DB:142:A:H2' | 23:DB:143:C:C6 | 2.03 | 0.93 |
| 41:BT:54:GLU:H | 41:BT:91:GLN:HE22 | 1.15 | 0.93 |
| 28:DF:28:PRO:HB2 | 28:DF:168:LEU:HD12 | 1.48 | 0.93 |
| 44:BX:28:LEU:HB3 | 44:BX:34:SER:HA | 1.49 | 0.93 |
| 1:CA:264:C:H4' | 16:CQ:64:ARG:HD2 | 1.49 | 0.93 |
| 37:DP:26:GLU:HA | 37:DP:47:ILE:H | 1.33 | 0.93 |
| 12:AM:78:ARG:HH21 | 12:AM:79:LEU:HG | 1.33 | 0.93 |
| 23:DB:2574:G:H21 | 26:DD:147:GLY:HA3 | 1.31 | 0.93 |
| 23:DB:2304:G:H4' | 28:DF:129:MET:HA | 1.48 | 0.93 |
| 38:BQ:33:VAL:HG13 | 38:BQ:34:ALA:H | 1.31 | 0.93 |
| 28:DF:32:LYS:HB3 | 28:DF:91:ARG:HB3 | 1.48 | 0.93 |
| 10:AK:22:ILE:HG21 | 10:AK:95:THR:HG21 | 1.51 | 0.93 |
| 33:DL:85:VAL:HG13 | 33:DL:86:GLU:H | 1.33 | 0.93 |
| 14:AO:6:ALA:HA | 14:AO:9:LYS:HE3 | 1.50 | 0.93 |
| 37:DP:100:ARG:HH11 | 37:DP:100:ARG:HB3 | 1.32 | 0.93 |
| 23:BB:37:C:H2' | 27:BE:46:GLN:CG | 1.99 | 0.93 |
| 33:BL:14:LYS:NZ | 33:BL:14:LYS:HA | 1.82 | 0.93 |
| 26:BD:16:THR:HG23 | 26:BD:17:GLU:H | 1.33 | 0.93 |
| 33:BL:94:THR:HG23 | 33:BL:95:LEU:HD12 | 1.50 | 0.93 |
| 43:DW:35:ILE:HD12 | 43:DW:35:ILE:H | 1.34 | 0.92 |
| 23:BB:919:U:H2' | 23:BB:920:A:C8 | 2.05 | 0.92 |
| 49:B2:42:LEU:HD11 | 49:B2:44:VAL:HG13 | 1.48 | 0.92 |
| 41:BT:8:LEU:HB3 | 44:BX:19:LEU:HD11 | 1.48 | 0.92 |
| 23:BB:480:A:H4' | 42:BU:42:LYS:HG2 | 1.51 | 0.92 |
| 23:DB:1099:G:P | 52:DI:3:LYS:HA | 2.09 | 0.92 |
| 46:BZ:25:ARG:HB2 | 46:BZ:25:ARG:HH11 | 1.33 | 0.92 |
| 23:DB:2046:G:H5' | 47:D0:15:ARG:HD2 | 1.51 | 0.92 |
| 32:BK:66:LYS:HG2 | 32:BK:80:ASP:HA | 1.49 | 0.92 |
| 27:BE:48:THR:HG22 | 27:BE:49:ARG:H | 1.34 | 0.92 |
| 33:BL:60:ARG:HA | 33:BL:60:ARG:HH11 | 1.31 | 0.92 |
| 48:D1:47:ILE:HG22 | 48:D1:48:TYR:H | 1.34 | 0.92 |
| 23:BB:535:G:H21 | 38:BQ:52:ARG:HH22 | 1.13 | 0.92 |
| 22:DA:48:U:H2' | 22:DA:49:C:C6 | 2.03 | 0.92 |
| 23:DB:1024:G:H3' | 23:DB:1025:G:H5'' | 1.50 | 0.92 |
| 21:CU:24:LYS:HD2 | 21:CU:25:ALA:H | 1.34 | 0.92 |
| 28:DF:13:LYS:HA | 28:DF:16:MET:HB2 | 1.51 | 0.92 |
| 33:BL:90:VAL:HG11 | 33:BL:121:THR:H | 1.34 | 0.92 |
| 23:DB:1099:G:H8 | 52:DI:3:LYS:CA | 1.83 | 0.92 |
| 32:BK:70:ARG:HB3 | 32:BK:76:VAL:HG22 | 1.50 | 0.92 |
| 41:DT:76:ARG:HH12 | 41:DT:78:SER:HB2 | 1.35 | 0.92 |
| 39:BR:47:VAL:HG13 | 39:BR:49:ILE:H | 1.34 | 0.92 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 12:CM:52:ILE:HG13 | 12:CM:56:ARG:HH22 | 1.33 | 0.92 |
| 27:BE:143:LEU:HG | 27:BE:185:LYS:HD2 | 1.51 | 0.92 |
| 30:BH:134:VAL:HG13 | 30:BH:135:HIS:H | 1.35 | 0.92 |
| 37:DP:27:VAL:HG13 | 37:DP:47:ILE:HD12 | 1.49 | 0.92 |
| 27:DE:148:ILE:HA | 27:DE:185:LYS:HB3 | 1.50 | 0.92 |
| 27:DE:142:ALA:H | 27:DE:185:LYS:HZ1 | 1.12 | 0.92 |
| 26:BD:118:PHE:HA | 26:BD:164:GLN:HA | 1.52 | 0.92 |
| 9:CJ:51:VAL:HG23 | 13:CN:80:ARG:HB2 | 1.51 | 0.92 |
| 23:BB:543:G:H2' | 23:BB:544:C:H5'' | 1.51 | 0.92 |
| 1:AA:1086:U:H3 | 1:AA:1099:G:H22 | 1.05 | 0.92 |
| 28:BF:168:LEU:HD12 | 28:BF:169:LEU:H | 1.35 | 0.92 |
| 3:CD:58:GLN:HA | 3:CD:58:GLN:HE21 | 1.35 | 0.92 |
| 33:BL:77:ILE:HB | 33:BL:110:VAL:HG22 | 1.51 | 0.92 |
| 1:CA:1367:C:H5'' | 8:CI:115:VAL:HG23 | 1.49 | 0.92 |
| 26:BD:126:ASN:O | 26:BD:127:PHE:HB2 | 1.70 | 0.92 |
| 31:BJ:64:VAL:HG11 | 31:BJ:68:LYS:HD2 | 1.50 | 0.91 |
| 23:DB:856:G:H4' | 43:DW:23:LYS:HD2 | 1.52 | 0.91 |
| 30:DH:26:ALA:HB2 | 30:DH:30:LEU:HG | 1.49 | 0.91 |
| 23:BB:630:G:H1 | 33:BL:69:ARG:HH22 | 1.04 | 0.91 |
| 34:BM:96:ILE:HG23 | 34:BM:97:GLN:H | 1.35 | 0.91 |
| 10:AK:124:LYS:HA | 21:AU:34:ARG:HB3 | 1.49 | 0.91 |
| 40:DS:23:LEU:HB2 | 47:D0:21:LEU:HD13 | 1.52 | 0.91 |
| 23:DB:2054:A:H2' | 47:D0:4:GLN:HE22 | 1.35 | 0.91 |
| 1:AA:376:G:H5'' | 15:AP:5:ARG:HB2 | 1.52 | 0.91 |
| 21:CU:4:LYS:HB3 | 21:CU:6:ARG:HH12 | 1.32 | 0.91 |
| 25:DC:127:ASN:HD22 | 25:DC:128:THR:H | 1.15 | 0.91 |
| 33:BL:55:MET:HG2 | 33:BL:56:PRO:HD3 | 1.52 | 0.91 |
| 23:DB:27:G:H22 | 23:DB:512:G:H2' | 1.35 | 0.91 |
| 23:BB:1639:C:H2' | 23:BB:1640:A:H5'' | 1.52 | 0.91 |
| 20:AB:9:LEU:HD22 | 20:AB:11:ALA:H | 1.33 | 0.91 |
| 31:BJ:45:THR:HB | 38:BQ:63:ARG:HH22 | 1.35 | 0.91 |
| 36:DO:40:ILE:HD13 | 36:DO:40:ILE:H | 1.35 | 0.91 |
| 41:DT:55:VAL:HG22 | 41:DT:56:GLU:H | 1.33 | 0.91 |
| 38:BQ:91:ARG:H | 39:BR:10:LYS:HZ2 | 0.93 | 0.91 |
| 10:AK:86:LYS:HG3 | 10:AK:113:THR:HA | 1.53 | 0.91 |
| 23:BB:1453:A:N6 | 35:BN:74:GLU:HG2 | 1.85 | 0.91 |
| 23:DB:360:U:H2' | 23:DB:361:G:O4' | 1.70 | 0.91 |
| 27:DE:4:VAL:HG13 | 27:DE:5:LEU:H | 1.36 | 0.91 |
| 23:BB:670:A:H3' | 33:BL:47:ARG:HH11 | 1.32 | 0.91 |
| 10:CK:20:ALA:HB3 | 10:CK:83:VAL:HA | 1.53 | 0.91 |
| 30:BH:5:LEU:H | 30:BH:5:LEU:HD22 | 1.35 | 0.91 |
| 40:DS:29:VAL:HG22 | 40:DS:71:VAL:HG23 | 1.50 | 0.91 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 50:D3:12:ARG:HB3 | 50:D3:23:HIS:HB2 | 1.52 | 0.91 |
| 2:CC:59:PRO:HG2 | 2:CC:62:SER:HB2 | 1.49 | 0.91 |
| 1:CA:764:C:H3' | 1:CA:765:G:H21 | 1.33 | 0.91 |
| 31:DJ:81:ILE:HG23 | 31:DJ:82:GLY:H | 1.34 | 0.91 |
| 50:B3:12:ARG:HB3 | 50:B3:23:HIS:HA | 1.53 | 0.91 |
| 36:DO:66:GLY:H | 36:DO:70:ALA:HB2 | 1.34 | 0.91 |
| 37:DP:47:ILE:HG12 | 37:DP:63:ILE:HG23 | 1.52 | 0.90 |
| 6:AG:125:ASP:HB3 | 6:AG:130:LYS:HB3 | 1.53 | 0.90 |
| 26:DD:29:VAL:HG22 | 26:DD:30:GLU:H | 1.36 | 0.90 |
| 26:BD:115:GLY:HA2 | 26:BD:165:MET:HG3 | 1.53 | 0.90 |
| 51:D4:18:LYS:HE2 | 51:D4:19:ARG:N | 1.86 | 0.90 |
| 32:DK:78:ARG:HH22 | 37:DP:62:LYS:HZ2 | 1.16 | 0.90 |
| 49:B2:44:VAL:HG23 | 49:B2:45:SER:H | 1.37 | 0.90 |
| 27:BE:60:TRP:HE1 | 27:BE:73:ILE:HD11 | 1.34 | 0.90 |
| 21:AU:13:VAL:HG13 | 21:AU:14:ALA:H | 1.35 | 0.90 |
| 23:DB:1060:U:N3 | 23:DB:1088:A:N7 | 2.20 | 0.90 |
| 23:BB:691:C:O2' | 25:BC:42:ARG:HD2 | 1.70 | 0.90 |
| 23:BB:811:U:H2' | 33:BL:31:GLY:HA3 | 1.53 | 0.90 |
| 38:BQ:5:ARG:HB2 | 38:BQ:5:ARG:HH11 | 1.34 | 0.90 |
| 25:BC:30:ALA:H | 25:BC:31:PRO:HD3 | 1.36 | 0.90 |
| 25:DC:224:MET:HA | 25:DC:233:GLY:H | 1.36 | 0.90 |
| 25:BC:143:VAL:HG12 | 25:BC:144:GLU:H | 1.35 | 0.90 |
| 1:CA:719:C:H1' | 17:CR:37:LYS:HB2 | 1.52 | 0.90 |
| 2:AC:156:LEU:H | 2:AC:156:LEU:HD12 | 1.33 | 0.90 |
| 23:DB:2645:G:H3' | 23:DB:2646:C:H5' | 1.54 | 0.90 |
| 1:CA:451:A:H5' | 15:CP:70:ARG:HH22 | 1.35 | 0.90 |
| 28:DF:140:ILE:HD12 | 28:DF:140:ILE:H | 1.37 | 0.90 |
| 37:BP:50:ARG:HH11 | 37:BP:50:ARG:HB2 | 1.33 | 0.90 |
| 18:CS:29:PRO:HA | 18:CS:47:THR:HB | 1.54 | 0.90 |
| 20:CB:15:PHE:HA | 20:CB:42:LEU:HD21 | 1.51 | 0.90 |
| 27:DE:149:ILE:HD13 | 27:DE:186:VAL:HG13 | 1.54 | 0.90 |
| 50:B3:24:LYS:HA | 50:B3:45:PRO:HB3 | 1.54 | 0.90 |
| 50:D3:32:LEU:HD13 | 50:D3:33:THR:H | 1.35 | 0.90 |
| 41:DT:31:VAL:HG13 | 41:DT:32:LEU:H | 1.37 | 0.90 |
| 32:BK:103:VAL:HB | 32:BK:107:LEU:HD23 | 1.54 | 0.90 |
| 34:BM:3:GLN:N | 34:BM:4:PRO:HD2 | 1.82 | 0.89 |
| 31:DJ:98:GLU:HB3 | 31:DJ:124:VAL:HB | 1.51 | 0.89 |
| 23:BB:1283:G:H22 | 23:BB:1286:A:H5' | 1.36 | 0.89 |
| 1:AA:1211:U:H4' | 1:AA:1213:A:H1' | 1.54 | 0.89 |
| 20:AB:202:ASN:HD22 | 20:AB:204:ASP:H | 1.20 | 0.89 |
| 5:CF:38:ARG:HH11 | 5:CF:98:GLU:H | 1.18 | 0.89 |
| 40:BS:27:LYS:H | 40:BS:27:LYS:HD2 | 1.33 | 0.89 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 31:DJ:58:ASN:O | 31:DJ:126:ALA:HA | 1.71 | 0.89 |
| 34:BM:70:ASP:N | 34:BM:71:LYS:HZ2 | 1.69 | 0.89 |
| 23:BB:2575:C:H4' | 26:BD:148:GLN:HA | 1.54 | 0.89 |
| 45:BY:9:THR:HA | 45:BY:55:LYS:HE2 | 1.53 | 0.89 |
| 31:BJ:78:THR:H | 31:BJ:84:ILE:HG21 | 1.35 | 0.89 |
| 7:AH:103:VAL:HG12 | 7:AH:124:ILE:HA | 1.53 | 0.89 |
| 44:DX:18:LEU:HD22 | 44:DX:18:LEU:H | 1.36 | 0.89 |
| 23:BB:855:G:N2 | 43:BW:23:LYS:HD2 | 1.86 | 0.89 |
| 23:BB:2645:G:H3' | 23:BB:2646:C:H5' | 1.54 | 0.89 |
| 41:BT:58:VAL:HG13 | 41:BT:85:VAL:HG12 | 1.51 | 0.89 |
| 52:BI:27:LEU:HD23 | 52:BI:27:LEU:H | 1.37 | 0.89 |
| 23:BB:45:G:H5' | 23:BB:46:G:H5' | 1.53 | 0.89 |
| 23:DB:161:A:H3' | 23:DB:162:U:H5'' | 1.53 | 0.89 |
| 24:DV:25:LYS:HE2 | 24:DV:41:GLU:HB2 | 1.54 | 0.89 |
| 26:BD:2:ILE:HG21 | 26:BD:204:LYS:HA | 1.52 | 0.89 |
| 34:DM:18:ARG:HD3 | 34:DM:18:ARG:H | 1.36 | 0.89 |
| 5:CF:6:ILE:HG23 | 5:CF:62:MET:HB3 | 1.52 | 0.89 |
| 46:BZ:5:ILE:HD12 | 46:BZ:5:ILE:H | 1.37 | 0.89 |
| 25:DC:50:THR:HG22 | 25:DC:51:ARG:HG3 | 1.52 | 0.89 |
| 25:BC:229:HIS:NE2 | 25:BC:244:VAL:HG22 | 1.88 | 0.89 |
| 33:BL:77:ILE:HD13 | 33:BL:92:LEU:HD13 | 1.52 | 0.89 |
| 30:DH:86:ASP:HB2 | 30:DH:89:LYS:HD3 | 1.55 | 0.89 |
| 23:DB:1283:G:H22 | 23:DB:1286:A:H5' | 1.36 | 0.89 |
| 1:CA:699:C:C2' | 1:CA:700:G:H5'' | 2.02 | 0.89 |
| 34:BM:33:LEU:HD22 | 34:BM:124:LEU:HG | 1.54 | 0.89 |
| 33:BL:30:THR:HB | 33:BL:36:LYS:HB2 | 1.55 | 0.89 |
| 23:DB:2156:G:H2' | 23:DB:2157:G:H4' | 1.53 | 0.89 |
| 23:DB:2839:G:H4' | 35:DN:49:GLU:HG2 | 1.55 | 0.89 |
| 23:BB:1060:U:N3 | 23:BB:1088:A:N7 | 2.20 | 0.89 |
| 5:CF:3:HIS:HA | 5:CF:65:GLU:HG3 | 1.54 | 0.89 |
| 23:DB:919:U:H2' | 23:DB:920:A:C8 | 2.07 | 0.89 |
| 50:B3:15:LYS:HG2 | 50:B3:19:GLY:HA2 | 1.55 | 0.89 |
| 23:DB:1639:C:H2' | 23:DB:1640:A:H5'' | 1.52 | 0.89 |
| 13:CN:26:LEU:HG | 13:CN:44:VAL:HG22 | 1.55 | 0.89 |
| 37:DP:27:VAL:HA | 37:DP:86:LYS:HE2 | 1.53 | 0.88 |
| 23:BB:654:A:H2' | 23:BB:655:A:H5'' | 1.55 | 0.88 |
| 43:BW:48:ALA:HA | 43:BW:54:ARG:H | 1.38 | 0.88 |
| 33:BL:118:THR:HG23 | 33:BL:119:PRO:HD3 | 1.53 | 0.88 |
| 32:BK:99:ILE:HG12 | 32:BK:115:ILE:HG13 | 1.52 | 0.88 |
| 23:BB:2641:G:H5'' | 31:BJ:78:THR:HG21 | 1.53 | 0.88 |
| 23:BB:535:G:H21 | 38:BQ:52:ARG:NH2 | 1.70 | 0.88 |
| 11:CL:23:LEU:HD22 | 11:CL:58:ASN:HD22 | 1.38 | 0.88 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 1:AA:699:C:C2' | 1:AA:700:G:H5'' | 2.02 | 0.88 |
| 42:BU:12:VAL:HA | 42:BU:68:ASN:HD21 | 1.38 | 0.88 |
| 30:BH:21:VAL:HG22 | 30:BH:22:LYS:H | 1.38 | 0.88 |
| 34:DM:41:LEU:HD22 | 34:DM:95:LEU:HD13 | 1.53 | 0.88 |
| 23:DB:2751:G:H5' | 29:DG:3:VAL:HG21 | 1.53 | 0.88 |
| 23:BB:1021:A:H62 | 23:BB:1141:U:H3 | 1.18 | 0.88 |
| 33:DL:51:GLU:HG2 | 33:DL:52:GLY:N | 1.88 | 0.88 |
| 11:AL:48:LEU:HD23 | 11:AL:48:LEU:H | 1.34 | 0.88 |
| 26:BD:70:LYS:HA | 26:BD:70:LYS:HE3 | 1.54 | 0.88 |
| 50:B3:12:ARG:NH1 | 50:B3:12:ARG:HB2 | 1.87 | 0.88 |
| 25:BC:67:LYS:HG3 | 25:BC:68:ARG:H | 1.37 | 0.88 |
| 35:DN:5:LYS:HA | 35:DN:5:LYS:HE2 | 1.55 | 0.88 |
| 1:AA:74:A:C2' | 1:AA:75:G:H5'' | 2.04 | 0.88 |
| 28:DF:128:SER:HB3 | 28:DF:154:THR:HG23 | 1.56 | 0.88 |
| 23:BB:1141:U:H4' | 23:BB:1142:A:O4' | 1.74 | 0.88 |
| 33:BL:64:PHE:H | 50:B3:24:LYS:HD2 | 1.36 | 0.88 |
| 26:BD:34:VAL:HA | 26:BD:89:GLU:HB2 | 1.53 | 0.88 |
| 34:DM:29:GLY:H | 34:DM:102:LEU:HD12 | 1.38 | 0.88 |
| 44:DX:43:LEU:HB2 | 44:DX:45:GLN:NE2 | 1.89 | 0.88 |
| 20:AB:67:LEU:HD12 | 20:AB:153:MET:HE2 | 1.54 | 0.88 |
| 33:DL:126:ARG:O | 33:DL:127:VAL:HG22 | 1.74 | 0.88 |
| 35:BN:76:VAL:HA | 35:BN:79:LEU:HD12 | 1.56 | 0.88 |
| 23:DB:929:U:H4' | 45:DY:2:LYS:HE3 | 1.54 | 0.88 |
| 33:BL:79:LEU:HB3 | 33:BL:114:GLY:H | 1.35 | 0.88 |
| 37:DP:32:VAL:HA | 37:DP:42:PHE:HB3 | 1.55 | 0.88 |
| 30:BH:4:ILE:H | 30:BH:37:VAL:HB | 1.39 | 0.88 |
| 23:BB:396:G:H5' | 46:BZ:9:TYR:HB2 | 1.54 | 0.88 |
| 34:BM:38:ARG:NH1 | 34:BM:38:ARG:HB2 | 1.89 | 0.88 |
| 26:BD:5:VAL:HG11 | 26:BD:28:GLU:HA | 1.54 | 0.88 |
| 13:CN:30:ILE:HG21 | 13:CN:43:ALA:HB3 | 1.55 | 0.88 |
| 39:BR:37:GLU:HG2 | 39:BR:62:GLU:H | 1.38 | 0.88 |
| 23:DB:1141:U:H4' | 23:DB:1142:A:O4' | 1.74 | 0.88 |
| 45:BY:15:ARG:HB3 | 45:BY:18:LYS:HE3 | 1.56 | 0.88 |
| 1:AA:1409:C:N4 | 1:AA:1491:G:H1 | 1.72 | 0.87 |
| 32:DK:108:ARG:HA | 32:DK:116:ILE:HD13 | 1.56 | 0.87 |
| 37:BP:47:ILE:HG22 | 37:BP:48:ALA:H | 1.37 | 0.87 |
| 39:DR:89:HIS:O | 39:DR:90:ARG:HG3 | 1.74 | 0.87 |
| 39:DR:39:LEU:H | 39:DR:61:ALA:HB1 | 1.39 | 0.87 |
| 23:DB:654:A:H2' | 23:DB:655:A:H5'' | 1.54 | 0.87 |
| 43:BW:28:GLU:H | 43:BW:61:LYS:HB2 | 1.37 | 0.87 |
| 27:DE:49:ARG:HG3 | 27:DE:52:VAL:HG22 | 1.56 | 0.87 |
| 38:BQ:91:ARG:H | 39:BR:10:LYS:NZ | 1.73 | 0.87 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 41:BT:5:GLU:HG2 | 41:BT:6:ARG:H | 1.40 | 0.87 |
| 33:DL:124:GLY:H | 33:DL:142:ILE:HA | 1.37 | 0.87 |
| 5:AF:38:ARG:HB3 | 5:AF:63:ASN:HB2 | 1.55 | 0.87 |
| 26:DD:69:ALA:HB1 | 26:DD:92:VAL:HG13 | 1.56 | 0.87 |
| 2:AC:146:LYS:HD3 | 2:AC:204:GLY:HA2 | 1.56 | 0.87 |
| 23:DB:2032:G:N3 | 26:DD:150:GLN:HG2 | 1.90 | 0.87 |
| 23:BB:2147:A:H5' | 23:BB:2148:G:H5' | 1.55 | 0.87 |
| 42:BU:84:PHE:HB3 | 42:BU:92:VAL:HG22 | 1.57 | 0.87 |
| 27:DE:116:ASP:HB3 | 27:DE:185:LYS:HA | 1.56 | 0.87 |
| 26:DD:96:ILE:HG22 | 26:DD:98:VAL:H | 1.35 | 0.87 |
| 43:BW:19:ARG:HH22 | 43:BW:71:LYS:HD3 | 1.38 | 0.87 |
| 1:CA:1306:A:N6 | 1:CA:1331:G:H1' | 1.89 | 0.87 |
| 29:BG:29:ASN:HB2 | 29:BG:78:VAL:HA | 1.57 | 0.87 |
| 23:DB:1199:U:H2' | 23:DB:1200:C:C6 | 2.09 | 0.87 |
| 4:CE:19:ARG:HG2 | 4:CE:20:VAL:H | 1.39 | 0.87 |
| 42:BU:40:LEU:HD13 | 42:BU:41:VAL:N | 1.88 | 0.87 |
| 40:BS:34:ASP:H | 40:BS:37:THR:HG22 | 1.40 | 0.87 |
| 1:CA:1250:A:H4' | 8:CI:69:GLY:H | 1.38 | 0.87 |
| 42:BU:23:LYS:HG3 | 42:BU:24:VAL:HG23 | 1.55 | 0.87 |
| 43:DW:47:GLY:HA2 | 43:DW:71:LYS:HB3 | 1.57 | 0.87 |
| 23:BB:2052:A:H4' | 26:BD:148:GLN:N | 1.90 | 0.87 |
| 23:DB:1813:G:N3 | 25:DC:50:THR:HG21 | 1.89 | 0.87 |
| 37:DP:76:HIS:CD2 | 37:DP:76:HIS:H | 1.89 | 0.87 |
| 23:BB:2354:C:H4' | 43:BW:30:VAL:HG22 | 1.57 | 0.87 |
| 31:DJ:64:VAL:HG12 | 31:DJ:65:THR:H | 1.37 | 0.87 |
| 23:BB:547:A:H3' | 23:BB:548:G:H8 | 1.40 | 0.86 |
| 21:CU:34:ARG:HG2 | 21:CU:35:GLU:H | 1.39 | 0.86 |
| 1:AA:1323:G:H2' | 1:AA:1324:A:C8 | 2.09 | 0.86 |
| 31:BJ:100:VAL:HG13 | 31:BJ:101:ILE:HG22 | 1.53 | 0.86 |
| 7:AH:113:ARG:HH21 | 7:AH:114:ALA:HA | 1.39 | 0.86 |
| 21:AU:36:PHE:HB3 | 21:AU:40:PRO:HD3 | 1.57 | 0.86 |
| 51:D4:26:ILE:HG23 | 51:D4:27:CYS:H | 1.40 | 0.86 |
| 26:DD:152:PRO:HB2 | 26:DD:154:LYS:HE2 | 1.58 | 0.86 |
| 5:AF:64:VAL:HG12 | 5:AF:65:GLU:H | 1.40 | 0.86 |
| 42:BU:43:LYS:HA | 42:BU:57:ILE:HA | 1.57 | 0.86 |
| 45:DY:2:LYS:HB2 | 45:DY:37:ARG:HB2 | 1.56 | 0.86 |
| 3:CD:25:ARG:HB2 | 3:CD:25:ARG:HH11 | 1.40 | 0.86 |
| 10:CK:88:PRO:HD3 | 21:CU:28:LEU:HD13 | 1.56 | 0.86 |
| 8:CI:51:LEU:HB3 | 8:CI:56:MET:HG2 | 1.58 | 0.86 |
| 23:DB:1099:G:O4' | 52:DI:3:LYS:C | 2.14 | 0.86 |
| 25:BC:124:LYS:HB2 | 25:BC:125:PRO:CD | 2.05 | 0.86 |
| 23:BB:479:A:O2' | 23:BB:481:G:H5' | 1.75 | 0.86 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 3:CD:63:ILE:HG23 | 3:CD:64:TYR:HD1 | 1.40 | 0.86 |
| 18:CS:10:ILE:HG22 | 18:CS:37:SER:HB2 | 1.57 | 0.86 |
| 48:B1:46:VAL:HG13 | 48:B1:47:ILE:HG12 | 1.54 | 0.86 |
| 1:AA:1422:G:H5' | 32:BK:48:PRO:HB3 | 1.58 | 0.86 |
| 11:CL:43:LYS:HB3 | 11:CL:44:PRO:CD | 2.06 | 0.86 |
| 26:BD:130:GLN:NE2 | 26:BD:138:LEU:HD12 | 1.91 | 0.86 |
| 2:AC:141:MET:HE1 | 2:AC:147:GLY:H | 1.39 | 0.86 |
| 23:BB:703:U:H2' | 23:BB:704:G:O4' | 1.76 | 0.86 |
| 6:AG:21:LEU:H | 6:AG:21:LEU:HD23 | 1.41 | 0.86 |
| 23:DB:1098:A:H2' | 52:DI:4:VAL:N | 1.90 | 0.86 |
| 36:BO:49:VAL:HG22 | 36:BO:50:ALA:H | 1.38 | 0.86 |
| 38:DQ:97:ILE:HD12 | 39:DR:13:ARG:HD2 | 1.58 | 0.86 |
| 42:DU:60:LYS:HE3 | 42:DU:61:GLU:N | 1.91 | 0.86 |
| 33:DL:115:GLU:O | 33:DL:116:VAL:HG22 | 1.76 | 0.86 |
| 7:CH:105:THR:HA | 7:CH:122:GLY:HA3 | 1.57 | 0.86 |
| 46:BZ:8:LYS:HD2 | 46:BZ:9:TYR:N | 1.91 | 0.86 |
| 31:BJ:3:THR:HG21 | 38:BQ:93:ILE:HG13 | 1.56 | 0.86 |
| 11:AL:35:ARG:NH2 | 11:AL:75:GLU:HB3 | 1.89 | 0.86 |
| 20:CB:104:LYS:HB2 | 20:CB:104:LYS:HZ2 | 1.41 | 0.86 |
| 15:AP:51:ARG:HB3 | 15:AP:51:ARG:NH1 | 1.91 | 0.86 |
| 39:BR:41:ILE:O | 39:BR:54:VAL:HG13 | 1.74 | 0.85 |
| 25:DC:51:ARG:HH12 | 25:DC:54:GLY:HA3 | 1.40 | 0.85 |
| 25:BC:19:VAL:HG12 | 25:BC:20:ASN:H | 1.38 | 0.85 |
| 46:BZ:13:THR:HG23 | 46:BZ:25:ARG:HB3 | 1.56 | 0.85 |
| 23:BB:135:U:H2' | 23:BB:136:G:C8 | 2.11 | 0.85 |
| 11:CL:98:ARG:HG3 | 11:CL:105:GLY:HA2 | 1.56 | 0.85 |
| 33:DL:118:THR:O | 33:DL:120:VAL:HG23 | 1.75 | 0.85 |
| 9:CJ:6:ILE:HD11 | 9:CJ:79:PRO:HB3 | 1.58 | 0.85 |
| 26:BD:22:ILE:N | 26:BD:23:PRO:HD3 | 1.92 | 0.85 |
| 43:DW:38:ARG:NH2 | 43:DW:40:ARG:HD3 | 1.91 | 0.85 |
| 35:BN:44:LEU:HD23 | 35:BN:113:ILE:HG13 | 1.56 | 0.85 |
| 26:DD:31:ALA:HA | 26:DD:51:THR:HA | 1.58 | 0.85 |
| 25:DC:220:ARG:CZ | 25:DC:220:ARG:HA | 2.07 | 0.85 |
| 52:DI:27:LEU:HD23 | 52:DI:27:LEU:H | 1.37 | 0.85 |
| 20:CB:116:LEU:HD22 | 20:CB:140:LEU:HD21 | 1.59 | 0.85 |
| 25:BC:74:PRO:HB2 | 25:BC:96:LYS:HG3 | 1.57 | 0.85 |
| 23:BB:2052:A:C4' | 26:BD:148:GLN:H | 1.88 | 0.85 |
| 26:DD:204:LYS:HB3 | 26:DD:205:PRO:HD2 | 1.57 | 0.85 |
| 32:DK:70:ARG:HD3 | 32:DK:76:VAL:HG22 | 1.59 | 0.85 |
| 37:DP:38:ARG:HG3 | 37:DP:39:LEU:H | 1.39 | 0.85 |
| 19:CT:68:LYS:HA | 19:CT:68:LYS:HE2 | 1.57 | 0.85 |
| 23:DB:1149:G:H2' | 23:DB:1150:C:C6 | 2.12 | 0.85 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 4:CE:89:THR:HG22 | 4:CE:91:SER:H | 1.41 | 0.85 |
| 33:BL:29:LYS:HD2 | 33:BL:30:THR:H | 1.42 | 0.85 |
| 20:CB:101:THR:HA | 20:CB:178:LEU:HD21 | 1.58 | 0.85 |
| 26:DD:32:ASN:HB3 | 26:DD:91:THR:HA | 1.58 | 0.85 |
| 34:DM:62:LYS:H | 34:DM:104:GLU:HB3 | 1.41 | 0.85 |
| 1:CA:1296:C:H4' | 1:CA:1302:C:N4 | 1.91 | 0.85 |
| 15:CP:28:ARG:HD3 | 15:CP:29:ASN:H | 1.41 | 0.85 |
| 37:DP:25:VAL:HG22 | 37:DP:89:GLY:H | 1.40 | 0.85 |
| 1:AA:664:G:H22 | 1:AA:741:G:H1 | 1.23 | 0.85 |
| 23:DB:2502:G:H5' | 23:DB:2503:A:H5'' | 1.57 | 0.85 |
| 20:AB:163:ILE:HG23 | 20:AB:164:ASP:N | 1.92 | 0.85 |
| 1:CA:1008:U:H5'' | 13:CN:23:ARG:HH21 | 1.41 | 0.85 |
| 34:BM:7:THR:HG22 | 34:BM:8:LYS:H | 1.41 | 0.85 |
| 9:AJ:35:GLN:HB2 | 9:AJ:78:GLU:HB2 | 1.57 | 0.85 |
| 1:CA:1306:A:H61 | 1:CA:1331:G:H1' | 1.40 | 0.85 |
| 33:DL:39:LYS:HA | 33:DL:39:LYS:HZ2 | 1.40 | 0.85 |
| 2:CC:69:THR:HG22 | 2:CC:71:ARG:H | 1.38 | 0.85 |
| 28:DF:107:VAL:HG12 | 28:DF:108:PRO:HD3 | 1.57 | 0.85 |
| 19:AT:30:PHE:HB3 | 19:AT:53:MET:HB3 | 1.59 | 0.85 |
| 31:BJ:101:ILE:HG23 | 31:BJ:102:GLU:H | 1.42 | 0.85 |
| 31:DJ:35:ARG:NH1 | 31:DJ:40:HIS:H | 1.75 | 0.85 |
| 6:AG:112:ASP:HB2 | 6:AG:118:ARG:HG2 | 1.58 | 0.85 |
| 27:DE:3:LEU:HD22 | 27:DE:119:ILE:HD11 | 1.57 | 0.85 |
| 14:CO:69:LEU:HD11 | 14:CO:76:ARG:HB3 | 1.57 | 0.85 |
| 26:DD:14:ILE:HD12 | 37:DP:78:PRO:HG2 | 1.59 | 0.84 |
| 43:DW:67:LYS:HG2 | 43:DW:71:LYS:HB2 | 1.59 | 0.84 |
| 33:BL:77:ILE:HG13 | 33:BL:108:ALA:HB1 | 1.59 | 0.84 |
| 39:DR:47:VAL:HG22 | 39:DR:48:LYS:H | 1.40 | 0.84 |
| 1:CA:9:G:H5' | 4:CE:107:GLY:HA3 | 1.55 | 0.84 |
| 6:AG:97:ALA:HA | 6:AG:100:MET:HE3 | 1.59 | 0.84 |
| 1:CA:664:G:H22 | 1:CA:741:G:H1 | 1.23 | 0.84 |
| 29:BG:15:ASP:HB3 | 29:BG:26:LYS:HB2 | 1.58 | 0.84 |
| 3:CD:28:ASP:HB3 | 3:CD:33:ILE:HD12 | 1.58 | 0.84 |
| 34:BM:70:ASP:H | 34:BM:71:LYS:HZ2 | 1.23 | 0.84 |
| 10:AK:126:ARG:HB2 | 21:AU:33:ARG:HD2 | 1.59 | 0.84 |
| 1:CA:840:C:H2' | 1:CA:842:U:H5'' | 1.60 | 0.84 |
| 23:BB:662:G:H4' | 33:BL:24:GLY:N | 1.92 | 0.84 |
| 20:CB:16:GLY:HA3 | 20:CB:39:ILE:HA | 1.59 | 0.84 |
| 12:AM:33:LEU:HD22 | 12:AM:38:ILE:HB | 1.59 | 0.84 |
| 26:DD:122:VAL:HA | 26:DD:128:ARG:HG3 | 1.59 | 0.84 |
| 15:CP:67:ILE:HG13 | 15:CP:71:VAL:HG13 | 1.59 | 0.84 |
| 1:AA:1101:A:H4' | 1:AA:1102:A:O5' | 1.75 | 0.84 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 36:BO:16:ARG:HE | 36:BO:16:ARG:HA | 1.42 | 0.84 |
| 42:BU:3:LYS:NZ | 42:BU:3:LYS:HB2 | 1.90 | 0.84 |
| 23:BB:2306:C:H42 | 28:BF:38:GLY:H | 1.24 | 0.84 |
| 26:BD:38:LYS:HG2 | 26:BD:39:ASP:H | 1.42 | 0.84 |
| 1:AA:74:A:H2' | 1:AA:75:G:H5'' | 1.58 | 0.84 |
| 15:CP:44:SER:HB3 | 15:CP:46:LYS:HG2 | 1.60 | 0.84 |
| 23:DB:443:A:OP1 | 27:DE:40:ARG:HA | 1.76 | 0.84 |
| 23:BB:2502:G:H5' | 23:BB:2503:A:H5'' | 1.57 | 0.84 |
| 21:CU:39:LYS:H | 21:CU:40:PRO:HD2 | 1.43 | 0.84 |
| 11:CL:68:GLY:HA3 | 11:CL:106:VAL:HG21 | 1.59 | 0.84 |
| 27:BE:128:ALA:CB | 27:BE:129:PRO:HD3 | 2.07 | 0.84 |
| 23:DB:1021:A:H61 | 23:DB:1142:A:N6 | 1.73 | 0.84 |
| 1:AA:840:C:H2' | 1:AA:842:U:H5'' | 1.59 | 0.84 |
| 1:CA:781:A:H2' | 1:CA:782:A:H5' | 1.60 | 0.84 |
| 6:AG:3:ARG:NH1 | 6:AG:3:ARG:HB3 | 1.92 | 0.84 |
| 12:AM:15:VAL:HG23 | 12:AM:33:LEU:HD12 | 1.60 | 0.84 |
| 44:DX:18:LEU:HA | 44:DX:22:LEU:HD12 | 1.58 | 0.84 |
| 46:DZ:24:ILE:HD13 | 46:DZ:24:ILE:H | 1.41 | 0.84 |
| 27:DE:47:LYS:HE3 | 27:DE:52:VAL:HG23 | 1.60 | 0.84 |
| 37:BP:59:THR:HG23 | 37:BP:76:HIS:CD2 | 2.12 | 0.84 |
| 30:DH:37:VAL:H | 30:DH:38:PRO:HD2 | 1.43 | 0.84 |
| 31:DJ:135:GLN:HE22 | 31:DJ:137:PRO:HB2 | 1.43 | 0.84 |
| 14:AO:25:GLU:HG3 | 14:AO:80:LEU:HD12 | 1.59 | 0.84 |
| 23:BB:2619:C:H5' | 26:BD:157:LYS:HE2 | 1.59 | 0.84 |
| 35:BN:101:GLY:HA2 | 35:BN:109:PRO:HA | 1.58 | 0.84 |
| 38:BQ:30:VAL:HG12 | 38:BQ:32:ARG:H | 1.43 | 0.84 |
| 38:BQ:92:LYS:CG | 38:BQ:93:ILE:H | 1.90 | 0.84 |
| 10:AK:86:LYS:HB2 | 10:AK:112:VAL:HG23 | 1.59 | 0.84 |
| 11:CL:84:GLY:H | 11:CL:94:TYR:HA | 1.42 | 0.84 |
| 25:BC:155:ARG:HE | 25:BC:157:ALA:HB3 | 1.41 | 0.84 |
| 33:BL:116:VAL:HG12 | 33:BL:117:THR:H | 1.42 | 0.84 |
| 23:BB:2024:G:H4' | 26:BD:154:LYS:HD3 | 1.60 | 0.84 |
| 23:DB:1799:G:N7 | 25:DC:178:GLY:HA3 | 1.92 | 0.84 |
| 1:CA:1422:G:H5'' | 32:DK:48:PRO:HB3 | 1.57 | 0.84 |
| 28:BF:66:ILE:HG22 | 28:BF:83:PRO:HB2 | 1.59 | 0.84 |
| 3:AD:84:ASN:HD22 | 3:AD:87:GLU:H | 1.26 | 0.84 |
| 30:BH:130:VAL:HB | 30:BH:142:VAL:HB | 1.60 | 0.83 |
| 30:DH:10:ALA:O | 30:DH:11:ASN:HB3 | 1.78 | 0.83 |
| 24:BV:80:HIS:CD2 | 24:BV:83:LYS:H | 1.94 | 0.83 |
| 2:CC:179:ALA:HA | 2:CC:205:GLU:HA | 1.59 | 0.83 |
| 1:CA:108:G:O6 | 19:CT:9:ARG:HG2 | 1.78 | 0.83 |
| 1:AA:33:A:H1' | 11:AL:27:PRO:HG3 | 1.59 | 0.83 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 1:AA:1330:U:H2' | 1:AA:1331:G:H5' | 1.59 | 0.83 |
| 16:AQ:67:SER:HB2 | 16:AQ:70:LYS:HB3 | 1.60 | 0.83 |
| 12:AM:3:ILE:HA | 12:AM:56:ARG:HG2 | 1.60 | 0.83 |
| 8:CI:54:VAL:HG11 | 8:CI:86:LEU:HD13 | 1.58 | 0.83 |
| 10:CK:113:THR:HG21 | 21:CU:28:LEU:HD11 | 1.59 | 0.83 |
| 35:BN:19:ALA:HA | 35:BN:22:ARG:HG2 | 1.58 | 0.83 |
| 25:BC:136:VAL:HG12 | 25:BC:165:ALA:HA | 1.60 | 0.83 |
| 30:DH:31:VAL:HB | 30:DH:32:PRO:HD3 | 1.60 | 0.83 |
| 23:DB:2314:A:H1' | 28:DF:154:THR:HG21 | 1.60 | 0.83 |
| 37:DP:52:ARG:HB3 | 37:DP:60:VAL:HG11 | 1.60 | 0.83 |
| 20:AB:33:ALA:HA | 20:AB:38:HIS:HA | 1.60 | 0.83 |
| 28:DF:70:ARG:HA | 28:DF:80:GLN:HE21 | 1.42 | 0.83 |
| 20:CB:113:LEU:HD12 | 20:CB:143:LEU:HD22 | 1.60 | 0.83 |
| 32:BK:108:ARG:NH2 | 37:BP:36:LYS:HG3 | 1.92 | 0.83 |
| 38:DQ:73:ILE:HG13 | 38:DQ:74:SER:H | 1.43 | 0.83 |
| 34:DM:5:LYS:HE3 | 34:DM:6:ARG:H | 1.43 | 0.83 |
| 12:CM:38:ILE:HG13 | 12:CM:55:LEU:HD21 | 1.60 | 0.83 |
| 40:DS:25:ARG:HD2 | 40:DS:26:GLY:N | 1.94 | 0.83 |
| 23:BB:775:G:H4' | 23:BB:776:G:H5' | 1.59 | 0.83 |
| 13:AN:30:ILE:HD12 | 13:AN:30:ILE:H | 1.43 | 0.83 |
| 23:DB:996:A:H5'' | 38:DQ:93:ILE:HG21 | 1.58 | 0.83 |
| 25:BC:42:ARG:HG2 | 25:BC:43:ASN:N | 1.89 | 0.83 |
| 31:DJ:84:ILE:HD12 | 31:DJ:85:LYS:N | 1.92 | 0.83 |
| 1:AA:1005:A:H2' | 1:AA:1006:G:O4' | 1.78 | 0.83 |
| 4:CE:157:GLY:H | 7:CH:43:GLY:HA3 | 1.41 | 0.83 |
| 13:CN:96:LYS:HG2 | 13:CN:97:LYS:H | 1.44 | 0.83 |
| 23:BB:2297:A:N6 | 23:BB:2319:G:H3' | 1.93 | 0.83 |
| 1:AA:781:A:H2' | 1:AA:782:A:H5' | 1.60 | 0.83 |
| 23:BB:1024:G:H3' | 23:BB:1025:G:H5'' | 1.59 | 0.83 |
| 39:DR:66:HIS:HA | 39:DR:98:ILE:HD13 | 1.57 | 0.83 |
| 44:BX:35:GLY:HA3 | 44:BX:40:SER:HA | 1.60 | 0.83 |
| 20:CB:100:LEU:HB3 | 20:CB:178:LEU:HD11 | 1.61 | 0.83 |
| 23:BB:445:C:H5' | 27:BE:47:LYS:HZ3 | 1.41 | 0.83 |
| 7:AH:5:PRO:HB2 | 7:AH:32:LYS:NZ | 1.92 | 0.83 |
| 33:BL:84:LYS:HA | 33:BL:84:LYS:NZ | 1.93 | 0.83 |
| 40:DS:23:LEU:HD13 | 40:DS:25:ARG:HH22 | 1.44 | 0.83 |
| 23:DB:162:U:O2' | 23:DB:163:C:H5' | 1.79 | 0.83 |
| 23:BB:1060:U:C2 | 23:BB:1088:A:N7 | 2.47 | 0.83 |
| 4:CE:36:THR:HG21 | 4:CE:63:MET:HG2 | 1.61 | 0.83 |
| 42:DU:9:GLU:HB2 | 42:DU:71:ILE:HB | 1.60 | 0.83 |
| 3:AD:160:LEU:H | 3:AD:160:LEU:HD13 | 1.44 | 0.83 |
| 23:DB:2309:A:H3' | 23:DB:2310:C:H5'' | 1.60 | 0.83 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 1:AA:967:C:H3' | 1:AA:968:A:H5' | 1.59 | 0.83 |
| 23:DB:2143:C:H2' | 23:DB:2144:G:O4' | 1.77 | 0.83 |
| 1:AA:1320:C:H42 | 18:AS:35:ARG:HD3 | 1.43 | 0.83 |
| 29:BG:27:GLY:HA3 | 29:BG:78:VAL:HB | 1.60 | 0.83 |
| 23:DB:775:G:H4' | 23:DB:776:G:H5' | 1.59 | 0.83 |
| 15:CP:3:THR:HG22 | 15:CP:66:THR:HB | 1.61 | 0.83 |
| 18:CS:32:THR:HG22 | 18:CS:33:TRP:H | 1.43 | 0.83 |
| 34:BM:82:MET:HB2 | 34:BM:84:LYS:NZ | 1.94 | 0.83 |
| 23:BB:2845:U:O3' | 37:BP:54:LEU:HG | 1.78 | 0.83 |
| 41:DT:47:VAL:HG22 | 41:DT:53:VAL:HG21 | 1.61 | 0.83 |
| 19:CT:61:ALA:HA | 19:CT:67:HIS:H | 1.44 | 0.83 |
| 40:BS:90:LYS:HZ2 | 40:BS:90:LYS:N | 1.76 | 0.83 |
| 44:BX:14:LEU:HD21 | 44:BX:57:LEU:HB2 | 1.61 | 0.83 |
| 23:DB:136:G:C2 | 41:DT:3:ARG:CZ | 2.62 | 0.82 |
| 23:DB:1060:U:C2 | 23:DB:1088:A:N7 | 2.47 | 0.82 |
| 23:BB:1913:A:H1' | 23:BB:1914:C:OP1 | 1.79 | 0.82 |
| 44:BX:38:GLN:H | 44:BX:38:GLN:NE2 | 1.75 | 0.82 |
| 7:CH:11:THR:HG22 | 7:CH:14:ARG:HH12 | 1.44 | 0.82 |
| 23:BB:37:C:H2' | 27:BE:46:GLN:CD | 1.99 | 0.82 |
| 35:DN:41:ALA:HB1 | 35:DN:113:ILE:HD11 | 1.61 | 0.82 |
| 18:CS:15:LEU:HA | 18:CS:18:VAL:HG12 | 1.60 | 0.82 |
| 23:DB:90:U:H3' | 23:DB:91:A:H5'' | 1.59 | 0.82 |
| 9:AJ:8:ILE:HD12 | 9:AJ:100:ILE:HG22 | 1.61 | 0.82 |
| 35:DN:37:THR:HG22 | 35:DN:39:PRO:HD2 | 1.59 | 0.82 |
| 23:BB:630:G:H1 | 33:BL:69:ARG:NH2 | 1.77 | 0.82 |
| 45:BY:9:THR:HB | 45:BY:54:VAL:HA | 1.58 | 0.82 |
| 35:DN:85:PRO:HA | 35:DN:88:ALA:HB2 | 1.62 | 0.82 |
| 22:DA:30:C:H2' | 22:DA:31:C:H5' | 1.60 | 0.82 |
| 25:BC:138:SER:HA | 25:BC:162:GLN:HG2 | 1.61 | 0.82 |
| 23:DB:7:G:H5' | 31:DJ:134:ALA:O | 1.80 | 0.82 |
| 23:BB:997:G:OP1 | 38:BQ:92:LYS:HD2 | 1.79 | 0.82 |
| 43:DW:3:LYS:HA | 43:DW:3:LYS:NZ | 1.94 | 0.82 |
| 45:BY:6:ILE:HG22 | 45:BY:56:VAL:HG23 | 1.62 | 0.82 |
| 5:CF:99:ALA:HA | 17:CR:23:LYS:HE2 | 1.62 | 0.82 |
| 28:DF:64:PRO:HA | 28:DF:88:VAL:HG22 | 1.61 | 0.82 |
| 23:DB:2574:G:H21 | 26:DD:147:GLY:CA | 1.92 | 0.82 |
| 23:DB:1060:U:H5 | 52:DI:131:THR:HG22 | 1.43 | 0.82 |
| 12:AM:64:VAL:HA | 12:AM:68:LEU:HD12 | 1.61 | 0.82 |
| 23:DB:742:A:H2' | 23:DB:743:A:H8 | 1.43 | 0.82 |
| 2:AC:78:LYS:HG2 | 2:AC:81:GLU:HB2 | 1.58 | 0.82 |
| 23:DB:2334:U:H3 | 43:DW:74:LYS:HE2 | 1.44 | 0.82 |
| 36:DO:56:LYS:HE2 | 36:DO:81:ARG:NE | 1.94 | 0.82 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 27:DE:142:ALA:H | 27:DE:185:LYS:NZ | 1.78 | 0.82 |
| 27:BE:88:ARG:HH11 | 27:BE:88:ARG:HB2 | 1.45 | 0.82 |
| 43:BW:27:GLY:HA2 | 43:BW:60:ALA:HA | 1.60 | 0.82 |
| 23:BB:742:A:H2' | 23:BB:743:A:H8 | 1.43 | 0.82 |
| 23:BB:1639:C:C2' | 23:BB:1640:A:H5'' | 2.09 | 0.82 |
| 42:DU:13:LEU:H | 42:DU:13:LEU:HD12 | 1.45 | 0.82 |
| 52:DI:72:THR:HG21 | 52:DI:112:LYS:HA | 1.62 | 0.82 |
| 23:DB:2336:A:H1' | 23:DB:2337:G:OP1 | 1.79 | 0.82 |
| 52:BI:55:PRO:HD3 | 52:BI:74:PRO:HD3 | 1.60 | 0.82 |
| 23:BB:287:G:H2' | 23:BB:288:U:C6 | 2.15 | 0.82 |
| 30:BH:128:HIS:HB3 | 30:BH:144:VAL:HB | 1.61 | 0.82 |
| 42:BU:7:ASP:H | 42:BU:24:VAL:HA | 1.45 | 0.82 |
| 42:BU:25:LYS:HG3 | 42:BU:35:VAL:HA | 1.62 | 0.82 |
| 33:BL:29:LYS:HD2 | 33:BL:31:GLY:N | 1.95 | 0.82 |
| 10:CK:16:SER:HA | 10:CK:78:ILE:HA | 1.61 | 0.82 |
| 10:AK:83:VAL:HG23 | 10:AK:109:ILE:HA | 1.60 | 0.82 |
| 17:AR:52:ARG:HH11 | 17:AR:52:ARG:HB3 | 1.45 | 0.82 |
| 6:CG:129:ASN:HB3 | 6:CG:134:VAL:HG21 | 1.61 | 0.82 |
| 52:DI:105:LEU:HD13 | 52:DI:129:GLU:HG2 | 1.61 | 0.82 |
| 33:BL:109:LYS:HA | 33:BL:126:ARG:HA | 1.62 | 0.82 |
| 23:BB:2297:A:H61 | 23:BB:2319:G:C3' | 1.93 | 0.82 |
| 15:AP:12:LYS:HD2 | 15:AP:13:LYS:HE2 | 1.61 | 0.82 |
| 30:DH:114:GLU:HB2 | 30:DH:133:GLN:HG3 | 1.60 | 0.82 |
| 45:BY:7:THR:HA | 45:BY:34:THR:HA | 1.61 | 0.82 |
| 23:DB:2633:G:H1' | 26:DD:62:LYS:HG3 | 1.61 | 0.81 |
| 23:BB:2336:A:H1' | 23:BB:2337:G:OP1 | 1.80 | 0.81 |
| 21:AU:20:ARG:HA | 21:AU:24:LYS:HG3 | 1.59 | 0.81 |
| 23:DB:1639:C:C2' | 23:DB:1640:A:H5'' | 2.09 | 0.81 |
| 28:DF:96:TRP:O | 28:DF:100:GLU:HG3 | 1.78 | 0.81 |
| 36:BO:17:LYS:HE2 | 43:BW:77:LYS:HD2 | 1.61 | 0.81 |
| 18:AS:4:LEU:HD13 | 18:AS:9:PHE:H | 1.45 | 0.81 |
| 30:DH:122:LEU:HD13 | 30:DH:146:VAL:HG22 | 1.60 | 0.81 |
| 32:BK:35:VAL:HG23 | 32:BK:36:GLY:H | 1.44 | 0.81 |
| 42:DU:91:LYS:HD3 | 42:DU:93:ARG:HE | 1.45 | 0.81 |
| 37:DP:28:LYS:HD3 | 37:DP:44:GLY:HA3 | 1.63 | 0.81 |
| 36:BO:64:TYR:HE1 | 36:BO:74:VAL:HG11 | 1.46 | 0.81 |
| 23:DB:857:G:C2' | 23:DB:858:G:H5' | 2.10 | 0.81 |
| 23:BB:340:A:H2' | 23:BB:341:C:O4' | 1.81 | 0.81 |
| 8:AI:40:ARG:H | 8:AI:44:ARG:HE | 1.26 | 0.81 |
| 30:BH:66:ASN:HA | 30:BH:138:VAL:HG21 | 1.61 | 0.81 |
| 29:DG:171:LYS:HD3 | 29:DG:172:GLU:O | 1.79 | 0.81 |
| 33:DL:103:ILE:HG13 | 33:DL:104:GLN:H | 1.45 | 0.81 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 36:BO:87:ILE:HG13 | 36:BO:88:LYS:H | 1.43 | 0.81 |
| 8:AI:112:ARG:HB2 | 8:AI:112:ARG:NH1 | 1.95 | 0.81 |
| 23:DB:1064:C:H4' | 52:DI:90:GLY:HA2 | 1.60 | 0.81 |
| 31:DJ:25:LEU:HD11 | 31:DJ:63:ALA:H | 1.45 | 0.81 |
| 39:DR:22:LEU:HD12 | 39:DR:24:LYS:H | 1.43 | 0.81 |
| 23:BB:279:A:N6 | 23:BB:361:G:H1' | 1.96 | 0.81 |
| 23:DB:899:A:H3' | 23:DB:900:A:H8 | 1.45 | 0.81 |
| 3:AD:36:ALA:HA | 3:AD:41:GLY:HA3 | 1.62 | 0.81 |
| 28:BF:126:ASN:HD22 | 28:BF:126:ASN:N | 1.78 | 0.81 |
| 23:BB:200:U:H5'' | 46:BZ:20:ASN:HB3 | 1.62 | 0.81 |
| 42:BU:28:LEU:HB2 | 42:BU:31:GLY:HA3 | 1.61 | 0.81 |
| 43:DW:60:ALA:HB3 | 43:DW:80:SER:HA | 1.63 | 0.81 |
| 38:DQ:87:VAL:HB | 39:DR:54:VAL:HG21 | 1.62 | 0.81 |
| 1:CA:1086:U:H3 | 1:CA:1099:G:H22 | 1.25 | 0.81 |
| 36:BO:8:ILE:HG22 | 36:BO:10:ARG:HG2 | 1.63 | 0.81 |
| 20:CB:163:ILE:HG23 | 20:CB:164:ASP:H | 1.46 | 0.81 |
| 37:BP:47:ILE:HG22 | 37:BP:49:ILE:H | 1.45 | 0.81 |
| 25:BC:163:ILE:HG22 | 25:BC:164:VAL:H | 1.44 | 0.81 |
| 25:DC:172:THR:O | 25:DC:173:LEU:HB2 | 1.81 | 0.81 |
| 31:BJ:100:VAL:HG22 | 31:BJ:101:ILE:H | 1.45 | 0.81 |
| 43:BW:42:THR:HB | 43:BW:65:LYS:HA | 1.60 | 0.81 |
| 40:BS:71:VAL:HA | 40:BS:106:VAL:O | 1.80 | 0.81 |
| 37:BP:92:ARG:NH2 | 37:BP:110:LYS:HE2 | 1.95 | 0.81 |
| 23:DB:589:U:H4' | 27:DE:87:ALA:HB2 | 1.61 | 0.81 |
| 23:DB:2511:U:H5'' | 26:DD:129:THR:HG23 | 1.62 | 0.81 |
| 11:AL:56:LEU:HD11 | 11:AL:81:ILE:HD12 | 1.61 | 0.81 |
| 38:BQ:7:VAL:HG23 | 38:BQ:8:ILE:H | 1.43 | 0.81 |
| 23:BB:1177:G:H2' | 23:BB:1178:C:C6 | 2.16 | 0.81 |
| 3:AD:194:ILE:HD13 | 3:AD:195:ASN:N | 1.96 | 0.81 |
| 46:BZ:26:SER:O | 46:BZ:28:VAL:HG13 | 1.81 | 0.81 |
| 12:AM:11:HIS:H | 12:AM:44:ILE:HD11 | 1.44 | 0.81 |
| 8:CI:45:MET:O | 8:CI:49:GLN:HG3 | 1.80 | 0.81 |
| 52:DI:105:LEU:HD11 | 52:DI:139:VAL:HG21 | 1.62 | 0.81 |
| 16:AQ:27:PHE:HB3 | 16:AQ:36:PHE:HB3 | 1.63 | 0.81 |
| 23:DB:250:G:H5' | 50:D3:7:ARG:HG2 | 1.61 | 0.81 |
| 3:CD:162:GLU:HG3 | 3:CD:163:GLN:HG3 | 1.63 | 0.81 |
| 23:DB:458:G:N2 | 23:DB:469:G:H2' | 1.95 | 0.81 |
| 25:DC:140:VAL:HA | 25:DC:191:LEU:HA | 1.62 | 0.81 |
| 38:BQ:73:ILE:HG23 | 38:BQ:77:LYS:HB2 | 1.62 | 0.81 |
| 23:DB:717:C:H3' | 23:DB:718:A:H5'' | 1.61 | 0.81 |
| 19:CT:45:ALA:HA | 19:CT:48:LYS:HB3 | 1.63 | 0.81 |
| 1:AA:238:A:H2' | 1:AA:239:U:H5'' | 1.61 | 0.81 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 31:BJ:16:TYR:HB2 | 31:BJ:54:ILE:HG22 | 1.63 | 0.81 |
| 18:AS:5:LYS:N | 18:AS:5:LYS:HE3 | 1.96 | 0.81 |
| 27:DE:6:LYS:HD3 | 27:DE:7:ASP:H | 1.46 | 0.81 |
| 50:D3:7:ARG:NH1 | 50:D3:7:ARG:HA | 1.95 | 0.81 |
| 32:BK:64:ARG:H | 32:BK:83:ALA:HB3 | 1.44 | 0.81 |
| 37:BP:25:VAL:HG13 | 37:BP:87:ARG:HA | 1.61 | 0.80 |
| 16:AQ:20:ILE:HG13 | 16:AQ:45:VAL:HB | 1.61 | 0.80 |
| 46:DZ:59:ARG:HB3 | 46:DZ:63:ARG:HB2 | 1.61 | 0.80 |
| 41:DT:34:VAL:HG21 | 41:DT:43:ILE:HD12 | 1.62 | 0.80 |
| 1:CA:1238:A:H5' | 1:CA:1336:C:H41 | 1.45 | 0.80 |
| 23:BB:580:U:O3' | 38:BQ:30:VAL:HG13 | 1.80 | 0.80 |
| 23:DB:2377:A:N6 | 36:DO:13:ARG:HH21 | 1.78 | 0.80 |
| 1:AA:1323:G:H2' | 1:AA:1324:A:H8 | 1.44 | 0.80 |
| 49:D2:35:ARG:HH22 | 49:D2:44:VAL:HG22 | 1.46 | 0.80 |
| 35:BN:96:ARG:HH21 | 35:BN:118:ARG:HB3 | 1.46 | 0.80 |
| 38:BQ:16:ILE:HD12 | 38:BQ:17:LEU:N | 1.96 | 0.80 |
| 39:BR:75:VAL:H | 39:BR:90:ARG:NE | 1.79 | 0.80 |
| 33:DL:124:GLY:N | 33:DL:142:ILE:HA | 1.95 | 0.80 |
| 26:BD:120:GLY:H | 26:BD:123:LYS:HG3 | 1.43 | 0.80 |
| 38:DQ:87:VAL:HG12 | 38:DQ:89:ILE:HD13 | 1.62 | 0.80 |
| 25:BC:22:GLU:HA | 25:BC:202:ARG:CZ | 2.11 | 0.80 |
| 2:AC:87:ARG:HG3 | 2:AC:100:ILE:HG22 | 1.63 | 0.80 |
| 23:BB:265:A:O2' | 23:BB:266:G:H4' | 1.81 | 0.80 |
| 47:D0:27:LEU:H | 47:D0:27:LEU:HD22 | 1.45 | 0.80 |
| 36:BO:1:MET:HG2 | 36:BO:3:LYS:H | 1.45 | 0.80 |
| 37:DP:50:ARG:NH1 | 37:DP:50:ARG:HB2 | 1.97 | 0.80 |
| 33:DL:7:SER:CB | 33:DL:8:PRO:HD3 | 2.07 | 0.80 |
| 25:BC:194:VAL:HG12 | 25:BC:195:GLY:H | 1.45 | 0.80 |
| 23:BB:1568:G:OP1 | 25:BC:61:TYR:HB2 | 1.82 | 0.80 |
| 23:BB:704:G:H2' | 23:BB:726:G:H22 | 1.45 | 0.80 |
| 32:DK:2:ILE:HD13 | 32:DK:6:THR:HG21 | 1.61 | 0.80 |
| 23:DB:354:A:H2' | 23:DB:355:U:C6 | 2.17 | 0.80 |
| 29:BG:153:PRO:HG2 | 29:BG:162:ARG:HB3 | 1.63 | 0.80 |
| 30:DH:115:VAL:HG22 | 30:DH:117:LEU:H | 1.45 | 0.80 |
| 1:CA:238:A:H2' | 1:CA:239:U:H5'' | 1.61 | 0.80 |
| 31:BJ:71:ASP:CG | 31:BJ:72:LYS:H | 1.85 | 0.80 |
| 39:DR:64:VAL:HG22 | 39:DR:65:ALA:H | 1.46 | 0.80 |
| 8:AI:35:GLU:HA | 8:AI:39:GLY:HA3 | 1.64 | 0.80 |
| 31:BJ:35:ARG:HE | 31:BJ:39:LYS:HB3 | 1.46 | 0.80 |
| 3:AD:84:ASN:ND2 | 3:AD:87:GLU:H | 1.79 | 0.80 |
| 23:BB:1178:C:H2' | 23:BB:1179:G:C8 | 2.16 | 0.80 |
| 29:DG:40:VAL:HG22 | 29:DG:51:PHE:HE2 | 1.44 | 0.80 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 32:DK:78:ARG:HH22 | 37:DP:62:LYS:NZ | 1.80 | 0.80 |
| 43:BW:36:ILE:HD12 | 43:BW:69:GLU:OE2 | 1.82 | 0.80 |
| 2:AC:176:THR:HB | 2:AC:179:ALA:HB2 | 1.63 | 0.80 |
| 1:CA:1451:U:H5'' | 1:CA:1452:C:OP2 | 1.81 | 0.80 |
| 3:AD:94:GLU:HG3 | 3:AD:103:ARG:HH12 | 1.46 | 0.80 |
| 37:DP:69:VAL:HG13 | 37:DP:70:GLU:H | 1.45 | 0.80 |
| 23:DB:1007:C:H5'' | 31:DJ:37:ARG:HH12 | 1.47 | 0.80 |
| 1:AA:1201:A:H1' | 1:AA:1202:U:OP2 | 1.81 | 0.80 |
| 26:DD:37:VAL:HG13 | 26:DD:42:ASN:HB3 | 1.63 | 0.80 |
| 31:BJ:25:LEU:HD12 | 31:BJ:62:VAL:HA | 1.63 | 0.80 |
| 39:BR:4:VAL:HA | 39:BR:12:HIS:HB3 | 1.63 | 0.80 |
| 41:BT:12:ARG:HH21 | 44:BX:29:ARG:HH12 | 1.27 | 0.80 |
| 23:BB:144:A:H2' | 23:BB:145:C:H6 | 1.47 | 0.80 |
| 33:DL:135:ILE:HG22 | 33:DL:138:ALA:HB3 | 1.63 | 0.80 |
| 6:CG:112:ASP:HB2 | 6:CG:118:ARG:HG2 | 1.62 | 0.80 |
| 1:AA:1026:G:H2' | 1:AA:1027:C:H6 | 1.47 | 0.80 |
| 28:DF:98:PHE:HA | 28:DF:101:ARG:HE | 1.45 | 0.80 |
| 31:DJ:121:LYS:N | 31:DJ:121:LYS:HE3 | 1.97 | 0.80 |
| 30:DH:31:VAL:HA | 30:DH:36:ALA:HA | 1.63 | 0.80 |
| 39:BR:6:GLN:HA | 39:BR:10:LYS:HA | 1.64 | 0.80 |
| 31:DJ:25:LEU:HG | 31:DJ:64:VAL:H | 1.47 | 0.80 |
| 4:CE:36:THR:HG22 | 4:CE:37:VAL:H | 1.46 | 0.80 |
| 39:BR:58:VAL:HG13 | 39:BR:59:ILE:HG12 | 1.61 | 0.80 |
| 1:AA:946:A:H2' | 1:AA:947:G:C8 | 2.16 | 0.80 |
| 27:DE:120:VAL:HG12 | 27:DE:121:VAL:H | 1.45 | 0.80 |
| 52:BI:106:GLN:O | 52:BI:110:GLN:HG3 | 1.81 | 0.80 |
| 23:DB:1099:G:H5'' | 52:DI:2:LYS:C | 2.01 | 0.80 |
| 37:DP:64:SER:HA | 37:DP:71:ARG:HB2 | 1.62 | 0.80 |
| 23:BB:100:U:H4' | 42:BU:90:LYS:CE | 2.12 | 0.80 |
| 25:BC:88:ALA:HB1 | 25:BC:156:SER:HB3 | 1.64 | 0.80 |
| 33:BL:60:ARG:HA | 50:B3:11:LYS:HE2 | 1.63 | 0.80 |
| 40:BS:50:VAL:HG11 | 40:BS:103:ILE:HG21 | 1.62 | 0.80 |
| 26:DD:109:VAL:HG11 | 26:DD:193:VAL:HG12 | 1.64 | 0.80 |
| 33:DL:109:LYS:HG2 | 33:DL:126:ARG:HD3 | 1.63 | 0.80 |
| 21:CU:14:ALA:HB3 | 21:CU:16:ARG:NH1 | 1.97 | 0.80 |
| 1:AA:1326:U:H2' | 1:AA:1327:C:H6 | 1.47 | 0.80 |
| 10:CK:70:ALA:HB1 | 10:CK:74:LYS:HD2 | 1.64 | 0.80 |
| 32:BK:88:ASN:ND2 | 32:BK:91:SER:HB2 | 1.97 | 0.80 |
| 23:DB:1098:A:H3' | 52:DI:3:LYS:CB | 2.11 | 0.79 |
| 23:BB:692:C:C5' | 25:BC:42:ARG:HB2 | 2.12 | 0.79 |
| 31:BJ:25:LEU:HG | 31:BJ:64:VAL:H | 1.47 | 0.79 |
| 31:BJ:72:LYS:HB2 | 31:BJ:90:GLU:HB2 | 1.61 | 0.79 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 38:DQ:69:ARG:HB3 | 38:DQ:69:ARG:HH11 | 1.47 | 0.79 |
| 23:BB:1131:G:H1' | 23:BB:1133:A:H62 | 1.47 | 0.79 |
| 41:BT:1:MET:SD | 41:BT:2:ILE:HG12 | 2.21 | 0.79 |
| 23:BB:279:A:C2 | 23:BB:362:A:H4' | 2.17 | 0.79 |
| 7:CH:55:LYS:HA | 7:CH:55:LYS:HZ2 | 1.45 | 0.79 |
| 45:DY:10:ARG:HA | 45:DY:31:ILE:HD12 | 1.64 | 0.79 |
| 48:D1:12:SER:HA | 48:D1:50:GLU:HA | 1.63 | 0.79 |
| 37:DP:25:VAL:HG13 | 37:DP:88:ARG:H | 1.46 | 0.79 |
| 23:BB:162:U:H4' | 23:BB:163:C:OP1 | 1.82 | 0.79 |
| 33:BL:84:LYS:HA | 33:BL:84:LYS:HZ2 | 1.45 | 0.79 |
| 39:BR:41:ILE:HD12 | 39:BR:41:ILE:O | 1.83 | 0.79 |
| 27:BE:153:LEU:HD13 | 27:BE:193:VAL:HG21 | 1.65 | 0.79 |
| 52:DI:21:PRO:HB2 | 52:DI:22:PRO:HD3 | 1.64 | 0.79 |
| 4:CE:33:THR:HG22 | 4:CE:51:LYS:HG2 | 1.64 | 0.79 |
| 8:AI:110:VAL:HG12 | 8:AI:111:GLU:H | 1.45 | 0.79 |
| 23:DB:85:G:H5' | 42:DU:28:LEU:HB3 | 1.61 | 0.79 |
| 34:BM:42:THR:HA | 34:BM:92:TRP:CD1 | 2.16 | 0.79 |
| 26:BD:4:LEU:HD13 | 26:BD:79:LEU:HD11 | 1.65 | 0.79 |
| 37:BP:2:ASN:H | 37:BP:2:ASN:HD22 | 1.30 | 0.79 |
| 30:BH:83:LYS:HB3 | 30:BH:91:PHE:HD1 | 1.43 | 0.79 |
| 2:CC:18:ASN:HA | 2:CC:55:VAL:HG12 | 1.65 | 0.79 |
| 41:BT:12:ARG:HH21 | 44:BX:29:ARG:NH1 | 1.80 | 0.79 |
| 33:DL:81:ASP:HA | 33:DL:84:LYS:HD3 | 1.64 | 0.79 |
| 28:DF:140:ILE:HG22 | 28:DF:142:TYR:H | 1.47 | 0.79 |
| 23:DB:1176:U:H2' | 23:DB:1177:G:C8 | 2.17 | 0.79 |
| 1:CA:60:A:H2' | 19:CT:4:LYS:HE3 | 1.64 | 0.79 |
| 47:D0:53:VAL:HG13 | 47:D0:54:ILE:HG13 | 1.65 | 0.79 |
| 23:DB:320:A:H4' | 23:DB:322:A:N7 | 1.97 | 0.79 |
| 23:BB:972:A:H3' | 23:BB:973:A:H5'' | 1.63 | 0.79 |
| 41:BT:8:LEU:HA | 44:BX:19:LEU:HD21 | 1.64 | 0.79 |
| 30:DH:114:GLU:HB3 | 30:DH:133:GLN:HE21 | 1.47 | 0.79 |
| 23:DB:1006:C:H5'' | 31:DJ:34:ARG:HE | 1.48 | 0.79 |
| 28:DF:133:GLU:N | 28:DF:150:GLY:HA2 | 1.98 | 0.79 |
| 2:CC:120:THR:HG23 | 2:CC:188:ALA:HB2 | 1.63 | 0.79 |
| 23:BB:1813:G:H21 | 25:BC:51:ARG:HG2 | 1.46 | 0.79 |
| 25:BC:50:THR:HG22 | 25:BC:51:ARG:HG3 | 1.65 | 0.79 |
| 41:DT:56:GLU:O | 41:DT:57:VAL:HG22 | 1.82 | 0.79 |
| 1:CA:1003:G:N2 | 1:CA:1005:A:H5' | 1.97 | 0.79 |
| 22:DA:48:U:H2' | 22:DA:49:C:H6 | 1.44 | 0.79 |
| 13:CN:63:CYS:HB3 | 13:CN:68:ARG:H | 1.47 | 0.79 |
| 23:BB:1197:G:H2' | 23:BB:1198:U:C6 | 2.18 | 0.79 |
| 4:CE:158:LYS:HB3 | 7:CH:63:LYS:HD3 | 1.65 | 0.79 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 20:CB:202:ASN:ND2 | 20:CB:203:ASP:H | 1.79 | 0.79 |
| 1:CA:1311:A:H62 | 18:CS:1:PRO:HD3 | 1.48 | 0.79 |
| 25:DC:63:ILE:HG21 | 25:DC:90:ILE:HD11 | 1.64 | 0.79 |
| 30:BH:3:VAL:HB | 30:BH:37:VAL:HB | 1.64 | 0.79 |
| 24:DV:70:ILE:HD12 | 24:DV:71:LYS:H | 1.47 | 0.79 |
| 27:DE:53:THR:HB | 27:DE:74:LYS:HG2 | 1.63 | 0.79 |
| 45:DY:45:GLY:HA2 | 45:DY:48:ASN:HD22 | 1.46 | 0.79 |
| 8:CI:17:ARG:HB3 | 8:CI:65:THR:HB | 1.65 | 0.79 |
| 33:DL:44:GLY:HA2 | 33:DL:47:ARG:HE | 1.46 | 0.79 |
| 6:CG:23:ALA:O | 6:CG:26:VAL:HG22 | 1.82 | 0.79 |
| 23:BB:37:C:H2' | 27:BE:46:GLN:HG2 | 1.63 | 0.79 |
| 26:BD:11:MET:HG2 | 26:BD:12:THR:H | 1.45 | 0.79 |
| 25:BC:128:THR:HA | 25:BC:190:THR:HA | 1.62 | 0.79 |
| 33:BL:61:LEU:CB | 33:BL:62:PRO:HD2 | 2.12 | 0.79 |
| 34:DM:4:PRO:HD2 | 34:DM:43:ALA:HB1 | 1.65 | 0.79 |
| 27:BE:118:LEU:HD23 | 27:BE:118:LEU:H | 1.45 | 0.79 |
| 13:CN:50:LEU:H | 13:CN:51:PRO:CD | 1.95 | 0.79 |
| 28:DF:35:LEU:HB3 | 28:DF:151:LEU:HD11 | 1.64 | 0.79 |
| 52:DI:11:GLN:HG2 | 52:DI:55:PRO:HB3 | 1.64 | 0.79 |
| 44:DX:4:LYS:O | 44:DX:7:ARG:HG2 | 1.82 | 0.79 |
| 22:BA:49:C:H2' | 22:BA:50:A:H8 | 1.48 | 0.79 |
| 16:CQ:66:LEU:H | 16:CQ:66:LEU:HD12 | 1.47 | 0.79 |
| 23:BB:3:U:HO2' | 23:BB:4:U:H6 | 1.29 | 0.79 |
| 25:BC:3:VAL:HG12 | 25:BC:4:LYS:H | 1.48 | 0.79 |
| 34:BM:41:LEU:HB2 | 34:BM:93:VAL:HG22 | 1.64 | 0.79 |
| 16:AQ:10:ARG:CZ | 16:AQ:11:VAL:H | 1.95 | 0.79 |
| 33:BL:27:LEU:HD12 | 33:BL:27:LEU:H | 1.47 | 0.79 |
| 52:BI:27:LEU:HD12 | 52:BI:32:VAL:HG11 | 1.64 | 0.79 |
| 2:CC:137:VAL:HA | 2:CC:148:ILE:HD13 | 1.63 | 0.79 |
| 9:AJ:40:ILE:HG13 | 9:AJ:73:LEU:HB3 | 1.65 | 0.79 |
| 5:CF:47:LEU:HD13 | 5:CF:51:ILE:HG22 | 1.62 | 0.79 |
| 1:AA:17:U:H2' | 1:AA:18:C:C6 | 2.18 | 0.79 |
| 33:DL:4:ASN:O | 33:DL:6:LEU:HD22 | 1.82 | 0.79 |
| 23:DB:1099:G:H5'' | 52:DI:3:LYS:N | 1.98 | 0.79 |
| 27:BE:113:VAL:HG23 | 27:BE:117:ARG:CZ | 2.13 | 0.79 |
| 51:B4:2:LYS:HG2 | 51:B4:36:ARG:HB3 | 1.64 | 0.79 |
| 35:DN:8:ARG:HD2 | 35:DN:46:ARG:NE | 1.98 | 0.79 |
| 23:DB:2800:A:H2' | 23:DB:2801:G:O4' | 1.83 | 0.79 |
| 9:AJ:88:MET:HB2 | 9:AJ:89:ARG:HH12 | 1.47 | 0.79 |
| 30:DH:68:ARG:HE | 30:DH:71:LYS:HE2 | 1.47 | 0.79 |
| 46:DZ:66:ILE:HB | 46:DZ:67:PRO:HD3 | 1.64 | 0.79 |
| 29:DG:120:ILE:HG12 | 29:DG:134:GLY:HA3 | 1.65 | 0.79 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 1:CA:946:A:H2' | 1:CA:947:G:C8 | 2.18 | 0.79 |
| 34:BM:126:ILE:HG13 | 34:BM:127:LYS:H | 1.47 | 0.79 |
| 46:BZ:44:PHE:HD1 | 46:BZ:44:PHE:H | 1.30 | 0.78 |
| 23:DB:1802:A:H4' | 25:DC:255:LYS:HE2 | 1.63 | 0.78 |
| 1:AA:436:C:O2' | 1:AA:437:U:H5' | 1.83 | 0.78 |
| 43:BW:28:GLU:HB3 | 43:BW:30:VAL:HG23 | 1.65 | 0.78 |
| 23:BB:86:G:OP1 | 42:BU:29:SER:HB2 | 1.83 | 0.78 |
| 6:AG:4:ARG:HE | 6:AG:5:VAL:H | 1.30 | 0.78 |
| 37:DP:30:TRP:HB2 | 37:DP:83:ILE:HB | 1.64 | 0.78 |
| 25:BC:140:VAL:O | 25:BC:193:GLU:HB2 | 1.82 | 0.78 |
| 43:BW:66:VAL:HG13 | 43:BW:67:LYS:H | 1.47 | 0.78 |
| 26:BD:37:VAL:HG22 | 26:BD:46:ARG:HE | 1.48 | 0.78 |
| 23:DB:2309:A:H5' | 23:DB:2310:C:OP2 | 1.83 | 0.78 |
| 37:BP:108:ARG:H | 37:BP:108:ARG:HD2 | 1.48 | 0.78 |
| 42:BU:35:VAL:HG12 | 42:BU:36:GLU:H | 1.47 | 0.78 |
| 33:BL:60:ARG:HD2 | 50:B3:7:ARG:NE | 1.98 | 0.78 |
| 23:DB:922:C:H1' | 43:DW:22:VAL:HG21 | 1.66 | 0.78 |
| 30:BH:68:ARG:HG3 | 30:BH:134:VAL:HG11 | 1.65 | 0.78 |
| 23:BB:2511:U:H4' | 26:BD:128:ARG:CZ | 2.13 | 0.78 |
| 39:DR:40:MET:HG2 | 39:DR:54:VAL:HG13 | 1.65 | 0.78 |
| 23:BB:2216:G:H2' | 23:BB:2217:G:H8 | 1.47 | 0.78 |
| 13:AN:65:GLN:HB2 | 13:AN:78:LEU:HD22 | 1.63 | 0.78 |
| 23:DB:1080:A:H2' | 23:DB:1081:U:H6 | 1.45 | 0.78 |
| 23:BB:2800:A:H2' | 23:BB:2801:G:O4' | 1.84 | 0.78 |
| 23:BB:222:A:H61 | 23:BB:232:G:H1' | 1.45 | 0.78 |
| 43:DW:66:VAL:HG13 | 43:DW:67:LYS:H | 1.47 | 0.78 |
| 35:DN:48:VAL:HA | 35:DN:51:LEU:HD12 | 1.66 | 0.78 |
| 36:BO:37:ALA:O | 36:BO:38:GLN:HG2 | 1.84 | 0.78 |
| 34:BM:67:VAL:HB | 34:BM:100:LYS:HG2 | 1.63 | 0.78 |
| 10:AK:92:ARG:HH11 | 10:AK:92:ARG:HB3 | 1.48 | 0.78 |
| 13:CN:40:ARG:HH12 | 18:CS:5:LYS:HB2 | 1.48 | 0.78 |
| 1:AA:562:U:H1' | 11:AL:11:ARG:HB3 | 1.65 | 0.78 |
| 23:BB:597:G:H4' | 33:BL:21:ARG:HE | 1.48 | 0.78 |
| 1:AA:79:G:H2' | 1:AA:80:A:C8 | 2.19 | 0.78 |
| 52:DI:45:THR:HA | 52:DI:48:ILE:HG22 | 1.64 | 0.78 |
| 48:B1:12:SER:HA | 48:B1:50:GLU:HB3 | 1.64 | 0.78 |
| 27:DE:137:LYS:HA | 27:DE:137:LYS:NZ | 1.98 | 0.78 |
| 23:BB:328:U:H4' | 42:BU:65:GLN:HG3 | 1.65 | 0.78 |
| 37:DP:29:VAL:HG21 | 37:DP:61:ARG:HH22 | 1.48 | 0.78 |
| 45:BY:16:LEU:HB2 | 45:BY:17:PRO:CD | 2.14 | 0.78 |
| 26:DD:89:GLU:HG2 | 26:DD:93:GLY:HA3 | 1.64 | 0.78 |
| 23:DB:365:U:H2' | 23:DB:366:C:C6 | 2.18 | 0.78 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 26:DD:170:VAL:HB | 26:DD:194:PRO:HG2 | 1.66 | 0.78 |
| 3:AD:123:MET:HA | 3:AD:128:VAL:HA | 1.65 | 0.78 |
| 34:BM:108:VAL:HG23 | 34:BM:112:LEU:HD11 | 1.65 | 0.78 |
| 23:BB:146:A:H2' | 23:BB:147:C:C6 | 2.19 | 0.78 |
| 51:D4:26:ILE:O | 51:D4:27:CYS:HB2 | 1.83 | 0.78 |
| 34:DM:15:GLY:O | 34:DM:16:ARG:HG3 | 1.83 | 0.78 |
| 27:BE:122:GLU:HB3 | 27:BE:152:GLU:HB2 | 1.65 | 0.78 |
| 3:AD:159:GLU:HG3 | 3:AD:160:LEU:N | 1.96 | 0.78 |
| 8:CI:18:VAL:HG12 | 8:CI:64:ILE:HA | 1.64 | 0.78 |
| 34:DM:134:THR:HG22 | 34:DM:135:VAL:H | 1.46 | 0.78 |
| 5:CF:4:TYR:HA | 5:CF:91:ARG:HA | 1.64 | 0.78 |
| 3:AD:118:SER:HA | 3:AD:130:ASN:HB2 | 1.65 | 0.78 |
| 37:DP:25:VAL:HG12 | 37:DP:27:VAL:H | 1.47 | 0.78 |
| 43:BW:32:ALA:O | 43:BW:66:VAL:HG11 | 1.84 | 0.78 |
| 30:BH:37:VAL:N | 30:BH:38:PRO:HD2 | 1.95 | 0.78 |
| 34:BM:40:ARG:HH11 | 34:BM:92:TRP:HE3 | 1.29 | 0.78 |
| 13:AN:60:ARG:HE | 13:AN:62:ARG:NE | 1.82 | 0.78 |
| 23:BB:483:A:H5' | 42:BU:43:LYS:HE2 | 1.66 | 0.78 |
| 45:DY:18:LYS:HD2 | 45:DY:18:LYS:N | 1.99 | 0.78 |
| 10:CK:82:GLU:HB3 | 10:CK:108:ASN:HD22 | 1.48 | 0.78 |
| 23:BB:1283:G:N2 | 23:BB:1286:A:H5' | 1.98 | 0.78 |
| 24:DV:9:ARG:HG2 | 24:DV:41:GLU:HG2 | 1.66 | 0.78 |
| 29:BG:173:ALA:C | 29:BG:174:LYS:HD2 | 2.03 | 0.78 |
| 21:CU:41:THR:HA | 21:CU:45:LYS:HD3 | 1.65 | 0.78 |
| 52:BI:25:PRO:O | 52:BI:29:GLN:HG2 | 1.84 | 0.78 |
| 23:DB:2811:G:H5' | 26:DD:62:LYS:HZ1 | 1.46 | 0.78 |
| 23:BB:2674:G:H4' | 32:BK:30:ARG:HG2 | 1.66 | 0.78 |
| 42:BU:39:ASN:ND2 | 42:BU:42:LYS:HE2 | 1.99 | 0.78 |
| 31:DJ:41:LYS:NZ | 38:DQ:63:ARG:HD2 | 1.99 | 0.78 |
| 23:DB:2511:U:H5'' | 26:DD:129:THR:CG2 | 2.14 | 0.78 |
| 25:BC:21:PRO:HG2 | 25:BC:202:ARG:HH11 | 1.48 | 0.78 |
| 28:DF:134:GLN:HB3 | 28:DF:136:ILE:HG13 | 1.65 | 0.78 |
| 35:DN:86:ARG:HB3 | 35:DN:86:ARG:HH11 | 1.47 | 0.78 |
| 9:CJ:40:ILE:HD11 | 9:CJ:73:LEU:HD12 | 1.65 | 0.78 |
| 23:BB:414:C:H2' | 23:BB:415:A:H8 | 1.49 | 0.78 |
| 23:DB:947:A:HO2' | 23:DB:984:A:H2 | 1.30 | 0.78 |
| 23:BB:2867:G:H2' | 23:BB:2867:G:N3 | 1.98 | 0.78 |
| 31:BJ:81:ILE:HG13 | 31:BJ:82:GLY:N | 1.99 | 0.78 |
| 5:CF:62:MET:HG3 | 5:CF:64:VAL:HG23 | 1.66 | 0.78 |
| 5:AF:53:LYS:HA | 5:AF:53:LYS:HZ3 | 1.49 | 0.78 |
| 1:CA:436:C:O2' | 1:CA:437:U:H5' | 1.83 | 0.78 |
| 45:DY:4:ILE:N | 45:DY:36:GLU:HG3 | 1.99 | 0.78 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 1:CA:17:U:H2' | 1:CA:18:C:C6 | 2.19 | 0.78 |
| 12:AM:19:THR:HA | 12:AM:24:VAL:HG23 | 1.65 | 0.78 |
| 50:D3:7:ARG:HA | 50:D3:7:ARG:HH11 | 1.49 | 0.78 |
| 20:AB:36:LYS:HE3 | 20:AB:36:LYS:N | 1.98 | 0.78 |
| 25:BC:127:ASN:ND2 | 25:BC:128:THR:H | 1.82 | 0.77 |
| 25:DC:139:THR:HA | 25:DC:193:GLU:CD | 2.05 | 0.77 |
| 38:BQ:33:VAL:HG23 | 38:BQ:37:ALA:HB3 | 1.66 | 0.77 |
| 34:DM:117:PHE:HB2 | 34:DM:124:LEU:HD11 | 1.67 | 0.77 |
| 18:AS:39:ILE:HG21 | 18:AS:65:MET:HB3 | 1.63 | 0.77 |
| 1:CA:975:A:O2' | 1:CA:1358:U:H1' | 1.84 | 0.77 |
| 16:AQ:80:LYS:O | 16:AQ:80:LYS:HE3 | 1.84 | 0.77 |
| 23:BB:663:G:H5'' | 33:BL:25:SER:HB2 | 1.64 | 0.77 |
| 26:DD:77:ARG:HB2 | 26:DD:77:ARG:NH1 | 1.98 | 0.77 |
| 12:AM:23:GLY:HA3 | 12:AM:64:VAL:HG13 | 1.64 | 0.77 |
| 20:AB:58:LYS:HG2 | 20:AB:62:ARG:HH21 | 1.50 | 0.77 |
| 37:DP:90:ALA:H | 37:DP:112:ARG:HH21 | 1.32 | 0.77 |
| 37:BP:25:VAL:HG12 | 37:BP:27:VAL:HG12 | 1.67 | 0.77 |
| 23:BB:918:A:H2' | 23:BB:919:U:H5' | 1.66 | 0.77 |
| 36:BO:38:GLN:HA | 36:BO:50:ALA:HB3 | 1.67 | 0.77 |
| 25:DC:229:HIS:ND1 | 25:DC:230:PRO:HD2 | 1.99 | 0.77 |
| 35:BN:116:VAL:HG22 | 35:BN:117:ASP:H | 1.49 | 0.77 |
| 26:DD:8:LYS:HE2 | 37:DP:5:LYS:HG3 | 1.67 | 0.77 |
| 29:DG:151:ARG:HH11 | 29:DG:151:ARG:HB2 | 1.47 | 0.77 |
| 16:CQ:13:SER:HB3 | 16:CQ:21:VAL:HB | 1.66 | 0.77 |
| 43:BW:43:LYS:HG2 | 43:BW:76:ARG:HH21 | 1.49 | 0.77 |
| 18:CS:27:LYS:HG3 | 18:CS:28:LYS:HD2 | 1.65 | 0.77 |
| 26:BD:106:LYS:HA | 26:BD:176:ASP:HA | 1.66 | 0.77 |
| 32:DK:76:VAL:HB | 37:DP:74:GLN:HE21 | 1.50 | 0.77 |
| 28:DF:174:PHE:H | 28:DF:175:PRO:HD2 | 1.49 | 0.77 |
| 27:DE:50:ALA:O | 27:DE:74:LYS:HD3 | 1.83 | 0.77 |
| 10:CK:23:HIS:HB3 | 10:CK:30:ILE:HG13 | 1.65 | 0.77 |
| 31:BJ:58:ASN:ND2 | 31:BJ:128:ASN:HB2 | 1.99 | 0.77 |
| 31:BJ:61:LYS:HE2 | 31:BJ:61:LYS:HA | 1.64 | 0.77 |
| 34:BM:20:LEU:HD13 | 34:BM:38:ARG:HG2 | 1.66 | 0.77 |
| 23:BB:2578:G:H1' | 26:BD:145:SER:OG | 1.83 | 0.77 |
| 23:DB:1283:G:N2 | 23:DB:1286:A:H5' | 1.98 | 0.77 |
| 13:CN:26:LEU:HA | 13:CN:29:ILE:HD12 | 1.65 | 0.77 |
| 19:CT:69:ASN:H | 19:CT:69:ASN:ND2 | 1.82 | 0.77 |
| 1:AA:430:A:OP1 | 3:AD:8:LEU:HB2 | 1.84 | 0.77 |
| 23:DB:2867:G:N3 | 23:DB:2867:G:H2' | 1.98 | 0.77 |
| 23:BB:2576:G:OP2 | 26:BD:149:ASN:HB2 | 1.84 | 0.77 |
| 38:BQ:94:LEU:H | 38:BQ:94:LEU:HD13 | 1.49 | 0.77 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 51:B4:23:ILE:HG13 | 51:B4:35:GLN:HB3 | 1.65 | 0.77 |
| 28:BF:126:ASN:HD22 | 28:BF:126:ASN:H | 1.30 | 0.77 |
| 23:DB:966:G:H5' | 23:DB:2272:U:O2 | 1.84 | 0.77 |
| 30:BH:81:ALA:HA | 30:BH:146:VAL:HA | 1.66 | 0.77 |
| 34:BM:100:LYS:HE3 | 34:BM:100:LYS:H | 1.49 | 0.77 |
| 52:DI:27:LEU:HD12 | 52:DI:32:VAL:HG11 | 1.66 | 0.77 |
| 41:DT:38:ALA:HB1 | 41:DT:43:ILE:HD11 | 1.65 | 0.77 |
| 8:AI:11:ARG:HH21 | 8:AI:12:LYS:HB2 | 1.49 | 0.77 |
| 39:DR:60:LYS:O | 39:DR:60:LYS:HD3 | 1.85 | 0.77 |
| 26:BD:13:ARG:HA | 26:BD:13:ARG:NH1 | 2.00 | 0.77 |
| 23:DB:2293:G:H5'' | 36:DO:9:ARG:NH2 | 1.99 | 0.77 |
| 35:BN:100:CYS:HB3 | 35:BN:110:MET:HB2 | 1.66 | 0.77 |
| 45:DY:45:GLY:HA2 | 45:DY:48:ASN:ND2 | 2.00 | 0.77 |
| 23:BB:2008:C:H2' | 23:BB:2009:A:H8 | 1.50 | 0.77 |
| 2:AC:58:ARG:HG2 | 2:AC:63:ILE:HG22 | 1.67 | 0.77 |
| 1:AA:1412:C:H2' | 1:AA:1413:A:C8 | 2.20 | 0.77 |
| 26:BD:62:LYS:HG2 | 26:BD:63:PRO:HD3 | 1.65 | 0.77 |
| 49:B2:12:ARG:HH21 | 49:B2:18:PHE:H | 1.31 | 0.77 |
| 30:BH:73:ASN:ND2 | 30:BH:74:ALA:H | 1.82 | 0.77 |
| 5:AF:10:VAL:HA | 5:AF:84:VAL:HA | 1.67 | 0.77 |
| 23:BB:2064:C:H2' | 23:BB:2065:C:C6 | 2.19 | 0.77 |
| 23:BB:441:U:O2' | 23:BB:442:G:H5' | 1.84 | 0.77 |
| 25:BC:153:LEU:HD23 | 25:BC:153:LEU:H | 1.49 | 0.77 |
| 31:BJ:57:LEU:HB3 | 31:BJ:128:ASN:HA | 1.66 | 0.77 |
| 52:BI:21:PRO:HB2 | 52:BI:22:PRO:HD3 | 1.66 | 0.77 |
| 23:BB:2324:U:H5' | 23:BB:2325:G:H5'' | 1.67 | 0.77 |
| 23:DB:51:G:O2' | 23:DB:118:A:N6 | 2.17 | 0.77 |
| 23:DB:458:G:C5' | 49:D2:39:ARG:HB2 | 2.13 | 0.76 |
| 50:B3:48:MET:SD | 50:B3:51:LYS:HD3 | 2.25 | 0.76 |
| 52:DI:25:PRO:O | 52:DI:29:GLN:HG3 | 1.84 | 0.76 |
| 23:DB:2071:A:H2' | 23:DB:2072:C:C6 | 2.20 | 0.76 |
| 23:DB:526:A:N6 | 23:DB:2626:C:H4' | 2.00 | 0.76 |
| 23:DB:1486:U:H2' | 23:DB:1487:U:C6 | 2.21 | 0.76 |
| 1:AA:1461:G:H2' | 1:AA:1462:C:C6 | 2.20 | 0.76 |
| 39:BR:47:VAL:HG22 | 39:BR:48:LYS:H | 1.48 | 0.76 |
| 26:DD:8:LYS:HD3 | 37:DP:5:LYS:HE3 | 1.67 | 0.76 |
| 15:AP:51:ARG:HB3 | 15:AP:51:ARG:HH11 | 1.48 | 0.76 |
| 23:DB:2886:A:C8 | 47:D0:27:LEU:HG | 2.21 | 0.76 |
| 23:DB:1826:G:OP2 | 25:DC:221:GLY:HA2 | 1.86 | 0.76 |
| 31:BJ:7:LYS:HD3 | 31:BJ:48:VAL:HB | 1.67 | 0.76 |
| 11:CL:78:VAL:HG12 | 11:CL:101:LEU:HD13 | 1.67 | 0.76 |
| 30:BH:3:VAL:HG22 | 30:BH:21:VAL:HG11 | 1.67 | 0.76 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 8:CI:118:ARG:HH21 | 8:CI:122:ARG:NE | 1.82 | 0.76 |
| 26:DD:5:VAL:HB | 26:DD:27:ILE:O | 1.85 | 0.76 |
| 9:CJ:57:VAL:HG22 | 9:CJ:58:ASN:H | 1.49 | 0.76 |
| 20:AB:202:ASN:ND2 | 20:AB:204:ASP:H | 1.83 | 0.76 |
| 37:DP:76:HIS:H | 37:DP:76:HIS:HD2 | 1.30 | 0.76 |
| 24:DV:30:ILE:HG12 | 24:DV:91:PHE:HB2 | 1.65 | 0.76 |
| 4:CE:110:MET:SD | 4:CE:126:ALA:HB2 | 2.25 | 0.76 |
| 1:AA:1057:G:H5'' | 2:AC:153:SER:HB3 | 1.67 | 0.76 |
| 23:DB:1113:U:H5'' | 29:DG:2:ARG:CZ | 2.16 | 0.76 |
| 1:AA:1123:U:O2' | 1:AA:1124:G:H5' | 1.85 | 0.76 |
| 25:BC:106:PRO:HD2 | 25:BC:109:LEU:HD22 | 1.68 | 0.76 |
| 36:BO:19:GLN:H | 43:BW:76:ARG:HH12 | 1.32 | 0.76 |
| 10:AK:111:ASP:HB2 | 21:AU:16:ARG:HH22 | 1.50 | 0.76 |
| 21:AU:17:ARG:HA | 21:AU:20:ARG:HB3 | 1.66 | 0.76 |
| 27:DE:14:VAL:HG12 | 27:DE:15:SER:H | 1.48 | 0.76 |
| 25:BC:224:MET:HA | 25:BC:232:GLY:HA2 | 1.67 | 0.76 |
| 3:CD:138:PRO:HA | 3:CD:181:PHE:HD2 | 1.50 | 0.76 |
| 23:DB:2008:C:H2' | 23:DB:2009:A:H8 | 1.51 | 0.76 |
| 23:BB:811:U:C5 | 33:BL:29:LYS:HD3 | 2.20 | 0.76 |
| 11:AL:78:VAL:HG12 | 11:AL:101:LEU:HD23 | 1.67 | 0.76 |
| 4:CE:98:ALA:HB2 | 4:CE:123:LEU:HG | 1.68 | 0.76 |
| 38:DQ:30:VAL:HG12 | 38:DQ:31:TYR:N | 2.00 | 0.76 |
| 7:AH:30:LYS:HA | 7:AH:30:LYS:HZ2 | 1.49 | 0.76 |
| 11:AL:105:GLY:HA3 | 11:AL:117:GLY:HA3 | 1.67 | 0.76 |
| 1:CA:1225:A:H5' | 12:CM:101:THR:OG1 | 1.84 | 0.76 |
| 47:D0:41:HIS:CG | 47:D0:42:ILE:H | 2.03 | 0.76 |
| 23:BB:1022:G:N7 | 31:BJ:68:LYS:HE3 | 2.01 | 0.76 |
| 23:BB:1252:G:H1 | 38:BQ:36:GLN:NE2 | 1.83 | 0.76 |
| 23:DB:1368:G:C5' | 49:D2:25:LYS:HG2 | 2.15 | 0.76 |
| 25:BC:77:VAL:HG23 | 25:BC:115:ILE:HD11 | 1.66 | 0.76 |
| 23:BB:27:G:H22 | 23:BB:512:G:H2' | 1.50 | 0.76 |
| 1:CA:939:G:H5'' | 6:CG:101:ARG:HH12 | 1.49 | 0.76 |
| 34:DM:20:LEU:HD13 | 34:DM:38:ARG:HG3 | 1.67 | 0.76 |
| 47:B0:6:LYS:HA | 47:B0:6:LYS:NZ | 1.99 | 0.76 |
| 1:AA:1251:A:H2' | 1:AA:1252:A:C8 | 2.21 | 0.76 |
| 31:DJ:135:GLN:NE2 | 31:DJ:138:GLN:H | 1.83 | 0.76 |
| 40:BS:73:LYS:HB2 | 40:BS:106:VAL:HB | 1.67 | 0.76 |
| 27:BE:4:VAL:HG22 | 27:BE:5:LEU:HD12 | 1.65 | 0.76 |
| 4:CE:47:PHE:HE1 | 4:CE:137:ARG:HE | 1.34 | 0.76 |
| 48:B1:42:VAL:HG12 | 48:B1:43:ARG:HG3 | 1.67 | 0.76 |
| 25:BC:9:SER:HB2 | 25:BC:202:ARG:NE | 2.00 | 0.76 |
| 28:DF:132:ARG:HD3 | 28:DF:133:GLU:H | 1.48 | 0.76 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:BB:2420:C:OP1 | 50:B3:34:LYS:HB2 | 1.86 | 0.76 |
| 46:DZ:41:HIS:CG | 46:DZ:42:PRO:HD2 | 2.21 | 0.76 |
| 4:AE:131:ASN:HD21 | 4:AE:133:ILE:HB | 1.50 | 0.76 |
| 23:BB:2443:C:H2' | 23:BB:2444:G:H8 | 1.51 | 0.76 |
| 1:CA:814:A:H5' | 1:CA:1511:G:H4' | 1.66 | 0.76 |
| 23:BB:1241:A:H2' | 23:BB:1242:U:H5' | 1.67 | 0.76 |
| 37:BP:51:ASN:HA | 37:BP:61:ARG:H | 1.51 | 0.76 |
| 38:DQ:48:ASP:HA | 38:DQ:51:GLN:NE2 | 2.00 | 0.76 |
| 26:DD:116:LYS:HG2 | 26:DD:123:LYS:HE2 | 1.67 | 0.76 |
| 30:DH:94:ILE:HG22 | 30:DH:122:LEU:HG | 1.68 | 0.76 |
| 23:BB:125:A:H3' | 23:BB:126:A:C5' | 2.15 | 0.76 |
| 24:DV:9:ARG:HH12 | 24:DV:12:GLN:HA | 1.49 | 0.76 |
| 23:BB:643:A:C2 | 48:B1:42:VAL:HG13 | 2.21 | 0.76 |
| 35:BN:119:SER:HB2 | 35:BN:121:LYS:HG2 | 1.67 | 0.76 |
| 23:DB:2346:A:H3' | 23:DB:2347:C:H5'' | 1.68 | 0.76 |
| 23:DB:547:A:H2' | 23:DB:547:A:N3 | 1.99 | 0.76 |
| 11:CL:49:ARG:HG2 | 11:CL:89:LEU:HD21 | 1.66 | 0.76 |
| 23:DB:1098:A:P | 52:DI:3:LYS:HG2 | 2.25 | 0.76 |
| 28:BF:56:LEU:O | 28:BF:59:ILE:HG22 | 1.86 | 0.76 |
| 23:DB:1175:A:H2' | 23:DB:1176:U:H5' | 1.68 | 0.76 |
| 30:BH:73:ASN:N | 30:BH:73:ASN:HD22 | 1.83 | 0.76 |
| 33:DL:19:LEU:H | 33:DL:19:LEU:HD22 | 1.51 | 0.76 |
| 52:BI:105:LEU:HD11 | 52:BI:139:VAL:HG11 | 1.66 | 0.76 |
| 9:CJ:25:ILE:HG23 | 9:CJ:87:LEU:HD12 | 1.68 | 0.76 |
| 8:AI:71:ILE:HD12 | 8:AI:71:ILE:H | 1.50 | 0.76 |
| 25:BC:127:ASN:HD22 | 25:BC:128:THR:H | 1.31 | 0.76 |
| 26:DD:60:VAL:HG23 | 26:DD:63:PRO:HG2 | 1.66 | 0.76 |
| 23:DB:974:G:H1' | 23:DB:975:A:C8 | 2.21 | 0.76 |
| 16:AQ:16:MET:HB2 | 16:AQ:19:SER:HB2 | 1.66 | 0.76 |
| 8:AI:33:SER:HB3 | 8:AI:36:GLN:HB2 | 1.68 | 0.76 |
| 12:AM:44:ILE:HD12 | 12:AM:45:SER:H | 1.51 | 0.76 |
| 10:AK:88:PRO:HD3 | 21:AU:28:LEU:HD13 | 1.68 | 0.76 |
| 36:BO:76:LYS:HG2 | 36:BO:110:ALA:HB2 | 1.68 | 0.76 |
| 1:CA:1071:C:H2' | 1:CA:1072:G:H8 | 1.52 | 0.76 |
| 20:AB:41:ASN:ND2 | 20:AB:44:LYS:HB2 | 2.00 | 0.76 |
| 23:BB:118:A:H5' | 23:BB:119:A:H8 | 1.49 | 0.76 |
| 7:CH:72:GLU:H | 7:CH:129:ALA:HB2 | 1.51 | 0.76 |
| 44:BX:45:GLN:H | 44:BX:45:GLN:NE2 | 1.83 | 0.76 |
| 42:BU:78:LYS:HE3 | 42:BU:96:LYS:HB2 | 1.66 | 0.75 |
| 50:B3:12:ARG:HB2 | 50:B3:12:ARG:HH11 | 1.48 | 0.75 |
| 33:BL:91:ASP:O | 33:BL:92:LEU:HB2 | 1.86 | 0.75 |
| 34:BM:42:THR:HG22 | 34:BM:45:GLN:HB2 | 1.67 | 0.75 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 24:DV:63:ILE:N | 24:DV:70:ILE:HD11 | 1.99 | 0.75 |
| 16:AQ:45:VAL:HG12 | 16:AQ:46:HIS:H | 1.49 | 0.75 |
| 2:AC:156:LEU:HD11 | 2:AC:163:ARG:O | 1.87 | 0.75 |
| 25:BC:229:HIS:HE2 | 25:BC:244:VAL:HG22 | 1.48 | 0.75 |
| 2:AC:146:LYS:HE3 | 2:AC:202:PHE:HE2 | 1.51 | 0.75 |
| 35:BN:38:LEU:HB2 | 35:BN:109:PRO:HB2 | 1.68 | 0.75 |
| 2:AC:8:GLY:HA2 | 2:AC:11:LEU:HG | 1.69 | 0.75 |
| 49:D2:43:THR:O | 49:D2:44:VAL:HG13 | 1.85 | 0.75 |
| 31:BJ:7:LYS:HD2 | 31:BJ:49:ASP:HB2 | 1.66 | 0.75 |
| 23:BB:2301:C:H2' | 23:BB:2302:U:C6 | 2.21 | 0.75 |
| 22:DA:47:C:OP1 | 36:DO:1:MET:HA | 1.87 | 0.75 |
| 3:AD:137:SER:HB2 | 3:AD:138:PRO:HD2 | 1.68 | 0.75 |
| 23:BB:633:A:O5' | 23:BB:633:A:H8 | 1.70 | 0.75 |
| 27:BE:141:MET:HG3 | 27:BE:143:LEU:H | 1.52 | 0.75 |
| 33:BL:94:THR:HB | 33:BL:103:ILE:HG12 | 1.68 | 0.75 |
| 5:AF:92:THR:HG23 | 5:AF:93:LYS:H | 1.51 | 0.75 |
| 2:AC:49:ALA:HB1 | 2:AC:75:VAL:HG22 | 1.68 | 0.75 |
| 49:D2:35:ARG:HH21 | 49:D2:42:LEU:HD12 | 1.51 | 0.75 |
| 20:CB:94:ARG:N | 20:CB:94:ARG:HE | 1.84 | 0.75 |
| 23:DB:957:C:OP1 | 34:DM:76:LYS:HD3 | 1.86 | 0.75 |
| 23:BB:78:U:H2' | 23:BB:79:C:C6 | 2.21 | 0.75 |
| 30:DH:75:LEU:H | 30:DH:75:LEU:HD23 | 1.51 | 0.75 |
| 20:CB:218:ALA:HA | 20:CB:221:ARG:HG2 | 1.68 | 0.75 |
| 35:DN:42:LYS:HE3 | 35:DN:45:ARG:HG3 | 1.67 | 0.75 |
| 43:BW:23:LYS:HB2 | 43:BW:23:LYS:HZ2 | 1.51 | 0.75 |
| 23:BB:855:G:H21 | 43:BW:23:LYS:HD2 | 1.50 | 0.75 |
| 23:DB:534:U:H5' | 38:DQ:41:ALA:HA | 1.66 | 0.75 |
| 34:BM:71:LYS:HD2 | 34:BM:71:LYS:O | 1.86 | 0.75 |
| 41:DT:14:PRO:HA | 41:DT:32:LEU:HA | 1.67 | 0.75 |
| 41:DT:55:VAL:HG23 | 41:DT:87:LEU:N | 2.01 | 0.75 |
| 23:BB:1654:A:OP1 | 35:BN:1:MET:HB2 | 1.86 | 0.75 |
| 26:DD:179:ARG:HB2 | 26:DD:188:LEU:HD22 | 1.68 | 0.75 |
| 31:DJ:64:VAL:HG21 | 31:DJ:90:GLU:OE1 | 1.86 | 0.75 |
| 3:AD:159:GLU:HG3 | 3:AD:160:LEU:H | 1.50 | 0.75 |
| 1:AA:967:C:H3' | 1:AA:968:A:C5' | 2.15 | 0.75 |
| 23:DB:1299:G:H4' | 23:DB:1301:A:H1' | 1.69 | 0.75 |
| 23:DB:2012:G:OP1 | 40:DS:98:LYS:HD3 | 1.85 | 0.75 |
| 23:DB:2204:G:O5' | 25:DC:149:LYS:HE3 | 1.87 | 0.75 |
| 26:BD:8:LYS:HB3 | 37:BP:5:LYS:NZ | 2.01 | 0.75 |
| 26:DD:37:VAL:HB | 26:DD:46:ARG:HB2 | 1.68 | 0.75 |
| 42:DU:4:ILE:HG21 | 42:DU:27:VAL:HG13 | 1.68 | 0.75 |
| 45:BY:10:ARG:NE | 45:BY:31:ILE:HG13 | 2.01 | 0.75 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 38:BQ:91:ARG:N | 39:BR:10:LYS:HZ2 | 1.79 | 0.75 |
| 1:CA:780:A:O2' | 1:CA:781:A:H5'' | 1.87 | 0.75 |
| 1:CA:1508:A:H2' | 1:CA:1509:C:C6 | 2.22 | 0.75 |
| 29:BG:51:PHE:HE2 | 29:BG:63:GLN:HE21 | 1.34 | 0.75 |
| 23:DB:2443:C:H2' | 23:DB:2444:G:H8 | 1.51 | 0.75 |
| 47:B0:8:THR:HG23 | 47:B0:9:ARG:H | 1.51 | 0.75 |
| 7:CH:10:LEU:HD22 | 7:CH:74:ILE:HD11 | 1.68 | 0.75 |
| 1:CA:1399:C:H4' | 1:CA:1400:C:H5'' | 1.67 | 0.75 |
| 23:BB:2346:A:H3' | 23:BB:2347:C:H5'' | 1.67 | 0.75 |
| 1:CA:1056:U:H5' | 2:CC:162:ALA:HB2 | 1.65 | 0.75 |
| 28:BF:102:LEU:O | 28:BF:107:VAL:HG23 | 1.86 | 0.75 |
| 27:BE:89:PRO:O | 27:BE:90:GLN:HG2 | 1.85 | 0.75 |
| 42:DU:3:LYS:HD3 | 42:DU:81:ARG:HH12 | 1.52 | 0.75 |
| 44:BX:22:LEU:HD22 | 44:BX:26:PHE:HB2 | 1.69 | 0.75 |
| 26:BD:1:MET:HB2 | 26:BD:84:LEU:HD22 | 1.68 | 0.75 |
| 1:AA:1409:C:H42 | 1:AA:1491:G:H1 | 1.33 | 0.75 |
| 23:DB:898:C:O2' | 23:DB:899:A:H5'' | 1.86 | 0.75 |
| 39:BR:58:VAL:HG22 | 39:BR:59:ILE:H | 1.52 | 0.75 |
| 23:BB:1197:G:H2' | 23:BB:1198:U:H6 | 1.49 | 0.75 |
| 48:B1:12:SER:HB2 | 48:B1:21:THR:O | 1.85 | 0.75 |
| 52:BI:20:SER:HB3 | 52:BI:21:PRO:HD3 | 1.68 | 0.75 |
| 7:AH:30:LYS:HA | 7:AH:30:LYS:NZ | 2.01 | 0.75 |
| 1:CA:817:C:H1' | 1:CA:819:A:H5' | 1.69 | 0.75 |
| 3:CD:2:ARG:NH1 | 3:CD:114:ARG:HD3 | 2.00 | 0.75 |
| 24:DV:72:VAL:HG12 | 24:DV:93:ARG:HA | 1.68 | 0.75 |
| 1:AA:575:G:H4' | 1:AA:576:C:O5' | 1.84 | 0.75 |
| 23:BB:1440:U:H2' | 23:BB:1441:G:H8 | 1.51 | 0.75 |
| 23:BB:1486:U:H2' | 23:BB:1487:U:C6 | 2.21 | 0.75 |
| 30:DH:11:ASN:HD22 | 30:DH:20:ASN:HD22 | 1.33 | 0.75 |
| 28:BF:35:LEU:HA | 28:BF:153:ILE:HA | 1.67 | 0.75 |
| 27:BE:120:VAL:H | 27:BE:189:THR:HG22 | 1.50 | 0.75 |
| 26:BD:91:THR:HG23 | 26:BD:92:VAL:H | 1.50 | 0.75 |
| 2:AC:153:SER:HB2 | 2:AC:196:GLY:H | 1.51 | 0.75 |
| 23:DB:544:C:H2' | 23:DB:545:U:C4 | 2.21 | 0.75 |
| 23:BB:65:U:OP1 | 41:BT:76:ARG:HB2 | 1.87 | 0.75 |
| 4:CE:44:ARG:HA | 4:CE:71:ILE:O | 1.85 | 0.75 |
| 1:CA:269:C:H2' | 1:CA:270:A:H8 | 1.50 | 0.75 |
| 19:AT:59:ARG:HH11 | 19:AT:59:ARG:HB2 | 1.51 | 0.75 |
| 23:DB:1825:U:H5' | 25:DC:244:VAL:CG2 | 2.16 | 0.75 |
| 1:AA:814:A:H5' | 1:AA:1511:G:H4' | 1.69 | 0.75 |
| 37:DP:28:LYS:H | 37:DP:86:LYS:HD3 | 1.52 | 0.75 |
| 31:DJ:133:ALA:HA | 31:DJ:136:GLN:HB2 | 1.66 | 0.75 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 16:AQ:18:LYS:HG2 | 16:AQ:48:GLU:HA | 1.68 | 0.75 |
| 31:BJ:45:THR:HB | 38:BQ:63:ARG:NH2 | 2.01 | 0.75 |
| 26:DD:24:VAL:HG11 | 26:DD:193:VAL:HG11 | 1.69 | 0.75 |
| 1:AA:780:A:O2' | 1:AA:781:A:H5'' | 1.87 | 0.75 |
| 7:AH:5:PRO:HB2 | 7:AH:32:LYS:HZ1 | 1.49 | 0.75 |
| 23:DB:90:U:H3' | 23:DB:91:A:C5' | 2.17 | 0.75 |
| 23:DB:718:A:H2' | 23:DB:719:C:H5' | 1.67 | 0.75 |
| 23:DB:2756:U:H1' | 23:DB:2757:A:H5'' | 1.69 | 0.75 |
| 2:CC:182:ASP:HB2 | 2:CC:203:LYS:HE2 | 1.67 | 0.75 |
| 1:CA:1412:C:H2' | 1:CA:1413:A:C8 | 2.21 | 0.75 |
| 42:BU:7:ASP:N | 42:BU:24:VAL:HA | 2.01 | 0.75 |
| 31:DJ:40:HIS:HA | 38:DQ:69:ARG:HH12 | 1.50 | 0.75 |
| 1:AA:1111:A:HO2' | 1:AA:1112:C:H6 | 1.30 | 0.75 |
| 23:DB:2204:G:H4' | 25:DC:149:LYS:HG3 | 1.69 | 0.75 |
| 25:BC:235:GLU:HG3 | 25:BC:237:ARG:HD3 | 1.67 | 0.75 |
| 23:DB:704:G:O2' | 23:DB:727:A:N6 | 2.19 | 0.75 |
| 36:DO:72:ALA:O | 36:DO:76:LYS:HE3 | 1.87 | 0.75 |
| 1:AA:65:A:N3 | 1:AA:65:A:H2' | 2.00 | 0.75 |
| 37:DP:47:ILE:HG22 | 37:DP:48:ALA:N | 2.00 | 0.75 |
| 34:BM:42:THR:HA | 34:BM:92:TRP:HD1 | 1.51 | 0.75 |
| 23:BB:742:A:H2' | 23:BB:743:A:C8 | 2.21 | 0.75 |
| 23:DB:1060:U:C5 | 52:DI:131:THR:HG22 | 2.22 | 0.75 |
| 32:DK:102:PRO:HB3 | 32:DK:121:GLU:HG2 | 1.69 | 0.75 |
| 1:AA:1326:U:H2' | 1:AA:1327:C:C6 | 2.21 | 0.75 |
| 52:BI:122:GLU:O | 52:BI:126:ARG:HG3 | 1.87 | 0.75 |
| 25:DC:257:ARG:HA | 25:DC:261:ARG:HD2 | 1.68 | 0.75 |
| 1:AA:269:C:H2' | 1:AA:270:A:H8 | 1.50 | 0.75 |
| 33:DL:55:MET:HB3 | 33:DL:56:PRO:HD3 | 1.69 | 0.75 |
| 6:AG:67:ASN:HD22 | 6:AG:127:ALA:HA | 1.51 | 0.75 |
| 23:DB:1099:G:C8 | 52:DI:3:LYS:HB2 | 2.22 | 0.74 |
| 23:DB:590:A:H2' | 23:DB:591:U:C6 | 2.22 | 0.74 |
| 27:DE:142:ALA:N | 27:DE:185:LYS:HZ1 | 1.83 | 0.74 |
| 33:BL:78:ARG:HG2 | 33:BL:99:ASN:HB3 | 1.69 | 0.74 |
| 8:CI:27:ILE:HD13 | 8:CI:34:LEU:HD13 | 1.68 | 0.74 |
| 16:AQ:10:ARG:NH1 | 16:AQ:56:ASP:H | 1.85 | 0.74 |
| 23:DB:2751:G:H5' | 29:DG:3:VAL:CG2 | 2.16 | 0.74 |
| 23:BB:590:A:H2' | 23:BB:591:U:C6 | 2.22 | 0.74 |
| 35:DN:8:ARG:HD2 | 35:DN:46:ARG:HE | 1.48 | 0.74 |
| 25:BC:77:VAL:HG21 | 25:BC:109:LEU:HG | 1.69 | 0.74 |
| 1:CA:1277:C:O2' | 1:CA:1279:G:H1' | 1.86 | 0.74 |
| 1:AA:1125:U:H2' | 1:AA:1126:U:H5'' | 1.68 | 0.74 |
| 23:BB:508:A:H2' | 23:BB:509:C:H5' | 1.66 | 0.74 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 25:DC:193:GLU:O | 25:DC:194:VAL:HG13 | 1.87 | 0.74 |
| 23:BB:394:C:H2' | 23:BB:395:U:O4' | 1.86 | 0.74 |
| 1:CA:1316:G:H2' | 1:CA:1318:A:OP2 | 1.87 | 0.74 |
| 25:BC:110:LYS:HE3 | 25:BC:111:ALA:H | 1.52 | 0.74 |
| 49:D2:25:LYS:HD2 | 49:D2:25:LYS:N | 2.01 | 0.74 |
| 41:BT:29:THR:HG22 | 41:BT:86:THR:HG22 | 1.69 | 0.74 |
| 3:CD:57:LYS:HB2 | 3:CD:199:ILE:HB | 1.68 | 0.74 |
| 37:DP:32:VAL:HB | 37:DP:80:VAL:HG13 | 1.69 | 0.74 |
| 11:AL:35:ARG:HA | 11:AL:35:ARG:HE | 1.52 | 0.74 |
| 15:CP:4:ILE:HG12 | 15:CP:21:VAL:HG22 | 1.67 | 0.74 |
| 23:DB:742:A:H2' | 23:DB:743:A:C8 | 2.21 | 0.74 |
| 23:BB:1178:C:H2' | 23:BB:1179:G:H8 | 1.51 | 0.74 |
| 1:AA:1000:A:H2' | 1:AA:1001:C:C6 | 2.22 | 0.74 |
| 23:BB:2471:A:O2' | 23:BB:2472:G:H8 | 1.70 | 0.74 |
| 23:BB:2840:C:H5'' | 35:BN:53:THR:HG21 | 1.69 | 0.74 |
| 20:CB:18:GLN:O | 20:CB:37:VAL:HG23 | 1.86 | 0.74 |
| 27:BE:52:VAL:HG22 | 27:BE:53:THR:H | 1.52 | 0.74 |
| 20:AB:61:SER:HA | 20:AB:224:ARG:HA | 1.69 | 0.74 |
| 25:DC:15:VAL:HG13 | 25:DC:16:VAL:HG23 | 1.67 | 0.74 |
| 23:BB:1113:U:H5'' | 29:BG:1:SER:HA | 1.69 | 0.74 |
| 47:D0:32:THR:HG21 | 47:D0:41:HIS:NE2 | 2.01 | 0.74 |
| 46:BZ:53:THR:HA | 46:BZ:56:ARG:HD2 | 1.68 | 0.74 |
| 23:BB:1009:A:O2' | 38:BQ:61:ILE:HD11 | 1.86 | 0.74 |
| 26:BD:35:THR:HG22 | 26:BD:46:ARG:HH22 | 1.52 | 0.74 |
| 39:DR:4:VAL:HG12 | 39:DR:43:ASN:HB3 | 1.69 | 0.74 |
| 23:BB:275:C:H2' | 23:BB:276:U:O4' | 1.86 | 0.74 |
| 49:D2:35:ARG:NH2 | 49:D2:43:THR:H | 1.86 | 0.74 |
| 23:BB:107:G:H21 | 23:BB:346:A:N6 | 1.84 | 0.74 |
| 3:CD:117:VAL:HG12 | 3:CD:130:ASN:HA | 1.70 | 0.74 |
| 23:BB:1727:C:H2' | 23:BB:1728:C:C6 | 2.22 | 0.74 |
| 1:CA:878:A:O4' | 7:CH:3:GLN:HG3 | 1.88 | 0.74 |
| 23:BB:2086:U:H2' | 23:BB:2087:G:C8 | 2.22 | 0.74 |
| 20:CB:81:ASP:HA | 20:CB:84:LEU:HD22 | 1.68 | 0.74 |
| 30:DH:6:LEU:HD12 | 30:DH:36:ALA:N | 2.02 | 0.74 |
| 23:BB:857:G:O2' | 23:BB:858:G:H5' | 1.86 | 0.74 |
| 33:BL:118:THR:CG2 | 33:BL:119:PRO:HD3 | 2.17 | 0.74 |
| 33:BL:38:GLN:CD | 33:BL:39:LYS:H | 1.89 | 0.74 |
| 38:DQ:7:VAL:HG13 | 38:DQ:8:ILE:HD12 | 1.67 | 0.74 |
| 10:CK:110:THR:HG22 | 21:CU:5:VAL:H | 1.52 | 0.74 |
| 21:AU:40:PRO:HG2 | 21:AU:41:THR:H | 1.51 | 0.74 |
| 23:BB:643:A:H2 | 48:B1:42:VAL:HG13 | 1.52 | 0.74 |
| 1:CA:270:A:H2' | 1:CA:271:C:C6 | 2.23 | 0.74 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 1:CA:1436:U:H2' | 1:CA:1437:A:H8 | 1.52 | 0.74 |
| 2:CC:95:GLY:O | 2:CC:96:VAL:HG13 | 1.86 | 0.74 |
| 36:DO:100:HIS:O | 36:DO:104:GLN:HB3 | 1.87 | 0.74 |
| 1:AA:1446:A:H2' | 1:AA:1447:A:H5'' | 1.69 | 0.74 |
| 25:BC:146:LYS:HB3 | 25:BC:147:PRO:HD2 | 1.69 | 0.74 |
| 30:BH:26:ALA:HB1 | 30:BH:31:VAL:HG23 | 1.70 | 0.74 |
| 34:BM:8:LYS:HZ2 | 34:BM:70:ASP:H | 1.34 | 0.74 |
| 38:BQ:47:ARG:HH22 | 38:BQ:50:ARG:HB3 | 1.51 | 0.74 |
| 35:BN:82:GLU:O | 35:BN:86:ARG:HG3 | 1.88 | 0.74 |
| 1:CA:1219:A:H5'' | 13:CN:52:ARG:HH12 | 1.52 | 0.74 |
| 12:AM:78:ARG:NH2 | 12:AM:79:LEU:HG | 2.03 | 0.74 |
| 41:BT:5:GLU:HG2 | 41:BT:6:ARG:N | 2.02 | 0.74 |
| 25:BC:222:THR:HA | 25:BC:231:HIS:NE2 | 2.02 | 0.74 |
| 11:AL:22:ALA:HB1 | 11:AL:29:LYS:HG3 | 1.70 | 0.74 |
| 35:BN:62:ASN:ND2 | 35:BN:80:PHE:HB3 | 2.02 | 0.74 |
| 38:BQ:106:THR:O | 38:BQ:109:VAL:HG22 | 1.86 | 0.74 |
| 16:CQ:5:ARG:HB3 | 16:CQ:7:LEU:HD23 | 1.70 | 0.74 |
| 1:CA:430:A:OP1 | 3:CD:8:LEU:HB2 | 1.86 | 0.74 |
| 11:AL:20:VAL:HG13 | 11:AL:94:TYR:HH | 1.50 | 0.74 |
| 14:CO:21:THR:HA | 14:CO:26:VAL:HG11 | 1.69 | 0.74 |
| 42:DU:46:LYS:HE2 | 42:DU:53:GLN:HA | 1.69 | 0.74 |
| 43:DW:42:THR:HG23 | 43:DW:66:VAL:H | 1.53 | 0.74 |
| 34:BM:69:PRO:O | 34:BM:70:ASP:HB3 | 1.86 | 0.74 |
| 45:BY:54:VAL:HG22 | 45:BY:55:LYS:H | 1.52 | 0.74 |
| 30:DH:121:VAL:HG23 | 30:DH:122:LEU:HD23 | 1.68 | 0.74 |
| 40:DS:6:LYS:HA | 40:DS:104:THR:HA | 1.68 | 0.74 |
| 2:AC:179:ALA:HB1 | 2:AC:202:PHE:HE1 | 1.50 | 0.74 |
| 23:DB:2144:G:O2' | 23:DB:2145:C:H5' | 1.87 | 0.74 |
| 1:AA:1008:U:H2' | 1:AA:1009:U:H4' | 1.68 | 0.74 |
| 23:DB:2102:G:H2' | 23:DB:2103:C:O4' | 1.87 | 0.74 |
| 4:AE:87:VAL:HG12 | 4:AE:92:ARG:HA | 1.68 | 0.74 |
| 33:BL:77:ILE:HG22 | 33:BL:78:ARG:HG3 | 1.69 | 0.74 |
| 49:D2:25:LYS:HD2 | 49:D2:25:LYS:H | 1.52 | 0.74 |
| 27:BE:47:LYS:CD | 27:BE:47:LYS:H | 1.98 | 0.74 |
| 44:BX:22:LEU:HD22 | 44:BX:26:PHE:H | 1.52 | 0.74 |
| 43:DW:3:LYS:HA | 43:DW:3:LYS:HZ3 | 1.50 | 0.74 |
| 23:BB:1437:C:H2' | 23:BB:1438:U:C6 | 2.22 | 0.74 |
| 1:CA:1170:A:H2' | 1:CA:1171:A:O4' | 1.88 | 0.74 |
| 23:BB:19:A:H2' | 23:BB:20:C:C6 | 2.23 | 0.74 |
| 43:BW:48:ALA:HB3 | 43:BW:72:GLY:HA3 | 1.68 | 0.74 |
| 33:BL:110:VAL:HB | 33:BL:126:ARG:NH2 | 2.02 | 0.74 |
| 32:BK:11:ALA:HB3 | 32:BK:85:VAL:CG2 | 2.17 | 0.74 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 34:BM:95:LEU:HD22 | 34:BM:98:PRO:HG3 | 1.69 | 0.74 |
| 50:D3:51:LYS:HA | 50:D3:51:LYS:NZ | 2.03 | 0.74 |
| 18:CS:50:VAL:HG21 | 18:CS:70:LEU:HG | 1.70 | 0.74 |
| 42:BU:81:ARG:HH11 | 42:BU:81:ARG:HA | 1.52 | 0.74 |
| 23:DB:1063:G:H1' | 52:DI:92:PRO:HG2 | 1.70 | 0.74 |
| 23:BB:2420:C:OP1 | 50:B3:34:LYS:HE3 | 1.87 | 0.74 |
| 23:DB:704:G:H1' | 23:DB:727:A:N6 | 2.03 | 0.74 |
| 23:DB:2257:U:H5' | 43:DW:5:ALA:HB2 | 1.69 | 0.74 |
| 22:BA:60:C:H2' | 22:BA:61:G:H8 | 1.53 | 0.74 |
| 27:DE:99:LYS:HZ2 | 27:DE:99:LYS:C | 1.91 | 0.74 |
| 20:AB:120:SER:HA | 20:AB:125:PHE:HB3 | 1.68 | 0.74 |
| 13:AN:42:ASN:HB3 | 13:AN:46:LYS:HE2 | 1.70 | 0.74 |
| 23:BB:37:C:C2' | 27:BE:46:GLN:HG2 | 2.17 | 0.74 |
| 26:BD:13:ARG:HA | 26:BD:13:ARG:HH11 | 1.53 | 0.74 |
| 26:BD:110:THR:HG22 | 26:BD:171:THR:HA | 1.70 | 0.74 |
| 1:AA:1294:G:H2' | 1:AA:1295:U:C6 | 2.22 | 0.74 |
| 23:DB:633:A:O5' | 23:DB:633:A:H8 | 1.69 | 0.74 |
| 49:B2:13:ASN:HA | 49:B2:18:PHE:HB2 | 1.69 | 0.74 |
| 26:BD:107:VAL:HA | 26:BD:205:PRO:O | 1.87 | 0.74 |
| 29:DG:155:PRO:HB3 | 29:DG:171:LYS:HB3 | 1.68 | 0.74 |
| 52:DI:20:SER:HB3 | 52:DI:21:PRO:HD3 | 1.68 | 0.74 |
| 23:DB:1081:U:H5' | 52:DI:126:ARG:NH1 | 2.02 | 0.74 |
| 23:DB:1785:A:H2' | 23:DB:1787:A:N7 | 2.03 | 0.74 |
| 22:DA:17:C:H2' | 22:DA:18:G:O4' | 1.88 | 0.74 |
| 23:BB:192:C:H2' | 23:BB:193:U:H5' | 1.69 | 0.74 |
| 4:CE:82:HIS:HB2 | 4:CE:83:PRO:HD2 | 1.70 | 0.74 |
| 8:CI:4:GLN:HG2 | 8:CI:21:LYS:HD3 | 1.69 | 0.74 |
| 48:B1:53:ILE:HD13 | 48:B1:54:LYS:N | 2.03 | 0.74 |
| 9:AJ:92:LEU:H | 9:AJ:92:LEU:HD22 | 1.52 | 0.74 |
| 36:DO:21:LEU:HD23 | 36:DO:22:GLY:H | 1.51 | 0.74 |
| 15:AP:42:ILE:HG22 | 15:AP:43:ALA:H | 1.52 | 0.74 |
| 23:BB:1252:G:O6 | 38:BQ:35:PHE:HB2 | 1.88 | 0.74 |
| 23:BB:588:U:OP1 | 33:BL:27:LEU:HB2 | 1.86 | 0.74 |
| 26:DD:33:ARG:HH11 | 26:DD:33:ARG:HB2 | 1.51 | 0.74 |
| 52:BI:7:TYR:HB2 | 52:BI:58:ILE:O | 1.88 | 0.74 |
| 23:BB:467:G:OP1 | 49:B2:33:ARG:HD3 | 1.88 | 0.74 |
| 13:AN:30:ILE:HG21 | 13:AN:41:TRP:HB2 | 1.68 | 0.74 |
| 23:BB:1176:U:H2' | 23:BB:1177:G:O4' | 1.88 | 0.74 |
| 23:DB:704:G:H1' | 23:DB:727:A:H61 | 1.52 | 0.74 |
| 1:AA:270:A:H2' | 1:AA:271:C:C6 | 2.23 | 0.74 |
| 23:DB:1727:C:H2' | 23:DB:1728:C:C6 | 2.22 | 0.74 |
| 1:AA:817:C:H1' | 1:AA:819:A:H5' | 1.69 | 0.74 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 37:BP:62:LYS:HE3 | 37:BP:74:GLN:HE22 | 1.53 | 0.73 |
| 24:DV:63:ILE:H | 24:DV:70:ILE:CD1 | 1.99 | 0.73 |
| 23:DB:143:C:O2 | 41:DT:3:ARG:HD2 | 1.88 | 0.73 |
| 27:DE:6:LYS:HG2 | 27:DE:119:ILE:HB | 1.69 | 0.73 |
| 1:CA:239:U:OP1 | 1:CA:239:U:H4' | 1.88 | 0.73 |
| 1:CA:812:G:H2' | 1:CA:812:G:N3 | 2.02 | 0.73 |
| 23:BB:2301:C:H2' | 23:BB:2302:U:H6 | 1.52 | 0.73 |
| 1:AA:501:C:H2' | 1:AA:502:A:H8 | 1.52 | 0.73 |
| 23:DB:643:A:N6 | 23:DB:2370:G:H1' | 2.01 | 0.73 |
| 1:CA:501:C:H2' | 1:CA:502:A:H8 | 1.52 | 0.73 |
| 30:BH:84:ALA:HA | 30:BH:90:LEU:HG | 1.70 | 0.73 |
| 25:BC:107:LYS:CB | 25:BC:194:VAL:HG11 | 2.17 | 0.73 |
| 33:BL:110:VAL:H | 33:BL:126:ARG:HB2 | 1.52 | 0.73 |
| 34:BM:114:ARG:HH21 | 34:BM:125:PRO:HA | 1.53 | 0.73 |
| 40:BS:34:ASP:N | 40:BS:37:THR:HG22 | 2.03 | 0.73 |
| 51:B4:25:VAL:HG23 | 51:B4:35:GLN:HB2 | 1.68 | 0.73 |
| 23:BB:2511:U:H4' | 26:BD:128:ARG:NH2 | 2.03 | 0.73 |
| 26:DD:189:VAL:HG12 | 26:DD:190:LYS:H | 1.52 | 0.73 |
| 1:CA:619:U:H3 | 3:CD:130:ASN:ND2 | 1.87 | 0.73 |
| 23:BB:2239:G:H5' | 25:BC:246:PRO:CD | 2.19 | 0.73 |
| 2:AC:185:THR:HG22 | 2:AC:186:SER:H | 1.52 | 0.73 |
| 8:CI:114:LYS:HB2 | 8:CI:117:LEU:HD12 | 1.70 | 0.73 |
| 23:DB:1437:C:H2' | 23:DB:1438:U:C6 | 2.22 | 0.73 |
| 6:CG:58:LEU:H | 6:CG:58:LEU:HD23 | 1.51 | 0.73 |
| 52:DI:121:ILE:HD13 | 52:DI:121:ILE:H | 1.52 | 0.73 |
| 23:DB:1098:A:H2' | 52:DI:3:LYS:C | 2.08 | 0.73 |
| 23:BB:2575:C:H4' | 26:BD:148:GLN:CA | 2.17 | 0.73 |
| 45:BY:20:LYS:HA | 45:BY:24:LEU:HB2 | 1.69 | 0.73 |
| 34:DM:2:LEU:HD12 | 34:DM:2:LEU:H | 1.53 | 0.73 |
| 23:BB:1392:A:N6 | 41:BT:18:GLU:HG2 | 2.04 | 0.73 |
| 26:DD:27:ILE:HD13 | 26:DD:28:GLU:N | 2.03 | 0.73 |
| 26:BD:138:LEU:HD23 | 26:BD:138:LEU:H | 1.52 | 0.73 |
| 45:BY:15:ARG:N | 45:BY:15:ARG:HE | 1.87 | 0.73 |
| 48:B1:45:HIS:O | 48:B1:46:VAL:HG12 | 1.87 | 0.73 |
| 34:BM:82:MET:HB2 | 34:BM:84:LYS:HZ2 | 1.53 | 0.73 |
| 35:DN:86:ARG:HB3 | 35:DN:86:ARG:NH1 | 2.02 | 0.73 |
| 23:BB:1299:G:H4' | 23:BB:1301:A:H1' | 1.68 | 0.73 |
| 23:DB:578:G:N2 | 38:DQ:32:ARG:HH21 | 1.86 | 0.73 |
| 29:BG:157:LYS:HG3 | 29:BG:159:LYS:HZ2 | 1.53 | 0.73 |
| 23:BB:1785:A:H2' | 23:BB:1787:A:N7 | 2.03 | 0.73 |
| 43:DW:35:ILE:HG21 | 43:DW:70:VAL:HG11 | 1.71 | 0.73 |
| 25:BC:129:LEU:HD23 | 25:BC:130:PRO:HD2 | 1.70 | 0.73 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 43:BW:23:LYS:HB2 | 43:BW:23:LYS:NZ | 2.04 | 0.73 |
| 38:BQ:65:ASN:HB2 | 38:BQ:75:TYR:HB2 | 1.69 | 0.73 |
| 10:AK:113:THR:HG21 | 21:AU:28:LEU:HD11 | 1.71 | 0.73 |
| 33:BL:95:LEU:H | 33:BL:95:LEU:HD12 | 1.53 | 0.73 |
| 41:BT:30:ILE:HG23 | 41:BT:31:VAL:N | 2.03 | 0.73 |
| 2:AC:155:ARG:H | 2:AC:162:ALA:HA | 1.52 | 0.73 |
| 29:DG:5:LYS:HD3 | 29:DG:68:ARG:HB3 | 1.68 | 0.73 |
| 1:CA:1241:G:H2' | 1:CA:1242:G:H8 | 1.52 | 0.73 |
| 22:BA:50:A:H5'' | 36:BO:68:LYS:HD2 | 1.71 | 0.73 |
| 1:CA:268:U:H2' | 1:CA:269:C:C6 | 2.23 | 0.73 |
| 23:DB:1820:U:H3 | 25:DC:197:ALA:HB1 | 1.53 | 0.73 |
| 36:BO:50:ALA:HB2 | 36:BO:83:LEU:HD11 | 1.70 | 0.73 |
| 34:DM:41:LEU:HD23 | 34:DM:67:VAL:HG21 | 1.71 | 0.73 |
| 24:BV:70:ILE:HG12 | 24:BV:71:LYS:H | 1.51 | 0.73 |
| 1:CA:922:G:H2' | 1:CA:923:A:C8 | 2.23 | 0.73 |
| 29:BG:26:LYS:HA | 29:BG:31:GLU:HG2 | 1.70 | 0.73 |
| 23:DB:2895:G:H2' | 23:DB:2896:C:C6 | 2.24 | 0.73 |
| 23:BB:1714:U:H3' | 23:BB:1715:G:C5' | 2.18 | 0.73 |
| 23:BB:1171:G:H2' | 23:BB:1172:C:O4' | 1.88 | 0.73 |
| 23:DB:2185:U:H2' | 23:DB:2186:G:O4' | 1.88 | 0.73 |
| 23:BB:2682:A:C2 | 26:BD:22:ILE:HD11 | 2.22 | 0.73 |
| 23:DB:2331:G:H4' | 43:DW:69:GLU:HB2 | 1.71 | 0.73 |
| 25:DC:68:ARG:NH2 | 25:DC:127:ASN:HA | 2.02 | 0.73 |
| 36:DO:25:ARG:HE | 36:DO:94:ARG:HH12 | 1.36 | 0.73 |
| 28:BF:135:ILE:HD13 | 28:BF:138:PRO:HA | 1.69 | 0.73 |
| 34:DM:92:TRP:HD1 | 34:DM:93:VAL:H | 1.36 | 0.73 |
| 13:CN:9:GLU:HA | 13:CN:12:ARG:HB3 | 1.71 | 0.73 |
| 23:DB:2157:G:N3 | 23:DB:2157:G:H2' | 2.04 | 0.73 |
| 1:AA:268:U:H2' | 1:AA:269:C:C6 | 2.23 | 0.73 |
| 16:CQ:59:GLU:O | 16:CQ:75:VAL:HG22 | 1.88 | 0.73 |
| 23:DB:179:C:H5'' | 49:D2:28:ARG:NH1 | 2.04 | 0.73 |
| 35:BN:99:LYS:NZ | 35:BN:99:LYS:HB3 | 2.03 | 0.73 |
| 42:DU:59:GLU:HG3 | 42:DU:62:ALA:HB2 | 1.69 | 0.73 |
| 35:DN:34:ILE:HG22 | 35:DN:35:LYS:H | 1.53 | 0.73 |
| 23:DB:920:A:H2' | 23:DB:921:C:H6 | 1.52 | 0.73 |
| 1:AA:278:G:H21 | 1:AA:279:A:H62 | 1.36 | 0.73 |
| 23:DB:2064:C:H2' | 23:DB:2065:C:C6 | 2.24 | 0.73 |
| 23:DB:1406:U:H2' | 23:DB:1407:G:H8 | 1.53 | 0.73 |
| 14:CO:88:ARG:HH22 | 23:DB:714:U:H3' | 1.54 | 0.73 |
| 42:DU:24:VAL:HG12 | 42:DU:26:ASN:OD1 | 1.87 | 0.73 |
| 27:DE:149:ILE:HG12 | 27:DE:186:VAL:HA | 1.71 | 0.73 |
| 34:BM:8:LYS:HE3 | 34:BM:70:ASP:HA | 1.71 | 0.73 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 11:AL:8:ARG:HG3 | 11:AL:9:LYS:N | 2.00 | 0.73 |
| 41:DT:67:VAL:HG12 | 41:DT:68:LYS:H | 1.53 | 0.73 |
| 34:DM:5:LYS:HB2 | 34:DM:69:PRO:HG2 | 1.71 | 0.73 |
| 26:BD:159:LYS:HB2 | 26:BD:159:LYS:NZ | 2.04 | 0.73 |
| 13:CN:30:ILE:HG22 | 13:CN:41:TRP:HB3 | 1.70 | 0.73 |
| 23:DB:2684:U:H4' | 32:DK:76:VAL:HG21 | 1.71 | 0.73 |
| 22:DA:32:U:H1' | 22:DA:52:A:N7 | 2.03 | 0.73 |
| 28:DF:56:LEU:HA | 28:DF:59:ILE:HG22 | 1.71 | 0.73 |
| 1:AA:239:U:H4' | 1:AA:239:U:OP1 | 1.88 | 0.73 |
| 1:AA:1026:G:H2' | 1:AA:1027:C:C6 | 2.24 | 0.73 |
| 20:CB:59:ILE:HD12 | 20:CB:60:ALA:N | 2.04 | 0.73 |
| 27:DE:49:ARG:HG3 | 27:DE:52:VAL:CG2 | 2.18 | 0.73 |
| 38:DQ:43:GLN:HA | 39:DR:79:ARG:HG2 | 1.71 | 0.73 |
| 18:AS:48:ILE:HB | 18:AS:59:VAL:HB | 1.71 | 0.73 |
| 12:AM:11:HIS:N | 12:AM:44:ILE:HD11 | 2.03 | 0.73 |
| 51:B4:24:ARG:HH22 | 51:B4:36:ARG:HD2 | 1.54 | 0.73 |
| 52:DI:72:THR:HG22 | 52:DI:115:ASP:OD2 | 1.89 | 0.73 |
| 52:DI:55:PRO:HD3 | 52:DI:74:PRO:HD3 | 1.69 | 0.73 |
| 16:CQ:11:VAL:HG13 | 16:CQ:20:ILE:HG23 | 1.71 | 0.73 |
| 30:BH:73:ASN:HD22 | 30:BH:73:ASN:H | 1.33 | 0.73 |
| 1:AA:812:G:H2' | 1:AA:812:G:N3 | 2.02 | 0.73 |
| 23:DB:1440:U:H2' | 23:DB:1441:G:H8 | 1.51 | 0.73 |
| 29:DG:175:LYS:HG2 | 29:DG:176:LYS:H | 1.54 | 0.73 |
| 1:CA:278:G:H21 | 1:CA:279:A:H62 | 1.36 | 0.73 |
| 1:CA:575:G:H4' | 1:CA:576:C:O5' | 1.87 | 0.73 |
| 1:AA:1342:C:H2' | 1:AA:1343:G:H8 | 1.54 | 0.73 |
| 20:CB:130:LYS:HB3 | 20:CB:134:LEU:HB2 | 1.70 | 0.73 |
| 42:DU:38:ILE:HD13 | 42:DU:64:ILE:HG13 | 1.70 | 0.73 |
| 23:DB:2814:A:H2' | 23:DB:2815:C:H6 | 1.54 | 0.73 |
| 34:BM:69:PRO:HB3 | 34:BM:93:VAL:HG12 | 1.70 | 0.73 |
| 34:DM:71:LYS:HA | 34:DM:71:LYS:HZ3 | 1.53 | 0.73 |
| 20:CB:99:MET:HA | 20:CB:106:VAL:HG21 | 1.71 | 0.73 |
| 45:DY:26:LEU:HD12 | 45:DY:28:LEU:HD22 | 1.70 | 0.73 |
| 23:BB:704:G:O2' | 23:BB:727:A:N6 | 2.22 | 0.73 |
| 23:BB:222:A:N6 | 23:BB:232:G:H1' | 2.03 | 0.73 |
| 23:DB:950:G:H2' | 23:DB:951:C:C6 | 2.24 | 0.73 |
| 22:BA:20:G:H2' | 22:BA:21:G:H8 | 1.54 | 0.73 |
| 27:BE:195:GLN:H | 27:BE:199:MET:HA | 1.54 | 0.73 |
| 23:BB:934:U:H2' | 23:BB:935:C:C6 | 2.24 | 0.73 |
| 1:AA:1498:U:H3' | 53:AA:1601:KSG:N1 | 2.04 | 0.73 |
| 23:DB:1099:G:OP2 | 52:DI:3:LYS:HA | 1.89 | 0.72 |
| 34:BM:4:PRO:HD3 | 34:BM:47:GLU:OE1 | 1.89 | 0.72 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 37:BP:27:VAL:HG21 | 37:BP:86:LYS:HB2 | 1.71 | 0.72 |
| 25:BC:140:VAL:O | 25:BC:141:HIS:HB2 | 1.89 | 0.72 |
| 25:DC:141:HIS:HB3 | 25:DC:190:THR:HB | 1.69 | 0.72 |
| 42:DU:33:VAL:HG23 | 42:DU:65:GLN:NE2 | 2.04 | 0.72 |
| 42:DU:4:ILE:HD13 | 42:DU:5:ARG:N | 2.04 | 0.72 |
| 23:BB:942:G:H5" | 33:BL:40:SER:HB3 | 1.70 | 0.72 |
| 33:DL:77:ILE:HD12 | 33:DL:77:ILE:N | 2.03 | 0.72 |
| 33:BL:79:LEU:HA | 33:BL:113:ALA:HB3 | 1.71 | 0.72 |
| 22:BA:60:C:H2' | 22:BA:61:G:C8 | 2.24 | 0.72 |
| 23:DB:1241:A:H2' | 23:DB:1242:U:H5' | 1.69 | 0.72 |
| 8:AI:117:LEU:HD22 | 8:AI:123:ARG:HG2 | 1.71 | 0.72 |
| 1:CA:1179:A:H2' | 1:CA:1180:A:O4' | 1.87 | 0.72 |
| 1:CA:492:C:H2' | 1:CA:493:A:H5" | 1.71 | 0.72 |
| 23:DB:631:A:HO2' | 33:DL:66:PHE:HD1 | 1.37 | 0.72 |
| 11:CL:17:LYS:HB2 | 11:CL:17:LYS:NZ | 2.04 | 0.72 |
| 23:BB:1041:G:H2' | 23:BB:1042:G:H8 | 1.53 | 0.72 |
| 43:BW:66:VAL:HG13 | 43:BW:67:LYS:N | 2.04 | 0.72 |
| 38:DQ:69:ARG:HA | 38:DQ:73:ILE:HG22 | 1.69 | 0.72 |
| 25:BC:79:ARG:NH1 | 25:BC:80:LEU:H | 1.87 | 0.72 |
| 39:DR:47:VAL:HG12 | 39:DR:49:ILE:HG12 | 1.71 | 0.72 |
| 22:DA:51:G:C2' | 22:DA:52:A:H5" | 2.19 | 0.72 |
| 12:AM:18:LEU:HB3 | 12:AM:29:SER:HB2 | 1.69 | 0.72 |
| 2:AC:53:ARG:HG2 | 2:AC:54:ILE:H | 1.54 | 0.72 |
| 4:CE:44:ARG:NH1 | 4:CE:72:ASN:HD21 | 1.86 | 0.72 |
| 2:CC:61:LYS:HB3 | 2:CC:61:LYS:HZ3 | 1.54 | 0.72 |
| 1:AA:922:G:H4' | 4:AE:24:VAL:HA | 1.70 | 0.72 |
| 1:AA:927:G:H4' | 1:AA:1503:A:N7 | 2.04 | 0.72 |
| 30:DH:39:ALA:O | 30:DH:43:ASN:HB2 | 1.89 | 0.72 |
| 23:DB:1714:U:H3' | 23:DB:1715:G:C5' | 2.18 | 0.72 |
| 43:DW:69:GLU:HG3 | 43:DW:70:VAL:H | 1.52 | 0.72 |
| 41:DT:62:VAL:HG23 | 41:DT:63:VAL:H | 1.55 | 0.72 |
| 41:BT:12:ARG:HE | 44:BX:29:ARG:HH22 | 1.35 | 0.72 |
| 33:DL:92:LEU:HD22 | 33:DL:96:LYS:HG2 | 1.72 | 0.72 |
| 23:BB:2722:G:H4' | 35:BN:4:ARG:HB3 | 1.69 | 0.72 |
| 23:DB:1813:G:H21 | 25:DC:50:THR:HG23 | 1.55 | 0.72 |
| 1:CA:1111:A:N1 | 2:CC:176:THR:HG22 | 2.03 | 0.72 |
| 1:AA:78:A:H2' | 1:AA:79:G:C8 | 2.24 | 0.72 |
| 23:BB:459:U:H5' | 49:B2:41:ARG:HE | 1.53 | 0.72 |
| 23:DB:151:C:H2' | 23:DB:152:A:H8 | 1.52 | 0.72 |
| 1:CA:120:A:H2' | 1:CA:121:U:H5" | 1.71 | 0.72 |
| 23:BB:2895:G:H2' | 23:BB:2896:C:C6 | 2.23 | 0.72 |
| 9:AJ:56:HIS:O | 9:AJ:57:VAL:HG12 | 1.89 | 0.72 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 47:D0:36:LYS:HB2 | 47:D0:41:HIS:HA | 1.72 | 0.72 |
| 27:DE:153:LEU:HD13 | 27:DE:154:ASP:N | 2.03 | 0.72 |
| 46:BZ:3:LYS:HE3 | 46:BZ:8:LYS:HA | 1.69 | 0.72 |
| 48:B1:14:ALA:HA | 48:B1:48:TYR:HA | 1.71 | 0.72 |
| 22:BA:48:U:H2' | 22:BA:49:C:C6 | 2.24 | 0.72 |
| 52:DI:42:ASN:HA | 52:DI:45:THR:OG1 | 1.90 | 0.72 |
| 1:AA:1062:U:H2' | 1:AA:1063:C:C6 | 2.24 | 0.72 |
| 13:CN:82:LYS:HE2 | 13:CN:85:GLU:HG3 | 1.71 | 0.72 |
| 1:AA:390:U:H2' | 1:AA:391:G:C8 | 2.25 | 0.72 |
| 19:CT:38:ILE:HD11 | 19:CT:82:ILE:HG22 | 1.71 | 0.72 |
| 23:DB:2471:A:O2' | 23:DB:2472:G:H8 | 1.71 | 0.72 |
| 6:CG:90:VAL:HG13 | 6:CG:94:ARG:HD3 | 1.69 | 0.72 |
| 1:CA:390:U:H2' | 1:CA:391:G:C8 | 2.25 | 0.72 |
| 27:DE:21:ARG:HH12 | 27:DE:23:PHE:HB3 | 1.55 | 0.72 |
| 5:CF:11:HIS:ND1 | 5:CF:12:PRO:HD2 | 2.04 | 0.72 |
| 29:BG:9:VAL:HG23 | 29:BG:47:ASN:HB3 | 1.70 | 0.72 |
| 25:DC:143:VAL:HG12 | 25:DC:144:GLU:H | 1.52 | 0.72 |
| 23:DB:974:G:H1' | 23:DB:975:A:H8 | 1.54 | 0.72 |
| 23:BB:2575:C:H5'' | 26:BD:149:ASN:CB | 2.19 | 0.72 |
| 23:BB:811:U:H2' | 33:BL:31:GLY:CA | 2.18 | 0.72 |
| 23:BB:588:U:H5' | 33:BL:28:GLY:HA2 | 1.71 | 0.72 |
| 13:CN:29:ILE:HG22 | 13:CN:30:ILE:HG13 | 1.71 | 0.72 |
| 23:BB:616:A:H3' | 23:BB:617:G:H8 | 1.54 | 0.72 |
| 23:BB:1774:C:H2' | 23:BB:1774:C:O2 | 1.88 | 0.72 |
| 24:DV:7:GLU:HA | 24:DV:65:VAL:HG23 | 1.71 | 0.72 |
| 7:AH:76:ARG:HG2 | 7:AH:77:VAL:H | 1.55 | 0.72 |
| 6:CG:72:VAL:HG12 | 6:CG:89:GLU:HA | 1.71 | 0.72 |
| 1:CA:1060:U:H4' | 9:CJ:54:SER:HB2 | 1.70 | 0.72 |
| 43:DW:58:LEU:HG | 43:DW:81:ILE:HA | 1.71 | 0.72 |
| 31:BJ:20:ALA:HB1 | 31:BJ:59:ALA:HA | 1.70 | 0.72 |
| 27:DE:147:LEU:HB3 | 27:DE:167:VAL:HG13 | 1.71 | 0.72 |
| 24:BV:24:ASN:O | 24:BV:44:HIS:HB2 | 1.89 | 0.72 |
| 50:D3:12:ARG:HB3 | 50:D3:23:HIS:CB | 2.20 | 0.72 |
| 38:DQ:111:LYS:HE2 | 39:DR:52:PRO:HG3 | 1.71 | 0.72 |
| 33:BL:21:ARG:NH1 | 33:BL:21:ARG:HB3 | 2.04 | 0.72 |
| 23:BB:2064:C:H2' | 23:BB:2065:C:H6 | 1.54 | 0.72 |
| 1:CA:269:C:H2' | 1:CA:270:A:C8 | 2.24 | 0.72 |
| 23:BB:1324:G:H1' | 23:BB:1616:A:N6 | 2.05 | 0.72 |
| 27:BE:98:LYS:HG3 | 27:BE:99:LYS:N | 2.05 | 0.72 |
| 2:AC:26:LYS:HD3 | 2:AC:27:GLU:N | 2.05 | 0.72 |
| 23:DB:1275:A:H2 | 23:DB:1645:G:H21 | 1.35 | 0.72 |
| 1:AA:613:C:OP1 | 3:AD:80:ARG:HG3 | 1.90 | 0.72 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:BB:1406:U:H2' | 23:BB:1407:G:H8 | 1.52 | 0.72 |
| 23:BB:370:G:O2' | 23:BB:423:A:H3' | 1.89 | 0.72 |
| 37:DP:49:ILE:O | 37:DP:50:ARG:HD3 | 1.89 | 0.72 |
| 26:DD:61:THR:HG23 | 26:DD:62:LYS:HD3 | 1.70 | 0.72 |
| 31:BJ:62:VAL:HG21 | 31:BJ:101:ILE:HD11 | 1.72 | 0.72 |
| 23:DB:2020:A:H5' | 47:D0:8:THR:CG2 | 2.19 | 0.72 |
| 32:BK:2:ILE:HD11 | 32:BK:8:LEU:HD11 | 1.71 | 0.72 |
| 23:DB:2091:C:H3' | 23:DB:2092:U:C5' | 2.19 | 0.72 |
| 23:DB:2291:U:H2' | 23:DB:2292:U:C6 | 2.25 | 0.72 |
| 23:BB:1224:U:H4' | 39:BR:90:ARG:HB3 | 1.71 | 0.72 |
| 23:BB:2328:A:H2' | 23:BB:2329:U:C6 | 2.24 | 0.72 |
| 23:BB:142:A:N3 | 41:BT:2:ILE:HD12 | 2.04 | 0.72 |
| 4:AE:23:THR:HG23 | 4:AE:28:ARG:HD3 | 1.70 | 0.72 |
| 23:BB:2814:A:H2' | 23:BB:2815:C:H6 | 1.54 | 0.72 |
| 1:AA:269:C:H2' | 1:AA:270:A:C8 | 2.24 | 0.72 |
| 23:DB:414:C:H2' | 23:DB:415:A:C8 | 2.24 | 0.72 |
| 23:BB:1275:A:H2 | 23:BB:1645:G:H21 | 1.35 | 0.72 |
| 27:DE:130:LYS:NZ | 27:DE:130:LYS:HB2 | 2.05 | 0.72 |
| 35:DN:102:PHE:HD1 | 40:DS:40:ASN:HD21 | 1.37 | 0.72 |
| 34:BM:3:GLN:HG2 | 34:BM:46:ILE:HB | 1.70 | 0.72 |
| 23:DB:2898:U:O2' | 31:DJ:137:PRO:HB3 | 1.89 | 0.72 |
| 46:BZ:8:LYS:CD | 46:BZ:9:TYR:H | 2.01 | 0.72 |
| 13:AN:60:ARG:HH21 | 13:AN:62:ARG:HE | 1.36 | 0.72 |
| 1:CA:1000:A:H2' | 1:CA:1001:C:C6 | 2.23 | 0.72 |
| 27:BE:147:LEU:O | 27:BE:148:ILE:HG13 | 1.90 | 0.72 |
| 33:DL:77:ILE:HD12 | 33:DL:77:ILE:H | 1.54 | 0.72 |
| 23:DB:833:A:H1' | 33:DL:54:GLN:OE1 | 1.89 | 0.72 |
| 26:BD:106:LYS:NZ | 26:BD:208:LYS:HD3 | 2.04 | 0.72 |
| 16:CQ:68:LYS:HG2 | 16:CQ:69:THR:HG23 | 1.72 | 0.72 |
| 23:DB:1774:C:O2 | 23:DB:1774:C:H2' | 1.88 | 0.72 |
| 25:DC:10:PRO:HD2 | 25:DC:202:ARG:HH22 | 1.53 | 0.72 |
| 14:CO:38:LEU:HD23 | 14:CO:55:LEU:HD13 | 1.72 | 0.72 |
| 9:AJ:67:ILE:HG13 | 13:AN:95:LEU:HD13 | 1.71 | 0.72 |
| 23:BB:2241:A:H2' | 23:BB:2242:G:C8 | 2.25 | 0.72 |
| 35:DN:56:LYS:HG3 | 35:DN:57:THR:H | 1.55 | 0.72 |
| 6:AG:148:LYS:HG3 | 6:AG:151:ALA:HB3 | 1.71 | 0.72 |
| 23:DB:836:G:H2' | 23:DB:837:C:C6 | 2.24 | 0.72 |
| 37:BP:26:GLU:HA | 37:BP:46:VAL:HG13 | 1.71 | 0.72 |
| 23:BB:155:A:H2' | 23:BB:156:A:C8 | 2.24 | 0.72 |
| 35:DN:28:LEU:HA | 35:DN:34:ILE:HD11 | 1.72 | 0.72 |
| 13:AN:12:ARG:HA | 13:AN:15:LEU:HD11 | 1.71 | 0.72 |
| 35:BN:28:LEU:HD11 | 35:BN:44:LEU:HD21 | 1.72 | 0.72 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:BB:136:G:H2' | 23:BB:137:U:C6 | 2.25 | 0.72 |
| 1:AA:95:C:H2' | 1:AA:95:C:O2 | 1.87 | 0.72 |
| 1:CA:439:U:H4' | 3:CD:120:LYS:HD2 | 1.72 | 0.72 |
| 23:BB:1275:A:N3 | 23:BB:1275:A:H3' | 2.05 | 0.72 |
| 23:DB:1309:G:H5'' | 49:D2:9:VAL:HG13 | 1.72 | 0.72 |
| 28:DF:45:ASP:O | 28:DF:46:LYS:HG3 | 1.90 | 0.72 |
| 1:AA:1308:U:H2' | 1:AA:1309:G:H8 | 1.55 | 0.72 |
| 1:AA:859:G:H2' | 1:AA:860:A:C8 | 2.25 | 0.72 |
| 27:BE:44:ARG:H | 27:BE:44:ARG:HD3 | 1.53 | 0.72 |
| 43:DW:43:LYS:O | 43:DW:44:PHE:HB2 | 1.87 | 0.72 |
| 36:DO:28:VAL:HG13 | 36:DO:106:LEU:HD13 | 1.72 | 0.72 |
| 36:DO:25:ARG:HG2 | 36:DO:94:ARG:HH22 | 1.54 | 0.72 |
| 33:BL:30:THR:HA | 33:BL:36:LYS:HE3 | 1.71 | 0.72 |
| 38:DQ:69:ARG:HB3 | 38:DQ:69:ARG:NH1 | 2.05 | 0.72 |
| 33:DL:109:LYS:HE2 | 33:DL:126:ARG:CZ | 2.20 | 0.72 |
| 4:CE:104:ILE:HD12 | 4:CE:111:ARG:HD3 | 1.72 | 0.72 |
| 23:DB:2328:A:H2' | 23:DB:2329:U:C6 | 2.24 | 0.72 |
| 6:AG:94:ARG:HD3 | 6:AG:98:LEU:HD11 | 1.72 | 0.72 |
| 1:AA:1035:A:H2' | 1:AA:1036:A:H8 | 1.53 | 0.72 |
| 40:DS:42:LYS:O | 40:DS:45:VAL:HG13 | 1.90 | 0.72 |
| 4:CE:23:THR:HA | 4:CE:28:ARG:HA | 1.72 | 0.72 |
| 23:DB:1469:A:H2' | 23:DB:1470:A:C8 | 2.25 | 0.72 |
| 23:BB:324:A:H2' | 23:BB:325:G:O4' | 1.89 | 0.72 |
| 6:CG:12:LEU:HD22 | 6:CG:13:PRO:HD2 | 1.72 | 0.72 |
| 2:CC:128:MET:SD | 2:CC:131:ARG:HB2 | 2.29 | 0.72 |
| 26:BD:175:LEU:HD11 | 26:BD:192:ALA:HB3 | 1.72 | 0.71 |
| 23:BB:2266:A:C4' | 23:BB:2267:A:N7 | 2.53 | 0.71 |
| 34:BM:37:GLY:H | 34:BM:97:GLN:HE21 | 1.35 | 0.71 |
| 39:DR:65:ALA:HB3 | 39:DR:100:GLY:H | 1.55 | 0.71 |
| 42:BU:60:LYS:HG3 | 42:BU:61:GLU:H | 1.54 | 0.71 |
| 5:AF:54:LEU:HD13 | 5:AF:55:HIS:H | 1.55 | 0.71 |
| 27:BE:159:LEU:HA | 27:BE:169:VAL:HG21 | 1.71 | 0.71 |
| 23:DB:289:G:H2' | 23:DB:290:U:C6 | 2.24 | 0.71 |
| 8:CI:79:ARG:O | 8:CI:79:ARG:HD2 | 1.90 | 0.71 |
| 2:AC:13:ILE:O | 2:AC:14:VAL:HG22 | 1.90 | 0.71 |
| 23:DB:598:U:H5' | 33:DL:21:ARG:HB2 | 1.70 | 0.71 |
| 23:DB:1429:G:H2' | 23:DB:1430:G:H8 | 1.55 | 0.71 |
| 23:DB:1275:A:N3 | 23:DB:1275:A:H3' | 2.05 | 0.71 |
| 1:AA:275:G:C5' | 16:AQ:15:LYS:HG2 | 2.20 | 0.71 |
| 25:DC:28:PRO:HG2 | 25:DC:79:ARG:CZ | 2.20 | 0.71 |
| 30:BH:57:LYS:HG3 | 30:BH:61:VAL:HG21 | 1.70 | 0.71 |
| 1:CA:1289:A:H3' | 1:CA:1290:G:H8 | 1.55 | 0.71 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:BB:2246:G:H2' | 23:BB:2247:A:H8 | 1.55 | 0.71 |
| 7:AH:49:LYS:HG3 | 7:AH:50:VAL:H | 1.55 | 0.71 |
| 23:DB:1118:C:H2' | 23:DB:1119:U:H6 | 1.54 | 0.71 |
| 23:BB:2461:A:H2' | 23:BB:2462:C:C6 | 2.24 | 0.71 |
| 20:AB:67:LEU:H | 20:AB:67:LEU:HD22 | 1.54 | 0.71 |
| 39:BR:6:GLN:HG2 | 39:BR:10:LYS:HE2 | 1.72 | 0.71 |
| 1:AA:1060:U:H5'' | 9:AJ:53:ILE:HG22 | 1.71 | 0.71 |
| 23:BB:2331:G:H4' | 43:BW:69:GLU:HG2 | 1.70 | 0.71 |
| 41:BT:54:GLU:H | 41:BT:91:GLN:NE2 | 1.86 | 0.71 |
| 13:CN:73:LEU:HD12 | 13:CN:83:VAL:HG21 | 1.70 | 0.71 |
| 23:DB:2039:U:H2' | 23:DB:2040:G:H8 | 1.56 | 0.71 |
| 23:BB:2147:A:C5' | 23:BB:2148:G:H5' | 2.19 | 0.71 |
| 23:BB:532:A:H4' | 23:BB:533:G:C8 | 2.25 | 0.71 |
| 1:AA:545:C:O2' | 1:AA:546:A:H5' | 1.90 | 0.71 |
| 30:BH:8:LYS:HD3 | 30:BH:8:LYS:O | 1.90 | 0.71 |
| 4:AE:105:ILE:HB | 4:AE:123:LEU:HA | 1.70 | 0.71 |
| 1:CA:1361:G:H2' | 1:CA:1362:A:H5'' | 1.73 | 0.71 |
| 25:DC:68:ARG:HH22 | 25:DC:127:ASN:HA | 1.54 | 0.71 |
| 48:D1:47:ILE:HG22 | 48:D1:48:TYR:N | 2.03 | 0.71 |
| 34:BM:71:LYS:HD3 | 34:BM:92:TRP:C | 2.09 | 0.71 |
| 39:DR:18:GLN:HA | 39:DR:99:THR:HA | 1.73 | 0.71 |
| 51:B4:25:VAL:HB | 51:B4:33:HIS:O | 1.90 | 0.71 |
| 23:BB:543:G:C2' | 23:BB:544:C:H5'' | 2.19 | 0.71 |
| 26:BD:52:THR:HG22 | 26:BD:75:ALA:HB1 | 1.73 | 0.71 |
| 25:BC:20:ASN:HB2 | 25:BC:203:VAL:HG13 | 1.72 | 0.71 |
| 11:CL:98:ARG:HB3 | 11:CL:116:TYR:HA | 1.71 | 0.71 |
| 23:DB:1175:A:C2' | 23:DB:1176:U:H5' | 2.19 | 0.71 |
| 23:DB:643:A:H61 | 23:DB:2370:G:H1' | 1.55 | 0.71 |
| 23:DB:2461:A:H2' | 23:DB:2462:C:C6 | 2.25 | 0.71 |
| 29:BG:175:LYS:HD3 | 29:BG:176:LYS:HB2 | 1.72 | 0.71 |
| 48:B1:31:GLU:HG3 | 48:B1:32:LYS:H | 1.54 | 0.71 |
| 1:AA:120:A:H2' | 1:AA:121:U:H5'' | 1.70 | 0.71 |
| 52:BI:89:SER:HA | 52:BI:97:VAL:HG21 | 1.72 | 0.71 |
| 28:DF:7:TYR:O | 28:DF:11:VAL:HB | 1.90 | 0.71 |
| 23:DB:856:G:C4' | 43:DW:23:LYS:HD2 | 2.19 | 0.71 |
| 23:DB:2784:U:H4' | 26:DD:42:ASN:H | 1.54 | 0.71 |
| 26:DD:37:VAL:HG11 | 26:DD:46:ARG:HD3 | 1.72 | 0.71 |
| 33:BL:78:ARG:H | 33:BL:110:VAL:HG13 | 1.55 | 0.71 |
| 21:CU:15:LEU:HA | 21:CU:17:ARG:HH11 | 1.56 | 0.71 |
| 3:CD:63:ILE:HG23 | 3:CD:64:TYR:CD1 | 2.24 | 0.71 |
| 26:BD:128:ARG:HA | 26:BD:128:ARG:HE | 1.55 | 0.71 |
| 52:DI:73:PRO:HG2 | 52:DI:78:LEU:HD21 | 1.72 | 0.71 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 20:AB:41:ASN:HD22 | 20:AB:44:LYS:HB2 | 1.53 | 0.71 |
| 3:AD:154:VAL:HG13 | 3:AD:155:LYS:H | 1.55 | 0.71 |
| 23:DB:438:G:H2' | 23:DB:439:A:H8 | 1.56 | 0.71 |
| 23:DB:11:C:H2' | 23:DB:12:U:H5' | 1.72 | 0.71 |
| 23:DB:448:U:H3' | 27:DE:79:ARG:HH21 | 1.55 | 0.71 |
| 1:CA:559:A:H4' | 1:CA:560:A:H3' | 1.73 | 0.71 |
| 23:DB:483:A:H2' | 23:DB:484:C:H5' | 1.70 | 0.71 |
| 22:DA:76:G:H2' | 22:DA:77:U:H6 | 1.54 | 0.71 |
| 25:DC:127:ASN:HD22 | 25:DC:128:THR:N | 1.87 | 0.71 |
| 38:DQ:46:TYR:HA | 39:DR:77:PHE:HD2 | 1.56 | 0.71 |
| 50:B3:44:ARG:HG3 | 50:B3:45:PRO:HD2 | 1.73 | 0.71 |
| 33:BL:60:ARG:HA | 33:BL:60:ARG:NH1 | 2.06 | 0.71 |
| 45:BY:9:THR:HG23 | 45:BY:10:ARG:H | 1.55 | 0.71 |
| 23:DB:1395:A:H4' | 23:DB:1397:U:C5 | 2.26 | 0.71 |
| 41:BT:88:LYS:HG2 | 41:BT:89:GLU:N | 2.04 | 0.71 |
| 26:DD:6:GLY:HA2 | 26:DD:199:SER:O | 1.90 | 0.71 |
| 33:DL:77:ILE:HD13 | 33:DL:110:VAL:N | 2.05 | 0.71 |
| 21:CU:14:ALA:H | 21:CU:16:ARG:NH2 | 1.89 | 0.71 |
| 23:DB:1060:U:C4 | 23:DB:1088:A:N6 | 2.58 | 0.71 |
| 5:CF:38:ARG:HH21 | 5:CF:63:ASN:ND2 | 1.88 | 0.71 |
| 45:DY:3:THR:HA | 45:DY:37:ARG:H | 1.56 | 0.71 |
| 1:CA:1009:U:H1' | 1:CA:1021:A:N1 | 2.05 | 0.71 |
| 1:CA:8:A:H1' | 4:CE:107:GLY:HA2 | 1.71 | 0.71 |
| 23:DB:480:A:O4' | 42:DU:40:LEU:HD22 | 1.89 | 0.71 |
| 9:CJ:66:GLU:HB2 | 13:CN:98:ALA:HB2 | 1.72 | 0.71 |
| 1:AA:275:G:H5' | 16:AQ:15:LYS:HG2 | 1.72 | 0.71 |
| 17:CR:51:GLN:HA | 17:CR:54:LEU:HD13 | 1.71 | 0.71 |
| 23:BB:1797:G:O3' | 25:BC:253:GLY:HA2 | 1.91 | 0.71 |
| 1:AA:1049:U:H2' | 13:AN:2:LYS:HD3 | 1.70 | 0.71 |
| 23:BB:1395:A:H4' | 23:BB:1397:U:C5 | 2.26 | 0.71 |
| 28:BF:12:VAL:HG13 | 28:BF:27:VAL:HG11 | 1.71 | 0.71 |
| 1:CA:84:U:O2' | 1:CA:85:U:H5' | 1.89 | 0.71 |
| 6:CG:14:ASP:HB3 | 6:CG:18:GLY:N | 2.06 | 0.71 |
| 39:BR:74:ILE:HA | 39:BR:90:ARG:NE | 2.03 | 0.71 |
| 25:BC:28:PRO:O | 25:BC:29:PHE:HB3 | 1.90 | 0.71 |
| 49:B2:13:ASN:HB2 | 49:B2:18:PHE:HD2 | 1.56 | 0.71 |
| 26:DD:125:TRP:HD1 | 26:DD:127:PHE:HB2 | 1.56 | 0.71 |
| 1:AA:8:A:H2' | 3:AD:205:LYS:O | 1.91 | 0.71 |
| 1:AA:1208:C:H2' | 1:AA:1209:C:O4' | 1.91 | 0.71 |
| 1:AA:492:C:H2' | 1:AA:493:A:H5'' | 1.71 | 0.71 |
| 23:DB:1324:G:H1' | 23:DB:1616:A:N6 | 2.05 | 0.71 |
| 23:DB:616:A:H3' | 23:DB:617:G:H8 | 1.54 | 0.71 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 29:BG:94:ARG:HB2 | 29:BG:94:ARG:HH11 | 1.55 | 0.71 |
| 23:DB:363:G:H2' | 23:DB:364:C:C6 | 2.25 | 0.71 |
| 41:DT:49:LYS:O | 41:DT:50:LEU:HG | 1.90 | 0.71 |
| 3:CD:101:VAL:HG13 | 3:CD:106:PHE:HD2 | 1.54 | 0.71 |
| 51:B4:33:HIS:CD2 | 51:B4:33:HIS:H | 2.07 | 0.71 |
| 51:B4:7:VAL:HG12 | 51:B4:8:LYS:H | 1.54 | 0.71 |
| 33:BL:100:ILE:HG12 | 33:BL:102:GLY:H | 1.55 | 0.71 |
| 26:BD:31:ALA:HB1 | 26:BD:49:GLN:HG3 | 1.73 | 0.71 |
| 43:BW:19:ARG:NH2 | 43:BW:71:LYS:HD3 | 2.06 | 0.71 |
| 23:BB:1429:G:H2' | 23:BB:1430:G:H8 | 1.55 | 0.71 |
| 35:BN:35:LYS:HA | 35:BN:111:ALA:O | 1.91 | 0.71 |
| 28:DF:59:ILE:O | 28:DF:59:ILE:HD13 | 1.90 | 0.71 |
| 12:AM:64:VAL:HG12 | 12:AM:65:GLU:H | 1.54 | 0.71 |
| 22:BA:48:U:H2' | 22:BA:49:C:H6 | 1.56 | 0.71 |
| 1:AA:17:U:H2' | 1:AA:18:C:H6 | 1.55 | 0.71 |
| 23:DB:1080:A:H2' | 23:DB:1081:U:C6 | 2.25 | 0.71 |
| 1:AA:1250:A:H4' | 8:AI:69:GLY:H | 1.56 | 0.71 |
| 23:BB:1041:G:H2' | 23:BB:1042:G:C8 | 2.25 | 0.71 |
| 1:AA:1284:C:H3' | 1:AA:1285:A:H5'' | 1.72 | 0.71 |
| 1:AA:188:C:H2' | 1:AA:189:A:O4' | 1.90 | 0.71 |
| 50:D3:4:LYS:HD2 | 50:D3:59:ALA:HA | 1.72 | 0.71 |
| 1:AA:559:A:H4' | 1:AA:560:A:H3' | 1.73 | 0.71 |
| 23:BB:1173:U:C4 | 23:BB:1174:U:H1' | 2.26 | 0.71 |
| 10:AK:42:GLY:HA3 | 10:AK:73:VAL:HG22 | 1.71 | 0.71 |
| 28:BF:31:GLU:H | 28:BF:157:THR:HA | 1.54 | 0.71 |
| 19:CT:19:HIS:O | 19:CT:23:ARG:HG2 | 1.91 | 0.71 |
| 23:DB:1700:A:H2' | 23:DB:1701:A:H5' | 1.72 | 0.71 |
| 28:DF:31:GLU:HG3 | 28:DF:158:THR:HG22 | 1.71 | 0.71 |
| 23:DB:455:C:N3 | 23:DB:472:A:H2' | 2.06 | 0.71 |
| 6:AG:38:ALA:O | 6:AG:41:ILE:HG22 | 1.91 | 0.71 |
| 40:DS:74:ILE:HG22 | 40:DS:105:VAL:HG23 | 1.72 | 0.71 |
| 37:BP:29:VAL:HG22 | 37:BP:47:ILE:HD11 | 1.72 | 0.71 |
| 25:BC:107:LYS:HB2 | 25:BC:194:VAL:CG1 | 2.20 | 0.71 |
| 33:BL:13:LYS:HG3 | 33:BL:14:LYS:N | 2.01 | 0.71 |
| 23:BB:2575:C:C5' | 26:BD:149:ASN:H | 2.04 | 0.71 |
| 41:DT:29:THR:HB | 41:DT:86:THR:HA | 1.72 | 0.71 |
| 38:BQ:93:ILE:HG23 | 38:BQ:94:LEU:H | 1.55 | 0.71 |
| 23:DB:972:A:C3' | 23:DB:973:A:H5'' | 2.21 | 0.71 |
| 40:DS:17:VAL:O | 40:DS:20:VAL:HG12 | 1.90 | 0.71 |
| 20:CB:139:GLU:O | 20:CB:143:LEU:HB2 | 1.91 | 0.71 |
| 12:AM:21:ILE:HG22 | 12:AM:64:VAL:HG11 | 1.72 | 0.71 |
| 23:BB:1439:A:N1 | 23:BB:1552:A:N7 | 2.39 | 0.71 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:BB:452:G:OP1 | 27:BE:52:VAL:HG22 | 1.90 | 0.71 |
| 50:D3:4:LYS:NZ | 50:D3:60:CYS:H | 1.89 | 0.71 |
| 23:DB:242:G:N2 | 23:DB:254:G:H2' | 2.06 | 0.71 |
| 20:CB:62:ARG:H | 20:CB:62:ARG:HD2 | 1.56 | 0.71 |
| 1:CA:1186:G:H21 | 13:CN:100:TRP:C | 1.93 | 0.71 |
| 5:CF:79:ARG:HH22 | 5:CF:87:SER:HB3 | 1.56 | 0.71 |
| 23:DB:380:G:O2' | 46:DZ:13:THR:HB | 1.90 | 0.71 |
| 41:BT:93:LEU:HD22 | 41:BT:93:LEU:H | 1.56 | 0.71 |
| 8:AI:23:GLY:H | 8:AI:60:LEU:HA | 1.54 | 0.71 |
| 23:BB:1203:U:H3' | 23:BB:1204:A:H5'' | 1.71 | 0.71 |
| 23:BB:1813:G:H21 | 25:BC:51:ARG:CG | 2.04 | 0.71 |
| 23:BB:2393:U:H5' | 33:BL:62:PRO:HD3 | 1.73 | 0.71 |
| 33:BL:60:ARG:HH11 | 50:B3:11:LYS:HE2 | 1.53 | 0.71 |
| 23:DB:2874:C:OP1 | 35:DN:5:LYS:HD2 | 1.91 | 0.71 |
| 41:DT:60:THR:HA | 41:DT:82:LYS:O | 1.90 | 0.71 |
| 1:CA:1218:C:H2' | 1:CA:1219:A:C8 | 2.26 | 0.71 |
| 45:DY:40:THR:HG23 | 45:DY:43:ILE:HG22 | 1.73 | 0.71 |
| 1:CA:1097:C:H2' | 1:CA:1098:C:C6 | 2.26 | 0.71 |
| 23:DB:1439:A:N1 | 23:DB:1552:A:N7 | 2.39 | 0.71 |
| 1:AA:279:A:H5'' | 1:AA:280:C:H3' | 1.72 | 0.71 |
| 1:CA:560:A:H5' | 1:CA:566:G:N2 | 2.05 | 0.71 |
| 23:DB:1028:A:H2' | 23:DB:1029:A:C8 | 2.26 | 0.71 |
| 1:CA:859:G:H2' | 1:CA:860:A:C8 | 2.25 | 0.71 |
| 23:BB:1951:U:H2' | 23:BB:1953:A:OP2 | 1.91 | 0.71 |
| 23:DB:96:C:H4' | 44:DX:41:HIS:CE1 | 2.26 | 0.71 |
| 43:DW:66:VAL:HG22 | 43:DW:67:LYS:N | 2.06 | 0.71 |
| 25:BC:68:ARG:HD3 | 25:BC:103:ILE:HD11 | 1.72 | 0.71 |
| 31:BJ:99:ARG:HA | 31:BJ:103:ILE:HG13 | 1.73 | 0.71 |
| 36:BO:21:LEU:O | 36:BO:42:PRO:HB3 | 1.91 | 0.71 |
| 36:BO:48:LEU:HD23 | 36:BO:49:VAL:N | 2.06 | 0.71 |
| 33:BL:78:ARG:NH2 | 33:BL:82:LEU:HB2 | 2.06 | 0.71 |
| 47:B0:29:VAL:HB | 47:B0:36:LYS:HD2 | 1.73 | 0.71 |
| 30:DH:94:ILE:HG23 | 30:DH:98:ASP:CB | 2.20 | 0.71 |
| 23:BB:1060:U:C4 | 23:BB:1088:A:N6 | 2.58 | 0.71 |
| 3:CD:34:GLU:O | 3:CD:35:GLN:HG3 | 1.91 | 0.71 |
| 23:BB:414:C:H2' | 23:BB:415:A:C8 | 2.25 | 0.71 |
| 23:DB:860:U:O2' | 23:DB:2267:A:H4' | 1.91 | 0.71 |
| 23:BB:1485:U:H2' | 23:BB:1486:U:C6 | 2.26 | 0.71 |
| 23:DB:950:G:H2' | 23:DB:951:C:H6 | 1.54 | 0.71 |
| 23:BB:1700:A:H2' | 23:BB:1701:A:H5' | 1.72 | 0.71 |
| 23:DB:1594:U:H2' | 23:DB:1595:C:C6 | 2.25 | 0.71 |
| 15:AP:20:VAL:HG23 | 15:AP:35:ARG:HA | 1.71 | 0.71 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 29:DG:39:ALA:HB1 | 29:DG:54:ARG:H | 1.56 | 0.71 |
| 29:BG:71:LEU:HA | 29:BG:74:MET:SD | 2.31 | 0.71 |
| 9:CJ:32:THR:HG23 | 9:CJ:33:GLY:H | 1.56 | 0.71 |
| 23:BB:2039:U:H2' | 23:BB:2040:G:H8 | 1.56 | 0.71 |
| 4:AE:155:LYS:HG3 | 7:AH:65:PHE:HB2 | 1.73 | 0.71 |
| 20:AB:69:VAL:O | 20:AB:163:ILE:HG22 | 1.91 | 0.70 |
| 51:D4:34:LYS:HE2 | 51:D4:36:ARG:HH22 | 1.55 | 0.70 |
| 25:BC:87:SER:O | 25:BC:157:ALA:HB2 | 1.90 | 0.70 |
| 39:DR:79:ARG:HD3 | 39:DR:81:LYS:HG3 | 1.72 | 0.70 |
| 23:BB:2041:U:H2' | 23:BB:2042:A:C8 | 2.25 | 0.70 |
| 40:BS:28:LYS:HD3 | 40:BS:71:VAL:HG21 | 1.72 | 0.70 |
| 27:BE:151:GLY:O | 27:BE:190:ALA:HB2 | 1.90 | 0.70 |
| 1:CA:764:C:H3' | 1:CA:765:G:N2 | 2.06 | 0.70 |
| 23:BB:2147:A:H5' | 23:BB:2148:G:C5' | 2.20 | 0.70 |
| 36:BO:16:ARG:NE | 36:BO:16:ARG:HA | 2.06 | 0.70 |
| 23:BB:279:A:H61 | 23:BB:361:G:H1' | 1.54 | 0.70 |
| 22:BA:49:C:H2' | 22:BA:50:A:C8 | 2.26 | 0.70 |
| 23:BB:2037:A:H2' | 23:BB:2038:G:C8 | 2.26 | 0.70 |
| 23:DB:864:G:O2' | 23:DB:865:C:H5'' | 1.91 | 0.70 |
| 7:CH:31:LEU:HG | 7:CH:35:ILE:HD11 | 1.73 | 0.70 |
| 3:AD:10:LEU:HD21 | 3:AD:62:ARG:HD3 | 1.73 | 0.70 |
| 11:AL:87:LYS:HZ3 | 11:AL:87:LYS:HA | 1.56 | 0.70 |
| 23:BB:2537:U:H2' | 23:BB:2538:C:C6 | 2.25 | 0.70 |
| 23:DB:1203:U:H3' | 23:DB:1204:A:H5'' | 1.73 | 0.70 |
| 30:BH:90:LEU:HD21 | 30:BH:146:VAL:HG11 | 1.72 | 0.70 |
| 23:BB:855:G:H21 | 43:BW:23:LYS:CB | 2.03 | 0.70 |
| 50:B3:24:LYS:HZ3 | 50:B3:29:ARG:HH22 | 1.38 | 0.70 |
| 34:BM:73:ILE:HD13 | 34:BM:92:TRP:H | 1.56 | 0.70 |
| 50:D3:51:LYS:HA | 50:D3:51:LYS:HZ2 | 1.56 | 0.70 |
| 31:DJ:35:ARG:HB3 | 31:DJ:54:ILE:HD11 | 1.72 | 0.70 |
| 13:CN:51:PRO:HG2 | 13:CN:52:ARG:H | 1.56 | 0.70 |
| 41:BT:61:LEU:HD12 | 41:BT:62:VAL:H | 1.56 | 0.70 |
| 23:DB:28:A:N6 | 23:DB:512:G:O2' | 2.24 | 0.70 |
| 23:BB:1060:U:C5 | 52:BI:131:THR:HG22 | 2.25 | 0.70 |
| 4:CE:87:VAL:HG22 | 4:CE:88:HIS:H | 1.55 | 0.70 |
| 1:AA:1241:G:H2' | 1:AA:1242:G:H8 | 1.57 | 0.70 |
| 2:AC:69:THR:HG21 | 2:AC:75:VAL:HG21 | 1.73 | 0.70 |
| 42:DU:43:LYS:HG2 | 42:DU:57:ILE:HB | 1.73 | 0.70 |
| 1:AA:878:A:H5'' | 7:AH:80:PRO:HG2 | 1.74 | 0.70 |
| 52:BI:89:SER:HB2 | 52:BI:136:GLY:HA3 | 1.73 | 0.70 |
| 1:AA:560:A:H5' | 1:AA:566:G:N2 | 2.06 | 0.70 |
| 23:DB:2306:C:H3' | 23:DB:2307:G:H5'' | 1.72 | 0.70 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:BB:1469:A:H2' | 23:BB:1470:A:C8 | 2.25 | 0.70 |
| 23:DB:350:G:H2' | 23:DB:351:C:O4' | 1.91 | 0.70 |
| 3:CD:187:ARG:HH12 | 3:CD:191:SER:HA | 1.55 | 0.70 |
| 4:AE:114:LEU:HD22 | 4:AE:119:VAL:HG21 | 1.73 | 0.70 |
| 43:DW:42:THR:H | 43:DW:65:LYS:HG2 | 1.57 | 0.70 |
| 26:DD:61:THR:HG23 | 26:DD:62:LYS:H | 1.54 | 0.70 |
| 25:DC:164:VAL:HG23 | 25:DC:167:ASP:HB2 | 1.71 | 0.70 |
| 5:AF:53:LYS:HD3 | 5:AF:54:LEU:N | 2.04 | 0.70 |
| 18:AS:4:LEU:C | 18:AS:5:LYS:HE3 | 2.12 | 0.70 |
| 12:CM:52:ILE:HA | 12:CM:55:LEU:HD12 | 1.72 | 0.70 |
| 23:DB:2037:A:H2' | 23:DB:2038:G:C8 | 2.26 | 0.70 |
| 1:CA:451:A:H4' | 1:CA:452:A:O4' | 1.91 | 0.70 |
| 25:BC:10:PRO:HD2 | 25:BC:202:ARG:HH12 | 1.57 | 0.70 |
| 51:D4:30:GLU:HB3 | 51:D4:33:HIS:HB2 | 1.72 | 0.70 |
| 23:BB:1182:G:H2' | 23:BB:1183:U:O4' | 1.90 | 0.70 |
| 1:CA:1238:A:H5' | 1:CA:1336:C:N4 | 2.04 | 0.70 |
| 23:DB:1951:U:H2' | 23:DB:1953:A:OP2 | 1.91 | 0.70 |
| 23:DB:2557:G:H2' | 23:DB:2558:C:C6 | 2.27 | 0.70 |
| 23:BB:131:A:H2' | 23:BB:132:G:H8 | 1.57 | 0.70 |
| 48:D1:40:PRO:HD2 | 48:D1:44:GLN:O | 1.90 | 0.70 |
| 23:BB:2483:C:H4' | 34:BM:51:ARG:HH12 | 1.56 | 0.70 |
| 23:BB:2197:U:O2' | 23:BB:2198:A:H2' | 1.91 | 0.70 |
| 23:DB:98:G:H3' | 23:DB:99:U:H5'' | 1.71 | 0.70 |
| 27:DE:143:LEU:HD22 | 27:DE:143:LEU:N | 2.06 | 0.70 |
| 46:BZ:15:SER:HB2 | 46:BZ:25:ARG:NH1 | 2.06 | 0.70 |
| 34:BM:33:LEU:N | 34:BM:101:VAL:HG22 | 2.06 | 0.70 |
| 34:BM:70:ASP:H | 34:BM:71:LYS:NZ | 1.90 | 0.70 |
| 26:BD:154:LYS:C | 26:BD:156:PHE:H | 1.94 | 0.70 |
| 35:BN:24:MET:HE3 | 35:BN:44:LEU:HD22 | 1.74 | 0.70 |
| 31:BJ:41:LYS:HD2 | 31:BJ:44:TYR:HB2 | 1.73 | 0.70 |
| 26:DD:108:ASP:HB2 | 26:DD:204:LYS:HB2 | 1.74 | 0.70 |
| 37:DP:76:HIS:CD2 | 37:DP:76:HIS:N | 2.60 | 0.70 |
| 23:DB:1190:G:OP1 | 33:DL:39:LYS:N | 2.24 | 0.70 |
| 28:DF:102:LEU:O | 28:DF:107:VAL:HB | 1.91 | 0.70 |
| 29:BG:19:ASN:HB3 | 29:BG:22:VAL:HG13 | 1.72 | 0.70 |
| 4:AE:101:GLY:H | 4:AE:121:ASN:HD21 | 1.39 | 0.70 |
| 23:BB:1082:U:C4 | 23:BB:1086:A:C2 | 2.80 | 0.70 |
| 42:DU:71:ILE:HD12 | 42:DU:102:ILE:HD12 | 1.74 | 0.70 |
| 23:BB:287:G:H2' | 23:BB:288:U:H6 | 1.55 | 0.70 |
| 29:BG:40:VAL:HB | 29:BG:63:GLN:HE22 | 1.57 | 0.70 |
| 25:DC:28:PRO:HG2 | 25:DC:79:ARG:NE | 2.06 | 0.70 |
| 23:DB:2537:U:H2' | 23:DB:2538:C:C6 | 2.26 | 0.70 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:BB:2228:G:H2' | 23:BB:2229:U:C6 | 2.26 | 0.70 |
| 37:DP:23:ASP:HA | 37:DP:49:ILE:HG22 | 1.73 | 0.70 |
| 23:BB:85:G:C5' | 42:BU:28:LEU:HA | 2.17 | 0.70 |
| 50:B3:29:ARG:HA | 50:B3:33:THR:CG2 | 2.22 | 0.70 |
| 24:BV:80:HIS:HD2 | 24:BV:83:LYS:H | 1.39 | 0.70 |
| 16:AQ:76:ARG:NE | 16:AQ:78:VAL:HG22 | 2.04 | 0.70 |
| 23:DB:1794:A:H2' | 23:DB:1795:C:H6 | 1.57 | 0.70 |
| 23:BB:990:A:H1' | 23:BB:1156:A:C2 | 2.26 | 0.70 |
| 41:BT:62:VAL:O | 41:BT:63:VAL:HG12 | 1.90 | 0.70 |
| 1:CA:865:A:H5' | 1:CA:1078:U:O4 | 1.92 | 0.70 |
| 21:CU:36:PHE:HB2 | 21:CU:39:LYS:HB2 | 1.74 | 0.70 |
| 2:AC:5:HIS:HD2 | 2:AC:8:GLY:H | 1.39 | 0.70 |
| 23:BB:191:A:H2' | 23:BB:192:C:C6 | 2.26 | 0.70 |
| 1:CA:545:C:O2' | 1:CA:546:A:H5' | 1.90 | 0.70 |
| 25:DC:29:PHE:HD1 | 25:DC:29:PHE:O | 1.73 | 0.70 |
| 23:BB:1594:U:H2' | 23:BB:1595:C:C6 | 2.26 | 0.70 |
| 40:BS:18:ARG:HH12 | 40:BS:25:ARG:HH22 | 1.38 | 0.70 |
| 10:CK:28:ASN:HD21 | 10:CK:47:GLY:H | 1.39 | 0.70 |
| 47:D0:10:SER:O | 47:D0:14:MET:HB2 | 1.91 | 0.70 |
| 22:DA:61:G:H2' | 22:DA:62:C:H6 | 1.55 | 0.70 |
| 25:BC:172:THR:HG22 | 25:BC:173:LEU:H | 1.54 | 0.70 |
| 31:DJ:60:ASP:HB3 | 31:DJ:126:ALA:HB1 | 1.73 | 0.70 |
| 10:CK:16:SER:CA | 10:CK:78:ILE:HA | 2.20 | 0.70 |
| 3:CD:94:GLU:HG2 | 3:CD:185:PRO:HG3 | 1.73 | 0.70 |
| 29:BG:28:LYS:HD3 | 29:BG:79:THR:HA | 1.72 | 0.70 |
| 23:BB:2216:G:H2' | 23:BB:2217:G:C8 | 2.26 | 0.70 |
| 23:BB:1826:G:OP2 | 25:BC:221:GLY:HA2 | 1.90 | 0.70 |
| 23:DB:596:U:H2' | 23:DB:597:G:C8 | 2.26 | 0.70 |
| 13:AN:74:ARG:HD3 | 13:AN:74:ARG:O | 1.90 | 0.70 |
| 9:CJ:11:LYS:HB2 | 9:CJ:97:ASP:HB3 | 1.74 | 0.70 |
| 30:DH:50:ARG:HG3 | 30:DH:51:ARG:N | 2.06 | 0.70 |
| 23:DB:1099:G:H4' | 52:DI:4:VAL:HB | 1.73 | 0.70 |
| 25:DC:141:HIS:CB | 25:DC:190:THR:HB | 2.22 | 0.70 |
| 24:BV:80:HIS:HD2 | 24:BV:82:TYR:H | 1.37 | 0.70 |
| 35:DN:2:ARG:HH11 | 35:DN:2:ARG:HG2 | 1.57 | 0.70 |
| 36:DO:35:ILE:HG12 | 36:DO:106:LEU:HD12 | 1.74 | 0.70 |
| 36:DO:38:GLN:HA | 36:DO:50:ALA:HB3 | 1.72 | 0.70 |
| 43:BW:17:ALA:HA | 43:BW:35:ILE:O | 1.92 | 0.70 |
| 23:DB:2684:U:OP1 | 37:DP:59:THR:HB | 1.91 | 0.70 |
| 1:CA:17:U:H2' | 1:CA:18:C:H6 | 1.56 | 0.70 |
| 47:D0:26:SER:HB2 | 47:D0:38:LEU:HD21 | 1.74 | 0.70 |
| 23:DB:2246:G:H2' | 23:DB:2247:A:C8 | 2.27 | 0.70 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 14:AO:88:ARG:HG3 | 23:BB:716:A:OP1 | 1.91 | 0.70 |
| 23:DB:570:G:H2' | 23:DB:2030:A:N7 | 2.05 | 0.70 |
| 23:BB:181:A:H2' | 23:BB:182:A:H8 | 1.56 | 0.70 |
| 23:BB:1015:U:H2' | 23:BB:1016:G:H8 | 1.57 | 0.70 |
| 23:DB:1178:C:H2' | 23:DB:1179:G:C8 | 2.27 | 0.70 |
| 27:BE:106:LYS:HB2 | 27:BE:106:LYS:NZ | 2.07 | 0.70 |
| 39:BR:18:GLN:HB3 | 39:BR:99:THR:HA | 1.73 | 0.70 |
| 30:DH:8:LYS:HE2 | 30:DH:9:VAL:H | 1.56 | 0.70 |
| 25:DC:144:GLU:HB2 | 25:DC:187:CYS:HB2 | 1.73 | 0.70 |
| 1:AA:1219:A:H2' | 1:AA:1220:G:C8 | 2.27 | 0.70 |
| 30:BH:17:ASP:OD2 | 30:BH:21:VAL:HB | 1.92 | 0.70 |
| 46:DZ:5:ILE:HG13 | 46:DZ:51:VAL:HG13 | 1.73 | 0.70 |
| 38:BQ:92:LYS:HA | 38:BQ:95:ALA:HB2 | 1.72 | 0.70 |
| 38:BQ:92:LYS:CG | 38:BQ:93:ILE:N | 2.54 | 0.70 |
| 5:CF:38:ARG:HD3 | 5:CF:97:THR:HA | 1.73 | 0.70 |
| 1:AA:1238:A:H5' | 1:AA:1336:C:H41 | 1.55 | 0.70 |
| 39:DR:70:GLU:HG3 | 39:DR:71:LYS:HG2 | 1.73 | 0.70 |
| 23:BB:929:U:H5' | 45:BY:37:ARG:NH1 | 2.07 | 0.70 |
| 23:DB:2597:G:H5'' | 25:DC:239:PHE:HB2 | 1.74 | 0.70 |
| 34:BM:23:GLY:N | 34:BM:96:ILE:HD12 | 2.06 | 0.70 |
| 23:DB:1794:A:H2' | 23:DB:1795:C:C6 | 2.26 | 0.70 |
| 41:DT:17:SER:H | 41:DT:20:ALA:HB3 | 1.55 | 0.70 |
| 8:AI:40:ARG:N | 8:AI:44:ARG:HE | 1.88 | 0.70 |
| 1:CA:1342:C:H5' | 8:CI:127:SER:HB3 | 1.72 | 0.70 |
| 1:CA:1007:U:H2' | 1:CA:1008:U:C6 | 2.27 | 0.70 |
| 23:BB:2297:A:H61 | 23:BB:2319:G:H3' | 1.54 | 0.70 |
| 39:DR:96:VAL:HG12 | 39:DR:98:ILE:HG12 | 1.72 | 0.70 |
| 23:BB:2834:G:H1' | 23:BB:2883:A:N6 | 2.06 | 0.70 |
| 23:DB:1113:U:H5' | 29:DG:2:ARG:HG2 | 1.72 | 0.70 |
| 1:CA:960:U:O2' | 1:CA:961:U:OP2 | 2.09 | 0.70 |
| 23:BB:1794:A:H2' | 23:BB:1795:C:H6 | 1.57 | 0.70 |
| 23:BB:1794:A:H2' | 23:BB:1795:C:C6 | 2.26 | 0.70 |
| 1:AA:1289:A:H2' | 1:AA:1290:G:H5' | 1.74 | 0.70 |
| 17:AR:58:ILE:O | 17:AR:62:ARG:HG3 | 1.92 | 0.70 |
| 46:BZ:69:SER:O | 46:BZ:70:LYS:HB2 | 1.91 | 0.70 |
| 1:CA:188:C:H2' | 1:CA:189:A:O4' | 1.90 | 0.70 |
| 18:CS:48:ILE:O | 18:CS:59:VAL:HG22 | 1.90 | 0.70 |
| 22:BA:98:G:H1 | 24:BV:14:LYS:HB2 | 1.55 | 0.70 |
| 1:CA:1391:U:H2' | 1:CA:1392:G:C8 | 2.26 | 0.70 |
| 1:CA:1216:A:OP1 | 13:CN:2:LYS:HE2 | 1.91 | 0.70 |
| 42:BU:25:LYS:HG2 | 42:BU:35:VAL:HG22 | 1.74 | 0.70 |
| 3:AD:2:ARG:NH1 | 3:AD:114:ARG:HD2 | 2.05 | 0.70 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 41:DT:68:LYS:HB2 | 41:DT:68:LYS:NZ | 2.07 | 0.70 |
| 23:DB:969:G:H2' | 23:DB:970:U:C6 | 2.26 | 0.70 |
| 31:DJ:84:ILE:CD1 | 31:DJ:85:LYS:H | 2.04 | 0.70 |
| 43:BW:36:ILE:HB | 43:BW:68:PHE:HD2 | 1.57 | 0.70 |
| 23:DB:28:A:H61 | 23:DB:512:G:H1' | 1.57 | 0.70 |
| 32:DK:110:GLU:HA | 32:DK:113:MET:HG2 | 1.74 | 0.70 |
| 23:DB:1064:C:C4' | 52:DI:90:GLY:HA2 | 2.21 | 0.70 |
| 23:DB:1485:U:H2' | 23:DB:1486:U:C6 | 2.26 | 0.70 |
| 1:CA:939:G:H5'' | 6:CG:101:ARG:NH1 | 2.06 | 0.70 |
| 23:BB:2557:G:H2' | 23:BB:2558:C:C6 | 2.27 | 0.70 |
| 1:AA:1071:C:H2' | 1:AA:1072:G:H8 | 1.55 | 0.70 |
| 3:AD:25:ARG:HD3 | 3:AD:26:ALA:H | 1.56 | 0.70 |
| 24:BV:40:ILE:HD13 | 24:BV:40:ILE:H | 1.56 | 0.70 |
| 25:DC:63:ILE:HG21 | 25:DC:90:ILE:CD1 | 2.22 | 0.69 |
| 23:DB:336:C:H5'' | 42:DU:3:LYS:NZ | 2.06 | 0.69 |
| 16:AQ:10:ARG:HH11 | 16:AQ:55:GLY:H | 1.37 | 0.69 |
| 23:BB:1188:U:H4' | 39:BR:83:TYR:HB2 | 1.74 | 0.69 |
| 26:BD:119:ALA:HA | 26:BD:123:LYS:NZ | 2.06 | 0.69 |
| 23:BB:2270:A:H4' | 43:BW:18:LYS:CG | 2.21 | 0.69 |
| 23:DB:1346:G:O2' | 23:DB:1347:A:H5' | 1.92 | 0.69 |
| 14:AO:11:VAL:HG23 | 14:AO:26:VAL:HG11 | 1.72 | 0.69 |
| 20:CB:8:MET:SD | 20:CB:9:LEU:HD22 | 2.32 | 0.69 |
| 23:BB:150:U:H2' | 23:BB:151:C:C6 | 2.27 | 0.69 |
| 37:DP:31:VAL:HG13 | 37:DP:81:ASP:HB3 | 1.73 | 0.69 |
| 46:DZ:47:LYS:HB2 | 46:DZ:51:VAL:HG12 | 1.74 | 0.69 |
| 35:BN:33:ILE:HD13 | 35:BN:33:ILE:H | 1.56 | 0.69 |
| 23:DB:920:A:H2' | 23:DB:921:C:C6 | 2.27 | 0.69 |
| 23:DB:2636:C:H5' | 26:DD:80:TRP:HZ2 | 1.57 | 0.69 |
| 37:BP:32:VAL:HG13 | 37:BP:40:GLN:HE21 | 1.57 | 0.69 |
| 35:BN:4:ARG:HD2 | 35:BN:5:LYS:H | 1.56 | 0.69 |
| 23:BB:2619:C:H5' | 26:BD:157:LYS:CE | 2.21 | 0.69 |
| 1:AA:1236:A:H4' | 1:AA:1304:G:H4' | 1.73 | 0.69 |
| 29:DG:155:PRO:CB | 29:DG:171:LYS:HB3 | 2.21 | 0.69 |
| 7:CH:55:LYS:NZ | 7:CH:55:LYS:HA | 2.07 | 0.69 |
| 16:CQ:19:SER:O | 16:CQ:20:ILE:HD12 | 1.93 | 0.69 |
| 1:CA:279:A:H5'' | 1:CA:280:C:H3' | 1.72 | 0.69 |
| 40:DS:73:LYS:HD3 | 40:DS:74:ILE:N | 2.06 | 0.69 |
| 23:DB:172:A:H2' | 23:DB:173:A:C8 | 2.27 | 0.69 |
| 23:DB:522:A:H2' | 23:DB:523:C:C6 | 2.27 | 0.69 |
| 14:AO:87:ARG:HA | 14:AO:87:ARG:NH1 | 2.07 | 0.69 |
| 43:BW:10:ARG:HB3 | 43:BW:10:ARG:HH11 | 1.57 | 0.69 |
| 23:DB:2147:A:H4' | 23:DB:2148:G:H8 | 1.57 | 0.69 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:DB:1098:A:H2' | 52:DI:4:VAL:CA | 2.22 | 0.69 |
| 23:BB:38:A:H2' | 23:BB:39:G:O4' | 1.92 | 0.69 |
| 51:D4:1:MET:HB3 | 51:D4:2:LYS:HD3 | 1.74 | 0.69 |
| 26:BD:11:MET:SD | 37:BP:9:GLN:HG2 | 2.32 | 0.69 |
| 1:CA:1320:C:N3 | 18:CS:35:ARG:HD3 | 2.06 | 0.69 |
| 27:BE:146:VAL:O | 27:BE:184:ASP:HB2 | 1.92 | 0.69 |
| 23:DB:151:C:H2' | 23:DB:152:A:C8 | 2.27 | 0.69 |
| 23:BB:1406:U:H2' | 23:BB:1407:G:C8 | 2.27 | 0.69 |
| 23:BB:150:U:H2' | 23:BB:151:C:H6 | 1.56 | 0.69 |
| 34:BM:133:LYS:O | 34:BM:133:LYS:HE3 | 1.93 | 0.69 |
| 1:AA:473:U:H2' | 1:AA:474:G:H8 | 1.58 | 0.69 |
| 23:BB:1373:A:H2' | 23:BB:1374:G:O4' | 1.92 | 0.69 |
| 2:CC:39:ARG:HH22 | 13:CN:91:GLU:HB3 | 1.58 | 0.69 |
| 28:DF:162:ASP:O | 28:DF:166:ARG:HG3 | 1.92 | 0.69 |
| 27:DE:83:VAL:O | 27:DE:84:THR:HG22 | 1.92 | 0.69 |
| 37:BP:18:SER:HA | 37:BP:87:ARG:NH2 | 2.07 | 0.69 |
| 25:BC:164:VAL:HB | 25:BC:167:ASP:OD1 | 1.92 | 0.69 |
| 23:DB:2834:G:H1' | 23:DB:2883:A:N6 | 2.06 | 0.69 |
| 31:BJ:68:LYS:HA | 31:BJ:71:ASP:OD1 | 1.93 | 0.69 |
| 36:BO:41:ALA:HB1 | 36:BO:42:PRO:HD2 | 1.74 | 0.69 |
| 41:DT:66:LYS:N | 41:DT:76:ARG:HH21 | 1.87 | 0.69 |
| 40:BS:7:HIS:HB2 | 40:BS:103:ILE:HG22 | 1.72 | 0.69 |
| 51:B4:24:ARG:HA | 51:B4:34:LYS:O | 1.93 | 0.69 |
| 23:DB:2636:C:H5' | 26:DD:80:TRP:CZ2 | 2.28 | 0.69 |
| 26:DD:30:GLU:HG2 | 26:DD:94:GLN:NE2 | 2.07 | 0.69 |
| 21:AU:36:PHE:HB3 | 21:AU:40:PRO:CD | 2.21 | 0.69 |
| 37:BP:2:ASN:N | 37:BP:2:ASN:HD22 | 1.89 | 0.69 |
| 1:CA:1508:A:H2' | 1:CA:1509:C:H6 | 1.56 | 0.69 |
| 20:AB:59:ILE:HD12 | 20:AB:60:ALA:N | 2.07 | 0.69 |
| 1:AA:413:G:O6 | 3:AD:32:LYS:HE3 | 1.93 | 0.69 |
| 23:DB:2578:G:O2' | 26:DD:138:LEU:HD13 | 1.93 | 0.69 |
| 24:DV:21:ARG:HE | 24:DV:87:GLN:HA | 1.57 | 0.69 |
| 41:BT:64:LYS:HD2 | 41:BT:77:ARG:HD3 | 1.75 | 0.69 |
| 42:BU:46:LYS:N | 42:BU:47:PRO:HD3 | 2.08 | 0.69 |
| 12:CM:92:ARG:CZ | 12:CM:92:ARG:HA | 2.22 | 0.69 |
| 27:DE:136:GLN:O | 27:DE:139:LYS:HG2 | 1.93 | 0.69 |
| 27:DE:163:ASN:H | 27:DE:168:ASP:HA | 1.58 | 0.69 |
| 48:D1:45:HIS:O | 48:D1:46:VAL:HG12 | 1.92 | 0.69 |
| 41:DT:56:GLU:HG2 | 41:DT:57:VAL:HG13 | 1.75 | 0.69 |
| 23:BB:45:G:C5' | 23:BB:46:G:H5' | 2.22 | 0.69 |
| 25:DC:53:ILE:HG12 | 25:DC:218:THR:HA | 1.74 | 0.69 |
| 1:AA:1432:G:OP1 | 37:BP:105:LYS:HB2 | 1.93 | 0.69 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 24:BV:77:VAL:HA | 24:BV:89:ILE:HG22 | 1.74 | 0.69 |
| 23:BB:2469:A:H4' | 34:BM:55:ARG:HG3 | 1.75 | 0.69 |
| 37:BP:77:SER:H | 37:BP:78:PRO:CD | 2.06 | 0.69 |
| 22:BA:6:G:H2' | 22:BA:7:G:C8 | 2.27 | 0.69 |
| 11:CL:51:VAL:HG12 | 11:CL:52:CYS:H | 1.57 | 0.69 |
| 25:BC:170:TYR:O | 25:BC:171:VAL:HG13 | 1.91 | 0.69 |
| 50:B3:26:ALA:HB1 | 50:B3:29:ARG:HG2 | 1.73 | 0.69 |
| 32:BK:85:VAL:HG11 | 32:BK:115:ILE:HD12 | 1.74 | 0.69 |
| 34:BM:69:PRO:HB2 | 34:BM:71:LYS:NZ | 2.08 | 0.69 |
| 16:AQ:11:VAL:HA | 16:AQ:22:VAL:HG22 | 1.73 | 0.69 |
| 39:BR:79:ARG:HD3 | 39:BR:86:GLN:NE2 | 2.08 | 0.69 |
| 38:BQ:96:ASP:O | 38:BQ:99:VAL:HG22 | 1.92 | 0.69 |
| 47:B0:30:ASP:OD1 | 47:B0:31:LYS:HD2 | 1.93 | 0.69 |
| 23:DB:2017:U:O2 | 47:D0:6:LYS:HG3 | 1.92 | 0.69 |
| 15:AP:5:ARG:HD2 | 15:AP:5:ARG:H | 1.57 | 0.69 |
| 10:CK:85:VAL:HG21 | 10:CK:92:ARG:HH12 | 1.58 | 0.69 |
| 23:BB:2645:G:H3' | 23:BB:2646:C:C5' | 2.23 | 0.69 |
| 1:CA:1250:A:H2' | 1:CA:1251:A:C8 | 2.28 | 0.69 |
| 23:BB:596:U:H2' | 23:BB:597:G:C8 | 2.27 | 0.69 |
| 1:AA:270:A:H2' | 1:AA:271:C:H6 | 1.57 | 0.69 |
| 38:BQ:102:LYS:H | 38:BQ:102:LYS:HD2 | 1.58 | 0.69 |
| 23:DB:1552:A:H2' | 23:DB:1553:A:H5' | 1.73 | 0.69 |
| 27:BE:98:LYS:HG3 | 27:BE:99:LYS:H | 1.56 | 0.69 |
| 23:BB:2241:A:H2' | 23:BB:2242:G:H8 | 1.57 | 0.69 |
| 23:DB:1309:G:H5' | 49:D2:8:SER:H | 1.58 | 0.69 |
| 1:AA:1048:G:H4' | 13:AN:2:LYS:NZ | 2.07 | 0.69 |
| 23:BB:2037:A:H2' | 23:BB:2038:G:H8 | 1.58 | 0.69 |
| 5:AF:86:ARG:HH11 | 17:AR:63:TYR:HB3 | 1.57 | 0.69 |
| 1:AA:60:A:H4' | 1:AA:61:G:O5' | 1.92 | 0.69 |
| 31:BJ:6:ALA:O | 31:BJ:8:PRO:HD3 | 1.93 | 0.69 |
| 1:CA:832:G:O2' | 1:CA:833:G:H5' | 1.92 | 0.69 |
| 20:AB:76:SER:O | 20:AB:79:VAL:HG12 | 1.93 | 0.69 |
| 23:BB:2804:U:H2' | 23:BB:2805:C:C6 | 2.28 | 0.69 |
| 27:DE:46:GLN:NE2 | 27:DE:86:ALA:HB3 | 2.07 | 0.69 |
| 36:DO:15:ARG:HH12 | 43:DW:76:ARG:NE | 1.91 | 0.69 |
| 25:BC:141:HIS:CD2 | 25:BC:193:GLU:H | 2.11 | 0.69 |
| 30:DH:5:LEU:HD13 | 30:DH:35:LYS:HE3 | 1.74 | 0.69 |
| 31:DJ:135:GLN:HE21 | 31:DJ:138:GLN:H | 1.40 | 0.69 |
| 1:AA:1218:C:H2' | 1:AA:1219:A:C8 | 2.28 | 0.69 |
| 8:CI:118:ARG:NH2 | 8:CI:122:ARG:HE | 1.90 | 0.69 |
| 51:B4:24:ARG:HH22 | 51:B4:36:ARG:CD | 2.03 | 0.69 |
| 27:DE:15:SER:HB3 | 27:DE:196:VAL:HG22 | 1.74 | 0.69 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:DB:2645:G:H3' | 23:DB:2646:C:C5' | 2.22 | 0.69 |
| 1:AA:978:A:H5' | 1:AA:1362:A:N6 | 2.08 | 0.69 |
| 23:DB:2229:U:H2' | 23:DB:2230:G:C8 | 2.27 | 0.69 |
| 23:DB:1118:C:H2' | 23:DB:1119:U:C6 | 2.27 | 0.69 |
| 23:DB:1866:A:H2' | 23:DB:1867:G:O4' | 1.93 | 0.69 |
| 22:DA:66:A:O2' | 22:DA:67:G:H5'' | 1.93 | 0.69 |
| 2:CC:11:LEU:HD22 | 2:CC:17:TRP:HE1 | 1.58 | 0.69 |
| 23:DB:1098:A:OP2 | 52:DI:3:LYS:HG2 | 1.92 | 0.69 |
| 48:D1:29:LYS:HB2 | 48:D1:30:PRO:CD | 2.18 | 0.69 |
| 30:BH:82:SER:N | 30:BH:146:VAL:HG13 | 2.00 | 0.69 |
| 23:BB:1243:C:O2' | 33:BL:15:ALA:HB3 | 1.92 | 0.69 |
| 25:BC:127:ASN:HD22 | 25:BC:128:THR:N | 1.91 | 0.69 |
| 23:DB:2834:G:H1' | 23:DB:2883:A:H61 | 1.58 | 0.69 |
| 31:DJ:124:VAL:HG23 | 31:DJ:125:TYR:N | 2.07 | 0.69 |
| 20:AB:53:LEU:HA | 20:AB:56:LEU:HD22 | 1.74 | 0.69 |
| 27:DE:108:ILE:HG13 | 27:DE:109:LEU:H | 1.58 | 0.69 |
| 23:BB:1252:G:H1 | 38:BQ:36:GLN:HE22 | 1.39 | 0.69 |
| 8:AI:18:VAL:HG11 | 8:AI:82:ILE:HG12 | 1.75 | 0.69 |
| 25:BC:79:ARG:HH11 | 25:BC:80:LEU:H | 1.38 | 0.69 |
| 1:AA:1060:U:H2' | 1:AA:1061:G:H8 | 1.58 | 0.69 |
| 32:DK:64:ARG:HD2 | 32:DK:102:PRO:O | 1.91 | 0.69 |
| 39:DR:3:ALA:O | 39:DR:4:VAL:HG13 | 1.93 | 0.69 |
| 39:DR:49:ILE:HG13 | 39:DR:51:VAL:HG23 | 1.74 | 0.69 |
| 39:DR:22:LEU:HD12 | 39:DR:23:GLU:H | 1.57 | 0.69 |
| 42:DU:91:LYS:HD3 | 42:DU:93:ARG:NE | 2.07 | 0.69 |
| 1:CA:1096:C:H2' | 1:CA:1097:C:C6 | 2.28 | 0.69 |
| 9:CJ:39:PRO:HA | 9:CJ:74:VAL:HG22 | 1.74 | 0.69 |
| 1:CA:1281:C:H5' | 1:CA:1282:C:H5 | 1.56 | 0.69 |
| 23:BB:1799:G:H4' | 23:BB:1800:C:O5' | 1.93 | 0.69 |
| 23:BB:437:U:H2' | 23:BB:438:G:C8 | 2.27 | 0.69 |
| 1:AA:451:A:H4' | 1:AA:452:A:O4' | 1.91 | 0.69 |
| 23:DB:682:G:H5' | 49:D2:26:ASN:ND2 | 2.08 | 0.69 |
| 1:CA:412:A:H1' | 1:CA:413:G:H8 | 1.57 | 0.69 |
| 31:BJ:28:LEU:HD23 | 31:BJ:29:ALA:N | 2.08 | 0.69 |
| 46:DZ:25:ARG:HG3 | 46:DZ:26:SER:H | 1.58 | 0.69 |
| 45:DY:7:THR:HA | 45:DY:34:THR:HB | 1.75 | 0.69 |
| 22:DA:22:U:H2' | 22:DA:23:G:C8 | 2.28 | 0.69 |
| 1:CA:473:U:H2' | 1:CA:474:G:H8 | 1.58 | 0.69 |
| 23:BB:2355:G:H4' | 43:BW:20:LEU:HD22 | 1.75 | 0.69 |
| 23:BB:215:G:H4' | 23:BB:216:A:H4' | 1.75 | 0.69 |
| 23:DB:993:G:H21 | 39:DR:93:PHE:HZ | 1.41 | 0.69 |
| 23:DB:1099:G:O5' | 52:DI:4:VAL:HG12 | 1.92 | 0.69 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 42:BU:90:LYS:HZ2 | 42:BU:91:LYS:HE2 | 1.57 | 0.69 |
| 27:DE:115:GLN:HG3 | 27:DE:116:ASP:H | 1.58 | 0.69 |
| 46:DZ:3:LYS:HG3 | 46:DZ:48:GLN:H | 1.58 | 0.69 |
| 34:BM:100:LYS:O | 34:BM:100:LYS:HD2 | 1.93 | 0.69 |
| 36:DO:7:ARG:O | 36:DO:11:ALA:HB2 | 1.93 | 0.69 |
| 34:DM:5:LYS:HG3 | 34:DM:69:PRO:O | 1.93 | 0.69 |
| 1:AA:131:A:H2' | 1:AA:132:C:C6 | 2.28 | 0.69 |
| 47:B0:29:VAL:HG21 | 47:B0:41:HIS:ND1 | 2.08 | 0.69 |
| 10:AK:109:ILE:H | 21:AU:5:VAL:HB | 1.57 | 0.69 |
| 23:BB:743:A:O2' | 23:BB:744:U:H5' | 1.93 | 0.69 |
| 33:DL:64:PHE:HA | 50:D3:11:LYS:HA | 1.75 | 0.69 |
| 5:AF:3:HIS:HA | 5:AF:65:GLU:HA | 1.75 | 0.69 |
| 2:AC:9:ILE:HG23 | 2:AC:10:ARG:HG3 | 1.73 | 0.69 |
| 47:B0:26:SER:HB2 | 47:B0:38:LEU:HD12 | 1.74 | 0.69 |
| 23:BB:1866:A:H2' | 23:BB:1867:G:O4' | 1.93 | 0.69 |
| 49:D2:21:ARG:HG3 | 49:D2:31:LEU:HD11 | 1.75 | 0.69 |
| 1:AA:832:G:O2' | 1:AA:833:G:H5' | 1.92 | 0.69 |
| 7:AH:87:ARG:HB2 | 7:AH:90:GLU:HG3 | 1.74 | 0.69 |
| 1:AA:1524:C:H2' | 1:AA:1525:G:C8 | 2.28 | 0.69 |
| 29:DG:95:ALA:HB1 | 29:DG:130:ILE:HD11 | 1.73 | 0.69 |
| 29:BG:97:VAL:HG11 | 29:BG:122:ALA:O | 1.92 | 0.69 |
| 37:DP:6:GLN:CD | 37:DP:6:GLN:H | 1.95 | 0.69 |
| 52:DI:85:ILE:HD13 | 52:DI:137:LEU:HD21 | 1.75 | 0.69 |
| 40:DS:48:LYS:O | 40:DS:52:GLU:HG3 | 1.92 | 0.69 |
| 25:BC:68:ARG:HD2 | 25:BC:127:ASN:HD21 | 1.57 | 0.69 |
| 23:BB:2265:U:H3' | 23:BB:2266:A:H5'' | 1.75 | 0.69 |
| 1:CA:1218:C:H2' | 1:CA:1219:A:H8 | 1.56 | 0.69 |
| 34:DM:64:TRP:HB2 | 34:DM:102:LEU:HB2 | 1.75 | 0.69 |
| 8:AI:12:LYS:H | 8:AI:109:GLN:HE22 | 1.41 | 0.69 |
| 23:DB:2229:U:H2' | 23:DB:2230:G:H8 | 1.56 | 0.69 |
| 23:DB:1440:U:H2' | 23:DB:1441:G:C8 | 2.28 | 0.69 |
| 42:BU:54:PRO:HG2 | 42:BU:55:GLY:H | 1.58 | 0.69 |
| 23:DB:1116:G:H21 | 34:DM:136:MET:HE3 | 1.57 | 0.69 |
| 23:BB:845:A:C2 | 23:BB:847:U:H1' | 2.27 | 0.69 |
| 50:B3:31:ILE:HG22 | 50:B3:32:LEU:HG | 1.75 | 0.69 |
| 40:DS:83:LYS:HD3 | 40:DS:83:LYS:N | 2.07 | 0.69 |
| 1:CA:131:A:H2' | 1:CA:132:C:C6 | 2.28 | 0.69 |
| 23:BB:2849:U:H4' | 23:BB:2850:A:H5' | 1.74 | 0.68 |
| 23:DB:532:A:N1 | 23:DB:2020:A:H1' | 2.08 | 0.68 |
| 33:BL:118:THR:CB | 33:BL:119:PRO:HD3 | 2.22 | 0.68 |
| 40:BS:7:HIS:CD2 | 40:BS:8:ARG:H | 2.11 | 0.68 |
| 23:BB:1060:U:O2 | 23:BB:1088:A:N7 | 2.27 | 0.68 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 39:DR:37:GLU:HG3 | 39:DR:62:GLU:HG3 | 1.74 | 0.68 |
| 1:AA:1330:U:C2' | 1:AA:1331:G:H5' | 2.22 | 0.68 |
| 3:AD:60:VAL:HA | 3:AD:63:ILE:HD12 | 1.74 | 0.68 |
| 48:D1:10:LEU:H | 48:D1:24:LYS:HB3 | 1.58 | 0.68 |
| 36:BO:68:LYS:HD3 | 36:BO:68:LYS:H | 1.58 | 0.68 |
| 5:CF:47:LEU:HD12 | 5:CF:55:HIS:HA | 1.75 | 0.68 |
| 1:CA:270:A:H2' | 1:CA:271:C:H6 | 1.57 | 0.68 |
| 23:BB:1791:A:H1' | 25:BC:206:LYS:NZ | 2.08 | 0.68 |
| 1:AA:412:A:H1' | 1:AA:413:G:H8 | 1.57 | 0.68 |
| 1:AA:673:A:H2' | 1:AA:674:G:C8 | 2.29 | 0.68 |
| 1:CA:642:A:H2' | 1:CA:643:C:H6 | 1.58 | 0.68 |
| 1:AA:865:A:H5' | 1:AA:1078:U:O4 | 1.93 | 0.68 |
| 33:DL:35:HIS:NE2 | 39:DR:84:ARG:HG2 | 2.08 | 0.68 |
| 37:BP:59:THR:O | 37:BP:60:VAL:HG13 | 1.94 | 0.68 |
| 25:BC:124:LYS:HB2 | 25:BC:125:PRO:HD3 | 1.75 | 0.68 |
| 31:BJ:119:PHE:CG | 31:BJ:120:ARG:N | 2.61 | 0.68 |
| 31:BJ:36:LEU:HD11 | 31:BJ:122:LEU:HD23 | 1.75 | 0.68 |
| 46:BZ:5:ILE:HB | 46:BZ:51:VAL:CG1 | 2.23 | 0.68 |
| 39:BR:41:ILE:C | 39:BR:43:ASN:H | 1.95 | 0.68 |
| 23:BB:1346:G:O2' | 23:BB:1347:A:H5' | 1.92 | 0.68 |
| 23:DB:2054:A:H2' | 47:D0:4:GLN:NE2 | 2.08 | 0.68 |
| 21:CU:14:ALA:H | 21:CU:16:ARG:HH22 | 1.41 | 0.68 |
| 32:DK:64:ARG:H | 32:DK:83:ALA:HB3 | 1.58 | 0.68 |
| 23:BB:1552:A:H2' | 23:BB:1553:A:H5' | 1.74 | 0.68 |
| 23:DB:1406:U:H2' | 23:DB:1407:G:C8 | 2.28 | 0.68 |
| 23:BB:423:A:H5' | 23:BB:424:G:H5'' | 1.75 | 0.68 |
| 2:CC:156:LEU:HB2 | 2:CC:163:ARG:HD3 | 1.73 | 0.68 |
| 1:CA:977:A:H3' | 1:CA:1362:A:H62 | 1.56 | 0.68 |
| 4:AE:155:LYS:HE3 | 7:AH:70:VAL:HG13 | 1.75 | 0.68 |
| 23:BB:181:A:H2' | 23:BB:182:A:C8 | 2.28 | 0.68 |
| 29:BG:120:ILE:HG12 | 29:BG:140:ILE:HG22 | 1.74 | 0.68 |
| 9:AJ:50:THR:HG22 | 9:AJ:64:GLN:HG2 | 1.75 | 0.68 |
| 8:CI:20:ILE:HG23 | 8:CI:60:LEU:HD13 | 1.74 | 0.68 |
| 1:CA:203:G:H1' | 1:CA:465:A:H62 | 1.58 | 0.68 |
| 1:CA:98:A:H2' | 1:CA:99:C:C6 | 2.28 | 0.68 |
| 18:AS:20:LYS:HB3 | 18:AS:20:LYS:HZ2 | 1.56 | 0.68 |
| 20:CB:83:ALA:O | 20:CB:88:GLN:HB2 | 1.93 | 0.68 |
| 43:DW:56:HIS:HA | 43:DW:77:LYS:HE2 | 1.75 | 0.68 |
| 31:BJ:93:ILE:HD13 | 31:BJ:100:VAL:HG21 | 1.74 | 0.68 |
| 46:DZ:39:LYS:HD3 | 46:DZ:61:ASN:ND2 | 2.09 | 0.68 |
| 23:BB:974:G:H1' | 23:BB:975:A:C8 | 2.27 | 0.68 |
| 25:BC:61:TYR:HD2 | 25:BC:84:PRO:HD2 | 1.58 | 0.68 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:DB:2037:A:H2' | 23:DB:2038:G:H8 | 1.58 | 0.68 |
| 23:BB:65:U:H4' | 41:BT:70:HIS:ND1 | 2.09 | 0.68 |
| 29:BG:176:LYS:O | 29:BG:176:LYS:HE2 | 1.93 | 0.68 |
| 23:DB:2246:G:H2' | 23:DB:2247:A:H8 | 1.58 | 0.68 |
| 29:DG:17:LYS:HE2 | 29:DG:24:THR:H | 1.59 | 0.68 |
| 23:DB:2804:U:H2' | 23:DB:2805:C:C6 | 2.27 | 0.68 |
| 23:DB:2804:U:H2' | 23:DB:2805:C:H6 | 1.58 | 0.68 |
| 25:DC:89:ASN:HB2 | 25:DC:105:ALA:HB3 | 1.75 | 0.68 |
| 23:DB:2860:A:H8 | 23:DB:2860:A:O5' | 1.76 | 0.68 |
| 23:BB:2071:A:H2' | 23:BB:2072:C:C6 | 2.28 | 0.68 |
| 28:BF:46:LYS:O | 28:BF:50:ASP:HB3 | 1.94 | 0.68 |
| 23:BB:2901:C:H2' | 23:BB:2902:C:H5' | 1.74 | 0.68 |
| 1:CA:1328:C:H5'' | 12:CM:27:THR:HG21 | 1.75 | 0.68 |
| 42:BU:25:LYS:HA | 42:BU:35:VAL:H | 1.58 | 0.68 |
| 51:D4:15:LYS:NZ | 51:D4:22:VAL:HG12 | 2.06 | 0.68 |
| 51:D4:26:ILE:HG13 | 51:D4:35:GLN:N | 2.03 | 0.68 |
| 30:DH:26:ALA:HB3 | 30:DH:31:VAL:HG23 | 1.74 | 0.68 |
| 43:BW:43:LYS:HG2 | 43:BW:76:ARG:HE | 1.57 | 0.68 |
| 33:BL:30:THR:HG22 | 33:BL:36:LYS:NZ | 2.07 | 0.68 |
| 3:CD:141:VAL:HA | 3:CD:180:THR:H | 1.58 | 0.68 |
| 26:DD:79:LEU:HG | 26:DD:80:TRP:H | 1.57 | 0.68 |
| 20:AB:9:LEU:HD22 | 20:AB:11:ALA:N | 2.07 | 0.68 |
| 8:CI:70:GLY:O | 8:CI:74:GLN:HG2 | 1.93 | 0.68 |
| 23:DB:1082:U:C4 | 23:DB:1086:A:C2 | 2.81 | 0.68 |
| 23:DB:947:A:H2' | 23:DB:948:C:C6 | 2.29 | 0.68 |
| 23:BB:1803:A:O3' | 25:BC:254:LYS:HG2 | 1.94 | 0.68 |
| 23:BB:594:U:H2' | 23:BB:595:C:C6 | 2.28 | 0.68 |
| 23:BB:720:U:H2' | 23:BB:721:A:C8 | 2.28 | 0.68 |
| 23:BB:2860:A:O5' | 23:BB:2860:A:H8 | 1.76 | 0.68 |
| 23:BB:2795:C:H2' | 23:BB:2796:U:O4' | 1.94 | 0.68 |
| 1:CA:1057:G:H4' | 2:CC:196:GLY:H | 1.58 | 0.68 |
| 23:DB:1098:A:C2' | 52:DI:4:VAL:N | 2.55 | 0.68 |
| 23:DB:857:G:O2' | 23:DB:858:G:H5' | 1.94 | 0.68 |
| 35:DN:97:ILE:HA | 35:DN:113:ILE:HD13 | 1.74 | 0.68 |
| 25:DC:63:ILE:HD13 | 25:DC:90:ILE:HD13 | 1.76 | 0.68 |
| 31:DJ:19:ASP:HB3 | 31:DJ:21:THR:HG23 | 1.75 | 0.68 |
| 23:DB:533:G:H2' | 23:DB:534:U:C6 | 2.28 | 0.68 |
| 27:BE:156:ASN:ND2 | 27:BE:157:LEU:HG | 2.09 | 0.68 |
| 23:BB:322:A:OP1 | 27:BE:162:ARG:HG2 | 1.93 | 0.68 |
| 27:DE:161:ALA:O | 27:DE:169:VAL:HB | 1.93 | 0.68 |
| 39:BR:39:LEU:O | 39:BR:54:VAL:CG1 | 2.41 | 0.68 |
| 27:BE:113:VAL:HG23 | 27:BE:117:ARG:NH2 | 2.09 | 0.68 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 18:CS:10:ILE:HB | 18:CS:14:LEU:HD11 | 1.75 | 0.68 |
| 33:DL:124:GLY:H | 33:DL:142:ILE:CA | 2.07 | 0.68 |
| 23:BB:139:U:H5' | 23:BB:140:C:C5 | 2.27 | 0.68 |
| 50:D3:32:LEU:CD1 | 50:D3:33:THR:H | 2.06 | 0.68 |
| 38:DQ:108:LEU:HA | 38:DQ:111:LYS:HD2 | 1.76 | 0.68 |
| 23:BB:1440:U:H2' | 23:BB:1441:G:C8 | 2.28 | 0.68 |
| 9:AJ:56:HIS:H | 13:AN:80:ARG:HH22 | 1.41 | 0.68 |
| 1:AA:642:A:H2' | 1:AA:643:C:H6 | 1.58 | 0.68 |
| 44:BX:30:MET:HG3 | 44:BX:31:GLN:H | 1.58 | 0.68 |
| 10:AK:70:ALA:HB1 | 10:AK:74:LYS:HE3 | 1.75 | 0.68 |
| 18:CS:51:HIS:HA | 18:CS:56:HIS:HA | 1.75 | 0.68 |
| 10:AK:97:ARG:HB3 | 10:AK:97:ARG:NH1 | 2.08 | 0.68 |
| 22:BA:17:C:O2' | 22:BA:18:G:H5' | 1.93 | 0.68 |
| 23:DB:1098:A:H3' | 52:DI:3:LYS:HB3 | 1.76 | 0.68 |
| 37:DP:50:ARG:NH1 | 37:DP:62:LYS:HB2 | 2.09 | 0.68 |
| 37:BP:21:PRO:HB2 | 37:BP:49:ILE:HD13 | 1.76 | 0.68 |
| 25:DC:63:ILE:HG23 | 25:DC:102:TYR:CD1 | 2.28 | 0.68 |
| 27:DE:138:LEU:O | 27:DE:143:LEU:HD21 | 1.94 | 0.68 |
| 23:DB:2086:U:H2' | 23:DB:2087:G:C8 | 2.29 | 0.68 |
| 11:AL:8:ARG:CZ | 11:AL:9:LYS:HE3 | 2.24 | 0.68 |
| 23:DB:1845:G:H4' | 25:DC:268:ARG:HD3 | 1.76 | 0.68 |
| 18:CS:27:LYS:HB3 | 18:CS:27:LYS:HZ3 | 1.58 | 0.68 |
| 35:BN:115:LEU:O | 35:BN:116:VAL:HG12 | 1.92 | 0.68 |
| 31:DJ:68:LYS:HD2 | 31:DJ:72:LYS:HB2 | 1.76 | 0.68 |
| 4:CE:35:LEU:HD21 | 4:CE:136:VAL:HG21 | 1.75 | 0.68 |
| 25:BC:20:ASN:HB3 | 25:BC:202:ARG:HB3 | 1.75 | 0.68 |
| 48:D1:26:LYS:HE2 | 48:D1:28:THR:HB | 1.76 | 0.68 |
| 26:BD:62:LYS:CD | 26:BD:62:LYS:H | 2.05 | 0.68 |
| 1:AA:1342:C:H2' | 1:AA:1343:G:C8 | 2.28 | 0.68 |
| 15:AP:68:SER:HB3 | 15:AP:71:VAL:HG12 | 1.76 | 0.68 |
| 1:AA:194:C:O2' | 1:AA:195:A:H5' | 1.94 | 0.68 |
| 3:CD:157:ALA:HA | 3:CD:160:LEU:HD12 | 1.76 | 0.68 |
| 23:DB:2198:A:H4' | 23:DB:2199:A:OP1 | 1.92 | 0.68 |
| 12:AM:77:LYS:HA | 12:AM:80:MET:HB3 | 1.74 | 0.68 |
| 23:BB:303:G:H2' | 23:BB:304:U:C6 | 2.29 | 0.68 |
| 23:DB:2849:U:H4' | 23:DB:2850:A:H5' | 1.74 | 0.68 |
| 20:CB:40:ILE:HG23 | 20:CB:200:PRO:HB2 | 1.76 | 0.68 |
| 36:BO:48:LEU:HD23 | 36:BO:49:VAL:H | 1.59 | 0.68 |
| 50:B3:23:HIS:CD2 | 50:B3:23:HIS:H | 2.10 | 0.68 |
| 23:BB:2575:C:H4' | 26:BD:149:ASN:N | 2.09 | 0.68 |
| 26:BD:148:GLN:HG3 | 26:BD:151:THR:OG1 | 1.93 | 0.68 |
| 25:DC:48:ILE:HG22 | 25:DC:49:THR:N | 2.05 | 0.68 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 38:BQ:47:ARG:NH2 | 38:BQ:50:ARG:HB3 | 2.09 | 0.68 |
| 34:DM:16:ARG:HE | 34:DM:18:ARG:NH1 | 1.92 | 0.68 |
| 18:AS:7:GLY:H | 18:AS:8:PRO:HD3 | 1.59 | 0.68 |
| 23:BB:2621:G:O2' | 26:BD:164:GLN:HB2 | 1.94 | 0.68 |
| 44:DX:25:GLN:NE2 | 44:DX:29:ARG:HH21 | 1.92 | 0.68 |
| 23:DB:162:U:H4' | 23:DB:163:C:OP1 | 1.92 | 0.68 |
| 32:DK:77:ILE:HD11 | 32:DK:105:ARG:NH1 | 2.09 | 0.68 |
| 23:DB:743:A:O2' | 23:DB:744:U:H5' | 1.93 | 0.68 |
| 2:AC:71:ARG:HH21 | 2:AC:74:ILE:HB | 1.57 | 0.68 |
| 23:DB:117:G:H5' | 23:DB:126:A:H8 | 1.58 | 0.68 |
| 1:CA:947:G:H2' | 1:CA:948:C:C6 | 2.29 | 0.68 |
| 23:DB:594:U:H2' | 23:DB:595:C:C6 | 2.28 | 0.68 |
| 30:DH:54:LEU:HD23 | 30:DH:57:LYS:HD3 | 1.76 | 0.68 |
| 9:CJ:9:ARG:HB2 | 9:CJ:99:GLN:HG3 | 1.75 | 0.68 |
| 23:DB:2395:C:H2' | 23:DB:2396:G:O4' | 1.94 | 0.68 |
| 1:CA:695:A:H5' | 10:CK:52:ARG:HH22 | 1.58 | 0.68 |
| 23:BB:417:C:H2' | 23:BB:418:C:C6 | 2.29 | 0.68 |
| 23:DB:2262:U:O4 | 43:DW:12:GLY:HA2 | 1.93 | 0.68 |
| 23:DB:2783:U:H2' | 23:DB:2784:U:C6 | 2.29 | 0.68 |
| 27:DE:115:GLN:HB3 | 27:DE:117:ARG:HH11 | 1.58 | 0.68 |
| 23:BB:2575:C:H5'' | 26:BD:149:ASN:HB3 | 1.75 | 0.68 |
| 23:BB:580:U:H2' | 23:BB:581:C:C6 | 2.29 | 0.68 |
| 46:DZ:59:ARG:HD3 | 46:DZ:63:ARG:HD3 | 1.76 | 0.68 |
| 23:DB:2039:U:H2' | 23:DB:2040:G:C8 | 2.28 | 0.68 |
| 1:CA:662:U:H2' | 1:CA:663:A:C8 | 2.29 | 0.68 |
| 23:BB:1177:G:H2' | 23:BB:1178:C:H6 | 1.59 | 0.68 |
| 1:AA:1432:G:OP1 | 37:BP:105:LYS:HE3 | 1.94 | 0.68 |
| 23:DB:543:G:H2' | 23:DB:544:C:H4' | 1.73 | 0.68 |
| 23:BB:2198:A:H4' | 23:BB:2199:A:OP1 | 1.94 | 0.68 |
| 22:DA:61:G:H2' | 22:DA:62:C:C6 | 2.28 | 0.68 |
| 1:AA:865:A:H2' | 1:AA:866:C:C6 | 2.28 | 0.68 |
| 23:BB:2395:C:H2' | 23:BB:2396:G:O4' | 1.94 | 0.68 |
| 52:BI:5:GLN:HG2 | 52:BI:6:ALA:N | 2.08 | 0.68 |
| 23:DB:2591:C:H2' | 23:DB:2592:G:H8 | 1.59 | 0.68 |
| 23:DB:2405:G:C5' | 33:DL:70:LYS:HG3 | 2.23 | 0.68 |
| 4:CE:67:ARG:HH11 | 4:CE:67:ARG:HB2 | 1.59 | 0.68 |
| 37:DP:26:GLU:HB3 | 37:DP:46:VAL:HG13 | 1.75 | 0.68 |
| 43:DW:46:ALA:HB2 | 43:DW:77:LYS:HD3 | 1.76 | 0.68 |
| 47:D0:47:TYR:HB3 | 47:D0:52:LYS:H | 1.59 | 0.68 |
| 27:DE:154:ASP:OD1 | 27:DE:158:PHE:HB2 | 1.94 | 0.68 |
| 23:DB:1799:G:H4' | 23:DB:1800:C:O5' | 1.93 | 0.68 |
| 13:CN:50:LEU:HD12 | 13:CN:51:PRO:HD3 | 1.76 | 0.68 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 26:BD:114:LYS:HE3 | 26:BD:196:ALA:HB2 | 1.76 | 0.68 |
| 23:DB:794:A:H2' | 23:DB:795:C:C6 | 2.29 | 0.68 |
| 1:AA:78:A:H2' | 1:AA:79:G:H8 | 1.59 | 0.68 |
| 27:DE:137:LYS:HZ2 | 27:DE:137:LYS:HA | 1.57 | 0.68 |
| 1:AA:1252:A:H2' | 1:AA:1253:G:H5'' | 1.75 | 0.68 |
| 4:CE:44:ARG:HG2 | 4:CE:72:ASN:ND2 | 2.09 | 0.68 |
| 1:CA:1436:U:H2' | 1:CA:1437:A:C8 | 2.28 | 0.68 |
| 23:DB:2064:C:H2' | 23:DB:2065:C:H6 | 1.58 | 0.68 |
| 15:AP:3:THR:HG22 | 15:AP:66:THR:HB | 1.75 | 0.68 |
| 29:DG:66:THR:O | 29:DG:70:LEU:HD13 | 1.94 | 0.68 |
| 23:BB:558:U:OP1 | 31:BJ:113:PRO:HG2 | 1.93 | 0.68 |
| 20:AB:116:LEU:HB3 | 20:AB:140:LEU:HD21 | 1.76 | 0.68 |
| 20:CB:10:LYS:HB2 | 20:CB:211:LEU:HD21 | 1.76 | 0.68 |
| 30:BH:89:LYS:HZ1 | 30:BH:123:ARG:HB3 | 1.59 | 0.68 |
| 23:BB:479:A:N3 | 23:BB:481:G:H5'' | 2.09 | 0.68 |
| 31:BJ:13:ARG:HG3 | 31:BJ:13:ARG:HH11 | 1.59 | 0.68 |
| 24:BV:70:ILE:HD13 | 24:BV:70:ILE:N | 2.09 | 0.68 |
| 26:BD:16:THR:O | 37:BP:80:VAL:HB | 1.94 | 0.68 |
| 22:DA:104:A:H2' | 22:DA:105:G:O4' | 1.94 | 0.68 |
| 23:BB:2783:U:H2' | 23:BB:2784:U:C6 | 2.29 | 0.68 |
| 1:CA:865:A:H2' | 1:CA:866:C:C6 | 2.28 | 0.68 |
| 25:BC:21:PRO:O | 25:BC:202:ARG:HD2 | 1.93 | 0.68 |
| 3:AD:156:ALA:O | 3:AD:159:GLU:HG2 | 1.94 | 0.68 |
| 2:AC:57:GLU:HB2 | 2:AC:64:ARG:HB2 | 1.75 | 0.68 |
| 4:AE:85:LYS:HE2 | 4:AE:92:ARG:NH1 | 2.08 | 0.68 |
| 23:DB:2471:A:HO2' | 23:DB:2472:G:H8 | 1.40 | 0.68 |
| 5:CF:42:TRP:HB2 | 5:CF:59:TYR:HB2 | 1.76 | 0.68 |
| 23:DB:528:A:C2 | 23:DB:2042:A:H2' | 2.29 | 0.68 |
| 23:DB:1373:A:H2' | 23:DB:1374:G:O4' | 1.92 | 0.68 |
| 24:BV:76:ASP:HB2 | 34:BM:136:MET:CG | 2.24 | 0.68 |
| 23:BB:240:C:H3' | 23:BB:241:A:H5'' | 1.75 | 0.68 |
| 37:DP:64:SER:HA | 37:DP:71:ARG:CB | 2.23 | 0.67 |
| 23:DB:2743:U:H2' | 23:DB:2744:G:H5'' | 1.75 | 0.67 |
| 23:DB:2334:U:H3 | 43:DW:74:LYS:CE | 2.06 | 0.67 |
| 23:DB:2089:C:H2' | 23:DB:2090:A:O4' | 1.94 | 0.67 |
| 41:BT:30:ILE:O | 41:BT:84:TYR:HA | 1.94 | 0.67 |
| 11:AL:35:ARG:HG3 | 11:AL:36:VAL:H | 1.58 | 0.67 |
| 23:BB:2318:G:O2' | 23:BB:2319:G:C2 | 2.47 | 0.67 |
| 23:BB:2297:A:N6 | 23:BB:2319:G:H5'' | 2.09 | 0.67 |
| 3:AD:94:GLU:HG3 | 3:AD:103:ARG:NH1 | 2.09 | 0.67 |
| 48:B1:7:LYS:HD3 | 48:B1:24:LYS:HB2 | 1.76 | 0.67 |
| 2:AC:184:ASN:HD22 | 2:AC:185:THR:H | 1.42 | 0.67 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 46:DZ:20:ASN:O | 46:DZ:21:VAL:HB | 1.94 | 0.67 |
| 6:CG:25:PHE:HD1 | 6:CG:100:MET:HB2 | 1.59 | 0.67 |
| 4:CE:22:LYS:HB3 | 4:CE:29:ILE:HB | 1.75 | 0.67 |
| 18:CS:62:THR:HG23 | 18:CS:63:ASP:H | 1.59 | 0.67 |
| 24:BV:66:ASP:HB3 | 24:BV:68:LYS:HG2 | 1.76 | 0.67 |
| 25:BC:42:ARG:CG | 25:BC:43:ASN:H | 2.01 | 0.67 |
| 25:BC:144:GLU:HB2 | 25:BC:146:LYS:O | 1.93 | 0.67 |
| 47:D0:52:LYS:O | 47:D0:53:VAL:HG12 | 1.93 | 0.67 |
| 23:BB:1163:G:H21 | 39:BR:91:GLN:HG3 | 1.58 | 0.67 |
| 43:DW:17:ALA:O | 43:DW:18:LYS:HG2 | 1.95 | 0.67 |
| 51:B4:14:CYS:HA | 51:B4:26:ILE:O | 1.93 | 0.67 |
| 26:DD:202:ILE:HG23 | 26:DD:204:LYS:HE3 | 1.76 | 0.67 |
| 26:BD:128:ARG:HH22 | 26:BD:130:GLN:HG3 | 1.60 | 0.67 |
| 28:DF:151:LEU:HG | 28:DF:153:ILE:HG13 | 1.74 | 0.67 |
| 34:DM:100:LYS:O | 34:DM:101:VAL:HG23 | 1.94 | 0.67 |
| 19:AT:67:HIS:O | 19:AT:70:LYS:HG2 | 1.93 | 0.67 |
| 23:DB:2143:C:H3' | 23:DB:2144:G:H8 | 1.59 | 0.67 |
| 23:BB:1917:U:H2' | 23:BB:1918:A:H5' | 1.76 | 0.67 |
| 8:AI:112:ARG:HB2 | 8:AI:112:ARG:HH11 | 1.57 | 0.67 |
| 48:B1:29:LYS:HE3 | 48:B1:30:PRO:HD2 | 1.75 | 0.67 |
| 19:CT:34:VAL:HG11 | 19:CT:78:LEU:HD13 | 1.75 | 0.67 |
| 23:DB:596:U:H2' | 23:DB:597:G:H8 | 1.57 | 0.67 |
| 29:BG:85:LYS:O | 29:BG:86:LEU:HD22 | 1.94 | 0.67 |
| 23:BB:1531:C:H2' | 23:BB:1532:A:C8 | 2.29 | 0.67 |
| 26:BD:98:VAL:HA | 26:BD:101:PHE:CZ | 2.28 | 0.67 |
| 14:AO:31:LEU:HD12 | 14:AO:58:MET:HB2 | 1.76 | 0.67 |
| 20:CB:185:ILE:HA | 20:CB:199:ILE:HG13 | 1.76 | 0.67 |
| 1:CA:1026:G:H2' | 1:CA:1027:C:H6 | 1.60 | 0.67 |
| 23:BB:598:U:H2' | 23:BB:599:A:H8 | 1.58 | 0.67 |
| 37:DP:112:ARG:H | 37:DP:112:ARG:HE | 1.41 | 0.67 |
| 37:DP:29:VAL:HG23 | 37:DP:47:ILE:HD11 | 1.76 | 0.67 |
| 31:DJ:96:ARG:HD2 | 31:DJ:99:ARG:HH21 | 1.58 | 0.67 |
| 27:BE:128:ALA:HB3 | 27:BE:129:PRO:CD | 2.20 | 0.67 |
| 38:BQ:39:ILE:O | 38:BQ:43:GLN:HG3 | 1.94 | 0.67 |
| 13:AN:60:ARG:HD3 | 13:AN:60:ARG:N | 2.05 | 0.67 |
| 23:BB:811:U:O2 | 23:BB:1250:G:H3' | 1.95 | 0.67 |
| 31:DJ:35:ARG:HH12 | 31:DJ:40:HIS:N | 1.82 | 0.67 |
| 40:BS:34:ASP:H | 40:BS:37:THR:CG2 | 2.06 | 0.67 |
| 41:BT:54:GLU:N | 41:BT:91:GLN:HE22 | 1.88 | 0.67 |
| 23:BB:559:G:H1' | 38:BQ:55:GLN:NE2 | 2.10 | 0.67 |
| 36:DO:66:GLY:N | 36:DO:70:ALA:HB2 | 2.07 | 0.67 |
| 23:DB:1060:U:O2 | 23:DB:1088:A:N7 | 2.27 | 0.67 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 26:BD:89:GLU:HG2 | 26:BD:89:GLU:O | 1.93 | 0.67 |
| 1:CA:1306:A:N6 | 1:CA:1331:G:O2' | 2.27 | 0.67 |
| 23:DB:1190:G:OP1 | 33:DL:38:GLN:HB2 | 1.94 | 0.67 |
| 33:DL:18:ARG:HH12 | 33:DL:21:ARG:HD3 | 1.59 | 0.67 |
| 2:CC:127:VAL:HG23 | 2:CC:128:MET:H | 1.57 | 0.67 |
| 1:AA:1029:U:H5'' | 1:AA:1030:U:H5 | 1.59 | 0.67 |
| 1:AA:1300:G:H1' | 1:AA:1301:U:H5 | 1.59 | 0.67 |
| 23:DB:1201:U:H2' | 23:DB:1202:G:H8 | 1.59 | 0.67 |
| 23:DB:2795:C:H2' | 23:DB:2796:U:O4' | 1.94 | 0.67 |
| 19:AT:15:LYS:HD3 | 19:AT:18:LYS:HE3 | 1.76 | 0.67 |
| 6:AG:66:GLU:HA | 6:AG:69:ARG:HE | 1.59 | 0.67 |
| 1:AA:541:G:O2' | 3:AD:39:GLN:HB2 | 1.93 | 0.67 |
| 51:D4:26:ILE:CD1 | 51:D4:34:LYS:HA | 2.23 | 0.67 |
| 25:DC:87:SER:O | 25:DC:157:ALA:HB2 | 1.95 | 0.67 |
| 31:DJ:98:GLU:HG3 | 31:DJ:126:ALA:HB2 | 1.75 | 0.67 |
| 23:BB:2393:U:H5'' | 33:BL:62:PRO:HA | 1.76 | 0.67 |
| 46:BZ:5:ILE:HG23 | 46:BZ:63:ARG:HE | 1.60 | 0.67 |
| 48:D1:46:VAL:HG22 | 48:D1:47:ILE:H | 1.59 | 0.67 |
| 41:DT:66:LYS:H | 41:DT:76:ARG:NH2 | 1.90 | 0.67 |
| 8:AI:34:LEU:HD11 | 8:AI:47:VAL:HG21 | 1.76 | 0.67 |
| 43:BW:35:ILE:HG12 | 43:BW:70:VAL:HG21 | 1.75 | 0.67 |
| 51:B4:11:CYS:HB3 | 51:B4:14:CYS:SG | 2.35 | 0.67 |
| 49:B2:34:ARG:HE | 49:B2:42:LEU:HD13 | 1.59 | 0.67 |
| 1:CA:555:U:H2' | 1:CA:556:C:H6 | 1.60 | 0.67 |
| 43:BW:28:GLU:N | 43:BW:61:LYS:HB2 | 2.09 | 0.67 |
| 19:CT:66:ILE:HG13 | 19:CT:70:LYS:HE2 | 1.75 | 0.67 |
| 35:BN:100:CYS:HB3 | 35:BN:111:ALA:H | 1.59 | 0.67 |
| 23:BB:596:U:H2' | 23:BB:597:G:H8 | 1.58 | 0.67 |
| 52:BI:89:SER:HA | 52:BI:97:VAL:CG2 | 2.25 | 0.67 |
| 23:DB:863:A:H2' | 23:DB:864:G:H8 | 1.58 | 0.67 |
| 3:CD:87:GLU:HG2 | 3:CD:187:ARG:HD3 | 1.76 | 0.67 |
| 23:BB:215:G:C4' | 23:BB:216:A:H4' | 2.25 | 0.67 |
| 23:BB:417:C:H2' | 23:BB:418:C:H6 | 1.59 | 0.67 |
| 1:AA:987:G:H2' | 1:AA:988:G:H8 | 1.60 | 0.67 |
| 1:CA:194:C:O2' | 1:CA:195:A:H5' | 1.94 | 0.67 |
| 23:DB:1533:C:O2' | 23:DB:1534:U:H5' | 1.95 | 0.67 |
| 25:DC:260:LYS:HG2 | 25:DC:262:THR:OG1 | 1.95 | 0.67 |
| 20:AB:131:LYS:HA | 20:AB:134:LEU:HD12 | 1.74 | 0.67 |
| 23:BB:2750:A:H3' | 29:BG:3:VAL:CG1 | 2.24 | 0.67 |
| 51:D4:26:ILE:CG1 | 51:D4:35:GLN:H | 2.02 | 0.67 |
| 1:AA:1320:C:N4 | 18:AS:35:ARG:HD3 | 2.10 | 0.67 |
| 30:BH:6:LEU:HA | 30:BH:15:LEU:CA | 2.24 | 0.67 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:BB:478:A:N1 | 23:BB:500:G:H4' | 2.09 | 0.67 |
| 23:DB:1341:G:H5' | 41:DT:61:LEU:HD21 | 1.76 | 0.67 |
| 38:BQ:52:ARG:CZ | 38:BQ:55:GLN:HG2 | 2.24 | 0.67 |
| 33:DL:58:TYR:HB3 | 50:D3:13:PHE:CZ | 2.30 | 0.67 |
| 23:BB:794:A:H2' | 23:BB:795:C:C6 | 2.29 | 0.67 |
| 32:DK:43:ILE:H | 32:DK:43:ILE:HD12 | 1.58 | 0.67 |
| 29:DG:36:LEU:HB2 | 29:DG:40:VAL:HG21 | 1.76 | 0.67 |
| 11:AL:19:ASN:O | 11:AL:20:VAL:HG23 | 1.95 | 0.67 |
| 23:DB:1437:C:H2' | 23:DB:1438:U:H6 | 1.60 | 0.67 |
| 23:DB:594:U:H2' | 23:DB:595:C:H6 | 1.60 | 0.67 |
| 36:BO:67:ASN:HA | 36:BO:71:ALA:HB3 | 1.75 | 0.67 |
| 1:AA:1479:C:H2' | 1:AA:1480:A:H8 | 1.59 | 0.67 |
| 9:AJ:80:THR:HG22 | 9:AJ:81:GLU:H | 1.60 | 0.67 |
| 44:DX:12:GLU:HG2 | 44:DX:12:GLU:O | 1.94 | 0.67 |
| 23:DB:2088:A:H2' | 23:DB:2089:C:C6 | 2.28 | 0.67 |
| 41:DT:55:VAL:HG23 | 41:DT:87:LEU:H | 1.59 | 0.67 |
| 28:BF:59:ILE:HD11 | 28:BF:137:PHE:CD2 | 2.28 | 0.67 |
| 34:DM:71:LYS:HB2 | 34:DM:72:PRO:HD3 | 1.75 | 0.67 |
| 27:BE:164:LEU:O | 27:BE:165:HIS:HB2 | 1.93 | 0.67 |
| 23:BB:445:C:OP1 | 38:BQ:1:ALA:HB3 | 1.94 | 0.67 |
| 51:B4:20:ASP:OD2 | 51:B4:22:VAL:HG13 | 1.93 | 0.67 |
| 26:BD:138:LEU:CD2 | 26:BD:138:LEU:H | 2.07 | 0.67 |
| 23:DB:833:A:H2' | 23:DB:834:G:C8 | 2.30 | 0.67 |
| 27:BE:60:TRP:NE1 | 27:BE:73:ILE:HD11 | 2.08 | 0.67 |
| 23:DB:2266:A:H4' | 23:DB:2267:A:C2 | 2.30 | 0.67 |
| 23:BB:2834:G:H1' | 23:BB:2883:A:H61 | 1.58 | 0.67 |
| 38:DQ:26:ALA:HA | 38:DQ:30:VAL:HG23 | 1.76 | 0.67 |
| 23:DB:479:A:O2' | 23:DB:481:G:H5' | 1.95 | 0.67 |
| 34:DM:118:LYS:HB2 | 34:DM:118:LYS:NZ | 2.09 | 0.67 |
| 23:BB:2804:U:H2' | 23:BB:2805:C:H6 | 1.58 | 0.67 |
| 29:DG:16:VAL:HG22 | 29:DG:25:ILE:HG13 | 1.77 | 0.67 |
| 20:CB:206:ILE:HG22 | 20:CB:207:ARG:HH21 | 1.57 | 0.67 |
| 23:DB:2880:C:H1' | 35:DN:92:GLY:O | 1.95 | 0.67 |
| 25:DC:26:GLY:C | 25:DC:27:LYS:HD2 | 2.15 | 0.67 |
| 44:BX:55:THR:HG22 | 44:BX:59:GLU:OE1 | 1.95 | 0.67 |
| 20:CB:16:GLY:HA2 | 20:CB:40:ILE:HG13 | 1.77 | 0.67 |
| 25:DC:63:ILE:HD12 | 25:DC:83:ASP:CG | 2.15 | 0.67 |
| 5:CF:3:HIS:HB3 | 5:CF:92:THR:CA | 2.22 | 0.67 |
| 23:DB:2292:U:H2' | 23:DB:2293:G:H8 | 1.60 | 0.67 |
| 23:BB:1250:G:O2' | 23:BB:1251:C:OP1 | 2.12 | 0.67 |
| 23:BB:587:C:OP2 | 33:BL:29:LYS:HA | 1.94 | 0.67 |
| 41:DT:55:VAL:HG22 | 41:DT:56:GLU:N | 2.08 | 0.67 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 25:BC:79:ARG:CZ | 25:BC:110:LYS:HD3 | 2.24 | 0.67 |
| 31:BJ:39:LYS:HZ2 | 38:BQ:69:ARG:HD2 | 1.58 | 0.67 |
| 39:BR:46:GLU:O | 39:BR:47:VAL:HB | 1.95 | 0.67 |
| 26:DD:122:VAL:HA | 26:DD:128:ARG:CG | 2.24 | 0.67 |
| 23:DB:2391:G:OP2 | 50:D3:32:LEU:HG | 1.95 | 0.67 |
| 23:BB:2769:U:H2' | 23:BB:2770:G:H8 | 1.58 | 0.67 |
| 25:BC:21:PRO:HG2 | 25:BC:202:ARG:NH1 | 2.09 | 0.67 |
| 1:CA:1296:C:H4' | 1:CA:1302:C:H41 | 1.60 | 0.67 |
| 42:BU:4:ILE:O | 42:BU:27:VAL:HG11 | 1.95 | 0.67 |
| 25:DC:20:ASN:HB2 | 25:DC:202:ARG:NH1 | 2.10 | 0.67 |
| 4:AE:110:MET:HB3 | 4:AE:139:THR:HG21 | 1.76 | 0.67 |
| 23:DB:598:U:H2' | 23:DB:599:A:H8 | 1.58 | 0.67 |
| 23:BB:1486:U:H2' | 23:BB:1487:U:H6 | 1.59 | 0.67 |
| 27:BE:17:THR:HA | 27:BE:199:MET:HG3 | 1.76 | 0.67 |
| 4:AE:83:PRO:HB3 | 4:AE:96:GLN:HG3 | 1.76 | 0.67 |
| 23:BB:2836:U:H2' | 23:BB:2837:A:H8 | 1.60 | 0.67 |
| 11:CL:93:ARG:H | 11:CL:93:ARG:HD2 | 1.59 | 0.67 |
| 41:BT:38:ALA:O | 41:BT:42:GLU:HB2 | 1.95 | 0.67 |
| 20:CB:27:LYS:HB3 | 20:CB:28:PRO:HD3 | 1.77 | 0.67 |
| 23:BB:282:A:H2' | 23:BB:283:G:C8 | 2.30 | 0.67 |
| 28:BF:9:ASP:O | 28:BF:10:GLU:HB2 | 1.93 | 0.67 |
| 23:DB:2278:A:H62 | 43:DW:10:ARG:HB2 | 1.59 | 0.67 |
| 23:DB:2769:U:H2' | 23:DB:2770:G:H8 | 1.58 | 0.67 |
| 15:AP:9:HIS:HE1 | 15:AP:29:ASN:HB2 | 1.59 | 0.67 |
| 30:DH:6:LEU:CD1 | 30:DH:36:ALA:H | 2.03 | 0.67 |
| 23:DB:2900:A:H2' | 23:DB:2901:C:C6 | 2.30 | 0.67 |
| 20:AB:212:TYR:O | 20:AB:216:VAL:HG23 | 1.94 | 0.67 |
| 32:BK:26:GLY:HA3 | 32:BK:30:ARG:NE | 2.06 | 0.67 |
| 5:AF:12:PRO:HG3 | 5:AF:54:LEU:HG | 1.76 | 0.67 |
| 27:BE:170:ARG:HH21 | 27:BE:175:ILE:HD12 | 1.59 | 0.67 |
| 1:AA:1313:U:H5'' | 18:AS:5:LYS:CG | 2.24 | 0.67 |
| 26:BD:146:ILE:HD12 | 26:BD:146:ILE:N | 2.10 | 0.67 |
| 1:CA:554:A:H5' | 11:CL:25:ALA:HB1 | 1.77 | 0.67 |
| 23:BB:643:A:N6 | 23:BB:2370:G:H1' | 2.10 | 0.67 |
| 25:BC:9:SER:HB2 | 25:BC:202:ARG:CZ | 2.25 | 0.67 |
| 52:DI:27:LEU:CD2 | 52:DI:27:LEU:H | 2.07 | 0.67 |
| 27:DE:6:LYS:HD3 | 27:DE:7:ASP:N | 2.10 | 0.67 |
| 28:DF:39:VAL:HG22 | 28:DF:84:ILE:HD13 | 1.77 | 0.67 |
| 23:BB:751:A:H5' | 40:BS:90:LYS:HE3 | 1.75 | 0.67 |
| 23:BB:589:U:H2' | 23:BB:590:A:C8 | 2.30 | 0.67 |
| 29:DG:40:VAL:HG22 | 29:DG:51:PHE:CE2 | 2.29 | 0.67 |
| 20:CB:202:ASN:HD22 | 20:CB:203:ASP:H | 1.43 | 0.67 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 25:DC:22:GLU:HB2 | 25:DC:202:ARG:CD | 2.25 | 0.67 |
| 23:DB:836:G:H2' | 23:DB:837:C:H6 | 1.58 | 0.67 |
| 29:BG:176:LYS:C | 29:BG:176:LYS:HE2 | 2.15 | 0.67 |
| 25:BC:238:ASN:HB3 | 25:BC:242:HIS:NE2 | 2.09 | 0.67 |
| 40:DS:73:LYS:HD3 | 40:DS:74:ILE:H | 1.58 | 0.67 |
| 2:CC:8:GLY:HA3 | 13:CN:88:MET:SD | 2.35 | 0.67 |
| 12:CM:79:LEU:HD22 | 12:CM:86:ARG:HE | 1.60 | 0.67 |
| 34:DM:80:VAL:HG12 | 34:DM:81:ARG:H | 1.60 | 0.67 |
| 19:AT:48:LYS:O | 19:AT:52:GLU:HB2 | 1.95 | 0.67 |
| 44:DX:51:ALA:O | 44:DX:53:VAL:N | 2.28 | 0.67 |
| 23:DB:1531:C:H2' | 23:DB:1532:A:C8 | 2.29 | 0.67 |
| 1:CA:398:U:H2' | 1:CA:399:G:H8 | 1.60 | 0.67 |
| 1:AA:1170:A:H2' | 1:AA:1171:A:O4' | 1.94 | 0.67 |
| 23:BB:329:G:O6 | 42:BU:16:LYS:HB2 | 1.95 | 0.67 |
| 43:DW:42:THR:HB | 43:DW:75:ASN:CB | 2.24 | 0.67 |
| 23:DB:1568:G:OP1 | 25:DC:61:TYR:HB2 | 1.95 | 0.67 |
| 33:DL:34:GLY:HA3 | 39:DR:85:LYS:HG2 | 1.77 | 0.67 |
| 1:AA:1219:A:H2' | 1:AA:1220:G:H8 | 1.59 | 0.67 |
| 34:BM:35:ALA:O | 34:BM:36:VAL:HG22 | 1.95 | 0.67 |
| 8:AI:82:ILE:O | 8:AI:86:LEU:HD22 | 1.95 | 0.67 |
| 23:BB:1007:C:H5'' | 31:BJ:37:ARG:HH21 | 1.59 | 0.67 |
| 1:AA:764:C:H3' | 1:AA:765:G:N2 | 2.06 | 0.67 |
| 46:BZ:36:VAL:CA | 46:BZ:42:PRO:HB3 | 2.23 | 0.67 |
| 26:DD:48:ILE:HA | 26:DD:80:TRP:HB3 | 1.77 | 0.67 |
| 1:CA:763:G:H2' | 1:CA:764:C:H6 | 1.60 | 0.67 |
| 26:DD:130:GLN:HB3 | 26:DD:140:HIS:HA | 1.77 | 0.67 |
| 52:BI:77:VAL:HA | 52:BI:80:LYS:HE2 | 1.76 | 0.67 |
| 39:DR:47:VAL:CG1 | 39:DR:49:ILE:HG12 | 2.25 | 0.67 |
| 33:DL:39:LYS:H | 33:DL:39:LYS:HZ3 | 1.42 | 0.67 |
| 23:BB:2039:U:H2' | 23:BB:2040:G:C8 | 2.28 | 0.67 |
| 23:BB:721:A:H2' | 23:BB:722:A:C8 | 2.29 | 0.67 |
| 23:BB:2294:G:O2' | 23:BB:2295:C:H5' | 1.95 | 0.67 |
| 6:AG:149:ALA:HB1 | 10:AK:58:THR:HG21 | 1.77 | 0.67 |
| 1:AA:203:G:H1' | 1:AA:465:A:H62 | 1.59 | 0.67 |
| 37:DP:7:LEU:HD23 | 37:DP:11:GLN:HE21 | 1.60 | 0.67 |
| 12:CM:39:ALA:O | 12:CM:42:VAL:HG22 | 1.94 | 0.67 |
| 23:BB:1210:G:H5' | 23:BB:1212:G:O4' | 1.95 | 0.67 |
| 34:BM:3:GLN:O | 34:BM:5:LYS:N | 2.28 | 0.67 |
| 23:BB:442:G:N2 | 27:BE:46:GLN:NE2 | 2.44 | 0.67 |
| 25:DC:107:LYS:CE | 25:DC:108:GLY:H | 2.05 | 0.67 |
| 39:DR:74:ILE:O | 39:DR:75:VAL:HG13 | 1.94 | 0.67 |
| 1:AA:1218:C:H2' | 1:AA:1219:A:H8 | 1.59 | 0.67 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 27:DE:138:LEU:HD22 | 27:DE:187:VAL:HG11 | 1.75 | 0.67 |
| 35:BN:114:GLU:HG2 | 35:BN:115:LEU:H | 1.59 | 0.67 |
| 5:AF:53:LYS:HA | 5:AF:53:LYS:NZ | 2.09 | 0.67 |
| 10:AK:110:THR:HG21 | 21:AU:4:LYS:HD2 | 1.77 | 0.67 |
| 1:CA:1202:U:H1' | 13:CN:68:ARG:HD2 | 1.77 | 0.67 |
| 1:CA:555:U:H2' | 1:CA:556:C:C6 | 2.30 | 0.67 |
| 1:CA:918:A:H2' | 1:CA:919:A:C8 | 2.30 | 0.67 |
| 7:AH:29:SER:HB3 | 7:AH:32:LYS:HG3 | 1.77 | 0.67 |
| 1:CA:673:A:H2' | 1:CA:674:G:C8 | 2.28 | 0.67 |
| 11:AL:20:VAL:HG13 | 11:AL:94:TYR:OH | 1.95 | 0.67 |
| 23:BB:1410:G:H2' | 23:BB:1411:U:C6 | 2.29 | 0.67 |
| 23:BB:2537:U:H2' | 23:BB:2538:C:H6 | 1.60 | 0.67 |
| 20:CB:103:TRP:O | 20:CB:107:ARG:HG3 | 1.95 | 0.67 |
| 1:AA:586:C:O2' | 1:AA:587:G:H5' | 1.94 | 0.67 |
| 22:DA:26:C:H2' | 22:DA:27:C:C6 | 2.29 | 0.67 |
| 9:CJ:12:ALA:HB3 | 9:CJ:18:ILE:HB | 1.75 | 0.67 |
| 16:AQ:29:LYS:HD3 | 16:AQ:35:LYS:N | 2.10 | 0.67 |
| 50:B3:41:ARG:HB3 | 50:B3:43:LEU:HD22 | 1.77 | 0.67 |
| 23:DB:2723:C:H5' | 35:DN:4:ARG:CZ | 2.25 | 0.66 |
| 23:DB:1799:G:H5'' | 25:DC:255:LYS:HE3 | 1.76 | 0.66 |
| 31:DJ:37:ARG:HH21 | 31:DJ:46:PRO:HB3 | 1.59 | 0.66 |
| 35:BN:72:ASP:HB3 | 35:BN:74:GLU:HG3 | 1.76 | 0.66 |
| 26:DD:122:VAL:HG22 | 26:DD:128:ARG:HG3 | 1.77 | 0.66 |
| 26:BD:34:VAL:HG13 | 26:BD:89:GLU:OE2 | 1.94 | 0.66 |
| 4:CE:87:VAL:HG22 | 4:CE:88:HIS:N | 2.09 | 0.66 |
| 20:AB:96:LEU:HB2 | 20:AB:99:MET:HE3 | 1.76 | 0.66 |
| 9:AJ:10:LEU:HG | 9:AJ:98:VAL:HG12 | 1.76 | 0.66 |
| 11:CL:65:TYR:HB2 | 11:CL:92:VAL:HG11 | 1.77 | 0.66 |
| 42:DU:43:LYS:HB2 | 42:DU:43:LYS:HZ2 | 1.60 | 0.66 |
| 1:AA:398:U:H2' | 1:AA:399:G:H8 | 1.60 | 0.66 |
| 1:AA:555:U:H2' | 1:AA:556:C:C6 | 2.30 | 0.66 |
| 1:AA:1193:G:O2' | 1:AA:1194:U:H5' | 1.95 | 0.66 |
| 1:AA:1065:U:H1' | 1:AA:1066:C:OP2 | 1.96 | 0.66 |
| 1:CA:538:G:OP2 | 11:CL:111:GLN:HB2 | 1.94 | 0.66 |
| 5:CF:68:GLN:HA | 5:CF:71:ILE:HG22 | 1.77 | 0.66 |
| 23:BB:833:A:H2' | 23:BB:834:G:C8 | 2.30 | 0.66 |
| 23:DB:2836:U:H2' | 23:DB:2837:A:H8 | 1.60 | 0.66 |
| 1:CA:408:A:OP1 | 3:CD:111:ALA:HB3 | 1.95 | 0.66 |
| 6:CG:70:PRO:HA | 6:CG:141:HIS:HE1 | 1.59 | 0.66 |
| 13:AN:50:LEU:HD23 | 13:AN:51:PRO:HD3 | 1.77 | 0.66 |
| 1:CA:678:U:H2' | 1:CA:679:C:H6 | 1.59 | 0.66 |
| 1:CA:678:U:H2' | 1:CA:679:C:C6 | 2.30 | 0.66 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 51:D4:34:LYS:HE2 | 51:D4:36:ARG:NH2 | 2.10 | 0.66 |
| 31:DJ:132:HIS:HB3 | 31:DJ:136:GLN:OE1 | 1.95 | 0.66 |
| 23:DB:532:A:H4' | 23:DB:533:G:C8 | 2.30 | 0.66 |
| 46:BZ:55:GLY:HA2 | 46:BZ:63:ARG:HG3 | 1.78 | 0.66 |
| 48:D1:16:THR:HG22 | 48:D1:47:ILE:HD12 | 1.77 | 0.66 |
| 16:AQ:75:VAL:HG23 | 16:AQ:76:ARG:H | 1.59 | 0.66 |
| 35:BN:97:ILE:CD1 | 35:BN:113:ILE:HD13 | 2.24 | 0.66 |
| 39:BR:5:PHE:HA | 39:BR:40:MET:CG | 2.25 | 0.66 |
| 1:AA:763:G:H2' | 1:AA:764:C:H6 | 1.59 | 0.66 |
| 30:DH:87:GLU:HB2 | 30:DH:89:LYS:NZ | 2.08 | 0.66 |
| 37:DP:36:LYS:HG2 | 37:DP:37:LYS:HE3 | 1.76 | 0.66 |
| 23:BB:2147:A:H5' | 23:BB:2148:G:C4' | 2.26 | 0.66 |
| 8:CI:98:ARG:HA | 8:CI:103:VAL:HG22 | 1.75 | 0.66 |
| 1:AA:662:U:H2' | 1:AA:663:A:C8 | 2.30 | 0.66 |
| 15:CP:61:VAL:HA | 15:CP:65:ALA:HB3 | 1.77 | 0.66 |
| 23:BB:1082:U:N3 | 23:BB:1086:A:C6 | 2.63 | 0.66 |
| 42:DU:17:ASP:OD2 | 42:DU:20:LYS:HB2 | 1.95 | 0.66 |
| 32:DK:19:VAL:HG12 | 32:DK:43:ILE:HA | 1.77 | 0.66 |
| 9:CJ:8:ILE:HA | 9:CJ:100:ILE:HG22 | 1.76 | 0.66 |
| 23:DB:1486:U:H2' | 23:DB:1487:U:H6 | 1.59 | 0.66 |
| 11:CL:54:VAL:HG11 | 11:CL:79:ILE:HD11 | 1.77 | 0.66 |
| 23:DB:1410:G:H2' | 23:DB:1411:U:C6 | 2.29 | 0.66 |
| 9:CJ:48:ARG:HB3 | 9:CJ:66:GLU:HG3 | 1.78 | 0.66 |
| 1:CA:909:A:H2' | 1:CA:910:C:O4' | 1.95 | 0.66 |
| 42:DU:82:VAL:HB | 42:DU:94:PHE:HB3 | 1.76 | 0.66 |
| 37:DP:55:HIS:C | 37:DP:57:ALA:H | 1.96 | 0.66 |
| 23:BB:2591:C:H2' | 23:BB:2592:G:H8 | 1.59 | 0.66 |
| 21:CU:48:LYS:HA | 21:CU:51:ALA:HB3 | 1.77 | 0.66 |
| 23:BB:2527:C:H1' | 51:B4:1:MET:HB3 | 1.77 | 0.66 |
| 43:DW:31:LEU:HD22 | 43:DW:39:GLN:HE22 | 1.61 | 0.66 |
| 31:BJ:56:VAL:HB | 31:BJ:124:VAL:HA | 1.77 | 0.66 |
| 40:BS:103:ILE:HG13 | 40:BS:105:VAL:HG23 | 1.76 | 0.66 |
| 35:BN:34:ILE:HD13 | 35:BN:34:ILE:N | 2.10 | 0.66 |
| 27:BE:117:ARG:H | 27:BE:118:LEU:HD23 | 1.60 | 0.66 |
| 23:BB:2511:U:O2' | 26:BD:144:GLY:HA3 | 1.94 | 0.66 |
| 26:DD:125:TRP:HB2 | 26:DD:160:LYS:CD | 2.25 | 0.66 |
| 23:DB:2286:G:H1 | 48:D1:23:THR:HG21 | 1.60 | 0.66 |
| 39:DR:6:GLN:HG2 | 39:DR:7:SER:H | 1.60 | 0.66 |
| 1:CA:1078:U:H4' | 4:CE:137:ARG:NH1 | 2.10 | 0.66 |
| 8:CI:29:ILE:HA | 8:CI:64:ILE:HB | 1.76 | 0.66 |
| 23:BB:1437:C:H2' | 23:BB:1438:U:H6 | 1.59 | 0.66 |
| 23:BB:2471:A:HO2' | 23:BB:2472:G:H8 | 1.37 | 0.66 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 42:DU:42:LYS:H | 42:DU:57:ILE:HD12 | 1.58 | 0.66 |
| 23:BB:1212:G:O2' | 23:BB:1236:G:N2 | 2.27 | 0.66 |
| 23:DB:2243:U:H2' | 23:DB:2244:U:C6 | 2.30 | 0.66 |
| 1:CA:1270:G:H2' | 1:CA:1271:A:H8 | 1.61 | 0.66 |
| 1:AA:1116:U:O2' | 1:AA:1117:A:H5' | 1.95 | 0.66 |
| 1:AA:678:U:H2' | 1:AA:679:C:C6 | 2.30 | 0.66 |
| 6:CG:2:ARG:HB3 | 6:CG:2:ARG:NH1 | 2.10 | 0.66 |
| 23:DB:1456:G:O2' | 23:DB:1457:U:H5' | 1.95 | 0.66 |
| 1:CA:731:G:H5' | 1:CA:766:A:H4' | 1.78 | 0.66 |
| 23:DB:857:G:H2' | 23:DB:858:G:H5' | 1.78 | 0.66 |
| 23:BB:161:A:H62 | 23:BB:165:A:H61 | 1.41 | 0.66 |
| 43:BW:66:VAL:HG22 | 43:BW:67:LYS:N | 2.11 | 0.66 |
| 27:DE:105:LEU:O | 27:DE:108:ILE:HG23 | 1.95 | 0.66 |
| 24:DV:4:ILE:O | 24:DV:63:ILE:HA | 1.95 | 0.66 |
| 3:AD:2:ARG:HG3 | 3:AD:114:ARG:CZ | 2.26 | 0.66 |
| 27:BE:148:ILE:HB | 27:BE:185:LYS:O | 1.95 | 0.66 |
| 26:DD:4:LEU:HD22 | 26:DD:51:THR:HB | 1.76 | 0.66 |
| 40:DS:23:LEU:C | 40:DS:24:ILE:HD13 | 2.15 | 0.66 |
| 1:CA:16:A:O2' | 1:CA:17:U:H5' | 1.96 | 0.66 |
| 1:CA:376:G:H5'' | 15:CP:5:ARG:HB2 | 1.76 | 0.66 |
| 23:DB:1082:U:N3 | 23:DB:1086:A:C6 | 2.62 | 0.66 |
| 2:AC:5:HIS:CD2 | 13:AN:88:MET:HB3 | 2.30 | 0.66 |
| 29:BG:40:VAL:HG21 | 29:BG:53:PRO:HA | 1.76 | 0.66 |
| 1:AA:1008:U:H2' | 1:AA:1009:U:C4' | 2.25 | 0.66 |
| 23:BB:1714:U:H3' | 23:BB:1715:G:H5' | 1.77 | 0.66 |
| 23:DB:2531:A:OP1 | 29:DG:176:LYS:HA | 1.95 | 0.66 |
| 41:DT:72:GLN:C | 41:DT:73:ARG:HD2 | 2.16 | 0.66 |
| 25:DC:74:PRO:HB2 | 25:DC:96:LYS:HG3 | 1.78 | 0.66 |
| 9:CJ:37:ARG:HB2 | 9:CJ:76:ILE:HA | 1.75 | 0.66 |
| 29:DG:8:VAL:HB | 29:DG:49:LEU:HB2 | 1.77 | 0.66 |
| 1:AA:72:A:H2' | 1:AA:73:C:H6 | 1.60 | 0.66 |
| 31:BJ:23:LYS:HD2 | 31:BJ:23:LYS:H | 1.61 | 0.66 |
| 1:AA:1163:A:H2' | 1:AA:1164:G:H8 | 1.60 | 0.66 |
| 23:DB:2323:G:O2' | 23:DB:2324:U:H5' | 1.94 | 0.66 |
| 23:DB:1098:A:H3' | 52:DI:3:LYS:C | 2.15 | 0.66 |
| 37:DP:90:ALA:HB3 | 37:DP:112:ARG:N | 2.11 | 0.66 |
| 37:BP:29:VAL:O | 37:BP:31:VAL:HG23 | 1.95 | 0.66 |
| 43:DW:35:ILE:HB | 43:DW:67:LYS:HZ2 | 1.60 | 0.66 |
| 18:AS:49:ALA:HA | 18:AS:57:VAL:O | 1.96 | 0.66 |
| 33:BL:118:THR:H | 33:BL:119:PRO:CD | 2.06 | 0.66 |
| 34:BM:8:LYS:HZ2 | 34:BM:70:ASP:N | 1.92 | 0.66 |
| 34:DM:5:LYS:HD3 | 34:DM:71:LYS:HG2 | 1.77 | 0.66 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 27:BE:5:LEU:H | 27:BE:5:LEU:HD12 | 1.60 | 0.66 |
| 26:DD:35:THR:HB | 26:DD:48:ILE:HB | 1.77 | 0.66 |
| 24:DV:9:ARG:NH1 | 24:DV:12:GLN:HA | 2.09 | 0.66 |
| 52:BI:11:GLN:HA | 52:BI:55:PRO:HA | 1.76 | 0.66 |
| 29:DG:4:ALA:O | 29:DG:5:LYS:HB2 | 1.93 | 0.66 |
| 39:DR:6:GLN:HG2 | 39:DR:7:SER:N | 2.10 | 0.66 |
| 6:CG:113:LYS:HE2 | 6:CG:113:LYS:HA | 1.75 | 0.66 |
| 2:AC:77:GLY:HA3 | 2:AC:82:ASP:H | 1.61 | 0.66 |
| 49:D2:13:ASN:OD1 | 49:D2:17:GLY:HA3 | 1.96 | 0.66 |
| 1:CA:239:U:C5' | 1:CA:239:U:H6 | 2.08 | 0.66 |
| 23:BB:2270:A:H4' | 43:BW:18:LYS:HG2 | 1.78 | 0.66 |
| 1:CA:812:G:HO2' | 1:CA:813:U:H6 | 1.42 | 0.66 |
| 23:BB:469:G:OP2 | 27:BE:55:SER:HB2 | 1.96 | 0.66 |
| 23:BB:1843:C:O4' | 25:BC:250:GLN:HG2 | 1.95 | 0.66 |
| 23:DB:2147:A:H2' | 23:DB:2147:A:N3 | 2.11 | 0.66 |
| 26:DD:114:LYS:HB2 | 26:DD:114:LYS:NZ | 2.10 | 0.66 |
| 23:BB:1381:G:C2' | 23:BB:1382:G:H5' | 2.26 | 0.66 |
| 1:CA:56:U:H2' | 1:CA:57:G:H8 | 1.61 | 0.66 |
| 23:DB:2758:A:C2' | 23:DB:2759:G:H5' | 2.25 | 0.66 |
| 29:DG:153:PRO:HA | 29:DG:159:LYS:O | 1.94 | 0.66 |
| 23:DB:1099:G:C5' | 52:DI:3:LYS:N | 2.59 | 0.66 |
| 1:CA:1461:G:H2' | 1:CA:1462:C:H6 | 1.59 | 0.66 |
| 42:BU:5:ARG:HG2 | 42:BU:6:ARG:H | 1.60 | 0.66 |
| 23:BB:163:C:H2' | 23:BB:164:C:O4' | 1.95 | 0.66 |
| 25:DC:75:ALA:HB1 | 25:DC:93:VAL:HG13 | 1.78 | 0.66 |
| 43:BW:46:ALA:H | 43:BW:75:ASN:CG | 1.99 | 0.66 |
| 23:BB:320:A:H4' | 23:BB:322:A:N7 | 2.11 | 0.66 |
| 15:AP:46:LYS:H | 15:AP:46:LYS:CD | 2.08 | 0.66 |
| 36:DO:25:ARG:CG | 36:DO:94:ARG:HH22 | 2.08 | 0.66 |
| 35:BN:33:ILE:HD13 | 35:BN:33:ILE:N | 2.10 | 0.66 |
| 23:BB:545:U:H2' | 23:BB:547:A:OP2 | 1.94 | 0.66 |
| 26:DD:129:THR:HG23 | 26:DD:130:GLN:H | 1.60 | 0.66 |
| 23:DB:928:A:H1' | 45:DY:1:ALA:HA | 1.77 | 0.66 |
| 45:DY:2:LYS:CB | 45:DY:37:ARG:HB2 | 2.25 | 0.66 |
| 2:CC:176:THR:OG1 | 2:CC:179:ALA:HB2 | 1.96 | 0.66 |
| 42:DU:71:ILE:HD13 | 42:DU:72:PHE:N | 2.11 | 0.66 |
| 37:BP:99:LEU:HD12 | 37:BP:101:GLU:OE2 | 1.96 | 0.66 |
| 23:DB:580:U:H2' | 23:DB:581:C:C6 | 2.29 | 0.66 |
| 1:AA:922:G:H2' | 1:AA:923:A:C8 | 2.31 | 0.66 |
| 1:CA:205:A:H2' | 1:CA:206:C:H6 | 1.61 | 0.66 |
| 1:AA:678:U:H2' | 1:AA:679:C:H6 | 1.59 | 0.66 |
| 23:BB:448:U:H1' | 27:BE:79:ARG:HG3 | 1.76 | 0.66 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 1:AA:1391:U:H2' | 1:AA:1392:G:C8 | 2.31 | 0.66 |
| 23:DB:943:A:P | 33:DL:40:SER:HA | 2.35 | 0.66 |
| 1:CA:1053:G:HO2' | 1:CA:1199:U:H5 | 1.42 | 0.66 |
| 23:DB:1098:A:C4 | 52:DI:3:LYS:O | 2.49 | 0.66 |
| 23:DB:589:U:H2' | 23:DB:590:A:C8 | 2.30 | 0.66 |
| 43:DW:30:VAL:HG12 | 43:DW:31:LEU:H | 1.61 | 0.66 |
| 43:DW:44:PHE:HB3 | 43:DW:77:LYS:HB3 | 1.76 | 0.66 |
| 46:DZ:30:HIS:CE1 | 46:DZ:49:ARG:HH12 | 2.14 | 0.66 |
| 34:BM:100:LYS:HE3 | 34:BM:100:LYS:N | 2.10 | 0.66 |
| 34:DM:16:ARG:HE | 34:DM:18:ARG:HH12 | 1.42 | 0.66 |
| 34:DM:71:LYS:NZ | 34:DM:91:TYR:HB3 | 2.10 | 0.66 |
| 40:BS:70:LYS:HD2 | 40:BS:110:ARG:HA | 1.78 | 0.66 |
| 25:DC:208:GLY:HA2 | 25:DC:212:TRP:HB3 | 1.78 | 0.66 |
| 1:AA:1110:A:H2' | 1:AA:1111:A:H8 | 1.61 | 0.66 |
| 1:CA:1286:U:O2' | 1:CA:1287:A:H5'' | 1.96 | 0.66 |
| 10:CK:124:LYS:HD3 | 21:CU:34:ARG:HD3 | 1.76 | 0.66 |
| 15:AP:51:ARG:C | 15:AP:52:LEU:HD22 | 2.16 | 0.66 |
| 23:DB:1083:U:H1' | 23:DB:1086:A:H61 | 1.60 | 0.66 |
| 1:AA:37:U:P | 11:AL:119:LYS:HB2 | 2.35 | 0.66 |
| 10:CK:12:ARG:C | 10:CK:13:LYS:HD2 | 2.15 | 0.66 |
| 52:DI:41:PHE:O | 52:DI:45:THR:HG23 | 1.96 | 0.66 |
| 25:BC:257:ARG:HA | 25:BC:257:ARG:NH1 | 2.11 | 0.66 |
| 1:AA:731:G:H5' | 1:AA:766:A:H4' | 1.78 | 0.66 |
| 9:CJ:41:PRO:HA | 9:CJ:72:ARG:HD3 | 1.77 | 0.66 |
| 1:AA:555:U:H2' | 1:AA:556:C:H6 | 1.60 | 0.66 |
| 23:BB:1456:G:O2' | 23:BB:1457:U:H5' | 1.95 | 0.66 |
| 3:AD:187:ARG:HA | 3:AD:190:LEU:HD22 | 1.78 | 0.66 |
| 1:CA:312:C:H2' | 1:CA:313:A:C8 | 2.31 | 0.66 |
| 1:AA:539:A:H2' | 1:AA:540:G:C8 | 2.31 | 0.66 |
| 23:DB:564:C:O2' | 23:DB:565:C:H5' | 1.95 | 0.66 |
| 43:DW:42:THR:H | 43:DW:65:LYS:HA | 1.61 | 0.66 |
| 33:BL:78:ARG:HD3 | 33:BL:81:ASP:HB2 | 1.78 | 0.66 |
| 34:BM:22:GLN:HG2 | 34:BM:23:GLY:N | 2.11 | 0.66 |
| 23:DB:143:C:O5' | 23:DB:143:C:H6 | 1.79 | 0.66 |
| 23:DB:65:U:H2' | 23:DB:66:C:H6 | 1.61 | 0.66 |
| 1:CA:1024:G:O2' | 1:CA:1025:U:H5' | 1.94 | 0.66 |
| 23:DB:289:G:H2' | 23:DB:290:U:H6 | 1.58 | 0.66 |
| 26:BD:35:THR:HB | 26:BD:48:ILE:HB | 1.76 | 0.66 |
| 39:DR:41:ILE:HG13 | 39:DR:43:ASN:HD22 | 1.61 | 0.66 |
| 48:B1:15:GLY:H | 48:B1:47:ILE:HD12 | 1.60 | 0.66 |
| 20:CB:137:THR:HA | 20:CB:140:LEU:HD12 | 1.77 | 0.66 |
| 1:CA:1513:A:H2' | 1:CA:1514:G:H8 | 1.60 | 0.66 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 3:AD:56:GLU:HG2 | 3:AD:195:ASN:HD22 | 1.60 | 0.66 |
| 1:AA:239:U:C5' | 1:AA:239:U:H6 | 2.08 | 0.66 |
| 5:CF:47:LEU:HD21 | 5:CF:57:ALA:HB2 | 1.77 | 0.66 |
| 1:AA:16:A:O2' | 1:AA:17:U:H5' | 1.95 | 0.66 |
| 22:DA:47:C:H5' | 36:DO:97:PHE:CZ | 2.31 | 0.66 |
| 40:DS:84:ARG:HH21 | 40:DS:98:LYS:NZ | 1.94 | 0.66 |
| 1:CA:586:C:O2' | 1:CA:587:G:H5' | 1.95 | 0.66 |
| 23:DB:414:C:H2' | 23:DB:415:A:H8 | 1.59 | 0.66 |
| 28:BF:34:THR:HG23 | 28:BF:89:THR:HG22 | 1.76 | 0.66 |
| 23:DB:2591:C:H2' | 23:DB:2592:G:C8 | 2.31 | 0.66 |
| 1:CA:539:A:H2' | 1:CA:540:G:C8 | 2.30 | 0.66 |
| 12:CM:73:SER:HB3 | 12:CM:77:LYS:HE2 | 1.77 | 0.66 |
| 23:DB:235:U:H2' | 23:DB:236:C:C6 | 2.30 | 0.66 |
| 23:BB:1219:U:H2' | 23:BB:1220:G:C8 | 2.30 | 0.66 |
| 44:BX:49:ASP:HB3 | 44:BX:52:ARG:HH21 | 1.59 | 0.66 |
| 1:CA:1462:C:H4' | 37:DP:110:LYS:HE2 | 1.77 | 0.66 |
| 31:BJ:24:THR:HB | 31:BJ:27:ARG:HB2 | 1.78 | 0.66 |
| 23:BB:2461:A:H2' | 23:BB:2462:C:H6 | 1.59 | 0.66 |
| 35:BN:28:LEU:H | 35:BN:28:LEU:HD12 | 1.61 | 0.66 |
| 26:DD:95:SER:C | 26:DD:96:ILE:HG13 | 2.16 | 0.66 |
| 23:BB:142:A:H2' | 23:BB:143:C:C6 | 2.31 | 0.66 |
| 10:CK:12:ARG:N | 10:CK:76:TYR:HA | 2.10 | 0.66 |
| 23:BB:2246:G:H2' | 23:BB:2247:A:C8 | 2.30 | 0.66 |
| 29:BG:86:LEU:HB2 | 29:BG:130:ILE:HB | 1.76 | 0.66 |
| 6:CG:42:VAL:O | 6:CG:46:LEU:HB2 | 1.96 | 0.66 |
| 1:AA:1300:G:H1' | 1:AA:1301:U:C5 | 2.31 | 0.66 |
| 12:CM:78:ARG:O | 12:CM:82:LEU:HG | 1.95 | 0.66 |
| 23:DB:304:U:H2' | 23:DB:305:C:C6 | 2.31 | 0.66 |
| 52:BI:91:LYS:HB2 | 52:BI:94:LYS:HD2 | 1.78 | 0.66 |
| 1:CA:997:U:H2' | 1:CA:998:C:C6 | 2.30 | 0.66 |
| 44:DX:11:VAL:HG12 | 44:DX:13:GLU:H | 1.60 | 0.66 |
| 37:DP:71:ARG:O | 37:DP:72:VAL:HG22 | 1.96 | 0.66 |
| 31:BJ:71:ASP:CG | 31:BJ:72:LYS:N | 2.47 | 0.66 |
| 23:DB:813:U:H2' | 23:DB:814:C:C6 | 2.31 | 0.66 |
| 30:BH:26:ALA:HA | 30:BH:30:LEU:HB2 | 1.77 | 0.66 |
| 26:BD:170:VAL:HG13 | 26:BD:171:THR:N | 2.08 | 0.66 |
| 5:CF:35:LYS:O | 5:CF:64:VAL:HG13 | 1.95 | 0.66 |
| 39:BR:23:GLU:HA | 39:BR:96:VAL:HG13 | 1.77 | 0.66 |
| 2:AC:154:GLY:HA3 | 2:AC:162:ALA:HB1 | 1.75 | 0.66 |
| 23:BB:1060:U:OP2 | 52:BI:74:PRO:HA | 1.95 | 0.66 |
| 8:CI:14:SER:HA | 8:CI:68:GLY:O | 1.96 | 0.66 |
| 31:DJ:97:PRO:O | 31:DJ:100:VAL:HG12 | 1.96 | 0.66 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 1:CA:1422:G:O2' | 1:CA:1423:G:H5' | 1.95 | 0.66 |
| 46:DZ:27:THR:O | 46:DZ:28:VAL:HG13 | 1.96 | 0.66 |
| 23:DB:728:G:H1' | 25:DC:16:VAL:HG21 | 1.77 | 0.66 |
| 16:CQ:45:VAL:HG21 | 16:CQ:60:ILE:HG21 | 1.77 | 0.66 |
| 25:BC:204:LEU:HB3 | 25:BC:210:ALA:HB1 | 1.78 | 0.66 |
| 23:BB:1645:G:H5'' | 23:BB:1646:C:H5' | 1.78 | 0.66 |
| 1:CA:960:U:O2' | 1:CA:1223:C:H5' | 1.96 | 0.66 |
| 23:BB:594:U:H2' | 23:BB:595:C:H6 | 1.60 | 0.66 |
| 11:AL:106:VAL:HG22 | 11:AL:116:TYR:HB3 | 1.76 | 0.66 |
| 33:BL:142:ILE:HG13 | 33:BL:143:GLU:N | 2.10 | 0.66 |
| 24:DV:53:LYS:HZ2 | 24:DV:55:GLU:HG2 | 1.60 | 0.66 |
| 28:BF:125:GLY:HA3 | 28:BF:159:ALA:HB3 | 1.77 | 0.66 |
| 1:AA:56:U:H2' | 1:AA:57:G:H8 | 1.61 | 0.66 |
| 9:AJ:6:ILE:HA | 9:AJ:102:LEU:HG | 1.78 | 0.66 |
| 42:DU:22:GLY:HA3 | 42:DU:35:VAL:HG23 | 1.78 | 0.66 |
| 4:CE:81:GLN:HE22 | 4:CE:148:SER:HA | 1.61 | 0.66 |
| 23:BB:564:C:O2' | 23:BB:565:C:H5' | 1.95 | 0.66 |
| 1:CA:105:G:H2' | 1:CA:106:C:C6 | 2.31 | 0.66 |
| 11:AL:42:LYS:HE3 | 11:AL:90:PRO:HD3 | 1.78 | 0.66 |
| 1:CA:1132:C:H2' | 1:CA:1133:G:C8 | 2.30 | 0.66 |
| 37:BP:38:ARG:HG3 | 37:BP:39:LEU:H | 1.61 | 0.66 |
| 7:AH:55:LYS:HA | 7:AH:55:LYS:HE3 | 1.77 | 0.66 |
| 34:DM:55:ARG:O | 34:DM:57:VAL:HG23 | 1.96 | 0.65 |
| 51:D4:2:LYS:HB2 | 51:D4:2:LYS:NZ | 2.10 | 0.65 |
| 23:BB:691:C:H4' | 25:BC:42:ARG:NE | 2.11 | 0.65 |
| 35:DN:45:ARG:NH2 | 35:DN:113:ILE:HG23 | 2.04 | 0.65 |
| 35:DN:45:ARG:CZ | 35:DN:95:THR:HB | 2.26 | 0.65 |
| 25:DC:161:VAL:HG12 | 25:DC:173:LEU:HD22 | 1.77 | 0.65 |
| 23:BB:857:G:C2' | 23:BB:858:G:H5' | 2.26 | 0.65 |
| 38:BQ:85:ALA:CB | 38:BQ:88:GLU:HB2 | 2.26 | 0.65 |
| 13:CN:11:LYS:O | 13:CN:15:LEU:HG | 1.96 | 0.65 |
| 23:BB:2049:G:O2' | 23:BB:2050:C:H5' | 1.96 | 0.65 |
| 26:BD:167:ASN:H | 26:BD:167:ASN:HD22 | 1.43 | 0.65 |
| 4:CE:131:ASN:O | 4:CE:135:VAL:HG23 | 1.95 | 0.65 |
| 23:BB:704:G:H1' | 23:BB:727:A:H61 | 1.60 | 0.65 |
| 1:CA:376:G:H4' | 15:CP:5:ARG:HD3 | 1.78 | 0.65 |
| 13:AN:30:ILE:HB | 13:AN:44:VAL:HG11 | 1.78 | 0.65 |
| 25:DC:20:ASN:HB2 | 25:DC:202:ARG:HD3 | 1.78 | 0.65 |
| 41:BT:77:ARG:HG2 | 41:BT:78:SER:H | 1.60 | 0.65 |
| 5:AF:86:ARG:NH1 | 17:AR:63:TYR:HB3 | 2.11 | 0.65 |
| 24:DV:2:PHE:HB2 | 24:DV:61:LEU:HD22 | 1.78 | 0.65 |
| 44:DX:31:GLN:HE21 | 44:DX:31:GLN:HA | 1.59 | 0.65 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:BB:1534:U:HO2' | 23:BB:1535:A:H8 | 1.42 | 0.65 |
| 2:CC:166:TRP:CG | 2:CC:167:TYR:N | 2.65 | 0.65 |
| 31:DJ:18:VAL:O | 31:DJ:56:VAL:HA | 1.96 | 0.65 |
| 23:BB:2758:A:H2' | 23:BB:2759:G:O4' | 1.96 | 0.65 |
| 23:DB:2295:C:O2' | 23:DB:2296:U:H5' | 1.96 | 0.65 |
| 1:CA:1119:C:H2' | 1:CA:1120:C:H6 | 1.60 | 0.65 |
| 23:BB:869:G:H2' | 23:BB:870:U:H6 | 1.61 | 0.65 |
| 39:DR:74:ILE:HG13 | 39:DR:76:LYS:HG3 | 1.78 | 0.65 |
| 9:AJ:37:ARG:NE | 9:AJ:77:VAL:HG11 | 2.12 | 0.65 |
| 31:DJ:41:LYS:HZ3 | 31:DJ:45:THR:HA | 1.62 | 0.65 |
| 1:CA:1320:C:OP1 | 18:CS:69:LYS:HE3 | 1.96 | 0.65 |
| 35:BN:49:GLU:HB2 | 35:BN:50:PRO:HD3 | 1.77 | 0.65 |
| 23:BB:2027:G:O2' | 23:BB:2028:U:H5' | 1.96 | 0.65 |
| 51:D4:3:VAL:HG12 | 51:D4:4:ARG:N | 2.07 | 0.65 |
| 43:DW:19:ARG:NH1 | 43:DW:19:ARG:HB2 | 2.11 | 0.65 |
| 26:DD:146:ILE:HG12 | 26:DD:155:VAL:HG13 | 1.76 | 0.65 |
| 4:CE:87:VAL:HG13 | 4:CE:88:HIS:N | 2.10 | 0.65 |
| 21:AU:39:LYS:N | 21:AU:40:PRO:HD2 | 2.10 | 0.65 |
| 45:BY:6:ILE:HD13 | 45:BY:6:ILE:H | 1.61 | 0.65 |
| 23:DB:2012:G:H4' | 40:DS:96:ILE:HD11 | 1.78 | 0.65 |
| 23:DB:2443:C:H2' | 23:DB:2444:G:C8 | 2.31 | 0.65 |
| 1:CA:501:C:H2' | 1:CA:502:A:C8 | 2.31 | 0.65 |
| 1:CA:37:U:OP1 | 11:CL:120:ARG:HB3 | 1.96 | 0.65 |
| 1:CA:1060:U:H2' | 1:CA:1061:G:H8 | 1.61 | 0.65 |
| 23:BB:1076:C:H4' | 52:BI:94:LYS:NZ | 2.11 | 0.65 |
| 23:BB:1533:C:O2' | 23:BB:1534:U:H5' | 1.95 | 0.65 |
| 1:AA:105:G:H2' | 1:AA:106:C:C6 | 2.31 | 0.65 |
| 23:BB:6:A:H2' | 23:BB:7:G:H8 | 1.62 | 0.65 |
| 1:AA:312:C:H2' | 1:AA:313:A:C8 | 2.30 | 0.65 |
| 37:DP:50:ARG:HH12 | 37:DP:62:LYS:HB2 | 1.59 | 0.65 |
| 25:BC:139:THR:HA | 25:BC:193:GLU:OE1 | 1.96 | 0.65 |
| 26:DD:46:ARG:HA | 26:DD:82:PHE:HA | 1.79 | 0.65 |
| 43:BW:44:PHE:O | 43:BW:75:ASN:HB3 | 1.96 | 0.65 |
| 46:DZ:5:ILE:O | 46:DZ:51:VAL:HG13 | 1.96 | 0.65 |
| 34:DM:40:ARG:HA | 34:DM:92:TRP:HE1 | 1.62 | 0.65 |
| 23:DB:1197:G:H2' | 23:DB:1198:U:H6 | 1.62 | 0.65 |
| 26:DD:146:ILE:N | 26:DD:146:ILE:HD12 | 2.11 | 0.65 |
| 26:DD:151:THR:O | 26:DD:153:GLY:N | 2.28 | 0.65 |
| 23:DB:2027:G:O2' | 23:DB:2028:U:H5' | 1.96 | 0.65 |
| 10:CK:88:PRO:CD | 21:CU:28:LEU:HD13 | 2.26 | 0.65 |
| 25:BC:21:PRO:O | 25:BC:22:GLU:HB2 | 1.96 | 0.65 |
| 23:DB:899:A:H3' | 23:DB:900:A:C8 | 2.30 | 0.65 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 1:AA:93:U:H3' | 1:AA:94:G:H5'' | 1.78 | 0.65 |
| 1:CA:389:A:H3' | 1:CA:390:U:H6 | 1.61 | 0.65 |
| 23:DB:1590:A:H2' | 23:DB:1591:A:C8 | 2.32 | 0.65 |
| 23:DB:2307:G:H2' | 23:DB:2307:G:N3 | 2.11 | 0.65 |
| 23:BB:1590:A:H2' | 23:BB:1591:A:C8 | 2.32 | 0.65 |
| 3:CD:30:LYS:HB2 | 3:CD:30:LYS:HZ2 | 1.61 | 0.65 |
| 20:CB:208:ALA:O | 20:CB:211:LEU:HB3 | 1.96 | 0.65 |
| 1:CA:518:C:H2' | 1:CA:530:G:C8 | 2.31 | 0.65 |
| 23:DB:181:A:H1' | 23:DB:435:C:H5' | 1.78 | 0.65 |
| 44:BX:9:LYS:HE3 | 44:BX:11:VAL:HG13 | 1.78 | 0.65 |
| 23:DB:1381:G:C2' | 23:DB:1382:G:H5' | 2.26 | 0.65 |
| 42:DU:59:GLU:HG2 | 42:DU:60:LYS:N | 2.10 | 0.65 |
| 42:BU:7:ASP:CA | 42:BU:24:VAL:HA | 2.26 | 0.65 |
| 23:BB:1112:G:H4' | 29:BG:2:ARG:HG2 | 1.78 | 0.65 |
| 34:BM:3:GLN:CD | 34:BM:5:LYS:H | 1.98 | 0.65 |
| 47:D0:41:HIS:HB3 | 47:D0:47:TYR:H | 1.62 | 0.65 |
| 23:DB:4:U:H2' | 23:DB:5:A:C8 | 2.31 | 0.65 |
| 27:BE:130:LYS:HA | 27:BE:130:LYS:HE2 | 1.77 | 0.65 |
| 20:AB:52:ALA:O | 20:AB:56:LEU:HD13 | 1.96 | 0.65 |
| 47:B0:2:VAL:HG22 | 47:B0:3:GLN:N | 2.11 | 0.65 |
| 1:CA:1343:G:H2' | 1:CA:1344:C:C6 | 2.31 | 0.65 |
| 33:DL:63:LYS:HB2 | 50:D3:26:ALA:HB2 | 1.78 | 0.65 |
| 26:DD:122:VAL:HG21 | 26:DD:141:ARG:HD3 | 1.78 | 0.65 |
| 26:BD:92:VAL:HG22 | 26:BD:94:GLN:HB2 | 1.78 | 0.65 |
| 13:CN:31:SER:HA | 13:CN:40:ARG:HA | 1.77 | 0.65 |
| 8:CI:94:ARG:HD3 | 8:CI:97:LEU:HD12 | 1.79 | 0.65 |
| 25:BC:10:PRO:HD2 | 25:BC:202:ARG:NH1 | 2.11 | 0.65 |
| 23:BB:95:A:H4' | 44:BX:40:SER:HB3 | 1.78 | 0.65 |
| 47:D0:27:LEU:N | 47:D0:27:LEU:HD22 | 2.11 | 0.65 |
| 23:BB:2008:C:H2' | 23:BB:2009:A:C8 | 2.31 | 0.65 |
| 23:BB:936:A:H2' | 23:BB:937:C:C6 | 2.30 | 0.65 |
| 23:DB:1714:U:H3' | 23:DB:1715:G:H5' | 1.77 | 0.65 |
| 23:DB:2461:A:H2' | 23:DB:2462:C:H6 | 1.60 | 0.65 |
| 29:DG:39:ALA:O | 29:DG:41:GLU:HG3 | 1.96 | 0.65 |
| 24:BV:76:ASP:HB2 | 34:BM:136:MET:HG3 | 1.78 | 0.65 |
| 28:BF:110:ILE:HG22 | 28:BF:112:ASP:H | 1.61 | 0.65 |
| 23:DB:225:C:O2' | 23:DB:226:A:H5' | 1.97 | 0.65 |
| 23:BB:710:U:H2' | 23:BB:711:G:H8 | 1.61 | 0.65 |
| 1:AA:1381:U:O2' | 1:AA:1382:C:H5' | 1.97 | 0.65 |
| 25:DC:32:LEU:HA | 25:DC:81:GLU:OE2 | 1.96 | 0.65 |
| 11:AL:37:TYR:HB2 | 11:AL:51:VAL:HG23 | 1.79 | 0.65 |
| 38:DQ:9:ALA:O | 38:DQ:12:ARG:HB3 | 1.97 | 0.65 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 44:BX:5:GLU:H | 44:BX:7:ARG:HE | 1.44 | 0.65 |
| 37:BP:52:ARG:HG2 | 37:BP:54:LEU:HB2 | 1.77 | 0.65 |
| 15:AP:42:ILE:HG22 | 15:AP:43:ALA:N | 2.12 | 0.65 |
| 13:AN:12:ARG:HH11 | 13:AN:60:ARG:NH1 | 1.94 | 0.65 |
| 36:DO:4:LYS:HD2 | 36:DO:5:SER:N | 2.12 | 0.65 |
| 50:D3:49:VAL:HG22 | 50:D3:50:SER:N | 2.08 | 0.65 |
| 40:BS:17:VAL:HA | 40:BS:43:ALA:HB1 | 1.77 | 0.65 |
| 38:BQ:47:ARG:O | 38:BQ:51:GLN:HB3 | 1.97 | 0.65 |
| 42:BU:44:HIS:HB2 | 42:BU:56:GLY:N | 2.11 | 0.65 |
| 27:DE:1:MET:HG3 | 27:DE:18:THR:OG1 | 1.96 | 0.65 |
| 1:AA:967:C:OP1 | 1:AA:969:A:H5' | 1.97 | 0.65 |
| 52:DI:108:ILE:HG22 | 52:DI:128:ILE:HD13 | 1.79 | 0.65 |
| 23:DB:1645:G:H5'' | 23:DB:1646:C:H5' | 1.78 | 0.65 |
| 1:CA:190:A:O5' | 1:CA:190:A:H8 | 1.80 | 0.65 |
| 18:CS:62:THR:H | 18:CS:65:MET:HE3 | 1.62 | 0.65 |
| 23:BB:2591:C:H2' | 23:BB:2592:G:C8 | 2.31 | 0.65 |
| 1:CA:1132:C:H2' | 1:CA:1133:G:H8 | 1.61 | 0.65 |
| 20:CB:153:MET:SD | 20:CB:157:PRO:HD3 | 2.35 | 0.65 |
| 23:DB:1360:G:H2' | 23:DB:1361:G:H5' | 1.79 | 0.65 |
| 23:BB:1856:U:H2' | 23:BB:1857:G:O4' | 1.96 | 0.65 |
| 2:AC:88:LYS:HD3 | 2:AC:88:LYS:O | 1.97 | 0.65 |
| 12:CM:48:SER:H | 12:CM:51:GLN:HE22 | 1.43 | 0.65 |
| 29:DG:169:ARG:NH1 | 29:DG:169:ARG:HB2 | 2.10 | 0.65 |
| 22:DA:5:U:H2' | 22:DA:6:G:H8 | 1.61 | 0.65 |
| 23:DB:587:C:C3' | 33:DL:29:LYS:HD2 | 2.13 | 0.65 |
| 23:BB:2204:G:C5' | 25:BC:149:LYS:HE3 | 2.21 | 0.65 |
| 47:D0:47:TYR:HB3 | 47:D0:52:LYS:N | 2.11 | 0.65 |
| 36:DO:25:ARG:HE | 36:DO:94:ARG:NH1 | 1.94 | 0.65 |
| 23:BB:1155:A:H61 | 45:BY:10:ARG:NH1 | 1.94 | 0.65 |
| 27:BE:190:ALA:HB1 | 27:BE:193:VAL:HB | 1.79 | 0.65 |
| 33:DL:59:ARG:NH1 | 50:D3:58:ILE:HG21 | 2.12 | 0.65 |
| 23:BB:2784:U:H5'' | 26:BD:41:ALA:HB1 | 1.79 | 0.65 |
| 52:DI:32:VAL:HG22 | 52:DI:60:VAL:HG21 | 1.78 | 0.65 |
| 14:AO:81:ILE:HA | 14:AO:86:LEU:HD12 | 1.78 | 0.65 |
| 2:AC:19:SER:HB2 | 2:AC:39:ARG:HH22 | 1.61 | 0.65 |
| 2:AC:72:PRO:O | 2:AC:76:ILE:HG12 | 1.95 | 0.65 |
| 23:BB:2876:G:H4' | 37:BP:2:ASN:HA | 1.77 | 0.65 |
| 23:BB:423:A:H5' | 23:BB:424:G:C5' | 2.26 | 0.65 |
| 41:BT:64:LYS:HB3 | 41:BT:77:ARG:HH11 | 1.60 | 0.65 |
| 20:AB:112:ARG:O | 20:AB:116:LEU:HB2 | 1.96 | 0.65 |
| 1:CA:163:C:H2' | 1:CA:164:G:O4' | 1.97 | 0.65 |
| 23:DB:1856:U:H2' | 23:DB:1857:G:O4' | 1.96 | 0.65 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 36:BO:98:GLN:O | 36:BO:103:VAL:HG21 | 1.97 | 0.65 |
| 5:CF:39:LEU:HD22 | 5:CF:39:LEU:O | 1.97 | 0.65 |
| 23:BB:2133:G:N3 | 23:BB:2133:G:H2' | 2.10 | 0.65 |
| 1:AA:1118:U:H1' | 1:AA:1179:A:C4 | 2.31 | 0.65 |
| 23:DB:25:U:H5'' | 40:DS:80:PRO:HD3 | 1.78 | 0.65 |
| 20:AB:185:ILE:HA | 20:AB:199:ILE:HB | 1.78 | 0.65 |
| 35:DN:42:LYS:HE3 | 35:DN:42:LYS:HA | 1.78 | 0.65 |
| 25:DC:171:VAL:HA | 25:DC:183:VAL:O | 1.97 | 0.65 |
| 31:BJ:58:ASN:HA | 31:BJ:126:ALA:HA | 1.78 | 0.65 |
| 27:BE:128:ALA:HA | 27:BE:157:LEU:HD22 | 1.79 | 0.65 |
| 33:BL:63:LYS:HG2 | 50:B3:11:LYS:HA | 1.77 | 0.65 |
| 39:BR:75:VAL:H | 39:BR:90:ARG:HE | 1.43 | 0.65 |
| 41:DT:48:GLN:CA | 41:DT:53:VAL:HG22 | 2.25 | 0.65 |
| 9:CJ:56:HIS:O | 9:CJ:57:VAL:HG12 | 1.96 | 0.65 |
| 32:DK:99:ILE:HD13 | 32:DK:115:ILE:HG13 | 1.78 | 0.65 |
| 28:DF:83:PRO:O | 28:DF:84:ILE:HD12 | 1.96 | 0.65 |
| 29:DG:53:PRO:HG2 | 29:DG:61:TRP:CZ3 | 2.32 | 0.65 |
| 16:CQ:10:ARG:NH2 | 16:CQ:11:VAL:HB | 2.11 | 0.65 |
| 28:BF:107:VAL:N | 28:BF:108:PRO:HD2 | 2.12 | 0.65 |
| 23:DB:179:C:H5'' | 49:D2:28:ARG:HH12 | 1.60 | 0.65 |
| 35:DN:107:ASN:HD22 | 40:DS:40:ASN:HD22 | 1.43 | 0.65 |
| 23:BB:1901:A:H1' | 25:BC:250:GLN:HE22 | 1.60 | 0.65 |
| 1:AA:1171:A:H2' | 1:AA:1172:C:H6 | 1.62 | 0.65 |
| 12:CM:74:MET:HE2 | 12:CM:77:LYS:HD2 | 1.79 | 0.65 |
| 1:AA:312:C:H2' | 1:AA:313:A:H8 | 1.62 | 0.65 |
| 1:CA:1527:U:H2' | 1:CA:1528:U:C6 | 2.31 | 0.65 |
| 23:DB:222:A:N6 | 23:DB:232:G:H1' | 2.12 | 0.65 |
| 23:BB:813:U:H2' | 23:BB:814:C:C6 | 2.32 | 0.65 |
| 23:BB:958:U:C4 | 34:BM:18:ARG:HB2 | 2.31 | 0.65 |
| 5:AF:17:GLN:HG2 | 5:AF:21:MET:HG3 | 1.78 | 0.65 |
| 28:BF:18:GLU:O | 28:BF:19:PHE:HB3 | 1.97 | 0.65 |
| 10:CK:115:ILE:HD12 | 10:CK:115:ILE:O | 1.96 | 0.65 |
| 1:CA:882:C:O2' | 1:CA:883:C:H5' | 1.96 | 0.65 |
| 23:BB:161:A:C3' | 23:BB:162:U:H5'' | 2.19 | 0.65 |
| 26:DD:1:MET:HB2 | 26:DD:81:GLU:OE1 | 1.97 | 0.65 |
| 33:BL:77:ILE:HB | 33:BL:110:VAL:CG2 | 2.26 | 0.65 |
| 23:DB:139:U:H3' | 23:DB:139:U:P | 2.37 | 0.65 |
| 19:AT:68:LYS:CG | 19:AT:69:ASN:H | 2.05 | 0.65 |
| 12:AM:44:ILE:HA | 12:AM:47:LEU:HD13 | 1.79 | 0.65 |
| 3:CD:141:VAL:HG12 | 3:CD:180:THR:HA | 1.77 | 0.65 |
| 26:DD:48:ILE:HG22 | 26:DD:49:GLN:N | 2.12 | 0.65 |
| 33:DL:77:ILE:HB | 33:DL:110:VAL:HA | 1.77 | 0.65 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:DB:1262:A:H2 | 47:D0:6:LYS:HD2 | 1.62 | 0.65 |
| 39:DR:6:GLN:NE2 | 39:DR:41:ILE:HB | 2.12 | 0.65 |
| 14:AO:70:LYS:HZ1 | 14:AO:74:VAL:HG13 | 1.62 | 0.65 |
| 35:DN:73:ASN:O | 35:DN:76:VAL:HG12 | 1.96 | 0.65 |
| 5:CF:53:LYS:HD3 | 5:CF:54:LEU:HB2 | 1.79 | 0.65 |
| 1:AA:1471:U:O2' | 1:AA:1472:U:H5' | 1.97 | 0.65 |
| 23:DB:1515:A:H2' | 23:DB:1516:G:O4' | 1.97 | 0.65 |
| 23:DB:2537:U:H2' | 23:DB:2538:C:H6 | 1.60 | 0.65 |
| 30:DH:53:GLU:OE1 | 30:DH:57:LYS:HD2 | 1.96 | 0.65 |
| 1:CA:1380:U:O4 | 6:CG:2:ARG:HB2 | 1.97 | 0.65 |
| 22:DA:5:U:H2' | 22:DA:6:G:C8 | 2.32 | 0.65 |
| 27:BE:84:THR:HG23 | 27:BE:85:PHE:H | 1.61 | 0.65 |
| 10:AK:30:ILE:HG22 | 10:AK:45:THR:HA | 1.79 | 0.65 |
| 8:CI:33:SER:H | 8:CI:36:GLN:HB2 | 1.61 | 0.65 |
| 49:B2:25:LYS:HE3 | 49:B2:25:LYS:N | 2.10 | 0.65 |
| 1:CA:372:C:H1' | 1:CA:373:A:OP2 | 1.97 | 0.65 |
| 1:CA:1191:A:OP1 | 2:CC:3:LYS:HG3 | 1.97 | 0.65 |
| 1:CA:1069:C:H4' | 1:CA:1192:C:O2 | 1.97 | 0.65 |
| 1:CA:1386:G:H2' | 1:CA:1387:G:H8 | 1.61 | 0.65 |
| 23:DB:1105:U:H2' | 23:DB:1106:G:H8 | 1.60 | 0.65 |
| 1:AA:882:C:O2' | 1:AA:883:C:H5' | 1.96 | 0.65 |
| 1:AA:163:C:H2' | 1:AA:164:G:O4' | 1.97 | 0.65 |
| 6:CG:15:PRO:HG2 | 6:CG:43:TYR:OH | 1.96 | 0.65 |
| 23:BB:1979:U:O2' | 23:BB:1980:G:H5' | 1.96 | 0.65 |
| 25:BC:117:SER:HB3 | 25:BC:127:ASN:ND2 | 2.12 | 0.65 |
| 47:D0:29:VAL:HB | 47:D0:34:GLY:HA2 | 1.77 | 0.65 |
| 35:DN:38:LEU:HB3 | 35:DN:39:PRO:HD3 | 1.78 | 0.65 |
| 25:DC:170:TYR:O | 25:DC:171:VAL:HG13 | 1.96 | 0.65 |
| 31:BJ:17:VAL:HG23 | 31:BJ:139:VAL:HB | 1.79 | 0.65 |
| 43:BW:57:THR:O | 43:BW:58:LEU:HB3 | 1.96 | 0.65 |
| 27:DE:149:ILE:HD11 | 27:DE:188:MET:N | 2.12 | 0.65 |
| 46:BZ:32:LEU:HD11 | 46:BZ:47:LYS:HG3 | 1.78 | 0.65 |
| 38:BQ:16:ILE:HD13 | 38:BQ:34:ALA:HB2 | 1.77 | 0.65 |
| 34:DM:71:LYS:HZ3 | 34:DM:91:TYR:HB3 | 1.61 | 0.65 |
| 23:DB:1368:G:H5'' | 49:D2:25:LYS:CG | 2.23 | 0.65 |
| 26:DD:33:ARG:O | 26:DD:34:VAL:HG22 | 1.96 | 0.65 |
| 13:CN:25:GLU:O | 13:CN:29:ILE:HG13 | 1.97 | 0.65 |
| 4:CE:87:VAL:HG13 | 4:CE:88:HIS:H | 1.61 | 0.65 |
| 42:DU:11:ILE:HG22 | 42:DU:12:VAL:H | 1.61 | 0.65 |
| 23:BB:277:G:H5'' | 23:BB:278:A:N7 | 2.12 | 0.65 |
| 29:DG:10:VAL:HA | 29:DG:14:VAL:HG11 | 1.77 | 0.65 |
| 48:D1:24:LYS:C | 48:D1:24:LYS:HZ2 | 1.99 | 0.65 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:DB:2285:C:C5 | 48:D1:7:LYS:HE3 | 2.32 | 0.65 |
| 29:BG:157:LYS:HB2 | 29:BG:159:LYS:HG2 | 1.78 | 0.65 |
| 28:DF:7:TYR:O | 28:DF:12:VAL:HG23 | 1.97 | 0.65 |
| 23:BB:416:U:H2' | 23:BB:417:C:C6 | 2.31 | 0.65 |
| 1:CA:1270:G:H2' | 1:CA:1271:A:C8 | 2.32 | 0.65 |
| 6:CG:63:VAL:HG12 | 6:CG:126:ALA:HB1 | 1.78 | 0.65 |
| 1:CA:1036:A:H2' | 1:CA:1037:C:C6 | 2.31 | 0.65 |
| 23:DB:4:U:H2' | 23:DB:5:A:H8 | 1.60 | 0.65 |
| 38:DQ:50:ARG:CZ | 38:DQ:50:ARG:HA | 2.26 | 0.65 |
| 30:BH:3:VAL:HB | 30:BH:37:VAL:CB | 2.26 | 0.65 |
| 23:DB:144:A:C2 | 41:DT:3:ARG:NH2 | 2.65 | 0.65 |
| 31:DJ:41:LYS:HD2 | 31:DJ:44:TYR:HB3 | 1.79 | 0.65 |
| 1:AA:1295:U:H2' | 1:AA:1296:C:C6 | 2.32 | 0.65 |
| 10:AK:22:ILE:HD13 | 10:AK:95:THR:CG2 | 2.27 | 0.65 |
| 25:DC:224:MET:CA | 25:DC:233:GLY:H | 2.09 | 0.65 |
| 23:DB:2286:G:H1 | 48:D1:23:THR:CG2 | 2.10 | 0.65 |
| 24:DV:25:LYS:HE2 | 24:DV:41:GLU:CB | 2.27 | 0.65 |
| 4:CE:109:ALA:HB1 | 4:CE:136:VAL:HG13 | 1.77 | 0.65 |
| 46:DZ:24:ILE:HD13 | 46:DZ:24:ILE:N | 2.11 | 0.65 |
| 7:CH:11:THR:HA | 7:CH:14:ARG:NH1 | 2.11 | 0.65 |
| 23:DB:1179:G:H2' | 23:DB:1180:U:H6 | 1.62 | 0.65 |
| 39:BR:24:LYS:HD3 | 39:BR:66:HIS:NE2 | 2.12 | 0.65 |
| 39:BR:65:ALA:HB3 | 39:BR:99:THR:H | 1.61 | 0.65 |
| 37:BP:38:ARG:HH11 | 37:BP:38:ARG:HA | 1.62 | 0.65 |
| 23:DB:224:U:O4 | 23:DB:420:C:H5' | 1.97 | 0.65 |
| 23:DB:1979:U:O2' | 23:DB:1980:G:H5' | 1.96 | 0.65 |
| 20:AB:141:GLU:O | 20:AB:145:ASN:HB2 | 1.97 | 0.65 |
| 13:AN:27:LYS:HE2 | 13:AN:48:GLN:HE22 | 1.62 | 0.65 |
| 23:DB:936:A:H2' | 23:DB:937:C:C6 | 2.32 | 0.65 |
| 37:DP:50:ARG:HB2 | 37:DP:50:ARG:HH11 | 1.61 | 0.64 |
| 23:BB:1113:U:H5'' | 29:BG:1:SER:CA | 2.27 | 0.64 |
| 23:DB:1821:A:H5' | 25:DC:155:ARG:HH21 | 1.61 | 0.64 |
| 23:DB:1820:U:H3 | 25:DC:197:ALA:CB | 2.10 | 0.64 |
| 23:BB:2365:G:H4' | 43:BW:65:LYS:NZ | 2.12 | 0.64 |
| 46:BZ:66:ILE:HB | 46:BZ:67:PRO:HD3 | 1.80 | 0.64 |
| 25:DC:179:GLU:CD | 25:DC:266:ILE:HA | 2.17 | 0.64 |
| 5:CF:1:MET:SD | 5:CF:67:PRO:HD3 | 2.37 | 0.64 |
| 31:BJ:39:LYS:NZ | 38:BQ:69:ARG:HD2 | 2.11 | 0.64 |
| 12:AM:9:PRO:O | 12:AM:44:ILE:HG12 | 1.97 | 0.64 |
| 23:BB:144:A:H2' | 23:BB:145:C:C6 | 2.29 | 0.64 |
| 23:DB:2051:A:H4' | 26:DD:145:SER:HB2 | 1.80 | 0.64 |
| 23:BB:2784:U:H2' | 23:BB:2785:C:H6 | 1.61 | 0.64 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:BB:2144:G:H22 | 23:BB:2148:G:H1' | 1.62 | 0.64 |
| 8:CI:98:ARG:HG2 | 8:CI:103:VAL:HG11 | 1.78 | 0.64 |
| 20:CB:112:ARG:O | 20:CB:116:LEU:HB2 | 1.97 | 0.64 |
| 1:AA:946:A:H2' | 1:AA:947:G:H8 | 1.60 | 0.64 |
| 1:AA:87:C:H2' | 1:AA:88:U:H4' | 1.76 | 0.64 |
| 1:CA:1072:G:H2' | 1:CA:1073:U:C6 | 2.32 | 0.64 |
| 23:BB:1548:A:H2' | 23:BB:1549:A:H8 | 1.63 | 0.64 |
| 23:DB:2484:G:H1' | 34:DM:119:LEU:HD12 | 1.80 | 0.64 |
| 1:AA:190:A:H2' | 1:AA:191:G:O4' | 1.96 | 0.64 |
| 29:BG:84:LYS:HZ2 | 29:BG:85:LYS:N | 1.95 | 0.64 |
| 46:DZ:17:SER:H | 46:DZ:21:VAL:CG1 | 2.10 | 0.64 |
| 1:AA:205:A:H2' | 1:AA:206:C:H6 | 1.61 | 0.64 |
| 1:CA:312:C:H2' | 1:CA:313:A:H8 | 1.62 | 0.64 |
| 32:BK:17:ARG:HD2 | 32:BK:18:ARG:H | 1.62 | 0.64 |
| 23:DB:93:G:H2' | 23:DB:94:A:O4' | 1.98 | 0.64 |
| 33:BL:111:ILE:H | 33:BL:111:ILE:HD13 | 1.62 | 0.64 |
| 6:AG:44:SER:O | 6:AG:48:THR:HG23 | 1.97 | 0.64 |
| 1:AA:997:U:O2' | 1:AA:998:C:H5' | 1.97 | 0.64 |
| 23:DB:536:G:C5' | 38:DQ:52:ARG:HH22 | 2.10 | 0.64 |
| 30:BH:6:LEU:HD12 | 30:BH:15:LEU:HA | 1.78 | 0.64 |
| 50:B3:29:ARG:HA | 50:B3:33:THR:HG23 | 1.79 | 0.64 |
| 23:BB:396:G:H4' | 46:BZ:28:VAL:CG2 | 2.25 | 0.64 |
| 8:AI:18:VAL:HG22 | 8:AI:64:ILE:HG12 | 1.79 | 0.64 |
| 34:DM:41:LEU:O | 34:DM:93:VAL:HB | 1.97 | 0.64 |
| 5:CF:66:ALA:HB1 | 5:CF:67:PRO:HD2 | 1.79 | 0.64 |
| 27:BE:141:MET:SD | 27:BE:143:LEU:HB2 | 2.37 | 0.64 |
| 46:BZ:36:VAL:HA | 46:BZ:42:PRO:CB | 2.23 | 0.64 |
| 18:AS:4:LEU:HD13 | 18:AS:9:PHE:N | 2.10 | 0.64 |
| 26:BD:115:GLY:CA | 26:BD:165:MET:HG3 | 2.27 | 0.64 |
| 23:DB:2025:C:H2' | 23:DB:2026:U:C6 | 2.33 | 0.64 |
| 26:BD:38:LYS:H | 26:BD:38:LYS:HE2 | 1.62 | 0.64 |
| 52:BI:109:ALA:HB1 | 52:BI:124:MET:HG3 | 1.79 | 0.64 |
| 23:DB:1149:G:H2' | 23:DB:1150:C:H6 | 1.61 | 0.64 |
| 29:DG:10:VAL:N | 29:DG:11:PRO:HD3 | 2.12 | 0.64 |
| 23:BB:2814:A:H2' | 23:BB:2815:C:C6 | 2.32 | 0.64 |
| 1:AA:501:C:H2' | 1:AA:502:A:C8 | 2.31 | 0.64 |
| 35:BN:99:LYS:HE2 | 47:B0:38:LEU:O | 1.96 | 0.64 |
| 7:AH:64:TYR:HB3 | 7:AH:69:ALA:HA | 1.79 | 0.64 |
| 23:DB:1179:G:H2' | 23:DB:1180:U:C6 | 2.32 | 0.64 |
| 1:CA:190:A:H2' | 1:CA:191:G:O4' | 1.96 | 0.64 |
| 20:AB:119:GLN:O | 20:AB:124:THR:HG23 | 1.97 | 0.64 |
| 23:BB:1447:C:H2' | 23:BB:1448:G:H8 | 1.61 | 0.64 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 23:DB:2852:G:H2' | 23:DB:2853:C:C6 | 2.32 | 0.64 |
| 23:BB:1935:G:H1' | 23:BB:1964:G:N2 | 2.12 | 0.64 |
| 1:AA:913:A:O2' | 1:AA:914:A:O5' | 2.13 | 0.64 |
| 43:BW:48:ALA:HA | 43:BW:54:ARG:N | 2.10 | 0.64 |
| 50:B3:26:ALA:HB1 | 50:B3:29:ARG:CG | 2.26 | 0.64 |
| 46:BZ:32:LEU:HD22 | 46:BZ:33:ASN:N | 2.12 | 0.64 |
| 34:BM:96:ILE:HG23 | 34:BM:97:GLN:N | 2.10 | 0.64 |
| 25:BC:65:ASP:OD2 | 25:BC:101:ARG:HB3 | 1.98 | 0.64 |
| 5:CF:29:ILE:HG22 | 5:CF:34:GLY:HA3 | 1.78 | 0.64 |
| 31:BJ:39:LYS:HE2 | 31:BJ:39:LYS:HA | 1.79 | 0.64 |
| 23:BB:142:A:N3 | 41:BT:2:ILE:HG23 | 2.11 | 0.64 |
| 1:AA:376:G:H5'' | 15:AP:5:ARG:CB | 2.26 | 0.64 |
| 26:BD:37:VAL:HG22 | 26:BD:46:ARG:NE | 2.11 | 0.64 |
| 1:CA:1080:A:H4' | 4:CE:20:VAL:HG21 | 1.78 | 0.64 |
| 1:CA:952:U:H2' | 1:CA:953:G:H8 | 1.62 | 0.64 |
| 12:CM:102:LYS:NZ | 12:CM:102:LYS:HB2 | 2.12 | 0.64 |
| 36:DO:30:ARG:HG2 | 36:DO:31:THR:H | 1.62 | 0.64 |
| 23:BB:1515:A:H2' | 23:BB:1516:G:O4' | 1.97 | 0.64 |
| 1:AA:389:A:H3' | 1:AA:390:U:H6 | 1.62 | 0.64 |
| 50:D3:4:LYS:HZ2 | 50:D3:60:CYS:H | 1.43 | 0.64 |
| 15:AP:4:ILE:HD12 | 15:AP:66:THR:O | 1.97 | 0.64 |
| 23:DB:2197:U:O2' | 23:DB:2198:A:H2' | 1.97 | 0.64 |
| 23:BB:6:A:H2' | 23:BB:7:G:C8 | 2.33 | 0.64 |
| 2:CC:2:GLN:HE21 | 2:CC:2:GLN:N | 1.96 | 0.64 |
| 23:DB:418:C:H2' | 23:DB:419:U:C6 | 2.33 | 0.64 |
| 1:CA:1244:G:H2' | 1:CA:1245:C:C6 | 2.32 | 0.64 |
| 23:BB:2287:A:O2' | 23:BB:2288:A:H2' | 1.98 | 0.64 |
| 1:AA:372:C:H1' | 1:AA:373:A:OP2 | 1.97 | 0.64 |
| 23:DB:1354:A:H2' | 23:DB:1355:G:O4' | 1.97 | 0.64 |
| 1:CA:1373:G:H5'' | 6:CG:35:LYS:HB2 | 1.78 | 0.64 |
| 1:CA:89:U:H2' | 1:CA:90:C:C6 | 2.33 | 0.64 |
| 20:CB:15:PHE:HB3 | 20:CB:42:LEU:HD11 | 1.78 | 0.64 |
| 25:BC:67:LYS:HG3 | 25:BC:68:ARG:N | 2.12 | 0.64 |
| 23:DB:2814:A:H2' | 23:DB:2815:C:C6 | 2.32 | 0.64 |
| 30:BH:5:LEU:HD13 | 30:BH:37:VAL:HG11 | 1.80 | 0.64 |
| 1:CA:1001:C:H2' | 1:CA:1002:G:C8 | 2.33 | 0.64 |
| 39:BR:47:VAL:HG22 | 39:BR:48:LYS:HG2 | 1.79 | 0.64 |
| 1:AA:1294:G:H2' | 1:AA:1295:U:H6 | 1.60 | 0.64 |
| 44:BX:19:LEU:HA | 44:BX:22:LEU:HB2 | 1.78 | 0.64 |
| 23:BB:1181:U:H2' | 23:BB:1182:G:H8 | 1.62 | 0.64 |
| 47:B0:52:LYS:NZ | 47:B0:52:LYS:HA | 2.12 | 0.64 |
| 35:BN:118:ARG:HG2 | 47:B0:52:LYS:HE2 | 1.79 | 0.64 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 52:BI:20:SER:O | 52:BI:25:PRO:HD2 | 1.98 | 0.64 |
| 22:BA:20:G:H2' | 22:BA:21:G:C8 | 2.32 | 0.64 |
| 1:AA:441:A:H61 | 1:AA:493:A:H62 | 1.45 | 0.64 |
| 23:BB:1387:A:H2' | 23:BB:1388:G:H8 | 1.63 | 0.64 |
| 18:CS:41:PRO:HA | 18:CS:44:ILE:HG13 | 1.79 | 0.64 |
| 2:CC:2:GLN:H | 2:CC:2:GLN:HE21 | 1.44 | 0.64 |
| 32:DK:61:VAL:HG13 | 32:DK:87:LEU:HD11 | 1.80 | 0.64 |
| 32:BK:5:GLN:O | 32:BK:21:CYS:HB3 | 1.98 | 0.64 |
| 1:AA:1513:A:H2' | 1:AA:1514:G:C8 | 2.32 | 0.64 |
| 23:BB:840:C:O2' | 23:BB:841:G:H5' | 1.97 | 0.64 |
| 23:BB:2155:U:H2' | 23:BB:2156:G:O4' | 1.98 | 0.64 |
| 51:D4:23:ILE:CD1 | 51:D4:24:ARG:H | 2.11 | 0.64 |
| 25:DC:107:LYS:HE3 | 25:DC:108:GLY:N | 2.05 | 0.64 |
| 23:BB:855:G:H21 | 43:BW:23:LYS:CD | 2.09 | 0.64 |
| 23:DB:86:G:OP1 | 42:DU:30:SER:HB3 | 1.97 | 0.64 |
| 27:DE:115:GLN:HB3 | 27:DE:117:ARG:NH1 | 2.12 | 0.64 |
| 23:BB:639:U:H2' | 23:BB:640:C:C6 | 2.33 | 0.64 |
| 23:BB:2575:C:H5'' | 26:BD:149:ASN:H | 1.61 | 0.64 |
| 39:DR:63:VAL:HG22 | 39:DR:64:VAL:N | 2.07 | 0.64 |
| 35:BN:7:GLY:O | 35:BN:8:ARG:HB2 | 1.96 | 0.64 |
| 1:CA:1103:C:O2 | 20:CB:105:THR:HG21 | 1.97 | 0.64 |
| 10:AK:95:THR:HG23 | 10:AK:96:ILE:H | 1.62 | 0.64 |
| 30:DH:127:GLU:HA | 30:DH:144:VAL:O | 1.97 | 0.64 |
| 26:BD:120:GLY:N | 26:BD:123:LYS:HG3 | 2.13 | 0.64 |
| 25:DC:52:HIS:O | 25:DC:53:ILE:HB | 1.96 | 0.64 |
| 25:BC:227:VAL:HG12 | 25:BC:228:ASP:OD1 | 1.98 | 0.64 |
| 28:DF:56:LEU:HD22 | 28:DF:88:VAL:HG21 | 1.80 | 0.64 |
| 34:DM:131:VAL:HG22 | 34:DM:133:LYS:N | 2.12 | 0.64 |
| 23:BB:28:A:H61 | 23:BB:512:G:H1' | 1.62 | 0.64 |
| 48:B1:34:GLU:OE1 | 48:B1:36:LYS:HE2 | 1.97 | 0.64 |
| 23:BB:2880:C:H1' | 35:BN:92:GLY:O | 1.98 | 0.64 |
| 25:DC:29:PHE:CD1 | 25:DC:29:PHE:O | 2.50 | 0.64 |
| 28:BF:12:VAL:HG13 | 28:BF:27:VAL:HG21 | 1.79 | 0.64 |
| 23:DB:1935:G:H1' | 23:DB:1964:G:N2 | 2.12 | 0.64 |
| 23:DB:1690:A:H2' | 23:DB:1691:C:O4' | 1.98 | 0.64 |
| 7:AH:36:ALA:HA | 7:AH:39:LEU:HD12 | 1.79 | 0.64 |
| 1:CA:83:C:H4' | 1:CA:83:C:OP1 | 1.98 | 0.64 |
| 1:AA:518:C:H2' | 1:AA:530:G:C8 | 2.31 | 0.64 |
| 44:DX:42:LEU:C | 44:DX:43:LEU:HD22 | 2.17 | 0.64 |
| 11:CL:43:LYS:CB | 11:CL:44:PRO:HD2 | 2.17 | 0.64 |
| 23:DB:2365:G:H4' | 43:DW:65:LYS:HD2 | 1.80 | 0.64 |
| 25:BC:171:VAL:HB | 25:BC:182:LYS:HB3 | 1.80 | 0.64 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 23:BB:923:G:H1' | 43:BW:23:LYS:CD | 2.23 | 0.64 |
| 38:DQ:47:ARG:HH12 | 38:DQ:50:ARG:HG3 | 1.62 | 0.64 |
| 18:AS:50:VAL:O | 18:AS:56:HIS:HA | 1.97 | 0.64 |
| 33:BL:109:LYS:HA | 33:BL:126:ARG:CA | 2.27 | 0.64 |
| 23:BB:1225:G:H5'' | 39:BR:78:ARG:HH22 | 1.61 | 0.64 |
| 23:DB:64:A:H2' | 23:DB:65:U:C6 | 2.32 | 0.64 |
| 39:BR:90:ARG:HH11 | 39:BR:91:GLN:H | 1.46 | 0.64 |
| 8:AI:49:GLN:NE2 | 8:AI:79:ARG:HD2 | 2.13 | 0.64 |
| 12:AM:13:HIS:HB2 | 12:AM:16:ILE:HG22 | 1.79 | 0.64 |
| 47:B0:28:SER:HB2 | 47:B0:34:GLY:N | 2.12 | 0.64 |
| 41:BT:3:ARG:HH22 | 44:BX:19:LEU:HD22 | 1.61 | 0.64 |
| 4:CE:137:ARG:HH11 | 4:CE:137:ARG:HG2 | 1.63 | 0.64 |
| 15:CP:28:ARG:CD | 15:CP:29:ASN:H | 2.09 | 0.64 |
| 33:DL:39:LYS:NZ | 33:DL:39:LYS:HA | 2.13 | 0.64 |
| 12:AM:68:LEU:O | 12:AM:72:ILE:HD13 | 1.97 | 0.64 |
| 30:BH:83:LYS:HB3 | 30:BH:91:PHE:CD1 | 2.31 | 0.64 |
| 27:BE:58:LYS:O | 27:BE:58:LYS:HD3 | 1.97 | 0.64 |
| 23:DB:321:U:OP2 | 27:DE:130:LYS:HG3 | 1.98 | 0.64 |
| 23:DB:2196:C:O2' | 23:DB:2197:U:H5' | 1.97 | 0.64 |
| 23:BB:13:A:H61 | 23:BB:525:U:H2' | 1.63 | 0.64 |
| 23:DB:2238:G:N3 | 23:DB:2238:G:H2' | 2.13 | 0.64 |
| 28:BF:75:GLY:O | 28:BF:76:PHE:HB2 | 1.97 | 0.64 |
| 23:BB:196:A:H2' | 23:BB:196:A:N3 | 2.12 | 0.64 |
| 12:CM:14:ALA:HB3 | 12:CM:40:GLU:HA | 1.78 | 0.64 |
| 43:DW:13:ARG:NE | 43:DW:13:ARG:H | 1.90 | 0.64 |
| 23:BB:1813:G:N2 | 25:BC:51:ARG:HG2 | 2.12 | 0.64 |
| 31:DJ:98:GLU:O | 31:DJ:102:GLU:HG2 | 1.98 | 0.64 |
| 23:DB:813:U:H2' | 23:DB:814:C:H6 | 1.63 | 0.64 |
| 39:DR:80:ARG:O | 39:DR:80:ARG:HG3 | 1.97 | 0.64 |
| 16:AQ:10:ARG:HA | 16:AQ:10:ARG:HE | 1.63 | 0.64 |
| 46:BZ:36:VAL:HG22 | 46:BZ:42:PRO:HG3 | 1.78 | 0.64 |
| 23:DB:639:U:H2' | 23:DB:640:C:C6 | 2.33 | 0.64 |
| 26:DD:128:ARG:HD3 | 26:DD:128:ARG:N | 2.13 | 0.64 |
| 26:BD:2:ILE:HG13 | 26:BD:3:GLY:H | 1.62 | 0.64 |
| 37:DP:59:THR:HG23 | 37:DP:76:HIS:CD2 | 2.31 | 0.64 |
| 31:DJ:64:VAL:HG12 | 31:DJ:65:THR:N | 2.11 | 0.64 |
| 3:CD:28:ASP:CB | 3:CD:33:ILE:HD12 | 2.28 | 0.64 |
| 6:AG:3:ARG:HH11 | 6:AG:3:ARG:HB3 | 1.63 | 0.64 |
| 23:BB:796:C:H2' | 23:BB:797:G:H8 | 1.62 | 0.64 |
| 23:DB:796:C:H2' | 23:DB:797:G:H8 | 1.62 | 0.64 |
| 22:DA:51:G:H2' | 22:DA:52:A:H5'' | 1.78 | 0.64 |
| 2:AC:39:ARG:HG3 | 2:AC:54:ILE:HG21 | 1.79 | 0.64 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 49:D2:34:ARG:HD2 | 49:D2:43:THR:OG1 | 1.97 | 0.64 |
| 23:BB:1198:U:H2' | 23:BB:1199:U:C6 | 2.32 | 0.64 |
| 6:AG:4:ARG:HE | 6:AG:5:VAL:N | 1.94 | 0.64 |
| 26:BD:62:LYS:H | 26:BD:62:LYS:HD3 | 1.62 | 0.64 |
| 23:BB:2443:C:H2' | 23:BB:2444:G:C8 | 2.31 | 0.64 |
| 25:BC:250:GLN:HB3 | 25:BC:252:LYS:HE2 | 1.78 | 0.64 |
| 29:BG:116:LEU:HD21 | 29:BG:120:ILE:HB | 1.79 | 0.64 |
| 10:AK:52:ARG:HD2 | 10:AK:53:GLY:N | 2.13 | 0.64 |
| 2:CC:149:LYS:HB2 | 2:CC:168:ARG:HG3 | 1.80 | 0.64 |
| 12:CM:47:LEU:H | 12:CM:47:LEU:HD23 | 1.63 | 0.64 |
| 23:BB:2104:C:H2' | 23:BB:2105:U:C5 | 2.32 | 0.64 |
| 23:BB:1459:G:O2' | 23:BB:1460:U:H5' | 1.98 | 0.64 |
| 10:CK:61:ALA:O | 10:CK:64:VAL:HG22 | 1.97 | 0.64 |
| 52:BI:85:ILE:HD13 | 52:BI:137:LEU:HD21 | 1.78 | 0.64 |
| 1:CA:1402:C:H2' | 1:CA:1403:C:O4' | 1.98 | 0.64 |
| 10:AK:19:VAL:HG12 | 10:AK:82:GLU:HB2 | 1.80 | 0.64 |
| 23:DB:2334:U:N3 | 43:DW:74:LYS:HE2 | 2.10 | 0.64 |
| 31:BJ:24:THR:C | 31:BJ:25:LEU:HD22 | 2.17 | 0.64 |
| 27:DE:108:ILE:HG22 | 27:DE:180:LEU:HD13 | 1.79 | 0.64 |
| 46:BZ:5:ILE:HB | 46:BZ:51:VAL:HG13 | 1.79 | 0.64 |
| 46:DZ:48:GLN:HB3 | 46:DZ:51:VAL:CG2 | 2.28 | 0.64 |
| 26:DD:197:THR:HG23 | 26:DD:198:GLY:N | 2.07 | 0.64 |
| 23:DB:1007:C:H5'' | 31:DJ:37:ARG:NH1 | 2.13 | 0.64 |
| 28:BF:151:LEU:HD23 | 28:BF:153:ILE:HD11 | 1.80 | 0.64 |
| 31:BJ:35:ARG:HA | 31:BJ:35:ARG:NE | 2.13 | 0.64 |
| 41:BT:88:LYS:CG | 41:BT:89:GLU:H | 2.06 | 0.64 |
| 23:BB:2743:U:H3' | 23:BB:2744:G:H5'' | 1.80 | 0.64 |
| 23:DB:1814:G:C4' | 25:DC:51:ARG:HG2 | 2.28 | 0.64 |
| 1:CA:376:G:H5'' | 15:CP:5:ARG:HD3 | 1.79 | 0.64 |
| 42:BU:3:LYS:HZ2 | 42:BU:3:LYS:HB2 | 1.62 | 0.64 |
| 23:BB:1181:U:H2' | 23:BB:1182:G:C8 | 2.32 | 0.64 |
| 25:DC:20:ASN:HB2 | 25:DC:202:ARG:HH11 | 1.63 | 0.64 |
| 12:CM:89:ARG:NH1 | 12:CM:101:THR:HG21 | 2.12 | 0.64 |
| 8:AI:20:ILE:HG23 | 8:AI:60:LEU:HD13 | 1.79 | 0.64 |
| 1:AA:411:A:O2' | 1:AA:412:A:H4' | 1.98 | 0.64 |
| 29:DG:148:ARG:HA | 29:DG:161:VAL:CG1 | 2.28 | 0.64 |
| 22:DA:7:G:H5'' | 36:DO:29:HIS:NE2 | 2.13 | 0.64 |
| 23:BB:1354:A:H2' | 23:BB:1355:G:O4' | 1.97 | 0.64 |
| 25:BC:16:VAL:HA | 25:BC:17:LYS:HZ3 | 1.61 | 0.64 |
| 23:BB:1360:G:H2' | 23:BB:1361:G:H5' | 1.79 | 0.64 |
| 23:BB:674:G:H5'' | 27:BE:71:GLY:N | 2.13 | 0.64 |
| 23:DB:828:U:H4' | 23:DB:831:G:N1 | 2.13 | 0.64 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 1:AA:1077:G:N2 | 1:AA:1079:G:H3' | 2.13 | 0.64 |
| 32:DK:35:VAL:HA | 32:DK:62:VAL:O | 1.98 | 0.64 |
| 20:AB:198:VAL:HG22 | 20:AB:200:PRO:HD3 | 1.79 | 0.64 |
| 5:CF:43:GLY:HA2 | 5:CF:58:HIS:CD2 | 2.33 | 0.64 |
| 42:BU:11:ILE:HB | 42:BU:69:VAL:HB | 1.78 | 0.64 |
| 30:BH:89:LYS:NZ | 30:BH:123:ARG:HB3 | 2.13 | 0.64 |
| 23:BB:1812:U:H1' | 25:BC:45:ASN:OD1 | 1.98 | 0.64 |
| 23:DB:2811:G:H5' | 26:DD:62:LYS:NZ | 2.13 | 0.64 |
| 16:AQ:59:GLU:H | 16:AQ:74:LEU:CD2 | 2.11 | 0.64 |
| 23:DB:2820:A:C4' | 35:DN:4:ARG:HG3 | 2.27 | 0.64 |
| 42:BU:43:LYS:HD2 | 42:BU:44:HIS:N | 2.13 | 0.64 |
| 35:BN:113:ILE:O | 35:BN:114:GLU:HB2 | 1.96 | 0.64 |
| 33:DL:59:ARG:HA | 50:D3:11:LYS:HZ1 | 1.62 | 0.64 |
| 26:DD:140:HIS:O | 26:DD:141:ARG:HG2 | 1.97 | 0.64 |
| 24:DV:9:ARG:HH22 | 24:DV:16:ALA:HB1 | 1.61 | 0.64 |
| 1:AA:1111:A:O2' | 1:AA:1112:C:H6 | 1.81 | 0.64 |
| 1:CA:1306:A:O2' | 12:CM:107:THR:HG21 | 1.98 | 0.64 |
| 6:AG:23:ALA:O | 6:AG:26:VAL:HG22 | 1.98 | 0.64 |
| 1:CA:1097:C:H2' | 1:CA:1098:C:H6 | 1.61 | 0.64 |
| 9:AJ:7:ARG:HA | 9:AJ:75:ASP:HB2 | 1.78 | 0.64 |
| 35:DN:8:ARG:NH1 | 35:DN:46:ARG:HG3 | 2.13 | 0.64 |
| 34:BM:109:PRO:HA | 34:BM:112:LEU:HD22 | 1.80 | 0.64 |
| 7:CH:102:VAL:HG23 | 7:CH:125:ILE:HB | 1.80 | 0.64 |
| 9:AJ:65:TYR:HB3 | 13:AN:95:LEU:HD11 | 1.80 | 0.64 |
| 23:DB:1387:A:H2' | 23:DB:1388:G:H8 | 1.63 | 0.64 |
| 1:AA:190:A:H8 | 1:AA:190:A:O5' | 1.80 | 0.64 |
| 1:AA:674:G:H2' | 1:AA:675:A:H8 | 1.63 | 0.64 |
| 12:CM:78:ARG:HG3 | 28:DF:111:ARG:HH11 | 1.62 | 0.64 |
| 45:BY:4:ILE:HG12 | 45:BY:5:LYS:HG3 | 1.80 | 0.64 |
| 36:BO:109:ALA:HA | 36:BO:112:GLU:OE1 | 1.98 | 0.64 |
| 15:CP:40:ASN:HD21 | 15:CP:42:ILE:HG12 | 1.63 | 0.64 |
| 23:DB:1319:C:O2' | 23:DB:1320:C:H5' | 1.98 | 0.64 |
| 30:BH:112:LYS:O | 30:BH:112:LYS:HD2 | 1.98 | 0.64 |
| 23:BB:1117:C:H2' | 23:BB:1118:C:C6 | 2.32 | 0.64 |
| 19:CT:52:GLU:O | 19:CT:56:ILE:HD13 | 1.98 | 0.64 |
| 1:AA:1278:G:H4' | 1:AA:1279:G:O5' | 1.98 | 0.64 |
| 23:BB:1690:A:H2' | 23:BB:1691:C:O4' | 1.98 | 0.64 |
| 27:DE:31:VAL:HG21 | 27:DE:104:ALA:HB2 | 1.79 | 0.64 |
| 43:DW:67:LYS:HD3 | 43:DW:68:PHE:H | 1.62 | 0.64 |
| 23:DB:7:G:H2' | 23:DB:8:C:C6 | 2.33 | 0.64 |
| 25:DC:179:GLU:HG3 | 25:DC:266:ILE:HG22 | 1.80 | 0.64 |
| 23:BB:1188:U:H4' | 39:BR:83:TYR:CB | 2.27 | 0.64 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 51:B4:14:CYS:SG | 51:B4:25:VAL:HG12 | 2.38 | 0.64 |
| 26:DD:34:VAL:H | 26:DD:90:PHE:C | 2.01 | 0.64 |
| 30:DH:108:VAL:HG12 | 30:DH:110:VAL:HB | 1.80 | 0.64 |
| 33:DL:78:ARG:NH1 | 33:DL:78:ARG:HB3 | 2.13 | 0.64 |
| 50:D3:54:LEU:HA | 50:D3:57:VAL:HG12 | 1.80 | 0.64 |
| 23:DB:784:G:H5' | 25:DC:225:ASN:HD21 | 1.63 | 0.64 |
| 1:CA:451:A:H5' | 15:CP:70:ARG:NH2 | 2.12 | 0.64 |
| 26:DD:25:THR:HA | 26:DD:188:LEU:HD12 | 1.79 | 0.64 |
| 1:AA:1488:G:O2' | 1:AA:1489:G:H5' | 1.98 | 0.64 |
| 3:AD:88:ASN:O | 3:AD:92:LEU:HD23 | 1.97 | 0.64 |
| 20:AB:37:VAL:HG22 | 20:AB:38:HIS:N | 2.13 | 0.64 |
| 38:DQ:91:ARG:HA | 38:DQ:94:LEU:HD21 | 1.79 | 0.64 |
| 1:CA:1237:C:H3' | 1:CA:1238:A:H5' | 1.78 | 0.64 |
| 48:B1:13:SER:H | 48:B1:50:GLU:HA | 1.62 | 0.64 |
| 23:DB:118:A:OP2 | 23:DB:119:A:H2' | 1.98 | 0.64 |
| 23:DB:2249:U:H4' | 23:DB:2275:C:C5 | 2.33 | 0.64 |
| 20:AB:148:GLY:O | 20:AB:151:LYS:HE2 | 1.98 | 0.64 |
| 1:CA:677:U:H3 | 1:CA:713:G:H22 | 1.47 | 0.64 |
| 1:CA:1526:G:P | 21:CU:38:GLU:HB2 | 2.38 | 0.64 |
| 1:CA:89:U:H2' | 1:CA:90:C:H6 | 1.62 | 0.64 |
| 23:DB:1447:C:H2' | 23:DB:1448:G:H8 | 1.61 | 0.64 |
| 23:DB:37:C:O2' | 23:DB:38:A:H5' | 1.98 | 0.64 |
| 27:BE:1:MET:O | 27:BE:14:VAL:HG22 | 1.98 | 0.64 |
| 23:BB:1973:G:H2' | 23:BB:1974:C:C6 | 2.33 | 0.64 |
| 33:BL:132:ARG:O | 33:BL:136:GLU:HB3 | 1.98 | 0.64 |
| 9:AJ:25:ILE:HG23 | 9:AJ:29:ALA:HB3 | 1.79 | 0.64 |
| 7:AH:8:ASP:O | 7:AH:12:ARG:HG3 | 1.98 | 0.64 |
| 32:BK:108:ARG:HA | 32:BK:116:ILE:HG21 | 1.80 | 0.63 |
| 34:DM:57:VAL:HG12 | 34:DM:58:LYS:N | 2.09 | 0.63 |
| 51:D4:10:LEU:HB2 | 51:D4:25:VAL:HG23 | 1.80 | 0.63 |
| 37:BP:47:ILE:HA | 37:BP:63:ILE:HG23 | 1.79 | 0.63 |
| 43:DW:43:LYS:HD2 | 43:DW:76:ARG:HA | 1.79 | 0.63 |
| 23:BB:1821:A:H5' | 25:BC:155:ARG:HH21 | 1.62 | 0.63 |
| 30:DH:1:MET:C | 30:DH:21:VAL:HG22 | 2.19 | 0.63 |
| 23:DB:2784:U:H2' | 23:DB:2785:C:C6 | 2.33 | 0.63 |
| 31:BJ:73:VAL:HG23 | 31:BJ:74:TYR:H | 1.63 | 0.63 |
| 27:BE:132:LYS:NZ | 27:BE:132:LYS:HB2 | 2.13 | 0.63 |
| 13:AN:15:LEU:HD12 | 13:AN:16:ALA:N | 2.13 | 0.63 |
| 8:AI:30:ASN:ND2 | 8:AI:65:THR:HA | 2.13 | 0.63 |
| 35:BN:28:LEU:HD22 | 35:BN:48:VAL:HG21 | 1.80 | 0.63 |
| 26:DD:146:ILE:H | 26:DD:146:ILE:HD12 | 1.64 | 0.63 |
| 40:BS:27:LYS:N | 40:BS:27:LYS:HD2 | 2.09 | 0.63 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 10:CK:121:ARG:HE | 21:CU:34:ARG:HG2 | 1.62 | 0.63 |
| 23:BB:704:G:H1' | 23:BB:727:A:N6 | 2.12 | 0.63 |
| 29:BG:23:ILE:O | 29:BG:33:THR:HA | 1.97 | 0.63 |
| 23:DB:878:A:N3 | 23:DB:878:A:H2' | 2.12 | 0.63 |
| 1:CA:674:G:H2' | 1:CA:675:A:H8 | 1.63 | 0.63 |
| 1:AA:1412:C:H2' | 1:AA:1413:A:H8 | 1.61 | 0.63 |
| 25:BC:72:GLY:C | 25:BC:73:ILE:HD12 | 2.18 | 0.63 |
| 1:CA:203:G:H1' | 1:CA:465:A:N6 | 2.13 | 0.63 |
| 23:DB:2080:A:H2' | 23:DB:2081:U:C6 | 2.33 | 0.63 |
| 1:AA:203:G:H1' | 1:AA:465:A:N6 | 2.13 | 0.63 |
| 3:AD:186:GLU:O | 3:AD:190:LEU:HD13 | 1.98 | 0.63 |
| 23:BB:1219:U:H2' | 23:BB:1220:G:H8 | 1.63 | 0.63 |
| 34:BM:86:LYS:HD2 | 34:BM:86:LYS:N | 2.13 | 0.63 |
| 26:BD:23:PRO:HB3 | 26:BD:189:VAL:H | 1.63 | 0.63 |
| 25:BC:141:HIS:CB | 25:BC:190:THR:HB | 2.29 | 0.63 |
| 43:BW:76:ARG:HG2 | 43:BW:77:LYS:N | 2.13 | 0.63 |
| 23:BB:298:G:H2' | 23:BB:339:U:O4 | 1.98 | 0.63 |
| 36:DO:17:LYS:HD2 | 36:DO:92:PHE:CD2 | 2.33 | 0.63 |
| 1:CA:1084:G:H5' | 1:CA:1102:A:OP2 | 1.98 | 0.63 |
| 23:BB:1205:A:H4' | 23:BB:1206:G:OP2 | 1.96 | 0.63 |
| 23:BB:125:A:H3' | 23:BB:126:A:H5' | 1.79 | 0.63 |
| 40:DS:29:VAL:O | 40:DS:33:LEU:HD23 | 1.98 | 0.63 |
| 32:DK:107:LEU:HD21 | 32:DK:115:ILE:HD13 | 1.79 | 0.63 |
| 35:DN:30:ARG:NH1 | 35:DN:74:GLU:HG2 | 2.14 | 0.63 |
| 48:B1:9:LYS:HD2 | 48:B1:9:LYS:N | 2.14 | 0.63 |
| 8:AI:122:ARG:HH11 | 8:AI:122:ARG:HG3 | 1.64 | 0.63 |
| 50:B3:41:ARG:HD3 | 50:B3:43:LEU:H | 1.63 | 0.63 |
| 23:DB:418:C:H2' | 23:DB:419:U:H6 | 1.63 | 0.63 |
| 23:BB:1192:G:O2' | 23:BB:1193:G:H5' | 1.98 | 0.63 |
| 23:DB:651:G:OP1 | 50:D3:18:LYS:HG2 | 1.97 | 0.63 |
| 23:DB:2108:A:N3 | 23:DB:2108:A:H2' | 2.13 | 0.63 |
| 22:BA:76:G:H2' | 22:BA:77:U:H6 | 1.63 | 0.63 |
| 1:CA:1404:C:H2' | 1:CA:1405:G:C8 | 2.33 | 0.63 |
| 1:CA:93:U:H2' | 1:CA:94:G:H5' | 1.79 | 0.63 |
| 37:DP:26:GLU:HA | 37:DP:47:ILE:N | 2.11 | 0.63 |
| 37:DP:27:VAL:HG13 | 37:DP:47:ILE:CD1 | 2.26 | 0.63 |
| 37:DP:27:VAL:CG1 | 37:DP:47:ILE:HD12 | 2.26 | 0.63 |
| 42:BU:35:VAL:HG12 | 42:BU:36:GLU:N | 2.12 | 0.63 |
| 25:BC:140:VAL:HG23 | 25:BC:141:HIS:H | 1.64 | 0.63 |
| 25:DC:75:ALA:HB2 | 25:DC:95:TYR:CD1 | 2.33 | 0.63 |
| 42:DU:28:LEU:HD11 | 42:DU:31:GLY:C | 2.19 | 0.63 |
| 30:BH:11:ASN:HD22 | 30:BH:12:LEU:H | 1.46 | 0.63 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 31:DJ:41:LYS:HG2 | 38:DQ:63:ARG:NH1 | 2.12 | 0.63 |
| 35:BN:70:THR:HG21 | 35:BN:75:ILE:HG22 | 1.80 | 0.63 |
| 35:BN:75:ILE:HD13 | 35:BN:75:ILE:O | 1.99 | 0.63 |
| 23:BB:2025:C:H2' | 23:BB:2026:U:C6 | 2.33 | 0.63 |
| 21:AU:7:GLU:OE2 | 21:AU:15:LEU:HD22 | 1.98 | 0.63 |
| 23:BB:1060:U:H5 | 52:BI:131:THR:HG22 | 1.63 | 0.63 |
| 8:CI:86:LEU:HB3 | 8:CI:93:LEU:HD13 | 1.80 | 0.63 |
| 38:DQ:57:ARG:HH21 | 38:DQ:92:LYS:HZ3 | 1.46 | 0.63 |
| 28:DF:56:LEU:O | 28:DF:59:ILE:HG22 | 1.97 | 0.63 |
| 42:DU:13:LEU:HD21 | 42:DU:69:VAL:HG13 | 1.79 | 0.63 |
| 30:BH:83:LYS:HB2 | 30:BH:92:GLY:H | 1.63 | 0.63 |
| 23:DB:1485:U:H2' | 23:DB:1486:U:H6 | 1.63 | 0.63 |
| 23:DB:1442:U:H2' | 23:DB:1443:U:C6 | 2.33 | 0.63 |
| 1:CA:441:A:H61 | 1:CA:493:A:H62 | 1.45 | 0.63 |
| 50:D3:4:LYS:HE3 | 50:D3:61:LEU:H | 1.63 | 0.63 |
| 46:BZ:70:LYS:N | 46:BZ:70:LYS:HE2 | 2.12 | 0.63 |
| 1:CA:411:A:O2' | 1:CA:412:A:H4' | 1.98 | 0.63 |
| 23:BB:2070:A:H2' | 23:BB:2071:A:C8 | 2.33 | 0.63 |
| 11:CL:85:ARG:NH1 | 11:CL:93:ARG:HB3 | 2.13 | 0.63 |
| 1:AA:677:U:H3 | 1:AA:713:G:H22 | 1.46 | 0.63 |
| 8:CI:113:LYS:HA | 8:CI:120:ALA:HB2 | 1.79 | 0.63 |
| 27:DE:42:GLY:O | 27:DE:43:THR:HG23 | 1.97 | 0.63 |
| 23:DB:2361:G:H5'' | 50:D3:27:ASN:HB2 | 1.79 | 0.63 |
| 1:CA:985:C:H2' | 1:CA:986:U:C6 | 2.33 | 0.63 |
| 46:BZ:59:ARG:HE | 46:BZ:62:LYS:HD2 | 1.63 | 0.63 |
| 23:DB:907:G:H5' | 34:DM:24:THR:HG21 | 1.80 | 0.63 |
| 7:AH:11:THR:HA | 7:AH:14:ARG:NH1 | 2.12 | 0.63 |
| 1:AA:524:G:H2' | 1:AA:525:C:C6 | 2.34 | 0.63 |
| 26:BD:8:LYS:HB3 | 37:BP:5:LYS:HZ1 | 1.61 | 0.63 |
| 26:DD:61:THR:HG23 | 26:DD:62:LYS:N | 2.14 | 0.63 |
| 23:DB:1278:C:OP1 | 35:DN:36:THR:HG23 | 1.98 | 0.63 |
| 27:BE:132:LYS:HZ2 | 27:BE:132:LYS:HB2 | 1.64 | 0.63 |
| 34:BM:67:VAL:HB | 34:BM:100:LYS:HD3 | 1.79 | 0.63 |
| 41:DT:21:SER:HA | 41:DT:24:MET:SD | 2.38 | 0.63 |
| 27:BE:113:VAL:HG13 | 27:BE:114:ARG:H | 1.63 | 0.63 |
| 37:DP:5:LYS:HA | 37:DP:5:LYS:HZ3 | 1.63 | 0.63 |
| 33:DL:78:ARG:HH12 | 33:DL:80:SER:HB3 | 1.63 | 0.63 |
| 33:BL:90:VAL:CG1 | 33:BL:121:THR:H | 2.10 | 0.63 |
| 32:DK:107:LEU:HD21 | 32:DK:115:ILE:CD1 | 2.28 | 0.63 |
| 21:CU:34:ARG:HG2 | 21:CU:35:GLU:N | 2.10 | 0.63 |
| 8:CI:48:ARG:HA | 8:CI:51:LEU:HD12 | 1.81 | 0.63 |
| 23:DB:1151:A:H2' | 23:DB:1152:C:C6 | 2.33 | 0.63 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 20:CB:163:ILE:HG23 | 20:CB:164:ASP:N | 2.13 | 0.63 |
| 1:CA:947:G:H2' | 1:CA:948:C:H6 | 1.63 | 0.63 |
| 23:DB:598:U:H2' | 23:DB:599:A:C8 | 2.34 | 0.63 |
| 11:AL:20:VAL:O | 11:AL:23:LEU:HG | 1.97 | 0.63 |
| 42:DU:41:VAL:HA | 42:DU:57:ILE:HD12 | 1.80 | 0.63 |
| 1:CA:390:U:H2' | 1:CA:391:G:H8 | 1.62 | 0.63 |
| 6:AG:74:VAL:HG12 | 6:AG:75:LYS:H | 1.62 | 0.63 |
| 23:BB:364:C:H2' | 23:BB:365:U:C6 | 2.33 | 0.63 |
| 23:DB:608:A:H2' | 23:DB:609:A:C8 | 2.34 | 0.63 |
| 23:BB:1641:A:H2' | 23:BB:1642:G:O4' | 1.99 | 0.63 |
| 23:BB:41:C:H2' | 23:BB:42:A:C8 | 2.33 | 0.63 |
| 23:BB:828:U:H4' | 23:BB:831:G:N1 | 2.13 | 0.63 |
| 23:BB:1570:A:H2' | 23:BB:1571:A:C8 | 2.34 | 0.63 |
| 21:AU:44:ARG:HG3 | 21:AU:44:ARG:HH11 | 1.64 | 0.63 |
| 12:AM:88:LEU:O | 12:AM:92:ARG:HG3 | 1.97 | 0.63 |
| 2:CC:53:ARG:HG3 | 2:CC:113:LYS:HD3 | 1.80 | 0.63 |
| 37:DP:23:ASP:O | 37:DP:25:VAL:N | 2.32 | 0.63 |
| 26:DD:42:ASN:O | 26:DD:43:ASP:HB2 | 1.97 | 0.63 |
| 31:BJ:64:VAL:HG12 | 31:BJ:65:THR:H | 1.64 | 0.63 |
| 23:DB:85:G:OP1 | 42:DU:4:ILE:HG23 | 1.98 | 0.63 |
| 23:DB:1205:A:H62 | 27:DE:164:LEU:HD11 | 1.63 | 0.63 |
| 32:BK:11:ALA:HB3 | 32:BK:85:VAL:HG22 | 1.81 | 0.63 |
| 23:DB:143:C:N3 | 41:DT:3:ARG:NH1 | 2.46 | 0.63 |
| 27:BE:3:LEU:O | 27:BE:4:VAL:HG12 | 1.98 | 0.63 |
| 20:AB:71:THR:HG22 | 20:AB:94:ARG:HH21 | 1.63 | 0.63 |
| 27:DE:2:GLU:HA | 27:DE:16:GLU:HB3 | 1.81 | 0.63 |
| 23:BB:2784:U:H2' | 23:BB:2785:C:C6 | 2.33 | 0.63 |
| 5:AF:40:GLU:HG3 | 5:AF:42:TRP:HE1 | 1.64 | 0.63 |
| 8:CI:54:VAL:HG12 | 8:CI:93:LEU:HD22 | 1.80 | 0.63 |
| 7:CH:78:SER:HB2 | 7:CH:124:ILE:O | 1.97 | 0.63 |
| 1:CA:1323:G:H2' | 1:CA:1324:A:C8 | 2.34 | 0.63 |
| 6:AG:65:LEU:O | 6:AG:69:ARG:HG3 | 1.99 | 0.63 |
| 2:CC:149:LYS:HG3 | 2:CC:166:TRP:HE1 | 1.63 | 0.63 |
| 23:BB:1351:C:H4' | 23:BB:1572:A:O4' | 1.99 | 0.63 |
| 7:CH:86:LYS:HD2 | 7:CH:90:GLU:HG2 | 1.81 | 0.63 |
| 22:BA:28:C:H5' | 22:BA:29:A:OP2 | 1.98 | 0.63 |
| 35:DN:79:LEU:HD22 | 35:DN:83:LEU:HD23 | 1.78 | 0.63 |
| 23:DB:1854:A:H62 | 23:DB:1888:G:H8 | 1.46 | 0.63 |
| 1:CA:720:C:H4' | 17:CR:38:ILE:HD11 | 1.81 | 0.63 |
| 34:DM:97:GLN:N | 34:DM:98:PRO:CD | 2.61 | 0.63 |
| 1:CA:1143:G:H2' | 1:CA:1144:G:C8 | 2.34 | 0.63 |
| 1:AA:975:A:H5'' | 1:AA:976:G:O5' | 1.99 | 0.63 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 1:CA:1409:C:H2' | 1:CA:1410:A:C8 | 2.33 | 0.63 |
| 36:BO:57:ALA:CB | 36:BO:62:LEU:HD22 | 2.18 | 0.63 |
| 37:BP:97:TYR:O | 37:BP:98:TYR:HB2 | 1.97 | 0.63 |
| 43:DW:67:LYS:HG2 | 43:DW:71:LYS:CB | 2.29 | 0.63 |
| 23:DB:532:A:N3 | 23:DB:532:A:H2' | 2.13 | 0.63 |
| 23:BB:650:C:H5'' | 50:B3:22:LYS:NZ | 2.13 | 0.63 |
| 23:BB:967:U:H2' | 23:BB:968:C:C6 | 2.33 | 0.63 |
| 24:BV:46:LYS:O | 24:BV:50:MET:HG3 | 1.99 | 0.63 |
| 16:AQ:10:ARG:NH2 | 16:AQ:11:VAL:HG23 | 2.14 | 0.63 |
| 23:DB:64:A:H2' | 23:DB:65:U:H6 | 1.64 | 0.63 |
| 33:BL:38:GLN:O | 33:BL:41:ARG:HD3 | 1.98 | 0.63 |
| 35:BN:113:ILE:HG22 | 35:BN:114:GLU:N | 2.10 | 0.63 |
| 23:BB:1132:U:C5' | 31:BJ:85:LYS:HZ3 | 2.11 | 0.63 |
| 23:BB:1567:G:H5'' | 25:BC:84:PRO:HG3 | 1.81 | 0.63 |
| 31:DJ:77:HIS:HB2 | 31:DJ:85:LYS:HE2 | 1.81 | 0.63 |
| 24:BV:69:GLU:HG2 | 24:BV:70:ILE:N | 2.14 | 0.63 |
| 38:DQ:3:VAL:C | 38:DQ:4:LYS:HD3 | 2.19 | 0.63 |
| 33:DL:126:ARG:HH12 | 33:DL:128:THR:HG22 | 1.64 | 0.63 |
| 13:CN:13:VAL:HG22 | 13:CN:59:GLN:NE2 | 2.14 | 0.63 |
| 50:D3:24:LYS:NZ | 50:D3:24:LYS:HB3 | 2.13 | 0.63 |
| 50:D3:33:THR:C | 50:D3:34:LYS:HD2 | 2.19 | 0.63 |
| 23:BB:1060:U:O4 | 23:BB:1088:A:N6 | 2.32 | 0.63 |
| 1:AA:74:A:H2' | 1:AA:75:G:C5' | 2.27 | 0.63 |
| 26:DD:9:VAL:HG12 | 26:DD:10:GLY:H | 1.62 | 0.63 |
| 35:BN:37:THR:HA | 35:BN:109:PRO:O | 1.98 | 0.63 |
| 3:AD:59:LYS:O | 3:AD:63:ILE:HG13 | 1.98 | 0.63 |
| 5:CF:86:ARG:NH1 | 17:CR:63:TYR:HB3 | 2.13 | 0.63 |
| 23:DB:365:U:H2' | 23:DB:366:C:H6 | 1.61 | 0.63 |
| 1:AA:1446:A:C2' | 1:AA:1447:A:H5'' | 2.29 | 0.63 |
| 23:DB:1439:A:C6 | 23:DB:1552:A:N7 | 2.67 | 0.63 |
| 5:CF:79:ARG:NH2 | 5:CF:87:SER:HB3 | 2.14 | 0.63 |
| 24:BV:89:ILE:HD12 | 24:BV:89:ILE:O | 1.99 | 0.63 |
| 29:BG:86:LEU:HD13 | 29:BG:163:TYR:HA | 1.79 | 0.63 |
| 23:BB:598:U:H2' | 23:BB:599:A:C8 | 2.34 | 0.63 |
| 1:AA:105:G:H2' | 1:AA:106:C:H6 | 1.64 | 0.63 |
| 23:BB:813:U:H2' | 23:BB:814:C:H6 | 1.62 | 0.63 |
| 1:CA:1191:A:OP1 | 2:CC:2:GLN:HB2 | 1.98 | 0.63 |
| 1:AA:875:U:O2' | 7:AH:14:ARG:HD2 | 1.97 | 0.63 |
| 7:AH:11:THR:HG22 | 7:AH:15:ASN:ND2 | 2.13 | 0.63 |
| 2:CC:52:SER:O | 2:CC:53:ARG:HG3 | 1.98 | 0.63 |
| 32:DK:93:GLN:HG2 | 32:DK:94:PRO:HD2 | 1.79 | 0.63 |
| 25:BC:12:ARG:NE | 25:BC:18:VAL:HG11 | 2.14 | 0.63 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:BB:2852:G:H2' | 23:BB:2853:C:C6 | 2.33 | 0.63 |
| 23:BB:2498:C:O2' | 23:BB:2499:C:H5' | 1.98 | 0.63 |
| 23:DB:2498:C:O2' | 23:DB:2499:C:H5' | 1.99 | 0.63 |
| 1:CA:1041:G:H2' | 1:CA:1042:A:H8 | 1.64 | 0.63 |
| 23:BB:1509:A:H5' | 23:BB:1510:G:H5' | 1.80 | 0.63 |
| 31:DJ:105:VAL:HG11 | 31:DJ:122:LEU:CD1 | 2.28 | 0.63 |
| 52:DI:5:GLN:HB2 | 52:DI:30:GLN:OE1 | 1.99 | 0.63 |
| 25:DC:137:GLY:C | 25:DC:139:THR:H | 2.02 | 0.63 |
| 43:BW:43:LYS:CG | 43:BW:76:ARG:HE | 2.12 | 0.63 |
| 18:AS:28:LYS:HD3 | 18:AS:28:LYS:H | 1.63 | 0.63 |
| 5:CF:3:HIS:CA | 5:CF:65:GLU:HG3 | 2.28 | 0.63 |
| 40:BS:47:VAL:HG12 | 40:BS:103:ILE:HD13 | 1.80 | 0.63 |
| 5:AF:53:LYS:CD | 5:AF:54:LEU:H | 2.10 | 0.63 |
| 27:BE:152:GLU:HG2 | 27:BE:171:ASP:HB3 | 1.80 | 0.63 |
| 33:DL:4:ASN:O | 33:DL:5:THR:HG22 | 1.98 | 0.63 |
| 1:CA:32:A:H2' | 1:CA:33:A:C8 | 2.34 | 0.63 |
| 23:BB:934:U:H2' | 23:BB:935:C:H6 | 1.61 | 0.63 |
| 1:AA:1308:U:H2' | 1:AA:1309:G:C8 | 2.33 | 0.63 |
| 23:DB:863:A:H2' | 23:DB:864:G:C8 | 2.34 | 0.63 |
| 10:AK:58:THR:HG23 | 10:AK:61:ALA:HB2 | 1.80 | 0.63 |
| 20:CB:70:GLY:O | 20:CB:92:ASN:HA | 1.97 | 0.63 |
| 35:DN:108:ALA:HB1 | 35:DN:109:PRO:HD2 | 1.81 | 0.63 |
| 31:DJ:112:GLY:O | 31:DJ:116:ARG:HB2 | 1.99 | 0.63 |
| 23:DB:1351:C:H4' | 23:DB:1572:A:O4' | 1.99 | 0.63 |
| 28:DF:177:ARG:HE | 28:DF:177:ARG:C | 2.01 | 0.63 |
| 1:AA:10:A:OP2 | 4:AE:130:THR:HB | 1.98 | 0.63 |
| 42:BU:7:ASP:HA | 42:BU:24:VAL:HA | 1.81 | 0.63 |
| 23:BB:38:A:O4' | 27:BE:46:GLN:CG | 2.40 | 0.63 |
| 27:BE:48:THR:HA | 27:BE:86:ALA:HB1 | 1.81 | 0.63 |
| 1:CA:976:G:OP1 | 13:CN:70:HIS:HA | 1.98 | 0.63 |
| 26:BD:25:THR:HB | 37:BP:5:LYS:NZ | 2.13 | 0.63 |
| 23:DB:2813:A:H2' | 23:DB:2814:A:C8 | 2.34 | 0.63 |
| 27:DE:169:VAL:HG13 | 27:DE:170:ARG:N | 2.08 | 0.63 |
| 46:BZ:64:PHE:HA | 46:BZ:67:PRO:HD2 | 1.81 | 0.63 |
| 38:BQ:57:ARG:HA | 38:BQ:60:TRP:HE3 | 1.63 | 0.63 |
| 13:AN:81:ILE:HD12 | 13:AN:82:LYS:H | 1.64 | 0.63 |
| 41:BT:6:ARG:HG3 | 41:BT:6:ARG:O | 1.97 | 0.63 |
| 23:BB:1453:A:H61 | 35:BN:74:GLU:HG2 | 1.61 | 0.63 |
| 10:CK:124:LYS:CD | 21:CU:34:ARG:HD3 | 2.28 | 0.63 |
| 14:AO:60:SER:HA | 14:AO:63:ARG:HH12 | 1.64 | 0.63 |
| 23:BB:263:G:H2' | 23:BB:264:C:O4' | 1.98 | 0.63 |
| 25:DC:19:VAL:HG12 | 25:DC:20:ASN:N | 2.13 | 0.63 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 47:B0:6:LYS:HA | 47:B0:6:LYS:HZ3 | 1.63 | 0.63 |
| 23:BB:1439:A:C6 | 23:BB:1552:A:N7 | 2.67 | 0.63 |
| 6:AG:87:PRO:HG2 | 6:AG:151:ALA:HB2 | 1.81 | 0.63 |
| 1:AA:1524:C:H2' | 1:AA:1525:G:H8 | 1.63 | 0.63 |
| 1:AA:57:G:H2' | 1:AA:58:C:H6 | 1.63 | 0.63 |
| 23:DB:181:A:H2' | 23:DB:182:A:C8 | 2.33 | 0.63 |
| 2:CC:52:SER:O | 2:CC:113:LYS:HD3 | 1.99 | 0.63 |
| 23:DB:1570:A:H2' | 23:DB:1571:A:C8 | 2.34 | 0.63 |
| 1:AA:982:U:H3' | 13:AN:5:MET:HE1 | 1.81 | 0.63 |
| 1:CA:1520:C:H2' | 1:CA:1521:C:C6 | 2.34 | 0.63 |
| 1:AA:1254:A:OP1 | 9:AJ:47:GLU:HG3 | 1.99 | 0.63 |
| 23:DB:1973:G:H2' | 23:DB:1974:C:C6 | 2.33 | 0.63 |
| 23:BB:903:C:H2' | 23:BB:904:G:H8 | 1.63 | 0.63 |
| 23:DB:283:G:H2' | 23:DB:284:U:C6 | 2.34 | 0.63 |
| 49:D2:33:ARG:NE | 49:D2:33:ARG:HA | 2.13 | 0.63 |
| 34:BM:3:GLN:O | 34:BM:6:ARG:N | 2.32 | 0.63 |
| 25:BC:131:MET:HE1 | 25:BC:143:VAL:HG11 | 1.79 | 0.63 |
| 35:DN:45:ARG:NH2 | 35:DN:113:ILE:HD12 | 2.12 | 0.63 |
| 31:DJ:131:ASN:C | 31:DJ:133:ALA:H | 2.01 | 0.63 |
| 32:BK:98:ARG:C | 32:BK:99:ILE:HD12 | 2.20 | 0.63 |
| 34:BM:96:ILE:HD13 | 34:BM:97:GLN:HG3 | 1.80 | 0.63 |
| 23:BB:588:U:OP1 | 33:BL:28:GLY:N | 2.31 | 0.63 |
| 1:CA:1342:C:H2' | 1:CA:1343:G:H8 | 1.64 | 0.63 |
| 27:BE:3:LEU:HB2 | 27:BE:12:LEU:HD22 | 1.80 | 0.63 |
| 13:CN:19:TYR:HE2 | 13:CN:50:LEU:HD13 | 1.64 | 0.63 |
| 1:CA:763:G:H2' | 1:CA:764:C:C6 | 2.34 | 0.63 |
| 23:DB:1022:G:C8 | 31:DJ:68:LYS:HE3 | 2.34 | 0.63 |
| 31:DJ:69:ARG:HH11 | 31:DJ:69:ARG:HG3 | 1.62 | 0.63 |
| 29:BG:17:LYS:HE3 | 29:BG:24:THR:HG21 | 1.80 | 0.63 |
| 1:AA:1102:A:H2' | 1:AA:1103:C:C6 | 2.34 | 0.63 |
| 49:B2:33:ARG:O | 49:B2:37:LYS:HB2 | 1.98 | 0.63 |
| 37:BP:91:VAL:HB | 37:BP:113:LEU:HG | 1.80 | 0.63 |
| 23:DB:1174:U:H1' | 23:DB:1176:U:C4 | 2.34 | 0.63 |
| 23:DB:782:A:O2' | 25:DC:223:ALA:HB1 | 1.98 | 0.63 |
| 25:DC:19:VAL:HB | 25:DC:205:GLY:HA2 | 1.80 | 0.63 |
| 48:B1:51:ALA:C | 48:B1:52:LYS:HD2 | 2.18 | 0.63 |
| 25:DC:16:VAL:HG12 | 25:DC:16:VAL:O | 1.97 | 0.63 |
| 23:DB:1548:A:H2' | 23:DB:1549:A:H8 | 1.63 | 0.63 |
| 23:DB:631:A:O2' | 33:DL:66:PHE:HB3 | 1.98 | 0.63 |
| 50:D3:4:LYS:HG3 | 50:D3:61:LEU:HB2 | 1.81 | 0.63 |
| 23:BB:2228:G:H2' | 23:BB:2229:U:H6 | 1.63 | 0.63 |
| 23:BB:2212:A:N7 | 23:BB:2214:C:N4 | 2.46 | 0.63 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 1:AA:1163:A:H2' | 1:AA:1164:G:C8 | 2.34 | 0.63 |
| 1:CA:57:G:H2' | 1:CA:58:C:H6 | 1.63 | 0.63 |
| 1:AA:1513:A:H2' | 1:AA:1514:G:H8 | 1.63 | 0.63 |
| 23:BB:41:C:H2' | 23:BB:42:A:H8 | 1.63 | 0.63 |
| 22:DA:43:C:H4' | 28:DF:62:GLN:HE21 | 1.64 | 0.63 |
| 40:BS:66:ILE:HD12 | 40:BS:66:ILE:H | 1.64 | 0.63 |
| 1:AA:168:G:O2' | 1:AA:169:C:H5' | 1.99 | 0.63 |
| 23:BB:1309:G:H4' | 49:B2:7:PRO:HG2 | 1.80 | 0.63 |
| 1:CA:1234:C:H2' | 1:CA:1235:U:C6 | 2.34 | 0.63 |
| 1:AA:810:C:O2' | 1:AA:811:C:H5' | 1.99 | 0.63 |
| 23:BB:2563:U:H5'' | 32:BK:27:GLY:HA2 | 1.79 | 0.63 |
| 37:DP:89:GLY:HA2 | 37:DP:112:ARG:HH22 | 1.64 | 0.62 |
| 37:BP:63:ILE:H | 37:BP:63:ILE:HD12 | 1.64 | 0.62 |
| 25:BC:117:SER:HB3 | 25:BC:127:ASN:CG | 2.19 | 0.62 |
| 25:DC:131:MET:HG3 | 25:DC:187:CYS:SG | 2.39 | 0.62 |
| 23:DB:6:A:H2' | 23:DB:7:G:C8 | 2.34 | 0.62 |
| 23:BB:856:G:H2' | 23:BB:857:G:C8 | 2.34 | 0.62 |
| 32:BK:99:ILE:HD13 | 32:BK:118:LEU:HD13 | 1.80 | 0.62 |
| 34:BM:34:LYS:O | 34:BM:124:LEU:HB2 | 1.99 | 0.62 |
| 23:BB:1158:C:H5'' | 45:BY:30:ARG:HD3 | 1.81 | 0.62 |
| 42:DU:66:VAL:HG22 | 42:DU:67:SER:N | 2.08 | 0.62 |
| 34:DM:18:ARG:CD | 34:DM:18:ARG:H | 2.09 | 0.62 |
| 26:BD:115:GLY:HA3 | 26:BD:166:GLY:HA2 | 1.80 | 0.62 |
| 5:CF:38:ARG:HH21 | 5:CF:63:ASN:HD21 | 1.46 | 0.62 |
| 42:BU:27:VAL:HA | 42:BU:32:LYS:O | 1.99 | 0.62 |
| 52:DI:20:SER:O | 52:DI:25:PRO:HD2 | 1.99 | 0.62 |
| 52:DI:45:THR:CA | 52:DI:48:ILE:HG22 | 2.29 | 0.62 |
| 16:CQ:11:VAL:HG22 | 16:CQ:22:VAL:HG22 | 1.81 | 0.62 |
| 23:BB:1442:U:H2' | 23:BB:1443:U:C6 | 2.33 | 0.62 |
| 23:BB:65:U:H2' | 23:BB:66:C:H6 | 1.64 | 0.62 |
| 2:CC:182:ASP:HB3 | 2:CC:201:ILE:HB | 1.80 | 0.62 |
| 23:DB:1548:A:H2' | 23:DB:1549:A:C8 | 2.34 | 0.62 |
| 1:AA:278:G:N2 | 1:AA:279:A:H62 | 1.97 | 0.62 |
| 23:BB:1386:C:H2' | 23:BB:1387:A:C8 | 2.34 | 0.62 |
| 20:CB:65:LYS:HB2 | 20:CB:157:PRO:HA | 1.80 | 0.62 |
| 23:DB:1571:A:H2' | 23:DB:1572:A:C8 | 2.34 | 0.62 |
| 23:DB:1682:G:H2' | 23:DB:1683:U:C6 | 2.34 | 0.62 |
| 23:BB:608:A:H2' | 23:BB:609:A:C8 | 2.34 | 0.62 |
| 23:DB:967:U:H2' | 23:DB:968:C:C6 | 2.34 | 0.62 |
| 12:AM:22:TYR:HB3 | 12:AM:69:ARG:HH22 | 1.63 | 0.62 |
| 23:BB:2415:G:H2' | 23:BB:2416:C:H6 | 1.62 | 0.62 |
| 23:DB:1722:A:H2' | 23:DB:1723:G:C8 | 2.34 | 0.62 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:BB:1854:A:H62 | 23:BB:1888:G:H8 | 1.46 | 0.62 |
| 29:DG:168:VAL:HG23 | 51:D4:31:PRO:HB3 | 1.81 | 0.62 |
| 23:DB:2848:G:H1' | 23:DB:2868:A:N6 | 2.14 | 0.62 |
| 37:DP:91:VAL:HG23 | 37:DP:92:ARG:H | 1.65 | 0.62 |
| 23:BB:444:C:H5'' | 27:BE:44:ARG:NH1 | 2.14 | 0.62 |
| 23:DB:2742:G:H5'' | 51:D4:38:GLY:HA2 | 1.80 | 0.62 |
| 23:BB:2574:G:O2' | 26:BD:151:THR:HG21 | 1.99 | 0.62 |
| 39:BR:78:ARG:HD3 | 39:BR:88:GLY:N | 2.14 | 0.62 |
| 16:AQ:10:ARG:HH11 | 16:AQ:55:GLY:N | 1.96 | 0.62 |
| 39:BR:41:ILE:O | 39:BR:43:ASN:N | 2.31 | 0.62 |
| 44:BX:43:LEU:HA | 44:BX:47:ARG:HB3 | 1.81 | 0.62 |
| 23:BB:547:A:H3' | 23:BB:548:G:C8 | 2.28 | 0.62 |
| 23:DB:1060:U:O4 | 23:DB:1088:A:N6 | 2.31 | 0.62 |
| 44:DX:50:VAL:O | 44:DX:54:LYS:HB2 | 1.99 | 0.62 |
| 25:BC:245:THR:O | 25:BC:247:TRP:N | 2.32 | 0.62 |
| 1:CA:1250:A:C4' | 8:CI:69:GLY:H | 2.10 | 0.62 |
| 32:DK:43:ILE:HG12 | 32:DK:52:VAL:HG12 | 1.81 | 0.62 |
| 32:DK:66:LYS:HA | 32:DK:79:PHE:O | 1.99 | 0.62 |
| 8:CI:29:ILE:HG23 | 8:CI:32:ARG:HB2 | 1.81 | 0.62 |
| 25:DC:10:PRO:CD | 25:DC:202:ARG:HH22 | 2.12 | 0.62 |
| 1:CA:939:G:H5'' | 6:CG:101:ARG:HH22 | 1.63 | 0.62 |
| 49:B2:35:ARG:HH12 | 49:B2:39:ARG:HG2 | 1.63 | 0.62 |
| 23:DB:1386:C:H2' | 23:DB:1387:A:C8 | 2.34 | 0.62 |
| 23:BB:1590:A:H2' | 23:BB:1591:A:H8 | 1.64 | 0.62 |
| 1:AA:1074:G:H2' | 1:AA:1075:U:H6 | 1.64 | 0.62 |
| 10:AK:58:THR:HG23 | 10:AK:61:ALA:CB | 2.30 | 0.62 |
| 1:CA:524:G:H2' | 1:CA:525:C:C6 | 2.34 | 0.62 |
| 28:BF:128:SER:HA | 28:BF:154:THR:HG23 | 1.81 | 0.62 |
| 23:BB:2227:A:H4' | 25:BC:258:SER:HA | 1.80 | 0.62 |
| 42:DU:79:ALA:O | 42:DU:96:LYS:HB3 | 1.99 | 0.62 |
| 24:DV:48:MET:HE1 | 24:DV:85:LYS:HA | 1.81 | 0.62 |
| 36:DO:91:SER:HB3 | 36:DO:115:LEU:HD22 | 1.81 | 0.62 |
| 23:BB:381:G:O2' | 23:BB:382:A:H5' | 1.99 | 0.62 |
| 29:BG:158:GLY:HA3 | 29:BG:170:THR:HG21 | 1.80 | 0.62 |
| 33:DL:2:ARG:HG3 | 33:DL:2:ARG:HH11 | 1.64 | 0.62 |
| 40:DS:27:LYS:HA | 40:DS:70:LYS:HB3 | 1.81 | 0.62 |
| 23:DB:1100:C:H2' | 23:DB:1101:U:H6 | 1.64 | 0.62 |
| 43:DW:35:ILE:CD1 | 43:DW:35:ILE:H | 2.10 | 0.62 |
| 25:BC:46:GLY:O | 25:BC:47:ARG:HB2 | 1.98 | 0.62 |
| 43:BW:42:THR:HA | 43:BW:74:LYS:HA | 1.80 | 0.62 |
| 23:DB:1365:A:OP2 | 46:DZ:9:TYR:HE2 | 1.81 | 0.62 |
| 23:BB:2575:C:C4' | 26:BD:148:GLN:HA | 2.28 | 0.62 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 23:DB:1024:G:C3' | 23:DB:1025:G:H5'' | 2.28 | 0.62 |
| 23:DB:1802:A:H2' | 23:DB:1803:A:C8 | 2.34 | 0.62 |
| 1:AA:408:A:H3' | 1:AA:409:U:H6 | 1.63 | 0.62 |
| 13:AN:63:CYS:HB3 | 13:AN:67:GLY:N | 2.08 | 0.62 |
| 44:BX:28:LEU:HB3 | 44:BX:34:SER:CA | 2.24 | 0.62 |
| 26:DD:125:TRP:CD1 | 26:DD:127:PHE:HB2 | 2.34 | 0.62 |
| 26:BD:46:ARG:HD2 | 26:BD:80:TRP:CZ2 | 2.34 | 0.62 |
| 26:BD:4:LEU:HD13 | 26:BD:79:LEU:CD1 | 2.28 | 0.62 |
| 25:BC:224:MET:HA | 25:BC:232:GLY:CA | 2.28 | 0.62 |
| 35:DN:87:PHE:CD1 | 35:DN:90:ARG:HB2 | 2.34 | 0.62 |
| 25:DC:3:VAL:HG12 | 25:DC:4:LYS:H | 1.64 | 0.62 |
| 23:DB:2415:G:H2' | 23:DB:2416:C:H6 | 1.62 | 0.62 |
| 7:CH:35:ILE:O | 7:CH:38:VAL:HG12 | 1.99 | 0.62 |
| 23:DB:2306:C:H3' | 23:DB:2307:G:C5' | 2.29 | 0.62 |
| 29:BG:136:ASP:OD1 | 29:BG:138:GLN:HB3 | 1.99 | 0.62 |
| 23:DB:182:A:H2' | 23:DB:183:C:H6 | 1.63 | 0.62 |
| 9:AJ:30:LYS:HB2 | 9:AJ:36:VAL:HG21 | 1.81 | 0.62 |
| 23:BB:1779:U:H5 | 23:BB:1784:A:N7 | 1.97 | 0.62 |
| 3:CD:148:ALA:O | 3:CD:151:GLN:HG2 | 1.99 | 0.62 |
| 12:AM:89:ARG:HB2 | 12:AM:96:VAL:HG12 | 1.81 | 0.62 |
| 23:BB:1319:C:O2' | 23:BB:1320:C:H5' | 1.98 | 0.62 |
| 23:BB:2274:A:H2' | 23:BB:2276:G:OP1 | 2.00 | 0.62 |
| 1:AA:636:U:H2' | 1:AA:637:C:C6 | 2.35 | 0.62 |
| 23:BB:244:A:H2' | 23:BB:245:G:O4' | 2.00 | 0.62 |
| 43:DW:13:ARG:HE | 43:DW:13:ARG:N | 1.88 | 0.62 |
| 23:DB:2088:A:H2' | 23:DB:2089:C:H6 | 1.64 | 0.62 |
| 34:BM:45:GLN:NE2 | 34:BM:119:LEU:HB3 | 2.14 | 0.62 |
| 23:DB:2292:U:H2' | 23:DB:2293:G:C8 | 2.34 | 0.62 |
| 36:DO:71:ALA:HB1 | 36:DO:106:LEU:HB2 | 1.81 | 0.62 |
| 36:DO:51:ALA:HB3 | 36:DO:78:VAL:HG22 | 1.81 | 0.62 |
| 23:BB:1131:G:H1' | 23:BB:1133:A:N6 | 2.14 | 0.62 |
| 25:BC:63:ILE:HG22 | 25:BC:64:VAL:H | 1.64 | 0.62 |
| 34:DM:16:ARG:HH22 | 34:DM:72:PRO:HG2 | 1.65 | 0.62 |
| 27:BE:109:LEU:HD23 | 27:BE:110:SER:N | 2.14 | 0.62 |
| 10:AK:22:ILE:HD13 | 10:AK:95:THR:HG21 | 1.81 | 0.62 |
| 23:BB:143:C:H2' | 23:BB:144:A:N9 | 2.13 | 0.62 |
| 12:CM:56:ARG:HH11 | 12:CM:56:ARG:HG3 | 1.63 | 0.62 |
| 39:DR:39:LEU:H | 39:DR:61:ALA:CB | 2.11 | 0.62 |
| 52:DI:71:LYS:HB3 | 52:DI:115:ASP:OD2 | 1.99 | 0.62 |
| 1:AA:918:A:H2' | 1:AA:919:A:C8 | 2.34 | 0.62 |
| 30:DH:65:ALA:HA | 30:DH:68:ARG:HB2 | 1.81 | 0.62 |
| 8:AI:11:ARG:NH2 | 8:AI:12:LYS:HB2 | 2.14 | 0.62 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 23:BB:932:U:H5' | 23:BB:933:A:OP1 | 1.99 | 0.62 |
| 15:AP:71:VAL:HA | 15:AP:74:LEU:HG | 1.79 | 0.62 |
| 44:BX:30:MET:HG3 | 44:BX:31:GLN:N | 2.14 | 0.62 |
| 10:AK:56:LYS:H | 10:AK:56:LYS:HD3 | 1.64 | 0.62 |
| 23:BB:172:A:H2' | 23:BB:173:A:C8 | 2.34 | 0.62 |
| 23:BB:1097:U:H2' | 23:BB:1098:A:H5' | 1.81 | 0.62 |
| 1:CA:636:U:H2' | 1:CA:637:C:C6 | 2.34 | 0.62 |
| 41:BT:36:LYS:C | 41:BT:36:LYS:HD3 | 2.20 | 0.62 |
| 23:DB:1295:C:H2' | 23:DB:1296:G:H8 | 1.64 | 0.62 |
| 23:DB:1098:A:O5' | 52:DI:3:LYS:HG2 | 2.00 | 0.62 |
| 37:DP:69:VAL:HG13 | 37:DP:70:GLU:N | 2.12 | 0.62 |
| 23:BB:1818:U:O3' | 25:BC:155:ARG:HB2 | 2.00 | 0.62 |
| 23:BB:969:G:H2' | 23:BB:970:U:C6 | 2.35 | 0.62 |
| 34:BM:65:ILE:HG22 | 34:BM:101:VAL:HA | 1.82 | 0.62 |
| 23:BB:479:A:O2' | 23:BB:480:A:OP2 | 2.15 | 0.62 |
| 28:DF:18:GLU:C | 28:DF:20:ASN:H | 2.03 | 0.62 |
| 33:BL:79:LEU:HD12 | 33:BL:79:LEU:H | 1.64 | 0.62 |
| 1:CA:1329:A:H5'' | 12:CM:25:GLY:H | 1.63 | 0.62 |
| 1:CA:107:G:H2' | 1:CA:108:G:H5'' | 1.81 | 0.62 |
| 26:BD:62:LYS:HG2 | 26:BD:63:PRO:CD | 2.29 | 0.62 |
| 25:DC:21:PRO:HD2 | 25:DC:202:ARG:NH1 | 2.13 | 0.62 |
| 1:CA:1071:C:H2' | 1:CA:1072:G:C8 | 2.33 | 0.62 |
| 23:BB:1548:A:H2' | 23:BB:1549:A:C8 | 2.34 | 0.62 |
| 23:BB:1485:U:H2' | 23:BB:1486:U:H6 | 1.63 | 0.62 |
| 4:AE:84:VAL:HG22 | 4:AE:85:LYS:H | 1.65 | 0.62 |
| 23:BB:19:A:H5'' | 38:BQ:20:ALA:O | 1.99 | 0.62 |
| 13:AN:42:ASN:O | 13:AN:46:LYS:HG3 | 2.00 | 0.62 |
| 4:CE:95:MET:HA | 4:CE:124:ALA:HB2 | 1.79 | 0.62 |
| 1:CA:492:C:C2' | 1:CA:493:A:H5'' | 2.28 | 0.62 |
| 25:DC:28:PRO:HB2 | 25:DC:79:ARG:HG2 | 1.80 | 0.62 |
| 23:DB:438:G:H2' | 23:DB:439:A:C8 | 2.34 | 0.62 |
| 50:D3:4:LYS:HE3 | 50:D3:61:LEU:HB2 | 1.81 | 0.62 |
| 23:DB:1590:A:H2' | 23:DB:1591:A:H8 | 1.64 | 0.62 |
| 29:DG:75:VAL:O | 29:DG:79:THR:HG22 | 1.99 | 0.62 |
| 7:CH:19:ALA:HB3 | 7:CH:21:LYS:HG2 | 1.80 | 0.62 |
| 1:CA:980:C:H2' | 1:CA:981:U:H5' | 1.80 | 0.62 |
| 16:CQ:24:ILE:HD13 | 16:CQ:43:LEU:HD13 | 1.81 | 0.62 |
| 29:DG:55:ASP:CG | 29:DG:56:GLY:H | 2.02 | 0.62 |
| 25:DC:235:GLU:HG3 | 25:DC:236:GLY:H | 1.64 | 0.62 |
| 23:DB:2233:U:H2' | 23:DB:2234:G:C8 | 2.35 | 0.62 |
| 23:DB:1099:G:C8 | 52:DI:3:LYS:CB | 2.83 | 0.62 |
| 30:BH:82:SER:HB2 | 30:BH:94:ILE:HD11 | 1.80 | 0.62 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:BB:2848:G:H1' | 23:BB:2868:A:N6 | 2.14 | 0.62 |
| 25:DC:68:ARG:NH2 | 25:DC:190:THR:HG23 | 2.14 | 0.62 |
| 23:DB:340:A:H2' | 23:DB:341:C:O4' | 1.99 | 0.62 |
| 23:BB:2678:C:H2' | 23:BB:2679:A:C8 | 2.35 | 0.62 |
| 40:BS:4:ILE:HG22 | 40:BS:5:ALA:H | 1.64 | 0.62 |
| 26:BD:107:VAL:HG23 | 26:BD:204:LYS:O | 2.00 | 0.62 |
| 23:DB:1151:A:H2' | 23:DB:1152:C:H6 | 1.63 | 0.62 |
| 23:DB:997:G:H5' | 38:DQ:92:LYS:HG3 | 1.81 | 0.62 |
| 23:BB:274:C:H2' | 23:BB:275:C:O4' | 2.00 | 0.62 |
| 23:BB:2066:C:O2' | 23:BB:2067:G:H5' | 2.00 | 0.62 |
| 38:BQ:101:ASP:HB3 | 38:BQ:104:ALA:HB3 | 1.81 | 0.62 |
| 9:CJ:53:ILE:HG22 | 9:CJ:61:ALA:HB1 | 1.81 | 0.62 |
| 1:CA:1392:G:O2' | 1:CA:1393:U:H5' | 2.00 | 0.62 |
| 20:AB:75:ALA:O | 20:AB:79:VAL:HB | 2.00 | 0.62 |
| 20:CB:162:VAL:HG11 | 20:CB:172:ILE:HD11 | 1.82 | 0.62 |
| 1:CA:1143:G:H2' | 1:CA:1144:G:H8 | 1.64 | 0.62 |
| 1:CA:1409:C:H2' | 1:CA:1410:A:H8 | 1.65 | 0.62 |
| 27:DE:191:ASP:HA | 27:DE:194:LYS:HE3 | 1.81 | 0.62 |
| 23:BB:536:G:H4' | 38:BQ:56:PHE:CZ | 2.35 | 0.62 |
| 1:CA:810:C:O2' | 1:CA:811:C:H5' | 1.99 | 0.62 |
| 20:AB:101:THR:HG23 | 20:AB:102:ASN:H | 1.65 | 0.62 |
| 1:AA:957:U:H3 | 1:AA:960:U:H5'' | 1.65 | 0.62 |
| 1:CA:384:G:H2' | 1:CA:385:C:C6 | 2.34 | 0.62 |
| 23:DB:1459:G:O2' | 23:DB:1460:U:H5' | 1.98 | 0.62 |
| 25:BC:220:ARG:CZ | 25:BC:220:ARG:HA | 2.29 | 0.62 |
| 13:CN:32:ASP:HB2 | 13:CN:34:ASN:ND2 | 2.14 | 0.62 |
| 30:DH:96:THR:HG23 | 30:DH:97:ARG:HG2 | 1.81 | 0.62 |
| 15:CP:20:VAL:HG23 | 15:CP:34:GLU:O | 1.99 | 0.62 |
| 3:AD:147:LYS:H | 3:AD:147:LYS:HE3 | 1.65 | 0.62 |
| 23:DB:1098:A:C3' | 52:DI:4:VAL:N | 2.62 | 0.62 |
| 37:BP:86:LYS:O | 37:BP:87:ARG:HG3 | 1.99 | 0.62 |
| 25:BC:107:LYS:H | 25:BC:194:VAL:HG21 | 1.63 | 0.62 |
| 47:D0:41:HIS:CD2 | 47:D0:46:GLY:HA2 | 2.35 | 0.62 |
| 23:DB:337:C:H2' | 23:DB:338:G:O4' | 1.99 | 0.62 |
| 23:BB:633:A:H2' | 23:BB:634:C:H5' | 1.81 | 0.62 |
| 3:AD:20:LEU:O | 3:AD:21:LYS:HE3 | 2.00 | 0.62 |
| 41:DT:66:LYS:HZ3 | 41:DT:66:LYS:C | 2.02 | 0.62 |
| 23:BB:1155:A:H61 | 45:BY:10:ARG:HH12 | 1.46 | 0.62 |
| 40:DS:7:HIS:CD2 | 40:DS:10:ALA:HB2 | 2.35 | 0.62 |
| 34:DM:41:LEU:HD23 | 34:DM:93:VAL:HG11 | 1.82 | 0.62 |
| 44:BX:29:ARG:HA | 44:BX:34:SER:HB2 | 1.82 | 0.62 |
| 23:DB:28:A:N6 | 23:DB:512:G:H1' | 2.14 | 0.62 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 26:DD:30:GLU:HG2 | 26:DD:94:GLN:HE22 | 1.64 | 0.62 |
| 26:DD:17:GLU:HG2 | 37:DP:80:VAL:HB | 1.81 | 0.62 |
| 39:DR:6:GLN:NE2 | 39:DR:6:GLN:N | 2.47 | 0.62 |
| 33:DL:118:THR:HG23 | 33:DL:119:PRO:CD | 2.29 | 0.62 |
| 42:DU:71:ILE:HG21 | 42:DU:102:ILE:HD12 | 1.80 | 0.62 |
| 36:BO:1:MET:HG2 | 36:BO:3:LYS:N | 2.15 | 0.62 |
| 32:DK:33:ALA:HB2 | 32:DK:39:ILE:HD11 | 1.81 | 0.62 |
| 5:CF:47:LEU:HD21 | 5:CF:57:ALA:CB | 2.30 | 0.62 |
| 9:AJ:24:GLU:OE1 | 9:AJ:90:LEU:HD22 | 1.98 | 0.62 |
| 23:BB:2813:A:H2' | 23:BB:2814:A:C8 | 2.34 | 0.62 |
| 42:DU:46:LYS:HD3 | 42:DU:53:GLN:HG3 | 1.82 | 0.62 |
| 1:AA:973:G:H1' | 9:AJ:56:HIS:ND1 | 2.15 | 0.62 |
| 23:BB:1843:C:H5'' | 25:BC:252:LYS:NZ | 2.15 | 0.62 |
| 28:BF:33:ILE:HD11 | 28:BF:90:LEU:HB2 | 1.81 | 0.62 |
| 23:DB:2249:U:H4' | 23:DB:2275:C:H5 | 1.65 | 0.62 |
| 23:BB:364:C:H2' | 23:BB:365:U:H6 | 1.65 | 0.62 |
| 23:BB:1571:A:H2' | 23:BB:1572:A:C8 | 2.34 | 0.62 |
| 1:AA:1017:U:H2' | 1:AA:1018:G:C8 | 2.34 | 0.62 |
| 20:AB:128:LEU:HG | 20:AB:132:GLU:HG2 | 1.82 | 0.62 |
| 23:DB:1495:A:H2' | 23:DB:1496:A:C8 | 2.35 | 0.62 |
| 30:BH:89:LYS:C | 30:BH:90:LEU:HD12 | 2.20 | 0.62 |
| 20:CB:46:VAL:HA | 20:CB:49:PHE:CD2 | 2.35 | 0.62 |
| 37:BP:52:ARG:HH11 | 37:BP:54:LEU:HB3 | 1.63 | 0.62 |
| 25:BC:67:LYS:O | 25:BC:68:ARG:HB2 | 1.99 | 0.62 |
| 23:BB:162:U:O2' | 23:BB:163:C:H5' | 2.00 | 0.62 |
| 23:DB:2784:U:H2' | 23:DB:2785:C:H6 | 1.62 | 0.62 |
| 23:BB:968:C:H2' | 23:BB:969:G:H8 | 1.64 | 0.62 |
| 20:AB:147:LEU:O | 20:AB:150:ILE:HG22 | 2.00 | 0.62 |
| 38:BQ:111:LYS:HB2 | 39:BR:52:PRO:HB3 | 1.82 | 0.62 |
| 12:AM:48:SER:O | 12:AM:52:ILE:HG22 | 1.98 | 0.62 |
| 1:AA:763:G:H2' | 1:AA:764:C:C6 | 2.33 | 0.62 |
| 43:BW:35:ILE:HG23 | 43:BW:36:ILE:N | 2.11 | 0.62 |
| 26:DD:31:ALA:HB3 | 26:DD:95:SER:H | 1.65 | 0.62 |
| 33:BL:94:THR:CB | 33:BL:103:ILE:HG12 | 2.29 | 0.62 |
| 1:AA:1005:A:H3' | 1:AA:1006:G:H8 | 1.64 | 0.62 |
| 39:DR:69:GLY:HA2 | 39:DR:96:VAL:HA | 1.81 | 0.62 |
| 35:DN:30:ARG:HH12 | 35:DN:74:GLU:HG2 | 1.63 | 0.62 |
| 32:BK:35:VAL:HG12 | 32:BK:69:VAL:HG22 | 1.82 | 0.62 |
| 2:CC:61:LYS:HB3 | 2:CC:61:LYS:NZ | 2.14 | 0.62 |
| 42:DU:57:ILE:HD13 | 42:DU:58:VAL:N | 2.13 | 0.62 |
| 23:BB:1469:A:H2' | 23:BB:1470:A:H8 | 1.62 | 0.62 |
| 23:DB:1178:C:H2' | 23:DB:1179:G:H8 | 1.63 | 0.62 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:DB:2147:A:H4' | 23:DB:2148:G:C8 | 2.34 | 0.62 |
| 23:BB:365:U:H2' | 23:BB:366:C:C6 | 2.35 | 0.62 |
| 28:BF:116:LEU:HG | 28:BF:176:PHE:HA | 1.80 | 0.62 |
| 28:BF:177:ARG:HE | 28:BF:178:LYS:N | 1.97 | 0.62 |
| 1:AA:841:C:H3' | 1:AA:843:U:OP2 | 1.99 | 0.62 |
| 27:DE:134:LEU:H | 27:DE:134:LEU:HD13 | 1.65 | 0.62 |
| 36:DO:82:ALA:C | 36:DO:87:ILE:HG21 | 2.20 | 0.62 |
| 9:CJ:85:ASP:HB2 | 9:CJ:89:ARG:NH2 | 2.14 | 0.62 |
| 43:BW:2:HIS:C | 43:BW:3:LYS:HD2 | 2.20 | 0.62 |
| 1:AA:135:C:O2 | 15:AP:1:MET:HB2 | 1.99 | 0.62 |
| 1:AA:1444:U:H2' | 1:AA:1445:U:C6 | 2.35 | 0.62 |
| 34:BM:3:GLN:NE2 | 34:BM:5:LYS:H | 1.98 | 0.62 |
| 25:DC:139:THR:HA | 25:DC:193:GLU:OE1 | 2.00 | 0.62 |
| 23:BB:854:C:H2' | 23:BB:855:G:H8 | 1.65 | 0.62 |
| 23:BB:923:G:O2' | 23:BB:924:G:H5' | 2.00 | 0.62 |
| 43:BW:44:PHE:CE2 | 43:BW:60:ALA:HB3 | 2.34 | 0.62 |
| 46:DZ:49:ARG:C | 46:DZ:51:VAL:H | 2.03 | 0.62 |
| 23:BB:2678:C:H2' | 23:BB:2679:A:H8 | 1.65 | 0.62 |
| 38:BQ:60:TRP:O | 38:BQ:64:ILE:HG13 | 2.00 | 0.62 |
| 27:BE:147:LEU:HB3 | 27:BE:183:PHE:CD2 | 2.35 | 0.62 |
| 51:B4:2:LYS:NZ | 51:B4:2:LYS:HB3 | 2.15 | 0.62 |
| 10:AK:105:ARG:HH21 | 21:AU:10:PRO:HG3 | 1.64 | 0.62 |
| 26:BD:106:LYS:HZ1 | 26:BD:208:LYS:HD3 | 1.65 | 0.62 |
| 26:BD:32:ASN:ND2 | 26:BD:94:GLN:HG2 | 2.15 | 0.62 |
| 33:BL:79:LEU:HD12 | 33:BL:79:LEU:N | 2.15 | 0.62 |
| 8:CI:94:ARG:HB3 | 8:CI:98:ARG:NE | 2.14 | 0.62 |
| 35:DN:70:THR:HG22 | 35:DN:72:ASP:H | 1.65 | 0.62 |
| 23:DB:1551:A:C3' | 23:DB:1552:A:H5'' | 2.30 | 0.62 |
| 23:BB:1802:A:H2' | 23:BB:1803:A:C8 | 2.34 | 0.62 |
| 29:BG:71:LEU:HA | 29:BG:74:MET:HG3 | 1.82 | 0.62 |
| 1:CA:408:A:H3' | 1:CA:409:U:H6 | 1.63 | 0.62 |
| 23:BB:1159:U:H2' | 23:BB:1160:G:H8 | 1.63 | 0.62 |
| 6:CG:30:MET:HG3 | 6:CG:34:LYS:O | 2.00 | 0.62 |
| 3:AD:163:GLN:HB2 | 3:AD:164:ARG:NH1 | 2.14 | 0.62 |
| 6:CG:59:GLU:HA | 6:CG:62:GLU:OE2 | 1.99 | 0.62 |
| 1:CA:1354:U:H2' | 1:CA:1355:G:H8 | 1.63 | 0.62 |
| 1:AA:107:G:H2' | 1:AA:108:G:H5'' | 1.81 | 0.62 |
| 23:DB:1509:A:H5' | 23:DB:1510:G:H5' | 1.80 | 0.62 |
| 13:AN:17:ASP:HA | 13:AN:21:ALA:CB | 2.30 | 0.62 |
| 34:DM:26:VAL:HG12 | 34:DM:27:SER:H | 1.64 | 0.62 |
| 31:BJ:67:ASN:O | 31:BJ:70:THR:HG22 | 1.99 | 0.62 |
