



## Full wwPDB EM Validation Report ⓘ

Nov 20, 2022 – 01:40 PM EST

PDB ID : 3JBP  
EMDB ID : EMD-6454  
Title : Cryo-electron microscopy reconstruction of the Plasmodium falciparum 80S ribosome bound to E-tRNA  
Authors : Sun, M.; Li, W.; Blomqvist, K.; Das, S.; Hashem, Y.; Dvorin, J.D.; Frank, J.  
Deposited on : 2015-09-16  
Resolution : 6.70 Å (reported)  
Based on initial models : 3J7A, 3J79

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>  
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

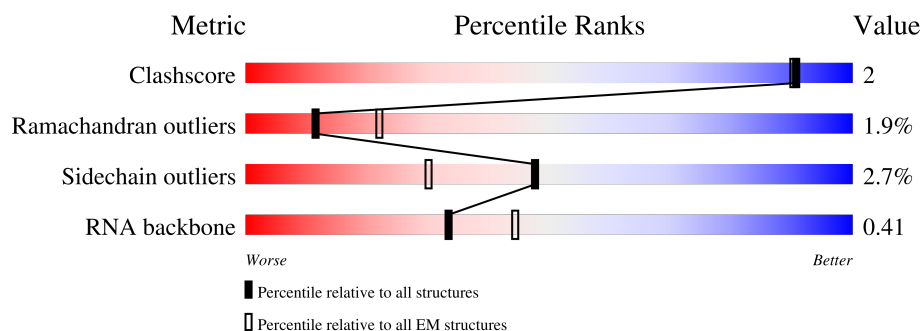
EMDB validation analysis : 0.0.1.dev43  
MolProbity : 4.02b-467  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : **FAILED**  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.31.3

# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:  
*ELECTRON MICROSCOPY*





The reported resolution of this entry is 6.70 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<br>(#Entries) | EM structures<br>(#Entries) |
|-----------------------|-----------------------------|-----------------------------|
| Clashscore            | 158937                      | 4297                        |
| Ramachandran outliers | 154571                      | 4023                        |
| Sidechain outliers    | 154315                      | 3826                        |
| RNA backbone          | 4643                        | 859                         |

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ .

| Mol | Chain | Length | Quality of chain   |
|-----|-------|--------|--|
| 1   | A     | 1608   |  |
| 2   | 7     | 74     |  |
| 3   | D     | 209    |  |
| 4   | E     | 185    |  |
| 5   | G     | 224    |  |
| 6   | I     | 189    |  |
| 7   | K     | 129    |  |


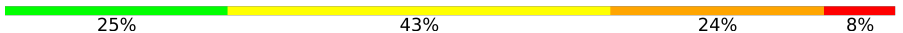
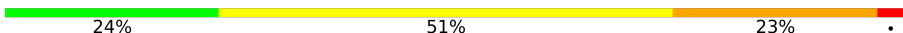















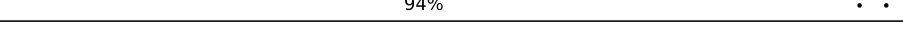

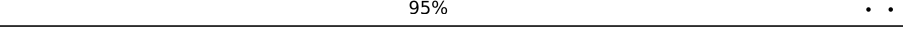




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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 8   | M     | 138    |                  |
| 9   | W     | 108    |                  |
| 10  | R     | 114    |                  |
| 11  | O     | 79     |                  |
| 12  | Y     | 154    |                  |
| 13  | Z     | 72     |                  |
| 14  | 1     | 120    |                  |
| 15  | 2     | 68     |                  |
| 16  | 3     | 95     |                  |
| 17  | 4     | 76     |                  |
| 18  | 5     | 65     |                  |
| 19  | 6     | 43     |                  |
| 20  | B     | 210    |                  |
| 21  | F     | 257    |                  |
| 22  | H     | 214    |                  |
| 23  | J     | 188    |                  |
| 24  | L     | 214    |                  |
| 25  | N     | 98     |                  |
| 26  | P     | 127    |                  |
| 27  | Q     | 144    |                  |
| 28  | S     | 128    |                  |
| 29  | T     | 48     |                  |
| 30  | U     | 149    |                  |
| 31  | V     | 156    |                  |
| 32  | X     | 103    |                  |

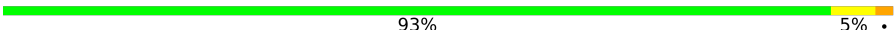





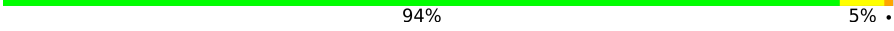

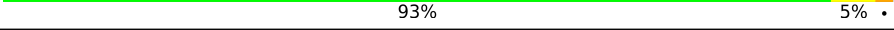




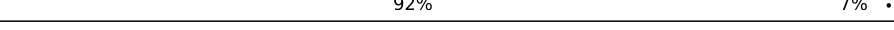







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| Mol | Chain | Length | Quality of chain   |
|-----|-------|--------|--|
| 33  | C     | 195    |  89% 10% .       |
| 34  | AA    | 3193   |  25% 43% 24% 8%  |
| 35  | AC    | 151    |  24% 51% 23% .   |
| 36  | AB    | 118    |  29% 52% 13% 7%  |
| 37  | AL    | 211    |  92% 7% .        |
| 38  | A1    | 145    |  89% 8% .        |
| 39  | A2    | 118    |  82% 6% 12%      |
| 40  | A4    | 66     |  86% 8% 5% .     |
| 41  | A6    | 98     |  90% 8% ..       |
| 42  | A7    | 102    |  86% 8% 6%       |
| 43  | AN    | 146    |  90% 8% .        |
| 44  | A8    | 125    |  88% 10% ..      |
| 45  | A9    | 103    |  88% 9% ..     |
| 46  | Aa    | 106    |  83% 16% .     |
| 47  | Ab    | 105    |  87% . . 10%   |
| 48  | Ad    | 76     |  91% . 5%      |
| 49  | Ae    | 50     |  68% 14% . 14% |
| 50  | Af    | 51     |  94% . .       |
| 51  | AP    | 204    |  84% 15% .     |
| 52  | Ah    | 85     |  95% . .       |
| 53  | Ai    | 95     |  91% 8% .      |
| 54  | AI    | 213    |  91% 6% .      |
| 55  | AJ    | 244    |  87% . 9%      |
| 56  | Ac    | 89     |  82% 16% ..    |
| 57  | AK    | 201    |  90% 9% .      |

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| Mol | Chain | Length | Quality of chain  |
|-----|-------|--------|---|
| 58  | AM    | 132    |  93% 5% .       |
| 59  | AS    | 186    |  86% 12% .      |
| 60  | AO    | 147    |  89% 10% .      |
| 61  | AQ    | 205    |  80% 11% . 8%   |
| 62  | AR    | 289    |  77% 9% . 13%   |
| 63  | AW    | 170    |  88% 9% .       |
| 64  | AY    | 101    |  94% 5% .       |
| 65  | AT    | 181    |  91% 8% ..      |
| 66  | AZ    | 121    |  93% 5% .       |
| 67  | A3    | 119    |  92% 8% .       |
| 68  | A5    | 223    |  86% 11% .      |
| 69  | AD    | 247    |  89% 9% ..     |
| 70  | AE    | 380    |  89% 10% .    |
| 71  | AF    | 390    |  92% 7% .     |
| 72  | AG    | 159    |  70% 6% . 22% |
| 73  | AU    | 180    |  88% 7% . .   |
| 74  | AH    | 185    |  91% 8% .     |
| 75  | AV    | 155    |  89% 10% .    |
| 76  | Ag    | 37     |  76% 16% 8%   |
| 77  | AX    | 97     |  94% 6%       |
| 78  | A0    | 62     |  92% 6% .     |

## 2 Entry composition

There are 78 unique types of molecules in this entry. The entry contains 193012 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, 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 18S ribosomal RNA.

| Mol | Chain | Residues | Atoms |       |      |       |      | AltConf | Trace |
|-----|-------|----------|-------|-------|------|-------|------|---------|-------|
| 1   | A     | 1608     | Total | C     | N    | O     | P    | 0       | 0     |
|     |       |          | 34207 | 15346 | 6106 | 11169 | 1586 |         |       |

- Molecule 2 is a RNA chain called E-tRNA.

| Mol | Chain | Residues | Atoms |     |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 2   | 7     | 74       | Total | C   | N   | O   | P  | 0       | 0     |
|     |       |          | 1571  | 702 | 275 | 521 | 73 |         |       |

- Molecule 3 is a protein called 40S ribosomal protein uS3.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 3   | D     | 157      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1229  | 782 | 225 | 215 | 7 |         |       |

- Molecule 4 is a protein called 40S ribosomal protein uS4.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 4   | E     | 185      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1515  | 962 | 290 | 261 | 2 |         |       |

- Molecule 5 is a protein called 40S ribosomal protein uS5.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 5   | G     | 224      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1758  | 1132 | 307 | 310 | 9 |         |       |

- Molecule 6 is a protein called 40S ribosomal protein uS7.

| Mol | Chain | Residues | Atoms |     |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 6   | I     | 180      | Total | C   | N   | O   | S  | 0       | 0     |
|     |       |          | 1424  | 893 | 263 | 258 | 10 |         |       |

- Molecule 7 is a protein called 40S ribosomal protein uS8.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 7   | K     | 129      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1037  | 665 | 189 | 178 | 5 |         |       |

- Molecule 8 is a protein called 40S ribosomal protein uS9.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 8   | M     | 138      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1099  | 704 | 200 | 194 | 1 |         |       |

- Molecule 9 is a protein called 40S ribosomal protein eS17.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 9   | W     | 95       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 786   | 498 | 149 | 136 | 3 |         |       |

- Molecule 10 is a protein called 40S ribosomal protein eS12.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 10  | R     | 98       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 747   | 474 | 123 | 146 | 4 |         |       |

- Molecule 11 is a protein called 40S ribosomal protein eS10.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 11  | O     | 79       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 687   | 450 | 116 | 119 | 2 |         |       |

- Molecule 12 is a protein called 40S ribosomal protein eS19.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 12  | Y     | 154      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1267  | 811 | 239 | 215 | 2 |         |       |

- Molecule 13 is a protein called 40S ribosomal protein eS21.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 13  | Z     | 72       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 557   | 346 | 102 | 105 | 4 |         |       |

- Molecule 14 is a protein called 40S ribosomal protein eS24.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 14  | 1     | 120      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 986   | 632 | 189 | 163 | 2 |         |       |

- Molecule 15 is a protein called 40S ribosomal protein eS25.

| Mol | Chain | Residues | Atoms |     |    |    | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---------|-------|
| 15  | 2     | 41       | Total | C   | N  | O  | 0       | 0     |
|     |       |          | 321   | 208 | 56 | 57 |         |       |

- Molecule 16 is a protein called 40S ribosomal protein eS26.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 16  | 3     | 95       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 782   | 478 | 169 | 129 | 6 |         |       |

- Molecule 17 is a protein called 40S ribosomal protein eS27.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 17  | 4     | 76       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 586   | 368 | 102 | 107 | 9 |         |       |

- Molecule 18 is a protein called 40S ribosomal protein eS28.

| Mol | Chain | Residues | Atoms |     |    |    | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---------|-------|
| 18  | 5     | 58       | Total | C   | N  | O  | 0       | 0     |
|     |       |          | 458   | 285 | 93 | 80 |         |       |

- Molecule 19 is a protein called 40S ribosomal protein eS30.

| Mol | Chain | Residues | Atoms |     |    |    | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---------|-------|
| 19  | 6     | 43       | Total | C   | N  | O  | 0       | 0     |
|     |       |          | 346   | 213 | 75 | 58 |         |       |

- Molecule 20 is a protein called 40S ribosomal protein eS1.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 20  | B     | 210      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 1714  | 1097 | 301 | 304 | 12 |         |       |

- Molecule 21 is a protein called 40S ribosomal protein eS4.



| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 21  | F     | 257      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 2062  | 1320 | 377 | 357 | 8 |         |       |

- Molecule 22 is a protein called 40S ribosomal protein eS6.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 22  | H     | 204      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1648  | 1045 | 313 | 284 | 6 |         |       |

There are 2 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment   | Reference  |
|-------|---------|----------|--------|-----------|------------|
| H     | 158     | ILE      | -      | INSERTION | UNP Q8IDR9 |
| H     | 195     | ASP      | GLU    | CONFLICT  | UNP Q8IDR9 |

- Molecule 23 is a protein called 40S ribosomal protein eS7.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 23  | J     | 188      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1529  | 982 | 264 | 279 | 4 |         |       |

- Molecule 24 is a protein called 40S ribosomal protein eS8.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 24  | L     | 171      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1383  | 872 | 264 | 243 | 4 |         |       |

- Molecule 25 is a protein called 40S ribosomal protein uS10.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 25  | N     | 98       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 772   | 484 | 135 | 148 | 5 |         |       |

- Molecule 26 is a protein called 40S ribosomal protein uS11.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 26  | P     | 127      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 954   | 591 | 184 | 176 | 3 |         |       |

- Molecule 27 is a protein called 40S ribosomal protein uS12.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 27  | Q     | 144      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1129  | 712 | 222 | 193 | 2 |         |       |

- Molecule 28 is a protein called 40S ribosomal protein uS13.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 28  | S     | 128      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1047  | 657 | 205 | 181 | 4 |         |       |

- Molecule 29 is a protein called 40S ribosomal protein uS14.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 29  | T     | 48       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 405   | 252 | 85 | 64 | 4 |         |       |

- Molecule 30 is a protein called 40S ribosomal protein uS15.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 30  | U     | 149      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1202  | 769 | 220 | 210 | 3 |         |       |

- Molecule 31 is a protein called 40S ribosomal protein uS17.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 31  | V     | 146      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1206  | 772 | 227 | 200 | 7 |         |       |

- Molecule 32 is a protein called 40S ribosomal protein uS19.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 32  | X     | 96       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 777   | 497 | 137 | 139 | 4 |         |       |

- Molecule 33 is a protein called 40S ribosomal protein uS2.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 33  | C     | 195      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1539  | 990 | 266 | 274 | 9 |         |       |

- Molecule 34 is a RNA chain called 28S ribosomal RNA.

| Mol | Chain | Residues | Atoms |       |       |       |      | AltConf | Trace |
|-----|-------|----------|-------|-------|-------|-------|------|---------|-------|
| 34  | AA    | 3193     | Total | C     | N     | O     | P    | 0       | 0     |
|     |       |          | 67884 | 30446 | 12054 | 22223 | 3161 |         |       |

- Molecule 35 is a RNA chain called 5.8S ribosomal RNA.

| Mol | Chain | Residues | Atoms |      |     |      |     | AltConf | Trace |
|-----|-------|----------|-------|------|-----|------|-----|---------|-------|
| 35  | AC    | 151      | Total | C    | N   | O    | P   | 0       | 0     |
|     |       |          | 3215  | 1444 | 589 | 1034 | 148 |         |       |

- Molecule 36 is a RNA chain called 5S ribosomal RNA.

| Mol | Chain | Residues | Atoms |      |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|-----|---------|-------|
| 36  | AB    | 118      | Total | C    | N   | O   | P   | 0       | 0     |
|     |       |          | 2522  | 1128 | 461 | 816 | 117 |         |       |

- Molecule 37 is a protein called 60S ribosomal protein eL13.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 37  | AL    | 211      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1757  | 1116 | 346 | 291 | 4 |         |       |

There are 3 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment  | Reference  |
|-------|---------|----------|--------|----------|------------|
| AL    | 19      | HIS      | ARG    | CONFLICT | UNP Q8IAX6 |
| AL    | 20      | ARG      | HIS    | CONFLICT | UNP Q8IAX6 |
| AL    | 201     | CYS      | ARG    | CONFLICT | UNP Q8IAX6 |

- Molecule 38 is a protein called 60S ribosomal protein eL27.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 38  | A1    | 140      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1134  | 736 | 204 | 191 | 3 |         |       |

- Molecule 39 is a protein called 60S ribosomal protein eL28.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 39  | A2    | 104      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 831   | 529 | 151 | 148 | 3 |         |       |

- Molecule 40 is a protein called 60S ribosomal protein eL29.

| Mol | Chain | Residues | Atoms |     |     |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 40  | A4    | 66       | Total | C   | N   | O  | S | 0       | 0     |
|     |       |          | 555   | 347 | 116 | 90 | 2 |         |       |

- Molecule 41 is a protein called 60S ribosomal protein eL30.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 41  | A6    | 98       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 741   | 462 | 132 | 140 | 7 |         |       |

- Molecule 42 is a protein called 60S ribosomal protein eL31.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 42  | A7    | 96       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 794   | 508 | 151 | 130 | 5 |         |       |

- Molecule 43 is a protein called 60S ribosomal protein eL14.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 43  | AN    | 146      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1202  | 781 | 210 | 205 | 6 |         |       |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment  | Reference  |
|-------|---------|----------|--------|----------|------------|
| AN    | ?       | -        | LYS    | DELETION | UNP Q8ILE8 |

- Molecule 44 is a protein called 60S ribosomal protein eL32.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 44  | A8    | 125      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1037  | 660 | 206 | 164 | 7 |         |       |

- Molecule 45 is a protein called 60S ribosomal protein eL33.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 45  | A9    | 103      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 845   | 543 | 163 | 136 | 3 |         |       |

- Molecule 46 is a protein called 60S ribosomal protein eL34.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 46  | Aa    | 106      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 859   | 530 | 184 | 139 | 6 |         |       |

- Molecule 47 is a protein called 60S ribosomal protein eL36.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 47  | Ab    | 95       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 757   | 477 | 150 | 130 |   |         |       |

- Molecule 48 is a protein called 60S ribosomal protein eL38.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 48  | Ad    | 72       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 604   | 395 | 107 | 100 | 2 |         |       |

- Molecule 49 is a protein called 60S ribosomal protein eL39.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 49  | Ae    | 43       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 388   | 243 | 92 | 52 | 1 |         |       |

- Molecule 50 is a protein called 60S ribosomal protein eL40.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 50  | Af    | 51       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 414   | 255 | 87 | 67 | 5 |         |       |

- Molecule 51 is a protein called 60S ribosomal protein eL15.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 51  | AP    | 204      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1697  | 1075 | 351 | 267 | 4 |         |       |

- Molecule 52 is a protein called 60S ribosomal protein eL43.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 52  | Ah    | 85       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 659   | 417 | 127 | 108 | 7 |         |       |

- Molecule 53 is a protein called 60S ribosomal protein eL44.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 53  | Ai    | 95       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 779   | 490 | 152 | 128 | 9 |         |       |

- Molecule 54 is a protein called 60S ribosomal protein eL6.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 54  | AI    | 207      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1685  | 1096 | 298 | 286 | 5 |         |       |

- Molecule 55 is a protein called 60S ribosomal protein eL8.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 55  | AJ    | 222      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1813  | 1174 | 323 | 309 | 7 |         |       |

- Molecule 56 is a protein called 60S ribosomal protein eL37.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 56  | Ac    | 89       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 710   | 441 | 150 | 114 | 5 |         |       |

- Molecule 57 is a protein called 60S ribosomal protein uL13.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 57  | AK    | 201      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1660  | 1064 | 311 | 277 | 8 |         |       |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment  | Reference  |
|-------|---------|----------|--------|----------|------------|
| AK    | 109     | ALA      | TYR    | CONFLICT | UNP Q8IJZ7 |

- Molecule 58 is a protein called 60S ribosomal protein uL14.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 58  | AM    | 132      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 996   | 631 | 179 | 178 | 8 |         |       |

- Molecule 59 is a protein called 60S ribosomal protein eL18.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 59  | AS    | 186      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1503  | 958 | 299 | 241 | 5 |         |       |

- Molecule 60 is a protein called 60S ribosomal protein uL15.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 60  | AO    | 147      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1172  | 747 | 232 | 189 | 4 |         |       |

- Molecule 61 is a protein called 60S ribosomal protein uL16.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 61  | AQ    | 189      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1545  | 984 | 291 | 262 | 8 |         |       |

- Molecule 62 is a protein called 60S ribosomal protein uL18.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 62  | AR    | 252      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 2050  | 1300 | 385 | 359 | 6 |         |       |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment  | Reference  |
|-------|---------|----------|--------|----------|------------|
| AR    | ?       | -        | LYS    | DELETION | UNP Q8ILL3 |

- Molecule 63 is a protein called 60S ribosomal protein uL22.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 63  | AW    | 170      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1319  | 824 | 266 | 222 | 7 |         |       |

- Molecule 64 is a protein called 60S ribosomal protein uL23.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 64  | AY    | 101      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 797   | 502 | 144 | 145 | 6 |         |       |

- Molecule 65 is a protein called 60S ribosomal protein eL19.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 65  | AT    | 181      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1509  | 952 | 309 | 244 | 4 |         |       |

- Molecule 66 is a protein called 60S ribosomal protein uL24.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 66  | AZ    | 121      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1001  | 626 | 206 | 166 | 3 |         |       |

- Molecule 67 is a protein called 60S ribosomal protein uL29.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 67  | A3    | 119      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 995   | 635 | 194 | 164 | 2 |         |       |

- Molecule 68 is a protein called 60S ribosomal protein uL30.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 68  | A5    | 223      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1879  | 1211 | 357 | 306 | 5 |         |       |

- Molecule 69 is a protein called 60S ribosomal protein uL2.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 69  | AD    | 247      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1867  | 1166 | 374 | 318 | 9 |         |       |

- Molecule 70 is a protein called 60S ribosomal protein uL3.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 70  | AE    | 380      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3062  | 1948 | 575 | 522 | 17 |         |       |

- Molecule 71 is a protein called 60S ribosomal protein uL4.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 71  | AF    | 390      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3095  | 1962 | 594 | 528 | 11 |         |       |

- Molecule 72 is a protein called 60S ribosomal protein uL5.



| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 72  | AG    | 124      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1011  | 636 | 197 | 172 | 6 |         |       |

- Molecule 73 is a protein called 60S ribosomal protein eL20.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 73  | AU    | 180      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1497  | 946 | 289 | 255 | 7 |         |       |

- Molecule 74 is a protein called 60S ribosomal protein uL6.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 74  | AH    | 185      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1476  | 950 | 264 | 256 | 6 |         |       |

- Molecule 75 is a protein called 60S ribosomal protein eL21.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 75  | AV    | 155      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1276  | 814 | 241 | 215 | 6 |         |       |

- Molecule 76 is a protein called 60S ribosomal protein eL41.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 76  | Ag    | 37       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 343   | 210 | 86 | 45 | 2 |         |       |

- Molecule 77 is a protein called 60S ribosomal protein eL22.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 77  | AX    | 97       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 825   | 548 | 135 | 140 | 2 |         |       |

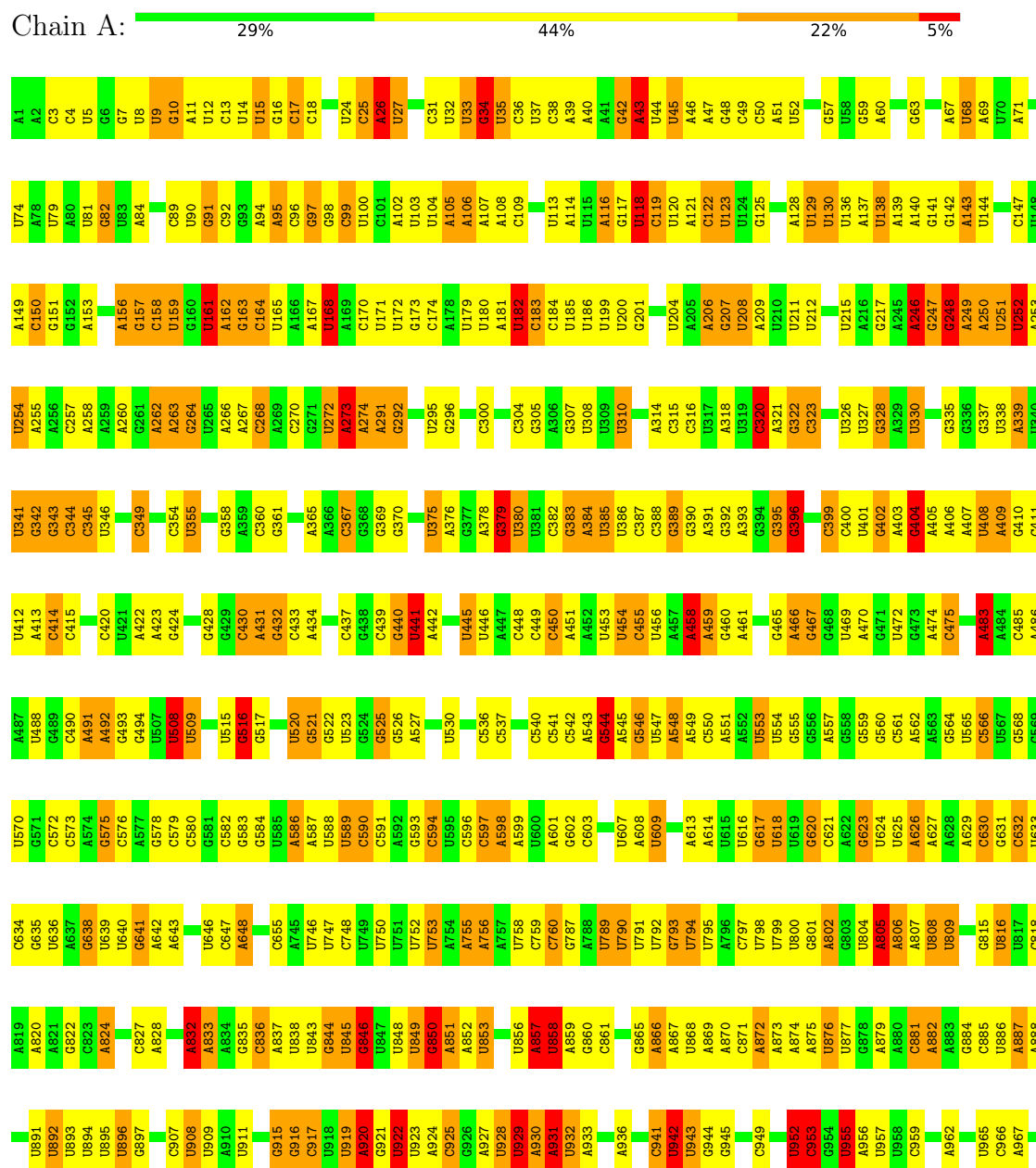
- Molecule 78 is a protein called 60S ribosomal protein eL24.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 78  | A0    | 62       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 522   | 336 | 97 | 88 | 1 |         |       |

### 3 Residue-property plots


These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. 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. 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: 18S ribosomal RNA

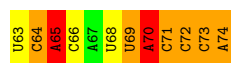


|       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| U2038 | C1945 | U1278 | G1378 | U1275 | U1207 | C1097 | G1031 | G970  |
| A2029 | C1946 | A1729 | G1379 | U1276 | G1208 | U1098 | A1032 | G971  |
| U2030 | U1947 | A1730 | C1380 | G1277 | G1209 | A1099 | A1035 | U972  |
| C2031 | A1886 | G1731 | C1381 | G1278 | G1210 | U1100 |       | G973  |
| U2032 | A1948 | G1732 | G1382 | G1279 | G1211 | G1101 | G1038 | A974  |
| A5    | C1949 | A1888 | G1383 | G1280 | G1212 | C1102 | C1039 | A975  |
| U2033 | C1950 | G1889 | U1383 | C1281 | G1213 | C1103 | A1040 | A976  |
| U2034 | G1951 | G1734 | U1384 | U1282 | G1214 | G1104 | G1041 | U977  |
| U2035 | A1952 | A1735 | U1385 | U1283 | G1215 | A1105 | A1042 | U978  |
|       | U1953 | A1741 | G1386 | U1284 | U1216 | C1106 | A1043 | U979  |
| A2042 | C1953 | A1742 | U1387 | A1285 |       | U1107 | A1044 | U981  |
| G2043 | G1954 | G1743 | A1388 | U1286 |       | G1108 | G1045 | A982  |
| G2044 | U1955 | A1744 | G1389 | U1287 |       | G1109 | G1046 | G983  |
| A2048 | A1956 | A1745 | U1390 | U1288 |       | G1112 | A1047 | A984  |
| G2049 | C1957 | G1746 | U1391 | G1289 |       |       |       | U985  |
| U2050 | A1958 | U1747 | U1392 | U1290 |       | G1116 | U1050 | U986  |
| U2051 | G1959 | G1748 | G1401 | A1291 |       | U1117 | U1051 | U987  |
| C2051 | A1960 | U1749 | U1402 | C1293 |       | U1118 | U988  | U988  |
| U1961 | G1961 | C1749 | A1403 | A1294 |       | G1119 | G1054 | C989  |
| U1962 | U1961 | U1750 | U1404 | A1295 |       |       | G1055 | U990  |
| U1963 | U1962 |       | U1407 | C1296 |       | C1166 | G1056 |       |
| G1963 | U1963 |       | A1408 | U1298 |       | U1167 | A1057 | A993  |
| G1964 | U1964 |       | U1409 | G1299 |       | U1168 | G1058 | G994  |
| A2054 | U1965 |       | G1410 | G1300 |       | C1169 | U1059 | A995  |
| A2055 | U1966 |       | G1411 | G1301 |       | C1170 | G1060 | C996  |
| C2056 | U1967 |       | U1412 | G1302 |       | U1171 | A1061 | G997  |
| A2057 | U1968 |       | U1413 | A1295 |       | U1172 | A1062 | A998  |
| A2058 | U1969 |       | A1414 | C1297 |       | C1173 | G1063 | A999  |
| G2058 | U1970 |       | A1415 | A1304 |       | A1174 | A1064 | C1000 |
| G2059 | U1971 |       | U1416 | A1305 |       | G1175 | G1065 | A1001 |
| G2060 | U1972 |       | U1417 | C1306 |       | U1176 | A1002 | A1002 |
| U2061 |       |       | U1418 | U1307 |       | U1177 | A1003 | C1003 |
| U2062 | U1975 |       | C1419 | C1308 |       | C1178 | U1004 | U1004 |
| U2063 | G1976 |       | U1420 | C1310 |       | U1180 | G1071 | G1006 |
| G2064 | G1977 |       | A1421 |       |       | A1181 | A1072 | G1007 |
| C2065 | G1978 |       | U1422 |       |       | U1182 | A1008 | A1008 |
| G2066 | C1979 |       | A1423 |       |       | A1183 | A1009 | A1009 |
| U2067 | A1980 |       | C1424 |       |       | G1184 | A1010 | A1010 |
| A2068 | A1981 |       | U1425 |       |       | A1185 | C1075 | C1075 |
| G2069 | U1982 |       | G1426 |       |       | G1186 | C1076 | C1076 |
| C2070 | A1983 |       | U1427 |       |       | A1187 | G1079 | A1013 |
| U2071 | A1984 |       | A1428 |       |       | A1188 | U1014 | U1014 |
| G2072 |       |       | C1429 |       |       | A1189 | U1015 | U1015 |
| A2073 | U2004 |       | U1430 |       |       | U1190 | U1016 | U1016 |
| A2074 | U2005 |       | A1431 |       |       | C1191 | G1017 | G1017 |
| C2075 | U2006 |       | U1432 |       |       | A1192 | U1018 | U1018 |
| C2076 | U2007 |       | G1433 |       |       | A1193 | C1085 | C1019 |
|       | U2008 |       | U1434 |       |       | A1194 | U1086 | U1020 |
| C2079 | C2009 |       | C1435 |       |       | G1195 | U1087 | A1021 |
|       | U1928 |       | U1436 |       |       | U1196 | A1088 | A1022 |
|       | A1928 |       | U1437 |       |       | C1197 | A1089 | A1023 |
|       | C1929 |       | C1440 |       |       | U1199 | C1091 | U1025 |
|       | U1930 |       | C1441 |       |       | U1200 | A1092 | A1026 |
|       | C1931 |       | U1442 |       |       | G1201 | U1093 | C1027 |
|       | A1932 |       | U1443 |       |       | G1202 | A1094 | U1029 |
|       | C1933 |       | A1811 |       |       |       | A1095 | C1030 |
|       | C1934 |       | U1812 |       |       |       |       |       |
|       | G1935 |       | U1813 |       |       |       |       |       |
|       | C1936 |       | U1814 |       |       |       |       |       |
|       | C2018 |       | U1815 |       |       |       |       |       |
|       | C2019 |       | U1816 |       |       |       |       |       |
|       | G2020 |       | U1817 |       |       |       |       |       |
|       | U2021 |       | G1877 |       |       |       |       |       |
|       | A2022 |       | C1878 |       |       |       |       |       |
|       | A2023 |       | U1819 |       |       |       |       |       |
|       |       |       | U1820 |       |       |       |       |       |
|       |       |       | U1821 |       |       |       |       |       |
|       |       |       | U1822 |       |       |       |       |       |
|       |       |       | U1823 |       |       |       |       |       |
|       |       |       | U1824 |       |       |       |       |       |
|       |       |       | U1825 |       |       |       |       |       |
|       |       |       | U1826 |       |       |       |       |       |
|       |       |       | U1827 |       |       |       |       |       |
|       |       |       | U1828 |       |       |       |       |       |
|       |       |       | U1829 |       |       |       |       |       |
|       |       |       | U1830 |       |       |       |       |       |
|       |       |       | U1831 |       |       |       |       |       |
|       |       |       | U1832 |       |       |       |       |       |
|       |       |       | U1833 |       |       |       |       |       |
|       |       |       | U1834 |       |       |       |       |       |
|       |       |       | U1835 |       |       |       |       |       |
|       |       |       | U1836 |       |       |       |       |       |
|       |       |       | U1837 |       |       |       |       |       |
|       |       |       | U1838 |       |       |       |       |       |
|       |       |       | U1839 |       |       |       |       |       |
|       |       |       | U1840 |       |       |       |       |       |
|       |       |       | U1841 |       |       |       |       |       |
|       |       |       | U1842 |       |       |       |       |       |
|       |       |       | U1843 |       |       |       |       |       |
|       |       |       | U1844 |       |       |       |       |       |
|       |       |       | U1845 |       |       |       |       |       |
|       |       |       | U1846 |       |       |       |       |       |
|       |       |       | U1847 |       |       |       |       |       |
|       |       |       | U1848 |       |       |       |       |       |
|       |       |       | U1849 |       |       |       |       |       |
|       |       |       | U1850 |       |       |       |       |       |
|       |       |       | U1851 |       |       |       |       |       |
|       |       |       | U1852 |       |       |       |       |       |
|       |       |       | U1853 |       |       |       |       |       |
|       |       |       | U1854 |       |       |       |       |       |
|       |       |       | U1855 |       |       |       |       |       |
|       |       |       | U1856 |       |       |       |       |       |
|       |       |       | U1857 |       |       |       |       |       |
|       |       |       | U1858 |       |       |       |       |       |
|       |       |       | U1859 |       |       |       |       |       |
|       |       |       | U1860 |       |       |       |       |       |
|       |       |       | U1861 |       |       |       |       |       |
|       |       |       | U1862 |       |       |       |       |       |
|       |       |       | U1863 |       |       |       |       |       |
|       |       |       | U1864 |       |       |       |       |       |
|       |       |       | U1865 |       |       |       |       |       |
|       |       |       | U1866 |       |       |       |       |       |
|       |       |       | U1867 |       |       |       |       |       |
|       |       |       | U1868 |       |       |       |       |       |
|       |       |       | U1869 |       |       |       |       |       |
|       |       |       | U1870 |       |       |       |       |       |
|       |       |       | U1871 |       |       |       |       |       |
|       |       |       | U1872 |       |       |       |       |       |
|       |       |       | U1873 |       |       |       |       |       |
|       |       |       | U1874 |       |       |       |       |       |
|       |       |       | U1875 |       |       |       |       |       |
|       |       |       | U1876 |       |       |       |       |       |
|       |       |       | U1877 |       |       |       |       |       |
|       |       |       | U1878 |       |       |       |       |       |
|       |       |       | U1879 |       |       |       |       |       |
|       |       |       | U1880 |       |       |       |       |       |
|       |       |       | U1881 |       |       |       |       |       |
|       |       |       | U1882 |       |       |       |       |       |
|       |       |       | U1883 |       |       |       |       |       |
|       |       |       | U1884 |       |       |       |       |       |
|       |       |       | U1885 |       |       |       |       |       |
|       |       |       | U1886 |       |       |       |       |       |
|       |       |       | U1887 |       |       |       |       |       |
|       |       |       | U1888 |       |       |       |       |       |
|       |       |       | U1889 |       |       |       |       |       |
|       |       |       | U1890 |       |       |       |       |       |
|       |       |       | U1891 |       |       |       |       |       |
|       |       |       | U1892 |       |       |       |       |       |
|       |       |       | U1893 |       |       |       |       |       |
|       |       |       | U1894 |       |       |       |       |       |
|       |       |       | U1895 |       |       |       |       |       |
|       |       |       | U1896 |       |       |       |       |       |
|       |       |       | U1897 |       |       |       |       |       |
|       |       |       | U1898 |       |       |       |       |       |
|       |       |       | U1899 |       |       |       |       |       |
|       |       |       | U1900 |       |       |       |       |       |
|       |       |       | U1901 |       |       |       |       |       |
|       |       |       | U1902 |       |       |       |       |       |
|       |       |       | U1903 |       |       |       |       |       |
|       |       |       | U1904 |       |       |       |       |       |
|       |       |       | U1905 |       |       |       |       |       |
|       |       |       | U1906 |       |       |       |       |       |
|       |       |       | U1907 |       |       |       |       |       |
|       |       |       | U1908 |       |       |       |       |       |
|       |       |       | U1909 |       |       |       |       |       |
|       |       |       | U1910 |       |       |       |       |       |
|       |       |       | U1911 |       |       |       |       |       |
|       |       |       | U1912 |       |       |       |       |       |
|       |       |       | U1913 |       |       |       |       |       |
|       |       |       | U1914 |       |       |       |       |       |
|       |       |       | U1915 |       |       |       |       |       |
|       |       |       | U1916 |       |       |       |       |       |
|       |       |       | U1917 |       |       |       |       |       |
|       |       |       | U1918 |       |       |       |       |       |
|       |       |       | U1919 |       |       |       |       |       |
|       |       |       | U1920 |       |       |       |       |       |
|       |       |       | U1921 |       |       |       |       |       |
|       |       |       | U1922 |       |       |       |       |       |
|       |       |       | U1923 |       |       |       |       |       |
|       |       |       | U1924 |       |       |       |       |       |
|       |       |       | U1925 |       |       |       |       |       |
|       |       |       | U1926 |       |       |       |       |       |
|       |       |       | U1927 |       |       |       |       |       |
|       |       |       | U1928 |       |       |       |       |       |
|       |       |       | U1929 |       |       |       |       |       |
|       |       |       | U1930 |       |       |       |       |       |
|       |       |       | U1931 |       |       |       |       |       |
|       |       |       | U1932 |       |       |       |       |       |
|       |       |       | U1933 |       |       |       |       |       |
|       |       |       | U1934 |       |       |       |       |       |
|       |       |       | U1935 |       |       |       |       |       |
|       |       |       | U1936 |       |       |       |       |       |
|       |       |       | U1937 |       |       |       |       |       |
|       |       |       | U1938 |       |       |       |       |       |
|       |       |       | U1939 |       |       |       |       |       |
|       |       |       | U1940 |       |       |       |       |       |
|       |       |       | U1941 |       |       |       |       |       |
|       |       |       | U1942 |       |       |       |       |       |
|       |       |       | U1943 |       |       |       |       |       |
|       |       |       | U1944 |       |       |       |       |       |

## • Molecule 2: E-tRNA

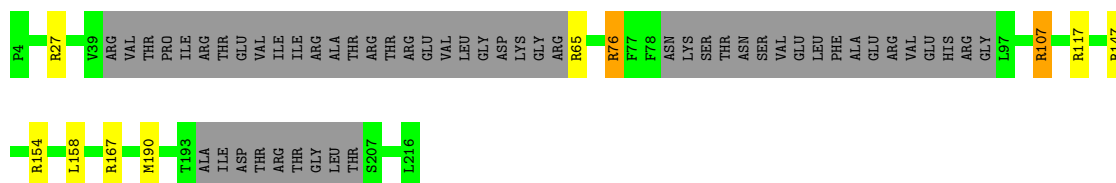
Chain 7:  9% 41% 38% 12%

|     |     |
|-----|-----|
| G1  | G61 |
| G2  | G62 |
| G3  |     |
| U4  |     |
| A5  |     |
| A6  |     |
| U7  |     |
| U8  |     |
| G9  |     |
| C11 |     |
| G12 |     |
| C13 |     |
| A14 |     |
| G15 |     |
| U16 |     |
| U17 |     |
| G18 |     |
| G19 |     |
| U20 |     |
| U21 |     |
| A22 |     |
| G23 |     |
| C24 |     |
| G25 |     |
| C26 |     |
| G27 |     |
| C28 |     |
| G29 |     |
| C30 |     |
| G31 |     |
| U32 |     |
| C33 |     |
| C34 |     |
| C35 |     |
| A36 |     |
| U37 |     |
| A38 |     |
| A39 |     |
| U40 |     |
| C41 |     |
| C42 |     |
| C43 |     |
| C44 |     |
| A45 |     |
| G46 |     |
| U48 |     |
| C49 |     |
| G50 |     |
| U51 |     |
| G52 |     |
| A53 |     |
| G54 |     |
| U55 |     |
| G56 |     |
| C57 |     |
| C61 |     |
| C62 |     |



• Molecule 3: 40S ribosomal protein uS3

Chain D: 70% 25%



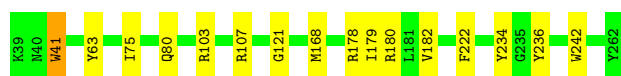
• Molecule 4: 40S ribosomal protein uS4

Chain E: 88% 11%



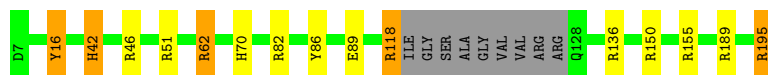
• Molecule 5: 40S ribosomal protein uS5

Chain G: 93% 7%



• Molecule 6: 40S ribosomal protein uS7

Chain I: 87% 5% 5%



• Molecule 7: 40S ribosomal protein uS8

Chain K: 90% 5%




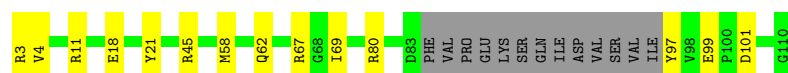
• Molecule 8: 40S ribosomal protein uS9

Chain M: 94% 6%




• Molecule 9: 40S ribosomal protein eS17

Chain W:  75% 13% 12%




- Molecule 10: 40S ribosomal protein eS12

Chain R:  80% 6% 14%




- Molecule 11: 40S ribosomal protein eS10

Chain O:  86% 14%



- Molecule 12: 40S ribosomal protein eS19

Chain Y:  86% 13% .




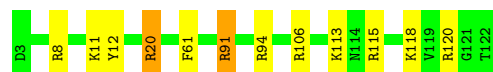
- Molecule 13: 40S ribosomal protein eS21

Chain Z:  94% 6%



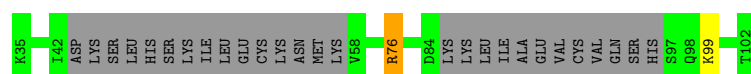
- Molecule 14: 40S ribosomal protein eS24

Chain 1:  90% 8% .




- Molecule 15: 40S ribosomal protein eS25

Chain 2:  57% .. 40%




- Molecule 16: 40S ribosomal protein eS26

Chain 3:  85% 13%




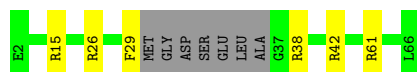
- Molecule 17: 40S ribosomal protein eS27

Chain 4:  88% 11%




- Molecule 18: 40S ribosomal protein eS28

Chain 5:  80% 9% 11%



- Molecule 19: 40S ribosomal protein eS30

Chain 6:  86% 14%




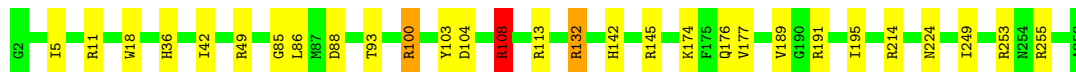
- Molecule 20: 40S ribosomal protein eS1

Chain B:  92% 5%



- Molecule 21: 40S ribosomal protein eS4

Chain F:  89% 10%




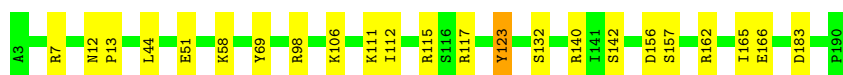
- Molecule 22: 40S ribosomal protein eS6

Chain H:  86% 8% 5%



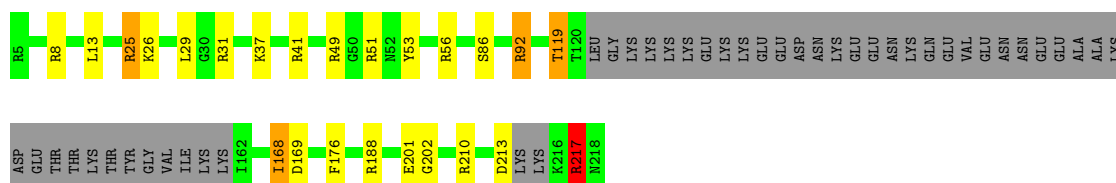
- Molecule 23: 40S ribosomal protein eS7

Chain J:  88% 12% .




- Molecule 24: 40S ribosomal protein eS8

Chain L:  69% 9% 20% .




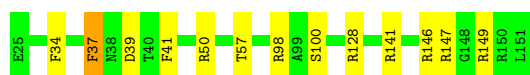
- Molecule 25: 40S ribosomal protein uS10

Chain N:  90% 8% .



- Molecule 26: 40S ribosomal protein uS11

Chain P:  90% 9% .




- Molecule 27: 40S ribosomal protein uS12

Chain Q:  92% 7% .




- Molecule 28: 40S ribosomal protein uS13

Chain S:  84% 14% .



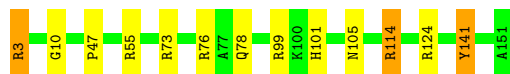
- Molecule 29: 40S ribosomal protein uS14

Chain T:  85% 12% .




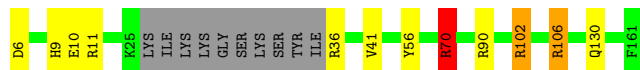
- Molecule 30: 40S ribosomal protein uS15

Chain U:  91% 7%




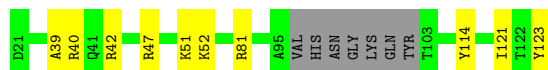
- Molecule 31: 40S ribosomal protein uS17

Chain V:  86% 6% 6%



- Molecule 32: 40S ribosomal protein uS19

Chain X:  83% 10% 7%



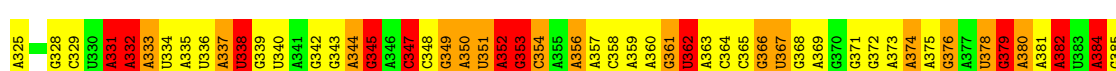
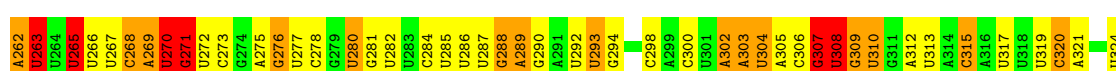
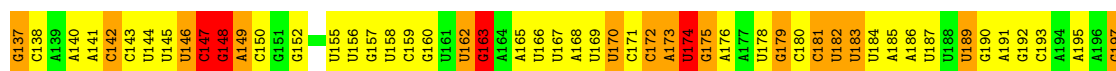
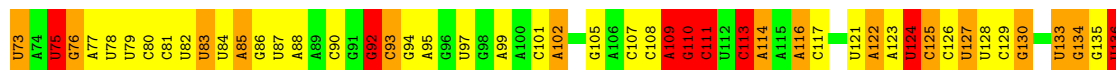
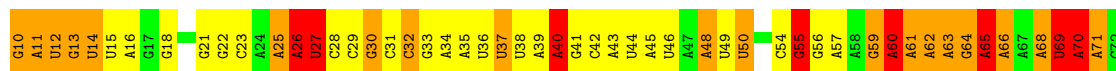
- Molecule 33: 40S ribosomal protein uS2

Chain C:  89% 10%



- Molecule 34: 28S ribosomal RNA

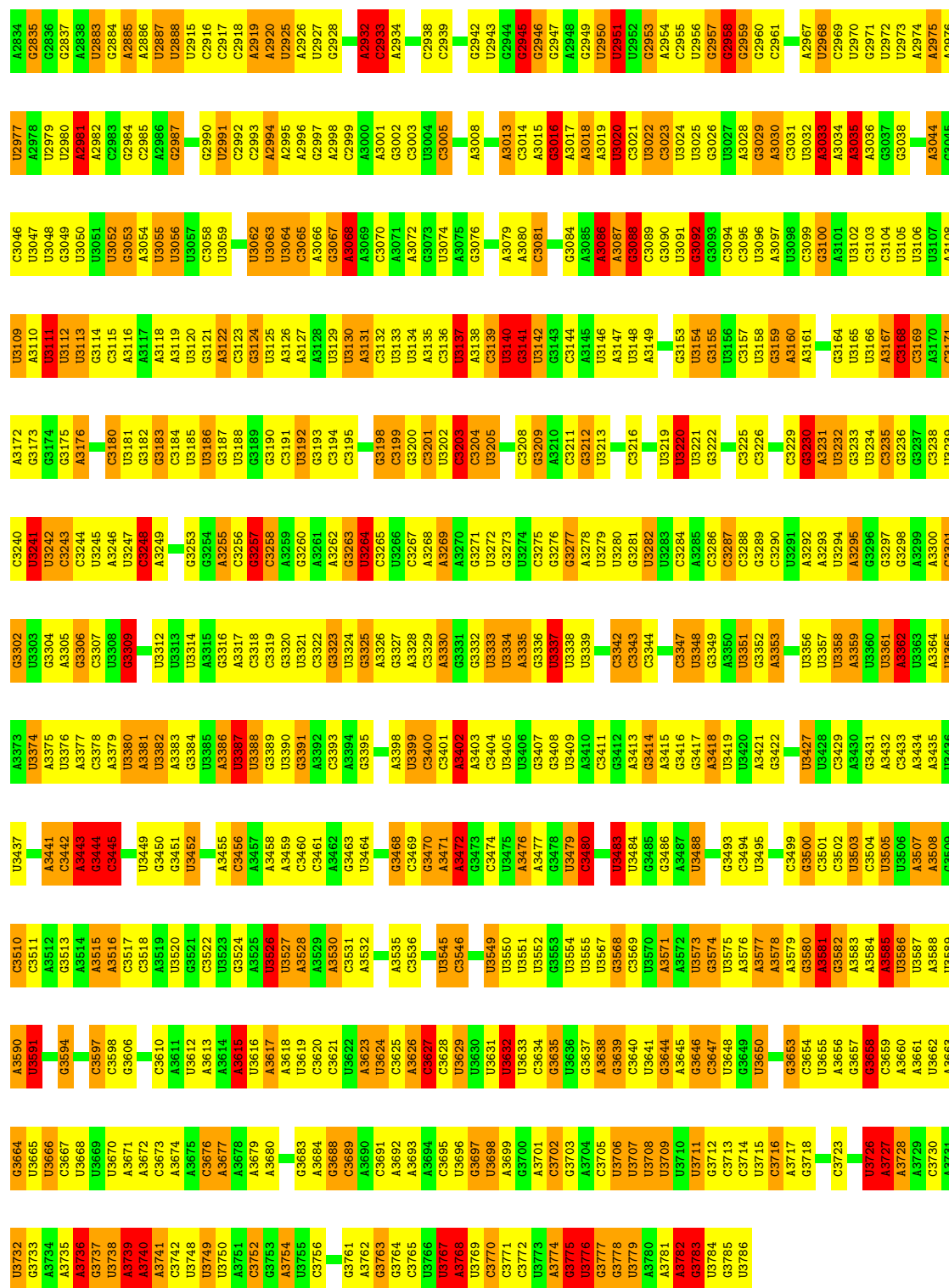
Chain AA:  25% 43% 24% 8%





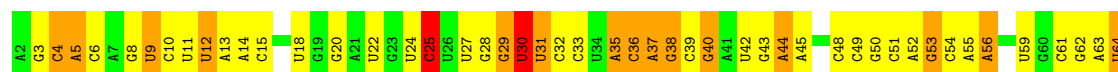


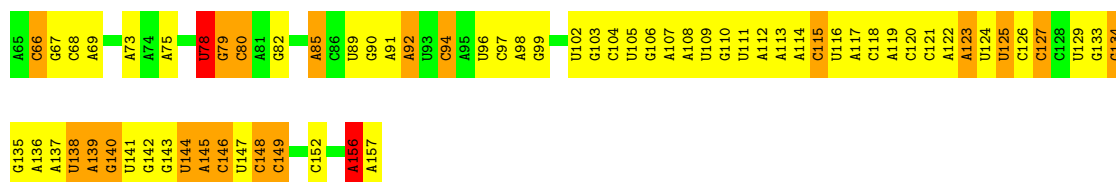
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|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| G2639 | A2572 | A2506 | A2442 | G2414 | U2148 | C2080 | G1973 | C1866 | U1800 | A1732 | U1661 | G1593 | A1522 |
| U2640 | A2573 | A2507 | G2443 | G2215 | A2149 | U2081 | U1974 | U1967 | G1801 | G1733 | G1662 | A1594 | A1523 |
| C2643 | A2574 | C2508 | C2444 | G2216 | A2152 | C2082 | A1976 | U1968 | C1804 | G1735 | A1663 | G1595 | U1524 |
| U2644 | G2576 | U2510 | U2446 | G2217 | A2153 | U2084 | U1977 | A1871 | C1805 | G1736 | G1665 | U1597 | G1526 |
| C2647 | C2577 | G2514 | U2449 | C2218 | A2154 | C2089 | U1978 | A1872 | C1806 | A1737 | A1666 | A1598 |       |
| G2648 | U2579 | A2515 | G2450 | A2219 | A2155 | U2090 | C1979 | C1873 | U1807 | G1738 | A1667 | G1599 | G1529 |
| A2649 | A2451 | A2516 | A2451 | U2221 | G2157 | U2091 | U1980 | C1874 | U1808 | A1739 | G1668 | C1600 | G1530 |
| C2651 | A2452 | A2517 | A2452 | A2386 | U2158 | G2092 | A1989 | A1875 | U1809 | C1740 | A1669 | A1601 | G1531 |
| G2652 | G2582 | U2518 | A2453 | A2387 | U2159 | U2093 | A1990 | U1876 | C1812 | G1741 | U1671 | C1602 |       |
| C2653 | C2583 | G2519 | A2454 | U2388 | G2160 | A2094 | U1991 | U1877 | A1813 | G1742 |       | C1603 | U1534 |
| A2654 | A2584 | C2520 | G2455 | G2389 | G2161 | U2095 |       | U1878 | A1813 | U1743 |       | U1604 | G1535 |
| C2655 |       | A2521 | C2456 | U2390 | U2162 | G2096 | U1994 | A1880 | U1814 | U1744 |       | U1605 | U1536 |
| A2656 | U2587 | A2522 | C2457 |       | G2165 | A2097 | C1995 | U1881 | G1816 | G1745 | C1675 | U1606 | G1537 |
| G2657 | A2588 | G2523 | A2458 | A2393 | G2166 | G2098 | C1996 | U1882 | G1817 | U1747 | C1676 | G1607 | U1538 |
| C2658 | U2589 | C2524 | A2459 | C2394 | G2167 | C2099 | G1997 | U1883 | A1818 | U1748 | G1677 | U1539 | U1540 |
| G2659 | A2590 | A2525 | A2460 | U2395 | G2168 | A2100 | A1998 | A1886 | U1819 | U1749 | G1678 | G1541 |       |
| A2660 | U2591 | A2526 | A2461 | C2396 | A2169 | A2102 | G2000 | A1887 | U1820 | U1750 | G1679 | G1542 |       |
| A2661 | A2592 | G2527 | C2462 | C2400 | A2170 | C2103 | G2001 | A1888 | U1821 | C1751 | G1681 | G1543 | G1544 |
| G2662 | G2593 | C2528 | U2463 | A2401 | G2171 | A2105 | G2002 | A1889 | U1822 | C1752 | G1682 | G1615 |       |
| C2663 | U2594 | G2529 | G2464 | U2402 | C2172 | A2106 | G2003 | U1894 | A1824 | G1754 | A1683 | A1616 |       |
| G2664 | G2595 | G2530 | G2465 | U2403 | G2173 | C2107 | G2004 | U1895 | U1825 | U1755 | A1684 | A1617 |       |
| A2665 | A2596 | U2534 | U2466 | A2404 | G2174 | A2108 | A2005 | C1896 | U1826 | G1756 | G1685 | C1618 |       |
| G2666 | C2597 | A2535 |       | A2405 | C2175 | A2109 |       | G1897 | C1827 | C1757 |       | U1619 |       |
| A2667 | G2598 | A2536 | U2469 |       | A2176 | C2110 | G2008 | U1898 | G1828 |       | A1688 |       |       |
| C2668 | C2599 | A2537 |       | G2408 | A2177 | C2111 | A2009 | U1899 | G1829 | C1758 | U1689 | G1625 |       |
| G2669 | U2599 | C2538 | C2472 | G2409 | A2178 | C2112 | A2010 | U1900 | A1830 |       | A1690 | A1626 |       |
| C2670 | G2601 | G2539 | A2473 | A2410 | A2179 | C2113 | C2011 | G1901 | G1831 | U1762 | G1691 | C1627 |       |
| G2671 | A2602 | G2540 | C2474 | C2411 | U2180 | U2114 | A2012 | A1902 | U1832 | G1763 | G1692 | G1628 |       |
| U2672 | U2603 | C2541 |       | A2412 | A2181 | U2115 | U2013 | C1903 | G1833 |       | U1693 | G1629 |       |
| G2673 | G2604 | G2542 | U2477 | A2413 | G2182 | C2116 | C2014 | U1904 | G1834 | U1766 | G1694 | A1630 |       |
| U2674 | A2605 | G2543 | G2478 | G2414 | U2183 | A2117 | C2015 | C1905 | G1835 | U1767 | A1695 | A1631 |       |
| G2675 | G2606 | G2544 | U2479 | G2415 | A2184 | G2118 | U2016 | A1906 | U1836 | A1768 | A1696 | G1632 |       |
| U2676 | U2607 | A2545 | G2480 | G2416 | U2185 | A2119 | U2017 | U1907 | U1837 | G1770 | A1697 | G1633 |       |
| A2677 | G2608 |       | A2481 |       | C2186 | C2121 | G2018 | U1908 | U1838 | A1771 | A1698 | G1634 |       |
| G2679 |       | A2548 | U2482 | G2419 | G2187 | U2122 | A2019 | U1909 | U1839 | G1772 | U1700 | G1635 |       |
| A2680 | U2611 | A2549 | U2483 | U2420 | U2188 | C2123 | A2020 | C1910 | C1840 | U1773 | G1701 | A1636 |       |
| U2681 | G2612 | C2550 | A2484 | C2421 | A2189 | C2124 | A2021 |       | U1841 | U1774 | U1702 | C1637 |       |
| C2682 | A2613 | U2551 | C2485 | G2422 | A2190 | A2125 | A2022 | A1913 | U1842 | A1779 | U1703 | G1640 |       |
| A2683 | G2486 | U2552 | U2486 | G2423 | C2191 | A2126 |       | A1914 | U1843 | G1780 | U1704 | G1641 |       |
| G2684 | G2487 | G2553 | G2487 | G2424 | U2192 | G2127 | G2030 | A1915 | G1844 | A1781 | A1705 | G1642 |       |
| C2685 | U2554 | G2554 | A2488 | A2424 | U2193 | G2128 |       | U1956 | U1845 | U1782 | U1706 | U1643 |       |
| G2686 | G2489 | A2555 | C2489 | C2425 | U2194 |       | C2033 | U1957 | A1846 | G1783 | A1707 | U1644 |       |
|       | C2490 | C2556 | G2490 | U2426 | C2194 | A2131 | G2034 | U1958 | C1847 |       |       | U1645 |       |
| G2689 | A2491 | U2557 | A2491 | G2427 |       | A2132 | G2035 | G1959 | U1848 | G1784 | G1712 | U1646 |       |
| U2813 | C2622 | C2558 | G2492 | U2428 | G2197 | C2133 | G2036 | U1960 | U1849 | U1785 |       | U1647 |       |
| G2815 | G2623 | U2559 | U2493 | U2429 | A2198 | A2134 | U2037 | U1961 | U1850 | A1786 | C1720 | U1648 |       |
| U2816 | C2624 | C2560 | G2494 | U2430 | A2199 | G2135 |       | U1962 | A1851 | A1787 | C1721 | G1649 |       |
| U2817 | A2695 | U2561 | C2495 | A2431 | A2200 | C2136 | U2041 | U1963 | C1852 | G1788 | C1722 | U1650 |       |
|       | C2626 | U2562 | U2496 | A2432 | A2201 | C2137 |       | G1964 | U1853 | A1789 | C1723 | C1651 |       |
| C2821 | U2627 | A2563 | U2497 | U2433 | G2202 | C2138 | G2068 | U1965 | U1854 |       | G1724 | C1654 |       |
| U2822 | G2628 | A2564 | U2498 | A2434 | G2203 | U2139 | C2069 | U1966 | A1855 | A1793 | G1725 | U1655 |       |
| G2823 | U2629 | G2565 | A2499 | A2435 | A2204 | C2139 | U2070 | A1967 | U1856 | U1794 | C1726 | U1656 |       |
| A2824 | G2630 | U2566 | A2500 | A2436 | U2205 | U2140 | U2071 | G1967 | U1857 | U1795 | U1727 | G1657 |       |
| U2825 | U2631 | G2567 | A2501 | A2437 | U2206 | G2141 | U2072 | C1968 | A1857 | U1796 | C1728 | U1657 |       |
| C2826 |       | A2568 | U2502 | A2438 | G2207 |       | G2073 | A1969 |       | A1797 | A1729 | G1658 |       |
|       | C2635 | C2569 | G2503 | A2439 | C2208 | A2145 | C2074 | A1970 | C1861 | U1798 | A1730 | U1591 |       |
| U2702 | U2703 | C2570 | A2440 | A2441 | C2209 | A2147 | U2075 | U1971 |       | A1799 | A1731 | G1592 |       |
| U2704 |       | C2571 | C2505 |       | U2210 |       | A2079 | A1972 |       |       |       |       |       |



# Molecule 35: 5.8S ribosomal RNA

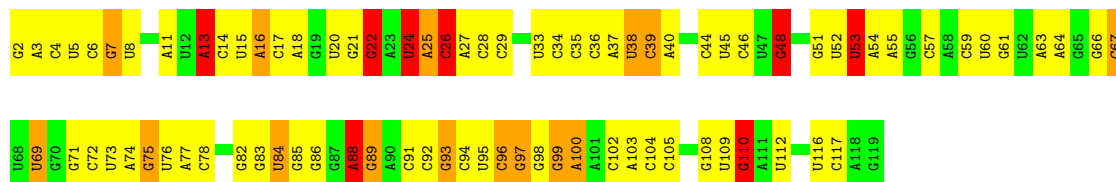
Chain AC:  24%  51%  23%





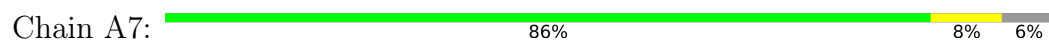
• Molecule 36: 5S ribosomal RNA

Chain AB: 29% 52% 13% 7%

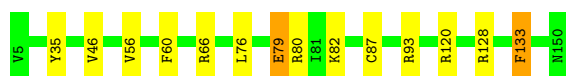




- Molecule 42: 60S ribosomal protein eL31



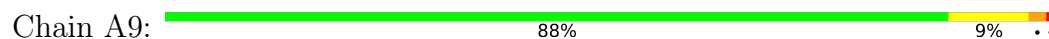
- Molecule 43: 60S ribosomal protein eL14



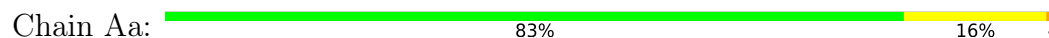
- Molecule 44: 60S ribosomal protein eL32



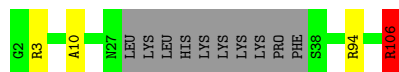
- Molecule 45: 60S ribosomal protein eL33



- Molecule 46: 60S ribosomal protein eL34



- Molecule 47: 60S ribosomal protein eL36



- Molecule 48: 60S ribosomal protein eL38





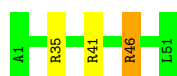
- Molecule 49: 60S ribosomal protein eL39

Chain Ae: 68% 14% 14%



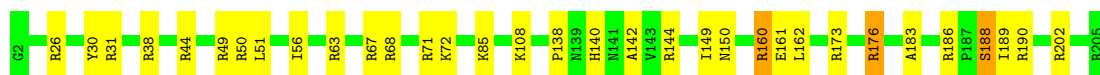
- Molecule 50: 60S ribosomal protein eL40

Chain Af: 94% . .



- Molecule 51: 60S ribosomal protein eL15

Chain AP: 84% 15% .



- Molecule 52: 60S ribosomal protein eL43

Chain Ah: 95% . .



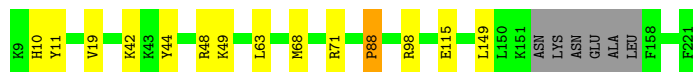
- Molecule 53: 60S ribosomal protein eL44

Chain Ai: 91% 8% .



- Molecule 54: 60S ribosomal protein eL6

Chain AI: 91% 6% .



- Molecule 55: 60S ribosomal protein eL8

Chain AJ: 87% . 9%



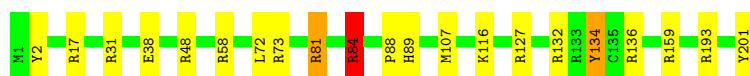
- Molecule 56: 60S ribosomal protein eL37

Chain Ac: 82% 16% ..



- Molecule 57: 60S ribosomal protein uL13

Chain AK: 90% 9% .



- Molecule 58: 60S ribosomal protein uL14

Chain AM: 93% 5% .



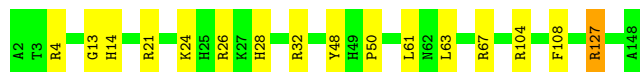
- Molecule 59: 60S ribosomal protein eL18

Chain AS: 86% 12% .



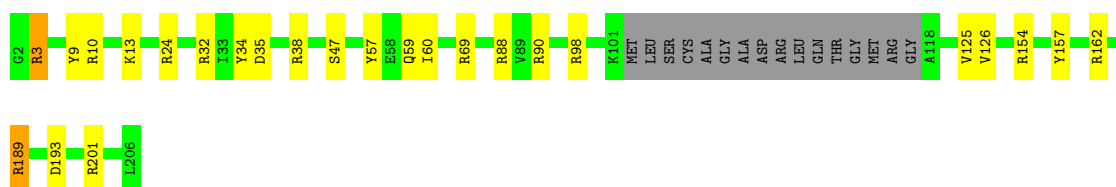
- Molecule 60: 60S ribosomal protein uL15

Chain AO: 89% 10% .




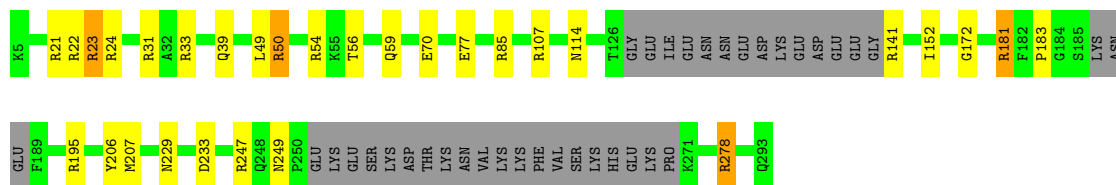
- Molecule 61: 60S ribosomal protein uL16

Chain AQ: 80% 11% 8%



- Molecule 62: 60S ribosomal protein uL18

Chain AR:  77% 9% 13%



- Molecule 63: 60S ribosomal protein uL22

Chain AW:  88% 9%



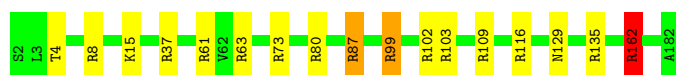
- Molecule 64: 60S ribosomal protein uL23

Chain AY:  94% 5%



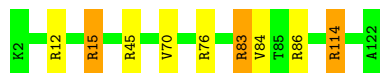
- Molecule 65: 60S ribosomal protein eL19

Chain AT:  91% 8%



- Molecule 66: 60S ribosomal protein uL24

Chain AZ:  93% 5%



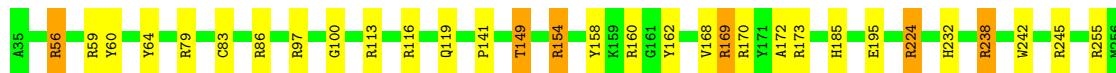
- Molecule 67: 60S ribosomal protein uL29

Chain A3:  92% 8%



- Molecule 68: 60S ribosomal protein uL30

Chain A5:  86% 11%



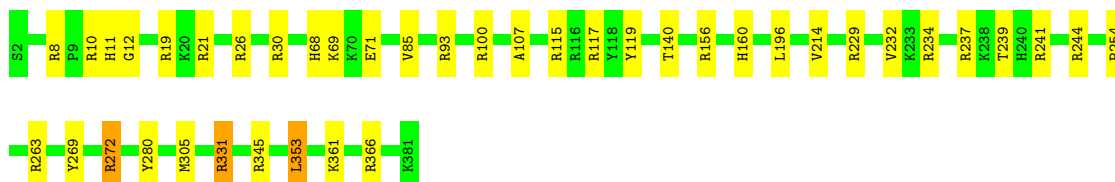


1257

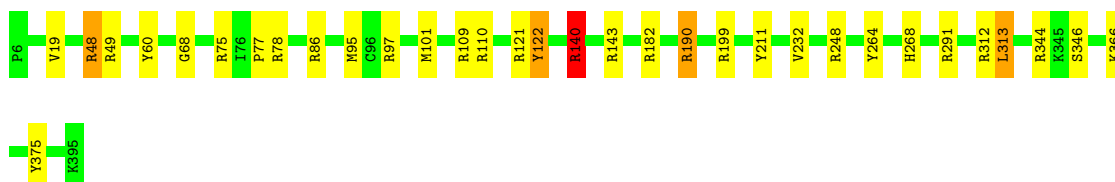
- Molecule 69: 60S ribosomal protein uL2

Chain AD:  89% 9% ..

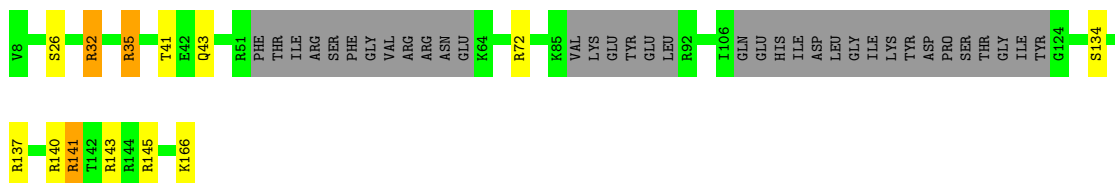

- Molecule 70: 60S ribosomal protein uL3

Chain AE:  89% 10% .



- Molecule 71: 60S ribosomal protein uL4

Chain AF:  92% 7% .


- Molecule 72: 60S ribosomal protein uL5

Chain AG:  70% 6% • 22%


- Molecule 73: 60S ribosomal protein eL20


Chain AU:  88% 7% • •


- Molecule 74: 60S ribosomal protein uL6

Chain AH:  91% 8% .




- Molecule 75: 60S ribosomal protein eL21

Chain AV:  89% 10% .



- Molecule 76: 60S ribosomal protein eL41

Chain Ag:  76% 16% 8%



- Molecule 77: 60S ribosomal protein eL22

Chain AX:  94% 6%



- Molecule 78: 60S ribosomal protein eL24

Chain A0:  92% 6% .



## 4 Experimental information

| Property                             | Value              | Source    |
|--------------------------------------|--------------------|-----------|
| EM reconstruction method             | SINGLE PARTICLE    | Depositor |
| Imposed symmetry                     | POINT, C1          | Depositor |
| Number of particles used             | 96732              | Depositor |
| Resolution determination method      | FSC 0.143 CUT-OFF  | Depositor |
| CTF correction method                | Each micrograph    | Depositor |
| Microscope                           | FEI POLARA 300     | Depositor |
| Voltage (kV)                         | 300                | Depositor |
| Electron dose ( $e^-/\text{\AA}^2$ ) | 25                 | Depositor |
| Minimum defocus (nm)                 | 1500               | Depositor |
| Maximum defocus (nm)                 | 3500               | Depositor |
| Magnification                        | 30120              | Depositor |
| Image detector                       | GATAN K2 (4k x 4k) | Depositor |

## 5 Model quality

### 5.1 Standard geometry

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   | A     | 1.23         | 26/38275 (0.1%) | 1.58        | 870/59596 (1.5%)   |
| 2   | 7     | 1.23         | 4/1754 (0.2%)   | 1.79        | 69/2732 (2.5%)     |
| 3   | D     | 0.75         | 0/1241          | 1.13        | 10/1652 (0.6%)     |
| 4   | E     | 0.70         | 0/1539          | 1.16        | 13/2055 (0.6%)     |
| 5   | G     | 0.70         | 0/1800          | 1.01        | 5/2429 (0.2%)      |
| 6   | I     | 0.69         | 0/1443          | 1.22        | 15/1936 (0.8%)     |
| 7   | K     | 0.70         | 0/1054          | 1.15        | 10/1411 (0.7%)     |
| 8   | M     | 0.71         | 0/1114          | 1.12        | 4/1487 (0.3%)      |
| 9   | W     | 0.71         | 0/793           | 1.18        | 4/1053 (0.4%)      |
| 10  | R     | 0.74         | 0/755           | 1.06        | 0/1013             |
| 11  | O     | 0.72         | 0/706           | 1.03        | 3/950 (0.3%)       |
| 12  | Y     | 0.70         | 0/1295          | 1.18        | 9/1742 (0.5%)      |
| 13  | Z     | 0.70         | 0/565           | 1.08        | 2/758 (0.3%)       |
| 14  | 1     | 0.70         | 0/999           | 1.17        | 11/1321 (0.8%)     |
| 15  | 2     | 0.75         | 0/324           | 0.98        | 1/435 (0.2%)       |
| 16  | 3     | 0.71         | 0/794           | 1.24        | 10/1055 (0.9%)     |
| 17  | 4     | 0.68         | 0/597           | 1.09        | 0/801              |
| 18  | 5     | 0.75         | 0/459           | 1.33        | 9/606 (1.5%)       |
| 19  | 6     | 0.73         | 0/349           | 1.24        | 3/458 (0.7%)       |
| 20  | B     | 0.65         | 0/1738          | 1.11        | 9/2321 (0.4%)      |
| 21  | F     | 0.67         | 0/2098          | 1.14        | 11/2819 (0.4%)     |
| 22  | H     | 0.67         | 0/1665          | 1.10        | 5/2210 (0.2%)      |
| 23  | J     | 0.68         | 0/1545          | 1.07        | 7/2064 (0.3%)      |
| 24  | L     | 0.71         | 0/1407          | 1.23        | 16/1879 (0.9%)     |
| 25  | N     | 0.70         | 0/780           | 1.24        | 7/1053 (0.7%)      |
| 26  | P     | 0.70         | 0/966           | 1.23        | 8/1295 (0.6%)      |
| 27  | Q     | 0.69         | 0/1149          | 1.25        | 11/1532 (0.7%)     |
| 28  | S     | 0.65         | 0/1063          | 1.27        | 11/1425 (0.8%)     |
| 29  | T     | 0.73         | 0/412           | 1.25        | 6/544 (1.1%)       |
| 30  | U     | 0.67         | 0/1223          | 1.14        | 9/1634 (0.6%)      |
| 31  | V     | 0.71         | 0/1233          | 1.10        | 4/1645 (0.2%)      |
| 32  | X     | 0.71         | 0/788           | 1.18        | 7/1050 (0.7%)      |
| 33  | C     | 0.67         | 0/1570          | 1.08        | 4/2129 (0.2%)      |
| 34  | AA    | 1.30         | 70/75947 (0.1%) | 1.59        | 1892/118255 (1.6%) |

| Mol | Chain | Bond lengths |               | Bond angles |                |
|-----|-------|--------------|---------------|-------------|----------------|
|     |       | RMSZ         | # Z  >5       | RMSZ        | # Z  >5        |
| 35  | AC    | 1.30         | 7/3599 (0.2%) | 1.55        | 88/5603 (1.6%) |
| 36  | AB    | 1.27         | 2/2823 (0.1%) | 1.52        | 57/4400 (1.3%) |
| 37  | AL    | 0.67         | 0/1789        | 1.14        | 9/2381 (0.4%)  |
| 38  | A1    | 0.68         | 0/1151        | 1.02        | 1/1531 (0.1%)  |
| 39  | A2    | 0.72         | 0/840         | 1.01        | 3/1114 (0.3%)  |
| 40  | A4    | 0.66         | 0/564         | 1.01        | 3/737 (0.4%)   |
| 41  | A6    | 0.69         | 0/749         | 0.99        | 2/1001 (0.2%)  |
| 42  | A7    | 0.70         | 0/806         | 1.14        | 3/1073 (0.3%)  |
| 43  | AN    | 0.69         | 0/1218        | 1.12        | 6/1621 (0.4%)  |
| 44  | A8    | 0.70         | 0/1054        | 1.24        | 10/1399 (0.7%) |
| 45  | A9    | 0.72         | 0/865         | 1.20        | 7/1160 (0.6%)  |
| 46  | Aa    | 0.68         | 0/872         | 1.26        | 11/1161 (0.9%) |
| 47  | Ab    | 0.71         | 0/763         | 1.13        | 5/1008 (0.5%)  |
| 48  | Ad    | 0.72         | 0/612         | 1.09        | 2/812 (0.2%)   |
| 49  | Ae    | 0.75         | 0/396         | 1.41        | 6/521 (1.2%)   |
| 50  | Af    | 0.67         | 0/419         | 1.16        | 3/556 (0.5%)   |
| 51  | AP    | 0.69         | 0/1735        | 1.31        | 21/2320 (0.9%) |
| 52  | Ah    | 0.68         | 0/668         | 1.13        | 2/887 (0.2%)   |
| 53  | Ai    | 0.67         | 0/789         | 1.16        | 6/1032 (0.6%)  |
| 54  | AI    | 0.66         | 0/1708        | 1.04        | 6/2274 (0.3%)  |
| 55  | AJ    | 0.67         | 0/1840        | 1.03        | 3/2456 (0.1%)  |
| 56  | Ac    | 0.72         | 0/723         | 1.29        | 8/951 (0.8%)   |
| 57  | AK    | 0.67         | 0/1690        | 1.15        | 13/2260 (0.6%) |
| 58  | AM    | 0.68         | 0/1012        | 1.15        | 5/1363 (0.4%)  |
| 59  | AS    | 0.69         | 0/1531        | 1.24        | 17/2040 (0.8%) |
| 60  | AO    | 0.66         | 0/1199        | 1.18        | 10/1597 (0.6%) |
| 61  | AQ    | 0.73         | 0/1580        | 1.21        | 16/2113 (0.8%) |
| 62  | AR    | 0.68         | 0/2079        | 1.16        | 20/2777 (0.7%) |
| 63  | AW    | 0.68         | 0/1244        | 1.22        | 12/1663 (0.7%) |
| 64  | AY    | 0.67         | 0/806         | 1.15        | 5/1074 (0.5%)  |
| 65  | AT    | 0.66         | 0/1525        | 1.17        | 15/2016 (0.7%) |
| 66  | AZ    | 0.68         | 0/1013        | 1.17        | 9/1339 (0.7%)  |
| 67  | A3    | 0.65         | 0/1005        | 1.09        | 8/1329 (0.6%)  |
| 68  | A5    | 0.70         | 0/1917        | 1.25        | 22/2562 (0.9%) |
| 69  | AD    | 0.68         | 0/1902        | 1.19        | 17/2544 (0.7%) |
| 70  | AE    | 0.68         | 0/3130        | 1.16        | 25/4195 (0.6%) |
| 71  | AF    | 0.68         | 0/3145        | 1.16        | 23/4205 (0.5%) |
| 72  | AG    | 0.73         | 0/1021        | 1.19        | 9/1349 (0.7%)  |
| 73  | AU    | 0.70         | 0/1527        | 1.18        | 15/2043 (0.7%) |
| 74  | AH    | 0.69         | 0/1501        | 1.17        | 10/2025 (0.5%) |
| 75  | AV    | 0.68         | 0/1301        | 1.20        | 11/1732 (0.6%) |
| 76  | Ag    | 0.74         | 0/348         | 1.57        | 8/448 (1.8%)   |
| 77  | AX    | 0.72         | 0/842         | 1.06        | 3/1125 (0.3%)  |

| Mol | Chain | Bond lengths |                   | Bond angles |                    |
|-----|-------|--------------|-------------------|-------------|--------------------|
|     |       | RMSZ         | $\# Z  > 5$       | RMSZ        | $\# Z  > 5$        |
| 78  | A0    | 0.73         | 0/534             | 1.12        | 4/711 (0.6%)       |
| All | All   | 1.07         | 109/207275 (0.1%) | 1.44        | 3594/303853 (1.2%) |

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   | A     | 0                   | 231                 |
| 2   | 7     | 0                   | 18                  |
| 3   | D     | 0                   | 1                   |
| 4   | E     | 0                   | 6                   |
| 5   | G     | 0                   | 4                   |
| 6   | I     | 0                   | 4                   |
| 7   | K     | 0                   | 2                   |
| 8   | M     | 0                   | 1                   |
| 9   | W     | 0                   | 3                   |
| 11  | O     | 0                   | 1                   |
| 12  | Y     | 0                   | 6                   |
| 14  | 1     | 0                   | 2                   |
| 15  | 2     | 0                   | 1                   |
| 16  | 3     | 0                   | 2                   |
| 17  | 4     | 0                   | 3                   |
| 19  | 6     | 0                   | 2                   |
| 20  | B     | 0                   | 4                   |
| 21  | F     | 0                   | 5                   |
| 22  | H     | 0                   | 3                   |
| 23  | J     | 0                   | 5                   |
| 24  | L     | 0                   | 3                   |
| 25  | N     | 0                   | 1                   |
| 26  | P     | 0                   | 3                   |
| 27  | Q     | 0                   | 2                   |
| 29  | T     | 0                   | 1                   |
| 30  | U     | 0                   | 2                   |
| 31  | V     | 0                   | 6                   |
| 32  | X     | 0                   | 1                   |
| 33  | C     | 0                   | 6                   |
| 34  | AA    | 1                   | 546                 |
| 35  | AC    | 0                   | 19                  |
| 36  | AB    | 0                   | 14                  |
| 37  | AL    | 0                   | 5                   |

*Continued on next page...*

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| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 38  | A1    | 0                   | 1                   |
| 39  | A2    | 0                   | 1                   |
| 40  | A4    | 0                   | 2                   |
| 41  | A6    | 0                   | 4                   |
| 42  | A7    | 0                   | 1                   |
| 43  | AN    | 0                   | 3                   |
| 44  | A8    | 0                   | 2                   |
| 45  | A9    | 0                   | 2                   |
| 46  | Aa    | 0                   | 4                   |
| 47  | Ab    | 0                   | 1                   |
| 49  | Ae    | 0                   | 5                   |
| 50  | Af    | 0                   | 2                   |
| 51  | AP    | 0                   | 6                   |
| 52  | Ah    | 0                   | 2                   |
| 53  | Ai    | 0                   | 3                   |
| 54  | AI    | 0                   | 2                   |
| 55  | AJ    | 0                   | 2                   |
| 56  | Ac    | 0                   | 3                   |
| 57  | AK    | 0                   | 5                   |
| 58  | AM    | 0                   | 5                   |
| 59  | AS    | 0                   | 8                   |
| 60  | AO    | 0                   | 3                   |
| 61  | AQ    | 0                   | 4                   |
| 62  | AR    | 0                   | 4                   |
| 63  | AW    | 0                   | 6                   |
| 64  | AY    | 0                   | 1                   |
| 65  | AT    | 0                   | 6                   |
| 66  | AZ    | 0                   | 4                   |
| 67  | A3    | 0                   | 1                   |
| 68  | A5    | 0                   | 7                   |
| 69  | AD    | 0                   | 6                   |
| 70  | AE    | 0                   | 4                   |
| 71  | AF    | 0                   | 6                   |
| 72  | AG    | 0                   | 3                   |
| 73  | AU    | 0                   | 7                   |
| 74  | AH    | 0                   | 3                   |
| 75  | AV    | 0                   | 5                   |
| 76  | Ag    | 0                   | 2                   |
| 77  | AX    | 0                   | 1                   |
| 78  | A0    | 0                   | 2                   |
| All | All   | 1                   | 1052                |

All (109) bond length outliers are listed below:

| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 34  | AA    | 2552 | A    | N9-C4   | -8.94 | 1.32        | 1.37     |
| 2   | 7     | 74   | A    | C4'-C3' | 8.62  | 1.62        | 1.53     |
| 34  | AA    | 275  | A    | O3'-P   | -7.93 | 1.51        | 1.61     |
| 34  | AA    | 3122 | A    | N9-C4   | -7.49 | 1.33        | 1.37     |
| 1   | A     | 2055 | A    | N9-C4   | -7.09 | 1.33        | 1.37     |
| 34  | AA    | 2451 | A    | N9-C4   | -7.05 | 1.33        | 1.37     |
| 34  | AA    | 440  | A    | N9-C4   | -6.91 | 1.33        | 1.37     |
| 34  | AA    | 3160 | A    | N9-C4   | -6.66 | 1.33        | 1.37     |
| 34  | AA    | 629  | A    | N9-C4   | -6.61 | 1.33        | 1.37     |
| 34  | AA    | 1871 | A    | N9-C4   | -6.52 | 1.33        | 1.37     |
| 1   | A     | 2066 | G    | P-O5'   | -6.41 | 1.53        | 1.59     |
| 1   | A     | 2082 | A    | O3'-P   | -6.24 | 1.53        | 1.61     |
| 34  | AA    | 236  | U    | O3'-P   | -6.24 | 1.53        | 1.61     |
| 34  | AA    | 2481 | A    | N9-C4   | -6.24 | 1.34        | 1.37     |
| 34  | AA    | 1184 | A    | N9-C4   | -6.21 | 1.34        | 1.37     |
| 2   | 7     | 74   | A    | C5'-C4' | 6.19  | 1.58        | 1.51     |
| 34  | AA    | 3735 | A    | N9-C4   | -6.16 | 1.34        | 1.37     |
| 34  | AA    | 1500 | U    | O3'-P   | -6.11 | 1.53        | 1.61     |
| 34  | AA    | 73   | U    | O3'-P   | -6.06 | 1.53        | 1.61     |
| 34  | AA    | 3441 | A    | N9-C4   | -6.02 | 1.34        | 1.37     |
| 34  | AA    | 2516 | A    | O3'-P   | -6.01 | 1.53        | 1.61     |
| 34  | AA    | 1540 | G    | O3'-P   | -5.97 | 1.53        | 1.61     |
| 34  | AA    | 1574 | C    | C2'-C1' | -5.96 | 1.46        | 1.53     |
| 2   | 7     | 38   | A    | N9-C4   | -5.90 | 1.34        | 1.37     |
| 34  | AA    | 1445 | A    | N9-C4   | -5.89 | 1.34        | 1.37     |
| 34  | AA    | 1575 | C    | O3'-P   | -5.88 | 1.54        | 1.61     |
| 1   | A     | 1827 | U    | P-O5'   | -5.85 | 1.53        | 1.59     |
| 1   | A     | 1957 | A    | N9-C4   | -5.83 | 1.34        | 1.37     |
| 1   | A     | 1819 | U    | C5'-C4' | 5.78  | 1.58        | 1.51     |
| 34  | AA    | 1594 | A    | N9-C4   | -5.76 | 1.34        | 1.37     |
| 35  | AC    | 127  | C    | O3'-P   | -5.71 | 1.54        | 1.61     |
| 34  | AA    | 1576 | U    | O3'-P   | -5.70 | 1.54        | 1.61     |
| 34  | AA    | 2166 | G    | N9-C4   | -5.66 | 1.33        | 1.38     |
| 34  | AA    | 1231 | A    | O3'-P   | -5.64 | 1.54        | 1.61     |
| 34  | AA    | 2424 | A    | N9-C4   | -5.62 | 1.34        | 1.37     |
| 34  | AA    | 2998 | A    | N9-C4   | -5.62 | 1.34        | 1.37     |
| 34  | AA    | 2109 | A    | N9-C4   | -5.58 | 1.34        | 1.37     |
| 34  | AA    | 1015 | A    | N9-C4   | -5.58 | 1.34        | 1.37     |
| 34  | AA    | 1185 | A    | N9-C4   | -5.54 | 1.34        | 1.37     |
| 34  | AA    | 3632 | U    | C5'-C4' | 5.53  | 1.57        | 1.51     |
| 34  | AA    | 1071 | A    | O3'-P   | -5.53 | 1.54        | 1.61     |
| 35  | AC    | 123  | A    | N9-C4   | -5.52 | 1.34        | 1.37     |
| 34  | AA    | 3067 | G    | O3'-P   | -5.51 | 1.54        | 1.61     |

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| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 1   | A     | 321  | A    | N9-C4   | -5.49 | 1.34        | 1.37     |
| 34  | AA    | 183  | U    | C5'-C4' | 5.45  | 1.57        | 1.51     |
| 34  | AA    | 765  | A    | N9-C4   | -5.45 | 1.34        | 1.37     |
| 34  | AA    | 3337 | U    | C5'-C4' | 5.44  | 1.57        | 1.51     |
| 1   | A     | 320  | C    | C5'-C4' | 5.42  | 1.57        | 1.51     |
| 1   | A     | 981  | U    | O3'-P   | -5.41 | 1.54        | 1.61     |
| 1   | A     | 339  | A    | P-O5'   | -5.41 | 1.54        | 1.59     |
| 34  | AA    | 3584 | A    | O3'-P   | -5.41 | 1.54        | 1.61     |
| 35  | AC    | 145  | A    | O3'-P   | -5.41 | 1.54        | 1.61     |
| 34  | AA    | 1480 | G    | O3'-P   | -5.41 | 1.54        | 1.61     |
| 1   | A     | 802  | A    | O3'-P   | -5.39 | 1.54        | 1.61     |
| 35  | AC    | 113  | A    | O3'-P   | -5.39 | 1.54        | 1.61     |
| 1   | A     | 337  | G    | O3'-P   | -5.38 | 1.54        | 1.61     |
| 34  | AA    | 2156 | A    | N9-C4   | -5.38 | 1.34        | 1.37     |
| 34  | AA    | 61   | A    | O3'-P   | -5.38 | 1.54        | 1.61     |
| 34  | AA    | 406  | A    | N9-C4   | -5.37 | 1.34        | 1.37     |
| 34  | AA    | 2431 | A    | N9-C4   | -5.37 | 1.34        | 1.37     |
| 34  | AA    | 2152 | A    | O3'-P   | -5.37 | 1.54        | 1.61     |
| 35  | AC    | 49   | C    | O3'-P   | -5.34 | 1.54        | 1.61     |
| 34  | AA    | 1595 | A    | N9-C4   | -5.34 | 1.34        | 1.37     |
| 34  | AA    | 2706 | A    | N9-C4   | -5.33 | 1.34        | 1.37     |
| 34  | AA    | 48   | A    | N9-C4   | -5.32 | 1.34        | 1.37     |
| 34  | AA    | 2974 | A    | N9-C4   | -5.32 | 1.34        | 1.37     |
| 35  | AC    | 92   | A    | N9-C4   | -5.31 | 1.34        | 1.37     |
| 34  | AA    | 1508 | U    | O3'-P   | -5.30 | 1.54        | 1.61     |
| 1   | A     | 314  | A    | N9-C4   | -5.30 | 1.34        | 1.37     |
| 34  | AA    | 3062 | U    | O3'-P   | -5.29 | 1.54        | 1.61     |
| 1   | A     | 338  | U    | O3'-P   | -5.29 | 1.54        | 1.61     |
| 34  | AA    | 3063 | U    | P-O5'   | -5.29 | 1.54        | 1.59     |
| 34  | AA    | 3255 | A    | N9-C4   | -5.28 | 1.34        | 1.37     |
| 34  | AA    | 1642 | G    | O3'-P   | -5.27 | 1.54        | 1.61     |
| 1   | A     | 617  | G    | O3'-P   | -5.26 | 1.54        | 1.61     |
| 34  | AA    | 674  | U    | O3'-P   | -5.25 | 1.54        | 1.61     |
| 34  | AA    | 3632 | U    | P-O5'   | -5.25 | 1.54        | 1.59     |
| 34  | AA    | 3587 | U    | P-O5'   | -5.25 | 1.54        | 1.59     |
| 34  | AA    | 2605 | A    | N9-C4   | -5.24 | 1.34        | 1.37     |
| 34  | AA    | 369  | A    | N9-C4   | -5.24 | 1.34        | 1.37     |
| 34  | AA    | 1526 | G    | N9-C4   | -5.23 | 1.33        | 1.38     |
| 1   | A     | 618  | U    | P-O5'   | -5.23 | 1.54        | 1.59     |
| 34  | AA    | 1297 | A    | N3-C4   | -5.23 | 1.31        | 1.34     |
| 1   | A     | 824  | A    | N9-C4   | -5.21 | 1.34        | 1.37     |
| 34  | AA    | 925  | A    | C2'-C1' | -5.20 | 1.47        | 1.53     |

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| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 34  | AA    | 345  | G    | N9-C4   | -5.20 | 1.33        | 1.38     |
| 34  | AA    | 1072 | A    | N9-C4   | -5.17 | 1.34        | 1.37     |
| 1   | A     | 920  | A    | C5'-C4' | 5.14  | 1.57        | 1.51     |
| 34  | AA    | 1340 | G    | O3'-P   | -5.14 | 1.54        | 1.61     |
| 34  | AA    | 1746 | A    | N9-C4   | -5.13 | 1.34        | 1.37     |
| 34  | AA    | 1743 | U    | O3'-P   | -5.13 | 1.54        | 1.61     |
| 2   | 7     | 65   | A    | N9-C4   | -5.12 | 1.34        | 1.37     |
| 1   | A     | 982  | A    | N9-C4   | -5.12 | 1.34        | 1.37     |
| 1   | A     | 1800 | A    | O3'-P   | -5.11 | 1.55        | 1.61     |
| 1   | A     | 391  | A    | N9-C4   | -5.11 | 1.34        | 1.37     |
| 34  | AA    | 2674 | G    | O3'-P   | -5.10 | 1.55        | 1.61     |
| 1   | A     | 2050 | U    | O3'-P   | -5.09 | 1.55        | 1.61     |
| 1   | A     | 915  | G    | C5'-C4' | 5.09  | 1.57        | 1.51     |
| 34  | AA    | 2885 | A    | O3'-P   | -5.09 | 1.55        | 1.61     |
| 36  | AB    | 103  | A    | N9-C4   | -5.08 | 1.34        | 1.37     |
| 35  | AC    | 140  | G    | C5'-C4' | 5.08  | 1.57        | 1.51     |
| 34  | AA    | 898  | G    | O3'-P   | -5.07 | 1.55        | 1.61     |
| 1   | A     | 1039 | A    | N7-C5   | -5.07 | 1.36        | 1.39     |
| 34  | AA    | 3708 | U    | O3'-P   | -5.07 | 1.55        | 1.61     |
| 34  | AA    | 206  | A    | O3'-P   | -5.05 | 1.55        | 1.61     |
| 1   | A     | 404  | G    | O3'-P   | -5.05 | 1.55        | 1.61     |
| 34  | AA    | 1069 | G    | O3'-P   | -5.04 | 1.55        | 1.61     |
| 36  | AB    | 6    | C    | O3'-P   | -5.01 | 1.55        | 1.61     |
| 1   | A     | 1071 | G    | O3'-P   | -5.01 | 1.55        | 1.61     |

All (3594) bond angle outliers are listed below:

| Mol | Chain | Res  | Type | Atoms       | Z      | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|--------|-------------|----------|
| 34  | AA    | 3632 | U    | P-O5'-C5'   | 19.68  | 152.39      | 120.90   |
| 34  | AA    | 257  | U    | P-O3'-C3'   | 18.75  | 142.20      | 119.70   |
| 34  | AA    | 181  | C    | P-O3'-C3'   | 15.57  | 138.38      | 119.70   |
| 34  | AA    | 3018 | A    | P-O3'-C3'   | 15.30  | 138.06      | 119.70   |
| 2   | 7     | 74   | A    | C5'-C4'-O4' | -14.85 | 91.28       | 109.10   |
| 1   | A     | 981  | U    | P-O3'-C3'   | 14.75  | 137.41      | 119.70   |
| 6   | I     | 195  | ARG  | NE-CZ-NH1   | 14.75  | 127.67      | 120.30   |
| 34  | AA    | 859  | C    | P-O3'-C3'   | 14.02  | 136.52      | 119.70   |
| 1   | A     | 1912 | C    | P-O3'-C3'   | 13.96  | 136.46      | 119.70   |
| 34  | AA    | 1574 | C    | O4'-C1'-N1  | 13.26  | 118.81      | 108.20   |
| 34  | AA    | 621  | C    | P-O3'-C3'   | 13.08  | 135.40      | 119.70   |
| 34  | AA    | 162  | U    | P-O3'-C3'   | 12.59  | 134.81      | 119.70   |
| 34  | AA    | 101  | C    | O4'-C1'-N1  | 12.50  | 118.20      | 108.20   |
| 35  | AC    | 37   | A    | P-O3'-C3'   | 12.21  | 134.36      | 119.70   |

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| Mol | Chain | Res  | Type | Atoms       | Z      | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|--------|-------------|----------|
| 34  | AA    | 1205 | U    | P-O3'-C3'   | 12.16  | 134.29      | 119.70   |
| 1   | A     | 1413 | U    | P-O3'-C3'   | 12.00  | 134.10      | 119.70   |
| 64  | AY    | 173  | ARG  | NE-CZ-NH2   | -11.98 | 114.31      | 120.30   |
| 1   | A     | 1448 | U    | P-O3'-C3'   | 11.96  | 134.05      | 119.70   |
| 1   | A     | 250  | A    | P-O3'-C3'   | 11.94  | 134.03      | 119.70   |
| 1   | A     | 1897 | A    | P-O3'-C3'   | 11.86  | 133.94      | 119.70   |
| 34  | AA    | 1574 | C    | P-O3'-C3'   | 11.81  | 133.87      | 119.70   |
| 34  | AA    | 289  | A    | P-O3'-C3'   | 11.81  | 133.87      | 119.70   |
| 34  | AA    | 674  | U    | P-O3'-C3'   | 11.80  | 133.87      | 119.70   |
| 34  | AA    | 270  | U    | P-O3'-C3'   | 11.73  | 133.78      | 119.70   |
| 34  | AA    | 1230 | A    | O4'-C1'-N9  | 11.63  | 117.51      | 108.20   |
| 34  | AA    | 2696 | G    | P-O3'-C3'   | 11.58  | 133.59      | 119.70   |
| 34  | AA    | 1989 | A    | P-O3'-C3'   | 11.53  | 133.54      | 119.70   |
| 1   | A     | 291  | A    | P-O3'-C3'   | 11.50  | 133.50      | 119.70   |
| 2   | 7     | 74   | A    | C5'-C4'-C3' | 11.46  | 134.34      | 116.00   |
| 34  | AA    | 769  | U    | O4'-C1'-N1  | 11.45  | 117.36      | 108.20   |
| 34  | AA    | 803  | A    | O4'-C1'-N9  | 11.25  | 117.20      | 108.20   |
| 71  | AF    | 182  | ARG  | NE-CZ-NH2   | -11.21 | 114.69      | 120.30   |
| 34  | AA    | 2180 | U    | P-O3'-C3'   | 11.15  | 133.08      | 119.70   |
| 34  | AA    | 697  | A    | P-O3'-C3'   | 11.12  | 133.04      | 119.70   |
| 59  | AS    | 145  | ARG  | NE-CZ-NH2   | 11.06  | 125.83      | 120.30   |
| 21  | F     | 145  | ARG  | NE-CZ-NH1   | 11.03  | 125.81      | 120.30   |
| 34  | AA    | 2883 | U    | P-O3'-C3'   | 10.99  | 132.88      | 119.70   |
| 27  | Q     | 144  | ARG  | NE-CZ-NH1   | 10.98  | 125.79      | 120.30   |
| 34  | AA    | 1435 | G    | P-O3'-C3'   | 10.96  | 132.86      | 119.70   |
| 34  | AA    | 2822 | U    | P-O3'-C3'   | 10.95  | 132.84      | 119.70   |
| 2   | 7     | 74   | A    | O4'-C4'-C3' | -10.90 | 93.10       | 104.00   |
| 34  | AA    | 179  | G    | P-O3'-C3'   | 10.89  | 132.77      | 119.70   |
| 34  | AA    | 411  | U    | P-O3'-C3'   | 10.82  | 132.68      | 119.70   |
| 4   | E     | 126  | ARG  | NE-CZ-NH1   | 10.75  | 125.68      | 120.30   |
| 34  | AA    | 580  | A    | P-O3'-C3'   | 10.75  | 132.60      | 119.70   |
| 34  | AA    | 702  | U    | O4'-C1'-N1  | 10.75  | 116.80      | 108.20   |
| 1   | A     | 1865 | G    | P-O3'-C3'   | 10.75  | 132.60      | 119.70   |
| 51  | AP    | 176  | ARG  | NE-CZ-NH1   | 10.71  | 125.66      | 120.30   |
| 1   | A     | 156  | A    | P-O3'-C3'   | 10.68  | 132.51      | 119.70   |
| 1   | A     | 1673 | A    | P-O3'-C3'   | 10.68  | 132.51      | 119.70   |
| 57  | AK    | 136  | ARG  | NE-CZ-NH1   | 10.67  | 125.64      | 120.30   |
| 68  | A5    | 158  | TYR  | CB-CG-CD2   | -10.52 | 114.69      | 121.00   |
| 1   | A     | 1832 | U    | P-O3'-C3'   | 10.49  | 132.29      | 119.70   |
| 70  | AE    | 30   | ARG  | NE-CZ-NH2   | -10.47 | 115.06      | 120.30   |
| 42  | A7    | 73   | ARG  | NE-CZ-NH1   | 10.46  | 125.53      | 120.30   |
| 34  | AA    | 860  | A    | P-O5'-C5'   | 10.46  | 137.63      | 120.90   |

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| Mol | Chain | Res  | Type | Atoms      | Z      | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|--------|-------------|----------|
| 1   | A     | 1381 | C    | P-O3'-C3'  | 10.45  | 132.24      | 119.70   |
| 1   | A     | 1645 | C    | P-O3'-C3'  | 10.41  | 132.19      | 119.70   |
| 1   | A     | 1448 | U    | O4'-C1'-N1 | 10.38  | 116.51      | 108.20   |
| 29  | T     | 54   | ARG  | NE-CZ-NH1  | -10.38 | 115.11      | 120.30   |
| 37  | AL    | 69   | ARG  | NE-CZ-NH1  | 10.37  | 125.49      | 120.30   |
| 34  | AA    | 2919 | A    | P-O3'-C3'  | 10.31  | 132.07      | 119.70   |
| 31  | V     | 102  | ARG  | NE-CZ-NH2  | -10.30 | 115.15      | 120.30   |
| 75  | AV    | 84   | ARG  | NE-CZ-NH1  | -10.29 | 115.16      | 120.30   |
| 1   | A     | 1071 | G    | P-O3'-C3'  | 10.27  | 132.02      | 119.70   |
| 71  | AF    | 182  | ARG  | NE-CZ-NH1  | 10.26  | 125.43      | 120.30   |
| 1   | A     | 1069 | C    | O4'-C1'-N1 | 10.20  | 116.36      | 108.20   |
| 34  | AA    | 673  | U    | O4'-C1'-N1 | 10.19  | 116.35      | 108.20   |
| 34  | AA    | 2695 | A    | P-O5'-C5'  | 10.14  | 137.12      | 120.90   |
| 1   | A     | 544  | G    | P-O3'-C3'  | 10.13  | 131.86      | 119.70   |
| 1   | A     | 1621 | G    | C5-C6-O6   | -10.11 | 122.53      | 128.60   |
| 58  | AM    | 14   | ARG  | NE-CZ-NH1  | 10.07  | 125.33      | 120.30   |
| 34  | AA    | 2004 | U    | O4'-C1'-N1 | 10.06  | 116.25      | 108.20   |
| 58  | AM    | 89   | ARG  | NE-CZ-NH1  | 10.06  | 125.33      | 120.30   |
| 34  | AA    | 949  | A    | O4'-C1'-N9 | 10.01  | 116.21      | 108.20   |
| 73  | AU    | 171  | ARG  | NE-CZ-NH1  | 9.99   | 125.30      | 120.30   |
| 62  | AR    | 54   | ARG  | NE-CZ-NH1  | 9.96   | 125.28      | 120.30   |
| 73  | AU    | 122  | ARG  | NE-CZ-NH1  | -9.93  | 115.33      | 120.30   |
| 1   | A     | 1414 | A    | P-O3'-C3'  | 9.91   | 131.60      | 119.70   |
| 28  | S     | 88   | ARG  | NE-CZ-NH2  | 9.89   | 125.25      | 120.30   |
| 34  | AA    | 858  | C    | O4'-C1'-N1 | 9.89   | 116.11      | 108.20   |
| 1   | A     | 248  | G    | P-O3'-C3'  | 9.86   | 131.53      | 119.70   |
| 60  | AO    | 26   | ARG  | NE-CZ-NH1  | 9.86   | 125.23      | 120.30   |
| 30  | U     | 55   | ARG  | NE-CZ-NH1  | -9.84  | 115.38      | 120.30   |
| 34  | AA    | 500  | A    | P-O3'-C3'  | 9.80   | 131.46      | 119.70   |
| 1   | A     | 647  | C    | C2-N1-C1'  | 9.79   | 129.57      | 118.80   |
| 24  | L     | 217  | ARG  | NE-CZ-NH1  | -9.77  | 115.42      | 120.30   |
| 34  | AA    | 579  | C    | P-O3'-C3'  | 9.76   | 131.41      | 119.70   |
| 1   | A     | 1857 | U    | O4'-C1'-N1 | 9.76   | 116.00      | 108.20   |
| 1   | A     | 1788 | U    | O4'-C1'-N1 | 9.75   | 116.00      | 108.20   |
| 34  | AA    | 3230 | G    | P-O3'-C3'  | 9.75   | 131.40      | 119.70   |
| 59  | AS    | 145  | ARG  | NE-CZ-NH1  | -9.72  | 115.44      | 120.30   |
| 34  | AA    | 432  | A    | P-O3'-C3'  | 9.72   | 131.37      | 119.70   |
| 34  | AA    | 594  | C    | C2-N1-C1'  | 9.72   | 129.49      | 118.80   |
| 6   | I     | 62   | ARG  | NE-CZ-NH2  | 9.70   | 125.15      | 120.30   |
| 73  | AU    | 122  | ARG  | NE-CZ-NH2  | 9.70   | 125.15      | 120.30   |
| 68  | A5    | 224  | ARG  | NE-CZ-NH1  | 9.68   | 125.14      | 120.30   |
| 34  | AA    | 1881 | C    | O4'-C1'-N1 | 9.68   | 115.94      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 34  | AA    | 3507 | A    | O4'-C1'-N9 | 9.64  | 115.92      | 108.20   |
| 1   | A     | 161  | U    | O4'-C1'-N1 | 9.60  | 115.88      | 108.20   |
| 1   | A     | 1069 | C    | C2-N1-C1'  | 9.60  | 129.36      | 118.80   |
| 34  | AA    | 1207 | U    | O4'-C1'-N1 | 9.58  | 115.87      | 108.20   |
| 34  | AA    | 607  | A    | P-O3'-C3'  | 9.58  | 131.20      | 119.70   |
| 1   | A     | 1283 | U    | P-O3'-C3'  | 9.53  | 131.13      | 119.70   |
| 34  | AA    | 581  | C    | P-O3'-C3'  | 9.52  | 131.13      | 119.70   |
| 34  | AA    | 2394 | C    | P-O3'-C3'  | 9.52  | 131.12      | 119.70   |
| 34  | AA    | 3205 | U    | O4'-C1'-N1 | 9.49  | 115.80      | 108.20   |
| 1   | A     | 1799 | A    | O4'-C1'-N9 | 9.49  | 115.79      | 108.20   |
| 34  | AA    | 702  | U    | C2-N1-C1'  | 9.47  | 129.07      | 117.70   |
| 1   | A     | 789  | U    | P-O3'-C3'  | 9.47  | 131.06      | 119.70   |
| 1   | A     | 1455 | C    | P-O3'-C3'  | 9.46  | 131.05      | 119.70   |
| 34  | AA    | 501  | U    | O4'-C1'-N1 | 9.46  | 115.77      | 108.20   |
| 34  | AA    | 934  | G    | C5-C6-O6   | -9.46 | 122.92      | 128.60   |
| 62  | AR    | 33   | ARG  | NE-CZ-NH1  | 9.43  | 125.01      | 120.30   |
| 35  | AC    | 35   | A    | P-O3'-C3'  | 9.41  | 131.00      | 119.70   |
| 1   | A     | 460  | G    | O4'-C1'-N9 | 9.41  | 115.72      | 108.20   |
| 34  | AA    | 3167 | A    | O4'-C1'-N9 | 9.40  | 115.72      | 108.20   |
| 1   | A     | 1182 | A    | P-O3'-C3'  | 9.40  | 130.98      | 119.70   |
| 59  | AS    | 57   | ARG  | NE-CZ-NH1  | -9.39 | 115.60      | 120.30   |
| 30  | U     | 76   | ARG  | NE-CZ-NH1  | 9.38  | 124.99      | 120.30   |
| 34  | AA    | 122  | A    | O4'-C1'-N9 | 9.38  | 115.70      | 108.20   |
| 34  | AA    | 3754 | A    | O4'-C1'-N9 | 9.35  | 115.68      | 108.20   |
| 34  | AA    | 926  | G    | O4'-C1'-N9 | 9.34  | 115.67      | 108.20   |
| 1   | A     | 253  | A    | O4'-C1'-N9 | 9.33  | 115.67      | 108.20   |
| 34  | AA    | 1805 | U    | P-O3'-C3'  | 9.33  | 130.90      | 119.70   |
| 68  | A5    | 158  | TYR  | CB-CG-CD1  | 9.30  | 126.58      | 121.00   |
| 49  | Ae    | 42   | ARG  | NE-CZ-NH1  | 9.29  | 124.95      | 120.30   |
| 34  | AA    | 504  | A    | P-O3'-C3'  | 9.27  | 130.83      | 119.70   |
| 44  | A8    | 27   | ARG  | NE-CZ-NH1  | 9.25  | 124.93      | 120.30   |
| 34  | AA    | 698  | G    | P-O3'-C3'  | 9.22  | 130.77      | 119.70   |
| 1   | A     | 546  | G    | O4'-C1'-N9 | 9.21  | 115.57      | 108.20   |
| 34  | AA    | 3658 | G    | P-O3'-C3'  | 9.21  | 130.75      | 119.70   |
| 69  | AD    | 30   | ARG  | NE-CZ-NH1  | 9.20  | 124.90      | 120.30   |
| 34  | AA    | 888  | A    | P-O3'-C3'  | 9.19  | 130.73      | 119.70   |
| 59  | AS    | 180  | ARG  | NE-CZ-NH1  | 9.19  | 124.89      | 120.30   |
| 26  | P     | 98   | ARG  | NE-CZ-NH1  | 9.18  | 124.89      | 120.30   |
| 12  | Y     | 124  | ARG  | NE-CZ-NH2  | 9.18  | 124.89      | 120.30   |
| 68  | A5    | 56   | ARG  | NE-CZ-NH2  | -9.17 | 115.71      | 120.30   |
| 34  | AA    | 1502 | G    | O4'-C1'-N9 | 9.17  | 115.53      | 108.20   |
| 1   | A     | 1732 | G    | O4'-C1'-N9 | 9.16  | 115.53      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 34  | AA    | 2885 | A    | P-O3'-C3'  | 9.15  | 130.68      | 119.70   |
| 25  | N     | 78   | ARG  | NE-CZ-NH1  | -9.12 | 115.74      | 120.30   |
| 1   | A     | 483  | A    | O4'-C1'-N9 | 9.11  | 115.49      | 108.20   |
| 34  | AA    | 101  | C    | C2-N1-C1'  | 9.09  | 128.80      | 118.80   |
| 51  | AP    | 50   | ARG  | NE-CZ-NH1  | 9.08  | 124.84      | 120.30   |
| 68  | A5    | 245  | ARG  | NE-CZ-NH2  | 9.06  | 124.83      | 120.30   |
| 1   | A     | 1209 | G    | C5-C6-O6   | -9.05 | 123.17      | 128.60   |
| 75  | AV    | 6    | ARG  | NE-CZ-NH1  | 9.03  | 124.82      | 120.30   |
| 34  | AA    | 228  | A    | O4'-C1'-N9 | 9.03  | 115.42      | 108.20   |
| 34  | AA    | 3476 | A    | P-O3'-C3'  | 9.02  | 130.53      | 119.70   |
| 34  | AA    | 1990 | A    | P-O3'-C3'  | 9.02  | 130.52      | 119.70   |
| 2   | 7     | 42   | C    | O4'-C1'-N1 | 9.01  | 115.41      | 108.20   |
| 34  | AA    | 3528 | A    | O4'-C1'-N9 | 9.00  | 115.40      | 108.20   |
| 34  | AA    | 1269 | C    | O4'-C1'-N1 | 8.99  | 115.39      | 108.20   |
| 34  | AA    | 1474 | A    | O4'-C1'-N9 | 8.99  | 115.39      | 108.20   |
| 34  | AA    | 2393 | A    | O4'-C1'-N9 | 8.98  | 115.39      | 108.20   |
| 34  | AA    | 2925 | U    | O4'-C1'-N1 | 8.98  | 115.39      | 108.20   |
| 1   | A     | 1786 | U    | P-O3'-C3'  | 8.98  | 130.47      | 119.70   |
| 34  | AA    | 2816 | U    | P-O3'-C3'  | 8.98  | 130.47      | 119.70   |
| 34  | AA    | 2801 | C    | O4'-C1'-N1 | 8.97  | 115.38      | 108.20   |
| 28  | S     | 134  | ARG  | NE-CZ-NH1  | 8.95  | 124.77      | 120.30   |
| 1   | A     | 251  | U    | P-O3'-C3'  | 8.91  | 130.39      | 119.70   |
| 1   | A     | 1231 | G    | C5-C6-O6   | -8.91 | 123.26      | 128.60   |
| 1   | A     | 833  | A    | O4'-C1'-N9 | 8.90  | 115.32      | 108.20   |
| 34  | AA    | 2033 | C    | P-O3'-C3'  | 8.90  | 130.38      | 119.70   |
| 34  | AA    | 2682 | C    | O4'-C1'-N1 | 8.90  | 115.32      | 108.20   |
| 34  | AA    | 1630 | A    | P-O3'-C3'  | -8.89 | 109.03      | 119.70   |
| 34  | AA    | 3590 | A    | P-O3'-C3'  | 8.89  | 130.36      | 119.70   |
| 34  | AA    | 2727 | U    | O4'-C1'-N1 | 8.86  | 115.28      | 108.20   |
| 34  | AA    | 1100 | A    | O4'-C1'-N9 | 8.85  | 115.28      | 108.20   |
| 34  | AA    | 1504 | A    | O4'-C1'-N9 | 8.85  | 115.28      | 108.20   |
| 34  | AA    | 3502 | C    | O4'-C1'-N1 | 8.85  | 115.28      | 108.20   |
| 1   | A     | 1224 | C    | O4'-C1'-N1 | 8.84  | 115.27      | 108.20   |
| 51  | AP    | 31   | ARG  | NE-CZ-NH1  | 8.81  | 124.70      | 120.30   |
| 34  | AA    | 2572 | A    | O4'-C1'-N9 | 8.80  | 115.24      | 108.20   |
| 1   | A     | 1976 | G    | P-O3'-C3'  | 8.79  | 130.25      | 119.70   |
| 34  | AA    | 2577 | C    | O4'-C1'-N1 | 8.79  | 115.23      | 108.20   |
| 34  | AA    | 3342 | C    | O4'-C1'-N1 | 8.77  | 115.22      | 108.20   |
| 51  | AP    | 38   | ARG  | NE-CZ-NH2  | 8.76  | 124.68      | 120.30   |
| 34  | AA    | 1758 | C    | O4'-C1'-N1 | 8.75  | 115.20      | 108.20   |
| 34  | AA    | 2437 | A    | O4'-C1'-N9 | 8.74  | 115.19      | 108.20   |
| 34  | AA    | 1481 | A    | P-O3'-C3'  | 8.74  | 130.19      | 119.70   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 8   | M     | 83   | ARG  | NE-CZ-NH1   | 8.73  | 124.67      | 120.30   |
| 34  | AA    | 745  | C    | O4'-C1'-N1  | 8.73  | 115.18      | 108.20   |
| 51  | AP    | 202  | ARG  | NE-CZ-NH2   | -8.72 | 115.94      | 120.30   |
| 1   | A     | 1621 | G    | N1-C6-O6    | 8.72  | 125.13      | 119.90   |
| 27  | Q     | 20   | ARG  | NE-CZ-NH1   | 8.72  | 124.66      | 120.30   |
| 34  | AA    | 1739 | C    | O4'-C1'-N1  | 8.71  | 115.17      | 108.20   |
| 34  | AA    | 1281 | C    | O4'-C1'-N1  | 8.71  | 115.17      | 108.20   |
| 34  | AA    | 1480 | G    | O4'-C1'-N9  | 8.70  | 115.16      | 108.20   |
| 34  | AA    | 2591 | U    | O4'-C1'-N1  | 8.70  | 115.16      | 108.20   |
| 34  | AA    | 2499 | G    | C4-N9-C1'   | 8.69  | 137.80      | 126.50   |
| 34  | AA    | 1681 | C    | O4'-C1'-N1  | 8.69  | 115.15      | 108.20   |
| 34  | AA    | 1794 | U    | C1'-O4'-C4' | -8.69 | 102.95      | 109.90   |
| 34  | AA    | 116  | A    | O4'-C1'-N9  | 8.69  | 115.15      | 108.20   |
| 34  | AA    | 1035 | G    | P-O3'-C3'   | 8.68  | 130.11      | 119.70   |
| 1   | A     | 206  | A    | P-O3'-C3'   | 8.66  | 130.10      | 119.70   |
| 34  | AA    | 643  | G    | O4'-C1'-N9  | 8.66  | 115.13      | 108.20   |
| 34  | AA    | 3526 | U    | O4'-C1'-N1  | 8.66  | 115.12      | 108.20   |
| 62  | AR    | 278  | ARG  | NE-CZ-NH2   | -8.65 | 115.97      | 120.30   |
| 34  | AA    | 2501 | A    | O4'-C1'-N9  | 8.64  | 115.11      | 108.20   |
| 75  | AV    | 101  | ARG  | NE-CZ-NH2   | -8.62 | 115.99      | 120.30   |
| 34  | AA    | 1224 | A    | P-O3'-C3'   | 8.62  | 130.04      | 119.70   |
| 1   | A     | 647  | C    | O4'-C1'-N1  | 8.60  | 115.08      | 108.20   |
| 14  | 1     | 91   | ARG  | NE-CZ-NH1   | -8.59 | 116.00      | 120.30   |
| 68  | A5    | 56   | ARG  | NE-CZ-NH1   | 8.59  | 124.60      | 120.30   |
| 1   | A     | 383  | G    | P-O3'-C3'   | 8.59  | 130.01      | 119.70   |
| 1   | A     | 25   | C    | O4'-C1'-N1  | 8.58  | 115.06      | 108.20   |
| 34  | AA    | 2608 | G    | O4'-C1'-N9  | 8.58  | 115.06      | 108.20   |
| 35  | AC    | 115  | C    | O4'-C1'-N1  | 8.58  | 115.06      | 108.20   |
| 34  | AA    | 3711 | U    | O4'-C1'-N1  | 8.57  | 115.06      | 108.20   |
| 34  | AA    | 239  | U    | O4'-C1'-N1  | 8.57  | 115.05      | 108.20   |
| 1   | A     | 2071 | U    | P-O3'-C3'   | 8.56  | 129.97      | 119.70   |
| 34  | AA    | 61   | A    | P-O3'-C3'   | 8.56  | 129.97      | 119.70   |
| 34  | AA    | 544  | C    | O4'-C1'-N1  | 8.54  | 115.03      | 108.20   |
| 34  | AA    | 2015 | C    | O4'-C1'-N1  | 8.52  | 115.02      | 108.20   |
| 34  | AA    | 532  | C    | O4'-C1'-N1  | 8.52  | 115.02      | 108.20   |
| 1   | A     | 1231 | G    | N1-C6-O6    | 8.51  | 125.00      | 119.90   |
| 25  | N     | 78   | ARG  | NE-CZ-NH2   | 8.51  | 124.55      | 120.30   |
| 34  | AA    | 1705 | A    | P-O3'-C3'   | 8.50  | 129.90      | 119.70   |
| 47  | Ab    | 106  | ARG  | NE-CZ-NH2   | -8.50 | 116.05      | 120.30   |
| 36  | AB    | 39   | C    | P-O3'-C3'   | 8.49  | 129.89      | 119.70   |
| 24  | L     | 217  | ARG  | NE-CZ-NH2   | 8.49  | 124.55      | 120.30   |
| 26  | P     | 128  | ARG  | NE-CZ-NH2   | 8.48  | 124.54      | 120.30   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 36  | AB    | 102  | C    | O4'-C1'-N1  | 8.48  | 114.98      | 108.20   |
| 2   | 7     | 28   | C    | O4'-C1'-N1  | 8.47  | 114.98      | 108.20   |
| 1   | A     | 970  | G    | O4'-C1'-N9  | 8.46  | 114.97      | 108.20   |
| 76  | Ag    | 37   | ARG  | NE-CZ-NH1   | 8.46  | 124.53      | 120.30   |
| 1   | A     | 485  | C    | O4'-C1'-N1  | 8.46  | 114.97      | 108.20   |
| 34  | AA    | 101  | C    | C6-N1-C1'   | -8.46 | 110.64      | 120.80   |
| 34  | AA    | 1913 | A    | P-O3'-C3'   | 8.46  | 129.85      | 119.70   |
| 71  | AF    | 122  | TYR  | CB-CG-CD2   | -8.46 | 115.92      | 121.00   |
| 65  | AT    | 162  | ARG  | NE-CZ-NH1   | 8.46  | 124.53      | 120.30   |
| 34  | AA    | 3067 | G    | C1'-O4'-C4' | -8.45 | 103.14      | 109.90   |
| 66  | AZ    | 15   | ARG  | NE-CZ-NH2   | -8.45 | 116.08      | 120.30   |
| 34  | AA    | 347  | C    | O4'-C1'-N1  | 8.43  | 114.95      | 108.20   |
| 65  | AT    | 87   | ARG  | NE-CZ-NH2   | -8.43 | 116.08      | 120.30   |
| 1   | A     | 1660 | U    | O4'-C1'-N1  | 8.43  | 114.94      | 108.20   |
| 19  | 6     | 33   | ARG  | NE-CZ-NH2   | 8.43  | 124.52      | 120.30   |
| 30  | U     | 124  | ARG  | NE-CZ-NH1   | -8.43 | 116.08      | 120.30   |
| 34  | AA    | 621  | C    | O4'-C1'-N1  | 8.42  | 114.94      | 108.20   |
| 74  | AH    | 144  | TYR  | CB-CG-CD2   | -8.42 | 115.95      | 121.00   |
| 16  | 3     | 6    | ARG  | NE-CZ-NH2   | 8.42  | 124.51      | 120.30   |
| 37  | AL    | 190  | ARG  | NE-CZ-NH2   | -8.41 | 116.09      | 120.30   |
| 34  | AA    | 10   | G    | P-O3'-C3'   | 8.40  | 129.78      | 119.70   |
| 24  | L     | 92   | ARG  | NE-CZ-NH2   | -8.40 | 116.10      | 120.30   |
| 1   | A     | 1386 | U    | P-O3'-C3'   | 8.39  | 129.76      | 119.70   |
| 51  | AP    | 173  | ARG  | NE-CZ-NH1   | 8.39  | 124.49      | 120.30   |
| 34  | AA    | 2439 | C    | O4'-C1'-N1  | 8.38  | 114.91      | 108.20   |
| 68  | A5    | 169  | ARG  | NE-CZ-NH1   | 8.38  | 124.49      | 120.30   |
| 61  | AQ    | 98   | ARG  | NE-CZ-NH1   | -8.36 | 116.12      | 120.30   |
| 12  | Y     | 39   | ARG  | NE-CZ-NH1   | 8.36  | 124.48      | 120.30   |
| 34  | AA    | 737  | G    | C5-C6-O6    | -8.36 | 123.58      | 128.60   |
| 34  | AA    | 1841 | U    | P-O3'-C3'   | 8.34  | 129.71      | 119.70   |
| 34  | AA    | 62   | A    | P-O3'-C3'   | 8.34  | 129.70      | 119.70   |
| 34  | AA    | 3627 | C    | O4'-C1'-N1  | 8.34  | 114.87      | 108.20   |
| 34  | AA    | 620  | U    | P-O3'-C3'   | 8.33  | 129.70      | 119.70   |
| 34  | AA    | 1553 | U    | O4'-C1'-N1  | 8.33  | 114.86      | 108.20   |
| 34  | AA    | 306  | C    | C2-N1-C1'   | 8.30  | 127.94      | 118.80   |
| 1   | A     | 994  | G    | C5-C6-O6    | -8.30 | 123.62      | 128.60   |
| 34  | AA    | 889  | U    | P-O3'-C3'   | 8.30  | 129.66      | 119.70   |
| 34  | AA    | 2658 | C    | O4'-C1'-N1  | 8.30  | 114.84      | 108.20   |
| 1   | A     | 2084 | G    | P-O3'-C3'   | 8.28  | 129.64      | 119.70   |
| 6   | I     | 155  | ARG  | NE-CZ-NH2   | 8.28  | 124.44      | 120.30   |
| 34  | AA    | 1235 | C    | O4'-C1'-N1  | 8.28  | 114.82      | 108.20   |
| 34  | AA    | 1073 | G    | O4'-C1'-N9  | 8.28  | 114.82      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 63  | AW    | 123  | ARG  | NE-CZ-NH2  | -8.28 | 116.16      | 120.30   |
| 34  | AA    | 3443 | A    | O4'-C1'-N9 | 8.27  | 114.82      | 108.20   |
| 46  | Aa    | 21   | ARG  | NE-CZ-NH1  | 8.27  | 124.44      | 120.30   |
| 34  | AA    | 1704 | U    | O4'-C1'-N1 | 8.27  | 114.81      | 108.20   |
| 1   | A     | 1856 | A    | O4'-C1'-N9 | 8.26  | 114.81      | 108.20   |
| 34  | AA    | 80   | C    | O4'-C1'-N1 | 8.26  | 114.81      | 108.20   |
| 12  | Y     | 39   | ARG  | NE-CZ-NH2  | -8.25 | 116.17      | 120.30   |
| 34  | AA    | 2421 | C    | O4'-C1'-N1 | 8.25  | 114.80      | 108.20   |
| 34  | AA    | 2957 | G    | O4'-C1'-N9 | 8.25  | 114.80      | 108.20   |
| 34  | AA    | 858  | C    | P-O3'-C3'  | 8.24  | 129.59      | 119.70   |
| 64  | AY    | 108  | TYR  | CB-CG-CD2  | -8.24 | 116.06      | 121.00   |
| 60  | AO    | 67   | ARG  | NE-CZ-NH1  | 8.23  | 124.42      | 120.30   |
| 36  | AB    | 39   | C    | O4'-C1'-N1 | 8.23  | 114.79      | 108.20   |
| 34  | AA    | 1101 | A    | P-O3'-C3'  | 8.23  | 129.58      | 119.70   |
| 1   | A     | 1731 | C    | O4'-C1'-N1 | 8.23  | 114.78      | 108.20   |
| 34  | AA    | 345  | G    | C5-C6-O6   | -8.22 | 123.67      | 128.60   |
| 34  | AA    | 3241 | U    | O4'-C1'-N1 | 8.22  | 114.78      | 108.20   |
| 69  | AD    | 9    | ARG  | NE-CZ-NH1  | 8.22  | 124.41      | 120.30   |
| 18  | 5     | 42   | ARG  | NE-CZ-NH2  | -8.22 | 116.19      | 120.30   |
| 34  | AA    | 372  | G    | C5-C6-O6   | -8.21 | 123.67      | 128.60   |
| 34  | AA    | 69   | U    | O4'-C1'-N1 | 8.21  | 114.77      | 108.20   |
| 34  | AA    | 930  | C    | O4'-C1'-N1 | 8.21  | 114.76      | 108.20   |
| 1   | A     | 1109 | G    | P-O5'-C5'  | 8.20  | 134.02      | 120.90   |
| 34  | AA    | 1996 | C    | P-O3'-C3'  | 8.20  | 129.54      | 119.70   |
| 34  | AA    | 1503 | A    | P-O3'-C3'  | 8.20  | 129.53      | 119.70   |
| 34  | AA    | 2107 | C    | P-O3'-C3'  | 8.20  | 129.53      | 119.70   |
| 34  | AA    | 2655 | C    | O4'-C1'-N1 | 8.19  | 114.75      | 108.20   |
| 3   | D     | 167  | ARG  | NE-CZ-NH2  | -8.19 | 116.21      | 120.30   |
| 34  | AA    | 136  | U    | C2-N1-C1'  | 8.19  | 127.53      | 117.70   |
| 34  | AA    | 288  | G    | O4'-C1'-N9 | 8.19  | 114.75      | 108.20   |
| 34  | AA    | 1798 | A    | O4'-C1'-N9 | 8.19  | 114.75      | 108.20   |
| 1   | A     | 857  | A    | O4'-C1'-N9 | 8.18  | 114.75      | 108.20   |
| 2   | 7     | 49   | C    | O4'-C1'-N1 | 8.18  | 114.74      | 108.20   |
| 34  | AA    | 2933 | C    | O4'-C1'-N1 | 8.17  | 114.73      | 108.20   |
| 63  | AW    | 82   | ARG  | NE-CZ-NH1  | 8.17  | 124.38      | 120.30   |
| 60  | AO    | 67   | ARG  | NE-CZ-NH2  | -8.15 | 116.22      | 120.30   |
| 61  | AQ    | 162  | ARG  | NE-CZ-NH1  | 8.15  | 124.38      | 120.30   |
| 34  | AA    | 2154 | A    | O4'-C1'-N9 | 8.15  | 114.72      | 108.20   |
| 2   | 7     | 57   | C    | O4'-C1'-N1 | 8.13  | 114.70      | 108.20   |
| 43  | AN    | 128  | ARG  | NE-CZ-NH1  | 8.13  | 124.36      | 120.30   |
| 34  | AA    | 866  | C    | O4'-C1'-N1 | 8.13  | 114.70      | 108.20   |
| 34  | AA    | 2959 | G    | P-O3'-C3'  | 8.13  | 129.45      | 119.70   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 68  | A5    | 224  | ARG  | NE-CZ-NH2   | -8.13 | 116.24      | 120.30   |
| 34  | AA    | 449  | A    | O4'-C1'-N9  | 8.12  | 114.70      | 108.20   |
| 1   | A     | 1845 | U    | O4'-C1'-N1  | 8.12  | 114.70      | 108.20   |
| 34  | AA    | 3199 | C    | O4'-C1'-N1  | 8.12  | 114.70      | 108.20   |
| 69  | AD    | 163  | ARG  | NE-CZ-NH1   | -8.12 | 116.24      | 120.30   |
| 34  | AA    | 963  | C    | O4'-C1'-N1  | 8.09  | 114.67      | 108.20   |
| 34  | AA    | 3621 | C    | O4'-C1'-N1  | 8.08  | 114.67      | 108.20   |
| 34  | AA    | 1572 | U    | O4'-C1'-N1  | 8.07  | 114.66      | 108.20   |
| 34  | AA    | 966  | A    | N1-C6-N6    | 8.07  | 123.44      | 118.60   |
| 63  | AW    | 56   | ARG  | NE-CZ-NH2   | -8.06 | 116.27      | 120.30   |
| 34  | AA    | 3111 | U    | O4'-C1'-N1  | 8.06  | 114.65      | 108.20   |
| 53  | Ai    | 40   | ARG  | NE-CZ-NH2   | -8.06 | 116.27      | 120.30   |
| 1   | A     | 844  | G    | P-O3'-C3'   | 8.05  | 129.36      | 119.70   |
| 34  | AA    | 2604 | G    | C5-C6-O6    | -8.05 | 123.77      | 128.60   |
| 76  | Ag    | 39   | ARG  | NE-CZ-NH2   | 8.05  | 124.32      | 120.30   |
| 75  | AV    | 13   | ARG  | NE-CZ-NH2   | 8.04  | 124.32      | 120.30   |
| 1   | A     | 161  | U    | C5'-C4'-O4' | 8.04  | 118.75      | 109.10   |
| 1   | A     | 759  | C    | O4'-C1'-N1  | 8.04  | 114.63      | 108.20   |
| 20  | B     | 213  | ARG  | NE-CZ-NH2   | -8.04 | 116.28      | 120.30   |
| 34  | AA    | 3248 | C    | O4'-C1'-N1  | 8.04  | 114.63      | 108.20   |
| 30  | U     | 55   | ARG  | NE-CZ-NH2   | 8.03  | 124.31      | 120.30   |
| 34  | AA    | 137  | G    | O4'-C1'-N9  | 8.02  | 114.62      | 108.20   |
| 1   | A     | 1832 | U    | O4'-C1'-N1  | 8.02  | 114.62      | 108.20   |
| 34  | AA    | 1980 | G    | O4'-C1'-N9  | 8.02  | 114.61      | 108.20   |
| 34  | AA    | 3585 | A    | O4'-C1'-N9  | 8.02  | 114.61      | 108.20   |
| 34  | AA    | 2004 | U    | C2-N1-C1'   | 8.01  | 127.32      | 117.70   |
| 34  | AA    | 830  | U    | O4'-C1'-N1  | 8.01  | 114.61      | 108.20   |
| 51  | AP    | 71   | ARG  | NE-CZ-NH1   | 8.01  | 124.30      | 120.30   |
| 1   | A     | 2072 | G    | O4'-C1'-N9  | 8.00  | 114.60      | 108.20   |
| 4   | E     | 79   | ARG  | NE-CZ-NH2   | 8.00  | 124.30      | 120.30   |
| 34  | AA    | 1078 | C    | O4'-C1'-N1  | 7.99  | 114.59      | 108.20   |
| 71  | AF    | 122  | TYR  | CB-CG-CD1   | 7.98  | 125.79      | 121.00   |
| 34  | AA    | 2932 | A    | P-O3'-C3'   | 7.98  | 129.27      | 119.70   |
| 34  | AA    | 1999 | A    | P-O3'-C3'   | 7.97  | 129.27      | 119.70   |
| 34  | AA    | 2734 | C    | O4'-C1'-N1  | 7.97  | 114.58      | 108.20   |
| 76  | Ag    | 32   | ARG  | NE-CZ-NH1   | 7.97  | 124.28      | 120.30   |
| 36  | AB    | 78   | C    | O4'-C1'-N1  | 7.96  | 114.57      | 108.20   |
| 66  | AZ    | 76   | ARG  | NE-CZ-NH1   | 7.94  | 124.27      | 120.30   |
| 34  | AA    | 812  | U    | O4'-C1'-N1  | 7.94  | 114.55      | 108.20   |
| 1   | A     | 876  | U    | P-O3'-C3'   | 7.92  | 129.21      | 119.70   |
| 1   | A     | 2051 | C    | O4'-C1'-N1  | 7.92  | 114.54      | 108.20   |
| 34  | AA    | 3289 | G    | O4'-C1'-N9  | 7.92  | 114.54      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 69  | AD    | 200  | ARG  | NE-CZ-NH2   | 7.92  | 124.26      | 120.30   |
| 34  | AA    | 3765 | C    | O4'-C1'-N1  | 7.90  | 114.52      | 108.20   |
| 51  | AP    | 190  | ARG  | NE-CZ-NH1   | 7.90  | 124.25      | 120.30   |
| 75  | AV    | 84   | ARG  | NE-CZ-NH2   | 7.90  | 124.25      | 120.30   |
| 34  | AA    | 1325 | C    | O4'-C1'-N1  | 7.89  | 114.51      | 108.20   |
| 35  | AC    | 78   | U    | O4'-C1'-N1  | 7.89  | 114.51      | 108.20   |
| 65  | AT    | 135  | ARG  | NE-CZ-NH2   | -7.89 | 116.36      | 120.30   |
| 51  | AP    | 67   | ARG  | NE-CZ-NH2   | 7.88  | 124.24      | 120.30   |
| 34  | AA    | 711  | C    | O4'-C1'-N1  | 7.88  | 114.51      | 108.20   |
| 34  | AA    | 715  | U    | P-O3'-C3'   | 7.88  | 129.15      | 119.70   |
| 44  | A8    | 44   | ARG  | NE-CZ-NH2   | -7.88 | 116.36      | 120.30   |
| 34  | AA    | 2969 | C    | O4'-C1'-N1  | 7.87  | 114.50      | 108.20   |
| 1   | A     | 2026 | C    | O4'-C1'-N1  | 7.87  | 114.50      | 108.20   |
| 21  | F     | 49   | ARG  | NE-CZ-NH1   | 7.87  | 124.23      | 120.30   |
| 1   | A     | 1079 | C    | O4'-C1'-N1  | 7.86  | 114.49      | 108.20   |
| 34  | AA    | 540  | C    | O4'-C1'-N1  | 7.86  | 114.49      | 108.20   |
| 34  | AA    | 1026 | G    | P-O3'-C3'   | 7.86  | 129.13      | 119.70   |
| 34  | AA    | 830  | U    | C2-N1-C1'   | 7.85  | 127.12      | 117.70   |
| 1   | A     | 760  | C    | O4'-C1'-N1  | 7.85  | 114.48      | 108.20   |
| 1   | A     | 2048 | A    | O4'-C1'-N9  | 7.85  | 114.48      | 108.20   |
| 1   | A     | 647  | C    | C6-N1-C1'   | -7.85 | 111.38      | 120.80   |
| 7   | K     | 97   | ARG  | NE-CZ-NH2   | -7.85 | 116.38      | 120.30   |
| 34  | AA    | 329  | C    | O4'-C1'-N1  | 7.85  | 114.48      | 108.20   |
| 34  | AA    | 2623 | C    | O4'-C1'-N1  | 7.84  | 114.47      | 108.20   |
| 34  | AA    | 2034 | G    | P-O5'-C5'   | 7.84  | 133.44      | 120.90   |
| 34  | AA    | 1540 | G    | O4'-C1'-N9  | 7.83  | 114.47      | 108.20   |
| 34  | AA    | 2089 | C    | P-O3'-C3'   | 7.83  | 129.10      | 119.70   |
| 34  | AA    | 883  | C    | O4'-C1'-N1  | 7.83  | 114.46      | 108.20   |
| 68  | A5    | 173  | ARG  | NE-CZ-NH1   | -7.83 | 116.39      | 120.30   |
| 61  | AQ    | 3    | ARG  | NE-CZ-NH1   | -7.83 | 116.39      | 120.30   |
| 1   | A     | 1800 | A    | P-O3'-C3'   | 7.82  | 129.09      | 119.70   |
| 34  | AA    | 706  | U    | O4'-C1'-N1  | 7.82  | 114.46      | 108.20   |
| 34  | AA    | 3763 | G    | C5-C6-O6    | -7.82 | 123.91      | 128.60   |
| 65  | AT    | 162  | ARG  | NE-CZ-NH2   | -7.82 | 116.39      | 120.30   |
| 1   | A     | 1030 | C    | O4'-C1'-N1  | 7.82  | 114.46      | 108.20   |
| 69  | AD    | 174  | ARG  | NE-CZ-NH1   | 7.82  | 124.21      | 120.30   |
| 34  | AA    | 1003 | A    | P-O3'-C3'   | 7.82  | 129.08      | 119.70   |
| 69  | AD    | 12   | ARG  | NE-CZ-NH1   | 7.82  | 124.21      | 120.30   |
| 2   | 7     | 17   | U    | P-O3'-C3'   | 7.81  | 129.07      | 119.70   |
| 34  | AA    | 921  | C    | O4'-C1'-N1  | 7.80  | 114.44      | 108.20   |
| 57  | AK    | 193  | ARG  | NE-CZ-NH2   | 7.80  | 124.20      | 120.30   |
| 34  | AA    | 2219 | A    | C2'-C3'-O3' | 7.79  | 126.64      | 109.50   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 1222 | U    | P-O3'-C3'   | 7.79  | 129.05      | 119.70   |
| 34  | AA    | 1525 | C    | O4'-C1'-N1  | 7.79  | 114.43      | 108.20   |
| 34  | AA    | 3140 | U    | P-O3'-C3'   | 7.79  | 129.05      | 119.70   |
| 44  | A8    | 24   | ARG  | NE-CZ-NH1   | 7.78  | 124.19      | 120.30   |
| 69  | AD    | 163  | ARG  | NE-CZ-NH2   | 7.77  | 124.19      | 120.30   |
| 35  | AC    | 145  | A    | P-O3'-C3'   | 7.76  | 129.01      | 119.70   |
| 68  | A5    | 160  | ARG  | NE-CZ-NH2   | 7.76  | 124.18      | 120.30   |
| 1   | A     | 2033 | U    | O4'-C1'-N1  | 7.76  | 114.41      | 108.20   |
| 34  | AA    | 3302 | G    | P-O5'-C5'   | 7.76  | 133.31      | 120.90   |
| 1   | A     | 1945 | C    | O4'-C1'-N1  | 7.75  | 114.40      | 108.20   |
| 57  | AK    | 201  | TYR  | CB-CG-CD2   | -7.75 | 116.35      | 121.00   |
| 34  | AA    | 959  | C    | O4'-C1'-N1  | 7.75  | 114.40      | 108.20   |
| 34  | AA    | 1168 | C    | O4'-C1'-N1  | 7.74  | 114.39      | 108.20   |
| 34  | AA    | 2727 | U    | C2-N1-C1'   | 7.74  | 126.99      | 117.70   |
| 37  | AL    | 69   | ARG  | NE-CZ-NH2   | -7.73 | 116.43      | 120.30   |
| 34  | AA    | 3549 | U    | O4'-C1'-N1  | 7.73  | 114.38      | 108.20   |
| 69  | AD    | 241  | ARG  | NE-CZ-NH1   | 7.72  | 124.16      | 120.30   |
| 70  | AE    | 234  | ARG  | NE-CZ-NH2   | 7.72  | 124.16      | 120.30   |
| 34  | AA    | 2662 | G    | O4'-C1'-N9  | 7.72  | 114.38      | 108.20   |
| 21  | F     | 100  | ARG  | NE-CZ-NH2   | -7.72 | 116.44      | 120.30   |
| 34  | AA    | 345  | G    | N1-C6-O6    | 7.72  | 124.53      | 119.90   |
| 34  | AA    | 2107 | C    | O4'-C1'-N1  | 7.72  | 114.37      | 108.20   |
| 1   | A     | 1452 | C    | O4'-C1'-N1  | 7.71  | 114.37      | 108.20   |
| 34  | AA    | 3442 | C    | O4'-C1'-N1  | 7.71  | 114.37      | 108.20   |
| 54  | AI    | 71   | ARG  | NE-CZ-NH2   | -7.71 | 116.45      | 120.30   |
| 1   | A     | 161  | U    | C2-N1-C1'   | 7.71  | 126.95      | 117.70   |
| 1   | A     | 1281 | C    | O4'-C1'-N1  | 7.71  | 114.37      | 108.20   |
| 1   | A     | 1431 | A    | P-O3'-C3'   | 7.70  | 128.94      | 119.70   |
| 34  | AA    | 136  | U    | O4'-C1'-N1  | 7.70  | 114.36      | 108.20   |
| 34  | AA    | 107  | C    | O4'-C1'-N1  | 7.70  | 114.36      | 108.20   |
| 34  | AA    | 3191 | C    | O4'-C1'-N1  | 7.70  | 114.36      | 108.20   |
| 36  | AB    | 72   | C    | O4'-C1'-N1  | 7.69  | 114.35      | 108.20   |
| 57  | AK    | 73   | ARG  | NE-CZ-NH1   | 7.69  | 124.14      | 120.30   |
| 34  | AA    | 1866 | C    | O4'-C1'-N1  | 7.69  | 114.35      | 108.20   |
| 34  | AA    | 2104 | C    | O4'-C1'-N1  | 7.69  | 114.35      | 108.20   |
| 34  | AA    | 2074 | C    | O4'-C1'-N1  | 7.69  | 114.35      | 108.20   |
| 14  | 1     | 106  | ARG  | NE-CZ-NH2   | 7.68  | 124.14      | 120.30   |
| 34  | AA    | 1537 | G    | P-O3'-C3'   | -7.68 | 110.48      | 119.70   |
| 18  | 5     | 26   | ARG  | NE-CZ-NH2   | -7.67 | 116.47      | 120.30   |
| 34  | AA    | 372  | G    | N1-C6-O6    | 7.67  | 124.50      | 119.90   |
| 34  | AA    | 2804 | C    | O4'-C1'-N1  | 7.66  | 114.33      | 108.20   |
| 34  | AA    | 2437 | A    | C1'-O4'-C4' | -7.66 | 103.77      | 109.90   |

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| Mol | Chain | Res  | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 34  | AA    | 3494 | C    | O4'-C1'-N1 | 7.65  | 114.32      | 108.20   |
| 1   | A     | 630  | C    | C2-N1-C1'  | 7.65  | 127.22      | 118.80   |
| 34  | AA    | 1260 | C    | O4'-C1'-N1 | 7.65  | 114.32      | 108.20   |
| 34  | AA    | 2175 | C    | O4'-C1'-N1 | 7.65  | 114.32      | 108.20   |
| 62  | AR    | 23   | ARG  | NE-CZ-NH2  | -7.65 | 116.47      | 120.30   |
| 35  | AC    | 134  | G    | P-O3'-C3'  | 7.65  | 128.88      | 119.70   |
| 61  | AQ    | 90   | ARG  | NE-CZ-NH2  | -7.64 | 116.48      | 120.30   |
| 34  | AA    | 542  | A    | N1-C6-N6   | 7.64  | 123.19      | 118.60   |
| 1   | A     | 941  | C    | O4'-C1'-N1 | 7.64  | 114.31      | 108.20   |
| 59  | AS    | 179  | ARG  | NE-CZ-NH1  | 7.64  | 124.12      | 120.30   |
| 34  | AA    | 934  | G    | N1-C6-O6   | 7.64  | 124.48      | 119.90   |
| 34  | AA    | 3723 | C    | O4'-C1'-N1 | 7.63  | 114.31      | 108.20   |
| 34  | AA    | 1493 | U    | O4'-C1'-N1 | 7.63  | 114.31      | 108.20   |
| 49  | Ae    | 6    | ARG  | NE-CZ-NH2  | -7.63 | 116.49      | 120.30   |
| 52  | Ah    | 17   | ARG  | NE-CZ-NH1  | 7.63  | 124.11      | 120.30   |
| 34  | AA    | 2191 | C    | O4'-C1'-N1 | 7.62  | 114.29      | 108.20   |
| 1   | A     | 1872 | G    | O4'-C1'-N9 | 7.62  | 114.29      | 108.20   |
| 45  | A9    | 130  | ARG  | NE-CZ-NH2  | -7.61 | 116.49      | 120.30   |
| 1   | A     | 525  | G    | P-O3'-C3'  | 7.61  | 128.83      | 119.70   |
| 24  | L     | 56   | ARG  | NE-CZ-NH1  | 7.61  | 124.10      | 120.30   |
| 2   | 7     | 71   | C    | O4'-C1'-N1 | 7.60  | 114.28      | 108.20   |
| 34  | AA    | 501  | U    | P-O3'-C3'  | 7.60  | 128.82      | 119.70   |
| 34  | AA    | 1853 | C    | O4'-C1'-N1 | 7.60  | 114.28      | 108.20   |
| 34  | AA    | 278  | C    | O4'-C1'-N1 | 7.59  | 114.27      | 108.20   |
| 34  | AA    | 1654 | C    | O4'-C1'-N1 | 7.59  | 114.27      | 108.20   |
| 1   | A     | 246  | A    | P-O3'-C3'  | 7.59  | 128.81      | 119.70   |
| 36  | AB    | 17   | C    | O4'-C1'-N1 | 7.59  | 114.27      | 108.20   |
| 1   | A     | 315  | C    | O4'-C1'-N1 | 7.58  | 114.27      | 108.20   |
| 1   | A     | 375  | U    | O4'-C1'-N1 | 7.58  | 114.27      | 108.20   |
| 1   | A     | 1069 | C    | C6-N1-C1'  | -7.58 | 111.70      | 120.80   |
| 34  | AA    | 257  | U    | O4'-C1'-N1 | 7.58  | 114.27      | 108.20   |
| 34  | AA    | 255  | C    | O4'-C1'-N1 | 7.58  | 114.26      | 108.20   |
| 76  | Ag    | 7    | ARG  | NE-CZ-NH1  | 7.58  | 124.09      | 120.30   |
| 34  | AA    | 453  | A    | N1-C6-N6   | -7.57 | 114.06      | 118.60   |
| 55  | AJ    | 73   | ARG  | NE-CZ-NH2  | -7.57 | 116.51      | 120.30   |
| 1   | A     | 843  | U    | O4'-C1'-N1 | 7.57  | 114.25      | 108.20   |
| 71  | AF    | 78   | ARG  | NE-CZ-NH1  | 7.56  | 124.08      | 120.30   |
| 71  | AF    | 190  | ARG  | NE-CZ-NH2  | 7.56  | 124.08      | 120.30   |
| 34  | AA    | 650  | U    | O4'-C1'-N1 | 7.56  | 114.25      | 108.20   |
| 34  | AA    | 200  | A    | N1-C6-N6   | 7.56  | 123.14      | 118.60   |
| 34  | AA    | 594  | C    | C6-N1-C1'  | -7.55 | 111.73      | 120.80   |
| 34  | AA    | 1780 | G    | P-O5'-C5'  | 7.55  | 132.99      | 120.90   |

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| Mol | Chain | Res  | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 34  | AA    | 1905 | C    | O4'-C1'-N1 | 7.55  | 114.24      | 108.20   |
| 34  | AA    | 2821 | C    | O4'-C1'-N1 | 7.55  | 114.24      | 108.20   |
| 65  | AT    | 73   | ARG  | NE-CZ-NH1  | 7.55  | 124.08      | 120.30   |
| 34  | AA    | 739  | G    | O4'-C1'-N9 | 7.55  | 114.24      | 108.20   |
| 59  | AS    | 10   | ARG  | NE-CZ-NH1  | 7.55  | 124.07      | 120.30   |
| 34  | AA    | 2499 | G    | C8-N9-C1'  | -7.55 | 117.19      | 127.00   |
| 34  | AA    | 215  | C    | P-O3'-C3'  | 7.54  | 128.75      | 119.70   |
| 34  | AA    | 2697 | A    | O4'-C1'-N9 | 7.53  | 114.23      | 108.20   |
| 36  | AB    | 35   | C    | O4'-C1'-N1 | 7.53  | 114.23      | 108.20   |
| 1   | A     | 1819 | U    | O4'-C1'-N1 | 7.53  | 114.22      | 108.20   |
| 34  | AA    | 284  | C    | O4'-C1'-N1 | 7.53  | 114.22      | 108.20   |
| 34  | AA    | 3664 | G    | P-O3'-C3'  | 7.53  | 128.73      | 119.70   |
| 75  | AV    | 101  | ARG  | NE-CZ-NH1  | 7.53  | 124.06      | 120.30   |
| 14  | 1     | 20   | ARG  | NE-CZ-NH2  | 7.52  | 124.06      | 120.30   |
| 34  | AA    | 400  | C    | O4'-C1'-N1 | 7.52  | 114.22      | 108.20   |
| 45  | A9    | 130  | ARG  | NE-CZ-NH1  | 7.52  | 124.06      | 120.30   |
| 2   | 7     | 73   | C    | O4'-C1'-N1 | 7.52  | 114.22      | 108.20   |
| 1   | A     | 1785 | C    | O4'-C1'-N1 | 7.51  | 114.21      | 108.20   |
| 1   | A     | 1908 | A    | O4'-C1'-N9 | 7.51  | 114.21      | 108.20   |
| 8   | M     | 43   | TYR  | CB-CG-CD2  | -7.51 | 116.49      | 121.00   |
| 34  | AA    | 93   | C    | O4'-C1'-N1 | 7.51  | 114.21      | 108.20   |
| 34  | AA    | 90   | C    | O4'-C1'-N1 | 7.51  | 114.20      | 108.20   |
| 34  | AA    | 309  | G    | O4'-C1'-N9 | 7.50  | 114.20      | 108.20   |
| 34  | AA    | 236  | U    | P-O3'-C3'  | 7.50  | 128.70      | 119.70   |
| 1   | A     | 885  | C    | O4'-C1'-N1 | 7.50  | 114.20      | 108.20   |
| 1   | A     | 1286 | U    | O4'-C1'-N1 | 7.50  | 114.20      | 108.20   |
| 34  | AA    | 2401 | C    | O4'-C1'-N1 | 7.49  | 114.19      | 108.20   |
| 34  | AA    | 3181 | U    | O4'-C1'-N1 | 7.49  | 114.19      | 108.20   |
| 34  | AA    | 773  | A    | O4'-C1'-N9 | 7.49  | 114.19      | 108.20   |
| 2   | 7     | 21   | U    | O4'-C1'-N1 | 7.48  | 114.19      | 108.20   |
| 34  | AA    | 715  | U    | O4'-C1'-N1 | 7.48  | 114.19      | 108.20   |
| 1   | A     | 630  | C    | O4'-C1'-N1 | 7.48  | 114.19      | 108.20   |
| 1   | A     | 1716 | C    | O4'-C1'-N1 | 7.48  | 114.19      | 108.20   |
| 34  | AA    | 833  | G    | P-O3'-C3'  | 7.47  | 128.67      | 119.70   |
| 34  | AA    | 1680 | C    | O4'-C1'-N1 | 7.47  | 114.18      | 108.20   |
| 1   | A     | 871  | C    | O4'-C1'-N1 | 7.47  | 114.18      | 108.20   |
| 34  | AA    | 3065 | C    | O4'-C1'-N1 | 7.47  | 114.18      | 108.20   |
| 64  | AY    | 173  | ARG  | NE-CZ-NH1  | 7.47  | 124.03      | 120.30   |
| 1   | A     | 1014 | U    | O4'-C1'-N1 | 7.47  | 114.17      | 108.20   |
| 34  | AA    | 1326 | C    | O4'-C1'-N1 | 7.46  | 114.17      | 108.20   |
| 6   | I     | 195  | ARG  | NE-CZ-NH2  | -7.46 | 116.57      | 120.30   |
| 34  | AA    | 672  | C    | O4'-C1'-N1 | 7.46  | 114.17      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 3483 | U    | O4'-C1'-N1  | 7.45  | 114.16      | 108.20   |
| 67  | A3    | 91   | ARG  | NE-CZ-NH1   | 7.45  | 124.03      | 120.30   |
| 36  | AB    | 29   | C    | O4'-C1'-N1  | 7.45  | 114.16      | 108.20   |
| 34  | AA    | 3613 | A    | O4'-C1'-N9  | 7.44  | 114.15      | 108.20   |
| 34  | AA    | 1960 | U    | O4'-C1'-N1  | 7.43  | 114.15      | 108.20   |
| 65  | AT    | 102  | ARG  | NE-CZ-NH1   | 7.43  | 124.02      | 120.30   |
| 34  | AA    | 1166 | C    | O4'-C1'-N1  | 7.43  | 114.14      | 108.20   |
| 62  | AR    | 206  | TYR  | CB-CG-CD2   | -7.43 | 116.54      | 121.00   |
| 34  | AA    | 320  | C    | O4'-C1'-N1  | 7.43  | 114.14      | 108.20   |
| 34  | AA    | 2095 | U    | P-O3'-C3'   | 7.43  | 128.61      | 119.70   |
| 1   | A     | 367  | C    | O4'-C1'-N1  | 7.42  | 114.14      | 108.20   |
| 34  | AA    | 1431 | A    | O4'-C1'-N9  | 7.42  | 114.14      | 108.20   |
| 71  | AF    | 97   | ARG  | NE-CZ-NH1   | -7.42 | 116.59      | 120.30   |
| 2   | 7     | 73   | C    | C2-N1-C1'   | 7.42  | 126.96      | 118.80   |
| 4   | E     | 107  | ARG  | NE-CZ-NH1   | 7.42  | 124.01      | 120.30   |
| 3   | D     | 147  | ARG  | NE-CZ-NH2   | -7.42 | 116.59      | 120.30   |
| 34  | AA    | 737  | G    | N1-C6-O6    | 7.41  | 124.35      | 119.90   |
| 28  | S     | 110  | ARG  | NE-CZ-NH1   | 7.41  | 124.00      | 120.30   |
| 34  | AA    | 10   | G    | N1-C6-O6    | 7.41  | 124.34      | 119.90   |
| 34  | AA    | 2958 | G    | P-O3'-C3'   | 7.40  | 128.59      | 119.70   |
| 34  | AA    | 3628 | C    | O4'-C1'-N1  | 7.40  | 114.12      | 108.20   |
| 34  | AA    | 150  | C    | O4'-C1'-N1  | 7.40  | 114.12      | 108.20   |
| 35  | AC    | 25   | C    | C6-N1-C2    | -7.40 | 117.34      | 120.30   |
| 1   | A     | 1707 | C    | O4'-C1'-N1  | 7.39  | 114.11      | 108.20   |
| 34  | AA    | 1873 | U    | P-O3'-C3'   | 7.39  | 128.57      | 119.70   |
| 1   | A     | 1790 | C    | O4'-C1'-N1  | 7.39  | 114.11      | 108.20   |
| 34  | AA    | 1321 | A    | O4'-C1'-N9  | 7.39  | 114.11      | 108.20   |
| 1   | A     | 1419 | C    | O4'-C1'-N1  | 7.39  | 114.11      | 108.20   |
| 61  | AQ    | 88   | ARG  | NE-CZ-NH1   | 7.38  | 123.99      | 120.30   |
| 34  | AA    | 125  | C    | O4'-C1'-N1  | 7.38  | 114.11      | 108.20   |
| 34  | AA    | 3632 | U    | O4'-C1'-N1  | 7.38  | 114.11      | 108.20   |
| 24  | L     | 31   | ARG  | NE-CZ-NH2   | -7.38 | 116.61      | 120.30   |
| 34  | AA    | 1752 | C    | O4'-C1'-N1  | 7.38  | 114.10      | 108.20   |
| 34  | AA    | 2713 | C    | O4'-C1'-N1  | 7.38  | 114.10      | 108.20   |
| 34  | AA    | 3691 | C    | O4'-C1'-N1  | 7.38  | 114.10      | 108.20   |
| 66  | AZ    | 114  | ARG  | NE-CZ-NH1   | 7.38  | 123.99      | 120.30   |
| 34  | AA    | 3195 | C    | C2-N1-C1'   | 7.37  | 126.91      | 118.80   |
| 1   | A     | 1917 | C    | O4'-C1'-N1  | 7.37  | 114.09      | 108.20   |
| 1   | A     | 1856 | A    | C1'-O4'-C4' | -7.37 | 104.01      | 109.90   |
| 34  | AA    | 702  | U    | C6-N1-C1'   | -7.37 | 110.89      | 121.20   |
| 21  | F     | 113  | ARG  | NE-CZ-NH1   | 7.36  | 123.98      | 120.30   |
| 34  | AA    | 1217 | U    | P-O3'-C3'   | 7.36  | 128.53      | 119.70   |

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| Mol | Chain | Res  | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 24  | L     | 188  | ARG  | NE-CZ-NH2  | -7.36 | 116.62      | 120.30   |
| 34  | AA    | 607  | A    | N1-C6-N6   | 7.36  | 123.02      | 118.60   |
| 34  | AA    | 3235 | C    | O4'-C1'-N1 | 7.36  | 114.09      | 108.20   |
| 1   | A     | 832  | A    | O4'-C1'-N9 | 7.36  | 114.08      | 108.20   |
| 31  | V     | 102  | ARG  | NE-CZ-NH1  | 7.35  | 123.97      | 120.30   |
| 34  | AA    | 438  | U    | O4'-C1'-N1 | 7.35  | 114.08      | 108.20   |
| 1   | A     | 1441 | C    | O4'-C1'-N1 | 7.35  | 114.08      | 108.20   |
| 71  | AF    | 97   | ARG  | NE-CZ-NH2  | 7.35  | 123.97      | 120.30   |
| 34  | AA    | 315  | C    | O4'-C1'-N1 | 7.34  | 114.08      | 108.20   |
| 34  | AA    | 1971 | U    | O4'-C1'-N1 | 7.34  | 114.08      | 108.20   |
| 34  | AA    | 1874 | C    | O4'-C1'-N1 | 7.34  | 114.07      | 108.20   |
| 34  | AA    | 732  | C    | O4'-C1'-N1 | 7.34  | 114.07      | 108.20   |
| 1   | A     | 1820 | C    | O4'-C1'-N1 | 7.34  | 114.07      | 108.20   |
| 34  | AA    | 172  | C    | O4'-C1'-N1 | 7.34  | 114.07      | 108.20   |
| 34  | AA    | 3031 | C    | O4'-C1'-N1 | 7.33  | 114.07      | 108.20   |
| 34  | AA    | 3400 | C    | O4'-C1'-N1 | 7.33  | 114.06      | 108.20   |
| 34  | AA    | 771  | U    | O4'-C1'-N1 | 7.33  | 114.06      | 108.20   |
| 34  | AA    | 2172 | C    | O4'-C1'-N1 | 7.33  | 114.06      | 108.20   |
| 34  | AA    | 2103 | C    | O4'-C1'-N1 | 7.33  | 114.06      | 108.20   |
| 34  | AA    | 1313 | C    | O4'-C1'-N1 | 7.33  | 114.06      | 108.20   |
| 66  | AZ    | 12   | ARG  | NE-CZ-NH2  | -7.32 | 116.64      | 120.30   |
| 71  | AF    | 75   | ARG  | NE-CZ-NH1  | 7.32  | 123.96      | 120.30   |
| 1   | A     | 1813 | U    | O4'-C1'-N1 | 7.32  | 114.05      | 108.20   |
| 34  | AA    | 3282 | U    | P-O5'-C5'  | -7.32 | 109.20      | 120.90   |
| 1   | A     | 49   | C    | O4'-C1'-N1 | 7.31  | 114.05      | 108.20   |
| 34  | AA    | 431  | G    | O4'-C1'-N9 | 7.31  | 114.05      | 108.20   |
| 1   | A     | 1297 | A    | O4'-C1'-N9 | 7.30  | 114.04      | 108.20   |
| 34  | AA    | 197  | G    | O4'-C1'-N9 | 7.30  | 114.04      | 108.20   |
| 47  | Ab    | 94   | ARG  | NE-CZ-NH1  | -7.30 | 116.65      | 120.30   |
| 28  | S     | 132  | ARG  | NE-CZ-NH1  | 7.30  | 123.95      | 120.30   |
| 34  | AA    | 2456 | C    | O4'-C1'-N1 | 7.30  | 114.04      | 108.20   |
| 34  | AA    | 3344 | C    | O4'-C1'-N1 | 7.30  | 114.04      | 108.20   |
| 34  | AA    | 147  | C    | O4'-C1'-N1 | 7.30  | 114.04      | 108.20   |
| 1   | A     | 955  | U    | O4'-C1'-N1 | 7.29  | 114.03      | 108.20   |
| 34  | AA    | 3258 | C    | C2-N1-C1'  | 7.29  | 126.82      | 118.80   |
| 25  | N     | 54   | ARG  | NE-CZ-NH1  | 7.29  | 123.94      | 120.30   |
| 35  | AC    | 40   | G    | C5-C6-O6   | -7.29 | 124.23      | 128.60   |
| 34  | AA    | 1112 | C    | O4'-C1'-N1 | 7.29  | 114.03      | 108.20   |
| 34  | AA    | 3307 | C    | O4'-C1'-N1 | 7.29  | 114.03      | 108.20   |
| 34  | AA    | 3567 | U    | O4'-C1'-N1 | 7.28  | 114.03      | 108.20   |
| 1   | A     | 320  | C    | O4'-C1'-N1 | 7.28  | 114.03      | 108.20   |
| 64  | AY    | 108  | TYR  | CB-CG-CD1  | 7.28  | 125.37      | 121.00   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 1   | A     | 1624 | U    | P-O3'-C3'   | 7.28  | 128.44      | 119.70   |
| 34  | AA    | 2652 | C    | O4'-C1'-N1  | 7.28  | 114.02      | 108.20   |
| 43  | AN    | 60   | PHE  | CB-CG-CD2   | 7.28  | 125.90      | 120.80   |
| 34  | AA    | 349  | G    | C5-C6-O6    | -7.28 | 124.23      | 128.60   |
| 34  | AA    | 2626 | C    | O4'-C1'-N1  | 7.28  | 114.02      | 108.20   |
| 34  | AA    | 2604 | G    | N1-C6-O6    | 7.28  | 124.27      | 119.90   |
| 15  | 2     | 76   | ARG  | NE-CZ-NH1   | 7.27  | 123.94      | 120.30   |
| 34  | AA    | 1290 | C    | O4'-C1'-N1  | 7.27  | 114.02      | 108.20   |
| 34  | AA    | 1231 | A    | P-O5'-C5'   | 7.26  | 132.52      | 120.90   |
| 56  | Ac    | 48   | ARG  | NE-CZ-NH2   | -7.26 | 116.67      | 120.30   |
| 34  | AA    | 3620 | C    | O4'-C1'-N1  | 7.26  | 114.01      | 108.20   |
| 69  | AD    | 6    | ARG  | NE-CZ-NH1   | 7.26  | 123.93      | 120.30   |
| 62  | AR    | 181  | ARG  | NE-CZ-NH2   | -7.25 | 116.67      | 120.30   |
| 1   | A     | 32   | U    | O4'-C1'-N1  | 7.25  | 114.00      | 108.20   |
| 1   | A     | 1896 | C    | O4'-C1'-N1  | 7.25  | 114.00      | 108.20   |
| 34  | AA    | 577  | U    | P-O5'-C5'   | 7.25  | 132.50      | 120.90   |
| 34  | AA    | 2647 | C    | O4'-C1'-N1  | 7.25  | 114.00      | 108.20   |
| 34  | AA    | 251  | U    | O4'-C1'-N1  | 7.25  | 114.00      | 108.20   |
| 34  | AA    | 3460 | C    | O4'-C1'-N1  | 7.25  | 114.00      | 108.20   |
| 1   | A     | 590  | C    | O4'-C1'-N1  | 7.24  | 114.00      | 108.20   |
| 34  | AA    | 2615 | C    | O4'-C1'-N1  | 7.24  | 114.00      | 108.20   |
| 1   | A     | 1907 | A    | C4'-C3'-C2' | -7.24 | 95.36       | 102.60   |
| 34  | AA    | 353  | G    | P-O3'-C3'   | 7.24  | 128.39      | 119.70   |
| 34  | AA    | 922  | C    | O4'-C1'-N1  | 7.24  | 113.99      | 108.20   |
| 34  | AA    | 870  | C    | O4'-C1'-N1  | 7.24  | 113.99      | 108.20   |
| 34  | AA    | 1796 | U    | O4'-C1'-N1  | 7.24  | 113.99      | 108.20   |
| 34  | AA    | 2590 | U    | C2-N1-C1'   | 7.24  | 126.39      | 117.70   |
| 34  | AA    | 1573 | C    | O4'-C1'-N1  | 7.24  | 113.99      | 108.20   |
| 34  | AA    | 1991 | U    | O4'-C1'-N1  | 7.23  | 113.99      | 108.20   |
| 1   | A     | 1444 | C    | O4'-C1'-N1  | 7.23  | 113.98      | 108.20   |
| 34  | AA    | 1852 | C    | O4'-C1'-N1  | 7.23  | 113.98      | 108.20   |
| 1   | A     | 158  | C    | O4'-C1'-N1  | 7.23  | 113.98      | 108.20   |
| 1   | A     | 1409 | U    | O4'-C1'-N1  | 7.23  | 113.98      | 108.20   |
| 32  | X     | 114  | TYR  | CB-CG-CD2   | -7.23 | 116.66      | 121.00   |
| 34  | AA    | 216  | C    | O4'-C1'-N1  | 7.23  | 113.98      | 108.20   |
| 1   | A     | 793  | G    | O4'-C1'-N9  | 7.23  | 113.98      | 108.20   |
| 34  | AA    | 3634 | C    | O4'-C1'-N1  | 7.23  | 113.98      | 108.20   |
| 1   | A     | 548  | A    | P-O3'-C3'   | -7.22 | 111.03      | 119.70   |
| 70  | AE    | 280  | TYR  | CB-CG-CD2   | -7.22 | 116.67      | 121.00   |
| 37  | AL    | 190  | ARG  | NE-CZ-NH1   | 7.22  | 123.91      | 120.30   |
| 34  | AA    | 1726 | C    | O4'-C1'-N1  | 7.22  | 113.97      | 108.20   |
| 1   | A     | 1943 | C    | O4'-C1'-N1  | 7.21  | 113.97      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 705  | C    | O4'-C1'-N1  | 7.21  | 113.96      | 108.20   |
| 34  | AA    | 293  | U    | O4'-C1'-N1  | 7.20  | 113.96      | 108.20   |
| 78  | A0    | 31   | ARG  | NE-CZ-NH2   | -7.20 | 116.70      | 120.30   |
| 1   | A     | 494  | G    | O4'-C1'-N9  | 7.20  | 113.96      | 108.20   |
| 34  | AA    | 3029 | G    | O4'-C1'-N9  | 7.20  | 113.96      | 108.20   |
| 70  | AE    | 156  | ARG  | NE-CZ-NH1   | 7.20  | 123.90      | 120.30   |
| 34  | AA    | 2425 | C    | O4'-C1'-N1  | 7.20  | 113.96      | 108.20   |
| 46  | Aa    | 67   | ARG  | NE-CZ-NH2   | -7.20 | 116.70      | 120.30   |
| 1   | A     | 1750 | U    | O4'-C1'-N1  | 7.20  | 113.96      | 108.20   |
| 34  | AA    | 1266 | U    | O4'-C1'-N1  | 7.19  | 113.95      | 108.20   |
| 34  | AA    | 2146 | A    | C1'-O4'-C4' | -7.19 | 104.15      | 109.90   |
| 34  | AA    | 1575 | C    | C6-N1-C2    | -7.19 | 117.42      | 120.30   |
| 34  | AA    | 1818 | C    | O4'-C1'-N1  | 7.19  | 113.95      | 108.20   |
| 1   | A     | 1408 | C    | O4'-C1'-N1  | 7.19  | 113.95      | 108.20   |
| 4   | E     | 132  | ARG  | NE-CZ-NH1   | -7.19 | 116.71      | 120.30   |
| 11  | O     | 23   | TYR  | CB-CG-CD2   | -7.18 | 116.69      | 121.00   |
| 76  | Ag    | 16   | ARG  | NE-CZ-NH1   | 7.18  | 123.89      | 120.30   |
| 1   | A     | 167  | A    | P-O3'-C3'   | 7.18  | 128.32      | 119.70   |
| 1   | A     | 1375 | C    | O4'-C1'-N1  | 7.18  | 113.95      | 108.20   |
| 34  | AA    | 200  | A    | C5-C6-N6    | -7.18 | 117.95      | 123.70   |
| 35  | AC    | 49   | C    | O4'-C1'-N1  | 7.18  | 113.95      | 108.20   |
| 34  | AA    | 944  | U    | O4'-C1'-N1  | 7.18  | 113.94      | 108.20   |
| 34  | AA    | 3319 | C    | O4'-C1'-N1  | 7.17  | 113.94      | 108.20   |
| 70  | AE    | 10   | ARG  | NE-CZ-NH1   | 7.17  | 123.88      | 120.30   |
| 12  | Y     | 108  | ARG  | NE-CZ-NH1   | 7.17  | 123.88      | 120.30   |
| 34  | AA    | 1845 | C    | O4'-C1'-N1  | 7.17  | 113.93      | 108.20   |
| 35  | AC    | 146  | C    | O4'-C1'-N1  | 7.17  | 113.93      | 108.20   |
| 18  | 5     | 42   | ARG  | NE-CZ-NH1   | 7.16  | 123.88      | 120.30   |
| 34  | AA    | 1058 | U    | O4'-C1'-N1  | 7.16  | 113.93      | 108.20   |
| 2   | 7     | 33   | C    | P-O3'-C3'   | -7.16 | 111.11      | 119.70   |
| 34  | AA    | 597  | A    | P-O3'-C3'   | 7.16  | 128.29      | 119.70   |
| 59  | AS    | 39   | ARG  | NE-CZ-NH1   | 7.16  | 123.88      | 120.30   |
| 62  | AR    | 107  | ARG  | NE-CZ-NH1   | 7.16  | 123.88      | 120.30   |
| 34  | AA    | 1722 | C    | O4'-C1'-N1  | 7.16  | 113.93      | 108.20   |
| 34  | AA    | 1806 | C    | O4'-C1'-N1  | 7.16  | 113.93      | 108.20   |
| 58  | AM    | 50   | ARG  | NE-CZ-NH2   | 7.16  | 123.88      | 120.30   |
| 1   | A     | 566  | C    | O4'-C1'-N1  | 7.15  | 113.92      | 108.20   |
| 34  | AA    | 1175 | C    | O4'-C1'-N1  | 7.15  | 113.92      | 108.20   |
| 34  | AA    | 3433 | C    | O4'-C1'-N1  | 7.15  | 113.92      | 108.20   |
| 36  | AB    | 93   | G    | O4'-C1'-N9  | 7.15  | 113.92      | 108.20   |
| 34  | AA    | 451  | C    | O4'-C1'-N1  | 7.15  | 113.92      | 108.20   |
| 34  | AA    | 992  | C    | O4'-C1'-N1  | 7.15  | 113.92      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 3157 | C    | O4'-C1'-N1  | 7.15  | 113.92      | 108.20   |
| 34  | AA    | 2985 | C    | O4'-C1'-N1  | 7.15  | 113.92      | 108.20   |
| 2   | 7     | 66   | C    | O4'-C1'-N1  | 7.15  | 113.92      | 108.20   |
| 34  | AA    | 3240 | C    | O4'-C1'-N1  | 7.14  | 113.92      | 108.20   |
| 34  | AA    | 2570 | C    | O4'-C1'-N1  | 7.14  | 113.91      | 108.20   |
| 1   | A     | 1979 | C    | O4'-C1'-N1  | 7.14  | 113.91      | 108.20   |
| 34  | AA    | 683  | A    | P-O3'-C3'   | 7.14  | 128.27      | 119.70   |
| 29  | T     | 54   | ARG  | NE-CZ-NH2   | 7.13  | 123.87      | 120.30   |
| 34  | AA    | 591  | G    | O4'-C1'-N9  | 7.13  | 113.91      | 108.20   |
| 34  | AA    | 875  | C    | O4'-C1'-N1  | 7.13  | 113.91      | 108.20   |
| 34  | AA    | 1431 | A    | C1'-O4'-C4' | -7.13 | 104.19      | 109.90   |
| 34  | AA    | 2479 | U    | O4'-C1'-N1  | 7.13  | 113.90      | 108.20   |
| 34  | AA    | 233  | C    | O4'-C1'-N1  | 7.13  | 113.90      | 108.20   |
| 34  | AA    | 1076 | C    | O4'-C1'-N1  | 7.13  | 113.90      | 108.20   |
| 34  | AA    | 1644 | U    | C2-N3-C4    | -7.13 | 122.72      | 127.00   |
| 34  | AA    | 2034 | G    | O4'-C1'-N9  | 7.13  | 113.90      | 108.20   |
| 70  | AE    | 19   | ARG  | NE-CZ-NH1   | 7.13  | 123.86      | 120.30   |
| 1   | A     | 1877 | C    | O4'-C1'-N1  | 7.12  | 113.90      | 108.20   |
| 2   | 7     | 24   | C    | O4'-C1'-N1  | 7.12  | 113.90      | 108.20   |
| 1   | A     | 874  | A    | P-O3'-C3'   | 7.12  | 128.24      | 119.70   |
| 34  | AA    | 32   | C    | O4'-C1'-N1  | 7.12  | 113.89      | 108.20   |
| 72  | AG    | 137  | ARG  | NE-CZ-NH2   | 7.12  | 123.86      | 120.30   |
| 21  | F     | 108  | ARG  | NE-CZ-NH1   | 7.12  | 123.86      | 120.30   |
| 34  | AA    | 733  | C    | O4'-C1'-N1  | 7.11  | 113.89      | 108.20   |
| 34  | AA    | 3205 | U    | C2-N1-C1'   | 7.11  | 126.24      | 117.70   |
| 34  | AA    | 2116 | C    | O4'-C1'-N1  | 7.11  | 113.89      | 108.20   |
| 1   | A     | 95   | A    | O4'-C1'-N9  | 7.11  | 113.89      | 108.20   |
| 34  | AA    | 2916 | C    | O4'-C1'-N1  | 7.11  | 113.88      | 108.20   |
| 34  | AA    | 28   | C    | O4'-C1'-N1  | 7.10  | 113.88      | 108.20   |
| 34  | AA    | 2961 | C    | O4'-C1'-N1  | 7.10  | 113.88      | 108.20   |
| 34  | AA    | 3220 | U    | O4'-C1'-N1  | 7.10  | 113.88      | 108.20   |
| 34  | AA    | 2037 | U    | O4'-C1'-N1  | 7.10  | 113.88      | 108.20   |
| 34  | AA    | 1788 | C    | O4'-C1'-N1  | 7.10  | 113.88      | 108.20   |
| 70  | AE    | 244  | ARG  | NE-CZ-NH1   | 7.10  | 123.85      | 120.30   |
| 34  | AA    | 3216 | C    | O4'-C1'-N1  | 7.09  | 113.88      | 108.20   |
| 2   | 7     | 41   | C    | O4'-C1'-N1  | 7.09  | 113.87      | 108.20   |
| 34  | AA    | 542  | A    | C5-C6-N6    | -7.09 | 118.03      | 123.70   |
| 34  | AA    | 3013 | A    | P-O5'-C5'   | 7.09  | 132.24      | 120.90   |
| 2   | 7     | 14   | A    | O4'-C1'-N9  | 7.08  | 113.87      | 108.20   |
| 34  | AA    | 728  | C    | O4'-C1'-N1  | 7.08  | 113.87      | 108.20   |
| 34  | AA    | 1656 | G    | O4'-C1'-N9  | 7.08  | 113.87      | 108.20   |
| 34  | AA    | 489  | U    | P-O3'-C3'   | 7.08  | 128.19      | 119.70   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 1   | A     | 31   | C    | O4'-C1'-N1  | 7.08  | 113.86      | 108.20   |
| 34  | AA    | 2455 | G    | C5-C6-O6    | -7.08 | 124.35      | 128.60   |
| 63  | AW    | 69   | ARG  | NE-CZ-NH1   | 7.07  | 123.84      | 120.30   |
| 34  | AA    | 990  | U    | O4'-C1'-N1  | 7.07  | 113.86      | 108.20   |
| 34  | AA    | 2010 | C    | O4'-C1'-N1  | 7.07  | 113.86      | 108.20   |
| 34  | AA    | 414  | C    | O4'-C1'-N1  | 7.07  | 113.86      | 108.20   |
| 1   | A     | 1980 | A    | O4'-C1'-N9  | 7.07  | 113.85      | 108.20   |
| 34  | AA    | 1769 | U    | O4'-C1'-N1  | 7.06  | 113.85      | 108.20   |
| 1   | A     | 437  | C    | O4'-C1'-N1  | 7.06  | 113.85      | 108.20   |
| 1   | A     | 1404 | U    | O4'-C1'-N1  | 7.06  | 113.85      | 108.20   |
| 1   | A     | 1416 | U    | O4'-C1'-N1  | 7.06  | 113.85      | 108.20   |
| 51  | AP    | 31   | ARG  | NE-CZ-NH2   | -7.06 | 116.77      | 120.30   |
| 1   | A     | 1909 | C    | C6-N1-C2    | -7.06 | 117.48      | 120.30   |
| 34  | AA    | 1155 | C    | O4'-C1'-N1  | 7.06  | 113.85      | 108.20   |
| 77  | AX    | 121  | ARG  | NE-CZ-NH2   | 7.05  | 123.83      | 120.30   |
| 1   | A     | 638  | G    | C5-C6-O6    | -7.05 | 124.37      | 128.60   |
| 65  | AT    | 61   | ARG  | NE-CZ-NH1   | 7.05  | 123.83      | 120.30   |
| 1   | A     | 1440 | C    | O4'-C1'-N1  | 7.05  | 113.84      | 108.20   |
| 34  | AA    | 1020 | C    | O4'-C1'-N1  | 7.05  | 113.84      | 108.20   |
| 27  | Q     | 20   | ARG  | NE-CZ-NH2   | -7.04 | 116.78      | 120.30   |
| 34  | AA    | 83   | U    | O4'-C1'-N1  | 7.04  | 113.84      | 108.20   |
| 34  | AA    | 3511 | C    | O4'-C1'-N1  | 7.04  | 113.83      | 108.20   |
| 68  | A5    | 173  | ARG  | NE-CZ-NH2   | 7.04  | 123.82      | 120.30   |
| 61  | AQ    | 98   | ARG  | NE-CZ-NH2   | 7.04  | 123.82      | 120.30   |
| 1   | A     | 1729 | A    | O4'-C1'-N9  | 7.04  | 113.83      | 108.20   |
| 34  | AA    | 3168 | C    | O4'-C1'-N1  | 7.04  | 113.83      | 108.20   |
| 1   | A     | 1209 | G    | N1-C6-O6    | 7.04  | 124.12      | 119.90   |
| 27  | Q     | 18   | ARG  | NE-CZ-NH1   | 7.04  | 123.82      | 120.30   |
| 35  | AC    | 152  | C    | O4'-C1'-N1  | 7.03  | 113.83      | 108.20   |
| 34  | AA    | 719  | C    | O4'-C1'-N1  | 7.03  | 113.83      | 108.20   |
| 28  | S     | 89   | ARG  | NE-CZ-NH2   | 7.03  | 123.81      | 120.30   |
| 28  | S     | 115  | ARG  | NE-CZ-NH1   | -7.03 | 116.79      | 120.30   |
| 1   | A     | 17   | C    | O4'-C1'-N1  | 7.03  | 113.82      | 108.20   |
| 1   | A     | 586  | A    | C1'-O4'-C4' | -7.03 | 104.28      | 109.90   |
| 1   | A     | 150  | C    | O4'-C1'-N1  | 7.02  | 113.82      | 108.20   |
| 1   | A     | 2079 | C    | O4'-C1'-N1  | 7.02  | 113.82      | 108.20   |
| 34  | AA    | 10   | G    | C5-C6-O6    | -7.02 | 124.39      | 128.60   |
| 57  | AK    | 81   | ARG  | NE-CZ-NH2   | 7.02  | 123.81      | 120.30   |
| 67  | A3    | 64   | ARG  | NE-CZ-NH1   | 7.02  | 123.81      | 120.30   |
| 1   | A     | 1936 | C    | O4'-C1'-N1  | 7.02  | 113.81      | 108.20   |
| 34  | AA    | 3171 | C    | O4'-C1'-N1  | 7.02  | 113.81      | 108.20   |
| 34  | AA    | 674  | U    | O4'-C1'-N1  | 7.01  | 113.81      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 36  | AB    | 67   | C    | O4'-C1'-N1  | 7.01  | 113.81      | 108.20   |
| 65  | AT    | 99   | ARG  | NE-CZ-NH2   | -7.00 | 116.80      | 120.30   |
| 2   | 7     | 74   | A    | O4'-C1'-N9  | 7.00  | 113.80      | 108.20   |
| 34  | AA    | 1440 | C    | O4'-C1'-N1  | 7.00  | 113.80      | 108.20   |
| 34  | AA    | 3695 | C    | O4'-C1'-N1  | 7.00  | 113.80      | 108.20   |
| 1   | A     | 1812 | A    | O4'-C1'-N9  | 7.00  | 113.80      | 108.20   |
| 2   | 7     | 74   | A    | C4'-C3'-C2' | -7.00 | 95.60       | 102.60   |
| 6   | I     | 189  | ARG  | NE-CZ-NH1   | 7.00  | 123.80      | 120.30   |
| 34  | AA    | 82   | U    | O4'-C1'-N1  | 7.00  | 113.80      | 108.20   |
| 34  | AA    | 1827 | C    | O4'-C1'-N1  | 7.00  | 113.80      | 108.20   |
| 36  | AB    | 93   | G    | C5-C6-O6    | -7.00 | 124.40      | 128.60   |
| 59  | AS    | 103  | ARG  | NE-CZ-NH1   | 7.00  | 123.80      | 120.30   |
| 34  | AA    | 1720 | C    | O4'-C1'-N1  | 7.00  | 113.80      | 108.20   |
| 1   | A     | 414  | C    | O4'-C1'-N1  | 6.99  | 113.79      | 108.20   |
| 34  | AA    | 234  | C    | O4'-C1'-N1  | 6.99  | 113.80      | 108.20   |
| 1   | A     | 586  | A    | O4'-C1'-N9  | 6.99  | 113.79      | 108.20   |
| 1   | A     | 2062 | U    | O4'-C1'-N1  | 6.99  | 113.79      | 108.20   |
| 1   | A     | 1267 | C    | O4'-C1'-N1  | 6.99  | 113.79      | 108.20   |
| 34  | AA    | 1430 | A    | O4'-C1'-N9  | 6.99  | 113.79      | 108.20   |
| 34  | AA    | 2955 | C    | O4'-C1'-N1  | 6.99  | 113.79      | 108.20   |
| 34  | AA    | 3131 | A    | O4'-C1'-N9  | 6.99  | 113.79      | 108.20   |
| 34  | AA    | 124  | U    | O4'-C1'-N1  | 6.98  | 113.78      | 108.20   |
| 34  | AA    | 2004 | U    | C2-N3-C4    | -6.98 | 122.81      | 127.00   |
| 34  | AA    | 2099 | C    | O4'-C1'-N1  | 6.98  | 113.79      | 108.20   |
| 34  | AA    | 2444 | C    | O4'-C1'-N1  | 6.98  | 113.79      | 108.20   |
| 34  | AA    | 3070 | C    | O4'-C1'-N1  | 6.98  | 113.79      | 108.20   |
| 34  | AA    | 1452 | U    | O4'-C1'-N1  | 6.98  | 113.78      | 108.20   |
| 34  | AA    | 3782 | A    | P-O3'-C3'   | 6.98  | 128.07      | 119.70   |
| 34  | AA    | 1026 | G    | C5-C6-O6    | -6.97 | 124.42      | 128.60   |
| 34  | AA    | 1265 | C    | O4'-C1'-N1  | 6.97  | 113.78      | 108.20   |
| 63  | AW    | 56   | ARG  | NE-CZ-NH1   | 6.97  | 123.79      | 120.30   |
| 1   | A     | 1886 | C    | O4'-C1'-N1  | 6.97  | 113.77      | 108.20   |
| 34  | AA    | 1797 | A    | N1-C6-N6    | 6.97  | 122.78      | 118.60   |
| 34  | AA    | 138  | C    | O4'-C1'-N1  | 6.97  | 113.77      | 108.20   |
| 61  | AQ    | 3    | ARG  | NE-CZ-NH2   | 6.96  | 123.78      | 120.30   |
| 34  | AA    | 3461 | C    | O4'-C1'-N1  | 6.95  | 113.76      | 108.20   |
| 34  | AA    | 1442 | C    | O4'-C1'-N1  | 6.95  | 113.76      | 108.20   |
| 34  | AA    | 3633 | U    | O4'-C1'-N1  | 6.95  | 113.76      | 108.20   |
| 7   | K     | 121  | THR  | N-CA-CB     | 6.95  | 123.51      | 110.30   |
| 1   | A     | 439  | C    | O4'-C1'-N1  | 6.95  | 113.76      | 108.20   |
| 34  | AA    | 3702 | C    | O4'-C1'-N1  | 6.94  | 113.75      | 108.20   |
| 32  | X     | 47   | ARG  | NE-CZ-NH2   | 6.94  | 123.77      | 120.30   |