| 23:DB:1641:A:H2' | 23:DB:1642:G:O4' | 1.98 | 0.62 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 20:AB:156:LEU:HD12 | 20:AB:156:LEU:H | 1.63 | 0.62 |
| 23:BB:2185:U:H2' | 23:BB:2186:G:H8 | 1.64 | 0.62 |
| 23:DB:2425:A:H5' | 23:DB:2427:C:O4' | 2.00 | 0.62 |
| 25:BC:43:ASN:OD1 | 25:BC:51:ARG:HD3 | 1.99 | 0.62 |
| 30:DH:4:ILE:HD11 | 30:DH:37:VAL:HA | 1.81 | 0.62 |
| 23:DB:1819:A:OP1 | 25:DC:153:LEU:HB2 | 1.99 | 0.62 |
| 23:DB:3:U:H2' | 23:DB:4:U:C6 | 2.34 | 0.62 |
| 15:AP:46:LYS:CE | 15:AP:46:LYS:H | 2.12 | 0.62 |
| 15:AP:46:LYS:HE2 | 15:AP:46:LYS:N | 2.15 | 0.62 |
| 48:D1:15:GLY:HA3 | 48:D1:47:ILE:HG21 | 1.82 | 0.62 |
| 34:BM:69:PRO:HB2 | 34:BM:71:LYS:HZ1 | 1.65 | 0.62 |
| 3:AD:2:ARG:HH12 | 3:AD:114:ARG:HD2 | 1.65 | 0.62 |
| 45:BY:9:THR:CA | 45:BY:55:LYS:HE2 | 2.29 | 0.62 |
| 26:BD:48:ILE:HG13 | 26:BD:80:TRP:NE1 | 2.15 | 0.62 |
| 28:DF:65:LEU:HD23 | 28:DF:87:LYS:HD2 | 1.80 | 0.62 |
| 21:AU:36:PHE:HB3 | 21:AU:40:PRO:CG | 2.30 | 0.62 |
| 1:AA:1238:A:C2 | 1:AA:1241:G:H1' | 2.35 | 0.62 |
| 42:DU:9:GLU:HB2 | 42:DU:71:ILE:HG13 | 1.82 | 0.62 |
| 40:BS:88:ARG:HD2 | 40:BS:93:ALA:HB3 | 1.81 | 0.62 |
| 49:D2:17:GLY:O | 49:D2:19:ARG:N | 2.32 | 0.62 |
| 19:CT:3:ILE:O | 19:CT:4:LYS:HB2 | 2.00 | 0.62 |
| 9:AJ:88:MET:HB2 | 9:AJ:89:ARG:NH1 | 2.15 | 0.62 |
| 34:DM:133:LYS:HD2 | 34:DM:134:THR:O | 2.00 | 0.62 |
| 1:AA:590:U:H2' | 1:AA:591:U:C6 | 2.35 | 0.62 |
| 23:BB:2472:G:H2' | 23:BB:2475:C:H42 | 1.64 | 0.62 |
| 6:CG:11:ILE:HG21 | 6:CG:27:ASN:HD21 | 1.65 | 0.62 |
| 1:AA:492:C:C2' | 1:AA:493:A:H5'' | 2.28 | 0.62 |
| 23:DB:1181:U:H2' | 23:DB:1182:G:C8 | 2.35 | 0.62 |
| 14:AO:87:ARG:HH11 | 14:AO:87:ARG:HA | 1.65 | 0.62 |
| 23:BB:436:C:O2' | 23:BB:437:U:H5' | 2.00 | 0.62 |
| 23:BB:438:G:H2' | 23:BB:439:A:H8 | 1.65 | 0.62 |
| 29:BG:124:CYS:HB3 | 29:BG:129:GLU:O | 1.99 | 0.62 |
| 10:AK:56:LYS:O | 10:AK:58:THR:HG22 | 1.99 | 0.62 |
| 1:AA:313:A:H2' | 1:AA:314:C:C6 | 2.35 | 0.62 |
| 23:DB:401:A:H2' | 23:DB:402:A:H8 | 1.65 | 0.62 |
| 1:CA:168:G:O2' | 1:CA:169:C:H5' | 1.99 | 0.62 |
| 1:AA:384:G:H2' | 1:AA:385:C:C6 | 2.35 | 0.62 |
| 23:BB:1722:A:N6 | 23:BB:1738:G:H1' | 2.15 | 0.62 |
| 25:BC:179:GLU:CG | 25:BC:266:ILE:HA | 2.30 | 0.62 |
| 25:BC:179:GLU:HG3 | 25:BC:266:ILE:HA | 1.82 | 0.62 |
| 29:DG:94:ARG:HB2 | 29:DG:105:SER:HB2 | 1.82 | 0.62 |
| 6:CG:87:PRO:HG3 | 6:CG:148:LYS:HA | 1.81 | 0.62 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 1:CA:1200:C:C4' | 1:CA:1201:A:H5' | 2.29 | 0.62 |
| 2:CC:150:VAL:HG22 | 2:CC:199:VAL:HG12 | 1.82 | 0.62 |
| 16:AQ:26:ARG:HH21 | 16:AQ:39:ARG:CZ | 2.12 | 0.62 |
| 23:DB:664:G:H2' | 23:DB:665:U:H6 | 1.65 | 0.62 |
| 23:BB:189:G:OP2 | 46:BZ:12:ILE:HG12 | 1.99 | 0.62 |
| 42:BU:5:ARG:CG | 42:BU:6:ARG:H | 2.13 | 0.61 |
| 26:BD:23:PRO:HB3 | 26:BD:189:VAL:N | 2.15 | 0.61 |
| 36:DO:15:ARG:HH12 | 43:DW:76:ARG:HE | 1.45 | 0.61 |
| 43:DW:36:ILE:HG13 | 43:DW:38:ARG:H | 1.65 | 0.61 |
| 25:BC:103:ILE:HG22 | 25:BC:104:LEU:N | 2.15 | 0.61 |
| 38:DQ:36:GLN:O | 38:DQ:39:ILE:HG23 | 1.99 | 0.61 |
| 33:BL:61:LEU:HD22 | 33:BL:61:LEU:H | 1.64 | 0.61 |
| 47:B0:41:HIS:HD2 | 47:B0:42:ILE:HG22 | 1.65 | 0.61 |
| 23:BB:2743:U:H2' | 23:BB:2744:G:O4' | 2.00 | 0.61 |
| 19:AT:70:LYS:NZ | 19:AT:70:LYS:HB2 | 2.13 | 0.61 |
| 6:CG:125:ASP:HB3 | 6:CG:129:ASN:HA | 1.83 | 0.61 |
| 2:CC:18:ASN:O | 2:CC:55:VAL:HA | 2.00 | 0.61 |
| 23:DB:2678:C:H2' | 23:DB:2679:A:C8 | 2.35 | 0.61 |
| 43:BW:16:GLU:CG | 43:BW:37:VAL:HG22 | 2.30 | 0.61 |
| 23:DB:2008:C:H2' | 23:DB:2009:A:C8 | 2.31 | 0.61 |
| 23:BB:1551:A:C3' | 23:BB:1552:A:H5'' | 2.30 | 0.61 |
| 1:CA:33:A:H1' | 11:CL:27:PRO:HG3 | 1.81 | 0.61 |
| 23:DB:1439:A:N7 | 23:DB:1440:U:C6 | 2.68 | 0.61 |
| 1:AA:275:G:O5' | 16:AQ:15:LYS:HG2 | 2.00 | 0.61 |
| 7:CH:6:ILE:HD11 | 7:CH:31:LEU:HD23 | 1.82 | 0.61 |
| 23:DB:2405:G:H5' | 33:DL:70:LYS:HG3 | 1.81 | 0.61 |
| 23:BB:1117:C:H2' | 23:BB:1118:C:H6 | 1.65 | 0.61 |
| 34:DM:96:ILE:N | 34:DM:96:ILE:HD12 | 2.15 | 0.61 |
| 28:DF:177:ARG:NH2 | 28:DF:178:LYS:HA | 2.14 | 0.61 |
| 1:AA:1182:G:H4' | 1:AA:1183:U:H5' | 1.81 | 0.61 |
| 25:DC:210:ALA:HA | 25:DC:213:ARG:HD2 | 1.82 | 0.61 |
| 23:DB:1779:U:H5 | 23:DB:1784:A:N7 | 1.97 | 0.61 |
| 11:AL:43:LYS:N | 11:AL:44:PRO:HD2 | 2.15 | 0.61 |
| 23:DB:925:A:O2' | 23:DB:926:G:H5' | 2.00 | 0.61 |
| 23:DB:1254:A:N1 | 27:DE:77:ILE:HD12 | 2.14 | 0.61 |
| 23:DB:1164:C:H2' | 23:DB:1165:A:C8 | 2.36 | 0.61 |
| 23:BB:1295:C:H2' | 23:BB:1296:G:H8 | 1.65 | 0.61 |
| 48:D1:19:PHE:HD1 | 48:D1:20:TYR:H | 1.48 | 0.61 |
| 23:DB:30:G:H2' | 23:DB:31:C:C6 | 2.34 | 0.61 |
| 1:CA:590:U:H2' | 1:CA:591:U:C6 | 2.35 | 0.61 |
| 26:BD:22:ILE:N | 26:BD:23:PRO:CD | 2.63 | 0.61 |
| 31:DJ:96:ARG:HG3 | 31:DJ:98:GLU:OE1 | 1.99 | 0.61 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:DB:1225:G:OP1 | 39:DR:90:ARG:HD2 | 2.00 | 0.61 |
| 24:BV:17:SER:HB3 | 24:BV:21:ARG:HH12 | 1.65 | 0.61 |
| 16:AQ:10:ARG:NE | 16:AQ:10:ARG:HA | 2.15 | 0.61 |
| 23:DB:1797:G:O3' | 25:DC:253:GLY:HA2 | 1.99 | 0.61 |
| 8:AI:80:HIS:O | 8:AI:84:ARG:HB2 | 1.99 | 0.61 |
| 31:DJ:45:THR:HG22 | 31:DJ:47:HIS:H | 1.65 | 0.61 |
| 21:CU:17:ARG:H | 21:CU:17:ARG:CD | 2.09 | 0.61 |
| 27:BE:105:LEU:HD22 | 27:BE:177:PRO:HG2 | 1.81 | 0.61 |
| 26:DD:27:ILE:HG12 | 26:DD:185:ASN:O | 2.00 | 0.61 |
| 33:DL:78:ARG:NE | 33:DL:113:ALA:HB1 | 2.14 | 0.61 |
| 41:BT:13:ALA:O | 41:BT:32:LEU:HA | 2.00 | 0.61 |
| 23:DB:2755:C:H2' | 51:D4:19:ARG:HH21 | 1.64 | 0.61 |
| 27:BE:57:LYS:HA | 27:BE:57:LYS:HE3 | 1.81 | 0.61 |
| 44:DX:44:LYS:HG2 | 44:DX:47:ARG:HB2 | 1.82 | 0.61 |
| 26:BD:33:ARG:HG3 | 26:BD:34:VAL:H | 1.64 | 0.61 |
| 7:AH:111:THR:H | 7:AH:114:ALA:HB3 | 1.64 | 0.61 |
| 29:BG:18:ILE:HA | 29:BG:23:ILE:HD13 | 1.82 | 0.61 |
| 15:CP:68:SER:OG | 15:CP:71:VAL:HG12 | 2.00 | 0.61 |
| 1:AA:32:A:H2' | 1:AA:33:A:C8 | 2.34 | 0.61 |
| 42:DU:9:GLU:HB2 | 42:DU:71:ILE:CB | 2.30 | 0.61 |
| 23:DB:1064:C:H4' | 52:DI:90:GLY:CA | 2.28 | 0.61 |
| 1:CA:60:A:H4' | 1:CA:61:G:O5' | 2.00 | 0.61 |
| 1:AA:16:A:O2' | 4:AE:20:VAL:HG13 | 2.00 | 0.61 |
| 26:BD:60:VAL:HB | 26:BD:63:PRO:HG2 | 1.80 | 0.61 |
| 25:BC:70:LYS:HE3 | 25:BC:95:TYR:CE2 | 2.35 | 0.61 |
| 7:CH:124:ILE:HD12 | 7:CH:125:ILE:N | 2.15 | 0.61 |
| 23:BB:1439:A:N7 | 23:BB:1440:U:C6 | 2.68 | 0.61 |
| 1:CA:1437:A:H2' | 1:CA:1438:G:H8 | 1.65 | 0.61 |
| 52:DI:121:ILE:N | 52:DI:121:ILE:HD13 | 2.15 | 0.61 |
| 29:DG:175:LYS:HG2 | 29:DG:176:LYS:N | 2.14 | 0.61 |
| 23:DB:448:U:H3' | 27:DE:79:ARG:HE | 1.63 | 0.61 |
| 1:CA:859:G:H2' | 1:CA:860:A:H8 | 1.65 | 0.61 |
| 29:BG:86:LEU:HD12 | 29:BG:161:VAL:HG12 | 1.82 | 0.61 |
| 23:DB:2324:U:H3' | 23:DB:2325:G:H5'' | 1.82 | 0.61 |
| 23:DB:222:A:H61 | 23:DB:232:G:H1' | 1.62 | 0.61 |
| 52:BI:135:MET:HG3 | 52:BI:137:LEU:HG | 1.82 | 0.61 |
| 7:AH:8:ASP:OD2 | 7:AH:12:ARG:HD2 | 1.99 | 0.61 |
| 23:BB:1722:A:H2' | 23:BB:1723:G:C8 | 2.34 | 0.61 |
| 27:DE:77:ILE:O | 27:DE:77:ILE:HG12 | 1.99 | 0.61 |
| 23:BB:1682:G:H2' | 23:BB:1683:U:C6 | 2.35 | 0.61 |
| 28:DF:67:THR:OG1 | 28:DF:85:GLY:HA3 | 1.99 | 0.61 |
| 23:DB:620:G:H5' | 23:DB:620:G:N3 | 2.15 | 0.61 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 20:AB:87:ASP:O | 20:AB:88:GLN:HG3 | 2.01 | 0.61 |
| 12:CM:6:ILE:O | 12:CM:8:ILE:HG23 | 2.00 | 0.61 |
| 23:DB:1099:G:H8 | 52:DI:3:LYS:CB | 2.13 | 0.61 |
| 43:DW:67:LYS:HD2 | 43:DW:70:VAL:N | 2.15 | 0.61 |
| 36:BO:49:VAL:HG22 | 36:BO:50:ALA:N | 2.13 | 0.61 |
| 23:BB:972:A:C3' | 23:BB:973:A:H5'' | 2.30 | 0.61 |
| 23:DB:144:A:C6 | 41:DT:3:ARG:NH1 | 2.68 | 0.61 |
| 23:DB:2293:G:H5'' | 36:DO:9:ARG:HH21 | 1.64 | 0.61 |
| 42:BU:40:LEU:O | 42:BU:42:LYS:HD2 | 2.00 | 0.61 |
| 1:CA:1151:A:O2' | 1:CA:1152:A:H5'' | 2.00 | 0.61 |
| 9:AJ:53:ILE:HG12 | 9:AJ:63:ASP:HB2 | 1.82 | 0.61 |
| 26:BD:16:THR:C | 37:BP:80:VAL:HB | 2.20 | 0.61 |
| 21:CU:24:LYS:CD | 21:CU:25:ALA:H | 2.11 | 0.61 |
| 26:BD:128:ARG:NH2 | 26:BD:130:GLN:HG3 | 2.14 | 0.61 |
| 35:BN:1:MET:HE3 | 35:BN:3:HIS:H | 1.64 | 0.61 |
| 1:AA:1506:U:H4' | 10:AK:128:VAL:OXT | 2.00 | 0.61 |
| 33:DL:62:PRO:HB3 | 50:D3:12:ARG:NE | 2.16 | 0.61 |
| 23:DB:784:G:O2' | 23:DB:785:G:H5'' | 2.01 | 0.61 |
| 5:AF:4:TYR:O | 5:AF:63:ASN:HA | 2.00 | 0.61 |
| 1:CA:1078:U:H4' | 4:CE:137:ARG:HH12 | 1.66 | 0.61 |
| 1:CA:1287:A:H2' | 1:CA:1288:A:C8 | 2.35 | 0.61 |
| 23:BB:1915:U:H3' | 23:BB:1916:A:H8 | 1.66 | 0.61 |
| 1:CA:673:A:H4' | 5:CF:86:ARG:HD2 | 1.81 | 0.61 |
| 48:B1:13:SER:N | 48:B1:50:GLU:HA | 2.15 | 0.61 |
| 25:DC:20:ASN:CG | 25:DC:202:ARG:HD3 | 2.20 | 0.61 |
| 33:DL:18:ARG:HH22 | 33:DL:21:ARG:HD3 | 1.65 | 0.61 |
| 23:BB:1791:A:C2 | 23:BB:1829:A:H4' | 2.35 | 0.61 |
| 23:BB:1405:U:H2' | 23:BB:1406:U:C6 | 2.36 | 0.61 |
| 23:DB:453:A:H4' | 23:DB:472:A:N6 | 2.15 | 0.61 |
| 23:DB:912:C:O2' | 23:DB:913:U:H5' | 1.99 | 0.61 |
| 23:DB:1722:A:N6 | 23:DB:1738:G:H1' | 2.15 | 0.61 |
| 10:AK:36:ARG:HG2 | 10:AK:37:GLN:H | 1.65 | 0.61 |
| 23:BB:198:C:O2' | 23:BB:199:A:H5'' | 2.00 | 0.61 |
| 25:BC:37:SER:OG | 25:BC:62:ARG:HG3 | 2.00 | 0.61 |
| 1:CA:1030:U:H5'' | 1:CA:1031:C:C5 | 2.34 | 0.61 |
| 1:CA:841:C:H3' | 1:CA:843:U:OP2 | 1.99 | 0.61 |
| 6:CG:144:ALA:C | 6:CG:146:ALA:H | 2.04 | 0.61 |
| 14:AO:55:LEU:O | 14:AO:59:VAL:HG23 | 2.00 | 0.61 |
| 9:AJ:31:ARG:HH11 | 9:AJ:31:ARG:HG2 | 1.65 | 0.61 |
| 23:BB:526:A:N6 | 23:BB:2626:C:H4' | 2.16 | 0.61 |
| 23:BB:2455:G:H2' | 23:BB:2456:C:C6 | 2.36 | 0.61 |
| 43:DW:42:THR:HB | 43:DW:75:ASN:CG | 2.21 | 0.61 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 30:DH:3:VAL:HB | 30:DH:37:VAL:CG1 | 2.31 | 0.61 |
| 43:BW:54:ARG:HH11 | 43:BW:54:ARG:HG2 | 1.65 | 0.61 |
| 43:BW:66:VAL:HG22 | 43:BW:67:LYS:H | 1.64 | 0.61 |
| 34:BM:42:THR:CG2 | 34:BM:45:GLN:HB2 | 2.30 | 0.61 |
| 23:BB:2575:C:H4' | 26:BD:148:GLN:C | 2.20 | 0.61 |
| 39:DR:65:ALA:CB | 39:DR:99:THR:HG23 | 2.25 | 0.61 |
| 26:BD:170:VAL:HG11 | 26:BD:194:PRO:CB | 2.29 | 0.61 |
| 39:BR:53:PHE:CE2 | 39:BR:54:VAL:HB | 2.36 | 0.61 |
| 26:BD:128:ARG:CA | 26:BD:128:ARG:HE | 2.13 | 0.61 |
| 23:DB:358:U:H2' | 23:DB:359:G:C8 | 2.35 | 0.61 |
| 34:DM:28:PHE:HB2 | 34:DM:102:LEU:HG | 1.82 | 0.61 |
| 39:DR:71:LYS:HB2 | 39:DR:73:LYS:HZ1 | 1.64 | 0.61 |
| 23:DB:876:C:C2 | 23:DB:877:A:H1' | 2.35 | 0.61 |
| 23:BB:2809:A:H2' | 23:BB:2810:A:C8 | 2.36 | 0.61 |
| 23:BB:18:U:H2' | 23:BB:19:A:H8 | 1.64 | 0.61 |
| 23:BB:1791:A:OP1 | 25:BC:211:ARG:HG2 | 2.00 | 0.61 |
| 40:DS:21:ALA:HB1 | 40:DS:74:ILE:HD12 | 1.82 | 0.61 |
| 30:DH:51:ARG:HG2 | 30:DH:51:ARG:HH11 | 1.65 | 0.61 |
| 1:AA:1074:G:H2' | 1:AA:1075:U:C6 | 2.35 | 0.61 |
| 22:DA:65:U:O2' | 22:DA:66:A:H5' | 1.99 | 0.61 |
| 1:AA:642:A:H2' | 1:AA:643:C:C6 | 2.35 | 0.61 |
| 20:CB:10:LYS:HB2 | 20:CB:211:LEU:CD2 | 2.30 | 0.61 |
| 23:DB:1201:U:H2' | 23:DB:1202:G:C8 | 2.35 | 0.61 |
| 24:DV:53:LYS:HB3 | 24:DV:53:LYS:HZ2 | 1.66 | 0.61 |
| 1:CA:105:G:H2' | 1:CA:106:C:H6 | 1.64 | 0.61 |
| 23:DB:937:C:H2' | 23:DB:938:G:H8 | 1.65 | 0.61 |
| 38:DQ:25:GLY:HA2 | 38:DQ:29:ARG:HD2 | 1.82 | 0.61 |
| 20:CB:23:ASN:HD22 | 20:CB:24:PRO:HD2 | 1.63 | 0.61 |
| 23:BB:1105:U:H2' | 23:BB:1106:G:C8 | 2.34 | 0.61 |
| 25:DC:136:VAL:HA | 25:DC:165:ALA:HA | 1.82 | 0.61 |
| 50:B3:2:LYS:O | 50:B3:2:LYS:HD3 | 2.00 | 0.61 |
| 30:DH:131:SER:HB2 | 30:DH:141:LYS:HA | 1.81 | 0.61 |
| 23:BB:37:C:O2' | 27:BE:46:GLN:HB3 | 2.00 | 0.61 |
| 1:CA:974:A:C4' | 1:CA:975:A:H5' | 2.18 | 0.61 |
| 30:DH:11:ASN:HD22 | 30:DH:20:ASN:ND2 | 1.97 | 0.61 |
| 27:BE:130:LYS:HD3 | 27:BE:132:LYS:HD2 | 1.82 | 0.61 |
| 33:BL:62:PRO:C | 50:B3:24:LYS:HD3 | 2.20 | 0.61 |
| 45:BY:16:LEU:N | 45:BY:16:LEU:HD12 | 2.16 | 0.61 |
| 23:DB:136:G:H21 | 41:DT:3:ARG:HG2 | 1.66 | 0.61 |
| 23:DB:2574:G:N2 | 26:DD:147:GLY:HA3 | 2.11 | 0.61 |
| 23:BB:1656:C:H5'' | 26:BD:141:ARG:HB3 | 1.83 | 0.61 |
| 26:BD:128:ARG:HH22 | 26:BD:130:GLN:CG | 2.13 | 0.61 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:DB:361:G:H2' | 23:DB:362:A:H8 | 1.64 | 0.61 |
| 23:DB:1656:C:OP1 | 26:DD:141:ARG:HD2 | 2.00 | 0.61 |
| 23:DB:2678:C:H2' | 23:DB:2679:A:H8 | 1.64 | 0.61 |
| 11:CL:64:SER:OG | 11:CL:96:THR:HG23 | 2.01 | 0.61 |
| 28:BF:108:PRO:HB3 | 28:BF:113:PHE:CE2 | 2.36 | 0.61 |
| 23:BB:1439:A:C4 | 23:BB:1552:A:N6 | 2.69 | 0.61 |
| 3:CD:130:ASN:H | 3:CD:130:ASN:HD22 | 1.49 | 0.61 |
| 23:DB:1405:U:H2' | 23:DB:1406:U:C6 | 2.36 | 0.61 |
| 8:AI:4:GLN:HG2 | 8:AI:21:LYS:HG3 | 1.81 | 0.61 |
| 25:BC:15:VAL:HG12 | 25:BC:16:VAL:HG23 | 1.80 | 0.61 |
| 23:BB:831:G:O3' | 33:BL:44:GLY:HA3 | 2.00 | 0.61 |
| 24:DV:48:MET:SD | 24:DV:86:LEU:HD12 | 2.40 | 0.61 |
| 25:BC:220:ARG:NE | 25:BC:220:ARG:HA | 2.15 | 0.61 |
| 23:BB:1838:C:N4 | 23:BB:1898:U:H2' | 2.15 | 0.61 |
| 1:CA:1154:G:O2' | 1:CA:1155:A:H5' | 2.01 | 0.61 |
| 22:BA:27:C:H5' | 36:BO:34:HIS:CE1 | 2.35 | 0.61 |
| 29:DG:30:GLY:H | 29:DG:78:VAL:HG23 | 1.65 | 0.61 |
| 45:DY:15:ARG:NE | 45:DY:15:ARG:HA | 2.16 | 0.61 |
| 22:BA:104:A:H2' | 22:BA:105:G:O4' | 2.00 | 0.61 |
| 23:BB:1712:U:H3' | 23:BB:1713:A:H5'' | 1.83 | 0.61 |
| 1:AA:1040:U:H2' | 1:AA:1041:G:H8 | 1.66 | 0.61 |
| 30:BH:132:PHE:HB3 | 30:BH:140:ALA:HB3 | 1.82 | 0.61 |
| 10:AK:18:GLY:O | 10:AK:81:LEU:HB2 | 2.00 | 0.61 |
| 26:BD:23:PRO:HG2 | 26:BD:178:VAL:HG21 | 1.81 | 0.61 |
| 33:DL:34:GLY:HA3 | 39:DR:85:LYS:HE2 | 1.82 | 0.61 |
| 1:AA:1320:C:C5 | 18:AS:36:ARG:HG2 | 2.36 | 0.61 |
| 1:AA:1217:C:OP1 | 13:AN:8:ARG:HD3 | 2.01 | 0.61 |
| 42:DU:4:ILE:HG22 | 42:DU:27:VAL:HG22 | 1.81 | 0.61 |
| 33:BL:126:ARG:NH2 | 33:BL:131:ALA:HB2 | 2.16 | 0.61 |
| 38:BQ:39:ILE:HG23 | 39:BR:80:ARG:HD3 | 1.82 | 0.61 |
| 23:DB:64:A:C5' | 41:DT:76:ARG:HD2 | 2.30 | 0.61 |
| 39:BR:84:ARG:NH1 | 39:BR:86:GLN:HB3 | 2.15 | 0.61 |
| 1:CA:1023:U:H2' | 1:CA:1024:G:C8 | 2.35 | 0.61 |
| 27:BE:147:LEU:HD13 | 27:BE:183:PHE:HA | 1.83 | 0.61 |
| 33:DL:110:VAL:HG22 | 33:DL:127:VAL:HA | 1.82 | 0.61 |
| 26:BD:129:THR:O | 26:BD:140:HIS:HA | 2.01 | 0.61 |
| 23:DB:2393:U:H4' | 33:DL:62:PRO:O | 2.01 | 0.61 |
| 26:BD:48:ILE:HG13 | 26:BD:80:TRP:HE1 | 1.64 | 0.61 |
| 28:BF:126:ASN:H | 28:BF:126:ASN:ND2 | 1.98 | 0.61 |
| 23:DB:544:C:H4' | 23:DB:545:U:OP1 | 2.00 | 0.61 |
| 37:BP:38:ARG:HG3 | 37:BP:39:LEU:N | 2.15 | 0.61 |
| 12:CM:9:PRO:HB2 | 12:CM:17:ALA:HB1 | 1.83 | 0.61 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 1:AA:22:G:H4' | 1:AA:885:G:C8 | 2.36 | 0.61 |
| 1:AA:1182:G:H4' | 1:AA:1183:U:C5' | 2.30 | 0.61 |
| 23:BB:1105:U:H2' | 23:BB:1106:G:H8 | 1.65 | 0.61 |
| 1:AA:1011:C:H2' | 1:AA:1012:A:H8 | 1.65 | 0.61 |
| 4:AE:33:THR:O | 4:AE:34:ALA:HB3 | 2.00 | 0.61 |
| 1:AA:1132:C:H2' | 1:AA:1133:G:O4' | 2.00 | 0.61 |
| 5:AF:6:ILE:HD13 | 5:AF:89:VAL:HB | 1.83 | 0.61 |
| 23:BB:2425:A:H5' | 23:BB:2427:C:O4' | 2.00 | 0.61 |
| 23:DB:104:A:H2' | 23:DB:105:C:H6 | 1.66 | 0.61 |
| 26:DD:14:ILE:HD12 | 37:DP:78:PRO:CG | 2.30 | 0.61 |
| 26:BD:175:LEU:HD22 | 26:BD:189:VAL:HG12 | 1.81 | 0.61 |
| 31:BJ:73:VAL:HB | 31:BJ:75:TYR:CE1 | 2.35 | 0.61 |
| 23:BB:322:A:H5' | 23:BB:340:A:H1' | 1.83 | 0.61 |
| 24:BV:21:ARG:HA | 24:BV:25:LYS:O | 2.00 | 0.61 |
| 23:BB:527:C:H5'' | 23:BB:2779:U:O2 | 2.00 | 0.61 |
| 38:BQ:95:ALA:C | 38:BQ:97:ILE:H | 2.03 | 0.61 |
| 23:DB:918:A:H2' | 23:DB:919:U:C5' | 2.27 | 0.61 |
| 10:AK:111:ASP:HB2 | 21:AU:16:ARG:NH2 | 2.15 | 0.61 |
| 1:CA:1014:A:H4' | 18:CS:13:HIS:CD2 | 2.36 | 0.61 |
| 33:DL:77:ILE:HD11 | 33:DL:109:LYS:HB2 | 1.83 | 0.61 |
| 28:DF:140:ILE:H | 28:DF:140:ILE:CD1 | 2.13 | 0.61 |
| 26:BD:187:LEU:HD23 | 26:BD:188:LEU:N | 2.16 | 0.61 |
| 31:DJ:73:VAL:HG22 | 31:DJ:74:TYR:N | 2.16 | 0.61 |
| 52:DI:27:LEU:HB2 | 52:DI:32:VAL:HG21 | 1.82 | 0.61 |
| 39:DR:69:GLY:HA2 | 39:DR:97:LYS:H | 1.66 | 0.61 |
| 25:DC:20:ASN:CB | 25:DC:202:ARG:HD3 | 2.31 | 0.61 |
| 25:DC:3:VAL:HG21 | 25:DC:9:SER:HB3 | 1.82 | 0.61 |
| 23:DB:2471:A:O2' | 23:DB:2472:G:O5' | 2.19 | 0.61 |
| 23:BB:1015:U:H2' | 23:BB:1016:G:C8 | 2.36 | 0.61 |
| 41:BT:65:GLY:O | 41:BT:66:LYS:HB3 | 2.01 | 0.61 |
| 22:DA:25:U:H4' | 22:DA:27:C:OP1 | 2.00 | 0.61 |
| 38:DQ:10:ARG:O | 38:DQ:14:LYS:HB2 | 2.01 | 0.61 |
| 45:DY:29:ARG:O | 45:DY:33:HIS:HB3 | 2.00 | 0.61 |
| 1:CA:1292:G:H2' | 1:CA:1293:C:C6 | 2.35 | 0.61 |
| 40:DS:36:LEU:HA | 40:DS:39:THR:HG22 | 1.81 | 0.61 |
| 23:BB:664:G:H2' | 23:BB:665:U:H6 | 1.65 | 0.61 |
| 19:AT:81:GLN:O | 19:AT:85:LEU:HB3 | 2.01 | 0.61 |
| 23:DB:381:G:O2' | 23:DB:382:A:H5' | 2.00 | 0.61 |
| 7:AH:82:LEU:O | 7:AH:82:LEU:HD13 | 1.99 | 0.61 |
| 43:BW:49:ASN:HB2 | 43:BW:53:GLY:HA3 | 1.82 | 0.61 |
| 23:DB:1821:A:H2' | 23:DB:1822:C:C6 | 2.36 | 0.61 |
| 31:DJ:99:ARG:O | 31:DJ:103:ILE:HG12 | 2.00 | 0.61 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 43:BW:23:LYS:NZ | 43:BW:24:ARG:HG2 | 2.16 | 0.61 |
| 46:DZ:62:LYS:HA | 46:DZ:65:ASN:HD21 | 1.66 | 0.61 |
| 33:BL:38:GLN:NE2 | 33:BL:39:LYS:H | 1.98 | 0.61 |
| 23:BB:990:A:H1' | 23:BB:1156:A:H2 | 1.65 | 0.61 |
| 1:AA:132:C:H5'' | 19:AT:68:LYS:HE3 | 1.83 | 0.61 |
| 1:CA:1342:C:H2' | 1:CA:1343:G:C8 | 2.35 | 0.61 |
| 26:DD:48:ILE:HA | 26:DD:79:LEU:O | 2.01 | 0.61 |
| 30:DH:122:LEU:HA | 30:DH:146:VAL:HG21 | 1.83 | 0.61 |
| 33:DL:110:VAL:O | 33:DL:111:ILE:HG12 | 2.00 | 0.61 |
| 23:DB:285:G:H2' | 23:DB:286:U:O4' | 2.01 | 0.61 |
| 52:BI:27:LEU:CD2 | 52:BI:27:LEU:H | 2.11 | 0.61 |
| 45:DY:2:LYS:HD2 | 45:DY:35:VAL:HB | 1.82 | 0.61 |
| 29:DG:51:PHE:HE1 | 29:DG:53:PRO:HG3 | 1.66 | 0.61 |
| 29:BG:5:LYS:HG2 | 29:BG:65:GLY:HA2 | 1.83 | 0.61 |
| 25:DC:257:ARG:HA | 25:DC:261:ARG:CD | 2.30 | 0.61 |
| 23:DB:2472:G:H2' | 23:DB:2475:C:H42 | 1.65 | 0.61 |
| 23:BB:2291:U:H2' | 23:BB:2292:U:C6 | 2.35 | 0.61 |
| 25:DC:74:PRO:HG3 | 25:DC:116:GLN:HE21 | 1.64 | 0.61 |
| 1:CA:313:A:H2' | 1:CA:314:C:C6 | 2.35 | 0.61 |
| 12:AM:22:TYR:HB3 | 12:AM:69:ARG:NH2 | 2.15 | 0.61 |
| 1:CA:1031:C:H4' | 1:CA:1032:G:C5' | 2.30 | 0.61 |
| 23:DB:1229:C:H2' | 23:DB:1230:A:C8 | 2.36 | 0.61 |
| 23:BB:355:U:H2' | 23:BB:356:G:C8 | 2.35 | 0.61 |
| 23:DB:1838:C:N4 | 23:DB:1898:U:H2' | 2.15 | 0.61 |
| 17:CR:20:ILE:O | 17:CR:21:ASP:HB2 | 2.00 | 0.61 |
| 11:AL:3:VAL:O | 11:AL:7:VAL:HG23 | 1.99 | 0.61 |
| 25:BC:23:LEU:O | 25:BC:23:LEU:HD12 | 2.01 | 0.61 |
| 23:BB:2888:C:H2' | 23:BB:2889:C:C6 | 2.36 | 0.61 |
| 23:BB:1874:C:H2' | 23:BB:1875:G:O4' | 2.01 | 0.61 |
| 30:DH:66:ASN:HA | 30:DH:138:VAL:HG22 | 1.83 | 0.61 |
| 23:BB:2423:U:H3 | 43:BW:1:ALA:HB2 | 1.66 | 0.61 |
| 23:DB:765:C:H2' | 23:DB:766:U:H6 | 1.66 | 0.61 |
| 37:DP:112:ARG:N | 37:DP:112:ARG:HE | 1.98 | 0.61 |
| 37:DP:23:ASP:HA | 37:DP:49:ILE:CG2 | 2.30 | 0.61 |
| 26:BD:21:SER:C | 26:BD:23:PRO:HD3 | 2.20 | 0.61 |
| 25:BC:194:VAL:HG12 | 25:BC:195:GLY:N | 2.16 | 0.61 |
| 23:BB:1019:U:H2' | 23:BB:1020:A:C8 | 2.36 | 0.61 |
| 33:BL:91:ASP:OD2 | 33:BL:123:ARG:HD2 | 2.01 | 0.61 |
| 34:BM:34:LYS:HA | 34:BM:99:GLY:HA3 | 1.83 | 0.61 |
| 33:BL:103:ILE:O | 33:BL:104:GLN:HB3 | 2.00 | 0.61 |
| 26:BD:132:ALA:HA | 26:BD:136:ASN:H | 1.65 | 0.61 |
| 23:BB:670:A:H3' | 33:BL:47:ARG:NH1 | 2.10 | 0.61 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:DB:1019:U:H2' | 23:DB:1020:A:C8 | 2.35 | 0.61 |
| 39:DR:6:GLN:HE21 | 39:DR:6:GLN:N | 1.98 | 0.61 |
| 35:BN:98:LEU:O | 35:BN:111:ALA:HA | 2.01 | 0.61 |
| 16:CQ:10:ARG:CZ | 16:CQ:55:GLY:H | 2.13 | 0.61 |
| 44:BX:45:GLN:H | 44:BX:45:GLN:HE21 | 1.49 | 0.61 |
| 23:BB:2471:A:O2' | 23:BB:2472:G:O5' | 2.19 | 0.61 |
| 23:BB:2839:G:H21 | 35:BN:92:GLY:HA3 | 1.64 | 0.61 |
| 27:DE:99:LYS:HZ2 | 27:DE:100:MET:N | 1.99 | 0.61 |
| 23:DB:1439:A:C4 | 23:DB:1552:A:N6 | 2.69 | 0.61 |
| 9:CJ:64:GLN:HB3 | 13:CN:98:ALA:HB3 | 1.83 | 0.61 |
| 23:BB:620:G:H5' | 23:BB:620:G:N3 | 2.15 | 0.61 |
| 22:DA:66:A:HO2' | 22:DA:67:G:H8 | 1.49 | 0.61 |
| 10:AK:97:ARG:HH11 | 10:AK:97:ARG:HB3 | 1.66 | 0.61 |
| 23:BB:557:C:O2' | 31:BJ:114:LEU:HD13 | 2.01 | 0.61 |
| 1:AA:72:A:H2' | 1:AA:73:C:C6 | 2.36 | 0.61 |
| 23:BB:2282:G:O2' | 23:BB:2283:C:OP2 | 2.15 | 0.61 |
| 1:CA:900:A:O2' | 1:CA:901:A:H5' | 2.00 | 0.61 |
| 23:BB:2308:G:H5' | 23:BB:2309:A:H5'' | 1.82 | 0.61 |
| 14:AO:2:LEU:HD23 | 14:AO:3:SER:N | 2.16 | 0.61 |
| 20:CB:36:LYS:HE3 | 20:CB:36:LYS:N | 2.16 | 0.61 |
| 23:DB:291:G:O2' | 23:DB:292:U:H5' | 2.01 | 0.61 |
| 23:DB:2615:U:H1' | 47:D0:3:GLN:HB3 | 1.83 | 0.61 |
| 37:BP:52:ARG:HB3 | 37:BP:60:VAL:CG1 | 2.22 | 0.61 |
| 47:D0:36:LYS:CB | 47:D0:41:HIS:HA | 2.31 | 0.61 |
| 23:DB:2785:C:H2' | 23:DB:2786:U:H6 | 1.65 | 0.61 |
| 23:BB:969:G:H2' | 23:BB:970:U:H6 | 1.64 | 0.61 |
| 46:DZ:55:GLY:CA | 46:DZ:59:ARG:HB2 | 2.26 | 0.61 |
| 41:DT:45:ALA:HA | 41:DT:48:GLN:HG2 | 1.83 | 0.61 |
| 8:AI:51:LEU:HD11 | 8:AI:82:ILE:HD13 | 1.83 | 0.61 |
| 33:BL:94:THR:O | 33:BL:100:ILE:HG13 | 2.00 | 0.61 |
| 23:BB:138:U:H2' | 23:BB:140:C:H1' | 1.83 | 0.61 |
| 23:BB:143:C:H2' | 23:BB:144:A:C8 | 2.36 | 0.61 |
| 23:BB:743:A:O3' | 26:BD:136:ASN:HB2 | 2.00 | 0.61 |
| 26:BD:159:LYS:HB2 | 26:BD:159:LYS:HZ2 | 1.64 | 0.61 |
| 26:BD:165:MET:HE2 | 26:BD:166:GLY:H | 1.66 | 0.61 |
| 27:DE:5:LEU:HA | 27:DE:11:ALA:O | 2.00 | 0.61 |
| 27:BE:59:PRO:HD2 | 27:BE:60:TRP:NE1 | 2.16 | 0.61 |
| 38:DQ:108:LEU:HD12 | 38:DQ:111:LYS:HD2 | 1.83 | 0.61 |
| 23:BB:2318:G:O2' | 23:BB:2319:G:N2 | 2.34 | 0.61 |
| 23:DB:898:C:C2' | 23:DB:899:A:H5'' | 2.31 | 0.61 |
| 29:DG:36:LEU:CB | 29:DG:40:VAL:HG21 | 2.30 | 0.61 |
| 28:DF:133:GLU:HG2 | 28:DF:149:ARG:O | 2.01 | 0.61 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:DB:1791:A:N6 | 23:DB:1828:G:H1' | 2.16 | 0.61 |
| 25:DC:12:ARG:HH11 | 25:DC:18:VAL:HB | 1.66 | 0.61 |
| 4:CE:111:ARG:HG2 | 4:CE:111:ARG:HH11 | 1.66 | 0.61 |
| 1:AA:1280:A:O4' | 9:AJ:43:PRO:HG3 | 2.01 | 0.61 |
| 23:DB:1252:G:N3 | 38:DQ:32:ARG:HG3 | 2.16 | 0.61 |
| 1:CA:1319:A:OP1 | 18:CS:4:LEU:HD21 | 2.00 | 0.61 |
| 3:CD:160:LEU:HD13 | 3:CD:161:ALA:N | 2.16 | 0.61 |
| 23:BB:224:U:O4 | 23:BB:420:C:H5' | 2.00 | 0.61 |
| 50:B3:41:ARG:HB3 | 50:B3:43:LEU:CD2 | 2.30 | 0.61 |
| 1:CA:56:U:H2' | 1:CA:57:G:C8 | 2.36 | 0.61 |
| 34:BM:17:ASN:C | 34:BM:18:ARG:HD3 | 2.22 | 0.61 |
| 1:AA:636:U:H2' | 1:AA:637:C:H6 | 1.66 | 0.61 |
| 23:DB:401:A:H2' | 23:DB:402:A:C8 | 2.35 | 0.61 |
| 23:BB:1038:G:H2' | 23:BB:1039:A:C8 | 2.36 | 0.61 |
| 23:DB:2455:G:H2' | 23:DB:2456:C:C6 | 2.35 | 0.61 |
| 28:BF:97:GLU:O | 28:BF:100:GLU:HG3 | 2.00 | 0.61 |
| 41:BT:45:ALA:O | 41:BT:48:GLN:HB3 | 2.00 | 0.61 |
| 23:DB:1712:U:H3' | 23:DB:1713:A:H5'' | 1.83 | 0.61 |
| 23:BB:2047:C:H2' | 23:BB:2048:G:H8 | 1.66 | 0.61 |
| 1:AA:1137:C:O2' | 1:AA:1138:G:H5'' | 2.00 | 0.61 |
| 23:BB:852:U:H2' | 23:BB:853:C:C6 | 2.36 | 0.61 |
| 23:DB:1098:A:C3' | 52:DI:3:LYS:C | 2.69 | 0.60 |
| 52:DI:1:ALA:C | 52:DI:2:LYS:HD2 | 2.21 | 0.60 |
| 23:BB:1821:A:H2' | 23:BB:1822:C:C6 | 2.36 | 0.60 |
| 30:DH:1:MET:HG3 | 30:DH:21:VAL:CG2 | 2.31 | 0.60 |
| 31:BJ:100:VAL:HG22 | 31:BJ:101:ILE:N | 2.15 | 0.60 |
| 42:DU:4:ILE:CG2 | 42:DU:27:VAL:HG22 | 2.31 | 0.60 |
| 33:BL:62:PRO:O | 50:B3:24:LYS:HD3 | 2.01 | 0.60 |
| 38:BQ:33:VAL:HG13 | 38:BQ:34:ALA:N | 2.09 | 0.60 |
| 20:AB:67:LEU:HD21 | 20:AB:157:PRO:HG3 | 1.83 | 0.60 |
| 31:DJ:49:ASP:HA | 31:DJ:114:LEU:HD11 | 1.82 | 0.60 |
| 26:DD:73:VAL:HB | 26:DD:91:THR:HB | 1.83 | 0.60 |
| 26:BD:128:ARG:HH22 | 26:BD:130:GLN:CD | 2.05 | 0.60 |
| 26:BD:34:VAL:HG11 | 26:BD:71:ALA:HB2 | 1.83 | 0.60 |
| 32:DK:70:ARG:HB3 | 32:DK:76:VAL:HA | 1.82 | 0.60 |
| 38:DQ:88:GLU:CD | 39:DR:53:PHE:HB2 | 2.21 | 0.60 |
| 29:DG:36:LEU:H | 29:DG:36:LEU:HD12 | 1.66 | 0.60 |
| 12:CM:102:LYS:HZ2 | 12:CM:103:THR:HG23 | 1.66 | 0.60 |
| 52:BI:100:ILE:O | 52:BI:139:VAL:HA | 2.01 | 0.60 |
| 23:BB:64:A:O2' | 41:BT:69:ARG:HB3 | 2.01 | 0.60 |
| 1:AA:815:A:H4' | 1:AA:817:C:C4 | 2.36 | 0.60 |
| 1:CA:278:G:N2 | 1:CA:279:A:H62 | 1.97 | 0.60 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 23:BB:2895:G:H2' | 23:BB:2896:C:H6 | 1.64 | 0.60 |
| 25:BC:253:GLY:C | 25:BC:254:LYS:HD2 | 2.21 | 0.60 |
| 39:BR:18:GLN:NE2 | 39:BR:99:THR:HB | 2.15 | 0.60 |
| 23:BB:1076:C:H4' | 52:BI:94:LYS:HE3 | 1.81 | 0.60 |
| 25:DC:235:GLU:HG3 | 25:DC:237:ARG:HD3 | 1.82 | 0.60 |
| 23:BB:2183:A:H2' | 23:BB:2184:A:C8 | 2.36 | 0.60 |
| 25:DC:174:ARG:HG3 | 25:DC:180:MET:HG3 | 1.83 | 0.60 |
| 20:CB:36:LYS:H | 20:CB:36:LYS:HE3 | 1.66 | 0.60 |
| 23:DB:2339:C:H2' | 23:DB:2340:A:C8 | 2.36 | 0.60 |
| 35:DN:78:LYS:HG2 | 35:DN:82:GLU:HG3 | 1.83 | 0.60 |
| 8:AI:87:MET:SD | 8:AI:94:ARG:HG3 | 2.42 | 0.60 |
| 23:BB:1495:A:H2' | 23:BB:1496:A:C8 | 2.35 | 0.60 |
| 22:DA:2:G:H2' | 22:DA:3:C:C6 | 2.36 | 0.60 |
| 36:BO:35:ILE:HD13 | 36:BO:35:ILE:N | 2.16 | 0.60 |
| 1:AA:160:A:H2' | 1:AA:161:A:O4' | 2.00 | 0.60 |
| 43:DW:39:GLN:HG2 | 43:DW:66:VAL:O | 2.01 | 0.60 |
| 25:DC:117:SER:HB3 | 25:DC:127:ASN:ND2 | 2.17 | 0.60 |
| 23:DB:6:A:H2' | 23:DB:7:G:H8 | 1.65 | 0.60 |
| 27:DE:109:LEU:HG | 27:DE:117:ARG:HD3 | 1.82 | 0.60 |
| 33:BL:56:PRO:HA | 33:BL:60:ARG:NH2 | 2.16 | 0.60 |
| 23:BB:2081:U:H5'' | 46:BZ:23:LYS:HD2 | 1.82 | 0.60 |
| 23:DB:1025:G:H1' | 23:DB:1135:C:C5' | 2.26 | 0.60 |
| 23:DB:2621:G:O2' | 26:DD:164:GLN:HG3 | 2.00 | 0.60 |
| 23:DB:2293:G:OP1 | 36:DO:13:ARG:NH2 | 2.34 | 0.60 |
| 38:BQ:50:ARG:HA | 38:BQ:53:LYS:HE3 | 1.83 | 0.60 |
| 31:BJ:84:ILE:HG22 | 31:BJ:85:LYS:N | 2.16 | 0.60 |
| 23:BB:445:C:O2' | 23:BB:446:G:H5' | 2.01 | 0.60 |
| 10:AK:88:PRO:HA | 10:AK:92:ARG:HE | 1.65 | 0.60 |
| 3:AD:122:ILE:O | 3:AD:128:VAL:HG23 | 2.01 | 0.60 |
| 37:DP:5:LYS:HA | 37:DP:5:LYS:NZ | 2.16 | 0.60 |
| 23:DB:633:A:H2' | 23:DB:634:C:H5' | 1.82 | 0.60 |
| 33:DL:78:ARG:CZ | 33:DL:78:ARG:HB3 | 2.31 | 0.60 |
| 27:DE:14:VAL:HG12 | 27:DE:15:SER:N | 2.16 | 0.60 |
| 23:BB:2785:C:H2' | 23:BB:2786:U:H6 | 1.65 | 0.60 |
| 21:CU:40:PRO:O | 21:CU:44:ARG:N | 2.34 | 0.60 |
| 35:BN:36:THR:O | 35:BN:40:LYS:HB2 | 2.01 | 0.60 |
| 35:BN:9:GLN:NE2 | 35:BN:17:ARG:HH22 | 1.99 | 0.60 |
| 23:BB:2298:A:N6 | 23:BB:2319:G:H22 | 1.99 | 0.60 |
| 36:BO:87:ILE:CG1 | 36:BO:88:LYS:H | 2.14 | 0.60 |
| 3:AD:19:PHE:HB2 | 3:AD:110:ARG:HH12 | 1.66 | 0.60 |
| 23:DB:2680:U:H5' | 26:DD:194:PRO:HA | 1.83 | 0.60 |
| 34:BM:109:PRO:HA | 34:BM:112:LEU:HB2 | 1.83 | 0.60 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:BB:2270:A:H4' | 43:BW:18:LYS:HB3 | 1.82 | 0.60 |
| 25:BC:92:LEU:O | 25:BC:93:VAL:HB | 2.02 | 0.60 |
| 1:CA:1324:A:H5' | 1:CA:1362:A:O2' | 2.01 | 0.60 |
| 7:AH:64:TYR:HA | 7:AH:70:VAL:HG23 | 1.82 | 0.60 |
| 23:BB:2196:C:O2' | 23:BB:2197:U:H5' | 2.01 | 0.60 |
| 1:CA:642:A:H2' | 1:CA:643:C:C6 | 2.35 | 0.60 |
| 1:CA:57:G:H2' | 1:CA:58:C:C6 | 2.35 | 0.60 |
| 1:CA:636:U:H2' | 1:CA:637:C:H6 | 1.66 | 0.60 |
| 30:DH:135:HIS:HB3 | 30:DH:138:VAL:HB | 1.83 | 0.60 |
| 1:CA:77:A:H2' | 1:CA:78:A:H8 | 1.66 | 0.60 |
| 23:BB:1474:U:H2' | 23:BB:1475:G:H5' | 1.84 | 0.60 |
| 23:BB:2760:C:O2' | 23:BB:2761:A:H5' | 2.01 | 0.60 |
| 1:AA:1142:G:H2' | 1:AA:1143:G:O4' | 2.01 | 0.60 |
| 1:AA:1053:G:H4' | 1:AA:1054:C:H5' | 1.83 | 0.60 |
| 23:DB:393:C:O2' | 23:DB:394:C:H5' | 2.01 | 0.60 |
| 23:DB:2354:C:H4' | 43:DW:30:VAL:HG13 | 1.82 | 0.60 |
| 23:DB:2809:A:H2' | 23:DB:2810:A:C8 | 2.35 | 0.60 |
| 25:DC:65:ASP:OD2 | 25:DC:101:ARG:HD3 | 2.01 | 0.60 |
| 43:BW:45:HIS:HA | 43:BW:75:ASN:CB | 2.32 | 0.60 |
| 23:DB:533:G:H5' | 38:DQ:23:TYR:CD1 | 2.37 | 0.60 |
| 39:DR:79:ARG:NH2 | 39:DR:87:GLN:HG3 | 2.15 | 0.60 |
| 27:DE:143:LEU:H | 27:DE:143:LEU:HD22 | 1.66 | 0.60 |
| 23:DB:144:A:C2 | 41:DT:3:ARG:CZ | 2.85 | 0.60 |
| 35:DN:2:ARG:HG2 | 35:DN:2:ARG:NH1 | 2.15 | 0.60 |
| 41:DT:15:HIS:O | 41:DT:16:VAL:HB | 2.01 | 0.60 |
| 8:AI:51:LEU:HD23 | 8:AI:56:MET:CE | 2.31 | 0.60 |
| 28:BF:135:ILE:C | 28:BF:137:PHE:H | 2.04 | 0.60 |
| 33:DL:96:LYS:HE3 | 33:DL:96:LYS:HA | 1.81 | 0.60 |
| 23:DB:2650:U:H2' | 23:DB:2651:C:C6 | 2.36 | 0.60 |
| 23:BB:2785:C:H2' | 23:BB:2786:U:C6 | 2.36 | 0.60 |
| 26:BD:3:GLY:HA2 | 26:BD:49:GLN:OE1 | 2.01 | 0.60 |
| 32:DK:102:PRO:CB | 32:DK:121:GLU:HG2 | 2.30 | 0.60 |
| 11:AL:66:ILE:HD13 | 11:AL:73:LEU:HD12 | 1.84 | 0.60 |
| 28:DF:33:ILE:HD11 | 28:DF:99:PHE:HB2 | 1.83 | 0.60 |
| 36:BO:68:LYS:HD3 | 36:BO:68:LYS:N | 2.16 | 0.60 |
| 46:DZ:64:PHE:O | 46:DZ:67:PRO:HD2 | 2.01 | 0.60 |
| 23:BB:28:A:N6 | 23:BB:512:G:O2' | 2.33 | 0.60 |
| 48:B1:8:ILE:HD11 | 48:B1:25:ASN:HB3 | 1.82 | 0.60 |
| 11:CL:80:LEU:O | 11:CL:97:VAL:HG22 | 2.00 | 0.60 |
| 39:BR:64:VAL:HB | 39:BR:98:ILE:HD12 | 1.84 | 0.60 |
| 23:BB:1857:G:H2' | 23:BB:1884:G:H22 | 1.66 | 0.60 |
| 23:BB:1857:G:H1' | 23:BB:1885:A:N6 | 2.16 | 0.60 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 23:BB:903:C:H2' | 23:BB:904:G:C8 | 2.37 | 0.60 |
| 23:DB:2789:C:H3' | 23:DB:2893:A:H62 | 1.66 | 0.60 |
| 23:DB:374:A:N6 | 23:DB:400:G:H1' | 2.16 | 0.60 |
| 1:CA:1176:A:H2' | 1:CA:1177:G:O4' | 2.01 | 0.60 |
| 19:AT:4:LYS:HD2 | 19:AT:5:SER:N | 2.16 | 0.60 |
| 1:CA:26:A:H61 | 1:CA:558:G:H1' | 1.65 | 0.60 |
| 7:CH:81:GLY:O | 7:CH:82:LEU:HB2 | 2.02 | 0.60 |
| 23:BB:765:C:H2' | 23:BB:766:U:H6 | 1.66 | 0.60 |
| 4:CE:12:GLU:HG2 | 4:CE:38:VAL:HG22 | 1.83 | 0.60 |
| 9:AJ:15:HIS:HA | 9:AJ:18:ILE:HG22 | 1.82 | 0.60 |
| 52:BI:10:LEU:HD13 | 52:BI:12:VAL:HG13 | 1.82 | 0.60 |
| 37:DP:70:GLU:HG2 | 37:DP:71:ARG:H | 1.67 | 0.60 |
| 42:BU:13:LEU:H | 42:BU:68:ASN:ND2 | 2.00 | 0.60 |
| 34:BM:3:GLN:H | 34:BM:4:PRO:CD | 1.95 | 0.60 |
| 51:D4:36:ARG:HG2 | 51:D4:36:ARG:HH11 | 1.66 | 0.60 |
| 23:BB:2848:G:H2' | 37:BP:96:LEU:HB2 | 1.83 | 0.60 |
| 23:BB:692:C:H5' | 25:BC:42:ARG:CB | 2.22 | 0.60 |
| 18:AS:31:ARG:HG3 | 18:AS:56:HIS:NE2 | 2.15 | 0.60 |
| 20:AB:150:ILE:HG13 | 20:AB:153:MET:HE3 | 1.81 | 0.60 |
| 23:DB:850:U:H2' | 23:DB:851:C:C6 | 2.36 | 0.60 |
| 35:BN:8:ARG:CZ | 35:BN:46:ARG:HD2 | 2.32 | 0.60 |
| 19:AT:68:LYS:HG3 | 19:AT:69:ASN:N | 2.10 | 0.60 |
| 13:CN:79:SER:O | 13:CN:83:VAL:HG23 | 2.02 | 0.60 |
| 20:AB:204:ASP:CG | 20:AB:205:ALA:H | 2.03 | 0.60 |
| 26:BD:31:ALA:HB3 | 26:BD:95:SER:HB3 | 1.84 | 0.60 |
| 37:DP:36:LYS:HG2 | 37:DP:37:LYS:H | 1.67 | 0.60 |
| 1:CA:922:G:H2' | 1:CA:923:A:H8 | 1.66 | 0.60 |
| 15:CP:4:ILE:O | 15:CP:71:VAL:HG11 | 2.00 | 0.60 |
| 12:AM:21:ILE:CG2 | 12:AM:64:VAL:HG11 | 2.30 | 0.60 |
| 48:D1:8:ILE:HD13 | 48:D1:9:LYS:H | 1.64 | 0.60 |
| 1:CA:815:A:H4' | 1:CA:817:C:C4 | 2.36 | 0.60 |
| 11:CL:29:LYS:O | 11:CL:80:LEU:HD12 | 2.01 | 0.60 |
| 23:BB:1439:A:C5 | 23:BB:1552:A:N6 | 2.70 | 0.60 |
| 23:BB:2600:A:H62 | 25:BC:235:GLU:HB3 | 1.66 | 0.60 |
| 14:CO:88:ARG:HG3 | 14:CO:88:ARG:HH11 | 1.66 | 0.60 |
| 23:BB:607:U:OP2 | 27:BE:98:LYS:HG2 | 2.02 | 0.60 |
| 23:DB:352:A:H3' | 23:DB:353:C:H6 | 1.66 | 0.60 |
| 27:BE:106:LYS:HZ2 | 27:BE:106:LYS:HB2 | 1.66 | 0.60 |
| 20:AB:116:LEU:HD11 | 20:AB:139:GLU:HB3 | 1.81 | 0.60 |
| 20:AB:113:LEU:O | 20:AB:117:GLU:HG3 | 2.00 | 0.60 |
| 13:AN:24:ALA:O | 13:AN:27:LYS:HG3 | 2.01 | 0.60 |
| 12:CM:15:VAL:HG22 | 12:CM:40:GLU:HB2 | 1.83 | 0.60 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:CA:1129:C:H1' | 1:CA:1146:A:H61 | 1.65 | 0.60 |
| 23:DB:197:A:N6 | 23:DB:2430:A:H2' | 2.17 | 0.60 |
| 23:BB:1810:A:H2' | 23:BB:1811:G:O4' | 2.00 | 0.60 |
| 23:BB:2599:G:N7 | 25:BC:234:GLY:HA2 | 2.16 | 0.60 |
| 30:BH:116:ARG:HB3 | 30:BH:131:SER:OG | 2.01 | 0.60 |
| 23:DB:1810:A:H2' | 23:DB:1811:G:O4' | 2.00 | 0.60 |
| 1:AA:1526:G:O2' | 1:AA:1527:U:H5' | 2.01 | 0.60 |
| 1:AA:620:C:C6 | 3:AD:131:ILE:HD13 | 2.37 | 0.60 |
| 23:BB:1939:U:O2 | 23:BB:1967:C:H4' | 2.01 | 0.60 |
| 27:DE:176:ASP:HB3 | 27:DE:179:SER:OG | 2.02 | 0.60 |
| 23:DB:2888:C:H2' | 23:DB:2889:C:C6 | 2.36 | 0.60 |
| 25:BC:68:ARG:HD3 | 25:BC:103:ILE:CD1 | 2.31 | 0.60 |
| 1:AA:1320:C:H5 | 18:AS:36:ARG:HG2 | 1.65 | 0.60 |
| 33:BL:91:ASP:O | 33:BL:92:LEU:CB | 2.49 | 0.60 |
| 38:BQ:27:ARG:HG3 | 38:BQ:32:ARG:NH2 | 2.16 | 0.60 |
| 16:AQ:59:GLU:H | 16:AQ:74:LEU:HD23 | 1.67 | 0.60 |
| 31:DJ:36:LEU:HA | 31:DJ:51:GLY:O | 2.02 | 0.60 |
| 38:BQ:88:GLU:HA | 39:BR:53:PHE:CE2 | 2.35 | 0.60 |
| 38:BQ:92:LYS:O | 38:BQ:94:LEU:N | 2.34 | 0.60 |
| 47:B0:36:LYS:HG3 | 47:B0:41:HIS:HA | 1.83 | 0.60 |
| 40:BS:32:ALA:C | 40:BS:33:LEU:HD22 | 2.21 | 0.60 |
| 23:BB:2331:G:H4' | 43:BW:69:GLU:CG | 2.31 | 0.60 |
| 26:DD:107:VAL:HA | 26:DD:205:PRO:O | 2.01 | 0.60 |
| 44:DX:44:LYS:CG | 44:DX:47:ARG:HB2 | 2.31 | 0.60 |
| 13:CN:27:LYS:O | 13:CN:31:SER:HB3 | 2.00 | 0.60 |
| 1:AA:74:A:O2' | 1:AA:75:G:H5'' | 2.02 | 0.60 |
| 45:DY:6:ILE:CG1 | 45:DY:35:VAL:H | 2.13 | 0.60 |
| 4:CE:91:SER:HA | 4:CE:128:GLY:O | 2.02 | 0.60 |
| 4:CE:36:THR:HG22 | 4:CE:37:VAL:N | 2.14 | 0.60 |
| 52:DI:125:THR:O | 52:DI:129:GLU:HG3 | 2.01 | 0.60 |
| 8:AI:110:VAL:HG12 | 8:AI:111:GLU:N | 2.16 | 0.60 |
| 1:CA:60:A:O2' | 1:CA:61:G:O5' | 2.19 | 0.60 |
| 23:DB:2800:A:H2' | 23:DB:2801:G:C1' | 2.32 | 0.60 |
| 23:DB:2679:A:O2' | 23:DB:2680:U:H5' | 2.02 | 0.60 |
| 23:DB:448:U:H3' | 27:DE:79:ARG:NH2 | 2.15 | 0.60 |
| 22:BA:98:G:H1 | 24:BV:14:LYS:CB | 2.15 | 0.60 |
| 5:CF:42:TRP:HE1 | 5:CF:61:LEU:HD23 | 1.67 | 0.60 |
| 3:AD:185:PRO:HB2 | 3:AD:190:LEU:HD11 | 1.81 | 0.60 |
| 1:AA:57:G:H2' | 1:AA:58:C:C6 | 2.36 | 0.60 |
| 1:AA:769:G:H4' | 1:AA:1513:A:H4' | 1.82 | 0.60 |
| 7:AH:26:MET:HB2 | 7:AH:27:PRO:HD2 | 1.84 | 0.60 |
| 1:CA:403:C:O2' | 1:CA:404:G:H5' | 2.01 | 0.60 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:DB:1098:A:C2' | 52:DI:3:LYS:C | 2.70 | 0.60 |
| 37:DP:48:ALA:O | 37:DP:49:ILE:HG22 | 2.01 | 0.60 |
| 20:CB:16:GLY:HA2 | 20:CB:40:ILE:H | 1.66 | 0.60 |
| 23:BB:1805:A:N3 | 25:BC:50:THR:HG23 | 2.16 | 0.60 |
| 23:DB:990:A:N6 | 23:DB:1186:G:H1' | 2.17 | 0.60 |
| 27:DE:157:LEU:H | 27:DE:157:LEU:HD23 | 1.66 | 0.60 |
| 33:BL:77:ILE:CG2 | 33:BL:78:ARG:HG3 | 2.32 | 0.60 |
| 32:BK:2:ILE:HG22 | 32:BK:67:LYS:NZ | 2.16 | 0.60 |
| 23:DB:2090:A:O2' | 46:DZ:49:ARG:HD2 | 2.02 | 0.60 |
| 24:BV:46:LYS:HA | 24:BV:46:LYS:HE3 | 1.84 | 0.60 |
| 39:BR:74:ILE:CA | 39:BR:90:ARG:HE | 2.10 | 0.60 |
| 23:BB:2679:A:O2' | 23:BB:2680:U:H5' | 2.02 | 0.60 |
| 25:BC:30:ALA:N | 25:BC:31:PRO:HD3 | 2.09 | 0.60 |
| 3:CD:171:GLU:HG3 | 3:CD:182:LYS:HD2 | 1.83 | 0.60 |
| 26:DD:24:VAL:HG13 | 26:DD:193:VAL:HG21 | 1.84 | 0.60 |
| 23:DB:2360:G:H1' | 33:DL:61:LEU:HD11 | 1.82 | 0.60 |
| 23:BB:2769:U:H2' | 23:BB:2770:G:C8 | 2.36 | 0.60 |
| 31:DJ:25:LEU:CD1 | 31:DJ:63:ALA:H | 2.14 | 0.60 |
| 33:DL:38:GLN:NE2 | 33:DL:39:LYS:HE2 | 2.16 | 0.60 |
| 23:DB:1082:U:O4 | 23:DB:1086:A:C2 | 2.55 | 0.60 |
| 23:DB:2887:A:C8 | 47:D0:27:LEU:HD21 | 2.36 | 0.60 |
| 23:BB:328:U:H4' | 42:BU:65:GLN:NE2 | 2.16 | 0.60 |
| 2:AC:58:ARG:CG | 2:AC:63:ILE:HG22 | 2.31 | 0.60 |
| 23:DB:1791:A:C2 | 23:DB:1829:A:H4' | 2.36 | 0.60 |
| 4:CE:113:VAL:HG23 | 4:CE:114:LEU:H | 1.66 | 0.60 |
| 23:DB:1439:A:C5 | 23:DB:1552:A:N6 | 2.70 | 0.60 |
| 35:DN:56:LYS:CG | 35:DN:57:THR:H | 2.14 | 0.60 |
| 1:AA:859:G:H2' | 1:AA:860:A:H8 | 1.65 | 0.60 |
| 23:DB:1203:U:H3' | 23:DB:1204:A:C5' | 2.31 | 0.60 |
| 1:CA:994:A:C5 | 1:CA:1216:A:H4' | 2.36 | 0.60 |
| 10:AK:52:ARG:HD2 | 10:AK:53:GLY:H | 1.67 | 0.60 |
| 42:DU:78:LYS:HD2 | 42:DU:96:LYS:HG3 | 1.83 | 0.60 |
| 23:BB:2642:G:O2' | 23:BB:2643:G:H5' | 2.01 | 0.60 |
| 32:DK:9:ASN:O | 32:DK:10:VAL:HG13 | 2.01 | 0.60 |
| 41:DT:88:LYS:HG3 | 41:DT:89:GLU:OE1 | 2.02 | 0.60 |
| 48:B1:5:ARG:HB3 | 48:B1:5:ARG:HH11 | 1.65 | 0.60 |
| 23:BB:926:G:H2' | 23:BB:927:A:H8 | 1.66 | 0.60 |
| 22:DA:35:C:O2' | 22:DA:36:C:H5' | 2.02 | 0.60 |
| 23:BB:2698:U:H2' | 23:BB:2699:C:C6 | 2.37 | 0.60 |
| 42:BU:85:ARG:N | 42:BU:85:ARG:HD3 | 2.17 | 0.60 |
| 3:AD:150:LYS:HB2 | 3:AD:150:LYS:NZ | 2.17 | 0.60 |
| 23:BB:1878:G:H2' | 23:BB:1879:C:C6 | 2.37 | 0.60 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 37:BP:50:ARG:HH11 | 37:BP:50:ARG:CB | 2.09 | 0.60 |
| 25:DC:92:LEU:O | 25:DC:93:VAL:HB | 2.01 | 0.60 |
| 33:BL:60:ARG:HD2 | 50:B3:7:ARG:HE | 1.66 | 0.60 |
| 13:AN:15:LEU:HD12 | 13:AN:16:ALA:H | 1.66 | 0.60 |
| 41:DT:61:LEU:HB2 | 41:DT:82:LYS:HB3 | 1.83 | 0.60 |
| 25:BC:58:LYS:O | 25:BC:59:GLN:HG3 | 2.02 | 0.60 |
| 5:CF:36:ILE:HG12 | 5:CF:64:VAL:HG22 | 1.83 | 0.60 |
| 23:BB:997:G:H5' | 38:BQ:91:ARG:HG3 | 1.83 | 0.60 |
| 5:AF:46:GLN:HA | 5:AF:56:LYS:HG3 | 1.81 | 0.60 |
| 40:BS:29:VAL:HG22 | 40:BS:71:VAL:HG23 | 1.83 | 0.60 |
| 23:BB:910:A:N7 | 34:BM:16:ARG:HB2 | 2.17 | 0.60 |
| 26:DD:129:THR:HA | 26:DD:140:HIS:CE1 | 2.36 | 0.60 |
| 23:BB:2650:U:H2' | 23:BB:2651:C:C6 | 2.35 | 0.60 |
| 13:CN:30:ILE:CG2 | 13:CN:41:TRP:HB3 | 2.31 | 0.60 |
| 34:DM:29:GLY:N | 34:DM:102:LEU:HD12 | 2.12 | 0.60 |
| 5:AF:61:LEU:HD12 | 5:AF:63:ASN:OD1 | 2.02 | 0.60 |
| 35:DN:54:LEU:O | 35:DN:54:LEU:HD23 | 2.02 | 0.60 |
| 23:BB:26:G:H1' | 23:BB:514:A:N6 | 2.17 | 0.60 |
| 1:AA:812:G:HO2' | 1:AA:813:U:H6 | 1.49 | 0.60 |
| 1:AA:812:G:O2' | 1:AA:813:U:H6 | 1.85 | 0.60 |
| 23:BB:1791:A:N6 | 23:BB:1828:G:H1' | 2.16 | 0.60 |
| 2:CC:11:LEU:HD22 | 2:CC:17:TRP:NE1 | 2.17 | 0.60 |
| 23:BB:418:C:H2' | 23:BB:419:U:C6 | 2.36 | 0.60 |
| 1:CA:1124:G:H5' | 9:CJ:37:ARG:NH2 | 2.17 | 0.60 |
| 23:DB:1857:G:H2' | 23:DB:1884:G:H22 | 1.66 | 0.60 |
| 28:BF:174:PHE:N | 28:BF:175:PRO:CD | 2.63 | 0.60 |
| 1:CA:590:U:H2' | 1:CA:591:U:H6 | 1.67 | 0.60 |
| 23:BB:433:C:H2' | 23:BB:434:U:C6 | 2.37 | 0.60 |
| 23:DB:1878:G:H2' | 23:DB:1879:C:C6 | 2.37 | 0.60 |
| 23:BB:176:A:O2' | 23:BB:177:G:H5' | 2.01 | 0.60 |
| 33:DL:91:ASP:O | 33:DL:93:ASN:N | 2.33 | 0.60 |
| 1:CA:1256:A:N1 | 1:CA:1278:G:H1' | 2.16 | 0.60 |
| 23:BB:2671:G:H2' | 23:BB:2672:U:C6 | 2.37 | 0.60 |
| 4:CE:142:GLY:HA2 | 4:CE:145:ASN:ND2 | 2.16 | 0.60 |
| 23:BB:836:G:H2' | 23:BB:837:C:C6 | 2.37 | 0.60 |
| 23:DB:1915:U:H2' | 23:DB:1916:A:O4' | 2.02 | 0.60 |
| 2:CC:56:ILE:N | 2:CC:56:ILE:HD12 | 2.16 | 0.60 |
| 44:DX:30:MET:H | 44:DX:30:MET:HE2 | 1.67 | 0.60 |
| 23:DB:1939:U:O2 | 23:DB:1967:C:H4' | 2.01 | 0.60 |
| 44:BX:44:LYS:O | 44:BX:48:ARG:HD2 | 2.02 | 0.60 |
| 16:AQ:60:ILE:N | 16:AQ:60:ILE:HD13 | 2.16 | 0.60 |
| 23:DB:2868:A:H2' | 23:DB:2869:G:C8 | 2.37 | 0.60 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 42:BU:12:VAL:HA | 42:BU:68:ASN:ND2 | 2.12 | 0.60 |
| 23:BB:2365:G:H4' | 43:BW:65:LYS:HZ2 | 1.67 | 0.60 |
| 20:AB:46:VAL:CG1 | 20:AB:47:PRO:HD3 | 2.25 | 0.60 |
| 30:BH:6:LEU:HA | 30:BH:15:LEU:HA | 1.83 | 0.60 |
| 33:BL:126:ARG:O | 33:BL:127:VAL:HG13 | 2.02 | 0.60 |
| 46:DZ:30:HIS:O | 46:DZ:48:GLN:HA | 2.01 | 0.60 |
| 46:DZ:1:MET:HA | 46:DZ:9:TYR:CD1 | 2.37 | 0.60 |
| 26:BD:153:GLY:O | 26:BD:154:LYS:HB2 | 2.01 | 0.60 |
| 41:DT:24:MET:HE1 | 41:DT:30:ILE:HG13 | 1.83 | 0.60 |
| 8:AI:49:GLN:HE21 | 8:AI:79:ARG:HD2 | 1.67 | 0.60 |
| 18:CS:27:LYS:NZ | 18:CS:27:LYS:HB3 | 2.17 | 0.60 |
| 1:CA:1320:C:OP2 | 18:CS:2:ARG:HB3 | 2.02 | 0.60 |
| 34:DM:41:LEU:HB3 | 34:DM:93:VAL:HB | 1.83 | 0.60 |
| 23:BB:2050:C:H4' | 26:BD:143:PRO:HG2 | 1.84 | 0.60 |
| 13:CN:30:ILE:HB | 13:CN:44:VAL:HB | 1.83 | 0.60 |
| 36:BO:16:ARG:O | 36:BO:20:GLU:HB2 | 2.01 | 0.60 |
| 38:DQ:98:ALA:HA | 38:DQ:105:PHE:CD1 | 2.36 | 0.60 |
| 23:DB:717:C:C3' | 23:DB:718:A:H5'' | 2.30 | 0.60 |
| 4:CE:158:LYS:CB | 7:CH:63:LYS:HD3 | 2.30 | 0.60 |
| 1:AA:590:U:H2' | 1:AA:591:U:H6 | 1.66 | 0.60 |
| 23:BB:27:G:H1' | 23:BB:513:A:N6 | 2.17 | 0.60 |
| 4:AE:109:ALA:HB3 | 4:AE:135:VAL:HG23 | 1.82 | 0.60 |
| 25:DC:257:ARG:HH11 | 25:DC:257:ARG:HG2 | 1.66 | 0.60 |
| 4:AE:85:LYS:HE3 | 4:AE:94:PHE:HB2 | 1.84 | 0.60 |
| 40:BS:24:ILE:HD13 | 40:BS:36:LEU:HD21 | 1.83 | 0.60 |
| 1:AA:56:U:H2' | 1:AA:57:G:C8 | 2.36 | 0.60 |
| 1:CA:1118:U:H2' | 1:CA:1119:C:H6 | 1.67 | 0.60 |
| 23:DB:1164:C:H2' | 23:DB:1165:A:H8 | 1.65 | 0.60 |
| 17:AR:46:THR:HG23 | 17:AR:51:GLN:HB2 | 1.81 | 0.60 |
| 1:AA:51:A:O2' | 1:AA:52:C:OP2 | 2.18 | 0.60 |
| 23:BB:1729:U:C5 | 23:BB:1730:C:H1' | 2.37 | 0.60 |
| 37:DP:106:ALA:O | 37:DP:108:ARG:HD2 | 2.01 | 0.60 |
| 23:BB:575:A:O2' | 23:BB:576:U:H5' | 2.02 | 0.60 |
| 2:CC:110:LEU:HD13 | 2:CC:143:LEU:HD23 | 1.83 | 0.60 |
| 52:DI:63:ASP:O | 52:DI:64:ARG:HB2 | 2.00 | 0.60 |
| 1:AA:26:A:H61 | 1:AA:558:G:H1' | 1.65 | 0.60 |
| 1:CA:135:C:O2 | 15:CP:1:MET:HB2 | 2.02 | 0.60 |
| 37:DP:47:ILE:CG1 | 37:DP:63:ILE:HG23 | 2.26 | 0.60 |
| 37:DP:47:ILE:CG2 | 37:DP:63:ILE:HA | 2.28 | 0.60 |
| 23:DB:2386:A:H2' | 23:DB:2387:U:C6 | 2.37 | 0.60 |
| 26:DD:37:VAL:HG13 | 26:DD:42:ASN:CB | 2.31 | 0.60 |
| 31:BJ:90:GLU:O | 31:BJ:93:ILE:HG22 | 2.02 | 0.60 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:DB:992:C:H4' | 38:DQ:46:TYR:OH | 2.01 | 0.60 |
| 27:DE:105:LEU:H | 27:DE:105:LEU:HD22 | 1.67 | 0.60 |
| 33:BL:83:ALA:N | 33:BL:86:GLU:HG3 | 2.15 | 0.60 |
| 23:BB:2674:G:H4' | 32:BK:30:ARG:CG | 2.31 | 0.60 |
| 23:DB:138:U:H2' | 23:DB:140:C:O4' | 2.01 | 0.60 |
| 33:BL:39:LYS:HB2 | 33:BL:46:VAL:HA | 1.83 | 0.60 |
| 8:AI:18:VAL:HG22 | 8:AI:64:ILE:HG23 | 1.84 | 0.60 |
| 25:BC:32:LEU:HD13 | 25:BC:61:TYR:HE1 | 1.67 | 0.60 |
| 31:DJ:85:LYS:HA | 31:DJ:85:LYS:HE2 | 1.83 | 0.60 |
| 51:B4:24:ARG:HH12 | 51:B4:36:ARG:HB2 | 1.66 | 0.60 |
| 18:CS:18:VAL:HG22 | 18:CS:42:ASN:ND2 | 2.17 | 0.60 |
| 23:BB:1655:A:C2 | 23:BB:2049:G:H5'' | 2.36 | 0.60 |
| 26:BD:5:VAL:HG11 | 26:BD:28:GLU:CA | 2.31 | 0.60 |
| 4:CE:19:ARG:HG2 | 4:CE:20:VAL:N | 2.15 | 0.60 |
| 5:AF:37:HIS:CE1 | 5:AF:65:GLU:HB2 | 2.36 | 0.60 |
| 1:CA:1513:A:H2' | 1:CA:1514:G:C8 | 2.37 | 0.60 |
| 1:AA:34:C:H2' | 1:AA:35:G:H8 | 1.67 | 0.60 |
| 23:BB:1082:U:O4 | 23:BB:1086:A:C2 | 2.55 | 0.60 |
| 2:AC:45:GLU:C | 2:AC:46:LEU:HD12 | 2.22 | 0.60 |
| 2:AC:5:HIS:CD2 | 2:AC:8:GLY:H | 2.19 | 0.60 |
| 7:CH:75:GLN:NE2 | 7:CH:76:ARG:H | 1.99 | 0.60 |
| 1:AA:865:A:H2' | 1:AA:866:C:H6 | 1.67 | 0.60 |
| 1:AA:987:G:H2' | 1:AA:988:G:C8 | 2.35 | 0.60 |
| 24:DV:77:VAL:HG13 | 24:DV:89:ILE:HD11 | 1.82 | 0.60 |
| 23:DB:2698:U:H2' | 23:DB:2699:C:C6 | 2.36 | 0.60 |
| 20:AB:162:VAL:HG13 | 20:AB:184:ALA:HB2 | 1.83 | 0.60 |
| 1:CA:160:A:H2' | 1:CA:161:A:O4' | 2.00 | 0.60 |
| 27:DE:76:PRO:HA | 27:DE:82:GLY:O | 2.02 | 0.60 |
| 20:CB:187:ASP:HB3 | 20:CB:201:GLY:O | 2.02 | 0.60 |
| 12:AM:103:THR:HG22 | 12:AM:104:ASN:H | 1.67 | 0.60 |
| 29:DG:138:GLN:NE2 | 29:DG:142:GLN:HG3 | 2.17 | 0.60 |
| 33:DL:33:ARG:HB3 | 39:DR:85:LYS:HZ1 | 1.65 | 0.60 |
| 30:BH:21:VAL:HG22 | 30:BH:22:LYS:N | 2.13 | 0.60 |
| 23:BB:634:C:H2' | 23:BB:635:C:C6 | 2.37 | 0.60 |
| 23:BB:651:G:H4' | 50:B3:17:GLY:HA3 | 1.84 | 0.60 |
| 33:BL:120:VAL:HG22 | 33:BL:122:VAL:HG13 | 1.83 | 0.60 |
| 24:BV:26:PHE:HE2 | 24:BV:44:HIS:HA | 1.66 | 0.60 |
| 23:BB:1454:C:C5' | 35:BN:63:ARG:HH21 | 2.06 | 0.60 |
| 42:BU:42:LYS:HD3 | 42:BU:60:LYS:HB3 | 1.83 | 0.60 |
| 22:BA:75:G:H5'' | 24:BV:12:GLN:OE1 | 2.01 | 0.60 |
| 45:DY:18:LYS:O | 45:DY:22:THR:HG23 | 2.02 | 0.60 |
| 28:BF:64:PRO:HA | 28:BF:88:VAL:CG2 | 2.32 | 0.60 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 38:BQ:94:LEU:HD22 | 38:BQ:95:ALA:N | 2.16 | 0.60 |
| 10:AK:86:LYS:HD2 | 10:AK:114:PRO:HD3 | 1.84 | 0.60 |
| 49:B2:34:ARG:HE | 49:B2:42:LEU:CD1 | 2.14 | 0.60 |
| 41:BT:24:MET:CE | 41:BT:29:THR:H | 2.15 | 0.60 |
| 12:CM:52:ILE:HD12 | 12:CM:55:LEU:HD12 | 1.83 | 0.60 |
| 13:CN:62:ARG:HH21 | 13:CN:69:PRO:HG3 | 1.65 | 0.60 |
| 52:DI:11:GLN:HA | 52:DI:55:PRO:HA | 1.83 | 0.60 |
| 1:AA:238:A:C2' | 1:AA:239:U:H5'' | 2.31 | 0.60 |
| 1:CA:254:G:OP1 | 16:CQ:68:LYS:O | 2.20 | 0.60 |
| 23:BB:2811:G:C5' | 26:BD:62:LYS:HD2 | 2.31 | 0.60 |
| 23:DB:1484:U:H2' | 23:DB:1485:U:C6 | 2.37 | 0.60 |
| 23:BB:1557:C:H3' | 23:BB:1558:C:H5'' | 1.84 | 0.60 |
| 23:DB:1429:G:H2' | 23:DB:1430:G:C8 | 2.37 | 0.60 |
| 11:AL:85:ARG:HA | 11:AL:93:ARG:HA | 1.84 | 0.60 |
| 23:DB:2010:G:H5'' | 40:DS:42:LYS:CB | 2.31 | 0.60 |
| 9:CJ:42:LEU:HB3 | 9:CJ:43:PRO:HD2 | 1.84 | 0.60 |
| 1:CA:599:C:H5'' | 7:CH:86:LYS:O | 2.02 | 0.60 |
| 7:CH:86:LYS:HB3 | 7:CH:90:GLU:O | 2.02 | 0.60 |
| 23:DB:2241:A:H2' | 23:DB:2242:G:C8 | 2.36 | 0.60 |
| 23:BB:864:G:O2' | 23:BB:865:C:H5' | 2.02 | 0.60 |
| 9:CJ:22:THR:O | 9:CJ:26:VAL:HG23 | 2.01 | 0.60 |
| 22:BA:39:A:O2' | 22:BA:40:U:H5' | 2.01 | 0.60 |
| 44:DX:58:ASN:ND2 | 44:DX:63:ALA:HB3 | 2.16 | 0.60 |
| 35:BN:107:ASN:OD1 | 40:BS:40:ASN:HB3 | 2.01 | 0.60 |
| 49:B2:17:GLY:HA2 | 49:B2:21:ARG:NH1 | 2.17 | 0.60 |
| 7:AH:93:LYS:H | 7:AH:93:LYS:HZ2 | 1.49 | 0.60 |
| 23:DB:2671:G:H2' | 23:DB:2672:U:C6 | 2.36 | 0.60 |
| 1:CA:1038:C:H2' | 1:CA:1039:G:C8 | 2.36 | 0.60 |
| 1:AA:1458:G:H5' | 19:AT:26:MET:HB2 | 1.84 | 0.60 |
| 23:DB:858:G:H21 | 23:DB:2268:A:H3' | 1.67 | 0.59 |
| 25:BC:143:VAL:O | 25:BC:152:GLN:HB2 | 2.01 | 0.59 |
| 25:DC:143:VAL:HG11 | 25:DC:173:LEU:HD11 | 1.84 | 0.59 |
| 23:DB:2617:U:H2' | 23:DB:2618:G:H5' | 1.84 | 0.59 |
| 23:DB:322:A:H1' | 23:DB:339:U:O2 | 2.01 | 0.59 |
| 27:DE:187:VAL:HG23 | 27:DE:188:MET:N | 2.17 | 0.59 |
| 25:BC:61:TYR:CD2 | 25:BC:84:PRO:HD2 | 2.37 | 0.59 |
| 27:BE:145:ASP:C | 27:BE:147:LEU:H | 2.04 | 0.59 |
| 3:CD:101:VAL:HG13 | 3:CD:106:PHE:CD2 | 2.34 | 0.59 |
| 30:DH:124:THR:HG23 | 30:DH:128:HIS:NE2 | 2.17 | 0.59 |
| 33:BL:90:VAL:HG11 | 33:BL:121:THR:N | 2.11 | 0.59 |
| 26:DD:125:TRP:HB2 | 26:DD:160:LYS:HD3 | 1.84 | 0.59 |
| 26:BD:35:THR:HG22 | 26:BD:46:ARG:NH2 | 2.16 | 0.59 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 26:BD:49:GLN:O | 26:BD:78:GLY:HA2 | 2.00 | 0.59 |
| 13:CN:26:LEU:HD12 | 13:CN:29:ILE:HD12 | 1.83 | 0.59 |
| 32:DK:11:ALA:HB1 | 32:DK:100:PHE:O | 2.01 | 0.59 |
| 19:CT:66:ILE:O | 19:CT:70:LYS:HD3 | 2.02 | 0.59 |
| 1:CA:1021:A:H2' | 1:CA:1022:A:O4' | 2.02 | 0.59 |
| 3:AD:194:ILE:HD13 | 3:AD:195:ASN:H | 1.67 | 0.59 |
| 49:D2:35:ARG:NH2 | 49:D2:44:VAL:HG22 | 2.17 | 0.59 |
| 7:CH:76:ARG:HE | 7:CH:125:ILE:HG23 | 1.67 | 0.59 |
| 1:AA:1035:A:H2' | 1:AA:1036:A:C8 | 2.36 | 0.59 |
| 4:CE:28:ARG:HH22 | 4:CE:30:PHE:HB3 | 1.67 | 0.59 |
| 23:DB:1387:A:H5' | 23:DB:1469:A:H1' | 1.84 | 0.59 |
| 7:CH:31:LEU:O | 7:CH:35:ILE:HG13 | 2.01 | 0.59 |
| 3:AD:58:GLN:HA | 3:AD:61:ARG:HB2 | 1.84 | 0.59 |
| 41:BT:64:LYS:NZ | 41:BT:79:ASP:HB2 | 2.17 | 0.59 |
| 23:DB:2769:U:H2' | 23:DB:2770:G:C8 | 2.36 | 0.59 |
| 23:BB:956:G:N2 | 23:BB:959:A:H3' | 2.16 | 0.59 |
| 1:CA:1355:G:H2' | 1:CA:1356:G:H8 | 1.67 | 0.59 |
| 23:BB:1295:C:H2' | 23:BB:1296:G:C8 | 2.36 | 0.59 |
| 1:CA:77:A:H2' | 1:CA:78:A:C8 | 2.36 | 0.59 |
| 16:AQ:24:ILE:HB | 16:AQ:41:THR:HB | 1.82 | 0.59 |
| 23:BB:624:C:OP1 | 50:B3:61:LEU:HB3 | 2.01 | 0.59 |
| 1:CA:22:G:H4' | 1:CA:885:G:C8 | 2.37 | 0.59 |
| 23:BB:401:A:H2' | 23:BB:402:A:C8 | 2.37 | 0.59 |
| 20:AB:118:THR:O | 20:AB:121:GLN:HB3 | 2.02 | 0.59 |
| 1:CA:742:G:O2' | 1:CA:743:A:H5' | 2.02 | 0.59 |
| 4:CE:152:VAL:HG21 | 7:CH:98:LEU:HB3 | 1.82 | 0.59 |
| 1:AA:320:A:H2' | 1:AA:321:A:C8 | 2.37 | 0.59 |
| 23:DB:1474:U:H2' | 23:DB:1475:G:H5' | 1.83 | 0.59 |
| 23:BB:1229:C:H2' | 23:BB:1230:A:H8 | 1.65 | 0.59 |
| 1:CA:320:A:H2' | 1:CA:321:A:C8 | 2.37 | 0.59 |
| 23:DB:493:G:H2' | 23:DB:494:G:O4' | 2.01 | 0.59 |
| 37:DP:18:SER:HB2 | 37:DP:87:ARG:CZ | 2.31 | 0.59 |
| 37:DP:25:VAL:HG22 | 37:DP:89:GLY:N | 2.15 | 0.59 |
| 30:BH:125:THR:CB | 30:BH:146:VAL:HB | 2.31 | 0.59 |
| 37:BP:30:TRP:HB2 | 37:BP:82:SER:OG | 2.01 | 0.59 |
| 43:DW:46:ALA:HB2 | 43:DW:75:ASN:O | 2.02 | 0.59 |
| 25:BC:128:THR:HG22 | 25:BC:188:ARG:HB2 | 1.84 | 0.59 |
| 30:DH:2:GLN:HA | 30:DH:21:VAL:HG13 | 1.82 | 0.59 |
| 35:DN:96:ARG:O | 35:DN:113:ILE:HA | 2.01 | 0.59 |
| 46:BZ:5:ILE:HD13 | 46:BZ:47:LYS:HB3 | 1.82 | 0.59 |
| 34:BM:102:LEU:HB3 | 34:BM:104:GLU:OE2 | 2.02 | 0.59 |
| 23:DB:1799:G:OP1 | 25:DC:255:LYS:HG2 | 2.02 | 0.59 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 36:DO:50:ALA:HB1 | 36:DO:78:VAL:HG13 | 1.82 | 0.59 |
| 8:AI:56:MET:HA | 8:AI:59:LYS:HZ2 | 1.67 | 0.59 |
| 23:DB:969:G:H2' | 23:DB:970:U:H6 | 1.66 | 0.59 |
| 28:BF:132:ARG:CZ | 28:BF:147:ARG:HE | 2.15 | 0.59 |
| 13:CN:51:PRO:HB2 | 13:CN:54:SER:HB3 | 1.84 | 0.59 |
| 23:BB:1285:A:H2' | 23:BB:1286:A:H5'' | 1.83 | 0.59 |
| 1:AA:1103:C:H5'' | 20:AB:96:LEU:HD12 | 1.82 | 0.59 |
| 1:CA:1095:U:H2' | 1:CA:1096:C:C6 | 2.37 | 0.59 |
| 35:BN:96:ARG:NH2 | 35:BN:118:ARG:HB3 | 2.17 | 0.59 |
| 48:D1:13:SER:HB3 | 48:D1:49:LYS:NZ | 2.17 | 0.59 |
| 25:BC:77:VAL:HG23 | 25:BC:115:ILE:CD1 | 2.31 | 0.59 |
| 23:BB:28:A:N6 | 23:BB:512:G:H1' | 2.17 | 0.59 |
| 23:BB:1550:C:H2' | 23:BB:1551:A:H8 | 1.67 | 0.59 |
| 40:DS:21:ALA:HB1 | 40:DS:74:ILE:CD1 | 2.32 | 0.59 |
| 24:BV:14:LYS:NZ | 24:BV:18:ARG:HD2 | 2.18 | 0.59 |
| 31:BJ:28:LEU:HG | 31:BJ:32:LEU:HD13 | 1.84 | 0.59 |
| 23:BB:2859:G:H2' | 23:BB:2860:A:C8 | 2.36 | 0.59 |
| 6:CG:2:ARG:HH11 | 6:CG:2:ARG:HB3 | 1.66 | 0.59 |
| 23:BB:2226:C:H2' | 23:BB:2227:A:O4' | 2.02 | 0.59 |
| 1:AA:1137:C:H1' | 1:AA:1138:G:N2 | 2.16 | 0.59 |
| 40:DS:85:ILE:HD11 | 40:DS:93:ALA:HB1 | 1.82 | 0.59 |
| 43:DW:48:ALA:HA | 43:DW:54:ARG:H | 1.67 | 0.59 |
| 29:DG:19:ASN:HB3 | 29:DG:22:VAL:HB | 1.84 | 0.59 |
| 23:DB:1874:C:H2' | 23:DB:1875:G:O4' | 2.01 | 0.59 |
| 23:DB:1729:U:C5 | 23:DB:1730:C:H1' | 2.37 | 0.59 |
| 23:DB:575:A:O2' | 23:DB:576:U:H5' | 2.02 | 0.59 |
| 23:BB:660:C:H2' | 23:BB:661:A:H8 | 1.68 | 0.59 |
| 23:DB:2785:C:H2' | 23:DB:2786:U:C6 | 2.37 | 0.59 |
| 23:DB:2900:A:H2' | 23:DB:2901:C:H6 | 1.66 | 0.59 |
| 27:DE:109:LEU:HD21 | 27:DE:113:VAL:O | 2.02 | 0.59 |
| 23:DB:136:G:N2 | 41:DT:3:ARG:HG2 | 2.17 | 0.59 |
| 40:DS:8:ARG:O | 40:DS:9:HIS:HB2 | 2.02 | 0.59 |
| 28:BF:132:ARG:HD3 | 28:BF:133:GLU:HB2 | 1.84 | 0.59 |
| 31:BJ:43:GLU:HB3 | 38:BQ:99:VAL:HG12 | 1.84 | 0.59 |
| 20:CB:96:LEU:O | 20:CB:99:MET:HG3 | 2.02 | 0.59 |
| 27:BE:149:ILE:HG13 | 27:BE:186:VAL:HG13 | 1.84 | 0.59 |
| 23:BB:143:C:H3' | 23:BB:144:A:C8 | 2.37 | 0.59 |
| 23:DB:1814:G:H4' | 25:DC:51:ARG:HG2 | 1.83 | 0.59 |
| 30:DH:115:VAL:HB | 30:DH:132:PHE:CD1 | 2.37 | 0.59 |
| 25:DC:10:PRO:HD2 | 25:DC:202:ARG:NH2 | 2.16 | 0.59 |
| 23:DB:1695:G:O2' | 25:DC:15:VAL:HG23 | 2.02 | 0.59 |
| 36:DO:100:HIS:HA | 36:DO:104:GLN:HE21 | 1.67 | 0.59 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 23:DB:585:G:H2' | 23:DB:1251:C:H42 | 1.66 | 0.59 |
| 29:BG:157:LYS:HG3 | 29:BG:159:LYS:NZ | 2.16 | 0.59 |
| 6:CG:12:LEU:HD13 | 6:CG:13:PRO:CD | 2.31 | 0.59 |
| 23:BB:2539:C:OP1 | 51:B4:4:ARG:HD2 | 2.02 | 0.59 |
| 51:B4:4:ARG:HG2 | 51:B4:4:ARG:O | 2.02 | 0.59 |
| 1:CA:202:G:H2' | 1:CA:203:G:C8 | 2.37 | 0.59 |
| 29:DG:17:LYS:HE2 | 29:DG:24:THR:N | 2.18 | 0.59 |
| 12:CM:10:ASP:HA | 12:CM:44:ILE:HD11 | 1.83 | 0.59 |
| 23:BB:672:C:O2' | 23:BB:673:C:H5' | 2.03 | 0.59 |
| 23:DB:2107:G:H2' | 23:DB:2108:A:H8 | 1.67 | 0.59 |
| 23:BB:2273:A:H2' | 23:BB:2274:A:C8 | 2.37 | 0.59 |
| 23:DB:2789:C:H2' | 23:DB:2893:A:N7 | 2.17 | 0.59 |
| 4:CE:96:GLN:HG3 | 4:CE:97:PRO:HD2 | 1.84 | 0.59 |
| 30:DH:40:THR:HB | 46:DZ:58:ASP:OD2 | 2.03 | 0.59 |
| 42:BU:48:VAL:HG12 | 42:BU:50:ALA:HB3 | 1.84 | 0.59 |
| 23:BB:2339:C:H2' | 23:BB:2340:A:C8 | 2.37 | 0.59 |
| 32:DK:34:GLY:O | 32:DK:37:ASP:HB2 | 2.03 | 0.59 |
| 10:CK:53:GLY:O | 10:CK:56:LYS:HB3 | 2.02 | 0.59 |
| 8:AI:53:LEU:O | 8:AI:53:LEU:HD13 | 2.02 | 0.59 |
| 27:DE:46:GLN:HE22 | 27:DE:86:ALA:HB3 | 1.68 | 0.59 |
| 23:BB:2868:A:H2' | 23:BB:2869:G:C8 | 2.37 | 0.59 |
| 30:DH:1:MET:O | 30:DH:21:VAL:HG22 | 2.01 | 0.59 |
| 35:DN:32:GLU:HG3 | 35:DN:33:ILE:N | 2.17 | 0.59 |
| 36:BO:15:ARG:HH12 | 36:BO:17:LYS:HD3 | 1.67 | 0.59 |
| 23:DB:534:U:H4' | 38:DQ:45:ALA:HB2 | 1.83 | 0.59 |
| 23:DB:533:G:H21 | 38:DQ:40:LYS:HD2 | 1.67 | 0.59 |
| 23:BB:634:C:H2' | 23:BB:635:C:H6 | 1.67 | 0.59 |
| 33:BL:117:THR:HG21 | 33:BL:120:VAL:HB | 1.83 | 0.59 |
| 23:BB:2266:A:H4' | 23:BB:2267:A:C8 | 2.37 | 0.59 |
| 32:BK:23:LYS:HG3 | 32:BK:24:VAL:N | 2.17 | 0.59 |
| 39:BR:90:ARG:NH2 | 39:BR:92:TRP:HB3 | 2.17 | 0.59 |
| 34:DM:71:LYS:HB2 | 34:DM:72:PRO:CD | 2.32 | 0.59 |
| 1:AA:1060:U:H2' | 1:AA:1061:G:C8 | 2.37 | 0.59 |
| 1:AA:1060:U:C5' | 9:AJ:53:ILE:HG22 | 2.32 | 0.59 |
| 25:DC:225:ASN:O | 25:DC:227:VAL:N | 2.35 | 0.59 |
| 23:BB:784:G:O2' | 23:BB:785:G:H5'' | 2.00 | 0.59 |
| 23:DB:1285:A:H2' | 23:DB:1286:A:H5'' | 1.83 | 0.59 |
| 1:CA:1329:A:H5'' | 12:CM:25:GLY:N | 2.16 | 0.59 |
| 23:BB:1054:A:H2' | 23:BB:1055:G:H8 | 1.66 | 0.59 |
| 23:DB:899:A:H2' | 23:DB:900:A:O4' | 2.02 | 0.59 |
| 32:DK:41:ILE:HG13 | 32:DK:42:THR:N | 2.17 | 0.59 |
| 3:AD:94:GLU:HA | 3:AD:103:ARG:HH22 | 1.66 | 0.59 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:DB:544:C:H2' | 23:DB:545:U:C5 | 2.37 | 0.59 |
| 23:BB:2899:A:H2' | 23:BB:2900:A:C8 | 2.37 | 0.59 |
| 23:DB:1469:A:H2' | 23:DB:1470:A:H8 | 1.63 | 0.59 |
| 2:CC:129:PHE:HA | 2:CC:132:ALA:HB3 | 1.84 | 0.59 |
| 23:BB:182:A:H2' | 23:BB:183:C:C6 | 2.37 | 0.59 |
| 39:DR:92:TRP:O | 39:DR:93:PHE:HB2 | 2.01 | 0.59 |
| 29:BG:85:LYS:HB2 | 29:BG:164:ALA:HB2 | 1.83 | 0.59 |
| 1:CA:203:G:N2 | 1:CA:205:A:H61 | 2.01 | 0.59 |
| 12:CM:78:ARG:HG3 | 28:DF:111:ARG:HG2 | 1.83 | 0.59 |
| 9:CJ:36:VAL:HG13 | 9:CJ:76:ILE:HD11 | 1.83 | 0.59 |
| 23:DB:235:U:H2' | 23:DB:236:C:H6 | 1.67 | 0.59 |
| 44:BX:49:ASP:HB3 | 44:BX:52:ARG:NH2 | 2.17 | 0.59 |
| 23:BB:2852:G:H2' | 23:BB:2853:C:H6 | 1.67 | 0.59 |
| 9:AJ:26:VAL:O | 9:AJ:30:LYS:HB3 | 2.02 | 0.59 |
| 3:CD:115:GLN:HE22 | 3:CD:153:ARG:HH22 | 1.50 | 0.59 |
| 23:DB:1295:C:H2' | 23:DB:1296:G:C8 | 2.36 | 0.59 |
| 23:BB:354:A:H2' | 23:BB:355:U:H5'' | 1.83 | 0.59 |
| 1:CA:621:A:H2' | 1:CA:622:A:C8 | 2.37 | 0.59 |
| 19:AT:43:LYS:HG2 | 19:AT:44:ALA:N | 2.17 | 0.59 |
| 1:AA:532:A:H62 | 2:AC:191:THR:CG2 | 2.16 | 0.59 |
| 1:CA:214:C:H2' | 1:CA:215:C:C6 | 2.38 | 0.59 |
| 32:DK:8:LEU:HD12 | 32:DK:8:LEU:N | 2.17 | 0.59 |
| 23:BB:503:A:C4' | 23:BB:504:A:H5' | 2.31 | 0.59 |
| 23:DB:1676:A:H2' | 23:DB:1677:A:O4' | 2.02 | 0.59 |
| 1:AA:1452:C:H4' | 1:AA:1453:G:H5'' | 1.84 | 0.59 |
| 23:DB:1097:U:H2' | 23:DB:1098:A:O4' | 2.03 | 0.59 |
| 23:DB:1099:G:C8 | 52:DI:3:LYS:CA | 2.75 | 0.59 |
| 43:DW:44:PHE:HB3 | 43:DW:77:LYS:CB | 2.32 | 0.59 |
| 23:BB:1818:U:OP1 | 25:BC:155:ARG:HA | 2.03 | 0.59 |
| 31:BJ:136:GLN:N | 31:BJ:137:PRO:CD | 2.66 | 0.59 |
| 34:BM:33:LEU:HD12 | 34:BM:101:VAL:HG11 | 1.83 | 0.59 |
| 3:AD:7:LYS:HA | 3:AD:7:LYS:HE3 | 1.85 | 0.59 |
| 23:BB:478:A:H5'' | 23:BB:479:A:OP2 | 2.02 | 0.59 |
| 23:BB:1132:U:H5'' | 31:BJ:85:LYS:HZ3 | 1.67 | 0.59 |
| 1:AA:131:A:H2' | 1:AA:132:C:H6 | 1.68 | 0.59 |
| 23:DB:2642:G:O2' | 23:DB:2643:G:H5' | 2.01 | 0.59 |
| 44:BX:23:ARG:HG3 | 44:BX:28:LEU:HG | 1.84 | 0.59 |
| 26:DD:3:GLY:C | 26:DD:4:LEU:HD13 | 2.23 | 0.59 |
| 23:BB:2821:A:OP2 | 35:BN:3:HIS:NE2 | 2.36 | 0.59 |
| 40:DS:25:ARG:HD2 | 40:DS:26:GLY:H | 1.65 | 0.59 |
| 26:BD:38:LYS:H | 26:BD:38:LYS:CE | 2.15 | 0.59 |
| 45:DY:6:ILE:HG13 | 45:DY:35:VAL:H | 1.66 | 0.59 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 21:AU:36:PHE:CB | 21:AU:40:PRO:HD3 | 2.31 | 0.59 |
| 1:AA:1101:A:O2' | 1:AA:1102:A:OP2 | 2.21 | 0.59 |
| 20:AB:18:GLN:O | 20:AB:37:VAL:HG23 | 2.02 | 0.59 |
| 7:AH:9:MET:HE1 | 7:AH:32:LYS:O | 2.03 | 0.59 |
| 28:DF:53:ALA:HB1 | 28:DF:64:PRO:HG2 | 1.84 | 0.59 |
| 36:BO:87:ILE:HG13 | 36:BO:88:LYS:N | 2.16 | 0.59 |
| 23:BB:2800:A:H2' | 23:BB:2801:G:C1' | 2.32 | 0.59 |
| 16:CQ:10:ARG:NH2 | 16:CQ:55:GLY:H | 2.00 | 0.59 |
| 29:BG:5:LYS:HB3 | 29:BG:68:ARG:NH2 | 2.17 | 0.59 |
| 7:CH:76:ARG:HA | 7:CH:126:CYS:HB3 | 1.85 | 0.59 |
| 23:DB:2329:U:H2' | 23:DB:2330:G:C8 | 2.37 | 0.59 |
| 25:BC:242:HIS:N | 25:BC:243:PRO:CD | 2.66 | 0.59 |
| 15:AP:4:ILE:O | 15:AP:71:VAL:HG11 | 2.02 | 0.59 |
| 23:BB:718:A:H3' | 23:BB:719:C:H6 | 1.68 | 0.59 |
| 29:DG:148:ARG:HA | 29:DG:161:VAL:HG13 | 1.85 | 0.59 |
| 13:AN:20:PHE:HA | 13:AN:24:ALA:HB2 | 1.84 | 0.59 |
| 25:DC:138:SER:HA | 25:DC:162:GLN:HG3 | 1.85 | 0.59 |
| 25:DC:136:VAL:CA | 25:DC:165:ALA:HA | 2.33 | 0.59 |
| 1:CA:1082:A:O2' | 1:CA:1083:U:H5' | 2.02 | 0.59 |
| 38:DQ:54:ARG:O | 38:DQ:58:GLN:HG2 | 2.02 | 0.59 |
| 1:AA:1055:A:H4' | 2:AC:160:GLU:CG | 2.32 | 0.59 |
| 47:B0:39:ARG:HG2 | 47:B0:39:ARG:O | 2.03 | 0.59 |
| 1:CA:1137:C:O2' | 1:CA:1138:G:H5'' | 2.03 | 0.59 |
| 23:DB:1945:G:H2' | 23:DB:1946:U:C6 | 2.38 | 0.59 |
| 16:CQ:14:ASP:OD2 | 16:CQ:53:GLY:HA2 | 2.01 | 0.59 |
| 37:DP:90:ALA:HB3 | 37:DP:112:ARG:H | 1.67 | 0.59 |
| 33:BL:13:LYS:O | 33:BL:14:LYS:HB2 | 2.01 | 0.59 |
| 23:DB:2899:A:H2' | 23:DB:2900:A:C8 | 2.37 | 0.59 |
| 31:DJ:15:TRP:CD2 | 31:DJ:138:GLN:HB2 | 2.38 | 0.59 |
| 31:BJ:55:ILE:HA | 31:BJ:122:LEU:O | 2.02 | 0.59 |
| 27:DE:116:ASP:CB | 27:DE:185:LYS:HA | 2.30 | 0.59 |
| 36:DO:74:VAL:O | 36:DO:78:VAL:HG23 | 2.02 | 0.59 |
| 18:CS:38:THR:HG22 | 18:CS:39:ILE:H | 1.66 | 0.59 |
| 35:BN:45:ARG:HB2 | 35:BN:49:GLU:OE2 | 2.03 | 0.59 |
| 38:BQ:88:GLU:HA | 39:BR:53:PHE:CZ | 2.36 | 0.59 |
| 23:BB:1162:G:H4' | 39:BR:23:GLU:HG2 | 1.83 | 0.59 |
| 26:DD:31:ALA:CB | 26:DD:95:SER:HB2 | 2.32 | 0.59 |
| 26:DD:52:THR:OG1 | 26:DD:75:ALA:HB1 | 2.02 | 0.59 |
| 23:BB:1676:A:H2' | 23:BB:1677:A:O4' | 2.02 | 0.59 |
| 10:CK:82:GLU:HB3 | 10:CK:108:ASN:ND2 | 2.16 | 0.59 |
| 24:DV:9:ARG:HH21 | 24:DV:20:LEU:HD11 | 1.68 | 0.59 |
| 26:BD:4:LEU:O | 26:BD:5:VAL:HG13 | 2.02 | 0.59 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 1:CA:1308:U:H2' | 1:CA:1309:G:C8 | 2.38 | 0.59 |
| 1:CA:1251:A:O2' | 1:CA:1252:A:H5' | 2.02 | 0.59 |
| 20:CB:116:LEU:O | 20:CB:119:GLN:HB2 | 2.02 | 0.59 |
| 15:CP:4:ILE:HD13 | 15:CP:57:ILE:HG12 | 1.85 | 0.59 |
| 15:CP:57:ILE:HD13 | 15:CP:57:ILE:C | 2.22 | 0.59 |
| 13:CN:96:LYS:HG2 | 13:CN:97:LYS:N | 2.14 | 0.59 |
| 2:AC:13:ILE:HG22 | 2:AC:14:VAL:HG13 | 1.83 | 0.59 |
| 28:DF:135:ILE:O | 28:DF:137:PHE:N | 2.36 | 0.59 |
| 17:CR:55:ALA:O | 17:CR:59:LYS:HG3 | 2.03 | 0.59 |
| 34:DM:131:VAL:HG22 | 34:DM:133:LYS:H | 1.68 | 0.59 |
| 16:CQ:16:MET:CB | 16:CQ:19:SER:HB2 | 2.33 | 0.59 |
| 4:AE:37:VAL:HG11 | 4:AE:113:VAL:HG12 | 1.83 | 0.59 |
| 23:BB:79:C:O2' | 23:BB:346:A:H1' | 2.02 | 0.59 |
| 23:DB:1550:C:H2' | 23:DB:1551:A:H8 | 1.67 | 0.59 |
| 22:BA:21:G:O2' | 22:BA:22:U:H5' | 2.02 | 0.59 |
| 23:BB:1412:U:H2' | 23:BB:1413:A:C8 | 2.38 | 0.59 |
| 37:BP:77:SER:H | 37:BP:78:PRO:HD2 | 1.68 | 0.59 |
| 23:DB:2324:U:H3' | 23:DB:2325:G:C5' | 2.32 | 0.59 |
| 1:CA:1107:C:H4' | 2:CC:172:VAL:HG23 | 1.83 | 0.59 |
| 23:DB:2852:G:H2' | 23:DB:2853:C:H6 | 1.67 | 0.59 |
| 23:DB:1447:C:H2' | 23:DB:1448:G:C8 | 2.37 | 0.59 |
| 22:BA:29:A:H3' | 22:BA:30:C:H6 | 1.67 | 0.59 |
| 28:BF:115:GLY:HA3 | 28:BF:177:ARG:HB2 | 1.84 | 0.59 |
| 1:CA:1030:U:H5'' | 1:CA:1031:C:H5 | 1.68 | 0.59 |
| 10:CK:53:GLY:HA2 | 10:CK:56:LYS:HE3 | 1.84 | 0.59 |
| 23:BB:1444:G:H2' | 23:BB:1445:G:H8 | 1.67 | 0.59 |
| 23:BB:359:G:O2' | 23:BB:360:U:H5' | 2.02 | 0.59 |
| 29:BG:131:VAL:HG13 | 29:BG:133:LYS:HE2 | 1.85 | 0.59 |
| 22:BA:24:G:N7 | 22:BA:56:G:H2' | 2.17 | 0.59 |
| 40:BS:52:GLU:HA | 40:BS:55:ILE:HG22 | 1.85 | 0.59 |
| 23:DB:1742:U:H2' | 23:DB:1743:G:C8 | 2.38 | 0.59 |
| 1:AA:214:C:H2' | 1:AA:215:C:C6 | 2.38 | 0.59 |
| 23:DB:659:G:H4' | 27:DE:95:LYS:HD3 | 1.85 | 0.59 |
| 1:AA:1042:A:H2' | 1:AA:1043:G:O4' | 2.02 | 0.59 |
| 23:BB:2077:A:H2' | 23:BB:2078:C:C6 | 2.36 | 0.59 |
| 23:DB:2220:U:H2' | 23:DB:2221:G:H8 | 1.68 | 0.59 |
| 23:DB:1013:C:H2' | 23:DB:1014:A:H8 | 1.66 | 0.59 |
| 23:BB:2893:A:H5'' | 23:BB:2894:G:H5' | 1.85 | 0.59 |
| 23:DB:587:C:H5' | 27:DE:85:PHE:CE1 | 2.37 | 0.59 |
| 36:DO:15:ARG:HH22 | 43:DW:76:ARG:HG2 | 1.68 | 0.59 |
| 25:BC:163:ILE:HG22 | 25:BC:164:VAL:N | 2.16 | 0.59 |
| 27:BE:132:LYS:HD3 | 27:BE:133:LEU:CD2 | 2.32 | 0.59 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 34:BM:73:ILE:HG12 | 34:BM:90:GLU:OE2 | 2.03 | 0.59 |
| 5:CF:92:THR:HG22 | 5:CF:93:LYS:N | 2.18 | 0.59 |
| 31:DJ:36:LEU:HD13 | 31:DJ:54:ILE:HD12 | 1.83 | 0.59 |
| 27:BE:193:VAL:HG12 | 27:BE:194:LYS:HD2 | 1.84 | 0.59 |
| 30:DH:103:VAL:HG13 | 30:DH:108:VAL:HB | 1.84 | 0.59 |
| 30:DH:129:GLU:HA | 30:DH:143:ILE:HA | 1.85 | 0.59 |
| 23:DB:634:C:H2' | 23:DB:635:C:C6 | 2.38 | 0.59 |
| 1:AA:796:C:H5' | 10:AK:128:VAL:HG13 | 1.84 | 0.59 |
| 23:DB:1262:A:C2 | 47:D0:6:LYS:HD2 | 2.36 | 0.59 |
| 48:B1:42:VAL:HB | 48:B1:43:ARG:HH21 | 1.67 | 0.59 |
| 29:BG:18:ILE:HD13 | 29:BG:18:ILE:H | 1.66 | 0.59 |
| 37:BP:92:ARG:CZ | 37:BP:110:LYS:HB3 | 2.33 | 0.59 |
| 23:BB:222:A:N1 | 23:BB:233:A:H5'' | 2.17 | 0.59 |
| 3:CD:2:ARG:HH11 | 3:CD:114:ARG:HD3 | 1.65 | 0.59 |
| 23:DB:1825:U:H5' | 25:DC:244:VAL:HG21 | 1.83 | 0.59 |
| 38:BQ:102:LYS:HD2 | 38:BQ:102:LYS:N | 2.18 | 0.59 |
| 1:CA:121:U:H3' | 1:CA:121:U:OP1 | 2.03 | 0.59 |
| 23:BB:1470:A:H3' | 23:BB:1471:G:H8 | 1.67 | 0.59 |
| 23:BB:1312:U:OP2 | 41:BT:66:LYS:HG2 | 2.02 | 0.59 |
| 1:AA:766:A:H2 | 1:AA:1525:G:N3 | 1.99 | 0.59 |
| 23:DB:2758:A:H2' | 23:DB:2759:G:H5' | 1.85 | 0.59 |
| 16:AQ:4:ILE:HD12 | 16:AQ:4:ILE:H | 1.67 | 0.59 |
| 52:BI:14:ALA:HA | 52:BI:45:THR:HG21 | 1.83 | 0.59 |
| 29:BG:102:ILE:HG23 | 29:BG:104:LEU:HD11 | 1.83 | 0.59 |
| 5:AF:18:VAL:O | 5:AF:22:ILE:HG13 | 2.02 | 0.59 |
| 1:AA:1130:A:H2' | 1:AA:1131:G:H8 | 1.68 | 0.59 |
| 23:BB:209:C:H2' | 23:BB:210:C:H6 | 1.67 | 0.59 |
| 28:DF:26:GLN:HG2 | 28:DF:26:GLN:O | 2.03 | 0.59 |
| 23:DB:1099:G:O4' | 52:DI:3:LYS:O | 2.20 | 0.59 |
| 23:BB:1241:A:H2' | 23:BB:1242:U:C5' | 2.32 | 0.59 |
| 23:BB:441:U:H2' | 23:BB:442:G:H8 | 1.67 | 0.59 |
| 35:DN:41:ALA:HB1 | 35:DN:113:ILE:CD1 | 2.32 | 0.59 |
| 25:DC:163:ILE:HG12 | 25:DC:173:LEU:CD2 | 2.33 | 0.59 |
| 20:AB:46:VAL:HA | 20:AB:49:PHE:HD2 | 1.68 | 0.59 |
| 23:DB:299:A:N6 | 23:DB:322:A:O2' | 2.33 | 0.59 |
| 23:DB:324:A:OP2 | 27:DE:164:LEU:HB2 | 2.02 | 0.59 |
| 33:BL:131:ALA:HB1 | 33:BL:135:ILE:HD12 | 1.85 | 0.59 |
| 23:BB:2467:C:O4' | 34:BM:118:LYS:HG2 | 2.02 | 0.59 |
| 47:B0:2:VAL:HG22 | 47:B0:3:GLN:H | 1.67 | 0.59 |
| 23:BB:2617:U:H2' | 23:BB:2618:G:H5' | 1.85 | 0.59 |
| 23:BB:483:A:H4' | 42:BU:45:GLN:HA | 1.83 | 0.59 |
| 8:AI:35:GLU:HA | 8:AI:39:GLY:CA | 2.33 | 0.59 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 25:BC:30:ALA:N | 25:BC:31:PRO:CD | 2.66 | 0.59 |
| 34:DM:40:ARG:HA | 34:DM:92:TRP:NE1 | 2.17 | 0.59 |
| 23:BB:1007:C:H5" | 31:BJ:37:ARG:NH2 | 2.18 | 0.59 |
| 26:DD:77:ARG:HB2 | 26:DD:77:ARG:HH11 | 1.67 | 0.59 |
| 30:DH:89:LYS:HA | 30:DH:123:ARG:O | 2.03 | 0.59 |
| 33:DL:85:VAL:HG13 | 33:DL:86:GLU:N | 2.11 | 0.59 |
| 21:CU:24:LYS:HD2 | 21:CU:25:ALA:N | 2.11 | 0.59 |
| 33:DL:64:PHE:HD2 | 50:D3:11:LYS:HB3 | 1.68 | 0.59 |
| 44:DX:25:GLN:O | 44:DX:29:ARG:HG3 | 2.02 | 0.59 |
| 24:DV:9:ARG:HG2 | 24:DV:41:GLU:CG | 2.32 | 0.59 |
| 26:DD:22:ILE:O | 26:DD:22:ILE:HG13 | 2.01 | 0.59 |
| 52:DI:17:ALA:C | 52:DI:19:PRO:HD3 | 2.23 | 0.59 |
| 28:DF:133:GLU:H | 28:DF:150:GLY:HA2 | 1.66 | 0.59 |
| 2:AC:21:TRP:CB | 2:AC:58:ARG:HB2 | 2.33 | 0.59 |
| 25:DC:261:ARG:HG2 | 25:DC:261:ARG:HH11 | 1.66 | 0.59 |
| 1:AA:390:U:H2' | 1:AA:391:G:H8 | 1.62 | 0.59 |
| 1:CA:1326:U:O2' | 1:CA:1327:C:H5' | 2.02 | 0.59 |
| 24:BV:40:ILE:N | 24:BV:40:ILE:HD13 | 2.18 | 0.59 |
| 23:DB:2859:G:H2' | 23:DB:2860:A:C8 | 2.36 | 0.59 |
| 23:BB:419:U:H2' | 23:BB:420:C:H6 | 1.67 | 0.59 |
| 34:BM:86:LYS:HD2 | 34:BM:86:LYS:H | 1.68 | 0.59 |
| 33:DL:2:ARG:HG3 | 33:DL:2:ARG:NH1 | 2.18 | 0.59 |
| 1:CA:1031:C:H4' | 1:CA:1032:G:H5" | 1.84 | 0.59 |
| 10:AK:81:LEU:HD22 | 10:AK:104:PHE:HB3 | 1.84 | 0.59 |
| 23:DB:79:C:O2' | 23:DB:346:A:H1' | 2.03 | 0.59 |
| 23:DB:1210:G:H4' | 23:DB:1211:C:OP2 | 2.02 | 0.59 |
| 23:DB:213:A:O2' | 23:DB:214:G:H5' | 2.03 | 0.59 |
| 2:CC:65:VAL:HG21 | 2:CC:90:VAL:HG11 | 1.83 | 0.59 |
| 23:DB:1412:U:H2' | 23:DB:1413:A:C8 | 2.38 | 0.59 |
| 28:BF:70:ARG:HA | 28:BF:80:GLN:HG3 | 1.83 | 0.59 |
| 19:AT:54:GLN:N | 19:AT:55:PRO:HD2 | 2.17 | 0.59 |
| 1:AA:522:C:H41 | 11:AL:49:ARG:HH22 | 1.49 | 0.59 |
| 20:AB:206:ILE:HD13 | 20:AB:206:ILE:O | 2.02 | 0.59 |
| 1:AA:716:A:N3 | 10:AK:119:GLY:HA2 | 2.17 | 0.59 |
| 23:DB:1111:A:H4' | 29:DG:1:SER:O | 2.03 | 0.59 |
| 52:DI:2:LYS:C | 52:DI:3:LYS:HD2 | 2.23 | 0.59 |
| 23:DB:95:A:O2' | 44:DX:43:LEU:HD21 | 2.03 | 0.59 |
| 25:DC:140:VAL:HG11 | 25:DC:163:ILE:HD11 | 1.84 | 0.59 |
| 25:DC:171:VAL:HB | 25:DC:182:LYS:CB | 2.26 | 0.59 |
| 46:BZ:49:ARG:C | 46:BZ:51:VAL:H | 2.07 | 0.59 |
| 23:DB:850:U:O2' | 45:DY:22:THR:HG22 | 2.03 | 0.59 |
| 35:BN:24:MET:O | 35:BN:27:SER:HB3 | 2.03 | 0.59 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 39:BR:47:VAL:HG13 | 39:BR:49:ILE:N | 2.13 | 0.59 |
| 23:BB:2328:A:H2' | 23:BB:2329:U:H6 | 1.67 | 0.59 |
| 23:DB:635:C:H3' | 33:DL:126:ARG:NH2 | 2.18 | 0.59 |
| 33:DL:109:LYS:CG | 33:DL:126:ARG:HD3 | 2.33 | 0.59 |
| 30:BH:62:LEU:O | 30:BH:66:ASN:HB3 | 2.03 | 0.59 |
| 23:BB:544:C:H2' | 23:BB:545:U:C2 | 2.38 | 0.59 |
| 52:BI:32:VAL:HG22 | 52:BI:60:VAL:HG21 | 1.85 | 0.59 |
| 32:DK:99:ILE:CD1 | 32:DK:115:ILE:HG13 | 2.32 | 0.59 |
| 39:DR:6:GLN:OE1 | 39:DR:38:VAL:HG22 | 2.02 | 0.59 |
| 23:BB:1429:G:H2' | 23:BB:1430:G:C8 | 2.37 | 0.59 |
| 12:AM:64:VAL:HG12 | 12:AM:65:GLU:N | 2.18 | 0.59 |
| 1:CA:1238:A:C2 | 1:CA:1241:G:H1' | 2.38 | 0.59 |
| 1:CA:939:G:H5'' | 6:CG:101:ARG:NH2 | 2.17 | 0.59 |
| 4:AE:110:MET:O | 4:AE:113:VAL:HG22 | 2.03 | 0.59 |
| 1:CA:812:G:O2' | 1:CA:813:U:H6 | 1.85 | 0.59 |
| 2:CC:61:LYS:HZ3 | 2:CC:96:VAL:HG12 | 1.68 | 0.59 |
| 23:DB:2369:A:O2' | 23:DB:2370:G:H5' | 2.03 | 0.59 |
| 1:CA:501:C:H1' | 1:CA:549:C:H1' | 1.85 | 0.59 |
| 23:BB:156:A:H2' | 23:BB:157:C:H6 | 1.67 | 0.59 |
| 1:AA:121:U:H3' | 1:AA:121:U:OP1 | 2.03 | 0.59 |
| 6:AG:117:LEU:HD22 | 6:AG:120:ALA:HB3 | 1.84 | 0.59 |
| 13:CN:86:ALA:HB1 | 13:CN:91:GLU:HB2 | 1.84 | 0.59 |
| 40:DS:27:LYS:HG3 | 40:DS:70:LYS:HD3 | 1.85 | 0.59 |
| 23:BB:355:U:H2' | 23:BB:356:G:H8 | 1.68 | 0.59 |
| 1:CA:993:G:H2' | 1:CA:995:C:H41 | 1.66 | 0.59 |
| 23:BB:296:U:H2' | 23:BB:297:G:H8 | 1.67 | 0.59 |
| 23:DB:2181:U:H6 | 23:DB:2181:U:O5' | 1.86 | 0.59 |
| 1:AA:801:U:H2' | 1:AA:802:A:H8 | 1.67 | 0.59 |
| 23:BB:2097:A:H2' | 23:BB:2098:U:C6 | 2.38 | 0.59 |
| 42:BU:13:LEU:HD12 | 42:BU:69:VAL:HA | 1.84 | 0.59 |
| 42:BU:73:ASN:HB2 | 42:BU:96:LYS:NZ | 2.18 | 0.59 |
| 37:BP:59:THR:HA | 37:BP:76:HIS:HA | 1.84 | 0.59 |
| 31:DJ:21:THR:HG22 | 31:DJ:58:ASN:OD1 | 2.03 | 0.59 |
| 42:DU:31:GLY:O | 42:DU:32:LYS:HD3 | 2.03 | 0.59 |
| 46:BZ:15:SER:O | 46:BZ:21:VAL:HB | 2.02 | 0.59 |
| 39:BR:90:ARG:HH11 | 39:BR:91:GLN:N | 2.01 | 0.59 |
| 23:BB:2261:C:OP2 | 43:BW:13:ARG:HB2 | 2.03 | 0.59 |
| 52:BI:77:VAL:HA | 52:BI:80:LYS:CE | 2.33 | 0.59 |
| 28:DF:65:LEU:CD2 | 28:DF:87:LYS:HD2 | 2.33 | 0.59 |
| 23:DB:873:C:H2' | 23:DB:874:G:H8 | 1.68 | 0.59 |
| 14:CO:28:VAL:HG11 | 14:CO:80:LEU:HD21 | 1.85 | 0.59 |
| 29:BG:17:LYS:HB3 | 29:BG:24:THR:HG22 | 1.85 | 0.59 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 35:BN:38:LEU:HB2 | 35:BN:109:PRO:CB | 2.33 | 0.59 |
| 44:BX:35:GLY:CA | 44:BX:40:SER:HA | 2.32 | 0.59 |
| 23:DB:794:A:H2' | 23:DB:795:C:H6 | 1.67 | 0.59 |
| 49:D2:13:ASN:HA | 49:D2:16:HIS:O | 2.02 | 0.59 |
| 7:CH:54:THR:HG23 | 7:CH:55:LYS:HG2 | 1.83 | 0.59 |
| 1:AA:1348:U:OP1 | 8:AI:111:GLU:HB2 | 2.02 | 0.59 |
| 52:BI:18:ASN:N | 52:BI:19:PRO:HD2 | 2.17 | 0.59 |
| 4:CE:95:MET:HG3 | 4:CE:124:ALA:HB2 | 1.83 | 0.59 |
| 23:DB:1442:U:H2' | 23:DB:1443:U:H6 | 1.68 | 0.59 |
| 23:DB:1470:A:H3' | 23:DB:1471:G:H8 | 1.66 | 0.59 |
| 1:CA:131:A:H2' | 1:CA:132:C:H6 | 1.68 | 0.59 |
| 1:AA:202:G:H2' | 1:AA:203:G:C8 | 2.37 | 0.59 |
| 23:BB:1076:C:H4' | 52:BI:94:LYS:CE | 2.33 | 0.59 |
| 28:BF:15:LEU:HD13 | 28:BF:28:PRO:HG2 | 1.83 | 0.59 |
| 40:BS:66:ILE:HD12 | 40:BS:66:ILE:N | 2.18 | 0.59 |
| 16:AQ:26:ARG:HH21 | 16:AQ:39:ARG:NH1 | 2.00 | 0.59 |
| 23:BB:2789:C:H3' | 23:BB:2893:A:H62 | 1.66 | 0.59 |
| 1:CA:529:G:O6 | 11:CL:45:ASN:HA | 2.03 | 0.59 |
| 23:BB:170:U:H2' | 23:BB:171:U:C6 | 2.37 | 0.59 |
| 8:CI:38:PHE:O | 8:CI:44:ARG:HD2 | 2.03 | 0.59 |
| 23:BB:2491:U:H5'' | 23:BB:2570:G:C5' | 2.33 | 0.59 |
| 1:AA:300:A:H2' | 1:AA:301:G:O4' | 2.03 | 0.59 |
| 1:CA:1019:A:H2' | 1:CA:1020:G:C8 | 2.38 | 0.59 |
| 23:BB:1579:A:H2' | 23:BB:1580:A:C8 | 2.38 | 0.59 |
| 18:AS:11:ASP:CG | 18:AS:34:SER:HB2 | 2.23 | 0.59 |
| 20:CB:132:GLU:HA | 20:CB:135:MET:HE2 | 1.85 | 0.59 |
| 23:BB:2188:U:H2' | 23:BB:2189:U:C6 | 2.37 | 0.59 |
| 37:DP:65:ASN:H | 37:DP:71:ARG:HA | 1.68 | 0.58 |
| 37:DP:25:VAL:CG1 | 37:DP:87:ARG:HA | 2.29 | 0.58 |
| 43:DW:65:LYS:HB2 | 43:DW:65:LYS:NZ | 2.18 | 0.58 |
| 31:BJ:20:ALA:HB1 | 31:BJ:59:ALA:CA | 2.33 | 0.58 |
| 38:DQ:20:ALA:HA | 38:DQ:23:TYR:CE2 | 2.37 | 0.58 |
| 23:DB:336:C:H5'' | 42:DU:3:LYS:HZ1 | 1.68 | 0.58 |
| 27:DE:152:GLU:O | 27:DE:153:LEU:HB2 | 2.02 | 0.58 |
| 50:B3:23:HIS:HD2 | 50:B3:23:HIS:H | 1.50 | 0.58 |
| 32:BK:60:ALA:HA | 32:BK:87:LEU:HG | 1.84 | 0.58 |
| 23:BB:1454:C:H5' | 35:BN:63:ARG:NH2 | 2.07 | 0.58 |
| 23:DB:136:G:N1 | 41:DT:3:ARG:NH1 | 2.51 | 0.58 |
| 1:AA:403:C:O2' | 1:AA:404:G:H5' | 2.02 | 0.58 |
| 36:DO:93:ASP:HB2 | 36:DO:117:PHE:CE2 | 2.38 | 0.58 |
| 40:BS:7:HIS:CD2 | 40:BS:10:ALA:HB2 | 2.38 | 0.58 |
| 38:BQ:97:ILE:HA | 38:BQ:100:PHE:CZ | 2.38 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 26:DD:110:THR:HB | 26:DD:202:ILE:HB | 1.84 | 0.58 |
| 30:DH:98:ASP:HA | 30:DH:101:ASP:OD1 | 2.03 | 0.58 |
| 33:DL:123:ARG:HB3 | 33:DL:141:LYS:HB3 | 1.83 | 0.58 |
| 32:BK:104:THR:O | 32:BK:107:LEU:HB3 | 2.03 | 0.58 |
| 38:DQ:87:VAL:HB | 39:DR:54:VAL:HG11 | 1.85 | 0.58 |
| 33:DL:118:THR:OG1 | 33:DL:138:ALA:HB2 | 2.02 | 0.58 |
| 19:AT:53:MET:O | 19:AT:57:VAL:HG23 | 2.02 | 0.58 |
| 28:BF:126:ASN:ND2 | 28:BF:126:ASN:N | 2.50 | 0.58 |
| 32:DK:24:VAL:HG13 | 32:DK:33:ALA:HB2 | 1.85 | 0.58 |
| 23:BB:1484:U:H2' | 23:BB:1485:U:H6 | 1.68 | 0.58 |
| 23:BB:1484:U:H2' | 23:BB:1485:U:C6 | 2.37 | 0.58 |
| 1:AA:1448:C:H2' | 1:AA:1449:C:C6 | 2.38 | 0.58 |
| 1:CA:34:C:H2' | 1:CA:35:G:H8 | 1.68 | 0.58 |
| 3:AD:144:ILE:CD1 | 3:AD:154:VAL:HG21 | 2.33 | 0.58 |
| 23:BB:1387:A:H5' | 23:BB:1469:A:H1' | 1.84 | 0.58 |
| 23:BB:131:A:H2' | 23:BB:132:G:C8 | 2.38 | 0.58 |
| 4:CE:61:LYS:O | 4:CE:64:GLU:HB3 | 2.03 | 0.58 |
| 42:DU:98:ASN:O | 42:DU:99:SER:HB2 | 2.01 | 0.58 |
| 41:BT:36:LYS:O | 41:BT:36:LYS:HD3 | 2.01 | 0.58 |
| 25:DC:237:ARG:HE | 25:DC:237:ARG:C | 2.07 | 0.58 |
| 27:DE:189:THR:C | 27:DE:191:ASP:H | 2.06 | 0.58 |
| 23:BB:2789:C:H2' | 23:BB:2893:A:N7 | 2.17 | 0.58 |
| 23:BB:1652:A:H62 | 35:BN:11:ASN:ND2 | 2.01 | 0.58 |
| 1:CA:476:U:H2' | 1:CA:477:C:C6 | 2.38 | 0.58 |
| 12:AM:2:ARG:HB3 | 12:AM:6:ILE:O | 2.03 | 0.58 |
| 4:CE:24:VAL:HG23 | 4:CE:26:GLY:H | 1.67 | 0.58 |
| 23:DB:672:C:O2' | 23:DB:673:C:H5' | 2.03 | 0.58 |
| 42:BU:70:ALA:HB3 | 42:BU:77:GLY:O | 2.03 | 0.58 |
| 30:BH:94:ILE:HG23 | 30:BH:99:ILE:HD11 | 1.84 | 0.58 |
| 37:BP:31:VAL:HG12 | 37:BP:33:GLU:H | 1.68 | 0.58 |
| 37:BP:28:LYS:HG2 | 37:BP:44:GLY:O | 2.03 | 0.58 |
| 37:BP:59:THR:HG23 | 37:BP:76:HIS:NE2 | 2.18 | 0.58 |
| 25:DC:87:SER:N | 25:DC:155:ARG:HH12 | 2.01 | 0.58 |
| 31:BJ:18:VAL:HG22 | 31:BJ:55:ILE:O | 2.02 | 0.58 |
| 23:DB:2022:U:O2' | 23:DB:2617:U:H5' | 2.03 | 0.58 |
| 38:DQ:39:ILE:HG13 | 38:DQ:40:LYS:N | 2.17 | 0.58 |
| 30:BH:6:LEU:HA | 30:BH:15:LEU:C | 2.23 | 0.58 |
| 15:AP:46:LYS:HE2 | 15:AP:46:LYS:H | 1.65 | 0.58 |
| 34:BM:38:ARG:HH11 | 34:BM:38:ARG:CB | 2.10 | 0.58 |
| 1:AA:408:A:H5' | 3:AD:21:LYS:HE2 | 1.84 | 0.58 |
| 31:BJ:77:HIS:CD2 | 31:BJ:84:ILE:HB | 2.38 | 0.58 |
| 34:DM:41:LEU:HG | 34:DM:46:ILE:HD11 | 1.85 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 10:AK:113:THR:CG2 | 21:AU:28:LEU:HD21 | 2.33 | 0.58 |
| 23:BB:686:U:O4 | 49:B2:12:ARG:HG3 | 2.02 | 0.58 |
| 23:DB:28:A:O2' | 23:DB:29:U:H5' | 2.03 | 0.58 |
| 5:AF:42:TRP:HB2 | 5:AF:59:TYR:HB2 | 1.84 | 0.58 |
| 23:BB:2369:A:O2' | 23:BB:2370:G:H5' | 2.03 | 0.58 |
| 28:DF:107:VAL:HG11 | 28:DF:175:PRO:HG3 | 1.85 | 0.58 |
| 1:AA:1237:C:H3' | 1:AA:1238:A:H5' | 1.85 | 0.58 |
| 12:AM:72:ILE:O | 12:AM:76:ILE:HG13 | 2.03 | 0.58 |
| 23:DB:2887:A:N9 | 47:D0:27:LEU:HD21 | 2.18 | 0.58 |
| 24:BV:84:PRO:HG3 | 34:BM:127:LYS:HE2 | 1.85 | 0.58 |
| 23:BB:2386:A:H2' | 23:BB:2387:U:C6 | 2.38 | 0.58 |
| 12:CM:89:ARG:HB3 | 12:CM:96:VAL:HG22 | 1.84 | 0.58 |
| 52:BI:105:LEU:HD11 | 52:BI:139:VAL:CG1 | 2.33 | 0.58 |
| 20:AB:60:ALA:HB3 | 20:AB:223:GLY:HA3 | 1.83 | 0.58 |
| 23:BB:156:A:H2' | 23:BB:157:C:C6 | 2.38 | 0.58 |
| 29:DG:41:GLU:HG2 | 29:DG:54:ARG:HH21 | 1.68 | 0.58 |
| 1:CA:413:G:H4' | 1:CA:414:A:H5" | 1.85 | 0.58 |
| 3:CD:30:LYS:HB2 | 3:CD:30:LYS:NZ | 2.18 | 0.58 |
| 37:DP:7:LEU:O | 37:DP:11:GLN:HG2 | 2.03 | 0.58 |
| 23:DB:2836:U:H2' | 23:DB:2837:A:C8 | 2.39 | 0.58 |
| 1:CA:1119:C:H2' | 1:CA:1120:C:C6 | 2.37 | 0.58 |
| 23:DB:1857:G:H1' | 23:DB:1885:A:N6 | 2.16 | 0.58 |
| 1:AA:1011:C:H2' | 1:AA:1012:A:C8 | 2.38 | 0.58 |
| 3:CD:71:PHE:HE2 | 3:CD:89:LEU:HD11 | 1.68 | 0.58 |
| 50:D3:14:LYS:HA | 50:D3:63:TYR:CE2 | 2.38 | 0.58 |
| 23:BB:2480:C:O2' | 23:BB:2481:G:H5' | 2.03 | 0.58 |
| 23:BB:1945:G:H2' | 23:BB:1946:U:C6 | 2.37 | 0.58 |
| 1:AA:687:A:C2 | 1:AA:704:A:C5 | 2.91 | 0.58 |
| 1:AA:241:G:O2' | 1:AA:242:G:H5' | 2.03 | 0.58 |
| 33:DL:7:SER:HB2 | 33:DL:8:PRO:CD | 2.17 | 0.58 |
| 23:BB:37:C:H2' | 27:BE:46:GLN:OE1 | 2.03 | 0.58 |
| 30:DH:5:LEU:HD23 | 30:DH:17:ASP:O | 2.02 | 0.58 |
| 30:DH:3:VAL:O | 30:DH:18:GLN:HA | 2.03 | 0.58 |
| 23:DB:2783:U:H2' | 23:DB:2784:U:H6 | 1.68 | 0.58 |
| 25:DC:86:ARG:C | 25:DC:155:ARG:HH12 | 2.06 | 0.58 |
| 31:BJ:75:TYR:HA | 31:BJ:86:GLN:O | 2.04 | 0.58 |
| 38:DQ:39:ILE:O | 38:DQ:43:GLN:HB3 | 2.02 | 0.58 |
| 30:BH:35:LYS:O | 30:BH:37:VAL:HG13 | 2.03 | 0.58 |
| 32:BK:11:ALA:HB3 | 32:BK:85:VAL:HG23 | 1.85 | 0.58 |
| 20:AB:67:LEU:HD13 | 20:AB:67:LEU:N | 2.18 | 0.58 |
| 28:BF:132:ARG:NE | 28:BF:147:ARG:HE | 2.00 | 0.58 |
| 25:BC:32:LEU:HA | 25:BC:81:GLU:OE1 | 2.04 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 13:AN:71:GLY:O | 13:AN:79:SER:HA | 2.04 | 0.58 |
| 27:BE:3:LEU:CB | 27:BE:12:LEU:HD22 | 2.33 | 0.58 |
| 18:AS:4:LEU:HD13 | 18:AS:8:PRO:HA | 1.84 | 0.58 |
| 27:DE:14:VAL:HG12 | 27:DE:16:GLU:H | 1.67 | 0.58 |
| 23:DB:764:A:H5' | 25:DC:208:GLY:HA3 | 1.84 | 0.58 |
| 38:DQ:89:ILE:H | 38:DQ:89:ILE:HD12 | 1.69 | 0.58 |
| 37:DP:38:ARG:CG | 37:DP:39:LEU:H | 2.08 | 0.58 |
| 39:DR:71:LYS:HB2 | 39:DR:73:LYS:NZ | 2.18 | 0.58 |
| 4:CE:11:GLN:OE1 | 4:CE:116:VAL:HA | 2.03 | 0.58 |
| 1:AA:950:U:H2' | 1:AA:951:G:H8 | 1.68 | 0.58 |
| 42:DU:11:ILE:HB | 42:DU:69:VAL:HG23 | 1.84 | 0.58 |
| 10:CK:73:VAL:O | 10:CK:76:TYR:HB2 | 2.04 | 0.58 |
| 9:CJ:38:GLY:O | 9:CJ:74:VAL:HA | 2.03 | 0.58 |
| 23:DB:946:C:H2' | 23:DB:947:A:H8 | 1.68 | 0.58 |
| 30:BH:73:ASN:ND2 | 30:BH:73:ASN:N | 2.52 | 0.58 |
| 4:CE:113:VAL:HG23 | 4:CE:114:LEU:N | 2.18 | 0.58 |
| 1:AA:1246:A:H2' | 1:AA:1247:U:C6 | 2.38 | 0.58 |
| 28:BF:102:LEU:C | 28:BF:107:VAL:HG23 | 2.23 | 0.58 |
| 23:BB:1552:A:C2' | 23:BB:1553:A:H5' | 2.33 | 0.58 |
| 22:DA:38:C:H4' | 36:DO:100:HIS:NE2 | 2.18 | 0.58 |
| 14:CO:20:ASP:OD2 | 14:CO:23:SER:HB2 | 2.04 | 0.58 |
| 23:DB:1515:A:H4' | 23:DB:1556:C:O2' | 2.04 | 0.58 |
| 42:BU:46:LYS:HE2 | 42:BU:54:PRO:O | 2.03 | 0.58 |
| 52:DI:85:ILE:CD1 | 52:DI:137:LEU:HD21 | 2.32 | 0.58 |
| 23:BB:2836:U:H2' | 23:BB:2837:A:C8 | 2.39 | 0.58 |
| 1:AA:203:G:N2 | 1:AA:205:A:H61 | 2.01 | 0.58 |
| 25:DC:109:LEU:HD21 | 25:DC:115:ILE:HD11 | 1.84 | 0.58 |
| 23:DB:230:G:H2' | 23:DB:231:A:H8 | 1.67 | 0.58 |
| 23:DB:419:U:H2' | 23:DB:420:C:C6 | 2.38 | 0.58 |
| 23:BB:1447:C:H2' | 23:BB:1448:G:C8 | 2.37 | 0.58 |
| 9:CJ:85:ASP:HA | 9:CJ:89:ARG:HB2 | 1.85 | 0.58 |
| 23:DB:1229:C:H2' | 23:DB:1230:A:H8 | 1.68 | 0.58 |
| 8:CI:41:GLU:H | 8:CI:44:ARG:HD3 | 1.68 | 0.58 |
| 23:DB:307:G:N2 | 23:DB:309:A:H3' | 2.17 | 0.58 |
| 1:CA:1163:A:H2' | 1:CA:1164:G:H8 | 1.67 | 0.58 |
| 1:CA:300:A:H2' | 1:CA:301:G:O4' | 2.03 | 0.58 |
| 15:AP:26:ASN:CG | 15:AP:31:ARG:HB3 | 2.24 | 0.58 |
| 51:B4:16:ILE:N | 51:B4:16:ILE:HD12 | 2.17 | 0.58 |
| 23:BB:877:A:N1 | 23:BB:899:A:H2' | 2.17 | 0.58 |
| 25:BC:119:VAL:HG13 | 25:BC:133:ASN:ND2 | 2.18 | 0.58 |
| 25:BC:140:VAL:C | 25:BC:193:GLU:HB2 | 2.23 | 0.58 |
| 23:BB:1144:A:O2' | 23:BB:1145:C:H5' | 2.03 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 42:DU:32:LYS:HA | 42:DU:65:GLN:HE21 | 1.68 | 0.58 |
| 16:AQ:66:LEU:HD11 | 16:AQ:73:THR:HG22 | 1.85 | 0.58 |
| 40:BS:50:VAL:HG11 | 40:BS:103:ILE:HG12 | 1.85 | 0.58 |
| 34:DM:16:ARG:NH2 | 34:DM:72:PRO:HG2 | 2.17 | 0.58 |
| 43:BW:40:ARG:HH12 | 43:BW:68:PHE:HA | 1.67 | 0.58 |
| 10:AK:26:PHE:HE1 | 10:AK:88:PRO:HG2 | 1.68 | 0.58 |
| 26:DD:24:VAL:CG1 | 26:DD:193:VAL:HG21 | 2.34 | 0.58 |
| 26:BD:83:ARG:HH12 | 26:BD:85:ALA:HB2 | 1.67 | 0.58 |
| 39:DR:6:GLN:HB3 | 39:DR:41:ILE:HD13 | 1.84 | 0.58 |
| 8:CI:50:PRO:HD3 | 8:CI:79:ARG:HD3 | 1.85 | 0.58 |
| 1:AA:1324:A:H2' | 1:AA:1325:C:H6 | 1.69 | 0.58 |
| 23:BB:1082:U:N3 | 23:BB:1086:A:C2 | 2.71 | 0.58 |
| 23:BB:794:A:H2' | 23:BB:795:C:H6 | 1.67 | 0.58 |
| 23:DB:90:U:H2' | 23:DB:91:A:C2 | 2.39 | 0.58 |
| 29:DG:156:TYR:HA | 29:DG:171:LYS:HG3 | 1.84 | 0.58 |
| 11:AL:22:ALA:HB2 | 11:AL:56:LEU:HD21 | 1.85 | 0.58 |
| 23:DB:125:A:H4' | 49:D2:13:ASN:ND2 | 2.18 | 0.58 |
| 30:DH:115:VAL:HB | 30:DH:132:PHE:HD1 | 1.68 | 0.58 |
| 1:AA:88:U:O2' | 1:AA:89:U:C6 | 2.56 | 0.58 |
| 4:CE:104:ILE:O | 4:CE:104:ILE:HG23 | 2.03 | 0.58 |
| 23:BB:27:G:N2 | 23:BB:512:G:H2' | 2.17 | 0.58 |
| 23:DB:2756:U:C1' | 23:DB:2757:A:H5'' | 2.34 | 0.58 |
| 2:AC:151:GLU:O | 2:AC:197:VAL:HA | 2.02 | 0.58 |
| 23:BB:2898:U:H2' | 23:BB:2899:A:H8 | 1.69 | 0.58 |
| 25:DC:28:PRO:HG2 | 25:DC:79:ARG:NH2 | 2.18 | 0.58 |
| 25:BC:181:ARG:NH1 | 25:BC:260:LYS:HD2 | 2.18 | 0.58 |
| 10:CK:28:ASN:ND2 | 10:CK:29:THR:H | 2.00 | 0.58 |
| 29:DG:70:LEU:O | 29:DG:74:MET:HG3 | 2.03 | 0.58 |
| 23:DB:942:G:O2' | 23:DB:943:A:H5' | 2.03 | 0.58 |
| 30:DH:135:HIS:HB3 | 30:DH:138:VAL:CG2 | 2.33 | 0.58 |
| 23:BB:1229:C:H2' | 23:BB:1230:A:C8 | 2.38 | 0.58 |
| 51:B4:16:ILE:H | 51:B4:16:ILE:HD12 | 1.68 | 0.58 |
| 1:CA:241:G:O2' | 1:CA:242:G:H5' | 2.02 | 0.58 |
| 38:DQ:15:LYS:O | 38:DQ:19:GLN:HG2 | 2.03 | 0.58 |
| 1:CA:620:C:C2 | 3:CD:131:ILE:HD13 | 2.38 | 0.58 |
| 6:CG:37:THR:O | 6:CG:41:ILE:HG13 | 2.03 | 0.58 |
| 23:BB:111:A:H2' | 23:BB:112:U:O4' | 2.02 | 0.58 |
| 1:AA:621:A:H2' | 1:AA:622:A:C8 | 2.38 | 0.58 |
| 23:DB:69:C:H2' | 23:DB:70:G:H8 | 1.68 | 0.58 |
| 24:DV:43:ASP:OD2 | 24:DV:46:LYS:HB2 | 2.03 | 0.58 |
| 23:DB:1579:A:H2' | 23:DB:1580:A:C8 | 2.38 | 0.58 |
| 42:BU:71:ILE:HD13 | 42:BU:72:PHE:O | 2.03 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 51:D4:10:LEU:HB2 | 51:D4:25:VAL:CG2 | 2.34 | 0.58 |
| 23:BB:917:A:C2 | 23:BB:918:A:H1' | 2.38 | 0.58 |
| 27:DE:147:LEU:H | 27:DE:147:LEU:HD12 | 1.68 | 0.58 |
| 27:DE:151:GLY:O | 27:DE:171:ASP:HA | 2.04 | 0.58 |
| 27:DE:187:VAL:HG23 | 27:DE:188:MET:H | 1.68 | 0.58 |
| 33:BL:64:PHE:CD1 | 50:B3:24:LYS:HE3 | 2.39 | 0.58 |
| 33:BL:84:LYS:O | 33:BL:85:VAL:HG12 | 2.03 | 0.58 |
| 23:BB:2267:A:N6 | 23:BB:2272:U:C4 | 2.67 | 0.58 |
| 24:BV:42:LEU:HB2 | 24:BV:47:VAL:HG21 | 1.85 | 0.58 |
| 41:DT:87:LEU:HD22 | 41:DT:93:LEU:HD11 | 1.85 | 0.58 |
| 13:CN:62:ARG:N | 13:CN:72:PHE:HZ | 2.02 | 0.58 |
| 23:DB:2421:G:OP2 | 50:D3:31:ILE:HG21 | 2.04 | 0.58 |
| 1:CA:1021:A:H2' | 1:CA:1022:A:C8 | 2.38 | 0.58 |
| 14:CO:62:ARG:CZ | 14:CO:86:LEU:HD21 | 2.33 | 0.58 |
| 2:AC:5:HIS:CD2 | 2:AC:7:ASN:HB2 | 2.38 | 0.58 |
| 32:DK:43:ILE:N | 32:DK:43:ILE:HD12 | 2.18 | 0.58 |
| 32:DK:6:THR:HG22 | 32:DK:7:MET:H | 1.68 | 0.58 |
| 23:BB:2811:G:OP1 | 26:BD:61:THR:HB | 2.04 | 0.58 |
| 11:CL:77:SER:O | 11:CL:79:ILE:HG23 | 2.03 | 0.58 |
| 28:BF:107:VAL:N | 28:BF:108:PRO:CD | 2.65 | 0.58 |
| 23:DB:2010:G:H5'' | 40:DS:42:LYS:HB2 | 1.84 | 0.58 |
| 25:DC:110:LYS:HE3 | 25:DC:110:LYS:HA | 1.84 | 0.58 |
| 23:BB:172:A:H2' | 23:BB:173:A:H8 | 1.68 | 0.58 |
| 16:CQ:42:LYS:C | 16:CQ:43:LEU:HD12 | 2.23 | 0.58 |
| 23:DB:2893:A:H5'' | 23:DB:2894:G:H5' | 1.85 | 0.58 |
| 23:BB:2491:U:H5'' | 23:BB:2570:G:H5'' | 1.85 | 0.58 |
| 1:AA:186:C:H4' | 19:AT:75:LYS:HB2 | 1.85 | 0.58 |
| 20:AB:172:ILE:HG22 | 20:AB:176:ASN:HD21 | 1.68 | 0.58 |
| 23:BB:1777:U:O2' | 23:BB:1778:U:H5' | 2.03 | 0.58 |
| 23:BB:1537:G:H3' | 23:BB:1537:G:N3 | 2.18 | 0.58 |
| 23:BB:1259:G:H2' | 23:BB:1260:A:H8 | 1.68 | 0.58 |
| 1:AA:476:U:H2' | 1:AA:477:C:C6 | 2.38 | 0.58 |
| 41:BT:25:GLU:HG3 | 41:BT:26:LYS:H | 1.67 | 0.58 |
| 44:DX:56:LEU:HA | 44:DX:59:GLU:HB2 | 1.86 | 0.58 |
| 23:BB:2873:A:N3 | 35:BN:6:SER:HA | 2.18 | 0.58 |
| 23:DB:2491:U:H5'' | 23:DB:2570:G:H5'' | 1.85 | 0.58 |
| 23:DB:208:C:H2' | 23:DB:209:C:H6 | 1.68 | 0.58 |
| 37:DP:71:ARG:HH11 | 37:DP:71:ARG:HB3 | 1.67 | 0.58 |
| 23:DB:98:G:C3' | 23:DB:99:U:H5'' | 2.33 | 0.58 |
| 23:BB:38:A:C8 | 27:BE:46:GLN:OE1 | 2.57 | 0.58 |
| 26:BD:14:ILE:HA | 26:BD:19:GLY:HA2 | 1.85 | 0.58 |
| 50:B3:12:ARG:HG2 | 50:B3:23:HIS:HB3 | 1.85 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 33:BL:54:GLN:HB3 | 33:BL:56:PRO:HD2 | 1.84 | 0.58 |
| 33:BL:78:ARG:CZ | 33:BL:110:VAL:HG11 | 2.33 | 0.58 |
| 34:BM:101:VAL:C | 34:BM:102:LEU:HD12 | 2.24 | 0.58 |
| 34:BM:71:LYS:HE2 | 34:BM:91:TYR:C | 2.23 | 0.58 |
| 1:CA:1320:C:H41 | 18:CS:36:ARG:HD2 | 1.68 | 0.58 |
| 1:AA:1366:C:H2' | 1:AA:1367:C:H6 | 1.68 | 0.58 |
| 23:DB:1484:U:H2' | 23:DB:1485:U:H6 | 1.68 | 0.58 |
| 23:BB:26:G:H2' | 23:BB:27:G:C1' | 2.34 | 0.58 |
| 23:DB:1557:C:H3' | 23:DB:1558:C:H5'' | 1.84 | 0.58 |
| 1:AA:922:G:N3 | 1:AA:1398:A:H2 | 2.02 | 0.58 |
| 1:AA:923:A:H2' | 1:AA:924:C:C6 | 2.39 | 0.58 |
| 30:BH:57:LYS:HG3 | 30:BH:61:VAL:CG2 | 2.34 | 0.58 |
| 23:BB:1799:G:C5 | 25:BC:175:LEU:HD13 | 2.39 | 0.58 |
| 39:BR:20:VAL:HG13 | 39:BR:97:LYS:HD2 | 1.86 | 0.58 |
| 1:CA:202:G:H2' | 1:CA:203:G:H8 | 1.69 | 0.58 |
| 23:DB:2491:U:H5'' | 23:DB:2570:G:C5' | 2.33 | 0.58 |
| 23:DB:1777:U:O2' | 23:DB:1778:U:H5' | 2.03 | 0.58 |
| 31:DJ:94:ALA:HB1 | 31:DJ:95:ARG:HH21 | 1.69 | 0.58 |
| 23:BB:1709:U:H2' | 23:BB:1710:G:H8 | 1.68 | 0.58 |
| 23:BB:1742:U:H2' | 23:BB:1743:G:C8 | 2.38 | 0.58 |
| 23:DB:1444:G:H2' | 23:DB:1445:G:H8 | 1.67 | 0.58 |
| 1:AA:1508:A:H2' | 1:AA:1509:C:C6 | 2.38 | 0.58 |
| 33:DL:25:SER:C | 33:DL:27:LEU:H | 2.07 | 0.58 |
| 23:BB:1046:A:C3' | 23:BB:1047:G:H5'' | 2.32 | 0.58 |
| 14:AO:68:TYR:CZ | 14:AO:72:LYS:HG3 | 2.39 | 0.58 |
| 23:BB:2083:G:H2' | 23:BB:2084:C:C6 | 2.38 | 0.58 |
| 23:BB:950:G:H2' | 23:BB:951:C:C6 | 2.39 | 0.58 |
| 36:BO:21:LEU:HD13 | 36:BO:22:GLY:N | 2.18 | 0.58 |
| 36:BO:40:ILE:HG12 | 36:BO:41:ALA:O | 2.04 | 0.58 |
| 23:DB:2020:A:H5' | 47:D0:8:THR:HG21 | 1.84 | 0.58 |
| 34:BM:67:VAL:HB | 34:BM:100:LYS:CG | 2.32 | 0.58 |
| 23:DB:138:U:H2' | 23:DB:140:C:C6 | 2.38 | 0.58 |
| 41:DT:66:LYS:HA | 41:DT:76:ARG:O | 2.03 | 0.58 |
| 35:BN:29:VAL:HG22 | 35:BN:83:LEU:HD22 | 1.85 | 0.58 |
| 26:BD:138:LEU:HD23 | 26:BD:139:SER:H | 1.68 | 0.58 |
| 1:AA:1100:C:OP2 | 20:AB:94:ARG:HD3 | 2.04 | 0.58 |
| 23:DB:2024:G:H5'' | 26:DD:154:LYS:NZ | 2.18 | 0.58 |
| 33:DL:90:VAL:HG13 | 33:DL:122:VAL:HG13 | 1.86 | 0.58 |
| 1:CA:1299:A:N7 | 1:CA:1301:U:H1' | 2.19 | 0.58 |
| 28:DF:56:LEU:HA | 28:DF:59:ILE:CG2 | 2.34 | 0.58 |
| 2:AC:71:ARG:NH2 | 2:AC:74:ILE:HB | 2.18 | 0.58 |
| 3:AD:60:VAL:HB | 3:AD:194:ILE:HG13 | 1.84 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 41:DT:34:VAL:HG22 | 41:DT:35:ALA:H | 1.67 | 0.58 |
| 23:BB:3:U:O2' | 23:BB:4:U:H6 | 1.87 | 0.58 |
| 9:AJ:71:LEU:H | 9:AJ:71:LEU:HD12 | 1.68 | 0.58 |
| 23:BB:146:A:H2' | 23:BB:147:C:H6 | 1.66 | 0.58 |
| 25:BC:75:ALA:HB2 | 25:BC:95:TYR:CE1 | 2.38 | 0.58 |
| 48:B1:35:LEU:C | 48:B1:36:LYS:HD2 | 2.24 | 0.58 |
| 22:DA:28:C:OP1 | 36:DO:33:ARG:HD3 | 2.04 | 0.58 |
| 23:DB:479:A:N3 | 23:DB:481:G:H5'' | 2.19 | 0.58 |
| 23:BB:19:A:H2' | 23:BB:20:C:H6 | 1.65 | 0.58 |
| 23:BB:21:A:O2' | 23:BB:22:C:H5' | 2.04 | 0.58 |
| 1:AA:398:U:H2' | 1:AA:399:G:C8 | 2.39 | 0.58 |
| 23:DB:1439:A:N6 | 23:DB:1440:U:O2 | 2.35 | 0.58 |
| 23:DB:2466:C:OP1 | 51:D4:5:ALA:HB3 | 2.04 | 0.58 |
| 12:CM:79:LEU:HA | 12:CM:82:LEU:HG | 1.85 | 0.58 |
| 25:DC:74:PRO:HG3 | 25:DC:116:GLN:HG2 | 1.85 | 0.58 |
| 33:BL:133:ALA:HA | 33:BL:136:GLU:OE2 | 2.03 | 0.58 |
| 1:CA:1142:G:H2' | 1:CA:1143:G:H8 | 1.68 | 0.58 |
| 1:CA:26:A:N6 | 1:CA:558:G:H1' | 2.19 | 0.58 |
| 22:DA:35:C:H2' | 22:DA:36:C:O4' | 2.03 | 0.58 |
| 1:CA:212:G:H2' | 1:CA:213:G:H8 | 1.68 | 0.58 |
| 1:AA:1130:A:O2' | 1:AA:1131:G:H5' | 2.04 | 0.58 |
| 3:AD:17:ASP:OD2 | 3:AD:27:ILE:HG12 | 2.04 | 0.58 |
| 23:DB:976:G:H4' | 23:DB:1156:A:N7 | 2.19 | 0.58 |
| 23:BB:1932:A:H2' | 23:BB:1933:G:O4' | 2.04 | 0.58 |
| 23:BB:1847:A:H4' | 23:BB:1848:A:C8 | 2.39 | 0.58 |
| 4:AE:158:LYS:N | 4:AE:158:LYS:HE2 | 2.19 | 0.58 |
| 23:BB:2351:G:O6 | 50:B3:38:LYS:HD2 | 2.03 | 0.58 |
| 20:AB:187:ASP:HB2 | 20:AB:203:ASP:HB3 | 1.86 | 0.58 |
| 37:BP:7:LEU:HD13 | 37:BP:11:GLN:HG2 | 1.84 | 0.58 |
| 43:DW:44:PHE:CE2 | 43:DW:60:ALA:HB2 | 2.38 | 0.58 |
| 35:DN:35:LYS:HD3 | 35:DN:112:TYR:CD1 | 2.39 | 0.58 |
| 27:DE:115:GLN:CG | 27:DE:116:ASP:H | 2.17 | 0.58 |
| 27:DE:152:GLU:HB2 | 27:DE:158:PHE:CE1 | 2.38 | 0.58 |
| 33:BL:57:LEU:HD12 | 33:BL:57:LEU:O | 2.03 | 0.58 |
| 46:BZ:5:ILE:CD1 | 46:BZ:5:ILE:H | 2.11 | 0.58 |
| 32:BK:40:LYS:NZ | 32:BK:89:ASN:HD21 | 2.01 | 0.58 |
| 20:AB:65:LYS:HD2 | 20:AB:157:PRO:HA | 1.86 | 0.58 |
| 1:AA:1299:A:H62 | 1:AA:1302:C:H5 | 1.52 | 0.58 |
| 40:BS:29:VAL:CG2 | 40:BS:71:VAL:HG23 | 2.34 | 0.58 |
| 10:AK:110:THR:HG22 | 21:AU:4:LYS:HA | 1.86 | 0.58 |
| 30:DH:94:ILE:CG2 | 30:DH:122:LEU:HG | 2.33 | 0.58 |
| 1:CA:1219:A:H2' | 1:CA:1220:G:C8 | 2.39 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 23:BB:2874:C:P | 35:BN:5:LYS:HG2 | 2.44 | 0.58 |
| 26:DD:148:GLN:HB3 | 26:DD:151:THR:CG2 | 2.34 | 0.58 |
| 50:D3:12:ARG:NE | 50:D3:23:HIS:HB2 | 2.19 | 0.58 |
| 52:DI:76:ALA:HA | 52:DI:135:MET:SD | 2.44 | 0.58 |
| 22:DA:102:G:H2' | 22:DA:103:U:C6 | 2.39 | 0.58 |
| 45:DY:38:GLU:O | 45:DY:43:ILE:HG21 | 2.04 | 0.58 |
| 26:BD:157:LYS:HG2 | 31:BJ:79:GLY:O | 2.02 | 0.58 |
| 42:DU:8:ASP:O | 42:DU:10:VAL:N | 2.37 | 0.58 |
| 17:CR:23:LYS:HD2 | 17:CR:23:LYS:O | 2.04 | 0.58 |
| 47:D0:27:LEU:H | 47:D0:27:LEU:CD2 | 2.15 | 0.58 |
| 23:BB:1199:U:H2' | 23:BB:1200:C:H6 | 1.67 | 0.58 |
| 16:CQ:10:ARG:NH2 | 16:CQ:55:GLY:N | 2.52 | 0.58 |
| 25:DC:21:PRO:HG2 | 25:DC:22:GLU:H | 1.68 | 0.58 |
| 11:CL:80:LEU:HD23 | 11:CL:97:VAL:HG21 | 1.86 | 0.58 |
| 29:BG:60:GLY:O | 29:BG:63:GLN:HG2 | 2.04 | 0.58 |
| 46:DZ:11:GLU:H | 46:DZ:27:THR:CG2 | 2.16 | 0.58 |
| 23:BB:55:G:P | 49:B2:35:ARG:HH21 | 2.26 | 0.58 |
| 23:BB:17:G:H2' | 23:BB:18:U:C6 | 2.39 | 0.58 |
| 2:AC:113:LYS:HD2 | 2:AC:184:ASN:OD1 | 2.04 | 0.58 |
| 23:BB:1791:A:C2 | 23:BB:1829:A:C4' | 2.87 | 0.58 |
| 1:CA:1323:G:H2' | 1:CA:1324:A:H8 | 1.68 | 0.58 |
| 40:DS:2:GLU:HB2 | 40:DS:108:SER:HA | 1.85 | 0.58 |
| 34:DM:81:ARG:HG3 | 34:DM:82:MET:HG2 | 1.85 | 0.58 |
| 3:AD:191:SER:O | 3:AD:192:ALA:HB2 | 2.04 | 0.58 |
| 23:BB:962:G:N2 | 34:BM:81:ARG:HH21 | 2.01 | 0.58 |
| 40:DS:39:THR:O | 40:DS:39:THR:HG23 | 2.03 | 0.58 |
| 23:BB:950:G:H2' | 23:BB:951:C:H6 | 1.67 | 0.58 |
| 45:BY:22:THR:HG21 | 45:BY:50:VAL:HG11 | 1.85 | 0.58 |
| 4:AE:140:ILE:HA | 4:AE:143:LEU:HD12 | 1.85 | 0.58 |
| 1:AA:742:G:O2' | 1:AA:743:A:H5' | 2.03 | 0.58 |
| 1:CA:450:G:N7 | 1:CA:481:G:O6 | 2.37 | 0.58 |
| 3:CD:19:PHE:O | 3:CD:22:SER:HB2 | 2.03 | 0.58 |
| 38:DQ:109:VAL:O | 38:DQ:113:LYS:HB2 | 2.04 | 0.58 |
| 1:AA:1160:G:H2' | 1:AA:1161:C:H6 | 1.69 | 0.58 |
| 23:BB:782:A:O2' | 25:BC:223:ALA:HB1 | 2.04 | 0.58 |
| 20:AB:166:ASP:OD1 | 20:AB:190:SER:HA | 2.03 | 0.58 |
| 1:CA:797:C:OP1 | 10:CK:125:LYS:HG3 | 2.04 | 0.58 |
| 30:BH:3:VAL:HG13 | 30:BH:21:VAL:HG11 | 1.86 | 0.58 |
| 23:BB:651:G:P | 50:B3:16:THR:HB | 2.44 | 0.58 |
| 46:BZ:25:ARG:HH11 | 46:BZ:25:ARG:CB | 2.11 | 0.58 |
| 23:BB:2572:A:C8 | 26:BD:150:GLN:O | 2.57 | 0.58 |
| 23:DB:2820:A:H4' | 35:DN:4:ARG:HG3 | 1.84 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 8:AI:51:LEU:HB3 | 8:AI:56:MET:HG2 | 1.85 | 0.58 |
| 31:DJ:7:LYS:HD2 | 31:DJ:45:THR:OG1 | 2.04 | 0.58 |
| 28:BF:132:ARG:HH11 | 28:BF:132:ARG:HG3 | 1.68 | 0.58 |
| 35:BN:116:VAL:HG13 | 35:BN:117:ASP:N | 2.19 | 0.58 |
| 25:BC:63:ILE:O | 25:BC:64:VAL:HG13 | 2.04 | 0.58 |
| 13:AN:63:CYS:SG | 13:AN:66:THR:HG22 | 2.44 | 0.58 |
| 23:DB:634:C:H2' | 23:DB:635:C:H6 | 1.68 | 0.58 |
| 41:BT:58:VAL:HG12 | 41:BT:59:ASN:H | 1.68 | 0.58 |
| 23:BB:2783:U:H2' | 23:BB:2784:U:H6 | 1.68 | 0.58 |
| 1:CA:865:A:H2' | 1:CA:866:C:H6 | 1.68 | 0.58 |
| 5:AF:64:VAL:HG12 | 5:AF:65:GLU:N | 2.15 | 0.58 |
| 23:BB:705:A:N6 | 23:BB:726:G:O2' | 2.37 | 0.58 |
| 29:BG:49:LEU:HD12 | 29:BG:49:LEU:N | 2.19 | 0.58 |
| 9:AJ:40:ILE:HG22 | 9:AJ:41:PRO:HD2 | 1.86 | 0.58 |
| 1:AA:1468:A:H2' | 1:AA:1469:C:O4' | 2.03 | 0.58 |
| 1:AA:80:A:H2' | 1:AA:81:A:O4' | 2.04 | 0.58 |
| 3:AD:138:PRO:HA | 3:AD:181:PHE:CD2 | 2.39 | 0.58 |
| 7:CH:77:VAL:HG23 | 7:CH:126:CYS:HA | 1.85 | 0.58 |
| 23:BB:458:G:N2 | 23:BB:469:G:H2' | 2.19 | 0.58 |
| 27:BE:52:VAL:HG13 | 27:BE:53:THR:N | 2.18 | 0.58 |
| 23:BB:18:U:H2' | 23:BB:19:A:C8 | 2.38 | 0.58 |
| 23:DB:2257:U:H5' | 43:DW:5:ALA:CB | 2.34 | 0.58 |
| 23:DB:1439:A:N7 | 23:DB:1440:U:N1 | 2.51 | 0.58 |
| 23:DB:2415:G:H2' | 23:DB:2416:C:C6 | 2.39 | 0.58 |
| 35:DN:11:ASN:C | 35:DN:12:ARG:HD3 | 2.24 | 0.58 |
| 2:CC:129:PHE:CE2 | 2:CC:156:LEU:HD13 | 2.38 | 0.58 |
| 4:AE:111:ARG:O | 4:AE:115:GLU:HG3 | 2.04 | 0.58 |
| 4:AE:13:LYS:HE3 | 4:AE:115:GLU:HB2 | 1.86 | 0.58 |
| 1:AA:1519:A:H3' | 1:AA:1520:C:C5' | 2.34 | 0.58 |
| 1:CA:398:U:H2' | 1:CA:399:G:C8 | 2.39 | 0.58 |
| 1:AA:1171:A:H2' | 1:AA:1172:C:C6 | 2.38 | 0.58 |
| 23:BB:2378:A:H2' | 23:BB:2379:G:H5' | 1.85 | 0.58 |
| 23:DB:936:A:H2' | 23:DB:937:C:H6 | 1.68 | 0.58 |
| 32:BK:7:MET:HE2 | 32:BK:20:MET:HA | 1.86 | 0.58 |
| 23:BB:2105:U:H2' | 23:BB:2106:U:C6 | 2.39 | 0.58 |
| 23:BB:2415:G:H2' | 23:BB:2416:C:C6 | 2.39 | 0.58 |
| 23:BB:1722:A:H61 | 23:BB:1738:G:H1' | 1.69 | 0.58 |
| 1:CA:1200:C:C3' | 1:CA:1201:A:H5' | 2.33 | 0.58 |
| 1:AA:26:A:N6 | 1:AA:558:G:H1' | 2.19 | 0.58 |
| 23:DB:499:U:H2' | 23:DB:500:G:O4' | 2.04 | 0.58 |
| 23:DB:331:C:O2' | 23:DB:332:A:H5' | 2.04 | 0.58 |
| 6:CG:74:VAL:HG21 | 6:CG:143:MET:HG2 | 1.86 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 36:DO:75:GLY:HA3 | 36:DO:109:ALA:HB3 | 1.86 | 0.58 |
| 23:DB:267:C:H2' | 23:DB:268:C:H6 | 1.69 | 0.58 |
| 23:BB:2530:A:N6 | 29:BG:155:PRO:HG3 | 2.19 | 0.58 |
| 1:CA:687:A:C2 | 1:CA:704:A:C5 | 2.91 | 0.58 |
| 19:CT:43:LYS:HB3 | 19:CT:86:ALA:HB3 | 1.84 | 0.58 |
| 23:BB:660:C:H2' | 23:BB:661:A:C8 | 2.39 | 0.58 |
| 20:AB:163:ILE:O | 20:AB:185:ILE:HG13 | 2.04 | 0.58 |
| 32:BK:108:ARG:HB2 | 32:BK:116:ILE:HD13 | 1.84 | 0.58 |
| 26:BD:8:LYS:HD2 | 37:BP:5:LYS:HD2 | 1.85 | 0.58 |
| 23:DB:1818:U:H2' | 25:DC:152:GLN:O | 2.04 | 0.58 |
| 25:DC:173:LEU:HD12 | 25:DC:183:VAL:HG11 | 1.86 | 0.58 |
| 27:DE:172:ALA:O | 27:DE:173:THR:HG22 | 2.04 | 0.58 |
| 15:AP:41:PRO:O | 15:AP:42:ILE:HD13 | 2.03 | 0.58 |
| 26:DD:116:LYS:HB2 | 26:DD:165:MET:HB2 | 1.86 | 0.58 |
| 23:DB:1847:A:H4' | 23:DB:1848:A:C8 | 2.39 | 0.58 |
| 50:D3:49:VAL:HG13 | 50:D3:51:LYS:H | 1.69 | 0.58 |
| 42:BU:40:LEU:HD13 | 42:BU:41:VAL:H | 1.69 | 0.58 |
| 1:AA:1060:U:H5'' | 9:AJ:53:ILE:CG2 | 2.34 | 0.58 |
| 41:BT:11:LEU:HB2 | 41:BT:32:LEU:HD23 | 1.85 | 0.58 |
| 41:BT:39:THR:O | 41:BT:43:ILE:HG12 | 2.03 | 0.58 |
| 44:BX:22:LEU:HA | 44:BX:47:ARG:HH22 | 1.68 | 0.58 |
| 27:DE:4:VAL:HG13 | 27:DE:5:LEU:N | 2.14 | 0.58 |
| 31:DJ:81:ILE:HG23 | 31:DJ:82:GLY:N | 2.12 | 0.58 |
| 23:DB:2839:G:C4' | 35:DN:49:GLU:HG2 | 2.32 | 0.58 |
| 52:BI:11:GLN:HG3 | 52:BI:11:GLN:O | 2.03 | 0.58 |
| 29:DG:5:LYS:HD3 | 29:DG:68:ARG:CB | 2.33 | 0.58 |
| 35:BN:67:PHE:HD2 | 35:BN:73:ASN:HD21 | 1.52 | 0.58 |
| 26:DD:23:PRO:HB3 | 26:DD:188:LEU:HB3 | 1.84 | 0.58 |
| 31:DJ:25:LEU:HD12 | 31:DJ:62:VAL:HA | 1.86 | 0.58 |
| 36:BO:9:ARG:HA | 36:BO:12:THR:HG23 | 1.85 | 0.58 |
| 49:D2:16:HIS:NE2 | 49:D2:44:VAL:HA | 2.19 | 0.58 |
| 4:AE:85:LYS:HE2 | 4:AE:92:ARG:HH11 | 1.68 | 0.58 |
| 1:AA:501:C:H1' | 1:AA:549:C:H1' | 1.85 | 0.58 |
| 14:CO:88:ARG:NH2 | 23:DB:714:U:H3' | 2.19 | 0.58 |
| 6:CG:12:LEU:HD13 | 6:CG:13:PRO:HD2 | 1.85 | 0.58 |
| 1:AA:8:A:H1' | 4:AE:107:GLY:HA2 | 1.86 | 0.58 |
| 8:AI:21:LYS:O | 8:AI:60:LEU:HB2 | 2.03 | 0.58 |
| 1:CA:677:U:H2' | 1:CA:678:U:H6 | 1.69 | 0.58 |
| 23:DB:225:C:H2' | 23:DB:226:A:O4' | 2.03 | 0.58 |
| 1:CA:1387:G:H2' | 1:CA:1388:C:C6 | 2.38 | 0.58 |
| 1:CA:1036:A:H2' | 1:CA:1037:C:H6 | 1.68 | 0.58 |
| 9:AJ:31:ARG:NH1 | 9:AJ:31:ARG:HG2 | 2.19 | 0.58 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 1:AA:552:U:H2' | 1:AA:553:A:H8 | 1.69 | 0.58 |
| 23:BB:11:C:H2' | 23:BB:12:U:H5' | 1.85 | 0.58 |
| 44:DX:49:ASP:HA | 44:DX:52:ARG:NH1 | 2.19 | 0.58 |
| 1:CA:801:U:H2' | 1:CA:802:A:H8 | 1.68 | 0.58 |
| 23:DB:1537:G:H3' | 23:DB:1537:G:N3 | 2.19 | 0.58 |
| 44:BX:2:LYS:HD2 | 44:BX:2:LYS:H | 1.69 | 0.58 |
| 1:AA:1434:A:H2' | 1:AA:1435:G:C8 | 2.39 | 0.58 |
| 37:DP:27:VAL:HG23 | 37:DP:86:LYS:HB3 | 1.85 | 0.57 |
| 42:BU:12:VAL:HG11 | 42:BU:18:LYS:H | 1.67 | 0.57 |
| 42:BU:23:LYS:HZ3 | 42:BU:24:VAL:CG2 | 2.17 | 0.57 |
| 23:BB:1203:U:H3' | 23:BB:1204:A:C5' | 2.33 | 0.57 |
| 27:BE:43:THR:HG23 | 27:BE:44:ARG:NE | 2.19 | 0.57 |
| 23:BB:1818:U:H5'' | 25:BC:155:ARG:CG | 2.34 | 0.57 |
| 30:BH:11:ASN:ND2 | 30:BH:12:LEU:H | 2.01 | 0.57 |
| 27:DE:141:MET:HB3 | 27:DE:185:LYS:HZ1 | 1.68 | 0.57 |
| 33:BL:82:LEU:HD13 | 33:BL:83:ALA:N | 2.19 | 0.57 |
| 46:BZ:63:ARG:HA | 46:BZ:63:ARG:CZ | 2.34 | 0.57 |
| 34:BM:64:TRP:O | 34:BM:102:LEU:HB2 | 2.03 | 0.57 |
| 34:BM:71:LYS:HD2 | 34:BM:71:LYS:C | 2.24 | 0.57 |
| 36:DO:27:VAL:HG23 | 36:DO:28:VAL:H | 1.67 | 0.57 |
| 23:BB:1163:G:O2' | 23:BB:1164:C:H5' | 2.04 | 0.57 |
| 31:BJ:10:THR:HB | 31:BJ:13:ARG:HH12 | 1.68 | 0.57 |
| 27:BE:150:THR:HA | 27:BE:187:VAL:HG23 | 1.85 | 0.57 |
| 40:DS:23:LEU:HB2 | 47:D0:21:LEU:CD1 | 2.30 | 0.57 |
| 21:CU:3:ILE:HG12 | 21:CU:19:LYS:HB3 | 1.85 | 0.57 |
| 23:DB:2650:U:H2' | 23:DB:2651:C:H6 | 1.69 | 0.57 |
| 25:DC:53:ILE:HG21 | 25:DC:218:THR:OG1 | 2.04 | 0.57 |
| 13:CN:40:ARG:HH11 | 13:CN:40:ARG:HG3 | 1.69 | 0.57 |
| 32:DK:105:ARG:H | 32:DK:105:ARG:HD3 | 1.68 | 0.57 |
| 5:AF:40:GLU:HG3 | 5:AF:42:TRP:NE1 | 2.19 | 0.57 |
| 23:BB:705:A:N6 | 23:BB:726:G:H1' | 2.19 | 0.57 |
| 38:DQ:92:LYS:C | 38:DQ:94:LEU:H | 2.07 | 0.57 |
| 1:CA:1096:C:H2' | 1:CA:1097:C:H6 | 1.67 | 0.57 |
| 23:DB:125:A:H4' | 49:D2:13:ASN:HD21 | 1.69 | 0.57 |
| 49:D2:46:LYS:O | 49:D2:46:LYS:HE3 | 2.04 | 0.57 |
| 20:CB:202:ASN:ND2 | 20:CB:203:ASP:N | 2.51 | 0.57 |
| 23:DB:2072:C:H2' | 23:DB:2073:C:H6 | 1.69 | 0.57 |
| 1:CA:1072:G:H2' | 1:CA:1073:U:H6 | 1.69 | 0.57 |
| 36:DO:30:ARG:N | 36:DO:30:ARG:HD3 | 2.19 | 0.57 |
| 29:BG:20:GLY:HA2 | 29:BG:41:GLU:HG2 | 1.86 | 0.57 |
| 23:BB:1439:A:N7 | 23:BB:1440:U:N1 | 2.51 | 0.57 |
| 23:BB:1442:U:H2' | 23:BB:1443:U:H6 | 1.69 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:BB:1515:A:H4' | 23:BB:1556:C:O2' | 2.04 | 0.57 |
| 23:DB:1552:A:C2' | 23:DB:1553:A:H5' | 2.33 | 0.57 |
| 20:CB:57:ASN:ND2 | 20:CB:223:GLY:HA2 | 2.19 | 0.57 |
| 23:BB:718:A:H5'' | 23:BB:719:C:H5 | 1.69 | 0.57 |
| 1:AA:537:G:H5'' | 11:AL:109:ARG:NH1 | 2.19 | 0.57 |
| 16:AQ:23:ALA:HB1 | 16:AQ:40:THR:HG23 | 1.84 | 0.57 |
| 15:CP:1:MET:HB3 | 15:CP:24:SER:OG | 2.04 | 0.57 |
| 23:BB:1946:U:H2' | 23:BB:1947:C:H6 | 1.69 | 0.57 |
| 44:DX:1:MET:HB2 | 44:DX:6:LEU:HG | 1.86 | 0.57 |
| 29:DG:85:LYS:HB3 | 29:DG:131:VAL:HA | 1.85 | 0.57 |
| 1:CA:335:C:H2' | 1:CA:336:A:C8 | 2.39 | 0.57 |
| 12:AM:67:ASP:CG | 28:BF:111:ARG:HB3 | 2.25 | 0.57 |
| 22:BA:32:U:H1' | 22:BA:52:A:N7 | 2.20 | 0.57 |
| 23:DB:2553:G:H2' | 23:DB:2554:U:C4' | 2.34 | 0.57 |
| 23:DB:2567:G:H2' | 23:DB:2568:U:C6 | 2.39 | 0.57 |
| 50:D3:2:LYS:HB2 | 50:D3:2:LYS:NZ | 2.19 | 0.57 |
| 51:D4:11:CYS:HB2 | 51:D4:14:CYS:CB | 2.28 | 0.57 |
| 51:D4:15:LYS:HZ2 | 51:D4:22:VAL:HG12 | 1.69 | 0.57 |
| 23:DB:536:G:H5'' | 38:DQ:52:ARG:HH22 | 1.69 | 0.57 |
| 46:DZ:47:LYS:HB2 | 46:DZ:51:VAL:CG1 | 2.34 | 0.57 |
| 23:BB:582:A:H2' | 23:BB:583:G:H8 | 1.68 | 0.57 |
| 23:DB:135:U:H2' | 23:DB:136:G:C8 | 2.38 | 0.57 |
| 20:AB:67:LEU:HD22 | 20:AB:67:LEU:N | 2.19 | 0.57 |
| 28:BF:64:PRO:HA | 28:BF:88:VAL:HG22 | 1.86 | 0.57 |
| 35:BN:41:ALA:HA | 35:BN:113:ILE:HD11 | 1.87 | 0.57 |
| 27:BE:118:LEU:HD23 | 27:BE:118:LEU:N | 2.17 | 0.57 |
| 27:BE:121:VAL:HG12 | 27:BE:122:GLU:N | 2.19 | 0.57 |
| 23:DB:921:C:H2' | 23:DB:922:C:H6 | 1.68 | 0.57 |
| 23:DB:1198:U:H4' | 38:DQ:8:ILE:HD11 | 1.87 | 0.57 |
| 26:DD:204:LYS:HE2 | 26:DD:204:LYS:HA | 1.84 | 0.57 |
| 30:BH:134:VAL:HG13 | 30:BH:135:HIS:N | 2.14 | 0.57 |
| 35:BN:73:ASN:HA | 35:BN:76:VAL:HG13 | 1.86 | 0.57 |
| 45:DY:37:ARG:CZ | 45:DY:37:ARG:HA | 2.34 | 0.57 |
| 1:AA:1491:G:H5'' | 1:AA:1492:A:OP2 | 2.04 | 0.57 |
| 1:AA:1027:C:H2' | 1:AA:1028:C:H6 | 1.68 | 0.57 |
| 10:CK:69:CYS:C | 10:CK:73:VAL:HG22 | 2.24 | 0.57 |
| 23:DB:987:C:H2' | 23:DB:988:A:O4' | 2.04 | 0.57 |
| 23:DB:526:A:N6 | 23:DB:2626:C:C4' | 2.66 | 0.57 |
| 23:DB:2256:G:O2' | 43:DW:5:ALA:HB1 | 2.03 | 0.57 |
| 1:CA:546:A:P | 3:CD:68:GLU:HB3 | 2.44 | 0.57 |
| 23:DB:179:C:H2' | 23:DB:180:G:O4' | 2.03 | 0.57 |
| 16:CQ:26:ARG:NH2 | 16:CQ:39:ARG:HG2 | 2.19 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:DB:155:A:H2' | 23:DB:156:A:H8 | 1.69 | 0.57 |
| 23:DB:1275:A:C2' | 23:DB:1276:A:H5' | 2.33 | 0.57 |
| 23:BB:1275:A:C2' | 23:BB:1276:A:H5' | 2.34 | 0.57 |
| 23:BB:2247:A:H2' | 23:BB:2248:C:C6 | 2.39 | 0.57 |
| 23:DB:962:G:H21 | 23:DB:2250:G:H1 | 1.52 | 0.57 |
| 9:CJ:36:VAL:HG13 | 9:CJ:76:ILE:CD1 | 2.34 | 0.57 |
| 45:BY:4:ILE:HB | 45:BY:39:ASP:HB3 | 1.86 | 0.57 |
| 1:AA:1039:G:H2' | 1:AA:1040:U:C6 | 2.39 | 0.57 |
| 23:BB:2339:C:H2' | 23:BB:2340:A:H8 | 1.69 | 0.57 |
| 23:BB:208:C:H2' | 23:BB:209:C:H6 | 1.69 | 0.57 |
| 23:DB:660:C:H2' | 23:DB:661:A:H8 | 1.68 | 0.57 |
| 23:BB:1123:C:H2' | 23:BB:1124:G:H8 | 1.69 | 0.57 |
| 23:BB:2553:G:H2' | 23:BB:2554:U:C4' | 2.34 | 0.57 |
| 23:DB:1739:A:H2' | 23:DB:1740:G:C8 | 2.40 | 0.57 |
| 23:DB:1709:U:H2' | 23:DB:1710:G:H8 | 1.68 | 0.57 |
| 2:AC:59:PRO:HG2 | 2:AC:60:ALA:H | 1.69 | 0.57 |
| 1:CA:1496:C:H4' | 23:DB:1920:C:O2' | 2.04 | 0.57 |
| 1:CA:688:G:H5' | 10:CK:48:GLY:HA2 | 1.85 | 0.57 |
| 7:CH:93:LYS:HG2 | 7:CH:96:ALA:HA | 1.84 | 0.57 |
| 37:DP:25:VAL:HG12 | 37:DP:27:VAL:N | 2.18 | 0.57 |
| 42:DU:38:ILE:HG13 | 42:DU:62:ALA:HB1 | 1.87 | 0.57 |
| 37:BP:25:VAL:HG23 | 37:BP:49:ILE:HD11 | 1.84 | 0.57 |
| 30:DH:26:ALA:HB3 | 30:DH:31:VAL:CG2 | 2.33 | 0.57 |
| 27:BE:128:ALA:CB | 27:BE:129:PRO:CD | 2.81 | 0.57 |
| 23:DB:301:G:H3' | 23:DB:335:C:OP2 | 2.04 | 0.57 |
| 50:B3:24:LYS:NZ | 50:B3:29:ARG:HH22 | 2.02 | 0.57 |
| 46:DZ:55:GLY:HA2 | 46:DZ:59:ARG:HD2 | 1.86 | 0.57 |
| 41:DT:58:VAL:HG12 | 41:DT:59:ASN:H | 1.69 | 0.57 |
| 45:DY:18:LYS:CD | 45:DY:18:LYS:H | 2.11 | 0.57 |
| 27:BE:120:VAL:H | 27:BE:189:THR:CG2 | 2.17 | 0.57 |
| 18:CS:22:VAL:HG22 | 18:CS:42:ASN:OD1 | 2.04 | 0.57 |
| 26:BD:2:ILE:HG12 | 26:BD:203:VAL:O | 2.04 | 0.57 |
| 26:DD:174:SER:C | 26:DD:175:LEU:HD12 | 2.25 | 0.57 |
| 26:DD:22:ILE:HG23 | 26:DD:191:GLY:N | 2.19 | 0.57 |
| 32:DK:76:VAL:HB | 37:DP:74:GLN:NE2 | 2.17 | 0.57 |
| 23:DB:1082:U:C2 | 23:DB:1086:A:C6 | 2.92 | 0.57 |
| 42:DU:23:LYS:C | 42:DU:25:LYS:HD2 | 2.24 | 0.57 |
| 2:AC:77:GLY:HA3 | 2:AC:81:GLU:HB3 | 1.87 | 0.57 |
| 49:D2:12:ARG:HH21 | 49:D2:16:HIS:HB2 | 1.69 | 0.57 |
| 47:B0:52:LYS:HZ3 | 47:B0:52:LYS:HA | 1.68 | 0.57 |
| 10:CK:12:ARG:HB3 | 10:CK:13:LYS:NZ | 2.19 | 0.57 |
| 23:DB:582:A:H2' | 23:DB:583:G:H8 | 1.68 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:CA:552:U:H2' | 1:CA:553:A:H8 | 1.70 | 0.57 |
| 23:BB:346:A:H2' | 23:BB:347:A:O4' | 2.04 | 0.57 |
| 4:CE:72:ASN:N | 4:CE:72:ASN:HD22 | 2.01 | 0.57 |
| 1:CA:441:A:H61 | 1:CA:493:A:N6 | 2.02 | 0.57 |
| 1:CA:1057:G:O3' | 2:CC:196:GLY:HA3 | 2.04 | 0.57 |
| 23:DB:2590:A:H2' | 23:DB:2591:C:C6 | 2.40 | 0.57 |
| 23:DB:182:A:H2' | 23:DB:183:C:C6 | 2.39 | 0.57 |
| 23:DB:230:G:H2' | 23:DB:231:A:C8 | 2.39 | 0.57 |
| 36:DO:90:VAL:HG13 | 36:DO:116:GLN:H | 1.68 | 0.57 |
| 3:CD:115:GLN:NE2 | 3:CD:153:ARG:HH22 | 2.03 | 0.57 |
| 43:BW:49:ASN:HB2 | 43:BW:53:GLY:CA | 2.34 | 0.57 |
| 23:BB:1560:G:H2' | 23:BB:1561:C:H6 | 1.70 | 0.57 |
| 9:AJ:15:HIS:HD2 | 9:AJ:18:ILE:HG22 | 1.69 | 0.57 |
| 44:DX:55:THR:HG22 | 44:DX:56:LEU:H | 1.69 | 0.57 |
| 23:BB:2352:A:H2' | 23:BB:2353:G:O4' | 2.04 | 0.57 |
| 1:AA:335:C:H2' | 1:AA:336:A:C8 | 2.39 | 0.57 |
| 8:AI:10:ARG:HB2 | 8:AI:14:SER:O | 2.04 | 0.57 |
| 1:CA:114:U:O2' | 1:CA:115:G:H5' | 2.04 | 0.57 |
| 23:BB:404:A:H4' | 23:BB:405:U:H5' | 1.87 | 0.57 |
| 23:DB:72:U:O2' | 23:DB:73:A:H5' | 2.04 | 0.57 |
| 1:CA:1461:G:H2' | 1:CA:1462:C:C6 | 2.39 | 0.57 |
| 31:BJ:25:LEU:N | 31:BJ:25:LEU:HD13 | 2.19 | 0.57 |
| 36:BO:40:ILE:H | 36:BO:40:ILE:HD13 | 1.69 | 0.57 |
| 23:DB:2617:U:C2' | 23:DB:2618:G:H5' | 2.35 | 0.57 |
| 23:DB:536:G:H5'' | 38:DQ:52:ARG:NH2 | 2.20 | 0.57 |
| 39:DR:80:ARG:CZ | 39:DR:85:LYS:HB3 | 2.34 | 0.57 |
| 50:B3:24:LYS:HZ3 | 50:B3:29:ARG:NH2 | 2.02 | 0.57 |
| 1:AA:450:G:N7 | 1:AA:481:G:O6 | 2.37 | 0.57 |
| 24:BV:80:HIS:N | 24:BV:87:GLN:HE22 | 2.02 | 0.57 |
| 23:DB:2376:A:N3 | 36:DO:111:ARG:NH2 | 2.52 | 0.57 |
| 23:DB:849:A:H2' | 23:DB:850:U:C6 | 2.40 | 0.57 |
| 35:BN:29:VAL:HG21 | 35:BN:75:ILE:HD11 | 1.86 | 0.57 |
| 1:CA:265:G:H2' | 1:CA:267:C:H5 | 1.69 | 0.57 |
| 41:BT:10:VAL:O | 41:BT:34:VAL:HG13 | 2.05 | 0.57 |
| 23:DB:2053:G:H5' | 26:DD:149:ASN:O | 2.04 | 0.57 |
| 51:D4:16:ILE:HG23 | 51:D4:18:LYS:H | 1.69 | 0.57 |
| 23:DB:2283:C:H5'' | 23:DB:2389:G:O2' | 2.04 | 0.57 |
| 26:BD:2:ILE:HB | 26:BD:205:PRO:HD3 | 1.85 | 0.57 |
| 23:BB:727:A:OP1 | 23:BB:1431:A:O2' | 2.21 | 0.57 |
| 6:AG:14:ASP:OD2 | 6:AG:22:LEU:HD12 | 2.04 | 0.57 |
| 52:DI:27:LEU:HD23 | 52:DI:27:LEU:N | 2.15 | 0.57 |
| 33:DL:30:THR:HG21 | 33:DL:38:GLN:NE2 | 2.20 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 35:BN:10:LEU:H | 35:BN:17:ARG:NH1 | 2.02 | 0.57 |
| 1:AA:950:U:H2' | 1:AA:951:G:C8 | 2.39 | 0.57 |
| 23:DB:877:A:H2 | 23:DB:900:A:N7 | 2.02 | 0.57 |
| 30:DH:113:SER:HB2 | 30:DH:132:PHE:HZ | 1.69 | 0.57 |
| 22:BA:50:A:H5'' | 36:BO:68:LYS:CD | 2.33 | 0.57 |
| 34:BM:108:VAL:N | 34:BM:109:PRO:HD3 | 2.19 | 0.57 |
| 4:CE:73:VAL:HG21 | 4:CE:143:LEU:O | 2.04 | 0.57 |
| 1:AA:1260:G:H4' | 1:AA:1284:C:H5' | 1.86 | 0.57 |
| 3:AD:55:ARG:HH21 | 3:AD:58:GLN:NE2 | 2.02 | 0.57 |
| 40:BS:18:ARG:NH1 | 40:BS:25:ARG:HH22 | 2.02 | 0.57 |
| 1:CA:411:A:C4 | 1:CA:413:G:H1' | 2.40 | 0.57 |
| 29:BG:84:LYS:HZ2 | 29:BG:85:LYS:H | 1.50 | 0.57 |
| 23:BB:2307:G:H4' | 23:BB:2311:A:H61 | 1.68 | 0.57 |
| 1:CA:383:A:H2' | 1:CA:384:G:O4' | 2.05 | 0.57 |
| 1:AA:187:G:H4' | 19:AT:79:THR:HG21 | 1.86 | 0.57 |
| 1:AA:1508:A:H2' | 1:AA:1509:C:H6 | 1.69 | 0.57 |
| 23:BB:15:G:O2' | 23:BB:16:C:H5' | 2.05 | 0.57 |
| 23:DB:2819:G:H2' | 23:DB:2821:A:N7 | 2.19 | 0.57 |
| 1:CA:1105:A:H2' | 1:CA:1106:G:H8 | 1.69 | 0.57 |
| 23:DB:196:A:H2' | 23:DB:196:A:N3 | 2.19 | 0.57 |
| 14:CO:53:ARG:HG2 | 14:CO:53:ARG:HH11 | 1.68 | 0.57 |
| 23:DB:1932:A:H2' | 23:DB:1933:G:O4' | 2.04 | 0.57 |
| 23:DB:2869:G:H2' | 23:DB:2870:C:C6 | 2.40 | 0.57 |
| 37:DP:47:ILE:CG2 | 37:DP:48:ALA:H | 2.03 | 0.57 |
| 42:BU:78:LYS:HG3 | 42:BU:96:LYS:HE3 | 1.85 | 0.57 |
| 27:BE:48:THR:HG22 | 27:BE:49:ARG:N | 2.14 | 0.57 |
| 51:D4:26:ILE:O | 51:D4:27:CYS:CB | 2.52 | 0.57 |
| 36:DO:18:LEU:HD21 | 36:DO:43:ASN:ND2 | 2.19 | 0.57 |
| 43:DW:55:ASP:CG | 43:DW:56:HIS:H | 2.08 | 0.57 |
| 31:BJ:25:LEU:HG | 31:BJ:63:ALA:H | 1.69 | 0.57 |
| 23:BB:918:A:C2' | 23:BB:919:U:H5' | 2.34 | 0.57 |
| 36:BO:17:LYS:HE3 | 36:BO:43:ASN:HB2 | 1.86 | 0.57 |
| 1:AA:1320:C:H41 | 18:AS:36:ARG:CG | 2.18 | 0.57 |
| 23:DB:2085:U:O2' | 23:DB:2086:U:H5' | 2.05 | 0.57 |
| 34:BM:11:LYS:O | 34:BM:12:MET:HE2 | 2.03 | 0.57 |
| 34:BM:34:LYS:HD3 | 34:BM:98:PRO:O | 2.04 | 0.57 |
| 24:DV:4:ILE:N | 24:DV:4:ILE:HD12 | 2.19 | 0.57 |
| 34:DM:5:LYS:HA | 34:DM:68:PHE:CE1 | 2.40 | 0.57 |
| 13:AN:66:THR:HG23 | 13:AN:67:GLY:H | 1.69 | 0.57 |
| 27:BE:108:ILE:HG21 | 27:BE:116:ASP:OD2 | 2.04 | 0.57 |
| 27:BE:116:ASP:O | 27:BE:117:ARG:HB3 | 2.05 | 0.57 |
| 33:DL:81:ASP:HA | 33:DL:84:LYS:HB3 | 1.86 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 41:BT:3:ARG:HD3 | 41:BT:3:ARG:C | 2.23 | 0.57 |
| 3:CD:58:GLN:O | 3:CD:62:ARG:HG2 | 2.04 | 0.57 |
| 48:B1:15:GLY:N | 48:B1:47:ILE:HD12 | 2.19 | 0.57 |
| 33:DL:118:THR:O | 33:DL:119:PRO:C | 2.39 | 0.57 |
| 42:DU:12:VAL:HG11 | 42:DU:17:ASP:HB3 | 1.87 | 0.57 |
| 23:BB:285:G:O2' | 23:BB:286:U:H5' | 2.05 | 0.57 |
| 23:BB:264:C:O2' | 23:BB:265:A:H5'' | 2.05 | 0.57 |
| 1:CA:238:A:C2' | 1:CA:239:U:H5'' | 2.31 | 0.57 |
| 24:BV:84:PRO:HG3 | 34:BM:127:LYS:NZ | 2.19 | 0.57 |
| 52:DI:45:THR:HA | 52:DI:48:ILE:CG2 | 2.33 | 0.57 |
| 21:CU:41:THR:CA | 21:CU:45:LYS:HD3 | 2.32 | 0.57 |
| 1:AA:1366:C:H2' | 1:AA:1367:C:C6 | 2.39 | 0.57 |
| 23:DB:1791:A:H5'' | 25:DC:211:ARG:HE | 1.70 | 0.57 |
| 25:BC:76:VAL:O | 25:BC:93:VAL:HA | 2.04 | 0.57 |
| 23:BB:1438:U:N3 | 23:BB:1552:A:N6 | 2.53 | 0.57 |
| 1:CA:972:C:OP1 | 9:CJ:59:LYS:HD2 | 2.04 | 0.57 |
| 23:DB:2329:U:H2' | 23:DB:2330:G:H8 | 1.69 | 0.57 |
| 22:DA:59:A:H2' | 22:DA:60:C:O4' | 2.05 | 0.57 |
| 23:BB:716:A:H2' | 23:BB:717:C:O4' | 2.03 | 0.57 |
| 9:CJ:36:VAL:HA | 9:CJ:76:ILE:HG23 | 1.87 | 0.57 |
| 9:CJ:37:ARG:HG2 | 9:CJ:37:ARG:HH11 | 1.68 | 0.57 |
| 12:CM:48:SER:H | 12:CM:51:GLN:NE2 | 2.03 | 0.57 |
| 28:BF:177:ARG:HE | 28:BF:178:LYS:CA | 2.17 | 0.57 |
| 43:BW:49:ASN:HD22 | 43:BW:53:GLY:HA2 | 1.68 | 0.57 |
| 23:BB:1878:G:H2' | 23:BB:1879:C:H6 | 1.69 | 0.57 |
| 23:BB:1537:G:H2' | 23:BB:1538:G:C4' | 2.35 | 0.57 |
| 20:CB:169:HIS:CE1 | 20:CB:173:LYS:HB2 | 2.40 | 0.57 |
| 52:DI:37:PHE:CZ | 52:DI:58:ILE:HD11 | 2.39 | 0.57 |
| 23:BB:1505:A:H2' | 23:BB:1506:U:C6 | 2.39 | 0.57 |
| 23:DB:1637:A:H2' | 23:DB:1638:C:C6 | 2.39 | 0.57 |
| 37:DP:27:VAL:HA | 37:DP:86:LYS:CE | 2.32 | 0.57 |
| 37:BP:62:LYS:HD3 | 37:BP:72:VAL:HG21 | 1.87 | 0.57 |
| 36:DO:15:ARG:HH22 | 43:DW:76:ARG:CD | 2.16 | 0.57 |
| 30:DH:6:LEU:HB2 | 30:DH:35:LYS:HB2 | 1.85 | 0.57 |
| 25:DC:156:SER:O | 25:DC:195:GLY:HA3 | 2.05 | 0.57 |
| 27:DE:133:LEU:HD22 | 27:DE:136:GLN:HG3 | 1.87 | 0.57 |
| 33:BL:78:ARG:NH1 | 33:BL:110:VAL:HG11 | 2.20 | 0.57 |
| 23:BB:871:U:H2' | 23:BB:872:U:H6 | 1.68 | 0.57 |
| 34:BM:96:ILE:HD13 | 34:BM:97:GLN:CG | 2.34 | 0.57 |
| 23:DB:2722:G:O2' | 35:DN:4:ARG:NE | 2.38 | 0.57 |
| 25:DC:179:GLU:CG | 25:DC:266:ILE:HA | 2.34 | 0.57 |
| 38:BQ:51:GLN:O | 38:BQ:54:ARG:HG2 | 2.05 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 27:BE:112:LEU:HB3 | 27:BE:116:ASP:H | 1.69 | 0.57 |
| 51:B4:22:VAL:HG11 | 51:B4:36:ARG:NH1 | 2.20 | 0.57 |
| 37:DP:1:SER:HA | 37:DP:4:ILE:HB | 1.86 | 0.57 |
| 23:BB:548:G:H5'' | 23:BB:549:G:O4' | 2.03 | 0.57 |
| 26:DD:122:VAL:CA | 26:DD:128:ARG:HG3 | 2.33 | 0.57 |
| 34:DM:33:LEU:HD22 | 34:DM:124:LEU:HD22 | 1.85 | 0.57 |
| 33:BL:79:LEU:HB3 | 33:BL:114:GLY:N | 2.12 | 0.57 |
| 32:DK:70:ARG:CD | 32:DK:76:VAL:HG22 | 2.33 | 0.57 |
| 38:DQ:111:LYS:NZ | 39:DR:52:PRO:HA | 2.20 | 0.57 |
| 21:AU:39:LYS:N | 21:AU:40:PRO:CD | 2.66 | 0.57 |
| 6:AG:14:ASP:H | 6:AG:19:SER:H | 1.51 | 0.57 |
| 38:DQ:65:ASN:HB2 | 38:DQ:75:TYR:HB2 | 1.87 | 0.57 |
| 52:DI:100:ILE:O | 52:DI:139:VAL:HA | 2.04 | 0.57 |
| 23:BB:1180:U:O2' | 23:BB:1181:U:H5' | 2.05 | 0.57 |
| 23:DB:1441:G:H2' | 23:DB:1442:U:C6 | 2.40 | 0.57 |
| 23:DB:1309:G:C4' | 49:D2:7:PRO:HB2 | 2.34 | 0.57 |
| 4:AE:81:GLN:HE22 | 4:AE:82:HIS:CE1 | 2.23 | 0.57 |
| 1:AA:1283:U:H2' | 1:AA:1284:C:C6 | 2.40 | 0.57 |
| 23:DB:453:A:H4' | 23:DB:472:A:H61 | 1.69 | 0.57 |
| 1:AA:1074:G:H5' | 20:AB:104:LYS:NZ | 2.19 | 0.57 |
| 1:AA:411:A:C4 | 1:AA:413:G:H1' | 2.40 | 0.57 |
| 29:DG:124:CYS:HB3 | 29:DG:130:ILE:HD13 | 1.87 | 0.57 |
| 1:AA:202:G:H2' | 1:AA:203:G:H8 | 1.70 | 0.57 |
| 1:AA:71:A:N1 | 1:AA:99:C:H1' | 2.19 | 0.57 |
| 23:DB:2105:U:H2' | 23:DB:2106:U:H6 | 1.68 | 0.57 |
| 30:DH:96:THR:HG23 | 30:DH:97:ARG:H | 1.68 | 0.57 |
| 16:AQ:7:LEU:HD13 | 16:AQ:24:ILE:HG12 | 1.87 | 0.57 |
| 40:DS:87:PRO:O | 40:DS:93:ALA:HA | 2.05 | 0.57 |
| 18:AS:11:ASP:H | 18:AS:37:SER:HB3 | 1.68 | 0.57 |
| 23:BB:2083:G:H2' | 23:BB:2084:C:H6 | 1.69 | 0.57 |
| 23:DB:1505:A:H2' | 23:DB:1506:U:C6 | 2.39 | 0.57 |
| 23:BB:1637:A:H2' | 23:BB:1638:C:C6 | 2.40 | 0.57 |
| 33:DL:133:ALA:O | 33:DL:136:GLU:HB2 | 2.04 | 0.57 |
| 28:DF:120:SER:HB3 | 28:DF:127:TYR:CE1 | 2.40 | 0.57 |
| 23:DB:2480:C:O2' | 23:DB:2481:G:H5' | 2.03 | 0.57 |
| 23:DB:1464:G:H2' | 23:DB:1465:G:H8 | 1.68 | 0.57 |
| 27:BE:24:ASN:O | 27:BE:24:ASN:CG | 2.43 | 0.57 |
| 22:DA:113:C:O2' | 36:DO:47:VAL:HA | 2.04 | 0.57 |
| 43:DW:42:THR:HG23 | 43:DW:66:VAL:N | 2.18 | 0.57 |
| 35:DN:35:LYS:HE3 | 35:DN:110:MET:HB3 | 1.86 | 0.57 |
| 27:DE:109:LEU:HG | 27:DE:117:ARG:CD | 2.34 | 0.57 |
| 23:BB:632:A:H2' | 23:BB:633:A:C8 | 2.40 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 46:BZ:50:ASP:HA | 46:BZ:53:THR:HG22 | 1.86 | 0.57 |
| 24:BV:44:HIS:NE2 | 24:BV:85:LYS:HB2 | 2.19 | 0.57 |
| 41:DT:3:ARG:HB3 | 41:DT:5:GLU:OE2 | 2.04 | 0.57 |
| 40:BS:6:LYS:HA | 40:BS:104:THR:CA | 2.28 | 0.57 |
| 43:BW:36:ILE:O | 43:BW:36:ILE:HG22 | 2.05 | 0.57 |
| 51:B4:33:HIS:HD2 | 51:B4:33:HIS:H | 1.51 | 0.57 |
| 10:AK:95:THR:HG23 | 10:AK:96:ILE:N | 2.19 | 0.57 |
| 33:DL:109:LYS:HA | 33:DL:127:VAL:H | 1.69 | 0.57 |
| 23:BB:2819:G:H2' | 23:BB:2821:A:N7 | 2.19 | 0.57 |
| 5:CF:38:ARG:NH2 | 5:CF:96:VAL:HB | 2.20 | 0.57 |
| 44:DX:17:GLU:HA | 44:DX:21:LEU:HB2 | 1.85 | 0.57 |
| 23:BB:2650:U:H2' | 23:BB:2651:C:H6 | 1.69 | 0.57 |
| 25:DC:53:ILE:HD13 | 25:DC:218:THR:HG23 | 1.87 | 0.57 |
| 13:CN:40:ARG:HG3 | 18:CS:6:LYS:O | 2.05 | 0.57 |
| 31:DJ:89:PHE:HD1 | 31:DJ:92:MET:HG3 | 1.68 | 0.57 |
| 15:CP:54:LEU:HD22 | 15:CP:80:LYS:HZ2 | 1.70 | 0.57 |
| 28:BF:68:LYS:HA | 28:BF:83:PRO:HA | 1.86 | 0.57 |
| 45:DY:10:ARG:O | 45:DY:11:SER:HB3 | 2.04 | 0.57 |
| 8:AI:107:ALA:O | 8:AI:109:GLN:HG2 | 2.05 | 0.57 |
| 2:AC:21:TRP:HB3 | 2:AC:58:ARG:HB2 | 1.86 | 0.57 |
| 23:BB:2882:A:H2' | 23:BB:2883:A:H5'' | 1.86 | 0.57 |
| 7:CH:101:ALA:O | 7:CH:103:VAL:HG23 | 2.04 | 0.57 |
| 1:AA:973:G:H3' | 1:AA:974:A:H5'' | 1.87 | 0.57 |
| 10:AK:69:CYS:C | 10:AK:71:ASP:H | 2.06 | 0.57 |
| 23:BB:519:U:H5'' | 40:BS:18:ARG:NH2 | 2.20 | 0.57 |
| 1:AA:413:G:H4' | 1:AA:414:A:H5'' | 1.85 | 0.57 |
| 3:AD:25:ARG:HH11 | 3:AD:30:LYS:HE3 | 1.69 | 0.57 |
| 41:BT:64:LYS:HB3 | 41:BT:77:ARG:HD3 | 1.87 | 0.57 |
| 29:DG:163:TYR:HB2 | 29:DG:166:GLU:HG3 | 1.85 | 0.57 |
| 23:BB:1220:G:H2' | 23:BB:1221:C:C6 | 2.40 | 0.57 |
| 23:DB:1381:G:O2' | 23:DB:1382:G:H5' | 2.05 | 0.57 |
| 1:AA:1179:A:H4' | 8:AI:104:THR:HA | 1.86 | 0.57 |
| 23:DB:1722:A:H61 | 23:DB:1738:G:H1' | 1.69 | 0.57 |
| 20:AB:102:ASN:O | 20:AB:106:VAL:HG23 | 2.04 | 0.57 |
| 1:CA:384:G:H2' | 1:CA:385:C:H6 | 1.68 | 0.57 |
| 36:DO:83:LEU:HA | 36:DO:87:ILE:HD12 | 1.87 | 0.57 |
| 23:DB:2455:G:H2' | 23:DB:2456:C:H6 | 1.70 | 0.57 |
| 1:CA:1175:G:O2' | 1:CA:1176:A:H5' | 2.04 | 0.57 |
| 4:CE:142:GLY:HA2 | 4:CE:145:ASN:HD22 | 1.70 | 0.57 |
| 23:DB:1729:U:H2' | 23:DB:1730:C:H4' | 1.87 | 0.57 |
| 23:BB:2872:A:O2' | 23:BB:2873:A:H5'' | 2.05 | 0.57 |
| 22:DA:112:G:O2' | 22:DA:113:C:H5' | 2.04 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 1:AA:1376:U:H2' | 1:AA:1377:A:H8 | 1.69 | 0.57 |
| 23:DB:1400:U:H2' | 23:DB:1401:G:H8 | 1.70 | 0.57 |
| 23:DB:2352:A:H2' | 23:DB:2353:G:O4' | 2.04 | 0.57 |
| 24:DV:82:TYR:HE1 | 24:DV:83:LYS:HE3 | 1.70 | 0.57 |
| 1:AA:114:U:O2' | 1:AA:115:G:H5' | 2.04 | 0.57 |
| 11:AL:34:THR:HB | 11:AL:53:ARG:HB2 | 1.87 | 0.57 |
| 32:BK:53:LYS:HE2 | 32:BK:56:ASP:OD1 | 2.04 | 0.57 |
| 1:AA:85:U:H4' | 1:AA:86:G:H4' | 1.85 | 0.57 |
| 21:AU:11:PHE:HD1 | 21:AU:11:PHE:O | 1.86 | 0.57 |
| 23:DB:1842:G:H2' | 23:DB:1843:C:H6 | 1.70 | 0.57 |
| 23:DB:558:U:P | 31:DJ:113:PRO:HB2 | 2.45 | 0.57 |
| 23:DB:1100:C:OP2 | 52:DI:2:LYS:HB3 | 2.05 | 0.57 |
| 42:BU:11:ILE:HB | 42:BU:69:VAL:CB | 2.35 | 0.57 |
| 51:D4:24:ARG:HH21 | 51:D4:37:GLN:HB2 | 1.69 | 0.57 |
| 43:DW:24:ARG:HB3 | 43:DW:59:PHE:CD2 | 2.39 | 0.57 |
| 25:DC:62:ARG:O | 25:DC:63:ILE:HB | 2.05 | 0.57 |
| 36:BO:17:LYS:HE2 | 43:BW:77:LYS:CD | 2.35 | 0.57 |
| 38:DQ:48:ASP:CA | 38:DQ:51:GLN:HE21 | 2.06 | 0.57 |
| 38:BQ:32:ARG:O | 38:BQ:36:GLN:HB2 | 2.05 | 0.57 |
| 23:DB:1198:U:H2' | 23:DB:1199:U:C6 | 2.39 | 0.57 |
| 23:DB:1198:U:H2' | 23:DB:1199:U:H6 | 1.70 | 0.57 |
| 23:DB:165:A:H2' | 23:DB:166:U:H6 | 1.69 | 0.57 |
| 28:DF:36:ASN:HB2 | 28:DF:87:LYS:HA | 1.87 | 0.57 |
| 5:AF:3:HIS:HB2 | 5:AF:92:THR:CB | 2.35 | 0.57 |
| 23:BB:643:A:H61 | 23:BB:2370:G:H1' | 1.68 | 0.57 |
| 52:DI:32:VAL:HG22 | 52:DI:60:VAL:CG2 | 2.34 | 0.57 |
| 1:AA:1101:A:H61 | 20:AB:173:LYS:HD2 | 1.70 | 0.57 |
| 9:AJ:42:LEU:HB2 | 9:AJ:71:LEU:HD13 | 1.85 | 0.57 |
| 23:BB:2270:A:H4' | 43:BW:18:LYS:CB | 2.35 | 0.57 |
| 1:CA:1414:U:H2' | 1:CA:1415:G:H8 | 1.69 | 0.57 |
| 27:BE:52:VAL:C | 27:BE:54:GLY:H | 2.08 | 0.57 |
| 23:DB:170:U:H2' | 23:DB:171:U:C6 | 2.39 | 0.57 |
| 1:AA:537:G:H5'' | 11:AL:109:ARG:HH11 | 1.69 | 0.57 |
| 23:BB:2455:G:H2' | 23:BB:2456:C:H6 | 1.70 | 0.57 |
| 23:DB:1946:U:H2' | 23:DB:1947:C:H6 | 1.69 | 0.57 |
| 23:BB:127:A:H5'' | 23:BB:128:C:C6 | 2.40 | 0.57 |
| 23:DB:506:G:H4' | 23:DB:509:C:O2 | 2.05 | 0.57 |
| 8:AI:113:LYS:HA | 8:AI:120:ALA:HB2 | 1.87 | 0.57 |
| 23:DB:2902:C:O2' | 23:DB:2903:U:H4' | 2.05 | 0.57 |
| 23:DB:2378:A:H2' | 23:DB:2379:G:H5' | 1.85 | 0.57 |
| 28:BF:44:ALA:HB1 | 28:BF:48:LEU:HD12 | 1.86 | 0.57 |
| 1:AA:1081:A:O2' | 1:AA:1082:A:H5' | 2.05 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 42:BU:79:ALA:O | 42:BU:96:LYS:HA | 2.04 | 0.57 |
| 42:BU:9:GLU:HA | 42:BU:23:LYS:HA | 1.86 | 0.57 |
| 26:BD:193:VAL:HG13 | 26:BD:193:VAL:O | 2.03 | 0.57 |
| 32:BK:70:ARG:CB | 32:BK:76:VAL:HG22 | 2.31 | 0.57 |
| 37:BP:55:HIS:O | 37:BP:57:ALA:N | 2.38 | 0.57 |
| 37:BP:62:LYS:HE3 | 37:BP:74:GLN:NE2 | 2.19 | 0.57 |
| 25:BC:143:VAL:HG12 | 25:BC:144:GLU:N | 2.14 | 0.57 |
| 18:AS:28:LYS:HB2 | 18:AS:29:PRO:HD2 | 1.87 | 0.57 |
| 23:DB:1853:A:N1 | 23:DB:2087:G:H1' | 2.19 | 0.57 |
| 20:AB:66:ILE:C | 20:AB:67:LEU:HD13 | 2.25 | 0.57 |
| 38:BQ:50:ARG:HG3 | 38:BQ:53:LYS:NZ | 2.20 | 0.57 |
| 38:DQ:69:ARG:HH11 | 38:DQ:69:ARG:CB | 2.16 | 0.57 |
| 38:BQ:85:ALA:HB1 | 38:BQ:88:GLU:HB2 | 1.87 | 0.57 |
| 39:BR:49:ILE:HG22 | 39:BR:51:VAL:HG23 | 1.86 | 0.57 |
| 40:BS:1:MET:HB3 | 40:BS:4:ILE:HG12 | 1.86 | 0.57 |
| 41:BT:12:ARG:NH2 | 44:BX:29:ARG:HH12 | 2.01 | 0.57 |
| 44:BX:29:ARG:N | 44:BX:34:SER:HB2 | 2.19 | 0.57 |
| 24:BV:61:LEU:O | 24:BV:71:LYS:HA | 2.05 | 0.57 |
| 20:AB:71:THR:CG2 | 20:AB:94:ARG:HH21 | 2.18 | 0.57 |
| 10:AK:126:ARG:HB2 | 21:AU:33:ARG:CD | 2.30 | 0.57 |
| 25:BC:224:MET:HG3 | 25:BC:233:GLY:O | 2.05 | 0.57 |
| 45:DY:8:GLN:HB2 | 45:DY:28:LEU:HG | 1.87 | 0.57 |
| 8:CI:93:LEU:O | 8:CI:97:LEU:HG | 2.05 | 0.57 |
| 42:BU:2:ALA:O | 42:BU:4:ILE:N | 2.37 | 0.57 |
| 35:BN:22:ARG:HG3 | 35:BN:23:ASN:N | 2.17 | 0.57 |
| 20:AB:37:VAL:HG22 | 20:AB:38:HIS:H | 1.68 | 0.57 |
| 7:AH:29:SER:HB3 | 7:AH:32:LYS:CG | 2.35 | 0.57 |
| 23:DB:125:A:H4' | 23:DB:126:A:OP2 | 2.05 | 0.57 |
| 32:DK:24:VAL:HA | 32:DK:39:ILE:HD12 | 1.86 | 0.57 |
| 32:DK:6:THR:O | 32:DK:20:MET:HG3 | 2.05 | 0.57 |
| 39:BR:58:VAL:HG22 | 39:BR:59:ILE:N | 2.17 | 0.57 |
| 28:DF:106:ALA:HB1 | 28:DF:136:ILE:HG22 | 1.85 | 0.57 |
| 23:DB:1791:A:C2 | 23:DB:1829:A:C4' | 2.88 | 0.57 |
| 23:DB:544:C:O2' | 23:DB:545:U:O5' | 2.23 | 0.57 |
| 23:DB:546:U:O2 | 23:DB:546:U:H5' | 2.05 | 0.57 |
| 23:BB:2839:G:H2' | 23:BB:2840:C:H6 | 1.70 | 0.57 |
| 23:BB:459:U:C5' | 49:B2:41:ARG:HE | 2.16 | 0.57 |
| 1:CA:619:U:H3 | 3:CD:130:ASN:HD21 | 1.53 | 0.57 |
| 2:CC:115:VAL:O | 2:CC:119:ILE:HG22 | 2.05 | 0.57 |
| 23:BB:2213:U:C2' | 23:BB:2213:U:O2 | 2.52 | 0.57 |
| 23:DB:962:G:N2 | 34:DM:81:ARG:HD3 | 2.20 | 0.57 |
| 1:CA:908:A:H2' | 1:CA:909:A:H8 | 1.70 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 1:CA:1134:G:C6 | 1:CA:1135:U:H1' | 2.40 | 0.57 |
| 25:DC:237:ARG:HH11 | 25:DC:238:ASN:HA | 1.69 | 0.57 |
| 23:DB:2234:G:O2' | 23:DB:2235:G:H5' | 2.04 | 0.57 |
| 23:DB:765:C:H2' | 23:DB:766:U:C6 | 2.40 | 0.57 |
| 2:CC:143:LEU:HD13 | 2:CC:143:LEU:H | 1.70 | 0.57 |
| 1:AA:212:G:H2' | 1:AA:213:G:H8 | 1.68 | 0.57 |
| 23:DB:1211:C:H4' | 23:DB:1212:G:OP2 | 2.04 | 0.57 |
| 23:DB:1537:G:H2' | 23:DB:1538:G:C4' | 2.35 | 0.57 |
| 23:BB:2567:G:H2' | 23:BB:2568:U:C6 | 2.40 | 0.57 |
| 2:AC:33:ASP:OD2 | 13:AN:64:ARG:HD3 | 2.05 | 0.57 |
| 23:BB:49:A:OP1 | 23:BB:51:G:H5' | 2.05 | 0.57 |
| 23:BB:1400:U:H2' | 23:BB:1401:G:H8 | 1.70 | 0.57 |
| 33:BL:129:LYS:O | 33:BL:129:LYS:HD3 | 2.05 | 0.57 |
| 15:AP:25:ARG:HD3 | 15:AP:25:ARG:N | 2.20 | 0.57 |
| 36:BO:60:GLU:HG3 | 36:BO:61:GLN:H | 1.70 | 0.57 |
| 25:DC:163:ILE:HG12 | 25:DC:173:LEU:HD21 | 1.87 | 0.57 |
| 36:BO:43:ASN:HA | 36:BO:46:GLU:OE2 | 2.04 | 0.57 |
| 23:BB:2617:U:C2' | 23:BB:2618:G:H5' | 2.35 | 0.57 |
| 1:AA:265:G:H2' | 1:AA:267:C:H5 | 1.69 | 0.57 |
| 1:AA:266:G:HO2' | 1:AA:267:C:H3' | 1.70 | 0.57 |
| 23:DB:2820:A:C6 | 26:DD:197:THR:HB | 2.40 | 0.57 |
| 23:BB:1155:A:OP1 | 38:BQ:54:ARG:HD2 | 2.05 | 0.57 |
| 8:AI:44:ARG:N | 8:AI:44:ARG:HH11 | 2.02 | 0.57 |
| 23:DB:632:A:H2' | 23:DB:633:A:C8 | 2.40 | 0.57 |
| 9:CJ:52:LEU:HG | 9:CJ:62:ARG:HE | 1.70 | 0.57 |
| 8:CI:56:MET:SD | 8:CI:57:VAL:N | 2.78 | 0.57 |
| 23:BB:2371:G:O2' | 48:B1:44:GLN:HA | 2.04 | 0.57 |
| 23:BB:702:U:O2' | 23:BB:703:U:H5' | 2.05 | 0.57 |
| 52:DI:23:VAL:HG12 | 52:DI:27:LEU:HD21 | 1.87 | 0.57 |
| 42:BU:81:ARG:N | 42:BU:81:ARG:HD2 | 2.19 | 0.57 |
| 49:B2:30:VAL:HA | 49:B2:33:ARG:HD2 | 1.87 | 0.57 |
| 23:DB:997:G:C5' | 38:DQ:92:LYS:HG3 | 2.35 | 0.57 |
| 1:AA:784:A:H2' | 1:AA:785:G:H8 | 1.70 | 0.57 |
| 23:DB:796:C:H2' | 23:DB:797:G:C8 | 2.40 | 0.57 |
| 35:DN:73:ASN:HA | 35:DN:76:VAL:CG1 | 2.35 | 0.57 |
| 12:AM:21:ILE:HB | 12:AM:24:VAL:HG22 | 1.87 | 0.57 |
| 2:AC:46:LEU:HD23 | 2:AC:75:VAL:HG13 | 1.86 | 0.57 |
| 23:BB:278:A:H2' | 23:BB:278:A:N3 | 2.20 | 0.57 |
| 3:AD:99:ASN:CG | 3:AD:103:ARG:HH21 | 2.07 | 0.57 |
| 31:DJ:117:ALA:C | 31:DJ:121:LYS:HZ3 | 2.09 | 0.57 |
| 1:CA:674:G:H2' | 1:CA:675:A:C8 | 2.40 | 0.57 |
| 8:AI:11:ARG:NH2 | 8:AI:12:LYS:HE3 | 2.20 | 0.57 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 43:BW:16:GLU:HG2 | 43:BW:37:VAL:HG22 | 1.85 | 0.57 |
| 33:DL:55:MET:CB | 33:DL:56:PRO:HD3 | 2.35 | 0.57 |
| 23:BB:1790:C:H4' | 25:BC:207:ALA:HB2 | 1.86 | 0.57 |
| 4:AE:155:LYS:HA | 7:AH:65:PHE:CD1 | 2.40 | 0.57 |
| 23:BB:182:A:H2' | 23:BB:183:C:H6 | 1.70 | 0.57 |
| 20:AB:165:ALA:HB2 | 20:AB:186:VAL:HG12 | 1.87 | 0.57 |
| 23:BB:609:A:H2' | 23:BB:610:C:O4' | 2.05 | 0.57 |
| 1:AA:1225:A:H4' | 18:AS:77:ARG:NH2 | 2.20 | 0.57 |
| 13:AN:17:ASP:HA | 13:AN:21:ALA:HB2 | 1.87 | 0.57 |
| 23:DB:2339:C:H2' | 23:DB:2340:A:H8 | 1.68 | 0.57 |
| 47:B0:24:VAL:O | 47:B0:25:THR:HG23 | 2.05 | 0.57 |
| 1:AA:600:A:OP1 | 7:AH:88:LYS:HG2 | 2.04 | 0.57 |
| 3:AD:170:LEU:HD12 | 3:AD:170:LEU:O | 2.05 | 0.57 |
| 27:DE:91:ASP:O | 27:DE:92:HIS:HB2 | 2.05 | 0.57 |
| 1:CA:51:A:O2' | 1:CA:52:C:OP2 | 2.18 | 0.57 |
| 1:AA:993:G:H4' | 1:AA:994:A:OP2 | 2.05 | 0.57 |
| 43:DW:45:HIS:HB2 | 43:DW:66:VAL:HG11 | 1.87 | 0.56 |
| 31:BJ:61:LYS:CA | 31:BJ:61:LYS:HE2 | 2.35 | 0.56 |
| 43:BW:43:LYS:HG2 | 43:BW:76:ARG:NH2 | 2.18 | 0.56 |
| 30:BH:2:GLN:N | 30:BH:21:VAL:HG12 | 2.20 | 0.56 |
| 27:DE:149:ILE:HD13 | 27:DE:186:VAL:CG1 | 2.32 | 0.56 |
| 46:BZ:25:ARG:HG3 | 46:BZ:26:SER:H | 1.70 | 0.56 |
| 34:BM:101:VAL:O | 34:BM:102:LEU:HD12 | 2.05 | 0.56 |
| 34:BM:41:LEU:HB2 | 34:BM:93:VAL:CG2 | 2.35 | 0.56 |
| 16:AQ:56:ASP:HB3 | 16:AQ:79:GLU:O | 2.05 | 0.56 |
| 34:DM:6:ARG:HD2 | 34:DM:71:LYS:HE3 | 1.86 | 0.56 |
| 31:BJ:10:THR:HG22 | 31:BJ:50:THR:N | 2.20 | 0.56 |
| 1:CA:1101:A:H61 | 20:CB:101:THR:HG21 | 1.70 | 0.56 |
| 23:BB:2329:U:H2' | 23:BB:2330:G:C8 | 2.40 | 0.56 |
| 24:BV:63:ILE:HD11 | 24:BV:72:VAL:HG21 | 1.87 | 0.56 |
| 26:DD:69:ALA:HB1 | 26:DD:92:VAL:CG1 | 2.33 | 0.56 |
| 27:DE:17:THR:HG23 | 27:DE:18:THR:H | 1.67 | 0.56 |
| 23:DB:2025:C:OP1 | 26:DD:154:LYS:HE3 | 2.04 | 0.56 |
| 26:DD:29:VAL:HG22 | 26:DD:30:GLU:N | 2.13 | 0.56 |
| 20:AB:202:ASN:C | 20:AB:202:ASN:HD22 | 2.08 | 0.56 |
| 23:DB:1022:G:N2 | 23:DB:1142:A:N1 | 2.53 | 0.56 |
| 1:CA:1330:U:H2' | 1:CA:1331:G:O4' | 2.05 | 0.56 |
| 17:CR:72:ARG:NH1 | 17:CR:72:ARG:HB2 | 2.19 | 0.56 |
| 25:BC:21:PRO:C | 25:BC:202:ARG:HD2 | 2.25 | 0.56 |
| 23:DB:2061:G:H5'' | 23:DB:2503:A:C2 | 2.40 | 0.56 |
| 14:CO:76:ARG:O | 14:CO:79:ARG:HB2 | 2.05 | 0.56 |
| 1:CA:784:A:H2' | 1:CA:785:G:H8 | 1.70 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:BB:1083:U:H1' | 23:BB:1086:A:H61 | 1.70 | 0.56 |
| 23:BB:1754:A:OP1 | 37:BP:95:LYS:HB2 | 2.04 | 0.56 |
| 1:CA:673:A:H1' | 17:CR:63:TYR:CD1 | 2.39 | 0.56 |
| 1:CA:940:C:H2' | 1:CA:941:G:H8 | 1.70 | 0.56 |
| 4:AE:108:GLY:H | 4:AE:110:MET:HE1 | 1.69 | 0.56 |
| 23:BB:2443:C:O2' | 23:BB:2444:G:H5' | 2.05 | 0.56 |
| 28:BF:108:PRO:HA | 28:BF:113:PHE:CD1 | 2.40 | 0.56 |
| 23:BB:1441:G:H2' | 23:BB:1442:U:C6 | 2.40 | 0.56 |
| 23:DB:479:A:H4' | 23:DB:479:A:OP1 | 2.04 | 0.56 |
| 4:AE:92:ARG:HB3 | 4:AE:127:TYR:HB2 | 1.87 | 0.56 |
| 1:AA:1342:C:H5' | 8:AI:127:SER:HA | 1.86 | 0.56 |
| 9:AJ:52:LEU:HB2 | 13:AN:80:ARG:HD2 | 1.87 | 0.56 |
| 9:CJ:53:ILE:HG13 | 13:CN:84:ARG:CZ | 2.35 | 0.56 |
| 35:DN:103:ARG:HG2 | 35:DN:106:ASP:OD2 | 2.05 | 0.56 |
| 1:AA:441:A:H61 | 1:AA:493:A:N6 | 2.03 | 0.56 |
| 23:DB:241:A:O3' | 23:DB:242:G:H4' | 2.05 | 0.56 |
| 8:AI:23:GLY:O | 8:AI:24:ASN:HB2 | 2.04 | 0.56 |
| 3:CD:84:ASN:ND2 | 3:CD:87:GLU:H | 2.02 | 0.56 |
| 23:DB:552:U:O2' | 23:DB:553:G:H5' | 2.05 | 0.56 |
| 28:DF:163:GLU:HG2 | 28:DF:166:ARG:CZ | 2.35 | 0.56 |
| 49:B2:25:LYS:HE3 | 49:B2:25:LYS:H | 1.68 | 0.56 |
| 52:BI:85:ILE:CD1 | 52:BI:137:LEU:HD21 | 2.35 | 0.56 |
| 23:BB:2258:C:OP2 | 43:BW:3:LYS:HG3 | 2.05 | 0.56 |
| 48:D1:19:PHE:CE2 | 48:D1:41:VAL:HG13 | 2.39 | 0.56 |
| 36:DO:108:ASP:O | 36:DO:112:GLU:HG3 | 2.05 | 0.56 |
| 6:AG:139:ASP:HA | 6:AG:142:ARG:HH12 | 1.70 | 0.56 |
| 23:DB:467:G:O2' | 23:DB:468:G:H5' | 2.05 | 0.56 |
| 23:BB:1464:G:H2' | 23:BB:1465:G:H8 | 1.68 | 0.56 |
| 23:DB:1560:G:H2' | 23:DB:1561:C:H6 | 1.70 | 0.56 |
| 23:DB:175:G:H2' | 23:DB:176:A:C8 | 2.40 | 0.56 |
| 1:CA:1034:G:H2' | 1:CA:1035:A:C8 | 2.40 | 0.56 |
| 1:CA:1011:C:H2' | 1:CA:1012:A:C8 | 2.40 | 0.56 |
| 2:CC:49:ALA:HB2 | 2:CC:74:ILE:CG2 | 2.34 | 0.56 |
| 23:BB:1771:C:H2' | 23:BB:1772:A:H8 | 1.69 | 0.56 |
| 30:DH:37:VAL:O | 30:DH:38:PRO:C | 2.43 | 0.56 |
| 23:DB:2813:A:H2' | 23:DB:2814:A:H8 | 1.70 | 0.56 |
| 31:BJ:128:ASN:CG | 31:BJ:129:GLU:H | 2.08 | 0.56 |
| 39:DR:76:LYS:HA | 39:DR:91:GLN:H | 1.70 | 0.56 |
| 41:DT:76:ARG:HG2 | 41:DT:77:ARG:N | 2.20 | 0.56 |
| 35:BN:46:ARG:O | 35:BN:50:PRO:HG2 | 2.06 | 0.56 |
| 12:AM:53:ASP:OD1 | 12:AM:56:ARG:HD2 | 2.05 | 0.56 |
| 27:BE:6:LYS:HG3 | 27:BE:9:GLN:HB2 | 1.86 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 26:DD:156:PHE:CD1 | 31:DJ:81:ILE:HG21 | 2.41 | 0.56 |
| 27:BE:74:LYS:O | 27:BE:82:GLY:HA3 | 2.05 | 0.56 |
| 22:DA:75:G:H5'' | 24:DV:12:GLN:OE1 | 2.05 | 0.56 |
| 25:DC:208:GLY:HA2 | 25:DC:212:TRP:CB | 2.35 | 0.56 |
| 13:CN:29:ILE:HG22 | 13:CN:30:ILE:N | 2.20 | 0.56 |
| 1:CA:1329:A:O2' | 1:CA:1330:U:H5' | 2.05 | 0.56 |
| 23:BB:1081:U:C5' | 52:BI:126:ARG:HD2 | 2.35 | 0.56 |
| 23:BB:2297:A:N6 | 23:BB:2319:G:C3' | 2.59 | 0.56 |
| 23:DB:2285:C:H5 | 48:D1:7:LYS:HE3 | 1.70 | 0.56 |
| 23:BB:2813:A:H2' | 23:BB:2814:A:H8 | 1.70 | 0.56 |
| 4:AE:96:GLN:HB3 | 4:AE:123:LEU:CD1 | 2.36 | 0.56 |
| 28:DF:4:HIS:O | 28:DF:7:TYR:HB3 | 2.05 | 0.56 |
| 4:AE:104:ILE:HD11 | 4:AE:114:LEU:HB2 | 1.87 | 0.56 |
| 4:AE:114:LEU:HD13 | 4:AE:122:VAL:HG21 | 1.88 | 0.56 |
| 4:AE:45:VAL:O | 4:AE:71:ILE:HG22 | 2.04 | 0.56 |
| 2:CC:39:ARG:NH2 | 13:CN:91:GLU:HB3 | 2.19 | 0.56 |
| 9:CJ:9:ARG:HB2 | 9:CJ:99:GLN:H | 1.70 | 0.56 |
| 6:CG:29:LEU:HD23 | 6:CG:104:VAL:HG13 | 1.87 | 0.56 |
| 23:DB:2250:G:N2 | 23:DB:2496:C:H4' | 2.20 | 0.56 |
| 23:BB:2590:A:H2' | 23:BB:2591:C:C6 | 2.40 | 0.56 |
| 23:BB:1381:G:O2' | 23:BB:1382:G:H5' | 2.04 | 0.56 |
| 1:AA:21:G:H2' | 1:AA:22:G:C8 | 2.40 | 0.56 |
| 32:BK:5:GLN:HA | 32:BK:20:MET:SD | 2.46 | 0.56 |
| 12:CM:15:VAL:O | 12:CM:19:THR:HG23 | 2.05 | 0.56 |
| 23:DB:609:A:H2' | 23:DB:610:C:O4' | 2.05 | 0.56 |
| 27:DE:126:VAL:HG21 | 27:DE:132:LYS:NZ | 2.19 | 0.56 |
| 1:AA:321:A:O2' | 1:AA:322:C:H5' | 2.05 | 0.56 |
| 1:AA:1452:C:H5' | 1:AA:1453:G:C4 | 2.40 | 0.56 |
| 23:DB:69:C:H2' | 23:DB:70:G:C8 | 2.40 | 0.56 |
| 23:DB:660:C:H2' | 23:DB:661:A:C8 | 2.39 | 0.56 |
| 23:DB:2150:C:H2' | 23:DB:2151:U:C6 | 2.39 | 0.56 |
| 23:DB:1061:U:O4' | 23:DB:1070:A:H1' | 2.04 | 0.56 |
| 29:DG:6:ALA:HB3 | 29:DG:7:PRO:HD3 | 1.87 | 0.56 |
| 5:CF:2:ARG:HH11 | 5:CF:2:ARG:HB3 | 1.71 | 0.56 |
| 9:CJ:30:LYS:O | 9:CJ:30:LYS:HD3 | 2.04 | 0.56 |
| 50:B3:4:LYS:NZ | 50:B3:59:ALA:H | 2.03 | 0.56 |
| 37:DP:90:ALA:N | 37:DP:112:ARG:HH21 | 2.01 | 0.56 |
| 34:BM:3:GLN:N | 34:BM:4:PRO:CD | 2.63 | 0.56 |
| 23:BB:2869:G:H2' | 23:BB:2870:C:C6 | 2.40 | 0.56 |
| 25:BC:68:ARG:NH2 | 25:BC:190:THR:HG23 | 2.20 | 0.56 |
| 23:DB:2882:A:H2' | 23:DB:2883:A:H5'' | 1.86 | 0.56 |
| 23:DB:2898:U:H2' | 23:DB:2899:A:H8 | 1.70 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:DB:3:U:H2' | 23:DB:4:U:H6 | 1.70 | 0.56 |
| 31:BJ:18:VAL:CG2 | 31:BJ:56:VAL:HA | 2.35 | 0.56 |
| 23:DB:975:A:H5' | 39:DR:83:TYR:OH | 2.05 | 0.56 |
| 27:DE:190:ALA:HB3 | 27:DE:193:VAL:HG22 | 1.86 | 0.56 |
| 33:BL:63:LYS:N | 50:B3:24:LYS:HZ2 | 2.02 | 0.56 |
| 50:B3:44:ARG:CG | 50:B3:45:PRO:HD2 | 2.34 | 0.56 |
| 32:BK:71:ARG:O | 32:BK:72:PRO:C | 2.44 | 0.56 |
| 24:BV:9:ARG:HH12 | 24:BV:27:PRO:HA | 1.69 | 0.56 |
| 35:DN:4:ARG:HG2 | 35:DN:5:LYS:N | 2.19 | 0.56 |
| 13:AN:60:ARG:NH2 | 13:AN:62:ARG:HE | 2.02 | 0.56 |
| 23:BB:1250:G:H5'' | 38:BQ:5:ARG:HG2 | 1.86 | 0.56 |
| 40:DS:46:LEU:O | 40:DS:50:VAL:HG13 | 2.06 | 0.56 |
| 9:AJ:53:ILE:HG23 | 13:AN:84:ARG:CZ | 2.36 | 0.56 |
| 38:BQ:65:ASN:O | 38:BQ:69:ARG:HG2 | 2.06 | 0.56 |
| 5:AF:55:HIS:O | 5:AF:56:LYS:HG3 | 2.06 | 0.56 |
| 12:AM:13:HIS:HB2 | 12:AM:16:ILE:CG2 | 2.36 | 0.56 |
| 27:BE:120:VAL:N | 27:BE:189:THR:HG22 | 2.20 | 0.56 |
| 27:BE:148:ILE:H | 27:BE:183:PHE:HB3 | 1.70 | 0.56 |
| 26:DD:201:LEU:O | 26:DD:202:ILE:HD12 | 2.05 | 0.56 |
| 26:DD:8:LYS:CE | 37:DP:5:LYS:HG3 | 2.34 | 0.56 |
| 1:CA:266:G:O2' | 1:CA:267:C:H3' | 2.06 | 0.56 |
| 33:DL:92:LEU:HD13 | 33:DL:96:LYS:HG2 | 1.87 | 0.56 |
| 23:BB:125:A:H4' | 49:B2:13:ASN:OD1 | 2.05 | 0.56 |
| 28:BF:170:ALA:HA | 28:BF:173:ASP:OD1 | 2.04 | 0.56 |
| 1:AA:1506:U:H4' | 10:AK:128:VAL:C | 2.26 | 0.56 |
| 40:DS:28:LYS:HA | 40:DS:31:GLN:NE2 | 2.19 | 0.56 |
| 21:AU:13:VAL:HG13 | 21:AU:14:ALA:N | 2.12 | 0.56 |
| 26:BD:5:VAL:HB | 26:BD:27:ILE:O | 2.05 | 0.56 |
| 32:DK:113:MET:CE | 32:DK:116:ILE:HD11 | 2.35 | 0.56 |
| 2:AC:146:LYS:HE3 | 2:AC:202:PHE:CE2 | 2.38 | 0.56 |
| 8:CI:78:ILE:O | 8:CI:82:ILE:HG13 | 2.04 | 0.56 |
| 31:DJ:25:LEU:N | 31:DJ:25:LEU:HD13 | 2.20 | 0.56 |
| 27:DE:6:LYS:CD | 27:DE:7:ASP:H | 2.16 | 0.56 |
| 23:BB:1082:U:C2 | 23:BB:1086:A:C6 | 2.93 | 0.56 |
| 23:BB:796:C:H2' | 23:BB:797:G:C8 | 2.40 | 0.56 |
| 39:DR:67:GLY:H | 39:DR:98:ILE:HA | 1.69 | 0.56 |
| 23:DB:91:A:H1' | 23:DB:92:U:C6 | 2.41 | 0.56 |
| 23:DB:877:A:N6 | 23:DB:898:C:H2' | 2.19 | 0.56 |
| 3:CD:162:GLU:HG3 | 3:CD:163:GLN:HE21 | 1.70 | 0.56 |
| 12:CM:106:ARG:N | 12:CM:106:ARG:HH11 | 2.04 | 0.56 |
| 23:BB:328:U:H4' | 42:BU:65:GLN:CG | 2.35 | 0.56 |
| 35:DN:86:ARG:NH2 | 35:DN:117:ASP:HA | 2.20 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 1:AA:429:U:H1' | 1:AA:430:A:H5'' | 1.87 | 0.56 |
| 23:DB:2626:C:O2' | 23:DB:2627:G:H5' | 2.05 | 0.56 |
| 23:DB:1826:G:H2' | 23:DB:1827:U:H6 | 1.69 | 0.56 |
| 48:B1:9:LYS:HG2 | 50:B3:34:LYS:HZ3 | 1.70 | 0.56 |
| 41:BT:68:LYS:NZ | 41:BT:73:ARG:HA | 2.20 | 0.56 |
| 1:CA:586:C:C2' | 1:CA:587:G:H5' | 2.36 | 0.56 |
| 9:AJ:55:PRO:O | 9:AJ:56:HIS:HB3 | 2.06 | 0.56 |
| 23:DB:155:A:H2' | 23:DB:156:A:C8 | 2.41 | 0.56 |
| 25:DC:79:ARG:HD2 | 25:DC:110:LYS:HE2 | 1.87 | 0.56 |
| 23:DB:351:C:H2' | 23:DB:352:A:H8 | 1.69 | 0.56 |
| 23:DB:171:U:H2' | 23:DB:172:A:C8 | 2.40 | 0.56 |
| 23:DB:172:A:H2' | 23:DB:173:A:H8 | 1.70 | 0.56 |
| 28:DF:163:GLU:HA | 28:DF:166:ARG:HD2 | 1.87 | 0.56 |
| 1:AA:674:G:H2' | 1:AA:675:A:C8 | 2.40 | 0.56 |
| 1:AA:677:U:H2' | 1:AA:678:U:H6 | 1.70 | 0.56 |
| 23:DB:234:U:O2' | 23:DB:235:U:H5' | 2.04 | 0.56 |
| 23:BB:1076:C:H4' | 52:BI:94:LYS:HZ2 | 1.70 | 0.56 |
| 23:DB:1381:G:H2' | 23:DB:1382:G:H5' | 1.86 | 0.56 |
| 1:CA:981:U:H2' | 1:CA:982:U:C5 | 2.40 | 0.56 |
| 23:DB:2233:U:H2' | 23:DB:2234:G:H8 | 1.69 | 0.56 |
| 28:BF:116:LEU:HD12 | 28:BF:176:PHE:CD2 | 2.40 | 0.56 |
| 6:CG:55:LYS:HG3 | 6:CG:56:SER:H | 1.70 | 0.56 |
| 1:AA:384:G:H2' | 1:AA:385:C:H6 | 1.69 | 0.56 |
| 25:BC:174:ARG:HG3 | 25:BC:180:MET:SD | 2.44 | 0.56 |
| 1:AA:1040:U:H2' | 1:AA:1041:G:C8 | 2.40 | 0.56 |
| 23:DB:1917:U:O2' | 23:DB:1918:A:H5' | 2.06 | 0.56 |
| 17:AR:41:SER:HB2 | 17:AR:51:GLN:HG2 | 1.87 | 0.56 |
| 23:BB:1729:U:H2' | 23:BB:1730:C:H4' | 1.87 | 0.56 |
| 1:CA:477:C:H2' | 1:CA:478:A:C8 | 2.41 | 0.56 |
| 1:AA:477:C:H2' | 1:AA:478:A:C8 | 2.41 | 0.56 |
| 23:BB:1709:U:H2' | 23:BB:1710:G:C8 | 2.41 | 0.56 |
| 23:DB:1709:U:H2' | 23:DB:1710:G:C8 | 2.40 | 0.56 |
| 2:AC:33:ASP:HB2 | 13:AN:64:ARG:HD3 | 1.86 | 0.56 |
| 23:BB:1528:A:H2' | 23:BB:1529:G:O4' | 2.06 | 0.56 |
| 23:DB:131:A:H2' | 23:DB:132:G:H8 | 1.70 | 0.56 |
| 23:BB:1695:G:H1' | 25:BC:14:HIS:O | 2.05 | 0.56 |
| 23:DB:1327:A:H2' | 23:DB:1328:A:O4' | 2.06 | 0.56 |
| 23:DB:17:G:H2' | 23:DB:18:U:C6 | 2.40 | 0.56 |
| 1:AA:218:U:H2' | 1:AA:219:U:C6 | 2.40 | 0.56 |
| 28:DF:79:ARG:HB2 | 28:DF:82:TYR:CE2 | 2.40 | 0.56 |
| 19:CT:57:VAL:HG12 | 19:CT:71:ALA:HB1 | 1.86 | 0.56 |
| 28:DF:3:LEU:O | 28:DF:3:LEU:HD23 | 2.05 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:DB:527:C:O2 | 23:DB:527:C:O4' | 2.21 | 0.56 |
| 23:DB:2872:A:O2' | 23:DB:2873:A:H5'' | 2.05 | 0.56 |
| 23:DB:490:C:H3' | 23:DB:491:G:H5'' | 1.87 | 0.56 |
| 10:AK:25:SER:HB3 | 10:AK:28:ASN:O | 2.06 | 0.56 |
| 1:AA:930:C:H2' | 1:AA:931:C:O4' | 2.05 | 0.56 |
| 29:BG:132:LEU:HD11 | 29:BG:144:ALA:HB2 | 1.88 | 0.56 |
| 3:CD:192:ALA:HB3 | 3:CD:194:ILE:HG22 | 1.87 | 0.56 |
| 27:BE:28:VAL:O | 27:BE:32:VAL:HG23 | 2.06 | 0.56 |
| 26:BD:201:LEU:N | 26:BD:201:LEU:HD12 | 2.19 | 0.56 |
| 5:AF:100:SER:HA | 17:AR:23:LYS:NZ | 2.19 | 0.56 |
| 23:DB:1661:G:O2' | 23:DB:1662:U:H5' | 2.05 | 0.56 |
| 23:DB:2140:G:H2' | 23:DB:2141:G:O4' | 2.04 | 0.56 |
| 23:DB:1771:C:H2' | 23:DB:1772:A:H8 | 1.69 | 0.56 |
| 30:BH:80:ILE:HD12 | 30:BH:102:ALA:HB2 | 1.88 | 0.56 |
| 23:DB:2262:U:OP2 | 43:DW:13:ARG:HD3 | 2.04 | 0.56 |
| 43:DW:38:ARG:HG3 | 43:DW:39:GLN:N | 2.21 | 0.56 |
| 25:DC:128:THR:HA | 25:DC:190:THR:HA | 1.86 | 0.56 |
| 31:BJ:16:TYR:O | 31:BJ:55:ILE:HG22 | 2.04 | 0.56 |
| 31:BJ:58:ASN:HA | 31:BJ:127:GLY:N | 2.21 | 0.56 |
| 23:DB:323:C:C1' | 27:DE:164:LEU:HB3 | 2.25 | 0.56 |
| 33:BL:119:PRO:O | 33:BL:119:PRO:HD2 | 2.05 | 0.56 |
| 33:BL:80:SER:O | 33:BL:116:VAL:HA | 2.06 | 0.56 |
| 23:DB:2090:A:O2' | 46:DZ:49:ARG:CD | 2.53 | 0.56 |
| 34:BM:33:LEU:HB2 | 34:BM:101:VAL:CG2 | 2.35 | 0.56 |
| 23:BB:2022:U:O2' | 23:BB:2617:U:H5' | 2.06 | 0.56 |
| 23:BB:2053:G:H5'' | 26:BD:150:GLN:HA | 1.86 | 0.56 |
| 38:BQ:34:ALA:O | 38:BQ:38:VAL:HG12 | 2.06 | 0.56 |
| 39:BR:85:LYS:C | 39:BR:87:GLN:H | 2.09 | 0.56 |
| 23:DB:144:A:H8 | 23:DB:144:A:O5' | 1.89 | 0.56 |
| 25:DC:179:GLU:HB3 | 25:DC:266:ILE:HA | 1.88 | 0.56 |
| 38:BQ:79:ILE:HA | 38:BQ:82:LEU:HD12 | 1.87 | 0.56 |
| 1:CA:1314:C:OP2 | 18:CS:5:LYS:HG2 | 2.05 | 0.56 |
| 23:BB:2147:A:H5' | 23:BB:2148:G:H4' | 1.87 | 0.56 |
| 21:AU:38:GLU:C | 21:AU:40:PRO:HD2 | 2.26 | 0.56 |
| 52:DI:24:GLY:HA2 | 52:DI:34:ILE:HD12 | 1.86 | 0.56 |
| 28:DF:174:PHE:H | 28:DF:175:PRO:CD | 2.19 | 0.56 |
| 6:AG:114:SER:C | 6:AG:118:ARG:HG3 | 2.26 | 0.56 |
| 28:BF:83:PRO:HG2 | 28:BF:84:ILE:H | 1.71 | 0.56 |
| 42:DU:25:LYS:O | 42:DU:34:ILE:HG12 | 2.06 | 0.56 |
| 23:DB:876:C:H3' | 23:DB:877:A:O4' | 2.06 | 0.56 |
| 20:CB:78:ALA:HB1 | 20:CB:213:LEU:HD13 | 1.87 | 0.56 |
| 1:AA:77:A:H2' | 1:AA:78:A:C8 | 2.40 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 31:BJ:7:LYS:HZ3 | 31:BJ:48:VAL:HB | 1.70 | 0.56 |
| 50:B3:34:LYS:C | 50:B3:35:LYS:HD3 | 2.25 | 0.56 |
| 1:CA:815:A:H62 | 1:CA:1509:C:H1' | 1.70 | 0.56 |
| 23:BB:458:G:H5'' | 49:B2:39:ARG:O | 2.04 | 0.56 |
| 48:B1:53:ILE:HD13 | 48:B1:54:LYS:H | 1.70 | 0.56 |
| 1:AA:499:A:H4' | 1:AA:500:G:OP1 | 2.06 | 0.56 |
| 50:D3:4:LYS:HE3 | 50:D3:61:LEU:HD13 | 1.88 | 0.56 |
| 39:BR:66:HIS:H | 39:BR:98:ILE:HD13 | 1.70 | 0.56 |
| 20:AB:76:SER:HA | 20:AB:92:ASN:HB2 | 1.87 | 0.56 |
| 1:CA:474:G:H2' | 1:CA:475:C:C6 | 2.40 | 0.56 |
| 50:B3:41:ARG:NH1 | 50:B3:42:HIS:HB3 | 2.20 | 0.56 |
| 23:BB:1459:G:C2' | 23:BB:1460:U:H5' | 2.35 | 0.56 |
| 23:BB:962:G:H21 | 23:BB:2250:G:H1 | 1.53 | 0.56 |
| 23:BB:1351:C:O2' | 23:BB:1571:A:H1' | 2.06 | 0.56 |
| 23:BB:189:G:OP1 | 46:BZ:24:ILE:HD12 | 2.05 | 0.56 |
| 22:BA:26:C:H2' | 22:BA:27:C:O4' | 2.06 | 0.56 |
| 23:BB:1938:A:O2' | 23:BB:1939:U:H5'' | 2.06 | 0.56 |
| 20:AB:195:VAL:HG12 | 20:AB:197:PHE:H | 1.70 | 0.56 |
| 1:AA:301:G:H2' | 1:AA:302:G:H8 | 1.71 | 0.56 |
| 26:DD:56:LYS:HB3 | 26:DD:56:LYS:HZ2 | 1.69 | 0.56 |
| 23:BB:1061:U:O4' | 23:BB:1070:A:H1' | 2.05 | 0.56 |
| 6:CG:49:LEU:C | 6:CG:51:GLN:H | 2.07 | 0.56 |
| 10:CK:22:ILE:HD13 | 10:CK:95:THR:HG23 | 1.87 | 0.56 |
| 15:CP:52:LEU:HD21 | 15:CP:74:LEU:HB2 | 1.87 | 0.56 |
| 23:BB:682:G:H5' | 49:B2:26:ASN:CG | 2.25 | 0.56 |
| 1:CA:1470:U:O2' | 1:CA:1471:U:H5' | 2.05 | 0.56 |
| 19:AT:82:ILE:HG13 | 19:AT:83:ASN:N | 2.20 | 0.56 |
| 37:DP:28:LYS:HD3 | 37:DP:44:GLY:CA | 2.33 | 0.56 |
| 20:AB:163:ILE:CG2 | 20:AB:164:ASP:H | 1.96 | 0.56 |
| 23:DB:2527:C:H1' | 51:D4:1:MET:HG3 | 1.87 | 0.56 |
| 23:BB:2729:G:H2' | 23:BB:2730:C:C6 | 2.41 | 0.56 |
| 37:BP:47:ILE:HG23 | 37:BP:63:ILE:HG13 | 1.88 | 0.56 |
| 36:DO:15:ARG:NH1 | 43:DW:76:ARG:HE | 2.03 | 0.56 |
| 25:DC:156:SER:O | 25:DC:158:GLY:N | 2.39 | 0.56 |
| 18:AS:48:ILE:N | 18:AS:48:ILE:HD12 | 2.21 | 0.56 |
| 27:DE:184:ASP:CB | 33:DL:13:LYS:HE3 | 2.36 | 0.56 |
| 33:BL:118:THR:N | 33:BL:119:PRO:CD | 2.66 | 0.56 |
| 34:BM:41:LEU:HG | 34:BM:95:LEU:HD12 | 1.86 | 0.56 |
| 34:BM:96:ILE:HD13 | 34:BM:97:GLN:N | 2.21 | 0.56 |
| 38:BQ:50:ARG:O | 38:BQ:53:LYS:HD3 | 2.05 | 0.56 |
| 31:DJ:7:LYS:HD2 | 31:DJ:45:THR:CB | 2.35 | 0.56 |
| 37:BP:80:VAL:O | 37:BP:80:VAL:HG13 | 2.05 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 23:BB:535:G:O2' | 38:BQ:52:ARG:HD3 | 2.05 | 0.56 |
| 23:DB:287:G:H2' | 23:DB:288:U:C6 | 2.40 | 0.56 |
| 23:DB:2360:G:O2' | 33:DL:61:LEU:HD21 | 2.06 | 0.56 |
| 1:CA:764:C:H2' | 1:CA:765:G:H5' | 1.88 | 0.56 |
| 26:DD:159:LYS:O | 26:DD:160:LYS:HB2 | 2.05 | 0.56 |
| 1:CA:1313:U:P | 18:CS:5:LYS:HA | 2.46 | 0.56 |
| 23:DB:2729:G:H2' | 23:DB:2730:C:C6 | 2.41 | 0.56 |
| 6:AG:22:LEU:O | 6:AG:25:PHE:HB3 | 2.06 | 0.56 |
| 19:AT:61:ALA:HA | 19:AT:66:ILE:O | 2.05 | 0.56 |
| 14:AO:63:ARG:HA | 14:AO:66:LEU:HD12 | 1.87 | 0.56 |
| 1:AA:1329:A:O2' | 1:AA:1330:U:H5' | 2.05 | 0.56 |
| 42:DU:21:ARG:HG3 | 42:DU:21:ARG:HH11 | 1.70 | 0.56 |
| 36:BO:8:ILE:HG23 | 36:BO:9:ARG:N | 2.20 | 0.56 |
| 41:DT:34:VAL:HG21 | 41:DT:43:ILE:CD1 | 2.33 | 0.56 |
| 23:BB:2:G:O2' | 23:BB:3:U:H5' | 2.05 | 0.56 |
| 23:DB:2798:U:H1' | 23:DB:2800:A:N6 | 2.20 | 0.56 |
| 1:AA:1470:U:O2' | 1:AA:1471:U:H5' | 2.06 | 0.56 |
| 23:BB:597:G:H4' | 33:BL:21:ARG:NE | 2.18 | 0.56 |
| 3:AD:117:VAL:O | 3:AD:130:ASN:HA | 2.05 | 0.56 |
| 1:AA:1463:U:H2' | 1:AA:1464:U:C6 | 2.40 | 0.56 |
| 46:DZ:41:HIS:ND1 | 46:DZ:42:PRO:HD2 | 2.20 | 0.56 |
| 23:BB:2840:C:H5'' | 35:BN:53:THR:CG2 | 2.36 | 0.56 |
| 1:CA:429:U:H1' | 1:CA:430:A:H5'' | 1.87 | 0.56 |
| 38:BQ:22:GLY:O | 38:BQ:24:TYR:N | 2.39 | 0.56 |
| 23:BB:1826:G:H2' | 23:BB:1827:U:H6 | 1.70 | 0.56 |
| 23:BB:1842:G:H2' | 23:BB:1843:C:H6 | 1.70 | 0.56 |
| 29:BG:70:LEU:HD12 | 29:BG:74:MET:HE3 | 1.87 | 0.56 |
| 1:AA:474:G:H2' | 1:AA:475:C:C6 | 2.40 | 0.56 |
| 9:CJ:9:ARG:HB3 | 9:CJ:99:GLN:HE21 | 1.70 | 0.56 |
| 1:AA:586:C:C2' | 1:AA:587:G:H5' | 2.35 | 0.56 |
| 6:CG:2:ARG:HH11 | 6:CG:2:ARG:CB | 2.17 | 0.56 |
| 23:DB:2758:A:O2' | 23:DB:2759:G:H5' | 2.04 | 0.56 |
| 1:AA:1225:A:H3' | 1:AA:1226:C:C6 | 2.40 | 0.56 |
| 23:BB:851:C:O2' | 45:BY:45:GLY:HA3 | 2.05 | 0.56 |
| 52:BI:10:LEU:HD12 | 52:BI:10:LEU:O | 2.05 | 0.56 |
| 1:CA:1228:C:H5' | 12:CM:112:ARG:HB3 | 1.87 | 0.56 |
| 23:DB:1316:U:O2' | 23:DB:1317:G:H5' | 2.05 | 0.56 |
| 23:BB:2747:G:O6 | 23:BB:2755:C:H5'' | 2.05 | 0.56 |
| 6:AG:91:ARG:HB3 | 6:AG:92:PRO:HD2 | 1.88 | 0.56 |
| 23:BB:1661:G:O2' | 23:BB:1662:U:H5' | 2.05 | 0.56 |
| 1:CA:218:U:H2' | 1:CA:219:U:C6 | 2.40 | 0.56 |
| 23:DB:818:G:H5' | 23:DB:839:U:OP1 | 2.06 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 41:BT:96:VAL:HG22 | 41:BT:97:GLY:N | 2.21 | 0.56 |
| 23:BB:1889:A:H2' | 23:BB:1890:A:C8 | 2.41 | 0.56 |
| 23:DB:2600:A:O2' | 23:DB:2601:C:H5' | 2.05 | 0.56 |
| 27:DE:85:PHE:O | 27:DE:86:ALA:HB2 | 2.06 | 0.56 |
| 31:BJ:102:GLU:HG3 | 31:BJ:124:VAL:HG11 | 1.87 | 0.56 |
| 27:BE:128:ALA:O | 27:BE:157:LEU:HB2 | 2.05 | 0.56 |
| 20:AB:53:LEU:HD21 | 20:AB:212:TYR:HE2 | 1.70 | 0.56 |
| 27:DE:195:GLN:HB2 | 27:DE:198:GLU:O | 2.06 | 0.56 |
| 23:BB:2052:A:H5' | 26:BD:148:GLN:O | 2.05 | 0.56 |
| 23:DB:1796:U:OP1 | 25:DC:269:ARG:HD3 | 2.06 | 0.56 |
| 40:BS:9:HIS:O | 40:BS:100:THR:HB | 2.04 | 0.56 |
| 40:BS:8:ARG:CZ | 40:BS:102:HIS:NE2 | 2.69 | 0.56 |
| 40:BS:47:VAL:O | 40:BS:51:LEU:HB2 | 2.05 | 0.56 |
| 23:BB:988:A:H4' | 23:BB:1155:A:N1 | 2.21 | 0.56 |
| 39:BR:90:ARG:HH22 | 39:BR:92:TRP:HB3 | 1.69 | 0.56 |
| 8:AI:38:PHE:O | 8:AI:41:GLU:HB2 | 2.06 | 0.56 |
| 23:BB:1133:A:H4' | 23:BB:1134:A:H5'' | 1.87 | 0.56 |
| 10:CK:78:ILE:CD1 | 10:CK:78:ILE:H | 2.06 | 0.56 |
| 3:CD:106:PHE:CD1 | 3:CD:158:LEU:HD21 | 2.41 | 0.56 |
| 10:AK:92:ARG:HH11 | 10:AK:92:ARG:CB | 2.19 | 0.56 |
| 30:DH:82:SER:O | 30:DH:83:LYS:HD2 | 2.05 | 0.56 |
| 33:DL:78:ARG:CZ | 33:DL:113:ALA:HB1 | 2.36 | 0.56 |
| 33:DL:132:ARG:NH1 | 33:DL:140:GLY:HA2 | 2.21 | 0.56 |
| 41:BT:40:LYS:HB3 | 41:BT:58:VAL:HB | 1.88 | 0.56 |
| 41:BT:30:ILE:HG22 | 41:BT:84:TYR:O | 2.06 | 0.56 |
| 27:DE:17:THR:HG23 | 27:DE:18:THR:N | 2.21 | 0.56 |
| 24:DV:9:ARG:NH2 | 24:DV:20:LEU:HD11 | 2.20 | 0.56 |
| 45:DY:4:ILE:HG12 | 45:DY:5:LYS:HG3 | 1.87 | 0.56 |
| 23:DB:1018:U:O2' | 23:DB:1019:U:H5' | 2.05 | 0.56 |
| 1:CA:1250:A:H5'' | 8:CI:69:GLY:N | 2.21 | 0.56 |
| 23:BB:1754:A:P | 37:BP:94:ALA:HB1 | 2.46 | 0.56 |
| 1:AA:1432:G:H5'' | 37:BP:106:ALA:HB2 | 1.88 | 0.56 |
| 1:AA:1468:A:O2' | 1:AA:1469:C:H5' | 2.05 | 0.56 |
| 23:BB:2798:U:H1' | 23:BB:2800:A:N6 | 2.20 | 0.56 |
| 23:BB:2239:G:H5' | 25:BC:246:PRO:HD2 | 1.87 | 0.56 |
| 29:BG:159:LYS:HG3 | 29:BG:159:LYS:O | 2.05 | 0.56 |
| 1:AA:1310:G:H2' | 1:AA:1311:A:O4' | 2.06 | 0.56 |
| 3:AD:10:LEU:HD21 | 3:AD:62:ARG:CD | 2.36 | 0.56 |
| 39:BR:66:HIS:HA | 39:BR:98:ILE:HD13 | 1.86 | 0.56 |
| 23:DB:171:U:H2' | 23:DB:172:A:H8 | 1.71 | 0.56 |
| 1:CA:642:A:C5 | 7:CH:106:SER:HA | 2.41 | 0.56 |
| 30:DH:58:LEU:O | 30:DH:61:VAL:HG22 | 2.05 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 20:AB:144:GLU:O | 20:AB:148:GLY:HA3 | 2.05 | 0.56 |
| 1:AA:956:U:O2' | 1:AA:957:U:H5' | 2.06 | 0.56 |
| 25:DC:136:VAL:C | 25:DC:138:SER:H | 2.09 | 0.56 |
| 23:DB:659:G:H21 | 27:DE:30:GLN:NE2 | 2.03 | 0.56 |
| 23:BB:2665:A:O2' | 23:BB:2666:C:H5' | 2.06 | 0.56 |
| 1:CA:1262:C:H2' | 1:CA:1263:C:H6 | 1.70 | 0.56 |
| 22:BA:90:C:H2' | 22:BA:91:C:O4' | 2.05 | 0.56 |
| 23:DB:1528:A:H2' | 23:DB:1529:G:O4' | 2.06 | 0.56 |
| 23:BB:1750:G:O2' | 23:BB:1751:U:H5' | 2.06 | 0.56 |
| 8:AI:99:LYS:C | 8:AI:99:LYS:HD3 | 2.26 | 0.56 |
| 1:AA:327:A:H1' | 1:AA:329:A:O4' | 2.06 | 0.56 |
| 45:BY:13:ILE:HG23 | 45:BY:19:HIS:HE1 | 1.70 | 0.56 |
| 23:BB:2586:U:H2' | 23:BB:2587:A:C8 | 2.41 | 0.56 |
| 23:DB:1750:G:O2' | 23:DB:1751:U:H5' | 2.06 | 0.56 |
| 23:DB:388:G:N7 | 23:DB:390:U:H2' | 2.20 | 0.56 |
| 26:BD:8:LYS:HA | 26:BD:197:THR:HG23 | 1.88 | 0.56 |
| 43:DW:35:ILE:HB | 43:DW:67:LYS:NZ | 2.20 | 0.56 |
| 23:DB:4:U:O2' | 23:DB:5:A:H5' | 2.05 | 0.56 |
| 1:AA:449:G:H2' | 1:AA:450:G:C8 | 2.40 | 0.56 |
| 23:BB:2484:G:H1' | 34:BM:119:LEU:HD12 | 1.87 | 0.56 |
| 34:BM:8:LYS:HB2 | 34:BM:12:MET:HE3 | 1.87 | 0.56 |
| 25:DC:254:LYS:HD2 | 25:DC:254:LYS:N | 2.21 | 0.56 |
| 35:BN:32:GLU:HB3 | 35:BN:33:ILE:HD13 | 1.88 | 0.56 |
| 39:BR:42:ALA:HB1 | 39:BR:45:GLU:OE2 | 2.05 | 0.56 |
| 23:BB:2262:U:H2' | 23:BB:2263:C:H6 | 1.71 | 0.56 |
| 43:BW:39:GLN:HG2 | 43:BW:68:PHE:HB2 | 1.86 | 0.56 |
| 26:DD:35:THR:HB | 26:DD:48:ILE:HG13 | 1.87 | 0.56 |
| 41:BT:30:ILE:HG23 | 41:BT:32:LEU:HD13 | 1.87 | 0.56 |
| 25:DC:224:MET:HA | 25:DC:233:GLY:N | 2.13 | 0.56 |
| 23:DB:2839:G:H2' | 23:DB:2840:C:H6 | 1.69 | 0.56 |
| 13:CN:41:TRP:O | 13:CN:45:LEU:HG | 2.06 | 0.56 |
| 35:BN:73:ASN:N | 35:BN:73:ASN:HD22 | 2.03 | 0.56 |
| 26:DD:25:THR:HG22 | 26:DD:188:LEU:HG | 1.88 | 0.56 |
| 32:DK:69:VAL:HG11 | 32:DK:106:GLU:CD | 2.26 | 0.56 |
| 39:DR:6:GLN:HB3 | 39:DR:41:ILE:CD1 | 2.36 | 0.56 |
| 28:BF:66:ILE:HA | 28:BF:85:GLY:O | 2.06 | 0.56 |
| 5:CF:47:LEU:HD22 | 17:CR:65:SER:OG | 2.05 | 0.56 |
| 23:BB:2065:C:H2' | 23:BB:2066:C:H6 | 1.71 | 0.56 |
| 4:AE:87:VAL:HG11 | 4:AE:92:ARG:HD3 | 1.87 | 0.56 |
| 6:CG:24:LYS:O | 6:CG:28:ILE:HG12 | 2.06 | 0.56 |
| 23:BB:1971:U:H1' | 25:BC:238:ASN:ND2 | 2.20 | 0.56 |
| 29:DG:125:PRO:HG2 | 29:DG:129:GLU:HB2 | 1.88 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 29:BG:84:LYS:HA | 29:BG:84:LYS:HZ3 | 1.70 | 0.56 |
| 23:DB:2405:G:H5' | 33:DL:70:LYS:HG3 | 1.86 | 0.56 |
| 11:AL:106:VAL:HG21 | 11:AL:109:ARG:HG3 | 1.88 | 0.56 |
| 1:CA:591:U:H2' | 1:CA:592:G:H8 | 1.70 | 0.56 |
| 30:BH:69:ALA:HB2 | 30:BH:140:ALA:HA | 1.86 | 0.56 |
| 23:DB:374:A:H61 | 23:DB:400:G:H1' | 1.68 | 0.56 |
| 23:DB:1878:G:H2' | 23:DB:1879:C:H6 | 1.69 | 0.56 |
| 1:CA:321:A:O2' | 1:CA:322:C:H5' | 2.06 | 0.56 |
| 1:AA:552:U:H2' | 1:AA:553:A:C8 | 2.41 | 0.56 |
| 23:DB:1862:G:O2' | 23:DB:1863:G:H5' | 2.06 | 0.56 |
| 23:BB:1996:C:H5 | 32:BK:32:TYR:HH | 1.53 | 0.56 |
| 23:DB:2639:A:H2' | 23:DB:2640:G:O4' | 2.06 | 0.56 |
| 28:DF:103:ILE:HD12 | 28:DF:104:THR:N | 2.21 | 0.56 |
| 11:CL:107:LYS:O | 11:CL:108:ASP:HB2 | 2.06 | 0.56 |
| 28:BF:7:TYR:O | 28:BF:11:VAL:HB | 2.05 | 0.56 |
| 1:CA:327:A:H1' | 1:CA:329:A:O4' | 2.06 | 0.56 |
| 23:DB:1098:A:C3' | 52:DI:3:LYS:HA | 2.24 | 0.56 |
| 23:DB:458:G:H22 | 23:DB:469:G:H2' | 1.68 | 0.56 |
| 23:BB:100:U:O3' | 42:BU:90:LYS:HG2 | 2.06 | 0.56 |
| 47:D0:47:TYR:HB2 | 47:D0:50:GLY:O | 2.06 | 0.56 |
| 25:DC:145:MET:HG2 | 25:DC:152:GLN:HG2 | 1.88 | 0.56 |
| 25:DC:68:ARG:HD3 | 25:DC:103:ILE:HD12 | 1.88 | 0.56 |
| 38:DQ:47:ARG:O | 38:DQ:51:GLN:HG3 | 2.06 | 0.56 |
| 27:DE:163:ASN:HB2 | 27:DE:167:VAL:O | 2.05 | 0.56 |
| 33:BL:110:VAL:HB | 33:BL:126:ARG:CZ | 2.35 | 0.56 |
| 38:BQ:35:PHE:HE1 | 39:BR:85:LYS:HZ2 | 1.53 | 0.56 |
| 13:AN:60:ARG:HE | 13:AN:62:ARG:HE | 1.53 | 0.56 |
| 23:BB:974:G:O4' | 23:BB:990:A:N6 | 2.39 | 0.56 |
| 23:BB:2771:C:H2' | 23:BB:2772:C:C6 | 2.41 | 0.56 |
| 23:DB:871:U:H2' | 23:DB:872:U:H6 | 1.70 | 0.56 |
| 27:BE:149:ILE:CG1 | 27:BE:186:VAL:HG13 | 2.36 | 0.56 |
| 26:DD:33:ARG:HB2 | 26:DD:33:ARG:NH1 | 2.18 | 0.56 |
| 26:DD:50:VAL:HG11 | 26:DD:75:ALA:HB3 | 1.87 | 0.56 |
| 18:CS:11:ASP:O | 18:CS:14:LEU:HG | 2.06 | 0.56 |
| 13:CN:12:ARG:HG3 | 13:CN:53:ASP:O | 2.05 | 0.56 |
| 40:BS:27:LYS:CD | 40:BS:27:LYS:H | 2.11 | 0.56 |
| 37:DP:59:THR:HG22 | 37:DP:74:GLN:HB3 | 1.88 | 0.56 |
| 39:DR:40:MET:O | 39:DR:54:VAL:HG22 | 2.06 | 0.56 |
| 31:DJ:100:VAL:HG22 | 31:DJ:101:ILE:N | 2.21 | 0.56 |
| 48:B1:42:VAL:HG12 | 48:B1:43:ARG:HE | 1.71 | 0.56 |
| 23:DB:1082:U:N3 | 23:DB:1086:A:C2 | 2.73 | 0.56 |
| 1:CA:617:G:H5' | 15:CP:46:LYS:HD3 | 1.87 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:AA:1329:A:OP1 | 12:AM:28:ARG:HB2 | 2.05 | 0.56 |
| 40:BS:89:ALA:C | 40:BS:90:LYS:HZ2 | 2.08 | 0.56 |
| 30:BH:128:HIS:CB | 30:BH:144:VAL:HB | 2.35 | 0.56 |
| 1:CA:235:C:H2' | 1:CA:236:A:H8 | 1.70 | 0.56 |
| 16:CQ:10:ARG:NH1 | 16:CQ:55:GLY:H | 2.04 | 0.56 |
| 23:DB:581:C:OP1 | 38:DQ:31:TYR:HB3 | 2.06 | 0.56 |
| 1:CA:552:U:H2' | 1:CA:553:A:C8 | 2.41 | 0.56 |
| 44:BX:45:GLN:N | 44:BX:45:GLN:NE2 | 2.53 | 0.56 |
| 23:DB:2443:C:O2' | 23:DB:2444:G:H5' | 2.05 | 0.56 |
| 7:CH:100:ILE:HG13 | 7:CH:128:VAL:CG2 | 2.36 | 0.56 |
| 23:BB:2239:G:H5' | 25:BC:246:PRO:CG | 2.35 | 0.56 |
| 23:DB:1438:U:N3 | 23:DB:1552:A:N6 | 2.53 | 0.56 |
| 15:AP:20:VAL:HG22 | 15:AP:21:VAL:N | 2.21 | 0.56 |
| 7:CH:35:ILE:HG22 | 7:CH:39:LEU:HD23 | 1.88 | 0.56 |
| 2:CC:35:ASP:O | 2:CC:39:ARG:HG3 | 2.06 | 0.56 |
| 4:CE:67:ARG:NH1 | 4:CE:67:ARG:HB2 | 2.20 | 0.56 |
| 1:CA:93:U:C2' | 1:CA:94:G:H5' | 2.36 | 0.56 |
| 23:DB:1854:A:N6 | 23:DB:1888:G:H1' | 2.21 | 0.56 |
| 27:DE:191:ASP:O | 27:DE:194:LYS:HG2 | 2.06 | 0.56 |
| 29:DG:94:ARG:HB2 | 29:DG:105:SER:CB | 2.35 | 0.56 |
| 23:BB:198:C:C2' | 23:BB:199:A:H5' | 2.35 | 0.56 |
| 30:BH:140:ALA:C | 30:BH:141:LYS:HD3 | 2.26 | 0.56 |
| 1:CA:1292:G:H2' | 1:CA:1293:C:H6 | 1.71 | 0.56 |
| 23:BB:765:C:H2' | 23:BB:766:U:C6 | 2.39 | 0.56 |
| 1:AA:529:G:H22 | 11:AL:47:ALA:CB | 2.18 | 0.56 |
| 3:CD:22:SER:H | 3:CD:109:THR:CG2 | 2.19 | 0.56 |
| 32:BK:10:VAL:HG11 | 32:BK:15:GLY:O | 2.04 | 0.56 |
| 23:DB:1889:A:H2' | 23:DB:1890:A:C8 | 2.41 | 0.56 |
| 1:AA:332:G:OP2 | 19:AT:2:ASN:HB3 | 2.06 | 0.56 |
| 23:DB:2771:C:H2' | 23:DB:2772:C:C6 | 2.41 | 0.56 |
| 23:BB:1923:U:H2' | 23:BB:1924:C:C6 | 2.41 | 0.56 |
| 29:BG:88:LEU:HD11 | 29:BG:95:ALA:HB2 | 1.88 | 0.56 |
| 23:BB:1739:A:H2' | 23:BB:1740:G:C8 | 2.40 | 0.56 |
| 33:DL:76:GLU:OE1 | 33:DL:76:GLU:HA | 2.05 | 0.56 |
| 4:CE:55:VAL:N | 4:CE:56:PRO:HD2 | 2.21 | 0.56 |
| 23:BB:758:C:O2 | 23:BB:1981:A:H2 | 1.86 | 0.56 |
| 42:BU:23:LYS:NZ | 42:BU:24:VAL:HG22 | 2.21 | 0.56 |
| 20:CB:31:PHE:HB2 | 20:CB:41:ASN:HA | 1.88 | 0.56 |
| 43:DW:42:THR:N | 43:DW:65:LYS:HA | 2.20 | 0.56 |
| 43:BW:42:THR:CB | 43:BW:66:VAL:H | 2.19 | 0.56 |
| 23:DB:324:A:H2' | 23:DB:325:G:O4' | 2.06 | 0.56 |
| 46:BZ:15:SER:HB2 | 46:BZ:25:ARG:HH12 | 1.71 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 46:BZ:48:GLN:H | 46:BZ:51:VAL:HB | 1.69 | 0.56 |
| 23:BB:943:A:OP1 | 33:BL:42:SER:HB3 | 2.06 | 0.56 |
| 40:BS:7:HIS:CG | 40:BS:8:ARG:H | 2.23 | 0.56 |
| 8:AI:18:VAL:HG21 | 8:AI:82:ILE:HG13 | 1.88 | 0.56 |
| 8:AI:64:ILE:HD13 | 8:AI:78:ILE:HG21 | 1.87 | 0.56 |
| 1:CA:1002:G:H2' | 1:CA:1003:G:O4' | 2.06 | 0.56 |
| 31:BJ:10:THR:HG22 | 31:BJ:50:THR:CA | 2.35 | 0.56 |
| 31:BJ:35:ARG:HH21 | 31:BJ:40:HIS:N | 2.04 | 0.56 |
| 27:BE:122:GLU:HB3 | 27:BE:152:GLU:CB | 2.35 | 0.56 |
| 26:DD:146:ILE:CD1 | 26:DD:155:VAL:HG13 | 2.36 | 0.56 |
| 44:DX:25:GLN:HG2 | 44:DX:26:PHE:N | 2.20 | 0.56 |
| 13:CN:42:ASN:HB3 | 13:CN:46:LYS:HE2 | 1.86 | 0.56 |
| 1:CA:923:A:OP1 | 4:CE:25:LYS:HB3 | 2.05 | 0.56 |
| 7:AH:111:THR:HG23 | 7:AH:114:ALA:HB2 | 1.87 | 0.56 |
| 17:AR:49:LYS:HA | 17:AR:52:ARG:HD2 | 1.88 | 0.56 |
| 28:DF:107:VAL:HG12 | 28:DF:108:PRO:CD | 2.32 | 0.56 |
| 1:CA:875:U:O2' | 7:CH:14:ARG:HD2 | 2.05 | 0.56 |
| 35:DN:72:ASP:OD1 | 35:DN:74:GLU:HB3 | 2.05 | 0.56 |
| 23:DB:2562:U:H1' | 32:DK:23:LYS:HE2 | 1.88 | 0.56 |
| 48:D1:24:LYS:HZ2 | 48:D1:25:ASN:N | 2.04 | 0.56 |
| 1:CA:948:C:O2' | 1:CA:949:A:H5' | 2.05 | 0.56 |
| 34:BM:108:VAL:N | 34:BM:109:PRO:CD | 2.69 | 0.56 |
| 35:DN:87:PHE:HB2 | 35:DN:94:TYR:CE2 | 2.40 | 0.56 |
| 23:DB:703:U:H2' | 23:DB:704:G:O4' | 2.05 | 0.56 |
| 24:DV:6:ALA:O | 24:DV:65:VAL:HA | 2.06 | 0.56 |
| 2:AC:26:LYS:HD3 | 2:AC:26:LYS:C | 2.25 | 0.56 |
| 48:B1:31:GLU:HB3 | 48:B1:32:LYS:HE3 | 1.86 | 0.56 |
| 6:AG:45:ALA:HB2 | 6:AG:116:ALA:O | 2.05 | 0.56 |
| 18:CS:62:THR:HG21 | 18:CS:64:GLU:OE1 | 2.05 | 0.56 |
| 12:CM:78:ARG:NH1 | 12:CM:79:LEU:HD23 | 2.19 | 0.56 |
| 1:AA:69:G:H2' | 1:AA:70:U:C6 | 2.40 | 0.56 |
| 1:AA:97:G:H2' | 1:AA:98:A:O4' | 2.05 | 0.56 |
| 23:BB:1460:U:H5'' | 23:BB:1461:C:C5 | 2.41 | 0.56 |
| 3:CD:151:GLN:NE2 | 3:CD:153:ARG:HD2 | 2.20 | 0.56 |
| 23:DB:1459:G:C2' | 23:DB:1460:U:H5' | 2.35 | 0.56 |
| 23:DB:2888:C:H2' | 23:DB:2889:C:H6 | 1.69 | 0.56 |
| 23:BB:170:U:H2' | 23:BB:171:U:H6 | 1.71 | 0.56 |
| 1:AA:1090:U:H2' | 1:AA:1091:U:C6 | 2.40 | 0.56 |
| 23:BB:2825:G:H2' | 23:BB:2826:A:H5' | 1.88 | 0.56 |
| 1:CA:1063:C:H3' | 1:CA:1064:G:H2' | 1.87 | 0.56 |
| 1:AA:824:G:H2' | 1:AA:825:A:H8 | 1.71 | 0.56 |
| 23:DB:675:A:OP1 | 27:DE:58:LYS:HE2 | 2.06 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:CA:272:C:H2' | 1:CA:273:U:H6 | 1.70 | 0.56 |
| 23:DB:621:A:H2' | 23:DB:622:G:O4' | 2.06 | 0.56 |
| 23:DB:2665:A:O2' | 23:DB:2666:C:H5' | 2.05 | 0.56 |
| 10:AK:12:ARG:HD2 | 10:AK:12:ARG:N | 2.21 | 0.56 |
| 23:BB:1862:G:O2' | 23:BB:1863:G:H5' | 2.06 | 0.56 |
| 34:BM:3:GLN:OE1 | 34:BM:47:GLU:HB2 | 2.05 | 0.56 |
| 37:BP:29:VAL:CG2 | 37:BP:47:ILE:HD11 | 2.36 | 0.56 |
| 25:DC:63:ILE:HG22 | 25:DC:64:VAL:N | 2.21 | 0.56 |
| 39:DR:79:ARG:HD2 | 39:DR:80:ARG:N | 2.21 | 0.56 |
| 33:BL:63:LYS:HA | 50:B3:24:LYS:HD3 | 1.87 | 0.56 |
| 23:BB:639:U:H2' | 23:BB:640:C:H6 | 1.69 | 0.56 |
| 32:BK:40:LYS:HE3 | 32:BK:57:VAL:HG12 | 1.88 | 0.56 |
| 23:DB:2091:C:H5' | 46:DZ:49:ARG:HG3 | 1.88 | 0.56 |
| 23:BB:2484:G:OP1 | 34:BM:44:ARG:HD2 | 2.06 | 0.56 |
| 23:BB:581:C:H2' | 23:BB:582:A:H8 | 1.70 | 0.56 |
| 1:AA:266:G:O2' | 1:AA:267:C:H3' | 2.06 | 0.56 |
| 23:BB:663:G:OP1 | 33:BL:27:LEU:HD21 | 2.06 | 0.56 |
| 23:BB:527:C:H5'' | 23:BB:2779:U:C2 | 2.41 | 0.56 |
| 23:BB:996:A:O3' | 38:BQ:92:LYS:HE2 | 2.06 | 0.56 |
| 23:DB:2636:C:C5' | 26:DD:80:TRP:HE1 | 2.19 | 0.56 |
| 18:CS:15:LEU:HA | 18:CS:18:VAL:CG1 | 2.34 | 0.56 |
| 23:BB:140:C:H4' | 23:BB:141:G:H21 | 1.71 | 0.56 |
| 28:DF:16:MET:O | 28:DF:20:ASN:HA | 2.06 | 0.56 |
| 12:CM:3:ILE:HA | 12:CM:56:ARG:NH1 | 2.21 | 0.56 |
| 26:BD:119:ALA:HA | 26:BD:123:LYS:HZ1 | 1.69 | 0.56 |
| 23:BB:1656:C:P | 26:BD:141:ARG:HD3 | 2.45 | 0.56 |
| 50:D3:12:ARG:O | 50:D3:13:PHE:HB2 | 2.06 | 0.56 |
| 1:AA:1422:G:OP1 | 32:BK:48:PRO:HA | 2.06 | 0.56 |
| 33:DL:90:VAL:HG13 | 33:DL:90:VAL:O | 2.06 | 0.56 |
| 19:CT:61:ALA:HA | 19:CT:67:HIS:N | 2.17 | 0.56 |
| 28:DF:107:VAL:N | 28:DF:108:PRO:CD | 2.69 | 0.56 |
| 23:BB:1080:A:H2' | 23:BB:1081:U:H6 | 1.71 | 0.56 |
| 42:DU:25:LYS:HA | 42:DU:34:ILE:H | 1.71 | 0.56 |
| 23:DB:1666:G:O3' | 32:DK:6:THR:HG23 | 2.06 | 0.56 |
| 48:D1:7:LYS:HB3 | 48:D1:24:LYS:NZ | 2.21 | 0.56 |
| 48:D1:9:LYS:HA | 48:D1:24:LYS:CB | 2.36 | 0.56 |
| 1:CA:673:A:H1' | 17:CR:63:TYR:CE1 | 2.40 | 0.56 |
| 18:AS:68:HIS:NE2 | 18:AS:72:GLU:HG3 | 2.21 | 0.56 |
| 23:DB:2074:U:H2' | 23:DB:2075:U:C6 | 2.41 | 0.56 |
| 23:DB:581:C:H2' | 23:DB:582:A:H8 | 1.70 | 0.56 |
| 34:DM:19:GLY:C | 34:DM:20:LEU:HD12 | 2.25 | 0.56 |
| 11:CL:30:ARG:O | 11:CL:56:LEU:HA | 2.06 | 0.56 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 23:BB:1550:C:H2' | 23:BB:1551:A:C8 | 2.40 | 0.56 |
| 46:DZ:11:GLU:H | 46:DZ:27:THR:HG22 | 1.71 | 0.56 |
| 1:CA:576:C:OP2 | 1:CA:576:C:H3' | 2.06 | 0.56 |
| 7:AH:65:PHE:CD2 | 7:AH:66:GLN:HG3 | 2.41 | 0.56 |
| 4:AE:104:ILE:HG23 | 4:AE:111:ARG:NH1 | 2.21 | 0.56 |
| 6:AG:61:PHE:O | 6:AG:65:LEU:HD13 | 2.06 | 0.56 |
| 23:DB:1534:U:H2' | 23:DB:1536:C:N3 | 2.21 | 0.56 |
| 1:CA:676:A:H5'' | 10:CK:114:PRO:HB2 | 1.87 | 0.56 |
| 23:DB:566:U:O2' | 23:DB:567:U:H5' | 2.06 | 0.56 |
| 23:BB:1534:U:H2' | 23:BB:1536:C:N3 | 2.21 | 0.56 |
| 23:DB:1360:G:C2' | 23:DB:1361:G:H5' | 2.36 | 0.56 |
| 1:CA:1234:C:H1' | 1:CA:1364:U:O2 | 2.06 | 0.56 |
| 16:CQ:24:ILE:HD12 | 16:CQ:24:ILE:N | 2.21 | 0.56 |
| 23:DB:30:G:H2' | 23:DB:31:C:H6 | 1.71 | 0.56 |
| 23:BB:2626:C:O2' | 23:BB:2627:G:H5' | 2.06 | 0.56 |
| 23:BB:1710:G:H4' | 23:BB:2858:C:O2 | 2.06 | 0.56 |
| 50:B3:53:ASP:O | 50:B3:56:LEU:HB3 | 2.06 | 0.56 |
| 1:CA:426:U:H2' | 1:CA:427:U:C6 | 2.41 | 0.56 |
| 47:B0:16:ARG:HA | 47:B0:19:ASP:OD2 | 2.05 | 0.56 |
| 1:AA:129:A:H1' | 1:AA:130:A:C8 | 2.41 | 0.56 |
| 6:AG:24:LYS:O | 6:AG:28:ILE:HG13 | 2.06 | 0.56 |
| 23:BB:1064:C:H4' | 52:BI:90:GLY:HA2 | 1.88 | 0.56 |
| 23:BB:1316:U:O2' | 23:BB:1317:G:H5' | 2.05 | 0.56 |
| 23:BB:315:G:H2' | 23:BB:316:C:C6 | 2.41 | 0.56 |
| 48:D1:42:VAL:O | 48:D1:43:ARG:HB2 | 2.06 | 0.56 |
| 43:DW:21:GLY:HA3 | 43:DW:32:ALA:HA | 1.86 | 0.56 |
| 34:BM:53:MET:O | 34:BM:54:THR:HG23 | 2.06 | 0.56 |
| 52:DI:2:LYS:NZ | 52:DI:2:LYS:HB3 | 2.21 | 0.55 |
| 27:DE:48:THR:HG23 | 27:DE:84:THR:HA | 1.88 | 0.55 |
| 23:BB:1241:A:C2' | 23:BB:1242:U:H5' | 2.36 | 0.55 |
| 25:DC:153:LEU:HD23 | 25:DC:153:LEU:H | 1.71 | 0.55 |
| 1:AA:958:A:N1 | 18:AS:53:GLY:HA3 | 2.21 | 0.55 |
| 1:AA:450:G:H4' | 15:AP:41:PRO:HB2 | 1.87 | 0.55 |
| 24:BV:21:ARG:NH2 | 24:BV:27:PRO:HG3 | 2.21 | 0.55 |
| 23:BB:2053:G:O2' | 23:BB:2054:A:H5' | 2.06 | 0.55 |
| 16:AQ:8:GLN:HB3 | 16:AQ:57:VAL:HG13 | 1.88 | 0.55 |
| 36:DO:49:VAL:HG22 | 36:DO:50:ALA:N | 2.21 | 0.55 |
| 38:BQ:3:VAL:HG12 | 38:BQ:5:ARG:HG3 | 1.87 | 0.55 |
| 39:BR:5:PHE:HA | 39:BR:40:MET:HG3 | 1.86 | 0.55 |
| 39:BR:4:VAL:HG22 | 39:BR:5:PHE:H | 1.71 | 0.55 |
| 1:CA:1014:A:C2 | 1:CA:1219:A:H1' | 2.41 | 0.55 |
| 23:BB:543:G:C3' | 23:BB:544:C:H5'' | 2.36 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 28:BF:121:PHE:HE2 | 28:BF:166:ARG:H | 1.54 | 0.55 |
| 26:DD:11:MET:O | 26:DD:22:ILE:HA | 2.06 | 0.55 |
| 32:DK:64:ARG:N | 32:DK:83:ALA:HB3 | 2.22 | 0.55 |
| 39:DR:42:ALA:HB1 | 39:DR:53:PHE:CD1 | 2.40 | 0.55 |
| 19:AT:62:ALA:O | 19:AT:63:LYS:HG3 | 2.05 | 0.55 |
| 35:BN:9:GLN:HB2 | 35:BN:17:ARG:CZ | 2.36 | 0.55 |
| 35:DN:26:GLY:HA2 | 35:DN:75:ILE:HD13 | 1.87 | 0.55 |
| 2:AC:181:ILE:N | 2:AC:181:ILE:HD12 | 2.20 | 0.55 |
| 10:CK:13:LYS:HD2 | 10:CK:13:LYS:N | 2.21 | 0.55 |
| 20:AB:125:PHE:HD2 | 20:AB:125:PHE:H | 1.53 | 0.55 |
| 23:BB:1168:G:H2' | 23:BB:1169:A:O4' | 2.06 | 0.55 |
| 23:DB:245:G:O2' | 23:DB:246:C:H5' | 2.07 | 0.55 |
| 3:AD:58:GLN:OE1 | 3:AD:62:ARG:HG3 | 2.07 | 0.55 |
| 23:DB:2538:C:O2' | 23:DB:2539:C:H5' | 2.06 | 0.55 |
| 23:BB:419:U:H2' | 23:BB:420:C:C6 | 2.41 | 0.55 |
| 23:DB:1460:U:H5'' | 23:DB:1461:C:C5 | 2.41 | 0.55 |
| 1:AA:383:A:H2' | 1:AA:384:G:O4' | 2.05 | 0.55 |
| 23:DB:1938:A:O2' | 23:DB:1939:U:H5'' | 2.06 | 0.55 |
| 16:AQ:4:ILE:CD1 | 16:AQ:5:ARG:H | 2.20 | 0.55 |
| 1:CA:301:G:H2' | 1:CA:302:G:H8 | 1.71 | 0.55 |
| 6:AG:72:VAL:HA | 6:AG:89:GLU:HA | 1.86 | 0.55 |
| 1:AA:272:C:H2' | 1:AA:273:U:H6 | 1.71 | 0.55 |
| 1:AA:1404:C:H2' | 1:AA:1405:G:C8 | 2.41 | 0.55 |
| 23:BB:1244:A:O2' | 23:BB:1245:G:H5' | 2.05 | 0.55 |
| 23:BB:442:G:H22 | 27:BE:46:GLN:NE2 | 2.03 | 0.55 |
| 37:BP:83:ILE:HB | 37:BP:85:VAL:HG23 | 1.88 | 0.55 |
| 25:BC:130:PRO:HB2 | 25:BC:133:ASN:ND2 | 2.21 | 0.55 |
| 18:AS:32:THR:HB | 18:AS:49:ALA:O | 2.05 | 0.55 |
| 8:AI:30:ASN:HD21 | 8:AI:65:THR:HA | 1.71 | 0.55 |
| 34:DM:41:LEU:HB2 | 34:DM:95:LEU:HD22 | 1.87 | 0.55 |
| 39:BR:53:PHE:CG | 39:BR:54:VAL:N | 2.73 | 0.55 |
| 12:AM:11:HIS:O | 12:AM:12:LYS:HG2 | 2.06 | 0.55 |
| 23:DB:918:A:C2' | 23:DB:919:U:H5' | 2.30 | 0.55 |
| 10:AK:85:VAL:HG21 | 10:AK:96:ILE:HD11 | 1.88 | 0.55 |
| 37:DP:1:SER:HB2 | 37:DP:5:LYS:HG2 | 1.88 | 0.55 |
| 26:BD:122:VAL:HG22 | 26:BD:128:ARG:HB2 | 1.89 | 0.55 |
| 13:CN:56:PRO:O | 13:CN:59:GLN:HG3 | 2.05 | 0.55 |
| 50:D3:12:ARG:CB | 50:D3:23:HIS:HB2 | 2.31 | 0.55 |
| 23:DB:1657:U:OP2 | 26:DD:141:ARG:HG3 | 2.07 | 0.55 |
| 11:AL:48:LEU:H | 11:AL:48:LEU:CD2 | 2.13 | 0.55 |
| 34:DM:114:ARG:O | 34:DM:117:PHE:HD1 | 1.89 | 0.55 |
| 1:CA:922:G:N3 | 1:CA:1398:A:H2 | 2.05 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 1:AA:196:A:O5' | 19:AT:63:LYS:HE2 | 2.05 | 0.55 |
| 1:AA:235:C:H2' | 1:AA:236:A:H8 | 1.70 | 0.55 |
| 1:AA:1202:U:H2' | 1:AA:1203:C:H5' | 1.87 | 0.55 |
| 1:CA:1226:C:H4' | 1:CA:1227:A:OP1 | 2.05 | 0.55 |
| 1:CA:1509:C:O2' | 1:CA:1510:C:H5' | 2.05 | 0.55 |
| 25:DC:67:LYS:HG2 | 25:DC:149:LYS:O | 2.05 | 0.55 |
| 23:BB:2600:A:O2' | 23:BB:2601:C:H5' | 2.05 | 0.55 |
| 23:BB:533:G:H2' | 23:BB:534:U:C6 | 2.40 | 0.55 |
| 1:AA:1397:C:H4' | 1:AA:1398:A:OP2 | 2.04 | 0.55 |
| 25:BC:209:ALA:HA | 25:BC:213:ARG:NE | 2.21 | 0.55 |
| 23:DB:2467:C:O4' | 34:DM:118:LYS:HD2 | 2.07 | 0.55 |
| 1:AA:9:G:H5' | 4:AE:107:GLY:HA3 | 1.86 | 0.55 |
| 29:BG:71:LEU:HA | 29:BG:74:MET:CG | 2.36 | 0.55 |
| 23:BB:2538:C:O2' | 23:BB:2539:C:H5' | 2.06 | 0.55 |
| 29:BG:119:GLY:C | 29:BG:120:ILE:HD12 | 2.27 | 0.55 |
| 1:CA:123:U:OP1 | 1:CA:312:C:H5' | 2.07 | 0.55 |
| 1:CA:1348:U:H4' | 8:CI:121:ARG:HG3 | 1.88 | 0.55 |
| 1:AA:983:A:H5' | 1:AA:984:C:OP2 | 2.06 | 0.55 |
| 1:CA:21:G:H2' | 1:CA:22:G:C8 | 2.40 | 0.55 |
| 23:DB:1559:U:H3' | 23:DB:1560:G:H5' | 1.88 | 0.55 |
| 1:AA:720:C:H5'' | 17:AR:40:PRO:HA | 1.87 | 0.55 |
| 23:DB:2586:U:H2' | 23:DB:2587:A:C8 | 2.41 | 0.55 |
| 19:AT:74:HIS:O | 19:AT:78:LEU:HD12 | 2.05 | 0.55 |
| 23:BB:2398:U:H2' | 23:BB:2399:G:H8 | 1.71 | 0.55 |
| 23:DB:1923:U:H2' | 23:DB:1924:C:C6 | 2.41 | 0.55 |
| 30:DH:80:ILE:N | 30:DH:80:ILE:HD12 | 2.21 | 0.55 |
| 3:CD:55:ARG:HG3 | 3:CD:55:ARG:HH11 | 1.71 | 0.55 |
| 37:BP:88:ARG:HA | 37:BP:88:ARG:HE | 1.70 | 0.55 |
| 10:CK:81:LEU:HD23 | 10:CK:99:LEU:HD21 | 1.87 | 0.55 |
| 23:DB:1098:A:C3' | 52:DI:3:LYS:HB3 | 2.36 | 0.55 |
| 23:DB:1099:G:O5' | 52:DI:3:LYS:C | 2.39 | 0.55 |
| 37:DP:29:VAL:O | 37:DP:31:VAL:HG23 | 2.06 | 0.55 |
| 27:DE:45:ALA:O | 27:DE:46:GLN:HB3 | 2.05 | 0.55 |
| 37:BP:5:LYS:C | 37:BP:7:LEU:H | 2.09 | 0.55 |
| 43:BW:56:HIS:CE1 | 43:BW:58:LEU:HB2 | 2.41 | 0.55 |
| 30:BH:4:ILE:H | 30:BH:37:VAL:CB | 2.17 | 0.55 |
| 33:BL:63:LYS:CG | 50:B3:11:LYS:HA | 2.37 | 0.55 |
| 23:BB:650:C:H5'' | 50:B3:22:LYS:HZ3 | 1.71 | 0.55 |
| 36:DO:26:LEU:O | 36:DO:27:VAL:HG13 | 2.06 | 0.55 |
| 35:BN:34:ILE:HG12 | 35:BN:34:ILE:O | 2.07 | 0.55 |
| 34:DM:73:ILE:HG21 | 34:DM:90:GLU:CD | 2.27 | 0.55 |
| 38:BQ:88:GLU:HA | 39:BR:53:PHE:CD2 | 2.41 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 12:AM:15:VAL:CG2 | 12:AM:33:LEU:HD12 | 2.35 | 0.55 |
| 27:BE:147:LEU:HD13 | 27:BE:182:ALA:O | 2.07 | 0.55 |
| 27:BE:187:VAL:HG23 | 27:BE:187:VAL:O | 2.06 | 0.55 |
| 1:CA:1217:C:H2' | 1:CA:1218:C:H6 | 1.71 | 0.55 |
| 49:B2:34:ARG:NE | 49:B2:42:LEU:HD13 | 2.21 | 0.55 |
| 36:DO:67:ASN:HD22 | 36:DO:68:LYS:N | 2.04 | 0.55 |
| 52:DI:79:LEU:HD11 | 52:DI:131:THR:OG1 | 2.06 | 0.55 |
| 23:DB:1022:G:H8 | 31:DJ:68:LYS:HE3 | 1.69 | 0.55 |
| 23:BB:2143:C:O3' | 23:BB:2144:G:H4' | 2.06 | 0.55 |
| 32:BK:47:ILE:HG23 | 32:BK:48:PRO:HD2 | 1.87 | 0.55 |
| 1:AA:1241:G:H2' | 1:AA:1242:G:C8 | 2.38 | 0.55 |
| 35:DN:66:ALA:O | 35:DN:70:THR:HB | 2.06 | 0.55 |
| 45:BY:6:ILE:HD13 | 45:BY:35:VAL:O | 2.06 | 0.55 |
| 20:CB:209:VAL:O | 20:CB:213:LEU:HD12 | 2.05 | 0.55 |
| 23:BB:1199:U:H2' | 23:BB:1200:C:C6 | 2.41 | 0.55 |
| 5:CF:86:ARG:HD3 | 17:CR:63:TYR:O | 2.06 | 0.55 |
| 25:DC:205:GLY:C | 25:DC:206:LYS:HG2 | 2.27 | 0.55 |
| 23:DB:2103:C:H2' | 23:DB:2104:C:O4' | 2.07 | 0.55 |
| 19:CT:73:ARG:HG3 | 19:CT:74:HIS:N | 2.21 | 0.55 |
| 23:BB:729:G:H4' | 23:BB:763:G:C5' | 2.36 | 0.55 |
| 1:AA:1308:U:OP1 | 12:AM:95:PRO:HA | 2.07 | 0.55 |
| 28:BF:33:ILE:HA | 28:BF:155:ILE:HA | 1.88 | 0.55 |
| 23:BB:214:G:H2' | 23:BB:215:G:C8 | 2.41 | 0.55 |
| 23:BB:1381:G:H2' | 23:BB:1382:G:H5' | 1.86 | 0.55 |
| 44:BX:7:ARG:NH1 | 44:BX:7:ARG:HA | 2.21 | 0.55 |
| 25:BC:179:GLU:HG3 | 25:BC:266:ILE:HG22 | 1.87 | 0.55 |
| 15:AP:23:ASP:O | 15:AP:26:ASN:HB2 | 2.06 | 0.55 |
| 1:CA:449:G:H2' | 1:CA:450:G:C8 | 2.40 | 0.55 |
| 26:DD:56:LYS:NZ | 26:DD:56:LYS:HB3 | 2.21 | 0.55 |
| 1:CA:220:G:O2' | 1:CA:221:C:H5' | 2.06 | 0.55 |
| 1:AA:366:A:O2' | 1:AA:367:U:OP1 | 2.24 | 0.55 |
| 23:BB:1291:C:O2' | 23:BB:1292:G:H5' | 2.07 | 0.55 |
| 23:DB:192:C:H2' | 23:DB:193:U:H5' | 1.88 | 0.55 |
| 23:BB:2400:G:O2' | 23:BB:2401:U:H5' | 2.07 | 0.55 |
| 34:BM:58:LYS:C | 34:BM:60:GLN:H | 2.07 | 0.55 |
| 23:DB:1099:G:OP2 | 52:DI:2:LYS:O | 2.23 | 0.55 |
| 37:DP:23:ASP:HB2 | 37:DP:93:LYS:HE2 | 1.89 | 0.55 |
| 37:DP:25:VAL:C | 37:DP:27:VAL:H | 2.10 | 0.55 |
| 37:DP:86:LYS:HE3 | 37:DP:88:ARG:HB2 | 1.89 | 0.55 |
| 23:BB:84:A:O5' | 42:BU:91:LYS:HD3 | 2.07 | 0.55 |
| 42:BU:23:LYS:O | 42:BU:25:LYS:N | 2.40 | 0.55 |
| 42:BU:78:LYS:CE | 42:BU:96:LYS:HB2 | 2.37 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 23:BB:1113:U:H5'' | 29:BG:2:ARG:N | 2.22 | 0.55 |
| 25:DC:33:LEU:CD2 | 25:DC:34:GLU:HG3 | 2.25 | 0.55 |
| 23:BB:2729:G:H2' | 23:BB:2730:C:H6 | 1.71 | 0.55 |
| 43:DW:23:LYS:HD3 | 43:DW:24:ARG:HD2 | 1.88 | 0.55 |
| 43:DW:35:ILE:HD12 | 43:DW:35:ILE:N | 2.14 | 0.55 |
| 30:DH:26:ALA:C | 30:DH:28:ASN:N | 2.60 | 0.55 |
| 30:DH:3:VAL:HB | 30:DH:37:VAL:HG11 | 1.87 | 0.55 |
| 1:AA:1320:C:H41 | 18:AS:36:ARG:HG2 | 1.71 | 0.55 |
| 42:DU:28:LEU:HD21 | 42:DU:31:GLY:HA3 | 1.89 | 0.55 |
| 1:AA:981:U:H4' | 13:AN:60:ARG:HG3 | 1.88 | 0.55 |
| 40:BS:17:VAL:HG23 | 40:BS:76:VAL:HG11 | 1.88 | 0.55 |
| 39:DR:63:VAL:CG2 | 39:DR:64:VAL:H | 2.09 | 0.55 |
| 34:DM:2:LEU:HB2 | 34:DM:47:GLU:HG2 | 1.88 | 0.55 |
| 23:DB:1197:G:H2' | 23:DB:1198:U:C6 | 2.41 | 0.55 |
| 26:DD:4:LEU:HD23 | 26:DD:77:ARG:HD3 | 1.88 | 0.55 |
| 48:D1:22:THR:HG21 | 50:D3:34:LYS:NZ | 2.21 | 0.55 |
| 23:DB:2839:G:H2' | 23:DB:2840:C:C6 | 2.41 | 0.55 |
| 45:DY:36:GLU:O | 45:DY:37:ARG:HG2 | 2.06 | 0.55 |
| 5:AF:64:VAL:CG1 | 5:AF:65:GLU:H | 2.13 | 0.55 |
| 17:CR:72:ARG:CZ | 17:CR:72:ARG:HB2 | 2.36 | 0.55 |
| 1:AA:34:C:H2' | 1:AA:35:G:C8 | 2.41 | 0.55 |
| 47:D0:26:SER:HB2 | 47:D0:38:LEU:CD2 | 2.37 | 0.55 |
| 1:AA:1369:C:H2' | 1:AA:1370:G:C8 | 2.42 | 0.55 |
| 23:BB:78:U:H2' | 23:BB:79:C:H6 | 1.70 | 0.55 |
| 23:DB:1550:C:H2' | 23:DB:1551:A:C8 | 2.41 | 0.55 |
| 23:DB:1551:A:H3' | 23:DB:1552:A:H5'' | 1.87 | 0.55 |
| 23:DB:1251:C:O2' | 23:DB:1252:G:H3' | 2.07 | 0.55 |
| 6:AG:41:ILE:HD11 | 6:AG:116:ALA:HB2 | 1.88 | 0.55 |
| 23:DB:2250:G:H21 | 23:DB:2496:C:H4' | 1.71 | 0.55 |
| 9:CJ:36:VAL:HA | 9:CJ:76:ILE:CG2 | 2.37 | 0.55 |
| 28:BF:15:LEU:HA | 28:BF:18:GLU:HB3 | 1.88 | 0.55 |
| 23:DB:935:C:H2' | 23:DB:936:A:H8 | 1.71 | 0.55 |
| 23:BB:1854:A:N6 | 23:BB:1888:G:H1' | 2.21 | 0.55 |
| 23:DB:2398:U:H2' | 23:DB:2399:G:H8 | 1.70 | 0.55 |
| 23:BB:2888:C:H2' | 23:BB:2889:C:H6 | 1.70 | 0.55 |
| 23:BB:1444:G:H2' | 23:BB:1445:G:C8 | 2.40 | 0.55 |
| 23:DB:78:U:H2' | 23:DB:79:C:C6 | 2.41 | 0.55 |
| 23:BB:295:G:O2' | 23:BB:296:U:H5' | 2.07 | 0.55 |
| 27:DE:59:PRO:HB2 | 27:DE:60:TRP:CD1 | 2.41 | 0.55 |
| 1:AA:462:G:H3' | 1:AA:463:U:H5'' | 1.88 | 0.55 |
| 23:BB:2657:A:H2' | 23:BB:2658:C:O4' | 2.07 | 0.55 |
| 23:BB:621:A:H2' | 23:BB:622:G:O4' | 2.06 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 37:BP:24:THR:HG21 | 37:BP:111:GLU:HG2 | 1.88 | 0.55 |
| 23:BB:667:U:H2' | 23:BB:668:A:O4' | 2.07 | 0.55 |
| 23:BB:397:U:OP1 | 46:BZ:29:GLY:HA2 | 2.07 | 0.55 |
| 6:CG:91:ARG:HB3 | 6:CG:92:PRO:HD2 | 1.88 | 0.55 |
| 13:AN:9:GLU:O | 13:AN:13:VAL:HG23 | 2.07 | 0.55 |
| 4:CE:65:LYS:HB3 | 4:CE:65:LYS:NZ | 2.21 | 0.55 |
| 27:BE:48:THR:HG23 | 27:BE:87:ALA:H | 1.72 | 0.55 |
| 51:D4:26:ILE:HD11 | 51:D4:34:LYS:HA | 1.88 | 0.55 |
| 23:BB:2849:U:H4' | 23:BB:2850:A:C5' | 2.37 | 0.55 |
| 23:BB:2848:G:O2' | 37:BP:96:LEU:HD22 | 2.06 | 0.55 |
| 23:DB:2262:U:OP1 | 23:DB:2387:U:O2' | 2.23 | 0.55 |
| 35:DN:110:MET:O | 35:DN:111:ALA:HB3 | 2.07 | 0.55 |
| 23:BB:338:G:C2 | 23:BB:339:U:H1' | 2.41 | 0.55 |
| 42:DU:27:VAL:HG12 | 42:DU:33:VAL:HG13 | 1.87 | 0.55 |
| 46:BZ:33:ASN:CB | 46:BZ:44:PHE:HB2 | 2.29 | 0.55 |
| 23:DB:1803:A:H5' | 25:DC:255:LYS:HD3 | 1.88 | 0.55 |
| 33:BL:30:THR:HG22 | 33:BL:36:LYS:HZ1 | 1.72 | 0.55 |
| 38:BQ:5:ARG:HH11 | 38:BQ:5:ARG:CB | 2.13 | 0.55 |
| 40:BS:29:VAL:HG11 | 40:BS:69:LEU:HB2 | 1.88 | 0.55 |
| 43:DW:18:LYS:HB2 | 43:DW:18:LYS:HZ2 | 1.69 | 0.55 |
| 10:CK:19:VAL:CG2 | 10:CK:34:THR:HG22 | 2.31 | 0.55 |
| 26:DD:5:VAL:HG12 | 26:DD:6:GLY:N | 2.21 | 0.55 |
| 23:DB:639:U:H2' | 23:DB:640:C:H6 | 1.69 | 0.55 |
| 48:D1:22:THR:O | 48:D1:23:THR:C | 2.44 | 0.55 |
| 23:BB:654:A:H2' | 23:BB:655:A:C5' | 2.33 | 0.55 |
| 39:DR:66:HIS:HA | 39:DR:98:ILE:HA | 1.89 | 0.55 |
| 22:DA:51:G:O2' | 22:DA:52:A:H5'' | 2.06 | 0.55 |
| 42:DU:11:ILE:HB | 42:DU:69:VAL:CG2 | 2.35 | 0.55 |
| 1:AA:87:C:H2' | 1:AA:88:U:C4' | 2.36 | 0.55 |
| 23:DB:947:A:O2' | 23:DB:984:A:H2 | 1.90 | 0.55 |
| 1:CA:806:C:H2' | 1:CA:807:A:H8 | 1.71 | 0.55 |
| 25:DC:19:VAL:HG12 | 25:DC:20:ASN:H | 1.70 | 0.55 |
| 11:CL:73:LEU:HD21 | 11:CL:103:CYS:HA | 1.89 | 0.55 |
| 29:BG:5:LYS:HB3 | 29:BG:68:ARG:CZ | 2.36 | 0.55 |
| 47:B0:9:ARG:NH1 | 47:B0:9:ARG:HB3 | 2.22 | 0.55 |
| 23:DB:2756:U:H4' | 23:DB:2757:A:OP1 | 2.06 | 0.55 |
| 49:B2:35:ARG:O | 49:B2:39:ARG:HA | 2.06 | 0.55 |
| 1:CA:279:A:H4' | 1:CA:280:C:OP2 | 2.07 | 0.55 |
| 25:BC:254:LYS:N | 25:BC:254:LYS:HD2 | 2.22 | 0.55 |
| 4:AE:13:LYS:HD2 | 4:AE:112:ALA:HB1 | 1.89 | 0.55 |
| 26:DD:138:LEU:CD1 | 26:DD:142:VAL:HB | 2.37 | 0.55 |
| 1:CA:399:G:H2' | 1:CA:400:C:C6 | 2.42 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 1:CA:1526:G:H5'' | 21:CU:38:GLU:HG2 | 1.89 | 0.55 |
| 23:BB:1360:G:C2' | 23:BB:1361:G:H5' | 2.37 | 0.55 |
| 23:BB:363:G:H2' | 23:BB:364:C:C6 | 2.42 | 0.55 |
| 41:BT:35:ALA:O | 41:BT:81:LYS:HD3 | 2.06 | 0.55 |
| 28:BF:174:PHE:N | 28:BF:175:PRO:HD2 | 2.22 | 0.55 |
| 15:AP:1:MET:N | 15:AP:24:SER:HB3 | 2.22 | 0.55 |
| 23:BB:1564:C:O2' | 23:BB:1565:C:H5' | 2.06 | 0.55 |
| 1:CA:214:C:H2' | 1:CA:215:C:H6 | 1.72 | 0.55 |
| 1:AA:1435:G:H2' | 1:AA:1436:U:C6 | 2.41 | 0.55 |
| 1:AA:335:C:H2' | 1:AA:336:A:H8 | 1.72 | 0.55 |
| 23:DB:1061:U:H4' | 23:DB:1070:A:O3' | 2.07 | 0.55 |
| 24:BV:2:PHE:O | 24:BV:3:THR:HG23 | 2.07 | 0.55 |
| 26:DD:18:ASP:C | 26:DD:20:VAL:H | 2.10 | 0.55 |
| 23:DB:2825:G:H2' | 23:DB:2826:A:H5' | 1.89 | 0.55 |
| 3:CD:44:LYS:O | 3:CD:44:LYS:HD3 | 2.07 | 0.55 |
| 23:BB:2639:A:H2' | 23:BB:2640:G:O4' | 2.06 | 0.55 |
| 1:AA:19:A:OP1 | 4:AE:134:ASN:ND2 | 2.39 | 0.55 |
| 23:DB:1099:G:P | 52:DI:4:VAL:N | 2.65 | 0.55 |
| 42:BU:5:ARG:HG2 | 42:BU:6:ARG:N | 2.20 | 0.55 |
| 36:BO:56:LYS:HE3 | 36:BO:57:ALA:N | 2.22 | 0.55 |
| 47:D0:41:HIS:CG | 47:D0:42:ILE:N | 2.70 | 0.55 |
| 31:DJ:135:GLN:NE2 | 31:DJ:137:PRO:HB2 | 2.19 | 0.55 |
| 43:BW:45:HIS:HB2 | 43:BW:67:LYS:CE | 2.37 | 0.55 |
| 38:DQ:23:TYR:HB2 | 38:DQ:28:SER:HB3 | 1.89 | 0.55 |
| 18:AS:49:ALA:HB1 | 18:AS:56:HIS:CB | 2.31 | 0.55 |
| 27:DE:149:ILE:HD11 | 27:DE:187:VAL:H | 1.72 | 0.55 |
| 23:BB:2393:U:H5' | 33:BL:62:PRO:CD | 2.36 | 0.55 |
| 23:BB:395:U:H2' | 23:BB:396:G:N7 | 2.21 | 0.55 |
| 34:BM:7:THR:HG22 | 34:BM:8:LYS:N | 2.17 | 0.55 |
| 16:AQ:63:CYS:SG | 16:AQ:73:THR:HG23 | 2.47 | 0.55 |
| 33:BL:27:LEU:C | 33:BL:29:LYS:H | 2.10 | 0.55 |
| 31:DJ:44:TYR:HE2 | 31:DJ:50:THR:HB | 1.71 | 0.55 |
| 1:CA:1221:G:O3' | 18:CS:76:THR:HG21 | 2.06 | 0.55 |
| 34:DM:71:LYS:O | 34:DM:73:ILE:HG12 | 2.07 | 0.55 |
| 23:DB:2642:G:OP1 | 31:DJ:84:ILE:HG21 | 2.06 | 0.55 |
| 40:BS:70:LYS:HD2 | 40:BS:110:ARG:HG3 | 1.88 | 0.55 |
| 18:CS:11:ASP:HB3 | 18:CS:13:HIS:CE1 | 2.42 | 0.55 |
| 33:DL:108:ALA:HB3 | 33:DL:125:LEU:CB | 2.37 | 0.55 |
| 23:BB:142:A:O2' | 23:BB:143:C:H5' | 2.07 | 0.55 |
| 44:DX:23:ARG:HA | 44:DX:26:PHE:CD1 | 2.42 | 0.55 |
| 26:BD:31:ALA:HA | 26:BD:51:THR:OG1 | 2.07 | 0.55 |
| 26:BD:93:GLY:O | 26:BD:94:GLN:HG3 | 2.06 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 8:CI:49:GLN:N | 8:CI:50:PRO:HD2 | 2.22 | 0.55 |
| 23:BB:1754:A:OP2 | 37:BP:94:ALA:HB1 | 2.06 | 0.55 |
| 1:CA:1335:U:H5'' | 1:CA:1337:G:N2 | 2.21 | 0.55 |
| 29:DG:10:VAL:HG12 | 29:DG:10:VAL:O | 2.05 | 0.55 |
| 5:CF:81:ASN:O | 5:CF:84:VAL:HG12 | 2.06 | 0.55 |
| 34:DM:133:LYS:HD2 | 34:DM:134:THR:H | 1.71 | 0.55 |
| 24:DV:8:VAL:HG12 | 24:DV:38:LEU:HD11 | 1.89 | 0.55 |
| 1:CA:1226:C:O2' | 1:CA:1227:A:H5' | 2.07 | 0.55 |
| 23:BB:1551:A:H3' | 23:BB:1552:A:H5'' | 1.87 | 0.55 |
| 23:DB:1824:G:O2' | 25:DC:244:VAL:HG21 | 2.06 | 0.55 |
| 23:DB:705:A:N6 | 23:DB:726:G:O2' | 2.39 | 0.55 |
| 23:DB:2230:G:H2' | 23:DB:2231:U:C6 | 2.42 | 0.55 |
| 23:BB:2471:A:O2' | 23:BB:2472:G:C8 | 2.54 | 0.55 |
| 3:CD:117:VAL:HG12 | 3:CD:130:ASN:CA | 2.37 | 0.55 |
| 16:CQ:6:THR:HG23 | 16:CQ:59:GLU:OE1 | 2.06 | 0.55 |
| 29:BG:89:VAL:HG12 | 29:BG:159:LYS:HA | 1.89 | 0.55 |
| 23:DB:1405:U:H2' | 23:DB:1406:U:H6 | 1.72 | 0.55 |
| 1:CA:389:A:H2' | 1:CA:389:A:N3 | 2.22 | 0.55 |
| 23:BB:2557:G:H2' | 23:BB:2558:C:H6 | 1.71 | 0.55 |
| 1:CA:412:A:N1 | 3:CD:30:LYS:HG3 | 2.20 | 0.55 |
| 23:DB:2080:A:H5' | 46:DZ:17:SER:CB | 2.37 | 0.55 |
| 42:DU:94:PHE:CD2 | 42:DU:100:GLU:HG2 | 2.42 | 0.55 |
| 23:BB:566:U:O2' | 23:BB:567:U:H5' | 2.06 | 0.55 |
| 12:CM:44:ILE:HA | 12:CM:47:LEU:HD21 | 1.89 | 0.55 |
| 1:AA:913:A:H1' | 1:AA:914:A:O4' | 2.06 | 0.55 |
| 23:BB:2047:C:H2' | 23:BB:2048:G:C8 | 2.42 | 0.55 |
| 50:D3:2:LYS:HB2 | 50:D3:2:LYS:HZ2 | 1.72 | 0.55 |
| 1:CA:219:U:H2' | 1:CA:220:G:C8 | 2.42 | 0.55 |
| 2:AC:166:TRP:HA | 2:AC:166:TRP:CE3 | 2.41 | 0.55 |
| 23:DB:1219:U:H2' | 23:DB:1220:G:C8 | 2.41 | 0.55 |
| 23:DB:2078:C:O2' | 23:DB:2079:U:H5' | 2.06 | 0.55 |
| 1:CA:824:G:H2' | 1:CA:825:A:H8 | 1.71 | 0.55 |
| 1:CA:462:G:H3' | 1:CA:463:U:H5'' | 1.88 | 0.55 |
| 40:DS:34:ASP:HA | 40:DS:37:THR:HG22 | 1.88 | 0.55 |
| 31:BJ:112:GLY:O | 31:BJ:116:ARG:HB2 | 2.06 | 0.55 |
| 1:CA:129:A:H1' | 1:CA:130:A:C8 | 2.41 | 0.55 |
| 23:BB:36:G:N2 | 23:BB:37:C:H1' | 2.22 | 0.55 |
| 47:D0:41:HIS:NE2 | 47:D0:42:ILE:HG22 | 2.22 | 0.55 |
| 47:D0:42:ILE:O | 47:D0:46:GLY:N | 2.39 | 0.55 |
| 23:DB:1651:G:H4' | 35:DN:39:PRO:HG2 | 1.89 | 0.55 |
| 23:BB:921:C:O2' | 23:BB:922:C:H5' | 2.06 | 0.55 |
| 32:BK:97:THR:OG1 | 32:BK:98:ARG:HD2 | 2.06 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 16:AQ:58:VAL:HB | 16:AQ:74:LEU:HD23 | 1.88 | 0.55 |
| 26:DD:118:PHE:HA | 26:DD:164:GLN:HA | 1.89 | 0.55 |
| 35:DN:4:ARG:NH2 | 35:DN:4:ARG:H | 2.05 | 0.55 |
| 8:AI:56:MET:SD | 8:AI:57:VAL:N | 2.80 | 0.55 |
| 27:BE:118:LEU:C | 27:BE:119:ILE:HD12 | 2.27 | 0.55 |
| 23:DB:2282:G:O2' | 23:DB:2283:C:P | 2.64 | 0.55 |
| 25:DC:216:ARG:HB3 | 25:DC:217:PRO:CD | 2.37 | 0.55 |
| 37:DP:52:ARG:HD2 | 37:DP:60:VAL:HG13 | 1.88 | 0.55 |
| 8:CI:50:PRO:O | 8:CI:54:VAL:HG22 | 2.06 | 0.55 |
| 23:DB:90:U:OP2 | 23:DB:91:A:H3' | 2.07 | 0.55 |
| 23:BB:589:U:H2' | 23:BB:590:A:H8 | 1.72 | 0.55 |
| 52:DI:92:PRO:O | 52:DI:93:ASN:HB2 | 2.07 | 0.55 |
| 28:DF:98:PHE:HA | 28:DF:101:ARG:NE | 2.18 | 0.55 |
| 1:AA:806:C:H2' | 1:AA:807:A:H8 | 1.72 | 0.55 |
| 30:BH:75:LEU:HD23 | 30:BH:76:GLU:H | 1.71 | 0.55 |
| 11:CL:54:VAL:CG1 | 11:CL:79:ILE:HD11 | 2.37 | 0.55 |
| 36:BO:76:LYS:HB2 | 36:BO:106:LEU:HD22 | 1.88 | 0.55 |
| 23:BB:1515:A:H5' | 23:BB:1557:C:H5' | 1.88 | 0.55 |
| 23:BB:458:G:P | 49:B2:39:ARG:HH22 | 2.29 | 0.55 |
| 23:DB:321:U:OP2 | 27:DE:130:LYS:HA | 2.07 | 0.55 |
| 3:AD:152:SER:O | 3:AD:155:LYS:HG3 | 2.07 | 0.55 |
| 40:DS:72:THR:HB | 40:DS:109:ASP:HB2 | 1.88 | 0.55 |
| 1:AA:1289:A:C2' | 1:AA:1290:G:H5' | 2.35 | 0.55 |
| 18:CS:30:LEU:HD12 | 18:CS:48:ILE:HG12 | 1.88 | 0.55 |
| 24:BV:77:VAL:HG12 | 34:BM:133:LYS:NZ | 2.21 | 0.55 |
| 22:BA:6:G:H2' | 22:BA:7:G:H8 | 1.69 | 0.55 |
| 23:DB:2213:U:O2 | 23:DB:2213:U:H2' | 2.07 | 0.55 |
| 1:AA:70:U:H1' | 1:AA:71:A:N7 | 2.22 | 0.55 |
| 1:AA:801:U:H2' | 1:AA:802:A:C8 | 2.42 | 0.55 |
| 23:DB:1444:G:H2' | 23:DB:1445:G:C8 | 2.40 | 0.55 |
| 6:AG:71:THR:O | 6:AG:72:VAL:HG13 | 2.06 | 0.55 |
| 1:AA:220:G:O2' | 1:AA:221:C:H5' | 2.06 | 0.55 |
| 1:CA:230:G:O2' | 1:CA:231:U:H5' | 2.07 | 0.55 |
| 1:CA:1157:A:H5' | 1:CA:1158:C:C6 | 2.42 | 0.55 |
| 29:BG:77:GLY:HA3 | 29:BG:135:ALA:O | 2.07 | 0.55 |
| 6:CG:106:ALA:HB1 | 6:CG:132:THR:OG1 | 2.07 | 0.55 |
| 10:CK:17:ASP:OD1 | 10:CK:36:ARG:HG3 | 2.06 | 0.55 |
| 23:BB:2138:G:H2' | 23:BB:2139:U:C6 | 2.42 | 0.55 |
| 23:DB:278:A:N3 | 23:DB:278:A:H2' | 2.20 | 0.55 |
| 23:DB:845:A:C6 | 23:DB:847:U:H1' | 2.42 | 0.55 |
| 23:DB:667:U:H2' | 23:DB:668:A:O4' | 2.07 | 0.55 |
| 1:AA:173:U:H5' | 1:AA:197:A:O4' | 2.07 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 4:AE:80:LEU:HB2 | 4:AE:97:PRO:HB3 | 1.87 | 0.55 |
| 37:DP:93:LYS:CG | 37:DP:96:LEU:HA | 2.26 | 0.55 |
| 27:DE:49:ARG:C | 27:DE:51:GLU:H | 2.09 | 0.55 |
| 43:DW:20:LEU:HD11 | 43:DW:31:LEU:HD12 | 1.88 | 0.55 |
| 25:BC:42:ARG:CG | 25:BC:43:ASN:N | 2.62 | 0.55 |
| 23:BB:856:G:H21 | 43:BW:22:VAL:HG11 | 1.72 | 0.55 |
| 33:BL:63:LYS:HB2 | 50:B3:11:LYS:HG3 | 1.87 | 0.55 |
| 23:BB:635:C:H3' | 33:BL:109:LYS:HZ1 | 1.70 | 0.55 |
| 33:BL:77:ILE:CB | 33:BL:110:VAL:HG22 | 2.31 | 0.55 |
| 23:BB:2265:U:H3' | 23:BB:2266:A:C5' | 2.36 | 0.55 |
| 32:BK:87:LEU:HA | 32:BK:95:ILE:H | 1.72 | 0.55 |
| 46:DZ:3:LYS:HD2 | 46:DZ:3:LYS:H | 1.72 | 0.55 |
| 34:BM:42:THR:O | 34:BM:44:ARG:N | 2.39 | 0.55 |
| 16:AQ:18:LYS:HA | 16:AQ:47:ASP:O | 2.07 | 0.55 |
| 8:AI:56:MET:HA | 8:AI:59:LYS:NZ | 2.22 | 0.55 |
| 39:BR:22:LEU:O | 39:BR:96:VAL:HG22 | 2.06 | 0.55 |
| 3:AD:115:GLN:HG3 | 3:AD:119:HIS:CE1 | 2.41 | 0.55 |
| 13:CN:68:ARG:NH2 | 13:CN:80:ARG:HH12 | 2.05 | 0.55 |
| 26:BD:48:ILE:HG13 | 26:BD:80:TRP:CD1 | 2.41 | 0.55 |
| 37:DP:59:THR:HA | 37:DP:76:HIS:HA | 1.89 | 0.55 |
| 32:DK:108:ARG:NH2 | 37:DP:36:LYS:H | 2.04 | 0.55 |
| 39:DR:41:ILE:O | 39:DR:43:ASN:N | 2.39 | 0.55 |
| 1:CA:16:A:N1 | 1:CA:919:A:H2 | 2.04 | 0.55 |
| 14:AO:78:THR:HA | 14:AO:81:ILE:HG12 | 1.89 | 0.55 |
| 20:AB:30:ILE:HA | 20:AB:39:ILE:O | 2.07 | 0.55 |
| 23:DB:741:U:H2' | 23:DB:742:A:C8 | 2.41 | 0.55 |
| 23:BB:2335:A:OP2 | 36:BO:9:ARG:HG3 | 2.07 | 0.55 |
| 1:CA:254:G:O2' | 1:CA:255:G:H5' | 2.07 | 0.55 |
| 41:BT:68:LYS:C | 41:BT:68:LYS:HD3 | 2.28 | 0.55 |
| 23:BB:2839:G:H2' | 23:BB:2840:C:C6 | 2.41 | 0.55 |
| 11:CL:120:ARG:HD3 | 11:CL:121:PRO:HD2 | 1.88 | 0.55 |
| 23:DB:2895:G:H2' | 23:DB:2896:C:H6 | 1.66 | 0.55 |
| 1:AA:279:A:H4' | 1:AA:280:C:OP2 | 2.06 | 0.55 |
| 1:AA:389:A:H2' | 1:AA:389:A:N3 | 2.22 | 0.55 |
| 23:BB:1405:U:H2' | 23:BB:1406:U:H6 | 1.71 | 0.55 |
| 48:B1:31:GLU:CG | 48:B1:32:LYS:H | 2.19 | 0.55 |
| 23:BB:1591:A:H2' | 23:BB:1592:C:C6 | 2.42 | 0.55 |
| 29:DG:79:THR:HG23 | 29:DG:80:GLU:N | 2.22 | 0.55 |
| 20:CB:205:ALA:HB3 | 20:CB:208:ALA:HB3 | 1.88 | 0.55 |
| 23:BB:280:U:H2' | 23:BB:281:C:C6 | 2.42 | 0.55 |
| 23:BB:329:G:O6 | 42:BU:16:LYS:HE2 | 2.07 | 0.55 |
| 12:CM:44:ILE:C | 12:CM:44:ILE:HD12 | 2.27 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 1:CA:1386:G:H2' | 1:CA:1387:G:C8 | 2.42 | 0.55 |
| 23:BB:2307:G:H4' | 23:BB:2311:A:N6 | 2.22 | 0.55 |
| 1:AA:521:G:OP2 | 11:AL:50:LYS:HE3 | 2.07 | 0.55 |
| 23:DB:1564:C:O2' | 23:DB:1565:C:H5' | 2.06 | 0.55 |
| 1:AA:219:U:H2' | 1:AA:220:G:C8 | 2.42 | 0.55 |
| 17:AR:21:ASP:OD2 | 17:AR:23:LYS:HG3 | 2.06 | 0.55 |
| 1:CA:1062:U:H2' | 1:CA:1063:C:C6 | 2.42 | 0.55 |
| 1:CA:1248:A:H2 | 8:CI:71:ILE:HD11 | 1.70 | 0.55 |
| 3:CD:78:ALA:HB1 | 3:CD:85:THR:HA | 1.88 | 0.55 |
| 52:BI:49:GLU:CG | 52:BI:54:ILE:HD11 | 2.37 | 0.55 |
| 23:DB:2216:G:H2' | 23:DB:2217:G:H8 | 1.72 | 0.55 |
| 23:BB:1904:G:O2' | 23:BB:1905:C:H5' | 2.06 | 0.55 |
| 23:DB:1432:G:O2' | 23:DB:1433:A:H5' | 2.07 | 0.55 |
| 23:BB:2236:U:H2' | 23:BB:2237:G:O4' | 2.07 | 0.55 |
| 1:AA:426:U:H2' | 1:AA:427:U:C6 | 2.41 | 0.55 |
| 10:AK:15:VAL:HG11 | 10:AK:35:ASP:HB2 | 1.88 | 0.55 |
| 23:DB:2848:G:H1' | 23:DB:2868:A:H61 | 1.72 | 0.55 |
| 42:BU:11:ILE:HG23 | 42:BU:20:LYS:O | 2.07 | 0.55 |
| 37:BP:1:SER:HA | 37:BP:4:ILE:HD12 | 1.88 | 0.55 |
| 37:BP:23:ASP:N | 37:BP:93:LYS:HE2 | 2.22 | 0.55 |
| 43:DW:47:GLY:CA | 43:DW:71:LYS:HB3 | 2.34 | 0.55 |
| 30:DH:4:ILE:HD13 | 30:DH:4:ILE:H | 1.71 | 0.55 |
| 43:BW:21:GLY:HA3 | 43:BW:32:ALA:CB | 2.36 | 0.55 |
| 39:DR:86:GLN:HG3 | 39:DR:87:GLN:HG2 | 1.89 | 0.55 |
| 20:AB:53:LEU:HD11 | 20:AB:216:VAL:HA | 1.87 | 0.55 |
| 42:DU:27:VAL:HG12 | 42:DU:33:VAL:HG22 | 1.87 | 0.55 |
| 30:BH:11:ASN:ND2 | 30:BH:12:LEU:N | 2.55 | 0.55 |
| 27:DE:112:LEU:HD12 | 27:DE:115:GLN:NE2 | 2.22 | 0.55 |
| 23:DB:2239:G:OP1 | 25:DC:246:PRO:HG3 | 2.07 | 0.55 |
| 13:AN:61:ASN:O | 13:AN:62:ARG:HB2 | 2.07 | 0.55 |
| 41:DT:48:GLN:HG3 | 41:DT:49:LYS:N | 2.21 | 0.55 |
| 41:DT:53:VAL:HA | 41:DT:93:LEU:HG | 1.88 | 0.55 |
| 8:AI:64:ILE:HD13 | 8:AI:78:ILE:CG2 | 2.37 | 0.55 |
| 31:DJ:44:TYR:CD1 | 31:DJ:45:THR:N | 2.71 | 0.55 |
| 23:BB:1131:G:C4' | 31:BJ:85:LYS:HZ2 | 2.20 | 0.55 |
| 28:BF:165:GLY:HA2 | 28:BF:168:LEU:HD21 | 1.88 | 0.55 |
| 22:DA:103:U:O2' | 22:DA:104:A:H5' | 2.07 | 0.55 |
| 9:CJ:40:ILE:HG13 | 9:CJ:73:LEU:HB3 | 1.89 | 0.55 |
| 16:CQ:68:LYS:O | 16:CQ:70:LYS:N | 2.40 | 0.55 |
| 23:BB:64:A:H2' | 23:BB:65:U:C6 | 2.42 | 0.55 |
| 3:CD:118:SER:HA | 3:CD:130:ASN:HB2 | 1.87 | 0.55 |
| 16:CQ:74:LEU:HD22 | 16:CQ:75:VAL:N | 2.22 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 11:CL:17:LYS:HZ2 | 11:CL:17:LYS:HB2 | 1.71 | 0.55 |
| 1:AA:1307:U:H2' | 1:AA:1308:U:C6 | 2.42 | 0.55 |
| 22:DA:76:G:H2' | 22:DA:77:U:C6 | 2.38 | 0.55 |
| 23:BB:1843:C:H5'' | 25:BC:252:LYS:HZ3 | 1.72 | 0.55 |
| 40:DS:58:ALA:O | 40:DS:62:ASP:HB3 | 2.06 | 0.55 |
| 23:BB:2093:G:O2' | 23:BB:2094:A:H5' | 2.07 | 0.55 |
| 25:BC:260:LYS:HB2 | 25:BC:261:ARG:HE | 1.71 | 0.55 |
| 29:DG:34:ARG:NH1 | 29:DG:70:LEU:HG | 2.22 | 0.55 |
| 1:CA:985:C:H2' | 1:CA:986:U:H6 | 1.71 | 0.55 |
| 23:DB:1351:C:O2' | 23:DB:1571:A:H1' | 2.06 | 0.55 |
| 42:DU:96:LYS:HD3 | 42:DU:97:SER:N | 2.21 | 0.55 |
| 16:CQ:23:ALA:C | 16:CQ:24:ILE:HD12 | 2.27 | 0.55 |
| 40:DS:85:ILE:HD13 | 40:DS:86:MET:N | 2.21 | 0.55 |
| 24:DV:26:PHE:HE2 | 24:DV:44:HIS:HA | 1.72 | 0.55 |
| 1:CA:1068:G:N7 | 1:CA:1094:G:H2' | 2.22 | 0.55 |
| 23:DB:1921:G:O2' | 23:DB:1922:G:H5' | 2.07 | 0.55 |
| 1:CA:454:G:O2' | 1:CA:455:G:H5' | 2.07 | 0.55 |
| 23:BB:866:A:H61 | 23:BB:913:U:C4' | 2.19 | 0.55 |
| 1:CA:118:U:O4 | 1:CA:288:A:H2' | 2.07 | 0.55 |
| 23:BB:62:U:H3' | 23:BB:63:A:H8 | 1.72 | 0.55 |
| 1:AA:415:A:H3' | 1:AA:416:G:H8 | 1.72 | 0.55 |
| 37:BP:112:ARG:HH11 | 37:BP:112:ARG:CA | 2.20 | 0.55 |
| 23:DB:2400:G:O2' | 23:DB:2401:U:H5' | 2.07 | 0.55 |
| 23:BB:1327:A:H2' | 23:BB:1328:A:O4' | 2.06 | 0.55 |
| 23:BB:235:U:H2' | 23:BB:236:C:C6 | 2.42 | 0.55 |
| 6:AG:99:ALA:O | 6:AG:103:ILE:HG13 | 2.07 | 0.55 |
| 3:AD:98:ASP:HB2 | 3:AD:132:ALA:HB1 | 1.88 | 0.55 |
| 25:BC:68:ARG:HH22 | 25:BC:190:THR:HG23 | 1.72 | 0.55 |
| 30:DH:5:LEU:HD13 | 30:DH:35:LYS:CE | 2.37 | 0.55 |
| 33:BL:77:ILE:HD12 | 33:BL:110:VAL:CG2 | 2.37 | 0.55 |
| 33:BL:77:ILE:CD1 | 33:BL:92:LEU:HD13 | 2.32 | 0.55 |
| 16:AQ:20:ILE:HG21 | 16:AQ:52:CYS:SG | 2.47 | 0.55 |
| 33:BL:39:LYS:CB | 33:BL:46:VAL:HG13 | 2.37 | 0.55 |
| 23:BB:994:C:H3' | 38:BQ:53:LYS:HE2 | 1.88 | 0.55 |
| 41:DT:31:VAL:HG13 | 41:DT:32:LEU:N | 2.16 | 0.55 |
| 31:DJ:41:LYS:NZ | 31:DJ:45:THR:HA | 2.22 | 0.55 |
| 28:BF:35:LEU:HD22 | 28:BF:56:LEU:HD21 | 1.88 | 0.55 |
| 25:BC:80:LEU:HA | 25:BC:91:ALA:HA | 1.89 | 0.55 |
| 20:CB:101:THR:HG22 | 20:CB:174:GLU:OE1 | 2.06 | 0.55 |
| 1:AA:132:C:H5'' | 19:AT:68:LYS:CE | 2.37 | 0.55 |
| 33:DL:109:LYS:O | 33:DL:110:VAL:HG13 | 2.07 | 0.55 |
| 26:BD:35:THR:CG2 | 26:BD:46:ARG:HH22 | 2.20 | 0.55 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:DB:2729:G:H2' | 23:DB:2730:C:H6 | 1.72 | 0.55 |
| 32:DK:64:ARG:HD3 | 32:DK:83:ALA:HB2 | 1.89 | 0.55 |
| 19:CT:66:ILE:HG23 | 19:CT:70:LYS:HG3 | 1.87 | 0.55 |
| 1:CA:1297:G:H4' | 1:CA:1298:U:H5' | 1.88 | 0.55 |
| 44:BX:38:GLN:O | 44:BX:39:GLN:HG3 | 2.07 | 0.55 |
| 45:BY:6:ILE:HD13 | 45:BY:6:ILE:N | 2.22 | 0.55 |
| 30:BH:121:VAL:HG21 | 30:BH:128:HIS:HE2 | 1.72 | 0.55 |
| 36:BO:12:THR:OG1 | 36:BO:13:ARG:HD2 | 2.07 | 0.55 |
| 48:B1:10:LEU:HD13 | 48:B1:25:ASN:HD22 | 1.71 | 0.55 |
| 23:DB:1300:G:H5' | 23:DB:1301:A:N3 | 2.22 | 0.55 |
| 23:BB:1439:A:C6 | 23:BB:1552:A:C5 | 2.95 | 0.55 |
| 23:DB:2228:G:H2' | 23:DB:2229:U:C6 | 2.42 | 0.55 |
| 1:CA:500:G:H5'' | 11:CL:120:ARG:HH21 | 1.71 | 0.55 |
| 23:BB:1300:G:H5' | 23:BB:1301:A:N3 | 2.22 | 0.55 |
| 1:AA:921:U:H2' | 1:AA:922:G:O4' | 2.07 | 0.55 |
| 13:CN:82:LYS:O | 13:CN:85:GLU:HB2 | 2.07 | 0.55 |
| 23:BB:607:U:O4 | 23:BB:620:G:H5'' | 2.07 | 0.55 |
| 15:AP:18:GLN:NE2 | 15:AP:35:ARG:HD2 | 2.22 | 0.55 |
| 22:DA:66:A:O2' | 22:DA:67:G:H8 | 1.90 | 0.55 |
| 29:DG:126:THR:HG23 | 29:DG:129:GLU:H | 1.72 | 0.55 |
| 12:CM:80:MET:HA | 12:CM:87:GLY:CA | 2.37 | 0.55 |
| 23:DB:1934:C:O2' | 23:DB:1935:G:H5' | 2.07 | 0.55 |
| 23:BB:2104:C:H2' | 23:BB:2105:U:H5 | 1.72 | 0.55 |
| 1:CA:1355:G:H2' | 1:CA:1356:G:C8 | 2.41 | 0.55 |
| 23:DB:106:C:H2' | 23:DB:107:G:H8 | 1.71 | 0.55 |
| 40:DS:86:MET:HG3 | 40:DS:87:PRO:HD2 | 1.89 | 0.55 |
| 2:CC:58:ARG:HA | 2:CC:63:ILE:HA | 1.88 | 0.55 |
| 23:DB:2553:G:H2' | 23:DB:2554:U:H4' | 1.89 | 0.55 |
| 22:BA:91:C:O2' | 22:BA:92:C:H5' | 2.07 | 0.55 |
| 6:CG:91:ARG:O | 6:CG:95:ARG:HG3 | 2.07 | 0.55 |
| 52:DI:102:ARG:HG3 | 52:DI:141:ASP:HB2 | 1.89 | 0.55 |
| 23:BB:1001:A:H2' | 23:BB:1002:G:O4' | 2.07 | 0.55 |
| 23:DB:1059:G:H4' | 52:DI:116:MET:HE2 | 1.89 | 0.55 |
| 1:AA:1494:G:O2' | 1:AA:1495:U:H5' | 2.06 | 0.55 |
| 24:DV:24:ASN:HB3 | 24:DV:45:ASP:OD1 | 2.06 | 0.55 |
| 1:AA:1033:G:H2' | 1:AA:1034:G:O4' | 2.07 | 0.55 |
| 3:CD:16:THR:HG22 | 3:CD:17:ASP:H | 1.71 | 0.55 |
| 23:DB:2843:G:O2' | 23:DB:2844:G:H5' | 2.07 | 0.55 |
| 1:CA:610:U:O4' | 1:CA:610:U:O2 | 2.25 | 0.55 |
| 7:AH:31:LEU:O | 7:AH:35:ILE:HG13 | 2.07 | 0.55 |
| 10:CK:106:ILE:HD11 | 10:CK:109:ILE:HG13 | 1.87 | 0.55 |
| 37:DP:47:ILE:HD13 | 37:DP:63:ILE:HG12 | 1.89 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 27:BE:49:ARG:NH1 | 27:BE:49:ARG:HB2 | 2.23 | 0.54 |
| 43:DW:36:ILE:HG21 | 43:DW:68:PHE:CE1 | 2.42 | 0.54 |
| 23:BB:1821:A:H5' | 25:BC:155:ARG:HD2 | 1.89 | 0.54 |
| 25:DC:37:SER:H | 25:DC:62:ARG:HB3 | 1.71 | 0.54 |
| 27:DE:164:LEU:HD22 | 27:DE:164:LEU:O | 2.06 | 0.54 |
| 23:BB:2575:C:H5'' | 26:BD:149:ASN:N | 2.22 | 0.54 |
| 35:DN:4:ARG:H | 35:DN:4:ARG:CZ | 2.19 | 0.54 |
| 3:AD:111:ALA:O | 3:AD:114:ARG:HB3 | 2.07 | 0.54 |
| 41:DT:92:ASN:O | 41:DT:93:LEU:HD12 | 2.06 | 0.54 |
| 23:BB:528:A:C2 | 23:BB:2043:C:H4' | 2.42 | 0.54 |
| 1:CA:1320:C:H41 | 18:CS:36:ARG:HG3 | 1.72 | 0.54 |
| 31:BJ:37:ARG:NH2 | 31:BJ:110:PRO:HG3 | 2.22 | 0.54 |
| 12:AM:3:ILE:HG23 | 12:AM:56:ARG:HG2 | 1.87 | 0.54 |
| 23:DB:635:C:H3' | 33:DL:126:ARG:HH21 | 1.73 | 0.54 |
| 33:DL:123:ARG:HA | 33:DL:142:ILE:HA | 1.88 | 0.54 |
| 22:DA:49:C:H2' | 22:DA:50:A:C8 | 2.42 | 0.54 |
| 21:CU:24:LYS:HB3 | 21:CU:24:LYS:NZ | 2.22 | 0.54 |
| 26:BD:167:ASN:N | 26:BD:167:ASN:HD22 | 2.04 | 0.54 |
| 50:D3:5:THR:O | 50:D3:5:THR:HG23 | 2.06 | 0.54 |
| 23:DB:2646:C:H2' | 23:DB:2647:U:O4' | 2.07 | 0.54 |
| 28:DF:140:ILE:N | 28:DF:140:ILE:HD12 | 2.17 | 0.54 |
| 52:BI:74:PRO:O | 52:BI:77:VAL:HG22 | 2.07 | 0.54 |
| 34:DM:101:VAL:HG12 | 34:DM:102:LEU:N | 2.21 | 0.54 |
| 33:BL:79:LEU:CA | 33:BL:113:ALA:HB3 | 2.37 | 0.54 |
| 23:DB:1022:G:N2 | 23:DB:1142:A:C2 | 2.75 | 0.54 |
| 1:AA:1110:A:H2' | 1:AA:1111:A:H5' | 1.89 | 0.54 |
| 1:CA:1077:G:N2 | 1:CA:1080:A:OP2 | 2.40 | 0.54 |
| 15:CP:28:ARG:HD3 | 15:CP:29:ASN:OD1 | 2.07 | 0.54 |
| 23:DB:810:U:C2 | 33:DL:37:GLY:HA2 | 2.43 | 0.54 |
| 14:CO:80:LEU:O | 14:CO:84:LEU:HD13 | 2.07 | 0.54 |
| 23:BB:2320:U:H3' | 23:BB:2321:U:H5' | 1.88 | 0.54 |
| 44:BX:38:GLN:H | 44:BX:38:GLN:HE21 | 1.54 | 0.54 |
| 52:DI:49:GLU:CB | 52:DI:52:LEU:HD12 | 2.37 | 0.54 |
| 6:CG:134:VAL:O | 6:CG:138:GLU:HG3 | 2.06 | 0.54 |
| 41:DT:34:VAL:HG22 | 41:DT:35:ALA:N | 2.20 | 0.54 |
| 32:DK:43:ILE:H | 32:DK:43:ILE:CD1 | 2.19 | 0.54 |
| 30:DH:113:SER:HB2 | 30:DH:132:PHE:CZ | 2.42 | 0.54 |
| 31:DJ:120:ARG:N | 31:DJ:121:LYS:HZ2 | 2.05 | 0.54 |
| 31:DJ:120:ARG:HB3 | 31:DJ:121:LYS:NZ | 2.22 | 0.54 |
| 48:D1:5:ARG:HA | 48:D1:28:THR:OG1 | 2.07 | 0.54 |
| 23:DB:1773:A:N6 | 25:DC:206:LYS:HE2 | 2.22 | 0.54 |
| 4:CE:108:GLY:O | 4:CE:111:ARG:HB3 | 2.06 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:BB:26:G:H1' | 23:BB:514:A:H61 | 1.70 | 0.54 |
| 23:BB:1774:C:C2' | 23:BB:1774:C:O2 | 2.54 | 0.54 |
| 23:BB:729:G:H4' | 23:BB:763:G:H5' | 1.88 | 0.54 |
| 23:BB:764:A:H5'' | 25:BC:208:GLY:CA | 2.37 | 0.54 |
| 17:CR:54:LEU:O | 17:CR:58:ILE:HG13 | 2.07 | 0.54 |
| 23:BB:593:U:H2' | 23:BB:594:U:C6 | 2.41 | 0.54 |
| 1:CA:598:U:H4' | 7:CH:85:TYR:CD2 | 2.43 | 0.54 |
| 30:BH:69:ALA:HB2 | 30:BH:139:PHE:O | 2.07 | 0.54 |
| 23:BB:1565:C:OP1 | 25:BC:23:LEU:HD23 | 2.08 | 0.54 |
| 23:BB:372:G:N2 | 23:BB:401:A:OP2 | 2.35 | 0.54 |
| 29:DG:123:GLU:HG2 | 29:DG:131:VAL:HG13 | 1.89 | 0.54 |
| 23:BB:1637:A:H2' | 23:BB:1638:C:H6 | 1.73 | 0.54 |
| 23:DB:1400:U:H2' | 23:DB:1401:G:C8 | 2.41 | 0.54 |
| 23:DB:191:A:O2' | 23:DB:192:C:H5' | 2.08 | 0.54 |
| 52:DI:99:LYS:HD3 | 52:DI:99:LYS:H | 1.71 | 0.54 |
| 23:BB:1166:G:H2' | 23:BB:1167:C:C6 | 2.43 | 0.54 |
| 1:AA:118:U:O4 | 1:AA:288:A:H2' | 2.07 | 0.54 |
| 28:BF:37:MET:HG2 | 28:BF:86:CYS:HB2 | 1.89 | 0.54 |
| 23:DB:2097:A:H2' | 23:DB:2098:U:C6 | 2.42 | 0.54 |
| 23:BB:1921:G:O2' | 23:BB:1922:G:H5' | 2.07 | 0.54 |
| 13:AN:33:VAL:HG23 | 13:AN:40:ARG:NH2 | 2.23 | 0.54 |
| 16:CQ:83:LEU:HD22 | 16:CQ:83:LEU:N | 2.22 | 0.54 |
| 23:DB:1291:C:O2' | 23:DB:1292:G:H5' | 2.07 | 0.54 |
| 42:BU:13:LEU:HG | 42:BU:69:VAL:HG22 | 1.89 | 0.54 |
| 42:BU:33:VAL:HG21 | 42:BU:66:VAL:HA | 1.89 | 0.54 |
| 30:DH:2:GLN:HB2 | 30:DH:19:VAL:HA | 1.89 | 0.54 |
| 47:D0:52:LYS:HE2 | 47:D0:53:VAL:HB | 1.89 | 0.54 |
| 32:BK:98:ARG:HA | 32:BK:118:LEU:HD22 | 1.89 | 0.54 |
| 46:DZ:47:LYS:HD2 | 46:DZ:52:ALA:HA | 1.89 | 0.54 |
| 23:BB:2467:C:C1' | 34:BM:118:LYS:HG2 | 2.37 | 0.54 |
| 34:BM:40:ARG:HD3 | 34:BM:92:TRP:HB3 | 1.90 | 0.54 |
| 23:BB:2053:G:OP1 | 26:BD:149:ASN:C | 2.44 | 0.54 |
| 1:AA:254:G:O2' | 1:AA:255:G:H5' | 2.07 | 0.54 |
| 5:CF:92:THR:HG22 | 5:CF:93:LYS:H | 1.73 | 0.54 |
| 41:DT:66:LYS:HD2 | 41:DT:67:VAL:N | 2.22 | 0.54 |
| 40:BS:44:ALA:O | 40:BS:47:VAL:HG22 | 2.07 | 0.54 |
| 31:DJ:37:ARG:CZ | 31:DJ:110:PRO:HG3 | 2.37 | 0.54 |
| 28:BF:52:ALA:HA | 28:BF:148:VAL:HG13 | 1.90 | 0.54 |
| 34:DM:43:ALA:HB2 | 34:DM:69:PRO:HG3 | 1.89 | 0.54 |
| 39:BR:39:LEU:O | 39:BR:54:VAL:HG12 | 2.06 | 0.54 |
| 27:BE:143:LEU:CG | 27:BE:185:LYS:HD2 | 2.33 | 0.54 |
| 51:B4:25:VAL:HB | 51:B4:33:HIS:C | 2.26 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 10:AK:109:ILE:CG2 | 21:AU:16:ARG:HD2 | 2.37 | 0.54 |
| 30:DH:87:GLU:HB2 | 30:DH:89:LYS:HZ2 | 1.71 | 0.54 |
| 1:CA:1217:C:H2' | 1:CA:1218:C:C6 | 2.41 | 0.54 |
| 38:BQ:52:ARG:NH1 | 38:BQ:55:GLN:HE21 | 2.05 | 0.54 |
| 23:BB:559:G:H1' | 38:BQ:55:GLN:HE22 | 1.72 | 0.54 |
| 23:BB:2512:C:H2' | 23:BB:2513:A:O4' | 2.07 | 0.54 |
| 23:DB:1259:G:H2' | 23:DB:1260:A:H8 | 1.73 | 0.54 |
| 33:DL:58:TYR:HA | 33:DL:62:PRO:HD3 | 1.89 | 0.54 |
| 44:DX:22:LEU:HD22 | 44:DX:25:GLN:OE1 | 2.07 | 0.54 |
| 23:BB:2646:C:H2' | 23:BB:2647:U:O4' | 2.07 | 0.54 |
| 5:AF:29:ILE:HD13 | 5:AF:64:VAL:HG11 | 1.88 | 0.54 |
| 15:AP:52:LEU:HG | 15:AP:75:ILE:HG12 | 1.89 | 0.54 |
| 23:DB:1083:U:H1' | 23:DB:1086:A:N6 | 2.22 | 0.54 |
| 23:DB:1005:C:H2' | 23:DB:1006:C:H6 | 1.72 | 0.54 |
| 5:CF:86:ARG:HH11 | 17:CR:63:TYR:HB3 | 1.72 | 0.54 |
| 25:BC:70:LYS:HE3 | 25:BC:95:TYR:CD2 | 2.43 | 0.54 |
| 29:BG:154:GLU:OE1 | 29:BG:156:TYR:HB2 | 2.07 | 0.54 |
| 12:AM:95:PRO:HD3 | 12:AM:108:ARG:HG2 | 1.89 | 0.54 |
| 23:DB:554:U:H2' | 23:DB:555:G:O4' | 2.08 | 0.54 |
| 23:DB:593:U:H2' | 23:DB:594:U:C6 | 2.42 | 0.54 |
| 23:BB:2292:U:H2' | 23:BB:2293:G:H8 | 1.73 | 0.54 |
| 1:AA:98:A:H2' | 1:AA:99:C:C6 | 2.42 | 0.54 |
| 1:AA:123:U:OP1 | 1:AA:312:C:H5' | 2.07 | 0.54 |
| 22:BA:76:G:H2' | 22:BA:77:U:C6 | 2.42 | 0.54 |
| 29:DG:29:ASN:HB2 | 29:DG:78:VAL:O | 2.08 | 0.54 |
| 23:BB:1227:G:O2' | 23:BB:1228:G:H5' | 2.08 | 0.54 |
| 1:CA:801:U:H2' | 1:CA:802:A:C8 | 2.42 | 0.54 |
| 23:DB:1637:A:H2' | 23:DB:1638:C:H6 | 1.72 | 0.54 |
| 23:DB:20:C:H2' | 23:DB:21:A:H8 | 1.72 | 0.54 |
| 28:BF:7:TYR:HA | 28:BF:11:VAL:HB | 1.90 | 0.54 |
| 1:CA:1064:G:H4' | 1:CA:1065:U:OP1 | 2.06 | 0.54 |
| 23:DB:184:C:H2' | 23:DB:185:G:H8 | 1.71 | 0.54 |
| 1:AA:915:A:H2' | 1:AA:916:U:H5' | 1.89 | 0.54 |
| 23:DB:696:G:O2' | 23:DB:697:G:H5' | 2.07 | 0.54 |
| 23:DB:611:C:H2' | 23:DB:612:G:O4' | 2.07 | 0.54 |
| 1:CA:1476:A:H2' | 1:CA:1477:U:O4' | 2.07 | 0.54 |
| 23:DB:1904:G:O2' | 23:DB:1905:C:H5' | 2.07 | 0.54 |
| 20:CB:76:SER:O | 20:CB:80:LYS:HG2 | 2.06 | 0.54 |
| 23:BB:1028:A:H2' | 23:BB:1029:A:C8 | 2.42 | 0.54 |
| 1:AA:944:G:H1' | 1:AA:1339:A:N6 | 2.23 | 0.54 |
| 36:DO:18:LEU:HD13 | 43:DW:76:ARG:HH21 | 1.73 | 0.54 |
| 43:DW:56:HIS:CD2 | 43:DW:57:THR:H | 2.24 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 25:BC:119:VAL:HG22 | 25:BC:130:PRO:HG2 | 1.89 | 0.54 |
| 23:BB:1819:A:OP1 | 25:BC:153:LEU:HB2 | 2.08 | 0.54 |
| 23:BB:1821:A:H5' | 25:BC:155:ARG:NH2 | 2.22 | 0.54 |
| 43:BW:47:GLY:O | 43:BW:54:ARG:HA | 2.08 | 0.54 |
| 23:BB:633:A:C2' | 23:BB:634:C:H5' | 2.37 | 0.54 |
| 23:DB:136:G:H2' | 23:DB:137:U:H6 | 1.69 | 0.54 |
| 23:DB:1796:U:H2' | 23:DB:1797:G:H8 | 1.73 | 0.54 |
| 8:AI:17:ARG:O | 8:AI:64:ILE:HA | 2.08 | 0.54 |
| 39:BR:5:PHE:HA | 39:BR:40:MET:HG2 | 1.88 | 0.54 |
| 13:AN:79:SER:O | 13:AN:81:ILE:HD12 | 2.07 | 0.54 |
| 20:CB:96:LEU:HB2 | 20:CB:99:MET:CG | 2.38 | 0.54 |
| 12:AM:38:ILE:HG13 | 12:AM:55:LEU:HD21 | 1.89 | 0.54 |
| 40:BS:38:TYR:CZ | 47:B0:37:HIS:HA | 2.42 | 0.54 |
| 27:BE:141:MET:O | 27:BE:143:LEU:HD22 | 2.08 | 0.54 |
| 43:DW:19:ARG:CZ | 43:DW:19:ARG:HB2 | 2.37 | 0.54 |
| 26:DD:184:ARG:HD2 | 37:DP:4:ILE:CG2 | 2.38 | 0.54 |
| 26:DD:35:THR:HB | 26:DD:48:ILE:CB | 2.36 | 0.54 |
| 49:B2:44:VAL:HG23 | 49:B2:45:SER:N | 2.16 | 0.54 |
| 26:BD:52:THR:HG22 | 26:BD:76:GLY:N | 2.23 | 0.54 |
| 45:DY:2:LYS:H | 45:DY:37:ARG:CB | 2.20 | 0.54 |
| 32:DK:115:ILE:HG23 | 32:DK:116:ILE:N | 2.22 | 0.54 |
| 39:DR:41:ILE:HG23 | 39:DR:43:ASN:HB2 | 1.88 | 0.54 |
| 13:AN:30:ILE:HG21 | 13:AN:44:VAL:HG21 | 1.89 | 0.54 |
| 23:BB:288:U:O2' | 23:BB:289:G:H5' | 2.08 | 0.54 |
| 1:AA:235:C:H2' | 1:AA:236:A:C8 | 2.43 | 0.54 |
| 19:CT:2:ASN:O | 19:CT:4:LYS:N | 2.40 | 0.54 |
| 23:DB:2271:G:O2' | 23:DB:2272:U:H5' | 2.07 | 0.54 |
| 23:DB:1488:C:O2' | 23:DB:1489:C:H5' | 2.08 | 0.54 |
| 23:DB:1430:G:H2' | 23:DB:1431:A:C8 | 2.43 | 0.54 |
| 6:AG:67:ASN:ND2 | 6:AG:127:ALA:HA | 2.20 | 0.54 |
| 23:BB:2840:C:H2' | 23:BB:2841:C:H6 | 1.72 | 0.54 |
| 2:AC:149:LYS:HB3 | 2:AC:200:TRP:HB2 | 1.90 | 0.54 |
| 11:AL:87:LYS:NZ | 11:AL:87:LYS:HA | 2.21 | 0.54 |
| 12:CM:79:LEU:HD12 | 12:CM:80:MET:N | 2.22 | 0.54 |
| 23:BB:2527:C:H1' | 51:B4:1:MET:CB | 2.38 | 0.54 |
| 1:CA:1524:C:H2' | 1:CA:1525:G:C8 | 2.43 | 0.54 |
| 1:CA:1131:G:C2' | 1:CA:1132:C:H5' | 2.36 | 0.54 |
| 20:AB:186:VAL:HG22 | 20:AB:198:VAL:HG23 | 1.89 | 0.54 |
| 36:DO:90:VAL:HG12 | 36:DO:91:SER:N | 2.23 | 0.54 |
| 1:CA:22:G:H2' | 1:CA:23:C:H6 | 1.73 | 0.54 |
| 12:AM:5:GLY:O | 12:AM:6:ILE:HG12 | 2.07 | 0.54 |
| 15:AP:31:ARG:HH11 | 15:AP:31:ARG:HG3 | 1.72 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 44:DX:1:MET:CB | 44:DX:6:LEU:HG | 2.37 | 0.54 |
| 23:BB:2398:U:H2' | 23:BB:2399:G:C8 | 2.42 | 0.54 |
| 23:BB:1121:C:H2' | 23:BB:1122:G:O4' | 2.07 | 0.54 |
| 23:BB:802:A:H4' | 55:BB:3474:HOH:O | 2.08 | 0.54 |
| 31:BJ:15:TRP:HA | 31:BJ:53:TYR:O | 2.07 | 0.54 |
| 1:AA:777:A:H2' | 1:AA:778:G:H8 | 1.72 | 0.54 |
| 23:BB:1480:C:H2' | 23:BB:1481:U:C6 | 2.42 | 0.54 |
| 1:AA:971:G:OP1 | 1:AA:971:G:H3' | 2.07 | 0.54 |
| 26:BD:12:THR:OG1 | 26:BD:14:ILE:HG12 | 2.06 | 0.54 |
| 26:DD:83:ARG:O | 26:DD:84:LEU:HB2 | 2.07 | 0.54 |
| 1:AA:1220:G:H2' | 1:AA:1221:G:H8 | 1.72 | 0.54 |
| 30:BH:4:ILE:C | 30:BH:37:VAL:HG12 | 2.27 | 0.54 |
| 27:DE:193:VAL:HA | 27:DE:198:GLU:C | 2.28 | 0.54 |
| 41:DT:15:HIS:H | 41:DT:32:LEU:HA | 1.73 | 0.54 |
| 8:AI:38:PHE:O | 8:AI:44:ARG:HG2 | 2.08 | 0.54 |
| 8:AI:51:LEU:HD23 | 8:AI:56:MET:HE1 | 1.90 | 0.54 |
| 23:DB:851:C:H2' | 23:DB:852:U:H6 | 1.73 | 0.54 |
| 5:CF:6:ILE:HD12 | 5:CF:7:VAL:N | 2.22 | 0.54 |
| 33:DL:92:LEU:HA | 33:DL:96:LYS:CD | 2.37 | 0.54 |
| 41:BT:32:LEU:C | 41:BT:34:VAL:H | 2.11 | 0.54 |
| 21:CU:4:LYS:HB3 | 21:CU:6:ARG:NH1 | 2.12 | 0.54 |
| 23:DB:512:G:H4' | 23:DB:512:G:OP1 | 2.07 | 0.54 |
| 23:BB:1639:C:H2' | 23:BB:1640:A:C5' | 2.33 | 0.54 |
| 23:DB:1287:A:O2' | 23:DB:1288:G:H5' | 2.08 | 0.54 |
| 23:DB:2839:G:H4' | 35:DN:49:GLU:CG | 2.30 | 0.54 |
| 8:CI:51:LEU:HB3 | 8:CI:56:MET:CG | 2.34 | 0.54 |
| 36:BO:16:ARG:HG3 | 36:BO:20:GLU:HG3 | 1.90 | 0.54 |
| 23:BB:1024:G:C3' | 23:BB:1025:G:H5'' | 2.34 | 0.54 |
| 2:AC:78:LYS:CG | 2:AC:81:GLU:HB2 | 2.34 | 0.54 |
| 2:AC:46:LEU:HD11 | 2:AC:86:LEU:HD21 | 1.90 | 0.54 |
| 23:BB:272:A:H2' | 23:BB:273:G:H8 | 1.72 | 0.54 |
| 23:DB:354:A:H2' | 23:DB:355:U:H6 | 1.69 | 0.54 |
| 29:BG:172:GLU:O | 29:BG:173:ALA:HB2 | 2.07 | 0.54 |
| 23:DB:2070:A:H2' | 23:DB:2071:A:C8 | 2.43 | 0.54 |
| 23:DB:580:U:H2' | 23:DB:581:C:H6 | 1.70 | 0.54 |
| 11:CL:49:ARG:CG | 11:CL:89:LEU:HD21 | 2.36 | 0.54 |
| 1:CA:415:A:H3' | 1:CA:416:G:H8 | 1.73 | 0.54 |
| 1:CA:499:A:H4' | 1:CA:500:G:OP1 | 2.06 | 0.54 |
| 9:CJ:65:TYR:HE1 | 13:CN:84:ARG:HA | 1.72 | 0.54 |
| 9:CJ:65:TYR:OH | 13:CN:84:ARG:HG3 | 2.07 | 0.54 |
| 2:CC:133:MET:HE1 | 2:CC:165:GLU:HB3 | 1.89 | 0.54 |
| 23:DB:2556:C:H2' | 23:DB:2557:G:O4' | 2.08 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 1:CA:1216:A:H5'' | 13:CN:4:SER:HB2 | 1.90 | 0.54 |
| 3:CD:160:LEU:HD22 | 3:CD:160:LEU:O | 2.07 | 0.54 |
| 23:DB:2405:G:H4' | 33:DL:70:LYS:HE3 | 1.90 | 0.54 |
| 1:CA:1118:U:O2' | 1:CA:1119:C:H5' | 2.07 | 0.54 |
| 1:AA:936:C:H1' | 1:AA:1382:C:H42 | 1.72 | 0.54 |
| 15:CP:40:ASN:ND2 | 15:CP:42:ILE:HG12 | 2.22 | 0.54 |
| 1:CA:979:C:H2' | 1:CA:980:C:O4' | 2.07 | 0.54 |
| 27:DE:75:SER:OG | 27:DE:77:ILE:HG22 | 2.07 | 0.54 |
| 23:DB:2398:U:H2' | 23:DB:2399:G:C8 | 2.42 | 0.54 |
| 23:DB:607:U:O4 | 23:DB:620:G:H5'' | 2.07 | 0.54 |
| 1:CA:1030:U:O2' | 1:CA:1031:C:P | 2.65 | 0.54 |
| 23:BB:926:G:H2' | 23:BB:927:A:C8 | 2.42 | 0.54 |
| 23:DB:70:G:H3' | 23:DB:113:U:H4' | 1.89 | 0.54 |
| 50:B3:59:ALA:O | 50:B3:60:CYS:HB2 | 2.07 | 0.54 |
| 8:AI:99:LYS:HD3 | 8:AI:100:ALA:N | 2.21 | 0.54 |
| 1:CA:128:G:H2' | 1:CA:129:A:C8 | 2.43 | 0.54 |
| 23:BB:1166:G:H2' | 23:BB:1167:C:H6 | 1.73 | 0.54 |
| 23:BB:611:C:H2' | 23:BB:612:G:O4' | 2.07 | 0.54 |
| 23:BB:2843:G:O2' | 23:BB:2844:G:H5' | 2.08 | 0.54 |
| 1:CA:173:U:H5' | 1:CA:197:A:O4' | 2.07 | 0.54 |
| 15:AP:8:ARG:HE | 15:AP:15:PRO:HB3 | 1.72 | 0.54 |
| 1:AA:230:G:O2' | 1:AA:231:U:H5' | 2.07 | 0.54 |
| 15:AP:33:ILE:HD12 | 15:AP:33:ILE:N | 2.21 | 0.54 |
| 23:DB:1480:C:H2' | 23:DB:1481:U:C6 | 2.43 | 0.54 |
| 1:AA:1380:U:O4 | 6:AG:2:ARG:HA | 2.07 | 0.54 |
| 4:AE:156:ARG:HD3 | 7:AH:42:GLU:O | 2.07 | 0.54 |
| 52:BI:23:VAL:HG23 | 52:BI:24:GLY:H | 1.71 | 0.54 |
| 52:DI:5:GLN:O | 52:DI:6:ALA:HB3 | 2.07 | 0.54 |
| 23:DB:95:A:O2' | 44:DX:41:HIS:HA | 2.08 | 0.54 |
| 42:BU:33:VAL:HG12 | 42:BU:35:VAL:CG2 | 2.38 | 0.54 |
| 23:BB:36:G:H2' | 23:BB:37:C:O4' | 2.08 | 0.54 |
| 25:BC:124:LYS:O | 25:BC:191:LEU:HD13 | 2.07 | 0.54 |
| 26:DD:60:VAL:HG23 | 26:DD:63:PRO:CG | 2.33 | 0.54 |
| 36:BO:41:ALA:HB3 | 36:BO:45:SER:O | 2.07 | 0.54 |
| 23:DB:535:G:O2' | 23:DB:536:G:H5' | 2.08 | 0.54 |
| 20:AB:53:LEU:HD21 | 20:AB:212:TYR:CE2 | 2.42 | 0.54 |
| 23:BB:649:G:N2 | 50:B3:44:ARG:HH22 | 2.06 | 0.54 |
| 23:BB:250:G:OP2 | 50:B3:7:ARG:HD3 | 2.08 | 0.54 |
| 23:BB:480:A:H4' | 42:BU:42:LYS:CG | 2.32 | 0.54 |
| 35:BN:29:VAL:HB | 35:BN:75:ILE:HG12 | 1.89 | 0.54 |
| 38:BQ:88:GLU:HA | 39:BR:53:PHE:CE1 | 2.42 | 0.54 |
| 13:AN:66:THR:HG23 | 13:AN:67:GLY:N | 2.22 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 47:B0:42:ILE:HG12 | 47:B0:43:THR:N | 2.22 | 0.54 |
| 1:CA:266:G:HO2' | 1:CA:267:C:H3' | 1.73 | 0.54 |
| 41:BT:30:ILE:CG2 | 41:BT:31:VAL:N | 2.70 | 0.54 |
| 23:DB:2025:C:P | 26:DD:154:LYS:HE3 | 2.47 | 0.54 |
| 23:DB:160:A:H2' | 23:DB:161:A:C8 | 2.42 | 0.54 |
| 22:DA:102:G:H2' | 22:DA:103:U:H6 | 1.72 | 0.54 |
| 39:DR:40:MET:CG | 39:DR:54:VAL:HG13 | 2.36 | 0.54 |
| 23:BB:705:A:H61 | 23:BB:726:G:H1' | 1.73 | 0.54 |
| 1:CA:108:G:C6 | 19:CT:9:ARG:HG2 | 2.41 | 0.54 |
| 13:AN:30:ILE:CD1 | 13:AN:30:ILE:H | 2.18 | 0.54 |
| 2:AC:183:TYR:HA | 2:AC:199:VAL:O | 2.07 | 0.54 |
| 6:CG:22:LEU:O | 6:CG:26:VAL:HG13 | 2.06 | 0.54 |
| 23:BB:233:A:N6 | 23:BB:428:A:H61 | 2.06 | 0.54 |
| 30:BH:73:ASN:HD22 | 30:BH:74:ALA:H | 1.55 | 0.54 |
| 23:DB:1487:U:H2' | 23:DB:1488:C:H6 | 1.73 | 0.54 |
| 3:CD:2:ARG:HA | 3:CD:2:ARG:HE | 1.73 | 0.54 |
| 23:DB:1591:A:H2' | 23:DB:1592:C:C6 | 2.42 | 0.54 |
| 23:BB:2556:C:H2' | 23:BB:2557:G:O4' | 2.08 | 0.54 |
| 3:AD:25:ARG:NH1 | 3:AD:30:LYS:HG2 | 2.23 | 0.54 |
| 20:CB:86:CYS:HB3 | 20:CB:88:GLN:HG3 | 1.90 | 0.54 |
| 23:BB:718:A:H3' | 23:BB:719:C:C6 | 2.41 | 0.54 |
| 1:CA:539:A:H2' | 1:CA:540:G:H8 | 1.73 | 0.54 |
| 23:DB:431:U:O2' | 23:DB:432:A:H5' | 2.08 | 0.54 |
| 34:DM:96:ILE:HG22 | 34:DM:97:GLN:NE2 | 2.22 | 0.54 |
| 3:CD:151:GLN:HE21 | 3:CD:153:ARG:HD2 | 1.73 | 0.54 |
| 23:BB:1097:U:C2' | 23:BB:1098:A:H5' | 2.36 | 0.54 |
| 23:BB:1559:U:H3' | 23:BB:1560:G:H5' | 1.88 | 0.54 |
| 35:BN:107:ASN:HD21 | 40:BS:40:ASN:CG | 2.11 | 0.54 |
| 23:BB:1946:U:H2' | 23:BB:1947:C:C6 | 2.43 | 0.54 |
| 23:BB:877:A:C2 | 23:BB:900:A:N7 | 2.76 | 0.54 |
| 1:CA:337:G:H2' | 1:CA:338:A:C8 | 2.43 | 0.54 |
| 3:CD:55:ARG:HG3 | 3:CD:55:ARG:NH1 | 2.20 | 0.54 |
| 23:BB:1013:C:H2' | 23:BB:1014:A:C8 | 2.42 | 0.54 |
| 23:BB:2218:G:H2' | 23:BB:2219:U:C6 | 2.43 | 0.54 |
| 22:BA:15:A:H1' | 22:BA:109:A:C8 | 2.43 | 0.54 |
| 23:DB:1168:G:O2' | 23:DB:1169:A:H5' | 2.07 | 0.54 |
| 23:BB:2704:C:H2' | 23:BB:2705:A:O4' | 2.07 | 0.54 |
| 2:AC:96:VAL:HB | 2:AC:97:PRO:HD2 | 1.88 | 0.54 |
| 6:CG:136:LYS:O | 6:CG:140:VAL:HG23 | 2.07 | 0.54 |
| 23:BB:1667:G:OP1 | 32:BK:6:THR:HA | 2.07 | 0.54 |
| 1:CA:930:C:H2' | 1:CA:931:C:C6 | 2.41 | 0.54 |
| 1:CA:777:A:H2' | 1:CA:778:G:H8 | 1.72 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 1:AA:454:G:O2' | 1:AA:455:G:H5' | 2.07 | 0.54 |
| 23:DB:2849:U:H4' | 23:DB:2850:A:C5' | 2.37 | 0.54 |
| 37:DP:78:PRO:O | 37:DP:79:VAL:HG22 | 2.07 | 0.54 |
| 27:BE:43:THR:O | 27:BE:89:PRO:HA | 2.07 | 0.54 |
| 37:BP:61:ARG:NH2 | 37:BP:75:THR:HB | 2.22 | 0.54 |
| 25:BC:141:HIS:CG | 25:BC:190:THR:HB | 2.42 | 0.54 |
| 25:BC:67:LYS:CG | 25:BC:68:ARG:H | 2.14 | 0.54 |
| 33:BL:117:THR:HG21 | 33:BL:120:VAL:CB | 2.37 | 0.54 |
| 15:AP:46:LYS:HD3 | 15:AP:46:LYS:H | 1.73 | 0.54 |
| 32:BK:119:ALA:N | 32:BK:120:PRO:HD3 | 2.23 | 0.54 |
| 34:BM:73:ILE:HD11 | 34:BM:92:TRP:HB2 | 1.89 | 0.54 |
| 1:AA:405:U:O4 | 3:AD:1:ALA:HA | 2.07 | 0.54 |
| 35:BN:83:LEU:HA | 35:BN:86:ARG:HD3 | 1.88 | 0.54 |
| 31:BJ:41:LYS:O | 38:BQ:66:ALA:HB1 | 2.08 | 0.54 |
| 24:BV:63:ILE:O | 24:BV:65:VAL:HG22 | 2.07 | 0.54 |
| 41:BT:84:TYR:O | 41:BT:85:VAL:HG22 | 2.08 | 0.54 |
| 26:BD:128:ARG:HD3 | 26:BD:142:VAL:O | 2.08 | 0.54 |
| 3:CD:196:GLU:O | 3:CD:199:ILE:HG23 | 2.06 | 0.54 |
| 3:CD:58:GLN:NE2 | 3:CD:58:GLN:HA | 2.16 | 0.54 |
| 23:DB:26:G:H2' | 23:DB:27:G:C1' | 2.37 | 0.54 |
| 4:CE:19:ARG:CG | 4:CE:20:VAL:H | 2.13 | 0.54 |
| 31:DJ:23:LYS:C | 31:DJ:25:LEU:HD13 | 2.28 | 0.54 |
| 23:BB:1430:G:H2' | 23:BB:1431:A:C8 | 2.43 | 0.54 |
| 1:CA:1296:C:H4' | 1:CA:1302:C:C4 | 2.43 | 0.54 |
| 35:BN:12:ARG:HD3 | 35:BN:20:MET:HG3 | 1.90 | 0.54 |
| 35:DN:70:THR:HG22 | 35:DN:72:ASP:N | 2.23 | 0.54 |
| 30:BH:83:LYS:HG3 | 1:CA:360:G:OP1 | 2.07 | 0.54 |
| 26:BD:58:ASN:O | 26:BD:59:ARG:HB2 | 2.07 | 0.54 |
| 48:B1:9:LYS:HG2 | 50:B3:34:LYS:NZ | 2.23 | 0.54 |
| 30:DH:75:LEU:N | 30:DH:75:LEU:HD23 | 2.22 | 0.54 |
| 23:BB:533:G:H5' | 38:BQ:23:TYR:CD1 | 2.43 | 0.54 |
| 1:AA:1281:C:H5' | 1:AA:1282:C:H5 | 1.73 | 0.54 |
| 23:BB:1593:A:H2' | 23:BB:1594:U:C6 | 2.42 | 0.54 |
| 19:AT:49:ALA:O | 19:AT:52:GLU:HB3 | 2.08 | 0.54 |
| 23:BB:1210:G:H5'' | 23:BB:1211:C:O5' | 2.07 | 0.54 |
| 1:CA:766:A:H2 | 1:CA:1525:G:N3 | 2.06 | 0.54 |
| 1:AA:1391:U:H2' | 1:AA:1392:G:H8 | 1.72 | 0.54 |
| 11:AL:106:VAL:CG2 | 11:AL:116:TYR:HB3 | 2.38 | 0.54 |
| 2:CC:51:VAL:HG11 | 2:CC:67:ILE:HD11 | 1.89 | 0.54 |
| 27:DE:77:ILE:HG23 | 27:DE:78:TRP:HD1 | 1.73 | 0.54 |
| 1:AA:1527:U:O2' | 1:AA:1528:U:H5' | 2.07 | 0.54 |
| 1:AA:1452:C:H4' | 1:AA:1453:G:C5' | 2.37 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 1:CA:476:U:H2' | 1:CA:477:C:H6 | 1.73 | 0.54 |
| 23:DB:663:G:OP1 | 33:DL:27:LEU:HD13 | 2.08 | 0.54 |
| 23:DB:2666:C:O4' | 23:DB:2666:C:O2 | 2.24 | 0.54 |
| 23:DB:2704:C:H2' | 23:DB:2705:A:O4' | 2.07 | 0.54 |
| 36:BO:91:SER:HB2 | 36:BO:115:LEU:HG | 1.89 | 0.54 |
| 2:AC:40:GLN:NE2 | 2:AC:44:LYS:HD2 | 2.22 | 0.54 |
| 1:CA:1487:G:O2' | 1:CA:1488:G:H5' | 2.07 | 0.54 |
| 40:BS:86:MET:HB2 | 40:BS:96:ILE:CD1 | 2.38 | 0.54 |
| 43:DW:4:LYS:HZ2 | 43:DW:4:LYS:H | 1.54 | 0.54 |
| 23:BB:770:G:O2' | 23:BB:771:G:H5' | 2.07 | 0.54 |
| 23:DB:2692:G:O2' | 23:DB:2693:G:H5' | 2.07 | 0.54 |
| 37:DP:109:ILE:O | 37:DP:111:GLU:N | 2.40 | 0.54 |
| 23:DB:96:C:OP1 | 44:DX:41:HIS:HB2 | 2.08 | 0.54 |
| 23:BB:615:U:C2 | 27:BE:38:GLY:HA3 | 2.42 | 0.54 |
| 26:BD:175:LEU:HD13 | 26:BD:189:VAL:HG11 | 1.90 | 0.54 |
| 25:BC:124:LYS:CB | 25:BC:125:PRO:CD | 2.83 | 0.54 |
| 23:DB:533:G:H2' | 23:DB:534:U:H6 | 1.73 | 0.54 |
| 38:DQ:39:ILE:HA | 38:DQ:43:GLN:HE21 | 1.72 | 0.54 |
| 30:BH:37:VAL:O | 30:BH:38:PRO:C | 2.46 | 0.54 |
| 27:DE:102:ARG:HA | 27:DE:105:LEU:HD23 | 1.90 | 0.54 |
| 27:DE:149:ILE:O | 27:DE:149:ILE:HG13 | 2.08 | 0.54 |
| 27:DE:148:ILE:CA | 27:DE:185:LYS:HB3 | 2.32 | 0.54 |
| 33:BL:82:LEU:O | 33:BL:117:THR:HG22 | 2.06 | 0.54 |
| 46:DZ:49:ARG:C | 46:DZ:51:VAL:N | 2.61 | 0.54 |
| 23:BB:581:C:H2' | 23:BB:582:A:C8 | 2.43 | 0.54 |
| 36:DO:26:LEU:O | 36:DO:40:ILE:HD11 | 2.06 | 0.54 |
| 33:BL:38:GLN:H | 33:BL:41:ARG:HH11 | 1.56 | 0.54 |
| 33:BL:40:SER:C | 33:BL:41:ARG:HE | 2.10 | 0.54 |
| 31:DJ:35:ARG:HH22 | 31:DJ:41:LYS:H | 1.54 | 0.54 |
| 34:DM:91:TYR:N | 34:DM:91:TYR:CD2 | 2.74 | 0.54 |
| 39:BR:47:VAL:HG22 | 39:BR:48:LYS:N | 2.19 | 0.54 |
| 39:BR:7:SER:C | 39:BR:22:LEU:HD11 | 2.27 | 0.54 |
| 27:BE:119:ILE:N | 27:BE:119:ILE:HD12 | 2.23 | 0.54 |
| 43:DW:19:ARG:HH21 | 43:DW:22:VAL:HA | 1.73 | 0.54 |
| 51:B4:24:ARG:HH11 | 51:B4:24:ARG:HG3 | 1.73 | 0.54 |
| 30:BH:114:GLU:OE2 | 30:BH:134:VAL:HG23 | 2.07 | 0.54 |
| 23:BB:741:U:H2' | 23:BB:742:A:C8 | 2.42 | 0.54 |
| 26:BD:131:ASP:O | 26:BD:139:SER:HA | 2.08 | 0.54 |
| 1:CA:719:C:H1' | 17:CR:37:LYS:CB | 2.32 | 0.54 |
| 28:DF:141:ASP:HB3 | 28:DF:143:ASP:OD1 | 2.07 | 0.54 |
| 13:CN:30:ILE:O | 13:CN:44:VAL:HB | 2.07 | 0.54 |
| 13:CN:26:LEU:HD21 | 13:CN:47:LEU:HG | 1.90 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 8:CI:51:LEU:HD13 | 8:CI:56:MET:SD | 2.48 | 0.54 |
| 46:DZ:14:ALA:HA | 46:DZ:24:ILE:HA | 1.89 | 0.54 |
| 23:BB:1055:G:HO2' | 23:BB:1085:A:H2 | 1.49 | 0.54 |
| 23:BB:751:A:H5' | 40:BS:90:LYS:CE | 2.38 | 0.54 |
| 23:BB:1917:U:C2' | 23:BB:1918:A:H5' | 2.37 | 0.54 |
| 3:AD:18:LEU:HD22 | 3:AD:63:ILE:HG12 | 1.90 | 0.54 |
| 1:CA:235:C:H2' | 1:CA:236:A:C8 | 2.43 | 0.54 |
| 30:BH:83:LYS:HB2 | 30:BH:92:GLY:N | 2.23 | 0.54 |
| 33:DL:47:ARG:O | 33:DL:48:ARG:HD3 | 2.08 | 0.54 |
| 1:AA:1244:G:H2' | 1:AA:1245:C:H6 | 1.73 | 0.54 |
| 23:DB:2257:U:C5' | 43:DW:5:ALA:HB2 | 2.37 | 0.54 |
| 1:CA:34:C:H2' | 1:CA:35:G:C8 | 2.42 | 0.54 |
| 52:DI:121:ILE:CD1 | 52:DI:121:ILE:H | 2.18 | 0.54 |
| 20:CB:57:ASN:HD22 | 20:CB:223:GLY:HA2 | 1.73 | 0.54 |
| 23:BB:936:A:H2' | 23:BB:937:C:H6 | 1.71 | 0.54 |
| 23:DB:1387:A:H2' | 23:DB:1388:G:C8 | 2.42 | 0.54 |
| 23:DB:1593:A:H2' | 23:DB:1594:U:C6 | 2.42 | 0.54 |
| 23:DB:2247:A:H2' | 23:DB:2248:C:C6 | 2.43 | 0.54 |
| 23:DB:2213:U:O2 | 23:DB:2213:U:C2' | 2.55 | 0.54 |
| 23:BB:329:G:H1 | 42:BU:16:LYS:HD3 | 1.73 | 0.54 |
| 26:DD:114:LYS:HB2 | 26:DD:114:LYS:HZ2 | 1.72 | 0.54 |
| 24:DV:53:LYS:NZ | 24:DV:53:LYS:HB3 | 2.23 | 0.54 |
| 31:DJ:105:VAL:HG11 | 31:DJ:122:LEU:HD11 | 1.89 | 0.54 |
| 23:DB:1723:G:N7 | 23:DB:1737:G:N2 | 2.56 | 0.54 |
| 23:BB:1816:C:C5 | 25:BC:62:ARG:HD2 | 2.42 | 0.54 |
| 5:AF:18:VAL:N | 5:AF:19:PRO:HD2 | 2.22 | 0.54 |
| 1:CA:231:U:P | 15:CP:31:ARG:HH12 | 2.31 | 0.54 |
| 3:CD:127:ARG:HD2 | 3:CD:127:ARG:H | 1.73 | 0.54 |
| 23:DB:2657:A:H2' | 23:DB:2658:C:O4' | 2.07 | 0.54 |
| 23:BB:425:G:H2' | 23:BB:426:C:H6 | 1.72 | 0.54 |
| 27:BE:38:GLY:C | 27:BE:40:ARG:H | 2.09 | 0.54 |
| 23:DB:2386:A:H4' | 43:DW:38:ARG:HB2 | 1.89 | 0.54 |
| 43:BW:80:SER:OG | 43:BW:84:GLU:HB2 | 2.08 | 0.54 |
| 23:DB:2020:A:H5' | 47:D0:8:THR:HG23 | 1.90 | 0.54 |
| 42:DU:28:LEU:HD13 | 42:DU:30:SER:N | 2.07 | 0.54 |
| 46:BZ:30:HIS:O | 46:BZ:31:ASP:HB3 | 2.07 | 0.54 |
| 32:BK:98:ARG:H | 32:BK:98:ARG:HD2 | 1.71 | 0.54 |
| 34:BM:35:ALA:HB3 | 34:BM:97:GLN:C | 2.28 | 0.54 |
| 1:AA:255:G:H5' | 16:AQ:17:GLU:O | 2.08 | 0.54 |
| 36:DO:9:ARG:C | 36:DO:11:ALA:H | 2.11 | 0.54 |
| 41:DT:55:VAL:HG21 | 41:DT:85:VAL:HB | 1.89 | 0.54 |
| 31:DJ:49:ASP:O | 31:DJ:50:THR:CB | 2.56 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 38:DQ:73:ILE:HG23 | 38:DQ:74:SER:N | 2.22 | 0.54 |
| 35:BN:116:VAL:O | 35:BN:117:ASP:HB2 | 2.08 | 0.54 |
| 39:BR:39:LEU:HD12 | 39:BR:60:LYS:N | 2.23 | 0.54 |
| 1:AA:764:C:H2' | 1:AA:765:G:H5' | 1.88 | 0.54 |
| 27:BE:180:LEU:HA | 27:BE:186:VAL:HG21 | 1.88 | 0.54 |
| 38:DQ:2:ARG:HG2 | 38:DQ:4:LYS:HE3 | 1.89 | 0.54 |
| 23:BB:139:U:C4 | 41:BT:1:MET:HB2 | 2.42 | 0.54 |
| 26:DD:153:GLY:C | 26:DD:155:VAL:H | 2.11 | 0.54 |
| 10:CK:83:VAL:HG21 | 10:CK:96:ILE:HG23 | 1.88 | 0.54 |
| 23:DB:2649:C:H2' | 23:DB:2650:U:H6 | 1.73 | 0.54 |
| 26:DD:23:PRO:HA | 26:DD:189:VAL:O | 2.08 | 0.54 |
| 31:DJ:59:ALA:C | 31:DJ:61:LYS:H | 2.12 | 0.54 |
| 25:BC:19:VAL:HG12 | 25:BC:20:ASN:N | 2.15 | 0.54 |
| 1:AA:1306:A:N6 | 1:AA:1331:G:H1' | 2.23 | 0.54 |
| 42:DU:9:GLU:HB2 | 42:DU:71:ILE:CG1 | 2.38 | 0.54 |
| 52:DI:18:ASN:HB2 | 52:DI:38:CYS:SG | 2.48 | 0.54 |
| 23:BB:2811:G:H5' | 26:BD:62:LYS:HD2 | 1.88 | 0.54 |
| 48:B1:26:LYS:HD3 | 48:B1:29:LYS:HB2 | 1.88 | 0.54 |
| 1:AA:1244:G:H2' | 1:AA:1245:C:C6 | 2.43 | 0.54 |
| 27:DE:97:ASN:HB2 | 27:DE:100:MET:HB2 | 1.89 | 0.54 |
| 23:DB:1439:A:C6 | 23:DB:1552:A:C5 | 2.95 | 0.54 |
| 23:DB:1515:A:H5' | 23:DB:1557:C:H5' | 1.88 | 0.54 |
| 29:BG:94:ARG:CB | 29:BG:94:ARG:HH11 | 2.20 | 0.54 |
| 23:BB:438:G:H2' | 23:BB:439:A:C8 | 2.42 | 0.54 |
| 29:BG:84:LYS:NZ | 29:BG:85:LYS:H | 2.06 | 0.54 |
| 1:AA:1477:U:H2' | 1:AA:1478:U:C6 | 2.43 | 0.54 |
| 23:DB:2250:G:C6 | 34:DM:81:ARG:HG2 | 2.42 | 0.54 |
| 23:BB:7:G:H2' | 23:BB:8:C:O4' | 2.08 | 0.54 |
| 23:BB:709:U:H2' | 23:BB:710:U:C6 | 2.43 | 0.54 |
| 23:BB:1723:G:N7 | 23:BB:1737:G:N2 | 2.56 | 0.54 |
| 23:BB:2761:A:H1' | 29:BG:142:GLN:NE2 | 2.23 | 0.54 |
| 12:AM:2:ARG:HG3 | 12:AM:8:ILE:HG23 | 1.89 | 0.54 |
| 24:DV:26:PHE:CE2 | 24:DV:44:HIS:HA | 2.43 | 0.54 |
| 1:CA:335:C:H2' | 1:CA:336:A:H8 | 1.72 | 0.54 |
| 23:DB:1464:G:H2' | 23:DB:1465:G:C8 | 2.43 | 0.54 |
| 13:AN:19:TYR:HD2 | 13:AN:23:ARG:HD3 | 1.73 | 0.54 |
| 52:BI:62:ALA:C | 52:BI:64:ARG:H | 2.10 | 0.54 |
| 1:CA:845:A:H3' | 1:CA:846:G:O4' | 2.08 | 0.54 |
| 52:DI:89:SER:HA | 52:DI:97:VAL:HG11 | 1.90 | 0.54 |
| 23:DB:2741:A:H2' | 23:DB:2742:G:O4' | 2.08 | 0.54 |
| 37:BP:23:ASP:HA | 37:BP:48:ALA:O | 2.08 | 0.54 |
| 23:DB:2387:U:O2' | 43:DW:37:VAL:HG11 | 2.08 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:BB:2780:G:N1 | 31:BJ:120:ARG:HG3 | 2.22 | 0.54 |
| 31:BJ:17:VAL:CG1 | 31:BJ:57:LEU:HD21 | 2.38 | 0.54 |
| 23:BB:322:A:H5' | 23:BB:340:A:C1' | 2.38 | 0.54 |
| 32:BK:61:VAL:HG23 | 32:BK:84:CYS:O | 2.08 | 0.54 |
| 16:AQ:68:LYS:O | 16:AQ:69:THR:CB | 2.56 | 0.54 |
| 28:BF:59:ILE:HD13 | 28:BF:59:ILE:O | 2.08 | 0.54 |
| 23:DB:1132:U:H5'' | 31:DJ:85:LYS:HD3 | 1.89 | 0.54 |
| 47:B0:36:LYS:HG3 | 47:B0:41:HIS:CA | 2.38 | 0.54 |
| 38:BQ:52:ARG:NH2 | 38:BQ:55:GLN:HG2 | 2.23 | 0.54 |
| 23:BB:1287:A:O2' | 23:BB:1288:G:H5' | 2.08 | 0.54 |
| 26:BD:34:VAL:HA | 26:BD:89:GLU:CB | 2.32 | 0.54 |
| 23:DB:2840:C:H2' | 23:DB:2841:C:H6 | 1.72 | 0.54 |
| 45:DY:1:ALA:O | 45:DY:43:ILE:HG13 | 2.08 | 0.54 |
| 45:BY:18:LYS:HD2 | 45:BY:53:MET:HE1 | 1.90 | 0.54 |
| 1:AA:1325:C:O2' | 1:AA:1326:U:H5' | 2.08 | 0.54 |
| 23:DB:1000:A:H2' | 23:DB:1001:A:C8 | 2.43 | 0.54 |
| 14:CO:80:LEU:HD21 | 14:CO:84:LEU:HD22 | 1.90 | 0.54 |
| 35:BN:10:LEU:O | 35:BN:12:ARG:N | 2.40 | 0.54 |
| 23:BB:1083:U:H2' | 23:BB:1085:A:OP2 | 2.08 | 0.54 |
| 37:BP:99:LEU:HD21 | 37:BP:109:ILE:HG23 | 1.90 | 0.54 |
| 32:DK:24:VAL:HA | 32:DK:39:ILE:CD1 | 2.38 | 0.54 |
| 32:DK:6:THR:HG22 | 32:DK:7:MET:N | 2.23 | 0.54 |
| 23:DB:1773:A:H62 | 25:DC:206:LYS:HE2 | 1.73 | 0.54 |
| 23:DB:581:C:H2' | 23:DB:582:A:C8 | 2.43 | 0.54 |
| 48:B1:26:LYS:HD3 | 48:B1:29:LYS:HD3 | 1.90 | 0.54 |
| 4:AE:131:ASN:O | 4:AE:135:VAL:HG22 | 2.08 | 0.54 |
| 4:CE:73:VAL:HG23 | 4:CE:146:MET:HE1 | 1.90 | 0.54 |
| 1:AA:399:G:H2' | 1:AA:400:C:C6 | 2.42 | 0.54 |
| 23:BB:1171:G:H2' | 23:BB:1172:C:C1' | 2.38 | 0.54 |
| 19:CT:27:MET:HG2 | 19:CT:31:ILE:HD11 | 1.90 | 0.54 |
| 23:BB:1413:A:H2' | 23:BB:1414:C:C6 | 2.43 | 0.54 |
| 51:D4:7:VAL:O | 51:D4:8:LYS:HB2 | 2.08 | 0.54 |
| 23:BB:1797:G:OP1 | 25:BC:251:THR:HG23 | 2.08 | 0.54 |
| 23:DB:2557:G:H2' | 23:DB:2558:C:H6 | 1.70 | 0.54 |
| 1:AA:472:U:H2' | 1:AA:473:U:C6 | 2.43 | 0.54 |
| 1:CA:472:U:H2' | 1:CA:473:U:C6 | 2.43 | 0.54 |
| 23:DB:2405:G:H1' | 23:DB:2412:A:N6 | 2.23 | 0.54 |
| 37:DP:55:HIS:O | 37:DP:57:ALA:N | 2.38 | 0.54 |
| 1:CA:1135:U:H4' | 1:CA:1136:C:OP1 | 2.05 | 0.54 |
| 23:BB:1934:C:O2' | 23:BB:1935:G:H5' | 2.08 | 0.54 |
| 36:DO:82:ALA:O | 36:DO:83:LEU:HD12 | 2.08 | 0.54 |
| 23:BB:1745:A:H2' | 23:BB:1746:A:H8 | 1.73 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:BB:433:C:O2' | 23:BB:434:U:H5' | 2.08 | 0.54 |
| 44:BX:44:LYS:O | 44:BX:44:LYS:HD2 | 2.08 | 0.54 |
| 52:BI:14:ALA:HB1 | 52:BI:50:LYS:HA | 1.89 | 0.54 |
| 12:AM:2:ARG:HD2 | 12:AM:2:ARG:N | 2.23 | 0.54 |
| 1:AA:337:G:H2' | 1:AA:338:A:C8 | 2.43 | 0.54 |
| 23:BB:1400:U:H2' | 23:BB:1401:G:C8 | 2.41 | 0.54 |
| 3:AD:169:TRP:NE1 | 3:AD:170:LEU:HD23 | 2.22 | 0.54 |
| 23:BB:1061:U:H4' | 23:BB:1070:A:O3' | 2.08 | 0.54 |
| 23:DB:1219:U:H2' | 23:DB:1220:G:H8 | 1.73 | 0.54 |
| 34:DM:50:ARG:HA | 34:DM:53:MET:HE2 | 1.90 | 0.54 |
| 23:BB:1716:U:H2' | 23:BB:1717:A:C8 | 2.43 | 0.54 |
| 23:BB:2489:U:O2' | 23:BB:2490:G:H5' | 2.08 | 0.54 |
| 6:CG:110:ARG:HE | 6:CG:122:GLU:HB2 | 1.72 | 0.54 |
| 4:AE:35:LEU:HD23 | 4:AE:36:THR:N | 2.23 | 0.54 |
| 34:BM:59:ARG:N | 34:BM:59:ARG:HD2 | 2.22 | 0.54 |
| 52:DI:10:LEU:HD12 | 52:DI:10:LEU:O | 2.08 | 0.54 |
| 23:DB:1671:U:H2' | 23:DB:1673:G:OP2 | 2.08 | 0.54 |
| 23:DB:770:G:O2' | 23:DB:771:G:H5' | 2.08 | 0.54 |
| 20:CB:46:VAL:CG1 | 20:CB:47:PRO:HD3 | 2.22 | 0.54 |
| 43:DW:67:LYS:HG2 | 43:DW:71:LYS:CA | 2.38 | 0.54 |
| 25:DC:182:LYS:HE2 | 25:DC:264:LYS:NZ | 2.23 | 0.54 |
| 23:BB:854:C:H2' | 23:BB:855:G:C8 | 2.41 | 0.54 |
| 23:BB:855:G:H21 | 43:BW:23:LYS:HB3 | 1.70 | 0.54 |
| 43:BW:43:LYS:O | 43:BW:45:HIS:N | 2.41 | 0.54 |
| 39:DR:80:ARG:HD2 | 39:DR:85:LYS:HA | 1.90 | 0.54 |
| 33:BL:119:PRO:O | 33:BL:120:VAL:HB | 2.06 | 0.54 |
| 23:BB:2272:U:H6 | 23:BB:2272:U:H3' | 1.73 | 0.54 |
| 46:BZ:49:ARG:HD3 | 46:BZ:50:ASP:N | 2.22 | 0.54 |
| 23:BB:871:U:H2' | 23:BB:872:U:C6 | 2.43 | 0.54 |
| 34:BM:96:ILE:HD13 | 34:BM:97:GLN:CB | 2.38 | 0.54 |
| 16:AQ:74:LEU:HD22 | 16:AQ:75:VAL:N | 2.22 | 0.54 |
| 36:DO:35:ILE:HG21 | 36:DO:71:ALA:HA | 1.90 | 0.54 |
| 23:BB:992:C:O2' | 23:BB:993:G:H5' | 2.08 | 0.54 |
| 37:BP:32:VAL:HG13 | 37:BP:40:GLN:NE2 | 2.23 | 0.54 |
| 41:BT:61:LEU:HD12 | 41:BT:62:VAL:N | 2.22 | 0.54 |
| 12:CM:53:ASP:HA | 12:CM:56:ARG:NH2 | 2.22 | 0.54 |
| 33:DL:59:ARG:HA | 50:D3:11:LYS:NZ | 2.22 | 0.54 |
| 23:DB:2024:G:H5'' | 26:DD:154:LYS:HZ3 | 1.73 | 0.54 |
| 48:D1:22:THR:HB | 50:D3:34:LYS:HE3 | 1.90 | 0.54 |
| 52:BI:124:MET:O | 52:BI:128:ILE:HG12 | 2.08 | 0.54 |
| 1:CA:1314:C:H2' | 1:CA:1315:U:C6 | 2.43 | 0.54 |
| 31:DJ:93:ILE:CG2 | 31:DJ:97:PRO:HA | 2.37 | 0.54 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 10:CK:121:ARG:HE | 21:CU:34:ARG:CG | 2.21 | 0.54 |
| 6:AG:14:ASP:OD1 | 6:AG:15:PRO:HD2 | 2.08 | 0.54 |
| 28:BF:65:LEU:C | 28:BF:67:THR:H | 2.11 | 0.54 |
| 7:AH:29:SER:CB | 7:AH:32:LYS:HZ2 | 2.21 | 0.54 |
| 42:DU:9:GLU:OE1 | 42:DU:71:ILE:HG13 | 2.08 | 0.54 |
| 20:CB:78:ALA:CB | 20:CB:213:LEU:HD13 | 2.38 | 0.54 |
| 2:AC:100:ILE:C | 2:AC:100:ILE:HD13 | 2.29 | 0.54 |
| 35:DN:8:ARG:HD3 | 35:DN:43:GLU:OE2 | 2.07 | 0.54 |
| 52:DI:41:PHE:CE2 | 52:DI:45:THR:HG21 | 2.43 | 0.54 |
| 18:AS:62:THR:N | 18:AS:65:MET:HE3 | 2.23 | 0.54 |
| 1:AA:1461:G:H2' | 1:AA:1462:C:H6 | 1.69 | 0.54 |
| 1:AA:591:U:H2' | 1:AA:592:G:H8 | 1.71 | 0.54 |
| 23:BB:1441:G:H2' | 23:BB:1442:U:H6 | 1.73 | 0.54 |
| 1:AA:177:G:H5'' | 19:AT:59:ARG:HH21 | 1.73 | 0.54 |
| 19:CT:79:THR:HA | 19:CT:82:ILE:HG12 | 1.90 | 0.54 |
| 1:AA:1071:C:H2' | 1:AA:1072:G:C8 | 2.40 | 0.54 |
| 1:AA:471:U:H2' | 1:AA:472:U:H6 | 1.72 | 0.54 |
| 8:CI:23:GLY:H | 8:CI:60:LEU:HA | 1.73 | 0.54 |
| 23:DB:2323:G:C2' | 23:DB:2324:U:H5' | 2.37 | 0.54 |
| 1:AA:22:G:H2' | 1:AA:23:C:H6 | 1.73 | 0.54 |
| 5:CF:18:VAL:HG21 | 5:CF:58:HIS:CE1 | 2.42 | 0.54 |
| 23:BB:956:G:H5'' | 34:BM:76:LYS:HE2 | 1.89 | 0.54 |
| 1:CA:600:A:H2' | 1:CA:601:G:H8 | 1.73 | 0.54 |
| 3:CD:115:GLN:NE2 | 3:CD:153:ARG:HH12 | 2.05 | 0.54 |
| 23:BB:1682:G:C2 | 23:BB:1757:A:O4' | 2.61 | 0.54 |
| 1:AA:736:C:H2' | 1:AA:737:C:C6 | 2.43 | 0.54 |
| 23:DB:1745:A:H2' | 23:DB:1746:A:H8 | 1.73 | 0.54 |
| 23:DB:345:A:H1' | 23:DB:346:A:C2 | 2.41 | 0.54 |
| 23:BB:1464:G:H2' | 23:BB:1465:G:C8 | 2.43 | 0.54 |
| 23:BB:1751:U:H2' | 23:BB:1752:C:C6 | 2.43 | 0.54 |
| 4:CE:32:PHE:CE2 | 4:CE:55:VAL:HG22 | 2.43 | 0.54 |
| 23:BB:1432:G:O2' | 23:BB:1433:A:H5' | 2.07 | 0.54 |
| 1:CA:366:A:O2' | 1:CA:367:U:OP1 | 2.24 | 0.54 |
| 35:DN:123:GLU:HG2 | 35:DN:124:ALA:H | 1.72 | 0.54 |
| 1:CA:44:A:O2' | 1:CA:45:G:H5' | 2.08 | 0.54 |
| 1:AA:787:A:O2' | 1:AA:788:U:H5' | 2.08 | 0.54 |
| 22:BA:86:G:H2' | 22:BA:87:U:O4' | 2.08 | 0.54 |
| 20:AB:95:TRP:CE3 | 20:AB:171:ALA:HA | 2.43 | 0.54 |
| 23:BB:1149:G:H2' | 23:BB:1150:C:C6 | 2.43 | 0.54 |
| 27:BE:198:GLU:C | 27:BE:200:LEU:H | 2.12 | 0.54 |
| 23:BB:331:C:O2' | 23:BB:332:A:H5' | 2.08 | 0.54 |
| 37:DP:29:VAL:CG2 | 37:DP:47:ILE:HD11 | 2.37 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:BB:2750:A:H5'' | 29:BG:3:VAL:HG13 | 1.90 | 0.53 |
| 20:CB:40:ILE:CG2 | 20:CB:200:PRO:HB2 | 2.38 | 0.53 |
| 23:DB:2743:U:C2' | 23:DB:2744:G:H5'' | 2.38 | 0.53 |
| 37:BP:8:GLU:HA | 37:BP:11:GLN:CG | 2.37 | 0.53 |
| 23:BB:636:G:O6 | 33:BL:76:GLU:HG2 | 2.08 | 0.53 |
| 46:DZ:3:LYS:HB2 | 46:DZ:7:PRO:HA | 1.90 | 0.53 |
| 48:D1:35:LEU:HA | 48:D1:48:TYR:O | 2.08 | 0.53 |
| 34:DM:4:PRO:HD3 | 34:DM:47:GLU:CG | 2.39 | 0.53 |
| 47:B0:35:GLU:CD | 47:B0:43:THR:HG22 | 2.28 | 0.53 |
| 3:CD:144:ILE:HD12 | 3:CD:154:VAL:HG11 | 1.89 | 0.53 |
| 26:DD:5:VAL:HG22 | 26:DD:51:THR:O | 2.08 | 0.53 |
| 30:DH:121:VAL:O | 30:DH:122:LEU:HB2 | 2.08 | 0.53 |
| 47:D0:15:ARG:HG3 | 47:D0:15:ARG:HH11 | 1.73 | 0.53 |
| 23:DB:873:C:H2' | 23:DB:874:G:C8 | 2.43 | 0.53 |
| 39:DR:68:ARG:HB2 | 39:DR:97:LYS:HG3 | 1.90 | 0.53 |
| 48:D1:24:LYS:HB2 | 48:D1:24:LYS:HZ2 | 1.73 | 0.53 |
| 5:CF:51:ILE:HD13 | 5:CF:86:ARG:HG3 | 1.90 | 0.53 |
| 47:B0:6:LYS:HZ2 | 47:B0:6:LYS:HA | 1.72 | 0.53 |
| 23:BB:1488:C:O2' | 23:BB:1489:C:H5' | 2.08 | 0.53 |
| 41:BT:68:LYS:O | 41:BT:68:LYS:HD3 | 2.08 | 0.53 |
| 41:BT:69:ARG:H | 41:BT:75:GLY:HA3 | 1.72 | 0.53 |
| 23:DB:1549:A:H2' | 23:DB:1550:C:C6 | 2.43 | 0.53 |
| 20:CB:57:ASN:HB2 | 20:CB:219:THR:O | 2.08 | 0.53 |
| 19:CT:27:MET:O | 19:CT:31:ILE:HG13 | 2.07 | 0.53 |
| 7:AH:76:ARG:HG2 | 7:AH:77:VAL:N | 2.23 | 0.53 |
| 23:BB:2199:A:H5' | 23:BB:2200:C:OP2 | 2.07 | 0.53 |
| 22:DA:13:G:H4' | 22:DA:15:A:H2' | 1.89 | 0.53 |
| 43:DW:9:THR:OG1 | 43:DW:10:ARG:N | 2.40 | 0.53 |
| 23:BB:2292:U:H2' | 23:BB:2293:G:C8 | 2.44 | 0.53 |
| 1:CA:1245:C:H2' | 1:CA:1246:A:H8 | 1.73 | 0.53 |
| 2:CC:113:LYS:HA | 2:CC:184:ASN:ND2 | 2.22 | 0.53 |
| 23:DB:1413:A:H2' | 23:DB:1414:C:C6 | 2.42 | 0.53 |
| 23:DB:2216:G:H2' | 23:DB:2217:G:C8 | 2.43 | 0.53 |
| 37:BP:112:ARG:HA | 37:BP:112:ARG:HH11 | 1.73 | 0.53 |
| 1:AA:916:U:H2' | 1:AA:917:G:H8 | 1.72 | 0.53 |
| 1:CA:930:C:H2' | 1:CA:931:C:H6 | 1.73 | 0.53 |
| 34:DM:88:ASN:N | 34:DM:88:ASN:ND2 | 2.56 | 0.53 |
| 37:DP:90:ALA:HB3 | 37:DP:111:GLU:CB | 2.38 | 0.53 |
| 27:BE:91:ASP:O | 27:BE:92:HIS:HB2 | 2.06 | 0.53 |
| 23:BB:2204:G:H5' | 25:BC:149:LYS:CE | 2.25 | 0.53 |
| 50:B3:11:LYS:HG2 | 50:B3:12:ARG:HG3 | 1.90 | 0.53 |
| 34:BM:67:VAL:CG2 | 34:BM:95:LEU:HD21 | 2.39 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 3:AD:1:ALA:O | 3:AD:67:LEU:HD21 | 2.08 | 0.53 |
| 23:DB:65:U:H2' | 23:DB:66:C:C6 | 2.42 | 0.53 |
| 35:BN:52:ILE:HG21 | 35:BN:94:TYR:CD2 | 2.43 | 0.53 |
| 25:BC:28:PRO:HD2 | 25:BC:79:ARG:CZ | 2.37 | 0.53 |
| 1:CA:1001:C:H2' | 1:CA:1002:G:H8 | 1.74 | 0.53 |
| 12:AM:44:ILE:HD12 | 12:AM:45:SER:N | 2.20 | 0.53 |
| 40:BS:71:VAL:CG2 | 40:BS:107:VAL:HG12 | 2.30 | 0.53 |
| 40:BS:29:VAL:CG1 | 40:BS:69:LEU:HB2 | 2.38 | 0.53 |
| 10:AK:92:ARG:NH1 | 10:AK:92:ARG:HB3 | 2.20 | 0.53 |
| 30:DH:122:LEU:HD13 | 30:DH:146:VAL:HG13 | 1.90 | 0.53 |
| 23:BB:139:U:C5 | 41:BT:1:MET:HB2 | 2.44 | 0.53 |
| 21:AU:29:ALA:HB1 | 21:AU:32:ARG:HH21 | 1.72 | 0.53 |
| 23:DB:27:G:N2 | 23:DB:512:G:H2' | 2.16 | 0.53 |
| 33:DL:58:TYR:HB3 | 50:D3:13:PHE:CE1 | 2.42 | 0.53 |
| 35:BN:76:VAL:O | 35:BN:79:LEU:HB2 | 2.08 | 0.53 |
| 26:DD:17:GLU:OE2 | 32:DK:72:PRO:HB2 | 2.08 | 0.53 |
| 31:DJ:100:VAL:HG22 | 31:DJ:101:ILE:H | 1.72 | 0.53 |