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| Mol | Chain | Res  | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 34  | AA    | 3323 | G    | C5-C6-O6   | -6.94 | 124.43      | 128.60   |
| 34  | AA    | 3714 | C    | O4'-C1'-N1 | 6.94  | 113.75      | 108.20   |
| 34  | AA    | 1249 | U    | O4'-C1'-N1 | 6.94  | 113.75      | 108.20   |
| 1   | A     | 932  | U    | O4'-C1'-N1 | 6.94  | 113.75      | 108.20   |
| 1   | A     | 1839 | G    | O4'-C1'-N9 | 6.94  | 113.75      | 108.20   |
| 45  | A9    | 106  | ARG  | NE-CZ-NH1  | 6.94  | 123.77      | 120.30   |
| 34  | AA    | 1825 | C    | O4'-C1'-N1 | 6.93  | 113.75      | 108.20   |
| 1   | A     | 1298 | C    | O4'-C1'-N1 | 6.93  | 113.75      | 108.20   |
| 34  | AA    | 213  | C    | O4'-C1'-N1 | 6.93  | 113.75      | 108.20   |
| 6   | I     | 51   | ARG  | NE-CZ-NH1  | 6.93  | 123.77      | 120.30   |
| 34  | AA    | 937  | C    | O4'-C1'-N1 | 6.93  | 113.74      | 108.20   |
| 1   | A     | 170  | C    | O4'-C1'-N1 | 6.92  | 113.74      | 108.20   |
| 28  | S     | 134  | ARG  | NE-CZ-NH2  | -6.92 | 116.84      | 120.30   |
| 34  | AA    | 210  | C    | O4'-C1'-N1 | 6.92  | 113.74      | 108.20   |
| 34  | AA    | 741  | C    | O4'-C1'-N1 | 6.92  | 113.74      | 108.20   |
| 34  | AA    | 1665 | C    | O4'-C1'-N1 | 6.92  | 113.74      | 108.20   |
| 1   | A     | 1865 | G    | O4'-C1'-N9 | 6.92  | 113.74      | 108.20   |
| 34  | AA    | 2553 | U    | O4'-C1'-N1 | 6.92  | 113.74      | 108.20   |
| 70  | AE    | 30   | ARG  | NE-CZ-NH1  | 6.92  | 123.76      | 120.30   |
| 1   | A     | 300  | C    | O4'-C1'-N1 | 6.92  | 113.73      | 108.20   |
| 34  | AA    | 2624 | C    | O4'-C1'-N1 | 6.92  | 113.73      | 108.20   |
| 34  | AA    | 3005 | C    | O4'-C1'-N1 | 6.92  | 113.73      | 108.20   |
| 70  | AE    | 366  | ARG  | NE-CZ-NH1  | 6.92  | 123.76      | 120.30   |
| 2   | 7     | 16   | U    | O4'-C1'-N1 | 6.92  | 113.73      | 108.20   |
| 21  | F     | 100  | ARG  | NE-CZ-NH1  | 6.91  | 123.76      | 120.30   |
| 34  | AA    | 589  | C    | O4'-C1'-N1 | 6.91  | 113.73      | 108.20   |
| 34  | AA    | 202  | C    | O4'-C1'-N1 | 6.91  | 113.73      | 108.20   |
| 34  | AA    | 2622 | C    | O4'-C1'-N1 | 6.91  | 113.73      | 108.20   |
| 1   | A     | 1198 | U    | O4'-C1'-N1 | 6.91  | 113.73      | 108.20   |
| 34  | AA    | 1035 | G    | C5-C6-O6   | -6.91 | 124.45      | 128.60   |
| 34  | AA    | 1088 | C    | O4'-C1'-N1 | 6.91  | 113.73      | 108.20   |
| 34  | AA    | 1979 | C    | O4'-C1'-N1 | 6.91  | 113.73      | 108.20   |
| 34  | AA    | 306  | C    | O4'-C1'-N1 | 6.91  | 113.73      | 108.20   |
| 34  | AA    | 3324 | U    | O4'-C1'-N1 | 6.91  | 113.73      | 108.20   |
| 36  | AB    | 44   | C    | O4'-C1'-N1 | 6.90  | 113.72      | 108.20   |
| 1   | A     | 408  | U    | O4'-C1'-N1 | 6.90  | 113.72      | 108.20   |
| 34  | AA    | 175  | G    | O4'-C1'-N9 | 6.90  | 113.72      | 108.20   |
| 34  | AA    | 2558 | C    | O4'-C1'-N1 | 6.90  | 113.72      | 108.20   |
| 34  | AA    | 2591 | U    | C2-N1-C1'  | 6.90  | 125.98      | 117.70   |
| 34  | AA    | 3732 | U    | O4'-C1'-N1 | 6.90  | 113.72      | 108.20   |
| 34  | AA    | 3204 | C    | O4'-C1'-N1 | 6.90  | 113.72      | 108.20   |
| 1   | A     | 845  | U    | P-O3'-C3'  | 6.89  | 127.97      | 119.70   |

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| Mol | Chain | Res  | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 1   | A     | 895  | U    | O4'-C1'-N1 | 6.89  | 113.72      | 108.20   |
| 34  | AA    | 3469 | C    | O4'-C1'-N1 | 6.89  | 113.72      | 108.20   |
| 34  | AA    | 3081 | C    | O4'-C1'-N1 | 6.89  | 113.71      | 108.20   |
| 68  | A5    | 86   | ARG  | NE-CZ-NH2  | -6.89 | 116.85      | 120.30   |
| 34  | AA    | 1026 | G    | N1-C6-O6   | 6.89  | 124.03      | 119.90   |
| 34  | AA    | 1823 | C    | O4'-C1'-N1 | 6.89  | 113.71      | 108.20   |
| 34  | AA    | 2689 | G    | O4'-C1'-N9 | 6.89  | 113.71      | 108.20   |
| 34  | AA    | 3381 | A    | P-O3'-C3'  | 6.89  | 127.96      | 119.70   |
| 1   | A     | 1463 | C    | O4'-C1'-N1 | 6.88  | 113.71      | 108.20   |
| 24  | L     | 49   | ARG  | NE-CZ-NH2  | -6.88 | 116.86      | 120.30   |
| 34  | AA    | 701  | C    | O4'-C1'-N1 | 6.88  | 113.70      | 108.20   |
| 34  | AA    | 1200 | C    | O4'-C1'-N1 | 6.88  | 113.70      | 108.20   |
| 51  | AP    | 26   | ARG  | NE-CZ-NH1  | 6.88  | 123.74      | 120.30   |
| 1   | A     | 1817 | U    | P-O3'-C3'  | 6.88  | 127.95      | 119.70   |
| 34  | AA    | 3770 | C    | O4'-C1'-N1 | 6.88  | 113.70      | 108.20   |
| 34  | AA    | 710  | C    | O4'-C1'-N1 | 6.87  | 113.70      | 108.20   |
| 73  | AU    | 21   | ARG  | NE-CZ-NH1  | -6.87 | 116.86      | 120.30   |
| 74  | AH    | 144  | TYR  | CB-CG-CD1  | 6.87  | 125.12      | 121.00   |
| 1   | A     | 818  | C    | O4'-C1'-N1 | 6.87  | 113.70      | 108.20   |
| 1   | A     | 1296 | C    | O4'-C1'-N1 | 6.87  | 113.70      | 108.20   |
| 35  | AC    | 104  | C    | O4'-C1'-N1 | 6.87  | 113.70      | 108.20   |
| 34  | AA    | 2036 | C    | O4'-C1'-N1 | 6.87  | 113.69      | 108.20   |
| 34  | AA    | 1794 | U    | O4'-C1'-N1 | 6.87  | 113.69      | 108.20   |
| 34  | AA    | 3517 | C    | O4'-C1'-N1 | 6.87  | 113.69      | 108.20   |
| 1   | A     | 2064 | C    | O4'-C1'-N1 | 6.86  | 113.69      | 108.20   |
| 34  | AA    | 1457 | G    | C5-C6-O6   | -6.86 | 124.48      | 128.60   |
| 34  | AA    | 1646 | C    | O4'-C1'-N1 | 6.86  | 113.69      | 108.20   |
| 34  | AA    | 3065 | C    | C2-N1-C1'  | 6.86  | 126.35      | 118.80   |
| 1   | A     | 379  | G    | C5-C6-O6   | -6.86 | 124.49      | 128.60   |
| 1   | A     | 2053 | U    | P-O3'-C3'  | 6.86  | 127.93      | 119.70   |
| 57  | AK    | 201  | TYR  | CB-CG-CD1  | 6.85  | 125.11      | 121.00   |
| 34  | AA    | 718  | U    | O4'-C1'-N1 | 6.85  | 113.68      | 108.20   |
| 1   | A     | 979  | C    | O4'-C1'-N1 | 6.85  | 113.68      | 108.20   |
| 1   | A     | 907  | C    | O4'-C1'-N1 | 6.85  | 113.68      | 108.20   |
| 34  | AA    | 3139 | C    | C2-N1-C1'  | 6.85  | 126.33      | 118.80   |
| 34  | AA    | 1725 | U    | O4'-C1'-N1 | 6.84  | 113.67      | 108.20   |
| 34  | AA    | 525  | U    | O4'-C1'-N1 | 6.84  | 113.67      | 108.20   |
| 34  | AA    | 1679 | U    | O4'-C1'-N1 | 6.84  | 113.67      | 108.20   |
| 1   | A     | 2023 | A    | N1-C6-N6   | 6.84  | 122.70      | 118.60   |
| 20  | B     | 220  | ARG  | NE-CZ-NH2  | 6.83  | 123.72      | 120.30   |
| 1   | A     | 415  | C    | O4'-C1'-N1 | 6.83  | 113.67      | 108.20   |
| 3   | D     | 167  | ARG  | NE-CZ-NH1  | 6.83  | 123.72      | 120.30   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 31  | V     | 70   | ARG  | NE-CZ-NH1   | 6.83  | 123.72      | 120.30   |
| 34  | AA    | 1031 | G    | N3-C2-N2    | 6.83  | 124.68      | 119.90   |
| 34  | AA    | 3739 | A    | O4'-C1'-N9  | 6.83  | 113.66      | 108.20   |
| 34  | AA    | 1575 | C    | C5'-C4'-O4' | 6.83  | 117.29      | 109.10   |
| 34  | AA    | 1757 | C    | O4'-C1'-N1  | 6.82  | 113.66      | 108.20   |
| 34  | AA    | 3258 | C    | O4'-C1'-N1  | 6.82  | 113.66      | 108.20   |
| 34  | AA    | 3352 | G    | C5-C6-O6    | -6.82 | 124.50      | 128.60   |
| 34  | AA    | 3053 | G    | O4'-C1'-N9  | 6.82  | 113.66      | 108.20   |
| 1   | A     | 1635 | C    | C2-N1-C1'   | 6.82  | 126.30      | 118.80   |
| 34  | AA    | 1506 | C    | O4'-C1'-N1  | 6.82  | 113.66      | 108.20   |
| 1   | A     | 1956 | A    | N1-C6-N6    | 6.82  | 122.69      | 118.60   |
| 34  | AA    | 2934 | A    | O4'-C1'-N9  | 6.82  | 113.65      | 108.20   |
| 1   | A     | 953  | C    | O4'-C1'-N1  | 6.82  | 113.65      | 108.20   |
| 34  | AA    | 1301 | U    | O4'-C1'-N1  | 6.82  | 113.65      | 108.20   |
| 34  | AA    | 3209 | G    | C5-C6-O6    | -6.82 | 124.51      | 128.60   |
| 1   | A     | 621  | C    | O4'-C1'-N1  | 6.81  | 113.65      | 108.20   |
| 3   | D     | 76   | ARG  | NE-CZ-NH1   | 6.81  | 123.71      | 120.30   |
| 34  | AA    | 1502 | G    | C5'-C4'-O4' | 6.81  | 117.28      | 109.10   |
| 34  | AA    | 1539 | U    | O4'-C1'-N1  | 6.81  | 113.65      | 108.20   |
| 1   | A     | 1377 | U    | O4'-C1'-N1  | 6.81  | 113.65      | 108.20   |
| 25  | N     | 79   | PHE  | CB-CG-CD1   | 6.81  | 125.56      | 120.80   |
| 26  | P     | 128  | ARG  | NE-CZ-NH1   | -6.81 | 116.90      | 120.30   |
| 70  | AE    | 272  | ARG  | NE-CZ-NH1   | -6.81 | 116.90      | 120.30   |
| 34  | AA    | 577  | U    | O4'-C1'-N1  | 6.80  | 113.64      | 108.20   |
| 34  | AA    | 3783 | G    | C5'-C4'-O4' | 6.80  | 117.26      | 109.10   |
| 34  | AA    | 3020 | U    | O4'-C1'-N1  | 6.80  | 113.64      | 108.20   |
| 35  | AC    | 148  | C    | O4'-C1'-N1  | 6.80  | 113.64      | 108.20   |
| 34  | AA    | 982  | C    | O4'-C1'-N1  | 6.80  | 113.64      | 108.20   |
| 1   | A     | 323  | C    | O4'-C1'-N1  | 6.79  | 113.63      | 108.20   |
| 35  | AC    | 61   | C    | O4'-C1'-N1  | 6.79  | 113.63      | 108.20   |
| 46  | Aa    | 58   | ARG  | NE-CZ-NH1   | -6.79 | 116.90      | 120.30   |
| 34  | AA    | 92   | G    | C5-C6-O6    | -6.79 | 124.53      | 128.60   |
| 34  | AA    | 146  | U    | O4'-C1'-N1  | 6.79  | 113.63      | 108.20   |
| 34  | AA    | 3414 | G    | P-O3'-C3'   | 6.79  | 127.85      | 119.70   |
| 34  | AA    | 127  | U    | O4'-C1'-N1  | 6.79  | 113.63      | 108.20   |
| 34  | AA    | 349  | G    | N1-C6-O6    | 6.79  | 123.97      | 119.90   |
| 34  | AA    | 2810 | A    | P-O3'-C3'   | 6.79  | 127.84      | 119.70   |
| 2   | 7     | 73   | C    | C6-N1-C1'   | -6.78 | 112.66      | 120.80   |
| 34  | AA    | 3160 | A    | O4'-C1'-N9  | 6.78  | 113.63      | 108.20   |
| 56  | Ac    | 48   | ARG  | NE-CZ-NH1   | 6.78  | 123.69      | 120.30   |
| 34  | AA    | 2635 | C    | O4'-C1'-N1  | 6.78  | 113.62      | 108.20   |
| 34  | AA    | 1086 | C    | O4'-C1'-N1  | 6.78  | 113.62      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 1631 | A    | C5'-C4'-O4' | 6.78  | 117.24      | 109.10   |
| 34  | AA    | 873  | U    | P-O3'-C3'   | 6.78  | 127.83      | 119.70   |
| 32  | X     | 42   | ARG  | NE-CZ-NH1   | 6.78  | 123.69      | 120.30   |
| 34  | AA    | 231  | G    | O4'-C1'-N9  | 6.78  | 113.62      | 108.20   |
| 34  | AA    | 3738 | U    | O4'-C1'-N1  | 6.78  | 113.62      | 108.20   |
| 2   | 7     | 32   | U    | P-O3'-C3'   | 6.77  | 127.83      | 119.70   |
| 34  | AA    | 3257 | G    | C5-C6-O6    | -6.77 | 124.54      | 128.60   |
| 34  | AA    | 467  | U    | O4'-C1'-N1  | 6.77  | 113.62      | 108.20   |
| 34  | AA    | 623  | U    | O4'-C1'-N1  | 6.77  | 113.62      | 108.20   |
| 34  | AA    | 1849 | U    | O4'-C1'-N1  | 6.77  | 113.62      | 108.20   |
| 34  | AA    | 3301 | C    | P-O3'-C3'   | -6.77 | 111.58      | 119.70   |
| 1   | A     | 1835 | U    | O4'-C1'-N1  | 6.77  | 113.61      | 108.20   |
| 49  | Ae    | 42   | ARG  | NE-CZ-NH2   | -6.77 | 116.92      | 120.30   |
| 1   | A     | 360  | C    | O4'-C1'-N1  | 6.77  | 113.61      | 108.20   |
| 34  | AA    | 1336 | U    | P-O3'-C3'   | -6.77 | 111.58      | 119.70   |
| 1   | A     | 1687 | C    | O4'-C1'-N1  | 6.76  | 113.61      | 108.20   |
| 63  | AW    | 23   | ARG  | NE-CZ-NH1   | 6.76  | 123.68      | 120.30   |
| 16  | 3     | 93   | ARG  | NE-CZ-NH2   | 6.76  | 123.68      | 120.30   |
| 34  | AA    | 857  | C    | O4'-C1'-N1  | 6.76  | 113.61      | 108.20   |
| 1   | A     | 868  | U    | P-O3'-C3'   | 6.76  | 127.81      | 119.70   |
| 53  | Ai    | 40   | ARG  | NE-CZ-NH1   | 6.76  | 123.68      | 120.30   |
| 1   | A     | 1061 | A    | O4'-C1'-N9  | 6.76  | 113.61      | 108.20   |
| 1   | A     | 1916 | C    | O4'-C1'-N1  | 6.76  | 113.61      | 108.20   |
| 7   | K     | 97   | ARG  | NE-CZ-NH1   | 6.76  | 123.68      | 120.30   |
| 34  | AA    | 306  | C    | C6-N1-C1'   | -6.76 | 112.69      | 120.80   |
| 46  | Aa    | 67   | ARG  | NE-CZ-NH1   | 6.76  | 123.68      | 120.30   |
| 1   | A     | 344  | C    | O4'-C1'-N1  | 6.76  | 113.61      | 108.20   |
| 34  | AA    | 3456 | C    | O4'-C1'-N1  | 6.76  | 113.61      | 108.20   |
| 34  | AA    | 3545 | U    | O4'-C1'-N1  | 6.76  | 113.61      | 108.20   |
| 35  | AC    | 15   | C    | O4'-C1'-N1  | 6.76  | 113.61      | 108.20   |
| 34  | AA    | 3265 | C    | O4'-C1'-N1  | 6.75  | 113.60      | 108.20   |
| 22  | H     | 186  | ARG  | NE-CZ-NH1   | 6.75  | 123.68      | 120.30   |
| 34  | AA    | 1840 | C    | O4'-C1'-N1  | 6.75  | 113.60      | 108.20   |
| 34  | AA    | 2993 | C    | O4'-C1'-N1  | 6.75  | 113.60      | 108.20   |
| 2   | 7     | 26   | C    | O4'-C1'-N1  | 6.75  | 113.60      | 108.20   |
| 35  | AC    | 68   | C    | O4'-C1'-N1  | 6.75  | 113.60      | 108.20   |
| 1   | A     | 1310 | C    | O4'-C1'-N1  | 6.75  | 113.60      | 108.20   |
| 43  | AN    | 60   | PHE  | CB-CG-CD1   | -6.75 | 116.08      | 120.80   |
| 1   | A     | 270  | C    | O4'-C1'-N1  | 6.75  | 113.60      | 108.20   |
| 49  | Ae    | 41   | ARG  | NE-CZ-NH1   | 6.75  | 123.67      | 120.30   |
| 1   | A     | 909  | U    | O4'-C1'-N1  | 6.75  | 113.60      | 108.20   |
| 34  | AA    | 1117 | U    | O4'-C1'-N1  | 6.74  | 113.59      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 2700 | C    | O4'-C1'-N1  | 6.74  | 113.60      | 108.20   |
| 2   | 7     | 45   | A    | P-O3'-C3'   | 6.74  | 127.79      | 119.70   |
| 34  | AA    | 1572 | U    | C2-N1-C1'   | 6.74  | 125.79      | 117.70   |
| 1   | A     | 1012 | C    | O4'-C1'-N1  | 6.74  | 113.59      | 108.20   |
| 34  | AA    | 2498 | U    | O4'-C1'-N1  | 6.74  | 113.59      | 108.20   |
| 34  | AA    | 348  | C    | O4'-C1'-N1  | 6.74  | 113.59      | 108.20   |
| 7   | K     | 57   | ARG  | NE-CZ-NH1   | 6.73  | 123.67      | 120.30   |
| 36  | AB    | 57   | C    | O4'-C1'-N1  | 6.73  | 113.59      | 108.20   |
| 1   | A     | 553  | U    | O4'-C1'-N1  | 6.73  | 113.58      | 108.20   |
| 35  | AC    | 121  | C    | O4'-C1'-N1  | 6.73  | 113.59      | 108.20   |
| 1   | A     | 1922 | C    | O4'-C1'-N1  | 6.73  | 113.58      | 108.20   |
| 35  | AC    | 103  | G    | C5-C6-O6    | -6.73 | 124.56      | 128.60   |
| 34  | AA    | 1167 | U    | O4'-C1'-N1  | 6.73  | 113.58      | 108.20   |
| 34  | AA    | 1692 | C    | O4'-C1'-N1  | 6.73  | 113.58      | 108.20   |
| 1   | A     | 1686 | C    | O4'-C1'-N1  | 6.72  | 113.58      | 108.20   |
| 34  | AA    | 1000 | C    | O4'-C1'-N1  | 6.72  | 113.58      | 108.20   |
| 34  | AA    | 3275 | C    | O4'-C1'-N1  | 6.72  | 113.58      | 108.20   |
| 34  | AA    | 182  | U    | O4'-C1'-N1  | 6.72  | 113.58      | 108.20   |
| 36  | AB    | 46   | C    | O4'-C1'-N1  | 6.72  | 113.58      | 108.20   |
| 1   | A     | 2005 | U    | O4'-C1'-N1  | 6.72  | 113.58      | 108.20   |
| 34  | AA    | 39   | A    | O4'-C1'-N9  | 6.72  | 113.58      | 108.20   |
| 71  | AF    | 248  | ARG  | NE-CZ-NH1   | 6.72  | 123.66      | 120.30   |
| 34  | AA    | 667  | U    | C2-N1-C1'   | 6.72  | 125.76      | 117.70   |
| 34  | AA    | 1139 | C    | O4'-C1'-N1  | 6.72  | 113.57      | 108.20   |
| 1   | A     | 458  | A    | O4'-C1'-N9  | 6.71  | 113.57      | 108.20   |
| 1   | A     | 1362 | U    | O4'-C1'-N1  | 6.71  | 113.57      | 108.20   |
| 34  | AA    | 109  | A    | P-O3'-C3'   | 6.71  | 127.76      | 119.70   |
| 34  | AA    | 999  | G    | O4'-C1'-N9  | 6.71  | 113.57      | 108.20   |
| 34  | AA    | 2396 | C    | C6-N1-C2    | -6.71 | 117.61      | 120.30   |
| 1   | A     | 540  | C    | O4'-C1'-N1  | 6.71  | 113.56      | 108.20   |
| 34  | AA    | 966  | A    | C5-C6-N6    | -6.71 | 118.34      | 123.70   |
| 34  | AA    | 3021 | C    | O4'-C1'-N1  | 6.71  | 113.56      | 108.20   |
| 1   | A     | 396  | G    | O4'-C1'-N9  | 6.70  | 113.56      | 108.20   |
| 34  | AA    | 1657 | U    | O4'-C1'-N1  | 6.70  | 113.56      | 108.20   |
| 34  | AA    | 3419 | U    | O4'-C1'-N1  | 6.70  | 113.56      | 108.20   |
| 1   | A     | 475  | C    | O4'-C1'-N1  | 6.70  | 113.56      | 108.20   |
| 1   | A     | 1169 | C    | O4'-C1'-N1  | 6.70  | 113.56      | 108.20   |
| 34  | AA    | 1661 | U    | O4'-C1'-N1  | 6.70  | 113.56      | 108.20   |
| 34  | AA    | 3023 | C    | O4'-C1'-N1  | 6.70  | 113.56      | 108.20   |
| 1   | A     | 433  | C    | O4'-C1'-N1  | 6.70  | 113.56      | 108.20   |
| 1   | A     | 1845 | U    | C5'-C4'-C3' | -6.70 | 105.29      | 116.00   |
| 35  | AC    | 141  | U    | O4'-C1'-N1  | 6.70  | 113.56      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 3619 | U    | O4'-C1'-N1  | 6.69  | 113.55      | 108.20   |
| 1   | A     | 15   | U    | O4'-C1'-N1  | 6.69  | 113.55      | 108.20   |
| 1   | A     | 1644 | U    | O4'-C1'-N1  | 6.69  | 113.55      | 108.20   |
| 1   | A     | 1749 | C    | O4'-C1'-N1  | 6.69  | 113.55      | 108.20   |
| 34  | AA    | 3046 | C    | O4'-C1'-N1  | 6.69  | 113.55      | 108.20   |
| 1   | A     | 200  | U    | O4'-C1'-N1  | 6.69  | 113.55      | 108.20   |
| 34  | AA    | 2171 | U    | O4'-C1'-N1  | 6.69  | 113.55      | 108.20   |
| 1   | A     | 2085 | G    | P-O3'-C3'   | -6.69 | 111.68      | 119.70   |
| 34  | AA    | 1480 | G    | C5-C6-O6    | -6.69 | 124.59      | 128.60   |
| 34  | AA    | 2542 | G    | O4'-C1'-N9  | 6.69  | 113.55      | 108.20   |
| 1   | A     | 536  | C    | O4'-C1'-N1  | 6.68  | 113.54      | 108.20   |
| 69  | AD    | 242  | ARG  | NE-CZ-NH2   | 6.68  | 123.64      | 120.30   |
| 13  | Z     | 72   | MET  | CG-SD-CE    | -6.67 | 89.52       | 100.20   |
| 45  | A9    | 127  | PHE  | CB-CG-CD1   | 6.67  | 125.47      | 120.80   |
| 1   | A     | 572  | C    | O4'-C1'-N1  | 6.67  | 113.54      | 108.20   |
| 34  | AA    | 2409 | G    | O4'-C1'-N9  | 6.67  | 113.54      | 108.20   |
| 34  | AA    | 3139 | C    | C5'-C4'-O4' | 6.67  | 117.11      | 109.10   |
| 51  | AP    | 144  | ARG  | NE-CZ-NH1   | 6.67  | 123.64      | 120.30   |
| 34  | AA    | 3407 | G    | N1-C6-O6    | 6.67  | 123.90      | 119.90   |
| 1   | A     | 1781 | C    | O4'-C1'-N1  | 6.67  | 113.53      | 108.20   |
| 34  | AA    | 796  | C    | O4'-C1'-N1  | 6.67  | 113.53      | 108.20   |
| 70  | AE    | 280  | TYR  | CB-CG-CD1   | 6.67  | 125.00      | 121.00   |
| 1   | A     | 597  | C    | O4'-C1'-N1  | 6.66  | 113.53      | 108.20   |
| 1   | A     | 2085 | G    | C5-C6-O6    | -6.66 | 124.60      | 128.60   |
| 34  | AA    | 1618 | C    | P-O3'-C3'   | -6.66 | 111.70      | 119.70   |
| 1   | A     | 1300 | G    | O4'-C1'-N9  | 6.66  | 113.53      | 108.20   |
| 34  | AA    | 1041 | U    | C2-N1-C1'   | 6.66  | 125.69      | 117.70   |
| 34  | AA    | 2402 | U    | O4'-C1'-N1  | 6.66  | 113.53      | 108.20   |
| 34  | AA    | 2495 | C    | O4'-C1'-N1  | 6.66  | 113.53      | 108.20   |
| 69  | AD    | 242  | ARG  | NE-CZ-NH1   | -6.65 | 116.97      | 120.30   |
| 34  | AA    | 1751 | C    | C6-N1-C2    | -6.65 | 117.64      | 120.30   |
| 34  | AA    | 3673 | C    | O4'-C1'-N1  | 6.65  | 113.52      | 108.20   |
| 28  | S     | 115  | ARG  | NE-CZ-NH2   | 6.65  | 123.63      | 120.30   |
| 1   | A     | 2084 | G    | O4'-C1'-N9  | 6.65  | 113.52      | 108.20   |
| 34  | AA    | 2883 | U    | O4'-C1'-N1  | 6.65  | 113.52      | 108.20   |
| 34  | AA    | 2972 | U    | O4'-C1'-N1  | 6.65  | 113.52      | 108.20   |
| 34  | AA    | 3640 | C    | O4'-C1'-N1  | 6.65  | 113.52      | 108.20   |
| 1   | A     | 1425 | C    | O4'-C1'-N1  | 6.65  | 113.52      | 108.20   |
| 34  | AA    | 957  | G    | C5-C6-O6    | -6.65 | 124.61      | 128.60   |
| 34  | AA    | 3437 | U    | O4'-C1'-N1  | 6.64  | 113.52      | 108.20   |
| 1   | A     | 836  | C    | O4'-C1'-N1  | 6.64  | 113.51      | 108.20   |
| 76  | Ag    | 35   | ARG  | NE-CZ-NH1   | 6.64  | 123.62      | 120.30   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 3226 | C    | O4'-C1'-N1  | 6.64  | 113.51      | 108.20   |
| 35  | AC    | 113  | A    | P-O3'-C3'   | 6.64  | 127.66      | 119.70   |
| 34  | AA    | 1537 | G    | C5'-C4'-C3' | -6.63 | 105.38      | 116.00   |
| 71  | AF    | 291  | ARG  | NE-CZ-NH2   | -6.63 | 116.98      | 120.30   |
| 34  | AA    | 1480 | G    | C4-N9-C1'   | 6.63  | 135.12      | 126.50   |
| 34  | AA    | 3407 | G    | C5-C6-O6    | -6.63 | 124.62      | 128.60   |
| 34  | AA    | 821  | C    | O4'-C1'-N1  | 6.63  | 113.50      | 108.20   |
| 56  | Ac    | 24   | ARG  | NE-CZ-NH2   | 6.63  | 123.61      | 120.30   |
| 63  | AW    | 82   | ARG  | NE-CZ-NH2   | -6.63 | 116.98      | 120.30   |
| 1   | A     | 179  | U    | O4'-C1'-N1  | 6.63  | 113.50      | 108.20   |
| 1   | A     | 1019 | C    | O4'-C1'-N1  | 6.63  | 113.50      | 108.20   |
| 11  | O     | 23   | TYR  | CB-CG-CD1   | 6.63  | 124.98      | 121.00   |
| 36  | AB    | 24   | U    | O4'-C1'-N1  | 6.63  | 113.50      | 108.20   |
| 1   | A     | 25   | C    | P-O3'-C3'   | 6.63  | 127.65      | 119.70   |
| 34  | AA    | 1995 | C    | O4'-C1'-N1  | 6.62  | 113.50      | 108.20   |
| 1   | A     | 1906 | U    | O4'-C1'-N1  | 6.62  | 113.50      | 108.20   |
| 34  | AA    | 660  | U    | O4'-C1'-N1  | 6.62  | 113.50      | 108.20   |
| 2   | 7     | 7    | U    | P-O3'-C3'   | 6.62  | 127.65      | 119.70   |
| 75  | AV    | 37   | TYR  | CB-CG-CD2   | -6.62 | 117.03      | 121.00   |
| 1   | A     | 570  | U    | O4'-C1'-N1  | 6.62  | 113.49      | 108.20   |
| 1   | A     | 2027 | C    | O4'-C1'-N1  | 6.62  | 113.49      | 108.20   |
| 2   | 7     | 40   | U    | O4'-C1'-N1  | 6.62  | 113.49      | 108.20   |
| 1   | A     | 551  | A    | P-O3'-C3'   | 6.61  | 127.64      | 119.70   |
| 34  | AA    | 29   | C    | O4'-C1'-N1  | 6.61  | 113.49      | 108.20   |
| 36  | AB    | 36   | C    | O4'-C1'-N1  | 6.61  | 113.49      | 108.20   |
| 34  | AA    | 3095 | C    | O4'-C1'-N1  | 6.61  | 113.49      | 108.20   |
| 34  | AA    | 3115 | C    | O4'-C1'-N1  | 6.61  | 113.49      | 108.20   |
| 34  | AA    | 3632 | U    | C2-N3-C4    | -6.61 | 123.03      | 127.00   |
| 1   | A     | 1893 | C    | O4'-C1'-N1  | 6.61  | 113.48      | 108.20   |
| 36  | AB    | 92   | C    | O4'-C1'-N1  | 6.60  | 113.48      | 108.20   |
| 34  | AA    | 3288 | C    | O4'-C1'-N1  | 6.60  | 113.48      | 108.20   |
| 35  | AC    | 78   | U    | C2-N1-C1'   | 6.60  | 125.62      | 117.70   |
| 1   | A     | 420  | C    | O4'-C1'-N1  | 6.60  | 113.48      | 108.20   |
| 34  | AA    | 3186 | U    | O4'-C1'-N1  | 6.60  | 113.48      | 108.20   |
| 34  | AA    | 1002 | A    | P-O3'-C3'   | -6.59 | 111.79      | 119.70   |
| 34  | AA    | 2991 | U    | O4'-C1'-N1  | 6.59  | 113.47      | 108.20   |
| 27  | Q     | 13   | ARG  | NE-CZ-NH1   | -6.59 | 117.00      | 120.30   |
| 34  | AA    | 3159 | G    | C5-C6-O6    | -6.59 | 124.64      | 128.60   |
| 1   | A     | 522  | G    | C5-C6-O6    | -6.59 | 124.65      | 128.60   |
| 35  | AC    | 32   | C    | O4'-C1'-N1  | 6.59  | 113.47      | 108.20   |
| 34  | AA    | 1302 | G    | O4'-C1'-N9  | 6.58  | 113.47      | 108.20   |
| 1   | A     | 1796 | C    | C5'-C4'-C3' | -6.58 | 105.47      | 116.00   |

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| Mol | Chain | Res  | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 4   | E     | 40   | ARG  | NE-CZ-NH1  | 6.58  | 123.59      | 120.30   |
| 34  | AA    | 941  | G    | O4'-C1'-N9 | 6.58  | 113.47      | 108.20   |
| 34  | AA    | 1430 | A    | P-O3'-C3'  | -6.58 | 111.80      | 119.70   |
| 34  | AA    | 3404 | C    | O4'-C1'-N1 | 6.58  | 113.46      | 108.20   |
| 34  | AA    | 298  | C    | O4'-C1'-N1 | 6.58  | 113.46      | 108.20   |
| 1   | A     | 1313 | G    | O4'-C1'-N9 | 6.58  | 113.46      | 108.20   |
| 34  | AA    | 860  | A    | O4'-C1'-N9 | 6.58  | 113.46      | 108.20   |
| 34  | AA    | 2216 | G    | C5-C6-O6   | -6.58 | 124.65      | 128.60   |
| 1   | A     | 1461 | C    | O4'-C1'-N1 | 6.57  | 113.46      | 108.20   |
| 34  | AA    | 573  | U    | O4'-C1'-N1 | 6.57  | 113.46      | 108.20   |
| 34  | AA    | 3774 | A    | O4'-C1'-N9 | 6.57  | 113.46      | 108.20   |
| 61  | AQ    | 69   | ARG  | NE-CZ-NH1  | 6.57  | 123.59      | 120.30   |
| 1   | A     | 1851 | C    | O4'-C1'-N1 | 6.57  | 113.46      | 108.20   |
| 8   | M     | 43   | TYR  | CB-CG-CD1  | 6.57  | 124.94      | 121.00   |
| 34  | AA    | 3401 | C    | O4'-C1'-N1 | 6.57  | 113.45      | 108.20   |
| 72  | AG    | 143  | ARG  | NE-CZ-NH1  | 6.57  | 123.58      | 120.30   |
| 35  | AC    | 138  | U    | P-O3'-C3'  | 6.57  | 127.58      | 119.70   |
| 50  | Af    | 35   | ARG  | NE-CZ-NH1  | 6.57  | 123.58      | 120.30   |
| 27  | Q     | 16   | ARG  | NE-CZ-NH2  | 6.57  | 123.58      | 120.30   |
| 34  | AA    | 434  | C    | O4'-C1'-N1 | 6.57  | 113.45      | 108.20   |
| 34  | AA    | 1013 | U    | O4'-C1'-N1 | 6.57  | 113.45      | 108.20   |
| 30  | U     | 3    | ARG  | NE-CZ-NH1  | 6.56  | 123.58      | 120.30   |
| 32  | X     | 114  | TYR  | CB-CG-CD1  | 6.56  | 124.94      | 121.00   |
| 34  | AA    | 3144 | C    | O4'-C1'-N1 | 6.56  | 113.45      | 108.20   |
| 34  | AA    | 2727 | U    | C6-N1-C1'  | -6.56 | 112.01      | 121.20   |
| 53  | Ai    | 33   | ARG  | NE-CZ-NH2  | -6.56 | 117.02      | 120.30   |
| 34  | AA    | 1241 | G    | C5-C6-O6   | -6.56 | 124.67      | 128.60   |
| 1   | A     | 1900 | U    | O4'-C1'-N1 | 6.55  | 113.44      | 108.20   |
| 34  | AA    | 2703 | U    | O4'-C1'-N1 | 6.55  | 113.44      | 108.20   |
| 34  | AA    | 1689 | U    | O4'-C1'-N1 | 6.55  | 113.44      | 108.20   |
| 34  | AA    | 2528 | C    | O4'-C1'-N1 | 6.55  | 113.44      | 108.20   |
| 34  | AA    | 1049 | C    | O4'-C1'-N1 | 6.55  | 113.44      | 108.20   |
| 35  | AC    | 51   | C    | O4'-C1'-N1 | 6.55  | 113.44      | 108.20   |
| 65  | AT    | 135  | ARG  | NE-CZ-NH1  | 6.55  | 123.57      | 120.30   |
| 1   | A     | 908  | U    | O4'-C1'-N1 | 6.55  | 113.44      | 108.20   |
| 34  | AA    | 126  | C    | O4'-C1'-N1 | 6.55  | 113.44      | 108.20   |
| 2   | 7     | 62   | C    | O4'-C1'-N1 | 6.55  | 113.44      | 108.20   |
| 33  | C     | 35   | ARG  | NE-CZ-NH2  | 6.55  | 123.57      | 120.30   |
| 34  | AA    | 136  | U    | C6-N1-C1'  | -6.54 | 112.04      | 121.20   |
| 34  | AA    | 686  | U    | O4'-C1'-N1 | 6.54  | 113.43      | 108.20   |
| 45  | A9    | 127  | PHE  | CB-CG-CD2  | -6.54 | 116.22      | 120.80   |
| 67  | A3    | 69   | ARG  | NE-CZ-NH1  | 6.54  | 123.57      | 120.30   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 1   | A     | 1706 | A    | O4'-C1'-N9  | 6.54  | 113.43      | 108.20   |
| 4   | E     | 132  | ARG  | NE-CZ-NH2   | 6.54  | 123.57      | 120.30   |
| 14  | 1     | 8    | ARG  | NE-CZ-NH1   | 6.54  | 123.57      | 120.30   |
| 1   | A     | 379  | G    | O4'-C1'-N9  | 6.54  | 113.43      | 108.20   |
| 37  | AL    | 38   | ARG  | NE-CZ-NH1   | 6.53  | 123.57      | 120.30   |
| 34  | AA    | 3105 | U    | O4'-C1'-N1  | 6.53  | 113.42      | 108.20   |
| 36  | AB    | 105  | C    | O4'-C1'-N1  | 6.53  | 113.42      | 108.20   |
| 1   | A     | 449  | C    | O4'-C1'-N1  | 6.53  | 113.42      | 108.20   |
| 1   | A     | 1791 | C    | O4'-C1'-N1  | 6.53  | 113.42      | 108.20   |
| 34  | AA    | 2209 | C    | O4'-C1'-N1  | 6.53  | 113.42      | 108.20   |
| 34  | AA    | 3399 | U    | O4'-C1'-N1  | 6.53  | 113.42      | 108.20   |
| 65  | AT    | 63   | ARG  | NE-CZ-NH1   | 6.53  | 123.56      | 120.30   |
| 63  | AW    | 69   | ARG  | NE-CZ-NH2   | -6.52 | 117.04      | 120.30   |
| 18  | 5     | 26   | ARG  | NE-CZ-NH1   | 6.52  | 123.56      | 120.30   |
| 34  | AA    | 1961 | U    | O4'-C1'-N1  | 6.52  | 113.42      | 108.20   |
| 1   | A     | 1044 | C    | O4'-C1'-N1  | 6.52  | 113.42      | 108.20   |
| 34  | AA    | 11   | A    | O4'-C1'-N9  | 6.52  | 113.42      | 108.20   |
| 34  | AA    | 31   | C    | C6-N1-C2    | -6.52 | 117.69      | 120.30   |
| 34  | AA    | 600  | U    | O4'-C1'-N1  | 6.52  | 113.42      | 108.20   |
| 34  | AA    | 3653 | G    | O4'-C1'-N9  | 6.52  | 113.42      | 108.20   |
| 34  | AA    | 590  | C    | O4'-C1'-N1  | 6.52  | 113.42      | 108.20   |
| 34  | AA    | 2480 | G    | C5'-C4'-O4' | 6.52  | 116.92      | 109.10   |
| 34  | AA    | 833  | G    | P-O5'-C5'   | 6.51  | 131.32      | 120.90   |
| 34  | AA    | 2685 | C    | O4'-C1'-N1  | 6.51  | 113.41      | 108.20   |
| 34  | AA    | 3429 | C    | O4'-C1'-N1  | 6.51  | 113.41      | 108.20   |
| 70  | AE    | 26   | ARG  | NE-CZ-NH1   | 6.51  | 123.56      | 120.30   |
| 1   | A     | 36   | C    | O4'-C1'-N1  | 6.51  | 113.41      | 108.20   |
| 34  | AA    | 312  | A    | O4'-C1'-N9  | 6.51  | 113.41      | 108.20   |
| 34  | AA    | 616  | U    | O4'-C1'-N1  | 6.51  | 113.41      | 108.20   |
| 71  | AF    | 109  | ARG  | NE-CZ-NH2   | 6.51  | 123.56      | 120.30   |
| 71  | AF    | 121  | ARG  | NE-CZ-NH2   | -6.51 | 117.05      | 120.30   |
| 34  | AA    | 493  | C    | O4'-C1'-N1  | 6.51  | 113.41      | 108.20   |
| 35  | AC    | 120  | C    | O4'-C1'-N1  | 6.51  | 113.41      | 108.20   |
| 1   | A     | 268  | C    | O4'-C1'-N1  | 6.50  | 113.40      | 108.20   |
| 1   | A     | 12   | U    | O4'-C1'-N1  | 6.50  | 113.40      | 108.20   |
| 66  | AZ    | 45   | ARG  | NE-CZ-NH1   | 6.50  | 123.55      | 120.30   |
| 71  | AF    | 110  | ARG  | NE-CZ-NH1   | 6.50  | 123.55      | 120.30   |
| 1   | A     | 994  | G    | N1-C6-O6    | 6.50  | 123.80      | 119.90   |
| 34  | AA    | 2092 | G    | C5-C6-O6    | -6.50 | 124.70      | 128.60   |
| 37  | AL    | 100  | ARG  | NE-CZ-NH2   | 6.50  | 123.55      | 120.30   |
| 1   | A     | 118  | U    | O4'-C1'-N1  | 6.50  | 113.40      | 108.20   |
| 1   | A     | 1018 | U    | O4'-C1'-N1  | 6.50  | 113.40      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 1   | A     | 1911 | A    | O4'-C1'-N9  | 6.50  | 113.40      | 108.20   |
| 34  | AA    | 1615 | G    | C5-C6-O6    | -6.50 | 124.70      | 128.60   |
| 70  | AE    | 117  | ARG  | NE-CZ-NH2   | 6.50  | 123.55      | 120.30   |
| 35  | AC    | 40   | G    | N1-C6-O6    | 6.50  | 123.80      | 119.90   |
| 2   | 7     | 11   | C    | O4'-C1'-N1  | 6.49  | 113.39      | 108.20   |
| 34  | AA    | 3343 | C    | O4'-C1'-N1  | 6.49  | 113.39      | 108.20   |
| 34  | AA    | 3417 | G    | C5-C6-O6    | -6.49 | 124.70      | 128.60   |
| 36  | AB    | 96   | C    | O4'-C1'-N1  | 6.49  | 113.39      | 108.20   |
| 1   | A     | 1645 | C    | C2-N1-C1'   | 6.49  | 125.94      | 118.80   |
| 34  | AA    | 2603 | U    | O4'-C1'-N1  | 6.49  | 113.39      | 108.20   |
| 34  | AA    | 3623 | A    | O4'-C1'-N9  | 6.49  | 113.39      | 108.20   |
| 1   | A     | 588  | U    | O4'-C1'-N1  | 6.49  | 113.39      | 108.20   |
| 34  | AA    | 1497 | U    | P-O3'-C3'   | 6.48  | 127.48      | 119.70   |
| 34  | AA    | 2970 | U    | O4'-C1'-N1  | 6.48  | 113.39      | 108.20   |
| 34  | AA    | 3536 | C    | O4'-C1'-N1  | 6.48  | 113.39      | 108.20   |
| 1   | A     | 576  | C    | O4'-C1'-N1  | 6.48  | 113.38      | 108.20   |
| 34  | AA    | 1161 | C    | C6-N1-C2    | -6.48 | 117.71      | 120.30   |
| 36  | AB    | 28   | C    | O4'-C1'-N1  | 6.48  | 113.38      | 108.20   |
| 34  | AA    | 3587 | U    | C5'-C4'-C3' | 6.48  | 126.36      | 116.00   |
| 44  | A8    | 36   | ARG  | NE-CZ-NH1   | 6.48  | 123.54      | 120.30   |
| 34  | AA    | 695  | A    | N1-C6-N6    | -6.48 | 114.71      | 118.60   |
| 34  | AA    | 1461 | C    | O4'-C1'-N1  | 6.48  | 113.38      | 108.20   |
| 34  | AA    | 2154 | A    | C1'-O4'-C4' | -6.48 | 104.72      | 109.90   |
| 34  | AA    | 3527 | U    | O4'-C1'-N1  | 6.47  | 113.38      | 108.20   |
| 1   | A     | 1318 | A    | O4'-C1'-N9  | 6.47  | 113.38      | 108.20   |
| 13  | Z     | 59   | ARG  | NE-CZ-NH1   | 6.47  | 123.54      | 120.30   |
| 60  | AO    | 108  | PHE  | CB-CG-CD1   | 6.47  | 125.33      | 120.80   |
| 1   | A     | 1709 | C    | O4'-C1'-N1  | 6.47  | 113.38      | 108.20   |
| 34  | AA    | 390  | C    | O4'-C1'-N1  | 6.47  | 113.38      | 108.20   |
| 34  | AA    | 3358 | U    | O4'-C1'-N1  | 6.47  | 113.38      | 108.20   |
| 35  | AC    | 126  | C    | O4'-C1'-N1  | 6.47  | 113.38      | 108.20   |
| 1   | A     | 1166 | C    | O4'-C1'-N1  | 6.47  | 113.37      | 108.20   |
| 34  | AA    | 2525 | A    | O4'-C1'-N9  | 6.47  | 113.37      | 108.20   |
| 34  | AA    | 3696 | U    | O4'-C1'-N1  | 6.47  | 113.37      | 108.20   |
| 34  | AA    | 113  | C    | O4'-C1'-N1  | 6.46  | 113.37      | 108.20   |
| 34  | AA    | 2124 | C    | O4'-C1'-N1  | 6.46  | 113.37      | 108.20   |
| 18  | 5     | 15   | ARG  | NE-CZ-NH1   | -6.46 | 117.07      | 120.30   |
| 34  | AA    | 1009 | C    | O4'-C1'-N1  | 6.46  | 113.37      | 108.20   |
| 34  | AA    | 3232 | U    | O4'-C1'-N1  | 6.46  | 113.37      | 108.20   |
| 34  | AA    | 3768 | A    | P-O3'-C3'   | -6.46 | 111.95      | 119.70   |
| 34  | AA    | 2104 | C    | C6-N1-C2    | -6.46 | 117.72      | 120.30   |
| 1   | A     | 122  | C    | O4'-C1'-N1  | 6.45  | 113.36      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 609  | C    | O4'-C1'-N1  | 6.45  | 113.36      | 108.20   |
| 34  | AA    | 1618 | C    | O4'-C1'-N1  | 6.45  | 113.36      | 108.20   |
| 39  | A2    | 14   | ARG  | NE-CZ-NH2   | -6.45 | 117.08      | 120.30   |
| 46  | Aa    | 9    | ARG  | NE-CZ-NH1   | 6.45  | 123.53      | 120.30   |
| 34  | AA    | 599  | G    | O4'-C1'-N9  | 6.45  | 113.36      | 108.20   |
| 34  | AA    | 859  | C    | O4'-C1'-N1  | 6.45  | 113.36      | 108.20   |
| 70  | AE    | 331  | ARG  | NE-CZ-NH2   | -6.45 | 117.08      | 120.30   |
| 34  | AA    | 587  | C    | O4'-C1'-N1  | 6.45  | 113.36      | 108.20   |
| 34  | AA    | 3148 | U    | O4'-C1'-N1  | 6.45  | 113.36      | 108.20   |
| 34  | AA    | 3474 | C    | C6-N1-C2    | -6.45 | 117.72      | 120.30   |
| 20  | B     | 64   | ARG  | NE-CZ-NH1   | 6.44  | 123.52      | 120.30   |
| 24  | L     | 8    | ARG  | NE-CZ-NH1   | 6.44  | 123.52      | 120.30   |
| 34  | AA    | 588  | C    | O4'-C1'-N1  | 6.44  | 113.35      | 108.20   |
| 34  | AA    | 3055 | U    | O4'-C1'-N1  | 6.44  | 113.35      | 108.20   |
| 1   | A     | 573  | C    | O4'-C1'-N1  | 6.44  | 113.35      | 108.20   |
| 1   | A     | 1797 | C    | O4'-C1'-N1  | 6.44  | 113.35      | 108.20   |
| 1   | A     | 1863 | U    | C5'-C4'-O4' | 6.44  | 116.83      | 109.10   |
| 33  | C     | 101  | ARG  | NE-CZ-NH2   | 6.44  | 123.52      | 120.30   |
| 34  | AA    | 3067 | G    | O4'-C1'-N9  | 6.44  | 113.35      | 108.20   |
| 34  | AA    | 1996 | C    | O4'-C1'-N1  | 6.44  | 113.35      | 108.20   |
| 34  | AA    | 2411 | C    | O4'-C1'-N1  | 6.44  | 113.35      | 108.20   |
| 34  | AA    | 2556 | C    | C5'-C4'-O4' | 6.44  | 116.83      | 109.10   |
| 1   | A     | 1415 | A    | O4'-C1'-N9  | 6.44  | 113.35      | 108.20   |
| 34  | AA    | 3657 | G    | O4'-C1'-N9  | 6.43  | 113.35      | 108.20   |
| 1   | A     | 257  | C    | O4'-C1'-N1  | 6.43  | 113.35      | 108.20   |
| 1   | A     | 1713 | C    | O4'-C1'-N1  | 6.43  | 113.35      | 108.20   |
| 2   | 7     | 23   | G    | O4'-C1'-N9  | 6.43  | 113.35      | 108.20   |
| 34  | AA    | 1466 | C    | O4'-C1'-N1  | 6.43  | 113.35      | 108.20   |
| 25  | N     | 79   | PHE  | CB-CG-CD2   | -6.43 | 116.30      | 120.80   |
| 34  | AA    | 3631 | U    | O4'-C1'-N1  | 6.43  | 113.34      | 108.20   |
| 34  | AA    | 271  | G    | O4'-C1'-N9  | 6.43  | 113.34      | 108.20   |
| 34  | AA    | 1154 | C    | C2-N1-C1'   | 6.43  | 125.87      | 118.80   |
| 34  | AA    | 1257 | A    | O4'-C1'-N9  | 6.43  | 113.34      | 108.20   |
| 34  | AA    | 2080 | C    | O4'-C1'-N1  | 6.43  | 113.34      | 108.20   |
| 34  | AA    | 2168 | A    | N1-C6-N6    | -6.43 | 114.74      | 118.60   |
| 34  | AA    | 2668 | G    | O4'-C1'-N9  | 6.43  | 113.34      | 108.20   |
| 1   | A     | 925  | C    | O4'-C1'-N1  | 6.42  | 113.34      | 108.20   |
| 1   | A     | 1090 | C    | O4'-C1'-N1  | 6.42  | 113.34      | 108.20   |
| 34  | AA    | 635  | U    | O4'-C1'-N1  | 6.42  | 113.34      | 108.20   |
| 34  | AA    | 3405 | U    | O4'-C1'-N1  | 6.42  | 113.34      | 108.20   |
| 28  | S     | 57   | ARG  | NE-CZ-NH1   | 6.42  | 123.51      | 120.30   |
| 34  | AA    | 159  | C    | O4'-C1'-N1  | 6.42  | 113.34      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 2162 | U    | O4'-C1'-N1  | 6.42  | 113.34      | 108.20   |
| 1   | A     | 1263 | C    | O4'-C1'-N1  | 6.42  | 113.33      | 108.20   |
| 4   | E     | 108  | ARG  | NE-CZ-NH1   | 6.42  | 123.51      | 120.30   |
| 34  | AA    | 865  | G    | O4'-C1'-N9  | 6.42  | 113.33      | 108.20   |
| 1   | A     | 1423 | A    | C1'-O4'-C4' | -6.42 | 104.77      | 109.90   |
| 35  | AC    | 6    | C    | O4'-C1'-N1  | 6.42  | 113.33      | 108.20   |
| 1   | A     | 183  | C    | O4'-C1'-N1  | 6.41  | 113.33      | 108.20   |
| 30  | U     | 114  | ARG  | NE-CZ-NH1   | 6.41  | 123.50      | 120.30   |
| 34  | AA    | 1428 | G    | C5-C6-O6    | -6.41 | 124.75      | 128.60   |
| 34  | AA    | 2422 | C    | O4'-C1'-N1  | 6.41  | 113.33      | 108.20   |
| 34  | AA    | 3550 | U    | O4'-C1'-N1  | 6.41  | 113.33      | 108.20   |
| 34  | AA    | 3679 | A    | P-O3'-C3'   | 6.41  | 127.39      | 119.70   |
| 34  | AA    | 3192 | U    | O4'-C1'-N1  | 6.41  | 113.33      | 108.20   |
| 1   | A     | 915  | G    | C5-C6-O6    | -6.41 | 124.76      | 128.60   |
| 34  | AA    | 2945 | G    | O4'-C1'-N9  | 6.41  | 113.33      | 108.20   |
| 34  | AA    | 3382 | U    | O4'-C1'-N1  | 6.41  | 113.33      | 108.20   |
| 34  | AA    | 769  | U    | C2-N1-C1'   | 6.41  | 125.39      | 117.70   |
| 1   | A     | 185  | U    | O4'-C1'-N1  | 6.40  | 113.32      | 108.20   |
| 1   | A     | 758  | U    | O4'-C1'-N1  | 6.40  | 113.32      | 108.20   |
| 34  | AA    | 1467 | C    | O4'-C1'-N1  | 6.40  | 113.32      | 108.20   |
| 74  | AH    | 172  | ARG  | NE-CZ-NH1   | 6.40  | 123.50      | 120.30   |
| 1   | A     | 1946 | C    | O4'-C1'-N1  | 6.40  | 113.32      | 108.20   |
| 34  | AA    | 901  | U    | O4'-C1'-N1  | 6.40  | 113.32      | 108.20   |
| 1   | A     | 2018 | C    | O4'-C1'-N1  | 6.40  | 113.32      | 108.20   |
| 34  | AA    | 1160 | C    | O4'-C1'-N1  | 6.40  | 113.32      | 108.20   |
| 73  | AU    | 35   | ARG  | NE-CZ-NH2   | 6.40  | 123.50      | 120.30   |
| 1   | A     | 448  | C    | O4'-C1'-N1  | 6.39  | 113.31      | 108.20   |
| 34  | AA    | 1285 | U    | O4'-C1'-N1  | 6.39  | 113.31      | 108.20   |
| 34  | AA    | 3244 | C    | O4'-C1'-N1  | 6.39  | 113.32      | 108.20   |
| 34  | AA    | 2485 | C    | O4'-C1'-N1  | 6.39  | 113.31      | 108.20   |
| 42  | A7    | 45   | ARG  | NE-CZ-NH1   | 6.39  | 123.50      | 120.30   |
| 60  | AO    | 21   | ARG  | NE-CZ-NH2   | 6.39  | 123.50      | 120.30   |
| 34  | AA    | 2033 | C    | O4'-C1'-N1  | 6.39  | 113.31      | 108.20   |
| 1   | A     | 996  | C    | O4'-C1'-N1  | 6.39  | 113.31      | 108.20   |
| 34  | AA    | 806  | G    | O4'-C1'-N9  | 6.39  | 113.31      | 108.20   |
| 1   | A     | 917  | C    | O4'-C1'-N1  | 6.38  | 113.31      | 108.20   |
| 7   | K     | 20   | ARG  | NE-CZ-NH1   | 6.38  | 123.49      | 120.30   |
| 34  | AA    | 775  | C    | O4'-C1'-N1  | 6.38  | 113.31      | 108.20   |
| 34  | AA    | 3284 | C    | O4'-C1'-N1  | 6.38  | 113.31      | 108.20   |
| 1   | A     | 130  | U    | O4'-C1'-N1  | 6.38  | 113.31      | 108.20   |
| 1   | A     | 981  | U    | O4'-C1'-N1  | 6.38  | 113.31      | 108.20   |
| 34  | AA    | 3333 | U    | O4'-C1'-N1  | 6.38  | 113.31      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 61  | AQ    | 32   | ARG  | NE-CZ-NH2   | 6.38  | 123.49      | 120.30   |
| 1   | A     | 630  | C    | C6-N1-C1'   | -6.38 | 113.14      | 120.80   |
| 34  | AA    | 1172 | C    | O4'-C1'-N1  | 6.38  | 113.31      | 108.20   |
| 34  | AA    | 1861 | C    | O4'-C1'-N1  | 6.38  | 113.31      | 108.20   |
| 34  | AA    | 3211 | C    | O4'-C1'-N1  | 6.38  | 113.31      | 108.20   |
| 57  | AK    | 48   | ARG  | NE-CZ-NH1   | 6.38  | 123.49      | 120.30   |
| 61  | AQ    | 189  | ARG  | NE-CZ-NH1   | 6.38  | 123.49      | 120.30   |
| 1   | A     | 1710 | G    | C5-C6-O6    | -6.38 | 124.77      | 128.60   |
| 34  | AA    | 673  | U    | C1'-O4'-C4' | -6.38 | 104.80      | 109.90   |
| 35  | AC    | 38   | G    | C4'-C3'-C2' | -6.38 | 96.22       | 102.60   |
| 1   | A     | 972  | U    | P-O5'-C5'   | -6.38 | 110.69      | 120.90   |
| 1   | A     | 1949 | C    | O4'-C1'-N1  | 6.38  | 113.30      | 108.20   |
| 34  | AA    | 3647 | C    | O4'-C1'-N1  | 6.38  | 113.30      | 108.20   |
| 69  | AD    | 200  | ARG  | NE-CZ-NH1   | -6.38 | 117.11      | 120.30   |
| 3   | D     | 154  | ARG  | NE-CZ-NH2   | 6.37  | 123.49      | 120.30   |
| 34  | AA    | 1627 | C    | O4'-C1'-N1  | 6.37  | 113.30      | 108.20   |
| 34  | AA    | 1873 | U    | C2'-C3'-O3' | 6.37  | 123.89      | 113.70   |
| 1   | A     | 1794 | C    | O4'-C1'-N1  | 6.37  | 113.30      | 108.20   |
| 71  | AF    | 143  | ARG  | NE-CZ-NH1   | 6.37  | 123.48      | 120.30   |
| 78  | A0    | 31   | ARG  | NE-CZ-NH1   | 6.37  | 123.48      | 120.30   |
| 34  | AA    | 1561 | C    | O4'-C1'-N1  | 6.37  | 113.29      | 108.20   |
| 34  | AA    | 1662 | G    | O4'-C1'-N9  | 6.37  | 113.29      | 108.20   |
| 34  | AA    | 3706 | U    | O4'-C1'-N1  | 6.37  | 113.29      | 108.20   |
| 68  | A5    | 79   | ARG  | NE-CZ-NH1   | 6.36  | 123.48      | 120.30   |
| 1   | A     | 1814 | C    | O4'-C1'-N1  | 6.36  | 113.29      | 108.20   |
| 35  | AC    | 59   | U    | O4'-C1'-N1  | 6.36  | 113.29      | 108.20   |
| 23  | J     | 123  | TYR  | CB-CG-CD2   | -6.36 | 117.19      | 121.00   |
| 18  | 5     | 38   | ARG  | NE-CZ-NH1   | -6.36 | 117.12      | 120.30   |
| 34  | AA    | 2428 | U    | O4'-C1'-N1  | 6.36  | 113.29      | 108.20   |
| 71  | AF    | 140  | ARG  | NE-CZ-NH2   | -6.36 | 117.12      | 120.30   |
| 34  | AA    | 696  | C    | O4'-C1'-N1  | 6.35  | 113.28      | 108.20   |
| 34  | AA    | 1031 | G    | N1-C2-N2    | -6.35 | 110.48      | 116.20   |
| 1   | A     | 1178 | C    | O4'-C1'-N1  | 6.35  | 113.28      | 108.20   |
| 1   | A     | 1187 | A    | P-O3'-C3'   | 6.35  | 127.32      | 119.70   |
| 34  | AA    | 1706 | A    | O4'-C1'-N9  | 6.35  | 113.28      | 108.20   |
| 36  | AB    | 26   | C    | O4'-C1'-N1  | 6.35  | 113.28      | 108.20   |
| 34  | AA    | 3531 | C    | O4'-C1'-N1  | 6.34  | 113.28      | 108.20   |
| 36  | AB    | 117  | C    | O4'-C1'-N1  | 6.34  | 113.28      | 108.20   |
| 1   | A     | 582  | C    | O4'-C1'-N1  | 6.34  | 113.27      | 108.20   |
| 1   | A     | 1031 | C    | O4'-C1'-N1  | 6.34  | 113.27      | 108.20   |
| 1   | A     | 1098 | U    | P-O3'-C3'   | 6.34  | 127.31      | 119.70   |
| 34  | AA    | 2013 | U    | O4'-C1'-N1  | 6.34  | 113.27      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 34  | AA    | 2185 | C    | O4'-C1'-N1 | 6.34  | 113.27      | 108.20   |
| 1   | A     | 996  | C    | C6-N1-C2   | -6.34 | 117.76      | 120.30   |
| 34  | AA    | 1724 | G    | O4'-C1'-N9 | 6.34  | 113.27      | 108.20   |
| 57  | AK    | 132  | ARG  | NE-CZ-NH1  | 6.34  | 123.47      | 120.30   |
| 34  | AA    | 1720 | C    | C6-N1-C2   | -6.34 | 117.77      | 120.30   |
| 46  | Aa    | 64   | ARG  | NE-CZ-NH1  | 6.34  | 123.47      | 120.30   |
| 1   | A     | 1059 | U    | O4'-C1'-N1 | 6.33  | 113.27      | 108.20   |
| 12  | Y     | 85   | ARG  | NE-CZ-NH1  | 6.33  | 123.47      | 120.30   |
| 35  | AC    | 147  | U    | O4'-C1'-N1 | 6.33  | 113.27      | 108.20   |
| 1   | A     | 1278 | C    | O4'-C1'-N1 | 6.33  | 113.27      | 108.20   |
| 34  | AA    | 3615 | A    | P-O3'-C3'  | -6.33 | 112.10      | 119.70   |
| 34  | AA    | 2202 | G    | O4'-C1'-N9 | 6.33  | 113.26      | 108.20   |
| 34  | AA    | 1529 | G    | O4'-C1'-N9 | 6.33  | 113.26      | 108.20   |
| 34  | AA    | 3705 | C    | O4'-C1'-N1 | 6.33  | 113.26      | 108.20   |
| 35  | AC    | 133  | G    | O4'-C1'-N9 | 6.33  | 113.26      | 108.20   |
| 71  | AF    | 375  | TYR  | CB-CG-CD2  | -6.33 | 117.20      | 121.00   |
| 1   | A     | 1841 | U    | O4'-C1'-N1 | 6.32  | 113.26      | 108.20   |
| 2   | 7     | 30   | G    | O4'-C1'-N9 | 6.32  | 113.26      | 108.20   |
| 34  | AA    | 2188 | U    | O4'-C1'-N1 | 6.32  | 113.26      | 108.20   |
| 34  | AA    | 2601 | C    | O4'-C1'-N1 | 6.32  | 113.26      | 108.20   |
| 34  | AA    | 3030 | A    | O4'-C1'-N9 | 6.32  | 113.26      | 108.20   |
| 35  | AC    | 48   | C    | O4'-C1'-N1 | 6.32  | 113.26      | 108.20   |
| 34  | AA    | 1247 | C    | O4'-C1'-N1 | 6.32  | 113.26      | 108.20   |
| 34  | AA    | 2502 | U    | O4'-C1'-N1 | 6.32  | 113.26      | 108.20   |
| 1   | A     | 1222 | C    | O4'-C1'-N1 | 6.32  | 113.26      | 108.20   |
| 1   | A     | 1823 | U    | O4'-C1'-N1 | 6.32  | 113.26      | 108.20   |
| 16  | 3     | 51   | ARG  | NE-CZ-NH2  | 6.32  | 123.46      | 120.30   |
| 34  | AA    | 721  | U    | O4'-C1'-N1 | 6.32  | 113.25      | 108.20   |
| 4   | E     | 23   | ARG  | NE-CZ-NH1  | 6.31  | 123.46      | 120.30   |
| 1   | A     | 920  | A    | O4'-C1'-N9 | 6.31  | 113.25      | 108.20   |
| 34  | AA    | 768  | C    | C2-N1-C1'  | 6.31  | 125.74      | 118.80   |
| 34  | AA    | 2538 | C    | O4'-C1'-N1 | 6.31  | 113.25      | 108.20   |
| 22  | H     | 94   | ARG  | NE-CZ-NH1  | 6.31  | 123.45      | 120.30   |
| 34  | AA    | 382  | A    | N1-C6-N6   | -6.31 | 114.81      | 118.60   |
| 34  | AA    | 328  | G    | C5-C6-O6   | -6.31 | 124.81      | 128.60   |
| 48  | Ad    | 44   | ARG  | NE-CZ-NH2  | 6.31  | 123.45      | 120.30   |
| 61  | AQ    | 90   | ARG  | NE-CZ-NH1  | 6.31  | 123.45      | 120.30   |
| 1   | A     | 43   | A    | N1-C6-N6   | 6.30  | 122.38      | 118.60   |
| 34  | AA    | 859  | C    | P-O5'-C5'  | 6.30  | 130.99      | 120.90   |
| 34  | AA    | 1136 | A    | N1-C6-N6   | 6.30  | 122.38      | 118.60   |
| 36  | AB    | 34   | C    | O4'-C1'-N1 | 6.30  | 113.24      | 108.20   |
| 1   | A     | 157  | G    | O4'-C1'-N9 | 6.30  | 113.24      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 60  | AO    | 21   | ARG  | NE-CZ-NH1   | -6.30 | 117.15      | 120.30   |
| 1   | A     | 2072 | G    | C5-C6-O6    | -6.30 | 124.82      | 128.60   |
| 34  | AA    | 1030 | C    | O4'-C1'-N1  | 6.30  | 113.24      | 108.20   |
| 34  | AA    | 1678 | C    | O4'-C1'-N1  | 6.29  | 113.23      | 108.20   |
| 34  | AA    | 3329 | C    | O4'-C1'-N1  | 6.29  | 113.23      | 108.20   |
| 1   | A     | 1228 | C    | O4'-C1'-N1  | 6.29  | 113.23      | 108.20   |
| 34  | AA    | 83   | U    | C5'-C4'-O4' | 6.29  | 116.65      | 109.10   |
| 34  | AA    | 2090 | U    | O4'-C1'-N1  | 6.29  | 113.23      | 108.20   |
| 1   | A     | 18   | C    | O4'-C1'-N1  | 6.29  | 113.23      | 108.20   |
| 1   | A     | 915  | G    | N1-C6-O6    | 6.29  | 123.67      | 119.90   |
| 35  | AC    | 124  | U    | O4'-C1'-N1  | 6.29  | 113.23      | 108.20   |
| 34  | AA    | 3431 | G    | O4'-C1'-N9  | 6.29  | 113.23      | 108.20   |
| 1   | A     | 982  | A    | O4'-C1'-N9  | 6.28  | 113.23      | 108.20   |
| 34  | AA    | 764  | G    | O4'-C1'-N9  | 6.28  | 113.23      | 108.20   |
| 34  | AA    | 3390 | U    | O4'-C1'-N1  | 6.28  | 113.23      | 108.20   |
| 1   | A     | 409  | A    | N1-C6-N6    | 6.28  | 122.37      | 118.60   |
| 1   | A     | 1870 | A    | P-O3'-C3'   | 6.28  | 127.24      | 119.70   |
| 34  | AA    | 3180 | C    | O4'-C1'-N1  | 6.28  | 113.23      | 108.20   |
| 34  | AA    | 1179 | U    | O4'-C1'-N1  | 6.28  | 113.22      | 108.20   |
| 34  | AA    | 3125 | U    | O4'-C1'-N1  | 6.28  | 113.22      | 108.20   |
| 34  | AA    | 2618 | G    | C5'-C4'-O4' | 6.28  | 116.63      | 109.10   |
| 35  | AC    | 30   | U    | O4'-C1'-N1  | 6.28  | 113.22      | 108.20   |
| 1   | A     | 1212 | C    | O4'-C1'-N1  | 6.27  | 113.22      | 108.20   |
| 28  | S     | 89   | ARG  | NE-CZ-NH1   | -6.27 | 117.16      | 120.30   |
| 34  | AA    | 1480 | G    | C8-N9-C1'   | -6.27 | 118.85      | 127.00   |
| 34  | AA    | 2002 | G    | O4'-C1'-N9  | 6.27  | 113.22      | 108.20   |
| 34  | AA    | 3580 | G    | O4'-C1'-N9  | 6.27  | 113.22      | 108.20   |
| 71  | AF    | 48   | ARG  | NE-CZ-NH2   | 6.27  | 123.44      | 120.30   |
| 34  | AA    | 3024 | U    | O4'-C1'-N1  | 6.27  | 113.22      | 108.20   |
| 1   | A     | 273  | A    | O4'-C1'-N9  | 6.27  | 113.22      | 108.20   |
| 1   | A     | 1649 | C    | O4'-C1'-N1  | 6.27  | 113.21      | 108.20   |
| 34  | AA    | 1997 | G    | O4'-C1'-N9  | 6.27  | 113.21      | 108.20   |
| 34  | AA    | 2689 | G    | C5-C6-O6    | -6.26 | 124.84      | 128.60   |
| 34  | AA    | 1216 | C    | O4'-C1'-N1  | 6.26  | 113.21      | 108.20   |
| 1   | A     | 1381 | C    | C2'-C3'-O3' | 6.26  | 123.72      | 113.70   |
| 34  | AA    | 2690 | A    | O4'-C1'-N9  | 6.26  | 113.21      | 108.20   |
| 1   | A     | 1818 | A    | O4'-C1'-N9  | 6.26  | 113.21      | 108.20   |
| 34  | AA    | 613  | C    | O4'-C1'-N1  | 6.26  | 113.21      | 108.20   |
| 34  | AA    | 764  | G    | P-O3'-C3'   | 6.26  | 127.21      | 119.70   |
| 34  | AA    | 3598 | C    | O4'-C1'-N1  | 6.26  | 113.21      | 108.20   |
| 34  | AA    | 3610 | C    | O4'-C1'-N1  | 6.26  | 113.20      | 108.20   |
| 36  | AB    | 104  | C    | O4'-C1'-N1  | 6.26  | 113.20      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 1   | A     | 580  | C    | O4'-C1'-N1  | 6.25  | 113.20      | 108.20   |
| 34  | AA    | 2698 | C    | O4'-C1'-N1  | 6.25  | 113.20      | 108.20   |
| 7   | K     | 118  | ARG  | NE-CZ-NH1   | 6.25  | 123.42      | 120.30   |
| 34  | AA    | 143  | C    | O4'-C1'-N1  | 6.25  | 113.20      | 108.20   |
| 34  | AA    | 716  | C    | C6-N1-C2    | -6.25 | 117.80      | 120.30   |
| 34  | AA    | 1212 | U    | O4'-C1'-N1  | 6.25  | 113.20      | 108.20   |
| 66  | AZ    | 15   | ARG  | NE-CZ-NH1   | 6.25  | 123.43      | 120.30   |
| 34  | AA    | 2951 | U    | O4'-C1'-N1  | 6.25  | 113.20      | 108.20   |
| 34  | AA    | 1728 | C    | O4'-C1'-N1  | 6.25  | 113.20      | 108.20   |
| 35  | AC    | 118  | C    | O4'-C1'-N1  | 6.25  | 113.20      | 108.20   |
| 1   | A     | 1818 | A    | C1'-O4'-C4' | -6.25 | 104.90      | 109.90   |
| 34  | AA    | 670  | U    | O4'-C1'-N1  | 6.25  | 113.20      | 108.20   |
| 34  | AA    | 1126 | U    | O4'-C1'-N1  | 6.25  | 113.20      | 108.20   |
| 1   | A     | 147  | C    | O4'-C1'-N1  | 6.24  | 113.19      | 108.20   |
| 1   | A     | 411  | C    | O4'-C1'-N1  | 6.24  | 113.19      | 108.20   |
| 34  | AA    | 3713 | C    | O4'-C1'-N1  | 6.24  | 113.19      | 108.20   |
| 1   | A     | 1284 | A    | P-O3'-C3'   | 6.24  | 127.19      | 119.70   |
| 4   | E     | 17   | ARG  | NE-CZ-NH2   | 6.24  | 123.42      | 120.30   |
| 34  | AA    | 1750 | U    | P-O3'-C3'   | 6.24  | 127.19      | 119.70   |
| 59  | AS    | 163  | ARG  | NE-CZ-NH2   | -6.24 | 117.18      | 120.30   |
| 16  | 3     | 92   | ARG  | NE-CZ-NH2   | 6.24  | 123.42      | 120.30   |
| 18  | 5     | 15   | ARG  | NE-CZ-NH2   | 6.24  | 123.42      | 120.30   |
| 34  | AA    | 1057 | C    | O4'-C1'-N1  | 6.24  | 113.19      | 108.20   |
| 1   | A     | 516  | G    | O4'-C1'-N9  | 6.24  | 113.19      | 108.20   |
| 34  | AA    | 2524 | C    | C2-N1-C1'   | 6.23  | 125.66      | 118.80   |
| 34  | AA    | 931  | U    | O4'-C1'-N1  | 6.23  | 113.19      | 108.20   |
| 1   | A     | 1029 | U    | O4'-C1'-N1  | 6.23  | 113.18      | 108.20   |
| 1   | A     | 1669 | C    | O4'-C1'-N1  | 6.23  | 113.18      | 108.20   |
| 34  | AA    | 912  | U    | O4'-C1'-N1  | 6.23  | 113.18      | 108.20   |
| 34  | AA    | 2580 | C    | O4'-C1'-N1  | 6.23  | 113.19      | 108.20   |
| 34  | AA    | 2887 | U    | O4'-C1'-N1  | 6.23  | 113.18      | 108.20   |
| 1   | A     | 919  | U    | O4'-C1'-N1  | 6.23  | 113.18      | 108.20   |
| 1   | A     | 1705 | C    | C5'-C4'-O4' | 6.23  | 116.57      | 109.10   |
| 34  | AA    | 1804 | C    | O4'-C1'-N1  | 6.23  | 113.18      | 108.20   |
| 34  | AA    | 1973 | G    | C5-C6-O6    | -6.23 | 124.86      | 128.60   |
| 34  | AA    | 1516 | G    | C5-C6-O6    | -6.23 | 124.86      | 128.60   |
| 1   | A     | 1956 | A    | C5-C6-N6    | -6.23 | 118.72      | 123.70   |
| 1   | A     | 876  | U    | O4'-C1'-N1  | 6.22  | 113.18      | 108.20   |
| 1   | A     | 1934 | C    | O4'-C1'-N1  | 6.22  | 113.18      | 108.20   |
| 34  | AA    | 312  | A    | P-O3'-C3'   | -6.22 | 112.23      | 119.70   |
| 34  | AA    | 334  | U    | O4'-C1'-N1  | 6.22  | 113.18      | 108.20   |
| 34  | AA    | 884  | A    | O4'-C1'-N9  | 6.22  | 113.18      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 72  | AG    | 35   | ARG  | NE-CZ-NH1   | -6.22 | 117.19      | 120.30   |
| 1   | A     | 1455 | C    | O4'-C1'-N1  | 6.22  | 113.18      | 108.20   |
| 34  | AA    | 583  | U    | O4'-C1'-N1  | 6.22  | 113.18      | 108.20   |
| 34  | AA    | 1793 | A    | O4'-C1'-N9  | 6.22  | 113.18      | 108.20   |
| 34  | AA    | 1896 | C    | O4'-C1'-N1  | 6.22  | 113.18      | 108.20   |
| 34  | AA    | 2630 | C    | O4'-C1'-N1  | 6.22  | 113.18      | 108.20   |
| 34  | AA    | 200  | A    | O4'-C1'-N9  | 6.22  | 113.17      | 108.20   |
| 34  | AA    | 1572 | U    | C6-N1-C1'   | -6.22 | 112.50      | 121.20   |
| 34  | AA    | 3480 | C    | O4'-C1'-N1  | 6.22  | 113.17      | 108.20   |
| 1   | A     | 401  | U    | O4'-C1'-N1  | 6.22  | 113.17      | 108.20   |
| 34  | AA    | 2041 | U    | O4'-C1'-N1  | 6.21  | 113.17      | 108.20   |
| 51  | AP    | 63   | ARG  | NE-CZ-NH1   | 6.21  | 123.41      | 120.30   |
| 34  | AA    | 354  | C    | O4'-C1'-N1  | 6.21  | 113.17      | 108.20   |
| 1   | A     | 1418 | C    | O4'-C1'-N1  | 6.21  | 113.17      | 108.20   |
| 34  | AA    | 2590 | U    | C6-N1-C1'   | -6.21 | 112.51      | 121.20   |
| 34  | AA    | 3730 | C    | O4'-C1'-N1  | 6.21  | 113.17      | 108.20   |
| 34  | AA    | 2541 | C    | O4'-C1'-N1  | 6.21  | 113.17      | 108.20   |
| 34  | AA    | 3230 | G    | O4'-C1'-N9  | 6.21  | 113.17      | 108.20   |
| 36  | AB    | 59   | C    | O4'-C1'-N1  | 6.21  | 113.17      | 108.20   |
| 1   | A     | 455  | C    | O4'-C1'-N1  | 6.21  | 113.16      | 108.20   |
| 1   | A     | 2076 | C    | O4'-C1'-N1  | 6.21  | 113.17      | 108.20   |
| 1   | A     | 341  | U    | O4'-C1'-N1  | 6.20  | 113.16      | 108.20   |
| 1   | A     | 578  | G    | O4'-C1'-N9  | 6.20  | 113.16      | 108.20   |
| 24  | L     | 25   | ARG  | NE-CZ-NH1   | 6.20  | 123.40      | 120.30   |
| 34  | AA    | 942  | C    | O4'-C1'-N1  | 6.20  | 113.16      | 108.20   |
| 1   | A     | 466  | A    | N1-C6-N6    | -6.20 | 114.88      | 118.60   |
| 1   | A     | 1293 | C    | O4'-C1'-N1  | 6.20  | 113.16      | 108.20   |
| 1   | A     | 2029 | A    | C5'-C4'-C3' | 6.20  | 125.92      | 116.00   |
| 34  | AA    | 367  | U    | O4'-C1'-N1  | 6.20  | 113.16      | 108.20   |
| 34  | AA    | 2174 | G    | C5-C6-O6    | -6.20 | 124.88      | 128.60   |
| 34  | AA    | 3130 | U    | P-O3'-C3'   | 6.20  | 127.14      | 119.70   |
| 34  | AA    | 3221 | U    | O4'-C1'-N1  | 6.20  | 113.16      | 108.20   |
| 1   | A     | 1180 | U    | O4'-C1'-N1  | 6.20  | 113.16      | 108.20   |
| 1   | A     | 1714 | U    | O4'-C1'-N1  | 6.20  | 113.16      | 108.20   |
| 34  | AA    | 199  | G    | C5-C6-O6    | -6.20 | 124.88      | 128.60   |
| 34  | AA    | 3258 | C    | C6-N1-C1'   | -6.20 | 113.36      | 120.80   |
| 44  | A8    | 33   | ARG  | NE-CZ-NH2   | -6.20 | 117.20      | 120.30   |
| 1   | A     | 949  | C    | O4'-C1'-N1  | 6.19  | 113.16      | 108.20   |
| 34  | AA    | 2557 | U    | O4'-C1'-N1  | 6.19  | 113.15      | 108.20   |
| 34  | AA    | 3756 | C    | O4'-C1'-N1  | 6.19  | 113.15      | 108.20   |
| 34  | AA    | 1035 | G    | N1-C6-O6    | 6.19  | 123.61      | 119.90   |
| 34  | AA    | 953  | U    | O4'-C1'-N1  | 6.19  | 113.15      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 59   | G    | C5-C6-O6    | -6.19 | 124.89      | 128.60   |
| 34  | AA    | 1969 | A    | O4'-C1'-N9  | 6.19  | 113.15      | 108.20   |
| 34  | AA    | 2459 | C    | O4'-C1'-N1  | 6.19  | 113.15      | 108.20   |
| 34  | AA    | 3501 | C    | O4'-C1'-N1  | 6.19  | 113.15      | 108.20   |
| 21  | F     | 214  | ARG  | NE-CZ-NH1   | 6.19  | 123.39      | 120.30   |
| 1   | A     | 881  | C    | C5'-C4'-O4' | 6.18  | 116.52      | 109.10   |
| 34  | AA    | 447  | A    | N1-C6-N6    | 6.18  | 122.31      | 118.60   |
| 34  | AA    | 1454 | A    | O4'-C1'-N9  | 6.18  | 113.15      | 108.20   |
| 34  | AA    | 1704 | U    | P-O3'-C3'   | -6.18 | 112.28      | 119.70   |
| 34  | AA    | 3003 | C    | O4'-C1'-N1  | 6.18  | 113.15      | 108.20   |
| 34  | AA    | 3242 | U    | O4'-C1'-N1  | 6.18  | 113.15      | 108.20   |
| 1   | A     | 787  | G    | O4'-C1'-N9  | 6.18  | 113.15      | 108.20   |
| 34  | AA    | 388  | C    | O4'-C1'-N1  | 6.18  | 113.14      | 108.20   |
| 34  | AA    | 3409 | U    | O4'-C1'-N1  | 6.18  | 113.15      | 108.20   |
| 1   | A     | 1830 | C    | O4'-C1'-N1  | 6.18  | 113.14      | 108.20   |
| 1   | A     | 2044 | G    | O3'-P-O5'   | -6.18 | 92.26       | 104.00   |
| 34  | AA    | 3058 | C    | O4'-C1'-N1  | 6.18  | 113.14      | 108.20   |
| 34  | AA    | 361  | G    | C5-C6-O6    | -6.18 | 124.89      | 128.60   |
| 34  | AA    | 3518 | C    | O4'-C1'-N1  | 6.18  | 113.14      | 108.20   |
| 1   | A     | 1671 | A    | C5'-C4'-C3' | -6.18 | 106.12      | 116.00   |
| 34  | AA    | 1216 | C    | C6-N1-C2    | -6.18 | 117.83      | 120.30   |
| 34  | AA    | 3290 | C    | O4'-C1'-N1  | 6.18  | 113.14      | 108.20   |
| 34  | AA    | 3458 | A    | P-O3'-C3'   | 6.18  | 127.11      | 119.70   |
| 54  | AI    | 71   | ARG  | NE-CZ-NH1   | 6.18  | 123.39      | 120.30   |
| 1   | A     | 45   | U    | O4'-C1'-N1  | 6.17  | 113.14      | 108.20   |
| 1   | A     | 1275 | U    | O4'-C1'-N1  | 6.17  | 113.14      | 108.20   |
| 34  | AA    | 891  | C    | O4'-C1'-N1  | 6.17  | 113.14      | 108.20   |
| 34  | AA    | 2508 | C    | O4'-C1'-N1  | 6.17  | 113.14      | 108.20   |
| 34  | AA    | 2631 | C    | O4'-C1'-N1  | 6.17  | 113.14      | 108.20   |
| 36  | AB    | 91   | C    | O4'-C1'-N1  | 6.17  | 113.14      | 108.20   |
| 1   | A     | 1651 | C    | O4'-C1'-N1  | 6.17  | 113.14      | 108.20   |
| 34  | AA    | 861  | C    | O4'-C1'-N1  | 6.17  | 113.14      | 108.20   |
| 1   | A     | 1074 | A    | O4'-C1'-N9  | 6.17  | 113.14      | 108.20   |
| 3   | D     | 76   | ARG  | NE-CZ-NH2   | -6.17 | 117.22      | 120.30   |
| 1   | A     | 1321 | C    | C5'-C4'-C3' | -6.17 | 106.13      | 116.00   |
| 34  | AA    | 2949 | G    | O4'-C1'-N9  | 6.17  | 113.14      | 108.20   |
| 36  | AB    | 45   | U    | O4'-C1'-N1  | 6.17  | 113.14      | 108.20   |
| 34  | AA    | 603  | G    | O4'-C1'-N9  | 6.17  | 113.13      | 108.20   |
| 34  | AA    | 1763 | G    | N1-C6-O6    | 6.17  | 123.60      | 119.90   |
| 34  | AA    | 1799 | A    | O4'-C1'-N9  | 6.17  | 113.13      | 108.20   |
| 34  | AA    | 2478 | G    | O4'-C1'-N9  | 6.17  | 113.13      | 108.20   |
| 34  | AA    | 3323 | G    | N1-C6-O6    | 6.17  | 123.60      | 119.90   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 20  | B     | 213  | ARG  | NE-CZ-NH1   | 6.16  | 123.38      | 120.30   |
| 34  | AA    | 147  | C    | C6-N1-C2    | -6.16 | 117.83      | 120.30   |
| 34  | AA    | 753  | C    | O4'-C1'-N1  | 6.16  | 113.13      | 108.20   |
| 34  | AA    | 65   | A    | P-O3'-C3'   | 6.16  | 127.09      | 119.70   |
| 34  | AA    | 2197 | G    | C5-C6-O6    | -6.16 | 124.90      | 128.60   |
| 1   | A     | 1793 | C    | O4'-C1'-N1  | 6.16  | 113.13      | 108.20   |
| 34  | AA    | 2394 | C    | O4'-C1'-N1  | 6.16  | 113.13      | 108.20   |
| 61  | AQ    | 157  | TYR  | CB-CG-CD2   | -6.16 | 117.30      | 121.00   |
| 67  | A3    | 80   | TYR  | CB-CG-CD1   | -6.16 | 117.30      | 121.00   |
| 1   | A     | 9    | U    | O4'-C1'-N1  | 6.16  | 113.13      | 108.20   |
| 34  | AA    | 1438 | G    | O4'-C1'-N9  | 6.16  | 113.13      | 108.20   |
| 63  | AW    | 30   | TYR  | CB-CG-CD2   | -6.16 | 117.31      | 121.00   |
| 2   | 7     | 51   | U    | C5'-C4'-C3' | 6.16  | 125.85      | 116.00   |
| 62  | AR    | 206  | TYR  | CB-CG-CD1   | 6.16  | 124.69      | 121.00   |
| 34  | AA    | 2671 | C    | O4'-C1'-N1  | 6.15  | 113.12      | 108.20   |
| 28  | S     | 123  | ARG  | NE-CZ-NH2   | 6.15  | 123.38      | 120.30   |
| 34  | AA    | 1544 | C    | O4'-C1'-N1  | 6.15  | 113.12      | 108.20   |
| 34  | AA    | 1730 | A    | P-O3'-C3'   | -6.15 | 112.32      | 119.70   |
| 1   | A     | 1429 | C    | O4'-C1'-N1  | 6.15  | 113.12      | 108.20   |
| 34  | AA    | 3631 | U    | O3'-P-O5'   | -6.15 | 92.31       | 104.00   |
| 34  | AA    | 3771 | C    | O4'-C1'-N1  | 6.15  | 113.12      | 108.20   |
| 1   | A     | 1220 | C    | O4'-C1'-N1  | 6.15  | 113.12      | 108.20   |
| 1   | A     | 105  | A    | P-O3'-C3'   | 6.15  | 127.08      | 119.70   |
| 1   | A     | 493  | G    | O4'-C1'-N9  | 6.15  | 113.12      | 108.20   |
| 34  | AA    | 129  | C    | O4'-C1'-N1  | 6.15  | 113.12      | 108.20   |
| 34  | AA    | 952  | U    | O4'-C1'-N1  | 6.15  | 113.12      | 108.20   |
| 54  | AI    | 44   | TYR  | CB-CG-CD1   | -6.15 | 117.31      | 121.00   |
| 69  | AD    | 3    | ARG  | NE-CZ-NH1   | 6.15  | 123.37      | 120.30   |
| 1   | A     | 1609 | C    | O4'-C1'-N1  | 6.15  | 113.12      | 108.20   |
| 1   | A     | 989  | C    | O4'-C1'-N1  | 6.14  | 113.12      | 108.20   |
| 1   | A     | 1625 | C    | O4'-C1'-N1  | 6.14  | 113.12      | 108.20   |
| 65  | AT    | 80   | ARG  | NE-CZ-NH1   | 6.14  | 123.37      | 120.30   |
| 1   | A     | 1249 | C    | O4'-C1'-N1  | 6.14  | 113.11      | 108.20   |
| 34  | AA    | 691  | C    | O4'-C1'-N1  | 6.14  | 113.11      | 108.20   |
| 34  | AA    | 911  | U    | O4'-C1'-N1  | 6.14  | 113.11      | 108.20   |
| 34  | AA    | 923  | C    | O4'-C1'-N1  | 6.14  | 113.11      | 108.20   |
| 70  | AE    | 229  | ARG  | NE-CZ-NH1   | 6.14  | 123.37      | 120.30   |
| 34  | AA    | 2550 | C    | O4'-C1'-N1  | 6.14  | 113.11      | 108.20   |
| 1   | A     | 328  | G    | C5-C6-O6    | -6.14 | 124.92      | 128.60   |
| 1   | A     | 891  | U    | O4'-C1'-N1  | 6.14  | 113.11      | 108.20   |
| 1   | A     | 929  | U    | O4'-C1'-N1  | 6.14  | 113.11      | 108.20   |
| 1   | A     | 1670 | A    | O4'-C1'-N9  | 6.14  | 113.11      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 7   | K     | 117  | ARG  | NE-CZ-NH1   | 6.14  | 123.37      | 120.30   |
| 34  | AA    | 1826 | U    | O4'-C1'-N1  | 6.14  | 113.11      | 108.20   |
| 1   | A     | 184  | C    | O4'-C1'-N1  | 6.13  | 113.11      | 108.20   |
| 34  | AA    | 2578 | C    | O4'-C1'-N1  | 6.13  | 113.11      | 108.20   |
| 34  | AA    | 3053 | G    | C5'-C4'-O4' | 6.13  | 116.46      | 109.10   |
| 51  | AP    | 30   | TYR  | CB-CG-CD2   | -6.13 | 117.32      | 121.00   |
| 34  | AA    | 81   | C    | O4'-C1'-N1  | 6.13  | 113.11      | 108.20   |
| 34  | AA    | 412  | A    | O4'-C1'-N9  | 6.13  | 113.11      | 108.20   |
| 34  | AA    | 1834 | C    | O4'-C1'-N1  | 6.13  | 113.11      | 108.20   |
| 1   | A     | 856  | U    | O4'-C1'-N1  | 6.13  | 113.10      | 108.20   |
| 1   | A     | 2031 | C    | O4'-C1'-N1  | 6.13  | 113.10      | 108.20   |
| 1   | A     | 525  | G    | O4'-C1'-N9  | 6.13  | 113.10      | 108.20   |
| 34  | AA    | 547  | C    | O4'-C1'-N1  | 6.13  | 113.10      | 108.20   |
| 34  | AA    | 1251 | U    | O4'-C1'-N1  | 6.13  | 113.10      | 108.20   |
| 23  | J     | 7    | ARG  | NE-CZ-NH1   | 6.12  | 123.36      | 120.30   |
| 34  | AA    | 1452 | U    | P-O3'-C3'   | 6.12  | 127.05      | 119.70   |
| 34  | AA    | 3581 | A    | O4'-C1'-N9  | 6.12  | 113.10      | 108.20   |
| 1   | A     | 382  | C    | O4'-C1'-N1  | 6.12  | 113.10      | 108.20   |
| 34  | AA    | 1865 | C    | O4'-C1'-N1  | 6.12  | 113.10      | 108.20   |
| 34  | AA    | 3201 | C    | O4'-C1'-N1  | 6.12  | 113.10      | 108.20   |
| 35  | AC    | 62   | G    | C5-C6-O6    | -6.12 | 124.93      | 128.60   |
| 34  | AA    | 3134 | U    | O4'-C1'-N1  | 6.12  | 113.09      | 108.20   |
| 1   | A     | 1697 | C    | O4'-C1'-N1  | 6.12  | 113.09      | 108.20   |
| 61  | AQ    | 38   | ARG  | NE-CZ-NH1   | 6.12  | 123.36      | 120.30   |
| 34  | AA    | 1703 | U    | O4'-C1'-N1  | 6.12  | 113.09      | 108.20   |
| 34  | AA    | 3500 | G    | O4'-C1'-N9  | 6.12  | 113.09      | 108.20   |
| 34  | AA    | 3737 | G    | C5-C6-O6    | -6.12 | 124.93      | 128.60   |
| 35  | AC    | 10   | C    | O4'-C1'-N1  | 6.12  | 113.09      | 108.20   |
| 34  | AA    | 1797 | A    | C5-C6-N6    | -6.11 | 118.81      | 123.70   |
| 34  | AA    | 1113 | C    | O4'-C1'-N1  | 6.11  | 113.09      | 108.20   |
| 44  | A8    | 33   | ARG  | NE-CZ-NH1   | 6.11  | 123.36      | 120.30   |
| 21  | F     | 255  | ARG  | NE-CZ-NH1   | 6.11  | 123.36      | 120.30   |
| 34  | AA    | 1556 | G    | C5-C6-O6    | -6.11 | 124.93      | 128.60   |
| 34  | AA    | 1606 | U    | O4'-C1'-N1  | 6.11  | 113.09      | 108.20   |
| 34  | AA    | 2737 | C    | O4'-C1'-N1  | 6.11  | 113.09      | 108.20   |
| 34  | AA    | 3606 | G    | O4'-C1'-N9  | 6.11  | 113.09      | 108.20   |
| 34  | AA    | 142  | C    | O4'-C1'-N1  | 6.11  | 113.09      | 108.20   |
| 34  | AA    | 3387 | U    | O4'-C1'-N1  | 6.11  | 113.09      | 108.20   |
| 24  | L     | 56   | ARG  | NE-CZ-NH2   | -6.11 | 117.25      | 120.30   |
| 1   | A     | 617  | G    | C8-N9-C1'   | -6.11 | 119.06      | 127.00   |
| 1   | A     | 1403 | U    | O4'-C1'-N1  | 6.11  | 113.08      | 108.20   |
| 24  | L     | 92   | ARG  | NE-CZ-NH1   | 6.11  | 123.35      | 120.30   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 1   | A     | 881  | C    | O4'-C1'-N1  | 6.10  | 113.08      | 108.20   |
| 34  | AA    | 312  | A    | C5'-C4'-C3' | -6.10 | 106.23      | 116.00   |
| 34  | AA    | 876  | C    | O4'-C1'-N1  | 6.10  | 113.08      | 108.20   |
| 1   | A     | 89   | C    | O4'-C1'-N1  | 6.10  | 113.08      | 108.20   |
| 1   | A     | 2056 | C    | O4'-C1'-N1  | 6.10  | 113.08      | 108.20   |
| 34  | AA    | 2429 | U    | O4'-C1'-N1  | 6.10  | 113.08      | 108.20   |
| 35  | AC    | 33   | C    | O4'-C1'-N1  | 6.09  | 113.08      | 108.20   |
| 34  | AA    | 3417 | G    | N1-C6-O6    | 6.09  | 123.56      | 119.90   |
| 71  | AF    | 312  | ARG  | NE-CZ-NH1   | 6.09  | 123.35      | 120.30   |
| 46  | Aa    | 66   | ARG  | NE-CZ-NH2   | 6.09  | 123.35      | 120.30   |
| 1   | A     | 2053 | U    | O4'-C1'-N1  | 6.09  | 113.07      | 108.20   |
| 23  | J     | 117  | ARG  | NE-CZ-NH1   | 6.09  | 123.34      | 120.30   |
| 34  | AA    | 3650 | U    | P-O5'-C5'   | 6.09  | 130.64      | 120.90   |
| 35  | AC    | 54   | C    | O4'-C1'-N1  | 6.09  | 113.07      | 108.20   |
| 34  | AA    | 411  | U    | O4'-C1'-N1  | 6.09  | 113.07      | 108.20   |
| 34  | AA    | 630  | U    | O4'-C1'-N1  | 6.09  | 113.07      | 108.20   |
| 74  | AH    | 39   | ARG  | NE-CZ-NH2   | 6.09  | 123.34      | 120.30   |
| 71  | AF    | 121  | ARG  | NE-CZ-NH1   | 6.09  | 123.34      | 120.30   |
| 34  | AA    | 3632 | U    | N1-C2-N3    | 6.08  | 118.55      | 114.90   |
| 56  | Ac    | 66   | ARG  | NE-CZ-NH1   | 6.08  | 123.34      | 120.30   |
| 1   | A     | 400  | C    | O4'-C1'-N1  | 6.08  | 113.07      | 108.20   |
| 1   | A     | 1786 | U    | O4'-C1'-N1  | 6.08  | 113.07      | 108.20   |
| 1   | A     | 1868 | C    | O4'-C1'-N1  | 6.08  | 113.07      | 108.20   |
| 14  | 1     | 115  | ARG  | NE-CZ-NH1   | 6.08  | 123.34      | 120.30   |
| 34  | AA    | 2221 | U    | O4'-C1'-N1  | 6.08  | 113.07      | 108.20   |
| 35  | AC    | 22   | U    | O4'-C1'-N1  | 6.08  | 113.07      | 108.20   |
| 34  | AA    | 1612 | U    | O4'-C1'-N1  | 6.08  | 113.06      | 108.20   |
| 34  | AA    | 2917 | C    | O4'-C1'-N1  | 6.08  | 113.06      | 108.20   |
| 1   | A     | 827  | C    | O4'-C1'-N1  | 6.08  | 113.06      | 108.20   |
| 14  | 1     | 61   | PHE  | CB-CG-CD2   | -6.08 | 116.54      | 120.80   |
| 34  | AA    | 574  | G    | O4'-C1'-N9  | 6.08  | 113.06      | 108.20   |
| 34  | AA    | 54   | C    | O4'-C1'-N1  | 6.08  | 113.06      | 108.20   |
| 34  | AA    | 2973 | U    | O4'-C1'-N1  | 6.08  | 113.06      | 108.20   |
| 1   | A     | 1627 | U    | O4'-C1'-N1  | 6.08  | 113.06      | 108.20   |
| 34  | AA    | 1615 | G    | N1-C6-O6    | 6.08  | 123.55      | 119.90   |
| 76  | Ag    | 39   | ARG  | NE-CZ-NH1   | -6.08 | 117.26      | 120.30   |
| 1   | A     | 1658 | G    | P-O3'-C3'   | -6.07 | 112.41      | 119.70   |
| 1   | A     | 894  | U    | O4'-C1'-N1  | 6.07  | 113.06      | 108.20   |
| 34  | AA    | 744  | G    | C5-C6-O6    | -6.07 | 124.96      | 128.60   |
| 34  | AA    | 3468 | G    | C5-C6-O6    | -6.07 | 124.96      | 128.60   |
| 34  | AA    | 1283 | C    | O4'-C1'-N1  | 6.07  | 113.06      | 108.20   |
| 34  | AA    | 3709 | U    | P-O3'-C3'   | 6.07  | 126.98      | 119.70   |