| 15:CP:67:ILE:HG12 | 15:CP:72:ALA:HB2 | 1.91 | 0.53 |
| 6:AG:3:ARG:CZ | 6:AG:3:ARG:HB3 | 2.37 | 0.53 |
| 46:DZ:24:ILE:CD1 | 46:DZ:24:ILE:H | 2.14 | 0.53 |
| 14:AO:60:SER:HA | 14:AO:63:ARG:NH1 | 2.22 | 0.53 |
| 35:BN:9:GLN:HE21 | 35:BN:17:ARG:NH1 | 2.07 | 0.53 |
| 39:DR:69:GLY:CA | 39:DR:96:VAL:HG13 | 2.39 | 0.53 |
| 23:DB:2311:A:N3 | 28:DF:39:VAL:HB | 2.22 | 0.53 |
| 22:DA:32:U:H4' | 22:DA:52:A:N6 | 2.23 | 0.53 |
| 32:BK:36:GLY:HA2 | 32:BK:62:VAL:O | 2.09 | 0.53 |
| 49:D2:13:ASN:C | 49:D2:15:SER:H | 2.10 | 0.53 |
| 28:DF:137:PHE:O | 28:DF:139:GLU:N | 2.41 | 0.53 |
| 23:DB:2186:G:O2' | 23:DB:2187:U:H5' | 2.07 | 0.53 |
| 1:CA:961:U:O4' | 1:CA:961:U:O2 | 2.26 | 0.53 |
| 23:BB:418:C:H2' | 23:BB:419:U:H6 | 1.73 | 0.53 |
| 10:AK:61:ALA:O | 10:AK:64:VAL:HG12 | 2.08 | 0.53 |
| 1:CA:1347:G:N2 | 1:CA:1373:G:H2' | 2.24 | 0.53 |
| 23:BB:1259:G:H2' | 23:BB:1260:A:C8 | 2.42 | 0.53 |
| 4:AE:158:LYS:HE2 | 4:AE:158:LYS:H | 1.73 | 0.53 |
| 3:CD:22:SER:H | 3:CD:109:THR:HG22 | 1.72 | 0.53 |
| 1:CA:1468:A:O2' | 1:CA:1469:C:H5' | 2.08 | 0.53 |
| 23:BB:1013:C:H2' | 23:BB:1014:A:H8 | 1.73 | 0.53 |
| 3:CD:95:GLY:HA3 | 3:CD:135:GLN:NE2 | 2.24 | 0.53 |
| 28:DF:9:ASP:O | 28:DF:10:GLU:HB2 | 2.08 | 0.53 |
| 23:DB:251:A:H2' | 23:DB:252:G:O4' | 2.08 | 0.53 |
| 8:CI:62:LEU:N | 8:CI:62:LEU:HD13 | 2.23 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 3:CD:36:ALA:C | 3:CD:38:GLY:H | 2.11 | 0.53 |
| 23:BB:1139:G:O2' | 23:BB:1140:C:H5' | 2.09 | 0.53 |
| 17:AR:33:THR:HG23 | 17:AR:35:SER:H | 1.72 | 0.53 |
| 28:BF:3:LEU:O | 28:BF:3:LEU:HD23 | 2.08 | 0.53 |
| 23:DB:1100:C:H2' | 23:DB:1101:U:C6 | 2.44 | 0.53 |
| 42:BU:90:LYS:NZ | 42:BU:91:LYS:HE2 | 2.23 | 0.53 |
| 34:BM:3:GLN:O | 34:BM:4:PRO:C | 2.46 | 0.53 |
| 23:BB:1204:A:N1 | 23:BB:1241:A:N1 | 2.55 | 0.53 |
| 23:BB:2848:G:H1' | 23:BB:2868:A:H61 | 1.72 | 0.53 |
| 23:DB:6:A:H4' | 31:DJ:133:ALA:O | 2.08 | 0.53 |
| 31:BJ:72:LYS:HB3 | 31:BJ:74:TYR:CE2 | 2.43 | 0.53 |
| 33:DL:33:ARG:HG2 | 39:DR:85:LYS:HZ3 | 1.73 | 0.53 |
| 30:BH:1:MET:HB2 | 30:BH:20:ASN:OD1 | 2.09 | 0.53 |
| 15:AP:40:ASN:HD21 | 15:AP:42:ILE:HG13 | 1.73 | 0.53 |
| 46:BZ:25:ARG:HG3 | 46:BZ:26:SER:N | 2.24 | 0.53 |
| 34:BM:73:ILE:HG22 | 34:BM:74:THR:N | 2.24 | 0.53 |
| 23:BB:2053:G:C2' | 23:BB:2054:A:H5' | 2.37 | 0.53 |
| 25:DC:245:THR:O | 25:DC:247:TRP:N | 2.40 | 0.53 |
| 23:BB:2774:C:H2' | 23:BB:2775:G:O4' | 2.09 | 0.53 |
| 39:BR:41:ILE:C | 39:BR:43:ASN:N | 2.60 | 0.53 |
| 27:BE:144:GLU:C | 27:BE:146:VAL:H | 2.11 | 0.53 |
| 18:CS:15:LEU:HD23 | 18:CS:15:LEU:O | 2.08 | 0.53 |
| 33:DL:96:LYS:HE3 | 33:DL:96:LYS:CA | 2.38 | 0.53 |
| 37:BP:69:VAL:O | 37:BP:70:GLU:HB2 | 2.09 | 0.53 |
| 52:BI:37:PHE:HB2 | 52:BI:66:PHE:CZ | 2.44 | 0.53 |
| 1:CA:1252:A:H2' | 1:CA:1253:G:O4' | 2.08 | 0.53 |
| 29:BG:17:LYS:HE3 | 29:BG:24:THR:CG2 | 2.37 | 0.53 |
| 1:AA:1237:C:H4' | 1:AA:1334:G:N2 | 2.24 | 0.53 |
| 52:BI:122:GLU:CD | 52:BI:122:GLU:H | 2.12 | 0.53 |
| 29:DG:171:LYS:HD3 | 29:DG:172:GLU:C | 2.29 | 0.53 |
| 32:DK:43:ILE:HD11 | 32:DK:58:LEU:HD21 | 1.90 | 0.53 |
| 10:CK:70:ALA:C | 10:CK:72:ALA:H | 2.11 | 0.53 |
| 1:CA:672:U:H2' | 1:CA:673:A:C8 | 2.43 | 0.53 |
| 24:BV:84:PRO:HG3 | 34:BM:127:LYS:CE | 2.37 | 0.53 |
| 23:DB:1080:A:O2' | 52:DI:126:ARG:HD2 | 2.08 | 0.53 |
| 26:BD:59:ARG:HH21 | 26:BD:60:VAL:HG12 | 1.73 | 0.53 |
| 26:BD:59:ARG:HH21 | 26:BD:60:VAL:CG1 | 2.22 | 0.53 |
| 26:BD:62:LYS:N | 26:BD:63:PRO:HD2 | 2.23 | 0.53 |
| 25:DC:22:GLU:HB2 | 25:DC:202:ARG:CG | 2.38 | 0.53 |
| 8:AI:71:ILE:CD1 | 8:AI:71:ILE:H | 2.20 | 0.53 |
| 1:CA:545:C:H5'' | 3:CD:68:GLU:HG2 | 1.90 | 0.53 |
| 5:CF:10:VAL:HG12 | 5:CF:11:HIS:N | 2.23 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 9:AJ:67:ILE:HG12 | 13:AN:94:GLY:O | 2.08 | 0.53 |
| 23:BB:155:A:H2' | 23:BB:156:A:H8 | 1.68 | 0.53 |
| 6:CG:14:ASP:HB3 | 6:CG:18:GLY:H | 1.73 | 0.53 |
| 28:DF:31:GLU:O | 28:DF:95:MET:HE1 | 2.08 | 0.53 |
| 40:DS:74:ILE:CG2 | 40:DS:105:VAL:HG23 | 2.38 | 0.53 |
| 1:CA:860:A:H2' | 1:CA:861:G:O4' | 2.09 | 0.53 |
| 1:AA:474:G:H2' | 1:AA:475:C:H6 | 1.73 | 0.53 |
| 20:AB:79:VAL:HG11 | 20:AB:92:ASN:HB3 | 1.89 | 0.53 |
| 1:AA:730:G:O2' | 1:AA:766:A:H5' | 2.08 | 0.53 |
| 29:DG:25:ILE:HD11 | 29:DG:75:VAL:HG22 | 1.89 | 0.53 |
| 1:AA:203:G:N2 | 1:AA:205:A:N6 | 2.57 | 0.53 |
| 1:CA:677:U:H2' | 1:CA:678:U:C6 | 2.44 | 0.53 |
| 23:BB:711:G:O2' | 23:BB:712:G:H5' | 2.09 | 0.53 |
| 23:DB:1682:G:C2 | 23:DB:1757:A:O4' | 2.61 | 0.53 |
| 23:DB:905:A:O2' | 23:DB:906:U:H5' | 2.09 | 0.53 |
| 8:AI:91:GLU:CD | 8:AI:94:ARG:HH21 | 2.11 | 0.53 |
| 23:BB:1629:U:O2 | 23:BB:2698:U:H5'' | 2.08 | 0.53 |
| 23:BB:1231:U:H2' | 23:BB:1232:G:H8 | 1.73 | 0.53 |
| 1:AA:1130:A:H5' | 8:AI:19:PHE:CE2 | 2.43 | 0.53 |
| 23:BB:877:A:H2' | 23:BB:899:A:N1 | 2.24 | 0.53 |
| 6:AG:144:ALA:C | 6:AG:146:ALA:H | 2.11 | 0.53 |
| 23:DB:2077:A:O2' | 23:DB:2078:C:H5' | 2.08 | 0.53 |
| 52:BI:23:VAL:HG23 | 52:BI:24:GLY:N | 2.24 | 0.53 |
| 23:DB:1716:U:H2' | 23:DB:1717:A:C8 | 2.43 | 0.53 |
| 23:DB:1172:C:H2' | 23:DB:1173:U:O4' | 2.07 | 0.53 |
| 2:AC:110:LEU:O | 2:AC:203:LYS:HE2 | 2.08 | 0.53 |
| 9:CJ:82:LYS:HD2 | 9:CJ:82:LYS:N | 2.23 | 0.53 |
| 23:BB:696:G:O2' | 23:BB:697:G:H5' | 2.07 | 0.53 |
| 1:CA:317:U:H2' | 1:CA:318:G:H8 | 1.73 | 0.53 |
| 2:CC:116:ALA:HB1 | 2:CC:186:SER:OG | 2.07 | 0.53 |
| 23:BB:152:A:H2' | 23:BB:153:U:C6 | 2.43 | 0.53 |
| 51:D4:23:ILE:HD12 | 51:D4:24:ARG:HD2 | 1.90 | 0.53 |
| 51:D4:2:LYS:HG2 | 51:D4:38:GLY:HA3 | 1.90 | 0.53 |
| 43:DW:30:VAL:HG12 | 43:DW:31:LEU:N | 2.23 | 0.53 |
| 25:BC:155:ARG:NE | 25:BC:157:ALA:HB3 | 2.16 | 0.53 |
| 33:BL:64:PHE:H | 50:B3:24:LYS:CD | 2.14 | 0.53 |
| 34:BM:95:LEU:HD22 | 34:BM:98:PRO:CG | 2.36 | 0.53 |
| 38:BQ:27:ARG:HA | 38:BQ:33:VAL:HB | 1.90 | 0.53 |
| 23:DB:2874:C:H2' | 23:DB:2875:C:C6 | 2.42 | 0.53 |
| 23:BB:987:C:H2' | 23:BB:988:A:O4' | 2.08 | 0.53 |
| 23:BB:992:C:H2' | 23:BB:993:G:H8 | 1.74 | 0.53 |
| 23:BB:2772:C:H5'' | 26:BD:171:THR:HG21 | 1.91 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 8:AI:30:ASN:N | 8:AI:30:ASN:HD22 | 2.06 | 0.53 |
| 23:BB:2305:U:H1' | 28:BF:132:ARG:HA | 1.90 | 0.53 |
| 18:CS:28:LYS:HB3 | 18:CS:28:LYS:NZ | 2.23 | 0.53 |
| 31:BJ:84:ILE:HG22 | 31:BJ:85:LYS:H | 1.73 | 0.53 |
| 31:BJ:43:GLU:O | 31:BJ:45:THR:N | 2.42 | 0.53 |
| 12:AM:52:ILE:HD12 | 12:AM:55:LEU:HD12 | 1.90 | 0.53 |
| 23:DB:1198:U:C2 | 23:DB:1199:U:C5 | 2.97 | 0.53 |
| 26:DD:79:LEU:CG | 26:DD:80:TRP:H | 2.20 | 0.53 |
| 1:AA:1314:C:H2' | 1:AA:1315:U:C6 | 2.44 | 0.53 |
| 30:DH:90:LEU:HD22 | 30:DH:122:LEU:O | 2.07 | 0.53 |
| 28:DF:168:LEU:HD23 | 28:DF:168:LEU:O | 2.09 | 0.53 |
| 41:DT:6:ARG:HG2 | 41:DT:9:LYS:O | 2.09 | 0.53 |
| 23:BB:2636:C:H4' | 26:BD:80:TRP:CE3 | 2.43 | 0.53 |
| 45:DY:1:ALA:N | 45:DY:43:ILE:HB | 2.23 | 0.53 |
| 37:DP:32:VAL:HA | 37:DP:42:PHE:CB | 2.34 | 0.53 |
| 39:BR:62:GLU:HG3 | 39:BR:103:ALA:HA | 1.89 | 0.53 |
| 29:BG:78:VAL:HG23 | 29:BG:79:THR:HG23 | 1.91 | 0.53 |
| 31:DJ:23:LYS:HE3 | 31:DJ:63:ALA:CB | 2.38 | 0.53 |
| 22:DA:53:A:O2' | 22:DA:54:G:H5' | 2.07 | 0.53 |
| 36:BO:8:ILE:C | 36:BO:10:ARG:H | 2.12 | 0.53 |
| 23:DB:247:G:H4' | 23:DB:386:G:C4 | 2.43 | 0.53 |
| 37:BP:108:ARG:H | 37:BP:108:ARG:CD | 2.21 | 0.53 |
| 4:CE:104:ILE:HG13 | 4:CE:114:LEU:HB2 | 1.89 | 0.53 |
| 12:CM:95:PRO:HD3 | 12:CM:108:ARG:HG2 | 1.88 | 0.53 |
| 23:DB:545:U:H3' | 23:DB:546:U:H5'' | 1.91 | 0.53 |
| 23:BB:1439:A:N6 | 23:BB:1440:U:O2 | 2.35 | 0.53 |
| 23:BB:1487:U:H2' | 23:BB:1488:C:H6 | 1.73 | 0.53 |
| 1:CA:1412:C:H2' | 1:CA:1413:A:H8 | 1.72 | 0.53 |
| 8:CI:24:ASN:OD1 | 8:CI:26:LYS:HG2 | 2.09 | 0.53 |
| 1:AA:817:C:H1' | 1:AA:819:A:C5' | 2.38 | 0.53 |
| 23:BB:1842:G:H2' | 23:BB:1843:C:C6 | 2.44 | 0.53 |
| 20:CB:62:ARG:H | 20:CB:62:ARG:CD | 2.22 | 0.53 |
| 29:DG:39:ALA:HA | 29:DG:54:ARG:HB2 | 1.90 | 0.53 |
| 23:BB:1387:A:H2' | 23:BB:1388:G:C8 | 2.41 | 0.53 |
| 23:DB:2247:A:H2' | 23:DB:2248:C:H6 | 1.71 | 0.53 |
| 14:AO:11:VAL:HA | 14:AO:26:VAL:HG13 | 1.90 | 0.53 |
| 24:BV:57:TYR:CD2 | 34:BM:133:LYS:HE2 | 2.43 | 0.53 |
| 22:DA:21:G:H2' | 22:DA:22:U:O4' | 2.08 | 0.53 |
| 20:CB:86:CYS:HB3 | 20:CB:88:GLN:NE2 | 2.22 | 0.53 |
| 23:BB:1571:A:H2' | 23:BB:1572:A:H8 | 1.73 | 0.53 |
| 1:AA:982:U:H4' | 1:AA:983:A:O4' | 2.08 | 0.53 |
| 27:DE:191:ASP:HA | 27:DE:194:LYS:CE | 2.39 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:BB:1159:U:H2' | 23:BB:1160:G:C8 | 2.43 | 0.53 |
| 23:BB:852:U:H2' | 23:BB:853:C:H6 | 1.72 | 0.53 |
| 16:AQ:23:ALA:C | 16:AQ:24:ILE:HD12 | 2.29 | 0.53 |
| 23:DB:130:C:O2' | 23:DB:131:A:H5' | 2.08 | 0.53 |
| 23:DB:1751:U:H2' | 23:DB:1752:C:C6 | 2.43 | 0.53 |
| 1:AA:128:G:H2' | 1:AA:129:A:C8 | 2.43 | 0.53 |
| 52:DI:102:ARG:HG3 | 52:DI:141:ASP:CB | 2.38 | 0.53 |
| 7:AH:42:GLU:HG3 | 7:AH:100:ILE:HD13 | 1.90 | 0.53 |
| 22:BA:35:C:H2' | 22:BA:36:C:O4' | 2.08 | 0.53 |
| 23:DB:1051:G:H2' | 23:DB:1052:C:H6 | 1.73 | 0.53 |
| 34:DM:86:LYS:HG2 | 34:DM:87:GLY:H | 1.73 | 0.53 |
| 23:BB:1733:G:H2' | 23:BB:1734:G:H8 | 1.74 | 0.53 |
| 14:AO:24:THR:HB | 14:AO:69:LEU:HD21 | 1.90 | 0.53 |
| 23:BB:2405:G:H1' | 23:BB:2412:A:N6 | 2.23 | 0.53 |
| 18:AS:12:LEU:HG | 18:AS:15:LEU:HD23 | 1.91 | 0.53 |
| 30:DH:95:GLY:O | 30:DH:99:ILE:HG12 | 2.08 | 0.53 |
| 1:CA:787:A:O2' | 1:CA:788:U:H5' | 2.08 | 0.53 |
| 27:BE:44:ARG:H | 27:BE:44:ARG:CD | 2.21 | 0.53 |
| 35:DN:24:MET:HG2 | 35:DN:44:LEU:HD13 | 1.91 | 0.53 |
| 35:DN:42:LYS:CE | 35:DN:45:ARG:HG3 | 2.37 | 0.53 |
| 34:BM:67:VAL:HG23 | 34:BM:95:LEU:HD21 | 1.89 | 0.53 |
| 24:BV:82:TYR:CD2 | 24:BV:82:TYR:N | 2.76 | 0.53 |
| 23:DB:2723:C:H5' | 35:DN:4:ARG:NH2 | 2.24 | 0.53 |
| 41:DT:31:VAL:HG22 | 41:DT:32:LEU:N | 2.24 | 0.53 |
| 40:BS:69:LEU:N | 40:BS:69:LEU:HD22 | 2.24 | 0.53 |
| 26:DD:173:GLN:HG2 | 26:DD:208:LYS:HB3 | 1.90 | 0.53 |
| 33:DL:79:LEU:CD1 | 33:DL:112:LEU:HD23 | 2.39 | 0.53 |
| 50:D3:24:LYS:HZ2 | 50:D3:24:LYS:HB3 | 1.74 | 0.53 |
| 26:DD:124:ARG:NH1 | 26:DD:160:LYS:HE2 | 2.24 | 0.53 |
| 25:DC:53:ILE:CG1 | 25:DC:218:THR:HA | 2.37 | 0.53 |
| 23:DB:1813:G:H1' | 25:DC:45:ASN:HB3 | 1.90 | 0.53 |
| 45:DY:4:ILE:HG23 | 45:DY:5:LYS:HD3 | 1.91 | 0.53 |
| 32:DK:70:ARG:O | 32:DK:71:ARG:HG2 | 2.08 | 0.53 |
| 1:CA:920:U:H2' | 1:CA:921:U:C6 | 2.43 | 0.53 |
| 29:BG:26:LYS:HG2 | 29:BG:31:GLU:HG2 | 1.90 | 0.53 |
| 15:CP:44:SER:C | 15:CP:46:LYS:H | 2.12 | 0.53 |
| 5:CF:51:ILE:CD1 | 5:CF:86:ARG:HG3 | 2.39 | 0.53 |
| 40:DS:84:ARG:HH21 | 40:DS:98:LYS:HZ3 | 1.56 | 0.53 |
| 42:DU:57:ILE:HD13 | 42:DU:57:ILE:C | 2.29 | 0.53 |
| 25:DC:28:PRO:O | 25:DC:29:PHE:CG | 2.61 | 0.53 |
| 23:BB:2304:G:H22 | 23:BB:2312:U:H3 | 1.56 | 0.53 |
| 23:BB:716:A:H3' | 23:BB:717:C:H5'' | 1.90 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:BB:2794:C:H2' | 23:BB:2795:C:C6 | 2.44 | 0.53 |
| 23:BB:1220:G:H2' | 23:BB:1221:C:H6 | 1.72 | 0.53 |
| 29:DG:169:ARG:CZ | 29:DG:169:ARG:HB2 | 2.37 | 0.53 |
| 32:DK:38:ILE:HD13 | 32:DK:61:VAL:HG12 | 1.91 | 0.53 |
| 20:AB:165:ALA:CB | 20:AB:186:VAL:HG12 | 2.38 | 0.53 |
| 32:DK:93:GLN:CG | 32:DK:94:PRO:HD2 | 2.38 | 0.53 |
| 1:CA:633:G:H2' | 1:CA:634:C:C6 | 2.44 | 0.53 |
| 23:DB:1842:G:H2' | 23:DB:1843:C:C6 | 2.43 | 0.53 |
| 23:BB:520:G:H2' | 23:BB:521:U:C6 | 2.43 | 0.53 |
| 23:BB:254:G:O6 | 50:B3:3:ILE:HG23 | 2.09 | 0.53 |
| 1:AA:845:A:H3' | 1:AA:846:G:O4' | 2.08 | 0.53 |
| 29:BG:90:GLY:HA3 | 29:BG:93:TYR:CD2 | 2.44 | 0.53 |
| 23:DB:1545:A:H2' | 23:DB:1546:G:O4' | 2.09 | 0.53 |
| 1:AA:610:U:O2 | 1:AA:610:U:O4' | 2.25 | 0.53 |
| 52:DI:1:ALA:HB1 | 52:DI:2:LYS:HD2 | 1.90 | 0.53 |
| 37:DP:31:VAL:HG12 | 37:DP:33:GLU:H | 1.72 | 0.53 |
| 25:DC:152:GLN:HB3 | 25:DC:153:LEU:HD23 | 1.90 | 0.53 |
| 43:BW:76:ARG:CZ | 43:BW:76:ARG:HB3 | 2.38 | 0.53 |
| 39:DR:78:ARG:O | 39:DR:79:ARG:HB2 | 2.09 | 0.53 |
| 18:AS:10:ILE:HG22 | 18:AS:38:THR:H | 1.73 | 0.53 |
| 23:BB:298:G:OP1 | 42:BU:82:VAL:HA | 2.09 | 0.53 |
| 23:DB:2820:A:N6 | 26:DD:197:THR:HB | 2.24 | 0.53 |
| 25:BC:58:LYS:NZ | 25:BC:58:LYS:HB2 | 2.24 | 0.53 |
| 23:BB:1006:C:O2' | 23:BB:1007:C:H5' | 2.08 | 0.53 |
| 31:BJ:10:THR:HB | 31:BJ:13:ARG:NH1 | 2.24 | 0.53 |
| 39:BR:5:PHE:CE2 | 39:BR:7:SER:HB3 | 2.44 | 0.53 |
| 20:CB:102:ASN:ND2 | 20:CB:105:THR:HB | 2.24 | 0.53 |
| 23:DB:2641:G:OP1 | 31:DJ:78:THR:HG22 | 2.09 | 0.53 |
| 1:CA:437:U:C2' | 1:CA:438:U:O4' | 2.51 | 0.53 |
| 23:BB:910:A:H2 | 23:BB:2264:C:O2 | 1.92 | 0.53 |
| 23:DB:635:C:P | 33:DL:126:ARG:HE | 2.32 | 0.53 |
| 21:CU:25:ALA:C | 21:CU:27:VAL:H | 2.10 | 0.53 |
| 23:BB:2874:C:H2' | 23:BB:2875:C:C6 | 2.43 | 0.53 |
| 9:CJ:51:VAL:CG2 | 13:CN:80:ARG:HB2 | 2.33 | 0.53 |
| 6:AG:129:ASN:HA | 6:AG:134:VAL:HG21 | 1.89 | 0.53 |
| 44:DX:17:GLU:O | 44:DX:22:LEU:HG | 2.08 | 0.53 |
| 26:BD:77:ARG:HG2 | 26:BD:78:GLY:N | 2.23 | 0.53 |
| 23:DB:1813:G:N3 | 25:DC:50:THR:CG2 | 2.69 | 0.53 |
| 32:DK:108:ARG:HH11 | 32:DK:108:ARG:HG3 | 1.73 | 0.53 |
| 39:DR:44:GLY:N | 39:DR:53:PHE:HE2 | 2.06 | 0.53 |
| 39:DR:4:VAL:HG12 | 39:DR:43:ASN:CB | 2.38 | 0.53 |
| 4:CE:35:LEU:HD13 | 4:CE:133:ILE:HA | 1.91 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:CA:1283:U:O2' | 1:CA:1284:C:H5' | 2.08 | 0.53 |
| 8:CI:51:LEU:HD22 | 8:CI:56:MET:HG2 | 1.90 | 0.53 |
| 33:DL:39:LYS:HZ3 | 33:DL:39:LYS:N | 2.06 | 0.53 |
| 23:DB:1082:U:C4 | 23:DB:1086:A:N1 | 2.77 | 0.53 |
| 52:DI:54:ILE:HD13 | 52:DI:55:PRO:N | 2.22 | 0.53 |
| 23:BB:2692:G:O2' | 23:BB:2693:G:H5' | 2.08 | 0.53 |
| 29:DG:11:PRO:HD2 | 29:DG:14:VAL:HG21 | 1.90 | 0.53 |
| 1:AA:1027:C:H2' | 1:AA:1028:C:C6 | 2.43 | 0.53 |
| 48:D1:8:ILE:CD1 | 48:D1:9:LYS:H | 2.22 | 0.53 |
| 34:BM:108:VAL:O | 34:BM:110:GLU:N | 2.42 | 0.53 |
| 23:DB:945:A:H3' | 23:DB:946:C:H5'' | 1.90 | 0.53 |
| 23:DB:1791:A:C5' | 25:DC:211:ARG:HE | 2.20 | 0.53 |
| 4:CE:110:MET:HG2 | 4:CE:139:THR:OG1 | 2.09 | 0.53 |
| 36:DO:30:ARG:HD2 | 36:DO:97:PHE:HD2 | 1.74 | 0.53 |
| 23:BB:2899:A:H2' | 23:BB:2900:A:H8 | 1.74 | 0.53 |
| 1:CA:1060:U:H2' | 1:CA:1061:G:C8 | 2.44 | 0.53 |
| 25:DC:28:PRO:HD2 | 25:DC:79:ARG:HE | 1.73 | 0.53 |
| 1:CA:471:U:H2' | 1:CA:472:U:H6 | 1.73 | 0.53 |
| 1:CA:1026:G:H2' | 1:CA:1027:C:C6 | 2.41 | 0.53 |
| 23:BB:710:U:H2' | 23:BB:711:G:C8 | 2.42 | 0.53 |
| 23:DB:417:C:H2' | 23:DB:418:C:C6 | 2.44 | 0.53 |
| 40:DS:27:LYS:HA | 40:DS:70:LYS:CB | 2.38 | 0.53 |
| 1:AA:633:G:H2' | 1:AA:634:C:C6 | 2.44 | 0.53 |
| 23:BB:1684:G:H2' | 23:BB:1685:C:C6 | 2.44 | 0.53 |
| 23:DB:1946:U:H2' | 23:DB:1947:C:C6 | 2.43 | 0.53 |
| 23:BB:2097:A:H2' | 23:BB:2098:U:H6 | 1.73 | 0.53 |
| 23:BB:948:C:H2' | 23:BB:949:G:H8 | 1.74 | 0.53 |
| 1:AA:600:A:H2' | 1:AA:601:G:H8 | 1.73 | 0.53 |
| 43:DW:21:GLY:HA2 | 43:DW:25:PHE:CE1 | 2.43 | 0.53 |
| 23:BB:1028:A:N6 | 23:BB:1125:G:H2' | 2.24 | 0.53 |
| 2:AC:40:GLN:O | 2:AC:44:LYS:HG3 | 2.08 | 0.53 |
| 22:DA:94:A:O2' | 22:DA:95:U:H5' | 2.08 | 0.53 |
| 2:AC:85:LYS:O | 2:AC:89:VAL:HG23 | 2.08 | 0.53 |
| 1:CA:613:C:H2' | 1:CA:614:C:C6 | 2.44 | 0.53 |
| 1:CA:521:G:OP1 | 11:CL:69:GLU:HB3 | 2.08 | 0.53 |
| 23:BB:460:A:H2' | 23:BB:461:C:O4' | 2.09 | 0.53 |
| 23:BB:817:C:O2' | 23:BB:839:U:H5'' | 2.09 | 0.53 |
| 40:BS:56:ALA:C | 40:BS:58:ALA:H | 2.12 | 0.53 |
| 1:CA:736:C:H2' | 1:CA:737:C:C6 | 2.43 | 0.53 |
| 41:DT:7:LEU:HD22 | 41:DT:7:LEU:H | 1.73 | 0.53 |
| 13:AN:59:GLN:NE2 | 13:AN:59:GLN:N | 2.56 | 0.53 |
| 1:CA:140:U:H2' | 1:CA:141:G:H8 | 1.73 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 1:CA:149:A:HI1' | 1:CA:1446:A:C2 | 2.44 | 0.53 |
| 27:BE:44:ARG:N | 27:BE:44:ARG:HD3 | 2.24 | 0.53 |
| 20:CB:40:ILE:HG21 | 20:CB:200:PRO:O | 2.09 | 0.53 |
| 35:DN:32:GLU:O | 35:DN:114:GLU:HA | 2.08 | 0.53 |
| 31:BJ:72:LYS:CB | 31:BJ:90:GLU:HB2 | 2.34 | 0.53 |
| 38:DQ:40:LYS:HB2 | 38:DQ:40:LYS:NZ | 2.23 | 0.53 |
| 18:AS:31:ARG:HH11 | 18:AS:31:ARG:HG2 | 1.74 | 0.53 |
| 18:AS:10:ILE:HD13 | 18:AS:40:PHE:CE1 | 2.44 | 0.53 |
| 27:DE:161:ALA:O | 27:DE:162:ARG:HB2 | 2.07 | 0.53 |
| 46:BZ:5:ILE:HD13 | 46:BZ:51:VAL:HG12 | 1.91 | 0.53 |
| 36:DO:25:ARG:O | 36:DO:26:LEU:HD12 | 2.09 | 0.53 |
| 9:AJ:35:GLN:H | 9:AJ:78:GLU:HB3 | 1.74 | 0.53 |
| 23:DB:1341:G:H2' | 23:DB:1397:U:O2' | 2.09 | 0.53 |
| 31:DJ:40:HIS:O | 38:DQ:66:ALA:HB1 | 2.09 | 0.53 |
| 31:BJ:78:THR:O | 31:BJ:80:HIS:N | 2.42 | 0.53 |
| 13:AN:82:LYS:HE2 | 13:AN:82:LYS:HA | 1.91 | 0.53 |
| 3:CD:104:MET:SD | 3:CD:179:GLY:HA2 | 2.47 | 0.53 |
| 23:DB:633:A:C2' | 23:DB:634:C:H5' | 2.37 | 0.53 |
| 26:BD:131:ASP:OD2 | 26:BD:133:THR:HG22 | 2.08 | 0.53 |
| 40:DS:31:GLN:O | 40:DS:35:ILE:HG13 | 2.08 | 0.53 |
| 27:DE:15:SER:O | 27:DE:17:THR:HG22 | 2.09 | 0.53 |
| 33:DL:58:TYR:HB3 | 50:D3:13:PHE:HZ | 1.73 | 0.53 |
| 51:D4:16:ILE:C | 51:D4:18:LYS:H | 2.12 | 0.53 |
| 25:DC:224:MET:O | 25:DC:225:ASN:HB2 | 2.07 | 0.53 |
| 23:BB:1060:U:O2 | 23:BB:1088:A:C8 | 2.62 | 0.53 |
| 4:CE:136:VAL:HG23 | 4:CE:137:ARG:N | 2.23 | 0.53 |
| 48:B1:42:VAL:CG1 | 48:B1:43:ARG:N | 2.72 | 0.53 |
| 11:AL:80:LEU:HD23 | 11:AL:97:VAL:HG21 | 1.90 | 0.53 |
| 15:CP:3:THR:HB | 15:CP:66:THR:O | 2.07 | 0.53 |
| 1:CA:952:U:H2' | 1:CA:953:G:C8 | 2.41 | 0.53 |
| 1:CA:276:G:H5' | 16:CQ:16:MET:SD | 2.48 | 0.53 |
| 26:BD:60:VAL:HB | 26:BD:63:PRO:CG | 2.38 | 0.53 |
| 23:DB:1826:G:H2' | 23:DB:1827:U:C6 | 2.44 | 0.53 |
| 1:CA:817:C:HI1' | 1:CA:819:A:C5' | 2.38 | 0.53 |
| 29:BG:157:LYS:CG | 29:BG:159:LYS:HZ2 | 2.21 | 0.53 |
| 49:D2:6:GLN:HB3 | 49:D2:7:PRO:HD2 | 1.89 | 0.53 |
| 23:BB:847:U:O4' | 23:BB:847:U:O2 | 2.27 | 0.53 |
| 22:BA:17:C:C2' | 22:BA:18:G:H5' | 2.39 | 0.53 |
| 23:BB:309:A:N3 | 23:BB:329:G:O2' | 2.42 | 0.53 |
| 23:DB:937:C:H2' | 23:DB:938:G:C8 | 2.43 | 0.53 |
| 12:CM:15:VAL:HG13 | 12:CM:40:GLU:HB2 | 1.89 | 0.53 |
| 45:BY:4:ILE:HG12 | 45:BY:5:LYS:HE2 | 1.90 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 25:DC:123:ILE:HG12 | 25:DC:135:PRO:CD | 2.39 | 0.53 |
| 23:BB:664:G:H2' | 23:BB:665:U:C6 | 2.44 | 0.53 |
| 2:CC:89:VAL:HG23 | 2:CC:90:VAL:N | 2.23 | 0.53 |
| 1:AA:113:G:H2' | 1:AA:114:U:C6 | 2.43 | 0.53 |
| 2:CC:49:ALA:HB2 | 2:CC:74:ILE:HG21 | 1.91 | 0.53 |
| 1:AA:287:U:O2' | 1:AA:288:A:H5' | 2.08 | 0.53 |
| 23:BB:257:C:H2' | 23:BB:258:G:O4' | 2.09 | 0.53 |
| 23:DB:2348:U:O2' | 23:DB:2349:G:H5' | 2.09 | 0.53 |
| 23:BB:560:C:H3' | 23:BB:561:G:C8 | 2.44 | 0.53 |
| 2:AC:139:ASN:O | 2:AC:143:LEU:HD22 | 2.09 | 0.53 |
| 11:AL:79:ILE:HG22 | 11:AL:103:CYS:HB2 | 1.90 | 0.53 |
| 23:DB:2718:G:O2' | 23:DB:2719:G:H5' | 2.09 | 0.53 |
| 23:BB:1671:U:H2' | 23:BB:1673:G:OP2 | 2.08 | 0.53 |
| 23:BB:1583:A:H4' | 23:BB:1585:C:C4 | 2.44 | 0.53 |
| 23:DB:1733:G:H2' | 23:DB:1734:G:H8 | 1.73 | 0.53 |
| 1:AA:252:U:H2' | 1:AA:253:A:H8 | 1.74 | 0.53 |
| 23:BB:2634:A:H2' | 23:BB:2635:A:C8 | 2.44 | 0.53 |
| 23:DB:1583:A:H4' | 23:DB:1585:C:C4 | 2.44 | 0.53 |
| 23:BB:1864:U:O2' | 23:BB:1865:U:H5' | 2.08 | 0.53 |
| 42:BU:71:ILE:HD13 | 42:BU:71:ILE:C | 2.29 | 0.53 |
| 35:DN:24:MET:CE | 35:DN:36:THR:HG21 | 2.39 | 0.53 |
| 23:BB:340:A:O2' | 23:BB:341:C:H5' | 2.08 | 0.53 |
| 23:BB:633:A:O5' | 23:BB:633:A:C8 | 2.57 | 0.53 |
| 23:DB:1138:G:H2' | 23:DB:1139:G:O4' | 2.09 | 0.53 |
| 24:DV:63:ILE:N | 24:DV:63:ILE:HD12 | 2.24 | 0.53 |
| 25:DC:268:ARG:O | 25:DC:269:ARG:HB2 | 2.09 | 0.53 |
| 42:BU:39:ASN:HD21 | 42:BU:42:LYS:HE2 | 1.71 | 0.53 |
| 42:BU:59:GLU:O | 42:BU:60:LYS:HB2 | 2.08 | 0.53 |
| 42:BU:60:LYS:CG | 42:BU:61:GLU:H | 2.22 | 0.53 |
| 39:BR:39:LEU:HD12 | 39:BR:60:LYS:HB2 | 1.90 | 0.53 |
| 27:BE:108:ILE:HD12 | 27:BE:108:ILE:H | 1.73 | 0.53 |
| 24:BV:30:ILE:HD11 | 24:BV:63:ILE:HD12 | 1.90 | 0.53 |
| 30:DH:94:ILE:HG23 | 30:DH:98:ASP:HB2 | 1.90 | 0.53 |
| 33:DL:109:LYS:HG2 | 33:DL:126:ARG:CD | 2.38 | 0.53 |
| 23:BB:136:G:H2' | 23:BB:137:U:C5 | 2.43 | 0.53 |
| 37:BP:70:GLU:O | 37:BP:71:ARG:HB2 | 2.08 | 0.53 |
| 1:CA:764:C:C2' | 1:CA:765:G:H5' | 2.39 | 0.53 |
| 26:DD:154:LYS:C | 26:DD:156:PHE:H | 2.12 | 0.53 |
| 25:DC:53:ILE:CD1 | 25:DC:218:THR:HA | 2.39 | 0.53 |
| 1:CA:1313:U:OP2 | 18:CS:5:LYS:HA | 2.09 | 0.53 |
| 29:DG:3:VAL:O | 29:DG:4:ALA:HB2 | 2.08 | 0.53 |
| 34:DM:33:LEU:HG | 34:DM:113:ALA:HB1 | 1.91 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 26:DD:21:SER:C | 26:DD:23:PRO:HD3 | 2.29 | 0.53 |
| 29:BG:29:ASN:N | 29:BG:29:ASN:HD22 | 2.05 | 0.53 |
| 35:DN:29:VAL:HG21 | 35:DN:75:ILE:HB | 1.90 | 0.53 |
| 32:DK:41:ILE:HG13 | 32:DK:42:THR:H | 1.74 | 0.53 |
| 4:CE:33:THR:HB | 4:CE:49:TYR:CE1 | 2.43 | 0.53 |
| 1:CA:1311:A:N6 | 18:CS:1:PRO:HD3 | 2.21 | 0.53 |
| 44:DX:7:ARG:NH1 | 44:DX:7:ARG:HB3 | 2.24 | 0.53 |
| 5:CF:9:MET:HB2 | 5:CF:57:ALA:HB1 | 1.90 | 0.53 |
| 9:AJ:87:LEU:HB3 | 9:AJ:88:MET:HE3 | 1.89 | 0.53 |
| 16:CQ:16:MET:HB2 | 16:CQ:19:SER:HB2 | 1.91 | 0.53 |
| 1:CA:1277:C:H1' | 1:CA:1282:C:O2 | 2.09 | 0.53 |
| 23:DB:2529:G:H5' | 29:DG:175:LYS:HB3 | 1.89 | 0.53 |
| 1:AA:613:C:H2' | 1:AA:614:C:C6 | 2.44 | 0.53 |
| 35:DN:107:ASN:ND2 | 40:DS:40:ASN:HB3 | 2.23 | 0.53 |
| 2:CC:122:GLN:HB3 | 2:CC:127:VAL:HG11 | 1.89 | 0.53 |
| 23:DB:2467:C:OP2 | 51:D4:7:VAL:HG12 | 2.09 | 0.53 |
| 23:BB:1796:U:H2' | 23:BB:1797:G:H8 | 1.73 | 0.53 |
| 7:AH:63:LYS:HG2 | 7:AH:70:VAL:HG21 | 1.90 | 0.53 |
| 23:BB:2229:U:H2' | 23:BB:2230:G:H8 | 1.74 | 0.53 |
| 23:DB:521:U:H2' | 23:DB:522:A:C8 | 2.43 | 0.53 |
| 1:AA:672:U:H2' | 1:AA:673:A:C8 | 2.43 | 0.53 |
| 1:AA:711:G:O2' | 1:AA:712:A:H5' | 2.09 | 0.53 |
| 2:CC:166:TRP:HE1 | 2:CC:168:ARG:HB2 | 1.73 | 0.53 |
| 23:DB:1857:G:HO2' | 23:DB:1858:A:H8 | 1.53 | 0.53 |
| 49:B2:25:LYS:H | 49:B2:25:LYS:CE | 2.21 | 0.53 |
| 25:BC:16:VAL:O | 25:BC:16:VAL:HG12 | 2.08 | 0.53 |
| 23:DB:1571:A:H2' | 23:DB:1572:A:H8 | 1.73 | 0.53 |
| 23:DB:1684:G:H2' | 23:DB:1685:C:C6 | 2.44 | 0.53 |
| 27:DE:189:THR:HG23 | 27:DE:194:LYS:HB2 | 1.89 | 0.53 |
| 23:BB:1745:A:O2' | 23:BB:1746:A:H5' | 2.09 | 0.53 |
| 23:DB:2241:A:H2' | 23:DB:2242:G:H8 | 1.72 | 0.53 |
| 1:CA:1158:C:O3' | 20:CB:131:LYS:HD3 | 2.08 | 0.53 |
| 1:AA:640:A:O2' | 1:AA:641:U:H5' | 2.08 | 0.53 |
| 29:BG:100:ASN:O | 29:BG:115:GLN:HA | 2.09 | 0.53 |
| 23:DB:2628:C:O2' | 23:DB:2781:A:H2' | 2.09 | 0.53 |
| 22:DA:10:G:H2' | 22:DA:11:C:O4' | 2.09 | 0.53 |
| 23:BB:737:C:O2' | 23:BB:738:G:H5' | 2.09 | 0.53 |
| 23:BB:197:A:N6 | 23:BB:2430:A:H2' | 2.24 | 0.53 |
| 23:BB:2628:C:O2' | 23:BB:2781:A:H2' | 2.09 | 0.53 |
| 7:CH:71:VAL:HG23 | 7:CH:71:VAL:O | 2.09 | 0.53 |
| 1:CA:975:A:C2' | 1:CA:976:G:OP2 | 2.57 | 0.53 |
| 26:BD:109:VAL:HG11 | 26:BD:193:VAL:HG23 | 1.90 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 43:DW:42:THR:N | 43:DW:65:LYS:HG2 | 2.23 | 0.53 |
| 31:BJ:101:ILE:HG23 | 31:BJ:102:GLU:OE1 | 2.08 | 0.53 |
| 31:BJ:56:VAL:C | 31:BJ:57:LEU:HD22 | 2.29 | 0.53 |
| 23:BB:337:C:H2' | 23:BB:338:G:O4' | 2.09 | 0.53 |
| 34:BM:114:ARG:HA | 34:BM:117:PHE:HB3 | 1.91 | 0.53 |
| 38:BQ:92:LYS:HE3 | 38:BQ:93:ILE:HB | 1.91 | 0.53 |
| 23:BB:2263:C:H2' | 23:BB:2264:C:H6 | 1.74 | 0.53 |
| 3:CD:170:LEU:HA | 3:CD:182:LYS:HG3 | 1.91 | 0.53 |
| 51:B4:14:CYS:SG | 51:B4:27:CYS:HB3 | 2.48 | 0.53 |
| 10:AK:105:ARG:NH2 | 21:AU:10:PRO:HG3 | 2.24 | 0.53 |
| 23:DB:632:A:O3' | 33:DL:69:ARG:HD3 | 2.09 | 0.53 |
| 23:BB:2820:A:O5' | 35:BN:4:ARG:HA | 2.08 | 0.53 |
| 23:DB:2028:U:H2' | 23:DB:2029:G:C8 | 2.44 | 0.53 |
| 23:DB:443:A:H5'' | 23:DB:444:C:OP1 | 2.09 | 0.53 |
| 11:AL:28:GLN:HG3 | 11:AL:80:LEU:HD21 | 1.90 | 0.53 |
| 28:DF:39:VAL:HG13 | 28:DF:84:ILE:CG1 | 2.39 | 0.53 |
| 44:BX:14:LEU:O | 44:BX:17:GLU:HB2 | 2.09 | 0.53 |
| 20:CB:209:VAL:C | 20:CB:213:LEU:HD12 | 2.29 | 0.53 |
| 23:DB:2886:A:C5 | 47:D0:27:LEU:HG | 2.43 | 0.53 |
| 46:DZ:41:HIS:O | 46:DZ:43:PHE:HD1 | 1.92 | 0.53 |
| 23:DB:544:C:H2' | 23:DB:545:U:N3 | 2.24 | 0.53 |
| 11:CL:97:VAL:O | 11:CL:97:VAL:HG23 | 2.09 | 0.53 |
| 23:BB:1549:A:H2' | 23:BB:1550:C:C6 | 2.44 | 0.53 |
| 23:DB:1430:G:H2' | 23:DB:1431:A:H8 | 1.74 | 0.53 |
| 1:AA:963:G:H21 | 9:AJ:56:HIS:HE1 | 1.55 | 0.53 |
| 23:BB:1826:G:H2' | 23:BB:1827:U:C6 | 2.44 | 0.53 |
| 23:BB:2213:U:O2 | 23:BB:2213:U:H2' | 2.07 | 0.53 |
| 29:BG:163:TYR:HB2 | 29:BG:166:GLU:HB2 | 1.90 | 0.53 |
| 13:AN:51:PRO:HB2 | 13:AN:54:SER:HB3 | 1.91 | 0.53 |
| 25:DC:32:LEU:N | 25:DC:32:LEU:HD23 | 2.23 | 0.53 |
| 23:DB:1105:U:H2' | 23:DB:1106:G:C8 | 2.41 | 0.53 |
| 23:DB:934:U:H2' | 23:DB:935:C:C6 | 2.44 | 0.53 |
| 28:DF:177:ARG:CZ | 28:DF:178:LYS:HA | 2.39 | 0.53 |
| 45:DY:50:VAL:CG1 | 45:DY:53:MET:HG2 | 2.39 | 0.53 |
| 23:DB:766:U:H2' | 23:DB:767:U:C6 | 2.44 | 0.53 |
| 23:BB:2308:G:N3 | 23:BB:2308:G:H5'' | 2.24 | 0.53 |
| 2:CC:63:ILE:HG12 | 2:CC:65:VAL:HG23 | 1.91 | 0.53 |
| 1:AA:476:U:H2' | 1:AA:477:C:H6 | 1.73 | 0.53 |
| 23:BB:1846:G:H2' | 23:BB:1847:A:O4' | 2.09 | 0.53 |
| 23:DB:18:U:H2' | 23:DB:19:A:H8 | 1.74 | 0.53 |
| 1:CA:462:G:H2' | 1:CA:463:U:C6 | 2.44 | 0.53 |
| 1:AA:44:A:O2' | 1:AA:45:G:H5' | 2.09 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 24:DV:1:MET:SD | 24:DV:62:THR:HG23 | 2.49 | 0.53 |
| 25:DC:124:LYS:HB2 | 25:DC:125:PRO:CD | 2.39 | 0.53 |
| 23:BB:184:C:H2' | 23:BB:185:G:H8 | 1.72 | 0.53 |
| 25:DC:231:HIS:HD1 | 25:DC:242:HIS:HA | 1.74 | 0.53 |
| 25:DC:181:ARG:O | 25:DC:181:ARG:HG3 | 2.09 | 0.53 |
| 14:AO:57:ARG:HD3 | 14:AO:57:ARG:C | 2.30 | 0.53 |
| 35:BN:57:THR:HG23 | 35:BN:58:ASP:H | 1.74 | 0.53 |
| 37:DP:89:GLY:HA2 | 37:DP:112:ARG:NH2 | 2.23 | 0.53 |
| 36:BO:62:LEU:HD12 | 36:BO:64:TYR:HB2 | 1.90 | 0.53 |
| 20:CB:16:GLY:CA | 20:CB:40:ILE:H | 2.21 | 0.53 |
| 33:BL:14:LYS:CA | 33:BL:14:LYS:HZ3 | 2.08 | 0.53 |
| 47:D0:51:ARG:O | 47:D0:51:ARG:HD3 | 2.08 | 0.53 |
| 23:DB:2634:A:H2' | 23:DB:2635:A:C8 | 2.44 | 0.53 |
| 23:BB:2484:G:O2' | 34:BM:45:GLN:NE2 | 2.41 | 0.53 |
| 34:BM:65:ILE:HA | 34:BM:101:VAL:HA | 1.90 | 0.53 |
| 16:AQ:45:VAL:HG11 | 16:AQ:74:LEU:HB2 | 1.90 | 0.53 |
| 16:AQ:57:VAL:HB | 16:AQ:79:GLU:H | 1.74 | 0.53 |
| 16:AQ:68:LYS:O | 16:AQ:69:THR:HB | 2.09 | 0.53 |
| 23:DB:1846:G:H2' | 23:DB:1847:A:O4' | 2.09 | 0.53 |
| 23:DB:1368:G:OP1 | 49:D2:25:LYS:HG3 | 2.09 | 0.53 |
| 23:BB:2688:G:H1' | 23:BB:2721:A:H61 | 1.74 | 0.53 |
| 26:DD:149:ASN:H | 26:DD:151:THR:HG23 | 1.73 | 0.53 |
| 23:DB:2512:C:H2' | 23:DB:2513:A:O4' | 2.08 | 0.53 |
| 1:CA:556:C:O2' | 1:CA:557:G:H5' | 2.08 | 0.53 |
| 23:DB:2313:C:H5' | 28:DF:36:ASN:ND2 | 2.23 | 0.53 |
| 5:AF:3:HIS:HB2 | 5:AF:92:THR:OG1 | 2.09 | 0.53 |
| 29:BG:25:ILE:O | 29:BG:31:GLU:HA | 2.09 | 0.53 |
| 15:CP:44:SER:CB | 15:CP:46:LYS:HG2 | 2.35 | 0.53 |
| 2:AC:90:VAL:HG23 | 2:AC:98:ALA:HB3 | 1.90 | 0.53 |
| 23:DB:250:G:C5' | 50:D3:7:ARG:HG2 | 2.35 | 0.53 |
| 35:BN:118:ARG:O | 35:BN:118:ARG:HG3 | 2.09 | 0.53 |
| 43:BW:16:GLU:O | 43:BW:18:LYS:HD2 | 2.09 | 0.53 |
| 23:BB:2898:U:H2' | 23:BB:2899:A:C8 | 2.44 | 0.53 |
| 23:DB:1594:U:H2' | 23:DB:1595:C:H6 | 1.74 | 0.53 |
| 22:BA:78:A:H2' | 22:BA:79:G:O4' | 2.09 | 0.53 |
| 1:CA:203:G:N2 | 1:CA:205:A:N6 | 2.56 | 0.53 |
| 20:CB:53:LEU:HD13 | 20:CB:212:TYR:OH | 2.09 | 0.53 |
| 1:AA:1392:G:H2' | 1:AA:1393:U:C6 | 2.44 | 0.53 |
| 24:DV:53:LYS:NZ | 24:DV:55:GLU:HG2 | 2.23 | 0.53 |
| 1:CA:883:C:O2' | 1:CA:884:U:H5' | 2.09 | 0.53 |
| 2:CC:53:ARG:HA | 2:CC:113:LYS:NZ | 2.23 | 0.53 |
| 23:BB:503:A:C3' | 23:BB:504:A:H5' | 2.39 | 0.53 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 29:BG:102:ILE:O | 29:BG:113:ASP:HA | 2.08 | 0.53 |
| 28:BF:4:HIS:O | 28:BF:7:TYR:HB3 | 2.09 | 0.53 |
| 1:AA:1033:G:H3' | 1:AA:1034:G:H5'' | 1.91 | 0.53 |
| 1:CA:1478:U:H2' | 1:CA:1479:C:C6 | 2.43 | 0.53 |
| 1:AA:777:A:H2' | 1:AA:778:G:C8 | 2.43 | 0.53 |
| 40:BS:86:MET:SD | 40:BS:96:ILE:HD11 | 2.49 | 0.53 |
| 40:BS:20:VAL:O | 40:BS:23:LEU:HB2 | 2.09 | 0.53 |
| 23:DB:228:C:H4' | 23:DB:229:C:H5'' | 1.90 | 0.53 |
| 2:CC:91:ALA:HB2 | 2:CC:98:ALA:HB3 | 1.90 | 0.53 |
| 20:CB:150:ILE:O | 20:CB:150:ILE:HG12 | 2.09 | 0.53 |
| 6:AG:143:MET:O | 6:AG:147:ASN:HB2 | 2.09 | 0.53 |
| 2:CC:23:ALA:HB1 | 2:CC:27:GLU:HB2 | 1.91 | 0.53 |
| 1:CA:640:A:O2' | 1:CA:641:U:H5' | 2.08 | 0.53 |
| 2:AC:119:ILE:O | 2:AC:123:LEU:HG | 2.09 | 0.53 |
| 23:DB:2489:U:O2' | 23:DB:2490:G:H5' | 2.08 | 0.53 |
| 1:CA:858:G:O6 | 1:CA:869:G:H3' | 2.09 | 0.53 |
| 31:DJ:109:LEU:HD22 | 31:DJ:115:GLY:O | 2.09 | 0.53 |
| 1:AA:588:G:H5' | 7:AH:2:MET:O | 2.09 | 0.53 |
| 25:DC:37:SER:H | 25:DC:62:ARG:CB | 2.21 | 0.52 |
| 23:DB:1186:G:H2' | 23:DB:1187:G:O4' | 2.09 | 0.52 |
| 33:BL:126:ARG:HH21 | 33:BL:131:ALA:HB2 | 1.73 | 0.52 |
| 33:BL:56:PRO:O | 33:BL:59:ARG:HB2 | 2.08 | 0.52 |
| 34:BM:7:THR:O | 34:BM:8:LYS:HD3 | 2.09 | 0.52 |
| 40:BS:11:ARG:HD3 | 40:BS:11:ARG:O | 2.08 | 0.52 |
| 23:BB:2305:U:H2' | 23:BB:2306:C:C6 | 2.43 | 0.52 |
| 28:BF:106:ALA:HB1 | 28:BF:136:ILE:HG23 | 1.90 | 0.52 |
| 5:CF:25:TYR:O | 5:CF:29:ILE:HG13 | 2.09 | 0.52 |
| 38:BQ:84:LYS:N | 38:BQ:84:LYS:HE3 | 2.24 | 0.52 |
| 38:BQ:88:GLU:HG2 | 39:BR:53:PHE:CD2 | 2.45 | 0.52 |
| 44:BX:29:ARG:CA | 44:BX:34:SER:HB2 | 2.39 | 0.52 |
| 34:BM:15:GLY:O | 34:BM:16:ARG:HB3 | 2.09 | 0.52 |
| 27:BE:144:GLU:HG3 | 27:BE:145:ASP:H | 1.73 | 0.52 |
| 33:DL:69:ARG:HG3 | 33:DL:71:ALA:O | 2.09 | 0.52 |
| 33:DL:92:LEU:HA | 33:DL:96:LYS:HG2 | 1.91 | 0.52 |
| 6:AG:130:LYS:N | 6:AG:134:VAL:HG11 | 2.23 | 0.52 |
| 51:D4:19:ARG:HB3 | 51:D4:19:ARG:HH11 | 1.73 | 0.52 |
| 23:DB:1060:U:O2 | 23:DB:1088:A:C8 | 2.63 | 0.52 |
| 23:BB:2675:A:N1 | 23:BB:2732:G:O6 | 2.42 | 0.52 |
| 13:CN:43:ALA:O | 13:CN:47:LEU:HB2 | 2.09 | 0.52 |
| 23:DB:929:U:H1' | 45:DY:24:LEU:O | 2.09 | 0.52 |
| 23:BB:2144:G:N2 | 23:BB:2148:G:N3 | 2.57 | 0.52 |
| 48:B1:42:VAL:O | 48:B1:43:ARG:HB2 | 2.09 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 33:DL:90:VAL:CG1 | 33:DL:122:VAL:HG22 | 2.39 | 0.52 |
| 20:AB:30:ILE:HG22 | 20:AB:32:GLY:H | 1.74 | 0.52 |
| 28:DF:39:VAL:HG13 | 28:DF:84:ILE:HB | 1.91 | 0.52 |
| 23:BB:1183:U:H2' | 23:BB:1184:U:C6 | 2.43 | 0.52 |
| 27:DE:120:VAL:HG12 | 27:DE:121:VAL:N | 2.18 | 0.52 |
| 4:CE:156:ARG:HD2 | 7:CH:42:GLU:O | 2.09 | 0.52 |
| 16:CQ:60:ILE:HD13 | 16:CQ:60:ILE:H | 1.74 | 0.52 |
| 1:CA:1171:A:H2' | 1:CA:1172:C:C6 | 2.44 | 0.52 |
| 23:DB:1864:U:O2' | 23:DB:1865:U:H5' | 2.08 | 0.52 |
| 23:BB:1844:C:OP1 | 25:BC:252:LYS:HA | 2.09 | 0.52 |
| 1:AA:537:G:H2' | 1:AA:538:G:H8 | 1.74 | 0.52 |
| 2:CC:151:GLU:HA | 2:CC:166:TRP:HA | 1.90 | 0.52 |
| 1:CA:1244:G:H2' | 1:CA:1245:C:H6 | 1.71 | 0.52 |
| 1:CA:1142:G:H2' | 1:CA:1143:G:C8 | 2.44 | 0.52 |
| 23:BB:877:A:N1 | 23:BB:900:A:N7 | 2.57 | 0.52 |
| 1:CA:113:G:H2' | 1:CA:114:U:C6 | 2.44 | 0.52 |
| 4:AE:156:ARG:HB2 | 7:AH:43:GLY:HA3 | 1.91 | 0.52 |
| 23:BB:2218:G:H2' | 23:BB:2219:U:H6 | 1.73 | 0.52 |
| 23:DB:1042:G:H2' | 23:DB:1043:C:C6 | 2.45 | 0.52 |
| 19:AT:28:ARG:HA | 19:AT:31:ILE:HD12 | 1.91 | 0.52 |
| 12:AM:27:THR:O | 12:AM:30:LYS:HB3 | 2.09 | 0.52 |
| 8:AI:115:VAL:HG21 | 9:AJ:62:ARG:HB2 | 1.90 | 0.52 |
| 39:BR:63:VAL:HB | 39:BR:101:ILE:HG12 | 1.91 | 0.52 |
| 23:DB:204:A:H4' | 23:DB:205:G:OP1 | 2.09 | 0.52 |
| 33:BL:106:GLU:HG2 | 33:BL:107:PHE:H | 1.74 | 0.52 |
| 23:DB:2047:C:H2' | 23:DB:2048:G:H8 | 1.74 | 0.52 |
| 23:BB:1050:A:H2' | 23:BB:1051:G:O4' | 2.10 | 0.52 |
| 37:DP:91:VAL:HG23 | 37:DP:113:LEU:HB3 | 1.92 | 0.52 |
| 37:DP:77:SER:HB2 | 37:DP:78:PRO:HD3 | 1.90 | 0.52 |
| 23:BB:2750:A:H3' | 29:BG:3:VAL:HG13 | 1.90 | 0.52 |
| 37:BP:47:ILE:HG23 | 37:BP:63:ILE:HG23 | 1.91 | 0.52 |
| 23:BB:2849:U:O4 | 37:BP:96:LEU:HD21 | 2.09 | 0.52 |
| 23:DB:323:C:H5 | 27:DE:165:HIS:HB2 | 1.74 | 0.52 |
| 34:BM:32:GLY:HA2 | 34:BM:101:VAL:O | 2.09 | 0.52 |
| 16:AQ:45:VAL:HG12 | 16:AQ:46:HIS:N | 2.21 | 0.52 |
| 9:AJ:5:ARG:N | 9:AJ:5:ARG:HD3 | 2.24 | 0.52 |
| 23:DB:2359:C:H4' | 50:D3:51:LYS:HD2 | 1.91 | 0.52 |
| 38:BQ:50:ARG:HA | 38:BQ:53:LYS:CE | 2.39 | 0.52 |
| 18:CS:43:MET:HB3 | 18:CS:61:VAL:HG11 | 1.91 | 0.52 |
| 25:BC:81:GLU:HB3 | 25:BC:90:ILE:CG2 | 2.40 | 0.52 |
| 23:BB:1151:A:H2' | 23:BB:1152:C:H6 | 1.74 | 0.52 |
| 13:AN:81:ILE:O | 13:AN:84:ARG:HB3 | 2.09 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 41:BT:3:ARG:HG2 | 41:BT:7:LEU:HB3 | 1.92 | 0.52 |
| 50:D3:33:THR:CG2 | 50:D3:40:LYS:HD2 | 2.38 | 0.52 |
| 5:CF:38:ARG:NH1 | 5:CF:98:GLU:H | 1.98 | 0.52 |
| 23:BB:2649:C:H2' | 23:BB:2650:U:H6 | 1.73 | 0.52 |
| 23:DB:997:G:OP1 | 38:DQ:92:LYS:HB3 | 2.09 | 0.52 |
| 23:BB:279:A:N1 | 23:BB:362:A:H5' | 2.24 | 0.52 |
| 1:CA:1337:G:H5'' | 1:CA:1338:G:OP1 | 2.09 | 0.52 |
| 48:D1:10:LEU:HD13 | 48:D1:50:GLU:OE1 | 2.10 | 0.52 |
| 5:CF:85:ILE:HG22 | 5:CF:86:ARG:H | 1.73 | 0.52 |
| 23:BB:328:U:H4' | 42:BU:65:GLN:HE21 | 1.74 | 0.52 |
| 16:CQ:10:ARG:CZ | 16:CQ:11:VAL:H | 2.22 | 0.52 |
| 38:DQ:26:ALA:CA | 38:DQ:30:VAL:HG23 | 2.39 | 0.52 |
| 23:DB:178:G:O2' | 23:DB:179:C:H5' | 2.09 | 0.52 |
| 23:BB:154:U:H2' | 23:BB:155:A:H8 | 1.74 | 0.52 |
| 23:BB:2213:U:H2' | 23:BB:2214:C:H5' | 1.92 | 0.52 |
| 31:BJ:114:LEU:O | 31:BJ:117:ALA:HB3 | 2.10 | 0.52 |
| 37:DP:7:LEU:CD2 | 37:DP:11:GLN:HE21 | 2.22 | 0.52 |
| 9:CJ:41:PRO:HA | 9:CJ:72:ARG:CD | 2.38 | 0.52 |
| 1:AA:1115:U:H2' | 1:AA:1116:U:C6 | 2.45 | 0.52 |
| 20:CB:23:ASN:HD22 | 20:CB:24:PRO:CD | 2.22 | 0.52 |
| 30:DH:135:HIS:CD2 | 30:DH:137:GLU:H | 2.26 | 0.52 |
| 23:DB:1911:U:H2' | 23:DB:1918:A:N1 | 2.22 | 0.52 |
| 23:BB:49:A:H4' | 23:BB:49:A:OP1 | 2.09 | 0.52 |
| 30:BH:41:LYS:H | 30:BH:41:LYS:HD2 | 1.74 | 0.52 |
| 23:DB:1754:A:OP1 | 37:DP:95:LYS:HB2 | 2.10 | 0.52 |
| 26:BD:15:PHE:HB3 | 26:BD:18:ASP:HB3 | 1.90 | 0.52 |
| 41:BT:50:LEU:C | 41:BT:52:GLU:H | 2.13 | 0.52 |
| 6:AG:16:LYS:HG3 | 6:AG:43:TYR:OH | 2.08 | 0.52 |
| 52:BI:81:LYS:HG3 | 52:BI:82:ALA:N | 2.24 | 0.52 |
| 1:CA:1480:A:H2' | 1:CA:1481:U:C6 | 2.43 | 0.52 |
| 1:CA:685:G:O2' | 1:CA:686:U:H5' | 2.09 | 0.52 |
| 9:CJ:5:ARG:O | 9:CJ:5:ARG:HG2 | 2.09 | 0.52 |
| 23:BB:2348:U:O2' | 23:BB:2349:G:H5' | 2.09 | 0.52 |
| 1:AA:1438:G:O2' | 1:AA:1439:G:H5' | 2.08 | 0.52 |
| 20:AB:160:LEU:O | 20:AB:182:VAL:HA | 2.09 | 0.52 |
| 23:BB:1664:A:H1' | 23:BB:2726:A:N1 | 2.23 | 0.52 |
| 22:DA:87:U:O2' | 22:DA:88:C:H2' | 2.08 | 0.52 |
| 13:CN:5:MET:HA | 13:CN:8:ARG:HG3 | 1.92 | 0.52 |
| 23:BB:2719:G:H4' | 23:BB:2846:G:O3' | 2.09 | 0.52 |
| 25:BC:46:GLY:O | 25:BC:47:ARG:CB | 2.56 | 0.52 |
| 25:BC:114:GLN:HB2 | 25:BC:124:LYS:NZ | 2.24 | 0.52 |
| 23:DB:324:A:N6 | 23:DB:339:U:H5' | 2.24 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:BB:2618:G:O2' | 26:BD:154:LYS:O | 2.26 | 0.52 |
| 5:CF:3:HIS:NE2 | 5:CF:95:ALA:HB2 | 2.24 | 0.52 |
| 23:DB:136:G:C2 | 41:DT:3:ARG:NH2 | 2.77 | 0.52 |
| 23:BB:995:C:N4 | 31:BJ:2:LYS:HB3 | 2.25 | 0.52 |
| 39:BR:90:ARG:NH1 | 39:BR:91:GLN:H | 2.08 | 0.52 |
| 25:BC:53:ILE:HD13 | 25:BC:218:THR:CG2 | 2.30 | 0.52 |
| 8:AI:48:ARG:HA | 8:AI:51:LEU:HD13 | 1.92 | 0.52 |
| 8:AI:47:VAL:HG12 | 8:AI:78:ILE:HB | 1.91 | 0.52 |
| 23:BB:2028:U:H2' | 23:BB:2029:G:C8 | 2.44 | 0.52 |
| 1:CA:1000:A:H2' | 1:CA:1001:C:H6 | 1.71 | 0.52 |
| 23:BB:1010:A:H5' | 38:BQ:61:ILE:HD12 | 1.91 | 0.52 |
| 31:BJ:34:ARG:HB3 | 31:BJ:39:LYS:HD2 | 1.91 | 0.52 |
| 3:CD:171:GLU:HG3 | 3:CD:182:LYS:CD | 2.39 | 0.52 |
| 33:DL:108:ALA:O | 33:DL:109:LYS:HB2 | 2.09 | 0.52 |
| 23:BB:2579:C:O2' | 26:BD:138:LEU:HD13 | 2.10 | 0.52 |
| 23:DB:2675:A:N1 | 23:DB:2732:G:O6 | 2.42 | 0.52 |
| 23:DB:2734:A:H2' | 23:DB:2735:G:H5' | 1.91 | 0.52 |
| 5:CF:38:ARG:NH2 | 5:CF:63:ASN:HD21 | 2.07 | 0.52 |
| 13:CN:31:SER:O | 13:CN:40:ARG:HD3 | 2.09 | 0.52 |
| 32:DK:71:ARG:CB | 32:DK:72:PRO:CD | 2.87 | 0.52 |
| 37:DP:52:ARG:CB | 37:DP:60:VAL:HG11 | 2.36 | 0.52 |
| 1:CA:1330:U:OP1 | 12:CM:22:TYR:O | 2.27 | 0.52 |
| 4:CE:35:LEU:CD1 | 4:CE:133:ILE:HA | 2.40 | 0.52 |
| 1:CA:663:A:O2' | 1:CA:664:G:H5' | 2.10 | 0.52 |
| 42:DU:21:ARG:HG3 | 42:DU:21:ARG:NH1 | 2.23 | 0.52 |
| 2:AC:71:ARG:HB3 | 2:AC:74:ILE:HG22 | 1.92 | 0.52 |
| 2:AC:78:LYS:HG3 | 2:AC:78:LYS:O | 2.10 | 0.52 |
| 2:AC:76:ILE:C | 2:AC:82:ASP:HB2 | 2.30 | 0.52 |
| 3:AD:117:VAL:HG12 | 3:AD:130:ASN:C | 2.30 | 0.52 |
| 9:AJ:56:HIS:N | 13:AN:80:ARG:HH22 | 2.07 | 0.52 |
| 1:CA:1060:U:C4' | 9:CJ:54:SER:HB2 | 2.39 | 0.52 |
| 24:BV:14:LYS:HZ2 | 24:BV:18:ARG:HD2 | 1.72 | 0.52 |
| 37:DP:6:GLN:N | 37:DP:6:GLN:CD | 2.63 | 0.52 |
| 1:CA:1057:G:H5'' | 2:CC:153:SER:HB2 | 1.91 | 0.52 |
| 23:DB:1374:G:H2' | 23:DB:1375:U:C6 | 2.45 | 0.52 |
| 23:BB:600:G:H2' | 23:BB:601:C:C6 | 2.45 | 0.52 |
| 1:AA:556:C:O2' | 1:AA:557:G:H5' | 2.08 | 0.52 |
| 1:CA:537:G:H2' | 1:CA:538:G:H8 | 1.75 | 0.52 |
| 32:BK:41:ILE:HG23 | 32:BK:42:THR:N | 2.24 | 0.52 |
| 6:CG:145:GLU:H | 6:CG:148:LYS:HB2 | 1.75 | 0.52 |
| 1:CA:1049:U:O2' | 1:CA:1050:G:OP2 | 2.26 | 0.52 |
| 23:DB:664:G:H2' | 23:DB:665:U:C6 | 2.43 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 1:AA:214:C:H2' | 1:AA:215:C:H6 | 1.72 | 0.52 |
| 1:AA:552:U:H4' | 11:AL:82:ARG:HG2 | 1.92 | 0.52 |
| 1:AA:333:U:H2' | 1:AA:334:C:H6 | 1.74 | 0.52 |
| 23:DB:18:U:H2' | 23:DB:19:A:C8 | 2.44 | 0.52 |
| 23:DB:19:A:H2' | 23:DB:20:C:C6 | 2.44 | 0.52 |
| 23:DB:19:A:H2' | 23:DB:20:C:H6 | 1.75 | 0.52 |
| 23:DB:20:C:O2' | 23:DB:21:A:H5' | 2.09 | 0.52 |
| 1:AA:392:C:H2' | 1:AA:393:A:H8 | 1.75 | 0.52 |
| 10:CK:109:ILE:H | 10:CK:109:ILE:HD12 | 1.74 | 0.52 |
| 23:DB:1733:G:H2' | 23:DB:1734:G:C8 | 2.45 | 0.52 |
| 6:AG:16:LYS:HD3 | 6:AG:16:LYS:C | 2.29 | 0.52 |
| 23:DB:1034:G:H2' | 23:DB:1035:U:C6 | 2.43 | 0.52 |
| 23:BB:522:A:H2' | 23:BB:523:C:C6 | 2.45 | 0.52 |
| 1:CA:625:U:H4' | 15:CP:16:PHE:CE2 | 2.44 | 0.52 |
| 39:DR:26:ASP:O | 39:DR:27:ILE:HB | 2.09 | 0.52 |
| 6:CG:77:ARG:HD3 | 6:CG:79:VAL:HG23 | 1.92 | 0.52 |
| 1:AA:858:G:O6 | 1:AA:869:G:H3' | 2.09 | 0.52 |
| 23:DB:721:A:H2' | 23:DB:722:A:H8 | 1.74 | 0.52 |
| 1:CA:394:G:H2' | 1:CA:395:C:H6 | 1.75 | 0.52 |
| 23:DB:1099:G:N7 | 52:DI:3:LYS:HD3 | 2.25 | 0.52 |
| 20:AB:163:ILE:HD11 | 20:AB:209:VAL:HG12 | 1.92 | 0.52 |
| 23:BB:1242:U:H2' | 23:BB:1243:C:C6 | 2.44 | 0.52 |
| 25:BC:49:THR:O | 25:BC:50:THR:HB | 2.10 | 0.52 |
| 23:DB:2898:U:H2' | 23:DB:2899:A:C8 | 2.45 | 0.52 |
| 23:DB:533:G:H5' | 38:DQ:23:TYR:HD1 | 1.73 | 0.52 |
| 38:DQ:52:ARG:HG2 | 38:DQ:53:LYS:NZ | 2.24 | 0.52 |
| 42:BU:100:GLU:O | 42:BU:102:ILE:HG13 | 2.10 | 0.52 |
| 32:BK:101:GLY:O | 32:BK:119:ALA:HB1 | 2.08 | 0.52 |
| 48:D1:46:VAL:HG22 | 48:D1:47:ILE:N | 2.24 | 0.52 |
| 35:DN:4:ARG:N | 35:DN:4:ARG:CZ | 2.73 | 0.52 |
| 33:BL:30:THR:HA | 33:BL:36:LYS:CE | 2.37 | 0.52 |
| 38:BQ:99:VAL:HG23 | 38:BQ:100:PHE:HD1 | 1.73 | 0.52 |
| 43:BW:36:ILE:HB | 43:BW:68:PHE:CD2 | 2.41 | 0.52 |
| 23:BB:2741:A:H2' | 23:BB:2742:G:O4' | 2.08 | 0.52 |
| 23:BB:143:C:O2' | 41:BT:5:GLU:HA | 2.09 | 0.52 |
| 13:CN:60:ARG:O | 13:CN:61:ASN:HB2 | 2.09 | 0.52 |
| 23:DB:288:U:O2' | 23:DB:289:G:H5' | 2.08 | 0.52 |
| 25:DC:226:PRO:HG3 | 25:DC:232:GLY:O | 2.10 | 0.52 |
| 23:BB:2734:A:H2' | 23:BB:2735:G:H5' | 1.91 | 0.52 |
| 24:DV:9:ARG:HE | 24:DV:20:LEU:HD11 | 1.74 | 0.52 |
| 6:AG:13:PRO:HA | 6:AG:23:ALA:HB2 | 1.90 | 0.52 |
| 1:CA:1302:C:H5'' | 1:CA:1303:C:OP2 | 2.10 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 49:D2:12:ARG:HH21 | 49:D2:16:HIS:CB | 2.22 | 0.52 |
| 23:BB:2386:A:H4' | 43:BW:38:ARG:HB2 | 1.91 | 0.52 |
| 25:DC:22:GLU:CD | 25:DC:202:ARG:HE | 2.12 | 0.52 |
| 4:CE:80:LEU:HD23 | 4:CE:122:VAL:HG11 | 1.91 | 0.52 |
| 35:DN:10:LEU:HG | 35:DN:11:ASN:N | 2.24 | 0.52 |
| 23:DB:448:U:H3' | 27:DE:79:ARG:NE | 2.23 | 0.52 |
| 8:AI:61:ASP:O | 8:AI:62:LEU:HD13 | 2.09 | 0.52 |
| 7:AH:64:TYR:CB | 7:AH:69:ALA:HA | 2.38 | 0.52 |
| 42:BU:52:ASN:C | 42:BU:54:PRO:HD3 | 2.30 | 0.52 |
| 23:DB:2794:C:H2' | 23:DB:2795:C:C6 | 2.44 | 0.52 |
| 23:DB:2280:G:O6 | 43:DW:10:ARG:NH2 | 2.41 | 0.52 |
| 1:AA:1390:U:H2' | 1:AA:1391:U:C6 | 2.44 | 0.52 |
| 1:AA:1225:A:H3' | 1:AA:1226:C:H6 | 1.74 | 0.52 |
| 48:D1:20:TYR:O | 48:D1:21:THR:HB | 2.09 | 0.52 |
| 23:BB:766:U:H2' | 23:BB:767:U:C6 | 2.45 | 0.52 |
| 23:BB:175:G:H2' | 23:BB:176:A:C8 | 2.45 | 0.52 |
| 23:BB:2553:G:H2' | 23:BB:2554:U:H4' | 1.90 | 0.52 |
| 23:DB:2774:C:H2' | 23:DB:2775:G:O4' | 2.09 | 0.52 |
| 23:BB:1739:A:H2' | 23:BB:1740:G:O4' | 2.10 | 0.52 |
| 17:AR:31:TYR:CD2 | 17:AR:54:LEU:HD21 | 2.45 | 0.52 |
| 14:CO:61:GLN:O | 14:CO:65:LEU:HG | 2.08 | 0.52 |
| 22:BA:54:G:H2' | 22:BA:55:U:C6 | 2.44 | 0.52 |
| 23:DB:265:A:H62 | 23:DB:427:U:HO2' | 1.56 | 0.52 |
| 1:AA:317:U:H2' | 1:AA:318:G:H8 | 1.73 | 0.52 |
| 5:AF:68:GLN:O | 5:AF:71:ILE:HG13 | 2.09 | 0.52 |
| 23:DB:1099:G:O5' | 52:DI:3:LYS:CA | 2.57 | 0.52 |
| 37:DP:25:VAL:O | 37:DP:47:ILE:HB | 2.10 | 0.52 |
| 42:BU:11:ILE:HB | 42:BU:69:VAL:CG1 | 2.40 | 0.52 |
| 37:BP:93:LYS:HB2 | 37:BP:96:LEU:HA | 1.91 | 0.52 |
| 23:DB:2364:C:H2' | 23:DB:2365:G:O4' | 2.10 | 0.52 |
| 43:DW:38:ARG:HE | 43:DW:40:ARG:HA | 1.75 | 0.52 |
| 25:BC:114:GLN:HB2 | 25:BC:124:LYS:HZ2 | 1.73 | 0.52 |
| 25:BC:154:ALA:C | 25:BC:156:SER:H | 2.13 | 0.52 |
| 23:DB:2882:A:OP1 | 35:DN:96:ARG:HD2 | 2.10 | 0.52 |
| 25:DC:172:THR:O | 25:DC:173:LEU:CB | 2.56 | 0.52 |
| 25:DC:193:GLU:C | 25:DC:194:VAL:HG22 | 2.30 | 0.52 |
| 43:BW:66:VAL:HG13 | 43:BW:67:LYS:HG3 | 1.90 | 0.52 |
| 39:DR:78:ARG:HD2 | 39:DR:88:GLY:O | 2.09 | 0.52 |
| 33:BL:116:VAL:HG11 | 33:BL:134:ALA:O | 2.08 | 0.52 |
| 33:BL:63:LYS:O | 33:BL:63:LYS:HD3 | 2.10 | 0.52 |
| 34:BM:33:LEU:HD13 | 34:BM:124:LEU:HD11 | 1.92 | 0.52 |
| 24:BV:42:LEU:HD12 | 24:BV:47:VAL:HG11 | 1.90 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 39:BR:77:PHE:C | 39:BR:78:ARG:HG3 | 2.30 | 0.52 |
| 36:DO:27:VAL:HG13 | 36:DO:40:ILE:HD11 | 1.91 | 0.52 |
| 42:BU:60:LYS:HG3 | 42:BU:61:GLU:N | 2.24 | 0.52 |
| 23:DB:1341:G:H1' | 41:DT:59:ASN:HB3 | 1.90 | 0.52 |
| 8:AI:29:ILE:HD11 | 8:AI:37:TYR:HB3 | 1.92 | 0.52 |
| 27:BE:141:MET:HG3 | 27:BE:143:LEU:HB2 | 1.91 | 0.52 |
| 33:DL:89:VAL:HG21 | 33:DL:123:ARG:CZ | 2.39 | 0.52 |
| 23:BB:142:A:C4 | 41:BT:2:ILE:HD12 | 2.44 | 0.52 |
| 23:BB:1658:C:OP1 | 26:BD:136:ASN:HA | 2.10 | 0.52 |
| 26:BD:165:MET:HG3 | 26:BD:166:GLY:H | 1.74 | 0.52 |
| 20:AB:71:THR:HB | 20:AB:167:HIS:CD2 | 2.44 | 0.52 |
| 40:DS:28:LYS:HB3 | 40:DS:31:GLN:HB2 | 1.92 | 0.52 |
| 33:DL:59:ARG:HH21 | 50:D3:5:THR:HB | 1.75 | 0.52 |
| 26:DD:122:VAL:HA | 26:DD:128:ARG:CD | 2.39 | 0.52 |
| 38:DQ:82:LEU:CD1 | 38:DQ:112:ALA:HB2 | 2.39 | 0.52 |
| 25:BC:20:ASN:HB2 | 25:BC:203:VAL:CG1 | 2.39 | 0.52 |
| 1:CA:1009:U:H2' | 1:CA:1010:U:C6 | 2.44 | 0.52 |
| 1:AA:33:A:H2' | 1:AA:34:C:C6 | 2.45 | 0.52 |
| 23:BB:464:U:H2' | 23:BB:465:G:O4' | 2.10 | 0.52 |
| 23:BB:2298:A:H2' | 23:BB:2299:U:O4' | 2.10 | 0.52 |
| 23:BB:2014:A:OP1 | 40:BS:95:ARG:HB2 | 2.09 | 0.52 |
| 22:DA:52:A:H2' | 22:DA:53:A:H8 | 1.74 | 0.52 |
| 28:DF:55:ASP:O | 28:DF:59:ILE:HB | 2.10 | 0.52 |
| 52:DI:73:PRO:CG | 52:DI:78:LEU:HD21 | 2.39 | 0.52 |
| 32:DK:15:GLY:HA3 | 32:DK:52:VAL:HB | 1.92 | 0.52 |
| 20:AB:36:LYS:H | 20:AB:36:LYS:HE3 | 1.71 | 0.52 |
| 1:CA:1070:U:H2' | 1:CA:1071:C:H6 | 1.74 | 0.52 |
| 1:AA:860:A:H2' | 1:AA:861:G:O4' | 2.09 | 0.52 |
| 7:CH:111:THR:H | 7:CH:114:ALA:HB3 | 1.74 | 0.52 |
| 1:AA:1170:A:O5' | 1:AA:1170:A:H8 | 1.92 | 0.52 |
| 42:DU:82:VAL:HG21 | 42:DU:95:PHE:O | 2.09 | 0.52 |
| 23:DB:1857:G:H2' | 23:DB:1884:G:N2 | 2.24 | 0.52 |
| 28:BF:18:GLU:C | 28:BF:20:ASN:H | 2.12 | 0.52 |
| 23:BB:1973:G:H2' | 23:BB:1974:C:H6 | 1.75 | 0.52 |
| 23:BB:576:U:H2' | 23:BB:577:G:C8 | 2.45 | 0.52 |
| 1:CA:1137:C:H1' | 1:CA:1138:G:C2 | 2.44 | 0.52 |
| 1:AA:520:A:OP2 | 11:AL:47:ALA:HB1 | 2.09 | 0.52 |
| 1:AA:303:A:H2' | 1:AA:304:U:O4' | 2.10 | 0.52 |
| 20:AB:172:ILE:HG22 | 20:AB:176:ASN:ND2 | 2.25 | 0.52 |
| 23:BB:1506:U:H2' | 23:BB:1507:C:C6 | 2.45 | 0.52 |
| 23:BB:1000:A:H2' | 23:BB:1001:A:C8 | 2.45 | 0.52 |
| 1:CA:777:A:H2' | 1:CA:778:G:C8 | 2.43 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 35:DN:123:GLU:CG | 35:DN:124:ALA:H | 2.23 | 0.52 |
| 20:AB:95:TRP:HH2 | 20:AB:100:LEU:HB2 | 1.74 | 0.52 |
| 1:AA:246:A:C2 | 1:AA:282:A:C5 | 2.98 | 0.52 |
| 17:AR:20:ILE:HG23 | 17:AR:53:GLN:NE2 | 2.25 | 0.52 |
| 11:CL:6:LEU:HB3 | 16:CQ:33:TYR:OH | 2.09 | 0.52 |
| 25:BC:112:GLY:O | 25:BC:113:ASP:HB2 | 2.08 | 0.52 |
| 11:CL:8:ARG:O | 11:CL:10:PRO:HD3 | 2.08 | 0.52 |
| 20:AB:20:ARG:HG3 | 20:AB:20:ARG:HH11 | 1.73 | 0.52 |
| 23:BB:2137:U:O5' | 23:BB:2137:U:H6 | 1.93 | 0.52 |
| 1:AA:1256:A:O2' | 1:AA:1257:A:H5'' | 2.09 | 0.52 |
| 23:DB:110:G:O2' | 23:DB:111:A:H5' | 2.09 | 0.52 |
| 23:DB:589:U:H2' | 23:DB:590:A:H8 | 1.72 | 0.52 |
| 27:DE:46:GLN:NE2 | 27:DE:87:ALA:N | 2.58 | 0.52 |
| 36:BO:55:GLU:HB2 | 36:BO:60:GLU:O | 2.10 | 0.52 |
| 51:D4:11:CYS:SG | 51:D4:26:ILE:C | 2.88 | 0.52 |
| 36:DO:15:ARG:HH22 | 43:DW:76:ARG:CG | 2.22 | 0.52 |
| 43:DW:36:ILE:HD12 | 43:DW:37:VAL:H | 1.73 | 0.52 |
| 43:DW:44:PHE:HB3 | 43:DW:77:LYS:O | 2.09 | 0.52 |
| 25:BC:124:LYS:HB2 | 25:BC:125:PRO:HD2 | 1.91 | 0.52 |
| 36:BO:19:GLN:HA | 43:BW:76:ARG:NH2 | 2.25 | 0.52 |
| 43:BW:22:VAL:HG12 | 43:BW:23:LYS:N | 2.25 | 0.52 |
| 38:DQ:47:ARG:HH22 | 38:DQ:50:ARG:HB2 | 1.75 | 0.52 |
| 1:AA:986:U:H1' | 18:AS:53:GLY:O | 2.10 | 0.52 |
| 46:BZ:64:PHE:CA | 46:BZ:67:PRO:HD2 | 2.39 | 0.52 |
| 34:BM:1:MET:HA | 34:BM:65:ILE:HG12 | 1.90 | 0.52 |
| 24:BV:21:ARG:HE | 24:BV:87:GLN:CB | 2.23 | 0.52 |
| 24:BV:80:HIS:HB3 | 24:BV:83:LYS:O | 2.09 | 0.52 |
| 23:BB:580:U:H2' | 23:BB:581:C:H6 | 1.70 | 0.52 |
| 39:BR:78:ARG:CB | 39:BR:87:GLN:HA | 2.31 | 0.52 |
| 5:CF:92:THR:O | 5:CF:93:LYS:HB2 | 2.09 | 0.52 |
| 23:DB:137:U:C2' | 23:DB:138:U:H5' | 2.39 | 0.52 |
| 33:BL:29:LYS:CD | 33:BL:30:THR:H | 2.18 | 0.52 |
| 23:BB:991:C:H2' | 23:BB:992:C:H6 | 1.74 | 0.52 |
| 40:DS:7:HIS:CD2 | 40:DS:46:LEU:HD13 | 2.44 | 0.52 |
| 31:DJ:49:ASP:O | 31:DJ:50:THR:HB | 2.09 | 0.52 |
| 25:BC:24:HIS:CB | 25:BC:27:LYS:HE3 | 2.39 | 0.52 |
| 38:BQ:57:ARG:HA | 38:BQ:60:TRP:CE3 | 2.43 | 0.52 |
| 39:BR:43:ASN:C | 39:BR:45:GLU:H | 2.11 | 0.52 |
| 3:CD:18:LEU:HD12 | 3:CD:63:ILE:HB | 1.91 | 0.52 |
| 23:BB:2742:G:OP1 | 51:B4:36:ARG:NE | 2.43 | 0.52 |
| 26:DD:31:ALA:HA | 26:DD:51:THR:CA | 2.34 | 0.52 |
| 23:BB:1656:C:H2' | 23:BB:1657:U:H6 | 1.74 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 9:CJ:55:PRO:HA | 13:CN:80:ARG:NH2 | 2.24 | 0.52 |
| 23:DB:1133:A:H2 | 23:DB:2038:G:H21 | 1.58 | 0.52 |
| 26:DD:139:SER:O | 26:DD:141:ARG:N | 2.42 | 0.52 |
| 51:D4:18:LYS:HE2 | 51:D4:19:ARG:H | 1.68 | 0.52 |
| 26:BD:4:LEU:H | 26:BD:49:GLN:NE2 | 2.08 | 0.52 |
| 39:DR:4:VAL:HG11 | 39:DR:46:GLU:OE2 | 2.10 | 0.52 |
| 39:DR:6:GLN:CG | 39:DR:7:SER:H | 2.18 | 0.52 |
| 1:CA:1307:U:H2' | 1:CA:1308:U:C6 | 2.45 | 0.52 |
| 1:AA:663:A:O2' | 1:AA:664:G:H5' | 2.09 | 0.52 |
| 14:CO:62:ARG:NH1 | 14:CO:86:LEU:HD21 | 2.25 | 0.52 |
| 3:AD:159:GLU:HG3 | 3:AD:160:LEU:HD13 | 1.91 | 0.52 |
| 31:DJ:120:ARG:HB3 | 31:DJ:121:LYS:HZ1 | 1.74 | 0.52 |
| 36:BO:30:ARG:HG2 | 36:BO:30:ARG:HH11 | 1.75 | 0.52 |
| 9:AJ:9:ARG:C | 9:AJ:10:LEU:HD12 | 2.30 | 0.52 |
| 13:AN:65:GLN:HA | 13:AN:65:GLN:HE21 | 1.74 | 0.52 |
| 1:AA:78:A:O5' | 1:AA:78:A:H8 | 1.93 | 0.52 |
| 1:CA:939:G:H5'' | 6:CG:101:ARG:CZ | 2.40 | 0.52 |
| 33:DL:19:LEU:N | 33:DL:19:LEU:HD22 | 2.24 | 0.52 |
| 1:CA:1074:G:H2' | 1:CA:1075:U:H6 | 1.74 | 0.52 |
| 23:BB:65:U:H2' | 23:BB:66:C:C6 | 2.44 | 0.52 |
| 1:CA:33:A:H2' | 1:CA:34:C:C6 | 2.45 | 0.52 |
| 23:DB:1252:G:H21 | 38:DQ:32:ARG:NE | 2.07 | 0.52 |
| 23:DB:1309:G:H5' | 49:D2:7:PRO:HB2 | 1.90 | 0.52 |
| 23:DB:448:U:O4' | 23:DB:448:U:O2 | 2.27 | 0.52 |
| 29:DG:41:GLU:HB2 | 29:DG:52:GLY:HA3 | 1.92 | 0.52 |
| 23:BB:1374:G:H2' | 23:BB:1375:U:C6 | 2.45 | 0.52 |
| 1:CA:474:G:H2' | 1:CA:475:C:H6 | 1.73 | 0.52 |
| 26:BD:101:PHE:O | 26:BD:102:ALA:HB3 | 2.10 | 0.52 |
| 6:AG:62:GLU:O | 6:AG:66:GLU:HG3 | 2.10 | 0.52 |
| 1:CA:711:G:O2' | 1:CA:712:A:H5' | 2.10 | 0.52 |
| 1:CA:730:G:O2' | 1:CA:766:A:H5' | 2.08 | 0.52 |
| 23:BB:1534:U:O2' | 23:BB:1535:A:H8 | 1.93 | 0.52 |
| 2:CC:149:LYS:HG3 | 2:CC:166:TRP:NE1 | 2.24 | 0.52 |
| 1:CA:82:G:H2' | 1:CA:83:C:O4' | 2.09 | 0.52 |
| 1:CA:1149:C:O2' | 1:CA:1150:A:H5' | 2.09 | 0.52 |
| 23:DB:931:U:H3 | 23:DB:1166:G:N2 | 2.07 | 0.52 |
| 23:BB:170:U:O2' | 23:BB:171:U:H5' | 2.09 | 0.52 |
| 24:DV:44:HIS:C | 24:DV:46:LYS:H | 2.13 | 0.52 |
| 23:DB:1739:A:H2' | 23:DB:1740:G:O4' | 2.10 | 0.52 |
| 23:DB:1506:U:H2' | 23:DB:1507:C:C6 | 2.45 | 0.52 |
| 49:B2:8:SER:OG | 49:B2:11:LYS:HD3 | 2.09 | 0.52 |
| 23:DB:1050:A:H2' | 23:DB:1051:G:O4' | 2.09 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:BB:2405:G:H1' | 23:BB:2412:A:H61 | 1.75 | 0.52 |
| 23:DB:2719:G:H4' | 23:DB:2846:G:O3' | 2.09 | 0.52 |
| 23:BB:540:C:O2' | 23:BB:541:A:H5' | 2.10 | 0.52 |
| 1:CA:1351:U:O2' | 1:CA:1352:C:H5' | 2.10 | 0.52 |
| 23:DB:2083:G:H2' | 23:DB:2084:C:H6 | 1.75 | 0.52 |
| 31:DJ:10:THR:O | 31:DJ:11:VAL:HB | 2.08 | 0.52 |
| 23:DB:1986:C:O2' | 23:DB:1987:A:H5' | 2.10 | 0.52 |
| 23:BB:554:U:H2' | 23:BB:555:G:O4' | 2.10 | 0.52 |
| 1:AA:1414:U:H2' | 1:AA:1415:G:H8 | 1.74 | 0.52 |
| 23:DB:737:C:O2' | 23:DB:738:G:H5' | 2.09 | 0.52 |
| 20:CB:44:LYS:O | 20:CB:47:PRO:HD2 | 2.10 | 0.52 |
| 23:DB:1818:U:H5'' | 25:DC:155:ARG:HG2 | 1.92 | 0.52 |
| 23:BB:920:A:H2' | 23:BB:921:C:H6 | 1.75 | 0.52 |
| 43:BW:65:LYS:O | 43:BW:66:VAL:HB | 2.08 | 0.52 |
| 38:DQ:46:TYR:HA | 39:DR:77:PHE:CD2 | 2.43 | 0.52 |
| 33:DL:34:GLY:CA | 39:DR:85:LYS:HE2 | 2.40 | 0.52 |
| 39:DR:85:LYS:O | 39:DR:86:GLN:HB3 | 2.10 | 0.52 |
| 27:DE:147:LEU:HB2 | 27:DE:183:PHE:CD1 | 2.45 | 0.52 |
| 32:BK:118:LEU:HD12 | 32:BK:118:LEU:N | 2.24 | 0.52 |
| 46:DZ:5:ILE:HG13 | 46:DZ:51:VAL:CG1 | 2.38 | 0.52 |
| 34:BM:65:ILE:HG22 | 34:BM:101:VAL:HG12 | 1.92 | 0.52 |
| 26:BD:154:LYS:C | 26:BD:156:PHE:N | 2.62 | 0.52 |
| 16:AQ:16:MET:CB | 16:AQ:19:SER:HB2 | 2.39 | 0.52 |
| 23:DB:1845:G:O2' | 23:DB:1846:G:H5' | 2.10 | 0.52 |
| 25:DC:179:GLU:OE2 | 25:DC:267:VAL:HG23 | 2.10 | 0.52 |
| 45:BY:9:THR:CB | 45:BY:54:VAL:HA | 2.34 | 0.52 |
| 25:BC:52:HIS:O | 25:BC:53:ILE:HB | 2.09 | 0.52 |
| 41:DT:86:THR:O | 41:DT:87:LEU:HB2 | 2.08 | 0.52 |
| 1:CA:1317:C:H2' | 1:CA:1318:A:O4' | 2.10 | 0.52 |
| 25:BC:61:TYR:CZ | 25:BC:63:ILE:HD11 | 2.45 | 0.52 |
| 40:BS:28:LYS:HB3 | 40:BS:71:VAL:CG2 | 2.40 | 0.52 |
| 1:AA:764:C:C2' | 1:AA:765:G:H5' | 2.39 | 0.52 |
| 23:BB:445:C:H5' | 27:BE:47:LYS:NZ | 2.17 | 0.52 |
| 51:B4:24:ARG:HG2 | 51:B4:26:ILE:H | 1.74 | 0.52 |
| 26:DD:4:LEU:CD1 | 26:DD:79:LEU:HD22 | 2.40 | 0.52 |
| 44:BX:47:ARG:O | 44:BX:47:ARG:HG2 | 2.10 | 0.52 |
| 26:DD:129:THR:O | 26:DD:140:HIS:HA | 2.10 | 0.52 |
| 21:AU:13:VAL:O | 21:AU:14:ALA:HB2 | 2.09 | 0.52 |
| 32:BK:63:VAL:HG12 | 32:BK:103:VAL:HA | 1.92 | 0.52 |
| 52:BI:32:VAL:HG22 | 52:BI:60:VAL:CG2 | 2.40 | 0.52 |
| 26:BD:34:VAL:HG23 | 26:BD:93:GLY:O | 2.09 | 0.52 |
| 37:DP:52:ARG:O | 37:DP:60:VAL:HG21 | 2.09 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 31:DJ:100:VAL:O | 31:DJ:101:ILE:HB | 2.10 | 0.52 |
| 20:CB:104:LYS:NZ | 20:CB:104:LYS:HB2 | 2.20 | 0.52 |
| 1:CA:769:G:H4' | 1:CA:1513:A:H4' | 1.92 | 0.52 |
| 45:BY:3:THR:HA | 45:BY:47:ILE:CD1 | 2.39 | 0.52 |
| 17:CR:23:LYS:C | 17:CR:23:LYS:HD2 | 2.30 | 0.52 |
| 52:DI:105:LEU:HD11 | 52:DI:139:VAL:CG2 | 2.36 | 0.52 |
| 12:CM:100:ARG:HB2 | 12:CM:102:LYS:HG2 | 1.91 | 0.52 |
| 23:BB:27:G:H1' | 23:BB:513:A:H61 | 1.74 | 0.52 |
| 23:DB:600:G:H2' | 23:DB:601:C:C6 | 2.44 | 0.52 |
| 23:BB:107:G:H21 | 23:BB:346:A:H62 | 1.57 | 0.52 |
| 28:BF:103:ILE:HA | 28:BF:107:VAL:HG21 | 1.90 | 0.52 |
| 1:AA:1510:C:H2' | 1:AA:1511:G:C8 | 2.44 | 0.52 |
| 1:AA:924:C:O2' | 1:AA:925:G:H5' | 2.08 | 0.52 |
| 27:DE:21:ARG:HD3 | 27:DE:25:GLU:CB | 2.40 | 0.52 |
| 23:DB:1386:C:H2' | 23:DB:1387:A:H8 | 1.74 | 0.52 |
| 23:BB:1341:G:H2' | 23:BB:1397:U:O2' | 2.09 | 0.52 |
| 23:BB:2070:A:H2' | 23:BB:2071:A:H8 | 1.74 | 0.52 |
| 23:DB:2250:G:H21 | 23:DB:2496:C:C4' | 2.22 | 0.52 |
| 23:DB:419:U:H2' | 23:DB:420:C:H6 | 1.75 | 0.52 |
| 50:D3:46:LYS:HD2 | 50:D3:47:ALA:H | 1.72 | 0.52 |
| 15:CP:22:ALA:CB | 15:CP:32:PHE:HA | 2.40 | 0.52 |
| 23:DB:1745:A:O2' | 23:DB:1746:A:H5' | 2.09 | 0.52 |
| 1:CA:303:A:H2' | 1:CA:304:U:O4' | 2.10 | 0.52 |
| 6:CG:49:LEU:O | 6:CG:49:LEU:HD23 | 2.09 | 0.52 |
| 1:AA:462:G:H2' | 1:AA:463:U:C6 | 2.44 | 0.52 |
| 23:BB:1717:A:H2' | 23:BB:1718:G:O4' | 2.10 | 0.52 |
| 4:AE:35:LEU:HD11 | 4:AE:136:VAL:HG11 | 1.92 | 0.52 |
| 23:BB:1149:G:H2' | 23:BB:1150:C:H6 | 1.74 | 0.52 |
| 25:DC:231:HIS:ND1 | 25:DC:242:HIS:ND1 | 2.56 | 0.52 |
| 23:DB:1957:C:H2' | 23:DB:1958:C:H6 | 1.74 | 0.52 |
| 1:AA:894:G:O2' | 1:AA:895:G:H5' | 2.10 | 0.52 |
| 55:DB:3322:HOH:O | 27:DE:63:LYS:HE2 | 2.09 | 0.52 |
| 1:CA:1213:A:O2' | 1:CA:1214:C:H5'' | 2.10 | 0.52 |
| 23:BB:656:G:H2' | 23:BB:657:U:C6 | 2.45 | 0.52 |
| 35:DN:14:SER:HA | 35:DN:17:ARG:NH2 | 2.24 | 0.52 |
| 23:DB:686:U:H1' | 49:D2:5:PHE:O | 2.10 | 0.52 |
| 24:BV:5:ASN:HA | 24:BV:64:VAL:HB | 1.92 | 0.52 |
| 23:DB:2316:G:O2' | 23:DB:2317:A:H5' | 2.10 | 0.52 |
| 23:BB:1274:A:N3 | 23:BB:1297:C:H1' | 2.25 | 0.52 |
| 37:DP:50:ARG:HG3 | 37:DP:99:LEU:H | 1.75 | 0.52 |
| 37:BP:61:ARG:HB2 | 37:BP:61:ARG:CZ | 2.40 | 0.52 |
| 43:DW:60:ALA:CB | 43:DW:80:SER:HA | 2.37 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 25:BC:141:HIS:HD2 | 25:BC:193:GLU:H | 1.57 | 0.52 |
| 31:BJ:75:TYR:CD2 | 31:BJ:75:TYR:N | 2.78 | 0.52 |
| 39:DR:76:LYS:HB3 | 39:DR:90:ARG:CB | 2.40 | 0.52 |
| 23:DB:2688:G:H1' | 23:DB:2721:A:H61 | 1.74 | 0.52 |
| 41:DT:65:GLY:HA3 | 41:DT:76:ARG:NH2 | 2.25 | 0.52 |
| 42:BU:38:ILE:O | 42:BU:39:ASN:HB2 | 2.08 | 0.52 |
| 31:DJ:41:LYS:CD | 31:DJ:44:TYR:HB3 | 2.39 | 0.52 |
| 34:DM:41:LEU:CG | 34:DM:46:ILE:HD11 | 2.40 | 0.52 |
| 12:AM:53:ASP:HA | 12:AM:56:ARG:CD | 2.40 | 0.52 |
| 33:DL:123:ARG:CA | 33:DL:142:ILE:HA | 2.39 | 0.52 |
| 26:BD:115:GLY:HA3 | 26:BD:166:GLY:CA | 2.39 | 0.52 |
| 33:DL:62:PRO:HB3 | 50:D3:12:ARG:CD | 2.40 | 0.52 |
| 23:BB:1256:G:H21 | 27:BE:77:ILE:HG23 | 1.75 | 0.52 |
| 50:D3:33:THR:HG22 | 50:D3:40:LYS:HD2 | 1.91 | 0.52 |
| 50:D3:40:LYS:O | 50:D3:43:LEU:HD13 | 2.10 | 0.52 |
| 25:BC:230:PRO:O | 25:BC:231:HIS:HB3 | 2.09 | 0.52 |
| 52:BI:76:ALA:O | 52:BI:80:LYS:HG3 | 2.10 | 0.52 |
| 39:DR:44:GLY:H | 39:DR:53:PHE:HE2 | 1.57 | 0.52 |
| 12:CM:68:LEU:HD22 | 12:CM:69:ARG:NH1 | 2.25 | 0.52 |
| 19:AT:57:VAL:C | 19:AT:60:GLN:HE22 | 2.13 | 0.52 |
| 35:DN:63:ARG:HA | 35:DN:80:PHE:CZ | 2.45 | 0.52 |
| 41:DT:38:ALA:O | 41:DT:42:GLU:HB3 | 2.10 | 0.52 |
| 1:CA:1226:C:H5'' | 12:CM:101:THR:O | 2.10 | 0.52 |
| 46:DZ:36:VAL:O | 46:DZ:36:VAL:HG23 | 2.10 | 0.52 |
| 1:AA:1243:C:H2' | 1:AA:1244:G:H8 | 1.75 | 0.52 |
| 23:BB:52:A:C5 | 23:BB:118:A:C2 | 2.98 | 0.52 |
| 23:DB:1516:G:O2' | 23:DB:1517:G:H5' | 2.10 | 0.52 |
| 23:BB:1791:A:H5' | 25:BC:207:ALA:HA | 1.91 | 0.52 |
| 41:BT:93:LEU:HD22 | 41:BT:93:LEU:N | 2.23 | 0.52 |
| 23:BB:2229:U:H2' | 23:BB:2230:G:C8 | 2.45 | 0.52 |
| 1:AA:60:A:O2' | 1:AA:61:G:P | 2.66 | 0.52 |
| 1:AA:1518:A:H2' | 1:AA:1519:A:C8 | 2.45 | 0.52 |
| 9:CJ:9:ARG:CB | 9:CJ:99:GLN:HG3 | 2.39 | 0.52 |
| 1:AA:541:G:H2' | 1:AA:542:G:H8 | 1.75 | 0.52 |
| 1:AA:677:U:H2' | 1:AA:678:U:C6 | 2.44 | 0.52 |
| 4:CE:149:PRO:HG2 | 4:CE:150:GLU:OE2 | 2.09 | 0.52 |
| 23:BB:2189:U:H2' | 23:BB:2190:G:H8 | 1.74 | 0.52 |
| 44:DX:6:LEU:HD22 | 44:DX:56:LEU:HD12 | 1.92 | 0.52 |
| 22:BA:32:U:H2' | 22:BA:33:G:O4' | 2.09 | 0.52 |
| 1:AA:217:C:O2' | 1:AA:218:U:H5' | 2.10 | 0.52 |
| 23:BB:397:U:H2' | 23:BB:398:C:C6 | 2.45 | 0.52 |
| 1:CA:287:U:O2' | 1:CA:288:A:H5' | 2.08 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:BB:807:U:O2' | 23:BB:808:G:H5' | 2.10 | 0.52 |
| 23:BB:1545:A:H2' | 23:BB:1546:G:O4' | 2.09 | 0.52 |
| 23:DB:807:U:O2' | 23:DB:808:G:H5' | 2.10 | 0.52 |
| 23:BB:570:G:H2' | 23:BB:2030:A:N7 | 2.24 | 0.52 |
| 23:DB:2135:A:C2 | 23:DB:2136:G:C8 | 2.98 | 0.52 |
| 1:CA:323:U:H2' | 1:CA:324:G:O4' | 2.10 | 0.52 |
| 23:BB:1957:C:H2' | 23:BB:1958:C:H6 | 1.74 | 0.52 |
| 37:BP:63:ILE:N | 37:BP:63:ILE:HD12 | 2.24 | 0.52 |
| 23:BB:773:U:H5' | 23:BB:774:G:OP2 | 2.10 | 0.52 |
| 25:BC:51:ARG:O | 25:BC:51:ARG:CD | 2.58 | 0.52 |
| 25:BC:140:VAL:HG11 | 25:BC:163:ILE:HD11 | 1.92 | 0.52 |
| 25:BC:164:VAL:HB | 25:BC:167:ASP:CG | 2.30 | 0.52 |
| 23:BB:973:A:OP1 | 23:BB:973:A:H8 | 1.92 | 0.52 |
| 23:BB:396:G:H5' | 46:BZ:9:TYR:CB | 2.34 | 0.52 |
| 46:DZ:1:MET:HA | 46:DZ:9:TYR:CE1 | 2.44 | 0.52 |
| 34:BM:67:VAL:HB | 34:BM:100:LYS:CD | 2.40 | 0.52 |
| 24:BV:82:TYR:HD2 | 24:BV:82:TYR:N | 2.08 | 0.52 |
| 36:DO:25:ARG:CB | 36:DO:94:ARG:HH22 | 2.23 | 0.52 |
| 40:BS:11:ARG:HA | 40:BS:100:THR:HG22 | 1.92 | 0.52 |
| 28:BF:135:ILE:HB | 28:BF:142:TYR:CE1 | 2.45 | 0.52 |
| 28:BF:136:ILE:HD12 | 28:BF:136:ILE:N | 2.25 | 0.52 |
| 31:BJ:10:THR:HG22 | 31:BJ:50:THR:HA | 1.90 | 0.52 |
| 18:CS:11:ASP:HB2 | 18:CS:14:LEU:HD23 | 1.92 | 0.52 |
| 13:CN:53:ASP:HA | 13:CN:58:ARG:HH11 | 1.75 | 0.52 |
| 21:CU:16:ARG:HA | 21:CU:19:LYS:NZ | 2.25 | 0.52 |
| 10:CK:85:VAL:CG2 | 10:CK:92:ARG:HH12 | 2.22 | 0.52 |
| 33:DL:57:LEU:O | 33:DL:58:TYR:HB2 | 2.10 | 0.52 |
| 2:AC:154:GLY:HA2 | 2:AC:163:ARG:H | 1.73 | 0.52 |
| 23:BB:2354:C:O3' | 43:BW:30:VAL:HG13 | 2.10 | 0.52 |
| 8:CI:9:GLY:HA2 | 8:CI:80:HIS:HB3 | 1.92 | 0.52 |
| 23:DB:1010:A:H4' | 38:DQ:75:TYR:CD2 | 2.45 | 0.52 |
| 42:DU:13:LEU:HD11 | 42:DU:69:VAL:H | 1.75 | 0.52 |
| 2:AC:87:ARG:HG3 | 2:AC:100:ILE:CG2 | 2.38 | 0.52 |
| 3:AD:99:ASN:ND2 | 3:AD:110:ARG:HE | 2.08 | 0.52 |
| 23:DB:1790:C:O2' | 25:DC:207:ALA:HB2 | 2.09 | 0.52 |
| 23:DB:1441:G:H2' | 23:DB:1442:U:H6 | 1.73 | 0.52 |
| 19:CT:74:HIS:O | 19:CT:78:LEU:HG | 2.10 | 0.52 |
| 49:D2:7:PRO:O | 49:D2:8:SER:HB3 | 2.09 | 0.52 |
| 2:CC:156:LEU:HD12 | 2:CC:163:ARG:HG3 | 1.91 | 0.52 |
| 6:AG:41:ILE:HG13 | 6:AG:116:ALA:HA | 1.91 | 0.52 |
| 23:DB:1595:C:O2' | 23:DB:1596:A:H5' | 2.10 | 0.52 |
| 23:DB:352:A:H3' | 23:DB:353:C:C6 | 2.45 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 23:BB:416:U:H2' | 23:BB:417:C:H6 | 1.75 | 0.52 |
| 23:BB:558:U:P | 31:BJ:113:PRO:HG2 | 2.50 | 0.52 |
| 6:CG:96:ASN:O | 6:CG:100:MET:HG2 | 2.10 | 0.52 |
| 23:BB:1213:A:C6 | 23:BB:1237:A:H1' | 2.45 | 0.52 |
| 1:CA:537:G:H2' | 1:CA:538:G:C8 | 2.45 | 0.52 |
| 7:AH:12:ARG:NH1 | 7:AH:26:MET:HB2 | 2.24 | 0.52 |
| 1:CA:1354:U:H2' | 1:CA:1355:G:C8 | 2.44 | 0.52 |
| 1:CA:1355:G:O2' | 1:CA:1356:G:H5' | 2.10 | 0.52 |
| 23:BB:2186:G:H2' | 23:BB:2187:U:O4' | 2.10 | 0.52 |
| 23:BB:526:A:N6 | 23:BB:2626:C:C4' | 2.73 | 0.52 |
| 45:DY:52:PHE:HB3 | 45:DY:53:MET:CE | 2.40 | 0.52 |
| 40:DS:85:ILE:HD13 | 40:DS:85:ILE:C | 2.31 | 0.52 |
| 23:BB:2077:A:H2' | 23:BB:2078:C:H6 | 1.72 | 0.52 |
| 23:DB:1013:C:H2' | 23:DB:1014:A:C8 | 2.44 | 0.52 |
| 8:CI:40:ARG:HA | 8:CI:44:ARG:CZ | 2.40 | 0.52 |
| 23:BB:1845:G:O2' | 23:BB:1846:G:H5' | 2.10 | 0.52 |
| 23:DB:1739:A:H2' | 23:DB:1740:G:H8 | 1.74 | 0.52 |
| 2:AC:30:ASP:O | 2:AC:33:ASP:HB3 | 2.09 | 0.52 |
| 2:AC:61:LYS:O | 2:AC:96:VAL:HB | 2.09 | 0.52 |
| 1:CA:394:G:H2' | 1:CA:395:C:C6 | 2.45 | 0.52 |
| 23:BB:2373:G:H2' | 23:BB:2374:C:C6 | 2.45 | 0.52 |
| 20:CB:161:PHE:HA | 20:CB:183:PHE:O | 2.09 | 0.52 |
| 23:DB:2862:G:H2' | 23:DB:2863:C:C6 | 2.45 | 0.52 |
| 23:DB:1599:U:H2' | 23:DB:1600:C:H6 | 1.75 | 0.52 |
| 23:DB:2547:A:H2' | 23:DB:2548:U:C6 | 2.45 | 0.52 |
| 17:AR:70:THR:HG23 | 17:AR:71:ASP:H | 1.75 | 0.52 |
| 35:BN:122:ALA:HA | 47:B0:49:ARG:NH1 | 2.25 | 0.52 |
| 23:BB:753:A:H2' | 23:BB:754:U:C6 | 2.45 | 0.52 |
| 41:DT:19:LYS:NZ | 41:DT:26:LYS:HE2 | 2.25 | 0.52 |
| 23:DB:2599:G:C8 | 25:DC:234:GLY:HA2 | 2.45 | 0.52 |
| 1:AA:1410:A:H2' | 1:AA:1411:C:C6 | 2.45 | 0.52 |
| 31:BJ:1:MET:SD | 39:BR:14:VAL:HG21 | 2.50 | 0.52 |
| 1:AA:442:G:H2' | 1:AA:443:C:C6 | 2.45 | 0.52 |
| 23:BB:978:G:H2' | 23:BB:979:A:H8 | 1.75 | 0.52 |
| 37:DP:27:VAL:HG23 | 37:DP:86:LYS:CB | 2.40 | 0.52 |
| 43:DW:60:ALA:HB3 | 43:DW:80:SER:CA | 2.39 | 0.52 |
| 43:DW:67:LYS:CD | 43:DW:71:LYS:H | 2.23 | 0.52 |
| 35:DN:42:LYS:CA | 35:DN:42:LYS:HE3 | 2.39 | 0.52 |
| 27:BE:133:LEU:HD12 | 27:BE:136:GLN:OE1 | 2.09 | 0.52 |
| 33:BL:82:LEU:O | 33:BL:83:ALA:HB3 | 2.09 | 0.52 |
| 32:BK:40:LYS:HZ2 | 32:BK:89:ASN:HD21 | 1.58 | 0.52 |
| 23:DB:2086:U:H2' | 23:DB:2087:G:H8 | 1.72 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:DB:2090:A:O3' | 46:DZ:49:ARG:HD3 | 2.10 | 0.52 |
| 41:DT:76:ARG:CG | 41:DT:77:ARG:N | 2.70 | 0.52 |
| 23:BB:781:A:OP1 | 25:BC:216:ARG:NH2 | 2.42 | 0.52 |
| 31:DJ:41:LYS:HE2 | 31:DJ:46:PRO:HD3 | 1.91 | 0.52 |
| 28:BF:109:ARG:HG2 | 28:BF:136:ILE:HG13 | 1.92 | 0.52 |
| 28:BF:133:GLU:OE1 | 28:BF:147:ARG:HD3 | 2.10 | 0.52 |
| 25:BC:28:PRO:O | 25:BC:29:PHE:CB | 2.58 | 0.52 |
| 31:BJ:45:THR:HB | 38:BQ:63:ARG:HH12 | 1.75 | 0.52 |
| 38:BQ:87:VAL:HB | 39:BR:55:ASP:OD2 | 2.10 | 0.52 |
| 27:BE:113:VAL:HA | 27:BE:117:ARG:HD3 | 1.92 | 0.52 |
| 28:DF:32:LYS:HE2 | 28:DF:156:THR:OG1 | 2.09 | 0.52 |
| 44:BX:22:LEU:HA | 44:BX:47:ARG:HH12 | 1.75 | 0.52 |
| 45:DY:1:ALA:HB1 | 45:DY:37:ARG:HB3 | 1.92 | 0.52 |
| 8:CI:56:MET:HG3 | 8:CI:57:VAL:HG23 | 1.92 | 0.52 |
| 4:CE:89:THR:CG2 | 4:CE:90:GLY:N | 2.73 | 0.52 |
| 15:CP:54:LEU:HD13 | 15:CP:80:LYS:NZ | 2.25 | 0.52 |
| 12:AM:63:VAL:HG12 | 12:AM:68:LEU:HG | 1.92 | 0.52 |
| 9:AJ:88:MET:C | 9:AJ:90:LEU:H | 2.13 | 0.52 |
| 35:DN:86:ARG:CB | 35:DN:86:ARG:HH11 | 2.20 | 0.52 |
| 29:DG:151:ARG:HB2 | 29:DG:151:ARG:NH1 | 2.21 | 0.52 |
| 31:BJ:7:LYS:HZ3 | 31:BJ:48:VAL:CB | 2.22 | 0.52 |
| 11:CL:64:SER:HB2 | 11:CL:81:ILE:HD12 | 1.92 | 0.52 |
| 1:CA:1073:U:O2' | 1:CA:1074:G:H5' | 2.10 | 0.52 |
| 22:DA:44:G:N3 | 22:DA:47:C:N4 | 2.57 | 0.52 |
| 23:BB:458:G:H1' | 23:BB:459:U:H5 | 1.73 | 0.52 |
| 8:CI:26:LYS:HG3 | 8:CI:61:ASP:OD2 | 2.10 | 0.52 |
| 23:DB:2370:G:H2' | 23:DB:2371:G:O4' | 2.10 | 0.52 |
| 8:CI:114:LYS:H | 8:CI:114:LYS:HD2 | 1.75 | 0.52 |
| 20:CB:57:ASN:HA | 20:CB:60:ALA:HB3 | 1.90 | 0.52 |
| 1:CA:1060:U:H5'' | 9:CJ:53:ILE:HG12 | 1.91 | 0.52 |
| 23:DB:1309:G:H4' | 49:D2:7:PRO:HB2 | 1.92 | 0.52 |
| 2:CC:127:VAL:HB | 2:CC:128:MET:HE3 | 1.91 | 0.52 |
| 1:AA:1048:G:H4' | 13:AN:2:LYS:HZ2 | 1.72 | 0.52 |
| 5:AF:47:LEU:HB3 | 17:AR:65:SER:OG | 2.10 | 0.52 |
| 22:DA:109:A:H2' | 22:DA:110:C:H6 | 1.75 | 0.52 |
| 23:BB:1857:G:H2' | 23:BB:1884:G:N2 | 2.24 | 0.52 |
| 2:CC:2:GLN:CA | 2:CC:2:GLN:HE21 | 2.23 | 0.52 |
| 32:DK:61:VAL:CG1 | 32:DK:87:LEU:HD11 | 2.39 | 0.52 |
| 33:BL:132:ARG:HH11 | 33:BL:132:ARG:HG2 | 1.75 | 0.52 |
| 1:CA:1405:G:O2' | 1:CA:1406:U:H5' | 2.10 | 0.52 |
| 23:DB:283:G:H2' | 23:DB:284:U:H6 | 1.75 | 0.52 |
| 23:DB:31:C:O2' | 23:DB:32:C:H5' | 2.10 | 0.52 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:BB:1745:A:H2' | 23:BB:1746:A:C8 | 2.45 | 0.52 |
| 23:BB:1939:U:H6 | 23:BB:1939:U:H5' | 1.75 | 0.52 |
| 19:CT:43:LYS:HB3 | 19:CT:86:ALA:CB | 2.39 | 0.52 |
| 1:AA:938:A:H1' | 1:AA:1376:U:O2' | 2.10 | 0.52 |
| 23:BB:2862:G:H2' | 23:BB:2863:C:C6 | 2.45 | 0.52 |
| 1:CA:246:A:C2 | 1:CA:282:A:C5 | 2.98 | 0.52 |
| 1:CA:894:G:O2' | 1:CA:895:G:H5' | 2.10 | 0.52 |
| 1:CA:902:G:H2' | 1:CA:903:G:H8 | 1.74 | 0.52 |
| 48:B1:22:THR:O | 48:B1:23:THR:HG23 | 2.10 | 0.52 |
| 8:AI:15:ALA:O | 8:AI:66:VAL:HG23 | 2.09 | 0.52 |
| 23:DB:1801:A:H5' | 23:DB:2203:U:O2' | 2.09 | 0.52 |
| 4:CE:15:ILE:HG22 | 4:CE:16:ALA:N | 2.25 | 0.52 |
| 32:DK:95:ILE:HG12 | 32:DK:95:ILE:O | 2.10 | 0.52 |
| 7:AH:84:ILE:N | 7:AH:84:ILE:HD12 | 2.24 | 0.52 |
| 23:BB:2581:G:N2 | 23:BB:2581:G:OP2 | 2.43 | 0.52 |
| 1:AA:625:U:H4' | 15:AP:16:PHE:CE2 | 2.44 | 0.52 |
| 36:BO:59:ALA:CB | 36:BO:63:LYS:HB2 | 2.40 | 0.52 |
| 23:BB:2181:U:H2' | 23:BB:2182:U:O4' | 2.10 | 0.52 |
| 23:BB:1986:C:O2' | 23:BB:1987:A:H5' | 2.10 | 0.52 |
| 30:BH:125:THR:OG1 | 30:BH:146:VAL:HB | 2.10 | 0.51 |
| 20:CB:31:PHE:N | 20:CB:41:ASN:HB2 | 2.25 | 0.51 |
| 31:BJ:122:LEU:HD12 | 31:BJ:123:LYS:N | 2.24 | 0.51 |
| 43:BW:45:HIS:ND1 | 43:BW:64:GLY:HA3 | 2.24 | 0.51 |
| 38:DQ:38:VAL:HA | 38:DQ:41:ALA:HB3 | 1.92 | 0.51 |
| 27:BE:132:LYS:HD3 | 27:BE:133:LEU:HD22 | 1.91 | 0.51 |
| 23:DB:86:G:OP1 | 42:DU:28:LEU:HD22 | 2.10 | 0.51 |
| 50:B3:23:HIS:CD2 | 50:B3:47:ALA:HA | 2.45 | 0.51 |
| 46:BZ:5:ILE:N | 46:BZ:5:ILE:HD12 | 2.17 | 0.51 |
| 23:BB:2052:A:C5' | 26:BD:148:GLN:H | 2.21 | 0.51 |
| 23:DB:1654:A:O2' | 26:DD:118:PHE:O | 2.27 | 0.51 |
| 23:BB:995:C:OP2 | 38:BQ:53:LYS:HE2 | 2.08 | 0.51 |
| 38:BQ:47:ARG:HH21 | 38:BQ:51:GLN:N | 2.08 | 0.51 |
| 40:DS:46:LEU:O | 40:DS:50:VAL:HG22 | 2.10 | 0.51 |
| 31:BJ:81:ILE:HG23 | 31:BJ:82:GLY:N | 2.25 | 0.51 |
| 1:CA:1023:U:H2' | 1:CA:1024:G:H8 | 1.75 | 0.51 |
| 1:AA:1060:U:H4' | 9:AJ:54:SER:HB2 | 1.92 | 0.51 |
| 47:B0:35:GLU:CG | 47:B0:36:LYS:N | 2.73 | 0.51 |
| 40:BS:2:GLU:OE1 | 40:BS:108:SER:HB3 | 2.10 | 0.51 |
| 27:BE:152:GLU:H | 27:BE:171:ASP:HB3 | 1.75 | 0.51 |
| 27:BE:47:LYS:N | 27:BE:47:LYS:HD3 | 2.12 | 0.51 |
| 51:B4:15:LYS:HB2 | 51:B4:26:ILE:HD11 | 1.91 | 0.51 |
| 13:CN:50:LEU:CD1 | 13:CN:51:PRO:HD3 | 2.40 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 33:DL:109:LYS:HG2 | 33:DL:126:ARG:HH11 | 1.74 | 0.51 |
| 26:DD:146:ILE:CG1 | 26:DD:155:VAL:HG13 | 2.40 | 0.51 |
| 23:DB:2755:C:H2' | 51:D4:19:ARG:NH2 | 2.25 | 0.51 |
| 23:DB:1639:C:H2' | 23:DB:1640:A:C5' | 2.33 | 0.51 |
| 11:CL:23:LEU:C | 11:CL:25:ALA:H | 2.13 | 0.51 |
| 23:DB:1021:A:H61 | 23:DB:1142:A:H61 | 1.52 | 0.51 |
| 32:DK:105:ARG:O | 32:DK:108:ARG:HB3 | 2.10 | 0.51 |
| 31:DJ:61:LYS:HA | 31:DJ:61:LYS:HE3 | 1.92 | 0.51 |
| 1:AA:978:A:HO2' | 1:AA:1322:C:H5 | 1.55 | 0.51 |
| 32:BK:47:ILE:HG23 | 32:BK:48:PRO:CD | 2.40 | 0.51 |
| 23:BB:1430:G:H2' | 23:BB:1431:A:H8 | 1.74 | 0.51 |
| 39:DR:97:LYS:O | 39:DR:98:ILE:HB | 2.10 | 0.51 |
| 23:BB:1916:A:H2' | 23:BB:1917:U:C6 | 2.44 | 0.51 |
| 10:CK:70:ALA:HA | 10:CK:73:VAL:HG22 | 1.91 | 0.51 |
| 23:BB:233:A:H61 | 23:BB:428:A:H61 | 1.57 | 0.51 |
| 23:BB:27:G:HO2' | 23:BB:28:A:H8 | 1.56 | 0.51 |
| 1:CA:940:C:H2' | 1:CA:941:G:C8 | 2.45 | 0.51 |
| 3:CD:2:ARG:O | 3:CD:3:TYR:HB3 | 2.10 | 0.51 |
| 1:CA:280:C:H1' | 16:CQ:39:ARG:NH1 | 2.25 | 0.51 |
| 13:CN:65:GLN:HG2 | 13:CN:82:LYS:HG3 | 1.92 | 0.51 |
| 35:DN:107:ASN:HD21 | 40:DS:40:ASN:HB3 | 1.75 | 0.51 |
| 1:CA:960:U:O2' | 1:CA:961:U:P | 2.68 | 0.51 |
| 4:AE:104:ILE:CD1 | 4:AE:114:LEU:HB2 | 2.40 | 0.51 |
| 23:BB:2195:U:H2' | 23:BB:2196:C:H6 | 1.76 | 0.51 |
| 6:CG:63:VAL:CG1 | 6:CG:126:ALA:HB1 | 2.40 | 0.51 |
| 23:BB:189:G:H2' | 23:BB:205:G:N2 | 2.26 | 0.51 |
| 23:BB:1228:G:H2' | 23:BB:1229:C:C6 | 2.45 | 0.51 |
| 23:BB:208:C:H2' | 23:BB:209:C:C6 | 2.45 | 0.51 |
| 23:DB:1563:U:H2' | 23:DB:1564:C:C6 | 2.45 | 0.51 |
| 26:DD:56:LYS:HZ2 | 26:DD:59:ARG:HB2 | 1.75 | 0.51 |
| 23:DB:192:C:C2' | 23:DB:193:U:H5' | 2.39 | 0.51 |
| 23:DB:845:A:N1 | 23:DB:847:U:H1' | 2.25 | 0.51 |
| 23:DB:771:G:O2' | 23:DB:772:C:H5' | 2.10 | 0.51 |
| 23:DB:2599:G:N7 | 25:DC:234:GLY:HA2 | 2.26 | 0.51 |
| 1:AA:648:A:H2' | 1:AA:649:A:C8 | 2.45 | 0.51 |
| 3:CD:121:ALA:HA | 3:CD:145:ARG:HG3 | 1.93 | 0.51 |
| 28:BF:77:LYS:NZ | 28:BF:79:ARG:HE | 2.08 | 0.51 |
| 1:CA:252:U:H2' | 1:CA:253:A:H8 | 1.74 | 0.51 |
| 23:DB:2440:C:H5' | 55:DB:3424:HOH:O | 2.10 | 0.51 |
| 7:CH:45:ILE:HD13 | 7:CH:60:LEU:HD11 | 1.91 | 0.51 |
| 23:DB:656:G:H2' | 23:DB:657:U:C6 | 2.45 | 0.51 |
| 1:AA:140:U:H2' | 1:AA:141:G:H8 | 1.73 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 6:CG:4:ARG:HB2 | 6:CG:4:ARG:NH1 | 2.25 | 0.51 |
| 42:BU:5:ARG:CG | 42:BU:6:ARG:N | 2.73 | 0.51 |
| 37:BP:28:LYS:O | 37:BP:30:TRP:N | 2.43 | 0.51 |
| 37:BP:52:ARG:CB | 37:BP:60:VAL:HG11 | 2.25 | 0.51 |
| 23:DB:2336:A:C1' | 23:DB:2337:G:OP1 | 2.56 | 0.51 |
| 47:D0:29:VAL:CG2 | 47:D0:32:THR:H | 2.24 | 0.51 |
| 39:DR:76:LYS:HD2 | 39:DR:90:ARG:HB3 | 1.90 | 0.51 |
| 30:BH:37:VAL:H | 30:BH:38:PRO:CD | 2.11 | 0.51 |
| 16:AQ:75:VAL:HG23 | 16:AQ:76:ARG:N | 2.25 | 0.51 |
| 38:BQ:75:TYR:CZ | 38:BQ:79:ILE:HD11 | 2.44 | 0.51 |
| 27:BE:173:THR:HA | 27:BE:201:ALA:O | 2.11 | 0.51 |
| 37:DP:100:ARG:H | 37:DP:100:ARG:HD2 | 1.76 | 0.51 |
| 41:BT:34:VAL:CG1 | 41:BT:43:ILE:HD11 | 2.39 | 0.51 |
| 17:CR:33:THR:HG21 | 17:CR:37:LYS:HG2 | 1.92 | 0.51 |
| 52:BI:112:LYS:O | 52:BI:116:MET:HG3 | 2.09 | 0.51 |
| 7:CH:104:SER:O | 7:CH:122:GLY:HA3 | 2.10 | 0.51 |
| 1:AA:35:G:H2' | 1:AA:36:C:C6 | 2.46 | 0.51 |
| 11:AL:119:LYS:HG3 | 11:AL:119:LYS:O | 2.11 | 0.51 |
| 11:AL:80:LEU:O | 11:AL:97:VAL:HG23 | 2.09 | 0.51 |
| 23:BB:1081:U:H5'' | 52:BI:126:ARG:HD2 | 1.92 | 0.51 |
| 13:AN:30:ILE:HD12 | 13:AN:30:ILE:N | 2.19 | 0.51 |
| 1:AA:783:C:O2' | 1:AA:784:A:H5' | 2.10 | 0.51 |
| 40:BS:89:ALA:O | 40:BS:90:LYS:HB2 | 2.10 | 0.51 |
| 1:AA:590:U:OP1 | 7:AH:30:LYS:HG2 | 2.10 | 0.51 |
| 23:BB:1438:U:H5' | 23:BB:1516:G:O2' | 2.10 | 0.51 |
| 23:DB:2066:C:O2' | 23:DB:2067:G:H5' | 2.11 | 0.51 |
| 8:AI:122:ARG:NH1 | 8:AI:122:ARG:HG3 | 2.21 | 0.51 |
| 37:BP:26:GLU:CA | 37:BP:46:VAL:HG13 | 2.38 | 0.51 |
| 25:BC:250:GLN:O | 25:BC:251:THR:HB | 2.09 | 0.51 |
| 1:AA:1284:C:H3' | 1:AA:1285:A:C5' | 2.35 | 0.51 |
| 8:CI:22:PRO:HA | 8:CI:60:LEU:HB3 | 1.92 | 0.51 |
| 3:AD:145:ARG:HB3 | 3:AD:147:LYS:HE3 | 1.92 | 0.51 |
| 25:BC:180:MET:HB2 | 25:BC:265:PHE:HB2 | 1.93 | 0.51 |
| 23:DB:1161:C:H2' | 23:DB:1162:G:H8 | 1.76 | 0.51 |
| 23:BB:1563:U:H2' | 23:BB:1564:C:C6 | 2.45 | 0.51 |
| 1:CA:1165:U:H2' | 1:CA:1166:G:O4' | 2.10 | 0.51 |
| 41:BT:25:GLU:HG3 | 41:BT:26:LYS:N | 2.25 | 0.51 |
| 23:DB:1560:G:H2' | 23:DB:1561:C:C6 | 2.45 | 0.51 |
| 1:AA:250:A:H1' | 1:AA:252:U:C5 | 2.45 | 0.51 |
| 26:BD:18:ASP:OD2 | 26:BD:20:VAL:HG13 | 2.09 | 0.51 |
| 17:AR:31:TYR:CG | 17:AR:54:LEU:HD21 | 2.45 | 0.51 |
| 35:DN:14:SER:HA | 35:DN:17:ARG:HH22 | 1.75 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 23:BB:167:A:H2' | 23:BB:168:G:O4' | 2.10 | 0.51 |
| 23:DB:2877:G:O2' | 23:DB:2878:U:H5' | 2.10 | 0.51 |
| 23:DB:1107:G:O2' | 23:DB:1108:U:H5' | 2.10 | 0.51 |
| 23:DB:753:A:H2' | 23:DB:754:U:C6 | 2.45 | 0.51 |
| 15:CP:23:ASP:OD1 | 15:CP:25:ARG:HB2 | 2.10 | 0.51 |
| 37:DP:90:ALA:HB3 | 37:DP:111:GLU:HB2 | 1.91 | 0.51 |
| 1:CA:975:A:HO2' | 1:CA:1358:U:H1' | 1.74 | 0.51 |
| 23:BB:2869:G:H2' | 23:BB:2870:C:H6 | 1.75 | 0.51 |
| 37:BP:64:SER:HA | 37:BP:72:VAL:HG12 | 1.91 | 0.51 |
| 36:DO:18:LEU:HD21 | 36:DO:43:ASN:HD22 | 1.74 | 0.51 |
| 23:BB:1812:U:H2' | 23:BB:1813:G:H8 | 1.75 | 0.51 |
| 23:BB:163:C:O2 | 23:BB:163:C:H5' | 2.10 | 0.51 |
| 30:DH:4:ILE:HD13 | 30:DH:4:ILE:N | 2.25 | 0.51 |
| 47:D0:36:LYS:HB2 | 47:D0:41:HIS:ND1 | 2.25 | 0.51 |
| 47:D0:42:ILE:O | 47:D0:42:ILE:HG23 | 2.11 | 0.51 |
| 31:DJ:136:GLN:N | 31:DJ:137:PRO:CD | 2.73 | 0.51 |
| 31:DJ:98:GLU:CD | 31:DJ:98:GLU:H | 2.12 | 0.51 |
| 24:BV:23:ALA:O | 24:BV:24:ASN:HB2 | 2.11 | 0.51 |
| 38:BQ:30:VAL:O | 38:BQ:33:VAL:HG12 | 2.11 | 0.51 |
| 38:BQ:34:ALA:C | 38:BQ:38:VAL:HG12 | 2.31 | 0.51 |
| 41:DT:3:ARG:HB3 | 41:DT:5:GLU:CD | 2.31 | 0.51 |
| 23:BB:587:C:N3 | 33:BL:38:GLN:CB | 2.73 | 0.51 |
| 40:DS:9:HIS:O | 40:DS:10:ALA:HB3 | 2.09 | 0.51 |
| 25:BC:81:GLU:HB3 | 25:BC:90:ILE:HG22 | 1.93 | 0.51 |
| 39:BR:51:VAL:HG12 | 39:BR:53:PHE:H | 1.74 | 0.51 |
| 23:BB:1205:A:C4' | 23:BB:1206:G:OP2 | 2.59 | 0.51 |
| 10:AK:111:ASP:O | 17:AR:72:ARG:HD3 | 2.10 | 0.51 |
| 33:DL:109:LYS:HE2 | 33:DL:126:ARG:NH1 | 2.26 | 0.51 |
| 23:DB:2394:C:H5'' | 33:DL:64:PHE:CE2 | 2.46 | 0.51 |
| 23:DB:2281:A:O2' | 23:DB:2282:G:H5' | 2.11 | 0.51 |
| 52:BI:27:LEU:N | 52:BI:27:LEU:HD23 | 2.18 | 0.51 |
| 26:BD:46:ARG:HA | 26:BD:81:GLU:O | 2.09 | 0.51 |
| 23:DB:1812:U:H2' | 23:DB:1813:G:H8 | 1.75 | 0.51 |
| 28:DF:66:ILE:O | 28:DF:66:ILE:HG22 | 2.11 | 0.51 |
| 37:DP:54:LEU:N | 37:DP:54:LEU:HD12 | 2.25 | 0.51 |
| 1:CA:864:A:H2' | 1:CA:865:A:C8 | 2.46 | 0.51 |
| 1:AA:1108:G:H5' | 2:AC:175:HIS:CD2 | 2.46 | 0.51 |
| 6:AG:14:ASP:CG | 6:AG:15:PRO:HD2 | 2.31 | 0.51 |
| 1:CA:837:U:H2' | 1:CA:838:G:H8 | 1.75 | 0.51 |
| 2:AC:75:VAL:O | 2:AC:75:VAL:HG12 | 2.10 | 0.51 |
| 11:AL:22:ALA:HB2 | 11:AL:56:LEU:CD2 | 2.39 | 0.51 |
| 29:DG:10:VAL:HG23 | 29:DG:47:ASN:O | 2.10 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 45:DY:10:ARG:HG2 | 45:DY:31:ILE:HG21 | 1.92 | 0.51 |
| 33:BL:21:ARG:HH11 | 33:BL:21:ARG:HB3 | 1.74 | 0.51 |
| 1:AA:1464:U:H2' | 1:AA:1465:A:C8 | 2.45 | 0.51 |
| 24:DV:30:ILE:HG12 | 24:DV:91:PHE:CB | 2.38 | 0.51 |
| 11:CL:56:LEU:HD12 | 11:CL:60:PHE:HB2 | 1.92 | 0.51 |
| 29:BG:53:PRO:HG2 | 29:BG:61:TRP:HA | 1.92 | 0.51 |
| 23:BB:1516:G:O2' | 23:BB:1517:G:H5' | 2.10 | 0.51 |
| 42:DU:41:VAL:O | 42:DU:42:LYS:HB2 | 2.10 | 0.51 |
| 23:DB:2018:G:H1' | 38:DQ:32:ARG:NH2 | 2.24 | 0.51 |
| 23:DB:2065:C:H2' | 23:DB:2066:C:H6 | 1.74 | 0.51 |
| 23:DB:2327:A:H2' | 23:DB:2328:A:C8 | 2.46 | 0.51 |
| 23:DB:2484:G:H21 | 34:DM:118:LYS:HG2 | 1.75 | 0.51 |
| 7:CH:38:VAL:HG13 | 7:CH:39:LEU:HD22 | 1.93 | 0.51 |
| 23:BB:1595:C:O2' | 23:BB:1596:A:H5' | 2.10 | 0.51 |
| 23:DB:1534:U:O2' | 23:DB:1535:A:H8 | 1.93 | 0.51 |
| 43:DW:10:ARG:NH1 | 43:DW:10:ARG:HA | 2.26 | 0.51 |
| 23:BB:869:G:H2' | 23:BB:870:U:C6 | 2.45 | 0.51 |
| 1:AA:1512:U:O2' | 1:AA:1513:A:H5' | 2.10 | 0.51 |
| 34:DM:97:GLN:N | 34:DM:98:PRO:HD3 | 2.25 | 0.51 |
| 23:DB:1745:A:H2' | 23:DB:1746:A:C8 | 2.45 | 0.51 |
| 1:CA:217:C:O2' | 1:CA:218:U:H5' | 2.10 | 0.51 |
| 10:CK:109:ILE:N | 10:CK:109:ILE:HD12 | 2.25 | 0.51 |
| 1:CA:1477:U:H2' | 1:CA:1478:U:C6 | 2.46 | 0.51 |
| 23:DB:1050:A:O2' | 23:DB:2752:C:H1' | 2.10 | 0.51 |
| 1:CA:392:C:H2' | 1:CA:393:A:H8 | 1.75 | 0.51 |
| 34:DM:61:GLY:HA3 | 34:DM:105:MET:HB2 | 1.91 | 0.51 |
| 1:CA:73:C:H2' | 1:CA:74:A:C8 | 2.45 | 0.51 |
| 1:AA:1475:G:OP1 | 23:BB:1689:A:H1' | 2.10 | 0.51 |
| 1:CA:442:G:H2' | 1:CA:443:C:C6 | 2.45 | 0.51 |
| 23:DB:146:A:H2' | 23:DB:147:C:C6 | 2.44 | 0.51 |
| 23:DB:2033:A:H1' | 23:DB:2035:G:OP2 | 2.11 | 0.51 |
| 1:CA:1275:A:H2' | 1:CA:1276:G:O4' | 2.11 | 0.51 |
| 1:CA:648:A:H2' | 1:CA:649:A:C8 | 2.46 | 0.51 |
| 2:CC:33:ASP:OD1 | 2:CC:37:LYS:HE2 | 2.10 | 0.51 |
| 52:DI:53:PRO:CG | 52:DI:77:VAL:HG11 | 2.39 | 0.51 |
| 1:AA:531:U:H6 | 1:AA:531:U:H5' | 1.75 | 0.51 |
| 51:B4:13:ASN:HD22 | 51:B4:13:ASN:N | 2.08 | 0.51 |
| 23:BB:2518:A:H2' | 23:BB:2518:A:N3 | 2.25 | 0.51 |
| 37:BP:23:ASP:O | 37:BP:25:VAL:HG23 | 2.09 | 0.51 |
| 23:BB:165:A:H2' | 23:BB:166:U:O4' | 2.11 | 0.51 |
| 31:BJ:57:LEU:HD12 | 31:BJ:128:ASN:C | 2.31 | 0.51 |
| 20:AB:216:VAL:O | 20:AB:220:VAL:HG23 | 2.11 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 46:BZ:3:LYS:HB2 | 46:BZ:51:VAL:CG2 | 2.29 | 0.51 |
| 23:DB:396:G:H2' | 23:DB:397:U:H6 | 1.75 | 0.51 |
| 23:DB:2688:G:H1' | 23:DB:2721:A:N6 | 2.25 | 0.51 |
| 23:BB:2771:C:H2' | 23:BB:2772:C:H6 | 1.76 | 0.51 |
| 31:DJ:77:HIS:HB2 | 31:DJ:85:LYS:CE | 2.39 | 0.51 |
| 23:DB:919:U:O5' | 23:DB:919:U:H6 | 1.94 | 0.51 |
| 3:CD:101:VAL:O | 3:CD:104:MET:HB2 | 2.11 | 0.51 |
| 23:BB:2742:G:O2' | 23:BB:2743:U:H5' | 2.11 | 0.51 |
| 21:AU:5:VAL:HG12 | 21:AU:6:ARG:N | 2.25 | 0.51 |
| 26:BD:16:THR:HG23 | 26:BD:17:GLU:N | 2.13 | 0.51 |
| 23:DB:2053:G:O2' | 23:DB:2054:A:H5' | 2.11 | 0.51 |
| 27:DE:4:VAL:HA | 27:DE:14:VAL:HG22 | 1.92 | 0.51 |
| 23:BB:2784:U:H4' | 26:BD:41:ALA:O | 2.10 | 0.51 |
| 26:BD:67:HIS:O | 26:BD:71:ALA:HB3 | 2.10 | 0.51 |
| 23:DB:1150:C:O2' | 23:DB:1151:A:H5' | 2.11 | 0.51 |
| 1:CA:1006:G:H2' | 1:CA:1007:U:C6 | 2.45 | 0.51 |
| 1:CA:376:G:C5' | 15:CP:5:ARG:HD3 | 2.40 | 0.51 |
| 3:AD:84:ASN:HD22 | 3:AD:87:GLU:N | 2.01 | 0.51 |
| 1:AA:1348:U:H4' | 8:AI:121:ARG:HH11 | 1.76 | 0.51 |
| 28:DF:135:ILE:HG23 | 28:DF:136:ILE:H | 1.75 | 0.51 |
| 4:CE:80:LEU:CD2 | 4:CE:122:VAL:HG11 | 2.40 | 0.51 |
| 29:BG:51:PHE:HB3 | 29:BG:64:ALA:HB1 | 1.91 | 0.51 |
| 14:CO:31:LEU:O | 14:CO:35:ILE:HG12 | 2.10 | 0.51 |
| 39:BR:18:GLN:HA | 39:BR:99:THR:HA | 1.92 | 0.51 |
| 20:AB:116:LEU:HD12 | 20:AB:143:LEU:HD12 | 1.93 | 0.51 |
| 12:CM:79:LEU:CD2 | 12:CM:86:ARG:HE | 2.23 | 0.51 |
| 1:AA:676:A:O2' | 1:AA:677:U:H5' | 2.10 | 0.51 |
| 24:DV:2:PHE:HB3 | 24:DV:50:MET:SD | 2.50 | 0.51 |
| 23:DB:1360:G:H2' | 23:DB:1361:G:C5' | 2.41 | 0.51 |
| 1:AA:883:C:O2' | 1:AA:884:U:H5' | 2.09 | 0.51 |
| 33:BL:111:ILE:CD1 | 33:BL:111:ILE:H | 2.23 | 0.51 |
| 1:CA:81:A:H2' | 1:CA:82:G:C8 | 2.45 | 0.51 |
| 19:CT:49:ALA:O | 19:CT:52:GLU:HB3 | 2.10 | 0.51 |
| 23:BB:740:C:H5'' | 23:BB:1784:A:OP1 | 2.11 | 0.51 |
| 43:BW:3:LYS:HD2 | 43:BW:3:LYS:N | 2.26 | 0.51 |
| 27:DE:77:ILE:HG23 | 27:DE:78:TRP:CD1 | 2.45 | 0.51 |
| 11:AL:3:VAL:HG23 | 11:AL:4:ASN:OD1 | 2.10 | 0.51 |
| 23:BB:1560:G:H2' | 23:BB:1561:C:C6 | 2.45 | 0.51 |
| 1:CA:333:U:H2' | 1:CA:334:C:H6 | 1.74 | 0.51 |
| 6:AG:72:VAL:HB | 6:AG:144:ALA:CB | 2.41 | 0.51 |
| 23:BB:1330:C:H2' | 23:BB:1331:G:H8 | 1.76 | 0.51 |
| 4:AE:14:LEU:HA | 4:AE:36:THR:HG22 | 1.91 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 1:CA:146:G:O2' | 1:CA:147:G:H5' | 2.11 | 0.51 |
| 33:BL:106:GLU:CD | 33:BL:106:GLU:H | 2.12 | 0.51 |
| 1:CA:250:A:H1' | 1:CA:252:U:C5 | 2.45 | 0.51 |
| 1:CA:251:G:H4' | 1:CA:252:U:H5' | 1.92 | 0.51 |
| 1:CA:987:G:H2' | 1:CA:988:G:C8 | 2.45 | 0.51 |
| 15:CP:12:LYS:O | 15:CP:13:LYS:HB2 | 2.10 | 0.51 |
| 35:DN:61:ALA:O | 35:DN:64:ARG:HB3 | 2.09 | 0.51 |
| 23:BB:642:U:H2' | 23:BB:644:A:OP2 | 2.10 | 0.51 |
| 1:CA:1464:U:H2' | 1:CA:1465:A:C8 | 2.45 | 0.51 |
| 23:DB:441:U:H2' | 23:DB:442:G:C8 | 2.45 | 0.51 |
| 26:BD:55:LYS:NZ | 26:BD:55:LYS:HB2 | 2.25 | 0.51 |
| 23:BB:786:C:O2' | 23:BB:787:C:H5' | 2.10 | 0.51 |
| 27:DE:47:LYS:O | 27:DE:49:ARG:HG2 | 2.10 | 0.51 |
| 23:BB:2718:G:O2' | 23:BB:2719:G:H5' | 2.09 | 0.51 |
| 43:DW:44:PHE:HD2 | 43:DW:77:LYS:HB3 | 1.75 | 0.51 |
| 25:BC:153:LEU:HD13 | 25:BC:161:VAL:HG23 | 1.93 | 0.51 |
| 23:BB:161:A:H3' | 23:BB:162:U:C5' | 2.25 | 0.51 |
| 23:BB:2322:A:N6 | 23:BB:2333:A:H62 | 2.09 | 0.51 |
| 25:DC:171:VAL:HG12 | 25:DC:183:VAL:C | 2.31 | 0.51 |
| 31:BJ:56:VAL:HG12 | 31:BJ:57:LEU:N | 2.25 | 0.51 |
| 31:BJ:58:ASN:O | 31:BJ:126:ALA:HA | 2.10 | 0.51 |
| 22:BA:114:C:H4' | 36:BO:49:VAL:HG11 | 1.91 | 0.51 |
| 43:BW:65:LYS:HE2 | 43:BW:65:LYS:C | 2.31 | 0.51 |
| 27:DE:139:LYS:HA | 27:DE:143:LEU:CD2 | 2.40 | 0.51 |
| 33:BL:61:LEU:O | 50:B3:11:LYS:NZ | 2.43 | 0.51 |
| 33:BL:82:LEU:HD21 | 33:BL:92:LEU:HD12 | 1.92 | 0.51 |
| 34:BM:8:LYS:HB2 | 34:BM:12:MET:CE | 2.41 | 0.51 |
| 3:AD:112:GLU:OE2 | 3:AD:153:ARG:HD3 | 2.11 | 0.51 |
| 22:DA:114:C:O2' | 36:DO:49:VAL:HG23 | 2.10 | 0.51 |
| 36:DO:106:LEU:HD23 | 36:DO:106:LEU:C | 2.31 | 0.51 |
| 41:DT:17:SER:H | 41:DT:20:ALA:CB | 2.22 | 0.51 |
| 41:DT:55:VAL:CG2 | 41:DT:56:GLU:H | 2.15 | 0.51 |
| 8:AI:30:ASN:ND2 | 8:AI:30:ASN:N | 2.59 | 0.51 |
| 8:AI:34:LEU:HD11 | 8:AI:47:VAL:CG2 | 2.40 | 0.51 |
| 38:BQ:99:VAL:HG23 | 38:BQ:100:PHE:CD1 | 2.44 | 0.51 |
| 13:CN:15:LEU:O | 13:CN:19:TYR:HB2 | 2.10 | 0.51 |
| 13:CN:51:PRO:CB | 13:CN:54:SER:HB3 | 2.40 | 0.51 |
| 26:BD:167:ASN:N | 26:BD:167:ASN:ND2 | 2.58 | 0.51 |
| 21:CU:14:ALA:HB3 | 21:CU:16:ARG:HH12 | 1.74 | 0.51 |
| 23:DB:1656:C:H2' | 23:DB:1657:U:H6 | 1.74 | 0.51 |
| 23:DB:61:C:OP2 | 44:DX:44:LYS:HB2 | 2.11 | 0.51 |
| 23:BB:2073:C:H5'' | 25:BC:227:VAL:HG23 | 1.92 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 11:CL:23:LEU:CD2 | 11:CL:58:ASN:HD22 | 2.18 | 0.51 |
| 27:DE:6:LYS:HZ3 | 27:DE:8:ALA:HB2 | 1.75 | 0.51 |
| 52:DI:72:THR:CG2 | 52:DI:112:LYS:HD2 | 2.40 | 0.51 |
| 52:DI:105:LEU:CD1 | 52:DI:129:GLU:HG2 | 2.37 | 0.51 |
| 31:DJ:14:ASP:H | 31:DJ:53:TYR:HD1 | 1.57 | 0.51 |
| 31:DJ:53:TYR:HA | 31:DJ:121:LYS:HB3 | 1.93 | 0.51 |
| 34:DM:127:LYS:HZ3 | 34:DM:129:THR:H | 1.59 | 0.51 |
| 1:AA:1460:C:H2' | 1:AA:1461:G:O4' | 2.11 | 0.51 |
| 48:B1:34:GLU:O | 48:B1:35:LEU:HB3 | 2.10 | 0.51 |
| 25:DC:243:PRO:O | 25:DC:244:VAL:HG23 | 2.11 | 0.51 |
| 1:AA:499:A:C2 | 1:AA:546:A:N3 | 2.79 | 0.51 |
| 2:AC:150:VAL:HG12 | 2:AC:151:GLU:N | 2.25 | 0.51 |
| 19:CT:38:ILE:HD13 | 19:CT:85:LEU:HD23 | 1.93 | 0.51 |
| 23:DB:2328:A:H2' | 23:DB:2329:U:H6 | 1.71 | 0.51 |
| 40:DS:3:THR:OG1 | 40:DS:107:VAL:HG23 | 2.10 | 0.51 |
| 23:DB:1029:A:H3' | 23:DB:1030:C:H6 | 1.76 | 0.51 |
| 15:AP:20:VAL:HG21 | 15:AP:32:PHE:CD2 | 2.45 | 0.51 |
| 23:BB:2093:G:N7 | 23:BB:2225:A:H2' | 2.26 | 0.51 |
| 46:BZ:69:SER:HB3 | 46:BZ:70:LYS:HE3 | 1.92 | 0.51 |
| 23:BB:2469:A:H5'' | 34:BM:55:ARG:HD2 | 1.93 | 0.51 |
| 29:BG:137:LYS:HA | 29:BG:140:ILE:CG1 | 2.40 | 0.51 |
| 22:DA:25:U:OP1 | 22:DA:25:U:H3' | 2.10 | 0.51 |
| 20:CB:69:VAL:HB | 20:CB:162:VAL:HB | 1.91 | 0.51 |
| 1:CA:602:A:O2' | 1:CA:603:U:H5' | 2.10 | 0.51 |
| 42:DU:78:LYS:HD2 | 42:DU:96:LYS:CG | 2.41 | 0.51 |
| 20:AB:132:GLU:O | 20:AB:136:ARG:HG3 | 2.10 | 0.51 |
| 23:DB:394:C:O2' | 23:DB:395:U:H5' | 2.11 | 0.51 |
| 23:DB:2700:A:H2' | 23:DB:2701:U:H6 | 1.76 | 0.51 |
| 23:DB:1315:C:H2' | 23:DB:1316:U:C6 | 2.46 | 0.51 |
| 1:AA:394:G:H2' | 1:AA:395:C:H6 | 1.75 | 0.51 |
| 23:DB:720:U:H2' | 23:DB:721:A:C8 | 2.46 | 0.51 |
| 47:B0:12:ARG:C | 47:B0:12:ARG:HD3 | 2.31 | 0.51 |
| 1:CA:629:A:H2' | 1:CA:630:A:O4' | 2.11 | 0.51 |
| 1:CA:541:G:H2' | 1:CA:542:G:H8 | 1.75 | 0.51 |
| 23:BB:2033:A:H1' | 23:BB:2035:G:OP2 | 2.11 | 0.51 |
| 22:DA:29:A:OP1 | 22:DA:29:A:C8 | 2.64 | 0.51 |
| 43:BW:6:GLY:C | 43:BW:8:SER:H | 2.14 | 0.51 |
| 23:BB:2547:A:H2' | 23:BB:2548:U:C6 | 2.44 | 0.51 |
| 23:DB:2849:U:O4 | 37:DP:96:LEU:HD21 | 2.11 | 0.51 |
| 36:BO:53:THR:O | 36:BO:62:LEU:HD23 | 2.10 | 0.51 |
| 26:DD:37:VAL:CB | 26:DD:46:ARG:HB2 | 2.39 | 0.51 |
| 43:BW:44:PHE:HB3 | 43:BW:76:ARG:HA | 1.92 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 43:BW:66:VAL:CG1 | 43:BW:67:LYS:H | 2.15 | 0.51 |
| 27:DE:147:LEU:C | 27:DE:148:ILE:HG23 | 2.31 | 0.51 |
| 33:BL:62:PRO:HB3 | 50:B3:29:ARG:NH2 | 2.25 | 0.51 |
| 46:BZ:5:ILE:HB | 46:BZ:51:VAL:HG12 | 1.93 | 0.51 |
| 34:BM:20:LEU:HB2 | 34:BM:38:ARG:HD3 | 1.93 | 0.51 |
| 23:BB:811:U:O5' | 33:BL:31:GLY:HA2 | 2.11 | 0.51 |
| 28:BF:150:GLY:O | 28:BF:151:LEU:HD12 | 2.11 | 0.51 |
| 38:BQ:61:ILE:O | 38:BQ:65:ASN:HB3 | 2.11 | 0.51 |
| 23:BB:2262:U:H4' | 23:BB:2328:A:C2 | 2.46 | 0.51 |
| 18:AS:3:SER:O | 18:AS:4:LEU:HG | 2.11 | 0.51 |
| 33:DL:132:ARG:HH12 | 33:DL:140:GLY:HA2 | 1.74 | 0.51 |
| 41:BT:30:ILE:HG22 | 41:BT:85:VAL:HG22 | 1.92 | 0.51 |
| 32:BK:78:ARG:O | 37:BP:71:ARG:HB3 | 2.10 | 0.51 |
| 28:DF:13:LYS:CA | 28:DF:16:MET:HB2 | 2.34 | 0.51 |
| 23:BB:2621:G:HO2' | 26:BD:164:GLN:HB2 | 1.75 | 0.51 |
| 52:BI:79:LEU:HD23 | 52:BI:108:ILE:CD1 | 2.41 | 0.51 |
| 19:CT:68:LYS:HB2 | 19:CT:70:LYS:HD3 | 1.93 | 0.51 |
| 1:CA:1021:A:H2' | 1:CA:1022:A:C1' | 2.41 | 0.51 |
| 35:BN:38:LEU:HB2 | 35:BN:109:PRO:CG | 2.41 | 0.51 |
| 55:BB:3366:HOH:O | 35:BN:15:SER:HB3 | 2.11 | 0.51 |
| 23:BB:589:U:H1' | 27:BE:88:ARG:NH2 | 2.26 | 0.51 |
| 29:DG:171:LYS:HE2 | 29:DG:174:LYS:HG3 | 1.92 | 0.51 |
| 1:CA:1085:U:H3' | 1:CA:1086:U:C5 | 2.45 | 0.51 |
| 32:DK:2:ILE:HA | 32:DK:33:ALA:H | 1.75 | 0.51 |
| 44:DX:7:ARG:O | 44:DX:7:ARG:HG3 | 2.11 | 0.51 |
| 27:DE:137:LYS:HA | 27:DE:137:LYS:HZ3 | 1.73 | 0.51 |
| 30:BH:73:ASN:ND2 | 30:BH:74:ALA:N | 2.56 | 0.51 |
| 1:AA:1448:C:H2' | 1:AA:1449:C:H6 | 1.74 | 0.51 |
| 4:AE:84:VAL:HG21 | 4:AE:142:GLY:O | 2.11 | 0.51 |
| 7:AH:79:ARG:HB2 | 7:AH:80:PRO:HD2 | 1.92 | 0.51 |
| 30:BH:8:LYS:HB3 | 30:BH:14:SER:HA | 1.93 | 0.51 |
| 1:CA:1325:C:O2' | 1:CA:1326:U:H5' | 2.10 | 0.51 |
| 23:DB:2466:C:O2 | 34:DM:118:LYS:HD3 | 2.09 | 0.51 |
| 6:AG:117:LEU:HD13 | 6:AG:117:LEU:O | 2.11 | 0.51 |
| 23:DB:2045:C:H5'' | 47:D0:14:MET:SD | 2.50 | 0.51 |
| 23:DB:2597:G:C5' | 25:DC:239:PHE:HB2 | 2.39 | 0.51 |
| 37:BP:77:SER:HB2 | 37:BP:78:PRO:HD3 | 1.92 | 0.51 |
| 23:DB:2199:A:O2' | 46:DZ:34:LEU:HD21 | 2.09 | 0.51 |
| 1:AA:537:G:H2' | 1:AA:538:G:C8 | 2.45 | 0.51 |
| 23:DB:1973:G:H2' | 23:DB:1974:C:H6 | 1.75 | 0.51 |
| 49:D2:37:LYS:HD3 | 49:D2:37:LYS:C | 2.31 | 0.51 |
| 20:AB:102:ASN:OD1 | 20:AB:105:THR:HG22 | 2.10 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:BB:1230:A:H2' | 23:BB:1231:U:C6 | 2.46 | 0.51 |
| 23:DB:576:U:H2' | 23:DB:577:G:C8 | 2.45 | 0.51 |
| 1:AA:212:G:H2' | 1:AA:213:G:C8 | 2.46 | 0.51 |
| 2:CC:85:LYS:HG3 | 2:CC:86:LEU:N | 2.24 | 0.51 |
| 37:BP:112:ARG:N | 37:BP:112:ARG:HH11 | 2.08 | 0.51 |
| 23:BB:999:U:O2' | 23:BB:1000:A:H5' | 2.11 | 0.51 |
| 2:AC:41:TYR:HA | 2:AC:44:LYS:HD3 | 1.92 | 0.51 |
| 23:DB:686:U:H5'' | 49:D2:11:LYS:HE3 | 1.92 | 0.51 |
| 1:CA:423:G:H2' | 1:CA:424:G:O4' | 2.11 | 0.51 |
| 3:CD:197:HIS:O | 3:CD:201:GLU:HG3 | 2.10 | 0.51 |
| 3:AD:104:MET:SD | 3:AD:179:GLY:HA3 | 2.51 | 0.51 |
| 23:DB:274:C:H2' | 23:DB:275:C:H6 | 1.76 | 0.51 |
| 1:CA:531:U:H5' | 1:CA:531:U:H6 | 1.75 | 0.51 |
| 1:CA:697:U:H2' | 1:CA:698:G:H5' | 1.93 | 0.51 |
| 23:BB:1599:U:H2' | 23:BB:1600:C:H6 | 1.75 | 0.51 |
| 42:DU:59:GLU:HG3 | 42:DU:62:ALA:CB | 2.38 | 0.51 |
| 20:CB:34:ARG:HE | 20:CB:39:ILE:HG13 | 1.74 | 0.51 |
| 51:D4:23:ILE:HD13 | 51:D4:24:ARG:H | 1.74 | 0.51 |
| 25:BC:141:HIS:ND1 | 25:BC:142:ASN:N | 2.59 | 0.51 |
| 25:BC:160:TYR:HA | 25:BC:193:GLU:CG | 2.41 | 0.51 |
| 30:DH:35:LYS:HZ1 | 30:DH:37:VAL:HG23 | 1.76 | 0.51 |
| 47:D0:41:HIS:CD2 | 47:D0:42:ILE:HG22 | 2.46 | 0.51 |
| 31:DJ:98:GLU:HG3 | 31:DJ:126:ALA:CB | 2.41 | 0.51 |
| 38:DQ:52:ARG:HG2 | 38:DQ:53:LYS:N | 2.26 | 0.51 |
| 42:BU:94:PHE:CZ | 42:BU:100:GLU:HA | 2.46 | 0.51 |
| 27:DE:188:MET:SD | 27:DE:190:ALA:HB2 | 2.51 | 0.51 |
| 33:BL:77:ILE:HA | 33:BL:101:ILE:HD13 | 1.93 | 0.51 |
| 33:BL:78:ARG:HH21 | 33:BL:82:LEU:HD23 | 1.74 | 0.51 |
| 46:BZ:30:HIS:H | 46:BZ:48:GLN:CD | 2.13 | 0.51 |
| 34:BM:9:PHE:CG | 34:BM:10:ARG:N | 2.79 | 0.51 |
| 24:BV:80:HIS:CD2 | 24:BV:83:LYS:HB2 | 2.45 | 0.51 |
| 46:DZ:59:ARG:HD3 | 46:DZ:63:ARG:CD | 2.41 | 0.51 |
| 42:BU:42:LYS:O | 42:BU:57:ILE:HG13 | 2.11 | 0.51 |
| 35:BN:29:VAL:HG13 | 35:BN:83:LEU:HD13 | 1.93 | 0.51 |
| 1:CA:1004:A:H3' | 1:CA:1005:A:H8 | 1.75 | 0.51 |
| 23:BB:2329:U:H2' | 23:BB:2330:G:H8 | 1.74 | 0.51 |
| 3:CD:94:GLU:HA | 3:CD:99:ASN:ND2 | 2.26 | 0.51 |
| 30:DH:144:VAL:HG12 | 30:DH:145:ASN:H | 1.76 | 0.51 |
| 23:BB:2688:G:H1' | 23:BB:2721:A:N6 | 2.25 | 0.51 |
| 27:DE:1:MET:HG3 | 27:DE:18:THR:HG1 | 1.76 | 0.51 |
| 31:DJ:81:ILE:HG12 | 31:DJ:83:GLY:H | 1.76 | 0.51 |
| 23:BB:2074:U:H2' | 23:BB:2075:U:C6 | 2.46 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 37:DP:59:THR:O | 37:DP:60:VAL:HG13 | 2.10 | 0.51 |
| 1:AA:837:U:H2' | 1:AA:838:G:H8 | 1.75 | 0.51 |
| 14:AO:29:ALA:HA | 14:AO:84:LEU:HD21 | 1.92 | 0.51 |
| 23:BB:1025:G:H8 | 23:BB:1025:G:OP1 | 1.94 | 0.51 |
| 39:DR:23:GLU:O | 39:DR:96:VAL:HG21 | 2.11 | 0.51 |
| 29:DG:172:GLU:OE1 | 51:D4:32:LYS:HB3 | 2.11 | 0.51 |
| 23:DB:718:A:H3' | 23:DB:719:C:H6 | 1.76 | 0.51 |
| 52:BI:18:ASN:N | 52:BI:19:PRO:CD | 2.74 | 0.51 |
| 16:CQ:16:MET:HB3 | 16:CQ:19:SER:HB2 | 1.92 | 0.51 |
| 16:CQ:80:LYS:H | 16:CQ:80:LYS:HD2 | 1.76 | 0.51 |
| 38:DQ:30:VAL:HG12 | 38:DQ:31:TYR:H | 1.74 | 0.51 |
| 25:DC:257:ARG:HA | 25:DC:261:ARG:NE | 2.26 | 0.51 |
| 6:AG:64:ALA:HA | 6:AG:127:ALA:HB2 | 1.92 | 0.51 |
| 7:AH:6:ILE:CG2 | 7:AH:76:ARG:HH12 | 2.24 | 0.51 |
| 15:AP:67:ILE:CG1 | 15:AP:71:VAL:HG13 | 2.41 | 0.51 |
| 23:DB:862:G:H2' | 23:DB:863:A:O4' | 2.11 | 0.51 |
| 29:BG:120:ILE:CG1 | 29:BG:140:ILE:HG22 | 2.40 | 0.51 |
| 1:CA:767:A:H2' | 1:CA:768:A:C8 | 2.46 | 0.51 |
| 23:BB:1535:A:H3' | 23:BB:1536:C:C6 | 2.46 | 0.51 |
| 8:CI:33:SER:HB2 | 8:CI:36:GLN:HG2 | 1.92 | 0.51 |
| 23:DB:866:A:H61 | 23:DB:913:U:C1' | 2.24 | 0.51 |
| 23:BB:205:G:HO2' | 23:BB:206:U:P | 2.34 | 0.51 |
| 23:BB:354:A:C3' | 23:BB:355:U:H5'' | 2.40 | 0.51 |
| 23:BB:2886:A:C8 | 47:B0:27:LEU:HD22 | 2.46 | 0.51 |
| 1:AA:522:C:H41 | 11:AL:49:ARG:NH2 | 2.09 | 0.51 |
| 23:BB:1771:C:H2' | 23:BB:1772:A:C8 | 2.45 | 0.51 |
| 26:BD:15:PHE:HD2 | 26:BD:18:ASP:HB2 | 1.75 | 0.51 |
| 41:BT:50:LEU:N | 41:BT:50:LEU:HD22 | 2.26 | 0.51 |
| 15:AP:73:ALA:O | 15:AP:77:GLU:HG3 | 2.10 | 0.51 |
| 1:CA:488:C:H2' | 1:CA:489:C:H6 | 1.76 | 0.51 |
| 23:DB:2373:G:H2' | 23:DB:2374:C:C6 | 2.45 | 0.51 |
| 10:AK:63:GLN:HB3 | 10:AK:94:SER:OG | 2.11 | 0.51 |
| 27:DE:88:ARG:HB3 | 27:DE:89:PRO:CD | 2.40 | 0.51 |
| 50:D3:21:PHE:H | 50:D3:48:MET:HB2 | 1.75 | 0.51 |
| 30:DH:147:VAL:HG12 | 30:DH:148:ALA:N | 2.25 | 0.51 |
| 1:AA:1272:G:H2' | 1:AA:1273:C:C6 | 2.45 | 0.51 |
| 44:DX:28:LEU:HD13 | 44:DX:42:LEU:HD11 | 1.93 | 0.51 |
| 42:BU:6:ARG:C | 42:BU:8:ASP:H | 2.12 | 0.51 |
| 51:D4:25:VAL:O | 51:D4:35:GLN:HB2 | 2.10 | 0.51 |
| 23:BB:2849:U:H4' | 23:BB:2868:A:C2 | 2.46 | 0.51 |
| 32:BK:76:VAL:O | 37:BP:73:PHE:HA | 2.11 | 0.51 |
| 43:DW:20:LEU:HD11 | 43:DW:31:LEU:HB2 | 1.92 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 25:BC:160:TYR:O | 25:BC:161:VAL:HG23 | 2.11 | 0.51 |
| 31:BJ:100:VAL:O | 31:BJ:102:GLU:N | 2.44 | 0.51 |
| 27:DE:146:VAL:HG11 | 27:DE:184:ASP:OD1 | 2.11 | 0.51 |
| 50:B3:24:LYS:HA | 50:B3:45:PRO:CB | 2.35 | 0.51 |
| 46:BZ:15:SER:HB3 | 46:BZ:23:LYS:CE | 2.41 | 0.51 |
| 23:BB:2464:G:H2' | 23:BB:2465:C:H6 | 1.75 | 0.51 |
| 23:DB:2820:A:C5 | 26:DD:197:THR:HB | 2.45 | 0.51 |
| 23:DB:1654:A:H4' | 35:DN:1:MET:O | 2.11 | 0.51 |
| 13:AN:10:VAL:HG12 | 13:AN:11:LYS:NZ | 2.26 | 0.51 |
| 23:DB:2291:U:H2' | 23:DB:2292:U:H6 | 1.71 | 0.51 |
| 39:DR:33:VAL:H | 39:DR:35:PHE:HD2 | 1.59 | 0.51 |
| 23:BB:2680:U:H5' | 26:BD:194:PRO:HA | 1.92 | 0.51 |
| 18:CS:26:ASP:OD2 | 18:CS:46:LEU:HA | 2.11 | 0.51 |
| 31:BJ:13:ARG:HG3 | 31:BJ:13:ARG:NH1 | 2.22 | 0.51 |
| 38:BQ:92:LYS:O | 38:BQ:94:LEU:HD13 | 2.11 | 0.51 |
| 1:AA:132:C:H5'' | 19:AT:68:LYS:CD | 2.40 | 0.51 |
| 40:BS:71:VAL:HG12 | 40:BS:71:VAL:O | 2.11 | 0.51 |
| 27:BE:105:LEU:HD22 | 27:BE:177:PRO:CG | 2.40 | 0.51 |
| 51:B4:22:VAL:HG21 | 51:B4:24:ARG:HH21 | 1.76 | 0.51 |
| 26:DD:5:VAL:CG2 | 26:DD:28:GLU:HA | 2.40 | 0.51 |
| 23:DB:630:G:H1 | 33:DL:69:ARG:NH1 | 2.09 | 0.51 |
| 23:DB:2393:U:H5' | 33:DL:61:LEU:O | 2.10 | 0.51 |
| 23:DB:2515:C:O2' | 23:DB:2516:A:H5' | 2.11 | 0.51 |
| 52:DI:79:LEU:HD12 | 52:DI:135:MET:SD | 2.51 | 0.51 |
| 1:CA:451:A:C5' | 15:CP:70:ARG:HH22 | 2.17 | 0.51 |
| 38:DQ:82:LEU:HD11 | 38:DQ:108:LEU:HD11 | 1.92 | 0.51 |
| 1:CA:1306:A:H61 | 1:CA:1331:G:C1' | 2.18 | 0.51 |
| 1:CA:1369:C:H2' | 1:CA:1370:G:C8 | 2.46 | 0.51 |
| 1:AA:1422:G:O2' | 1:AA:1423:G:H5' | 2.11 | 0.51 |
| 1:CA:1007:U:H2' | 1:CA:1008:U:H6 | 1.75 | 0.51 |
| 15:CP:57:ILE:O | 15:CP:61:VAL:HG23 | 2.11 | 0.51 |
| 42:BU:2:ALA:C | 42:BU:3:LYS:HD3 | 2.31 | 0.51 |
| 35:BN:37:THR:HG1 | 35:BN:40:LYS:HB2 | 1.76 | 0.51 |
| 23:BB:1913:A:C1' | 23:BB:1914:C:OP1 | 2.56 | 0.51 |
| 23:DB:877:A:H61 | 23:DB:898:C:H2' | 1.74 | 0.51 |
| 23:DB:1005:C:H2' | 23:DB:1006:C:C6 | 2.46 | 0.51 |
| 36:BO:68:LYS:H | 36:BO:68:LYS:CD | 2.23 | 0.51 |
| 48:B1:7:LYS:HD2 | 48:B1:8:ILE:O | 2.11 | 0.51 |
| 33:DL:19:LEU:N | 33:DL:19:LEU:HD13 | 2.25 | 0.51 |
| 14:CO:35:ILE:O | 14:CO:39:GLN:HG2 | 2.11 | 0.51 |
| 23:DB:1864:U:OP1 | 23:DB:2410:G:O2' | 2.22 | 0.51 |
| 28:BF:90:LEU:HD23 | 28:BF:94:ARG:HG2 | 1.93 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 1:CA:1391:U:H2' | 1:CA:1392:G:H8 | 1.74 | 0.51 |
| 28:DF:163:GLU:HA | 28:DF:166:ARG:CD | 2.41 | 0.51 |
| 5:AF:47:LEU:HD13 | 5:AF:51:ILE:HG22 | 1.92 | 0.51 |
| 23:DB:1535:A:H3' | 23:DB:1536:C:C6 | 2.46 | 0.51 |
| 23:DB:956:G:N2 | 23:DB:959:A:H3' | 2.25 | 0.51 |
| 29:DG:148:ARG:HH21 | 29:DG:153:PRO:HD2 | 1.76 | 0.51 |
| 27:BE:84:THR:HG23 | 27:BE:85:PHE:N | 2.26 | 0.51 |
| 36:DO:86:GLY:O | 36:DO:87:ILE:HD13 | 2.10 | 0.51 |
| 1:CA:1049:U:O2' | 1:CA:1050:G:P | 2.68 | 0.51 |
| 45:DY:15:ARG:HD2 | 45:DY:53:MET:SD | 2.51 | 0.51 |
| 1:CA:212:G:H2' | 1:CA:213:G:C8 | 2.46 | 0.51 |
| 23:BB:10:A:O2' | 23:BB:11:C:H5' | 2.11 | 0.51 |
| 50:D3:2:LYS:CB | 50:D3:2:LYS:HZ2 | 2.24 | 0.51 |
| 1:CA:1262:C:H2' | 1:CA:1263:C:C6 | 2.46 | 0.51 |
| 23:DB:1717:A:H2' | 23:DB:1718:G:O4' | 2.10 | 0.51 |
| 23:BB:350:G:H2' | 23:BB:351:C:C6 | 2.45 | 0.51 |
| 23:DB:327:G:O2' | 23:DB:328:U:H5' | 2.11 | 0.51 |
| 23:BB:2756:U:OP2 | 51:B4:19:ARG:HD3 | 2.10 | 0.51 |
| 1:AA:488:C:H2' | 1:AA:489:C:H6 | 1.76 | 0.51 |
| 33:DL:14:LYS:HD2 | 33:DL:15:ALA:N | 2.26 | 0.51 |
| 23:BB:2877:G:O2' | 23:BB:2878:U:H5' | 2.11 | 0.51 |
| 23:BB:496:G:H2' | 23:BB:497:A:O4' | 2.10 | 0.51 |
| 2:CC:189:HIS:CD2 | 2:CC:194:VAL:HG22 | 2.45 | 0.51 |
| 49:B2:10:LEU:O | 49:B2:10:LEU:HD23 | 2.11 | 0.51 |
| 23:BB:2060:A:H62 | 27:BE:69:ARG:HH21 | 1.57 | 0.51 |
| 32:DK:112:PHE:O | 32:DK:114:LYS:N | 2.43 | 0.51 |
| 42:BU:69:VAL:HG13 | 42:BU:77:GLY:H | 1.75 | 0.51 |
| 31:DJ:15:TRP:CE3 | 31:DJ:138:GLN:HB2 | 2.45 | 0.51 |
| 23:BB:2364:C:H2' | 23:BB:2365:G:O4' | 2.10 | 0.51 |
| 23:DB:532:A:H5'' | 38:DQ:27:ARG:HH12 | 1.76 | 0.51 |
| 23:BB:320:A:H2' | 27:BE:131:THR:HG21 | 1.92 | 0.51 |
| 23:DB:2293:G:P | 36:DO:13:ARG:HH22 | 2.33 | 0.51 |
| 36:DO:35:ILE:HG21 | 36:DO:74:VAL:HG21 | 1.93 | 0.51 |
| 38:BQ:92:LYS:HA | 38:BQ:95:ALA:CB | 2.40 | 0.51 |
| 38:BQ:92:LYS:HD3 | 38:BQ:93:ILE:HG22 | 1.92 | 0.51 |
| 39:BR:40:MET:HA | 39:BR:54:VAL:HG11 | 1.93 | 0.51 |
| 23:DB:1367:A:H2' | 23:DB:1368:G:H5' | 1.93 | 0.51 |
| 47:B0:45:ASP:HB2 | 47:B0:47:TYR:CD1 | 2.46 | 0.51 |
| 27:BE:169:VAL:HG12 | 27:BE:171:ASP:OD1 | 2.11 | 0.51 |
| 51:B4:9:LYS:O | 51:B4:25:VAL:HG13 | 2.11 | 0.51 |
| 26:DD:204:LYS:HB3 | 26:DD:205:PRO:CD | 2.30 | 0.51 |
| 23:DB:633:A:O5' | 23:DB:633:A:C8 | 2.57 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 40:DS:68:ASP:HB2 | 40:DS:69:LEU:HD22 | 1.93 | 0.51 |
| 23:DB:2017:U:H4' | 47:D0:4:GLN:O | 2.11 | 0.51 |
| 50:D3:12:ARG:HD2 | 50:D3:24:LYS:O | 2.10 | 0.51 |
| 5:CF:5:GLU:HA | 5:CF:63:ASN:HA | 1.92 | 0.51 |
| 52:BI:27:LEU:HB2 | 52:BI:32:VAL:HG21 | 1.92 | 0.51 |
| 26:BD:29:VAL:HG23 | 26:BD:51:THR:HG21 | 1.93 | 0.51 |
| 1:CA:1287:A:O2' | 1:CA:1288:A:H5' | 2.11 | 0.51 |
| 8:CI:51:LEU:CB | 8:CI:56:MET:HG2 | 2.38 | 0.51 |
| 52:DI:23:VAL:HG12 | 52:DI:24:GLY:N | 2.26 | 0.51 |
| 1:AA:1101:A:N7 | 20:AB:170:ILE:HD12 | 2.25 | 0.51 |
| 1:CA:769:G:O2' | 1:CA:770:C:H5' | 2.11 | 0.51 |
| 23:DB:2581:G:OP2 | 23:DB:2581:G:N2 | 2.43 | 0.51 |
| 2:AC:42:LEU:O | 2:AC:46:LEU:HB2 | 2.11 | 0.51 |
| 1:CA:1238:A:C2 | 1:CA:1241:G:N3 | 2.79 | 0.51 |
| 49:D2:16:HIS:NE2 | 49:D2:44:VAL:HG12 | 2.26 | 0.51 |
| 5:CF:53:LYS:HE2 | 5:CF:54:LEU:HD23 | 1.92 | 0.51 |
| 5:CF:54:LEU:HD13 | 5:CF:55:HIS:H | 1.76 | 0.51 |
| 12:CM:106:ARG:NH1 | 12:CM:109:LYS:HD2 | 2.26 | 0.51 |
| 34:DM:131:VAL:CG2 | 34:DM:133:LYS:HB3 | 2.40 | 0.51 |
| 23:BB:55:G:H2' | 23:BB:56:A:H8 | 1.76 | 0.51 |
| 38:BQ:103:VAL:O | 38:BQ:106:THR:HG22 | 2.11 | 0.51 |
| 1:CA:499:A:C2 | 1:CA:546:A:N3 | 2.79 | 0.51 |
| 50:D3:4:LYS:CE | 50:D3:61:LEU:HD13 | 2.41 | 0.51 |
| 46:DZ:25:ARG:O | 46:DZ:26:SER:HB3 | 2.11 | 0.51 |
| 23:DB:2278:A:N6 | 43:DW:10:ARG:HB2 | 2.25 | 0.51 |
| 1:CA:538:G:P | 11:CL:111:GLN:HB2 | 2.51 | 0.51 |
| 33:DL:41:ARG:HA | 33:DL:41:ARG:CZ | 2.41 | 0.51 |
| 46:BZ:59:ARG:HH21 | 46:BZ:62:LYS:NZ | 2.09 | 0.51 |
| 1:CA:1041:G:H2' | 1:CA:1042:A:C8 | 2.44 | 0.51 |
| 23:DB:105:C:H2' | 23:DB:106:C:H6 | 1.76 | 0.51 |
| 1:CA:402:G:H2' | 1:CA:403:C:H6 | 1.75 | 0.51 |
| 49:B2:21:ARG:HB3 | 49:B2:31:LEU:HD21 | 1.91 | 0.51 |
| 20:CB:132:GLU:HG2 | 20:CB:135:MET:HE1 | 1.93 | 0.51 |
| 3:CD:89:LEU:HA | 3:CD:92:LEU:HB2 | 1.93 | 0.51 |
| 23:DB:175:G:H2' | 23:DB:176:A:H8 | 1.74 | 0.51 |
| 23:BB:1663:G:O2' | 23:BB:2686:G:H4' | 2.11 | 0.51 |
| 23:BB:2666:C:O4' | 23:BB:2666:C:O2 | 2.24 | 0.51 |
| 23:BB:1315:C:H2' | 23:BB:1316:U:C6 | 2.46 | 0.51 |
| 1:AA:394:G:H2' | 1:AA:395:C:C6 | 2.45 | 0.51 |
| 23:BB:1733:G:H2' | 23:BB:1734:G:C8 | 2.45 | 0.51 |
| 3:CD:75:TYR:HE1 | 3:CD:200:VAL:HG23 | 1.75 | 0.51 |
| 46:DZ:50:ASP:HA | 46:DZ:53:THR:HG22 | 1.92 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:DB:1274:A:N3 | 23:DB:1297:C:H1' | 2.25 | 0.51 |
| 23:DB:642:U:H2' | 23:DB:644:A:OP2 | 2.10 | 0.51 |
| 17:AR:22:TYR:HB2 | 17:AR:61:ALA:HB2 | 1.92 | 0.51 |
| 27:DE:85:PHE:O | 27:DE:86:ALA:CB | 2.59 | 0.51 |
| 23:BB:37:C:C2 | 27:BE:46:GLN:OE1 | 2.64 | 0.51 |
| 37:BP:23:ASP:OD2 | 37:BP:93:LYS:HG2 | 2.10 | 0.51 |
| 23:BB:854:C:O2' | 23:BB:855:G:H5' | 2.11 | 0.51 |
| 36:BO:25:ARG:HD3 | 36:BO:40:ILE:HD11 | 1.92 | 0.51 |
| 20:AB:67:LEU:HD21 | 20:AB:157:PRO:CG | 2.41 | 0.51 |
| 23:DB:779:U:P | 25:DC:49:THR:HG1 | 2.34 | 0.51 |
| 25:DC:48:ILE:CG2 | 25:DC:49:THR:H | 2.06 | 0.51 |
| 23:DB:910:A:H62 | 34:DM:15:GLY:HA3 | 1.75 | 0.51 |
| 27:BE:119:ILE:HG23 | 27:BE:189:THR:O | 2.11 | 0.51 |
| 23:DB:919:U:H2' | 23:DB:920:A:H8 | 1.69 | 0.51 |
| 10:AK:110:THR:CG2 | 21:AU:4:LYS:HD2 | 2.39 | 0.51 |
| 23:DB:1196:C:H2' | 23:DB:1197:G:H8 | 1.75 | 0.51 |
| 26:DD:5:VAL:HG12 | 26:DD:6:GLY:H | 1.75 | 0.51 |
| 33:DL:124:GLY:C | 33:DL:125:LEU:HD23 | 2.32 | 0.51 |
| 41:BT:43:ILE:O | 41:BT:47:VAL:HG23 | 2.11 | 0.51 |
| 28:BF:121:PHE:CZ | 28:BF:169:LEU:HD12 | 2.46 | 0.51 |
| 23:DB:361:G:O2' | 23:DB:362:A:H5' | 2.11 | 0.51 |
| 27:BE:78:TRP:HE3 | 27:BE:78:TRP:N | 2.09 | 0.51 |
| 29:DG:3:VAL:HG22 | 29:DG:4:ALA:N | 2.25 | 0.51 |
| 1:AA:1486:G:H2' | 1:AA:1487:G:C8 | 2.46 | 0.51 |
| 2:AC:146:LYS:HB2 | 2:AC:146:LYS:NZ | 2.25 | 0.51 |
| 33:DL:39:LYS:NZ | 33:DL:39:LYS:H | 2.08 | 0.51 |
| 1:CA:662:U:H2' | 1:CA:663:A:H8 | 1.75 | 0.51 |
| 1:AA:1202:U:C2' | 1:AA:1203:C:H5' | 2.41 | 0.51 |
| 30:DH:68:ARG:HD3 | 30:DH:71:LYS:HB2 | 1.92 | 0.51 |
| 23:DB:1828:G:O6 | 25:DC:219:VAL:HG11 | 2.11 | 0.51 |
| 1:AA:1122:U:H2' | 1:AA:1123:U:C6 | 2.46 | 0.51 |
| 23:DB:545:U:H3' | 23:DB:546:U:C5' | 2.40 | 0.51 |
| 4:CE:156:ARG:HH22 | 7:CH:100:ILE:HG23 | 1.75 | 0.51 |
| 28:BF:108:PRO:HB3 | 28:BF:113:PHE:CD2 | 2.46 | 0.51 |
| 1:AA:1150:A:H1' | 1:AA:1280:A:N6 | 2.26 | 0.51 |
| 1:CA:35:G:H2' | 1:CA:36:C:C6 | 2.46 | 0.51 |
| 2:AC:184:ASN:HD22 | 2:AC:185:THR:N | 2.08 | 0.51 |
| 23:DB:1309:G:OP1 | 49:D2:9:VAL:HG22 | 2.11 | 0.51 |
| 4:CE:28:ARG:NH2 | 4:CE:30:PHE:HB3 | 2.26 | 0.51 |
| 34:DM:118:LYS:HB2 | 34:DM:118:LYS:HZ3 | 1.75 | 0.51 |
| 25:BC:248:GLY:HA3 | 25:BC:252:LYS:HE3 | 1.91 | 0.51 |
| 28:BF:33:ILE:HG13 | 28:BF:34:THR:H | 1.76 | 0.51 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 23:BB:2314:A:H5' | 28:BF:34:THR:HG21 | 1.92 | 0.51 |
| 24:DV:21:ARG:HH21 | 24:DV:88:HIS:N | 2.08 | 0.51 |
| 1:AA:767:A:H2' | 1:AA:768:A:C8 | 2.46 | 0.51 |
| 1:CA:205:A:H2' | 1:CA:206:C:C6 | 2.44 | 0.51 |
| 1:AA:539:A:H2' | 1:AA:540:G:H8 | 1.74 | 0.51 |
| 12:CM:50:GLY:O | 12:CM:54:THR:HG23 | 2.11 | 0.51 |
| 23:BB:1360:G:H2' | 23:BB:1361:G:C5' | 2.41 | 0.51 |
| 31:DJ:123:LYS:N | 31:DJ:123:LYS:HD2 | 2.25 | 0.51 |
| 12:CM:6:ILE:N | 12:CM:6:ILE:HD12 | 2.26 | 0.51 |
| 23:DB:2241:A:O2' | 23:DB:2242:G:H5' | 2.10 | 0.51 |
| 8:AI:10:ARG:HA | 8:AI:77:ALA:HB1 | 1.92 | 0.51 |
| 23:DB:2821:A:H2' | 23:DB:2822:G:C8 | 2.46 | 0.51 |
| 8:AI:113:LYS:HG2 | 8:AI:114:LYS:N | 2.26 | 0.51 |
| 23:BB:2520:C:C6 | 23:BB:2567:G:H1' | 2.46 | 0.51 |
| 41:BT:96:VAL:HG22 | 41:BT:97:GLY:H | 1.75 | 0.51 |
| 23:BB:2653:U:H3' | 23:BB:2654:A:H2' | 1.92 | 0.51 |
| 1:AA:1338:G:H2' | 1:AA:1339:A:C8 | 2.45 | 0.51 |
| 23:BB:538:A:O2' | 23:BB:539:G:H5' | 2.10 | 0.51 |
| 23:DB:1248:G:P | 27:DE:44:ARG:HH22 | 2.34 | 0.51 |
| 23:BB:1269:A:H2' | 23:BB:1270:C:C6 | 2.46 | 0.51 |
| 1:CA:53:A:C2 | 1:CA:54:C:H1' | 2.46 | 0.51 |
| 52:DI:59:THR:O | 52:DI:59:THR:HG23 | 2.09 | 0.51 |
| 23:DB:2669:G:H2' | 23:DB:2670:A:H8 | 1.76 | 0.51 |
| 23:BB:2076:U:O4' | 23:BB:2076:U:O2 | 2.29 | 0.51 |
| 10:CK:14:GLN:HA | 10:CK:77:GLY:HA3 | 1.92 | 0.51 |
| 1:CA:1461:G:O2' | 1:CA:1462:C:H5' | 2.11 | 0.50 |
| 43:DW:42:THR:HG21 | 43:DW:66:VAL:HG13 | 1.93 | 0.50 |
| 25:BC:160:TYR:HE2 | 25:BC:194:VAL:HA | 1.76 | 0.50 |
| 35:DN:9:GLN:HE22 | 35:DN:39:PRO:HB3 | 1.75 | 0.50 |
| 43:BW:45:HIS:HA | 43:BW:75:ASN:HB2 | 1.91 | 0.50 |
| 32:BK:84:CYS:O | 32:BK:85:VAL:HB | 2.10 | 0.50 |
| 46:DZ:32:LEU:N | 46:DZ:32:LEU:HD22 | 2.26 | 0.50 |
| 34:BM:73:ILE:O | 34:BM:74:THR:HB | 2.11 | 0.50 |
| 16:AQ:46:HIS:HB2 | 16:AQ:70:LYS:HE3 | 1.93 | 0.50 |
| 46:DZ:55:GLY:O | 46:DZ:60:PHE:N | 2.44 | 0.50 |
| 8:AI:38:PHE:C | 8:AI:44:ARG:HG2 | 2.31 | 0.50 |
| 34:DM:15:GLY:C | 34:DM:16:ARG:HG3 | 2.31 | 0.50 |
| 38:BQ:61:ILE:HB | 38:BQ:75:TYR:CE2 | 2.46 | 0.50 |
| 27:BE:3:LEU:HA | 27:BE:117:ARG:CZ | 2.41 | 0.50 |
| 41:BT:58:VAL:HG12 | 41:BT:59:ASN:N | 2.26 | 0.50 |
| 26:BD:129:THR:O | 26:BD:130:GLN:HB2 | 2.10 | 0.50 |
| 33:DL:59:ARG:HH12 | 50:D3:58:ILE:HG21 | 1.75 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|---------------------|-------------|----------|
| 23:DB:2360:G:H5' | 33:DL:58:TYR:OH | 2.11 | 0.50 |
| 31:DJ:81:ILE:HG12 | 31:DJ:82:GLY:N | 2.24 | 0.50 |
| 26:BD:83:ARG:HG2 | 26:BD:83:ARG:HH11 | 1.76 | 0.50 |
| 23:DB:2313:C:H2' | 23:DB:2314:A:H8 | 1.76 | 0.50 |
| 28:DF:36:ASN:O | 28:DF:151:LEU:HD12 | 2.11 | 0.50 |
| 39:BR:37:GLU:HG3 | 39:BR:38:VAL:N | 2.26 | 0.50 |
| 39:DR:4:VAL:HA | 39:DR:43:ASN:CG | 2.32 | 0.50 |
| 5:AF:7:VAL:HG11 | 17:AR:64:LEU:HD21 | 1.92 | 0.50 |
| 12:CM:23:GLY:N | 12:CM:69:ARG:HH22 | 2.09 | 0.50 |
| 1:CA:865:A:C2 | 1:CA:918:A:H4' | 2.46 | 0.50 |
| 1:CA:1251:A:O2' | 1:CA:1370:G:H5' | 2.12 | 0.50 |
| 15:CP:60:TRP:HB3 | 15:CP:65:ALA:HB2 | 1.92 | 0.50 |
| 23:DB:1083:U:H2' | 23:DB:1085:A:OP2 | 2.11 | 0.50 |
| 39:DR:69:GLY:H | 39:DR:97:LYS:HB2 | 1.75 | 0.50 |
| 33:DL:103:ILE:HG13 | 33:DL:104:GLN:N | 2.22 | 0.50 |
| 23:DB:1175:A:C3' | 23:DB:1176:U:H5' | 2.40 | 0.50 |
| 9:AJ:73:LEU:CD1 | 9:AJ:75:ASP:HB3 | 2.42 | 0.50 |
| 46:DZ:64:PHE:C | 46:DZ:67:PRO:HD2 | 2.31 | 0.50 |
| 1:AA:80:A:N3 | 1:AA:81:A:H1' | 2.26 | 0.50 |
| 8:CI:29:ILE:O | 8:CI:29:ILE:HG23 | 2.11 | 0.50 |
| 4:CE:104:ILE:C | 4:CE:104:ILE:HD13 | 2.31 | 0.50 |
| 35:BN:120:GLU:C | 35:BN:121:LYS:HD2 | 2.32 | 0.50 |
| 29:BG:63:GLN:HG3 | 29:BG:64:ALA:N | 2.26 | 0.50 |
| 14:CO:11:VAL:HG21 | 14:CO:21:THR:HG22 | 1.92 | 0.50 |
| 1:AA:1498:U:H3' | 53:AA:1601:KSG:HN12 | 1.77 | 0.50 |
| 35:DN:102:PHE:CZ | 35:DN:104:ALA:HB2 | 2.46 | 0.50 |
| 40:DS:45:VAL:C | 40:DS:47:VAL:H | 2.14 | 0.50 |
| 30:BH:57:LYS:HA | 30:BH:57:LYS:HE3 | 1.93 | 0.50 |
| 1:CA:1319:A:P | 18:CS:4:LEU:HD21 | 2.51 | 0.50 |
| 23:BB:1797:G:H5' | 25:BC:251:THR:HA | 1.93 | 0.50 |
| 23:BB:2195:U:H2' | 23:BB:2196:C:C6 | 2.46 | 0.50 |
| 18:CS:62:THR:HG23 | 18:CS:63:ASP:N | 2.26 | 0.50 |
| 12:CM:85:TYR:HA | 12:CM:88:LEU:HD12 | 1.92 | 0.50 |
| 1:AA:712:A:O2' | 1:AA:713:G:H5' | 2.12 | 0.50 |
| 1:AA:370:C:H2' | 1:AA:371:A:C8 | 2.46 | 0.50 |
| 31:DJ:122:LEU:O | 31:DJ:123:LYS:HB2 | 2.11 | 0.50 |
| 22:DA:40:U:O2 | 22:DA:43:C:H5'' | 2.11 | 0.50 |
| 36:DO:90:VAL:HG11 | 36:DO:116:GLN:O | 2.10 | 0.50 |
| 9:AJ:30:LYS:HD2 | 9:AJ:30:LYS:O | 2.11 | 0.50 |
| 28:BF:118:ALA:HB2 | 28:BF:177:ARG:NH1 | 2.25 | 0.50 |
| 9:CJ:28:THR:HG22 | 9:CJ:86:ALA:HB1 | 1.92 | 0.50 |
| 24:DV:26:PHE:CE1 | 24:DV:42:LEU:HD12 | 2.46 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:DB:466:A:H2' | 23:DB:467:G:H5' | 1.92 | 0.50 |
| 1:CA:1228:C:C5' | 12:CM:112:ARG:HB3 | 2.41 | 0.50 |
| 23:BB:1739:A:H2' | 23:BB:1740:G:H8 | 1.74 | 0.50 |
| 23:DB:2653:U:H3' | 23:DB:2654:A:H2' | 1.92 | 0.50 |
| 24:BV:53:LYS:HE3 | 24:BV:55:GLU:HG3 | 1.92 | 0.50 |
| 16:CQ:32:ILE:O | 16:CQ:32:ILE:HG12 | 2.11 | 0.50 |
| 1:CA:176:C:H2' | 1:CA:177:G:N3 | 2.26 | 0.50 |
| 1:AA:692:U:H5 | 10:AK:27:ASN:HD22 | 1.58 | 0.50 |
| 23:DB:1091:G:O2' | 23:DB:1092:C:H5' | 2.11 | 0.50 |
| 4:AE:55:VAL:N | 4:AE:56:PRO:HD2 | 2.26 | 0.50 |
| 15:AP:36:VAL:HG13 | 15:AP:36:VAL:O | 2.12 | 0.50 |
| 37:DP:28:LYS:O | 37:DP:30:TRP:N | 2.44 | 0.50 |
| 23:BB:85:G:OP1 | 42:BU:5:ARG:HA | 2.12 | 0.50 |
| 42:BU:73:ASN:HB2 | 42:BU:96:LYS:HZ2 | 1.77 | 0.50 |
| 26:BD:13:ARG:HB2 | 26:BD:21:SER:HB2 | 1.93 | 0.50 |
| 43:DW:23:LYS:HG2 | 43:DW:57:THR:HA | 1.92 | 0.50 |
| 25:BC:44:ASN:HA | 25:BC:49:THR:O | 2.11 | 0.50 |
| 25:BC:172:THR:O | 25:BC:173:LEU:HB2 | 2.11 | 0.50 |
| 26:DD:37:VAL:HG12 | 26:DD:44:GLY:O | 2.10 | 0.50 |
| 23:DB:2899:A:H2' | 23:DB:2900:A:H8 | 1.74 | 0.50 |
| 31:BJ:137:PRO:O | 31:BJ:139:VAL:HG13 | 2.11 | 0.50 |
| 50:B3:47:ALA:O | 50:B3:48:MET:HG3 | 2.11 | 0.50 |
| 33:BL:126:ARG:NH2 | 33:BL:131:ALA:CB | 2.73 | 0.50 |
| 24:BV:21:ARG:HE | 24:BV:87:GLN:HB3 | 1.75 | 0.50 |
| 26:DD:116:LYS:HB3 | 35:DN:1:MET:HA | 1.94 | 0.50 |
| 1:AA:402:G:H2' | 1:AA:403:C:H6 | 1.75 | 0.50 |
| 8:AI:32:ARG:NH2 | 8:AI:36:GLN:HG2 | 2.26 | 0.50 |
| 28:BF:140:ILE:HG22 | 28:BF:142:TYR:H | 1.76 | 0.50 |
| 38:BQ:84:LYS:O | 38:BQ:85:ALA:HB2 | 2.12 | 0.50 |
| 39:BR:4:VAL:HG22 | 39:BR:5:PHE:N | 2.26 | 0.50 |
| 27:BE:151:GLY:HA2 | 27:BE:171:ASP:HA | 1.93 | 0.50 |
| 10:AK:113:THR:HG21 | 21:AU:28:LEU:HD21 | 1.93 | 0.50 |
| 21:AU:3:ILE:HG12 | 21:AU:19:LYS:HB3 | 1.92 | 0.50 |
| 33:DL:85:VAL:HG21 | 33:DL:96:LYS:HG3 | 1.94 | 0.50 |
| 26:BD:17:GLU:OE1 | 37:BP:32:VAL:HG11 | 2.12 | 0.50 |
| 23:BB:2515:C:O2' | 23:BB:2516:A:H5' | 2.11 | 0.50 |
| 23:DB:2514:U:H2' | 23:DB:2515:C:C6 | 2.47 | 0.50 |
| 26:DD:127:PHE:C | 26:DD:128:ARG:HD3 | 2.31 | 0.50 |
| 24:DV:9:ARG:NE | 24:DV:20:LEU:HD11 | 2.27 | 0.50 |
| 23:BB:2636:C:H2' | 23:BB:2637:U:C6 | 2.46 | 0.50 |
| 26:BD:87:GLY:O | 26:BD:88:GLU:HB2 | 2.10 | 0.50 |
| 4:CE:109:ALA:HB3 | 4:CE:135:VAL:CG1 | 2.41 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 2:AC:38:VAL:HG12 | 2:AC:93:ILE:CG2 | 2.42 | 0.50 |
| 52:DI:52:LEU:HD22 | 52:DI:81:LYS:HD3 | 1.92 | 0.50 |
| 1:CA:1338:G:H2' | 1:CA:1339:A:C8 | 2.46 | 0.50 |
| 23:BB:221:A:H2' | 23:BB:266:G:N7 | 2.26 | 0.50 |
| 10:CK:70:ALA:O | 10:CK:74:LYS:HB2 | 2.10 | 0.50 |
| 48:D1:7:LYS:HG2 | 48:D1:26:LYS:N | 2.26 | 0.50 |
| 29:DG:120:ILE:HD13 | 29:DG:140:ILE:HD13 | 1.93 | 0.50 |
| 23:BB:1439:A:N7 | 23:BB:1440:U:C2 | 2.79 | 0.50 |
| 1:CA:1411:C:H2' | 1:CA:1412:C:H6 | 1.77 | 0.50 |
| 38:BQ:71:ASN:HD22 | 38:BQ:109:VAL:HG21 | 1.77 | 0.50 |
| 16:CQ:46:HIS:HB3 | 16:CQ:73:THR:HG22 | 1.94 | 0.50 |
| 38:BQ:22:GLY:HA2 | 38:BQ:28:SER:OG | 2.10 | 0.50 |
| 23:BB:2896:C:H2' | 23:BB:2897:U:C6 | 2.46 | 0.50 |
| 25:BC:207:ALA:HA | 25:BC:211:ARG:HB2 | 1.93 | 0.50 |
| 9:CJ:66:GLU:HB2 | 13:CN:98:ALA:CB | 2.39 | 0.50 |
| 17:CR:51:GLN:HE21 | 17:CR:54:LEU:HB2 | 1.76 | 0.50 |
| 23:DB:1029:A:H2' | 23:DB:1030:C:O4' | 2.11 | 0.50 |
| 23:BB:557:C:H2' | 23:BB:558:U:C6 | 2.46 | 0.50 |
| 20:AB:139:GLU:HG2 | 20:AB:143:LEU:HG | 1.92 | 0.50 |
| 1:CA:676:A:O2' | 1:CA:677:U:H5' | 2.10 | 0.50 |
| 1:CA:908:A:H2' | 1:CA:909:A:C8 | 2.46 | 0.50 |
| 23:BB:841:G:O2' | 23:BB:842:U:H5' | 2.12 | 0.50 |
| 23:DB:2076:U:O2 | 23:DB:2076:U:O4' | 2.29 | 0.50 |
| 23:DB:2107:G:H2' | 23:DB:2108:A:C8 | 2.45 | 0.50 |
| 28:BF:176:PHE:O | 28:BF:177:ARG:HB3 | 2.11 | 0.50 |
| 6:CG:56:SER:HB3 | 6:CG:59:GLU:HB2 | 1.92 | 0.50 |
| 23:DB:401:A:O2' | 23:DB:402:A:H5' | 2.11 | 0.50 |
| 25:BC:266:ILE:HG13 | 25:BC:266:ILE:O | 2.10 | 0.50 |
| 23:DB:1917:U:C2' | 23:DB:1918:A:H5' | 2.42 | 0.50 |
| 23:DB:1939:U:H5' | 23:DB:1939:U:H6 | 1.75 | 0.50 |
| 23:DB:1211:C:O2' | 23:DB:1212:G:P | 2.69 | 0.50 |
| 3:CD:71:PHE:HA | 3:CD:74:TYR:HD2 | 1.75 | 0.50 |
| 3:AD:170:LEU:HB2 | 3:AD:180:THR:O | 2.11 | 0.50 |
| 23:BB:243:U:OP1 | 50:B3:4:LYS:HG2 | 2.11 | 0.50 |
| 23:BB:256:A:H2' | 23:BB:257:C:H6 | 1.77 | 0.50 |
| 23:DB:723:C:H2' | 23:DB:724:U:C6 | 2.47 | 0.50 |
| 1:CA:346:G:OP1 | 37:DP:43:GLU:HG3 | 2.11 | 0.50 |
| 3:CD:81:LEU:HB2 | 3:CD:88:ASN:ND2 | 2.25 | 0.50 |
| 1:AA:53:A:C2 | 1:AA:54:C:H1' | 2.46 | 0.50 |
| 1:CA:724:G:O2' | 1:CA:725:G:H5' | 2.11 | 0.50 |
| 1:AA:1402:C:H2' | 1:AA:1403:C:O4' | 2.11 | 0.50 |
| 23:DB:1269:A:H2' | 23:DB:1270:C:C6 | 2.46 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:DB:729:G:H4' | 23:DB:763:G:H5' | 1.92 | 0.50 |
| 26:DD:70:LYS:HZ2 | 26:DD:70:LYS:HB3 | 1.75 | 0.50 |
| 30:DH:72:ILE:HG22 | 30:DH:72:ILE:O | 2.11 | 0.50 |
| 1:AA:629:A:H2' | 1:AA:630:A:O4' | 2.11 | 0.50 |
| 1:AA:505:G:H5' | 1:AA:534:U:H2' | 1.94 | 0.50 |
| 23:DB:2849:U:H4' | 23:DB:2868:A:C2 | 2.46 | 0.50 |
| 42:BU:23:LYS:HZ3 | 42:BU:24:VAL:HG22 | 1.76 | 0.50 |
| 30:BH:90:LEU:CD2 | 30:BH:146:VAL:HG11 | 2.41 | 0.50 |
| 27:BE:46:GLN:O | 27:BE:48:THR:N | 2.44 | 0.50 |
| 23:BB:2682:A:O2' | 23:BB:2683:C:H5' | 2.11 | 0.50 |
| 23:BB:2867:G:N3 | 23:BB:2867:G:C2' | 2.73 | 0.50 |
| 23:DB:2831:G:O4' | 23:DB:2883:A:C2 | 2.65 | 0.50 |
| 31:DJ:125:TYR:OH | 31:DJ:134:ALA:HB2 | 2.10 | 0.50 |
| 43:BW:24:ARG:HD2 | 43:BW:57:THR:O | 2.12 | 0.50 |
| 18:AS:29:PRO:HA | 18:AS:47:THR:HB | 1.94 | 0.50 |
| 27:DE:163:ASN:N | 27:DE:168:ASP:HA | 2.25 | 0.50 |
| 33:BL:83:ALA:HB2 | 33:BL:120:VAL:HG23 | 1.94 | 0.50 |
| 23:DB:64:A:H5'' | 41:DT:76:ARG:HG3 | 1.94 | 0.50 |
| 23:DB:773:U:H5' | 23:DB:774:G:OP2 | 2.11 | 0.50 |
| 23:DB:850:U:H2' | 23:DB:851:C:H6 | 1.76 | 0.50 |
| 18:CS:38:THR:HA | 18:CS:69:LYS:HA | 1.93 | 0.50 |
| 23:BB:910:A:C8 | 34:BM:16:ARG:HB2 | 2.46 | 0.50 |
| 27:BE:165:HIS:O | 27:BE:166:LYS:HG3 | 2.11 | 0.50 |
| 23:DB:633:A:H2' | 23:DB:634:C:C5' | 2.41 | 0.50 |
| 23:BB:137:U:H2' | 23:BB:138:U:H5' | 1.94 | 0.50 |
| 44:BX:18:LEU:HD23 | 44:BX:18:LEU:H | 1.76 | 0.50 |
| 30:BH:68:ARG:HG3 | 30:BH:134:VAL:CG1 | 2.38 | 0.50 |
| 23:BB:2514:U:H2' | 23:BB:2515:C:C6 | 2.46 | 0.50 |
| 23:DB:1655:A:H4' | 26:DD:120:GLY:N | 2.26 | 0.50 |
| 7:AH:110:MET:HB3 | 7:AH:114:ALA:HB3 | 1.93 | 0.50 |
| 29:BG:25:ILE:HG23 | 29:BG:25:ILE:O | 2.11 | 0.50 |
| 1:CA:783:C:O2' | 1:CA:784:A:H5' | 2.10 | 0.50 |
| 13:AN:30:ILE:CG2 | 13:AN:41:TRP:HB2 | 2.37 | 0.50 |
| 38:DQ:60:TRP:CZ3 | 38:DQ:93:ILE:HG22 | 2.47 | 0.50 |
| 29:DG:137:LYS:O | 29:DG:140:ILE:HB | 2.10 | 0.50 |
| 8:CI:30:ASN:C | 8:CI:32:ARG:H | 2.14 | 0.50 |
| 34:DM:127:LYS:NZ | 34:DM:129:THR:H | 2.08 | 0.50 |
| 48:B1:10:LEU:HD21 | 48:B1:34:GLU:HG3 | 1.93 | 0.50 |
| 11:CL:86:VAL:HG11 | 11:CL:89:LEU:HD23 | 1.93 | 0.50 |
| 52:BI:138:VAL:HG12 | 52:BI:139:VAL:N | 2.26 | 0.50 |
| 8:AI:71:ILE:N | 8:AI:71:ILE:HD12 | 2.23 | 0.50 |
| 38:BQ:102:LYS:HG2 | 38:BQ:103:VAL:N | 2.26 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 9:AJ:92:LEU:N | 9:AJ:92:LEU:HD22 | 2.25 | 0.50 |
| 23:DB:1438:U:H5' | 23:DB:1516:G:O2' | 2.10 | 0.50 |
| 23:DB:2471:A:O2' | 23:DB:2472:G:C8 | 2.54 | 0.50 |
| 2:CC:127:VAL:HG23 | 2:CC:128:MET:N | 2.26 | 0.50 |
| 8:AI:23:GLY:N | 8:AI:60:LEU:HA | 2.24 | 0.50 |
| 3:AD:197:HIS:O | 3:AD:201:GLU:HG3 | 2.10 | 0.50 |
| 4:AE:71:ILE:HG12 | 4:AE:72:ASN:N | 2.27 | 0.50 |
| 29:BG:85:LYS:HA | 29:BG:130:ILE:O | 2.11 | 0.50 |
| 1:CA:98:A:H2' | 1:CA:99:C:H6 | 1.73 | 0.50 |
| 52:BI:5:GLN:HG2 | 52:BI:6:ALA:H | 1.74 | 0.50 |
| 29:DG:23:ILE:HG13 | 29:DG:23:ILE:O | 2.11 | 0.50 |
| 23:BB:529:A:OP2 | 31:BJ:113:PRO:HD3 | 2.11 | 0.50 |
| 18:CS:44:ILE:HG23 | 18:CS:63:ASP:HB2 | 1.94 | 0.50 |
| 16:AQ:35:LYS:O | 16:AQ:37:ILE:HG13 | 2.11 | 0.50 |
| 1:CA:314:C:O2' | 1:CA:315:A:H5' | 2.11 | 0.50 |
| 44:BX:11:VAL:HG22 | 44:BX:11:VAL:O | 2.10 | 0.50 |
| 5:CF:39:LEU:O | 5:CF:39:LEU:HD13 | 2.11 | 0.50 |
| 1:CA:1520:C:H2' | 1:CA:1521:C:H6 | 1.74 | 0.50 |
| 28:BF:116:LEU:H | 28:BF:176:PHE:HA | 1.76 | 0.50 |
| 23:BB:1038:G:H2' | 23:BB:1039:A:H8 | 1.76 | 0.50 |
| 23:DB:1916:A:H2' | 23:DB:1917:U:O4' | 2.11 | 0.50 |
| 20:AB:184:ALA:HB3 | 20:AB:195:VAL:HG21 | 1.93 | 0.50 |
| 23:DB:2139:U:O2' | 23:DB:2140:G:H5' | 2.11 | 0.50 |
| 22:BA:13:G:O2' | 22:BA:15:A:H5'' | 2.11 | 0.50 |
| 1:AA:423:G:H2' | 1:AA:424:G:O4' | 2.10 | 0.50 |
| 6:CG:45:ALA:HB1 | 6:CG:120:ALA:HB2 | 1.93 | 0.50 |
| 1:AA:685:G:O2' | 1:AA:686:U:H5' | 2.10 | 0.50 |
| 1:CA:706:A:H2 | 10:CK:40:ALA:HB2 | 1.75 | 0.50 |
| 3:AD:96:ARG:O | 3:AD:100:VAL:HG23 | 2.11 | 0.50 |
| 1:CA:853:C:O2' | 1:CA:854:U:H5' | 2.12 | 0.50 |
| 7:AH:40:LYS:HD2 | 7:AH:48:PHE:CE1 | 2.47 | 0.50 |
| 15:AP:57:ILE:O | 15:AP:61:VAL:HG22 | 2.11 | 0.50 |
| 23:BB:2630:G:H2' | 23:BB:2631:G:H8 | 1.76 | 0.50 |
| 27:BE:44:ARG:N | 27:BE:44:ARG:CD | 2.73 | 0.50 |
| 35:DN:33:ILE:HG23 | 35:DN:112:TYR:HB3 | 1.93 | 0.50 |
| 25:DC:92:LEU:HD13 | 25:DC:102:TYR:CE2 | 2.47 | 0.50 |
| 31:DJ:131:ASN:C | 31:DJ:133:ALA:N | 2.64 | 0.50 |
| 31:BJ:101:ILE:HG23 | 31:BJ:102:GLU:N | 2.20 | 0.50 |
| 41:DT:76:ARG:NH1 | 41:DT:78:SER:HB2 | 2.16 | 0.50 |
| 26:BD:170:VAL:HG11 | 26:BD:194:PRO:HG2 | 1.92 | 0.50 |
| 38:DQ:63:ARG:HG3 | 38:DQ:96:ASP:OD1 | 2.12 | 0.50 |
| 12:AM:10:ASP:HA | 12:AM:44:ILE:CD1 | 2.41 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 1:AA:1302:C:O4' | 12:AM:16:ILE:HD11 | 2.12 | 0.50 |
| 12:CM:55:LEU:O | 12:CM:59:VAL:HG12 | 2.11 | 0.50 |
| 23:BB:1676:A:H1' | 26:BD:134:HIS:HB3 | 1.94 | 0.50 |
| 13:CN:9:GLU:OE2 | 13:CN:60:ARG:HB3 | 2.12 | 0.50 |
| 23:BB:543:G:H2' | 23:BB:544:C:C5' | 2.35 | 0.50 |
| 40:DS:103:ILE:O | 40:DS:104:THR:HB | 2.11 | 0.50 |
| 1:CA:1308:U:H2' | 1:CA:1309:G:H8 | 1.75 | 0.50 |
| 1:CA:1254:A:H61 | 1:CA:1283:U:H3 | 1.60 | 0.50 |
| 23:BB:2370:G:H2' | 23:BB:2371:G:O4' | 2.10 | 0.50 |
| 2:CC:69:THR:HG21 | 2:CC:75:VAL:HG21 | 1.94 | 0.50 |
| 29:BG:17:LYS:HD2 | 29:BG:17:LYS:O | 2.09 | 0.50 |
| 13:AN:30:ILE:C | 13:AN:32:ASP:H | 2.14 | 0.50 |
| 35:DN:54:LEU:HD22 | 35:DN:66:ALA:HB2 | 1.94 | 0.50 |
| 37:BP:109:ILE:O | 37:BP:110:LYS:C | 2.50 | 0.50 |
| 47:D0:26:SER:HB2 | 47:D0:38:LEU:CG | 2.42 | 0.50 |
| 23:DB:2886:A:N7 | 47:D0:27:LEU:HG | 2.26 | 0.50 |
| 10:CK:23:HIS:HB3 | 10:CK:30:ILE:CG1 | 2.39 | 0.50 |
| 1:AA:1252:A:H2' | 1:AA:1253:G:C5' | 2.39 | 0.50 |
| 25:DC:243:PRO:HA | 25:DC:249:VAL:HG23 | 1.93 | 0.50 |
| 33:DL:55:MET:H | 33:DL:56:PRO:CD | 2.25 | 0.50 |
| 1:AA:1499:A:OP1 | 53:AA:1601:KSG:N1 | 2.45 | 0.50 |
| 23:BB:1412:U:H2' | 23:BB:1413:A:H8 | 1.76 | 0.50 |
| 23:BB:2248:C:C2' | 23:BB:2249:U:H5' | 2.40 | 0.50 |
| 23:DB:439:A:O2' | 23:DB:440:C:H5' | 2.11 | 0.50 |
| 40:DS:72:THR:HG21 | 40:DS:108:SER:OG | 2.11 | 0.50 |
| 31:BJ:28:LEU:HG | 31:BJ:32:LEU:CD1 | 2.41 | 0.50 |
| 20:AB:112:ARG:HA | 20:AB:115:ASP:OD2 | 2.11 | 0.50 |
| 1:CA:1526:G:H2' | 1:CA:1527:U:C6 | 2.46 | 0.50 |
| 1:AA:957:U:H4' | 18:AS:78:THR:HB | 1.93 | 0.50 |
| 3:AD:120:LYS:HB2 | 3:AD:145:ARG:HH21 | 1.75 | 0.50 |
| 23:BB:1159:U:O2' | 23:BB:1160:G:H5' | 2.11 | 0.50 |
| 30:DH:62:LEU:O | 30:DH:66:ASN:HB2 | 2.12 | 0.50 |
| 23:BB:2700:A:H2' | 23:BB:2701:U:H6 | 1.76 | 0.50 |
| 4:CE:152:VAL:HA | 4:CE:155:LYS:HD3 | 1.93 | 0.50 |
| 23:DB:674:G:O2' | 27:DE:69:ARG:HD2 | 2.12 | 0.50 |
| 1:CA:114:U:H2' | 1:CA:115:G:C8 | 2.47 | 0.50 |
| 1:AA:1376:U:H2' | 1:AA:1377:A:C8 | 2.45 | 0.50 |
| 23:DB:1562:U:H2' | 23:DB:1563:U:C6 | 2.46 | 0.50 |
| 23:DB:490:C:H3' | 23:DB:491:G:C5' | 2.42 | 0.50 |
| 23:DB:2665:A:C2' | 23:DB:2666:C:H5' | 2.41 | 0.50 |
| 52:BI:49:GLU:HG2 | 52:BI:54:ILE:HD11 | 1.93 | 0.50 |
| 23:BB:771:G:O2' | 23:BB:772:C:H5' | 2.11 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 1:CA:846:G:H2' | 1:CA:846:G:N3 | 2.27 | 0.50 |
| 17:AR:70:THR:HG23 | 17:AR:71:ASP:N | 2.27 | 0.50 |
| 23:DB:145:C:H2' | 23:DB:146:A:H8 | 1.77 | 0.50 |
| 15:CP:36:VAL:HG23 | 15:CP:56:ARG:HB2 | 1.93 | 0.50 |
| 23:DB:786:C:O2' | 23:DB:787:C:H5' | 2.10 | 0.50 |
| 1:CA:638:U:H2' | 1:CA:639:G:O4' | 2.11 | 0.50 |
| 1:AA:761:G:H2' | 1:AA:762:U:C6 | 2.46 | 0.50 |
| 23:DB:279:A:H2' | 23:DB:280:U:O4' | 2.11 | 0.50 |
| 19:CT:24:ARG:HA | 19:CT:65:LEU:HD21 | 1.94 | 0.50 |
| 2:AC:55:VAL:HG12 | 2:AC:56:ILE:N | 2.26 | 0.50 |
| 42:BU:21:ARG:HG2 | 42:BU:21:ARG:HH11 | 1.76 | 0.50 |
| 23:BB:550:C:H2' | 23:BB:550:C:O2 | 2.10 | 0.50 |
| 29:DG:102:ILE:O | 29:DG:102:ILE:HG23 | 2.12 | 0.50 |
| 1:AA:309:A:H2' | 1:AA:310:G:H8 | 1.76 | 0.50 |
| 23:BB:1511:G:H2' | 23:BB:1512:C:H6 | 1.77 | 0.50 |
| 1:CA:973:G:H3' | 1:CA:974:A:C5' | 2.30 | 0.50 |
| 23:DB:2743:U:C3' | 23:DB:2744:G:H5'' | 2.42 | 0.50 |
| 26:BD:7:LYS:HE2 | 26:BD:193:VAL:HG13 | 1.92 | 0.50 |
| 23:BB:1818:U:C3' | 25:BC:155:ARG:HB2 | 2.41 | 0.50 |
| 25:BC:155:ARG:HH11 | 25:BC:157:ALA:HB2 | 1.76 | 0.50 |
| 26:DD:60:VAL:O | 26:DD:63:PRO:HD2 | 2.12 | 0.50 |
| 35:DN:115:LEU:N | 35:DN:115:LEU:HD23 | 2.26 | 0.50 |
| 25:DC:103:ILE:HG22 | 25:DC:104:LEU:H | 1.77 | 0.50 |
| 23:BB:1019:U:OP1 | 23:BB:1035:U:O2' | 2.29 | 0.50 |
| 20:AB:49:PHE:O | 20:AB:53:LEU:HD23 | 2.11 | 0.50 |
| 27:DE:192:ALA:HB1 | 27:DE:199:MET:CG | 2.42 | 0.50 |
| 15:AP:42:ILE:CG2 | 15:AP:43:ALA:H | 2.18 | 0.50 |
| 32:BK:99:ILE:HG22 | 32:BK:119:ALA:HB2 | 1.93 | 0.50 |
| 23:BB:2052:A:O5' | 26:BD:147:GLY:HA3 | 2.12 | 0.50 |
| 26:DD:117:GLY:O | 26:DD:164:GLN:HA | 2.12 | 0.50 |
| 39:BR:75:VAL:N | 39:BR:90:ARG:HE | 2.07 | 0.50 |
| 31:DJ:37:ARG:NH1 | 31:DJ:110:PRO:HG3 | 2.27 | 0.50 |
| 31:DJ:5:THR:HG21 | 31:DJ:7:LYS:NZ | 2.26 | 0.50 |
| 18:CS:52:ASN:ND2 | 18:CS:76:THR:HA | 2.26 | 0.50 |
| 23:DB:910:A:C8 | 34:DM:16:ARG:HB3 | 2.47 | 0.50 |
| 23:BB:2740:A:H2' | 23:BB:2741:A:C8 | 2.46 | 0.50 |
| 23:DB:2636:C:H2' | 23:DB:2637:U:C6 | 2.46 | 0.50 |
| 23:DB:2636:C:P | 26:DD:80:TRP:HE1 | 2.34 | 0.50 |
| 37:DP:100:ARG:H | 37:DP:100:ARG:CD | 2.25 | 0.50 |
| 49:B2:43:THR:O | 49:B2:44:VAL:C | 2.49 | 0.50 |
| 23:BB:2516:A:O2' | 23:BB:2517:C:H5' | 2.12 | 0.50 |
| 26:BD:114:LYS:HB3 | 35:BN:3:HIS:CE1 | 2.46 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 13:CN:13:VAL:HG13 | 13:CN:59:GLN:HE22 | 1.76 | 0.50 |
| 33:DL:58:TYR:HA | 33:DL:62:PRO:CD | 2.42 | 0.50 |
| 32:DK:110:GLU:HA | 32:DK:113:MET:HE3 | 1.92 | 0.50 |
| 23:BB:2143:C:H2' | 23:BB:2144:G:O4' | 2.10 | 0.50 |
| 33:DL:118:THR:CG2 | 33:DL:137:ALA:HB3 | 2.41 | 0.50 |
| 35:BN:17:ARG:O | 35:BN:21:PHE:HB2 | 2.11 | 0.50 |
| 23:BB:1080:A:O2' | 23:BB:1081:U:H5' | 2.10 | 0.50 |
| 22:DA:31:C:O2' | 22:DA:53:A:N1 | 2.44 | 0.50 |
| 47:B0:46:GLY:HA3 | 47:B0:53:VAL:HG21 | 1.94 | 0.50 |
| 25:DC:207:ALA:HA | 25:DC:211:ARG:HB3 | 1.94 | 0.50 |
| 25:DC:3:VAL:HG12 | 25:DC:4:LYS:N | 2.27 | 0.50 |
| 1:AA:812:G:O2' | 1:AA:813:U:C6 | 2.58 | 0.50 |
| 38:DQ:5:ARG:HD2 | 38:DQ:5:ARG:O | 2.11 | 0.50 |
| 40:DS:42:LYS:HD3 | 40:DS:42:LYS:O | 2.11 | 0.50 |
| 4:AE:81:GLN:HE21 | 4:AE:147:ASN:C | 2.14 | 0.50 |
| 48:B1:31:GLU:H | 48:B1:32:LYS:HZ1 | 1.59 | 0.50 |
| 23:DB:363:G:H2' | 23:DB:364:C:H6 | 1.74 | 0.50 |
| 3:AD:24:VAL:C | 3:AD:25:ARG:HD2 | 2.31 | 0.50 |
| 23:DB:2412:A:H2' | 23:DB:2413:G:O4' | 2.11 | 0.50 |
| 20:CB:206:ILE:HG22 | 20:CB:207:ARG:NH2 | 2.26 | 0.50 |
| 24:BV:76:ASP:HB2 | 34:BM:136:MET:SD | 2.52 | 0.50 |
| 10:AK:54:SER:HA | 10:AK:56:LYS:HE3 | 1.92 | 0.50 |
| 1:CA:370:C:H2' | 1:CA:371:A:C8 | 2.46 | 0.50 |
| 1:AA:372:C:H4' | 1:AA:373:A:H5' | 1.94 | 0.50 |
| 23:DB:1681:G:H2' | 23:DB:1757:A:N1 | 2.27 | 0.50 |
| 36:DO:80:GLU:O | 36:DO:83:LEU:HD13 | 2.10 | 0.50 |
| 43:DW:48:ALA:O | 43:DW:72:GLY:HA3 | 2.12 | 0.50 |
| 2:AC:126:ARG:HH22 | 2:AC:190:THR:CG2 | 2.25 | 0.50 |
| 1:AA:1507:A:H2' | 1:AA:1508:A:C8 | 2.47 | 0.50 |
| 1:AA:602:A:O2' | 1:AA:603:U:H5' | 2.11 | 0.50 |
| 5:AF:99:ALA:O | 5:AF:100:SER:HB2 | 2.11 | 0.50 |
| 23:BB:2665:A:C2' | 23:BB:2666:C:H5' | 2.41 | 0.50 |
| 52:DI:99:LYS:HD3 | 52:DI:99:LYS:N | 2.26 | 0.50 |
| 7:CH:17:GLN:HG3 | 7:CH:71:VAL:CG2 | 2.41 | 0.50 |
| 36:BO:54:VAL:HG21 | 36:BO:78:VAL:HG11 | 1.94 | 0.50 |
| 23:DB:1396:U:O4' | 23:DB:1396:U:O2 | 2.28 | 0.50 |
| 1:AA:751:U:H2' | 1:AA:752:G:O4' | 2.12 | 0.50 |
| 1:AA:751:U:H4' | 14:AO:23:SER:HA | 1.92 | 0.50 |
| 23:BB:103:A:H2' | 23:BB:104:A:O4' | 2.12 | 0.50 |
| 1:AA:697:U:H2' | 1:AA:698:G:H5' | 1.93 | 0.50 |
| 1:CA:761:G:H2' | 1:CA:762:U:C6 | 2.46 | 0.50 |
| 36:BO:18:LEU:HD12 | 36:BO:18:LEU:C | 2.31 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:DB:2056:G:H21 | 47:D0:1:ALA:HB3 | 1.76 | 0.50 |
| 23:BB:2256:G:O2' | 23:BB:2257:U:H5' | 2.12 | 0.50 |
| 40:DS:64:ALA:H | 40:DS:110:ARG:NH2 | 2.10 | 0.50 |
| 6:CG:16:LYS:HD3 | 6:CG:16:LYS:O | 2.11 | 0.50 |
| 1:CA:963:G:H2' | 1:CA:964:A:H8 | 1.75 | 0.50 |
| 1:AA:638:U:H2' | 1:AA:639:G:O4' | 2.11 | 0.50 |
| 37:DP:25:VAL:O | 37:DP:27:VAL:HG12 | 2.11 | 0.50 |
| 51:D4:22:VAL:HG13 | 51:D4:37:GLN:HB3 | 1.93 | 0.50 |
| 23:DB:2742:G:O2' | 23:DB:2743:U:H5' | 2.12 | 0.50 |
| 23:DB:46:G:H2' | 23:DB:47:C:H6 | 1.77 | 0.50 |
| 23:BB:2334:U:OP2 | 36:BO:7:ARG:HA | 2.11 | 0.50 |
| 31:DJ:133:ALA:C | 31:DJ:135:GLN:N | 2.65 | 0.50 |
| 23:DB:2020:A:C2 | 23:DB:2022:U:O4' | 2.64 | 0.50 |
| 27:BE:131:THR:O | 27:BE:134:LEU:HB2 | 2.12 | 0.50 |
| 42:BU:82:VAL:HB | 42:BU:94:PHE:CD2 | 2.47 | 0.50 |
| 23:DB:1205:A:C8 | 27:DE:165:HIS:HA | 2.47 | 0.50 |
| 27:DE:142:ALA:N | 27:DE:185:LYS:NZ | 2.52 | 0.50 |
| 50:B3:7:ARG:HH21 | 50:B3:11:LYS:HZ2 | 1.57 | 0.50 |
| 33:BL:123:ARG:HH22 | 33:BL:141:LYS:HZ1 | 1.57 | 0.50 |
| 33:BL:109:LYS:HA | 33:BL:126:ARG:CB | 2.42 | 0.50 |
| 32:BK:23:LYS:HG3 | 32:BK:24:VAL:H | 1.75 | 0.50 |
| 38:BQ:40:LYS:HA | 38:BQ:43:GLN:HE21 | 1.77 | 0.50 |
| 25:DC:268:ARG:HG3 | 25:DC:268:ARG:HH11 | 1.77 | 0.50 |
| 41:DT:53:VAL:HB | 41:DT:93:LEU:HD21 | 1.93 | 0.50 |
| 23:DB:969:G:OP1 | 45:DY:17:PRO:HG3 | 2.11 | 0.50 |
| 1:CA:1221:G:OP1 | 18:CS:35:ARG:HD2 | 2.11 | 0.50 |
| 23:BB:2025:C:H2' | 23:BB:2026:U:H6 | 1.77 | 0.50 |
| 25:BC:61:TYR:CE2 | 25:BC:63:ILE:HD11 | 2.47 | 0.50 |
| 5:CF:29:ILE:HG21 | 5:CF:64:VAL:HG11 | 1.93 | 0.50 |
| 5:AF:45:ARG:HG2 | 5:AF:46:GLN:N | 2.26 | 0.50 |
| 23:BB:2262:U:H4' | 23:BB:2328:A:H2 | 1.76 | 0.50 |
| 3:CD:169:TRP:CE3 | 3:CD:185:PRO:HB3 | 2.46 | 0.50 |
| 1:AA:437:U:C2' | 1:AA:438:U:O4' | 2.51 | 0.50 |
| 30:DH:122:LEU:HD13 | 30:DH:146:VAL:CG2 | 2.36 | 0.50 |
| 30:BH:58:LEU:HA | 30:BH:62:LEU:HD12 | 1.94 | 0.50 |
| 28:BF:168:LEU:HD12 | 28:BF:169:LEU:N | 2.15 | 0.50 |
| 1:AA:1504:G:H4' | 1:AA:1505:G:C4 | 2.47 | 0.50 |
| 26:DD:146:ILE:CD1 | 26:DD:146:ILE:H | 2.24 | 0.50 |
| 1:AA:1210:C:O2' | 1:AA:1211:U:H5' | 2.11 | 0.50 |
| 44:DX:16:THR:OG1 | 44:DX:19:LEU:HB3 | 2.12 | 0.50 |
| 25:DC:216:ARG:O | 25:DC:218:THR:N | 2.44 | 0.50 |
| 13:CN:40:ARG:O | 13:CN:45:LEU:HD11 | 2.11 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 13:CN:42:ASN:HA | 13:CN:45:LEU:HD12 | 1.94 | 0.50 |
| 32:DK:11:ALA:O | 32:DK:99:ILE:HG23 | 2.10 | 0.50 |
| 39:DR:47:VAL:HG22 | 39:DR:48:LYS:N | 2.18 | 0.50 |
| 20:CB:115:ASP:O | 20:CB:119:GLN:HG2 | 2.12 | 0.50 |
| 1:CA:1008:U:H5'' | 13:CN:23:ARG:NH2 | 2.20 | 0.50 |
| 29:BG:18:ILE:CD1 | 29:BG:18:ILE:H | 2.25 | 0.50 |
| 35:DN:73:ASN:HA | 35:DN:76:VAL:HG12 | 1.93 | 0.50 |
| 2:AC:183:TYR:HE1 | 2:AC:198:LYS:HB3 | 1.75 | 0.50 |
| 2:AC:71:ARG:O | 2:AC:75:VAL:HG23 | 2.11 | 0.50 |
| 1:AA:1004:A:H62 | 1:AA:1025:U:H5' | 1.77 | 0.50 |
| 28:DF:98:PHE:HA | 28:DF:101:ARG:HG2 | 1.93 | 0.50 |
| 36:BO:31:THR:HG21 | 36:BO:36:TYR:CE1 | 2.46 | 0.50 |
| 8:AI:11:ARG:HG3 | 8:AI:11:ARG:O | 2.10 | 0.50 |
| 9:CJ:66:GLU:HG2 | 9:CJ:67:ILE:H | 1.77 | 0.50 |
| 35:DN:10:LEU:O | 35:DN:11:ASN:ND2 | 2.45 | 0.50 |
| 23:BB:1796:U:H2' | 23:BB:1797:G:C8 | 2.46 | 0.50 |
| 23:BB:1373:A:OP1 | 23:BB:2213:U:O4 | 2.29 | 0.50 |
| 1:AA:60:A:H1' | 1:AA:61:G:O4' | 2.12 | 0.50 |
| 22:DA:66:A:N6 | 22:DA:107:G:C5 | 2.79 | 0.50 |
| 1:AA:864:A:H2' | 1:AA:865:A:C8 | 2.46 | 0.50 |
| 23:DB:2405:G:H1' | 23:DB:2412:A:H61 | 1.75 | 0.50 |
| 4:CE:52:ALA:HB2 | 4:CE:61:LYS:HE2 | 1.93 | 0.50 |
| 23:BB:557:C:H2' | 23:BB:558:U:H6 | 1.76 | 0.50 |
| 23:BB:1531:C:H2' | 23:BB:1532:A:H8 | 1.75 | 0.50 |
| 23:BB:833:A:H2' | 23:BB:834:G:H8 | 1.74 | 0.50 |
| 37:DP:55:HIS:C | 37:DP:57:ALA:N | 2.64 | 0.50 |
| 1:CA:1118:U:H5' | 1:CA:1118:U:H6 | 1.76 | 0.50 |
| 23:DB:935:C:H2' | 23:DB:936:A:C8 | 2.47 | 0.50 |
| 1:AA:769:G:O2' | 1:AA:770:C:H5' | 2.11 | 0.50 |
| 1:CA:1200:C:H4' | 1:CA:1201:A:H5' | 1.94 | 0.50 |
| 1:CA:143:A:H2 | 1:CA:220:G:H22 | 1.59 | 0.50 |
| 23:BB:2439:A:C8 | 23:BB:2586:U:H4' | 2.47 | 0.50 |
| 23:DB:2771:C:H2' | 23:DB:2772:C:H6 | 1.76 | 0.50 |
| 4:CE:15:ILE:HG22 | 4:CE:16:ALA:H | 1.77 | 0.50 |
| 15:CP:25:ARG:H | 15:CP:25:ARG:HD3 | 1.76 | 0.50 |
| 1:CA:1427:C:O2' | 1:CA:1428:A:H5' | 2.11 | 0.50 |
| 23:DB:1313:U:H4' | 23:DB:1332:G:H4' | 1.94 | 0.50 |
| 27:BE:139:LYS:HE2 | 27:BE:139:LYS:HA | 1.93 | 0.50 |
| 1:CA:1492:A:N6 | 1:CA:1494:G:C8 | 2.80 | 0.50 |
| 6:AG:46:LEU:O | 6:AG:46:LEU:HD13 | 2.11 | 0.50 |
| 23:BB:408:G:O2' | 23:BB:409:G:H5' | 2.12 | 0.50 |
| 42:BU:24:VAL:C | 42:BU:25:LYS:HD3 | 2.32 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 30:BH:85:GLY:O | 30:BH:89:LYS:N | 2.45 | 0.50 |
| 23:BB:38:A:C8 | 27:BE:46:GLN:CD | 2.85 | 0.50 |
| 37:BP:61:ARG:O | 37:BP:63:ILE:HD12 | 2.11 | 0.50 |
| 43:DW:42:THR:H | 43:DW:65:LYS:CG | 2.22 | 0.50 |
| 25:BC:136:VAL:O | 25:BC:163:ILE:HB | 2.12 | 0.50 |
| 25:BC:67:LYS:HB3 | 25:BC:149:LYS:O | 2.12 | 0.50 |
| 23:BB:855:G:N2 | 43:BW:23:LYS:HB3 | 2.26 | 0.50 |
| 23:DB:299:A:H2' | 23:DB:300:A:C8 | 2.46 | 0.50 |
| 27:DE:199:MET:O | 27:DE:200:LEU:HD23 | 2.12 | 0.50 |
| 33:BL:92:LEU:HG | 33:BL:96:LYS:NZ | 2.27 | 0.50 |
| 23:BB:2485:G:H5' | 34:BM:45:GLN:OE1 | 2.12 | 0.50 |
| 23:BB:2020:A:C2 | 23:BB:2022:U:O4' | 2.64 | 0.50 |
| 26:BD:149:ASN:C | 26:BD:150:GLN:HG2 | 2.32 | 0.50 |
| 38:BQ:13:HIS:O | 38:BQ:17:LEU:HB2 | 2.12 | 0.50 |
| 23:DB:1139:G:O2' | 23:DB:1140:C:H5' | 2.12 | 0.50 |
| 1:AA:980:C:H2' | 1:AA:981:U:H5' | 1.93 | 0.50 |
| 23:BB:993:G:O2' | 23:BB:994:C:H5' | 2.11 | 0.50 |
| 23:BB:988:A:OP2 | 45:BY:11:SER:HA | 2.12 | 0.50 |
| 8:AI:50:PRO:HG2 | 8:AI:51:LEU:HD12 | 1.92 | 0.50 |
| 28:BF:106:ALA:CB | 28:BF:136:ILE:HG23 | 2.42 | 0.50 |
| 34:DM:16:ARG:HG2 | 34:DM:16:ARG:HH11 | 1.77 | 0.50 |
| 38:BQ:111:LYS:O | 38:BQ:115:ALA:HB2 | 2.12 | 0.50 |
| 38:BQ:88:GLU:HA | 39:BR:53:PHE:CD1 | 2.47 | 0.50 |
| 27:BE:104:ALA:O | 27:BE:105:LEU:HD23 | 2.12 | 0.50 |
| 27:BE:170:ARG:NH2 | 27:BE:175:ILE:HA | 2.26 | 0.50 |
| 21:AU:26:GLY:C | 21:AU:28:LEU:H | 2.15 | 0.50 |
| 1:CA:1219:A:H2' | 1:CA:1220:G:H8 | 1.75 | 0.50 |
| 23:BB:2821:A:H2' | 23:BB:2822:G:C8 | 2.46 | 0.50 |
| 23:BB:2822:G:OP1 | 26:BD:166:GLY:HA2 | 2.11 | 0.50 |
| 23:DB:2420:C:H3' | 50:D3:31:ILE:CG2 | 2.42 | 0.50 |
| 27:BE:57:LYS:O | 27:BE:59:PRO:HD3 | 2.11 | 0.50 |
| 2:AC:155:ARG:NH1 | 2:AC:192:TYR:HB2 | 2.27 | 0.50 |
| 23:BB:2675:A:OP1 | 32:BK:31:ARG:HG2 | 2.10 | 0.50 |
| 1:AA:1324:A:H2' | 1:AA:1325:C:C6 | 2.47 | 0.50 |
| 28:DF:174:PHE:N | 28:DF:175:PRO:HD2 | 2.23 | 0.50 |
| 1:CA:1512:U:H2' | 1:CA:1513:A:H8 | 1.75 | 0.50 |
| 4:AE:101:GLY:H | 4:AE:121:ASN:ND2 | 2.07 | 0.50 |
| 38:BQ:7:VAL:HG23 | 38:BQ:8:ILE:N | 2.18 | 0.50 |
| 41:DT:11:LEU:HB3 | 41:DT:34:VAL:HG23 | 1.92 | 0.50 |
| 23:DB:125:A:O2' | 23:DB:126:A:OP1 | 2.24 | 0.50 |
| 52:DI:21:PRO:CB | 52:DI:22:PRO:HD3 | 2.39 | 0.50 |
| 1:CA:806:C:H2' | 1:CA:807:A:C8 | 2.46 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 25:DC:21:PRO:C | 25:DC:202:ARG:HD2 | 2.32 | 0.50 |
| 25:BC:77:VAL:HA | 25:BC:93:VAL:HG22 | 1.94 | 0.50 |
| 12:CM:102:LYS:HG3 | 12:CM:103:THR:N | 2.26 | 0.50 |
| 48:B1:36:LYS:N | 48:B1:36:LYS:HD2 | 2.27 | 0.50 |
| 27:DE:29:HIS:HD2 | 33:DL:19:LEU:HD11 | 1.76 | 0.50 |
| 7:CH:77:VAL:CG2 | 7:CH:126:CYS:HA | 2.42 | 0.50 |
| 23:DB:725:G:H2' | 23:DB:726:G:C1' | 2.41 | 0.50 |
| 1:CA:1171:A:H2' | 1:CA:1172:C:H6 | 1.77 | 0.50 |
| 24:DV:65:VAL:C | 24:DV:67:GLY:H | 2.15 | 0.50 |
| 7:AH:76:ARG:HE | 7:AH:79:ARG:HA | 1.77 | 0.50 |
| 23:DB:2464:G:H2' | 23:DB:2465:C:H6 | 1.75 | 0.50 |
| 23:DB:242:G:H22 | 23:DB:254:G:H2' | 1.76 | 0.50 |
| 3:CD:84:ASN:HD21 | 3:CD:87:GLU:H | 1.58 | 0.50 |
| 23:BB:1313:U:H4' | 23:BB:1332:G:H4' | 1.94 | 0.50 |
| 52:DI:85:ILE:HD12 | 52:DI:87:SER:O | 2.12 | 0.50 |
| 20:CB:85:SER:O | 20:CB:86:CYS:HB2 | 2.12 | 0.50 |
| 6:CG:29:LEU:HD11 | 6:CG:119:LEU:HD22 | 1.94 | 0.50 |
| 1:CA:1026:G:H2' | 1:CA:1027:C:O4' | 2.12 | 0.50 |
| 23:BB:1236:G:O2' | 23:BB:1237:A:O5' | 2.29 | 0.50 |
| 5:CF:68:GLN:O | 5:CF:71:ILE:HG22 | 2.11 | 0.50 |
| 23:DB:943:A:OP1 | 33:DL:41:ARG:HG2 | 2.12 | 0.50 |
| 16:CQ:43:LEU:HD12 | 16:CQ:43:LEU:N | 2.27 | 0.50 |
| 23:BB:536:G:H4' | 38:BQ:56:PHE:HZ | 1.74 | 0.50 |
| 23:DB:2399:G:H1' | 48:D1:20:TYR:OH | 2.12 | 0.50 |
| 24:DV:57:TYR:HE2 | 24:DV:77:VAL:HG21 | 1.76 | 0.50 |
| 23:DB:1948:G:O2' | 23:DB:1949:G:H5' | 2.12 | 0.50 |
| 22:BA:32:U:H4' | 22:BA:52:A:H62 | 1.76 | 0.50 |
| 1:CA:1496:C:H2' | 1:CA:1497:G:O4' | 2.11 | 0.50 |
| 32:BK:10:VAL:HG13 | 32:BK:19:VAL:HG21 | 1.94 | 0.50 |
| 23:BB:235:U:H2' | 23:BB:236:C:H6 | 1.76 | 0.50 |
| 1:AA:251:G:H4' | 1:AA:252:U:H5' | 1.93 | 0.50 |
| 36:BO:59:ALA:HB3 | 36:BO:63:LYS:HB2 | 1.93 | 0.50 |
| 23:DB:441:U:H2' | 23:DB:442:G:H8 | 1.76 | 0.50 |
| 47:B0:11:LYS:O | 47:B0:12:ARG:HB3 | 2.12 | 0.50 |
| 34:BM:26:VAL:HG11 | 34:BM:134:THR:OG1 | 2.12 | 0.50 |
| 23:BB:2669:G:H2' | 23:BB:2670:A:H8 | 1.76 | 0.50 |
| 23:BB:1909:C:H2' | 23:BB:1910:G:H8 | 1.77 | 0.50 |
| 23:BB:1396:U:O4' | 23:BB:1396:U:O2 | 2.28 | 0.50 |
| 1:AA:323:U:H2' | 1:AA:324:G:O4' | 2.11 | 0.50 |
| 1:AA:146:G:O2' | 1:AA:147:G:H5' | 2.11 | 0.50 |
| 20:AB:80:LYS:O | 20:AB:84:LEU:N | 2.45 | 0.50 |
| 33:BL:71:ALA:O | 33:BL:72:ALA:C | 2.50 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 1:AA:1261:A:H2' | 1:AA:1262:C:O4' | 2.11 | 0.50 |
| 23:DB:2500:U:H5' | 23:DB:2501:C:OP2 | 2.12 | 0.50 |
| 37:BP:61:ARG:NH2 | 37:BP:63:ILE:HD11 | 2.27 | 0.50 |
| 43:DW:43:LYS:H | 43:DW:75:ASN:CG | 2.15 | 0.50 |
| 25:BC:130:PRO:HA | 25:BC:187:CYS:O | 2.12 | 0.50 |
| 25:DC:192:GLY:O | 25:DC:194:VAL:HG22 | 2.11 | 0.50 |
| 31:BJ:61:LYS:CE | 31:BJ:61:LYS:HA | 2.38 | 0.50 |
| 23:BB:922:C:H2' | 23:BB:923:G:C8 | 2.47 | 0.50 |
| 33:DL:51:GLU:CG | 33:DL:52:GLY:H | 2.09 | 0.50 |
| 33:BL:116:VAL:HG21 | 33:BL:134:ALA:HB1 | 1.94 | 0.50 |
| 23:BB:968:C:H2' | 23:BB:969:G:C8 | 2.45 | 0.50 |
| 26:DD:116:LYS:O | 35:DN:2:ARG:HB3 | 2.12 | 0.50 |
| 45:BY:9:THR:HA | 45:BY:55:LYS:HG3 | 1.92 | 0.50 |
| 8:AI:49:GLN:N | 8:AI:50:PRO:HD2 | 2.27 | 0.50 |
| 8:AI:56:MET:HE2 | 8:AI:57:VAL:H | 1.77 | 0.50 |
| 38:BQ:94:LEU:HD11 | 39:BR:10:LYS:HD2 | 1.94 | 0.50 |
| 39:BR:49:ILE:HG22 | 39:BR:51:VAL:CG2 | 2.42 | 0.50 |
| 40:BS:34:ASP:HA | 40:BS:38:TYR:CD2 | 2.47 | 0.50 |
| 27:BE:120:VAL:HG12 | 27:BE:121:VAL:N | 2.27 | 0.50 |
| 41:BT:28:ASN:HD22 | 41:BT:28:ASN:N | 2.09 | 0.50 |
| 23:BB:535:G:N2 | 38:BQ:52:ARG:HH22 | 1.95 | 0.50 |
| 35:BN:1:MET:SD | 35:BN:2:ARG:N | 2.85 | 0.50 |
| 23:DB:2052:A:OP1 | 26:DD:145:SER:HB3 | 2.12 | 0.50 |
| 10:CK:108:ASN:OD1 | 10:CK:110:THR:HG23 | 2.12 | 0.50 |
| 26:DD:160:LYS:HA | 26:DD:160:LYS:HE3 | 1.93 | 0.50 |
| 44:DX:25:GLN:CD | 44:DX:29:ARG:HH21 | 2.14 | 0.50 |
| 26:BD:45:TYR:O | 26:BD:46:ARG:HG2 | 2.12 | 0.50 |
| 26:BD:48:ILE:HA | 26:BD:79:LEU:O | 2.10 | 0.50 |
| 13:CN:40:ARG:HH12 | 18:CS:6:LYS:H | 1.59 | 0.50 |
| 1:CA:1307:U:H2' | 1:CA:1308:U:H6 | 1.76 | 0.50 |
| 25:BC:22:GLU:HA | 25:BC:202:ARG:NE | 2.26 | 0.50 |
| 3:AD:77:GLU:O | 3:AD:81:LEU:HG | 2.12 | 0.50 |
| 1:AA:969:A:N3 | 1:AA:970:C:O2 | 2.45 | 0.50 |
| 22:DA:30:C:C2' | 22:DA:31:C:H5' | 2.39 | 0.50 |
| 45:BY:6:ILE:HG22 | 45:BY:56:VAL:CG2 | 2.39 | 0.50 |
| 5:CF:100:SER:H | 17:CR:23:LYS:HZ1 | 1.60 | 0.50 |
| 2:AC:180:ASP:C | 2:AC:181:ILE:HD12 | 2.31 | 0.50 |
| 27:BE:88:ARG:HH11 | 27:BE:88:ARG:CB | 2.22 | 0.50 |
| 52:DI:78:LEU:HD23 | 52:DI:81:LYS:HE2 | 1.93 | 0.50 |
| 28:DF:134:GLN:O | 28:DF:135:ILE:C | 2.48 | 0.50 |
| 28:DF:137:PHE:O | 28:DF:139:GLU:HG2 | 2.12 | 0.50 |
| 23:BB:2809:A:H2' | 23:BB:2810:A:H8 | 1.77 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 31:BJ:7:LYS:CD | 31:BJ:48:VAL:HB | 2.39 | 0.50 |
| 4:CE:111:ARG:HG2 | 4:CE:111:ARG:NH1 | 2.27 | 0.50 |
| 3:CD:138:PRO:O | 3:CD:139:ASN:HB3 | 2.12 | 0.50 |
| 36:DO:95:SER:O | 36:DO:97:PHE:N | 2.45 | 0.50 |
| 11:CL:113:ARG:CZ | 11:CL:120:ARG:HA | 2.42 | 0.50 |
| 23:BB:1386:C:H2' | 23:BB:1387:A:H8 | 1.74 | 0.50 |
| 1:AA:734:G:N2 | 17:AR:63:TYR:CE2 | 2.80 | 0.50 |
| 5:AF:51:ILE:HD11 | 5:AF:86:ARG:HG3 | 1.94 | 0.50 |
| 1:AA:370:C:H2' | 1:AA:371:A:H8 | 1.77 | 0.50 |
| 23:BB:827:U:H5' | 23:BB:828:U:O5' | 2.12 | 0.50 |
| 1:AA:1226:C:H4' | 1:AA:1227:A:OP1 | 2.11 | 0.50 |
| 38:BQ:56:PHE:O | 38:BQ:59:LEU:HB3 | 2.12 | 0.50 |
| 9:CJ:85:ASP:HB2 | 9:CJ:89:ARG:CZ | 2.42 | 0.50 |
| 30:BH:69:ALA:HB1 | 30:BH:141:LYS:NZ | 2.27 | 0.50 |
| 29:BG:102:ILE:HG22 | 29:BG:114:HIS:O | 2.12 | 0.50 |
| 20:AB:206:ILE:HD13 | 20:AB:206:ILE:C | 2.32 | 0.50 |
| 3:AD:11:SER:OG | 3:AD:17:ASP:HA | 2.11 | 0.50 |
| 22:BA:52:A:H3' | 22:BA:53:A:C8 | 2.47 | 0.50 |
| 23:DB:2520:C:C6 | 23:DB:2567:G:H1' | 2.46 | 0.50 |
| 23:DB:1330:C:H2' | 23:DB:1331:G:H8 | 1.76 | 0.50 |
| 1:AA:143:A:H2 | 1:AA:220:G:H22 | 1.59 | 0.50 |
| 1:AA:219:U:H2' | 1:AA:220:G:H8 | 1.77 | 0.50 |
| 23:DB:1771:C:H2' | 23:DB:1772:A:C8 | 2.46 | 0.50 |
| 15:CP:74:LEU:O | 15:CP:78:VAL:HG12 | 2.11 | 0.50 |
| 1:AA:130:A:O4' | 16:AQ:64:ARG:HD2 | 2.12 | 0.50 |
| 18:CS:20:LYS:HD2 | 18:CS:20:LYS:O | 2.12 | 0.50 |
| 34:DM:34:LYS:O | 34:DM:125:PRO:HD2 | 2.12 | 0.50 |
| 23:DB:2630:G:H2' | 23:DB:2631:G:H8 | 1.75 | 0.50 |
| 32:BK:16:ALA:N | 32:BK:46:ALA:HA | 2.27 | 0.50 |
| 23:DB:699:A:H4' | 23:DB:1634:A:N7 | 2.27 | 0.50 |
| 23:DB:1184:U:O2' | 23:DB:1185:G:H5' | 2.12 | 0.50 |
| 43:BW:4:LYS:C | 43:BW:4:LYS:HD3 | 2.32 | 0.50 |
| 23:DB:678:C:H2' | 23:DB:679:C:H6 | 1.77 | 0.50 |
| 51:D4:2:LYS:HD3 | 51:D4:2:LYS:N | 2.27 | 0.50 |
| 31:BJ:36:LEU:O | 31:BJ:118:MET:HG2 | 2.12 | 0.50 |
| 31:BJ:18:VAL:HG22 | 31:BJ:56:VAL:HA | 1.93 | 0.50 |
| 36:BO:17:LYS:O | 36:BO:21:LEU:HA | 2.12 | 0.50 |
| 30:BH:6:LEU:HD12 | 30:BH:15:LEU:CA | 2.42 | 0.50 |
| 27:DE:164:LEU:HD13 | 27:DE:165:HIS:N | 2.27 | 0.50 |
| 46:BZ:49:ARG:CD | 46:BZ:50:ASP:N | 2.75 | 0.50 |
| 34:BM:97:GLN:N | 34:BM:98:PRO:CD | 2.75 | 0.50 |
| 24:BV:80:HIS:CD2 | 24:BV:82:TYR:H | 2.25 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 16:AQ:80:LYS:C | 16:AQ:80:LYS:HE3 | 2.32 | 0.50 |
| 36:DO:40:ILE:N | 36:DO:40:ILE:HD13 | 2.16 | 0.50 |
| 40:BS:17:VAL:HA | 40:BS:43:ALA:CB | 2.42 | 0.50 |
| 8:AI:56:MET:CE | 8:AI:57:VAL:H | 2.25 | 0.50 |
| 23:BB:2305:U:H3 | 28:BF:150:GLY:HA3 | 1.76 | 0.50 |
| 31:DJ:78:THR:H | 31:DJ:84:ILE:CD1 | 2.25 | 0.50 |
| 31:DJ:76:HIS:HB2 | 31:DJ:86:GLN:CG | 2.41 | 0.50 |
| 27:BE:4:VAL:HB | 27:BE:117:ARG:HH21 | 1.76 | 0.50 |
| 21:AU:5:VAL:HG22 | 21:AU:19:LYS:NZ | 2.27 | 0.50 |
| 23:DB:1196:C:H2' | 23:DB:1197:G:C8 | 2.46 | 0.50 |
| 18:CS:11:ASP:HB3 | 18:CS:13:HIS:NE2 | 2.27 | 0.50 |
| 41:BT:13:ALA:HB3 | 41:BT:33:LYS:HB2 | 1.92 | 0.50 |
| 21:AU:34:ARG:C | 21:AU:34:ARG:HD2 | 2.31 | 0.50 |
| 21:CU:3:ILE:HD12 | 21:CU:3:ILE:O | 2.11 | 0.50 |
| 27:BE:50:ALA:O | 27:BE:74:LYS:HD2 | 2.12 | 0.50 |
| 44:DX:18:LEU:HD12 | 44:DX:47:ARG:HH22 | 1.77 | 0.50 |
| 23:DB:2682:A:O2' | 23:DB:2683:C:H5' | 2.11 | 0.50 |
| 1:CA:262:A:OP2 | 19:CT:70:LYS:HE3 | 2.12 | 0.50 |
| 15:CP:67:ILE:CG1 | 15:CP:71:VAL:HG13 | 2.37 | 0.50 |
| 14:AO:70:LYS:NZ | 14:AO:74:VAL:HA | 2.27 | 0.50 |
| 30:DH:114:GLU:CB | 30:DH:133:GLN:HG3 | 2.37 | 0.50 |
| 1:CA:945:G:H21 | 1:CA:1334:G:H4' | 1.77 | 0.50 |
| 29:DG:51:PHE:CE1 | 29:DG:53:PRO:HG3 | 2.45 | 0.50 |
| 33:DL:44:GLY:HA2 | 33:DL:47:ARG:NE | 2.22 | 0.50 |
| 34:BM:112:LEU:N | 34:BM:112:LEU:HD12 | 2.27 | 0.50 |
| 16:CQ:13:SER:HB3 | 16:CQ:21:VAL:CB | 2.40 | 0.50 |
| 23:BB:2811:G:H5'' | 26:BD:62:LYS:HD2 | 1.93 | 0.50 |
| 23:BB:2087:G:H2' | 23:BB:2088:A:H8 | 1.77 | 0.50 |
| 1:AA:1446:A:C3' | 1:AA:1447:A:H5'' | 2.42 | 0.50 |
| 20:CB:134:LEU:O | 20:CB:134:LEU:HD23 | 2.11 | 0.50 |
| 30:BH:56:ALA:HB3 | 30:BH:57:LYS:NZ | 2.27 | 0.50 |
| 30:BH:57:LYS:CA | 30:BH:57:LYS:HE3 | 2.42 | 0.50 |
| 15:AP:67:ILE:HG13 | 15:AP:71:VAL:HG13 | 1.93 | 0.50 |
| 23:DB:553:G:O2' | 23:DB:554:U:H5' | 2.11 | 0.50 |
| 33:DL:35:HIS:CG | 33:DL:35:HIS:O | 2.65 | 0.50 |
| 1:AA:193:C:H2' | 1:AA:194:C:C6 | 2.47 | 0.50 |
| 19:AT:15:LYS:HA | 19:AT:18:LYS:HE3 | 1.94 | 0.50 |
| 44:BX:5:GLU:N | 44:BX:7:ARG:HE | 2.08 | 0.50 |
| 1:CA:372:C:H4' | 1:CA:373:A:H5' | 1.94 | 0.50 |
| 23:DB:416:U:H2' | 23:DB:417:C:C6 | 2.46 | 0.50 |
| 1:CA:1129:C:H1' | 1:CA:1146:A:N6 | 2.25 | 0.50 |
| 27:DE:132:LYS:HG2 | 27:DE:134:LEU:CD1 | 2.41 | 0.50 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 23:BB:189:G:P | 46:BZ:12:ILE:HG12 | 2.52 | 0.50 |
| 23:BB:1399:C:H2' | 23:BB:1400:U:C6 | 2.47 | 0.50 |
| 6:AG:72:VAL:HB | 6:AG:144:ALA:HB3 | 1.94 | 0.50 |
| 23:DB:19:A:OP1 | 38:DQ:22:GLY:HA2 | 2.12 | 0.50 |
| 23:DB:217:A:H3' | 23:DB:218:A:H8 | 1.75 | 0.50 |
| 1:CA:736:C:H2' | 1:CA:737:C:H6 | 1.77 | 0.50 |
| 23:DB:2877:G:H2' | 23:DB:2878:U:C6 | 2.47 | 0.50 |
| 23:BB:2877:G:H2' | 23:BB:2878:U:C6 | 2.47 | 0.50 |
| 18:CS:16:LYS:O | 18:CS:20:LYS:HB2 | 2.11 | 0.50 |
| 6:AG:136:LYS:O | 6:AG:140:VAL:HG23 | 2.12 | 0.50 |
| 23:DB:2191:A:H2' | 23:DB:2192:U:C6 | 2.47 | 0.50 |
| 40:BS:57:ASN:O | 40:BS:61:ASN:HB3 | 2.12 | 0.50 |
| 23:BB:1107:G:H2' | 23:BB:1108:U:O4' | 2.11 | 0.50 |
| 39:DR:72:VAL:O | 39:DR:72:VAL:HG13 | 2.11 | 0.50 |
| 30:DH:116:ARG:O | 30:DH:116:ARG:HG2 | 2.12 | 0.50 |
| 27:DE:28:VAL:O | 27:DE:32:VAL:HG23 | 2.12 | 0.50 |
| 1:AA:939:G:H4' | 6:AG:101:ARG:NH2 | 2.26 | 0.50 |
| 42:BU:15:GLY:HA2 | 42:BU:18:LYS:HD3 | 1.92 | 0.49 |
| 20:CB:45:THR:HG23 | 20:CB:200:PRO:HG2 | 1.94 | 0.49 |
| 26:BD:8:LYS:HB3 | 37:BP:5:LYS:HZ2 | 1.74 | 0.49 |
| 25:BC:172:THR:HG22 | 25:BC:173:LEU:N | 2.24 | 0.49 |
| 25:BC:182:LYS:HE2 | 25:BC:264:LYS:NZ | 2.27 | 0.49 |
| 20:AB:46:VAL:O | 20:AB:49:PHE:HB2 | 2.12 | 0.49 |
| 30:BH:48:GLU:C | 30:BH:50:ARG:H | 2.15 | 0.49 |
| 30:BH:5:LEU:HD21 | 30:BH:17:ASP:OD1 | 2.12 | 0.49 |
| 27:DE:193:VAL:HG12 | 27:DE:199:MET:H | 1.76 | 0.49 |
| 23:BB:395:U:H2' | 23:BB:396:G:C8 | 2.47 | 0.49 |
| 32:BK:23:LYS:O | 32:BK:39:ILE:HG23 | 2.12 | 0.49 |
| 34:BM:38:ARG:HA | 34:BM:96:ILE:O | 2.11 | 0.49 |
| 16:AQ:10:ARG:NH2 | 16:AQ:58:VAL:HG13 | 2.27 | 0.49 |
| 16:AQ:66:LEU:HD11 | 16:AQ:73:THR:CG2 | 2.41 | 0.49 |
| 23:DB:1796:U:H2' | 23:DB:1797:G:C8 | 2.46 | 0.49 |
| 38:BQ:90:ASP:HA | 39:BR:10:LYS:HZ3 | 1.76 | 0.49 |
| 38:BQ:97:ILE:HD13 | 38:BQ:100:PHE:CZ | 2.46 | 0.49 |
| 21:AU:26:GLY:O | 21:AU:30:GLU:HB2 | 2.12 | 0.49 |
| 26:DD:193:VAL:HG23 | 26:DD:193:VAL:O | 2.11 | 0.49 |
| 18:CS:10:ILE:HD13 | 18:CS:40:PHE:CE2 | 2.47 | 0.49 |
| 10:CK:85:VAL:HG11 | 10:CK:96:ILE:HD11 | 1.93 | 0.49 |
| 23:DB:2514:U:H2' | 23:DB:2515:C:H6 | 1.77 | 0.49 |
| 48:D1:22:THR:HG21 | 50:D3:34:LYS:HZ1 | 1.77 | 0.49 |
| 44:DX:17:GLU:CD | 44:DX:17:GLU:H | 2.14 | 0.49 |
| 23:DB:1813:G:C1' | 25:DC:45:ASN:HB3 | 2.41 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 25:BC:222:THR:HG23 | 25:BC:231:HIS:CD2 | 2.47 | 0.49 |
| 1:CA:1298:U:H2' | 6:CG:113:LYS:NZ | 2.27 | 0.49 |
| 28:DF:107:VAL:N | 28:DF:108:PRO:HD2 | 2.26 | 0.49 |
| 1:AA:33:A:H2' | 1:AA:34:C:H6 | 1.77 | 0.49 |
| 1:AA:1332:A:H2' | 1:AA:1333:A:C8 | 2.47 | 0.49 |
| 23:BB:1054:A:H2' | 23:BB:1055:G:C8 | 2.45 | 0.49 |
| 42:DU:10:VAL:O | 42:DU:21:ARG:HA | 2.12 | 0.49 |
| 1:AA:968:A:O2' | 1:AA:969:A:OP1 | 2.27 | 0.49 |
| 23:BB:272:A:H2' | 23:BB:273:G:C8 | 2.47 | 0.49 |
| 1:CA:1241:G:H2' | 1:CA:1242:G:C8 | 2.42 | 0.49 |
| 49:D2:12:ARG:CG | 49:D2:46:LYS:HA | 2.42 | 0.49 |
| 47:B0:46:GLY:O | 47:B0:52:LYS:HB3 | 2.12 | 0.49 |
| 29:DG:53:PRO:HG2 | 29:DG:61:TRP:HZ3 | 1.72 | 0.49 |
| 48:D1:9:LYS:HG2 | 48:D1:24:LYS:HG2 | 1.93 | 0.49 |
| 23:DB:1080:A:H4' | 52:DI:126:ARG:HD3 | 1.93 | 0.49 |
| 1:CA:1070:U:H2' | 1:CA:1071:C:C6 | 2.47 | 0.49 |
| 2:CC:61:LYS:NZ | 2:CC:96:VAL:HG12 | 2.26 | 0.49 |
| 1:CA:429:U:P | 3:CD:12:ARG:HH21 | 2.35 | 0.49 |
| 11:AL:20:VAL:HG12 | 11:AL:20:VAL:O | 2.12 | 0.49 |
| 23:DB:1439:A:N7 | 23:DB:1440:U:C2 | 2.80 | 0.49 |
| 23:BB:932:U:H2' | 23:BB:934:U:C4 | 2.46 | 0.49 |
| 27:DE:130:LYS:HZ3 | 27:DE:130:LYS:HB2 | 1.77 | 0.49 |
| 28:DF:41:GLU:O | 28:DF:42:ALA:C | 2.50 | 0.49 |
| 23:DB:351:C:H2' | 23:DB:352:A:C8 | 2.46 | 0.49 |
| 20:CB:212:TYR:O | 20:CB:216:VAL:HG22 | 2.11 | 0.49 |
| 23:DB:1533:C:C2' | 23:DB:1534:U:H5' | 2.42 | 0.49 |
| 1:AA:1169:A:H2' | 1:AA:1170:A:C8 | 2.48 | 0.49 |
| 23:BB:2526:G:H2' | 23:BB:2527:C:C6 | 2.47 | 0.49 |
| 37:BP:38:ARG:NH1 | 37:BP:39:LEU:N | 2.59 | 0.49 |
| 2:CC:149:LYS:HE3 | 2:CC:200:TRP:CE3 | 2.47 | 0.49 |
| 23:BB:708:G:H2' | 23:BB:709:U:C6 | 2.47 | 0.49 |
| 23:DB:2106:U:H2' | 23:DB:2107:G:OP1 | 2.12 | 0.49 |
| 28:DF:115:GLY:HA3 | 28:DF:177:ARG:HB2 | 1.94 | 0.49 |
| 6:CG:55:LYS:HB3 | 6:CG:59:GLU:OE2 | 2.12 | 0.49 |
| 1:CA:829:G:H4' | 20:CB:24:PRO:HG3 | 1.94 | 0.49 |
| 17:AR:44:THR:HG22 | 17:AR:46:THR:HB | 1.95 | 0.49 |
| 1:AA:1458:G:H2' | 1:AA:1459:G:H8 | 1.77 | 0.49 |
| 1:CA:22:G:H2' | 1:CA:23:C:C6 | 2.47 | 0.49 |
| 23:DB:1399:C:H2' | 23:DB:1400:U:C6 | 2.47 | 0.49 |
| 10:CK:22:ILE:HG21 | 10:CK:95:THR:HG21 | 1.93 | 0.49 |
| 23:DB:2439:A:C8 | 23:DB:2586:U:H4' | 2.47 | 0.49 |
| 26:BD:18:ASP:O | 32:BK:73:ASP:HA | 2.11 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 1:CA:1492:A:H2' | 1:CA:1492:A:N3 | 2.26 | 0.49 |
| 23:DB:1501:G:O2' | 23:DB:1502:A:H5' | 2.11 | 0.49 |
| 35:DN:58:ASP:O | 35:DN:62:ASN:HB2 | 2.10 | 0.49 |
| 29:BG:126:THR:HG23 | 29:BG:128:THR:HG23 | 1.93 | 0.49 |
| 14:CO:72:LYS:O | 14:CO:73:ASP:HB2 | 2.11 | 0.49 |
| 1:CA:751:U:H2' | 1:CA:752:G:O4' | 2.12 | 0.49 |
| 28:BF:71:LYS:HD3 | 28:BF:71:LYS:C | 2.32 | 0.49 |
| 33:BL:18:ARG:N | 33:BL:18:ARG:HD3 | 2.27 | 0.49 |
| 32:DK:53:LYS:O | 32:DK:56:ASP:HB2 | 2.12 | 0.49 |
| 1:CA:309:A:H2' | 1:CA:310:G:H8 | 1.76 | 0.49 |
| 23:DB:1099:G:C5' | 52:DI:4:VAL:HG12 | 2.42 | 0.49 |
| 37:BP:36:LYS:HD3 | 37:BP:37:LYS:H | 1.76 | 0.49 |
| 26:BD:7:LYS:HD3 | 26:BD:197:THR:H | 1.76 | 0.49 |
| 43:DW:42:THR:OG1 | 43:DW:65:LYS:HA | 2.12 | 0.49 |
| 23:BB:773:U:H4' | 25:BC:47:ARG:CB | 2.41 | 0.49 |
| 35:DN:112:TYR:O | 35:DN:113:ILE:HB | 2.12 | 0.49 |
| 43:BW:47:GLY:N | 43:BW:67:LYS:NZ | 2.60 | 0.49 |
| 50:B3:24:LYS:HZ1 | 50:B3:29:ARG:HH12 | 1.59 | 0.49 |
| 33:BL:56:PRO:HA | 33:BL:60:ARG:CZ | 2.41 | 0.49 |
| 33:BL:82:LEU:C | 33:BL:86:GLU:HG3 | 2.33 | 0.49 |
| 32:BK:33:ALA:HB3 | 32:BK:39:ILE:HD11 | 1.94 | 0.49 |
| 23:DB:2294:G:OP1 | 36:DO:9:ARG:HG3 | 2.12 | 0.49 |
| 23:BB:2026:U:H2' | 23:BB:2027:G:H8 | 1.78 | 0.49 |
| 25:BC:30:ALA:H | 25:BC:31:PRO:CD | 2.12 | 0.49 |
| 38:BQ:112:ALA:HA | 38:BQ:115:ALA:HB3 | 1.94 | 0.49 |
| 44:BX:23:ARG:HH21 | 44:BX:27:ASN:CG | 2.15 | 0.49 |
| 10:AK:88:PRO:HA | 10:AK:92:ARG:NE | 2.27 | 0.49 |
| 33:DL:92:LEU:HA | 33:DL:96:LYS:CG | 2.41 | 0.49 |
| 23:BB:2514:U:H2' | 23:BB:2515:C:H6 | 1.77 | 0.49 |
| 26:BD:126:ASN:O | 26:BD:127:PHE:CB | 2.50 | 0.49 |
| 26:DD:124:ARG:HB3 | 26:DD:124:ARG:HH11 | 1.77 | 0.49 |
| 50:D3:34:LYS:N | 50:D3:34:LYS:HD2 | 2.26 | 0.49 |
| 20:AB:202:ASN:HD22 | 20:AB:204:ASP:N | 1.99 | 0.49 |
| 23:DB:160:A:N6 | 23:DB:167:A:H1' | 2.26 | 0.49 |
| 26:BD:84:LEU:O | 26:BD:84:LEU:HG | 2.12 | 0.49 |
| 39:DR:46:GLU:HG3 | 39:DR:51:VAL:HG21 | 1.95 | 0.49 |
| 43:BW:30:VAL:HG12 | 43:BW:31:LEU:N | 2.27 | 0.49 |
| 5:AF:38:ARG:HH21 | 5:AF:96:VAL:HG12 | 1.77 | 0.49 |
| 1:CA:1285:A:O2' | 1:CA:1286:U:H2' | 2.12 | 0.49 |
| 10:CK:86:LYS:HB2 | 10:CK:112:VAL:HG23 | 1.94 | 0.49 |
| 25:DC:220:ARG:NH1 | 25:DC:220:ARG:HA | 2.27 | 0.49 |
| 29:BG:16:VAL:HG12 | 29:BG:17:LYS:N | 2.27 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 29:BG:17:LYS:HB3 | 29:BG:24:THR:CG2 | 2.42 | 0.49 |
| 23:BB:2502:G:H5' | 23:BB:2503:A:C5' | 2.36 | 0.49 |
| 23:BB:1082:U:C4 | 23:BB:1086:A:N1 | 2.79 | 0.49 |
| 36:BO:87:ILE:HG22 | 36:BO:114:GLY:HA2 | 1.94 | 0.49 |
| 49:D2:12:ARG:HG2 | 49:D2:46:LYS:HA | 1.94 | 0.49 |
| 35:BN:125:ALA:HA | 47:B0:51:ARG:HH12 | 1.77 | 0.49 |
| 24:DV:76:ASP:H | 24:DV:90:ASP:HB2 | 1.77 | 0.49 |
| 20:AB:41:ASN:ND2 | 20:AB:44:LYS:HE2 | 2.26 | 0.49 |
| 1:AA:399:G:H2' | 1:AA:400:C:H6 | 1.77 | 0.49 |
| 2:AC:151:GLU:HB2 | 2:AC:200:TRP:HZ3 | 1.75 | 0.49 |
| 20:CB:130:LYS:HE2 | 20:CB:133:ALA:HB3 | 1.94 | 0.49 |
| 23:BB:2240:U:O2' | 23:BB:2241:A:H5' | 2.12 | 0.49 |
| 23:DB:1309:G:H4' | 49:D2:7:PRO:CB | 2.41 | 0.49 |
| 7:AH:49:LYS:HG3 | 7:AH:50:VAL:N | 2.25 | 0.49 |
| 1:AA:189:A:H2' | 1:AA:190:A:C8 | 2.47 | 0.49 |
| 23:DB:455:C:C4 | 23:DB:472:A:H2' | 2.47 | 0.49 |
| 8:AI:23:GLY:O | 8:AI:61:ASP:HB2 | 2.12 | 0.49 |
| 1:CA:189:A:H2' | 1:CA:190:A:C8 | 2.47 | 0.49 |
| 41:BT:66:LYS:H | 41:BT:77:ARG:HA | 1.77 | 0.49 |
| 20:AB:111:LYS:O | 20:AB:114:LYS:HB2 | 2.11 | 0.49 |
| 23:DB:2080:A:H2' | 23:DB:2081:U:H6 | 1.76 | 0.49 |
| 9:CJ:37:ARG:C | 9:CJ:37:ARG:NE | 2.66 | 0.49 |
| 29:DG:84:LYS:O | 29:DG:132:LEU:HG | 2.12 | 0.49 |
| 33:BL:111:ILE:N | 33:BL:111:ILE:HD13 | 2.26 | 0.49 |
| 12:CM:15:VAL:HG13 | 12:CM:40:GLU:CB | 2.43 | 0.49 |
| 2:CC:52:SER:HA | 2:CC:114:LEU:HG | 1.95 | 0.49 |
| 12:CM:2:ARG:HB3 | 12:CM:6:ILE:H | 1.77 | 0.49 |
| 23:DB:1747:U:H2' | 23:DB:1748:C:C6 | 2.47 | 0.49 |
| 17:AR:46:THR:CG2 | 17:AR:51:GLN:HB2 | 2.42 | 0.49 |
| 23:DB:2240:U:O2' | 23:DB:2241:A:H5' | 2.11 | 0.49 |
| 23:BB:898:C:H2' | 23:BB:899:A:C8 | 2.46 | 0.49 |
| 40:BS:86:MET:O | 40:BS:94:ASP:HB3 | 2.12 | 0.49 |
| 23:BB:1051:G:H2' | 23:BB:1052:C:C6 | 2.47 | 0.49 |
| 35:DN:14:SER:HA | 35:DN:17:ARG:NH1 | 2.27 | 0.49 |
| 23:DB:1039:A:H2' | 23:DB:1040:A:H8 | 1.75 | 0.49 |
| 1:CA:1121:U:H2' | 1:CA:1122:U:C6 | 2.47 | 0.49 |
| 23:DB:572:A:H5'' | 23:DB:573:U:OP2 | 2.12 | 0.49 |
| 1:AA:1363:A:H2' | 1:AA:1363:A:N3 | 2.27 | 0.49 |
| 7:AH:98:LEU:HD12 | 7:AH:98:LEU:H | 1.77 | 0.49 |
| 52:BI:96:LYS:N | 52:BI:96:LYS:HD2 | 2.27 | 0.49 |
| 26:BD:25:THR:HB | 37:BP:5:LYS:HZ3 | 1.77 | 0.49 |
| 31:BJ:103:ILE:O | 31:BJ:103:ILE:HG22 | 2.12 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 31:BJ:56:VAL:HG12 | 31:BJ:57:LEU:H | 1.77 | 0.49 |
| 31:BJ:72:LYS:O | 31:BJ:74:TYR:N | 2.46 | 0.49 |
| 23:DB:335:C:O2' | 23:DB:336:C:H5' | 2.12 | 0.49 |
| 27:DE:127:GLU:CA | 27:DE:157:LEU:HD13 | 2.32 | 0.49 |
| 33:BL:123:ARG:HH22 | 33:BL:141:LYS:NZ | 2.10 | 0.49 |
| 23:DB:398:C:OP1 | 46:DZ:49:ARG:NH1 | 2.45 | 0.49 |
| 23:BB:2484:G:HO2' | 34:BM:45:GLN:CD | 2.14 | 0.49 |
| 24:BV:26:PHE:CE2 | 24:BV:44:HIS:HA | 2.47 | 0.49 |
| 39:BR:85:LYS:O | 39:BR:85:LYS:HG3 | 2.12 | 0.49 |
| 35:DN:5:LYS:HA | 35:DN:5:LYS:CE | 2.34 | 0.49 |
| 23:BB:663:G:OP1 | 33:BL:27:LEU:HD11 | 2.12 | 0.49 |
| 42:DU:66:VAL:HG13 | 42:DU:67:SER:N | 2.27 | 0.49 |
| 34:DM:71:LYS:O | 34:DM:73:ILE:N | 2.45 | 0.49 |
| 23:BB:1151:A:H2' | 23:BB:1152:C:C6 | 2.47 | 0.49 |
| 1:CA:1343:G:H2' | 1:CA:1344:C:H6 | 1.78 | 0.49 |
| 33:DL:108:ALA:HB1 | 33:DL:125:LEU:HD13 | 1.94 | 0.49 |
| 26:BD:17:GLU:HA | 37:BP:80:VAL:HG21 | 1.95 | 0.49 |
| 41:BT:8:LEU:CB | 44:BX:19:LEU:HD11 | 2.32 | 0.49 |
| 47:D0:12:ARG:NH2 | 47:D0:16:ARG:HG3 | 2.27 | 0.49 |
| 23:BB:2724:U:OP1 | 26:BD:116:LYS:HD2 | 2.12 | 0.49 |
| 26:BD:128:ARG:HH11 | 26:BD:144:GLY:HA2 | 1.77 | 0.49 |
| 13:CN:61:ASN:HB2 | 13:CN:72:PHE:CZ | 2.47 | 0.49 |
| 40:DS:24:ILE:HG23 | 40:DS:35:ILE:HG21 | 1.93 | 0.49 |
| 26:DD:148:GLN:HB3 | 26:DD:151:THR:HG23 | 1.95 | 0.49 |
| 23:BB:2648:G:H2' | 23:BB:2649:C:C6 | 2.47 | 0.49 |
| 23:DB:764:A:H5'' | 25:DC:208:GLY:CA | 2.42 | 0.49 |
| 45:DY:23:LEU:HD13 | 45:DY:28:LEU:HD23 | 1.94 | 0.49 |
| 45:DY:43:ILE:HD11 | 45:DY:47:ILE:HD11 | 1.94 | 0.49 |
| 32:DK:99:ILE:HD12 | 32:DK:118:LEU:HD12 | 1.94 | 0.49 |
| 31:DJ:90:GLU:O | 31:DJ:93:ILE:HG13 | 2.12 | 0.49 |
| 23:DB:1152:C:O2' | 23:DB:1153:C:H5' | 2.11 | 0.49 |
| 19:AT:66:ILE:HG23 | 19:AT:70:LYS:HD3 | 1.94 | 0.49 |
| 1:AA:947:G:H2' | 1:AA:948:C:H6 | 1.76 | 0.49 |
| 52:DI:19:PRO:HB2 | 52:DI:22:PRO:HD2 | 1.93 | 0.49 |
| 16:CQ:13:SER:O | 16:CQ:20:ILE:HG13 | 2.13 | 0.49 |
| 16:CQ:17:GLU:C | 16:CQ:19:SER:H | 2.15 | 0.49 |
| 16:CQ:56:ASP:HA | 16:CQ:81:ALA:CA | 2.42 | 0.49 |
| 12:CM:95:PRO:HB2 | 12:CM:99:GLN:OE1 | 2.11 | 0.49 |
| 34:DM:20:LEU:HD22 | 34:DM:38:ARG:HG2 | 1.94 | 0.49 |
| 23:DB:1299:G:C4' | 23:DB:1301:A:H1' | 2.40 | 0.49 |
| 41:BT:69:ARG:N | 41:BT:75:GLY:HA3 | 2.28 | 0.49 |
| 23:BB:2247:A:H2' | 23:BB:2248:C:H6 | 1.77 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 23:BB:2249:U:H4' | 23:BB:2275:C:C5 | 2.47 | 0.49 |
| 34:DM:119:LEU:HD22 | 34:DM:119:LEU:H | 1.78 | 0.49 |
| 8:AI:62:LEU:N | 8:AI:62:LEU:HD22 | 2.26 | 0.49 |
| 7:AH:17:GLN:HE21 | 7:AH:62:LEU:HG | 1.76 | 0.49 |
| 39:BR:65:ALA:O | 39:BR:66:HIS:HB2 | 2.12 | 0.49 |
| 23:DB:521:U:H2' | 23:DB:522:A:H8 | 1.76 | 0.49 |
| 23:DB:2803:G:H2' | 23:DB:2804:U:C6 | 2.47 | 0.49 |
| 23:BB:592:A:H2' | 23:BB:593:U:C6 | 2.47 | 0.49 |
| 30:DH:54:LEU:O | 30:DH:58:LEU:HD23 | 2.12 | 0.49 |
| 14:AO:27:GLN:O | 14:AO:31:LEU:HD23 | 2.12 | 0.49 |
| 12:CM:79:LEU:HD22 | 12:CM:86:ARG:NE | 2.27 | 0.49 |
| 23:DB:2244:U:H1' | 23:DB:2434:A:C4 | 2.48 | 0.49 |
| 1:AA:123:U:H5'' | 1:AA:311:C:O2' | 2.12 | 0.49 |
| 1:AA:314:C:O2' | 1:AA:315:A:H5' | 2.12 | 0.49 |
| 28:BF:18:GLU:O | 28:BF:19:PHE:CB | 2.59 | 0.49 |
| 20:AB:101:THR:HG23 | 20:AB:102:ASN:N | 2.28 | 0.49 |
| 15:CP:22:ALA:HA | 15:CP:33:ILE:HG13 | 1.95 | 0.49 |
| 1:AA:1018:G:H2' | 1:AA:1019:A:C8 | 2.47 | 0.49 |
| 23:BB:1681:G:H2' | 23:BB:1757:A:N1 | 2.27 | 0.49 |
| 52:DI:63:ASP:OD1 | 52:DI:65:SER:HB2 | 2.12 | 0.49 |
| 1:AA:114:U:H2' | 1:AA:115:G:C8 | 2.47 | 0.49 |
| 28:BF:41:GLU:HG3 | 28:BF:49:LEU:HD12 | 1.94 | 0.49 |
| 15:CP:78:VAL:O | 15:CP:78:VAL:HG13 | 2.12 | 0.49 |
| 23:BB:2412:A:H2' | 23:BB:2413:G:O4' | 2.11 | 0.49 |
| 23:BB:184:C:H2' | 23:BB:185:G:C8 | 2.48 | 0.49 |
| 1:AA:1437:A:H2' | 1:AA:1438:G:H8 | 1.77 | 0.49 |
| 1:CA:626:G:H2' | 1:CA:627:G:C8 | 2.48 | 0.49 |
| 23:DB:1038:G:H2' | 23:DB:1039:A:H8 | 1.76 | 0.49 |
| 23:DB:2776:A:H4' | 23:DB:2777:G:O5' | 2.13 | 0.49 |
| 23:DB:2876:G:H4' | 37:DP:2:ASN:HB3 | 1.93 | 0.49 |
| 28:DF:125:GLY:O | 28:DF:157:THR:HB | 2.13 | 0.49 |
| 2:AC:122:GLN:O | 2:AC:127:VAL:HG22 | 2.12 | 0.49 |
| 34:BM:89:VAL:HG22 | 34:BM:89:VAL:O | 2.12 | 0.49 |
| 2:CC:88:LYS:O | 2:CC:88:LYS:HE3 | 2.13 | 0.49 |
| 4:AE:73:VAL:HG12 | 4:AE:74:ALA:N | 2.27 | 0.49 |
| 1:CA:1229:A:H2' | 1:CA:1230:C:C6 | 2.47 | 0.49 |
| 6:AG:49:LEU:HB2 | 6:AG:57:GLU:HG3 | 1.94 | 0.49 |
| 1:CA:418:C:H2' | 1:CA:419:C:H6 | 1.78 | 0.49 |
| 23:BB:38:A:H1' | 27:BE:44:ARG:HA | 1.93 | 0.49 |
| 23:DB:2743:U:H2' | 23:DB:2744:G:C5' | 2.40 | 0.49 |
| 23:DB:2425:A:O2' | 23:DB:2426:A:OP2 | 2.28 | 0.49 |
| 25:DC:37:SER:HB2 | 25:DC:62:ARG:HG3 | 1.94 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:DB:536:G:C5' | 38:DQ:52:ARG:NH2 | 2.75 | 0.49 |
| 18:AS:35:ARG:HG2 | 18:AS:50:VAL:HG13 | 1.94 | 0.49 |
| 23:BB:650:C:O3' | 50:B3:16:THR:HB | 2.12 | 0.49 |
| 46:BZ:5:ILE:HG23 | 46:BZ:63:ARG:NE | 2.27 | 0.49 |
| 38:BQ:27:ARG:N | 38:BQ:32:ARG:HH21 | 2.11 | 0.49 |
| 41:DT:67:VAL:HG12 | 41:DT:68:LYS:N | 2.26 | 0.49 |
| 23:BB:2528:U:O2' | 23:BB:2529:G:H3' | 2.13 | 0.49 |
| 22:BA:74:U:H2' | 22:BA:75:G:O4' | 2.12 | 0.49 |
| 8:AI:32:ARG:HD3 | 8:AI:37:TYR:HD1 | 1.75 | 0.49 |
| 34:DM:5:LYS:HG2 | 34:DM:68:PHE:HE1 | 1.78 | 0.49 |
| 47:B0:29:VAL:HG13 | 47:B0:30:ASP:N | 2.26 | 0.49 |
| 40:BS:29:VAL:HG21 | 40:BS:69:LEU:C | 2.33 | 0.49 |
| 23:DB:1199:U:O2' | 38:DQ:2:ARG:CB | 2.60 | 0.49 |
| 23:DB:2393:U:H4' | 33:DL:60:ARG:O | 2.12 | 0.49 |
| 33:DL:62:PRO:HG3 | 50:D3:12:ARG:CZ | 2.43 | 0.49 |
| 44:DX:18:LEU:O | 44:DX:22:LEU:HB2 | 2.13 | 0.49 |
| 44:DX:22:LEU:HB3 | 44:DX:25:GLN:OE1 | 2.12 | 0.49 |
| 26:BD:4:LEU:HD23 | 26:BD:4:LEU:H | 1.77 | 0.49 |
| 52:BI:116:MET:SD | 52:BI:124:MET:HB2 | 2.52 | 0.49 |
| 23:DB:2314:A:H2' | 23:DB:2315:G:H8 | 1.77 | 0.49 |
| 39:DR:37:GLU:HG2 | 39:DR:62:GLU:C | 2.33 | 0.49 |
| 5:AF:39:LEU:HD13 | 5:AF:40:GLU:H | 1.77 | 0.49 |
| 1:AA:662:U:O2' | 1:AA:836:G:H5'' | 2.12 | 0.49 |
| 14:CO:25:GLU:OE2 | 14:CO:76:ARG:HD3 | 2.12 | 0.49 |
| 1:CA:8:A:C5 | 3:CD:205:LYS:HA | 2.47 | 0.49 |
| 39:DR:69:GLY:HA2 | 39:DR:96:VAL:HG13 | 1.94 | 0.49 |
| 38:BQ:77:LYS:HB3 | 38:BQ:116:LEU:HD11 | 1.93 | 0.49 |
| 1:CA:1237:C:OP1 | 1:CA:1238:A:H1' | 2.11 | 0.49 |
| 48:D1:34:GLU:HG2 | 48:D1:50:GLU:OE1 | 2.11 | 0.49 |
| 5:CF:85:ILE:HG22 | 5:CF:86:ARG:N | 2.27 | 0.49 |
| 4:CE:114:LEU:HD13 | 4:CE:122:VAL:HG21 | 1.94 | 0.49 |
| 33:DL:18:ARG:NH1 | 33:DL:21:ARG:HD3 | 2.26 | 0.49 |
| 7:CH:10:LEU:HD11 | 7:CH:126:CYS:SG | 2.52 | 0.49 |
| 1:AA:576:C:OP2 | 1:AA:576:C:H3' | 2.12 | 0.49 |
| 16:CQ:58:VAL:HB | 16:CQ:74:LEU:HD23 | 1.94 | 0.49 |
| 23:BB:1169:A:O2' | 23:BB:1170:C:H5' | 2.12 | 0.49 |
| 23:DB:244:A:H2' | 23:DB:245:G:O4' | 2.12 | 0.49 |
| 25:BC:209:ALA:HA | 25:BC:213:ARG:CZ | 2.43 | 0.49 |
| 1:AA:1048:G:H4' | 13:AN:2:LYS:HZ1 | 1.76 | 0.49 |
| 22:DA:63:C:H2' | 22:DA:64:G:H8 | 1.77 | 0.49 |
| 29:DG:17:LYS:O | 29:DG:17:LYS:HE3 | 2.12 | 0.49 |
| 23:DB:2860:A:H2' | 23:DB:2861:U:O4' | 2.12 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:DB:592:A:H2' | 23:DB:593:U:C6 | 2.47 | 0.49 |
| 15:AP:29:ASN:HD22 | 15:AP:29:ASN:N | 2.11 | 0.49 |
| 12:CM:80:MET:HA | 12:CM:87:GLY:HA3 | 1.94 | 0.49 |
| 1:AA:205:A:H2' | 1:AA:206:C:C6 | 2.44 | 0.49 |
| 1:CA:712:A:O2' | 1:CA:713:G:H5' | 2.12 | 0.49 |
| 23:BB:2590:A:H2' | 23:BB:2591:C:H6 | 1.76 | 0.49 |
| 4:CE:81:GLN:NE2 | 4:CE:148:SER:HA | 2.26 | 0.49 |
| 20:CB:67:LEU:HD22 | 20:CB:157:PRO:HG3 | 1.94 | 0.49 |
| 1:CA:1526:G:O5' | 21:CU:38:GLU:HB2 | 2.12 | 0.49 |
| 1:CA:1243:C:H2' | 1:CA:1244:G:C8 | 2.48 | 0.49 |
| 7:AH:39:LEU:HB2 | 7:AH:45:ILE:CD1 | 2.43 | 0.49 |
| 5:CF:18:VAL:O | 5:CF:22:ILE:HG13 | 2.13 | 0.49 |
| 27:DE:191:ASP:HA | 27:DE:194:LYS:NZ | 2.27 | 0.49 |
| 23:BB:1684:G:H2' | 23:BB:1685:C:H6 | 1.77 | 0.49 |
| 1:CA:1031:C:H5' | 1:CA:1032:G:N9 | 2.28 | 0.49 |
| 23:BB:836:G:H2' | 23:BB:837:C:H6 | 1.77 | 0.49 |
| 1:CA:272:C:H2' | 1:CA:273:U:C6 | 2.47 | 0.49 |
| 23:DB:2654:A:N1 | 23:DB:2665:A:H5'' | 2.27 | 0.49 |
| 1:AA:366:A:O2' | 1:AA:367:U:P | 2.70 | 0.49 |
| 31:BJ:15:TRP:HB3 | 31:BJ:53:TYR:CD2 | 2.48 | 0.49 |
| 2:AC:143:LEU:HD22 | 2:AC:143:LEU:H | 1.76 | 0.49 |
| 23:DB:2047:C:O2' | 23:DB:2048:G:H5' | 2.12 | 0.49 |
| 1:AA:317:U:H2' | 1:AA:318:G:C8 | 2.47 | 0.49 |
| 1:CA:1121:U:O2' | 1:CA:1122:U:H5' | 2.13 | 0.49 |
| 1:AA:182:A:H1' | 1:AA:183:C:C5 | 2.48 | 0.49 |
| 41:BT:16:VAL:HG22 | 41:BT:16:VAL:O | 2.13 | 0.49 |
| 23:DB:41:C:O2' | 23:DB:42:A:H5' | 2.13 | 0.49 |
| 23:DB:587:C:H4' | 23:DB:588:U:C6 | 2.48 | 0.49 |
| 27:DE:46:GLN:HG3 | 27:DE:49:ARG:NH2 | 2.28 | 0.49 |
| 48:D1:29:LYS:CB | 48:D1:30:PRO:HD3 | 2.17 | 0.49 |
| 43:DW:42:THR:HG22 | 43:DW:67:LYS:O | 2.13 | 0.49 |
| 25:BC:66:PHE:HE2 | 25:BC:104:LEU:HD21 | 1.77 | 0.49 |
| 25:DC:86:ARG:HG3 | 25:DC:86:ARG:O | 2.12 | 0.49 |
| 31:BJ:17:VAL:HG22 | 31:BJ:55:ILE:CG2 | 2.42 | 0.49 |
| 43:BW:43:LYS:HG2 | 43:BW:76:ARG:NE | 2.25 | 0.49 |
| 1:AA:1221:G:O3' | 18:AS:76:THR:HG21 | 2.12 | 0.49 |
| 27:BE:154:ASP:OD1 | 27:BE:156:ASN:HB2 | 2.13 | 0.49 |
| 34:BM:62:LYS:CB | 34:BM:104:GLU:HB2 | 2.42 | 0.49 |
| 34:BM:67:VAL:HG21 | 34:BM:95:LEU:HD11 | 1.94 | 0.49 |
| 23:DB:1135:C:N4 | 23:DB:1139:G:C6 | 2.81 | 0.49 |
| 23:DB:2377:A:C2 | 36:DO:92:PHE:HE1 | 2.30 | 0.49 |
| 41:DT:92:ASN:C | 41:DT:93:LEU:HD12 | 2.32 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 51:D4:3:VAL:CG1 | 51:D4:4:ARG:H | 2.13 | 0.49 |
| 12:AM:53:ASP:HA | 12:AM:56:ARG:HD2 | 1.93 | 0.49 |
| 3:CD:106:PHE:HD1 | 3:CD:158:LEU:HD21 | 1.78 | 0.49 |
| 3:CD:96:ARG:O | 3:CD:99:ASN:HB3 | 2.12 | 0.49 |
| 10:AK:85:VAL:O | 10:AK:111:ASP:HA | 2.12 | 0.49 |
| 30:DH:125:THR:HA | 30:DH:146:VAL:CB | 2.32 | 0.49 |
| 33:DL:77:ILE:CG2 | 33:DL:92:LEU:HG | 2.42 | 0.49 |
| 44:BX:19:LEU:HD12 | 44:BX:19:LEU:H | 1.77 | 0.49 |
| 47:D0:11:LYS:O | 47:D0:15:ARG:HB2 | 2.13 | 0.49 |
| 23:BB:2000:C:OP1 | 35:BN:2:ARG:NE | 2.45 | 0.49 |
| 32:DK:64:ARG:O | 32:DK:65:THR:HG23 | 2.13 | 0.49 |
| 12:CM:22:TYR:HB3 | 12:CM:69:ARG:NH2 | 2.27 | 0.49 |
| 4:CE:88:HIS:CE1 | 4:CE:137:ARG:HG2 | 2.48 | 0.49 |
| 10:CK:112:VAL:HA | 17:CR:72:ARG:HD3 | 1.94 | 0.49 |
| 42:BU:3:LYS:HZ3 | 42:BU:3:LYS:HB2 | 1.72 | 0.49 |
| 14:AO:66:LEU:HB3 | 14:AO:77:TYR:HE1 | 1.77 | 0.49 |
| 26:BD:157:LYS:HE2 | 26:BD:157:LYS:HA | 1.94 | 0.49 |
| 28:DF:40:GLY:H | 28:DF:84:ILE:CG2 | 2.26 | 0.49 |
| 36:BO:8:ILE:CG2 | 36:BO:9:ARG:N | 2.75 | 0.49 |
| 1:CA:1238:A:H2 | 1:CA:1241:G:N3 | 2.10 | 0.49 |
| 23:BB:2831:G:O4' | 23:BB:2883:A:C2 | 2.65 | 0.49 |
| 43:BW:16:GLU:HG3 | 43:BW:37:VAL:HG22 | 1.93 | 0.49 |
| 4:AE:87:VAL:CG1 | 4:AE:92:ARG:HD3 | 2.42 | 0.49 |
| 1:CA:33:A:H2' | 1:CA:34:C:H6 | 1.77 | 0.49 |
| 23:DB:2528:U:O2' | 23:DB:2529:G:H3' | 2.13 | 0.49 |
| 25:BC:204:LEU:CD1 | 25:BC:211:ARG:HH11 | 2.25 | 0.49 |
| 23:BB:2249:U:H4' | 23:BB:2275:C:H5 | 1.76 | 0.49 |
| 23:BB:2314:A:H2' | 23:BB:2315:G:C8 | 2.47 | 0.49 |
| 28:BF:90:LEU:O | 28:BF:95:MET:HG3 | 2.12 | 0.49 |
| 23:DB:15:G:O2' | 23:DB:16:C:H5' | 2.13 | 0.49 |
| 20:AB:119:GLN:HE22 | 20:AB:127:LYS:HD3 | 1.77 | 0.49 |
| 5:CF:42:TRP:NE1 | 5:CF:61:LEU:HD23 | 2.27 | 0.49 |
| 12:CM:78:ARG:HG3 | 28:DF:111:ARG:NH1 | 2.26 | 0.49 |
| 1:CA:1054:C:H1' | 1:CA:1196:A:C5 | 2.48 | 0.49 |
| 1:AA:997:U:H2' | 1:AA:998:C:C6 | 2.46 | 0.49 |
| 23:DB:827:U:H5' | 23:DB:828:U:O5' | 2.12 | 0.49 |
| 25:BC:12:ARG:HB3 | 25:BC:18:VAL:HB | 1.94 | 0.49 |
| 1:CA:1162:C:H2' | 1:CA:1163:A:C8 | 2.47 | 0.49 |
| 1:CA:1163:A:H2' | 1:CA:1164:G:C8 | 2.46 | 0.49 |
| 14:AO:68:TYR:CE1 | 14:AO:72:LYS:HE3 | 2.47 | 0.49 |
| 23:BB:2082:A:O2' | 23:BB:2083:G:H5' | 2.13 | 0.49 |
| 23:DB:21:A:H2' | 23:DB:22:C:C6 | 2.48 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 1:CA:219:U:H2' | 1:CA:220:G:H8 | 1.77 | 0.49 |
| 23:DB:721:A:H2' | 23:DB:722:A:C8 | 2.48 | 0.49 |
| 29:BG:6:ALA:HB3 | 29:BG:7:PRO:HD3 | 1.93 | 0.49 |
| 23:BB:1255:U:O2' | 27:BE:67:ARG:HB3 | 2.12 | 0.49 |
| 1:AA:1386:G:O2' | 1:AA:1387:G:H5' | 2.12 | 0.49 |
| 23:BB:69:C:H2' | 23:BB:70:G:C8 | 2.47 | 0.49 |
| 9:CJ:102:LEU:N | 9:CJ:102:LEU:HD22 | 2.27 | 0.49 |
| 23:DB:378:C:O2' | 23:DB:379:G:H5' | 2.12 | 0.49 |
| 23:BB:1501:G:O2' | 23:BB:1502:A:H5' | 2.12 | 0.49 |
| 30:BH:80:ILE:HD12 | 30:BH:102:ALA:CB | 2.43 | 0.49 |
| 23:DB:2386:A:H4' | 43:DW:38:ARG:HD3 | 1.94 | 0.49 |
| 35:DN:35:LYS:HD3 | 35:DN:112:TYR:CE1 | 2.47 | 0.49 |
| 25:DC:143:VAL:O | 25:DC:152:GLN:HB2 | 2.13 | 0.49 |
| 23:DB:323:C:O2' | 27:DE:163:ASN:C | 2.50 | 0.49 |
| 27:DE:169:VAL:HG22 | 27:DE:170:ARG:N | 2.28 | 0.49 |
| 33:BL:57:LEU:C | 33:BL:59:ARG:H | 2.13 | 0.49 |
| 33:BL:60:ARG:C | 50:B3:11:LYS:HZ3 | 2.16 | 0.49 |
| 24:DV:70:ILE:CD1 | 24:DV:71:LYS:H | 2.23 | 0.49 |
| 16:AQ:19:SER:O | 16:AQ:20:ILE:HG23 | 2.12 | 0.49 |
| 46:DZ:59:ARG:HA | 46:DZ:62:LYS:HB2 | 1.94 | 0.49 |
| 22:DA:116:G:H4' | 36:DO:54:VAL:CG2 | 2.42 | 0.49 |
| 23:BB:1190:G:OP1 | 33:BL:41:ARG:CZ | 2.60 | 0.49 |
| 26:BD:170:VAL:HG11 | 26:BD:194:PRO:HB2 | 1.94 | 0.49 |
| 18:CS:43:MET:C | 18:CS:46:LEU:HD23 | 2.32 | 0.49 |
| 38:BQ:63:ARG:CB | 38:BQ:63:ARG:HH11 | 2.26 | 0.49 |
| 33:DL:108:ALA:O | 33:DL:109:LYS:CB | 2.61 | 0.49 |
| 23:BB:139:U:H5'' | 23:BB:140:C:C4 | 2.47 | 0.49 |
| 23:BB:142:A:H1' | 41:BT:2:ILE:HG21 | 1.93 | 0.49 |
| 44:BX:18:LEU:HD12 | 44:BX:19:LEU:HD12 | 1.94 | 0.49 |
| 44:BX:22:LEU:HD22 | 44:BX:26:PHE:N | 2.23 | 0.49 |
| 44:BX:46:VAL:HG13 | 44:BX:47:ARG:N | 2.28 | 0.49 |
| 23:DB:2648:G:H2' | 23:DB:2649:C:C6 | 2.47 | 0.49 |
| 26:BD:83:ARG:HG2 | 26:BD:84:LEU:N | 2.27 | 0.49 |
| 1:AA:1492:A:H2' | 1:AA:1493:A:O4' | 2.12 | 0.49 |
| 38:DQ:89:ILE:HG22 | 38:DQ:90:ASP:N | 2.26 | 0.49 |
| 1:CA:662:U:O2' | 1:CA:836:G:H5'' | 2.12 | 0.49 |
| 20:AB:173:LYS:HD3 | 20:AB:173:LYS:C | 2.32 | 0.49 |
| 23:DB:1082:U:H2' | 23:DB:1083:U:O4' | 2.12 | 0.49 |
| 1:AA:35:G:H2' | 1:AA:36:C:H6 | 1.78 | 0.49 |
| 42:DU:10:VAL:HB | 42:DU:68:ASN:ND2 | 2.27 | 0.49 |
| 23:DB:465:G:H4' | 49:D2:12:ARG:NH2 | 2.27 | 0.49 |
| 23:DB:365:U:H2' | 23:DB:366:C:O4' | 2.12 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 25:BC:70:LYS:HG2 | 25:BC:73:ILE:HD13 | 1.94 | 0.49 |
| 9:CJ:87:LEU:N | 9:CJ:87:LEU:HD22 | 2.27 | 0.49 |
| 29:BG:40:VAL:CB | 29:BG:63:GLN:HE22 | 2.25 | 0.49 |
| 3:CD:130:ASN:HD22 | 3:CD:130:ASN:N | 2.06 | 0.49 |
| 23:BB:1727:C:H2' | 23:BB:1728:C:H6 | 1.74 | 0.49 |
| 10:AK:69:CYS:O | 10:AK:73:VAL:HG23 | 2.12 | 0.49 |
| 8:AI:24:ASN:O | 8:AI:61:ASP:HA | 2.12 | 0.49 |
| 44:BX:30:MET:CG | 44:BX:31:GLN:H | 2.24 | 0.49 |
| 1:CA:693:G:H2' | 1:CA:694:A:O4' | 2.12 | 0.49 |
| 23:DB:2590:A:H2' | 23:DB:2591:C:H6 | 1.76 | 0.49 |
| 23:DB:303:G:H2' | 23:DB:304:U:C6 | 2.47 | 0.49 |
| 28:BF:21:TYR:OH | 28:BF:28:PRO:HD3 | 2.13 | 0.49 |
| 23:BB:2287:A:H4' | 23:BB:2287:A:OP1 | 2.10 | 0.49 |
| 46:BZ:59:ARG:HB2 | 46:BZ:61:ASN:H | 1.78 | 0.49 |
| 1:AA:382:A:H2' | 1:AA:383:A:C8 | 2.48 | 0.49 |
| 23:DB:1256:G:H1' | 27:DE:77:ILE:HD11 | 1.95 | 0.49 |
| 23:BB:1562:U:H2' | 23:BB:1563:U:C6 | 2.47 | 0.49 |
| 23:DB:1909:C:H2' | 23:DB:1910:G:H8 | 1.77 | 0.49 |
| 2:CC:64:ARG:HA | 2:CC:99:GLN:HB2 | 1.93 | 0.49 |
| 1:AA:301:G:H2' | 1:AA:302:G:C8 | 2.48 | 0.49 |
| 23:BB:1948:G:O2' | 23:BB:1949:G:H5' | 2.12 | 0.49 |
| 11:AL:34:THR:HG21 | 11:AL:53:ARG:CZ | 2.43 | 0.49 |
| 28:BF:41:GLU:OE2 | 28:BF:48:LEU:HB3 | 2.13 | 0.49 |
| 1:CA:1228:C:OP1 | 12:CM:112:ARG:HA | 2.13 | 0.49 |
| 23:BB:1292:G:H2' | 23:BB:1293:C:C6 | 2.48 | 0.49 |
| 23:DB:1292:G:H2' | 23:DB:1293:C:C6 | 2.48 | 0.49 |
| 23:DB:185:G:H4' | 23:DB:218:A:H4' | 1.94 | 0.49 |
| 1:CA:366:A:O2' | 1:CA:367:U:P | 2.70 | 0.49 |
| 1:CA:147:G:H2' | 1:CA:148:G:C8 | 2.48 | 0.49 |
| 23:DB:2717:C:O2' | 37:DP:95:LYS:HE3 | 2.13 | 0.49 |
| 26:BD:15:PHE:CD2 | 26:BD:18:ASP:HB2 | 2.47 | 0.49 |
| 41:DT:26:LYS:O | 41:DT:27:SER:HB3 | 2.13 | 0.49 |
| 30:DH:81:ALA:HA | 30:DH:147:VAL:O | 2.12 | 0.49 |
| 52:DI:7:TYR:HA | 52:DI:59:THR:HA | 1.95 | 0.49 |
| 23:DB:1214:A:H2' | 23:DB:1215:G:O4' | 2.12 | 0.49 |
| 34:DM:11:LYS:O | 34:DM:12:MET:HB2 | 2.13 | 0.49 |
| 27:DE:20:GLY:HA2 | 27:DE:106:LYS:HD2 | 1.95 | 0.49 |
| 23:DB:1881:C:H2' | 23:DB:1882:U:O4' | 2.12 | 0.49 |
| 39:DR:11:GLN:C | 39:DR:21:ARG:HH22 | 2.14 | 0.49 |
| 23:DB:2093:G:OP2 | 30:DH:23:ALA:HB3 | 2.12 | 0.49 |
| 10:CK:31:VAL:HG21 | 10:CK:66:ALA:HA | 1.94 | 0.49 |
| 37:BP:13:LYS:HA | 37:BP:15:ASP:OD1 | 2.13 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 35:BN:102:PHE:CD2 | 35:BN:102:PHE:N | 2.80 | 0.49 |
| 23:DB:2518:A:N3 | 23:DB:2518:A:H2' | 2.26 | 0.49 |
| 23:DB:1995:U:H1' | 32:DK:3:GLN:HE22 | 1.78 | 0.49 |
| 23:BB:1322:A:C2' | 23:BB:1323:C:H5' | 2.43 | 0.49 |
| 23:BB:1881:C:H2' | 23:BB:1882:U:O4' | 2.13 | 0.49 |
| 34:DM:42:THR:HG22 | 34:DM:45:GLN:NE2 | 2.27 | 0.49 |
| 1:AA:724:G:O2' | 1:AA:725:G:H5' | 2.11 | 0.49 |
| 37:DP:79:VAL:O | 37:DP:81:ASP:N | 2.46 | 0.49 |
| 30:BH:89:LYS:HZ3 | 30:BH:90:LEU:H | 1.61 | 0.49 |
| 37:BP:23:ASP:O | 37:BP:25:VAL:N | 2.46 | 0.49 |
| 25:DC:163:ILE:O | 25:DC:164:VAL:HG13 | 2.13 | 0.49 |
| 25:DC:169:ALA:O | 25:DC:170:TYR:HB2 | 2.13 | 0.49 |
| 31:DJ:58:ASN:C | 31:DJ:60:ASP:H | 2.16 | 0.49 |
| 31:BJ:128:ASN:ND2 | 31:BJ:129:GLU:H | 2.11 | 0.49 |
| 20:AB:57:ASN:HB2 | 20:AB:219:THR:HB | 1.95 | 0.49 |
| 27:DE:115:GLN:OE1 | 27:DE:184:ASP:HB2 | 2.13 | 0.49 |
| 23:DB:778:G:H5'' | 25:DC:48:ILE:HG21 | 1.95 | 0.49 |
| 23:BB:25:U:OP1 | 40:BS:8:ARG:NH2 | 2.45 | 0.49 |
| 23:BB:991:C:H2' | 23:BB:992:C:C6 | 2.47 | 0.49 |
| 31:DJ:7:LYS:HE3 | 31:DJ:47:HIS:HD2 | 1.76 | 0.49 |
| 1:CA:1320:C:H41 | 18:CS:36:ARG:CD | 2.25 | 0.49 |
| 35:BN:34:ILE:HD13 | 35:BN:34:ILE:H | 1.76 | 0.49 |
| 39:BR:69:GLY:HA2 | 39:BR:96:VAL:HA | 1.94 | 0.49 |
| 23:BB:1205:A:O2' | 27:BE:164:LEU:HD21 | 2.13 | 0.49 |
| 21:AU:20:ARG:O | 21:AU:20:ARG:HG2 | 2.13 | 0.49 |
| 26:DD:205:PRO:HG2 | 26:DD:206:ALA:H | 1.77 | 0.49 |
| 30:DH:82:SER:C | 30:DH:83:LYS:HD2 | 2.33 | 0.49 |
| 30:DH:86:ASP:C | 30:DH:88:GLY:H | 2.16 | 0.49 |
| 26:BD:130:GLN:HE21 | 26:BD:138:LEU:HD12 | 1.71 | 0.49 |
| 23:DB:1259:G:H2' | 23:DB:1260:A:C8 | 2.48 | 0.49 |
| 23:DB:2734:A:C2' | 23:DB:2735:G:H5' | 2.43 | 0.49 |
| 23:BB:2786:U:C4' | 26:BD:66:GLY:HA2 | 2.43 | 0.49 |
| 26:BD:34:VAL:CA | 26:BD:89:GLU:HB2 | 2.34 | 0.49 |
| 26:DD:17:GLU:CG | 37:DP:80:VAL:HB | 2.42 | 0.49 |
| 32:DK:63:VAL:HG11 | 32:DK:103:VAL:HG12 | 1.95 | 0.49 |
| 42:DU:8:ASP:O | 42:DU:10:VAL:HG13 | 2.13 | 0.49 |
| 2:AC:11:LEU:HD13 | 2:AC:17:TRP:HE1 | 1.76 | 0.49 |
| 52:DI:108:ILE:CG2 | 52:DI:128:ILE:HD13 | 2.43 | 0.49 |
| 48:D1:7:LYS:HG2 | 48:D1:26:LYS:HB3 | 1.94 | 0.49 |
| 5:CF:84:VAL:HG22 | 5:CF:85:ILE:N | 2.28 | 0.49 |
| 52:BI:17:ALA:O | 52:BI:18:ASN:HB3 | 2.12 | 0.49 |
| 12:CM:102:LYS:HZ2 | 12:CM:102:LYS:HB2 | 1.77 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:DB:2230:G:H5'' | 46:DZ:28:VAL:HG21 | 1.94 | 0.49 |
| 23:BB:2840:C:H2' | 23:BB:2841:C:C6 | 2.48 | 0.49 |
| 23:BB:1853:A:N1 | 23:BB:2087:G:H1' | 2.27 | 0.49 |
| 16:CQ:46:HIS:CG | 16:CQ:47:ASP:N | 2.81 | 0.49 |
| 1:CA:1324:A:H2' | 1:CA:1325:C:C6 | 2.48 | 0.49 |
| 40:DS:2:GLU:CB | 40:DS:108:SER:HA | 2.41 | 0.49 |
| 29:DG:79:THR:HG23 | 29:DG:80:GLU:H | 1.78 | 0.49 |
| 20:AB:139:GLU:HG2 | 20:AB:143:LEU:CD1 | 2.42 | 0.49 |
| 23:BB:600:G:H1' | 27:BE:100:MET:HG3 | 1.95 | 0.49 |
| 43:DW:10:ARG:HH11 | 43:DW:10:ARG:HA | 1.77 | 0.49 |
| 23:DB:1684:G:H2' | 23:DB:1685:C:H6 | 1.77 | 0.49 |
| 20:AB:132:GLU:HG3 | 20:AB:136:ARG:HD2 | 1.94 | 0.49 |
| 23:BB:1685:C:H2' | 23:BB:1686:C:H6 | 1.78 | 0.49 |
| 23:BB:209:C:O2' | 23:BB:210:C:H5' | 2.12 | 0.49 |
| 23:DB:345:A:H1' | 23:DB:346:A:H2 | 1.77 | 0.49 |
| 23:BB:2654:A:N1 | 23:BB:2665:A:H5'' | 2.27 | 0.49 |
| 8:AI:96:GLU:O | 8:AI:99:LYS:HB3 | 2.12 | 0.49 |
| 23:DB:845:A:C2 | 23:DB:847:U:H1' | 2.47 | 0.49 |
| 2:AC:110:LEU:HB3 | 2:AC:203:LYS:HZ3 | 1.77 | 0.49 |
| 1:CA:317:U:H2' | 1:CA:318:G:C8 | 2.47 | 0.49 |
| 25:DC:231:HIS:CE1 | 25:DC:242:HIS:HD1 | 2.31 | 0.49 |
| 1:AA:693:G:H2' | 1:AA:694:A:O4' | 2.12 | 0.49 |
| 10:CK:31:VAL:HG21 | 10:CK:66:ALA:CA | 2.42 | 0.49 |
| 30:BH:67:ALA:O | 30:BH:71:LYS:HG3 | 2.13 | 0.49 |
| 1:AA:853:C:O2' | 1:AA:854:U:H5' | 2.12 | 0.49 |
| 52:BI:63:ASP:C | 52:BI:65:SER:H | 2.15 | 0.49 |
| 4:CE:85:LYS:HE3 | 4:CE:94:PHE:HB2 | 1.95 | 0.49 |
| 29:BG:139:VAL:O | 29:BG:143:VAL:HG23 | 2.13 | 0.49 |
| 23:DB:383:C:N4 | 23:DB:385:C:H2' | 2.27 | 0.49 |
| 1:CA:966:G:H2' | 1:CA:967:C:C6 | 2.47 | 0.49 |
| 23:DB:1098:A:O2' | 52:DI:4:VAL:C | 2.50 | 0.49 |
| 20:CB:14:HIS:CG | 20:CB:15:PHE:N | 2.80 | 0.49 |
| 23:DB:2740:A:H2' | 23:DB:2741:A:C8 | 2.47 | 0.49 |
| 23:BB:1821:A:H2' | 23:BB:1822:C:H6 | 1.76 | 0.49 |
| 31:BJ:118:MET:O | 31:BJ:121:LYS:HB2 | 2.13 | 0.49 |
| 43:BW:24:ARG:HA | 43:BW:57:THR:HG23 | 1.93 | 0.49 |
| 50:B3:12:ARG:CB | 50:B3:23:HIS:HA | 2.34 | 0.49 |
| 23:BB:638:G:H2' | 23:BB:639:U:C6 | 2.48 | 0.49 |
| 23:BB:2080:A:H2' | 23:BB:2081:U:C6 | 2.48 | 0.49 |
| 16:AQ:10:ARG:NH1 | 16:AQ:11:VAL:HB | 2.28 | 0.49 |
| 16:AQ:20:ILE:CG1 | 16:AQ:45:VAL:HB | 2.37 | 0.49 |
| 20:AB:67:LEU:HA | 20:AB:89:PHE:O | 2.11 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 23:BB:1568:G:C5' | 25:BC:60:ALA:HB3 | 2.42 | 0.49 |
| 39:BR:40:MET:CA | 39:BR:54:VAL:HG11 | 2.43 | 0.49 |
| 9:AJ:53:ILE:HB | 9:AJ:61:ALA:HB1 | 1.94 | 0.49 |
| 23:BB:2336:A:C1' | 23:BB:2337:G:OP1 | 2.56 | 0.49 |
| 27:BE:152:GLU:O | 27:BE:153:LEU:HB2 | 2.12 | 0.49 |
| 51:B4:23:ILE:HD12 | 51:B4:35:GLN:HG2 | 1.95 | 0.49 |
| 26:DD:4:LEU:HD11 | 26:DD:79:LEU:HD22 | 1.93 | 0.49 |
| 1:CA:1014:A:H2 | 1:CA:1219:A:H1' | 1.76 | 0.49 |
| 23:DB:1266:G:OP1 | 47:D0:15:ARG:NH2 | 2.45 | 0.49 |
| 26:BD:117:GLY:O | 26:BD:165:MET:HB3 | 2.13 | 0.49 |
| 1:CA:1366:C:H2' | 1:CA:1367:C:C6 | 2.47 | 0.49 |
| 28:BF:165:GLY:O | 28:BF:167:ALA:N | 2.44 | 0.49 |
| 26:BD:29:VAL:O | 26:BD:51:THR:HG21 | 2.13 | 0.49 |
| 1:CA:1312:G:H2' | 1:CA:1313:U:C6 | 2.48 | 0.49 |
| 45:DY:2:LYS:CE | 45:DY:27:GLY:H | 2.26 | 0.49 |
| 32:DK:70:ARG:HD3 | 32:DK:76:VAL:CG2 | 2.36 | 0.49 |
| 31:DJ:64:VAL:CG1 | 31:DJ:65:THR:H | 2.19 | 0.49 |
| 5:AF:1:MET:SD | 5:AF:67:PRO:HD3 | 2.53 | 0.49 |
| 19:CT:68:LYS:CA | 19:CT:68:LYS:HE2 | 2.37 | 0.49 |
| 1:CA:376:G:C4' | 15:CP:5:ARG:HD3 | 2.42 | 0.49 |
| 39:DR:68:ARG:HB3 | 39:DR:70:GLU:HG2 | 1.93 | 0.49 |
| 29:DG:156:TYR:HA | 29:DG:171:LYS:CG | 2.43 | 0.49 |
| 25:BC:70:LYS:HG2 | 25:BC:71:ASP:N | 2.28 | 0.49 |
| 11:CL:88:ASP:C | 11:CL:89:LEU:HD22 | 2.32 | 0.49 |
| 1:CA:1281:C:H5' | 1:CA:1282:C:C5 | 2.43 | 0.49 |
| 20:CB:26:MET:HG3 | 20:CB:188:THR:O | 2.13 | 0.49 |
| 4:CE:95:MET:CE | 4:CE:143:LEU:HD13 | 2.43 | 0.49 |
| 23:DB:2896:C:H2' | 23:DB:2897:U:C6 | 2.47 | 0.49 |
| 23:DB:1383:A:H2 | 23:DB:1405:U:O2 | 1.96 | 0.49 |
| 7:CH:38:VAL:HG23 | 7:CH:111:THR:HG22 | 1.94 | 0.49 |
| 4:AE:104:ILE:O | 4:AE:104:ILE:HG23 | 2.13 | 0.49 |
| 4:AE:45:VAL:CG1 | 4:AE:116:VAL:HG23 | 2.43 | 0.49 |
| 4:AE:45:VAL:HG13 | 4:AE:117:ALA:HA | 1.95 | 0.49 |
| 39:BR:97:LYS:O | 39:BR:98:ILE:HB | 2.13 | 0.49 |
| 18:CS:62:THR:HG22 | 18:CS:65:MET:CE | 2.43 | 0.49 |
| 23:DB:2278:A:H62 | 43:DW:10:ARG:CB | 2.26 | 0.49 |
| 23:BB:1533:C:C2' | 23:BB:1534:U:H5' | 2.42 | 0.49 |
| 23:BB:2133:G:N3 | 23:BB:2133:G:C2' | 2.73 | 0.49 |
| 13:AN:24:ALA:HB1 | 13:AN:27:LYS:HZ1 | 1.78 | 0.49 |
| 23:BB:673:C:H5'' | 27:BE:76:PRO:HD2 | 1.94 | 0.49 |
| 1:AA:975:A:H4' | 1:AA:976:G:OP2 | 2.13 | 0.49 |
| 1:CA:1522:U:O2' | 1:CA:1523:G:H5' | 2.13 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:DB:281:C:O2 | 23:DB:281:C:H2' | 2.11 | 0.49 |
| 16:CQ:12:VAL:HG11 | 16:CQ:42:LYS:NZ | 2.27 | 0.49 |
| 23:BB:354:A:C2' | 23:BB:355:U:H5'' | 2.42 | 0.49 |
| 28:BF:2:LYS:HA | 28:BF:2:LYS:HE2 | 1.92 | 0.49 |
| 16:AQ:60:ILE:HB | 16:AQ:72:TRP:HE3 | 1.78 | 0.49 |
| 1:AA:218:U:H2' | 1:AA:219:U:H6 | 1.78 | 0.49 |
| 23:DB:1315:C:H2' | 23:DB:1316:U:H6 | 1.77 | 0.49 |
| 1:AA:272:C:H2' | 1:AA:273:U:C6 | 2.48 | 0.49 |
| 23:DB:1904:G:H1' | 23:DB:1927:A:N1 | 2.28 | 0.49 |
| 43:DW:4:LYS:HB2 | 43:DW:4:LYS:HZ3 | 1.78 | 0.49 |
| 1:AA:846:G:H2' | 1:AA:846:G:N3 | 2.27 | 0.49 |
| 23:DB:2034:U:H5'' | 55:DB:3318:HOH:O | 2.13 | 0.49 |
| 1:AA:692:U:H2' | 1:AA:694:A:OP2 | 2.13 | 0.49 |
| 1:AA:627:G:H2' | 1:AA:628:G:H8 | 1.78 | 0.49 |
| 20:AB:27:LYS:H | 20:AB:28:PRO:CD | 2.25 | 0.49 |
| 1:CA:708:C:H2' | 1:CA:709:U:C6 | 2.48 | 0.49 |
| 1:AA:157:U:O2' | 1:AA:158:G:H5' | 2.13 | 0.49 |
| 4:AE:67:ARG:O | 4:AE:70:MET:HG3 | 2.13 | 0.49 |
| 23:DB:2468:A:H2' | 23:DB:2476:A:C6 | 2.48 | 0.49 |
| 31:DJ:28:LEU:C | 31:DJ:28:LEU:HD13 | 2.32 | 0.49 |
| 10:CK:18:GLY:HA2 | 10:CK:35:ASP:HA | 1.95 | 0.49 |
| 23:BB:2500:U:H5' | 23:BB:2501:C:OP2 | 2.12 | 0.49 |
| 23:BB:1581:G:O2' | 23:BB:1582:C:H5' | 2.13 | 0.49 |
| 23:BB:1869:G:HO2' | 23:BB:1871:A:H62 | 1.60 | 0.49 |
| 23:DB:2869:G:H2' | 23:DB:2870:C:H6 | 1.75 | 0.49 |
| 23:DB:452:G:N2 | 23:DB:457:A:O2' | 2.46 | 0.49 |
| 23:DB:2809:A:H2' | 23:DB:2810:A:H8 | 1.77 | 0.49 |
| 23:DB:318:C:O2' | 23:DB:319:G:H5' | 2.12 | 0.49 |
| 15:AP:43:ALA:O | 15:AP:46:LYS:HD3 | 2.12 | 0.49 |
| 23:BB:967:U:H2' | 23:BB:968:C:H6 | 1.73 | 0.49 |
| 34:BM:71:LYS:HD3 | 34:BM:92:TRP:O | 2.12 | 0.49 |
| 25:BC:212:TRP:CZ3 | 25:BC:217:PRO:HD3 | 2.48 | 0.49 |
| 31:DJ:54:ILE:HG22 | 31:DJ:55:ILE:N | 2.27 | 0.49 |
| 28:BF:55:ASP:OD1 | 28:BF:148:VAL:HG11 | 2.13 | 0.49 |
| 23:BB:1206:G:H2' | 23:BB:1207:C:H6 | 1.78 | 0.49 |
| 23:DB:638:G:H2' | 23:DB:639:U:C6 | 2.48 | 0.49 |
| 35:BN:2:ARG:O | 35:BN:3:HIS:CG | 2.66 | 0.49 |
| 10:CK:110:THR:CG2 | 21:CU:4:LYS:HA | 2.43 | 0.49 |
| 44:DX:15:ASN:HA | 44:DX:17:GLU:OE2 | 2.13 | 0.49 |
| 23:DB:1142:A:C4 | 23:DB:1144:A:C8 | 3.01 | 0.49 |
| 1:CA:1308:U:P | 12:CM:97:ARG:HD3 | 2.53 | 0.49 |
| 32:BK:54:LYS:HD3 | 32:BK:54:LYS:N | 2.28 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 19:CT:66:ILE:HG13 | 19:CT:70:LYS:HG3 | 1.95 | 0.49 |
| 28:DF:100:GLU:C | 28:DF:102:LEU:H | 2.15 | 0.49 |
| 1:AA:1103:C:C5' | 20:AB:96:LEU:HD12 | 2.42 | 0.49 |
| 23:DB:1083:U:C2 | 23:DB:1086:A:N1 | 2.81 | 0.49 |
| 35:BN:13:ASN:O | 35:BN:17:ARG:N | 2.44 | 0.49 |
| 39:DR:67:GLY:H | 39:DR:98:ILE:CA | 2.26 | 0.49 |
| 37:BP:92:ARG:HH22 | 37:BP:110:LYS:HE2 | 1.75 | 0.49 |
| 10:CK:69:CYS:O | 10:CK:73:VAL:HG13 | 2.12 | 0.49 |
| 9:AJ:41:PRO:O | 9:AJ:42:LEU:HB2 | 2.13 | 0.49 |
| 1:AA:16:A:H4' | 4:AE:21:SER:H | 1.77 | 0.49 |
| 1:AA:1371:G:OP1 | 8:AI:12:LYS:HG2 | 2.12 | 0.49 |
| 1:AA:1121:U:O2' | 1:AA:1122:U:H5' | 2.13 | 0.49 |
| 1:AA:176:C:H2' | 1:AA:177:G:N3 | 2.26 | 0.49 |
| 23:BB:2896:C:H2' | 23:BB:2897:U:H6 | 1.78 | 0.49 |
| 9:CJ:67:ILE:HG23 | 9:CJ:67:ILE:O | 2.13 | 0.49 |
| 23:BB:154:U:H2' | 23:BB:155:A:C8 | 2.48 | 0.49 |
| 28:DF:41:GLU:O | 28:DF:43:ILE:N | 2.46 | 0.49 |
| 23:DB:2484:G:N2 | 34:DM:118:LYS:HG2 | 2.27 | 0.49 |
| 23:DB:242:G:O2' | 23:DB:243:U:P | 2.70 | 0.49 |
| 40:DS:3:THR:O | 40:DS:4:ILE:HB | 2.13 | 0.49 |
| 23:DB:170:U:H2' | 23:DB:171:U:H6 | 1.78 | 0.49 |
| 1:CA:193:C:H2' | 1:CA:194:C:C6 | 2.47 | 0.49 |
| 23:BB:2563:U:H2' | 23:BB:2565:A:OP2 | 2.13 | 0.49 |
| 1:CA:382:A:H2' | 1:CA:383:A:C8 | 2.48 | 0.49 |
| 20:AB:162:VAL:HG21 | 20:AB:168:GLU:HB2 | 1.94 | 0.49 |
| 23:DB:346:A:C8 | 23:DB:347:A:H1' | 2.48 | 0.49 |
| 23:DB:1112:G:H4' | 29:DG:1:SER:O | 2.13 | 0.49 |
| 23:DB:208:C:H2' | 23:DB:209:C:C6 | 2.47 | 0.49 |
| 23:DB:1463:C:H2' | 23:DB:1464:G:C8 | 2.48 | 0.49 |
| 27:BE:29:HIS:O | 27:BE:33:VAL:HG23 | 2.12 | 0.49 |
| 23:BB:1904:G:H1' | 23:BB:1927:A:N1 | 2.28 | 0.49 |
| 2:AC:61:LYS:O | 2:AC:97:PRO:HD2 | 2.13 | 0.49 |
| 23:BB:2488:G:O2' | 23:BB:2489:U:H5' | 2.12 | 0.49 |
| 35:BN:57:THR:OG1 | 35:BN:61:ALA:HB3 | 2.12 | 0.49 |
| 23:BB:1268:A:H2' | 23:BB:1269:A:O4' | 2.13 | 0.49 |
| 1:AA:626:G:H2' | 1:AA:627:G:C8 | 2.48 | 0.49 |
| 34:BM:130:PHE:HD2 | 34:BM:131:VAL:HG22 | 1.77 | 0.49 |
| 23:DB:312:G:H2' | 23:DB:313:G:H8 | 1.78 | 0.49 |
| 23:BB:2390:U:O2' | 23:BB:2391:G:H5'' | 2.12 | 0.49 |
| 6:CG:8:GLN:NE2 | 6:CG:9:ARG:H | 2.10 | 0.49 |
| 36:DO:58:ILE:HG13 | 36:DO:60:GLU:H | 1.77 | 0.49 |
| 44:BX:8:GLU:O | 44:BX:10:SER:N | 2.46 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:DB:367:G:H2' | 23:DB:368:A:O4' | 2.12 | 0.49 |
| 9:CJ:46:LYS:HA | 9:CJ:68:ARG:HA | 1.95 | 0.49 |
| 22:BA:82:U:O2' | 22:BA:83:G:H5' | 2.13 | 0.49 |
| 27:DE:48:THR:HG23 | 27:DE:85:PHE:H | 1.78 | 0.49 |
| 23:BB:443:A:H2 | 23:BB:1245:G:N3 | 2.11 | 0.49 |
| 1:CA:975:A:H61 | 9:CJ:50:THR:HB | 1.77 | 0.49 |
| 25:BC:68:ARG:CD | 25:BC:127:ASN:HD21 | 2.26 | 0.49 |
| 30:DH:3:VAL:HG21 | 30:DH:37:VAL:HG21 | 1.95 | 0.49 |
| 22:BA:113:C:H2' | 22:BA:114:C:C6 | 2.48 | 0.49 |
| 23:BB:336:C:O2' | 23:BB:337:C:H5' | 2.12 | 0.49 |
| 27:BE:127:GLU:O | 27:BE:157:LEU:HD22 | 2.13 | 0.49 |
| 42:DU:28:LEU:HD11 | 42:DU:31:GLY:CA | 2.43 | 0.49 |
| 30:BH:29:PHE:CD2 | 30:BH:30:LEU:HD23 | 2.48 | 0.49 |
| 27:DE:138:LEU:HB2 | 27:DE:143:LEU:HG | 1.94 | 0.49 |
| 23:BB:969:G:N2 | 23:BB:985:C:OP1 | 2.41 | 0.49 |
| 34:BM:62:LYS:HB3 | 34:BM:104:GLU:HB2 | 1.95 | 0.49 |
| 23:BB:583:G:OP1 | 38:BQ:6:GLY:HA2 | 2.13 | 0.49 |
| 23:DB:1847:A:H4' | 23:DB:1848:A:H8 | 1.78 | 0.49 |
| 35:BN:52:ILE:HG21 | 35:BN:94:TYR:CE2 | 2.48 | 0.49 |
| 23:BB:1131:G:H1' | 31:BJ:85:LYS:HZ1 | 1.77 | 0.49 |
| 5:AF:54:LEU:HD13 | 5:AF:55:HIS:N | 2.27 | 0.49 |
| 23:BB:910:A:H2' | 23:BB:911:A:C8 | 2.47 | 0.49 |
| 27:BE:108:ILE:H | 27:BE:108:ILE:CD1 | 2.26 | 0.49 |
| 33:DL:75:ALA:HB3 | 33:DL:108:ALA:HA | 1.94 | 0.49 |
| 49:B2:34:ARG:HG3 | 49:B2:34:ARG:HH11 | 1.77 | 0.49 |
| 22:DA:49:C:H4' | 36:DO:68:LYS:NZ | 2.27 | 0.49 |
| 28:BF:172:PHE:CD1 | 28:BF:173:ASP:N | 2.80 | 0.49 |
| 26:BD:51:THR:O | 26:BD:52:THR:HB | 2.13 | 0.49 |
| 26:BD:92:VAL:HG13 | 26:BD:94:GLN:H | 1.78 | 0.49 |
| 52:BI:109:ALA:HB1 | 52:BI:124:MET:CG | 2.42 | 0.49 |
| 32:DK:104:THR:HB | 32:DK:106:GLU:OE1 | 2.13 | 0.49 |
| 23:BB:2354:C:H4' | 43:BW:30:VAL:CG2 | 2.38 | 0.49 |
| 12:CM:63:VAL:HG12 | 12:CM:68:LEU:HB2 | 1.95 | 0.49 |
| 23:BB:2372:U:OP1 | 48:B1:44:GLN:HG3 | 2.13 | 0.49 |
| 15:CP:3:THR:CG2 | 15:CP:66:THR:HB | 2.39 | 0.49 |
| 42:DU:11:ILE:HG22 | 42:DU:19:GLY:HA2 | 1.94 | 0.49 |
| 36:BO:8:ILE:HG22 | 36:BO:10:ARG:H | 1.77 | 0.49 |
| 11:AL:54:VAL:HG12 | 11:AL:56:LEU:HD12 | 1.95 | 0.49 |
| 9:CJ:8:ILE:HG13 | 9:CJ:8:ILE:O | 2.13 | 0.49 |
| 25:DC:12:ARG:HG3 | 25:DC:19:VAL:O | 2.13 | 0.49 |
| 38:BQ:102:LYS:HG2 | 38:BQ:103:VAL:H | 1.77 | 0.49 |
| 1:CA:35:G:H2' | 1:CA:36:C:H6 | 1.78 | 0.49 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 23:DB:1439:A:C8 | 23:DB:1440:U:C6 | 3.01 | 0.49 |
| 1:AA:1343:G:H1' | 8:AI:122:ARG:HH12 | 1.78 | 0.49 |
| 23:BB:1383:A:H2 | 23:BB:1405:U:O2 | 1.95 | 0.49 |
| 28:DF:8:LYS:HA | 28:DF:12:VAL:HG23 | 1.94 | 0.49 |
| 23:DB:485:C:O2' | 23:DB:486:C:H5' | 2.12 | 0.49 |
| 1:CA:84:U:O2' | 1:CA:86:G:N2 | 2.46 | 0.49 |
| 50:D3:4:LYS:CE | 50:D3:61:LEU:H | 2.26 | 0.49 |
| 13:AN:74:ARG:HH11 | 13:AN:74:ARG:HG3 | 1.77 | 0.49 |
| 1:AA:471:U:H2' | 1:AA:472:U:C6 | 2.47 | 0.49 |
| 23:BB:2803:G:H2' | 23:BB:2804:U:C6 | 2.47 | 0.49 |
| 22:DA:109:A:H2' | 22:DA:110:C:C6 | 2.48 | 0.49 |
| 9:CJ:15:HIS:HA | 9:CJ:18:ILE:HG22 | 1.94 | 0.49 |
| 2:CC:2:GLN:H | 2:CC:2:GLN:NE2 | 2.10 | 0.49 |
| 1:AA:22:G:H2' | 1:AA:23:C:C6 | 2.47 | 0.49 |
| 1:CA:1243:C:H2' | 1:CA:1244:G:H8 | 1.78 | 0.49 |
| 46:BZ:61:ASN:O | 46:BZ:65:ASN:N | 2.46 | 0.49 |
| 15:CP:20:VAL:HG21 | 15:CP:32:PHE:CD2 | 2.48 | 0.49 |
| 1:CA:1356:G:H2' | 1:CA:1357:A:C8 | 2.48 | 0.49 |
| 1:CA:1031:C:H5' | 1:CA:1032:G:C8 | 2.48 | 0.49 |
| 29:DG:29:ASN:CB | 29:DG:78:VAL:HA | 2.42 | 0.49 |
| 23:DB:2893:A:H4' | 23:DB:2894:G:C5' | 2.43 | 0.49 |
| 3:AD:150:LYS:HZ3 | 3:AD:150:LYS:HB2 | 1.78 | 0.49 |
| 2:AC:190:THR:HG22 | 2:AC:191:THR:H | 1.78 | 0.49 |
| 1:CA:301:G:H2' | 1:CA:302:G:C8 | 2.48 | 0.49 |
| 6:AG:139:ASP:HA | 6:AG:142:ARG:NH1 | 2.28 | 0.49 |
| 23:BB:1120:G:O2' | 23:BB:1121:C:H5' | 2.13 | 0.49 |
| 16:CQ:30:HIS:CE1 | 16:CQ:32:ILE:HG22 | 2.48 | 0.49 |
| 1:AA:627:G:H2' | 1:AA:628:G:C8 | 2.48 | 0.49 |
| 7:AH:73:SER:HB2 | 7:AH:129:ALA:HB3 | 1.94 | 0.49 |
| 23:DB:518:G:H2' | 23:DB:519:U:C6 | 2.48 | 0.49 |
| 23:DB:2737:G:H2' | 23:DB:2738:A:C8 | 2.48 | 0.49 |
| 1:CA:71:A:O2' | 1:CA:72:A:H5'' | 2.13 | 0.49 |
| 23:BB:678:C:H2' | 23:BB:679:C:H6 | 1.77 | 0.49 |
| 37:BP:16:VAL:N | 37:BP:17:PRO:HD3 | 2.28 | 0.49 |
| 23:BB:875:G:H2' | 23:BB:876:C:O2 | 2.12 | 0.49 |
| 35:BN:65:LEU:CD1 | 35:BN:68:ALA:HB3 | 2.43 | 0.49 |
| 1:CA:1231:G:O2' | 1:CA:1232:U:H5' | 2.13 | 0.49 |
| 37:DP:50:ARG:CG | 37:DP:99:LEU:H | 2.25 | 0.48 |
| 23:BB:100:U:C4' | 42:BU:90:LYS:HE2 | 2.26 | 0.48 |
| 36:BO:62:LEU:O | 36:BO:64:TYR:N | 2.45 | 0.48 |
| 43:DW:69:GLU:HG3 | 43:DW:70:VAL:N | 2.24 | 0.48 |
| 43:DW:67:LYS:HZ2 | 43:DW:70:VAL:HB | 1.77 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 43:DW:75:ASN:C | 43:DW:77:LYS:H | 2.16 | 0.48 |
| 23:DB:2812:G:H2' | 23:DB:2813:A:O4' | 2.13 | 0.48 |
| 26:DD:81:GLU:O | 26:DD:82:PHE:HB2 | 2.13 | 0.48 |
| 25:DC:168:GLY:C | 25:DC:170:TYR:H | 2.16 | 0.48 |
| 25:DC:171:VAL:HG23 | 25:DC:182:LYS:NZ | 2.27 | 0.48 |
| 42:BU:99:SER:OG | 42:BU:102:ILE:HD11 | 2.13 | 0.48 |
| 23:DB:336:C:H5'' | 42:DU:3:LYS:HZ3 | 1.76 | 0.48 |
| 33:BL:85:VAL:HG22 | 33:BL:98:ALA:HB2 | 1.94 | 0.48 |
| 1:AA:448:A:O2' | 1:AA:449:G:H5' | 2.13 | 0.48 |
| 3:AD:107:GLY:HA2 | 3:AD:112:GLU:OE1 | 2.13 | 0.48 |
| 28:BF:135:ILE:O | 28:BF:137:PHE:N | 2.46 | 0.48 |
| 1:CA:1004:A:H2' | 1:CA:1005:A:O4' | 2.13 | 0.48 |
| 34:DM:6:ARG:CD | 34:DM:71:LYS:HE3 | 2.42 | 0.48 |
| 23:DB:372:G:C8 | 46:DZ:57:VAL:HG21 | 2.48 | 0.48 |
| 26:DD:202:ILE:CG2 | 26:DD:204:LYS:HG2 | 2.42 | 0.48 |
| 26:DD:34:VAL:HG12 | 26:DD:91:THR:HG22 | 1.94 | 0.48 |
| 33:DL:125:LEU:O | 33:DL:127:VAL:HG13 | 2.13 | 0.48 |
| 23:BB:1601:G:OP1 | 41:BT:62:VAL:HG21 | 2.14 | 0.48 |
| 22:DA:49:C:H4' | 36:DO:68:LYS:HZ3 | 1.78 | 0.48 |
| 23:DB:833:A:H2' | 23:DB:834:G:H8 | 1.73 | 0.48 |
| 23:DB:2390:U:O2' | 23:DB:2391:G:H5'' | 2.12 | 0.48 |
| 44:DX:18:LEU:HA | 44:DX:22:LEU:CD1 | 2.37 | 0.48 |
| 44:DX:18:LEU:HD12 | 44:DX:47:ARG:NH2 | 2.28 | 0.48 |
| 23:DB:1814:G:H5' | 25:DC:51:ARG:HG2 | 1.95 | 0.48 |
| 25:BC:222:THR:C | 25:BC:224:MET:H | 2.16 | 0.48 |
| 38:DQ:82:LEU:HG | 38:DQ:88:GLU:HG3 | 1.93 | 0.48 |
| 23:DB:1153:C:O2' | 23:DB:1154:G:H5' | 2.13 | 0.48 |
| 28:DF:39:VAL:CG2 | 28:DF:84:ILE:HD13 | 2.42 | 0.48 |
| 28:DF:83:PRO:HG2 | 28:DF:84:ILE:H | 1.78 | 0.48 |
| 1:AA:970:C:C5 | 1:AA:1231:G:H1' | 2.48 | 0.48 |
| 23:BB:929:U:H2' | 23:BB:930:G:C8 | 2.47 | 0.48 |
| 5:CF:100:SER:H | 17:CR:23:LYS:NZ | 2.11 | 0.48 |
| 23:DB:899:A:C2 | 23:DB:900:A:H1' | 2.48 | 0.48 |
| 23:BB:2335:A:P | 36:BO:9:ARG:HG3 | 2.53 | 0.48 |
| 36:BO:8:ILE:HG22 | 36:BO:10:ARG:CG | 2.38 | 0.48 |
| 32:DK:66:LYS:HE3 | 32:DK:80:ASP:O | 2.12 | 0.48 |
| 4:CE:17:VAL:O | 4:CE:17:VAL:HG13 | 2.12 | 0.48 |
| 23:BB:2834:G:H2' | 23:BB:2879:A:N6 | 2.28 | 0.48 |
| 12:CM:102:LYS:HG3 | 12:CM:103:THR:H | 1.77 | 0.48 |
| 23:DB:543:G:H2' | 23:DB:545:U:OP1 | 2.13 | 0.48 |
| 20:CB:218:ALA:CA | 20:CB:221:ARG:HG2 | 2.41 | 0.48 |
| 1:AA:1126:U:O2' | 1:AA:1280:A:H2' | 2.13 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:AA:920:U:H2' | 1:AA:921:U:C6 | 2.48 | 0.48 |
| 27:DE:24:ASN:N | 27:DE:110:SER:HB2 | 2.27 | 0.48 |
| 23:DB:353:C:O2 | 23:DB:353:C:H2' | 2.13 | 0.48 |
| 23:BB:1594:U:H2' | 23:BB:1595:C:H6 | 1.75 | 0.48 |
| 39:BR:33:VAL:HB | 39:BR:35:PHE:CE2 | 2.48 | 0.48 |
| 42:BU:46:LYS:N | 42:BU:47:PRO:CD | 2.72 | 0.48 |
| 23:BB:435:C:H2' | 23:BB:436:C:H5' | 1.94 | 0.48 |
| 46:DZ:25:ARG:HG3 | 46:DZ:26:SER:N | 2.28 | 0.48 |
| 1:CA:471:U:H2' | 1:CA:472:U:C6 | 2.47 | 0.48 |
| 29:BG:84:LYS:HA | 29:BG:84:LYS:NZ | 2.28 | 0.48 |
| 8:CI:22:PRO:HA | 8:CI:60:LEU:HA | 1.94 | 0.48 |
| 29:DG:67:ALA:O | 29:DG:71:LEU:HG | 2.12 | 0.48 |
| 1:AA:1172:C:H2' | 1:AA:1173:U:C6 | 2.48 | 0.48 |
| 28:BF:18:GLU:HA | 28:BF:18:GLU:OE2 | 2.12 | 0.48 |
| 5:CF:18:VAL:N | 5:CF:19:PRO:HD2 | 2.27 | 0.48 |
| 23:BB:904:G:H2' | 23:BB:905:A:H8 | 1.78 | 0.48 |
| 40:DS:27:LYS:N | 40:DS:70:LYS:O | 2.46 | 0.48 |
| 23:BB:1747:U:H2' | 23:BB:1748:C:C6 | 2.47 | 0.48 |
| 4:AE:33:THR:O | 4:AE:34:ALA:CB | 2.61 | 0.48 |
| 23:DB:1412:U:H2' | 23:DB:1413:A:H8 | 1.76 | 0.48 |
| 1:AA:600:A:H2' | 1:AA:601:G:C8 | 2.48 | 0.48 |
| 23:BB:866:A:H61 | 23:BB:913:U:H4' | 1.78 | 0.48 |
| 23:DB:1051:G:H2' | 23:DB:1052:C:C6 | 2.47 | 0.48 |
| 23:DB:1583:A:H4' | 23:DB:1585:C:N3 | 2.29 | 0.48 |
| 16:CQ:30:HIS:CG | 16:CQ:33:TYR:HB2 | 2.48 | 0.48 |
| 23:BB:1544:A:H2' | 23:BB:1545:A:C8 | 2.48 | 0.48 |
| 1:CA:1275:A:H2' | 1:CA:1276:G:C8 | 2.47 | 0.48 |
| 23:DB:39:G:H2' | 23:DB:40:U:C6 | 2.48 | 0.48 |
| 23:DB:685:A:H1' | 23:DB:688:U:O4 | 2.13 | 0.48 |
| 23:DB:409:G:H2' | 23:DB:410:G:C8 | 2.48 | 0.48 |
| 6:CG:64:ALA:O | 6:CG:67:ASN:HB2 | 2.13 | 0.48 |
| 1:CA:916:U:H2' | 1:CA:917:G:H8 | 1.78 | 0.48 |
| 8:AI:90:ASP:O | 8:AI:93:LEU:HG | 2.13 | 0.48 |
| 23:BB:91:A:H2' | 23:BB:92:U:C6 | 2.48 | 0.48 |
| 26:DD:14:ILE:HG23 | 26:DD:19:GLY:HA3 | 1.95 | 0.48 |
| 44:DX:28:LEU:HD13 | 44:DX:42:LEU:HD21 | 1.94 | 0.48 |
| 44:DX:43:LEU:N | 44:DX:43:LEU:HD22 | 2.29 | 0.48 |
| 23:BB:2868:A:H2' | 23:BB:2869:G:H8 | 1.78 | 0.48 |
| 37:BP:29:VAL:N | 37:BP:44:GLY:HA3 | 2.29 | 0.48 |
| 23:DB:46:G:H2' | 23:DB:47:C:C6 | 2.48 | 0.48 |
| 26:DD:46:ARG:H | 26:DD:82:PHE:HA | 1.78 | 0.48 |
| 27:BE:128:ALA:HA | 27:BE:157:LEU:CD2 | 2.42 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 30:BH:9:VAL:C | 30:BH:11:ASN:H | 2.17 | 0.48 |
| 27:DE:154:ASP:CG | 27:DE:156:ASN:H | 2.17 | 0.48 |
| 23:BB:966:G:H2' | 23:BB:967:U:C6 | 2.47 | 0.48 |
| 46:BZ:15:SER:HB3 | 46:BZ:23:LYS:CD | 2.43 | 0.48 |
| 46:BZ:3:LYS:HG2 | 46:BZ:8:LYS:HA | 1.95 | 0.48 |
| 46:DZ:30:HIS:HB3 | 46:DZ:32:LEU:HD23 | 1.95 | 0.48 |
| 24:DV:70:ILE:HD12 | 24:DV:71:LYS:N | 2.23 | 0.48 |
| 23:DB:1799:G:N7 | 25:DC:178:GLY:CA | 2.72 | 0.48 |
| 1:AA:405:U:OP2 | 3:AD:114:ARG:NH2 | 2.47 | 0.48 |
| 23:BB:587:C:H4' | 23:BB:588:U:C6 | 2.48 | 0.48 |
| 33:BL:38:GLN:C | 33:BL:40:SER:N | 2.65 | 0.48 |
| 8:AI:9:GLY:HA2 | 8:AI:80:HIS:CD2 | 2.48 | 0.48 |
| 12:AM:56:ARG:O | 12:AM:59:VAL:HG12 | 2.13 | 0.48 |
| 23:BB:1032:A:OP1 | 51:B4:8:LYS:HB3 | 2.13 | 0.48 |
| 1:AA:1314:C:H2' | 1:AA:1315:U:H6 | 1.77 | 0.48 |
| 26:BD:114:LYS:HB3 | 35:BN:3:HIS:HE1 | 1.77 | 0.48 |
| 1:AA:797:C:OP1 | 10:AK:125:LYS:HG2 | 2.13 | 0.48 |
| 27:DE:4:VAL:HA | 27:DE:14:VAL:HG13 | 1.94 | 0.48 |
| 23:BB:1287:A:H3' | 23:BB:1288:G:N2 | 2.28 | 0.48 |
| 23:BB:2734:A:C2' | 23:BB:2735:G:H5' | 2.43 | 0.48 |
| 32:DK:103:VAL:O | 32:DK:104:THR:HG23 | 2.13 | 0.48 |
| 23:DB:1001:A:H2' | 23:DB:1002:G:O4' | 2.12 | 0.48 |
| 14:CO:83:ARG:C | 14:CO:84:LEU:HD12 | 2.33 | 0.48 |
| 14:AO:80:LEU:HD23 | 14:AO:80:LEU:C | 2.33 | 0.48 |
| 44:BX:14:LEU:HD11 | 44:BX:57:LEU:HD22 | 1.95 | 0.48 |
| 1:AA:236:A:H2' | 1:AA:237:G:H8 | 1.78 | 0.48 |
| 1:AA:806:C:H2' | 1:AA:807:A:C8 | 2.47 | 0.48 |
| 4:AE:19:ARG:O | 4:AE:20:VAL:HB | 2.12 | 0.48 |
| 9:AJ:88:MET:CE | 9:AJ:88:MET:H | 2.25 | 0.48 |
| 16:CQ:10:ARG:CZ | 16:CQ:11:VAL:N | 2.76 | 0.48 |
| 23:BB:2834:G:H2' | 23:BB:2879:A:H61 | 1.78 | 0.48 |
| 23:DB:1790:C:P | 25:DC:219:VAL:HB | 2.54 | 0.48 |
| 24:DV:29:ILE:HG22 | 24:DV:90:ASP:HA | 1.94 | 0.48 |
| 1:AA:1510:C:H2' | 1:AA:1511:G:H8 | 1.78 | 0.48 |
| 1:AA:546:A:P | 3:AD:68:GLU:HB3 | 2.53 | 0.48 |
| 14:CO:88:ARG:NH1 | 14:CO:88:ARG:HG3 | 2.28 | 0.48 |
| 23:DB:150:U:H2' | 23:DB:151:C:C6 | 2.48 | 0.48 |
| 18:CS:3:SER:O | 18:CS:4:LEU:HD12 | 2.12 | 0.48 |
| 48:B1:31:GLU:O | 48:B1:32:LYS:HB2 | 2.13 | 0.48 |
| 1:AA:560:A:H4' | 1:AA:561:U:H5'' | 1.94 | 0.48 |
| 39:BR:16:GLU:O | 39:BR:18:GLN:N | 2.45 | 0.48 |
| 23:DB:524:G:H5' | 23:DB:539:G:N2 | 2.27 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 1:AA:766:A:C2 | 1:AA:1525:G:N3 | 2.81 | 0.48 |
| 23:DB:1116:G:H21 | 34:DM:136:MET:CE | 2.25 | 0.48 |
| 23:BB:2860:A:H2' | 23:BB:2861:U:O4' | 2.13 | 0.48 |
| 10:AK:57:SER:O | 10:AK:90:PRO:HG2 | 2.13 | 0.48 |
| 9:CJ:41:PRO:O | 9:CJ:42:LEU:HB2 | 2.12 | 0.48 |
| 1:CA:1053:G:O2' | 1:CA:1199:U:H5 | 1.96 | 0.48 |
| 23:BB:956:G:H1' | 34:BM:81:ARG:HH22 | 1.77 | 0.48 |
| 23:DB:907:G:O2' | 23:DB:908:C:H5' | 2.12 | 0.48 |
| 1:AA:901:A:H5' | 1:AA:902:G:OP2 | 2.13 | 0.48 |
| 27:DE:132:LYS:H | 27:DE:134:LEU:CD1 | 2.26 | 0.48 |
| 23:DB:2893:A:H4' | 23:DB:2894:G:O5' | 2.12 | 0.48 |
| 48:B1:5:ARG:O | 48:B1:27:ARG:HB2 | 2.14 | 0.48 |
| 4:AE:90:GLY:O | 4:AE:128:GLY:HA3 | 2.13 | 0.48 |
| 37:BP:112:ARG:H | 37:BP:112:ARG:NH1 | 2.11 | 0.48 |
| 25:DC:124:LYS:HB2 | 25:DC:125:PRO:HD2 | 1.93 | 0.48 |
| 23:DB:2488:G:O2' | 23:DB:2489:U:H5' | 2.12 | 0.48 |
| 23:BB:523:C:H2' | 23:BB:524:G:H8 | 1.78 | 0.48 |
| 1:AA:893:C:H2' | 1:AA:894:G:H8 | 1.78 | 0.48 |
| 1:AA:140:U:H2' | 1:AA:141:G:C8 | 2.48 | 0.48 |
| 25:DC:94:LEU:HD13 | 25:DC:100:ARG:HG3 | 1.94 | 0.48 |
| 1:AA:940:C:H2' | 1:AA:941:G:C8 | 2.48 | 0.48 |
| 23:BB:82:U:H2' | 23:BB:83:A:C8 | 2.48 | 0.48 |
| 23:BB:1040:A:H2 | 23:BB:1115:G:H22 | 1.59 | 0.48 |
| 27:BE:35:TYR:C | 27:BE:37:ALA:H | 2.15 | 0.48 |
| 3:AD:54:LEU:C | 3:AD:54:LEU:HD13 | 2.33 | 0.48 |
| 23:BB:1137:G:H2' | 23:BB:1138:G:O4' | 2.13 | 0.48 |
| 37:BP:47:ILE:HG23 | 37:BP:63:ILE:HA | 1.95 | 0.48 |
| 43:DW:42:THR:HB | 43:DW:75:ASN:ND2 | 2.28 | 0.48 |
| 23:BB:773:U:H4' | 25:BC:47:ARG:HB3 | 1.94 | 0.48 |
| 35:DN:97:ILE:HG23 | 35:DN:113:ILE:HD11 | 1.95 | 0.48 |
| 35:DN:32:GLU:HA | 35:DN:115:LEU:HD21 | 1.95 | 0.48 |
| 23:DB:974:G:H4' | 39:DR:83:TYR:OH | 2.13 | 0.48 |
| 27:DE:112:LEU:HD12 | 27:DE:115:GLN:HE22 | 1.78 | 0.48 |
| 32:BK:23:LYS:CG | 32:BK:24:VAL:N | 2.77 | 0.48 |
| 23:BB:582:A:H2' | 23:BB:583:G:C8 | 2.47 | 0.48 |
| 1:AA:408:A:O5' | 3:AD:109:THR:HG21 | 2.12 | 0.48 |
| 31:DJ:32:LEU:O | 31:DJ:36:LEU:HD13 | 2.13 | 0.48 |
| 28:BF:133:GLU:HG3 | 28:BF:134:GLN:H | 1.77 | 0.48 |
| 23:BB:1151:A:H4' | 38:BQ:80:ASN:OD1 | 2.12 | 0.48 |
| 39:BR:1:MET:HA | 39:BR:46:GLU:HG3 | 1.94 | 0.48 |
| 27:BE:108:ILE:HD12 | 27:BE:108:ILE:N | 2.28 | 0.48 |
| 46:BZ:35:ASP:O | 46:BZ:42:PRO:HB3 | 2.13 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 26:BD:119:ALA:HB1 | 26:BD:123:LYS:HB2 | 1.96 | 0.48 |
| 25:DC:216:ARG:HB3 | 25:DC:217:PRO:HD2 | 1.94 | 0.48 |
| 23:DB:1287:A:H3' | 23:DB:1288:G:N2 | 2.28 | 0.48 |
| 52:BI:79:LEU:HD11 | 52:BI:131:THR:OG1 | 2.12 | 0.48 |
| 23:DB:2751:G:OP2 | 29:DG:3:VAL:HB | 2.14 | 0.48 |
| 48:B1:46:VAL:HG22 | 48:B1:47:ILE:H | 1.76 | 0.48 |
| 1:CA:8:A:C6 | 3:CD:205:LYS:HA | 2.47 | 0.48 |
| 23:BB:1080:A:O2' | 52:BI:126:ARG:HB2 | 2.13 | 0.48 |
| 39:DR:69:GLY:HA2 | 39:DR:96:VAL:CA | 2.43 | 0.48 |
| 39:DR:67:GLY:H | 39:DR:98:ILE:H | 1.60 | 0.48 |
| 4:CE:39:GLY:HA3 | 4:CE:116:VAL:HB | 1.95 | 0.48 |
| 3:AD:160:LEU:HD22 | 3:AD:161:ALA:N | 2.29 | 0.48 |
| 36:BO:10:ARG:HH11 | 36:BO:10:ARG:HG3 | 1.78 | 0.48 |
| 49:D2:34:ARG:NH1 | 49:D2:35:ARG:NH1 | 2.61 | 0.48 |
| 32:DK:33:ALA:CB | 32:DK:39:ILE:HD11 | 2.44 | 0.48 |
| 1:CA:236:A:H2' | 1:CA:237:G:H8 | 1.78 | 0.48 |
| 31:DJ:121:LYS:CE | 31:DJ:121:LYS:N | 2.74 | 0.48 |
| 48:D1:7:LYS:HB3 | 48:D1:24:LYS:HZ1 | 1.77 | 0.48 |
| 37:BP:2:ASN:ND2 | 37:BP:2:ASN:H | 2.06 | 0.48 |
| 23:BB:231:A:H3' | 23:BB:232:G:C8 | 2.48 | 0.48 |
| 1:AA:79:G:H2' | 1:AA:80:A:H8 | 1.74 | 0.48 |
| 1:CA:255:G:H5' | 16:CQ:17:GLU:O | 2.13 | 0.48 |
| 43:BW:16:GLU:HA | 43:BW:18:LYS:NZ | 2.28 | 0.48 |
| 1:AA:1247:U:O2' | 1:AA:1248:A:H5' | 2.13 | 0.48 |
| 28:BF:103:ILE:HG13 | 28:BF:104:THR:N | 2.27 | 0.48 |
| 23:BB:1439:A:C8 | 23:BB:1440:U:C6 | 3.01 | 0.48 |
| 25:DC:261:ARG:HG2 | 25:DC:261:ARG:NH1 | 2.28 | 0.48 |
| 23:BB:1726:C:H2' | 23:BB:1727:C:C6 | 2.49 | 0.48 |
| 35:BN:77:ALA:HA | 35:BN:80:PHE:CE2 | 2.48 | 0.48 |
| 38:BQ:71:ASN:HD21 | 38:BQ:109:VAL:HG11 | 1.78 | 0.48 |
| 23:DB:2484:G:H1' | 34:DM:119:LEU:CD1 | 2.42 | 0.48 |
| 1:CA:560:A:H4' | 1:CA:561:U:H5'' | 1.94 | 0.48 |
| 23:DB:455:C:N4 | 23:DB:472:A:H2' | 2.28 | 0.48 |
| 6:AG:30:MET:HA | 6:AG:38:ALA:HB2 | 1.94 | 0.48 |
| 39:BR:18:GLN:CB | 39:BR:99:THR:HA | 2.42 | 0.48 |
| 23:BB:2803:G:H2' | 23:BB:2804:U:H6 | 1.79 | 0.48 |
| 24:BV:76:ASP:CB | 34:BM:136:MET:HG3 | 2.44 | 0.48 |
| 29:DG:84:LYS:HE2 | 29:DG:163:TYR:CD1 | 2.48 | 0.48 |
| 19:CT:56:ILE:O | 19:CT:60:GLN:HG2 | 2.13 | 0.48 |
| 34:BM:76:LYS:HA | 34:BM:86:LYS:HD3 | 1.94 | 0.48 |
| 1:AA:1225:A:H4' | 18:AS:77:ARG:HH22 | 1.77 | 0.48 |
| 1:CA:634:C:O2' | 1:CA:635:A:H5' | 2.13 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 15:CP:22:ALA:HB2 | 15:CP:32:PHE:HA | 1.94 | 0.48 |
| 23:BB:850:U:H2' | 23:BB:851:C:C6 | 2.48 | 0.48 |
| 23:DB:197:A:H4' | 23:DB:2069:G:OP2 | 2.12 | 0.48 |
| 1:AA:319:G:O2' | 1:AA:320:A:H5' | 2.14 | 0.48 |
| 23:BB:1230:A:H2' | 23:BB:1231:U:H6 | 1.78 | 0.48 |
| 1:CA:319:G:O2' | 1:CA:320:A:H5' | 2.13 | 0.48 |
| 23:BB:2893:A:H4' | 23:BB:2894:G:O5' | 2.12 | 0.48 |
| 23:DB:2378:A:C2' | 23:DB:2379:G:H5' | 2.43 | 0.48 |
| 1:AA:1082:A:O2' | 1:AA:1083:U:H5' | 2.13 | 0.48 |
| 23:BB:1463:C:H2' | 23:BB:1464:G:C8 | 2.48 | 0.48 |
| 23:DB:2873:A:N3 | 35:DN:6:SER:HA | 2.28 | 0.48 |
| 2:AC:122:GLN:HE22 | 2:AC:136:ALA:HB1 | 1.79 | 0.48 |
| 1:CA:513:C:H2' | 1:CA:514:C:H6 | 1.79 | 0.48 |
| 1:CA:1093:A:P | 6:CG:3:ARG:HH22 | 2.36 | 0.48 |
| 25:DC:38:LYS:HG3 | 25:DC:39:SER:H | 1.79 | 0.48 |
| 1:CA:505:G:H5' | 1:CA:534:U:H2' | 1.94 | 0.48 |
| 23:DB:1236:G:C2' | 23:DB:1237:A:OP2 | 2.61 | 0.48 |
| 23:DB:2063:C:O2 | 23:DB:2450:A:N1 | 2.46 | 0.48 |
| 40:BS:42:LYS:O | 40:BS:46:LEU:HG | 2.14 | 0.48 |
| 1:CA:182:A:H1' | 1:CA:183:C:C5 | 2.48 | 0.48 |
| 1:AA:1021:A:H2' | 1:AA:1022:A:O4' | 2.13 | 0.48 |
| 50:B3:14:LYS:O | 50:B3:21:PHE:HB3 | 2.13 | 0.48 |
| 37:BP:25:VAL:CG2 | 37:BP:49:ILE:HD11 | 2.44 | 0.48 |
| 23:DB:856:G:H2' | 23:DB:857:G:C8 | 2.48 | 0.48 |
| 25:BC:129:LEU:HD22 | 25:BC:133:ASN:HB2 | 1.94 | 0.48 |
| 25:BC:155:ARG:HG2 | 25:BC:155:ARG:HH21 | 1.79 | 0.48 |
| 25:BC:171:VAL:HA | 25:BC:183:VAL:O | 2.13 | 0.48 |
| 23:DB:2834:G:H2' | 23:DB:2879:A:N6 | 2.28 | 0.48 |
| 26:DD:62:LYS:CB | 26:DD:63:PRO:HD3 | 2.43 | 0.48 |
| 23:DB:1818:U:OP1 | 25:DC:155:ARG:HA | 2.12 | 0.48 |
| 31:BJ:132:HIS:HB3 | 31:BJ:136:GLN:HE22 | 1.78 | 0.48 |
| 27:DE:149:ILE:CD1 | 27:DE:188:MET:HB2 | 2.44 | 0.48 |
| 23:BB:970:U:H2' | 23:BB:971:G:H8 | 1.78 | 0.48 |
| 23:DB:2226:C:H2' | 23:DB:2227:A:O4' | 2.13 | 0.48 |
| 41:DT:65:GLY:HA3 | 41:DT:76:ARG:HH21 | 1.78 | 0.48 |
| 25:BC:216:ARG:HB3 | 25:BC:217:PRO:CD | 2.43 | 0.48 |
| 10:AK:88:PRO:HD3 | 21:AU:28:LEU:CD1 | 2.41 | 0.48 |
| 33:DL:79:LEU:HD11 | 33:DL:112:LEU:HD23 | 1.96 | 0.48 |
| 1:AA:926:G:N2 | 1:AA:1505:G:H2' | 2.29 | 0.48 |
| 55:DB:3317:HOH:O | 26:DD:152:PRO:HG2 | 2.12 | 0.48 |
| 21:AU:13:VAL:CG1 | 21:AU:14:ALA:H | 2.17 | 0.48 |
| 25:DC:225:ASN:N | 25:DC:226:PRO:HD3 | 2.29 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 44:DX:26:PHE:HD1 | 44:DX:26:PHE:H | 1.60 | 0.48 |
| 44:DX:47:ARG:HA | 44:DX:50:VAL:HG23 | 1.95 | 0.48 |
| 45:DY:2:LYS:H | 45:DY:37:ARG:HB3 | 1.78 | 0.48 |
| 33:BL:79:LEU:CD1 | 33:BL:79:LEU:H | 2.26 | 0.48 |
| 1:CA:1309:G:H1' | 12:CM:72:ILE:HG13 | 1.95 | 0.48 |
| 1:CA:1250:A:H4' | 8:CI:69:GLY:N | 2.17 | 0.48 |
| 5:AF:67:PRO:O | 5:AF:70:VAL:HG22 | 2.13 | 0.48 |
| 3:CD:25:ARG:HG3 | 3:CD:25:ARG:O | 2.13 | 0.48 |
| 33:DL:115:GLU:C | 33:DL:116:VAL:HG13 | 2.34 | 0.48 |
| 15:CP:54:LEU:HA | 15:CP:57:ILE:CG2 | 2.43 | 0.48 |
| 23:BB:2316:G:H2' | 23:BB:2317:A:H8 | 1.78 | 0.48 |
| 28:DF:56:LEU:CA | 28:DF:59:ILE:HG22 | 2.42 | 0.48 |
| 52:DI:17:ALA:O | 52:DI:18:ASN:CB | 2.61 | 0.48 |
| 17:CR:62:ARG:C | 17:CR:64:LEU:H | 2.15 | 0.48 |
| 12:CM:89:ARG:CB | 12:CM:96:VAL:HG22 | 2.44 | 0.48 |
| 1:CA:1411:C:H2' | 1:CA:1412:C:C6 | 2.49 | 0.48 |
| 16:CQ:45:VAL:HG11 | 16:CQ:60:ILE:HG21 | 1.96 | 0.48 |
| 25:BC:204:LEU:HD11 | 25:BC:211:ARG:HH11 | 1.79 | 0.48 |
| 23:BB:1407:G:H2' | 23:BB:1408:G:H8 | 1.78 | 0.48 |
| 23:DB:455:C:H42 | 23:DB:472:A:H2' | 1.77 | 0.48 |
| 24:BV:57:TYR:HA | 24:BV:74:ALA:HB3 | 1.95 | 0.48 |
| 23:BB:1313:U:O2 | 23:BB:1313:U:H2' | 2.12 | 0.48 |
| 23:BB:1312:U:H4' | 23:BB:1313:U:O5' | 2.12 | 0.48 |
| 23:BB:843:G:H2' | 23:BB:844:A:C8 | 2.48 | 0.48 |
| 1:CA:692:U:H2' | 1:CA:694:A:OP2 | 2.14 | 0.48 |
| 1:CA:399:G:H2' | 1:CA:400:C:H6 | 1.77 | 0.48 |
| 9:CJ:15:HIS:O | 9:CJ:18:ILE:HG22 | 2.13 | 0.48 |
| 1:AA:554:A:H2' | 1:AA:555:U:C6 | 2.49 | 0.48 |
| 36:DO:29:HIS:HB3 | 36:DO:36:TYR:HB2 | 1.95 | 0.48 |
| 1:CA:1349:A:H1' | 1:CA:1374:A:N6 | 2.28 | 0.48 |
| 1:CA:600:A:H2' | 1:CA:601:G:C8 | 2.48 | 0.48 |
| 1:CA:1499:A:O2' | 1:CA:1500:A:H5' | 2.14 | 0.48 |
| 23:BB:2544:G:H2' | 23:BB:2545:G:H8 | 1.78 | 0.48 |
| 40:DS:27:LYS:N | 40:DS:27:LYS:HD2 | 2.29 | 0.48 |
| 25:BC:220:ARG:HG3 | 25:BC:220:ARG:HH11 | 1.78 | 0.48 |
| 5:AF:9:MET:HA | 5:AF:58:HIS:O | 2.13 | 0.48 |
| 1:CA:448:A:O2' | 1:CA:449:G:H5' | 2.12 | 0.48 |
| 22:BA:52:A:H3' | 22:BA:53:A:H8 | 1.77 | 0.48 |
| 23:BB:62:U:H3' | 23:BB:63:A:C8 | 2.49 | 0.48 |
| 23:BB:1011:G:O2' | 23:BB:1013:C:H5'' | 2.13 | 0.48 |
| 23:DB:1268:A:H2' | 23:DB:1269:A:O4' | 2.13 | 0.48 |
| 23:DB:1312:U:H4' | 23:DB:1313:U:O5' | 2.12 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:DB:562:U:C4 | 23:DB:2036:C:O4' | 2.67 | 0.48 |
| 23:DB:1213:A:N1 | 23:DB:1237:A:H1' | 2.27 | 0.48 |
| 1:CA:608:A:H2' | 1:CA:609:A:O4' | 2.14 | 0.48 |
| 1:CA:157:U:O2' | 1:CA:158:G:H5' | 2.13 | 0.48 |
| 23:BB:2468:A:H2' | 23:BB:2476:A:C6 | 2.48 | 0.48 |
| 23:BB:685:A:H1' | 23:BB:688:U:O4 | 2.13 | 0.48 |
| 23:DB:2544:G:H2' | 23:DB:2545:G:H8 | 1.77 | 0.48 |
| 23:DB:1511:G:H2' | 23:DB:1512:C:H6 | 1.77 | 0.48 |
| 23:DB:1244:A:O2' | 23:DB:1245:G:H5' | 2.13 | 0.48 |
| 2:AC:66:THR:HA | 2:AC:101:ASN:O | 2.14 | 0.48 |
| 1:AA:418:C:H2' | 1:AA:419:C:H6 | 1.78 | 0.48 |
| 19:CT:50:PHE:O | 19:CT:53:MET:HG3 | 2.13 | 0.48 |
| 52:DI:70:THR:O | 52:DI:70:THR:HG23 | 2.12 | 0.48 |
| 49:B2:3:ARG:HB3 | 49:B2:5:PHE:CE1 | 2.48 | 0.48 |
| 1:AA:708:C:H2' | 1:AA:709:U:C6 | 2.48 | 0.48 |
| 3:CD:202:LEU:C | 3:CD:204:SER:H | 2.17 | 0.48 |
| 37:DP:48:ALA:HB3 | 37:DP:64:SER:HB3 | 1.94 | 0.48 |
| 23:BB:39:G:O2' | 23:BB:40:U:H5' | 2.14 | 0.48 |
| 43:DW:44:PHE:HB3 | 43:DW:77:LYS:C | 2.34 | 0.48 |
| 25:BC:155:ARG:NH2 | 25:BC:155:ARG:HG2 | 2.29 | 0.48 |
| 25:DC:140:VAL:HG11 | 25:DC:163:ILE:CD1 | 2.42 | 0.48 |
| 27:DE:147:LEU:N | 27:DE:147:LEU:HD12 | 2.27 | 0.48 |
| 27:DE:152:GLU:OE2 | 27:DE:188:MET:HA | 2.13 | 0.48 |
| 46:BZ:30:HIS:O | 46:BZ:48:GLN:NE2 | 2.47 | 0.48 |
| 46:BZ:50:ASP:CA | 46:BZ:53:THR:HG22 | 2.43 | 0.48 |
| 34:BM:43:ALA:C | 34:BM:45:GLN:N | 2.67 | 0.48 |
| 23:BB:2053:G:OP1 | 26:BD:149:ASN:O | 2.31 | 0.48 |
| 23:BB:2575:C:C5' | 26:BD:149:ASN:N | 2.74 | 0.48 |
| 41:DT:2:ILE:HG12 | 41:DT:3:ARG:N | 2.27 | 0.48 |
| 46:DZ:62:LYS:CA | 46:DZ:65:ASN:HD21 | 2.26 | 0.48 |
| 31:DJ:114:LEU:HG | 31:DJ:118:MET:CE | 2.43 | 0.48 |
| 38:BQ:88:GLU:HA | 39:BR:53:PHE:CG | 2.48 | 0.48 |
| 40:BS:32:ALA:O | 40:BS:33:LEU:HD13 | 2.14 | 0.48 |
| 23:BB:2260:C:O2' | 23:BB:2261:C:H5' | 2.14 | 0.48 |
| 43:BW:39:GLN:C | 43:BW:40:ARG:HG3 | 2.33 | 0.48 |
| 21:AU:3:ILE:CA | 21:AU:19:LYS:HG2 | 2.35 | 0.48 |
| 1:AA:1318:A:H4' | 18:AS:9:PHE:CD1 | 2.49 | 0.48 |
| 30:DH:90:LEU:HD13 | 30:DH:122:LEU:O | 2.14 | 0.48 |
| 23:BB:142:A:H2' | 23:BB:143:C:H6 | 1.79 | 0.48 |
| 41:BT:30:ILE:CG2 | 41:BT:85:VAL:HG22 | 2.43 | 0.48 |
| 41:BT:6:ARG:HG3 | 41:BT:10:VAL:HG13 | 1.95 | 0.48 |
| 23:BB:2722:G:H2' | 23:BB:2723:C:C6 | 2.49 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 27:DE:15:SER:CB | 27:DE:196:VAL:HG22 | 2.41 | 0.48 |
| 26:BD:106:LYS:HZ2 | 26:BD:208:LYS:HD3 | 1.78 | 0.48 |
| 23:DB:2840:C:H2' | 23:DB:2841:C:C6 | 2.48 | 0.48 |
| 1:CA:16:A:N1 | 1:CA:919:A:C2 | 2.82 | 0.48 |
| 23:BB:276:U:O2' | 23:BB:277:G:H5' | 2.14 | 0.48 |
| 1:AA:90:C:H2' | 1:AA:91:U:C6 | 2.47 | 0.48 |
| 29:BG:174:LYS:HD2 | 29:BG:174:LYS:N | 2.29 | 0.48 |
| 16:CQ:80:LYS:H | 16:CQ:80:LYS:CD | 2.26 | 0.48 |
| 23:BB:2812:G:H2' | 23:BB:2813:A:O4' | 2.13 | 0.48 |
| 31:BJ:7:LYS:NZ | 31:BJ:49:ASP:H | 2.12 | 0.48 |
| 23:DB:1299:G:H4' | 23:DB:1301:A:C1' | 2.42 | 0.48 |
| 23:DB:1726:C:H2' | 23:DB:1727:C:C6 | 2.49 | 0.48 |
| 23:BB:1299:G:C4' | 23:BB:1301:A:H1' | 2.40 | 0.48 |
| 2:CC:119:ILE:HD12 | 2:CC:132:ALA:HB1 | 1.95 | 0.48 |
| 23:BB:130:C:O2' | 23:BB:131:A:H5' | 2.12 | 0.48 |
| 23:DB:1178:C:C2 | 23:DB:1179:G:N7 | 2.81 | 0.48 |
| 24:BV:79:ARG:HB3 | 24:BV:79:ARG:CZ | 2.43 | 0.48 |
| 1:AA:766:A:H2' | 1:AA:767:A:O4' | 2.13 | 0.48 |
| 23:DB:2803:G:H2' | 23:DB:2804:U:H6 | 1.79 | 0.48 |
| 24:BV:76:ASP:HB2 | 34:BM:136:MET:HE3 | 1.94 | 0.48 |
| 15:AP:28:ARG:HG3 | 15:AP:29:ASN:ND2 | 2.29 | 0.48 |
| 23:BB:363:G:H2' | 23:BB:364:C:H6 | 1.78 | 0.48 |
| 42:DU:96:LYS:O | 42:DU:97:SER:HB3 | 2.13 | 0.48 |
| 16:CQ:25:GLU:HA | 16:CQ:40:THR:HA | 1.96 | 0.48 |
| 23:BB:1817:G:OP1 | 25:BC:62:ARG:NH2 | 2.46 | 0.48 |
| 1:AA:1038:C:H2' | 1:AA:1039:G:H8 | 1.78 | 0.48 |
| 30:DH:135:HIS:CG | 30:DH:136:SER:N | 2.81 | 0.48 |
| 23:BB:2308:G:H3' | 23:BB:2308:G:N3 | 2.28 | 0.48 |
| 23:BB:1579:A:H2' | 23:BB:1580:A:H8 | 1.78 | 0.48 |
| 23:DB:673:C:O2' | 23:DB:674:G:H5' | 2.13 | 0.48 |
| 23:DB:2568:U:H2' | 23:DB:2569:G:O4' | 2.14 | 0.48 |
| 31:BJ:15:TRP:HB3 | 31:BJ:53:TYR:CE2 | 2.48 | 0.48 |
| 23:DB:723:C:H2' | 23:DB:724:U:H6 | 1.79 | 0.48 |
| 1:CA:627:G:H2' | 1:CA:628:G:H8 | 1.78 | 0.48 |
| 23:BB:1599:U:H2' | 23:BB:1600:C:C6 | 2.48 | 0.48 |
| 1:CA:964:A:H2' | 1:CA:965:U:H5'' | 1.95 | 0.48 |
| 23:DB:1322:A:C2' | 23:DB:1323:C:H5' | 2.44 | 0.48 |
| 23:BB:909:A:H2' | 23:BB:912:C:H5 | 1.79 | 0.48 |
| 23:BB:572:A:H5'' | 23:BB:573:U:OP2 | 2.12 | 0.48 |
| 22:BA:63:C:H2' | 22:BA:64:G:H8 | 1.79 | 0.48 |
| 23:DB:2563:U:H2' | 23:DB:2565:A:OP2 | 2.13 | 0.48 |
| 48:D1:4:ILE:HG23 | 48:D1:4:ILE:O | 2.13 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 23:DB:1581:G:O2' | 23:DB:1582:C:H5' | 2.13 | 0.48 |
| 51:D4:24:ARG:HE | 51:D4:37:GLN:CA | 2.26 | 0.48 |
| 37:BP:50:ARG:NH1 | 37:BP:62:LYS:HB3 | 2.29 | 0.48 |
| 37:BP:52:ARG:N | 37:BP:60:VAL:HG21 | 2.29 | 0.48 |
| 43:DW:20:LEU:CD1 | 43:DW:31:LEU:HB2 | 2.44 | 0.48 |
| 43:DW:43:LYS:O | 43:DW:44:PHE:CB | 2.60 | 0.48 |
| 43:DW:67:LYS:CG | 43:DW:71:LYS:HB2 | 2.36 | 0.48 |
| 43:DW:73:PRO:C | 43:DW:74:LYS:HD2 | 2.34 | 0.48 |
| 23:DB:2633:G:C1' | 26:DD:62:LYS:HG3 | 2.39 | 0.48 |
| 23:BB:1017:G:H2' | 23:BB:1018:U:C6 | 2.49 | 0.48 |
| 18:AS:46:LEU:O | 18:AS:60:PHE:HA | 2.12 | 0.48 |
| 30:BH:7:ASP:OD1 | 30:BH:35:LYS:HB3 | 2.14 | 0.48 |
| 30:BH:7:ASP:O | 30:BH:9:VAL:HG23 | 2.13 | 0.48 |
| 33:DL:50:PHE:O | 33:DL:51:GLU:C | 2.51 | 0.48 |
| 34:BM:73:ILE:CD1 | 34:BM:92:TRP:H | 2.25 | 0.48 |
| 24:BV:9:ARG:HB2 | 24:BV:39:ALA:O | 2.13 | 0.48 |
| 35:BN:7:GLY:O | 35:BN:8:ARG:CB | 2.61 | 0.48 |
| 21:CU:15:LEU:HA | 21:CU:17:ARG:NH1 | 2.24 | 0.48 |
| 34:DM:43:ALA:HB3 | 34:DM:91:TYR:CE2 | 2.48 | 0.48 |
| 39:BR:45:GLU:HA | 39:BR:50:GLY:HA2 | 1.95 | 0.48 |
| 39:BR:41:ILE:O | 39:BR:54:VAL:HG22 | 2.14 | 0.48 |
| 39:BR:71:LYS:O | 39:BR:94:THR:HA | 2.13 | 0.48 |
| 20:CB:95:TRP:HZ3 | 20:CB:98:GLY:H | 1.62 | 0.48 |
| 47:B0:36:LYS:HZ3 | 47:B0:41:HIS:HA | 1.78 | 0.48 |
| 18:AS:4:LEU:CA | 18:AS:5:LYS:HE3 | 2.43 | 0.48 |
| 26:BD:142:VAL:C | 26:BD:144:GLY:N | 2.67 | 0.48 |
| 35:BN:2:ARG:O | 35:BN:3:HIS:CB | 2.62 | 0.48 |
| 26:DD:153:GLY:C | 26:DD:155:VAL:N | 2.65 | 0.48 |
| 23:DB:2026:U:H2' | 23:DB:2027:G:H8 | 1.77 | 0.48 |
| 23:DB:2512:C:OP1 | 26:DD:128:ARG:N | 2.47 | 0.48 |
| 23:DB:2516:A:O2' | 23:DB:2517:C:H5' | 2.13 | 0.48 |
| 23:BB:2645:G:H4' | 23:BB:2732:G:H2' | 1.96 | 0.48 |
| 26:BD:2:ILE:HG22 | 26:BD:204:LYS:HG3 | 1.95 | 0.48 |
| 25:DC:53:ILE:HG23 | 25:DC:216:ARG:HB2 | 1.95 | 0.48 |
| 26:DD:175:LEU:HD21 | 26:DD:192:ALA:HB3 | 1.95 | 0.48 |
| 45:BY:18:LYS:HD2 | 45:BY:53:MET:CE | 2.42 | 0.48 |
| 23:DB:654:A:H2' | 23:DB:655:A:C5' | 2.33 | 0.48 |
| 1:AA:978:A:O2' | 1:AA:1322:C:H5 | 1.96 | 0.48 |
| 33:DL:37:GLY:O | 33:DL:38:GLN:HG3 | 2.14 | 0.48 |
| 14:CO:84:LEU:HB3 | 14:CO:86:LEU:HD13 | 1.96 | 0.48 |
| 1:CA:840:C:C2 | 1:CA:842:U:H4' | 2.49 | 0.48 |
| 35:BN:16:HIS:O | 35:BN:20:MET:HG2 | 2.13 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:BB:1079:C:O2' | 52:BI:133:ARG:NH2 | 2.46 | 0.48 |
| 2:AC:90:VAL:HA | 2:AC:93:ILE:HG21 | 1.95 | 0.48 |
| 51:D4:30:GLU:CB | 51:D4:33:HIS:HB2 | 2.41 | 0.48 |
| 1:AA:1025:U:H5'' | 1:AA:1026:G:OP1 | 2.14 | 0.48 |
| 28:DF:136:ILE:O | 28:DF:138:PRO:HD3 | 2.13 | 0.48 |
| 23:BB:231:A:H3' | 23:BB:232:G:H8 | 1.79 | 0.48 |
| 10:CK:30:ILE:HG22 | 10:CK:45:THR:HB | 1.95 | 0.48 |
| 1:AA:429:U:H3' | 3:AD:8:LEU:HD23 | 1.96 | 0.48 |
| 23:DB:859:G:O2' | 23:DB:860:U:OP2 | 2.32 | 0.48 |
| 23:DB:1791:A:H61 | 23:DB:1828:G:H1' | 1.78 | 0.48 |
| 25:BC:71:ASP:O | 25:BC:73:ILE:N | 2.46 | 0.48 |
| 1:AA:1149:C:H2' | 1:AA:1150:A:C8 | 2.48 | 0.48 |
| 1:AA:999:C:O2' | 1:AA:1000:A:H5' | 2.13 | 0.48 |
| 14:CO:10:ILE:HD11 | 14:CO:29:ALA:HB1 | 1.94 | 0.48 |
| 1:CA:280:C:O2 | 16:CQ:39:ARG:HG3 | 2.13 | 0.48 |
| 40:DS:72:THR:HG22 | 40:DS:106:VAL:O | 2.13 | 0.48 |
| 8:CI:112:ARG:HD2 | 13:CN:100:TRP:OXT | 2.13 | 0.48 |
| 23:BB:1688:U:O2 | 23:BB:1700:A:H5' | 2.13 | 0.48 |
| 23:BB:2092:U:H4' | 23:BB:2093:G:O5' | 2.14 | 0.48 |
| 23:BB:1332:G:H2' | 23:BB:1332:G:N3 | 2.29 | 0.48 |
| 23:BB:720:U:H2' | 23:BB:721:A:H8 | 1.78 | 0.48 |
| 14:AO:54:GLY:O | 14:AO:58:MET:HG2 | 2.13 | 0.48 |
| 25:DC:77:VAL:HG21 | 25:DC:109:LEU:HD23 | 1.95 | 0.48 |
| 1:CA:123:U:H5'' | 1:CA:311:C:O2' | 2.12 | 0.48 |
| 23:BB:2307:G:H2' | 23:BB:2307:G:N3 | 2.29 | 0.48 |
| 23:BB:1355:G:O2' | 23:BB:1356:G:H5' | 2.14 | 0.48 |
| 6:CG:55:LYS:HG3 | 6:CG:56:SER:N | 2.28 | 0.48 |
| 6:CG:59:GLU:HA | 6:CG:62:GLU:CD | 2.34 | 0.48 |
| 24:DV:77:VAL:HG13 | 24:DV:89:ILE:CD1 | 2.44 | 0.48 |
| 29:BG:114:HIS:HB2 | 29:BG:150:TYR:HE2 | 1.79 | 0.48 |
| 1:CA:1240:U:P | 6:CG:115:MET:H | 2.37 | 0.48 |
| 44:DX:55:THR:C | 44:DX:57:LEU:H | 2.15 | 0.48 |
| 23:BB:2530:A:H61 | 29:BG:155:PRO:HG3 | 1.78 | 0.48 |
| 1:CA:218:U:H2' | 1:CA:219:U:H6 | 1.78 | 0.48 |
| 22:DA:94:A:OP1 | 24:DV:19:ARG:HD3 | 2.13 | 0.48 |
| 1:CA:140:U:H2' | 1:CA:141:G:C8 | 2.48 | 0.48 |
| 1:AA:869:G:H4' | 1:AA:872:A:C8 | 2.49 | 0.48 |
| 23:DB:2862:G:H2' | 23:DB:2863:C:H6 | 1.79 | 0.48 |
| 23:BB:2180:U:H2' | 23:BB:2181:U:C5 | 2.48 | 0.48 |
| 23:DB:274:C:H2' | 23:DB:275:C:O4' | 2.12 | 0.48 |
| 23:DB:1313:U:H2' | 23:DB:1313:U:O2 | 2.12 | 0.48 |
| 27:DE:56:GLY:O | 27:DE:57:LYS:HG3 | 2.14 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 34:DM:83:GLY:O | 34:DM:84:LYS:HB2 | 2.12 | 0.48 |
| 23:DB:2000:C:O2' | 23:DB:2001:C:H5' | 2.14 | 0.48 |
| 23:BB:2776:A:H4' | 23:BB:2777:G:O5' | 2.13 | 0.48 |
| 23:BB:2593:U:O2' | 23:BB:2594:C:H5' | 2.13 | 0.48 |
| 23:BB:306:U:H2' | 23:BB:307:G:O4' | 2.13 | 0.48 |
| 42:DU:48:VAL:HG13 | 42:DU:51:LEU:N | 2.29 | 0.48 |
| 37:DP:85:VAL:O | 37:DP:87:ARG:NE | 2.46 | 0.48 |
| 25:BC:51:ARG:HD3 | 25:BC:51:ARG:O | 2.13 | 0.48 |
| 25:BC:143:VAL:HG11 | 25:BC:173:LEU:HD11 | 1.95 | 0.48 |
| 25:BC:171:VAL:HG21 | 25:BC:182:LYS:HD3 | 1.96 | 0.48 |
| 30:DH:2:GLN:CB | 30:DH:19:VAL:HA | 2.43 | 0.48 |
| 25:DC:153:LEU:C | 25:DC:155:ARG:H | 2.17 | 0.48 |
| 31:BJ:25:LEU:HD12 | 31:BJ:62:VAL:HG12 | 1.94 | 0.48 |
| 38:DQ:50:ARG:HH22 | 38:DQ:53:LYS:NZ | 2.12 | 0.48 |
| 30:BH:19:VAL:HG12 | 30:BH:20:ASN:N | 2.28 | 0.48 |
| 33:BL:60:ARG:NH1 | 50:B3:11:LYS:HE2 | 2.27 | 0.48 |
| 33:BL:110:VAL:HG23 | 33:BL:126:ARG:CB | 2.43 | 0.48 |
| 34:BM:20:LEU:CB | 34:BM:38:ARG:HD3 | 2.43 | 0.48 |
| 35:DN:2:ARG:NH1 | 35:DN:4:ARG:HH12 | 2.11 | 0.48 |
| 3:AD:2:ARG:HG3 | 3:AD:114:ARG:NH1 | 2.29 | 0.48 |
| 36:DO:4:LYS:O | 36:DO:7:ARG:HG2 | 2.12 | 0.48 |
| 45:BY:9:THR:HG23 | 45:BY:10:ARG:N | 2.25 | 0.48 |
| 25:BC:218:THR:HG22 | 25:BC:218:THR:O | 2.13 | 0.48 |
| 23:DB:851:C:H2' | 23:DB:852:U:C6 | 2.49 | 0.48 |
| 40:BS:28:LYS:HB3 | 40:BS:71:VAL:HG21 | 1.96 | 0.48 |
| 23:BB:2743:U:C3' | 23:BB:2744:G:H5'' | 2.44 | 0.48 |
| 10:AK:80:ASN:HD21 | 10:AK:107:THR:CG2 | 2.27 | 0.48 |
| 26:DD:48:ILE:CG2 | 26:DD:49:GLN:N | 2.76 | 0.48 |
| 23:BB:2000:C:O2' | 23:BB:2001:C:H5' | 2.14 | 0.48 |
| 44:DX:16:THR:HG1 | 44:DX:19:LEU:HB3 | 1.79 | 0.48 |
| 26:BD:34:VAL:HG11 | 26:BD:71:ALA:CB | 2.44 | 0.48 |
| 26:BD:46:ARG:HD2 | 26:BD:80:TRP:CE2 | 2.49 | 0.48 |
| 25:DC:212:TRP:CZ3 | 25:DC:217:PRO:HD3 | 2.49 | 0.48 |
| 25:BC:226:PRO:HD3 | 25:BC:233:GLY:N | 2.29 | 0.48 |
| 52:BI:75:ALA:HB2 | 52:BI:112:LYS:HE2 | 1.95 | 0.48 |
| 13:CN:40:ARG:CZ | 18:CS:6:LYS:HB2 | 2.44 | 0.48 |
| 45:DY:3:THR:CA | 45:DY:37:ARG:H | 2.23 | 0.48 |
| 31:DJ:68:LYS:HD2 | 31:DJ:72:LYS:CB | 2.43 | 0.48 |
| 1:CA:1287:A:H2' | 1:CA:1288:A:H8 | 1.76 | 0.48 |
| 23:BB:1059:G:N2 | 52:BI:130:GLY:HA3 | 2.29 | 0.48 |
| 52:DI:90:GLY:C | 52:DI:92:PRO:HD3 | 2.34 | 0.48 |
| 1:AA:948:C:O2' | 1:AA:949:A:H5' | 2.14 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 10:CK:70:ALA:N | 10:CK:73:VAL:HG22 | 2.29 | 0.48 |
| 23:DB:2800:A:H2' | 23:DB:2801:G:C4' | 2.43 | 0.48 |
| 1:AA:79:G:H2' | 1:AA:80:A:O4' | 2.14 | 0.48 |
| 31:BJ:7:LYS:HZ3 | 31:BJ:48:VAL:CA | 2.27 | 0.48 |
| 11:AL:113:ARG:HA | 11:AL:118:VAL:HG23 | 1.96 | 0.48 |
| 16:CQ:60:ILE:HG12 | 16:CQ:72:TRP:HE3 | 1.78 | 0.48 |
| 23:DB:1727:C:H2' | 23:DB:1728:C:H6 | 1.74 | 0.48 |
| 1:AA:397:A:H5' | 1:AA:398:U:OP1 | 2.13 | 0.48 |
| 23:DB:1407:G:H2' | 23:DB:1408:G:H8 | 1.78 | 0.48 |
| 1:AA:922:G:H2' | 1:AA:923:A:H8 | 1.78 | 0.48 |
| 9:CJ:64:GLN:CB | 13:CN:98:ALA:HB3 | 2.43 | 0.48 |
| 1:CA:1390:U:H2' | 1:CA:1391:U:C6 | 2.49 | 0.48 |
| 23:BB:2795:C:H6 | 23:BB:2795:C:O5' | 1.97 | 0.48 |
| 18:CS:56:HIS:CD2 | 18:CS:56:HIS:N | 2.80 | 0.48 |
| 23:DB:955:U:H5' | 23:DB:956:G:OP2 | 2.12 | 0.48 |
| 9:CJ:37:ARG:HG2 | 9:CJ:37:ARG:NH1 | 2.29 | 0.48 |
| 42:DU:22:GLY:HA3 | 42:DU:35:VAL:CG2 | 2.43 | 0.48 |
| 4:CE:148:SER:HB2 | 4:CE:149:PRO:HD2 | 1.94 | 0.48 |
| 23:BB:712:G:H2' | 23:BB:713:G:O4' | 2.13 | 0.48 |
| 20:CB:153:MET:C | 20:CB:155:GLY:H | 2.17 | 0.48 |
| 8:CI:33:SER:HB2 | 8:CI:36:GLN:CG | 2.44 | 0.48 |
| 23:DB:417:C:H2' | 23:DB:418:C:H6 | 1.78 | 0.48 |
| 23:DB:2105:U:H2' | 23:DB:2106:U:C6 | 2.48 | 0.48 |
| 1:AA:736:C:H2' | 1:AA:737:C:H6 | 1.77 | 0.48 |
| 23:BB:1561:C:H2' | 23:BB:1562:U:C6 | 2.49 | 0.48 |
| 23:DB:493:G:O2' | 23:DB:494:G:H5' | 2.14 | 0.48 |
| 1:CA:1164:G:O2' | 1:CA:1165:U:H5' | 2.13 | 0.48 |
| 1:CA:893:C:H2' | 1:CA:894:G:H8 | 1.78 | 0.48 |
| 1:CA:903:G:H2' | 1:CA:904:U:C6 | 2.48 | 0.48 |
| 36:BO:58:ILE:HG13 | 36:BO:63:LYS:HB3 | 1.94 | 0.48 |
| 47:B0:11:LYS:C | 47:B0:13:GLY:H | 2.15 | 0.48 |
| 1:AA:147:G:H2' | 1:AA:148:G:C8 | 2.48 | 0.48 |
| 35:BN:102:PHE:N | 35:BN:102:PHE:HD2 | 2.11 | 0.48 |
| 1:CA:1516:G:H2' | 1:CA:1518:A:OP2 | 2.13 | 0.48 |
| 19:AT:19:HIS:O | 19:AT:23:ARG:HG2 | 2.13 | 0.48 |
| 1:CA:659:U:H2' | 1:CA:660:C:C6 | 2.48 | 0.48 |
| 23:BB:67:U:C4 | 23:BB:68:G:N7 | 2.82 | 0.48 |
| 3:CD:27:ILE:C | 3:CD:29:THR:H | 2.16 | 0.48 |
| 6:CG:139:ASP:O | 6:CG:142:ARG:HB3 | 2.14 | 0.48 |
| 1:CA:1116:U:O2' | 1:CA:1117:A:H5' | 2.13 | 0.48 |
| 1:AA:340:U:H2' | 1:AA:341:C:H6 | 1.79 | 0.48 |
| 23:BB:1759:A:H4' | 23:BB:2715:C:O4' | 2.13 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 1:AA:1352:C:H2' | 1:AA:1353:G:C8 | 2.49 | 0.48 |
| 20:AB:68:PHE:HA | 20:AB:161:PHE:O | 2.12 | 0.48 |
| 23:DB:1098:A:N3 | 52:DI:3:LYS:O | 2.46 | 0.48 |
| 37:DP:18:SER:HB2 | 37:DP:87:ARG:NH2 | 2.28 | 0.48 |
| 30:BH:81:ALA:CB | 30:BH:147:VAL:H | 2.27 | 0.48 |
| 23:DB:2526:G:H2' | 23:DB:2527:C:C6 | 2.48 | 0.48 |
| 37:BP:93:LYS:CB | 37:BP:96:LEU:HA | 2.43 | 0.48 |
| 43:DW:67:LYS:HE3 | 43:DW:71:LYS:H | 1.78 | 0.48 |
| 23:BB:1818:U:H5'' | 25:BC:155:ARG:HG2 | 1.95 | 0.48 |
| 25:BC:87:SER:N | 25:BC:155:ARG:HH12 | 2.11 | 0.48 |
| 25:DC:139:THR:O | 25:DC:191:LEU:HD12 | 2.14 | 0.48 |
| 31:BJ:21:THR:HA | 31:BJ:61:LYS:HB2 | 1.95 | 0.48 |
| 50:B3:12:ARG:NH2 | 50:B3:55:GLY:HA3 | 2.28 | 0.48 |
| 23:BB:2394:C:OP1 | 33:BL:63:LYS:O | 2.30 | 0.48 |
| 46:BZ:31:ASP:O | 46:BZ:32:LEU:HB3 | 2.14 | 0.48 |
| 24:BV:26:PHE:HZ | 24:BV:47:VAL:HB | 1.79 | 0.48 |
| 23:BB:2572:A:OP2 | 26:BD:151:THR:HA | 2.14 | 0.48 |
| 1:AA:267:C:OP2 | 16:AQ:68:LYS:HD2 | 2.14 | 0.48 |
| 16:AQ:17:GLU:C | 16:AQ:19:SER:H | 2.17 | 0.48 |
| 25:DC:267:VAL:HG12 | 25:DC:268:ARG:N | 2.28 | 0.48 |
| 23:BB:942:G:O2' | 23:BB:943:A:H5' | 2.14 | 0.48 |
| 33:BL:38:GLN:H | 33:BL:41:ARG:NH1 | 2.11 | 0.48 |
| 23:BB:1156:A:H62 | 38:BQ:47:ARG:CD | 2.27 | 0.48 |
| 39:DR:32:THR:HB | 39:DR:65:ALA:C | 2.34 | 0.48 |
| 41:DT:47:VAL:HG13 | 41:DT:48:GLN:N | 2.29 | 0.48 |
| 31:DJ:114:LEU:HG | 31:DJ:118:MET:HE1 | 1.96 | 0.48 |
| 28:BF:59:ILE:HD11 | 28:BF:137:PHE:CG | 2.49 | 0.48 |
| 23:DB:871:U:H4' | 34:DM:68:PHE:CE1 | 2.49 | 0.48 |
| 23:BB:1206:G:H2' | 23:BB:1207:C:C6 | 2.49 | 0.48 |
| 41:BT:34:VAL:HG11 | 41:BT:43:ILE:HD11 | 1.94 | 0.48 |
| 41:BT:6:ARG:C | 41:BT:8:LEU:N | 2.67 | 0.48 |
| 23:BB:1657:U:P | 26:BD:141:ARG:HB2 | 2.54 | 0.48 |
| 21:CU:6:ARG:C | 21:CU:7:GLU:HG2 | 2.34 | 0.48 |
| 52:BI:58:ILE:N | 52:BI:58:ILE:HD12 | 2.29 | 0.48 |
| 26:BD:1:MET:SD | 26:BD:84:LEU:HD13 | 2.54 | 0.48 |
| 25:BC:229:HIS:ND1 | 25:BC:230:PRO:HD2 | 2.28 | 0.48 |
| 39:BR:37:GLU:HG2 | 39:BR:62:GLU:N | 2.19 | 0.48 |
| 1:AA:1487:G:O2' | 1:AA:1488:G:H5' | 2.13 | 0.48 |
| 12:CM:18:LEU:HD23 | 12:CM:24:VAL:HG21 | 1.94 | 0.48 |
| 4:CE:19:ARG:O | 4:CE:20:VAL:HB | 2.14 | 0.48 |
| 10:CK:121:ARG:HH21 | 21:CU:34:ARG:NE | 2.11 | 0.48 |
| 8:CI:56:MET:C | 8:CI:58:GLU:H | 2.17 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:CA:1008:U:H3' | 1:CA:1009:U:H5'' | 1.95 | 0.48 |
| 23:DB:810:U:N3 | 33:DL:37:GLY:HA2 | 2.29 | 0.48 |
| 29:BG:18:ILE:N | 29:BG:18:ILE:HD13 | 2.29 | 0.48 |
| 38:DQ:98:ALA:HA | 38:DQ:105:PHE:CG | 2.49 | 0.48 |
| 16:AQ:28:VAL:C | 16:AQ:36:PHE:HA | 2.33 | 0.48 |
| 23:DB:1666:G:O2' | 23:DB:1667:G:H5' | 2.13 | 0.48 |
| 6:CG:112:ASP:HB2 | 6:CG:118:ARG:CG | 2.41 | 0.48 |
| 4:CE:17:VAL:HA | 4:CE:33:THR:O | 2.13 | 0.48 |
| 1:CA:1310:G:O2' | 1:CA:1311:A:H5' | 2.13 | 0.48 |
| 31:BJ:7:LYS:HZ3 | 31:BJ:49:ASP:H | 1.61 | 0.48 |
| 1:AA:591:U:H2' | 1:AA:592:G:C8 | 2.48 | 0.48 |
| 1:CA:1435:G:H2' | 1:CA:1436:U:C6 | 2.49 | 0.48 |
| 35:BN:99:LYS:HZ3 | 35:BN:99:LYS:HB3 | 1.78 | 0.48 |
| 23:DB:951:C:O2' | 23:DB:952:G:H5' | 2.14 | 0.48 |
| 23:BB:1791:A:H61 | 23:BB:1828:G:H1' | 1.78 | 0.48 |
| 23:BB:1841:U:H2' | 23:BB:1842:G:H8 | 1.79 | 0.48 |
| 3:AD:201:GLU:OE1 | 4:AE:104:ILE:HG22 | 2.14 | 0.48 |
| 23:BB:132:G:H2' | 23:BB:133:U:C6 | 2.49 | 0.48 |
| 24:BV:77:VAL:HG13 | 24:BV:77:VAL:O | 2.14 | 0.48 |
| 20:CB:86:CYS:SG | 20:CB:87:ASP:N | 2.86 | 0.48 |
| 3:CD:156:ALA:O | 3:CD:160:LEU:HD12 | 2.14 | 0.48 |
| 16:AQ:30:HIS:H | 16:AQ:35:LYS:H | 1.61 | 0.48 |
| 13:AN:50:LEU:CD2 | 13:AN:51:PRO:HD3 | 2.41 | 0.48 |
| 1:CA:766:A:H2' | 1:CA:767:A:O4' | 2.13 | 0.48 |
| 23:BB:673:C:O2' | 23:BB:674:G:H5' | 2.13 | 0.48 |
| 23:DB:2106:U:C2' | 23:DB:2107:G:OP1 | 2.62 | 0.48 |
| 31:DJ:105:VAL:HA | 31:DJ:108:MET:HE3 | 1.94 | 0.48 |
| 23:DB:1706:C:C2 | 23:DB:1757:A:H5' | 2.48 | 0.48 |
| 1:AA:1225:A:N3 | 1:AA:1225:A:H2' | 2.29 | 0.48 |
| 23:BB:188:G:O2' | 23:BB:189:G:H5' | 2.14 | 0.48 |
| 23:DB:1779:U:OP2 | 23:DB:1784:A:N6 | 2.46 | 0.48 |
| 1:CA:591:U:H2' | 1:CA:592:G:C8 | 2.48 | 0.48 |
| 1:AA:1037:C:H2' | 1:AA:1038:C:C6 | 2.48 | 0.48 |
| 17:CR:20:ILE:HD12 | 17:CR:53:GLN:HE22 | 1.79 | 0.48 |
| 23:DB:197:A:H62 | 23:DB:2430:A:H2' | 1.78 | 0.48 |
| 23:BB:2893:A:H4' | 23:BB:2894:G:C5' | 2.43 | 0.48 |
| 23:BB:207:A:H2' | 23:BB:208:C:O4' | 2.14 | 0.48 |
| 8:CI:40:ARG:HA | 8:CI:44:ARG:NH1 | 2.29 | 0.48 |
| 1:CA:1020:G:N3 | 1:CA:1020:G:H2' | 2.29 | 0.48 |
| 23:BB:1583:A:H4' | 23:BB:1585:C:N3 | 2.28 | 0.48 |
| 35:DN:14:SER:HA | 35:DN:17:ARG:HH12 | 1.79 | 0.48 |
| 23:BB:1467:U:C4 | 23:BB:1546:G:C2 | 3.01 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 52:BI:63:ASP:C | 52:BI:65:SER:N | 2.67 | 0.48 |
| 23:DB:2344:U:H4' | 23:DB:2345:G:OP1 | 2.13 | 0.48 |
| 3:AD:66:VAL:HG13 | 3:AD:70:GLN:OE1 | 2.13 | 0.48 |
| 1:CA:1260:G:HO2' | 1:CA:1261:A:H8 | 1.59 | 0.48 |
| 1:AA:363:A:OP2 | 11:AL:30:ARG:NH1 | 2.47 | 0.48 |
| 23:BB:2149:U:O2' | 23:BB:2150:C:H5' | 2.13 | 0.48 |
| 23:BB:2259:U:O2 | 23:BB:2259:U:H2' | 2.13 | 0.48 |
| 24:BV:78:GLN:HB2 | 24:BV:88:HIS:O | 2.14 | 0.48 |
| 11:CL:75:GLU:OE2 | 11:CL:76:HIS:N | 2.47 | 0.48 |
| 37:DP:87:ARG:HH11 | 37:DP:87:ARG:HG2 | 1.79 | 0.48 |
| 42:BU:95:PHE:HD1 | 42:BU:96:LYS:HG2 | 1.78 | 0.48 |
| 42:BU:96:LYS:HE2 | 42:BU:98:ASN:HB3 | 1.96 | 0.48 |
| 23:BB:2683:C:H2' | 23:BB:2684:U:C6 | 2.49 | 0.48 |
| 37:BP:29:VAL:C | 37:BP:44:GLY:HA3 | 2.34 | 0.48 |
| 23:DB:2261:C:OP2 | 43:DW:13:ARG:HB2 | 2.14 | 0.48 |
| 25:BC:164:VAL:HB | 25:BC:167:ASP:OD2 | 2.13 | 0.48 |
| 23:DB:1821:A:H2' | 23:DB:1822:C:H6 | 1.76 | 0.48 |
| 25:DC:128:THR:HA | 25:DC:189:ALA:O | 2.14 | 0.48 |
| 25:DC:137:GLY:C | 25:DC:139:THR:N | 2.66 | 0.48 |
| 23:DB:1819:A:OP1 | 25:DC:155:ARG:HB3 | 2.14 | 0.48 |
| 30:BH:3:VAL:HG22 | 30:BH:21:VAL:HG21 | 1.96 | 0.48 |
| 23:BB:633:A:H2' | 23:BB:634:C:C5' | 2.41 | 0.48 |
| 23:BB:2485:G:H1' | 34:BM:118:LYS:HZ3 | 1.79 | 0.48 |
| 38:BQ:35:PHE:HB3 | 38:BQ:39:ILE:HD12 | 1.96 | 0.48 |
| 36:DO:39:VAL:HG13 | 36:DO:39:VAL:O | 2.13 | 0.48 |
| 23:BB:1157:G:H2' | 23:BB:1158:C:H6 | 1.79 | 0.48 |
| 41:DT:63:VAL:O | 41:DT:79:ASP:HA | 2.14 | 0.48 |
| 8:AI:51:LEU:HD11 | 8:AI:82:ILE:HG21 | 1.96 | 0.48 |
| 8:AI:79:ARG:O | 8:AI:83:THR:HG22 | 2.14 | 0.48 |
| 28:BF:55:ASP:CG | 28:BF:148:VAL:HG11 | 2.34 | 0.48 |
| 31:BJ:35:ARG:NE | 31:BJ:39:LYS:HB3 | 2.24 | 0.48 |
| 47:B0:28:SER:O | 47:B0:36:LYS:HB2 | 2.13 | 0.48 |
| 40:BS:29:VAL:C | 40:BS:31:GLN:H | 2.16 | 0.48 |
| 23:DB:1197:G:O2' | 23:DB:1198:U:H5' | 2.14 | 0.48 |
| 33:DL:77:ILE:HG21 | 33:DL:92:LEU:HG | 1.96 | 0.48 |
| 38:BQ:52:ARG:CZ | 38:BQ:55:GLN:HE21 | 2.27 | 0.48 |
| 1:CA:1366:C:H2' | 1:CA:1367:C:H6 | 1.77 | 0.48 |
| 23:BB:545:U:H2' | 23:BB:547:A:P | 2.54 | 0.48 |
| 10:CK:110:THR:HG22 | 21:CU:5:VAL:N | 2.23 | 0.48 |
| 27:DE:14:VAL:HG11 | 27:DE:16:GLU:CD | 2.34 | 0.48 |
| 23:DB:2038:G:H2' | 23:DB:2039:U:C6 | 2.49 | 0.48 |
| 2:AC:154:GLY:HA2 | 2:AC:163:ARG:O | 2.12 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 5:CF:38:ARG:NH2 | 5:CF:63:ASN:ND2 | 2.59 | 0.48 |
| 25:BC:231:HIS:ND1 | 25:BC:231:HIS:O | 2.47 | 0.48 |
| 1:CA:554:A:H2' | 1:CA:555:U:C6 | 2.49 | 0.48 |
| 45:DY:2:LYS:CA | 45:DY:37:ARG:HB2 | 2.44 | 0.48 |
| 1:CA:1254:A:H2' | 1:CA:1255:G:C8 | 2.49 | 0.48 |
| 1:AA:840:C:C2 | 1:AA:842:U:H4' | 2.49 | 0.48 |
| 15:CP:54:LEU:HD13 | 15:CP:80:LYS:HZ2 | 1.78 | 0.48 |
| 23:BB:2059:A:N6 | 23:BB:2503:A:H2' | 2.29 | 0.48 |
| 21:CU:39:LYS:H | 21:CU:40:PRO:CD | 2.21 | 0.48 |
| 35:BN:9:GLN:HE21 | 35:BN:17:ARG:HH12 | 1.61 | 0.48 |
| 45:BY:35:VAL:CG1 | 45:BY:37:ARG:HH21 | 2.27 | 0.48 |
| 3:AD:37:PRO:HD2 | 3:AD:41:GLY:HA3 | 1.96 | 0.48 |
| 11:AL:78:VAL:O | 11:AL:102:ASP:HB2 | 2.14 | 0.48 |
| 19:CT:2:ASN:O | 19:CT:3:ILE:C | 2.52 | 0.48 |
| 8:CI:29:ILE:HB | 8:CI:64:ILE:HD12 | 1.95 | 0.48 |
| 52:BI:17:ALA:O | 52:BI:18:ASN:CB | 2.62 | 0.48 |
| 18:AS:66:VAL:C | 18:AS:68:HIS:H | 2.17 | 0.48 |
| 16:CQ:10:ARG:NE | 16:CQ:56:ASP:O | 2.44 | 0.48 |
| 2:AC:57:GLU:HB2 | 2:AC:64:ARG:CB | 2.43 | 0.48 |
| 31:BJ:46:PRO:O | 31:BJ:47:HIS:HB2 | 2.14 | 0.48 |
| 12:CM:102:LYS:NZ | 12:CM:103:THR:HG23 | 2.28 | 0.48 |
| 41:BT:74:ILE:HG22 | 41:BT:75:GLY:N | 2.29 | 0.48 |
| 23:DB:704:G:HO2' | 23:DB:705:A:P | 2.37 | 0.48 |
| 23:DB:1438:U:O2' | 23:DB:1439:A:H5' | 2.14 | 0.48 |
| 23:DB:150:U:H2' | 23:DB:151:C:H6 | 1.78 | 0.48 |
| 5:CF:12:PRO:HB3 | 5:CF:56:LYS:O | 2.13 | 0.48 |
| 23:DB:2466:C:O2' | 34:DM:118:LYS:HE2 | 2.13 | 0.48 |
| 50:D3:4:LYS:HE3 | 50:D3:61:LEU:CB | 2.44 | 0.48 |
| 23:DB:1688:U:O2 | 23:DB:1700:A:H5' | 2.13 | 0.48 |
| 29:BG:70:LEU:O | 29:BG:74:MET:HG3 | 2.14 | 0.48 |
| 3:AD:58:GLN:O | 3:AD:62:ARG:HG2 | 2.12 | 0.48 |
| 39:BR:66:HIS:N | 39:BR:98:ILE:HD13 | 2.28 | 0.48 |
| 1:AA:1071:C:O2' | 1:AA:1072:G:H5' | 2.14 | 0.48 |
| 11:CL:51:VAL:HG12 | 11:CL:52:CYS:N | 2.27 | 0.48 |
| 23:DB:963:U:H2' | 23:DB:964:C:C6 | 2.49 | 0.48 |
| 23:BB:2291:U:OP1 | 23:BB:2380:C:O2' | 2.31 | 0.48 |
| 2:CC:168:ARG:HG2 | 2:CC:169:GLU:N | 2.28 | 0.48 |
| 23:BB:728:G:H4' | 25:BC:12:ARG:HH22 | 1.79 | 0.48 |
| 1:AA:1018:G:H2' | 1:AA:1019:A:H8 | 1.77 | 0.48 |
| 27:DE:134:LEU:HD22 | 27:DE:134:LEU:N | 2.27 | 0.48 |
| 38:DQ:55:GLN:O | 38:DQ:58:GLN:HG3 | 2.12 | 0.48 |
| 1:AA:476:U:O2' | 1:AA:477:C:H5' | 2.14 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 10:CK:48:GLY:C | 10:CK:50:GLY:H | 2.17 | 0.48 |
| 23:DB:2773:C:H5'' | 26:DD:169:ARG:HB2 | 1.95 | 0.48 |
| 4:AE:89:THR:HG22 | 4:AE:90:GLY:N | 2.29 | 0.48 |
| 13:AN:33:VAL:HG23 | 13:AN:40:ARG:HH21 | 1.79 | 0.48 |