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| Mol | Chain | Res  | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 1   | A     | 537  | C    | O4'-C1'-N1 | 6.07  | 113.05      | 108.20   |
| 34  | AA    | 1809 | U    | O4'-C1'-N1 | 6.07  | 113.05      | 108.20   |
| 1   | A     | 1423 | A    | O4'-C1'-N9 | 6.07  | 113.05      | 108.20   |
| 1   | A     | 1674 | G    | O4'-C1'-N9 | 6.07  | 113.05      | 108.20   |
| 34  | AA    | 2529 | G    | O4'-C1'-N9 | 6.07  | 113.05      | 108.20   |
| 1   | A     | 2075 | C    | O4'-C1'-N1 | 6.06  | 113.05      | 108.20   |
| 34  | AA    | 1065 | U    | O4'-C1'-N1 | 6.06  | 113.05      | 108.20   |
| 76  | Ag    | 25   | ARG  | NE-CZ-NH1  | 6.06  | 123.33      | 120.30   |
| 1   | A     | 977  | U    | O4'-C1'-N1 | 6.06  | 113.05      | 108.20   |
| 36  | AB    | 20   | U    | O4'-C1'-N1 | 6.06  | 113.05      | 108.20   |
| 1   | A     | 1824 | A    | O4'-C1'-N9 | 6.06  | 113.05      | 108.20   |
| 34  | AA    | 3026 | G    | N1-C6-O6   | 6.06  | 123.54      | 119.90   |
| 34  | AA    | 1237 | C    | O4'-C1'-N1 | 6.06  | 113.05      | 108.20   |
| 1   | A     | 1862 | C    | O4'-C1'-N1 | 6.06  | 113.05      | 108.20   |
| 16  | 3     | 10   | ARG  | NE-CZ-NH1  | 6.06  | 123.33      | 120.30   |
| 34  | AA    | 3776 | U    | O4'-C1'-N1 | 6.06  | 113.05      | 108.20   |
| 34  | AA    | 212  | U    | O4'-C1'-N1 | 6.05  | 113.04      | 108.20   |
| 34  | AA    | 1747 | U    | C2-N1-C1'  | 6.05  | 124.96      | 117.70   |
| 1   | A     | 1301 | G    | O4'-C1'-N9 | 6.05  | 113.04      | 108.20   |
| 34  | AA    | 1658 | G    | C5-C6-O6   | -6.05 | 124.97      | 128.60   |
| 34  | AA    | 1962 | U    | O4'-C1'-N1 | 6.05  | 113.04      | 108.20   |
| 34  | AA    | 1784 | G    | N3-C2-N2   | 6.05  | 124.14      | 119.90   |
| 34  | AA    | 3309 | G    | O4'-C1'-N9 | 6.05  | 113.04      | 108.20   |
| 51  | AP    | 202  | ARG  | NE-CZ-NH1  | 6.05  | 123.32      | 120.30   |
| 34  | AA    | 294  | G    | O4'-C1'-N9 | 6.05  | 113.04      | 108.20   |
| 34  | AA    | 947  | U    | O4'-C1'-N1 | 6.05  | 113.04      | 108.20   |
| 1   | A     | 181  | A    | O4'-C1'-N9 | 6.04  | 113.03      | 108.20   |
| 1   | A     | 292  | G    | O4'-C1'-N9 | 6.04  | 113.03      | 108.20   |
| 34  | AA    | 1455 | C    | O4'-C1'-N1 | 6.04  | 113.03      | 108.20   |
| 1   | A     | 1191 | C    | O4'-C1'-N1 | 6.04  | 113.03      | 108.20   |
| 34  | AA    | 2918 | C    | O4'-C1'-N1 | 6.04  | 113.03      | 108.20   |
| 34  | AA    | 496  | C    | O4'-C1'-N1 | 6.04  | 113.03      | 108.20   |
| 34  | AA    | 92   | G    | N1-C6-O6   | 6.04  | 123.52      | 119.90   |
| 34  | AA    | 1123 | U    | O4'-C1'-N1 | 6.04  | 113.03      | 108.20   |
| 34  | AA    | 1694 | G    | C5-C6-O6   | -6.04 | 124.98      | 128.60   |
| 36  | AB    | 16   | A    | O4'-C1'-N9 | 6.04  | 113.03      | 108.20   |
| 72  | AG    | 140  | ARG  | NE-CZ-NH1  | 6.04  | 123.32      | 120.30   |
| 1   | A     | 522  | G    | N1-C6-O6   | 6.04  | 123.52      | 119.90   |
| 3   | D     | 27   | ARG  | NE-CZ-NH1  | 6.04  | 123.32      | 120.30   |
| 34  | AA    | 78   | U    | O4'-C1'-N1 | 6.04  | 113.03      | 108.20   |
| 34  | AA    | 3113 | U    | O4'-C1'-N1 | 6.04  | 113.03      | 108.20   |
| 34  | AA    | 3306 | G    | O4'-C1'-N9 | 6.04  | 113.03      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 1   | A     | 1025 | U    | O4'-C1'-N1 | 6.03  | 113.03      | 108.20   |
| 29  | T     | 44   | ARG  | NE-CZ-NH1  | 6.03  | 123.32      | 120.30   |
| 34  | AA    | 36   | U    | O4'-C1'-N1 | 6.03  | 113.03      | 108.20   |
| 34  | AA    | 1053 | U    | O4'-C1'-N1 | 6.03  | 113.03      | 108.20   |
| 34  | AA    | 3185 | U    | O4'-C1'-N1 | 6.03  | 113.03      | 108.20   |
| 34  | AA    | 2445 | A    | O4'-C1'-N9 | 6.03  | 113.02      | 108.20   |
| 1   | A     | 985  | U    | O4'-C1'-N1 | 6.03  | 113.02      | 108.20   |
| 1   | A     | 1321 | C    | O4'-C1'-N1 | 6.03  | 113.02      | 108.20   |
| 34  | AA    | 698  | G    | O4'-C1'-N9 | 6.03  | 113.02      | 108.20   |
| 34  | AA    | 3749 | U    | O4'-C1'-N1 | 6.03  | 113.02      | 108.20   |
| 1   | A     | 316  | C    | O4'-C1'-N1 | 6.02  | 113.02      | 108.20   |
| 1   | A     | 1720 | G    | C5-C6-O6   | -6.02 | 124.99      | 128.60   |
| 21  | F     | 145  | ARG  | NE-CZ-NH2  | -6.02 | 117.29      | 120.30   |
| 34  | AA    | 158  | U    | O4'-C1'-N1 | 6.02  | 113.02      | 108.20   |
| 34  | AA    | 3393 | C    | O4'-C1'-N1 | 6.02  | 113.02      | 108.20   |
| 34  | AA    | 3154 | U    | P-O3'-C3'  | -6.02 | 112.48      | 119.70   |
| 1   | A     | 971  | G    | C5-C6-O6   | -6.01 | 124.99      | 128.60   |
| 1   | A     | 1804 | C    | O4'-C1'-N1 | 6.01  | 113.01      | 108.20   |
| 34  | AA    | 3195 | C    | C6-N1-C1'  | -6.01 | 113.58      | 120.80   |
| 36  | AB    | 38   | U    | O4'-C1'-N1 | 6.01  | 113.01      | 108.20   |
| 66  | AZ    | 12   | ARG  | NE-CZ-NH1  | 6.01  | 123.31      | 120.30   |
| 5   | G     | 103  | ARG  | NE-CZ-NH2  | -6.01 | 117.30      | 120.30   |
| 34  | AA    | 1246 | C    | O4'-C1'-N1 | 6.01  | 113.01      | 108.20   |
| 9   | W     | 80   | ARG  | NE-CZ-NH1  | 6.01  | 123.30      | 120.30   |
| 29  | T     | 38   | ARG  | NE-CZ-NH2  | 6.01  | 123.30      | 120.30   |
| 34  | AA    | 3065 | C    | C6-N1-C1'  | -6.01 | 113.59      | 120.80   |
| 36  | AB    | 15   | U    | O4'-C1'-N1 | 6.01  | 113.00      | 108.20   |
| 1   | A     | 1622 | C    | O4'-C1'-N1 | 6.00  | 113.00      | 108.20   |
| 34  | AA    | 2974 | A    | N1-C6-N6   | 6.00  | 122.20      | 118.60   |
| 34  | AA    | 130  | G    | N1-C6-O6   | 6.00  | 123.50      | 119.90   |
| 34  | AA    | 2457 | C    | P-O3'-C3'  | -6.00 | 112.50      | 119.70   |
| 34  | AA    | 3203 | C    | O4'-C1'-N1 | 6.00  | 113.00      | 108.20   |
| 3   | D     | 147  | ARG  | NE-CZ-NH1  | 6.00  | 123.30      | 120.30   |
| 34  | AA    | 1329 | U    | O4'-C1'-N1 | 6.00  | 113.00      | 108.20   |
| 34  | AA    | 2590 | U    | C2-N3-C4   | -6.00 | 123.40      | 127.00   |
| 1   | A     | 632  | C    | O4'-C1'-N1 | 6.00  | 113.00      | 108.20   |
| 1   | A     | 1959 | G    | O4'-C1'-N9 | 6.00  | 113.00      | 108.20   |
| 1   | A     | 186  | U    | O4'-C1'-N1 | 5.99  | 112.99      | 108.20   |
| 1   | A     | 1179 | C    | O4'-C1'-N1 | 5.99  | 113.00      | 108.20   |
| 19  | 6     | 33   | ARG  | NE-CZ-NH1  | -5.99 | 117.30      | 120.30   |
| 1   | A     | 1833 | G    | O4'-C1'-N9 | 5.99  | 112.99      | 108.20   |
| 70  | AE    | 263  | ARG  | NE-CZ-NH1  | 5.99  | 123.30      | 120.30   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 759  | U    | P-O3'-C3'   | -5.99 | 112.51      | 119.70   |
| 34  | AA    | 2822 | U    | O4'-C1'-N1  | 5.99  | 112.99      | 108.20   |
| 1   | A     | 349  | C    | O4'-C1'-N1  | 5.99  | 112.99      | 108.20   |
| 12  | Y     | 86   | ARG  | NE-CZ-NH1   | 5.99  | 123.30      | 120.30   |
| 34  | AA    | 1064 | U    | O4'-C1'-N1  | 5.99  | 112.99      | 108.20   |
| 34  | AA    | 1573 | C    | C2-N1-C1'   | 5.99  | 125.39      | 118.80   |
| 34  | AA    | 2390 | U    | O4'-C1'-N1  | 5.99  | 112.99      | 108.20   |
| 34  | AA    | 1311 | U    | O4'-C1'-N1  | 5.99  | 112.99      | 108.20   |
| 34  | AA    | 1974 | U    | O4'-C1'-N1  | 5.99  | 112.99      | 108.20   |
| 34  | AA    | 2161 | G    | C5-C6-O6    | -5.99 | 125.01      | 128.60   |
| 34  | AA    | 3286 | C    | O4'-C1'-N1  | 5.99  | 112.99      | 108.20   |
| 34  | AA    | 2992 | C    | O4'-C1'-N1  | 5.98  | 112.99      | 108.20   |
| 34  | AA    | 996  | C    | O4'-C1'-N1  | 5.98  | 112.98      | 108.20   |
| 34  | AA    | 2621 | U    | O4'-C1'-N1  | 5.98  | 112.98      | 108.20   |
| 1   | A     | 204  | U    | O4'-C1'-N1  | 5.98  | 112.98      | 108.20   |
| 1   | A     | 1282 | U    | O4'-C1'-N1  | 5.98  | 112.98      | 108.20   |
| 34  | AA    | 3154 | U    | C4'-C3'-C2' | 5.98  | 108.58      | 102.60   |
| 1   | A     | 2032 | U    | O4'-C1'-N1  | 5.97  | 112.98      | 108.20   |
| 34  | AA    | 410  | G    | C5-C6-O6    | -5.97 | 125.02      | 128.60   |
| 34  | AA    | 2524 | C    | O4'-C1'-N1  | 5.97  | 112.98      | 108.20   |
| 73  | AU    | 155  | ARG  | NE-CZ-NH1   | 5.97  | 123.29      | 120.30   |
| 16  | 3     | 39   | PHE  | CB-CG-CD1   | 5.97  | 124.98      | 120.80   |
| 32  | X     | 42   | ARG  | NE-CZ-NH2   | -5.97 | 117.31      | 120.30   |
| 34  | AA    | 171  | C    | O4'-C1'-N1  | 5.97  | 112.98      | 108.20   |
| 34  | AA    | 1805 | U    | C2'-C3'-O3' | 5.97  | 123.26      | 113.70   |
| 1   | A     | 2019 | C    | O4'-C1'-N1  | 5.97  | 112.98      | 108.20   |
| 34  | AA    | 2957 | G    | P-O5'-C5'   | 5.97  | 130.45      | 120.90   |
| 34  | AA    | 3348 | U    | O4'-C1'-N1  | 5.97  | 112.97      | 108.20   |
| 34  | AA    | 3205 | U    | C6-N1-C1'   | -5.97 | 112.84      | 121.20   |
| 1   | A     | 17   | C    | C6-N1-C2    | -5.97 | 117.91      | 120.30   |
| 34  | AA    | 416  | G    | O4'-C1'-N9  | 5.97  | 112.97      | 108.20   |
| 34  | AA    | 2523 | U    | P-O3'-C3'   | 5.97  | 126.86      | 119.70   |
| 68  | A5    | 60   | TYR  | CB-CG-CD2   | -5.97 | 117.42      | 121.00   |
| 1   | A     | 789  | U    | O4'-C1'-N1  | 5.96  | 112.97      | 108.20   |
| 34  | AA    | 1801 | G    | O4'-C1'-N9  | 5.96  | 112.97      | 108.20   |
| 34  | AA    | 3089 | C    | O4'-C1'-N1  | 5.96  | 112.97      | 108.20   |
| 35  | AC    | 156  | A    | O4'-C1'-N9  | 5.96  | 112.97      | 108.20   |
| 1   | A     | 942  | U    | C2-N3-C4    | -5.96 | 123.42      | 127.00   |
| 34  | AA    | 64   | G    | C5-C6-O6    | -5.96 | 125.02      | 128.60   |
| 34  | AA    | 1109 | U    | O4'-C1'-N1  | 5.96  | 112.97      | 108.20   |
| 34  | AA    | 720  | U    | O4'-C1'-N1  | 5.96  | 112.97      | 108.20   |
| 34  | AA    | 975  | G    | C5-C6-O6    | -5.96 | 125.02      | 128.60   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 1095 | U    | O4'-C1'-N1  | 5.96  | 112.97      | 108.20   |
| 34  | AA    | 1415 | A    | O4'-C1'-N9  | 5.96  | 112.97      | 108.20   |
| 34  | AA    | 546  | C    | O4'-C1'-N1  | 5.96  | 112.97      | 108.20   |
| 34  | AA    | 1176 | C    | O4'-C1'-N1  | 5.96  | 112.97      | 108.20   |
| 34  | AA    | 1691 | G    | C5-C6-O6    | -5.96 | 125.02      | 128.60   |
| 34  | AA    | 2938 | C    | O4'-C1'-N1  | 5.96  | 112.97      | 108.20   |
| 1   | A     | 1750 | U    | P-O5'-C5'   | 5.96  | 130.43      | 120.90   |
| 34  | AA    | 676  | U    | O4'-C1'-N1  | 5.96  | 112.96      | 108.20   |
| 34  | AA    | 1101 | A    | O4'-C1'-N9  | 5.96  | 112.96      | 108.20   |
| 74  | AH    | 36   | ARG  | NE-CZ-NH1   | 5.96  | 123.28      | 120.30   |
| 34  | AA    | 232  | C    | O4'-C1'-N1  | 5.95  | 112.96      | 108.20   |
| 34  | AA    | 797  | A    | O4'-C1'-N9  | 5.95  | 112.96      | 108.20   |
| 34  | AA    | 1007 | U    | O4'-C1'-N1  | 5.95  | 112.96      | 108.20   |
| 34  | AA    | 1157 | U    | O4'-C1'-N1  | 5.95  | 112.96      | 108.20   |
| 1   | A     | 1787 | U    | C2-N1-C1'   | 5.95  | 124.84      | 117.70   |
| 1   | A     | 1092 | A    | P-O3'-C3'   | 5.95  | 126.84      | 119.70   |
| 72  | AG    | 32   | ARG  | NE-CZ-NH2   | -5.95 | 117.33      | 120.30   |
| 1   | A     | 1802 | G    | O4'-C1'-N9  | 5.95  | 112.96      | 108.20   |
| 35  | AC    | 105  | U    | O4'-C1'-N1  | 5.95  | 112.96      | 108.20   |
| 1   | A     | 748  | C    | O4'-C1'-N1  | 5.94  | 112.95      | 108.20   |
| 34  | AA    | 3271 | G    | C5-C6-O6    | -5.94 | 125.03      | 128.60   |
| 67  | A3    | 105  | ARG  | NE-CZ-NH2   | 5.94  | 123.27      | 120.30   |
| 34  | AA    | 3772 | C    | O4'-C1'-N1  | 5.94  | 112.95      | 108.20   |
| 20  | B     | 136  | ARG  | NE-CZ-NH1   | -5.94 | 117.33      | 120.30   |
| 34  | AA    | 1522 | A    | O4'-C1'-N9  | 5.94  | 112.95      | 108.20   |
| 34  | AA    | 3364 | A    | O4'-C1'-N9  | 5.94  | 112.95      | 108.20   |
| 34  | AA    | 3273 | G    | O4'-C1'-N9  | 5.94  | 112.95      | 108.20   |
| 1   | A     | 399  | C    | O4'-C1'-N1  | 5.94  | 112.95      | 108.20   |
| 1   | A     | 1291 | C    | O4'-C1'-N1  | 5.94  | 112.95      | 108.20   |
| 1   | A     | 1796 | C    | O4'-C1'-N1  | 5.94  | 112.95      | 108.20   |
| 34  | AA    | 999  | G    | C1'-O4'-C4' | -5.94 | 105.15      | 109.90   |
| 34  | AA    | 1670 | G    | C5-C6-O6    | -5.94 | 125.04      | 128.60   |
| 34  | AA    | 1068 | C    | O4'-C1'-N1  | 5.94  | 112.95      | 108.20   |
| 34  | AA    | 2186 | C    | O4'-C1'-N1  | 5.94  | 112.95      | 108.20   |
| 34  | AA    | 1516 | G    | N1-C6-O6    | 5.93  | 123.46      | 119.90   |
| 56  | Ac    | 59   | ARG  | NE-CZ-NH1   | 5.93  | 123.27      | 120.30   |
| 61  | AQ    | 9    | TYR  | CB-CG-CD2   | -5.93 | 117.44      | 121.00   |
| 34  | AA    | 1540 | G    | C3'-C2'-C1' | -5.93 | 96.75       | 101.50   |
| 34  | AA    | 3112 | U    | O4'-C1'-N1  | 5.93  | 112.94      | 108.20   |
| 34  | AA    | 1817 | G    | O4'-C1'-N9  | 5.93  | 112.94      | 108.20   |
| 34  | AA    | 2701 | U    | O4'-C1'-N1  | 5.93  | 112.94      | 108.20   |
| 1   | A     | 1102 | C    | O4'-C1'-N1  | 5.93  | 112.94      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 1   | A     | 1666 | C    | O4'-C1'-N1  | 5.93  | 112.94      | 108.20   |
| 30  | U     | 73   | ARG  | NE-CZ-NH2   | 5.93  | 123.26      | 120.30   |
| 34  | AA    | 1202 | C    | O4'-C1'-N1  | 5.92  | 112.94      | 108.20   |
| 39  | A2    | 14   | ARG  | NE-CZ-NH1   | 5.92  | 123.26      | 120.30   |
| 1   | A     | 1952 | A    | N1-C6-N6    | 5.92  | 122.15      | 118.60   |
| 34  | AA    | 1763 | G    | C5-C6-O6    | -5.92 | 125.05      | 128.60   |
| 34  | AA    | 2949 | G    | C5-C6-O6    | -5.92 | 125.05      | 128.60   |
| 34  | AA    | 3524 | G    | O4'-C1'-N9  | 5.92  | 112.94      | 108.20   |
| 34  | AA    | 2816 | U    | O4'-C1'-N1  | 5.92  | 112.94      | 108.20   |
| 1   | A     | 623  | G    | O4'-C1'-N9  | 5.92  | 112.94      | 108.20   |
| 34  | AA    | 1847 | C    | O4'-C1'-N1  | 5.92  | 112.94      | 108.20   |
| 34  | AA    | 3298 | G    | O4'-C1'-N9  | 5.92  | 112.94      | 108.20   |
| 1   | A     | 1076 | C    | O4'-C1'-N1  | 5.92  | 112.93      | 108.20   |
| 34  | AA    | 2173 | G    | O4'-C1'-N9  | 5.92  | 112.93      | 108.20   |
| 34  | AA    | 3260 | G    | C5-C6-O6    | -5.92 | 125.05      | 128.60   |
| 34  | AA    | 3486 | G    | O4'-C1'-N9  | 5.92  | 112.93      | 108.20   |
| 34  | AA    | 2699 | C    | O4'-C1'-N1  | 5.92  | 112.93      | 108.20   |
| 1   | A     | 99   | C    | O4'-C1'-N1  | 5.91  | 112.93      | 108.20   |
| 34  | AA    | 1909 | U    | O4'-C1'-N1  | 5.91  | 112.93      | 108.20   |
| 34  | AA    | 3301 | C    | O4'-C1'-N1  | 5.91  | 112.93      | 108.20   |
| 34  | AA    | 491  | C    | O4'-C1'-N1  | 5.91  | 112.93      | 108.20   |
| 34  | AA    | 376  | G    | C5-C6-O6    | -5.91 | 125.05      | 128.60   |
| 34  | AA    | 505  | A    | P-O3'-C3'   | 5.91  | 126.79      | 119.70   |
| 35  | AC    | 35   | A    | O4'-C1'-N9  | 5.91  | 112.93      | 108.20   |
| 1   | A     | 805  | A    | O4'-C1'-N9  | 5.91  | 112.93      | 108.20   |
| 36  | AB    | 60   | U    | O4'-C1'-N1  | 5.91  | 112.93      | 108.20   |
| 34  | AA    | 3365 | U    | O4'-C1'-N1  | 5.91  | 112.93      | 108.20   |
| 1   | A     | 2050 | U    | O4'-C1'-N1  | 5.91  | 112.92      | 108.20   |
| 34  | AA    | 950  | G    | O4'-C1'-N9  | 5.91  | 112.92      | 108.20   |
| 22  | H     | 177  | ARG  | NE-CZ-NH1   | 5.90  | 123.25      | 120.30   |
| 34  | AA    | 548  | U    | O4'-C1'-N1  | 5.90  | 112.92      | 108.20   |
| 34  | AA    | 580  | A    | C5'-C4'-C3' | 5.90  | 125.44      | 116.00   |
| 34  | AA    | 3676 | C    | O4'-C1'-N1  | 5.90  | 112.92      | 108.20   |
| 44  | A8    | 13   | ARG  | NE-CZ-NH1   | 5.90  | 123.25      | 120.30   |
| 59  | AS    | 167  | ARG  | NE-CZ-NH2   | -5.90 | 117.35      | 120.30   |
| 1   | A     | 1893 | C    | C2-N1-C1'   | 5.90  | 125.29      | 118.80   |
| 34  | AA    | 307  | G    | C5-C6-O6    | -5.90 | 125.06      | 128.60   |
| 1   | A     | 1168 | U    | O4'-C1'-N1  | 5.89  | 112.92      | 108.20   |
| 34  | AA    | 1197 | U    | O4'-C1'-N1  | 5.89  | 112.92      | 108.20   |
| 34  | AA    | 3552 | U    | O4'-C1'-N1  | 5.89  | 112.92      | 108.20   |
| 65  | AT    | 103  | ARG  | NE-CZ-NH1   | 5.89  | 123.25      | 120.30   |
| 4   | E     | 44   | ARG  | NE-CZ-NH1   | 5.89  | 123.25      | 120.30   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 2693 | G    | N1-C6-O6    | 5.89  | 123.44      | 119.90   |
| 34  | AA    | 3411 | C    | O4'-C1'-N1  | 5.89  | 112.91      | 108.20   |
| 26  | P     | 141  | ARG  | NE-CZ-NH2   | 5.89  | 123.25      | 120.30   |
| 34  | AA    | 1910 | C    | O4'-C1'-N1  | 5.89  | 112.91      | 108.20   |
| 34  | AA    | 749  | U    | O4'-C1'-N1  | 5.89  | 112.91      | 108.20   |
| 34  | AA    | 1425 | C    | O4'-C1'-N1  | 5.89  | 112.91      | 108.20   |
| 34  | AA    | 2643 | C    | O4'-C1'-N1  | 5.89  | 112.91      | 108.20   |
| 34  | AA    | 3086 | A    | O4'-C1'-N9  | 5.89  | 112.91      | 108.20   |
| 34  | AA    | 268  | C    | O4'-C1'-N1  | 5.89  | 112.91      | 108.20   |
| 34  | AA    | 2520 | C    | O4'-C1'-N1  | 5.89  | 112.91      | 108.20   |
| 34  | AA    | 3654 | C    | O4'-C1'-N1  | 5.89  | 112.91      | 108.20   |
| 1   | A     | 1685 | U    | O4'-C1'-N1  | 5.89  | 112.91      | 108.20   |
| 34  | AA    | 2021 | A    | O4'-C1'-N9  | 5.89  | 112.91      | 108.20   |
| 36  | AB    | 110  | G    | O4'-C1'-N9  | 5.89  | 112.91      | 108.20   |
| 1   | A     | 1006 | C    | O4'-C1'-N1  | 5.88  | 112.91      | 108.20   |
| 34  | AA    | 1568 | C    | O4'-C1'-N1  | 5.88  | 112.91      | 108.20   |
| 35  | AC    | 103  | G    | N1-C6-O6    | 5.88  | 123.43      | 119.90   |
| 36  | AB    | 99   | G    | C5-C6-O6    | -5.88 | 125.07      | 128.60   |
| 1   | A     | 345  | C    | O4'-C1'-N1  | 5.88  | 112.91      | 108.20   |
| 34  | AA    | 1192 | C    | O4'-C1'-N1  | 5.88  | 112.91      | 108.20   |
| 34  | AA    | 1224 | A    | P-O5'-C5'   | 5.88  | 130.31      | 120.90   |
| 68  | A5    | 255  | ARG  | NE-CZ-NH2   | -5.88 | 117.36      | 120.30   |
| 19  | 6     | 29   | ARG  | NE-CZ-NH1   | 5.88  | 123.24      | 120.30   |
| 1   | A     | 1299 | G    | O4'-C1'-N9  | 5.88  | 112.90      | 108.20   |
| 1   | A     | 1795 | G    | O4'-C1'-N9  | 5.88  | 112.90      | 108.20   |
| 2   | 7     | 51   | U    | O4'-C1'-N1  | 5.88  | 112.90      | 108.20   |
| 34  | AA    | 3646 | G    | C5-C6-O6    | -5.88 | 125.07      | 128.60   |
| 65  | AT    | 63   | ARG  | NE-CZ-NH2   | -5.88 | 117.36      | 120.30   |
| 1   | A     | 942  | U    | O4'-C1'-N1  | 5.88  | 112.90      | 108.20   |
| 34  | AA    | 1183 | U    | O4'-C1'-N1  | 5.88  | 112.90      | 108.20   |
| 34  | AA    | 1667 | A    | O4'-C1'-N9  | 5.88  | 112.90      | 108.20   |
| 34  | AA    | 2648 | G    | C5-C6-O6    | -5.88 | 125.07      | 128.60   |
| 1   | A     | 509  | U    | O4'-C1'-N1  | 5.88  | 112.90      | 108.20   |
| 34  | AA    | 1586 | C    | O4'-C1'-N1  | 5.88  | 112.90      | 108.20   |
| 34  | AA    | 2835 | G    | O4'-C1'-N9  | 5.88  | 112.90      | 108.20   |
| 1   | A     | 1207 | U    | O4'-C1'-N1  | 5.87  | 112.90      | 108.20   |
| 1   | A     | 1386 | U    | C2'-C3'-O3' | 5.87  | 123.10      | 113.70   |
| 1   | A     | 1947 | U    | O4'-C1'-N1  | 5.87  | 112.90      | 108.20   |
| 61  | AQ    | 10   | ARG  | NE-CZ-NH1   | 5.87  | 123.24      | 120.30   |
| 1   | A     | 1978 | A    | O4'-C1'-N9  | 5.87  | 112.90      | 108.20   |
| 34  | AA    | 801  | U    | O4'-C1'-N1  | 5.87  | 112.90      | 108.20   |
| 34  | AA    | 1647 | U    | O4'-C1'-N1  | 5.87  | 112.90      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 1   | A     | 1667 | A    | P-O3'-C3'   | 5.87  | 126.74      | 119.70   |
| 34  | AA    | 1256 | U    | O4'-C1'-N1  | 5.87  | 112.90      | 108.20   |
| 2   | 7     | 54   | G    | C5'-C4'-O4' | 5.87  | 116.14      | 109.10   |
| 34  | AA    | 966  | A    | O4'-C1'-N9  | 5.87  | 112.89      | 108.20   |
| 34  | AA    | 2571 | C    | O4'-C1'-N1  | 5.87  | 112.89      | 108.20   |
| 34  | AA    | 3100 | G    | C5-C6-O6    | -5.87 | 125.08      | 128.60   |
| 23  | J     | 123  | TYR  | CB-CG-CD1   | 5.86  | 124.52      | 121.00   |
| 34  | AA    | 1416 | U    | O4'-C1'-N1  | 5.86  | 112.89      | 108.20   |
| 34  | AA    | 3198 | G    | C5-C6-O6    | -5.86 | 125.08      | 128.60   |
| 34  | AA    | 3302 | G    | O4'-C1'-N9  | 5.86  | 112.89      | 108.20   |
| 43  | AN    | 133  | PHE  | CB-CG-CD1   | 5.86  | 124.91      | 120.80   |
| 57  | AK    | 127  | ARG  | NE-CZ-NH1   | 5.86  | 123.23      | 120.30   |
| 34  | AA    | 1303 | C    | O4'-C1'-N1  | 5.86  | 112.89      | 108.20   |
| 34  | AA    | 3092 | G    | O4'-C1'-N9  | 5.86  | 112.89      | 108.20   |
| 1   | A     | 897  | G    | O4'-C1'-N9  | 5.86  | 112.89      | 108.20   |
| 1   | A     | 1298 | C    | P-O3'-C3'   | -5.86 | 112.67      | 119.70   |
| 1   | A     | 380  | U    | O4'-C1'-N1  | 5.86  | 112.89      | 108.20   |
| 2   | 7     | 3    | G    | O4'-C1'-N9  | 5.86  | 112.89      | 108.20   |
| 1   | A     | 1181 | U    | O4'-C1'-N1  | 5.86  | 112.89      | 108.20   |
| 5   | G     | 222  | PHE  | CB-CG-CD2   | -5.86 | 116.70      | 120.80   |
| 34  | AA    | 37   | U    | O4'-C1'-N1  | 5.86  | 112.89      | 108.20   |
| 34  | AA    | 1753 | U    | O4'-C1'-N1  | 5.86  | 112.89      | 108.20   |
| 34  | AA    | 2205 | U    | O4'-C1'-N1  | 5.86  | 112.89      | 108.20   |
| 34  | AA    | 2724 | C    | O4'-C1'-N1  | 5.86  | 112.89      | 108.20   |
| 1   | A     | 96   | C    | O4'-C1'-N1  | 5.86  | 112.89      | 108.20   |
| 1   | A     | 746  | U    | O4'-C1'-N1  | 5.86  | 112.89      | 108.20   |
| 1   | A     | 1980 | A    | C4'-C3'-C2' | -5.86 | 96.74       | 102.60   |
| 3   | D     | 65   | ARG  | NE-CZ-NH1   | 5.86  | 123.23      | 120.30   |
| 34  | AA    | 627  | U    | O4'-C1'-N1  | 5.86  | 112.88      | 108.20   |
| 34  | AA    | 1603 | C    | O4'-C1'-N1  | 5.86  | 112.88      | 108.20   |
| 34  | AA    | 1013 | U    | C1'-O4'-C4' | -5.85 | 105.22      | 109.90   |
| 1   | A     | 430  | C    | O4'-C1'-N1  | 5.85  | 112.88      | 108.20   |
| 34  | AA    | 239  | U    | C2-N1-C1'   | 5.85  | 124.72      | 117.70   |
| 34  | AA    | 1280 | G    | O4'-C1'-N9  | 5.85  | 112.88      | 108.20   |
| 34  | AA    | 2510 | U    | O4'-C1'-N1  | 5.85  | 112.88      | 108.20   |
| 34  | AA    | 3656 | A    | O4'-C1'-N9  | 5.85  | 112.88      | 108.20   |
| 1   | A     | 1954 | U    | O4'-C1'-N1  | 5.85  | 112.88      | 108.20   |
| 34  | AA    | 1282 | U    | O4'-C1'-N1  | 5.85  | 112.88      | 108.20   |
| 34  | AA    | 2123 | C    | O4'-C1'-N1  | 5.85  | 112.88      | 108.20   |
| 73  | AU    | 183  | ARG  | NE-CZ-NH1   | 5.85  | 123.22      | 120.30   |
| 1   | A     | 1170 | C    | O4'-C1'-N1  | 5.85  | 112.88      | 108.20   |
| 4   | E     | 171  | ARG  | NE-CZ-NH2   | 5.85  | 123.22      | 120.30   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 1234 | A    | N1-C6-N6    | 5.85  | 122.11      | 118.60   |
| 34  | AA    | 3522 | C    | O4'-C1'-N1  | 5.85  | 112.88      | 108.20   |
| 1   | A     | 492  | A    | P-O5'-C5'   | 5.85  | 130.25      | 120.90   |
| 34  | AA    | 2486 | U    | P-O3'-C3'   | 5.85  | 126.72      | 119.70   |
| 34  | AA    | 2943 | U    | O4'-C1'-N1  | 5.85  | 112.88      | 108.20   |
| 34  | AA    | 2140 | U    | O4'-C1'-N1  | 5.84  | 112.88      | 108.20   |
| 34  | AA    | 3427 | U    | O4'-C1'-N1  | 5.84  | 112.88      | 108.20   |
| 34  | AA    | 1750 | U    | O4'-C1'-N1  | 5.84  | 112.87      | 108.20   |
| 34  | AA    | 3736 | A    | C1'-O4'-C4' | -5.84 | 105.22      | 109.90   |
| 24  | L     | 31   | ARG  | NE-CZ-NH1   | 5.84  | 123.22      | 120.30   |
| 34  | AA    | 811  | A    | O4'-C1'-N9  | 5.84  | 112.87      | 108.20   |
| 1   | A     | 402  | G    | O4'-C1'-N9  | 5.84  | 112.87      | 108.20   |
| 1   | A     | 824  | A    | O4'-C1'-N9  | 5.84  | 112.87      | 108.20   |
| 1   | A     | 747  | U    | O4'-C1'-N1  | 5.84  | 112.87      | 108.20   |
| 34  | AA    | 581  | C    | O4'-C1'-N1  | 5.84  | 112.87      | 108.20   |
| 34  | AA    | 2607 | U    | O4'-C1'-N1  | 5.84  | 112.87      | 108.20   |
| 34  | AA    | 3142 | U    | O4'-C1'-N1  | 5.84  | 112.87      | 108.20   |
| 34  | AA    | 2216 | G    | N1-C6-O6    | 5.83  | 123.40      | 119.90   |
| 34  | AA    | 3703 | G    | O4'-C1'-N9  | 5.83  | 112.87      | 108.20   |
| 34  | AA    | 108  | C    | O4'-C1'-N1  | 5.83  | 112.86      | 108.20   |
| 34  | AA    | 2714 | U    | O4'-C1'-N1  | 5.83  | 112.86      | 108.20   |
| 34  | AA    | 1157 | U    | P-O3'-C3'   | 5.83  | 126.70      | 119.70   |
| 34  | AA    | 1206 | U    | P-O3'-C3'   | 5.83  | 126.70      | 119.70   |
| 56  | Ac    | 75   | ARG  | NE-CZ-NH1   | 5.83  | 123.22      | 120.30   |
| 34  | AA    | 1676 | C    | O4'-C1'-N1  | 5.83  | 112.86      | 108.20   |
| 34  | AA    | 2802 | U    | O4'-C1'-N1  | 5.83  | 112.86      | 108.20   |
| 1   | A     | 34   | G    | O4'-C1'-N9  | 5.83  | 112.86      | 108.20   |
| 6   | I     | 51   | ARG  | NE-CZ-NH2   | -5.83 | 117.39      | 120.30   |
| 34  | AA    | 594  | C    | O4'-C1'-N1  | 5.83  | 112.86      | 108.20   |
| 1   | A     | 1287 | U    | O4'-C1'-N1  | 5.82  | 112.86      | 108.20   |
| 34  | AA    | 3257 | G    | N1-C6-O6    | 5.82  | 123.39      | 119.90   |
| 35  | AC    | 28   | G    | O4'-C1'-N9  | 5.82  | 112.86      | 108.20   |
| 62  | AR    | 195  | ARG  | NE-CZ-NH1   | -5.82 | 117.39      | 120.30   |
| 1   | A     | 42   | G    | O4'-C1'-N9  | 5.82  | 112.86      | 108.20   |
| 34  | AA    | 2956 | U    | O4'-C1'-N1  | 5.82  | 112.86      | 108.20   |
| 34  | AA    | 3617 | A    | O4'-C1'-N9  | 5.82  | 112.86      | 108.20   |
| 59  | AS    | 27   | ARG  | NE-CZ-NH1   | 5.82  | 123.21      | 120.30   |
| 1   | A     | 1918 | U    | O4'-C1'-N1  | 5.82  | 112.86      | 108.20   |
| 1   | A     | 544  | G    | C4'-C3'-C2' | -5.82 | 96.78       | 102.60   |
| 34  | AA    | 861  | C    | C6-N1-C2    | -5.82 | 117.97      | 120.30   |
| 34  | AA    | 907  | C    | O4'-C1'-N1  | 5.82  | 112.85      | 108.20   |
| 34  | AA    | 3022 | U    | O4'-C1'-N1  | 5.82  | 112.85      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 1448 | C    | O4'-C1'-N1  | 5.82  | 112.85      | 108.20   |
| 34  | AA    | 2071 | U    | O4'-C1'-N1  | 5.82  | 112.85      | 108.20   |
| 34  | AA    | 3775 | G    | O4'-C1'-N9  | 5.82  | 112.85      | 108.20   |
| 35  | AC    | 80   | C    | O4'-C1'-N1  | 5.82  | 112.85      | 108.20   |
| 35  | AC    | 94   | C    | O4'-C1'-N1  | 5.82  | 112.85      | 108.20   |
| 1   | A     | 550  | C    | O4'-C1'-N1  | 5.81  | 112.85      | 108.20   |
| 34  | AA    | 3625 | C    | O4'-C1'-N1  | 5.81  | 112.85      | 108.20   |
| 42  | A7    | 33   | TYR  | CB-CG-CD2   | -5.81 | 117.51      | 121.00   |
| 2   | 7     | 13   | C    | O4'-C1'-N1  | 5.81  | 112.85      | 108.20   |
| 14  | 1     | 91   | ARG  | NE-CZ-NH2   | 5.81  | 123.20      | 120.30   |
| 34  | AA    | 1233 | A    | P-O5'-C5'   | 5.81  | 130.19      | 120.90   |
| 34  | AA    | 1536 | U    | P-O3'-C3'   | 5.81  | 126.67      | 119.70   |
| 34  | AA    | 2693 | G    | C5-C6-O6    | -5.81 | 125.11      | 128.60   |
| 34  | AA    | 3637 | G    | C5-C6-O6    | -5.81 | 125.11      | 128.60   |
| 34  | AA    | 3781 | A    | P-O3'-C3'   | 5.81  | 126.67      | 119.70   |
| 1   | A     | 1108 | A    | P-O3'-C3'   | 5.81  | 126.67      | 119.70   |
| 34  | AA    | 2953 | G    | O4'-C1'-N9  | 5.81  | 112.85      | 108.20   |
| 1   | A     | 1808 | G    | O4'-C1'-N9  | 5.81  | 112.84      | 108.20   |
| 34  | AA    | 240  | U    | O4'-C1'-N1  | 5.81  | 112.84      | 108.20   |
| 26  | P     | 147  | ARG  | NE-CZ-NH2   | 5.80  | 123.20      | 120.30   |
| 1   | A     | 579  | C    | O4'-C1'-N1  | 5.80  | 112.84      | 108.20   |
| 34  | AA    | 1290 | C    | P-O3'-C3'   | 5.80  | 126.66      | 119.70   |
| 34  | AA    | 1721 | C    | O4'-C1'-N1  | 5.80  | 112.84      | 108.20   |
| 71  | AF    | 48   | ARG  | NE-CZ-NH1   | -5.80 | 117.40      | 120.30   |
| 34  | AA    | 1457 | G    | N1-C6-O6    | 5.80  | 123.38      | 119.90   |
| 34  | AA    | 2426 | U    | O4'-C1'-N1  | 5.80  | 112.84      | 108.20   |
| 36  | AB    | 85   | G    | O4'-C1'-N9  | 5.80  | 112.84      | 108.20   |
| 1   | A     | 1718 | C    | P-O3'-C3'   | -5.80 | 112.74      | 119.70   |
| 1   | A     | 454  | U    | O4'-C1'-N1  | 5.80  | 112.84      | 108.20   |
| 27  | Q     | 95   | PHE  | CB-CG-CD1   | -5.80 | 116.74      | 120.80   |
| 34  | AA    | 769  | U    | C6-N1-C1'   | -5.80 | 113.09      | 121.20   |
| 35  | AC    | 145  | A    | C2'-C3'-O3' | 5.80  | 122.97      | 113.70   |
| 34  | AA    | 122  | A    | C5'-C4'-O4' | 5.79  | 116.05      | 109.10   |
| 34  | AA    | 1343 | U    | O4'-C1'-N1  | 5.79  | 112.84      | 108.20   |
| 1   | A     | 1392 | C    | O4'-C1'-N1  | 5.79  | 112.83      | 108.20   |
| 34  | AA    | 3664 | G    | C5-C6-O6    | -5.79 | 125.12      | 128.60   |
| 34  | AA    | 2643 | C    | P-O3'-C3'   | -5.79 | 112.75      | 119.70   |
| 35  | AC    | 149  | C    | O4'-C1'-N1  | 5.79  | 112.83      | 108.20   |
| 1   | A     | 1905 | C    | O4'-C1'-N1  | 5.79  | 112.83      | 108.20   |
| 34  | AA    | 3716 | C    | O4'-C1'-N1  | 5.79  | 112.83      | 108.20   |
| 1   | A     | 753  | U    | P-O3'-C3'   | 5.79  | 126.64      | 119.70   |
| 1   | A     | 1626 | U    | O4'-C1'-N1  | 5.79  | 112.83      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 1   | A     | 1628 | A    | O4'-C1'-N9  | 5.79  | 112.83      | 108.20   |
| 34  | AA    | 3711 | U    | C1'-O4'-C4' | -5.79 | 105.27      | 109.90   |
| 1   | A     | 167  | A    | O4'-C1'-N9  | 5.78  | 112.83      | 108.20   |
| 1   | A     | 596  | C    | O4'-C1'-N1  | 5.78  | 112.83      | 108.20   |
| 1   | A     | 971  | G    | N1-C6-O6    | 5.78  | 123.37      | 119.90   |
| 34  | AA    | 607  | A    | C5-C6-N6    | -5.78 | 119.07      | 123.70   |
| 34  | AA    | 716  | C    | O4'-C1'-N1  | 5.78  | 112.83      | 108.20   |
| 34  | AA    | 2098 | G    | C5-C6-O6    | -5.78 | 125.13      | 128.60   |
| 34  | AA    | 3013 | A    | O4'-C1'-N9  | 5.78  | 112.83      | 108.20   |
| 34  | AA    | 3573 | U    | O4'-C1'-N1  | 5.78  | 112.83      | 108.20   |
| 34  | AA    | 1736 | A    | P-O3'-C3'   | 5.78  | 126.64      | 119.70   |
| 34  | AA    | 2888 | U    | O4'-C1'-N1  | 5.78  | 112.83      | 108.20   |
| 34  | AA    | 3689 | C    | O4'-C1'-N1  | 5.78  | 112.83      | 108.20   |
| 1   | A     | 617  | G    | C4-N9-C1'   | 5.78  | 134.01      | 126.50   |
| 34  | AA    | 421  | C    | O4'-C1'-N1  | 5.78  | 112.82      | 108.20   |
| 34  | AA    | 1797 | A    | P-O5'-C5'   | 5.78  | 130.15      | 120.90   |
| 1   | A     | 1085 | C    | O4'-C1'-N1  | 5.78  | 112.82      | 108.20   |
| 1   | A     | 1433 | A    | C5'-C4'-O4' | 5.78  | 116.03      | 109.10   |
| 34  | AA    | 1604 | U    | O4'-C1'-N1  | 5.78  | 112.82      | 108.20   |
| 1   | A     | 975  | A    | C5'-C4'-O4' | 5.78  | 116.03      | 109.10   |
| 1   | A     | 1942 | G    | C5'-C4'-C3' | -5.78 | 106.76      | 116.00   |
| 34  | AA    | 3639 | G    | C5-C6-O6    | -5.78 | 125.13      | 128.60   |
| 1   | A     | 1635 | C    | O4'-C1'-N1  | 5.77  | 112.82      | 108.20   |
| 20  | B     | 94   | ARG  | NE-CZ-NH1   | 5.77  | 123.19      | 120.30   |
| 34  | AA    | 652  | A    | P-O3'-C3'   | 5.77  | 126.63      | 119.70   |
| 34  | AA    | 2463 | U    | O4'-C1'-N1  | 5.77  | 112.82      | 108.20   |
| 34  | AA    | 1494 | U    | O4'-C1'-N1  | 5.77  | 112.82      | 108.20   |
| 34  | AA    | 2640 | U    | O4'-C1'-N1  | 5.77  | 112.82      | 108.20   |
| 1   | A     | 594  | C    | O4'-C1'-N1  | 5.77  | 112.82      | 108.20   |
| 34  | AA    | 543  | U    | O4'-C1'-N1  | 5.77  | 112.81      | 108.20   |
| 34  | AA    | 1135 | G    | P-O3'-C3'   | 5.77  | 126.62      | 119.70   |
| 2   | 7     | 31   | G    | O4'-C1'-N9  | 5.76  | 112.81      | 108.20   |
| 34  | AA    | 265  | U    | O4'-C1'-N1  | 5.76  | 112.81      | 108.20   |
| 36  | AB    | 84   | U    | P-O3'-C3'   | -5.76 | 112.78      | 119.70   |
| 22  | H     | 98   | ARG  | NE-CZ-NH1   | 5.76  | 123.18      | 120.30   |
| 35  | AC    | 24   | U    | O4'-C1'-N1  | 5.76  | 112.81      | 108.20   |
| 26  | P     | 146  | ARG  | NE-CZ-NH2   | 5.76  | 123.18      | 120.30   |
| 1   | A     | 38   | C    | O4'-C1'-N1  | 5.76  | 112.81      | 108.20   |
| 1   | A     | 207  | G    | C5-C6-O6    | -5.76 | 125.14      | 128.60   |
| 1   | A     | 388  | C    | O4'-C1'-N1  | 5.76  | 112.81      | 108.20   |
| 34  | AA    | 300  | C    | O4'-C1'-N1  | 5.76  | 112.81      | 108.20   |
| 1   | A     | 102  | A    | N1-C6-N6    | -5.76 | 115.14      | 118.60   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 18  | 5     | 38   | ARG  | NE-CZ-NH2   | 5.76  | 123.18      | 120.30   |
| 34  | AA    | 3052 | U    | P-O3'-C3'   | -5.76 | 112.79      | 119.70   |
| 34  | AA    | 652  | A    | C2'-C3'-O3' | 5.76  | 122.91      | 113.70   |
| 34  | AA    | 1210 | A    | O4'-C1'-N9  | 5.76  | 112.80      | 108.20   |
| 34  | AA    | 3445 | C    | O4'-C1'-N1  | 5.76  | 112.81      | 108.20   |
| 1   | A     | 1660 | U    | P-O3'-C3'   | -5.75 | 112.80      | 119.70   |
| 34  | AA    | 1583 | G    | C5-C6-O6    | -5.75 | 125.15      | 128.60   |
| 36  | AB    | 93   | G    | N1-C6-O6    | 5.75  | 123.35      | 119.90   |
| 34  | AA    | 975  | G    | O4'-C1'-N9  | 5.75  | 112.80      | 108.20   |
| 34  | AA    | 2141 | G    | O4'-C1'-N9  | 5.75  | 112.80      | 108.20   |
| 34  | AA    | 2526 | A    | O4'-C1'-N9  | 5.75  | 112.80      | 108.20   |
| 46  | Aa    | 58   | ARG  | NE-CZ-NH2   | 5.75  | 123.18      | 120.30   |
| 77  | AX    | 102  | TYR  | CB-CG-CD2   | -5.75 | 117.55      | 121.00   |
| 34  | AA    | 3742 | C    | O4'-C1'-N1  | 5.75  | 112.80      | 108.20   |
| 34  | AA    | 2092 | G    | N1-C6-O6    | 5.75  | 123.35      | 119.90   |
| 34  | AA    | 2396 | C    | O4'-C1'-N1  | 5.75  | 112.80      | 108.20   |
| 34  | AA    | 2560 | C    | O4'-C1'-N1  | 5.75  | 112.80      | 108.20   |
| 34  | AA    | 2566 | G    | N1-C6-O6    | 5.75  | 123.35      | 119.90   |
| 1   | A     | 295  | U    | O4'-C1'-N1  | 5.74  | 112.80      | 108.20   |
| 1   | A     | 1171 | U    | O4'-C1'-N1  | 5.74  | 112.80      | 108.20   |
| 1   | A     | 1929 | C    | O4'-C1'-N1  | 5.74  | 112.80      | 108.20   |
| 34  | AA    | 2121 | C    | O4'-C1'-N1  | 5.74  | 112.79      | 108.20   |
| 34  | AA    | 2659 | C    | O4'-C1'-N1  | 5.74  | 112.80      | 108.20   |
| 34  | AA    | 3096 | U    | O4'-C1'-N1  | 5.74  | 112.80      | 108.20   |
| 34  | AA    | 3674 | A    | O4'-C1'-N9  | 5.74  | 112.79      | 108.20   |
| 1   | A     | 307  | G    | P-O3'-C3'   | 5.74  | 126.59      | 119.70   |
| 34  | AA    | 892  | U    | P-O3'-C3'   | -5.74 | 112.81      | 119.70   |
| 34  | AA    | 2015 | C    | C1'-O4'-C4' | -5.74 | 105.31      | 109.90   |
| 34  | AA    | 3256 | C    | O4'-C1'-N1  | 5.74  | 112.79      | 108.20   |
| 36  | AB    | 2    | G    | C5-C6-O6    | -5.74 | 125.16      | 128.60   |
| 55  | AJ    | 73   | ARG  | NE-CZ-NH1   | 5.74  | 123.17      | 120.30   |
| 1   | A     | 988  | U    | O4'-C1'-N1  | 5.74  | 112.79      | 108.20   |
| 34  | AA    | 3551 | U    | O4'-C1'-N1  | 5.74  | 112.79      | 108.20   |
| 71  | AF    | 375  | TYR  | CB-CG-CD1   | 5.74  | 124.44      | 121.00   |
| 34  | AA    | 1705 | A    | P-O5'-C5'   | 5.74  | 130.08      | 120.90   |
| 44  | A8    | 27   | ARG  | NH1-CZ-NH2  | -5.74 | 113.09      | 119.40   |
| 56  | Ac    | 14   | ARG  | NE-CZ-NH2   | 5.74  | 123.17      | 120.30   |
| 1   | A     | 201  | G    | C5-C6-O6    | -5.74 | 125.16      | 128.60   |
| 1   | A     | 1251 | G    | O4'-C1'-N9  | 5.74  | 112.79      | 108.20   |
| 1   | A     | 1368 | G    | O4'-C1'-N9  | 5.74  | 112.79      | 108.20   |
| 34  | AA    | 1629 | G    | O4'-C1'-N9  | 5.74  | 112.79      | 108.20   |
| 35  | AC    | 110  | G    | C5-C6-O6    | -5.73 | 125.16      | 128.60   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 1881 | C    | C2'-C3'-O3' | 5.73  | 122.87      | 113.70   |
| 36  | AB    | 7    | G    | O4'-C1'-N9  | 5.73  | 112.79      | 108.20   |
| 62  | AR    | 247  | ARG  | NE-CZ-NH1   | 5.73  | 123.17      | 120.30   |
| 1   | A     | 26   | A    | P-O3'-C3'   | 5.73  | 126.58      | 119.70   |
| 34  | AA    | 2696 | G    | O4'-C1'-N9  | 5.73  | 112.78      | 108.20   |
| 34  | AA    | 2089 | C    | O4'-C1'-N1  | 5.73  | 112.78      | 108.20   |
| 34  | AA    | 3645 | A    | N1-C6-N6    | -5.73 | 115.16      | 118.60   |
| 34  | AA    | 1587 | U    | O4'-C1'-N1  | 5.73  | 112.78      | 108.20   |
| 34  | AA    | 2566 | G    | C5-C6-O6    | -5.73 | 125.16      | 128.60   |
| 34  | AA    | 2806 | U    | O4'-C1'-N1  | 5.73  | 112.78      | 108.20   |
| 1   | A     | 1786 | U    | P-O5'-C5'   | 5.72  | 130.06      | 120.90   |
| 34  | AA    | 659  | U    | C5'-C4'-O4' | 5.72  | 115.97      | 109.10   |
| 34  | AA    | 2597 | C    | O4'-C1'-N1  | 5.72  | 112.78      | 108.20   |
| 34  | AA    | 3014 | C    | O4'-C1'-N1  | 5.72  | 112.78      | 108.20   |
| 1   | A     | 655  | C    | O4'-C1'-N1  | 5.72  | 112.78      | 108.20   |
| 1   | A     | 1321 | C    | C6-N1-C2    | -5.72 | 118.01      | 120.30   |
| 62  | AR    | 141  | ARG  | NE-CZ-NH1   | -5.72 | 117.44      | 120.30   |
| 34  | AA    | 3026 | G    | C5-C6-O6    | -5.72 | 125.17      | 128.60   |
| 1   | A     | 648  | A    | P-O5'-C5'   | 5.72  | 130.05      | 120.90   |
| 1   | A     | 1106 | C    | O4'-C1'-N1  | 5.72  | 112.77      | 108.20   |
| 1   | A     | 1262 | C    | O4'-C1'-N1  | 5.72  | 112.77      | 108.20   |
| 1   | A     | 2006 | U    | O4'-C1'-N1  | 5.72  | 112.77      | 108.20   |
| 34  | AA    | 253  | U    | O4'-C1'-N1  | 5.72  | 112.77      | 108.20   |
| 34  | AA    | 276  | G    | O4'-C1'-N9  | 5.72  | 112.77      | 108.20   |
| 34  | AA    | 1130 | U    | O4'-C1'-N1  | 5.72  | 112.77      | 108.20   |
| 1   | A     | 163  | G    | O4'-C1'-N9  | 5.71  | 112.77      | 108.20   |
| 1   | A     | 1197 | C    | O4'-C1'-N1  | 5.71  | 112.77      | 108.20   |
| 34  | AA    | 1535 | G    | P-O5'-C5'   | 5.71  | 130.04      | 120.90   |
| 1   | A     | 1001 | A    | O4'-C1'-N9  | 5.71  | 112.77      | 108.20   |
| 1   | A     | 1825 | U    | O4'-C1'-N1  | 5.71  | 112.77      | 108.20   |
| 34  | AA    | 1829 | G    | O4'-C1'-N9  | 5.71  | 112.77      | 108.20   |
| 2   | 7     | 43   | C    | O4'-C1'-N1  | 5.71  | 112.77      | 108.20   |
| 32  | X     | 81   | ARG  | NE-CZ-NH2   | -5.71 | 117.44      | 120.30   |
| 1   | A     | 48   | G    | O4'-C1'-N9  | 5.71  | 112.77      | 108.20   |
| 34  | AA    | 1804 | C    | P-O3'-C3'   | 5.71  | 126.55      | 119.70   |
| 34  | AA    | 3121 | G    | O4'-C1'-N9  | 5.71  | 112.77      | 108.20   |
| 35  | AC    | 140  | G    | P-O5'-C5'   | 5.71  | 130.03      | 120.90   |
| 51  | AP    | 188  | SER  | N-CA-CB     | 5.71  | 119.06      | 110.50   |
| 1   | A     | 199  | U    | O4'-C1'-N1  | 5.71  | 112.77      | 108.20   |
| 34  | AA    | 621  | C    | C4'-C3'-C2' | -5.71 | 96.89       | 102.60   |
| 60  | AO    | 127  | ARG  | NE-CZ-NH1   | 5.71  | 123.15      | 120.30   |
| 67  | A3    | 80   | TYR  | CB-CG-CD2   | 5.71  | 124.42      | 121.00   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 3209 | G    | N1-C6-O6    | 5.70  | 123.32      | 119.90   |
| 1   | A     | 109  | C    | O4'-C1'-N1  | 5.70  | 112.76      | 108.20   |
| 34  | AA    | 642  | A    | P-O3'-C3'   | 5.70  | 126.54      | 119.70   |
| 34  | AA    | 1958 | U    | O4'-C1'-N1  | 5.70  | 112.76      | 108.20   |
| 34  | AA    | 2197 | G    | N1-C6-O6    | 5.70  | 123.32      | 119.90   |
| 1   | A     | 520  | U    | O4'-C1'-N1  | 5.70  | 112.76      | 108.20   |
| 34  | AA    | 1634 | G    | O4'-C1'-N9  | 5.70  | 112.76      | 108.20   |
| 1   | A     | 1637 | U    | O4'-C1'-N1  | 5.70  | 112.76      | 108.20   |
| 34  | AA    | 1881 | C    | P-O3'-C3'   | 5.70  | 126.54      | 119.70   |
| 1   | A     | 607  | U    | O4'-C1'-N1  | 5.70  | 112.76      | 108.20   |
| 34  | AA    | 3263 | G    | O4'-C1'-N9  | 5.69  | 112.75      | 108.20   |
| 34  | AA    | 3677 | A    | O4'-C1'-N9  | 5.69  | 112.75      | 108.20   |
| 47  | Ab    | 106  | ARG  | NE-CZ-NH1   | 5.69  | 123.15      | 120.30   |
| 2   | 7     | 34   | U    | O4'-C1'-N1  | 5.69  | 112.75      | 108.20   |
| 34  | AA    | 648  | U    | O4'-C1'-N1  | 5.69  | 112.75      | 108.20   |
| 34  | AA    | 2136 | C    | O4'-C1'-N1  | 5.69  | 112.75      | 108.20   |
| 34  | AA    | 972  | G    | O4'-C1'-N9  | 5.69  | 112.75      | 108.20   |
| 34  | AA    | 2639 | C    | O4'-C1'-N1  | 5.69  | 112.75      | 108.20   |
| 34  | AA    | 3136 | C    | O4'-C1'-N1  | 5.69  | 112.75      | 108.20   |
| 34  | AA    | 1712 | G    | O4'-C1'-N9  | 5.69  | 112.75      | 108.20   |
| 34  | AA    | 111  | C    | O4'-C1'-N1  | 5.69  | 112.75      | 108.20   |
| 34  | AA    | 409  | A    | O4'-C1'-N9  | 5.69  | 112.75      | 108.20   |
| 34  | AA    | 3361 | U    | P-O3'-C3'   | 5.69  | 126.53      | 119.70   |
| 61  | AQ    | 201  | ARG  | NE-CZ-NH1   | 5.69  | 123.14      | 120.30   |
| 34  | AA    | 3137 | U    | P-O3'-C3'   | 5.69  | 126.52      | 119.70   |
| 62  | AR    | 85   | ARG  | NE-CZ-NH2   | 5.69  | 123.14      | 120.30   |
| 21  | F     | 132  | ARG  | NE-CZ-NH2   | 5.68  | 123.14      | 120.30   |
| 34  | AA    | 684  | G    | P-O3'-C3'   | 5.68  | 126.52      | 119.70   |
| 34  | AA    | 2669 | G    | O4'-C1'-N9  | 5.68  | 112.75      | 108.20   |
| 34  | AA    | 364  | C    | O4'-C1'-N1  | 5.68  | 112.74      | 108.20   |
| 34  | AA    | 511  | C    | O4'-C1'-N1  | 5.68  | 112.74      | 108.20   |
| 34  | AA    | 1548 | A    | O4'-C1'-N9  | 5.68  | 112.74      | 108.20   |
| 34  | AA    | 3503 | U    | O4'-C1'-N1  | 5.68  | 112.74      | 108.20   |
| 1   | A     | 1306 | C    | O4'-C1'-N1  | 5.68  | 112.74      | 108.20   |
| 34  | AA    | 1841 | U    | O4'-C1'-N1  | 5.68  | 112.74      | 108.20   |
| 34  | AA    | 3287 | C    | O4'-C1'-N1  | 5.68  | 112.74      | 108.20   |
| 2   | 7     | 4    | U    | O4'-C1'-N1  | 5.68  | 112.74      | 108.20   |
| 1   | A     | 523  | U    | O4'-C1'-N1  | 5.67  | 112.74      | 108.20   |
| 1   | A     | 1288 | U    | O4'-C1'-N1  | 5.67  | 112.74      | 108.20   |
| 34  | AA    | 1230 | A    | C1'-O4'-C4' | -5.67 | 105.36      | 109.90   |
| 34  | AA    | 1763 | G    | O4'-C1'-N9  | 5.67  | 112.74      | 108.20   |
| 34  | AA    | 2813 | U    | O4'-C1'-N1  | 5.67  | 112.74      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 882  | G    | O4'-C1'-N9  | 5.67  | 112.74      | 108.20   |
| 2   | 7     | 37   | U    | P-O3'-C3'   | 5.67  | 126.50      | 119.70   |
| 34  | AA    | 1887 | G    | O4'-C1'-N9  | 5.67  | 112.74      | 108.20   |
| 34  | AA    | 3752 | C    | O4'-C1'-N1  | 5.67  | 112.74      | 108.20   |
| 2   | 7     | 54   | G    | O4'-C1'-N9  | 5.67  | 112.74      | 108.20   |
| 34  | AA    | 3574 | G    | O4'-C1'-N9  | 5.67  | 112.74      | 108.20   |
| 1   | A     | 1881 | G    | C5-C6-O6    | -5.67 | 125.20      | 128.60   |
| 34  | AA    | 1655 | U    | O4'-C1'-N1  | 5.67  | 112.73      | 108.20   |
| 34  | AA    | 2388 | U    | O4'-C1'-N1  | 5.67  | 112.73      | 108.20   |
| 34  | AA    | 2484 | U    | O4'-C1'-N1  | 5.67  | 112.73      | 108.20   |
| 34  | AA    | 3767 | U    | O4'-C1'-N1  | 5.67  | 112.73      | 108.20   |
| 36  | AB    | 13   | A    | C4'-C3'-C2' | -5.67 | 96.93       | 102.60   |
| 62  | AR    | 31   | ARG  | NE-CZ-NH1   | 5.67  | 123.13      | 120.30   |
| 1   | A     | 1955 | G    | C5-C6-O6    | -5.67 | 125.20      | 128.60   |
| 2   | 7     | 55   | U    | O4'-C1'-N1  | 5.67  | 112.73      | 108.20   |
| 35  | AC    | 37   | A    | C2'-C3'-O3' | 5.67  | 122.77      | 113.70   |
| 1   | A     | 370  | G    | O4'-C1'-N9  | 5.67  | 112.73      | 108.20   |
| 1   | A     | 1206 | C    | O4'-C1'-N1  | 5.66  | 112.73      | 108.20   |
| 34  | AA    | 189  | U    | O4'-C1'-N1  | 5.66  | 112.73      | 108.20   |
| 34  | AA    | 2019 | A    | O4'-C1'-N9  | 5.66  | 112.73      | 108.20   |
| 34  | AA    | 3314 | U    | O4'-C1'-N1  | 5.66  | 112.73      | 108.20   |
| 34  | AA    | 130  | G    | C5-C6-O6    | -5.66 | 125.20      | 128.60   |
| 34  | AA    | 328  | G    | N1-C6-O6    | 5.66  | 123.30      | 119.90   |
| 34  | AA    | 622  | U    | O4'-C1'-N1  | 5.66  | 112.73      | 108.20   |
| 34  | AA    | 1511 | U    | O4'-C1'-N1  | 5.66  | 112.73      | 108.20   |
| 34  | AA    | 3267 | C    | O4'-C1'-N1  | 5.66  | 112.73      | 108.20   |
| 68  | A5    | 255  | ARG  | NE-CZ-NH1   | 5.66  | 123.13      | 120.30   |
| 34  | AA    | 133  | U    | O4'-C1'-N1  | 5.66  | 112.73      | 108.20   |
| 34  | AA    | 1690 | A    | N1-C6-N6    | -5.66 | 115.20      | 118.60   |
| 34  | AA    | 1738 | A    | O4'-C1'-N9  | 5.66  | 112.73      | 108.20   |
| 34  | AA    | 3629 | U    | O4'-C1'-N1  | 5.66  | 112.73      | 108.20   |
| 52  | Ah    | 49   | ARG  | NE-CZ-NH2   | 5.66  | 123.13      | 120.30   |
| 34  | AA    | 893  | U    | O4'-C1'-N1  | 5.66  | 112.72      | 108.20   |
| 1   | A     | 1909 | C    | O4'-C1'-N1  | 5.66  | 112.72      | 108.20   |
| 34  | AA    | 794  | C    | O4'-C1'-N1  | 5.66  | 112.72      | 108.20   |
| 34  | AA    | 1104 | U    | O4'-C1'-N1  | 5.66  | 112.72      | 108.20   |
| 34  | AA    | 2817 | U    | O4'-C1'-N1  | 5.66  | 112.72      | 108.20   |
| 35  | AC    | 97   | C    | O4'-C1'-N1  | 5.66  | 112.72      | 108.20   |
| 34  | AA    | 1608 | C    | O4'-C1'-N1  | 5.65  | 112.72      | 108.20   |
| 34  | AA    | 2519 | U    | O4'-C1'-N1  | 5.65  | 112.72      | 108.20   |
| 1   | A     | 171  | U    | O4'-C1'-N1  | 5.65  | 112.72      | 108.20   |
| 1   | A     | 793  | G    | C4'-C3'-C2' | 5.65  | 108.25      | 102.60   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 352  | A    | O4'-C1'-N9  | 5.65  | 112.72      | 108.20   |
| 59  | AS    | 139  | ARG  | NE-CZ-NH1   | 5.65  | 123.12      | 120.30   |
| 58  | AM    | 72   | ARG  | NE-CZ-NH1   | 5.65  | 123.12      | 120.30   |
| 1   | A     | 1091 | C    | O4'-C1'-N1  | 5.65  | 112.72      | 108.20   |
| 1   | A     | 1260 | C    | O4'-C1'-N1  | 5.65  | 112.72      | 108.20   |
| 34  | AA    | 704  | U    | O4'-C1'-N1  | 5.65  | 112.72      | 108.20   |
| 34  | AA    | 3650 | U    | O4'-C1'-N1  | 5.65  | 112.72      | 108.20   |
| 36  | AB    | 112  | U    | O4'-C1'-N1  | 5.65  | 112.72      | 108.20   |
| 62  | AR    | 278  | ARG  | NE-CZ-NH1   | 5.65  | 123.12      | 120.30   |
| 1   | A     | 1435 | C    | O4'-C1'-N1  | 5.64  | 112.72      | 108.20   |
| 34  | AA    | 521  | U    | C4'-C3'-C2' | -5.64 | 96.96       | 102.60   |
| 34  | AA    | 1158 | G    | C5-C6-O6    | -5.64 | 125.21      | 128.60   |
| 34  | AA    | 3727 | A    | O4'-C1'-N9  | 5.64  | 112.72      | 108.20   |
| 34  | AA    | 3777 | G    | O4'-C1'-N9  | 5.64  | 112.71      | 108.20   |
| 1   | A     | 1798 | G    | C5-C6-O6    | -5.64 | 125.22      | 128.60   |
| 34  | AA    | 1037 | C    | O4'-C1'-N1  | 5.64  | 112.71      | 108.20   |
| 1   | A     | 1065 | C    | C6-N1-C2    | -5.64 | 118.05      | 120.30   |
| 22  | H     | 72   | ARG  | NE-CZ-NH1   | 5.64  | 123.12      | 120.30   |
| 27  | Q     | 107  | PHE  | CB-CG-CD2   | -5.64 | 116.85      | 120.80   |
| 34  | AA    | 1428 | G    | N1-C6-O6    | 5.64  | 123.28      | 119.90   |
| 34  | AA    | 2096 | G    | O4'-C1'-N9  | 5.64  | 112.71      | 108.20   |
| 1   | A     | 893  | U    | O4'-C1'-N1  | 5.64  | 112.71      | 108.20   |
| 1   | A     | 2089 | A    | O4'-C1'-N9  | 5.64  | 112.71      | 108.20   |
| 1   | A     | 1314 | U    | O4'-C1'-N1  | 5.64  | 112.71      | 108.20   |
| 34  | AA    | 592  | C    | O4'-C1'-N1  | 5.64  | 112.71      | 108.20   |
| 34  | AA    | 987  | U    | O4'-C1'-N1  | 5.64  | 112.71      | 108.20   |
| 36  | AB    | 4    | C    | O4'-C1'-N1  | 5.64  | 112.71      | 108.20   |
| 34  | AA    | 215  | C    | C2'-C3'-O3' | 5.63  | 122.72      | 113.70   |
| 34  | AA    | 3233 | G    | O4'-C1'-N9  | 5.63  | 112.71      | 108.20   |
| 35  | AC    | 102  | U    | O4'-C1'-N1  | 5.63  | 112.71      | 108.20   |
| 14  | 1     | 120  | ARG  | NE-CZ-NH2   | -5.63 | 117.48      | 120.30   |
| 34  | AA    | 122  | A    | C1'-O4'-C4' | -5.63 | 105.39      | 109.90   |
| 34  | AA    | 243  | U    | O4'-C1'-N1  | 5.63  | 112.70      | 108.20   |
| 34  | AA    | 1727 | U    | O4'-C1'-N1  | 5.63  | 112.70      | 108.20   |
| 1   | A     | 1963 | U    | O4'-C1'-N1  | 5.63  | 112.70      | 108.20   |
| 1   | A     | 1937 | C    | O4'-C1'-N1  | 5.63  | 112.70      | 108.20   |
| 34  | AA    | 350  | A    | O4'-C1'-N9  | 5.63  | 112.70      | 108.20   |
| 34  | AA    | 1994 | U    | O4'-C1'-N1  | 5.63  | 112.70      | 108.20   |
| 34  | AA    | 2112 | G    | O4'-C1'-N9  | 5.63  | 112.70      | 108.20   |
| 34  | AA    | 2554 | G    | C5-C6-O6    | -5.63 | 125.22      | 128.60   |
| 1   | A     | 162  | A    | O4'-C1'-N9  | 5.63  | 112.70      | 108.20   |
| 1   | A     | 1050 | U    | O4'-C1'-N1  | 5.63  | 112.70      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 34  | AA    | 1658 | G    | N1-C6-O6   | 5.63  | 123.28      | 119.90   |
| 73  | AU    | 35   | ARG  | NE-CZ-NH1  | -5.62 | 117.49      | 120.30   |
| 30  | U     | 99   | ARG  | NE-CZ-NH1  | 5.62  | 123.11      | 120.30   |
| 34  | AA    | 1879 | U    | O4'-C1'-N1 | 5.62  | 112.70      | 108.20   |
| 34  | AA    | 3750 | U    | O4'-C1'-N1 | 5.62  | 112.70      | 108.20   |
| 35  | AC    | 127  | C    | O4'-C1'-N1 | 5.62  | 112.70      | 108.20   |
| 35  | AC    | 12   | U    | O4'-C1'-N1 | 5.62  | 112.70      | 108.20   |
| 34  | AA    | 1779 | A    | P-O3'-C3'  | 5.62  | 126.44      | 119.70   |
| 34  | AA    | 140  | A    | O4'-C1'-N9 | 5.62  | 112.69      | 108.20   |
| 34  | AA    | 3072 | A    | O4'-C1'-N9 | 5.62  | 112.69      | 108.20   |
| 2   | 7     | 36   | A    | P-O5'-C5'  | 5.62  | 129.89      | 120.90   |
| 34  | AA    | 1241 | G    | O4'-C1'-N9 | 5.62  | 112.69      | 108.20   |
| 34  | AA    | 3104 | C    | O4'-C1'-N1 | 5.62  | 112.69      | 108.20   |
| 5   | G     | 178  | ARG  | NE-CZ-NH2  | 5.62  | 123.11      | 120.30   |
| 20  | B     | 136  | ARG  | NE-CZ-NH2  | 5.62  | 123.11      | 120.30   |
| 34  | AA    | 2110 | C    | O4'-C1'-N1 | 5.62  | 112.69      | 108.20   |
| 34  | AA    | 1315 | C    | O4'-C1'-N1 | 5.61  | 112.69      | 108.20   |
| 34  | AA    | 3103 | C    | O4'-C1'-N1 | 5.61  | 112.69      | 108.20   |
| 35  | AC    | 66   | C    | O4'-C1'-N1 | 5.61  | 112.69      | 108.20   |
| 1   | A     | 1914 | U    | O4'-C1'-N1 | 5.61  | 112.69      | 108.20   |
| 34  | AA    | 1650 | U    | O4'-C1'-N1 | 5.61  | 112.69      | 108.20   |
| 1   | A     | 1720 | G    | O4'-C1'-N9 | 5.61  | 112.69      | 108.20   |
| 1   | A     | 1924 | U    | O4'-C1'-N1 | 5.61  | 112.69      | 108.20   |
| 35  | AC    | 54   | C    | P-O3'-C3'  | 5.61  | 126.43      | 119.70   |
| 1   | A     | 121  | A    | N1-C6-N6   | -5.61 | 115.24      | 118.60   |
| 1   | A     | 2022 | A    | O4'-C1'-N9 | 5.61  | 112.69      | 108.20   |
| 9   | W     | 58   | MET  | CG-SD-CE   | -5.61 | 91.23       | 100.20   |
| 34  | AA    | 134  | G    | C5-C6-O6   | -5.61 | 125.24      | 128.60   |
| 34  | AA    | 1048 | G    | O4'-C1'-N9 | 5.61  | 112.69      | 108.20   |
| 36  | AB    | 22   | G    | O4'-C1'-N9 | 5.61  | 112.69      | 108.20   |
| 34  | AA    | 2153 | A    | O4'-C1'-N9 | 5.60  | 112.68      | 108.20   |
| 1   | A     | 123  | U    | O4'-C1'-N1 | 5.60  | 112.68      | 108.20   |
| 2   | 7     | 18   | G    | O4'-C1'-N9 | 5.60  | 112.68      | 108.20   |
| 34  | AA    | 834  | U    | O4'-C1'-N1 | 5.60  | 112.68      | 108.20   |
| 34  | AA    | 1903 | C    | C2-N1-C1'  | 5.60  | 124.96      | 118.80   |
| 24  | L     | 51   | ARG  | NE-CZ-NH2  | 5.60  | 123.10      | 120.30   |
| 34  | AA    | 2146 | A    | O4'-C1'-N9 | 5.60  | 112.68      | 108.20   |
| 34  | AA    | 890  | G    | O4'-C1'-N9 | 5.60  | 112.68      | 108.20   |
| 34  | AA    | 1284 | C    | O4'-C1'-N1 | 5.60  | 112.68      | 108.20   |
| 34  | AA    | 2977 | U    | O4'-C1'-N1 | 5.60  | 112.68      | 108.20   |
| 70  | AE    | 305  | MET  | CG-SD-CE   | -5.60 | 91.24       | 100.20   |
| 35  | AC    | 5    | A    | O4'-C1'-N9 | 5.60  | 112.68      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 46  | Aa    | 70   | ARG  | NE-CZ-NH1   | 5.60  | 123.10      | 120.30   |
| 1   | A     | 172  | U    | O4'-C1'-N1  | 5.60  | 112.68      | 108.20   |
| 34  | AA    | 1309 | U    | P-O3'-C3'   | 5.60  | 126.42      | 119.70   |
| 62  | AR    | 23   | ARG  | NE-CZ-NH1   | 5.60  | 123.10      | 120.30   |
| 1   | A     | 1980 | A    | C3'-C2'-C1' | -5.59 | 97.02       | 101.50   |
| 25  | N     | 82   | ARG  | NE-CZ-NH2   | 5.59  | 123.10      | 120.30   |
| 34  | AA    | 1629 | G    | P-O3'-C3'   | -5.59 | 112.99      | 119.70   |
| 35  | AC    | 139  | A    | P-O3'-C3'   | 5.59  | 126.41      | 119.70   |
| 34  | AA    | 2499 | G    | C5'-C4'-O4' | 5.59  | 115.81      | 109.10   |
| 1   | A     | 16   | G    | C5-C6-O6    | -5.59 | 125.25      | 128.60   |
| 1   | A     | 1889 | G    | O4'-C1'-N9  | 5.59  | 112.67      | 108.20   |
| 2   | 7     | 19   | G    | C5-C6-O6    | -5.59 | 125.25      | 128.60   |
| 34  | AA    | 646  | A    | O4'-C1'-N9  | 5.59  | 112.67      | 108.20   |
| 34  | AA    | 3048 | U    | O4'-C1'-N1  | 5.59  | 112.67      | 108.20   |
| 34  | AA    | 3074 | U    | O4'-C1'-N1  | 5.59  | 112.67      | 108.20   |
| 34  | AA    | 1201 | U    | O4'-C1'-N1  | 5.59  | 112.67      | 108.20   |
| 34  | AA    | 1575 | C    | O4'-C1'-N1  | 5.59  | 112.67      | 108.20   |
| 34  | AA    | 2455 | G    | O4'-C1'-N9  | 5.59  | 112.67      | 108.20   |
| 34  | AA    | 2670 | G    | C5-C6-O6    | -5.59 | 125.25      | 128.60   |
| 34  | AA    | 3149 | A    | O4'-C1'-N9  | 5.59  | 112.67      | 108.20   |
| 34  | AA    | 3376 | U    | P-O3'-C3'   | 5.59  | 126.41      | 119.70   |
| 34  | AA    | 174  | U    | P-O3'-C3'   | 5.59  | 126.41      | 119.70   |
| 34  | AA    | 3139 | C    | C6-N1-C1'   | -5.59 | 114.09      | 120.80   |
| 1   | A     | 389  | G    | O4'-C1'-N9  | 5.59  | 112.67      | 108.20   |
| 34  | AA    | 366  | G    | O4'-C1'-N9  | 5.59  | 112.67      | 108.20   |
| 34  | AA    | 451  | C    | C4'-C3'-C2' | 5.59  | 108.19      | 102.60   |
| 34  | AA    | 1304 | C    | O4'-C1'-N1  | 5.59  | 112.67      | 108.20   |
| 34  | AA    | 1551 | C    | O4'-C1'-N1  | 5.59  | 112.67      | 108.20   |
| 1   | A     | 354  | C    | O4'-C1'-N1  | 5.58  | 112.67      | 108.20   |
| 34  | AA    | 2950 | U    | O4'-C1'-N1  | 5.58  | 112.67      | 108.20   |
| 43  | AN    | 133  | PHE  | CB-CG-CD2   | -5.58 | 116.89      | 120.80   |
| 1   | A     | 168  | U    | O4'-C1'-N1  | 5.58  | 112.67      | 108.20   |
| 1   | A     | 1975 | U    | O4'-C1'-N1  | 5.58  | 112.66      | 108.20   |
| 32  | X     | 123  | TYR  | CB-CG-CD1   | -5.58 | 117.65      | 121.00   |
| 34  | AA    | 2005 | A    | O4'-C1'-N9  | 5.58  | 112.67      | 108.20   |
| 34  | AA    | 3122 | A    | N1-C6-N6    | 5.58  | 121.95      | 118.60   |
| 34  | AA    | 3361 | U    | O4'-C1'-N1  | 5.58  | 112.67      | 108.20   |
| 47  | Ab    | 94   | ARG  | NE-CZ-NH2   | 5.58  | 123.09      | 120.30   |
| 1   | A     | 1257 | C    | O4'-C1'-N1  | 5.58  | 112.66      | 108.20   |
| 73  | AU    | 134  | ARG  | NE-CZ-NH2   | 5.58  | 123.09      | 120.30   |
| 1   | A     | 548  | A    | O4'-C1'-N9  | 5.58  | 112.66      | 108.20   |
| 1   | A     | 1605 | C    | O4'-C1'-N1  | 5.58  | 112.66      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 1   | A     | 1705 | C    | O4'-C1'-N1  | 5.58  | 112.66      | 108.20   |
| 1   | A     | 1861 | U    | O4'-C1'-N1  | 5.58  | 112.66      | 108.20   |
| 34  | AA    | 2482 | U    | O4'-C1'-N1  | 5.58  | 112.66      | 108.20   |
| 1   | A     | 24   | U    | O4'-C1'-N1  | 5.58  | 112.66      | 108.20   |
| 1   | A     | 399  | C    | C6-N1-C2    | -5.58 | 118.07      | 120.30   |
| 1   | A     | 923  | U    | C5'-C4'-O4' | 5.58  | 115.79      | 109.10   |
| 1   | A     | 1380 | C    | O4'-C1'-N1  | 5.58  | 112.66      | 108.20   |
| 34  | AA    | 1214 | C    | O4'-C1'-N1  | 5.57  | 112.66      | 108.20   |
| 34  | AA    | 3664 | G    | O4'-C1'-N9  | 5.57  | 112.66      | 108.20   |
| 34  | AA    | 2457 | C    | O4'-C1'-N1  | 5.57  | 112.66      | 108.20   |
| 34  | AA    | 859  | C    | C6-N1-C2    | -5.57 | 118.07      | 120.30   |
| 34  | AA    | 1154 | C    | O4'-C1'-N1  | 5.57  | 112.66      | 108.20   |
| 35  | AC    | 110  | G    | N1-C6-O6    | 5.57  | 123.24      | 119.90   |
| 68  | A5    | 64   | TYR  | CB-CG-CD2   | -5.57 | 117.66      | 121.00   |
| 1   | A     | 1041 | G    | O4'-C1'-N9  | 5.57  | 112.66      | 108.20   |
| 1   | A     | 2023 | A    | C5-C6-N6    | -5.57 | 119.25      | 123.70   |
| 34  | AA    | 215  | C    | O4'-C1'-N1  | 5.57  | 112.65      | 108.20   |
| 34  | AA    | 2653 | C    | O4'-C1'-N1  | 5.57  | 112.65      | 108.20   |
| 73  | AU    | 124  | ARG  | NE-CZ-NH2   | 5.57  | 123.08      | 120.30   |
| 1   | A     | 957  | U    | O4'-C1'-N1  | 5.57  | 112.65      | 108.20   |
| 1   | A     | 1642 | U    | O4'-C1'-N1  | 5.57  | 112.65      | 108.20   |
| 34  | AA    | 2207 | G    | O4'-C1'-N9  | 5.57  | 112.65      | 108.20   |
| 34  | AA    | 2462 | C    | O4'-C1'-N1  | 5.57  | 112.65      | 108.20   |
| 1   | A     | 866  | A    | O4'-C1'-N9  | 5.56  | 112.65      | 108.20   |
| 1   | A     | 508  | U    | O4'-C1'-N1  | 5.56  | 112.65      | 108.20   |
| 30  | U     | 124  | ARG  | NE-CZ-NH2   | 5.56  | 123.08      | 120.30   |
| 1   | A     | 1940 | U    | O4'-C1'-N1  | 5.56  | 112.65      | 108.20   |
| 1   | A     | 272  | U    | P-O5'-C5'   | 5.56  | 129.80      | 120.90   |
| 34  | AA    | 1277 | G    | O4'-C1'-N9  | 5.56  | 112.65      | 108.20   |
| 34  | AA    | 3238 | C    | O4'-C1'-N1  | 5.56  | 112.65      | 108.20   |
| 1   | A     | 1417 | U    | O4'-C1'-N1  | 5.56  | 112.65      | 108.20   |
| 1   | A     | 2030 | U    | O4'-C1'-N1  | 5.56  | 112.65      | 108.20   |
| 34  | AA    | 1643 | U    | O4'-C1'-C2' | -5.56 | 100.24      | 105.80   |
| 34  | AA    | 1053 | U    | C2-N3-C4    | -5.56 | 123.67      | 127.00   |
| 34  | AA    | 3099 | C    | O4'-C1'-N1  | 5.56  | 112.64      | 108.20   |
| 34  | AA    | 1254 | G    | C5-C6-O6    | -5.55 | 125.27      | 128.60   |
| 2   | 7     | 37   | U    | P-O5'-C5'   | 5.55  | 129.78      | 120.90   |
| 1   | A     | 1381 | C    | O4'-C1'-N1  | 5.55  | 112.64      | 108.20   |
| 1   | A     | 2051 | C    | P-O3'-C3'   | 5.55  | 126.36      | 119.70   |
| 6   | I     | 86   | TYR  | CB-CG-CD2   | 5.55  | 124.33      | 121.00   |
| 34  | AA    | 1085 | U    | O4'-C1'-N1  | 5.55  | 112.64      | 108.20   |
| 34  | AA    | 2069 | C    | O4'-C1'-N1  | 5.55  | 112.64      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 36  | AB    | 14   | C    | O4'-C1'-N1  | 5.55  | 112.64      | 108.20   |
| 34  | AA    | 1218 | C    | O4'-C1'-N1  | 5.55  | 112.64      | 108.20   |
| 34  | AA    | 2004 | U    | C6-N1-C1'   | -5.55 | 113.43      | 121.20   |
| 34  | AA    | 31   | C    | O4'-C1'-N1  | 5.55  | 112.64      | 108.20   |
| 34  | AA    | 184  | U    | P-O3'-C3'   | 5.55  | 126.36      | 119.70   |
| 1   | A     | 2053 | U    | C2'-C3'-O3' | 5.55  | 122.58      | 113.70   |
| 34  | AA    | 338  | U    | O4'-C1'-N1  | 5.55  | 112.64      | 108.20   |
| 34  | AA    | 2111 | C    | O4'-C1'-N1  | 5.55  | 112.64      | 108.20   |
| 2   | 7     | 63   | U    | O4'-C1'-N1  | 5.54  | 112.64      | 108.20   |
| 57  | AK    | 84   | ARG  | NE-CZ-NH2   | 5.54  | 123.07      | 120.30   |
| 1   | A     | 1878 | C    | O4'-C1'-N1  | 5.54  | 112.64      | 108.20   |
| 34  | AA    | 2215 | G    | P-O3'-C3'   | 5.54  | 126.35      | 119.70   |
| 1   | A     | 82   | G    | C5'-C4'-C3' | 5.54  | 124.86      | 116.00   |
| 1   | A     | 2088 | C    | P-O3'-C3'   | 5.54  | 126.35      | 119.70   |
| 29  | T     | 30   | ARG  | NE-CZ-NH1   | 5.54  | 123.07      | 120.30   |
| 34  | AA    | 170  | U    | O4'-C1'-N1  | 5.54  | 112.63      | 108.20   |
| 34  | AA    | 1872 | A    | O4'-C1'-N9  | 5.54  | 112.63      | 108.20   |
| 35  | AC    | 96   | U    | O4'-C1'-N1  | 5.54  | 112.63      | 108.20   |
| 68  | A5    | 86   | ARG  | NE-CZ-NH1   | 5.54  | 123.07      | 120.30   |
| 34  | AA    | 2514 | G    | C5-C6-O6    | -5.54 | 125.28      | 128.60   |
| 49  | Ae    | 6    | ARG  | NE-CZ-NH1   | 5.54  | 123.07      | 120.30   |
| 59  | AS    | 151  | PHE  | CB-CG-CD2   | -5.54 | 116.92      | 120.80   |
| 1   | A     | 2008 | U    | O4'-C1'-N1  | 5.54  | 112.63      | 108.20   |
| 34  | AA    | 1034 | A    | N1-C6-N6    | -5.54 | 115.28      | 118.60   |
| 34  | AA    | 1666 | A    | O4'-C1'-N9  | 5.54  | 112.63      | 108.20   |
| 34  | AA    | 3546 | C    | O4'-C1'-N1  | 5.54  | 112.63      | 108.20   |
| 60  | AO    | 108  | PHE  | CB-CG-CD2   | -5.54 | 116.92      | 120.80   |
| 1   | A     | 428  | G    | O4'-C1'-N9  | 5.53  | 112.63      | 108.20   |
| 24  | L     | 188  | ARG  | NE-CZ-NH1   | 5.53  | 123.07      | 120.30   |
| 34  | AA    | 1019 | A    | O4'-C1'-N9  | 5.53  | 112.63      | 108.20   |
| 34  | AA    | 1276 | G    | C5'-C4'-O4' | 5.53  | 115.74      | 109.10   |
| 1   | A     | 530  | U    | O4'-C1'-N1  | 5.53  | 112.62      | 108.20   |
| 2   | 7     | 29   | G    | O4'-C1'-N9  | 5.53  | 112.62      | 108.20   |
| 9   | W     | 67   | ARG  | NE-CZ-NH2   | 5.53  | 123.06      | 120.30   |
| 34  | AA    | 2030 | G    | O4'-C1'-N9  | 5.53  | 112.62      | 108.20   |
| 1   | A     | 1411 | G    | O4'-C1'-N9  | 5.53  | 112.62      | 108.20   |
| 34  | AA    | 187  | U    | O4'-C1'-N1  | 5.53  | 112.62      | 108.20   |
| 34  | AA    | 684  | G    | C5-C6-O6    | -5.53 | 125.28      | 128.60   |
| 34  | AA    | 1280 | G    | P-O3'-C3'   | 5.53  | 126.33      | 119.70   |
| 34  | AA    | 2518 | U    | O4'-C1'-N1  | 5.53  | 112.62      | 108.20   |
| 34  | AA    | 3347 | C    | O4'-C1'-N1  | 5.53  | 112.62      | 108.20   |
| 73  | AU    | 116  | TYR  | CB-CG-CD2   | -5.53 | 117.69      | 121.00   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 44  | A8    | 111  | ARG  | NE-CZ-NH2   | 5.52  | 123.06      | 120.30   |
| 34  | AA    | 1005 | C    | O4'-C1'-N1  | 5.52  | 112.62      | 108.20   |
| 34  | AA    | 1959 | G    | O4'-C1'-N9  | 5.52  | 112.62      | 108.20   |
| 34  | AA    | 2103 | C    | P-O3'-C3'   | -5.52 | 113.07      | 119.70   |
| 34  | AA    | 3688 | G    | P-O3'-C3'   | 5.52  | 126.33      | 119.70   |
| 75  | AV    | 131  | ARG  | NE-CZ-NH2   | -5.52 | 117.54      | 120.30   |
| 1   | A     | 1226 | A    | O4'-C1'-N9  | 5.52  | 112.62      | 108.20   |
| 34  | AA    | 285  | U    | O4'-C1'-N1  | 5.52  | 112.62      | 108.20   |
| 34  | AA    | 2976 | A    | P-O3'-C3'   | -5.52 | 113.07      | 119.70   |
| 1   | A     | 973  | G    | C5-C6-O6    | -5.52 | 125.29      | 128.60   |
| 1   | A     | 1295 | A    | O4'-C1'-N9  | 5.52  | 112.62      | 108.20   |
| 1   | A     | 1638 | U    | O4'-C1'-N1  | 5.52  | 112.61      | 108.20   |
| 34  | AA    | 245  | U    | C5'-C4'-O4' | 5.52  | 115.72      | 109.10   |
| 34  | AA    | 1898 | U    | O4'-C1'-N1  | 5.52  | 112.62      | 108.20   |
| 1   | A     | 17   | C    | C2-N1-C1'   | 5.52  | 124.87      | 118.80   |
| 1   | A     | 858  | U    | O4'-C1'-N1  | 5.52  | 112.61      | 108.20   |
| 34  | AA    | 618  | U    | O4'-C1'-N1  | 5.52  | 112.61      | 108.20   |
| 34  | AA    | 3450 | G    | C5-C6-O6    | -5.52 | 125.29      | 128.60   |
| 57  | AK    | 134  | TYR  | CB-CG-CD1   | -5.52 | 117.69      | 121.00   |
| 78  | A0    | 57   | ARG  | NE-CZ-NH1   | 5.52  | 123.06      | 120.30   |
| 1   | A     | 1243 | A    | O4'-C1'-N9  | 5.52  | 112.61      | 108.20   |
| 1   | A     | 10   | G    | O4'-C1'-N9  | 5.51  | 112.61      | 108.20   |
| 34  | AA    | 230  | G    | O4'-C1'-N9  | 5.51  | 112.61      | 108.20   |
| 34  | AA    | 2182 | G    | O4'-C1'-N9  | 5.51  | 112.61      | 108.20   |
| 1   | A     | 591  | C    | O4'-C1'-N1  | 5.51  | 112.61      | 108.20   |
| 1   | A     | 809  | U    | O4'-C1'-N1  | 5.51  | 112.61      | 108.20   |
| 1   | A     | 1188 | A    | O4'-C1'-N9  | 5.51  | 112.61      | 108.20   |
| 34  | AA    | 969  | U    | O4'-C1'-N1  | 5.51  | 112.61      | 108.20   |
| 34  | AA    | 1119 | G    | O4'-C1'-N9  | 5.51  | 112.61      | 108.20   |
| 34  | AA    | 1424 | C    | O4'-C1'-N1  | 5.51  | 112.61      | 108.20   |
| 34  | AA    | 3748 | U    | O4'-C1'-N1  | 5.51  | 112.61      | 108.20   |
| 1   | A     | 103  | U    | O4'-C1'-N1  | 5.51  | 112.61      | 108.20   |
| 34  | AA    | 76   | G    | C5-C6-O6    | -5.51 | 125.30      | 128.60   |
| 34  | AA    | 964  | G    | O4'-C1'-N9  | 5.51  | 112.61      | 108.20   |
| 34  | AA    | 3110 | A    | P-O3'-C3'   | 5.51  | 126.31      | 119.70   |
| 12  | Y     | 107  | ARG  | NE-CZ-NH1   | 5.51  | 123.05      | 120.30   |
| 34  | AA    | 41   | G    | O4'-C1'-N9  | 5.51  | 112.61      | 108.20   |
| 34  | AA    | 386  | U    | O4'-C1'-N1  | 5.51  | 112.61      | 108.20   |
| 34  | AA    | 1082 | G    | O4'-C1'-N9  | 5.51  | 112.61      | 108.20   |
| 34  | AA    | 1243 | G    | N1-C6-O6    | 5.51  | 123.20      | 119.90   |
| 50  | Af    | 46   | ARG  | NE-CZ-NH1   | -5.51 | 117.55      | 120.30   |
| 1   | A     | 896  | U    | O4'-C1'-N1  | 5.50  | 112.60      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 1   | A     | 1068 | U    | O4'-C1'-N1  | 5.50  | 112.60      | 108.20   |
| 34  | AA    | 2815 | G    | C5-C6-O6    | -5.50 | 125.30      | 128.60   |
| 34  | AA    | 1658 | G    | O4'-C1'-N9  | 5.50  | 112.60      | 108.20   |
| 34  | AA    | 3025 | U    | O4'-C1'-N1  | 5.50  | 112.60      | 108.20   |
| 75  | AV    | 37   | TYR  | CB-CG-CD1   | 5.50  | 124.30      | 121.00   |
| 34  | AA    | 337  | A    | P-O3'-C3'   | 5.50  | 126.30      | 119.70   |
| 34  | AA    | 1705 | A    | C2'-C3'-O3' | 5.50  | 122.50      | 113.70   |
| 34  | AA    | 3508 | A    | O4'-C1'-N9  | 5.50  | 112.60      | 108.20   |
| 2   | 7     | 40   | U    | C5'-C4'-C3' | 5.50  | 124.80      | 116.00   |
| 34  | AA    | 1530 | G    | O4'-C1'-N9  | 5.50  | 112.60      | 108.20   |
| 1   | A     | 161  | U    | C6-N1-C1'   | -5.50 | 113.50      | 121.20   |
| 34  | AA    | 282  | U    | O4'-C1'-N1  | 5.50  | 112.60      | 108.20   |
| 34  | AA    | 586  | U    | O4'-C1'-N1  | 5.50  | 112.60      | 108.20   |
| 34  | AA    | 270  | U    | O4'-C1'-N1  | 5.50  | 112.60      | 108.20   |
| 34  | AA    | 575  | U    | O4'-C1'-N1  | 5.50  | 112.60      | 108.20   |
| 34  | AA    | 1600 | C    | O4'-C1'-N1  | 5.50  | 112.60      | 108.20   |
| 1   | A     | 304  | C    | O4'-C1'-N1  | 5.50  | 112.60      | 108.20   |
| 34  | AA    | 717  | G    | O4'-C1'-N9  | 5.50  | 112.60      | 108.20   |
| 34  | AA    | 1854 | U    | O4'-C1'-N1  | 5.50  | 112.60      | 108.20   |
| 2   | 7     | 69   | U    | O4'-C1'-N1  | 5.49  | 112.59      | 108.20   |
| 23  | J     | 140  | ARG  | NE-CZ-NH2   | 5.49  | 123.05      | 120.30   |
| 34  | AA    | 3339 | U    | O4'-C1'-N1  | 5.49  | 112.59      | 108.20   |
| 34  | AA    | 3586 | U    | O4'-C1'-N1  | 5.49  | 112.59      | 108.20   |
| 73  | AU    | 93   | ARG  | NE-CZ-NH1   | 5.49  | 123.05      | 120.30   |
| 34  | AA    | 458  | A    | O4'-C1'-N9  | 5.49  | 112.59      | 108.20   |
| 34  | AA    | 3018 | A    | O4'-C1'-N9  | 5.49  | 112.59      | 108.20   |
| 34  | AA    | 2729 | U    | O4'-C1'-N1  | 5.49  | 112.59      | 108.20   |
| 34  | AA    | 3147 | A    | P-O3'-C3'   | 5.49  | 126.29      | 119.70   |
| 69  | AD    | 65   | ARG  | NE-CZ-NH1   | 5.49  | 123.05      | 120.30   |
| 34  | AA    | 2942 | G    | O4'-C1'-N9  | 5.49  | 112.59      | 108.20   |
| 37  | AL    | 197  | ARG  | NE-CZ-NH2   | 5.49  | 123.04      | 120.30   |
| 34  | AA    | 1784 | G    | N1-C2-N2    | -5.49 | 111.26      | 116.20   |
| 71  | AF    | 291  | ARG  | NE-CZ-NH1   | 5.49  | 123.04      | 120.30   |
| 34  | AA    | 671  | U    | O4'-C1'-N1  | 5.48  | 112.59      | 108.20   |
| 34  | AA    | 1426 | C    | O4'-C1'-N1  | 5.48  | 112.59      | 108.20   |
| 1   | A     | 1654 | G    | O4'-C1'-N9  | 5.48  | 112.58      | 108.20   |
| 34  | AA    | 3582 | G    | O4'-C1'-N9  | 5.48  | 112.58      | 108.20   |
| 1   | A     | 1242 | G    | O4'-C1'-N9  | 5.48  | 112.58      | 108.20   |
| 6   | I     | 82   | ARG  | NE-CZ-NH1   | 5.48  | 123.04      | 120.30   |
| 34  | AA    | 3169 | C    | O4'-C1'-N1  | 5.48  | 112.58      | 108.20   |
| 34  | AA    | 3243 | C    | O4'-C1'-N1  | 5.48  | 112.58      | 108.20   |
| 34  | AA    | 1593 | G    | C5-C6-O6    | -5.47 | 125.32      | 128.60   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 1   | A     | 1718 | C    | O4'-C1'-N1  | 5.47  | 112.58      | 108.20   |
| 34  | AA    | 134  | G    | N1-C6-O6    | 5.47  | 123.18      | 119.90   |
| 34  | AA    | 650  | U    | C5'-C4'-O4' | 5.47  | 115.67      | 109.10   |
| 6   | I     | 62   | ARG  | NE-CZ-NH1   | -5.47 | 117.56      | 120.30   |
| 34  | AA    | 193  | C    | O4'-C1'-N1  | 5.47  | 112.58      | 108.20   |
| 34  | AA    | 659  | U    | C5'-C4'-C3' | -5.47 | 107.25      | 116.00   |
| 34  | AA    | 1026 | G    | O4'-C1'-C2' | -5.47 | 100.33      | 105.80   |
| 34  | AA    | 178  | U    | O4'-C1'-N1  | 5.47  | 112.58      | 108.20   |
| 1   | A     | 1409 | U    | C2-N1-C1'   | 5.47  | 124.26      | 117.70   |
| 1   | A     | 1977 | G    | O4'-C1'-N9  | 5.47  | 112.57      | 108.20   |
| 34  | AA    | 545  | C    | O4'-C1'-N1  | 5.47  | 112.57      | 108.20   |
| 34  | AA    | 813  | G    | C5-C6-O6    | -5.47 | 125.32      | 128.60   |
| 34  | AA    | 826  | U    | O4'-C1'-N1  | 5.47  | 112.57      | 108.20   |
| 34  | AA    | 1008 | U    | O4'-C1'-N1  | 5.47  | 112.57      | 108.20   |
| 34  | AA    | 3568 | G    | O4'-C1'-N9  | 5.47  | 112.57      | 108.20   |
| 34  | AA    | 3785 | G    | O4'-C1'-N9  | 5.47  | 112.57      | 108.20   |
| 50  | Af    | 46   | ARG  | NE-CZ-NH2   | 5.47  | 123.03      | 120.30   |
| 1   | A     | 1384 | U    | O4'-C1'-N1  | 5.46  | 112.57      | 108.20   |
| 34  | AA    | 580  | A    | O4'-C1'-N9  | 5.46  | 112.57      | 108.20   |
| 34  | AA    | 703  | U    | O4'-C1'-N1  | 5.46  | 112.57      | 108.20   |
| 51  | AP    | 67   | ARG  | NE-CZ-NH1   | -5.46 | 117.57      | 120.30   |
| 34  | AA    | 1211 | U    | O4'-C1'-N1  | 5.46  | 112.57      | 108.20   |
| 34  | AA    | 3184 | C    | O4'-C1'-N1  | 5.46  | 112.57      | 108.20   |
| 74  | AH    | 80   | PHE  | CB-CG-CD2   | -5.46 | 116.98      | 120.80   |
| 1   | A     | 1173 | C    | C6-N1-C2    | -5.46 | 118.11      | 120.30   |
| 34  | AA    | 50   | U    | O4'-C1'-N1  | 5.46  | 112.57      | 108.20   |
| 34  | AA    | 117  | C    | O4'-C1'-N1  | 5.46  | 112.57      | 108.20   |
| 34  | AA    | 1021 | G    | O4'-C1'-N9  | 5.46  | 112.57      | 108.20   |
| 34  | AA    | 1332 | A    | O4'-C1'-N9  | 5.46  | 112.57      | 108.20   |
| 41  | A6    | 89   | ARG  | NE-CZ-NH1   | 5.46  | 123.03      | 120.30   |
| 34  | AA    | 3033 | A    | O4'-C1'-N9  | 5.46  | 112.57      | 108.20   |
| 34  | AA    | 61   | A    | C2'-C3'-O3' | 5.46  | 122.43      | 113.70   |
| 34  | AA    | 991  | A    | O4'-C1'-N9  | 5.46  | 112.56      | 108.20   |
| 34  | AA    | 1197 | U    | P-O3'-C3'   | 5.46  | 126.25      | 119.70   |
| 34  | AA    | 1238 | C    | O4'-C1'-N1  | 5.46  | 112.57      | 108.20   |
| 34  | AA    | 1790 | U    | O4'-C1'-N1  | 5.46  | 112.56      | 108.20   |
| 34  | AA    | 2455 | G    | N1-C6-O6    | 5.46  | 123.17      | 119.90   |
| 1   | A     | 624  | U    | O4'-C1'-N1  | 5.45  | 112.56      | 108.20   |
| 34  | AA    | 27   | U    | O4'-C1'-N1  | 5.45  | 112.56      | 108.20   |
| 34  | AA    | 244  | U    | O4'-C1'-N1  | 5.45  | 112.56      | 108.20   |
| 63  | AW    | 123  | ARG  | NE-CZ-NH1   | 5.45  | 123.03      | 120.30   |
| 34  | AA    | 1695 | A    | O4'-C1'-N9  | 5.45  | 112.56      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 2415 | G    | O4'-C1'-N9  | 5.45  | 112.56      | 108.20   |
| 34  | AA    | 220  | G    | O4'-C1'-N9  | 5.45  | 112.56      | 108.20   |
| 1   | A     | 1859 | A    | O4'-C1'-N9  | 5.45  | 112.56      | 108.20   |
| 1   | A     | 2085 | G    | N1-C6-O6    | 5.45  | 123.17      | 119.90   |
| 34  | AA    | 834  | U    | P-O3'-C3'   | 5.45  | 126.24      | 119.70   |
| 34  | AA    | 1630 | A    | C5'-C4'-C3' | -5.45 | 107.28      | 116.00   |
| 34  | AA    | 2999 | C    | O4'-C1'-N1  | 5.45  | 112.56      | 108.20   |
| 34  | AA    | 3159 | G    | N1-C6-O6    | 5.45  | 123.17      | 119.90   |
| 1   | A     | 355  | U    | O4'-C1'-N1  | 5.45  | 112.56      | 108.20   |
| 1   | A     | 1950 | C    | O4'-C1'-N1  | 5.45  | 112.56      | 108.20   |
| 34  | AA    | 2472 | C    | O4'-C1'-N1  | 5.45  | 112.56      | 108.20   |
| 35  | AC    | 18   | U    | O4'-C1'-N1  | 5.45  | 112.56      | 108.20   |
| 1   | A     | 609  | U    | O4'-C1'-N1  | 5.45  | 112.56      | 108.20   |
| 1   | A     | 1051 | U    | O4'-C1'-N1  | 5.45  | 112.56      | 108.20   |
| 34  | AA    | 353  | G    | C2'-C3'-O3' | 5.45  | 122.41      | 113.70   |
| 34  | AA    | 1730 | A    | N1-C6-N6    | -5.45 | 115.33      | 118.60   |
| 1   | A     | 588  | U    | P-O3'-C3'   | 5.44  | 126.23      | 119.70   |
| 7   | K     | 58   | SER  | N-CA-CB     | 5.44  | 118.67      | 110.50   |
| 1   | A     | 90   | U    | O4'-C1'-N1  | 5.44  | 112.55      | 108.20   |
| 1   | A     | 575  | G    | C5-C6-O6    | -5.44 | 125.33      | 128.60   |