| 23:BB:1433:A:H2' | 23:BB:1434:A:O4' | 2.13 | 0.48 |
| 23:DB:1467:U:C4 | 23:DB:1546:G:C2 | 3.01 | 0.48 |
| 23:BB:839:U:O2' | 23:BB:1191:G:H1' | 2.14 | 0.48 |
| 1:CA:869:G:H4' | 1:CA:872:A:C8 | 2.49 | 0.48 |
| 1:AA:608:A:H2' | 1:AA:609:A:O4' | 2.14 | 0.48 |
| 23:DB:1213:A:C6 | 23:DB:1237:A:H1' | 2.49 | 0.48 |
| 23:BB:562:U:H2' | 23:BB:572:A:O4' | 2.14 | 0.48 |
| 41:BT:20:ALA:C | 41:BT:22:THR:H | 2.17 | 0.48 |
| 1:AA:66:A:O5' | 1:AA:66:A:H8 | 1.97 | 0.48 |
| 17:CR:47:ARG:CZ | 17:CR:48:ALA:H | 2.27 | 0.48 |
| 6:CG:75:LYS:HE3 | 6:CG:76:SER:O | 2.13 | 0.48 |
| 26:DD:121:THR:HG21 | 26:DD:143:PRO:HD3 | 1.96 | 0.48 |
| 7:CH:88:LYS:HD3 | 7:CH:89:ASP:N | 2.29 | 0.48 |
| 37:DP:70:GLU:HG2 | 37:DP:71:ARG:HG2 | 1.96 | 0.48 |
| 23:BB:84:A:H3' | 42:BU:5:ARG:HG3 | 1.96 | 0.48 |
| 23:BB:36:G:H4' | 23:BB:451:U:C2 | 2.49 | 0.48 |
| 23:BB:2845:U:H2' | 23:BB:2846:G:C8 | 2.49 | 0.48 |
| 37:BP:76:HIS:CD2 | 37:BP:76:HIS:N | 2.82 | 0.48 |
| 30:DH:8:LYS:HE2 | 30:DH:9:VAL:N | 2.27 | 0.48 |
| 23:BB:921:C:H2' | 23:BB:922:C:H6 | 1.79 | 0.48 |
| 36:BO:40:ILE:CD1 | 36:BO:40:ILE:H | 2.27 | 0.48 |
| 36:BO:46:GLU:C | 36:BO:48:LEU:H | 2.17 | 0.48 |
| 33:DL:51:GLU:OE1 | 33:DL:51:GLU:N | 2.47 | 0.48 |
| 46:BZ:3:LYS:CE | 46:BZ:8:LYS:HA | 2.41 | 0.48 |
| 32:BK:85:VAL:O | 32:BK:87:LEU:HD23 | 2.14 | 0.48 |
| 34:BM:7:THR:HG23 | 34:BM:91:TYR:OH | 2.14 | 0.48 |
| 23:DB:137:U:H2' | 23:DB:138:U:O4' | 2.13 | 0.48 |
| 23:DB:2376:A:H2 | 36:DO:117:PHE:HD2 | 1.61 | 0.48 |
| 33:BL:27:LEU:N | 33:BL:27:LEU:HD12 | 2.23 | 0.48 |
| 40:BS:6:LYS:CA | 40:BS:104:THR:HA | 2.32 | 0.48 |
| 23:BB:992:C:H1' | 39:BR:91:GLN:CB | 2.44 | 0.48 |
| 26:BD:110:THR:HG22 | 26:BD:171:THR:CA | 2.42 | 0.48 |
| 28:BF:56:LEU:HA | 28:BF:59:ILE:CG2 | 2.44 | 0.48 |
| 25:BC:79:ARG:NH2 | 25:BC:110:LYS:HD3 | 2.29 | 0.48 |
| 25:BC:64:VAL:HB | 25:BC:65:ASP:H | 1.42 | 0.48 |
| 31:BJ:35:ARG:NH2 | 31:BJ:40:HIS:N | 2.61 | 0.48 |
| 31:BJ:39:LYS:C | 31:BJ:41:LYS:H | 2.17 | 0.48 |
| 39:BR:1:MET:HA | 39:BR:46:GLU:CB | 2.43 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 47:B0:28:SER:O | 47:B0:29:VAL:HG12 | 2.13 | 0.48 |
| 47:B0:32:THR:HG22 | 47:B0:32:THR:O | 2.13 | 0.48 |
| 40:BS:31:GLN:HB3 | 40:BS:35:ILE:CG2 | 2.44 | 0.48 |
| 1:CA:1343:G:H1' | 8:CI:122:ARG:HH12 | 1.79 | 0.48 |
| 3:CD:64:TYR:CE2 | 3:CD:93:LEU:HD13 | 2.48 | 0.48 |
| 24:BV:60:VAL:HG13 | 24:BV:72:VAL:O | 2.13 | 0.48 |
| 33:DL:57:LEU:HB3 | 50:D3:54:LEU:HD22 | 1.95 | 0.48 |
| 28:DF:141:ASP:O | 28:DF:142:TYR:HB3 | 2.13 | 0.48 |
| 52:BI:37:PHE:CZ | 52:BI:58:ILE:HD11 | 2.49 | 0.48 |
| 26:BD:38:LYS:N | 26:BD:38:LYS:CD | 2.76 | 0.48 |
| 32:DK:63:VAL:CG1 | 32:DK:103:VAL:HG12 | 2.44 | 0.48 |
| 31:DJ:67:ASN:C | 31:DJ:69:ARG:H | 2.16 | 0.48 |
| 33:DL:90:VAL:HG12 | 33:DL:122:VAL:HG22 | 1.96 | 0.48 |
| 1:AA:36:C:H5'' | 11:AL:119:LYS:HB3 | 1.94 | 0.48 |
| 22:DA:33:G:O2' | 22:DA:34:A:H5' | 2.14 | 0.48 |
| 12:AM:18:LEU:O | 12:AM:21:ILE:HG13 | 2.13 | 0.48 |
| 36:BO:87:ILE:CG1 | 36:BO:88:LYS:N | 2.76 | 0.48 |
| 1:AA:16:A:N1 | 1:AA:919:A:H2 | 2.12 | 0.48 |
| 9:CJ:40:ILE:CG1 | 9:CJ:73:LEU:HB3 | 2.44 | 0.48 |
| 19:AT:59:ARG:HH11 | 19:AT:59:ARG:CB | 2.25 | 0.48 |
| 3:AD:154:VAL:HG13 | 3:AD:155:LYS:N | 2.25 | 0.48 |
| 23:DB:616:A:H3' | 23:DB:617:G:C8 | 2.44 | 0.48 |
| 23:DB:1903:G:OP1 | 25:DC:239:PHE:HA | 2.13 | 0.48 |
| 20:AB:127:LYS:HB2 | 20:AB:127:LYS:NZ | 2.29 | 0.48 |
| 23:BB:2526:G:H2' | 23:BB:2527:C:H6 | 1.79 | 0.48 |
| 23:DB:942:G:H2' | 23:DB:943:A:H8 | 1.79 | 0.48 |
| 23:DB:234:U:C2' | 23:DB:235:U:H5' | 2.44 | 0.48 |
| 20:CB:65:LYS:CB | 20:CB:157:PRO:HA | 2.43 | 0.48 |
| 23:DB:1165:A:H2' | 23:DB:1166:G:H8 | 1.77 | 0.48 |
| 23:DB:607:U:P | 27:DE:98:LYS:HG3 | 2.54 | 0.48 |
| 25:DC:136:VAL:C | 25:DC:165:ALA:HA | 2.34 | 0.48 |
| 1:CA:78:A:O2' | 1:CA:79:G:H5' | 2.14 | 0.48 |
| 23:BB:503:A:H4' | 23:BB:504:A:H5' | 1.94 | 0.48 |
| 23:DB:1579:A:H2' | 23:DB:1580:A:H8 | 1.78 | 0.48 |
| 23:BB:1537:G:H2' | 23:BB:1538:G:O4' | 2.14 | 0.48 |
| 1:AA:333:U:H2' | 1:AA:334:C:C6 | 2.49 | 0.48 |
| 1:AA:113:G:H1' | 1:AA:354:G:H5' | 1.96 | 0.48 |
| 23:BB:2568:U:H2' | 23:BB:2569:G:O4' | 2.14 | 0.48 |
| 23:BB:1662:U:O2 | 23:BB:2687:U:H4' | 2.13 | 0.48 |
| 23:BB:1315:C:H2' | 23:BB:1316:U:H6 | 1.77 | 0.48 |
| 23:DB:1219:U:OP2 | 38:DQ:18:LYS:HE3 | 2.14 | 0.48 |
| 1:CA:737:C:H2' | 1:CA:738:C:H6 | 1.79 | 0.48 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:DB:188:G:O2' | 23:DB:189:G:H5' | 2.14 | 0.48 |
| 1:CA:1480:A:H2' | 1:CA:1481:U:H6 | 1.79 | 0.48 |
| 1:CA:627:G:H2' | 1:CA:628:G:C8 | 2.48 | 0.48 |
| 1:CA:1426:G:H2' | 1:CA:1427:C:H6 | 1.79 | 0.48 |
| 1:CA:708:C:H2' | 1:CA:709:U:H6 | 1.79 | 0.48 |
| 23:BB:2737:G:H2' | 23:BB:2738:A:C8 | 2.48 | 0.48 |
| 26:DD:105:LYS:O | 26:DD:177:VAL:HG12 | 2.14 | 0.48 |
| 23:DB:2350:C:O2' | 23:DB:2351:G:H5' | 2.14 | 0.48 |
| 1:AA:659:U:H2' | 1:AA:660:C:C6 | 2.49 | 0.48 |
| 1:AA:110:C:H2' | 1:AA:111:G:O4' | 2.14 | 0.48 |
| 23:BB:388:G:N7 | 23:BB:390:U:H2' | 2.28 | 0.48 |
| 23:BB:947:A:O2' | 23:BB:984:A:H2 | 1.97 | 0.48 |
| 1:CA:110:C:H2' | 1:CA:111:G:O4' | 2.14 | 0.48 |
| 23:DB:2527:C:OP1 | 51:D4:34:LYS:HE2 | 2.14 | 0.47 |
| 26:BD:8:LYS:O | 26:BD:9:VAL:HG22 | 2.13 | 0.47 |
| 37:BP:81:ASP:O | 37:BP:83:ILE:N | 2.46 | 0.47 |
| 31:BJ:125:TYR:HE2 | 31:BJ:134:ALA:HB2 | 1.78 | 0.47 |
| 43:BW:44:PHE:CE2 | 43:BW:80:SER:HA | 2.49 | 0.47 |
| 23:DB:396:G:H2' | 23:DB:397:U:C6 | 2.49 | 0.47 |
| 23:BB:2462:C:H2' | 23:BB:2463:C:C6 | 2.49 | 0.47 |
| 34:BM:96:ILE:CG2 | 34:BM:97:GLN:H | 2.17 | 0.47 |
| 36:DO:25:ARG:NE | 36:DO:94:ARG:HH12 | 2.06 | 0.47 |
| 36:DO:10:ARG:HG3 | 36:DO:96:GLY:H | 1.77 | 0.47 |
| 23:DB:853:C:H2' | 23:DB:854:C:H6 | 1.78 | 0.47 |
| 18:CS:43:MET:CB | 18:CS:61:VAL:HG11 | 2.44 | 0.47 |
| 23:BB:1132:U:H5' | 31:BJ:85:LYS:HZ3 | 1.79 | 0.47 |
| 23:DB:871:U:H2' | 23:DB:872:U:C6 | 2.49 | 0.47 |
| 43:BW:40:ARG:HB2 | 43:BW:41:GLY:H | 1.58 | 0.47 |
| 3:CD:170:LEU:HD12 | 3:CD:170:LEU:O | 2.14 | 0.47 |
| 51:B4:9:LYS:O | 51:B4:10:LEU:HB3 | 2.14 | 0.47 |
| 26:DD:24:VAL:HG21 | 26:DD:193:VAL:CG1 | 2.44 | 0.47 |
| 23:DB:636:G:OP2 | 33:DL:126:ARG:NH2 | 2.47 | 0.47 |
| 33:DL:140:GLY:O | 33:DL:142:ILE:N | 2.47 | 0.47 |
| 26:BD:16:THR:CG2 | 26:BD:17:GLU:H | 2.14 | 0.47 |
| 28:DF:18:GLU:C | 28:DF:20:ASN:N | 2.66 | 0.47 |
| 26:DD:148:GLN:HB3 | 26:DD:151:THR:HG21 | 1.96 | 0.47 |
| 23:DB:1133:A:N6 | 23:DB:2025:C:O2' | 2.46 | 0.47 |
| 32:BK:63:VAL:CG1 | 32:BK:103:VAL:HA | 2.44 | 0.47 |
| 26:BD:26:VAL:HG23 | 26:BD:187:LEU:HB3 | 1.96 | 0.47 |
| 23:DB:2683:C:H2' | 23:DB:2684:U:C6 | 2.49 | 0.47 |
| 32:DK:63:VAL:HG22 | 32:DK:115:ILE:HD11 | 1.95 | 0.47 |
| 32:DK:77:ILE:HD11 | 32:DK:105:ARG:HH12 | 1.77 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:BB:2144:G:H2' | 23:BB:2146:C:OP2 | 2.14 | 0.47 |
| 1:CA:921:U:H2' | 1:CA:922:G:O4' | 2.13 | 0.47 |
| 14:CO:25:GLU:HA | 14:CO:80:LEU:HD12 | 1.96 | 0.47 |
| 1:CA:836:G:H2' | 1:CA:837:U:H6 | 1.79 | 0.47 |
| 1:AA:782:A:H2' | 1:AA:783:C:O4' | 2.14 | 0.47 |
| 23:DB:2143:C:H2' | 23:DB:2144:G:C4' | 2.43 | 0.47 |
| 23:BB:271:G:HO2' | 23:BB:272:A:H8 | 1.62 | 0.47 |
| 35:BN:118:ARG:NH1 | 47:B0:50:GLY:HA3 | 2.29 | 0.47 |
| 2:CC:140:ALA:HB2 | 2:CC:148:ILE:HD12 | 1.96 | 0.47 |
| 1:CA:954:G:H2' | 1:CA:955:U:H6 | 1.79 | 0.47 |
| 23:BB:2800:A:H2' | 23:BB:2801:G:C4' | 2.43 | 0.47 |
| 8:CI:29:ILE:HD13 | 8:CI:37:TYR:CD2 | 2.49 | 0.47 |
| 23:BB:2815:C:H2' | 23:BB:2816:G:H8 | 1.79 | 0.47 |
| 23:DB:582:A:H2' | 23:DB:583:G:C8 | 2.47 | 0.47 |
| 29:BG:42:VAL:HG12 | 29:BG:51:PHE:CD1 | 2.49 | 0.47 |
| 2:CC:146:LYS:HD3 | 2:CC:203:LYS:O | 2.14 | 0.47 |
| 23:DB:704:G:O2' | 23:DB:726:G:N2 | 2.46 | 0.47 |
| 3:CD:118:SER:C | 3:CD:120:LYS:H | 2.18 | 0.47 |
| 23:BB:1299:G:H4' | 23:BB:1301:A:C1' | 2.42 | 0.47 |
| 1:CA:1361:G:C2' | 1:CA:1362:A:H5'' | 2.43 | 0.47 |
| 23:DB:2795:C:O5' | 23:DB:2795:C:H6 | 1.96 | 0.47 |
| 44:DX:51:ALA:O | 44:DX:53:VAL:HG12 | 2.14 | 0.47 |
| 23:DB:1531:C:H2' | 23:DB:1532:A:H8 | 1.75 | 0.47 |
| 23:DB:1681:G:N3 | 23:DB:1762:A:H2' | 2.29 | 0.47 |
| 23:DB:1685:C:H2' | 23:DB:1686:C:H6 | 1.78 | 0.47 |
| 12:AM:89:ARG:NH1 | 12:AM:94:LEU:HD13 | 2.29 | 0.47 |
| 1:AA:634:C:O2' | 1:AA:635:A:H5' | 2.14 | 0.47 |
| 30:DH:97:ARG:H | 30:DH:97:ARG:HG2 | 1.38 | 0.47 |
| 23:BB:1681:G:N3 | 23:BB:1762:A:H2' | 2.29 | 0.47 |
| 28:BF:2:LYS:HB2 | 28:BF:100:GLU:HG2 | 1.96 | 0.47 |
| 23:BB:852:U:H5' | 45:BY:45:GLY:HA3 | 1.96 | 0.47 |
| 32:DK:18:ARG:HB2 | 32:DK:45:GLU:CG | 2.44 | 0.47 |
| 23:DB:2220:U:H2' | 23:DB:2221:G:C8 | 2.48 | 0.47 |
| 23:BB:209:C:H2' | 23:BB:210:C:C6 | 2.48 | 0.47 |
| 20:AB:174:GLU:O | 20:AB:178:LEU:HD23 | 2.14 | 0.47 |
| 23:BB:256:A:O2' | 23:BB:257:C:H5' | 2.14 | 0.47 |
| 23:BB:1957:C:H2' | 23:BB:1958:C:C6 | 2.48 | 0.47 |
| 20:CB:68:PHE:HA | 20:CB:161:PHE:O | 2.14 | 0.47 |
| 23:BB:753:A:H2' | 23:BB:754:U:H6 | 1.78 | 0.47 |
| 29:BG:126:THR:CG2 | 29:BG:128:THR:HG23 | 2.44 | 0.47 |
| 20:AB:27:LYS:HB3 | 20:AB:28:PRO:HD3 | 1.96 | 0.47 |
| 6:AG:85:GLN:O | 6:AG:86:VAL:C | 2.52 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 33:DL:31:GLY:HA2 | 33:DL:36:LYS:HG2 | 1.96 | 0.47 |
| 29:BG:169:ARG:C | 29:BG:171:LYS:H | 2.17 | 0.47 |
| 23:DB:1658:C:OP1 | 26:DD:136:ASN:ND2 | 2.47 | 0.47 |
| 1:CA:911:U:H2' | 1:CA:912:C:C6 | 2.49 | 0.47 |
| 23:BB:2864:G:H2' | 23:BB:2865:U:C6 | 2.49 | 0.47 |
| 23:DB:2593:U:O2' | 23:DB:2594:C:H5' | 2.13 | 0.47 |
| 1:AA:434:U:H2' | 1:AA:434:U:O2 | 2.15 | 0.47 |
| 45:DY:13:ILE:HD13 | 45:DY:13:ILE:H | 1.79 | 0.47 |
| 1:AA:1356:G:H2' | 1:AA:1357:A:C8 | 2.48 | 0.47 |
| 37:DP:79:VAL:HG23 | 37:DP:81:ASP:OD1 | 2.14 | 0.47 |
| 23:DB:460:A:H2' | 23:DB:461:C:O4' | 2.14 | 0.47 |
| 20:AB:209:VAL:HG23 | 20:AB:210:THR:H | 1.77 | 0.47 |
| 23:DB:2526:G:H2' | 23:DB:2527:C:H6 | 1.79 | 0.47 |
| 25:BC:131:MET:O | 25:BC:134:ILE:HB | 2.14 | 0.47 |
| 25:BC:141:HIS:O | 25:BC:153:LEU:HD21 | 2.14 | 0.47 |
| 35:DN:36:THR:HG22 | 35:DN:37:THR:H | 1.78 | 0.47 |
| 31:DJ:133:ALA:O | 31:DJ:135:GLN:N | 2.47 | 0.47 |
| 43:BW:46:ALA:HA | 43:BW:57:THR:OG1 | 2.14 | 0.47 |
| 1:AA:1221:G:OP1 | 1:AA:1320:C:N4 | 2.47 | 0.47 |
| 23:DB:298:G:C2 | 23:DB:339:U:C5 | 3.02 | 0.47 |
| 33:BL:126:ARG:HD3 | 33:BL:126:ARG:C | 2.34 | 0.47 |
| 34:BM:33:LEU:HB2 | 34:BM:101:VAL:HG22 | 1.96 | 0.47 |
| 23:DB:137:U:H2' | 23:DB:138:U:C5' | 2.45 | 0.47 |
| 35:DN:2:ARG:NH2 | 35:DN:4:ARG:HH11 | 2.12 | 0.47 |
| 3:AD:67:LEU:N | 3:AD:67:LEU:HD22 | 2.29 | 0.47 |
| 33:BL:39:LYS:HB2 | 33:BL:46:VAL:HG22 | 1.95 | 0.47 |
| 41:DT:31:VAL:HG23 | 41:DT:82:LYS:HG3 | 1.95 | 0.47 |
| 8:AI:59:LYS:HB3 | 8:AI:59:LYS:HZ3 | 1.78 | 0.47 |
| 5:CF:6:ILE:HG23 | 5:CF:62:MET:CB | 2.35 | 0.47 |
| 26:DD:180:VAL:HG23 | 26:DD:181:ASP:H | 1.78 | 0.47 |
| 26:DD:95:SER:O | 26:DD:96:ILE:HG13 | 2.12 | 0.47 |
| 41:BT:60:THR:HG22 | 41:BT:83:ALA:CB | 2.44 | 0.47 |
| 33:BL:90:VAL:HG12 | 33:BL:121:THR:O | 2.14 | 0.47 |
| 23:DB:356:G:H2' | 23:DB:357:C:C6 | 2.50 | 0.47 |
| 23:DB:2647:U:O2' | 23:DB:2648:G:H5' | 2.15 | 0.47 |
| 26:BD:206:ALA:C | 26:BD:208:LYS:H | 2.17 | 0.47 |
| 23:DB:2730:C:H4' | 26:DD:174:SER:O | 2.13 | 0.47 |
| 23:BB:2144:G:C4 | 23:BB:2146:C:H5' | 2.49 | 0.47 |
| 5:AF:35:LYS:HD2 | 5:AF:65:GLU:OE2 | 2.14 | 0.47 |
| 1:CA:1302:C:H4' | 1:CA:1303:C:OP1 | 2.13 | 0.47 |
| 2:CC:71:ARG:HG3 | 2:CC:71:ARG:O | 2.15 | 0.47 |
| 23:BB:284:U:H2' | 23:BB:285:G:C8 | 2.48 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 49:D2:12:ARG:NH2 | 49:D2:16:HIS:HB2 | 2.28 | 0.47 |
| 29:DG:10:VAL:HG13 | 29:DG:14:VAL:HG12 | 1.96 | 0.47 |
| 29:DG:10:VAL:HG13 | 29:DG:14:VAL:CG1 | 2.44 | 0.47 |
| 10:CK:12:ARG:HB3 | 10:CK:13:LYS:HD2 | 1.96 | 0.47 |
| 5:CF:51:ILE:O | 5:CF:51:ILE:HG23 | 2.14 | 0.47 |
| 23:BB:233:A:H61 | 23:BB:428:A:N6 | 2.12 | 0.47 |
| 31:BJ:7:LYS:C | 31:BJ:9:GLU:H | 2.17 | 0.47 |
| 4:AE:132:PRO:HA | 4:AE:135:VAL:HG22 | 1.95 | 0.47 |
| 23:DB:543:G:C5 | 23:DB:544:C:H1' | 2.49 | 0.47 |
| 23:DB:544:C:O5' | 23:DB:545:U:OP1 | 2.32 | 0.47 |
| 11:CL:80:LEU:HB3 | 11:CL:97:VAL:CG2 | 2.44 | 0.47 |
| 22:DA:47:C:H5' | 36:DO:97:PHE:HZ | 1.77 | 0.47 |
| 29:BG:5:LYS:NZ | 29:BG:69:ALA:HB2 | 2.29 | 0.47 |
| 1:AA:1126:U:O2' | 1:AA:1127:G:H5' | 2.14 | 0.47 |
| 1:CA:587:G:H4' | 7:CH:3:GLN:HA | 1.96 | 0.47 |
| 23:BB:2087:G:H2' | 23:BB:2088:A:C8 | 2.49 | 0.47 |
| 1:CA:500:G:C5' | 11:CL:120:ARG:HH21 | 2.28 | 0.47 |
| 28:BF:33:ILE:HG22 | 28:BF:155:ILE:HG12 | 1.95 | 0.47 |
| 41:BT:93:LEU:H | 41:BT:93:LEU:CD2 | 2.25 | 0.47 |
| 8:AI:24:ASN:CA | 8:AI:26:LYS:HZ2 | 2.27 | 0.47 |
| 23:DB:16:C:O3' | 47:D0:10:SER:HA | 2.14 | 0.47 |
| 39:BR:18:GLN:N | 39:BR:18:GLN:OE1 | 2.47 | 0.47 |
| 1:AA:470:C:H2' | 1:AA:471:U:H6 | 1.79 | 0.47 |
| 23:BB:1358:G:N2 | 23:BB:1372:U:C5 | 2.82 | 0.47 |
| 1:CA:413:G:H5' | 1:CA:414:A:OP1 | 2.14 | 0.47 |
| 20:AB:116:LEU:HB3 | 20:AB:140:LEU:CD2 | 2.44 | 0.47 |
| 23:DB:1358:G:N2 | 23:DB:1372:U:C5 | 2.82 | 0.47 |
| 23:DB:956:G:H4' | 34:DM:81:ARG:HH21 | 1.79 | 0.47 |
| 52:BI:91:LYS:HG3 | 52:BI:91:LYS:O | 2.13 | 0.47 |
| 1:CA:370:C:H2' | 1:CA:371:A:H8 | 1.77 | 0.47 |
| 2:CC:2:GLN:NE2 | 2:CC:2:GLN:N | 2.62 | 0.47 |
| 13:AN:27:LYS:HE2 | 13:AN:48:GLN:NE2 | 2.28 | 0.47 |
| 34:BM:80:VAL:O | 34:BM:81:ARG:HB3 | 2.14 | 0.47 |
| 1:CA:1404:C:H2' | 1:CA:1405:G:H8 | 1.80 | 0.47 |
| 1:AA:1225:A:H5' | 12:AM:101:THR:HG23 | 1.96 | 0.47 |
| 20:AB:128:LEU:HD13 | 20:AB:129:THR:H | 1.79 | 0.47 |
| 20:AB:128:LEU:CG | 20:AB:132:GLU:HG2 | 2.44 | 0.47 |
| 28:BF:177:ARG:HG2 | 28:BF:178:LYS:N | 2.28 | 0.47 |
| 23:DB:664:G:O2' | 23:DB:665:U:H5' | 2.14 | 0.47 |
| 25:DC:123:ILE:HG12 | 25:DC:135:PRO:HD2 | 1.97 | 0.47 |
| 30:BH:141:LYS:HD3 | 30:BH:141:LYS:N | 2.29 | 0.47 |
| 1:AA:737:C:H2' | 1:AA:738:C:H6 | 1.79 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 30:DH:135:HIS:HB3 | 30:DH:138:VAL:CB | 2.44 | 0.47 |
| 23:BB:863:A:H2' | 23:BB:864:G:C8 | 2.49 | 0.47 |
| 5:AF:18:VAL:HG11 | 5:AF:58:HIS:CE1 | 2.49 | 0.47 |
| 23:DB:2519:U:H5' | 23:DB:2567:G:N2 | 2.29 | 0.47 |
| 1:CA:1517:G:H1' | 23:DB:1919:A:O3' | 2.15 | 0.47 |
| 23:DB:491:G:H2' | 23:DB:492:A:O4' | 2.14 | 0.47 |
| 4:AE:134:ASN:O | 4:AE:137:ARG:HG2 | 2.13 | 0.47 |
| 23:DB:844:A:C2 | 23:DB:845:A:C6 | 3.02 | 0.47 |
| 1:AA:197:A:H4' | 1:AA:198:G:O5' | 2.15 | 0.47 |
| 23:DB:1433:A:H2' | 23:DB:1434:A:O4' | 2.13 | 0.47 |
| 37:BP:112:ARG:H | 37:BP:112:ARG:HH11 | 1.60 | 0.47 |
| 20:CB:80:LYS:HA | 20:CB:90:PHE:CZ | 2.50 | 0.47 |
| 23:BB:1585:C:H2' | 23:BB:1586:A:O4' | 2.14 | 0.47 |
| 23:DB:1585:C:H2' | 23:DB:1586:A:O4' | 2.14 | 0.47 |
| 2:CC:23:ALA:HB3 | 2:CC:28:PHE:HD1 | 1.78 | 0.47 |
| 23:DB:806:C:H2' | 23:DB:807:U:C6 | 2.49 | 0.47 |
| 23:DB:1213:A:N6 | 23:DB:1236:G:H1' | 2.29 | 0.47 |
| 23:BB:946:C:H2' | 23:BB:947:A:C8 | 2.49 | 0.47 |
| 23:DB:1775:U:H2' | 23:DB:1776:G:O4' | 2.14 | 0.47 |
| 1:AA:152:A:N6 | 1:AA:170:U:C2 | 2.83 | 0.47 |
| 1:AA:1198:G:H2' | 1:AA:1199:U:C6 | 2.49 | 0.47 |
| 14:CO:81:ILE:HD12 | 14:CO:87:ARG:HB2 | 1.96 | 0.47 |
| 23:DB:2828:G:O2' | 23:DB:2829:A:H5' | 2.14 | 0.47 |
| 23:DB:2207:C:H2' | 23:DB:2208:C:C6 | 2.48 | 0.47 |
| 38:DQ:116:LEU:HD22 | 38:DQ:116:LEU:N | 2.28 | 0.47 |
| 29:BG:10:VAL:HG13 | 29:BG:10:VAL:O | 2.13 | 0.47 |
| 41:DT:54:GLU:HB3 | 41:DT:91:GLN:OE1 | 2.14 | 0.47 |
| 6:AG:102:TRP:O | 6:AG:106:ALA:HB3 | 2.14 | 0.47 |
| 23:BB:1427:A:H4' | 23:BB:1428:C:O4' | 2.14 | 0.47 |
| 34:DM:57:VAL:CG1 | 34:DM:58:LYS:H | 2.12 | 0.47 |
| 30:DH:3:VAL:CG1 | 30:DH:37:VAL:HG11 | 2.44 | 0.47 |
| 30:BH:6:LEU:CD2 | 30:BH:50:ARG:HD3 | 2.44 | 0.47 |
| 30:BH:5:LEU:C | 30:BH:7:ASP:H | 2.18 | 0.47 |
| 16:AQ:10:ARG:NE | 16:AQ:11:VAL:H | 2.12 | 0.47 |
| 25:DC:266:ILE:HD11 | 25:DC:268:ARG:HH22 | 1.79 | 0.47 |
| 9:AJ:5:ARG:HB3 | 9:AJ:77:VAL:HA | 1.96 | 0.47 |
| 23:DB:851:C:O2' | 23:DB:852:U:H5' | 2.14 | 0.47 |
| 18:CS:39:ILE:CG2 | 18:CS:66:VAL:HA | 2.45 | 0.47 |
| 35:BN:75:ILE:C | 35:BN:75:ILE:HD13 | 2.35 | 0.47 |
| 25:BC:24:HIS:ND1 | 25:BC:25:LYS:N | 2.62 | 0.47 |
| 25:BC:29:PHE:C | 25:BC:29:PHE:CD1 | 2.87 | 0.47 |
| 25:BC:63:ILE:HG22 | 25:BC:64:VAL:N | 2.29 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 20:CB:95:TRP:CH2 | 20:CB:99:MET:HB2 | 2.49 | 0.47 |
| 27:BE:165:HIS:C | 27:BE:166:LYS:HG3 | 2.35 | 0.47 |
| 27:BE:147:LEU:HA | 27:BE:166:LYS:O | 2.13 | 0.47 |
| 10:AK:17:ASP:HA | 10:AK:80:ASN:O | 2.14 | 0.47 |
| 18:CS:18:VAL:C | 18:CS:42:ASN:HD21 | 2.17 | 0.47 |
| 41:BT:33:LYS:HE3 | 41:BT:80:TRP:NE1 | 2.29 | 0.47 |
| 23:BB:2822:G:O6 | 35:BN:1:MET:N | 2.41 | 0.47 |
| 27:BE:73:ILE:C | 27:BE:75:SER:N | 2.66 | 0.47 |
| 23:DB:2286:G:H5' | 23:DB:2286:G:C8 | 2.49 | 0.47 |
| 52:BI:116:MET:HE2 | 52:BI:124:MET:HA | 1.97 | 0.47 |
| 26:DD:11:MET:O | 26:DD:23:PRO:HD2 | 2.15 | 0.47 |
| 2:AC:171:ARG:NH1 | 2:AC:173:PRO:HG3 | 2.29 | 0.47 |
| 4:CE:89:THR:HG23 | 4:CE:90:GLY:N | 2.29 | 0.47 |
| 33:DL:39:LYS:NZ | 33:DL:39:LYS:CA | 2.76 | 0.47 |
| 1:CA:781:A:H2' | 1:CA:782:A:C5' | 2.38 | 0.47 |
| 3:AD:81:LEU:CD1 | 3:AD:92:LEU:HD21 | 2.44 | 0.47 |
| 2:AC:71:ARG:O | 2:AC:74:ILE:HG22 | 2.13 | 0.47 |
| 23:DB:1666:G:OP1 | 32:DK:66:LYS:HD2 | 2.14 | 0.47 |
| 25:DC:12:ARG:HB2 | 25:DC:20:ASN:HA | 1.96 | 0.47 |
| 11:CL:82:ARG:HG2 | 11:CL:82:ARG:HH11 | 1.79 | 0.47 |
| 23:BB:346:A:H5' | 23:BB:346:A:N3 | 2.30 | 0.47 |
| 29:BG:42:VAL:HG12 | 29:BG:51:PHE:HD1 | 1.78 | 0.47 |
| 23:BB:1438:U:O2' | 23:BB:1439:A:H5' | 2.14 | 0.47 |
| 16:CQ:58:VAL:HB | 16:CQ:74:LEU:CD2 | 2.43 | 0.47 |
| 23:DB:1515:A:H5' | 23:DB:1557:C:C5' | 2.44 | 0.47 |
| 6:CG:94:ARG:HG2 | 6:CG:98:LEU:HD11 | 1.95 | 0.47 |
| 48:B1:31:GLU:H | 48:B1:32:LYS:NZ | 2.12 | 0.47 |
| 15:AP:67:ILE:HD11 | 15:AP:72:ALA:HA | 1.95 | 0.47 |
| 29:BG:32:LEU:HD21 | 29:BG:74:MET:SD | 2.54 | 0.47 |
| 30:DH:51:ARG:HG2 | 30:DH:51:ARG:NH1 | 2.27 | 0.47 |
| 28:DF:163:GLU:HG2 | 28:DF:166:ARG:NH1 | 2.28 | 0.47 |
| 1:CA:470:C:H2' | 1:CA:471:U:H6 | 1.79 | 0.47 |
| 22:BA:103:U:H4' | 34:BM:136:MET:HE2 | 1.96 | 0.47 |
| 23:BB:835:C:H5' | 50:B3:50:SER:HB3 | 1.95 | 0.47 |
| 1:CA:1527:U:OP2 | 21:CU:38:GLU:HG3 | 2.15 | 0.47 |
| 25:DC:162:GLN:HE21 | 25:DC:174:ARG:NH2 | 2.12 | 0.47 |
| 16:AQ:43:LEU:HD21 | 16:AQ:72:TRP:CE2 | 2.48 | 0.47 |
| 23:BB:2893:A:H4' | 23:BB:2894:G:H5' | 1.96 | 0.47 |
| 1:AA:528:C:H41 | 11:AL:45:ASN:CG | 2.17 | 0.47 |
| 23:BB:2350:C:O2' | 23:BB:2351:G:H5' | 2.13 | 0.47 |
| 1:CA:113:G:H1' | 1:CA:354:G:H5' | 1.96 | 0.47 |
| 23:DB:2845:U:H2' | 23:DB:2846:G:C8 | 2.49 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 23:DB:1027:A:H2 | 23:DB:2488:G:H4' | 1.79 | 0.47 |
| 23:DB:263:G:H2' | 23:DB:264:C:O4' | 2.14 | 0.47 |
| 23:DB:1957:C:H2' | 23:DB:1958:C:C6 | 2.49 | 0.47 |
| 23:DB:1599:U:H2' | 23:DB:1600:C:C6 | 2.48 | 0.47 |
| 1:CA:893:C:H2' | 1:CA:894:G:C8 | 2.49 | 0.47 |
| 7:AH:34:ALA:HB1 | 7:AH:109:VAL:HG21 | 1.95 | 0.47 |
| 55:BB:3339:HOH:O | 27:BE:81:GLY:HA2 | 2.14 | 0.47 |
| 1:CA:340:U:H2' | 1:CA:341:C:H6 | 1.78 | 0.47 |
| 1:CA:803:G:H2' | 1:CA:804:U:C6 | 2.49 | 0.47 |
| 23:DB:1567:G:H5'' | 25:DC:84:PRO:HG3 | 1.96 | 0.47 |
| 23:BB:1633:G:O2' | 23:BB:1634:A:H5'' | 2.14 | 0.47 |
| 9:AJ:48:ARG:HG2 | 9:AJ:48:ARG:HH11 | 1.77 | 0.47 |
| 1:AA:790:A:N1 | 1:AA:1497:G:H5'' | 2.29 | 0.47 |
| 23:BB:812:C:H4' | 38:BQ:12:ARG:HH22 | 1.79 | 0.47 |
| 19:CT:54:GLN:N | 19:CT:55:PRO:HD2 | 2.30 | 0.47 |
| 28:BF:39:VAL:O | 28:BF:39:VAL:HG12 | 2.14 | 0.47 |
| 25:DC:42:ARG:HE | 25:DC:42:ARG:CA | 2.27 | 0.47 |
| 2:CC:123:LEU:HD23 | 2:CC:195:ILE:HD12 | 1.96 | 0.47 |
| 23:DB:2868:A:H2' | 23:DB:2869:G:H8 | 1.78 | 0.47 |
| 37:DP:27:VAL:HG21 | 37:DP:84:SER:O | 2.14 | 0.47 |
| 27:DE:48:THR:HG23 | 27:DE:85:PHE:N | 2.29 | 0.47 |
| 42:BU:35:VAL:C | 42:BU:36:GLU:HG2 | 2.34 | 0.47 |
| 36:DO:15:ARG:HH12 | 43:DW:76:ARG:CD | 2.27 | 0.47 |
| 25:BC:66:PHE:O | 25:BC:68:ARG:N | 2.47 | 0.47 |
| 23:BB:160:A:H2' | 23:BB:161:A:C8 | 2.49 | 0.47 |
| 30:DH:6:LEU:HB2 | 30:DH:35:LYS:CB | 2.43 | 0.47 |
| 47:D0:41:HIS:CE1 | 47:D0:42:ILE:HG22 | 2.49 | 0.47 |
| 25:DC:61:TYR:CE1 | 25:DC:63:ILE:HD11 | 2.49 | 0.47 |
| 18:AS:40:PHE:HB3 | 18:AS:43:MET:HG3 | 1.96 | 0.47 |
| 23:BB:338:G:N2 | 23:BB:339:U:H1' | 2.29 | 0.47 |
| 23:BB:2393:U:O2' | 23:BB:2394:C:H5' | 2.15 | 0.47 |
| 23:BB:640:C:H1' | 50:B3:44:ARG:HH21 | 1.80 | 0.47 |
| 33:BL:55:MET:N | 33:BL:56:PRO:CD | 2.78 | 0.47 |
| 33:BL:61:LEU:O | 33:BL:62:PRO:O | 2.32 | 0.47 |
| 15:AP:42:ILE:CB | 15:AP:46:LYS:HD2 | 2.29 | 0.47 |
| 23:BB:399:U:OP2 | 46:BZ:49:ARG:NH1 | 2.48 | 0.47 |
| 46:DZ:49:ARG:CZ | 46:DZ:49:ARG:HB2 | 2.45 | 0.47 |
| 23:BB:2615:U:C4 | 47:B0:2:VAL:O | 2.68 | 0.47 |
| 23:BB:2572:A:OP1 | 26:BD:151:THR:CG2 | 2.62 | 0.47 |
| 26:DD:116:LYS:N | 26:DD:116:LYS:HD2 | 2.28 | 0.47 |
| 33:BL:25:SER:HB3 | 33:BL:27:LEU:HG | 1.97 | 0.47 |
| 39:DR:18:GLN:CA | 39:DR:99:THR:HA | 2.44 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 35:BN:44:LEU:HD23 | 35:BN:113:ILE:CG1 | 2.37 | 0.47 |
| 23:BB:1131:G:H1' | 31:BJ:85:LYS:NZ | 2.28 | 0.47 |
| 13:AN:84:ARG:HH11 | 13:AN:84:ARG:HG3 | 1.80 | 0.47 |
| 27:BE:118:LEU:HD11 | 27:BE:187:VAL:HG12 | 1.96 | 0.47 |
| 27:BE:159:LEU:HD23 | 27:BE:159:LEU:O | 2.15 | 0.47 |
| 3:CD:171:GLU:HG3 | 3:CD:182:LYS:CG | 2.45 | 0.47 |
| 26:DD:35:THR:HB | 26:DD:48:ILE:CG1 | 2.44 | 0.47 |
| 37:DP:100:ARG:HH11 | 37:DP:100:ARG:CB | 2.17 | 0.47 |
| 41:BT:40:LYS:HE3 | 41:BT:59:ASN:HA | 1.96 | 0.47 |
| 41:BT:86:THR:C | 41:BT:87:LEU:HD22 | 2.35 | 0.47 |
| 26:BD:119:ALA:HA | 26:BD:123:LYS:HZ3 | 1.78 | 0.47 |
| 26:BD:129:THR:O | 26:BD:130:GLN:CB | 2.62 | 0.47 |
| 9:CJ:51:VAL:O | 9:CJ:62:ARG:HA | 2.14 | 0.47 |
| 1:AA:1504:G:H4' | 1:AA:1505:G:N9 | 2.29 | 0.47 |
| 23:DB:2052:A:H5' | 26:DD:146:ILE:O | 2.14 | 0.47 |
| 23:DB:832:U:H2' | 23:DB:833:A:C8 | 2.49 | 0.47 |
| 1:CA:719:C:O2' | 17:CR:37:LYS:HD3 | 2.15 | 0.47 |
| 23:BB:2647:U:O2' | 23:BB:2648:G:H5' | 2.14 | 0.47 |
| 23:DB:1814:G:C5' | 25:DC:51:ARG:HG2 | 2.44 | 0.47 |
| 5:AF:63:ASN:HD22 | 5:AF:96:VAL:HB | 1.79 | 0.47 |
| 8:CI:7:GLY:HA3 | 8:CI:81:GLY:O | 2.14 | 0.47 |
| 2:AC:141:MET:HE1 | 2:AC:147:GLY:N | 2.18 | 0.47 |
| 23:BB:702:U:H2' | 23:BB:703:U:C6 | 2.49 | 0.47 |
| 3:CD:15:GLY:HA2 | 3:CD:34:GLU:HB2 | 1.97 | 0.47 |
| 32:DK:19:VAL:C | 32:DK:41:ILE:HD11 | 2.34 | 0.47 |
| 32:DK:7:MET:SD | 32:DK:20:MET:HB2 | 2.55 | 0.47 |
| 31:DJ:14:ASP:HB3 | 31:DJ:16:TYR:HD1 | 1.79 | 0.47 |
| 1:CA:954:G:H2' | 1:CA:955:U:C6 | 2.50 | 0.47 |
| 1:AA:1469:C:H2' | 1:AA:1470:U:O4' | 2.15 | 0.47 |
| 9:CJ:40:ILE:HD11 | 9:CJ:73:LEU:HB3 | 1.97 | 0.47 |
| 16:CQ:13:SER:CB | 16:CQ:21:VAL:HB | 2.41 | 0.47 |
| 26:BD:61:THR:H | 26:BD:62:LYS:HE3 | 1.78 | 0.47 |
| 23:DB:52:A:C5 | 23:DB:118:A:C2 | 3.02 | 0.47 |
| 31:BJ:46:PRO:O | 31:BJ:48:VAL:N | 2.43 | 0.47 |
| 4:CE:114:LEU:HB3 | 4:CE:119:VAL:HB | 1.96 | 0.47 |
| 23:BB:675:A:OP1 | 27:BE:58:LYS:HG2 | 2.14 | 0.47 |
| 23:DB:545:U:H2' | 23:DB:547:A:OP1 | 2.15 | 0.47 |
| 16:CQ:8:GLN:HA | 16:CQ:59:GLU:HA | 1.96 | 0.47 |
| 14:CO:26:VAL:HG12 | 14:CO:30:LEU:HD12 | 1.96 | 0.47 |
| 1:CA:36:C:O2' | 1:CA:37:U:H5' | 2.15 | 0.47 |
| 2:AC:111:ASP:OD2 | 2:AC:114:LEU:HG | 2.14 | 0.47 |
| 1:AA:878:A:H1' | 7:AH:3:GLN:HE22 | 1.79 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 1:CA:1060:U:OP1 | 9:CJ:53:ILE:HD11 | 2.15 | 0.47 |
| 35:DN:107:ASN:ND2 | 40:DS:40:ASN:HD22 | 2.10 | 0.47 |
| 31:BJ:113:PRO:O | 31:BJ:115:GLY:N | 2.44 | 0.47 |
| 20:AB:113:LEU:O | 20:AB:113:LEU:HD23 | 2.15 | 0.47 |
| 1:CA:1524:C:H2' | 1:CA:1525:G:H8 | 1.78 | 0.47 |
| 12:AM:89:ARG:HH11 | 12:AM:94:LEU:HD13 | 1.79 | 0.47 |
| 45:DY:50:VAL:HG12 | 45:DY:53:MET:HG2 | 1.96 | 0.47 |
| 30:BH:132:PHE:CB | 30:BH:140:ALA:HB3 | 2.44 | 0.47 |
| 23:BB:1847:A:H4' | 23:BB:1848:A:H8 | 1.78 | 0.47 |
| 23:DB:1561:C:H2' | 23:DB:1562:U:C6 | 2.49 | 0.47 |
| 23:BB:1328:A:H2' | 23:BB:1330:C:C4 | 2.50 | 0.47 |
| 2:AC:40:GLN:HE22 | 2:AC:44:LYS:HD2 | 1.80 | 0.47 |
| 20:AB:95:TRP:CZ3 | 20:AB:171:ALA:HA | 2.49 | 0.47 |
| 23:BB:806:C:H2' | 23:BB:807:U:C6 | 2.50 | 0.47 |
| 23:BB:2757:A:N3 | 23:BB:2757:A:H2' | 2.28 | 0.47 |
| 4:AE:150:GLU:C | 4:AE:152:VAL:H | 2.17 | 0.47 |
| 2:CC:155:ARG:NH2 | 2:CC:160:GLU:HA | 2.29 | 0.47 |
| 30:DH:42:LYS:O | 30:DH:45:GLU:HB3 | 2.14 | 0.47 |
| 23:BB:2222:C:O2' | 23:BB:2223:G:H5' | 2.14 | 0.47 |
| 4:AE:40:ASP:C | 4:AE:42:ASN:H | 2.17 | 0.47 |
| 12:AM:109:LYS:HG3 | 12:AM:110:GLY:H | 1.78 | 0.47 |
| 23:DB:825:A:H2' | 23:DB:826:U:O4' | 2.14 | 0.47 |
| 23:BB:2344:U:H4' | 23:BB:2345:G:OP1 | 2.14 | 0.47 |
| 17:CR:25:ILE:HD12 | 17:CR:25:ILE:O | 2.15 | 0.47 |
| 35:BN:106:ASP:O | 35:BN:108:ALA:N | 2.47 | 0.47 |
| 23:BB:1239:G:H2' | 23:BB:1240:U:C6 | 2.50 | 0.47 |
| 23:DB:2383:G:N7 | 50:D3:35:LYS:HD3 | 2.30 | 0.47 |
| 1:AA:699:C:C3' | 1:AA:700:G:H5'' | 2.44 | 0.47 |
| 42:BU:11:ILE:HG22 | 42:BU:12:VAL:N | 2.30 | 0.47 |
| 23:BB:2845:U:H5'' | 37:BP:54:LEU:HA | 1.96 | 0.47 |
| 43:DW:66:VAL:HG13 | 43:DW:67:LYS:N | 2.24 | 0.47 |
| 25:BC:155:ARG:HB3 | 25:BC:159:THR:HG21 | 1.95 | 0.47 |
| 47:D0:36:LYS:HG3 | 47:D0:40:HIS:O | 2.14 | 0.47 |
| 23:DB:2815:C:H2' | 23:DB:2816:G:H8 | 1.79 | 0.47 |
| 23:DB:2834:G:H2' | 23:DB:2879:A:H61 | 1.78 | 0.47 |
| 23:DB:1818:U:H5'' | 25:DC:155:ARG:CG | 2.44 | 0.47 |
| 25:DC:86:ARG:C | 25:DC:155:ARG:NH1 | 2.68 | 0.47 |
| 43:BW:22:VAL:HG12 | 43:BW:23:LYS:H | 1.79 | 0.47 |
| 39:DR:79:ARG:CD | 39:DR:81:LYS:HG3 | 2.44 | 0.47 |
| 1:AA:1014:A:C2 | 1:AA:1219:A:H1' | 2.50 | 0.47 |
| 1:AA:985:C:H2' | 1:AA:986:U:C6 | 2.49 | 0.47 |
| 18:AS:51:HIS:HB2 | 18:AS:56:HIS:CE1 | 2.50 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 33:BL:62:PRO:HB3 | 50:B3:24:LYS:HE2 | 1.95 | 0.47 |
| 46:BZ:30:HIS:HB2 | 46:BZ:48:GLN:HB3 | 1.96 | 0.47 |
| 46:BZ:50:ASP:HA | 46:BZ:53:THR:CG2 | 2.44 | 0.47 |
| 34:BM:116:ALA:HA | 34:BM:119:LEU:HD23 | 1.97 | 0.47 |
| 38:BQ:33:VAL:O | 38:BQ:34:ALA:C | 2.53 | 0.47 |
| 23:DB:137:U:H2' | 23:DB:138:U:H5' | 1.96 | 0.47 |
| 9:AJ:37:ARG:HB2 | 9:AJ:77:VAL:HG11 | 1.97 | 0.47 |
| 45:BY:54:VAL:HG22 | 45:BY:55:LYS:N | 2.24 | 0.47 |
| 35:BN:33:ILE:HG22 | 35:BN:113:ILE:O | 2.14 | 0.47 |
| 40:BS:71:VAL:HG22 | 40:BS:107:VAL:CG1 | 2.32 | 0.47 |
| 23:BB:2331:G:H21 | 23:BB:2336:A:H8 | 1.62 | 0.47 |
| 23:DB:2270:A:H4' | 43:DW:18:LYS:CB | 2.44 | 0.47 |
| 3:AD:116:LEU:HB3 | 3:AD:122:ILE:HD11 | 1.97 | 0.47 |
| 41:BT:30:ILE:CG2 | 41:BT:32:LEU:HD13 | 2.44 | 0.47 |
| 21:CU:4:LYS:O | 21:CU:5:VAL:HG23 | 2.14 | 0.47 |
| 27:DE:4:VAL:HA | 27:DE:14:VAL:CG2 | 2.45 | 0.47 |
| 26:DD:129:THR:O | 26:DD:130:GLN:CB | 2.62 | 0.47 |
| 23:DB:1657:U:OP1 | 26:DD:141:ARG:HB2 | 2.14 | 0.47 |
| 27:BE:73:ILE:O | 27:BE:73:ILE:HG22 | 2.15 | 0.47 |
| 25:DC:224:MET:HG3 | 25:DC:233:GLY:CA | 2.45 | 0.47 |
| 44:DX:18:LEU:H | 44:DX:18:LEU:CD2 | 2.14 | 0.47 |
| 26:BD:37:VAL:HG22 | 26:BD:46:ARG:CD | 2.44 | 0.47 |
| 28:DF:36:ASN:ND2 | 28:DF:87:LYS:H | 2.12 | 0.47 |
| 39:DR:47:VAL:HG13 | 39:DR:49:ILE:H | 1.80 | 0.47 |
| 8:CI:74:GLN:O | 8:CI:78:ILE:HG13 | 2.14 | 0.47 |
| 31:DJ:25:LEU:H | 31:DJ:25:LEU:HD22 | 1.79 | 0.47 |
| 48:B1:15:GLY:CA | 48:B1:47:ILE:HD12 | 2.44 | 0.47 |
| 48:B1:47:ILE:HG13 | 48:B1:48:TYR:H | 1.77 | 0.47 |
| 6:AG:19:SER:HB2 | 6:AG:21:LEU:HD21 | 1.96 | 0.47 |
| 25:BC:22:GLU:HA | 25:BC:202:ARG:NH1 | 2.29 | 0.47 |
| 33:DL:118:THR:C | 33:DL:120:VAL:N | 2.64 | 0.47 |
| 23:BB:2014:A:H4' | 40:BS:93:ALA:CB | 2.45 | 0.47 |
| 1:CA:1086:U:H3 | 1:CA:1099:G:N2 | 2.03 | 0.47 |
| 23:BB:1175:A:H2' | 23:BB:1176:U:H5' | 1.95 | 0.47 |
| 49:D2:18:PHE:O | 49:D2:22:MET:N | 2.45 | 0.47 |
| 52:DI:17:ALA:O | 52:DI:18:ASN:HB3 | 2.14 | 0.47 |
| 1:CA:946:A:H2' | 1:CA:947:G:H8 | 1.73 | 0.47 |
| 37:BP:106:ALA:O | 37:BP:108:ARG:HD2 | 2.14 | 0.47 |
| 23:DB:2680:U:C5' | 26:DD:194:PRO:HA | 2.44 | 0.47 |
| 34:DM:133:LYS:HD2 | 34:DM:134:THR:N | 2.29 | 0.47 |
| 11:CL:86:VAL:CG1 | 11:CL:89:LEU:HD23 | 2.44 | 0.47 |
| 1:AA:1002:G:N3 | 1:AA:1002:G:H2' | 2.29 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:BB:2880:C:O2 | 35:BN:93:GLY:HA3 | 2.14 | 0.47 |
| 4:AE:84:VAL:HG22 | 4:AE:85:LYS:N | 2.28 | 0.47 |
| 23:BB:1827:U:O2' | 23:BB:1828:G:H5' | 2.14 | 0.47 |
| 28:DF:41:GLU:H | 28:DF:45:ASP:HB3 | 1.79 | 0.47 |
| 28:BF:93:GLU:OE1 | 28:BF:94:ARG:N | 2.47 | 0.47 |
| 40:DS:72:THR:HG23 | 40:DS:73:LYS:N | 2.29 | 0.47 |
| 23:BB:716:A:C3' | 23:BB:717:C:H5'' | 2.44 | 0.47 |
| 22:DA:23:G:N2 | 22:DA:24:G:H1 | 2.12 | 0.47 |
| 1:CA:470:C:O2' | 1:CA:471:U:H5' | 2.14 | 0.47 |
| 1:AA:831:A:O2' | 1:AA:832:G:H5' | 2.15 | 0.47 |
| 4:CE:67:ARG:HH11 | 4:CE:67:ARG:CB | 2.26 | 0.47 |
| 21:CU:48:LYS:C | 21:CU:48:LYS:HD2 | 2.35 | 0.47 |
| 20:CB:172:ILE:CD1 | 20:CB:182:VAL:HG11 | 2.45 | 0.47 |
| 30:BH:96:THR:HB | 30:BH:112:LYS:HB2 | 1.97 | 0.47 |
| 2:CC:52:SER:HB3 | 2:CC:114:LEU:HD11 | 1.95 | 0.47 |
| 34:DM:96:ILE:HG22 | 34:DM:97:GLN:HE22 | 1.78 | 0.47 |
| 13:AN:17:ASP:HA | 13:AN:21:ALA:HB3 | 1.95 | 0.47 |
| 1:CA:333:U:H2' | 1:CA:334:C:C6 | 2.49 | 0.47 |
| 15:CP:52:LEU:HD11 | 15:CP:74:LEU:HD13 | 1.95 | 0.47 |
| 24:BV:53:LYS:CE | 24:BV:55:GLU:HG3 | 2.45 | 0.47 |
| 52:BI:48:ILE:O | 52:BI:49:GLU:HB3 | 2.14 | 0.47 |
| 20:CB:80:LYS:HA | 20:CB:90:PHE:CE1 | 2.48 | 0.47 |
| 22:BA:15:A:H1' | 22:BA:109:A:N7 | 2.30 | 0.47 |
| 1:AA:1257:A:H2' | 1:AA:1257:A:N3 | 2.28 | 0.47 |
| 23:DB:687:C:H1' | 49:D2:4:THR:HG22 | 1.97 | 0.47 |
| 23:DB:1109:C:O2' | 23:DB:1110:G:H5' | 2.15 | 0.47 |
| 2:CC:37:LYS:O | 2:CC:40:GLN:HG2 | 2.14 | 0.47 |
| 1:CA:987:G:H2' | 1:CA:988:G:H8 | 1.79 | 0.47 |
| 23:DB:2630:G:H2' | 23:DB:2631:G:C8 | 2.50 | 0.47 |
| 23:DB:1633:G:O2' | 23:DB:1634:A:H5'' | 2.14 | 0.47 |
| 34:DM:8:LYS:HG2 | 34:DM:9:PHE:N | 2.28 | 0.47 |
| 23:BB:2828:G:O2' | 23:BB:2829:A:H5' | 2.14 | 0.47 |
| 23:DB:82:U:H5'' | 23:DB:296:U:H5'' | 1.96 | 0.47 |
| 1:AA:49:U:O2' | 1:AA:50:A:H2' | 2.15 | 0.47 |
| 46:DZ:33:ASN:HB3 | 46:DZ:46:GLY:HA2 | 1.96 | 0.47 |
| 1:CA:563:A:H2' | 1:CA:567:G:C8 | 2.50 | 0.47 |
| 23:BB:671:C:OP1 | 33:BL:48:ARG:NH1 | 2.48 | 0.47 |
| 21:CU:8:ASN:HB2 | 21:CU:9:GLU:CD | 2.34 | 0.47 |
| 23:DB:2331:G:H21 | 23:DB:2336:A:H8 | 1.62 | 0.47 |
| 23:BB:2205:A:H2' | 23:BB:2206:C:C6 | 2.49 | 0.47 |
| 47:D0:29:VAL:HB | 47:D0:34:GLY:CA | 2.44 | 0.47 |
| 25:DC:86:ARG:O | 25:DC:88:ALA:N | 2.47 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 23:BB:299:A:N6 | 23:BB:322:A:H1' | 2.30 | 0.47 |
| 27:DE:115:GLN:HG3 | 27:DE:116:ASP:N | 2.27 | 0.47 |
| 50:B3:24:LYS:CE | 50:B3:29:ARG:HH22 | 2.27 | 0.47 |
| 26:DD:119:ALA:CB | 26:DD:165:MET:HG2 | 2.44 | 0.47 |
| 36:DO:92:PHE:HE2 | 36:DO:94:ARG:HE | 1.62 | 0.47 |
| 23:BB:1188:U:O2' | 23:BB:1189:A:H5' | 2.14 | 0.47 |
| 31:DJ:44:TYR:HD1 | 31:DJ:45:THR:H | 1.51 | 0.47 |
| 38:DQ:72:GLY:O | 38:DQ:73:ILE:HG22 | 2.14 | 0.47 |
| 20:CB:96:LEU:HB2 | 20:CB:99:MET:HG3 | 1.96 | 0.47 |
| 43:BW:17:ALA:O | 43:BW:35:ILE:HA | 2.15 | 0.47 |
| 23:BB:142:A:O2' | 41:BT:2:ILE:HG21 | 2.14 | 0.47 |
| 41:BT:63:VAL:CG1 | 41:BT:80:TRP:HB2 | 2.45 | 0.47 |
| 47:D0:12:ARG:HH21 | 47:D0:16:ARG:HG3 | 1.80 | 0.47 |
| 36:DO:65:THR:HB | 36:DO:66:GLY:H | 1.56 | 0.47 |
| 23:DB:159:G:O2' | 23:DB:160:A:H5'' | 2.15 | 0.47 |
| 26:BD:41:ALA:O | 26:BD:42:ASN:HB3 | 2.15 | 0.47 |
| 23:DB:928:A:O2' | 23:DB:929:U:H5' | 2.15 | 0.47 |
| 1:AA:1409:C:N4 | 1:AA:1491:G:N1 | 2.50 | 0.47 |
| 1:AA:1110:A:C2' | 1:AA:1111:A:H5' | 2.44 | 0.47 |
| 1:CA:1250:A:H2' | 1:CA:1251:A:H8 | 1.79 | 0.47 |
| 7:AH:111:THR:HG23 | 7:AH:114:ALA:CB | 2.45 | 0.47 |
| 1:CA:1301:U:O2' | 1:CA:1302:C:P | 2.72 | 0.47 |
| 6:AG:112:ASP:CB | 6:AG:118:ARG:HG2 | 2.39 | 0.47 |
| 15:CP:61:VAL:CA | 15:CP:65:ALA:HB3 | 2.44 | 0.47 |
| 52:DI:72:THR:HG23 | 52:DI:112:LYS:HD2 | 1.97 | 0.47 |
| 37:BP:94:ALA:HB3 | 37:BP:99:LEU:HD13 | 1.96 | 0.47 |
| 11:AL:24:GLU:HB3 | 11:AL:26:CYS:SG | 2.54 | 0.47 |
| 32:BK:64:ARG:HB3 | 32:BK:79:PHE:HB2 | 1.97 | 0.47 |
| 1:AA:947:G:H2' | 1:AA:948:C:C6 | 2.49 | 0.47 |
| 10:CK:70:ALA:HB1 | 10:CK:74:LYS:CD | 2.41 | 0.47 |
| 9:AJ:39:PRO:HB3 | 9:AJ:74:VAL:HG22 | 1.96 | 0.47 |
| 23:DB:580:U:O3' | 38:DQ:30:VAL:HG13 | 2.14 | 0.47 |
| 1:AA:1250:A:H4' | 8:AI:69:GLY:N | 2.24 | 0.47 |
| 11:CL:82:ARG:NH2 | 11:CL:95:HIS:ND1 | 2.63 | 0.47 |
| 19:CT:31:ILE:HD13 | 19:CT:74:HIS:CE1 | 2.49 | 0.47 |
| 27:DE:21:ARG:NH1 | 27:DE:23:PHE:HB3 | 2.24 | 0.47 |
| 23:BB:423:A:H5' | 23:BB:424:G:H5' | 1.96 | 0.47 |
| 1:AA:1072:G:H2' | 1:AA:1073:U:C6 | 2.49 | 0.47 |
| 1:AA:472:U:N3 | 1:AA:473:U:C4 | 2.82 | 0.47 |
| 41:BT:64:LYS:HZ3 | 41:BT:79:ASP:HB2 | 1.80 | 0.47 |
| 22:DA:64:G:H2' | 22:DA:65:U:C6 | 2.49 | 0.47 |
| 1:CA:202:G:H1' | 1:CA:468:A:H8 | 1.79 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 20:AB:113:LEU:HD12 | 20:AB:143:LEU:HB3 | 1.97 | 0.47 |
| 23:BB:832:U:H2' | 23:BB:833:A:C8 | 2.49 | 0.47 |
| 12:CM:47:LEU:HD23 | 12:CM:47:LEU:N | 2.29 | 0.47 |
| 28:BF:16:MET:O | 28:BF:20:ASN:HA | 2.14 | 0.47 |
| 23:BB:956:G:C1' | 34:BM:81:ARG:HH22 | 2.27 | 0.47 |
| 6:CG:55:LYS:HB3 | 6:CG:59:GLU:CD | 2.35 | 0.47 |
| 1:CA:589:U:O2' | 1:CA:590:U:H5' | 2.14 | 0.47 |
| 20:AB:162:VAL:O | 20:AB:184:ALA:HA | 2.15 | 0.47 |
| 44:DX:49:ASP:HA | 44:DX:52:ARG:HH12 | 1.79 | 0.47 |
| 1:AA:86:G:H4' | 1:AA:86:G:OP1 | 2.13 | 0.47 |
| 15:AP:33:ILE:HD12 | 15:AP:33:ILE:H | 1.80 | 0.47 |
| 23:BB:1882:U:O2' | 23:BB:1883:U:H5' | 2.14 | 0.47 |
| 1:CA:512:U:H2' | 1:CA:513:C:C6 | 2.49 | 0.47 |
| 1:CA:152:A:N6 | 1:CA:170:U:C2 | 2.82 | 0.47 |
| 15:AP:76:LYS:HD2 | 15:AP:80:LYS:HD2 | 1.97 | 0.47 |
| 22:BA:42:C:H4' | 28:BF:63:LYS:O | 2.13 | 0.47 |
| 7:CH:50:VAL:HG13 | 7:CH:50:VAL:O | 2.15 | 0.47 |
| 22:BA:58:A:H2' | 22:BA:59:A:O4' | 2.14 | 0.47 |
| 6:AG:47:GLU:OE1 | 6:AG:47:GLU:HA | 2.13 | 0.47 |
| 47:D0:24:VAL:O | 47:D0:24:VAL:HG12 | 2.15 | 0.47 |
| 23:BB:859:G:O2' | 23:BB:860:U:OP2 | 2.33 | 0.47 |
| 1:CA:792:A:H1' | 1:CA:794:A:N7 | 2.29 | 0.47 |
| 27:DE:46:GLN:NE2 | 27:DE:48:THR:HB | 2.29 | 0.47 |
| 44:DX:28:LEU:HD22 | 44:DX:42:LEU:HG | 1.95 | 0.47 |
| 42:BU:8:ASP:HB3 | 42:BU:25:LYS:HE2 | 1.95 | 0.47 |
| 42:BU:13:LEU:CD2 | 42:BU:14:THR:H | 2.28 | 0.47 |
| 37:BP:8:GLU:HA | 37:BP:11:GLN:HG2 | 1.95 | 0.47 |
| 37:BP:4:ILE:O | 37:BP:7:LEU:HB3 | 2.15 | 0.47 |
| 23:DB:2386:A:C4' | 43:DW:38:ARG:HB2 | 2.44 | 0.47 |
| 43:DW:42:THR:HB | 43:DW:75:ASN:HB3 | 1.94 | 0.47 |
| 25:DC:163:ILE:C | 25:DC:164:VAL:HG22 | 2.34 | 0.47 |
| 23:DB:2810:A:H2' | 23:DB:2811:G:O4' | 2.15 | 0.47 |
| 26:DD:46:ARG:CA | 26:DD:82:PHE:HA | 2.44 | 0.47 |
| 23:DB:8:C:O2' | 23:DB:9:G:H5' | 2.15 | 0.47 |
| 31:BJ:72:LYS:HG3 | 31:BJ:90:GLU:HG3 | 1.97 | 0.47 |
| 22:BA:113:C:H2' | 22:BA:114:C:O4' | 2.14 | 0.47 |
| 38:DQ:47:ARG:HH12 | 38:DQ:50:ARG:CG | 2.27 | 0.47 |
| 23:BB:636:G:N7 | 33:BL:109:LYS:HE2 | 2.30 | 0.47 |
| 33:BL:82:LEU:CD2 | 33:BL:92:LEU:HD12 | 2.44 | 0.47 |
| 33:BL:77:ILE:HA | 33:BL:101:ILE:CD1 | 2.45 | 0.47 |
| 23:BB:2616:C:H2' | 23:BB:2617:U:H6 | 1.79 | 0.47 |
| 23:BB:2052:A:N9 | 26:BD:155:VAL:HG23 | 2.29 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 13:AN:60:ARG:CD | 13:AN:60:ARG:H | 2.15 | 0.47 |
| 1:AA:979:C:H2' | 1:AA:980:C:O4' | 2.14 | 0.47 |
| 25:BC:53:ILE:HG12 | 25:BC:218:THR:HA | 1.96 | 0.47 |
| 41:DT:55:VAL:CG2 | 41:DT:86:THR:H | 2.28 | 0.47 |
| 23:BB:2041:U:H2' | 23:BB:2042:A:H8 | 1.73 | 0.47 |
| 31:DJ:4:PHE:CD1 | 31:DJ:5:THR:N | 2.83 | 0.47 |
| 23:DB:852:U:H2' | 23:DB:853:C:H6 | 1.79 | 0.47 |
| 35:BN:32:GLU:HA | 35:BN:115:LEU:HD21 | 1.95 | 0.47 |
| 28:BF:35:LEU:HD12 | 28:BF:35:LEU:N | 2.30 | 0.47 |
| 34:DM:44:ARG:HB2 | 34:DM:91:TYR:HE2 | 1.80 | 0.47 |
| 38:BQ:95:ALA:C | 38:BQ:97:ILE:N | 2.67 | 0.47 |
| 40:BS:33:LEU:HB3 | 40:BS:37:THR:HB | 1.96 | 0.47 |
| 43:BW:11:ASN:HD22 | 43:BW:13:ARG:NH2 | 2.13 | 0.47 |
| 27:BE:143:LEU:HB3 | 27:BE:146:VAL:HG21 | 1.95 | 0.47 |
| 27:BE:148:ILE:HG22 | 27:BE:185:LYS:H | 1.80 | 0.47 |
| 27:BE:6:LYS:HE3 | 27:BE:118:LEU:HB2 | 1.96 | 0.47 |
| 27:BE:149:ILE:HG12 | 27:BE:186:VAL:HG22 | 1.97 | 0.47 |
| 43:DW:18:LYS:NZ | 43:DW:18:LYS:HB2 | 2.30 | 0.47 |
| 51:B4:22:VAL:HG11 | 51:B4:36:ARG:CZ | 2.44 | 0.47 |
| 23:DB:2637:U:C2' | 23:DB:2638:G:H5' | 2.44 | 0.47 |
| 26:DD:34:VAL:HG11 | 26:DD:50:VAL:HG23 | 1.97 | 0.47 |
| 26:DD:73:VAL:HB | 26:DD:91:THR:CB | 2.44 | 0.47 |
| 37:DP:4:ILE:O | 37:DP:4:ILE:HG22 | 2.15 | 0.47 |
| 30:DH:94:ILE:HG23 | 30:DH:98:ASP:CG | 2.35 | 0.47 |
| 22:DA:50:A:OP1 | 36:DO:68:LYS:HB2 | 2.15 | 0.47 |
| 23:BB:2051:A:H5' | 26:BD:145:SER:HB3 | 1.97 | 0.47 |
| 9:CJ:55:PRO:O | 9:CJ:56:HIS:HB3 | 2.14 | 0.47 |
| 3:CD:57:LYS:HD3 | 3:CD:58:GLN:N | 2.29 | 0.47 |
| 23:DB:356:G:O2' | 23:DB:357:C:H5' | 2.14 | 0.47 |
| 50:D3:29:ARG:O | 50:D3:31:ILE:N | 2.48 | 0.47 |
| 50:D3:29:ARG:O | 50:D3:30:HIS:C | 2.53 | 0.47 |
| 33:DL:61:LEU:N | 33:DL:62:PRO:CD | 2.78 | 0.47 |
| 23:DB:1656:C:H5'' | 26:DD:141:ARG:HB3 | 1.96 | 0.47 |
| 26:DD:122:VAL:HA | 26:DD:128:ARG:HD2 | 1.96 | 0.47 |
| 44:DX:47:ARG:HE | 44:DX:47:ARG:HA | 1.79 | 0.47 |
| 44:DX:23:ARG:O | 44:DX:26:PHE:HB2 | 2.14 | 0.47 |
| 44:DX:27:ASN:C | 44:DX:29:ARG:H | 2.18 | 0.47 |
| 23:BB:2786:U:H4' | 26:BD:66:GLY:HA2 | 1.96 | 0.47 |
| 26:BD:37:VAL:HG23 | 26:BD:42:ASN:ND2 | 2.30 | 0.47 |
| 26:BD:83:ARG:HG2 | 26:BD:84:LEU:H | 1.80 | 0.47 |
| 13:CN:45:LEU:C | 13:CN:47:LEU:H | 2.18 | 0.47 |
| 28:DF:34:THR:O | 28:DF:35:LEU:HD23 | 2.15 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 45:DY:1:ALA:H2 | 45:DY:43:ILE:HB | 1.80 | 0.47 |
| 45:DY:6:ILE:HG12 | 45:DY:35:VAL:O | 2.15 | 0.47 |
| 38:DQ:82:LEU:HD12 | 38:DQ:112:ALA:HB2 | 1.95 | 0.47 |
| 39:DR:49:ILE:HG13 | 39:DR:51:VAL:CG2 | 2.42 | 0.47 |
| 17:AR:64:LEU:HB2 | 17:AR:66:LEU:HG | 1.97 | 0.47 |
| 12:CM:21:ILE:HB | 12:CM:24:VAL:HG22 | 1.95 | 0.47 |
| 31:DJ:93:ILE:HG22 | 31:DJ:93:ILE:O | 2.15 | 0.47 |
| 1:AA:1423:G:H2' | 1:AA:1424:U:O4' | 2.14 | 0.47 |
| 1:CA:1009:U:H1' | 1:CA:1021:A:C6 | 2.50 | 0.47 |
| 19:AT:70:LYS:HZ3 | 19:AT:70:LYS:HB2 | 1.78 | 0.47 |
| 29:BG:22:VAL:HG23 | 29:BG:33:THR:HG23 | 1.97 | 0.47 |
| 14:AO:84:LEU:HD22 | 14:AO:86:LEU:HD11 | 1.96 | 0.47 |
| 23:BB:1651:G:H4' | 35:BN:39:PRO:HG2 | 1.97 | 0.47 |
| 1:AA:36:C:O2' | 1:AA:37:U:H5' | 2.15 | 0.47 |
| 23:BB:1083:U:H1' | 23:BB:1086:A:N6 | 2.30 | 0.47 |
| 23:DB:2309:A:C6 | 23:DB:2310:C:N4 | 2.83 | 0.47 |
| 45:BY:3:THR:HG21 | 45:BY:43:ILE:HB | 1.95 | 0.47 |
| 1:CA:1238:A:N3 | 1:CA:1241:G:H1' | 2.30 | 0.47 |
| 2:AC:100:ILE:O | 2:AC:100:ILE:HG23 | 2.14 | 0.47 |
| 23:DB:1666:G:C2' | 23:DB:1667:G:H5' | 2.45 | 0.47 |
| 29:DG:37:ASN:N | 29:DG:40:VAL:HG21 | 2.29 | 0.47 |
| 1:AA:1348:U:H4' | 8:AI:121:ARG:NH1 | 2.29 | 0.47 |
| 2:CC:66:THR:HG23 | 2:CC:101:ASN:HB2 | 1.97 | 0.47 |
| 1:CA:60:A:H1' | 1:CA:61:G:O4' | 2.14 | 0.47 |
| 5:CF:55:HIS:N | 5:CF:55:HIS:ND1 | 2.62 | 0.47 |
| 9:AJ:87:LEU:HB3 | 9:AJ:88:MET:CE | 2.45 | 0.47 |
| 23:BB:2801:G:H2' | 23:BB:2802:G:C8 | 2.49 | 0.47 |
| 52:DI:12:VAL:HG13 | 52:DI:41:PHE:CE2 | 2.50 | 0.47 |
| 3:AD:113:ALA:O | 3:AD:117:VAL:HG23 | 2.15 | 0.47 |
| 23:BB:2810:A:H2' | 23:BB:2811:G:O4' | 2.15 | 0.47 |
| 30:BH:72:ILE:O | 30:BH:72:ILE:HG23 | 2.14 | 0.47 |
| 1:AA:1246:A:H2' | 1:AA:1247:U:O4' | 2.15 | 0.47 |
| 23:DB:1824:G:H2' | 23:DB:1825:U:C6 | 2.50 | 0.47 |
| 23:BB:459:U:H5' | 49:B2:41:ARG:NE | 2.27 | 0.47 |
| 23:DB:1241:A:O4' | 23:DB:1241:A:N3 | 2.48 | 0.47 |
| 1:AA:923:A:H2' | 1:AA:924:C:H6 | 1.79 | 0.47 |
| 1:AA:963:G:H21 | 9:AJ:56:HIS:CE1 | 2.33 | 0.47 |
| 19:CT:78:LEU:O | 19:CT:82:ILE:HG23 | 2.14 | 0.47 |
| 35:DN:12:ARG:N | 35:DN:12:ARG:HD3 | 2.29 | 0.47 |
| 35:DN:56:LYS:HG3 | 35:DN:57:THR:N | 2.27 | 0.47 |
| 48:B1:33:LEU:O | 48:B1:33:LEU:HD12 | 2.14 | 0.47 |
| 25:BC:248:GLY:C | 25:BC:250:GLN:H | 2.18 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 15:AP:6:LEU:HB3 | 15:AP:17:TYR:HB3 | 1.96 | 0.47 |
| 23:DB:2247:A:O2' | 23:DB:2248:C:H5' | 2.15 | 0.47 |
| 1:AA:470:C:O2' | 1:AA:471:U:H5' | 2.14 | 0.47 |
| 39:DR:92:TRP:HE3 | 39:DR:93:PHE:N | 2.13 | 0.47 |
| 23:BB:282:A:H2' | 23:BB:283:G:H8 | 1.76 | 0.47 |
| 1:CA:397:A:H5' | 1:CA:398:U:OP1 | 2.13 | 0.47 |
| 1:AA:202:G:H1' | 1:AA:468:A:H8 | 1.79 | 0.47 |
| 23:DB:2760:C:H2' | 23:DB:2760:C:O2 | 2.13 | 0.47 |
| 2:CC:151:GLU:HG3 | 2:CC:166:TRP:HB2 | 1.97 | 0.47 |
| 23:BB:41:C:O2' | 23:BB:42:A:H5' | 2.13 | 0.47 |
| 23:BB:1351:C:H2' | 23:BB:1352:U:C6 | 2.50 | 0.47 |
| 22:BA:30:C:H2' | 22:BA:30:C:O2 | 2.15 | 0.47 |
| 1:CA:1144:G:N2 | 1:CA:1146:A:H62 | 2.12 | 0.47 |
| 23:DB:1683:U:H2' | 23:DB:1684:G:H8 | 1.80 | 0.47 |
| 23:DB:967:U:H2' | 23:DB:968:C:H6 | 1.78 | 0.47 |
| 1:AA:957:U:O2 | 1:AA:959:A:H8 | 1.98 | 0.47 |
| 6:CG:61:PHE:O | 6:CG:62:GLU:C | 2.51 | 0.47 |
| 23:BB:1706:C:C2 | 23:BB:1757:A:H5' | 2.49 | 0.47 |
| 10:AK:36:ARG:HG2 | 10:AK:37:GLN:N | 2.30 | 0.47 |
| 25:DC:136:VAL:O | 25:DC:138:SER:N | 2.48 | 0.47 |
| 23:DB:105:C:H2' | 23:DB:106:C:C6 | 2.50 | 0.47 |
| 1:AA:620:C:N1 | 3:AD:131:ILE:HD13 | 2.29 | 0.47 |
| 23:BB:1707:G:H2' | 23:BB:1708:C:H6 | 1.79 | 0.47 |
| 1:CA:1432:G:OP1 | 37:DP:105:LYS:HB2 | 2.15 | 0.47 |
| 23:BB:2862:G:H2' | 23:BB:2863:C:H6 | 1.79 | 0.47 |
| 23:DB:2773:C:O2' | 23:DB:2774:C:H5' | 2.15 | 0.47 |
| 1:AA:824:G:O2' | 1:AA:825:A:H5' | 2.14 | 0.47 |
| 24:BV:53:LYS:HD2 | 24:BV:54:ALA:N | 2.29 | 0.47 |
| 2:AC:166:TRP:O | 2:AC:167:TYR:HB2 | 2.14 | 0.47 |
| 1:CA:1157:A:H4' | 1:CA:1158:C:O5' | 2.14 | 0.47 |
| 23:DB:1544:A:H2' | 23:DB:1545:A:C8 | 2.49 | 0.47 |
| 1:CA:392:C:C2 | 1:CA:393:A:C8 | 3.03 | 0.47 |
| 31:DJ:11:VAL:O | 31:DJ:11:VAL:HG22 | 2.13 | 0.47 |
| 8:AI:66:VAL:HG22 | 8:AI:67:LYS:N | 2.30 | 0.47 |
| 1:AA:647:C:O2' | 1:AA:648:A:H5' | 2.14 | 0.47 |
| 23:BB:2756:U:H1' | 23:BB:2757:A:H5'' | 1.97 | 0.47 |
| 23:BB:2630:G:H2' | 23:BB:2631:G:C8 | 2.50 | 0.47 |
| 23:BB:1511:G:H2' | 23:BB:1512:C:C6 | 2.50 | 0.47 |
| 1:AA:940:C:H2' | 1:AA:941:G:H8 | 1.80 | 0.47 |
| 23:DB:1511:G:H2' | 23:DB:1512:C:C6 | 2.50 | 0.47 |
| 11:AL:30:ARG:HB3 | 11:AL:57:THR:CG2 | 2.45 | 0.47 |
| 25:DC:42:ARG:NE | 25:DC:42:ARG:HA | 2.30 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 28:DF:37:MET:HB2 | 28:DF:86:CYS:SG | 2.53 | 0.47 |
| 10:AK:21:HIS:CE1 | 10:AK:34:THR:HG21 | 2.50 | 0.47 |
| 23:BB:32:C:H2' | 23:BB:33:C:H5'' | 1.96 | 0.47 |
| 23:BB:1919:A:H2' | 23:BB:1920:C:H5' | 1.97 | 0.47 |
| 25:BC:38:LYS:HD3 | 25:BC:39:SER:O | 2.14 | 0.47 |
| 1:CA:1381:U:O2' | 6:CG:78:ARG:HB3 | 2.15 | 0.47 |
| 1:AA:792:A:H1' | 1:AA:794:A:N7 | 2.30 | 0.47 |
| 23:BB:2192:U:H2' | 23:BB:2193:G:O4' | 2.15 | 0.47 |
| 1:AA:563:A:H2' | 1:AA:567:G:C8 | 2.50 | 0.47 |
| 23:BB:1720:U:O2' | 23:BB:1721:G:H5' | 2.15 | 0.47 |
| 23:BB:825:A:H2' | 23:BB:826:U:O4' | 2.14 | 0.47 |
| 2:AC:134:LYS:O | 2:AC:138:GLN:HB2 | 2.14 | 0.47 |
| 1:CA:932:C:H2' | 1:CA:933:G:C8 | 2.50 | 0.47 |
| 22:DA:82:U:H5'' | 45:DY:16:LEU:CD1 | 2.44 | 0.47 |
| 47:D0:29:VAL:HG22 | 47:D0:30:ASP:N | 2.28 | 0.47 |
| 47:D0:36:LYS:HG2 | 47:D0:37:HIS:O | 2.15 | 0.47 |
| 18:AS:51:HIS:HA | 18:AS:55:GLN:O | 2.15 | 0.47 |
| 30:BH:6:LEU:HD21 | 30:BH:50:ARG:HD3 | 1.97 | 0.47 |
| 27:DE:142:ALA:C | 27:DE:143:LEU:HD13 | 2.34 | 0.47 |
| 27:DE:147:LEU:HB3 | 27:DE:167:VAL:HG22 | 1.96 | 0.47 |
| 33:BL:119:PRO:O | 33:BL:119:PRO:CD | 2.62 | 0.47 |
| 23:BB:2081:U:C5' | 46:BZ:23:LYS:HD2 | 2.44 | 0.47 |
| 46:DZ:1:MET:HA | 46:DZ:9:TYR:CG | 2.50 | 0.47 |
| 16:AQ:10:ARG:CZ | 16:AQ:56:ASP:H | 2.27 | 0.47 |
| 23:DB:143:C:H2' | 23:DB:144:A:C8 | 2.50 | 0.47 |
| 46:DZ:59:ARG:O | 46:DZ:61:ASN:N | 2.41 | 0.47 |
| 1:AA:408:A:H3' | 1:AA:409:U:C6 | 2.47 | 0.47 |
| 41:DT:21:SER:O | 41:DT:24:MET:HB2 | 2.15 | 0.47 |
| 41:DT:62:VAL:O | 41:DT:63:VAL:HB | 2.15 | 0.47 |
| 23:BB:528:A:N1 | 23:BB:2043:C:C5' | 2.78 | 0.47 |
| 8:AI:64:ILE:HG22 | 8:AI:65:THR:N | 2.30 | 0.47 |
| 23:BB:1010:A:N3 | 23:BB:1153:C:H1' | 2.29 | 0.47 |
| 31:BJ:12:LYS:HZ2 | 31:BJ:41:LYS:HG3 | 1.79 | 0.47 |
| 39:BR:70:GLU:O | 39:BR:71:LYS:HB2 | 2.14 | 0.47 |
| 10:AK:83:VAL:HG22 | 10:AK:106:ILE:HD11 | 1.97 | 0.47 |
| 28:DF:32:LYS:CB | 28:DF:91:ARG:HB3 | 2.33 | 0.47 |
| 33:DL:142:ILE:HG12 | 33:DL:144:GLU:OE1 | 2.15 | 0.47 |
| 41:BT:24:MET:HE3 | 41:BT:29:THR:H | 1.79 | 0.47 |
| 1:AA:926:G:H3' | 1:AA:1505:G:H21 | 1.80 | 0.47 |
| 33:DL:59:ARG:O | 33:DL:60:ARG:HD2 | 2.14 | 0.47 |
| 23:DB:1060:U:OP1 | 52:DI:75:ALA:HB3 | 2.15 | 0.47 |
| 25:DC:226:PRO:HG3 | 25:DC:232:GLY:C | 2.35 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 1:CA:719:C:O2' | 17:CR:37:LYS:HB2 | 2.15 | 0.47 |
| 25:DC:52:HIS:O | 25:DC:53:ILE:HD12 | 2.15 | 0.47 |
| 3:CD:25:ARG:CB | 3:CD:25:ARG:HH11 | 2.19 | 0.47 |
| 8:CI:56:MET:O | 8:CI:58:GLU:HG2 | 2.14 | 0.47 |
| 1:CA:1300:G:C2' | 1:CA:1301:U:OP2 | 2.62 | 0.47 |
| 1:CA:1301:U:O2' | 1:CA:1302:C:OP1 | 2.25 | 0.47 |
| 1:AA:836:G:H2' | 1:AA:837:U:H6 | 1.79 | 0.47 |
| 1:CA:1512:U:H2' | 1:CA:1513:A:C8 | 2.50 | 0.47 |
| 2:CC:178:ARG:HG2 | 2:CC:205:GLU:O | 2.15 | 0.47 |
| 23:BB:1081:U:H5' | 52:BI:126:ARG:HD2 | 1.96 | 0.47 |
| 28:DF:39:VAL:HG13 | 28:DF:84:ILE:CB | 2.45 | 0.47 |
| 2:AC:38:VAL:O | 2:AC:42:LEU:HD23 | 2.15 | 0.47 |
| 42:DU:15:GLY:C | 42:DU:17:ASP:H | 2.18 | 0.47 |
| 1:CA:1085:U:H3' | 1:CA:1086:U:C6 | 2.50 | 0.47 |
| 49:D2:18:PHE:CE2 | 49:D2:44:VAL:HB | 2.50 | 0.47 |
| 39:BR:59:ILE:HG13 | 39:BR:59:ILE:O | 2.14 | 0.47 |
| 25:BC:3:VAL:HG12 | 25:BC:4:LYS:N | 2.24 | 0.47 |
| 17:CR:59:LYS:O | 17:CR:63:TYR:HD2 | 1.97 | 0.47 |
| 23:BB:2800:A:N3 | 23:BB:2801:G:H1' | 2.30 | 0.47 |
| 52:DI:45:THR:O | 52:DI:48:ILE:HG22 | 2.14 | 0.47 |
| 21:CU:41:THR:O | 21:CU:45:LYS:HB2 | 2.15 | 0.47 |
| 4:CE:113:VAL:HG21 | 4:CE:139:THR:HG21 | 1.96 | 0.47 |
| 11:CL:81:ILE:HD13 | 11:CL:96:THR:HG22 | 1.96 | 0.47 |
| 23:BB:1789:A:OP1 | 25:BC:219:VAL:HG12 | 2.14 | 0.47 |
| 23:DB:2462:C:H2' | 23:DB:2463:C:C6 | 2.49 | 0.47 |
| 1:AA:1281:C:C5' | 1:AA:1282:C:H5 | 2.27 | 0.47 |
| 1:AA:1260:G:OP1 | 1:AA:1284:C:H4' | 2.14 | 0.47 |
| 4:AE:104:ILE:HG23 | 4:AE:111:ARG:HH12 | 1.80 | 0.47 |
| 23:DB:2597:G:OP1 | 25:DC:239:PHE:CG | 2.68 | 0.47 |
| 1:AA:411:A:OP2 | 3:AD:25:ARG:NH2 | 2.47 | 0.47 |
| 3:AD:25:ARG:CD | 3:AD:26:ALA:H | 2.24 | 0.47 |
| 11:CL:35:ARG:NE | 11:CL:36:VAL:H | 2.13 | 0.47 |
| 23:BB:213:A:H2' | 23:BB:214:G:C8 | 2.50 | 0.47 |
| 29:DG:23:ILE:O | 29:DG:33:THR:HA | 2.14 | 0.47 |
| 1:AA:1300:G:O2' | 1:AA:1301:U:P | 2.73 | 0.47 |
| 23:BB:309:A:H1' | 23:BB:329:G:N3 | 2.30 | 0.47 |
| 23:BB:1367:A:H2' | 23:BB:1368:G:H5' | 1.95 | 0.47 |
| 50:D3:25:HIS:O | 50:D3:27:ASN:N | 2.48 | 0.47 |
| 23:DB:1351:C:H2' | 23:DB:1352:U:C6 | 2.49 | 0.47 |
| 1:CA:382:A:O2' | 1:CA:383:A:H5' | 2.15 | 0.47 |
| 23:BB:189:G:P | 46:BZ:12:ILE:HG21 | 2.55 | 0.47 |
| 11:AL:49:ARG:HH12 | 11:AL:88:ASP:CB | 2.27 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 1:CA:476:U:O2' | 1:CA:477:C:H5' | 2.14 | 0.47 |
| 23:BB:1750:G:H2' | 23:BB:1751:U:C6 | 2.50 | 0.47 |
| 1:AA:357:G:OP1 | 1:AA:367:U:H6 | 1.98 | 0.47 |
| 1:AA:392:C:C2 | 1:AA:393:A:C8 | 3.02 | 0.47 |
| 1:AA:893:C:H2' | 1:AA:894:G:C8 | 2.49 | 0.47 |
| 15:AP:73:ALA:HB1 | 15:AP:77:GLU:OE2 | 2.15 | 0.47 |
| 23:DB:1332:G:N3 | 23:DB:1332:G:H2' | 2.29 | 0.47 |
| 1:CA:1229:A:H2' | 1:CA:1230:C:H6 | 1.79 | 0.47 |
| 20:AB:22:TRP:CG | 20:AB:23:ASN:N | 2.82 | 0.47 |
| 1:CA:890:G:O2' | 1:CA:906:A:N6 | 2.48 | 0.47 |
| 39:BR:31:GLU:O | 39:BR:32:THR:HB | 2.15 | 0.47 |
| 23:BB:1775:U:H2' | 23:BB:1776:G:O4' | 2.14 | 0.47 |
| 23:DB:2710:C:H2' | 23:DB:2711:A:H8 | 1.80 | 0.47 |
| 23:DB:2864:G:H2' | 23:DB:2865:U:C6 | 2.49 | 0.47 |
| 1:CA:284:C:H2' | 1:CA:285:C:H6 | 1.79 | 0.47 |
| 9:CJ:7:ARG:HD2 | 9:CJ:101:SER:OG | 2.14 | 0.47 |
| 23:DB:1541:C:H2' | 23:DB:1542:U:C6 | 2.50 | 0.47 |
| 26:DD:112:THR:HB | 26:DD:167:ASN:O | 2.14 | 0.47 |
| 52:DI:69:VAL:HG23 | 52:DI:69:VAL:O | 2.15 | 0.47 |
| 1:CA:434:U:H2' | 1:CA:434:U:O2 | 2.14 | 0.47 |
| 7:CH:107:LYS:HB3 | 7:CH:107:LYS:NZ | 2.30 | 0.47 |
| 23:BB:1424:G:H2' | 23:BB:1425:G:O4' | 2.15 | 0.47 |
| 37:DP:65:ASN:H | 37:DP:71:ARG:CA | 2.27 | 0.47 |
| 34:BM:3:GLN:C | 34:BM:5:LYS:N | 2.66 | 0.47 |
| 23:DB:5:A:H2' | 23:DB:6:A:C8 | 2.50 | 0.47 |
| 36:BO:26:LEU:HG | 36:BO:39:VAL:HG22 | 1.96 | 0.47 |
| 27:DE:123:LYS:NZ | 27:DE:158:PHE:HA | 2.30 | 0.47 |
| 27:DE:169:VAL:HG22 | 27:DE:171:ASP:H | 1.80 | 0.47 |
| 50:B3:24:LYS:NZ | 50:B3:29:ARG:HH12 | 2.13 | 0.47 |
| 34:BM:116:ALA:O | 34:BM:119:LEU:HD23 | 2.15 | 0.47 |
| 23:BB:2023:C:H4' | 23:BB:2617:U:O3' | 2.15 | 0.47 |
| 23:DB:2722:G:H2' | 23:DB:2723:C:C6 | 2.49 | 0.47 |
| 36:DO:35:ILE:CG2 | 36:DO:74:VAL:HG21 | 2.44 | 0.47 |
| 33:BL:39:LYS:HB2 | 33:BL:46:VAL:HG13 | 1.96 | 0.47 |
| 41:DT:40:LYS:HE3 | 41:DT:59:ASN:O | 2.14 | 0.47 |
| 23:BB:527:C:C4 | 23:BB:2779:U:H2' | 2.50 | 0.47 |
| 23:BB:2773:C:O2' | 23:BB:2774:C:H5' | 2.15 | 0.47 |
| 12:AM:16:ILE:HG23 | 12:AM:17:ALA:N | 2.30 | 0.47 |
| 26:DD:50:VAL:HG13 | 26:DD:77:ARG:O | 2.14 | 0.47 |
| 30:DH:88:GLY:O | 30:DH:124:THR:HA | 2.15 | 0.47 |
| 18:CS:14:LEU:HD12 | 18:CS:15:LEU:N | 2.30 | 0.47 |
| 23:BB:125:A:H4' | 49:B2:13:ASN:CG | 2.34 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 44:BX:22:LEU:CD2 | 44:BX:25:GLN:HB3 | 2.45 | 0.47 |
| 23:DB:2733:A:H3' | 23:DB:2733:A:C8 | 2.50 | 0.47 |
| 25:DC:52:HIS:O | 25:DC:53:ILE:CB | 2.61 | 0.47 |
| 25:BC:224:MET:HB3 | 25:BC:233:GLY:H | 1.80 | 0.47 |
| 38:DQ:82:LEU:HG | 38:DQ:88:GLU:CG | 2.45 | 0.47 |
| 1:AA:1112:C:O2 | 2:AC:178:ARG:N | 2.48 | 0.47 |
| 34:DM:62:LYS:H | 34:DM:104:GLU:CB | 2.22 | 0.47 |
| 1:AA:263:A:P | 19:AT:73:ARG:HH22 | 2.38 | 0.47 |
| 19:AT:57:VAL:HG12 | 19:AT:57:VAL:O | 2.15 | 0.47 |
| 15:CP:53:ASP:O | 15:CP:57:ILE:HG22 | 2.14 | 0.47 |
| 28:DF:56:LEU:HD13 | 28:DF:88:VAL:HG21 | 1.97 | 0.47 |
| 2:AC:76:ILE:O | 2:AC:83:VAL:HG23 | 2.14 | 0.47 |
| 2:AC:90:VAL:HA | 2:AC:93:ILE:CG2 | 2.44 | 0.47 |
| 30:BH:121:VAL:HG11 | 30:BH:128:HIS:CD2 | 2.49 | 0.47 |
| 23:DB:1665:A:H5'' | 32:DK:66:LYS:HB3 | 1.97 | 0.47 |
| 29:DG:10:VAL:HG11 | 29:DG:44:HIS:CE1 | 2.50 | 0.47 |
| 31:DJ:120:ARG:C | 31:DJ:121:LYS:HE3 | 2.35 | 0.47 |
| 23:DB:2801:G:H2' | 23:DB:2802:G:C8 | 2.50 | 0.47 |
| 1:CA:1225:A:H5' | 12:CM:101:THR:HG1 | 1.80 | 0.47 |
| 12:CM:95:PRO:CD | 12:CM:108:ARG:HG2 | 2.45 | 0.47 |
| 23:DB:543:G:C2' | 23:DB:545:U:OP1 | 2.63 | 0.47 |
| 23:DB:599:A:O2' | 23:DB:600:G:H5' | 2.15 | 0.47 |
| 52:BI:83:ALA:N | 52:BI:100:ILE:HD11 | 2.29 | 0.47 |
| 23:BB:55:G:H2' | 23:BB:56:A:C8 | 2.50 | 0.47 |
| 14:CO:23:SER:HB3 | 14:CO:26:VAL:CG2 | 2.45 | 0.47 |
| 24:DV:65:VAL:O | 24:DV:66:ASP:HB3 | 2.15 | 0.47 |
| 35:DN:103:ARG:O | 35:DN:104:ALA:HB3 | 2.15 | 0.47 |
| 29:BG:32:LEU:HD21 | 29:BG:74:MET:HB3 | 1.97 | 0.47 |
| 23:BB:2038:G:H2' | 23:BB:2039:U:C6 | 2.49 | 0.47 |
| 1:AA:768:A:H4' | 1:AA:1523:G:N2 | 2.30 | 0.47 |
| 29:DG:25:ILE:CD1 | 29:DG:75:VAL:HG22 | 2.45 | 0.47 |
| 1:CA:695:A:H5' | 10:CK:52:ARG:NH2 | 2.28 | 0.47 |
| 20:CB:199:ILE:O | 20:CB:199:ILE:HG13 | 2.15 | 0.47 |
| 23:BB:599:A:O2' | 23:BB:600:G:H5' | 2.15 | 0.47 |
| 23:DB:962:G:O2' | 23:DB:963:U:H5' | 2.15 | 0.47 |
| 1:AA:1117:A:H4' | 8:AI:105:ARG:NH1 | 2.30 | 0.47 |
| 29:DG:8:VAL:HG12 | 29:DG:49:LEU:HD12 | 1.96 | 0.47 |
| 23:DB:1355:G:O2' | 23:DB:1356:G:H5' | 2.14 | 0.47 |
| 28:DF:177:ARG:O | 28:DF:178:LYS:HB2 | 2.15 | 0.47 |
| 1:AA:1226:C:P | 12:AM:89:ARG:HH12 | 2.37 | 0.47 |
| 23:BB:664:G:O2' | 23:BB:665:U:H5' | 2.15 | 0.47 |
| 17:CR:20:ILE:O | 17:CR:20:ILE:HG12 | 2.15 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:DB:1009:A:H5' | 38:DQ:58:GLN:HE21 | 1.80 | 0.47 |
| 23:BB:1710:G:O2' | 23:BB:1711:A:H5' | 2.14 | 0.47 |
| 23:DB:1710:G:O2' | 23:DB:1711:A:H5' | 2.14 | 0.47 |
| 23:BB:2519:U:H5' | 23:BB:2567:G:N2 | 2.30 | 0.47 |
| 23:BB:236:C:O2' | 23:BB:237:C:H5' | 2.14 | 0.47 |
| 1:CA:197:A:H4' | 1:CA:198:G:O5' | 2.15 | 0.47 |
| 32:BK:73:ASP:OD1 | 32:BK:74:GLY:N | 2.48 | 0.47 |
| 1:CA:252:U:H2' | 1:CA:253:A:C8 | 2.49 | 0.47 |
| 1:CA:647:C:O2' | 1:CA:648:A:H5' | 2.15 | 0.47 |
| 29:BG:126:THR:C | 29:BG:128:THR:H | 2.17 | 0.47 |
| 23:DB:1882:U:O2' | 23:DB:1883:U:H5' | 2.14 | 0.47 |
| 23:DB:2093:G:O2' | 23:DB:2094:A:H5' | 2.14 | 0.47 |
| 3:AD:54:LEU:O | 3:AD:57:LYS:HB3 | 2.14 | 0.47 |
| 38:DQ:116:LEU:H | 38:DQ:116:LEU:HD22 | 1.79 | 0.47 |
| 3:AD:71:PHE:HA | 3:AD:74:TYR:HD2 | 1.80 | 0.47 |
| 23:DB:1427:A:H4' | 23:DB:1428:C:O4' | 2.14 | 0.47 |
| 34:BM:103:TYR:O | 34:BM:105:MET:N | 2.48 | 0.47 |
| 23:DB:129:C:H4' | 23:DB:1348:C:O2' | 2.15 | 0.47 |
| 23:DB:1720:U:O2' | 23:DB:1721:G:H5' | 2.15 | 0.47 |
| 23:BB:2603:G:O2' | 23:BB:2604:U:H5' | 2.15 | 0.47 |
| 1:AA:513:C:H2' | 1:AA:514:C:H6 | 1.79 | 0.47 |
| 1:AA:803:G:H2' | 1:AA:804:U:C6 | 2.50 | 0.47 |
| 20:AB:15:PHE:HD1 | 20:AB:16:GLY:H | 1.63 | 0.47 |
| 23:DB:1098:A:O5' | 52:DI:3:LYS:CG | 2.63 | 0.47 |
| 23:BB:661:A:O2' | 33:BL:23:ILE:HG23 | 2.14 | 0.47 |
| 30:DH:26:ALA:C | 30:DH:28:ASN:H | 2.16 | 0.47 |
| 35:DN:96:ARG:HG2 | 35:DN:96:ARG:HH11 | 1.79 | 0.47 |
| 31:BJ:63:ALA:HA | 31:BJ:69:ARG:HD3 | 1.97 | 0.47 |
| 30:BH:30:LEU:HD13 | 30:BH:35:LYS:HD3 | 1.97 | 0.47 |
| 23:DB:299:A:H2 | 23:DB:319:G:N3 | 2.13 | 0.47 |
| 46:BZ:49:ARG:O | 46:BZ:51:VAL:HG23 | 2.14 | 0.47 |
| 32:BK:99:ILE:N | 32:BK:99:ILE:HD12 | 2.30 | 0.47 |
| 34:BM:21:ALA:O | 34:BM:96:ILE:HG13 | 2.15 | 0.47 |
| 16:AQ:79:GLU:HG3 | 16:AQ:80:LYS:N | 2.31 | 0.47 |
| 41:DT:68:LYS:HB2 | 41:DT:68:LYS:HZ2 | 1.77 | 0.47 |
| 40:DS:7:HIS:NE2 | 40:DS:10:ALA:HA | 2.29 | 0.47 |
| 35:BN:49:GLU:O | 35:BN:52:ILE:HB | 2.15 | 0.47 |
| 39:BR:5:PHE:HB3 | 39:BR:12:HIS:CG | 2.50 | 0.47 |
| 47:B0:42:ILE:HD11 | 47:B0:44:ALA:HB3 | 1.97 | 0.47 |
| 23:DB:1199:U:C2 | 23:DB:1200:C:C5 | 3.03 | 0.47 |
| 23:BB:535:G:H3' | 55:BB:3420:HOH:O | 2.15 | 0.47 |
| 23:BB:2822:G:N7 | 35:BN:1:MET:N | 2.58 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 26:BD:122:VAL:CB | 26:BD:141:ARG:HH12 | 2.28 | 0.47 |
| 20:AB:9:LEU:HD22 | 20:AB:10:LYS:N | 2.30 | 0.47 |
| 1:AA:1212:U:H5' | 1:AA:1213:A:O4' | 2.15 | 0.47 |
| 26:BD:29:VAL:HG12 | 26:BD:185:ASN:ND2 | 2.30 | 0.47 |
| 26:BD:45:TYR:CE2 | 26:BD:83:ARG:HG3 | 2.50 | 0.47 |
| 34:DM:33:LEU:CD2 | 34:DM:124:LEU:HB2 | 2.44 | 0.47 |
| 37:DP:59:THR:HG1 | 37:DP:76:HIS:CG | 2.33 | 0.47 |
| 1:AA:1111:A:C2 | 2:AC:176:THR:HG23 | 2.50 | 0.47 |
| 11:AL:35:ARG:CA | 11:AL:35:ARG:HE | 2.23 | 0.47 |
| 1:CA:840:C:N3 | 1:CA:842:U:H4' | 2.30 | 0.47 |
| 35:BN:103:ARG:HB2 | 35:BN:110:MET:SD | 2.55 | 0.47 |
| 23:BB:2299:U:H2' | 23:BB:2300:C:C6 | 2.50 | 0.47 |
| 42:DU:72:PHE:CD2 | 42:DU:74:ALA:HB3 | 2.50 | 0.47 |
| 44:BX:38:GLN:HG2 | 44:BX:39:GLN:N | 2.29 | 0.47 |
| 2:AC:53:ARG:HG2 | 2:AC:54:ILE:N | 2.26 | 0.47 |
| 36:BO:84:GLU:OE1 | 36:BO:85:LYS:HG3 | 2.14 | 0.47 |
| 32:DK:20:MET:C | 32:DK:41:ILE:HD12 | 2.34 | 0.47 |
| 30:DH:68:ARG:HD3 | 30:DH:71:LYS:HD3 | 1.97 | 0.47 |
| 1:CA:948:C:OP1 | 12:CM:105:ALA:HA | 2.14 | 0.47 |
| 23:BB:327:G:H2' | 23:BB:328:U:C6 | 2.50 | 0.47 |
| 52:BI:29:GLN:HA | 52:BI:29:GLN:HE21 | 1.80 | 0.47 |
| 18:AS:69:LYS:O | 18:AS:72:GLU:HB2 | 2.15 | 0.47 |
| 23:DB:2071:A:H2' | 23:DB:2072:C:H6 | 1.76 | 0.47 |
| 25:DC:12:ARG:HH11 | 25:DC:18:VAL:CB | 2.28 | 0.47 |
| 1:AA:589:U:O2' | 1:AA:590:U:H5' | 2.14 | 0.47 |
| 23:BB:1515:A:H5' | 23:BB:1557:C:C5' | 2.44 | 0.47 |
| 4:CE:45:VAL:O | 4:CE:71:ILE:HG22 | 2.14 | 0.47 |
| 38:BQ:20:ALA:O | 38:BQ:22:GLY:N | 2.48 | 0.47 |
| 2:AC:115:VAL:CG1 | 2:AC:137:VAL:HG13 | 2.44 | 0.47 |
| 23:DB:1409:U:O2' | 23:DB:1410:G:H5' | 2.15 | 0.47 |
| 23:BB:764:A:OP2 | 25:BC:213:ARG:NH2 | 2.47 | 0.47 |
| 2:CC:127:VAL:HB | 2:CC:128:MET:CE | 2.45 | 0.47 |
| 4:AE:105:ILE:HB | 4:AE:123:LEU:CA | 2.44 | 0.47 |
| 48:B1:31:GLU:O | 48:B1:33:LEU:HG | 2.15 | 0.47 |
| 15:AP:67:ILE:CD1 | 15:AP:72:ALA:HA | 2.45 | 0.47 |
| 1:AA:413:G:H5' | 1:AA:414:A:OP1 | 2.14 | 0.47 |
| 5:AF:51:ILE:O | 5:AF:51:ILE:HG23 | 2.15 | 0.47 |
| 6:CG:100:MET:O | 6:CG:104:VAL:HG23 | 2.14 | 0.47 |
| 6:CG:29:LEU:HD12 | 6:CG:42:VAL:HG22 | 1.96 | 0.47 |
| 23:DB:962:G:O2' | 23:DB:2250:G:N2 | 2.48 | 0.47 |
| 23:BB:2543:G:H2' | 23:BB:2544:G:C8 | 2.50 | 0.47 |
| 23:BB:173:A:H2' | 23:BB:174:U:H6 | 1.80 | 0.47 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 1:AA:108:G:C6 | 19:AT:9:ARG:HG2 | 2.50 | 0.47 |
| 22:BA:105:G:O2' | 22:BA:106:G:H5' | 2.15 | 0.47 |
| 41:BT:48:GLN:HG3 | 41:BT:49:LYS:N | 2.30 | 0.47 |
| 23:DB:346:A:N7 | 23:DB:347:A:H1' | 2.30 | 0.47 |
| 1:CA:992:U:H1' | 1:CA:993:G:C2 | 2.49 | 0.47 |
| 50:B3:56:LEU:O | 50:B3:57:VAL:HB | 2.15 | 0.47 |
| 19:AT:34:VAL:HG11 | 19:AT:78:LEU:HD13 | 1.97 | 0.47 |
| 23:DB:802:A:H4' | 55:DB:3289:HOH:O | 2.15 | 0.47 |
| 23:BB:657:U:H2' | 23:BB:658:U:C6 | 2.50 | 0.47 |
| 8:AI:66:VAL:HG21 | 8:AI:74:GLN:HG3 | 1.97 | 0.47 |
| 23:DB:657:U:H2' | 23:DB:658:U:C6 | 2.50 | 0.47 |
| 27:DE:88:ARG:HB3 | 27:DE:89:PRO:HD2 | 1.97 | 0.47 |
| 23:DB:2300:C:H2' | 23:DB:2301:C:H6 | 1.79 | 0.47 |
| 1:AA:284:C:H2' | 1:AA:285:C:H6 | 1.79 | 0.47 |
| 1:AA:652:U:H1' | 1:AA:653:U:C5 | 2.50 | 0.47 |
| 44:BX:36:GLN:O | 44:BX:37:LEU:HD23 | 2.15 | 0.47 |
| 11:AL:58:ASN:H | 11:AL:58:ASN:ND2 | 2.12 | 0.47 |
| 1:AA:1406:U:H3' | 1:AA:1407:C:H6 | 1.79 | 0.47 |
| 23:DB:902:C:O2' | 23:DB:903:C:H5' | 2.15 | 0.47 |
| 3:CD:13:ARG:HG3 | 3:CD:13:ARG:O | 2.15 | 0.47 |
| 23:BB:778:G:H5" | 25:BC:48:ILE:HD12 | 1.97 | 0.46 |
| 25:BC:160:TYR:HA | 25:BC:193:GLU:HG2 | 1.96 | 0.46 |
| 47:D0:32:THR:HG21 | 47:D0:41:HIS:CE1 | 2.49 | 0.46 |
| 43:BW:58:LEU:HA | 43:BW:79:ILE:CG2 | 2.45 | 0.46 |
| 23:DB:533:G:N3 | 38:DQ:40:LYS:HG2 | 2.30 | 0.46 |
| 27:DE:153:LEU:HD23 | 27:DE:172:ALA:N | 2.31 | 0.46 |
| 46:BZ:8:LYS:CD | 46:BZ:9:TYR:N | 2.70 | 0.46 |
| 48:D1:15:GLY:HA3 | 48:D1:47:ILE:CG2 | 2.44 | 0.46 |
| 24:BV:82:TYR:CB | 34:BM:36:VAL:HG12 | 2.45 | 0.46 |
| 24:DV:69:GLU:O | 24:DV:70:ILE:HG23 | 2.15 | 0.46 |
| 16:AQ:10:ARG:CA | 16:AQ:10:ARG:NE | 2.77 | 0.46 |
| 11:AL:1:ALA:HB1 | 11:AL:5:GLN:HB2 | 1.98 | 0.46 |
| 23:DB:64:A:H5' | 41:DT:76:ARG:HD2 | 1.95 | 0.46 |
| 23:BB:1156:A:N6 | 38:BQ:47:ARG:HD2 | 2.30 | 0.46 |
| 40:DS:7:HIS:NE2 | 40:DS:46:LEU:HD22 | 2.30 | 0.46 |
| 23:BB:528:A:C6 | 23:BB:2042:A:H2' | 2.46 | 0.46 |
| 8:AI:18:VAL:HG13 | 8:AI:64:ILE:HG12 | 1.96 | 0.46 |
| 31:DJ:43:GLU:CA | 38:DQ:63:ARG:HH12 | 2.28 | 0.46 |
| 35:BN:27:SER:OG | 35:BN:34:ILE:HG21 | 2.15 | 0.46 |
| 34:DM:4:PRO:HB2 | 34:DM:69:PRO:CG | 2.45 | 0.46 |
| 38:BQ:92:LYS:HD3 | 38:BQ:92:LYS:C | 2.35 | 0.46 |
| 27:BE:173:THR:O | 27:BE:175:ILE:HG22 | 2.14 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 27:BE:149:ILE:HD11 | 27:BE:186:VAL:HG13 | 1.97 | 0.46 |
| 13:CN:10:VAL:HG12 | 13:CN:11:LYS:NZ | 2.30 | 0.46 |
| 33:DL:123:ARG:HA | 33:DL:142:ILE:CA | 2.45 | 0.46 |
| 33:DL:108:ALA:HB3 | 33:DL:125:LEU:HB3 | 1.97 | 0.46 |
| 23:BB:135:U:H2' | 23:BB:136:G:N9 | 2.29 | 0.46 |
| 8:CI:115:VAL:HG21 | 9:CJ:62:ARG:HG3 | 1.97 | 0.46 |
| 23:DB:356:G:H2' | 23:DB:357:C:H6 | 1.80 | 0.46 |
| 23:DB:358:U:H2' | 23:DB:359:G:H8 | 1.77 | 0.46 |
| 23:DB:2420:C:H3' | 50:D3:31:ILE:HG22 | 1.96 | 0.46 |
| 23:DB:1997:C:H5' | 26:DD:128:ARG:NH2 | 2.29 | 0.46 |
| 23:BB:1257:C:H5' | 27:BE:78:TRP:CH2 | 2.49 | 0.46 |
| 23:BB:2769:U:O2' | 23:BB:2770:G:H5' | 2.16 | 0.46 |
| 31:DJ:100:VAL:HG13 | 31:DJ:101:ILE:HG12 | 1.96 | 0.46 |
| 42:DU:90:LYS:O | 42:DU:91:LYS:HB2 | 2.16 | 0.46 |
| 3:AD:196:GLU:HA | 3:AD:199:ILE:HD12 | 1.97 | 0.46 |
| 48:D1:7:LYS:HA | 48:D1:26:LYS:HA | 1.97 | 0.46 |
| 7:CH:46:GLU:N | 7:CH:63:LYS:HE3 | 2.30 | 0.46 |
| 9:AJ:73:LEU:O | 9:AJ:74:VAL:HB | 2.15 | 0.46 |
| 12:CM:105:ALA:O | 12:CM:109:LYS:HG3 | 2.15 | 0.46 |
| 1:AA:1432:G:C5' | 37:BP:106:ALA:HB2 | 2.44 | 0.46 |
| 34:BM:108:VAL:O | 34:BM:112:LEU:HD13 | 2.15 | 0.46 |
| 1:CA:1226:C:N4 | 12:CM:102:LYS:HZ3 | 2.12 | 0.46 |
| 50:B3:34:LYS:HB3 | 50:B3:35:LYS:NZ | 2.30 | 0.46 |
| 23:DB:957:C:O2' | 23:DB:958:U:H5'' | 2.14 | 0.46 |
| 20:CB:18:GLN:HB2 | 20:CB:188:THR:OG1 | 2.14 | 0.46 |
| 1:CA:279:A:H5' | 1:CA:281:G:O4' | 2.15 | 0.46 |
| 9:CJ:65:TYR:HB3 | 13:CN:95:LEU:HD11 | 1.96 | 0.46 |
| 23:BB:1409:U:O2' | 23:BB:1410:G:H5' | 2.15 | 0.46 |
| 40:DS:4:ILE:HG12 | 40:DS:106:VAL:HG12 | 1.97 | 0.46 |
| 7:AH:69:ALA:HB3 | 7:AH:72:GLU:OE2 | 2.15 | 0.46 |
| 7:AH:64:TYR:CA | 7:AH:70:VAL:HG23 | 2.44 | 0.46 |
| 40:BS:24:ILE:HD13 | 40:BS:36:LEU:HD11 | 1.97 | 0.46 |
| 3:AD:24:VAL:HG23 | 3:AD:25:ARG:HD2 | 1.96 | 0.46 |
| 1:CA:831:A:O2' | 1:CA:832:G:H5' | 2.15 | 0.46 |
| 1:CA:472:U:N3 | 1:CA:473:U:C4 | 2.82 | 0.46 |
| 23:BB:241:A:OP1 | 23:BB:241:A:H8 | 1.98 | 0.46 |
| 36:BO:66:GLY:O | 36:BO:67:ASN:ND2 | 2.48 | 0.46 |
| 23:BB:2378:A:C2' | 23:BB:2379:G:H5' | 2.43 | 0.46 |
| 25:DC:77:VAL:HG23 | 25:DC:113:ASP:HB2 | 1.97 | 0.46 |
| 23:BB:6:A:O2' | 23:BB:7:G:H5' | 2.15 | 0.46 |
| 12:AM:70:ARG:NE | 28:BF:112:ASP:OD2 | 2.49 | 0.46 |
| 1:CA:601:G:H2' | 1:CA:602:A:C8 | 2.50 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 36:DO:86:GLY:C | 36:DO:88:LYS:H | 2.17 | 0.46 |
| 13:AN:14:ALA:O | 13:AN:18:LYS:HG2 | 2.15 | 0.46 |
| 1:CA:1028:C:H2' | 1:CA:1029:U:C6 | 2.49 | 0.46 |
| 1:AA:1456:A:H2' | 1:AA:1457:G:O4' | 2.16 | 0.46 |
| 23:DB:1048:A:C5 | 23:DB:1111:A:C2 | 3.03 | 0.46 |
| 52:DI:37:PHE:CE1 | 52:DI:58:ILE:HD11 | 2.50 | 0.46 |
| 1:AA:601:G:H2' | 1:AA:602:A:H8 | 1.80 | 0.46 |
| 1:AA:216:U:H2' | 1:AA:217:C:C6 | 2.50 | 0.46 |
| 28:DF:79:ARG:HB2 | 28:DF:82:TYR:CZ | 2.50 | 0.46 |
| 1:CA:216:U:H2' | 1:CA:217:C:C6 | 2.50 | 0.46 |
| 23:BB:1029:A:H2' | 23:BB:1030:C:O4' | 2.15 | 0.46 |
| 1:AA:455:G:H2' | 1:AA:456:A:C8 | 2.51 | 0.46 |
| 1:AA:691:G:H1' | 1:AA:696:A:N6 | 2.30 | 0.46 |
| 25:DC:38:LYS:O | 25:DC:60:ALA:HA | 2.14 | 0.46 |
| 23:DB:1999:C:O2' | 23:DB:2000:C:H5' | 2.15 | 0.46 |
| 23:BB:946:C:H2' | 23:BB:947:A:H8 | 1.80 | 0.46 |
| 23:DB:2300:C:H2' | 23:DB:2301:C:C6 | 2.51 | 0.46 |
| 11:AL:89:LEU:HD22 | 11:AL:89:LEU:N | 2.30 | 0.46 |
| 1:CA:1363:A:H2' | 1:CA:1363:A:N3 | 2.30 | 0.46 |
| 2:CC:13:ILE:HG13 | 2:CC:177:LEU:HB3 | 1.98 | 0.46 |
| 14:AO:17:ASP:HB2 | 14:AO:18:ALA:H | 1.57 | 0.46 |
| 23:DB:1669:A:H2' | 23:DB:1669:A:N3 | 2.31 | 0.46 |
| 10:CK:127:ARG:HH11 | 10:CK:127:ARG:HG3 | 1.79 | 0.46 |
| 13:AN:72:PHE:CE2 | 13:AN:77:GLY:HA2 | 2.50 | 0.46 |
| 23:DB:1936:A:H2 | 23:DB:1943:U:C5 | 2.33 | 0.46 |
| 1:AA:909:A:H2' | 1:AA:910:C:O4' | 2.14 | 0.46 |
| 36:BO:57:ALA:HB3 | 36:BO:62:LEU:HA | 1.97 | 0.46 |
| 23:BB:443:A:H5'' | 27:BE:44:ARG:HH12 | 1.80 | 0.46 |
| 37:BP:29:VAL:O | 37:BP:30:TRP:C | 2.53 | 0.46 |
| 43:DW:33:GLY:O | 43:DW:66:VAL:HG23 | 2.15 | 0.46 |
| 25:BC:137:GLY:C | 25:BC:139:THR:H | 2.18 | 0.46 |
| 23:DB:1820:U:O2' | 25:DC:157:ALA:HB3 | 2.15 | 0.46 |
| 31:BJ:102:GLU:OE2 | 31:BJ:124:VAL:HG11 | 2.16 | 0.46 |
| 43:BW:23:LYS:HG3 | 43:BW:24:ARG:N | 2.30 | 0.46 |
| 39:DR:76:LYS:O | 39:DR:77:PHE:HB2 | 2.15 | 0.46 |
| 32:BK:98:ARG:HA | 32:BK:118:LEU:CD2 | 2.45 | 0.46 |
| 23:DB:2090:A:H2' | 46:DZ:49:ARG:CZ | 2.45 | 0.46 |
| 23:BB:1190:G:OP1 | 33:BL:41:ARG:NE | 2.48 | 0.46 |
| 39:BR:90:ARG:HH12 | 39:BR:91:GLN:C | 2.18 | 0.46 |
| 25:BC:53:ILE:HG21 | 25:BC:218:THR:HG23 | 1.95 | 0.46 |
| 35:BN:45:ARG:N | 35:BN:45:ARG:HD2 | 2.30 | 0.46 |
| 25:BC:32:LEU:HD13 | 25:BC:61:TYR:CE1 | 2.50 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 25:BC:59:GLN:HB3 | 25:BC:60:ALA:H | 1.51 | 0.46 |
| 38:BQ:85:ALA:HB3 | 38:BQ:88:GLU:O | 2.15 | 0.46 |
| 23:BB:2263:C:H2' | 23:BB:2264:C:C6 | 2.50 | 0.46 |
| 3:CD:59:LYS:O | 3:CD:63:ILE:HG22 | 2.15 | 0.46 |
| 30:DH:83:LYS:O | 30:DH:90:LEU:HA | 2.14 | 0.46 |
| 33:DL:89:VAL:HG13 | 33:DL:89:VAL:O | 2.16 | 0.46 |
| 10:AK:126:ARG:CB | 21:AU:33:ARG:HD2 | 2.39 | 0.46 |
| 23:DB:286:U:H2' | 23:DB:287:G:C8 | 2.51 | 0.46 |
| 23:DB:2515:C:H2' | 23:DB:2516:A:H8 | 1.81 | 0.46 |
| 23:BB:2733:A:H3' | 23:BB:2733:A:C8 | 2.50 | 0.46 |
| 45:DY:2:LYS:N | 45:DY:37:ARG:HB2 | 2.30 | 0.46 |
| 37:DP:54:LEU:N | 37:DP:58:PHE:HD1 | 2.13 | 0.46 |
| 1:CA:1368:A:O2' | 1:CA:1369:C:H5' | 2.15 | 0.46 |
| 37:DP:38:ARG:CG | 37:DP:39:LEU:N | 2.75 | 0.46 |
| 19:CT:67:HIS:CG | 19:CT:68:LYS:H | 2.31 | 0.46 |
| 23:DB:2502:G:H5' | 23:DB:2503:A:C5' | 2.36 | 0.46 |
| 1:CA:782:A:H2' | 1:CA:783:C:O4' | 2.14 | 0.46 |
| 40:BS:89:ALA:O | 40:BS:90:LYS:HD2 | 2.16 | 0.46 |
| 36:BO:6:ALA:HB1 | 36:BO:10:ARG:NH1 | 2.30 | 0.46 |
| 1:AA:239:U:H5'' | 1:AA:239:U:H6 | 1.80 | 0.46 |
| 48:D1:13:SER:HB3 | 48:D1:49:LYS:HZ3 | 1.79 | 0.46 |
| 44:DX:4:LYS:HG3 | 44:DX:7:ARG:HE | 1.81 | 0.46 |
| 35:DN:8:ARG:HD2 | 35:DN:46:ARG:CZ | 2.44 | 0.46 |
| 9:AJ:88:MET:HB2 | 9:AJ:89:ARG:HH22 | 1.81 | 0.46 |
| 52:BI:21:PRO:CB | 52:BI:22:PRO:HD3 | 2.42 | 0.46 |
| 16:CQ:44:HIS:HB2 | 16:CQ:69:THR:O | 2.15 | 0.46 |
| 30:BH:73:ASN:C | 30:BH:75:LEU:H | 2.19 | 0.46 |
| 23:DB:2228:G:H2' | 23:DB:2229:U:H6 | 1.77 | 0.46 |
| 38:BQ:105:PHE:O | 38:BQ:109:VAL:HG13 | 2.15 | 0.46 |
| 16:CQ:74:LEU:HD13 | 16:CQ:74:LEU:C | 2.36 | 0.46 |
| 36:DO:21:LEU:CD2 | 36:DO:22:GLY:H | 2.23 | 0.46 |
| 1:CA:547:A:H4' | 1:CA:548:G:O5' | 2.16 | 0.46 |
| 23:DB:2896:C:H2' | 23:DB:2897:U:H6 | 1.80 | 0.46 |
| 40:DS:41:LYS:HG2 | 40:DS:43:ALA:HB3 | 1.97 | 0.46 |
| 23:DB:448:U:O4' | 23:DB:448:U:OP2 | 2.34 | 0.46 |
| 22:DA:13:G:C2' | 22:DA:14:U:H5'' | 2.45 | 0.46 |
| 20:AB:115:ASP:O | 20:AB:119:GLN:HG2 | 2.15 | 0.46 |
| 24:BV:66:ASP:C | 24:BV:68:LYS:H | 2.18 | 0.46 |
| 27:BE:27:LEU:HD13 | 27:BE:27:LEU:C | 2.36 | 0.46 |
| 23:BB:834:G:H2' | 23:BB:835:C:H6 | 1.79 | 0.46 |
| 23:BB:2477:U:H4' | 23:BB:2479:U:O4 | 2.16 | 0.46 |
| 1:AA:676:A:H1' | 10:AK:116:PRO:HB3 | 1.96 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 1:AA:1390:U:H2' | 1:AA:1391:U:H6 | 1.79 | 0.46 |
| 1:CA:1118:U:H2' | 1:CA:1119:C:C6 | 2.47 | 0.46 |
| 23:DB:1735:A:H2' | 23:DB:1736:U:C6 | 2.50 | 0.46 |
| 28:BF:115:GLY:HA3 | 28:BF:177:ARG:N | 2.31 | 0.46 |
| 1:CA:1049:U:H1' | 1:CA:1201:A:N7 | 2.30 | 0.46 |
| 23:DB:931:U:N3 | 23:DB:1166:G:N2 | 2.63 | 0.46 |
| 23:DB:106:C:H2' | 23:DB:107:G:C8 | 2.51 | 0.46 |
| 23:DB:2700:A:H2' | 23:DB:2701:U:C6 | 2.51 | 0.46 |
| 23:DB:1946:U:C2 | 23:DB:1947:C:C5 | 3.03 | 0.46 |
| 1:AA:478:A:H2' | 1:AA:479:U:O4' | 2.15 | 0.46 |
| 1:AA:393:A:H5' | 1:AA:483:C:O2' | 2.15 | 0.46 |
| 52:BI:44:LYS:O | 52:BI:48:ILE:HG13 | 2.15 | 0.46 |
| 23:DB:753:A:H2' | 23:DB:754:U:H6 | 1.78 | 0.46 |
| 23:DB:146:A:H2' | 23:DB:147:C:H6 | 1.80 | 0.46 |
| 1:AA:691:G:H2' | 1:AA:692:U:C6 | 2.50 | 0.46 |
| 23:DB:1720:U:C2' | 23:DB:1721:G:H5' | 2.46 | 0.46 |
| 23:BB:1526:C:H2' | 23:BB:1527:G:O4' | 2.15 | 0.46 |
| 39:DR:58:VAL:O | 39:DR:58:VAL:HG13 | 2.14 | 0.46 |
| 32:BK:114:LYS:O | 32:BK:117:SER:HB3 | 2.15 | 0.46 |
| 1:AA:889:A:H61 | 1:AA:907:A:H3' | 1.80 | 0.46 |
| 2:CC:190:THR:HG22 | 2:CC:191:THR:N | 2.31 | 0.46 |
| 1:AA:754:C:H3' | 1:AA:754:C:O2 | 2.15 | 0.46 |
| 49:B2:14:ARG:HD3 | 49:B2:14:ARG:O | 2.14 | 0.46 |
| 41:BT:44:LYS:HB2 | 41:BT:44:LYS:NZ | 2.30 | 0.46 |
| 23:DB:588:U:H5' | 33:DL:29:LYS:HZ2 | 1.81 | 0.46 |
| 1:CA:699:C:C3' | 1:CA:700:G:H5'' | 2.44 | 0.46 |
| 25:BC:128:THR:HA | 25:BC:190:THR:CA | 2.40 | 0.46 |
| 25:BC:155:ARG:O | 25:BC:156:SER:C | 2.54 | 0.46 |
| 31:BJ:98:GLU:O | 31:BJ:100:VAL:N | 2.48 | 0.46 |
| 23:DB:533:G:N2 | 38:DQ:40:LYS:HD2 | 2.30 | 0.46 |
| 38:DQ:39:ILE:HG13 | 38:DQ:40:LYS:H | 1.79 | 0.46 |
| 27:DE:143:LEU:HD13 | 27:DE:185:LYS:HZ2 | 1.80 | 0.46 |
| 27:DE:161:ALA:HB1 | 27:DE:168:ASP:O | 2.15 | 0.46 |
| 27:DE:184:ASP:HB3 | 33:DL:13:LYS:HE3 | 1.97 | 0.46 |
| 23:BB:633:A:H2' | 23:BB:634:C:O4' | 2.15 | 0.46 |
| 33:BL:78:ARG:NH2 | 33:BL:110:VAL:HG11 | 2.30 | 0.46 |
| 34:BM:8:LYS:CE | 34:BM:70:ASP:HA | 2.44 | 0.46 |
| 26:DD:118:PHE:HA | 26:DD:164:GLN:HG2 | 1.96 | 0.46 |
| 40:BS:103:ILE:HG23 | 40:BS:104:THR:N | 2.29 | 0.46 |
| 8:AI:18:VAL:HG21 | 8:AI:82:ILE:CG1 | 2.45 | 0.46 |
| 39:BR:5:PHE:CG | 39:BR:6:GLN:N | 2.84 | 0.46 |
| 12:AM:3:ILE:HA | 12:AM:56:ARG:CG | 2.41 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 47:B0:35:GLU:HG2 | 47:B0:36:LYS:N | 2.30 | 0.46 |
| 41:BT:12:ARG:HH21 | 44:BX:29:ARG:CZ | 2.28 | 0.46 |
| 1:CA:1342:C:H4' | 8:CI:126:PHE:O | 2.15 | 0.46 |
| 23:DB:1450:G:N2 | 23:DB:1452:G:H1 | 1.95 | 0.46 |
| 10:CK:110:THR:HB | 21:CU:3:ILE:O | 2.15 | 0.46 |
| 23:DB:27:G:H1' | 23:DB:513:A:N6 | 2.30 | 0.46 |
| 20:AB:9:LEU:H | 20:AB:9:LEU:CD1 | 2.27 | 0.46 |
| 50:D3:12:ARG:CD | 50:D3:23:HIS:HB2 | 2.45 | 0.46 |
| 33:DL:63:LYS:HB2 | 50:D3:26:ALA:CB | 2.43 | 0.46 |
| 23:DB:2025:C:H2' | 23:DB:2026:U:H6 | 1.77 | 0.46 |
| 45:DY:43:ILE:HD13 | 45:DY:43:ILE:C | 2.35 | 0.46 |
| 34:DM:62:LYS:N | 34:DM:104:GLU:HB3 | 2.20 | 0.46 |
| 19:AT:60:GLN:NE2 | 19:AT:61:ALA:H | 2.12 | 0.46 |
| 19:AT:66:ILE:HG23 | 19:AT:70:LYS:CD | 2.45 | 0.46 |
| 1:CA:836:G:O2' | 1:CA:837:U:H5' | 2.15 | 0.46 |
| 29:BG:17:LYS:O | 29:BG:23:ILE:HD12 | 2.14 | 0.46 |
| 36:BO:16:ARG:CD | 36:BO:20:GLU:HG3 | 2.45 | 0.46 |
| 1:AA:1005:A:H3' | 1:AA:1006:G:C8 | 2.48 | 0.46 |
| 23:BB:2317:A:N6 | 23:BB:2318:G:C4 | 2.83 | 0.46 |
| 23:BB:2320:U:H3' | 23:BB:2321:U:C5' | 2.46 | 0.46 |
| 36:BO:9:ARG:HG3 | 36:BO:12:THR:HG21 | 1.97 | 0.46 |
| 23:BB:1179:G:O2' | 23:BB:1180:U:H5' | 2.16 | 0.46 |
| 23:BB:1186:G:H2' | 23:BB:1187:G:O4' | 2.16 | 0.46 |
| 1:CA:60:A:C4' | 1:CA:61:G:O5' | 2.63 | 0.46 |
| 23:DB:2800:A:C4 | 23:DB:2801:G:H1' | 2.51 | 0.46 |
| 52:DI:16:MET:N | 52:DI:42:ASN:OD1 | 2.49 | 0.46 |
| 1:AA:1243:C:H2' | 1:AA:1244:G:C8 | 2.51 | 0.46 |
| 36:DO:31:THR:HG22 | 36:DO:33:ARG:H | 1.79 | 0.46 |
| 7:CH:74:ILE:O | 7:CH:74:ILE:HG23 | 2.15 | 0.46 |
| 4:CE:43:GLY:O | 4:CE:72:ASN:HA | 2.15 | 0.46 |
| 25:DC:243:PRO:CB | 25:DC:248:GLY:HA2 | 2.46 | 0.46 |
| 20:AB:61:SER:HA | 20:AB:224:ARG:CA | 2.43 | 0.46 |
| 1:AA:547:A:H4' | 1:AA:548:G:O5' | 2.16 | 0.46 |
| 1:AA:279:A:H5' | 1:AA:281:G:O4' | 2.15 | 0.46 |
| 23:DB:2529:G:C4' | 29:DG:175:LYS:HD3 | 2.46 | 0.46 |
| 1:AA:924:C:H2' | 1:AA:925:G:H8 | 1.81 | 0.46 |
| 1:AA:611:C:H2' | 1:AA:612:C:H6 | 1.80 | 0.46 |
| 25:DC:28:PRO:CG | 25:DC:79:ARG:NE | 2.76 | 0.46 |
| 23:BB:2199:A:H3' | 23:BB:2200:C:H6 | 1.80 | 0.46 |
| 20:CB:63:LYS:HD2 | 20:CB:87:ASP:OD2 | 2.14 | 0.46 |
| 12:CM:47:LEU:HD12 | 12:CM:51:GLN:HB2 | 1.98 | 0.46 |
| 8:CI:108:ARG:HG3 | 8:CI:108:ARG:O | 2.15 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 1:CA:633:G:H2' | 1:CA:634:C:H6 | 1.81 | 0.46 |
| 16:AQ:26:ARG:HE | 16:AQ:39:ARG:NH1 | 2.14 | 0.46 |
| 23:BB:372:G:O2' | 23:BB:373:U:P | 2.73 | 0.46 |
| 23:DB:1947:C:O2' | 23:DB:1948:G:H5' | 2.15 | 0.46 |
| 2:CC:86:LEU:O | 2:CC:89:VAL:HG22 | 2.14 | 0.46 |
| 23:BB:1947:C:O2' | 23:BB:1948:G:H5' | 2.15 | 0.46 |
| 23:DB:309:A:N3 | 23:DB:329:G:O2' | 2.42 | 0.46 |
| 23:DB:1707:G:H2' | 23:DB:1708:C:H6 | 1.80 | 0.46 |
| 1:AA:598:U:H2' | 1:AA:599:C:C6 | 2.51 | 0.46 |
| 23:DB:131:A:H2' | 23:DB:132:G:C8 | 2.48 | 0.46 |
| 23:DB:1328:A:H2' | 23:DB:1330:C:C4 | 2.50 | 0.46 |
| 6:AG:91:ARG:HD3 | 6:AG:91:ARG:H | 1.80 | 0.46 |
| 16:AQ:65:PRO:HA | 16:AQ:71:SER:OG | 2.15 | 0.46 |
| 23:BB:1666:G:C2' | 23:BB:1667:G:H5' | 2.45 | 0.46 |
| 1:AA:252:U:H2' | 1:AA:253:A:C8 | 2.50 | 0.46 |
| 23:DB:39:G:H2' | 23:DB:40:U:H6 | 1.80 | 0.46 |
| 23:BB:2714:G:H2' | 23:BB:2715:C:H6 | 1.80 | 0.46 |
| 23:DB:2299:U:H2' | 23:DB:2300:C:H6 | 1.80 | 0.46 |
| 1:AA:1184:G:C2 | 1:AA:1185:G:C8 | 3.03 | 0.46 |
| 14:CO:48:ASP:CG | 14:CO:51:SER:HB2 | 2.35 | 0.46 |
| 23:BB:1541:C:H2' | 23:BB:1542:U:C6 | 2.50 | 0.46 |
| 23:BB:1824:G:H2' | 23:BB:1825:U:H6 | 1.81 | 0.46 |
| 28:DF:69:ALA:HB3 | 28:DF:81:GLY:H | 1.81 | 0.46 |
| 23:DB:1526:C:H2' | 23:DB:1527:G:O4' | 2.14 | 0.46 |
| 1:CA:49:U:O2' | 1:CA:50:A:H2' | 2.14 | 0.46 |
| 28:BF:161:SER:HB3 | 28:BF:164:GLU:HB2 | 1.97 | 0.46 |
| 1:CA:484:G:O2' | 1:CA:485:U:OP2 | 2.28 | 0.46 |
| 1:AA:1234:C:H2' | 1:AA:1235:U:C6 | 2.50 | 0.46 |
| 1:AA:1050:G:C2' | 1:AA:1051:C:H5' | 2.44 | 0.46 |
| 25:DC:58:LYS:HG3 | 25:DC:58:LYS:O | 2.15 | 0.46 |
| 48:B1:49:LYS:N | 48:B1:49:LYS:HD2 | 2.30 | 0.46 |
| 1:CA:754:C:H3' | 1:CA:754:C:O2 | 2.15 | 0.46 |
| 51:D4:15:LYS:HB2 | 51:D4:15:LYS:HE3 | 1.79 | 0.46 |
| 43:DW:82:GLU:HG3 | 43:DW:83:ALA:N | 2.29 | 0.46 |
| 25:BC:155:ARG:O | 25:BC:157:ALA:N | 2.48 | 0.46 |
| 23:BB:857:G:H5' | 43:BW:55:ASP:OD2 | 2.15 | 0.46 |
| 23:DB:2616:C:H2' | 23:DB:2617:U:H6 | 1.81 | 0.46 |
| 38:DQ:52:ARG:CG | 38:DQ:53:LYS:N | 2.79 | 0.46 |
| 33:BL:63:LYS:HB2 | 50:B3:11:LYS:HZ2 | 1.80 | 0.46 |
| 34:BM:124:LEU:HD23 | 34:BM:124:LEU:N | 2.31 | 0.46 |
| 24:BV:82:TYR:CD1 | 34:BM:36:VAL:HB | 2.51 | 0.46 |
| 16:AQ:10:ARG:O | 16:AQ:22:VAL:HG13 | 2.15 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:DB:138:U:H2' | 23:DB:140:C:N1 | 2.30 | 0.46 |
| 3:AD:2:ARG:O | 3:AD:3:TYR:HB2 | 2.15 | 0.46 |
| 8:AI:40:ARG:HA | 8:AI:44:ARG:HH21 | 1.81 | 0.46 |
| 23:DB:870:U:O2' | 23:DB:871:U:H5' | 2.15 | 0.46 |
| 34:DM:14:LYS:HB3 | 34:DM:72:PRO:HG3 | 1.97 | 0.46 |
| 23:BB:1154:G:OP2 | 38:BQ:57:ARG:NH1 | 2.49 | 0.46 |
| 31:BJ:45:THR:HB | 38:BQ:63:ARG:NH1 | 2.30 | 0.46 |
| 46:DZ:54:GLY:O | 46:DZ:57:VAL:HB | 2.15 | 0.46 |
| 27:BE:177:PRO:HA | 27:BE:180:LEU:HD12 | 1.95 | 0.46 |
| 21:AU:20:ARG:CA | 21:AU:24:LYS:HG3 | 2.39 | 0.46 |
| 41:BT:28:ASN:ND2 | 41:BT:28:ASN:N | 2.62 | 0.46 |
| 6:AG:125:ASP:HB3 | 6:AG:130:LYS:CB | 2.35 | 0.46 |
| 23:DB:2648:G:H2' | 23:DB:2649:C:H6 | 1.80 | 0.46 |
| 14:AO:70:LYS:HZ1 | 14:AO:74:VAL:CG1 | 2.28 | 0.46 |
| 1:AA:1332:A:H2' | 1:AA:1333:A:H8 | 1.79 | 0.46 |
| 49:B2:30:VAL:O | 49:B2:33:ARG:HG3 | 2.15 | 0.46 |
| 34:BM:82:MET:HB2 | 34:BM:84:LYS:CE | 2.45 | 0.46 |
| 2:AC:39:ARG:NH1 | 13:AN:91:GLU:HG2 | 2.31 | 0.46 |
| 52:DI:78:LEU:HA | 52:DI:81:LYS:HE2 | 1.98 | 0.46 |
| 8:AI:112:ARG:CB | 8:AI:112:ARG:HH11 | 2.27 | 0.46 |
| 1:AA:1201:A:C1' | 1:AA:1202:U:OP2 | 2.58 | 0.46 |
| 23:DB:988:A:OP1 | 45:DY:10:ARG:HB3 | 2.15 | 0.46 |
| 48:D1:24:LYS:NZ | 48:D1:24:LYS:HB2 | 2.31 | 0.46 |
| 12:CM:106:ARG:CA | 12:CM:106:ARG:HH11 | 2.28 | 0.46 |
| 19:CT:69:ASN:H | 19:CT:69:ASN:HD22 | 1.60 | 0.46 |
| 11:CL:30:ARG:HG2 | 11:CL:31:GLY:N | 2.30 | 0.46 |
| 1:CA:1434:A:H2' | 1:CA:1435:G:C8 | 2.50 | 0.46 |
| 1:CA:546:A:OP1 | 3:CD:69:ARG:HB2 | 2.15 | 0.46 |
| 25:BC:243:PRO:HB2 | 25:BC:248:GLY:H | 1.81 | 0.46 |
| 3:AD:24:VAL:O | 3:AD:25:ARG:C | 2.53 | 0.46 |
| 1:CA:1190:G:P | 2:CC:4:VAL:HG12 | 2.56 | 0.46 |
| 1:CA:691:G:H2' | 1:CA:692:U:C6 | 2.51 | 0.46 |
| 10:AK:56:LYS:O | 10:AK:58:THR:N | 2.49 | 0.46 |
| 1:CA:409:U:OP1 | 3:CD:23:GLY:HA3 | 2.15 | 0.46 |
| 55:DB:3213:HOH:O | 33:DL:41:ARG:HB2 | 2.14 | 0.46 |
| 1:AA:1382:C:H4' | 6:AG:78:ARG:HD2 | 1.97 | 0.46 |
| 1:AA:1180:A:P | 8:AI:98:ARG:HH22 | 2.38 | 0.46 |
| 46:BZ:59:ARG:HH21 | 46:BZ:62:LYS:HZ2 | 1.61 | 0.46 |
| 5:AF:6:ILE:HD12 | 5:AF:88:MET:O | 2.15 | 0.46 |
| 1:AA:619:U:O2 | 3:AD:129:VAL:HG13 | 2.15 | 0.46 |
| 23:BB:2699:C:O2' | 23:BB:2700:A:H5' | 2.16 | 0.46 |
| 23:DB:2699:C:O2' | 23:DB:2700:A:H5' | 2.15 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 1:CA:336:A:O2' | 1:CA:337:G:H5' | 2.15 | 0.46 |
| 2:AC:59:PRO:HD2 | 2:AC:62:SER:O | 2.15 | 0.46 |
| 10:AK:41:LEU:HB3 | 10:AK:76:TYR:HE1 | 1.81 | 0.46 |
| 23:BB:1666:G:O2' | 23:BB:1667:G:H5' | 2.14 | 0.46 |
| 23:BB:425:G:H2' | 23:BB:426:C:C6 | 2.50 | 0.46 |
| 20:AB:95:TRP:CH2 | 20:AB:100:LEU:HB2 | 2.50 | 0.46 |
| 20:AB:100:LEU:O | 20:AB:178:LEU:HG | 2.16 | 0.46 |
| 11:AL:79:ILE:HD12 | 11:AL:79:ILE:C | 2.35 | 0.46 |
| 6:CG:78:ARG:HH11 | 6:CG:81:GLY:N | 2.12 | 0.46 |
| 11:AL:86:VAL:HG11 | 11:AL:89:LEU:HD23 | 1.97 | 0.46 |
| 23:BB:1623:G:O2' | 23:BB:1624:U:H5' | 2.15 | 0.46 |
| 13:AN:45:LEU:C | 13:AN:45:LEU:HD23 | 2.36 | 0.46 |
| 23:DB:1940:U:H1' | 23:DB:1941:C:H5 | 1.81 | 0.46 |
| 30:BH:89:LYS:HE2 | 30:BH:89:LYS:CA | 2.46 | 0.46 |
| 23:BB:692:C:H2' | 23:BB:693:A:H8 | 1.80 | 0.46 |
| 25:BC:141:HIS:HB3 | 25:BC:190:THR:HB | 1.97 | 0.46 |
| 26:DD:62:LYS:HB2 | 26:DD:63:PRO:HD3 | 1.97 | 0.46 |
| 36:BO:19:GLN:HE21 | 43:BW:43:LYS:HE3 | 1.80 | 0.46 |
| 43:BW:75:ASN:HB3 | 43:BW:76:ARG:H | 1.62 | 0.46 |
| 1:AA:1016:A:H5' | 1:AA:1218:C:H4' | 1.98 | 0.46 |
| 23:DB:322:A:C2 | 23:DB:340:A:C6 | 3.03 | 0.46 |
| 27:DE:116:ASP:CG | 27:DE:185:LYS:HE2 | 2.36 | 0.46 |
| 33:BL:120:VAL:HG13 | 33:BL:120:VAL:O | 2.16 | 0.46 |
| 33:BL:59:ARG:NH1 | 50:B3:51:LYS:HB2 | 2.31 | 0.46 |
| 46:BZ:5:ILE:CG2 | 46:BZ:63:ARG:HE | 2.27 | 0.46 |
| 46:BZ:58:ASP:CG | 46:BZ:63:ARG:HH11 | 2.19 | 0.46 |
| 23:DB:2091:C:O4' | 46:DZ:49:ARG:NE | 2.49 | 0.46 |
| 23:BB:1252:G:H22 | 38:BQ:36:GLN:NE2 | 2.14 | 0.46 |
| 5:CF:92:THR:CG2 | 5:CF:93:LYS:H | 2.28 | 0.46 |
| 35:DN:4:ARG:HB3 | 35:DN:4:ARG:NH1 | 2.30 | 0.46 |
| 23:BB:811:U:OP2 | 33:BL:31:GLY:HA2 | 2.16 | 0.46 |
| 34:DM:18:ARG:N | 34:DM:18:ARG:CD | 2.78 | 0.46 |
| 34:DM:73:ILE:HD11 | 34:DM:92:TRP:HE3 | 1.80 | 0.46 |
| 27:BE:102:ARG:O | 27:BE:105:LEU:HG | 2.15 | 0.46 |
| 46:BZ:35:ASP:C | 46:BZ:42:PRO:HB3 | 2.35 | 0.46 |
| 10:AK:80:ASN:OD1 | 10:AK:105:ARG:HB3 | 2.15 | 0.46 |
| 16:CQ:64:ARG:HB3 | 16:CQ:64:ARG:NH1 | 2.30 | 0.46 |
| 33:DL:79:LEU:HG | 33:DL:111:ILE:O | 2.15 | 0.46 |
| 23:BB:2515:C:H2' | 23:BB:2516:A:H8 | 1.81 | 0.46 |
| 13:CN:63:CYS:HB3 | 13:CN:68:ARG:N | 2.23 | 0.46 |
| 28:BF:165:GLY:HA2 | 28:BF:168:LEU:CD2 | 2.45 | 0.46 |
| 10:AK:125:LYS:O | 10:AK:126:ARG:O | 2.33 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 23:DB:2051:A:H4' | 26:DD:145:SER:CB | 2.44 | 0.46 |
| 5:CF:38:ARG:HH21 | 5:CF:63:ASN:CG | 2.18 | 0.46 |
| 23:DB:163:C:H2' | 23:DB:164:C:O4' | 2.15 | 0.46 |
| 23:BB:2637:U:C2' | 23:BB:2638:G:H5' | 2.45 | 0.46 |
| 39:DR:4:VAL:O | 39:DR:41:ILE:HG12 | 2.15 | 0.46 |
| 12:CM:63:VAL:O | 12:CM:68:LEU:HD12 | 2.15 | 0.46 |
| 5:AF:32:ALA:HB1 | 5:AF:70:VAL:HG11 | 1.97 | 0.46 |
| 4:CE:89:THR:C | 4:CE:91:SER:N | 2.69 | 0.46 |
| 29:DG:172:GLU:O | 29:DG:173:ALA:C | 2.54 | 0.46 |
| 29:DG:42:VAL:HB | 29:DG:51:PHE:HA | 1.96 | 0.46 |
| 48:D1:5:ARG:N | 48:D1:27:ARG:HH22 | 2.12 | 0.46 |
| 28:DF:132:ARG:HD3 | 28:DF:133:GLU:N | 2.25 | 0.46 |
| 42:BU:29:SER:O | 42:BU:30:SER:HB2 | 2.16 | 0.46 |
| 30:BH:75:LEU:HD23 | 30:BH:76:GLU:N | 2.31 | 0.46 |
| 23:DB:2070:A:H2' | 23:DB:2071:A:H8 | 1.80 | 0.46 |
| 23:DB:1487:U:H2' | 23:DB:1488:C:C6 | 2.51 | 0.46 |
| 1:AA:1462:C:H2' | 1:AA:1463:U:C6 | 2.50 | 0.46 |
| 48:B1:10:LEU:HD22 | 48:B1:25:ASN:ND2 | 2.31 | 0.46 |
| 1:CA:812:G:H4' | 1:CA:812:G:OP1 | 2.16 | 0.46 |
| 11:CL:86:VAL:HG22 | 11:CL:95:HIS:HE2 | 1.81 | 0.46 |
| 20:CB:218:ALA:O | 20:CB:221:ARG:HG2 | 2.16 | 0.46 |
| 25:DC:243:PRO:HB3 | 25:DC:248:GLY:HA2 | 1.98 | 0.46 |
| 1:AA:812:G:H4' | 1:AA:812:G:OP1 | 2.16 | 0.46 |
| 25:DC:257:ARG:HG2 | 25:DC:257:ARG:NH1 | 2.31 | 0.46 |
| 1:AA:1149:C:O2' | 1:AA:1150:A:H5' | 2.15 | 0.46 |
| 22:DA:38:C:H4' | 36:DO:100:HIS:CE1 | 2.51 | 0.46 |
| 23:BB:1791:A:N1 | 23:BB:1829:A:H5' | 2.30 | 0.46 |
| 6:AG:41:ILE:CD1 | 6:AG:116:ALA:HB2 | 2.46 | 0.46 |
| 25:BC:257:ARG:O | 25:BC:261:ARG:NH1 | 2.49 | 0.46 |
| 22:BA:18:G:H2' | 22:BA:19:C:H6 | 1.81 | 0.46 |
| 1:CA:691:G:H1' | 1:CA:696:A:N6 | 2.30 | 0.46 |
| 20:CB:48:MET:HB3 | 20:CB:198:VAL:O | 2.15 | 0.46 |
| 27:BE:27:LEU:HD21 | 27:BE:100:MET:HG2 | 1.96 | 0.46 |
| 1:CA:768:A:H5' | 1:CA:1524:C:H1' | 1.97 | 0.46 |
| 12:CM:10:ASP:HA | 12:CM:44:ILE:CD1 | 2.46 | 0.46 |
| 12:CM:9:PRO:O | 12:CM:44:ILE:HG12 | 2.15 | 0.46 |
| 23:DB:1885:A:H3' | 23:DB:1886:U:C6 | 2.51 | 0.46 |
| 23:DB:231:A:H3' | 23:DB:232:G:H8 | 1.81 | 0.46 |
| 23:BB:1368:G:H5' | 49:B2:25:LYS:HD3 | 1.98 | 0.46 |
| 1:CA:1349:A:H2' | 1:CA:1350:A:O4' | 2.15 | 0.46 |
| 31:DJ:106:LYS:C | 31:DJ:108:MET:H | 2.18 | 0.46 |
| 1:AA:633:G:H2' | 1:AA:634:C:H6 | 1.80 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 23:BB:1683:U:H2' | 23:BB:1684:G:H8 | 1.80 | 0.46 |
| 2:CC:110:LEU:N | 2:CC:110:LEU:HD23 | 2.29 | 0.46 |
| 23:BB:169:G:O2' | 23:BB:170:U:H5' | 2.15 | 0.46 |
| 6:CG:71:THR:HA | 6:CG:95:ARG:HE | 1.81 | 0.46 |
| 1:CA:824:G:O2' | 1:CA:825:A:H5' | 2.14 | 0.46 |
| 34:DM:75:GLU:O | 34:DM:86:LYS:HB3 | 2.15 | 0.46 |
| 1:CA:148:G:N3 | 1:CA:1446:A:H2 | 2.13 | 0.46 |
| 23:DB:1042:G:H2' | 23:DB:1043:C:H6 | 1.80 | 0.46 |
| 34:DM:61:GLY:CA | 34:DM:105:MET:HB2 | 2.45 | 0.46 |
| 1:AA:512:U:H2' | 1:AA:513:C:C6 | 2.49 | 0.46 |
| 23:BB:1824:G:H2' | 23:BB:1825:U:C6 | 2.50 | 0.46 |
| 1:AA:1181:G:OP2 | 1:AA:1181:G:O4' | 2.33 | 0.46 |
| 2:CC:76:ILE:O | 2:CC:83:VAL:HG23 | 2.15 | 0.46 |
| 23:DB:692:C:H2' | 23:DB:693:A:C8 | 2.51 | 0.46 |
| 23:DB:2714:G:H2' | 23:DB:2715:C:H6 | 1.80 | 0.46 |
| 23:DB:1424:G:H2' | 23:DB:1425:G:O4' | 2.15 | 0.46 |
| 23:DB:1623:G:O2' | 23:DB:1624:U:H5' | 2.15 | 0.46 |
| 1:CA:1473:G:O2' | 1:CA:1474:U:H5' | 2.16 | 0.46 |
| 39:BR:82:HIS:ND1 | 39:BR:82:HIS:O | 2.49 | 0.46 |
| 23:DB:1192:G:O2' | 23:DB:1193:G:H5' | 2.16 | 0.46 |
| 26:DD:36:GLN:HG2 | 26:DD:88:GLU:HA | 1.97 | 0.46 |
| 23:BB:2716:C:O2' | 23:BB:2717:C:H5' | 2.16 | 0.46 |
| 37:DP:13:LYS:HZ1 | 37:DP:15:ASP:HB2 | 1.79 | 0.46 |
| 23:DB:458:G:C2' | 23:DB:459:U:OP2 | 2.64 | 0.46 |
| 44:DX:28:LEU:HD13 | 44:DX:42:LEU:CG | 2.45 | 0.46 |
| 20:AB:187:ASP:CG | 20:AB:188:THR:N | 2.69 | 0.46 |
| 22:BA:117:G:OP1 | 36:BO:55:GLU:OE1 | 2.33 | 0.46 |
| 25:BC:45:ASN:O | 25:BC:46:GLY:C | 2.54 | 0.46 |
| 23:BB:165:A:H2' | 23:BB:166:U:H6 | 1.80 | 0.46 |
| 30:DH:3:VAL:HG22 | 30:DH:21:VAL:CG1 | 2.28 | 0.46 |
| 36:BO:26:LEU:HD13 | 36:BO:92:PHE:O | 2.16 | 0.46 |
| 38:DQ:39:ILE:CG1 | 38:DQ:40:LYS:N | 2.79 | 0.46 |
| 1:AA:1220:G:H4' | 18:AS:33:TRP:O | 2.16 | 0.46 |
| 23:BB:322:A:C2 | 23:BB:340:A:C6 | 3.03 | 0.46 |
| 30:BH:3:VAL:CG2 | 30:BH:21:VAL:HG21 | 2.45 | 0.46 |
| 27:DE:116:ASP:C | 27:DE:117:ARG:HD2 | 2.36 | 0.46 |
| 27:DE:148:ILE:HA | 27:DE:185:LYS:CB | 2.35 | 0.46 |
| 27:DE:116:ASP:OD2 | 27:DE:185:LYS:HG3 | 2.16 | 0.46 |
| 33:BL:63:LYS:CA | 50:B3:24:LYS:HD3 | 2.46 | 0.46 |
| 33:BL:83:ALA:O | 33:BL:84:LYS:O | 2.34 | 0.46 |
| 34:BM:66:ARG:H | 34:BM:100:LYS:HB2 | 1.80 | 0.46 |
| 24:BV:44:HIS:O | 24:BV:46:LYS:N | 2.49 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 39:DR:64:VAL:HG22 | 39:DR:65:ALA:N | 2.23 | 0.46 |
| 8:AI:46:VAL:HA | 8:AI:49:GLN:HB2 | 1.98 | 0.46 |
| 25:BC:59:GLN:O | 25:BC:60:ALA:HB3 | 2.15 | 0.46 |
| 25:BC:79:ARG:HH11 | 25:BC:80:LEU:N | 2.11 | 0.46 |
| 38:BQ:97:ILE:HA | 38:BQ:100:PHE:CE2 | 2.51 | 0.46 |
| 40:BS:34:ASP:CA | 40:BS:37:THR:HG22 | 2.45 | 0.46 |
| 40:BS:69:LEU:O | 40:BS:110:ARG:HD2 | 2.15 | 0.46 |
| 51:B4:24:ARG:HD3 | 51:B4:26:ILE:HG23 | 1.98 | 0.46 |
| 30:DH:124:THR:HG23 | 30:DH:128:HIS:CE1 | 2.49 | 0.46 |
| 41:BT:6:ARG:C | 41:BT:8:LEU:H | 2.18 | 0.46 |
| 26:BD:114:LYS:HE3 | 26:BD:196:ALA:CB | 2.45 | 0.46 |
| 23:BB:1453:A:N7 | 35:BN:72:ASP:OD1 | 2.49 | 0.46 |
| 25:DC:51:ARG:NH1 | 25:DC:54:GLY:HA3 | 2.20 | 0.46 |
| 13:CN:30:ILE:HB | 13:CN:44:VAL:CB | 2.44 | 0.46 |
| 35:BN:73:ASN:CA | 35:BN:76:VAL:HG13 | 2.45 | 0.46 |
| 26:DD:21:SER:O | 26:DD:23:PRO:HD3 | 2.16 | 0.46 |
| 39:DR:41:ILE:HD12 | 39:DR:42:ALA:H | 1.80 | 0.46 |
| 8:CI:8:THR:OG1 | 8:CI:9:GLY:N | 2.49 | 0.46 |
| 1:AA:840:C:N3 | 1:AA:842:U:H4' | 2.30 | 0.46 |
| 1:CA:782:A:H4' | 1:CA:1514:G:O2' | 2.16 | 0.46 |
| 11:AL:27:PRO:HG2 | 11:AL:28:GLN:NE2 | 2.31 | 0.46 |
| 20:CB:113:LEU:HD23 | 20:CB:113:LEU:C | 2.36 | 0.46 |
| 23:DB:2581:G:OP1 | 26:DD:134:HIS:CD2 | 2.69 | 0.46 |
| 49:D2:19:ARG:HD3 | 49:D2:19:ARG:C | 2.35 | 0.46 |
| 48:D1:27:ARG:O | 48:D1:27:ARG:HG2 | 2.15 | 0.46 |
| 2:CC:55:VAL:HG23 | 2:CC:66:THR:HB | 1.98 | 0.46 |
| 16:CQ:63:CYS:SG | 16:CQ:66:LEU:HD11 | 2.56 | 0.46 |
| 34:BM:108:VAL:HG23 | 34:BM:112:LEU:CD1 | 2.40 | 0.46 |
| 23:DB:948:C:H2' | 23:DB:949:G:H8 | 1.81 | 0.46 |
| 23:DB:1827:U:O2' | 23:DB:1828:G:H5' | 2.14 | 0.46 |
| 24:DV:93:ARG:HG2 | 24:DV:94:ALA:N | 2.30 | 0.46 |
| 1:CA:1411:C:O2' | 1:CA:1412:C:H5' | 2.15 | 0.46 |
| 23:BB:459:U:H5' | 49:B2:41:ARG:HH21 | 1.80 | 0.46 |
| 4:CE:95:MET:HG3 | 4:CE:124:ALA:CB | 2.44 | 0.46 |
| 23:BB:1795:C:H2' | 23:BB:1796:U:C6 | 2.51 | 0.46 |
| 4:AE:45:VAL:HG12 | 4:AE:116:VAL:HG23 | 1.98 | 0.46 |
| 23:BB:2379:G:H2' | 23:BB:2380:C:C6 | 2.51 | 0.46 |
| 1:CA:1131:G:H2' | 1:CA:1132:C:H5' | 1.98 | 0.46 |
| 44:DX:31:GLN:O | 44:DX:32:ALA:HB3 | 2.15 | 0.46 |
| 2:CC:174:LEU:HD21 | 2:CC:200:TRP:CD1 | 2.51 | 0.46 |
| 23:DB:934:U:H2' | 23:DB:935:C:H6 | 1.80 | 0.46 |
| 9:AJ:30:LYS:HG3 | 9:AJ:36:VAL:HB | 1.98 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 46:BZ:12:ILE:HG22 | 46:BZ:24:ILE:HD11 | 1.96 | 0.46 |
| 25:BC:37:SER:H | 25:BC:62:ARG:CB | 2.29 | 0.46 |
| 1:AA:529:G:H22 | 11:AL:47:ALA:HB2 | 1.80 | 0.46 |
| 23:DB:1841:U:H2' | 23:DB:1842:G:H8 | 1.79 | 0.46 |
| 50:B3:4:LYS:HE3 | 50:B3:58:ILE:HB | 1.98 | 0.46 |
| 1:CA:1432:G:H1' | 1:CA:1468:A:N6 | 2.31 | 0.46 |
| 23:DB:1750:G:H2' | 23:DB:1751:U:C6 | 2.50 | 0.46 |
| 1:CA:455:G:H2' | 1:CA:456:A:C8 | 2.51 | 0.46 |
| 23:BB:2835:A:H61 | 23:BB:2878:U:H2' | 1.81 | 0.46 |
| 1:CA:1492:A:N6 | 1:CA:1494:G:N9 | 2.64 | 0.46 |
| 6:CG:8:GLN:HA | 6:CG:8:GLN:HE21 | 1.81 | 0.46 |
| 3:AD:54:LEU:HA | 3:AD:202:LEU:HD22 | 1.97 | 0.46 |
| 1:CA:109:A:H4' | 1:CA:110:C:OP2 | 2.16 | 0.46 |
| 1:CA:1505:G:N7 | 53:CA:1601:KSG:H3 | 2.31 | 0.46 |
| 1:AA:834:U:H2' | 1:AA:835:U:C6 | 2.50 | 0.46 |
| 13:CN:76:PHE:O | 13:CN:78:LEU:HD13 | 2.15 | 0.46 |
| 23:BB:1820:U:H3 | 25:BC:197:ALA:HA | 1.79 | 0.46 |
| 52:BI:125:THR:O | 52:BI:129:GLU:HG3 | 2.16 | 0.46 |
| 4:AE:41:GLY:HA2 | 4:AE:118:GLY:HA2 | 1.97 | 0.46 |
| 52:BI:102:ARG:HB2 | 52:BI:141:ASP:OD2 | 2.16 | 0.46 |
| 7:AH:51:GLU:O | 7:AH:56:PRO:HA | 2.15 | 0.46 |
| 23:DB:1098:A:O3' | 52:DI:4:VAL:O | 2.33 | 0.46 |
| 37:DP:91:VAL:HG23 | 37:DP:92:ARG:N | 2.29 | 0.46 |
| 42:BU:11:ILE:HB | 42:BU:69:VAL:HG11 | 1.96 | 0.46 |
| 30:BH:78:VAL:HB | 30:BH:143:ILE:O | 2.16 | 0.46 |
| 30:BH:78:VAL:CG1 | 30:BH:102:ALA:HB1 | 2.46 | 0.46 |
| 23:DB:2386:A:H2' | 23:DB:2387:U:H6 | 1.81 | 0.46 |
| 25:BC:127:ASN:ND2 | 25:BC:128:THR:N | 2.55 | 0.46 |
| 25:BC:136:VAL:CG1 | 25:BC:165:ALA:HA | 2.39 | 0.46 |
| 23:DB:2815:C:C2 | 23:DB:2816:G:C8 | 3.04 | 0.46 |
| 23:DB:2816:G:N3 | 23:DB:2883:A:O2' | 2.48 | 0.46 |
| 31:DJ:130:HIS:O | 31:DJ:131:ASN:C | 2.54 | 0.46 |
| 23:BB:1021:A:N6 | 23:BB:1141:U:H3 | 1.98 | 0.46 |
| 43:BW:56:HIS:HE1 | 43:BW:58:LEU:HB2 | 1.79 | 0.46 |
| 43:BW:24:ARG:HG3 | 43:BW:59:PHE:HD1 | 1.81 | 0.46 |
| 39:DR:81:LYS:O | 39:DR:83:TYR:N | 2.48 | 0.46 |
| 23:BB:2393:U:OP1 | 50:B3:29:ARG:NE | 2.49 | 0.46 |
| 33:BL:116:VAL:HG12 | 33:BL:117:THR:N | 2.21 | 0.46 |
| 48:D1:47:ILE:O | 48:D1:48:TYR:HB2 | 2.16 | 0.46 |
| 23:BB:811:U:C4 | 33:BL:29:LYS:HD3 | 2.50 | 0.46 |
| 23:BB:494:G:O2' | 23:BB:495:G:H5' | 2.15 | 0.46 |
| 39:DR:63:VAL:HG13 | 39:DR:64:VAL:N | 2.30 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 41:DT:32:LEU:O | 41:DT:83:ALA:HB3 | 2.15 | 0.46 |
| 26:BD:170:VAL:HG11 | 26:BD:194:PRO:CG | 2.46 | 0.46 |
| 35:BN:28:LEU:HD21 | 35:BN:113:ILE:HG21 | 1.96 | 0.46 |
| 31:BJ:81:ILE:CG1 | 31:BJ:82:GLY:N | 2.69 | 0.46 |
| 39:BR:39:LEU:HA | 39:BR:60:LYS:O | 2.15 | 0.46 |
| 27:BE:153:LEU:H | 27:BE:171:ASP:HB3 | 1.80 | 0.46 |
| 27:BE:119:ILE:HA | 27:BE:189:THR:H | 1.81 | 0.46 |
| 23:BB:144:A:O2' | 23:BB:145:C:H5' | 2.16 | 0.46 |
| 12:CM:3:ILE:HA | 12:CM:56:ARG:HH11 | 1.80 | 0.46 |
| 26:BD:118:PHE:N | 26:BD:164:GLN:HG3 | 2.31 | 0.46 |
| 40:DS:23:LEU:HD13 | 40:DS:25:ARG:NH2 | 2.22 | 0.46 |
| 40:DS:23:LEU:HD23 | 47:D0:21:LEU:HD13 | 1.96 | 0.46 |
| 26:DD:146:ILE:N | 26:DD:146:ILE:CD1 | 2.79 | 0.46 |
| 23:DB:834:G:H2' | 23:DB:835:C:H6 | 1.80 | 0.46 |
| 23:DB:2645:G:H4' | 23:DB:2732:G:H2' | 1.96 | 0.46 |
| 23:BB:2648:G:H2' | 23:BB:2649:C:H6 | 1.80 | 0.46 |
| 25:BC:224:MET:SD | 25:BC:224:MET:N | 2.88 | 0.46 |
| 8:CI:9:GLY:O | 8:CI:16:ALA:HB3 | 2.15 | 0.46 |
| 1:AA:836:G:O2' | 1:AA:837:U:H5' | 2.15 | 0.46 |
| 1:CA:1006:G:H2' | 1:CA:1007:U:H6 | 1.80 | 0.46 |
| 1:CA:1422:G:H5'' | 32:DK:48:PRO:CB | 2.39 | 0.46 |
| 23:DB:2311:A:O2' | 28:DF:39:VAL:HG21 | 2.15 | 0.46 |
| 52:DI:72:THR:OG1 | 52:DI:73:PRO:HD2 | 2.15 | 0.46 |
| 10:CK:12:ARG:HD3 | 10:CK:13:LYS:NZ | 2.29 | 0.46 |
| 10:CK:70:ALA:HB1 | 10:CK:74:LYS:HB2 | 1.97 | 0.46 |
| 1:AA:807:A:H2' | 1:AA:808:C:C6 | 2.51 | 0.46 |
| 9:AJ:39:PRO:HA | 9:AJ:74:VAL:HG22 | 1.98 | 0.46 |
| 25:BC:78:GLU:CB | 25:BC:92:LEU:HB3 | 2.46 | 0.46 |
| 23:BB:26:G:H2' | 23:BB:27:G:O4' | 2.15 | 0.46 |
| 23:DB:1824:G:H2' | 23:DB:1825:U:H6 | 1.80 | 0.46 |
| 42:DU:42:LYS:H | 42:DU:57:ILE:HG21 | 1.80 | 0.46 |
| 23:DB:1552:A:H2' | 23:DB:1553:A:C5' | 2.43 | 0.46 |
| 8:CI:104:THR:HG22 | 8:CI:105:ARG:N | 2.31 | 0.46 |
| 1:AA:920:U:H2' | 1:AA:921:U:H6 | 1.81 | 0.46 |
| 27:DE:23:PHE:C | 27:DE:110:SER:HB2 | 2.36 | 0.46 |
| 1:AA:1310:G:O2' | 1:AA:1311:A:H5' | 2.15 | 0.46 |
| 29:BG:32:LEU:HD21 | 29:BG:74:MET:CG | 2.46 | 0.46 |
| 3:AD:24:VAL:O | 3:AD:25:ARG:HD2 | 2.15 | 0.46 |
| 26:BD:100:LEU:C | 26:BD:102:ALA:H | 2.19 | 0.46 |
| 1:AA:1480:A:O2' | 1:AA:1481:U:H5' | 2.16 | 0.46 |
| 12:CM:79:LEU:HA | 12:CM:82:LEU:CG | 2.46 | 0.46 |
| 1:CA:1349:A:OP1 | 8:CI:121:ARG:HB2 | 2.16 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:CA:1347:G:O5' | 8:CI:108:ARG:HB2 | 2.16 | 0.46 |
| 23:BB:1353:A:H2' | 23:BB:1354:A:C8 | 2.50 | 0.46 |
| 27:DE:31:VAL:HG21 | 27:DE:104:ALA:CB | 2.45 | 0.46 |
| 1:CA:599:C:O2' | 1:CA:600:A:H5' | 2.15 | 0.46 |
| 34:DM:96:ILE:HG22 | 34:DM:97:GLN:OE1 | 2.16 | 0.46 |
| 23:BB:2031:A:C6 | 23:BB:2498:C:H1' | 2.50 | 0.46 |
| 1:AA:1010:U:H2' | 1:AA:1011:C:C6 | 2.50 | 0.46 |
| 4:AE:17:VAL:HA | 4:AE:34:ALA:HA | 1.98 | 0.46 |
| 3:AD:131:ILE:O | 3:AD:134:TYR:HB2 | 2.16 | 0.46 |
| 23:BB:2700:A:H2' | 23:BB:2701:U:C6 | 2.51 | 0.46 |
| 7:AH:93:LYS:HD3 | 7:AH:93:LYS:N | 2.30 | 0.46 |
| 43:DW:54:ARG:HD2 | 43:DW:54:ARG:N | 2.31 | 0.46 |
| 12:AM:1:ALA:O | 12:AM:8:ILE:HG22 | 2.15 | 0.46 |
| 23:DB:307:G:N1 | 23:DB:310:A:OP2 | 2.48 | 0.46 |
| 23:DB:1919:A:H2' | 23:DB:1920:C:H5' | 1.97 | 0.46 |
| 1:AA:334:C:H2' | 1:AA:335:C:H6 | 1.80 | 0.46 |
| 1:AA:328:C:H4' | 1:AA:329:A:H5'' | 1.98 | 0.46 |
| 1:CA:737:C:H5' | 5:CF:89:VAL:O | 2.15 | 0.46 |
| 1:CA:628:G:H2' | 1:CA:629:A:C8 | 2.51 | 0.46 |
| 23:DB:2543:G:H2' | 23:DB:2544:G:C8 | 2.50 | 0.46 |
| 23:DB:2208:C:H2' | 23:DB:2209:G:C8 | 2.51 | 0.46 |
| 23:DB:1759:A:H4' | 23:DB:2715:C:O4' | 2.16 | 0.46 |
| 31:BJ:42:ALA:HB1 | 38:BQ:67:ALA:HB2 | 1.97 | 0.46 |
| 4:CE:154:ALA:HB1 | 7:CH:65:PHE:CZ | 2.50 | 0.46 |
| 23:BB:473:G:O2' | 23:BB:474:G:H5' | 2.15 | 0.46 |
| 11:AL:71:HIS:ND1 | 11:AL:72:ASN:N | 2.63 | 0.46 |
| 23:BB:2063:C:O2 | 23:BB:2450:A:N1 | 2.49 | 0.46 |
| 42:DU:38:ILE:HG13 | 42:DU:62:ALA:CB | 2.45 | 0.46 |
| 49:D2:39:ARG:HG3 | 49:D2:39:ARG:HH11 | 1.79 | 0.46 |
| 23:BB:1113:U:H5'' | 29:BG:2:ARG:H | 1.79 | 0.46 |
| 23:BB:615:U:O2 | 27:BE:38:GLY:HA3 | 2.15 | 0.46 |
| 26:BD:22:ILE:HG12 | 26:BD:22:ILE:O | 2.15 | 0.46 |
| 43:DW:44:PHE:CD2 | 43:DW:77:LYS:HB3 | 2.50 | 0.46 |
| 43:DW:57:THR:HG22 | 43:DW:77:LYS:HG2 | 1.98 | 0.46 |
| 23:BB:692:C:H2' | 23:BB:693:A:C8 | 2.51 | 0.46 |
| 36:BO:15:ARG:HH22 | 36:BO:17:LYS:HD2 | 1.80 | 0.46 |
| 38:DQ:52:ARG:HH11 | 38:DQ:52:ARG:HB3 | 1.79 | 0.46 |
| 39:DR:79:ARG:HB3 | 39:DR:89:HIS:HE1 | 1.81 | 0.46 |
| 27:DE:188:MET:CE | 27:DE:190:ALA:HB2 | 2.46 | 0.46 |
| 32:BK:23:LYS:CG | 32:BK:24:VAL:H | 2.27 | 0.46 |
| 32:BK:61:VAL:HG23 | 32:BK:85:VAL:HB | 1.98 | 0.46 |
| 23:BB:2484:G:HO2' | 34:BM:45:GLN:NE2 | 2.14 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 23:DB:2722:G:H2' | 23:DB:2723:C:H6 | 1.81 | 0.46 |
| 23:DB:1795:C:H2' | 23:DB:1796:U:C6 | 2.51 | 0.46 |
| 33:BL:28:GLY:O | 33:BL:29:LYS:HB2 | 2.15 | 0.46 |
| 23:BB:527:C:O2' | 23:BB:528:A:C8 | 2.66 | 0.46 |
| 8:AI:51:LEU:HB3 | 8:AI:56:MET:CG | 2.45 | 0.46 |
| 51:B4:27:CYS:SG | 51:B4:33:HIS:NE2 | 2.89 | 0.46 |
| 10:AK:88:PRO:HA | 10:AK:92:ARG:HD2 | 1.98 | 0.46 |
| 24:BV:4:ILE:HD11 | 24:BV:61:LEU:CD1 | 2.46 | 0.46 |
| 30:DH:126:GLY:O | 30:DH:145:ASN:HA | 2.16 | 0.46 |
| 13:CN:17:ASP:C | 13:CN:19:TYR:H | 2.19 | 0.46 |
| 33:DL:92:LEU:HB2 | 33:DL:125:LEU:CD1 | 2.45 | 0.46 |
| 33:BL:88:GLY:O | 33:BL:90:VAL:HG23 | 2.15 | 0.46 |
| 10:CK:92:ARG:HH11 | 10:CK:92:ARG:HG2 | 1.81 | 0.46 |
| 26:BD:38:LYS:N | 26:BD:38:LYS:HD3 | 2.30 | 0.46 |
| 23:DB:2156:G:H2' | 23:DB:2157:G:C4' | 2.37 | 0.46 |
| 13:CN:45:LEU:O | 13:CN:48:GLN:HG3 | 2.16 | 0.46 |
| 45:DY:26:LEU:C | 45:DY:28:LEU:H | 2.19 | 0.46 |
| 37:DP:52:ARG:HG2 | 37:DP:60:VAL:CG2 | 2.46 | 0.46 |
| 23:DB:1019:U:O2' | 23:DB:1020:A:H5' | 2.15 | 0.46 |
| 32:DK:11:ALA:C | 32:DK:100:PHE:H | 2.20 | 0.46 |
| 38:DQ:87:VAL:O | 39:DR:54:VAL:HG21 | 2.16 | 0.46 |
| 4:CE:87:VAL:O | 4:CE:88:HIS:HB3 | 2.16 | 0.46 |
| 5:AF:29:ILE:HD13 | 5:AF:64:VAL:CG1 | 2.45 | 0.46 |
| 15:CP:4:ILE:CD1 | 15:CP:57:ILE:HG12 | 2.44 | 0.46 |
| 1:AA:1236:A:H2' | 1:AA:1237:C:O4' | 2.15 | 0.46 |
| 35:BN:9:GLN:HE21 | 35:BN:17:ARG:NH2 | 2.14 | 0.46 |
| 23:BB:2297:A:N6 | 23:BB:2319:G:C5' | 2.78 | 0.46 |
| 35:DN:76:VAL:O | 35:DN:80:PHE:HD1 | 1.98 | 0.46 |
| 1:CA:1095:U:H2' | 1:CA:1096:C:H6 | 1.81 | 0.46 |
| 1:AA:239:U:H5' | 1:AA:239:U:H6 | 1.80 | 0.46 |
| 32:DK:4:GLU:OE2 | 32:DK:23:LYS:HD2 | 2.15 | 0.46 |
| 29:DG:42:VAL:HA | 29:DG:50:THR:O | 2.16 | 0.46 |
| 52:DI:18:ASN:N | 52:DI:19:PRO:CD | 2.78 | 0.46 |
| 1:AA:81:A:C2 | 1:AA:82:G:N7 | 2.83 | 0.46 |
| 19:CT:69:ASN:ND2 | 19:CT:69:ASN:N | 2.53 | 0.46 |
| 1:CA:807:A:H2' | 1:CA:808:C:C6 | 2.51 | 0.46 |
| 11:CL:65:TYR:HB3 | 11:CL:95:HIS:CD2 | 2.51 | 0.46 |
| 20:CB:19:THR:HA | 20:CB:37:VAL:HB | 1.98 | 0.46 |
| 36:DO:100:HIS:HA | 36:DO:104:GLN:NE2 | 2.30 | 0.46 |
| 23:DB:479:A:O2' | 23:DB:480:A:OP2 | 2.30 | 0.46 |
| 42:DU:42:LYS:N | 42:DU:57:ILE:HG21 | 2.31 | 0.46 |
| 23:BB:2239:G:H5' | 25:BC:246:PRO:HG2 | 1.97 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:DB:1251:C:HO2' | 23:DB:1252:G:H3' | 1.80 | 0.46 |
| 23:DB:2415:G:H4' | 33:DL:66:PHE:CB | 2.46 | 0.46 |
| 23:BB:1791:A:C4' | 25:BC:207:ALA:H | 2.28 | 0.46 |
| 6:AG:94:ARG:CD | 6:AG:98:LEU:HD11 | 2.43 | 0.46 |
| 23:DB:242:G:O2' | 23:DB:243:U:OP2 | 2.33 | 0.46 |
| 7:CH:38:VAL:CG2 | 7:CH:111:THR:HG22 | 2.46 | 0.46 |
| 23:BB:131:A:O2' | 23:BB:132:G:H5' | 2.15 | 0.46 |
| 23:DB:570:G:O2' | 23:DB:571:U:H5' | 2.16 | 0.46 |
| 24:BV:77:VAL:HG21 | 24:BV:79:ARG:HH21 | 1.81 | 0.46 |
| 2:CC:8:GLY:O | 2:CC:11:LEU:HG | 2.15 | 0.46 |
| 23:BB:215:G:H4' | 23:BB:216:A:OP1 | 2.15 | 0.46 |
| 23:DB:964:C:O2' | 23:DB:2273:A:H1' | 2.15 | 0.46 |
| 11:AL:98:ARG:CB | 11:AL:116:TYR:HA | 2.45 | 0.46 |
| 1:CA:1388:C:H2' | 1:CA:1389:C:H6 | 1.79 | 0.46 |
| 29:DG:94:ARG:H | 29:DG:105:SER:HB2 | 1.80 | 0.46 |
| 23:DB:1163:G:O2' | 23:DB:1164:C:H5' | 2.16 | 0.46 |
| 23:DB:1165:A:C2 | 23:DB:1166:G:N7 | 2.83 | 0.46 |
| 25:DC:136:VAL:C | 25:DC:138:SER:N | 2.69 | 0.46 |
| 23:BB:1747:U:H2' | 23:BB:1748:C:H6 | 1.81 | 0.46 |
| 23:DB:1537:G:H2' | 23:DB:1538:G:O4' | 2.14 | 0.46 |
| 27:BE:28:VAL:HG23 | 27:BE:29:HIS:N | 2.31 | 0.46 |
| 23:BB:682:G:H5' | 49:B2:26:ASN:OD1 | 2.16 | 0.46 |
| 1:CA:1486:G:H2' | 1:CA:1487:G:C8 | 2.51 | 0.46 |
| 18:AS:12:LEU:O | 18:AS:15:LEU:HB3 | 2.15 | 0.46 |
| 23:DB:1108:U:H2' | 23:DB:1109:C:H6 | 1.81 | 0.46 |
| 23:DB:2373:G:H2' | 23:DB:2374:C:H6 | 1.80 | 0.46 |
| 29:BG:6:ALA:N | 29:BG:7:PRO:CD | 2.79 | 0.46 |
| 23:DB:2093:G:H2' | 23:DB:2094:A:H8 | 1.81 | 0.46 |
| 27:BE:35:TYR:CE2 | 27:BE:178:VAL:HG21 | 2.50 | 0.46 |
| 21:CU:8:ASN:HB2 | 21:CU:9:GLU:OE2 | 2.16 | 0.46 |
| 25:BC:38:LYS:O | 25:BC:39:SER:HB3 | 2.15 | 0.46 |
| 1:AA:285:C:H2' | 1:AA:286:C:H6 | 1.81 | 0.46 |
| 2:CC:190:THR:HG22 | 2:CC:191:THR:H | 1.80 | 0.46 |
| 32:DK:84:CYS:O | 32:DK:85:VAL:HB | 2.16 | 0.46 |
| 10:AK:32:THR:HA | 10:AK:43:TRP:HA | 1.98 | 0.46 |
| 23:BB:30:G:O2' | 23:BB:31:C:H5' | 2.16 | 0.46 |
| 23:DB:256:A:O2' | 23:DB:257:C:H5' | 2.16 | 0.46 |
| 38:BQ:89:ILE:O | 38:BQ:89:ILE:HG12 | 2.15 | 0.46 |
| 23:DB:277:G:H2' | 23:DB:277:G:N3 | 2.31 | 0.46 |
| 23:DB:2603:G:O2' | 23:DB:2604:U:H5' | 2.16 | 0.46 |
| 23:BB:247:G:H4' | 23:BB:386:G:C5 | 2.51 | 0.46 |
| 23:BB:248:G:C2 | 23:BB:2431:U:H4' | 2.51 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 20:AB:164:ASP:CG | 20:AB:203:ASP:HB2 | 2.36 | 0.46 |
| 36:BO:64:TYR:CD1 | 36:BO:74:VAL:HG21 | 2.50 | 0.46 |
| 26:BD:11:MET:HE1 | 37:BP:9:GLN:HG2 | 1.98 | 0.46 |
| 26:BD:23:PRO:HA | 26:BD:190:LYS:HA | 1.98 | 0.46 |
| 37:BP:9:GLN:CD | 37:BP:56:SER:HB2 | 2.36 | 0.46 |
| 37:BP:57:ALA:C | 37:BP:59:THR:H | 2.19 | 0.46 |
| 43:DW:38:ARG:O | 43:DW:39:GLN:HB3 | 2.15 | 0.46 |
| 23:BB:774:G:OP2 | 25:BC:47:ARG:HD3 | 2.15 | 0.46 |
| 25:DC:92:LEU:HD12 | 25:DC:101:ARG:O | 2.16 | 0.46 |
| 31:BJ:17:VAL:HG13 | 31:BJ:57:LEU:HD21 | 1.97 | 0.46 |
| 31:BJ:19:ASP:O | 31:BJ:20:ALA:HB3 | 2.16 | 0.46 |
| 23:DB:814:C:OP1 | 39:DR:87:GLN:O | 2.34 | 0.46 |
| 38:DQ:39:ILE:HA | 38:DQ:43:GLN:NE2 | 2.30 | 0.46 |
| 38:DQ:53:LYS:N | 38:DQ:53:LYS:HE2 | 2.13 | 0.46 |
| 30:BH:3:VAL:HB | 30:BH:37:VAL:CG2 | 2.46 | 0.46 |
| 27:DE:154:ASP:OD2 | 27:DE:156:ASN:HB3 | 2.16 | 0.46 |
| 33:BL:120:VAL:H | 33:BL:138:ALA:CB | 2.29 | 0.46 |
| 23:BB:396:G:C4' | 46:BZ:28:VAL:HG21 | 2.34 | 0.46 |
| 32:BK:99:ILE:CG2 | 32:BK:119:ALA:HB2 | 2.46 | 0.46 |
| 23:BB:2460:U:H2' | 23:BB:2461:A:H8 | 1.81 | 0.46 |
| 47:B0:2:VAL:CG2 | 47:B0:3:GLN:N | 2.79 | 0.46 |
| 26:BD:148:GLN:HB3 | 26:BD:151:THR:CG2 | 2.45 | 0.46 |
| 23:DB:139:U:H3' | 23:DB:139:U:OP2 | 2.16 | 0.46 |
| 23:DB:2721:A:H2' | 23:DB:2722:G:C8 | 2.51 | 0.46 |
| 38:BQ:5:ARG:CD | 38:BQ:5:ARG:H | 2.27 | 0.46 |
| 39:DR:35:PHE:HB3 | 39:DR:64:VAL:HG12 | 1.97 | 0.46 |
| 31:DJ:17:VAL:HA | 31:DJ:55:ILE:HB | 1.98 | 0.46 |
| 28:BF:35:LEU:O | 28:BF:36:ASN:HB3 | 2.14 | 0.46 |
| 18:CS:43:MET:O | 18:CS:46:LEU:HB2 | 2.16 | 0.46 |
| 35:BN:41:ALA:HB1 | 35:BN:97:ILE:HD12 | 1.97 | 0.46 |
| 35:BN:78:LYS:O | 35:BN:82:GLU:HB2 | 2.15 | 0.46 |
| 25:BC:27:LYS:HG3 | 25:BC:80:LEU:HB2 | 1.96 | 0.46 |
| 21:AU:15:LEU:O | 21:AU:18:PHE:HB2 | 2.16 | 0.46 |
| 26:DD:185:ASN:O | 26:DD:186:LEU:HD12 | 2.16 | 0.46 |
| 23:BB:2723:C:C5' | 35:BN:3:HIS:HB2 | 2.46 | 0.46 |
| 26:BD:131:ASP:CG | 26:BD:132:ALA:N | 2.69 | 0.46 |
| 33:DL:62:PRO:HG3 | 50:D3:12:ARG:NH2 | 2.29 | 0.46 |
| 26:DD:29:VAL:CG2 | 26:DD:30:GLU:H | 2.18 | 0.46 |
| 22:DA:75:G:N1 | 22:DA:102:G:N2 | 2.64 | 0.46 |
| 26:BD:1:MET:CB | 26:BD:84:LEU:HD22 | 2.40 | 0.46 |
| 11:CL:23:LEU:O | 11:CL:25:ALA:N | 2.49 | 0.46 |
| 38:DQ:108:LEU:HA | 38:DQ:111:LYS:CD | 2.45 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 8:CI:87:MET:HB2 | 8:CI:94:ARG:NH2 | 2.31 | 0.46 |
| 33:DL:118:THR:O | 33:DL:120:VAL:N | 2.49 | 0.46 |
| 19:AT:60:GLN:H | 19:AT:60:GLN:CD | 2.19 | 0.46 |
| 23:DB:443:A:N7 | 27:DE:40:ARG:HG2 | 2.31 | 0.46 |
| 23:BB:1083:U:C2 | 23:BB:1086:A:N1 | 2.83 | 0.46 |
| 2:AC:38:VAL:HG23 | 2:AC:39:ARG:N | 2.29 | 0.46 |
| 52:DI:54:ILE:O | 52:DI:54:ILE:HG23 | 2.16 | 0.46 |
| 36:BO:84:GLU:N | 36:BO:84:GLU:OE1 | 2.49 | 0.46 |
| 41:DT:35:ALA:O | 41:DT:81:LYS:HD3 | 2.16 | 0.46 |
| 49:D2:43:THR:C | 49:D2:44:VAL:HG22 | 2.36 | 0.46 |
| 32:DK:43:ILE:HG22 | 32:DK:54:LYS:HA | 1.97 | 0.46 |
| 1:AA:1202:U:H2' | 1:AA:1203:C:C5' | 2.46 | 0.46 |
| 23:DB:2800:A:N3 | 23:DB:2801:G:H1' | 2.30 | 0.46 |
| 1:AA:428:G:H4' | 1:AA:429:U:O5' | 2.16 | 0.46 |
| 23:BB:2815:C:C2 | 23:BB:2816:G:C8 | 3.04 | 0.46 |
| 23:BB:2816:G:N3 | 23:BB:2883:A:O2' | 2.48 | 0.46 |
| 23:DB:1791:A:OP1 | 25:DC:211:ARG:HG2 | 2.16 | 0.46 |
| 25:BC:115:ILE:HG23 | 25:BC:126:GLY:O | 2.15 | 0.46 |
| 48:B1:10:LEU:HD22 | 48:B1:25:ASN:HD22 | 1.81 | 0.46 |
| 2:AC:111:ASP:O | 2:AC:115:VAL:HG23 | 2.15 | 0.46 |
| 8:CI:117:LEU:CD2 | 8:CI:123:ARG:HD3 | 2.46 | 0.46 |
| 1:CA:278:G:H21 | 1:CA:279:A:N6 | 2.10 | 0.46 |
| 23:DB:153:U:H2' | 23:DB:154:U:O4' | 2.16 | 0.46 |
| 23:DB:1309:G:C5' | 49:D2:7:PRO:HB2 | 2.46 | 0.46 |
| 29:BG:94:ARG:NH1 | 29:BG:127:GLN:HB2 | 2.31 | 0.46 |
| 44:BX:30:MET:CG | 44:BX:31:GLN:N | 2.79 | 0.46 |
| 44:BX:59:GLU:C | 44:BX:61:ALA:H | 2.19 | 0.46 |
| 1:CA:601:G:H2' | 1:CA:602:A:H8 | 1.80 | 0.46 |
| 36:DO:82:ALA:HB1 | 36:DO:87:ILE:CG2 | 2.46 | 0.46 |
| 23:BB:1735:A:H2' | 23:BB:1736:U:C6 | 2.50 | 0.46 |
| 23:DB:1162:G:O2' | 23:DB:1163:G:H5' | 2.16 | 0.46 |
| 25:BC:62:ARG:O | 25:BC:62:ARG:NE | 2.48 | 0.46 |
| 23:BB:1712:U:H3' | 23:BB:1713:A:C5' | 2.46 | 0.46 |
| 9:AJ:15:HIS:CD2 | 9:AJ:19:ASP:HB2 | 2.51 | 0.46 |
| 32:DK:18:ARG:HB2 | 32:DK:45:GLU:HG2 | 1.98 | 0.46 |
| 52:BI:46:ASP:HA | 52:BI:50:LYS:HG3 | 1.96 | 0.46 |
| 23:BB:1946:U:C2 | 23:BB:1947:C:C5 | 3.03 | 0.46 |
| 23:DB:267:C:H2' | 23:DB:268:C:C6 | 2.50 | 0.46 |
| 23:BB:1011:G:H5'' | 38:BQ:76:SER:OG | 2.16 | 0.46 |
| 23:DB:2716:C:O2' | 23:DB:2717:C:H5' | 2.15 | 0.46 |
| 23:DB:2083:G:H2' | 23:DB:2084:C:C6 | 2.51 | 0.46 |
| 1:AA:628:G:H2' | 1:AA:629:A:C8 | 2.51 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 25:DC:38:LYS:HG3 | 25:DC:39:SER:N | 2.31 | 0.46 |
| 23:BB:2714:G:H2' | 23:BB:2715:C:C6 | 2.51 | 0.46 |
| 20:AB:15:PHE:O | 20:AB:40:ILE:HG13 | 2.16 | 0.46 |
| 2:CC:177:LEU:HD22 | 2:CC:177:LEU:N | 2.31 | 0.46 |
| 6:AG:119:LEU:HD13 | 6:AG:119:LEU:C | 2.36 | 0.46 |
| 26:BD:135:GLY:C | 26:BD:137:SER:N | 2.69 | 0.46 |
| 1:AA:820:U:H4' | 1:AA:821:G:OP2 | 2.16 | 0.46 |
| 4:CE:76:ASN:O | 4:CE:77:ASN:HB3 | 2.16 | 0.46 |
| 1:AA:28:A:O2' | 1:AA:296:U:OP1 | 2.32 | 0.46 |
| 23:BB:1091:G:O2' | 23:BB:1092:C:H5' | 2.15 | 0.46 |
| 1:AA:1372:U:OP1 | 8:AI:72:SER:HB2 | 2.16 | 0.46 |
| 1:CA:721:G:H5'' | 17:CR:42:ARG:HH21 | 1.81 | 0.46 |
| 1:CA:684:U:O2' | 10:CK:39:ASN:HB3 | 2.16 | 0.46 |
| 23:BB:788:A:H1' | 49:B2:4:THR:OG1 | 2.15 | 0.46 |
| 23:BB:1936:A:H2 | 23:BB:1943:U:C5 | 2.33 | 0.46 |
| 12:AM:58:GLU:HA | 12:AM:61:LYS:HE2 | 1.98 | 0.46 |
| 37:DP:111:GLU:C | 37:DP:113:LEU:H | 2.18 | 0.46 |
| 23:BB:85:G:H5' | 42:BU:28:LEU:CA | 2.22 | 0.46 |
| 42:BU:66:VAL:O | 42:BU:68:ASN:N | 2.48 | 0.46 |
| 42:BU:90:LYS:HD2 | 42:BU:91:LYS:H | 1.81 | 0.46 |
| 23:BB:441:U:H2' | 23:BB:442:G:C8 | 2.49 | 0.46 |
| 51:D4:15:LYS:C | 51:D4:17:VAL:H | 2.20 | 0.46 |
| 25:BC:66:PHE:O | 25:BC:68:ARG:HG3 | 2.16 | 0.46 |
| 23:BB:2334:U:OP2 | 36:BO:7:ARG:NE | 2.49 | 0.46 |
| 35:DN:33:ILE:HG12 | 35:DN:114:GLU:HB3 | 1.98 | 0.46 |
| 31:DJ:57:LEU:HG | 31:DJ:128:ASN:HA | 1.98 | 0.46 |
| 43:BW:43:LYS:N | 43:BW:43:LYS:HD2 | 2.31 | 0.46 |
| 38:DQ:40:LYS:O | 38:DQ:44:TYR:HB3 | 2.16 | 0.46 |
| 18:AS:29:PRO:HB3 | 18:AS:47:THR:CG2 | 2.46 | 0.46 |
| 33:BL:56:PRO:C | 33:BL:60:ARG:HB2 | 2.35 | 0.46 |
| 46:BZ:7:PRO:O | 46:BZ:8:LYS:HB3 | 2.16 | 0.46 |
| 32:BK:58:LEU:HA | 32:BK:89:ASN:HD22 | 1.80 | 0.46 |
| 48:D1:35:LEU:HD23 | 48:D1:35:LEU:N | 2.31 | 0.46 |
| 40:BS:8:ARG:O | 40:BS:9:HIS:HB2 | 2.16 | 0.46 |
| 41:DT:47:VAL:HG22 | 41:DT:53:VAL:CG2 | 2.40 | 0.46 |
| 28:BF:131:VAL:HG12 | 28:BF:132:ARG:N | 2.30 | 0.46 |
| 28:BF:109:ARG:CB | 28:BF:136:ILE:HG13 | 2.46 | 0.46 |
| 28:BF:56:LEU:HD23 | 28:BF:59:ILE:HG22 | 1.98 | 0.46 |
| 39:BR:48:LYS:C | 39:BR:49:ILE:HD13 | 2.36 | 0.46 |
| 1:AA:132:C:O2' | 1:AA:133:U:H5' | 2.15 | 0.46 |
| 5:AF:50:PRO:HA | 5:AF:54:LEU:O | 2.16 | 0.46 |
| 40:BS:28:LYS:HB3 | 40:BS:71:VAL:HB | 1.98 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 40:BS:4:ILE:HD12 | 40:BS:106:VAL:HG22 | 1.98 | 0.46 |
| 24:BV:70:ILE:HG12 | 24:BV:71:LYS:N | 2.27 | 0.46 |
| 33:DL:108:ALA:HB3 | 33:DL:125:LEU:HB2 | 1.98 | 0.46 |
| 26:BD:17:GLU:HA | 37:BP:80:VAL:CG2 | 2.46 | 0.46 |
| 33:BL:103:ILE:HD13 | 33:BL:104:GLN:H | 1.81 | 0.46 |
| 33:BL:94:THR:HG23 | 33:BL:95:LEU:H | 1.80 | 0.46 |
| 12:CM:52:ILE:O | 12:CM:55:LEU:HB2 | 2.16 | 0.46 |
| 23:BB:1999:C:O2' | 23:BB:2000:C:H5' | 2.15 | 0.46 |
| 23:BB:2578:G:H1' | 26:BD:145:SER:CB | 2.46 | 0.46 |
| 23:DB:2393:U:H5 | 50:D3:30:HIS:HE1 | 1.63 | 0.46 |
| 23:DB:2393:U:O2' | 23:DB:2394:C:H5' | 2.15 | 0.46 |
| 26:BD:106:LYS:O | 26:BD:206:ALA:HB2 | 2.16 | 0.46 |
| 4:CE:20:VAL:CG1 | 4:CE:31:SER:HB2 | 2.45 | 0.46 |
| 2:AC:173:PRO:C | 2:AC:175:HIS:H | 2.19 | 0.46 |
| 11:AL:35:ARG:O | 11:AL:52:CYS:HB2 | 2.16 | 0.46 |
| 19:AT:60:GLN:HE21 | 19:AT:61:ALA:H | 1.64 | 0.46 |
| 1:AA:1304:G:H2' | 1:AA:1305:G:C1' | 2.46 | 0.46 |
| 18:CS:32:THR:HG22 | 18:CS:33:TRP:N | 2.21 | 0.46 |
| 23:BB:2014:A:P | 40:BS:95:ARG:HH21 | 2.39 | 0.46 |
| 23:DB:741:U:H2' | 23:DB:742:A:H8 | 1.79 | 0.46 |
| 37:BP:109:ILE:HG22 | 37:BP:109:ILE:O | 2.16 | 0.46 |
| 23:DB:1665:A:O2' | 23:DB:1666:G:H5' | 2.15 | 0.46 |
| 46:DZ:64:PHE:O | 46:DZ:64:PHE:HD2 | 1.98 | 0.46 |
| 1:AA:82:G:C6 | 1:AA:88:U:O2 | 2.69 | 0.46 |
| 1:AA:1460:C:O2' | 1:AA:1461:G:H5' | 2.16 | 0.46 |
| 25:BC:77:VAL:HG21 | 25:BC:109:LEU:CG | 2.43 | 0.46 |
| 36:BO:106:LEU:O | 36:BO:106:LEU:HD13 | 2.16 | 0.46 |
| 23:BB:1553:A:O2' | 23:BB:1554:U:H2' | 2.16 | 0.46 |
| 23:BB:2600:A:H62 | 25:BC:235:GLU:CB | 2.29 | 0.46 |
| 1:CA:1279:G:H22 | 9:CJ:45:ARG:HD2 | 1.80 | 0.46 |
| 14:CO:10:ILE:HD11 | 14:CO:29:ALA:CB | 2.46 | 0.46 |
| 23:BB:192:C:C2' | 23:BB:193:U:H5' | 2.43 | 0.46 |
| 8:CI:117:LEU:HD23 | 8:CI:123:ARG:HD3 | 1.97 | 0.46 |
| 23:DB:2065:C:H5' | 23:DB:2251:G:H21 | 1.81 | 0.46 |
| 20:CB:60:ALA:HA | 20:CB:64:GLY:HA3 | 1.98 | 0.46 |
| 23:BB:935:C:H2' | 23:BB:936:A:H8 | 1.81 | 0.46 |
| 23:BB:1408:G:H2' | 23:BB:1409:U:H6 | 1.80 | 0.46 |
| 35:DN:101:GLY:O | 35:DN:102:PHE:HB3 | 2.16 | 0.46 |
| 4:AE:82:HIS:HB2 | 4:AE:83:PRO:HD2 | 1.98 | 0.46 |
| 40:DS:3:THR:HG21 | 40:DS:58:ALA:HB2 | 1.97 | 0.46 |
| 1:CA:861:G:O2' | 1:CA:862:C:H5' | 2.15 | 0.46 |
| 15:AP:6:LEU:HD11 | 15:AP:71:VAL:HB | 1.98 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 1:CA:1216:A:P | 13:CN:2:LYS:HE2 | 2.56 | 0.46 |
| 23:BB:1313:U:C2' | 23:BB:1313:U:O2 | 2.64 | 0.46 |
| 1:CA:411:A:C5 | 1:CA:413:G:H1' | 2.51 | 0.46 |
| 7:AH:86:LYS:HB3 | 7:AH:90:GLU:HB2 | 1.97 | 0.46 |
| 1:CA:132:C:O2' | 1:CA:133:U:H5' | 2.15 | 0.46 |
| 23:BB:593:U:H2' | 23:BB:594:U:H6 | 1.81 | 0.46 |
| 23:BB:1979:U:C2' | 23:BB:1980:G:H5' | 2.46 | 0.46 |
| 23:BB:2307:G:O2' | 23:BB:2311:A:N6 | 2.49 | 0.46 |
| 1:AA:382:A:O2' | 1:AA:383:A:H5' | 2.15 | 0.46 |
| 1:CA:1049:U:H2' | 1:CA:1049:U:O2 | 2.14 | 0.46 |
| 23:DB:2893:A:H4' | 23:DB:2894:G:H5' | 1.96 | 0.46 |
| 2:CC:143:LEU:N | 2:CC:143:LEU:HD13 | 2.31 | 0.46 |
| 1:CA:22:G:O2' | 1:CA:23:C:H5' | 2.16 | 0.46 |
| 23:DB:494:G:O2' | 23:DB:495:G:H5' | 2.16 | 0.46 |
| 1:AA:599:C:O2' | 1:AA:600:A:H5' | 2.15 | 0.46 |
| 1:AA:601:G:H2' | 1:AA:602:A:C8 | 2.50 | 0.46 |
| 6:AG:11:ILE:HG12 | 6:AG:24:LYS:HE2 | 1.97 | 0.46 |
| 10:CK:17:ASP:CG | 10:CK:36:ARG:HH11 | 2.19 | 0.46 |
| 3:AD:98:ASP:CB | 3:AD:132:ALA:HB1 | 2.46 | 0.46 |
| 23:DB:2752:C:H2' | 23:DB:2753:A:O4' | 2.15 | 0.46 |
| 18:AS:12:LEU:HD23 | 18:AS:12:LEU:O | 2.15 | 0.46 |
| 26:BD:15:PHE:HB3 | 26:BD:18:ASP:CB | 2.45 | 0.46 |
| 52:BI:52:LEU:HD21 | 52:BI:81:LYS:NZ | 2.31 | 0.46 |
| 23:BB:523:C:O2' | 23:BB:524:G:H5' | 2.16 | 0.46 |
| 10:AK:63:GLN:O | 10:AK:67:GLU:HB3 | 2.15 | 0.46 |
| 23:DB:2776:A:H4' | 23:DB:2777:G:C5' | 2.46 | 0.46 |
| 31:DJ:28:LEU:HD22 | 31:DJ:28:LEU:O | 2.16 | 0.46 |
| 42:DU:48:VAL:O | 42:DU:48:VAL:HG12 | 2.16 | 0.46 |
| 14:CO:81:ILE:O | 14:CO:85:GLY:N | 2.48 | 0.46 |
| 1:CA:932:C:H2' | 1:CA:933:G:H8 | 1.80 | 0.46 |
| 1:AA:1096:C:H2' | 1:AA:1097:C:H6 | 1.81 | 0.46 |
| 23:BB:1704:C:O2' | 23:BB:1705:A:H5' | 2.16 | 0.46 |
| 23:DB:1597:A:H5'' | 23:DB:1598:A:H5' | 1.96 | 0.46 |
| 1:AA:41:G:H2' | 1:AA:42:G:H8 | 1.81 | 0.46 |
| 1:CA:652:U:H1' | 1:CA:653:U:C5 | 2.50 | 0.46 |
| 1:CA:956:U:H2' | 1:CA:957:U:C6 | 2.50 | 0.46 |
| 20:CB:195:VAL:HG12 | 20:CB:197:PHE:H | 1.81 | 0.46 |
| 23:BB:89:A:H2' | 23:BB:90:U:C6 | 2.51 | 0.46 |
| 50:D3:56:LEU:HD12 | 50:D3:56:LEU:C | 2.36 | 0.46 |
| 8:AI:119:LYS:NZ | 8:AI:119:LYS:HB3 | 2.31 | 0.46 |
| 11:AL:120:ARG:HG3 | 11:AL:120:ARG:HH11 | 1.81 | 0.46 |
| 29:BG:34:ARG:HG3 | 29:BG:35:THR:N | 2.30 | 0.46 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|--------------------|-------------|----------|
| 30:BH:27:ARG:HB2 | 30:BH:27:ARG:HH11 | 1.81 | 0.46 |
| 1:AA:1427:C:O2' | 1:AA:1428:A:H5' | 2.16 | 0.46 |
| 40:DS:5:ALA:HB3 | 40:DS:54:ALA:HB2 | 1.98 | 0.46 |
| 43:DW:77:LYS:C | 43:DW:79:ILE:N | 2.68 | 0.45 |
| 25:DC:142:ASN:HA | 25:DC:153:LEU:CD2 | 2.46 | 0.45 |
| 23:DB:1821:A:C5' | 25:DC:155:ARG:HH21 | 2.29 | 0.45 |
| 23:DB:1816:C:C5 | 25:DC:62:ARG:HD2 | 2.51 | 0.45 |
| 23:BB:917:A:H2' | 23:BB:918:A:O4' | 2.15 | 0.45 |
| 23:DB:299:A:N6 | 23:DB:322:A:H1' | 2.31 | 0.45 |
| 23:BB:630:G:H4' | 23:BB:640:C:O2' | 2.16 | 0.45 |
| 33:BL:77:ILE:HB | 33:BL:110:VAL:HG13 | 1.98 | 0.45 |
| 33:BL:125:LEU:O | 33:BL:126:ARG:HG3 | 2.17 | 0.45 |
| 46:BZ:63:ARG:HA | 46:BZ:63:ARG:NE | 2.31 | 0.45 |
| 23:DB:2087:G:H2' | 23:DB:2088:A:C8 | 2.51 | 0.45 |
| 34:BM:124:LEU:H | 34:BM:124:LEU:HD23 | 1.81 | 0.45 |
| 40:BS:8:ARG:NH2 | 40:BS:102:HIS:NE2 | 2.64 | 0.45 |
| 23:BB:1157:G:H1' | 45:BY:10:ARG:HH22 | 1.81 | 0.45 |
| 41:DT:20:ALA:O | 41:DT:21:SER:HB3 | 2.17 | 0.45 |
| 5:CF:67:PRO:O | 5:CF:70:VAL:HG22 | 2.15 | 0.45 |
| 31:BJ:43:GLU:O | 31:BJ:44:TYR:C | 2.54 | 0.45 |
| 39:BR:42:ALA:O | 39:BR:45:GLU:HG3 | 2.16 | 0.45 |
| 27:BE:144:GLU:C | 27:BE:146:VAL:N | 2.70 | 0.45 |
| 1:CA:1014:A:H5'' | 18:CS:13:HIS:CB | 2.46 | 0.45 |
| 23:BB:2721:A:H2' | 23:BB:2722:G:C8 | 2.51 | 0.45 |
| 1:AA:1098:C:C2' | 1:AA:1099:G:H5' | 2.46 | 0.45 |
| 21:AU:32:ARG:HB3 | 21:AU:33:ARG:H | 1.59 | 0.45 |
| 23:DB:1033:U:C4 | 51:D4:16:ILE:HD11 | 2.52 | 0.45 |
| 26:BD:50:VAL:HB | 26:BD:75:ALA:HB3 | 1.97 | 0.45 |
| 23:DB:873:C:H4' | 34:DM:64:TRP:CZ3 | 2.51 | 0.45 |
| 45:DY:25:GLY:C | 45:DY:26:LEU:HD23 | 2.36 | 0.45 |
| 45:DY:37:ARG:NE | 45:DY:37:ARG:HA | 2.31 | 0.45 |
| 37:DP:52:ARG:HG3 | 37:DP:54:LEU:HD12 | 1.98 | 0.45 |
| 32:DK:12:ASP:HA | 32:DK:99:ILE:HA | 1.97 | 0.45 |
| 1:CA:1250:A:H5'' | 8:CI:69:GLY:H | 1.81 | 0.45 |
| 8:CI:94:ARG:O | 8:CI:98:ARG:HG3 | 2.15 | 0.45 |
| 14:AO:70:LYS:HZ2 | 14:AO:74:VAL:HA | 1.81 | 0.45 |
| 3:AD:160:LEU:H | 3:AD:160:LEU:CD1 | 2.22 | 0.45 |
| 1:CA:1237:C:H3' | 1:CA:1336:C:H41 | 1.81 | 0.45 |
| 49:D2:46:LYS:N | 49:D2:46:LYS:HE3 | 2.31 | 0.45 |
| 27:DE:55:SER:N | 27:DE:74:LYS:HE3 | 2.30 | 0.45 |
| 48:B1:12:SER:HA | 48:B1:50:GLU:CB | 2.41 | 0.45 |
| 16:CQ:56:ASP:N | 16:CQ:81:ALA:HB2 | 2.31 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 50:B3:35:LYS:HD3 | 50:B3:35:LYS:N | 2.31 | 0.45 |
| 33:DL:18:ARG:NH2 | 33:DL:21:ARG:HD3 | 2.31 | 0.45 |
| 2:CC:145:ALA:HA | 2:CC:203:LYS:HA | 1.98 | 0.45 |
| 1:AA:1149:C:H2' | 1:AA:1150:A:H8 | 1.80 | 0.45 |
| 14:CO:36:ASN:HA | 14:CO:39:GLN:HG3 | 1.98 | 0.45 |
| 23:BB:532:A:N3 | 23:BB:532:A:H2' | 2.30 | 0.45 |
| 1:AA:1499:A:O2' | 1:AA:1500:A:H5' | 2.16 | 0.45 |
| 1:AA:861:G:O2' | 1:AA:862:C:H5' | 2.15 | 0.45 |
| 23:DB:448:U:C6 | 27:DE:79:ARG:HG3 | 2.51 | 0.45 |
| 28:BF:32:LYS:HB3 | 28:BF:91:ARG:HB3 | 1.98 | 0.45 |
| 23:BB:2748:A:H1' | 29:BG:66:THR:OG1 | 2.16 | 0.45 |
| 29:BG:71:LEU:HG | 29:BG:74:MET:SD | 2.56 | 0.45 |
| 26:DD:138:LEU:HD12 | 26:DD:142:VAL:HB | 1.98 | 0.45 |
| 1:CA:202:G:N2 | 1:CA:465:A:H61 | 2.14 | 0.45 |
| 20:AB:113:LEU:C | 20:AB:113:LEU:HD23 | 2.37 | 0.45 |
| 1:CA:767:A:H2' | 1:CA:768:A:H8 | 1.81 | 0.45 |
| 11:AL:90:PRO:C | 11:AL:92:VAL:H | 2.18 | 0.45 |
| 20:CB:67:LEU:O | 20:CB:160:LEU:HD12 | 2.16 | 0.45 |
| 23:DB:1084:A:H1' | 23:DB:1106:G:H5' | 1.98 | 0.45 |
| 23:BB:963:U:H2' | 23:BB:964:C:C6 | 2.51 | 0.45 |
| 1:AA:525:C:H2' | 1:AA:526:C:C6 | 2.51 | 0.45 |
| 1:CA:598:U:H2' | 1:CA:599:C:C6 | 2.51 | 0.45 |
| 1:AA:955:U:O2' | 1:AA:956:U:H5' | 2.16 | 0.45 |
| 23:DB:1747:U:H2' | 23:DB:1748:C:H6 | 1.80 | 0.45 |
| 23:BB:359:G:C2' | 23:BB:360:U:H5' | 2.46 | 0.45 |
| 23:DB:346:A:H2' | 23:DB:347:A:O4' | 2.15 | 0.45 |
| 23:BB:1123:C:H2' | 23:BB:1124:G:C8 | 2.48 | 0.45 |
| 23:DB:2379:G:H2' | 23:DB:2380:C:C6 | 2.51 | 0.45 |
| 3:AD:169:TRP:CB | 3:AD:183:ARG:HH21 | 2.30 | 0.45 |
| 5:AF:100:SER:HA | 17:AR:23:LYS:HZ2 | 1.81 | 0.45 |
| 23:BB:1064:C:O2' | 23:BB:1065:U:H5' | 2.16 | 0.45 |
| 37:BP:88:ARG:HA | 37:BP:88:ARG:NE | 2.30 | 0.45 |
| 3:CD:127:ARG:H | 3:CD:127:ARG:CD | 2.28 | 0.45 |
| 1:CA:357:G:OP1 | 1:CA:367:U:H6 | 1.99 | 0.45 |
| 34:DM:85:GLY:O | 34:DM:86:LYS:O | 2.34 | 0.45 |
| 23:BB:570:G:O2' | 23:BB:571:U:H5' | 2.16 | 0.45 |
| 23:DB:786:C:H5'' | 23:DB:1780:A:N7 | 2.31 | 0.45 |
| 23:DB:383:C:H41 | 23:DB:385:C:H2' | 1.81 | 0.45 |
| 42:DU:48:VAL:C | 42:DU:50:ALA:N | 2.65 | 0.45 |
| 1:AA:109:A:H4' | 1:AA:110:C:OP2 | 2.16 | 0.45 |
| 20:AB:26:MET:HG2 | 20:AB:192:PRO:HG3 | 1.98 | 0.45 |
| 29:BG:57:TYR:CZ | 29:BG:59:ASP:HB2 | 2.52 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:DB:2182:U:H2' | 23:DB:2183:A:C8 | 2.52 | 0.45 |
| 36:BO:94:ARG:O | 36:BO:95:SER:C | 2.54 | 0.45 |
| 27:DE:10:SER:C | 27:DE:12:LEU:H | 2.19 | 0.45 |
| 23:DB:2746:U:O2' | 23:DB:2747:G:H5' | 2.16 | 0.45 |
| 1:CA:924:C:H2' | 1:CA:925:G:H8 | 1.82 | 0.45 |
| 1:CA:834:U:H2' | 1:CA:835:U:C6 | 2.50 | 0.45 |
| 23:DB:2477:U:H4' | 23:DB:2479:U:O4 | 2.16 | 0.45 |
| 23:BB:1940:U:H1' | 23:BB:1941:C:H5 | 1.81 | 0.45 |
| 2:AC:102:ILE:C | 2:AC:102:ILE:HD12 | 2.36 | 0.45 |
| 9:CJ:17:LEU:C | 9:CJ:17:LEU:HD13 | 2.35 | 0.45 |
| 23:DB:1678:A:O2' | 23:DB:1679:A:H5' | 2.16 | 0.45 |
| 32:DK:78:ARG:H | 37:DP:72:VAL:CG2 | 2.27 | 0.45 |
| 23:BB:1112:G:O2' | 29:BG:2:ARG:HG2 | 2.17 | 0.45 |
| 35:DN:48:VAL:O | 35:DN:51:LEU:HB2 | 2.15 | 0.45 |
| 25:DC:171:VAL:O | 25:DC:172:THR:HG23 | 2.17 | 0.45 |
| 33:BL:77:ILE:HG22 | 33:BL:78:ARG:N | 2.30 | 0.45 |
| 23:BB:2056:G:O2' | 47:B0:2:VAL:HG11 | 2.17 | 0.45 |
| 46:DZ:37:CYS:SG | 46:DZ:39:LYS:HB2 | 2.57 | 0.45 |
| 25:DC:178:GLY:C | 25:DC:179:GLU:HG2 | 2.35 | 0.45 |
| 36:DO:27:VAL:HG22 | 36:DO:38:GLN:O | 2.17 | 0.45 |
| 23:BB:1164:C:H2' | 23:BB:1165:A:H8 | 1.81 | 0.45 |
| 23:BB:528:A:N1 | 23:BB:2043:C:H5' | 2.31 | 0.45 |
| 23:BB:1133:A:H4' | 23:BB:1134:A:C5' | 2.46 | 0.45 |
| 31:BJ:31:GLU:O | 31:BJ:35:ARG:HB2 | 2.15 | 0.45 |
| 20:CB:95:TRP:CZ2 | 20:CB:100:LEU:HD13 | 2.50 | 0.45 |
| 10:AK:22:ILE:HD12 | 10:AK:85:VAL:HG22 | 1.98 | 0.45 |
| 30:DH:126:GLY:H | 30:DH:146:VAL:HB | 1.82 | 0.45 |
| 23:DB:630:G:H4' | 23:DB:640:C:O2' | 2.16 | 0.45 |
| 33:DL:77:ILE:HD13 | 33:DL:110:VAL:CA | 2.44 | 0.45 |
| 23:BB:125:A:H5' | 49:B2:19:ARG:HE | 1.81 | 0.45 |
| 26:BD:146:ILE:HG21 | 26:BD:159:LYS:NZ | 2.30 | 0.45 |
| 3:CD:54:LEU:O | 3:CD:58:GLN:HB2 | 2.17 | 0.45 |
| 23:DB:2038:G:H2' | 23:DB:2039:U:O4' | 2.17 | 0.45 |
| 26:BD:29:VAL:HA | 26:BD:185:ASN:CG | 2.37 | 0.45 |
| 52:BI:121:ILE:O | 52:BI:124:MET:HG2 | 2.16 | 0.45 |
| 38:DQ:88:GLU:OE2 | 39:DR:53:PHE:HB2 | 2.16 | 0.45 |
| 39:DR:4:VAL:O | 39:DR:41:ILE:HG21 | 2.16 | 0.45 |
| 5:AF:7:VAL:O | 5:AF:7:VAL:HG13 | 2.16 | 0.45 |
| 29:BG:75:VAL:HG23 | 29:BG:76:ILE:N | 2.31 | 0.45 |
| 42:BU:3:LYS:HD2 | 42:BU:81:ARG:HH22 | 1.81 | 0.45 |
| 23:BB:1915:U:H3' | 23:BB:1916:A:C8 | 2.50 | 0.45 |
| 11:AL:31:GLY:HA3 | 11:AL:54:VAL:CG1 | 2.46 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 23:BB:1184:U:H2' | 23:BB:1185:G:H8 | 1.81 | 0.45 |
| 3:AD:56:GLU:HG2 | 3:AD:198:LEU:HD12 | 1.97 | 0.45 |
| 41:DT:38:ALA:HB1 | 41:DT:43:ILE:CD1 | 2.42 | 0.45 |
| 1:AA:1430:A:H2' | 1:AA:1431:A:O4' | 2.17 | 0.45 |
| 9:CJ:8:ILE:HD11 | 9:CJ:74:VAL:HB | 1.98 | 0.45 |
| 16:CQ:10:ARG:CZ | 16:CQ:55:GLY:N | 2.79 | 0.45 |
| 36:DO:30:ARG:CG | 36:DO:31:THR:H | 2.28 | 0.45 |
| 4:CE:156:ARG:NH2 | 7:CH:100:ILE:HG23 | 2.32 | 0.45 |
| 2:CC:94:ALA:O | 2:CC:96:VAL:N | 2.50 | 0.45 |
| 14:CO:10:ILE:HG21 | 14:CO:30:LEU:CD2 | 2.45 | 0.45 |
| 42:DU:43:LYS:NZ | 42:DU:43:LYS:HB2 | 2.30 | 0.45 |
| 23:BB:1790:C:H2' | 23:BB:1791:A:C8 | 2.51 | 0.45 |
| 23:BB:764:A:N1 | 23:BB:1789:A:O2' | 2.47 | 0.45 |
| 22:DA:55:U:H2' | 22:DA:56:G:C8 | 2.51 | 0.45 |
| 23:DB:439:A:H2' | 23:DB:440:C:O4' | 2.16 | 0.45 |
| 23:BB:1803:A:H2 | 23:BB:1823:G:C1' | 2.29 | 0.45 |
| 1:AA:411:A:C5 | 1:AA:413:G:H1' | 2.51 | 0.45 |
| 1:AA:767:A:H2' | 1:AA:768:A:H8 | 1.81 | 0.45 |
| 23:DB:315:G:O2' | 23:DB:316:C:H5' | 2.16 | 0.45 |
| 23:DB:1979:U:C2' | 23:DB:1980:G:H5' | 2.45 | 0.45 |
| 1:AA:22:G:O2' | 1:AA:23:C:H5' | 2.17 | 0.45 |
| 23:DB:1353:A:H2' | 23:DB:1354:A:C8 | 2.50 | 0.45 |
| 32:DK:87:LEU:HD22 | 32:DK:92:GLU:O | 2.17 | 0.45 |
| 1:CA:720:C:O4' | 17:CR:38:ILE:HG12 | 2.16 | 0.45 |
| 23:DB:1683:U:H2' | 23:DB:1684:G:C8 | 2.51 | 0.45 |
| 23:BB:2276:G:OP2 | 34:BM:83:GLY:HA3 | 2.16 | 0.45 |
| 29:DG:55:ASP:CG | 29:DG:56:GLY:N | 2.69 | 0.45 |
| 25:DC:235:GLU:CG | 25:DC:237:ARG:HD3 | 2.46 | 0.45 |
| 23:DB:1910:G:O2' | 23:DB:1911:U:H5' | 2.16 | 0.45 |
| 40:DS:87:PRO:O | 40:DS:88:ARG:CB | 2.64 | 0.45 |
| 29:BG:104:LEU:HD12 | 29:BG:104:LEU:N | 2.31 | 0.45 |
| 18:AS:11:ASP:HB2 | 18:AS:14:LEU:CD2 | 2.47 | 0.45 |
| 6:CG:41:ILE:HD13 | 6:CG:115:MET:HG3 | 1.97 | 0.45 |
| 1:AA:336:A:O2' | 1:AA:337:G:H5' | 2.15 | 0.45 |
| 23:BB:1760:C:H2' | 23:BB:1761:C:O4' | 2.16 | 0.45 |
| 6:AG:11:ILE:HD12 | 6:AG:11:ILE:H | 1.80 | 0.45 |
| 23:DB:264:C:H2' | 23:DB:265:A:H5'' | 1.98 | 0.45 |
| 7:CH:45:ILE:CD1 | 7:CH:60:LEU:HD11 | 2.46 | 0.45 |
| 23:BB:1541:C:H2' | 23:BB:1542:U:O4' | 2.16 | 0.45 |
| 2:CC:76:ILE:HA | 2:CC:83:VAL:CG2 | 2.46 | 0.45 |
| 23:DB:692:C:H2' | 23:DB:693:A:H8 | 1.80 | 0.45 |
| 23:DB:257:C:H2' | 23:DB:258:G:O4' | 2.17 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 9:CJ:17:LEU:HD22 | 9:CJ:17:LEU:O | 2.16 | 0.45 |
| 7:AH:104:SER:O | 7:AH:122:GLY:HA3 | 2.16 | 0.45 |
| 1:AA:1473:G:H2' | 1:AA:1474:U:O4' | 2.16 | 0.45 |
| 7:AH:75:GLN:O | 7:AH:126:CYS:HB2 | 2.17 | 0.45 |
| 23:BB:1597:A:H5'' | 23:BB:1598:A:H5' | 1.97 | 0.45 |
| 23:DB:1704:C:O2' | 23:DB:1705:A:H5' | 2.16 | 0.45 |
| 1:CA:744:C:H2' | 1:CA:745:G:C8 | 2.50 | 0.45 |
| 2:CC:38:VAL:O | 2:CC:42:LEU:HD23 | 2.17 | 0.45 |
| 2:AC:70:ALA:HB2 | 2:AC:108:PRO:HB3 | 1.99 | 0.45 |
| 1:AA:880:C:H2' | 1:AA:881:G:H8 | 1.81 | 0.45 |
| 26:BD:184:ARG:HG3 | 26:BD:184:ARG:O | 2.16 | 0.45 |
| 30:DH:109:GLU:O | 30:DH:109:GLU:HG3 | 2.16 | 0.45 |
| 3:AD:64:TYR:H | 3:AD:64:TYR:HD1 | 1.64 | 0.45 |
| 15:AP:45:GLU:HG2 | 15:AP:45:GLU:O | 2.16 | 0.45 |
| 3:CD:47:LEU:HD11 | 3:CD:52:VAL:N | 2.31 | 0.45 |
| 23:DB:1099:G:C4' | 52:DI:4:VAL:HB | 2.43 | 0.45 |
| 37:BP:60:VAL:HB | 37:BP:61:ARG:H | 1.46 | 0.45 |
| 23:BB:1818:U:H2' | 25:BC:152:GLN:O | 2.17 | 0.45 |
| 25:BC:140:VAL:HA | 25:BC:191:LEU:HA | 1.98 | 0.45 |
| 25:BC:66:PHE:O | 25:BC:67:LYS:C | 2.55 | 0.45 |
| 25:BC:68:ARG:HD2 | 25:BC:127:ASN:ND2 | 2.27 | 0.45 |
| 23:DB:2830:C:O2' | 23:DB:2831:G:H5' | 2.17 | 0.45 |
| 31:BJ:25:LEU:HD13 | 31:BJ:25:LEU:H | 1.81 | 0.45 |
| 31:BJ:25:LEU:CD1 | 31:BJ:62:VAL:HA | 2.41 | 0.45 |
| 43:BW:58:LEU:HA | 43:BW:79:ILE:HG22 | 1.98 | 0.45 |
| 23:DB:992:C:H4' | 38:DQ:46:TYR:HH | 1.81 | 0.45 |
| 38:DQ:52:ARG:HG2 | 38:DQ:53:LYS:CE | 2.46 | 0.45 |
| 18:AS:43:MET:O | 18:AS:46:LEU:HB2 | 2.16 | 0.45 |
| 30:BH:1:MET:C | 30:BH:21:VAL:HG12 | 2.37 | 0.45 |
| 50:B3:12:ARG:CZ | 50:B3:12:ARG:HB2 | 2.41 | 0.45 |
| 50:B3:16:THR:HG21 | 50:B3:22:LYS:NZ | 2.32 | 0.45 |
| 34:BM:8:LYS:NZ | 34:BM:70:ASP:H | 2.10 | 0.45 |
| 24:BV:44:HIS:O | 24:BV:48:MET:HB3 | 2.16 | 0.45 |
| 23:DB:137:U:O2' | 23:DB:138:U:H5' | 2.16 | 0.45 |
| 36:DO:25:ARG:HG2 | 36:DO:94:ARG:NH2 | 2.27 | 0.45 |
| 41:DT:68:LYS:HZ3 | 41:DT:68:LYS:HB2 | 1.79 | 0.45 |
| 23:BB:492:A:H2' | 23:BB:493:G:O4' | 2.16 | 0.45 |
| 40:BS:102:HIS:O | 40:BS:103:ILE:HB | 2.15 | 0.45 |
| 45:BY:29:ARG:O | 45:BY:30:ARG:HB2 | 2.17 | 0.45 |
| 40:DS:46:LEU:CA | 40:DS:49:LYS:HB2 | 2.32 | 0.45 |
| 41:DT:30:ILE:O | 41:DT:85:VAL:HG22 | 2.17 | 0.45 |
| 35:BN:86:ARG:NH2 | 35:BN:116:VAL:HG11 | 2.31 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 1:CA:1000:A:O2' | 1:CA:1001:C:H5' | 2.16 | 0.45 |
| 1:CA:1004:A:N7 | 1:CA:1025:U:O2' | 2.48 | 0.45 |
| 31:BJ:50:THR:OG1 | 31:BJ:51:GLY:N | 2.49 | 0.45 |
| 23:BB:997:G:C5' | 38:BQ:91:ARG:HG3 | 2.47 | 0.45 |
| 12:AM:47:LEU:HB3 | 12:AM:51:GLN:HB2 | 1.97 | 0.45 |
| 40:BS:69:LEU:HA | 40:BS:108:SER:O | 2.16 | 0.45 |
| 23:BB:2261:C:O2' | 23:BB:2262:U:H5' | 2.15 | 0.45 |
| 27:BE:146:VAL:HG23 | 27:BE:148:ILE:CG2 | 2.46 | 0.45 |
| 27:BE:6:LYS:HB2 | 27:BE:12:LEU:CD1 | 2.46 | 0.45 |
| 51:B4:7:VAL:HG12 | 51:B4:8:LYS:N | 2.25 | 0.45 |
| 30:DH:92:GLY:O | 30:DH:93:SER:HB3 | 2.16 | 0.45 |
| 1:CA:1013:G:N2 | 1:CA:1015:G:H3' | 2.32 | 0.45 |
| 41:BT:57:VAL:O | 41:BT:85:VAL:HA | 2.16 | 0.45 |
| 23:BB:2512:C:O2' | 26:BD:146:ILE:HG12 | 2.15 | 0.45 |
| 27:DE:4:VAL:HA | 27:DE:14:VAL:CG1 | 2.46 | 0.45 |
| 1:AA:1206:G:H4' | 2:AC:192:TYR:HA | 1.98 | 0.45 |
| 23:DB:780:G:OP1 | 25:DC:216:ARG:NH2 | 2.49 | 0.45 |
| 45:DY:6:ILE:O | 45:DY:6:ILE:HG13 | 2.16 | 0.45 |
| 1:AA:1490:U:H5' | 1:AA:1491:G:OP2 | 2.16 | 0.45 |
| 1:CA:1308:U:OP2 | 12:CM:97:ARG:HD3 | 2.16 | 0.45 |
| 4:CE:131:ASN:C | 4:CE:135:VAL:HG23 | 2.35 | 0.45 |
| 8:CI:56:MET:HA | 8:CI:59:LYS:HB2 | 1.98 | 0.45 |
| 28:DF:108:PRO:O | 28:DF:109:ARG:HB2 | 2.17 | 0.45 |
| 35:BN:9:GLN:NE2 | 35:BN:17:ARG:NH2 | 2.65 | 0.45 |
| 28:DF:70:ARG:HA | 28:DF:80:GLN:NE2 | 2.20 | 0.45 |
| 52:DI:96:LYS:HD3 | 52:DI:138:VAL:HG21 | 1.96 | 0.45 |
| 29:DG:171:LYS:HB2 | 29:DG:172:GLU:H | 1.61 | 0.45 |
| 20:CB:209:VAL:HG23 | 20:CB:210:THR:N | 2.31 | 0.45 |
| 36:BO:31:THR:HG21 | 36:BO:36:TYR:HE1 | 1.82 | 0.45 |
| 23:BB:2800:A:C4 | 23:BB:2801:G:H1' | 2.51 | 0.45 |
| 25:DC:19:VAL:CG1 | 25:DC:20:ASN:N | 2.80 | 0.45 |
| 23:BB:28:A:H1' | 23:BB:513:A:C2 | 2.52 | 0.45 |
| 24:DV:93:ARG:HG2 | 24:DV:94:ALA:H | 1.82 | 0.45 |
| 16:CQ:74:LEU:HD22 | 16:CQ:75:VAL:H | 1.82 | 0.45 |
| 23:DB:2103:C:H3' | 23:DB:2104:C:C2 | 2.51 | 0.45 |
| 1:CA:1187:G:H2' | 1:CA:1188:A:O4' | 2.16 | 0.45 |
| 20:CB:60:ALA:HB2 | 20:CB:66:ILE:HD11 | 1.98 | 0.45 |
| 35:DN:16:HIS:O | 35:DN:20:MET:N | 2.41 | 0.45 |
| 1:CA:977:A:H8 | 1:CA:1223:C:N3 | 2.15 | 0.45 |
| 23:DB:2465:C:O2' | 23:DB:2466:C:H5' | 2.17 | 0.45 |
| 28:BF:33:ILE:HG22 | 28:BF:155:ILE:HA | 1.98 | 0.45 |
| 19:CT:19:HIS:CE1 | 19:CT:23:ARG:HG3 | 2.51 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 17:AR:62:ARG:HD3 | 17:AR:69:TYR:HA | 1.99 | 0.45 |
| 23:DB:1601:G:O2' | 23:DB:1602:U:H5' | 2.16 | 0.45 |
| 23:DB:522:A:H2' | 23:DB:523:C:H6 | 1.80 | 0.45 |
| 23:DB:2147:A:C2' | 23:DB:2147:A:N3 | 2.78 | 0.45 |
| 22:DA:12:C:H4' | 22:DA:15:A:N6 | 2.32 | 0.45 |
| 22:DA:63:C:H2' | 22:DA:64:G:C8 | 2.51 | 0.45 |
| 3:CD:30:LYS:HD3 | 3:CD:30:LYS:N | 2.31 | 0.45 |
| 46:DZ:25:ARG:CG | 46:DZ:26:SER:H | 2.22 | 0.45 |
| 12:CM:79:LEU:HB2 | 12:CM:84:CYS:SG | 2.57 | 0.45 |
| 1:CA:1124:G:H5' | 9:CJ:37:ARG:HH21 | 1.81 | 0.45 |
| 9:CJ:36:VAL:HG22 | 9:CJ:76:ILE:HD13 | 1.98 | 0.45 |
| 1:CA:1054:C:O2' | 1:CA:1055:A:H5'' | 2.17 | 0.45 |
| 28:BF:15:LEU:HD13 | 28:BF:28:PRO:CG | 2.45 | 0.45 |
| 1:AA:167:A:H2' | 1:AA:168:G:H8 | 1.81 | 0.45 |
| 15:CP:32:PHE:CD1 | 15:CP:32:PHE:C | 2.90 | 0.45 |
| 1:CA:167:A:H2' | 1:CA:168:G:H8 | 1.81 | 0.45 |
| 40:DS:85:ILE:HG12 | 40:DS:94:ASP:O | 2.16 | 0.45 |
| 23:DB:345:A:N3 | 23:DB:346:A:N1 | 2.64 | 0.45 |
| 2:CC:99:GLN:O | 2:CC:100:ILE:HB | 2.16 | 0.45 |
| 1:AA:299:G:H2' | 1:AA:300:A:C8 | 2.51 | 0.45 |
| 1:CA:299:G:H2' | 1:CA:300:A:C8 | 2.51 | 0.45 |
| 29:DG:131:VAL:O | 29:DG:131:VAL:HG13 | 2.15 | 0.45 |
| 23:DB:1708:C:H2' | 23:DB:1709:U:H6 | 1.82 | 0.45 |
| 23:DB:2772:C:H2' | 23:DB:2773:C:H6 | 1.81 | 0.45 |
| 23:BB:1289:C:H2' | 23:BB:1290:C:C6 | 2.51 | 0.45 |
| 23:DB:1289:C:H2' | 23:DB:1290:C:C6 | 2.51 | 0.45 |
| 1:CA:393:A:H5' | 1:CA:483:C:O2' | 2.15 | 0.45 |
| 23:DB:265:A:O2' | 23:DB:266:G:H4' | 2.17 | 0.45 |
| 23:DB:1047:G:H1' | 23:DB:1110:G:N2 | 2.32 | 0.45 |
| 52:DI:9:LYS:HG2 | 52:DI:57:VAL:HG13 | 1.98 | 0.45 |
| 23:DB:1313:U:O2 | 23:DB:1313:U:C2' | 2.64 | 0.45 |
| 23:DB:1322:A:H2' | 23:DB:1323:C:H5' | 1.98 | 0.45 |
| 23:DB:2207:C:H2' | 23:DB:2208:C:H6 | 1.82 | 0.45 |
| 23:BB:1720:U:C2' | 23:BB:1721:G:H5' | 2.46 | 0.45 |
| 25:BC:198:GLU:C | 25:BC:200:MET:H | 2.18 | 0.45 |
| 1:CA:1456:A:H2' | 1:CA:1457:G:H8 | 1.81 | 0.45 |
| 23:DB:709:U:H2' | 23:DB:710:U:C6 | 2.51 | 0.45 |
| 17:CR:61:ALA:HB3 | 17:CR:67:LEU:HD12 | 1.98 | 0.45 |
| 1:CA:7:A:H2 | 4:CE:125:LYS:HE2 | 1.82 | 0.45 |
| 10:CK:126:ARG:HG2 | 10:CK:126:ARG:HH11 | 1.80 | 0.45 |
| 12:AM:102:LYS:NZ | 12:AM:102:LYS:HB2 | 2.31 | 0.45 |
| 23:DB:1668:A:N3 | 23:DB:1670:C:C4 | 2.84 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:DB:1099:G:H5'' | 52:DI:2:LYS:HB2 | 1.98 | 0.45 |
| 26:BD:12:THR:HB | 26:BD:21:SER:O | 2.15 | 0.45 |
| 43:DW:36:ILE:HG21 | 43:DW:68:PHE:HE1 | 1.79 | 0.45 |
| 25:BC:136:VAL:HA | 25:BC:165:ALA:HA | 1.99 | 0.45 |
| 25:BC:161:VAL:H | 25:BC:193:GLU:CD | 2.20 | 0.45 |
| 30:DH:4:ILE:HD11 | 30:DH:37:VAL:O | 2.17 | 0.45 |
| 35:DN:96:ARG:NH1 | 35:DN:98:LEU:HD21 | 2.31 | 0.45 |
| 25:DC:152:GLN:HB3 | 25:DC:153:LEU:H | 1.62 | 0.45 |
| 31:BJ:120:ARG:O | 31:BJ:122:LEU:N | 2.42 | 0.45 |
| 31:BJ:59:ALA:C | 31:BJ:61:LYS:H | 2.20 | 0.45 |
| 23:BB:2363:G:O2' | 23:BB:2364:C:H5' | 2.17 | 0.45 |
| 23:DB:534:U:H5' | 38:DQ:41:ALA:CA | 2.43 | 0.45 |
| 39:DR:76:LYS:HB3 | 39:DR:90:ARG:HG2 | 1.96 | 0.45 |
| 30:BH:50:ARG:HG2 | 30:BH:50:ARG:O | 2.15 | 0.45 |
| 33:DL:50:PHE:O | 33:DL:52:GLY:N | 2.49 | 0.45 |
| 50:B3:26:ALA:HB3 | 50:B3:29:ARG:CZ | 2.46 | 0.45 |
| 33:BL:82:LEU:HG | 33:BL:122:VAL:HG12 | 1.99 | 0.45 |
| 39:DR:99:THR:HG23 | 39:DR:100:GLY:H | 1.80 | 0.45 |
| 39:BR:53:PHE:HD2 | 39:BR:55:ASP:H | 1.59 | 0.45 |
| 31:DJ:85:LYS:NZ | 31:DJ:86:GLN:O | 2.49 | 0.45 |
| 27:BE:194:LYS:HE3 | 27:BE:201:ALA:HB2 | 1.98 | 0.45 |
| 3:CD:141:VAL:HG12 | 3:CD:180:THR:CA | 2.45 | 0.45 |
| 10:AK:112:VAL:HA | 17:AR:72:ARG:HD3 | 1.99 | 0.45 |
| 21:CU:23:GLU:HA | 21:CU:27:VAL:HG21 | 1.98 | 0.45 |
| 26:BD:115:GLY:HA2 | 26:BD:165:MET:CG | 2.35 | 0.45 |
| 20:AB:72:LYS:NZ | 20:AB:167:HIS:HB2 | 2.32 | 0.45 |
| 40:DS:22:ASP:C | 40:DS:24:ILE:H | 2.20 | 0.45 |
| 23:DB:1259:G:O2' | 23:DB:1260:A:H5' | 2.17 | 0.45 |
| 23:DB:359:G:C2' | 23:DB:360:U:H5' | 2.46 | 0.45 |
| 25:DC:227:VAL:HG13 | 25:DC:228:ASP:OD1 | 2.17 | 0.45 |
| 20:AB:204:ASP:CG | 20:AB:205:ALA:N | 2.70 | 0.45 |
| 23:BB:1060:U:C4 | 52:BI:131:THR:HG22 | 2.51 | 0.45 |
| 1:CA:1309:G:C5' | 12:CM:76:ILE:HG12 | 2.46 | 0.45 |
| 48:B1:41:VAL:HB | 48:B1:43:ARG:NH2 | 2.31 | 0.45 |
| 1:AA:836:G:H2' | 1:AA:837:U:C6 | 2.52 | 0.45 |
| 29:BG:25:ILE:HD11 | 29:BG:75:VAL:HG12 | 1.97 | 0.45 |
| 20:AB:96:LEU:HD21 | 20:AB:146:SER:HB2 | 1.98 | 0.45 |
| 21:CU:39:LYS:N | 21:CU:40:PRO:HD2 | 2.21 | 0.45 |
| 14:AO:78:THR:HA | 14:AO:81:ILE:CD1 | 2.46 | 0.45 |
| 40:BS:88:ARG:HB3 | 40:BS:89:ALA:H | 1.57 | 0.45 |
| 5:CF:100:SER:N | 17:CR:23:LYS:NZ | 2.63 | 0.45 |
| 46:BZ:19:GLY:O | 46:BZ:20:ASN:HB2 | 2.16 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 47:B0:54:ILE:O | 47:B0:54:ILE:HG13 | 2.17 | 0.45 |
| 23:BB:327:G:O2' | 23:BB:328:U:H5' | 2.16 | 0.45 |
| 1:CA:812:G:C2' | 1:CA:812:G:N3 | 2.77 | 0.45 |
| 23:BB:48:G:H4' | 23:BB:52:A:O4' | 2.16 | 0.45 |
| 23:BB:2301:C:O2' | 23:BB:2302:U:H5' | 2.17 | 0.45 |
| 36:DO:30:ARG:O | 36:DO:31:THR:HB | 2.16 | 0.45 |
| 29:BG:51:PHE:H | 29:BG:68:ARG:HD3 | 1.80 | 0.45 |
| 33:DL:55:MET:SD | 33:DL:56:PRO:HG3 | 2.56 | 0.45 |
| 16:CQ:46:HIS:CG | 16:CQ:47:ASP:H | 2.33 | 0.45 |
| 2:AC:186:SER:O | 2:AC:197:VAL:HG12 | 2.16 | 0.45 |
| 23:DB:1553:A:O2' | 23:DB:1554:U:H2' | 2.16 | 0.45 |
| 35:BN:99:LYS:HZ2 | 35:BN:99:LYS:HB3 | 1.77 | 0.45 |
| 23:DB:1408:G:H2' | 23:DB:1409:U:H6 | 1.80 | 0.45 |
| 23:DB:2529:G:H4' | 29:DG:175:LYS:HD3 | 1.98 | 0.45 |
| 1:AA:962:C:H2' | 1:AA:963:G:O4' | 2.17 | 0.45 |
| 19:CT:34:VAL:CG1 | 19:CT:78:LEU:HD22 | 2.47 | 0.45 |
| 27:DE:23:PHE:CG | 27:DE:24:ASN:N | 2.85 | 0.45 |
| 4:AE:81:GLN:NE2 | 4:AE:147:ASN:N | 2.65 | 0.45 |
| 15:AP:71:VAL:HA | 15:AP:74:LEU:CG | 2.45 | 0.45 |
| 23:BB:2038:G:H2' | 23:BB:2039:U:H6 | 1.82 | 0.45 |
| 23:BB:2038:G:H2' | 23:BB:2039:U:O4' | 2.17 | 0.45 |
| 25:BC:260:LYS:C | 25:BC:262:THR:N | 2.70 | 0.45 |
| 39:BR:20:VAL:HG22 | 39:BR:97:LYS:HZ1 | 1.81 | 0.45 |
| 23:BB:2556:C:O2' | 23:BB:2557:G:H5' | 2.17 | 0.45 |
| 1:AA:1074:G:H5' | 20:AB:104:LYS:HZ1 | 1.79 | 0.45 |
| 11:CL:36:VAL:HG12 | 11:CL:52:CYS:HB2 | 1.96 | 0.45 |
| 15:AP:29:ASN:N | 15:AP:29:ASN:ND2 | 2.63 | 0.45 |
| 23:DB:2276:G:OP1 | 34:DM:82:MET:SD | 2.75 | 0.45 |
| 23:DB:2243:U:O2 | 23:DB:2434:A:C2 | 2.69 | 0.45 |
| 23:BB:6:A:H5'' | 31:BJ:133:ALA:O | 2.17 | 0.45 |
| 36:BO:97:PHE:O | 36:BO:98:GLN:HG2 | 2.16 | 0.45 |
| 10:CK:60:PHE:O | 10:CK:64:VAL:HG13 | 2.15 | 0.45 |
| 1:AA:1258:G:C4 | 1:AA:1278:G:N2 | 2.84 | 0.45 |
| 22:BA:29:A:H3' | 22:BA:30:C:C6 | 2.49 | 0.45 |
| 35:DN:52:ILE:HD11 | 35:DN:83:LEU:HD21 | 1.99 | 0.45 |
| 1:CA:525:C:H2' | 1:CA:526:C:C6 | 2.51 | 0.45 |
| 3:AD:163:GLN:N | 3:AD:163:GLN:OE1 | 2.50 | 0.45 |
| 23:BB:189:G:H2' | 23:BB:205:G:H22 | 1.81 | 0.45 |
| 20:CB:132:GLU:HA | 20:CB:135:MET:CE | 2.47 | 0.45 |
| 23:DB:817:C:O2' | 23:DB:839:U:H5'' | 2.17 | 0.45 |
| 1:CA:328:C:H4' | 1:CA:329:A:H5'' | 1.98 | 0.45 |
| 31:BJ:52:ASP:CG | 31:BJ:53:TYR:H | 2.19 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:BB:1665:A:O2' | 23:BB:1666:G:H5' | 2.15 | 0.45 |
| 39:BR:14:VAL:HG12 | 39:BR:15:SER:N | 2.32 | 0.45 |
| 7:AH:48:PHE:HB2 | 7:AH:60:LEU:HD12 | 1.99 | 0.45 |
| 23:BB:407:G:O2' | 23:BB:408:G:H5' | 2.16 | 0.45 |
| 1:AA:708:C:H2' | 1:AA:709:U:H6 | 1.79 | 0.45 |
| 22:BA:64:G:O2' | 22:BA:65:U:H5' | 2.17 | 0.45 |
| 38:BQ:12:ARG:HH11 | 38:BQ:12:ARG:HG2 | 1.82 | 0.45 |
| 23:BB:760:G:H4' | 23:BB:1776:G:OP1 | 2.16 | 0.45 |
| 23:DB:2714:G:H2' | 23:DB:2715:C:C6 | 2.51 | 0.45 |
| 1:AA:744:C:H2' | 1:AA:745:G:C8 | 2.50 | 0.45 |
| 1:CA:29:U:H5' | 1:CA:296:U:OP1 | 2.17 | 0.45 |
| 27:DE:114:ARG:HG3 | 27:DE:114:ARG:NH1 | 2.32 | 0.45 |
| 21:AU:43:GLU:HA | 21:AU:43:GLU:OE1 | 2.15 | 0.45 |
| 23:DB:2223:G:O2' | 23:DB:2224:G:H5' | 2.16 | 0.45 |
| 40:DS:81:SER:HB2 | 40:DS:99:ARG:H | 1.81 | 0.45 |
| 23:DB:1098:A:C3' | 52:DI:3:LYS:CA | 2.69 | 0.45 |
| 37:DP:26:GLU:CD | 37:DP:46:VAL:HG13 | 2.37 | 0.45 |
| 23:BB:2751:G:OP2 | 29:BG:3:VAL:HG13 | 2.16 | 0.45 |
| 1:CA:975:A:H2' | 1:CA:976:G:OP2 | 2.17 | 0.45 |
| 23:DB:2363:G:O2' | 23:DB:2364:C:H5' | 2.16 | 0.45 |
| 43:DW:47:GLY:HA2 | 43:DW:71:LYS:O | 2.16 | 0.45 |
| 23:BB:773:U:H4' | 25:BC:47:ARG:CA | 2.47 | 0.45 |
| 25:BC:163:ILE:HG22 | 25:BC:172:THR:HG21 | 1.98 | 0.45 |
| 47:D0:43:THR:O | 47:D0:44:ALA:HB3 | 2.16 | 0.45 |
| 23:BB:2780:G:C2 | 31:BJ:120:ARG:HG3 | 2.51 | 0.45 |
| 39:DR:89:HIS:O | 39:DR:90:ARG:CG | 2.57 | 0.45 |
| 1:AA:1014:A:OP2 | 18:AS:17:LYS:NZ | 2.45 | 0.45 |
| 23:DB:324:A:H61 | 23:DB:338:G:C2' | 2.30 | 0.45 |
| 33:BL:120:VAL:CG1 | 33:BL:138:ALA:HB3 | 2.47 | 0.45 |
| 46:BZ:50:ASP:O | 46:BZ:53:THR:HG22 | 2.16 | 0.45 |
| 23:BB:1450:G:N2 | 23:BB:1452:G:H1 | 1.95 | 0.45 |
| 8:AI:46:VAL:HB | 8:AI:79:ARG:HD3 | 1.97 | 0.45 |
| 35:BN:32:GLU:O | 35:BN:114:GLU:HA | 2.17 | 0.45 |
| 20:CB:95:TRP:HZ2 | 20:CB:100:LEU:HD13 | 1.81 | 0.45 |
| 40:BS:29:VAL:C | 40:BS:31:GLN:N | 2.69 | 0.45 |
| 23:DB:1199:U:C2 | 23:DB:1200:C:C6 | 3.05 | 0.45 |
| 18:AS:4:LEU:O | 18:AS:6:LYS:N | 2.49 | 0.45 |
| 30:DH:122:LEU:CD1 | 30:DH:146:VAL:HG22 | 2.41 | 0.45 |
| 13:CN:14:ALA:HA | 13:CN:17:ASP:OD2 | 2.16 | 0.45 |
| 33:DL:78:ARG:HA | 33:DL:113:ALA:HB2 | 1.97 | 0.45 |
| 23:BB:137:U:O5' | 23:BB:137:U:H6 | 1.99 | 0.45 |
| 41:BT:15:HIS:CB | 41:BT:31:VAL:HG21 | 2.46 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 44:BX:22:LEU:HA | 44:BX:47:ARG:NH2 | 2.32 | 0.45 |
| 23:BB:2722:G:H2' | 23:BB:2723:C:H6 | 1.82 | 0.45 |
| 26:BD:165:MET:HG3 | 26:BD:166:GLY:N | 2.32 | 0.45 |
| 20:AB:9:LEU:CD2 | 20:AB:11:ALA:H | 2.17 | 0.45 |
| 28:DF:35:LEU:HD23 | 28:DF:153:ILE:HG12 | 1.99 | 0.45 |
| 45:DY:6:ILE:HD11 | 45:DY:35:VAL:CB | 2.47 | 0.45 |
| 23:DB:2684:U:H4' | 32:DK:76:VAL:CG2 | 2.43 | 0.45 |
| 26:DD:23:PRO:HB3 | 26:DD:188:LEU:HG | 1.97 | 0.45 |
| 5:AF:1:MET:HB3 | 5:AF:65:GLU:O | 2.16 | 0.45 |
| 48:B1:42:VAL:CG1 | 48:B1:43:ARG:HE | 2.28 | 0.45 |
| 42:BU:3:LYS:HD2 | 42:BU:81:ARG:NH2 | 2.31 | 0.45 |
| 4:CE:36:THR:CG2 | 4:CE:37:VAL:H | 2.25 | 0.45 |
| 12:AM:21:ILE:HG22 | 12:AM:64:VAL:CG1 | 2.44 | 0.45 |
| 2:AC:112:ALA:HB1 | 2:AC:199:VAL:HG23 | 1.99 | 0.45 |
| 23:DB:2886:A:C2 | 23:DB:2887:A:N7 | 2.85 | 0.45 |
| 1:CA:950:U:H2' | 1:CA:951:G:H8 | 1.82 | 0.45 |
| 9:CJ:40:ILE:CD1 | 9:CJ:73:LEU:HB3 | 2.46 | 0.45 |
| 23:DB:1790:C:H2' | 23:DB:1791:A:C8 | 2.52 | 0.45 |
| 11:CL:72:ASN:ND2 | 11:CL:73:LEU:H | 2.15 | 0.45 |
| 23:DB:544:C:O2' | 23:DB:545:U:O4' | 2.34 | 0.45 |
| 1:CA:1060:U:C5' | 9:CJ:53:ILE:HG12 | 2.46 | 0.45 |
| 23:BB:1410:G:H2' | 23:BB:1411:U:H6 | 1.77 | 0.45 |
| 22:DA:57:A:H2 | 28:DF:29:ARG:HH22 | 1.61 | 0.45 |
| 39:BR:66:HIS:CA | 39:BR:98:ILE:HD13 | 2.45 | 0.45 |
| 22:DA:66:A:O2' | 22:DA:67:G:C5' | 2.61 | 0.45 |
| 23:BB:215:G:O4' | 23:BB:216:A:H4' | 2.17 | 0.45 |
| 22:BA:18:G:H2' | 22:BA:19:C:C6 | 2.52 | 0.45 |
| 15:AP:7:ALA:HB1 | 15:AP:29:ASN:CB | 2.47 | 0.45 |
| 34:DM:81:ARG:HB2 | 34:DM:81:ARG:NH1 | 2.32 | 0.45 |
| 23:BB:1885:A:H3' | 23:BB:1886:U:C6 | 2.51 | 0.45 |
| 5:CF:22:ILE:O | 5:CF:26:THR:HG23 | 2.16 | 0.45 |
| 23:DB:38:A:H1' | 27:DE:43:THR:O | 2.17 | 0.45 |
| 23:BB:364:C:O2' | 23:BB:365:U:H5' | 2.16 | 0.45 |
| 1:CA:12:U:H4' | 1:CA:526:C:H4' | 1.98 | 0.45 |
| 23:BB:2187:U:H2' | 23:BB:2187:U:O2 | 2.16 | 0.45 |
| 23:DB:2340:A:H2' | 23:DB:2341:G:H8 | 1.81 | 0.45 |
| 41:BT:25:GLU:CG | 41:BT:26:LYS:N | 2.79 | 0.45 |
| 23:BB:1708:C:H2' | 23:BB:1709:U:H6 | 1.81 | 0.45 |
| 6:AG:71:THR:HA | 6:AG:90:VAL:HG22 | 1.99 | 0.45 |
| 1:CA:1065:U:H1' | 1:CA:1066:C:OP2 | 2.17 | 0.45 |
| 3:AD:98:ASP:CG | 3:AD:132:ALA:HB1 | 2.36 | 0.45 |
| 23:BB:1125:G:H3' | 23:BB:1126:A:H5'' | 1.98 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 1:CA:613:C:H2' | 1:CA:614:C:H6 | 1.82 | 0.45 |
| 7:CH:17:GLN:HG3 | 7:CH:71:VAL:HG21 | 1.99 | 0.45 |
| 1:CA:564:C:C5 | 16:CQ:32:ILE:HD11 | 2.52 | 0.45 |
| 23:BB:539:G:H2' | 23:BB:540:C:H6 | 1.81 | 0.45 |
| 23:BB:2710:C:H2' | 23:BB:2711:A:H8 | 1.80 | 0.45 |
| 1:AA:1410:A:H2' | 1:AA:1411:C:H6 | 1.79 | 0.45 |
| 23:DB:2835:A:H61 | 23:DB:2878:U:H2' | 1.80 | 0.45 |
| 52:DI:53:PRO:HG2 | 52:DI:77:VAL:HG11 | 1.98 | 0.45 |
| 1:CA:1425:U:H2' | 1:CA:1426:G:H8 | 1.82 | 0.45 |
| 1:AA:29:U:O2' | 1:AA:30:U:H5' | 2.17 | 0.45 |
| 4:CE:125:LYS:HE3 | 4:CE:127:TYR:CE1 | 2.52 | 0.45 |
| 1:AA:972:C:H4' | 9:AJ:59:LYS:HB3 | 1.99 | 0.45 |
| 1:AA:1113:C:H2' | 1:AA:1114:C:H6 | 1.82 | 0.45 |
| 1:CA:820:U:H4' | 1:CA:821:G:OP2 | 2.16 | 0.45 |
| 1:AA:718:A:H5' | 10:AK:118:ASN:HB2 | 1.97 | 0.45 |
| 44:BX:16:THR:O | 44:BX:20:ASN:HB2 | 2.17 | 0.45 |
| 1:AA:1197:A:P | 1:AA:1197:A:H3' | 2.57 | 0.45 |
| 1:CA:880:C:H2' | 1:CA:881:G:H8 | 1.81 | 0.45 |
| 37:DP:83:ILE:H | 37:DP:83:ILE:HG13 | 1.51 | 0.45 |
| 30:BH:94:ILE:HA | 30:BH:98:ASP:OD2 | 2.17 | 0.45 |
| 23:BB:37:C:C2' | 27:BE:46:GLN:CG | 2.77 | 0.45 |
| 23:DB:2259:U:C6 | 23:DB:2427:C:C5 | 3.05 | 0.45 |
| 36:DO:18:LEU:CD1 | 43:DW:76:ARG:HH21 | 2.29 | 0.45 |
| 25:BC:140:VAL:CG1 | 25:BC:163:ILE:HD11 | 2.46 | 0.45 |
| 25:DC:163:ILE:HG22 | 25:DC:164:VAL:N | 2.32 | 0.45 |
| 25:DC:63:ILE:CG2 | 25:DC:64:VAL:N | 2.79 | 0.45 |
| 31:BJ:93:ILE:CD1 | 31:BJ:100:VAL:HG11 | 2.46 | 0.45 |
| 39:DR:76:LYS:HA | 39:DR:91:GLN:N | 2.31 | 0.45 |
| 23:BB:340:A:H2' | 23:BB:341:C:C5' | 2.47 | 0.45 |
| 27:DE:149:ILE:HD11 | 27:DE:187:VAL:N | 2.31 | 0.45 |
| 33:BL:122:VAL:HG23 | 33:BL:140:GLY:O | 2.16 | 0.45 |
| 33:BL:60:ARG:HD2 | 50:B3:7:ARG:CZ | 2.47 | 0.45 |
| 38:BQ:33:VAL:CG1 | 38:BQ:34:ALA:H | 2.14 | 0.45 |
| 23:DB:1796:U:O3' | 25:DC:251:THR:HA | 2.16 | 0.45 |
| 42:BU:44:HIS:HB2 | 42:BU:56:GLY:H | 1.80 | 0.45 |
| 40:DS:10:ALA:O | 40:DS:11:ARG:HB3 | 2.17 | 0.45 |
| 18:CS:39:ILE:HB | 18:CS:66:VAL:HA | 1.98 | 0.45 |
| 5:CF:62:MET:HG3 | 5:CF:64:VAL:CG2 | 2.42 | 0.45 |
| 38:BQ:61:ILE:HB | 38:BQ:75:TYR:CZ | 2.52 | 0.45 |
| 46:DZ:54:GLY:H | 46:DZ:57:VAL:CG2 | 2.14 | 0.45 |
| 1:CA:1102:A:O2' | 1:CA:1103:C:H5' | 2.17 | 0.45 |
| 40:BS:31:GLN:HB3 | 40:BS:35:ILE:HG22 | 1.99 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 27:BE:191:ASP:C | 27:BE:193:VAL:H | 2.20 | 0.45 |
| 3:CD:141:VAL:HG23 | 3:CD:141:VAL:O | 2.16 | 0.45 |
| 26:DD:186:LEU:HD11 | 37:DP:5:LYS:HE2 | 1.98 | 0.45 |
| 23:DB:633:A:H2' | 23:DB:634:C:O4' | 2.16 | 0.45 |
| 49:B2:18:PHE:HB3 | 49:B2:19:ARG:H | 1.51 | 0.45 |
| 41:BT:61:LEU:CD1 | 41:BT:62:VAL:H | 2.28 | 0.45 |
| 1:AA:796:C:H4' | 10:AK:126:ARG:HH21 | 1.82 | 0.45 |
| 23:DB:2420:C:C5 | 50:D3:30:HIS:O | 2.70 | 0.45 |
| 2:CC:59:PRO:CG | 2:CC:62:SER:HB2 | 2.33 | 0.45 |
| 27:BE:57:LYS:HA | 27:BE:57:LYS:CE | 2.47 | 0.45 |
| 2:AC:156:LEU:CD1 | 2:AC:156:LEU:H | 2.11 | 0.45 |
| 1:CA:451:A:OP2 | 15:CP:70:ARG:NH2 | 2.50 | 0.45 |
| 44:DX:26:PHE:HA | 44:DX:29:ARG:HD2 | 1.97 | 0.45 |
| 26:BD:52:THR:HG22 | 26:BD:75:ALA:CB | 2.44 | 0.45 |
| 32:DK:71:ARG:HB3 | 32:DK:72:PRO:CD | 2.46 | 0.45 |
| 38:DQ:87:VAL:CG2 | 39:DR:54:VAL:HG11 | 2.46 | 0.45 |
| 33:DL:118:THR:HG23 | 33:DL:119:PRO:HD3 | 1.97 | 0.45 |
| 33:DL:39:LYS:NZ | 33:DL:39:LYS:N | 2.64 | 0.45 |
| 1:AA:36:C:H2' | 1:AA:37:U:O4' | 2.17 | 0.45 |
| 45:BY:3:THR:O | 45:BY:6:ILE:HG23 | 2.17 | 0.45 |
| 2:AC:8:GLY:HA2 | 2:AC:11:LEU:CG | 2.43 | 0.45 |
| 31:DJ:14:ASP:HB3 | 31:DJ:16:TYR:CD1 | 2.52 | 0.45 |
| 10:CK:69:CYS:O | 10:CK:73:VAL:N | 2.49 | 0.45 |
| 23:DB:1175:A:H2' | 23:DB:1176:U:C5' | 2.42 | 0.45 |
| 9:AJ:87:LEU:H | 9:AJ:88:MET:HE1 | 1.82 | 0.45 |
| 1:AA:89:U:O2' | 1:AA:90:C:O5' | 2.33 | 0.45 |
| 23:DB:1773:A:C8 | 23:DB:1829:A:C8 | 3.05 | 0.45 |
| 1:CA:551:U:O2' | 1:CA:552:U:H5' | 2.17 | 0.45 |
| 23:DB:730:A:C4' | 25:DC:16:VAL:HG13 | 2.47 | 0.45 |
| 8:CI:26:LYS:HG3 | 8:CI:61:ASP:HB2 | 1.97 | 0.45 |
| 2:AC:185:THR:HG22 | 2:AC:186:SER:N | 2.26 | 0.45 |
| 23:BB:1275:A:N3 | 23:BB:1275:A:C3' | 2.78 | 0.45 |
| 23:DB:483:A:C2' | 23:DB:484:C:H5' | 2.43 | 0.45 |
| 23:DB:1700:A:C2' | 23:DB:1701:A:H5' | 2.44 | 0.45 |
| 40:DS:1:MET:HB3 | 40:DS:4:ILE:HD12 | 1.98 | 0.45 |
| 39:BR:16:GLU:HG3 | 39:BR:17:GLY:H | 1.82 | 0.45 |
| 1:AA:731:G:OP1 | 1:AA:766:A:H1' | 2.17 | 0.45 |
| 29:DG:71:LEU:O | 29:DG:74:MET:HB2 | 2.16 | 0.45 |
| 42:DU:82:VAL:HB | 42:DU:94:PHE:CB | 2.43 | 0.45 |
| 1:CA:1130:A:H2' | 1:CA:1131:G:H8 | 1.81 | 0.45 |
| 7:AH:54:THR:HG23 | 7:AH:55:LYS:HG2 | 1.99 | 0.45 |
| 23:BB:2759:G:H21 | 29:BG:138:GLN:HE22 | 1.64 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 20:AB:186:VAL:CG2 | 20:AB:198:VAL:HG23 | 2.47 | 0.45 |
| 1:CA:404:G:H2' | 1:CA:405:U:C6 | 2.52 | 0.45 |
| 23:DB:1760:C:H2' | 23:DB:1761:C:O4' | 2.16 | 0.45 |
| 1:CA:1158:C:O2' | 20:CB:131:LYS:HD3 | 2.16 | 0.45 |
| 23:DB:844:A:C2 | 23:DB:845:A:N1 | 2.84 | 0.45 |
| 1:AA:847:G:H2' | 1:AA:848:C:H6 | 1.82 | 0.45 |
| 1:CA:611:C:H2' | 1:CA:612:C:H6 | 1.80 | 0.45 |
| 1:CA:902:G:H2' | 1:CA:903:G:C8 | 2.51 | 0.45 |
| 23:BB:350:G:H2' | 23:BB:351:C:H6 | 1.82 | 0.45 |
| 37:BP:15:ASP:N | 37:BP:15:ASP:OD1 | 2.49 | 0.45 |
| 2:CC:177:LEU:HD22 | 2:CC:177:LEU:H | 1.81 | 0.45 |
| 30:BH:24:GLY:HA2 | 30:BH:27:ARG:HH12 | 1.81 | 0.45 |
| 23:DB:747:U:O3' | 40:DS:89:ALA:HB3 | 2.17 | 0.45 |
| 30:BH:39:ALA:O | 30:BH:44:ILE:HD11 | 2.17 | 0.45 |
| 32:BK:28:SER:O | 32:BK:29:HIS:HB2 | 2.17 | 0.45 |
| 3:AD:172:VAL:HA | 3:AD:178:GLU:O | 2.16 | 0.45 |
| 1:CA:1453:G:H2' | 1:CA:1454:G:O4' | 2.17 | 0.45 |
| 23:BB:829:A:H4' | 55:BB:3324:HOH:O | 2.16 | 0.45 |
| 22:BA:94:A:H2' | 22:BA:95:U:O4' | 2.17 | 0.45 |
| 45:BY:27:GLY:C | 45:BY:28:LEU:HD12 | 2.37 | 0.45 |
| 22:BA:99:A:H2' | 22:BA:99:A:N3 | 2.32 | 0.45 |
| 37:BP:114:ASN:N | 37:BP:114:ASN:ND2 | 2.61 | 0.45 |
| 23:DB:476:G:N2 | 23:DB:478:A:H3' | 2.32 | 0.45 |
| 48:D1:31:GLU:HG2 | 48:D1:32:LYS:HG3 | 1.98 | 0.45 |
| 23:BB:515:A:H3' | 23:BB:516:C:H6 | 1.80 | 0.45 |
| 23:DB:2685:G:OP1 | 37:DP:62:LYS:NZ | 2.47 | 0.45 |
| 23:DB:99:U:O2 | 23:DB:99:U:O4' | 2.33 | 0.45 |
| 23:BB:85:G:H5'' | 42:BU:28:LEU:HD23 | 1.99 | 0.45 |
| 20:CB:34:ARG:NE | 20:CB:39:ILE:HG13 | 2.32 | 0.45 |
| 1:CA:975:A:OP2 | 1:CA:975:A:H4' | 2.16 | 0.45 |
| 51:D4:10:LEU:HD12 | 51:D4:10:LEU:N | 2.32 | 0.45 |
| 26:BD:13:ARG:HB2 | 26:BD:21:SER:CB | 2.46 | 0.45 |
| 23:DB:1821:A:H5' | 25:DC:155:ARG:NH2 | 2.28 | 0.45 |
| 25:DC:156:SER:O | 25:DC:194:VAL:O | 2.35 | 0.45 |
| 23:BB:1019:U:O2' | 23:BB:1021:A:C2 | 2.64 | 0.45 |
| 36:BO:41:ALA:H | 36:BO:48:LEU:HB3 | 1.81 | 0.45 |
| 42:DU:3:LYS:O | 42:DU:4:ILE:HB | 2.17 | 0.45 |
| 30:BH:21:VAL:HG13 | 30:BH:22:LYS:O | 2.16 | 0.45 |
| 27:DE:135:ALA:O | 27:DE:139:LYS:HB3 | 2.16 | 0.45 |
| 34:BM:68:PHE:HA | 34:BM:69:PRO:HD2 | 1.76 | 0.45 |
| 24:BV:83:LYS:O | 24:BV:85:LYS:N | 2.49 | 0.45 |
| 38:BQ:39:ILE:CG2 | 39:BR:80:ARG:HD3 | 2.47 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 23:DB:1803:A:H2 | 23:DB:1823:G:C1' | 2.29 | 0.45 |
| 1:AA:404:G:H2' | 1:AA:405:U:C6 | 2.52 | 0.45 |
| 23:BB:481:G:OP2 | 42:BU:43:LYS:HG3 | 2.16 | 0.45 |
| 23:BB:2772:C:H2' | 23:BB:2773:C:H6 | 1.81 | 0.45 |
| 28:BF:148:VAL:O | 28:BF:150:GLY:N | 2.50 | 0.45 |
| 23:BB:997:G:O2' | 23:BB:998:C:H5' | 2.17 | 0.45 |
| 31:BJ:45:THR:HB | 38:BQ:63:ARG:CZ | 2.46 | 0.45 |
| 47:B0:28:SER:HB2 | 47:B0:34:GLY:H | 1.78 | 0.45 |
| 47:B0:42:ILE:HG21 | 47:B0:47:TYR:CE1 | 2.51 | 0.45 |
| 24:BV:72:VAL:HA | 24:BV:94:ALA:H | 1.81 | 0.45 |
| 23:BB:1601:G:O2' | 23:BB:1602:U:H5' | 2.16 | 0.45 |
| 41:BT:29:THR:O | 41:BT:30:ILE:HD12 | 2.17 | 0.45 |
| 41:BT:9:LYS:HG2 | 44:BX:22:LEU:HD11 | 1.99 | 0.45 |
| 23:BB:2821:A:H2' | 23:BB:2822:G:H8 | 1.82 | 0.45 |
| 23:BB:741:U:H2' | 23:BB:742:A:H8 | 1.80 | 0.45 |
| 21:CU:16:ARG:HA | 21:CU:19:LYS:HZ3 | 1.82 | 0.45 |
| 26:BD:26:VAL:O | 26:BD:26:VAL:HG23 | 2.17 | 0.45 |
| 26:BD:70:LYS:HA | 26:BD:70:LYS:CE | 2.37 | 0.45 |
| 39:BR:62:GLU:OE1 | 39:BR:62:GLU:N | 2.49 | 0.45 |
| 39:DR:44:GLY:N | 39:DR:53:PHE:CE2 | 2.84 | 0.45 |
| 1:CA:1288:A:N1 | 1:CA:1371:G:H1' | 2.31 | 0.45 |
| 21:CU:33:ARG:HB3 | 21:CU:34:ARG:H | 1.65 | 0.45 |
| 11:AL:35:ARG:HG3 | 11:AL:36:VAL:N | 2.27 | 0.45 |
| 14:CO:69:LEU:HD12 | 14:CO:77:TYR:N | 2.31 | 0.45 |
| 35:BN:22:ARG:NH1 | 35:BN:69:ARG:HA | 2.32 | 0.45 |
| 23:BB:1057:A:C8 | 23:BB:1086:A:C8 | 3.05 | 0.45 |
| 38:DQ:101:ASP:OD1 | 38:DQ:104:ALA:HB3 | 2.17 | 0.45 |
| 39:DR:69:GLY:HA2 | 39:DR:97:LYS:N | 2.29 | 0.45 |
| 45:BY:37:ARG:HH11 | 45:BY:37:ARG:HG3 | 1.82 | 0.45 |
| 2:AC:51:VAL:HA | 2:AC:69:THR:HB | 1.99 | 0.45 |
| 30:BH:121:VAL:HG21 | 30:BH:128:HIS:NE2 | 2.31 | 0.45 |
| 23:BB:1184:U:H2' | 23:BB:1185:G:C8 | 2.52 | 0.45 |
| 1:AA:238:A:C3' | 1:AA:239:U:H5'' | 2.47 | 0.45 |
| 1:CA:1451:U:C5' | 1:CA:1452:C:OP2 | 2.59 | 0.45 |
| 3:AD:99:ASN:HD21 | 3:AD:110:ARG:HE | 1.64 | 0.45 |
| 48:D1:8:ILE:CG2 | 48:D1:27:ARG:HD3 | 2.46 | 0.45 |
| 9:AJ:87:LEU:HD13 | 9:AJ:87:LEU:C | 2.37 | 0.45 |
| 37:BP:105:LYS:HG3 | 37:BP:107:ALA:H | 1.81 | 0.45 |
| 1:AA:81:A:N3 | 1:AA:82:G:N7 | 2.65 | 0.45 |
| 23:DB:1791:A:N1 | 23:DB:1829:A:H5' | 2.31 | 0.45 |
| 4:CE:110:MET:O | 4:CE:114:LEU:HG | 2.16 | 0.45 |
| 20:AB:59:ILE:C | 20:AB:59:ILE:HD12 | 2.37 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 22:BA:22:U:H2' | 22:BA:23:G:C8 | 2.51 | 0.45 |
| 23:DB:2464:G:H2' | 23:DB:2465:C:C6 | 2.52 | 0.45 |
| 23:DB:437:U:O2' | 23:DB:438:G:H5' | 2.16 | 0.45 |
| 15:AP:22:ALA:HB2 | 15:AP:32:PHE:HB3 | 1.98 | 0.45 |
| 39:BR:35:PHE:HB2 | 39:BR:64:VAL:CG2 | 2.47 | 0.45 |
| 41:BT:66:LYS:O | 41:BT:67:VAL:HB | 2.17 | 0.45 |
| 1:AA:1522:U:O2' | 1:AA:1523:G:H5' | 2.16 | 0.45 |
| 12:AM:77:LYS:HE3 | 12:AM:81:ASP:HB3 | 1.99 | 0.45 |
| 3:AD:186:GLU:C | 3:AD:190:LEU:HD13 | 2.37 | 0.45 |
| 1:CA:1136:C:H6 | 1:CA:1136:C:O5' | 2.00 | 0.45 |
| 1:CA:1387:G:H2' | 1:CA:1388:C:H6 | 1.79 | 0.45 |
| 8:CI:120:ALA:O | 8:CI:121:ARG:HG2 | 2.17 | 0.45 |
| 23:DB:38:A:N3 | 27:DE:43:THR:HG22 | 2.32 | 0.45 |
| 23:DB:904:G:H2' | 23:DB:905:A:H8 | 1.82 | 0.45 |
| 23:BB:2340:A:H2' | 23:BB:2341:G:H8 | 1.82 | 0.45 |
| 1:CA:334:C:H2' | 1:CA:335:C:H6 | 1.81 | 0.45 |
| 23:DB:1843:C:H2' | 23:DB:1844:C:H6 | 1.81 | 0.45 |
| 22:BA:109:A:H2' | 22:BA:110:C:C6 | 2.51 | 0.45 |
| 52:DI:89:SER:HA | 52:DI:97:VAL:CG1 | 2.47 | 0.45 |
| 2:CC:41:TYR:N | 2:CC:41:TYR:CD2 | 2.83 | 0.45 |
| 51:B4:13:ASN:ND2 | 51:B4:13:ASN:N | 2.63 | 0.45 |
| 1:AA:607:A:H2' | 1:AA:608:A:C8 | 2.52 | 0.45 |
| 23:DB:40:U:H2' | 23:DB:41:C:C6 | 2.52 | 0.45 |
| 1:CA:1516:G:N1 | 1:CA:1519:A:OP2 | 2.50 | 0.45 |
| 23:DB:257:C:H3' | 23:DB:258:G:H8 | 1.82 | 0.45 |
| 15:CP:48:GLU:HG2 | 15:CP:50:THR:H | 1.81 | 0.45 |
| 25:DC:130:PRO:HA | 25:DC:188:ARG:HA | 1.98 | 0.45 |
| 23:DB:2188:U:H2' | 23:DB:2189:U:O4' | 2.16 | 0.45 |
| 11:CL:13:ARG:O | 11:CL:14:LYS:HB3 | 2.16 | 0.45 |
| 11:CL:14:LYS:HZ3 | 11:CL:16:ALA:H | 1.65 | 0.45 |
| 9:AJ:68:ARG:HB3 | 9:AJ:70:HIS:NE2 | 2.32 | 0.45 |
| 23:DB:1076:C:O2' | 23:DB:1077:A:H5' | 2.17 | 0.45 |
| 23:DB:259:G:O2' | 23:DB:260:G:H5' | 2.16 | 0.45 |
| 1:AA:740:U:O3' | 14:AO:38:LEU:HD21 | 2.16 | 0.45 |
| 23:DB:2884:U:C2 | 47:D0:48:TYR:CZ | 3.04 | 0.45 |
| 6:AG:59:GLU:O | 6:AG:63:VAL:HG23 | 2.17 | 0.45 |
| 23:DB:97:C:H2' | 23:DB:98:G:O4' | 2.17 | 0.45 |
| 25:BC:153:LEU:CD2 | 25:BC:153:LEU:H | 2.26 | 0.45 |
| 23:DB:1820:U:N3 | 25:DC:197:ALA:HB1 | 2.27 | 0.45 |
| 25:DC:86:ARG:HH11 | 25:DC:86:ARG:HB2 | 1.81 | 0.45 |
| 43:BW:24:ARG:HB3 | 43:BW:57:THR:O | 2.16 | 0.45 |
| 18:AS:29:PRO:CA | 18:AS:47:THR:HB | 2.47 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 42:DU:27:VAL:CB | 42:DU:33:VAL:HG22 | 2.46 | 0.45 |
| 30:BH:2:GLN:HE22 | 30:BH:20:ASN:N | 2.14 | 0.45 |
| 23:BB:2465:C:O2' | 23:BB:2466:C:H5' | 2.16 | 0.45 |
| 16:AQ:74:LEU:HD13 | 16:AQ:74:LEU:C | 2.37 | 0.45 |
| 1:AA:402:G:H2' | 1:AA:403:C:C6 | 2.52 | 0.45 |
| 23:BB:992:C:H2' | 23:BB:993:G:C8 | 2.51 | 0.45 |
| 41:DT:49:LYS:O | 41:DT:51:PHE:N | 2.41 | 0.45 |
| 8:AI:51:LEU:HD23 | 8:AI:56:MET:HE3 | 1.99 | 0.45 |
| 13:AN:81:ILE:HD12 | 13:AN:82:LYS:N | 2.31 | 0.45 |
| 33:DL:92:LEU:HB2 | 33:DL:125:LEU:HD11 | 1.99 | 0.45 |
| 23:BB:139:U:C2 | 41:BT:1:MET:HG2 | 2.51 | 0.45 |
| 26:BD:128:ARG:NH1 | 26:BD:144:GLY:HA2 | 2.32 | 0.45 |
| 23:DB:2651:C:O2' | 23:DB:2652:C:H5' | 2.17 | 0.45 |
| 44:DX:17:GLU:HA | 44:DX:21:LEU:CB | 2.46 | 0.45 |
| 25:BC:224:MET:HE2 | 25:BC:233:GLY:O | 2.17 | 0.45 |
| 23:DB:1286:A:H1' | 23:DB:1288:G:OP2 | 2.17 | 0.45 |
| 34:DM:33:LEU:HD21 | 34:DM:124:LEU:HD13 | 1.98 | 0.45 |
| 35:BN:73:ASN:HA | 35:BN:76:VAL:CG1 | 2.46 | 0.45 |
| 31:DJ:73:VAL:HA | 31:DJ:88:THR:O | 2.17 | 0.45 |
| 4:CE:89:THR:C | 4:CE:91:SER:H | 2.18 | 0.45 |
| 1:AA:662:U:H2' | 1:AA:663:A:H8 | 1.76 | 0.45 |
| 23:DB:2144:G:C2 | 23:DB:2146:C:H5' | 2.52 | 0.45 |
| 2:AC:5:HIS:O | 2:AC:9:ILE:HG22 | 2.16 | 0.45 |
| 1:CA:1098:C:O2' | 1:CA:1099:G:H5' | 2.16 | 0.45 |
| 38:BQ:73:ILE:HG13 | 38:BQ:77:LYS:HD2 | 1.99 | 0.45 |
| 1:CA:239:U:H5' | 1:CA:239:U:H6 | 1.80 | 0.45 |
| 23:BB:2830:C:O2' | 23:BB:2831:G:H5' | 2.17 | 0.45 |
| 2:AC:153:SER:CB | 2:AC:196:GLY:H | 2.27 | 0.45 |
| 1:CA:1227:A:H4' | 12:CM:113:LYS:HE2 | 1.97 | 0.45 |
| 50:B3:35:LYS:O | 50:B3:36:ALA:HB3 | 2.16 | 0.45 |
| 23:DB:544:C:H2' | 23:DB:545:U:C2 | 2.52 | 0.45 |
| 23:DB:547:A:N3 | 23:DB:547:A:C2' | 2.77 | 0.45 |
| 11:CL:82:ARG:HB2 | 11:CL:97:VAL:HG13 | 1.98 | 0.45 |
| 25:DC:259:ASN:O | 25:DC:261:ARG:HG3 | 2.17 | 0.45 |
| 38:BQ:103:VAL:HG23 | 38:BQ:104:ALA:N | 2.31 | 0.45 |
| 16:CQ:60:ILE:HG22 | 16:CQ:74:LEU:HA | 1.98 | 0.45 |
| 4:CE:82:HIS:NE2 | 4:CE:146:MET:HB2 | 2.31 | 0.45 |
| 28:DF:7:TYR:HA | 28:DF:11:VAL:HB | 1.98 | 0.45 |
| 22:BA:78:A:O2' | 22:BA:79:G:H5' | 2.17 | 0.45 |
| 20:AB:140:LEU:HB3 | 20:AB:144:GLU:OE2 | 2.17 | 0.45 |
| 20:CB:211:LEU:HG | 20:CB:212:TYR:N | 2.32 | 0.45 |
| 22:DA:6:G:O2' | 22:DA:7:G:H5' | 2.16 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 1:CA:1128:C:H4' | 1:CA:1148:U:O2 | 2.17 | 0.45 |
| 23:BB:1509:A:C5' | 23:BB:1510:G:H5' | 2.47 | 0.45 |
| 15:CP:32:PHE:HD1 | 15:CP:32:PHE:C | 2.20 | 0.45 |
| 23:BB:1683:U:H2' | 23:BB:1684:G:C8 | 2.51 | 0.45 |
| 40:DS:36:LEU:HA | 40:DS:39:THR:CG2 | 2.47 | 0.45 |
| 1:AA:24:U:O2' | 1:AA:25:C:H5' | 2.16 | 0.45 |
| 12:AM:8:ILE:O | 12:AM:8:ILE:HG13 | 2.17 | 0.45 |
| 52:DI:99:LYS:HB2 | 52:DI:140:GLU:OE1 | 2.16 | 0.45 |
| 1:CA:1488:G:H2' | 1:CA:1489:G:H8 | 1.82 | 0.45 |
| 23:BB:1987:A:H2' | 23:BB:1988:G:H8 | 1.82 | 0.45 |
| 23:BB:1322:A:H2' | 23:BB:1323:C:H5' | 1.98 | 0.45 |
| 23:BB:2708:G:H4' | 35:BN:68:ALA:HB1 | 1.99 | 0.45 |
| 23:DB:510:C:O2' | 23:DB:1236:G:H5' | 2.17 | 0.45 |
| 14:CO:63:ARG:HH21 | 14:CO:87:ARG:NH1 | 2.15 | 0.45 |
| 1:CA:1382:C:H5' | 6:CG:78:ARG:HE | 1.82 | 0.45 |
| 7:CH:29:SER:O | 7:CH:30:LYS:C | 2.55 | 0.45 |
| 1:AA:1399:C:H1' | 55:AA:1970:HOH:O | 2.16 | 0.45 |
| 29:DG:103:ASN:HA | 29:DG:112:VAL:O | 2.17 | 0.45 |
| 29:DG:100:ASN:HA | 29:DG:116:LEU:HD11 | 1.99 | 0.45 |
| 23:BB:1100:C:H2' | 23:BB:1101:U:H6 | 1.81 | 0.45 |
| 36:DO:98:GLN:O | 36:DO:99:TYR:HB2 | 2.17 | 0.45 |
| 23:DB:2673:G:H2' | 23:DB:2674:G:C8 | 2.52 | 0.45 |
| 11:AL:17:LYS:HB2 | 11:AL:17:LYS:HE3 | 1.82 | 0.45 |
| 2:CC:10:ARG:HG2 | 2:CC:10:ARG:HH11 | 1.82 | 0.45 |
| 29:DG:141:GLY:O | 29:DG:144:ALA:HB3 | 2.16 | 0.45 |
| 1:AA:1515:G:O2' | 1:AA:1516:G:H5' | 2.17 | 0.45 |
| 27:BE:7:ASP:O | 27:BE:8:ALA:HB3 | 2.17 | 0.45 |
| 52:BI:38:CYS:O | 52:BI:42:ASN:ND2 | 2.49 | 0.45 |
| 26:DD:14:ILE:O | 26:DD:15:PHE:HD1 | 2.00 | 0.45 |
| 32:DK:78:ARG:H | 37:DP:72:VAL:HG23 | 1.82 | 0.45 |
| 33:DL:7:SER:CB | 33:DL:8:PRO:CD | 2.87 | 0.45 |
| 30:DH:8:LYS:HA | 30:DH:13:GLY:O | 2.17 | 0.45 |
| 30:DH:4:ILE:HD13 | 30:DH:37:VAL:HG13 | 1.98 | 0.45 |
| 25:DC:71:ASP:HA | 25:DC:117:SER:OG | 2.17 | 0.45 |
| 38:DQ:17:LEU:O | 38:DQ:20:ALA:HB3 | 2.17 | 0.45 |
| 23:BB:338:G:C2 | 23:BB:339:U:C1' | 2.99 | 0.45 |
| 30:BH:11:ASN:HD22 | 30:BH:12:LEU:N | 2.10 | 0.45 |
| 33:BL:60:ARG:HD3 | 50:B3:11:LYS:NZ | 2.31 | 0.45 |
| 50:B3:44:ARG:HG2 | 50:B3:44:ARG:NH1 | 2.32 | 0.45 |
| 23:BB:2673:G:H2' | 23:BB:2674:G:C8 | 2.52 | 0.45 |
| 32:BK:8:LEU:HB3 | 32:BK:84:CYS:SG | 2.57 | 0.45 |
| 26:BD:148:GLN:HB3 | 26:BD:151:THR:HG21 | 1.98 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 38:BQ:16:ILE:HD11 | 38:BQ:31:TYR:CD1 | 2.52 | 0.45 |
| 38:BQ:35:PHE:CA | 38:BQ:39:ILE:HD12 | 2.46 | 0.45 |
| 1:AA:408:A:OP1 | 3:AD:111:ALA:HB3 | 2.17 | 0.45 |
| 13:AN:60:ARG:HE | 13:AN:62:ARG:CZ | 2.30 | 0.45 |
| 23:BB:811:U:C6 | 33:BL:29:LYS:HD3 | 2.52 | 0.45 |
| 23:BB:527:C:H5' | 55:BB:3419:HOH:O | 2.17 | 0.45 |
| 31:DJ:5:THR:HG23 | 31:DJ:7:LYS:HD3 | 1.99 | 0.45 |
| 28:BF:135:ILE:HG23 | 28:BF:136:ILE:N | 2.31 | 0.45 |
| 18:CS:50:VAL:CG2 | 18:CS:70:LEU:HG | 2.45 | 0.45 |
| 12:AM:44:ILE:CA | 12:AM:47:LEU:HD13 | 2.47 | 0.45 |
| 3:CD:104:MET:HG3 | 3:CD:142:VAL:HG21 | 1.99 | 0.45 |
| 3:CD:98:ASP:OD2 | 3:CD:99:ASN:N | 2.50 | 0.45 |
| 10:AK:80:ASN:HD21 | 10:AK:107:THR:HG23 | 1.82 | 0.45 |
| 26:DD:77:ARG:HB2 | 26:DD:77:ARG:CZ | 2.47 | 0.45 |
| 26:DD:7:LYS:HB3 | 26:DD:201:LEU:HD22 | 1.98 | 0.45 |
| 30:DH:94:ILE:O | 30:DH:122:LEU:HB2 | 2.16 | 0.45 |
| 28:DF:15:LEU:HD13 | 28:DF:28:PRO:HG2 | 1.98 | 0.45 |
| 23:BB:143:C:C3' | 23:BB:144:A:C8 | 3.00 | 0.45 |
| 8:CI:115:VAL:HG22 | 8:CI:116:GLY:N | 2.32 | 0.45 |
| 21:CU:7:GLU:OE1 | 21:CU:11:PHE:HZ | 2.00 | 0.45 |
| 27:DE:17:THR:CG2 | 27:DE:18:THR:H | 2.28 | 0.45 |
| 17:CR:33:THR:HG23 | 17:CR:35:SER:H | 1.81 | 0.45 |
| 23:DB:2649:C:H2' | 23:DB:2650:U:C6 | 2.52 | 0.45 |
| 23:BB:2651:C:O2' | 23:BB:2652:C:H5' | 2.17 | 0.45 |
| 26:BD:38:LYS:HG2 | 26:BD:39:ASP:N | 2.22 | 0.45 |
| 45:DY:3:THR:O | 45:DY:36:GLU:HA | 2.16 | 0.45 |
| 26:DD:172:VAL:CG1 | 26:DD:175:LEU:HD11 | 2.46 | 0.45 |
| 4:CE:137:ARG:NH1 | 4:CE:137:ARG:HG2 | 2.31 | 0.45 |
| 1:CA:1250:A:C5' | 8:CI:69:GLY:H | 2.29 | 0.45 |
| 5:AF:66:ALA:HB1 | 5:AF:67:PRO:HD2 | 1.99 | 0.45 |
| 11:AL:52:CYS:SG | 11:AL:66:ILE:HD11 | 2.56 | 0.45 |
| 23:DB:1148:U:O2' | 23:DB:1149:G:H5' | 2.15 | 0.45 |
| 20:AB:96:LEU:H | 20:AB:99:MET:HE3 | 1.82 | 0.45 |
| 35:BN:101:GLY:H | 35:BN:110:MET:H | 1.65 | 0.45 |
| 23:BB:463:G:N2 | 23:BB:466:A:OP2 | 2.48 | 0.45 |
| 23:BB:2319:G:C2 | 23:BB:2321:U:O4 | 2.70 | 0.45 |
| 23:DB:1454:C:H5' | 35:DN:63:ARG:HD2 | 1.97 | 0.45 |
| 34:BM:109:PRO:O | 34:BM:112:LEU:HB2 | 2.17 | 0.45 |
| 34:DM:134:THR:HG22 | 34:DM:135:VAL:N | 2.24 | 0.45 |
| 1:AA:1250:A:O2' | 1:AA:1251:A:H5' | 2.17 | 0.45 |
| 23:BB:1547:C:H2' | 23:BB:1548:A:C8 | 2.52 | 0.45 |
| 2:AC:135:ARG:C | 2:AC:137:VAL:H | 2.20 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 23:DB:1251:C:H5'' | 38:DQ:5:ARG:NH1 | 2.32 | 0.45 |
| 23:DB:2065:C:H2' | 23:DB:2066:C:C6 | 2.51 | 0.45 |
| 23:DB:154:U:H2' | 23:DB:155:A:C8 | 2.52 | 0.45 |
| 25:BC:208:GLY:C | 25:BC:210:ALA:H | 2.20 | 0.45 |
| 1:CA:1319:A:H2' | 1:CA:1323:G:N7 | 2.32 | 0.45 |
| 23:DB:2460:U:H2' | 23:DB:2461:A:H8 | 1.81 | 0.45 |
| 22:DA:55:U:O2' | 28:DF:25:MET:HB3 | 2.16 | 0.45 |
| 23:DB:438:G:O2' | 23:DB:439:A:H5' | 2.16 | 0.45 |
| 28:BF:31:GLU:HB3 | 28:BF:32:LYS:H | 1.54 | 0.45 |
| 15:AP:4:ILE:HA | 15:AP:20:VAL:O | 2.16 | 0.45 |
| 2:CC:17:TRP:C | 2:CC:19:SER:H | 2.20 | 0.45 |
| 29:BG:120:ILE:HD12 | 29:BG:120:ILE:N | 2.32 | 0.45 |
| 1:AA:543:U:P | 3:AD:13:ARG:HH21 | 2.40 | 0.45 |
| 23:DB:2769:U:O2' | 23:DB:2770:G:H5' | 2.16 | 0.45 |
| 23:BB:2291:U:H2' | 23:BB:2292:U:H6 | 1.80 | 0.45 |
| 1:AA:202:G:N2 | 1:AA:465:A:H61 | 2.14 | 0.45 |
| 23:DB:303:G:H2' | 23:DB:304:U:H6 | 1.82 | 0.45 |
| 37:BP:38:ARG:CZ | 37:BP:39:LEU:H | 2.29 | 0.45 |
| 23:BB:1669:A:N3 | 23:BB:1669:A:H2' | 2.30 | 0.45 |
| 2:CC:53:ARG:HA | 2:CC:113:LYS:CE | 2.47 | 0.45 |
| 23:BB:1309:G:H4' | 49:B2:7:PRO:CG | 2.45 | 0.45 |
| 36:DO:86:GLY:O | 36:DO:88:LYS:N | 2.50 | 0.45 |
| 16:AQ:23:ALA:HB1 | 16:AQ:40:THR:CG2 | 2.47 | 0.45 |
| 29:DG:138:GLN:HE22 | 29:DG:142:GLN:HG3 | 1.82 | 0.45 |
| 23:BB:402:A:H2' | 23:BB:403:U:O4' | 2.16 | 0.45 |
| 29:BG:121:THR:O | 29:BG:133:LYS:HD3 | 2.16 | 0.45 |
| 52:BI:14:ALA:CB | 52:BI:50:LYS:HA | 2.47 | 0.45 |
| 2:CC:63:ILE:HG12 | 2:CC:65:VAL:CG2 | 2.46 | 0.45 |
| 11:CL:41:PRO:HG2 | 11:CL:45:ASN:O | 2.16 | 0.45 |
| 1:CA:478:A:H2' | 1:CA:479:U:O4' | 2.15 | 0.45 |
| 23:BB:15:G:H4' | 47:B0:17:SER:OG | 2.17 | 0.45 |
| 36:DO:45:SER:C | 36:DO:47:VAL:H | 2.20 | 0.45 |
| 23:BB:1752:C:H4' | 23:BB:2862:G:OP1 | 2.16 | 0.45 |
| 32:BK:10:VAL:HG13 | 32:BK:19:VAL:CG2 | 2.46 | 0.45 |
| 23:DB:1221:C:H2' | 23:DB:1222:U:H6 | 1.82 | 0.45 |
| 1:AA:1380:U:C4 | 6:AG:2:ARG:HG3 | 2.52 | 0.45 |
| 4:CE:14:LEU:HD22 | 4:CE:15:ILE:N | 2.32 | 0.45 |
| 23:BB:1255:U:H2' | 27:BE:67:ARG:HB3 | 1.99 | 0.45 |
| 23:DB:1880:U:H2' | 23:DB:1881:C:C6 | 2.52 | 0.45 |
| 39:DR:11:GLN:N | 39:DR:21:ARG:NH2 | 2.64 | 0.45 |
| 23:BB:2776:A:H4' | 23:BB:2777:G:C5' | 2.46 | 0.45 |
| 11:AL:30:ARG:HH11 | 11:AL:30:ARG:CB | 2.29 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:DB:2712:C:H2' | 23:DB:2714:G:O3' | 2.17 | 0.45 |
| 1:AA:295:C:H2' | 1:AA:296:U:C6 | 2.52 | 0.45 |
| 1:AA:1096:C:H2' | 1:AA:1097:C:C6 | 2.52 | 0.45 |
| 1:CA:957:U:H2' | 1:CA:959:A:OP2 | 2.17 | 0.45 |
| 1:CA:295:C:H2' | 1:CA:296:U:C6 | 2.52 | 0.45 |
| 4:CE:68:ARG:O | 4:CE:69:ASN:HB3 | 2.17 | 0.45 |
| 1:CA:432:A:C2' | 1:CA:433:G:H5' | 2.47 | 0.45 |
| 1:CA:343:U:H2' | 1:CA:345:C:C5 | 2.52 | 0.45 |
| 42:DU:85:ARG:O | 42:DU:87:GLU:N | 2.50 | 0.45 |
| 33:DL:94:THR:OG1 | 33:DL:95:LEU:HD12 | 2.16 | 0.45 |
| 33:BL:33:ARG:NH1 | 33:BL:34:GLY:HA3 | 2.32 | 0.45 |
| 8:CI:88:GLU:HA | 8:CI:91:GLU:OE2 | 2.16 | 0.45 |
| 1:CA:224:U:H2' | 1:CA:225:C:H6 | 1.82 | 0.45 |
| 37:BP:9:GLN:HB3 | 37:BP:56:SER:HB2 | 1.97 | 0.45 |
| 30:DH:4:ILE:O | 30:DH:5:LEU:HD22 | 2.17 | 0.45 |
| 30:DH:7:ASP:HB3 | 30:DH:8:LYS:H | 1.60 | 0.45 |
| 47:D0:29:VAL:HG23 | 47:D0:32:THR:OG1 | 2.16 | 0.45 |
| 26:DD:40:LEU:O | 26:DD:41:ALA:HB3 | 2.17 | 0.45 |
| 35:DN:45:ARG:NH2 | 35:DN:97:ILE:HG12 | 2.31 | 0.45 |
| 31:DJ:58:ASN:O | 31:DJ:60:ASP:N | 2.45 | 0.45 |
| 23:DB:1205:A:N7 | 27:DE:164:LEU:CD1 | 2.80 | 0.45 |
| 50:B3:29:ARG:HA | 50:B3:33:THR:HG21 | 1.95 | 0.45 |
| 23:BB:640:C:H1' | 50:B3:44:ARG:NH2 | 2.32 | 0.45 |
| 33:BL:77:ILE:HD12 | 33:BL:110:VAL:HG22 | 1.99 | 0.45 |
| 23:BB:952:G:C6 | 23:BB:966:G:C6 | 3.05 | 0.45 |
| 34:BM:7:THR:C | 34:BM:8:LYS:HD3 | 2.37 | 0.45 |
| 38:BQ:16:ILE:HD11 | 38:BQ:31:TYR:HD1 | 1.82 | 0.45 |
| 38:BQ:19:GLN:NE2 | 38:BQ:38:VAL:HG23 | 2.32 | 0.45 |
| 1:AA:408:A:P | 3:AD:109:THR:HG21 | 2.57 | 0.45 |
| 23:BB:493:G:H2' | 23:BB:494:G:O4' | 2.17 | 0.45 |
| 41:DT:15:HIS:HB3 | 41:DT:31:VAL:CG1 | 2.47 | 0.45 |
| 41:DT:85:VAL:HG23 | 41:DT:86:THR:N | 2.32 | 0.45 |
| 28:BF:132:ARG:NH2 | 28:BF:147:ARG:HE | 2.15 | 0.45 |
| 38:BQ:92:LYS:CD | 38:BQ:93:ILE:N | 2.80 | 0.45 |
| 12:AM:52:ILE:HG23 | 12:AM:53:ASP:N | 2.32 | 0.45 |
| 40:BS:70:LYS:O | 40:BS:71:VAL:HB | 2.17 | 0.45 |
| 51:B4:24:ARG:HH22 | 51:B4:36:ARG:HD3 | 1.79 | 0.45 |
| 51:B4:7:VAL:HB | 51:B4:35:GLN:NE2 | 2.31 | 0.45 |
| 23:DB:2637:U:O2' | 23:DB:2638:G:H5' | 2.17 | 0.45 |
| 26:BD:128:ARG:CA | 26:BD:128:ARG:NE | 2.80 | 0.45 |
| 23:DB:2420:C:OP2 | 50:D3:31:ILE:HA | 2.17 | 0.45 |
| 23:DB:1131:G:N7 | 23:DB:2025:C:H4' | 2.32 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 23:DB:2733:A:H2' | 23:DB:2734:A:O4' | 2.17 | 0.45 |
| 39:DR:37:GLU:CG | 39:DR:62:GLU:HG3 | 2.45 | 0.45 |
| 1:CA:1147:C:HO2' | 8:CI:6:TYR:HE2 | 1.64 | 0.45 |
| 1:AA:1323:G:O2' | 1:AA:1362:A:O4' | 2.35 | 0.45 |
| 48:B1:40:PRO:HA | 48:B1:48:TYR:OH | 2.16 | 0.45 |
| 23:DB:1190:G:OP1 | 33:DL:38:GLN:CB | 2.65 | 0.45 |
| 15:CP:57:ILE:HD11 | 15:CP:75:ILE:HD11 | 1.98 | 0.45 |
| 42:BU:2:ALA:O | 42:BU:3:LYS:HD3 | 2.16 | 0.45 |
| 14:AO:77:TYR:O | 14:AO:81:ILE:HG23 | 2.17 | 0.45 |
| 35:BN:38:LEU:N | 35:BN:39:PRO:CD | 2.80 | 0.45 |
| 1:AA:781:A:H2' | 1:AA:782:A:C5' | 2.38 | 0.45 |
| 23:DB:743:A:OP1 | 26:DD:134:HIS:CD2 | 2.70 | 0.45 |
| 23:DB:743:A:OP1 | 26:DD:134:HIS:NE2 | 2.50 | 0.45 |
| 3:AD:94:GLU:OE2 | 3:AD:94:GLU:HA | 2.16 | 0.45 |
| 1:CA:953:G:H3' | 1:CA:954:G:H8 | 1.82 | 0.45 |
| 48:B1:20:TYR:O | 48:B1:21:THR:HB | 2.17 | 0.45 |
| 18:AS:64:GLU:O | 18:AS:66:VAL:HG23 | 2.17 | 0.45 |
| 23:BB:2065:C:H2' | 23:BB:2066:C:C6 | 2.51 | 0.45 |
| 1:CA:817:C:C2 | 1:CA:819:A:O4' | 2.70 | 0.45 |
| 11:CL:89:LEU:HD22 | 11:CL:89:LEU:N | 2.32 | 0.45 |
| 23:BB:1487:U:H2' | 23:BB:1488:C:C6 | 2.50 | 0.45 |
| 1:AA:1148:U:H5' | 8:AI:6:TYR:OH | 2.17 | 0.45 |
| 37:BP:26:GLU:O | 37:BP:46:VAL:HG22 | 2.17 | 0.45 |
| 2:CC:129:PHE:CG | 2:CC:130:ARG:N | 2.85 | 0.45 |
| 22:DA:13:G:H2' | 22:DA:14:U:H5'' | 1.99 | 0.45 |
| 1:AA:1521:C:O2' | 1:AA:1522:U:H5' | 2.17 | 0.45 |
| 6:CG:29:LEU:HG | 6:CG:104:VAL:HG22 | 1.99 | 0.45 |
| 1:AA:1478:U:H2' | 1:AA:1479:C:C6 | 2.52 | 0.45 |
| 1:AA:1481:U:H2' | 1:AA:1482:G:C8 | 2.52 | 0.45 |
| 11:CL:91:GLY:O | 11:CL:93:ARG:NE | 2.50 | 0.45 |
| 16:AQ:29:LYS:HD3 | 16:AQ:35:LYS:CA | 2.47 | 0.45 |
| 12:CM:73:SER:O | 12:CM:77:LYS:HG3 | 2.17 | 0.45 |
| 28:BF:13:LYS:HD3 | 28:BF:16:MET:HG3 | 1.99 | 0.45 |
| 32:BK:20:MET:O | 32:BK:42:THR:N | 2.49 | 0.45 |
| 1:AA:957:U:H2' | 1:AA:959:A:OP2 | 2.17 | 0.45 |
| 3:AD:145:ARG:HH11 | 3:AD:145:ARG:CB | 2.29 | 0.45 |
| 23:DB:1509:A:C5' | 23:DB:1510:G:H5' | 2.47 | 0.45 |
| 1:AA:385:C:O2' | 1:AA:386:C:H5' | 2.17 | 0.45 |
| 23:BB:1736:U:H2' | 23:BB:1737:G:C8 | 2.52 | 0.45 |
| 48:D1:14:ALA:CB | 48:D1:19:PHE:HB3 | 2.47 | 0.45 |
| 23:DB:1712:U:H3' | 23:DB:1713:A:C5' | 2.46 | 0.45 |
| 1:CA:24:U:O2' | 1:CA:25:C:H5' | 2.16 | 0.45 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:BB:2671:G:H2' | 23:BB:2672:U:H6 | 1.80 | 0.45 |
| 1:AA:521:G:O2' | 1:AA:522:C:H5' | 2.17 | 0.45 |
| 31:DJ:94:ALA:HB3 | 31:DJ:95:ARG:HE | 1.82 | 0.45 |
| 1:AA:551:U:O2' | 1:AA:552:U:H5' | 2.17 | 0.45 |
| 6:AG:73:GLU:OE2 | 6:AG:90:VAL:HG12 | 2.17 | 0.45 |
| 23:BB:1064:C:C4' | 52:BI:90:GLY:HA2 | 2.47 | 0.45 |
| 23:DB:1585:C:H2' | 23:DB:1586:A:C8 | 2.52 | 0.45 |
| 23:BB:1985:C:O2' | 23:BB:1986:C:H5' | 2.17 | 0.45 |
| 17:AR:22:TYR:CD2 | 17:AR:60:ARG:HD2 | 2.51 | 0.45 |
| 4:AE:56:PRO:O | 4:AE:59:ILE:HG22 | 2.16 | 0.45 |
| 20:AB:23:ASN:HD22 | 20:AB:23:ASN:C | 2.20 | 0.45 |
| 1:CA:285:C:H2' | 1:CA:286:C:H6 | 1.81 | 0.45 |
| 20:AB:81:ASP:O | 20:AB:85:SER:HB2 | 2.17 | 0.45 |
| 34:BM:31:PHE:HA | 34:BM:128:THR:HG22 | 1.97 | 0.45 |
| 30:BH:147:VAL:HG12 | 30:BH:148:ALA:N | 2.32 | 0.44 |
| 51:D4:9:LYS:O | 51:D4:25:VAL:HA | 2.18 | 0.44 |
| 37:BP:31:VAL:HA | 37:BP:81:ASP:CB | 2.48 | 0.44 |
| 43:DW:76:ARG:C | 43:DW:78:PHE:H | 2.20 | 0.44 |
| 30:DH:19:VAL:HG22 | 30:DH:20:ASN:N | 2.32 | 0.44 |
| 26:DD:45:TYR:HB3 | 26:DD:46:ARG:H | 1.65 | 0.44 |
| 38:DQ:52:ARG:HG2 | 38:DQ:53:LYS:H | 1.83 | 0.44 |
| 18:AS:50:VAL:H | 18:AS:57:VAL:H | 1.64 | 0.44 |
| 30:BH:35:LYS:H | 30:BH:35:LYS:HD2 | 1.82 | 0.44 |
| 46:BZ:31:ASP:HA | 46:BZ:47:LYS:O | 2.17 | 0.44 |
| 32:BK:24:VAL:HG12 | 32:BK:30:ARG:HB3 | 1.98 | 0.44 |
| 23:BB:2464:G:H2' | 23:BB:2465:C:C6 | 2.51 | 0.44 |
| 23:BB:2576:G:P | 26:BD:149:ASN:CB | 2.94 | 0.44 |
| 23:DB:1025:G:OP1 | 23:DB:1025:G:H8 | 2.00 | 0.44 |
| 23:BB:2774:C:P | 26:BD:169:ARG:HG3 | 2.57 | 0.44 |
| 45:DY:17:PRO:HD2 | 45:DY:18:LYS:NZ | 2.31 | 0.44 |
| 35:BN:86:ARG:HH21 | 35:BN:116:VAL:HG11 | 1.82 | 0.44 |
| 25:BC:90:ILE:CG2 | 25:BC:91:ALA:N | 2.79 | 0.44 |
| 39:BR:6:GLN:O | 39:BR:7:SER:OG | 2.33 | 0.44 |
| 3:CD:18:LEU:HD22 | 3:CD:18:LEU:N | 2.31 | 0.44 |
| 21:AU:17:ARG:CA | 21:AU:20:ARG:HB3 | 2.43 | 0.44 |
| 23:DB:1199:U:O2' | 38:DQ:2:ARG:HB3 | 2.16 | 0.44 |
| 26:DD:31:ALA:HB3 | 26:DD:95:SER:HB2 | 1.99 | 0.44 |
| 23:BB:126:A:OP2 | 49:B2:45:SER:OG | 2.29 | 0.44 |
| 23:BB:138:U:H2' | 23:BB:140:C:C1' | 2.45 | 0.44 |
| 30:BH:134:VAL:HG22 | 30:BH:135:HIS:N | 2.32 | 0.44 |
| 23:DB:1021:A:N6 | 23:DB:1142:A:N6 | 2.54 | 0.44 |
| 5:AF:40:GLU:CG | 5:AF:42:TRP:HE1 | 2.27 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 17:AR:64:LEU:CB | 17:AR:66:LEU:HG | 2.47 | 0.44 |
| 1:CA:1371:G:O3' | 8:CI:70:GLY:HA3 | 2.17 | 0.44 |
| 31:DJ:73:VAL:HG22 | 31:DJ:74:TYR:H | 1.80 | 0.44 |
| 14:AO:70:LYS:HG2 | 14:AO:77:TYR:CG | 2.52 | 0.44 |
| 47:B0:51:ARG:O | 47:B0:52:LYS:HD2 | 2.18 | 0.44 |
| 10:CK:70:ALA:CA | 10:CK:73:VAL:HG22 | 2.47 | 0.44 |
| 23:DB:1005:C:O2' | 23:DB:1006:C:H5' | 2.15 | 0.44 |
| 5:CF:52:ASN:O | 5:CF:53:LYS:HB3 | 2.17 | 0.44 |
| 23:BB:2285:C:OP1 | 48:B1:26:LYS:HE3 | 2.17 | 0.44 |
| 1:AA:817:C:C2 | 1:AA:819:A:O4' | 2.70 | 0.44 |
| 23:BB:1790:C:H4' | 25:BC:207:ALA:CB | 2.46 | 0.44 |
| 23:BB:1773:A:C8 | 23:BB:1829:A:C8 | 3.05 | 0.44 |
| 23:BB:1341:G:H2' | 23:BB:1397:U:HO2' | 1.81 | 0.44 |
| 1:AA:1282:C:H2' | 1:AA:1283:U:C6 | 2.52 | 0.44 |
| 23:BB:2304:G:N2 | 23:BB:2312:U:H3 | 2.15 | 0.44 |
| 15:AP:39:PHE:HE2 | 15:AP:70:ARG:NH2 | 2.15 | 0.44 |
| 3:AD:10:LEU:HD21 | 3:AD:62:ARG:CG | 2.46 | 0.44 |
| 2:AC:25:THR:CG2 | 13:AN:74:ARG:HD2 | 2.47 | 0.44 |
| 23:DB:1180:U:H2' | 23:DB:1181:U:O4' | 2.17 | 0.44 |
| 28:DF:121:PHE:CE1 | 28:DF:166:ARG:HG2 | 2.52 | 0.44 |
| 22:DA:107:G:O2' | 22:DA:108:A:H5' | 2.17 | 0.44 |
| 23:DB:1116:G:O2' | 23:DB:1117:C:H5' | 2.17 | 0.44 |
| 23:BB:844:A:H2 | 23:BB:845:A:N1 | 2.16 | 0.44 |
| 30:DH:53:GLU:CD | 30:DH:57:LYS:HD2 | 2.37 | 0.44 |
| 12:CM:84:CYS:O | 12:CM:88:LEU:HG | 2.16 | 0.44 |
| 13:AN:50:LEU:CG | 13:AN:51:PRO:HD3 | 2.46 | 0.44 |
| 1:CA:1526:G:OP1 | 21:CU:37:TYR:HB3 | 2.17 | 0.44 |
| 23:DB:231:A:H3' | 23:DB:232:G:C8 | 2.52 | 0.44 |
| 29:BG:158:GLY:CA | 29:BG:170:THR:HG21 | 2.46 | 0.44 |
| 23:DB:2598:A:P | 25:DC:237:ARG:HH12 | 2.39 | 0.44 |
| 1:CA:385:C:O2' | 1:CA:386:C:H5' | 2.17 | 0.44 |
| 9:CJ:19:ASP:HA | 9:CJ:22:THR:HG22 | 1.99 | 0.44 |
| 3:CD:71:PHE:CE2 | 3:CD:89:LEU:HD11 | 2.51 | 0.44 |
| 3:CD:74:TYR:HB3 | 3:CD:89:LEU:HD12 | 1.98 | 0.44 |
| 23:BB:1292:G:H2' | 23:BB:1293:C:H6 | 1.82 | 0.44 |
| 3:CD:123:MET:CB | 3:CD:128:VAL:HA | 2.46 | 0.44 |
| 3:CD:123:MET:HB3 | 3:CD:128:VAL:HA | 1.99 | 0.44 |
| 1:AA:1439:G:H2' | 1:AA:1440:U:O4' | 2.18 | 0.44 |
| 23:BB:807:U:H2' | 23:BB:808:G:H8 | 1.81 | 0.44 |
| 23:BB:2373:G:H2' | 23:BB:2374:C:H6 | 1.80 | 0.44 |
| 1:AA:649:A:H2' | 1:AA:650:G:O4' | 2.17 | 0.44 |
| 50:D3:21:PHE:O | 50:D3:48:MET:HB2 | 2.16 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 1:CA:1426:G:H2' | 1:CA:1427:C:C6 | 2.52 | 0.44 |
| 23:BB:1880:U:H2' | 23:BB:1881:C:C6 | 2.52 | 0.44 |
| 23:DB:2457:U:O2' | 23:DB:2458:G:H5' | 2.17 | 0.44 |
| 3:CD:172:VAL:HG22 | 3:CD:173:ASP:N | 2.32 | 0.44 |
| 23:DB:1914:C:H3' | 23:DB:1914:C:OP2 | 2.18 | 0.44 |
| 1:AA:432:A:C2' | 1:AA:433:G:H5' | 2.47 | 0.44 |
| 23:BB:699:A:H2' | 23:BB:700:G:O4' | 2.17 | 0.44 |
| 28:BF:101:ARG:HD2 | 28:BF:105:ILE:HD12 | 1.99 | 0.44 |
| 27:DE:46:GLN:CD | 27:DE:86:ALA:HB3 | 2.38 | 0.44 |
| 23:BB:2204:G:O2' | 23:BB:2205:A:H5' | 2.17 | 0.44 |
| 30:DH:35:LYS:NZ | 30:DH:37:VAL:HG23 | 2.32 | 0.44 |
| 25:DC:137:GLY:O | 25:DC:140:VAL:HG13 | 2.16 | 0.44 |
| 25:DC:155:ARG:NH2 | 25:DC:155:ARG:HG2 | 2.31 | 0.44 |
| 27:DE:109:LEU:HA | 27:DE:117:ARG:NH1 | 2.32 | 0.44 |
| 33:BL:58:TYR:O | 33:BL:61:LEU:HD21 | 2.17 | 0.44 |
| 15:AP:40:ASN:HB3 | 15:AP:49:GLY:O | 2.17 | 0.44 |
| 32:BK:121:GLU:HG2 | 37:BP:67:GLU:OE2 | 2.16 | 0.44 |
| 46:DZ:48:GLN:O | 46:DZ:51:VAL:HB | 2.17 | 0.44 |
| 23:BB:2466:C:O2' | 23:BB:2467:C:H5' | 2.17 | 0.44 |
| 26:BD:151:THR:HB | 26:BD:152:PRO:CD | 2.48 | 0.44 |
| 20:AB:67:LEU:HD12 | 20:AB:153:MET:CE | 2.38 | 0.44 |
| 13:AN:60:ARG:NE | 13:AN:62:ARG:HE | 2.15 | 0.44 |
| 23:BB:1157:G:H1' | 45:BY:10:ARG:NH2 | 2.31 | 0.44 |
| 23:BB:2678:C:O2' | 23:BB:2679:A:H5' | 2.17 | 0.44 |
| 23:BB:2306:C:N4 | 28:BF:38:GLY:H | 2.03 | 0.44 |
| 25:BC:27:LYS:HA | 25:BC:79:ARG:CZ | 2.48 | 0.44 |
| 39:BR:47:VAL:C | 39:BR:49:ILE:H | 2.20 | 0.44 |
| 43:BW:39:GLN:HA | 43:BW:68:PHE:HA | 1.98 | 0.44 |
| 26:DD:202:ILE:HG22 | 26:DD:203:VAL:N | 2.31 | 0.44 |
| 33:DL:58:TYR:HA | 33:DL:62:PRO:CG | 2.47 | 0.44 |
| 23:DB:2038:G:H2' | 23:DB:2039:U:H6 | 1.82 | 0.44 |
| 23:BB:1286:A:H1' | 23:BB:1288:G:OP2 | 2.17 | 0.44 |
| 45:DY:8:GLN:HE21 | 45:DY:23:LEU:HD12 | 1.82 | 0.44 |
| 43:BW:28:GLU:C | 43:BW:30:VAL:H | 2.21 | 0.44 |
| 23:BB:2354:C:H4' | 43:BW:30:VAL:HG13 | 1.98 | 0.44 |
| 4:CE:109:ALA:HB3 | 4:CE:135:VAL:HG11 | 1.99 | 0.44 |
| 23:BB:701:G:O2' | 23:BB:702:U:H5' | 2.16 | 0.44 |
| 1:CA:836:G:H2' | 1:CA:837:U:C6 | 2.52 | 0.44 |
| 38:DQ:92:LYS:C | 38:DQ:93:ILE:HG23 | 2.36 | 0.44 |
| 39:DR:73:LYS:HD2 | 39:DR:73:LYS:N | 2.32 | 0.44 |
| 4:CE:37:VAL:HG12 | 4:CE:116:VAL:HG21 | 1.99 | 0.44 |
| 4:CE:10:LEU:HA | 4:CE:39:GLY:O | 2.17 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 23:BB:273:G:H2' | 23:BB:274:C:C6 | 2.53 | 0.44 |
| 36:BO:8:ILE:O | 36:BO:10:ARG:N | 2.50 | 0.44 |
| 23:BB:2065:C:C2 | 23:BB:2066:C:C5 | 3.05 | 0.44 |
| 25:BC:115:ILE:HA | 25:BC:126:GLY:CA | 2.47 | 0.44 |
| 12:CM:96:VAL:C | 12:CM:98:GLY:H | 2.20 | 0.44 |
| 4:AE:108:GLY:H | 4:AE:110:MET:CE | 2.30 | 0.44 |
| 7:CH:72:GLU:HB3 | 7:CH:129:ALA:HB2 | 1.98 | 0.44 |
| 23:BB:1263:U:H4' | 47:B0:8:THR:HB | 2.00 | 0.44 |
| 7:CH:76:ARG:NE | 7:CH:125:ILE:HG23 | 2.32 | 0.44 |
| 23:DB:727:A:OP1 | 23:DB:1431:A:O2' | 2.35 | 0.44 |
| 16:CQ:18:LYS:HA | 16:CQ:47:ASP:O | 2.17 | 0.44 |
| 1:CA:428:G:H4' | 1:CA:429:U:O5' | 2.17 | 0.44 |
| 14:CO:23:SER:HB3 | 14:CO:26:VAL:HG23 | 1.99 | 0.44 |
| 29:BG:154:GLU:OE2 | 29:BG:159:LYS:HG2 | 2.17 | 0.44 |
| 23:DB:2415:G:H4' | 33:DL:66:PHE:HB2 | 2.00 | 0.44 |
| 23:DB:152:A:H2' | 23:DB:153:U:C6 | 2.53 | 0.44 |
| 6:AG:87:PRO:CG | 6:AG:151:ALA:HB2 | 2.46 | 0.44 |
| 2:CC:129:PHE:CZ | 2:CC:156:LEU:HD13 | 2.52 | 0.44 |
| 30:BH:57:LYS:N | 30:BH:57:LYS:HE3 | 2.32 | 0.44 |
| 15:AP:39:PHE:CE1 | 15:AP:74:LEU:HD22 | 2.52 | 0.44 |
| 23:BB:1589:U:H2' | 23:BB:1590:A:C8 | 2.52 | 0.44 |
| 39:BR:35:PHE:HB2 | 39:BR:64:VAL:HG21 | 1.98 | 0.44 |
| 1:AA:734:G:H2' | 1:AA:735:C:C6 | 2.53 | 0.44 |
| 22:DA:14:U:H4' | 22:DA:70:C:O2 | 2.17 | 0.44 |
| 23:BB:718:A:H2' | 23:BB:719:C:H5' | 1.99 | 0.44 |
| 1:CA:676:A:H5'' | 10:CK:114:PRO:CB | 2.47 | 0.44 |
| 6:AG:74:VAL:HG12 | 6:AG:75:LYS:N | 2.30 | 0.44 |
| 34:DM:96:ILE:H | 34:DM:98:PRO:HD3 | 1.83 | 0.44 |
| 23:DB:1724:G:H2' | 23:DB:1725:U:H6 | 1.82 | 0.44 |
| 23:BB:173:A:H2' | 23:BB:174:U:C6 | 2.52 | 0.44 |
| 1:CA:983:A:O2' | 1:CA:1049:U:O2' | 2.32 | 0.44 |
| 1:CA:1030:U:HO2' | 1:CA:1031:C:P | 2.38 | 0.44 |
| 1:CA:1031:C:H5' | 1:CA:1032:G:C4 | 2.53 | 0.44 |
| 4:AE:16:ALA:O | 4:AE:34:ALA:HA | 2.16 | 0.44 |
| 16:AQ:44:HIS:O | 16:AQ:72:TRP:HB2 | 2.16 | 0.44 |
| 8:CI:38:PHE:HB2 | 8:CI:44:ARG:HG3 | 2.00 | 0.44 |
| 23:DB:1563:U:O2' | 23:DB:1564:C:H5' | 2.17 | 0.44 |
| 48:D1:42:VAL:HG12 | 48:D1:43:ARG:HG2 | 1.99 | 0.44 |
| 1:CA:857:C:H2' | 1:CA:858:G:O4' | 2.17 | 0.44 |
| 52:BI:52:LEU:HD12 | 52:BI:52:LEU:N | 2.32 | 0.44 |
| 23:DB:807:U:H2' | 23:DB:808:G:H8 | 1.81 | 0.44 |
| 23:BB:2257:U:OP1 | 43:BW:5:ALA:HB2 | 2.18 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 1:AA:1262:C:H2' | 1:AA:1263:C:O4' | 2.17 | 0.44 |
| 23:BB:2220:U:O2' | 23:BB:2221:G:H5' | 2.17 | 0.44 |
| 23:BB:1541:C:O2' | 23:BB:1542:U:H5' | 2.17 | 0.44 |
| 9:CJ:17:LEU:HD11 | 9:CJ:96:VAL:HG12 | 1.98 | 0.44 |
| 23:DB:709:U:H2' | 23:DB:710:U:H6 | 1.81 | 0.44 |
| 23:DB:689:A:H2' | 23:DB:690:G:C8 | 2.52 | 0.44 |
| 23:BB:269:C:O2' | 23:BB:270:A:H5' | 2.17 | 0.44 |
| 23:BB:689:A:H2' | 23:BB:690:G:C8 | 2.52 | 0.44 |
| 11:AL:32:VAL:O | 11:AL:33:CYS:HB2 | 2.15 | 0.44 |
| 1:AA:668:G:O2' | 1:AA:669:G:H5' | 2.17 | 0.44 |
| 29:DG:98:LYS:HB3 | 29:DG:101:VAL:HG23 | 1.98 | 0.44 |
| 23:BB:2521:C:O2' | 23:BB:2522:U:H5' | 2.17 | 0.44 |
| 25:DC:24:HIS:HB3 | 25:DC:25:LYS:H | 1.54 | 0.44 |
| 23:DB:822:G:H2' | 23:DB:823:C:C6 | 2.53 | 0.44 |
| 9:CJ:98:VAL:O | 9:CJ:98:VAL:HG23 | 2.18 | 0.44 |
| 1:AA:343:U:H2' | 1:AA:345:C:C5 | 2.52 | 0.44 |
| 1:AA:178:C:O2' | 1:AA:179:A:H5' | 2.17 | 0.44 |
| 37:DP:47:ILE:HG23 | 37:DP:63:ILE:CA | 2.32 | 0.44 |
| 23:DB:458:G:O2' | 23:DB:459:U:C5 | 2.69 | 0.44 |
| 23:BB:39:G:H2' | 23:BB:40:U:C6 | 2.52 | 0.44 |
| 51:D4:14:CYS:SG | 51:D4:26:ILE:HG23 | 2.57 | 0.44 |
| 26:BD:13:ARG:O | 26:BD:14:ILE:C | 2.55 | 0.44 |
| 23:DB:2259:U:O4' | 23:DB:2427:C:H2' | 2.18 | 0.44 |
| 25:DC:70:LYS:HD2 | 25:DC:95:TYR:CD1 | 2.52 | 0.44 |
| 31:BJ:119:PHE:O | 31:BJ:122:LEU:HG | 2.18 | 0.44 |
| 43:BW:44:PHE:O | 43:BW:76:ARG:N | 2.50 | 0.44 |
| 23:DB:974:G:H4' | 39:DR:83:TYR:CZ | 2.52 | 0.44 |
| 23:BB:320:A:OP2 | 27:BE:132:LYS:HE2 | 2.18 | 0.44 |
| 23:BB:635:C:H3' | 33:BL:109:LYS:NZ | 2.33 | 0.44 |
| 36:DO:39:VAL:HG12 | 36:DO:50:ALA:HB2 | 2.00 | 0.44 |
| 45:BY:9:THR:HB | 45:BY:54:VAL:CA | 2.39 | 0.44 |
| 42:BU:42:LYS:HD3 | 42:BU:60:LYS:CB | 2.45 | 0.44 |
| 41:DT:14:PRO:HA | 41:DT:32:LEU:HG | 1.98 | 0.44 |
| 8:AI:51:LEU:CD1 | 8:AI:82:ILE:HG21 | 2.47 | 0.44 |
| 25:BC:7:PRO:HB3 | 25:BC:25:LYS:HD3 | 1.98 | 0.44 |
| 10:CK:16:SER:N | 10:CK:78:ILE:HA | 2.32 | 0.44 |
| 23:DB:2270:A:H4' | 43:DW:18:LYS:HB2 | 1.99 | 0.44 |
| 43:DW:19:ARG:NH2 | 43:DW:22:VAL:HA | 2.32 | 0.44 |
| 41:BT:47:VAL:HG12 | 41:BT:53:VAL:CG2 | 2.47 | 0.44 |
| 41:BT:62:VAL:O | 41:BT:63:VAL:CG1 | 2.61 | 0.44 |
| 41:BT:87:LEU:HD22 | 41:BT:87:LEU:N | 2.32 | 0.44 |
| 23:DB:1266:G:OP2 | 47:D0:12:ARG:NH1 | 2.50 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 13:CN:63:CYS:CB | 13:CN:68:ARG:H | 2.25 | 0.44 |
| 1:AA:1085:U:H3' | 1:AA:1086:U:C5 | 2.53 | 0.44 |
| 23:DB:927:A:O2' | 23:DB:928:A:H5' | 2.18 | 0.44 |
| 12:CM:97:ARG:HG2 | 12:CM:97:ARG:HH11 | 1.82 | 0.44 |
| 31:DJ:93:ILE:HG22 | 31:DJ:97:PRO:HA | 1.99 | 0.44 |
| 44:BX:15:ASN:O | 44:BX:17:GLU:N | 2.51 | 0.44 |
| 23:DB:1064:C:H2' | 23:DB:1065:U:O4' | 2.17 | 0.44 |
| 36:BO:10:ARG:NH1 | 36:BO:10:ARG:HG3 | 2.30 | 0.44 |
| 1:CA:238:A:C3' | 1:CA:239:U:H5'' | 2.47 | 0.44 |
| 1:CA:237:G:O2' | 1:CA:238:A:H5' | 2.18 | 0.44 |
| 8:CI:30:ASN:O | 8:CI:31:GLN:HB2 | 2.17 | 0.44 |
| 26:BD:62:LYS:CE | 26:BD:62:LYS:H | 2.30 | 0.44 |
| 24:DV:30:ILE:HB | 24:DV:38:LEU:HB3 | 2.00 | 0.44 |
| 29:BG:40:VAL:HG13 | 29:BG:52:GLY:O | 2.18 | 0.44 |
| 7:CH:75:GLN:HE21 | 7:CH:76:ARG:H | 1.65 | 0.44 |
| 1:AA:397:A:N7 | 1:AA:547:A:O2' | 2.45 | 0.44 |
| 8:AI:118:ARG:HH22 | 8:AI:122:ARG:HH21 | 1.66 | 0.44 |
| 23:BB:2249:U:C4' | 23:BB:2275:C:H5 | 2.29 | 0.44 |
| 23:BB:1802:A:O3' | 25:BC:255:LYS:HE2 | 2.18 | 0.44 |
| 25:BC:243:PRO:HB3 | 25:BC:249:VAL:HG23 | 1.99 | 0.44 |
| 24:BV:79:ARG:HB3 | 24:BV:79:ARG:NH1 | 2.32 | 0.44 |
| 23:BB:435:C:C2' | 23:BB:436:C:H5' | 2.47 | 0.44 |
| 4:CE:64:GLU:HA | 4:CE:67:ARG:NH1 | 2.32 | 0.44 |
| 1:AA:541:G:H2' | 1:AA:542:G:C8 | 2.52 | 0.44 |
| 5:CF:68:GLN:HA | 5:CF:71:ILE:CG2 | 2.45 | 0.44 |
| 42:DU:94:PHE:CD2 | 42:DU:95:PHE:N | 2.84 | 0.44 |
| 29:DG:163:TYR:C | 29:DG:165:ASP:H | 2.20 | 0.44 |
| 23:DB:1359:A:H2' | 23:DB:1360:G:O4' | 2.17 | 0.44 |
| 23:DB:1964:G:H4' | 23:DB:1965:C:OP2 | 2.17 | 0.44 |
| 1:CA:598:U:H2' | 1:CA:599:C:H6 | 1.82 | 0.44 |
| 23:BB:728:G:H5' | 25:BC:12:ARG:HH22 | 1.82 | 0.44 |
| 23:BB:608:A:H2' | 23:BB:609:A:H8 | 1.81 | 0.44 |
| 23:BB:1560:G:C4 | 23:BB:1561:C:C5 | 3.06 | 0.44 |
| 32:DK:17:ARG:HB2 | 32:DK:45:GLU:CB | 2.47 | 0.44 |
| 32:DK:8:LEU:H | 32:DK:8:LEU:HD12 | 1.82 | 0.44 |
| 23:BB:2100:G:H3' | 23:BB:2101:A:H8 | 1.82 | 0.44 |
| 20:AB:172:ILE:O | 20:AB:175:ALA:HB3 | 2.17 | 0.44 |
| 23:DB:2491:U:H5'' | 23:DB:2570:G:H5' | 1.99 | 0.44 |
| 23:BB:1710:G:H2' | 23:BB:1711:A:C8 | 2.52 | 0.44 |
| 23:DB:1710:G:H2' | 23:DB:1711:A:C8 | 2.52 | 0.44 |
| 1:CA:113:G:H2' | 1:CA:114:U:H6 | 1.81 | 0.44 |
| 23:DB:1560:G:C4 | 23:DB:1561:C:C5 | 3.06 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:DB:1317:G:H2' | 23:DB:1318:U:O4' | 2.17 | 0.44 |
| 2:AC:110:LEU:HB3 | 2:AC:203:LYS:NZ | 2.32 | 0.44 |
| 23:BB:185:G:H2' | 23:BB:186:G:O4' | 2.17 | 0.44 |
| 26:DD:70:LYS:NZ | 26:DD:70:LYS:HB3 | 2.32 | 0.44 |
| 23:DB:1541:C:O2' | 23:DB:1542:U:H5' | 2.17 | 0.44 |
| 1:AA:28:A:H2' | 1:AA:29:U:O4' | 2.17 | 0.44 |
| 2:AC:70:ALA:CB | 2:AC:108:PRO:HB3 | 2.47 | 0.44 |
| 1:CA:1456:A:H2' | 1:CA:1457:G:C8 | 2.52 | 0.44 |
| 1:CA:28:A:H2' | 1:CA:29:U:O4' | 2.17 | 0.44 |
| 45:BY:28:LEU:HA | 45:BY:33:HIS:ND1 | 2.33 | 0.44 |
| 9:CJ:35:GLN:HB3 | 9:CJ:78:GLU:CD | 2.37 | 0.44 |
| 23:BB:376:G:H2' | 23:BB:377:G:H8 | 1.81 | 0.44 |
| 1:CA:734:G:H2' | 1:CA:735:C:C6 | 2.52 | 0.44 |
| 1:AA:1190:G:OP1 | 2:AC:4:VAL:HG12 | 2.17 | 0.44 |
| 23:BB:453:A:H4' | 23:BB:472:A:N6 | 2.32 | 0.44 |
| 23:BB:1668:A:N3 | 23:BB:1670:C:C4 | 2.85 | 0.44 |
| 1:CA:65:A:H2 | 1:CA:381:C:H2' | 1.82 | 0.44 |
| 23:BB:1678:A:O2' | 23:BB:1679:A:H5' | 2.16 | 0.44 |
| 21:CU:43:GLU:O | 21:CU:46:ARG:HB2 | 2.16 | 0.44 |
| 13:AN:73:LEU:HD12 | 13:AN:73:LEU:N | 2.32 | 0.44 |
| 26:BD:23:PRO:HA | 26:BD:190:LYS:CA | 2.47 | 0.44 |
| 37:BP:1:SER:HB2 | 37:BP:4:ILE:HB | 1.98 | 0.44 |
| 23:DB:858:G:C2 | 23:DB:2268:A:H2' | 2.47 | 0.44 |
| 25:BC:103:ILE:CG2 | 25:BC:104:LEU:N | 2.80 | 0.44 |
| 47:D0:47:TYR:CD2 | 47:D0:51:ARG:HA | 2.53 | 0.44 |
| 26:DD:83:ARG:HD2 | 26:DD:84:LEU:N | 2.32 | 0.44 |
| 23:DB:7:G:H2' | 23:DB:8:C:H6 | 1.82 | 0.44 |
| 43:BW:48:ALA:HA | 43:BW:54:ARG:HA | 2.00 | 0.44 |
| 23:DB:814:C:H5" | 39:DR:87:GLN:O | 2.18 | 0.44 |
| 30:BH:3:VAL:CG2 | 30:BH:21:VAL:HG11 | 2.44 | 0.44 |
| 27:DE:148:ILE:HG13 | 27:DE:148:ILE:O | 2.17 | 0.44 |
| 27:DE:151:GLY:HA2 | 27:DE:169:VAL:O | 2.17 | 0.44 |
| 23:BB:2393:U:OP1 | 50:B3:29:ARG:CZ | 2.66 | 0.44 |
| 23:BB:966:G:H5" | 23:BB:2272:U:O2 | 2.17 | 0.44 |
| 39:BR:78:ARG:HD3 | 39:BR:87:GLN:HG2 | 2.00 | 0.44 |
| 16:AQ:22:VAL:HG21 | 16:AQ:58:VAL:HG21 | 1.99 | 0.44 |
| 23:DB:2377:A:H2 | 36:DO:92:PHE:HE1 | 1.65 | 0.44 |
| 23:BB:1189:A:H2' | 23:BB:1190:G:O4' | 2.17 | 0.44 |
| 40:BS:50:VAL:HG21 | 40:BS:103:ILE:HG21 | 1.98 | 0.44 |
| 23:BB:1164:C:H2' | 23:BB:1165:A:C8 | 2.52 | 0.44 |
| 35:BN:87:PHE:HB2 | 35:BN:94:TYR:CZ | 2.52 | 0.44 |
| 39:BR:69:GLY:O | 39:BR:70:GLU:HG3 | 2.17 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 1:AA:1296:C:O2' | 1:AA:1302:C:C2 | 2.71 | 0.44 |
| 10:AK:92:ARG:NH1 | 21:AU:24:LYS:NZ | 2.65 | 0.44 |
| 12:AM:75:SER:O | 12:AM:78:ARG:HB3 | 2.17 | 0.44 |
| 12:AM:78:ARG:HE | 12:AM:79:LEU:CD1 | 2.29 | 0.44 |
| 23:BB:1346:G:C6 | 23:BB:1601:G:C6 | 3.05 | 0.44 |
| 23:BB:144:A:H2' | 23:BB:145:C:O4' | 2.18 | 0.44 |
| 22:DA:49:C:H2' | 22:DA:50:A:H8 | 1.83 | 0.44 |
| 40:DS:18:ARG:NE | 40:DS:22:ASP:OD1 | 2.50 | 0.44 |
| 40:DS:22:ASP:O | 40:DS:25:ARG:HG3 | 2.18 | 0.44 |
| 23:DB:357:C:H2' | 23:DB:358:U:H6 | 1.82 | 0.44 |
| 33:DL:61:LEU:HD23 | 33:DL:61:LEU:C | 2.38 | 0.44 |
| 26:DD:122:VAL:CG2 | 26:DD:128:ARG:HG3 | 2.46 | 0.44 |
| 1:AA:1215:G:H5' | 1:AA:1215:G:H8 | 1.80 | 0.44 |
| 52:BI:7:TYR:CD1 | 52:BI:7:TYR:C | 2.91 | 0.44 |
| 26:BD:106:LYS:HB2 | 26:BD:106:LYS:HE3 | 1.77 | 0.44 |
| 34:DM:33:LEU:CD2 | 34:DM:124:LEU:HD22 | 2.48 | 0.44 |
| 12:CM:21:ILE:O | 12:CM:21:ILE:HG22 | 2.16 | 0.44 |
| 29:BG:16:VAL:HG21 | 29:BG:44:HIS:NE2 | 2.32 | 0.44 |
| 29:BG:24:THR:OG1 | 29:BG:31:GLU:HB3 | 2.17 | 0.44 |
| 1:AA:951:G:H1' | 1:AA:970:C:O2' | 2.17 | 0.44 |
| 32:BK:35:VAL:HG23 | 32:BK:36:GLY:N | 2.22 | 0.44 |
| 51:D4:30:GLU:O | 51:D4:32:LYS:N | 2.50 | 0.44 |
| 29:DG:156:TYR:CD1 | 29:DG:171:LYS:HG2 | 2.53 | 0.44 |
| 22:BA:49:C:OP2 | 36:BO:30:ARG:NH2 | 2.50 | 0.44 |
| 24:DV:72:VAL:CG1 | 24:DV:93:ARG:HA | 2.42 | 0.44 |
| 23:BB:1547:C:H2' | 23:BB:1548:A:H8 | 1.81 | 0.44 |
| 1:AA:397:A:N3 | 1:AA:397:A:H3' | 2.33 | 0.44 |
| 1:CA:36:C:H2' | 1:CA:37:U:O4' | 2.17 | 0.44 |
| 23:BB:1785:A:H2' | 23:BB:1787:A:C8 | 2.52 | 0.44 |
| 23:BB:764:A:H5'' | 25:BC:208:GLY:HA3 | 1.98 | 0.44 |
| 22:DA:99:A:N1 | 23:DB:863:A:H4' | 2.33 | 0.44 |
| 23:DB:538:A:N6 | 23:DB:555:G:O2' | 2.43 | 0.44 |
| 1:AA:60:A:O2' | 1:AA:61:G:OP2 | 2.36 | 0.44 |
| 18:AS:16:LYS:O | 18:AS:20:LYS:HB2 | 2.17 | 0.44 |
| 37:DP:8:GLU:HA | 37:DP:11:GLN:HG2 | 1.99 | 0.44 |
| 23:BB:1210:G:H4' | 23:BB:1211:C:OP2 | 2.18 | 0.44 |
| 23:DB:2758:A:H2' | 23:DB:2759:G:C5' | 2.45 | 0.44 |
| 23:DB:304:U:H2' | 23:DB:305:C:H6 | 1.78 | 0.44 |
| 1:AA:56:U:H6 | 1:AA:56:U:O5' | 2.00 | 0.44 |
| 23:DB:182:A:H2 | 23:DB:433:C:O2 | 2.00 | 0.44 |
| 1:CA:81:A:H2' | 1:CA:82:G:H8 | 1.81 | 0.44 |
| 23:BB:956:G:H22 | 23:BB:959:A:H3' | 1.80 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 1:CA:11:G:H2' | 1:CA:12:U:C6 | 2.53 | 0.44 |
| 3:AD:120:LYS:CB | 3:AD:145:ARG:HH21 | 2.30 | 0.44 |
| 28:BF:177:ARG:C | 28:BF:177:ARG:HE | 2.21 | 0.44 |
| 43:BW:49:ASN:O | 43:BW:50:VAL:HB | 2.18 | 0.44 |
| 23:BB:1559:U:H3' | 23:BB:1560:G:C5' | 2.47 | 0.44 |
| 2:CC:108:PRO:C | 2:CC:110:LEU:H | 2.21 | 0.44 |
| 20:AB:162:VAL:CG1 | 20:AB:184:ALA:HB2 | 2.47 | 0.44 |
| 23:BB:863:A:H2' | 23:BB:864:G:H8 | 1.83 | 0.44 |
| 23:BB:1228:G:H2' | 23:BB:1229:C:H6 | 1.82 | 0.44 |
| 2:CC:65:VAL:O | 2:CC:65:VAL:HG12 | 2.17 | 0.44 |
| 1:AA:113:G:H2' | 1:AA:114:U:H6 | 1.81 | 0.44 |
| 23:DB:20:C:H2' | 23:DB:21:A:C8 | 2.51 | 0.44 |
| 17:AR:40:PRO:HD2 | 17:AR:43:ILE:HD11 | 1.98 | 0.44 |
| 3:CD:55:ARG:HH11 | 3:CD:55:ARG:CG | 2.31 | 0.44 |
| 23:DB:2215:C:O2' | 23:DB:2216:G:H5' | 2.17 | 0.44 |
| 23:DB:1292:G:H2' | 23:DB:1293:C:H6 | 1.83 | 0.44 |
| 23:BB:770:G:OP1 | 49:B2:8:SER:HB2 | 2.17 | 0.44 |
| 23:DB:1128:G:N7 | 23:DB:2490:G:H5' | 2.32 | 0.44 |
| 28:BF:77:LYS:HZ3 | 28:BF:79:ARG:HE | 1.65 | 0.44 |
| 23:DB:145:C:H2' | 23:DB:146:A:C8 | 2.52 | 0.44 |
| 23:DB:2669:G:H2' | 23:DB:2670:A:C8 | 2.51 | 0.44 |
| 23:DB:383:C:H5'' | 23:DB:385:C:OP2 | 2.17 | 0.44 |
| 23:BB:68:G:N3 | 23:BB:68:G:H2' | 2.31 | 0.44 |
| 23:BB:2604:U:O2' | 23:BB:2605:U:H5' | 2.17 | 0.44 |
| 11:AL:58:ASN:ND2 | 11:AL:60:PHE:HB2 | 2.33 | 0.44 |
| 1:CA:29:U:O2' | 1:CA:30:U:H5' | 2.17 | 0.44 |
| 23:DB:2521:C:O2' | 23:DB:2522:U:H5' | 2.17 | 0.44 |
| 1:CA:178:C:O2' | 1:CA:179:A:H5' | 2.18 | 0.44 |
| 1:AA:1484:C:O2' | 1:AA:1485:U:H5' | 2.18 | 0.44 |
| 23:DB:239:C:H2' | 23:DB:240:C:C6 | 2.52 | 0.44 |
| 1:CA:668:G:O2' | 1:CA:669:G:H5' | 2.17 | 0.44 |
| 2:CC:87:ARG:HG3 | 2:CC:87:ARG:HH11 | 1.81 | 0.44 |
| 23:BB:121:G:H4' | 23:BB:149:A:H5' | 2.00 | 0.44 |
| 3:CD:102:TYR:HE1 | 3:CD:108:ALA:O | 2.01 | 0.44 |
| 23:DB:2867:G:N3 | 23:DB:2867:G:C2' | 2.73 | 0.44 |
| 23:BB:661:A:H2' | 23:BB:662:G:H8 | 1.83 | 0.44 |
| 51:D4:23:ILE:HD12 | 51:D4:24:ARG:HH11 | 1.82 | 0.44 |
| 32:BK:75:SER:N | 37:BP:76:HIS:NE2 | 2.64 | 0.44 |
| 25:BC:124:LYS:HZ3 | 25:BC:125:PRO:HD2 | 1.82 | 0.44 |
| 30:DH:4:ILE:CD1 | 30:DH:4:ILE:H | 2.31 | 0.44 |
| 47:D0:36:LYS:HG3 | 47:D0:40:HIS:C | 2.38 | 0.44 |
| 31:BJ:101:ILE:HG12 | 31:BJ:102:GLU:N | 2.32 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 18:AS:35:ARG:HG3 | 18:AS:35:ARG:H | 1.50 | 0.44 |
| 18:AS:47:THR:HG23 | 18:AS:60:PHE:HE1 | 1.83 | 0.44 |
| 23:DB:319:G:H2' | 23:DB:320:A:O4' | 2.18 | 0.44 |
| 23:DB:298:G:N2 | 23:DB:339:U:C5 | 2.86 | 0.44 |
| 33:BL:78:ARG:NH1 | 33:BL:80:SER:H | 2.16 | 0.44 |
| 23:BB:985:C:H2' | 23:BB:986:C:H6 | 1.83 | 0.44 |
| 46:DZ:2:LYS:O | 46:DZ:3:LYS:C | 2.55 | 0.44 |
| 23:DB:136:G:N2 | 41:DT:3:ARG:CZ | 2.80 | 0.44 |
| 23:DB:2294:G:OP2 | 36:DO:9:ARG:NE | 2.49 | 0.44 |
| 40:BS:9:HIS:O | 40:BS:10:ALA:HB3 | 2.18 | 0.44 |
| 25:BC:216:ARG:HB3 | 25:BC:217:PRO:HD2 | 1.99 | 0.44 |
| 23:DB:1341:G:C2' | 23:DB:1397:U:O2' | 2.66 | 0.44 |
| 26:BD:171:THR:HG22 | 26:BD:173:GLN:HG3 | 1.98 | 0.44 |
| 35:BN:24:MET:HE2 | 35:BN:44:LEU:HD13 | 1.99 | 0.44 |
| 25:BC:6:LYS:HA | 25:BC:7:PRO:HA | 1.82 | 0.44 |
| 34:DM:5:LYS:HE3 | 34:DM:6:ARG:CA | 2.45 | 0.44 |
| 13:AN:63:CYS:HB2 | 13:AN:79:SER:OG | 2.18 | 0.44 |
| 40:BS:70:LYS:CD | 40:BS:110:ARG:HG3 | 2.47 | 0.44 |
| 27:BE:111:GLU:C | 27:BE:113:VAL:H | 2.21 | 0.44 |
| 30:DH:108:VAL:HG12 | 30:DH:110:VAL:CB | 2.47 | 0.44 |
| 18:CS:10:ILE:CG2 | 18:CS:40:PHE:HE2 | 2.31 | 0.44 |
| 23:BB:743:A:C2' | 23:BB:744:U:H5' | 2.47 | 0.44 |
| 10:CK:84:MET:SD | 10:CK:110:THR:OG1 | 2.73 | 0.44 |
| 20:AB:9:LEU:H | 20:AB:9:LEU:HD12 | 1.82 | 0.44 |
| 33:DL:64:PHE:CD2 | 50:D3:11:LYS:HB3 | 2.49 | 0.44 |
| 41:DT:9:LYS:HD3 | 44:DX:29:ARG:HH22 | 1.82 | 0.44 |
| 26:BD:29:VAL:HA | 26:BD:185:ASN:OD1 | 2.18 | 0.44 |
| 26:BD:40:LEU:O | 26:BD:41:ALA:HB3 | 2.18 | 0.44 |
| 23:DB:2728:U:H2' | 23:DB:2729:G:H8 | 1.82 | 0.44 |
| 37:DP:34:GLY:O | 37:DP:35:SER:HB3 | 2.17 | 0.44 |
| 8:CI:6:TYR:OH | 8:CI:8:THR:HG22 | 2.17 | 0.44 |
| 1:CA:1300:G:H2' | 1:CA:1301:U:OP2 | 2.18 | 0.44 |
| 42:BU:2:ALA:O | 42:BU:4:ILE:HG13 | 2.18 | 0.44 |
| 3:AD:12:ARG:HD2 | 3:AD:37:PRO:HA | 2.00 | 0.44 |
| 23:DB:2887:A:O4' | 47:D0:27:LEU:HD11 | 2.17 | 0.44 |
| 10:CK:12:ARG:CB | 10:CK:13:LYS:HD2 | 2.47 | 0.44 |
| 10:CK:70:ALA:C | 10:CK:72:ALA:N | 2.70 | 0.44 |
| 23:DB:1176:U:H2' | 23:DB:1177:G:O4' | 2.17 | 0.44 |
| 29:DG:134:GLY:N | 29:DG:140:ILE:HD11 | 2.32 | 0.44 |
| 1:CA:949:A:O2' | 1:CA:950:U:H5' | 2.18 | 0.44 |
| 23:BB:230:G:H2' | 23:BB:231:A:H8 | 1.82 | 0.44 |
| 16:CQ:68:LYS:C | 16:CQ:70:LYS:N | 2.70 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 43:BW:37:VAL:O | 43:BW:38:ARG:C | 2.55 | 0.44 |
| 1:CA:1414:U:H2' | 1:CA:1415:G:C8 | 2.52 | 0.44 |
| 1:AA:1148:U:H5'' | 8:AI:8:THR:HG23 | 2.00 | 0.44 |
| 3:CD:37:PRO:HD2 | 3:CD:41:GLY:CA | 2.47 | 0.44 |
| 23:DB:1785:A:H2' | 23:DB:1787:A:C8 | 2.52 | 0.44 |
| 2:AC:148:ILE:HA | 2:AC:200:TRP:O | 2.18 | 0.44 |
| 38:DQ:32:ARG:NH1 | 38:DQ:33:VAL:HG22 | 2.33 | 0.44 |
| 9:AJ:57:VAL:HG22 | 9:AJ:58:ASN:H | 1.83 | 0.44 |
| 1:AA:613:C:H2' | 1:AA:614:C:H6 | 1.82 | 0.44 |
| 14:CO:42:PHE:CD1 | 14:CO:55:LEU:HD22 | 2.53 | 0.44 |
| 40:DS:42:LYS:HE2 | 40:DS:45:VAL:HG21 | 1.99 | 0.44 |
| 4:AE:105:ILE:HD12 | 4:AE:123:LEU:HB3 | 2.00 | 0.44 |
| 23:DB:2463:C:O2' | 23:DB:2464:G:H5' | 2.18 | 0.44 |
| 34:DM:119:LEU:N | 34:DM:119:LEU:HD22 | 2.32 | 0.44 |
| 23:DB:11:C:H2' | 23:DB:12:U:C5' | 2.44 | 0.44 |
| 8:AI:4:GLN:NE2 | 8:AI:21:LYS:HE3 | 2.33 | 0.44 |
| 23:DB:1589:U:H2' | 23:DB:1590:A:C8 | 2.52 | 0.44 |
| 24:BV:77:VAL:HG12 | 34:BM:133:LYS:HZ2 | 1.83 | 0.44 |
| 1:AA:1521:C:H2' | 1:AA:1522:U:C6 | 2.53 | 0.44 |
| 3:CD:107:GLY:O | 3:CD:157:ALA:HB1 | 2.17 | 0.44 |
| 11:CL:19:ASN:HB3 | 11:CL:85:ARG:HD2 | 1.99 | 0.44 |
| 23:DB:198:C:H5' | 23:DB:2244:U:OP1 | 2.18 | 0.44 |
| 3:AD:190:LEU:O | 3:AD:192:ALA:N | 2.50 | 0.44 |
| 23:BB:1535:A:H5' | 23:BB:1536:C:C5 | 2.53 | 0.44 |
| 23:BB:1964:G:H4' | 23:BB:1965:C:OP2 | 2.17 | 0.44 |
| 1:CA:1349:A:H61 | 1:CA:1373:G:H1' | 1.82 | 0.44 |
| 23:BB:1669:A:C8 | 32:BK:5:GLN:HG3 | 2.53 | 0.44 |
| 2:CC:53:ARG:HA | 2:CC:113:LYS:HZ3 | 1.83 | 0.44 |
| 1:CA:1142:G:H2' | 1:CA:1143:G:O4' | 2.17 | 0.44 |
| 28:BF:116:LEU:H | 28:BF:176:PHE:CA | 2.31 | 0.44 |
| 13:AN:17:ASP:HB2 | 13:AN:18:LYS:NZ | 2.33 | 0.44 |
| 23:DB:401:A:O2' | 23:DB:402:A:C5' | 2.65 | 0.44 |
| 29:DG:93:TYR:HA | 29:DG:105:SER:O | 2.17 | 0.44 |
| 25:DC:135:PRO:O | 25:DC:165:ALA:HA | 2.17 | 0.44 |
| 23:BB:1561:C:H2' | 23:BB:1562:U:H6 | 1.81 | 0.44 |
| 23:BB:1877:A:O2' | 23:BB:1878:G:H5' | 2.18 | 0.44 |
| 23:BB:1231:U:H2' | 23:BB:1232:G:C8 | 2.52 | 0.44 |
| 23:BB:2787:C:H2' | 23:BB:2788:C:C6 | 2.53 | 0.44 |
| 28:BF:48:LEU:O | 28:BF:49:LEU:HB2 | 2.17 | 0.44 |
| 1:AA:915:A:C2' | 1:AA:916:U:H5' | 2.48 | 0.44 |
| 23:BB:1027:A:H2 | 23:BB:2488:G:H4' | 1.82 | 0.44 |
| 1:CA:1425:U:H2' | 1:CA:1426:G:C8 | 2.53 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:BB:2669:G:H2' | 23:BB:2670:A:C8 | 2.51 | 0.44 |
| 23:BB:1910:G:O2' | 23:BB:1911:U:H5' | 2.18 | 0.44 |
| 23:BB:1107:G:H2' | 23:BB:1108:U:C6 | 2.53 | 0.44 |
| 9:CJ:68:ARG:HD3 | 9:CJ:70:HIS:CE1 | 2.53 | 0.44 |
| 27:BE:178:VAL:HG23 | 27:BE:179:SER:N | 2.33 | 0.44 |
| 23:BB:2150:C:H2' | 23:BB:2151:U:O4' | 2.17 | 0.44 |
| 23:DB:1775:U:H2' | 23:DB:1776:G:C5' | 2.47 | 0.44 |
| 15:AP:78:VAL:O | 15:AP:80:LYS:N | 2.51 | 0.44 |
| 23:DB:1541:C:H2' | 23:DB:1542:U:O4' | 2.16 | 0.44 |
| 17:CR:42:ARG:C | 17:CR:44:THR:H | 2.21 | 0.44 |
| 1:CA:432:A:H2' | 1:CA:433:G:H5' | 1.99 | 0.44 |
| 25:DC:23:LEU:HD12 | 25:DC:24:HIS:O | 2.17 | 0.44 |
| 23:DB:2533:U:H2' | 23:DB:2534:A:O4' | 2.17 | 0.44 |
| 5:CF:72:ASP:O | 5:CF:75:GLU:HB3 | 2.18 | 0.44 |
| 35:DN:121:LYS:HD2 | 35:DN:122:ALA:H | 1.83 | 0.44 |
| 23:DB:1659:G:C6 | 23:DB:2002:G:C6 | 3.06 | 0.44 |
| 1:AA:1529:G:OP2 | 1:AA:1529:G:H3' | 2.18 | 0.44 |
| 23:DB:2321:U:O2 | 23:DB:2321:U:O4' | 2.35 | 0.44 |
| 13:AN:49:THR:O | 13:AN:49:THR:HG22 | 2.17 | 0.44 |
| 10:CK:117:HIS:O | 10:CK:118:ASN:HB2 | 2.16 | 0.44 |
| 23:DB:1930:G:HO2' | 23:DB:1931:U:H5 | 1.64 | 0.44 |
| 23:BB:1311:G:H21 | 23:BB:1603:A:H62 | 1.65 | 0.44 |
| 42:BU:13:LEU:N | 42:BU:68:ASN:ND2 | 2.64 | 0.44 |
| 42:BU:11:ILE:O | 42:BU:69:VAL:HB | 2.18 | 0.44 |
| 23:BB:443:A:C2 | 23:BB:1245:G:N3 | 2.86 | 0.44 |
| 37:BP:18:SER:C | 37:BP:20:ARG:H | 2.21 | 0.44 |
| 37:BP:18:SER:OG | 37:BP:21:PRO:HD3 | 2.18 | 0.44 |
| 23:BB:2206:C:O2' | 23:BB:2207:C:H5' | 2.17 | 0.44 |
| 25:BC:153:LEU:CD1 | 25:BC:161:VAL:HG23 | 2.47 | 0.44 |
| 31:BJ:71:ASP:O | 31:BJ:72:LYS:HB2 | 2.17 | 0.44 |
| 43:BW:43:LYS:HA | 43:BW:63:ASP:OD1 | 2.18 | 0.44 |
| 43:BW:66:VAL:CG2 | 43:BW:67:LYS:H | 2.26 | 0.44 |
| 27:DE:147:LEU:O | 27:DE:148:ILE:HG13 | 2.18 | 0.44 |
| 46:BZ:63:ARG:NH2 | 46:BZ:66:ILE:HD12 | 2.33 | 0.44 |
| 34:BM:45:GLN:HE21 | 34:BM:119:LEU:HB3 | 1.81 | 0.44 |
| 40:BS:17:VAL:HG23 | 40:BS:76:VAL:HG21 | 2.00 | 0.44 |
| 31:DJ:110:PRO:O | 31:DJ:111:LYS:HB2 | 2.18 | 0.44 |
| 31:BJ:85:LYS:HD3 | 31:BJ:85:LYS:HA | 1.77 | 0.44 |
| 39:BR:42:ALA:HA | 39:BR:54:VAL:HG22 | 1.99 | 0.44 |
| 39:BR:68:ARG:HD2 | 39:BR:70:GLU:OE1 | 2.17 | 0.44 |
| 27:BE:148:ILE:N | 27:BE:183:PHE:HB3 | 2.31 | 0.44 |
| 3:CD:100:VAL:HG12 | 3:CD:101:VAL:N | 2.33 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 10:AK:109:ILE:HG22 | 21:AU:16:ARG:HD2 | 1.99 | 0.44 |
| 24:BV:30:ILE:O | 24:BV:37:PRO:HA | 2.18 | 0.44 |
| 26:DD:180:VAL:HG23 | 26:DD:181:ASP:N | 2.32 | 0.44 |
| 23:DB:635:C:OP2 | 33:DL:126:ARG:NE | 2.42 | 0.44 |
| 23:BB:137:U:C2' | 23:BB:138:U:H5' | 2.48 | 0.44 |
| 41:BT:15:HIS:HB2 | 41:BT:31:VAL:HG21 | 1.99 | 0.44 |
| 41:BT:6:ARG:O | 41:BT:8:LEU:N | 2.50 | 0.44 |
| 23:BB:2512:C:O2' | 26:BD:146:ILE:CG1 | 2.66 | 0.44 |
| 44:DX:22:LEU:HD22 | 44:DX:25:GLN:CD | 2.38 | 0.44 |
| 25:DC:51:ARG:HD3 | 25:DC:51:ARG:O | 2.17 | 0.44 |
| 18:CS:5:LYS:C | 18:CS:6:LYS:HG2 | 2.38 | 0.44 |
| 31:DJ:73:VAL:HG21 | 31:DJ:75:TYR:CE2 | 2.52 | 0.44 |
| 33:DL:120:VAL:HG12 | 33:DL:122:VAL:HG22 | 1.98 | 0.44 |
| 1:CA:1299:A:C5 | 1:CA:1301:U:H1' | 2.53 | 0.44 |
| 29:BG:44:HIS:HB2 | 29:BG:49:LEU:HD23 | 2.00 | 0.44 |
| 35:BN:9:GLN:HB2 | 35:BN:9:GLN:HE21 | 1.54 | 0.44 |
| 2:AC:77:GLY:CA | 2:AC:81:GLU:HB3 | 2.46 | 0.44 |
| 52:DI:54:ILE:C | 52:DI:54:ILE:HD13 | 2.37 | 0.44 |
| 52:DI:138:VAL:HG12 | 52:DI:139:VAL:N | 2.32 | 0.44 |
| 1:CA:234:C:H2' | 1:CA:235:C:C6 | 2.53 | 0.44 |
| 1:CA:239:U:C6 | 1:CA:239:U:C5' | 2.97 | 0.44 |
| 1:AA:1347:G:O2' | 1:AA:1348:U:P | 2.75 | 0.44 |
| 36:BO:76:LYS:HB2 | 36:BO:106:LEU:HD13 | 1.99 | 0.44 |
| 23:BB:346:A:H3' | 23:BB:347:A:H8 | 1.83 | 0.44 |
| 40:DS:84:ARG:HH21 | 40:DS:98:LYS:HZ1 | 1.66 | 0.44 |
| 7:CH:103:VAL:HG22 | 7:CH:124:ILE:HA | 1.99 | 0.44 |
| 28:BF:107:VAL:HB | 28:BF:108:PRO:HD3 | 2.00 | 0.44 |
| 23:BB:1552:A:H2' | 23:BB:1553:A:C5' | 2.44 | 0.44 |
| 25:BC:237:ARG:HB2 | 25:BC:239:PHE:CE1 | 2.52 | 0.44 |
| 1:AA:500:G:H2' | 1:AA:501:C:C6 | 2.53 | 0.44 |
| 40:DS:43:ALA:C | 40:DS:45:VAL:H | 2.20 | 0.44 |
| 40:DS:42:LYS:O | 40:DS:45:VAL:HG22 | 2.17 | 0.44 |
| 2:CC:156:LEU:CD1 | 2:CC:165:GLU:HB2 | 2.47 | 0.44 |
| 1:CA:86:G:O2' | 1:CA:87:C:P | 2.76 | 0.44 |
| 40:DS:1:MET:HB3 | 40:DS:4:ILE:CD1 | 2.47 | 0.44 |
| 23:DB:1028:A:N6 | 23:DB:1125:G:H2' | 2.33 | 0.44 |
| 15:AP:6:LEU:HD12 | 15:AP:6:LEU:N | 2.32 | 0.44 |
| 30:BH:23:ALA:C | 30:BH:25:TYR:H | 2.21 | 0.44 |
| 20:AB:104:LYS:HE3 | 20:AB:104:LYS:HB2 | 1.82 | 0.44 |
| 29:BG:125:PRO:HD2 | 29:BG:129:GLU:HB2 | 2.00 | 0.44 |
| 1:CA:695:A:C5' | 10:CK:52:ARG:HH22 | 2.29 | 0.44 |
| 3:AD:39:GLN:HB3 | 3:AD:40:HIS:ND1 | 2.32 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:AA:206:C:H2' | 1:AA:207:C:C6 | 2.53 | 0.44 |
| 1:CA:729:A:H2' | 1:CA:730:G:H8 | 1.83 | 0.44 |
| 1:CA:731:G:OP1 | 1:CA:766:A:H1' | 2.16 | 0.44 |
| 23:BB:565:C:O2' | 23:BB:566:U:H5' | 2.18 | 0.44 |
| 23:DB:435:C:H2' | 23:DB:436:C:H5' | 1.99 | 0.44 |
| 15:CP:40:ASN:HD21 | 15:CP:42:ILE:CG1 | 2.30 | 0.44 |
| 23:BB:1509:A:C4' | 23:BB:1510:G:H5' | 2.48 | 0.44 |
| 36:DO:79:ALA:O | 36:DO:82:ALA:HB3 | 2.18 | 0.44 |
| 23:BB:1724:G:H2' | 23:BB:1725:U:H6 | 1.82 | 0.44 |
| 16:AQ:39:ARG:HH11 | 16:AQ:39:ARG:CB | 2.30 | 0.44 |
| 23:DB:1746:A:H2' | 23:DB:1747:U:C6 | 2.53 | 0.44 |
| 23:BB:1418:G:N2 | 23:BB:1579:A:C8 | 2.85 | 0.44 |
| 31:DJ:94:ALA:CB | 31:DJ:95:ARG:HH21 | 2.31 | 0.44 |
| 23:DB:661:A:H2' | 23:DB:662:G:H8 | 1.82 | 0.44 |
| 1:CA:448:A:H2' | 1:CA:449:G:C8 | 2.53 | 0.44 |
| 23:DB:1529:G:H2' | 23:DB:1530:G:C8 | 2.53 | 0.44 |
| 23:DB:2438:U:O2' | 23:DB:2439:A:H5'' | 2.18 | 0.44 |
| 34:BM:58:LYS:C | 34:BM:60:GLN:N | 2.71 | 0.44 |
| 23:BB:2236:U:O2' | 23:BB:2237:G:H5' | 2.18 | 0.44 |
| 2:AC:41:TYR:HA | 2:AC:44:LYS:CD | 2.47 | 0.44 |
| 40:BS:86:MET:HB2 | 40:BS:96:ILE:HD11 | 1.98 | 0.44 |
| 23:BB:197:A:H62 | 23:BB:2430:A:H2' | 1.83 | 0.44 |
| 23:DB:1027:A:N3 | 23:DB:2488:G:H5'' | 2.32 | 0.44 |
| 1:CA:1481:U:H2' | 1:CA:1482:G:C8 | 2.52 | 0.44 |
| 23:DB:1985:C:O2' | 23:DB:1986:C:H5' | 2.17 | 0.44 |
| 1:CA:659:U:O2' | 1:CA:660:C:H5' | 2.18 | 0.44 |
| 23:BB:2712:C:H2' | 23:BB:2714:G:O3' | 2.17 | 0.44 |
| 6:CG:78:ARG:HD2 | 6:CG:81:GLY:H | 1.82 | 0.44 |
| 3:AD:71:PHE:O | 3:AD:74:TYR:HB2 | 2.17 | 0.44 |
| 6:AG:115:MET:CE | 6:AG:119:LEU:HB2 | 2.47 | 0.44 |
| 7:AH:102:VAL:HG12 | 7:AH:125:ILE:HD12 | 1.99 | 0.44 |
| 23:BB:2508:G:O3' | 23:BB:2555:U:H5' | 2.18 | 0.44 |
| 22:DA:92:C:H2' | 22:DA:93:C:H6 | 1.82 | 0.44 |
| 23:DB:1145:C:O2' | 23:DB:1146:C:H5' | 2.17 | 0.44 |
| 4:CE:99:SER:C | 4:CE:101:GLY:H | 2.20 | 0.44 |
| 23:BB:378:C:O2' | 23:BB:379:G:H5' | 2.17 | 0.44 |
| 23:BB:43:G:H2' | 23:BB:44:A:O4' | 2.18 | 0.44 |
| 1:CA:705:G:N2 | 10:CK:43:TRP:CE3 | 2.85 | 0.44 |
| 6:CG:147:ASN:C | 6:CG:149:ALA:H | 2.21 | 0.44 |
| 23:BB:456:C:H3' | 41:BT:72:GLN:HE22 | 1.82 | 0.44 |
| 41:BT:71:GLY:O | 41:BT:72:GLN:HG3 | 2.17 | 0.44 |
| 1:AA:1340:A:H2' | 1:AA:1341:U:H6 | 1.81 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:DB:1098:A:C8 | 52:DI:3:LYS:HB3 | 2.53 | 0.44 |
| 43:DW:45:HIS:HE1 | 43:DW:71:LYS:HG3 | 1.81 | 0.44 |
| 43:DW:81:ILE:HG23 | 43:DW:83:ALA:H | 1.82 | 0.44 |
| 25:BC:103:ILE:HG22 | 25:BC:104:LEU:H | 1.81 | 0.44 |
| 25:BC:140:VAL:HG23 | 25:BC:193:GLU:OE2 | 2.17 | 0.44 |
| 34:BM:8:LYS:O | 34:BM:10:ARG:N | 2.50 | 0.44 |
| 23:BB:2055:C:H4' | 23:BB:2056:G:H5'' | 1.99 | 0.44 |
| 23:BB:2617:U:H2' | 23:BB:2618:G:C5' | 2.48 | 0.44 |
| 23:DB:144:A:C5 | 41:DT:3:ARG:NH1 | 2.86 | 0.44 |
| 25:DC:251:THR:O | 25:DC:252:LYS:CB | 2.65 | 0.44 |
| 23:DB:1802:A:C4' | 25:DC:255:LYS:HE2 | 2.40 | 0.44 |
| 13:AN:11:LYS:O | 13:AN:15:LEU:HG | 2.18 | 0.44 |
| 40:DS:9:HIS:HA | 40:DS:100:THR:OG1 | 2.18 | 0.44 |
| 41:DT:15:HIS:O | 41:DT:16:VAL:CB | 2.66 | 0.44 |
| 8:AI:43:ALA:C | 8:AI:45:MET:H | 2.21 | 0.44 |
| 31:DJ:4:PHE:HD1 | 31:DJ:5:THR:N | 2.16 | 0.44 |
| 31:DJ:7:LYS:HD2 | 31:DJ:45:THR:HG21 | 1.99 | 0.44 |
| 18:CS:39:ILE:HD11 | 18:CS:70:LEU:HD13 | 2.00 | 0.44 |
| 35:BN:45:ARG:HD2 | 35:BN:45:ARG:H | 1.82 | 0.44 |
| 5:CF:30:THR:HA | 5:CF:34:GLY:O | 2.18 | 0.44 |
| 39:BR:41:ILE:HG12 | 39:BR:60:LYS:O | 2.17 | 0.44 |
| 12:AM:44:ILE:O | 12:AM:47:LEU:HB2 | 2.17 | 0.44 |
| 27:BE:12:LEU:CD2 | 27:BE:118:LEU:HA | 2.48 | 0.44 |
| 3:CD:169:TRP:CD1 | 3:CD:170:LEU:HG | 2.53 | 0.44 |
| 26:DD:24:VAL:HG21 | 26:DD:193:VAL:HG13 | 2.00 | 0.44 |
| 26:DD:27:ILE:C | 26:DD:27:ILE:HD13 | 2.37 | 0.44 |
| 30:DH:104:THR:HA | 30:DH:108:VAL:O | 2.18 | 0.44 |
| 13:CN:71:GLY:O | 13:CN:79:SER:HA | 2.17 | 0.44 |
| 1:CA:719:C:O2 | 17:CR:37:LYS:HA | 2.18 | 0.44 |
| 32:BK:63:VAL:HG13 | 32:BK:107:LEU:HD22 | 2.00 | 0.44 |
| 23:BB:2733:A:H2' | 23:BB:2734:A:O4' | 2.17 | 0.44 |
| 52:BI:7:TYR:HB2 | 52:BI:59:THR:HA | 1.99 | 0.44 |
| 23:DB:165:A:H2' | 23:DB:166:U:C6 | 2.50 | 0.44 |
| 26:BD:2:ILE:CG2 | 26:BD:204:LYS:HG3 | 2.48 | 0.44 |
| 26:BD:88:GLU:HG2 | 26:BD:89:GLU:H | 1.83 | 0.44 |
| 52:BI:11:GLN:NE2 | 52:BI:74:PRO:HG2 | 2.33 | 0.44 |
| 28:DF:35:LEU:HA | 28:DF:153:ILE:HA | 2.00 | 0.44 |
| 45:DY:43:ILE:HA | 45:DY:46:MET:CB | 2.48 | 0.44 |
| 38:DQ:88:GLU:O | 38:DQ:89:ILE:C | 2.56 | 0.44 |
| 8:CI:42:THR:HA | 8:CI:45:MET:SD | 2.57 | 0.44 |
| 19:AT:27:MET:HE3 | 19:AT:66:ILE:HG12 | 1.99 | 0.44 |
| 14:CO:70:LYS:HB2 | 14:CO:77:TYR:CG | 2.52 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 42:DU:8:ASP:HB2 | 42:DU:25:LYS:HE3 | 2.00 | 0.44 |
| 30:DH:114:GLU:HB3 | 30:DH:133:GLN:NE2 | 2.25 | 0.44 |
| 20:CB:72:LYS:O | 20:CB:74:ALA:N | 2.51 | 0.44 |
| 37:BP:92:ARG:HB3 | 37:BP:110:LYS:O | 2.18 | 0.44 |
| 32:DK:2:ILE:HG23 | 32:DK:33:ALA:O | 2.17 | 0.44 |
| 29:DG:42:VAL:HG22 | 29:DG:43:LYS:N | 2.33 | 0.44 |
| 1:CA:947:G:H5'' | 12:CM:106:ARG:HB2 | 2.00 | 0.44 |
| 24:DV:29:ILE:HG13 | 24:DV:30:ILE:N | 2.33 | 0.44 |
| 3:CD:137:SER:HB3 | 3:CD:138:PRO:HD2 | 2.00 | 0.44 |
| 12:CM:95:PRO:HG2 | 12:CM:101:THR:HG22 | 1.98 | 0.44 |
| 23:BB:512:G:H4' | 23:BB:512:G:OP1 | 2.18 | 0.44 |
| 23:BB:675:A:O2' | 27:BE:62:GLN:NE2 | 2.51 | 0.44 |
| 23:BB:2601:C:C3' | 23:BB:2602:A:H5'' | 2.48 | 0.44 |
| 1:AA:1151:A:HO2' | 1:AA:1152:A:H8 | 1.61 | 0.44 |
| 1:AA:1001:C:H2' | 1:AA:1002:G:C8 | 2.53 | 0.44 |
| 1:CA:1172:C:O2' | 1:CA:1173:U:H5' | 2.17 | 0.44 |
| 1:CA:500:G:H2' | 1:CA:501:C:C6 | 2.53 | 0.44 |
| 23:DB:245:G:OP1 | 33:DL:67:THR:HB | 2.18 | 0.44 |
| 23:BB:1843:C:H2' | 23:BB:1844:C:H6 | 1.81 | 0.44 |
| 10:AK:69:CYS:C | 10:AK:71:ASP:N | 2.70 | 0.44 |
| 23:DB:1171:G:N1 | 23:DB:1179:G:C6 | 2.85 | 0.44 |
| 3:AD:32:LYS:O | 3:AD:35:GLN:HB2 | 2.17 | 0.44 |
| 24:BV:79:ARG:NH1 | 24:BV:86:LEU:HD11 | 2.33 | 0.44 |
| 17:AR:63:TYR:C | 17:AR:65:SER:H | 2.21 | 0.44 |
| 23:BB:2070:A:H2' | 23:BB:2071:A:O4' | 2.18 | 0.44 |
| 1:CA:397:A:H3' | 1:CA:397:A:N3 | 2.33 | 0.44 |
| 1:CA:89:U:O2' | 1:CA:90:C:H5' | 2.17 | 0.44 |
| 23:DB:1446:C:H2' | 23:DB:1447:C:C6 | 2.52 | 0.44 |
| 23:DB:1680:U:H2' | 23:DB:1681:G:O4' | 2.18 | 0.44 |
| 23:DB:619:G:H2' | 23:DB:620:G:H5'' | 2.00 | 0.44 |
| 5:AF:6:ILE:HB | 5:AF:89:VAL:HB | 2.00 | 0.44 |
| 23:BB:2425:A:O2' | 23:BB:2426:A:OP2 | 2.28 | 0.44 |
| 23:DB:104:A:H2' | 23:DB:105:C:C6 | 2.49 | 0.44 |
| 1:CA:401:C:O2' | 1:CA:402:G:H5' | 2.18 | 0.44 |
| 5:AF:41:ASP:OD1 | 5:AF:58:HIS:HE1 | 2.01 | 0.44 |
| 23:BB:296:U:H2' | 23:BB:297:G:C8 | 2.48 | 0.44 |
| 1:AA:993:G:C2' | 1:AA:995:C:H41 | 2.31 | 0.44 |
| 27:DE:58:LYS:HA | 27:DE:59:PRO:HD3 | 1.66 | 0.44 |
| 37:BP:24:THR:HG21 | 37:BP:111:GLU:OE2 | 2.17 | 0.44 |
| 8:CI:5:TYR:O | 8:CI:19:PHE:HB3 | 2.16 | 0.44 |
| 23:BB:1585:C:H2' | 23:BB:1586:A:C8 | 2.52 | 0.44 |
| 1:CA:542:G:O2' | 1:CA:543:U:H5' | 2.18 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:DB:1243:C:H1' | 33:DL:14:LYS:HE3 | 2.00 | 0.44 |
| 52:DI:7:TYR:CZ | 52:DI:57:VAL:HG11 | 2.52 | 0.44 |
| 23:DB:729:G:H4' | 23:DB:763:G:C5' | 2.47 | 0.44 |
| 1:AA:1264:U:O2' | 1:AA:1265:C:H5' | 2.17 | 0.44 |
| 1:CA:109:A:C6 | 1:CA:326:G:C6 | 3.06 | 0.44 |
| 9:AJ:66:GLU:OE2 | 13:AN:98:ALA:HA | 2.17 | 0.44 |
| 23:BB:2221:G:H2' | 23:BB:2222:C:H6 | 1.83 | 0.44 |
| 1:AA:1050:G:O2' | 1:AA:1051:C:H5' | 2.18 | 0.44 |
| 26:BD:135:GLY:C | 26:BD:137:SER:H | 2.21 | 0.44 |
| 1:AA:29:U:H5' | 1:AA:296:U:OP1 | 2.17 | 0.44 |
| 36:BO:27:VAL:HA | 36:BO:94:ARG:HB3 | 2.00 | 0.44 |
| 1:CA:223:A:H2' | 1:CA:224:U:C6 | 2.53 | 0.44 |
| 23:BB:455:C:N3 | 23:BB:472:A:H2' | 2.33 | 0.44 |
| 1:CA:605:U:H2' | 1:CA:606:G:C8 | 2.53 | 0.44 |
| 47:D0:23:ALA:C | 47:D0:25:THR:H | 2.21 | 0.44 |
| 23:BB:1110:G:N2 | 23:BB:1111:A:N6 | 2.66 | 0.44 |
| 23:BB:2286:G:H5' | 23:BB:2286:G:N3 | 2.33 | 0.44 |
| 40:DS:92:ARG:HH11 | 40:DS:92:ARG:HG2 | 1.82 | 0.44 |
| 40:DS:56:ALA:O | 40:DS:59:GLU:HB3 | 2.17 | 0.44 |
| 52:DI:4:VAL:HG22 | 52:DI:5:GLN:N | 2.33 | 0.44 |
| 23:DB:2849:U:C4' | 23:DB:2868:A:C2 | 3.01 | 0.44 |
| 42:BU:12:VAL:CG1 | 42:BU:18:LYS:H | 2.31 | 0.44 |
| 27:BE:40:ARG:HG2 | 27:BE:92:HIS:HB2 | 2.00 | 0.44 |
| 37:BP:23:ASP:H | 37:BP:93:LYS:HZ1 | 1.66 | 0.44 |
| 37:BP:54:LEU:HB3 | 37:BP:55:HIS:H | 1.53 | 0.44 |
| 25:BC:128:THR:HG22 | 25:BC:129:LEU:H | 1.83 | 0.44 |
| 25:DC:182:LYS:HE2 | 25:DC:264:LYS:HZ2 | 1.83 | 0.44 |
| 23:BB:338:G:C2' | 23:BB:339:U:H5' | 2.48 | 0.44 |
| 23:BB:340:A:C2' | 23:BB:341:C:H5' | 2.48 | 0.44 |
| 30:BH:30:LEU:O | 30:BH:35:LYS:N | 2.50 | 0.44 |
| 27:DE:139:LYS:HA | 27:DE:143:LEU:HD23 | 1.98 | 0.44 |
| 33:BL:56:PRO:HG3 | 33:BL:60:ARG:HH21 | 1.82 | 0.44 |
| 32:BK:26:GLY:HA3 | 32:BK:30:ARG:HG3 | 2.00 | 0.44 |
| 26:BD:155:VAL:O | 26:BD:156:PHE:HB2 | 2.18 | 0.44 |
| 39:BR:77:PHE:O | 39:BR:78:ARG:HG3 | 2.17 | 0.44 |
| 9:AJ:37:ARG:HB2 | 9:AJ:77:VAL:CG1 | 2.48 | 0.44 |
| 41:DT:76:ARG:HG2 | 41:DT:77:ARG:H | 1.83 | 0.44 |
| 33:BL:30:THR:HG22 | 33:BL:36:LYS:HZ2 | 1.79 | 0.44 |
| 33:BL:38:GLN:CG | 33:BL:39:LYS:H | 2.26 | 0.44 |
| 41:DT:61:LEU:HB3 | 41:DT:62:VAL:H | 1.55 | 0.44 |
| 8:AI:33:SER:HB3 | 8:AI:36:GLN:CB | 2.43 | 0.44 |
| 8:AI:43:ALA:HA | 8:AI:44:ARG:HH12 | 1.82 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:BB:2305:U:N3 | 28:BF:150:GLY:HA3 | 2.33 | 0.44 |
| 35:BN:48:VAL:O | 35:BN:52:ILE:HG12 | 2.18 | 0.44 |
| 34:DM:16:ARG:O | 34:DM:17:ASN:HB3 | 2.17 | 0.44 |
| 34:DM:4:PRO:HB2 | 34:DM:69:PRO:HG3 | 1.99 | 0.44 |
| 23:BB:1152:C:H3' | 55:BB:3244:HOH:O | 2.17 | 0.44 |
| 39:BR:39:LEU:O | 39:BR:54:VAL:HG11 | 2.17 | 0.44 |
| 39:BR:43:ASN:OD1 | 39:BR:56:GLY:HA3 | 2.18 | 0.44 |
| 47:B0:35:GLU:C | 47:B0:37:HIS:H | 2.21 | 0.44 |
| 27:BE:122:GLU:OE2 | 27:BE:152:GLU:HB2 | 2.18 | 0.44 |
| 27:BE:117:ARG:HA | 27:BE:188:MET:SD | 2.57 | 0.44 |
| 26:DD:181:ASP:OD1 | 26:DD:184:ARG:HB3 | 2.17 | 0.44 |
| 26:DD:180:VAL:HA | 26:DD:187:LEU:HA | 1.99 | 0.44 |
| 23:DB:630:G:H1 | 33:DL:69:ARG:HH12 | 1.64 | 0.44 |
| 41:BT:31:VAL:O | 41:BT:32:LEU:O | 2.36 | 0.44 |
| 33:DL:59:ARG:HH21 | 50:D3:5:THR:CB | 2.30 | 0.44 |
| 26:BD:31:ALA:O | 26:BD:32:ASN:ND2 | 2.50 | 0.44 |
| 23:DB:2313:C:H2' | 23:DB:2314:A:C8 | 2.53 | 0.44 |
| 45:DY:36:GLU:HG2 | 45:DY:37:ARG:N | 2.32 | 0.44 |
| 38:DQ:111:LYS:HE2 | 39:DR:52:PRO:CG | 2.45 | 0.44 |
| 5:AF:38:ARG:CB | 5:AF:63:ASN:HB2 | 2.37 | 0.44 |
| 31:DJ:73:VAL:CG2 | 31:DJ:74:TYR:N | 2.81 | 0.44 |
| 2:AC:171:ARG:HH12 | 2:AC:173:PRO:HG3 | 1.83 | 0.44 |
| 23:DB:2061:G:H5'' | 23:DB:2503:A:N1 | 2.32 | 0.44 |
| 23:BB:1080:A:H2' | 23:BB:1081:U:C6 | 2.52 | 0.44 |
| 23:BB:2335:A:OP2 | 36:BO:9:ARG:HA | 2.18 | 0.44 |
| 1:CA:1333:A:H2' | 1:CA:1334:G:O4' | 2.17 | 0.44 |
| 1:AA:15:G:O2' | 4:AE:21:SER:HB2 | 2.17 | 0.44 |
| 23:BB:2324:U:C5' | 23:BB:2325:G:H5'' | 2.45 | 0.44 |
| 1:CA:807:A:N3 | 25:DC:4:LYS:HE3 | 2.31 | 0.44 |
| 11:CL:100:ALA:O | 11:CL:101:LEU:C | 2.56 | 0.44 |
| 11:AL:117:GLY:O | 11:AL:118:VAL:HG13 | 2.18 | 0.44 |
| 48:B1:10:LEU:CD1 | 48:B1:25:ASN:HD22 | 2.31 | 0.44 |
| 1:CA:523:A:N1 | 11:CL:88:ASP:HB2 | 2.33 | 0.44 |
| 1:CA:551:U:H2' | 1:CA:552:U:C6 | 2.53 | 0.44 |
| 33:DL:19:LEU:O | 33:DL:21:ARG:N | 2.50 | 0.44 |
| 7:CH:10:LEU:HD22 | 7:CH:74:ILE:CD1 | 2.43 | 0.44 |
| 23:BB:55:G:P | 49:B2:35:ARG:HE | 2.40 | 0.44 |
| 1:CA:878:A:H5'' | 7:CH:80:PRO:HG2 | 2.00 | 0.44 |
| 4:CE:82:HIS:CE1 | 4:CE:146:MET:HB2 | 2.53 | 0.44 |
| 23:DB:1252:G:H5'' | 55:DB:3462:HOH:O | 2.18 | 0.44 |
| 23:DB:153:U:H2' | 23:DB:154:U:C6 | 2.53 | 0.44 |
| 19:CT:73:ARG:O | 19:CT:74:HIS:C | 2.55 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 35:DN:103:ARG:HB3 | 35:DN:107:ASN:N | 2.33 | 0.44 |
| 23:BB:2247:A:H3' | 55:BB:3268:HOH:O | 2.17 | 0.44 |
| 28:DF:8:LYS:HA | 28:DF:12:VAL:CG2 | 2.48 | 0.44 |
| 1:AA:1049:U:C2' | 13:AN:2:LYS:HD3 | 2.45 | 0.44 |
| 3:CD:84:ASN:HD21 | 3:CD:87:GLU:HG3 | 1.82 | 0.44 |
| 23:DB:2556:C:O2' | 23:DB:2557:G:H5' | 2.17 | 0.44 |
| 23:BB:1592:C:H2' | 23:BB:1593:A:H8 | 1.83 | 0.44 |
| 20:AB:131:LYS:O | 20:AB:134:LEU:HB2 | 2.18 | 0.44 |
| 1:AA:1172:C:H2' | 1:AA:1173:U:H6 | 1.82 | 0.44 |
| 9:CJ:37:ARG:N | 9:CJ:76:ILE:HG12 | 2.33 | 0.44 |
| 37:BP:38:ARG:CG | 37:BP:39:LEU:H | 2.28 | 0.44 |
| 36:DO:29:HIS:CB | 36:DO:36:TYR:HB2 | 2.48 | 0.44 |
| 23:BB:1965:C:H3' | 23:BB:1966:A:H8 | 1.83 | 0.44 |
| 1:AA:11:G:H2' | 1:AA:12:U:C6 | 2.52 | 0.44 |
| 1:CA:1143:G:O2' | 1:CA:1144:G:H5' | 2.16 | 0.44 |
| 9:AJ:36:VAL:HG22 | 9:AJ:76:ILE:HG22 | 1.99 | 0.44 |
| 23:DB:930:G:H5' | 23:DB:931:U:P | 2.57 | 0.44 |
| 23:BB:850:U:O2' | 45:BY:21:ALA:HA | 2.18 | 0.44 |
| 11:AL:49:ARG:C | 11:AL:50:LYS:HE2 | 2.38 | 0.44 |
| 28:DF:120:SER:HB3 | 28:DF:127:TYR:HE1 | 1.83 | 0.44 |
| 23:BB:1529:G:H2' | 23:BB:1530:G:C8 | 2.52 | 0.44 |
| 1:CA:1432:G:H1' | 1:CA:1468:A:H61 | 1.81 | 0.44 |
| 23:DB:844:A:H2 | 23:DB:845:A:N1 | 2.16 | 0.44 |
| 1:AA:857:C:H2' | 1:AA:858:G:O4' | 2.17 | 0.44 |
| 23:BB:2581:G:N3 | 23:BB:2581:G:H2' | 2.33 | 0.44 |
| 1:CA:1464:U:H2' | 1:CA:1465:A:H8 | 1.83 | 0.44 |
| 1:CA:541:G:H2' | 1:CA:542:G:C8 | 2.52 | 0.44 |
| 23:DB:326:G:O2' | 23:DB:327:G:H5' | 2.17 | 0.44 |
| 1:AA:488:C:H2' | 1:AA:489:C:C6 | 2.52 | 0.44 |
| 20:AB:90:PHE:CE2 | 20:AB:149:GLY:HA3 | 2.52 | 0.44 |
| 1:CA:182:A:O2' | 1:CA:183:C:O5' | 2.34 | 0.44 |
| 22:BA:64:G:H2' | 22:BA:65:U:C6 | 2.53 | 0.44 |
| 30:DH:45:GLU:O | 30:DH:45:GLU:HG3 | 2.18 | 0.44 |
| 25:BC:198:GLU:C | 25:BC:200:MET:N | 2.70 | 0.44 |
| 1:CA:28:A:O2' | 1:CA:296:U:OP1 | 2.32 | 0.44 |
| 1:AA:432:A:H2' | 1:AA:433:G:H5' | 1.99 | 0.44 |
| 23:DB:1311:G:H21 | 23:DB:1603:A:H62 | 1.65 | 0.44 |
| 18:AS:44:ILE:HA | 18:AS:61:VAL:CG1 | 2.48 | 0.44 |
| 22:BA:45:A:O2' | 22:BA:46:A:H5' | 2.18 | 0.44 |
| 20:CB:21:TYR:O | 20:CB:22:TRP:O | 2.36 | 0.44 |
| 23:DB:998:C:H2' | 23:DB:999:U:O4' | 2.17 | 0.44 |
| 1:CA:41:G:H2' | 1:CA:42:G:H8 | 1.82 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 41:DT:64:LYS:HE3 | 41:DT:64:LYS:N | 2.33 | 0.44 |
| 6:CG:108:ARG:HH11 | 6:CG:108:ARG:HG3 | 1.83 | 0.44 |
| 1:AA:989:U:O2' | 1:AA:990:C:H5' | 2.18 | 0.44 |
| 9:AJ:11:LYS:NZ | 9:AJ:99:GLN:H | 2.15 | 0.44 |
| 33:DL:101:ILE:HG22 | 33:DL:101:ILE:O | 2.17 | 0.44 |
| 20:CB:42:LEU:C | 20:CB:44:LYS:H | 2.20 | 0.44 |
| 37:BP:48:ALA:C | 37:BP:49:ILE:HG13 | 2.38 | 0.44 |
| 37:BP:83:ILE:HG22 | 37:BP:84:SER:N | 2.33 | 0.44 |
| 30:DH:31:VAL:CB | 30:DH:32:PRO:HD3 | 2.38 | 0.44 |
| 35:DN:112:TYR:HE2 | 47:D0:43:THR:HB | 1.82 | 0.44 |
| 23:DB:2811:G:H2' | 23:DB:2812:G:H8 | 1.83 | 0.44 |
| 35:DN:32:GLU:HG3 | 35:DN:33:ILE:H | 1.80 | 0.44 |
| 42:DU:4:ILE:HD13 | 42:DU:4:ILE:C | 2.38 | 0.44 |
| 27:DE:151:GLY:O | 27:DE:158:PHE:HE1 | 2.01 | 0.44 |
| 23:DB:323:C:C5 | 27:DE:165:HIS:HB2 | 2.53 | 0.44 |
| 27:DE:168:ASP:OD2 | 27:DE:170:ARG:HG2 | 2.18 | 0.44 |
| 33:BL:122:VAL:HG22 | 33:BL:139:GLY:O | 2.18 | 0.44 |
| 23:BB:872:U:H1' | 34:BM:68:PHE:CZ | 2.53 | 0.44 |
| 39:BR:85:LYS:C | 39:BR:87:GLN:N | 2.71 | 0.44 |
| 23:DB:138:U:O3' | 23:DB:139:U:H3' | 2.17 | 0.44 |
| 41:DT:76:ARG:N | 41:DT:76:ARG:HD3 | 2.33 | 0.44 |
| 23:BB:1157:G:H2' | 23:BB:1158:C:C6 | 2.53 | 0.44 |
| 23:BB:992:C:H1' | 39:BR:91:GLN:HB2 | 1.99 | 0.44 |
| 23:BB:499:U:H2' | 23:BB:500:G:O4' | 2.17 | 0.44 |
| 23:BB:500:G:H1' | 23:BB:505:A:N6 | 2.33 | 0.44 |
| 41:DT:55:VAL:HG21 | 41:DT:86:THR:H | 1.82 | 0.44 |
| 41:DT:31:VAL:HA | 41:DT:84:TYR:HA | 2.00 | 0.44 |
| 8:AI:33:SER:C | 8:AI:35:GLU:H | 2.21 | 0.44 |
| 31:BJ:37:ARG:HH21 | 31:BJ:110:PRO:HG3 | 1.83 | 0.44 |
| 23:DB:2643:G:H2' | 23:DB:2644:G:O4' | 2.18 | 0.44 |
| 40:BS:31:GLN:C | 40:BS:33:LEU:N | 2.71 | 0.44 |
| 43:BW:34:SER:OG | 43:BW:39:GLN:NE2 | 2.51 | 0.44 |
| 26:DD:5:VAL:HG21 | 26:DD:28:GLU:HA | 2.00 | 0.44 |
| 26:DD:69:ALA:HB2 | 26:DD:91:THR:OG1 | 2.18 | 0.44 |
| 26:DD:89:GLU:HG2 | 26:DD:93:GLY:CA | 2.41 | 0.44 |
| 41:BT:62:VAL:O | 41:BT:63:VAL:O | 2.35 | 0.44 |
| 33:BL:88:GLY:C | 33:BL:90:VAL:H | 2.20 | 0.44 |
| 30:BH:62:LEU:O | 30:BH:66:ASN:N | 2.51 | 0.44 |
| 13:CN:55:SER:OG | 13:CN:56:PRO:HD2 | 2.18 | 0.44 |
| 21:AU:31:VAL:O | 21:AU:32:ARG:C | 2.56 | 0.44 |
| 40:DS:17:VAL:HG11 | 40:DS:103:ILE:CD1 | 2.48 | 0.44 |
| 10:CK:82:GLU:CB | 10:CK:108:ASN:HB3 | 2.48 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:BB:2073:C:O2' | 23:BB:2074:U:H5' | 2.18 | 0.44 |
| 25:BC:225:ASN:O | 25:BC:227:VAL:N | 2.51 | 0.44 |
| 1:CA:16:A:O2' | 4:CE:20:VAL:HG23 | 2.18 | 0.44 |
| 48:B1:42:VAL:HG12 | 48:B1:43:ARG:N | 2.33 | 0.44 |
| 28:DF:107:VAL:CG1 | 28:DF:175:PRO:HG3 | 2.48 | 0.44 |
| 23:DB:1057:A:C8 | 23:DB:1086:A:C8 | 3.05 | 0.44 |
| 1:CA:617:G:C5' | 15:CP:46:LYS:HD3 | 2.48 | 0.44 |
| 11:CL:20:VAL:HA | 11:CL:94:TYR:HE2 | 1.83 | 0.44 |
| 23:BB:465:G:H2' | 23:BB:466:A:C8 | 2.52 | 0.44 |
| 42:DU:9:GLU:HB3 | 42:DU:21:ARG:HG2 | 1.99 | 0.44 |
| 5:CF:99:ALA:O | 5:CF:100:SER:HB2 | 2.18 | 0.44 |
| 30:DH:134:VAL:HG12 | 30:DH:134:VAL:O | 2.18 | 0.44 |
| 29:DG:53:PRO:HG2 | 29:DG:61:TRP:CE3 | 2.52 | 0.44 |
| 23:DB:1157:G:N3 | 45:DY:10:ARG:NH2 | 2.66 | 0.44 |
| 48:D1:49:LYS:HZ2 | 48:D1:50:GLU:N | 2.15 | 0.44 |
| 52:DI:21:PRO:HB2 | 52:DI:22:PRO:CD | 2.43 | 0.44 |
| 34:DM:133:LYS:CG | 34:DM:134:THR:H | 2.31 | 0.44 |
| 52:BI:19:PRO:HG2 | 52:BI:22:PRO:HB2 | 2.00 | 0.44 |
| 20:AB:58:LYS:CG | 20:AB:62:ARG:HH21 | 2.26 | 0.44 |
| 16:CQ:68:LYS:C | 16:CQ:70:LYS:H | 2.21 | 0.44 |
| 1:AA:1368:A:O2' | 1:AA:1369:C:H5' | 2.18 | 0.44 |
| 25:DC:22:GLU:HB2 | 25:DC:202:ARG:HG3 | 1.99 | 0.44 |
| 1:AA:1248:A:H2 | 8:AI:71:ILE:HD11 | 1.82 | 0.44 |
| 23:BB:106:C:H2' | 23:BB:107:G:H8 | 1.83 | 0.44 |
| 41:BT:68:LYS:HE3 | 41:BT:73:ARG:HG3 | 1.99 | 0.44 |
| 23:DB:1547:C:H2' | 23:DB:1548:A:H8 | 1.81 | 0.44 |
| 40:DS:4:ILE:HA | 40:DS:106:VAL:HG12 | 1.98 | 0.44 |
| 22:BA:78:A:H61 | 22:BA:98:G:H1' | 1.83 | 0.44 |
| 22:DA:22:U:H2' | 22:DA:23:G:H8 | 1.75 | 0.44 |
| 1:AA:1520:C:H2' | 1:AA:1521:C:C6 | 2.53 | 0.44 |
| 27:BE:97:ASN:HB2 | 27:BE:100:MET:HB2 | 1.99 | 0.44 |
| 1:AA:542:G:O2' | 1:AA:543:U:H5' | 2.18 | 0.44 |
| 1:CA:57:G:N2 | 1:CA:388:G:C6 | 2.86 | 0.44 |
| 1:CA:56:U:O5' | 1:CA:56:U:H6 | 2.00 | 0.44 |
| 1:CA:372:C:C1' | 1:CA:373:A:OP2 | 2.66 | 0.44 |
| 23:BB:1446:C:H2' | 23:BB:1447:C:C6 | 2.52 | 0.44 |
| 23:DB:1965:C:H3' | 23:DB:1966:A:H8 | 1.83 | 0.44 |
| 16:CQ:23:ALA:HB1 | 16:CQ:40:THR:CG2 | 2.48 | 0.44 |
| 27:DE:126:VAL:HG13 | 27:DE:126:VAL:O | 2.18 | 0.44 |
| 23:DB:2787:C:H2' | 23:DB:2788:C:C6 | 2.53 | 0.44 |
| 40:BS:48:LYS:O | 40:BS:52:GLU:HG3 | 2.18 | 0.44 |
| 1:AA:1483:A:H2 | 23:BB:1959:G:HO2' | 1.64 | 0.44 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 44:DX:1:MET:N | 44:DX:6:LEU:HG | 2.33 | 0.44 |
| 1:AA:551:U:H2' | 1:AA:552:U:C6 | 2.53 | 0.44 |
| 23:DB:1710:G:H2' | 23:DB:1711:A:H8 | 1.83 | 0.44 |
| 50:B3:57:VAL:HG13 | 50:B3:58:ILE:N | 2.32 | 0.44 |
| 23:BB:2438:U:O2' | 23:BB:2439:A:H5'' | 2.18 | 0.44 |
| 8:CI:62:LEU:HD22 | 8:CI:62:LEU:H | 1.83 | 0.44 |
| 22:BA:54:G:O2' | 22:BA:55:U:H5' | 2.17 | 0.44 |
| 23:BB:539:G:H2' | 23:BB:540:C:C6 | 2.53 | 0.44 |
| 1:CA:649:A:H2' | 1:CA:650:G:O4' | 2.17 | 0.44 |
| 22:DA:29:A:H8 | 22:DA:29:A:OP1 | 2.01 | 0.44 |
| 3:CD:197:HIS:O | 3:CD:200:VAL:HG12 | 2.17 | 0.44 |
| 3:AD:66:VAL:CG1 | 3:AD:70:GLN:HB3 | 2.47 | 0.44 |
| 23:DB:2604:U:O2' | 23:DB:2605:U:H5' | 2.17 | 0.44 |
| 23:BB:1072:C:N3 | 23:BB:1092:C:N4 | 2.65 | 0.44 |
| 23:DB:502:A:N6 | 23:DB:505:A:N1 | 2.66 | 0.44 |
| 22:BA:107:G:O2' | 22:BA:108:A:H5' | 2.18 | 0.44 |
| 52:BI:72:THR:HB | 52:BI:73:PRO:HD2 | 1.99 | 0.44 |
| 30:DH:27:ARG:HH11 | 46:DZ:56:ARG:HD2 | 1.82 | 0.44 |
| 1:AA:1129:C:O2' | 1:AA:1139:G:N7 | 2.42 | 0.44 |
| 29:DG:72:ASN:O | 29:DG:76:ILE:HG13 | 2.18 | 0.44 |
| 23:DB:2201:G:O2' | 23:DB:2202:U:H5' | 2.17 | 0.44 |
| 23:BB:2533:U:H2' | 23:BB:2534:A:O4' | 2.17 | 0.44 |
| 37:DP:49:ILE:HA | 37:DP:62:LYS:O | 2.18 | 0.43 |
| 23:BB:661:A:O2' | 33:BL:23:ILE:HG12 | 2.18 | 0.43 |
| 42:BU:90:LYS:CD | 42:BU:91:LYS:H | 2.32 | 0.43 |
| 20:CB:38:HIS:O | 20:CB:39:ILE:HD13 | 2.17 | 0.43 |
| 25:BC:128:THR:CA | 25:BC:190:THR:HA | 2.41 | 0.43 |
| 23:BB:855:G:H21 | 43:BW:23:LYS:CG | 2.30 | 0.43 |
| 18:AS:51:HIS:C | 18:AS:53:GLY:H | 2.21 | 0.43 |
| 27:DE:147:LEU:HB3 | 27:DE:167:VAL:CG1 | 2.45 | 0.43 |
| 27:DE:192:ALA:HB1 | 27:DE:199:MET:HG2 | 2.00 | 0.43 |
| 23:BB:2231:U:OP1 | 46:BZ:28:VAL:HG12 | 2.17 | 0.43 |
| 8:CI:27:ILE:CG2 | 8:CI:34:LEU:HB2 | 2.31 | 0.43 |
| 34:BM:8:LYS:O | 34:BM:9:PHE:CD1 | 2.71 | 0.43 |
| 23:BB:2052:A:C5' | 26:BD:148:GLN:O | 2.65 | 0.43 |
| 25:DC:179:GLU:CB | 25:DC:266:ILE:HA | 2.48 | 0.43 |
| 23:DB:2293:G:C5' | 36:DO:9:ARG:HH21 | 2.31 | 0.43 |
| 39:BR:90:ARG:NH1 | 39:BR:91:GLN:N | 2.64 | 0.43 |
| 31:DJ:41:LYS:HG2 | 38:DQ:63:ARG:CZ | 2.48 | 0.43 |
| 28:BF:136:ILE:C | 28:BF:138:PRO:HD3 | 2.39 | 0.43 |
| 18:CS:39:ILE:HB | 18:CS:66:VAL:O | 2.18 | 0.43 |
| 39:BR:46:GLU:O | 39:BR:47:VAL:CB | 2.66 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 24:BV:4:ILE:HD11 | 24:BV:61:LEU:HD12 | 2.00 | 0.43 |
| 26:DD:33:ARG:HD2 | 26:DD:89:GLU:OE2 | 2.17 | 0.43 |
| 37:DP:100:ARG:N | 37:DP:100:ARG:HD2 | 2.33 | 0.43 |
| 44:BX:22:LEU:CA | 44:BX:47:ARG:HH22 | 2.31 | 0.43 |
| 23:BB:1658:C:OP1 | 26:BD:136:ASN:CA | 2.66 | 0.43 |
| 28:DF:141:ASP:C | 28:DF:143:ASP:H | 2.21 | 0.43 |
| 26:BD:32:ASN:OD1 | 26:BD:73:VAL:HB | 2.18 | 0.43 |
| 39:BR:37:GLU:OE1 | 39:BR:62:GLU:HB2 | 2.18 | 0.43 |
| 4:CE:88:HIS:CE1 | 4:CE:137:ARG:HH11 | 2.35 | 0.43 |
| 10:CK:113:THR:CG2 | 21:CU:28:LEU:HD21 | 2.48 | 0.43 |
| 25:BC:19:VAL:CG1 | 25:BC:20:ASN:H | 2.20 | 0.43 |
| 23:DB:1000:A:C8 | 23:DB:1154:G:N2 | 2.86 | 0.43 |
| 6:AG:114:SER:O | 6:AG:118:ARG:HG3 | 2.18 | 0.43 |
| 23:BB:1914:C:H2' | 23:BB:1915:U:O4' | 2.17 | 0.43 |
| 1:AA:234:C:H2' | 1:AA:235:C:C6 | 2.53 | 0.43 |
| 1:CA:236:A:H2' | 1:CA:237:G:C8 | 2.53 | 0.43 |
| 48:D1:27:ARG:HE | 48:D1:27:ARG:H | 1.65 | 0.43 |
| 5:CF:48:ALA:H | 17:CR:65:SER:HB2 | 1.82 | 0.43 |
| 23:DB:946:C:H2' | 23:DB:947:A:C8 | 2.48 | 0.43 |
| 1:CA:255:G:H2' | 1:CA:256:U:C6 | 2.53 | 0.43 |
| 23:BB:2385:C:H2' | 23:BB:2386:A:C8 | 2.53 | 0.43 |
| 52:BI:83:ALA:CA | 52:BI:100:ILE:HD11 | 2.48 | 0.43 |
| 27:DE:129:PRO:O | 27:DE:130:LYS:HB2 | 2.18 | 0.43 |
| 4:AE:114:LEU:C | 4:AE:116:VAL:H | 2.21 | 0.43 |
| 25:BC:260:LYS:C | 25:BC:262:THR:H | 2.21 | 0.43 |
| 39:BR:97:LYS:HA | 39:BR:97:LYS:HD2 | 1.82 | 0.43 |
| 18:CS:30:LEU:HB2 | 18:CS:48:ILE:HA | 2.00 | 0.43 |
| 23:DB:1346:G:C6 | 23:DB:1601:G:C6 | 3.05 | 0.43 |
| 24:BV:79:ARG:HG2 | 24:BV:79:ARG:H | 1.46 | 0.43 |
| 5:AF:51:ILE:CD1 | 5:AF:86:ARG:HG3 | 2.48 | 0.43 |
| 29:BG:97:VAL:HG23 | 29:BG:124:CYS:SG | 2.58 | 0.43 |
| 20:AB:112:ARG:HG3 | 20:AB:112:ARG:NH1 | 2.32 | 0.43 |
| 11:CL:93:ARG:N | 11:CL:93:ARG:HD2 | 2.29 | 0.43 |
| 23:DB:2250:G:N7 | 34:DM:82:MET:SD | 2.91 | 0.43 |
| 3:AD:187:ARG:HG3 | 3:AD:188:SER:N | 2.32 | 0.43 |
| 37:BP:38:ARG:O | 37:BP:39:LEU:HB2 | 2.18 | 0.43 |
| 2:CC:168:ARG:HE | 2:CC:169:GLU:CA | 2.30 | 0.43 |
| 13:AN:20:PHE:HA | 13:AN:24:ALA:CB | 2.46 | 0.43 |
| 34:BM:80:VAL:HG12 | 34:BM:81:ARG:HG2 | 2.00 | 0.43 |
| 46:BZ:59:ARG:HG2 | 46:BZ:62:LYS:HB2 | 1.99 | 0.43 |
| 34:DM:97:GLN:H | 34:DM:98:PRO:HD3 | 1.83 | 0.43 |
| 23:BB:728:G:H4' | 25:BC:12:ARG:NH2 | 2.33 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:BB:1779:U:OP2 | 23:BB:1784:A:N6 | 2.46 | 0.43 |
| 1:AA:960:U:H1' | 1:AA:961:U:OP2 | 2.17 | 0.43 |
| 23:BB:2886:A:C2 | 23:BB:2887:A:N7 | 2.85 | 0.43 |
| 23:DB:2787:C:H5' | 26:DD:65:ALA:HB3 | 2.00 | 0.43 |
| 7:AH:92:PRO:HA | 7:AH:93:LYS:NZ | 2.32 | 0.43 |
| 29:BG:102:ILE:CG2 | 29:BG:104:LEU:HD11 | 2.48 | 0.43 |
| 23:DB:1418:G:N2 | 23:DB:1579:A:C8 | 2.86 | 0.43 |
| 6:AG:142:ARG:HB2 | 6:AG:142:ARG:CZ | 2.48 | 0.43 |
| 10:AK:35:ASP:CB | 10:AK:41:LEU:HD11 | 2.48 | 0.43 |
| 1:AA:847:G:H2' | 1:AA:848:C:C6 | 2.52 | 0.43 |
| 23:DB:722:A:H2' | 23:DB:723:C:O4' | 2.18 | 0.43 |
| 1:CA:1211:U:H1' | 1:CA:1213:A:C2 | 2.53 | 0.43 |
| 3:CD:121:ALA:CA | 3:CD:145:ARG:HG3 | 2.48 | 0.43 |
| 1:CA:1463:U:H2' | 1:CA:1464:U:C6 | 2.53 | 0.43 |
| 23:BB:1599:U:C2 | 23:BB:1600:C:C5 | 3.06 | 0.43 |
| 23:DB:1634:A:H3' | 23:DB:1635:A:C5' | 2.48 | 0.43 |
| 44:BX:10:SER:C | 44:BX:12:GLU:H | 2.22 | 0.43 |
| 23:BB:1775:U:H2' | 23:BB:1776:G:C5' | 2.48 | 0.43 |
| 23:BB:30:G:H2' | 23:BB:31:C:C6 | 2.53 | 0.43 |
| 9:CJ:77:VAL:O | 9:CJ:78:GLU:C | 2.56 | 0.43 |
| 14:CO:2:LEU:O | 14:CO:3:SER:HB3 | 2.18 | 0.43 |
| 23:BB:1659:G:C6 | 23:BB:2002:G:C6 | 3.06 | 0.43 |
| 40:DS:77:ASP:O | 40:DS:101:SER:HB2 | 2.18 | 0.43 |
| 11:AL:6:LEU:HB3 | 16:AQ:33:TYR:CZ | 2.52 | 0.43 |
| 1:CA:1125:U:HO2' | 1:CA:1126:U:P | 2.41 | 0.43 |
| 23:DB:2662:A:H2' | 23:DB:2663:G:O4' | 2.18 | 0.43 |
| 23:DB:1370:C:H2' | 23:DB:1371:G:O4' | 2.18 | 0.43 |
| 33:BL:115:GLU:OE1 | 33:BL:115:GLU:HA | 2.17 | 0.43 |
| 1:AA:1378:C:H2' | 1:AA:1378:C:O2 | 2.16 | 0.43 |
| 27:DE:73:ILE:O | 27:DE:73:ILE:HG22 | 2.18 | 0.43 |
| 24:DV:92:VAL:O | 24:DV:92:VAL:HG13 | 2.18 | 0.43 |
| 8:AI:97:LEU:N | 8:AI:97:LEU:HD22 | 2.33 | 0.43 |
| 23:BB:2061:G:H3' | 55:BB:3546:HOH:O | 2.18 | 0.43 |
| 27:DE:49:ARG:HB2 | 27:DE:51:GLU:CD | 2.38 | 0.43 |
| 30:BH:142:VAL:HG12 | 30:BH:143:ILE:N | 2.32 | 0.43 |
| 27:BE:40:ARG:HD2 | 27:BE:43:THR:OG1 | 2.19 | 0.43 |
| 51:D4:2:LYS:HZ3 | 51:D4:2:LYS:HB2 | 1.82 | 0.43 |
| 25:BC:68:ARG:NH1 | 25:BC:127:ASN:OD1 | 2.51 | 0.43 |
| 25:BC:134:ILE:HA | 25:BC:135:PRO:HD3 | 1.91 | 0.43 |
| 47:D0:29:VAL:HG22 | 47:D0:30:ASP:H | 1.81 | 0.43 |
| 23:DB:319:G:O2' | 23:DB:320:A:H5' | 2.18 | 0.43 |
| 27:DE:149:ILE:HD11 | 27:DE:188:MET:H | 1.81 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 27:DE:141:MET:HG3 | 27:DE:185:LYS:HE3 | 1.99 | 0.43 |
| 23:BB:396:G:O2' | 46:BZ:28:VAL:HG11 | 2.18 | 0.43 |
| 32:BK:12:ASP:OD2 | 32:BK:85:VAL:HA | 2.19 | 0.43 |
| 33:BL:40:SER:O | 33:BL:41:ARG:HB2 | 2.17 | 0.43 |
| 8:AI:32:ARG:HG2 | 8:AI:32:ARG:HH11 | 1.84 | 0.43 |
| 8:AI:38:PHE:O | 8:AI:39:GLY:C | 2.55 | 0.43 |
| 9:AJ:51:VAL:O | 9:AJ:63:ASP:N | 2.51 | 0.43 |
| 40:BS:33:LEU:HD22 | 40:BS:33:LEU:N | 2.33 | 0.43 |
| 27:BE:3:LEU:HD21 | 27:BE:109:LEU:HD11 | 2.00 | 0.43 |
| 10:AK:110:THR:CG2 | 21:AU:4:LYS:HA | 2.47 | 0.43 |
| 16:CQ:64:ARG:HG3 | 16:CQ:65:PRO:HD2 | 1.98 | 0.43 |
| 26:BD:132:ALA:O | 26:BD:136:ASN:N | 2.51 | 0.43 |
| 26:BD:122:VAL:HB | 26:BD:141:ARG:HH12 | 1.82 | 0.43 |
| 26:BD:114:LYS:HD3 | 35:BN:3:HIS:CE1 | 2.54 | 0.43 |
| 1:AA:1099:G:H2' | 1:AA:1100:C:O4' | 2.18 | 0.43 |
| 28:BF:169:LEU:O | 28:BF:173:ASP:OD1 | 2.36 | 0.43 |
| 23:DB:515:A:H2 | 23:DB:1260:A:N3 | 2.16 | 0.43 |
| 23:DB:1261:C:C2' | 23:DB:1262:A:O5' | 2.67 | 0.43 |
| 23:DB:285:G:C5 | 23:DB:356:G:C6 | 3.06 | 0.43 |
| 27:BE:75:SER:C | 27:BE:77:ILE:H | 2.22 | 0.43 |
| 28:DF:140:ILE:C | 28:DF:142:TYR:H | 2.21 | 0.43 |
| 52:BI:32:VAL:HG13 | 52:BI:66:PHE:CD2 | 2.53 | 0.43 |
| 26:BD:3:GLY:CA | 26:BD:49:GLN:HE22 | 2.32 | 0.43 |
| 25:BC:222:THR:HA | 25:BC:231:HIS:CE1 | 2.53 | 0.43 |
| 1:CA:1080:A:C4' | 4:CE:20:VAL:HG21 | 2.43 | 0.43 |
| 8:CI:79:ARG:HA | 8:CI:82:ILE:HD12 | 1.99 | 0.43 |
| 10:CK:121:ARG:HH21 | 21:CU:34:ARG:CD | 2.30 | 0.43 |
| 21:AU:37:TYR:C | 21:AU:40:PRO:HD2 | 2.38 | 0.43 |
| 1:AA:1424:U:H2' | 1:AA:1425:U:H6 | 1.82 | 0.43 |
| 6:AG:19:SER:HB2 | 6:AG:21:LEU:CD2 | 2.48 | 0.43 |
| 52:DI:23:VAL:HG12 | 52:DI:24:GLY:H | 1.83 | 0.43 |
| 35:BN:35:LYS:CA | 35:BN:112:TYR:HB3 | 2.48 | 0.43 |
| 28:BF:67:THR:O | 28:BF:83:PRO:HA | 2.18 | 0.43 |
| 23:DB:1010:A:H5' | 38:DQ:61:ILE:CG2 | 2.48 | 0.43 |
| 52:DI:73:PRO:HA | 52:DI:74:PRO:HD3 | 1.92 | 0.43 |
| 11:AL:26:CYS:HB2 | 11:AL:29:LYS:HD3 | 2.01 | 0.43 |
| 1:AA:236:A:H2' | 1:AA:237:G:C8 | 2.53 | 0.43 |
| 37:BP:104:GLY:O | 37:BP:105:LYS:HB3 | 2.18 | 0.43 |
| 30:BH:72:ILE:HD11 | 30:BH:75:LEU:HD12 | 1.99 | 0.43 |
| 23:BB:1829:A:H3' | 23:BB:1830:C:H6 | 1.83 | 0.43 |
| 4:AE:105:ILE:O | 4:AE:123:LEU:HA | 2.18 | 0.43 |