| 34  | AA    | 761  | U    | O4'-C1'-N1  | 5.44  | 112.55      | 108.20   |
| 1   | A     | 1046 | A    | O4'-C1'-N9  | 5.44  | 112.55      | 108.20   |
| 34  | AA    | 2095 | U    | O4'-C1'-N1  | 5.44  | 112.55      | 108.20   |
| 66  | AZ    | 83   | ARG  | NE-CZ-NH2   | -5.44 | 117.58      | 120.30   |
| 1   | A     | 1219 | U    | O4'-C1'-N1  | 5.44  | 112.55      | 108.20   |
| 34  | AA    | 974  | U    | O4'-C1'-N1  | 5.44  | 112.55      | 108.20   |
| 1   | A     | 212  | U    | O4'-C1'-N1  | 5.44  | 112.55      | 108.20   |
| 1   | A     | 472  | U    | O4'-C1'-N1  | 5.44  | 112.55      | 108.20   |
| 1   | A     | 1919 | G    | O4'-C1'-N9  | 5.44  | 112.55      | 108.20   |
| 2   | 7     | 61   | C    | O4'-C1'-N1  | 5.44  | 112.55      | 108.20   |
| 34  | AA    | 1837 | U    | O4'-C1'-N1  | 5.44  | 112.55      | 108.20   |
| 34  | AA    | 3183 | G    | O4'-C1'-N9  | 5.44  | 112.55      | 108.20   |
| 1   | A     | 2004 | U    | O4'-C1'-N1  | 5.44  | 112.55      | 108.20   |
| 34  | AA    | 3260 | G    | N1-C6-O6    | 5.44  | 123.16      | 119.90   |
| 34  | AA    | 12   | U    | O4'-C1'-N1  | 5.43  | 112.55      | 108.20   |
| 62  | AR    | 85   | ARG  | NE-CZ-NH1   | -5.43 | 117.58      | 120.30   |
| 1   | A     | 1923 | U    | O4'-C1'-N1  | 5.43  | 112.55      | 108.20   |
| 18  | 5     | 61   | ARG  | NE-CZ-NH2   | 5.43  | 123.02      | 120.30   |
| 34  | AA    | 97   | U    | O4'-C1'-N1  | 5.43  | 112.55      | 108.20   |
| 34  | AA    | 507  | G    | O4'-C1'-N9  | 5.43  | 112.55      | 108.20   |
| 34  | AA    | 879  | U    | O4'-C1'-N1  | 5.43  | 112.55      | 108.20   |
| 34  | AA    | 3188 | U    | O4'-C1'-N1  | 5.43  | 112.55      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 1685 | G    | P-O5'-C5'   | 5.43  | 129.59      | 120.90   |
| 1   | A     | 180  | U    | O4'-C1'-N1  | 5.43  | 112.54      | 108.20   |
| 34  | AA    | 23   | C    | O4'-C1'-N1  | 5.43  | 112.54      | 108.20   |
| 40  | A4    | 8    | THR  | N-CA-CB     | 5.43  | 120.61      | 110.30   |
| 66  | AZ    | 45   | ARG  | NE-CZ-NH2   | -5.43 | 117.58      | 120.30   |
| 12  | Y     | 99   | ARG  | NE-CZ-NH2   | 5.43  | 123.01      | 120.30   |
| 34  | AA    | 1419 | A    | P-O3'-C3'   | 5.43  | 126.21      | 119.70   |
| 34  | AA    | 3115 | C    | P-O3'-C3'   | 5.43  | 126.21      | 119.70   |
| 34  | AA    | 1674 | G    | O4'-C1'-N9  | 5.43  | 112.54      | 108.20   |
| 34  | AA    | 2071 | U    | P-O3'-C3'   | -5.43 | 113.19      | 119.70   |
| 1   | A     | 130  | U    | C2-N1-C1'   | 5.42  | 124.21      | 117.70   |
| 1   | A     | 1635 | C    | C6-N1-C1'   | -5.42 | 114.29      | 120.80   |
| 34  | AA    | 807  | U    | C5'-C4'-C3' | 5.42  | 124.68      | 116.00   |
| 1   | A     | 1236 | U    | O4'-C1'-N1  | 5.42  | 112.54      | 108.20   |
| 2   | 7     | 12   | G    | O4'-C1'-N9  | 5.42  | 112.54      | 108.20   |
| 34  | AA    | 3119 | A    | O4'-C1'-N9  | 5.42  | 112.54      | 108.20   |
| 34  | AA    | 3318 | C    | O4'-C1'-N1  | 5.42  | 112.54      | 108.20   |
| 1   | A     | 1302 | G    | O4'-C1'-N9  | 5.42  | 112.53      | 108.20   |
| 34  | AA    | 831  | U    | O4'-C1'-N1  | 5.42  | 112.53      | 108.20   |
| 1   | A     | 1431 | A    | C4'-C3'-C2' | -5.42 | 97.18       | 102.60   |
| 1   | A     | 1843 | G    | O4'-C1'-N9  | 5.42  | 112.53      | 108.20   |
| 6   | I     | 118  | ARG  | NE-CZ-NH1   | 5.42  | 123.01      | 120.30   |
| 34  | AA    | 46   | U    | O4'-C1'-N1  | 5.42  | 112.53      | 108.20   |
| 34  | AA    | 1294 | G    | O4'-C1'-N9  | 5.42  | 112.53      | 108.20   |
| 34  | AA    | 1619 | U    | O4'-C1'-N1  | 5.42  | 112.53      | 108.20   |
| 34  | AA    | 2974 | A    | C5-C6-N6    | -5.42 | 119.37      | 123.70   |
| 34  | AA    | 499  | U    | O4'-C1'-N1  | 5.42  | 112.53      | 108.20   |
| 34  | AA    | 981  | U    | O4'-C1'-N1  | 5.42  | 112.53      | 108.20   |
| 34  | AA    | 1433 | U    | O4'-C1'-N1  | 5.42  | 112.53      | 108.20   |
| 1   | A     | 1387 | U    | C4'-C3'-C2' | -5.41 | 97.19       | 102.60   |
| 72  | AG    | 145  | ARG  | NE-CZ-NH2   | 5.41  | 123.01      | 120.30   |
| 34  | AA    | 3155 | G    | O4'-C1'-N9  | 5.41  | 112.53      | 108.20   |
| 34  | AA    | 3213 | U    | O4'-C1'-N1  | 5.41  | 112.53      | 108.20   |
| 36  | AB    | 53   | U    | C6-N1-C1'   | -5.41 | 113.63      | 121.20   |
| 36  | AB    | 94   | C    | O4'-C1'-N1  | 5.41  | 112.53      | 108.20   |
| 46  | Aa    | 86   | ARG  | NE-CZ-NH1   | 5.41  | 123.00      | 120.30   |
| 34  | AA    | 1693 | U    | O4'-C1'-N1  | 5.41  | 112.53      | 108.20   |
| 34  | AA    | 2416 | G    | O4'-C1'-N9  | 5.41  | 112.53      | 108.20   |
| 34  | AA    | 3276 | G    | O4'-C1'-N9  | 5.41  | 112.53      | 108.20   |
| 34  | AA    | 3655 | U    | O4'-C1'-N1  | 5.41  | 112.53      | 108.20   |
| 36  | AB    | 8    | U    | O4'-C1'-N1  | 5.41  | 112.53      | 108.20   |
| 1   | A     | 7    | G    | C5-C6-O6    | -5.41 | 125.36      | 128.60   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 1309 | U    | O4'-C1'-N1  | 5.41  | 112.53      | 108.20   |
| 34  | AA    | 3362 | A    | O4'-C1'-N9  | 5.41  | 112.53      | 108.20   |
| 74  | AH    | 167  | ARG  | NE-CZ-NH2   | 5.41  | 123.00      | 120.30   |
| 1   | A     | 432  | G    | P-O5'-C5'   | -5.41 | 112.25      | 120.90   |
| 1   | A     | 849  | U    | O4'-C1'-N1  | 5.41  | 112.52      | 108.20   |
| 1   | A     | 2070 | G    | C5-C6-O6    | -5.41 | 125.36      | 128.60   |
| 14  | 1     | 61   | PHE  | CB-CG-CD1   | 5.41  | 124.58      | 120.80   |
| 34  | AA    | 823  | U    | O4'-C1'-N1  | 5.41  | 112.52      | 108.20   |
| 34  | AA    | 2814 | U    | C2-N3-C4    | -5.41 | 123.76      | 127.00   |
| 27  | Q     | 107  | PHE  | CB-CG-CD1   | 5.40  | 124.58      | 120.80   |
| 1   | A     | 13   | C    | O4'-C1'-N1  | 5.40  | 112.52      | 108.20   |
| 1   | A     | 1448 | U    | C2-N1-C1'   | 5.40  | 124.18      | 117.70   |
| 2   | 7     | 56   | U    | O4'-C1'-N1  | 5.40  | 112.52      | 108.20   |
| 34  | AA    | 247  | A    | N1-C6-N6    | 5.40  | 121.84      | 118.60   |
| 34  | AA    | 331  | A    | O4'-C1'-N9  | 5.40  | 112.52      | 108.20   |
| 34  | AA    | 453  | A    | C5'-C4'-C3' | 5.40  | 124.64      | 116.00   |
| 34  | AA    | 2216 | G    | O4'-C1'-N9  | 5.40  | 112.52      | 108.20   |
| 34  | AA    | 2954 | A    | O4'-C1'-N9  | 5.40  | 112.52      | 108.20   |
| 70  | AE    | 21   | ARG  | NE-CZ-NH1   | 5.40  | 123.00      | 120.30   |
| 1   | A     | 137  | A    | C5'-C4'-O4' | 5.40  | 115.58      | 109.10   |
| 1   | A     | 1935 | G    | O4'-C1'-N9  | 5.40  | 112.52      | 108.20   |
| 34  | AA    | 1583 | G    | N1-C6-O6    | 5.40  | 123.14      | 119.90   |
| 51  | AP    | 160  | ARG  | NE-CZ-NH1   | 5.40  | 123.00      | 120.30   |
| 2   | 7     | 70   | A    | C5'-C4'-O4' | 5.40  | 115.58      | 109.10   |
| 34  | AA    | 3763 | G    | O4'-C1'-N9  | 5.40  | 112.52      | 108.20   |
| 1   | A     | 1426 | G    | O4'-C1'-N9  | 5.39  | 112.52      | 108.20   |
| 1   | A     | 1646 | U    | O4'-C1'-N1  | 5.39  | 112.52      | 108.20   |
| 23  | J     | 117  | ARG  | NE-CZ-NH2   | -5.39 | 117.60      | 120.30   |
| 34  | AA    | 903  | C    | O4'-C1'-N1  | 5.39  | 112.52      | 108.20   |
| 35  | AC    | 36   | C    | C6-N1-C2    | -5.39 | 118.14      | 120.30   |
| 51  | AP    | 71   | ARG  | NE-CZ-NH2   | -5.39 | 117.60      | 120.30   |
| 1   | A     | 816  | U    | O4'-C1'-N1  | 5.39  | 112.51      | 108.20   |
| 1   | A     | 868  | U    | O4'-C1'-N1  | 5.39  | 112.51      | 108.20   |
| 34  | AA    | 1245 | G    | O4'-C1'-N9  | 5.39  | 112.51      | 108.20   |
| 34  | AA    | 3293 | A    | O4'-C1'-N9  | 5.39  | 112.51      | 108.20   |
| 60  | AO    | 104  | ARG  | NE-CZ-NH1   | 5.39  | 123.00      | 120.30   |
| 65  | AT    | 80   | ARG  | NE-CZ-NH2   | -5.39 | 117.60      | 120.30   |
| 68  | A5    | 154  | ARG  | NE-CZ-NH1   | 5.39  | 123.00      | 120.30   |
| 1   | A     | 1211 | G    | O4'-C1'-N9  | 5.39  | 112.51      | 108.20   |
| 34  | AA    | 3479 | U    | O4'-C1'-N1  | 5.39  | 112.51      | 108.20   |
| 34  | AA    | 3666 | U    | O4'-C1'-N1  | 5.39  | 112.51      | 108.20   |
| 34  | AA    | 2551 | U    | O4'-C1'-N1  | 5.39  | 112.51      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 310  | U    | O4'-C1'-N1  | 5.39  | 112.51      | 108.20   |
| 1   | A     | 2071 | U    | O4'-C1'-N1  | 5.39  | 112.51      | 108.20   |
| 2   | 7     | 56   | U    | C5'-C4'-O4' | 5.39  | 115.56      | 109.10   |
| 34  | AA    | 685  | U    | O4'-C1'-N1  | 5.39  | 112.51      | 108.20   |
| 34  | AA    | 914  | G    | O4'-C1'-N9  | 5.39  | 112.51      | 108.20   |
| 34  | AA    | 1161 | C    | O4'-C1'-N1  | 5.39  | 112.51      | 108.20   |
| 34  | AA    | 2591 | U    | C6-N1-C1'   | -5.39 | 113.66      | 121.20   |
| 34  | AA    | 3386 | A    | O4'-C1'-N9  | 5.39  | 112.51      | 108.20   |
| 34  | AA    | 266  | U    | O4'-C1'-N1  | 5.38  | 112.51      | 108.20   |
| 34  | AA    | 356  | A    | O4'-C1'-N9  | 5.38  | 112.51      | 108.20   |
| 34  | AA    | 2446 | U    | O4'-C1'-N1  | 5.38  | 112.51      | 108.20   |
| 49  | Ae    | 12   | ARG  | NE-CZ-NH2   | -5.38 | 117.61      | 120.30   |
| 34  | AA    | 3380 | U    | O4'-C1'-N1  | 5.38  | 112.51      | 108.20   |
| 34  | AA    | 664  | U    | O4'-C1'-N1  | 5.38  | 112.50      | 108.20   |
| 34  | AA    | 1273 | G    | C5-C6-O6    | -5.38 | 125.37      | 128.60   |
| 34  | AA    | 1773 | U    | O4'-C1'-N1  | 5.38  | 112.50      | 108.20   |
| 34  | AA    | 75   | U    | O4'-C1'-N1  | 5.38  | 112.50      | 108.20   |
| 34  | AA    | 2386 | A    | O4'-C1'-N9  | 5.38  | 112.50      | 108.20   |
| 34  | AA    | 3139 | C    | O4'-C1'-N1  | 5.38  | 112.50      | 108.20   |
| 34  | AA    | 3236 | G    | O4'-C1'-N9  | 5.38  | 112.50      | 108.20   |
| 34  | AA    | 3504 | C    | O4'-C1'-N1  | 5.38  | 112.50      | 108.20   |
| 77  | AX    | 102  | TYR  | CB-CG-CD1   | 5.38  | 124.23      | 121.00   |
| 1   | A     | 117  | G    | C5-C6-O6    | -5.38 | 125.37      | 128.60   |
| 34  | AA    | 667  | U    | C6-N1-C1'   | -5.38 | 113.67      | 121.20   |
| 34  | AA    | 1427 | U    | O4'-C1'-N1  | 5.38  | 112.50      | 108.20   |
| 34  | AA    | 2408 | G    | C5-C6-O6    | -5.38 | 125.37      | 128.60   |
| 70  | AE    | 8    | ARG  | NE-CZ-NH2   | 5.38  | 122.99      | 120.30   |
| 1   | A     | 1932 | A    | P-O3'-C3'   | -5.38 | 113.25      | 119.70   |
| 1   | A     | 2028 | U    | O4'-C1'-N1  | 5.38  | 112.50      | 108.20   |
| 34  | AA    | 221  | A    | O4'-C1'-N9  | 5.38  | 112.50      | 108.20   |
| 34  | AA    | 413  | C    | O4'-C1'-N1  | 5.38  | 112.50      | 108.20   |
| 53  | Ai    | 8    | ARG  | NE-CZ-NH1   | 5.38  | 122.99      | 120.30   |
| 1   | A     | 1807 | A    | O4'-C1'-N9  | 5.38  | 112.50      | 108.20   |
| 1   | A     | 618  | U    | O4'-C1'-N1  | 5.37  | 112.50      | 108.20   |
| 34  | AA    | 1990 | A    | O4'-C1'-N9  | 5.37  | 112.50      | 108.20   |
| 34  | AA    | 2689 | G    | N3-C2-N2    | 5.37  | 123.66      | 119.90   |
| 34  | AA    | 3474 | C    | O4'-C1'-N1  | 5.37  | 112.50      | 108.20   |
| 59  | AS    | 151  | PHE  | CB-CG-CD1   | 5.37  | 124.56      | 120.80   |
| 62  | AR    | 50   | ARG  | NE-CZ-NH1   | 5.37  | 122.99      | 120.30   |
| 1   | A     | 1407 | U    | O4'-C1'-N1  | 5.37  | 112.50      | 108.20   |
| 34  | AA    | 899  | A    | O4'-C1'-N9  | 5.37  | 112.50      | 108.20   |
| 34  | AA    | 2939 | C    | O4'-C1'-N1  | 5.37  | 112.50      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 74  | AH    | 92   | ARG  | NE-CZ-NH1   | -5.37 | 117.61      | 120.30   |
| 60  | AO    | 4    | ARG  | NE-CZ-NH1   | 5.37  | 122.98      | 120.30   |
| 1   | A     | 2020 | G    | O4'-C1'-N9  | 5.37  | 112.50      | 108.20   |
| 2   | 7     | 12   | G    | N1-C6-O6    | 5.37  | 123.12      | 119.90   |
| 34  | AA    | 1807 | C    | O4'-C1'-N1  | 5.37  | 112.50      | 108.20   |
| 34  | AA    | 2148 | U    | O4'-C1'-N1  | 5.37  | 112.49      | 108.20   |
| 34  | AA    | 2555 | A    | O4'-C1'-N9  | 5.37  | 112.50      | 108.20   |
| 34  | AA    | 2697 | A    | C1'-O4'-C4' | -5.37 | 105.61      | 109.90   |
| 34  | AA    | 2720 | C    | O4'-C1'-N1  | 5.37  | 112.50      | 108.20   |
| 34  | AA    | 3330 | A    | O4'-C1'-N9  | 5.37  | 112.50      | 108.20   |
| 1   | A     | 1747 | U    | O4'-C1'-N1  | 5.37  | 112.49      | 108.20   |
| 5   | G     | 222  | PHE  | CB-CG-CD1   | 5.37  | 124.56      | 120.80   |
| 34  | AA    | 2012 | A    | O4'-C1'-N9  | 5.37  | 112.49      | 108.20   |
| 1   | A     | 207  | G    | N1-C6-O6    | 5.36  | 123.12      | 119.90   |
| 1   | A     | 1272 | A    | O4'-C1'-N9  | 5.36  | 112.49      | 108.20   |
| 2   | 7     | 48   | U    | O4'-C1'-N1  | 5.36  | 112.49      | 108.20   |
| 2   | 7     | 61   | C    | C5'-C4'-O4' | 5.36  | 115.54      | 109.10   |
| 34  | AA    | 1964 | G    | C5-C6-O6    | -5.36 | 125.38      | 128.60   |
| 34  | AA    | 2180 | U    | O4'-C1'-N1  | 5.36  | 112.49      | 108.20   |
| 69  | AD    | 193  | ARG  | NE-CZ-NH1   | 5.36  | 122.98      | 120.30   |
| 1   | A     | 638  | G    | N1-C6-O6    | 5.36  | 123.12      | 119.90   |
| 1   | A     | 1302 | G    | C5'-C4'-O4' | 5.36  | 115.53      | 109.10   |
| 1   | A     | 2007 | U    | O4'-C1'-N1  | 5.36  | 112.49      | 108.20   |
| 34  | AA    | 524  | U    | O4'-C1'-N1  | 5.36  | 112.49      | 108.20   |
| 34  | AA    | 1456 | C    | O4'-C1'-N1  | 5.36  | 112.49      | 108.20   |
| 34  | AA    | 1723 | C    | C6-N1-C2    | -5.36 | 118.16      | 120.30   |
| 34  | AA    | 1975 | A    | N1-C6-N6    | -5.36 | 115.38      | 118.60   |
| 34  | AA    | 1670 | G    | N1-C6-O6    | 5.36  | 123.11      | 119.90   |
| 34  | AA    | 3167 | A    | C1'-O4'-C4' | -5.36 | 105.61      | 109.90   |
| 1   | A     | 1383 | U    | O4'-C1'-N1  | 5.36  | 112.48      | 108.20   |
| 34  | AA    | 1445 | A    | O4'-C1'-N9  | 5.35  | 112.48      | 108.20   |
| 34  | AA    | 1504 | A    | C1'-O4'-C4' | -5.35 | 105.62      | 109.90   |
| 34  | AA    | 1744 | U    | O4'-C1'-N1  | 5.35  | 112.48      | 108.20   |
| 34  | AA    | 2009 | A    | O4'-C1'-N9  | 5.35  | 112.48      | 108.20   |
| 34  | AA    | 169  | U    | O4'-C1'-N1  | 5.35  | 112.48      | 108.20   |
| 34  | AA    | 915  | G    | C5-C6-O6    | -5.35 | 125.39      | 128.60   |
| 34  | AA    | 1640 | G    | C5-C6-O6    | -5.35 | 125.39      | 128.60   |
| 1   | A     | 63   | G    | C5-C6-O6    | -5.35 | 125.39      | 128.60   |
| 34  | AA    | 148  | G    | P-O3'-C3'   | 5.35  | 126.12      | 119.70   |
| 34  | AA    | 3352 | G    | N1-C6-O6    | 5.35  | 123.11      | 119.90   |
| 1   | A     | 1000 | C    | O4'-C1'-N1  | 5.35  | 112.48      | 108.20   |
| 1   | A     | 3    | C    | O4'-C1'-N1  | 5.34  | 112.48      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 767  | U    | O4'-C1'-N1  | 5.34  | 112.48      | 108.20   |
| 34  | AA    | 1816 | G    | O4'-C1'-N9  | 5.34  | 112.47      | 108.20   |
| 36  | AB    | 37   | A    | O4'-C1'-N9  | 5.34  | 112.48      | 108.20   |
| 34  | AA    | 1202 | C    | P-O5'-C5'   | 5.34  | 129.45      | 120.90   |
| 1   | A     | 2021 | U    | O4'-C1'-N1  | 5.34  | 112.47      | 108.20   |
| 34  | AA    | 2581 | G    | C5-C6-O6    | -5.34 | 125.39      | 128.60   |
| 68  | A5    | 113  | ARG  | NE-CZ-NH2   | 5.34  | 122.97      | 120.30   |
| 1   | A     | 1676 | U    | O4'-C1'-N1  | 5.34  | 112.47      | 108.20   |
| 8   | M     | 123  | ARG  | NE-CZ-NH2   | -5.34 | 117.63      | 120.30   |
| 34  | AA    | 906  | G    | O4'-C1'-N9  | 5.34  | 112.47      | 108.20   |
| 34  | AA    | 2093 | U    | C5'-C4'-C3' | -5.34 | 107.46      | 116.00   |
| 34  | AA    | 2505 | C    | O4'-C1'-N1  | 5.34  | 112.47      | 108.20   |
| 34  | AA    | 3763 | G    | N1-C6-O6    | 5.34  | 123.10      | 119.90   |
| 43  | AN    | 120  | ARG  | NE-CZ-NH1   | 5.34  | 122.97      | 120.30   |
| 70  | AE    | 93   | ARG  | NE-CZ-NH1   | 5.34  | 122.97      | 120.30   |
| 1   | A     | 383  | G    | O4'-C1'-N9  | 5.34  | 112.47      | 108.20   |
| 34  | AA    | 2577 | C    | C6-N1-C2    | -5.34 | 118.17      | 120.30   |
| 35  | AC    | 36   | C    | O4'-C1'-N1  | 5.33  | 112.47      | 108.20   |
| 62  | AR    | 195  | ARG  | NE-CZ-NH2   | 5.33  | 122.97      | 120.30   |
| 1   | A     | 328  | G    | N1-C6-O6    | 5.33  | 123.10      | 119.90   |
| 34  | AA    | 22   | G    | C5-C6-O6    | -5.33 | 125.40      | 128.60   |
| 34  | AA    | 176  | A    | O4'-C1'-N9  | 5.33  | 112.47      | 108.20   |
| 34  | AA    | 1337 | G    | O4'-C1'-N9  | 5.33  | 112.47      | 108.20   |
| 34  | AA    | 3194 | C    | O4'-C1'-N1  | 5.33  | 112.47      | 108.20   |
| 41  | A6    | 89   | ARG  | NE-CZ-NH2   | -5.33 | 117.63      | 120.30   |
| 1   | A     | 344  | C    | C6-N1-C2    | -5.33 | 118.17      | 120.30   |
| 1   | A     | 1188 | A    | N1-C6-N6    | 5.33  | 121.80      | 118.60   |
| 1   | A     | 1364 | G    | C5-C6-O6    | -5.33 | 125.40      | 128.60   |
| 34  | AA    | 1538 | U    | C5'-C4'-O4' | 5.33  | 115.50      | 109.10   |
| 34  | AA    | 3408 | G    | O4'-C1'-N9  | 5.33  | 112.47      | 108.20   |
| 34  | AA    | 935  | A    | O4'-C1'-N9  | 5.33  | 112.46      | 108.20   |
| 34  | AA    | 1028 | G    | P-O3'-C3'   | -5.33 | 113.30      | 119.70   |
| 34  | AA    | 270  | U    | C2'-C3'-O3' | 5.33  | 122.23      | 113.70   |
| 54  | AI    | 44   | TYR  | CB-CG-CD2   | 5.33  | 124.20      | 121.00   |
| 34  | AA    | 812  | U    | C5'-C4'-C3' | -5.33 | 107.48      | 116.00   |
| 34  | AA    | 1188 | A    | O4'-C1'-N9  | 5.33  | 112.46      | 108.20   |
| 34  | AA    | 3520 | U    | O4'-C1'-N1  | 5.33  | 112.46      | 108.20   |
| 1   | A     | 981  | U    | C5'-C4'-C3' | -5.33 | 107.48      | 116.00   |
| 2   | 7     | 64   | C    | O4'-C1'-N1  | 5.33  | 112.46      | 108.20   |
| 34  | AA    | 15   | U    | O4'-C1'-N1  | 5.33  | 112.46      | 108.20   |
| 34  | AA    | 1213 | U    | O4'-C1'-N1  | 5.33  | 112.46      | 108.20   |
| 34  | AA    | 3133 | U    | O4'-C1'-N1  | 5.33  | 112.46      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 13   | G    | O4'-C1'-N9  | 5.32  | 112.46      | 108.20   |
| 34  | AA    | 1480 | G    | N1-C6-O6    | 5.32  | 123.09      | 119.90   |
| 34  | AA    | 2826 | C    | O4'-C1'-N1  | 5.32  | 112.46      | 108.20   |
| 70  | AE    | 100  | ARG  | NE-CZ-NH1   | 5.32  | 122.96      | 120.30   |
| 34  | AA    | 824  | U    | O4'-C1'-N1  | 5.32  | 112.46      | 108.20   |
| 34  | AA    | 40   | A    | O4'-C1'-N9  | 5.32  | 112.45      | 108.20   |
| 34  | AA    | 1420 | C    | C6-N1-C2    | -5.32 | 118.17      | 120.30   |
| 34  | AA    | 2611 | U    | O4'-C1'-N1  | 5.32  | 112.45      | 108.20   |
| 1   | A     | 1453 | G    | O4'-C1'-N9  | 5.32  | 112.45      | 108.20   |
| 34  | AA    | 1189 | G    | O4'-C1'-N9  | 5.32  | 112.45      | 108.20   |
| 34  | AA    | 1331 | A    | O4'-C1'-N9  | 5.32  | 112.45      | 108.20   |
| 34  | AA    | 2137 | C    | O4'-C1'-N1  | 5.32  | 112.45      | 108.20   |
| 34  | AA    | 2735 | G    | C5-C6-O6    | -5.32 | 125.41      | 128.60   |
| 34  | AA    | 231  | G    | C5'-C4'-O4' | 5.32  | 115.48      | 109.10   |
| 34  | AA    | 1050 | C    | O4'-C1'-N1  | 5.32  | 112.45      | 108.20   |
| 34  | AA    | 1593 | G    | N1-C6-O6    | 5.32  | 123.09      | 119.90   |
| 34  | AA    | 1814 | U    | O4'-C1'-N1  | 5.32  | 112.45      | 108.20   |
| 34  | AA    | 2997 | G    | C5-C6-O6    | -5.32 | 125.41      | 128.60   |
| 34  | AA    | 3327 | G    | O4'-C1'-N9  | 5.32  | 112.45      | 108.20   |
| 1   | A     | 173  | G    | C5-C6-O6    | -5.31 | 125.41      | 128.60   |
| 1   | A     | 252  | U    | O4'-C1'-N1  | 5.31  | 112.45      | 108.20   |
| 1   | A     | 1095 | A    | P-O3'-C3'   | -5.31 | 113.32      | 119.70   |
| 34  | AA    | 110  | G    | O4'-C1'-N9  | 5.31  | 112.45      | 108.20   |
| 34  | AA    | 259  | G    | C5'-C4'-C3' | 5.31  | 124.50      | 116.00   |
| 34  | AA    | 746  | A    | O4'-C1'-N9  | 5.31  | 112.45      | 108.20   |
| 34  | AA    | 1496 | U    | C5'-C4'-C3' | 5.31  | 124.50      | 116.00   |
| 1   | A     | 1445 | U    | P-O3'-C3'   | 5.31  | 126.07      | 119.70   |
| 1   | A     | 1197 | C    | P-O5'-C5'   | 5.31  | 129.39      | 120.90   |
| 1   | A     | 1971 | U    | O4'-C1'-N1  | 5.31  | 112.45      | 108.20   |
| 11  | O     | 88   | ARG  | NE-CZ-NH1   | 5.31  | 122.95      | 120.30   |
| 24  | L     | 49   | ARG  | NE-CZ-NH1   | 5.31  | 122.95      | 120.30   |
| 34  | AA    | 1694 | G    | N1-C6-O6    | 5.31  | 123.09      | 119.90   |
| 59  | AS    | 57   | ARG  | NE-CZ-NH2   | 5.31  | 122.95      | 120.30   |
| 34  | AA    | 246  | U    | O4'-C1'-N1  | 5.31  | 112.45      | 108.20   |
| 34  | AA    | 1537 | G    | C5-C6-O6    | -5.31 | 125.42      | 128.60   |
| 1   | A     | 2009 | C    | O4'-C1'-N1  | 5.31  | 112.44      | 108.20   |
| 1   | A     | 119  | C    | O4'-C1'-N1  | 5.30  | 112.44      | 108.20   |
| 1   | A     | 849  | U    | P-O5'-C5'   | 5.30  | 129.39      | 120.90   |
| 1   | A     | 1816 | U    | C5'-C4'-O4' | 5.30  | 115.47      | 109.10   |
| 34  | AA    | 2592 | A    | O4'-C1'-N9  | 5.30  | 112.44      | 108.20   |
| 59  | AS    | 163  | ARG  | NE-CZ-NH1   | 5.30  | 122.95      | 120.30   |
| 2   | 7     | 35   | C    | O4'-C1'-N1  | 5.30  | 112.44      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 2128 | G    | O4'-C1'-N9  | 5.30  | 112.44      | 108.20   |
| 34  | AA    | 2559 | U    | O4'-C1'-N1  | 5.30  | 112.44      | 108.20   |
| 68  | A5    | 149  | THR  | N-CA-CB     | 5.30  | 120.38      | 110.30   |
| 2   | 7     | 68   | U    | P-O3'-C3'   | -5.30 | 113.34      | 119.70   |
| 31  | V     | 106  | ARG  | NE-CZ-NH1   | 5.30  | 122.95      | 120.30   |
| 2   | 7     | 49   | C    | C5'-C4'-O4' | 5.30  | 115.46      | 109.10   |
| 34  | AA    | 204  | G    | C5-C6-O6    | -5.30 | 125.42      | 128.60   |
| 34  | AA    | 1617 | A    | O4'-C1'-N9  | 5.30  | 112.44      | 108.20   |
| 34  | AA    | 530  | U    | O4'-C1'-N1  | 5.30  | 112.44      | 108.20   |
| 34  | AA    | 1299 | G    | O4'-C1'-N9  | 5.30  | 112.44      | 108.20   |
| 1   | A     | 461  | A    | O4'-C1'-N9  | 5.30  | 112.44      | 108.20   |
| 34  | AA    | 35   | A    | O4'-C1'-N9  | 5.30  | 112.44      | 108.20   |
| 69  | AD    | 69   | TYR  | CB-CG-CD2   | -5.29 | 117.82      | 121.00   |
| 1   | A     | 2061 | U    | O4'-C1'-N1  | 5.29  | 112.44      | 108.20   |
| 34  | AA    | 371  | G    | O4'-C1'-N9  | 5.29  | 112.43      | 108.20   |
| 34  | AA    | 1564 | G    | C5-C6-O6    | -5.29 | 125.42      | 128.60   |
| 34  | AA    | 581  | C    | C2'-C3'-O3' | 5.29  | 122.17      | 113.70   |
| 34  | AA    | 2436 | A    | O4'-C1'-N9  | 5.29  | 112.43      | 108.20   |
| 34  | AA    | 2805 | U    | O4'-C1'-N1  | 5.29  | 112.43      | 108.20   |
| 34  | AA    | 3312 | U    | O4'-C1'-N1  | 5.29  | 112.43      | 108.20   |
| 54  | AI    | 98   | ARG  | NE-CZ-NH1   | 5.29  | 122.95      | 120.30   |
| 1   | A     | 1735 | U    | C2-N1-C1'   | 5.29  | 124.05      | 117.70   |
| 34  | AA    | 503  | A    | P-O3'-C3'   | 5.29  | 126.05      | 119.70   |
| 34  | AA    | 1723 | C    | O4'-C1'-N1  | 5.29  | 112.43      | 108.20   |
| 1   | A     | 750  | U    | O4'-C1'-N1  | 5.29  | 112.43      | 108.20   |
| 1   | A     | 1454 | G    | P-O5'-C5'   | 5.29  | 129.36      | 120.90   |
| 1   | A     | 1812 | A    | N1-C6-N6    | 5.29  | 121.77      | 118.60   |
| 6   | I     | 16   | TYR  | CB-CG-CD1   | -5.29 | 117.83      | 121.00   |
| 16  | 3     | 87   | ARG  | NE-CZ-NH1   | 5.29  | 122.94      | 120.30   |
| 34  | AA    | 76   | G    | N1-C6-O6    | 5.29  | 123.07      | 119.90   |
| 34  | AA    | 1071 | A    | P-O3'-C3'   | 5.29  | 126.05      | 119.70   |
| 34  | AA    | 1628 | U    | O4'-C1'-N1  | 5.29  | 112.43      | 108.20   |
| 34  | AA    | 3402 | A    | O4'-C1'-N9  | 5.29  | 112.43      | 108.20   |
| 35  | AC    | 157  | A    | O4'-C1'-N9  | 5.29  | 112.43      | 108.20   |
| 1   | A     | 933  | A    | O4'-C1'-N9  | 5.29  | 112.43      | 108.20   |
| 1   | A     | 2052 | G    | C1'-O4'-C4' | 5.29  | 114.13      | 109.90   |
| 1   | A     | 1858 | U    | O4'-C1'-N1  | 5.29  | 112.43      | 108.20   |
| 2   | 7     | 2    | G    | O4'-C1'-N9  | 5.29  | 112.43      | 108.20   |
| 7   | K     | 57   | ARG  | NE-CZ-NH2   | -5.29 | 117.66      | 120.30   |
| 34  | AA    | 73   | U    | O4'-C1'-N1  | 5.29  | 112.43      | 108.20   |
| 34  | AA    | 1556 | G    | N1-C6-O6    | 5.29  | 123.07      | 119.90   |
| 34  | AA    | 1659 | A    | P-O3'-C3'   | -5.29 | 113.36      | 119.70   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 36  | AB    | 86   | G    | O4'-C1'-N9  | 5.29  | 112.43      | 108.20   |
| 33  | C     | 116  | THR  | N-CA-CB     | 5.28  | 120.34      | 110.30   |
| 34  | AA    | 263  | U    | O4'-C1'-N1  | 5.28  | 112.43      | 108.20   |
| 34  | AA    | 1507 | U    | O4'-C1'-N1  | 5.28  | 112.43      | 108.20   |
| 34  | AA    | 128  | U    | O4'-C1'-N1  | 5.28  | 112.43      | 108.20   |
| 1   | A     | 342  | G    | C5-C6-O6    | -5.28 | 125.43      | 128.60   |
| 1   | A     | 450  | C    | O4'-C1'-N1  | 5.28  | 112.42      | 108.20   |
| 25  | N     | 67   | SER  | N-CA-CB     | 5.28  | 118.42      | 110.50   |
| 34  | AA    | 1338 | U    | O4'-C1'-N1  | 5.28  | 112.42      | 108.20   |
| 34  | AA    | 3249 | A    | O4'-C1'-N9  | 5.28  | 112.42      | 108.20   |
| 34  | AA    | 3338 | U    | O4'-C1'-N1  | 5.28  | 112.42      | 108.20   |
| 34  | AA    | 3422 | G    | O4'-C1'-N9  | 5.28  | 112.42      | 108.20   |
| 1   | A     | 1364 | G    | O4'-C1'-N9  | 5.28  | 112.42      | 108.20   |
| 34  | AA    | 497  | U    | O4'-C1'-N1  | 5.28  | 112.42      | 108.20   |
| 34  | AA    | 1283 | C    | C6-N1-C2    | -5.28 | 118.19      | 120.30   |
| 34  | AA    | 3740 | A    | O4'-C1'-N9  | 5.28  | 112.42      | 108.20   |
| 35  | AC    | 94   | C    | C6-N1-C2    | -5.28 | 118.19      | 120.30   |
| 35  | AC    | 125  | U    | O4'-C1'-N1  | 5.28  | 112.42      | 108.20   |
| 1   | A     | 758  | U    | P-O5'-C5'   | 5.28  | 129.34      | 120.90   |
| 34  | AA    | 42   | C    | O4'-C1'-N1  | 5.28  | 112.42      | 108.20   |
| 34  | AA    | 2469 | U    | O4'-C1'-N1  | 5.28  | 112.42      | 108.20   |
| 34  | AA    | 2554 | G    | N1-C6-O6    | 5.28  | 123.06      | 119.90   |
| 1   | A     | 1944 | U    | C5'-C4'-O4' | 5.27  | 115.43      | 109.10   |
| 34  | AA    | 2746 | U    | O4'-C1'-N1  | 5.27  | 112.42      | 108.20   |
| 53  | Ai    | 57   | PHE  | CB-CG-CD2   | 5.27  | 124.49      | 120.80   |
| 1   | A     | 4    | C    | O4'-C1'-N1  | 5.27  | 112.42      | 108.20   |
| 1   | A     | 1723 | A    | O4'-C1'-N9  | 5.27  | 112.42      | 108.20   |
| 34  | AA    | 1648 | U    | O4'-C1'-N1  | 5.27  | 112.42      | 108.20   |
| 1   | A     | 560  | G    | C5-C6-O6    | -5.27 | 125.44      | 128.60   |
| 1   | A     | 634  | C    | O4'-C1'-N1  | 5.27  | 112.42      | 108.20   |
| 16  | 3     | 39   | PHE  | CB-CG-CD2   | -5.27 | 117.11      | 120.80   |
| 34  | AA    | 56   | G    | O4'-C1'-N9  | 5.27  | 112.42      | 108.20   |
| 34  | AA    | 900  | G    | O4'-C1'-N9  | 5.27  | 112.42      | 108.20   |
| 34  | AA    | 2034 | G    | C5'-C4'-O4' | -5.27 | 102.78      | 109.10   |
| 34  | AA    | 2093 | U    | C5'-C4'-O4' | 5.27  | 115.42      | 109.10   |
| 34  | AA    | 2527 | G    | O4'-C1'-N9  | 5.27  | 112.41      | 108.20   |
| 34  | AA    | 2594 | U    | O4'-C1'-N1  | 5.27  | 112.41      | 108.20   |
| 1   | A     | 168  | U    | P-O3'-C3'   | -5.27 | 113.38      | 119.70   |
| 1   | A     | 379  | G    | C5'-C4'-C3' | -5.26 | 107.58      | 116.00   |
| 1   | A     | 1375 | C    | C2-N1-C1'   | 5.26  | 124.59      | 118.80   |
| 34  | AA    | 1573 | C    | C6-N1-C1'   | -5.26 | 114.48      | 120.80   |
| 34  | AA    | 2489 | C    | O4'-C1'-N1  | 5.26  | 112.41      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 3124 | G    | O4'-C1'-N9  | 5.26  | 112.41      | 108.20   |
| 1   | A     | 99   | C    | C6-N1-C2    | -5.26 | 118.19      | 120.30   |
| 1   | A     | 490  | C    | O4'-C1'-N1  | 5.26  | 112.41      | 108.20   |
| 1   | A     | 1652 | A    | O4'-C1'-N9  | 5.26  | 112.41      | 108.20   |
| 34  | AA    | 975  | G    | N1-C6-O6    | 5.26  | 123.06      | 119.90   |
| 34  | AA    | 3086 | A    | C5'-C4'-O4' | 5.26  | 115.41      | 109.10   |
| 59  | AS    | 167  | ARG  | NE-CZ-NH1   | 5.26  | 122.93      | 120.30   |
| 75  | AV    | 98   | ARG  | NE-CZ-NH1   | -5.26 | 117.67      | 120.30   |
| 1   | A     | 795  | U    | O4'-C1'-N1  | 5.26  | 112.41      | 108.20   |
| 1   | A     | 1184 | G    | C5-C6-O6    | -5.26 | 125.44      | 128.60   |
| 72  | AG    | 35   | ARG  | NE-CZ-NH2   | 5.26  | 122.93      | 120.30   |
| 1   | A     | 1844 | A    | P-O3'-C3'   | -5.26 | 113.39      | 119.70   |
| 1   | A     | 1964 | G    | O4'-C1'-N9  | 5.26  | 112.41      | 108.20   |
| 4   | E     | 126  | ARG  | NE-CZ-NH2   | -5.26 | 117.67      | 120.30   |
| 34  | AA    | 26   | A    | O4'-C1'-N9  | 5.26  | 112.41      | 108.20   |
| 35  | AC    | 4    | C    | O4'-C1'-N1  | 5.26  | 112.41      | 108.20   |
| 36  | AB    | 48   | G    | O4'-C1'-N9  | 5.26  | 112.41      | 108.20   |
| 1   | A     | 844  | G    | C5'-C4'-C3' | 5.25  | 124.41      | 116.00   |
| 34  | AA    | 1843 | U    | O4'-C1'-N1  | 5.25  | 112.40      | 108.20   |
| 36  | AB    | 108  | G    | O4'-C1'-N9  | 5.25  | 112.40      | 108.20   |
| 1   | A     | 379  | G    | N1-C6-O6    | 5.25  | 123.05      | 119.90   |
| 1   | A     | 1645 | C    | C6-N1-C1'   | -5.25 | 114.50      | 120.80   |
| 34  | AA    | 1956 | U    | O4'-C1'-N1  | 5.25  | 112.40      | 108.20   |
| 34  | AA    | 2485 | C    | C5'-C4'-C3' | -5.25 | 107.60      | 116.00   |
| 1   | A     | 68   | U    | C5'-C4'-O4' | 5.25  | 115.40      | 109.10   |
| 34  | AA    | 636  | U    | P-O3'-C3'   | 5.25  | 126.00      | 119.70   |
| 1   | A     | 931  | A    | O4'-C1'-N9  | 5.25  | 112.40      | 108.20   |
| 34  | AA    | 971  | U    | O4'-C1'-N1  | 5.25  | 112.40      | 108.20   |
| 34  | AA    | 2449 | U    | O4'-C1'-N1  | 5.25  | 112.40      | 108.20   |
| 34  | AA    | 3032 | U    | O4'-C1'-N1  | 5.25  | 112.40      | 108.20   |
| 1   | A     | 174  | C    | O4'-C1'-N1  | 5.25  | 112.40      | 108.20   |
| 1   | A     | 640  | U    | O4'-C1'-N1  | 5.25  | 112.40      | 108.20   |
| 34  | AA    | 229  | A    | O4'-C1'-N9  | 5.25  | 112.40      | 108.20   |
| 34  | AA    | 272  | U    | O4'-C1'-N1  | 5.25  | 112.40      | 108.20   |
| 34  | AA    | 721  | U    | P-O3'-C3'   | 5.25  | 126.00      | 119.70   |
| 34  | AA    | 1240 | A    | O4'-C1'-N9  | 5.25  | 112.40      | 108.20   |
| 34  | AA    | 2582 | U    | O4'-C1'-N1  | 5.25  | 112.40      | 108.20   |
| 63  | AW    | 38   | ARG  | NE-CZ-NH1   | 5.25  | 122.92      | 120.30   |
| 34  | AA    | 2524 | C    | C6-N1-C1'   | -5.25 | 114.51      | 120.80   |
| 35  | AC    | 37   | A    | O4'-C1'-N9  | 5.25  | 112.40      | 108.20   |
| 1   | A     | 1103 | C    | O4'-C1'-N1  | 5.24  | 112.39      | 108.20   |
| 34  | AA    | 280  | U    | O4'-C1'-N1  | 5.24  | 112.39      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 501  | U    | C4'-C3'-C2' | -5.24 | 97.36       | 102.60   |
| 34  | AA    | 985  | G    | C5-C6-O6    | -5.24 | 125.45      | 128.60   |
| 34  | AA    | 1059 | G    | O4'-C1'-N9  | 5.24  | 112.39      | 108.20   |
| 1   | A     | 1436 | U    | O4'-C1'-N1  | 5.24  | 112.39      | 108.20   |
| 34  | AA    | 714  | C    | C4'-C3'-C2' | -5.24 | 97.36       | 102.60   |
| 34  | AA    | 2663 | G    | C5-C6-O6    | -5.24 | 125.45      | 128.60   |
| 1   | A     | 554  | U    | O4'-C1'-N1  | 5.24  | 112.39      | 108.20   |
| 1   | A     | 1076 | C    | P-O3'-C3'   | -5.24 | 113.41      | 119.70   |
| 1   | A     | 1403 | U    | C5'-C4'-C3' | -5.24 | 107.62      | 116.00   |
| 34  | AA    | 1252 | U    | O4'-C1'-N1  | 5.24  | 112.39      | 108.20   |
| 34  | AA    | 768  | C    | C6-N1-C1'   | -5.24 | 114.51      | 120.80   |
| 37  | AL    | 198  | ARG  | NE-CZ-NH2   | 5.24  | 122.92      | 120.30   |
| 1   | A     | 1005 | G    | O4'-C1'-N9  | 5.24  | 112.39      | 108.20   |
| 2   | 7     | 47   | G    | O4'-C1'-N9  | 5.24  | 112.39      | 108.20   |
| 34  | AA    | 415  | U    | O4'-C1'-N1  | 5.24  | 112.39      | 108.20   |
| 57  | AK    | 107  | MET  | CG-SD-CE    | -5.24 | 91.82       | 100.20   |
| 1   | A     | 307  | G    | C5-C6-O6    | -5.24 | 125.46      | 128.60   |
| 34  | AA    | 584  | U    | O4'-C1'-N1  | 5.24  | 112.39      | 108.20   |
| 34  | AA    | 3334 | U    | O4'-C1'-N1  | 5.24  | 112.39      | 108.20   |
| 26  | P     | 37   | PHE  | N-CA-CB     | 5.23  | 120.02      | 110.60   |
| 34  | AA    | 227  | A    | O4'-C1'-N9  | 5.23  | 112.39      | 108.20   |
| 1   | A     | 530  | U    | P-O3'-C3'   | -5.23 | 113.42      | 119.70   |
| 34  | AA    | 517  | U    | O4'-C1'-N1  | 5.23  | 112.39      | 108.20   |
| 34  | AA    | 2715 | C    | C6-N1-C2    | -5.23 | 118.21      | 120.30   |
| 1   | A     | 1273 | G    | O4'-C1'-N9  | 5.23  | 112.38      | 108.20   |
| 6   | I     | 86   | TYR  | CB-CG-CD1   | -5.23 | 117.86      | 121.00   |
| 1   | A     | 560  | G    | N1-C6-O6    | 5.23  | 123.04      | 119.90   |
| 1   | A     | 1040 | A    | O4'-C1'-N9  | 5.23  | 112.38      | 108.20   |
| 1   | A     | 1321 | C    | C5'-C4'-O4' | 5.23  | 115.37      | 109.10   |
| 34  | AA    | 1140 | A    | O4'-C1'-N9  | 5.23  | 112.38      | 108.20   |
| 34  | AA    | 2509 | U    | O4'-C1'-N1  | 5.23  | 112.38      | 108.20   |
| 34  | AA    | 3275 | C    | P-O3'-C3'   | -5.23 | 113.43      | 119.70   |
| 1   | A     | 33   | U    | O4'-C1'-N1  | 5.23  | 112.38      | 108.20   |
| 27  | Q     | 144  | ARG  | NE-CZ-NH2   | -5.23 | 117.69      | 120.30   |
| 34  | AA    | 1067 | U    | O4'-C1'-N1  | 5.23  | 112.38      | 108.20   |
| 34  | AA    | 1484 | A    | O4'-C1'-N9  | 5.23  | 112.38      | 108.20   |
| 34  | AA    | 3786 | U    | O4'-C1'-N1  | 5.23  | 112.38      | 108.20   |
| 74  | AH    | 172  | ARG  | NH1-CZ-NH2  | -5.23 | 113.65      | 119.40   |
| 1   | A     | 2085 | G    | O4'-C1'-N9  | 5.22  | 112.38      | 108.20   |
| 34  | AA    | 2807 | U    | O4'-C1'-N1  | 5.22  | 112.38      | 108.20   |
| 1   | A     | 846  | G    | O4'-C1'-N9  | 5.22  | 112.38      | 108.20   |
| 12  | Y     | 66   | ARG  | NE-CZ-NH1   | -5.22 | 117.69      | 120.30   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 3569 | C    | O4'-C1'-N1  | 5.22  | 112.38      | 108.20   |
| 34  | AA    | 130  | G    | P-O3'-C3'   | -5.22 | 113.43      | 119.70   |
| 1   | A     | 861  | C    | O4'-C1'-N1  | 5.22  | 112.38      | 108.20   |
| 7   | K     | 120  | HIS  | N-CA-CB     | 5.22  | 120.00      | 110.60   |
| 20  | B     | 165  | ARG  | NE-CZ-NH1   | 5.22  | 122.91      | 120.30   |
| 34  | AA    | 11   | A    | N1-C6-N6    | 5.22  | 121.73      | 118.60   |
| 34  | AA    | 1457 | G    | P-O3'-C3'   | 5.22  | 125.96      | 119.70   |
| 34  | AA    | 1897 | G    | O4'-C1'-N9  | 5.22  | 112.38      | 108.20   |
| 34  | AA    | 3736 | A    | O4'-C1'-N9  | 5.22  | 112.38      | 108.20   |
| 34  | AA    | 199  | G    | N1-C6-O6    | 5.22  | 123.03      | 119.90   |
| 34  | AA    | 3239 | U    | O4'-C1'-N1  | 5.22  | 112.37      | 108.20   |
| 1   | A     | 1921 | C    | O4'-C1'-N1  | 5.22  | 112.37      | 108.20   |
| 34  | AA    | 3047 | U    | O4'-C1'-N1  | 5.22  | 112.37      | 108.20   |
| 1   | A     | 102  | A    | O4'-C1'-N9  | 5.21  | 112.37      | 108.20   |
| 34  | AA    | 340  | U    | O4'-C1'-N1  | 5.21  | 112.37      | 108.20   |
| 34  | AA    | 643  | G    | C5-C6-O6    | -5.21 | 125.47      | 128.60   |
| 34  | AA    | 2504 | U    | O4'-C1'-N1  | 5.21  | 112.37      | 108.20   |
| 35  | AC    | 69   | A    | O4'-C1'-N9  | 5.21  | 112.37      | 108.20   |
| 46  | Aa    | 8    | ARG  | NE-CZ-NH1   | 5.21  | 122.91      | 120.30   |
| 78  | A0    | 63   | ARG  | NE-CZ-NH1   | 5.21  | 122.91      | 120.30   |
| 1   | A     | 1382 | G    | P-O5'-C5'   | 5.21  | 129.24      | 120.90   |
| 1   | A     | 1957 | A    | O4'-C1'-N9  | 5.21  | 112.37      | 108.20   |
| 34  | AA    | 2090 | U    | C5'-C4'-C3' | -5.21 | 107.66      | 116.00   |
| 1   | A     | 557  | A    | O4'-C1'-N9  | 5.21  | 112.37      | 108.20   |
| 1   | A     | 2065 | C    | O4'-C1'-N1  | 5.21  | 112.37      | 108.20   |
| 20  | B     | 107  | ARG  | NE-CZ-NH1   | 5.21  | 122.91      | 120.30   |
| 34  | AA    | 384  | A    | O4'-C1'-N9  | 5.21  | 112.37      | 108.20   |
| 34  | AA    | 747  | A    | N1-C6-N6    | 5.21  | 121.73      | 118.60   |
| 34  | AA    | 833  | G    | C5-C6-O6    | -5.21 | 125.47      | 128.60   |
| 1   | A     | 799  | U    | O4'-C1'-N1  | 5.21  | 112.37      | 108.20   |
| 34  | AA    | 3008 | A    | O4'-C1'-N9  | 5.21  | 112.37      | 108.20   |
| 1   | A     | 1027 | C    | O4'-C1'-N1  | 5.21  | 112.37      | 108.20   |
| 34  | AA    | 490  | U    | O4'-C1'-N1  | 5.21  | 112.37      | 108.20   |
| 34  | AA    | 684  | G    | O4'-C1'-N9  | 5.21  | 112.37      | 108.20   |
| 34  | AA    | 1538 | U    | C5'-C4'-C3' | -5.21 | 107.67      | 116.00   |
| 34  | AA    | 1564 | G    | N1-C6-O6    | 5.21  | 123.03      | 119.90   |
| 34  | AA    | 2814 | U    | O4'-C1'-N1  | 5.21  | 112.37      | 108.20   |
| 34  | AA    | 3120 | U    | C5'-C4'-O4' | 5.21  | 115.35      | 109.10   |
| 1   | A     | 1173 | C    | O4'-C1'-N1  | 5.21  | 112.37      | 108.20   |
| 1   | A     | 1239 | A    | N1-C6-N6    | -5.21 | 115.48      | 118.60   |
| 1   | A     | 1821 | A    | O4'-C1'-N9  | 5.21  | 112.36      | 108.20   |
| 34  | AA    | 455  | U    | O4'-C1'-N1  | 5.21  | 112.36      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 2081 | U    | O4'-C1'-N1  | 5.21  | 112.36      | 108.20   |
| 34  | AA    | 2583 | C    | O4'-C1'-N1  | 5.21  | 112.36      | 108.20   |
| 34  | AA    | 3231 | A    | O4'-C1'-N9  | 5.21  | 112.36      | 108.20   |
| 34  | AA    | 3443 | A    | N9-C1'-C2'  | -5.21 | 106.27      | 112.00   |
| 1   | A     | 91   | G    | O4'-C1'-N9  | 5.20  | 112.36      | 108.20   |
| 1   | A     | 542  | C    | C6-N1-C2    | -5.20 | 118.22      | 120.30   |
| 1   | A     | 986  | U    | O4'-C1'-N1  | 5.20  | 112.36      | 108.20   |
| 1   | A     | 1010 | A    | O4'-C1'-N9  | 5.20  | 112.36      | 108.20   |
| 1   | A     | 1108 | A    | C4'-C3'-C2' | -5.20 | 97.40       | 102.60   |
| 34  | AA    | 1598 | A    | O4'-C1'-N9  | 5.20  | 112.36      | 108.20   |
| 34  | AA    | 2534 | U    | O4'-C1'-N1  | 5.20  | 112.36      | 108.20   |
| 34  | AA    | 2728 | G    | N1-C6-O6    | 5.20  | 123.02      | 119.90   |
| 1   | A     | 884  | G    | C5-C6-O6    | -5.20 | 125.48      | 128.60   |
| 34  | AA    | 2994 | A    | P-O5'-C5'   | -5.20 | 112.58      | 120.90   |
| 34  | AA    | 449  | A    | P-O3'-C3'   | 5.20  | 125.94      | 119.70   |
| 34  | AA    | 582  | U    | O4'-C1'-N1  | 5.20  | 112.36      | 108.20   |
| 34  | AA    | 818  | C    | O4'-C1'-N1  | 5.20  | 112.36      | 108.20   |
| 34  | AA    | 3272 | U    | O4'-C1'-N1  | 5.20  | 112.36      | 108.20   |
| 1   | A     | 208  | U    | O4'-C1'-N1  | 5.20  | 112.36      | 108.20   |
| 1   | A     | 541  | C    | O4'-C1'-N1  | 5.20  | 112.36      | 108.20   |
| 1   | A     | 1097 | C    | O4'-C1'-N1  | 5.20  | 112.36      | 108.20   |
| 1   | A     | 1893 | C    | C6-N1-C1'   | -5.20 | 114.56      | 120.80   |
| 1   | A     | 1943 | C    | C5'-C4'-O4' | 5.20  | 115.34      | 109.10   |
| 34  | AA    | 166  | U    | O4'-C1'-N1  | 5.20  | 112.36      | 108.20   |
| 34  | AA    | 856  | C    | O4'-C1'-N1  | 5.20  | 112.36      | 108.20   |
| 34  | AA    | 1751 | C    | O4'-C1'-N1  | 5.20  | 112.36      | 108.20   |
| 35  | AC    | 38   | G    | C1'-O4'-C4' | -5.20 | 105.74      | 109.90   |
| 2   | 7     | 25   | G    | O4'-C1'-N9  | 5.20  | 112.36      | 108.20   |
| 34  | AA    | 287  | U    | O4'-C1'-N1  | 5.20  | 112.36      | 108.20   |
| 34  | AA    | 1968 | C    | O4'-C1'-N1  | 5.20  | 112.36      | 108.20   |
| 34  | AA    | 2075 | U    | O4'-C1'-N1  | 5.20  | 112.36      | 108.20   |
| 1   | A     | 578  | G    | P-O3'-C3'   | 5.19  | 125.93      | 119.70   |
| 1   | A     | 911  | U    | O4'-C1'-N1  | 5.19  | 112.35      | 108.20   |
| 1   | A     | 928  | U    | O4'-C1'-N1  | 5.19  | 112.35      | 108.20   |
| 34  | AA    | 332  | A    | P-O3'-C3'   | 5.19  | 125.93      | 119.70   |
| 34  | AA    | 1061 | U    | O4'-C1'-N1  | 5.19  | 112.35      | 108.20   |
| 34  | AA    | 2117 | A    | O4'-C1'-N9  | 5.19  | 112.35      | 108.20   |
| 35  | AC    | 11   | U    | O4'-C1'-N1  | 5.19  | 112.35      | 108.20   |
| 35  | AC    | 79   | G    | C5-C6-O6    | -5.19 | 125.48      | 128.60   |
| 34  | AA    | 2218 | C    | O4'-C1'-N1  | 5.19  | 112.35      | 108.20   |
| 34  | AA    | 3580 | G    | C5'-C4'-O4' | 5.19  | 115.33      | 109.10   |
| 34  | AA    | 511  | C    | C6-N1-C2    | -5.19 | 118.22      | 120.30   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 531  | U    | O4'-C1'-N1  | 5.19  | 112.35      | 108.20   |
| 34  | AA    | 2451 | A    | O4'-C1'-N9  | 5.19  | 112.35      | 108.20   |
| 34  | AA    | 2008 | G    | O4'-C1'-N9  | 5.19  | 112.35      | 108.20   |
| 34  | AA    | 2473 | A    | O4'-C1'-N9  | 5.19  | 112.35      | 108.20   |
| 1   | A     | 1118 | U    | O4'-C1'-N1  | 5.19  | 112.35      | 108.20   |
| 34  | AA    | 1066 | U    | O4'-C1'-N1  | 5.19  | 112.35      | 108.20   |
| 34  | AA    | 2189 | A    | O4'-C1'-N9  | 5.19  | 112.35      | 108.20   |
| 34  | AA    | 1222 | U    | O4'-C1'-N1  | 5.18  | 112.35      | 108.20   |
| 34  | AA    | 1254 | G    | O4'-C1'-N9  | 5.18  | 112.35      | 108.20   |
| 1   | A     | 105  | A    | C2'-C3'-O3' | 5.18  | 121.99      | 113.70   |
| 1   | A     | 1863 | U    | C5'-C4'-C3' | -5.18 | 107.71      | 116.00   |
| 34  | AA    | 1170 | A    | O4'-C1'-N9  | 5.18  | 112.35      | 108.20   |
| 34  | AA    | 1342 | U    | O4'-C1'-N1  | 5.18  | 112.35      | 108.20   |
| 34  | AA    | 3016 | G    | C5'-C4'-O4' | 5.18  | 115.32      | 109.10   |
| 34  | AA    | 3167 | A    | C5'-C4'-O4' | 5.18  | 115.32      | 109.10   |
| 34  | AA    | 3132 | C    | O4'-C1'-N1  | 5.18  | 112.34      | 108.20   |
| 34  | AA    | 544  | C    | C2-N1-C1'   | 5.18  | 124.50      | 118.80   |
| 34  | AA    | 612  | G    | O4'-C1'-N9  | 5.18  | 112.34      | 108.20   |
| 34  | AA    | 2981 | A    | O4'-C1'-N9  | 5.18  | 112.34      | 108.20   |
| 1   | A     | 310  | U    | O4'-C1'-N1  | 5.18  | 112.34      | 108.20   |
| 1   | A     | 919  | U    | P-O5'-C5'   | 5.18  | 129.18      | 120.90   |
| 34  | AA    | 1560 | U    | O4'-C1'-N1  | 5.18  | 112.34      | 108.20   |
| 1   | A     | 1848 | U    | O4'-C1'-N1  | 5.18  | 112.34      | 108.20   |
| 34  | AA    | 1277 | G    | C5-C6-O6    | -5.18 | 125.50      | 128.60   |
| 35  | AC    | 9    | U    | O4'-C1'-N1  | 5.18  | 112.34      | 108.20   |
| 35  | AC    | 56   | A    | O4'-C1'-N9  | 5.18  | 112.34      | 108.20   |
| 70  | AE    | 345  | ARG  | NE-CZ-NH1   | 5.18  | 122.89      | 120.30   |
| 1   | A     | 211  | U    | O4'-C1'-N1  | 5.17  | 112.34      | 108.20   |
| 34  | AA    | 673  | U    | C6-N1-C1'   | -5.17 | 113.95      | 121.20   |
| 34  | AA    | 3613 | A    | N1-C6-N6    | 5.17  | 121.70      | 118.60   |
| 34  | AA    | 3395 | G    | O4'-C1'-N9  | 5.17  | 112.34      | 108.20   |
| 1   | A     | 44   | U    | P-O3'-C3'   | -5.17 | 113.50      | 119.70   |
| 34  | AA    | 948  | G    | O4'-C1'-N9  | 5.17  | 112.34      | 108.20   |
| 54  | AI    | 68   | MET  | CG-SD-CE    | -5.17 | 91.93       | 100.20   |
| 70  | AE    | 237  | ARG  | NE-CZ-NH1   | 5.17  | 122.89      | 120.30   |
| 1   | A     | 215  | U    | O4'-C1'-N1  | 5.17  | 112.33      | 108.20   |
| 1   | A     | 892  | U    | O4'-C1'-N1  | 5.17  | 112.33      | 108.20   |
| 1   | A     | 1798 | G    | C5'-C4'-O4' | 5.17  | 115.30      | 109.10   |
| 1   | A     | 1912 | C    | O4'-C1'-N1  | 5.17  | 112.33      | 108.20   |
| 16  | 3     | 95   | ARG  | NE-CZ-NH1   | 5.17  | 122.89      | 120.30   |
| 34  | AA    | 389  | U    | O4'-C1'-N1  | 5.17  | 112.33      | 108.20   |
| 34  | AA    | 2514 | G    | N1-C6-O6    | 5.17  | 123.00      | 119.90   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 698  | G    | C5-C6-O6    | -5.17 | 125.50      | 128.60   |
| 34  | AA    | 1297 | A    | O4'-C1'-N9  | 5.17  | 112.33      | 108.20   |
| 34  | AA    | 2744 | G    | O4'-C1'-N9  | 5.17  | 112.33      | 108.20   |
| 1   | A     | 641  | G    | O4'-C1'-N9  | 5.17  | 112.33      | 108.20   |
| 34  | AA    | 155  | U    | O4'-C1'-N1  | 5.17  | 112.33      | 108.20   |
| 34  | AA    | 1250 | U    | O4'-C1'-N1  | 5.17  | 112.33      | 108.20   |
| 34  | AA    | 535  | U    | O4'-C1'-N1  | 5.16  | 112.33      | 108.20   |
| 34  | AA    | 3638 | A    | N1-C6-N6    | -5.16 | 115.50      | 118.60   |
| 1   | A     | 330  | U    | O4'-C1'-N1  | 5.16  | 112.33      | 108.20   |
| 34  | AA    | 610  | U    | O4'-C1'-N1  | 5.16  | 112.33      | 108.20   |
| 1   | A     | 376  | A    | O4'-C1'-N9  | 5.16  | 112.33      | 108.20   |
| 1   | A     | 1086 | U    | O4'-C1'-N1  | 5.16  | 112.33      | 108.20   |
| 34  | AA    | 1018 | C    | O4'-C1'-N1  | 5.16  | 112.33      | 108.20   |
| 34  | AA    | 2556 | C    | O4'-C1'-N1  | 5.16  | 112.33      | 108.20   |
| 34  | AA    | 951  | A    | C5'-C4'-O4' | 5.16  | 115.29      | 109.10   |
| 34  | AA    | 3190 | G    | O4'-C1'-N9  | 5.16  | 112.33      | 108.20   |
| 1   | A     | 1016 | U    | O4'-C1'-N1  | 5.16  | 112.33      | 108.20   |
| 1   | A     | 1075 | C    | O4'-C1'-N1  | 5.16  | 112.32      | 108.20   |
| 34  | AA    | 1747 | U    | C6-N1-C1'   | -5.16 | 113.98      | 121.20   |
| 34  | AA    | 3050 | U    | O4'-C1'-N1  | 5.16  | 112.33      | 108.20   |
| 1   | A     | 955  | U    | C5'-C4'-O4' | 5.15  | 115.28      | 109.10   |
| 34  | AA    | 1699 | G    | O4'-C1'-N9  | 5.15  | 112.32      | 108.20   |
| 75  | AV    | 9    | ARG  | NE-CZ-NH1   | 5.15  | 122.88      | 120.30   |
| 1   | A     | 561  | C    | O4'-C1'-N1  | 5.15  | 112.32      | 108.20   |
| 1   | A     | 1464 | U    | O4'-C1'-N1  | 5.15  | 112.32      | 108.20   |
| 14  | 1     | 106  | ARG  | NE-CZ-NH1   | -5.15 | 117.72      | 120.30   |
| 34  | AA    | 976  | G    | O4'-C1'-N9  | 5.15  | 112.32      | 108.20   |
| 34  | AA    | 3470 | G    | C5-C6-O6    | -5.15 | 125.51      | 128.60   |
| 39  | A2    | 19   | PHE  | CB-CG-CD2   | -5.15 | 117.19      | 120.80   |
| 1   | A     | 1832 | U    | C1'-O4'-C4' | -5.15 | 105.78      | 109.90   |
| 34  | AA    | 1083 | G    | O4'-C1'-N9  | 5.15  | 112.32      | 108.20   |
| 3   | D     | 107  | ARG  | NE-CZ-NH1   | 5.15  | 122.88      | 120.30   |
| 34  | AA    | 1643 | U    | C3'-C2'-C1' | -5.15 | 97.38       | 101.50   |
| 34  | AA    | 2187 | G    | N3-C2-N2    | 5.15  | 123.50      | 119.90   |
| 34  | AA    | 1272 | U    | C5'-C4'-O4' | 5.15  | 115.28      | 109.10   |
| 34  | AA    | 3554 | U    | C4'-C3'-C2' | 5.15  | 107.75      | 102.60   |
| 34  | AA    | 3767 | U    | P-O3'-C3'   | 5.15  | 125.88      | 119.70   |
| 47  | Ab    | 3    | ARG  | NE-CZ-NH2   | 5.15  | 122.87      | 120.30   |
| 34  | AA    | 3088 | G    | C5-C6-O6    | -5.15 | 125.51      | 128.60   |
| 70  | AE    | 272  | ARG  | NE-CZ-NH2   | 5.15  | 122.87      | 120.30   |
| 1   | A     | 636  | U    | O4'-C1'-N1  | 5.14  | 112.32      | 108.20   |
| 34  | AA    | 975  | G    | P-O3'-C3'   | 5.14  | 125.87      | 119.70   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 1   | A     | 808  | U    | O4'-C1'-N1  | 5.14  | 112.31      | 108.20   |
| 1   | A     | 952  | U    | P-O5'-C5'   | 5.14  | 129.13      | 120.90   |
| 34  | AA    | 226  | G    | C5'-C4'-O4' | 5.14  | 115.27      | 109.10   |
| 34  | AA    | 638  | G    | C5-C6-O6    | -5.14 | 125.52      | 128.60   |
| 34  | AA    | 2138 | U    | O4'-C1'-N1  | 5.14  | 112.31      | 108.20   |
| 34  | AA    | 2176 | A    | O4'-C1'-N9  | 5.14  | 112.31      | 108.20   |
| 34  | AA    | 3661 | A    | O4'-C1'-N9  | 5.14  | 112.31      | 108.20   |
| 1   | A     | 1722 | U    | O4'-C1'-N1  | 5.14  | 112.31      | 108.20   |
| 21  | F     | 253  | ARG  | NE-CZ-NH1   | 5.14  | 122.87      | 120.30   |
| 34  | AA    | 25   | A    | O4'-C1'-N9  | 5.14  | 112.31      | 108.20   |
| 35  | AC    | 92   | A    | N1-C6-N6    | 5.14  | 121.68      | 118.60   |
| 1   | A     | 43   | A    | C5-C6-N6    | -5.14 | 119.59      | 123.70   |
| 1   | A     | 201  | G    | N1-C6-O6    | 5.14  | 122.98      | 119.90   |
| 1   | A     | 1894 | A    | O4'-C1'-N9  | 5.14  | 112.31      | 108.20   |
| 34  | AA    | 892  | U    | O4'-C1'-N1  | 5.14  | 112.31      | 108.20   |
| 34  | AA    | 1517 | U    | O4'-C1'-N1  | 5.14  | 112.31      | 108.20   |
| 34  | AA    | 286  | U    | O4'-C1'-N1  | 5.14  | 112.31      | 108.20   |
| 1   | A     | 322  | G    | O4'-C1'-N9  | 5.14  | 112.31      | 108.20   |
| 1   | A     | 1220 | C    | C6-N1-C2    | -5.14 | 118.25      | 120.30   |
| 2   | 7     | 36   | A    | C5'-C4'-C3' | 5.14  | 124.22      | 116.00   |
| 6   | I     | 46   | ARG  | NE-CZ-NH2   | 5.14  | 122.87      | 120.30   |
| 34  | AA    | 440  | A    | N1-C6-N6    | 5.14  | 121.68      | 118.60   |
| 34  | AA    | 579  | C    | O4'-C1'-N1  | 5.14  | 112.31      | 108.20   |
| 34  | AA    | 1550 | A    | C5'-C4'-C3' | -5.14 | 107.78      | 116.00   |
| 34  | AA    | 3583 | A    | C5'-C4'-O4' | 5.14  | 115.26      | 109.10   |
| 34  | AA    | 3726 | U    | O4'-C1'-N1  | 5.14  | 112.31      | 108.20   |
| 67  | A3    | 50   | ARG  | NE-CZ-NH1   | 5.14  | 122.87      | 120.30   |
| 34  | AA    | 1550 | A    | O4'-C1'-N9  | 5.13  | 112.31      | 108.20   |
| 34  | AA    | 2562 | U    | O4'-C1'-N1  | 5.13  | 112.31      | 108.20   |
| 53  | Ai    | 86   | ARG  | NE-CZ-NH1   | 5.13  | 122.87      | 120.30   |
| 44  | A8    | 24   | ARG  | NH1-CZ-NH2  | -5.13 | 113.75      | 119.40   |
| 34  | AA    | 81   | C    | C6-N1-C2    | -5.13 | 118.25      | 120.30   |
| 34  | AA    | 2410 | A    | P-O3'-C3'   | 5.13  | 125.86      | 119.70   |
| 34  | AA    | 3109 | U    | O4'-C1'-N1  | 5.13  | 112.31      | 108.20   |
| 58  | AM    | 122  | ARG  | NE-CZ-NH1   | 5.13  | 122.87      | 120.30   |
| 69  | AD    | 23   | ARG  | NE-CZ-NH1   | 5.13  | 122.86      | 120.30   |
| 34  | AA    | 3679 | A    | O3'-P-O5'   | -5.13 | 94.25       | 104.00   |
| 1   | A     | 367  | C    | C6-N1-C2    | -5.13 | 118.25      | 120.30   |
| 1   | A     | 853  | U    | C5'-C4'-O4' | 5.13  | 115.25      | 109.10   |
| 68  | A5    | 97   | ARG  | NE-CZ-NH1   | 5.13  | 122.86      | 120.30   |
| 1   | A     | 1783 | U    | O4'-C1'-N1  | 5.13  | 112.30      | 108.20   |
| 1   | A     | 2070 | G    | N1-C6-O6    | 5.13  | 122.98      | 119.90   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 70   | A    | O4'-C1'-N9  | 5.13  | 112.30      | 108.20   |
| 34  | AA    | 1499 | U    | O4'-C1'-N1  | 5.13  | 112.30      | 108.20   |
| 34  | AA    | 2210 | U    | O4'-C1'-N1  | 5.13  | 112.30      | 108.20   |
| 34  | AA    | 3122 | A    | C8-N9-C4    | 5.13  | 107.85      | 105.80   |
| 34  | AA    | 3202 | U    | O4'-C1'-N1  | 5.13  | 112.30      | 108.20   |
| 1   | A     | 157  | G    | C1'-O4'-C4' | -5.12 | 105.80      | 109.90   |
| 27  | Q     | 95   | PHE  | CB-CG-CD2   | 5.12  | 124.39      | 120.80   |
| 1   | A     | 1008 | A    | O4'-C1'-N9  | 5.12  | 112.30      | 108.20   |
| 1   | A     | 1410 | G    | O4'-C1'-N9  | 5.12  | 112.30      | 108.20   |
| 34  | AA    | 1107 | U    | O4'-C1'-N1  | 5.12  | 112.30      | 108.20   |
| 34  | AA    | 2984 | G    | O4'-C1'-N9  | 5.12  | 112.30      | 108.20   |
| 1   | A     | 1864 | U    | O4'-C1'-N1  | 5.12  | 112.30      | 108.20   |
| 34  | AA    | 2125 | A    | O4'-C1'-N9  | 5.12  | 112.30      | 108.20   |
| 34  | AA    | 2466 | U    | O4'-C1'-N1  | 5.12  | 112.30      | 108.20   |
| 34  | AA    | 3106 | U    | O4'-C1'-N1  | 5.12  | 112.30      | 108.20   |
| 1   | A     | 1849 | U    | O4'-C1'-N1  | 5.12  | 112.30      | 108.20   |
| 34  | AA    | 382  | A    | C5-C6-N6    | 5.12  | 127.80      | 123.70   |
| 34  | AA    | 2554 | G    | O4'-C1'-N9  | 5.12  | 112.30      | 108.20   |
| 34  | AA    | 3243 | C    | C6-N1-C2    | -5.12 | 118.25      | 120.30   |
| 1   | A     | 1788 | U    | C2-N1-C1'   | 5.12  | 123.84      | 117.70   |
| 34  | AA    | 2488 | C    | O4'-C1'-N1  | 5.12  | 112.30      | 108.20   |
| 34  | AA    | 3129 | U    | C5'-C4'-O4' | 5.12  | 115.24      | 109.10   |
| 55  | AJ    | 87   | ARG  | NE-CZ-NH1   | 5.12  | 122.86      | 120.30   |
| 1   | A     | 1653 | A    | O4'-C1'-N9  | 5.12  | 112.29      | 108.20   |
| 1   | A     | 2065 | C    | C6-N1-C2    | -5.12 | 118.25      | 120.30   |
| 34  | AA    | 365  | C    | O4'-C1'-N1  | 5.12  | 112.29      | 108.20   |
| 34  | AA    | 3693 | A    | O4'-C1'-N9  | 5.12  | 112.29      | 108.20   |
| 36  | AB    | 103  | A    | N1-C6-N6    | 5.12  | 121.67      | 118.60   |
| 45  | A9    | 81   | ARG  | NE-CZ-NH1   | 5.12  | 122.86      | 120.30   |
| 65  | AT    | 8    | ARG  | NE-CZ-NH1   | 5.12  | 122.86      | 120.30   |
| 34  | AA    | 1762 | A    | O4'-C1'-N9  | 5.11  | 112.29      | 108.20   |
| 34  | AA    | 1800 | U    | O4'-C1'-N1  | 5.11  | 112.29      | 108.20   |
| 34  | AA    | 3068 | A    | O4'-C1'-N9  | 5.11  | 112.29      | 108.20   |
| 34  | AA    | 3111 | U    | C5'-C4'-O4' | 5.11  | 115.24      | 109.10   |
| 2   | 7     | 44   | G    | O4'-C1'-N9  | 5.11  | 112.29      | 108.20   |
| 34  | AA    | 102  | A    | C5'-C4'-O4' | 5.11  | 115.23      | 109.10   |
| 34  | AA    | 3591 | U    | O4'-C1'-N1  | 5.11  | 112.29      | 108.20   |
| 35  | AC    | 79   | G    | O4'-C1'-N9  | 5.11  | 112.29      | 108.20   |
| 62  | AR    | 22   | ARG  | NE-CZ-NH1   | 5.11  | 122.86      | 120.30   |
| 34  | AA    | 3056 | U    | O4'-C1'-N1  | 5.11  | 112.29      | 108.20   |
| 5   | G     | 180  | ARG  | NE-CZ-NH2   | 5.11  | 122.85      | 120.30   |
| 40  | A4    | 38   | ASN  | N-CA-CB     | 5.11  | 119.80      | 110.60   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 14  | 1     | 120  | ARG  | NE-CZ-NH1   | 5.11  | 122.85      | 120.30   |
| 1   | A     | 848  | U    | O4'-C1'-N1  | 5.11  | 112.28      | 108.20   |
| 34  | AA    | 1641 | G    | O4'-C1'-N9  | 5.11  | 112.28      | 108.20   |
| 35  | AC    | 89   | U    | O4'-C1'-N1  | 5.11  | 112.28      | 108.20   |
| 1   | A     | 1190 | U    | O4'-C1'-N1  | 5.10  | 112.28      | 108.20   |
| 34  | AA    | 1344 | C    | O4'-C1'-N1  | 5.10  | 112.28      | 108.20   |
| 34  | AA    | 1705 | A    | C5'-C4'-C3' | 5.10  | 124.17      | 116.00   |
| 34  | AA    | 2147 | A    | O4'-C1'-N9  | 5.10  | 112.28      | 108.20   |
| 34  | AA    | 3510 | C    | O4'-C1'-N1  | 5.10  | 112.28      | 108.20   |
| 1   | A     | 469  | U    | O4'-C1'-N1  | 5.10  | 112.28      | 108.20   |
| 1   | A     | 1186 | G    | C5-C6-O6    | -5.10 | 125.54      | 128.60   |
| 1   | A     | 1261 | A    | O4'-C1'-N9  | 5.10  | 112.28      | 108.20   |
| 34  | AA    | 34   | A    | O4'-C1'-N9  | 5.10  | 112.28      | 108.20   |
| 34  | AA    | 631  | U    | O4'-C1'-N1  | 5.10  | 112.28      | 108.20   |
| 34  | AA    | 938  | U    | O4'-C1'-N1  | 5.10  | 112.28      | 108.20   |
| 34  | AA    | 2501 | A    | N1-C6-N6    | 5.10  | 121.66      | 118.60   |
| 34  | AA    | 492  | U    | O4'-C1'-N1  | 5.10  | 112.28      | 108.20   |
| 34  | AA    | 3784 | U    | O4'-C1'-N1  | 5.10  | 112.28      | 108.20   |
| 1   | A     | 138  | U    | P-O3'-C3'   | 5.10  | 125.82      | 119.70   |
| 34  | AA    | 379  | G    | C5-C6-O6    | -5.10 | 125.54      | 128.60   |
| 34  | AA    | 539  | G    | P-O3'-C3'   | 5.10  | 125.82      | 119.70   |
| 34  | AA    | 873  | U    | O4'-C1'-N1  | 5.10  | 112.28      | 108.20   |
| 34  | AA    | 2118 | G    | C5-C6-O6    | -5.10 | 125.54      | 128.60   |
| 34  | AA    | 3332 | G    | C5-C6-O6    | -5.10 | 125.54      | 128.60   |
| 37  | AL    | 42   | ARG  | NE-CZ-NH1   | 5.10  | 122.85      | 120.30   |
| 62  | AR    | 207  | MET  | CG-SD-CE    | -5.10 | 92.04       | 100.20   |
| 1   | A     | 1720 | G    | N1-C6-O6    | 5.10  | 122.96      | 119.90   |
| 34  | AA    | 1868 | U    | O4'-C1'-N1  | 5.10  | 112.28      | 108.20   |
| 34  | AA    | 2676 | C    | O4'-C1'-N1  | 5.10  | 112.28      | 108.20   |
| 34  | AA    | 3287 | C    | C6-N1-C2    | -5.10 | 118.26      | 120.30   |
| 34  | AA    | 417  | A    | N1-C6-N6    | 5.10  | 121.66      | 118.60   |
| 36  | AB    | 5    | U    | O4'-C1'-N1  | 5.10  | 112.28      | 108.20   |
| 1   | A     | 987  | U    | O4'-C1'-N1  | 5.09  | 112.28      | 108.20   |
| 34  | AA    | 206  | A    | P-O3'-C3'   | 5.09  | 125.81      | 119.70   |
| 34  | AA    | 684  | G    | N1-C6-O6    | 5.09  | 122.96      | 119.90   |
| 1   | A     | 1624 | U    | O4'-C1'-N1  | 5.09  | 112.27      | 108.20   |
| 1   | A     | 1952 | A    | C5-C6-N6    | -5.09 | 119.62      | 123.70   |
| 34  | AA    | 1060 | G    | O4'-C1'-N9  | 5.09  | 112.28      | 108.20   |
| 1   | A     | 1696 | A    | O4'-C1'-N9  | 5.09  | 112.27      | 108.20   |
| 24  | L     | 210  | ARG  | NE-CZ-NH2   | 5.09  | 122.84      | 120.30   |
| 34  | AA    | 1641 | G    | C5-C6-O6    | -5.09 | 125.55      | 128.60   |
| 34  | AA    | 3388 | U    | O4'-C1'-N1  | 5.09  | 112.27      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 1   | A     | 1390 | U    | O4'-C1'-N1  | 5.09  | 112.27      | 108.20   |
| 1   | A     | 1688 | U    | O4'-C1'-N1  | 5.09  | 112.27      | 108.20   |
| 34  | AA    | 273  | C    | O4'-C1'-N1  | 5.09  | 112.27      | 108.20   |
| 34  | AA    | 1516 | G    | N3-C2-N2    | 5.09  | 123.46      | 119.90   |
| 34  | AA    | 2832 | A    | P-O3'-C3'   | 5.09  | 125.81      | 119.70   |
| 34  | AA    | 3644 | G    | O4'-C1'-N9  | 5.09  | 112.27      | 108.20   |
| 1   | A     | 755  | A    | O4'-C1'-N9  | 5.09  | 112.27      | 108.20   |
| 34  | AA    | 1243 | G    | C5-C6-O6    | -5.09 | 125.55      | 128.60   |
| 34  | AA    | 1462 | C    | O4'-C1'-N1  | 5.09  | 112.27      | 108.20   |
| 34  | AA    | 1664 | A    | N1-C6-N6    | -5.09 | 115.55      | 118.60   |
| 1   | A     | 1370 | U    | O4'-C1'-N1  | 5.09  | 112.27      | 108.20   |
| 1   | A     | 1903 | U    | O4'-C1'-N1  | 5.09  | 112.27      | 108.20   |
| 34  | AA    | 1496 | U    | O4'-C1'-N1  | 5.09  | 112.27      | 108.20   |
| 34  | AA    | 2474 | C    | O4'-C1'-N1  | 5.09  | 112.27      | 108.20   |
| 34  | AA    | 2644 | U    | O4'-C1'-N1  | 5.09  | 112.27      | 108.20   |
| 36  | AB    | 88   | A    | P-O3'-C3'   | 5.09  | 125.81      | 119.70   |
| 1   | A     | 164  | C    | O4'-C1'-N1  | 5.08  | 112.27      | 108.20   |
| 1   | A     | 296  | G    | O4'-C1'-N9  | 5.08  | 112.27      | 108.20   |
| 1   | A     | 385  | U    | O4'-C1'-N1  | 5.08  | 112.27      | 108.20   |
| 1   | A     | 1176 | U    | O4'-C1'-N1  | 5.08  | 112.27      | 108.20   |
| 34  | AA    | 537  | A    | C5'-C4'-C3' | -5.08 | 107.87      | 116.00   |
| 34  | AA    | 712  | C    | O4'-C1'-N1  | 5.08  | 112.27      | 108.20   |
| 34  | AA    | 1591 | U    | O4'-C1'-N1  | 5.08  | 112.27      | 108.20   |
| 34  | AA    | 3064 | U    | O4'-C1'-N1  | 5.08  | 112.27      | 108.20   |
| 34  | AA    | 3705 | C    | C6-N1-C2    | -5.08 | 118.27      | 120.30   |
| 1   | A     | 1809 | G    | C5-C6-O6    | -5.08 | 125.55      | 128.60   |
| 34  | AA    | 1690 | A    | O4'-C1'-N9  | 5.08  | 112.27      | 108.20   |
| 34  | AA    | 2408 | G    | N1-C6-O6    | 5.08  | 122.95      | 119.90   |
| 34  | AA    | 2736 | A    | O4'-C1'-N9  | 5.08  | 112.27      | 108.20   |
| 56  | Ac    | 68   | ARG  | NE-CZ-NH1   | 5.08  | 122.84      | 120.30   |
| 1   | A     | 970  | G    | C5-C6-O6    | -5.08 | 125.55      | 128.60   |
| 1   | A     | 1881 | G    | N1-C6-O6    | 5.08  | 122.95      | 119.90   |
| 34  | AA    | 254  | U    | O4'-C1'-N1  | 5.08  | 112.26      | 108.20   |
| 34  | AA    | 3384 | G    | O4'-C1'-N9  | 5.08  | 112.26      | 108.20   |
| 1   | A     | 794  | U    | O4'-C1'-N1  | 5.08  | 112.26      | 108.20   |
| 1   | A     | 1789 | U    | P-O3'-C3'   | 5.08  | 125.79      | 119.70   |
| 34  | AA    | 1434 | G    | C5-C6-O6    | -5.08 | 125.55      | 128.60   |
| 34  | AA    | 1684 | A    | N1-C6-N6    | 5.08  | 121.65      | 118.60   |
| 34  | AA    | 522  | A    | P-O5'-C5'   | 5.08  | 129.02      | 120.90   |
| 34  | AA    | 3282 | U    | C5'-C4'-O4' | 5.08  | 115.19      | 109.10   |
| 1   | A     | 390  | G    | C5-C6-O6    | -5.08 | 125.55      | 128.60   |
| 1   | A     | 453  | U    | O4'-C1'-N1  | 5.08  | 112.26      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 1   | A     | 1831 | G    | C5-C6-O6    | -5.08 | 125.56      | 128.60   |
| 34  | AA    | 957  | G    | N1-C6-O6    | 5.08  | 122.94      | 119.90   |
| 34  | AA    | 2711 | U    | O4'-C1'-N1  | 5.08  | 112.26      | 108.20   |
| 34  | AA    | 3137 | U    | C2'-C3'-O3' | 5.08  | 121.82      | 113.70   |
| 1   | A     | 832  | A    | N1-C6-N6    | -5.07 | 115.56      | 118.60   |
| 1   | A     | 1817 | U    | O4'-C1'-N1  | 5.07  | 112.26      | 108.20   |
| 34  | AA    | 1576 | U    | O4'-C1'-N1  | 5.07  | 112.26      | 108.20   |
| 34  | AA    | 1908 | U    | O4'-C1'-N1  | 5.07  | 112.26      | 108.20   |
| 23  | J     | 162  | ARG  | NE-CZ-NH1   | 5.07  | 122.84      | 120.30   |
| 36  | AB    | 116  | U    | O4'-C1'-N1  | 5.07  | 112.26      | 108.20   |
| 1   | A     | 922  | U    | O4'-C1'-N1  | 5.07  | 112.26      | 108.20   |
| 1   | A     | 1742 | A    | C2'-C3'-O3' | 5.07  | 121.81      | 113.70   |
| 1   | A     | 2053 | U    | C5'-C4'-O4' | 5.07  | 115.19      | 109.10   |
| 34  | AA    | 629  | A    | O4'-C1'-N9  | 5.07  | 112.26      | 108.20   |
| 34  | AA    | 832  | U    | O4'-C1'-N1  | 5.07  | 112.26      | 108.20   |
| 34  | AA    | 1099 | U    | O4'-C1'-N1  | 5.07  | 112.26      | 108.20   |
| 34  | AA    | 3443 | A    | C4'-C3'-C2' | -5.07 | 97.53       | 102.60   |
| 34  | AA    | 1080 | C    | O4'-C1'-N1  | 5.07  | 112.25      | 108.20   |
| 34  | AA    | 1136 | A    | C5-C6-N6    | -5.07 | 119.64      | 123.70   |
| 34  | AA    | 1839 | U    | O4'-C1'-N1  | 5.07  | 112.26      | 108.20   |
| 34  | AA    | 2170 | G    | O4'-C1'-N9  | 5.07  | 112.25      | 108.20   |
| 35  | AC    | 52   | A    | O4'-C1'-N9  | 5.07  | 112.25      | 108.20   |
| 70  | AE    | 115  | ARG  | NE-CZ-NH1   | 5.07  | 122.83      | 120.30   |
| 1   | A     | 69   | A    | O4'-C1'-N9  | 5.07  | 112.25      | 108.20   |
| 1   | A     | 1024 | A    | O4'-C1'-N9  | 5.07  | 112.25      | 108.20   |
| 1   | A     | 1665 | G    | C5-C6-O6    | -5.07 | 125.56      | 128.60   |
| 34  | AA    | 2405 | A    | O4'-C1'-N9  | 5.07  | 112.25      | 108.20   |
| 72  | AG    | 72   | ARG  | NE-CZ-NH1   | 5.07  | 122.83      | 120.30   |
| 1   | A     | 182  | U    | O4'-C1'-N1  | 5.07  | 112.25      | 108.20   |
| 1   | A     | 395  | G    | C5-C6-O6    | -5.07 | 125.56      | 128.60   |
| 1   | A     | 431  | A    | P-O5'-C5'   | 5.07  | 129.00      | 120.90   |
| 34  | AA    | 1681 | C    | P-O3'-C3'   | 5.07  | 125.78      | 119.70   |
| 64  | AY    | 95   | ARG  | NE-CZ-NH1   | 5.07  | 122.83      | 120.30   |
| 74  | AH    | 172  | ARG  | NE-CZ-NH2   | 5.07  | 122.83      | 120.30   |
| 1   | A     | 387  | C    | C6-N1-C2    | -5.06 | 118.27      | 120.30   |
| 1   | A     | 959  | C    | O4'-C1'-N1  | 5.06  | 112.25      | 108.20   |
| 34  | AA    | 506  | A    | O4'-C1'-N9  | 5.06  | 112.25      | 108.20   |
| 34  | AA    | 825  | G    | N1-C6-O6    | 5.06  | 122.94      | 119.90   |
| 35  | AC    | 62   | G    | N3-C2-N2    | 5.06  | 123.44      | 119.90   |
| 16  | 3     | 15   | ARG  | NE-CZ-NH1   | 5.06  | 122.83      | 120.30   |
| 34  | AA    | 518  | G    | C5-C6-O6    | -5.06 | 125.56      | 128.60   |
| 34  | AA    | 1664 | A    | O4'-C1'-N9  | 5.06  | 112.25      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 3639 | G    | C5'-C4'-C3' | -5.06 | 107.90      | 116.00   |
| 35  | AC    | 145  | A    | C5'-C4'-O4' | 5.06  | 115.17      | 109.10   |
| 1   | A     | 1374 | G    | N1-C6-O6    | 5.06  | 122.94      | 119.90   |
| 1   | A     | 1711 | U    | O4'-C1'-N1  | 5.06  | 112.25      | 108.20   |
| 34  | AA    | 361  | G    | N1-C6-O6    | 5.06  | 122.94      | 119.90   |
| 34  | AA    | 1822 | A    | O4'-C1'-N9  | 5.06  | 112.25      | 108.20   |
| 34  | AA    | 2180 | U    | C2'-C3'-O3' | 5.06  | 121.80      | 113.70   |
| 34  | AA    | 3052 | U    | C5'-C4'-O4' | 5.06  | 115.17      | 109.10   |
| 34  | AA    | 3530 | A    | C5'-C4'-O4' | 5.06  | 115.17      | 109.10   |
| 34  | AA    | 3741 | A    | O4'-C1'-N9  | 5.06  | 112.25      | 108.20   |
| 36  | AB    | 21   | G    | O4'-C1'-N9  | 5.06  | 112.25      | 108.20   |
| 1   | A     | 204  | U    | P-O3'-C3'   | 5.06  | 125.77      | 119.70   |
| 1   | A     | 1413 | U    | C2'-C3'-O3' | 5.06  | 121.79      | 113.70   |
| 33  | C     | 190  | ARG  | NE-CZ-NH2   | 5.06  | 122.83      | 120.30   |
| 34  | AA    | 889  | U    | C2'-C3'-O3' | 5.06  | 121.79      | 113.70   |
| 34  | AA    | 2092 | G    | C5'-C4'-O4' | 5.06  | 115.17      | 109.10   |
| 35  | AC    | 29   | G    | O4'-C1'-N9  | 5.06  | 112.25      | 108.20   |
| 1   | A     | 467  | G    | O4'-C1'-N9  | 5.06  | 112.25      | 108.20   |
| 1   | A     | 1374 | G    | C5-C6-O6    | -5.05 | 125.57      | 128.60   |
| 29  | T     | 17   | ARG  | NE-CZ-NH1   | 5.05  | 122.83      | 120.30   |
| 34  | AA    | 604  | G    | P-O3'-C3'   | 5.05  | 125.77      | 119.70   |
| 34  | AA    | 639  | C    | O4'-C1'-N1  | 5.05  | 112.24      | 108.20   |
| 34  | AA    | 740  | U    | O4'-C1'-N1  | 5.05  | 112.24      | 108.20   |
| 34  | AA    | 1108 | U    | O4'-C1'-N1  | 5.05  | 112.24      | 108.20   |
| 51  | AP    | 63   | ARG  | NE-CZ-NH2   | -5.05 | 117.77      | 120.30   |
| 1   | A     | 1003 | C    | C2-N1-C1'   | 5.05  | 124.36      | 118.80   |
| 34  | AA    | 3102 | U    | O4'-C1'-N1  | 5.05  | 112.24      | 108.20   |
| 1   | A     | 143  | A    | O4'-C1'-N9  | 5.05  | 112.24      | 108.20   |
| 1   | A     | 797  | C    | O4'-C1'-N1  | 5.05  | 112.24      | 108.20   |
| 1   | A     | 1088 | A    | O4'-C1'-N9  | 5.05  | 112.24      | 108.20   |
| 34  | AA    | 308  | U    | O4'-C1'-N1  | 5.05  | 112.24      | 108.20   |
| 34  | AA    | 2664 | G    | C5-C6-O6    | -5.05 | 125.57      | 128.60   |
| 73  | AU    | 126  | ARG  | NE-CZ-NH2   | 5.05  | 122.83      | 120.30   |
| 34  | AA    | 362  | U    | O4'-C1'-N1  | 5.05  | 112.24      | 108.20   |
| 34  | AA    | 2600 | G    | C5-C6-O6    | -5.05 | 125.57      | 128.60   |
| 34  | AA    | 3090 | G    | C5-C6-O6    | -5.05 | 125.57      | 128.60   |
| 35  | AC    | 48   | C    | C6-N1-C2    | -5.05 | 118.28      | 120.30   |
| 36  | AB    | 52   | U    | O4'-C1'-N1  | 5.05  | 112.24      | 108.20   |
| 1   | A     | 63   | G    | N1-C6-O6    | 5.05  | 122.93      | 119.90   |
| 34  | AA    | 277  | U    | O4'-C1'-N1  | 5.05  | 112.24      | 108.20   |
| 34  | AA    | 366  | G    | C5-C6-O6    | -5.05 | 125.57      | 128.60   |
| 34  | AA    | 533  | A    | O4'-C1'-N9  | 5.05  | 112.24      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 3271 | G    | N1-C6-O6    | 5.05  | 122.93      | 119.90   |
| 1   | A     | 603  | C    | O4'-C1'-N1  | 5.04  | 112.24      | 108.20   |
| 6   | I     | 42   | HIS  | N-CA-CB     | 5.04  | 119.68      | 110.60   |
| 38  | A1    | 65   | ARG  | NE-CZ-NH1   | 5.04  | 122.82      | 120.30   |
| 1   | A     | 1202 | G    | C5-C6-O6    | -5.04 | 125.57      | 128.60   |
| 34  | AA    | 1977 | U    | O4'-C1'-N1  | 5.04  | 112.24      | 108.20   |
| 34  | AA    | 3577 | A    | P-O3'-C3'   | 5.04  | 125.75      | 119.70   |
| 35  | AC    | 78   | U    | C6-N1-C1'   | -5.04 | 114.14      | 121.20   |
| 1   | A     | 1389 | G    | O4'-C1'-N9  | 5.04  | 112.23      | 108.20   |
| 34  | AA    | 724  | A    | O4'-C1'-N9  | 5.04  | 112.23      | 108.20   |
| 34  | AA    | 1113 | C    | C6-N1-C2    | -5.04 | 118.28      | 120.30   |
| 34  | AA    | 1508 | U    | O4'-C1'-N1  | 5.04  | 112.23      | 108.20   |
| 1   | A     | 1743 | A    | N1-C6-N6    | 5.04  | 121.62      | 118.60   |
| 34  | AA    | 928  | G    | O4'-C1'-N9  | 5.04  | 112.23      | 108.20   |
| 34  | AA    | 943  | G    | C5-C6-O6    | -5.04 | 125.58      | 128.60   |
| 40  | A4    | 14   | ARG  | NE-CZ-NH1   | 5.04  | 122.82      | 120.30   |
| 1   | A     | 838  | U    | O4'-C1'-N1  | 5.04  | 112.23      | 108.20   |
| 1   | A     | 1101 | G    | C5'-C4'-O4' | 5.04  | 115.14      | 109.10   |
| 34  | AA    | 514  | C    | O4'-C1'-N1  | 5.04  | 112.23      | 108.20   |
| 34  | AA    | 681  | U    | O4'-C1'-N1  | 5.04  | 112.23      | 108.20   |
| 1   | A     | 51   | A    | O4'-C1'-N9  | 5.04  | 112.23      | 108.20   |
| 1   | A     | 790  | U    | O4'-C1'-N1  | 5.04  | 112.23      | 108.20   |
| 34  | AA    | 933  | U    | O4'-C1'-N1  | 5.04  | 112.23      | 108.20   |
| 34  | AA    | 1838 | U    | O4'-C1'-N1  | 5.04  | 112.23      | 108.20   |
| 51  | AP    | 30   | TYR  | CB-CG-CD1   | 5.04  | 124.02      | 121.00   |
| 34  | AA    | 79   | U    | O4'-C1'-N1  | 5.03  | 112.23      | 108.20   |
| 34  | AA    | 1060 | G    | C5-C6-O6    | -5.03 | 125.58      | 128.60   |
| 34  | AA    | 3322 | C    | O4'-C1'-N1  | 5.03  | 112.23      | 108.20   |
| 34  | AA    | 3377 | A    | O4'-C1'-N9  | 5.03  | 112.23      | 108.20   |
| 34  | AA    | 3715 | U    | O4'-C1'-N1  | 5.03  | 112.23      | 108.20   |
| 34  | AA    | 1900 | G    | C5-C6-O6    | -5.03 | 125.58      | 128.60   |
| 34  | AA    | 2091 | U    | O4'-C1'-N1  | 5.03  | 112.22      | 108.20   |
| 1   | A     | 456  | U    | P-O3'-C3'   | -5.03 | 113.66      | 119.70   |
| 4   | E     | 6    | ARG  | NE-CZ-NH1   | 5.03  | 122.81      | 120.30   |
| 26  | P     | 141  | ARG  | NH1-CZ-NH2  | -5.03 | 113.87      | 119.40   |
| 34  | AA    | 1748 | A    | C1'-O4'-C4' | -5.03 | 105.88      | 109.90   |
| 34  | AA    | 3087 | A    | O4'-C1'-N9  | 5.03  | 112.22      | 108.20   |
| 1   | A     | 37   | U    | O4'-C1'-N1  | 5.03  | 112.22      | 108.20   |
| 1   | A     | 274  | A    | O4'-C1'-N9  | 5.03  | 112.22      | 108.20   |
| 1   | A     | 1863 | U    | P-O3'-C3'   | -5.03 | 113.67      | 119.70   |
| 1   | A     | 1915 | C    | O4'-C1'-N1  | 5.03  | 112.22      | 108.20   |
| 34  | AA    | 757  | U    | O4'-C1'-N1  | 5.03  | 112.22      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 34  | AA    | 1469 | U    | O4'-C1'-N1  | 5.03  | 112.22      | 108.20   |
| 57  | AK    | 159  | ARG  | NE-CZ-NH1   | 5.03  | 122.81      | 120.30   |
| 34  | AA    | 3597 | C    | C6-N1-C2    | -5.02 | 118.29      | 120.30   |
| 1   | A     | 1072 | A    | O4'-C1'-N9  | 5.02  | 112.22      | 108.20   |
| 1   | A     | 1280 | G    | O4'-C1'-N9  | 5.02  | 112.22      | 108.20   |
| 34  | AA    | 632  | U    | O4'-C1'-N1  | 5.02  | 112.22      | 108.20   |
| 34  | AA    | 267  | U    | O4'-C1'-N1  | 5.02  | 112.22      | 108.20   |
| 34  | AA    | 3234 | U    | O4'-C1'-N1  | 5.02  | 112.22      | 108.20   |
| 34  | AA    | 3351 | U    | O4'-C1'-N1  | 5.02  | 112.22      | 108.20   |
| 1   | A     | 1292 | U    | O4'-C1'-N1  | 5.02  | 112.22      | 108.20   |
| 1   | A     | 1976 | G    | C5'-C4'-C3' | -5.02 | 107.97      | 116.00   |
| 34  | AA    | 113  | C    | C6-N1-C2    | -5.02 | 118.29      | 120.30   |
| 34  | AA    | 585  | C    | O4'-C1'-N1  | 5.02  | 112.22      | 108.20   |
| 34  | AA    | 1068 | C    | C6-N1-C2    | -5.02 | 118.29      | 120.30   |
| 34  | AA    | 1324 | U    | P-O3'-C3'   | -5.02 | 113.68      | 119.70   |
| 34  | AA    | 3577 | A    | O4'-C1'-N9  | 5.02  | 112.22      | 108.20   |
| 67  | A3    | 10   | ARG  | NE-CZ-NH1   | 5.02  | 122.81      | 120.30   |
| 34  | AA    | 163  | G    | O4'-C1'-N9  | 5.02  | 112.21      | 108.20   |
| 34  | AA    | 542  | A    | C5'-C4'-O4' | 5.02  | 115.12      | 109.10   |
| 34  | AA    | 1513 | U    | O4'-C1'-N1  | 5.02  | 112.21      | 108.20   |
| 34  | AA    | 3276 | G    | C5-C6-O6    | -5.02 | 125.59      | 128.60   |
| 35  | AC    | 144  | U    | O4'-C1'-N1  | 5.02  | 112.21      | 108.20   |
| 63  | AW    | 60   | PHE  | CB-CG-CD2   | -5.02 | 117.29      | 120.80   |
| 73  | AU    | 84   | TYR  | CB-CG-CD1   | -5.02 | 117.99      | 121.00   |
| 1   | A     | 251  | U    | C2'-C3'-O3' | 5.02  | 121.72      | 113.70   |
| 1   | A     | 1276 | U    | O4'-C1'-N1  | 5.02  | 112.21      | 108.20   |
| 45  | A9    | 39   | ARG  | NE-CZ-NH1   | 5.02  | 122.81      | 120.30   |
| 34  | AA    | 33   | G    | C5-C6-O6    | -5.01 | 125.59      | 128.60   |
| 1   | A     | 850  | G    | C5-C6-O6    | -5.01 | 125.59      | 128.60   |
| 1   | A     | 1391 | U    | O4'-C1'-N1  | 5.01  | 112.21      | 108.20   |
| 2   | 7     | 19   | G    | N1-C6-O6    | 5.01  | 122.91      | 119.90   |
| 34  | AA    | 803  | A    | C1'-O4'-C4' | -5.01 | 105.89      | 109.90   |
| 34  | AA    | 2401 | C    | C6-N1-C2    | -5.01 | 118.30      | 120.30   |
| 34  | AA    | 2567 | U    | O4'-C1'-N1  | 5.01  | 112.21      | 108.20   |
| 34  | AA    | 3646 | G    | N1-C6-O6    | 5.01  | 122.91      | 119.90   |
| 34  | AA    | 894  | U    | O4'-C1'-N1  | 5.01  | 112.21      | 108.20   |
| 34  | AA    | 2432 | A    | O4'-C1'-N9  | 5.01  | 112.21      | 108.20   |
| 34  | AA    | 760  | A    | O4'-C1'-N9  | 5.01  | 112.21      | 108.20   |
| 1   | A     | 984  | A    | P-O5'-C5'   | 5.01  | 128.91      | 120.90   |
| 34  | AA    | 436  | G    | C5-C6-O6    | -5.01 | 125.60      | 128.60   |
| 34  | AA    | 1644 | U    | O4'-C1'-N1  | 5.01  | 112.20      | 108.20   |
| 34  | AA    | 3264 | U    | O4'-C1'-N1  | 5.01  | 112.21      | 108.20   |

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| Mol | Chain | Res  | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 48  | Ad    | 52   | MET  | CG-SD-CE   | -5.01 | 92.19       | 100.20   |
| 1   | A     | 635  | G    | P-O5'-C5'  | 5.00  | 128.91      | 120.90   |
| 1   | A     | 1011 | G    | O4'-C1'-N9 | 5.00  | 112.20      | 108.20   |
| 2   | 7     | 72   | C    | O4'-C1'-N1 | 5.00  | 112.20      | 108.20   |
| 9   | W     | 97   | TYR  | CB-CG-CD2  | -5.00 | 118.00      | 121.00   |
| 72  | AG    | 72   | ARG  | NE-CZ-NH2  | -5.00 | 117.80      | 120.30   |
| 1   | A     | 1441 | C    | P-O5'-C5'  | 5.00  | 128.90      | 120.90   |
| 1   | A     | 1704 | G    | O4'-C1'-N9 | 5.00  | 112.20      | 108.20   |
| 34  | AA    | 495  | U    | O4'-C1'-N1 | 5.00  | 112.20      | 108.20   |
| 73  | AU    | 145  | ARG  | NE-CZ-NH1  | 5.00  | 122.80      | 120.30   |

All (1) chirality outliers are listed below:

| Mol | Chain | Res  | Type | Atom |
|-----|-------|------|------|------|
| 34  | AA    | 3018 | A    | C3'  |

All (1052) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group     |
|-----|-------|-----|------|-----------|
| 14  | 1     | 12  | TYR  | Sidechain |
| 14  | 1     | 91  | ARG  | Sidechain |
| 15  | 2     | 76  | ARG  | Sidechain |
| 16  | 3     | 28  | ARG  | Sidechain |
| 16  | 3     | 85  | ARG  | Sidechain |
| 17  | 4     | 21  | ARG  | Sidechain |
| 17  | 4     | 7   | ASN  | Peptide   |
| 17  | 4     | 77  | PHE  | Sidechain |
| 19  | 6     | 10  | ARG  | Sidechain |
| 19  | 6     | 43  | ARG  | Sidechain |
| 2   | 7     | 1   | G    | Sidechain |
| 2   | 7     | 12  | G    | Sidechain |
| 2   | 7     | 14  | A    | Sidechain |
| 2   | 7     | 15  | G    | Sidechain |
| 2   | 7     | 27  | G    | Sidechain |
| 2   | 7     | 29  | G    | Sidechain |
| 2   | 7     | 3   | G    | Sidechain |
| 2   | 7     | 31  | G    | Sidechain |
| 2   | 7     | 36  | A    | Sidechain |
| 2   | 7     | 37  | U    | Sidechain |
| 2   | 7     | 46  | G    | Sidechain |
| 2   | 7     | 52  | G    | Sidechain |
| 2   | 7     | 55  | U    | Sidechain |

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| Mol | Chain | Res  | Type | Group     |
|-----|-------|------|------|-----------|
| 2   | 7     | 6    | A    | Sidechain |
| 2   | 7     | 64   | C    | Sidechain |
| 2   | 7     | 65   | A    | Sidechain |
| 2   | 7     | 70   | A    | Sidechain |
| 2   | 7     | 9    | G    | Sidechain |
| 1   | A     | 100  | U    | Sidechain |
| 1   | A     | 1000 | C    | Sidechain |
| 1   | A     | 1008 | A    | Sidechain |
| 1   | A     | 1014 | U    | Sidechain |
| 1   | A     | 1016 | U    | Sidechain |
| 1   | A     | 1020 | U    | Sidechain |
| 1   | A     | 1022 | A    | Sidechain |
| 1   | A     | 1025 | U    | Sidechain |
| 1   | A     | 104  | U    | Sidechain |
| 1   | A     | 1041 | G    | Sidechain |
| 1   | A     | 1056 | G    | Sidechain |
| 1   | A     | 1058 | G    | Sidechain |
| 1   | A     | 106  | A    | Sidechain |
| 1   | A     | 1061 | A    | Sidechain |
| 1   | A     | 1063 | G    | Sidechain |
| 1   | A     | 1071 | G    | Sidechain |
| 1   | A     | 1074 | A    | Sidechain |
| 1   | A     | 1080 | G    | Sidechain |
| 1   | A     | 1081 | U    | Sidechain |
| 1   | A     | 1083 | A    | Sidechain |
| 1   | A     | 1084 | U    | Sidechain |
| 1   | A     | 1086 | U    | Sidechain |
| 1   | A     | 1094 | A    | Sidechain |
| 1   | A     | 1100 | U    | Sidechain |
| 1   | A     | 1104 | G    | Sidechain |
| 1   | A     | 1107 | U    | Sidechain |
| 1   | A     | 114  | A    | Sidechain |
| 1   | A     | 118  | U    | Sidechain |
| 1   | A     | 1186 | G    | Sidechain |
| 1   | A     | 1187 | A    | Sidechain |
| 1   | A     | 1188 | A    | Sidechain |
| 1   | A     | 1189 | A    | Sidechain |
| 1   | A     | 120  | U    | Sidechain |
| 1   | A     | 1200 | U    | Sidechain |
| 1   | A     | 1208 | G    | Sidechain |
| 1   | A     | 1213 | G    | Sidechain |
| 1   | A     | 1214 | A    | Sidechain |

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| Mol | Chain | Res  | Type | Group     |
|-----|-------|------|------|-----------|
| 1   | A     | 1216 | U    | Sidechain |
| 1   | A     | 1221 | G    | Sidechain |
| 1   | A     | 1223 | G    | Sidechain |
| 1   | A     | 1224 | C    | Sidechain |
| 1   | A     | 1240 | A    | Sidechain |
| 1   | A     | 1241 | A    | Sidechain |
| 1   | A     | 1244 | A    | Sidechain |
| 1   | A     | 1250 | G    | Sidechain |
| 1   | A     | 1251 | G    | Sidechain |
| 1   | A     | 1264 | A    | Sidechain |
| 1   | A     | 1273 | G    | Sidechain |
| 1   | A     | 1275 | U    | Sidechain |
| 1   | A     | 1283 | U    | Sidechain |
| 1   | A     | 1287 | U    | Sidechain |
| 1   | A     | 1289 | G    | Sidechain |
| 1   | A     | 129  | U    | Sidechain |
| 1   | A     | 1290 | A    | Sidechain |
| 1   | A     | 1300 | G    | Sidechain |
| 1   | A     | 1307 | U    | Sidechain |
| 1   | A     | 1320 | A    | Sidechain |
| 1   | A     | 136  | U    | Sidechain |
| 1   | A     | 1363 | U    | Sidechain |
| 1   | A     | 1379 | G    | Sidechain |
| 1   | A     | 14   | U    | Sidechain |
| 1   | A     | 1401 | G    | Sidechain |
| 1   | A     | 1402 | A    | Sidechain |
| 1   | A     | 1409 | U    | Sidechain |
| 1   | A     | 141  | G    | Sidechain |
| 1   | A     | 1415 | A    | Sidechain |
| 1   | A     | 1423 | A    | Sidechain |
| 1   | A     | 1436 | U    | Sidechain |
| 1   | A     | 1442 | U    | Sidechain |
| 1   | A     | 1448 | U    | Sidechain |
| 1   | A     | 1454 | G    | Sidechain |
| 1   | A     | 15   | U    | Sidechain |
| 1   | A     | 153  | A    | Sidechain |
| 1   | A     | 159  | U    | Sidechain |
| 1   | A     | 1602 | G    | Sidechain |
| 1   | A     | 1607 | U    | Sidechain |
| 1   | A     | 161  | U    | Sidechain |
| 1   | A     | 1632 | G    | Sidechain |
| 1   | A     | 1646 | U    | Sidechain |

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| Mol | Chain | Res  | Type | Group     |
|-----|-------|------|------|-----------|
| 1   | A     | 1655 | G    | Sidechain |
| 1   | A     | 1656 | A    | Sidechain |
| 1   | A     | 1658 | G    | Sidechain |
| 1   | A     | 1660 | U    | Sidechain |
| 1   | A     | 1665 | G    | Sidechain |
| 1   | A     | 168  | U    | Sidechain |
| 1   | A     | 1683 | U    | Sidechain |
| 1   | A     | 1691 | G    | Sidechain |
| 1   | A     | 1692 | A    | Sidechain |
| 1   | A     | 1700 | G    | Sidechain |
| 1   | A     | 1718 | C    | Sidechain |
| 1   | A     | 1742 | A    | Sidechain |
| 1   | A     | 1743 | A    | Sidechain |
| 1   | A     | 1744 | A    | Sidechain |
| 1   | A     | 1745 | U    | Sidechain |
| 1   | A     | 1748 | G    | Sidechain |
| 1   | A     | 1792 | U    | Sidechain |
| 1   | A     | 1794 | C    | Sidechain |
| 1   | A     | 1807 | A    | Sidechain |
| 1   | A     | 1819 | U    | Sidechain |
| 1   | A     | 182  | U    | Sidechain |
| 1   | A     | 1823 | U    | Sidechain |
| 1   | A     | 1826 | A    | Sidechain |
| 1   | A     | 1832 | U    | Sidechain |
| 1   | A     | 1836 | G    | Sidechain |
| 1   | A     | 1839 | G    | Sidechain |
| 1   | A     | 1850 | G    | Sidechain |
| 1   | A     | 1858 | U    | Sidechain |
| 1   | A     | 1865 | G    | Sidechain |
| 1   | A     | 1872 | G    | Sidechain |
| 1   | A     | 1873 | A    | Sidechain |
| 1   | A     | 1879 | U    | Sidechain |
| 1   | A     | 1881 | G    | Sidechain |
| 1   | A     | 1882 | U    | Sidechain |
| 1   | A     | 1884 | A    | Sidechain |
| 1   | A     | 1891 | U    | Sidechain |
| 1   | A     | 1892 | U    | Sidechain |
| 1   | A     | 1904 | G    | Sidechain |
| 1   | A     | 1906 | U    | Sidechain |
| 1   | A     | 1914 | U    | Sidechain |
| 1   | A     | 1917 | C    | Sidechain |
| 1   | A     | 1940 | U    | Sidechain |

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| Mol | Chain | Res  | Type | Group     |
|-----|-------|------|------|-----------|
| 1   | A     | 1947 | U    | Sidechain |
| 1   | A     | 1955 | G    | Sidechain |
| 1   | A     | 1972 | G    | Sidechain |
| 1   | A     | 1977 | G    | Sidechain |
| 1   | A     | 1979 | C    | Sidechain |
| 1   | A     | 1980 | A    | Sidechain |
| 1   | A     | 1984 | A    | Sidechain |
| 1   | A     | 2014 | A    | Sidechain |
| 1   | A     | 2021 | U    | Sidechain |
| 1   | A     | 2028 | U    | Sidechain |
| 1   | A     | 2030 | U    | Sidechain |
| 1   | A     | 2031 | C    | Sidechain |
| 1   | A     | 2032 | U    | Sidechain |
| 1   | A     | 2033 | U    | Sidechain |
| 1   | A     | 2053 | U    | Sidechain |
| 1   | A     | 2055 | A    | Sidechain |
| 1   | A     | 2059 | G    | Sidechain |
| 1   | A     | 2060 | G    | Sidechain |
| 1   | A     | 2067 | U    | Sidechain |
| 1   | A     | 2072 | G    | Sidechain |
| 1   | A     | 2074 | A    | Sidechain |
| 1   | A     | 2075 | C    | Sidechain |
| 1   | A     | 2082 | A    | Sidechain |
| 1   | A     | 248  | G    | Sidechain |
| 1   | A     | 252  | U    | Sidechain |
| 1   | A     | 254  | U    | Sidechain |
| 1   | A     | 263  | A    | Sidechain |
| 1   | A     | 264  | G    | Sidechain |
| 1   | A     | 273  | A    | Sidechain |
| 1   | A     | 310  | U    | Sidechain |
| 1   | A     | 327  | U    | Sidechain |
| 1   | A     | 328  | G    | Sidechain |
| 1   | A     | 33   | U    | Sidechain |
| 1   | A     | 34   | G    | Sidechain |
| 1   | A     | 341  | U    | Sidechain |
| 1   | A     | 343  | G    | Sidechain |
| 1   | A     | 346  | U    | Sidechain |
| 1   | A     | 355  | U    | Sidechain |
| 1   | A     | 369  | G    | Sidechain |
| 1   | A     | 389  | G    | Sidechain |
| 1   | A     | 395  | G    | Sidechain |
| 1   | A     | 396  | G    | Sidechain |

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| Mol | Chain | Res | Type | Group     |
|-----|-------|-----|------|-----------|
| 1   | A     | 402 | G    | Sidechain |
| 1   | A     | 404 | G    | Sidechain |
| 1   | A     | 412 | U    | Sidechain |
| 1   | A     | 440 | G    | Sidechain |
| 1   | A     | 441 | U    | Sidechain |
| 1   | A     | 445 | U    | Sidechain |
| 1   | A     | 455 | C    | Sidechain |
| 1   | A     | 46  | A    | Sidechain |
| 1   | A     | 465 | G    | Sidechain |
| 1   | A     | 483 | A    | Sidechain |
| 1   | A     | 486 | A    | Sidechain |
| 1   | A     | 491 | A    | Sidechain |
| 1   | A     | 5   | U    | Sidechain |
| 1   | A     | 508 | U    | Sidechain |
| 1   | A     | 516 | G    | Sidechain |
| 1   | A     | 517 | G    | Sidechain |
| 1   | A     | 544 | G    | Sidechain |
| 1   | A     | 553 | U    | Sidechain |
| 1   | A     | 555 | G    | Sidechain |
| 1   | A     | 559 | G    | Sidechain |
| 1   | A     | 583 | G    | Sidechain |
| 1   | A     | 589 | U    | Sidechain |
| 1   | A     | 598 | A    | Sidechain |
| 1   | A     | 620 | G    | Sidechain |
| 1   | A     | 623 | G    | Sidechain |
| 1   | A     | 625 | U    | Sidechain |
| 1   | A     | 626 | A    | Sidechain |
| 1   | A     | 74  | U    | Sidechain |
| 1   | A     | 798 | U    | Sidechain |
| 1   | A     | 8   | U    | Sidechain |
| 1   | A     | 802 | A    | Sidechain |
| 1   | A     | 805 | A    | Sidechain |
| 1   | A     | 820 | A    | Sidechain |
| 1   | A     | 822 | G    | Sidechain |
| 1   | A     | 832 | A    | Sidechain |
| 1   | A     | 835 | G    | Sidechain |
| 1   | A     | 836 | C    | Sidechain |
| 1   | A     | 846 | G    | Sidechain |
| 1   | A     | 850 | G    | Sidechain |
| 1   | A     | 857 | A    | Sidechain |
| 1   | A     | 858 | U    | Sidechain |
| 1   | A     | 859 | A    | Sidechain |

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| Mol | Chain | Res | Type | Group             |
|-----|-------|-----|------|-------------------|
| 1   | A     | 860 | G    | Sidechain         |
| 1   | A     | 872 | A    | Sidechain         |
| 1   | A     | 882 | A    | Sidechain         |
| 1   | A     | 892 | U    | Sidechain         |
| 1   | A     | 9   | U    | Sidechain         |
| 1   | A     | 916 | G    | Sidechain         |
| 1   | A     | 920 | A    | Sidechain         |
| 1   | A     | 922 | U    | Sidechain         |
| 1   | A     | 931 | A    | Sidechain         |
| 1   | A     | 932 | U    | Sidechain         |
| 1   | A     | 936 | A    | Sidechain         |
| 1   | A     | 94  | A    | Sidechain         |
| 1   | A     | 942 | U    | Sidechain         |
| 1   | A     | 943 | U    | Sidechain         |
| 1   | A     | 952 | U    | Sidechain         |
| 1   | A     | 953 | C    | Sidechain         |
| 1   | A     | 955 | U    | Sidechain         |
| 1   | A     | 97  | G    | Sidechain         |
| 1   | A     | 970 | G    | Sidechain         |
| 1   | A     | 972 | U    | Sidechain         |
| 1   | A     | 977 | U    | Sidechain         |
| 1   | A     | 978 | U    | Sidechain         |
| 1   | A     | 982 | A    | Sidechain         |
| 1   | A     | 987 | U    | Sidechain         |
| 1   | A     | 994 | G    | Sidechain         |
| 1   | A     | 998 | A    | Sidechain         |
| 78  | A0    | 57  | ARG  | Sidechain         |
| 78  | A0    | 64  | ARG  | Sidechain         |
| 38  | A1    | 17  | ARG  | Sidechain         |
| 39  | A2    | 114 | ARG  | Sidechain         |
| 67  | A3    | 105 | ARG  | Sidechain         |
| 40  | A4    | 14  | ARG  | Sidechain         |
| 40  | A4    | 36  | ASP  | Peptide           |
| 68  | A5    | 119 | GLN  | Peptide           |
| 68  | A5    | 154 | ARG  | Sidechain         |
| 68  | A5    | 162 | TYR  | Sidechain         |
| 68  | A5    | 224 | ARG  | Sidechain         |
| 68  | A5    | 238 | ARG  | Peptide,Sidechain |
| 68  | A5    | 56  | ARG  | Sidechain         |
| 41  | A6    | 30  | ARG  | Sidechain         |
| 41  | A6    | 56  | ARG  | Sidechain         |
| 41  | A6    | 62  | TYR  | Sidechain         |

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| Mol | Chain | Res  | Type | Group     |
|-----|-------|------|------|-----------|
| 41  | A6    | 89   | ARG  | Sidechain |
| 42  | A7    | 87   | ARG  | Sidechain |
| 44  | A8    | 33   | ARG  | Sidechain |
| 44  | A8    | 43   | ARG  | Sidechain |
| 45  | A9    | 115  | ARG  | Sidechain |
| 45  | A9    | 130  | ARG  | Sidechain |
| 34  | AA    | 1013 | U    | Sidechain |
| 34  | AA    | 1019 | A    | Sidechain |
| 34  | AA    | 102  | A    | Sidechain |
| 34  | AA    | 1023 | U    | Sidechain |
| 34  | AA    | 1033 | A    | Sidechain |
| 34  | AA    | 1047 | A    | Sidechain |
| 34  | AA    | 1050 | C    | Sidechain |
| 34  | AA    | 1053 | U    | Sidechain |
| 34  | AA    | 1055 | A    | Sidechain |
| 34  | AA    | 1056 | G    | Sidechain |
| 34  | AA    | 1058 | U    | Sidechain |
| 34  | AA    | 1064 | U    | Sidechain |
| 34  | AA    | 1065 | U    | Sidechain |
| 34  | AA    | 1067 | U    | Sidechain |
| 34  | AA    | 1073 | G    | Sidechain |
| 34  | AA    | 1075 | U    | Sidechain |
| 34  | AA    | 1079 | U    | Sidechain |
| 34  | AA    | 109  | A    | Sidechain |
| 34  | AA    | 1091 | G    | Sidechain |
| 34  | AA    | 1094 | U    | Sidechain |
| 34  | AA    | 1101 | A    | Sidechain |
| 34  | AA    | 1109 | U    | Sidechain |
| 34  | AA    | 1110 | U    | Sidechain |
| 34  | AA    | 1115 | G    | Sidechain |
| 34  | AA    | 1135 | G    | Sidechain |
| 34  | AA    | 114  | A    | Sidechain |
| 34  | AA    | 1142 | G    | Sidechain |
| 34  | AA    | 116  | A    | Sidechain |
| 34  | AA    | 1167 | U    | Sidechain |
| 34  | AA    | 1169 | A    | Sidechain |
| 34  | AA    | 1171 | A    | Sidechain |
| 34  | AA    | 1203 | A    | Sidechain |
| 34  | AA    | 1206 | U    | Sidechain |
| 34  | AA    | 1209 | U    | Sidechain |
| 34  | AA    | 1211 | U    | Sidechain |
| 34  | AA    | 1213 | U    | Sidechain |

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| Mol | Chain | Res  | Type | Group     |
|-----|-------|------|------|-----------|
| 34  | AA    | 1217 | U    | Sidechain |
| 34  | AA    | 1220 | U    | Sidechain |
| 34  | AA    | 1222 | U    | Sidechain |
| 34  | AA    | 1223 | U    | Sidechain |
| 34  | AA    | 1224 | A    | Sidechain |
| 34  | AA    | 1231 | A    | Sidechain |
| 34  | AA    | 1232 | U    | Sidechain |
| 34  | AA    | 1239 | A    | Sidechain |
| 34  | AA    | 124  | U    | Sidechain |
| 34  | AA    | 1244 | G    | Sidechain |
| 34  | AA    | 1247 | C    | Sidechain |
| 34  | AA    | 1248 | A    | Sidechain |
| 34  | AA    | 1249 | U    | Sidechain |
| 34  | AA    | 1250 | U    | Sidechain |
| 34  | AA    | 1251 | U    | Sidechain |
| 34  | AA    | 1256 | U    | Sidechain |
| 34  | AA    | 1264 | A    | Sidechain |
| 34  | AA    | 1266 | U    | Sidechain |
| 34  | AA    | 127  | U    | Sidechain |
| 34  | AA    | 1273 | G    | Sidechain |
| 34  | AA    | 1276 | G    | Sidechain |
| 34  | AA    | 1280 | G    | Sidechain |
| 34  | AA    | 1297 | A    | Sidechain |
| 34  | AA    | 1318 | A    | Sidechain |
| 34  | AA    | 1321 | A    | Sidechain |
| 34  | AA    | 1327 | C    | Sidechain |
| 34  | AA    | 1329 | U    | Sidechain |
| 34  | AA    | 1330 | A    | Sidechain |
| 34  | AA    | 1331 | A    | Sidechain |
| 34  | AA    | 136  | U    | Sidechain |
| 34  | AA    | 14   | U    | Sidechain |
| 34  | AA    | 1416 | U    | Sidechain |
| 34  | AA    | 1417 | G    | Sidechain |
| 34  | AA    | 1423 | G    | Sidechain |
| 34  | AA    | 1429 | A    | Sidechain |
| 34  | AA    | 1434 | G    | Sidechain |
| 34  | AA    | 1445 | A    | Sidechain |
| 34  | AA    | 1447 | G    | Sidechain |
| 34  | AA    | 1453 | U    | Sidechain |
| 34  | AA    | 1457 | G    | Sidechain |
| 34  | AA    | 1459 | U    | Sidechain |
| 34  | AA    | 146  | U    | Sidechain |

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| Mol | Chain | Res  | Type | Group     |
|-----|-------|------|------|-----------|
| 34  | AA    | 147  | C    | Sidechain |
| 34  | AA    | 1473 | A    | Sidechain |
| 34  | AA    | 1476 | A    | Sidechain |
| 34  | AA    | 148  | G    | Sidechain |
| 34  | AA    | 149  | A    | Sidechain |
| 34  | AA    | 1493 | U    | Sidechain |
| 34  | AA    | 1497 | U    | Sidechain |
| 34  | AA    | 1499 | U    | Sidechain |
| 34  | AA    | 1503 | A    | Sidechain |
| 34  | AA    | 1507 | U    | Sidechain |
| 34  | AA    | 1510 | U    | Sidechain |
| 34  | AA    | 1511 | U    | Sidechain |
| 34  | AA    | 1513 | U    | Sidechain |
| 34  | AA    | 1516 | G    | Sidechain |
| 34  | AA    | 1518 | A    | Sidechain |
| 34  | AA    | 1524 | U    | Sidechain |
| 34  | AA    | 1534 | U    | Sidechain |
| 34  | AA    | 1549 | U    | Sidechain |
| 34  | AA    | 1552 | G    | Sidechain |
| 34  | AA    | 1553 | U    | Sidechain |
| 34  | AA    | 1554 | G    | Sidechain |
| 34  | AA    | 156  | U    | Sidechain |
| 34  | AA    | 1572 | U    | Sidechain |
| 34  | AA    | 1574 | C    | Sidechain |
| 34  | AA    | 1583 | G    | Sidechain |
| 34  | AA    | 1585 | U    | Sidechain |
| 34  | AA    | 1588 | U    | Sidechain |
| 34  | AA    | 1595 | A    | Sidechain |
| 34  | AA    | 1597 | U    | Sidechain |
| 34  | AA    | 1598 | A    | Sidechain |
| 34  | AA    | 160  | G    | Sidechain |
| 34  | AA    | 1602 | A    | Sidechain |
| 34  | AA    | 1606 | U    | Sidechain |
| 34  | AA    | 1613 | G    | Sidechain |
| 34  | AA    | 1617 | A    | Sidechain |
| 34  | AA    | 1619 | U    | Sidechain |
| 34  | AA    | 1625 | G    | Sidechain |
| 34  | AA    | 1628 | U    | Sidechain |
| 34  | AA    | 1629 | G    | Sidechain |
| 34  | AA    | 1635 | G    | Sidechain |
| 34  | AA    | 1643 | U    | Sidechain |
| 34  | AA    | 1644 | U    | Sidechain |

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| Mol | Chain | Res  | Type | Group     |
|-----|-------|------|------|-----------|
| 34  | AA    | 1645 | U    | Sidechain |
| 34  | AA    | 1647 | U    | Sidechain |
| 34  | AA    | 1650 | U    | Sidechain |
| 34  | AA    | 1655 | U    | Sidechain |
| 34  | AA    | 1658 | G    | Sidechain |
| 34  | AA    | 1671 | U    | Sidechain |
| 34  | AA    | 1695 | A    | Sidechain |
| 34  | AA    | 170  | U    | Sidechain |
| 34  | AA    | 1700 | U    | Sidechain |
| 34  | AA    | 1701 | G    | Sidechain |
| 34  | AA    | 1726 | C    | Sidechain |
| 34  | AA    | 1731 | A    | Sidechain |
| 34  | AA    | 1735 | G    | Sidechain |
| 34  | AA    | 1737 | A    | Sidechain |
| 34  | AA    | 174  | U    | Sidechain |
| 34  | AA    | 1740 | A    | Sidechain |
| 34  | AA    | 1745 | G    | Sidechain |
| 34  | AA    | 1747 | U    | Sidechain |
| 34  | AA    | 1755 | U    | Sidechain |
| 34  | AA    | 1763 | G    | Sidechain |
| 34  | AA    | 1784 | G    | Sidechain |
| 34  | AA    | 1785 | U    | Sidechain |
| 34  | AA    | 1786 | A    | Sidechain |
| 34  | AA    | 1787 | A    | Sidechain |
| 34  | AA    | 1797 | A    | Sidechain |
| 34  | AA    | 1798 | A    | Sidechain |
| 34  | AA    | 1805 | U    | Sidechain |
| 34  | AA    | 1815 | A    | Sidechain |
| 34  | AA    | 1820 | U    | Sidechain |
| 34  | AA    | 1821 | U    | Sidechain |
| 34  | AA    | 1829 | G    | Sidechain |
| 34  | AA    | 1830 | G    | Sidechain |
| 34  | AA    | 1832 | U    | Sidechain |
| 34  | AA    | 1835 | G    | Sidechain |
| 34  | AA    | 1836 | U    | Sidechain |
| 34  | AA    | 1841 | U    | Sidechain |
| 34  | AA    | 1842 | U    | Sidechain |
| 34  | AA    | 1844 | G    | Sidechain |
| 34  | AA    | 1846 | A    | Sidechain |
| 34  | AA    | 1848 | U    | Sidechain |
| 34  | AA    | 1851 | A    | Sidechain |
| 34  | AA    | 1872 | A    | Sidechain |

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| Mol | Chain | Res  | Type | Group     |
|-----|-------|------|------|-----------|
| 34  | AA    | 1878 | U    | Sidechain |
| 34  | AA    | 1882 | U    | Sidechain |
| 34  | AA    | 1886 | A    | Sidechain |
| 34  | AA    | 1889 | A    | Sidechain |
| 34  | AA    | 1894 | U    | Sidechain |
| 34  | AA    | 1899 | U    | Sidechain |
| 34  | AA    | 1902 | A    | Sidechain |
| 34  | AA    | 1906 | A    | Sidechain |
| 34  | AA    | 1958 | U    | Sidechain |
| 34  | AA    | 1960 | U    | Sidechain |
| 34  | AA    | 1969 | A    | Sidechain |
| 34  | AA    | 1981 | U    | Sidechain |
| 34  | AA    | 1997 | G    | Sidechain |
| 34  | AA    | 200  | A    | Sidechain |
| 34  | AA    | 2000 | G    | Sidechain |
| 34  | AA    | 2001 | U    | Sidechain |
| 34  | AA    | 2004 | U    | Sidechain |
| 34  | AA    | 2018 | G    | Sidechain |
| 34  | AA    | 2019 | A    | Sidechain |
| 34  | AA    | 2030 | G    | Sidechain |
| 34  | AA    | 205  | G    | Sidechain |
| 34  | AA    | 207  | A    | Sidechain |
| 34  | AA    | 2072 | U    | Sidechain |
| 34  | AA    | 208  | U    | Sidechain |
| 34  | AA    | 2080 | C    | Sidechain |
| 34  | AA    | 2081 | U    | Sidechain |
| 34  | AA    | 2102 | A    | Sidechain |
| 34  | AA    | 2103 | C    | Sidechain |
| 34  | AA    | 2104 | C    | Sidechain |
| 34  | AA    | 2108 | A    | Sidechain |
| 34  | AA    | 2109 | A    | Sidechain |
| 34  | AA    | 211  | U    | Sidechain |
| 34  | AA    | 2112 | G    | Sidechain |
| 34  | AA    | 2117 | A    | Sidechain |
| 34  | AA    | 2127 | G    | Sidechain |
| 34  | AA    | 2137 | C    | Sidechain |
| 34  | AA    | 2138 | U    | Sidechain |
| 34  | AA    | 2141 | G    | Sidechain |
| 34  | AA    | 2148 | U    | Sidechain |
| 34  | AA    | 216  | C    | Sidechain |
| 34  | AA    | 2161 | G    | Sidechain |
| 34  | AA    | 2165 | G    | Sidechain |

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| Mol | Chain | Res  | Type | Group     |
|-----|-------|------|------|-----------|
| 34  | AA    | 2173 | G    | Sidechain |
| 34  | AA    | 2176 | A    | Sidechain |
| 34  | AA    | 2178 | A    | Sidechain |
| 34  | AA    | 2180 | U    | Sidechain |
| 34  | AA    | 2184 | U    | Sidechain |
| 34  | AA    | 2194 | C    | Sidechain |
| 34  | AA    | 2198 | A    | Sidechain |
| 34  | AA    | 2214 | A    | Sidechain |
| 34  | AA    | 2393 | A    | Sidechain |
| 34  | AA    | 2396 | C    | Sidechain |
| 34  | AA    | 2409 | G    | Sidechain |
| 34  | AA    | 2411 | C    | Sidechain |
| 34  | AA    | 2412 | A    | Sidechain |
| 34  | AA    | 2423 | G    | Sidechain |
| 34  | AA    | 2424 | A    | Sidechain |
| 34  | AA    | 2429 | U    | Sidechain |
| 34  | AA    | 2432 | A    | Sidechain |
| 34  | AA    | 2433 | U    | Sidechain |
| 34  | AA    | 2434 | U    | Sidechain |
| 34  | AA    | 244  | U    | Sidechain |
| 34  | AA    | 2441 | U    | Sidechain |
| 34  | AA    | 2443 | G    | Sidechain |
| 34  | AA    | 2457 | C    | Sidechain |
| 34  | AA    | 2460 | A    | Sidechain |
| 34  | AA    | 2463 | U    | Sidechain |
| 34  | AA    | 2473 | A    | Sidechain |
| 34  | AA    | 2481 | A    | Sidechain |
| 34  | AA    | 2482 | U    | Sidechain |
| 34  | AA    | 2484 | U    | Sidechain |
| 34  | AA    | 2486 | U    | Sidechain |
| 34  | AA    | 2497 | U    | Sidechain |
| 34  | AA    | 2499 | G    | Sidechain |
| 34  | AA    | 2503 | G    | Sidechain |
| 34  | AA    | 2506 | A    | Sidechain |
| 34  | AA    | 2510 | U    | Sidechain |
| 34  | AA    | 2514 | G    | Sidechain |
| 34  | AA    | 2518 | U    | Sidechain |
| 34  | AA    | 2534 | U    | Sidechain |
| 34  | AA    | 2552 | A    | Sidechain |
| 34  | AA    | 2554 | G    | Sidechain |
| 34  | AA    | 2563 | A    | Sidechain |
| 34  | AA    | 2565 | G    | Sidechain |

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| Mol | Chain | Res  | Type | Group     |
|-----|-------|------|------|-----------|
| 34  | AA    | 2566 | G    | Sidechain |
| 34  | AA    | 2567 | U    | Sidechain |
| 34  | AA    | 2573 | A    | Sidechain |
| 34  | AA    | 2575 | U    | Sidechain |
| 34  | AA    | 2577 | C    | Sidechain |
| 34  | AA    | 2579 | U    | Sidechain |
| 34  | AA    | 258  | U    | Sidechain |
| 34  | AA    | 2587 | U    | Sidechain |
| 34  | AA    | 2589 | A    | Sidechain |
| 34  | AA    | 2590 | U    | Sidechain |
| 34  | AA    | 2600 | G    | Sidechain |
| 34  | AA    | 2603 | U    | Sidechain |
| 34  | AA    | 262  | A    | Sidechain |
| 34  | AA    | 2629 | U    | Sidechain |
| 34  | AA    | 2636 | U    | Sidechain |
| 34  | AA    | 2644 | U    | Sidechain |
| 34  | AA    | 2649 | A    | Sidechain |
| 34  | AA    | 265  | U    | Sidechain |
| 34  | AA    | 2654 | A    | Sidechain |
| 34  | AA    | 2660 | A    | Sidechain |
| 34  | AA    | 2662 | G    | Sidechain |
| 34  | AA    | 2669 | G    | Sidechain |
| 34  | AA    | 2670 | G    | Sidechain |
| 34  | AA    | 2672 | U    | Sidechain |
| 34  | AA    | 2681 | U    | Sidechain |
| 34  | AA    | 2690 | A    | Sidechain |
| 34  | AA    | 2693 | G    | Sidechain |
| 34  | AA    | 27   | U    | Sidechain |
| 34  | AA    | 270  | U    | Sidechain |
| 34  | AA    | 2707 | G    | Sidechain |
| 34  | AA    | 2709 | U    | Sidechain |
| 34  | AA    | 271  | G    | Sidechain |
| 34  | AA    | 2711 | U    | Sidechain |
| 34  | AA    | 2716 | U    | Sidechain |
| 34  | AA    | 2727 | U    | Sidechain |
| 34  | AA    | 2809 | A    | Sidechain |
| 34  | AA    | 2811 | A    | Sidechain |
| 34  | AA    | 2814 | U    | Sidechain |
| 34  | AA    | 2822 | U    | Sidechain |
| 34  | AA    | 288  | G    | Sidechain |
| 34  | AA    | 2915 | U    | Sidechain |
| 34  | AA    | 2920 | A    | Sidechain |

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| Mol | Chain | Res  | Type | Group     |
|-----|-------|------|------|-----------|
| 34  | AA    | 2925 | U    | Sidechain |
| 34  | AA    | 2951 | U    | Sidechain |
| 34  | AA    | 2957 | G    | Sidechain |
| 34  | AA    | 2968 | U    | Sidechain |
| 34  | AA    | 2971 | G    | Sidechain |
| 34  | AA    | 2975 | A    | Sidechain |
| 34  | AA    | 2977 | U    | Sidechain |
| 34  | AA    | 2979 | U    | Sidechain |
| 34  | AA    | 2981 | A    | Sidechain |
| 34  | AA    | 2987 | G    | Sidechain |
| 34  | AA    | 2994 | A    | Sidechain |
| 34  | AA    | 3016 | G    | Sidechain |
| 34  | AA    | 3020 | U    | Sidechain |
| 34  | AA    | 3033 | A    | Sidechain |
| 34  | AA    | 3035 | A    | Sidechain |
| 34  | AA    | 3038 | G    | Sidechain |
| 34  | AA    | 304  | U    | Sidechain |
| 34  | AA    | 3044 | A    | Sidechain |
| 34  | AA    | 3049 | G    | Sidechain |
| 34  | AA    | 3052 | U    | Sidechain |
| 34  | AA    | 3062 | U    | Sidechain |
| 34  | AA    | 3063 | U    | Sidechain |
| 34  | AA    | 3064 | U    | Sidechain |
| 34  | AA    | 3065 | C    | Sidechain |
| 34  | AA    | 3068 | A    | Sidechain |
| 34  | AA    | 308  | U    | Sidechain |
| 34  | AA    | 3080 | A    | Sidechain |
| 34  | AA    | 3084 | G    | Sidechain |
| 34  | AA    | 3088 | G    | Sidechain |
| 34  | AA    | 3092 | G    | Sidechain |
| 34  | AA    | 3097 | A    | Sidechain |
| 34  | AA    | 3109 | U    | Sidechain |
| 34  | AA    | 3111 | U    | Sidechain |
| 34  | AA    | 3114 | G    | Sidechain |
| 34  | AA    | 3122 | A    | Sidechain |
| 34  | AA    | 3137 | U    | Sidechain |
| 34  | AA    | 3141 | G    | Sidechain |
| 34  | AA    | 3142 | U    | Sidechain |
| 34  | AA    | 3182 | G    | Sidechain |
| 34  | AA    | 3183 | G    | Sidechain |
| 34  | AA    | 3186 | U    | Sidechain |
| 34  | AA    | 3192 | U    | Sidechain |

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| Mol | Chain | Res  | Type | Group     |
|-----|-------|------|------|-----------|
| 34  | AA    | 3203 | C    | Sidechain |
| 34  | AA    | 3205 | U    | Sidechain |
| 34  | AA    | 3212 | G    | Sidechain |
| 34  | AA    | 3219 | U    | Sidechain |
| 34  | AA    | 3220 | U    | Sidechain |
| 34  | AA    | 3241 | U    | Sidechain |
| 34  | AA    | 3247 | U    | Sidechain |
| 34  | AA    | 3255 | A    | Sidechain |
| 34  | AA    | 3257 | G    | Sidechain |
| 34  | AA    | 3264 | U    | Sidechain |
| 34  | AA    | 3277 | G    | Sidechain |
| 34  | AA    | 3278 | A    | Sidechain |
| 34  | AA    | 3279 | U    | Sidechain |
| 34  | AA    | 3280 | U    | Sidechain |
| 34  | AA    | 3281 | G    | Sidechain |
| 34  | AA    | 3300 | A    | Sidechain |
| 34  | AA    | 3309 | G    | Sidechain |
| 34  | AA    | 331  | A    | Sidechain |
| 34  | AA    | 332  | A    | Sidechain |
| 34  | AA    | 3323 | G    | Sidechain |
| 34  | AA    | 3325 | G    | Sidechain |
| 34  | AA    | 3328 | A    | Sidechain |
| 34  | AA    | 3335 | A    | Sidechain |
| 34  | AA    | 3359 | A    | Sidechain |
| 34  | AA    | 3362 | A    | Sidechain |
| 34  | AA    | 3365 | U    | Sidechain |
| 34  | AA    | 3374 | U    | Sidechain |
| 34  | AA    | 3387 | U    | Sidechain |
| 34  | AA    | 339  | G    | Sidechain |
| 34  | AA    | 3391 | G    | Sidechain |
| 34  | AA    | 3402 | A    | Sidechain |
| 34  | AA    | 3413 | A    | Sidechain |
| 34  | AA    | 3418 | A    | Sidechain |
| 34  | AA    | 3427 | U    | Sidechain |
| 34  | AA    | 3441 | A    | Sidechain |
| 34  | AA    | 3444 | G    | Sidechain |
| 34  | AA    | 3449 | U    | Sidechain |
| 34  | AA    | 3452 | U    | Sidechain |
| 34  | AA    | 3470 | G    | Sidechain |
| 34  | AA    | 3472 | A    | Sidechain |
| 34  | AA    | 3480 | C    | Sidechain |
| 34  | AA    | 3483 | U    | Sidechain |

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| Mol | Chain | Res  | Type | Group     |
|-----|-------|------|------|-----------|
| 34  | AA    | 3484 | U    | Sidechain |
| 34  | AA    | 3488 | U    | Sidechain |
| 34  | AA    | 349  | G    | Sidechain |
| 34  | AA    | 3495 | U    | Sidechain |
| 34  | AA    | 3499 | C    | Sidechain |
| 34  | AA    | 3503 | U    | Sidechain |
| 34  | AA    | 3505 | U    | Sidechain |
| 34  | AA    | 3508 | A    | Sidechain |
| 34  | AA    | 351  | U    | Sidechain |
| 34  | AA    | 3515 | A    | Sidechain |
| 34  | AA    | 3516 | A    | Sidechain |
| 34  | AA    | 352  | A    | Sidechain |
| 34  | AA    | 3526 | U    | Sidechain |
| 34  | AA    | 3532 | A    | Sidechain |
| 34  | AA    | 3535 | A    | Sidechain |
| 34  | AA    | 3545 | U    | Sidechain |
| 34  | AA    | 3546 | C    | Sidechain |
| 34  | AA    | 3549 | U    | Sidechain |
| 34  | AA    | 356  | A    | Sidechain |
| 34  | AA    | 357  | A    | Sidechain |
| 34  | AA    | 3571 | A    | Sidechain |
| 34  | AA    | 3574 | G    | Sidechain |
| 34  | AA    | 3581 | A    | Sidechain |
| 34  | AA    | 3585 | A    | Sidechain |
| 34  | AA    | 3591 | U    | Sidechain |
| 34  | AA    | 3594 | G    | Sidechain |
| 34  | AA    | 361  | G    | Sidechain |
| 34  | AA    | 362  | U    | Sidechain |
| 34  | AA    | 3624 | U    | Sidechain |
| 34  | AA    | 3629 | U    | Sidechain |
| 34  | AA    | 3632 | U    | Sidechain |
| 34  | AA    | 3639 | G    | Sidechain |
| 34  | AA    | 3646 | G    | Sidechain |
| 34  | AA    | 3648 | U    | Sidechain |
| 34  | AA    | 3658 | G    | Sidechain |
| 34  | AA    | 366  | G    | Sidechain |
| 34  | AA    | 3660 | A    | Sidechain |
| 34  | AA    | 3666 | U    | Sidechain |
| 34  | AA    | 367  | U    | Sidechain |
| 34  | AA    | 3672 | A    | Sidechain |
| 34  | AA    | 368  | G    | Sidechain |
| 34  | AA    | 3688 | G    | Sidechain |

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| Mol | Chain | Res  | Type | Group     |
|-----|-------|------|------|-----------|
| 34  | AA    | 3692 | A    | Sidechain |
| 34  | AA    | 3698 | U    | Sidechain |
| 34  | AA    | 37   | U    | Sidechain |
| 34  | AA    | 3706 | U    | Sidechain |
| 34  | AA    | 3707 | U    | Sidechain |
| 34  | AA    | 3708 | U    | Sidechain |
| 34  | AA    | 3709 | U    | Sidechain |
| 34  | AA    | 3726 | U    | Sidechain |
| 34  | AA    | 3736 | A    | Sidechain |
| 34  | AA    | 3738 | U    | Sidechain |
| 34  | AA    | 3739 | A    | Sidechain |
| 34  | AA    | 374  | A    | Sidechain |
| 34  | AA    | 3740 | A    | Sidechain |
| 34  | AA    | 3749 | U    | Sidechain |
| 34  | AA    | 3754 | A    | Sidechain |
| 34  | AA    | 3767 | U    | Sidechain |
| 34  | AA    | 3775 | G    | Sidechain |
| 34  | AA    | 3776 | U    | Sidechain |
| 34  | AA    | 3782 | A    | Sidechain |
| 34  | AA    | 3783 | G    | Sidechain |
| 34  | AA    | 379  | G    | Sidechain |
| 34  | AA    | 38   | U    | Sidechain |
| 34  | AA    | 380  | A    | Sidechain |
| 34  | AA    | 389  | U    | Sidechain |
| 34  | AA    | 392  | G    | Sidechain |
| 34  | AA    | 393  | G    | Sidechain |
| 34  | AA    | 406  | A    | Sidechain |
| 34  | AA    | 416  | G    | Sidechain |
| 34  | AA    | 418  | A    | Sidechain |
| 34  | AA    | 422  | G    | Sidechain |
| 34  | AA    | 424  | U    | Sidechain |
| 34  | AA    | 439  | U    | Sidechain |
| 34  | AA    | 440  | A    | Sidechain |
| 34  | AA    | 441  | A    | Sidechain |
| 34  | AA    | 446  | G    | Sidechain |
| 34  | AA    | 449  | A    | Sidechain |
| 34  | AA    | 458  | A    | Sidechain |
| 34  | AA    | 490  | U    | Sidechain |
| 34  | AA    | 495  | U    | Sidechain |
| 34  | AA    | 498  | U    | Sidechain |
| 34  | AA    | 500  | A    | Sidechain |
| 34  | AA    | 507  | G    | Sidechain |