| 23:BB:1341:G:C2' | 23:BB:1397:U:O2' | 2.66 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 39:DR:92:TRP:CE3 | 39:DR:93:PHE:N | 2.87 | 0.43 |
| 1:CA:695:A:H2' | 1:CA:696:A:C8 | 2.53 | 0.43 |
| 23:BB:2293:G:H2' | 23:BB:2294:G:O4' | 2.18 | 0.43 |
| 1:CA:908:A:O2' | 1:CA:909:A:H5' | 2.18 | 0.43 |
| 28:BF:14:LYS:HG3 | 28:BF:15:LEU:N | 2.32 | 0.43 |
| 13:AN:27:LYS:C | 13:AN:27:LYS:HD2 | 2.38 | 0.43 |
| 5:CF:19:PRO:HG2 | 5:CF:20:GLY:H | 1.83 | 0.43 |
| 25:BC:12:ARG:CZ | 25:BC:18:VAL:HG11 | 2.48 | 0.43 |
| 41:BT:36:LYS:O | 41:BT:81:LYS:HD2 | 2.17 | 0.43 |
| 23:DB:1509:A:C4' | 23:DB:1510:G:H5' | 2.48 | 0.43 |
| 23:BB:1683:U:O2' | 23:BB:1684:G:H5' | 2.18 | 0.43 |
| 23:BB:1563:U:O2' | 23:BB:1564:C:H5' | 2.18 | 0.43 |
| 23:BB:850:U:H2' | 23:BB:851:C:H6 | 1.82 | 0.43 |
| 23:BB:877:A:H3' | 23:BB:899:A:H61 | 1.82 | 0.43 |
| 19:AT:50:PHE:HE2 | 19:AT:75:LYS:HA | 1.83 | 0.43 |
| 23:DB:268:C:O2 | 23:DB:268:C:H2' | 2.17 | 0.43 |
| 22:BA:32:U:H4' | 22:BA:52:A:N6 | 2.33 | 0.43 |
| 23:DB:557:C:O3' | 31:DJ:113:PRO:HB2 | 2.18 | 0.43 |
| 3:AD:169:TRP:HB3 | 3:AD:183:ARG:HH21 | 1.84 | 0.43 |
| 23:DB:1561:C:H2' | 23:DB:1562:U:H6 | 1.81 | 0.43 |
| 23:BB:1317:G:H2' | 23:BB:1318:U:O4' | 2.18 | 0.43 |
| 23:DB:1221:C:H2' | 23:DB:1222:U:C6 | 2.53 | 0.43 |
| 10:AK:15:VAL:HG21 | 10:AK:41:LEU:CD1 | 2.49 | 0.43 |
| 1:AA:453:G:C6 | 1:AA:454:G:C6 | 3.06 | 0.43 |
| 1:AA:1437:A:O2' | 1:AA:1438:G:H5' | 2.18 | 0.43 |
| 1:CA:488:C:H2' | 1:CA:489:C:C6 | 2.52 | 0.43 |
| 23:BB:409:G:O2' | 23:BB:410:G:H5' | 2.18 | 0.43 |
| 34:DM:9:PHE:CE1 | 34:DM:11:LYS:HB2 | 2.54 | 0.43 |
| 31:DJ:24:THR:O | 31:DJ:28:LEU:HG | 2.19 | 0.43 |
| 1:CA:1092:A:H5'' | 6:CG:3:ARG:NH1 | 2.33 | 0.43 |
| 23:BB:562:U:C4 | 23:BB:2036:C:O4' | 2.71 | 0.43 |
| 25:DC:42:ARG:NE | 25:DC:42:ARG:CA | 2.81 | 0.43 |
| 39:DR:58:VAL:O | 39:DR:59:ILE:HB | 2.17 | 0.43 |
| 23:BB:1820:U:O2 | 25:BC:200:MET:HB2 | 2.17 | 0.43 |
| 23:DB:2457:U:C2' | 23:DB:2458:G:H5' | 2.48 | 0.43 |
| 35:DN:126:ALA:C | 35:DN:127:GLU:HG2 | 2.39 | 0.43 |
| 1:CA:1236:A:H4' | 1:CA:1304:G:H4' | 2.01 | 0.43 |
| 3:AD:6:PRO:HG3 | 3:AD:9:LYS:HD3 | 1.99 | 0.43 |
| 29:BG:148:ARG:CZ | 29:BG:152:ARG:HB2 | 2.48 | 0.43 |
| 1:CA:1051:C:H2' | 1:CA:1052:U:C6 | 2.54 | 0.43 |
| 1:CA:1460:C:O2' | 1:CA:1461:G:H5' | 2.19 | 0.43 |
| 30:BH:124:THR:HG22 | 30:BH:125:THR:H | 1.82 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 23:DB:2526:G:C2 | 51:D4:2:LYS:HE3 | 2.53 | 0.43 |
| 23:BB:2728:U:H2' | 23:BB:2729:G:H8 | 1.83 | 0.43 |
| 23:BB:2866:U:O3' | 23:BB:2867:G:H4' | 2.18 | 0.43 |
| 37:BP:84:SER:O | 37:BP:86:LYS:N | 2.50 | 0.43 |
| 23:DB:2259:U:N3 | 23:DB:2260:C:C5 | 2.86 | 0.43 |
| 23:BB:1812:U:H2' | 23:BB:1813:G:C8 | 2.53 | 0.43 |
| 26:DD:82:PHE:HB3 | 26:DD:83:ARG:H | 1.42 | 0.43 |
| 31:BJ:90:GLU:OE1 | 31:BJ:94:ALA:HB2 | 2.17 | 0.43 |
| 43:BW:47:GLY:N | 43:BW:67:LYS:HZ3 | 2.15 | 0.43 |
| 18:AS:41:PRO:HG2 | 18:AS:42:ASN:H | 1.83 | 0.43 |
| 27:BE:127:GLU:OE1 | 27:BE:130:LYS:HG3 | 2.19 | 0.43 |
| 46:BZ:64:PHE:C | 46:BZ:67:PRO:HD2 | 2.39 | 0.43 |
| 34:BM:67:VAL:HG13 | 34:BM:67:VAL:O | 2.18 | 0.43 |
| 34:BM:98:PRO:HG2 | 34:BM:99:GLY:H | 1.83 | 0.43 |
| 24:BV:82:TYR:HD1 | 34:BM:36:VAL:HB | 1.83 | 0.43 |
| 22:DA:114:C:H2' | 22:DA:115:A:C8 | 2.53 | 0.43 |
| 50:D3:49:VAL:C | 50:D3:51:LYS:H | 2.22 | 0.43 |
| 51:B4:31:PRO:O | 51:B4:32:LYS:C | 2.56 | 0.43 |
| 23:BB:975:A:N6 | 23:BB:989:G:O2' | 2.52 | 0.43 |
| 23:BB:1163:G:N2 | 39:BR:91:GLN:HG3 | 2.31 | 0.43 |
| 38:DQ:73:ILE:HG13 | 38:DQ:74:SER:N | 2.22 | 0.43 |
| 31:BJ:41:LYS:CD | 31:BJ:44:TYR:HB2 | 2.45 | 0.43 |
| 3:CD:179:GLY:O | 3:CD:180:THR:HB | 2.18 | 0.43 |
| 26:DD:181:ASP:CG | 26:DD:184:ARG:HB3 | 2.39 | 0.43 |
| 18:AS:7:GLY:O | 18:AS:9:PHE:N | 2.51 | 0.43 |
| 23:BB:135:U:C2' | 23:BB:136:G:C8 | 2.92 | 0.43 |
| 32:BK:80:ASP:CG | 37:BP:71:ARG:HG2 | 2.39 | 0.43 |
| 12:CM:56:ARG:HG3 | 12:CM:56:ARG:NH1 | 2.30 | 0.43 |
| 30:BH:114:GLU:HB3 | 30:BH:134:VAL:HA | 1.99 | 0.43 |
| 30:BH:66:ASN:C | 30:BH:68:ARG:H | 2.22 | 0.43 |
| 40:DS:29:VAL:HG21 | 40:DS:69:LEU:C | 2.38 | 0.43 |
| 33:DL:61:LEU:HB3 | 33:DL:62:PRO:HD3 | 1.99 | 0.43 |
| 23:DB:2733:A:C8 | 23:DB:2733:A:C3' | 3.02 | 0.43 |
| 1:CA:374:A:H5'' | 1:CA:452:A:N1 | 2.33 | 0.43 |
| 23:DB:2281:A:N6 | 43:DW:3:LYS:HE3 | 2.32 | 0.43 |
| 44:DX:19:LEU:C | 44:DX:21:LEU:H | 2.22 | 0.43 |
| 23:BB:2564:A:OP1 | 23:BB:2648:G:H4' | 2.18 | 0.43 |
| 25:DC:51:ARG:O | 25:DC:52:HIS:C | 2.57 | 0.43 |
| 23:BB:784:G:H5'' | 25:BC:225:ASN:ND2 | 2.33 | 0.43 |
| 11:AL:38:THR:CG2 | 11:AL:48:LEU:HD12 | 2.48 | 0.43 |
| 32:DK:70:ARG:HG3 | 32:DK:70:ARG:O | 2.18 | 0.43 |
| 39:DR:38:VAL:HA | 39:DR:61:ALA:HB3 | 1.99 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 8:CI:97:LEU:O | 8:CI:102:PHE:HB2 | 2.17 | 0.43 |
| 23:BB:725:G:H2' | 23:BB:726:G:C1' | 2.48 | 0.43 |
| 25:BC:74:PRO:HB2 | 25:BC:96:LYS:CG | 2.36 | 0.43 |
| 1:CA:1301:U:HO2' | 1:CA:1302:C:P | 2.36 | 0.43 |
| 39:DR:20:VAL:HG12 | 39:DR:97:LYS:HA | 1.99 | 0.43 |
| 23:DB:2310:C:H2' | 23:DB:2311:A:H5' | 1.99 | 0.43 |
| 23:BB:2014:A:OP1 | 40:BS:95:ARG:NE | 2.39 | 0.43 |
| 37:BP:22:GLY:HA3 | 37:BP:91:VAL:HG13 | 2.00 | 0.43 |
| 3:AD:194:ILE:HD11 | 3:AD:199:ILE:HD11 | 2.00 | 0.43 |
| 1:AA:237:G:O2' | 1:AA:238:A:H5' | 2.18 | 0.43 |
| 47:B0:51:ARG:NH1 | 47:B0:56:LYS:O | 2.51 | 0.43 |
| 31:DJ:120:ARG:HB3 | 31:DJ:121:LYS:CE | 2.48 | 0.43 |
| 1:AA:90:C:H2' | 1:AA:91:U:H6 | 1.83 | 0.43 |
| 23:DB:947:A:H2' | 23:DB:948:C:H6 | 1.76 | 0.43 |
| 1:AA:429:U:H4' | 1:AA:430:A:O5' | 2.16 | 0.43 |
| 2:AC:21:TRP:CD1 | 2:AC:58:ARG:HD2 | 2.53 | 0.43 |
| 25:DC:21:PRO:CD | 25:DC:202:ARG:NH1 | 2.81 | 0.43 |
| 25:BC:78:GLU:HB2 | 25:BC:92:LEU:HB3 | 1.99 | 0.43 |
| 1:AA:177:G:N3 | 1:AA:177:G:O4' | 2.51 | 0.43 |
| 38:BQ:26:ALA:C | 38:BQ:28:SER:H | 2.22 | 0.43 |
| 1:CA:1187:G:OP1 | 8:CI:114:LYS:HE2 | 2.17 | 0.43 |
| 23:DB:2530:A:H5' | 29:DG:176:LYS:O | 2.18 | 0.43 |
| 27:DE:130:LYS:HZ2 | 27:DE:130:LYS:HB2 | 1.80 | 0.43 |
| 30:BH:60:GLU:OE1 | 30:BH:61:VAL:HG23 | 2.18 | 0.43 |
| 28:DF:7:TYR:OH | 28:DF:29:ARG:HG2 | 2.18 | 0.43 |
| 3:AD:51:GLY:O | 3:AD:55:ARG:HB2 | 2.18 | 0.43 |
| 4:AE:95:MET:CE | 4:AE:114:LEU:HD21 | 2.48 | 0.43 |
| 23:DB:1180:U:O2' | 23:DB:1181:U:H5' | 2.18 | 0.43 |
| 39:BR:17:GLY:C | 39:BR:18:GLN:HG2 | 2.39 | 0.43 |
| 23:BB:2278:A:H62 | 43:BW:10:ARG:HG2 | 1.82 | 0.43 |
| 2:CC:8:GLY:HA2 | 2:CC:11:LEU:HG | 1.99 | 0.43 |
| 23:BB:2355:G:H4' | 43:BW:20:LEU:CD2 | 2.45 | 0.43 |
| 1:AA:729:A:H2' | 1:AA:730:G:H8 | 1.83 | 0.43 |
| 23:BB:719:C:O2' | 23:BB:720:U:H5' | 2.18 | 0.43 |
| 27:BE:27:LEU:CD2 | 27:BE:100:MET:HG2 | 2.48 | 0.43 |
| 23:DB:1535:A:H5' | 23:DB:1536:C:C5 | 2.52 | 0.43 |
| 23:BB:2289:G:O2' | 23:BB:2290:G:H5' | 2.18 | 0.43 |
| 23:BB:2479:U:H6 | 23:BB:2479:U:O5' | 2.01 | 0.43 |
| 1:AA:57:G:N2 | 1:AA:388:G:C6 | 2.86 | 0.43 |
| 23:BB:711:G:H2' | 23:BB:712:G:O4' | 2.17 | 0.43 |
| 22:DA:7:G:H4' | 36:DO:29:HIS:CD2 | 2.53 | 0.43 |
| 23:DB:935:C:O2' | 23:DB:936:A:H5' | 2.18 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 5:CF:43:GLY:HA2 | 5:CF:58:HIS:NE2 | 2.33 | 0.43 |
| 23:DB:908:C:O2' | 23:DB:909:A:H5' | 2.18 | 0.43 |
| 1:AA:12:U:H4' | 1:AA:526:C:H4' | 1.99 | 0.43 |
| 23:DB:1736:U:H2' | 23:DB:1737:G:C8 | 2.52 | 0.43 |
| 23:BB:1680:U:H2' | 23:BB:1681:G:O4' | 2.18 | 0.43 |
| 52:BI:12:VAL:HG23 | 52:BI:41:PHE:CE2 | 2.53 | 0.43 |
| 1:CA:402:G:H2' | 1:CA:403:C:C6 | 2.53 | 0.43 |
| 23:DB:1877:A:O2' | 23:DB:1878:G:H5' | 2.18 | 0.43 |
| 16:AQ:60:ILE:HD13 | 16:AQ:60:ILE:H | 1.83 | 0.43 |
| 4:CE:155:LYS:H | 4:CE:155:LYS:HG3 | 1.53 | 0.43 |
| 31:DJ:95:ARG:NE | 31:DJ:95:ARG:N | 2.65 | 0.43 |
| 23:BB:1710:G:H2' | 23:BB:1711:A:H8 | 1.84 | 0.43 |
| 1:CA:797:C:OP1 | 10:CK:125:LYS:HE2 | 2.18 | 0.43 |
| 1:AA:113:G:N2 | 1:AA:353:A:H8 | 2.16 | 0.43 |
| 23:BB:1290:C:O2' | 23:BB:1291:C:H5' | 2.19 | 0.43 |
| 23:DB:192:C:O2' | 23:DB:802:A:N3 | 2.51 | 0.43 |
| 26:DD:18:ASP:C | 26:DD:20:VAL:N | 2.70 | 0.43 |
| 2:AC:166:TRP:HB3 | 2:AC:167:TYR:H | 1.45 | 0.43 |
| 14:CO:74:VAL:HG11 | 16:CQ:83:LEU:OXT | 2.18 | 0.43 |
| 1:CA:847:G:H2' | 1:CA:848:C:C6 | 2.53 | 0.43 |
| 23:BB:255:A:H2' | 23:BB:256:A:O4' | 2.18 | 0.43 |
| 23:BB:540:C:H2' | 23:BB:541:A:H8 | 1.83 | 0.43 |
| 27:BE:139:LYS:HE2 | 27:BE:139:LYS:CA | 2.48 | 0.43 |
| 23:DB:1236:G:H2' | 23:DB:1237:A:OP2 | 2.18 | 0.43 |
| 29:BG:169:ARG:C | 29:BG:171:LYS:N | 2.72 | 0.43 |
| 37:DP:13:LYS:NZ | 37:DP:15:ASP:HB2 | 2.33 | 0.43 |
| 1:AA:1113:C:O2' | 1:AA:1114:C:H5' | 2.17 | 0.43 |
| 14:AO:38:LEU:HB3 | 14:AO:42:PHE:HE1 | 1.83 | 0.43 |
| 1:AA:179:A:H2' | 1:AA:180:U:C6 | 2.54 | 0.43 |
| 16:AQ:32:ILE:HG13 | 16:AQ:33:TYR:N | 2.33 | 0.43 |
| 1:CA:1458:G:O2' | 1:CA:1459:G:H5' | 2.19 | 0.43 |
| 26:BD:103:ASP:HA | 26:BD:105:LYS:HE2 | 1.99 | 0.43 |
| 25:BC:33:LEU:HB3 | 25:BC:34:GLU:H | 1.72 | 0.43 |
| 32:BK:14:SER:O | 32:BK:52:VAL:HB | 2.18 | 0.43 |
| 1:AA:605:U:H2' | 1:AA:606:G:C8 | 2.53 | 0.43 |
| 37:DP:86:LYS:C | 37:DP:87:ARG:HG3 | 2.37 | 0.43 |
| 20:CB:41:ASN:ND2 | 20:CB:44:LYS:HB2 | 2.32 | 0.43 |
| 51:D4:10:LEU:HD13 | 51:D4:25:VAL:HB | 2.00 | 0.43 |
| 51:D4:26:ILE:HG23 | 51:D4:27:CYS:N | 2.21 | 0.43 |
| 23:BB:2849:U:C4' | 23:BB:2868:A:C2 | 3.01 | 0.43 |
| 37:BP:25:VAL:O | 37:BP:25:VAL:HG12 | 2.18 | 0.43 |
| 37:BP:59:THR:HG1 | 37:BP:76:HIS:CE1 | 2.36 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 35:DN:28:LEU:HD23 | 35:DN:48:VAL:HG11 | 2.00 | 0.43 |
| 25:DC:68:ARG:CZ | 25:DC:127:ASN:HA | 2.46 | 0.43 |
| 31:BJ:25:LEU:HB2 | 31:BJ:26:GLY:H | 1.57 | 0.43 |
| 31:BJ:64:VAL:HG11 | 31:BJ:68:LYS:CD | 2.34 | 0.43 |
| 27:BE:161:ALA:O | 27:BE:162:ARG:HD2 | 2.18 | 0.43 |
| 42:DU:81:ARG:HG3 | 42:DU:92:VAL:HG21 | 1.99 | 0.43 |
| 33:BL:64:PHE:N | 50:B3:24:LYS:HZ2 | 2.16 | 0.43 |
| 33:BL:82:LEU:HD13 | 33:BL:83:ALA:H | 1.81 | 0.43 |
| 34:BM:64:TRP:CE3 | 34:BM:102:LEU:HD22 | 2.54 | 0.43 |
| 23:DB:138:U:O3' | 23:DB:139:U:H2' | 2.19 | 0.43 |
| 23:DB:136:G:N1 | 41:DT:3:ARG:CZ | 2.81 | 0.43 |
| 1:CA:1320:C:N4 | 18:CS:36:ARG:HD2 | 2.30 | 0.43 |
| 35:BN:24:MET:O | 35:BN:28:LEU:HD12 | 2.18 | 0.43 |
| 35:BN:8:ARG:HB3 | 35:BN:43:GLU:OE1 | 2.19 | 0.43 |
| 34:DM:73:ILE:HG13 | 34:DM:92:TRP:HB2 | 2.00 | 0.43 |
| 38:BQ:94:LEU:CB | 39:BR:13:ARG:HG2 | 2.49 | 0.43 |
| 39:BR:42:ALA:C | 39:BR:44:GLY:N | 2.72 | 0.43 |
| 23:BB:2336:A:HO2' | 23:BB:2337:G:P | 2.41 | 0.43 |
| 27:BE:141:MET:CG | 27:BE:143:LEU:HB2 | 2.48 | 0.43 |
| 27:BE:149:ILE:CD1 | 27:BE:186:VAL:HG13 | 2.48 | 0.43 |
| 26:DD:50:VAL:CG1 | 26:DD:75:ALA:HB3 | 2.46 | 0.43 |
| 26:DD:77:ARG:CB | 26:DD:77:ARG:HH11 | 2.30 | 0.43 |
| 23:DB:2304:G:H22 | 23:DB:2312:U:H3 | 1.66 | 0.43 |
| 26:BD:140:HIS:HB3 | 26:BD:141:ARG:H | 1.62 | 0.43 |
| 26:BD:164:GLN:HG2 | 26:BD:165:MET:H | 1.83 | 0.43 |
| 13:CN:80:ARG:HH11 | 13:CN:80:ARG:HG2 | 1.84 | 0.43 |
| 23:DB:2281:A:H62 | 43:DW:3:LYS:HD2 | 1.83 | 0.43 |
| 23:BB:2733:A:C3' | 23:BB:2733:A:C8 | 3.02 | 0.43 |
| 52:BI:77:VAL:HG23 | 52:BI:78:LEU:N | 2.33 | 0.43 |
| 45:DY:26:LEU:C | 45:DY:28:LEU:N | 2.71 | 0.43 |
| 26:DD:191:GLY:O | 26:DD:192:ALA:HB3 | 2.17 | 0.43 |
| 23:DB:2727:A:O2' | 32:DK:70:ARG:NH2 | 2.52 | 0.43 |
| 45:BY:15:ARG:CA | 45:BY:15:ARG:HE | 2.31 | 0.43 |
| 39:DR:1:MET:N | 39:DR:47:VAL:HB | 2.33 | 0.43 |
| 1:CA:1253:G:N1 | 1:CA:1285:A:N6 | 2.66 | 0.43 |
| 2:AC:147:GLY:HA3 | 2:AC:171:ARG:H | 1.84 | 0.43 |
| 14:CO:28:VAL:HB | 14:CO:80:LEU:HD11 | 1.99 | 0.43 |
| 29:BG:49:LEU:O | 29:BG:50:THR:HG23 | 2.19 | 0.43 |
| 3:CD:33:ILE:O | 3:CD:34:GLU:C | 2.57 | 0.43 |
| 11:CL:106:VAL:CG1 | 11:CL:109:ARG:HG3 | 2.48 | 0.43 |
| 1:AA:932:C:H5' | 6:AG:3:ARG:NH2 | 2.34 | 0.43 |
| 23:BB:1081:U:H4' | 52:BI:123:ALA:HB1 | 2.01 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:BB:1025:G:H1' | 23:BB:1135:C:O5' | 2.18 | 0.43 |
| 23:DB:743:A:C2' | 23:DB:744:U:H5' | 2.47 | 0.43 |
| 36:BO:84:GLU:O | 36:BO:87:ILE:HG12 | 2.18 | 0.43 |
| 23:BB:1178:C:C2 | 23:BB:1179:G:N7 | 2.87 | 0.43 |
| 23:BB:1183:U:C2 | 23:BB:1184:U:C5 | 3.06 | 0.43 |
| 48:D1:9:LYS:CG | 48:D1:24:LYS:HG2 | 2.49 | 0.43 |
| 48:D1:49:LYS:HD2 | 48:D1:49:LYS:O | 2.17 | 0.43 |
| 9:AJ:41:PRO:O | 9:AJ:71:LEU:HD13 | 2.18 | 0.43 |
| 9:AJ:39:PRO:CB | 9:AJ:74:VAL:HG22 | 2.48 | 0.43 |
| 8:CI:29:ILE:CA | 8:CI:64:ILE:HB | 2.46 | 0.43 |
| 23:DB:51:G:H1' | 23:DB:118:A:H61 | 1.82 | 0.43 |
| 23:DB:1826:G:OP1 | 25:DC:222:THR:HG22 | 2.18 | 0.43 |
| 48:B1:36:LYS:HB3 | 48:B1:37:LYS:H | 1.67 | 0.43 |
| 28:BF:103:ILE:HG13 | 28:BF:104:THR:H | 1.83 | 0.43 |
| 41:BT:68:LYS:HB2 | 41:BT:68:LYS:HE2 | 1.82 | 0.43 |
| 23:BB:507:A:OP1 | 23:BB:508:A:N7 | 2.52 | 0.43 |
| 20:AB:61:SER:HB3 | 20:AB:223:GLY:O | 2.17 | 0.43 |
| 2:AC:113:LYS:HA | 2:AC:113:LYS:HE2 | 2.00 | 0.43 |
| 6:CG:11:ILE:HG22 | 6:CG:12:LEU:N | 2.33 | 0.43 |
| 8:AI:85:ALA:O | 8:AI:88:GLU:HB2 | 2.18 | 0.43 |
| 1:AA:1288:A:O2' | 1:AA:1289:A:H5' | 2.18 | 0.43 |
| 2:CC:11:LEU:HD22 | 2:CC:17:TRP:CD1 | 2.54 | 0.43 |
| 1:AA:195:A:H1' | 1:AA:222:C:O2' | 2.18 | 0.43 |
| 5:CF:59:TYR:N | 5:CF:59:TYR:CD1 | 2.86 | 0.43 |
| 23:BB:709:U:H2' | 23:BB:710:U:H6 | 1.84 | 0.43 |
| 1:CA:94:G:H4' | 1:CA:95:C:H5'' | 2.01 | 0.43 |
| 23:DB:2361:G:C5' | 50:D3:27:ASN:HB2 | 2.48 | 0.43 |
| 1:CA:1521:C:H2' | 1:CA:1522:U:C6 | 2.53 | 0.43 |
| 1:CA:25:C:H2' | 1:CA:26:A:C8 | 2.54 | 0.43 |
| 23:DB:78:U:H2' | 23:DB:79:C:H6 | 1.82 | 0.43 |
| 11:AL:41:PRO:CB | 11:AL:88:ASP:HB3 | 2.48 | 0.43 |
| 38:DQ:113:LYS:C | 38:DQ:115:ALA:H | 2.21 | 0.43 |
| 8:AI:10:ARG:HA | 8:AI:77:ALA:CB | 2.49 | 0.43 |
| 23:BB:1463:C:H2' | 23:BB:1464:G:H8 | 1.82 | 0.43 |
| 22:BA:91:C:H2' | 22:BA:92:C:H6 | 1.83 | 0.43 |
| 1:CA:425:G:O2' | 1:CA:426:U:H5' | 2.19 | 0.43 |
| 1:AA:130:A:C8 | 16:AQ:64:ARG:HG3 | 2.53 | 0.43 |
| 1:AA:392:C:H2' | 1:AA:393:A:C8 | 2.54 | 0.43 |
| 1:AA:462:G:H3' | 1:AA:463:U:C5' | 2.48 | 0.43 |
| 1:CA:1248:A:H2' | 1:CA:1249:C:H6 | 1.83 | 0.43 |
| 1:CA:521:G:O2' | 1:CA:522:C:H5' | 2.17 | 0.43 |
| 23:DB:2349:G:OP2 | 50:D3:41:ARG:HD3 | 2.17 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 35:BN:57:THR:HG21 | 35:BN:61:ALA:HB3 | 2.01 | 0.43 |
| 35:BN:122:ALA:CB | 47:B0:49:ARG:HH12 | 2.32 | 0.43 |
| 1:AA:323:U:H4' | 19:AT:16:ALA:HB3 | 2.01 | 0.43 |
| 1:CA:512:U:O2' | 1:CA:513:C:H5' | 2.19 | 0.43 |
| 1:AA:340:U:H2' | 1:AA:341:C:C6 | 2.54 | 0.43 |
| 29:BG:57:TYR:CD1 | 29:BG:57:TYR:N | 2.86 | 0.43 |
| 23:DB:215:G:H4' | 23:DB:216:A:OP1 | 2.17 | 0.43 |
| 23:DB:2660:A:H2' | 23:DB:2661:G:O4' | 2.17 | 0.43 |
| 23:BB:1930:G:C2' | 23:BB:1931:U:OP2 | 2.67 | 0.43 |
| 7:AH:10:LEU:HA | 7:AH:74:ILE:HD11 | 2.00 | 0.43 |
| 11:AL:121:PRO:C | 11:AL:123:ALA:H | 2.21 | 0.43 |
| 18:CS:19:GLU:O | 18:CS:19:GLU:HG3 | 2.18 | 0.43 |
| 19:CT:15:LYS:HA | 19:CT:15:LYS:HD3 | 1.74 | 0.43 |
| 14:AO:46:LYS:HB2 | 14:AO:46:LYS:HE3 | 1.84 | 0.43 |
| 23:BB:211:C:O2' | 23:BB:212:G:H5' | 2.18 | 0.43 |
| 3:CD:61:ARG:HG3 | 3:CD:66:VAL:O | 2.19 | 0.43 |
| 23:BB:2457:U:O2' | 23:BB:2458:G:H5' | 2.18 | 0.43 |
| 23:DB:588:U:H5' | 33:DL:29:LYS:NZ | 2.34 | 0.43 |
| 20:AB:187:ASP:OD1 | 20:AB:188:THR:N | 2.51 | 0.43 |
| 23:BB:440:C:H2' | 23:BB:441:U:H6 | 1.82 | 0.43 |
| 37:BP:47:ILE:CA | 37:BP:63:ILE:HG23 | 2.48 | 0.43 |
| 43:DW:56:HIS:CD2 | 43:DW:58:LEU:H | 2.36 | 0.43 |
| 25:BC:88:ALA:CB | 25:BC:156:SER:HB3 | 2.42 | 0.43 |
| 25:BC:191:LEU:HD22 | 25:BC:191:LEU:O | 2.17 | 0.43 |
| 31:BJ:58:ASN:C | 31:BJ:60:ASP:H | 2.21 | 0.43 |
| 23:DB:2617:U:H2' | 23:DB:2618:G:C5' | 2.47 | 0.43 |
| 18:AS:43:MET:HE1 | 18:AS:48:ILE:HG12 | 2.00 | 0.43 |
| 33:BL:118:THR:N | 33:BL:119:PRO:HD3 | 2.33 | 0.43 |
| 46:BZ:49:ARG:O | 46:BZ:50:ASP:HB3 | 2.18 | 0.43 |
| 24:BV:26:PHE:HB2 | 24:BV:27:PRO:HD2 | 2.00 | 0.43 |
| 1:AA:255:G:H2' | 1:AA:256:U:C6 | 2.53 | 0.43 |
| 23:DB:773:U:O2' | 25:DC:48:ILE:HG23 | 2.18 | 0.43 |
| 33:BL:39:LYS:HB3 | 33:BL:46:VAL:HG13 | 1.99 | 0.43 |
| 40:BS:43:ALA:O | 40:BS:47:VAL:HG13 | 2.18 | 0.43 |
| 31:DJ:35:ARG:O | 31:DJ:52:ASP:HB2 | 2.18 | 0.43 |
| 18:CS:29:PRO:HB3 | 18:CS:47:THR:HG22 | 2.01 | 0.43 |
| 23:BB:1132:U:C6 | 31:BJ:85:LYS:HE2 | 2.53 | 0.43 |
| 21:CU:17:ARG:N | 21:CU:17:ARG:HD2 | 2.12 | 0.43 |
| 25:BC:110:LYS:CE | 25:BC:111:ALA:H | 2.27 | 0.43 |
| 27:BE:109:LEU:HA | 27:BE:117:ARG:HB3 | 2.00 | 0.43 |
| 27:BE:121:VAL:HG12 | 27:BE:122:GLU:H | 1.80 | 0.43 |
| 27:BE:138:LEU:HD22 | 27:BE:144:GLU:HA | 1.99 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 3:CD:171:GLU:OE2 | 3:CD:182:LYS:HE3 | 2.19 | 0.43 |
| 3:CD:64:TYR:CD2 | 3:CD:93:LEU:HB2 | 2.54 | 0.43 |
| 21:AU:16:ARG:NH2 | 21:AU:24:LYS:HE2 | 2.33 | 0.43 |
| 33:DL:126:ARG:HH11 | 33:DL:126:ARG:HG2 | 1.83 | 0.43 |
| 23:BB:142:A:OP2 | 23:BB:142:A:H8 | 2.01 | 0.43 |
| 41:BT:15:HIS:HB2 | 41:BT:31:VAL:HB | 1.99 | 0.43 |
| 30:BH:62:LEU:HD21 | 30:BH:137:GLU:HG2 | 2.01 | 0.43 |
| 30:BH:58:LEU:O | 30:BH:62:LEU:HD12 | 2.19 | 0.43 |
| 50:D3:24:LYS:C | 50:D3:26:ALA:H | 2.22 | 0.43 |
| 33:DL:54:GLN:CB | 33:DL:57:LEU:HD23 | 2.48 | 0.43 |
| 33:DL:63:LYS:HE3 | 50:D3:29:ARG:HG3 | 2.00 | 0.43 |
| 51:D4:18:LYS:O | 51:D4:19:ARG:HG3 | 2.17 | 0.43 |
| 1:AA:1213:A:C6 | 1:AA:1215:G:H1' | 2.54 | 0.43 |
| 24:DV:10:LYS:HD2 | 24:DV:41:GLU:OE2 | 2.18 | 0.43 |
| 38:DQ:87:VAL:HB | 39:DR:54:VAL:CG2 | 2.40 | 0.43 |
| 4:CE:136:VAL:HG23 | 4:CE:137:ARG:H | 1.83 | 0.43 |
| 20:AB:38:HIS:O | 20:AB:39:ILE:HD13 | 2.17 | 0.43 |
| 23:BB:466:A:H2' | 23:BB:467:G:H5' | 2.01 | 0.43 |
| 22:DA:53:A:C2' | 22:DA:54:G:H5' | 2.49 | 0.43 |
| 37:BP:92:ARG:CZ | 37:BP:110:LYS:HE2 | 2.46 | 0.43 |
| 32:DK:19:VAL:HB | 32:DK:41:ILE:CG1 | 2.49 | 0.43 |
| 1:CA:239:U:H5'' | 1:CA:239:U:H6 | 1.80 | 0.43 |
| 48:D1:27:ARG:NE | 48:D1:27:ARG:H | 2.16 | 0.43 |
| 2:CC:137:VAL:HG13 | 2:CC:148:ILE:HG23 | 2.00 | 0.43 |
| 8:CI:29:ILE:O | 8:CI:32:ARG:HB2 | 2.18 | 0.43 |
| 26:BD:62:LYS:HE3 | 26:BD:63:PRO:HD2 | 2.01 | 0.43 |
| 43:BW:15:SER:O | 43:BW:16:GLU:HB3 | 2.17 | 0.43 |
| 23:DB:2072:C:O2' | 23:DB:2073:C:H5' | 2.19 | 0.43 |
| 23:DB:1774:C:O2 | 23:DB:1774:C:C2' | 2.54 | 0.43 |
| 25:BC:71:ASP:OD2 | 25:BC:118:GLY:HA2 | 2.19 | 0.43 |
| 23:DB:599:A:H2' | 23:DB:600:G:H8 | 1.83 | 0.43 |
| 23:DB:585:G:H2' | 23:DB:1251:C:N4 | 2.33 | 0.43 |
| 19:CT:73:ARG:HG3 | 19:CT:74:HIS:H | 1.83 | 0.43 |
| 23:BB:619:G:H2' | 23:BB:620:G:H5'' | 2.00 | 0.43 |
| 35:DN:103:ARG:NH1 | 35:DN:106:ASP:OD2 | 2.51 | 0.43 |
| 23:DB:1309:G:C5' | 49:D2:8:SER:H | 2.30 | 0.43 |
| 17:CR:51:GLN:NE2 | 17:CR:54:LEU:HB2 | 2.33 | 0.43 |
| 23:DB:1616:A:H4' | 23:DB:1617:C:OP2 | 2.19 | 0.43 |
| 23:BB:2303:G:H2' | 23:BB:2304:G:H5' | 2.00 | 0.43 |
| 40:DS:58:ALA:HA | 40:DS:62:ASP:HB3 | 2.00 | 0.43 |
| 23:BB:2093:G:H2' | 23:BB:2094:A:H8 | 1.84 | 0.43 |
| 25:BC:257:ARG:HA | 25:BC:257:ARG:CZ | 2.47 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 39:BR:33:VAL:HB | 39:BR:35:PHE:HE2 | 1.82 | 0.43 |
| 22:DA:13:G:H1' | 22:DA:69:G:N2 | 2.33 | 0.43 |
| 1:CA:206:C:H2' | 1:CA:207:C:C6 | 2.53 | 0.43 |
| 20:CB:86:CYS:C | 20:CB:88:GLN:H | 2.21 | 0.43 |
| 27:BE:25:GLU:O | 27:BE:26:ALA:C | 2.56 | 0.43 |
| 9:AJ:80:THR:HG22 | 9:AJ:81:GLU:N | 2.29 | 0.43 |
| 1:CA:1280:A:O4' | 9:CJ:43:PRO:HG3 | 2.18 | 0.43 |
| 23:DB:303:G:C6 | 23:DB:315:G:C6 | 3.06 | 0.43 |
| 23:BB:958:U:H5' | 34:BM:18:ARG:HH12 | 1.83 | 0.43 |
| 1:CA:1348:U:O2 | 1:CA:1348:U:H2' | 2.18 | 0.43 |
| 52:BI:85:ILE:HD12 | 52:BI:87:SER:O | 2.19 | 0.43 |
| 34:BM:80:VAL:HG12 | 34:BM:81:ARG:N | 2.33 | 0.43 |
| 50:D3:25:HIS:CE1 | 50:D3:46:LYS:HB2 | 2.53 | 0.43 |
| 23:BB:904:G:H2' | 23:BB:905:A:C8 | 2.52 | 0.43 |
| 1:CA:1234:C:H2' | 1:CA:1235:U:H6 | 1.83 | 0.43 |
| 1:AA:635:A:H2' | 1:AA:636:U:C6 | 2.53 | 0.43 |
| 24:DV:57:TYR:CE2 | 24:DV:77:VAL:HG21 | 2.53 | 0.43 |
| 23:DB:1948:G:C6 | 23:DB:1959:G:C6 | 3.06 | 0.43 |
| 23:DB:79:C:O2' | 23:DB:346:A:C8 | 2.68 | 0.43 |
| 1:AA:186:C:H2' | 1:AA:187:G:O4' | 2.18 | 0.43 |
| 31:DJ:95:ARG:HH11 | 31:DJ:95:ARG:HG3 | 1.83 | 0.43 |
| 1:CA:113:G:N2 | 1:CA:353:A:H8 | 2.16 | 0.43 |
| 15:AP:25:ARG:HD3 | 15:AP:25:ARG:H | 1.83 | 0.43 |
| 1:AA:598:U:H2' | 1:AA:599:C:H6 | 1.82 | 0.43 |
| 23:BB:2686:G:H2' | 23:BB:2687:U:O4' | 2.18 | 0.43 |
| 1:CA:128:G:O2' | 1:CA:129:A:H5' | 2.18 | 0.43 |
| 23:BB:234:U:H2' | 23:BB:235:U:H6 | 1.84 | 0.43 |
| 23:DB:2096:C:H2' | 23:DB:2097:A:C8 | 2.53 | 0.43 |
| 23:DB:184:C:H2' | 23:DB:185:G:C8 | 2.51 | 0.43 |
| 23:DB:2691:C:H2' | 23:DB:2692:G:H8 | 1.84 | 0.43 |
| 3:CD:123:MET:HB2 | 3:CD:127:ARG:O | 2.19 | 0.43 |
| 1:CA:847:G:H2' | 1:CA:848:C:H6 | 1.82 | 0.43 |
| 1:CA:1210:C:H4' | 1:CA:1214:C:C4 | 2.53 | 0.43 |
| 52:DI:7:TYR:CE1 | 52:DI:57:VAL:HG11 | 2.53 | 0.43 |
| 23:DB:1038:G:H2' | 23:DB:1039:A:C8 | 2.52 | 0.43 |
| 1:CA:916:U:H2' | 1:CA:917:G:C8 | 2.52 | 0.43 |
| 50:B3:21:PHE:CD1 | 50:B3:21:PHE:N | 2.85 | 0.43 |
| 1:AA:109:A:C6 | 1:AA:326:G:C6 | 3.06 | 0.43 |
| 24:DV:60:VAL:HG12 | 24:DV:73:LYS:HG3 | 2.00 | 0.43 |
| 23:DB:511:U:H4' | 23:DB:1235:G:H4' | 2.00 | 0.43 |
| 23:BB:822:G:H2' | 23:BB:823:C:C6 | 2.53 | 0.43 |
| 30:DH:46:PHE:O | 30:DH:49:ALA:HB3 | 2.19 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 1:CA:1376:U:H2' | 1:CA:1377:A:C8 | 2.54 | 0.43 |
| 1:AA:224:U:H2' | 1:AA:225:C:H6 | 1.82 | 0.43 |
| 23:BB:1201:U:H2' | 23:BB:1202:G:H8 | 1.84 | 0.43 |
| 35:DN:18:GLN:HB2 | 35:DN:18:GLN:HE21 | 1.55 | 0.43 |
| 29:DG:18:ILE:HG13 | 29:DG:18:ILE:O | 2.18 | 0.43 |
| 45:DY:57:GLU:OE1 | 45:DY:57:GLU:O | 2.36 | 0.43 |
| 23:DB:2382:G:O2' | 50:D3:38:LYS:HE2 | 2.18 | 0.43 |
| 1:AA:1454:G:H2' | 1:AA:1455:G:O4' | 2.19 | 0.43 |
| 51:D4:2:LYS:HD3 | 51:D4:2:LYS:H | 1.84 | 0.43 |
| 23:BB:2728:U:H2' | 23:BB:2729:G:C8 | 2.54 | 0.43 |
| 26:BD:24:VAL:O | 26:BD:24:VAL:HG13 | 2.18 | 0.43 |
| 37:BP:51:ASN:HA | 37:BP:61:ARG:N | 2.29 | 0.43 |
| 23:DB:2260:C:O2' | 23:DB:2261:C:H5' | 2.18 | 0.43 |
| 25:BC:194:VAL:CG1 | 25:BC:195:GLY:H | 2.17 | 0.43 |
| 23:BB:161:A:H62 | 23:BB:165:A:N6 | 2.10 | 0.43 |
| 35:DN:100:CYS:SG | 47:D0:43:THR:HG21 | 2.59 | 0.43 |
| 43:BW:45:HIS:HB2 | 43:BW:67:LYS:NZ | 2.33 | 0.43 |
| 38:DQ:52:ARG:HG2 | 38:DQ:53:LYS:HE2 | 1.99 | 0.43 |
| 1:AA:1220:G:H2' | 1:AA:1221:G:C8 | 2.52 | 0.43 |
| 30:BH:11:ASN:C | 30:BH:13:GLY:H | 2.22 | 0.43 |
| 23:BB:636:G:OP2 | 33:BL:128:THR:HG22 | 2.18 | 0.43 |
| 34:BM:71:LYS:HD3 | 34:BM:92:TRP:N | 2.33 | 0.43 |
| 24:BV:42:LEU:HD23 | 24:BV:42:LEU:N | 2.33 | 0.43 |
| 23:BB:2574:G:HO2' | 26:BD:151:THR:HG21 | 1.84 | 0.43 |
| 36:DO:35:ILE:CG1 | 36:DO:106:LEU:HD12 | 2.47 | 0.43 |
| 23:BB:1155:A:H61 | 45:BY:10:ARG:CZ | 2.31 | 0.43 |
| 23:DB:1341:G:H5' | 41:DT:61:LEU:CD2 | 2.44 | 0.43 |
| 23:BB:2771:C:O2' | 26:BD:173:GLN:NE2 | 2.52 | 0.43 |
| 8:AI:43:ALA:HA | 8:AI:44:ARG:NH1 | 2.34 | 0.43 |
| 8:AI:56:MET:CA | 8:AI:59:LYS:HZ2 | 2.30 | 0.43 |
| 23:DB:852:U:H2' | 23:DB:853:C:C6 | 2.53 | 0.43 |
| 25:BC:25:LYS:HA | 25:BC:25:LYS:HD2 | 1.83 | 0.43 |
| 34:DM:5:LYS:CE | 34:DM:6:ARG:H | 2.23 | 0.43 |
| 31:BJ:35:ARG:NH2 | 31:BJ:40:HIS:H | 2.15 | 0.43 |
| 31:BJ:43:GLU:HG3 | 31:BJ:44:TYR:CD2 | 2.53 | 0.43 |
| 38:BQ:92:LYS:O | 38:BQ:94:LEU:HD22 | 2.18 | 0.43 |
| 12:AM:33:LEU:HB3 | 12:AM:38:ILE:O | 2.18 | 0.43 |
| 27:BE:149:ILE:O | 27:BE:187:VAL:HG22 | 2.18 | 0.43 |
| 27:BE:150:THR:HB | 27:BE:171:ASP:OD1 | 2.18 | 0.43 |
| 1:CA:1014:A:H5'' | 18:CS:13:HIS:HB2 | 2.00 | 0.43 |
| 33:DL:74:THR:O | 33:DL:75:ALA:C | 2.57 | 0.43 |
| 26:BD:52:THR:HG22 | 26:BD:76:GLY:H | 1.84 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 25:DC:45:ASN:ND2 | 25:DC:50:THR:OG1 | 2.51 | 0.43 |
| 38:DQ:82:LEU:O | 38:DQ:88:GLU:HG3 | 2.19 | 0.43 |
| 4:CE:87:VAL:CG1 | 4:CE:88:HIS:H | 2.26 | 0.43 |
| 8:CI:8:THR:OG1 | 8:CI:84:ARG:HG3 | 2.18 | 0.43 |
| 21:AU:36:PHE:C | 21:AU:40:PRO:HD3 | 2.38 | 0.43 |
| 5:AF:32:ALA:CB | 5:AF:70:VAL:HG11 | 2.49 | 0.43 |
| 28:BF:45:ASP:OD2 | 28:BF:83:PRO:HG2 | 2.18 | 0.43 |
| 1:AA:1238:A:N3 | 1:AA:1241:G:H1' | 2.34 | 0.43 |
| 38:DQ:60:TRP:CD2 | 38:DQ:93:ILE:HA | 2.54 | 0.43 |
| 22:DA:53:A:H2' | 22:DA:54:G:O4' | 2.19 | 0.43 |
| 23:DB:2581:G:N3 | 23:DB:2581:G:H2' | 2.34 | 0.43 |
| 28:DF:98:PHE:CA | 28:DF:101:ARG:HE | 2.23 | 0.43 |
| 28:DF:133:GLU:HB3 | 28:DF:134:GLN:H | 1.50 | 0.43 |
| 1:AA:77:A:H2' | 1:AA:78:A:N7 | 2.34 | 0.43 |
| 23:DB:948:C:O2' | 23:DB:949:G:H5' | 2.19 | 0.43 |
| 1:AA:1367:C:O2' | 1:AA:1368:A:H5' | 2.16 | 0.43 |
| 1:AA:65:A:N3 | 1:AA:65:A:C2' | 2.76 | 0.43 |
| 8:CI:123:ARG:HD3 | 8:CI:124:PRO:HD2 | 1.99 | 0.43 |
| 23:DB:1547:C:H2' | 23:DB:1548:A:C8 | 2.53 | 0.43 |
| 23:DB:1408:G:H2' | 23:DB:1409:U:C6 | 2.54 | 0.43 |
| 1:AA:1343:G:H2' | 1:AA:1344:C:C6 | 2.54 | 0.43 |
| 1:AA:1343:G:H2' | 1:AA:1344:C:H6 | 1.83 | 0.43 |
| 29:DG:39:ALA:CA | 29:DG:54:ARG:HB2 | 2.48 | 0.43 |
| 23:BB:2210:U:N3 | 23:BB:2212:A:N7 | 2.65 | 0.43 |
| 46:DZ:12:ILE:HA | 46:DZ:26:SER:HA | 2.01 | 0.43 |
| 20:CB:53:LEU:HD11 | 20:CB:216:VAL:HG12 | 1.99 | 0.43 |
| 23:DB:1373:A:H5'' | 23:DB:2213:U:O4 | 2.18 | 0.43 |
| 1:CA:409:U:OP2 | 3:CD:21:LYS:HE2 | 2.19 | 0.43 |
| 29:DG:88:LEU:HG | 29:DG:161:VAL:HB | 2.01 | 0.43 |
| 23:BB:954:G:OP1 | 34:BM:17:ASN:HB2 | 2.19 | 0.43 |
| 23:BB:1117:C:C2 | 23:BB:1118:C:C5 | 3.07 | 0.43 |
| 23:BB:2184:A:H2' | 23:BB:2185:U:C6 | 2.53 | 0.43 |
| 23:DB:80:G:C6 | 23:DB:107:G:C6 | 3.07 | 0.43 |
| 23:BB:1877:A:H2' | 23:BB:1878:G:C8 | 2.53 | 0.43 |
| 23:BB:1948:G:C6 | 23:BB:1959:G:C6 | 3.06 | 0.43 |
| 1:CA:302:G:H2' | 1:CA:303:A:H8 | 1.83 | 0.43 |
| 23:BB:315:G:H2' | 23:BB:316:C:O4' | 2.19 | 0.43 |
| 3:CD:44:LYS:HZ2 | 3:CD:45:PRO:C | 2.21 | 0.43 |
| 28:BF:3:LEU:HA | 28:BF:6:TYR:CG | 2.54 | 0.43 |
| 50:D3:41:ARG:HH11 | 50:D3:41:ARG:HG2 | 1.84 | 0.43 |
| 2:AC:139:ASN:HD22 | 2:AC:139:ASN:N | 2.16 | 0.43 |
| 1:CA:625:U:H4' | 15:CP:16:PHE:CZ | 2.54 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 23:DB:1987:A:H2' | 23:DB:1988:G:H8 | 1.82 | 0.43 |
| 23:DB:2135:A:C6 | 23:DB:2136:G:N7 | 2.87 | 0.43 |
| 8:AI:66:VAL:CG2 | 8:AI:74:GLN:HG3 | 2.48 | 0.43 |
| 1:CA:177:G:N3 | 1:CA:177:G:O4' | 2.51 | 0.43 |
| 1:AA:695:A:H2' | 1:AA:696:A:C8 | 2.54 | 0.43 |
| 23:DB:1092:C:O2' | 23:DB:1093:G:H5' | 2.19 | 0.43 |
| 1:CA:1426:G:O2' | 1:CA:1427:C:H5' | 2.19 | 0.43 |
| 23:BB:1115:G:H2' | 23:BB:1116:G:H8 | 1.83 | 0.43 |
| 3:AD:64:TYR:N | 3:AD:64:TYR:CD1 | 2.87 | 0.43 |
| 1:CA:1455:G:O2' | 1:CA:1456:A:H5' | 2.18 | 0.43 |
| 45:BY:23:LEU:HD22 | 45:BY:28:LEU:O | 2.18 | 0.43 |
| 52:BI:15:GLY:O | 52:BI:16:MET:HB2 | 2.16 | 0.43 |
| 23:DB:2663:G:H2' | 23:DB:2664:G:C8 | 2.54 | 0.43 |
| 1:AA:1140:C:O2' | 1:AA:1141:C:H5' | 2.18 | 0.43 |
| 26:DD:14:ILE:HG23 | 26:DD:19:GLY:CA | 2.49 | 0.43 |
| 44:DX:39:GLN:O | 44:DX:41:HIS:N | 2.50 | 0.43 |
| 25:BC:51:ARG:HB2 | 25:BC:51:ARG:HE | 1.61 | 0.43 |
| 25:BC:66:PHE:HB3 | 25:BC:67:LYS:H | 1.61 | 0.43 |
| 25:DC:160:TYR:O | 25:DC:176:ARG:HG2 | 2.19 | 0.43 |
| 31:BJ:58:ASN:O | 31:BJ:59:ALA:HB3 | 2.19 | 0.43 |
| 36:BO:50:ALA:HB1 | 36:BO:79:ALA:HB1 | 2.01 | 0.43 |
| 43:BW:76:ARG:HG2 | 43:BW:77:LYS:H | 1.81 | 0.43 |
| 23:BB:298:G:C2 | 23:BB:339:U:C5 | 3.06 | 0.43 |
| 30:BH:30:LEU:HD22 | 30:BH:35:LYS:HE3 | 2.00 | 0.43 |
| 30:BH:5:LEU:CD1 | 30:BH:37:VAL:HG11 | 2.48 | 0.43 |
| 27:DE:136:GLN:HA | 27:DE:139:LYS:HG2 | 2.01 | 0.43 |
| 23:BB:872:U:HO2' | 34:BM:64:TRP:HE1 | 1.62 | 0.43 |
| 23:BB:1249:U:H4' | 38:BQ:3:VAL:HG13 | 1.99 | 0.43 |
| 34:DM:14:LYS:HA | 34:DM:72:PRO:HG3 | 2.00 | 0.43 |
| 39:BR:51:VAL:O | 39:BR:52:PRO:C | 2.57 | 0.43 |
| 20:CB:101:THR:HG22 | 20:CB:174:GLU:CD | 2.39 | 0.43 |
| 12:AM:3:ILE:CA | 12:AM:56:ARG:HG2 | 2.40 | 0.43 |
| 3:CD:106:PHE:HB3 | 3:CD:154:VAL:HG12 | 2.01 | 0.43 |
| 23:DB:1199:U:O2' | 38:DQ:2:ARG:HB2 | 2.18 | 0.43 |
| 1:CA:1013:G:H2' | 1:CA:1015:G:OP2 | 2.18 | 0.43 |
| 41:BT:3:ARG:HE | 41:BT:8:LEU:HD23 | 1.83 | 0.43 |
| 41:BT:11:LEU:HD23 | 41:BT:46:ALA:HB1 | 2.00 | 0.43 |
| 47:D0:16:ARG:C | 47:D0:18:HIS:H | 2.21 | 0.43 |
| 12:CM:59:VAL:HG13 | 12:CM:60:ALA:N | 2.33 | 0.43 |
| 35:BN:1:MET:HE3 | 35:BN:3:HIS:O | 2.18 | 0.43 |
| 20:AB:71:THR:HG23 | 20:AB:93:HIS:C | 2.39 | 0.43 |
| 26:BD:1:MET:HG3 | 26:BD:205:PRO:HG2 | 2.01 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 1:CA:1314:C:O2' | 1:CA:1315:U:H5' | 2.19 | 0.43 |
| 45:DY:5:LYS:HE2 | 45:DY:58:GLU:OE2 | 2.19 | 0.43 |
| 1:AA:1489:G:H2' | 1:AA:1490:U:C6 | 2.54 | 0.43 |
| 1:CA:919:A:O2' | 1:CA:920:U:H5' | 2.19 | 0.43 |
| 8:CI:6:TYR:CG | 8:CI:7:GLY:N | 2.86 | 0.43 |
| 21:AU:35:GLU:HB2 | 21:AU:37:TYR:CZ | 2.54 | 0.43 |
| 1:CA:1298:U:H4' | 1:CA:1299:A:C2 | 2.54 | 0.43 |
| 35:BN:35:LYS:N | 35:BN:112:TYR:HB3 | 2.33 | 0.43 |
| 1:AA:967:C:OP1 | 1:AA:969:A:H8 | 2.00 | 0.43 |
| 35:DN:80:PHE:O | 35:DN:85:PRO:HD3 | 2.18 | 0.43 |
| 23:BB:2691:C:H2' | 23:BB:2692:G:H8 | 1.83 | 0.43 |
| 36:BO:1:MET:HG2 | 36:BO:2:ASP:N | 2.32 | 0.43 |
| 32:DK:79:PHE:CD1 | 32:DK:79:PHE:N | 2.86 | 0.43 |
| 48:D1:9:LYS:HA | 48:D1:24:LYS:HB3 | 2.00 | 0.43 |
| 36:BO:30:ARG:O | 36:BO:31:THR:C | 2.57 | 0.43 |
| 13:AN:78:LEU:HB2 | 13:AN:83:VAL:HG22 | 1.99 | 0.43 |
| 23:DB:2678:C:O2' | 23:DB:2679:A:H5' | 2.18 | 0.43 |
| 35:DN:86:ARG:CZ | 35:DN:117:ASP:HA | 2.49 | 0.43 |
| 23:BB:28:A:O2' | 23:BB:29:U:H5' | 2.18 | 0.43 |
| 23:BB:1549:A:H2' | 23:BB:1550:C:H6 | 1.84 | 0.43 |
| 1:CA:1279:G:N2 | 9:CJ:45:ARG:HD2 | 2.33 | 0.43 |
| 14:CO:31:LEU:HA | 14:CO:34:GLN:OE1 | 2.19 | 0.43 |
| 23:DB:480:A:C4' | 42:DU:40:LEU:HD22 | 2.47 | 0.43 |
| 23:DB:585:G:N7 | 38:DQ:5:ARG:NH2 | 2.67 | 0.43 |
| 9:CJ:59:LYS:C | 9:CJ:61:ALA:H | 2.21 | 0.43 |
| 17:AR:62:ARG:HD2 | 17:AR:69:TYR:CD2 | 2.54 | 0.43 |
| 22:DA:14:U:O2' | 22:DA:107:G:H1' | 2.19 | 0.43 |
| 22:DA:14:U:H3' | 22:DA:15:A:C5' | 2.48 | 0.43 |
| 23:DB:2199:A:H3' | 23:DB:2200:C:H6 | 1.82 | 0.43 |
| 23:BB:1857:G:H1' | 23:BB:1885:A:H62 | 1.82 | 0.43 |
| 23:BB:1858:A:N6 | 23:BB:1884:G:O2' | 2.51 | 0.43 |
| 23:DB:1858:A:N6 | 23:DB:1884:G:O2' | 2.51 | 0.43 |
| 2:CC:54:ILE:HB | 2:CC:67:ILE:CD1 | 2.49 | 0.43 |
| 23:DB:282:A:H2' | 23:DB:283:G:C8 | 2.54 | 0.43 |
| 7:CH:21:LYS:O | 7:CH:62:LEU:HD22 | 2.19 | 0.43 |
| 28:BF:177:ARG:HH21 | 28:BF:178:LYS:HA | 1.83 | 0.43 |
| 23:BB:188:G:OP1 | 46:BZ:11:GLU:HG2 | 2.18 | 0.43 |
| 29:DG:29:ASN:HB3 | 29:DG:78:VAL:HA | 2.00 | 0.43 |
| 23:BB:1746:A:H2' | 23:BB:1747:U:C6 | 2.53 | 0.43 |
| 1:AA:1038:C:H2' | 1:AA:1039:G:C8 | 2.54 | 0.43 |
| 8:AI:94:ARG:CZ | 8:AI:94:ARG:HB2 | 2.49 | 0.43 |
| 23:DB:1877:A:H2' | 23:DB:1878:G:C8 | 2.53 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:DB:1945:G:C4 | 23:DB:1946:U:C5 | 3.07 | 0.43 |
| 23:BB:2100:G:C6 | 23:BB:2190:G:C6 | 3.07 | 0.43 |
| 23:BB:1945:G:C4 | 23:BB:1946:U:C5 | 3.07 | 0.43 |
| 24:DV:44:HIS:O | 24:DV:46:LYS:N | 2.51 | 0.43 |
| 23:DB:1707:G:H2' | 23:DB:1708:C:C6 | 2.54 | 0.43 |
| 1:CA:113:G:H21 | 1:CA:353:A:H8 | 1.66 | 0.43 |
| 23:BB:1399:C:H2' | 23:BB:1400:U:H6 | 1.84 | 0.43 |
| 23:DB:1559:U:H3' | 23:DB:1560:G:C5' | 2.47 | 0.43 |
| 23:DB:839:U:H2' | 23:DB:840:C:C6 | 2.53 | 0.43 |
| 23:DB:2601:C:C3' | 23:DB:2602:A:H5'' | 2.47 | 0.43 |
| 28:DF:103:ILE:HD12 | 28:DF:104:THR:H | 1.81 | 0.43 |
| 1:AA:1380:U:O4 | 6:AG:2:ARG:HG3 | 2.18 | 0.43 |
| 11:AL:64:SER:OG | 11:AL:96:THR:HG23 | 2.18 | 0.43 |
| 23:DB:1599:U:C2 | 23:DB:1600:C:C5 | 3.06 | 0.43 |
| 15:CP:13:LYS:O | 15:CP:15:PRO:HD3 | 2.18 | 0.43 |
| 43:BW:6:GLY:C | 43:BW:8:SER:N | 2.72 | 0.43 |
| 1:AA:691:G:H1' | 1:AA:696:A:H61 | 1.84 | 0.43 |
| 4:AE:56:PRO:O | 4:AE:60:GLN:HG3 | 2.19 | 0.43 |
| 23:DB:1270:C:H5'' | 23:DB:1271:G:O5' | 2.19 | 0.43 |
| 1:CA:709:U:H2' | 1:CA:710:G:H8 | 1.83 | 0.43 |
| 23:DB:1930:G:C2' | 23:DB:1931:U:OP2 | 2.67 | 0.43 |
| 1:AA:223:A:H2' | 1:AA:224:U:C6 | 2.53 | 0.43 |
| 23:DB:1281:G:H2' | 23:DB:1282:U:O4' | 2.18 | 0.43 |
| 29:BG:8:VAL:O | 29:BG:48:THR:HA | 2.18 | 0.43 |
| 6:CG:6:ILE:HG22 | 6:CG:7:GLY:N | 2.34 | 0.43 |
| 23:BB:2660:A:H2' | 23:BB:2661:G:O4' | 2.18 | 0.43 |
| 1:CA:186:C:H2' | 1:CA:187:G:O4' | 2.18 | 0.43 |
| 23:BB:2233:U:H2' | 23:BB:2234:G:H8 | 1.83 | 0.43 |
| 23:BB:1306:C:H2' | 23:BB:1307:A:H8 | 1.84 | 0.43 |
| 2:CC:121:SER:O | 2:CC:125:ARG:HG3 | 2.18 | 0.43 |
| 37:DP:111:GLU:O | 37:DP:113:LEU:N | 2.52 | 0.43 |
| 37:DP:27:VAL:HA | 37:DP:86:LYS:HB3 | 2.01 | 0.43 |
| 23:DB:452:G:N2 | 23:DB:458:G:H1' | 2.33 | 0.43 |
| 26:BD:23:PRO:HA | 26:BD:190:LYS:N | 2.34 | 0.43 |
| 26:BD:8:LYS:CB | 37:BP:5:LYS:HZ1 | 2.30 | 0.43 |
| 43:DW:33:GLY:HA3 | 43:DW:66:VAL:HG21 | 2.01 | 0.43 |
| 25:BC:140:VAL:HG23 | 25:BC:141:HIS:N | 2.31 | 0.43 |
| 25:BC:152:GLN:HB3 | 25:BC:153:LEU:HD23 | 2.00 | 0.43 |
| 25:BC:164:VAL:HG12 | 25:BC:164:VAL:O | 2.19 | 0.43 |
| 47:D0:32:THR:HG21 | 47:D0:41:HIS:CD2 | 2.53 | 0.43 |
| 26:DD:42:ASN:O | 26:DD:43:ASP:CB | 2.64 | 0.43 |
| 26:DD:60:VAL:HG23 | 26:DD:63:PRO:CD | 2.48 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 35:DN:34:ILE:O | 35:DN:112:TYR:HD1 | 2.01 | 0.43 |
| 25:DC:155:ARG:HG2 | 25:DC:155:ARG:HH21 | 1.84 | 0.43 |
| 25:DC:104:LEU:HD13 | 25:DC:156:SER:HB2 | 2.01 | 0.43 |
| 25:DC:90:ILE:O | 25:DC:91:ALA:HB3 | 2.19 | 0.43 |
| 31:BJ:57:LEU:HD12 | 31:BJ:128:ASN:HA | 2.01 | 0.43 |
| 1:AA:448:A:H2' | 1:AA:449:G:C8 | 2.53 | 0.43 |
| 23:BB:2272:U:C6 | 23:BB:2272:U:C3' | 3.01 | 0.43 |
| 32:BK:2:ILE:HG23 | 32:BK:33:ALA:O | 2.19 | 0.43 |
| 46:DZ:3:LYS:CE | 46:DZ:48:GLN:HB2 | 2.49 | 0.43 |
| 46:DZ:48:GLN:HB3 | 46:DZ:51:VAL:HG23 | 2.01 | 0.43 |
| 1:AA:408:A:OP1 | 3:AD:109:THR:HG21 | 2.19 | 0.43 |
| 23:BB:492:A:H2 | 40:BS:7:HIS:HE1 | 1.67 | 0.43 |
| 23:BB:502:A:N6 | 23:BB:505:A:N1 | 2.66 | 0.43 |
| 8:AI:51:LEU:N | 8:AI:51:LEU:HD12 | 2.34 | 0.43 |
| 28:BF:55:ASP:OD2 | 28:BF:148:VAL:HG11 | 2.19 | 0.43 |
| 18:CS:24:SER:HB2 | 18:CS:27:LYS:HZ1 | 1.83 | 0.43 |
| 35:BN:29:VAL:HG13 | 35:BN:83:LEU:CD1 | 2.48 | 0.43 |
| 47:B0:30:ASP:CG | 47:B0:31:LYS:H | 2.22 | 0.43 |
| 40:BS:28:LYS:HE3 | 40:BS:29:VAL:N | 2.34 | 0.43 |
| 43:BW:11:ASN:OD1 | 43:BW:12:GLY:N | 2.52 | 0.43 |
| 10:AK:109:ILE:O | 10:AK:110:THR:HG23 | 2.18 | 0.43 |
| 38:DQ:7:VAL:HG13 | 38:DQ:8:ILE:CD1 | 2.42 | 0.43 |
| 26:DD:173:GLN:HE21 | 26:DD:208:LYS:HB2 | 1.83 | 0.43 |
| 26:DD:47:ALA:H | 26:DD:80:TRP:HB2 | 1.83 | 0.43 |
| 23:BB:2511:U:H2' | 23:BB:2512:C:O4' | 2.19 | 0.43 |
| 13:CN:72:PHE:O | 13:CN:73:LEU:HG | 2.18 | 0.43 |
| 23:DB:359:G:H2' | 23:DB:360:U:H5' | 2.00 | 0.43 |
| 26:DD:128:ARG:O | 26:DD:129:THR:HB | 2.19 | 0.43 |
| 51:D4:18:LYS:O | 51:D4:19:ARG:CB | 2.67 | 0.43 |
| 27:BE:59:PRO:HD2 | 27:BE:60:TRP:CE2 | 2.54 | 0.43 |
| 32:BK:107:LEU:C | 32:BK:109:SER:H | 2.22 | 0.43 |
| 26:BD:31:ALA:HA | 26:BD:51:THR:HG1 | 1.82 | 0.43 |
| 45:DY:26:LEU:HD21 | 45:DY:46:MET:HG2 | 2.00 | 0.43 |
| 23:DB:2728:U:H2' | 23:DB:2729:G:C8 | 2.53 | 0.43 |
| 32:DK:71:ARG:O | 32:DK:72:PRO:O | 2.36 | 0.43 |
| 14:CO:25:GLU:CD | 14:CO:76:ARG:HD3 | 2.38 | 0.43 |
| 3:AD:84:ASN:OD1 | 4:AE:101:GLY:HA2 | 2.18 | 0.43 |
| 2:AC:112:ALA:HB2 | 2:AC:182:ASP:O | 2.19 | 0.43 |
| 23:DB:1062:G:H2' | 23:DB:1063:G:H8 | 1.84 | 0.43 |
| 49:D2:19:ARG:HD3 | 49:D2:20:ALA:N | 2.33 | 0.43 |
| 32:DK:4:GLU:O | 32:DK:5:GLN:HB2 | 2.18 | 0.43 |
| 9:AJ:93:ALA:HB1 | 9:AJ:96:VAL:CG2 | 2.49 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 5:CF:9:MET:HE1 | 17:CR:64:LEU:O | 2.18 | 0.43 |
| 25:DC:21:PRO:HD2 | 25:DC:202:ARG:HH12 | 1.84 | 0.43 |
| 4:AE:109:ALA:O | 4:AE:113:VAL:HG13 | 2.19 | 0.43 |
| 1:AA:812:G:C2' | 1:AA:812:G:N3 | 2.77 | 0.43 |
| 23:BB:2247:A:O2' | 23:BB:2248:C:H5' | 2.19 | 0.43 |
| 7:AH:95:MET:HB3 | 7:AH:99:GLY:H | 1.84 | 0.43 |
| 28:BF:90:LEU:N | 28:BF:90:LEU:HD12 | 2.34 | 0.43 |
| 25:BC:257:ARG:O | 25:BC:261:ARG:HG3 | 2.18 | 0.43 |
| 18:CS:30:LEU:HB3 | 18:CS:48:ILE:HG23 | 2.00 | 0.43 |
| 23:BB:1373:A:H4' | 23:BB:2212:A:N3 | 2.34 | 0.43 |
| 1:CA:1190:G:OP2 | 2:CC:4:VAL:HB | 2.19 | 0.43 |
| 1:AA:374:A:H5'' | 1:AA:452:A:N1 | 2.33 | 0.43 |
| 29:BG:140:ILE:HD12 | 29:BG:141:GLY:N | 2.34 | 0.43 |
| 6:CG:100:MET:HA | 6:CG:103:ILE:HD12 | 2.00 | 0.43 |
| 23:BB:281:C:H2' | 23:BB:282:A:C8 | 2.54 | 0.43 |
| 23:BB:2479:U:OP1 | 51:B4:1:MET:SD | 2.77 | 0.43 |
| 23:DB:565:C:O2' | 23:DB:566:U:H5' | 2.18 | 0.43 |
| 44:DX:31:GLN:NE2 | 44:DX:31:GLN:HA | 2.29 | 0.43 |
| 23:DB:435:C:C2' | 23:DB:436:C:H5' | 2.49 | 0.43 |
| 23:DB:909:A:H2' | 23:DB:912:C:H5 | 1.83 | 0.43 |
| 21:AU:44:ARG:HG3 | 21:AU:44:ARG:NH1 | 2.32 | 0.43 |
| 23:BB:2227:A:O2' | 25:BC:258:SER:HA | 2.19 | 0.43 |
| 9:CJ:85:ASP:O | 9:CJ:86:ALA:C | 2.57 | 0.43 |
| 6:CG:144:ALA:C | 6:CG:146:ALA:N | 2.71 | 0.43 |
| 23:DB:766:U:H2' | 23:DB:767:U:H6 | 1.84 | 0.43 |
| 23:DB:2787:C:O2' | 23:DB:2788:C:H5' | 2.19 | 0.43 |
| 23:BB:373:U:O2' | 23:BB:374:A:H5' | 2.19 | 0.43 |
| 29:BG:121:THR:HG23 | 29:BG:133:LYS:O | 2.18 | 0.43 |
| 11:AL:41:PRO:HD3 | 11:AL:47:ALA:O | 2.19 | 0.43 |
| 44:DX:55:THR:O | 44:DX:56:LEU:HB2 | 2.19 | 0.43 |
| 1:AA:552:U:H5' | 11:AL:82:ARG:HH11 | 1.83 | 0.43 |
| 23:DB:2821:A:H2' | 23:DB:2822:G:H8 | 1.82 | 0.43 |
| 1:AA:995:C:O2 | 1:AA:1047:G:H5' | 2.18 | 0.43 |
| 34:BM:50:ARG:HH22 | 34:BM:54:THR:HG21 | 1.83 | 0.43 |
| 23:DB:1923:U:H2' | 23:DB:1924:C:H6 | 1.84 | 0.43 |
| 23:BB:2633:G:H2' | 23:BB:2634:A:O4' | 2.19 | 0.43 |
| 15:CP:8:ARG:CZ | 15:CP:15:PRO:HB3 | 2.48 | 0.43 |
| 23:DB:274:C:H2' | 23:DB:275:C:C6 | 2.53 | 0.43 |
| 34:BM:131:VAL:O | 34:BM:132:THR:HB | 2.18 | 0.43 |
| 1:CA:607:A:H2' | 1:CA:608:A:C8 | 2.52 | 0.43 |
| 1:AA:1234:C:O2' | 1:AA:1235:U:H5' | 2.18 | 0.43 |
| 23:DB:693:A:H2' | 23:DB:694:U:C6 | 2.53 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 23:BB:2450:A:O2' | 23:BB:2451:A:H5' | 2.19 | 0.43 |
| 1:CA:721:G:H4' | 1:CA:722:G:O4' | 2.19 | 0.43 |
| 1:CA:432:A:C5 | 1:CA:433:G:C8 | 3.07 | 0.43 |
| 1:AA:432:A:C5 | 1:AA:433:G:C8 | 3.07 | 0.43 |
| 6:AG:110:ARG:HH12 | 6:AG:122:GLU:N | 2.17 | 0.43 |
| 23:DB:1403:A:H2' | 23:DB:1404:C:C6 | 2.54 | 0.43 |
| 1:CA:707:U:H4' | 10:CK:21:HIS:CD2 | 2.54 | 0.43 |
| 1:AA:1292:G:O2' | 1:AA:1293:C:H5' | 2.19 | 0.43 |
| 23:BB:2662:A:H2' | 23:BB:2663:G:O4' | 2.18 | 0.43 |
| 40:DS:15:GLN:O | 40:DS:19:LEU:HG | 2.18 | 0.43 |
| 27:BE:158:PHE:C | 27:BE:160:ALA:H | 2.22 | 0.43 |
| 52:BI:56:VAL:CG2 | 52:BI:68:PHE:HB2 | 2.49 | 0.43 |
| 30:DH:69:ALA:O | 30:DH:73:ASN:N | 2.52 | 0.43 |
| 23:BB:1426:G:H8 | 23:BB:1426:G:OP2 | 2.01 | 0.43 |
| 23:DB:1426:G:H8 | 23:DB:1426:G:OP2 | 2.02 | 0.43 |
| 7:CH:68:LYS:HA | 7:CH:68:LYS:HE3 | 2.01 | 0.43 |
| 23:BB:2152:G:H2' | 23:BB:2153:C:C6 | 2.54 | 0.43 |
| 1:CA:275:G:O5' | 16:CQ:15:LYS:HG2 | 2.19 | 0.43 |
| 23:DB:1498:C:H2' | 23:DB:1499:C:C6 | 2.53 | 0.43 |
| 23:BB:100:U:OP1 | 23:BB:100:U:H2' | 2.18 | 0.43 |
| 42:BU:70:ALA:O | 42:BU:71:ILE:C | 2.56 | 0.43 |
| 42:BU:76:THR:O | 42:BU:77:GLY:C | 2.56 | 0.43 |
| 42:BU:78:LYS:CG | 42:BU:96:LYS:HE3 | 2.48 | 0.43 |
| 30:BH:89:LYS:NZ | 30:BH:123:ARG:HD3 | 2.34 | 0.43 |
| 23:BB:36:G:H4' | 23:BB:451:U:N3 | 2.34 | 0.43 |
| 37:BP:28:LYS:C | 37:BP:44:GLY:HA3 | 2.39 | 0.43 |
| 25:BC:153:LEU:O | 25:BC:153:LEU:HG | 2.19 | 0.43 |
| 47:D0:46:GLY:O | 47:D0:47:TYR:HB3 | 2.18 | 0.43 |
| 30:BH:28:ASN:HA | 30:BH:32:PRO:HG3 | 2.00 | 0.43 |
| 33:BL:60:ARG:HD3 | 50:B3:11:LYS:CE | 2.49 | 0.43 |
| 46:BZ:3:LYS:HA | 46:BZ:47:LYS:HA | 2.00 | 0.43 |
| 46:BZ:4:ASP:O | 46:BZ:5:ILE:C | 2.57 | 0.43 |
| 46:DZ:49:ARG:O | 46:DZ:52:ALA:N | 2.50 | 0.43 |
| 34:BM:36:VAL:HG21 | 34:BM:125:PRO:HD3 | 2.00 | 0.43 |
| 34:BM:43:ALA:HB2 | 34:BM:91:TYR:O | 2.18 | 0.43 |
| 38:BQ:33:VAL:O | 38:BQ:36:GLN:N | 2.50 | 0.43 |
| 38:BQ:35:PHE:HA | 38:BQ:39:ILE:HD12 | 2.00 | 0.43 |
| 13:AN:11:LYS:NZ | 13:AN:11:LYS:HA | 2.34 | 0.43 |
| 39:DR:18:GLN:HB3 | 39:DR:99:THR:HB | 2.01 | 0.43 |
| 34:DM:73:ILE:CD1 | 34:DM:92:TRP:HE3 | 2.32 | 0.43 |
| 27:BE:153:LEU:HD11 | 27:BE:201:ALA:HA | 2.00 | 0.43 |
| 21:AU:16:ARG:C | 21:AU:18:PHE:H | 2.21 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 26:DD:33:ARG:C | 26:DD:35:THR:H | 2.22 | 0.43 |
| 33:DL:107:PHE:HE2 | 33:DL:126:ARG:HB2 | 1.84 | 0.43 |
| 12:CM:37:GLY:O | 12:CM:38:ILE:HD13 | 2.18 | 0.43 |
| 13:CN:73:LEU:O | 13:CN:74:ARG:C | 2.57 | 0.43 |
| 20:AB:10:LYS:C | 20:AB:12:GLY:H | 2.22 | 0.43 |
| 23:DB:2564:A:OP1 | 23:DB:2648:G:H4' | 2.18 | 0.43 |
| 44:DX:17:GLU:CA | 44:DX:21:LEU:HB2 | 2.49 | 0.43 |
| 23:DB:2157:G:N3 | 23:DB:2157:G:C2' | 2.79 | 0.43 |
| 45:DY:35:VAL:HG12 | 45:DY:36:GLU:H | 1.83 | 0.43 |
| 2:AC:178:ARG:HG2 | 2:AC:178:ARG:O | 2.19 | 0.43 |
| 1:AA:664:G:H5'' | 17:AR:52:ARG:CZ | 2.48 | 0.43 |
| 3:AD:81:LEU:HD11 | 3:AD:92:LEU:HD21 | 2.00 | 0.43 |
| 23:BB:1081:U:O2' | 23:BB:1082:U:H5' | 2.19 | 0.43 |
| 39:DR:68:ARG:H | 39:DR:97:LYS:HG3 | 1.84 | 0.43 |
| 7:AH:9:MET:HE3 | 7:AH:32:LYS:HB3 | 2.01 | 0.43 |
| 22:DA:32:U:C2 | 22:DA:33:G:C8 | 3.07 | 0.43 |
| 2:AC:72:PRO:HG2 | 2:AC:73:GLY:H | 1.84 | 0.43 |
| 52:DI:54:ILE:HD11 | 52:DI:71:LYS:O | 2.19 | 0.43 |
| 23:DB:878:A:H1' | 23:DB:899:A:H62 | 1.83 | 0.43 |
| 11:AL:56:LEU:HD11 | 11:AL:81:ILE:CD1 | 2.41 | 0.43 |
| 1:AA:233:C:O2' | 1:AA:234:C:H5' | 2.19 | 0.43 |
| 9:AJ:89:ARG:O | 9:AJ:90:LEU:HD23 | 2.19 | 0.43 |
| 3:AD:117:VAL:HG12 | 3:AD:130:ASN:HA | 2.01 | 0.43 |
| 23:DB:1829:A:H3' | 23:DB:1830:C:H6 | 1.84 | 0.43 |
| 25:BC:75:ALA:HB1 | 25:BC:93:VAL:HG13 | 2.01 | 0.43 |
| 23:DB:598:U:C5' | 33:DL:21:ARG:HB2 | 2.45 | 0.43 |
| 38:BQ:102:LYS:H | 38:BQ:102:LYS:CD | 2.29 | 0.43 |
| 42:DU:46:LYS:HG2 | 42:DU:53:GLN:HB2 | 2.01 | 0.43 |
| 2:AC:113:LYS:HZ3 | 2:AC:117:ASP:CG | 2.22 | 0.43 |
| 23:DB:631:A:O2' | 33:DL:66:PHE:CD1 | 2.70 | 0.43 |
| 23:DB:2466:C:O2' | 23:DB:2467:C:H5' | 2.17 | 0.43 |
| 7:AH:17:GLN:OE1 | 7:AH:69:ALA:HB1 | 2.19 | 0.43 |
| 3:AD:28:ASP:O | 3:AD:29:THR:OG1 | 2.26 | 0.43 |
| 29:BG:137:LYS:HA | 29:BG:140:ILE:HG13 | 2.00 | 0.43 |
| 23:DB:593:U:H2' | 23:DB:594:U:H6 | 1.81 | 0.43 |
| 20:CB:216:VAL:HG23 | 20:CB:217:ALA:N | 2.34 | 0.43 |
| 27:BE:25:GLU:OE2 | 33:BL:16:GLY:HA2 | 2.19 | 0.43 |
| 1:CA:730:G:O6 | 14:CO:50:HIS:NE2 | 2.49 | 0.43 |
| 29:DG:8:VAL:CG1 | 29:DG:49:LEU:HD12 | 2.48 | 0.43 |
| 23:BB:1076:C:O2' | 23:BB:1077:A:H5' | 2.19 | 0.43 |
| 23:DB:2361:G:O2' | 23:DB:2362:C:H5' | 2.18 | 0.43 |
| 1:CA:1409:C:O2 | 23:DB:1913:A:N6 | 2.52 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 1:AA:167:A:O2' | 1:AA:168:G:H5' | 2.19 | 0.43 |
| 1:CA:979:C:H41 | 1:CA:1360:A:H62 | 1.67 | 0.43 |
| 38:DQ:25:GLY:O | 38:DQ:29:ARG:HG3 | 2.18 | 0.43 |
| 23:BB:357:C:H2' | 23:BB:358:U:C6 | 2.54 | 0.43 |
| 14:AO:2:LEU:HD22 | 14:AO:7:THR:HG23 | 2.00 | 0.43 |
| 28:BF:2:LYS:CA | 28:BF:2:LYS:HE2 | 2.48 | 0.43 |
| 27:DE:176:ASP:OD1 | 27:DE:177:PRO:HD2 | 2.19 | 0.43 |
| 32:DK:10:VAL:HG21 | 32:DK:17:ARG:N | 2.34 | 0.43 |
| 16:AQ:60:ILE:HB | 16:AQ:72:TRP:CE3 | 2.54 | 0.43 |
| 20:AB:121:GLN:HB3 | 20:AB:121:GLN:HE21 | 1.52 | 0.43 |
| 1:AA:1055:A:H4' | 2:AC:160:GLU:HG3 | 1.99 | 0.43 |
| 23:BB:1707:G:H2' | 23:BB:1708:C:C6 | 2.54 | 0.43 |
| 3:CD:44:LYS:NZ | 3:CD:46:ARG:HA | 2.34 | 0.43 |
| 1:CA:1067:A:H3' | 1:CA:1094:G:OP1 | 2.19 | 0.43 |
| 35:BN:57:THR:CB | 35:BN:61:ALA:HB3 | 2.49 | 0.43 |
| 33:DL:14:LYS:O | 33:DL:15:ALA:C | 2.57 | 0.43 |
| 1:CA:513:C:H2' | 1:CA:514:C:C6 | 2.53 | 0.43 |
| 1:AA:709:U:H2' | 1:AA:710:G:H8 | 1.84 | 0.43 |
| 1:AA:513:C:H2' | 1:AA:514:C:C6 | 2.54 | 0.43 |
| 23:BB:1704:C:H2' | 23:BB:1705:A:C8 | 2.54 | 0.43 |
| 23:DB:1704:C:H2' | 23:DB:1705:A:C8 | 2.54 | 0.43 |
| 1:CA:822:U:O2' | 1:CA:823:C:H5' | 2.19 | 0.43 |
| 10:CK:63:GLN:HG3 | 10:CK:98:ALA:HB2 | 2.01 | 0.43 |
| 23:BB:1281:G:H2' | 23:BB:1282:U:O4' | 2.18 | 0.43 |
| 23:BB:756:A:H2' | 23:BB:757:G:O4' | 2.19 | 0.43 |
| 50:D3:39:ARG:HD3 | 50:D3:39:ARG:HA | 1.76 | 0.43 |
| 32:BK:108:ARG:HG3 | 32:BK:108:ARG:HH11 | 1.83 | 0.43 |
| 23:BB:1244:A:H4' | 33:BL:15:ALA:HB1 | 2.00 | 0.43 |
| 37:BP:51:ASN:HA | 37:BP:60:VAL:HB | 2.00 | 0.43 |
| 25:BC:156:SER:O | 25:BC:157:ALA:C | 2.58 | 0.43 |
| 30:DH:4:ILE:CD1 | 30:DH:37:VAL:HG13 | 2.49 | 0.43 |
| 23:DB:2782:G:O2' | 23:DB:2783:U:H5' | 2.19 | 0.43 |
| 35:DN:21:PHE:HA | 35:DN:24:MET:HB3 | 2.01 | 0.43 |
| 25:DC:106:PRO:HB2 | 25:DC:107:LYS:H | 1.68 | 0.43 |
| 39:DR:76:LYS:HE3 | 39:DR:90:ARG:HD3 | 2.01 | 0.43 |
| 50:B3:22:LYS:HD2 | 50:B3:46:LYS:HA | 1.99 | 0.43 |
| 33:BL:61:LEU:CB | 33:BL:62:PRO:CD | 2.92 | 0.43 |
| 23:BB:971:G:H2' | 23:BB:972:A:O4' | 2.19 | 0.43 |
| 46:DZ:3:LYS:HE2 | 46:DZ:48:GLN:HB2 | 2.00 | 0.43 |
| 16:AQ:10:ARG:HH22 | 16:AQ:58:VAL:HG13 | 1.84 | 0.43 |
| 35:DN:4:ARG:HB3 | 35:DN:4:ARG:CZ | 2.49 | 0.43 |
| 1:AA:401:C:O2' | 1:AA:402:G:H5' | 2.18 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:BB:975:A:H1' | 23:BB:990:A:C2 | 2.54 | 0.43 |
| 41:DT:47:VAL:CG2 | 41:DT:53:VAL:HG21 | 2.42 | 0.43 |
| 8:AI:82:ILE:HG22 | 8:AI:86:LEU:HD21 | 2.01 | 0.43 |
| 31:BJ:80:HIS:HB2 | 31:BJ:84:ILE:HD11 | 1.99 | 0.43 |
| 40:BS:33:LEU:O | 40:BS:35:ILE:N | 2.50 | 0.43 |
| 40:BS:29:VAL:H | 40:BS:71:VAL:HG21 | 1.84 | 0.43 |
| 23:BB:2330:G:O2' | 43:BW:36:ILE:HD11 | 2.18 | 0.43 |
| 27:BE:144:GLU:HG3 | 27:BE:145:ASP:N | 2.34 | 0.43 |
| 27:BE:189:THR:O | 27:BE:190:ALA:HB3 | 2.19 | 0.43 |
| 43:DW:17:ALA:O | 43:DW:18:LYS:CG | 2.66 | 0.43 |
| 26:DD:4:LEU:HB3 | 26:DD:202:ILE:HA | 2.01 | 0.43 |
| 23:DB:630:G:N1 | 33:DL:69:ARG:NH1 | 2.66 | 0.43 |
| 33:DL:79:LEU:H | 33:DL:113:ALA:CB | 2.31 | 0.43 |
| 44:BX:18:LEU:HD23 | 44:BX:18:LEU:N | 2.34 | 0.43 |
| 23:BB:2511:U:O5' | 23:BB:2511:U:H6 | 2.02 | 0.43 |
| 23:DB:981:A:N1 | 23:DB:2027:G:O2' | 2.43 | 0.43 |
| 51:D4:19:ARG:HB3 | 51:D4:20:ASP:H | 1.47 | 0.43 |
| 25:BC:225:ASN:HD22 | 25:BC:225:ASN:HA | 1.52 | 0.43 |
| 25:BC:247:TRP:HD1 | 25:BC:247:TRP:O | 2.02 | 0.43 |
| 52:BI:75:ALA:CB | 52:BI:131:THR:HG21 | 2.49 | 0.43 |
| 13:CN:26:LEU:O | 13:CN:44:VAL:HG11 | 2.19 | 0.43 |
| 26:DD:172:VAL:HB | 26:DD:175:LEU:HD11 | 2.00 | 0.43 |
| 26:DD:25:THR:HG22 | 26:DD:188:LEU:CD1 | 2.49 | 0.43 |
| 39:DR:38:VAL:O | 39:DR:41:ILE:HG22 | 2.18 | 0.43 |
| 5:AF:7:VAL:HG23 | 5:AF:60:VAL:O | 2.18 | 0.43 |
| 1:CA:1309:G:H5' | 12:CM:76:ILE:HG12 | 2.00 | 0.43 |
| 1:AA:1322:C:O4' | 1:AA:1322:C:O2 | 2.37 | 0.43 |
| 11:CL:109:ARG:C | 11:CL:110:LYS:HD2 | 2.39 | 0.43 |
| 35:BN:19:ALA:C | 35:BN:21:PHE:N | 2.72 | 0.43 |
| 23:BB:285:G:C2' | 23:BB:286:U:H5' | 2.49 | 0.43 |
| 9:AJ:7:ARG:HG2 | 9:AJ:75:ASP:OD2 | 2.18 | 0.43 |
| 34:DM:133:LYS:CD | 34:DM:134:THR:H | 2.30 | 0.43 |
| 20:AB:35:ASN:O | 20:AB:36:LYS:HB2 | 2.19 | 0.43 |
| 23:BB:2811:G:H2' | 23:BB:2812:G:H8 | 1.83 | 0.43 |
| 1:CA:815:A:N6 | 1:CA:1509:C:H1' | 2.32 | 0.43 |
| 1:CA:814:A:H5' | 1:CA:1511:G:C4' | 2.42 | 0.43 |
| 23:DB:2256:G:H2' | 23:DB:2257:U:H6 | 1.84 | 0.43 |
| 35:BN:99:LYS:CB | 35:BN:99:LYS:NZ | 2.79 | 0.43 |
| 9:AJ:57:VAL:HG13 | 9:AJ:58:ASN:CG | 2.39 | 0.43 |
| 9:AJ:57:VAL:HG13 | 9:AJ:58:ASN:N | 2.33 | 0.43 |
| 23:BB:1773:A:H2' | 23:BB:1774:C:O4' | 2.19 | 0.43 |
| 1:AA:861:G:H2' | 1:AA:862:C:H6 | 1.84 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 23:DB:539:G:H2' | 23:DB:540:C:C6 | 2.54 | 0.43 |
| 29:BG:140:ILE:HD12 | 29:BG:140:ILE:C | 2.39 | 0.43 |
| 23:DB:2405:G:H5' | 33:DL:70:LYS:CG | 2.49 | 0.43 |
| 6:CG:29:LEU:CD2 | 6:CG:104:VAL:HG13 | 2.49 | 0.43 |
| 36:BO:67:ASN:HD22 | 36:BO:67:ASN:HA | 1.65 | 0.43 |
| 23:BB:832:U:OP1 | 33:BL:45:GLY:N | 2.46 | 0.43 |
| 1:CA:408:A:H3' | 1:CA:409:U:C6 | 2.47 | 0.43 |
| 3:CD:21:LYS:C | 3:CD:23:GLY:H | 2.22 | 0.43 |
| 2:CC:166:TRP:HE1 | 2:CC:168:ARG:CB | 2.32 | 0.43 |
| 1:AA:371:A:H2' | 1:AA:372:C:C6 | 2.54 | 0.43 |
| 23:BB:1359:A:H2' | 23:BB:1360:G:O4' | 2.17 | 0.43 |
| 1:CA:635:A:H2' | 1:CA:636:U:C6 | 2.53 | 0.43 |
| 25:DC:235:GLU:CG | 25:DC:236:GLY:H | 2.30 | 0.43 |
| 23:BB:848:C:H3' | 23:BB:849:A:H8 | 1.83 | 0.43 |
| 23:DB:2341:G:H2' | 23:DB:2342:C:C6 | 2.54 | 0.43 |
| 23:BB:2671:G:O2' | 23:BB:2672:U:H5' | 2.19 | 0.43 |
| 1:AA:25:C:H2' | 1:AA:26:A:C8 | 2.54 | 0.43 |
| 1:AA:529:G:H22 | 11:AL:47:ALA:HB3 | 1.84 | 0.43 |
| 1:CA:113:G:C1' | 1:CA:354:G:H5' | 2.49 | 0.43 |
| 22:DA:111:U:O2' | 22:DA:112:G:H5' | 2.18 | 0.43 |
| 23:DB:1841:U:C2 | 23:DB:1842:G:C8 | 3.07 | 0.43 |
| 1:CA:453:G:C6 | 1:CA:454:G:C6 | 3.06 | 0.43 |
| 3:CD:121:ALA:C | 3:CD:145:ARG:HG3 | 2.39 | 0.43 |
| 1:AA:626:G:H2' | 1:AA:627:G:H8 | 1.83 | 0.43 |
| 1:AA:1263:C:H2' | 1:AA:1264:U:H6 | 1.84 | 0.43 |
| 23:DB:2450:A:O2' | 23:DB:2451:A:H5' | 2.19 | 0.43 |
| 49:B2:3:ARG:HB3 | 49:B2:5:PHE:HE1 | 1.84 | 0.43 |
| 1:AA:659:U:O2' | 1:AA:660:C:H5' | 2.18 | 0.43 |
| 23:BB:1634:A:H3' | 23:BB:1635:A:C5' | 2.48 | 0.43 |
| 7:CH:50:VAL:HG23 | 7:CH:57:GLU:O | 2.19 | 0.43 |
| 1:CA:179:A:H2' | 1:CA:180:U:C6 | 2.54 | 0.43 |
| 23:BB:2663:G:H2' | 23:BB:2664:G:C8 | 2.54 | 0.43 |
| 1:AA:155:A:H2' | 1:AA:156:C:O4' | 2.19 | 0.43 |
| 16:CQ:35:LYS:O | 16:CQ:37:ILE:HG23 | 2.19 | 0.43 |
| 1:AA:484:G:O2' | 1:AA:485:U:OP2 | 2.29 | 0.43 |
| 23:DB:1891:G:H2' | 23:DB:1892:C:H6 | 1.84 | 0.43 |
| 47:B0:4:GLN:O | 47:B0:5:ASN:C | 2.57 | 0.43 |
| 20:AB:217:ALA:O | 20:AB:221:ARG:HG3 | 2.18 | 0.43 |
| 20:CB:111:LYS:O | 20:CB:114:LYS:HB3 | 2.19 | 0.43 |
| 23:BB:511:U:H6 | 23:BB:511:U:O5' | 2.01 | 0.43 |
| 37:DP:20:ARG:HH21 | 37:DP:20:ARG:HG2 | 1.84 | 0.43 |
| 1:AA:721:G:H4' | 1:AA:722:G:O4' | 2.19 | 0.43 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 1:CA:975:A:H1' | 1:CA:1358:U:O2 | 2.19 | 0.42 |
| 23:DB:2336:A:HO2' | 23:DB:2337:G:P | 2.41 | 0.42 |
| 23:DB:2385:C:H2' | 23:DB:2386:A:C8 | 2.53 | 0.42 |
| 43:DW:36:ILE:HG13 | 43:DW:37:VAL:N | 2.34 | 0.42 |
| 23:BB:2333:A:O2' | 36:BO:7:ARG:HD3 | 2.19 | 0.42 |
| 30:DH:12:LEU:HD22 | 30:DH:19:VAL:CG1 | 2.49 | 0.42 |
| 23:DB:2811:G:H2' | 23:DB:2812:G:C8 | 2.54 | 0.42 |
| 23:DB:2813:A:O2' | 23:DB:2814:A:H5' | 2.18 | 0.42 |
| 25:DC:172:THR:HB | 25:DC:173:LEU:H | 1.56 | 0.42 |
| 31:BJ:102:GLU:CG | 31:BJ:124:VAL:HG11 | 2.49 | 0.42 |
| 31:BJ:128:ASN:CG | 31:BJ:129:GLU:N | 2.72 | 0.42 |
| 18:AS:29:PRO:HB3 | 18:AS:47:THR:HB | 2.00 | 0.42 |
| 27:BE:128:ALA:CA | 27:BE:157:LEU:HD22 | 2.48 | 0.42 |
| 33:BL:63:LYS:C | 50:B3:24:LYS:HZ2 | 2.23 | 0.42 |
| 32:BK:71:ARG:HD3 | 32:BK:71:ARG:HA | 1.87 | 0.42 |
| 23:BB:2052:A:C4 | 26:BD:155:VAL:HG23 | 2.54 | 0.42 |
| 5:CF:3:HIS:CB | 5:CF:92:THR:HA | 2.31 | 0.42 |
| 23:DB:1803:A:H2 | 23:DB:1823:G:O4' | 2.02 | 0.42 |
| 23:DB:2294:G:P | 36:DO:9:ARG:NE | 2.92 | 0.42 |
| 36:DO:71:ALA:O | 36:DO:74:VAL:HG22 | 2.19 | 0.42 |
| 33:BL:38:GLN:HA | 33:BL:41:ARG:NH1 | 2.34 | 0.42 |
| 23:BB:995:C:C4 | 31:BJ:2:LYS:HB3 | 2.54 | 0.42 |
| 26:BD:108:ASP:CB | 26:BD:173:GLN:HA | 2.48 | 0.42 |
| 43:BW:35:ILE:CG2 | 43:BW:36:ILE:H | 2.14 | 0.42 |
| 3:CD:170:LEU:CA | 3:CD:182:LYS:HG3 | 2.48 | 0.42 |
| 26:DD:109:VAL:HA | 26:DD:203:VAL:HA | 2.01 | 0.42 |
| 30:DH:77:THR:HG22 | 30:DH:143:ILE:HB | 2.00 | 0.42 |
| 13:CN:50:LEU:HD12 | 13:CN:51:PRO:CD | 2.46 | 0.42 |
| 41:BT:47:VAL:HB | 41:BT:55:VAL:HG21 | 2.00 | 0.42 |
| 26:BD:130:GLN:O | 26:BD:140:HIS:ND1 | 2.51 | 0.42 |
| 13:CN:13:VAL:HA | 13:CN:59:GLN:HE21 | 1.84 | 0.42 |
| 40:DS:23:LEU:CB | 47:D0:21:LEU:HD13 | 2.37 | 0.42 |
| 23:DB:2511:U:H2' | 23:DB:2512:C:O4' | 2.19 | 0.42 |
| 23:DB:2513:A:H2' | 23:DB:2514:U:C6 | 2.54 | 0.42 |
| 23:BB:1062:G:H2' | 23:BB:1063:G:H8 | 1.84 | 0.42 |
| 45:DY:5:LYS:NZ | 45:DY:5:LYS:HB2 | 2.34 | 0.42 |
| 45:DY:5:LYS:O | 45:DY:56:VAL:HG12 | 2.19 | 0.42 |
| 26:DD:11:MET:O | 26:DD:22:ILE:HD12 | 2.19 | 0.42 |
| 37:DP:32:VAL:O | 37:DP:34:GLY:N | 2.51 | 0.42 |
| 31:DJ:62:VAL:HG11 | 31:DJ:101:ILE:HD11 | 2.00 | 0.42 |
| 48:B1:47:ILE:HG13 | 48:B1:48:TYR:N | 2.34 | 0.42 |
| 14:CO:80:LEU:C | 14:CO:80:LEU:HD23 | 2.39 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 28:BF:67:THR:OG1 | 28:BF:85:GLY:HA3 | 2.19 | 0.42 |
| 20:AB:37:VAL:CG2 | 20:AB:38:HIS:N | 2.81 | 0.42 |
| 23:BB:1079:C:C2 | 23:BB:1080:A:C8 | 3.07 | 0.42 |
| 39:DR:67:GLY:H | 39:DR:98:ILE:N | 2.17 | 0.42 |
| 39:DR:69:GLY:HA3 | 39:DR:96:VAL:HG13 | 2.00 | 0.42 |
| 23:BB:1917:U:H2' | 23:BB:1918:A:C5' | 2.48 | 0.42 |
| 52:DI:49:GLU:HB2 | 52:DI:52:LEU:HD12 | 2.00 | 0.42 |
| 41:DT:34:VAL:O | 41:DT:81:LYS:HB3 | 2.19 | 0.42 |
| 47:B0:53:VAL:HG12 | 47:B0:54:ILE:N | 2.34 | 0.42 |
| 48:D1:24:LYS:O | 48:D1:24:LYS:HD3 | 2.19 | 0.42 |
| 9:CJ:40:ILE:HG12 | 9:CJ:74:VAL:H | 1.84 | 0.42 |
| 9:CJ:8:ILE:HG12 | 9:CJ:75:ASP:HA | 2.00 | 0.42 |
| 23:BB:2270:A:C5' | 43:BW:18:LYS:HB3 | 2.49 | 0.42 |
| 31:BJ:7:LYS:HD2 | 31:BJ:49:ASP:CB | 2.44 | 0.42 |
| 25:BC:78:GLU:CB | 25:BC:92:LEU:HD23 | 2.49 | 0.42 |
| 3:AD:138:PRO:HA | 3:AD:181:PHE:HD2 | 1.83 | 0.42 |
| 29:BG:5:LYS:O | 29:BG:68:ARG:NH1 | 2.52 | 0.42 |
| 8:CI:21:LYS:O | 8:CI:61:ASP:N | 2.51 | 0.42 |
| 48:B1:53:ILE:CD1 | 48:B1:54:LYS:H | 2.32 | 0.42 |
| 38:DQ:32:ARG:HG2 | 38:DQ:32:ARG:NH1 | 2.32 | 0.42 |
| 11:CL:17:LYS:HZ3 | 11:CL:17:LYS:HB2 | 1.82 | 0.42 |
| 23:DB:153:U:H6 | 23:DB:153:U:O5' | 2.02 | 0.42 |
| 28:DF:41:GLU:OE1 | 28:DF:41:GLU:N | 2.52 | 0.42 |
| 1:AA:1035:A:C2' | 1:AA:1036:A:H8 | 2.27 | 0.42 |
| 6:AG:117:LEU:C | 6:AG:117:LEU:HD13 | 2.39 | 0.42 |
| 1:CA:861:G:H2' | 1:CA:862:C:H6 | 1.84 | 0.42 |
| 3:AD:201:GLU:CG | 4:AE:103:GLY:HA3 | 2.49 | 0.42 |
| 22:DA:60:C:H2' | 22:DA:61:G:H8 | 1.83 | 0.42 |
| 1:CA:994:A:H2' | 1:CA:994:A:N3 | 2.34 | 0.42 |
| 1:AA:1072:G:H2' | 1:AA:1073:U:O4' | 2.19 | 0.42 |
| 9:CJ:9:ARG:HH11 | 9:CJ:9:ARG:HA | 1.84 | 0.42 |
| 23:BB:241:A:H4' | 50:B3:63:TYR:OH | 2.18 | 0.42 |
| 23:BB:2290:G:H2' | 23:BB:2291:U:C6 | 2.53 | 0.42 |
| 1:AA:208:U:H2' | 1:AA:210:C:C5 | 2.54 | 0.42 |
| 1:AA:538:G:H2' | 1:AA:539:A:C8 | 2.54 | 0.42 |
| 11:AL:106:VAL:CG2 | 11:AL:109:ARG:HG3 | 2.48 | 0.42 |
| 2:CC:168:ARG:HE | 2:CC:169:GLU:N | 2.17 | 0.42 |
| 28:BF:15:LEU:O | 28:BF:18:GLU:O | 2.37 | 0.42 |
| 1:AA:997:U:H2' | 1:AA:998:C:H6 | 1.82 | 0.42 |
| 23:DB:2076:U:OP2 | 23:DB:2238:G:N2 | 2.48 | 0.42 |
| 1:CA:1521:C:H2' | 1:CA:1522:U:H6 | 1.83 | 0.42 |
| 1:CA:406:G:H21 | 3:CD:115:GLN:HE22 | 1.65 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 17:CR:20:ILE:HG23 | 17:CR:20:ILE:O | 2.19 | 0.42 |
| 19:AT:4:LYS:HD2 | 19:AT:5:SER:H | 1.82 | 0.42 |
| 23:DB:2671:G:H2' | 23:DB:2672:U:H6 | 1.80 | 0.42 |
| 23:BB:402:A:C2' | 23:BB:403:U:H5' | 2.49 | 0.42 |
| 19:AT:50:PHE:CE2 | 19:AT:75:LYS:HA | 2.53 | 0.42 |
| 33:DL:25:SER:C | 33:DL:27:LEU:N | 2.72 | 0.42 |
| 1:AA:113:G:C1' | 1:AA:354:G:H5' | 2.49 | 0.42 |
| 23:DB:1770:G:O2' | 23:DB:1771:C:H5' | 2.19 | 0.42 |
| 23:DB:818:G:H4' | 23:DB:838:C:O3' | 2.19 | 0.42 |
| 1:AA:332:G:P | 19:AT:2:ASN:HB3 | 2.59 | 0.42 |
| 8:AI:115:VAL:HG23 | 9:AJ:62:ARG:HD2 | 2.00 | 0.42 |
| 41:BT:50:LEU:O | 41:BT:51:PHE:HB2 | 2.18 | 0.42 |
| 1:CA:697:U:C2' | 1:CA:698:G:H5' | 2.49 | 0.42 |
| 34:BM:134:THR:O | 34:BM:135:VAL:HG13 | 2.18 | 0.42 |
| 23:DB:2094:A:H5'' | 30:DH:22:LYS:HG3 | 2.01 | 0.42 |
| 1:CA:69:G:N2 | 1:CA:71:A:H62 | 2.16 | 0.42 |
| 23:DB:409:G:O2' | 23:DB:410:G:H5' | 2.19 | 0.42 |
| 23:DB:1998:A:H2' | 23:DB:1999:C:H6 | 1.84 | 0.42 |
| 20:AB:21:TYR:O | 20:AB:22:TRP:O | 2.36 | 0.42 |
| 26:DD:113:SER:O | 26:DD:167:ASN:HB2 | 2.19 | 0.42 |
| 11:AL:58:ASN:H | 11:AL:58:ASN:HD22 | 1.66 | 0.42 |
| 23:BB:1526:C:O2' | 23:BB:1527:G:H5' | 2.19 | 0.42 |
| 25:BC:198:GLU:HA | 25:BC:201:LEU:HB2 | 2.01 | 0.42 |
| 1:AA:179:A:H2' | 1:AA:180:U:H6 | 1.83 | 0.42 |
| 1:CA:179:A:H2' | 1:CA:180:U:H6 | 1.84 | 0.42 |
| 23:DB:2428:G:H5'' | 23:DB:2429:G:O5' | 2.18 | 0.42 |
| 1:CA:1264:U:H2' | 1:CA:1265:C:O4' | 2.19 | 0.42 |
| 23:DB:1513:U:O2' | 23:DB:1514:G:H5' | 2.19 | 0.42 |
| 23:DB:758:C:O2 | 23:DB:1981:A:H2 | 2.01 | 0.42 |
| 23:BB:1314:C:O2 | 23:BB:1314:C:H2' | 2.18 | 0.42 |
| 14:AO:71:ARG:HH11 | 14:AO:71:ARG:CB | 2.32 | 0.42 |
| 20:CB:121:GLN:NE2 | 20:CB:122:ASP:N | 2.67 | 0.42 |
| 1:AA:349:A:H2' | 1:AA:350:G:C8 | 2.54 | 0.42 |
| 23:DB:2866:U:O3' | 23:DB:2867:G:H4' | 2.19 | 0.42 |
| 37:DP:92:ARG:HD3 | 37:DP:110:LYS:O | 2.19 | 0.42 |
| 27:DE:49:ARG:C | 27:DE:51:GLU:N | 2.73 | 0.42 |
| 23:DB:96:C:H2' | 23:DB:97:C:H6 | 1.84 | 0.42 |
| 42:BU:13:LEU:H | 42:BU:68:ASN:HD21 | 1.66 | 0.42 |
| 30:BH:80:ILE:HD11 | 30:BH:102:ALA:HA | 2.01 | 0.42 |
| 51:D4:24:ARG:NE | 51:D4:37:GLN:HA | 2.33 | 0.42 |
| 37:BP:61:ARG:O | 37:BP:63:ILE:N | 2.52 | 0.42 |
| 37:BP:7:LEU:C | 37:BP:7:LEU:HD13 | 2.39 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 30:DH:12:LEU:C | 30:DH:12:LEU:HD23 | 2.39 | 0.42 |
| 23:DB:1818:U:C3' | 25:DC:155:ARG:HB2 | 2.49 | 0.42 |
| 25:DC:107:LYS:HD2 | 25:DC:196:ASN:HD21 | 1.84 | 0.42 |
| 25:DC:62:ARG:HH22 | 25:DC:86:ARG:HH21 | 1.66 | 0.42 |
| 38:DQ:39:ILE:C | 38:DQ:39:ILE:HD12 | 2.40 | 0.42 |
| 30:BH:31:VAL:HB | 30:BH:32:PRO:HD3 | 2.01 | 0.42 |
| 27:DE:123:LYS:HD2 | 27:DE:157:LEU:CD1 | 2.48 | 0.42 |
| 27:DE:146:VAL:O | 27:DE:148:ILE:N | 2.51 | 0.42 |
| 33:BL:127:VAL:HB | 33:BL:128:THR:H | 1.51 | 0.42 |
| 33:BL:96:LYS:N | 33:BL:96:LYS:HD3 | 2.34 | 0.42 |
| 46:BZ:58:ASP:OD2 | 46:BZ:63:ARG:NH1 | 2.52 | 0.42 |
| 23:DB:2087:G:H2' | 23:DB:2088:A:H8 | 1.85 | 0.42 |
| 34:BM:36:VAL:HG11 | 34:BM:125:PRO:HD2 | 2.00 | 0.42 |
| 34:BM:25:ASP:OD2 | 34:BM:66:ARG:NH2 | 2.52 | 0.42 |
| 8:AI:49:GLN:HB3 | 8:AI:49:GLN:HE21 | 1.61 | 0.42 |
| 25:BC:27:LYS:HA | 25:BC:79:ARG:NH2 | 2.34 | 0.42 |
| 25:BC:84:PRO:O | 25:BC:86:ARG:N | 2.48 | 0.42 |
| 34:DM:41:LEU:HD21 | 34:DM:46:ILE:HD11 | 2.01 | 0.42 |
| 34:DM:43:ALA:HB3 | 34:DM:91:TYR:CD2 | 2.55 | 0.42 |
| 39:BR:39:LEU:O | 39:BR:39:LEU:HD23 | 2.18 | 0.42 |
| 39:BR:53:PHE:CD2 | 39:BR:55:ASP:N | 2.82 | 0.42 |
| 30:DH:93:SER:C | 30:DH:94:ILE:HD12 | 2.39 | 0.42 |
| 12:AM:79:LEU:HD22 | 12:AM:86:ARG:NH2 | 2.33 | 0.42 |
| 33:DL:77:ILE:CD1 | 33:DL:109:LYS:HB2 | 2.46 | 0.42 |
| 41:BT:3:ARG:HG2 | 41:BT:7:LEU:HD23 | 2.01 | 0.42 |
| 47:D0:15:ARG:HB3 | 47:D0:15:ARG:CZ | 2.49 | 0.42 |
| 26:BD:142:VAL:C | 26:BD:144:GLY:H | 2.21 | 0.42 |
| 23:DB:1260:A:O2' | 23:DB:1261:C:H5' | 2.19 | 0.42 |
| 21:CU:19:LYS:HG3 | 21:CU:20:ARG:HE | 1.83 | 0.42 |
| 26:DD:154:LYS:O | 26:DD:156:PHE:N | 2.51 | 0.42 |
| 23:DB:2649:C:O2' | 23:DB:2650:U:H5' | 2.19 | 0.42 |
| 23:BB:2637:U:O2' | 23:BB:2638:G:H5' | 2.18 | 0.42 |
| 52:BI:116:MET:CE | 52:BI:127:SER:HB2 | 2.49 | 0.42 |
| 38:DQ:90:ASP:CB | 39:DR:42:ALA:HB3 | 2.49 | 0.42 |
| 10:CK:86:LYS:HG3 | 10:CK:113:THR:HA | 2.00 | 0.42 |
| 15:AP:52:LEU:HG | 15:AP:75:ILE:CG1 | 2.48 | 0.42 |
| 4:CE:89:THR:O | 4:CE:91:SER:N | 2.52 | 0.42 |
| 19:AT:60:GLN:HB2 | 19:AT:65:LEU:HD12 | 2.01 | 0.42 |
| 19:AT:70:LYS:HA | 19:AT:73:ARG:CZ | 2.48 | 0.42 |
| 15:CP:5:ARG:O | 15:CP:19:VAL:HA | 2.20 | 0.42 |
| 35:BN:19:ALA:C | 35:BN:21:PHE:H | 2.22 | 0.42 |
| 20:CB:113:LEU:HD11 | 20:CB:144:GLU:HA | 2.01 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 16:AQ:28:VAL:HG13 | 16:AQ:28:VAL:O | 2.19 | 0.42 |
| 47:B0:53:VAL:HG12 | 47:B0:54:ILE:H | 1.84 | 0.42 |
| 2:CC:137:VAL:HG13 | 2:CC:148:ILE:CG2 | 2.49 | 0.42 |
| 29:DG:136:ASP:O | 29:DG:140:ILE:HG12 | 2.19 | 0.42 |
| 1:AA:93:U:H2' | 1:AA:95:C:H5 | 1.83 | 0.42 |
| 23:DB:543:G:C6 | 23:DB:544:C:H1' | 2.54 | 0.42 |
| 41:BT:69:ARG:H | 41:BT:75:GLY:CA | 2.32 | 0.42 |
| 16:CQ:75:VAL:HG23 | 16:CQ:76:ARG:N | 2.33 | 0.42 |
| 23:DB:631:A:O2' | 33:DL:66:PHE:HD1 | 1.97 | 0.42 |
| 5:CF:11:HIS:CD2 | 5:CF:13:ASP:HB3 | 2.54 | 0.42 |
| 3:AD:29:THR:O | 3:AD:30:LYS:HB2 | 2.19 | 0.42 |
| 43:BW:9:THR:H | 43:BW:10:ARG:HD3 | 1.83 | 0.42 |
| 29:DG:23:ILE:HD13 | 29:DG:71:LEU:HD22 | 2.01 | 0.42 |
| 6:CG:46:LEU:O | 6:CG:50:ALA:HB2 | 2.19 | 0.42 |
| 29:DG:154:GLU:OE2 | 29:DG:157:LYS:HB2 | 2.18 | 0.42 |
| 28:BF:177:ARG:HE | 28:BF:178:LYS:HA | 1.81 | 0.42 |
| 36:DO:86:GLY:C | 36:DO:88:LYS:N | 2.73 | 0.42 |
| 1:AA:738:C:H2' | 1:AA:739:C:C6 | 2.55 | 0.42 |
| 1:CA:79:G:H2' | 1:CA:80:A:C8 | 2.53 | 0.42 |
| 23:BB:766:U:H2' | 23:BB:767:U:H6 | 1.84 | 0.42 |
| 2:CC:64:ARG:O | 2:CC:65:VAL:HB | 2.19 | 0.42 |
| 1:AA:523:A:H61 | 11:AL:88:ASP:HB2 | 1.84 | 0.42 |
| 23:BB:2570:G:O2' | 23:BB:2571:U:H5' | 2.19 | 0.42 |
| 20:CB:128:LEU:HD21 | 20:CB:132:GLU:HB3 | 2.01 | 0.42 |
| 23:DB:329:G:H1' | 23:DB:477:A:H1' | 2.02 | 0.42 |
| 23:BB:2082:A:H2' | 23:BB:2083:G:O4' | 2.19 | 0.42 |
| 44:DX:46:VAL:O | 44:DX:49:ASP:HB3 | 2.18 | 0.42 |
| 1:CA:112:G:O2' | 1:CA:113:G:H5' | 2.19 | 0.42 |
| 1:AA:113:G:O4' | 1:AA:354:G:H4' | 2.19 | 0.42 |
| 1:AA:1082:A:H2' | 1:AA:1083:U:C6 | 2.53 | 0.42 |
| 1:CA:1065:U:O2' | 1:CA:1066:C:OP2 | 2.30 | 0.42 |
| 1:AA:425:G:O2' | 1:AA:426:U:H5' | 2.18 | 0.42 |
| 1:AA:697:U:C2' | 1:AA:698:G:H5' | 2.49 | 0.42 |
| 27:BE:135:ALA:O | 27:BE:139:LYS:HD2 | 2.19 | 0.42 |
| 1:CA:1493:A:C2' | 1:CA:1494:G:OP2 | 2.67 | 0.42 |
| 23:DB:679:C:O2' | 23:DB:680:C:H5' | 2.19 | 0.42 |
| 7:AH:98:LEU:N | 7:AH:98:LEU:HD12 | 2.34 | 0.42 |
| 1:AA:822:U:O2' | 1:AA:823:C:H5' | 2.19 | 0.42 |
| 15:CP:48:GLU:HG2 | 15:CP:49:GLY:N | 2.34 | 0.42 |
| 23:BB:822:G:H2' | 23:BB:823:C:H6 | 1.84 | 0.42 |
| 1:AA:644:U:O2' | 1:AA:645:G:H5' | 2.20 | 0.42 |
| 1:CA:1531:A:H2' | 1:CA:1532:U:O4' | 2.19 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:DB:1068:G:C6 | 23:DB:1069:A:N6 | 2.87 | 0.42 |
| 23:DB:2508:G:O3' | 23:DB:2555:U:H5' | 2.18 | 0.42 |
| 23:DB:348:A:H2' | 23:DB:349:U:O4' | 2.18 | 0.42 |
| 9:CJ:84:VAL:O | 9:CJ:88:MET:HB3 | 2.19 | 0.42 |
| 9:CJ:91:ASP:C | 9:CJ:92:LEU:HD23 | 2.40 | 0.42 |
| 37:DP:18:SER:HB2 | 37:DP:87:ARG:NH1 | 2.34 | 0.42 |
| 23:BB:1113:U:OP1 | 29:BG:1:SER:C | 2.58 | 0.42 |
| 37:BP:61:ARG:O | 37:BP:62:LYS:C | 2.57 | 0.42 |
| 25:BC:124:LYS:O | 25:BC:191:LEU:CD1 | 2.67 | 0.42 |
| 25:BC:171:VAL:HB | 25:BC:182:LYS:CB | 2.47 | 0.42 |
| 25:BC:68:ARG:CZ | 25:BC:103:ILE:HD12 | 2.49 | 0.42 |
| 23:DB:2633:G:H2' | 23:DB:2634:A:O4' | 2.19 | 0.42 |
| 23:DB:5:A:H2' | 23:DB:6:A:H8 | 1.84 | 0.42 |
| 23:BB:1017:G:O2' | 23:BB:1018:U:H5' | 2.20 | 0.42 |
| 31:BJ:100:VAL:CG2 | 31:BJ:101:ILE:H | 2.26 | 0.42 |
| 31:BJ:55:ILE:HD13 | 31:BJ:132:HIS:NE2 | 2.35 | 0.42 |
| 31:BJ:72:LYS:HG3 | 31:BJ:90:GLU:HB2 | 2.01 | 0.42 |
| 23:DB:2019:A:C6 | 23:DB:2020:A:N7 | 2.88 | 0.42 |
| 38:DQ:52:ARG:O | 38:DQ:53:LYS:C | 2.58 | 0.42 |
| 42:DU:32:LYS:HA | 42:DU:65:GLN:NE2 | 2.34 | 0.42 |
| 30:BH:4:ILE:N | 30:BH:37:VAL:HB | 2.19 | 0.42 |
| 30:BH:5:LEU:O | 30:BH:6:LEU:HB3 | 2.19 | 0.42 |
| 27:DE:115:GLN:CB | 27:DE:117:ARG:NH1 | 2.81 | 0.42 |
| 34:BM:33:LEU:HB2 | 34:BM:101:VAL:CG1 | 2.50 | 0.42 |
| 34:BM:35:ALA:C | 34:BM:36:VAL:HG13 | 2.40 | 0.42 |
| 34:BM:90:GLU:O | 34:BM:91:TYR:HB2 | 2.20 | 0.42 |
| 1:AA:254:G:OP1 | 16:AQ:68:LYS:O | 2.37 | 0.42 |
| 13:AN:62:ARG:HA | 13:AN:69:PRO:HA | 2.01 | 0.42 |
| 25:DC:47:ARG:HB3 | 25:DC:48:ILE:H | 1.54 | 0.42 |
| 42:BU:38:ILE:O | 42:BU:62:ALA:HB3 | 2.19 | 0.42 |
| 28:BF:133:GLU:CG | 28:BF:147:ARG:HG2 | 2.32 | 0.42 |
| 35:BN:28:LEU:CD2 | 35:BN:48:VAL:HG21 | 2.49 | 0.42 |
| 31:DJ:78:THR:H | 31:DJ:84:ILE:HD13 | 1.84 | 0.42 |
| 43:BW:11:ASN:ND2 | 43:BW:13:ARG:NH2 | 2.67 | 0.42 |
| 27:BE:120:VAL:H | 27:BE:189:THR:HA | 1.84 | 0.42 |
| 27:BE:148:ILE:C | 27:BE:148:ILE:HD12 | 2.38 | 0.42 |
| 27:BE:148:ILE:N | 27:BE:183:PHE:HD2 | 2.17 | 0.42 |
| 27:BE:4:VAL:N | 27:BE:117:ARG:HH21 | 2.17 | 0.42 |
| 21:AU:26:GLY:C | 21:AU:28:LEU:N | 2.72 | 0.42 |
| 3:AD:116:LEU:O | 3:AD:121:ALA:HB3 | 2.19 | 0.42 |
| 30:DH:108:VAL:CG1 | 30:DH:110:VAL:HB | 2.49 | 0.42 |
| 30:DH:88:GLY:HA3 | 30:DH:125:THR:OG1 | 2.18 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 33:DL:71:ALA:O | 33:DL:72:ALA:O | 2.37 | 0.42 |
| 30:BH:114:GLU:HB3 | 30:BH:133:GLN:C | 2.40 | 0.42 |
| 9:CJ:52:LEU:CD1 | 9:CJ:62:ARG:HE | 2.31 | 0.42 |
| 13:CN:63:CYS:O | 13:CN:67:GLY:HA2 | 2.18 | 0.42 |
| 32:BK:104:THR:OG1 | 32:BK:107:LEU:HB2 | 2.19 | 0.42 |
| 23:BB:2649:C:H2' | 23:BB:2650:U:C6 | 2.52 | 0.42 |
| 26:BD:37:VAL:HG22 | 26:BD:46:ARG:HD3 | 2.00 | 0.42 |
| 23:DB:1813:G:O4' | 25:DC:45:ASN:HB3 | 2.20 | 0.42 |
| 3:CD:24:VAL:HG23 | 3:CD:25:ARG:H | 1.83 | 0.42 |
| 19:CT:66:ILE:HG22 | 19:CT:67:HIS:N | 2.34 | 0.42 |
| 1:AA:664:G:H5'' | 17:AR:52:ARG:NH2 | 2.34 | 0.42 |
| 23:BB:795:C:H2' | 23:BB:796:C:H6 | 1.85 | 0.42 |
| 23:BB:751:A:H5' | 40:BS:90:LYS:HZ1 | 1.84 | 0.42 |
| 7:CH:14:ARG:HG3 | 7:CH:15:ASN:N | 2.33 | 0.42 |
| 37:BP:91:VAL:HB | 37:BP:113:LEU:CG | 2.47 | 0.42 |
| 23:DB:249:C:O3' | 50:D3:7:ARG:HD3 | 2.19 | 0.42 |
| 1:AA:234:C:H2' | 1:AA:235:C:H6 | 1.84 | 0.42 |
| 23:DB:125:A:C4' | 49:D2:13:ASN:ND2 | 2.82 | 0.42 |
| 1:CA:233:C:O2' | 1:CA:234:C:H5' | 2.19 | 0.42 |
| 48:D1:5:ARG:HA | 48:D1:28:THR:HG1 | 1.83 | 0.42 |
| 48:D1:8:ILE:HG21 | 48:D1:27:ARG:HD3 | 2.01 | 0.42 |
| 9:AJ:38:GLY:O | 9:AJ:74:VAL:HA | 2.19 | 0.42 |
| 1:CA:674:G:OP1 | 5:CF:51:ILE:HG13 | 2.20 | 0.42 |
| 26:BD:61:THR:C | 26:BD:63:PRO:HD2 | 2.40 | 0.42 |
| 1:CA:806:C:O2' | 1:CA:807:A:H5' | 2.20 | 0.42 |
| 11:CL:100:ALA:O | 11:CL:103:CYS:SG | 2.78 | 0.42 |
| 4:CE:102:THR:HG21 | 4:CE:123:LEU:HD21 | 2.01 | 0.42 |
| 1:AA:1250:A:H5' | 8:AI:69:GLY:O | 2.18 | 0.42 |
| 23:DB:545:U:C4 | 23:DB:548:G:OP1 | 2.73 | 0.42 |
| 47:B0:7:PRO:O | 47:B0:8:THR:C | 2.58 | 0.42 |
| 8:AI:118:ARG:NH1 | 8:AI:122:ARG:HE | 2.17 | 0.42 |
| 23:BB:935:C:H2' | 23:BB:936:A:C8 | 2.54 | 0.42 |
| 23:BB:1408:G:H2' | 23:BB:1409:U:C6 | 2.54 | 0.42 |
| 2:CC:128:MET:O | 2:CC:130:ARG:N | 2.41 | 0.42 |
| 22:DA:56:G:H4' | 22:DA:57:A:H5' | 2.02 | 0.42 |
| 23:BB:1803:A:H2 | 23:BB:1823:G:O4' | 2.02 | 0.42 |
| 39:BR:33:VAL:O | 39:BR:33:VAL:HG12 | 2.19 | 0.42 |
| 23:DB:538:A:H2' | 23:DB:539:G:O4' | 2.19 | 0.42 |
| 22:DA:15:A:H1' | 22:DA:109:A:C5 | 2.55 | 0.42 |
| 20:CB:86:CYS:C | 20:CB:88:GLN:N | 2.73 | 0.42 |
| 20:AB:112:ARG:HH11 | 20:AB:112:ARG:HG3 | 1.83 | 0.42 |
| 1:CA:195:A:H1' | 1:CA:222:C:O2' | 2.18 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 23:BB:1236:G:O2' | 23:BB:1237:A:P | 2.77 | 0.42 |
| 22:DA:43:C:C4' | 28:DF:62:GLN:HE21 | 2.32 | 0.42 |
| 23:DB:906:U:H1' | 34:DM:66:ARG:NH2 | 2.34 | 0.42 |
| 23:BB:2643:G:H2' | 23:BB:2644:G:O4' | 2.18 | 0.42 |
| 2:CC:139:ASN:O | 2:CC:143:LEU:HD13 | 2.18 | 0.42 |
| 23:DB:2671:G:O2' | 23:DB:2672:U:H5' | 2.19 | 0.42 |
| 29:BG:150:TYR:O | 29:BG:151:ARG:HB2 | 2.19 | 0.42 |
| 5:AF:43:GLY:HA2 | 5:AF:58:HIS:CE1 | 2.53 | 0.42 |
| 41:BT:26:LYS:HD2 | 41:BT:26:LYS:C | 2.40 | 0.42 |
| 1:CA:329:A:H8 | 1:CA:329:A:H5' | 1.84 | 0.42 |
| 23:BB:1064:C:H2' | 23:BB:1065:U:O4' | 2.19 | 0.42 |
| 24:BV:53:LYS:HE3 | 24:BV:55:GLU:OE2 | 2.19 | 0.42 |
| 7:AH:38:VAL:O | 7:AH:42:GLU:HG2 | 2.19 | 0.42 |
| 23:DB:2705:A:H2' | 23:DB:2706:A:O4' | 2.19 | 0.42 |
| 1:AA:844:G:H2' | 1:AA:845:A:H5'' | 2.01 | 0.42 |
| 23:DB:1027:A:C2 | 23:DB:2488:G:H5'' | 2.53 | 0.42 |
| 47:B0:11:LYS:HG3 | 47:B0:12:ARG:N | 2.35 | 0.42 |
| 1:CA:626:G:H2' | 1:CA:627:G:H8 | 1.83 | 0.42 |
| 1:AA:1273:C:H2' | 1:AA:1274:A:O4' | 2.19 | 0.42 |
| 23:BB:1270:C:H5'' | 23:BB:1271:G:O5' | 2.19 | 0.42 |
| 23:DB:678:C:H2' | 23:DB:679:C:C6 | 2.53 | 0.42 |
| 23:DB:1213:A:H62 | 23:DB:1236:G:H1' | 1.83 | 0.42 |
| 6:AG:102:TRP:N | 6:AG:102:TRP:CD1 | 2.86 | 0.42 |
| 23:DB:1526:C:O2' | 23:DB:1527:G:H5' | 2.19 | 0.42 |
| 23:DB:2479:U:H6 | 23:DB:2479:U:O5' | 2.02 | 0.42 |
| 23:BB:647:G:H2' | 23:BB:648:G:C8 | 2.55 | 0.42 |
| 23:BB:1370:C:H2' | 23:BB:1371:G:O4' | 2.18 | 0.42 |
| 1:CA:913:A:H4' | 1:CA:914:A:H4' | 2.01 | 0.42 |
| 23:DB:2686:G:H2' | 23:DB:2687:U:O4' | 2.19 | 0.42 |
| 50:B3:9:ALA:O | 50:B3:13:PHE:HB3 | 2.19 | 0.42 |
| 44:BX:41:HIS:CD2 | 44:BX:41:HIS:H | 2.36 | 0.42 |
| 41:DT:69:ARG:NH1 | 41:DT:69:ARG:HG2 | 2.34 | 0.42 |
| 4:AE:25:LYS:HE2 | 4:AE:25:LYS:C | 2.39 | 0.42 |
| 35:BN:51:LEU:HA | 35:BN:54:LEU:HD13 | 2.00 | 0.42 |
| 15:CP:18:GLN:HA | 15:CP:38:PHE:HA | 2.02 | 0.42 |
| 1:CA:138:G:O2' | 1:CA:139:A:H5' | 2.19 | 0.42 |
| 23:BB:2361:G:O2' | 23:BB:2362:C:H5' | 2.19 | 0.42 |
| 23:BB:1421:G:C2 | 23:BB:1422:G:C8 | 3.07 | 0.42 |
| 23:DB:2561:U:O3' | 32:DK:40:LYS:HE2 | 2.19 | 0.42 |
| 23:DB:1098:A:HO2' | 52:DI:4:VAL:C | 2.21 | 0.42 |
| 30:BH:124:THR:HG22 | 30:BH:125:THR:N | 2.35 | 0.42 |
| 34:BM:3:GLN:CG | 34:BM:46:ILE:HB | 2.43 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 20:CB:15:PHE:HB2 | 20:CB:16:GLY:H | 1.65 | 0.42 |
| 1:CA:976:G:OP2 | 1:CA:1358:U:O2' | 2.32 | 0.42 |
| 37:BP:47:ILE:HG22 | 37:BP:48:ALA:N | 2.17 | 0.42 |
| 23:DB:2259:U:C6 | 23:DB:2427:C:C4 | 3.07 | 0.42 |
| 43:DW:67:LYS:CD | 43:DW:69:GLU:H | 2.33 | 0.42 |
| 25:BC:170:TYR:HA | 25:BC:185:ALA:HB2 | 2.01 | 0.42 |
| 30:DH:35:LYS:HE2 | 30:DH:35:LYS:HB2 | 1.91 | 0.42 |
| 30:DH:4:ILE:HD11 | 30:DH:37:VAL:CA | 2.48 | 0.42 |
| 25:DC:163:ILE:HG12 | 25:DC:173:LEU:HD23 | 2.01 | 0.42 |
| 31:DJ:15:TRP:CB | 31:DJ:139:VAL:HA | 2.49 | 0.42 |
| 31:BJ:68:LYS:CA | 31:BJ:71:ASP:OD1 | 2.65 | 0.42 |
| 43:BW:44:PHE:HB3 | 43:BW:76:ARG:CB | 2.49 | 0.42 |
| 23:DB:533:G:N3 | 38:DQ:40:LYS:CG | 2.82 | 0.42 |
| 38:DQ:44:TYR:O | 38:DQ:48:ASP:N | 2.51 | 0.42 |
| 38:DQ:52:ARG:HD3 | 38:DQ:53:LYS:HZ1 | 1.83 | 0.42 |
| 27:DE:112:LEU:O | 27:DE:113:VAL:HB | 2.20 | 0.42 |
| 23:BB:651:G:OP1 | 50:B3:16:THR:HB | 2.20 | 0.42 |
| 50:B3:16:THR:CG2 | 50:B3:22:LYS:HG2 | 2.50 | 0.42 |
| 33:BL:58:TYR:N | 33:BL:58:TYR:CD2 | 2.84 | 0.42 |
| 23:BB:970:U:H2' | 23:BB:971:G:C8 | 2.55 | 0.42 |
| 47:B0:2:VAL:CG2 | 47:B0:3:GLN:H | 2.33 | 0.42 |
| 23:BB:1225:G:C5' | 39:BR:78:ARG:HH22 | 2.27 | 0.42 |
| 25:DC:245:THR:O | 25:DC:246:PRO:C | 2.57 | 0.42 |
| 23:BB:500:G:OP1 | 42:BU:40:LEU:HG | 2.19 | 0.42 |
| 31:DJ:7:LYS:N | 31:DJ:8:PRO:CD | 2.82 | 0.42 |
| 35:BN:28:LEU:CD2 | 35:BN:113:ILE:HG21 | 2.49 | 0.42 |
| 34:DM:41:LEU:CD2 | 34:DM:46:ILE:HD11 | 2.49 | 0.42 |
| 43:BW:35:ILE:HG13 | 43:BW:36:ILE:N | 2.33 | 0.42 |
| 26:DD:48:ILE:HG22 | 26:DD:49:GLN:H | 1.80 | 0.42 |
| 33:DL:77:ILE:O | 33:DL:110:VAL:O | 2.37 | 0.42 |
| 33:DL:81:ASP:O | 33:DL:85:VAL:HG12 | 2.19 | 0.42 |
| 23:BB:1674:G:N2 | 23:BB:1677:A:N1 | 2.68 | 0.42 |
| 23:BB:1453:A:H62 | 35:BN:72:ASP:CG | 2.23 | 0.42 |
| 33:DL:63:LYS:CB | 50:D3:26:ALA:HB2 | 2.47 | 0.42 |
| 23:DB:2393:U:C5 | 50:D3:30:HIS:HE1 | 2.37 | 0.42 |
| 50:D3:57:VAL:HG22 | 50:D3:57:VAL:O | 2.19 | 0.42 |
| 24:DV:9:ARG:CZ | 24:DV:20:LEU:HD11 | 2.50 | 0.42 |
| 26:BD:205:PRO:O | 26:BD:206:ALA:HB2 | 2.19 | 0.42 |
| 45:DY:43:ILE:O | 45:DY:47:ILE:HG13 | 2.20 | 0.42 |
| 1:CA:1306:A:C2' | 1:CA:1307:U:H5' | 2.49 | 0.42 |
| 8:CI:49:GLN:O | 8:CI:53:LEU:HD23 | 2.19 | 0.42 |
| 5:AF:29:ILE:HG21 | 5:AF:64:VAL:CG1 | 2.50 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 1:AA:1422:G:P | 32:BK:54:LYS:HZ1 | 2.43 | 0.42 |
| 1:CA:838:G:H2' | 1:CA:839:C:O4' | 2.20 | 0.42 |
| 38:DQ:57:ARG:NH2 | 38:DQ:92:LYS:HZ3 | 2.16 | 0.42 |
| 23:BB:748:G:OP2 | 40:BS:88:ARG:HD3 | 2.19 | 0.42 |
| 3:CD:159:GLU:O | 3:CD:162:GLU:HG2 | 2.19 | 0.42 |
| 47:D0:27:LEU:O | 47:D0:38:LEU:HD13 | 2.19 | 0.42 |
| 32:DK:43:ILE:HG12 | 32:DK:52:VAL:CG1 | 2.46 | 0.42 |
| 30:DH:132:PHE:HE2 | 30:DH:134:VAL:HG22 | 1.84 | 0.42 |
| 23:BB:2811:G:H2' | 23:BB:2812:G:C8 | 2.54 | 0.42 |
| 23:BB:2813:A:O2' | 23:BB:2814:A:H5' | 2.18 | 0.42 |
| 4:CE:105:ILE:HD12 | 4:CE:123:LEU:CD2 | 2.50 | 0.42 |
| 4:AE:109:ALA:CB | 4:AE:135:VAL:HG23 | 2.47 | 0.42 |
| 20:CB:93:HIS:O | 20:CB:94:ARG:C | 2.57 | 0.42 |
| 2:CC:182:ASP:CB | 2:CC:203:LYS:HE2 | 2.43 | 0.42 |
| 27:BE:53:THR:O | 27:BE:55:SER:N | 2.52 | 0.42 |
| 23:DB:1252:G:H21 | 38:DQ:32:ARG:CZ | 2.32 | 0.42 |
| 19:CT:79:THR:O | 19:CT:82:ILE:HG12 | 2.19 | 0.42 |
| 23:BB:1791:A:H1' | 25:BC:206:LYS:HZ1 | 1.81 | 0.42 |
| 23:DB:2010:G:H5'' | 40:DS:42:LYS:HB3 | 2.00 | 0.42 |
| 2:CC:130:ARG:HD2 | 2:CC:130:ARG:HA | 1.86 | 0.42 |
| 23:DB:2462:C:H2' | 23:DB:2463:C:H6 | 1.84 | 0.42 |
| 23:BB:1804:C:P | 25:BC:254:LYS:HG2 | 2.58 | 0.42 |
| 1:AA:492:C:C3' | 1:AA:493:A:H5'' | 2.49 | 0.42 |
| 6:AG:37:THR:O | 6:AG:41:ILE:HB | 2.19 | 0.42 |
| 20:CB:61:SER:OG | 20:CB:62:ARG:HD2 | 2.19 | 0.42 |
| 23:DB:2248:C:H3' | 23:DB:2249:U:C6 | 2.55 | 0.42 |
| 1:AA:1073:U:H2' | 1:AA:1074:G:H8 | 1.84 | 0.42 |
| 1:AA:1073:U:C2 | 1:AA:1074:G:C8 | 3.08 | 0.42 |
| 23:DB:539:G:H2' | 23:DB:540:C:H6 | 1.83 | 0.42 |
| 41:BT:64:LYS:HZ2 | 41:BT:79:ASP:HB2 | 1.85 | 0.42 |
| 37:BP:77:SER:N | 37:BP:78:PRO:CD | 2.73 | 0.42 |
| 23:DB:954:G:O2' | 23:DB:2274:A:N1 | 2.44 | 0.42 |
| 37:DP:7:LEU:HA | 37:DP:10:GLU:CD | 2.39 | 0.42 |
| 1:CA:538:G:H2' | 1:CA:539:A:H8 | 1.85 | 0.42 |
| 23:BB:1221:C:O2' | 23:BB:1222:U:H5' | 2.19 | 0.42 |
| 2:CC:172:VAL:O | 2:CC:174:LEU:HD12 | 2.19 | 0.42 |
| 34:BM:86:LYS:HB3 | 34:BM:87:GLY:H | 1.67 | 0.42 |
| 1:CA:1141:C:H2' | 1:CA:1142:G:H8 | 1.83 | 0.42 |
| 36:DO:82:ALA:HB1 | 36:DO:87:ILE:HG21 | 2.01 | 0.42 |
| 2:CC:183:TYR:HA | 2:CC:199:VAL:O | 2.19 | 0.42 |
| 23:BB:1685:C:H2' | 23:BB:1686:C:C6 | 2.54 | 0.42 |
| 23:DB:2570:G:O2' | 23:DB:2571:U:H5' | 2.20 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:DB:662:G:H5' | 33:DL:26:GLY:H | 1.83 | 0.42 |
| 23:DB:2821:A:OP2 | 26:DD:115:GLY:O | 2.38 | 0.42 |
| 23:DB:1401:G:H2' | 23:DB:1402:U:C6 | 2.54 | 0.42 |
| 23:BB:1401:G:H2' | 23:BB:1402:U:C6 | 2.54 | 0.42 |
| 6:AG:90:VAL:HG23 | 6:AG:90:VAL:O | 2.19 | 0.42 |
| 23:DB:1220:G:H2' | 23:DB:1221:C:H6 | 1.83 | 0.42 |
| 23:BB:1011:G:P | 38:BQ:76:SER:HG | 2.42 | 0.42 |
| 23:BB:2705:A:H2' | 23:BB:2706:A:O4' | 2.19 | 0.42 |
| 39:BR:101:ILE:HB | 39:BR:102:SER:H | 1.69 | 0.42 |
| 42:BU:21:ARG:NH1 | 42:BU:21:ARG:HG2 | 2.33 | 0.42 |
| 52:BI:63:ASP:O | 52:BI:65:SER:N | 2.53 | 0.42 |
| 23:BB:1114:C:H2' | 23:BB:1115:G:C8 | 2.55 | 0.42 |
| 1:AA:1178:G:N2 | 1:AA:1181:G:C8 | 2.87 | 0.42 |
| 14:AO:38:LEU:HB3 | 14:AO:42:PHE:CE1 | 2.55 | 0.42 |
| 1:AA:154:U:O2' | 1:AA:155:A:H5' | 2.20 | 0.42 |
| 23:BB:2559:C:O2' | 23:BB:2560:A:H5' | 2.19 | 0.42 |
| 1:CA:349:A:H2' | 1:CA:350:G:C8 | 2.54 | 0.42 |
| 28:DF:50:ASP:C | 28:DF:52:ALA:H | 2.22 | 0.42 |
| 29:DG:57:TYR:O | 29:DG:58:ALA:C | 2.56 | 0.42 |
| 10:AK:62:ALA:O | 10:AK:65:ALA:HB3 | 2.19 | 0.42 |
| 23:BB:1498:C:H2' | 23:BB:1499:C:C6 | 2.54 | 0.42 |
| 5:CF:74:LEU:HD13 | 5:CF:74:LEU:C | 2.39 | 0.42 |
| 1:CA:1394:A:H8 | 1:CA:1394:A:OP1 | 2.03 | 0.42 |
| 23:BB:312:G:C2 | 23:BB:313:G:C8 | 3.07 | 0.42 |
| 23:DB:2408:U:H2' | 23:DB:2409:G:C8 | 2.54 | 0.42 |
| 23:DB:756:A:H2' | 23:DB:757:G:O4' | 2.20 | 0.42 |
| 23:DB:2082:A:N6 | 23:DB:2237:G:H1' | 2.34 | 0.42 |
| 23:BB:1513:U:O2' | 23:BB:1514:G:H5' | 2.19 | 0.42 |
| 23:BB:1891:G:H2' | 23:BB:1892:C:H6 | 1.84 | 0.42 |
| 23:BB:84:A:N6 | 23:BB:99:U:H5' | 2.35 | 0.42 |
| 42:BU:70:ALA:O | 42:BU:72:PHE:N | 2.53 | 0.42 |
| 30:BH:90:LEU:HD13 | 30:BH:123:ARG:O | 2.19 | 0.42 |
| 30:BH:89:LYS:HZ1 | 30:BH:90:LEU:HB2 | 1.85 | 0.42 |
| 34:BM:3:GLN:HE21 | 34:BM:3:GLN:HB2 | 1.67 | 0.42 |
| 37:BP:61:ARG:CB | 37:BP:61:ARG:NH1 | 2.81 | 0.42 |
| 23:DB:2259:U:O2' | 23:DB:2260:C:H5' | 2.19 | 0.42 |
| 23:BB:693:A:H2' | 23:BB:694:U:C6 | 2.54 | 0.42 |
| 35:DN:37:THR:CG2 | 35:DN:39:PRO:HD2 | 2.41 | 0.42 |
| 25:DC:107:LYS:CG | 25:DC:194:VAL:HG11 | 2.50 | 0.42 |
| 25:DC:68:ARG:NE | 25:DC:128:THR:HG23 | 2.34 | 0.42 |
| 25:DC:93:VAL:HG21 | 25:DC:103:ILE:HG13 | 2.00 | 0.42 |
| 31:DJ:135:GLN:HE21 | 31:DJ:138:GLN:N | 2.14 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 31:BJ:124:VAL:O | 31:BJ:125:TYR:HB2 | 2.18 | 0.42 |
| 23:BB:919:U:H6 | 23:BB:919:U:O5' | 2.03 | 0.42 |
| 18:AS:35:ARG:HG2 | 18:AS:50:VAL:CG1 | 2.49 | 0.42 |
| 23:BB:299:A:N6 | 23:BB:322:A:O2' | 2.49 | 0.42 |
| 27:BE:156:ASN:CG | 27:BE:157:LEU:H | 2.23 | 0.42 |
| 42:DU:29:SER:O | 42:DU:30:SER:HB2 | 2.19 | 0.42 |
| 33:BL:78:ARG:O | 33:BL:78:ARG:NH1 | 2.53 | 0.42 |
| 32:BK:71:ARG:HH11 | 32:BK:71:ARG:HG2 | 1.84 | 0.42 |
| 46:BZ:2:LYS:HB2 | 46:BZ:3:LYS:H | 1.69 | 0.42 |
| 32:BK:2:ILE:N | 32:BK:33:ALA:N | 2.68 | 0.42 |
| 23:BB:2463:C:O2' | 23:BB:2464:G:H5' | 2.19 | 0.42 |
| 23:DB:2723:C:H2' | 23:DB:2724:U:O4' | 2.20 | 0.42 |
| 13:AN:12:ARG:HH11 | 13:AN:60:ARG:HH12 | 1.64 | 0.42 |
| 36:DO:38:GLN:O | 36:DO:40:ILE:HD13 | 2.18 | 0.42 |
| 36:DO:25:ARG:HH21 | 36:DO:94:ARG:NH1 | 2.17 | 0.42 |
| 31:DJ:35:ARG:HA | 31:DJ:35:ARG:NE | 2.35 | 0.42 |
| 31:BJ:12:LYS:O | 31:BJ:13:ARG:HG3 | 2.19 | 0.42 |
| 31:BJ:45:THR:CB | 38:BQ:63:ARG:HH22 | 2.16 | 0.42 |
| 38:BQ:63:ARG:HG3 | 38:BQ:64:ILE:N | 2.33 | 0.42 |
| 39:BR:41:ILE:HD13 | 39:BR:43:ASN:HA | 2.00 | 0.42 |
| 39:BR:51:VAL:HG13 | 39:BR:52:PRO:HD2 | 2.01 | 0.42 |
| 23:DB:372:G:N7 | 46:DZ:57:VAL:HG21 | 2.34 | 0.42 |
| 31:DJ:84:ILE:CD1 | 31:DJ:85:LYS:N | 2.73 | 0.42 |
| 23:BB:2263:C:H4' | 23:BB:2329:U:H4' | 2.01 | 0.42 |
| 43:BW:36:ILE:HD12 | 43:BW:69:GLU:CD | 2.39 | 0.42 |
| 27:BE:112:LEU:O | 27:BE:116:ASP:N | 2.52 | 0.42 |
| 51:B4:12:ARG:CD | 51:B4:12:ARG:H | 2.06 | 0.42 |
| 1:AA:1314:C:H5 | 18:AS:5:LYS:HZ3 | 1.63 | 0.42 |
| 23:BB:126:A:O5' | 49:B2:19:ARG:HB3 | 2.19 | 0.42 |
| 23:DB:1266:G:O2' | 23:DB:1267:U:OP2 | 2.38 | 0.42 |
| 27:BE:74:LYS:O | 27:BE:75:SER:C | 2.58 | 0.42 |
| 23:DB:2282:G:O2' | 23:DB:2283:C:OP2 | 2.37 | 0.42 |
| 12:CM:21:ILE:O | 12:CM:22:TYR:C | 2.57 | 0.42 |
| 1:CA:1250:A:H5'' | 8:CI:68:GLY:HA2 | 2.01 | 0.42 |
| 1:CA:1252:A:H4' | 1:CA:1369:C:H4' | 2.01 | 0.42 |
| 8:CI:94:ARG:HG3 | 8:CI:98:ARG:NH2 | 2.33 | 0.42 |
| 31:DJ:61:LYS:HE2 | 31:DJ:69:ARG:HH22 | 1.84 | 0.42 |
| 23:DB:1189:A:H2' | 23:DB:1190:G:H5' | 2.02 | 0.42 |
| 21:CU:36:PHE:HB2 | 21:CU:39:LYS:CB | 2.47 | 0.42 |
| 1:AA:1306:A:C2 | 1:AA:1332:A:N9 | 2.87 | 0.42 |
| 4:CE:10:LEU:HD12 | 4:CE:10:LEU:O | 2.20 | 0.42 |
| 52:DI:129:GLU:O | 52:DI:133:ARG:HG3 | 2.19 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 41:DT:11:LEU:HB2 | 41:DT:12:ARG:H | 1.59 | 0.42 |
| 1:CA:1237:C:O4' | 1:CA:1334:G:N2 | 2.50 | 0.42 |
| 5:CF:84:VAL:HG22 | 5:CF:85:ILE:H | 1.85 | 0.42 |
| 1:AA:15:G:O2' | 4:AE:28:ARG:HD2 | 2.20 | 0.42 |
| 52:BI:21:PRO:HB2 | 52:BI:22:PRO:CD | 2.44 | 0.42 |
| 23:DB:1829:A:H3' | 23:DB:1830:C:C6 | 2.55 | 0.42 |
| 48:B1:51:ALA:HB3 | 48:B1:52:LYS:HD2 | 2.01 | 0.42 |
| 25:DC:241:LYS:HB3 | 25:DC:243:PRO:HD3 | 2.02 | 0.42 |
| 23:BB:1298:C:O2' | 23:BB:1301:A:O2' | 2.36 | 0.42 |
| 47:B0:26:SER:HB2 | 47:B0:38:LEU:CD1 | 2.46 | 0.42 |
| 1:CA:492:C:C3' | 1:CA:493:A:H5'' | 2.50 | 0.42 |
| 25:BC:207:ALA:O | 25:BC:208:GLY:C | 2.57 | 0.42 |
| 23:BB:1566:A:C6 | 25:BC:213:ARG:CZ | 3.02 | 0.42 |
| 9:CJ:66:GLU:HG2 | 9:CJ:67:ILE:N | 2.34 | 0.42 |
| 48:B1:31:GLU:C | 48:B1:32:LYS:HZ2 | 2.22 | 0.42 |
| 23:BB:1173:U:H2' | 23:BB:1174:U:H4' | 2.00 | 0.42 |
| 28:DF:92:GLY:O | 28:DF:95:MET:HG2 | 2.19 | 0.42 |
| 6:AG:45:ALA:HB1 | 6:AG:120:ALA:HB2 | 2.00 | 0.42 |
| 23:DB:1592:C:H2' | 23:DB:1593:A:H8 | 1.84 | 0.42 |
| 49:D2:21:ARG:HG3 | 49:D2:31:LEU:CD1 | 2.46 | 0.42 |
| 20:CB:86:CYS:HB3 | 20:CB:88:GLN:CG | 2.49 | 0.42 |
| 33:BL:17:LYS:HD3 | 33:BL:17:LYS:HA | 1.92 | 0.42 |
| 1:AA:1065:U:C1' | 1:AA:1066:C:OP2 | 2.66 | 0.42 |
| 3:AD:191:SER:O | 3:AD:192:ALA:CB | 2.68 | 0.42 |
| 52:BI:92:PRO:C | 52:BI:94:LYS:H | 2.23 | 0.42 |
| 1:AA:123:U:H2' | 1:AA:124:C:C6 | 2.54 | 0.42 |
| 23:DB:222:A:N1 | 23:DB:233:A:H5'' | 2.35 | 0.42 |
| 1:AA:913:A:H4' | 1:AA:914:A:O5' | 2.19 | 0.42 |
| 5:CF:15:SER:HA | 5:CF:18:VAL:HG23 | 2.01 | 0.42 |
| 49:D2:33:ARG:O | 49:D2:37:LYS:HB3 | 2.20 | 0.42 |
| 23:DB:1294:U:C4 | 23:DB:1295:C:C5 | 3.07 | 0.42 |
| 27:DE:126:VAL:HG21 | 27:DE:132:LYS:HZ2 | 1.82 | 0.42 |
| 1:CA:167:A:O2' | 1:CA:168:G:H5' | 2.19 | 0.42 |
| 1:CA:1164:G:H2' | 1:CA:1165:U:H6 | 1.85 | 0.42 |
| 45:BY:22:THR:O | 45:BY:26:LEU:N | 2.53 | 0.42 |
| 1:CA:113:G:O4' | 1:CA:354:G:H4' | 2.19 | 0.42 |
| 23:BB:1770:G:O2' | 23:BB:1771:C:H5' | 2.19 | 0.42 |
| 6:CG:49:LEU:C | 6:CG:51:GLN:N | 2.73 | 0.42 |
| 37:DP:105:LYS:HE2 | 37:DP:105:LYS:HB3 | 1.81 | 0.42 |
| 1:AA:329:A:H5' | 1:AA:329:A:H8 | 1.84 | 0.42 |
| 1:AA:128:G:O2' | 1:AA:129:A:H5' | 2.18 | 0.42 |
| 23:DB:1290:C:O2' | 23:DB:1291:C:H5' | 2.19 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 8:CI:19:PHE:O | 8:CI:62:LEU:HA | 2.19 | 0.42 |
| 1:AA:442:G:H2' | 1:AA:443:C:H6 | 1.84 | 0.42 |
| 27:BE:68:ALA:O | 27:BE:69:ARG:HB3 | 2.20 | 0.42 |
| 23:BB:679:C:O2' | 23:BB:680:C:H5' | 2.19 | 0.42 |
| 38:BQ:89:ILE:O | 38:BQ:89:ILE:HG23 | 2.20 | 0.42 |
| 3:AD:173:ASP:HB3 | 3:AD:178:GLU:HB3 | 2.01 | 0.42 |
| 1:AA:343:U:O2' | 1:AA:344:A:H2' | 2.20 | 0.42 |
| 23:BB:453:A:H4' | 23:BB:472:A:H62 | 1.84 | 0.42 |
| 1:CA:64:G:H4' | 1:CA:65:A:H5'' | 2.01 | 0.42 |
| 41:DT:69:ARG:HH11 | 41:DT:69:ARG:HG2 | 1.85 | 0.42 |
| 23:DB:2153:C:H2' | 23:DB:2154:A:H8 | 1.84 | 0.42 |
| 23:BB:1266:G:O2' | 23:BB:1267:U:OP2 | 2.38 | 0.42 |
| 29:BG:99:GLY:C | 29:BG:101:VAL:H | 2.22 | 0.42 |
| 1:CA:6:G:H4' | 1:CA:298:A:H4' | 2.01 | 0.42 |
| 1:AA:138:G:O2' | 1:AA:139:A:H5' | 2.19 | 0.42 |
| 23:DB:1314:C:H2' | 23:DB:1314:C:O2 | 2.18 | 0.42 |
| 26:DD:168:GLU:H | 26:DD:168:GLU:CD | 2.23 | 0.42 |
| 23:DB:62:U:H3' | 23:DB:63:A:C8 | 2.54 | 0.42 |
| 11:CL:66:ILE:HG21 | 11:CL:71:HIS:HB3 | 2.00 | 0.42 |
| 23:BB:1604:C:H5'' | 55:BB:3376:HOH:O | 2.18 | 0.42 |
| 32:DK:78:ARG:CG | 37:DP:72:VAL:HG21 | 2.18 | 0.42 |
| 49:D2:39:ARG:HD2 | 49:D2:39:ARG:N | 2.35 | 0.42 |
| 32:BK:76:VAL:HG12 | 32:BK:77:ILE:N | 2.35 | 0.42 |
| 47:D0:42:ILE:HG21 | 47:D0:45:ASP:OD2 | 2.19 | 0.42 |
| 31:BJ:93:ILE:HD13 | 31:BJ:100:VAL:HG11 | 2.01 | 0.42 |
| 36:BO:41:ALA:CB | 36:BO:45:SER:HB3 | 2.49 | 0.42 |
| 23:DB:975:A:H2' | 23:DB:975:A:N3 | 2.35 | 0.42 |
| 38:DQ:17:LEU:HD12 | 38:DQ:17:LEU:HA | 1.89 | 0.42 |
| 38:DQ:50:ARG:NH1 | 38:DQ:53:LYS:HE3 | 2.34 | 0.42 |
| 30:BH:2:GLN:HE22 | 30:BH:19:VAL:C | 2.23 | 0.42 |
| 23:BB:649:G:H2' | 23:BB:650:C:C6 | 2.55 | 0.42 |
| 23:BB:2080:A:OP1 | 46:BZ:18:CYS:HB2 | 2.20 | 0.42 |
| 32:BK:38:ILE:HD13 | 32:BK:61:VAL:HG12 | 2.00 | 0.42 |
| 34:BM:11:LYS:HD3 | 34:BM:11:LYS:N | 2.34 | 0.42 |
| 24:BV:80:HIS:HB2 | 24:BV:85:LYS:HG3 | 2.01 | 0.42 |
| 16:AQ:17:GLU:O | 16:AQ:18:LYS:HB2 | 2.18 | 0.42 |
| 16:AQ:56:ASP:CG | 16:AQ:80:LYS:HA | 2.39 | 0.42 |
| 46:DZ:39:LYS:HD3 | 46:DZ:61:ASN:CG | 2.39 | 0.42 |
| 25:DC:253:GLY:H | 25:DC:254:LYS:HE3 | 1.83 | 0.42 |
| 25:DC:265:PHE:O | 25:DC:266:ILE:HG12 | 2.20 | 0.42 |
| 36:DO:94:ARG:HG2 | 36:DO:94:ARG:HH11 | 1.84 | 0.42 |
| 23:BB:1250:G:C5' | 38:BQ:5:ARG:HG2 | 2.49 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 39:DR:65:ALA:N | 39:DR:100:GLY:HA2 | 2.34 | 0.42 |
| 25:BC:31:PRO:O | 25:BC:32:LEU:O | 2.37 | 0.42 |
| 31:BJ:3:THR:HG21 | 38:BQ:93:ILE:CG1 | 2.40 | 0.42 |
| 20:CB:99:MET:CA | 20:CB:106:VAL:HG21 | 2.47 | 0.42 |
| 1:AA:1299:A:N6 | 1:AA:1302:C:H5 | 2.15 | 0.42 |
| 24:BV:6:ALA:HB1 | 24:BV:41:GLU:O | 2.19 | 0.42 |
| 30:DH:103:VAL:O | 30:DH:106:ALA:HB3 | 2.20 | 0.42 |
| 30:DH:129:GLU:HG3 | 30:DH:129:GLU:H | 1.57 | 0.42 |
| 1:CA:1217:C:O2' | 1:CA:1218:C:H5' | 2.20 | 0.42 |
| 22:DA:45:A:O4' | 28:DF:91:ARG:CZ | 2.67 | 0.42 |
| 33:DL:124:GLY:H | 33:DL:142:ILE:HG13 | 1.85 | 0.42 |
| 41:BT:15:HIS:HB2 | 41:BT:31:VAL:CG2 | 2.50 | 0.42 |
| 47:D0:11:LYS:HA | 47:D0:11:LYS:HD3 | 1.90 | 0.42 |
| 32:BK:80:ASP:OD1 | 37:BP:71:ARG:HG2 | 2.19 | 0.42 |
| 36:DO:67:ASN:HD22 | 36:DO:68:LYS:H | 1.68 | 0.42 |
| 3:CD:10:LEU:HD22 | 3:CD:62:ARG:CZ | 2.49 | 0.42 |
| 23:DB:2572:A:OP2 | 26:DD:149:ASN:HB3 | 2.19 | 0.42 |
| 23:DB:361:G:H2' | 23:DB:362:A:C8 | 2.51 | 0.42 |
| 23:DB:2733:A:O5' | 23:DB:2733:A:H8 | 2.03 | 0.42 |
| 41:DT:6:ARG:O | 41:DT:8:LEU:N | 2.52 | 0.42 |
| 26:BD:1:MET:HB3 | 26:BD:84:LEU:HB2 | 2.00 | 0.42 |
| 1:AA:1490:U:H3' | 1:AA:1491:G:H8 | 1.85 | 0.42 |
| 31:DJ:69:ARG:NH1 | 31:DJ:69:ARG:HG3 | 2.31 | 0.42 |
| 23:BB:723:C:H2' | 23:BB:724:U:C6 | 2.55 | 0.42 |
| 1:AA:838:G:H2' | 1:AA:839:C:O4' | 2.20 | 0.42 |
| 3:CD:33:ILE:HG12 | 3:CD:34:GLU:N | 2.34 | 0.42 |
| 15:CP:54:LEU:CD1 | 15:CP:80:LYS:HG2 | 2.50 | 0.42 |
| 38:DQ:94:LEU:C | 38:DQ:94:LEU:HD12 | 2.39 | 0.42 |
| 38:DQ:94:LEU:O | 38:DQ:98:ALA:N | 2.49 | 0.42 |
| 2:AC:54:ILE:HG23 | 2:AC:54:ILE:O | 2.19 | 0.42 |
| 29:DG:171:LYS:HZ3 | 29:DG:174:LYS:HD2 | 1.85 | 0.42 |
| 20:CB:163:ILE:HD11 | 20:CB:209:VAL:HG11 | 2.01 | 0.42 |
| 32:DK:15:GLY:CA | 32:DK:52:VAL:HB | 2.49 | 0.42 |
| 23:DB:1667:G:OP1 | 32:DK:6:THR:HA | 2.20 | 0.42 |
| 23:DB:2267:A:H3' | 23:DB:2267:A:N3 | 2.34 | 0.42 |
| 7:CH:72:GLU:N | 7:CH:129:ALA:HB2 | 2.27 | 0.42 |
| 23:DB:1298:C:O2' | 23:DB:1301:A:O2' | 2.36 | 0.42 |
| 29:BG:51:PHE:CD2 | 29:BG:64:ALA:HA | 2.54 | 0.42 |
| 47:B0:8:THR:HG23 | 47:B0:9:ARG:N | 2.26 | 0.42 |
| 23:BB:64:A:H2' | 23:BB:65:U:H6 | 1.80 | 0.42 |
| 4:CE:40:ASP:CG | 4:CE:44:ARG:HB2 | 2.39 | 0.42 |
| 23:BB:2840:C:C2 | 23:BB:2841:C:C5 | 3.07 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 42:DU:42:LYS:H | 42:DU:57:ILE:CG2 | 2.32 | 0.42 |
| 27:BE:195:GLN:H | 27:BE:199:MET:CA | 2.28 | 0.42 |
| 2:CC:128:MET:SD | 2:CC:132:ALA:N | 2.92 | 0.42 |
| 23:DB:448:U:H3' | 27:DE:79:ARG:CZ | 2.49 | 0.42 |
| 8:AI:24:ASN:HA | 8:AI:26:LYS:NZ | 2.34 | 0.42 |
| 42:BU:54:PRO:CG | 42:BU:55:GLY:H | 2.30 | 0.42 |
| 29:DG:124:CYS:C | 29:DG:126:THR:H | 2.21 | 0.42 |
| 29:DG:124:CYS:HB3 | 29:DG:130:ILE:CD1 | 2.49 | 0.42 |
| 29:DG:16:VAL:HG12 | 29:DG:17:LYS:H | 1.84 | 0.42 |
| 30:DH:54:LEU:HD23 | 30:DH:57:LYS:CD | 2.48 | 0.42 |
| 4:CE:52:ALA:HB3 | 4:CE:58:ALA:HB2 | 2.01 | 0.42 |
| 10:AK:52:ARG:O | 10:AK:54:SER:N | 2.51 | 0.42 |
| 9:CJ:18:ILE:HD13 | 9:CJ:72:ARG:HG2 | 2.00 | 0.42 |
| 1:CA:997:U:H2' | 1:CA:998:C:H6 | 1.79 | 0.42 |
| 25:BC:17:LYS:HZ2 | 25:BC:17:LYS:N | 2.17 | 0.42 |
| 23:DB:1683:U:O2' | 23:DB:1684:G:H5' | 2.19 | 0.42 |
| 23:BB:2787:C:O2' | 23:BB:2788:C:H5' | 2.19 | 0.42 |
| 29:BG:104:LEU:HB3 | 29:BG:106:LEU:CD1 | 2.49 | 0.42 |
| 1:AA:302:G:H2' | 1:AA:303:A:H8 | 1.83 | 0.42 |
| 23:BB:1047:G:HO2' | 23:BB:1048:A:P | 2.42 | 0.42 |
| 52:DI:37:PHE:HB2 | 52:DI:66:PHE:CE2 | 2.55 | 0.42 |
| 24:BV:2:PHE:HE2 | 24:BV:55:GLU:HB3 | 1.84 | 0.42 |
| 23:BB:63:A:H8 | 23:BB:63:A:OP2 | 2.03 | 0.42 |
| 1:CA:738:C:H2' | 1:CA:739:C:C6 | 2.55 | 0.42 |
| 2:AC:120:THR:HA | 2:AC:123:LEU:HD12 | 2.01 | 0.42 |
| 23:DB:2047:C:H2' | 23:DB:2048:G:C8 | 2.52 | 0.42 |
| 1:AA:868:C:H2' | 1:AA:869:G:O4' | 2.20 | 0.42 |
| 22:BA:54:G:H2' | 22:BA:55:U:H6 | 1.83 | 0.42 |
| 36:BO:59:ALA:CB | 36:BO:63:LYS:HE2 | 2.50 | 0.42 |
| 23:DB:1039:A:H2' | 23:DB:1040:A:C8 | 2.53 | 0.42 |
| 6:CG:60:ALA:O | 6:CG:64:ALA:HB3 | 2.19 | 0.42 |
| 23:DB:2543:G:H2' | 23:DB:2544:G:O4' | 2.20 | 0.42 |
| 14:CO:63:ARG:NH2 | 14:CO:87:ARG:NH1 | 2.67 | 0.42 |
| 9:AJ:48:ARG:HB3 | 9:AJ:66:GLU:HB3 | 2.02 | 0.42 |
| 23:BB:2223:G:C2' | 23:BB:2224:G:H5' | 2.50 | 0.42 |
| 1:AA:41:G:H2' | 1:AA:42:G:C8 | 2.54 | 0.42 |
| 1:CA:926:G:H5' | 1:CA:927:G:C5' | 2.49 | 0.42 |
| 23:BB:2286:G:H3' | 23:BB:2286:G:N3 | 2.34 | 0.42 |
| 1:CA:75:G:H2' | 1:CA:76:G:O4' | 2.19 | 0.42 |
| 20:AB:133:ALA:O | 20:AB:137:THR:HG23 | 2.20 | 0.42 |
| 18:CS:73:PHE:CD1 | 18:CS:73:PHE:N | 2.88 | 0.42 |
| 25:DC:175:LEU:H | 25:DC:175:LEU:HG | 1.67 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:DB:1765:U:O2' | 23:DB:1766:G:H5' | 2.19 | 0.42 |
| 37:DP:46:VAL:HB | 37:DP:65:ASN:OD1 | 2.19 | 0.42 |
| 42:BU:33:VAL:HG12 | 42:BU:35:VAL:HG23 | 2.02 | 0.42 |
| 42:BU:90:LYS:HD2 | 42:BU:91:LYS:N | 2.34 | 0.42 |
| 51:D4:24:ARG:HE | 51:D4:37:GLN:HA | 1.84 | 0.42 |
| 26:BD:175:LEU:CD2 | 26:BD:190:LYS:HB3 | 2.50 | 0.42 |
| 23:DB:2425:A:H4' | 23:DB:2426:A:OP2 | 2.19 | 0.42 |
| 26:DD:46:ARG:N | 26:DD:82:PHE:HA | 2.35 | 0.42 |
| 31:BJ:132:HIS:C | 31:BJ:134:ALA:H | 2.22 | 0.42 |
| 1:AA:958:A:C4' | 18:AS:54:ARG:HH21 | 2.33 | 0.42 |
| 27:DE:175:ILE:CG2 | 27:DE:180:LEU:HD11 | 2.49 | 0.42 |
| 33:BL:78:ARG:NH1 | 33:BL:80:SER:N | 2.68 | 0.42 |
| 46:BZ:15:SER:HB3 | 46:BZ:23:LYS:HE2 | 2.02 | 0.42 |
| 34:BM:69:PRO:HA | 34:BM:93:VAL:HB | 2.01 | 0.42 |
| 40:BS:50:VAL:HG21 | 40:BS:103:ILE:CG2 | 2.50 | 0.42 |
| 23:BB:1156:A:C5 | 38:BQ:47:ARG:NH1 | 2.88 | 0.42 |
| 5:CF:29:ILE:HG21 | 5:CF:64:VAL:CG1 | 2.49 | 0.42 |
| 12:AM:10:ASP:HA | 12:AM:44:ILE:HD11 | 2.01 | 0.42 |
| 47:B0:36:LYS:HA | 47:B0:41:HIS:C | 2.40 | 0.42 |
| 40:BS:29:VAL:HG21 | 40:BS:70:LYS:N | 2.35 | 0.42 |
| 26:DD:7:LYS:HA | 26:DD:26:VAL:HA | 2.01 | 0.42 |
| 1:CA:1014:A:H2' | 1:CA:1015:G:C8 | 2.54 | 0.42 |
| 37:DP:100:ARG:HB3 | 37:DP:100:ARG:NH1 | 2.14 | 0.42 |
| 23:BB:2723:C:H2' | 23:BB:2724:U:O4' | 2.20 | 0.42 |
| 23:DB:2282:G:H5'' | 23:DB:2283:C:O4' | 2.20 | 0.42 |
| 44:DX:16:THR:HG23 | 44:DX:21:LEU:HD12 | 2.00 | 0.42 |
| 23:DB:164:C:H2' | 23:DB:165:A:H5' | 2.01 | 0.42 |
| 29:DG:4:ALA:HA | 29:DG:68:ARG:HH22 | 1.85 | 0.42 |
| 28:DF:65:LEU:O | 28:DF:66:ILE:HB | 2.20 | 0.42 |
| 31:DJ:74:TYR:OH | 31:DJ:100:VAL:HG23 | 2.20 | 0.42 |
| 6:AG:20:GLU:O | 6:AG:23:ALA:HB3 | 2.19 | 0.42 |
| 35:BN:13:ASN:C | 35:BN:15:SER:H | 2.23 | 0.42 |
| 35:BN:12:ARG:HD3 | 35:BN:20:MET:CE | 2.50 | 0.42 |
| 23:BB:775:G:C5 | 23:BB:794:A:C8 | 3.08 | 0.42 |
| 23:DB:795:C:H2' | 23:DB:796:C:C6 | 2.55 | 0.42 |
| 12:AM:23:GLY:CA | 12:AM:64:VAL:HG13 | 2.43 | 0.42 |
| 23:DB:249:C:O2' | 50:D3:7:ARG:NE | 2.52 | 0.42 |
| 29:DG:36:LEU:HB2 | 29:DG:40:VAL:HG11 | 2.02 | 0.42 |
| 29:DG:43:LYS:HB3 | 29:DG:44:HIS:H | 1.71 | 0.42 |
| 12:CM:70:ARG:NH1 | 28:DF:135:ILE:HD13 | 2.35 | 0.42 |
| 1:AA:1432:G:O2' | 1:AA:1468:A:N6 | 2.50 | 0.42 |
| 23:DB:1773:A:H2' | 23:DB:1774:C:O4' | 2.19 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 25:DC:8:THR:O | 25:DC:10:PRO:HD3 | 2.20 | 0.42 |
| 25:DC:21:PRO:N | 25:DC:202:ARG:HH11 | 2.18 | 0.42 |
| 25:DC:222:THR:OG1 | 25:DC:223:ALA:N | 2.53 | 0.42 |
| 23:BB:26:G:C2' | 23:BB:27:G:O4' | 2.67 | 0.42 |
| 23:BB:2347:C:H4' | 23:BB:2347:C:OP1 | 2.19 | 0.42 |
| 1:AA:1447:A:H5' | 1:AA:1448:C:H5 | 1.85 | 0.42 |
| 1:CA:429:U:H4' | 1:CA:430:A:O5' | 2.16 | 0.42 |
| 52:DI:121:ILE:HD11 | 52:DI:122:GLU:OE2 | 2.20 | 0.42 |
| 1:AA:278:G:H21 | 1:AA:279:A:N6 | 2.10 | 0.42 |
| 25:DC:110:LYS:HE3 | 25:DC:110:LYS:CA | 2.49 | 0.42 |
| 23:BB:1841:U:C2 | 23:BB:1842:G:C8 | 3.07 | 0.42 |
| 23:DB:1029:A:H3' | 23:DB:1030:C:C6 | 2.53 | 0.42 |
| 23:BB:181:A:O2' | 23:BB:182:A:H5' | 2.19 | 0.42 |
| 1:AA:1521:C:H2' | 1:AA:1522:U:H6 | 1.84 | 0.42 |
| 10:AK:70:ALA:HA | 10:AK:74:LYS:HD3 | 2.01 | 0.42 |
| 23:DB:1372:U:H2' | 23:DB:1373:A:C8 | 2.55 | 0.42 |
| 12:CM:78:ARG:HD2 | 12:CM:79:LEU:N | 2.35 | 0.42 |
| 28:DF:111:ARG:HG2 | 28:DF:111:ARG:HH11 | 1.85 | 0.42 |
| 16:AQ:30:HIS:N | 16:AQ:35:LYS:H | 2.17 | 0.42 |
| 1:CA:538:G:H2' | 1:CA:539:A:C8 | 2.54 | 0.42 |
| 9:AJ:25:ILE:HG23 | 9:AJ:29:ALA:CB | 2.47 | 0.42 |
| 23:DB:906:U:H4' | 34:DM:26:VAL:CG1 | 2.49 | 0.42 |
| 1:CA:1200:C:OP1 | 1:CA:1201:A:H3' | 2.20 | 0.42 |
| 11:AL:43:LYS:N | 11:AL:44:PRO:CD | 2.81 | 0.42 |
| 23:BB:1713:A:N6 | 23:BB:1745:A:H61 | 2.18 | 0.42 |
| 1:CA:404:G:H2' | 1:CA:405:U:H6 | 1.85 | 0.42 |
| 16:AQ:7:LEU:HB2 | 16:AQ:60:ILE:HG12 | 2.02 | 0.42 |
| 2:CC:110:LEU:HD13 | 2:CC:143:LEU:CD2 | 2.50 | 0.42 |
| 1:CA:1082:A:H2' | 1:CA:1083:U:O4' | 2.20 | 0.42 |
| 1:AA:529:G:O6 | 11:AL:45:ASN:HA | 2.19 | 0.42 |
| 1:AA:687:A:C2 | 1:AA:704:A:C6 | 3.07 | 0.42 |
| 23:BB:1637:A:H5' | 23:BB:1760:C:O2' | 2.20 | 0.42 |
| 23:DB:506:G:H1' | 23:DB:507:A:C8 | 2.54 | 0.42 |
| 17:AR:19:GLU:C | 17:AR:21:ASP:H | 2.22 | 0.42 |
| 17:AR:23:LYS:C | 17:AR:25:ILE:H | 2.22 | 0.42 |
| 23:BB:2686:G:H2' | 23:BB:2687:U:C6 | 2.54 | 0.42 |
| 15:CP:26:ASN:ND2 | 15:CP:31:ARG:HB3 | 2.34 | 0.42 |
| 24:DV:23:ALA:O | 24:DV:24:ASN:HB2 | 2.19 | 0.42 |
| 52:DI:10:LEU:C | 52:DI:10:LEU:HD12 | 2.39 | 0.42 |
| 23:DB:686:U:O2' | 49:D2:5:PHE:O | 2.34 | 0.42 |
| 23:DB:2135:A:N3 | 23:DB:2135:A:H2' | 2.35 | 0.42 |
| 15:CP:10:GLY:HA3 | 15:CP:15:PRO:HA | 2.01 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 3:CD:195:ASN:HB2 | 3:CD:198:LEU:HD12 | 2.02 | 0.42 |
| 1:CA:69:G:H2' | 1:CA:70:U:C6 | 2.55 | 0.42 |
| 23:BB:678:C:H2' | 23:BB:679:C:C6 | 2.53 | 0.42 |
| 1:CA:109:A:N1 | 1:CA:326:G:C6 | 2.88 | 0.42 |
| 14:CO:87:ARG:O | 14:CO:87:ARG:HG3 | 2.20 | 0.42 |
| 25:DC:42:ARG:HE | 25:DC:43:ASN:H | 1.68 | 0.42 |
| 1:AA:512:U:O2' | 1:AA:513:C:H5' | 2.19 | 0.42 |
| 20:AB:15:PHE:HD1 | 20:AB:16:GLY:N | 2.18 | 0.42 |
| 1:AA:908:A:O2' | 1:AA:909:A:H5' | 2.19 | 0.42 |
| 7:CH:65:PHE:CD2 | 7:CH:66:GLN:HG2 | 2.55 | 0.42 |
| 33:BL:34:GLY:O | 33:BL:35:HIS:C | 2.57 | 0.42 |
| 1:CA:41:G:H2' | 1:CA:42:G:C8 | 2.54 | 0.42 |
| 23:BB:1068:G:C6 | 23:BB:1069:A:N6 | 2.87 | 0.42 |
| 50:D3:44:ARG:HG2 | 50:D3:45:PRO:HD2 | 2.02 | 0.42 |
| 1:CA:896:C:O2' | 1:CA:897:C:H5' | 2.19 | 0.42 |
| 44:DX:37:LEU:HG | 44:DX:38:GLN:N | 2.35 | 0.42 |
| 7:AH:83:ARG:NH1 | 7:AH:123:GLU:OE1 | 2.53 | 0.42 |
| 23:DB:2540:C:O2' | 23:DB:2541:A:H5' | 2.20 | 0.42 |
| 35:DN:67:PHE:O | 35:DN:71:ARG:HA | 2.20 | 0.42 |
| 40:BS:82:MET:HB2 | 40:BS:98:LYS:CG | 2.50 | 0.42 |
| 23:DB:647:G:H2' | 23:DB:648:G:C8 | 2.55 | 0.42 |
| 38:DQ:77:LYS:O | 38:DQ:80:ASN:HB3 | 2.19 | 0.42 |
| 39:BR:21:ARG:HH11 | 39:BR:21:ARG:HG2 | 1.84 | 0.42 |
| 23:DB:982:C:O2 | 23:DB:982:C:H2' | 2.20 | 0.42 |
| 23:BB:1403:A:H2' | 23:BB:1404:C:C6 | 2.54 | 0.42 |
| 23:DB:1264:A:H5' | 47:D0:7:PRO:HG3 | 2.01 | 0.42 |
| 23:BB:2540:C:O2' | 23:BB:2541:A:H5' | 2.20 | 0.42 |
| 42:DU:64:ILE:HG22 | 42:DU:64:ILE:O | 2.19 | 0.42 |
| 42:BU:10:VAL:HG11 | 42:BU:25:LYS:HZ3 | 1.84 | 0.42 |
| 27:BE:43:THR:HG23 | 27:BE:44:ARG:CZ | 2.50 | 0.42 |
| 23:BB:2728:U:H5' | 32:BK:70:ARG:NH2 | 2.34 | 0.42 |
| 37:BP:18:SER:HB2 | 37:BP:87:ARG:CZ | 2.50 | 0.42 |
| 23:DB:2365:G:H4' | 43:DW:65:LYS:CD | 2.49 | 0.42 |
| 23:BB:159:G:O2' | 23:BB:160:A:H5'' | 2.20 | 0.42 |
| 47:D0:28:SER:HB3 | 47:D0:36:LYS:O | 2.19 | 0.42 |
| 38:DQ:52:ARG:HH11 | 38:DQ:52:ARG:CB | 2.32 | 0.42 |
| 23:BB:319:G:H2' | 23:BB:320:A:C8 | 2.55 | 0.42 |
| 30:BH:3:VAL:HG22 | 30:BH:21:VAL:CG1 | 2.45 | 0.42 |
| 23:DB:340:A:O2' | 23:DB:341:C:H5' | 2.20 | 0.42 |
| 27:DE:150:THR:HG23 | 27:DE:167:VAL:HG11 | 2.02 | 0.42 |
| 23:BB:651:G:C5' | 50:B3:17:GLY:HA3 | 2.50 | 0.42 |
| 33:BL:69:ARG:HG3 | 33:BL:69:ARG:O | 2.19 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 23:DB:396:G:O2' | 23:DB:397:U:H5' | 2.20 | 0.42 |
| 23:BB:2019:A:C6 | 23:BB:2020:A:N7 | 2.88 | 0.42 |
| 33:BL:27:LEU:C | 33:BL:29:LYS:N | 2.70 | 0.42 |
| 23:BB:1156:A:H62 | 38:BQ:47:ARG:HD3 | 1.85 | 0.42 |
| 41:DT:31:VAL:HG23 | 41:DT:83:ALA:O | 2.20 | 0.42 |
| 26:BD:170:VAL:O | 26:BD:171:THR:HB | 2.19 | 0.42 |
| 23:DB:848:C:H2' | 23:DB:849:A:H8 | 1.84 | 0.42 |
| 31:BJ:35:ARG:HH21 | 31:BJ:40:HIS:H | 1.66 | 0.42 |
| 38:BQ:108:LEU:HD22 | 39:BR:52:PRO:HA | 2.00 | 0.42 |
| 3:CD:142:VAL:HG22 | 3:CD:179:GLY:HA3 | 2.00 | 0.42 |
| 24:BV:4:ILE:N | 24:BV:62:THR:O | 2.52 | 0.42 |
| 49:B2:13:ASN:CB | 49:B2:18:PHE:HD2 | 2.29 | 0.42 |
| 22:DA:49:C:C5' | 36:DO:101:GLY:HA3 | 2.50 | 0.42 |
| 12:CM:1:ALA:O | 12:CM:3:ILE:HG13 | 2.19 | 0.42 |
| 40:DS:28:LYS:O | 40:DS:29:VAL:HB | 2.20 | 0.42 |
| 23:DB:2394:C:P | 33:DL:63:LYS:HD2 | 2.60 | 0.42 |
| 27:BE:77:ILE:HB | 27:BE:78:TRP:CE3 | 2.54 | 0.42 |
| 50:D3:37:THR:HA | 50:D3:40:LYS:HD3 | 2.02 | 0.42 |
| 25:BC:225:ASN:N | 25:BC:226:PRO:HD3 | 2.35 | 0.42 |
| 25:BC:244:VAL:O | 25:BC:245:THR:C | 2.58 | 0.42 |
| 23:DB:2840:C:C2 | 23:DB:2841:C:C5 | 3.07 | 0.42 |
| 11:CL:23:LEU:C | 11:CL:25:ALA:N | 2.72 | 0.42 |
| 34:DM:31:PHE:O | 34:DM:102:LEU:HA | 2.20 | 0.42 |
| 23:DB:929:U:O2 | 45:DY:25:GLY:HA2 | 2.20 | 0.42 |
| 1:AA:1111:A:H2 | 2:AC:176:THR:HG23 | 1.85 | 0.42 |
| 42:BU:84:PHE:HD2 | 42:BU:87:GLU:HB2 | 1.84 | 0.42 |
| 23:BB:724:U:H2' | 23:BB:725:G:O4' | 2.19 | 0.42 |
| 6:AG:14:ASP:O | 6:AG:18:GLY:HA2 | 2.19 | 0.42 |
| 33:DL:118:THR:HG21 | 33:DL:137:ALA:HB3 | 2.00 | 0.42 |
| 23:DB:978:G:O4' | 23:DB:1001:A:H2 | 2.03 | 0.42 |
| 52:DI:100:ILE:HG23 | 52:DI:104:GLN:OE1 | 2.20 | 0.42 |
| 2:AC:84:GLU:HA | 2:AC:87:ARG:NH2 | 2.35 | 0.42 |
| 1:CA:234:C:H2' | 1:CA:235:C:H6 | 1.84 | 0.42 |
| 29:DG:10:VAL:N | 29:DG:11:PRO:CD | 2.83 | 0.42 |
| 48:D1:9:LYS:HA | 48:D1:24:LYS:HB2 | 2.02 | 0.42 |
| 22:BA:50:A:H5'' | 36:BO:68:LYS:CG | 2.49 | 0.42 |
| 1:AA:806:C:O2' | 1:AA:807:A:H5' | 2.19 | 0.42 |
| 23:DB:1080:A:H4' | 52:DI:126:ARG:CD | 2.50 | 0.42 |
| 1:CA:939:G:H2' | 1:CA:940:C:C6 | 2.54 | 0.42 |
| 1:CA:939:G:C5' | 6:CG:101:ARG:HH22 | 2.29 | 0.42 |
| 48:B1:7:LYS:HG3 | 48:B1:7:LYS:O | 2.20 | 0.42 |
| 46:DZ:36:VAL:HG12 | 46:DZ:42:PRO:HB2 | 2.01 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 22:DA:38:C:H2' | 22:DA:39:A:O4' | 2.18 | 0.42 |
| 16:CQ:7:LEU:O | 16:CQ:59:GLU:HA | 2.19 | 0.42 |
| 1:AA:545:C:H5'' | 3:AD:68:GLU:HG2 | 2.00 | 0.42 |
| 23:DB:2065:C:H1' | 23:DB:2449:U:O2 | 2.20 | 0.42 |
| 23:DB:1410:G:H2' | 23:DB:1411:U:H6 | 1.77 | 0.42 |
| 23:BB:1791:A:C2 | 23:BB:1829:A:O4' | 2.73 | 0.42 |
| 23:BB:1616:A:H4' | 23:BB:1617:C:OP2 | 2.19 | 0.42 |
| 23:DB:414:C:H1' | 23:DB:1864:U:H1' | 2.01 | 0.42 |
| 25:BC:251:THR:O | 25:BC:252:LYS:HB2 | 2.19 | 0.42 |
| 23:BB:2228:G:OP1 | 25:BC:257:ARG:HB2 | 2.20 | 0.42 |
| 1:AA:734:G:O2' | 17:AR:59:LYS:HD3 | 2.19 | 0.42 |
| 23:DB:2080:A:H5' | 46:DZ:17:SER:HB2 | 2.00 | 0.42 |
| 24:BV:66:ASP:O | 24:BV:66:ASP:OD1 | 2.37 | 0.42 |
| 23:DB:2276:G:N7 | 43:DW:11:ASN:ND2 | 2.66 | 0.42 |
| 1:AA:1389:C:H2' | 1:AA:1390:U:C6 | 2.55 | 0.42 |
| 34:BM:17:ASN:HB3 | 34:BM:18:ARG:H | 1.49 | 0.42 |
| 1:AA:162:A:H2' | 1:AA:163:C:O4' | 2.20 | 0.42 |
| 25:BC:16:VAL:C | 25:BC:17:LYS:HD2 | 2.40 | 0.42 |
| 2:CC:54:ILE:O | 2:CC:54:ILE:HG23 | 2.20 | 0.42 |
| 23:BB:2543:G:H2' | 23:BB:2544:G:O4' | 2.20 | 0.42 |
| 15:AP:1:MET:H3 | 15:AP:24:SER:HB3 | 1.82 | 0.42 |
| 23:DB:1254:A:C6 | 27:DE:77:ILE:HD12 | 2.55 | 0.42 |
| 23:DB:607:U:C4 | 23:DB:620:G:O4' | 2.73 | 0.42 |
| 23:DB:2341:G:H2' | 23:DB:2342:C:H6 | 1.84 | 0.42 |
| 23:BB:948:C:H2' | 23:BB:949:G:C8 | 2.53 | 0.42 |
| 1:CA:393:A:O2' | 1:CA:394:G:H5' | 2.20 | 0.42 |
| 20:AB:20:ARG:HG3 | 20:AB:20:ARG:NH1 | 2.33 | 0.42 |
| 23:BB:1987:A:H2' | 23:BB:1988:G:C8 | 2.54 | 0.42 |
| 2:CC:33:ASP:O | 2:CC:37:LYS:HG3 | 2.19 | 0.42 |
| 1:CA:489:C:H2' | 1:CA:490:C:C6 | 2.54 | 0.42 |
| 33:DL:14:LYS:CD | 33:DL:15:ALA:N | 2.83 | 0.42 |
| 23:DB:1268:A:H2' | 23:DB:1269:A:H8 | 1.85 | 0.42 |
| 23:BB:1255:U:C2' | 27:BE:67:ARG:HB3 | 2.50 | 0.42 |
| 23:BB:1322:A:C5 | 23:BB:1323:C:C5 | 3.08 | 0.42 |
| 9:CJ:68:ARG:HD3 | 9:CJ:70:HIS:NE2 | 2.35 | 0.42 |
| 1:AA:1096:C:O2' | 1:AA:1097:C:H5' | 2.20 | 0.42 |
| 23:DB:2183:A:H8 | 23:DB:2183:A:O5' | 2.02 | 0.42 |
| 1:CA:925:G:C2 | 1:CA:927:G:C8 | 3.08 | 0.42 |
| 23:DB:748:G:O5' | 40:DS:89:ALA:HB2 | 2.20 | 0.42 |
| 1:AA:829:G:H4' | 20:AB:24:PRO:HG3 | 2.02 | 0.42 |
| 1:AA:896:C:O2' | 1:AA:897:C:H5' | 2.19 | 0.42 |
| 23:BB:1390:U:O2' | 23:BB:1391:U:H5' | 2.20 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 1:AA:1286:U:O5' | 1:AA:1286:U:N1 | 2.52 | 0.42 |
| 23:DB:587:C:H5'' | 33:DL:29:LYS:HZ2 | 1.84 | 0.42 |
| 23:BB:100:U:O2' | 23:BB:101:A:O5' | 2.38 | 0.42 |
| 42:BU:25:LYS:HA | 42:BU:35:VAL:N | 2.29 | 0.42 |
| 25:BC:159:THR:C | 25:BC:160:TYR:HD2 | 2.23 | 0.42 |
| 25:BC:191:LEU:HD13 | 25:BC:191:LEU:O | 2.20 | 0.42 |
| 30:DH:8:LYS:HD2 | 30:DH:14:SER:HA | 2.02 | 0.42 |
| 47:D0:50:GLY:O | 47:D0:51:ARG:C | 2.57 | 0.42 |
| 35:DN:34:ILE:HG22 | 35:DN:35:LYS:N | 2.28 | 0.42 |
| 31:BJ:120:ARG:HD3 | 31:BJ:120:ARG:O | 2.20 | 0.42 |
| 43:BW:54:ARG:CZ | 43:BW:54:ARG:HB2 | 2.50 | 0.42 |
| 23:DB:2617:U:C4 | 23:DB:2618:G:N7 | 2.87 | 0.42 |
| 18:AS:47:THR:HA | 18:AS:59:VAL:O | 2.20 | 0.42 |
| 20:AB:53:LEU:HB3 | 20:AB:219:THR:HG21 | 2.02 | 0.42 |
| 23:DB:86:G:P | 42:DU:28:LEU:HD22 | 2.60 | 0.42 |
| 30:BH:6:LEU:H | 30:BH:16:GLY:N | 2.17 | 0.42 |
| 32:BK:119:ALA:N | 32:BK:120:PRO:CD | 2.82 | 0.42 |
| 32:BK:24:VAL:HG22 | 32:BK:39:ILE:HD12 | 2.01 | 0.42 |
| 34:BM:43:ALA:C | 34:BM:45:GLN:H | 2.23 | 0.42 |
| 24:BV:44:HIS:CE1 | 24:BV:85:LYS:HB2 | 2.55 | 0.42 |
| 23:BB:2054:A:OP1 | 23:BB:2055:C:H4' | 2.20 | 0.42 |
| 26:DD:118:PHE:CA | 26:DD:164:GLN:HG2 | 2.50 | 0.42 |
| 25:DC:179:GLU:OE2 | 25:DC:266:ILE:HA | 2.19 | 0.42 |
| 41:DT:66:LYS:HB3 | 41:DT:66:LYS:NZ | 2.35 | 0.42 |
| 42:BU:62:ALA:O | 42:BU:63:ALA:C | 2.58 | 0.42 |
| 12:AM:14:ALA:CB | 12:AM:33:LEU:HD11 | 2.50 | 0.42 |
| 44:BX:29:ARG:HG2 | 44:BX:29:ARG:O | 2.20 | 0.42 |
| 27:BE:145:ASP:C | 27:BE:147:LEU:N | 2.71 | 0.42 |
| 3:AD:119:HIS:C | 3:AD:121:ALA:H | 2.22 | 0.42 |
| 26:DD:199:SER:O | 26:DD:201:LEU:HD13 | 2.20 | 0.42 |
| 26:DD:77:ARG:NH2 | 26:DD:79:LEU:HB2 | 2.14 | 0.42 |
| 33:BL:94:THR:HG23 | 33:BL:95:LEU:N | 2.34 | 0.42 |
| 41:BT:6:ARG:HB2 | 41:BT:6:ARG:HE | 1.57 | 0.42 |
| 40:DS:68:ASP:C | 40:DS:69:LEU:HD22 | 2.40 | 0.42 |
| 23:DB:357:C:H2' | 23:DB:358:U:C6 | 2.54 | 0.42 |
| 26:DD:122:VAL:HB | 26:DD:141:ARG:NH1 | 2.35 | 0.42 |
| 26:DD:156:PHE:CG | 31:DJ:81:ILE:HG21 | 2.54 | 0.42 |
| 23:BB:2733:A:O5' | 23:BB:2733:A:H8 | 2.03 | 0.42 |
| 23:BB:2733:A:N1 | 26:BD:209:ALA:O | 2.53 | 0.42 |
| 23:BB:45:G:H5' | 23:BB:46:G:OP1 | 2.19 | 0.42 |
| 23:BB:46:G:H2' | 23:BB:47:C:C6 | 2.55 | 0.42 |
| 26:BD:29:VAL:HG23 | 26:BD:51:THR:CG2 | 2.50 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 29:DG:3:VAL:CG2 | 29:DG:4:ALA:N | 2.83 | 0.42 |
| 34:DM:33:LEU:H | 34:DM:101:VAL:HB | 1.85 | 0.42 |
| 39:DR:46:GLU:HB3 | 39:DR:47:VAL:H | 1.63 | 0.42 |
| 19:CT:67:HIS:O | 19:CT:70:LYS:HG2 | 2.19 | 0.42 |
| 15:CP:4:ILE:HG22 | 15:CP:19:VAL:HG23 | 2.02 | 0.42 |
| 35:BN:36:THR:O | 35:BN:37:THR:O | 2.37 | 0.42 |
| 38:DQ:65:ASN:CB | 38:DQ:75:TYR:HB2 | 2.49 | 0.42 |
| 23:BB:2299:U:H2' | 23:BB:2300:C:H6 | 1.85 | 0.42 |
| 39:DR:22:LEU:CD1 | 39:DR:23:GLU:H | 2.28 | 0.42 |
| 23:DB:795:C:H2' | 23:DB:796:C:H6 | 1.84 | 0.42 |
| 2:AC:181:ILE:HG22 | 2:AC:182:ASP:N | 2.35 | 0.42 |
| 2:AC:38:VAL:HG12 | 2:AC:93:ILE:HG21 | 2.01 | 0.42 |
| 23:BB:288:U:H2' | 23:BB:289:G:H8 | 1.85 | 0.42 |
| 23:DB:876:C:H5' | 23:DB:877:A:OP2 | 2.20 | 0.42 |
| 20:CB:163:ILE:CG2 | 20:CB:164:ASP:H | 2.25 | 0.42 |
| 37:BP:92:ARG:H | 37:BP:113:LEU:HD23 | 1.84 | 0.42 |
| 10:CK:74:LYS:C | 10:CK:76:TYR:H | 2.23 | 0.42 |
| 20:CB:202:ASN:HD22 | 20:CB:203:ASP:N | 2.12 | 0.42 |
| 35:DN:7:GLY:O | 35:DN:8:ARG:HB2 | 2.20 | 0.42 |
| 34:DM:127:LYS:NZ | 34:DM:129:THR:N | 2.68 | 0.42 |
| 12:AM:84:CYS:HA | 18:AS:72:GLU:O | 2.19 | 0.42 |
| 1:AA:1441:A:H2' | 1:AA:1442:G:O4' | 2.20 | 0.42 |
| 25:BC:73:ILE:N | 25:BC:73:ILE:HD12 | 2.35 | 0.42 |
| 34:DM:38:ARG:HD3 | 34:DM:39:GLY:N | 2.35 | 0.42 |
| 48:B1:34:GLU:N | 48:B1:52:LYS:O | 2.53 | 0.42 |
| 4:AE:110:MET:SD | 4:AE:110:MET:N | 2.92 | 0.42 |
| 23:DB:705:A:N6 | 23:DB:726:G:H1' | 2.35 | 0.42 |
| 14:CO:10:ILE:HD13 | 14:CO:30:LEU:HG | 2.02 | 0.42 |
| 23:BB:18:U:O3' | 38:BQ:22:GLY:HA3 | 2.19 | 0.42 |
| 4:CE:144:GLU:HA | 4:CE:146:MET:SD | 2.59 | 0.42 |
| 23:BB:729:G:H8 | 23:BB:764:A:OP1 | 2.03 | 0.42 |
| 6:AG:148:LYS:HA | 6:AG:151:ALA:HB3 | 2.02 | 0.42 |
| 6:CG:11:ILE:HG22 | 6:CG:12:LEU:H | 1.84 | 0.42 |
| 23:BB:1797:G:C5' | 25:BC:251:THR:HG23 | 2.50 | 0.42 |
| 6:AG:30:MET:SD | 6:AG:35:LYS:HB2 | 2.59 | 0.42 |
| 8:AI:24:ASN:HA | 8:AI:26:LYS:HZ2 | 1.84 | 0.42 |
| 15:AP:71:VAL:HA | 15:AP:74:LEU:CD1 | 2.49 | 0.42 |
| 1:AA:1073:U:O3' | 20:AB:104:LYS:NZ | 2.53 | 0.42 |
| 2:CC:5:HIS:ND1 | 13:CN:88:MET:HB3 | 2.35 | 0.42 |
| 18:AS:20:LYS:NZ | 18:AS:20:LYS:HB3 | 2.31 | 0.42 |
| 1:AA:1477:U:H2' | 1:AA:1478:U:H6 | 1.83 | 0.42 |
| 23:DB:963:U:H5'' | 55:DB:3696:HOH:O | 2.19 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 23:BB:834:G:H2' | 23:BB:835:C:C6 | 2.54 | 0.42 |
| 44:DX:31:GLN:HE21 | 44:DX:31:GLN:CA | 2.24 | 0.42 |
| 1:AA:21:G:H1' | 1:AA:914:A:H61 | 1.84 | 0.42 |
| 34:DM:96:ILE:HG22 | 34:DM:97:GLN:CD | 2.39 | 0.42 |
| 38:BQ:58:GLN:O | 38:BQ:62:ALA:HB2 | 2.19 | 0.42 |
| 16:AQ:26:ARG:O | 16:AQ:38:LYS:HA | 2.19 | 0.42 |
| 23:DB:1161:C:H2' | 23:DB:1162:G:C8 | 2.53 | 0.42 |
| 29:DG:29:ASN:HB2 | 29:DG:78:VAL:HA | 2.01 | 0.42 |
| 16:AQ:62:GLU:HG3 | 16:AQ:72:TRP:CH2 | 2.55 | 0.42 |
| 52:DI:63:ASP:O | 52:DI:63:ASP:OD1 | 2.38 | 0.42 |
| 3:CD:67:LEU:O | 3:CD:71:PHE:HB2 | 2.19 | 0.42 |
| 1:CA:297:G:N2 | 1:CA:300:A:OP2 | 2.51 | 0.42 |
| 1:CA:687:A:C2 | 1:CA:704:A:C6 | 3.08 | 0.42 |
| 23:DB:1463:C:H2' | 23:DB:1464:G:H8 | 1.82 | 0.42 |
| 23:BB:1528:A:C2' | 23:BB:1529:G:H5' | 2.50 | 0.42 |
| 1:AA:1091:U:H2' | 1:AA:1093:A:OP2 | 2.19 | 0.42 |
| 3:CD:55:ARG:HD2 | 3:CD:55:ARG:HA | 1.78 | 0.42 |
| 23:DB:2077:A:N6 | 23:DB:2435:A:N6 | 2.68 | 0.42 |
| 1:CA:462:G:H3' | 1:CA:463:U:C5' | 2.48 | 0.42 |
| 16:CQ:82:VAL:C | 16:CQ:83:LEU:HD22 | 2.40 | 0.42 |
| 23:DB:1289:C:C2 | 23:DB:1290:C:C5 | 3.07 | 0.42 |
| 23:DB:265:A:H2' | 23:DB:266:G:C1' | 2.50 | 0.42 |
| 1:AA:489:C:H2' | 1:AA:490:C:C6 | 2.55 | 0.42 |
| 23:BB:1268:A:H2' | 23:BB:1269:A:H8 | 1.85 | 0.42 |
| 1:AA:309:A:O2' | 1:AA:607:A:N1 | 2.52 | 0.42 |
| 1:CA:761:G:H2' | 1:CA:762:U:H6 | 1.84 | 0.42 |
| 20:AB:80:LYS:HB3 | 20:AB:90:PHE:CE1 | 2.54 | 0.42 |
| 42:DU:49:PRO:CD | 42:DU:50:ALA:H | 2.30 | 0.42 |
| 23:BB:1820:U:H3 | 25:BC:197:ALA:CB | 2.33 | 0.42 |
| 23:DB:822:G:H2' | 23:DB:823:C:H6 | 1.84 | 0.42 |
| 5:AF:77:THR:O | 5:AF:81:ASN:HB2 | 2.20 | 0.42 |
| 1:CA:257:G:H2' | 1:CA:258:G:C8 | 2.55 | 0.42 |
| 1:CA:716:A:N3 | 10:CK:119:GLY:HA2 | 2.34 | 0.42 |
| 4:AE:50:GLY:H | 4:AE:62:ALA:HB2 | 1.85 | 0.42 |
| 21:AU:45:LYS:O | 21:AU:48:LYS:HG3 | 2.19 | 0.42 |
| 14:AO:10:ILE:HD13 | 14:AO:30:LEU:HA | 2.02 | 0.42 |
| 22:BA:100:G:H5'' | 23:BB:915:C:O2' | 2.19 | 0.42 |
| 1:AA:771:G:H2' | 1:AA:772:U:C6 | 2.54 | 0.42 |
| 1:CA:771:G:H2' | 1:CA:772:U:C6 | 2.54 | 0.42 |
| 37:DP:73:PHE:CD2 | 37:DP:75:THR:HG23 | 2.55 | 0.42 |
| 2:CC:68:HIS:HA | 2:CC:103:ALA:HB3 | 2.02 | 0.42 |
| 1:AA:257:G:H2' | 1:AA:258:G:C8 | 2.55 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 15:CP:6:LEU:HB3 | 15:CP:17:TYR:HB3 | 2.01 | 0.42 |
| 23:BB:2428:G:H5'' | 23:BB:2429:G:O5' | 2.19 | 0.42 |
| 23:DB:1099:G:C8 | 52:DI:3:LYS:O | 2.73 | 0.42 |
| 37:DP:26:GLU:O | 37:DP:27:VAL:C | 2.59 | 0.42 |
| 37:DP:18:SER:HA | 37:DP:87:ARG:HH22 | 1.85 | 0.42 |
| 23:DB:459:U:O2' | 23:DB:460:A:H5' | 2.20 | 0.42 |
| 36:BO:55:GLU:HG3 | 36:BO:56:LYS:H | 1.84 | 0.42 |
| 30:BH:142:VAL:HG12 | 30:BH:143:ILE:H | 1.84 | 0.42 |
| 30:BH:82:SER:HB3 | 30:BH:90:LEU:HD23 | 2.02 | 0.42 |
| 34:BM:3:GLN:HG2 | 34:BM:46:ILE:CB | 2.44 | 0.42 |
| 23:BB:39:G:H2' | 23:BB:40:U:H6 | 1.84 | 0.42 |
| 23:DB:2527:C:H4' | 51:D4:34:LYS:O | 2.20 | 0.42 |
| 23:BB:2684:U:OP1 | 37:BP:59:THR:HG22 | 2.19 | 0.42 |
| 23:BB:2849:U:O4' | 23:BB:2868:A:C6 | 2.73 | 0.42 |
| 43:DW:75:ASN:O | 43:DW:77:LYS:N | 2.52 | 0.42 |
| 25:BC:48:ILE:HG22 | 25:BC:49:THR:N | 2.35 | 0.42 |
| 25:BC:161:VAL:HB | 25:BC:193:GLU:OE2 | 2.20 | 0.42 |
| 30:DH:35:LYS:O | 30:DH:35:LYS:HG3 | 2.20 | 0.42 |
| 47:D0:42:ILE:O | 47:D0:43:THR:C | 2.57 | 0.42 |
| 25:DC:103:ILE:CG2 | 25:DC:104:LEU:H | 2.33 | 0.42 |
| 25:DC:161:VAL:O | 25:DC:161:VAL:HG12 | 2.19 | 0.42 |
| 25:DC:91:ALA:O | 25:DC:102:TYR:HD2 | 2.03 | 0.42 |
| 31:DJ:96:ARG:HG2 | 31:DJ:99:ARG:HB2 | 2.01 | 0.42 |
| 43:BW:44:PHE:N | 43:BW:76:ARG:HB2 | 2.35 | 0.42 |
| 27:DE:169:VAL:O | 27:DE:170:ARG:HB2 | 2.19 | 0.42 |
| 50:B3:12:ARG:HG2 | 50:B3:23:HIS:CB | 2.50 | 0.42 |
| 16:AQ:9:GLY:O | 16:AQ:58:VAL:HG22 | 2.20 | 0.42 |
| 20:AB:65:LYS:HB2 | 20:AB:157:PRO:HA | 2.02 | 0.42 |
| 46:DZ:59:ARG:O | 46:DZ:60:PHE:HB3 | 2.20 | 0.42 |
| 33:BL:38:GLN:N | 33:BL:41:ARG:NH1 | 2.68 | 0.42 |
| 41:DT:53:VAL:HB | 41:DT:87:LEU:HD21 | 2.02 | 0.42 |
| 31:DJ:44:TYR:CE2 | 31:DJ:50:THR:HB | 2.54 | 0.42 |
| 28:BF:56:LEU:HD23 | 28:BF:59:ILE:CG2 | 2.50 | 0.42 |
| 18:CS:46:LEU:HB3 | 18:CS:47:THR:H | 1.73 | 0.42 |
| 34:DM:16:ARG:HH11 | 34:DM:16:ARG:CG | 2.33 | 0.42 |
| 5:CF:29:ILE:HG23 | 5:CF:66:ALA:HB2 | 2.02 | 0.42 |
| 23:BB:2328:A:O2' | 23:BB:2329:U:H5' | 2.19 | 0.42 |
| 27:BE:152:GLU:H | 27:BE:171:ASP:CB | 2.33 | 0.42 |
| 26:DD:32:ASN:O | 26:DD:34:VAL:HG13 | 2.20 | 0.42 |
| 26:DD:34:VAL:HG11 | 26:DD:50:VAL:CG2 | 2.50 | 0.42 |
| 30:DH:101:ASP:O | 30:DH:104:THR:HB | 2.19 | 0.42 |
| 30:DH:144:VAL:HG12 | 30:DH:145:ASN:N | 2.34 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 37:BP:80:VAL:HG22 | 37:BP:80:VAL:O | 2.20 | 0.42 |
| 49:B2:34:ARG:HG3 | 49:B2:34:ARG:NH1 | 2.35 | 0.42 |
| 41:BT:84:TYR:O | 41:BT:85:VAL:O | 2.38 | 0.42 |
| 26:BD:139:SER:O | 26:BD:140:HIS:C | 2.58 | 0.42 |
| 35:BN:72:ASP:C | 35:BN:74:GLU:H | 2.24 | 0.42 |
| 23:DB:161:A:H3' | 23:DB:162:U:C5' | 2.38 | 0.42 |
| 23:DB:162:U:O2' | 23:DB:163:C:C5' | 2.60 | 0.42 |
| 26:BD:38:LYS:O | 26:BD:42:ASN:ND2 | 2.49 | 0.42 |
| 26:BD:2:ILE:HG23 | 26:BD:3:GLY:N | 2.33 | 0.42 |
| 13:CN:26:LEU:HA | 13:CN:29:ILE:CD1 | 2.44 | 0.42 |
| 13:CN:30:ILE:H | 13:CN:44:VAL:HG21 | 1.85 | 0.42 |
| 1:AA:1110:A:C5 | 1:AA:1111:A:N7 | 2.88 | 0.42 |
| 29:BG:28:LYS:C | 29:BG:29:ASN:HD22 | 2.23 | 0.42 |
| 31:DJ:67:ASN:C | 31:DJ:69:ARG:N | 2.73 | 0.42 |
| 5:AF:70:VAL:HA | 5:AF:73:GLU:HG3 | 2.02 | 0.42 |
| 48:B1:46:VAL:C | 48:B1:47:ILE:HG12 | 2.41 | 0.42 |
| 1:AA:839:C:O2' | 1:AA:840:C:H5' | 2.19 | 0.42 |
| 14:CO:69:LEU:HD21 | 14:CO:76:ARG:HD2 | 2.02 | 0.42 |
| 15:CP:67:ILE:HG13 | 15:CP:71:VAL:CG1 | 2.40 | 0.42 |
| 38:DQ:92:LYS:C | 38:DQ:94:LEU:N | 2.73 | 0.42 |
| 38:DQ:92:LYS:O | 38:DQ:94:LEU:N | 2.53 | 0.42 |
| 2:AC:5:HIS:CG | 13:AN:88:MET:HB3 | 2.55 | 0.42 |
| 29:DG:155:PRO:O | 29:DG:171:LYS:HG3 | 2.19 | 0.42 |
| 36:BO:6:ALA:C | 36:BO:8:ILE:H | 2.23 | 0.42 |
| 20:CB:209:VAL:HG23 | 20:CB:210:THR:H | 1.85 | 0.42 |
| 37:BP:91:VAL:HG12 | 37:BP:92:ARG:N | 2.35 | 0.42 |
| 23:DB:1665:A:H1' | 32:DK:67:LYS:HE2 | 2.02 | 0.42 |
| 4:CE:17:VAL:HG22 | 4:CE:17:VAL:O | 2.20 | 0.42 |
| 9:AJ:10:LEU:O | 9:AJ:71:LEU:HA | 2.19 | 0.42 |
| 52:DI:45:THR:C | 52:DI:48:ILE:HG22 | 2.40 | 0.42 |
| 23:DB:2266:A:O4' | 23:DB:2272:U:O4 | 2.37 | 0.42 |
| 2:AC:57:GLU:O | 2:AC:63:ILE:HA | 2.20 | 0.42 |
| 23:DB:1791:A:C2 | 23:DB:1829:A:O4' | 2.73 | 0.42 |
| 23:DB:2347:C:H4' | 23:DB:2347:C:OP1 | 2.19 | 0.42 |
| 3:AD:137:SER:HB2 | 3:AD:138:PRO:CD | 2.45 | 0.42 |
| 23:BB:1557:C:H3' | 23:BB:1558:C:C5' | 2.49 | 0.42 |
| 25:DC:257:ARG:HA | 25:DC:261:ARG:CZ | 2.49 | 0.42 |
| 1:CA:415:A:N3 | 1:CA:415:A:O4' | 2.53 | 0.42 |
| 42:DU:40:LEU:O | 42:DU:58:VAL:HA | 2.19 | 0.42 |
| 1:CA:280:C:N3 | 16:CQ:39:ARG:HA | 2.35 | 0.42 |
| 19:CT:47:GLN:HG2 | 19:CT:82:ILE:HD12 | 2.01 | 0.42 |
| 23:BB:1829:A:H3' | 23:BB:1830:C:C6 | 2.55 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 35:DN:12:ARG:HB3 | 35:DN:13:ASN:H | 1.77 | 0.42 |
| 2:CC:163:ARG:O | 2:CC:164:THR:HG23 | 2.20 | 0.42 |
| 4:AE:82:HIS:CD2 | 7:AH:95:MET:HG3 | 2.55 | 0.42 |
| 25:BC:242:HIS:N | 25:BC:243:PRO:HD3 | 2.34 | 0.42 |
| 23:BB:1700:A:C2' | 23:BB:1701:A:H5' | 2.44 | 0.42 |
| 29:BG:66:THR:O | 29:BG:70:LEU:HB2 | 2.20 | 0.42 |
| 23:BB:1799:G:O2' | 25:BC:181:ARG:HD2 | 2.19 | 0.42 |
| 18:CS:30:LEU:HB2 | 18:CS:48:ILE:HG12 | 2.01 | 0.42 |
| 28:DF:163:GLU:HA | 28:DF:166:ARG:CG | 2.50 | 0.42 |
| 9:CJ:9:ARG:HG3 | 9:CJ:99:GLN:HB2 | 2.01 | 0.42 |
| 52:BI:5:GLN:CG | 52:BI:6:ALA:N | 2.81 | 0.42 |
| 20:CB:27:LYS:CB | 20:CB:28:PRO:HD3 | 2.46 | 0.42 |
| 1:CA:1053:G:H4' | 1:CA:1054:C:H5' | 2.00 | 0.42 |
| 1:CA:123:U:H2' | 1:CA:124:C:C6 | 2.54 | 0.42 |
| 1:AA:538:G:H2' | 1:AA:539:A:H8 | 1.85 | 0.42 |
| 23:BB:953:G:H2' | 23:BB:954:G:H8 | 1.85 | 0.42 |
| 34:BM:75:GLU:O | 34:BM:86:LYS:HB2 | 2.20 | 0.42 |
| 50:D3:46:LYS:HD2 | 50:D3:47:ALA:N | 2.35 | 0.42 |
| 13:AN:1:ALA:O | 13:AN:5:MET:HB2 | 2.19 | 0.42 |
| 1:CA:1499:A:H1' | 1:CA:1520:C:H5' | 2.01 | 0.42 |
| 1:AA:811:C:O2' | 1:AA:901:A:N1 | 2.47 | 0.42 |
| 1:CA:635:A:H2' | 1:CA:636:U:H6 | 1.85 | 0.42 |
| 27:DE:189:THR:C | 27:DE:191:ASP:N | 2.72 | 0.42 |
| 1:AA:959:A:H2' | 1:AA:960:U:O4' | 2.20 | 0.42 |
| 1:AA:960:U:O2' | 1:AA:1223:C:H4' | 2.20 | 0.42 |
| 6:CG:55:LYS:CG | 6:CG:56:SER:H | 2.30 | 0.42 |
| 6:CG:56:SER:HB3 | 6:CG:59:GLU:CB | 2.50 | 0.42 |
| 25:BC:180:MET:HB2 | 25:BC:265:PHE:CB | 2.49 | 0.42 |
| 30:DH:131:SER:HB2 | 30:DH:141:LYS:HG3 | 2.02 | 0.42 |
| 23:BB:1897:G:O2' | 23:BB:1898:U:H5' | 2.20 | 0.42 |
| 29:DG:29:ASN:OD1 | 29:DG:81:GLY:HA2 | 2.19 | 0.42 |
| 23:DB:1713:A:N6 | 23:DB:1745:A:H61 | 2.18 | 0.42 |
| 52:BI:12:VAL:HG23 | 52:BI:41:PHE:CZ | 2.55 | 0.42 |
| 23:DB:1674:G:N2 | 23:DB:1677:A:N1 | 2.67 | 0.42 |
| 23:BB:2078:C:H2' | 23:BB:2079:U:C6 | 2.55 | 0.42 |
| 23:DB:211:C:O2' | 23:DB:212:G:H5' | 2.20 | 0.42 |
| 11:AL:41:PRO:HG3 | 11:AL:46:SER:O | 2.19 | 0.42 |
| 44:DX:55:THR:O | 44:DX:57:LEU:N | 2.40 | 0.42 |
| 23:BB:2351:G:HO2' | 23:BB:2352:A:H8 | 1.68 | 0.42 |
| 1:CA:688:G:O2' | 1:CA:689:C:H5' | 2.20 | 0.42 |
| 23:DB:1399:C:O2' | 23:DB:1400:U:H5' | 2.20 | 0.42 |
| 1:AA:113:G:H21 | 1:AA:353:A:H8 | 1.66 | 0.42 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 29:BG:132:LEU:HD21 | 29:BG:147:LEU:CD1 | 2.49 | 0.42 |
| 23:BB:1030:C:O2' | 23:BB:1031:G:H5' | 2.20 | 0.42 |
| 52:BI:64:ARG:C | 52:BI:64:ARG:HD2 | 2.39 | 0.42 |
| 2:CC:28:PHE:CZ | 13:CN:93:PRO:HG2 | 2.55 | 0.42 |
| 47:B0:49:ARG:O | 47:B0:49:ARG:HG2 | 2.20 | 0.42 |
| 2:CC:37:LYS:HB3 | 2:CC:41:TYR:CZ | 2.55 | 0.42 |
| 15:CP:12:LYS:HD2 | 15:CP:13:LYS:HG3 | 2.02 | 0.42 |
| 23:BB:2756:U:H5' | 51:B4:18:LYS:HZ1 | 1.85 | 0.42 |
| 23:DB:409:G:H2' | 23:DB:410:G:H8 | 1.85 | 0.42 |
| 3:AD:54:LEU:HA | 3:AD:57:LYS:HB3 | 2.02 | 0.42 |
| 1:AA:109:A:N1 | 1:AA:326:G:C6 | 2.88 | 0.42 |
| 12:AM:106:ARG:HD3 | 12:AM:106:ARG:HA | 1.90 | 0.42 |
| 1:CA:1381:U:O2' | 1:CA:1382:C:H5' | 2.20 | 0.42 |
| 1:AA:1473:G:O2' | 23:BB:1702:G:H4' | 2.20 | 0.42 |
| 23:DB:647:G:H2' | 23:DB:648:G:H8 | 1.85 | 0.42 |
| 1:CA:989:U:O2' | 1:CA:990:C:H5' | 2.20 | 0.42 |
| 1:AA:6:G:H4' | 1:AA:298:A:H4' | 2.01 | 0.42 |
| 20:AB:107:ARG:HA | 20:AB:110:ILE:HD12 | 2.01 | 0.42 |
| 23:BB:1783:A:H5' | 23:BB:2608:G:H4' | 2.02 | 0.42 |
| 30:BH:98:ASP:O | 30:BH:102:ALA:HB2 | 2.20 | 0.41 |
| 30:BH:89:LYS:HE2 | 30:BH:90:LEU:N | 2.35 | 0.41 |
| 1:CA:975:A:O2' | 1:CA:976:G:P | 2.77 | 0.41 |
| 37:BP:52:ARG:HB3 | 37:BP:60:VAL:HG21 | 2.00 | 0.41 |
| 25:BC:51:ARG:O | 25:BC:51:ARG:NE | 2.52 | 0.41 |
| 23:BB:161:A:O5' | 23:BB:161:A:H8 | 2.02 | 0.41 |
| 23:BB:2322:A:C6 | 23:BB:2333:A:N6 | 2.88 | 0.41 |
| 30:DH:3:VAL:CG2 | 30:DH:37:VAL:HG21 | 2.49 | 0.41 |
| 50:B3:24:LYS:HE2 | 50:B3:29:ARG:HH22 | 1.85 | 0.41 |
| 23:BB:636:G:N1 | 33:BL:76:GLU:OE2 | 2.53 | 0.41 |
| 32:BK:87:LEU:O | 32:BK:89:ASN:N | 2.53 | 0.41 |
| 32:BK:2:ILE:CD1 | 32:BK:8:LEU:HD21 | 2.50 | 0.41 |
| 23:DB:2091:C:H1' | 46:DZ:32:LEU:HG | 2.02 | 0.41 |
| 23:DB:397:U:OP1 | 46:DZ:48:GLN:HG3 | 2.20 | 0.41 |
| 34:BM:10:ARG:HB3 | 34:BM:11:LYS:HE3 | 2.02 | 0.41 |
| 36:DO:10:ARG:HG3 | 36:DO:96:GLY:N | 2.35 | 0.41 |
| 39:DR:32:THR:HA | 39:DR:35:PHE:CE2 | 2.55 | 0.41 |
| 23:BB:482:A:H5'' | 42:BU:43:LYS:CE | 2.33 | 0.41 |
| 40:DS:8:ARG:HA | 40:DS:102:HIS:ND1 | 2.35 | 0.41 |
| 22:BA:75:G:H1' | 24:BV:29:ILE:HG21 | 2.01 | 0.41 |
| 31:DJ:41:LYS:O | 38:DQ:63:ARG:NH2 | 2.53 | 0.41 |
| 23:BB:2026:U:C2 | 23:BB:2027:G:C8 | 3.07 | 0.41 |
| 38:BQ:65:ASN:HB2 | 38:BQ:75:TYR:CB | 2.45 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 38:BQ:94:LEU:H | 38:BQ:94:LEU:CD1 | 2.27 | 0.41 |
| 43:BW:40:ARG:NH1 | 43:BW:68:PHE:HD1 | 2.17 | 0.41 |
| 3:CD:169:TRP:HB2 | 3:CD:183:ARG:O | 2.20 | 0.41 |
| 10:AK:105:ARG:HB3 | 10:AK:106:ILE:H | 1.65 | 0.41 |
| 10:AK:22:ILE:HG23 | 10:AK:31:VAL:HG22 | 2.02 | 0.41 |
| 13:CN:51:PRO:HG2 | 13:CN:52:ARG:N | 2.30 | 0.41 |
| 18:CS:10:ILE:HG23 | 18:CS:40:PHE:HE2 | 1.85 | 0.41 |
| 23:BB:136:G:P | 23:BB:136:G:H8 | 2.43 | 0.41 |
| 47:D0:12:ARG:HG3 | 47:D0:13:GLY:N | 2.35 | 0.41 |
| 23:DB:1812:U:H2' | 23:DB:1813:G:C8 | 2.53 | 0.41 |
| 32:DK:63:VAL:CG2 | 32:DK:115:ILE:HD11 | 2.50 | 0.41 |
| 42:BU:92:VAL:HG22 | 42:BU:92:VAL:O | 2.20 | 0.41 |
| 1:CA:1307:U:H2' | 1:CA:1308:U:O4' | 2.19 | 0.41 |
| 3:CD:24:VAL:HG23 | 3:CD:25:ARG:N | 2.35 | 0.41 |
| 15:AP:51:ARG:O | 15:AP:52:LEU:HD13 | 2.19 | 0.41 |
| 23:DB:1788:C:O2' | 23:DB:1789:A:H5' | 2.20 | 0.41 |
| 1:CA:262:A:H5'' | 19:CT:70:LYS:HD2 | 2.02 | 0.41 |
| 23:BB:1082:U:H2' | 23:BB:1083:U:O4' | 2.20 | 0.41 |
| 1:AA:952:U:O2' | 1:AA:953:G:H5' | 2.20 | 0.41 |
| 23:DB:775:G:C5 | 23:DB:794:A:C8 | 3.08 | 0.41 |
| 48:D1:8:ILE:HB | 48:D1:27:ARG:NH1 | 2.35 | 0.41 |
| 28:DF:132:ARG:HG3 | 28:DF:132:ARG:HH11 | 1.85 | 0.41 |
| 22:BA:50:A:OP1 | 36:BO:68:LYS:HG3 | 2.19 | 0.41 |
| 9:AJ:93:ALA:HB1 | 9:AJ:96:VAL:HG23 | 2.02 | 0.41 |
| 5:CF:85:ILE:CG2 | 5:CF:86:ARG:H | 2.32 | 0.41 |
| 1:CA:951:G:O2' | 1:CA:952:U:H5' | 2.19 | 0.41 |
| 10:CK:30:ILE:HD12 | 10:CK:30:ILE:C | 2.40 | 0.41 |
| 23:BB:2324:U:O2' | 23:BB:2385:C:H5 | 2.02 | 0.41 |
| 23:BB:2270:A:O5' | 43:BW:18:LYS:HB3 | 2.19 | 0.41 |
| 25:DC:22:GLU:HA | 25:DC:202:ARG:CZ | 2.50 | 0.41 |
| 1:CA:1279:G:N1 | 9:CJ:45:ARG:NH1 | 2.68 | 0.41 |
| 23:BB:508:A:H2' | 23:BB:509:C:C5' | 2.45 | 0.41 |
| 16:CQ:45:VAL:HA | 16:CQ:72:TRP:O | 2.20 | 0.41 |
| 2:AC:172:VAL:HG11 | 2:AC:200:TRP:HB3 | 2.02 | 0.41 |
| 8:CI:105:ARG:O | 8:CI:107:ALA:N | 2.53 | 0.41 |
| 23:DB:1714:U:HO2' | 23:DB:1715:G:P | 2.42 | 0.41 |
| 5:CF:11:HIS:NE2 | 5:CF:13:ASP:HB3 | 2.34 | 0.41 |
| 9:CJ:65:TYR:CE1 | 13:CN:84:ARG:HA | 2.54 | 0.41 |
| 2:AC:24:ASN:O | 2:AC:26:LYS:N | 2.54 | 0.41 |
| 4:AE:82:HIS:HE1 | 4:AE:147:ASN:H | 1.67 | 0.41 |
| 15:AP:68:SER:HB3 | 15:AP:71:VAL:CG1 | 2.47 | 0.41 |
| 1:AA:412:A:H1' | 1:AA:413:G:C8 | 2.46 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|------------------|-------------|----------|
| 23:BB:1372:U:H2' | 23:BB:1373:A:H8 | 1.86 | 0.41 |
| 23:DB:1373:A:OP1 | 23:DB:2213:U:C4 | 2.73 | 0.41 |
| 24:BV:76:ASP:HB2 | 34:BM:136:MET:CE | 2.49 | 0.41 |
| 26:BD:100:LEU:HG | 26:BD:100:LEU:O | 2.20 | 0.41 |
| 1:AA:208:U:C2' | 1:AA:209:U:H5'' | 2.50 | 0.41 |
| 1:AA:207:C:O2' | 1:AA:208:U:H5' | 2.20 | 0.41 |
| 23:BB:1236:G:O2' | 23:BB:1237:A:O4' | 2.36 | 0.41 |
| 27:BE:84:THR:CG2 | 27:BE:85:PHE:H | 2.26 | 0.41 |
| 13:AN:20:PHE:HA | 13:AN:24:ALA:H | 1.85 | 0.41 |
| 23:DB:608:A:H2' | 23:DB:609:A:H8 | 1.81 | 0.41 |
| 2:CC:53:ARG:O | 2:CC:67:ILE:HD12 | 2.20 | 0.41 |
| 23:BB:1294:U:C4 | 23:BB:1295:C:C5 | 3.07 | 0.41 |
| 14:AO:52:ARG:O | 14:AO:55:LEU:HB3 | 2.20 | 0.41 |
| 1:CA:1292:G:O2' | 1:CA:1293:C:H5' | 2.20 | 0.41 |
| 23:BB:354:A:H2' | 23:BB:355:U:O4' | 2.20 | 0.41 |
| 23:BB:2308:G:H5' | 23:BB:2309:A:C5' | 2.49 | 0.41 |
| 23:BB:2047:C:OP1 | 47:B0:15:ARG:HD2 | 2.20 | 0.41 |
| 47:B0:15:ARG:HG2 | 47:B0:15:ARG:NH1 | 2.35 | 0.41 |
| 23:BB:2046:G:H5' | 47:B0:15:ARG:HG3 | 2.01 | 0.41 |
| 1:AA:1052:U:H5' | 1:AA:1053:G:OP2 | 2.20 | 0.41 |
| 23:BB:433:C:H2' | 23:BB:434:U:H6 | 1.84 | 0.41 |
| 15:CP:1:MET:HA | 15:CP:1:MET:HE3 | 2.01 | 0.41 |
| 2:CC:63:ILE:O | 2:CC:63:ILE:HG23 | 2.19 | 0.41 |
| 23:DB:1112:G:H5' | 29:DG:1:SER:HA | 2.01 | 0.41 |
| 23:BB:1529:G:H2' | 23:BB:1530:G:H8 | 1.85 | 0.41 |
| 23:DB:1529:G:H2' | 23:DB:1530:G:H8 | 1.85 | 0.41 |
| 23:BB:1289:C:C2 | 23:BB:1290:C:C5 | 3.07 | 0.41 |
| 4:AE:137:ARG:HG2 | 4:AE:137:ARG:H | 1.75 | 0.41 |
| 23:DB:1221:C:O2' | 23:DB:1222:U:H5' | 2.20 | 0.41 |
| 15:AP:8:ARG:NE | 15:AP:15:PRO:HB3 | 2.34 | 0.41 |
| 13:AN:19:TYR:HE2 | 13:AN:23:ARG:NH1 | 2.17 | 0.41 |
| 23:BB:522:A:H2' | 23:BB:523:C:H6 | 1.85 | 0.41 |
| 8:AI:15:ALA:O | 8:AI:66:VAL:HA | 2.20 | 0.41 |
| 1:CA:73:C:H2' | 1:CA:74:A:H8 | 1.85 | 0.41 |
| 23:DB:327:G:H2' | 23:DB:328:U:O4' | 2.20 | 0.41 |
| 23:BB:1268:A:H2' | 23:BB:1269:A:C8 | 2.55 | 0.41 |
| 23:BB:2708:G:O2' | 23:BB:2709:G:H5' | 2.20 | 0.41 |
| 35:BN:65:LEU:HD12 | 35:BN:68:ALA:HB3 | 2.02 | 0.41 |
| 8:AI:93:LEU:C | 8:AI:93:LEU:HD12 | 2.40 | 0.41 |
| 23:BB:908:C:O2' | 23:BB:909:A:H5' | 2.20 | 0.41 |
| 23:DB:1541:C:H2' | 23:DB:1542:U:H6 | 1.85 | 0.41 |
| 48:B1:49:LYS:H | 48:B1:49:LYS:HD2 | 1.85 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 1:AA:821:G:H2' | 1:AA:822:U:C6 | 2.55 | 0.41 |
| 45:BY:28:LEU:N | 45:BY:28:LEU:HD12 | 2.35 | 0.41 |
| 23:BB:1678:A:C2' | 23:BB:1679:A:H5' | 2.50 | 0.41 |
| 18:AS:44:ILE:HA | 18:AS:61:VAL:HB | 2.01 | 0.41 |
| 47:B0:4:GLN:HB3 | 47:B0:4:GLN:HE21 | 1.65 | 0.41 |
| 23:BB:647:G:H2' | 23:BB:648:G:H8 | 1.85 | 0.41 |
| 10:CK:94:SER:HA | 10:CK:97:ARG:CG | 2.50 | 0.41 |
| 1:CA:154:U:O2' | 1:CA:155:A:H5' | 2.20 | 0.41 |
| 23:DB:2708:G:O2' | 23:DB:2709:G:H5' | 2.20 | 0.41 |
| 3:CD:97:LEU:HB2 | 3:CD:134:TYR:HB3 | 2.02 | 0.41 |
| 23:DB:1421:G:C2 | 23:DB:1422:G:C8 | 3.08 | 0.41 |
| 20:CB:181:PRO:HA | 20:CB:196:ASP:OD2 | 2.19 | 0.41 |
| 27:BE:18:THR:O | 27:BE:19:PHE:C | 2.58 | 0.41 |
| 1:CA:928:G:H2' | 1:CA:929:G:H8 | 1.85 | 0.41 |
| 23:BB:58:G:H2' | 23:BB:59:U:C6 | 2.55 | 0.41 |
| 23:DB:35:G:H2' | 23:DB:36:G:O4' | 2.20 | 0.41 |
| 10:AK:121:ARG:HG3 | 10:AK:121:ARG:NH1 | 2.34 | 0.41 |
| 42:BU:35:VAL:CG1 | 42:BU:36:GLU:H | 2.15 | 0.41 |
| 42:BU:71:ILE:HG23 | 42:BU:72:PHE:N | 2.35 | 0.41 |
| 20:AB:185:ILE:HD12 | 20:AB:185:ILE:O | 2.20 | 0.41 |
| 23:BB:2849:U:N3 | 23:BB:2867:G:H1' | 2.35 | 0.41 |
| 25:BC:163:ILE:CG2 | 25:BC:164:VAL:H | 2.17 | 0.41 |
| 31:DJ:124:VAL:CG2 | 31:DJ:125:TYR:N | 2.76 | 0.41 |
| 36:BO:45:SER:C | 36:BO:47:VAL:N | 2.73 | 0.41 |
| 36:BO:49:VAL:CG2 | 36:BO:50:ALA:H | 2.19 | 0.41 |
| 36:BO:39:VAL:HB | 36:BO:83:LEU:CD1 | 2.49 | 0.41 |
| 20:AB:14:HIS:NE2 | 20:AB:49:PHE:HZ | 2.17 | 0.41 |
| 23:DB:340:A:H2' | 23:DB:341:C:C5' | 2.50 | 0.41 |
| 23:BB:2673:G:H2' | 23:BB:2674:G:H8 | 1.85 | 0.41 |
| 23:BB:2462:C:H2' | 23:BB:2463:C:H6 | 1.84 | 0.41 |
| 23:BB:2572:A:C2 | 26:BD:150:GLN:NE2 | 2.88 | 0.41 |
| 23:DB:2720:U:H2' | 23:DB:2721:A:C8 | 2.55 | 0.41 |
| 23:DB:2874:C:H2' | 23:DB:2875:C:H6 | 1.84 | 0.41 |
| 1:AA:981:U:P | 13:AN:12:ARG:HH12 | 2.42 | 0.41 |
| 40:BS:8:ARG:NH1 | 40:BS:102:HIS:NE2 | 2.67 | 0.41 |
| 39:DR:18:GLN:H | 39:DR:18:GLN:CD | 2.21 | 0.41 |
| 40:DS:7:HIS:ND1 | 40:DS:7:HIS:O | 2.52 | 0.41 |
| 1:CA:1320:C:H41 | 18:CS:36:ARG:CG | 2.32 | 0.41 |
| 25:BC:27:LYS:N | 25:BC:28:PRO:CD | 2.83 | 0.41 |
| 23:DB:910:A:N7 | 34:DM:16:ARG:HB3 | 2.35 | 0.41 |
| 34:DM:15:GLY:O | 34:DM:16:ARG:O | 2.38 | 0.41 |
| 23:BB:1010:A:O2' | 23:BB:1152:C:H1' | 2.20 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 31:DJ:80:HIS:N | 31:DJ:80:HIS:ND1 | 2.68 | 0.41 |
| 43:BW:35:ILE:HG12 | 43:BW:70:VAL:CG2 | 2.47 | 0.41 |
| 3:CD:171:GLU:O | 3:CD:180:THR:HB | 2.21 | 0.41 |
| 51:B4:24:ARG:HG2 | 51:B4:26:ILE:HG12 | 2.02 | 0.41 |
| 24:BV:6:ALA:HB3 | 24:BV:65:VAL:CG1 | 2.50 | 0.41 |
| 26:DD:106:LYS:HG3 | 26:DD:208:LYS:CE | 2.51 | 0.41 |
| 33:DL:79:LEU:N | 33:DL:113:ALA:HB3 | 2.35 | 0.41 |
| 44:BX:19:LEU:C | 44:BX:21:LEU:N | 2.74 | 0.41 |
| 23:BB:1998:A:H2' | 23:BB:1999:C:C6 | 2.55 | 0.41 |
| 23:BB:2513:A:H2' | 23:BB:2514:U:C6 | 2.55 | 0.41 |
| 23:BB:2723:C:H5'' | 35:BN:3:HIS:HB2 | 2.03 | 0.41 |
| 23:DB:2016:U:H2' | 23:DB:2017:U:C6 | 2.56 | 0.41 |
| 33:BL:47:ARG:HG3 | 33:BL:47:ARG:O | 2.20 | 0.41 |
| 23:BB:2768:U:H2' | 23:BB:2769:U:O4' | 2.20 | 0.41 |
| 26:BD:33:ARG:O | 26:BD:34:VAL:HB | 2.19 | 0.41 |
| 13:CN:21:ALA:O | 13:CN:24:ALA:HB3 | 2.20 | 0.41 |
| 28:DF:36:ASN:HD22 | 28:DF:87:LYS:H | 1.68 | 0.41 |
| 39:DR:6:GLN:CB | 39:DR:41:ILE:HD13 | 2.49 | 0.41 |
| 12:CM:18:LEU:HD23 | 12:CM:18:LEU:O | 2.20 | 0.41 |
| 8:CI:80:HIS:HE1 | 8:CI:103:VAL:O | 2.03 | 0.41 |
| 31:DJ:64:VAL:HG21 | 31:DJ:69:ARG:HG2 | 2.02 | 0.41 |
| 33:DL:116:VAL:O | 33:DL:116:VAL:HG23 | 2.20 | 0.41 |
| 28:DF:174:PHE:N | 28:DF:175:PRO:CD | 2.83 | 0.41 |
| 19:AT:60:GLN:C | 19:AT:62:ALA:H | 2.22 | 0.41 |
| 6:AG:96:ASN:O | 6:AG:100:MET:HG3 | 2.20 | 0.41 |
| 1:CA:839:C:O2' | 1:CA:840:C:H5' | 2.19 | 0.41 |
| 14:AO:80:LEU:O | 14:AO:84:LEU:HD13 | 2.20 | 0.41 |
| 42:DU:71:ILE:CD1 | 42:DU:72:PHE:N | 2.80 | 0.41 |
| 22:DA:30:C:H2' | 22:DA:31:C:C5' | 2.41 | 0.41 |
| 2:AC:82:ASP:O | 2:AC:86:LEU:HG | 2.19 | 0.41 |
| 23:DB:2886:A:C4 | 47:D0:27:LEU:HG | 2.56 | 0.41 |
| 10:CK:12:ARG:HB3 | 10:CK:13:LYS:HZ3 | 1.84 | 0.41 |
| 10:CK:70:ALA:CA | 10:CK:74:LYS:HB2 | 2.50 | 0.41 |
| 1:CA:949:A:H2' | 1:CA:950:U:O4' | 2.21 | 0.41 |
| 25:BC:78:GLU:HB3 | 25:BC:92:LEU:HD23 | 2.02 | 0.41 |
| 2:AC:186:SER:HB3 | 2:AC:197:VAL:CG1 | 2.50 | 0.41 |
| 13:CN:82:LYS:HA | 13:CN:82:LYS:HE2 | 2.01 | 0.41 |
| 13:CN:65:GLN:HB3 | 13:CN:82:LYS:HG2 | 2.01 | 0.41 |
| 25:BC:251:THR:HG22 | 25:BC:252:LYS:N | 2.34 | 0.41 |
| 29:DG:96:ALA:HA | 29:DG:124:CYS:SG | 2.60 | 0.41 |
| 1:CA:208:U:H2' | 1:CA:210:C:C5 | 2.55 | 0.41 |
| 25:DC:27:LYS:N | 25:DC:27:LYS:HD2 | 2.35 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:DB:2768:U:H2' | 23:DB:2769:U:O4' | 2.20 | 0.41 |
| 23:DB:963:U:H2' | 23:DB:964:C:H6 | 1.84 | 0.41 |
| 1:CA:407:U:H3' | 1:CA:408:A:H8 | 1.85 | 0.41 |
| 23:BB:2526:G:N2 | 51:B4:1:MET:HB3 | 2.35 | 0.41 |
| 1:AA:372:C:C1' | 1:AA:373:A:OP2 | 2.66 | 0.41 |
| 1:CA:1148:U:H2' | 1:CA:1149:C:O4' | 2.19 | 0.41 |
| 3:CD:151:GLN:HE21 | 3:CD:153:ARG:HB3 | 1.85 | 0.41 |
| 23:BB:2185:U:H6 | 23:BB:2185:U:O5' | 2.02 | 0.41 |
| 32:DK:17:ARG:HB2 | 32:DK:45:GLU:HB3 | 2.02 | 0.41 |
| 23:DB:212:G:H2' | 23:DB:213:A:C8 | 2.55 | 0.41 |
| 22:DA:112:G:H2' | 22:DA:113:C:C6 | 2.54 | 0.41 |
| 1:AA:598:U:C2 | 1:AA:599:C:C5 | 3.09 | 0.41 |
| 10:CK:22:ILE:HD13 | 10:CK:95:THR:CG2 | 2.49 | 0.41 |
| 22:BA:92:C:H2' | 22:BA:93:C:H6 | 1.84 | 0.41 |
| 23:BB:1119:U:H2' | 23:BB:1120:G:H8 | 1.85 | 0.41 |
| 28:DF:9:ASP:O | 28:DF:10:GLU:CB | 2.68 | 0.41 |
| 17:AR:32:ILE:HG13 | 17:AR:33:THR:N | 2.35 | 0.41 |
| 1:CA:392:C:H2' | 1:CA:393:A:C8 | 2.54 | 0.41 |
| 23:DB:1987:A:H2' | 23:DB:1988:G:C8 | 2.54 | 0.41 |
| 1:AA:1414:U:H2' | 1:AA:1415:G:C8 | 2.55 | 0.41 |
| 17:AR:70:THR:OG1 | 17:AR:71:ASP:N | 2.52 | 0.41 |
| 1:CA:1493:A:H2' | 1:CA:1494:G:OP2 | 2.20 | 0.41 |
| 1:AA:182:A:O2' | 1:AA:183:C:O5' | 2.34 | 0.41 |
| 41:BT:16:VAL:HG13 | 41:BT:16:VAL:O | 2.20 | 0.41 |
| 6:CG:65:LEU:C | 6:CG:67:ASN:H | 2.23 | 0.41 |
| 23:BB:2149:U:OP1 | 23:BB:2149:U:H4' | 2.20 | 0.41 |
| 25:DC:42:ARG:CZ | 25:DC:44:ASN:HB2 | 2.50 | 0.41 |
| 28:DF:38:GLY:N | 28:DF:86:CYS:SG | 2.93 | 0.41 |
| 23:BB:30:G:H2' | 23:BB:31:C:H6 | 1.85 | 0.41 |
| 10:CK:126:ARG:HG2 | 10:CK:126:ARG:NH1 | 2.35 | 0.41 |
| 33:DL:100:ILE:O | 33:DL:101:ILE:HD13 | 2.19 | 0.41 |
| 1:CA:155:A:H2' | 1:CA:156:C:O4' | 2.19 | 0.41 |
| 7:CH:28:SER:HB3 | 7:CH:58:LEU:HB2 | 2.01 | 0.41 |
| 1:CA:102:G:N3 | 1:CA:151:A:H2 | 2.18 | 0.41 |
| 37:DP:40:GLN:O | 37:DP:41:ALA:O | 2.38 | 0.41 |
| 4:AE:61:LYS:O | 4:AE:65:LYS:HG2 | 2.20 | 0.41 |
| 4:AE:63:MET:O | 4:AE:66:ALA:HB3 | 2.20 | 0.41 |
| 1:CA:562:U:H1' | 11:CL:11:ARG:HB3 | 2.02 | 0.41 |
| 3:AD:43:ARG:HB3 | 3:AD:44:LYS:H | 1.48 | 0.41 |
| 1:CA:1483:A:H2' | 1:CA:1484:C:O4' | 2.20 | 0.41 |
| 2:AC:131:ARG:HB3 | 2:AC:131:ARG:CZ | 2.50 | 0.41 |
| 52:BI:35:MET:C | 52:BI:35:MET:SD | 2.98 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 33:BL:73:ILE:O | 33:BL:74:THR:C | 2.59 | 0.41 |
| 23:BB:1215:G:O2' | 23:BB:1216:G:H5' | 2.20 | 0.41 |
| 20:AB:185:ILE:HG22 | 20:AB:199:ILE:HB | 2.02 | 0.41 |
| 27:BE:48:THR:CG2 | 27:BE:49:ARG:N | 2.80 | 0.41 |
| 1:AA:243:A:C1' | 1:AA:244:U:OP2 | 2.68 | 0.41 |
| 23:DB:2354:C:O2' | 43:DW:31:LEU:HG | 2.20 | 0.41 |
| 43:DW:74:LYS:HB3 | 43:DW:75:ASN:H | 1.55 | 0.41 |
| 23:DB:532:A:H5'' | 38:DQ:27:ARG:NH1 | 2.34 | 0.41 |
| 23:DB:533:G:C5' | 38:DQ:23:TYR:CD1 | 3.02 | 0.41 |
| 42:DU:27:VAL:CG1 | 42:DU:33:VAL:HG22 | 2.50 | 0.41 |
| 50:B3:23:HIS:HE1 | 50:B3:51:LYS:HE2 | 1.84 | 0.41 |
| 50:B3:23:HIS:HB2 | 50:B3:24:LYS:H | 1.66 | 0.41 |
| 32:BK:38:ILE:HA | 32:BK:60:ALA:O | 2.20 | 0.41 |
| 23:BB:583:G:H2' | 23:BB:584:C:H6 | 1.85 | 0.41 |
| 1:AA:254:G:H4' | 16:AQ:19:SER:OG | 2.20 | 0.41 |
| 20:AB:67:LEU:HD21 | 20:AB:157:PRO:CB | 2.50 | 0.41 |
| 23:DB:1795:C:H2' | 23:DB:1796:U:H6 | 1.85 | 0.41 |
| 40:DS:7:HIS:O | 40:DS:8:ARG:HB2 | 2.20 | 0.41 |
| 23:DB:1341:G:H2' | 23:DB:1397:U:HO2' | 1.85 | 0.41 |
| 41:DT:48:GLN:CG | 41:DT:49:LYS:N | 2.84 | 0.41 |
| 8:AI:56:MET:O | 8:AI:58:GLU:N | 2.53 | 0.41 |
| 31:DJ:4:PHE:HB2 | 31:DJ:5:THR:H | 1.49 | 0.41 |
| 35:BN:24:MET:CE | 35:BN:44:LEU:HD13 | 2.50 | 0.41 |
| 31:BJ:41:LYS:HD2 | 31:BJ:44:TYR:CB | 2.47 | 0.41 |
| 39:BR:40:MET:C | 39:BR:54:VAL:HG11 | 2.41 | 0.41 |
| 12:AM:14:ALA:HB1 | 12:AM:33:LEU:HD11 | 2.02 | 0.41 |
| 27:BE:170:ARG:HH11 | 27:BE:170:ARG:HG2 | 1.85 | 0.41 |
| 27:BE:149:ILE:HG23 | 27:BE:183:PHE:CG | 2.56 | 0.41 |
| 3:CD:18:LEU:HD11 | 3:CD:59:LYS:HG3 | 2.02 | 0.41 |
| 26:DD:106:LYS:O | 26:DD:206:ALA:HB2 | 2.20 | 0.41 |
| 41:BT:54:GLU:HB2 | 41:BT:91:GLN:HE22 | 1.85 | 0.41 |
| 23:BB:1601:G:H2' | 23:BB:1602:U:O4' | 2.20 | 0.41 |
| 41:BT:31:VAL:O | 41:BT:83:ALA:O | 2.38 | 0.41 |
| 23:BB:1655:A:H5'' | 26:BD:123:LYS:HZ2 | 1.86 | 0.41 |
| 26:BD:133:THR:CG2 | 26:BD:134:HIS:N | 2.83 | 0.41 |
| 13:CN:56:PRO:HG2 | 13:CN:57:SER:H | 1.85 | 0.41 |
| 40:DS:75:PHE:O | 40:DS:103:ILE:O | 2.37 | 0.41 |
| 23:DB:2675:A:O2' | 23:DB:2676:C:H5' | 2.21 | 0.41 |
| 23:BB:2675:A:O2' | 23:BB:2676:C:H5' | 2.20 | 0.41 |
| 25:BC:222:THR:C | 25:BC:224:MET:N | 2.73 | 0.41 |
| 23:DB:2682:A:H1' | 26:DD:22:ILE:HD13 | 2.02 | 0.41 |
| 5:AF:42:TRP:CZ2 | 5:AF:61:LEU:HD23 | 2.55 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 7:AH:113:ARG:NH2 | 7:AH:114:ALA:HA | 2.21 | 0.41 |
| 33:DL:135:ILE:N | 33:DL:135:ILE:HD13 | 2.34 | 0.41 |
| 23:DB:1789:A:H5' | 25:DC:220:ARG:NH2 | 2.35 | 0.41 |
| 17:AR:52:ARG:HH11 | 17:AR:52:ARG:CB | 2.21 | 0.41 |
| 33:DL:38:GLN:HB2 | 33:DL:39:LYS:H | 1.66 | 0.41 |
| 33:DL:38:GLN:HB2 | 33:DL:39:LYS:HZ3 | 1.85 | 0.41 |
| 28:DF:100:GLU:C | 28:DF:102:LEU:N | 2.73 | 0.41 |
| 4:CE:37:VAL:HA | 4:CE:46:GLY:O | 2.21 | 0.41 |
| 1:AA:969:A:H2' | 1:AA:970:C:O2 | 2.21 | 0.41 |
| 42:DU:69:VAL:CG1 | 42:DU:77:GLY:HA2 | 2.50 | 0.41 |
| 23:BB:277:G:HO2' | 23:BB:361:G:H1 | 1.68 | 0.41 |
| 3:AD:12:ARG:HG3 | 3:AD:33:ILE:HA | 2.01 | 0.41 |
| 37:BP:92:ARG:N | 37:BP:113:LEU:HD23 | 2.35 | 0.41 |
| 29:DG:12:ALA:C | 29:DG:14:VAL:H | 2.23 | 0.41 |
| 9:AJ:96:VAL:O | 9:AJ:98:VAL:HG13 | 2.19 | 0.41 |
| 17:CR:62:ARG:HB3 | 17:CR:69:TYR:CE1 | 2.56 | 0.41 |
| 23:BB:328:U:C4' | 42:BU:65:GLN:HG3 | 2.44 | 0.41 |
| 34:BM:108:VAL:C | 34:BM:112:LEU:HD13 | 2.40 | 0.41 |
| 8:CI:30:ASN:HD21 | 8:CI:66:VAL:N | 2.18 | 0.41 |
| 35:DN:86:ARG:NH1 | 35:DN:94:TYR:OH | 2.53 | 0.41 |
| 25:DC:21:PRO:O | 25:DC:22:GLU:CB | 2.67 | 0.41 |
| 23:BB:118:A:H5' | 23:BB:119:A:C8 | 2.41 | 0.41 |
| 7:CH:72:GLU:O | 7:CH:73:SER:HB2 | 2.20 | 0.41 |
| 23:BB:107:G:H2' | 23:BB:108:G:H8 | 1.84 | 0.41 |
| 23:BB:79:C:H2' | 23:BB:80:G:H8 | 1.85 | 0.41 |
| 7:CH:4:ASP:OD1 | 7:CH:76:ARG:NH1 | 2.54 | 0.41 |
| 1:AA:814:A:C5' | 1:AA:1511:G:H4' | 2.45 | 0.41 |
| 11:AL:21:PRO:HD2 | 11:AL:94:TYR:OH | 2.20 | 0.41 |
| 1:AA:546:A:H4' | 1:AA:548:G:O3' | 2.21 | 0.41 |
| 1:CA:1187:G:H3' | 1:CA:1188:A:H8 | 1.86 | 0.41 |
| 23:DB:2251:G:OP2 | 23:DB:2251:G:H8 | 2.03 | 0.41 |
| 9:CJ:66:GLU:O | 13:CN:95:LEU:HA | 2.20 | 0.41 |
| 35:DN:12:ARG:NH1 | 35:DN:16:HIS:HD2 | 2.18 | 0.41 |
| 22:DA:55:U:H4' | 28:DF:23:SER:OG | 2.20 | 0.41 |
| 1:AA:1281:C:H3' | 1:AA:1282:C:H6 | 1.85 | 0.41 |
| 6:AG:30:MET:HA | 6:AG:38:ALA:CB | 2.51 | 0.41 |
| 8:AI:20:ILE:HD13 | 8:AI:85:ALA:CB | 2.50 | 0.41 |
| 9:CJ:32:THR:HG23 | 9:CJ:33:GLY:N | 2.31 | 0.41 |
| 2:CC:22:PHE:CZ | 9:CJ:11:LYS:HB3 | 2.55 | 0.41 |
| 1:CA:191:G:H2' | 1:CA:192:A:H8 | 1.85 | 0.41 |
| 1:AA:728:A:H2' | 1:AA:729:A:C8 | 2.56 | 0.41 |
| 29:BG:129:GLU:C | 29:BG:130:ILE:HD12 | 2.40 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 20:CB:205:ALA:HB3 | 20:CB:208:ALA:CB | 2.50 | 0.41 |
| 18:CS:44:ILE:HG23 | 18:CS:62:THR:O | 2.21 | 0.41 |
| 23:DB:941:A:H2' | 23:DB:942:G:C8 | 2.55 | 0.41 |
| 23:BB:2104:C:H4' | 23:BB:2104:C:OP1 | 2.20 | 0.41 |
| 23:BB:2250:G:H21 | 23:BB:2496:C:H4' | 1.85 | 0.41 |
| 1:CA:601:G:O2' | 1:CA:602:A:H5' | 2.21 | 0.41 |
| 23:DB:1736:U:H2' | 23:DB:1737:G:O4' | 2.21 | 0.41 |
| 18:AS:78:THR:HG22 | 18:AS:79:TYR:N | 2.35 | 0.41 |
| 28:BF:177:ARG:C | 28:BF:177:ARG:NE | 2.74 | 0.41 |
| 25:DC:162:GLN:NE2 | 25:DC:174:ARG:NH2 | 2.68 | 0.41 |
| 23:DB:2788:C:H2' | 23:DB:2789:C:C6 | 2.55 | 0.41 |
| 23:BB:2788:C:H2' | 23:BB:2789:C:C6 | 2.55 | 0.41 |
| 23:BB:2491:U:H5'' | 23:BB:2570:G:H5' | 2.00 | 0.41 |
| 23:BB:1949:G:H2' | 23:BB:1950:G:C8 | 2.55 | 0.41 |
| 1:CA:1162:C:H2' | 1:CA:1163:A:H8 | 1.83 | 0.41 |
| 19:CT:43:LYS:HD3 | 19:CT:86:ALA:HB1 | 2.03 | 0.41 |
| 23:DB:1399:C:H2' | 23:DB:1400:U:H6 | 1.83 | 0.41 |
| 1:AA:112:G:O2' | 1:AA:113:G:H5' | 2.19 | 0.41 |
| 1:AA:599:C:H2' | 1:AA:600:A:H8 | 1.85 | 0.41 |
| 1:CA:1469:C:H2' | 1:CA:1470:U:O4' | 2.19 | 0.41 |
| 23:BB:2665:A:H2' | 23:BB:2666:C:O2 | 2.21 | 0.41 |
| 23:DB:1220:G:O2' | 23:DB:1221:C:H5' | 2.19 | 0.41 |
| 23:BB:1139:G:H5' | 31:BJ:104:ALA:HB1 | 2.02 | 0.41 |
| 1:CA:489:C:H2' | 1:CA:490:C:H6 | 1.86 | 0.41 |
| 23:DB:787:C:H3' | 23:DB:791:C:H41 | 1.85 | 0.41 |
| 23:BB:410:G:C2 | 23:BB:2407:A:C5 | 3.08 | 0.41 |
| 6:AG:49:LEU:HB3 | 6:AG:57:GLU:OE2 | 2.20 | 0.41 |
| 23:DB:2094:A:OP1 | 30:DH:22:LYS:HG3 | 2.21 | 0.41 |
| 38:BQ:12:ARG:O | 38:BQ:15:LYS:HB3 | 2.20 | 0.41 |
| 30:BH:44:ILE:O | 30:BH:47:PHE:HD2 | 2.04 | 0.41 |
| 1:CA:343:U:O2' | 1:CA:344:A:H2' | 2.20 | 0.41 |
| 1:CA:42:G:O2' | 1:CA:43:C:H5' | 2.20 | 0.41 |
| 20:AB:107:ARG:HA | 20:AB:110:ILE:CD1 | 2.50 | 0.41 |
| 23:DB:1306:C:H2' | 23:DB:1307:A:H8 | 1.84 | 0.41 |
| 23:DB:123:G:H2' | 23:DB:124:G:C8 | 2.55 | 0.41 |
| 23:DB:1869:G:HO2' | 23:DB:1871:A:H62 | 1.62 | 0.41 |
| 30:BH:53:GLU:C | 30:BH:54:LEU:HD22 | 2.41 | 0.41 |
| 1:CA:1206:G:H2' | 1:CA:1207:G:O4' | 2.20 | 0.41 |
| 6:AG:8:GLN:HG2 | 6:AG:9:ARG:N | 2.35 | 0.41 |
| 23:DB:1099:G:P | 52:DI:3:LYS:CA | 2.95 | 0.41 |
| 23:DB:2849:U:N3 | 23:DB:2867:G:H1' | 2.35 | 0.41 |
| 37:DP:91:VAL:CG2 | 37:DP:92:ARG:H | 2.25 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 27:BE:48:THR:CG2 | 27:BE:86:ALA:HB1 | 2.50 | 0.41 |
| 43:DW:42:THR:CB | 43:DW:75:ASN:ND2 | 2.83 | 0.41 |
| 26:DD:41:ALA:C | 26:DD:43:ASP:H | 2.23 | 0.41 |
| 35:DN:36:THR:HG22 | 35:DN:40:LYS:HD2 | 2.02 | 0.41 |
| 25:DC:143:VAL:HG12 | 25:DC:144:GLU:N | 2.27 | 0.41 |
| 36:BO:45:SER:C | 36:BO:47:VAL:H | 2.23 | 0.41 |
| 27:DE:108:ILE:HG13 | 27:DE:109:LEU:N | 2.29 | 0.41 |
| 33:BL:78:ARG:HH21 | 33:BL:82:LEU:HB2 | 1.83 | 0.41 |
| 46:BZ:3:LYS:O | 46:BZ:3:LYS:HG3 | 2.19 | 0.41 |
| 32:BK:119:ALA:O | 32:BK:121:GLU:N | 2.53 | 0.41 |
| 32:BK:87:LEU:CA | 32:BK:95:ILE:HG22 | 2.50 | 0.41 |
| 34:BM:7:THR:CG2 | 34:BM:8:LYS:N | 2.82 | 0.41 |
| 1:AA:255:G:H1' | 16:AQ:17:GLU:OE1 | 2.20 | 0.41 |
| 46:DZ:55:GLY:HA2 | 46:DZ:59:ARG:CB | 2.31 | 0.41 |
| 36:DO:25:ARG:HB2 | 36:DO:40:ILE:HG12 | 2.03 | 0.41 |
| 39:BR:79:ARG:HD3 | 39:BR:86:GLN:CD | 2.40 | 0.41 |
| 25:BC:52:HIS:CD2 | 25:BC:53:ILE:HG13 | 2.56 | 0.41 |
| 8:AI:84:ARG:NH1 | 8:AI:84:ARG:HG2 | 2.34 | 0.41 |
| 23:DB:853:C:H2' | 23:DB:854:C:C6 | 2.54 | 0.41 |
| 28:BF:56:LEU:HD23 | 28:BF:56:LEU:O | 2.20 | 0.41 |
| 23:BB:1131:G:C1' | 31:BJ:85:LYS:HZ2 | 2.34 | 0.41 |
| 31:BJ:80:HIS:O | 31:BJ:81:ILE:C | 2.59 | 0.41 |
| 38:BQ:60:TRP:CE2 | 38:BQ:93:ILE:HA | 2.54 | 0.41 |
| 23:DB:2641:G:H5'' | 31:DJ:78:THR:HB | 2.01 | 0.41 |
| 34:BM:13:HIS:O | 34:BM:14:LYS:HB3 | 2.21 | 0.41 |
| 27:BE:141:MET:HB2 | 27:BE:143:LEU:HD22 | 2.02 | 0.41 |
| 27:BE:6:LYS:NZ | 27:BE:119:ILE:H | 2.18 | 0.41 |
| 51:B4:33:HIS:N | 51:B4:33:HIS:CD2 | 2.79 | 0.41 |
| 26:DD:28:GLU:CD | 26:DD:97:SER:HA | 2.41 | 0.41 |
| 13:CN:50:LEU:N | 13:CN:51:PRO:CD | 2.68 | 0.41 |
| 1:CA:1220:G:P | 13:CN:52:ARG:HH22 | 2.43 | 0.41 |
| 26:BD:159:LYS:HD3 | 26:BD:159:LYS:C | 2.41 | 0.41 |
| 26:BD:124:ARG:NH2 | 26:BD:163:GLY:HA3 | 2.35 | 0.41 |
| 26:BD:118:PHE:CA | 26:BD:164:GLN:HG3 | 2.50 | 0.41 |
| 26:BD:166:GLY:O | 26:BD:167:ASN:C | 2.58 | 0.41 |
| 1:AA:1085:U:H3' | 1:AA:1086:U:H5 | 1.86 | 0.41 |
| 23:DB:2026:U:C2 | 23:DB:2027:G:C8 | 3.07 | 0.41 |
| 23:DB:2515:C:OP1 | 31:DJ:82:GLY:C | 2.59 | 0.41 |
| 25:DC:224:MET:HB3 | 25:DC:225:ASN:H | 1.70 | 0.41 |
| 35:DN:49:GLU:N | 35:DN:50:PRO:HD2 | 2.35 | 0.41 |
| 28:DF:34:THR:O | 28:DF:153:ILE:HA | 2.20 | 0.41 |
| 45:DY:43:ILE:HA | 45:DY:46:MET:HB2 | 2.01 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 38:DQ:89:ILE:H | 38:DQ:89:ILE:CD1 | 2.30 | 0.41 |
| 39:DR:47:VAL:HG13 | 39:DR:48:LYS:N | 2.34 | 0.41 |
| 2:AC:179:ALA:HB1 | 2:AC:202:PHE:CE1 | 2.40 | 0.41 |
| 8:CI:98:ARG:HA | 8:CI:103:VAL:CG2 | 2.45 | 0.41 |
| 21:AU:36:PHE:HB3 | 21:AU:40:PRO:HG3 | 2.00 | 0.41 |
| 33:DL:90:VAL:HG22 | 33:DL:90:VAL:O | 2.20 | 0.41 |
| 1:CA:664:G:N2 | 1:CA:741:G:H1 | 2.03 | 0.41 |
| 1:CA:107:G:C2' | 1:CA:108:G:H5'' | 2.50 | 0.41 |
| 35:BN:13:ASN:C | 35:BN:15:SER:N | 2.74 | 0.41 |
| 28:DF:63:LYS:HD2 | 28:DF:64:PRO:HD2 | 2.02 | 0.41 |
| 23:BB:289:G:H2' | 23:BB:290:U:O4' | 2.21 | 0.41 |
| 32:BK:34:GLY:O | 32:BK:36:GLY:N | 2.53 | 0.41 |
| 33:DL:104:GLN:HB2 | 33:DL:105:ILE:H | 1.60 | 0.41 |
| 23:BB:2693:G:H21 | 37:BP:95:LYS:NZ | 2.18 | 0.41 |
| 49:D2:17:GLY:C | 49:D2:18:PHE:CG | 2.93 | 0.41 |
| 29:DG:36:LEU:HD22 | 29:DG:40:VAL:CG1 | 2.50 | 0.41 |
| 46:DZ:66:ILE:HB | 46:DZ:67:PRO:CD | 2.42 | 0.41 |
| 23:BB:2386:A:H2' | 23:BB:2387:U:H6 | 1.82 | 0.41 |
| 25:DC:10:PRO:CD | 25:DC:202:ARG:NH2 | 2.80 | 0.41 |
| 1:CA:813:U:O2' | 1:CA:814:A:H5' | 2.20 | 0.41 |
| 9:CJ:83:THR:HG23 | 9:CJ:87:LEU:HD23 | 2.01 | 0.41 |
| 1:AA:177:G:P | 19:AT:59:ARG:HE | 2.43 | 0.41 |
| 1:CA:1413:A:O2' | 1:CA:1414:U:H5' | 2.20 | 0.41 |
| 23:DB:2228:G:OP1 | 25:DC:257:ARG:HB2 | 2.20 | 0.41 |
| 1:CA:1434:A:H2' | 1:CA:1435:G:O4' | 2.21 | 0.41 |
| 1:CA:1180:A:OP1 | 8:CI:104:THR:HG23 | 2.21 | 0.41 |
| 25:BC:209:ALA:C | 25:BC:213:ARG:HD2 | 2.41 | 0.41 |
| 23:BB:1797:G:P | 25:BC:251:THR:HG23 | 2.60 | 0.41 |
| 40:DS:72:THR:CG2 | 40:DS:106:VAL:HG23 | 2.50 | 0.41 |
| 15:AP:6:LEU:CD1 | 15:AP:71:VAL:HB | 2.51 | 0.41 |
| 4:AE:45:VAL:HG23 | 4:AE:71:ILE:CG2 | 2.50 | 0.41 |
| 23:DB:1601:G:H2' | 23:DB:1602:U:O4' | 2.20 | 0.41 |
| 7:AH:87:ARG:O | 7:AH:91:LEU:HG | 2.21 | 0.41 |
| 29:DG:95:ALA:HB1 | 29:DG:130:ILE:CD1 | 2.48 | 0.41 |
| 3:CD:157:ALA:HA | 3:CD:160:LEU:CD1 | 2.47 | 0.41 |
| 3:CD:155:LYS:C | 3:CD:157:ALA:H | 2.23 | 0.41 |
| 3:CD:160:LEU:C | 3:CD:160:LEU:HD22 | 2.41 | 0.41 |
| 30:DH:57:LYS:H | 30:DH:57:LYS:HG3 | 1.60 | 0.41 |
| 23:DB:1372:U:H2' | 23:DB:1373:A:H8 | 1.85 | 0.41 |
| 23:BB:2527:C:O2' | 51:B4:1:MET:HA | 2.20 | 0.41 |
| 1:AA:313:A:H2' | 1:AA:314:C:H6 | 1.82 | 0.41 |
| 1:AA:1179:A:O2' | 1:AA:1180:A:H5' | 2.20 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:DB:1685:C:H2' | 23:DB:1686:C:C6 | 2.55 | 0.41 |
| 38:BQ:59:LEU:O | 38:BQ:62:ALA:HB3 | 2.19 | 0.41 |
| 1:AA:136:C:H1' | 15:AP:1:MET:HE1 | 2.02 | 0.41 |
| 38:DQ:25:GLY:HA2 | 38:DQ:29:ARG:CD | 2.48 | 0.41 |
| 4:AE:17:VAL:HB | 4:AE:34:ALA:HB2 | 2.03 | 0.41 |
| 23:BB:2425:A:H4' | 23:BB:2426:A:OP2 | 2.19 | 0.41 |
| 2:CC:143:LEU:HB2 | 2:CC:144:GLY:H | 1.67 | 0.41 |
| 20:AB:162:VAL:HG13 | 20:AB:184:ALA:CB | 2.47 | 0.41 |
| 23:DB:1949:G:H2' | 23:DB:1950:G:C8 | 2.55 | 0.41 |
| 3:CD:74:TYR:CD1 | 3:CD:92:LEU:HD12 | 2.55 | 0.41 |
| 23:DB:1637:A:H5' | 23:DB:1760:C:O2' | 2.20 | 0.41 |
| 6:AG:142:ARG:HB2 | 6:AG:142:ARG:NH1 | 2.35 | 0.41 |
| 23:DB:491:G:C2 | 23:DB:492:A:H1' | 2.55 | 0.41 |
| 43:DW:21:GLY:HA2 | 43:DW:25:PHE:CD1 | 2.54 | 0.41 |
| 1:AA:1494:G:H2' | 1:AA:1495:U:C6 | 2.54 | 0.41 |
| 14:AO:57:ARG:HH11 | 14:AO:57:ARG:HG3 | 1.85 | 0.41 |
| 1:CA:868:C:H2' | 1:CA:869:G:O4' | 2.20 | 0.41 |
| 23:DB:1612:C:O3' | 49:D2:5:PHE:HD2 | 2.02 | 0.41 |
| 3:CD:195:ASN:HB3 | 3:CD:197:HIS:NE2 | 2.35 | 0.41 |
| 6:CG:16:LYS:HB3 | 6:CG:17:PHE:CD1 | 2.54 | 0.41 |
| 1:AA:1263:C:H2' | 1:AA:1264:U:C6 | 2.55 | 0.41 |
| 23:BB:1107:G:O2' | 23:BB:1108:U:H5' | 2.20 | 0.41 |
| 23:BB:2389:G:H5'' | 23:BB:2390:U:O4' | 2.20 | 0.41 |
| 49:B2:3:ARG:O | 49:B2:5:PHE:N | 2.53 | 0.41 |
| 23:DB:1998:A:H2' | 23:DB:1999:C:C6 | 2.55 | 0.41 |
| 3:CD:27:ILE:O | 3:CD:27:ILE:HG22 | 2.20 | 0.41 |
| 9:AJ:48:ARG:HG2 | 9:AJ:48:ARG:NH1 | 2.35 | 0.41 |
| 39:BR:31:GLU:HB3 | 39:BR:32:THR:H | 1.53 | 0.41 |
| 1:CA:285:C:H2' | 1:CA:286:C:C6 | 2.55 | 0.41 |
| 1:AA:285:C:H2' | 1:AA:286:C:C6 | 2.56 | 0.41 |
| 11:AL:120:ARG:NH1 | 11:AL:120:ARG:HG3 | 2.36 | 0.41 |
| 23:DB:2884:U:N3 | 47:D0:48:TYR:CE1 | 2.88 | 0.41 |
| 23:DB:2321:U:H5'' | 23:DB:2321:U:O2 | 2.19 | 0.41 |
| 1:CA:605:U:H2' | 1:CA:606:G:H8 | 1.86 | 0.41 |
| 40:BS:12:SER:O | 40:BS:16:LYS:HB2 | 2.21 | 0.41 |
| 1:CA:580:C:H2' | 1:CA:581:G:O4' | 2.21 | 0.41 |
| 1:AA:746:A:H2' | 1:AA:747:A:H8 | 1.86 | 0.41 |
| 1:CA:1184:G:C2 | 1:CA:1185:G:C8 | 3.07 | 0.41 |
| 1:AA:596:A:O2' | 1:AA:597:G:H5' | 2.20 | 0.41 |
| 20:CB:125:PHE:C | 20:CB:127:LYS:H | 2.23 | 0.41 |
| 1:AA:1350:A:H2' | 1:AA:1351:U:C6 | 2.55 | 0.41 |
| 26:BD:24:VAL:CG2 | 26:BD:193:VAL:HG11 | 2.27 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:DB:857:G:H2' | 23:DB:858:G:C5' | 2.48 | 0.41 |
| 23:BB:778:G:C5' | 25:BC:48:ILE:HD12 | 2.51 | 0.41 |
| 25:BC:156:SER:O | 25:BC:194:VAL:O | 2.39 | 0.41 |
| 25:DC:87:SER:N | 25:DC:155:ARG:NH1 | 2.68 | 0.41 |
| 31:BJ:102:GLU:HG3 | 31:BJ:124:VAL:HG21 | 2.02 | 0.41 |
| 23:DB:1187:G:H5'' | 39:DR:86:GLN:HE22 | 1.85 | 0.41 |
| 36:DO:55:GLU:O | 36:DO:56:LYS:C | 2.57 | 0.41 |
| 23:BB:299:A:H2 | 23:BB:319:G:N3 | 2.18 | 0.41 |
| 23:DB:1205:A:H1' | 23:DB:1206:G:P | 2.61 | 0.41 |
| 23:DB:300:A:H2' | 23:DB:334:C:H1' | 2.01 | 0.41 |
| 33:BL:60:ARG:HD3 | 50:B3:11:LYS:HD2 | 2.02 | 0.41 |
| 46:BZ:58:ASP:HB3 | 46:BZ:63:ARG:HG2 | 2.01 | 0.41 |
| 32:BK:33:ALA:CB | 32:BK:39:ILE:HD11 | 2.50 | 0.41 |
| 23:DB:2090:A:C2' | 46:DZ:49:ARG:NE | 2.83 | 0.41 |
| 23:DB:1023:U:H2' | 23:DB:1024:G:H5' | 2.02 | 0.41 |
| 25:DC:252:LYS:HB3 | 25:DC:253:GLY:H | 1.69 | 0.41 |
| 41:DT:66:LYS:HA | 41:DT:76:ARG:HE | 1.85 | 0.41 |
| 25:BC:212:TRP:C | 25:BC:214:GLY:H | 2.24 | 0.41 |
| 23:BB:482:A:N6 | 23:BB:506:G:H1' | 2.35 | 0.41 |
| 41:DT:84:TYR:O | 41:DT:85:VAL:HG22 | 2.20 | 0.41 |
| 23:BB:527:C:C5' | 23:BB:2779:U:H3 | 2.34 | 0.41 |
| 23:BB:2677:G:H2' | 23:BB:2678:C:C6 | 2.55 | 0.41 |
| 28:BF:52:ALA:HA | 28:BF:148:VAL:CG1 | 2.50 | 0.41 |
| 23:BB:1131:G:C1' | 23:BB:1133:A:H62 | 2.24 | 0.41 |
| 20:CB:101:THR:HG23 | 20:CB:102:ASN:N | 2.36 | 0.41 |
| 1:AA:132:C:H5'' | 19:AT:68:LYS:HD2 | 2.02 | 0.41 |
| 31:DJ:76:HIS:HB2 | 31:DJ:86:GLN:CD | 2.41 | 0.41 |
| 41:BT:12:ARG:HE | 44:BX:29:ARG:NH2 | 2.11 | 0.41 |
| 27:BE:114:ARG:HG2 | 27:BE:114:ARG:H | 1.65 | 0.41 |
| 27:BE:116:ASP:HB2 | 27:BE:185:LYS:CA | 2.36 | 0.41 |
| 3:CD:60:VAL:HA | 3:CD:63:ILE:CG2 | 2.51 | 0.41 |
| 51:B4:15:LYS:N | 51:B4:15:LYS:HD2 | 2.35 | 0.41 |
| 3:AD:123:MET:HG3 | 3:AD:127:ARG:C | 2.40 | 0.41 |
| 26:DD:34:VAL:H | 26:DD:90:PHE:CA | 2.33 | 0.41 |
| 13:CN:51:PRO:CG | 13:CN:52:ARG:H | 2.30 | 0.41 |
| 23:BB:1998:A:H2' | 23:BB:1999:C:H6 | 1.84 | 0.41 |
| 23:BB:1655:A:H2 | 23:BB:2049:G:O3' | 2.03 | 0.41 |
| 23:DB:2511:U:O5' | 23:DB:2511:U:H6 | 2.02 | 0.41 |
| 23:DB:2732:G:H3' | 23:DB:2733:A:H5' | 2.02 | 0.41 |
| 23:BB:2649:C:O2' | 23:BB:2650:U:H5' | 2.19 | 0.41 |
| 23:BB:2782:G:O2' | 23:BB:2783:U:H5' | 2.20 | 0.41 |
| 1:AA:75:G:N1 | 1:AA:96:U:C4 | 2.88 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 28:DF:34:THR:HB | 28:DF:154:THR:O | 2.21 | 0.41 |
| 34:DM:35:ALA:HB2 | 34:DM:100:LYS:NZ | 2.35 | 0.41 |
| 26:DD:10:GLY:HA2 | 26:DD:23:PRO:O | 2.21 | 0.41 |
| 1:AA:1110:A:H2' | 1:AA:1111:A:C8 | 2.49 | 0.41 |
| 31:DJ:61:LYS:O | 31:DJ:62:VAL:HG13 | 2.21 | 0.41 |
| 21:AU:40:PRO:HG2 | 21:AU:41:THR:N | 2.28 | 0.41 |
| 37:DP:38:ARG:HG3 | 37:DP:39:LEU:N | 2.20 | 0.41 |
| 19:CT:66:ILE:HG23 | 19:CT:70:LYS:CG | 2.51 | 0.41 |
| 14:CO:80:LEU:CD2 | 14:CO:84:LEU:HD22 | 2.49 | 0.41 |
| 15:CP:44:SER:C | 15:CP:46:LYS:N | 2.73 | 0.41 |
| 35:BN:9:GLN:HE21 | 35:BN:17:ARG:CZ | 2.32 | 0.41 |
| 35:BN:22:ARG:HE | 35:BN:69:ARG:HE | 1.67 | 0.41 |
| 23:BB:795:C:H2' | 23:BB:796:C:C6 | 2.55 | 0.41 |
| 22:DA:52:A:H2' | 22:DA:53:A:C8 | 2.53 | 0.41 |
| 45:BY:3:THR:O | 45:BY:6:ILE:HD12 | 2.20 | 0.41 |
| 52:DI:100:ILE:O | 52:DI:139:VAL:HG13 | 2.20 | 0.41 |
| 15:AP:12:LYS:C | 15:AP:14:ARG:H | 2.24 | 0.41 |
| 20:CB:72:LYS:HD2 | 20:CB:164:ASP:HB3 | 2.02 | 0.41 |
| 23:DB:247:G:C6 | 50:D3:7:ARG:HD2 | 2.56 | 0.41 |
| 32:DK:19:VAL:O | 32:DK:41:ILE:HD11 | 2.20 | 0.41 |
| 23:DB:365:U:H6 | 23:DB:365:U:O5' | 2.02 | 0.41 |
| 23:DB:2677:G:H2' | 23:DB:2678:C:C6 | 2.55 | 0.41 |
| 18:AS:64:GLU:OE1 | 18:AS:65:MET:HG3 | 2.20 | 0.41 |
| 23:DB:2073:C:O2' | 23:DB:2074:U:H5' | 2.20 | 0.41 |
| 36:BO:76:LYS:HA | 36:BO:76:LYS:HD2 | 1.95 | 0.41 |
| 7:CH:100:ILE:HD12 | 7:CH:100:ILE:C | 2.41 | 0.41 |
| 1:AA:813:U:O2' | 1:AA:814:A:H5' | 2.20 | 0.41 |
| 27:BE:52:VAL:C | 27:BE:54:GLY:N | 2.73 | 0.41 |
| 1:CA:1438:G:O2' | 1:CA:1439:G:H5' | 2.20 | 0.41 |
| 38:BQ:21:LYS:C | 38:BQ:23:TYR:H | 2.23 | 0.41 |
| 38:BQ:23:TYR:O | 38:BQ:24:TYR:HB2 | 2.20 | 0.41 |
| 23:DB:2184:A:H2' | 23:DB:2185:U:C6 | 2.56 | 0.41 |
| 35:DN:11:ASN:HA | 35:DN:11:ASN:HD22 | 1.70 | 0.41 |
| 49:D2:7:PRO:O | 49:D2:8:SER:CB | 2.67 | 0.41 |
| 1:AA:119:A:H4' | 1:AA:120:A:O4' | 2.21 | 0.41 |
| 23:DB:484:C:H2' | 23:DB:485:C:H6 | 1.84 | 0.41 |
| 23:BB:1841:U:H2' | 23:BB:1842:G:C8 | 2.55 | 0.41 |
| 28:BF:34:THR:CG2 | 28:BF:89:THR:HG22 | 2.48 | 0.41 |
| 24:BV:51:GLN:NE2 | 24:BV:57:TYR:OH | 2.53 | 0.41 |
| 23:BB:2469:A:C5' | 34:BM:55:ARG:HG3 | 2.50 | 0.41 |
| 1:CA:1190:G:H5' | 2:CC:175:HIS:HE2 | 1.84 | 0.41 |
| 2:CC:4:VAL:HG22 | 2:CC:5:HIS:N | 2.35 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 1:AA:830:G:H2' | 1:AA:831:A:H8 | 1.85 | 0.41 |
| 1:CA:97:G:H3' | 1:CA:98:A:H8 | 1.85 | 0.41 |
| 6:CG:99:ALA:O | 6:CG:103:ILE:HG13 | 2.20 | 0.41 |
| 23:DB:2273:A:H2' | 23:DB:2274:A:C8 | 2.56 | 0.41 |
| 29:DG:132:LEU:O | 29:DG:132:LEU:HD12 | 2.20 | 0.41 |
| 27:BE:84:THR:OG1 | 27:BE:85:PHE:N | 2.53 | 0.41 |
| 23:BB:962:G:H2' | 23:BB:963:U:H6 | 1.85 | 0.41 |
| 1:AA:635:A:H2' | 1:AA:636:U:H6 | 1.85 | 0.41 |
| 3:AD:163:GLN:HB2 | 3:AD:164:ARG:HH12 | 1.82 | 0.41 |
| 23:BB:2185:U:H2' | 23:BB:2186:G:C8 | 2.51 | 0.41 |
| 1:CA:1032:G:H2' | 1:CA:1033:G:O4' | 2.20 | 0.41 |
| 23:BB:175:G:H2' | 23:BB:176:A:H8 | 1.83 | 0.41 |
| 23:BB:2341:G:H2' | 23:BB:2342:C:C6 | 2.55 | 0.41 |
| 1:AA:600:A:H5'' | 7:AH:88:LYS:HD2 | 2.02 | 0.41 |
| 6:AG:142:ARG:C | 6:AG:146:ALA:HB3 | 2.41 | 0.41 |
| 23:BB:1924:C:O2' | 23:BB:1925:C:H5' | 2.21 | 0.41 |
| 11:AL:79:ILE:HD13 | 11:AL:96:THR:HG22 | 2.02 | 0.41 |
| 23:DB:264:C:C2' | 23:DB:265:A:H5'' | 2.50 | 0.41 |
| 23:BB:1297:C:OP1 | 23:BB:2710:C:H4' | 2.20 | 0.41 |
| 23:BB:2034:U:O2' | 23:BB:2035:G:H5' | 2.21 | 0.41 |
| 2:AC:18:ASN:O | 2:AC:55:VAL:HA | 2.20 | 0.41 |
| 19:AT:19:HIS:CE1 | 19:AT:23:ARG:HG3 | 2.55 | 0.41 |
| 1:CA:340:U:H2' | 1:CA:341:C:C6 | 2.53 | 0.41 |
| 50:D3:35:LYS:HG3 | 50:D3:35:LYS:H | 1.70 | 0.41 |
| 22:DA:82:U:H5'' | 45:DY:16:LEU:HD11 | 2.03 | 0.41 |
| 1:CA:224:U:H2' | 1:CA:225:C:C6 | 2.55 | 0.41 |
| 1:AA:1340:A:O2' | 1:AA:1341:U:H5' | 2.20 | 0.41 |
| 1:AA:605:U:H2' | 1:AA:606:G:H8 | 1.86 | 0.41 |
| 23:DB:2659:G:N2 | 23:DB:2661:G:H5'' | 2.36 | 0.41 |
| 1:AA:224:U:H2' | 1:AA:225:C:C6 | 2.56 | 0.41 |
| 23:DB:1281:G:H2' | 23:DB:1282:U:C6 | 2.56 | 0.41 |
| 1:AA:1157:A:H4' | 1:AA:1158:C:O5' | 2.20 | 0.41 |
| 23:BB:730:A:H3' | 55:BB:3597:HOH:O | 2.19 | 0.41 |
| 33:BL:6:LEU:HD22 | 33:BL:6:LEU:N | 2.35 | 0.41 |
| 52:BI:2:LYS:NZ | 52:BI:2:LYS:HB3 | 2.36 | 0.41 |
| 13:CN:89:ARG:CB | 13:CN:89:ARG:HH11 | 2.34 | 0.41 |
| 3:CD:32:LYS:HG3 | 3:CD:32:LYS:O | 2.20 | 0.41 |
| 1:AA:903:G:H2' | 1:AA:904:U:C6 | 2.55 | 0.41 |
| 23:DB:2849:U:O4' | 23:DB:2868:A:C6 | 2.73 | 0.41 |
| 37:DP:50:ARG:CB | 37:DP:50:ARG:HH11 | 2.31 | 0.41 |
| 26:BD:109:VAL:O | 26:BD:172:VAL:HG22 | 2.21 | 0.41 |
| 43:DW:57:THR:O | 43:DW:58:LEU:C | 2.59 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 25:DC:160:TYR:CE2 | 25:DC:193:GLU:HG2 | 2.56 | 0.41 |
| 23:DB:6:A:H4' | 31:DJ:133:ALA:C | 2.41 | 0.41 |
| 18:AS:48:ILE:HG22 | 18:AS:49:ALA:N | 2.35 | 0.41 |
| 30:BH:31:VAL:HG22 | 30:BH:37:VAL:HG22 | 2.02 | 0.41 |
| 27:DE:135:ALA:O | 27:DE:139:LYS:N | 2.53 | 0.41 |
| 33:BL:60:ARG:O | 33:BL:60:ARG:HG3 | 2.20 | 0.41 |
| 23:DB:2092:U:H5 | 23:DB:2226:C:OP2 | 2.02 | 0.41 |
| 39:BR:78:ARG:HD3 | 39:BR:87:GLN:C | 2.40 | 0.41 |
| 1:AA:265:G:H4' | 16:AQ:66:LEU:O | 2.20 | 0.41 |
| 1:AA:404:G:H2' | 1:AA:405:U:H6 | 1.85 | 0.41 |
| 36:DO:26:LEU:HD22 | 36:DO:93:ASP:HA | 2.02 | 0.41 |
| 40:BS:51:LEU:HD13 | 40:BS:51:LEU:C | 2.41 | 0.41 |
| 23:BB:990:A:N3 | 39:BR:79:ARG:NH2 | 2.68 | 0.41 |
| 45:BY:24:LEU:HD23 | 45:BY:29:ARG:HH22 | 1.85 | 0.41 |
| 39:DR:18:GLN:O | 39:DR:19:THR:HG23 | 2.19 | 0.41 |
| 23:BB:477:A:H2' | 23:BB:478:A:O4' | 2.20 | 0.41 |
| 23:DB:1394:U:O2' | 23:DB:1395:A:H5' | 2.21 | 0.41 |
| 31:DJ:38:GLY:O | 31:DJ:41:LYS:HD3 | 2.21 | 0.41 |
| 31:DJ:48:VAL:HG12 | 31:DJ:49:ASP:N | 2.35 | 0.41 |
| 28:BF:133:GLU:CD | 28:BF:150:GLY:H | 2.24 | 0.41 |
| 28:BF:133:GLU:OE1 | 28:BF:150:GLY:N | 2.53 | 0.41 |
| 28:BF:87:LYS:O | 28:BF:88:VAL:HB | 2.20 | 0.41 |
| 23:BB:1131:G:C1' | 31:BJ:85:LYS:NZ | 2.83 | 0.41 |
| 34:DM:71:LYS:HZ3 | 34:DM:71:LYS:CA | 2.29 | 0.41 |
| 31:BJ:109:LEU:O | 31:BJ:111:LYS:HG3 | 2.21 | 0.41 |
| 39:BR:42:ALA:C | 39:BR:44:GLY:H | 2.23 | 0.41 |
| 23:DB:2642:G:H5'' | 31:DJ:80:HIS:HB2 | 2.02 | 0.41 |
| 47:B0:32:THR:HG21 | 47:B0:35:GLU:HB3 | 2.02 | 0.41 |
| 3:CD:158:LEU:CD1 | 3:CD:177:MET:HG2 | 2.50 | 0.41 |
| 3:CD:93:LEU:HA | 3:CD:96:ARG:HG3 | 2.03 | 0.41 |
| 51:B4:7:VAL:HB | 51:B4:35:GLN:HE21 | 1.85 | 0.41 |
| 30:DH:127:GLU:HB2 | 30:DH:143:ILE:CG2 | 2.50 | 0.41 |
| 9:CJ:57:VAL:HG22 | 9:CJ:58:ASN:N | 2.26 | 0.41 |
| 21:AU:33:ARG:CZ | 21:AU:34:ARG:HG3 | 2.50 | 0.41 |
| 21:AU:33:ARG:HB3 | 21:AU:34:ARG:H | 1.64 | 0.41 |
| 10:CK:82:GLU:HB3 | 10:CK:108:ASN:HB3 | 2.02 | 0.41 |
| 43:DW:3:LYS:HA | 43:DW:3:LYS:HZ2 | 1.79 | 0.41 |
| 26:BD:89:GLU:C | 26:BD:91:THR:H | 2.23 | 0.41 |
| 23:DB:928:A:H1' | 45:DY:1:ALA:CA | 2.48 | 0.41 |
| 45:DY:2:LYS:H | 45:DY:37:ARG:HB2 | 1.83 | 0.41 |
| 23:DB:2032:G:N2 | 26:DD:150:GLN:HB3 | 2.36 | 0.41 |
| 29:BG:29:ASN:N | 29:BG:29:ASN:ND2 | 2.68 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 10:AK:122:PRO:CG | 21:AU:35:GLU:HG2 | 2.51 | 0.41 |
| 23:BB:724:U:O2' | 23:BB:725:G:H5' | 2.21 | 0.41 |
| 6:AG:21:LEU:HG | 6:AG:22:LEU:H | 1.84 | 0.41 |
| 6:AG:22:LEU:O | 6:AG:26:VAL:HG13 | 2.19 | 0.41 |
| 23:BB:466:A:H2 | 23:BB:795:C:O2 | 2.03 | 0.41 |
| 1:AA:1005:A:O2' | 1:AA:1006:G:H5' | 2.21 | 0.41 |
| 35:DN:72:ASP:OD2 | 35:DN:75:ILE:HG23 | 2.20 | 0.41 |
| 35:DN:75:ILE:HG13 | 35:DN:76:VAL:N | 2.36 | 0.41 |
| 2:AC:14:VAL:HG23 | 2:AC:15:LYS:HG2 | 2.03 | 0.41 |
| 2:AC:7:ASN:OD1 | 2:AC:183:TYR:HB3 | 2.21 | 0.41 |
| 1:AA:1347:G:N2 | 1:AA:1373:G:H2' | 2.35 | 0.41 |
| 28:DF:136:ILE:HG22 | 28:DF:137:PHE:N | 2.35 | 0.41 |
| 33:BL:21:ARG:CZ | 33:BL:21:ARG:HB3 | 2.50 | 0.41 |
| 8:CI:15:ALA:O | 8:CI:66:VAL:HA | 2.21 | 0.41 |
| 34:DM:129:THR:O | 34:DM:131:VAL:HG12 | 2.20 | 0.41 |
| 9:CJ:73:LEU:C | 9:CJ:73:LEU:HD13 | 2.41 | 0.41 |
| 1:AA:1370:G:O2' | 1:AA:1371:G:H5' | 2.20 | 0.41 |
| 23:BB:2385:C:H2' | 23:BB:2386:A:H8 | 1.86 | 0.41 |
| 23:DB:2070:A:H2' | 23:DB:2071:A:O4' | 2.20 | 0.41 |
| 23:DB:2072:C:H2' | 23:DB:2073:C:C6 | 2.54 | 0.41 |
| 11:CL:29:LYS:O | 11:CL:81:ILE:N | 2.50 | 0.41 |
| 23:DB:2204:G:C5' | 25:DC:149:LYS:HE3 | 2.50 | 0.41 |
| 41:BT:70:HIS:CG | 41:BT:74:ILE:HB | 2.55 | 0.41 |
| 46:DZ:28:VAL:HG23 | 46:DZ:29:GLY:H | 1.85 | 0.41 |
| 14:CO:30:LEU:O | 14:CO:34:GLN:HG3 | 2.20 | 0.41 |
| 42:DU:42:LYS:N | 42:DU:57:ILE:HD12 | 2.28 | 0.41 |
| 23:DB:2101:A:O2' | 23:DB:2102:G:H5' | 2.21 | 0.41 |
| 23:BB:1299:G:C5' | 23:BB:1301:A:H1' | 2.51 | 0.41 |
| 23:DB:179:C:OP1 | 49:D2:28:ARG:HD3 | 2.18 | 0.41 |
| 4:AE:95:MET:CE | 4:AE:114:LEU:HD11 | 2.51 | 0.41 |
| 23:BB:2198:A:N6 | 30:BH:25:TYR:HE1 | 2.18 | 0.41 |
| 23:DB:1903:G:OP1 | 25:DC:239:PHE:CD2 | 2.74 | 0.41 |
| 3:AD:32:LYS:HB3 | 3:AD:35:GLN:CG | 2.50 | 0.41 |
| 46:DZ:34:LEU:HB3 | 46:DZ:35:ASP:H | 1.54 | 0.41 |
| 27:BE:25:GLU:CD | 33:BL:17:LYS:HG2 | 2.40 | 0.41 |
| 29:DG:132:LEU:C | 29:DG:132:LEU:HD12 | 2.40 | 0.41 |
| 1:CA:1133:G:H2' | 1:CA:1134:G:O4' | 2.21 | 0.41 |
| 1:CA:371:A:H2' | 1:CA:372:C:C6 | 2.54 | 0.41 |
| 13:AN:20:PHE:CG | 13:AN:24:ALA:HB2 | 2.56 | 0.41 |
| 32:BK:20:MET:HB3 | 32:BK:42:THR:HB | 2.01 | 0.41 |
| 23:DB:866:A:N1 | 23:DB:913:U:H4' | 2.36 | 0.41 |
| 23:DB:281:C:H2' | 23:DB:282:A:C8 | 2.56 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 25:BC:265:PHE:HB3 | 25:BC:266:ILE:H | 1.74 | 0.41 |
| 1:CA:828:U:O2' | 20:CB:24:PRO:HB3 | 2.20 | 0.41 |
| 1:AA:738:C:H2' | 1:AA:739:C:H6 | 1.86 | 0.41 |
| 1:CA:79:G:H2' | 1:CA:80:A:H8 | 1.83 | 0.41 |
| 23:DB:374:A:H2' | 23:DB:375:G:O4' | 2.21 | 0.41 |
| 49:B2:21:ARG:CB | 49:B2:31:LEU:HD21 | 2.49 | 0.41 |
| 1:AA:551:U:H2' | 1:AA:552:U:H6 | 1.86 | 0.41 |
| 23:BB:15:G:H2' | 23:BB:16:C:H6 | 1.84 | 0.41 |
| 23:BB:2825:G:C2' | 23:BB:2826:A:H5' | 2.51 | 0.41 |
| 23:DB:1434:A:OP1 | 23:DB:1434:A:H4' | 2.20 | 0.41 |
| 39:DR:27:ILE:HG23 | 39:DR:27:ILE:O | 2.20 | 0.41 |
| 23:BB:2710:C:H2' | 23:BB:2711:A:C8 | 2.56 | 0.41 |
| 23:DB:2034:U:O2' | 23:DB:2035:G:H5' | 2.20 | 0.41 |
| 1:AA:489:C:H2' | 1:AA:490:C:H6 | 1.86 | 0.41 |
| 23:DB:1345:C:H5' | 23:DB:1396:U:H5 | 1.85 | 0.41 |
| 1:AA:66:A:O2' | 1:AA:67:C:H5' | 2.21 | 0.41 |
| 1:CA:1363:A:O2' | 1:CA:1365:G:N7 | 2.45 | 0.41 |
| 29:DG:104:LEU:HD12 | 29:DG:106:LEU:HD21 | 2.02 | 0.41 |
| 23:BB:2457:U:C2' | 23:BB:2458:G:H5' | 2.49 | 0.41 |
| 23:BB:1281:G:H2' | 23:BB:1282:U:C6 | 2.56 | 0.41 |
| 23:BB:1498:C:H2' | 23:BB:1499:C:H6 | 1.86 | 0.41 |
| 23:DB:1977:A:H2' | 23:DB:1978:A:O4' | 2.21 | 0.41 |
| 20:AB:45:THR:HA | 20:AB:48:MET:CG | 2.51 | 0.41 |
| 1:AA:68:G:H5' | 1:AA:171:A:O2' | 2.21 | 0.41 |
| 1:CA:644:U:O2' | 1:CA:645:G:H5' | 2.20 | 0.41 |
| 1:AA:1395:C:H2' | 1:AA:1395:C:O2 | 2.21 | 0.41 |
| 33:DL:143:GLU:HG2 | 33:DL:143:GLU:O | 2.20 | 0.41 |
| 1:AA:666:G:H5' | 1:AA:726:C:H1' | 2.03 | 0.41 |
| 37:DP:28:LYS:HZ2 | 37:DP:44:GLY:H | 1.67 | 0.41 |
| 37:BP:59:THR:O | 37:BP:59:THR:HG22 | 2.20 | 0.41 |
| 23:BB:2205:A:H2' | 23:BB:2206:C:H6 | 1.86 | 0.41 |
| 30:DH:9:VAL:O | 30:DH:11:ASN:N | 2.54 | 0.41 |
| 35:DN:38:LEU:O | 35:DN:41:ALA:HB3 | 2.21 | 0.41 |
| 25:DC:107:LYS:HD2 | 25:DC:196:ASN:ND2 | 2.36 | 0.41 |
| 31:BJ:102:GLU:HG2 | 31:BJ:103:ILE:N | 2.35 | 0.41 |
| 1:AA:1217:C:H2' | 1:AA:1218:C:C6 | 2.55 | 0.41 |
| 18:AS:40:PHE:CG | 18:AS:41:PRO:HD2 | 2.56 | 0.41 |
| 15:AP:40:ASN:HD21 | 15:AP:42:ILE:CG1 | 2.33 | 0.41 |
| 34:BM:69:PRO:HB2 | 34:BM:70:ASP:H | 1.62 | 0.41 |
| 24:BV:80:HIS:CD2 | 24:BV:81:PRO:HD2 | 2.56 | 0.41 |
| 1:AA:407:U:H3' | 1:AA:408:A:H8 | 1.85 | 0.41 |
| 3:AD:109:THR:HG23 | 3:AD:112:GLU:H | 1.86 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 35:BN:29:VAL:HG22 | 35:BN:83:LEU:CD2 | 2.48 | 0.41 |
| 23:BB:1133:A:N6 | 23:BB:2025:C:O2' | 2.54 | 0.41 |
| 38:BQ:80:ASN:HD22 | 38:BQ:80:ASN:HA | 1.66 | 0.41 |
| 46:DZ:54:GLY:N | 46:DZ:57:VAL:HG23 | 2.15 | 0.41 |
| 20:CB:156:LEU:HD11 | 20:CB:178:LEU:CD1 | 2.33 | 0.41 |
| 31:DJ:84:ILE:CG1 | 31:DJ:85:LYS:H | 2.33 | 0.41 |
| 27:BE:6:LYS:HB2 | 27:BE:12:LEU:HD11 | 2.01 | 0.41 |
| 23:DB:921:C:C2 | 23:DB:922:C:C5 | 3.09 | 0.41 |
| 51:B4:10:LEU:O | 51:B4:11:CYS:HB3 | 2.21 | 0.41 |
| 10:AK:95:THR:HG23 | 10:AK:96:ILE:HG13 | 2.01 | 0.41 |
| 23:DB:1449:G:H2' | 23:DB:1450:G:C8 | 2.56 | 0.41 |
| 26:BD:138:LEU:CD2 | 26:BD:138:LEU:N | 2.79 | 0.41 |
| 26:BD:138:LEU:HD23 | 26:BD:138:LEU:N | 2.26 | 0.41 |
| 26:BD:141:ARG:O | 26:BD:142:VAL:C | 2.58 | 0.41 |
| 26:BD:165:MET:CE | 26:BD:166:GLY:H | 2.31 | 0.41 |
| 35:BN:1:MET:SD | 35:BN:2:ARG:HB2 | 2.60 | 0.41 |
| 23:BB:545:U:C2 | 23:BB:548:G:OP2 | 2.74 | 0.41 |
| 10:CK:110:THR:HG22 | 21:CU:4:LYS:HA | 2.02 | 0.41 |
| 27:DE:15:SER:HB3 | 27:DE:196:VAL:HG13 | 2.02 | 0.41 |
| 23:DB:834:G:H2' | 23:DB:835:C:C6 | 2.55 | 0.41 |
| 26:BD:3:GLY:HA3 | 26:BD:49:GLN:HE22 | 1.86 | 0.41 |
| 45:DY:26:LEU:HD23 | 45:DY:26:LEU:N | 2.35 | 0.41 |
| 32:DK:99:ILE:O | 32:DK:119:ALA:HB2 | 2.20 | 0.41 |
| 23:BB:2372:U:H1' | 48:B1:45:HIS:CE1 | 2.56 | 0.41 |
| 20:CB:116:LEU:HD22 | 20:CB:140:LEU:CD2 | 2.41 | 0.41 |
| 4:CE:89:THR:HG22 | 4:CE:91:SER:N | 2.22 | 0.41 |
| 15:CP:28:ARG:C | 15:CP:30:GLY:H | 2.24 | 0.41 |
| 52:BI:130:GLY:HA2 | 52:BI:133:ARG:NH2 | 2.35 | 0.41 |
| 23:DB:794:A:C4 | 23:DB:795:C:C5 | 3.09 | 0.41 |
| 2:AC:35:ASP:O | 2:AC:38:VAL:HG22 | 2.21 | 0.41 |
| 2:AC:86:LEU:O | 2:AC:90:VAL:HG22 | 2.20 | 0.41 |
| 23:DB:1064:C:O2' | 23:DB:1065:U:H5' | 2.20 | 0.41 |
| 48:D1:49:LYS:C | 48:D1:49:LYS:HD2 | 2.41 | 0.41 |
| 1:AA:91:U:C4 | 1:AA:92:U:C4 | 3.09 | 0.41 |
| 1:AA:92:U:O2' | 1:AA:93:U:H5' | 2.20 | 0.41 |
| 23:BB:2270:A:C4' | 43:BW:18:LYS:HB3 | 2.49 | 0.41 |
| 50:B3:34:LYS:HB3 | 50:B3:35:LYS:CE | 2.50 | 0.41 |
| 11:CL:49:ARG:HD3 | 11:CL:89:LEU:HD21 | 2.01 | 0.41 |
| 1:AA:878:A:H2' | 1:AA:879:C:C6 | 2.56 | 0.41 |
| 6:CG:24:LYS:HA | 6:CG:27:ASN:HD22 | 1.85 | 0.41 |
| 25:DC:28:PRO:CG | 25:DC:79:ARG:HE | 2.34 | 0.41 |
| 34:DM:119:LEU:CD2 | 34:DM:119:LEU:H | 2.34 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 50:D3:4:LYS:HZ1 | 50:D3:60:CYS:HB3 | 1.86 | 0.41 |
| 28:BF:32:LYS:HD2 | 28:BF:89:THR:HB | 2.01 | 0.41 |
| 8:AI:24:ASN:C | 8:AI:26:LYS:HZ2 | 2.24 | 0.41 |
| 23:BB:1593:A:H2' | 23:BB:1594:U:O4' | 2.20 | 0.41 |
| 23:DB:570:G:C2' | 23:DB:571:U:H5' | 2.51 | 0.41 |
| 23:DB:523:C:H4' | 23:DB:540:C:O2 | 2.21 | 0.41 |
| 23:BB:1372:U:H2' | 23:BB:1373:A:C8 | 2.55 | 0.41 |
| 20:AB:76:SER:OG | 20:AB:92:ASN:HB2 | 2.21 | 0.41 |
| 1:CA:1190:G:H5' | 2:CC:175:HIS:NE2 | 2.36 | 0.41 |
| 29:BG:97:VAL:HG21 | 29:BG:123:GLU:HA | 2.02 | 0.41 |
| 1:CA:207:C:O2' | 1:CA:208:U:H5' | 2.20 | 0.41 |
| 4:CE:64:GLU:HA | 4:CE:67:ARG:HH12 | 1.85 | 0.41 |
| 46:DZ:17:SER:H | 46:DZ:21:VAL:HG12 | 1.85 | 0.41 |
| 14:AO:58:MET:HG2 | 14:AO:58:MET:H | 1.68 | 0.41 |
| 23:BB:599:A:H2' | 23:BB:600:G:H8 | 1.84 | 0.41 |
| 1:AA:1300:G:C2' | 1:AA:1301:U:OP2 | 2.69 | 0.41 |
| 23:DB:2681:C:OP2 | 26:DD:114:LYS:HE3 | 2.20 | 0.41 |
| 29:DG:154:GLU:OE2 | 29:DG:159:LYS:HB2 | 2.21 | 0.41 |
| 23:DB:432:A:H2' | 23:DB:433:C:O4' | 2.20 | 0.41 |
| 1:CA:162:A:H2' | 1:CA:163:C:O4' | 2.20 | 0.41 |
| 24:DV:48:MET:O | 24:DV:51:GLN:HG3 | 2.20 | 0.41 |
| 23:BB:1097:U:H2' | 23:BB:1098:A:C5' | 2.50 | 0.41 |
| 23:DB:1460:U:H5' | 23:DB:1461:C:C6 | 2.56 | 0.41 |
| 1:CA:1293:C:H2' | 1:CA:1294:G:O4' | 2.20 | 0.41 |
| 22:BA:12:C:H41 | 43:BW:50:VAL:HG23 | 1.86 | 0.41 |
| 17:CR:20:ILE:HD12 | 17:CR:53:GLN:NE2 | 2.34 | 0.41 |
| 1:AA:1457:G:H2' | 1:AA:1458:G:H8 | 1.86 | 0.41 |
| 23:DB:2221:G:H2' | 23:DB:2222:C:C6 | 2.56 | 0.41 |
| 19:AT:54:GLN:N | 19:AT:55:PRO:CD | 2.82 | 0.41 |
| 23:BB:1945:G:H2' | 23:BB:1946:U:H6 | 1.81 | 0.41 |
| 1:CA:688:G:H5' | 10:CK:48:GLY:CA | 2.50 | 0.41 |
| 23:BB:1036:G:C6 | 23:BB:1120:G:C6 | 3.07 | 0.41 |
| 40:BS:85:ILE:HG22 | 40:BS:86:MET:N | 2.35 | 0.41 |
| 1:CA:857:C:O2' | 1:CA:858:G:H5' | 2.21 | 0.41 |
| 34:DM:105:MET:O | 34:DM:106:ASP:C | 2.59 | 0.41 |
| 52:DI:9:LYS:HG2 | 52:DI:57:VAL:HG22 | 2.03 | 0.41 |
| 23:DB:2668:G:O2' | 23:DB:2669:G:H5' | 2.20 | 0.41 |
| 23:BB:2668:G:O2' | 23:BB:2669:G:H5' | 2.20 | 0.41 |
| 23:DB:2191:A:H2' | 23:DB:2192:U:H6 | 1.83 | 0.41 |
| 9:CJ:44:THR:HG23 | 9:CJ:70:HIS:HA | 2.02 | 0.41 |
| 22:BA:81:G:H2' | 22:BA:82:U:C6 | 2.55 | 0.41 |
| 25:DC:59:GLN:HB2 | 25:DC:60:ALA:H | 1.64 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:DB:82:U:H2' | 23:DB:83:A:O4' | 2.20 | 0.41 |
| 23:BB:32:C:H5' | 23:BB:1238:G:OP1 | 2.19 | 0.41 |
| 23:DB:1678:A:C2' | 23:DB:1679:A:H5' | 2.50 | 0.41 |
| 15:AP:44:SER:O | 15:AP:45:GLU:C | 2.59 | 0.41 |
| 1:CA:821:G:H2' | 1:CA:822:U:C6 | 2.55 | 0.41 |
| 45:BY:8:GLN:NE2 | 45:BY:23:LEU:HD21 | 2.35 | 0.41 |
| 29:DG:104:LEU:N | 29:DG:112:VAL:O | 2.51 | 0.41 |
| 1:AA:989:U:H2' | 1:AA:990:C:H6 | 1.85 | 0.41 |
| 23:BB:2659:G:N2 | 23:BB:2661:G:H5'' | 2.36 | 0.41 |
| 23:DB:2686:G:H2' | 23:DB:2687:U:C6 | 2.55 | 0.41 |
| 28:DF:48:LEU:C | 28:DF:50:ASP:H | 2.24 | 0.41 |
| 23:DB:63:A:OP2 | 23:DB:63:A:H8 | 2.04 | 0.41 |
| 1:CA:928:G:O2' | 1:CA:929:G:H5' | 2.20 | 0.41 |
| 3:AD:176:LYS:O | 3:AD:177:MET:C | 2.59 | 0.41 |
| 23:DB:1893:C:H2' | 23:DB:1894:C:O4' | 2.21 | 0.41 |
| 23:BB:484:C:H2' | 23:BB:485:C:H6 | 1.85 | 0.41 |
| 23:DB:811:U:H2' | 33:DL:32:GLY:HA2 | 2.02 | 0.41 |
| 23:BB:490:C:H4' | 23:BB:491:G:OP2 | 2.20 | 0.41 |
| 23:DB:413:C:O5' | 23:DB:413:C:H6 | 2.04 | 0.41 |
| 6:AG:10:LYS:NZ | 6:AG:10:LYS:HB2 | 2.36 | 0.41 |
| 1:CA:596:A:O2' | 1:CA:597:G:H5' | 2.20 | 0.41 |
| 2:CC:111:ASP:O | 2:CC:112:ALA:HB3 | 2.21 | 0.41 |
| 37:DP:91:VAL:O | 37:DP:92:ARG:HB3 | 2.21 | 0.41 |
| 42:BU:6:ARG:C | 42:BU:8:ASP:N | 2.73 | 0.41 |
| 36:BO:60:GLU:HG3 | 36:BO:61:GLN:N | 2.35 | 0.41 |
| 36:BO:64:TYR:HD1 | 36:BO:74:VAL:HG21 | 1.84 | 0.41 |
| 27:BE:45:ALA:HB3 | 27:BE:89:PRO:HA | 2.02 | 0.41 |
| 26:BD:11:MET:CE | 37:BP:9:GLN:HG2 | 2.51 | 0.41 |
| 23:DB:2259:U:C2 | 23:DB:2260:C:C6 | 3.09 | 0.41 |
| 30:DH:3:VAL:CB | 30:DH:37:VAL:HG11 | 2.50 | 0.41 |
| 43:BW:54:ARG:HH11 | 43:BW:54:ARG:CG | 2.31 | 0.41 |
| 1:AA:1221:G:O2' | 1:AA:1222:G:H5' | 2.20 | 0.41 |
| 27:BE:132:LYS:HG3 | 27:BE:132:LYS:H | 1.55 | 0.41 |
| 42:BU:82:VAL:HG12 | 42:BU:83:GLY:N | 2.35 | 0.41 |
| 23:BB:967:U:C2 | 23:BB:968:C:C5 | 3.09 | 0.41 |
| 23:BB:968:C:H4' | 45:BY:16:LEU:HD23 | 2.03 | 0.41 |
| 46:BZ:21:VAL:HG12 | 46:BZ:23:LYS:HG2 | 2.03 | 0.41 |
| 23:BB:2467:C:H1' | 34:BM:118:LYS:HG2 | 2.01 | 0.41 |
| 16:AQ:56:ASP:C | 16:AQ:79:GLU:HB3 | 2.40 | 0.41 |
| 11:AL:5:GLN:HA | 11:AL:8:ARG:NE | 2.35 | 0.41 |
| 25:DC:265:PHE:HB3 | 25:DC:266:ILE:H | 1.75 | 0.41 |
| 40:BS:6:LYS:CB | 40:BS:104:THR:HG22 | 2.50 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:BB:989:G:OP1 | 23:BB:1157:G:H4' | 2.20 | 0.41 |
| 39:DR:35:PHE:O | 39:DR:63:VAL:HG23 | 2.20 | 0.41 |
| 42:BU:60:LYS:CG | 42:BU:61:GLU:N | 2.84 | 0.41 |
| 41:DT:61:LEU:O | 41:DT:62:VAL:HG13 | 2.21 | 0.41 |
| 28:BF:36:ASN:HB2 | 28:BF:87:LYS:CA | 2.33 | 0.41 |
| 18:CS:28:LYS:HB2 | 18:CS:29:PRO:HD2 | 2.02 | 0.41 |
| 25:BC:81:GLU:O | 25:BC:90:ILE:HG22 | 2.21 | 0.41 |
| 25:BC:90:ILE:HG23 | 25:BC:91:ALA:N | 2.35 | 0.41 |
| 31:BJ:34:ARG:CG | 31:BJ:39:LYS:HD2 | 2.50 | 0.41 |
| 12:AM:12:LYS:CB | 12:AM:17:ALA:HB2 | 2.51 | 0.41 |
| 12:AM:12:LYS:HB3 | 12:AM:17:ALA:HB2 | 2.02 | 0.41 |
| 51:B4:2:LYS:HB3 | 51:B4:2:LYS:HZ2 | 1.86 | 0.41 |
| 10:AK:88:PRO:HA | 10:AK:92:ARG:CD | 2.51 | 0.41 |
| 18:CS:14:LEU:C | 18:CS:14:LEU:HD12 | 2.41 | 0.41 |
| 16:CQ:64:ARG:HH11 | 16:CQ:64:ARG:CB | 2.34 | 0.41 |
| 23:BB:2512:C:H5'' | 26:BD:125:TRP:CZ3 | 2.56 | 0.41 |
| 23:BB:1656:C:OP1 | 26:BD:141:ARG:HD3 | 2.21 | 0.41 |
| 26:BD:165:MET:CG | 26:BD:166:GLY:H | 2.33 | 0.41 |
| 13:CN:12:ARG:HD3 | 13:CN:58:ARG:O | 2.20 | 0.41 |
| 1:AA:1505:G:H5'' | 1:AA:1506:U:O5' | 2.21 | 0.41 |
| 26:DD:160:LYS:O | 26:DD:161:MET:C | 2.58 | 0.41 |
| 52:DI:131:THR:O | 52:DI:135:MET:HG3 | 2.21 | 0.41 |
| 28:DF:35:LEU:CD2 | 28:DF:153:ILE:HG12 | 2.51 | 0.41 |
| 8:CI:10:ARG:HA | 8:CI:14:SER:O | 2.21 | 0.41 |
| 14:AO:63:ARG:NH1 | 14:AO:63:ARG:HB3 | 2.35 | 0.41 |
| 39:DR:20:VAL:HA | 39:DR:97:LYS:O | 2.20 | 0.41 |
| 1:AA:967:C:OP1 | 1:AA:969:A:C8 | 2.74 | 0.41 |
| 12:AM:21:ILE:C | 12:AM:23:GLY:H | 2.24 | 0.41 |
| 2:AC:17:TRP:C | 2:AC:19:SER:H | 2.23 | 0.41 |
| 2:AC:38:VAL:CG2 | 2:AC:39:ARG:N | 2.83 | 0.41 |
| 29:DG:156:TYR:HD1 | 29:DG:171:LYS:HG2 | 1.85 | 0.41 |
| 48:D1:13:SER:HB3 | 48:D1:49:LYS:HZ1 | 1.84 | 0.41 |
| 48:D1:8:ILE:HG23 | 48:D1:9:LYS:N | 2.35 | 0.41 |
| 23:BB:1196:C:H2' | 23:BB:1197:G:C8 | 2.56 | 0.41 |
| 36:BO:30:ARG:O | 36:BO:31:THR:O | 2.39 | 0.41 |
| 8:AI:12:LYS:N | 8:AI:109:GLN:HE22 | 2.13 | 0.41 |
| 23:DB:2070:A:C2 | 23:DB:2442:C:C2 | 3.09 | 0.41 |
| 29:DG:2:ARG:HD2 | 29:DG:2:ARG:O | 2.21 | 0.41 |
| 11:AL:113:ARG:HA | 11:AL:118:VAL:CG2 | 2.51 | 0.41 |
| 23:BB:2285:C:H41 | 48:B1:24:LYS:HZ2 | 1.69 | 0.41 |
| 1:CA:1510:C:H2' | 1:CA:1511:G:C8 | 2.56 | 0.41 |
| 1:CA:1170:A:H5'' | 20:CB:138:ARG:HH22 | 1.84 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 33:DL:66:PHE:CD2 | 33:DL:67:THR:N | 2.89 | 0.41 |
| 23:BB:1827:U:C2' | 23:BB:1828:G:H5' | 2.51 | 0.41 |
| 23:DB:484:C:H2' | 23:DB:485:C:C6 | 2.54 | 0.41 |
| 1:AA:1207:G:O2' | 1:AA:1208:C:H5' | 2.20 | 0.41 |
| 1:AA:191:G:H2' | 1:AA:192:A:C8 | 2.56 | 0.41 |
| 1:AA:191:G:H2' | 1:AA:192:A:H8 | 1.86 | 0.41 |
| 23:BB:2094:A:H5' | 30:BH:25:TYR:CD1 | 2.54 | 0.41 |
| 1:CA:191:G:H2' | 1:CA:192:A:C8 | 2.56 | 0.41 |
| 23:BB:844:A:C2 | 23:BB:845:A:N1 | 2.89 | 0.41 |
| 23:BB:558:U:C5' | 31:BJ:114:LEU:HD22 | 2.51 | 0.41 |
| 23:BB:834:G:O2' | 50:B3:50:SER:HB3 | 2.21 | 0.41 |
| 6:CG:70:PRO:HD3 | 6:CG:102:TRP:CZ3 | 2.56 | 0.41 |
| 29:DG:145:ALA:HB2 | 29:DG:163:TYR:OH | 2.20 | 0.41 |
| 36:BO:103:VAL:HG23 | 36:BO:104:GLN:N | 2.35 | 0.41 |
| 23:DB:1446:C:H2' | 23:DB:1447:C:H6 | 1.86 | 0.41 |
| 1:CA:1128:C:H2' | 1:CA:1129:C:O4' | 2.21 | 0.41 |
| 3:CD:115:GLN:HE21 | 3:CD:153:ARG:HH12 | 1.66 | 0.41 |
| 23:DB:31:C:C2' | 23:DB:32:C:H5' | 2.51 | 0.41 |
| 30:BH:141:LYS:HE2 | 30:BH:141:LYS:HB2 | 1.86 | 0.41 |
| 1:AA:1010:U:H2' | 1:AA:1011:C:H6 | 1.86 | 0.41 |
| 1:CA:1294:G:H2' | 1:CA:1295:U:C6 | 2.56 | 0.41 |
| 23:DB:1744:A:O2' | 23:DB:1745:A:H5' | 2.21 | 0.41 |
| 1:AA:619:U:C2 | 3:AD:131:ILE:HD12 | 2.56 | 0.41 |
| 23:BB:2096:C:H2' | 23:BB:2097:A:H8 | 1.86 | 0.41 |
| 20:CB:173:LYS:HD2 | 20:CB:173:LYS:C | 2.41 | 0.41 |
| 23:BB:2653:U:H2' | 23:BB:2654:A:C8 | 2.55 | 0.41 |
| 23:DB:622:G:H2' | 23:DB:623:C:H6 | 1.86 | 0.41 |
| 4:AE:89:THR:HG21 | 4:AE:134:ASN:ND2 | 2.36 | 0.41 |
| 1:CA:844:G:H2' | 1:CA:845:A:H5'' | 2.01 | 0.41 |
| 4:AE:35:LEU:HD21 | 4:AE:47:PHE:HB2 | 2.02 | 0.41 |
| 23:BB:1434:A:OP1 | 23:BB:1434:A:H4' | 2.20 | 0.41 |
| 1:AA:857:C:O2' | 1:AA:858:G:H5' | 2.21 | 0.41 |
| 35:DN:14:SER:HA | 35:DN:17:ARG:CZ | 2.51 | 0.41 |
| 19:CT:24:ARG:HG3 | 19:CT:65:LEU:HD11 | 2.03 | 0.41 |
| 23:DB:1322:A:C5 | 23:DB:1323:C:C5 | 3.08 | 0.41 |
| 34:BM:105:MET:HE3 | 34:BM:106:ASP:C | 2.41 | 0.41 |
| 14:AO:15:GLY:C | 14:AO:17:ASP:H | 2.24 | 0.41 |
| 1:AA:42:G:O2' | 1:AA:43:C:H5' | 2.20 | 0.41 |
| 23:BB:689:A:H2' | 23:BB:690:G:H8 | 1.85 | 0.41 |
| 50:D3:38:LYS:N | 50:D3:38:LYS:HD2 | 2.36 | 0.41 |
| 23:DB:1498:C:H2' | 23:DB:1499:C:H6 | 1.86 | 0.41 |
| 9:CJ:92:LEU:O | 9:CJ:93:ALA:HB2 | 2.21 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 33:BL:4:ASN:O | 33:BL:6:LEU:HD22 | 2.21 | 0.41 |
| 1:AA:102:G:N3 | 1:AA:151:A:H2 | 2.19 | 0.41 |
| 19:CT:11:ILE:HG13 | 19:CT:12:GLN:N | 2.36 | 0.41 |
| 12:CM:13:HIS:HB2 | 12:CM:16:ILE:HG22 | 2.02 | 0.41 |
| 29:DG:121:THR:HG22 | 29:DG:122:ALA:H | 1.86 | 0.41 |
| 1:CA:1043:G:C2' | 1:CA:1044:A:O5' | 2.68 | 0.41 |
| 23:DB:67:U:H2' | 23:DB:68:G:O4' | 2.21 | 0.41 |
| 23:DB:1099:G:C5' | 52:DI:3:LYS:CA | 2.99 | 0.41 |
| 37:DP:61:ARG:CB | 37:DP:61:ARG:CZ | 2.98 | 0.41 |
| 37:DP:91:VAL:O | 37:DP:92:ARG:CB | 2.69 | 0.41 |
| 27:DE:48:THR:CG2 | 27:DE:85:PHE:N | 2.84 | 0.41 |
| 44:DX:41:HIS:ND1 | 44:DX:43:LEU:HD23 | 2.36 | 0.41 |
| 44:DX:40:SER:OG | 44:DX:42:LEU:HD23 | 2.20 | 0.41 |
| 42:BU:9:GLU:CG | 42:BU:23:LYS:HB3 | 2.51 | 0.41 |
| 42:BU:71:ILE:HG21 | 42:BU:95:PHE:CE1 | 2.55 | 0.41 |
| 32:BK:108:ARG:HG3 | 32:BK:108:ARG:NH1 | 2.36 | 0.41 |
| 51:D4:36:ARG:NH1 | 51:D4:36:ARG:HG2 | 2.34 | 0.41 |
| 51:D4:15:LYS:C | 51:D4:17:VAL:N | 2.74 | 0.41 |
| 51:D4:23:ILE:CD1 | 51:D4:24:ARG:HH11 | 2.34 | 0.41 |
| 25:BC:160:TYR:CD2 | 25:BC:193:GLU:HG2 | 2.56 | 0.41 |
| 25:BC:107:LYS:H | 25:BC:194:VAL:CG2 | 2.31 | 0.41 |
| 25:BC:185:ALA:C | 25:BC:187:CYS:H | 2.24 | 0.41 |
| 25:BC:143:VAL:HG12 | 25:BC:187:CYS:SG | 2.61 | 0.41 |
| 25:DC:163:ILE:HA | 25:DC:173:LEU:HD23 | 2.03 | 0.41 |
| 25:DC:173:LEU:HD12 | 25:DC:183:VAL:CG1 | 2.48 | 0.41 |
| 25:DC:103:ILE:HG22 | 25:DC:104:LEU:N | 2.36 | 0.41 |
| 31:DJ:128:ASN:O | 31:DJ:130:HIS:N | 2.54 | 0.41 |
| 31:BJ:125:TYR:CE2 | 31:BJ:134:ALA:HB2 | 2.56 | 0.41 |
| 23:BB:1142:A:C4 | 23:BB:1144:A:C8 | 3.08 | 0.41 |
| 43:BW:81:ILE:HG13 | 43:BW:82:GLU:HG2 | 2.03 | 0.41 |
| 33:DL:33:ARG:HB3 | 39:DR:85:LYS:NZ | 2.35 | 0.41 |
| 23:DB:301:G:C4 | 23:DB:302:C:C6 | 3.09 | 0.41 |
| 42:DU:26:ASN:O | 42:DU:28:LEU:HG | 2.21 | 0.41 |
| 33:BL:118:THR:OG1 | 33:BL:119:PRO:HD3 | 2.20 | 0.41 |
| 33:BL:84:LYS:O | 33:BL:85:VAL:CB | 2.69 | 0.41 |
| 45:BY:16:LEU:CB | 45:BY:17:PRO:CD | 2.91 | 0.41 |
| 46:BZ:3:LYS:HG3 | 46:BZ:6:HIS:O | 2.21 | 0.41 |
| 46:DZ:1:MET:HG3 | 46:DZ:9:TYR:CE2 | 2.56 | 0.41 |
| 34:BM:45:GLN:CG | 34:BM:120:ALA:HA | 2.51 | 0.41 |
| 34:BM:8:LYS:NZ | 34:BM:69:PRO:HG2 | 2.36 | 0.41 |
| 24:BV:87:GLN:N | 24:BV:87:GLN:NE2 | 2.69 | 0.41 |
| 23:BB:2019:A:O2' | 38:BQ:32:ARG:NH2 | 2.54 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:BB:1225:G:C5' | 39:BR:78:ARG:NH2 | 2.84 | 0.41 |
| 23:BB:2617:U:O2' | 23:BB:2618:G:H5' | 2.21 | 0.41 |
| 23:BB:2020:A:OP1 | 38:BQ:25:GLY:HA3 | 2.20 | 0.41 |
| 16:AQ:8:GLN:HA | 16:AQ:58:VAL:O | 2.21 | 0.41 |
| 26:DD:197:THR:CG2 | 26:DD:198:GLY:H | 2.08 | 0.41 |
| 1:AA:401:C:H2' | 1:AA:402:G:H8 | 1.86 | 0.41 |
| 36:DO:10:ARG:HD2 | 36:DO:94:ARG:HG3 | 2.02 | 0.41 |
| 26:BD:170:VAL:CG1 | 26:BD:194:PRO:HG2 | 2.51 | 0.41 |
| 31:DJ:36:LEU:O | 31:DJ:51:GLY:HA2 | 2.21 | 0.41 |
| 8:AI:35:GLU:N | 8:AI:35:GLU:OE2 | 2.54 | 0.41 |
| 8:AI:56:MET:HA | 8:AI:59:LYS:HB2 | 2.03 | 0.41 |
| 1:CA:1317:C:H42 | 18:CS:36:ARG:NH2 | 2.18 | 0.41 |
| 23:BB:2026:U:H2' | 23:BB:2027:G:C8 | 2.55 | 0.41 |
| 31:BJ:84:ILE:CG2 | 31:BJ:85:LYS:H | 2.31 | 0.41 |
| 25:BC:24:HIS:HB3 | 25:BC:27:LYS:HE3 | 2.03 | 0.41 |
| 23:BB:1568:G:H5'' | 25:BC:60:ALA:HB3 | 2.02 | 0.41 |
| 23:DB:869:G:H2' | 23:DB:870:U:O4' | 2.20 | 0.41 |
| 38:BQ:108:LEU:HD21 | 39:BR:52:PRO:O | 2.21 | 0.41 |
| 31:BJ:35:ARG:C | 31:BJ:37:ARG:H | 2.24 | 0.41 |
| 27:BE:190:ALA:HB1 | 27:BE:193:VAL:CB | 2.50 | 0.41 |
| 27:BE:146:VAL:HG23 | 27:BE:148:ILE:HG23 | 2.02 | 0.41 |
| 27:BE:153:LEU:HD11 | 27:BE:193:VAL:HG11 | 2.02 | 0.41 |
| 43:DW:18:LYS:HG3 | 43:DW:19:ARG:N | 2.36 | 0.41 |
| 51:B4:11:CYS:SG | 51:B4:12:ARG:N | 2.94 | 0.41 |
| 51:B4:24:ARG:NH2 | 51:B4:36:ARG:HH11 | 2.19 | 0.41 |
| 26:DD:26:VAL:HG13 | 26:DD:26:VAL:O | 2.21 | 0.41 |
| 49:B2:9:VAL:O | 49:B2:12:ARG:HB2 | 2.20 | 0.41 |
| 23:BB:137:U:H2' | 23:BB:138:U:C5' | 2.51 | 0.41 |
| 30:BH:66:ASN:OD1 | 30:BH:138:VAL:HG11 | 2.20 | 0.41 |
| 26:BD:140:HIS:O | 26:BD:142:VAL:N | 2.54 | 0.41 |
| 26:BD:145:SER:C | 26:BD:146:ILE:HD12 | 2.40 | 0.41 |
| 23:BB:2720:U:H2' | 23:BB:2721:A:C8 | 2.55 | 0.41 |
| 40:DS:20:VAL:O | 40:DS:24:ILE:HG13 | 2.21 | 0.41 |
| 23:DB:1655:A:H2' | 23:DB:1656:C:O4' | 2.21 | 0.41 |
| 50:D3:32:LEU:HA | 50:D3:32:LEU:HD22 | 1.93 | 0.41 |
| 20:AB:202:ASN:ND2 | 20:AB:204:ASP:N | 2.60 | 0.41 |
| 26:BD:46:ARG:HD2 | 26:BD:80:TRP:CH2 | 2.55 | 0.41 |
| 45:DY:24:LEU:C | 45:DY:26:LEU:N | 2.74 | 0.41 |
| 45:DY:5:LYS:NZ | 45:DY:5:LYS:CB | 2.84 | 0.41 |
| 5:AF:38:ARG:HH21 | 5:AF:96:VAL:CG1 | 2.33 | 0.41 |
| 5:AF:7:VAL:HB | 5:AF:61:LEU:HD22 | 2.03 | 0.41 |
| 2:AC:178:ARG:O | 2:AC:206:ILE:HA | 2.21 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 2:AC:176:THR:O | 2:AC:179:ALA:HB3 | 2.21 | 0.41 |
| 4:CE:109:ALA:HB1 | 4:CE:136:VAL:CG1 | 2.49 | 0.41 |
| 21:CU:35:GLU:OE1 | 21:CU:35:GLU:HA | 2.20 | 0.41 |
| 10:AK:122:PRO:HG2 | 21:AU:35:GLU:HG2 | 2.02 | 0.41 |
| 7:AH:113:ARG:HE | 7:AH:113:ARG:C | 2.23 | 0.41 |
| 8:CI:56:MET:C | 8:CI:58:GLU:N | 2.73 | 0.41 |
| 23:BB:723:C:H2' | 23:BB:724:U:H6 | 1.84 | 0.41 |
| 28:DF:99:PHE:CD1 | 28:DF:102:LEU:HD23 | 2.56 | 0.41 |
| 19:AT:20:ASN:HA | 19:AT:65:LEU:HD21 | 2.02 | 0.41 |
| 20:AB:96:LEU:HD23 | 20:AB:99:MET:CE | 2.50 | 0.41 |
| 23:DB:443:A:C8 | 27:DE:40:ARG:HG2 | 2.55 | 0.41 |
| 3:AD:89:LEU:O | 3:AD:92:LEU:HB2 | 2.21 | 0.41 |
| 23:BB:794:A:C4 | 23:BB:795:C:C5 | 3.09 | 0.41 |
| 1:AA:1005:A:C2' | 1:AA:1006:G:H5' | 2.51 | 0.41 |
| 7:AH:9:MET:O | 7:AH:13:ILE:HG13 | 2.20 | 0.41 |
| 42:DU:71:ILE:CG1 | 42:DU:72:PHE:N | 2.84 | 0.41 |
| 23:BB:286:U:H2' | 23:BB:287:G:H8 | 1.86 | 0.41 |
| 52:DI:100:ILE:CG2 | 52:DI:104:GLN:HB2 | 2.50 | 0.41 |
| 3:AD:37:PRO:HD2 | 3:AD:41:GLY:CA | 2.51 | 0.41 |
| 23:DB:247:G:O6 | 50:D3:7:ARG:HD2 | 2.21 | 0.41 |
| 28:DF:98:PHE:HA | 28:DF:101:ARG:CG | 2.50 | 0.41 |
| 32:BK:91:SER:O | 32:BK:92:GLU:C | 2.59 | 0.41 |
| 48:D1:34:GLU:HB3 | 48:D1:50:GLU:HB3 | 2.03 | 0.41 |
| 48:D1:5:ARG:HG2 | 48:D1:5:ARG:NH1 | 2.35 | 0.41 |
| 1:CA:359:G:O2' | 1:CA:360:G:H5' | 2.21 | 0.41 |
| 44:DX:7:ARG:C | 44:DX:8:GLU:HG3 | 2.41 | 0.41 |
| 1:CA:672:U:H2' | 1:CA:673:A:H8 | 1.83 | 0.41 |
| 1:AA:91:U:H2' | 1:AA:92:U:C6 | 2.56 | 0.41 |
| 23:BB:134:G:C6 | 23:BB:146:A:C6 | 3.08 | 0.41 |
| 34:DM:127:LYS:C | 34:DM:127:LYS:HD3 | 2.41 | 0.41 |
| 11:CL:79:ILE:C | 11:CL:101:LEU:HD12 | 2.41 | 0.41 |
| 1:AA:1057:G:H4' | 2:AC:194:VAL:O | 2.21 | 0.41 |
| 23:DB:583:G:H2' | 23:DB:584:C:H6 | 1.86 | 0.41 |
| 48:B1:29:LYS:CE | 48:B1:30:PRO:HD2 | 2.47 | 0.41 |
| 11:CL:29:LYS:HB3 | 11:CL:56:LEU:HD22 | 2.02 | 0.41 |
| 11:CL:49:ARG:CD | 11:CL:89:LEU:HD21 | 2.51 | 0.41 |
| 1:AA:1245:C:O2' | 1:AA:1246:A:H5' | 2.20 | 0.41 |
| 36:DO:30:ARG:CD | 36:DO:97:PHE:HD2 | 2.33 | 0.41 |
| 7:CH:100:ILE:HD12 | 7:CH:101:ALA:N | 2.36 | 0.41 |
| 23:DB:1825:U:H5' | 25:DC:244:VAL:HG23 | 1.99 | 0.41 |
| 46:DZ:11:GLU:O | 46:DZ:27:THR:HG22 | 2.21 | 0.41 |
| 1:AA:1148:U:C2' | 1:AA:1149:C:H5' | 2.50 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 2:AC:137:VAL:HG11 | 2:AC:150:VAL:HG21 | 2.01 | 0.41 |
| 23:BB:2897:U:H2' | 23:BB:2898:U:C6 | 2.55 | 0.41 |
| 23:BB:607:U:C4 | 23:BB:620:G:O4' | 2.73 | 0.41 |
| 35:DN:106:ASP:O | 35:DN:107:ASN:HB3 | 2.20 | 0.41 |
| 9:AJ:67:ILE:CG1 | 13:AN:95:LEU:HD13 | 2.44 | 0.41 |
| 6:AG:94:ARG:NH1 | 6:AG:98:LEU:HD11 | 2.35 | 0.41 |
| 23:BB:1795:C:H2' | 23:BB:1796:U:H6 | 1.85 | 0.41 |
| 1:AA:493:A:N3 | 1:AA:493:A:O4' | 2.54 | 0.41 |
| 23:DB:1593:A:H2' | 23:DB:1594:U:O4' | 2.20 | 0.41 |
| 3:AD:55:ARG:NH2 | 3:AD:58:GLN:NE2 | 2.67 | 0.41 |
| 23:DB:2597:G:OP1 | 25:DC:239:PHE:CD2 | 2.74 | 0.41 |
| 1:CA:830:G:H2' | 1:CA:831:A:H8 | 1.86 | 0.41 |
| 1:AA:1523:G:H2' | 1:AA:1524:C:C6 | 2.55 | 0.41 |
| 8:CI:20:ILE:CG2 | 8:CI:60:LEU:HD22 | 2.51 | 0.41 |
| 3:CD:160:LEU:C | 3:CD:160:LEU:HD13 | 2.41 | 0.41 |
| 20:AB:114:LYS:HA | 20:AB:117:GLU:OE1 | 2.21 | 0.41 |
| 46:DZ:20:ASN:O | 46:DZ:21:VAL:CB | 2.63 | 0.41 |
| 18:CS:41:PRO:HA | 18:CS:44:ILE:CG1 | 2.50 | 0.41 |
| 27:BE:25:GLU:O | 27:BE:27:LEU:N | 2.54 | 0.41 |
| 10:AK:57:SER:O | 10:AK:58:THR:C | 2.59 | 0.41 |
| 1:AA:208:U:H2' | 1:AA:210:C:C6 | 2.55 | 0.41 |
| 1:CA:407:U:O2' | 3:CD:112:GLU:HG3 | 2.21 | 0.41 |
| 1:CA:728:A:H2' | 1:CA:729:A:C8 | 2.55 | 0.41 |
| 29:DG:152:ARG:HA | 29:DG:153:PRO:HD3 | 1.96 | 0.41 |
| 12:CM:48:SER:C | 12:CM:50:GLY:H | 2.23 | 0.41 |
| 1:CA:90:C:H2' | 1:CA:91:U:H6 | 1.84 | 0.41 |
| 23:BB:196:A:N7 | 33:BL:52:GLY:HA2 | 2.36 | 0.41 |
| 23:BB:1460:U:H5'' | 23:BB:1461:C:C6 | 2.56 | 0.41 |
| 1:AA:1258:G:O2' | 1:AA:1259:C:H5' | 2.21 | 0.41 |
| 23:BB:1192:G:C2' | 23:BB:1193:G:H5' | 2.50 | 0.41 |
| 1:CA:984:C:H2' | 1:CA:985:C:C6 | 2.56 | 0.41 |
| 1:CA:599:C:H2' | 1:CA:600:A:H8 | 1.85 | 0.41 |
| 23:BB:2545:G:N3 | 23:BB:2565:A:H2 | 2.19 | 0.41 |
| 12:AM:94:LEU:HD22 | 12:AM:101:THR:OG1 | 2.21 | 0.41 |
| 1:AA:955:U:H2' | 1:AA:956:U:O4' | 2.21 | 0.41 |
| 1:AA:960:U:C1' | 1:AA:961:U:OP2 | 2.69 | 0.41 |
| 23:DB:619:G:H3' | 23:DB:620:G:H21 | 1.86 | 0.41 |
| 25:BC:37:SER:H | 25:BC:62:ARG:HB2 | 1.86 | 0.41 |
| 14:AO:52:ARG:HG3 | 14:AO:55:LEU:HD23 | 2.03 | 0.41 |
| 1:CA:828:U:H2' | 1:CA:829:G:O5' | 2.21 | 0.41 |
| 30:BH:69:ALA:HB1 | 30:BH:141:LYS:HZ3 | 1.85 | 0.41 |
| 1:AA:737:C:H2' | 1:AA:738:C:C6 | 2.55 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:AA:736:C:H4' | 5:AF:88:MET:HE3 | 2.02 | 0.41 |
| 23:DB:103:A:H3' | 23:DB:104:A:H8 | 1.85 | 0.41 |
| 23:BB:356:G:O2' | 23:BB:357:C:H5' | 2.20 | 0.41 |
| 23:DB:1897:G:O2' | 23:DB:1898:U:H5' | 2.20 | 0.41 |
| 23:BB:849:A:H2' | 23:BB:850:U:C6 | 2.55 | 0.41 |
| 1:CA:1039:G:O2' | 1:CA:1040:U:H5' | 2.21 | 0.41 |
| 1:AA:1458:G:H2' | 1:AA:1459:G:C8 | 2.56 | 0.41 |
| 23:BB:503:A:H5'' | 23:BB:504:A:H5' | 2.02 | 0.41 |
| 24:DV:43:ASP:O | 24:DV:47:VAL:HG23 | 2.20 | 0.41 |
| 23:DB:1841:U:H2' | 23:DB:1842:G:C8 | 2.55 | 0.41 |
| 1:AA:601:G:O2' | 1:AA:602:A:H5' | 2.21 | 0.41 |
| 23:BB:2653:U:HO2' | 29:BG:109:SER:CB | 2.34 | 0.41 |
| 23:DB:1528:A:C2' | 23:DB:1529:G:H5' | 2.50 | 0.41 |
| 23:DB:2665:A:H2' | 23:DB:2666:C:O2 | 2.21 | 0.41 |
| 23:DB:1924:C:O2' | 23:DB:1925:C:H5' | 2.21 | 0.41 |
| 1:AA:1033:G:C3' | 1:AA:1034:G:H5'' | 2.51 | 0.41 |
| 22:BA:86:G:H3' | 22:BA:87:U:H6 | 1.84 | 0.41 |
| 1:AA:846:G:H5' | 1:AA:847:G:OP2 | 2.21 | 0.41 |
| 1:CA:737:C:H2' | 1:CA:738:C:C6 | 2.55 | 0.41 |
| 1:CA:738:C:H2' | 1:CA:739:C:H6 | 1.86 | 0.41 |
| 2:AC:139:ASN:ND2 | 2:AC:139:ASN:N | 2.68 | 0.41 |
| 30:BH:41:LYS:N | 30:BH:41:LYS:HD2 | 2.33 | 0.41 |
| 4:CE:14:LEU:HD13 | 4:CE:14:LEU:C | 2.41 | 0.41 |
| 23:DB:1268:A:H2' | 23:DB:1269:A:C8 | 2.55 | 0.41 |
| 1:CA:181:A:H1' | 1:CA:182:A:C2 | 2.56 | 0.41 |
| 1:CA:607:A:H2' | 1:CA:608:A:H8 | 1.86 | 0.41 |
| 23:DB:296:U:H3' | 55:DB:3414:HOH:O | 2.21 | 0.41 |
| 23:DB:2710:C:H2' | 23:DB:2711:A:C8 | 2.56 | 0.41 |
| 14:AO:15:GLY:HA3 | 14:AO:20:ASP:OD1 | 2.21 | 0.41 |
| 22:BA:95:U:H2' | 22:BA:96:G:C8 | 2.55 | 0.41 |
| 23:DB:2188:U:O2' | 23:DB:2189:U:H5' | 2.21 | 0.41 |
| 52:BI:16:MET:N | 52:BI:42:ASN:OD1 | 2.54 | 0.41 |
| 22:DA:92:C:H2' | 22:DA:93:C:C6 | 2.56 | 0.41 |
| 30:DH:67:ALA:C | 30:DH:69:ALA:H | 2.23 | 0.41 |
| 14:AO:71:ARG:HB2 | 14:AO:71:ARG:NH1 | 2.35 | 0.41 |
| 37:BP:45:VAL:HG12 | 37:BP:65:ASN:HB2 | 2.02 | 0.41 |
| 16:CQ:57:VAL:HB | 16:CQ:79:GLU:HB2 | 2.03 | 0.41 |
| 1:AA:688:G:O2' | 1:AA:689:C:H5' | 2.20 | 0.41 |
| 1:CA:746:A:H2' | 1:CA:747:A:H8 | 1.86 | 0.41 |
| 1:AA:144:G:H2' | 1:AA:145:G:C8 | 2.56 | 0.41 |
| 23:DB:820:A:H2' | 23:DB:821:A:O4' | 2.20 | 0.41 |
| 36:BO:105:ALA:HA | 36:BO:108:ASP:OD2 | 2.21 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 1:AA:31:G:H2' | 1:AA:48:C:H41 | 1.86 | 0.41 |
| 23:DB:1120:G:H2' | 23:DB:1121:C:C6 | 2.56 | 0.41 |
| 23:BB:1989:G:H2' | 23:BB:1990:C:O4' | 2.21 | 0.41 |
| 1:AA:890:G:O2' | 1:AA:906:A:N6 | 2.53 | 0.41 |
| 14:CO:49:HIS:O | 14:CO:52:ARG:HB3 | 2.21 | 0.41 |
| 23:DB:2559:C:O2' | 23:DB:2560:A:H5' | 2.19 | 0.41 |
| 23:BB:1764:C:H2' | 23:BB:1765:U:C6 | 2.56 | 0.41 |
| 26:DD:100:LEU:HD13 | 26:DD:100:LEU:C | 2.41 | 0.41 |
| 8:CI:109:GLN:HE21 | 8:CI:109:GLN:HB3 | 1.61 | 0.41 |
| 1:CA:750:C:O2 | 14:CO:22:GLY:HA3 | 2.21 | 0.41 |
| 17:AR:24:ASP:O | 17:AR:28:LEU:HD13 | 2.20 | 0.41 |
| 23:BB:2441:U:O2' | 23:BB:2442:C:H5' | 2.21 | 0.41 |
| 23:DB:1390:U:O2' | 23:DB:1391:U:H5' | 2.20 | 0.41 |
| 52:DI:8:VAL:HG11 | 52:DI:30:GLN:HG3 | 2.03 | 0.41 |
| 37:DP:27:VAL:O | 37:DP:29:VAL:N | 2.53 | 0.41 |
| 37:DP:27:VAL:HB | 37:DP:86:LYS:O | 2.22 | 0.41 |
| 23:DB:458:G:O2' | 23:DB:459:U:OP2 | 2.39 | 0.41 |
| 34:DM:112:LEU:HA | 34:DM:112:LEU:HD23 | 1.89 | 0.41 |
| 37:BP:28:LYS:HB3 | 37:BP:44:GLY:H | 1.85 | 0.41 |
| 37:BP:5:LYS:C | 37:BP:7:LEU:N | 2.71 | 0.41 |
| 25:BC:152:GLN:HB3 | 25:BC:153:LEU:H | 1.53 | 0.41 |
| 35:DN:98:LEU:HD11 | 35:DN:114:GLU:OE2 | 2.20 | 0.41 |
| 25:DC:144:GLU:HG2 | 25:DC:150:GLY:HA2 | 2.02 | 0.41 |
| 25:DC:62:ARG:O | 25:DC:62:ARG:NE | 2.53 | 0.41 |
| 25:DC:63:ILE:HG23 | 25:DC:102:TYR:HD1 | 1.82 | 0.41 |
| 31:BJ:16:TYR:HD2 | 31:BJ:140:LEU:HB2 | 1.86 | 0.41 |
| 34:BM:8:LYS:HZ2 | 34:BM:69:PRO:HB2 | 1.84 | 0.41 |
| 34:BM:8:LYS:NZ | 34:BM:69:PRO:HB2 | 2.36 | 0.41 |
| 16:AQ:10:ARG:HD3 | 16:AQ:55:GLY:H | 1.86 | 0.41 |
| 38:BQ:50:ARG:HG2 | 38:BQ:50:ARG:HH11 | 1.86 | 0.41 |
| 39:BR:73:LYS:O | 39:BR:74:ILE:O | 2.39 | 0.41 |
| 42:BU:41:VAL:O | 42:BU:41:VAL:HG13 | 2.20 | 0.41 |
| 42:BU:38:ILE:HB | 42:BU:62:ALA:HB3 | 2.03 | 0.41 |
| 23:BB:527:C:H5' | 23:BB:2779:U:N3 | 2.36 | 0.41 |
| 23:BB:1449:G:H2' | 23:BB:1450:G:C8 | 2.56 | 0.41 |
| 8:AI:9:GLY:O | 8:AI:16:ALA:HB3 | 2.21 | 0.41 |
| 8:AI:52:GLU:N | 8:AI:56:MET:HG2 | 2.35 | 0.41 |
| 1:CA:1004:A:H3' | 1:CA:1005:A:C8 | 2.54 | 0.41 |
| 34:DM:16:ARG:NE | 34:DM:18:ARG:NH1 | 2.65 | 0.41 |
| 40:BS:37:THR:HG23 | 40:BS:38:TYR:CD1 | 2.56 | 0.41 |
| 1:CA:1015:G:O2' | 1:CA:1016:A:H5' | 2.21 | 0.41 |
| 23:BB:2621:G:P | 26:BD:124:ARG:HH22 | 2.44 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:DB:288:U:H2' | 23:DB:289:G:C8 | 2.56 | 0.41 |
| 26:DD:160:LYS:HG3 | 26:DD:160:LYS:O | 2.21 | 0.41 |
| 23:BB:1060:U:C1' | 23:BB:1062:G:H5' | 2.51 | 0.41 |
| 13:CN:29:ILE:HB | 13:CN:44:VAL:HG21 | 2.03 | 0.41 |
| 34:DM:124:LEU:O | 34:DM:124:LEU:HD12 | 2.21 | 0.41 |
| 23:DB:927:A:H2' | 23:DB:928:A:C8 | 2.55 | 0.41 |
| 32:DK:63:VAL:HB | 32:DK:83:ALA:CB | 2.51 | 0.41 |
| 8:CI:94:ARG:HH11 | 8:CI:98:ARG:NH1 | 2.19 | 0.41 |
| 35:BN:103:ARG:HG2 | 35:BN:103:ARG:O | 2.21 | 0.41 |
| 38:DQ:95:ALA:O | 38:DQ:98:ALA:HB3 | 2.20 | 0.41 |
| 23:BB:2693:G:O2' | 23:BB:2694:G:H5' | 2.21 | 0.41 |
| 23:BB:264:C:C2' | 23:BB:265:A:H5'' | 2.51 | 0.41 |
| 1:CA:358:U:H2' | 1:CA:359:G:H8 | 1.86 | 0.41 |
| 23:BB:1198:U:H2' | 23:BB:1199:U:C5 | 2.55 | 0.41 |
| 36:BO:36:TYR:HA | 36:BO:52:SER:HB2 | 2.03 | 0.41 |
| 30:DH:68:ARG:HE | 30:DH:71:LYS:CE | 2.26 | 0.41 |
| 48:B1:11:VAL:HG13 | 48:B1:12:SER:N | 2.35 | 0.41 |
| 1:CA:276:G:O2' | 1:CA:277:C:H5' | 2.21 | 0.41 |
| 16:CQ:56:ASP:HA | 16:CQ:81:ALA:HA | 2.03 | 0.41 |
| 43:BW:14:ASP:O | 43:BW:15:SER:HB3 | 2.21 | 0.41 |
| 23:DB:2441:U:O2' | 23:DB:2442:C:H5' | 2.21 | 0.41 |
| 23:DB:1827:U:C2' | 23:DB:1828:G:H5' | 2.51 | 0.41 |
| 23:BB:28:A:H2' | 23:BB:29:U:H6 | 1.85 | 0.41 |
| 49:B2:38:GLY:O | 49:B2:39:ARG:C | 2.58 | 0.41 |
| 49:B2:39:ARG:HB2 | 49:B2:39:ARG:NH1 | 2.35 | 0.41 |
| 1:CA:878:A:H2' | 1:CA:879:C:C6 | 2.56 | 0.41 |
| 23:BB:1170:C:O2' | 23:BB:1171:G:H5' | 2.21 | 0.41 |
| 1:CA:493:A:O4' | 1:CA:493:A:N3 | 2.54 | 0.41 |
| 19:CT:38:ILE:HA | 19:CT:85:LEU:HD22 | 2.02 | 0.41 |
| 25:BC:205:GLY:O | 25:BC:206:LYS:HG2 | 2.21 | 0.41 |
| 1:AA:611:C:H2' | 1:AA:612:C:C6 | 2.56 | 0.41 |
| 1:AA:612:C:H2' | 1:AA:613:C:C6 | 2.56 | 0.41 |
| 4:AE:81:GLN:NE2 | 4:AE:82:HIS:ND1 | 2.68 | 0.41 |
| 22:DA:76:G:O2' | 22:DA:77:U:H5' | 2.21 | 0.41 |
| 23:DB:1030:C:O2' | 23:DB:1031:G:H5' | 2.21 | 0.41 |
| 3:AD:197:HIS:HA | 3:AD:200:VAL:HG22 | 2.03 | 0.41 |
| 22:DA:70:C:H2' | 22:DA:71:C:H6 | 1.85 | 0.41 |
| 1:CA:208:U:C2' | 1:CA:209:U:H5'' | 2.50 | 0.41 |
| 29:DG:25:ILE:O | 29:DG:31:GLU:HA | 2.21 | 0.41 |
| 23:DB:2195:U:O2' | 23:DB:2196:C:H5' | 2.21 | 0.41 |
| 1:CA:691:G:H1' | 1:CA:696:A:H61 | 1.84 | 0.41 |
| 20:AB:140:LEU:HD22 | 20:AB:144:GLU:OE2 | 2.20 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 4:CE:21:SER:HA | 4:CE:29:ILE:O | 2.20 | 0.41 |
| 42:DU:95:PHE:HB2 | 42:DU:99:SER:C | 2.41 | 0.41 |
| 25:DC:115:ILE:O | 25:DC:116:GLN:HG3 | 2.21 | 0.41 |
| 29:DG:145:ALA:HA | 29:DG:148:ARG:HG2 | 2.02 | 0.41 |
| 44:DX:31:GLN:NE2 | 44:DX:31:GLN:CA | 2.83 | 0.41 |
| 28:BF:116:LEU:HG | 28:BF:175:PRO:O | 2.21 | 0.41 |
| 34:DM:66:ARG:HA | 34:DM:66:ARG:NE | 2.35 | 0.41 |
| 1:CA:1029:U:N3 | 1:CA:1033:G:C2 | 2.89 | 0.41 |
| 1:CA:1018:G:H2' | 1:CA:1019:A:C8 | 2.55 | 0.41 |
| 33:DL:25:SER:HB2 | 33:DL:26:GLY:H | 1.55 | 0.41 |
| 50:B3:4:LYS:HZ1 | 50:B3:59:ALA:H | 1.69 | 0.41 |
| 1:AA:393:A:O2' | 1:AA:394:G:H5' | 2.20 | 0.41 |
| 1:AA:367:U:OP1 | 1:AA:395:C:H1' | 2.21 | 0.41 |
| 23:DB:2825:G:C2' | 23:DB:2826:A:H5' | 2.51 | 0.41 |
| 23:BB:2139:U:O5' | 23:BB:2139:U:H6 | 2.04 | 0.41 |
| 22:BA:109:A:O2' | 22:BA:110:C:H5' | 2.20 | 0.41 |
| 23:DB:2693:G:O2' | 23:DB:2694:G:H5' | 2.21 | 0.41 |
| 23:DB:2694:G:O2' | 23:DB:2695:U:H5' | 2.21 | 0.41 |
| 23:BB:197:A:H4' | 23:BB:2069:G:OP2 | 2.21 | 0.41 |
| 7:CH:17:GLN:NE2 | 7:CH:69:ALA:HB1 | 2.36 | 0.41 |
| 2:CC:91:ALA:HB2 | 2:CC:98:ALA:CB | 2.51 | 0.41 |
| 20:CB:148:GLY:C | 20:CB:150:ILE:H | 2.24 | 0.41 |
| 23:DB:1041:G:C2 | 23:DB:1042:G:N7 | 2.88 | 0.41 |
| 30:BH:41:LYS:O | 30:BH:42:LYS:C | 2.59 | 0.41 |
| 23:DB:266:G:O4' | 23:DB:266:G:OP2 | 2.38 | 0.41 |
| 23:BB:570:G:C2' | 23:BB:571:U:H5' | 2.51 | 0.41 |
| 2:CC:37:LYS:HB3 | 2:CC:41:TYR:CE1 | 2.56 | 0.41 |
| 1:CA:175:C:H2' | 1:CA:176:C:H6 | 1.86 | 0.41 |
| 1:AA:1401:G:O2' | 1:AA:1402:C:H5' | 2.20 | 0.41 |
| 39:DR:10:LYS:O | 39:DR:11:GLN:HB2 | 2.21 | 0.41 |
| 17:CR:47:ARG:HH12 | 17:CR:49:LYS:H | 1.69 | 0.41 |
| 23:BB:1936:A:C2 | 23:BB:1943:U:H5 | 2.39 | 0.41 |
| 23:DB:349:U:O2 | 23:DB:349:U:H2' | 2.20 | 0.41 |
| 23:BB:730:A:C2 | 23:BB:731:C:C6 | 3.09 | 0.41 |
| 33:BL:2:ARG:NH1 | 33:BL:4:ASN:HD21 | 2.19 | 0.41 |
| 1:AA:1276:G:H2' | 1:AA:1277:C:C6 | 2.56 | 0.41 |
| 8:CI:35:GLU:O | 8:CI:39:GLY:HA2 | 2.21 | 0.41 |
| 23:BB:820:A:H2' | 23:BB:821:A:O4' | 2.21 | 0.41 |
| 1:AA:580:C:H2' | 1:AA:581:G:O4' | 2.21 | 0.41 |
| 23:DB:1831:G:H2' | 23:DB:1832:C:C6 | 2.56 | 0.41 |
| 13:AN:68:ARG:HH11 | 13:AN:70:HIS:HB2 | 1.85 | 0.41 |
| 38:DQ:102:LYS:O | 38:DQ:106:THR:HG22 | 2.20 | 0.41 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:DB:2308:G:N3 | 23:DB:2308:G:H3' | 2.35 | 0.41 |
| 44:BX:50:VAL:O | 44:BX:53:VAL:HG23 | 2.21 | 0.41 |
| 1:AA:358:U:H2' | 1:AA:359:G:H8 | 1.86 | 0.41 |
| 1:AA:359:G:O2' | 1:AA:360:G:H5' | 2.21 | 0.41 |
| 37:DP:50:ARG:HD2 | 37:DP:99:LEU:HB3 | 2.03 | 0.40 |
| 42:BU:69:VAL:CG1 | 42:BU:77:GLY:H | 2.34 | 0.40 |
| 30:BH:89:LYS:O | 30:BH:90:LEU:HD12 | 2.21 | 0.40 |
| 36:DO:15:ARG:HH12 | 43:DW:76:ARG:HD2 | 1.86 | 0.40 |
| 43:DW:24:ARG:HE | 43:DW:58:LEU:HB2 | 1.86 | 0.40 |
| 23:BB:691:C:H1' | 25:BC:42:ARG:NH1 | 2.36 | 0.40 |
| 25:BC:67:LYS:O | 25:BC:68:ARG:CB | 2.66 | 0.40 |
| 25:DC:68:ARG:HH21 | 25:DC:190:THR:HG23 | 1.83 | 0.40 |
| 31:DJ:133:ALA:C | 31:DJ:135:GLN:H | 2.23 | 0.40 |
| 39:DR:76:LYS:CE | 39:DR:90:ARG:HD3 | 2.52 | 0.40 |
| 1:AA:1015:G:O2' | 1:AA:1016:A:H5' | 2.20 | 0.40 |
| 1:AA:1219:A:OP1 | 13:AN:52:ARG:HG2 | 2.20 | 0.40 |
| 23:BB:298:G:H1' | 23:BB:340:A:H61 | 1.86 | 0.40 |
| 46:BZ:49:ARG:C | 46:BZ:51:VAL:N | 2.72 | 0.40 |
| 46:DZ:1:MET:C | 46:DZ:2:LYS:HG3 | 2.41 | 0.40 |
| 34:BM:70:ASP:C | 34:BM:71:LYS:HG3 | 2.41 | 0.40 |
| 34:BM:96:ILE:O | 34:BM:97:GLN:HG3 | 2.21 | 0.40 |
| 26:BD:170:VAL:CG1 | 26:BD:171:THR:H | 2.13 | 0.40 |
| 31:DJ:33:ALA:O | 31:DJ:36:LEU:HB2 | 2.20 | 0.40 |
| 23:DB:848:C:H2' | 23:DB:849:A:C8 | 2.56 | 0.40 |
| 23:BB:2306:C:H1' | 28:BF:132:ARG:NH2 | 2.37 | 0.40 |
| 35:BN:28:LEU:HD22 | 35:BN:48:VAL:HG11 | 2.03 | 0.40 |
| 31:BJ:39:LYS:C | 31:BJ:41:LYS:N | 2.74 | 0.40 |
| 23:BB:911:A:N6 | 34:BM:13:HIS:HB3 | 2.36 | 0.40 |
| 26:DD:79:LEU:CG | 26:DD:80:TRP:N | 2.83 | 0.40 |
| 18:CS:9:PHE:O | 18:CS:10:ILE:HG23 | 2.21 | 0.40 |
| 22:DA:49:C:H5'' | 36:DO:101:GLY:HA3 | 2.03 | 0.40 |
| 23:BB:1998:A:OP2 | 26:BD:141:ARG:NH2 | 2.54 | 0.40 |
| 9:CJ:57:VAL:HG13 | 9:CJ:58:ASN:N | 2.36 | 0.40 |
| 23:DB:2389:G:H5'' | 23:DB:2390:U:O4' | 2.20 | 0.40 |
| 25:BC:229:HIS:O | 25:BC:231:HIS:N | 2.40 | 0.40 |
| 26:BD:68:PHE:O | 26:BD:70:LYS:N | 2.46 | 0.40 |
| 23:DB:1019:U:O2' | 23:DB:1021:A:C2 | 2.70 | 0.40 |
| 39:DR:39:LEU:HG | 39:DR:62:GLU:HG2 | 2.02 | 0.40 |
| 35:BN:110:MET:O | 35:BN:111:ALA:HB3 | 2.20 | 0.40 |
| 1:AA:37:U:O2' | 1:AA:38:G:H5' | 2.21 | 0.40 |
| 39:DR:73:LYS:HD2 | 39:DR:73:LYS:H | 1.85 | 0.40 |
| 1:AA:951:G:O2' | 1:AA:952:U:H5' | 2.21 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 34:BM:82:MET:O | 34:BM:84:LYS:HG3 | 2.21 | 0.40 |
| 11:AL:56:LEU:H | 11:AL:56:LEU:CD1 | 2.34 | 0.40 |
| 41:DT:12:ARG:HG2 | 41:DT:13:ALA:H | 1.85 | 0.40 |
| 32:DK:43:ILE:CD1 | 32:DK:58:LEU:HD21 | 2.50 | 0.40 |
| 37:BP:2:ASN:ND2 | 37:BP:2:ASN:N | 2.61 | 0.40 |
| 1:CA:60:A:HO2' | 1:CA:61:G:C5' | 2.35 | 0.40 |
| 1:AA:807:A:O2' | 25:BC:4:LYS:HB2 | 2.21 | 0.40 |
| 1:AA:80:A:C2 | 1:AA:81:A:C4 | 3.09 | 0.40 |
| 18:AS:62:THR:HG22 | 18:AS:63:ASP:N | 2.36 | 0.40 |
| 1:AA:1462:C:H2' | 1:AA:1463:U:H6 | 1.86 | 0.40 |
| 25:DC:9:SER:OG | 25:DC:202:ARG:NH2 | 2.55 | 0.40 |
| 1:AA:1058:G:H2' | 1:AA:1059:C:O4' | 2.20 | 0.40 |
| 23:BB:2285:C:N4 | 48:B1:24:LYS:NZ | 2.69 | 0.40 |
| 11:CL:56:LEU:HD12 | 11:CL:60:PHE:CB | 2.50 | 0.40 |
| 23:BB:2347:C:OP2 | 50:B3:37:THR:HG21 | 2.21 | 0.40 |
| 1:AA:1150:A:N6 | 1:AA:1151:A:N6 | 2.69 | 0.40 |
| 20:CB:26:MET:SD | 20:CB:192:PRO:HD3 | 2.61 | 0.40 |
| 42:DU:43:LYS:NZ | 42:DU:43:LYS:CB | 2.84 | 0.40 |
| 42:DU:44:HIS:O | 42:DU:46:LYS:HD2 | 2.21 | 0.40 |
| 23:DB:1549:A:H2' | 23:DB:1550:C:H6 | 1.84 | 0.40 |
| 19:CT:38:ILE:HD11 | 19:CT:82:ILE:CG2 | 2.47 | 0.40 |
| 24:DV:65:VAL:O | 24:DV:67:GLY:N | 2.51 | 0.40 |
| 23:BB:619:G:H3' | 23:BB:620:G:H21 | 1.86 | 0.40 |
| 23:DB:1864:U:OP1 | 23:DB:2411:A:H5' | 2.21 | 0.40 |
| 13:AN:92:ILE:HG21 | 13:AN:95:LEU:HD23 | 2.03 | 0.40 |
| 1:AA:1309:G:O2' | 1:AA:1310:G:H5' | 2.20 | 0.40 |
| 1:CA:977:A:H3' | 1:CA:1362:A:N6 | 2.32 | 0.40 |
| 22:DA:99:A:N1 | 23:DB:863:A:C4' | 2.85 | 0.40 |
| 40:BS:24:ILE:O | 40:BS:25:ARG:HB2 | 2.20 | 0.40 |
| 1:AA:1072:G:H2' | 1:AA:1073:U:H6 | 1.86 | 0.40 |
| 23:DB:2405:G:C5' | 33:DL:70:LYS:HE3 | 2.51 | 0.40 |
| 20:CB:207:ARG:O | 20:CB:208:ALA:C | 2.59 | 0.40 |
| 14:AO:34:GLN:HG2 | 14:AO:58:MET:HE1 | 2.03 | 0.40 |
| 23:BB:600:G:H2' | 23:BB:601:C:H6 | 1.84 | 0.40 |
| 23:DB:2279:G:N7 | 43:DW:10:ARG:HG3 | 2.36 | 0.40 |
| 23:BB:330:A:N7 | 23:BB:1210:G:H2' | 2.37 | 0.40 |
| 23:BB:2479:U:OP1 | 51:B4:1:MET:HE1 | 2.22 | 0.40 |
| 1:CA:1271:A:H2' | 1:CA:1272:G:H8 | 1.86 | 0.40 |
| 23:DB:182:A:H1' | 23:DB:434:U:H5' | 2.03 | 0.40 |
| 1:CA:1526:G:H2' | 1:CA:1527:U:H6 | 1.85 | 0.40 |
| 13:AN:27:LYS:NZ | 13:AN:28:ALA:HB2 | 2.36 | 0.40 |
| 23:BB:1446:C:H2' | 23:BB:1447:C:H6 | 1.86 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 42:DU:96:LYS:HB2 | 42:DU:96:LYS:HE2 | 1.94 | 0.40 |
| 20:AB:88:GLN:HE21 | 20:AB:88:GLN:HB2 | 1.65 | 0.40 |
| 4:AE:17:VAL:CG2 | 4:AE:34:ALA:HB2 | 2.50 | 0.40 |
| 1:CA:401:C:H2' | 1:CA:402:G:H8 | 1.86 | 0.40 |
| 23:BB:175:G:O2' | 23:BB:176:A:H5' | 2.21 | 0.40 |
| 43:DW:48:ALA:HA | 43:DW:54:ARG:N | 2.35 | 0.40 |
| 47:B0:39:ARG:HG2 | 47:B0:39:ARG:NH1 | 2.36 | 0.40 |
| 1:AA:213:G:C8 | 1:AA:214:C:C5 | 3.08 | 0.40 |
| 23:DB:2221:G:H2' | 23:DB:2222:C:H6 | 1.85 | 0.40 |
| 23:BB:1537:G:C2' | 23:BB:1538:G:H5' | 2.51 | 0.40 |
| 23:BB:949:G:O2' | 23:BB:950:G:H5' | 2.21 | 0.40 |
| 16:AQ:64:ARG:HG3 | 16:AQ:65:PRO:HD2 | 2.03 | 0.40 |
| 23:DB:2215:C:H2' | 23:DB:2216:G:C8 | 2.56 | 0.40 |
| 1:AA:415:A:O4' | 1:AA:415:A:N3 | 2.53 | 0.40 |
| 20:CB:77:GLU:O | 20:CB:80:LYS:HG2 | 2.21 | 0.40 |
| 2:AC:40:GLN:CD | 2:AC:44:LYS:HD2 | 2.42 | 0.40 |
| 2:AC:110:LEU:HD22 | 2:AC:145:ALA:HB2 | 2.04 | 0.40 |
| 25:DC:122:ALA:O | 25:DC:124:LYS:HG2 | 2.21 | 0.40 |
| 23:DB:189:G:H2' | 23:DB:205:G:N2 | 2.37 | 0.40 |
| 33:BL:106:GLU:HG2 | 33:BL:107:PHE:N | 2.36 | 0.40 |
| 1:CA:442:G:H2' | 1:CA:443:C:H6 | 1.84 | 0.40 |
| 23:BB:2756:U:H5' | 51:B4:18:LYS:NZ | 2.36 | 0.40 |
| 23:DB:1092:C:C2' | 23:DB:1093:G:H5' | 2.51 | 0.40 |
| 7:AH:47:ASP:CG | 7:AH:48:PHE:H | 2.25 | 0.40 |
| 6:AG:101:ARG:O | 6:AG:105:GLU:N | 2.46 | 0.40 |
| 2:AC:132:ALA:HA | 2:AC:136:ALA:HB3 | 2.02 | 0.40 |
| 29:BG:6:ALA:H | 29:BG:7:PRO:CD | 2.34 | 0.40 |
| 1:AA:1386:G:H2' | 1:AA:1387:G:H8 | 1.85 | 0.40 |
| 48:D1:4:ILE:HG13 | 48:D1:4:ILE:O | 2.21 | 0.40 |
| 9:AJ:48:ARG:HA | 9:AJ:66:GLU:HA | 2.03 | 0.40 |
| 23:BB:2221:G:H2' | 23:BB:2222:C:C6 | 2.57 | 0.40 |
| 44:BX:36:GLN:OE1 | 44:BX:37:LEU:HG | 2.22 | 0.40 |
| 23:DB:1936:A:C2 | 23:DB:1943:U:H5 | 2.39 | 0.40 |
| 1:CA:651:C:O2' | 1:CA:652:U:H5' | 2.21 | 0.40 |
| 1:CA:1530:G:H2' | 1:CA:1531:A:C8 | 2.55 | 0.40 |
| 23:DB:1764:C:H2' | 23:DB:1765:U:C6 | 2.56 | 0.40 |
| 23:BB:1765:U:O2' | 23:BB:1766:G:H5' | 2.19 | 0.40 |
| 1:AA:276:G:O2' | 1:AA:277:C:H5' | 2.21 | 0.40 |
| 15:CP:43:ALA:C | 15:CP:45:GLU:H | 2.23 | 0.40 |
| 23:DB:1792:G:O2' | 23:DB:1793:C:H5' | 2.21 | 0.40 |
| 23:DB:1310:G:H1' | 23:DB:1611:C:H5' | 2.03 | 0.40 |
| 10:CK:67:GLU:HG3 | 10:CK:68:ARG:N | 2.36 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 23:BB:2595:G:N2 | 23:BB:2597:G:H3' | 2.37 | 0.40 |
| 23:BB:2408:U:H2' | 23:BB:2409:G:C8 | 2.55 | 0.40 |
| 1:CA:656:G:O2' | 1:CA:657:U:H5' | 2.21 | 0.40 |
| 44:DX:41:HIS:CE1 | 44:DX:43:LEU:HD23 | 2.56 | 0.40 |
| 42:BU:10:VAL:O | 42:BU:11:ILE:HD13 | 2.22 | 0.40 |
| 26:BD:192:ALA:O | 26:BD:193:VAL:HG12 | 2.22 | 0.40 |
| 32:BK:76:VAL:O | 37:BP:74:GLN:HG2 | 2.21 | 0.40 |
| 43:DW:67:LYS:HG2 | 43:DW:71:LYS:N | 2.36 | 0.40 |
| 43:DW:36:ILE:HG12 | 43:DW:69:GLU:OE2 | 2.21 | 0.40 |
| 26:DD:60:VAL:CG2 | 26:DD:63:PRO:HG2 | 2.43 | 0.40 |
| 25:DC:160:TYR:CD2 | 25:DC:193:GLU:HG2 | 2.56 | 0.40 |
| 23:BB:1017:G:H2' | 23:BB:1018:U:H6 | 1.86 | 0.40 |
| 31:BJ:60:ASP:OD1 | 31:BJ:97:PRO:HG2 | 2.21 | 0.40 |
| 18:AS:18:VAL:HG13 | 18:AS:19:GLU:N | 2.36 | 0.40 |
| 30:BH:28:ASN:O | 30:BH:29:PHE:HB2 | 2.21 | 0.40 |
| 46:DZ:49:ARG:HB2 | 46:DZ:49:ARG:NH1 | 2.36 | 0.40 |
| 34:BM:21:ALA:C | 34:BM:96:ILE:HG13 | 2.42 | 0.40 |
| 24:BV:9:ARG:HH22 | 24:BV:27:PRO:HB3 | 1.86 | 0.40 |
| 16:AQ:10:ARG:NE | 16:AQ:56:ASP:O | 2.54 | 0.40 |
| 23:DB:2820:A:O3' | 35:DN:2:ARG:NH2 | 2.53 | 0.40 |
| 3:AD:153:ARG:HG2 | 3:AD:153:ARG:NH1 | 2.36 | 0.40 |
| 38:BQ:5:ARG:H | 38:BQ:5:ARG:HD3 | 1.86 | 0.40 |
| 23:BB:975:A:N6 | 23:BB:989:G:H1' | 2.37 | 0.40 |
| 23:BB:977:G:H5' | 23:BB:1155:A:H4' | 2.03 | 0.40 |
| 25:BC:216:ARG:O | 25:BC:218:THR:N | 2.53 | 0.40 |
| 41:DT:15:HIS:HB3 | 41:DT:31:VAL:HG11 | 2.03 | 0.40 |
| 38:DQ:64:ILE:C | 38:DQ:66:ALA:N | 2.75 | 0.40 |
| 28:BF:109:ARG:CG | 28:BF:136:ILE:HG13 | 2.50 | 0.40 |
| 18:CS:39:ILE:HA | 18:CS:43:MET:SD | 2.60 | 0.40 |
| 34:DM:5:LYS:O | 34:DM:7:THR:HG23 | 2.21 | 0.40 |
| 34:DM:71:LYS:HG2 | 34:DM:71:LYS:H | 1.58 | 0.40 |
| 38:BQ:92:LYS:HG2 | 38:BQ:93:ILE:N | 2.10 | 0.40 |
| 33:BL:94:THR:CG2 | 33:BL:95:LEU:HD12 | 2.37 | 0.40 |
| 23:BB:135:U:O5' | 23:BB:135:U:H6 | 2.04 | 0.40 |
| 23:DB:1266:G:OP2 | 47:D0:12:ARG:CZ | 2.69 | 0.40 |
| 13:CN:68:ARG:HH12 | 13:CN:71:GLY:H | 1.67 | 0.40 |
| 3:CD:54:LEU:HD13 | 3:CD:54:LEU:C | 2.41 | 0.40 |
| 1:CA:374:A:OP1 | 1:CA:452:A:N1 | 2.55 | 0.40 |
| 44:DX:26:PHE:N | 44:DX:26:PHE:CD1 | 2.89 | 0.40 |
| 23:BB:2732:G:H3' | 23:BB:2733:A:H5' | 2.02 | 0.40 |
| 26:BD:187:LEU:HD23 | 26:BD:187:LEU:C | 2.41 | 0.40 |
| 34:DM:102:LEU:N | 34:DM:102:LEU:HD22 | 2.35 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 35:BN:73:ASN:N | 35:BN:73:ASN:ND2 | 2.68 | 0.40 |
| 37:DP:36:LYS:CG | 37:DP:37:LYS:H | 2.33 | 0.40 |
| 31:DJ:23:LYS:HB3 | 31:DJ:23:LYS:HE2 | 1.87 | 0.40 |
| 29:BG:26:LYS:HB3 | 29:BG:26:LYS:HE2 | 1.85 | 0.40 |
| 38:DQ:101:ASP:O | 38:DQ:105:PHE:HB2 | 2.21 | 0.40 |
| 45:BY:6:ILE:HG12 | 45:BY:6:ILE:O | 2.20 | 0.40 |
| 2:AC:90:VAL:C | 2:AC:93:ILE:HG22 | 2.42 | 0.40 |
| 37:BP:92:ARG:NH2 | 37:BP:110:LYS:HB3 | 2.36 | 0.40 |
| 11:AL:31:GLY:O | 11:AL:78:VAL:HG13 | 2.22 | 0.40 |
| 23:BB:1185:G:H5'' | 23:BB:1186:G:OP1 | 2.21 | 0.40 |
| 1:AA:239:U:C6 | 1:AA:239:U:C5' | 2.97 | 0.40 |
| 7:CH:54:THR:HG23 | 7:CH:55:LYS:HE2 | 2.02 | 0.40 |
| 33:DL:45:GLY:C | 33:DL:47:ARG:N | 2.74 | 0.40 |
| 23:BB:2799:A:H4' | 23:BB:2800:A:C8 | 2.56 | 0.40 |
| 23:BB:428:A:H2' | 23:BB:429:A:O4' | 2.21 | 0.40 |
| 16:CQ:56:ASP:OD1 | 16:CQ:80:LYS:HA | 2.21 | 0.40 |
| 4:CE:104:ILE:O | 4:CE:104:ILE:HD13 | 2.21 | 0.40 |
| 48:B1:35:LEU:O | 48:B1:35:LEU:HG | 2.21 | 0.40 |
| 1:AA:175:C:H2' | 1:AA:176:C:H6 | 1.85 | 0.40 |
| 25:BC:237:ARG:HE | 25:BC:237:ARG:C | 2.25 | 0.40 |
| 23:BB:2838:G:C4 | 23:BB:2839:G:C8 | 3.10 | 0.40 |
| 3:CD:12:ARG:C | 3:CD:37:PRO:HG3 | 2.42 | 0.40 |
| 4:CE:146:MET:HG2 | 4:CE:147:ASN:N | 2.36 | 0.40 |
| 23:DB:2186:G:H2' | 23:DB:2187:U:O4' | 2.21 | 0.40 |
| 1:AA:1343:G:H1' | 8:AI:122:ARG:NH1 | 2.35 | 0.40 |
| 1:CA:119:A:H4' | 1:CA:120:A:O4' | 2.21 | 0.40 |
| 7:AH:76:ARG:HD3 | 7:AH:79:ARG:HB3 | 2.02 | 0.40 |
| 23:BB:1411:U:O2' | 23:BB:1412:U:H5' | 2.21 | 0.40 |
| 23:BB:154:U:O2' | 23:BB:155:A:H5' | 2.22 | 0.40 |
| 28:BF:12:VAL:CG1 | 28:BF:27:VAL:HG21 | 2.49 | 0.40 |
| 23:BB:2313:C:H2' | 23:BB:2314:A:H8 | 1.84 | 0.40 |
| 25:BC:175:LEU:HG | 25:BC:175:LEU:H | 1.74 | 0.40 |
| 25:BC:259:ASN:O | 25:BC:261:ARG:HG2 | 2.21 | 0.40 |
| 23:DB:553:G:C2' | 23:DB:554:U:H5' | 2.52 | 0.40 |
| 1:AA:471:U:O2' | 1:AA:472:U:H5' | 2.21 | 0.40 |
| 1:CA:99:C:H2' | 55:CA:1943:HOH:O | 2.21 | 0.40 |
| 31:BJ:23:LYS:N | 31:BJ:23:LYS:HD2 | 2.33 | 0.40 |
| 3:AD:187:ARG:HG3 | 3:AD:187:ARG:HH11 | 1.85 | 0.40 |
| 1:CA:123:U:H2' | 1:CA:124:C:H6 | 1.86 | 0.40 |
| 1:AA:123:U:H5'' | 1:AA:311:C:HO2' | 1.86 | 0.40 |
| 23:DB:1856:U:C2' | 23:DB:1857:G:H5' | 2.52 | 0.40 |
| 28:BF:13:LYS:HE2 | 28:BF:24:VAL:HG12 | 2.03 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 23:BB:2311:A:H1' | 28:BF:76:PHE:HE1 | 1.87 | 0.40 |
| 7:AH:26:MET:CB | 7:AH:27:PRO:HD2 | 2.49 | 0.40 |
| 34:BM:81:ARG:HG3 | 34:BM:81:ARG:O | 2.21 | 0.40 |
| 22:BA:30:C:H2' | 22:BA:31:C:H5' | 2.03 | 0.40 |
| 23:DB:1723:G:N7 | 23:DB:1724:G:N7 | 2.69 | 0.40 |
| 25:BC:220:ARG:NH1 | 25:BC:220:ARG:HG3 | 2.36 | 0.40 |
| 5:AF:88:MET:HE1 | 5:AF:89:VAL:C | 2.41 | 0.40 |
| 23:DB:1228:G:O2' | 23:DB:1229:C:H5' | 2.21 | 0.40 |
| 1:CA:213:G:C8 | 1:CA:214:C:C5 | 3.09 | 0.40 |
| 23:DB:1945:G:H2' | 23:DB:1946:U:H6 | 1.82 | 0.40 |
| 29:BG:131:VAL:HG13 | 29:BG:133:LYS:CE | 2.49 | 0.40 |
| 16:AQ:4:ILE:HD12 | 16:AQ:5:ARG:H | 1.85 | 0.40 |
| 36:DO:109:ALA:HA | 36:DO:112:GLU:CG | 2.51 | 0.40 |
| 23:DB:1708:C:H2' | 23:DB:1709:U:C6 | 2.57 | 0.40 |
| 1:CA:1011:C:H2' | 1:CA:1012:A:H8 | 1.85 | 0.40 |
| 23:BB:622:G:H2' | 23:BB:623:C:C6 | 2.56 | 0.40 |
| 6:CG:132:THR:O | 6:CG:135:LYS:HB3 | 2.21 | 0.40 |
| 40:BS:86:MET:HB3 | 40:BS:94:ASP:HB3 | 2.03 | 0.40 |
| 49:B2:8:SER:OG | 49:B2:11:LYS:HB2 | 2.21 | 0.40 |
| 41:DT:7:LEU:CD2 | 41:DT:7:LEU:H | 2.33 | 0.40 |
| 1:CA:1446:A:N6 | 1:CA:1447:A:N6 | 2.69 | 0.40 |
| 1:CA:1209:C:O2' | 1:CA:1210:C:H5' | 2.21 | 0.40 |
| 23:BB:102:U:H4' | 23:BB:103:A:OP2 | 2.13 | 0.40 |
| 40:DS:64:ALA:HA | 40:DS:110:ARG:NH2 | 2.36 | 0.40 |
| 28:DF:157:THR:HG22 | 28:DF:159:ALA:H | 1.87 | 0.40 |
| 34:DM:42:THR:O | 34:DM:45:GLN:HB2 | 2.22 | 0.40 |
| 23:DB:311:A:HO2' | 23:DB:312:G:C5' | 2.35 | 0.40 |
| 22:BA:81:G:H2' | 22:BA:82:U:H6 | 1.85 | 0.40 |
| 12:AM:106:ARG:HD3 | 12:AM:109:LYS:HD2 | 2.03 | 0.40 |
| 23:BB:1719:G:O2' | 23:BB:1720:U:H5' | 2.22 | 0.40 |
| 23:DB:2673:G:H2' | 23:DB:2674:G:H8 | 1.86 | 0.40 |
| 1:AA:669:G:O2' | 1:AA:670:G:H5' | 2.22 | 0.40 |
| 26:BD:103:ASP:C | 26:BD:105:LYS:H | 2.23 | 0.40 |
| 6:AG:132:THR:HG23 | 6:AG:135:LYS:NZ | 2.35 | 0.40 |
| 1:CA:666:G:H5' | 1:CA:726:C:H1' | 2.03 | 0.40 |
| 14:AO:82:GLU:OE1 | 14:AO:82:GLU:HA | 2.21 | 0.40 |
| 33:BL:65:GLY:O | 33:BL:66:PHE:HB3 | 2.20 | 0.40 |
| 1:CA:144:G:H2' | 1:CA:145:G:C8 | 2.56 | 0.40 |
| 51:D4:28:SER:O | 51:D4:29:ALA:HB3 | 2.21 | 0.40 |
| 23:BB:123:G:O2' | 23:BB:124:G:H5' | 2.21 | 0.40 |
| 30:BH:82:SER:O | 30:BH:90:LEU:HD23 | 2.21 | 0.40 |
| 23:BB:442:G:N2 | 23:BB:444:C:C2 | 2.90 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 37:BP:51:ASN:ND2 | 37:BP:97:TYR:CE2 | 2.90 | 0.40 |
| 43:DW:77:LYS:C | 43:DW:79:ILE:H | 2.24 | 0.40 |
| 25:BC:50:THR:C | 25:BC:51:ARG:HG3 | 2.42 | 0.40 |
| 47:D0:41:HIS:HB3 | 47:D0:46:GLY:CA | 2.51 | 0.40 |
| 23:DB:2786:U:O2 | 26:DD:62:LYS:HB3 | 2.22 | 0.40 |
| 26:DD:81:GLU:O | 26:DD:82:PHE:CB | 2.69 | 0.40 |
| 25:DC:131:MET:HE2 | 25:DC:173:LEU:HD11 | 2.03 | 0.40 |
| 23:DB:7:G:H2' | 23:DB:8:C:O4' | 2.21 | 0.40 |
| 31:DJ:124:VAL:O | 31:DJ:125:TYR:HB2 | 2.20 | 0.40 |
| 31:DJ:15:TRP:HB3 | 31:DJ:138:GLN:O | 2.22 | 0.40 |
| 31:BJ:73:VAL:HG21 | 31:BJ:75:TYR:OH | 2.21 | 0.40 |
| 50:B3:22:LYS:HA | 50:B3:22:LYS:HD3 | 1.88 | 0.40 |
| 33:BL:123:ARG:O | 33:BL:126:ARG:HG3 | 2.21 | 0.40 |
| 33:BL:69:ARG:HG2 | 33:BL:69:ARG:HH11 | 1.86 | 0.40 |
| 37:BP:67:GLU:O | 37:BP:67:GLU:HG3 | 2.20 | 0.40 |
| 34:BM:33:LEU:H | 34:BM:101:VAL:HG22 | 1.81 | 0.40 |
| 34:BM:71:LYS:O | 34:BM:73:ILE:HD12 | 2.22 | 0.40 |
| 23:BB:2574:G:O2' | 26:BD:148:GLN:NE2 | 2.55 | 0.40 |
| 5:CF:94:HIS:O | 5:CF:95:ALA:C | 2.59 | 0.40 |
| 23:DB:137:U:C5 | 23:DB:138:U:C4 | 3.09 | 0.40 |
| 36:DO:39:VAL:HG22 | 36:DO:39:VAL:O | 2.21 | 0.40 |
| 40:BS:6:LYS:HZ1 | 40:BS:104:THR:HG22 | 1.86 | 0.40 |
| 23:BB:2528:U:P | 51:B4:31:PRO:HG2 | 2.61 | 0.40 |
| 42:BU:43:LYS:HE2 | 42:BU:45:GLN:HG2 | 2.03 | 0.40 |
| 41:DT:87:LEU:HD13 | 41:DT:93:LEU:HD13 | 2.02 | 0.40 |
| 38:DQ:71:ASN:O | 38:DQ:73:ILE:N | 2.54 | 0.40 |
| 18:CS:35:ARG:NH2 | 18:CS:74:ALA:HB3 | 2.37 | 0.40 |
| 18:CS:39:ILE:HG12 | 18:CS:68:HIS:O | 2.20 | 0.40 |
| 38:BQ:93:ILE:HG23 | 38:BQ:94:LEU:N | 2.31 | 0.40 |
| 38:BQ:94:LEU:HB3 | 39:BR:13:ARG:HG2 | 2.03 | 0.40 |
| 40:BS:3:THR:HG23 | 40:BS:107:VAL:O | 2.22 | 0.40 |
| 41:BT:12:ARG:NH2 | 44:BX:29:ARG:NH1 | 2.59 | 0.40 |
| 27:BE:176:ASP:CG | 27:BE:177:PRO:HD2 | 2.41 | 0.40 |
| 3:CD:167:PRO:CG | 3:CD:170:LEU:HD11 | 2.35 | 0.40 |
| 26:DD:72:GLY:O | 26:DD:91:THR:OG1 | 2.38 | 0.40 |
| 26:DD:87:GLY:HA3 | 26:DD:89:GLU:OE1 | 2.21 | 0.40 |
| 18:AS:4:LEU:N | 18:AS:5:LYS:HE3 | 2.35 | 0.40 |
| 23:BB:143:C:C2' | 23:BB:144:A:C8 | 3.04 | 0.40 |
| 41:BT:24:MET:HG3 | 41:BT:28:ASN:HA | 2.02 | 0.40 |
| 26:BD:128:ARG:NH2 | 26:BD:130:GLN:CD | 2.74 | 0.40 |
| 13:CN:9:GLU:O | 13:CN:13:VAL:HG23 | 2.20 | 0.40 |
| 21:CU:3:ILE:HD11 | 21:CU:19:LYS:HD3 | 2.04 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 23:BB:1254:A:OP2 | 23:BB:1256:G:H8 | 2.04 | 0.40 |
| 26:BD:33:ARG:HG3 | 26:BD:34:VAL:N | 2.31 | 0.40 |
| 25:DC:51:ARG:O | 25:DC:52:HIS:O | 2.39 | 0.40 |
| 25:BC:228:ASP:N | 25:BC:228:ASP:OD1 | 2.53 | 0.40 |
| 26:DD:175:LEU:HB3 | 26:DD:189:VAL:HG12 | 2.02 | 0.40 |
| 38:DQ:86:SER:C | 38:DQ:88:GLU:H | 2.24 | 0.40 |
| 2:AC:205:GLU:HB2 | 2:AC:206:ILE:H | 1.59 | 0.40 |
| 12:CM:21:ILE:O | 12:CM:23:GLY:N | 2.55 | 0.40 |
| 8:CI:85:ALA:C | 8:CI:87:MET:N | 2.74 | 0.40 |
| 1:AA:978:A:H5' | 1:AA:1362:A:H62 | 1.83 | 0.40 |
| 37:DP:38:ARG:HA | 37:DP:38:ARG:HD2 | 1.61 | 0.40 |
| 14:CO:16:ARG:CZ | 14:CO:76:ARG:NH2 | 2.85 | 0.40 |
| 11:CL:62:VAL:HG11 | 11:CL:94:TYR:HE1 | 1.87 | 0.40 |
| 1:AA:1237:C:C4' | 1:AA:1334:G:N2 | 2.85 | 0.40 |
| 23:DB:2143:C:H3' | 23:DB:2144:G:C8 | 2.48 | 0.40 |
| 44:BX:14:LEU:HD21 | 44:BX:57:LEU:HD22 | 2.02 | 0.40 |
| 7:CH:7:ALA:O | 7:CH:11:THR:HG23 | 2.21 | 0.40 |
| 35:DN:81:ASN:O | 35:DN:85:PRO:HG3 | 2.22 | 0.40 |
| 23:DB:876:C:H3' | 23:DB:877:A:C4' | 2.52 | 0.40 |
| 1:CA:1099:G:H2' | 1:CA:1100:C:O4' | 2.21 | 0.40 |
| 1:AA:80:A:C2 | 1:AA:81:A:H1' | 2.57 | 0.40 |
| 1:AA:82:G:H3' | 1:AA:83:C:H4' | 2.02 | 0.40 |
| 25:DC:22:GLU:HB2 | 25:DC:202:ARG:NE | 2.37 | 0.40 |
| 38:DQ:30:VAL:O | 38:DQ:31:TYR:HB2 | 2.21 | 0.40 |
| 7:AH:30:LYS:NZ | 7:AH:30:LYS:CA | 2.78 | 0.40 |
| 48:B1:51:ALA:CB | 48:B1:52:LYS:HD2 | 2.52 | 0.40 |
| 1:CA:552:U:H5' | 11:CL:82:ARG:HH11 | 1.87 | 0.40 |
| 1:CA:1074:G:H2' | 1:CA:1075:U:C6 | 2.53 | 0.40 |
| 23:DB:1299:G:C5' | 23:DB:1301:A:H1' | 2.51 | 0.40 |
| 41:BT:68:LYS:HA | 41:BT:75:GLY:HA3 | 2.03 | 0.40 |
| 27:BE:52:VAL:HG22 | 27:BE:53:THR:N | 2.29 | 0.40 |
| 1:CA:619:U:O2 | 3:CD:129:VAL:HG13 | 2.22 | 0.40 |
| 11:AL:19:ASN:HB2 | 11:AL:93:ARG:CZ | 2.52 | 0.40 |
| 23:BB:20:C:O2' | 23:BB:21:A:H5' | 2.21 | 0.40 |
| 23:BB:1788:C:O2' | 23:BB:1789:A:H5' | 2.21 | 0.40 |
| 1:CA:1326:U:H2' | 1:CA:1327:C:H6 | 1.86 | 0.40 |
| 23:DB:242:G:H5' | 50:D3:61:LEU:HD23 | 2.04 | 0.40 |
| 50:D3:4:LYS:O | 50:D3:6:VAL:N | 2.54 | 0.40 |
| 2:CC:8:GLY:C | 2:CC:11:LEU:HG | 2.41 | 0.40 |
| 1:CA:412:A:H1' | 1:CA:413:G:C8 | 2.45 | 0.40 |
| 1:CA:471:U:O2' | 1:CA:472:U:H5' | 2.22 | 0.40 |
| 1:AA:672:U:H2' | 1:AA:673:A:H8 | 1.83 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|------------------|-------------------|-------------|----------|
| 34:DM:81:ARG:HB2 | 34:DM:81:ARG:HH11 | 1.86 | 0.40 |
| 1:CA:598:U:C2 | 1:CA:599:C:C5 | 3.09 | 0.40 |
| 22:DA:40:U:C2 | 22:DA:43:C:H5' | 2.56 | 0.40 |
| 20:AB:98:GLY:HA2 | 20:AB:101:THR:CG2 | 2.51 | 0.40 |
| 36:BO:34:HIS:N | 36:BO:34:HIS:ND1 | 2.69 | 0.40 |
| 23:BB:2887:A:O2' | 23:BB:2888:C:H5' | 2.21 | 0.40 |
| 1:AA:619:U:O2 | 3:AD:129:VAL:HA | 2.22 | 0.40 |
| 2:CC:85:LYS:O | 2:CC:89:VAL:HG13 | 2.21 | 0.40 |
| 23:BB:878:A:OP1 | 23:BB:899:A:N6 | 2.53 | 0.40 |
| 23:DB:1506:U:H2' | 23:DB:1507:C:H6 | 1.87 | 0.40 |
| 1:AA:1080:A:H2' | 1:AA:1081:A:H5' | 2.03 | 0.40 |
| 23:DB:2150:C:H2' | 23:DB:2151:U:H6 | 1.85 | 0.40 |
| 23:BB:1695:G:N7 | 25:BC:14:HIS:HD2 | 2.19 | 0.40 |
| 23:DB:622:G:H2' | 23:DB:623:C:C6 | 2.56 | 0.40 |
| 3:CD:44:LYS:HZ1 | 3:CD:46:ARG:HA | 1.87 | 0.40 |
| 23:BB:1036:G:O2' | 23:BB:1037:G:H5' | 2.21 | 0.40 |
| 1:CA:846:G:H5' | 1:CA:847:G:OP2 | 2.21 | 0.40 |
| 1:CA:612:C:H2' | 1:CA:613:C:C6 | 2.56 | 0.40 |
| 23:BB:1050:A:C2 | 23:BB:1051:G:H1' | 2.57 | 0.40 |
| 35:BN:65:LEU:HA | 35:BN:65:LEU:HD12 | 1.93 | 0.40 |
| 27:BE:37:ALA:O | 27:BE:93:SER:HA | 2.21 | 0.40 |
| 23:BB:1541:C:H2' | 23:BB:1542:U:H6 | 1.85 | 0.40 |
| 23:BB:515:A:H3' | 23:BB:516:C:C6 | 2.56 | 0.40 |
| 23:DB:689:A:H2' | 23:DB:690:G:H8 | 1.85 | 0.40 |
| 1:AA:1340:A:H2' | 1:AA:1341:U:C6 | 2.57 | 0.40 |
| 1:CA:1125:U:O2 | 1:CA:1126:U:H6 | 2.04 | 0.40 |
| 23:BB:1306:C:O2' | 23:BB:1307:A:H5' | 2.22 | 0.40 |
| 1:AA:828:U:H2' | 1:AA:829:G:O5' | 2.21 | 0.40 |
| 1:AA:258:G:N2 | 1:AA:259:G:H1' | 2.37 | 0.40 |
| 12:CM:13:HIS:HA | 12:CM:43:LYS:HA | 2.02 | 0.40 |
| 23:DB:1989:G:H2' | 23:DB:1990:C:O4' | 2.21 | 0.40 |
| 11:CL:24:GLU:HB2 | 11:CL:26:CYS:SG | 2.61 | 0.40 |
| 23:BB:1758:U:N3 | 23:BB:2696:U:H5' | 2.35 | 0.40 |
| 1:AA:977:A:N1 | 1:AA:1224:U:O5' | 2.54 | 0.40 |
| 48:D1:33:LEU:N | 48:D1:33:LEU:HD12 | 2.37 | 0.40 |
| 1:CA:1046:A:H2' | 1:CA:1047:G:O4' | 2.21 | 0.40 |
| 1:CA:1321:U:H2' | 1:CA:1322:C:C5 | 2.56 | 0.40 |
| 27:DE:51:GLU:HG2 | 27:DE:52:VAL:HG13 | 2.03 | 0.40 |
| 42:BU:8:ASP:O | 42:BU:10:VAL:HG13 | 2.21 | 0.40 |
| 42:BU:13:LEU:O | 42:BU:15:GLY:N | 2.54 | 0.40 |
| 42:BU:25:LYS:CG | 42:BU:35:VAL:HA | 2.41 | 0.40 |
| 27:BE:48:THR:CA | 27:BE:86:ALA:HB1 | 2.51 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 20:CB:186:VAL:O | 20:CB:200:PRO:HA | 2.22 | 0.40 |
| 23:BB:1018:U:H2' | 23:BB:1019:U:O4' | 2.22 | 0.40 |
| 23:BB:2363:G:P | 50:B3:39:ARG:HD3 | 2.62 | 0.40 |
| 23:BB:920:A:H2' | 23:BB:921:C:C6 | 2.55 | 0.40 |
| 36:BO:40:ILE:N | 36:BO:40:ILE:HD13 | 2.35 | 0.40 |
| 43:BW:59:PHE:HE2 | 43:BW:81:ILE:CD1 | 2.35 | 0.40 |
| 38:DQ:50:ARG:HH22 | 38:DQ:53:LYS:CE | 2.34 | 0.40 |
| 39:DR:74:ILE:HD11 | 39:DR:76:LYS:HE2 | 2.03 | 0.40 |
| 33:BL:120:VAL:HG12 | 33:BL:138:ALA:HB3 | 2.02 | 0.40 |
| 33:BL:55:MET:SD | 33:BL:55:MET:N | 2.93 | 0.40 |
| 23:BB:2080:A:H2' | 23:BB:2081:U:H6 | 1.86 | 0.40 |
| 46:BZ:34:LEU:H | 46:BZ:44:PHE:CB | 2.34 | 0.40 |
| 46:DZ:3:LYS:HG2 | 46:DZ:51:VAL:HG21 | 2.04 | 0.40 |
| 55:DB:3475:HOH:O | 35:DN:4:ARG:HA | 2.21 | 0.40 |
| 22:DA:116:G:H4' | 36:DO:54:VAL:HG22 | 2.02 | 0.40 |
| 8:AI:16:ALA:HB1 | 8:AI:78:ILE:HA | 2.03 | 0.40 |
| 31:DJ:7:LYS:CE | 31:DJ:45:THR:HG21 | 2.52 | 0.40 |
| 31:DJ:7:LYS:O | 31:DJ:48:VAL:HG21 | 2.20 | 0.40 |
| 18:CS:28:LYS:N | 18:CS:28:LYS:HD2 | 2.37 | 0.40 |
| 35:BN:28:LEU:HG | 35:BN:34:ILE:CD1 | 2.51 | 0.40 |
| 35:BN:41:ALA:C | 35:BN:43:GLU:H | 2.24 | 0.40 |
| 23:BB:1010:A:H4' | 23:BB:1152:C:O2' | 2.22 | 0.40 |
| 31:BJ:110:PRO:O | 31:BJ:111:LYS:HB2 | 2.22 | 0.40 |
| 39:BR:41:ILE:HD12 | 39:BR:43:ASN:H | 1.86 | 0.40 |
| 27:BE:6:LYS:HZ1 | 27:BE:119:ILE:N | 2.19 | 0.40 |
| 51:B4:23:ILE:H | 51:B4:23:ILE:HG12 | 1.64 | 0.40 |
| 1:AA:438:U:H4' | 3:AD:119:HIS:HD2 | 1.85 | 0.40 |
| 26:DD:95:SER:HB3 | 26:DD:96:ILE:H | 1.65 | 0.40 |
| 30:DH:122:LEU:HA | 30:DH:146:VAL:CG2 | 2.49 | 0.40 |
| 28:DF:116:LEU:HD22 | 28:DF:129:MET:CE | 2.52 | 0.40 |
| 33:DL:77:ILE:HD11 | 33:DL:108:ALA:O | 2.21 | 0.40 |
| 49:B2:42:LEU:HG | 49:B2:43:THR:H | 1.86 | 0.40 |
| 49:B2:12:ARG:NH1 | 49:B2:44:VAL:O | 2.55 | 0.40 |
| 41:BT:3:ARG:HE | 41:BT:8:LEU:CD2 | 2.34 | 0.40 |
| 44:BX:19:LEU:C | 44:BX:21:LEU:H | 2.25 | 0.40 |
| 23:BB:2822:G:OP1 | 26:BD:166:GLY:CA | 2.69 | 0.40 |
| 50:D3:12:ARG:O | 50:D3:13:PHE:CB | 2.69 | 0.40 |
| 2:AC:154:GLY:CA | 2:AC:163:ARG:H | 2.33 | 0.40 |
| 44:DX:22:LEU:HA | 44:DX:22:LEU:HD23 | 1.97 | 0.40 |
| 52:BI:75:ALA:HB3 | 52:BI:131:THR:HG21 | 2.03 | 0.40 |
| 13:CN:24:ALA:C | 13:CN:26:LEU:H | 2.25 | 0.40 |
| 13:CN:48:GLN:HG3 | 13:CN:48:GLN:H | 1.61 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 37:DP:59:THR:HG23 | 37:DP:76:HIS:NE2 | 2.36 | 0.40 |
| 38:DQ:86:SER:HB3 | 38:DQ:88:GLU:OE2 | 2.21 | 0.40 |
| 12:CM:22:TYR:O | 12:CM:24:VAL:N | 2.55 | 0.40 |
| 31:DJ:90:GLU:C | 31:DJ:92:MET:N | 2.73 | 0.40 |
| 19:CT:68:LYS:HB2 | 19:CT:70:LYS:CD | 2.51 | 0.40 |
| 11:CL:20:VAL:O | 11:CL:20:VAL:HG23 | 2.22 | 0.40 |
| 3:AD:84:ASN:O | 3:AD:88:ASN:ND2 | 2.54 | 0.40 |
| 1:AA:1238:A:H2 | 1:AA:1241:G:H1' | 1.85 | 0.40 |
| 35:BN:22:ARG:NE | 35:BN:69:ARG:HD3 | 2.37 | 0.40 |
| 38:DQ:57:ARG:O | 38:DQ:61:ILE:HG13 | 2.21 | 0.40 |
| 35:DN:70:THR:HG23 | 35:DN:72:ASP:HB3 | 2.04 | 0.40 |
| 2:AC:5:HIS:NE2 | 2:AC:7:ASN:HB2 | 2.37 | 0.40 |
| 29:DG:171:LYS:HZ3 | 29:DG:173:ALA:HA | 1.86 | 0.40 |
| 1:CA:1336:C:H4' | 1:CA:1337:G:O5' | 2.21 | 0.40 |
| 32:DK:5:GLN:O | 32:DK:20:MET:HG3 | 2.21 | 0.40 |
| 32:DK:2:ILE:HD12 | 32:DK:2:ILE:N | 2.35 | 0.40 |
| 23:DB:988:A:H5'' | 45:DY:10:ARG:HD3 | 2.03 | 0.40 |
| 48:D1:10:LEU:H | 48:D1:24:LYS:CB | 2.31 | 0.40 |
| 23:DB:1176:U:O5' | 23:DB:1176:U:H6 | 2.04 | 0.40 |
| 1:AA:1371:G:O3' | 8:AI:70:GLY:HA3 | 2.20 | 0.40 |
| 1:AA:1057:G:H2' | 1:AA:1058:G:O4' | 2.21 | 0.40 |
| 23:BB:27:G:O2' | 23:BB:513:A:N6 | 2.54 | 0.40 |
| 48:B1:10:LEU:HD11 | 48:B1:52:LYS:HD3 | 2.04 | 0.40 |
| 23:BB:2444:G:OP1 | 27:BE:62:GLN:NE2 | 2.55 | 0.40 |
| 1:CA:812:G:C4' | 1:CA:812:G:OP1 | 2.70 | 0.40 |
| 1:CA:551:U:H2' | 1:CA:552:U:H6 | 1.86 | 0.40 |
| 23:DB:1300:G:H4' | 23:DB:1301:A:O5' | 2.21 | 0.40 |
| 29:BG:40:VAL:CG1 | 29:BG:41:GLU:N | 2.84 | 0.40 |
| 16:CQ:60:ILE:HB | 16:CQ:73:THR:O | 2.21 | 0.40 |
| 14:CO:10:ILE:HG21 | 14:CO:30:LEU:HD21 | 2.03 | 0.40 |
| 23:BB:18:U:O2' | 23:BB:19:A:H5' | 2.21 | 0.40 |
| 1:CA:37:U:O2' | 1:CA:38:G:H5' | 2.21 | 0.40 |
| 1:CA:546:A:H4' | 1:CA:548:G:O3' | 2.21 | 0.40 |
| 20:CB:64:GLY:O | 20:CB:66:ILE:HG12 | 2.22 | 0.40 |
| 1:AA:973:G:O2' | 9:AJ:56:HIS:HA | 2.21 | 0.40 |
| 23:DB:1275:A:N3 | 23:DB:1275:A:C3' | 2.79 | 0.40 |
| 23:DB:1275:A:C8 | 35:DN:16:HIS:HB2 | 2.57 | 0.40 |
| 25:DC:28:PRO:CD | 25:DC:79:ARG:HE | 2.34 | 0.40 |
| 30:BH:57:LYS:HA | 30:BH:61:VAL:HB | 2.02 | 0.40 |
| 23:BB:2312:U:H2' | 23:BB:2313:C:H5' | 2.03 | 0.40 |
| 4:AE:95:MET:HE2 | 4:AE:114:LEU:HD11 | 2.03 | 0.40 |
| 4:CE:61:LYS:HG3 | 4:CE:62:ALA:N | 2.35 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|--------------------|-------------|----------|
| 20:CB:48:MET:CB | 20:CB:199:ILE:HG22 | 2.52 | 0.40 |
| 23:BB:2377:A:H2' | 23:BB:2378:A:C8 | 2.56 | 0.40 |
| 1:AA:201:G:O2' | 1:AA:202:G:H5' | 2.21 | 0.40 |
| 1:AA:123:U:H2' | 1:AA:124:C:H6 | 1.86 | 0.40 |
| 20:CB:69:VAL:CG2 | 20:CB:160:LEU:HD11 | 2.51 | 0.40 |
| 23:BB:2155:U:H6 | 23:BB:2155:U:O5' | 2.05 | 0.40 |
| 40:DS:36:LEU:O | 40:DS:39:THR:HG22 | 2.21 | 0.40 |
| 1:AA:1458:G:O3' | 19:AT:22:SER:HA | 2.22 | 0.40 |
| 1:CA:621:A:H2' | 1:CA:622:A:H8 | 1.82 | 0.40 |
| 23:BB:1708:C:H2' | 23:BB:1709:U:C6 | 2.56 | 0.40 |
| 23:DB:2586:U:H2' | 23:DB:2587:A:H8 | 1.84 | 0.40 |
| 26:DD:18:ASP:O | 26:DD:20:VAL:N | 2.54 | 0.40 |
| 1:AA:454:G:H2' | 1:AA:455:G:H8 | 1.86 | 0.40 |
| 23:DB:769:U:H2' | 23:DB:770:G:C8 | 2.57 | 0.40 |
| 14:AO:24:THR:O | 14:AO:28:VAL:HG23 | 2.21 | 0.40 |
| 5:CF:89:VAL:HG13 | 5:CF:89:VAL:O | 2.20 | 0.40 |
| 23:BB:553:G:H2' | 23:BB:554:U:C6 | 2.56 | 0.40 |
| 41:DT:19:LYS:HA | 41:DT:19:LYS:HD2 | 1.88 | 0.40 |
| 23:BB:2179:C:H2' | 23:BB:2180:U:C6 | 2.56 | 0.40 |
| 1:AA:1021:A:H2' | 1:AA:1022:A:C8 | 2.56 | 0.40 |
| 1:AA:1095:U:O2' | 1:AA:1096:C:H5' | 2.22 | 0.40 |
| 29:BG:35:THR:C | 29:BG:36:LEU:HD12 | 2.42 | 0.40 |
| 40:BS:13:SER:OG | 40:BS:16:LYS:HD3 | 2.21 | 0.40 |
| 16:CQ:57:VAL:HG12 | 16:CQ:78:VAL:HB | 2.03 | 0.40 |
| 41:DT:70:HIS:CG | 41:DT:71:GLY:H | 2.39 | 0.40 |
| 24:BV:35:GLU:HG3 | 24:BV:93:ARG:NE | 2.35 | 0.40 |
| 23:BB:116:C:H2' | 23:BB:117:G:C8 | 2.57 | 0.40 |
| 19:AT:17:ARG:HD2 | 19:AT:17:ARG:C | 2.42 | 0.40 |
| 18:AS:30:LEU:N | 18:AS:30:LEU:HD22 | 2.36 | 0.40 |
| 23:BB:1893:C:H2' | 23:BB:1894:C:O4' | 2.21 | 0.40 |
| 23:DB:1099:G:N7 | 52:DI:3:LYS:CD | 2.83 | 0.40 |
| 51:D4:2:LYS:HB2 | 51:D4:2:LYS:HZ2 | 1.82 | 0.40 |
| 51:D4:36:ARG:HD2 | 51:D4:37:GLN:O | 2.22 | 0.40 |
| 26:BD:175:LEU:HB3 | 26:BD:189:VAL:CG1 | 2.52 | 0.40 |
| 43:DW:43:LYS:CD | 43:DW:76:ARG:HA | 2.49 | 0.40 |
| 23:DB:44:A:H2' | 23:DB:45:G:O4' | 2.22 | 0.40 |
| 47:D0:53:VAL:CG1 | 47:D0:54:ILE:N | 2.85 | 0.40 |
| 31:BJ:118:MET:O | 31:BJ:119:PHE:C | 2.59 | 0.40 |
| 31:BJ:25:LEU:HG | 31:BJ:64:VAL:N | 2.25 | 0.40 |
| 36:BO:17:LYS:HG2 | 43:BW:77:LYS:HD2 | 2.02 | 0.40 |
| 23:DB:2617:U:O2' | 23:DB:2618:G:H5' | 2.22 | 0.40 |
| 30:BH:19:VAL:O | 30:BH:20:ASN:C | 2.59 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|--------------------|-------------|----------|
| 30:BH:32:PRO:C | 30:BH:34:GLY:H | 2.24 | 0.40 |
| 23:DB:297:G:H2' | 23:DB:298:G:C8 | 2.56 | 0.40 |
| 27:DE:138:LEU:HB2 | 27:DE:143:LEU:CD1 | 2.51 | 0.40 |
| 27:DE:198:GLU:HB3 | 27:DE:199:MET:H | 1.59 | 0.40 |
| 46:BZ:48:GLN:O | 46:BZ:51:VAL:HB | 2.20 | 0.40 |
| 46:BZ:6:HIS:H | 46:BZ:51:VAL:HG13 | 1.86 | 0.40 |
| 24:BV:82:TYR:HB3 | 34:BM:36:VAL:HG12 | 2.04 | 0.40 |
| 23:BB:2617:U:C4 | 23:BB:2618:G:N7 | 2.90 | 0.40 |
| 41:DT:3:ARG:HB3 | 41:DT:5:GLU:OE1 | 2.21 | 0.40 |
| 35:DN:2:ARG:CZ | 35:DN:4:ARG:NH1 | 2.85 | 0.40 |
| 25:DC:247:TRP:HZ2 | 25:DC:254:LYS:HZ3 | 1.67 | 0.40 |
| 22:DA:115:A:H2' | 22:DA:116:G:O4' | 2.22 | 0.40 |
| 26:BD:168:GLU:HG2 | 26:BD:169:ARG:N | 2.37 | 0.40 |
| 8:AI:33:SER:C | 8:AI:35:GLU:N | 2.74 | 0.40 |
| 8:AI:38:PHE:HD2 | 8:AI:38:PHE:HA | 1.77 | 0.40 |
| 8:AI:57:VAL:C | 8:AI:59:LYS:H | 2.25 | 0.40 |
| 35:BN:116:VAL:HG22 | 35:BN:117:ASP:N | 2.27 | 0.40 |
| 47:B0:35:GLU:CG | 47:B0:36:LYS:H | 2.34 | 0.40 |
| 23:BB:2331:G:H2' | 23:BB:2332:C:C6 | 2.57 | 0.40 |
| 27:BE:193:VAL:HG11 | 27:BE:201:ALA:HA | 2.02 | 0.40 |
| 3:CD:105:GLY:HA3 | 3:CD:158:LEU:HD23 | 2.03 | 0.40 |
| 1:AA:1315:U:H3' | 1:AA:1316:G:C8 | 2.56 | 0.40 |
| 30:DH:90:LEU:HD22 | 30:DH:122:LEU:HB3 | 2.03 | 0.40 |
| 1:CA:265:G:H5' | 16:CQ:65:PRO:O | 2.20 | 0.40 |
| 33:BL:93:ASN:O | 33:BL:94:THR:HB | 2.21 | 0.40 |
| 41:BT:2:ILE:O | 41:BT:5:GLU:OE1 | 2.39 | 0.40 |
| 12:CM:56:ARG:HA | 12:CM:59:VAL:CG1 | 2.51 | 0.40 |
| 23:BB:1655:A:H2' | 23:BB:1656:C:O4' | 2.22 | 0.40 |
| 3:CD:58:GLN:CA | 3:CD:58:GLN:HE21 | 2.16 | 0.40 |
| 2:AC:155:ARG:CZ | 2:AC:192:TYR:HB2 | 2.51 | 0.40 |
| 26:BD:26:VAL:O | 26:BD:27:ILE:C | 2.60 | 0.40 |
| 26:BD:46:ARG:HG3 | 26:BD:47:ALA:N | 2.36 | 0.40 |
| 25:DC:50:THR:O | 25:DC:51:ARG:C | 2.59 | 0.40 |
| 32:DK:76:VAL:H | 37:DP:74:GLN:HB2 | 1.86 | 0.40 |
| 1:CA:1284:C:H3' | 1:CA:1285:A:H8 | 1.86 | 0.40 |
| 48:B1:44:GLN:OE1 | 48:B1:46:VAL:HB | 2.22 | 0.40 |
| 11:AL:66:ILE:CD1 | 11:AL:73:LEU:HD12 | 2.51 | 0.40 |
| 2:AC:10:ARG:O | 2:AC:15:LYS:HB2 | 2.20 | 0.40 |
| 52:DI:78:LEU:HD13 | 52:DI:108:ILE:HG23 | 2.03 | 0.40 |
| 29:DG:9:VAL:HB | 29:DG:11:PRO:HD3 | 2.03 | 0.40 |
| 7:CH:55:LYS:CA | 7:CH:55:LYS:HZ2 | 2.24 | 0.40 |
| 48:D1:24:LYS:CB | 48:D1:24:LYS:HZ2 | 2.33 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|--------------------|-------------------|-------------|----------|
| 4:AE:19:ARG:HA | 4:AE:32:PHE:HA | 2.03 | 0.40 |
| 23:DB:2799:A:H4' | 23:DB:2800:A:C8 | 2.56 | 0.40 |
| 34:BM:126:ILE:HG13 | 34:BM:127:LYS:N | 2.25 | 0.40 |
| 16:CQ:11:VAL:HG13 | 16:CQ:20:ILE:CG2 | 2.47 | 0.40 |
| 25:DC:19:VAL:CG1 | 25:DC:20:ASN:H | 2.33 | 0.40 |
| 48:B1:8:ILE:HB | 48:B1:9:LYS:H | 1.60 | 0.40 |
| 47:B0:9:ARG:O | 47:B0:10:SER:HB3 | 2.22 | 0.40 |
| 38:BQ:68:ALA:HB2 | 38:BQ:105:PHE:HZ | 1.87 | 0.40 |
| 16:CQ:75:VAL:CG2 | 16:CQ:76:ARG:N | 2.85 | 0.40 |
| 1:CA:415:A:N1 | 1:CA:428:G:O6 | 2.54 | 0.40 |
| 42:DU:43:LYS:HZ3 | 42:DU:53:GLN:HE21 | 1.70 | 0.40 |
| 9:AJ:92:LEU:H | 9:AJ:92:LEU:CD2 | 2.29 | 0.40 |
| 1:CA:279:A:C5' | 1:CA:280:C:H3' | 2.48 | 0.40 |
| 5:CF:11:HIS:HB3 | 5:CF:14:GLN:HB2 | 2.02 | 0.40 |
| 2:CC:127:VAL:CG2 | 2:CC:128:MET:H | 2.25 | 0.40 |
| 18:CS:3:SER:C | 18:CS:4:LEU:HD12 | 2.42 | 0.40 |
| 3:AD:25:ARG:HD3 | 3:AD:26:ALA:N | 2.30 | 0.40 |
| 22:DA:23:G:C2 | 22:DA:24:G:N1 | 2.90 | 0.40 |
| 5:CF:59:TYR:HD1 | 5:CF:59:TYR:H | 1.68 | 0.40 |
| 22:DA:25:U:O5' | 22:DA:26:C:OP1 | 2.40 | 0.40 |
| 23:DB:2759:G:H2' | 23:DB:2760:C:O4' | 2.21 | 0.40 |
| 23:BB:711:G:C2' | 23:BB:712:G:H5' | 2.51 | 0.40 |
| 1:CA:525:C:OP1 | 11:CL:87:LYS:HE2 | 2.21 | 0.40 |
| 1:AA:1226:C:O2' | 1:AA:1227:A:P | 2.79 | 0.40 |
| 23:BB:1723:G:N7 | 23:BB:1724:G:N7 | 2.70 | 0.40 |
| 23:BB:1736:U:H2' | 23:BB:1737:G:O4' | 2.20 | 0.40 |
| 1:AA:620:C:H1' | 3:AD:131:ILE:HG21 | 2.03 | 0.40 |
| 17:AR:46:THR:O | 17:AR:50:TYR:HB2 | 2.21 | 0.40 |
| 40:DS:86:MET:HG3 | 40:DS:87:PRO:CD | 2.51 | 0.40 |
| 23:DB:1537:G:C2' | 23:DB:1538:G:H5' | 2.51 | 0.40 |
| 23:DB:2379:G:H2' | 23:DB:2380:C:H6 | 1.87 | 0.40 |
| 23:DB:1769:U:O2' | 23:DB:1770:G:H5' | 2.22 | 0.40 |
| 10:AK:35:ASP:HB3 | 10:AK:41:LEU:HD11 | 2.04 | 0.40 |
| 23:DB:1050:A:O2' | 23:DB:1051:G:H5' | 2.22 | 0.40 |
| 23:DB:265:A:H2' | 23:DB:266:G:H1' | 2.03 | 0.40 |
| 23:BB:539:G:O2' | 23:BB:540:C:H5' | 2.22 | 0.40 |
| 49:D2:4:THR:O | 49:D2:5:PHE:HB2 | 2.21 | 0.40 |
| 1:AA:607:A:H2' | 1:AA:608:A:H8 | 1.86 | 0.40 |
| 23:BB:1345:C:H5' | 23:BB:1396:U:H5 | 1.86 | 0.40 |
| 23:DB:562:U:H2' | 23:DB:572:A:O4' | 2.21 | 0.40 |
| 1:CA:1515:G:O2' | 1:CA:1516:G:H5' | 2.21 | 0.40 |
| 23:DB:239:C:H2' | 23:DB:240:C:H6 | 1.87 | 0.40 |