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| Mol | Chain | Res | Type | Group     |
|-----|-------|-----|------|-----------|
| 34  | AA    | 520 | U    | Sidechain |
| 34  | AA    | 525 | U    | Sidechain |
| 34  | AA    | 527 | A    | Sidechain |
| 34  | AA    | 544 | C    | Sidechain |
| 34  | AA    | 55  | G    | Sidechain |
| 34  | AA    | 578 | U    | Sidechain |
| 34  | AA    | 579 | C    | Sidechain |
| 34  | AA    | 582 | U    | Sidechain |
| 34  | AA    | 583 | U    | Sidechain |
| 34  | AA    | 596 | A    | Sidechain |
| 34  | AA    | 60  | A    | Sidechain |
| 34  | AA    | 606 | A    | Sidechain |
| 34  | AA    | 607 | A    | Sidechain |
| 34  | AA    | 609 | C    | Sidechain |
| 34  | AA    | 614 | U    | Sidechain |
| 34  | AA    | 623 | U    | Sidechain |
| 34  | AA    | 629 | A    | Sidechain |
| 34  | AA    | 630 | U    | Sidechain |
| 34  | AA    | 633 | U    | Sidechain |
| 34  | AA    | 634 | U    | Sidechain |
| 34  | AA    | 637 | U    | Sidechain |
| 34  | AA    | 640 | U    | Sidechain |
| 34  | AA    | 641 | G    | Sidechain |
| 34  | AA    | 644 | G    | Sidechain |
| 34  | AA    | 649 | U    | Sidechain |
| 34  | AA    | 65  | A    | Sidechain |
| 34  | AA    | 656 | U    | Sidechain |
| 34  | AA    | 670 | U    | Sidechain |
| 34  | AA    | 671 | U    | Sidechain |
| 34  | AA    | 673 | U    | Sidechain |
| 34  | AA    | 679 | U    | Sidechain |
| 34  | AA    | 68  | A    | Sidechain |
| 34  | AA    | 683 | A    | Sidechain |
| 34  | AA    | 684 | G    | Sidechain |
| 34  | AA    | 688 | U    | Sidechain |
| 34  | AA    | 69  | U    | Sidechain |
| 34  | AA    | 696 | C    | Sidechain |
| 34  | AA    | 70  | A    | Sidechain |
| 34  | AA    | 702 | U    | Sidechain |
| 34  | AA    | 703 | U    | Sidechain |
| 34  | AA    | 704 | U    | Sidechain |
| 34  | AA    | 706 | U    | Sidechain |

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| Mol | Chain | Res | Type | Group     |
|-----|-------|-----|------|-----------|
| 34  | AA    | 708 | A    | Sidechain |
| 34  | AA    | 71  | A    | Sidechain |
| 34  | AA    | 714 | C    | Sidechain |
| 34  | AA    | 716 | C    | Sidechain |
| 34  | AA    | 722 | G    | Sidechain |
| 34  | AA    | 729 | G    | Sidechain |
| 34  | AA    | 734 | A    | Sidechain |
| 34  | AA    | 739 | G    | Sidechain |
| 34  | AA    | 744 | G    | Sidechain |
| 34  | AA    | 746 | A    | Sidechain |
| 34  | AA    | 75  | U    | Sidechain |
| 34  | AA    | 754 | A    | Sidechain |
| 34  | AA    | 760 | A    | Sidechain |
| 34  | AA    | 764 | G    | Sidechain |
| 34  | AA    | 77  | A    | Sidechain |
| 34  | AA    | 770 | U    | Sidechain |
| 34  | AA    | 771 | U    | Sidechain |
| 34  | AA    | 773 | A    | Sidechain |
| 34  | AA    | 774 | A    | Sidechain |
| 34  | AA    | 825 | G    | Sidechain |
| 34  | AA    | 826 | U    | Sidechain |
| 34  | AA    | 828 | G    | Sidechain |
| 34  | AA    | 831 | U    | Sidechain |
| 34  | AA    | 835 | G    | Sidechain |
| 34  | AA    | 86  | G    | Sidechain |
| 34  | AA    | 869 | A    | Sidechain |
| 34  | AA    | 888 | A    | Sidechain |
| 34  | AA    | 911 | U    | Sidechain |
| 34  | AA    | 912 | U    | Sidechain |
| 34  | AA    | 913 | U    | Sidechain |
| 34  | AA    | 92  | G    | Sidechain |
| 34  | AA    | 920 | A    | Sidechain |
| 34  | AA    | 925 | A    | Sidechain |
| 34  | AA    | 926 | G    | Sidechain |
| 34  | AA    | 93  | C    | Sidechain |
| 34  | AA    | 931 | U    | Sidechain |
| 34  | AA    | 933 | U    | Sidechain |
| 34  | AA    | 937 | C    | Sidechain |
| 34  | AA    | 938 | U    | Sidechain |
| 34  | AA    | 94  | G    | Sidechain |
| 34  | AA    | 943 | G    | Sidechain |
| 34  | AA    | 95  | A    | Sidechain |

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| Mol | Chain | Res | Type | Group     |
|-----|-------|-----|------|-----------|
| 34  | AA    | 950 | G    | Sidechain |
| 34  | AA    | 954 | G    | Sidechain |
| 34  | AA    | 965 | A    | Sidechain |
| 34  | AA    | 966 | A    | Sidechain |
| 34  | AA    | 977 | A    | Sidechain |
| 34  | AA    | 981 | U    | Sidechain |
| 36  | AB    | 109 | U    | Sidechain |
| 36  | AB    | 11  | A    | Sidechain |
| 36  | AB    | 22  | G    | Sidechain |
| 36  | AB    | 24  | U    | Sidechain |
| 36  | AB    | 26  | C    | Sidechain |
| 36  | AB    | 48  | G    | Sidechain |
| 36  | AB    | 53  | U    | Sidechain |
| 36  | AB    | 55  | A    | Sidechain |
| 36  | AB    | 61  | G    | Sidechain |
| 36  | AB    | 69  | U    | Sidechain |
| 36  | AB    | 73  | U    | Sidechain |
| 36  | AB    | 75  | G    | Sidechain |
| 36  | AB    | 97  | G    | Sidechain |
| 36  | AB    | 98  | G    | Sidechain |
| 35  | AC    | 106 | G    | Sidechain |
| 35  | AC    | 12  | U    | Sidechain |
| 35  | AC    | 125 | U    | Sidechain |
| 35  | AC    | 127 | C    | Sidechain |
| 35  | AC    | 129 | U    | Sidechain |
| 35  | AC    | 156 | A    | Sidechain |
| 35  | AC    | 20  | G    | Sidechain |
| 35  | AC    | 25  | C    | Sidechain |
| 35  | AC    | 27  | U    | Sidechain |
| 35  | AC    | 3   | G    | Sidechain |
| 35  | AC    | 30  | U    | Sidechain |
| 35  | AC    | 31  | U    | Sidechain |
| 35  | AC    | 4   | C    | Sidechain |
| 35  | AC    | 40  | G    | Sidechain |
| 35  | AC    | 42  | U    | Sidechain |
| 35  | AC    | 53  | G    | Sidechain |
| 35  | AC    | 64  | U    | Sidechain |
| 35  | AC    | 78  | U    | Sidechain |
| 35  | AC    | 85  | A    | Sidechain |
| 69  | AD    | 11  | GLY  | Peptide   |
| 69  | AD    | 163 | ARG  | Sidechain |
| 69  | AD    | 20  | ASN  | Peptide   |

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| Mol | Chain | Res | Type | Group     |
|-----|-------|-----|------|-----------|
| 69  | AD    | 23  | ARG  | Sidechain |
| 69  | AD    | 242 | ARG  | Sidechain |
| 69  | AD    | 54  | ARG  | Sidechain |
| 70  | AE    | 119 | TYR  | Sidechain |
| 70  | AE    | 241 | ARG  | Sidechain |
| 70  | AE    | 272 | ARG  | Sidechain |
| 70  | AE    | 331 | ARG  | Sidechain |
| 71  | AF    | 140 | ARG  | Sidechain |
| 71  | AF    | 199 | ARG  | Sidechain |
| 71  | AF    | 264 | TYR  | Peptide   |
| 71  | AF    | 48  | ARG  | Sidechain |
| 71  | AF    | 49  | ARG  | Sidechain |
| 71  | AF    | 60  | TYR  | Sidechain |
| 72  | AG    | 141 | ARG  | Peptide   |
| 72  | AG    | 32  | ARG  | Sidechain |
| 72  | AG    | 41  | THR  | Peptide   |
| 74  | AH    | 144 | TYR  | Sidechain |
| 74  | AH    | 179 | TYR  | Sidechain |
| 74  | AH    | 39  | ARG  | Sidechain |
| 54  | AI    | 11  | TYR  | Sidechain |
| 54  | AI    | 48  | ARG  | Sidechain |
| 55  | AJ    | 116 | TYR  | Sidechain |
| 55  | AJ    | 172 | ASN  | Peptide   |
| 57  | AK    | 17  | ARG  | Sidechain |
| 57  | AK    | 31  | ARG  | Sidechain |
| 57  | AK    | 58  | ARG  | Sidechain |
| 57  | AK    | 81  | ARG  | Sidechain |
| 57  | AK    | 84  | ARG  | Sidechain |
| 37  | AL    | 197 | ARG  | Sidechain |
| 37  | AL    | 34  | ARG  | Sidechain |
| 37  | AL    | 63  | ARG  | Sidechain |
| 37  | AL    | 69  | ARG  | Sidechain |
| 37  | AL    | 96  | TYR  | Peptide   |
| 58  | AM    | 122 | ARG  | Sidechain |
| 58  | AM    | 37  | TYR  | Sidechain |
| 58  | AM    | 50  | ARG  | Sidechain |
| 58  | AM    | 72  | ARG  | Sidechain |
| 58  | AM    | 82  | ARG  | Sidechain |
| 43  | AN    | 35  | TYR  | Sidechain |
| 43  | AN    | 66  | ARG  | Sidechain |
| 43  | AN    | 93  | ARG  | Sidechain |
| 60  | AO    | 127 | ARG  | Sidechain |

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| Mol | Chain | Res | Type | Group     |
|-----|-------|-----|------|-----------|
| 60  | AO    | 28  | HIS  | Peptide   |
| 60  | AO    | 48  | TYR  | Sidechain |
| 51  | AP    | 160 | ARG  | Sidechain |
| 51  | AP    | 176 | ARG  | Sidechain |
| 51  | AP    | 186 | ARG  | Sidechain |
| 51  | AP    | 44  | ARG  | Sidechain |
| 51  | AP    | 49  | ARG  | Sidechain |
| 51  | AP    | 68  | ARG  | Sidechain |
| 61  | AQ    | 154 | ARG  | Sidechain |
| 61  | AQ    | 189 | ARG  | Sidechain |
| 61  | AQ    | 3   | ARG  | Sidechain |
| 61  | AQ    | 34  | TYR  | Sidechain |
| 62  | AR    | 181 | ARG  | Sidechain |
| 62  | AR    | 24  | ARG  | Sidechain |
| 62  | AR    | 278 | ARG  | Sidechain |
| 62  | AR    | 50  | ARG  | Sidechain |
| 59  | AS    | 111 | ARG  | Sidechain |
| 59  | AS    | 139 | ARG  | Sidechain |
| 59  | AS    | 157 | LYS  | Peptide   |
| 59  | AS    | 165 | TYR  | Sidechain |
| 59  | AS    | 177 | ARG  | Sidechain |
| 59  | AS    | 183 | ARG  | Sidechain |
| 59  | AS    | 39  | ARG  | Sidechain |
| 59  | AS    | 57  | ARG  | Sidechain |
| 65  | AT    | 109 | ARG  | Sidechain |
| 65  | AT    | 116 | ARG  | Sidechain |
| 65  | AT    | 162 | ARG  | Sidechain |
| 65  | AT    | 37  | ARG  | Sidechain |
| 65  | AT    | 87  | ARG  | Sidechain |
| 65  | AT    | 99  | ARG  | Sidechain |
| 73  | AU    | 122 | ARG  | Sidechain |
| 73  | AU    | 134 | ARG  | Sidechain |
| 73  | AU    | 157 | ARG  | Sidechain |
| 73  | AU    | 170 | TYR  | Sidechain |
| 73  | AU    | 21  | ARG  | Sidechain |
| 73  | AU    | 35  | ARG  | Sidechain |
| 73  | AU    | 76  | ARG  | Sidechain |
| 75  | AV    | 109 | ARG  | Sidechain |
| 75  | AV    | 13  | ARG  | Sidechain |
| 75  | AV    | 21  | ARG  | Sidechain |
| 75  | AV    | 71  | ARG  | Sidechain |
| 75  | AV    | 80  | ARG  | Sidechain |

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| Mol | Chain | Res | Type | Group     |
|-----|-------|-----|------|-----------|
| 63  | AW    | 131 | LYS  | Peptide   |
| 63  | AW    | 30  | TYR  | Sidechain |
| 63  | AW    | 37  | ARG  | Sidechain |
| 63  | AW    | 47  | TYR  | Sidechain |
| 63  | AW    | 56  | ARG  | Sidechain |
| 63  | AW    | 63  | TYR  | Peptide   |
| 77  | AX    | 101 | ARG  | Sidechain |
| 64  | AY    | 173 | ARG  | Sidechain |
| 66  | AZ    | 114 | ARG  | Sidechain |
| 66  | AZ    | 15  | ARG  | Sidechain |
| 66  | AZ    | 83  | ARG  | Sidechain |
| 66  | AZ    | 86  | ARG  | Sidechain |
| 46  | Aa    | 4   | ARG  | Sidechain |
| 46  | Aa    | 74  | ARG  | Sidechain |
| 46  | Aa    | 76  | TYR  | Sidechain |
| 46  | Aa    | 88  | ARG  | Sidechain |
| 47  | Ab    | 106 | ARG  | Sidechain |
| 56  | Ac    | 14  | ARG  | Sidechain |
| 56  | Ac    | 48  | ARG  | Sidechain |
| 56  | Ac    | 69  | TYR  | Sidechain |
| 49  | Ae    | 18  | ARG  | Sidechain |
| 49  | Ae    | 28  | ARG  | Sidechain |
| 49  | Ae    | 42  | ARG  | Sidechain |
| 49  | Ae    | 45  | ARG  | Sidechain |
| 49  | Ae    | 6   | ARG  | Sidechain |
| 50  | Af    | 41  | ARG  | Sidechain |
| 50  | Af    | 46  | ARG  | Sidechain |
| 76  | Ag    | 16  | ARG  | Sidechain |
| 76  | Ag    | 37  | ARG  | Sidechain |
| 52  | Ah    | 17  | ARG  | Sidechain |
| 52  | Ah    | 7   | LYS  | Peptide   |
| 53  | Ai    | 40  | ARG  | Sidechain |
| 53  | Ai    | 42  | TYR  | Sidechain |
| 53  | Ai    | 54  | LYS  | Peptide   |
| 20  | B     | 146 | ARG  | Peptide   |
| 20  | B     | 190 | PRO  | Peptide   |
| 20  | B     | 213 | ARG  | Sidechain |
| 20  | B     | 64  | ARG  | Sidechain |
| 33  | C     | 103 | THR  | Peptide   |
| 33  | C     | 119 | ARG  | Sidechain |
| 33  | C     | 151 | SER  | Peptide   |
| 33  | C     | 62  | ARG  | Sidechain |

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| Mol | Chain | Res | Type | Group     |
|-----|-------|-----|------|-----------|
| 33  | C     | 79  | ARG  | Sidechain |
| 33  | C     | 84  | ARG  | Sidechain |
| 3   | D     | 117 | ARG  | Sidechain |
| 4   | E     | 108 | ARG  | Sidechain |
| 4   | E     | 14  | ASN  | Peptide   |
| 4   | E     | 168 | ARG  | Peptide   |
| 4   | E     | 171 | ARG  | Sidechain |
| 4   | E     | 69  | ARG  | Sidechain |
| 4   | E     | 78  | ARG  | Sidechain |
| 21  | F     | 100 | ARG  | Sidechain |
| 21  | F     | 103 | TYR  | Sidechain |
| 21  | F     | 108 | ARG  | Sidechain |
| 21  | F     | 11  | ARG  | Sidechain |
| 21  | F     | 191 | ARG  | Sidechain |
| 5   | G     | 107 | ARG  | Sidechain |
| 5   | G     | 236 | TYR  | Sidechain |
| 5   | G     | 63  | TYR  | Sidechain |
| 5   | G     | 80  | GLN  | Peptide   |
| 22  | H     | 137 | ARG  | Sidechain |
| 22  | H     | 154 | ARG  | Sidechain |
| 22  | H     | 82  | LYS  | Peptide   |
| 6   | I     | 136 | ARG  | Sidechain |
| 6   | I     | 150 | ARG  | Sidechain |
| 6   | I     | 195 | ARG  | Sidechain |
| 6   | I     | 62  | ARG  | Sidechain |
| 23  | J     | 115 | ARG  | Sidechain |
| 23  | J     | 12  | ASN  | Peptide   |
| 23  | J     | 123 | TYR  | Sidechain |
| 23  | J     | 69  | TYR  | Sidechain |
| 23  | J     | 98  | ARG  | Sidechain |
| 7   | K     | 118 | ARG  | Sidechain |
| 7   | K     | 46  | TYR  | Sidechain |
| 24  | L     | 217 | ARG  | Sidechain |
| 24  | L     | 25  | ARG  | Sidechain |
| 24  | L     | 53  | TYR  | Sidechain |
| 8   | M     | 115 | ARG  | Sidechain |
| 25  | N     | 82  | ARG  | Sidechain |
| 11  | O     | 63  | ARG  | Sidechain |
| 26  | P     | 149 | ARG  | Sidechain |
| 26  | P     | 37  | PHE  | Peptide   |
| 26  | P     | 50  | ARG  | Sidechain |
| 27  | Q     | 109 | ARG  | Sidechain |

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| Mol | Chain | Res | Type | Group     |
|-----|-------|-----|------|-----------|
| 27  | Q     | 137 | LYS  | Peptide   |
| 29  | T     | 54  | ARG  | Sidechain |
| 30  | U     | 114 | ARG  | Sidechain |
| 30  | U     | 141 | TYR  | Sidechain |
| 31  | V     | 102 | ARG  | Sidechain |
| 31  | V     | 106 | ARG  | Sidechain |
| 31  | V     | 11  | ARG  | Sidechain |
| 31  | V     | 36  | ARG  | Sidechain |
| 31  | V     | 70  | ARG  | Sidechain |
| 31  | V     | 90  | ARG  | Sidechain |
| 9   | W     | 11  | ARG  | Sidechain |
| 9   | W     | 21  | TYR  | Sidechain |
| 9   | W     | 3   | ARG  | Sidechain |
| 32  | X     | 40  | ARG  | Sidechain |
| 12  | Y     | 108 | ARG  | Sidechain |
| 12  | Y     | 141 | LYS  | Peptide   |
| 12  | Y     | 148 | THR  | Peptide   |
| 12  | Y     | 161 | TYR  | Sidechain |
| 12  | Y     | 39  | ARG  | Sidechain |
| 12  | Y     | 53  | TYR  | Peptide   |

## 5.2 Too-close contacts [i](#)

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 hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | A     | 34207 | 0        | 17266    | 123     | 0            |
| 2   | 7     | 1571  | 0        | 797      | 12      | 0            |
| 3   | D     | 1229  | 0        | 1311     | 0       | 0            |
| 4   | E     | 1515  | 0        | 1605     | 2       | 0            |
| 5   | G     | 1758  | 0        | 1811     | 1       | 0            |
| 6   | I     | 1424  | 0        | 1471     | 0       | 0            |
| 7   | K     | 1037  | 0        | 1099     | 2       | 0            |
| 8   | M     | 1099  | 0        | 1183     | 1       | 0            |
| 9   | W     | 786   | 0        | 858      | 1       | 0            |
| 10  | R     | 747   | 0        | 754      | 0       | 0            |
| 11  | O     | 687   | 0        | 695      | 0       | 0            |
| 12  | Y     | 1267  | 0        | 1316     | 1       | 0            |
| 13  | Z     | 557   | 0        | 558      | 0       | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 14  | 1     | 986   | 0        | 1076     | 0       | 0            |
| 15  | 2     | 321   | 0        | 338      | 0       | 0            |
| 16  | 3     | 782   | 0        | 820      | 0       | 0            |
| 17  | 4     | 586   | 0        | 604      | 1       | 0            |
| 18  | 5     | 458   | 0        | 496      | 0       | 0            |
| 19  | 6     | 346   | 0        | 381      | 0       | 0            |
| 20  | B     | 1714  | 0        | 1838     | 0       | 0            |
| 21  | F     | 2062  | 0        | 2200     | 3       | 0            |
| 22  | H     | 1648  | 0        | 1803     | 0       | 0            |
| 23  | J     | 1529  | 0        | 1680     | 0       | 0            |
| 24  | L     | 1383  | 0        | 1434     | 3       | 0            |
| 25  | N     | 772   | 0        | 813      | 1       | 0            |
| 26  | P     | 954   | 0        | 997      | 0       | 0            |
| 27  | Q     | 1129  | 0        | 1196     | 0       | 0            |
| 28  | S     | 1047  | 0        | 1101     | 2       | 0            |
| 29  | T     | 405   | 0        | 419      | 0       | 0            |
| 30  | U     | 1202  | 0        | 1299     | 1       | 0            |
| 31  | V     | 1206  | 0        | 1239     | 1       | 0            |
| 32  | X     | 777   | 0        | 832      | 1       | 0            |
| 33  | C     | 1539  | 0        | 1600     | 1       | 0            |
| 34  | AA    | 67884 | 0        | 34244    | 322     | 0            |
| 35  | AC    | 3215  | 0        | 1633     | 8       | 0            |
| 36  | AB    | 2522  | 0        | 1275     | 9       | 0            |
| 37  | AL    | 1757  | 0        | 1888     | 0       | 0            |
| 38  | A1    | 1134  | 0        | 1245     | 2       | 0            |
| 39  | A2    | 831   | 0        | 887      | 1       | 0            |
| 40  | A4    | 555   | 0        | 599      | 4       | 0            |
| 41  | A6    | 741   | 0        | 763      | 1       | 0            |
| 42  | A7    | 794   | 0        | 869      | 2       | 0            |
| 43  | AN    | 1202  | 0        | 1316     | 2       | 0            |
| 44  | A8    | 1037  | 0        | 1139     | 2       | 0            |
| 45  | A9    | 845   | 0        | 886      | 3       | 0            |
| 46  | Aa    | 859   | 0        | 912      | 0       | 0            |
| 47  | Ab    | 757   | 0        | 842      | 0       | 0            |
| 48  | Ad    | 604   | 0        | 686      | 0       | 0            |
| 49  | Ae    | 388   | 0        | 421      | 0       | 0            |
| 50  | Af    | 414   | 0        | 452      | 0       | 0            |
| 51  | AP    | 1697  | 0        | 1802     | 2       | 0            |
| 52  | Ah    | 659   | 0        | 727      | 0       | 0            |
| 53  | Ai    | 779   | 0        | 861      | 0       | 0            |
| 54  | AI    | 1685  | 0        | 1849     | 0       | 0            |
| 55  | AJ    | 1813  | 0        | 1985     | 1       | 0            |

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| Mol | Chain | Non-H  | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|--------|----------|----------|---------|--------------|
| 56  | Ac    | 710    | 0        | 761      | 0       | 0            |
| 57  | AK    | 1660   | 0        | 1785     | 2       | 0            |
| 58  | AM    | 996    | 0        | 1044     | 0       | 0            |
| 59  | AS    | 1503   | 0        | 1636     | 1       | 0            |
| 60  | AO    | 1172   | 0        | 1230     | 3       | 0            |
| 61  | AQ    | 1545   | 0        | 1582     | 0       | 0            |
| 62  | AR    | 2050   | 0        | 2140     | 1       | 0            |
| 63  | AW    | 1319   | 0        | 1304     | 1       | 0            |
| 64  | AY    | 797    | 0        | 850      | 0       | 0            |
| 65  | AT    | 1509   | 0        | 1682     | 0       | 0            |
| 66  | AZ    | 1001   | 0        | 1099     | 0       | 0            |
| 67  | A3    | 995    | 0        | 1121     | 0       | 0            |
| 68  | A5    | 1879   | 0        | 2005     | 3       | 0            |
| 69  | AD    | 1867   | 0        | 1964     | 4       | 0            |
| 70  | AE    | 3062   | 0        | 3205     | 5       | 0            |
| 71  | AF    | 3095   | 0        | 3333     | 1       | 0            |
| 72  | AG    | 1011   | 0        | 1073     | 1       | 0            |
| 73  | AU    | 1497   | 0        | 1556     | 2       | 0            |
| 74  | AH    | 1476   | 0        | 1574     | 2       | 0            |
| 75  | AV    | 1276   | 0        | 1355     | 0       | 0            |
| 76  | Ag    | 343    | 0        | 388      | 0       | 0            |
| 77  | AX    | 825    | 0        | 882      | 0       | 0            |
| 78  | A0    | 522    | 0        | 539      | 0       | 0            |
| All | All   | 193012 | 0        | 144279   | 522     | 0            |

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 2.

All (522) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

| Atom-1           | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|--------------------|--------------------------|-------------------|
| 70:AE:353:LEU:H  | 70:AE:353:LEU:HD23 | 1.55                     | 0.71              |
| 34:AA:3632:U:H3  | 34:AA:3653:G:H1    | 1.42                     | 0.65              |
| 34:AA:123:A:H3'  | 34:AA:124:U:H5''   | 1.81                     | 0.62              |
| 34:AA:744:G:H1   | 34:AA:915:G:H1     | 1.47                     | 0.62              |
| 34:AA:642:A:C6   | 34:AA:684:G:C8     | 2.89                     | 0.61              |
| 28:S:29:ILE:HD13 | 28:S:29:ILE:H      | 1.65                     | 0.61              |
| 34:AA:440:A:H2'  | 34:AA:441:A:C8     | 2.36                     | 0.61              |
| 1:A:1982:G:H1    | 1:A:2008:U:H3      | 1.48                     | 0.60              |
| 34:AA:2735:G:H1  | 34:AA:2814:U:H3    | 1.50                     | 0.59              |
| 34:AA:3626:A:H3' | 34:AA:3627:C:H5''  | 1.86                     | 0.58              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 34:AA:746:A:H2'    | 34:AA:747:A:C8    | 2.39                     | 0.58              |
| 1:A:955:U:H2'      | 1:A:956:A:C8      | 2.39                     | 0.57              |
| 1:A:1022:A:H2'     | 1:A:1023:A:C8     | 2.39                     | 0.57              |
| 2:7:6:A:H61        | 2:7:65:A:H61      | 1.51                     | 0.57              |
| 34:AA:1072:A:H4'   | 34:AA:1073:G:H21  | 1.70                     | 0.57              |
| 40:A4:7:HIS:CG     | 40:A4:8:THR:N     | 2.72                     | 0.57              |
| 34:AA:1259:G:C4    | 34:AA:2666:A:C2   | 2.93                     | 0.57              |
| 34:AA:1822:A:N1    | 34:AA:2004:U:C4   | 2.73                     | 0.56              |
| 34:AA:681:U:C6     | 34:AA:681:U:H5''  | 2.40                     | 0.56              |
| 1:A:1187:A:H2'     | 1:A:1188:A:C8     | 2.40                     | 0.56              |
| 74:AH:46:ARG:HH11  | 74:AH:46:ARG:HB3  | 1.70                     | 0.56              |
| 34:AA:1644:U:C4    | 34:AA:2102:A:N1   | 2.74                     | 0.55              |
| 21:F:36:HIS:CD2    | 21:F:86:LEU:H     | 2.24                     | 0.55              |
| 34:AA:445:A:C2     | 34:AA:446:G:C4    | 2.95                     | 0.55              |
| 12:Y:44:HIS:CE1    | 12:Y:48:HIS:CE1   | 2.94                     | 0.54              |
| 70:AE:85:VAL:HB    | 70:AE:160:HIS:CE1 | 2.41                     | 0.54              |
| 1:A:149:A:C2       | 1:A:161:U:C4      | 2.95                     | 0.54              |
| 62:AR:49:LEU:H     | 62:AR:49:LEU:HD12 | 1.71                     | 0.54              |
| 34:AA:136:U:C4     | 34:AA:141:A:C2    | 2.96                     | 0.54              |
| 35:AC:30:U:H2'     | 35:AC:31:U:C6     | 2.43                     | 0.54              |
| 34:AA:124:U:H5'    | 34:AA:124:U:C6    | 2.43                     | 0.53              |
| 34:AA:343:G:H2'    | 34:AA:344:A:H5''  | 1.90                     | 0.53              |
| 63:AW:20:VAL:O     | 63:AW:145:HIS:CD2 | 2.62                     | 0.53              |
| 34:AA:320:C:H2'    | 34:AA:321:A:C8    | 2.44                     | 0.53              |
| 73:AU:107:THR:HG23 | 73:AU:110:GLY:H   | 1.73                     | 0.53              |
| 34:AA:2506:A:H2'   | 34:AA:2507:A:C8   | 2.43                     | 0.53              |
| 34:AA:965:A:C6     | 34:AA:966:A:C2    | 2.97                     | 0.53              |
| 34:AA:506:A:H2'    | 34:AA:507:G:C8    | 2.43                     | 0.53              |
| 34:AA:173:A:H3'    | 34:AA:174:U:H5''  | 1.91                     | 0.53              |
| 41:A6:54:ILE:HD12  | 41:A6:54:ILE:H    | 1.74                     | 0.52              |
| 1:A:520:U:H2'      | 1:A:521:G:C8      | 2.44                     | 0.52              |
| 1:A:1734:G:H3'     | 1:A:1811:A:H61    | 1.74                     | 0.52              |
| 30:U:101:HIS:CE1   | 30:U:105:ASN:HD22 | 2.28                     | 0.52              |
| 34:AA:1531:G:H1    | 34:AA:1573:C:H5   | 1.55                     | 0.52              |
| 34:AA:445:A:N1     | 34:AA:702:U:C4    | 2.77                     | 0.52              |
| 34:AA:912:U:H2'    | 34:AA:913:U:C6    | 2.45                     | 0.52              |
| 9:W:99:GLU:H       | 9:W:99:GLU:CD     | 2.12                     | 0.52              |
| 34:AA:3164:G:C5    | 34:AA:3165:U:C5   | 2.97                     | 0.52              |
| 34:AA:3768:A:C5    | 42:A7:29:HIS:CE1  | 2.98                     | 0.52              |
| 24:L:168:ILE:HG12  | 24:L:169:ASP:H    | 1.75                     | 0.51              |
| 34:AA:1675:C:H4'   | 34:AA:1737:A:C5   | 2.45                     | 0.51              |

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| Atom-1           | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|--------------------|--------------------------|-------------------|
| 34:AA:2525:A:H2' | 34:AA:2526:A:C8    | 2.45                     | 0.51              |
| 1:A:1040:A:H61   | 34:AA:965:A:H61    | 1.58                     | 0.51              |
| 39:A2:119:TYR:C  | 44:A8:111:ARG:HH22 | 2.13                     | 0.51              |
| 1:A:2072:G:H2'   | 1:A:2073:A:C8      | 2.45                     | 0.51              |
| 34:AA:445:A:C2   | 34:AA:702:U:C4     | 2.98                     | 0.51              |
| 34:AA:914:G:H2'  | 34:AA:915:G:C8     | 2.45                     | 0.51              |
| 34:AA:1588:U:H2' | 34:AA:1589:G:C8    | 2.46                     | 0.51              |
| 34:AA:2709:U:H2' | 34:AA:2710:U:C6    | 2.45                     | 0.51              |
| 34:AA:3054:A:C2  | 34:AA:3092:G:C6    | 2.99                     | 0.51              |
| 34:AA:3555:U:C4  | 45:A9:91:HIS:CE1   | 2.99                     | 0.51              |
| 1:A:1976:G:H3'   | 1:A:1977:G:C8      | 2.46                     | 0.51              |
| 34:AA:1786:A:C5  | 34:AA:1787:A:C6    | 2.99                     | 0.50              |
| 40:A4:7:HIS:CG   | 40:A4:8:THR:H      | 2.29                     | 0.50              |
| 1:A:1859:A:H2'   | 1:A:1860:A:C8      | 2.46                     | 0.50              |
| 34:AA:1770:G:H1' | 34:AA:1797:A:H61   | 1.76                     | 0.50              |
| 1:A:808:U:C5     | 1:A:809:U:C5       | 2.99                     | 0.50              |
| 2:7:6:A:N1       | 2:7:65:A:N1        | 2.59                     | 0.50              |
| 34:AA:1219:A:C5  | 34:AA:1220:U:C5    | 2.99                     | 0.50              |
| 1:A:1041:G:H1'   | 34:AA:966:A:H61    | 1.76                     | 0.50              |
| 34:AA:136:U:O4   | 34:AA:141:A:C2     | 2.65                     | 0.50              |
| 34:AA:2657:G:H22 | 34:AA:2689:G:H1'   | 1.75                     | 0.50              |
| 1:A:107:A:C5     | 1:A:108:A:C5       | 3.00                     | 0.50              |
| 1:A:1261:A:H2'   | 1:A:1262:C:C6      | 2.47                     | 0.50              |
| 1:A:597:C:H2'    | 1:A:598:A:C8       | 2.46                     | 0.50              |
| 34:AA:1064:U:H2' | 34:AA:1065:U:C6    | 2.46                     | 0.50              |
| 34:AA:66:A:C2    | 34:AA:68:A:H1'     | 2.46                     | 0.50              |
| 35:AC:13:A:H2'   | 35:AC:14:A:C8      | 2.47                     | 0.50              |
| 34:AA:1511:U:H2' | 34:AA:1512:A:C8    | 2.47                     | 0.50              |
| 34:AA:75:U:C4    | 34:AA:76:G:C6      | 3.00                     | 0.49              |
| 34:AA:1433:U:C2  | 70:AE:254:PRO:HB3  | 2.47                     | 0.49              |
| 34:AA:606:A:H2'  | 34:AA:607:A:C8     | 2.47                     | 0.49              |
| 36:AB:24:U:C5    | 36:AB:25:A:C8      | 3.01                     | 0.49              |
| 2:7:15:G:H21     | 2:7:19:G:H1        | 1.61                     | 0.49              |
| 34:AA:1738:A:C4  | 34:AA:1739:C:C5    | 3.01                     | 0.49              |
| 34:AA:2158:U:H2' | 34:AA:2159:A:C8    | 2.48                     | 0.49              |
| 69:AD:50:HIS:CG  | 69:AD:51:ASP:H     | 2.30                     | 0.49              |
| 34:AA:642:A:C5   | 34:AA:684:G:C8     | 3.01                     | 0.49              |
| 34:AA:715:U:H2'  | 34:AA:716:C:C5     | 2.48                     | 0.49              |
| 4:E:141:VAL:HG22 | 4:E:143:ILE:H      | 1.77                     | 0.49              |
| 34:AA:2401:C:H1' | 34:AA:3736:A:C8    | 2.48                     | 0.49              |
| 34:AA:2950:U:H2' | 34:AA:2951:U:C6    | 2.48                     | 0.49              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:A:952:U:H2'      | 1:A:953:C:C6      | 2.48                     | 0.49              |
| 34:AA:3241:U:H2'   | 34:AA:3242:U:C6   | 2.48                     | 0.49              |
| 34:AA:3402:A:H2'   | 34:AA:3403:A:C8   | 2.48                     | 0.49              |
| 1:A:755:A:C2       | 1:A:756:A:C4      | 3.01                     | 0.49              |
| 34:AA:983:G:C5     | 34:AA:1012:U:C4   | 3.01                     | 0.49              |
| 34:AA:1416:U:H2'   | 34:AA:1417:G:C8   | 2.47                     | 0.49              |
| 1:A:886:U:H2'      | 1:A:887:A:C8      | 2.48                     | 0.48              |
| 34:AA:220:G:C6     | 34:AA:230:G:C5    | 3.01                     | 0.48              |
| 21:F:249:ILE:HD12  | 21:F:249:ILE:H    | 1.78                     | 0.48              |
| 34:AA:1093:G:H2'   | 34:AA:1094:U:C6   | 2.48                     | 0.48              |
| 34:AA:1541:A:C2    | 34:AA:1542:A:C4   | 3.02                     | 0.48              |
| 34:AA:2430:U:C6    | 34:AA:2434:U:C4   | 3.01                     | 0.48              |
| 7:K:115:GLU:CD     | 7:K:118:ARG:HH22  | 2.16                     | 0.48              |
| 34:AA:3320:G:H2'   | 34:AA:3321:U:C6   | 2.48                     | 0.48              |
| 1:A:1061:A:C2      | 1:A:1082:A:C4     | 3.02                     | 0.48              |
| 34:AA:2132:A:C5    | 34:AA:2134:A:C5   | 3.01                     | 0.48              |
| 57:AK:84:ARG:HE    | 57:AK:89:HIS:CD2  | 2.32                     | 0.48              |
| 34:AA:909:U:H2'    | 34:AA:910:A:C8    | 2.49                     | 0.48              |
| 51:AP:189:ILE:HD12 | 51:AP:189:ILE:H   | 1.79                     | 0.48              |
| 1:A:246:A:H2'      | 1:A:247:G:C8      | 2.49                     | 0.48              |
| 34:AA:687:G:H2'    | 34:AA:688:U:C6    | 2.49                     | 0.48              |
| 51:AP:140:HIS:CD2  | 51:AP:142:ALA:H   | 2.32                     | 0.48              |
| 1:A:993:A:H2'      | 1:A:994:G:C8      | 2.48                     | 0.48              |
| 34:AA:352:A:C5     | 34:AA:353:G:C5    | 3.01                     | 0.48              |
| 34:AA:1031:G:H1    | 69:AD:208:GLU:CD  | 2.17                     | 0.48              |
| 34:AA:1536:U:H3'   | 34:AA:1537:G:H5'' | 1.95                     | 0.48              |
| 72:AG:43:GLN:CD    | 72:AG:43:GLN:H    | 2.17                     | 0.48              |
| 34:AA:3726:U:H4'   | 34:AA:3727:A:H5'' | 1.94                     | 0.48              |
| 34:AA:2679:A:C4    | 34:AA:3353:A:C2   | 3.01                     | 0.47              |
| 34:AA:2926:A:H2'   | 34:AA:2927:U:C6   | 2.48                     | 0.47              |
| 2:7:45:A:H3'       | 2:7:46:G:H5'      | 1.96                     | 0.47              |
| 34:AA:1106:A:C5    | 40:A4:17:HIS:CG   | 3.02                     | 0.47              |
| 34:AA:2183:A:H2'   | 34:AA:2184:U:C6   | 2.49                     | 0.47              |
| 34:AA:525:U:H2'    | 34:AA:526:U:C6    | 2.49                     | 0.47              |
| 34:AA:1506:C:H2'   | 34:AA:1507:U:C6   | 2.49                     | 0.47              |
| 34:AA:2569:G:C5    | 34:AA:2570:C:C5   | 3.02                     | 0.47              |
| 1:A:262:A:C5       | 1:A:263:A:H1'     | 2.50                     | 0.47              |
| 34:AA:1302:G:C6    | 34:AA:1446:A:C2   | 3.03                     | 0.47              |
| 34:AA:2134:A:C6    | 34:AA:2135:G:C5   | 3.02                     | 0.47              |
| 34:AA:3451:G:C6    | 34:AA:3452:U:C4   | 3.02                     | 0.47              |
| 34:AA:1109:U:H2'   | 34:AA:1110:U:C6   | 2.50                     | 0.47              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:A:149:A:N1       | 1:A:161:U:C4      | 2.83                     | 0.47              |
| 1:A:930:A:C2       | 1:A:1032:A:C4     | 3.02                     | 0.47              |
| 34:AA:593:A:H4'    | 34:AA:594:C:H5'   | 1.96                     | 0.47              |
| 34:AA:2473:A:H2'   | 34:AA:2474:C:C6   | 2.50                     | 0.47              |
| 44:A8:98:HIS:CD2   | 44:A8:99:ASN:H    | 2.33                     | 0.47              |
| 60:AO:61:LEU:HD22  | 60:AO:61:LEU:H    | 1.79                     | 0.47              |
| 34:AA:1034:A:C5    | 34:AA:1036:A:H1'  | 2.49                     | 0.47              |
| 34:AA:1100:A:C5    | 68:A5:185:HIS:CE1 | 3.03                     | 0.47              |
| 34:AA:1905:C:H2'   | 34:AA:1906:A:C8   | 2.50                     | 0.47              |
| 34:AA:2441:U:H2'   | 34:AA:2442:A:C5   | 2.50                     | 0.47              |
| 34:AA:2663:G:C6    | 34:AA:2664:G:C6   | 3.03                     | 0.47              |
| 1:A:1424:A:H2'     | 1:A:1425:C:C6     | 2.50                     | 0.47              |
| 8:M:44:ILE:HD12    | 8:M:44:ILE:H      | 1.80                     | 0.47              |
| 34:AA:1210:A:H2'   | 34:AA:1211:U:C6   | 2.50                     | 0.47              |
| 1:A:491:A:H2'      | 1:A:492:A:C8      | 2.50                     | 0.46              |
| 2:7:23:G:C5        | 2:7:24:C:C5       | 3.04                     | 0.46              |
| 34:AA:1103:A:C5    | 34:AA:1231:A:C2   | 3.03                     | 0.46              |
| 34:AA:1203:A:C6    | 34:AA:1204:A:C6   | 3.03                     | 0.46              |
| 34:AA:1628:U:C5    | 34:AA:1629:G:C5   | 3.03                     | 0.46              |
| 34:AA:1683:A:H2'   | 34:AA:1684:A:C8   | 2.50                     | 0.46              |
| 34:AA:3263:G:H2'   | 34:AA:3264:U:C6   | 2.50                     | 0.46              |
| 34:AA:1083:G:H2'   | 34:AA:1084:A:C8   | 2.50                     | 0.46              |
| 34:AA:2020:A:H2'   | 34:AA:2021:A:C8   | 2.51                     | 0.46              |
| 34:AA:2433:U:C2    | 34:AA:3337:U:C5   | 3.03                     | 0.46              |
| 1:A:149:A:C2       | 1:A:150:C:C2      | 3.04                     | 0.46              |
| 34:AA:3325:G:C5    | 34:AA:3326:A:C6   | 3.04                     | 0.46              |
| 34:AA:40:A:C5      | 34:AA:1056:G:C6   | 3.03                     | 0.46              |
| 36:AB:75:G:C4      | 36:AB:99:G:C6     | 3.04                     | 0.46              |
| 69:AD:235:VAL:HG13 | 69:AD:236:GLY:H   | 1.81                     | 0.46              |
| 1:A:995:A:H2'      | 1:A:996:C:C6      | 2.51                     | 0.46              |
| 1:A:1444:C:H3'     | 1:A:1445:U:H5'    | 1.98                     | 0.46              |
| 34:AA:1644:U:C5    | 34:AA:2102:A:C2   | 3.04                     | 0.46              |
| 1:A:458:A:H3'      | 1:A:459:A:C5'     | 2.45                     | 0.46              |
| 1:A:1743:A:H2'     | 1:A:1744:A:C8     | 2.51                     | 0.46              |
| 34:AA:967:A:C5     | 34:AA:968:G:H1'   | 2.51                     | 0.46              |
| 34:AA:1106:A:C4    | 40:A4:17:HIS:CD2  | 3.03                     | 0.46              |
| 34:AA:3242:U:H2'   | 34:AA:3243:C:C6   | 2.51                     | 0.46              |
| 1:A:122:C:C5       | 1:A:123:U:C5      | 3.04                     | 0.46              |
| 24:L:13:LEU:HD22   | 24:L:13:LEU:H     | 1.81                     | 0.46              |
| 34:AA:1043:G:C4    | 34:AA:3168:C:C2   | 3.03                     | 0.46              |
| 34:AA:1786:A:H4'   | 38:A1:79:HIS:CE1  | 2.51                     | 0.46              |

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| Atom-1           | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|--------------------|--------------------------|-------------------|
| 34:AA:1118:A:C2  | 34:AA:1177:A:C4    | 3.03                     | 0.46              |
| 34:AA:2176:A:C5  | 34:AA:2177:A:C5    | 3.04                     | 0.46              |
| 1:A:441:U:C4     | 1:A:442:A:C6       | 3.04                     | 0.45              |
| 34:AA:918:G:C6   | 34:AA:920:A:C4     | 3.04                     | 0.45              |
| 34:AA:1980:G:C8  | 34:AA:1981:U:C4    | 3.04                     | 0.45              |
| 36:AB:95:U:H2'   | 36:AB:96:C:C6      | 2.51                     | 0.45              |
| 1:A:1251:G:C6    | 1:A:2060:G:C5      | 3.04                     | 0.45              |
| 34:AA:3386:A:H2' | 34:AA:3387:U:C6    | 2.51                     | 0.45              |
| 45:A9:66:LYS:HA  | 57:AK:2:TYR:CZ     | 2.51                     | 0.45              |
| 1:A:118:U:H2'    | 1:A:119:C:C6       | 2.51                     | 0.45              |
| 1:A:1208:G:C5    | 1:A:1209:G:C6      | 3.05                     | 0.45              |
| 1:A:1873:A:C5    | 1:A:1874:A:H1'     | 2.52                     | 0.45              |
| 2:7:14:A:C6      | 2:7:15:G:C2        | 3.04                     | 0.45              |
| 24:L:213:ASP:C   | 24:L:217:ARG:HE    | 2.19                     | 0.45              |
| 34:AA:1216:C:H2' | 34:AA:1217:U:H5'   | 1.98                     | 0.45              |
| 1:A:1272:A:H2'   | 1:A:1273:G:C8      | 2.51                     | 0.45              |
| 34:AA:1259:G:C2  | 34:AA:2666:A:C4    | 3.05                     | 0.45              |
| 34:AA:1831:G:C5  | 34:AA:1832:U:C5    | 3.04                     | 0.45              |
| 34:AA:2106:A:C4  | 34:AA:2110:C:C5    | 3.05                     | 0.45              |
| 34:AA:3140:U:H4' | 34:AA:3141:G:OP1   | 2.16                     | 0.45              |
| 1:A:1957:A:C2    | 1:A:2033:U:C2      | 3.05                     | 0.45              |
| 34:AA:307:G:C5   | 34:AA:308:U:C4     | 3.05                     | 0.45              |
| 34:AA:1036:A:C5  | 34:AA:1037:C:C5    | 3.04                     | 0.45              |
| 34:AA:1214:C:H3' | 34:AA:1215:A:H5''  | 1.99                     | 0.45              |
| 34:AA:1662:G:C6  | 34:AA:1664:A:C5    | 3.05                     | 0.45              |
| 34:AA:1793:A:C6  | 34:AA:1797:A:C8    | 3.05                     | 0.45              |
| 1:A:392:G:H2'    | 1:A:393:A:C8       | 2.52                     | 0.45              |
| 34:AA:262:A:H2'  | 34:AA:263:U:C6     | 2.52                     | 0.45              |
| 34:AA:2590:U:H2' | 34:AA:2590:U:O2    | 2.15                     | 0.45              |
| 1:A:1008:A:C6    | 1:A:1009:A:C6      | 3.05                     | 0.45              |
| 34:AA:70:A:C6    | 34:AA:71:A:C6      | 3.05                     | 0.45              |
| 34:AA:510:A:H2'  | 34:AA:511:C:C6     | 2.52                     | 0.45              |
| 34:AA:3164:G:C6  | 34:AA:3165:U:C4    | 3.05                     | 0.45              |
| 43:AN:79:GLU:CD  | 43:AN:79:GLU:H     | 2.20                     | 0.45              |
| 45:A9:134:LEU:H  | 45:A9:134:LEU:HD22 | 1.82                     | 0.45              |
| 1:A:1239:A:C4    | 1:A:1240:A:N7      | 2.85                     | 0.45              |
| 34:AA:63:A:H2'   | 34:AA:64:G:C8      | 2.52                     | 0.45              |
| 34:AA:378:U:C4   | 34:AA:379:G:C5     | 3.05                     | 0.45              |
| 34:AA:1244:G:C4  | 34:AA:3176:A:C2    | 3.05                     | 0.45              |
| 1:A:413:A:H2'    | 1:A:414:C:C6       | 2.52                     | 0.44              |
| 1:A:805:A:C2     | 1:A:806:A:C4       | 3.04                     | 0.44              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:1225:A:H2'   | 1:A:1226:A:C8    | 2.52                     | 0.44              |
| 34:AA:734:A:H2'  | 34:AA:735:A:C8   | 2.52                     | 0.44              |
| 34:AA:965:A:N6   | 34:AA:966:A:C2   | 2.85                     | 0.44              |
| 34:AA:1646:C:H2' | 34:AA:1647:U:C6  | 2.52                     | 0.44              |
| 70:AE:68:HIS:CG  | 70:AE:69:LYS:N   | 2.86                     | 0.44              |
| 1:A:1378:G:C4    | 1:A:1682:A:C2    | 3.05                     | 0.44              |
| 25:N:21:ILE:HD13 | 25:N:23:LEU:HD21 | 1.99                     | 0.44              |
| 34:AA:609:C:H3'  | 34:AA:610:U:H5'  | 2.00                     | 0.44              |
| 34:AA:2723:G:H2' | 34:AA:2724:C:C6  | 2.52                     | 0.44              |
| 34:AA:3022:U:H2' | 34:AA:3023:C:C6  | 2.52                     | 0.44              |
| 1:A:91:G:C6      | 1:A:92:C:C4      | 3.06                     | 0.44              |
| 1:A:850:G:H2'    | 1:A:851:A:C8     | 2.52                     | 0.44              |
| 1:A:1400:U:H5    | 1:A:1401:G:C5    | 2.36                     | 0.44              |
| 1:A:1692:A:C4    | 1:A:1694:G:C8    | 3.05                     | 0.44              |
| 34:AA:88:A:C2    | 34:AA:99:A:C4    | 3.05                     | 0.44              |
| 34:AA:1186:A:C5  | 34:AA:1224:A:C6  | 3.05                     | 0.44              |
| 34:AA:2181:A:C5  | 34:AA:2413:A:C2  | 3.05                     | 0.44              |
| 34:AA:2189:A:C6  | 34:AA:2200:A:C2  | 3.05                     | 0.44              |
| 1:A:872:A:C6     | 1:A:873:A:C2     | 3.06                     | 0.44              |
| 1:A:1188:A:H2'   | 1:A:1189:A:C8    | 2.52                     | 0.44              |
| 34:AA:350:A:C5   | 34:AA:376:G:C5   | 3.06                     | 0.44              |
| 34:AA:1681:C:H2' | 34:AA:1682:U:C6  | 2.53                     | 0.44              |
| 34:AA:2737:C:H2' | 34:AA:2738:U:C6  | 2.51                     | 0.44              |
| 34:AA:2946:G:C6  | 34:AA:2947:G:C5  | 3.05                     | 0.44              |
| 34:AA:3768:A:C6  | 42:A7:29:HIS:CE1 | 3.06                     | 0.44              |
| 1:A:598:A:H2'    | 1:A:599:A:C8     | 2.53                     | 0.44              |
| 1:A:1109:G:H4'   | 33:C:31:ASN:HD22 | 1.83                     | 0.44              |
| 34:AA:916:U:H2'  | 34:AA:917:A:C8   | 2.52                     | 0.44              |
| 34:AA:1572:U:C5  | 34:AA:1573:C:C5  | 3.06                     | 0.44              |
| 34:AA:685:U:C5   | 34:AA:686:U:C4   | 3.06                     | 0.44              |
| 34:AA:1121:G:C2  | 34:AA:1122:A:C2  | 3.06                     | 0.44              |
| 34:AA:2439:C:H2' | 34:AA:2440:A:C8  | 2.53                     | 0.44              |
| 34:AA:3347:C:H2' | 34:AA:3348:U:C6  | 2.53                     | 0.44              |
| 21:F:36:HIS:CG   | 21:F:85:GLY:HA2  | 2.52                     | 0.44              |
| 34:AA:3615:A:H3' | 34:AA:3615:A:C8  | 2.51                     | 0.44              |
| 34:AA:3727:A:C2  | 34:AA:3728:A:C4  | 3.05                     | 0.44              |
| 1:A:43:A:C2      | 1:A:384:A:C5     | 3.05                     | 0.44              |
| 1:A:95:A:C6      | 1:A:404:G:C6     | 3.06                     | 0.44              |
| 1:A:161:U:O4     | 1:A:162:A:C6     | 2.70                     | 0.44              |
| 1:A:970:G:C6     | 1:A:971:G:C5     | 3.06                     | 0.44              |
| 34:AA:3086:A:H2' | 34:AA:3087:A:C8  | 2.53                     | 0.44              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 34:AA:3171:C:H2'  | 34:AA:3172:A:C8   | 2.52                     | 0.44              |
| 34:AA:202:C:H2'   | 34:AA:203:A:C8    | 2.53                     | 0.44              |
| 34:AA:228:A:C5    | 34:AA:1537:G:C6   | 3.06                     | 0.44              |
| 34:AA:1793:A:C6   | 34:AA:1795:A:C4   | 3.06                     | 0.44              |
| 35:AC:29:G:C5     | 35:AC:30:U:C5     | 3.05                     | 0.44              |
| 55:AJ:44:LEU:HD23 | 55:AJ:44:LEU:H    | 1.82                     | 0.44              |
| 68:A5:141:PRO:HA  | 68:A5:242:TRP:CD2 | 2.52                     | 0.44              |
| 1:A:943:U:H2'     | 1:A:944:G:C8      | 2.52                     | 0.43              |
| 34:AA:1184:A:H2'  | 34:AA:1185:A:C8   | 2.53                     | 0.43              |
| 34:AA:2577:C:C5   | 34:AA:2578:C:C2   | 3.06                     | 0.43              |
| 34:AA:1113:C:H2'  | 34:AA:1114:A:C8   | 2.53                     | 0.43              |
| 34:AA:1875:A:H2'  | 34:AA:1876:A:C8   | 2.53                     | 0.43              |
| 34:AA:3035:A:H3'  | 34:AA:3036:A:C8   | 2.54                     | 0.43              |
| 1:A:26:A:C4       | 1:A:27:U:C5       | 3.05                     | 0.43              |
| 1:A:162:A:C6      | 1:A:163:G:C5      | 3.07                     | 0.43              |
| 1:A:1061:A:C2     | 1:A:1081:U:O4     | 2.70                     | 0.43              |
| 2:7:12:G:N2       | 2:7:22:A:C2       | 2.86                     | 0.43              |
| 34:AA:1844:G:C5   | 34:AA:1845:C:C5   | 3.06                     | 0.43              |
| 34:AA:3387:U:H2'  | 34:AA:3388:U:C6   | 2.54                     | 0.43              |
| 1:A:1904:G:H2'    | 1:A:1905:C:C6     | 2.53                     | 0.43              |
| 2:7:54:G:C6       | 2:7:55:U:C2       | 3.07                     | 0.43              |
| 34:AA:1973:G:C6   | 34:AA:1974:U:C4   | 3.05                     | 0.43              |
| 34:AA:1974:U:H2'  | 34:AA:1975:A:C8   | 2.53                     | 0.43              |
| 34:AA:3066:A:C6   | 34:AA:3068:A:C5   | 3.06                     | 0.43              |
| 1:A:1040:A:H61    | 34:AA:965:A:N6    | 2.15                     | 0.43              |
| 1:A:2033:U:H2'    | 1:A:2034:U:C6     | 2.52                     | 0.43              |
| 34:AA:1237:C:H2'  | 34:AA:1238:C:C6   | 2.54                     | 0.43              |
| 69:AD:50:HIS:CG   | 69:AD:51:ASP:N    | 2.86                     | 0.43              |
| 1:A:1061:A:C2     | 1:A:1082:A:C5     | 3.06                     | 0.43              |
| 34:AA:141:A:C2    | 34:AA:142:C:C4    | 3.06                     | 0.43              |
| 34:AA:205:G:C6    | 34:AA:405:A:C5    | 3.07                     | 0.43              |
| 34:AA:723:A:C8    | 34:AA:727:A:C6    | 3.07                     | 0.43              |
| 36:AB:13:A:C5     | 36:AB:110:G:C6    | 3.06                     | 0.43              |
| 36:AB:77:A:C2     | 36:AB:100:A:C4    | 3.07                     | 0.43              |
| 34:AA:2079:A:H2'  | 34:AA:2080:C:C6   | 2.54                     | 0.43              |
| 34:AA:2516:A:H2'  | 34:AA:2517:A:C8   | 2.54                     | 0.43              |
| 34:AA:3268:A:H3'  | 34:AA:3269:A:H5'' | 2.00                     | 0.43              |
| 36:AB:66:G:C6     | 36:AB:67:C:C4     | 3.06                     | 0.43              |
| 1:A:403:A:H2'     | 1:A:404:G:C8      | 2.53                     | 0.43              |
| 1:A:1968:A:C4     | 1:A:1969:A:C8     | 3.07                     | 0.43              |
| 34:AA:30:G:C6     | 34:AA:55:G:C6     | 3.07                     | 0.43              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 34:AA:344:A:C2   | 34:AA:345:G:C5    | 3.07                     | 0.43              |
| 34:AA:2700:C:H5' | 34:AA:2958:G:H21  | 1.83                     | 0.43              |
| 34:AA:3055:U:H2' | 34:AA:3056:U:C6   | 2.53                     | 0.43              |
| 34:AA:888:A:C8   | 34:AA:890:G:H1'   | 2.53                     | 0.43              |
| 34:AA:999:G:C4   | 34:AA:1001:A:C6   | 3.07                     | 0.43              |
| 34:AA:1696:A:H2' | 34:AA:1697:A:C8   | 2.54                     | 0.43              |
| 34:AA:1699:G:C5  | 34:AA:1700:U:C5   | 3.07                     | 0.43              |
| 35:AC:44:A:H2'   | 35:AC:45:A:C8     | 2.54                     | 0.43              |
| 1:A:107:A:C4     | 1:A:108:A:C8      | 3.07                     | 0.43              |
| 34:AA:423:U:H2'  | 34:AA:424:U:C6    | 2.54                     | 0.43              |
| 34:AA:583:U:H5'' | 34:AA:583:U:H6    | 1.84                     | 0.43              |
| 34:AA:983:G:C6   | 34:AA:1012:U:C5   | 3.07                     | 0.43              |
| 1:A:1386:U:C4    | 1:A:1667:A:C5     | 3.07                     | 0.42              |
| 34:AA:48:A:C4    | 34:AA:50:U:C4     | 3.07                     | 0.42              |
| 34:AA:977:A:C6   | 34:AA:978:G:C6    | 3.06                     | 0.42              |
| 34:AA:1212:U:H2' | 34:AA:1213:U:C6   | 2.54                     | 0.42              |
| 34:AA:3165:U:H2' | 34:AA:3166:U:C6   | 2.53                     | 0.42              |
| 34:AA:3443:A:H2' | 34:AA:3444:G:H5'  | 2.01                     | 0.42              |
| 34:AA:714:C:C2   | 34:AA:724:A:H1'   | 2.53                     | 0.42              |
| 34:AA:1331:A:H2' | 34:AA:1332:A:C8   | 2.54                     | 0.42              |
| 34:AA:2021:A:C2  | 34:AA:2022:A:C4   | 3.07                     | 0.42              |
| 34:AA:2400:A:C5  | 34:AA:2401:C:C5   | 3.08                     | 0.42              |
| 1:A:887:A:C2     | 1:A:916:G:C2      | 3.06                     | 0.42              |
| 1:A:1304:A:C6    | 1:A:1852:A:C6     | 3.07                     | 0.42              |
| 34:AA:332:A:H2'  | 34:AA:333:A:C8    | 2.54                     | 0.42              |
| 34:AA:1431:A:C4  | 34:AA:1432:A:C2   | 3.08                     | 0.42              |
| 34:AA:3262:A:C2  | 34:AA:3263:G:H1'  | 2.55                     | 0.42              |
| 43:AN:76:LEU:H   | 43:AN:76:LEU:HD12 | 1.85                     | 0.42              |
| 70:AE:11:HIS:CD2 | 70:AE:232:VAL:HA  | 2.54                     | 0.42              |
| 74:AH:40:HIS:CE1 | 74:AH:41:LEU:HB2  | 2.54                     | 0.42              |
| 1:A:632:C:H2'    | 1:A:633:U:C6      | 2.54                     | 0.42              |
| 1:A:1271:G:C2    | 1:A:1272:A:C8     | 3.07                     | 0.42              |
| 1:A:1401:G:H2'   | 1:A:1402:A:C8     | 2.54                     | 0.42              |
| 34:AA:302:A:H2'  | 34:AA:303:A:C8    | 2.54                     | 0.42              |
| 34:AA:1103:A:C6  | 34:AA:1231:A:C2   | 3.07                     | 0.42              |
| 34:AA:1120:A:C2  | 34:AA:1121:G:C4   | 3.07                     | 0.42              |
| 34:AA:1598:A:C2  | 34:AA:2649:A:C4   | 3.07                     | 0.42              |
| 34:AA:2932:A:H4' | 34:AA:2933:C:O5'  | 2.19                     | 0.42              |
| 34:AA:3578:A:C2  | 34:AA:3579:A:C4   | 3.08                     | 0.42              |
| 1:A:318:A:C4     | 1:A:320:C:C5      | 3.08                     | 0.42              |
| 34:AA:382:A:C2   | 34:AA:384:A:C4    | 3.08                     | 0.42              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 34:AA:1683:A:C2  | 34:AA:1684:A:C4  | 3.08                     | 0.42              |
| 34:AA:2573:A:C6  | 34:AA:2575:U:C4  | 3.08                     | 0.42              |
| 34:AA:2801:C:H2' | 34:AA:2802:U:C6  | 2.55                     | 0.42              |
| 34:AA:3717:A:H2' | 34:AA:3718:G:C8  | 2.54                     | 0.42              |
| 2:7:6:A:N6       | 2:7:65:A:H61     | 2.17                     | 0.42              |
| 34:AA:229:A:C5   | 34:AA:232:C:C4   | 3.07                     | 0.42              |
| 34:AA:695:A:C5   | 34:AA:696:C:C4   | 3.08                     | 0.42              |
| 34:AA:2021:A:H2' | 34:AA:2022:A:C8  | 2.55                     | 0.42              |
| 34:AA:3333:U:H2' | 34:AA:3334:U:C6  | 2.54                     | 0.42              |
| 34:AA:3776:U:H2' | 34:AA:3777:G:C8  | 2.54                     | 0.42              |
| 1:A:643:A:C2     | 1:A:929:U:C2     | 3.08                     | 0.42              |
| 1:A:1379:G:C5    | 1:A:1380:C:C4    | 3.08                     | 0.42              |
| 34:AA:26:A:H2'   | 34:AA:27:U:C6    | 2.55                     | 0.42              |
| 34:AA:685:U:HO2' | 34:AA:686:U:H6   | 1.63                     | 0.42              |
| 34:AA:706:U:H2'  | 34:AA:707:U:C6   | 2.55                     | 0.42              |
| 34:AA:718:U:H2'  | 34:AA:719:C:C6   | 2.54                     | 0.42              |
| 34:AA:742:U:H2'  | 34:AA:743:A:C8   | 2.55                     | 0.42              |
| 34:AA:2004:U:O4  | 34:AA:2005:A:C6  | 2.72                     | 0.42              |
| 34:AA:2571:C:C5  | 34:AA:2598:G:C6  | 3.08                     | 0.42              |
| 1:A:116:A:C6     | 1:A:249:A:C6     | 3.08                     | 0.42              |
| 1:A:970:G:C6     | 1:A:971:G:C6     | 3.08                     | 0.42              |
| 1:A:1046:A:C2    | 1:A:1047:A:H1'   | 2.55                     | 0.42              |
| 4:E:90:GLU:CD    | 4:E:90:GLU:H     | 2.23                     | 0.42              |
| 34:AA:302:A:C2   | 34:AA:303:A:C4   | 3.08                     | 0.42              |
| 34:AA:607:A:H2'  | 34:AA:608:A:C8   | 2.55                     | 0.42              |
| 34:AA:1423:G:H5' | 73:AU:93:ARG:NH2 | 2.34                     | 0.42              |
| 34:AA:1781:A:C6  | 34:AA:1782:U:C5  | 3.08                     | 0.42              |
| 34:AA:3635:G:H1  | 34:AA:3650:U:H3  | 1.68                     | 0.42              |
| 1:A:379:G:C6     | 1:A:380:U:C4     | 3.07                     | 0.42              |
| 1:A:806:A:C6     | 1:A:807:A:C5     | 3.08                     | 0.42              |
| 1:A:1189:A:C5    | 1:A:1190:U:H1'   | 2.54                     | 0.42              |
| 34:AA:84:U:C4    | 34:AA:85:A:C5    | 3.08                     | 0.42              |
| 34:AA:658:U:C4   | 34:AA:659:U:C4   | 3.08                     | 0.42              |
| 34:AA:949:A:C2   | 34:AA:984:A:C5   | 3.07                     | 0.42              |
| 1:A:1846:U:C5    | 32:X:39:ALA:HB3  | 2.54                     | 0.42              |
| 1:A:2058:A:C4    | 1:A:2086:A:C2    | 3.08                     | 0.42              |
| 34:AA:69:U:H2'   | 34:AA:70:A:O4'   | 2.20                     | 0.42              |
| 34:AA:207:A:C2   | 34:AA:209:G:C5   | 3.07                     | 0.42              |
| 34:AA:280:U:H2'  | 34:AA:281:G:C8   | 2.54                     | 0.42              |
| 34:AA:659:U:H2'  | 34:AA:660:U:C6   | 2.54                     | 0.42              |
| 34:AA:995:A:C5   | 34:AA:996:C:C5   | 3.08                     | 0.42              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 34:AA:1053:U:O2  | 34:AA:1053:U:H2' | 2.20                     | 0.42              |
| 34:AA:1219:A:C6  | 34:AA:1220:U:C4  | 3.08                     | 0.42              |
| 34:AA:1301:U:H2' | 34:AA:1308:A:C8  | 2.55                     | 0.42              |
| 34:AA:3200:G:C5  | 34:AA:3203:C:C4  | 3.07                     | 0.42              |
| 1:A:34:G:H3'     | 1:A:35:U:H5''    | 2.01                     | 0.41              |
| 1:A:1703:U:H1'   | 28:S:137:HIS:CE1 | 2.55                     | 0.41              |
| 1:A:2072:G:C6    | 1:A:2073:A:C6    | 3.07                     | 0.41              |
| 1:A:2082:A:H2'   | 1:A:2083:A:C8    | 2.55                     | 0.41              |
| 17:4:44:LEU:HD12 | 17:4:45:PHE:H    | 1.85                     | 0.41              |
| 34:AA:219:A:C5   | 34:AA:237:A:C2   | 3.08                     | 0.41              |
| 34:AA:733:C:H2'  | 34:AA:734:A:C8   | 2.55                     | 0.41              |
| 34:AA:1813:A:C4  | 34:AA:2018:G:C5  | 3.08                     | 0.41              |
| 34:AA:2613:A:C6  | 34:AA:2614:A:C4  | 3.08                     | 0.41              |
| 34:AA:2621:U:H2' | 34:AA:2622:C:C6  | 2.55                     | 0.41              |
| 1:A:638:G:C5     | 1:A:639:U:C5     | 3.08                     | 0.41              |
| 1:A:2034:U:C4    | 1:A:2035:U:C4    | 3.08                     | 0.41              |
| 34:AA:374:A:C5   | 34:AA:375:A:C5   | 3.08                     | 0.41              |
| 34:AA:418:A:C2   | 34:AA:419:A:C4   | 3.08                     | 0.41              |
| 34:AA:703:U:H2'  | 34:AA:704:U:C6   | 2.54                     | 0.41              |
| 34:AA:1203:A:C5  | 34:AA:1204:A:C5  | 3.07                     | 0.41              |
| 34:AA:1285:U:C4  | 34:AA:1286:A:C5  | 3.08                     | 0.41              |
| 34:AA:2712:A:H2' | 34:AA:2713:C:C6  | 2.55                     | 0.41              |
| 34:AA:3638:A:H61 | 34:AA:3647:C:H42 | 1.66                     | 0.41              |
| 1:A:1193:A:C5    | 1:A:1195:G:C8    | 3.08                     | 0.41              |
| 2:7:70:A:C2      | 2:7:71:C:C6      | 3.08                     | 0.41              |
| 34:AA:934:G:C5   | 34:AA:1025:A:C6  | 3.09                     | 0.41              |
| 34:AA:1170:A:N7  | 34:AA:1171:A:C5  | 2.88                     | 0.41              |
| 34:AA:1683:A:C2  | 34:AA:1684:A:C5  | 3.08                     | 0.41              |
| 34:AA:2601:C:C4  | 34:AA:2602:A:C5  | 3.08                     | 0.41              |
| 34:AA:3248:C:C5  | 34:AA:3295:A:C4  | 3.07                     | 0.41              |
| 1:A:1054:G:C6    | 1:A:1055:G:C4    | 3.07                     | 0.41              |
| 1:A:1083:A:C5    | 1:A:1084:U:C5    | 3.09                     | 0.41              |
| 34:AA:60:A:C8    | 34:AA:335:A:C6   | 3.08                     | 0.41              |
| 34:AA:795:G:C5   | 34:AA:796:C:C4   | 3.08                     | 0.41              |
| 34:AA:1302:G:C6  | 34:AA:1303:C:C4  | 3.08                     | 0.41              |
| 34:AA:1540:G:C8  | 34:AA:1565:G:C2  | 3.09                     | 0.41              |
| 34:AA:2593:G:C5  | 34:AA:2594:U:C5  | 3.08                     | 0.41              |
| 34:AA:3316:G:C5  | 34:AA:3317:A:C8  | 3.08                     | 0.41              |
| 1:A:1188:A:C2    | 1:A:1189:A:C4    | 3.09                     | 0.41              |
| 34:AA:700:A:C5   | 34:AA:701:C:C5   | 3.08                     | 0.41              |
| 34:AA:702:U:O4   | 34:AA:703:U:C2   | 2.74                     | 0.41              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 34:AA:2014:C:C2   | 34:AA:2017:U:C5    | 3.08                     | 0.41              |
| 34:AA:2083:U:H2'  | 34:AA:2084:U:C6    | 2.56                     | 0.41              |
| 34:AA:2491:A:C8   | 34:AA:2563:A:H1'   | 2.56                     | 0.41              |
| 35:AC:44:A:C2     | 35:AC:45:A:C4      | 3.08                     | 0.41              |
| 38:A1:13:ILE:HG22 | 38:A1:15:ASN:H     | 1.85                     | 0.41              |
| 1:A:10:G:C2       | 1:A:11:A:C4        | 3.08                     | 0.41              |
| 1:A:608:A:C5      | 1:A:609:U:C5       | 3.09                     | 0.41              |
| 34:AA:63:A:C6     | 34:AA:64:G:C6      | 3.08                     | 0.41              |
| 34:AA:110:G:C2    | 34:AA:111:C:H1'    | 2.56                     | 0.41              |
| 34:AA:113:C:C2    | 34:AA:114:A:C8     | 3.08                     | 0.41              |
| 34:AA:221:A:C6    | 34:AA:222:G:C4     | 3.09                     | 0.41              |
| 34:AA:350:A:C6    | 34:AA:376:G:C4     | 3.09                     | 0.41              |
| 34:AA:643:G:N7    | 34:AA:644:G:C6     | 2.89                     | 0.41              |
| 34:AA:2131:A:N7   | 34:AA:2132:A:C5    | 2.89                     | 0.41              |
| 34:AA:3399:U:H2'  | 34:AA:3400:C:C6    | 2.56                     | 0.41              |
| 34:AA:3471:A:C4   | 34:AA:3472:A:C8    | 3.09                     | 0.41              |
| 36:AB:82:G:H2'    | 36:AB:83:G:C8      | 2.55                     | 0.41              |
| 1:A:97:G:C6       | 1:A:98:G:C4        | 3.08                     | 0.41              |
| 1:A:857:A:H2'     | 1:A:858:U:C6       | 2.56                     | 0.41              |
| 1:A:1082:A:C4     | 1:A:1083:A:C8      | 3.09                     | 0.41              |
| 1:A:1101:G:C6     | 1:A:1102:C:C4      | 3.08                     | 0.41              |
| 1:A:1225:A:C6     | 1:A:1226:A:C6      | 3.08                     | 0.41              |
| 1:A:1376:A:C2     | 1:A:1684:G:H1'     | 2.54                     | 0.41              |
| 34:AA:141:A:C2    | 34:AA:142:C:N3     | 2.89                     | 0.41              |
| 34:AA:1015:A:C2   | 34:AA:1032:A:C2    | 3.09                     | 0.41              |
| 34:AA:1060:G:C5   | 34:AA:1061:U:C5    | 3.09                     | 0.41              |
| 34:AA:3001:A:H2'  | 34:AA:3002:G:C8    | 2.56                     | 0.41              |
| 34:AA:3763:G:C6   | 34:AA:3764:G:C5    | 3.09                     | 0.41              |
| 34:AA:1730:A:C5   | 34:AA:1733:G:C5    | 3.09                     | 0.41              |
| 34:AA:2492:G:C6   | 34:AA:2493:U:C4    | 3.08                     | 0.41              |
| 34:AA:2695:A:C2   | 34:AA:3230:G:C5    | 3.09                     | 0.41              |
| 34:AA:3198:G:C6   | 34:AA:3199:C:C5    | 3.09                     | 0.41              |
| 71:AF:211:TYR:O   | 71:AF:232:VAL:HG23 | 2.20                     | 0.41              |
| 1:A:1305:A:N6     | 1:A:1894:A:H62     | 2.18                     | 0.41              |
| 1:A:1832:U:H1'    | 1:A:1833:G:C2      | 2.56                     | 0.41              |
| 1:A:1837:G:C6     | 1:A:1838:G:C4      | 3.09                     | 0.41              |
| 1:A:1957:A:H2'    | 1:A:1958:A:C8      | 2.56                     | 0.41              |
| 2:7:25:G:C6       | 2:7:26:C:C4        | 3.09                     | 0.41              |
| 34:AA:26:A:C5     | 34:AA:338:U:C2     | 3.09                     | 0.41              |
| 34:AA:331:A:C6    | 34:AA:332:A:C6     | 3.09                     | 0.41              |
| 34:AA:997:G:H1'   | 34:AA:999:G:H21    | 1.86                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 34:AA:1067:U:H2'  | 34:AA:1068:C:C6   | 2.56                     | 0.41              |
| 34:AA:1070:A:C4   | 34:AA:1518:A:C2   | 3.09                     | 0.41              |
| 34:AA:1435:G:C5   | 34:AA:1436:A:C6   | 3.09                     | 0.41              |
| 34:AA:1740:A:H2'  | 34:AA:1741:G:C8   | 2.56                     | 0.41              |
| 34:AA:1781:A:C5   | 34:AA:1782:U:C5   | 3.09                     | 0.41              |
| 34:AA:2460:A:H2'  | 34:AA:2461:A:C8   | 2.56                     | 0.41              |
| 34:AA:2516:A:C2   | 34:AA:2517:A:C4   | 3.09                     | 0.41              |
| 34:AA:3443:A:C5   | 34:AA:3471:A:C5   | 3.09                     | 0.41              |
| 35:AC:148:C:H2'   | 35:AC:149:C:C6    | 2.56                     | 0.41              |
| 59:AS:156:GLY:HA3 | 60:AO:50:PRO:HG3  | 2.03                     | 0.41              |
| 68:A5:232:HIS:CE1 | 68:A5:238:ARG:NH2 | 2.88                     | 0.41              |
| 1:A:2072:G:C5     | 1:A:2073:A:C6     | 3.09                     | 0.41              |
| 34:AA:163:G:C5    | 34:AA:269:A:C2    | 3.09                     | 0.41              |
| 34:AA:200:A:C6    | 34:AA:201:G:C5    | 3.09                     | 0.41              |
| 34:AA:345:G:C6    | 34:AA:347:C:C4    | 3.08                     | 0.41              |
| 34:AA:352:A:C6    | 34:AA:353:G:C5    | 3.09                     | 0.41              |
| 34:AA:1736:A:N7   | 34:AA:1737:A:C5   | 2.88                     | 0.41              |
| 34:AA:2004:U:O4   | 34:AA:2005:A:C5   | 2.73                     | 0.41              |
| 34:AA:2613:A:C6   | 34:AA:2614:A:C5   | 3.09                     | 0.41              |
| 34:AA:2710:U:C4   | 34:AA:2945:G:C6   | 3.09                     | 0.41              |
| 34:AA:3153:G:C5   | 34:AA:3154:U:C4   | 3.09                     | 0.41              |
| 35:AC:8:G:C6      | 35:AC:9:U:C4      | 3.09                     | 0.41              |
| 36:AB:88:A:C6     | 36:AB:89:G:C4     | 3.08                     | 0.41              |
| 34:AA:307:G:C6    | 34:AA:308:U:C4    | 3.09                     | 0.40              |
| 34:AA:380:A:C6    | 34:AA:381:A:C5    | 3.10                     | 0.40              |
| 34:AA:1535:G:C6   | 34:AA:1569:A:C6   | 3.09                     | 0.40              |
| 34:AA:2401:C:H1'  | 34:AA:3736:A:H8   | 1.86                     | 0.40              |
| 34:AA:2563:A:C6   | 34:AA:2564:A:C6   | 3.09                     | 0.40              |
| 35:AC:143:G:C5    | 35:AC:144:U:C5    | 3.09                     | 0.40              |
| 1:A:1009:A:C6     | 1:A:1010:A:C5     | 3.10                     | 0.40              |
| 1:A:1444:C:C5     | 1:A:1445:U:C5     | 3.10                     | 0.40              |
| 2:7:36:A:H2'      | 2:7:37:U:H5'      | 2.02                     | 0.40              |
| 31:V:10:GLU:H     | 31:V:10:GLU:CD    | 2.23                     | 0.40              |
| 34:AA:3444:G:C5   | 34:AA:3445:C:C5   | 3.09                     | 0.40              |
| 1:A:161:U:O4      | 1:A:162:A:C5      | 2.75                     | 0.40              |
| 1:A:593:G:C6      | 1:A:594:C:C4      | 3.10                     | 0.40              |
| 1:A:865:G:H21     | 7:K:107:PRO:HG3   | 1.86                     | 0.40              |
| 1:A:1043:A:C5     | 1:A:1044:C:C5     | 3.09                     | 0.40              |
| 1:A:1729:A:C2     | 1:A:1730:A:C4     | 3.09                     | 0.40              |
| 34:AA:261:A:H2'   | 34:AA:262:A:C8    | 2.57                     | 0.40              |
| 34:AA:363:A:C2    | 34:AA:373:A:C4    | 3.09                     | 0.40              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 34:AA:3316:G:C5  | 34:AA:3335:A:C2  | 3.09                     | 0.40              |
| 34:AA:3701:A:C5  | 34:AA:3702:C:C5  | 3.10                     | 0.40              |
| 1:A:1008:A:H2'   | 1:A:1009:A:C8    | 2.55                     | 0.40              |
| 1:A:1239:A:C6    | 1:A:1240:A:C5    | 3.10                     | 0.40              |
| 1:A:2073:A:C2    | 1:A:2074:A:C4    | 3.09                     | 0.40              |
| 34:AA:3697:G:C4  | 34:AA:3699:A:C5  | 3.10                     | 0.40              |
| 34:AA:3778:G:C5  | 34:AA:3779:U:C4  | 3.10                     | 0.40              |
| 60:AO:13:GLY:O   | 60:AO:14:HIS:CD2 | 2.74                     | 0.40              |
| 1:A:98:G:C6      | 1:A:99:C:C4      | 3.09                     | 0.40              |
| 1:A:1045:G:C6    | 1:A:1092:A:C4    | 3.09                     | 0.40              |
| 1:A:2068:A:H2'   | 1:A:2069:G:C8    | 2.57                     | 0.40              |
| 5:G:75:ILE:H     | 5:G:75:ILE:HD12  | 1.86                     | 0.40              |
| 34:AA:519:A:C2   | 34:AA:520:U:H1'  | 2.56                     | 0.40              |
| 34:AA:906:G:H2'  | 34:AA:907:C:C6   | 2.57                     | 0.40              |
| 34:AA:2981:A:H2' | 34:AA:2982:A:C8  | 2.56                     | 0.40              |
| 34:AA:3455:A:C5  | 34:AA:3456:C:C5  | 3.09                     | 0.40              |
| 34:AA:3479:U:H2' | 34:AA:3480:C:C6  | 2.57                     | 0.40              |
| 34:AA:3641:U:H3  | 34:AA:3644:G:H1  | 1.70                     | 0.40              |
| 34:AA:3762:A:C2  | 34:AA:3763:G:C4  | 3.10                     | 0.40              |
| 36:AB:13:A:C8    | 36:AB:110:G:C5   | 3.10                     | 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 PDB entries followed by that with respect to all EM entries.