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| Atom-1 | Atom-2 | Distance(Å) | Clash(Å) |
|-------------------|-------------------|-------------|----------|
| 1:CA:1503:A:C8 | 1:CA:1531:A:H1' | 2.56 | 0.40 |
| 1:AA:137:U:H2' | 1:AA:138:G:C8 | 2.57 | 0.40 |
| 1:CA:258:G:N2 | 1:CA:259:G:H1' | 2.37 | 0.40 |
| 23:DB:811:U:H3' | 33:DL:32:GLY:O | 2.21 | 0.40 |
| 23:BB:1801:A:H5' | 23:BB:2203:U:O2' | 2.21 | 0.40 |
| 37:BP:89:GLY:O | 37:BP:90:ALA:C | 2.60 | 0.40 |
| 23:DB:649:G:H2' | 23:DB:650:C:C6 | 2.56 | 0.40 |
| 1:CA:1475:G:H4' | 23:DB:1689:A:H4' | 2.03 | 0.40 |
| 8:CI:99:LYS:HG2 | 8:CI:99:LYS:O | 2.21 | 0.40 |
| 52:BI:4:VAL:O | 52:BI:4:VAL:HG13 | 2.21 | 0.40 |
| 36:DO:62:LEU:HD12 | 36:DO:62:LEU:H | 1.87 | 0.40 |
| 21:CU:32:ARG:O | 21:CU:32:ARG:HG2 | 2.21 | 0.40 |
| 11:CL:53:ARG:HG2 | 11:CL:63:THR:HG22 | 2.03 | 0.40 |

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone ⓘ

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|-----|-------|---------------|-----------|----------|----------|-------------|----|
| 2 | AC | 204/233 (88%) | 144 (71%) | 44 (22%) | 16 (8%) | 1 | 20 |
| 2 | CC | 204/233 (88%) | 138 (68%) | 46 (22%) | 20 (10%) | 1 | 14 |
| 3 | AD | 203/206 (98%) | 133 (66%) | 49 (24%) | 21 (10%) | 1 | 12 |
| 3 | CD | 203/206 (98%) | 137 (68%) | 49 (24%) | 17 (8%) | 1 | 18 |
| 4 | AE | 148/167 (89%) | 110 (74%) | 30 (20%) | 8 (5%) | 3 | 33 |
| 4 | CE | 148/167 (89%) | 109 (74%) | 30 (20%) | 9 (6%) | 2 | 29 |
| 5 | AF | 98/135 (73%) | 68 (69%) | 25 (26%) | 5 (5%) | 3 | 35 |
| 5 | CF | 98/135 (73%) | 72 (74%) | 18 (18%) | 8 (8%) | 1 | 19 |
| 6 | AG | 148/179 (83%) | 105 (71%) | 35 (24%) | 8 (5%) | 3 | 33 |
| 6 | CG | 150/179 (84%) | 101 (67%) | 37 (25%) | 12 (8%) | 1 | 20 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|-----|-------|---------------|-----------|----------|----------|-------------|----|
| 7 | AH | 127/130 (98%) | 108 (85%) | 14 (11%) | 5 (4%) | 5 | 44 |
| 7 | CH | 127/130 (98%) | 91 (72%) | 29 (23%) | 7 (6%) | 3 | 32 |
| 8 | AI | 125/130 (96%) | 84 (67%) | 30 (24%) | 11 (9%) | 1 | 17 |
| 8 | CI | 125/130 (96%) | 82 (66%) | 30 (24%) | 13 (10%) | 1 | 12 |
| 9 | AJ | 96/103 (93%) | 65 (68%) | 20 (21%) | 11 (12%) | 1 | 10 |
| 9 | CJ | 96/103 (93%) | 59 (62%) | 18 (19%) | 19 (20%) | 0 | 2 |
| 10 | AK | 115/129 (89%) | 75 (65%) | 32 (28%) | 8 (7%) | 2 | 24 |
| 10 | CK | 115/129 (89%) | 76 (66%) | 30 (26%) | 9 (8%) | 1 | 20 |
| 11 | AL | 121/124 (98%) | 73 (60%) | 35 (29%) | 13 (11%) | 1 | 11 |
| 11 | CL | 121/124 (98%) | 76 (63%) | 28 (23%) | 17 (14%) | 0 | 6 |
| 12 | AM | 112/118 (95%) | 89 (80%) | 13 (12%) | 10 (9%) | 1 | 16 |
| 12 | CM | 111/118 (94%) | 82 (74%) | 17 (15%) | 12 (11%) | 1 | 11 |
| 13 | AN | 92/101 (91%) | 64 (70%) | 19 (21%) | 9 (10%) | 1 | 14 |
| 13 | CN | 92/101 (91%) | 50 (54%) | 26 (28%) | 16 (17%) | 0 | 3 |
| 14 | AO | 86/89 (97%) | 66 (77%) | 19 (22%) | 1 (1%) | 19 | 74 |
| 14 | CO | 86/89 (97%) | 69 (80%) | 15 (17%) | 2 (2%) | 10 | 59 |
| 15 | AP | 80/82 (98%) | 60 (75%) | 14 (18%) | 6 (8%) | 2 | 22 |
| 15 | CP | 78/82 (95%) | 55 (70%) | 14 (18%) | 9 (12%) | 1 | 10 |
| 16 | AQ | 78/84 (93%) | 49 (63%) | 25 (32%) | 4 (5%) | 3 | 35 |
| 16 | CQ | 79/84 (94%) | 58 (73%) | 15 (19%) | 6 (8%) | 2 | 21 |
| 17 | AR | 53/75 (71%) | 31 (58%) | 16 (30%) | 6 (11%) | 1 | 10 |
| 17 | CR | 53/75 (71%) | 36 (68%) | 13 (24%) | 4 (8%) | 2 | 22 |
| 18 | AS | 77/92 (84%) | 54 (70%) | 12 (16%) | 11 (14%) | 0 | 6 |
| 18 | CS | 78/92 (85%) | 50 (64%) | 17 (22%) | 11 (14%) | 0 | 6 |
| 19 | AT | 83/87 (95%) | 68 (82%) | 12 (14%) | 3 (4%) | 5 | 48 |
| 19 | CT | 83/87 (95%) | 62 (75%) | 16 (19%) | 5 (6%) | 2 | 29 |
| 20 | AB | 216/241 (90%) | 148 (68%) | 52 (24%) | 16 (7%) | 2 | 23 |
| 20 | CB | 216/241 (90%) | 149 (69%) | 41 (19%) | 26 (12%) | 1 | 9 |
| 21 | AU | 49/71 (69%) | 23 (47%) | 12 (24%) | 14 (29%) | 0 | 0 |
| 21 | CU | 49/71 (69%) | 26 (53%) | 18 (37%) | 5 (10%) | 1 | 12 |
| 24 | BV | 92/94 (98%) | 61 (66%) | 24 (26%) | 7 (8%) | 2 | 21 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|-----|-------|---------------|-----------|-----------|----------|-------------|----|
| 24 | DV | 92/94 (98%) | 64 (70%) | 23 (25%) | 5 (5%) | 3 | 33 |
| 25 | BC | 265/273 (97%) | 94 (36%) | 95 (36%) | 76 (29%) | 0 | 0 |
| 25 | DC | 265/273 (97%) | 97 (37%) | 101 (38%) | 67 (25%) | 0 | 1 |
| 26 | BD | 207/209 (99%) | 87 (42%) | 68 (33%) | 52 (25%) | 0 | 1 |
| 26 | DD | 207/209 (99%) | 91 (44%) | 72 (35%) | 44 (21%) | 0 | 2 |
| 27 | BE | 199/201 (99%) | 101 (51%) | 57 (29%) | 41 (21%) | 0 | 2 |
| 27 | DE | 199/201 (99%) | 90 (45%) | 63 (32%) | 46 (23%) | 0 | 1 |
| 28 | BF | 176/179 (98%) | 99 (56%) | 42 (24%) | 35 (20%) | 0 | 2 |
| 28 | DF | 176/179 (98%) | 98 (56%) | 49 (28%) | 29 (16%) | 0 | 4 |
| 29 | BG | 174/177 (98%) | 112 (64%) | 41 (24%) | 21 (12%) | 1 | 9 |
| 29 | DG | 174/177 (98%) | 108 (62%) | 51 (29%) | 15 (9%) | 1 | 17 |
| 30 | BH | 147/149 (99%) | 83 (56%) | 49 (33%) | 15 (10%) | 1 | 12 |
| 30 | DH | 147/149 (99%) | 83 (56%) | 46 (31%) | 18 (12%) | 1 | 9 |
| 31 | BJ | 138/142 (97%) | 68 (49%) | 43 (31%) | 27 (20%) | 0 | 2 |
| 31 | DJ | 138/142 (97%) | 72 (52%) | 36 (26%) | 30 (22%) | 0 | 1 |
| 32 | BK | 119/123 (97%) | 73 (61%) | 27 (23%) | 19 (16%) | 0 | 4 |
| 32 | DK | 119/123 (97%) | 70 (59%) | 30 (25%) | 19 (16%) | 0 | 4 |
| 33 | BL | 142/144 (99%) | 56 (39%) | 47 (33%) | 39 (28%) | 0 | 0 |
| 33 | DL | 142/144 (99%) | 68 (48%) | 35 (25%) | 39 (28%) | 0 | 0 |
| 34 | BM | 134/136 (98%) | 64 (48%) | 37 (28%) | 33 (25%) | 0 | 1 |
| 34 | DM | 134/136 (98%) | 71 (53%) | 43 (32%) | 20 (15%) | 0 | 5 |
| 35 | BN | 125/127 (98%) | 68 (54%) | 41 (33%) | 16 (13%) | 0 | 8 |
| 35 | DN | 125/127 (98%) | 86 (69%) | 29 (23%) | 10 (8%) | 1 | 20 |
| 36 | BO | 115/117 (98%) | 61 (53%) | 34 (30%) | 20 (17%) | 0 | 3 |
| 36 | DO | 115/117 (98%) | 62 (54%) | 33 (29%) | 20 (17%) | 0 | 3 |
| 37 | BP | 112/115 (97%) | 37 (33%) | 38 (34%) | 37 (33%) | 0 | 0 |
| 37 | DP | 112/115 (97%) | 42 (38%) | 37 (33%) | 33 (30%) | 0 | 0 |
| 38 | BQ | 115/118 (98%) | 79 (69%) | 23 (20%) | 13 (11%) | 1 | 10 |
| 38 | DQ | 115/118 (98%) | 78 (68%) | 21 (18%) | 16 (14%) | 0 | 6 |
| 39 | BR | 101/103 (98%) | 39 (39%) | 38 (38%) | 24 (24%) | 0 | 1 |
| 39 | DR | 101/103 (98%) | 42 (42%) | 30 (30%) | 29 (29%) | 0 | 0 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|-----|-------|-------------------|------------|------------|------------|-------------|----|
| 40 | BS | 108/110 (98%) | 58 (54%) | 34 (32%) | 16 (15%) | 0 | 5 |
| 40 | DS | 108/110 (98%) | 62 (57%) | 26 (24%) | 20 (18%) | 0 | 2 |
| 41 | BT | 97/100 (97%) | 38 (39%) | 42 (43%) | 17 (18%) | 0 | 3 |
| 41 | DT | 97/100 (97%) | 44 (45%) | 28 (29%) | 25 (26%) | 0 | 1 |
| 42 | BU | 100/104 (96%) | 36 (36%) | 43 (43%) | 21 (21%) | 0 | 2 |
| 42 | DU | 100/104 (96%) | 47 (47%) | 34 (34%) | 19 (19%) | 0 | 2 |
| 43 | BW | 82/85 (96%) | 35 (43%) | 22 (27%) | 25 (30%) | 0 | 0 |
| 43 | DW | 82/85 (96%) | 28 (34%) | 31 (38%) | 23 (28%) | 0 | 0 |
| 44 | BX | 61/63 (97%) | 20 (33%) | 30 (49%) | 11 (18%) | 0 | 3 |
| 44 | DX | 61/63 (97%) | 37 (61%) | 15 (25%) | 9 (15%) | 0 | 5 |
| 45 | BY | 56/59 (95%) | 29 (52%) | 17 (30%) | 10 (18%) | 0 | 3 |
| 45 | DY | 56/59 (95%) | 38 (68%) | 15 (27%) | 3 (5%) | 3 | 33 |
| 46 | BZ | 68/70 (97%) | 32 (47%) | 23 (34%) | 13 (19%) | 0 | 2 |
| 46 | DZ | 68/70 (97%) | 36 (53%) | 22 (32%) | 10 (15%) | 0 | 5 |
| 47 | B0 | 54/57 (95%) | 27 (50%) | 17 (32%) | 10 (18%) | 0 | 2 |
| 47 | D0 | 54/57 (95%) | 25 (46%) | 20 (37%) | 9 (17%) | 0 | 4 |
| 48 | B1 | 52/55 (94%) | 22 (42%) | 20 (38%) | 10 (19%) | 0 | 2 |
| 48 | D1 | 52/55 (94%) | 21 (40%) | 18 (35%) | 13 (25%) | 0 | 1 |
| 49 | B2 | 44/46 (96%) | 22 (50%) | 15 (34%) | 7 (16%) | 0 | 4 |
| 49 | D2 | 44/46 (96%) | 22 (50%) | 10 (23%) | 12 (27%) | 0 | 0 |
| 50 | B3 | 62/65 (95%) | 26 (42%) | 28 (45%) | 8 (13%) | 0 | 8 |
| 50 | D3 | 62/65 (95%) | 30 (48%) | 21 (34%) | 11 (18%) | 0 | 3 |
| 51 | B4 | 36/38 (95%) | 17 (47%) | 9 (25%) | 10 (28%) | 0 | 0 |
| 51 | D4 | 36/38 (95%) | 13 (36%) | 10 (28%) | 13 (36%) | 0 | 0 |
| 52 | BI | 139/142 (98%) | 122 (88%) | 12 (9%) | 5 (4%) | 5 | 48 |
| 52 | DI | 139/142 (98%) | 119 (86%) | 15 (11%) | 5 (4%) | 5 | 48 |
| All | All | 11263/11954 (94%) | 6605 (59%) | 2995 (27%) | 1663 (15%) | 0 | 5 |

All (1663) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2 | AC | 2 | GLN |
| 2 | AC | 81 | GLU |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2 | AC | 91 | ALA |
| 3 | AD | 18 | LEU |
| 3 | AD | 25 | ARG |
| 3 | AD | 191 | SER |
| 5 | AF | 92 | THR |
| 8 | AI | 8 | THR |
| 9 | AJ | 57 | VAL |
| 10 | AK | 56 | LYS |
| 10 | AK | 126 | ARG |
| 11 | AL | 23 | LEU |
| 11 | AL | 72 | ASN |
| 11 | AL | 104 | SER |
| 12 | AM | 6 | ILE |
| 12 | AM | 14 | ALA |
| 15 | AP | 79 | ASN |
| 15 | AP | 81 | ALA |
| 20 | AB | 19 | THR |
| 20 | AB | 22 | TRP |
| 20 | AB | 163 | ILE |
| 21 | AU | 14 | ALA |
| 21 | AU | 22 | CYS |
| 25 | BC | 21 | PRO |
| 25 | BC | 22 | GLU |
| 25 | BC | 28 | PRO |
| 25 | BC | 29 | PHE |
| 25 | BC | 31 | PRO |
| 25 | BC | 32 | LEU |
| 25 | BC | 47 | ARG |
| 25 | BC | 63 | ILE |
| 25 | BC | 64 | VAL |
| 25 | BC | 67 | LYS |
| 25 | BC | 68 | ARG |
| 25 | BC | 72 | GLY |
| 25 | BC | 97 | ASP |
| 25 | BC | 103 | ILE |
| 25 | BC | 114 | GLN |
| 25 | BC | 124 | LYS |
| 25 | BC | 135 | PRO |
| 25 | BC | 140 | VAL |
| 25 | BC | 141 | HIS |
| 25 | BC | 149 | LYS |
| 25 | BC | 156 | SER |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 25 | BC | 176 | ARG |
| 25 | BC | 227 | VAL |
| 25 | BC | 246 | PRO |
| 25 | BC | 266 | ILE |
| 26 | BD | 9 | VAL |
| 26 | BD | 14 | ILE |
| 26 | BD | 33 | ARG |
| 26 | BD | 59 | ARG |
| 26 | BD | 84 | LEU |
| 26 | BD | 114 | LYS |
| 26 | BD | 127 | PHE |
| 26 | BD | 128 | ARG |
| 26 | BD | 130 | GLN |
| 26 | BD | 139 | SER |
| 26 | BD | 140 | HIS |
| 26 | BD | 141 | ARG |
| 26 | BD | 150 | GLN |
| 26 | BD | 154 | LYS |
| 26 | BD | 155 | VAL |
| 26 | BD | 170 | VAL |
| 27 | BE | 4 | VAL |
| 27 | BE | 44 | ARG |
| 27 | BE | 52 | VAL |
| 27 | BE | 59 | PRO |
| 27 | BE | 84 | THR |
| 27 | BE | 117 | ARG |
| 27 | BE | 129 | PRO |
| 27 | BE | 165 | HIS |
| 27 | BE | 196 | VAL |
| 28 | BF | 31 | GLU |
| 28 | BF | 46 | LYS |
| 28 | BF | 66 | ILE |
| 28 | BF | 73 | VAL |
| 28 | BF | 76 | PHE |
| 28 | BF | 131 | VAL |
| 28 | BF | 139 | GLU |
| 28 | BF | 149 | ARG |
| 29 | BG | 6 | ALA |
| 29 | BG | 25 | ILE |
| 29 | BG | 91 | VAL |
| 29 | BG | 151 | ARG |
| 30 | BH | 29 | PHE |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 30 | BH | 37 | VAL |
| 30 | BH | 38 | PRO |
| 30 | BH | 41 | LYS |
| 31 | BJ | 4 | PHE |
| 31 | BJ | 43 | GLU |
| 31 | BJ | 44 | TYR |
| 31 | BJ | 64 | VAL |
| 31 | BJ | 73 | VAL |
| 31 | BJ | 100 | VAL |
| 31 | BJ | 101 | ILE |
| 31 | BJ | 119 | PHE |
| 31 | BJ | 137 | PRO |
| 32 | BK | 25 | LEU |
| 32 | BK | 35 | VAL |
| 32 | BK | 53 | LYS |
| 32 | BK | 71 | ARG |
| 32 | BK | 72 | PRO |
| 32 | BK | 89 | ASN |
| 32 | BK | 110 | GLU |
| 32 | BK | 120 | PRO |
| 33 | BL | 17 | LYS |
| 33 | BL | 56 | PRO |
| 33 | BL | 62 | PRO |
| 33 | BL | 73 | ILE |
| 33 | BL | 84 | LYS |
| 33 | BL | 85 | VAL |
| 33 | BL | 90 | VAL |
| 33 | BL | 91 | ASP |
| 33 | BL | 92 | LEU |
| 33 | BL | 104 | GLN |
| 33 | BL | 118 | THR |
| 33 | BL | 119 | PRO |
| 33 | BL | 126 | ARG |
| 33 | BL | 127 | VAL |
| 33 | BL | 141 | LYS |
| 34 | BM | 3 | GLN |
| 34 | BM | 4 | PRO |
| 34 | BM | 14 | LYS |
| 34 | BM | 69 | PRO |
| 34 | BM | 80 | VAL |
| 34 | BM | 81 | ARG |
| 34 | BM | 98 | PRO |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 34 | BM | 109 | PRO |
| 35 | BN | 3 | HIS |
| 35 | BN | 4 | ARG |
| 35 | BN | 8 | ARG |
| 35 | BN | 37 | THR |
| 35 | BN | 89 | SER |
| 35 | BN | 107 | ASN |
| 35 | BN | 113 | ILE |
| 35 | BN | 116 | VAL |
| 36 | BO | 37 | ALA |
| 36 | BO | 42 | PRO |
| 36 | BO | 54 | VAL |
| 36 | BO | 63 | LYS |
| 37 | BP | 23 | ASP |
| 37 | BP | 24 | THR |
| 37 | BP | 49 | ILE |
| 37 | BP | 55 | HIS |
| 37 | BP | 60 | VAL |
| 37 | BP | 82 | SER |
| 37 | BP | 83 | ILE |
| 37 | BP | 85 | VAL |
| 37 | BP | 90 | ALA |
| 37 | BP | 91 | VAL |
| 37 | BP | 94 | ALA |
| 37 | BP | 111 | GLU |
| 38 | BQ | 34 | ALA |
| 38 | BQ | 89 | ILE |
| 38 | BQ | 92 | LYS |
| 39 | BR | 15 | SER |
| 39 | BR | 24 | LYS |
| 39 | BR | 47 | VAL |
| 39 | BR | 59 | ILE |
| 39 | BR | 74 | ILE |
| 39 | BR | 101 | ILE |
| 40 | BS | 6 | LYS |
| 40 | BS | 103 | ILE |
| 41 | BT | 32 | LEU |
| 41 | BT | 63 | VAL |
| 42 | BU | 4 | ILE |
| 42 | BU | 21 | ARG |
| 42 | BU | 63 | ALA |
| 42 | BU | 92 | VAL |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 43 | BW | 11 | ASN |
| 43 | BW | 18 | LYS |
| 43 | BW | 44 | PHE |
| 43 | BW | 53 | GLY |
| 43 | BW | 66 | VAL |
| 43 | BW | 67 | LYS |
| 43 | BW | 75 | ASN |
| 43 | BW | 81 | ILE |
| 44 | BX | 24 | GLU |
| 44 | BX | 33 | ALA |
| 44 | BX | 46 | VAL |
| 45 | BY | 9 | THR |
| 45 | BY | 51 | SER |
| 46 | BZ | 4 | ASP |
| 46 | BZ | 7 | PRO |
| 46 | BZ | 8 | LYS |
| 46 | BZ | 26 | SER |
| 46 | BZ | 60 | PHE |
| 47 | B0 | 29 | VAL |
| 47 | B0 | 35 | GLU |
| 48 | B1 | 45 | HIS |
| 48 | B1 | 46 | VAL |
| 49 | B2 | 4 | THR |
| 49 | B2 | 43 | THR |
| 49 | B2 | 44 | VAL |
| 50 | B3 | 16 | THR |
| 50 | B3 | 23 | HIS |
| 50 | B3 | 57 | VAL |
| 50 | B3 | 60 | CYS |
| 51 | B4 | 5 | ALA |
| 51 | B4 | 17 | VAL |
| 51 | B4 | 24 | ARG |
| 51 | B4 | 29 | ALA |
| 51 | B4 | 35 | GLN |
| 52 | BI | 18 | ASN |
| 2 | CC | 54 | ILE |
| 3 | CD | 24 | VAL |
| 3 | CD | 49 | ASP |
| 3 | CD | 121 | ALA |
| 4 | CE | 23 | THR |
| 5 | CF | 98 | GLU |
| 6 | CG | 3 | ARG |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 6 | CG | 62 | GLU |
| 7 | CH | 66 | GLN |
| 7 | CH | 82 | LEU |
| 9 | CJ | 34 | ALA |
| 9 | CJ | 57 | VAL |
| 9 | CJ | 61 | ALA |
| 9 | CJ | 67 | ILE |
| 11 | CL | 10 | PRO |
| 11 | CL | 32 | VAL |
| 11 | CL | 33 | CYS |
| 11 | CL | 43 | LYS |
| 11 | CL | 88 | ASP |
| 11 | CL | 101 | LEU |
| 11 | CL | 111 | GLN |
| 12 | CM | 22 | TYR |
| 12 | CM | 105 | ALA |
| 13 | CN | 29 | ILE |
| 13 | CN | 50 | LEU |
| 14 | CO | 73 | ASP |
| 15 | CP | 28 | ARG |
| 18 | CS | 29 | PRO |
| 18 | CS | 62 | THR |
| 19 | CT | 3 | ILE |
| 19 | CT | 4 | LYS |
| 20 | CB | 22 | TRP |
| 20 | CB | 73 | ARG |
| 20 | CB | 188 | THR |
| 20 | CB | 206 | ILE |
| 20 | CB | 208 | ALA |
| 25 | DC | 28 | PRO |
| 25 | DC | 29 | PHE |
| 25 | DC | 31 | PRO |
| 25 | DC | 32 | LEU |
| 25 | DC | 47 | ARG |
| 25 | DC | 63 | ILE |
| 25 | DC | 87 | SER |
| 25 | DC | 88 | ALA |
| 25 | DC | 97 | ASP |
| 25 | DC | 121 | ALA |
| 25 | DC | 125 | PRO |
| 25 | DC | 135 | PRO |
| 25 | DC | 149 | LYS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 25 | DC | 157 | ALA |
| 25 | DC | 163 | ILE |
| 25 | DC | 164 | VAL |
| 25 | DC | 176 | ARG |
| 25 | DC | 194 | VAL |
| 25 | DC | 200 | MET |
| 25 | DC | 246 | PRO |
| 25 | DC | 259 | ASN |
| 25 | DC | 266 | ILE |
| 26 | DD | 9 | VAL |
| 26 | DD | 34 | VAL |
| 26 | DD | 39 | ASP |
| 26 | DD | 45 | TYR |
| 26 | DD | 55 | LYS |
| 26 | DD | 82 | PHE |
| 26 | DD | 84 | LEU |
| 26 | DD | 85 | ALA |
| 26 | DD | 129 | THR |
| 26 | DD | 140 | HIS |
| 26 | DD | 152 | PRO |
| 26 | DD | 155 | VAL |
| 26 | DD | 157 | LYS |
| 26 | DD | 160 | LYS |
| 27 | DE | 17 | THR |
| 27 | DE | 45 | ALA |
| 27 | DE | 86 | ALA |
| 27 | DE | 91 | ASP |
| 27 | DE | 147 | LEU |
| 27 | DE | 162 | ARG |
| 28 | DF | 46 | LYS |
| 28 | DF | 73 | VAL |
| 28 | DF | 84 | ILE |
| 28 | DF | 133 | GLU |
| 28 | DF | 173 | ASP |
| 29 | DG | 2 | ARG |
| 29 | DG | 4 | ALA |
| 29 | DG | 6 | ALA |
| 29 | DG | 101 | VAL |
| 30 | DH | 11 | ASN |
| 30 | DH | 38 | PRO |
| 30 | DH | 121 | VAL |
| 31 | DJ | 4 | PHE |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 31 | DJ | 11 | VAL |
| 31 | DJ | 43 | GLU |
| 31 | DJ | 44 | TYR |
| 31 | DJ | 64 | VAL |
| 31 | DJ | 78 | THR |
| 31 | DJ | 81 | ILE |
| 31 | DJ | 124 | VAL |
| 32 | DK | 71 | ARG |
| 32 | DK | 72 | PRO |
| 32 | DK | 113 | MET |
| 32 | DK | 120 | PRO |
| 33 | DL | 7 | SER |
| 33 | DL | 8 | PRO |
| 33 | DL | 17 | LYS |
| 33 | DL | 38 | GLN |
| 33 | DL | 51 | GLU |
| 33 | DL | 54 | GLN |
| 33 | DL | 72 | ALA |
| 33 | DL | 92 | LEU |
| 33 | DL | 111 | ILE |
| 33 | DL | 119 | PRO |
| 33 | DL | 126 | ARG |
| 33 | DL | 127 | VAL |
| 33 | DL | 142 | ILE |
| 34 | DM | 5 | LYS |
| 34 | DM | 16 | ARG |
| 34 | DM | 17 | ASN |
| 34 | DM | 65 | ILE |
| 34 | DM | 71 | LYS |
| 34 | DM | 72 | PRO |
| 34 | DM | 84 | LYS |
| 34 | DM | 86 | LYS |
| 34 | DM | 101 | VAL |
| 34 | DM | 106 | ASP |
| 34 | DM | 109 | PRO |
| 35 | DN | 91 | ALA |
| 36 | DO | 23 | ALA |
| 36 | DO | 27 | VAL |
| 36 | DO | 54 | VAL |
| 36 | DO | 63 | LYS |
| 36 | DO | 90 | VAL |
| 37 | DP | 17 | PRO |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 37 | DP | 23 | ASP |
| 37 | DP | 24 | THR |
| 37 | DP | 41 | ALA |
| 37 | DP | 60 | VAL |
| 37 | DP | 71 | ARG |
| 37 | DP | 72 | VAL |
| 37 | DP | 76 | HIS |
| 37 | DP | 77 | SER |
| 37 | DP | 79 | VAL |
| 37 | DP | 80 | VAL |
| 37 | DP | 82 | SER |
| 37 | DP | 105 | LYS |
| 37 | DP | 110 | LYS |
| 37 | DP | 111 | GLU |
| 38 | DQ | 73 | ILE |
| 38 | DQ | 89 | ILE |
| 38 | DQ | 93 | ILE |
| 39 | DR | 22 | LEU |
| 39 | DR | 27 | ILE |
| 39 | DR | 73 | LYS |
| 39 | DR | 75 | VAL |
| 39 | DR | 89 | HIS |
| 39 | DR | 90 | ARG |
| 39 | DR | 97 | LYS |
| 40 | DS | 60 | HIS |
| 40 | DS | 103 | ILE |
| 41 | DT | 27 | SER |
| 41 | DT | 57 | VAL |
| 41 | DT | 62 | VAL |
| 41 | DT | 95 | PHE |
| 42 | DU | 30 | SER |
| 42 | DU | 63 | ALA |
| 42 | DU | 66 | VAL |
| 42 | DU | 75 | ALA |
| 43 | DW | 30 | VAL |
| 43 | DW | 34 | SER |
| 43 | DW | 44 | PHE |
| 43 | DW | 57 | THR |
| 43 | DW | 58 | LEU |
| 43 | DW | 66 | VAL |
| 46 | DZ | 21 | VAL |
| 46 | DZ | 28 | VAL |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 46 | DZ | 31 | ASP |
| 46 | DZ | 40 | CYS |
| 47 | D0 | 31 | LYS |
| 47 | D0 | 45 | ASP |
| 48 | D1 | 14 | ALA |
| 48 | D1 | 23 | THR |
| 48 | D1 | 46 | VAL |
| 49 | D2 | 44 | VAL |
| 50 | D3 | 30 | HIS |
| 51 | D4 | 3 | VAL |
| 51 | D4 | 17 | VAL |
| 51 | D4 | 19 | ARG |
| 51 | D4 | 24 | ARG |
| 51 | D4 | 26 | ILE |
| 51 | D4 | 27 | CYS |
| 52 | DI | 18 | ASN |
| 2 | AC | 100 | ILE |
| 2 | AC | 153 | SER |
| 3 | AD | 31 | CYS |
| 3 | AD | 107 | GLY |
| 3 | AD | 152 | SER |
| 3 | AD | 172 | VAL |
| 3 | AD | 192 | ALA |
| 4 | AE | 20 | VAL |
| 4 | AE | 76 | ASN |
| 4 | AE | 107 | GLY |
| 5 | AF | 62 | MET |
| 6 | AG | 18 | GLY |
| 6 | AG | 129 | ASN |
| 8 | AI | 43 | ALA |
| 8 | AI | 57 | VAL |
| 8 | AI | 108 | ARG |
| 9 | AJ | 74 | VAL |
| 9 | AJ | 75 | ASP |
| 10 | AK | 53 | GLY |
| 11 | AL | 10 | PRO |
| 11 | AL | 84 | GLY |
| 12 | AM | 3 | ILE |
| 12 | AM | 7 | ASN |
| 12 | AM | 66 | GLY |
| 12 | AM | 104 | ASN |
| 13 | AN | 51 | PRO |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 13 | AN | 52 | ARG |
| 13 | AN | 61 | ASN |
| 13 | AN | 94 | GLY |
| 15 | AP | 29 | ASN |
| 16 | AQ | 6 | THR |
| 16 | AQ | 34 | GLY |
| 16 | AQ | 69 | THR |
| 17 | AR | 20 | ILE |
| 17 | AR | 22 | TYR |
| 17 | AR | 71 | ASP |
| 18 | AS | 5 | LYS |
| 19 | AT | 3 | ILE |
| 19 | AT | 85 | LEU |
| 21 | AU | 32 | ARG |
| 21 | AU | 33 | ARG |
| 21 | AU | 52 | VAL |
| 24 | BV | 45 | ASP |
| 25 | BC | 4 | LYS |
| 25 | BC | 14 | HIS |
| 25 | BC | 48 | ILE |
| 25 | BC | 51 | ARG |
| 25 | BC | 90 | ILE |
| 25 | BC | 107 | LYS |
| 25 | BC | 111 | ALA |
| 25 | BC | 143 | VAL |
| 25 | BC | 157 | ALA |
| 25 | BC | 163 | ILE |
| 25 | BC | 194 | VAL |
| 25 | BC | 208 | GLY |
| 25 | BC | 209 | ALA |
| 25 | BC | 226 | PRO |
| 26 | BD | 2 | ILE |
| 26 | BD | 16 | THR |
| 26 | BD | 27 | ILE |
| 26 | BD | 30 | GLU |
| 26 | BD | 42 | ASN |
| 26 | BD | 101 | PHE |
| 26 | BD | 104 | VAL |
| 26 | BD | 125 | TRP |
| 26 | BD | 129 | THR |
| 26 | BD | 169 | ARG |
| 26 | BD | 202 | ILE |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 26 | BD | 205 | PRO |
| 26 | BD | 206 | ALA |
| 26 | BD | 207 | VAL |
| 27 | BE | 23 | PHE |
| 27 | BE | 26 | ALA |
| 27 | BE | 37 | ALA |
| 27 | BE | 47 | LYS |
| 27 | BE | 49 | ARG |
| 27 | BE | 54 | GLY |
| 27 | BE | 61 | ARG |
| 27 | BE | 68 | ALA |
| 27 | BE | 86 | ALA |
| 27 | BE | 90 | GLN |
| 27 | BE | 104 | ALA |
| 27 | BE | 120 | VAL |
| 27 | BE | 128 | ALA |
| 27 | BE | 146 | VAL |
| 27 | BE | 148 | ILE |
| 27 | BE | 169 | VAL |
| 27 | BE | 171 | ASP |
| 28 | BF | 14 | LYS |
| 28 | BF | 114 | ARG |
| 28 | BF | 136 | ILE |
| 28 | BF | 153 | ILE |
| 28 | BF | 162 | ASP |
| 28 | BF | 176 | PHE |
| 29 | BG | 2 | ARG |
| 29 | BG | 32 | LEU |
| 29 | BG | 42 | VAL |
| 29 | BG | 47 | ASN |
| 29 | BG | 173 | ALA |
| 30 | BH | 8 | LYS |
| 30 | BH | 44 | ILE |
| 30 | BH | 65 | ALA |
| 30 | BH | 127 | GLU |
| 30 | BH | 134 | VAL |
| 31 | BJ | 6 | ALA |
| 31 | BJ | 18 | VAL |
| 31 | BJ | 79 | GLY |
| 31 | BJ | 81 | ILE |
| 31 | BJ | 84 | ILE |
| 31 | BJ | 138 | GLN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 32 | BK | 17 | ARG |
| 32 | BK | 92 | GLU |
| 33 | BL | 15 | ALA |
| 33 | BL | 29 | LYS |
| 33 | BL | 31 | GLY |
| 33 | BL | 53 | GLY |
| 33 | BL | 94 | THR |
| 33 | BL | 95 | LEU |
| 33 | BL | 117 | THR |
| 33 | BL | 120 | VAL |
| 33 | BL | 143 | GLU |
| 34 | BM | 7 | THR |
| 34 | BM | 36 | VAL |
| 34 | BM | 58 | LYS |
| 34 | BM | 70 | ASP |
| 34 | BM | 86 | LYS |
| 34 | BM | 87 | GLY |
| 34 | BM | 104 | GLU |
| 34 | BM | 132 | THR |
| 35 | BN | 11 | ASN |
| 35 | BN | 94 | TYR |
| 35 | BN | 104 | ALA |
| 35 | BN | 114 | GLU |
| 36 | BO | 9 | ARG |
| 36 | BO | 21 | LEU |
| 36 | BO | 28 | VAL |
| 36 | BO | 38 | GLN |
| 36 | BO | 47 | VAL |
| 36 | BO | 49 | VAL |
| 36 | BO | 95 | SER |
| 36 | BO | 115 | LEU |
| 37 | BP | 29 | VAL |
| 37 | BP | 30 | TRP |
| 37 | BP | 41 | ALA |
| 37 | BP | 56 | SER |
| 37 | BP | 59 | THR |
| 37 | BP | 62 | LYS |
| 37 | BP | 72 | VAL |
| 37 | BP | 76 | HIS |
| 37 | BP | 80 | VAL |
| 37 | BP | 81 | ASP |
| 37 | BP | 97 | TYR |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 37 | BP | 102 | ARG |
| 37 | BP | 105 | LYS |
| 37 | BP | 110 | LYS |
| 37 | BP | 112 | ARG |
| 38 | BQ | 21 | LYS |
| 38 | BQ | 23 | TYR |
| 38 | BQ | 33 | VAL |
| 38 | BQ | 78 | PHE |
| 38 | BQ | 91 | ARG |
| 38 | BQ | 93 | ILE |
| 39 | BR | 17 | GLY |
| 39 | BR | 25 | LEU |
| 39 | BR | 29 | THR |
| 39 | BR | 37 | GLU |
| 39 | BR | 87 | GLN |
| 39 | BR | 98 | ILE |
| 39 | BR | 100 | GLY |
| 40 | BS | 3 | THR |
| 40 | BS | 5 | ALA |
| 40 | BS | 29 | VAL |
| 40 | BS | 67 | ASP |
| 40 | BS | 96 | ILE |
| 41 | BT | 4 | GLU |
| 41 | BT | 6 | ARG |
| 41 | BT | 14 | PRO |
| 41 | BT | 15 | HIS |
| 41 | BT | 30 | ILE |
| 41 | BT | 34 | VAL |
| 41 | BT | 67 | VAL |
| 41 | BT | 74 | ILE |
| 41 | BT | 81 | LYS |
| 41 | BT | 85 | VAL |
| 42 | BU | 14 | THR |
| 42 | BU | 24 | VAL |
| 42 | BU | 35 | VAL |
| 42 | BU | 45 | GLN |
| 42 | BU | 54 | PRO |
| 42 | BU | 60 | LYS |
| 42 | BU | 64 | ILE |
| 42 | BU | 71 | ILE |
| 42 | BU | 77 | GLY |
| 43 | BW | 23 | LYS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 43 | BW | 38 | ARG |
| 43 | BW | 40 | ARG |
| 43 | BW | 50 | VAL |
| 43 | BW | 63 | ASP |
| 43 | BW | 72 | GLY |
| 43 | BW | 77 | LYS |
| 44 | BX | 9 | LYS |
| 44 | BX | 16 | THR |
| 44 | BX | 36 | GLN |
| 44 | BX | 40 | SER |
| 45 | BY | 3 | THR |
| 45 | BY | 12 | ALA |
| 46 | BZ | 9 | TYR |
| 46 | BZ | 39 | LYS |
| 46 | BZ | 40 | CYS |
| 46 | BZ | 58 | ASP |
| 47 | B0 | 41 | HIS |
| 47 | B0 | 49 | ARG |
| 49 | B2 | 36 | ALA |
| 50 | B3 | 15 | LYS |
| 51 | B4 | 20 | ASP |
| 51 | B4 | 22 | VAL |
| 2 | CC | 25 | THR |
| 2 | CC | 63 | ILE |
| 2 | CC | 65 | VAL |
| 2 | CC | 95 | GLY |
| 2 | CC | 128 | MET |
| 2 | CC | 153 | SER |
| 3 | CD | 14 | GLU |
| 3 | CD | 47 | LEU |
| 3 | CD | 120 | LYS |
| 3 | CD | 169 | TRP |
| 4 | CE | 15 | ILE |
| 4 | CE | 17 | VAL |
| 4 | CE | 107 | GLY |
| 5 | CF | 89 | VAL |
| 6 | CG | 16 | LYS |
| 6 | CG | 113 | LYS |
| 6 | CG | 130 | LYS |
| 7 | CH | 69 | ALA |
| 7 | CH | 122 | GLY |
| 8 | CI | 24 | ASN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 8 | CI | 57 | VAL |
| 9 | CJ | 33 | GLY |
| 9 | CJ | 37 | ARG |
| 9 | CJ | 60 | ASP |
| 9 | CJ | 74 | VAL |
| 9 | CJ | 77 | VAL |
| 9 | CJ | 94 | ALA |
| 10 | CK | 14 | GLN |
| 10 | CK | 17 | ASP |
| 11 | CL | 13 | ARG |
| 11 | CL | 97 | VAL |
| 11 | CL | 104 | SER |
| 11 | CL | 117 | GLY |
| 11 | CL | 121 | PRO |
| 12 | CM | 3 | ILE |
| 12 | CM | 7 | ASN |
| 12 | CM | 23 | GLY |
| 13 | CN | 21 | ALA |
| 13 | CN | 51 | PRO |
| 14 | CO | 3 | SER |
| 15 | CP | 46 | LYS |
| 15 | CP | 79 | ASN |
| 16 | CQ | 28 | VAL |
| 16 | CQ | 47 | ASP |
| 16 | CQ | 56 | ASP |
| 16 | CQ | 69 | THR |
| 17 | CR | 21 | ASP |
| 18 | CS | 27 | LYS |
| 18 | CS | 69 | LYS |
| 20 | CB | 18 | GLN |
| 20 | CB | 19 | THR |
| 20 | CB | 72 | LYS |
| 20 | CB | 97 | GLY |
| 20 | CB | 124 | THR |
| 20 | CB | 193 | ASP |
| 21 | CU | 22 | CYS |
| 24 | DV | 14 | LYS |
| 24 | DV | 45 | ASP |
| 24 | DV | 70 | ILE |
| 25 | DC | 21 | PRO |
| 25 | DC | 22 | GLU |
| 25 | DC | 39 | SER |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 25 | DC | 43 | ASN |
| 25 | DC | 52 | HIS |
| 25 | DC | 53 | ILE |
| 25 | DC | 65 | ASP |
| 25 | DC | 70 | LYS |
| 25 | DC | 90 | ILE |
| 25 | DC | 93 | VAL |
| 25 | DC | 106 | PRO |
| 25 | DC | 156 | SER |
| 25 | DC | 173 | LEU |
| 25 | DC | 199 | HIS |
| 25 | DC | 201 | LEU |
| 25 | DC | 210 | ALA |
| 25 | DC | 227 | VAL |
| 25 | DC | 252 | LYS |
| 26 | DD | 43 | ASP |
| 26 | DD | 73 | VAL |
| 26 | DD | 77 | ARG |
| 26 | DD | 89 | GLU |
| 26 | DD | 95 | SER |
| 26 | DD | 145 | SER |
| 26 | DD | 168 | GLU |
| 26 | DD | 184 | ARG |
| 26 | DD | 185 | ASN |
| 26 | DD | 187 | LEU |
| 26 | DD | 193 | VAL |
| 26 | DD | 197 | THR |
| 26 | DD | 205 | PRO |
| 26 | DD | 206 | ALA |
| 27 | DE | 4 | VAL |
| 27 | DE | 7 | ASP |
| 27 | DE | 13 | THR |
| 27 | DE | 43 | THR |
| 27 | DE | 48 | THR |
| 27 | DE | 49 | ARG |
| 27 | DE | 54 | GLY |
| 27 | DE | 59 | PRO |
| 27 | DE | 84 | THR |
| 27 | DE | 85 | PHE |
| 27 | DE | 110 | SER |
| 27 | DE | 115 | GLN |
| 27 | DE | 126 | VAL |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 27 | DE | 148 | ILE |
| 27 | DE | 149 | ILE |
| 27 | DE | 153 | LEU |
| 27 | DE | 166 | LYS |
| 27 | DE | 168 | ASP |
| 27 | DE | 195 | GLN |
| 28 | DF | 20 | ASN |
| 28 | DF | 49 | LEU |
| 28 | DF | 66 | ILE |
| 28 | DF | 80 | GLN |
| 28 | DF | 83 | PRO |
| 28 | DF | 109 | ARG |
| 28 | DF | 136 | ILE |
| 28 | DF | 149 | ARG |
| 28 | DF | 150 | GLY |
| 28 | DF | 174 | PHE |
| 29 | DG | 5 | LYS |
| 29 | DG | 37 | ASN |
| 30 | DH | 10 | ALA |
| 30 | DH | 25 | TYR |
| 30 | DH | 30 | LEU |
| 30 | DH | 82 | SER |
| 30 | DH | 91 | PHE |
| 31 | DJ | 50 | THR |
| 31 | DJ | 65 | THR |
| 31 | DJ | 128 | ASN |
| 31 | DJ | 129 | GLU |
| 31 | DJ | 131 | ASN |
| 31 | DJ | 135 | GLN |
| 32 | DK | 3 | GLN |
| 32 | DK | 10 | VAL |
| 32 | DK | 18 | ARG |
| 32 | DK | 83 | ALA |
| 33 | DL | 15 | ALA |
| 33 | DL | 20 | GLY |
| 33 | DL | 27 | LEU |
| 33 | DL | 40 | SER |
| 33 | DL | 64 | PHE |
| 33 | DL | 108 | ALA |
| 33 | DL | 109 | LYS |
| 33 | DL | 110 | VAL |
| 34 | DM | 80 | VAL |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 34 | DM | 102 | LEU |
| 35 | DN | 100 | CYS |
| 35 | DN | 116 | VAL |
| 36 | DO | 22 | GLY |
| 36 | DO | 65 | THR |
| 36 | DO | 84 | GLU |
| 36 | DO | 96 | GLY |
| 36 | DO | 99 | TYR |
| 36 | DO | 101 | GLY |
| 37 | DP | 27 | VAL |
| 37 | DP | 49 | ILE |
| 37 | DP | 69 | VAL |
| 37 | DP | 75 | THR |
| 37 | DP | 83 | ILE |
| 37 | DP | 91 | VAL |
| 38 | DQ | 5 | ARG |
| 38 | DQ | 30 | VAL |
| 38 | DQ | 31 | TYR |
| 38 | DQ | 85 | ALA |
| 38 | DQ | 88 | GLU |
| 39 | DR | 4 | VAL |
| 39 | DR | 5 | PHE |
| 39 | DR | 11 | GLN |
| 39 | DR | 59 | ILE |
| 39 | DR | 81 | LYS |
| 39 | DR | 82 | HIS |
| 39 | DR | 93 | PHE |
| 40 | DS | 4 | ILE |
| 40 | DS | 12 | SER |
| 40 | DS | 26 | GLY |
| 40 | DS | 41 | LYS |
| 40 | DS | 64 | ALA |
| 40 | DS | 69 | LEU |
| 40 | DS | 87 | PRO |
| 41 | DT | 7 | LEU |
| 41 | DT | 15 | HIS |
| 41 | DT | 31 | VAL |
| 41 | DT | 36 | LYS |
| 41 | DT | 52 | GLU |
| 41 | DT | 63 | VAL |
| 41 | DT | 71 | GLY |
| 41 | DT | 85 | VAL |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 42 | DU | 4 | ILE |
| 42 | DU | 9 | GLU |
| 42 | DU | 24 | VAL |
| 42 | DU | 28 | LEU |
| 42 | DU | 42 | LYS |
| 42 | DU | 93 | ARG |
| 43 | DW | 4 | LYS |
| 43 | DW | 10 | ARG |
| 43 | DW | 18 | LYS |
| 43 | DW | 45 | HIS |
| 43 | DW | 62 | ALA |
| 43 | DW | 75 | ASN |
| 43 | DW | 77 | LYS |
| 44 | DX | 20 | ASN |
| 45 | DY | 12 | ALA |
| 46 | DZ | 3 | LYS |
| 46 | DZ | 10 | GLU |
| 47 | D0 | 35 | GLU |
| 47 | D0 | 47 | TYR |
| 48 | D1 | 30 | PRO |
| 48 | D1 | 38 | PHE |
| 48 | D1 | 47 | ILE |
| 48 | D1 | 50 | GLU |
| 49 | D2 | 5 | PHE |
| 49 | D2 | 18 | PHE |
| 49 | D2 | 25 | LYS |
| 50 | D3 | 5 | THR |
| 50 | D3 | 26 | ALA |
| 51 | D4 | 10 | LEU |
| 2 | AC | 25 | THR |
| 2 | AC | 83 | VAL |
| 2 | AC | 136 | ALA |
| 2 | AC | 180 | ASP |
| 3 | AD | 28 | ASP |
| 3 | AD | 148 | ALA |
| 3 | AD | 151 | GLN |
| 4 | AE | 43 | GLY |
| 5 | AF | 65 | GLU |
| 6 | AG | 75 | LYS |
| 7 | AH | 46 | GLU |
| 7 | AH | 65 | PHE |
| 9 | AJ | 61 | ALA |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 9 | AJ | 62 | ARG |
| 9 | AJ | 92 | LEU |
| 9 | AJ | 93 | ALA |
| 10 | AK | 77 | GLY |
| 10 | AK | 125 | LYS |
| 11 | AL | 13 | ARG |
| 11 | AL | 15 | VAL |
| 11 | AL | 47 | ALA |
| 11 | AL | 120 | ARG |
| 12 | AM | 22 | TYR |
| 12 | AM | 98 | GLY |
| 13 | AN | 2 | LYS |
| 13 | AN | 80 | ARG |
| 17 | AR | 32 | ILE |
| 18 | AS | 3 | SER |
| 20 | AB | 18 | GLN |
| 20 | AB | 20 | ARG |
| 20 | AB | 27 | LYS |
| 20 | AB | 76 | SER |
| 20 | AB | 88 | GLN |
| 20 | AB | 186 | VAL |
| 21 | AU | 24 | LYS |
| 21 | AU | 35 | GLU |
| 21 | AU | 40 | PRO |
| 24 | BV | 54 | ALA |
| 24 | BV | 64 | VAL |
| 24 | BV | 71 | LYS |
| 25 | BC | 34 | GLU |
| 25 | BC | 41 | GLY |
| 25 | BC | 52 | HIS |
| 25 | BC | 53 | ILE |
| 25 | BC | 58 | LYS |
| 25 | BC | 59 | GLN |
| 25 | BC | 65 | ASP |
| 25 | BC | 66 | PHE |
| 25 | BC | 91 | ALA |
| 25 | BC | 93 | VAL |
| 25 | BC | 108 | GLY |
| 25 | BC | 125 | PRO |
| 25 | BC | 231 | HIS |
| 25 | BC | 239 | PHE |
| 25 | BC | 251 | THR |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 25 | BC | 255 | LYS |
| 25 | BC | 259 | ASN |
| 26 | BD | 18 | ASP |
| 26 | BD | 21 | SER |
| 26 | BD | 23 | PRO |
| 26 | BD | 105 | LYS |
| 26 | BD | 189 | VAL |
| 27 | BE | 11 | ALA |
| 27 | BE | 24 | ASN |
| 27 | BE | 62 | GLN |
| 27 | BE | 93 | SER |
| 27 | BE | 191 | ASP |
| 28 | BF | 19 | PHE |
| 28 | BF | 34 | THR |
| 28 | BF | 67 | THR |
| 28 | BF | 75 | GLY |
| 28 | BF | 81 | GLY |
| 28 | BF | 88 | VAL |
| 28 | BF | 173 | ASP |
| 29 | BG | 127 | GLN |
| 30 | BH | 125 | THR |
| 31 | BJ | 50 | THR |
| 31 | BJ | 74 | TYR |
| 31 | BJ | 83 | GLY |
| 31 | BJ | 85 | LYS |
| 32 | BK | 46 | ALA |
| 32 | BK | 112 | PHE |
| 33 | BL | 22 | GLY |
| 33 | BL | 27 | LEU |
| 33 | BL | 38 | GLN |
| 33 | BL | 48 | ARG |
| 33 | BL | 57 | LEU |
| 34 | BM | 35 | ALA |
| 34 | BM | 59 | ARG |
| 34 | BM | 77 | PRO |
| 34 | BM | 105 | MET |
| 34 | BM | 127 | LYS |
| 35 | BN | 6 | SER |
| 35 | BN | 102 | PHE |
| 36 | BO | 32 | PRO |
| 36 | BO | 52 | SER |
| 36 | BO | 68 | LYS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 37 | BP | 17 | PRO |
| 37 | BP | 48 | ALA |
| 37 | BP | 52 | ARG |
| 37 | BP | 71 | ARG |
| 37 | BP | 78 | PRO |
| 38 | BQ | 73 | ILE |
| 39 | BR | 18 | GLN |
| 39 | BR | 42 | ALA |
| 39 | BR | 45 | GLU |
| 39 | BR | 73 | LYS |
| 39 | BR | 76 | LYS |
| 39 | BR | 77 | PHE |
| 40 | BS | 13 | SER |
| 40 | BS | 69 | LEU |
| 41 | BT | 13 | ALA |
| 41 | BT | 61 | LEU |
| 42 | BU | 18 | LYS |
| 42 | BU | 39 | ASN |
| 42 | BU | 67 | SER |
| 42 | BU | 72 | PHE |
| 42 | BU | 96 | LYS |
| 43 | BW | 6 | GLY |
| 43 | BW | 49 | ASN |
| 43 | BW | 62 | ALA |
| 43 | BW | 65 | LYS |
| 43 | BW | 68 | PHE |
| 44 | BX | 4 | LYS |
| 44 | BX | 28 | LEU |
| 45 | BY | 14 | GLY |
| 45 | BY | 16 | LEU |
| 45 | BY | 42 | ALA |
| 47 | B0 | 4 | GLN |
| 48 | B1 | 8 | ILE |
| 48 | B1 | 35 | LEU |
| 48 | B1 | 43 | ARG |
| 51 | B4 | 3 | VAL |
| 51 | B4 | 10 | LEU |
| 52 | BI | 14 | ALA |
| 52 | BI | 23 | VAL |
| 2 | CC | 3 | LYS |
| 2 | CC | 145 | ALA |
| 2 | CC | 167 | TYR |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 5 | CF | 85 | ILE |
| 5 | CF | 95 | ALA |
| 6 | CG | 55 | LYS |
| 7 | CH | 30 | LYS |
| 7 | CH | 53 | ASP |
| 8 | CI | 34 | LEU |
| 8 | CI | 55 | ASP |
| 8 | CI | 106 | ASP |
| 9 | CJ | 68 | ARG |
| 9 | CJ | 93 | ALA |
| 9 | CJ | 100 | ILE |
| 10 | CK | 52 | ARG |
| 10 | CK | 53 | GLY |
| 10 | CK | 88 | PRO |
| 10 | CK | 108 | ASN |
| 11 | CL | 24 | GLU |
| 11 | CL | 73 | LEU |
| 12 | CM | 62 | PHE |
| 12 | CM | 65 | GLU |
| 13 | CN | 33 | VAL |
| 13 | CN | 42 | ASN |
| 13 | CN | 43 | ALA |
| 13 | CN | 52 | ARG |
| 13 | CN | 69 | PRO |
| 13 | CN | 70 | HIS |
| 15 | CP | 47 | GLU |
| 18 | CS | 8 | PRO |
| 18 | CS | 34 | SER |
| 18 | CS | 63 | ASP |
| 19 | CT | 68 | LYS |
| 20 | CB | 43 | GLU |
| 20 | CB | 44 | LYS |
| 20 | CB | 94 | ARG |
| 20 | CB | 95 | TRP |
| 20 | CB | 114 | LYS |
| 20 | CB | 128 | LEU |
| 20 | CB | 204 | ASP |
| 21 | CU | 23 | GLU |
| 25 | DC | 66 | PHE |
| 25 | DC | 115 | ILE |
| 25 | DC | 172 | THR |
| 25 | DC | 184 | GLU |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 25 | DC | 243 | PRO |
| 25 | DC | 265 | PHE |
| 26 | DD | 47 | ALA |
| 26 | DD | 139 | SER |
| 26 | DD | 141 | ARG |
| 26 | DD | 147 | GLY |
| 26 | DD | 174 | SER |
| 27 | DE | 30 | GLN |
| 27 | DE | 38 | GLY |
| 27 | DE | 67 | ARG |
| 27 | DE | 90 | GLN |
| 27 | DE | 139 | LYS |
| 27 | DE | 172 | ALA |
| 27 | DE | 190 | ALA |
| 28 | DF | 42 | ALA |
| 28 | DF | 43 | ILE |
| 28 | DF | 88 | VAL |
| 28 | DF | 104 | THR |
| 28 | DF | 134 | GLN |
| 28 | DF | 138 | PRO |
| 28 | DF | 176 | PHE |
| 29 | DG | 11 | PRO |
| 29 | DG | 45 | ALA |
| 29 | DG | 60 | GLY |
| 29 | DG | 173 | ALA |
| 30 | DH | 31 | VAL |
| 30 | DH | 37 | VAL |
| 30 | DH | 86 | ASP |
| 30 | DH | 92 | GLY |
| 31 | DJ | 8 | PRO |
| 31 | DJ | 41 | LYS |
| 31 | DJ | 53 | TYR |
| 31 | DJ | 58 | ASN |
| 31 | DJ | 75 | TYR |
| 31 | DJ | 77 | HIS |
| 31 | DJ | 85 | LYS |
| 31 | DJ | 137 | PRO |
| 32 | DK | 12 | ASP |
| 32 | DK | 17 | ARG |
| 33 | DL | 14 | LYS |
| 33 | DL | 44 | GLY |
| 33 | DL | 45 | GLY |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 33 | DL | 52 | GLY |
| 33 | DL | 55 | MET |
| 33 | DL | 116 | VAL |
| 33 | DL | 141 | LYS |
| 34 | DM | 4 | PRO |
| 34 | DM | 127 | LYS |
| 34 | DM | 128 | THR |
| 35 | DN | 32 | GLU |
| 36 | DO | 34 | HIS |
| 36 | DO | 38 | GLN |
| 36 | DO | 87 | ILE |
| 37 | DP | 39 | LEU |
| 37 | DP | 97 | TYR |
| 37 | DP | 112 | ARG |
| 38 | DQ | 53 | LYS |
| 38 | DQ | 86 | SER |
| 39 | DR | 3 | ALA |
| 39 | DR | 10 | LYS |
| 39 | DR | 42 | ALA |
| 39 | DR | 64 | VAL |
| 39 | DR | 86 | GLN |
| 40 | DS | 9 | HIS |
| 40 | DS | 99 | ARG |
| 41 | DT | 16 | VAL |
| 41 | DT | 39 | THR |
| 41 | DT | 68 | LYS |
| 41 | DT | 96 | VAL |
| 42 | DU | 62 | ALA |
| 42 | DU | 64 | ILE |
| 42 | DU | 99 | SER |
| 43 | DW | 5 | ALA |
| 43 | DW | 9 | THR |
| 43 | DW | 65 | LYS |
| 44 | DX | 28 | LEU |
| 44 | DX | 31 | GLN |
| 44 | DX | 35 | GLY |
| 44 | DX | 52 | ARG |
| 45 | DY | 37 | ARG |
| 46 | DZ | 26 | SER |
| 47 | D0 | 36 | LYS |
| 47 | D0 | 43 | THR |
| 48 | D1 | 32 | LYS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 49 | D2 | 7 | PRO |
| 49 | D2 | 8 | SER |
| 50 | D3 | 10 | ALA |
| 50 | D3 | 47 | ALA |
| 51 | D4 | 11 | CYS |
| 51 | D4 | 31 | PRO |
| 52 | DI | 23 | VAL |
| 2 | AC | 19 | SER |
| 2 | AC | 54 | ILE |
| 2 | AC | 65 | VAL |
| 3 | AD | 7 | LYS |
| 3 | AD | 27 | ILE |
| 3 | AD | 29 | THR |
| 3 | AD | 143 | SER |
| 4 | AE | 34 | ALA |
| 4 | AE | 128 | GLY |
| 5 | AF | 64 | VAL |
| 5 | AF | 94 | HIS |
| 6 | AG | 84 | TYR |
| 8 | AI | 44 | ARG |
| 8 | AI | 55 | ASP |
| 8 | AI | 67 | LYS |
| 8 | AI | 127 | SER |
| 9 | AJ | 36 | VAL |
| 9 | AJ | 56 | HIS |
| 9 | AJ | 95 | GLY |
| 11 | AL | 14 | LYS |
| 11 | AL | 122 | LYS |
| 13 | AN | 21 | ALA |
| 15 | AP | 27 | ALA |
| 15 | AP | 42 | ILE |
| 15 | AP | 54 | LEU |
| 18 | AS | 8 | PRO |
| 18 | AS | 15 | LEU |
| 18 | AS | 39 | ILE |
| 19 | AT | 59 | ARG |
| 20 | AB | 41 | ASN |
| 20 | AB | 150 | ILE |
| 20 | AB | 200 | PRO |
| 20 | AB | 205 | ALA |
| 21 | AU | 6 | ARG |
| 21 | AU | 36 | PHE |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 21 | AU | 37 | TYR |
| 25 | BC | 50 | THR |
| 25 | BC | 61 | TYR |
| 25 | BC | 151 | GLY |
| 25 | BC | 165 | ALA |
| 25 | BC | 236 | GLY |
| 25 | BC | 257 | ARG |
| 25 | BC | 258 | SER |
| 25 | BC | 265 | PHE |
| 26 | BD | 47 | ALA |
| 26 | BD | 87 | GLY |
| 26 | BD | 90 | PHE |
| 26 | BD | 145 | SER |
| 26 | BD | 185 | ASN |
| 26 | BD | 190 | LYS |
| 26 | BD | 193 | VAL |
| 27 | BE | 39 | ALA |
| 27 | BE | 53 | THR |
| 27 | BE | 106 | LYS |
| 28 | BF | 7 | TYR |
| 28 | BF | 45 | ASP |
| 28 | BF | 74 | ALA |
| 28 | BF | 172 | PHE |
| 29 | BG | 48 | THR |
| 29 | BG | 155 | PRO |
| 29 | BG | 174 | LYS |
| 30 | BH | 20 | ASN |
| 31 | BJ | 25 | LEU |
| 31 | BJ | 36 | LEU |
| 31 | BJ | 97 | PRO |
| 31 | BJ | 127 | GLY |
| 32 | BK | 6 | THR |
| 32 | BK | 121 | GLU |
| 33 | BL | 42 | SER |
| 33 | BL | 54 | GLN |
| 33 | BL | 82 | LEU |
| 33 | BL | 109 | LYS |
| 34 | BM | 10 | ARG |
| 34 | BM | 28 | PHE |
| 34 | BM | 133 | LYS |
| 36 | BO | 36 | TYR |
| 36 | BO | 87 | ILE |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 36 | BO | 90 | VAL |
| 37 | BP | 77 | SER |
| 39 | BR | 27 | ILE |
| 39 | BR | 95 | ASP |
| 40 | BS | 11 | ARG |
| 40 | BS | 99 | ARG |
| 41 | BT | 5 | GLU |
| 42 | BU | 3 | LYS |
| 42 | BU | 59 | GLU |
| 43 | BW | 32 | ALA |
| 44 | BX | 7 | ARG |
| 45 | BY | 15 | ARG |
| 45 | BY | 17 | PRO |
| 46 | BZ | 23 | LYS |
| 47 | B0 | 5 | ASN |
| 48 | B1 | 5 | ARG |
| 48 | B1 | 16 | THR |
| 48 | B1 | 38 | PHE |
| 48 | B1 | 47 | ILE |
| 49 | B2 | 42 | LEU |
| 51 | B4 | 7 | VAL |
| 52 | BI | 49 | GLU |
| 52 | BI | 64 | ARG |
| 2 | CC | 50 | SER |
| 2 | CC | 59 | PRO |
| 2 | CC | 60 | ALA |
| 2 | CC | 110 | LEU |
| 2 | CC | 144 | GLY |
| 3 | CD | 22 | SER |
| 3 | CD | 26 | ALA |
| 3 | CD | 119 | HIS |
| 3 | CD | 166 | LYS |
| 4 | CE | 87 | VAL |
| 4 | CE | 146 | MET |
| 6 | CG | 66 | GLU |
| 6 | CG | 78 | ARG |
| 6 | CG | 128 | GLU |
| 6 | CG | 129 | ASN |
| 7 | CH | 94 | VAL |
| 8 | CI | 58 | GLU |
| 8 | CI | 90 | ASP |
| 9 | CJ | 56 | HIS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 9 | CJ | 75 | ASP |
| 11 | CL | 23 | LEU |
| 12 | CM | 97 | ARG |
| 12 | CM | 102 | LYS |
| 12 | CM | 104 | ASN |
| 13 | CN | 62 | ARG |
| 13 | CN | 65 | GLN |
| 15 | CP | 27 | ALA |
| 18 | CS | 5 | LYS |
| 18 | CS | 22 | VAL |
| 18 | CS | 61 | VAL |
| 18 | CS | 77 | ARG |
| 19 | CT | 67 | HIS |
| 20 | CB | 15 | PHE |
| 20 | CB | 86 | CYS |
| 20 | CB | 126 | ASP |
| 21 | CU | 12 | ASP |
| 24 | DV | 16 | ALA |
| 24 | DV | 71 | LYS |
| 25 | DC | 12 | ARG |
| 25 | DC | 103 | ILE |
| 25 | DC | 113 | ASP |
| 25 | DC | 124 | LYS |
| 25 | DC | 152 | GLN |
| 25 | DC | 226 | PRO |
| 25 | DC | 239 | PHE |
| 26 | DD | 87 | GLY |
| 26 | DD | 173 | GLN |
| 27 | DE | 50 | ALA |
| 27 | DE | 72 | SER |
| 27 | DE | 111 | GLU |
| 28 | DF | 34 | THR |
| 28 | DF | 36 | ASN |
| 28 | DF | 67 | THR |
| 28 | DF | 70 | ARG |
| 29 | DG | 36 | LEU |
| 30 | DH | 114 | GLU |
| 31 | DJ | 23 | LYS |
| 31 | DJ | 60 | ASP |
| 31 | DJ | 134 | ALA |
| 32 | DK | 29 | HIS |
| 32 | DK | 46 | ALA |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 32 | DK | 84 | CYS |
| 32 | DK | 86 | LEU |
| 32 | DK | 89 | ASN |
| 33 | DL | 5 | THR |
| 33 | DL | 60 | ARG |
| 33 | DL | 82 | LEU |
| 33 | DL | 118 | THR |
| 34 | DM | 107 | GLY |
| 35 | DN | 99 | LYS |
| 35 | DN | 102 | PHE |
| 35 | DN | 113 | ILE |
| 36 | DO | 2 | ASP |
| 37 | DP | 15 | ASP |
| 37 | DP | 29 | VAL |
| 37 | DP | 33 | GLU |
| 37 | DP | 62 | LYS |
| 37 | DP | 73 | PHE |
| 37 | DP | 90 | ALA |
| 38 | DQ | 4 | LYS |
| 38 | DQ | 9 | ALA |
| 39 | DR | 71 | LYS |
| 39 | DR | 87 | GLN |
| 39 | DR | 98 | ILE |
| 40 | DS | 8 | ARG |
| 40 | DS | 13 | SER |
| 40 | DS | 23 | LEU |
| 40 | DS | 27 | LYS |
| 40 | DS | 80 | PRO |
| 41 | DT | 32 | LEU |
| 41 | DT | 67 | VAL |
| 41 | DT | 79 | ASP |
| 42 | DU | 25 | LYS |
| 42 | DU | 58 | VAL |
| 42 | DU | 94 | PHE |
| 43 | DW | 16 | GLU |
| 43 | DW | 22 | VAL |
| 43 | DW | 61 | LYS |
| 43 | DW | 63 | ASP |
| 43 | DW | 76 | ARG |
| 44 | DX | 36 | GLN |
| 45 | DY | 51 | SER |
| 46 | DZ | 32 | LEU |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 46 | DZ | 35 | ASP |
| 47 | D0 | 20 | ALA |
| 47 | D0 | 51 | ARG |
| 48 | D1 | 5 | ARG |
| 48 | D1 | 43 | ARG |
| 48 | D1 | 51 | ALA |
| 49 | D2 | 17 | GLY |
| 49 | D2 | 22 | MET |
| 51 | D4 | 9 | LYS |
| 52 | DI | 14 | ALA |
| 2 | AC | 14 | VAL |
| 2 | AC | 59 | PRO |
| 2 | AC | 145 | ALA |
| 2 | AC | 186 | SER |
| 3 | AD | 6 | PRO |
| 3 | AD | 43 | ARG |
| 3 | AD | 177 | MET |
| 6 | AG | 57 | GLU |
| 6 | AG | 137 | ARG |
| 10 | AK | 106 | ILE |
| 10 | AK | 127 | ARG |
| 13 | AN | 14 | ALA |
| 17 | AR | 47 | ARG |
| 18 | AS | 4 | LEU |
| 18 | AS | 27 | LYS |
| 18 | AS | 66 | VAL |
| 20 | AB | 87 | ASP |
| 20 | AB | 121 | GLN |
| 21 | AU | 13 | VAL |
| 21 | AU | 26 | GLY |
| 24 | BV | 70 | ILE |
| 24 | BV | 93 | ARG |
| 25 | BC | 30 | ALA |
| 25 | BC | 40 | GLY |
| 25 | BC | 112 | GLY |
| 25 | BC | 115 | ILE |
| 25 | BC | 196 | ASN |
| 25 | BC | 217 | PRO |
| 25 | BC | 230 | PRO |
| 26 | BD | 52 | THR |
| 26 | BD | 162 | ALA |
| 26 | BD | 174 | SER |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 28 | BF | 10 | GLU |
| 28 | BF | 22 | ASN |
| 28 | BF | 77 | LYS |
| 28 | BF | 87 | LYS |
| 28 | BF | 122 | ASP |
| 29 | BG | 11 | PRO |
| 29 | BG | 43 | LYS |
| 29 | BG | 159 | LYS |
| 31 | BJ | 46 | PRO |
| 31 | BJ | 53 | TYR |
| 31 | BJ | 66 | GLY |
| 32 | BK | 3 | GLN |
| 32 | BK | 4 | GLU |
| 32 | BK | 85 | VAL |
| 33 | BL | 114 | GLY |
| 33 | BL | 125 | LEU |
| 33 | BL | 128 | THR |
| 34 | BM | 29 | GLY |
| 34 | BM | 30 | SER |
| 34 | BM | 125 | PRO |
| 35 | BN | 73 | ASN |
| 36 | BO | 31 | THR |
| 37 | BP | 39 | LEU |
| 38 | BQ | 20 | ALA |
| 38 | BQ | 26 | ALA |
| 39 | BR | 72 | VAL |
| 40 | BS | 9 | HIS |
| 40 | BS | 57 | ASN |
| 40 | BS | 64 | ALA |
| 40 | BS | 71 | VAL |
| 41 | BT | 39 | THR |
| 41 | BT | 88 | LYS |
| 43 | BW | 5 | ALA |
| 43 | BW | 31 | LEU |
| 45 | BY | 10 | ARG |
| 46 | BZ | 5 | ILE |
| 47 | B0 | 53 | VAL |
| 48 | B1 | 21 | THR |
| 49 | B2 | 6 | GLN |
| 49 | B2 | 17 | GLY |
| 50 | B3 | 24 | LYS |
| 50 | B3 | 31 | ILE |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2 | CC | 100 | ILE |
| 2 | CC | 129 | PHE |
| 3 | CD | 191 | SER |
| 3 | CD | 203 | TYR |
| 3 | CD | 204 | SER |
| 5 | CF | 53 | LYS |
| 5 | CF | 68 | GLN |
| 8 | CI | 8 | THR |
| 8 | CI | 9 | GLY |
| 8 | CI | 121 | ARG |
| 9 | CJ | 36 | VAL |
| 9 | CJ | 86 | ALA |
| 10 | CK | 49 | SER |
| 12 | CM | 21 | ILE |
| 13 | CN | 31 | SER |
| 13 | CN | 73 | LEU |
| 13 | CN | 74 | ARG |
| 15 | CP | 44 | SER |
| 15 | CP | 55 | ASP |
| 15 | CP | 69 | ASP |
| 17 | CR | 63 | TYR |
| 20 | CB | 211 | LEU |
| 21 | CU | 39 | LYS |
| 25 | DC | 50 | THR |
| 25 | DC | 58 | LYS |
| 25 | DC | 137 | GLY |
| 25 | DC | 175 | LEU |
| 26 | DD | 2 | ILE |
| 26 | DD | 49 | GLN |
| 26 | DD | 149 | ASN |
| 27 | DE | 18 | THR |
| 27 | DE | 46 | GLN |
| 27 | DE | 89 | PRO |
| 27 | DE | 157 | LEU |
| 27 | DE | 188 | MET |
| 27 | DE | 192 | ALA |
| 28 | DF | 10 | GLU |
| 28 | DF | 153 | ILE |
| 29 | DG | 44 | HIS |
| 29 | DG | 151 | ARG |
| 29 | DG | 164 | ALA |
| 30 | DH | 66 | ASN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 31 | DJ | 111 | LYS |
| 31 | DJ | 125 | TYR |
| 31 | DJ | 139 | VAL |
| 32 | DK | 14 | SER |
| 32 | DK | 26 | GLY |
| 32 | DK | 85 | VAL |
| 33 | DL | 74 | THR |
| 34 | DM | 77 | PRO |
| 34 | DM | 82 | MET |
| 35 | DN | 41 | ALA |
| 35 | DN | 107 | ASN |
| 36 | DO | 18 | LEU |
| 36 | DO | 103 | VAL |
| 37 | DP | 59 | THR |
| 37 | DP | 106 | ALA |
| 38 | DQ | 78 | PHE |
| 38 | DQ | 87 | VAL |
| 39 | DR | 37 | GLU |
| 39 | DR | 84 | ARG |
| 40 | DS | 22 | ASP |
| 40 | DS | 92 | ARG |
| 41 | DT | 60 | THR |
| 41 | DT | 66 | LYS |
| 41 | DT | 86 | THR |
| 42 | DU | 57 | ILE |
| 43 | DW | 55 | ASP |
| 44 | DX | 51 | ALA |
| 44 | DX | 61 | ALA |
| 46 | DZ | 19 | GLY |
| 48 | D1 | 21 | THR |
| 48 | D1 | 29 | LYS |
| 49 | D2 | 14 | ARG |
| 49 | D2 | 15 | SER |
| 49 | D2 | 45 | SER |
| 50 | D3 | 13 | PHE |
| 50 | D3 | 29 | ARG |
| 50 | D3 | 33 | THR |
| 51 | D4 | 8 | LYS |
| 52 | DI | 5 | GLN |
| 4 | AE | 25 | LYS |
| 6 | AG | 6 | ILE |
| 6 | AG | 86 | VAL |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 7 | AH | 82 | LEU |
| 10 | AK | 91 | GLY |
| 12 | AM | 65 | GLU |
| 13 | AN | 33 | VAL |
| 16 | AQ | 28 | VAL |
| 18 | AS | 36 | ARG |
| 18 | AS | 52 | ASN |
| 18 | AS | 67 | GLY |
| 21 | AU | 23 | GLU |
| 25 | BC | 164 | VAL |
| 25 | BC | 224 | MET |
| 26 | BD | 19 | GLY |
| 26 | BD | 99 | GLU |
| 26 | BD | 180 | VAL |
| 27 | BE | 75 | SER |
| 27 | BE | 145 | ASP |
| 27 | BE | 186 | VAL |
| 28 | BF | 83 | PRO |
| 28 | BF | 175 | PRO |
| 29 | BG | 84 | LYS |
| 30 | BH | 108 | VAL |
| 31 | BJ | 121 | LYS |
| 32 | BK | 49 | ARG |
| 34 | BM | 21 | ALA |
| 34 | BM | 26 | VAL |
| 34 | BM | 97 | GLN |
| 35 | BN | 115 | LEU |
| 37 | BP | 26 | GLU |
| 39 | BR | 7 | SER |
| 39 | BR | 12 | HIS |
| 42 | BU | 56 | GLY |
| 43 | BW | 42 | THR |
| 46 | BZ | 32 | LEU |
| 46 | BZ | 66 | ILE |
| 47 | B0 | 34 | GLY |
| 50 | B3 | 26 | ALA |
| 2 | CC | 127 | VAL |
| 3 | CD | 35 | GLN |
| 3 | CD | 37 | PRO |
| 4 | CE | 20 | VAL |
| 4 | CE | 78 | GLY |
| 5 | CF | 84 | VAL |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 5 | CF | 99 | ALA |
| 6 | CG | 99 | ALA |
| 8 | CI | 23 | GLY |
| 8 | CI | 71 | ILE |
| 9 | CJ | 32 | THR |
| 9 | CJ | 62 | ARG |
| 11 | CL | 99 | GLY |
| 11 | CL | 103 | CYS |
| 13 | CN | 3 | GLN |
| 15 | CP | 54 | LEU |
| 17 | CR | 36 | GLY |
| 19 | CT | 44 | ALA |
| 20 | CB | 20 | ARG |
| 20 | CB | 205 | ALA |
| 25 | DC | 60 | ALA |
| 25 | DC | 208 | GLY |
| 25 | DC | 217 | PRO |
| 25 | DC | 224 | MET |
| 25 | DC | 244 | VAL |
| 26 | DD | 29 | VAL |
| 26 | DD | 48 | ILE |
| 26 | DD | 53 | GLY |
| 27 | DE | 56 | GLY |
| 27 | DE | 66 | GLY |
| 27 | DE | 167 | VAL |
| 31 | DJ | 46 | PRO |
| 31 | DJ | 67 | ASN |
| 33 | DL | 9 | ALA |
| 33 | DL | 49 | GLY |
| 35 | DN | 123 | GLU |
| 37 | DP | 26 | GLU |
| 39 | DR | 54 | VAL |
| 39 | DR | 63 | VAL |
| 39 | DR | 102 | SER |
| 40 | DS | 3 | THR |
| 40 | DS | 42 | LYS |
| 41 | DT | 76 | ARG |
| 41 | DT | 92 | ASN |
| 42 | DU | 65 | GLN |
| 43 | DW | 52 | CYS |
| 44 | DX | 8 | GLU |
| 50 | D3 | 49 | VAL |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 51 | D4 | 28 | SER |
| 3 | AD | 175 | GLY |
| 11 | AL | 121 | PRO |
| 14 | AO | 26 | VAL |
| 20 | AB | 24 | PRO |
| 26 | BD | 96 | ILE |
| 27 | BE | 82 | GLY |
| 29 | BG | 7 | PRO |
| 33 | BL | 11 | GLY |
| 33 | BL | 102 | GLY |
| 40 | BS | 4 | ILE |
| 43 | BW | 35 | ILE |
| 47 | B0 | 46 | GLY |
| 6 | CG | 18 | GLY |
| 21 | CU | 13 | VAL |
| 26 | DD | 76 | GLY |
| 27 | DE | 58 | LYS |
| 30 | DH | 85 | GLY |
| 32 | DK | 103 | VAL |
| 33 | DL | 32 | GLY |
| 34 | DM | 85 | GLY |
| 36 | DO | 28 | VAL |
| 38 | DQ | 72 | GLY |
| 39 | DR | 33 | VAL |
| 39 | DR | 47 | VAL |
| 4 | AE | 26 | GLY |
| 17 | AR | 43 | ILE |
| 25 | BC | 16 | VAL |
| 25 | BC | 214 | GLY |
| 26 | BD | 73 | VAL |
| 26 | BD | 203 | VAL |
| 28 | BF | 148 | VAL |
| 29 | BG | 110 | HIS |
| 30 | BH | 34 | GLY |
| 30 | BH | 95 | GLY |
| 32 | BK | 15 | GLY |
| 34 | BM | 71 | LYS |
| 34 | BM | 131 | VAL |
| 38 | BQ | 7 | VAL |
| 44 | BX | 11 | VAL |
| 3 | CD | 27 | ILE |
| 10 | CK | 15 | VAL |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 12 | CM | 42 | VAL |
| 16 | CQ | 32 | ILE |
| 17 | CR | 20 | ILE |
| 25 | DC | 48 | ILE |
| 25 | DC | 161 | VAL |
| 30 | DH | 4 | ILE |
| 33 | DL | 100 | ILE |
| 41 | DT | 58 | VAL |
| 50 | D3 | 31 | ILE |
| 50 | D3 | 62 | PRO |
| 52 | DI | 34 | ILE |
| 3 | AD | 63 | ILE |
| 7 | AH | 71 | VAL |
| 8 | AI | 71 | ILE |
| 9 | AJ | 41 | PRO |
| 24 | BV | 84 | PRO |
| 25 | BC | 234 | GLY |
| 26 | BD | 98 | VAL |
| 27 | BE | 113 | VAL |
| 27 | BE | 187 | VAL |
| 28 | BF | 108 | PRO |
| 30 | BH | 110 | VAL |
| 36 | BO | 35 | ILE |
| 37 | BP | 69 | VAL |
| 2 | CC | 76 | ILE |
| 2 | CC | 107 | LYS |
| 4 | CE | 24 | VAL |
| 20 | CB | 123 | GLY |
| 20 | CB | 200 | PRO |
| 25 | DC | 54 | GLY |
| 25 | DC | 195 | GLY |
| 26 | DD | 19 | GLY |
| 26 | DD | 203 | VAL |
| 33 | DL | 23 | ILE |
| 51 | D4 | 23 | ILE |
| 3 | AD | 37 | PRO |
| 7 | AH | 74 | ILE |
| 8 | AI | 110 | VAL |
| 11 | AL | 62 | VAL |
| 12 | AM | 15 | VAL |
| 28 | BF | 11 | VAL |
| 29 | BG | 8 | VAL |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 29 | BG | 99 | GLY |
| 33 | BL | 16 | GLY |
| 37 | BP | 3 | ILE |
| 8 | CI | 68 | GLY |
| 10 | CK | 119 | GLY |
| 16 | CQ | 4 | ILE |
| 25 | DC | 16 | VAL |
| 27 | DE | 120 | VAL |
| 28 | DF | 108 | PRO |
| 33 | DL | 89 | VAL |
| 36 | DO | 31 | THR |
| 36 | DO | 58 | ILE |
| 38 | DQ | 6 | GLY |
| 42 | DU | 11 | ILE |
| 47 | D0 | 53 | VAL |
| 49 | D2 | 6 | GLN |
| 8 | AI | 39 | GLY |
| 27 | BE | 76 | PRO |
| 34 | BM | 89 | VAL |
| 47 | B0 | 42 | ILE |
| 29 | DG | 117 | PRO |
| 30 | DH | 32 | PRO |
| 30 | DH | 107 | GLY |

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution. The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|---------------|-----------|----------|-------------|----|
| 2 | AC | 170/190 (90%) | 149 (88%) | 21 (12%) | 7 | 34 |
| 2 | CC | 170/190 (90%) | 150 (88%) | 20 (12%) | 8 | 37 |
| 3 | AD | 172/173 (99%) | 145 (84%) | 27 (16%) | 4 | 22 |
| 3 | CD | 172/173 (99%) | 143 (83%) | 29 (17%) | 3 | 18 |
| 4 | AE | 113/126 (90%) | 96 (85%) | 17 (15%) | 4 | 25 |
| 4 | CE | 113/126 (90%) | 94 (83%) | 19 (17%) | 3 | 18 |
| 5 | AF | 87/116 (75%) | 68 (78%) | 19 (22%) | 1 | 8 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|---------------|-----------|----------|-------------|----|
| 5 | CF | 87/116 (75%) | 76 (87%) | 11 (13%) | 7 | 33 |
| 6 | AG | 123/147 (84%) | 106 (86%) | 17 (14%) | 5 | 28 |
| 6 | CG | 125/147 (85%) | 111 (89%) | 14 (11%) | 9 | 40 |
| 7 | AH | 104/105 (99%) | 92 (88%) | 12 (12%) | 8 | 38 |
| 7 | CH | 104/105 (99%) | 93 (89%) | 11 (11%) | 10 | 43 |
| 8 | AI | 105/107 (98%) | 90 (86%) | 15 (14%) | 5 | 27 |
| 8 | CI | 105/107 (98%) | 91 (87%) | 14 (13%) | 6 | 30 |
| 9 | AJ | 86/90 (96%) | 70 (81%) | 16 (19%) | 2 | 13 |
| 9 | CJ | 86/90 (96%) | 78 (91%) | 8 (9%) | 13 | 51 |
| 10 | AK | 90/99 (91%) | 72 (80%) | 18 (20%) | 2 | 10 |
| 10 | CK | 90/99 (91%) | 79 (88%) | 11 (12%) | 7 | 35 |
| 11 | AL | 103/104 (99%) | 90 (87%) | 13 (13%) | 7 | 33 |
| 11 | CL | 103/104 (99%) | 86 (84%) | 17 (16%) | 3 | 19 |
| 12 | AM | 92/96 (96%) | 76 (83%) | 16 (17%) | 3 | 16 |
| 12 | CM | 91/96 (95%) | 80 (88%) | 11 (12%) | 7 | 35 |
| 13 | AN | 79/84 (94%) | 70 (89%) | 9 (11%) | 8 | 38 |
| 13 | CN | 79/84 (94%) | 73 (92%) | 6 (8%) | 19 | 64 |
| 14 | AO | 76/77 (99%) | 69 (91%) | 7 (9%) | 13 | 52 |
| 14 | CO | 76/77 (99%) | 67 (88%) | 9 (12%) | 8 | 37 |
| 15 | AP | 65/65 (100%) | 54 (83%) | 11 (17%) | 3 | 18 |
| 15 | CP | 65/65 (100%) | 57 (88%) | 8 (12%) | 7 | 35 |
| 16 | AQ | 74/78 (95%) | 64 (86%) | 10 (14%) | 6 | 30 |
| 16 | CQ | 75/78 (96%) | 68 (91%) | 7 (9%) | 13 | 51 |
| 17 | AR | 48/65 (74%) | 44 (92%) | 4 (8%) | 16 | 58 |
| 17 | CR | 48/65 (74%) | 42 (88%) | 6 (12%) | 7 | 34 |
| 18 | AS | 70/79 (89%) | 59 (84%) | 11 (16%) | 4 | 22 |
| 18 | CS | 71/79 (90%) | 58 (82%) | 13 (18%) | 2 | 13 |
| 19 | AT | 65/66 (98%) | 55 (85%) | 10 (15%) | 4 | 23 |
| 19 | CT | 65/66 (98%) | 55 (85%) | 10 (15%) | 4 | 23 |
| 20 | AB | 180/199 (90%) | 148 (82%) | 32 (18%) | 2 | 15 |
| 20 | CB | 180/199 (90%) | 153 (85%) | 27 (15%) | 4 | 25 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|----------------|-----------|----------|-------------|----|
| 21 | AU | 44/61 (72%) | 37 (84%) | 7 (16%) | 4 | 22 |
| 21 | CU | 44/61 (72%) | 31 (70%) | 13 (30%) | 0 | 3 |
| 24 | BV | 78/78 (100%) | 64 (82%) | 14 (18%) | 2 | 14 |
| 24 | DV | 78/78 (100%) | 72 (92%) | 6 (8%) | 18 | 63 |
| 25 | BC | 213/218 (98%) | 162 (76%) | 51 (24%) | 1 | 6 |
| 25 | DC | 213/218 (98%) | 164 (77%) | 49 (23%) | 1 | 7 |
| 26 | BD | 164/164 (100%) | 130 (79%) | 34 (21%) | 2 | 9 |
| 26 | DD | 164/164 (100%) | 126 (77%) | 38 (23%) | 1 | 6 |
| 27 | BE | 165/165 (100%) | 127 (77%) | 38 (23%) | 1 | 7 |
| 27 | DE | 165/165 (100%) | 137 (83%) | 28 (17%) | 3 | 18 |
| 28 | BF | 149/150 (99%) | 127 (85%) | 22 (15%) | 4 | 25 |
| 28 | DF | 149/150 (99%) | 127 (85%) | 22 (15%) | 4 | 25 |
| 29 | BG | 137/138 (99%) | 115 (84%) | 22 (16%) | 3 | 21 |
| 29 | DG | 137/138 (99%) | 114 (83%) | 23 (17%) | 3 | 18 |
| 30 | BH | 114/114 (100%) | 95 (83%) | 19 (17%) | 3 | 19 |
| 30 | DH | 114/114 (100%) | 92 (81%) | 22 (19%) | 2 | 11 |
| 31 | BJ | 114/116 (98%) | 93 (82%) | 21 (18%) | 2 | 13 |
| 31 | DJ | 114/116 (98%) | 92 (81%) | 22 (19%) | 2 | 11 |
| 32 | BK | 102/104 (98%) | 81 (79%) | 21 (21%) | 2 | 9 |
| 32 | DK | 102/104 (98%) | 89 (87%) | 13 (13%) | 6 | 33 |
| 33 | BL | 103/103 (100%) | 76 (74%) | 27 (26%) | 1 | 4 |
| 33 | DL | 103/103 (100%) | 78 (76%) | 25 (24%) | 1 | 5 |
| 34 | BM | 109/109 (100%) | 81 (74%) | 28 (26%) | 1 | 5 |
| 34 | DM | 109/109 (100%) | 75 (69%) | 34 (31%) | 0 | 3 |
| 35 | BN | 103/103 (100%) | 84 (82%) | 19 (18%) | 2 | 13 |
| 35 | DN | 103/103 (100%) | 87 (84%) | 16 (16%) | 4 | 23 |
| 36 | BO | 87/87 (100%) | 68 (78%) | 19 (22%) | 1 | 8 |
| 36 | DO | 87/87 (100%) | 73 (84%) | 14 (16%) | 3 | 21 |
| 37 | BP | 99/100 (99%) | 78 (79%) | 21 (21%) | 1 | 9 |
| 37 | DP | 99/100 (99%) | 72 (73%) | 27 (27%) | 0 | 4 |
| 38 | BQ | 89/90 (99%) | 72 (81%) | 17 (19%) | 2 | 12 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|-----------------|------------|------------|-------------|----|
| 38 | DQ | 89/90 (99%) | 70 (79%) | 19 (21%) | 1 | 8 |
| 39 | BR | 84/84 (100%) | 72 (86%) | 12 (14%) | 5 | 27 |
| 39 | DR | 84/84 (100%) | 67 (80%) | 17 (20%) | 2 | 10 |
| 40 | BS | 93/93 (100%) | 83 (89%) | 10 (11%) | 9 | 42 |
| 40 | DS | 93/93 (100%) | 80 (86%) | 13 (14%) | 5 | 28 |
| 41 | BT | 83/84 (99%) | 65 (78%) | 18 (22%) | 1 | 8 |
| 41 | DT | 83/84 (99%) | 70 (84%) | 13 (16%) | 4 | 22 |
| 42 | BU | 83/85 (98%) | 66 (80%) | 17 (20%) | 2 | 9 |
| 42 | DU | 83/85 (98%) | 65 (78%) | 18 (22%) | 1 | 8 |
| 43 | BW | 62/63 (98%) | 50 (81%) | 12 (19%) | 2 | 11 |
| 43 | DW | 62/63 (98%) | 51 (82%) | 11 (18%) | 3 | 15 |
| 44 | BX | 55/55 (100%) | 38 (69%) | 17 (31%) | 0 | 3 |
| 44 | DX | 55/55 (100%) | 45 (82%) | 10 (18%) | 2 | 14 |
| 45 | BY | 48/49 (98%) | 37 (77%) | 11 (23%) | 1 | 7 |
| 45 | DY | 48/49 (98%) | 36 (75%) | 12 (25%) | 1 | 5 |
| 46 | BZ | 62/62 (100%) | 46 (74%) | 16 (26%) | 1 | 4 |
| 46 | DZ | 62/62 (100%) | 54 (87%) | 8 (13%) | 6 | 32 |
| 47 | B0 | 47/48 (98%) | 36 (77%) | 11 (23%) | 1 | 6 |
| 47 | D0 | 47/48 (98%) | 38 (81%) | 9 (19%) | 2 | 12 |
| 48 | B1 | 48/49 (98%) | 35 (73%) | 13 (27%) | 1 | 4 |
| 48 | D1 | 48/49 (98%) | 38 (79%) | 10 (21%) | 2 | 9 |
| 49 | B2 | 38/38 (100%) | 29 (76%) | 9 (24%) | 1 | 6 |
| 49 | D2 | 38/38 (100%) | 29 (76%) | 9 (24%) | 1 | 6 |
| 50 | B3 | 51/52 (98%) | 41 (80%) | 10 (20%) | 2 | 11 |
| 50 | D3 | 51/52 (98%) | 39 (76%) | 12 (24%) | 1 | 6 |
| 51 | B4 | 34/34 (100%) | 25 (74%) | 9 (26%) | 1 | 4 |
| 51 | D4 | 34/34 (100%) | 19 (56%) | 15 (44%) | 0 | 0 |
| 52 | BI | 109/110 (99%) | 107 (98%) | 2 (2%) | 71 | 93 |
| 52 | DI | 109/110 (99%) | 105 (96%) | 4 (4%) | 45 | 85 |
| All | All | 9341/9744 (96%) | 7726 (83%) | 1615 (17%) | 3 | 16 |

All (1615) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2 | AC | 31 | ASN |
| 2 | AC | 35 | ASP |
| 2 | AC | 40 | GLN |
| 2 | AC | 64 | ARG |
| 2 | AC | 82 | ASP |
| 2 | AC | 100 | ILE |
| 2 | AC | 102 | ILE |
| 2 | AC | 106 | ARG |
| 2 | AC | 113 | LYS |
| 2 | AC | 141 | MET |
| 2 | AC | 143 | LEU |
| 2 | AC | 146 | LYS |
| 2 | AC | 156 | LEU |
| 2 | AC | 166 | TRP |
| 2 | AC | 168 | ARG |
| 2 | AC | 174 | LEU |
| 2 | AC | 180 | ASP |
| 2 | AC | 184 | ASN |
| 2 | AC | 189 | HIS |
| 2 | AC | 190 | THR |
| 2 | AC | 192 | TYR |
| 3 | AD | 7 | LYS |
| 3 | AD | 8 | LEU |
| 3 | AD | 10 | LEU |
| 3 | AD | 21 | LYS |
| 3 | AD | 25 | ARG |
| 3 | AD | 35 | GLN |
| 3 | AD | 39 | GLN |
| 3 | AD | 43 | ARG |
| 3 | AD | 56 | GLU |
| 3 | AD | 58 | GLN |
| 3 | AD | 62 | ARG |
| 3 | AD | 64 | TYR |
| 3 | AD | 69 | ARG |
| 3 | AD | 85 | THR |
| 3 | AD | 94 | GLU |
| 3 | AD | 147 | LYS |
| 3 | AD | 150 | LYS |
| 3 | AD | 153 | ARG |
| 3 | AD | 155 | LYS |
| 3 | AD | 158 | LEU |
| 3 | AD | 159 | GLU |
| 3 | AD | 160 | LEU |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3 | AD | 176 | LYS |
| 3 | AD | 177 | MET |
| 3 | AD | 183 | ARG |
| 3 | AD | 186 | GLU |
| 3 | AD | 194 | ILE |
| 4 | AE | 11 | GLN |
| 4 | AE | 23 | THR |
| 4 | AE | 25 | LYS |
| 4 | AE | 44 | ARG |
| 4 | AE | 68 | ARG |
| 4 | AE | 72 | ASN |
| 4 | AE | 81 | GLN |
| 4 | AE | 92 | ARG |
| 4 | AE | 102 | THR |
| 4 | AE | 110 | MET |
| 4 | AE | 122 | VAL |
| 4 | AE | 123 | LEU |
| 4 | AE | 125 | LYS |
| 4 | AE | 139 | THR |
| 4 | AE | 143 | LEU |
| 4 | AE | 151 | MET |
| 4 | AE | 158 | LYS |
| 5 | AF | 24 | ARG |
| 5 | AF | 37 | HIS |
| 5 | AF | 38 | ARG |
| 5 | AF | 39 | LEU |
| 5 | AF | 46 | GLN |
| 5 | AF | 53 | LYS |
| 5 | AF | 54 | LEU |
| 5 | AF | 55 | HIS |
| 5 | AF | 61 | LEU |
| 5 | AF | 65 | GLU |
| 5 | AF | 68 | GLN |
| 5 | AF | 69 | GLU |
| 5 | AF | 71 | ILE |
| 5 | AF | 75 | GLU |
| 5 | AF | 76 | THR |
| 5 | AF | 78 | PHE |
| 5 | AF | 86 | ARG |
| 5 | AF | 88 | MET |
| 5 | AF | 92 | THR |
| 6 | AG | 3 | ARG |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 6 | AG | 10 | LYS |
| 6 | AG | 11 | ILE |
| 6 | AG | 14 | ASP |
| 6 | AG | 16 | LYS |
| 6 | AG | 21 | LEU |
| 6 | AG | 22 | LEU |
| 6 | AG | 42 | VAL |
| 6 | AG | 52 | ARG |
| 6 | AG | 55 | LYS |
| 6 | AG | 72 | VAL |
| 6 | AG | 84 | TYR |
| 6 | AG | 89 | GLU |
| 6 | AG | 94 | ARG |
| 6 | AG | 112 | ASP |
| 6 | AG | 137 | ARG |
| 6 | AG | 143 | MET |
| 7 | AH | 26 | MET |
| 7 | AH | 30 | LYS |
| 7 | AH | 37 | ASN |
| 7 | AH | 39 | LEU |
| 7 | AH | 48 | PHE |
| 7 | AH | 55 | LYS |
| 7 | AH | 58 | LEU |
| 7 | AH | 82 | LEU |
| 7 | AH | 93 | LYS |
| 7 | AH | 111 | THR |
| 7 | AH | 113 | ARG |
| 7 | AH | 120 | LEU |
| 8 | AI | 11 | ARG |
| 8 | AI | 26 | LYS |
| 8 | AI | 36 | GLN |
| 8 | AI | 38 | PHE |
| 8 | AI | 44 | ARG |
| 8 | AI | 56 | MET |
| 8 | AI | 58 | GLU |
| 8 | AI | 59 | LYS |
| 8 | AI | 84 | ARG |
| 8 | AI | 86 | LEU |
| 8 | AI | 87 | MET |
| 8 | AI | 106 | ASP |
| 8 | AI | 112 | ARG |
| 8 | AI | 121 | ARG |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 8 | AI | 126 | PHE |
| 9 | AJ | 5 | ARG |
| 9 | AJ | 11 | LYS |
| 9 | AJ | 14 | ASP |
| 9 | AJ | 18 | ILE |
| 9 | AJ | 40 | ILE |
| 9 | AJ | 48 | ARG |
| 9 | AJ | 49 | PHE |
| 9 | AJ | 57 | VAL |
| 9 | AJ | 68 | ARG |
| 9 | AJ | 71 | LEU |
| 9 | AJ | 75 | ASP |
| 9 | AJ | 81 | GLU |
| 9 | AJ | 88 | MET |
| 9 | AJ | 89 | ARG |
| 9 | AJ | 92 | LEU |
| 9 | AJ | 102 | LEU |
| 10 | AK | 12 | ARG |
| 10 | AK | 35 | ASP |
| 10 | AK | 36 | ARG |
| 10 | AK | 37 | GLN |
| 10 | AK | 52 | ARG |
| 10 | AK | 56 | LYS |
| 10 | AK | 58 | THR |
| 10 | AK | 60 | PHE |
| 10 | AK | 73 | VAL |
| 10 | AK | 83 | VAL |
| 10 | AK | 84 | MET |
| 10 | AK | 92 | ARG |
| 10 | AK | 99 | LEU |
| 10 | AK | 107 | THR |
| 10 | AK | 115 | ILE |
| 10 | AK | 117 | HIS |
| 10 | AK | 121 | ARG |
| 10 | AK | 126 | ARG |
| 11 | AL | 24 | GLU |
| 11 | AL | 28 | GLN |
| 11 | AL | 30 | ARG |
| 11 | AL | 35 | ARG |
| 11 | AL | 38 | THR |
| 11 | AL | 48 | LEU |
| 11 | AL | 50 | LYS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 11 | AL | 58 | ASN |
| 11 | AL | 71 | HIS |
| 11 | AL | 74 | GLN |
| 11 | AL | 87 | LYS |
| 11 | AL | 98 | ARG |
| 11 | AL | 102 | ASP |
| 12 | AM | 18 | LEU |
| 12 | AM | 28 | ARG |
| 12 | AM | 41 | ASP |
| 12 | AM | 43 | LYS |
| 12 | AM | 44 | ILE |
| 12 | AM | 57 | ASP |
| 12 | AM | 62 | PHE |
| 12 | AM | 67 | ASP |
| 12 | AM | 68 | LEU |
| 12 | AM | 90 | HIS |
| 12 | AM | 91 | ARG |
| 12 | AM | 97 | ARG |
| 12 | AM | 100 | ARG |
| 12 | AM | 101 | THR |
| 12 | AM | 102 | LYS |
| 12 | AM | 109 | LYS |
| 13 | AN | 15 | LEU |
| 13 | AN | 27 | LYS |
| 13 | AN | 41 | TRP |
| 13 | AN | 50 | LEU |
| 13 | AN | 59 | GLN |
| 13 | AN | 60 | ARG |
| 13 | AN | 65 | GLN |
| 13 | AN | 73 | LEU |
| 13 | AN | 74 | ARG |
| 14 | AO | 7 | THR |
| 14 | AO | 17 | ASP |
| 14 | AO | 25 | GLU |
| 14 | AO | 53 | ARG |
| 14 | AO | 57 | ARG |
| 14 | AO | 66 | LEU |
| 14 | AO | 70 | LYS |
| 15 | AP | 4 | ILE |
| 15 | AP | 5 | ARG |
| 15 | AP | 9 | HIS |
| 15 | AP | 19 | VAL |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 15 | AP | 26 | ASN |
| 15 | AP | 29 | ASN |
| 15 | AP | 31 | ARG |
| 15 | AP | 34 | GLU |
| 15 | AP | 46 | LYS |
| 15 | AP | 55 | ASP |
| 15 | AP | 63 | GLN |
| 16 | AQ | 3 | LYS |
| 16 | AQ | 4 | ILE |
| 16 | AQ | 10 | ARG |
| 16 | AQ | 20 | ILE |
| 16 | AQ | 25 | GLU |
| 16 | AQ | 39 | ARG |
| 16 | AQ | 47 | ASP |
| 16 | AQ | 60 | ILE |
| 16 | AQ | 76 | ARG |
| 16 | AQ | 80 | LYS |
| 17 | AR | 20 | ILE |
| 17 | AR | 23 | LYS |
| 17 | AR | 30 | ASN |
| 17 | AR | 52 | ARG |
| 18 | AS | 5 | LYS |
| 18 | AS | 14 | LEU |
| 18 | AS | 20 | LYS |
| 18 | AS | 28 | LYS |
| 18 | AS | 31 | ARG |
| 18 | AS | 35 | ARG |
| 18 | AS | 40 | PHE |
| 18 | AS | 47 | THR |
| 18 | AS | 63 | ASP |
| 18 | AS | 72 | GLU |
| 18 | AS | 73 | PHE |
| 19 | AT | 4 | LYS |
| 19 | AT | 14 | GLU |
| 19 | AT | 26 | MET |
| 19 | AT | 29 | THR |
| 19 | AT | 43 | LYS |
| 19 | AT | 53 | MET |
| 19 | AT | 59 | ARG |
| 19 | AT | 67 | HIS |
| 19 | AT | 70 | LYS |
| 19 | AT | 85 | LEU |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 20 | AB | 9 | LEU |
| 20 | AB | 22 | TRP |
| 20 | AB | 23 | ASN |
| 20 | AB | 31 | PHE |
| 20 | AB | 36 | LYS |
| 20 | AB | 38 | HIS |
| 20 | AB | 40 | ILE |
| 20 | AB | 46 | VAL |
| 20 | AB | 48 | MET |
| 20 | AB | 56 | LEU |
| 20 | AB | 57 | ASN |
| 20 | AB | 62 | ARG |
| 20 | AB | 67 | LEU |
| 20 | AB | 81 | ASP |
| 20 | AB | 90 | PHE |
| 20 | AB | 94 | ARG |
| 20 | AB | 95 | TRP |
| 20 | AB | 116 | LEU |
| 20 | AB | 121 | GLN |
| 20 | AB | 122 | ASP |
| 20 | AB | 125 | PHE |
| 20 | AB | 127 | LYS |
| 20 | AB | 128 | LEU |
| 20 | AB | 145 | ASN |
| 20 | AB | 176 | ASN |
| 20 | AB | 188 | THR |
| 20 | AB | 193 | ASP |
| 20 | AB | 196 | ASP |
| 20 | AB | 202 | ASN |
| 20 | AB | 206 | ILE |
| 20 | AB | 212 | TYR |
| 20 | AB | 222 | GLU |
| 21 | AU | 11 | PHE |
| 21 | AU | 12 | ASP |
| 21 | AU | 16 | ARG |
| 21 | AU | 32 | ARG |
| 21 | AU | 41 | THR |
| 21 | AU | 48 | LYS |
| 21 | AU | 53 | LYS |
| 24 | BV | 2 | PHE |
| 24 | BV | 3 | THR |
| 24 | BV | 9 | ARG |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 24 | BV | 35 | GLU |
| 24 | BV | 40 | ILE |
| 24 | BV | 42 | LEU |
| 24 | BV | 46 | LYS |
| 24 | BV | 51 | GLN |
| 24 | BV | 56 | PHE |
| 24 | BV | 70 | ILE |
| 24 | BV | 73 | LYS |
| 24 | BV | 79 | ARG |
| 24 | BV | 82 | TYR |
| 24 | BV | 87 | GLN |
| 25 | BC | 5 | CYS |
| 25 | BC | 14 | HIS |
| 25 | BC | 17 | LYS |
| 25 | BC | 18 | VAL |
| 25 | BC | 27 | LYS |
| 25 | BC | 28 | PRO |
| 25 | BC | 29 | PHE |
| 25 | BC | 32 | LEU |
| 25 | BC | 33 | LEU |
| 25 | BC | 35 | LYS |
| 25 | BC | 36 | ASN |
| 25 | BC | 38 | LYS |
| 25 | BC | 45 | ASN |
| 25 | BC | 51 | ARG |
| 25 | BC | 57 | HIS |
| 25 | BC | 58 | LYS |
| 25 | BC | 62 | ARG |
| 25 | BC | 64 | VAL |
| 25 | BC | 78 | GLU |
| 25 | BC | 86 | ARG |
| 25 | BC | 94 | LEU |
| 25 | BC | 102 | TYR |
| 25 | BC | 110 | LYS |
| 25 | BC | 125 | PRO |
| 25 | BC | 127 | ASN |
| 25 | BC | 129 | LEU |
| 25 | BC | 131 | MET |
| 25 | BC | 144 | GLU |
| 25 | BC | 152 | GLN |
| 25 | BC | 155 | ARG |
| 25 | BC | 162 | GLN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 25 | BC | 171 | VAL |
| 25 | BC | 180 | MET |
| 25 | BC | 181 | ARG |
| 25 | BC | 186 | ASP |
| 25 | BC | 199 | HIS |
| 25 | BC | 201 | LEU |
| 25 | BC | 203 | VAL |
| 25 | BC | 206 | LYS |
| 25 | BC | 220 | ARG |
| 25 | BC | 222 | THR |
| 25 | BC | 224 | MET |
| 25 | BC | 225 | ASN |
| 25 | BC | 231 | HIS |
| 25 | BC | 235 | GLU |
| 25 | BC | 237 | ARG |
| 25 | BC | 246 | PRO |
| 25 | BC | 256 | THR |
| 25 | BC | 261 | ARG |
| 25 | BC | 263 | ASP |
| 25 | BC | 268 | ARG |
| 26 | BD | 18 | ASP |
| 26 | BD | 25 | THR |
| 26 | BD | 29 | VAL |
| 26 | BD | 30 | GLU |
| 26 | BD | 35 | THR |
| 26 | BD | 36 | GLN |
| 26 | BD | 38 | LYS |
| 26 | BD | 39 | ASP |
| 26 | BD | 48 | ILE |
| 26 | BD | 52 | THR |
| 26 | BD | 56 | LYS |
| 26 | BD | 59 | ARG |
| 26 | BD | 62 | LYS |
| 26 | BD | 67 | HIS |
| 26 | BD | 70 | LYS |
| 26 | BD | 96 | ILE |
| 26 | BD | 103 | ASP |
| 26 | BD | 105 | LYS |
| 26 | BD | 123 | LYS |
| 26 | BD | 127 | PHE |
| 26 | BD | 128 | ARG |
| 26 | BD | 131 | ASP |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 26 | BD | 133 | THR |
| 26 | BD | 138 | LEU |
| 26 | BD | 140 | HIS |
| 26 | BD | 141 | ARG |
| 26 | BD | 148 | GLN |
| 26 | BD | 155 | VAL |
| 26 | BD | 157 | LYS |
| 26 | BD | 159 | LYS |
| 26 | BD | 160 | LYS |
| 26 | BD | 167 | ASN |
| 26 | BD | 177 | VAL |
| 26 | BD | 197 | THR |
| 27 | BE | 2 | GLU |
| 27 | BE | 4 | VAL |
| 27 | BE | 5 | LEU |
| 27 | BE | 10 | SER |
| 27 | BE | 18 | THR |
| 27 | BE | 22 | ASP |
| 27 | BE | 24 | ASN |
| 27 | BE | 41 | GLN |
| 27 | BE | 43 | THR |
| 27 | BE | 44 | ARG |
| 27 | BE | 46 | GLN |
| 27 | BE | 47 | LYS |
| 27 | BE | 49 | ARG |
| 27 | BE | 57 | LYS |
| 27 | BE | 58 | LYS |
| 27 | BE | 59 | PRO |
| 27 | BE | 67 | ARG |
| 27 | BE | 78 | TRP |
| 27 | BE | 85 | PHE |
| 27 | BE | 88 | ARG |
| 27 | BE | 91 | ASP |
| 27 | BE | 98 | LYS |
| 27 | BE | 118 | LEU |
| 27 | BE | 132 | LYS |
| 27 | BE | 134 | LEU |
| 27 | BE | 139 | LYS |
| 27 | BE | 143 | LEU |
| 27 | BE | 148 | ILE |
| 27 | BE | 162 | ARG |
| 27 | BE | 164 | LEU |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 27 | BE | 169 | VAL |
| 27 | BE | 171 | ASP |
| 27 | BE | 184 | ASP |
| 27 | BE | 188 | MET |
| 27 | BE | 193 | VAL |
| 27 | BE | 196 | VAL |
| 27 | BE | 199 | MET |
| 27 | BE | 200 | LEU |
| 28 | BF | 5 | ASP |
| 28 | BF | 14 | LYS |
| 28 | BF | 16 | MET |
| 28 | BF | 21 | TYR |
| 28 | BF | 55 | ASP |
| 28 | BF | 59 | ILE |
| 28 | BF | 63 | LYS |
| 28 | BF | 76 | PHE |
| 28 | BF | 93 | GLU |
| 28 | BF | 101 | ARG |
| 28 | BF | 126 | ASN |
| 28 | BF | 132 | ARG |
| 28 | BF | 142 | TYR |
| 28 | BF | 143 | ASP |
| 28 | BF | 146 | ASP |
| 28 | BF | 147 | ARG |
| 28 | BF | 157 | THR |
| 28 | BF | 160 | LYS |
| 28 | BF | 166 | ARG |
| 28 | BF | 168 | LEU |
| 28 | BF | 174 | PHE |
| 28 | BF | 177 | ARG |
| 29 | BG | 2 | ARG |
| 29 | BG | 3 | VAL |
| 29 | BG | 17 | LYS |
| 29 | BG | 18 | ILE |
| 29 | BG | 28 | LYS |
| 29 | BG | 34 | ARG |
| 29 | BG | 46 | ASP |
| 29 | BG | 49 | LEU |
| 29 | BG | 50 | THR |
| 29 | BG | 57 | TYR |
| 29 | BG | 59 | ASP |
| 29 | BG | 61 | TRP |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 29 | BG | 70 | LEU |
| 29 | BG | 80 | GLU |
| 29 | BG | 94 | ARG |
| 29 | BG | 121 | THR |
| 29 | BG | 128 | THR |
| 29 | BG | 133 | LYS |
| 29 | BG | 146 | ASP |
| 29 | BG | 150 | TYR |
| 29 | BG | 154 | GLU |
| 29 | BG | 176 | LYS |
| 30 | BH | 1 | MET |
| 30 | BH | 5 | LEU |
| 30 | BH | 7 | ASP |
| 30 | BH | 8 | LYS |
| 30 | BH | 22 | LYS |
| 30 | BH | 28 | ASN |
| 30 | BH | 30 | LEU |
| 30 | BH | 35 | LYS |
| 30 | BH | 42 | LYS |
| 30 | BH | 47 | PHE |
| 30 | BH | 55 | GLU |
| 30 | BH | 57 | LYS |
| 30 | BH | 66 | ASN |
| 30 | BH | 68 | ARG |
| 30 | BH | 73 | ASN |
| 30 | BH | 75 | LEU |
| 30 | BH | 89 | LYS |
| 30 | BH | 112 | LYS |
| 30 | BH | 132 | PHE |
| 31 | BJ | 12 | LYS |
| 31 | BJ | 15 | TRP |
| 31 | BJ | 23 | LYS |
| 31 | BJ | 24 | THR |
| 31 | BJ | 25 | LEU |
| 31 | BJ | 28 | LEU |
| 31 | BJ | 34 | ARG |
| 31 | BJ | 35 | ARG |
| 31 | BJ | 37 | ARG |
| 31 | BJ | 39 | LYS |
| 31 | BJ | 49 | ASP |
| 31 | BJ | 58 | ASN |
| 31 | BJ | 75 | TYR |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 31 | BJ | 90 | GLU |
| 31 | BJ | 96 | ARG |
| 31 | BJ | 98 | GLU |
| 31 | BJ | 114 | LEU |
| 31 | BJ | 119 | PHE |
| 31 | BJ | 122 | LEU |
| 31 | BJ | 131 | ASN |
| 31 | BJ | 136 | GLN |
| 32 | BK | 9 | ASN |
| 32 | BK | 17 | ARG |
| 32 | BK | 30 | ARG |
| 32 | BK | 31 | ARG |
| 32 | BK | 32 | TYR |
| 32 | BK | 47 | ILE |
| 32 | BK | 53 | LYS |
| 32 | BK | 54 | LYS |
| 32 | BK | 58 | LEU |
| 32 | BK | 62 | VAL |
| 32 | BK | 64 | ARG |
| 32 | BK | 71 | ARG |
| 32 | BK | 79 | PHE |
| 32 | BK | 87 | LEU |
| 32 | BK | 93 | GLN |
| 32 | BK | 98 | ARG |
| 32 | BK | 108 | ARG |
| 32 | BK | 109 | SER |
| 32 | BK | 113 | MET |
| 32 | BK | 116 | ILE |
| 32 | BK | 118 | LEU |
| 33 | BL | 2 | ARG |
| 33 | BL | 14 | LYS |
| 33 | BL | 18 | ARG |
| 33 | BL | 27 | LEU |
| 33 | BL | 29 | LYS |
| 33 | BL | 33 | ARG |
| 33 | BL | 41 | ARG |
| 33 | BL | 47 | ARG |
| 33 | BL | 51 | GLU |
| 33 | BL | 55 | MET |
| 33 | BL | 61 | LEU |
| 33 | BL | 62 | PRO |
| 33 | BL | 70 | LYS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 33 | BL | 78 | ARG |
| 33 | BL | 81 | ASP |
| 33 | BL | 82 | LEU |
| 33 | BL | 84 | LYS |
| 33 | BL | 85 | VAL |
| 33 | BL | 96 | LYS |
| 33 | BL | 103 | ILE |
| 33 | BL | 105 | ILE |
| 33 | BL | 111 | ILE |
| 33 | BL | 112 | LEU |
| 33 | BL | 118 | THR |
| 33 | BL | 126 | ARG |
| 33 | BL | 127 | VAL |
| 33 | BL | 132 | ARG |
| 34 | BM | 3 | GLN |
| 34 | BM | 9 | PHE |
| 34 | BM | 10 | ARG |
| 34 | BM | 11 | LYS |
| 34 | BM | 12 | MET |
| 34 | BM | 14 | LYS |
| 34 | BM | 17 | ASN |
| 34 | BM | 18 | ARG |
| 34 | BM | 22 | GLN |
| 34 | BM | 36 | VAL |
| 34 | BM | 38 | ARG |
| 34 | BM | 54 | THR |
| 34 | BM | 55 | ARG |
| 34 | BM | 63 | ILE |
| 34 | BM | 66 | ARG |
| 34 | BM | 71 | LYS |
| 34 | BM | 86 | LYS |
| 34 | BM | 93 | VAL |
| 34 | BM | 96 | ILE |
| 34 | BM | 100 | LYS |
| 34 | BM | 105 | MET |
| 34 | BM | 109 | PRO |
| 34 | BM | 110 | GLU |
| 34 | BM | 117 | PHE |
| 34 | BM | 118 | LYS |
| 34 | BM | 130 | PHE |
| 34 | BM | 133 | LYS |
| 34 | BM | 135 | VAL |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 35 | BN | 1 | MET |
| 35 | BN | 9 | GLN |
| 35 | BN | 10 | LEU |
| 35 | BN | 13 | ASN |
| 35 | BN | 21 | PHE |
| 35 | BN | 33 | ILE |
| 35 | BN | 34 | ILE |
| 35 | BN | 35 | LYS |
| 35 | BN | 38 | LEU |
| 35 | BN | 45 | ARG |
| 35 | BN | 47 | VAL |
| 35 | BN | 57 | THR |
| 35 | BN | 75 | ILE |
| 35 | BN | 76 | VAL |
| 35 | BN | 94 | TYR |
| 35 | BN | 99 | LYS |
| 35 | BN | 102 | PHE |
| 35 | BN | 112 | TYR |
| 35 | BN | 120 | GLU |
| 36 | BO | 1 | MET |
| 36 | BO | 3 | LYS |
| 36 | BO | 7 | ARG |
| 36 | BO | 13 | ARG |
| 36 | BO | 15 | ARG |
| 36 | BO | 16 | ARG |
| 36 | BO | 25 | ARG |
| 36 | BO | 31 | THR |
| 36 | BO | 32 | PRO |
| 36 | BO | 35 | ILE |
| 36 | BO | 38 | GLN |
| 36 | BO | 40 | ILE |
| 36 | BO | 56 | LYS |
| 36 | BO | 62 | LEU |
| 36 | BO | 64 | TYR |
| 36 | BO | 69 | ASP |
| 36 | BO | 84 | GLU |
| 36 | BO | 85 | LYS |
| 36 | BO | 116 | GLN |
| 37 | BP | 2 | ASN |
| 37 | BP | 8 | GLU |
| 37 | BP | 15 | ASP |
| 37 | BP | 24 | THR |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 37 | BP | 30 | TRP |
| 37 | BP | 42 | PHE |
| 37 | BP | 47 | ILE |
| 37 | BP | 49 | ILE |
| 37 | BP | 50 | ARG |
| 37 | BP | 52 | ARG |
| 37 | BP | 54 | LEU |
| 37 | BP | 55 | HIS |
| 37 | BP | 60 | VAL |
| 37 | BP | 73 | PHE |
| 37 | BP | 74 | GLN |
| 37 | BP | 87 | ARG |
| 37 | BP | 88 | ARG |
| 37 | BP | 96 | LEU |
| 37 | BP | 108 | ARG |
| 37 | BP | 113 | LEU |
| 37 | BP | 114 | ASN |
| 38 | BQ | 3 | VAL |
| 38 | BQ | 5 | ARG |
| 38 | BQ | 12 | ARG |
| 38 | BQ | 36 | GLN |
| 38 | BQ | 38 | VAL |
| 38 | BQ | 39 | ILE |
| 38 | BQ | 55 | GLN |
| 38 | BQ | 63 | ARG |
| 38 | BQ | 65 | ASN |
| 38 | BQ | 71 | ASN |
| 38 | BQ | 80 | ASN |
| 38 | BQ | 84 | LYS |
| 38 | BQ | 92 | LYS |
| 38 | BQ | 94 | LEU |
| 38 | BQ | 101 | ASP |
| 38 | BQ | 102 | LYS |
| 38 | BQ | 108 | LEU |
| 39 | BR | 12 | HIS |
| 39 | BR | 13 | ARG |
| 39 | BR | 18 | GLN |
| 39 | BR | 20 | VAL |
| 39 | BR | 39 | LEU |
| 39 | BR | 40 | MET |
| 39 | BR | 62 | GLU |
| 39 | BR | 79 | ARG |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 39 | BR | 83 | TYR |
| 39 | BR | 89 | HIS |
| 39 | BR | 91 | GLN |
| 39 | BR | 93 | PHE |
| 40 | BS | 6 | LYS |
| 40 | BS | 8 | ARG |
| 40 | BS | 13 | SER |
| 40 | BS | 28 | LYS |
| 40 | BS | 60 | HIS |
| 40 | BS | 67 | ASP |
| 40 | BS | 90 | LYS |
| 40 | BS | 94 | ASP |
| 40 | BS | 95 | ARG |
| 40 | BS | 110 | ARG |
| 41 | BT | 1 | MET |
| 41 | BT | 3 | ARG |
| 41 | BT | 4 | GLU |
| 41 | BT | 6 | ARG |
| 41 | BT | 8 | LEU |
| 41 | BT | 10 | VAL |
| 41 | BT | 15 | HIS |
| 41 | BT | 24 | MET |
| 41 | BT | 26 | LYS |
| 41 | BT | 30 | ILE |
| 41 | BT | 31 | VAL |
| 41 | BT | 50 | LEU |
| 41 | BT | 61 | LEU |
| 41 | BT | 68 | LYS |
| 41 | BT | 69 | ARG |
| 41 | BT | 79 | ASP |
| 41 | BT | 85 | VAL |
| 41 | BT | 94 | ASP |
| 42 | BU | 3 | LYS |
| 42 | BU | 13 | LEU |
| 42 | BU | 25 | LYS |
| 42 | BU | 43 | LYS |
| 42 | BU | 52 | ASN |
| 42 | BU | 61 | GLU |
| 42 | BU | 64 | ILE |
| 42 | BU | 68 | ASN |
| 42 | BU | 71 | ILE |
| 42 | BU | 72 | PHE |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 42 | BU | 81 | ARG |
| 42 | BU | 85 | ARG |
| 42 | BU | 87 | GLU |
| 42 | BU | 90 | LYS |
| 42 | BU | 93 | ARG |
| 42 | BU | 95 | PHE |
| 42 | BU | 98 | ASN |
| 43 | BW | 2 | HIS |
| 43 | BW | 10 | ARG |
| 43 | BW | 18 | LYS |
| 43 | BW | 23 | LYS |
| 43 | BW | 40 | ARG |
| 43 | BW | 52 | CYS |
| 43 | BW | 54 | ARG |
| 43 | BW | 65 | LYS |
| 43 | BW | 69 | GLU |
| 43 | BW | 71 | LYS |
| 43 | BW | 75 | ASN |
| 43 | BW | 81 | ILE |
| 44 | BX | 1 | MET |
| 44 | BX | 2 | LYS |
| 44 | BX | 8 | GLU |
| 44 | BX | 12 | GLU |
| 44 | BX | 14 | LEU |
| 44 | BX | 15 | ASN |
| 44 | BX | 17 | GLU |
| 44 | BX | 18 | LEU |
| 44 | BX | 22 | LEU |
| 44 | BX | 24 | GLU |
| 44 | BX | 31 | GLN |
| 44 | BX | 38 | GLN |
| 44 | BX | 42 | LEU |
| 44 | BX | 43 | LEU |
| 44 | BX | 45 | GLN |
| 44 | BX | 50 | VAL |
| 44 | BX | 53 | VAL |
| 45 | BY | 6 | ILE |
| 45 | BY | 7 | THR |
| 45 | BY | 8 | GLN |
| 45 | BY | 9 | THR |
| 45 | BY | 10 | ARG |
| 45 | BY | 15 | ARG |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 45 | BY | 16 | LEU |
| 45 | BY | 17 | PRO |
| 45 | BY | 31 | ILE |
| 45 | BY | 37 | ARG |
| 45 | BY | 39 | ASP |
| 46 | BZ | 6 | HIS |
| 46 | BZ | 8 | LYS |
| 46 | BZ | 11 | GLU |
| 46 | BZ | 13 | THR |
| 46 | BZ | 18 | CYS |
| 46 | BZ | 25 | ARG |
| 46 | BZ | 32 | LEU |
| 46 | BZ | 33 | ASN |
| 46 | BZ | 35 | ASP |
| 46 | BZ | 40 | CYS |
| 46 | BZ | 41 | HIS |
| 46 | BZ | 44 | PHE |
| 46 | BZ | 49 | ARG |
| 46 | BZ | 58 | ASP |
| 46 | BZ | 65 | ASN |
| 46 | BZ | 70 | LYS |
| 47 | B0 | 3 | GLN |
| 47 | B0 | 4 | GLN |
| 47 | B0 | 5 | ASN |
| 47 | B0 | 6 | LYS |
| 47 | B0 | 8 | THR |
| 47 | B0 | 16 | ARG |
| 47 | B0 | 25 | THR |
| 47 | B0 | 27 | LEU |
| 47 | B0 | 29 | VAL |
| 47 | B0 | 32 | THR |
| 47 | B0 | 52 | LYS |
| 48 | B1 | 6 | GLU |
| 48 | B1 | 7 | LYS |
| 48 | B1 | 9 | LYS |
| 48 | B1 | 20 | TYR |
| 48 | B1 | 24 | LYS |
| 48 | B1 | 32 | LYS |
| 48 | B1 | 33 | LEU |
| 48 | B1 | 34 | GLU |
| 48 | B1 | 44 | GLN |
| 48 | B1 | 46 | VAL |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 48 | B1 | 49 | LYS |
| 48 | B1 | 52 | LYS |
| 48 | B1 | 53 | ILE |
| 49 | B2 | 12 | ARG |
| 49 | B2 | 18 | PHE |
| 49 | B2 | 19 | ARG |
| 49 | B2 | 21 | ARG |
| 49 | B2 | 25 | LYS |
| 49 | B2 | 28 | ARG |
| 49 | B2 | 29 | GLN |
| 49 | B2 | 33 | ARG |
| 49 | B2 | 46 | LYS |
| 50 | B3 | 4 | LYS |
| 50 | B3 | 6 | VAL |
| 50 | B3 | 12 | ARG |
| 50 | B3 | 21 | PHE |
| 50 | B3 | 25 | HIS |
| 50 | B3 | 28 | LEU |
| 50 | B3 | 29 | ARG |
| 50 | B3 | 37 | THR |
| 50 | B3 | 41 | ARG |
| 50 | B3 | 44 | ARG |
| 51 | B4 | 2 | LYS |
| 51 | B4 | 12 | ARG |
| 51 | B4 | 18 | LYS |
| 51 | B4 | 19 | ARG |
| 51 | B4 | 20 | ASP |
| 51 | B4 | 32 | LYS |
| 51 | B4 | 33 | HIS |
| 51 | B4 | 35 | GLN |
| 51 | B4 | 37 | GLN |
| 52 | BI | 63 | ASP |
| 52 | BI | 96 | LYS |
| 2 | CC | 2 | GLN |
| 2 | CC | 13 | ILE |
| 2 | CC | 19 | SER |
| 2 | CC | 25 | THR |
| 2 | CC | 28 | PHE |
| 2 | CC | 30 | ASP |
| 2 | CC | 40 | GLN |
| 2 | CC | 46 | LEU |
| 2 | CC | 87 | ARG |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2 | CC | 88 | LYS |
| 2 | CC | 96 | VAL |
| 2 | CC | 128 | MET |
| 2 | CC | 129 | PHE |
| 2 | CC | 134 | LYS |
| 2 | CC | 143 | LEU |
| 2 | CC | 164 | THR |
| 2 | CC | 165 | GLU |
| 2 | CC | 166 | TRP |
| 2 | CC | 168 | ARG |
| 2 | CC | 206 | ILE |
| 3 | CD | 2 | ARG |
| 3 | CD | 14 | GLU |
| 3 | CD | 25 | ARG |
| 3 | CD | 28 | ASP |
| 3 | CD | 30 | LYS |
| 3 | CD | 39 | GLN |
| 3 | CD | 46 | ARG |
| 3 | CD | 47 | LEU |
| 3 | CD | 49 | ASP |
| 3 | CD | 55 | ARG |
| 3 | CD | 58 | GLN |
| 3 | CD | 69 | ARG |
| 3 | CD | 71 | PHE |
| 3 | CD | 77 | GLU |
| 3 | CD | 84 | ASN |
| 3 | CD | 92 | LEU |
| 3 | CD | 93 | LEU |
| 3 | CD | 100 | VAL |
| 3 | CD | 106 | PHE |
| 3 | CD | 125 | ASN |
| 3 | CD | 127 | ARG |
| 3 | CD | 130 | ASN |
| 3 | CD | 146 | GLU |
| 3 | CD | 147 | LYS |
| 3 | CD | 154 | VAL |
| 3 | CD | 160 | LEU |
| 3 | CD | 170 | LEU |
| 3 | CD | 186 | GLU |
| 3 | CD | 199 | ILE |
| 4 | CE | 9 | GLU |
| 4 | CE | 11 | GLN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 4 | CE | 23 | THR |
| 4 | CE | 25 | LYS |
| 4 | CE | 30 | PHE |
| 4 | CE | 45 | VAL |
| 4 | CE | 55 | VAL |
| 4 | CE | 61 | LYS |
| 4 | CE | 72 | ASN |
| 4 | CE | 89 | THR |
| 4 | CE | 92 | ARG |
| 4 | CE | 95 | MET |
| 4 | CE | 104 | ILE |
| 4 | CE | 120 | HIS |
| 4 | CE | 133 | ILE |
| 4 | CE | 141 | ASP |
| 4 | CE | 144 | GLU |
| 4 | CE | 146 | MET |
| 4 | CE | 151 | MET |
| 5 | CF | 2 | ARG |
| 5 | CF | 3 | HIS |
| 5 | CF | 6 | ILE |
| 5 | CF | 13 | ASP |
| 5 | CF | 39 | LEU |
| 5 | CF | 54 | LEU |
| 5 | CF | 55 | HIS |
| 5 | CF | 59 | TYR |
| 5 | CF | 76 | THR |
| 5 | CF | 86 | ARG |
| 5 | CF | 91 | ARG |
| 6 | CG | 2 | ARG |
| 6 | CG | 8 | GLN |
| 6 | CG | 12 | LEU |
| 6 | CG | 46 | LEU |
| 6 | CG | 75 | LYS |
| 6 | CG | 78 | ARG |
| 6 | CG | 84 | TYR |
| 6 | CG | 89 | GLU |
| 6 | CG | 98 | LEU |
| 6 | CG | 108 | ARG |
| 6 | CG | 115 | MET |
| 6 | CG | 117 | LEU |
| 6 | CG | 128 | GLU |
| 6 | CG | 153 | TYR |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 7 | CH | 8 | ASP |
| 7 | CH | 37 | ASN |
| 7 | CH | 55 | LYS |
| 7 | CH | 57 | GLU |
| 7 | CH | 68 | LYS |
| 7 | CH | 72 | GLU |
| 7 | CH | 82 | LEU |
| 7 | CH | 88 | LYS |
| 7 | CH | 107 | LYS |
| 7 | CH | 123 | GLU |
| 7 | CH | 124 | ILE |
| 8 | CI | 19 | PHE |
| 8 | CI | 26 | LYS |
| 8 | CI | 27 | ILE |
| 8 | CI | 31 | GLN |
| 8 | CI | 37 | TYR |
| 8 | CI | 45 | MET |
| 8 | CI | 60 | LEU |
| 8 | CI | 61 | ASP |
| 8 | CI | 62 | LEU |
| 8 | CI | 83 | THR |
| 8 | CI | 87 | MET |
| 8 | CI | 109 | GLN |
| 8 | CI | 122 | ARG |
| 8 | CI | 126 | PHE |
| 9 | CJ | 32 | THR |
| 9 | CJ | 37 | ARG |
| 9 | CJ | 47 | GLU |
| 9 | CJ | 71 | LEU |
| 9 | CJ | 77 | VAL |
| 9 | CJ | 78 | GLU |
| 9 | CJ | 92 | LEU |
| 9 | CJ | 99 | GLN |
| 10 | CK | 28 | ASN |
| 10 | CK | 31 | VAL |
| 10 | CK | 34 | THR |
| 10 | CK | 75 | GLU |
| 10 | CK | 76 | TYR |
| 10 | CK | 78 | ILE |
| 10 | CK | 84 | MET |
| 10 | CK | 94 | SER |
| 10 | CK | 97 | ARG |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 10 | CK | 109 | ILE |
| 10 | CK | 118 | ASN |
| 11 | CL | 8 | ARG |
| 11 | CL | 14 | LYS |
| 11 | CL | 17 | LYS |
| 11 | CL | 26 | CYS |
| 11 | CL | 28 | GLN |
| 11 | CL | 34 | THR |
| 11 | CL | 40 | THR |
| 11 | CL | 49 | ARG |
| 11 | CL | 61 | GLU |
| 11 | CL | 69 | GLU |
| 11 | CL | 75 | GLU |
| 11 | CL | 88 | ASP |
| 11 | CL | 93 | ARG |
| 11 | CL | 107 | LYS |
| 11 | CL | 111 | GLN |
| 11 | CL | 120 | ARG |
| 11 | CL | 122 | LYS |
| 12 | CM | 2 | ARG |
| 12 | CM | 15 | VAL |
| 12 | CM | 40 | GLU |
| 12 | CM | 47 | LEU |
| 12 | CM | 49 | GLU |
| 12 | CM | 56 | ARG |
| 12 | CM | 67 | ASP |
| 12 | CM | 97 | ARG |
| 12 | CM | 102 | LYS |
| 12 | CM | 109 | LYS |
| 12 | CM | 112 | ARG |
| 13 | CN | 5 | MET |
| 13 | CN | 19 | TYR |
| 13 | CN | 72 | PHE |
| 13 | CN | 82 | LYS |
| 13 | CN | 89 | ARG |
| 13 | CN | 95 | LEU |
| 14 | CO | 4 | THR |
| 14 | CO | 39 | GLN |
| 14 | CO | 50 | HIS |
| 14 | CO | 56 | LEU |
| 14 | CO | 59 | VAL |
| 14 | CO | 63 | ARG |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 14 | CO | 69 | LEU |
| 14 | CO | 78 | THR |
| 14 | CO | 83 | ARG |
| 15 | CP | 5 | ARG |
| 15 | CP | 14 | ARG |
| 15 | CP | 28 | ARG |
| 15 | CP | 32 | PHE |
| 15 | CP | 40 | ASN |
| 15 | CP | 50 | THR |
| 15 | CP | 57 | ILE |
| 15 | CP | 67 | ILE |
| 16 | CQ | 5 | ARG |
| 16 | CQ | 29 | LYS |
| 16 | CQ | 39 | ARG |
| 16 | CQ | 60 | ILE |
| 16 | CQ | 66 | LEU |
| 16 | CQ | 73 | THR |
| 16 | CQ | 80 | LYS |
| 17 | CR | 23 | LYS |
| 17 | CR | 25 | ILE |
| 17 | CR | 38 | ILE |
| 17 | CR | 42 | ARG |
| 17 | CR | 47 | ARG |
| 17 | CR | 51 | GLN |
| 18 | CS | 5 | LYS |
| 18 | CS | 12 | LEU |
| 18 | CS | 13 | HIS |
| 18 | CS | 20 | LYS |
| 18 | CS | 26 | ASP |
| 18 | CS | 27 | LYS |
| 18 | CS | 28 | LYS |
| 18 | CS | 36 | ARG |
| 18 | CS | 47 | THR |
| 18 | CS | 52 | ASN |
| 18 | CS | 63 | ASP |
| 18 | CS | 64 | GLU |
| 18 | CS | 73 | PHE |
| 19 | CT | 9 | ARG |
| 19 | CT | 29 | THR |
| 19 | CT | 35 | TYR |
| 19 | CT | 51 | ASN |
| 19 | CT | 53 | MET |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 19 | CT | 63 | LYS |
| 19 | CT | 69 | ASN |
| 19 | CT | 70 | LYS |
| 19 | CT | 73 | ARG |
| 19 | CT | 77 | ASN |
| 20 | CB | 8 | MET |
| 20 | CB | 15 | PHE |
| 20 | CB | 22 | TRP |
| 20 | CB | 23 | ASN |
| 20 | CB | 35 | ASN |
| 20 | CB | 36 | LYS |
| 20 | CB | 37 | VAL |
| 20 | CB | 46 | VAL |
| 20 | CB | 53 | LEU |
| 20 | CB | 57 | ASN |
| 20 | CB | 62 | ARG |
| 20 | CB | 84 | LEU |
| 20 | CB | 94 | ARG |
| 20 | CB | 95 | TRP |
| 20 | CB | 116 | LEU |
| 20 | CB | 121 | GLN |
| 20 | CB | 127 | LYS |
| 20 | CB | 139 | GLU |
| 20 | CB | 143 | LEU |
| 20 | CB | 145 | ASN |
| 20 | CB | 176 | ASN |
| 20 | CB | 188 | THR |
| 20 | CB | 191 | ASP |
| 20 | CB | 202 | ASN |
| 20 | CB | 207 | ARG |
| 20 | CB | 213 | LEU |
| 20 | CB | 222 | GLU |
| 21 | CU | 7 | GLU |
| 21 | CU | 8 | ASN |
| 21 | CU | 17 | ARG |
| 21 | CU | 18 | PHE |
| 21 | CU | 20 | ARG |
| 21 | CU | 24 | LYS |
| 21 | CU | 33 | ARG |
| 21 | CU | 35 | GLU |
| 21 | CU | 36 | PHE |
| 21 | CU | 37 | TYR |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 21 | CU | 38 | GLU |
| 21 | CU | 42 | THR |
| 21 | CU | 48 | LYS |
| 24 | DV | 18 | ARG |
| 24 | DV | 48 | MET |
| 24 | DV | 51 | GLN |
| 24 | DV | 69 | GLU |
| 24 | DV | 70 | ILE |
| 24 | DV | 86 | LEU |
| 25 | DC | 12 | ARG |
| 25 | DC | 28 | PRO |
| 25 | DC | 29 | PHE |
| 25 | DC | 32 | LEU |
| 25 | DC | 33 | LEU |
| 25 | DC | 34 | GLU |
| 25 | DC | 38 | LYS |
| 25 | DC | 42 | ARG |
| 25 | DC | 47 | ARG |
| 25 | DC | 49 | THR |
| 25 | DC | 51 | ARG |
| 25 | DC | 57 | HIS |
| 25 | DC | 58 | LYS |
| 25 | DC | 61 | TYR |
| 25 | DC | 62 | ARG |
| 25 | DC | 69 | ASN |
| 25 | DC | 70 | LYS |
| 25 | DC | 85 | ASN |
| 25 | DC | 102 | TYR |
| 25 | DC | 104 | LEU |
| 25 | DC | 107 | LYS |
| 25 | DC | 109 | LEU |
| 25 | DC | 110 | LYS |
| 25 | DC | 125 | PRO |
| 25 | DC | 127 | ASN |
| 25 | DC | 129 | LEU |
| 25 | DC | 133 | ASN |
| 25 | DC | 141 | HIS |
| 25 | DC | 145 | MET |
| 25 | DC | 152 | GLN |
| 25 | DC | 155 | ARG |
| 25 | DC | 164 | VAL |
| 25 | DC | 171 | VAL |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 25 | DC | 172 | THR |
| 25 | DC | 180 | MET |
| 25 | DC | 194 | VAL |
| 25 | DC | 201 | LEU |
| 25 | DC | 203 | VAL |
| 25 | DC | 206 | LYS |
| 25 | DC | 211 | ARG |
| 25 | DC | 231 | HIS |
| 25 | DC | 235 | GLU |
| 25 | DC | 237 | ARG |
| 25 | DC | 246 | PRO |
| 25 | DC | 250 | GLN |
| 25 | DC | 251 | THR |
| 25 | DC | 254 | LYS |
| 25 | DC | 259 | ASN |
| 25 | DC | 265 | PHE |
| 26 | DD | 1 | MET |
| 26 | DD | 4 | LEU |
| 26 | DD | 9 | VAL |
| 26 | DD | 14 | ILE |
| 26 | DD | 15 | PHE |
| 26 | DD | 27 | ILE |
| 26 | DD | 33 | ARG |
| 26 | DD | 34 | VAL |
| 26 | DD | 36 | GLN |
| 26 | DD | 40 | LEU |
| 26 | DD | 45 | TYR |
| 26 | DD | 59 | ARG |
| 26 | DD | 60 | VAL |
| 26 | DD | 77 | ARG |
| 26 | DD | 79 | LEU |
| 26 | DD | 82 | PHE |
| 26 | DD | 92 | VAL |
| 26 | DD | 101 | PHE |
| 26 | DD | 104 | VAL |
| 26 | DD | 106 | LYS |
| 26 | DD | 114 | LYS |
| 26 | DD | 118 | PHE |
| 26 | DD | 121 | THR |
| 26 | DD | 124 | ARG |
| 26 | DD | 126 | ASN |
| 26 | DD | 127 | PHE |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 26 | DD | 128 | ARG |
| 26 | DD | 133 | THR |
| 26 | DD | 138 | LEU |
| 26 | DD | 139 | SER |
| 26 | DD | 142 | VAL |
| 26 | DD | 151 | THR |
| 26 | DD | 152 | PRO |
| 26 | DD | 176 | ASP |
| 26 | DD | 185 | ASN |
| 26 | DD | 188 | LEU |
| 26 | DD | 202 | ILE |
| 26 | DD | 208 | LYS |
| 27 | DE | 1 | MET |
| 27 | DE | 19 | PHE |
| 27 | DE | 24 | ASN |
| 27 | DE | 43 | THR |
| 27 | DE | 49 | ARG |
| 27 | DE | 84 | THR |
| 27 | DE | 99 | LYS |
| 27 | DE | 100 | MET |
| 27 | DE | 106 | LYS |
| 27 | DE | 109 | LEU |
| 27 | DE | 115 | GLN |
| 27 | DE | 117 | ARG |
| 27 | DE | 132 | LYS |
| 27 | DE | 133 | LEU |
| 27 | DE | 134 | LEU |
| 27 | DE | 137 | LYS |
| 27 | DE | 138 | LEU |
| 27 | DE | 143 | LEU |
| 27 | DE | 147 | LEU |
| 27 | DE | 148 | ILE |
| 27 | DE | 157 | LEU |
| 27 | DE | 158 | PHE |
| 27 | DE | 164 | LEU |
| 27 | DE | 167 | VAL |
| 27 | DE | 173 | THR |
| 27 | DE | 184 | ASP |
| 27 | DE | 185 | LYS |
| 27 | DE | 188 | MET |
| 28 | DF | 16 | MET |
| 28 | DF | 19 | PHE |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 28 | DF | 32 | LYS |
| 28 | DF | 45 | ASP |
| 28 | DF | 56 | LEU |
| 28 | DF | 59 | ILE |
| 28 | DF | 76 | PHE |
| 28 | DF | 86 | CYS |
| 28 | DF | 90 | LEU |
| 28 | DF | 93 | GLU |
| 28 | DF | 105 | ILE |
| 28 | DF | 107 | VAL |
| 28 | DF | 132 | ARG |
| 28 | DF | 133 | GLU |
| 28 | DF | 135 | ILE |
| 28 | DF | 141 | ASP |
| 28 | DF | 143 | ASP |
| 28 | DF | 149 | ARG |
| 28 | DF | 161 | SER |
| 28 | DF | 174 | PHE |
| 28 | DF | 176 | PHE |
| 28 | DF | 177 | ARG |
| 29 | DG | 2 | ARG |
| 29 | DG | 15 | ASP |
| 29 | DG | 16 | VAL |
| 29 | DG | 17 | LYS |
| 29 | DG | 29 | ASN |
| 29 | DG | 31 | GLU |
| 29 | DG | 35 | THR |
| 29 | DG | 43 | LYS |
| 29 | DG | 71 | LEU |
| 29 | DG | 72 | ASN |
| 29 | DG | 84 | LYS |
| 29 | DG | 85 | LYS |
| 29 | DG | 86 | LEU |
| 29 | DG | 94 | ARG |
| 29 | DG | 104 | LEU |
| 29 | DG | 113 | ASP |
| 29 | DG | 116 | LEU |
| 29 | DG | 121 | THR |
| 29 | DG | 151 | ARG |
| 29 | DG | 152 | ARG |
| 29 | DG | 154 | GLU |
| 29 | DG | 171 | LYS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 29 | DG | 174 | LYS |
| 30 | DH | 4 | ILE |
| 30 | DH | 7 | ASP |
| 30 | DH | 8 | LYS |
| 30 | DH | 11 | ASN |
| 30 | DH | 30 | LEU |
| 30 | DH | 38 | PRO |
| 30 | DH | 45 | GLU |
| 30 | DH | 50 | ARG |
| 30 | DH | 53 | GLU |
| 30 | DH | 57 | LYS |
| 30 | DH | 68 | ARG |
| 30 | DH | 70 | GLU |
| 30 | DH | 75 | LEU |
| 30 | DH | 96 | THR |
| 30 | DH | 97 | ARG |
| 30 | DH | 101 | ASP |
| 30 | DH | 112 | LYS |
| 30 | DH | 119 | ASN |
| 30 | DH | 124 | THR |
| 30 | DH | 129 | GLU |
| 30 | DH | 137 | GLU |
| 30 | DH | 141 | LYS |
| 31 | DJ | 1 | MET |
| 31 | DJ | 7 | LYS |
| 31 | DJ | 15 | TRP |
| 31 | DJ | 25 | LEU |
| 31 | DJ | 27 | ARG |
| 31 | DJ | 28 | LEU |
| 31 | DJ | 31 | GLU |
| 31 | DJ | 35 | ARG |
| 31 | DJ | 36 | LEU |
| 31 | DJ | 41 | LYS |
| 31 | DJ | 47 | HIS |
| 31 | DJ | 61 | LYS |
| 31 | DJ | 67 | ASN |
| 31 | DJ | 69 | ARG |
| 31 | DJ | 85 | LYS |
| 31 | DJ | 89 | PHE |
| 31 | DJ | 91 | GLU |
| 31 | DJ | 95 | ARG |
| 31 | DJ | 109 | LEU |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 31 | DJ | 118 | MET |
| 31 | DJ | 121 | LYS |
| 31 | DJ | 140 | LEU |
| 32 | DK | 2 | ILE |
| 32 | DK | 8 | LEU |
| 32 | DK | 10 | VAL |
| 32 | DK | 30 | ARG |
| 32 | DK | 32 | TYR |
| 32 | DK | 37 | ASP |
| 32 | DK | 58 | LEU |
| 32 | DK | 65 | THR |
| 32 | DK | 79 | PHE |
| 32 | DK | 98 | ARG |
| 32 | DK | 104 | THR |
| 32 | DK | 105 | ARG |
| 32 | DK | 120 | PRO |
| 33 | DL | 4 | ASN |
| 33 | DL | 14 | LYS |
| 33 | DL | 19 | LEU |
| 33 | DL | 21 | ARG |
| 33 | DL | 25 | SER |
| 33 | DL | 38 | GLN |
| 33 | DL | 39 | LYS |
| 33 | DL | 46 | VAL |
| 33 | DL | 48 | ARG |
| 33 | DL | 54 | GLN |
| 33 | DL | 55 | MET |
| 33 | DL | 60 | ARG |
| 33 | DL | 69 | ARG |
| 33 | DL | 77 | ILE |
| 33 | DL | 92 | LEU |
| 33 | DL | 96 | LYS |
| 33 | DL | 104 | GLN |
| 33 | DL | 106 | GLU |
| 33 | DL | 107 | PHE |
| 33 | DL | 115 | GLU |
| 33 | DL | 119 | PRO |
| 33 | DL | 125 | LEU |
| 33 | DL | 128 | THR |
| 33 | DL | 135 | ILE |
| 33 | DL | 136 | GLU |
| 34 | DM | 1 | MET |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 34 | DM | 5 | LYS |
| 34 | DM | 6 | ARG |
| 34 | DM | 9 | PHE |
| 34 | DM | 14 | LYS |
| 34 | DM | 16 | ARG |
| 34 | DM | 18 | ARG |
| 34 | DM | 22 | GLN |
| 34 | DM | 26 | VAL |
| 34 | DM | 28 | PHE |
| 34 | DM | 33 | LEU |
| 34 | DM | 38 | ARG |
| 34 | DM | 42 | THR |
| 34 | DM | 54 | THR |
| 34 | DM | 71 | LYS |
| 34 | DM | 72 | PRO |
| 34 | DM | 76 | LYS |
| 34 | DM | 80 | VAL |
| 34 | DM | 81 | ARG |
| 34 | DM | 84 | LYS |
| 34 | DM | 88 | ASN |
| 34 | DM | 90 | GLU |
| 34 | DM | 91 | TYR |
| 34 | DM | 96 | ILE |
| 34 | DM | 97 | GLN |
| 34 | DM | 100 | LYS |
| 34 | DM | 105 | MET |
| 34 | DM | 106 | ASP |
| 34 | DM | 111 | GLU |
| 34 | DM | 115 | GLU |
| 34 | DM | 118 | LYS |
| 34 | DM | 123 | LYS |
| 34 | DM | 124 | LEU |
| 34 | DM | 127 | LYS |
| 35 | DN | 4 | ARG |
| 35 | DN | 5 | LYS |
| 35 | DN | 12 | ARG |
| 35 | DN | 18 | GLN |
| 35 | DN | 36 | THR |
| 35 | DN | 42 | LYS |
| 35 | DN | 49 | GLU |
| 35 | DN | 70 | THR |
| 35 | DN | 71 | ARG |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 35 | DN | 79 | LEU |
| 35 | DN | 81 | ASN |
| 35 | DN | 87 | PHE |
| 35 | DN | 94 | TYR |
| 35 | DN | 96 | ARG |
| 35 | DN | 117 | ASP |
| 35 | DN | 121 | LYS |
| 36 | DO | 12 | THR |
| 36 | DO | 18 | LEU |
| 36 | DO | 21 | LEU |
| 36 | DO | 27 | VAL |
| 36 | DO | 30 | ARG |
| 36 | DO | 40 | ILE |
| 36 | DO | 64 | TYR |
| 36 | DO | 65 | THR |
| 36 | DO | 84 | GLU |
| 36 | DO | 87 | ILE |
| 36 | DO | 97 | PHE |
| 36 | DO | 98 | GLN |
| 36 | DO | 100 | HIS |
| 36 | DO | 116 | GLN |
| 37 | DP | 5 | LYS |
| 37 | DP | 8 | GLU |
| 37 | DP | 10 | GLU |
| 37 | DP | 18 | SER |
| 37 | DP | 19 | PHE |
| 37 | DP | 23 | ASP |
| 37 | DP | 24 | THR |
| 37 | DP | 27 | VAL |
| 37 | DP | 50 | ARG |
| 37 | DP | 52 | ARG |
| 37 | DP | 54 | LEU |
| 37 | DP | 60 | VAL |
| 37 | DP | 61 | ARG |
| 37 | DP | 71 | ARG |
| 37 | DP | 73 | PHE |
| 37 | DP | 76 | HIS |
| 37 | DP | 80 | VAL |
| 37 | DP | 81 | ASP |
| 37 | DP | 84 | SER |
| 37 | DP | 87 | ARG |
| 37 | DP | 100 | ARG |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 37 | DP | 101 | GLU |
| 37 | DP | 108 | ARG |
| 37 | DP | 109 | ILE |
| 37 | DP | 111 | GLU |
| 37 | DP | 112 | ARG |
| 37 | DP | 113 | LEU |
| 38 | DQ | 4 | LYS |
| 38 | DQ | 13 | HIS |
| 38 | DQ | 17 | LEU |
| 38 | DQ | 35 | PHE |
| 38 | DQ | 36 | GLN |
| 38 | DQ | 39 | ILE |
| 38 | DQ | 40 | LYS |
| 38 | DQ | 52 | ARG |
| 38 | DQ | 53 | LYS |
| 38 | DQ | 58 | GLN |
| 38 | DQ | 63 | ARG |
| 38 | DQ | 70 | GLN |
| 38 | DQ | 78 | PHE |
| 38 | DQ | 84 | LYS |
| 38 | DQ | 90 | ASP |
| 38 | DQ | 91 | ARG |
| 38 | DQ | 93 | ILE |
| 38 | DQ | 100 | PHE |
| 38 | DQ | 103 | VAL |
| 39 | DR | 4 | VAL |
| 39 | DR | 6 | GLN |
| 39 | DR | 7 | SER |
| 39 | DR | 14 | VAL |
| 39 | DR | 18 | GLN |
| 39 | DR | 22 | LEU |
| 39 | DR | 23 | GLU |
| 39 | DR | 26 | ASP |
| 39 | DR | 32 | THR |
| 39 | DR | 43 | ASN |
| 39 | DR | 62 | GLU |
| 39 | DR | 75 | VAL |
| 39 | DR | 84 | ARG |
| 39 | DR | 85 | LYS |
| 39 | DR | 91 | GLN |
| 39 | DR | 99 | THR |
| 39 | DR | 102 | SER |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 40 | DS | 7 | HIS |
| 40 | DS | 11 | ARG |
| 40 | DS | 23 | LEU |
| 40 | DS | 24 | ILE |
| 40 | DS | 25 | ARG |
| 40 | DS | 27 | LYS |
| 40 | DS | 42 | LYS |
| 40 | DS | 46 | LEU |
| 40 | DS | 73 | LYS |
| 40 | DS | 82 | MET |
| 40 | DS | 83 | LYS |
| 40 | DS | 85 | ILE |
| 40 | DS | 107 | VAL |
| 41 | DT | 5 | GLU |
| 41 | DT | 6 | ARG |
| 41 | DT | 11 | LEU |
| 41 | DT | 18 | GLU |
| 41 | DT | 22 | THR |
| 41 | DT | 24 | MET |
| 41 | DT | 33 | LYS |
| 41 | DT | 51 | PHE |
| 41 | DT | 64 | LYS |
| 41 | DT | 66 | LYS |
| 41 | DT | 73 | ARG |
| 41 | DT | 76 | ARG |
| 41 | DT | 88 | LYS |
| 42 | DU | 4 | ILE |
| 42 | DU | 8 | ASP |
| 42 | DU | 13 | LEU |
| 42 | DU | 27 | VAL |
| 42 | DU | 28 | LEU |
| 42 | DU | 40 | LEU |
| 42 | DU | 52 | ASN |
| 42 | DU | 57 | ILE |
| 42 | DU | 60 | LYS |
| 42 | DU | 65 | GLN |
| 42 | DU | 71 | ILE |
| 42 | DU | 73 | ASN |
| 42 | DU | 85 | ARG |
| 42 | DU | 88 | ASP |
| 42 | DU | 90 | LYS |
| 42 | DU | 92 | VAL |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 42 | DU | 94 | PHE |
| 42 | DU | 96 | LYS |
| 43 | DW | 2 | HIS |
| 43 | DW | 3 | LYS |
| 43 | DW | 10 | ARG |
| 43 | DW | 13 | ARG |
| 43 | DW | 18 | LYS |
| 43 | DW | 19 | ARG |
| 43 | DW | 20 | LEU |
| 43 | DW | 25 | PHE |
| 43 | DW | 37 | VAL |
| 43 | DW | 40 | ARG |
| 43 | DW | 75 | ASN |
| 44 | DX | 8 | GLU |
| 44 | DX | 17 | GLU |
| 44 | DX | 18 | LEU |
| 44 | DX | 25 | GLN |
| 44 | DX | 28 | LEU |
| 44 | DX | 30 | MET |
| 44 | DX | 31 | GLN |
| 44 | DX | 36 | GLN |
| 44 | DX | 39 | GLN |
| 44 | DX | 47 | ARG |
| 45 | DY | 5 | LYS |
| 45 | DY | 10 | ARG |
| 45 | DY | 13 | ILE |
| 45 | DY | 23 | LEU |
| 45 | DY | 26 | LEU |
| 45 | DY | 35 | VAL |
| 45 | DY | 37 | ARG |
| 45 | DY | 40 | THR |
| 45 | DY | 43 | ILE |
| 45 | DY | 44 | ARG |
| 45 | DY | 53 | MET |
| 45 | DY | 57 | GLU |
| 46 | DZ | 10 | GLU |
| 46 | DZ | 20 | ASN |
| 46 | DZ | 24 | ILE |
| 46 | DZ | 28 | VAL |
| 46 | DZ | 31 | ASP |
| 46 | DZ | 34 | LEU |
| 46 | DZ | 50 | ASP |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 46 | DZ | 64 | PHE |
| 47 | D0 | 2 | VAL |
| 47 | D0 | 5 | ASN |
| 47 | D0 | 12 | ARG |
| 47 | D0 | 15 | ARG |
| 47 | D0 | 19 | ASP |
| 47 | D0 | 21 | LEU |
| 47 | D0 | 22 | THR |
| 47 | D0 | 51 | ARG |
| 47 | D0 | 53 | VAL |
| 48 | D1 | 8 | ILE |
| 48 | D1 | 18 | HIS |
| 48 | D1 | 19 | PHE |
| 48 | D1 | 22 | THR |
| 48 | D1 | 24 | LYS |
| 48 | D1 | 26 | LYS |
| 48 | D1 | 27 | ARG |
| 48 | D1 | 35 | LEU |
| 48 | D1 | 44 | GLN |
| 48 | D1 | 49 | LYS |
| 49 | D2 | 10 | LEU |
| 49 | D2 | 18 | PHE |
| 49 | D2 | 19 | ARG |
| 49 | D2 | 25 | LYS |
| 49 | D2 | 28 | ARG |
| 49 | D2 | 34 | ARG |
| 49 | D2 | 39 | ARG |
| 49 | D2 | 44 | VAL |
| 49 | D2 | 46 | LYS |
| 50 | D3 | 6 | VAL |
| 50 | D3 | 7 | ARG |
| 50 | D3 | 24 | LYS |
| 50 | D3 | 29 | ARG |
| 50 | D3 | 32 | LEU |
| 50 | D3 | 34 | LYS |
| 50 | D3 | 35 | LYS |
| 50 | D3 | 51 | LYS |
| 50 | D3 | 53 | ASP |
| 50 | D3 | 54 | LEU |
| 50 | D3 | 61 | LEU |
| 50 | D3 | 63 | TYR |
| 51 | D4 | 1 | MET |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 51 | D4 | 2 | LYS |
| 51 | D4 | 9 | LYS |
| 51 | D4 | 17 | VAL |
| 51 | D4 | 18 | LYS |
| 51 | D4 | 19 | ARG |
| 51 | D4 | 20 | ASP |
| 51 | D4 | 23 | ILE |
| 51 | D4 | 24 | ARG |
| 51 | D4 | 26 | ILE |
| 51 | D4 | 30 | GLU |
| 51 | D4 | 31 | PRO |
| 51 | D4 | 32 | LYS |
| 51 | D4 | 35 | GLN |
| 51 | D4 | 36 | ARG |
| 52 | DI | 2 | LYS |
| 52 | DI | 54 | ILE |
| 52 | DI | 99 | LYS |
| 52 | DI | 121 | ILE |

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (329) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2 | AC | 2 | GLN |
| 2 | AC | 5 | HIS |
| 2 | AC | 40 | GLN |
| 2 | AC | 122 | GLN |
| 2 | AC | 139 | ASN |
| 2 | AC | 184 | ASN |
| 3 | AD | 73 | ASN |
| 3 | AD | 84 | ASN |
| 3 | AD | 88 | ASN |
| 3 | AD | 135 | GLN |
| 3 | AD | 195 | ASN |
| 4 | AE | 69 | ASN |
| 4 | AE | 72 | ASN |
| 4 | AE | 96 | GLN |
| 4 | AE | 120 | HIS |
| 4 | AE | 121 | ASN |
| 4 | AE | 131 | ASN |
| 5 | AF | 14 | GLN |
| 5 | AF | 17 | GLN |
| 5 | AF | 46 | GLN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 5 | AF | 58 | HIS |
| 6 | AG | 67 | ASN |
| 6 | AG | 85 | GLN |
| 6 | AG | 121 | ASN |
| 6 | AG | 147 | ASN |
| 7 | AH | 3 | GLN |
| 8 | AI | 4 | GLN |
| 8 | AI | 24 | ASN |
| 8 | AI | 30 | ASN |
| 8 | AI | 31 | GLN |
| 8 | AI | 36 | GLN |
| 8 | AI | 49 | GLN |
| 8 | AI | 109 | GLN |
| 9 | AJ | 15 | HIS |
| 9 | AJ | 20 | GLN |
| 9 | AJ | 99 | GLN |
| 10 | AK | 37 | GLN |
| 10 | AK | 118 | ASN |
| 11 | AL | 28 | GLN |
| 11 | AL | 58 | ASN |
| 11 | AL | 72 | ASN |
| 13 | AN | 59 | GLN |
| 13 | AN | 61 | ASN |
| 13 | AN | 65 | GLN |
| 14 | AO | 27 | GLN |
| 14 | AO | 34 | GLN |
| 14 | AO | 36 | ASN |
| 14 | AO | 39 | GLN |
| 15 | AP | 9 | HIS |
| 15 | AP | 18 | GLN |
| 15 | AP | 29 | ASN |
| 15 | AP | 63 | GLN |
| 17 | AR | 53 | GLN |
| 18 | AS | 55 | GLN |
| 19 | AT | 12 | GLN |
| 19 | AT | 20 | ASN |
| 19 | AT | 54 | GLN |
| 19 | AT | 60 | GLN |
| 20 | AB | 17 | HIS |
| 20 | AB | 23 | ASN |
| 20 | AB | 35 | ASN |
| 20 | AB | 41 | ASN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 20 | AB | 108 | GLN |
| 20 | AB | 119 | GLN |
| 20 | AB | 121 | GLN |
| 20 | AB | 145 | ASN |
| 20 | AB | 167 | HIS |
| 20 | AB | 202 | ASN |
| 24 | BV | 49 | ASN |
| 24 | BV | 51 | GLN |
| 24 | BV | 80 | HIS |
| 24 | BV | 88 | HIS |
| 25 | BC | 14 | HIS |
| 25 | BC | 36 | ASN |
| 25 | BC | 52 | HIS |
| 25 | BC | 127 | ASN |
| 25 | BC | 133 | ASN |
| 25 | BC | 162 | GLN |
| 25 | BC | 225 | ASN |
| 25 | BC | 238 | ASN |
| 25 | BC | 250 | GLN |
| 26 | BD | 32 | ASN |
| 26 | BD | 134 | HIS |
| 26 | BD | 148 | GLN |
| 26 | BD | 150 | GLN |
| 26 | BD | 164 | GLN |
| 26 | BD | 167 | ASN |
| 26 | BD | 173 | GLN |
| 26 | BD | 185 | ASN |
| 27 | BE | 156 | ASN |
| 27 | BE | 195 | GLN |
| 28 | BF | 26 | GLN |
| 28 | BF | 36 | ASN |
| 28 | BF | 126 | ASN |
| 29 | BG | 19 | ASN |
| 29 | BG | 21 | GLN |
| 29 | BG | 29 | ASN |
| 29 | BG | 37 | ASN |
| 29 | BG | 63 | GLN |
| 29 | BG | 138 | GLN |
| 30 | BH | 2 | GLN |
| 30 | BH | 11 | ASN |
| 30 | BH | 43 | ASN |
| 30 | BH | 73 | ASN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 31 | BJ | 80 | HIS |
| 31 | BJ | 131 | ASN |
| 31 | BJ | 135 | GLN |
| 31 | BJ | 136 | GLN |
| 32 | BK | 3 | GLN |
| 32 | BK | 5 | GLN |
| 33 | BL | 38 | GLN |
| 33 | BL | 99 | ASN |
| 34 | BM | 17 | ASN |
| 34 | BM | 45 | GLN |
| 34 | BM | 97 | GLN |
| 35 | BN | 9 | GLN |
| 35 | BN | 73 | ASN |
| 35 | BN | 81 | ASN |
| 35 | BN | 107 | ASN |
| 36 | BO | 19 | GLN |
| 36 | BO | 38 | GLN |
| 36 | BO | 67 | ASN |
| 36 | BO | 98 | GLN |
| 36 | BO | 104 | GLN |
| 37 | BP | 2 | ASN |
| 37 | BP | 6 | GLN |
| 37 | BP | 11 | GLN |
| 37 | BP | 40 | GLN |
| 37 | BP | 114 | ASN |
| 38 | BQ | 36 | GLN |
| 38 | BQ | 43 | GLN |
| 38 | BQ | 51 | GLN |
| 38 | BQ | 55 | GLN |
| 38 | BQ | 58 | GLN |
| 38 | BQ | 71 | ASN |
| 38 | BQ | 80 | ASN |
| 39 | BR | 11 | GLN |
| 40 | BS | 7 | HIS |
| 40 | BS | 9 | HIS |
| 40 | BS | 57 | ASN |
| 40 | BS | 61 | ASN |
| 41 | BT | 28 | ASN |
| 41 | BT | 48 | GLN |
| 41 | BT | 91 | GLN |
| 42 | BU | 39 | ASN |
| 42 | BU | 65 | GLN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 42 | BU | 68 | ASN |
| 43 | BW | 49 | ASN |
| 43 | BW | 56 | HIS |
| 44 | BX | 38 | GLN |
| 44 | BX | 41 | HIS |
| 44 | BX | 45 | GLN |
| 45 | BY | 8 | GLN |
| 45 | BY | 19 | HIS |
| 46 | BZ | 41 | HIS |
| 46 | BZ | 65 | ASN |
| 47 | B0 | 3 | GLN |
| 47 | B0 | 4 | GLN |
| 47 | B0 | 5 | ASN |
| 48 | B1 | 25 | ASN |
| 48 | B1 | 45 | HIS |
| 50 | B3 | 23 | HIS |
| 51 | B4 | 13 | ASN |
| 51 | B4 | 35 | GLN |
| 52 | BI | 11 | GLN |
| 52 | BI | 29 | GLN |
| 52 | BI | 93 | ASN |
| 2 | CC | 2 | GLN |
| 2 | CC | 31 | ASN |
| 2 | CC | 68 | HIS |
| 2 | CC | 184 | ASN |
| 2 | CC | 189 | HIS |
| 3 | CD | 39 | GLN |
| 3 | CD | 53 | GLN |
| 3 | CD | 58 | GLN |
| 3 | CD | 99 | ASN |
| 3 | CD | 115 | GLN |
| 3 | CD | 119 | HIS |
| 3 | CD | 130 | ASN |
| 3 | CD | 151 | GLN |
| 3 | CD | 163 | GLN |
| 3 | CD | 195 | ASN |
| 4 | CE | 42 | ASN |
| 4 | CE | 72 | ASN |
| 4 | CE | 131 | ASN |
| 4 | CE | 145 | ASN |
| 5 | CF | 17 | GLN |
| 5 | CF | 46 | GLN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 5 | CF | 63 | ASN |
| 6 | CG | 8 | GLN |
| 6 | CG | 27 | ASN |
| 6 | CG | 67 | ASN |
| 6 | CG | 121 | ASN |
| 7 | CH | 3 | GLN |
| 7 | CH | 37 | ASN |
| 7 | CH | 75 | GLN |
| 7 | CH | 117 | GLN |
| 8 | CI | 74 | GLN |
| 8 | CI | 80 | HIS |
| 8 | CI | 109 | GLN |
| 8 | CI | 125 | GLN |
| 9 | CJ | 99 | GLN |
| 10 | CK | 28 | ASN |
| 10 | CK | 37 | GLN |
| 10 | CK | 63 | GLN |
| 10 | CK | 108 | ASN |
| 10 | CK | 118 | ASN |
| 11 | CL | 28 | GLN |
| 11 | CL | 45 | ASN |
| 11 | CL | 58 | ASN |
| 11 | CL | 71 | HIS |
| 12 | CM | 7 | ASN |
| 13 | CN | 34 | ASN |
| 13 | CN | 59 | GLN |
| 13 | CN | 61 | ASN |
| 14 | CO | 36 | ASN |
| 15 | CP | 26 | ASN |
| 15 | CP | 40 | ASN |
| 15 | CP | 63 | GLN |
| 16 | CQ | 8 | GLN |
| 17 | CR | 51 | GLN |
| 17 | CR | 53 | GLN |
| 18 | CS | 42 | ASN |
| 18 | CS | 52 | ASN |
| 18 | CS | 55 | GLN |
| 19 | CT | 2 | ASN |
| 19 | CT | 69 | ASN |
| 19 | CT | 83 | ASN |
| 20 | CB | 23 | ASN |
| 20 | CB | 50 | ASN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 20 | CB | 57 | ASN |
| 20 | CB | 108 | GLN |
| 20 | CB | 119 | GLN |
| 20 | CB | 121 | GLN |
| 20 | CB | 145 | ASN |
| 20 | CB | 202 | ASN |
| 24 | DV | 51 | GLN |
| 24 | DV | 78 | GLN |
| 24 | DV | 87 | GLN |
| 25 | DC | 45 | ASN |
| 25 | DC | 59 | GLN |
| 25 | DC | 116 | GLN |
| 25 | DC | 127 | ASN |
| 25 | DC | 133 | ASN |
| 25 | DC | 141 | HIS |
| 25 | DC | 162 | GLN |
| 25 | DC | 196 | ASN |
| 25 | DC | 199 | HIS |
| 25 | DC | 225 | ASN |
| 25 | DC | 238 | ASN |
| 26 | DD | 32 | ASN |
| 26 | DD | 36 | GLN |
| 26 | DD | 94 | GLN |
| 26 | DD | 164 | GLN |
| 26 | DD | 173 | GLN |
| 27 | DE | 24 | ASN |
| 27 | DE | 30 | GLN |
| 27 | DE | 94 | GLN |
| 27 | DE | 115 | GLN |
| 28 | DF | 36 | ASN |
| 28 | DF | 62 | GLN |
| 28 | DF | 80 | GLN |
| 28 | DF | 134 | GLN |
| 29 | DG | 29 | ASN |
| 29 | DG | 37 | ASN |
| 29 | DG | 87 | GLN |
| 29 | DG | 100 | ASN |
| 29 | DG | 138 | GLN |
| 30 | DH | 20 | ASN |
| 30 | DH | 43 | ASN |
| 30 | DH | 133 | GLN |
| 31 | DJ | 40 | HIS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 31 | DJ | 86 | GLN |
| 31 | DJ | 135 | GLN |
| 32 | DK | 3 | GLN |
| 33 | DL | 38 | GLN |
| 33 | DL | 104 | GLN |
| 34 | DM | 3 | GLN |
| 34 | DM | 17 | ASN |
| 34 | DM | 45 | GLN |
| 34 | DM | 88 | ASN |
| 34 | DM | 97 | GLN |
| 35 | DN | 3 | HIS |
| 35 | DN | 9 | GLN |
| 35 | DN | 11 | ASN |
| 35 | DN | 16 | HIS |
| 35 | DN | 18 | GLN |
| 35 | DN | 73 | ASN |
| 35 | DN | 107 | ASN |
| 36 | DO | 19 | GLN |
| 36 | DO | 67 | ASN |
| 36 | DO | 104 | GLN |
| 37 | DP | 9 | GLN |
| 37 | DP | 11 | GLN |
| 37 | DP | 55 | HIS |
| 37 | DP | 74 | GLN |
| 38 | DQ | 43 | GLN |
| 38 | DQ | 51 | GLN |
| 38 | DQ | 58 | GLN |
| 38 | DQ | 71 | ASN |
| 38 | DQ | 80 | ASN |
| 39 | DR | 6 | GLN |
| 39 | DR | 43 | ASN |
| 39 | DR | 86 | GLN |
| 40 | DS | 15 | GLN |
| 40 | DS | 31 | GLN |
| 40 | DS | 40 | ASN |
| 40 | DS | 57 | ASN |
| 41 | DT | 48 | GLN |
| 42 | DU | 53 | GLN |
| 42 | DU | 65 | GLN |
| 42 | DU | 68 | ASN |
| 43 | DW | 2 | HIS |
| 43 | DW | 39 | GLN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 43 | DW | 45 | HIS |
| 43 | DW | 56 | HIS |
| 44 | DX | 31 | GLN |
| 44 | DX | 45 | GLN |
| 44 | DX | 58 | ASN |
| 45 | DY | 48 | ASN |
| 46 | DZ | 6 | HIS |
| 46 | DZ | 65 | ASN |
| 47 | D0 | 4 | GLN |
| 48 | D1 | 44 | GLN |
| 48 | D1 | 45 | HIS |
| 49 | D2 | 29 | GLN |
| 52 | DI | 5 | GLN |
| 52 | DI | 33 | ASN |
| 52 | DI | 93 | ASN |

5.3.3 RNA ⓘ

| Mol | Chain | Analysed | Backbone Outliers | Pucker Outliers |
|-----|-------|-----------------|-------------------|-----------------|
| 1 | AA | 1529/1542 (99%) | 255 (16%) | 24 (1%) |
| 1 | CA | 1529/1542 (99%) | 232 (15%) | 24 (1%) |
| 22 | BA | 116/120 (96%) | 23 (19%) | 0 |
| 22 | DA | 116/120 (96%) | 22 (18%) | 0 |
| 23 | BB | 2837/2904 (97%) | 424 (14%) | 13 (0%) |
| 23 | DB | 2837/2904 (97%) | 438 (15%) | 18 (0%) |
| All | All | 8964/9132 (98%) | 1394 (15%) | 79 (0%) |

All (1394) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | AA | 7 | A |
| 1 | AA | 9 | G |
| 1 | AA | 14 | U |
| 1 | AA | 32 | A |
| 1 | AA | 39 | G |
| 1 | AA | 47 | C |
| 1 | AA | 48 | C |
| 1 | AA | 51 | A |
| 1 | AA | 52 | C |
| 1 | AA | 55 | A |
| 1 | AA | 61 | G |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | AA | 66 | A |
| 1 | AA | 71 | A |
| 1 | AA | 72 | A |
| 1 | AA | 75 | G |
| 1 | AA | 78 | A |
| 1 | AA | 83 | C |
| 1 | AA | 85 | U |
| 1 | AA | 86 | G |
| 1 | AA | 87 | C |
| 1 | AA | 88 | U |
| 1 | AA | 89 | U |
| 1 | AA | 95 | C |
| 1 | AA | 108 | G |
| 1 | AA | 121 | U |
| 1 | AA | 122 | G |
| 1 | AA | 131 | A |
| 1 | AA | 151 | A |
| 1 | AA | 182 | A |
| 1 | AA | 197 | A |
| 1 | AA | 209 | U |
| 1 | AA | 210 | C |
| 1 | AA | 226 | G |
| 1 | AA | 239 | U |
| 1 | AA | 240 | G |
| 1 | AA | 243 | A |
| 1 | AA | 244 | U |
| 1 | AA | 245 | U |
| 1 | AA | 247 | G |
| 1 | AA | 250 | A |
| 1 | AA | 251 | G |
| 1 | AA | 257 | G |
| 1 | AA | 258 | G |
| 1 | AA | 266 | G |
| 1 | AA | 267 | C |
| 1 | AA | 280 | C |
| 1 | AA | 289 | G |
| 1 | AA | 316 | C |
| 1 | AA | 328 | C |
| 1 | AA | 329 | A |
| 1 | AA | 330 | C |
| 1 | AA | 332 | G |
| 1 | AA | 345 | C |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | AA | 351 | G |
| 1 | AA | 352 | C |
| 1 | AA | 354 | G |
| 1 | AA | 367 | U |
| 1 | AA | 372 | C |
| 1 | AA | 373 | A |
| 1 | AA | 381 | C |
| 1 | AA | 382 | A |
| 1 | AA | 397 | A |
| 1 | AA | 398 | U |
| 1 | AA | 406 | G |
| 1 | AA | 408 | A |
| 1 | AA | 409 | U |
| 1 | AA | 411 | A |
| 1 | AA | 412 | A |
| 1 | AA | 414 | A |
| 1 | AA | 415 | A |
| 1 | AA | 421 | U |
| 1 | AA | 422 | C |
| 1 | AA | 424 | G |
| 1 | AA | 429 | U |
| 1 | AA | 430 | A |
| 1 | AA | 435 | A |
| 1 | AA | 438 | U |
| 1 | AA | 461 | A |
| 1 | AA | 462 | G |
| 1 | AA | 463 | U |
| 1 | AA | 464 | U |
| 1 | AA | 465 | A |
| 1 | AA | 466 | A |
| 1 | AA | 467 | U |
| 1 | AA | 468 | A |
| 1 | AA | 469 | C |
| 1 | AA | 479 | U |
| 1 | AA | 481 | G |
| 1 | AA | 484 | G |
| 1 | AA | 485 | U |
| 1 | AA | 493 | A |
| 1 | AA | 518 | C |
| 1 | AA | 522 | C |
| 1 | AA | 527 | G |
| 1 | AA | 531 | U |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | AA | 532 | A |
| 1 | AA | 547 | A |
| 1 | AA | 559 | A |
| 1 | AA | 562 | U |
| 1 | AA | 564 | C |
| 1 | AA | 572 | A |
| 1 | AA | 573 | A |
| 1 | AA | 576 | C |
| 1 | AA | 577 | G |
| 1 | AA | 639 | G |
| 1 | AA | 650 | G |
| 1 | AA | 653 | U |
| 1 | AA | 665 | A |
| 1 | AA | 687 | A |
| 1 | AA | 700 | G |
| 1 | AA | 721 | G |
| 1 | AA | 724 | G |
| 1 | AA | 731 | G |
| 1 | AA | 733 | G |
| 1 | AA | 747 | A |
| 1 | AA | 748 | G |
| 1 | AA | 755 | G |
| 1 | AA | 777 | A |
| 1 | AA | 781 | A |
| 1 | AA | 782 | A |
| 1 | AA | 793 | U |
| 1 | AA | 794 | A |
| 1 | AA | 812 | G |
| 1 | AA | 815 | A |
| 1 | AA | 817 | C |
| 1 | AA | 818 | G |
| 1 | AA | 819 | A |
| 1 | AA | 828 | U |
| 1 | AA | 829 | G |
| 1 | AA | 841 | C |
| 1 | AA | 842 | U |
| 1 | AA | 843 | U |
| 1 | AA | 844 | G |
| 1 | AA | 845 | A |
| 1 | AA | 846 | G |
| 1 | AA | 902 | G |
| 1 | AA | 914 | A |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | AA | 926 | G |
| 1 | AA | 927 | G |
| 1 | AA | 931 | C |
| 1 | AA | 934 | C |
| 1 | AA | 935 | A |
| 1 | AA | 960 | U |
| 1 | AA | 961 | U |
| 1 | AA | 966 | G |
| 1 | AA | 968 | A |
| 1 | AA | 969 | A |
| 1 | AA | 971 | G |
| 1 | AA | 974 | A |
| 1 | AA | 976 | G |
| 1 | AA | 977 | A |
| 1 | AA | 983 | A |
| 1 | AA | 991 | U |
| 1 | AA | 992 | U |
| 1 | AA | 993 | G |
| 1 | AA | 1002 | G |
| 1 | AA | 1004 | A |
| 1 | AA | 1009 | U |
| 1 | AA | 1022 | A |
| 1 | AA | 1026 | G |
| 1 | AA | 1030 | U |
| 1 | AA | 1031 | C |
| 1 | AA | 1034 | G |
| 1 | AA | 1035 | A |
| 1 | AA | 1045 | C |
| 1 | AA | 1049 | U |
| 1 | AA | 1050 | G |
| 1 | AA | 1051 | C |
| 1 | AA | 1054 | C |
| 1 | AA | 1065 | U |
| 1 | AA | 1066 | C |
| 1 | AA | 1070 | U |
| 1 | AA | 1094 | G |
| 1 | AA | 1095 | U |
| 1 | AA | 1101 | A |
| 1 | AA | 1102 | A |
| 1 | AA | 1108 | G |
| 1 | AA | 1111 | A |
| 1 | AA | 1112 | C |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | AA | 1126 | U |
| 1 | AA | 1130 | A |
| 1 | AA | 1136 | C |
| 1 | AA | 1137 | C |
| 1 | AA | 1138 | G |
| 1 | AA | 1139 | G |
| 1 | AA | 1140 | C |
| 1 | AA | 1159 | U |
| 1 | AA | 1168 | U |
| 1 | AA | 1179 | A |
| 1 | AA | 1181 | G |
| 1 | AA | 1183 | U |
| 1 | AA | 1196 | A |
| 1 | AA | 1197 | A |
| 1 | AA | 1201 | A |
| 1 | AA | 1202 | U |
| 1 | AA | 1209 | C |
| 1 | AA | 1212 | U |
| 1 | AA | 1213 | A |
| 1 | AA | 1214 | C |
| 1 | AA | 1215 | G |
| 1 | AA | 1225 | A |
| 1 | AA | 1226 | C |
| 1 | AA | 1227 | A |
| 1 | AA | 1228 | C |
| 1 | AA | 1240 | U |
| 1 | AA | 1241 | G |
| 1 | AA | 1253 | G |
| 1 | AA | 1256 | A |
| 1 | AA | 1258 | G |
| 1 | AA | 1261 | A |
| 1 | AA | 1278 | G |
| 1 | AA | 1279 | G |
| 1 | AA | 1280 | A |
| 1 | AA | 1281 | C |
| 1 | AA | 1285 | A |
| 1 | AA | 1286 | U |
| 1 | AA | 1298 | U |
| 1 | AA | 1300 | G |
| 1 | AA | 1301 | U |
| 1 | AA | 1305 | G |
| 1 | AA | 1316 | G |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | AA | 1317 | C |
| 1 | AA | 1320 | C |
| 1 | AA | 1322 | C |
| 1 | AA | 1323 | G |
| 1 | AA | 1336 | C |
| 1 | AA | 1346 | A |
| 1 | AA | 1347 | G |
| 1 | AA | 1353 | G |
| 1 | AA | 1362 | A |
| 1 | AA | 1363 | A |
| 1 | AA | 1364 | U |
| 1 | AA | 1378 | C |
| 1 | AA | 1379 | G |
| 1 | AA | 1380 | U |
| 1 | AA | 1381 | U |
| 1 | AA | 1398 | A |
| 1 | AA | 1404 | C |
| 1 | AA | 1409 | C |
| 1 | AA | 1419 | G |
| 1 | AA | 1432 | G |
| 1 | AA | 1446 | A |
| 1 | AA | 1452 | C |
| 1 | AA | 1493 | A |
| 1 | AA | 1499 | A |
| 1 | AA | 1503 | A |
| 1 | AA | 1506 | U |
| 1 | AA | 1507 | A |
| 1 | AA | 1517 | G |
| 1 | AA | 1519 | A |
| 1 | AA | 1520 | C |
| 1 | AA | 1529 | G |
| 1 | AA | 1530 | G |
| 1 | AA | 1533 | C |
| 1 | AA | 1534 | A |
| 22 | BA | 11 | C |
| 22 | BA | 12 | C |
| 22 | BA | 13 | G |
| 22 | BA | 14 | U |
| 22 | BA | 15 | A |
| 22 | BA | 16 | G |
| 22 | BA | 25 | U |
| 22 | BA | 26 | C |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 22 | BA | 28 | C |
| 22 | BA | 29 | A |
| 22 | BA | 30 | C |
| 22 | BA | 35 | C |
| 22 | BA | 42 | C |
| 22 | BA | 44 | G |
| 22 | BA | 45 | A |
| 22 | BA | 56 | G |
| 22 | BA | 66 | A |
| 22 | BA | 67 | G |
| 22 | BA | 84 | G |
| 22 | BA | 90 | C |
| 22 | BA | 99 | A |
| 22 | BA | 108 | A |
| 22 | BA | 109 | A |
| 23 | BB | 2 | G |
| 23 | BB | 4 | U |
| 23 | BB | 13 | A |
| 23 | BB | 14 | A |
| 23 | BB | 34 | U |
| 23 | BB | 35 | G |
| 23 | BB | 46 | G |
| 23 | BB | 49 | A |
| 23 | BB | 63 | A |
| 23 | BB | 64 | A |
| 23 | BB | 71 | A |
| 23 | BB | 74 | A |
| 23 | BB | 75 | G |
| 23 | BB | 84 | A |
| 23 | BB | 85 | G |
| 23 | BB | 91 | A |
| 23 | BB | 92 | U |
| 23 | BB | 96 | C |
| 23 | BB | 100 | U |
| 23 | BB | 101 | A |
| 23 | BB | 102 | U |
| 23 | BB | 103 | A |
| 23 | BB | 104 | A |
| 23 | BB | 118 | A |
| 23 | BB | 119 | A |
| 23 | BB | 120 | U |
| 23 | BB | 125 | A |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 23 | BB | 126 | A |
| 23 | BB | 140 | C |
| 23 | BB | 142 | A |
| 23 | BB | 144 | A |
| 23 | BB | 160 | A |
| 23 | BB | 162 | U |
| 23 | BB | 163 | C |
| 23 | BB | 181 | A |
| 23 | BB | 186 | G |
| 23 | BB | 196 | A |
| 23 | BB | 199 | A |
| 23 | BB | 209 | C |
| 23 | BB | 216 | A |
| 23 | BB | 221 | A |
| 23 | BB | 222 | A |
| 23 | BB | 230 | G |
| 23 | BB | 241 | A |
| 23 | BB | 248 | G |
| 23 | BB | 252 | G |
| 23 | BB | 255 | A |
| 23 | BB | 265 | A |
| 23 | BB | 266 | G |
| 23 | BB | 271 | G |
| 23 | BB | 277 | G |
| 23 | BB | 278 | A |
| 23 | BB | 279 | A |
| 23 | BB | 281 | C |
| 23 | BB | 311 | A |
| 23 | BB | 323 | C |
| 23 | BB | 329 | G |
| 23 | BB | 330 | A |
| 23 | BB | 353 | C |
| 23 | BB | 355 | U |
| 23 | BB | 362 | A |
| 23 | BB | 371 | A |
| 23 | BB | 372 | G |
| 23 | BB | 386 | G |
| 23 | BB | 387 | U |
| 23 | BB | 395 | U |
| 23 | BB | 396 | G |
| 23 | BB | 397 | U |
| 23 | BB | 411 | G |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 23 | BB | 412 | A |
| 23 | BB | 423 | A |
| 23 | BB | 424 | G |
| 23 | BB | 435 | C |
| 23 | BB | 444 | C |
| 23 | BB | 455 | C |
| 23 | BB | 457 | A |
| 23 | BB | 479 | A |
| 23 | BB | 480 | A |
| 23 | BB | 481 | G |
| 23 | BB | 490 | C |
| 23 | BB | 491 | G |
| 23 | BB | 498 | G |
| 23 | BB | 504 | A |
| 23 | BB | 505 | A |
| 23 | BB | 508 | A |
| 23 | BB | 509 | C |
| 23 | BB | 512 | G |
| 23 | BB | 518 | G |
| 23 | BB | 527 | C |
| 23 | BB | 531 | C |
| 23 | BB | 532 | A |
| 23 | BB | 533 | G |
| 23 | BB | 544 | C |
| 23 | BB | 545 | U |
| 23 | BB | 546 | U |
| 23 | BB | 547 | A |
| 23 | BB | 555 | G |
| 23 | BB | 563 | A |
| 23 | BB | 572 | A |
| 23 | BB | 573 | U |
| 23 | BB | 575 | A |
| 23 | BB | 588 | U |
| 23 | BB | 603 | A |
| 23 | BB | 613 | A |
| 23 | BB | 614 | A |
| 23 | BB | 615 | U |
| 23 | BB | 616 | A |
| 23 | BB | 627 | A |
| 23 | BB | 637 | A |
| 23 | BB | 645 | C |
| 23 | BB | 646 | U |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 23 | BB | 654 | A |
| 23 | BB | 655 | A |
| 23 | BB | 671 | C |
| 23 | BB | 686 | U |
| 23 | BB | 717 | C |
| 23 | BB | 719 | C |
| 23 | BB | 722 | A |
| 23 | BB | 730 | A |
| 23 | BB | 747 | U |
| 23 | BB | 757 | G |
| 23 | BB | 765 | C |
| 23 | BB | 775 | G |
| 23 | BB | 782 | A |
| 23 | BB | 784 | G |
| 23 | BB | 785 | G |
| 23 | BB | 805 | G |
| 23 | BB | 812 | C |
| 23 | BB | 819 | A |
| 23 | BB | 827 | U |
| 23 | BB | 828 | U |
| 23 | BB | 846 | U |
| 23 | BB | 847 | U |
| 23 | BB | 859 | G |
| 23 | BB | 872 | U |
| 23 | BB | 876 | C |
| 23 | BB | 877 | A |
| 23 | BB | 878 | A |
| 23 | BB | 899 | A |
| 23 | BB | 910 | A |
| 23 | BB | 912 | C |
| 23 | BB | 932 | U |
| 23 | BB | 933 | A |
| 23 | BB | 934 | U |
| 23 | BB | 941 | A |
| 23 | BB | 946 | C |
| 23 | BB | 955 | U |
| 23 | BB | 961 | C |
| 23 | BB | 973 | A |
| 23 | BB | 974 | G |
| 23 | BB | 983 | A |
| 23 | BB | 985 | C |
| 23 | BB | 991 | C |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 23 | BB | 993 | G |
| 23 | BB | 995 | C |
| 23 | BB | 996 | A |
| 23 | BB | 1005 | C |
| 23 | BB | 1012 | U |
| 23 | BB | 1013 | C |
| 23 | BB | 1022 | G |
| 23 | BB | 1025 | G |
| 23 | BB | 1026 | G |
| 23 | BB | 1033 | U |
| 23 | BB | 1046 | A |
| 23 | BB | 1047 | G |
| 23 | BB | 1062 | G |
| 23 | BB | 1070 | A |
| 23 | BB | 1088 | A |
| 23 | BB | 1090 | A |
| 23 | BB | 1112 | G |
| 23 | BB | 1122 | G |
| 23 | BB | 1126 | A |
| 23 | BB | 1132 | U |
| 23 | BB | 1133 | A |
| 23 | BB | 1134 | A |
| 23 | BB | 1135 | C |
| 23 | BB | 1136 | G |
| 23 | BB | 1139 | G |
| 23 | BB | 1142 | A |
| 23 | BB | 1157 | G |
| 23 | BB | 1173 | U |
| 23 | BB | 1174 | U |
| 23 | BB | 1175 | A |
| 23 | BB | 1195 | G |
| 23 | BB | 1205 | A |
| 23 | BB | 1206 | G |
| 23 | BB | 1211 | C |
| 23 | BB | 1212 | G |
| 23 | BB | 1218 | G |
| 23 | BB | 1237 | A |
| 23 | BB | 1247 | A |
| 23 | BB | 1248 | G |
| 23 | BB | 1251 | C |
| 23 | BB | 1253 | A |
| 23 | BB | 1256 | G |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 23 | BB | 1266 | G |
| 23 | BB | 1271 | G |
| 23 | BB | 1272 | A |
| 23 | BB | 1275 | A |
| 23 | BB | 1276 | A |
| 23 | BB | 1301 | A |
| 23 | BB | 1302 | A |
| 23 | BB | 1312 | U |
| 23 | BB | 1325 | U |
| 23 | BB | 1337 | G |
| 23 | BB | 1341 | G |
| 23 | BB | 1345 | C |
| 23 | BB | 1352 | U |
| 23 | BB | 1365 | A |
| 23 | BB | 1379 | U |
| 23 | BB | 1383 | A |
| 23 | BB | 1384 | A |
| 23 | BB | 1396 | U |
| 23 | BB | 1397 | U |
| 23 | BB | 1416 | G |
| 23 | BB | 1417 | C |
| 23 | BB | 1419 | A |
| 23 | BB | 1420 | A |
| 23 | BB | 1427 | A |
| 23 | BB | 1428 | C |
| 23 | BB | 1434 | A |
| 23 | BB | 1451 | C |
| 23 | BB | 1453 | A |
| 23 | BB | 1454 | C |
| 23 | BB | 1459 | G |
| 23 | BB | 1460 | U |
| 23 | BB | 1461 | C |
| 23 | BB | 1476 | U |
| 23 | BB | 1477 | A |
| 23 | BB | 1478 | G |
| 23 | BB | 1482 | G |
| 23 | BB | 1490 | A |
| 23 | BB | 1493 | C |
| 23 | BB | 1494 | A |
| 23 | BB | 1504 | A |
| 23 | BB | 1508 | A |
| 23 | BB | 1509 | A |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 23 | BB | 1510 | G |
| 23 | BB | 1524 | G |
| 23 | BB | 1532 | A |
| 23 | BB | 1535 | A |
| 23 | BB | 1537 | G |
| 23 | BB | 1538 | G |
| 23 | BB | 1540 | G |
| 23 | BB | 1552 | A |
| 23 | BB | 1558 | C |
| 23 | BB | 1559 | U |
| 23 | BB | 1567 | G |
| 23 | BB | 1569 | A |
| 23 | BB | 1578 | U |
| 23 | BB | 1585 | C |
| 23 | BB | 1608 | A |
| 23 | BB | 1610 | A |
| 23 | BB | 1634 | A |
| 23 | BB | 1635 | A |
| 23 | BB | 1640 | A |
| 23 | BB | 1647 | U |
| 23 | BB | 1648 | U |
| 23 | BB | 1649 | G |
| 23 | BB | 1674 | G |
| 23 | BB | 1700 | A |
| 23 | BB | 1701 | A |
| 23 | BB | 1706 | C |
| 23 | BB | 1707 | G |
| 23 | BB | 1713 | A |
| 23 | BB | 1715 | G |
| 23 | BB | 1716 | U |
| 23 | BB | 1722 | A |
| 23 | BB | 1723 | G |
| 23 | BB | 1729 | U |
| 23 | BB | 1730 | C |
| 23 | BB | 1731 | G |
| 23 | BB | 1733 | G |
| 23 | BB | 1738 | G |
| 23 | BB | 1758 | U |
| 23 | BB | 1764 | C |
| 23 | BB | 1773 | A |
| 23 | BB | 1781 | U |
| 23 | BB | 1800 | C |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 23 | BB | 1816 | C |
| 23 | BB | 1829 | A |
| 23 | BB | 1833 | C |
| 23 | BB | 1870 | C |
| 23 | BB | 1873 | G |
| 23 | BB | 1876 | A |
| 23 | BB | 1884 | G |
| 23 | BB | 1906 | G |
| 23 | BB | 1914 | C |
| 23 | BB | 1927 | A |
| 23 | BB | 1929 | G |
| 23 | BB | 1930 | G |
| 23 | BB | 1937 | A |
| 23 | BB | 1938 | A |
| 23 | BB | 1939 | U |
| 23 | BB | 1940 | U |
| 23 | BB | 1955 | U |
| 23 | BB | 1966 | A |
| 23 | BB | 1967 | C |
| 23 | BB | 1970 | A |
| 23 | BB | 1971 | U |
| 23 | BB | 1972 | G |
| 23 | BB | 1991 | U |
| 23 | BB | 1993 | U |
| 23 | BB | 1997 | C |
| 23 | BB | 2022 | U |
| 23 | BB | 2023 | C |
| 23 | BB | 2031 | A |
| 23 | BB | 2033 | A |
| 23 | BB | 2043 | C |
| 23 | BB | 2055 | C |
| 23 | BB | 2056 | G |
| 23 | BB | 2060 | A |
| 23 | BB | 2061 | G |
| 23 | BB | 2062 | A |
| 23 | BB | 2069 | G |
| 23 | BB | 2072 | C |
| 23 | BB | 2102 | G |
| 23 | BB | 2104 | C |
| 23 | BB | 2105 | U |
| 23 | BB | 2137 | U |
| 23 | BB | 2140 | G |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 23 | BB | 2144 | G |
| 23 | BB | 2145 | C |
| 23 | BB | 2147 | A |
| 23 | BB | 2149 | U |
| 23 | BB | 2154 | A |
| 23 | BB | 2181 | U |
| 23 | BB | 2183 | A |
| 23 | BB | 2187 | U |
| 23 | BB | 2192 | U |
| 23 | BB | 2198 | A |
| 23 | BB | 2204 | G |
| 23 | BB | 2212 | A |
| 23 | BB | 2225 | A |
| 23 | BB | 2238 | G |
| 23 | BB | 2239 | G |
| 23 | BB | 2259 | U |
| 23 | BB | 2266 | A |
| 23 | BB | 2273 | A |
| 23 | BB | 2276 | G |
| 23 | BB | 2278 | A |
| 23 | BB | 2283 | C |
| 23 | BB | 2286 | G |
| 23 | BB | 2287 | A |
| 23 | BB | 2297 | A |
| 23 | BB | 2304 | G |
| 23 | BB | 2305 | U |
| 23 | BB | 2307 | G |
| 23 | BB | 2318 | G |
| 23 | BB | 2319 | G |
| 23 | BB | 2320 | U |
| 23 | BB | 2321 | U |
| 23 | BB | 2322 | A |
| 23 | BB | 2325 | G |
| 23 | BB | 2333 | A |
| 23 | BB | 2334 | U |
| 23 | BB | 2336 | A |
| 23 | BB | 2337 | G |
| 23 | BB | 2347 | C |
| 23 | BB | 2383 | G |
| 23 | BB | 2385 | C |
| 23 | BB | 2402 | U |
| 23 | BB | 2403 | C |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 23 | BB | 2406 | A |
| 23 | BB | 2423 | U |
| 23 | BB | 2426 | A |
| 23 | BB | 2429 | G |
| 23 | BB | 2430 | A |
| 23 | BB | 2434 | A |
| 23 | BB | 2441 | U |
| 23 | BB | 2448 | A |
| 23 | BB | 2472 | G |
| 23 | BB | 2476 | A |
| 23 | BB | 2491 | U |
| 23 | BB | 2492 | U |
| 23 | BB | 2502 | G |
| 23 | BB | 2505 | G |
| 23 | BB | 2506 | U |
| 23 | BB | 2518 | A |
| 23 | BB | 2529 | G |
| 23 | BB | 2535 | G |
| 23 | BB | 2554 | U |
| 23 | BB | 2566 | A |
| 23 | BB | 2567 | G |
| 23 | BB | 2573 | C |
| 23 | BB | 2585 | U |
| 23 | BB | 2586 | U |
| 23 | BB | 2597 | G |
| 23 | BB | 2602 | A |
| 23 | BB | 2609 | U |
| 23 | BB | 2613 | U |
| 23 | BB | 2621 | G |
| 23 | BB | 2629 | U |
| 23 | BB | 2654 | A |
| 23 | BB | 2682 | A |
| 23 | BB | 2689 | U |
| 23 | BB | 2690 | U |
| 23 | BB | 2714 | G |
| 23 | BB | 2725 | A |
| 23 | BB | 2726 | A |
| 23 | BB | 2744 | G |
| 23 | BB | 2748 | A |
| 23 | BB | 2751 | G |
| 23 | BB | 2752 | C |
| 23 | BB | 2757 | A |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 23 | BB | 2765 | A |
| 23 | BB | 2778 | A |
| 23 | BB | 2791 | G |
| 23 | BB | 2796 | U |
| 23 | BB | 2797 | U |
| 23 | BB | 2800 | A |
| 23 | BB | 2801 | G |
| 23 | BB | 2808 | G |
| 23 | BB | 2820 | A |
| 23 | BB | 2821 | A |
| 23 | BB | 2836 | U |
| 23 | BB | 2850 | A |
| 23 | BB | 2866 | U |
| 23 | BB | 2867 | G |
| 23 | BB | 2872 | A |
| 23 | BB | 2873 | A |
| 23 | BB | 2883 | A |
| 23 | BB | 2894 | G |
| 23 | BB | 2903 | U |
| 1 | CA | 7 | A |
| 1 | CA | 9 | G |
| 1 | CA | 14 | U |
| 1 | CA | 32 | A |
| 1 | CA | 39 | G |
| 1 | CA | 47 | C |
| 1 | CA | 48 | C |
| 1 | CA | 51 | A |
| 1 | CA | 52 | C |
| 1 | CA | 55 | A |
| 1 | CA | 61 | G |
| 1 | CA | 71 | A |
| 1 | CA | 72 | A |
| 1 | CA | 83 | C |
| 1 | CA | 87 | C |
| 1 | CA | 92 | U |
| 1 | CA | 93 | U |
| 1 | CA | 94 | G |
| 1 | CA | 108 | G |
| 1 | CA | 121 | U |
| 1 | CA | 122 | G |
| 1 | CA | 131 | A |
| 1 | CA | 151 | A |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | CA | 182 | A |
| 1 | CA | 197 | A |
| 1 | CA | 209 | U |
| 1 | CA | 210 | C |
| 1 | CA | 226 | G |
| 1 | CA | 239 | U |
| 1 | CA | 240 | G |
| 1 | CA | 243 | A |
| 1 | CA | 244 | U |
| 1 | CA | 245 | U |
| 1 | CA | 247 | G |
| 1 | CA | 250 | A |
| 1 | CA | 251 | G |
| 1 | CA | 257 | G |
| 1 | CA | 258 | G |
| 1 | CA | 266 | G |
| 1 | CA | 267 | C |
| 1 | CA | 280 | C |
| 1 | CA | 289 | G |
| 1 | CA | 328 | C |
| 1 | CA | 329 | A |
| 1 | CA | 330 | C |
| 1 | CA | 332 | G |
| 1 | CA | 345 | C |
| 1 | CA | 351 | G |
| 1 | CA | 352 | C |
| 1 | CA | 354 | G |
| 1 | CA | 367 | U |
| 1 | CA | 372 | C |
| 1 | CA | 373 | A |
| 1 | CA | 381 | C |
| 1 | CA | 382 | A |
| 1 | CA | 397 | A |
| 1 | CA | 398 | U |
| 1 | CA | 406 | G |
| 1 | CA | 408 | A |
| 1 | CA | 409 | U |
| 1 | CA | 411 | A |
| 1 | CA | 412 | A |
| 1 | CA | 414 | A |
| 1 | CA | 415 | A |
| 1 | CA | 421 | U |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | CA | 422 | C |
| 1 | CA | 424 | G |
| 1 | CA | 429 | U |
| 1 | CA | 430 | A |
| 1 | CA | 435 | A |
| 1 | CA | 438 | U |
| 1 | CA | 461 | A |
| 1 | CA | 462 | G |
| 1 | CA | 463 | U |
| 1 | CA | 464 | U |
| 1 | CA | 465 | A |
| 1 | CA | 466 | A |
| 1 | CA | 467 | U |
| 1 | CA | 468 | A |
| 1 | CA | 469 | C |
| 1 | CA | 479 | U |
| 1 | CA | 481 | G |
| 1 | CA | 484 | G |
| 1 | CA | 485 | U |
| 1 | CA | 493 | A |
| 1 | CA | 518 | C |
| 1 | CA | 522 | C |
| 1 | CA | 527 | G |
| 1 | CA | 531 | U |
| 1 | CA | 532 | A |
| 1 | CA | 547 | A |
| 1 | CA | 559 | A |
| 1 | CA | 562 | U |
| 1 | CA | 564 | C |
| 1 | CA | 572 | A |
| 1 | CA | 573 | A |
| 1 | CA | 576 | C |
| 1 | CA | 577 | G |
| 1 | CA | 639 | G |
| 1 | CA | 650 | G |
| 1 | CA | 653 | U |
| 1 | CA | 665 | A |
| 1 | CA | 687 | A |
| 1 | CA | 700 | G |
| 1 | CA | 721 | G |
| 1 | CA | 724 | G |
| 1 | CA | 731 | G |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | CA | 733 | G |
| 1 | CA | 747 | A |
| 1 | CA | 748 | G |
| 1 | CA | 755 | G |
| 1 | CA | 777 | A |
| 1 | CA | 781 | A |
| 1 | CA | 782 | A |
| 1 | CA | 793 | U |
| 1 | CA | 794 | A |
| 1 | CA | 812 | G |
| 1 | CA | 815 | A |
| 1 | CA | 817 | C |
| 1 | CA | 818 | G |
| 1 | CA | 819 | A |
| 1 | CA | 828 | U |
| 1 | CA | 829 | G |
| 1 | CA | 841 | C |
| 1 | CA | 842 | U |
| 1 | CA | 843 | U |
| 1 | CA | 844 | G |
| 1 | CA | 845 | A |
| 1 | CA | 846 | G |
| 1 | CA | 907 | A |
| 1 | CA | 914 | A |
| 1 | CA | 926 | G |
| 1 | CA | 927 | G |
| 1 | CA | 934 | C |
| 1 | CA | 935 | A |
| 1 | CA | 945 | G |
| 1 | CA | 961 | U |
| 1 | CA | 969 | A |
| 1 | CA | 974 | A |
| 1 | CA | 976 | G |
| 1 | CA | 977 | A |
| 1 | CA | 991 | U |
| 1 | CA | 992 | U |
| 1 | CA | 993 | G |
| 1 | CA | 1004 | A |
| 1 | CA | 1009 | U |
| 1 | CA | 1010 | U |
| 1 | CA | 1020 | G |
| 1 | CA | 1022 | A |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | CA | 1023 | U |
| 1 | CA | 1025 | U |
| 1 | CA | 1031 | C |
| 1 | CA | 1033 | G |
| 1 | CA | 1034 | G |
| 1 | CA | 1036 | A |
| 1 | CA | 1044 | A |
| 1 | CA | 1050 | G |
| 1 | CA | 1053 | G |
| 1 | CA | 1054 | C |
| 1 | CA | 1065 | U |
| 1 | CA | 1066 | C |
| 1 | CA | 1091 | U |
| 1 | CA | 1094 | G |
| 1 | CA | 1095 | U |
| 1 | CA | 1101 | A |
| 1 | CA | 1118 | U |
| 1 | CA | 1129 | C |
| 1 | CA | 1130 | A |
| 1 | CA | 1135 | U |
| 1 | CA | 1136 | C |
| 1 | CA | 1137 | C |
| 1 | CA | 1138 | G |
| 1 | CA | 1139 | G |
| 1 | CA | 1140 | C |
| 1 | CA | 1144 | G |
| 1 | CA | 1159 | U |
| 1 | CA | 1160 | G |
| 1 | CA | 1168 | U |
| 1 | CA | 1178 | G |
| 1 | CA | 1184 | G |
| 1 | CA | 1196 | A |
| 1 | CA | 1197 | A |
| 1 | CA | 1201 | A |
| 1 | CA | 1202 | U |
| 1 | CA | 1211 | U |
| 1 | CA | 1212 | U |
| 1 | CA | 1213 | A |
| 1 | CA | 1214 | C |
| 1 | CA | 1225 | A |
| 1 | CA | 1226 | C |
| 1 | CA | 1227 | A |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | CA | 1241 | G |
| 1 | CA | 1256 | A |
| 1 | CA | 1257 | A |
| 1 | CA | 1258 | G |
| 1 | CA | 1280 | A |
| 1 | CA | 1281 | C |
| 1 | CA | 1282 | C |
| 1 | CA | 1285 | A |
| 1 | CA | 1298 | U |
| 1 | CA | 1300 | G |
| 1 | CA | 1301 | U |
| 1 | CA | 1302 | C |
| 1 | CA | 1303 | C |
| 1 | CA | 1305 | G |
| 1 | CA | 1317 | C |
| 1 | CA | 1318 | A |
| 1 | CA | 1320 | C |
| 1 | CA | 1331 | G |
| 1 | CA | 1362 | A |
| 1 | CA | 1380 | U |
| 1 | CA | 1397 | C |
| 1 | CA | 1398 | A |
| 1 | CA | 1400 | C |
| 1 | CA | 1401 | G |
| 1 | CA | 1419 | G |
| 1 | CA | 1426 | G |
| 1 | CA | 1432 | G |
| 1 | CA | 1446 | A |
| 1 | CA | 1452 | C |
| 1 | CA | 1493 | A |
| 1 | CA | 1497 | G |
| 1 | CA | 1503 | A |
| 1 | CA | 1505 | G |
| 1 | CA | 1506 | U |
| 1 | CA | 1507 | A |
| 1 | CA | 1517 | G |
| 1 | CA | 1520 | C |
| 1 | CA | 1529 | G |
| 1 | CA | 1530 | G |
| 1 | CA | 1533 | C |
| 1 | CA | 1534 | A |
| 22 | DA | 13 | G |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 22 | DA | 15 | A |
| 22 | DA | 16 | G |
| 22 | DA | 18 | G |
| 22 | DA | 25 | U |
| 22 | DA | 26 | C |
| 22 | DA | 27 | C |
| 22 | DA | 28 | C |
| 22 | DA | 29 | A |
| 22 | DA | 42 | C |
| 22 | DA | 44 | G |
| 22 | DA | 52 | A |
| 22 | DA | 53 | A |
| 22 | DA | 56 | G |
| 22 | DA | 57 | A |
| 22 | DA | 66 | A |
| 22 | DA | 67 | G |
| 22 | DA | 89 | U |
| 22 | DA | 90 | C |
| 22 | DA | 91 | C |
| 22 | DA | 99 | A |
| 22 | DA | 109 | A |
| 23 | DB | 12 | U |
| 23 | DB | 27 | G |
| 23 | DB | 35 | G |
| 23 | DB | 46 | G |
| 23 | DB | 49 | A |
| 23 | DB | 51 | G |
| 23 | DB | 52 | A |
| 23 | DB | 63 | A |
| 23 | DB | 64 | A |
| 23 | DB | 71 | A |
| 23 | DB | 74 | A |
| 23 | DB | 75 | G |
| 23 | DB | 91 | A |
| 23 | DB | 98 | G |
| 23 | DB | 99 | U |
| 23 | DB | 100 | U |
| 23 | DB | 101 | A |
| 23 | DB | 102 | U |
| 23 | DB | 103 | A |
| 23 | DB | 118 | A |
| 23 | DB | 119 | A |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 23 | DB | 120 | U |
| 23 | DB | 124 | G |
| 23 | DB | 125 | A |
| 23 | DB | 126 | A |
| 23 | DB | 128 | C |
| 23 | DB | 139 | U |
| 23 | DB | 141 | G |
| 23 | DB | 144 | A |
| 23 | DB | 160 | A |
| 23 | DB | 162 | U |
| 23 | DB | 163 | C |
| 23 | DB | 180 | G |
| 23 | DB | 181 | A |
| 23 | DB | 196 | A |
| 23 | DB | 216 | A |
| 23 | DB | 221 | A |
| 23 | DB | 222 | A |
| 23 | DB | 223 | A |
| 23 | DB | 230 | G |
| 23 | DB | 233 | A |
| 23 | DB | 248 | G |
| 23 | DB | 250 | G |
| 23 | DB | 252 | G |
| 23 | DB | 255 | A |
| 23 | DB | 265 | A |
| 23 | DB | 266 | G |
| 23 | DB | 267 | C |
| 23 | DB | 271 | G |
| 23 | DB | 277 | G |
| 23 | DB | 278 | A |
| 23 | DB | 289 | G |
| 23 | DB | 299 | A |
| 23 | DB | 301 | G |
| 23 | DB | 302 | C |
| 23 | DB | 311 | A |
| 23 | DB | 312 | G |
| 23 | DB | 323 | C |
| 23 | DB | 329 | G |
| 23 | DB | 330 | A |
| 23 | DB | 333 | G |
| 23 | DB | 346 | A |
| 23 | DB | 353 | C |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 23 | DB | 354 | A |
| 23 | DB | 361 | G |
| 23 | DB | 363 | G |
| 23 | DB | 365 | U |
| 23 | DB | 371 | A |
| 23 | DB | 372 | G |
| 23 | DB | 386 | G |
| 23 | DB | 387 | U |
| 23 | DB | 396 | G |
| 23 | DB | 403 | U |
| 23 | DB | 404 | A |
| 23 | DB | 405 | U |
| 23 | DB | 406 | G |
| 23 | DB | 411 | G |
| 23 | DB | 412 | A |
| 23 | DB | 424 | G |
| 23 | DB | 444 | C |
| 23 | DB | 448 | U |
| 23 | DB | 449 | A |
| 23 | DB | 455 | C |
| 23 | DB | 456 | C |
| 23 | DB | 457 | A |
| 23 | DB | 458 | G |
| 23 | DB | 475 | C |
| 23 | DB | 479 | A |
| 23 | DB | 480 | A |
| 23 | DB | 481 | G |
| 23 | DB | 491 | G |
| 23 | DB | 504 | A |
| 23 | DB | 505 | A |
| 23 | DB | 506 | G |
| 23 | DB | 508 | A |
| 23 | DB | 509 | C |
| 23 | DB | 512 | G |
| 23 | DB | 527 | C |
| 23 | DB | 530 | G |
| 23 | DB | 531 | C |
| 23 | DB | 532 | A |
| 23 | DB | 533 | G |
| 23 | DB | 544 | C |
| 23 | DB | 545 | U |
| 23 | DB | 546 | U |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 23 | DB | 547 | A |
| 23 | DB | 548 | G |
| 23 | DB | 549 | G |
| 23 | DB | 550 | C |
| 23 | DB | 563 | A |
| 23 | DB | 572 | A |
| 23 | DB | 573 | U |
| 23 | DB | 575 | A |
| 23 | DB | 588 | U |
| 23 | DB | 603 | A |
| 23 | DB | 613 | A |
| 23 | DB | 614 | A |
| 23 | DB | 615 | U |
| 23 | DB | 616 | A |
| 23 | DB | 627 | A |
| 23 | DB | 637 | A |
| 23 | DB | 645 | C |
| 23 | DB | 646 | U |
| 23 | DB | 654 | A |
| 23 | DB | 655 | A |
| 23 | DB | 671 | C |
| 23 | DB | 686 | U |
| 23 | DB | 704 | G |
| 23 | DB | 718 | A |
| 23 | DB | 719 | C |
| 23 | DB | 727 | A |
| 23 | DB | 730 | A |
| 23 | DB | 747 | U |
| 23 | DB | 757 | G |
| 23 | DB | 765 | C |
| 23 | DB | 775 | G |
| 23 | DB | 782 | A |
| 23 | DB | 784 | G |
| 23 | DB | 785 | G |
| 23 | DB | 805 | G |
| 23 | DB | 812 | C |
| 23 | DB | 819 | A |
| 23 | DB | 827 | U |
| 23 | DB | 828 | U |
| 23 | DB | 844 | A |
| 23 | DB | 846 | U |
| 23 | DB | 847 | U |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 23 | DB | 859 | G |
| 23 | DB | 869 | G |
| 23 | DB | 877 | A |
| 23 | DB | 899 | A |
| 23 | DB | 910 | A |
| 23 | DB | 912 | C |
| 23 | DB | 919 | U |
| 23 | DB | 931 | U |
| 23 | DB | 932 | U |
| 23 | DB | 933 | A |
| 23 | DB | 941 | A |
| 23 | DB | 946 | C |
| 23 | DB | 955 | U |
| 23 | DB | 961 | C |
| 23 | DB | 973 | A |
| 23 | DB | 974 | G |
| 23 | DB | 982 | C |
| 23 | DB | 983 | A |
| 23 | DB | 991 | C |
| 23 | DB | 995 | C |
| 23 | DB | 1012 | U |
| 23 | DB | 1013 | C |
| 23 | DB | 1022 | G |
| 23 | DB | 1025 | G |
| 23 | DB | 1033 | U |
| 23 | DB | 1046 | A |
| 23 | DB | 1047 | G |
| 23 | DB | 1070 | A |
| 23 | DB | 1088 | A |
| 23 | DB | 1090 | A |
| 23 | DB | 1098 | A |
| 23 | DB | 1112 | G |
| 23 | DB | 1116 | G |
| 23 | DB | 1130 | U |
| 23 | DB | 1132 | U |
| 23 | DB | 1133 | A |
| 23 | DB | 1134 | A |
| 23 | DB | 1136 | G |
| 23 | DB | 1142 | A |
| 23 | DB | 1176 | U |
| 23 | DB | 1179 | G |
| 23 | DB | 1195 | G |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 23 | DB | 1205 | A |
| 23 | DB | 1206 | G |
| 23 | DB | 1210 | G |
| 23 | DB | 1211 | C |
| 23 | DB | 1212 | G |
| 23 | DB | 1225 | G |
| 23 | DB | 1237 | A |
| 23 | DB | 1241 | A |
| 23 | DB | 1242 | U |
| 23 | DB | 1247 | A |
| 23 | DB | 1248 | G |
| 23 | DB | 1249 | U |
| 23 | DB | 1250 | G |
| 23 | DB | 1251 | C |
| 23 | DB | 1252 | G |
| 23 | DB | 1253 | A |
| 23 | DB | 1256 | G |
| 23 | DB | 1266 | G |
| 23 | DB | 1271 | G |
| 23 | DB | 1272 | A |
| 23 | DB | 1275 | A |
| 23 | DB | 1276 | A |
| 23 | DB | 1301 | A |
| 23 | DB | 1302 | A |
| 23 | DB | 1312 | U |
| 23 | DB | 1325 | U |
| 23 | DB | 1337 | G |
| 23 | DB | 1341 | G |
| 23 | DB | 1345 | C |
| 23 | DB | 1352 | U |
| 23 | DB | 1365 | A |
| 23 | DB | 1379 | U |
| 23 | DB | 1383 | A |
| 23 | DB | 1384 | A |
| 23 | DB | 1396 | U |
| 23 | DB | 1397 | U |
| 23 | DB | 1416 | G |
| 23 | DB | 1417 | C |
| 23 | DB | 1419 | A |
| 23 | DB | 1420 | A |
| 23 | DB | 1427 | A |
| 23 | DB | 1428 | C |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 23 | DB | 1434 | A |
| 23 | DB | 1451 | C |
| 23 | DB | 1453 | A |
| 23 | DB | 1454 | C |
| 23 | DB | 1455 | G |
| 23 | DB | 1459 | G |
| 23 | DB | 1460 | U |
| 23 | DB | 1461 | C |
| 23 | DB | 1476 | U |
| 23 | DB | 1477 | A |
| 23 | DB | 1478 | G |
| 23 | DB | 1482 | G |
| 23 | DB | 1490 | A |
| 23 | DB | 1493 | C |
| 23 | DB | 1494 | A |
| 23 | DB | 1504 | A |
| 23 | DB | 1508 | A |
| 23 | DB | 1509 | A |
| 23 | DB | 1510 | G |
| 23 | DB | 1524 | G |
| 23 | DB | 1532 | A |
| 23 | DB | 1535 | A |
| 23 | DB | 1537 | G |
| 23 | DB | 1538 | G |
| 23 | DB | 1540 | G |
| 23 | DB | 1552 | A |
| 23 | DB | 1558 | C |
| 23 | DB | 1559 | U |
| 23 | DB | 1567 | G |
| 23 | DB | 1569 | A |
| 23 | DB | 1578 | U |
| 23 | DB | 1585 | C |
| 23 | DB | 1608 | A |
| 23 | DB | 1610 | A |
| 23 | DB | 1613 | G |
| 23 | DB | 1634 | A |
| 23 | DB | 1635 | A |
| 23 | DB | 1640 | A |
| 23 | DB | 1647 | U |
| 23 | DB | 1648 | U |
| 23 | DB | 1649 | G |
| 23 | DB | 1674 | G |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 23 | DB | 1700 | A |
| 23 | DB | 1706 | C |
| 23 | DB | 1707 | G |
| 23 | DB | 1713 | A |
| 23 | DB | 1715 | G |
| 23 | DB | 1716 | U |
| 23 | DB | 1723 | G |
| 23 | DB | 1729 | U |
| 23 | DB | 1730 | C |
| 23 | DB | 1731 | G |
| 23 | DB | 1733 | G |
| 23 | DB | 1738 | G |
| 23 | DB | 1758 | U |
| 23 | DB | 1764 | C |
| 23 | DB | 1773 | A |
| 23 | DB | 1781 | U |
| 23 | DB | 1786 | A |
| 23 | DB | 1800 | C |
| 23 | DB | 1816 | C |
| 23 | DB | 1829 | A |
| 23 | DB | 1833 | C |
| 23 | DB | 1870 | C |
| 23 | DB | 1873 | G |
| 23 | DB | 1876 | A |
| 23 | DB | 1884 | G |
| 23 | DB | 1906 | G |
| 23 | DB | 1913 | A |
| 23 | DB | 1914 | C |
| 23 | DB | 1927 | A |
| 23 | DB | 1929 | G |
| 23 | DB | 1930 | G |
| 23 | DB | 1937 | A |
| 23 | DB | 1938 | A |
| 23 | DB | 1939 | U |
| 23 | DB | 1940 | U |
| 23 | DB | 1955 | U |
| 23 | DB | 1966 | A |
| 23 | DB | 1967 | C |
| 23 | DB | 1970 | A |
| 23 | DB | 1971 | U |
| 23 | DB | 1972 | G |
| 23 | DB | 1991 | U |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 23 | DB | 1993 | U |
| 23 | DB | 1997 | C |
| 23 | DB | 2022 | U |
| 23 | DB | 2023 | C |
| 23 | DB | 2031 | A |
| 23 | DB | 2033 | A |
| 23 | DB | 2043 | C |
| 23 | DB | 2055 | C |
| 23 | DB | 2056 | G |
| 23 | DB | 2060 | A |
| 23 | DB | 2061 | G |
| 23 | DB | 2062 | A |
| 23 | DB | 2069 | G |
| 23 | DB | 2076 | U |
| 23 | DB | 2077 | A |
| 23 | DB | 2092 | U |
| 23 | DB | 2094 | A |
| 23 | DB | 2096 | C |
| 23 | DB | 2100 | G |
| 23 | DB | 2104 | C |
| 23 | DB | 2106 | U |
| 23 | DB | 2107 | G |
| 23 | DB | 2109 | U |
| 23 | DB | 2134 | A |
| 23 | DB | 2135 | A |
| 23 | DB | 2138 | G |
| 23 | DB | 2143 | C |
| 23 | DB | 2145 | C |
| 23 | DB | 2147 | A |
| 23 | DB | 2156 | G |
| 23 | DB | 2157 | G |
| 23 | DB | 2181 | U |
| 23 | DB | 2183 | A |
| 23 | DB | 2190 | G |
| 23 | DB | 2199 | A |
| 23 | DB | 2204 | G |
| 23 | DB | 2210 | U |
| 23 | DB | 2212 | A |
| 23 | DB | 2225 | A |
| 23 | DB | 2239 | G |
| 23 | DB | 2253 | G |
| 23 | DB | 2268 | A |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 23 | DB | 2283 | C |
| 23 | DB | 2287 | A |
| 23 | DB | 2288 | A |
| 23 | DB | 2297 | A |
| 23 | DB | 2305 | U |
| 23 | DB | 2307 | G |
| 23 | DB | 2308 | G |
| 23 | DB | 2309 | A |
| 23 | DB | 2310 | C |
| 23 | DB | 2319 | G |
| 23 | DB | 2321 | U |
| 23 | DB | 2322 | A |
| 23 | DB | 2325 | G |
| 23 | DB | 2333 | A |
| 23 | DB | 2334 | U |
| 23 | DB | 2336 | A |
| 23 | DB | 2337 | G |
| 23 | DB | 2347 | C |
| 23 | DB | 2383 | G |
| 23 | DB | 2385 | C |
| 23 | DB | 2402 | U |
| 23 | DB | 2403 | C |
| 23 | DB | 2406 | A |
| 23 | DB | 2423 | U |
| 23 | DB | 2426 | A |
| 23 | DB | 2429 | G |
| 23 | DB | 2430 | A |
| 23 | DB | 2434 | A |
| 23 | DB | 2441 | U |
| 23 | DB | 2448 | A |
| 23 | DB | 2472 | G |
| 23 | DB | 2476 | A |
| 23 | DB | 2491 | U |
| 23 | DB | 2492 | U |
| 23 | DB | 2502 | G |
| 23 | DB | 2505 | G |
| 23 | DB | 2506 | U |
| 23 | DB | 2518 | A |
| 23 | DB | 2529 | G |
| 23 | DB | 2535 | G |
| 23 | DB | 2554 | U |
| 23 | DB | 2566 | A |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 23 | DB | 2567 | G |
| 23 | DB | 2573 | C |
| 23 | DB | 2585 | U |
| 23 | DB | 2586 | U |
| 23 | DB | 2597 | G |
| 23 | DB | 2602 | A |
| 23 | DB | 2609 | U |
| 23 | DB | 2610 | C |
| 23 | DB | 2613 | U |
| 23 | DB | 2621 | G |
| 23 | DB | 2629 | U |
| 23 | DB | 2654 | A |
| 23 | DB | 2682 | A |
| 23 | DB | 2689 | U |
| 23 | DB | 2690 | U |
| 23 | DB | 2714 | G |
| 23 | DB | 2725 | A |
| 23 | DB | 2726 | A |
| 23 | DB | 2744 | G |
| 23 | DB | 2757 | A |
| 23 | DB | 2765 | A |
| 23 | DB | 2778 | A |
| 23 | DB | 2791 | G |
| 23 | DB | 2796 | U |
| 23 | DB | 2797 | U |
| 23 | DB | 2800 | A |
| 23 | DB | 2801 | G |
| 23 | DB | 2808 | G |
| 23 | DB | 2820 | A |
| 23 | DB | 2821 | A |
| 23 | DB | 2836 | U |
| 23 | DB | 2850 | A |
| 23 | DB | 2866 | U |
| 23 | DB | 2867 | G |
| 23 | DB | 2872 | A |
| 23 | DB | 2873 | A |
| 23 | DB | 2883 | A |
| 23 | DB | 2894 | G |
| 23 | DB | 2903 | U |

All (79) RNA pucker outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | AA | 51 | A |
| 1 | AA | 60 | A |
| 1 | AA | 243 | A |
| 1 | AA | 279 | A |
| 1 | AA | 328 | C |
| 1 | AA | 366 | A |
| 1 | AA | 372 | C |
| 1 | AA | 428 | G |
| 1 | AA | 429 | U |
| 1 | AA | 484 | G |
| 1 | AA | 576 | C |
| 1 | AA | 913 | A |
| 1 | AA | 960 | U |
| 1 | AA | 975 | A |
| 1 | AA | 1049 | U |
| 1 | AA | 1065 | U |
| 1 | AA | 1101 | A |
| 1 | AA | 1181 | G |
| 1 | AA | 1201 | A |
| 1 | AA | 1226 | C |
| 1 | AA | 1286 | U |
| 1 | AA | 1300 | G |
| 1 | AA | 1397 | C |
| 1 | AA | 1528 | U |
| 23 | BB | 63 | A |
| 23 | BB | 102 | U |
| 23 | BB | 162 | U |
| 23 | BB | 670 | A |
| 23 | BB | 1205 | A |
| 23 | BB | 1210 | G |
| 23 | BB | 1236 | G |
| 23 | BB | 1250 | G |
| 23 | BB | 1913 | A |
| 23 | BB | 2282 | G |
| 23 | BB | 2336 | A |
| 23 | BB | 2425 | A |
| 23 | BB | 2756 | U |
| 1 | CA | 51 | A |
| 1 | CA | 60 | A |
| 1 | CA | 243 | A |
| 1 | CA | 279 | A |
| 1 | CA | 328 | C |
| 1 | CA | 366 | A |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | CA | 372 | C |
| 1 | CA | 428 | G |
| 1 | CA | 429 | U |
| 1 | CA | 484 | G |
| 1 | CA | 960 | U |
| 1 | CA | 975 | A |
| 1 | CA | 1030 | U |
| 1 | CA | 1049 | U |
| 1 | CA | 1064 | G |
| 1 | CA | 1065 | U |
| 1 | CA | 1135 | U |
| 1 | CA | 1201 | A |
| 1 | CA | 1226 | C |
| 1 | CA | 1300 | G |
| 1 | CA | 1301 | U |
| 1 | CA | 1302 | C |
| 1 | CA | 1397 | C |
| 1 | CA | 1451 | U |
| 23 | DB | 63 | A |
| 23 | DB | 125 | A |
| 23 | DB | 162 | U |
| 23 | DB | 199 | A |
| 23 | DB | 301 | G |
| 23 | DB | 544 | C |
| 23 | DB | 670 | A |
| 23 | DB | 982 | C |
| 23 | DB | 1205 | A |
| 23 | DB | 1210 | G |
| 23 | DB | 1211 | C |
| 23 | DB | 2076 | U |
| 23 | DB | 2198 | A |
| 23 | DB | 2282 | G |
| 23 | DB | 2286 | G |
| 23 | DB | 2336 | A |
| 23 | DB | 2425 | A |
| 23 | DB | 2756 | U |

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates ⓘ

There are no carbohydrates in this entry.

5.6 Ligand geometry ⓘ

Of 345 ligands modelled in this entry, 343 are monoatomic - leaving 2 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the chemical component dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|-----|------|-------|------|------|--------------|------|-------------|-------------|------|-------------|
| | | | | | Counts | RMSZ | $\# Z > 2$ | Counts | RMSZ | $\# Z > 2$ |
| 53 | KSG | AA | 1601 | - | 27,27,27 | 1.41 | 2 (7%) | 39,40,40 | 1.24 | 4 (10%) |
| 53 | KSG | CA | 1601 | - | 27,27,27 | 1.53 | 3 (11%) | 39,40,40 | 1.17 | 3 (7%) |

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the chemical component dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|-----|------|-------|------|------|---------|------------|---------|
| 53 | KSG | AA | 1601 | - | - | 1/10/52/52 | 0/2/2/2 |
| 53 | KSG | CA | 1601 | - | - | 1/10/52/52 | 0/2/2/2 |

All (5) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|--------|------|-------------|----------|
| 53 | CA | 1601 | KSG | O7-C1 | 2.58 | 1.48 | 1.41 |
| 53 | AA | 1601 | KSG | C1-C12 | 2.57 | 1.57 | 1.52 |
| 53 | CA | 1601 | KSG | C1-C12 | 2.52 | 1.57 | 1.52 |
| 53 | CA | 1601 | KSG | O1-C1 | 2.43 | 1.48 | 1.41 |
| 53 | AA | 1601 | KSG | O7-C1 | 2.23 | 1.47 | 1.41 |

All (7) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|------|-------------|----------|
| 53 | CA | 1601 | KSG | C14-C13-N2 | 3.70 | 119.90 | 113.40 |
| 53 | AA | 1601 | KSG | C14-C13-N2 | 3.66 | 119.83 | 113.40 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 53 | AA | 1601 | KSG | C4-C3-C2 | 2.35 | 114.68 | 109.59 |
| 53 | CA | 1601 | KSG | O9-C14-C13 | 2.19 | 119.11 | 114.01 |
| 53 | AA | 1601 | KSG | C1-O1-C2 | -2.18 | 112.46 | 118.00 |
| 53 | CA | 1601 | KSG | C6-C7-C2 | 2.15 | 114.26 | 109.59 |
| 53 | AA | 1601 | KSG | O9-C14-C13 | 2.14 | 119.00 | 114.01 |

There are no chirality outliers.

All (2) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms |
|-----|-------|------|------|--------------|
| 53 | CA | 1601 | KSG | C2-O1-C1-C12 |
| 53 | AA | 1601 | KSG | C2-O1-C1-C12 |

There are no ring outliers.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q< 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

| Mol | Chain | Analysed | <RSRZ> | #RSRZ>2 | OWAB(Å ²) | Q<0.9 |
|-----|-------|-----------------|--------|---------------|-----------------------|-------|
| 1 | AA | 1530/1542 (99%) | 0.02 | 17 (1%) 77 42 | 15, 73, 149, 180 | 0 |
| 1 | CA | 1530/1542 (99%) | -0.17 | 13 (0%) 83 51 | 7, 52, 134, 180 | 0 |
| 2 | AC | 206/233 (88%) | 0.76 | 10 (4%) 28 11 | 7, 68, 138, 180 | 0 |
| 2 | CC | 206/233 (88%) | 0.36 | 1 (0%) 88 63 | 6, 74, 126, 169 | 0 |
| 3 | AD | 205/206 (99%) | 0.75 | 17 (8%) 11 6 | 27, 79, 147, 180 | 0 |
| 3 | CD | 205/206 (99%) | 0.17 | 1 (0%) 88 63 | 5, 55, 113, 165 | 0 |
| 4 | AE | 150/167 (89%) | 0.41 | 0 100 100 | 15, 62, 120, 162 | 0 |
| 4 | CE | 150/167 (89%) | 0.31 | 3 (2%) 62 29 | 6, 55, 112, 180 | 0 |
| 5 | AF | 100/135 (74%) | 0.38 | 1 (1%) 79 46 | 18, 72, 133, 166 | 0 |
| 5 | CF | 100/135 (74%) | 0.69 | 3 (3%) 48 21 | 12, 71, 132, 165 | 0 |
| 6 | AG | 150/179 (83%) | 0.40 | 6 (4%) 36 15 | 22, 89, 143, 180 | 0 |
| 6 | CG | 152/179 (84%) | 0.57 | 5 (3%) 44 19 | 19, 86, 147, 180 | 0 |
| 7 | AH | 129/130 (99%) | 0.63 | 5 (3%) 37 16 | 14, 70, 141, 176 | 0 |
| 7 | CH | 129/130 (99%) | 0.28 | 1 (0%) 83 51 | 5, 54, 114, 160 | 0 |
| 8 | AI | 127/130 (97%) | 0.47 | 2 (1%) 68 33 | 18, 90, 146, 180 | 0 |
| 8 | CI | 127/130 (97%) | 0.57 | 4 (3%) 47 21 | 23, 92, 156, 180 | 0 |
| 9 | AJ | 98/103 (95%) | 0.79 | 2 (2%) 62 29 | 20, 82, 157, 180 | 0 |
| 9 | CJ | 98/103 (95%) | 0.37 | 1 (1%) 79 46 | 34, 79, 135, 151 | 0 |
| 10 | AK | 117/129 (90%) | 0.32 | 0 100 100 | 7, 55, 138, 160 | 0 |
| 10 | CK | 117/129 (90%) | 0.26 | 0 100 100 | 11, 50, 105, 142 | 0 |
| 11 | AL | 123/124 (99%) | 0.30 | 2 (1%) 68 33 | 21, 61, 128, 178 | 0 |
| 11 | CL | 123/124 (99%) | 0.48 | 4 (3%) 44 19 | 5, 39, 119, 160 | 0 |
| 12 | AM | 114/118 (96%) | 0.58 | 6 (5%) 25 10 | 44, 106, 159, 173 | 0 |
| 12 | CM | 113/118 (95%) | 0.65 | 6 (5%) 25 10 | 26, 100, 157, 180 | 0 |

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| Mol | Chain | Analysed | <RSRZ> | #RSRZ>2 | OWAB(Å ²) | Q<0.9 |
|-----|-------|-----------------|--------|---------------|-----------------------|-------|
| 13 | AN | 96/101 (95%) | 0.92 | 9 (9%) 9 5 | 15, 84, 151, 180 | 0 |
| 13 | CN | 96/101 (95%) | 0.53 | 4 (4%) 35 14 | 21, 82, 139, 161 | 0 |
| 14 | AO | 88/89 (98%) | 0.59 | 4 (4%) 32 13 | 18, 70, 114, 180 | 0 |
| 14 | CO | 88/89 (98%) | 0.17 | 1 (1%) 77 42 | 14, 51, 112, 150 | 0 |
| 15 | AP | 82/82 (100%) | 0.35 | 4 (4%) 28 11 | 27, 89, 142, 180 | 0 |
| 15 | CP | 80/82 (97%) | 0.45 | 3 (3%) 38 16 | 5, 46, 145, 180 | 0 |
| 16 | AQ | 80/84 (95%) | 0.74 | 8 (10%) 8 5 | 37, 91, 140, 180 | 0 |
| 16 | CQ | 81/84 (96%) | 0.55 | 3 (3%) 39 16 | 12, 57, 119, 154 | 0 |
| 17 | AR | 55/75 (73%) | 0.83 | 4 (7%) 15 7 | 18, 69, 147, 164 | 0 |
| 17 | CR | 55/75 (73%) | 0.66 | 2 (3%) 41 17 | 13, 53, 126, 175 | 0 |
| 18 | AS | 79/92 (85%) | 1.16 | 17 (21%) 1 2 | 59, 112, 174, 180 | 0 |
| 18 | CS | 80/92 (86%) | 1.06 | 10 (12%) 5 3 | 48, 109, 172, 180 | 0 |
| 19 | AT | 85/87 (97%) | 0.64 | 4 (4%) 30 12 | 36, 94, 142, 170 | 0 |
| 19 | CT | 85/87 (97%) | 1.00 | 10 (11%) 5 4 | 17, 55, 118, 179 | 0 |
| 20 | AB | 218/241 (90%) | 0.49 | 9 (4%) 35 15 | 28, 92, 142, 180 | 0 |
| 20 | CB | 218/241 (90%) | 0.34 | 5 (2%) 57 26 | 27, 96, 157, 180 | 0 |
| 21 | AU | 51/71 (71%) | 0.81 | 3 (5%) 22 9 | 26, 94, 153, 174 | 0 |
| 21 | CU | 51/71 (71%) | 0.77 | 3 (5%) 22 9 | 29, 82, 163, 180 | 0 |
| 22 | BA | 117/120 (97%) | -0.15 | 2 (1%) 67 32 | 39, 67, 125, 171 | 0 |
| 22 | DA | 117/120 (97%) | -0.24 | 2 (1%) 67 32 | 34, 73, 116, 180 | 0 |
| 23 | BB | 2841/2904 (97%) | 0.03 | 38 (1%) 74 39 | 9, 53, 144, 180 | 0 |
| 23 | DB | 2841/2904 (97%) | -0.02 | 22 (0%) 83 51 | 5, 45, 143, 180 | 0 |
| 24 | BV | 94/94 (100%) | 0.49 | 3 (3%) 45 19 | 26, 78, 134, 155 | 0 |
| 24 | DV | 94/94 (100%) | 0.35 | 0 100 100 | 34, 83, 139, 162 | 0 |
| 25 | BC | 267/273 (97%) | 0.74 | 24 (8%) 10 6 | 5, 53, 143, 180 | 0 |
| 25 | DC | 267/273 (97%) | 0.68 | 16 (5%) 21 9 | 5, 52, 158, 180 | 0 |
| 26 | BD | 209/209 (100%) | 0.72 | 15 (7%) 15 7 | 9, 82, 157, 180 | 0 |
| 26 | DD | 209/209 (100%) | 0.68 | 16 (7%) 13 7 | 5, 57, 142, 180 | 0 |
| 27 | BE | 201/201 (100%) | 0.88 | 30 (14%) 3 3 | 5, 85, 162, 180 | 0 |
| 27 | DE | 201/201 (100%) | 0.81 | 21 (10%) 7 5 | 6, 82, 170, 180 | 0 |
| 28 | BF | 178/179 (99%) | 0.33 | 3 (1%) 67 32 | 39, 105, 168, 180 | 0 |

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| Mol | Chain | Analysed | <RSRZ> | #RSRZ>2 | OWAB(Å ²) | Q<0.9 |
|-----|-------|----------------|--------|--------------|-----------------------|-------|
| 28 | DF | 178/179 (99%) | 0.32 | 3 (1%) 67 32 | 29, 96, 154, 180 | 0 |
| 29 | BG | 176/177 (99%) | 0.67 | 6 (3%) 43 18 | 34, 100, 164, 180 | 0 |
| 29 | DG | 176/177 (99%) | 0.52 | 11 (6%) 19 8 | 23, 88, 156, 180 | 0 |
| 30 | BH | 149/149 (100%) | 1.59 | 45 (30%) 1 1 | 22, 126, 180, 180 | 0 |
| 30 | DH | 149/149 (100%) | 0.94 | 12 (8%) 12 6 | 30, 106, 167, 180 | 0 |
| 31 | BJ | 140/142 (98%) | 0.51 | 8 (5%) 23 9 | 11, 88, 153, 180 | 0 |
| 31 | DJ | 140/142 (98%) | 0.51 | 4 (2%) 49 22 | 7, 66, 148, 176 | 0 |
| 32 | BK | 121/123 (98%) | 0.48 | 0 100 100 | 13, 60, 118, 152 | 0 |
| 32 | DK | 121/123 (98%) | 0.41 | 1 (0%) 83 51 | 5, 36, 92, 134 | 0 |
| 33 | BL | 144/144 (100%) | 1.61 | 37 (25%) 1 2 | 15, 86, 167, 180 | 0 |
| 33 | DL | 144/144 (100%) | 1.33 | 30 (20%) 1 2 | 5, 81, 156, 180 | 0 |
| 34 | BM | 136/136 (100%) | 1.02 | 19 (13%) 3 3 | 13, 71, 175, 180 | 0 |
| 34 | DM | 136/136 (100%) | 0.58 | 9 (6%) 18 8 | 11, 70, 164, 180 | 0 |
| 35 | BN | 127/127 (100%) | 0.86 | 16 (12%) 4 3 | 17, 78, 169, 180 | 0 |
| 35 | DN | 127/127 (100%) | 0.63 | 12 (9%) 9 5 | 5, 48, 159, 180 | 0 |
| 36 | BO | 117/117 (100%) | 1.09 | 19 (16%) 2 2 | 26, 91, 167, 180 | 0 |
| 36 | DO | 117/117 (100%) | 0.94 | 14 (11%) 5 4 | 5, 91, 172, 180 | 0 |
| 37 | BP | 114/115 (99%) | 1.29 | 21 (18%) 2 2 | 18, 98, 172, 180 | 0 |
| 37 | DP | 114/115 (99%) | 0.95 | 18 (15%) 3 2 | 7, 65, 166, 180 | 0 |
| 38 | BQ | 117/118 (99%) | 0.27 | 1 (0%) 81 49 | 13, 66, 146, 174 | 0 |
| 38 | DQ | 117/118 (99%) | 0.50 | 7 (5%) 21 9 | 6, 57, 158, 180 | 0 |
| 39 | BR | 103/103 (100%) | 0.77 | 10 (9%) 8 5 | 24, 105, 167, 180 | 0 |
| 39 | DR | 103/103 (100%) | 1.02 | 17 (16%) 2 2 | 25, 92, 157, 180 | 0 |
| 40 | BS | 110/110 (100%) | 0.39 | 4 (3%) 41 17 | 9, 63, 133, 180 | 0 |
| 40 | DS | 110/110 (100%) | 0.47 | 2 (1%) 65 31 | 5, 46, 137, 180 | 0 |
| 41 | BT | 99/100 (99%) | 1.17 | 17 (17%) 2 2 | 25, 81, 162, 180 | 0 |
| 41 | DT | 99/100 (99%) | 1.78 | 35 (35%) 1 1 | 15, 86, 168, 180 | 0 |
| 42 | BU | 102/104 (98%) | 1.08 | 17 (16%) 2 2 | 17, 91, 169, 180 | 0 |
| 42 | DU | 102/104 (98%) | 0.92 | 9 (8%) 10 6 | 30, 110, 171, 180 | 0 |
| 43 | BW | 84/85 (98%) | 1.58 | 20 (23%) 1 2 | 10, 86, 159, 180 | 0 |
| 43 | DW | 84/85 (98%) | 1.42 | 22 (26%) 1 2 | 16, 86, 168, 180 | 0 |

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| Mol | Chain | Analysed | <RSRZ> | #RSRZ>2 | OWAB(Å ²) | Q<0.9 |
|-----|-------|-------------------|--------|-----------------|-----------------------|-------|
| 44 | BX | 63/63 (100%) | 1.01 | 9 (14%) 3 3 | 20, 97, 160, 180 | 0 |
| 44 | DX | 63/63 (100%) | 1.83 | 17 (26%) 1 2 | 38, 110, 169, 180 | 0 |
| 45 | BY | 58/59 (98%) | 0.95 | 5 (8%) 11 6 | 13, 86, 157, 180 | 0 |
| 45 | DY | 58/59 (98%) | 0.77 | 7 (12%) 5 3 | 5, 79, 136, 150 | 0 |
| 46 | BZ | 70/70 (100%) | 0.47 | 2 (2%) 49 22 | 19, 66, 145, 180 | 0 |
| 46 | DZ | 70/70 (100%) | 0.86 | 4 (5%) 23 9 | 5, 68, 141, 180 | 0 |
| 47 | B0 | 56/57 (98%) | 0.85 | 7 (12%) 5 3 | 26, 95, 180, 180 | 0 |
| 47 | D0 | 56/57 (98%) | 0.89 | 8 (14%) 3 3 | 10, 70, 159, 177 | 0 |
| 48 | B1 | 54/55 (98%) | 0.83 | 7 (12%) 4 3 | 24, 97, 160, 180 | 0 |
| 48 | D1 | 54/55 (98%) | 1.77 | 14 (25%) 1 2 | 8, 82, 158, 180 | 0 |
| 49 | B2 | 46/46 (100%) | 0.80 | 7 (15%) 3 2 | 6, 51, 154, 174 | 0 |
| 49 | D2 | 46/46 (100%) | 0.70 | 1 (2%) 59 26 | 9, 55, 131, 150 | 0 |
| 50 | B3 | 64/65 (98%) | 1.29 | 11 (17%) 2 2 | 19, 61, 155, 180 | 0 |
| 50 | D3 | 64/65 (98%) | 1.27 | 14 (21%) 1 2 | 5, 61, 139, 178 | 0 |
| 51 | B4 | 38/38 (100%) | 1.37 | 10 (26%) 1 2 | 30, 102, 170, 180 | 0 |
| 51 | D4 | 38/38 (100%) | 1.44 | 12 (31%) 1 1 | 14, 111, 175, 180 | 0 |
| 52 | BI | 141/142 (99%) | 1.15 | 24 (17%) 2 2 | 52, 152, 180, 180 | 0 |
| 52 | DI | 141/142 (99%) | 1.23 | 27 (19%) 2 2 | 83, 160, 180, 180 | 0 |
| All | All | 20439/21086 (96%) | 0.39 | 1037 (5%) 27 11 | 5, 67, 155, 180 | 0 |

All (1037) RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 41 | DT | 4 | GLU | 11.2 |
| 44 | DX | 31 | GLN | 10.4 |
| 36 | BO | 58 | ILE | 10.2 |
| 25 | BC | 5 | CYS | 10.1 |
| 33 | BL | 98 | ALA | 9.8 |
| 23 | BB | 139 | U | 9.7 |
| 44 | DX | 36 | GLN | 9.6 |
| 36 | DO | 58 | ILE | 9.2 |
| 33 | BL | 8 | PRO | 8.8 |
| 42 | DU | 61 | GLU | 8.6 |
| 36 | DO | 60 | GLU | 8.5 |
| 36 | BO | 59 | ALA | 8.4 |
| 33 | DL | 11 | GLY | 8.2 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 23 | DB | 139 | U | 7.9 |
| 33 | BL | 1 | MET | 7.9 |
| 48 | D1 | 4 | ILE | 7.8 |
| 36 | DO | 59 | ALA | 7.7 |
| 23 | BB | 137 | U | 7.5 |
| 23 | BB | 1175 | A | 7.4 |
| 33 | DL | 1 | MET | 7.4 |
| 43 | BW | 52 | CYS | 7.4 |
| 43 | BW | 83 | ALA | 7.3 |
| 42 | BU | 1 | ALA | 7.2 |
| 27 | BE | 2 | GLU | 7.0 |
| 30 | BH | 92 | GLY | 7.0 |
| 23 | BB | 2145 | C | 7.0 |
| 23 | DB | 1175 | A | 6.8 |
| 27 | BE | 1 | MET | 6.8 |
| 34 | DM | 133 | LYS | 6.8 |
| 22 | DA | 88 | C | 6.7 |
| 27 | DE | 171 | ASP | 6.7 |
| 30 | BH | 85 | GLY | 6.7 |
| 44 | DX | 32 | ALA | 6.7 |
| 48 | D1 | 5 | ARG | 6.7 |
| 25 | BC | 7 | PRO | 6.7 |
| 35 | BN | 127 | GLU | 6.7 |
| 44 | DX | 33 | ALA | 6.7 |
| 45 | DY | 1 | ALA | 6.6 |
| 45 | BY | 3 | THR | 6.6 |
| 43 | BW | 82 | GLU | 6.6 |
| 44 | DX | 37 | LEU | 6.6 |
| 43 | BW | 45 | HIS | 6.5 |
| 27 | DE | 170 | ARG | 6.4 |
| 37 | BP | 26 | GLU | 6.4 |
| 30 | BH | 80 | ILE | 6.3 |
| 44 | DX | 1 | MET | 6.3 |
| 37 | BP | 24 | THR | 6.2 |
| 50 | B3 | 63 | TYR | 6.2 |
| 42 | DU | 1 | ALA | 6.2 |
| 41 | DT | 2 | ILE | 6.1 |
| 35 | BN | 125 | ALA | 6.1 |
| 33 | BL | 82 | LEU | 6.1 |
| 30 | BH | 94 | ILE | 6.1 |
| 43 | BW | 4 | LYS | 6.1 |
| 33 | DL | 6 | LEU | 6.1 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 36 | BO | 69 | ASP | 6.0 |
| 30 | BH | 91 | PHE | 5.9 |
| 34 | BM | 56 | ALA | 5.9 |
| 33 | BL | 9 | ALA | 5.8 |
| 35 | BN | 124 | ALA | 5.8 |
| 25 | BC | 166 | ARG | 5.8 |
| 43 | BW | 2 | HIS | 5.8 |
| 43 | DW | 83 | ALA | 5.7 |
| 25 | DC | 7 | PRO | 5.7 |
| 37 | DP | 112 | ARG | 5.7 |
| 23 | BB | 2308 | G | 5.7 |
| 41 | DT | 1 | MET | 5.6 |
| 48 | D1 | 54 | LYS | 5.6 |
| 30 | BH | 124 | THR | 5.6 |
| 33 | DL | 55 | MET | 5.6 |
| 50 | B3 | 61 | LEU | 5.6 |
| 27 | DE | 3 | LEU | 5.6 |
| 23 | DB | 2402 | U | 5.5 |
| 43 | DW | 52 | CYS | 5.5 |
| 33 | BL | 99 | ASN | 5.5 |
| 48 | D1 | 2 | LYS | 5.5 |
| 41 | DT | 70 | HIS | 5.5 |
| 50 | D3 | 63 | TYR | 5.5 |
| 30 | BH | 86 | ASP | 5.4 |
| 37 | DP | 97 | TYR | 5.4 |
| 50 | B3 | 64 | ALA | 5.4 |
| 44 | DX | 35 | GLY | 5.4 |
| 50 | B3 | 60 | CYS | 5.4 |
| 23 | DB | 645 | C | 5.4 |
| 23 | DB | 140 | C | 5.4 |
| 25 | BC | 6 | LYS | 5.4 |
| 35 | DN | 124 | ALA | 5.4 |
| 33 | DL | 144 | GLU | 5.4 |
| 35 | DN | 120 | GLU | 5.4 |
| 39 | DR | 44 | GLY | 5.3 |
| 14 | AO | 88 | ARG | 5.3 |
| 23 | DB | 2133 | G | 5.3 |
| 26 | DD | 70 | LYS | 5.3 |
| 43 | DW | 58 | LEU | 5.3 |
| 8 | CI | 129 | ARG | 5.3 |
| 1 | AA | 86 | G | 5.3 |
| 27 | DE | 2 | GLU | 5.2 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 33 | BL | 83 | ALA | 5.1 |
| 43 | DW | 84 | GLU | 5.1 |
| 48 | D1 | 53 | ILE | 5.1 |
| 42 | DU | 60 | LYS | 5.1 |
| 25 | DC | 5 | CYS | 5.1 |
| 48 | D1 | 3 | GLY | 5.1 |
| 30 | BH | 147 | VAL | 5.1 |
| 47 | D0 | 56 | LYS | 5.1 |
| 30 | BH | 93 | SER | 5.1 |
| 25 | DC | 268 | ARG | 5.1 |
| 42 | BU | 29 | SER | 5.1 |
| 23 | BB | 140 | C | 5.0 |
| 51 | D4 | 1 | MET | 5.0 |
| 23 | BB | 2309 | A | 5.0 |
| 37 | DP | 26 | GLU | 5.0 |
| 44 | BX | 1 | MET | 5.0 |
| 23 | BB | 654 | A | 4.9 |
| 29 | DG | 43 | LYS | 4.9 |
| 34 | BM | 1 | MET | 4.9 |
| 44 | DX | 38 | GLN | 4.9 |
| 34 | DM | 10 | ARG | 4.9 |
| 51 | B4 | 23 | ILE | 4.9 |
| 33 | DL | 100 | ILE | 4.9 |
| 33 | BL | 77 | ILE | 4.9 |
| 36 | BO | 7 | ARG | 4.8 |
| 28 | DF | 74 | ALA | 4.8 |
| 41 | DT | 99 | ALA | 4.8 |
| 30 | BH | 87 | GLU | 4.8 |
| 42 | BU | 89 | GLY | 4.8 |
| 43 | BW | 79 | ILE | 4.8 |
| 30 | BH | 148 | ALA | 4.8 |
| 27 | BE | 114 | ARG | 4.8 |
| 25 | DC | 6 | LYS | 4.8 |
| 44 | DX | 34 | SER | 4.8 |
| 35 | BN | 123 | GLU | 4.8 |
| 13 | CN | 35 | ALA | 4.8 |
| 43 | DW | 5 | ALA | 4.7 |
| 26 | BD | 91 | THR | 4.7 |
| 34 | BM | 136 | MET | 4.7 |
| 33 | BL | 7 | SER | 4.7 |
| 43 | DW | 4 | LYS | 4.7 |
| 22 | BA | 88 | C | 4.7 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 43 | BW | 58 | LEU | 4.7 |
| 43 | BW | 78 | PHE | 4.7 |
| 27 | BE | 144 | GLU | 4.7 |
| 39 | DR | 78 | ARG | 4.7 |
| 30 | BH | 122 | LEU | 4.7 |
| 33 | BL | 97 | ALA | 4.6 |
| 27 | BE | 201 | ALA | 4.6 |
| 47 | B0 | 56 | LYS | 4.6 |
| 30 | BH | 123 | ARG | 4.6 |
| 48 | B1 | 4 | ILE | 4.6 |
| 50 | D3 | 64 | ALA | 4.6 |
| 25 | BC | 268 | ARG | 4.5 |
| 42 | BU | 59 | GLU | 4.5 |
| 44 | DX | 39 | GLN | 4.5 |
| 42 | DU | 27 | VAL | 4.5 |
| 41 | DT | 93 | LEU | 4.5 |
| 30 | BH | 116 | ARG | 4.5 |
| 42 | BU | 61 | GLU | 4.5 |
| 44 | DX | 24 | GLU | 4.5 |
| 30 | BH | 81 | ALA | 4.5 |
| 33 | DL | 99 | ASN | 4.5 |
| 43 | BW | 1 | ALA | 4.4 |
| 49 | B2 | 14 | ARG | 4.4 |
| 51 | D4 | 31 | PRO | 4.4 |
| 15 | AP | 81 | ALA | 4.4 |
| 27 | DE | 169 | VAL | 4.4 |
| 35 | BN | 126 | ALA | 4.4 |
| 30 | BH | 149 | GLU | 4.4 |
| 30 | BH | 130 | VAL | 4.4 |
| 35 | DN | 126 | ALA | 4.4 |
| 52 | BI | 3 | LYS | 4.3 |
| 17 | CR | 19 | GLU | 4.3 |
| 30 | BH | 142 | VAL | 4.3 |
| 51 | D4 | 30 | GLU | 4.3 |
| 23 | BB | 645 | C | 4.3 |
| 35 | BN | 122 | ALA | 4.3 |
| 36 | BO | 88 | LYS | 4.3 |
| 30 | BH | 90 | LEU | 4.3 |
| 30 | BH | 128 | HIS | 4.3 |
| 48 | B1 | 3 | GLY | 4.3 |
| 33 | DL | 4 | ASN | 4.3 |
| 25 | DC | 8 | THR | 4.3 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 30 | DH | 122 | LEU | 4.3 |
| 26 | DD | 51 | THR | 4.3 |
| 42 | BU | 2 | ALA | 4.3 |
| 47 | D0 | 55 | ALA | 4.3 |
| 1 | CA | 85 | U | 4.3 |
| 25 | BC | 242 | HIS | 4.2 |
| 40 | BS | 1 | MET | 4.2 |
| 52 | BI | 2 | LYS | 4.2 |
| 21 | AU | 44 | ARG | 4.2 |
| 36 | BO | 56 | LYS | 4.2 |
| 48 | D1 | 1 | ALA | 4.2 |
| 23 | BB | 138 | U | 4.2 |
| 1 | AA | 78 | A | 4.2 |
| 26 | BD | 92 | VAL | 4.2 |
| 33 | DL | 5 | THR | 4.2 |
| 36 | BO | 6 | ALA | 4.2 |
| 44 | DX | 20 | ASN | 4.2 |
| 43 | DW | 3 | LYS | 4.2 |
| 36 | BO | 57 | ALA | 4.2 |
| 36 | DO | 1 | MET | 4.2 |
| 43 | DW | 1 | ALA | 4.2 |
| 26 | BD | 134 | HIS | 4.2 |
| 48 | B1 | 1 | ALA | 4.2 |
| 45 | BY | 57 | GLU | 4.1 |
| 44 | BX | 63 | ALA | 4.1 |
| 25 | BC | 21 | PRO | 4.1 |
| 41 | BT | 6 | ARG | 4.1 |
| 25 | BC | 4 | LYS | 4.1 |
| 19 | CT | 35 | TYR | 4.1 |
| 23 | BB | 2799 | A | 4.1 |
| 23 | BB | 1459 | G | 4.1 |
| 13 | AN | 60 | ARG | 4.1 |
| 16 | AQ | 5 | ARG | 4.1 |
| 26 | DD | 71 | ALA | 4.1 |
| 8 | AI | 34 | LEU | 4.0 |
| 35 | BN | 67 | PHE | 4.0 |
| 48 | B1 | 2 | LYS | 4.0 |
| 1 | AA | 121 | U | 4.0 |
| 47 | D0 | 44 | ALA | 4.0 |
| 1 | CA | 1031 | C | 4.0 |
| 38 | DQ | 117 | ALA | 4.0 |
| 6 | AG | 78 | ARG | 4.0 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 43 | DW | 2 | HIS | 4.0 |
| 52 | DI | 1 | ALA | 4.0 |
| 33 | DL | 143 | GLU | 4.0 |
| 33 | BL | 56 | PRO | 4.0 |
| 27 | DE | 145 | ASP | 4.0 |
| 41 | DT | 5 | GLU | 4.0 |
| 35 | DN | 123 | GLU | 4.0 |
| 26 | DD | 55 | LYS | 4.0 |
| 30 | BH | 127 | GLU | 4.0 |
| 27 | DE | 111 | GLU | 3.9 |
| 23 | BB | 1537 | G | 3.9 |
| 37 | BP | 20 | ARG | 3.9 |
| 27 | BE | 5 | LEU | 3.9 |
| 18 | CS | 25 | GLY | 3.9 |
| 36 | DO | 57 | ALA | 3.9 |
| 30 | DH | 149 | GLU | 3.9 |
| 39 | DR | 26 | ASP | 3.9 |
| 44 | BX | 38 | GLN | 3.9 |
| 3 | AD | 146 | GLU | 3.8 |
| 33 | BL | 38 | GLN | 3.8 |
| 30 | BH | 141 | LYS | 3.8 |
| 41 | DT | 71 | GLY | 3.8 |
| 34 | BM | 134 | THR | 3.8 |
| 23 | BB | 546 | U | 3.8 |
| 26 | BD | 90 | PHE | 3.8 |
| 33 | BL | 76 | GLU | 3.8 |
| 51 | B4 | 29 | ALA | 3.8 |
| 33 | DL | 52 | GLY | 3.8 |
| 18 | AS | 73 | PHE | 3.8 |
| 52 | DI | 98 | GLY | 3.8 |
| 37 | BP | 88 | ARG | 3.8 |
| 6 | AG | 145 | GLU | 3.8 |
| 27 | BE | 42 | GLY | 3.8 |
| 33 | DL | 92 | LEU | 3.8 |
| 23 | BB | 136 | G | 3.7 |
| 33 | BL | 10 | GLU | 3.7 |
| 29 | BG | 58 | ALA | 3.7 |
| 33 | BL | 28 | GLY | 3.7 |
| 45 | BY | 2 | LYS | 3.7 |
| 44 | DX | 19 | LEU | 3.7 |
| 43 | DW | 79 | ILE | 3.7 |
| 30 | BH | 84 | ALA | 3.7 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 33 | DL | 2 | ARG | 3.7 |
| 25 | BC | 8 | THR | 3.7 |
| 30 | BH | 79 | THR | 3.7 |
| 1 | CA | 121 | U | 3.7 |
| 33 | BL | 78 | ARG | 3.7 |
| 43 | DW | 35 | ILE | 3.7 |
| 12 | CM | 46 | GLU | 3.7 |
| 20 | CB | 124 | THR | 3.6 |
| 19 | CT | 86 | ALA | 3.6 |
| 37 | DP | 1 | SER | 3.6 |
| 3 | AD | 155 | LYS | 3.6 |
| 12 | AM | 55 | LEU | 3.6 |
| 26 | BD | 17 | GLU | 3.6 |
| 42 | DU | 28 | LEU | 3.6 |
| 26 | DD | 90 | PHE | 3.6 |
| 39 | DR | 53 | PHE | 3.6 |
| 34 | BM | 135 | VAL | 3.6 |
| 51 | D4 | 33 | HIS | 3.6 |
| 27 | DE | 112 | LEU | 3.6 |
| 34 | BM | 2 | LEU | 3.6 |
| 23 | BB | 2147 | A | 3.6 |
| 47 | B0 | 49 | ARG | 3.6 |
| 3 | AD | 43 | ARG | 3.6 |
| 30 | BH | 133 | GLN | 3.6 |
| 50 | B3 | 62 | PRO | 3.6 |
| 27 | DE | 199 | MET | 3.6 |
| 33 | DL | 7 | SER | 3.6 |
| 41 | DT | 69 | ARG | 3.6 |
| 27 | DE | 19 | PHE | 3.6 |
| 2 | AC | 98 | ALA | 3.6 |
| 12 | CM | 47 | LEU | 3.5 |
| 34 | BM | 132 | THR | 3.5 |
| 23 | BB | 2146 | C | 3.5 |
| 43 | BW | 59 | PHE | 3.5 |
| 41 | BT | 77 | ARG | 3.5 |
| 26 | BD | 135 | GLY | 3.5 |
| 20 | CB | 123 | GLY | 3.5 |
| 37 | DP | 59 | THR | 3.5 |
| 50 | B3 | 23 | HIS | 3.5 |
| 51 | B4 | 38 | GLY | 3.5 |
| 33 | DL | 74 | THR | 3.5 |
| 37 | BP | 87 | ARG | 3.5 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 12 | CM | 3 | ILE | 3.5 |
| 33 | BL | 5 | THR | 3.5 |
| 36 | DO | 61 | GLN | 3.5 |
| 33 | BL | 49 | GLY | 3.5 |
| 26 | BD | 186 | LEU | 3.4 |
| 26 | BD | 64 | GLU | 3.4 |
| 44 | DX | 47 | ARG | 3.4 |
| 51 | B4 | 1 | MET | 3.4 |
| 42 | BU | 28 | LEU | 3.4 |
| 42 | BU | 88 | ASP | 3.4 |
| 33 | DL | 3 | LEU | 3.4 |
| 37 | DP | 4 | ILE | 3.4 |
| 52 | DI | 137 | LEU | 3.4 |
| 33 | DL | 12 | SER | 3.4 |
| 1 | AA | 79 | G | 3.4 |
| 23 | BB | 2157 | G | 3.4 |
| 23 | DB | 1459 | G | 3.4 |
| 52 | DI | 83 | ALA | 3.4 |
| 27 | DE | 23 | PHE | 3.4 |
| 44 | DX | 23 | ARG | 3.4 |
| 18 | AS | 29 | PRO | 3.3 |
| 39 | DR | 43 | ASN | 3.3 |
| 30 | BH | 83 | LYS | 3.3 |
| 43 | BW | 81 | ILE | 3.3 |
| 1 | CA | 1534 | A | 3.3 |
| 39 | DR | 34 | GLU | 3.3 |
| 3 | AD | 3 | TYR | 3.3 |
| 8 | CI | 31 | GLN | 3.3 |
| 30 | BH | 146 | VAL | 3.3 |
| 1 | AA | 1362 | A | 3.3 |
| 23 | DB | 2799 | A | 3.3 |
| 41 | DT | 74 | ILE | 3.3 |
| 34 | BM | 103 | TYR | 3.3 |
| 45 | DY | 58 | GLU | 3.3 |
| 23 | BB | 2148 | G | 3.3 |
| 33 | BL | 6 | LEU | 3.3 |
| 35 | BN | 121 | LYS | 3.3 |
| 48 | D1 | 32 | LYS | 3.3 |
| 52 | BI | 1 | ALA | 3.3 |
| 35 | DN | 127 | GLU | 3.3 |
| 34 | BM | 55 | ARG | 3.3 |
| 36 | BO | 60 | GLU | 3.3 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 45 | DY | 57 | GLU | 3.3 |
| 26 | DD | 91 | THR | 3.2 |
| 39 | DR | 42 | ALA | 3.2 |
| 44 | DX | 46 | VAL | 3.2 |
| 43 | DW | 45 | HIS | 3.2 |
| 37 | BP | 23 | ASP | 3.2 |
| 52 | BI | 6 | ALA | 3.2 |
| 39 | BR | 11 | GLN | 3.2 |
| 33 | BL | 39 | LYS | 3.2 |
| 43 | BW | 77 | LYS | 3.2 |
| 19 | AT | 27 | MET | 3.2 |
| 18 | AS | 14 | LEU | 3.2 |
| 29 | BG | 93 | TYR | 3.2 |
| 26 | DD | 49 | GLN | 3.2 |
| 23 | BB | 2154 | A | 3.2 |
| 36 | BO | 19 | GLN | 3.2 |
| 48 | D1 | 52 | LYS | 3.2 |
| 18 | CS | 26 | ASP | 3.2 |
| 43 | BW | 3 | LYS | 3.2 |
| 26 | DD | 69 | ALA | 3.2 |
| 34 | BM | 3 | GLN | 3.2 |
| 1 | AA | 87 | C | 3.2 |
| 33 | BL | 34 | GLY | 3.2 |
| 37 | BP | 49 | ILE | 3.2 |
| 51 | B4 | 9 | LYS | 3.2 |
| 34 | DM | 134 | THR | 3.2 |
| 7 | AH | 110 | MET | 3.1 |
| 27 | BE | 3 | LEU | 3.1 |
| 30 | BH | 76 | GLU | 3.1 |
| 41 | BT | 25 | GLU | 3.1 |
| 29 | BG | 176 | LYS | 3.1 |
| 41 | BT | 95 | PHE | 3.1 |
| 25 | DC | 209 | ALA | 3.1 |
| 41 | BT | 72 | GLN | 3.1 |
| 18 | AS | 47 | THR | 3.1 |
| 18 | AS | 48 | ILE | 3.1 |
| 36 | DO | 64 | TYR | 3.1 |
| 18 | CS | 64 | GLU | 3.1 |
| 33 | DL | 10 | GLU | 3.1 |
| 52 | BI | 59 | THR | 3.1 |
| 26 | DD | 33 | ARG | 3.1 |
| 41 | BT | 69 | ARG | 3.1 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 25 | DC | 3 | VAL | 3.1 |
| 50 | B3 | 44 | ARG | 3.1 |
| 41 | DT | 72 | GLN | 3.1 |
| 43 | DW | 73 | PRO | 3.1 |
| 41 | BT | 26 | LYS | 3.1 |
| 1 | AA | 83 | C | 3.1 |
| 23 | BB | 613 | A | 3.1 |
| 52 | DI | 99 | LYS | 3.1 |
| 31 | DJ | 43 | GLU | 3.1 |
| 37 | BP | 3 | ILE | 3.1 |
| 27 | BE | 115 | GLN | 3.1 |
| 37 | BP | 92 | ARG | 3.1 |
| 39 | BR | 91 | GLN | 3.1 |
| 1 | AA | 461 | A | 3.1 |
| 13 | AN | 46 | LYS | 3.1 |
| 15 | AP | 82 | ALA | 3.1 |
| 37 | BP | 28 | LYS | 3.1 |
| 27 | BE | 4 | VAL | 3.1 |
| 46 | DZ | 2 | LYS | 3.1 |
| 41 | BT | 5 | GLU | 3.1 |
| 36 | BO | 61 | GLN | 3.1 |
| 37 | DP | 19 | PHE | 3.1 |
| 31 | BJ | 1 | MET | 3.1 |
| 19 | CT | 67 | HIS | 3.1 |
| 37 | BP | 99 | LEU | 3.1 |
| 18 | AS | 30 | LEU | 3.0 |
| 52 | BI | 4 | VAL | 3.0 |
| 47 | D0 | 35 | GLU | 3.0 |
| 12 | AM | 83 | GLY | 3.0 |
| 18 | AS | 60 | PHE | 3.0 |
| 29 | BG | 51 | PHE | 3.0 |
| 12 | AM | 79 | LEU | 3.0 |
| 23 | BB | 144 | A | 3.0 |
| 23 | BB | 2153 | C | 3.0 |
| 34 | DM | 56 | ALA | 3.0 |
| 41 | DT | 98 | GLY | 3.0 |
| 18 | AS | 40 | PHE | 3.0 |
| 51 | B4 | 24 | ARG | 3.0 |
| 43 | DW | 67 | LYS | 3.0 |
| 2 | AC | 158 | GLY | 3.0 |
| 50 | D3 | 62 | PRO | 3.0 |
| 23 | DB | 141 | G | 3.0 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 29 | BG | 42 | VAL | 3.0 |
| 35 | DN | 122 | ALA | 3.0 |
| 43 | BW | 84 | GLU | 3.0 |
| 44 | BX | 2 | LYS | 3.0 |
| 26 | DD | 74 | GLU | 3.0 |
| 51 | B4 | 15 | LYS | 3.0 |
| 34 | DM | 1 | MET | 3.0 |
| 34 | BM | 92 | TRP | 3.0 |
| 51 | D4 | 23 | ILE | 3.0 |
| 37 | DP | 55 | HIS | 3.0 |
| 41 | BT | 4 | GLU | 3.0 |
| 33 | BL | 37 | GLY | 3.0 |
| 35 | BN | 71 | ARG | 3.0 |
| 8 | CI | 128 | LYS | 3.0 |
| 18 | AS | 46 | LEU | 3.0 |
| 52 | BI | 5 | GLN | 3.0 |
| 44 | DX | 2 | LYS | 3.0 |
| 27 | DE | 153 | LEU | 2.9 |
| 43 | DW | 82 | GLU | 2.9 |
| 17 | AR | 73 | HIS | 2.9 |
| 39 | DR | 12 | HIS | 2.9 |
| 52 | BI | 58 | ILE | 2.9 |
| 14 | AO | 16 | ARG | 2.9 |
| 30 | BH | 97 | ARG | 2.9 |
| 51 | D4 | 37 | GLN | 2.9 |
| 1 | CA | 1032 | G | 2.9 |
| 30 | BH | 109 | GLU | 2.9 |
| 33 | BL | 57 | LEU | 2.9 |
| 43 | DW | 44 | PHE | 2.9 |
| 30 | DH | 116 | ARG | 2.9 |
| 33 | BL | 2 | ARG | 2.9 |
| 22 | BA | 52 | A | 2.9 |
| 24 | BV | 34 | LYS | 2.9 |
| 25 | BC | 256 | THR | 2.9 |
| 30 | BH | 50 | ARG | 2.9 |
| 47 | D0 | 43 | THR | 2.9 |
| 50 | D3 | 7 | ARG | 2.9 |
| 44 | BX | 37 | LEU | 2.9 |
| 38 | DQ | 72 | GLY | 2.9 |
| 39 | BR | 71 | LYS | 2.9 |
| 41 | DT | 54 | GLU | 2.9 |
| 30 | DH | 20 | ASN | 2.9 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 50 | D3 | 28 | LEU | 2.9 |
| 16 | CQ | 3 | LYS | 2.9 |
| 23 | BB | 1538 | G | 2.9 |
| 30 | BH | 96 | THR | 2.9 |
| 45 | BY | 1 | ALA | 2.9 |
| 50 | B3 | 12 | ARG | 2.9 |
| 47 | D0 | 33 | SER | 2.9 |
| 37 | BP | 97 | TYR | 2.9 |
| 1 | AA | 466 | A | 2.9 |
| 41 | DT | 33 | LYS | 2.9 |
| 33 | DL | 48 | ARG | 2.9 |
| 35 | DN | 119 | SER | 2.9 |
| 25 | DC | 257 | ARG | 2.8 |
| 23 | DB | 62 | U | 2.8 |
| 27 | BE | 41 | GLN | 2.8 |
| 17 | AR | 72 | ARG | 2.8 |
| 29 | DG | 169 | ARG | 2.8 |
| 30 | DH | 72 | ILE | 2.8 |
| 20 | CB | 220 | VAL | 2.8 |
| 2 | AC | 151 | GLU | 2.8 |
| 27 | DE | 141 | MET | 2.8 |
| 47 | D0 | 34 | GLY | 2.8 |
| 43 | BW | 53 | GLY | 2.8 |
| 49 | B2 | 46 | LYS | 2.8 |
| 29 | DG | 41 | GLU | 2.8 |
| 40 | DS | 1 | MET | 2.8 |
| 33 | DL | 59 | ARG | 2.8 |
| 43 | BW | 68 | PHE | 2.8 |
| 42 | DU | 32 | LYS | 2.8 |
| 23 | BB | 2402 | U | 2.8 |
| 20 | AB | 211 | LEU | 2.8 |
| 46 | DZ | 58 | ASP | 2.8 |
| 42 | BU | 30 | SER | 2.8 |
| 27 | BE | 128 | ALA | 2.8 |
| 34 | DM | 91 | TYR | 2.8 |
| 48 | B1 | 53 | ILE | 2.8 |
| 18 | AS | 2 | ARG | 2.8 |
| 18 | CS | 2 | ARG | 2.8 |
| 27 | DE | 144 | GLU | 2.8 |
| 31 | BJ | 98 | GLU | 2.8 |
| 52 | DI | 97 | VAL | 2.8 |
| 35 | DN | 125 | ALA | 2.8 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 23 | DB | 1537 | G | 2.8 |
| 27 | DE | 25 | GLU | 2.7 |
| 32 | DK | 49 | ARG | 2.7 |
| 31 | BJ | 44 | TYR | 2.7 |
| 41 | DT | 12 | ARG | 2.7 |
| 43 | DW | 68 | PHE | 2.7 |
| 17 | AR | 36 | GLY | 2.7 |
| 37 | DP | 37 | LYS | 2.7 |
| 44 | BX | 39 | GLN | 2.7 |
| 49 | B2 | 15 | SER | 2.7 |
| 18 | CS | 65 | MET | 2.7 |
| 29 | DG | 172 | GLU | 2.7 |
| 30 | BH | 104 | THR | 2.7 |
| 34 | BM | 10 | ARG | 2.7 |
| 37 | BP | 4 | ILE | 2.7 |
| 43 | BW | 74 | LYS | 2.7 |
| 52 | BI | 52 | LEU | 2.7 |
| 42 | DU | 69 | VAL | 2.7 |
| 23 | DB | 1535 | A | 2.7 |
| 30 | BH | 126 | GLY | 2.7 |
| 39 | BR | 52 | PRO | 2.7 |
| 33 | DL | 58 | TYR | 2.7 |
| 27 | DE | 168 | ASP | 2.7 |
| 25 | BC | 267 | VAL | 2.7 |
| 40 | BS | 93 | ALA | 2.7 |
| 30 | DH | 112 | LYS | 2.7 |
| 42 | DU | 29 | SER | 2.7 |
| 50 | D3 | 60 | CYS | 2.7 |
| 1 | CA | 84 | U | 2.7 |
| 37 | DP | 61 | ARG | 2.7 |
| 27 | DE | 172 | ALA | 2.7 |
| 29 | DG | 39 | ALA | 2.7 |
| 35 | DN | 121 | LYS | 2.7 |
| 29 | DG | 42 | VAL | 2.7 |
| 43 | DW | 6 | GLY | 2.7 |
| 37 | BP | 61 | ARG | 2.7 |
| 44 | BX | 27 | ASN | 2.7 |
| 48 | D1 | 31 | GLU | 2.7 |
| 23 | BB | 2104 | C | 2.7 |
| 27 | BE | 117 | ARG | 2.7 |
| 30 | BH | 132 | PHE | 2.7 |
| 33 | BL | 117 | THR | 2.7 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 1 | AA | 1441 | A | 2.7 |
| 7 | AH | 1 | SER | 2.7 |
| 41 | DT | 13 | ALA | 2.7 |
| 4 | CE | 12 | GLU | 2.6 |
| 50 | D3 | 48 | MET | 2.6 |
| 25 | BC | 241 | LYS | 2.6 |
| 36 | DO | 23 | ALA | 2.6 |
| 31 | BJ | 130 | HIS | 2.6 |
| 13 | AN | 30 | ILE | 2.6 |
| 1 | AA | 81 | A | 2.6 |
| 43 | BW | 67 | LYS | 2.6 |
| 23 | BB | 846 | U | 2.6 |
| 29 | DG | 56 | GLY | 2.6 |
| 30 | DH | 50 | ARG | 2.6 |
| 41 | DT | 47 | VAL | 2.6 |
| 1 | AA | 85 | U | 2.6 |
| 52 | DI | 84 | GLY | 2.6 |
| 33 | BL | 4 | ASN | 2.6 |
| 33 | DL | 8 | PRO | 2.6 |
| 52 | DI | 21 | PRO | 2.6 |
| 14 | CO | 69 | LEU | 2.6 |
| 52 | DI | 6 | ALA | 2.6 |
| 6 | CG | 152 | HIS | 2.6 |
| 30 | DH | 76 | GLU | 2.6 |
| 47 | B0 | 51 | ARG | 2.6 |
| 1 | CA | 1030 | U | 2.6 |
| 34 | BM | 5 | LYS | 2.6 |
| 35 | BN | 20 | MET | 2.6 |
| 33 | DL | 49 | GLY | 2.6 |
| 52 | DI | 132 | ALA | 2.6 |
| 21 | AU | 4 | LYS | 2.6 |
| 52 | DI | 9 | LYS | 2.6 |
| 7 | AH | 74 | ILE | 2.6 |
| 27 | DE | 165 | HIS | 2.6 |
| 39 | DR | 33 | VAL | 2.6 |
| 1 | AA | 845 | A | 2.6 |
| 16 | AQ | 27 | PHE | 2.6 |
| 47 | B0 | 55 | ALA | 2.6 |
| 27 | BE | 155 | GLU | 2.6 |
| 38 | DQ | 96 | ASP | 2.6 |
| 42 | BU | 87 | GLU | 2.6 |
| 46 | DZ | 41 | HIS | 2.6 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 33 | BL | 52 | GLY | 2.6 |
| 36 | BO | 76 | LYS | 2.6 |
| 17 | CR | 63 | TYR | 2.6 |
| 26 | DD | 92 | VAL | 2.6 |
| 48 | D1 | 43 | ARG | 2.6 |
| 21 | AU | 3 | ILE | 2.6 |
| 34 | DM | 136 | MET | 2.6 |
| 3 | AD | 153 | ARG | 2.6 |
| 51 | B4 | 22 | VAL | 2.6 |
| 33 | BL | 144 | GLU | 2.6 |
| 41 | DT | 37 | ASP | 2.5 |
| 13 | AN | 40 | ARG | 2.5 |
| 20 | AB | 199 | ILE | 2.5 |
| 31 | BJ | 10 | THR | 2.5 |
| 48 | D1 | 36 | LYS | 2.5 |
| 43 | DW | 19 | ARG | 2.5 |
| 34 | BM | 109 | PRO | 2.5 |
| 30 | BH | 117 | LEU | 2.5 |
| 6 | AG | 4 | ARG | 2.5 |
| 15 | AP | 43 | ALA | 2.5 |
| 11 | AL | 122 | LYS | 2.5 |
| 13 | CN | 22 | LYS | 2.5 |
| 25 | BC | 238 | ASN | 2.5 |
| 26 | BD | 133 | THR | 2.5 |
| 34 | DM | 40 | ARG | 2.5 |
| 40 | BS | 40 | ASN | 2.5 |
| 1 | CA | 1441 | A | 2.5 |
| 19 | CT | 51 | ASN | 2.5 |
| 20 | AB | 128 | LEU | 2.5 |
| 39 | BR | 26 | ASP | 2.5 |
| 25 | BC | 269 | ARG | 2.5 |
| 41 | DT | 36 | LYS | 2.5 |
| 26 | BD | 132 | ALA | 2.5 |
| 33 | DL | 53 | GLY | 2.5 |
| 29 | DG | 176 | LYS | 2.5 |
| 39 | BR | 37 | GLU | 2.5 |
| 39 | DR | 11 | GLN | 2.5 |
| 36 | BO | 89 | ASP | 2.5 |
| 27 | BE | 143 | LEU | 2.5 |
| 16 | CQ | 6 | THR | 2.5 |
| 18 | AS | 18 | VAL | 2.5 |
| 50 | D3 | 35 | LYS | 2.5 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 12 | CM | 52 | ILE | 2.5 |
| 41 | BT | 32 | LEU | 2.5 |
| 6 | AG | 76 | SER | 2.5 |
| 20 | AB | 212 | TYR | 2.5 |
| 16 | AQ | 7 | LEU | 2.5 |
| 25 | BC | 10 | PRO | 2.5 |
| 51 | D4 | 25 | VAL | 2.5 |
| 18 | AS | 31 | ARG | 2.5 |
| 25 | DC | 269 | ARG | 2.5 |
| 23 | BB | 2139 | U | 2.5 |
| 34 | BM | 11 | LYS | 2.5 |
| 25 | BC | 165 | ALA | 2.5 |
| 1 | AA | 1493 | A | 2.5 |
| 39 | BR | 25 | LEU | 2.5 |
| 41 | DT | 50 | LEU | 2.5 |
| 11 | CL | 24 | GLU | 2.5 |
| 27 | BE | 145 | ASP | 2.5 |
| 42 | BU | 56 | GLY | 2.5 |
| 46 | DZ | 47 | LYS | 2.5 |
| 28 | BF | 31 | GLU | 2.5 |
| 23 | BB | 62 | U | 2.5 |
| 23 | DB | 846 | U | 2.5 |
| 39 | BR | 12 | HIS | 2.5 |
| 16 | AQ | 20 | ILE | 2.5 |
| 23 | DB | 2134 | A | 2.5 |
| 27 | BE | 153 | LEU | 2.5 |
| 46 | BZ | 63 | ARG | 2.5 |
| 30 | BH | 82 | SER | 2.5 |
| 8 | AI | 29 | ILE | 2.5 |
| 36 | DO | 24 | THR | 2.5 |
| 11 | CL | 123 | ALA | 2.5 |
| 35 | BN | 68 | ALA | 2.5 |
| 37 | BP | 50 | ARG | 2.5 |
| 50 | D3 | 12 | ARG | 2.5 |
| 39 | DR | 55 | ASP | 2.5 |
| 26 | BD | 9 | VAL | 2.5 |
| 27 | DE | 142 | ALA | 2.5 |
| 15 | CP | 47 | GLU | 2.4 |
| 29 | DG | 44 | HIS | 2.4 |
| 19 | AT | 41 | GLY | 2.4 |
| 27 | DE | 155 | GLU | 2.4 |
| 23 | BB | 1074 | G | 2.4 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 37 | DP | 40 | GLN | 2.4 |
| 36 | BO | 8 | ILE | 2.4 |
| 39 | DR | 98 | ILE | 2.4 |
| 21 | CU | 8 | ASN | 2.4 |
| 50 | D3 | 32 | LEU | 2.4 |
| 6 | CG | 38 | ALA | 2.4 |
| 5 | CF | 94 | HIS | 2.4 |
| 40 | DS | 109 | ASP | 2.4 |
| 52 | DI | 30 | GLN | 2.4 |
| 33 | BL | 126 | ARG | 2.4 |
| 20 | AB | 15 | PHE | 2.4 |
| 20 | AB | 153 | MET | 2.4 |
| 27 | DE | 24 | ASN | 2.4 |
| 50 | D3 | 36 | ALA | 2.4 |
| 52 | BI | 97 | VAL | 2.4 |
| 11 | AL | 123 | ALA | 2.4 |
| 39 | DR | 59 | ILE | 2.4 |
| 42 | BU | 93 | ARG | 2.4 |
| 44 | BX | 62 | GLY | 2.4 |
| 9 | AJ | 91 | ASP | 2.4 |
| 30 | BH | 121 | VAL | 2.4 |
| 41 | DT | 89 | GLU | 2.4 |
| 42 | BU | 32 | LYS | 2.4 |
| 26 | DD | 100 | LEU | 2.4 |
| 30 | BH | 75 | LEU | 2.4 |
| 38 | DQ | 46 | TYR | 2.4 |
| 52 | DI | 85 | ILE | 2.4 |
| 27 | BE | 129 | PRO | 2.4 |
| 31 | BJ | 99 | ARG | 2.4 |
| 1 | AA | 1533 | C | 2.4 |
| 39 | DR | 90 | ARG | 2.4 |
| 51 | B4 | 25 | VAL | 2.4 |
| 52 | DI | 5 | GLN | 2.4 |
| 18 | CS | 43 | MET | 2.4 |
| 35 | BN | 119 | SER | 2.4 |
| 52 | BI | 86 | LYS | 2.4 |
| 52 | DI | 80 | LYS | 2.4 |
| 18 | AS | 36 | ARG | 2.4 |
| 52 | DI | 81 | LYS | 2.4 |
| 19 | CT | 53 | MET | 2.4 |
| 52 | DI | 136 | GLY | 2.4 |
| 38 | DQ | 91 | ARG | 2.4 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 15 | AP | 80 | LYS | 2.4 |
| 18 | CS | 78 | THR | 2.4 |
| 27 | BE | 200 | LEU | 2.4 |
| 33 | BL | 19 | LEU | 2.4 |
| 3 | AD | 108 | ALA | 2.4 |
| 49 | B2 | 13 | ASN | 2.4 |
| 1 | CA | 1362 | A | 2.4 |
| 5 | AF | 52 | ASN | 2.4 |
| 25 | BC | 22 | GLU | 2.4 |
| 26 | DD | 64 | GLU | 2.4 |
| 2 | AC | 99 | GLN | 2.4 |
| 17 | AR | 38 | ILE | 2.4 |
| 34 | DM | 18 | ARG | 2.4 |
| 39 | DR | 27 | ILE | 2.4 |
| 30 | BH | 101 | ASP | 2.4 |
| 33 | BL | 35 | HIS | 2.4 |
| 36 | BO | 106 | LEU | 2.4 |
| 52 | DI | 52 | LEU | 2.4 |
| 1 | CA | 461 | A | 2.4 |
| 29 | DG | 51 | PHE | 2.4 |
| 27 | BE | 40 | ARG | 2.3 |
| 41 | DT | 44 | LYS | 2.3 |
| 45 | DY | 2 | LYS | 2.3 |
| 7 | CH | 62 | LEU | 2.3 |
| 34 | BM | 125 | PRO | 2.3 |
| 37 | DP | 20 | ARG | 2.3 |
| 41 | BT | 38 | ALA | 2.3 |
| 25 | DC | 247 | TRP | 2.3 |
| 31 | DJ | 1 | MET | 2.3 |
| 41 | DT | 68 | LYS | 2.3 |
| 52 | BI | 21 | PRO | 2.3 |
| 6 | CG | 105 | GLU | 2.3 |
| 37 | DP | 3 | ILE | 2.3 |
| 13 | AN | 27 | LYS | 2.3 |
| 41 | DT | 91 | GLN | 2.3 |
| 48 | B1 | 54 | LYS | 2.3 |
| 19 | CT | 38 | ILE | 2.3 |
| 26 | BD | 183 | GLU | 2.3 |
| 3 | AD | 154 | VAL | 2.3 |
| 36 | DO | 21 | LEU | 2.3 |
| 28 | DF | 112 | ASP | 2.3 |
| 3 | AD | 197 | HIS | 2.3 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 14 | AO | 72 | LYS | 2.3 |
| 33 | DL | 115 | GLU | 2.3 |
| 52 | BI | 70 | THR | 2.3 |
| 43 | BW | 5 | ALA | 2.3 |
| 18 | AS | 28 | LYS | 2.3 |
| 30 | BH | 110 | VAL | 2.3 |
| 33 | BL | 84 | LYS | 2.3 |
| 35 | DN | 57 | THR | 2.3 |
| 42 | BU | 91 | LYS | 2.3 |
| 26 | DD | 79 | LEU | 2.3 |
| 50 | B3 | 13 | PHE | 2.3 |
| 51 | D4 | 16 | ILE | 2.3 |
| 12 | AM | 78 | ARG | 2.3 |
| 41 | DT | 26 | LYS | 2.3 |
| 1 | AA | 82 | G | 2.3 |
| 23 | BB | 653 | U | 2.3 |
| 7 | AH | 102 | VAL | 2.3 |
| 39 | BR | 41 | ILE | 2.3 |
| 16 | AQ | 45 | VAL | 2.3 |
| 23 | DB | 1460 | U | 2.3 |
| 25 | DC | 210 | ALA | 2.3 |
| 41 | BT | 79 | ASP | 2.3 |
| 5 | CF | 86 | ARG | 2.3 |
| 2 | AC | 45 | GLU | 2.3 |
| 16 | CQ | 26 | ARG | 2.3 |
| 26 | DD | 59 | ARG | 2.3 |
| 3 | AD | 173 | ASP | 2.3 |
| 51 | D4 | 34 | LYS | 2.3 |
| 25 | BC | 224 | MET | 2.3 |
| 52 | DI | 82 | ALA | 2.3 |
| 8 | CI | 40 | ARG | 2.3 |
| 52 | DI | 78 | LEU | 2.3 |
| 5 | CF | 96 | VAL | 2.3 |
| 33 | DL | 140 | GLY | 2.3 |
| 41 | DT | 53 | VAL | 2.3 |
| 36 | DO | 35 | ILE | 2.3 |
| 6 | AG | 84 | TYR | 2.3 |
| 26 | BD | 25 | THR | 2.3 |
| 30 | DH | 139 | PHE | 2.3 |
| 40 | BS | 103 | ILE | 2.3 |
| 48 | D1 | 27 | ARG | 2.3 |
| 30 | DH | 67 | ALA | 2.3 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 23 | DB | 2147 | A | 2.3 |
| 46 | BZ | 22 | MET | 2.3 |
| 41 | BT | 82 | LYS | 2.3 |
| 45 | DY | 37 | ARG | 2.3 |
| 23 | DB | 2833 | U | 2.3 |
| 25 | BC | 20 | ASN | 2.3 |
| 20 | CB | 34 | ARG | 2.2 |
| 26 | BD | 150 | GLN | 2.2 |
| 30 | DH | 19 | VAL | 2.2 |
| 52 | DI | 7 | TYR | 2.2 |
| 27 | BE | 188 | MET | 2.2 |
| 23 | BB | 2602 | A | 2.2 |
| 27 | BE | 22 | ASP | 2.2 |
| 47 | B0 | 41 | HIS | 2.2 |
| 6 | CG | 66 | GLU | 2.2 |
| 26 | BD | 148 | GLN | 2.2 |
| 30 | DH | 25 | TYR | 2.2 |
| 38 | DQ | 58 | GLN | 2.2 |
| 36 | DO | 89 | ASP | 2.2 |
| 20 | AB | 157 | PRO | 2.2 |
| 27 | BE | 127 | GLU | 2.2 |
| 37 | BP | 62 | LYS | 2.2 |
| 50 | B3 | 26 | ALA | 2.2 |
| 28 | DF | 73 | VAL | 2.2 |
| 31 | DJ | 102 | GLU | 2.2 |
| 52 | BI | 60 | VAL | 2.2 |
| 3 | AD | 145 | ARG | 2.2 |
| 13 | CN | 18 | LYS | 2.2 |
| 51 | D4 | 32 | LYS | 2.2 |
| 16 | AQ | 6 | THR | 2.2 |
| 37 | BP | 74 | GLN | 2.2 |
| 18 | AS | 43 | MET | 2.2 |
| 18 | CS | 40 | PHE | 2.2 |
| 29 | DG | 2 | ARG | 2.2 |
| 13 | AN | 20 | PHE | 2.2 |
| 41 | DT | 96 | VAL | 2.2 |
| 51 | B4 | 35 | GLN | 2.2 |
| 3 | AD | 103 | ARG | 2.2 |
| 31 | DJ | 50 | THR | 2.2 |
| 21 | CU | 37 | TYR | 2.2 |
| 52 | DI | 100 | ILE | 2.2 |
| 25 | BC | 202 | ARG | 2.2 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 7 | AH | 13 | ILE | 2.2 |
| 33 | DL | 51 | GLU | 2.2 |
| 27 | BE | 38 | GLY | 2.2 |
| 13 | AN | 5 | MET | 2.2 |
| 37 | DP | 36 | LYS | 2.2 |
| 41 | BT | 64 | LYS | 2.2 |
| 27 | BE | 49 | ARG | 2.2 |
| 25 | DC | 242 | HIS | 2.2 |
| 6 | CG | 104 | VAL | 2.2 |
| 23 | BB | 1509 | A | 2.2 |
| 30 | BH | 98 | ASP | 2.2 |
| 34 | BM | 126 | ILE | 2.2 |
| 37 | DP | 80 | VAL | 2.2 |
| 45 | DY | 10 | ARG | 2.2 |
| 23 | DB | 2903 | U | 2.2 |
| 38 | BQ | 111 | LYS | 2.2 |
| 18 | CS | 68 | HIS | 2.2 |
| 19 | CT | 60 | GLN | 2.2 |
| 25 | BC | 114 | GLN | 2.2 |
| 27 | BE | 199 | MET | 2.2 |
| 33 | BL | 55 | MET | 2.2 |
| 41 | BT | 7 | LEU | 2.2 |
| 43 | DW | 37 | VAL | 2.2 |
| 14 | AO | 58 | MET | 2.2 |
| 27 | BE | 123 | LYS | 2.2 |
| 34 | BM | 65 | ILE | 2.2 |
| 43 | DW | 74 | LYS | 2.2 |
| 45 | DY | 29 | ARG | 2.2 |
| 52 | BI | 7 | TYR | 2.2 |
| 20 | AB | 32 | GLY | 2.1 |
| 18 | CS | 10 | ILE | 2.1 |
| 41 | DT | 3 | ARG | 2.1 |
| 49 | B2 | 35 | ARG | 2.1 |
| 37 | BP | 27 | VAL | 2.1 |
| 23 | DB | 1205 | A | 2.1 |
| 24 | BV | 59 | GLU | 2.1 |
| 52 | BI | 14 | ALA | 2.1 |
| 50 | D3 | 46 | LYS | 2.1 |
| 51 | D4 | 7 | VAL | 2.1 |
| 36 | BO | 3 | LYS | 2.1 |
| 50 | D3 | 33 | THR | 2.1 |
| 30 | BH | 20 | ASN | 2.1 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 35 | DN | 1 | MET | 2.1 |
| 35 | DN | 45 | ARG | 2.1 |
| 2 | AC | 159 | ALA | 2.1 |
| 1 | CA | 1033 | G | 2.1 |
| 3 | AD | 44 | LYS | 2.1 |
| 44 | BX | 20 | ASN | 2.1 |
| 37 | DP | 92 | ARG | 2.1 |
| 23 | BB | 143 | C | 2.1 |
| 41 | DT | 80 | TRP | 2.1 |
| 9 | AJ | 27 | GLU | 2.1 |
| 33 | BL | 142 | ILE | 2.1 |
| 12 | CM | 109 | LYS | 2.1 |
| 15 | CP | 52 | LEU | 2.1 |
| 19 | CT | 52 | GLU | 2.1 |
| 2 | AC | 179 | ALA | 2.1 |
| 23 | BB | 1176 | U | 2.1 |
| 36 | BO | 92 | PHE | 2.1 |
| 41 | DT | 31 | VAL | 2.1 |
| 33 | DL | 35 | HIS | 2.1 |
| 48 | D1 | 48 | TYR | 2.1 |
| 1 | AA | 80 | A | 2.1 |
| 27 | BE | 48 | THR | 2.1 |
| 52 | DI | 111 | THR | 2.1 |
| 21 | CU | 34 | ARG | 2.1 |
| 39 | BR | 92 | TRP | 2.1 |
| 3 | CD | 28 | ASP | 2.1 |
| 41 | DT | 48 | GLN | 2.1 |
| 47 | D0 | 45 | ASP | 2.1 |
| 12 | AM | 85 | TYR | 2.1 |
| 3 | AD | 147 | LYS | 2.1 |
| 19 | CT | 65 | LEU | 2.1 |
| 37 | BP | 109 | ILE | 2.1 |
| 26 | DD | 17 | GLU | 2.1 |
| 31 | BJ | 120 | ARG | 2.1 |
| 37 | DP | 87 | ARG | 2.1 |
| 39 | DR | 68 | ARG | 2.1 |
| 2 | AC | 77 | GLY | 2.1 |
| 33 | BL | 62 | PRO | 2.1 |
| 47 | B0 | 34 | GLY | 2.1 |
| 31 | BJ | 100 | VAL | 2.1 |
| 33 | DL | 70 | LYS | 2.1 |
| 37 | BP | 51 | ASN | 2.1 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 27 | BE | 21 | ARG | 2.1 |
| 23 | DB | 143 | C | 2.1 |
| 28 | BF | 129 | MET | 2.1 |
| 33 | BL | 53 | GLY | 2.1 |
| 35 | BN | 2 | ARG | 2.1 |
| 30 | BH | 18 | GLN | 2.1 |
| 30 | BH | 89 | LYS | 2.1 |
| 13 | AN | 68 | ARG | 2.1 |
| 16 | AQ | 55 | GLY | 2.1 |
| 52 | BI | 115 | ASP | 2.1 |
| 25 | BC | 3 | VAL | 2.1 |
| 25 | DC | 166 | ARG | 2.1 |
| 27 | BE | 158 | PHE | 2.1 |
| 52 | DI | 135 | MET | 2.1 |
| 52 | BI | 79 | LEU | 2.1 |
| 3 | AD | 36 | ALA | 2.1 |
| 20 | CB | 126 | ASP | 2.1 |
| 36 | BO | 4 | LYS | 2.1 |
| 36 | BO | 5 | SER | 2.1 |
| 4 | CE | 115 | GLU | 2.1 |
| 25 | BC | 257 | ARG | 2.1 |
| 41 | BT | 96 | VAL | 2.1 |
| 42 | DU | 68 | ASN | 2.1 |
| 13 | CN | 46 | LYS | 2.1 |
| 13 | AN | 21 | ALA | 2.1 |
| 23 | BB | 2138 | G | 2.1 |
| 25 | BC | 218 | THR | 2.1 |
| 28 | BF | 116 | LEU | 2.1 |
| 38 | DQ | 55 | GLN | 2.1 |
| 3 | AD | 175 | GLY | 2.1 |
| 25 | DC | 162 | GLN | 2.1 |
| 43 | DW | 25 | PHE | 2.1 |
| 22 | DA | 52 | A | 2.1 |
| 18 | AS | 59 | VAL | 2.1 |
| 41 | DT | 10 | VAL | 2.1 |
| 49 | B2 | 18 | PHE | 2.1 |
| 52 | BI | 35 | MET | 2.1 |
| 1 | CA | 1029 | U | 2.1 |
| 15 | CP | 43 | ALA | 2.1 |
| 33 | BL | 54 | GLN | 2.0 |
| 35 | BN | 1 | MET | 2.0 |
| 39 | DR | 60 | LYS | 2.0 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 2 | CC | 56 | ILE | 2.0 |
| 11 | CL | 85 | ARG | 2.0 |
| 35 | BN | 8 | ARG | 2.0 |
| 34 | BM | 33 | LEU | 2.0 |
| 52 | DI | 25 | PRO | 2.0 |
| 3 | AD | 35 | GLN | 2.0 |
| 51 | D4 | 38 | GLY | 2.0 |
| 2 | AC | 130 | ARG | 2.0 |
| 1 | CA | 412 | A | 2.0 |
| 23 | DB | 101 | A | 2.0 |
| 23 | DB | 2602 | A | 2.0 |
| 41 | BT | 36 | LYS | 2.0 |
| 49 | D2 | 37 | LYS | 2.0 |
| 33 | DL | 101 | ILE | 2.0 |
| 9 | CJ | 102 | LEU | 2.0 |
| 48 | B1 | 5 | ARG | 2.0 |
| 23 | BB | 145 | C | 2.0 |
| 23 | BB | 1726 | C | 2.0 |
| 35 | BN | 7 | GLY | 2.0 |
| 42 | BU | 45 | GLN | 2.0 |
| 49 | B2 | 37 | LYS | 2.0 |
| 52 | BI | 31 | GLY | 2.0 |
| 52 | BI | 48 | ILE | 2.0 |
| 42 | BU | 47 | PRO | 2.0 |
| 52 | BI | 53 | PRO | 2.0 |
| 52 | DI | 53 | PRO | 2.0 |
| 52 | DI | 96 | LYS | 2.0 |
| 4 | CE | 11 | GLN | 2.0 |
| 36 | DO | 19 | GLN | 2.0 |
| 20 | AB | 100 | LEU | 2.0 |
| 41 | DT | 8 | LEU | 2.0 |
| 25 | DC | 4 | LYS | 2.0 |
| 37 | BP | 13 | LYS | 2.0 |
| 52 | BI | 85 | ILE | 2.0 |
| 25 | DC | 218 | THR | 2.0 |
| 36 | DO | 28 | VAL | 2.0 |
| 47 | B0 | 45 | ASP | 2.0 |
| 50 | D3 | 19 | GLY | 2.0 |
| 50 | B3 | 24 | LYS | 2.0 |
| 6 | AG | 8 | GLN | 2.0 |
| 29 | BG | 21 | GLN | 2.0 |
| 18 | AS | 58 | PRO | 2.0 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 16 | AQ | 29 | LYS | 2.0 |
| 24 | BV | 82 | TYR | 2.0 |
| 12 | AM | 95 | PRO | 2.0 |
| 41 | DT | 6 | ARG | 2.0 |
| 41 | DT | 73 | ARG | 2.0 |
| 19 | AT | 34 | VAL | 2.0 |
| 19 | AT | 35 | TYR | 2.0 |
| 37 | DP | 110 | LYS | 2.0 |
| 42 | BU | 71 | ILE | 2.0 |
| 45 | BY | 38 | GLU | 2.0 |
| 52 | BI | 91 | LYS | 2.0 |
| 2 | AC | 131 | ARG | 2.0 |
| 3 | AD | 4 | LEU | 2.0 |
| 11 | CL | 93 | ARG | 2.0 |
| 12 | CM | 82 | LEU | 2.0 |
| 19 | CT | 74 | HIS | 2.0 |

6.2 Non-standard residues in protein, DNA, RNA chains ⓘ

There are no non-standard protein/DNA/RNA residues in this entry.

6.3 Carbohydrates ⓘ

There are no carbohydrates in this entry.

6.4 Ligands ⓘ

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q < 0.9' lists the number of atoms with occupancy less than 0.9.

| Mol | Type | Chain | Res | Atoms | RSR | LLDF | B-factors(Å ²) | Q<0.9 |
|-----|------|-------|------|-------|------|-------|----------------------------|-------|
| 54 | MG | AA | 1627 | 1/1 | 0.28 | 42.00 | 17,17,17,17 | 1 |
| 54 | MG | AA | 1637 | 1/1 | 0.51 | 24.69 | 115,115,115,115 | 0 |
| 54 | MG | CA | 1629 | 1/1 | 0.38 | 20.18 | 62,62,62,62 | 1 |
| 54 | MG | BB | 3047 | 1/1 | 0.29 | 11.81 | 128,128,128,128 | 0 |
| 54 | MG | CA | 1616 | 1/1 | 0.25 | 9.08 | 153,153,153,153 | 0 |

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| Mol | Type | Chain | Res | Atoms | RSR | LLDF | B-factors(\AA^2) | Q<0.9 |
|-----|------|-------|------|-------|------|------|-----------------------------|-------|
| 54 | MG | BB | 3082 | 1/1 | 0.39 | 8.55 | 63,63,63,63 | 0 |
| 54 | MG | AA | 1647 | 1/1 | 0.44 | 7.25 | 84,84,84,84 | 0 |
| 54 | MG | CA | 1624 | 1/1 | 0.29 | 7.21 | 162,162,162,162 | 0 |
| 54 | MG | CA | 1628 | 1/1 | 0.21 | 7.18 | 38,38,38,38 | 1 |
| 54 | MG | DB | 3093 | 1/1 | 0.77 | 7.16 | 48,48,48,48 | 1 |
| 54 | MG | DB | 3082 | 1/1 | 0.28 | 7.13 | 61,61,61,61 | 0 |
| 54 | MG | BB | 3033 | 1/1 | 0.28 | 6.61 | 113,113,113,113 | 0 |
| 54 | MG | AA | 1650 | 1/1 | 0.23 | 4.75 | 133,133,133,133 | 0 |
| 54 | MG | CA | 1631 | 1/1 | 0.21 | 4.21 | 21,21,21,21 | 1 |
| 54 | MG | CA | 1622 | 1/1 | 0.28 | 4.18 | 132,132,132,132 | 0 |
| 54 | MG | DB | 3058 | 1/1 | 0.18 | 4.08 | 132,132,132,132 | 0 |
| 54 | MG | DB | 3064 | 1/1 | 0.24 | 4.06 | 66,66,66,66 | 1 |
| 54 | MG | BB | 3086 | 1/1 | 0.27 | 3.82 | 94,94,94,94 | 0 |
| 53 | KSG | CA | 1601 | 26/26 | 0.30 | 3.36 | 53,53,53,53 | 0 |
| 54 | MG | BB | 3089 | 1/1 | 0.23 | 3.30 | 82,82,82,82 | 0 |
| 54 | MG | CA | 1660 | 1/1 | 0.21 | 3.26 | 27,27,27,27 | 0 |
| 54 | MG | BB | 3100 | 1/1 | 0.23 | 3.12 | 37,37,37,37 | 1 |
| 53 | KSG | AA | 1601 | 26/26 | 0.29 | 2.78 | 53,53,53,53 | 0 |
| 54 | MG | AA | 1625 | 1/1 | 0.36 | 2.58 | 81,81,81,81 | 0 |
| 54 | MG | BB | 3043 | 1/1 | 0.25 | 2.44 | 63,63,63,63 | 0 |
| 54 | MG | BB | 3028 | 1/1 | 0.23 | 2.36 | 66,66,66,66 | 0 |
| 54 | MG | CA | 1637 | 1/1 | 0.15 | 2.30 | 107,107,107,107 | 0 |
| 54 | MG | AA | 1657 | 1/1 | 0.22 | 2.30 | 83,83,83,83 | 0 |
| 54 | MG | AA | 1620 | 1/1 | 0.20 | 1.79 | 116,116,116,116 | 0 |
| 54 | MG | DB | 3088 | 1/1 | 0.20 | 1.52 | 51,51,51,51 | 0 |
| 54 | MG | CA | 1609 | 1/1 | 0.19 | 1.52 | 132,132,132,132 | 0 |
| 54 | MG | BB | 3078 | 1/1 | 0.27 | 1.51 | 49,49,49,49 | 0 |
| 54 | MG | DB | 3033 | 1/1 | 0.25 | 1.45 | 88,88,88,88 | 0 |
| 54 | MG | DB | 3089 | 1/1 | 0.25 | 1.37 | 28,28,28,28 | 0 |
| 54 | MG | DB | 3094 | 1/1 | 0.22 | 1.36 | 33,33,33,33 | 0 |
| 54 | MG | CA | 1654 | 1/1 | 0.20 | 1.31 | 32,32,32,32 | 0 |
| 54 | MG | DB | 3025 | 1/1 | 0.23 | 1.16 | 20,20,20,20 | 0 |
| 54 | MG | CA | 1649 | 1/1 | 0.24 | 1.15 | 86,86,86,86 | 0 |
| 54 | MG | BB | 3031 | 1/1 | 0.19 | 1.09 | 46,46,46,46 | 0 |
| 54 | MG | DB | 3086 | 1/1 | 0.24 | 0.98 | 25,25,25,25 | 0 |
| 54 | MG | CA | 1638 | 1/1 | 0.19 | 0.96 | 60,60,60,60 | 0 |
| 54 | MG | AA | 1631 | 1/1 | 0.24 | 0.93 | 143,143,143,143 | 0 |
| 54 | MG | DB | 3052 | 1/1 | 0.23 | 0.89 | 42,42,42,42 | 0 |
| 54 | MG | BB | 3110 | 1/1 | 0.21 | 0.88 | 79,79,79,79 | 0 |
| 54 | MG | DB | 3020 | 1/1 | 0.23 | 0.79 | 41,41,41,41 | 0 |
| 54 | MG | DB | 3017 | 1/1 | 0.23 | 0.72 | 22,22,22,22 | 0 |

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| Mol | Type | Chain | Res | Atoms | RSR | LLDF | B-factors(\AA^2) | Q<0.9 |
|-----|------|-------|------|-------|------|-------|-----------------------------|-------|
| 54 | MG | AA | 1615 | 1/1 | 0.18 | 0.62 | 72,72,72,72 | 0 |
| 54 | MG | BB | 3075 | 1/1 | 0.24 | 0.48 | 35,35,35,35 | 0 |
| 54 | MG | AA | 1623 | 1/1 | 0.24 | 0.44 | 143,143,143,143 | 0 |
| 54 | MG | CA | 1661 | 1/1 | 0.29 | 0.24 | 67,67,67,67 | 0 |
| 54 | MG | BB | 3106 | 1/1 | 0.22 | 0.21 | 62,62,62,62 | 0 |
| 54 | MG | AA | 1609 | 1/1 | 0.19 | 0.14 | 119,119,119,119 | 0 |
| 54 | MG | DN | 201 | 1/1 | 0.25 | 0.13 | 38,38,38,38 | 0 |
| 54 | MG | DB | 3085 | 1/1 | 0.22 | 0.12 | 64,64,64,64 | 0 |
| 54 | MG | DB | 3013 | 1/1 | 0.20 | 0.03 | 32,32,32,32 | 0 |
| 54 | MG | DB | 3067 | 1/1 | 0.28 | -0.22 | 11,11,11,11 | 0 |
| 54 | MG | AA | 1608 | 1/1 | 0.19 | -0.22 | 57,57,57,57 | 0 |
| 54 | MG | CA | 1659 | 1/1 | 0.21 | -0.27 | 88,88,88,88 | 0 |
| 54 | MG | AA | 1659 | 1/1 | 0.17 | -0.34 | 157,157,157,157 | 0 |
| 54 | MG | BB | 3060 | 1/1 | 0.17 | -0.34 | 81,81,81,81 | 0 |
| 54 | MG | BB | 3012 | 1/1 | 0.18 | -0.35 | 75,75,75,75 | 0 |
| 54 | MG | DB | 3040 | 1/1 | 0.19 | -0.35 | 28,28,28,28 | 0 |
| 54 | MG | AA | 1613 | 1/1 | 0.15 | -0.43 | 108,108,108,108 | 0 |
| 54 | MG | BB | 3018 | 1/1 | 0.22 | -0.49 | 42,42,42,42 | 0 |
| 54 | MG | BB | 3034 | 1/1 | 0.23 | -0.50 | 42,42,42,42 | 0 |
| 54 | MG | BB | 3016 | 1/1 | 0.18 | -0.51 | 19,19,19,19 | 0 |
| 54 | MG | CA | 1627 | 1/1 | 0.16 | -0.51 | 114,114,114,114 | 0 |
| 54 | MG | DB | 3104 | 1/1 | 0.20 | -0.53 | 44,44,44,44 | 0 |
| 54 | MG | CA | 1636 | 1/1 | 0.15 | -0.53 | 13,13,13,13 | 0 |
| 54 | MG | BB | 3010 | 1/1 | 0.16 | -0.63 | 74,74,74,74 | 0 |
| 54 | MG | AA | 1616 | 1/1 | 0.16 | -0.68 | 86,86,86,86 | 0 |
| 54 | MG | BB | 3046 | 1/1 | 0.20 | -0.73 | 63,63,63,63 | 0 |
| 54 | MG | CA | 1651 | 1/1 | 0.18 | -0.78 | 122,122,122,122 | 0 |
| 54 | MG | AA | 1639 | 1/1 | 0.19 | -0.81 | 141,141,141,141 | 0 |
| 54 | MG | BB | 3048 | 1/1 | 0.14 | -0.81 | 39,39,39,39 | 0 |
| 54 | MG | BB | 3071 | 1/1 | 0.19 | -0.81 | 38,38,38,38 | 0 |
| 54 | MG | AA | 1644 | 1/1 | 0.15 | -0.83 | 81,81,81,81 | 0 |
| 54 | MG | DB | 3057 | 1/1 | 0.18 | -0.83 | 56,56,56,56 | 1 |
| 54 | MG | DB | 3056 | 1/1 | 0.12 | -0.85 | 67,67,67,67 | 0 |
| 54 | MG | BB | 3057 | 1/1 | 0.18 | -0.85 | 19,19,19,19 | 0 |
| 54 | MG | AA | 1634 | 1/1 | 0.14 | -0.89 | 73,73,73,73 | 0 |
| 54 | MG | BB | 3081 | 1/1 | 0.19 | -0.89 | 34,34,34,34 | 0 |
| 54 | MG | DB | 3109 | 1/1 | 0.18 | -0.91 | 57,57,57,57 | 0 |
| 54 | MG | AA | 1602 | 1/1 | 0.18 | -0.94 | 34,34,34,34 | 0 |
| 54 | MG | AA | 1614 | 1/1 | 0.13 | -0.99 | 67,67,67,67 | 0 |
| 54 | MG | DB | 3011 | 1/1 | 0.18 | -1.07 | 23,23,23,23 | 0 |
| 54 | MG | DB | 3062 | 1/1 | 0.12 | -1.07 | 24,24,24,24 | 0 |
| 54 | MG | DB | 3035 | 1/1 | 0.15 | -1.09 | 24,24,24,24 | 0 |

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| Mol | Type | Chain | Res | Atoms | RSR | LLDF | B-factors(\AA^2) | Q<0.9 |
|-----|------|-------|------|-------|------|-------|-----------------------------|-------|
| 54 | MG | DB | 3003 | 1/1 | 0.13 | -1.09 | 8,8,8,8 | 0 |
| 54 | MG | BB | 3005 | 1/1 | 0.15 | -1.10 | 13,13,13,13 | 0 |
| 54 | MG | DB | 3050 | 1/1 | 0.18 | -1.17 | 42,42,42,42 | 0 |
| 54 | MG | BB | 3062 | 1/1 | 0.20 | -1.18 | 34,34,34,34 | 0 |
| 54 | MG | CA | 1615 | 1/1 | 0.14 | -1.25 | 54,54,54,54 | 0 |
| 54 | MG | AA | 1610 | 1/1 | 0.15 | -1.26 | 10,10,10,10 | 0 |
| 54 | MG | DE | 301 | 1/1 | 0.17 | -1.26 | 69,69,69,69 | 0 |
| 54 | MG | BB | 3038 | 1/1 | 0.13 | -1.27 | 82,82,82,82 | 0 |
| 54 | MG | BB | 3073 | 1/1 | 0.18 | -1.29 | 55,55,55,55 | 0 |
| 54 | MG | DB | 3027 | 1/1 | 0.15 | -1.32 | 37,37,37,37 | 0 |
| 54 | MG | DB | 3028 | 1/1 | 0.18 | -1.36 | 29,29,29,29 | 0 |
| 54 | MG | AA | 1653 | 1/1 | 0.14 | -1.36 | 30,30,30,30 | 0 |
| 54 | MG | BB | 3092 | 1/1 | 0.16 | -1.38 | 56,56,56,56 | 0 |
| 54 | MG | DB | 3016 | 1/1 | 0.15 | -1.38 | 25,25,25,25 | 0 |
| 54 | MG | BB | 3097 | 1/1 | 0.14 | -1.39 | 96,96,96,96 | 0 |
| 54 | MG | BB | 3088 | 1/1 | 0.15 | -1.40 | 25,25,25,25 | 0 |
| 54 | MG | DB | 3103 | 1/1 | 0.17 | -1.41 | 61,61,61,61 | 0 |
| 54 | MG | AA | 1646 | 1/1 | 0.15 | -1.45 | 103,103,103,103 | 0 |
| 54 | MG | CA | 1614 | 1/1 | 0.12 | -1.48 | 97,97,97,97 | 0 |
| 54 | MG | BB | 3025 | 1/1 | 0.15 | -1.50 | 67,67,67,67 | 0 |
| 54 | MG | DB | 3023 | 1/1 | 0.08 | -1.51 | 44,44,44,44 | 0 |
| 54 | MG | DB | 3001 | 1/1 | 0.16 | -1.52 | 5,5,5,5 | 0 |
| 54 | MG | DB | 3024 | 1/1 | 0.12 | -1.53 | 27,27,27,27 | 0 |
| 54 | MG | BB | 3003 | 1/1 | 0.10 | -1.54 | 23,23,23,23 | 0 |
| 54 | MG | DB | 3099 | 1/1 | 0.16 | -1.57 | 11,11,11,11 | 0 |
| 54 | MG | BB | 3098 | 1/1 | 0.14 | -1.58 | 49,49,49,49 | 0 |
| 54 | MG | BB | 3105 | 1/1 | 0.16 | -1.61 | 33,33,33,33 | 0 |
| 54 | MG | DB | 3012 | 1/1 | 0.16 | -1.63 | 6,6,6,6 | 0 |
| 54 | MG | DB | 3100 | 1/1 | 0.14 | -1.63 | 6,6,6,6 | 0 |
| 54 | MG | BB | 3022 | 1/1 | 0.15 | -1.64 | 55,55,55,55 | 0 |
| 54 | MG | BB | 3107 | 1/1 | 0.13 | -1.65 | 37,37,37,37 | 0 |
| 54 | MG | BB | 3029 | 1/1 | 0.10 | -1.70 | 7,7,7,7 | 0 |
| 54 | MG | DB | 3076 | 1/1 | 0.14 | -1.72 | 69,69,69,69 | 0 |
| 54 | MG | DB | 3046 | 1/1 | 0.18 | -1.76 | 18,18,18,18 | 0 |
| 54 | MG | CA | 1652 | 1/1 | 0.13 | -1.76 | 20,20,20,20 | 0 |
| 54 | MG | DB | 3071 | 1/1 | 0.12 | -1.77 | 27,27,27,27 | 0 |
| 54 | MG | BB | 3039 | 1/1 | 0.13 | -1.78 | 26,26,26,26 | 0 |
| 54 | MG | CA | 1617 | 1/1 | 0.06 | -1.80 | 45,45,45,45 | 0 |
| 54 | MG | AA | 1636 | 1/1 | 0.13 | -1.82 | 83,83,83,83 | 0 |
| 54 | MG | DB | 3044 | 1/1 | 0.09 | -1.84 | 58,58,58,58 | 0 |
| 54 | MG | AA | 1629 | 1/1 | 0.11 | -1.84 | 62,62,62,62 | 0 |
| 54 | MG | DB | 3059 | 1/1 | 0.15 | -1.85 | 75,75,75,75 | 0 |

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| Mol | Type | Chain | Res | Atoms | RSR | LLDF | B-factors(\AA^2) | Q<0.9 |
|-----|------|-------|------|-------|------|-------|-----------------------------|-------|
| 54 | MG | CA | 1640 | 1/1 | 0.10 | -1.87 | 139,139,139,139 | 0 |
| 54 | MG | CA | 1603 | 1/1 | 0.13 | -1.91 | 32,32,32,32 | 0 |
| 54 | MG | CA | 1644 | 1/1 | 0.11 | -1.92 | 59,59,59,59 | 0 |
| 54 | MG | BB | 3056 | 1/1 | 0.15 | -1.92 | 37,37,37,37 | 0 |
| 54 | MG | DB | 3051 | 1/1 | 0.14 | -1.98 | 57,57,57,57 | 0 |
| 54 | MG | CA | 1625 | 1/1 | 0.14 | -1.98 | 24,24,24,24 | 0 |
| 54 | MG | CA | 1613 | 1/1 | 0.10 | -2.02 | 63,63,63,63 | 0 |
| 54 | MG | AA | 1612 | 1/1 | 0.12 | -2.02 | 52,52,52,52 | 0 |
| 54 | MG | AA | 1645 | 1/1 | 0.13 | -2.02 | 97,97,97,97 | 0 |
| 54 | MG | DB | 3004 | 1/1 | 0.14 | -2.04 | 38,38,38,38 | 0 |
| 54 | MG | BB | 3042 | 1/1 | 0.07 | -2.07 | 74,74,74,74 | 0 |
| 54 | MG | DB | 3055 | 1/1 | 0.18 | -2.09 | 20,20,20,20 | 0 |
| 54 | MG | BB | 3077 | 1/1 | 0.14 | -2.11 | 37,37,37,37 | 0 |
| 54 | MG | AA | 1628 | 1/1 | 0.15 | -2.15 | 63,63,63,63 | 0 |
| 54 | MG | DB | 3092 | 1/1 | 0.05 | -2.18 | 16,16,16,16 | 0 |
| 54 | MG | BB | 3066 | 1/1 | 0.14 | -2.18 | 42,42,42,42 | 0 |
| 54 | MG | BB | 3063 | 1/1 | 0.18 | -2.19 | 27,27,27,27 | 0 |
| 54 | MG | AA | 1605 | 1/1 | 0.11 | -2.22 | 30,30,30,30 | 0 |
| 54 | MG | BB | 3024 | 1/1 | 0.17 | -2.23 | 22,22,22,22 | 0 |
| 54 | MG | BB | 3096 | 1/1 | 0.12 | -2.26 | 39,39,39,39 | 0 |
| 54 | MG | DB | 3029 | 1/1 | 0.17 | -2.26 | 22,22,22,22 | 0 |
| 54 | MG | DB | 3108 | 1/1 | 0.10 | -2.27 | 24,24,24,24 | 0 |
| 54 | MG | BB | 3104 | 1/1 | 0.12 | -2.29 | 33,33,33,33 | 0 |
| 54 | MG | AA | 1648 | 1/1 | 0.12 | -2.29 | 31,31,31,31 | 0 |
| 54 | MG | BB | 3054 | 1/1 | 0.09 | -2.31 | 77,77,77,77 | 0 |
| 54 | MG | AA | 1619 | 1/1 | 0.12 | -2.32 | 33,33,33,33 | 0 |
| 54 | MG | BB | 3065 | 1/1 | 0.14 | -2.36 | 47,47,47,47 | 0 |
| 54 | MG | AA | 1630 | 1/1 | 0.09 | -2.40 | 20,20,20,20 | 0 |
| 54 | MG | BB | 3087 | 1/1 | 0.10 | -2.40 | 53,53,53,53 | 0 |
| 54 | MG | AA | 1658 | 1/1 | 0.13 | -2.42 | 113,113,113,113 | 0 |
| 54 | MG | DB | 3034 | 1/1 | 0.11 | -2.47 | 84,84,84,84 | 0 |
| 54 | MG | BB | 3093 | 1/1 | 0.14 | -2.48 | 5,5,5,5 | 1 |
| 54 | MG | AA | 1660 | 1/1 | 0.10 | -2.50 | 95,95,95,95 | 0 |
| 54 | MG | CA | 1642 | 1/1 | 0.12 | -2.50 | 70,70,70,70 | 0 |
| 54 | MG | DB | 3066 | 1/1 | 0.14 | -2.52 | 12,12,12,12 | 0 |
| 54 | MG | AA | 1661 | 1/1 | 0.06 | -2.57 | 83,83,83,83 | 0 |
| 54 | MG | AA | 1621 | 1/1 | 0.11 | -2.58 | 96,96,96,96 | 0 |
| 54 | MG | CA | 1621 | 1/1 | 0.08 | -2.63 | 46,46,46,46 | 0 |
| 54 | MG | DB | 3007 | 1/1 | 0.15 | -2.63 | 15,15,15,15 | 0 |
| 54 | MG | DB | 3010 | 1/1 | 0.07 | -2.64 | 8,8,8,8 | 0 |
| 54 | MG | DB | 3065 | 1/1 | 0.17 | -2.66 | 25,25,25,25 | 0 |
| 54 | MG | CA | 1602 | 1/1 | 0.12 | -2.67 | 8,8,8,8 | 0 |

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| Mol | Type | Chain | Res | Atoms | RSR | LLDF | B-factors(\AA^2) | Q<0.9 |
|-----|------|-------|------|-------|------|-------|-----------------------------|-------|
| 54 | MG | DB | 3091 | 1/1 | 0.15 | -2.67 | 39,39,39,39 | 0 |
| 54 | MG | DB | 3081 | 1/1 | 0.14 | -2.67 | 110,110,110,110 | 0 |
| 54 | MG | CA | 1663 | 1/1 | 0.14 | -2.68 | 20,20,20,20 | 0 |
| 54 | MG | DB | 3090 | 1/1 | 0.15 | -2.70 | 106,106,106,106 | 0 |
| 54 | MG | CA | 1647 | 1/1 | 0.13 | -2.71 | 40,40,40,40 | 0 |
| 54 | MG | BB | 3103 | 1/1 | 0.13 | -2.72 | 11,11,11,11 | 0 |
| 54 | MG | DB | 3030 | 1/1 | 0.17 | -2.74 | 11,11,11,11 | 0 |
| 54 | MG | DB | 3061 | 1/1 | 0.12 | -2.77 | 48,48,48,48 | 0 |
| 54 | MG | BB | 3067 | 1/1 | 0.15 | -2.78 | 56,56,56,56 | 0 |
| 54 | MG | DB | 3014 | 1/1 | 0.14 | -2.78 | 28,28,28,28 | 0 |
| 54 | MG | CA | 1620 | 1/1 | 0.15 | -2.79 | 32,32,32,32 | 0 |
| 54 | MG | BB | 3094 | 1/1 | 0.14 | -2.80 | 16,16,16,16 | 0 |
| 54 | MG | DB | 3036 | 1/1 | 0.17 | -2.80 | 25,25,25,25 | 0 |
| 54 | MG | BB | 3007 | 1/1 | 0.13 | -2.82 | 57,57,57,57 | 0 |
| 54 | MG | BB | 3008 | 1/1 | 0.15 | -2.84 | 82,82,82,82 | 0 |
| 54 | MG | BB | 3037 | 1/1 | 0.09 | -2.85 | 21,21,21,21 | 0 |
| 54 | MG | BB | 3040 | 1/1 | 0.13 | -2.87 | 18,18,18,18 | 0 |
| 54 | MG | BB | 3023 | 1/1 | 0.10 | -2.89 | 27,27,27,27 | 0 |
| 54 | MG | DB | 3022 | 1/1 | 0.07 | -2.90 | 5,5,5,5 | 0 |
| 54 | MG | AA | 1618 | 1/1 | 0.11 | -2.90 | 102,102,102,102 | 0 |
| 54 | MG | DB | 3083 | 1/1 | 0.14 | -2.91 | 18,18,18,18 | 0 |
| 54 | MG | DB | 3105 | 1/1 | 0.07 | -2.92 | 24,24,24,24 | 0 |
| 54 | MG | BB | 3051 | 1/1 | 0.09 | -2.92 | 74,74,74,74 | 0 |
| 54 | MG | AA | 1604 | 1/1 | 0.11 | -2.95 | 25,25,25,25 | 0 |
| 54 | MG | BB | 3091 | 1/1 | 0.15 | -2.99 | 42,42,42,42 | 0 |
| 54 | MG | CA | 1623 | 1/1 | 0.12 | -3.00 | 77,77,77,77 | 0 |
| 54 | MG | DB | 3095 | 1/1 | 0.10 | -3.03 | 44,44,44,44 | 0 |
| 54 | MG | DB | 3072 | 1/1 | 0.09 | -3.04 | 5,5,5,5 | 0 |
| 54 | MG | AA | 1624 | 1/1 | 0.10 | -3.05 | 25,25,25,25 | 1 |
| 54 | MG | CA | 1607 | 1/1 | 0.12 | -3.11 | 126,126,126,126 | 0 |
| 54 | MG | DB | 3032 | 1/1 | 0.11 | -3.12 | 29,29,29,29 | 0 |
| 54 | MG | CA | 1618 | 1/1 | 0.09 | -3.13 | 26,26,26,26 | 0 |
| 54 | MG | BB | 3074 | 1/1 | 0.11 | -3.14 | 7,7,7,7 | 0 |
| 54 | MG | DB | 3102 | 1/1 | 0.10 | -3.14 | 13,13,13,13 | 0 |
| 54 | MG | AA | 1640 | 1/1 | 0.11 | -3.14 | 42,42,42,42 | 0 |
| 54 | MG | AA | 1633 | 1/1 | 0.14 | -3.16 | 92,92,92,92 | 0 |
| 54 | MG | BB | 3090 | 1/1 | 0.09 | -3.17 | 65,65,65,65 | 0 |
| 54 | MG | CA | 1643 | 1/1 | 0.10 | -3.19 | 62,62,62,62 | 0 |
| 54 | MG | AA | 1652 | 1/1 | 0.14 | -3.20 | 105,105,105,105 | 0 |
| 54 | MG | BB | 3109 | 1/1 | 0.14 | -3.22 | 33,33,33,33 | 0 |
| 54 | MG | BB | 3032 | 1/1 | 0.14 | -3.22 | 31,31,31,31 | 0 |
| 54 | MG | AA | 1641 | 1/1 | 0.07 | -3.24 | 72,72,72,72 | 0 |

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| Mol | Type | Chain | Res | Atoms | RSR | LLDF | B-factors(\AA^2) | Q<0.9 |
|-----|------|-------|------|-------|------|-------|-----------------------------|-------|
| 54 | MG | BB | 3021 | 1/1 | 0.15 | -3.31 | 24,24,24,24 | 0 |
| 54 | MG | CA | 1606 | 1/1 | 0.10 | -3.31 | 30,30,30,30 | 0 |
| 54 | MG | AA | 1654 | 1/1 | 0.10 | -3.31 | 81,81,81,81 | 0 |
| 54 | MG | DB | 3080 | 1/1 | 0.12 | -3.33 | 34,34,34,34 | 0 |
| 54 | MG | CA | 1656 | 1/1 | 0.09 | -3.43 | 60,60,60,60 | 0 |
| 54 | MG | BB | 3101 | 1/1 | 0.09 | -3.43 | 14,14,14,14 | 0 |
| 54 | MG | DB | 3097 | 1/1 | 0.12 | -3.43 | 19,19,19,19 | 0 |
| 54 | MG | CA | 1641 | 1/1 | 0.07 | -3.43 | 40,40,40,40 | 0 |
| 54 | MG | BB | 3099 | 1/1 | 0.13 | -3.46 | 58,58,58,58 | 0 |
| 54 | MG | AA | 1642 | 1/1 | 0.15 | -3.47 | 107,107,107,107 | 0 |
| 54 | MG | AA | 1643 | 1/1 | 0.07 | -3.55 | 116,116,116,116 | 0 |
| 54 | MG | CA | 1653 | 1/1 | 0.06 | -3.59 | 48,48,48,48 | 0 |
| 54 | MG | CA | 1604 | 1/1 | 0.14 | -3.61 | 49,49,49,49 | 0 |
| 54 | MG | DB | 3106 | 1/1 | 0.12 | -3.61 | 7,7,7,7 | 0 |
| 54 | MG | DB | 3006 | 1/1 | 0.07 | -3.73 | 16,16,16,16 | 0 |
| 54 | MG | DB | 3079 | 1/1 | 0.13 | -3.74 | 7,7,7,7 | 0 |
| 54 | MG | BB | 3076 | 1/1 | 0.10 | -3.74 | 43,43,43,43 | 0 |
| 54 | MG | BB | 3059 | 1/1 | 0.10 | -3.80 | 16,16,16,16 | 0 |
| 54 | MG | BB | 3058 | 1/1 | 0.12 | -3.83 | 33,33,33,33 | 0 |
| 54 | MG | BB | 3055 | 1/1 | 0.12 | -3.83 | 19,19,19,19 | 0 |
| 54 | MG | DB | 3031 | 1/1 | 0.09 | -3.92 | 40,40,40,40 | 0 |
| 54 | MG | DB | 3070 | 1/1 | 0.07 | -3.94 | 60,60,60,60 | 0 |
| 54 | MG | CA | 1658 | 1/1 | 0.06 | -3.94 | 18,18,18,18 | 0 |
| 54 | MG | AA | 1638 | 1/1 | 0.12 | -3.95 | 88,88,88,88 | 0 |
| 54 | MG | AA | 1607 | 1/1 | 0.06 | -3.97 | 82,82,82,82 | 0 |
| 54 | MG | BB | 3049 | 1/1 | 0.14 | -3.99 | 12,12,12,12 | 0 |
| 54 | MG | DB | 3049 | 1/1 | 0.09 | -4.00 | 79,79,79,79 | 0 |
| 54 | MG | CA | 1633 | 1/1 | 0.08 | -4.00 | 50,50,50,50 | 0 |
| 54 | MG | BB | 3015 | 1/1 | 0.10 | -4.03 | 23,23,23,23 | 0 |
| 54 | MG | BB | 3083 | 1/1 | 0.14 | -4.03 | 25,25,25,25 | 0 |
| 54 | MG | DB | 3077 | 1/1 | 0.12 | -4.09 | 41,41,41,41 | 0 |
| 54 | MG | CA | 1646 | 1/1 | 0.07 | -4.13 | 94,94,94,94 | 0 |
| 54 | MG | DB | 3068 | 1/1 | 0.11 | -4.15 | 49,49,49,49 | 0 |
| 54 | MG | CA | 1634 | 1/1 | 0.08 | -4.15 | 46,46,46,46 | 0 |
| 54 | MG | AA | 1649 | 1/1 | 0.08 | -4.21 | 102,102,102,102 | 0 |
| 54 | MG | BB | 3085 | 1/1 | 0.10 | -4.22 | 67,67,67,67 | 0 |
| 54 | MG | CA | 1632 | 1/1 | 0.11 | -4.22 | 34,34,34,34 | 0 |
| 54 | MG | DB | 3073 | 1/1 | 0.10 | -4.25 | 44,44,44,44 | 0 |
| 54 | MG | DB | 3084 | 1/1 | 0.16 | -4.26 | 18,18,18,18 | 0 |
| 54 | MG | BB | 3026 | 1/1 | 0.12 | -4.28 | 25,25,25,25 | 0 |
| 54 | MG | AA | 1611 | 1/1 | 0.06 | -4.30 | 57,57,57,57 | 0 |
| 54 | MG | CA | 1657 | 1/1 | 0.12 | -4.38 | 51,51,51,51 | 0 |

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| Mol | Type | Chain | Res | Atoms | RSR | LLDF | B-factors(\AA^2) | Q<0.9 |
|-----|------|-------|------|-------|------|-------|-----------------------------|-------|
| 54 | MG | DB | 3037 | 1/1 | 0.09 | -4.39 | 8,8,8,8 | 0 |
| 54 | MG | CA | 1635 | 1/1 | 0.11 | -4.40 | 91,91,91,91 | 0 |
| 54 | MG | BB | 3035 | 1/1 | 0.12 | -4.47 | 25,25,25,25 | 0 |
| 54 | MG | BB | 3041 | 1/1 | 0.18 | -4.59 | 47,47,47,47 | 0 |
| 54 | MG | BB | 3052 | 1/1 | 0.09 | -4.62 | 27,27,27,27 | 0 |
| 54 | MG | BB | 3050 | 1/1 | 0.13 | -4.63 | 20,20,20,20 | 0 |
| 54 | MG | AA | 1655 | 1/1 | 0.08 | -4.63 | 67,67,67,67 | 0 |
| 54 | MG | AA | 1651 | 1/1 | 0.05 | -4.63 | 64,64,64,64 | 0 |
| 54 | MG | DB | 3069 | 1/1 | 0.09 | -4.69 | 50,50,50,50 | 0 |
| 54 | MG | AA | 1617 | 1/1 | 0.12 | -4.73 | 65,65,65,65 | 0 |
| 54 | MG | DB | 3026 | 1/1 | 0.14 | -4.74 | 30,30,30,30 | 0 |
| 54 | MG | BB | 3004 | 1/1 | 0.08 | -4.74 | 39,39,39,39 | 0 |
| 54 | MG | BB | 3014 | 1/1 | 0.16 | -4.74 | 33,33,33,33 | 0 |
| 54 | MG | DB | 3096 | 1/1 | 0.17 | -4.79 | 31,31,31,31 | 0 |
| 54 | MG | CA | 1655 | 1/1 | 0.04 | -4.80 | 26,26,26,26 | 0 |
| 54 | MG | DB | 3042 | 1/1 | 0.15 | -4.80 | 5,5,5,5 | 0 |
| 54 | MG | AA | 1632 | 1/1 | 0.07 | -4.81 | 44,44,44,44 | 0 |
| 54 | MG | BB | 3030 | 1/1 | 0.07 | -4.84 | 45,45,45,45 | 0 |
| 54 | MG | BB | 3013 | 1/1 | 0.09 | -4.84 | 36,36,36,36 | 0 |
| 54 | MG | AA | 1635 | 1/1 | 0.07 | -4.90 | 75,75,75,75 | 0 |
| 54 | MG | BB | 3011 | 1/1 | 0.11 | -5.03 | 9,9,9,9 | 0 |
| 54 | MG | BB | 3027 | 1/1 | 0.07 | -5.20 | 29,29,29,29 | 0 |
| 54 | MG | DB | 3060 | 1/1 | 0.09 | -5.21 | 105,105,105,105 | 0 |
| 54 | MG | DB | 3009 | 1/1 | 0.09 | -5.22 | 10,10,10,10 | 0 |
| 54 | MG | CA | 1605 | 1/1 | 0.08 | -5.23 | 37,37,37,37 | 0 |
| 54 | MG | DB | 3015 | 1/1 | 0.14 | -5.25 | 69,69,69,69 | 0 |
| 54 | MG | DB | 3008 | 1/1 | 0.19 | -5.25 | 39,39,39,39 | 0 |
| 54 | MG | AA | 1656 | 1/1 | 0.11 | -5.27 | 100,100,100,100 | 0 |
| 54 | MG | BB | 3079 | 1/1 | 0.07 | -5.38 | 32,32,32,32 | 0 |
| 54 | MG | DB | 3047 | 1/1 | 0.08 | -5.46 | 29,29,29,29 | 0 |
| 54 | MG | DB | 3101 | 1/1 | 0.10 | -5.56 | 30,30,30,30 | 0 |
| 54 | MG | BB | 3102 | 1/1 | 0.10 | -5.58 | 34,34,34,34 | 0 |
| 54 | MG | DB | 3107 | 1/1 | 0.13 | -5.61 | 19,19,19,19 | 0 |
| 54 | MG | CA | 1648 | 1/1 | 0.07 | -5.64 | 39,39,39,39 | 0 |
| 54 | MG | BB | 3064 | 1/1 | 0.14 | -5.66 | 71,71,71,71 | 0 |
| 54 | MG | DB | 3002 | 1/1 | 0.12 | -5.85 | 20,20,20,20 | 0 |
| 54 | MG | DB | 3053 | 1/1 | 0.09 | -5.90 | 37,37,37,37 | 0 |
| 54 | MG | BB | 3069 | 1/1 | 0.08 | -5.94 | 8,8,8,8 | 0 |
| 54 | MG | CA | 1630 | 1/1 | 0.09 | -5.97 | 49,49,49,49 | 0 |
| 54 | MG | BB | 3072 | 1/1 | 0.12 | -6.00 | 26,26,26,26 | 0 |
| 54 | MG | DB | 3087 | 1/1 | 0.11 | -6.03 | 40,40,40,40 | 0 |
| 54 | MG | DB | 3075 | 1/1 | 0.13 | -6.06 | 42,42,42,42 | 0 |

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| Mol | Type | Chain | Res | Atoms | RSR | LLDF | B-factors(\AA^2) | Q<0.9 |
|-----|------|-------|------|-------|------|--------|-----------------------------|-------|
| 54 | MG | BB | 3045 | 1/1 | 0.05 | -6.33 | 40,40,40,40 | 0 |
| 54 | MG | CA | 1662 | 1/1 | 0.08 | -6.38 | 38,38,38,38 | 0 |
| 54 | MG | CA | 1650 | 1/1 | 0.09 | -6.39 | 67,67,67,67 | 0 |
| 54 | MG | DB | 3054 | 1/1 | 0.11 | -6.40 | 32,32,32,32 | 0 |
| 54 | MG | BB | 3061 | 1/1 | 0.07 | -6.40 | 33,33,33,33 | 0 |
| 54 | MG | CA | 1612 | 1/1 | 0.11 | -6.50 | 71,71,71,71 | 0 |
| 54 | MG | CA | 1619 | 1/1 | 0.06 | -6.52 | 9,9,9,9 | 0 |
| 54 | MG | BB | 3019 | 1/1 | 0.12 | -6.53 | 22,22,22,22 | 0 |
| 54 | MG | BB | 3108 | 1/1 | 0.12 | -6.65 | 22,22,22,22 | 0 |
| 54 | MG | BB | 3006 | 1/1 | 0.07 | -6.67 | 20,20,20,20 | 0 |
| 54 | MG | BB | 3070 | 1/1 | 0.08 | -6.71 | 55,55,55,55 | 0 |
| 54 | MG | CA | 1626 | 1/1 | 0.09 | -6.80 | 17,17,17,17 | 0 |
| 54 | MG | BB | 3044 | 1/1 | 0.06 | -6.90 | 39,39,39,39 | 0 |
| 54 | MG | AA | 1606 | 1/1 | 0.07 | -7.00 | 28,28,28,28 | 0 |
| 54 | MG | BB | 3084 | 1/1 | 0.10 | -7.26 | 19,19,19,19 | 0 |
| 54 | MG | BB | 3009 | 1/1 | 0.07 | -7.29 | 35,35,35,35 | 0 |
| 54 | MG | DB | 3074 | 1/1 | 0.12 | -7.69 | 12,12,12,12 | 0 |
| 54 | MG | DB | 3043 | 1/1 | 0.07 | -7.92 | 7,7,7,7 | 0 |
| 54 | MG | BB | 3080 | 1/1 | 0.09 | -7.96 | 42,42,42,42 | 0 |
| 54 | MG | DB | 3019 | 1/1 | 0.03 | -8.28 | 8,8,8,8 | 0 |
| 54 | MG | BB | 3020 | 1/1 | 0.08 | -8.36 | 38,38,38,38 | 0 |
| 54 | MG | CA | 1645 | 1/1 | 0.07 | -8.44 | 28,28,28,28 | 0 |
| 54 | MG | CA | 1610 | 1/1 | 0.14 | -8.57 | 61,61,61,61 | 0 |
| 54 | MG | BB | 3068 | 1/1 | 0.12 | -8.63 | 39,39,39,39 | 0 |
| 54 | MG | BB | 3001 | 1/1 | 0.11 | -8.63 | 28,28,28,28 | 0 |
| 54 | MG | BB | 3053 | 1/1 | 0.11 | -8.72 | 36,36,36,36 | 0 |
| 54 | MG | DB | 3038 | 1/1 | 0.07 | -8.78 | 33,33,33,33 | 0 |
| 54 | MG | BB | 3002 | 1/1 | 0.09 | -9.33 | 9,9,9,9 | 0 |
| 54 | MG | DB | 3078 | 1/1 | 0.08 | -10.16 | 5,5,5,5 | 0 |
| 54 | MG | CA | 1639 | 1/1 | 0.04 | -10.18 | 41,41,41,41 | 0 |
| 54 | MG | CA | 1611 | 1/1 | 0.05 | -10.23 | 43,43,43,43 | 0 |
| 54 | MG | BB | 3095 | 1/1 | 0.06 | -10.45 | 48,48,48,48 | 0 |
| 54 | MG | DB | 3098 | 1/1 | 0.11 | -10.46 | 9,9,9,9 | 0 |
| 54 | MG | DB | 3039 | 1/1 | 0.11 | -10.55 | 5,5,5,5 | 0 |
| 54 | MG | DB | 3041 | 1/1 | 0.12 | -10.71 | 29,29,29,29 | 0 |
| 54 | MG | DB | 3048 | 1/1 | 0.08 | -11.07 | 7,7,7,7 | 0 |
| 54 | MG | AA | 1622 | 1/1 | 0.06 | -11.55 | 16,16,16,16 | 0 |
| 54 | MG | DB | 3063 | 1/1 | 0.10 | -11.55 | 42,42,42,42 | 0 |
| 54 | MG | DB | 3045 | 1/1 | 0.08 | -11.89 | 45,45,45,45 | 0 |
| 54 | MG | BB | 3036 | 1/1 | 0.10 | -12.33 | 29,29,29,29 | 0 |
| 54 | MG | BB | 3017 | 1/1 | 0.10 | -12.57 | 54,54,54,54 | 0 |
| 54 | MG | DB | 3018 | 1/1 | 0.10 | -14.87 | 39,39,39,39 | 0 |

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| Mol | Type | Chain | Res | Atoms | RSR | LLDF | B-factors(\AA^2) | Q<0.9 |
|-----|------|-------|------|-------|------|--------|-----------------------------|-------|
| 54 | MG | DB | 3021 | 1/1 | 0.11 | -17.05 | 25,25,25,25 | 0 |
| 54 | MG | CA | 1608 | 1/1 | 0.06 | -19.00 | 31,31,31,31 | 0 |
| 54 | MG | AA | 1603 | 1/1 | 0.15 | -22.67 | 74,74,74,74 | 0 |
| 54 | MG | DB | 3005 | 1/1 | 0.09 | -32.95 | 6,6,6,6 | 0 |
| 54 | MG | AA | 1626 | 1/1 | 0.38 | - | 82,82,82,82 | 1 |

6.5 Other polymers ⓘ

There are no such residues in this entry.