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 |     |
|-----|-------|---------------|-----------|---------|----------|-------------|-----|
| 3   | D     | 149/209 (71%) | 142 (95%) | 7 (5%)  | 0        | 100         | 100 |
| 4   | E     | 183/185 (99%) | 171 (93%) | 11 (6%) | 1 (0%)   | 29          | 69  |
| 5   | G     | 222/224 (99%) | 204 (92%) | 16 (7%) | 2 (1%)   | 17          | 57  |
| 6   | I     | 176/189 (93%) | 165 (94%) | 9 (5%)  | 2 (1%)   | 14          | 52  |

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| Mol | Chain | Analysed      | Favoured  | Allowed  | Outliers | Percentiles |     |
|-----|-------|---------------|-----------|----------|----------|-------------|-----|
| 7   | K     | 127/129 (98%) | 113 (89%) | 9 (7%)   | 5 (4%)   | 3           | 23  |
| 8   | M     | 136/138 (99%) | 125 (92%) | 9 (7%)   | 2 (2%)   | 10          | 46  |
| 9   | W     | 91/108 (84%)  | 82 (90%)  | 6 (7%)   | 3 (3%)   | 4           | 26  |
| 10  | R     | 92/114 (81%)  | 80 (87%)  | 7 (8%)   | 5 (5%)   | 2           | 19  |
| 11  | O     | 77/79 (98%)   | 69 (90%)  | 5 (6%)   | 3 (4%)   | 3           | 23  |
| 12  | Y     | 152/154 (99%) | 145 (95%) | 4 (3%)   | 3 (2%)   | 7           | 38  |
| 13  | Z     | 70/72 (97%)   | 64 (91%)  | 5 (7%)   | 1 (1%)   | 11          | 46  |
| 14  | 1     | 118/120 (98%) | 112 (95%) | 5 (4%)   | 1 (1%)   | 19          | 60  |
| 15  | 2     | 35/68 (52%)   | 33 (94%)  | 2 (6%)   | 0        | 100         | 100 |
| 16  | 3     | 93/95 (98%)   | 82 (88%)  | 10 (11%) | 1 (1%)   | 14          | 52  |
| 17  | 4     | 74/76 (97%)   | 62 (84%)  | 8 (11%)  | 4 (5%)   | 2           | 19  |
| 18  | 5     | 54/65 (83%)   | 53 (98%)  | 1 (2%)   | 0        | 100         | 100 |
| 19  | 6     | 41/43 (95%)   | 33 (80%)  | 7 (17%)  | 1 (2%)   | 6           | 33  |
| 20  | B     | 208/210 (99%) | 189 (91%) | 11 (5%)  | 8 (4%)   | 3           | 24  |
| 21  | F     | 255/257 (99%) | 232 (91%) | 18 (7%)  | 5 (2%)   | 7           | 38  |
| 22  | H     | 200/214 (94%) | 187 (94%) | 10 (5%)  | 3 (2%)   | 10          | 46  |
| 23  | J     | 186/188 (99%) | 169 (91%) | 9 (5%)   | 8 (4%)   | 2           | 22  |
| 24  | L     | 165/214 (77%) | 146 (88%) | 14 (8%)  | 5 (3%)   | 4           | 28  |
| 25  | N     | 96/98 (98%)   | 90 (94%)  | 4 (4%)   | 2 (2%)   | 7           | 36  |
| 26  | P     | 125/127 (98%) | 109 (87%) | 13 (10%) | 3 (2%)   | 6           | 33  |
| 27  | Q     | 142/144 (99%) | 127 (89%) | 13 (9%)  | 2 (1%)   | 11          | 46  |
| 28  | S     | 126/128 (98%) | 107 (85%) | 12 (10%) | 7 (6%)   | 2           | 18  |
| 29  | T     | 46/48 (96%)   | 45 (98%)  | 1 (2%)   | 0        | 100         | 100 |
| 30  | U     | 147/149 (99%) | 141 (96%) | 4 (3%)   | 2 (1%)   | 11          | 46  |
| 31  | V     | 142/156 (91%) | 128 (90%) | 11 (8%)  | 3 (2%)   | 7           | 36  |
| 32  | X     | 92/103 (89%)  | 78 (85%)  | 11 (12%) | 3 (3%)   | 4           | 26  |
| 33  | C     | 193/195 (99%) | 171 (89%) | 17 (9%)  | 5 (3%)   | 5           | 31  |
| 37  | AL    | 209/211 (99%) | 191 (91%) | 14 (7%)  | 4 (2%)   | 8           | 38  |
| 38  | A1    | 136/145 (94%) | 125 (92%) | 8 (6%)   | 3 (2%)   | 6           | 35  |
| 39  | A2    | 96/118 (81%)  | 90 (94%)  | 4 (4%)   | 2 (2%)   | 7           | 36  |
| 40  | A4    | 64/66 (97%)   | 60 (94%)  | 1 (2%)   | 3 (5%)   | 2           | 21  |

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| Mol | Chain | Analysed       | Favoured  | Allowed  | Outliers | Percentiles |     |
|-----|-------|----------------|-----------|----------|----------|-------------|-----|
| 41  | A6    | 96/98 (98%)    | 93 (97%)  | 3 (3%)   | 0        | 100         | 100 |
| 42  | A7    | 92/102 (90%)   | 87 (95%)  | 5 (5%)   | 0        | 100         | 100 |
| 43  | AN    | 144/146 (99%)  | 137 (95%) | 5 (4%)   | 2 (1%)   | 11          | 46  |
| 44  | A8    | 123/125 (98%)  | 102 (83%) | 21 (17%) | 0        | 100         | 100 |
| 45  | A9    | 101/103 (98%)  | 92 (91%)  | 7 (7%)   | 2 (2%)   | 7           | 38  |
| 46  | Aa    | 104/106 (98%)  | 96 (92%)  | 6 (6%)   | 2 (2%)   | 8           | 38  |
| 47  | Ab    | 91/105 (87%)   | 85 (93%)  | 5 (6%)   | 1 (1%)   | 14          | 52  |
| 48  | Ad    | 68/76 (90%)    | 65 (96%)  | 3 (4%)   | 0        | 100         | 100 |
| 49  | Ae    | 39/50 (78%)    | 36 (92%)  | 3 (8%)   | 0        | 100         | 100 |
| 50  | Af    | 49/51 (96%)    | 43 (88%)  | 6 (12%)  | 0        | 100         | 100 |
| 51  | AP    | 202/204 (99%)  | 187 (93%) | 7 (4%)   | 8 (4%)   | 3           | 23  |
| 52  | Ah    | 83/85 (98%)    | 78 (94%)  | 4 (5%)   | 1 (1%)   | 13          | 50  |
| 53  | Ai    | 93/95 (98%)    | 87 (94%)  | 4 (4%)   | 2 (2%)   | 6           | 35  |
| 54  | AI    | 203/213 (95%)  | 183 (90%) | 17 (8%)  | 3 (2%)   | 10          | 46  |
| 55  | AJ    | 216/244 (88%)  | 202 (94%) | 12 (6%)  | 2 (1%)   | 17          | 57  |
| 56  | Ac    | 87/89 (98%)    | 76 (87%)  | 7 (8%)   | 4 (5%)   | 2           | 21  |
| 57  | AK    | 199/201 (99%)  | 192 (96%) | 5 (2%)   | 2 (1%)   | 15          | 54  |
| 58  | AM    | 130/132 (98%)  | 123 (95%) | 7 (5%)   | 0        | 100         | 100 |
| 59  | AS    | 184/186 (99%)  | 168 (91%) | 14 (8%)  | 2 (1%)   | 14          | 52  |
| 60  | AO    | 145/147 (99%)  | 132 (91%) | 12 (8%)  | 1 (1%)   | 22          | 63  |
| 61  | AQ    | 185/205 (90%)  | 161 (87%) | 19 (10%) | 5 (3%)   | 5           | 31  |
| 62  | AR    | 244/289 (84%)  | 224 (92%) | 13 (5%)  | 7 (3%)   | 4           | 29  |
| 63  | AW    | 149/170 (88%)  | 133 (89%) | 10 (7%)  | 6 (4%)   | 3           | 23  |
| 64  | AY    | 99/101 (98%)   | 95 (96%)  | 3 (3%)   | 1 (1%)   | 15          | 54  |
| 65  | AT    | 179/181 (99%)  | 171 (96%) | 5 (3%)   | 3 (2%)   | 9           | 42  |
| 66  | AZ    | 119/121 (98%)  | 110 (92%) | 7 (6%)   | 2 (2%)   | 9           | 42  |
| 67  | A3    | 117/119 (98%)  | 107 (92%) | 9 (8%)   | 1 (1%)   | 17          | 57  |
| 68  | A5    | 221/223 (99%)  | 195 (88%) | 21 (10%) | 5 (2%)   | 6           | 34  |
| 69  | AD    | 245/247 (99%)  | 223 (91%) | 20 (8%)  | 2 (1%)   | 19          | 60  |
| 70  | AE    | 378/380 (100%) | 353 (93%) | 21 (6%)  | 4 (1%)   | 14          | 52  |
| 71  | AF    | 388/390 (100%) | 356 (92%) | 26 (7%)  | 6 (2%)   | 10          | 46  |

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| Mol | Chain | Analysed          | Favoured   | Allowed  | Outliers | Percentiles |     |
|-----|-------|-------------------|------------|----------|----------|-------------|-----|
| 72  | AG    | 116/159 (73%)     | 104 (90%)  | 11 (10%) | 1 (1%)   | 17          | 57  |
| 73  | AU    | 178/180 (99%)     | 169 (95%)  | 6 (3%)   | 3 (2%)   | 9           | 42  |
| 74  | AH    | 183/185 (99%)     | 166 (91%)  | 14 (8%)  | 3 (2%)   | 9           | 44  |
| 75  | AV    | 153/155 (99%)     | 141 (92%)  | 9 (6%)   | 3 (2%)   | 7           | 38  |
| 76  | Ag    | 35/37 (95%)       | 30 (86%)   | 3 (9%)   | 2 (6%)   | 1           | 18  |
| 77  | AX    | 95/97 (98%)       | 88 (93%)   | 5 (5%)   | 2 (2%)   | 7           | 36  |
| 78  | A0    | 60/62 (97%)       | 59 (98%)   | 1 (2%)   | 0        | 100         | 100 |
| All | All   | 10111/10698 (94%) | 9269 (92%) | 652 (6%) | 190 (2%) | 11          | 38  |

All (190) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 6   | I     | 42  | HIS  |
| 6   | I     | 70  | HIS  |
| 8   | M     | 41  | GLU  |
| 9   | W     | 4   | VAL  |
| 10  | R     | 42  | ILE  |
| 17  | 4     | 10  | PRO  |
| 17  | 4     | 20  | LYS  |
| 20  | B     | 93  | ASN  |
| 20  | B     | 146 | ARG  |
| 22  | H     | 25  | LEU  |
| 23  | J     | 13  | PRO  |
| 23  | J     | 112 | ILE  |
| 23  | J     | 156 | ASP  |
| 26  | P     | 100 | SER  |
| 27  | Q     | 137 | LYS  |
| 32  | X     | 52  | LYS  |
| 37  | AL    | 169 | PRO  |
| 45  | A9    | 66  | LYS  |
| 51  | AP    | 51  | LEU  |
| 51  | AP    | 149 | ILE  |
| 55  | AJ    | 57  | VAL  |
| 55  | AJ    | 65  | LEU  |
| 56  | Ac    | 42  | TYR  |
| 61  | AQ    | 57  | TYR  |
| 65  | AT    | 129 | ASN  |
| 68  | A5    | 116 | ARG  |
| 70  | AE    | 196 | LEU  |
| 73  | AU    | 183 | ARG  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 76  | Ag    | 7   | ARG  |
| 4   | E     | 167 | ALA  |
| 5   | G     | 41  | TRP  |
| 7   | K     | 57  | ARG  |
| 7   | K     | 120 | HIS  |
| 7   | K     | 121 | THR  |
| 8   | M     | 99  | ASP  |
| 10  | R     | 41  | GLY  |
| 17  | 4     | 18  | LYS  |
| 19  | 6     | 28  | LYS  |
| 20  | B     | 50  | LYS  |
| 22  | H     | 178 | LEU  |
| 23  | J     | 157 | SER  |
| 23  | J     | 165 | ILE  |
| 24  | L     | 119 | THR  |
| 24  | L     | 168 | ILE  |
| 28  | S     | 17  | ILE  |
| 28  | S     | 101 | ILE  |
| 30  | U     | 10  | GLY  |
| 31  | V     | 41  | VAL  |
| 32  | X     | 51  | LYS  |
| 33  | C     | 116 | THR  |
| 37  | AL    | 144 | ASP  |
| 39  | A2    | 95  | GLN  |
| 40  | A4    | 38  | ASN  |
| 46  | Aa    | 77  | GLY  |
| 51  | AP    | 72  | LYS  |
| 51  | AP    | 138 | PRO  |
| 51  | AP    | 150 | ASN  |
| 51  | AP    | 188 | SER  |
| 53  | Ai    | 85  | LYS  |
| 54  | AI    | 88  | PRO  |
| 56  | Ac    | 5   | GLY  |
| 62  | AR    | 114 | ASN  |
| 62  | AR    | 152 | ILE  |
| 62  | AR    | 229 | ASN  |
| 63  | AW    | 106 | ASN  |
| 65  | AT    | 15  | LYS  |
| 71  | AF    | 19  | VAL  |
| 71  | AF    | 95  | MET  |
| 71  | AF    | 313 | LEU  |
| 72  | AG    | 26  | SER  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 74  | AH    | 43  | ILE  |
| 74  | AH    | 110 | ARG  |
| 74  | AH    | 166 | CYS  |
| 75  | AV    | 134 | GLU  |
| 7   | K     | 29  | PRO  |
| 9   | W     | 62  | GLN  |
| 11  | O     | 70  | TYR  |
| 13  | Z     | 76  | LYS  |
| 17  | 4     | 47  | HIS  |
| 20  | B     | 49  | THR  |
| 21  | F     | 104 | ASP  |
| 21  | F     | 177 | VAL  |
| 23  | J     | 132 | SER  |
| 26  | P     | 39  | ASP  |
| 28  | S     | 13  | HIS  |
| 28  | S     | 24  | GLY  |
| 28  | S     | 34  | ALA  |
| 28  | S     | 120 | ARG  |
| 30  | U     | 141 | TYR  |
| 32  | X     | 121 | ILE  |
| 33  | C     | 27  | LYS  |
| 37  | AL    | 61  | THR  |
| 38  | A1    | 42  | LEU  |
| 40  | A4    | 8   | THR  |
| 43  | AN    | 87  | CYS  |
| 47  | Ab    | 10  | ALA  |
| 51  | AP    | 108 | LYS  |
| 54  | AI    | 19  | VAL  |
| 56  | Ac    | 48  | ARG  |
| 60  | AO    | 24  | LYS  |
| 61  | AQ    | 24  | ARG  |
| 62  | AR    | 59  | GLN  |
| 62  | AR    | 172 | GLY  |
| 62  | AR    | 233 | ASP  |
| 63  | AW    | 132 | ALA  |
| 65  | AT    | 4   | THR  |
| 67  | A3    | 37  | LEU  |
| 68  | A5    | 83  | CYS  |
| 68  | A5    | 172 | ALA  |
| 71  | AF    | 68  | GLY  |
| 71  | AF    | 346 | SER  |
| 5   | G     | 121 | GLY  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 9   | W     | 69  | ILE  |
| 12  | Y     | 142 | LYS  |
| 14  | 1     | 11  | LYS  |
| 21  | F     | 176 | GLN  |
| 23  | J     | 106 | LYS  |
| 24  | L     | 29  | LEU  |
| 24  | L     | 86  | SER  |
| 25  | N     | 52  | PRO  |
| 26  | P     | 57  | THR  |
| 28  | S     | 40  | LYS  |
| 31  | V     | 56  | TYR  |
| 33  | C     | 29  | LEU  |
| 33  | C     | 30  | GLU  |
| 37  | AL    | 129 | LYS  |
| 38  | A1    | 30  | GLU  |
| 39  | A2    | 17  | ASN  |
| 40  | A4    | 36  | ASP  |
| 46  | Aa    | 52  | GLN  |
| 51  | AP    | 183 | ALA  |
| 53  | Ai    | 95  | ASP  |
| 61  | AQ    | 13  | LYS  |
| 61  | AQ    | 47  | SER  |
| 62  | AR    | 183 | PRO  |
| 63  | AW    | 37  | ARG  |
| 63  | AW    | 61  | ARG  |
| 66  | AZ    | 84  | VAL  |
| 70  | AE    | 12  | GLY  |
| 70  | AE    | 239 | THR  |
| 71  | AF    | 268 | HIS  |
| 73  | AU    | 167 | GLN  |
| 75  | AV    | 13  | ARG  |
| 77  | AX    | 78  | LYS  |
| 7   | K     | 58  | SER  |
| 10  | R     | 36  | ASP  |
| 10  | R     | 37  | GLY  |
| 11  | O     | 35  | GLU  |
| 20  | B     | 98  | THR  |
| 20  | B     | 150 | THR  |
| 21  | F     | 195 | ILE  |
| 22  | H     | 105 | ASP  |
| 23  | J     | 58  | LYS  |
| 25  | N     | 67  | SER  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 27  | Q     | 143 | PRO  |
| 33  | C     | 143 | VAL  |
| 45  | A9    | 47  | LEU  |
| 54  | AI    | 49  | LYS  |
| 57  | AK    | 72  | LEU  |
| 61  | AQ    | 60  | ILE  |
| 63  | AW    | 9   | ARG  |
| 63  | AW    | 20  | VAL  |
| 68  | A5    | 168 | VAL  |
| 69  | AD    | 199 | VAL  |
| 75  | AV    | 56  | ASN  |
| 10  | R     | 127 | ALA  |
| 12  | Y     | 21  | PRO  |
| 12  | Y     | 49  | ASN  |
| 16  | 3     | 46  | ASP  |
| 20  | B     | 209 | ASN  |
| 31  | V     | 9   | HIS  |
| 38  | A1    | 37  | PRO  |
| 56  | Ac    | 40  | CYS  |
| 57  | AK    | 88  | PRO  |
| 59  | AS    | 130 | PRO  |
| 64  | AY    | 89  | ARG  |
| 66  | AZ    | 70  | VAL  |
| 70  | AE    | 107 | ALA  |
| 73  | AU    | 134 | ARG  |
| 76  | Ag    | 9   | LYS  |
| 59  | AS    | 82  | VAL  |
| 69  | AD    | 127 | VAL  |
| 77  | AX    | 68  | ILE  |
| 11  | O     | 41  | PRO  |
| 20  | B     | 190 | PRO  |
| 21  | F     | 189 | VAL  |
| 43  | AN    | 46  | VAL  |
| 24  | L     | 202 | GLY  |
| 52  | Ah    | 52  | VAL  |
| 68  | A5    | 100 | GLY  |

### 5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

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 |     |
|-----|-------|----------------|-----------|----------|-------------|-----|
| 3   | D     | 132/177 (75%)  | 128 (97%) | 4 (3%)   | 41          | 63  |
| 4   | E     | 161/164 (98%)  | 156 (97%) | 5 (3%)   | 40          | 62  |
| 5   | G     | 191/191 (100%) | 185 (97%) | 6 (3%)   | 40          | 62  |
| 6   | I     | 154/160 (96%)  | 151 (98%) | 3 (2%)   | 57          | 75  |
| 7   | K     | 115/115 (100%) | 113 (98%) | 2 (2%)   | 60          | 78  |
| 8   | M     | 116/116 (100%) | 115 (99%) | 1 (1%)   | 78          | 87  |
| 9   | W     | 86/99 (87%)    | 83 (96%)  | 3 (4%)   | 36          | 59  |
| 10  | R     | 83/97 (86%)    | 81 (98%)  | 2 (2%)   | 49          | 69  |
| 11  | O     | 76/76 (100%)   | 71 (93%)  | 5 (7%)   | 16          | 41  |
| 12  | Y     | 137/137 (100%) | 132 (96%) | 5 (4%)   | 35          | 59  |
| 13  | Z     | 60/60 (100%)   | 59 (98%)  | 1 (2%)   | 60          | 78  |
| 14  | 1     | 104/104 (100%) | 100 (96%) | 4 (4%)   | 33          | 57  |
| 15  | 2     | 35/61 (57%)    | 34 (97%)  | 1 (3%)   | 42          | 64  |
| 16  | 3     | 87/87 (100%)   | 83 (95%)  | 4 (5%)   | 27          | 52  |
| 17  | 4     | 70/70 (100%)   | 69 (99%)  | 1 (1%)   | 67          | 80  |
| 18  | 5     | 47/52 (90%)    | 46 (98%)  | 1 (2%)   | 53          | 72  |
| 19  | 6     | 36/36 (100%)   | 35 (97%)  | 1 (3%)   | 43          | 65  |
| 20  | B     | 195/195 (100%) | 191 (98%) | 4 (2%)   | 53          | 72  |
| 21  | F     | 233/233 (100%) | 223 (96%) | 10 (4%)  | 29          | 54  |
| 22  | H     | 182/190 (96%)  | 173 (95%) | 9 (5%)   | 25          | 50  |
| 23  | J     | 177/177 (100%) | 171 (97%) | 6 (3%)   | 37          | 60  |
| 24  | L     | 151/190 (80%)  | 144 (95%) | 7 (5%)   | 27          | 52  |
| 25  | N     | 91/91 (100%)   | 89 (98%)  | 2 (2%)   | 52          | 71  |
| 26  | P     | 99/99 (100%)   | 97 (98%)  | 2 (2%)   | 55          | 74  |
| 27  | Q     | 120/120 (100%) | 119 (99%) | 1 (1%)   | 81          | 89  |
| 28  | S     | 114/114 (100%) | 109 (96%) | 5 (4%)   | 28          | 53  |
| 29  | T     | 43/43 (100%)   | 40 (93%)  | 3 (7%)   | 15          | 40  |
| 30  | U     | 132/132 (100%) | 129 (98%) | 3 (2%)   | 50          | 70  |
| 31  | V     | 131/140 (94%)  | 128 (98%) | 3 (2%)   | 50          | 70  |
| 32  | X     | 88/94 (94%)    | 88 (100%) | 0        | 100         | 100 |

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| Mol | Chain | Analysed       | Rotameric  | Outliers | Percentiles |     |
|-----|-------|----------------|------------|----------|-------------|-----|
| 33  | C     | 167/167 (100%) | 161 (96%)  | 6 (4%)   | 35          | 59  |
| 37  | AL    | 190/190 (100%) | 188 (99%)  | 2 (1%)   | 73          | 84  |
| 38  | A1    | 127/131 (97%)  | 124 (98%)  | 3 (2%)   | 49          | 69  |
| 39  | A2    | 97/109 (89%)   | 96 (99%)   | 1 (1%)   | 76          | 86  |
| 40  | A4    | 60/60 (100%)   | 57 (95%)   | 3 (5%)   | 24          | 49  |
| 41  | A6    | 83/83 (100%)   | 76 (92%)   | 7 (8%)   | 11          | 33  |
| 42  | A7    | 90/96 (94%)    | 87 (97%)   | 3 (3%)   | 38          | 61  |
| 43  | AN    | 135/135 (100%) | 130 (96%)  | 5 (4%)   | 34          | 58  |
| 44  | A8    | 114/114 (100%) | 108 (95%)  | 6 (5%)   | 22          | 47  |
| 45  | A9    | 90/90 (100%)   | 86 (96%)   | 4 (4%)   | 28          | 53  |
| 46  | Aa    | 89/89 (100%)   | 85 (96%)   | 4 (4%)   | 27          | 52  |
| 47  | Ab    | 82/92 (89%)    | 81 (99%)   | 1 (1%)   | 71          | 83  |
| 48  | Ad    | 69/73 (94%)    | 68 (99%)   | 1 (1%)   | 67          | 80  |
| 49  | Ae    | 40/47 (85%)    | 38 (95%)   | 2 (5%)   | 24          | 49  |
| 50  | Af    | 45/45 (100%)   | 45 (100%)  | 0        | 100         | 100 |
| 51  | AP    | 179/179 (100%) | 175 (98%)  | 4 (2%)   | 52          | 71  |
| 52  | Ah    | 70/70 (100%)   | 70 (100%)  | 0        | 100         | 100 |
| 53  | Ai    | 87/87 (100%)   | 87 (100%)  | 0        | 100         | 100 |
| 54  | AI    | 189/195 (97%)  | 183 (97%)  | 6 (3%)   | 39          | 61  |
| 55  | AJ    | 204/224 (91%)  | 200 (98%)  | 4 (2%)   | 55          | 74  |
| 56  | Ac    | 74/74 (100%)   | 68 (92%)   | 6 (8%)   | 11          | 35  |
| 57  | AK    | 181/181 (100%) | 178 (98%)  | 3 (2%)   | 60          | 78  |
| 58  | AM    | 106/106 (100%) | 104 (98%)  | 2 (2%)   | 57          | 75  |
| 59  | AS    | 158/158 (100%) | 151 (96%)  | 7 (4%)   | 28          | 53  |
| 60  | AO    | 121/121 (100%) | 119 (98%)  | 2 (2%)   | 60          | 78  |
| 61  | AQ    | 165/176 (94%)  | 160 (97%)  | 5 (3%)   | 41          | 63  |
| 62  | AR    | 215/250 (86%)  | 208 (97%)  | 7 (3%)   | 38          | 61  |
| 63  | AW    | 128/128 (100%) | 126 (98%)  | 2 (2%)   | 62          | 79  |
| 64  | AY    | 90/90 (100%)   | 88 (98%)   | 2 (2%)   | 52          | 71  |
| 65  | AT    | 162/162 (100%) | 161 (99%)  | 1 (1%)   | 86          | 92  |
| 66  | AZ    | 111/111 (100%) | 111 (100%) | 0        | 100         | 100 |

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| Mol | Chain | Analysed        | Rotameric  | Outliers | Percentiles |    |
|-----|-------|-----------------|------------|----------|-------------|----|
| 67  | A3    | 110/110 (100%)  | 108 (98%)  | 2 (2%)   | 59          | 77 |
| 68  | A5    | 201/201 (100%)  | 196 (98%)  | 5 (2%)   | 47          | 68 |
| 69  | AD    | 191/191 (100%)  | 185 (97%)  | 6 (3%)   | 40          | 62 |
| 70  | AE    | 335/335 (100%)  | 329 (98%)  | 6 (2%)   | 59          | 77 |
| 71  | AF    | 336/336 (100%)  | 327 (97%)  | 9 (3%)   | 44          | 65 |
| 72  | AG    | 110/142 (78%)   | 106 (96%)  | 4 (4%)   | 35          | 59 |
| 73  | AU    | 162/162 (100%)  | 158 (98%)  | 4 (2%)   | 47          | 68 |
| 74  | AH    | 168/168 (100%)  | 164 (98%)  | 4 (2%)   | 49          | 69 |
| 75  | AV    | 140/140 (100%)  | 137 (98%)  | 3 (2%)   | 53          | 72 |
| 76  | Ag    | 34/34 (100%)    | 33 (97%)   | 1 (3%)   | 42          | 64 |
| 77  | AX    | 92/92 (100%)    | 91 (99%)   | 1 (1%)   | 73          | 84 |
| 78  | A0    | 53/53 (100%)    | 52 (98%)   | 1 (2%)   | 57          | 75 |
| All | All   | 9096/9417 (97%) | 8847 (97%) | 249 (3%) | 48          | 65 |

All (249) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3   | D     | 76  | ARG  |
| 3   | D     | 107 | ARG  |
| 3   | D     | 158 | LEU  |
| 3   | D     | 190 | MET  |
| 4   | E     | 36  | LEU  |
| 4   | E     | 53  | ARG  |
| 4   | E     | 69  | ARG  |
| 4   | E     | 121 | SER  |
| 4   | E     | 181 | LYS  |
| 5   | G     | 41  | TRP  |
| 5   | G     | 168 | MET  |
| 5   | G     | 179 | ILE  |
| 5   | G     | 182 | VAL  |
| 5   | G     | 234 | TYR  |
| 5   | G     | 242 | TRP  |
| 6   | I     | 16  | TYR  |
| 6   | I     | 89  | GLU  |
| 6   | I     | 118 | ARG  |
| 7   | K     | 46  | TYR  |
| 7   | K     | 112 | ASP  |
| 8   | M     | 116 | SER  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 9   | W     | 18  | GLU  |
| 9   | W     | 45  | ARG  |
| 9   | W     | 101 | ASP  |
| 10  | R     | 43  | ARG  |
| 10  | R     | 61  | ASP  |
| 11  | O     | 17  | GLN  |
| 11  | O     | 18  | ASN  |
| 11  | O     | 26  | LEU  |
| 11  | O     | 42  | ARG  |
| 11  | O     | 68  | GLU  |
| 12  | Y     | 27  | ASN  |
| 12  | Y     | 64  | LYS  |
| 12  | Y     | 72  | ASN  |
| 12  | Y     | 105 | LYS  |
| 12  | Y     | 160 | ARG  |
| 13  | Z     | 81  | GLN  |
| 14  | 1     | 20  | ARG  |
| 14  | 1     | 94  | ARG  |
| 14  | 1     | 113 | LYS  |
| 14  | 1     | 118 | LYS  |
| 15  | 2     | 99  | LYS  |
| 16  | 3     | 2   | PRO  |
| 16  | 3     | 38  | ARG  |
| 16  | 3     | 39  | PHE  |
| 16  | 3     | 85  | ARG  |
| 17  | 4     | 77  | PHE  |
| 18  | 5     | 29  | PHE  |
| 19  | 6     | 17  | GLN  |
| 20  | B     | 31  | ASP  |
| 20  | B     | 49  | THR  |
| 20  | B     | 124 | HIS  |
| 20  | B     | 209 | ASN  |
| 21  | F     | 5   | ILE  |
| 21  | F     | 18  | TRP  |
| 21  | F     | 42  | ILE  |
| 21  | F     | 88  | ASP  |
| 21  | F     | 93  | THR  |
| 21  | F     | 108 | ARG  |
| 21  | F     | 132 | ARG  |
| 21  | F     | 142 | HIS  |
| 21  | F     | 174 | LYS  |
| 21  | F     | 224 | ASN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 22  | H     | 14  | LYS  |
| 22  | H     | 25  | LEU  |
| 22  | H     | 51  | ARG  |
| 22  | H     | 68  | LEU  |
| 22  | H     | 136 | LYS  |
| 22  | H     | 140 | LYS  |
| 22  | H     | 147 | LEU  |
| 22  | H     | 158 | ILE  |
| 22  | H     | 159 | ILE  |
| 23  | J     | 44  | LEU  |
| 23  | J     | 51  | GLU  |
| 23  | J     | 111 | LYS  |
| 23  | J     | 142 | SER  |
| 23  | J     | 166 | GLU  |
| 23  | J     | 183 | ASP  |
| 24  | L     | 26  | LYS  |
| 24  | L     | 37  | LYS  |
| 24  | L     | 41  | ARG  |
| 24  | L     | 92  | ARG  |
| 24  | L     | 119 | THR  |
| 24  | L     | 176 | PHE  |
| 24  | L     | 201 | GLU  |
| 25  | N     | 31  | ILE  |
| 25  | N     | 43  | LYS  |
| 26  | P     | 34  | PHE  |
| 26  | P     | 41  | PHE  |
| 27  | Q     | 103 | LEU  |
| 28  | S     | 29  | ILE  |
| 28  | S     | 36  | LYS  |
| 28  | S     | 86  | LEU  |
| 28  | S     | 94  | GLU  |
| 28  | S     | 110 | ARG  |
| 29  | T     | 35  | ASN  |
| 29  | T     | 39  | GLN  |
| 29  | T     | 54  | ARG  |
| 30  | U     | 3   | ARG  |
| 30  | U     | 47  | PRO  |
| 30  | U     | 78  | GLN  |
| 31  | V     | 6   | ASP  |
| 31  | V     | 70  | ARG  |
| 31  | V     | 130 | GLN  |
| 33  | C     | 22  | VAL  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 33  | C     | 58  | GLN  |
| 33  | C     | 121 | LEU  |
| 33  | C     | 135 | GLU  |
| 33  | C     | 172 | LEU  |
| 33  | C     | 204 | ARG  |
| 37  | AL    | 160 | ILE  |
| 37  | AL    | 193 | LYS  |
| 38  | A1    | 86  | GLN  |
| 38  | A1    | 105 | LYS  |
| 38  | A1    | 121 | LYS  |
| 39  | A2    | 94  | GLN  |
| 40  | A4    | 5   | LYS  |
| 40  | A4    | 25  | LYS  |
| 40  | A4    | 30  | MET  |
| 41  | A6    | 14  | ASN  |
| 41  | A6    | 19  | LEU  |
| 41  | A6    | 28  | PHE  |
| 41  | A6    | 44  | LEU  |
| 41  | A6    | 62  | TYR  |
| 41  | A6    | 65  | LEU  |
| 41  | A6    | 89  | ARG  |
| 42  | A7    | 52  | MET  |
| 42  | A7    | 74  | ASN  |
| 42  | A7    | 95  | GLU  |
| 43  | AN    | 56  | VAL  |
| 43  | AN    | 79  | GLU  |
| 43  | AN    | 80  | ARG  |
| 43  | AN    | 82  | LYS  |
| 43  | AN    | 133 | PHE  |
| 44  | A8    | 4   | LYS  |
| 44  | A8    | 21  | GLN  |
| 44  | A8    | 33  | ARG  |
| 44  | A8    | 34  | LYS  |
| 44  | A8    | 61  | LYS  |
| 44  | A8    | 77  | LYS  |
| 45  | A9    | 54  | ARG  |
| 45  | A9    | 130 | ARG  |
| 45  | A9    | 134 | LEU  |
| 45  | A9    | 136 | TYR  |
| 46  | Aa    | 6   | HIS  |
| 46  | Aa    | 11  | ASN  |
| 46  | Aa    | 32  | ILE  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 46  | Aa    | 66  | ARG  |
| 47  | Ab    | 106 | ARG  |
| 48  | Ad    | 47  | LYS  |
| 49  | Ae    | 17  | ARG  |
| 49  | Ae    | 30  | LYS  |
| 51  | AP    | 56  | ILE  |
| 51  | AP    | 85  | LYS  |
| 51  | AP    | 161 | GLU  |
| 51  | AP    | 162 | LEU  |
| 54  | AI    | 10  | HIS  |
| 54  | AI    | 42  | LYS  |
| 54  | AI    | 63  | LEU  |
| 54  | AI    | 88  | PRO  |
| 54  | AI    | 115 | GLU  |
| 54  | AI    | 149 | LEU  |
| 55  | AJ    | 55  | ILE  |
| 55  | AJ    | 60  | ARG  |
| 55  | AJ    | 120 | SER  |
| 55  | AJ    | 172 | ASN  |
| 56  | Ac    | 20  | PHE  |
| 56  | Ac    | 48  | ARG  |
| 56  | Ac    | 49  | ARG  |
| 56  | Ac    | 55  | LYS  |
| 56  | Ac    | 76  | LYS  |
| 56  | Ac    | 90  | LYS  |
| 57  | AK    | 38  | GLU  |
| 57  | AK    | 116 | LYS  |
| 57  | AK    | 134 | TYR  |
| 58  | AM    | 29  | ASP  |
| 58  | AM    | 49  | ASN  |
| 59  | AS    | 26  | LEU  |
| 59  | AS    | 58  | TYR  |
| 59  | AS    | 74  | HIS  |
| 59  | AS    | 96  | GLN  |
| 59  | AS    | 133 | LYS  |
| 59  | AS    | 177 | ARG  |
| 59  | AS    | 187 | LYS  |
| 60  | AO    | 32  | ARG  |
| 60  | AO    | 63  | LEU  |
| 61  | AQ    | 35  | ASP  |
| 61  | AQ    | 59  | GLN  |
| 61  | AQ    | 125 | VAL  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 61  | AQ    | 126 | VAL  |
| 61  | AQ    | 193 | ASP  |
| 62  | AR    | 21  | ARG  |
| 62  | AR    | 23  | ARG  |
| 62  | AR    | 39  | GLN  |
| 62  | AR    | 56  | THR  |
| 62  | AR    | 70  | GLU  |
| 62  | AR    | 77  | GLU  |
| 62  | AR    | 249 | ASN  |
| 63  | AW    | 94  | ILE  |
| 63  | AW    | 97  | ASN  |
| 64  | AY    | 96  | ILE  |
| 64  | AY    | 133 | MET  |
| 65  | AT    | 162 | ARG  |
| 67  | A3    | 78  | LYS  |
| 67  | A3    | 111 | GLN  |
| 68  | A5    | 59  | ARG  |
| 68  | A5    | 149 | THR  |
| 68  | A5    | 169 | ARG  |
| 68  | A5    | 170 | ARG  |
| 68  | A5    | 195 | GLU  |
| 69  | AD    | 12  | ARG  |
| 69  | AD    | 118 | HIS  |
| 69  | AD    | 163 | ARG  |
| 69  | AD    | 207 | VAL  |
| 69  | AD    | 221 | HIS  |
| 69  | AD    | 242 | ARG  |
| 70  | AE    | 71  | GLU  |
| 70  | AE    | 140 | THR  |
| 70  | AE    | 214 | VAL  |
| 70  | AE    | 269 | TYR  |
| 70  | AE    | 353 | LEU  |
| 70  | AE    | 361 | LYS  |
| 71  | AF    | 77  | PRO  |
| 71  | AF    | 86  | ARG  |
| 71  | AF    | 101 | MET  |
| 71  | AF    | 122 | TYR  |
| 71  | AF    | 140 | ARG  |
| 71  | AF    | 190 | ARG  |
| 71  | AF    | 313 | LEU  |
| 71  | AF    | 344 | ARG  |
| 71  | AF    | 366 | LYS  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 72  | AG    | 35  | ARG  |
| 72  | AG    | 134 | SER  |
| 72  | AG    | 141 | ARG  |
| 72  | AG    | 166 | LYS  |
| 73  | AU    | 90  | TYR  |
| 73  | AU    | 107 | THR  |
| 73  | AU    | 157 | ARG  |
| 73  | AU    | 166 | LEU  |
| 74  | AH    | 46  | ARG  |
| 74  | AH    | 57  | VAL  |
| 74  | AH    | 140 | LYS  |
| 74  | AH    | 159 | LEU  |
| 75  | AV    | 83  | HIS  |
| 75  | AV    | 97  | VAL  |
| 75  | AV    | 104 | GLU  |
| 76  | Ag    | 19  | TRP  |
| 77  | AX    | 44  | LEU  |
| 78  | A0    | 37  | PHE  |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (39) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3   | D     | 102 | GLN  |
| 4   | E     | 133 | HIS  |
| 4   | E     | 155 | HIS  |
| 7   | K     | 56  | HIS  |
| 7   | K     | 113 | HIS  |
| 10  | R     | 52  | GLN  |
| 12  | Y     | 44  | HIS  |
| 17  | 4     | 58  | ASN  |
| 20  | B     | 124 | HIS  |
| 21  | F     | 112 | HIS  |
| 26  | P     | 32  | HIS  |
| 30  | U     | 105 | ASN  |
| 33  | C     | 23  | HIS  |
| 37  | AL    | 4   | HIS  |
| 38  | A1    | 79  | HIS  |
| 39  | A2    | 53  | ASN  |
| 40  | A4    | 27  | HIS  |
| 42  | A7    | 29  | HIS  |
| 43  | AN    | 130 | GLN  |
| 44  | A8    | 98  | HIS  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 45  | A9    | 53  | GLN  |
| 52  | Ah    | 34  | HIS  |
| 53  | Ai    | 26  | GLN  |
| 60  | AO    | 19  | HIS  |
| 60  | AO    | 40  | HIS  |
| 60  | AO    | 60  | HIS  |
| 60  | AO    | 62  | ASN  |
| 60  | AO    | 118 | HIS  |
| 60  | AO    | 119 | ASN  |
| 63  | AW    | 25  | HIS  |
| 63  | AW    | 145 | HIS  |
| 68  | A5    | 51  | ASN  |
| 68  | A5    | 232 | HIS  |
| 69  | AD    | 118 | HIS  |
| 69  | AD    | 216 | HIS  |
| 71  | AF    | 286 | ASN  |
| 73  | AU    | 97  | HIS  |
| 73  | AU    | 162 | HIS  |
| 77  | AX    | 114 | HIS  |

### 5.3.3 RNA ⓘ

| Mol | Chain | Analysed        | Backbone Outliers | Pucker Outliers |
|-----|-------|-----------------|-------------------|-----------------|
| 1   | A     | 1588/1608 (98%) | 476 (29%)         | 86 (5%)         |
| 2   | 7     | 73/74 (98%)     | 23 (31%)          | 3 (4%)          |
| 34  | AA    | 3167/3193 (99%) | 966 (30%)         | 190 (5%)        |
| 35  | AC    | 148/151 (98%)   | 51 (34%)          | 6 (4%)          |
| 36  | AB    | 117/118 (99%)   | 28 (23%)          | 4 (3%)          |
| All | All   | 5093/5144 (99%) | 1544 (30%)        | 289 (5%)        |

All (1544) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 17  | C    |
| 1   | A     | 25  | C    |
| 1   | A     | 26  | A    |
| 1   | A     | 27  | U    |
| 1   | A     | 34  | G    |
| 1   | A     | 35  | U    |
| 1   | A     | 40  | A    |
| 1   | A     | 42  | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 43  | A    |
| 1   | A     | 47  | A    |
| 1   | A     | 50  | C    |
| 1   | A     | 52  | U    |
| 1   | A     | 57  | G    |
| 1   | A     | 59  | G    |
| 1   | A     | 60  | A    |
| 1   | A     | 67  | A    |
| 1   | A     | 68  | U    |
| 1   | A     | 71  | A    |
| 1   | A     | 79  | U    |
| 1   | A     | 81  | U    |
| 1   | A     | 82  | G    |
| 1   | A     | 84  | A    |
| 1   | A     | 106 | A    |
| 1   | A     | 113 | U    |
| 1   | A     | 116 | A    |
| 1   | A     | 125 | G    |
| 1   | A     | 128 | A    |
| 1   | A     | 129 | U    |
| 1   | A     | 130 | U    |
| 1   | A     | 138 | U    |
| 1   | A     | 139 | A    |
| 1   | A     | 140 | A    |
| 1   | A     | 142 | G    |
| 1   | A     | 143 | A    |
| 1   | A     | 144 | U    |
| 1   | A     | 151 | G    |
| 1   | A     | 157 | G    |
| 1   | A     | 158 | C    |
| 1   | A     | 159 | U    |
| 1   | A     | 161 | U    |
| 1   | A     | 164 | C    |
| 1   | A     | 165 | U    |
| 1   | A     | 168 | U    |
| 1   | A     | 182 | U    |
| 1   | A     | 183 | C    |
| 1   | A     | 206 | A    |
| 1   | A     | 207 | G    |
| 1   | A     | 208 | U    |
| 1   | A     | 209 | A    |
| 1   | A     | 217 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 247 | G    |
| 1   | A     | 249 | A    |
| 1   | A     | 251 | U    |
| 1   | A     | 252 | U    |
| 1   | A     | 254 | U    |
| 1   | A     | 255 | A    |
| 1   | A     | 258 | A    |
| 1   | A     | 260 | A    |
| 1   | A     | 262 | A    |
| 1   | A     | 264 | G    |
| 1   | A     | 266 | A    |
| 1   | A     | 267 | A    |
| 1   | A     | 268 | C    |
| 1   | A     | 272 | U    |
| 1   | A     | 273 | A    |
| 1   | A     | 274 | A    |
| 1   | A     | 292 | G    |
| 1   | A     | 305 | G    |
| 1   | A     | 308 | U    |
| 1   | A     | 320 | C    |
| 1   | A     | 322 | G    |
| 1   | A     | 323 | C    |
| 1   | A     | 326 | U    |
| 1   | A     | 330 | U    |
| 1   | A     | 335 | G    |
| 1   | A     | 339 | A    |
| 1   | A     | 342 | G    |
| 1   | A     | 343 | G    |
| 1   | A     | 344 | C    |
| 1   | A     | 345 | C    |
| 1   | A     | 349 | C    |
| 1   | A     | 358 | G    |
| 1   | A     | 361 | G    |
| 1   | A     | 365 | A    |
| 1   | A     | 367 | C    |
| 1   | A     | 375 | U    |
| 1   | A     | 378 | A    |
| 1   | A     | 379 | G    |
| 1   | A     | 384 | A    |
| 1   | A     | 385 | U    |
| 1   | A     | 396 | G    |
| 1   | A     | 399 | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 405 | A    |
| 1   | A     | 406 | A    |
| 1   | A     | 407 | A    |
| 1   | A     | 408 | U    |
| 1   | A     | 409 | A    |
| 1   | A     | 410 | G    |
| 1   | A     | 422 | A    |
| 1   | A     | 423 | A    |
| 1   | A     | 424 | G    |
| 1   | A     | 430 | C    |
| 1   | A     | 431 | A    |
| 1   | A     | 432 | G    |
| 1   | A     | 434 | A    |
| 1   | A     | 440 | G    |
| 1   | A     | 441 | U    |
| 1   | A     | 445 | U    |
| 1   | A     | 446 | U    |
| 1   | A     | 450 | C    |
| 1   | A     | 451 | A    |
| 1   | A     | 454 | U    |
| 1   | A     | 458 | A    |
| 1   | A     | 459 | A    |
| 1   | A     | 466 | A    |
| 1   | A     | 467 | G    |
| 1   | A     | 470 | A    |
| 1   | A     | 475 | C    |
| 1   | A     | 483 | A    |
| 1   | A     | 488 | U    |
| 1   | A     | 508 | U    |
| 1   | A     | 509 | U    |
| 1   | A     | 515 | U    |
| 1   | A     | 516 | G    |
| 1   | A     | 521 | G    |
| 1   | A     | 526 | G    |
| 1   | A     | 527 | A    |
| 1   | A     | 543 | A    |
| 1   | A     | 545 | A    |
| 1   | A     | 546 | G    |
| 1   | A     | 547 | U    |
| 1   | A     | 548 | A    |
| 1   | A     | 549 | A    |
| 1   | A     | 562 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 564 | G    |
| 1   | A     | 565 | U    |
| 1   | A     | 566 | C    |
| 1   | A     | 568 | G    |
| 1   | A     | 575 | G    |
| 1   | A     | 584 | G    |
| 1   | A     | 587 | A    |
| 1   | A     | 590 | C    |
| 1   | A     | 601 | A    |
| 1   | A     | 602 | G    |
| 1   | A     | 613 | A    |
| 1   | A     | 614 | A    |
| 1   | A     | 616 | U    |
| 1   | A     | 617 | G    |
| 1   | A     | 618 | U    |
| 1   | A     | 620 | G    |
| 1   | A     | 626 | A    |
| 1   | A     | 627 | A    |
| 1   | A     | 629 | A    |
| 1   | A     | 630 | C    |
| 1   | A     | 631 | G    |
| 1   | A     | 641 | G    |
| 1   | A     | 642 | A    |
| 1   | A     | 646 | U    |
| 1   | A     | 648 | A    |
| 1   | A     | 752 | U    |
| 1   | A     | 753 | U    |
| 1   | A     | 756 | A    |
| 1   | A     | 760 | C    |
| 1   | A     | 790 | U    |
| 1   | A     | 791 | U    |
| 1   | A     | 792 | U    |
| 1   | A     | 793 | G    |
| 1   | A     | 794 | U    |
| 1   | A     | 800 | U    |
| 1   | A     | 801 | G    |
| 1   | A     | 804 | U    |
| 1   | A     | 805 | A    |
| 1   | A     | 806 | A    |
| 1   | A     | 815 | G    |
| 1   | A     | 816 | U    |
| 1   | A     | 824 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 828 | A    |
| 1   | A     | 832 | A    |
| 1   | A     | 833 | A    |
| 1   | A     | 837 | A    |
| 1   | A     | 844 | G    |
| 1   | A     | 845 | U    |
| 1   | A     | 846 | G    |
| 1   | A     | 849 | U    |
| 1   | A     | 851 | A    |
| 1   | A     | 852 | A    |
| 1   | A     | 853 | U    |
| 1   | A     | 857 | A    |
| 1   | A     | 858 | U    |
| 1   | A     | 866 | A    |
| 1   | A     | 867 | A    |
| 1   | A     | 869 | A    |
| 1   | A     | 870 | A    |
| 1   | A     | 875 | A    |
| 1   | A     | 876 | U    |
| 1   | A     | 877 | U    |
| 1   | A     | 879 | A    |
| 1   | A     | 881 | C    |
| 1   | A     | 882 | A    |
| 1   | A     | 887 | A    |
| 1   | A     | 888 | A    |
| 1   | A     | 896 | U    |
| 1   | A     | 908 | U    |
| 1   | A     | 915 | G    |
| 1   | A     | 917 | C    |
| 1   | A     | 920 | A    |
| 1   | A     | 921 | G    |
| 1   | A     | 922 | U    |
| 1   | A     | 924 | A    |
| 1   | A     | 925 | C    |
| 1   | A     | 927 | A    |
| 1   | A     | 928 | U    |
| 1   | A     | 929 | U    |
| 1   | A     | 930 | A    |
| 1   | A     | 931 | A    |
| 1   | A     | 941 | C    |
| 1   | A     | 942 | U    |
| 1   | A     | 945 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 962  | A    |
| 1   | A     | 965  | U    |
| 1   | A     | 966  | C    |
| 1   | A     | 967  | A    |
| 1   | A     | 973  | G    |
| 1   | A     | 974  | A    |
| 1   | A     | 982  | A    |
| 1   | A     | 983  | G    |
| 1   | A     | 984  | A    |
| 1   | A     | 990  | U    |
| 1   | A     | 999  | A    |
| 1   | A     | 1002 | A    |
| 1   | A     | 1003 | C    |
| 1   | A     | 1004 | U    |
| 1   | A     | 1011 | G    |
| 1   | A     | 1013 | A    |
| 1   | A     | 1021 | A    |
| 1   | A     | 1029 | U    |
| 1   | A     | 1035 | A    |
| 1   | A     | 1038 | C    |
| 1   | A     | 1051 | U    |
| 1   | A     | 1054 | G    |
| 1   | A     | 1057 | A    |
| 1   | A     | 1061 | A    |
| 1   | A     | 1062 | A    |
| 1   | A     | 1065 | C    |
| 1   | A     | 1072 | A    |
| 1   | A     | 1073 | U    |
| 1   | A     | 1074 | A    |
| 1   | A     | 1082 | A    |
| 1   | A     | 1089 | A    |
| 1   | A     | 1090 | C    |
| 1   | A     | 1092 | A    |
| 1   | A     | 1093 | U    |
| 1   | A     | 1094 | A    |
| 1   | A     | 1095 | A    |
| 1   | A     | 1097 | C    |
| 1   | A     | 1098 | U    |
| 1   | A     | 1099 | A    |
| 1   | A     | 1100 | U    |
| 1   | A     | 1101 | G    |
| 1   | A     | 1107 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 1108 | A    |
| 1   | A     | 1109 | G    |
| 1   | A     | 1112 | G    |
| 1   | A     | 1116 | G    |
| 1   | A     | 1119 | G    |
| 1   | A     | 1175 | G    |
| 1   | A     | 1177 | A    |
| 1   | A     | 1183 | U    |
| 1   | A     | 1193 | A    |
| 1   | A     | 1195 | G    |
| 1   | A     | 1197 | C    |
| 1   | A     | 1198 | U    |
| 1   | A     | 1199 | U    |
| 1   | A     | 1209 | G    |
| 1   | A     | 1210 | G    |
| 1   | A     | 1212 | C    |
| 1   | A     | 1227 | G    |
| 1   | A     | 1230 | A    |
| 1   | A     | 1239 | A    |
| 1   | A     | 1247 | G    |
| 1   | A     | 1251 | G    |
| 1   | A     | 1252 | A    |
| 1   | A     | 1255 | G    |
| 1   | A     | 1259 | C    |
| 1   | A     | 1260 | C    |
| 1   | A     | 1261 | A    |
| 1   | A     | 1265 | G    |
| 1   | A     | 1268 | G    |
| 1   | A     | 1271 | G    |
| 1   | A     | 1274 | C    |
| 1   | A     | 1279 | G    |
| 1   | A     | 1284 | A    |
| 1   | A     | 1285 | A    |
| 1   | A     | 1286 | U    |
| 1   | A     | 1287 | U    |
| 1   | A     | 1292 | U    |
| 1   | A     | 1295 | A    |
| 1   | A     | 1296 | C    |
| 1   | A     | 1297 | A    |
| 1   | A     | 1301 | G    |
| 1   | A     | 1302 | G    |
| 1   | A     | 1303 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 1304 | A    |
| 1   | A     | 1307 | U    |
| 1   | A     | 1308 | C    |
| 1   | A     | 1315 | U    |
| 1   | A     | 1318 | A    |
| 1   | A     | 1319 | G    |
| 1   | A     | 1321 | C    |
| 1   | A     | 1363 | U    |
| 1   | A     | 1366 | A    |
| 1   | A     | 1367 | U    |
| 1   | A     | 1374 | G    |
| 1   | A     | 1375 | C    |
| 1   | A     | 1382 | G    |
| 1   | A     | 1383 | U    |
| 1   | A     | 1384 | U    |
| 1   | A     | 1385 | U    |
| 1   | A     | 1386 | U    |
| 1   | A     | 1387 | U    |
| 1   | A     | 1388 | A    |
| 1   | A     | 1401 | G    |
| 1   | A     | 1409 | U    |
| 1   | A     | 1414 | A    |
| 1   | A     | 1415 | A    |
| 1   | A     | 1416 | U    |
| 1   | A     | 1417 | U    |
| 1   | A     | 1422 | U    |
| 1   | A     | 1423 | A    |
| 1   | A     | 1427 | A    |
| 1   | A     | 1431 | A    |
| 1   | A     | 1432 | G    |
| 1   | A     | 1433 | A    |
| 1   | A     | 1437 | U    |
| 1   | A     | 1443 | G    |
| 1   | A     | 1444 | C    |
| 1   | A     | 1445 | U    |
| 1   | A     | 1449 | U    |
| 1   | A     | 1450 | A    |
| 1   | A     | 1451 | G    |
| 1   | A     | 1453 | G    |
| 1   | A     | 1454 | G    |
| 1   | A     | 1456 | G    |
| 1   | A     | 1459 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 1462 | A    |
| 1   | A     | 1463 | C    |
| 1   | A     | 1464 | U    |
| 1   | A     | 1607 | U    |
| 1   | A     | 1623 | U    |
| 1   | A     | 1624 | U    |
| 1   | A     | 1625 | C    |
| 1   | A     | 1626 | U    |
| 1   | A     | 1635 | C    |
| 1   | A     | 1636 | A    |
| 1   | A     | 1644 | U    |
| 1   | A     | 1645 | C    |
| 1   | A     | 1646 | U    |
| 1   | A     | 1648 | A    |
| 1   | A     | 1649 | C    |
| 1   | A     | 1656 | A    |
| 1   | A     | 1659 | U    |
| 1   | A     | 1660 | U    |
| 1   | A     | 1661 | U    |
| 1   | A     | 1664 | G    |
| 1   | A     | 1668 | A    |
| 1   | A     | 1673 | A    |
| 1   | A     | 1674 | G    |
| 1   | A     | 1677 | C    |
| 1   | A     | 1678 | U    |
| 1   | A     | 1679 | G    |
| 1   | A     | 1691 | G    |
| 1   | A     | 1692 | A    |
| 1   | A     | 1693 | U    |
| 1   | A     | 1703 | U    |
| 1   | A     | 1705 | C    |
| 1   | A     | 1706 | A    |
| 1   | A     | 1715 | A    |
| 1   | A     | 1716 | C    |
| 1   | A     | 1717 | A    |
| 1   | A     | 1718 | C    |
| 1   | A     | 1719 | U    |
| 1   | A     | 1720 | G    |
| 1   | A     | 1721 | A    |
| 1   | A     | 1723 | A    |
| 1   | A     | 1727 | A    |
| 1   | A     | 1728 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 1732 | G    |
| 1   | A     | 1735 | U    |
| 1   | A     | 1742 | A    |
| 1   | A     | 1749 | C    |
| 1   | A     | 1750 | U    |
| 1   | A     | 1787 | U    |
| 1   | A     | 1790 | C    |
| 1   | A     | 1792 | U    |
| 1   | A     | 1795 | G    |
| 1   | A     | 1796 | C    |
| 1   | A     | 1801 | A    |
| 1   | A     | 1802 | G    |
| 1   | A     | 1806 | U    |
| 1   | A     | 1810 | U    |
| 1   | A     | 1812 | A    |
| 1   | A     | 1813 | U    |
| 1   | A     | 1817 | U    |
| 1   | A     | 1818 | A    |
| 1   | A     | 1819 | U    |
| 1   | A     | 1820 | C    |
| 1   | A     | 1824 | A    |
| 1   | A     | 1825 | U    |
| 1   | A     | 1830 | C    |
| 1   | A     | 1833 | G    |
| 1   | A     | 1834 | A    |
| 1   | A     | 1835 | U    |
| 1   | A     | 1837 | G    |
| 1   | A     | 1846 | U    |
| 1   | A     | 1850 | G    |
| 1   | A     | 1854 | U    |
| 1   | A     | 1856 | A    |
| 1   | A     | 1861 | U    |
| 1   | A     | 1866 | A    |
| 1   | A     | 1868 | C    |
| 1   | A     | 1870 | A    |
| 1   | A     | 1871 | G    |
| 1   | A     | 1881 | G    |
| 1   | A     | 1882 | U    |
| 1   | A     | 1887 | A    |
| 1   | A     | 1892 | U    |
| 1   | A     | 1897 | A    |
| 1   | A     | 1898 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 1902 | G    |
| 1   | A     | 1904 | G    |
| 1   | A     | 1907 | A    |
| 1   | A     | 1908 | A    |
| 1   | A     | 1911 | A    |
| 1   | A     | 1912 | C    |
| 1   | A     | 1913 | G    |
| 1   | A     | 1915 | C    |
| 1   | A     | 1916 | C    |
| 1   | A     | 1927 | U    |
| 1   | A     | 1928 | A    |
| 1   | A     | 1929 | C    |
| 1   | A     | 1930 | A    |
| 1   | A     | 1932 | A    |
| 1   | A     | 1938 | C    |
| 1   | A     | 1944 | U    |
| 1   | A     | 1954 | U    |
| 1   | A     | 1955 | G    |
| 1   | A     | 1961 | U    |
| 1   | A     | 1977 | G    |
| 1   | A     | 1978 | A    |
| 1   | A     | 1979 | C    |
| 1   | A     | 1980 | A    |
| 1   | A     | 1981 | A    |
| 1   | A     | 1982 | G    |
| 1   | A     | 1983 | A    |
| 1   | A     | 2012 | G    |
| 1   | A     | 2016 | A    |
| 1   | A     | 2019 | C    |
| 1   | A     | 2020 | G    |
| 1   | A     | 2021 | U    |
| 1   | A     | 2028 | U    |
| 1   | A     | 2034 | U    |
| 1   | A     | 2042 | A    |
| 1   | A     | 2048 | A    |
| 1   | A     | 2049 | G    |
| 1   | A     | 2054 | A    |
| 1   | A     | 2058 | A    |
| 1   | A     | 2061 | U    |
| 1   | A     | 2072 | G    |
| 1   | A     | 2075 | C    |
| 1   | A     | 2084 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 2085 | G    |
| 1   | A     | 2086 | A    |
| 1   | A     | 2087 | U    |
| 1   | A     | 2088 | C    |
| 1   | A     | 2089 | A    |
| 1   | A     | 2090 | U    |
| 2   | 7     | 8    | U    |
| 2   | 7     | 13   | C    |
| 2   | 7     | 16   | U    |
| 2   | 7     | 17   | U    |
| 2   | 7     | 18   | G    |
| 2   | 7     | 19   | G    |
| 2   | 7     | 20   | U    |
| 2   | 7     | 21   | U    |
| 2   | 7     | 32   | U    |
| 2   | 7     | 33   | C    |
| 2   | 7     | 34   | U    |
| 2   | 7     | 41   | C    |
| 2   | 7     | 43   | C    |
| 2   | 7     | 46   | G    |
| 2   | 7     | 50   | G    |
| 2   | 7     | 53   | A    |
| 2   | 7     | 55   | U    |
| 2   | 7     | 56   | U    |
| 2   | 7     | 69   | U    |
| 2   | 7     | 70   | A    |
| 2   | 7     | 72   | C    |
| 2   | 7     | 73   | C    |
| 2   | 7     | 74   | A    |
| 34  | AA    | 11   | A    |
| 34  | AA    | 12   | U    |
| 34  | AA    | 13   | G    |
| 34  | AA    | 14   | U    |
| 34  | AA    | 16   | A    |
| 34  | AA    | 18   | G    |
| 34  | AA    | 25   | A    |
| 34  | AA    | 26   | A    |
| 34  | AA    | 30   | G    |
| 34  | AA    | 32   | C    |
| 34  | AA    | 40   | A    |
| 34  | AA    | 43   | A    |
| 34  | AA    | 44   | U    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 34  | AA    | 45  | A    |
| 34  | AA    | 49  | U    |
| 34  | AA    | 55  | G    |
| 34  | AA    | 57  | A    |
| 34  | AA    | 59  | G    |
| 34  | AA    | 60  | A    |
| 34  | AA    | 62  | A    |
| 34  | AA    | 63  | A    |
| 34  | AA    | 66  | A    |
| 34  | AA    | 73  | U    |
| 34  | AA    | 75  | U    |
| 34  | AA    | 83  | U    |
| 34  | AA    | 85  | A    |
| 34  | AA    | 87  | U    |
| 34  | AA    | 92  | G    |
| 34  | AA    | 105 | G    |
| 34  | AA    | 109 | A    |
| 34  | AA    | 110 | G    |
| 34  | AA    | 111 | C    |
| 34  | AA    | 113 | C    |
| 34  | AA    | 121 | U    |
| 34  | AA    | 122 | A    |
| 34  | AA    | 124 | U    |
| 34  | AA    | 125 | C    |
| 34  | AA    | 130 | G    |
| 34  | AA    | 133 | U    |
| 34  | AA    | 134 | G    |
| 34  | AA    | 135 | G    |
| 34  | AA    | 136 | U    |
| 34  | AA    | 137 | G    |
| 34  | AA    | 144 | U    |
| 34  | AA    | 145 | U    |
| 34  | AA    | 147 | C    |
| 34  | AA    | 148 | G    |
| 34  | AA    | 149 | A    |
| 34  | AA    | 152 | G    |
| 34  | AA    | 157 | G    |
| 34  | AA    | 163 | G    |
| 34  | AA    | 165 | A    |
| 34  | AA    | 167 | U    |
| 34  | AA    | 168 | A    |
| 34  | AA    | 172 | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 34  | AA    | 173 | A    |
| 34  | AA    | 174 | U    |
| 34  | AA    | 175 | G    |
| 34  | AA    | 180 | C    |
| 34  | AA    | 182 | U    |
| 34  | AA    | 183 | U    |
| 34  | AA    | 185 | A    |
| 34  | AA    | 186 | A    |
| 34  | AA    | 189 | U    |
| 34  | AA    | 190 | G    |
| 34  | AA    | 191 | A    |
| 34  | AA    | 192 | G    |
| 34  | AA    | 195 | A    |
| 34  | AA    | 197 | G    |
| 34  | AA    | 198 | U    |
| 34  | AA    | 199 | G    |
| 34  | AA    | 200 | A    |
| 34  | AA    | 201 | G    |
| 34  | AA    | 207 | A    |
| 34  | AA    | 208 | U    |
| 34  | AA    | 211 | U    |
| 34  | AA    | 215 | C    |
| 34  | AA    | 216 | C    |
| 34  | AA    | 219 | A    |
| 34  | AA    | 220 | G    |
| 34  | AA    | 221 | A    |
| 34  | AA    | 226 | G    |
| 34  | AA    | 227 | A    |
| 34  | AA    | 228 | A    |
| 34  | AA    | 229 | A    |
| 34  | AA    | 231 | G    |
| 34  | AA    | 235 | A    |
| 34  | AA    | 239 | U    |
| 34  | AA    | 242 | U    |
| 34  | AA    | 246 | U    |
| 34  | AA    | 247 | A    |
| 34  | AA    | 250 | U    |
| 34  | AA    | 258 | U    |
| 34  | AA    | 263 | U    |
| 34  | AA    | 265 | U    |
| 34  | AA    | 268 | C    |
| 34  | AA    | 269 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 34  | AA    | 271 | G    |
| 34  | AA    | 276 | G    |
| 34  | AA    | 290 | G    |
| 34  | AA    | 292 | U    |
| 34  | AA    | 293 | U    |
| 34  | AA    | 302 | A    |
| 34  | AA    | 303 | A    |
| 34  | AA    | 304 | U    |
| 34  | AA    | 305 | A    |
| 34  | AA    | 307 | G    |
| 34  | AA    | 308 | U    |
| 34  | AA    | 309 | G    |
| 34  | AA    | 310 | U    |
| 34  | AA    | 313 | U    |
| 34  | AA    | 315 | C    |
| 34  | AA    | 317 | U    |
| 34  | AA    | 319 | U    |
| 34  | AA    | 324 | U    |
| 34  | AA    | 325 | A    |
| 34  | AA    | 333 | A    |
| 34  | AA    | 336 | U    |
| 34  | AA    | 337 | A    |
| 34  | AA    | 338 | U    |
| 34  | AA    | 342 | G    |
| 34  | AA    | 344 | A    |
| 34  | AA    | 345 | G    |
| 34  | AA    | 347 | C    |
| 34  | AA    | 351 | U    |
| 34  | AA    | 354 | C    |
| 34  | AA    | 359 | A    |
| 34  | AA    | 360 | A    |
| 34  | AA    | 362 | U    |
| 34  | AA    | 378 | U    |
| 34  | AA    | 382 | A    |
| 34  | AA    | 384 | A    |
| 34  | AA    | 385 | G    |
| 34  | AA    | 386 | U    |
| 34  | AA    | 392 | G    |
| 34  | AA    | 396 | U    |
| 34  | AA    | 400 | C    |
| 34  | AA    | 401 | A    |
| 34  | AA    | 402 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 34  | AA    | 405 | A    |
| 34  | AA    | 408 | U    |
| 34  | AA    | 409 | A    |
| 34  | AA    | 411 | U    |
| 34  | AA    | 412 | A    |
| 34  | AA    | 413 | C    |
| 34  | AA    | 431 | G    |
| 34  | AA    | 432 | A    |
| 34  | AA    | 433 | A    |
| 34  | AA    | 439 | U    |
| 34  | AA    | 442 | G    |
| 34  | AA    | 444 | G    |
| 34  | AA    | 447 | A    |
| 34  | AA    | 448 | A    |
| 34  | AA    | 449 | A    |
| 34  | AA    | 450 | A    |
| 34  | AA    | 451 | C    |
| 34  | AA    | 458 | A    |
| 34  | AA    | 459 | G    |
| 34  | AA    | 462 | G    |
| 34  | AA    | 463 | G    |
| 34  | AA    | 467 | U    |
| 34  | AA    | 489 | U    |
| 34  | AA    | 494 | U    |
| 34  | AA    | 495 | U    |
| 34  | AA    | 497 | U    |
| 34  | AA    | 498 | U    |
| 34  | AA    | 499 | U    |
| 34  | AA    | 500 | A    |
| 34  | AA    | 501 | U    |
| 34  | AA    | 502 | U    |
| 34  | AA    | 503 | A    |
| 34  | AA    | 504 | A    |
| 34  | AA    | 505 | A    |
| 34  | AA    | 506 | A    |
| 34  | AA    | 509 | A    |
| 34  | AA    | 510 | A    |
| 34  | AA    | 514 | C    |
| 34  | AA    | 521 | U    |
| 34  | AA    | 522 | A    |
| 34  | AA    | 523 | A    |
| 34  | AA    | 527 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 34  | AA    | 530 | U    |
| 34  | AA    | 532 | C    |
| 34  | AA    | 534 | A    |
| 34  | AA    | 536 | A    |
| 34  | AA    | 538 | A    |
| 34  | AA    | 539 | G    |
| 34  | AA    | 542 | A    |
| 34  | AA    | 543 | U    |
| 34  | AA    | 545 | C    |
| 34  | AA    | 547 | C    |
| 34  | AA    | 549 | G    |
| 34  | AA    | 573 | U    |
| 34  | AA    | 579 | C    |
| 34  | AA    | 580 | A    |
| 34  | AA    | 581 | C    |
| 34  | AA    | 582 | U    |
| 34  | AA    | 583 | U    |
| 34  | AA    | 585 | C    |
| 34  | AA    | 586 | U    |
| 34  | AA    | 592 | C    |
| 34  | AA    | 594 | C    |
| 34  | AA    | 595 | U    |
| 34  | AA    | 598 | U    |
| 34  | AA    | 599 | G    |
| 34  | AA    | 601 | G    |
| 34  | AA    | 604 | G    |
| 34  | AA    | 605 | A    |
| 34  | AA    | 608 | A    |
| 34  | AA    | 610 | U    |
| 34  | AA    | 615 | U    |
| 34  | AA    | 617 | A    |
| 34  | AA    | 618 | U    |
| 34  | AA    | 620 | U    |
| 34  | AA    | 621 | C    |
| 34  | AA    | 622 | U    |
| 34  | AA    | 623 | U    |
| 34  | AA    | 628 | U    |
| 34  | AA    | 631 | U    |
| 34  | AA    | 636 | U    |
| 34  | AA    | 637 | U    |
| 34  | AA    | 641 | G    |
| 34  | AA    | 642 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 34  | AA    | 645 | A    |
| 34  | AA    | 646 | A    |
| 34  | AA    | 648 | U    |
| 34  | AA    | 649 | U    |
| 34  | AA    | 650 | U    |
| 34  | AA    | 651 | A    |
| 34  | AA    | 653 | A    |
| 34  | AA    | 659 | U    |
| 34  | AA    | 662 | A    |
| 34  | AA    | 666 | U    |
| 34  | AA    | 671 | U    |
| 34  | AA    | 672 | C    |
| 34  | AA    | 674 | U    |
| 34  | AA    | 675 | A    |
| 34  | AA    | 677 | A    |
| 34  | AA    | 678 | A    |
| 34  | AA    | 679 | U    |
| 34  | AA    | 681 | U    |
| 34  | AA    | 682 | A    |
| 34  | AA    | 683 | A    |
| 34  | AA    | 684 | G    |
| 34  | AA    | 685 | U    |
| 34  | AA    | 694 | U    |
| 34  | AA    | 697 | A    |
| 34  | AA    | 698 | G    |
| 34  | AA    | 699 | U    |
| 34  | AA    | 704 | U    |
| 34  | AA    | 707 | U    |
| 34  | AA    | 708 | A    |
| 34  | AA    | 714 | C    |
| 34  | AA    | 715 | U    |
| 34  | AA    | 716 | C    |
| 34  | AA    | 722 | G    |
| 34  | AA    | 727 | A    |
| 34  | AA    | 729 | G    |
| 34  | AA    | 738 | A    |
| 34  | AA    | 755 | A    |
| 34  | AA    | 760 | A    |
| 34  | AA    | 761 | U    |
| 34  | AA    | 763 | U    |
| 34  | AA    | 765 | A    |
| 34  | AA    | 767 | U    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 34  | AA    | 769 | U    |
| 34  | AA    | 771 | U    |
| 34  | AA    | 773 | A    |
| 34  | AA    | 774 | A    |
| 34  | AA    | 778 | U    |
| 34  | AA    | 779 | U    |
| 34  | AA    | 793 | A    |
| 34  | AA    | 794 | C    |
| 34  | AA    | 806 | G    |
| 34  | AA    | 809 | A    |
| 34  | AA    | 810 | U    |
| 34  | AA    | 811 | A    |
| 34  | AA    | 812 | U    |
| 34  | AA    | 813 | G    |
| 34  | AA    | 822 | A    |
| 34  | AA    | 825 | G    |
| 34  | AA    | 833 | G    |
| 34  | AA    | 834 | U    |
| 34  | AA    | 835 | G    |
| 34  | AA    | 859 | C    |
| 34  | AA    | 860 | A    |
| 34  | AA    | 862 | U    |
| 34  | AA    | 873 | U    |
| 34  | AA    | 874 | A    |
| 34  | AA    | 880 | A    |
| 34  | AA    | 885 | A    |
| 34  | AA    | 889 | U    |
| 34  | AA    | 890 | G    |
| 34  | AA    | 893 | U    |
| 34  | AA    | 896 | U    |
| 34  | AA    | 899 | A    |
| 34  | AA    | 900 | G    |
| 34  | AA    | 903 | C    |
| 34  | AA    | 905 | A    |
| 34  | AA    | 918 | G    |
| 34  | AA    | 920 | A    |
| 34  | AA    | 925 | A    |
| 34  | AA    | 927 | A    |
| 34  | AA    | 934 | G    |
| 34  | AA    | 936 | A    |
| 34  | AA    | 937 | C    |
| 34  | AA    | 945 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 34  | AA    | 946  | A    |
| 34  | AA    | 951  | A    |
| 34  | AA    | 955  | A    |
| 34  | AA    | 956  | A    |
| 34  | AA    | 965  | A    |
| 34  | AA    | 966  | A    |
| 34  | AA    | 968  | G    |
| 34  | AA    | 970  | C    |
| 34  | AA    | 976  | G    |
| 34  | AA    | 980  | A    |
| 34  | AA    | 984  | A    |
| 34  | AA    | 988  | G    |
| 34  | AA    | 989  | A    |
| 34  | AA    | 993  | U    |
| 34  | AA    | 998  | U    |
| 34  | AA    | 999  | G    |
| 34  | AA    | 1013 | U    |
| 34  | AA    | 1014 | C    |
| 34  | AA    | 1015 | A    |
| 34  | AA    | 1016 | A    |
| 34  | AA    | 1024 | U    |
| 34  | AA    | 1026 | G    |
| 34  | AA    | 1027 | G    |
| 34  | AA    | 1033 | A    |
| 34  | AA    | 1034 | A    |
| 34  | AA    | 1035 | G    |
| 34  | AA    | 1036 | A    |
| 34  | AA    | 1040 | A    |
| 34  | AA    | 1042 | C    |
| 34  | AA    | 1043 | G    |
| 34  | AA    | 1053 | U    |
| 34  | AA    | 1056 | G    |
| 34  | AA    | 1062 | U    |
| 34  | AA    | 1063 | A    |
| 34  | AA    | 1070 | A    |
| 34  | AA    | 1072 | A    |
| 34  | AA    | 1073 | G    |
| 34  | AA    | 1078 | C    |
| 34  | AA    | 1079 | U    |
| 34  | AA    | 1081 | A    |
| 34  | AA    | 1086 | C    |
| 34  | AA    | 1087 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 34  | AA    | 1092 | A    |
| 34  | AA    | 1099 | U    |
| 34  | AA    | 1100 | A    |
| 34  | AA    | 1101 | A    |
| 34  | AA    | 1102 | U    |
| 34  | AA    | 1106 | A    |
| 34  | AA    | 1109 | U    |
| 34  | AA    | 1111 | A    |
| 34  | AA    | 1113 | C    |
| 34  | AA    | 1114 | A    |
| 34  | AA    | 1115 | G    |
| 34  | AA    | 1116 | G    |
| 34  | AA    | 1121 | G    |
| 34  | AA    | 1122 | A    |
| 34  | AA    | 1123 | U    |
| 34  | AA    | 1124 | A    |
| 34  | AA    | 1132 | G    |
| 34  | AA    | 1136 | A    |
| 34  | AA    | 1158 | G    |
| 34  | AA    | 1164 | U    |
| 34  | AA    | 1168 | C    |
| 34  | AA    | 1169 | A    |
| 34  | AA    | 1170 | A    |
| 34  | AA    | 1172 | C    |
| 34  | AA    | 1174 | C    |
| 34  | AA    | 1186 | A    |
| 34  | AA    | 1187 | A    |
| 34  | AA    | 1188 | A    |
| 34  | AA    | 1193 | G    |
| 34  | AA    | 1194 | A    |
| 34  | AA    | 1196 | A    |
| 34  | AA    | 1197 | U    |
| 34  | AA    | 1198 | A    |
| 34  | AA    | 1199 | A    |
| 34  | AA    | 1200 | C    |
| 34  | AA    | 1202 | C    |
| 34  | AA    | 1205 | U    |
| 34  | AA    | 1206 | U    |
| 34  | AA    | 1207 | U    |
| 34  | AA    | 1210 | A    |
| 34  | AA    | 1215 | A    |
| 34  | AA    | 1217 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 34  | AA    | 1218 | C    |
| 34  | AA    | 1219 | A    |
| 34  | AA    | 1221 | A    |
| 34  | AA    | 1222 | U    |
| 34  | AA    | 1223 | U    |
| 34  | AA    | 1224 | A    |
| 34  | AA    | 1225 | A    |
| 34  | AA    | 1226 | A    |
| 34  | AA    | 1229 | A    |
| 34  | AA    | 1230 | A    |
| 34  | AA    | 1231 | A    |
| 34  | AA    | 1232 | U    |
| 34  | AA    | 1233 | A    |
| 34  | AA    | 1234 | A    |
| 34  | AA    | 1239 | A    |
| 34  | AA    | 1240 | A    |
| 34  | AA    | 1245 | G    |
| 34  | AA    | 1257 | A    |
| 34  | AA    | 1259 | G    |
| 34  | AA    | 1263 | A    |
| 34  | AA    | 1272 | U    |
| 34  | AA    | 1273 | G    |
| 34  | AA    | 1279 | U    |
| 34  | AA    | 1281 | C    |
| 34  | AA    | 1283 | C    |
| 34  | AA    | 1287 | A    |
| 34  | AA    | 1288 | C    |
| 34  | AA    | 1291 | U    |
| 34  | AA    | 1295 | A    |
| 34  | AA    | 1299 | G    |
| 34  | AA    | 1300 | G    |
| 34  | AA    | 1306 | A    |
| 34  | AA    | 1309 | U    |
| 34  | AA    | 1310 | A    |
| 34  | AA    | 1313 | C    |
| 34  | AA    | 1314 | G    |
| 34  | AA    | 1320 | G    |
| 34  | AA    | 1321 | A    |
| 34  | AA    | 1324 | U    |
| 34  | AA    | 1325 | C    |
| 34  | AA    | 1329 | U    |
| 34  | AA    | 1334 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 34  | AA    | 1337 | G    |
| 34  | AA    | 1340 | G    |
| 34  | AA    | 1341 | G    |
| 34  | AA    | 1344 | C    |
| 34  | AA    | 1345 | A    |
| 34  | AA    | 1346 | U    |
| 34  | AA    | 1416 | U    |
| 34  | AA    | 1418 | A    |
| 34  | AA    | 1420 | C    |
| 34  | AA    | 1423 | G    |
| 34  | AA    | 1431 | A    |
| 34  | AA    | 1432 | A    |
| 34  | AA    | 1433 | U    |
| 34  | AA    | 1435 | G    |
| 34  | AA    | 1436 | A    |
| 34  | AA    | 1437 | U    |
| 34  | AA    | 1441 | G    |
| 34  | AA    | 1444 | A    |
| 34  | AA    | 1445 | A    |
| 34  | AA    | 1450 | G    |
| 34  | AA    | 1451 | A    |
| 34  | AA    | 1453 | U    |
| 34  | AA    | 1458 | A    |
| 34  | AA    | 1460 | A    |
| 34  | AA    | 1473 | A    |
| 34  | AA    | 1476 | A    |
| 34  | AA    | 1480 | G    |
| 34  | AA    | 1481 | A    |
| 34  | AA    | 1486 | A    |
| 34  | AA    | 1498 | U    |
| 34  | AA    | 1499 | U    |
| 34  | AA    | 1503 | A    |
| 34  | AA    | 1504 | A    |
| 34  | AA    | 1506 | C    |
| 34  | AA    | 1524 | U    |
| 34  | AA    | 1535 | G    |
| 34  | AA    | 1537 | G    |
| 34  | AA    | 1539 | U    |
| 34  | AA    | 1540 | G    |
| 34  | AA    | 1549 | U    |
| 34  | AA    | 1550 | A    |
| 34  | AA    | 1556 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 34  | AA    | 1565 | G    |
| 34  | AA    | 1567 | A    |
| 34  | AA    | 1572 | U    |
| 34  | AA    | 1575 | C    |
| 34  | AA    | 1578 | G    |
| 34  | AA    | 1583 | G    |
| 34  | AA    | 1586 | C    |
| 34  | AA    | 1592 | G    |
| 34  | AA    | 1595 | A    |
| 34  | AA    | 1599 | G    |
| 34  | AA    | 1601 | A    |
| 34  | AA    | 1602 | A    |
| 34  | AA    | 1605 | A    |
| 34  | AA    | 1619 | U    |
| 34  | AA    | 1626 | A    |
| 34  | AA    | 1630 | A    |
| 34  | AA    | 1631 | A    |
| 34  | AA    | 1635 | G    |
| 34  | AA    | 1636 | A    |
| 34  | AA    | 1637 | G    |
| 34  | AA    | 1642 | G    |
| 34  | AA    | 1643 | U    |
| 34  | AA    | 1649 | G    |
| 34  | AA    | 1651 | C    |
| 34  | AA    | 1657 | U    |
| 34  | AA    | 1659 | A    |
| 34  | AA    | 1661 | U    |
| 34  | AA    | 1668 | G    |
| 34  | AA    | 1676 | C    |
| 34  | AA    | 1677 | G    |
| 34  | AA    | 1685 | G    |
| 34  | AA    | 1688 | A    |
| 34  | AA    | 1691 | G    |
| 34  | AA    | 1693 | U    |
| 34  | AA    | 1703 | U    |
| 34  | AA    | 1704 | U    |
| 34  | AA    | 1705 | A    |
| 34  | AA    | 1706 | A    |
| 34  | AA    | 1707 | A    |
| 34  | AA    | 1721 | C    |
| 34  | AA    | 1725 | U    |
| 34  | AA    | 1730 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 34  | AA    | 1732 | A    |
| 34  | AA    | 1733 | G    |
| 34  | AA    | 1736 | A    |
| 34  | AA    | 1737 | A    |
| 34  | AA    | 1739 | C    |
| 34  | AA    | 1748 | A    |
| 34  | AA    | 1750 | U    |
| 34  | AA    | 1751 | C    |
| 34  | AA    | 1756 | G    |
| 34  | AA    | 1762 | A    |
| 34  | AA    | 1763 | G    |
| 34  | AA    | 1766 | U    |
| 34  | AA    | 1767 | U    |
| 34  | AA    | 1768 | A    |
| 34  | AA    | 1769 | U    |
| 34  | AA    | 1770 | G    |
| 34  | AA    | 1771 | A    |
| 34  | AA    | 1774 | U    |
| 34  | AA    | 1780 | G    |
| 34  | AA    | 1781 | A    |
| 34  | AA    | 1782 | U    |
| 34  | AA    | 1783 | G    |
| 34  | AA    | 1788 | C    |
| 34  | AA    | 1794 | U    |
| 34  | AA    | 1797 | A    |
| 34  | AA    | 1798 | A    |
| 34  | AA    | 1799 | A    |
| 34  | AA    | 1800 | U    |
| 34  | AA    | 1801 | G    |
| 34  | AA    | 1805 | U    |
| 34  | AA    | 1806 | C    |
| 34  | AA    | 1812 | C    |
| 34  | AA    | 1817 | G    |
| 34  | AA    | 1832 | U    |
| 34  | AA    | 1842 | U    |
| 34  | AA    | 1850 | U    |
| 34  | AA    | 1852 | C    |
| 34  | AA    | 1855 | U    |
| 34  | AA    | 1856 | U    |
| 34  | AA    | 1857 | A    |
| 34  | AA    | 1871 | A    |
| 34  | AA    | 1872 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 34  | AA    | 1874 | C    |
| 34  | AA    | 1881 | C    |
| 34  | AA    | 1882 | U    |
| 34  | AA    | 1886 | A    |
| 34  | AA    | 1887 | G    |
| 34  | AA    | 1888 | A    |
| 34  | AA    | 1898 | U    |
| 34  | AA    | 1899 | U    |
| 34  | AA    | 1900 | G    |
| 34  | AA    | 1902 | A    |
| 34  | AA    | 1903 | C    |
| 34  | AA    | 1904 | U    |
| 34  | AA    | 1905 | C    |
| 34  | AA    | 1914 | A    |
| 34  | AA    | 1915 | A    |
| 34  | AA    | 1963 | U    |
| 34  | AA    | 1964 | G    |
| 34  | AA    | 1965 | U    |
| 34  | AA    | 1966 | A    |
| 34  | AA    | 1969 | A    |
| 34  | AA    | 1970 | A    |
| 34  | AA    | 1971 | U    |
| 34  | AA    | 1976 | A    |
| 34  | AA    | 1978 | U    |
| 34  | AA    | 1981 | U    |
| 34  | AA    | 1990 | A    |
| 34  | AA    | 1991 | U    |
| 34  | AA    | 1996 | C    |
| 34  | AA    | 1997 | G    |
| 34  | AA    | 1998 | A    |
| 34  | AA    | 1999 | A    |
| 34  | AA    | 2000 | G    |
| 34  | AA    | 2003 | G    |
| 34  | AA    | 2010 | C    |
| 34  | AA    | 2018 | G    |
| 34  | AA    | 2019 | A    |
| 34  | AA    | 2030 | G    |
| 34  | AA    | 2034 | G    |
| 34  | AA    | 2072 | U    |
| 34  | AA    | 2082 | C    |
| 34  | AA    | 2084 | U    |
| 34  | AA    | 2090 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 34  | AA    | 2092 | G    |
| 34  | AA    | 2093 | U    |
| 34  | AA    | 2096 | G    |
| 34  | AA    | 2097 | A    |
| 34  | AA    | 2102 | A    |
| 34  | AA    | 2106 | A    |
| 34  | AA    | 2107 | C    |
| 34  | AA    | 2108 | A    |
| 34  | AA    | 2109 | A    |
| 34  | AA    | 2113 | C    |
| 34  | AA    | 2114 | A    |
| 34  | AA    | 2115 | U    |
| 34  | AA    | 2125 | A    |
| 34  | AA    | 2136 | C    |
| 34  | AA    | 2145 | A    |
| 34  | AA    | 2146 | A    |
| 34  | AA    | 2147 | A    |
| 34  | AA    | 2148 | U    |
| 34  | AA    | 2149 | A    |
| 34  | AA    | 2154 | A    |
| 34  | AA    | 2160 | G    |
| 34  | AA    | 2161 | G    |
| 34  | AA    | 2174 | G    |
| 34  | AA    | 2181 | A    |
| 34  | AA    | 2186 | C    |
| 34  | AA    | 2203 | G    |
| 34  | AA    | 2218 | C    |
| 34  | AA    | 2219 | A    |
| 34  | AA    | 2220 | U    |
| 34  | AA    | 2389 | G    |
| 34  | AA    | 2394 | C    |
| 34  | AA    | 2395 | U    |
| 34  | AA    | 2400 | A    |
| 34  | AA    | 2403 | G    |
| 34  | AA    | 2404 | A    |
| 34  | AA    | 2405 | A    |
| 34  | AA    | 2410 | A    |
| 34  | AA    | 2415 | G    |
| 34  | AA    | 2419 | A    |
| 34  | AA    | 2424 | A    |
| 34  | AA    | 2427 | G    |
| 34  | AA    | 2433 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 34  | AA    | 2437 | A    |
| 34  | AA    | 2438 | A    |
| 34  | AA    | 2451 | A    |
| 34  | AA    | 2453 | A    |
| 34  | AA    | 2463 | U    |
| 34  | AA    | 2464 | G    |
| 34  | AA    | 2465 | G    |
| 34  | AA    | 2477 | U    |
| 34  | AA    | 2486 | U    |
| 34  | AA    | 2489 | C    |
| 34  | AA    | 2500 | A    |
| 34  | AA    | 2501 | A    |
| 34  | AA    | 2510 | U    |
| 34  | AA    | 2516 | A    |
| 34  | AA    | 2518 | U    |
| 34  | AA    | 2521 | A    |
| 34  | AA    | 2524 | C    |
| 34  | AA    | 2536 | A    |
| 34  | AA    | 2537 | A    |
| 34  | AA    | 2539 | G    |
| 34  | AA    | 2542 | G    |
| 34  | AA    | 2544 | G    |
| 34  | AA    | 2545 | A    |
| 34  | AA    | 2548 | A    |
| 34  | AA    | 2549 | A    |
| 34  | AA    | 2550 | C    |
| 34  | AA    | 2552 | A    |
| 34  | AA    | 2555 | A    |
| 34  | AA    | 2556 | C    |
| 34  | AA    | 2565 | G    |
| 34  | AA    | 2566 | G    |
| 34  | AA    | 2573 | A    |
| 34  | AA    | 2574 | A    |
| 34  | AA    | 2575 | U    |
| 34  | AA    | 2581 | G    |
| 34  | AA    | 2584 | A    |
| 34  | AA    | 2589 | A    |
| 34  | AA    | 2591 | U    |
| 34  | AA    | 2596 | A    |
| 34  | AA    | 2600 | G    |
| 34  | AA    | 2602 | A    |
| 34  | AA    | 2603 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 34  | AA    | 2606 | A    |
| 34  | AA    | 2608 | G    |
| 34  | AA    | 2618 | G    |
| 34  | AA    | 2627 | U    |
| 34  | AA    | 2628 | G    |
| 34  | AA    | 2629 | U    |
| 34  | AA    | 2640 | U    |
| 34  | AA    | 2666 | A    |
| 34  | AA    | 2667 | C    |
| 34  | AA    | 2668 | G    |
| 34  | AA    | 2671 | C    |
| 34  | AA    | 2676 | C    |
| 34  | AA    | 2681 | U    |
| 34  | AA    | 2684 | G    |
| 34  | AA    | 2686 | G    |
| 34  | AA    | 2690 | A    |
| 34  | AA    | 2695 | A    |
| 34  | AA    | 2696 | G    |
| 34  | AA    | 2697 | A    |
| 34  | AA    | 2698 | C    |
| 34  | AA    | 2703 | U    |
| 34  | AA    | 2704 | U    |
| 34  | AA    | 2705 | G    |
| 34  | AA    | 2710 | U    |
| 34  | AA    | 2711 | U    |
| 34  | AA    | 2712 | A    |
| 34  | AA    | 2727 | U    |
| 34  | AA    | 2728 | G    |
| 34  | AA    | 2730 | G    |
| 34  | AA    | 2745 | G    |
| 34  | AA    | 2803 | A    |
| 34  | AA    | 2809 | A    |
| 34  | AA    | 2810 | A    |
| 34  | AA    | 2811 | A    |
| 34  | AA    | 2817 | U    |
| 34  | AA    | 2822 | U    |
| 34  | AA    | 2823 | U    |
| 34  | AA    | 2824 | A    |
| 34  | AA    | 2833 | U    |
| 34  | AA    | 2835 | G    |
| 34  | AA    | 2837 | G    |
| 34  | AA    | 2884 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 34  | AA    | 2886 | A    |
| 34  | AA    | 2887 | U    |
| 34  | AA    | 2888 | U    |
| 34  | AA    | 2920 | A    |
| 34  | AA    | 2928 | G    |
| 34  | AA    | 2932 | A    |
| 34  | AA    | 2933 | C    |
| 34  | AA    | 2945 | G    |
| 34  | AA    | 2946 | G    |
| 34  | AA    | 2953 | G    |
| 34  | AA    | 2959 | G    |
| 34  | AA    | 2960 | G    |
| 34  | AA    | 2967 | A    |
| 34  | AA    | 2968 | U    |
| 34  | AA    | 2975 | A    |
| 34  | AA    | 2980 | U    |
| 34  | AA    | 2981 | A    |
| 34  | AA    | 2987 | G    |
| 34  | AA    | 2990 | G    |
| 34  | AA    | 2991 | U    |
| 34  | AA    | 2995 | A    |
| 34  | AA    | 2996 | A    |
| 34  | AA    | 3005 | C    |
| 34  | AA    | 3013 | A    |
| 34  | AA    | 3015 | A    |
| 34  | AA    | 3016 | G    |
| 34  | AA    | 3017 | A    |
| 34  | AA    | 3018 | A    |
| 34  | AA    | 3019 | A    |
| 34  | AA    | 3020 | U    |
| 34  | AA    | 3028 | A    |
| 34  | AA    | 3029 | G    |
| 34  | AA    | 3030 | A    |
| 34  | AA    | 3033 | A    |
| 34  | AA    | 3034 | A    |
| 34  | AA    | 3035 | A    |
| 34  | AA    | 3044 | A    |
| 34  | AA    | 3053 | G    |
| 34  | AA    | 3059 | U    |
| 34  | AA    | 3068 | A    |
| 34  | AA    | 3076 | G    |
| 34  | AA    | 3079 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 34  | AA    | 3081 | C    |
| 34  | AA    | 3086 | A    |
| 34  | AA    | 3088 | G    |
| 34  | AA    | 3091 | U    |
| 34  | AA    | 3092 | G    |
| 34  | AA    | 3094 | C    |
| 34  | AA    | 3100 | G    |
| 34  | AA    | 3108 | A    |
| 34  | AA    | 3111 | U    |
| 34  | AA    | 3112 | U    |
| 34  | AA    | 3113 | U    |
| 34  | AA    | 3116 | A    |
| 34  | AA    | 3118 | A    |
| 34  | AA    | 3123 | C    |
| 34  | AA    | 3124 | G    |
| 34  | AA    | 3126 | A    |
| 34  | AA    | 3127 | A    |
| 34  | AA    | 3130 | U    |
| 34  | AA    | 3131 | A    |
| 34  | AA    | 3135 | A    |
| 34  | AA    | 3138 | A    |
| 34  | AA    | 3139 | C    |
| 34  | AA    | 3140 | U    |
| 34  | AA    | 3141 | G    |
| 34  | AA    | 3146 | U    |
| 34  | AA    | 3155 | G    |
| 34  | AA    | 3158 | U    |
| 34  | AA    | 3159 | G    |
| 34  | AA    | 3160 | A    |
| 34  | AA    | 3161 | A    |
| 34  | AA    | 3167 | A    |
| 34  | AA    | 3168 | C    |
| 34  | AA    | 3169 | C    |
| 34  | AA    | 3173 | G    |
| 34  | AA    | 3175 | G    |
| 34  | AA    | 3176 | A    |
| 34  | AA    | 3180 | C    |
| 34  | AA    | 3187 | G    |
| 34  | AA    | 3193 | G    |
| 34  | AA    | 3201 | C    |
| 34  | AA    | 3204 | C    |
| 34  | AA    | 3208 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 34  | AA    | 3209 | G    |
| 34  | AA    | 3212 | G    |
| 34  | AA    | 3220 | U    |
| 34  | AA    | 3222 | G    |
| 34  | AA    | 3225 | C    |
| 34  | AA    | 3230 | G    |
| 34  | AA    | 3231 | A    |
| 34  | AA    | 3232 | U    |
| 34  | AA    | 3235 | C    |
| 34  | AA    | 3245 | U    |
| 34  | AA    | 3246 | A    |
| 34  | AA    | 3248 | C    |
| 34  | AA    | 3253 | G    |
| 34  | AA    | 3257 | G    |
| 34  | AA    | 3258 | C    |
| 34  | AA    | 3269 | A    |
| 34  | AA    | 3277 | G    |
| 34  | AA    | 3282 | U    |
| 34  | AA    | 3287 | C    |
| 34  | AA    | 3292 | A    |
| 34  | AA    | 3294 | U    |
| 34  | AA    | 3295 | A    |
| 34  | AA    | 3297 | G    |
| 34  | AA    | 3301 | C    |
| 34  | AA    | 3302 | G    |
| 34  | AA    | 3304 | G    |
| 34  | AA    | 3305 | A    |
| 34  | AA    | 3306 | G    |
| 34  | AA    | 3330 | A    |
| 34  | AA    | 3336 | G    |
| 34  | AA    | 3337 | U    |
| 34  | AA    | 3342 | C    |
| 34  | AA    | 3343 | C    |
| 34  | AA    | 3349 | G    |
| 34  | AA    | 3351 | U    |
| 34  | AA    | 3353 | A    |
| 34  | AA    | 3356 | U    |
| 34  | AA    | 3357 | U    |
| 34  | AA    | 3358 | U    |
| 34  | AA    | 3359 | A    |
| 34  | AA    | 3361 | U    |
| 34  | AA    | 3362 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 34  | AA    | 3374 | U    |
| 34  | AA    | 3375 | A    |
| 34  | AA    | 3378 | C    |
| 34  | AA    | 3379 | A    |
| 34  | AA    | 3380 | U    |
| 34  | AA    | 3381 | A    |
| 34  | AA    | 3382 | U    |
| 34  | AA    | 3383 | A    |
| 34  | AA    | 3389 | G    |
| 34  | AA    | 3391 | G    |
| 34  | AA    | 3398 | A    |
| 34  | AA    | 3414 | G    |
| 34  | AA    | 3415 | A    |
| 34  | AA    | 3416 | G    |
| 34  | AA    | 3418 | A    |
| 34  | AA    | 3421 | A    |
| 34  | AA    | 3432 | A    |
| 34  | AA    | 3434 | A    |
| 34  | AA    | 3435 | A    |
| 34  | AA    | 3442 | C    |
| 34  | AA    | 3443 | A    |
| 34  | AA    | 3444 | G    |
| 34  | AA    | 3445 | C    |
| 34  | AA    | 3459 | A    |
| 34  | AA    | 3463 | G    |
| 34  | AA    | 3464 | U    |
| 34  | AA    | 3468 | G    |
| 34  | AA    | 3471 | A    |
| 34  | AA    | 3472 | A    |
| 34  | AA    | 3476 | A    |
| 34  | AA    | 3477 | A    |
| 34  | AA    | 3483 | U    |
| 34  | AA    | 3488 | U    |
| 34  | AA    | 3493 | G    |
| 34  | AA    | 3500 | G    |
| 34  | AA    | 3507 | A    |
| 34  | AA    | 3510 | C    |
| 34  | AA    | 3513 | G    |
| 34  | AA    | 3515 | A    |
| 34  | AA    | 3516 | A    |
| 34  | AA    | 3526 | U    |
| 34  | AA    | 3527 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 34  | AA    | 3528 | A    |
| 34  | AA    | 3530 | A    |
| 34  | AA    | 3568 | G    |
| 34  | AA    | 3571 | A    |
| 34  | AA    | 3573 | U    |
| 34  | AA    | 3575 | U    |
| 34  | AA    | 3576 | A    |
| 34  | AA    | 3578 | A    |
| 34  | AA    | 3580 | G    |
| 34  | AA    | 3581 | A    |
| 34  | AA    | 3582 | G    |
| 34  | AA    | 3585 | A    |
| 34  | AA    | 3586 | U    |
| 34  | AA    | 3588 | A    |
| 34  | AA    | 3589 | U    |
| 34  | AA    | 3590 | A    |
| 34  | AA    | 3591 | U    |
| 34  | AA    | 3594 | G    |
| 34  | AA    | 3597 | C    |
| 34  | AA    | 3612 | U    |
| 34  | AA    | 3615 | A    |
| 34  | AA    | 3616 | U    |
| 34  | AA    | 3617 | A    |
| 34  | AA    | 3618 | A    |
| 34  | AA    | 3623 | A    |
| 34  | AA    | 3624 | U    |
| 34  | AA    | 3626 | A    |
| 34  | AA    | 3627 | C    |
| 34  | AA    | 3632 | U    |
| 34  | AA    | 3635 | G    |
| 34  | AA    | 3658 | G    |
| 34  | AA    | 3659 | C    |
| 34  | AA    | 3663 | A    |
| 34  | AA    | 3664 | G    |
| 34  | AA    | 3665 | U    |
| 34  | AA    | 3667 | C    |
| 34  | AA    | 3668 | U    |
| 34  | AA    | 3670 | U    |
| 34  | AA    | 3671 | A    |
| 34  | AA    | 3676 | C    |
| 34  | AA    | 3677 | A    |
| 34  | AA    | 3680 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 34  | AA    | 3683 | G    |
| 34  | AA    | 3684 | A    |
| 34  | AA    | 3689 | C    |
| 34  | AA    | 3697 | G    |
| 34  | AA    | 3698 | U    |
| 34  | AA    | 3707 | U    |
| 34  | AA    | 3711 | U    |
| 34  | AA    | 3712 | G    |
| 34  | AA    | 3716 | C    |
| 34  | AA    | 3727 | A    |
| 34  | AA    | 3728 | A    |
| 34  | AA    | 3732 | U    |
| 34  | AA    | 3733 | G    |
| 34  | AA    | 3736 | A    |
| 34  | AA    | 3737 | G    |
| 34  | AA    | 3739 | A    |
| 34  | AA    | 3740 | A    |
| 34  | AA    | 3741 | A    |
| 34  | AA    | 3752 | C    |
| 34  | AA    | 3761 | G    |
| 34  | AA    | 3767 | U    |
| 34  | AA    | 3768 | A    |
| 34  | AA    | 3770 | C    |
| 34  | AA    | 3774 | A    |
| 34  | AA    | 3775 | G    |
| 34  | AA    | 3778 | G    |
| 34  | AA    | 3779 | U    |
| 34  | AA    | 3782 | A    |
| 34  | AA    | 3783 | G    |
| 35  | AC    | 5    | A    |
| 35  | AC    | 25   | C    |
| 35  | AC    | 36   | C    |
| 35  | AC    | 37   | A    |
| 35  | AC    | 38   | G    |
| 35  | AC    | 39   | C    |
| 35  | AC    | 43   | G    |
| 35  | AC    | 44   | A    |
| 35  | AC    | 50   | G    |
| 35  | AC    | 53   | G    |
| 35  | AC    | 55   | A    |
| 35  | AC    | 56   | A    |
| 35  | AC    | 63   | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 35  | AC    | 64  | U    |
| 35  | AC    | 66  | C    |
| 35  | AC    | 67  | G    |
| 35  | AC    | 73  | A    |
| 35  | AC    | 75  | A    |
| 35  | AC    | 78  | U    |
| 35  | AC    | 79  | G    |
| 35  | AC    | 80  | C    |
| 35  | AC    | 82  | G    |
| 35  | AC    | 85  | A    |
| 35  | AC    | 90  | G    |
| 35  | AC    | 91  | A    |
| 35  | AC    | 92  | A    |
| 35  | AC    | 94  | C    |
| 35  | AC    | 98  | A    |
| 35  | AC    | 99  | G    |
| 35  | AC    | 107 | A    |
| 35  | AC    | 108 | A    |
| 35  | AC    | 109 | U    |
| 35  | AC    | 111 | U    |
| 35  | AC    | 112 | A    |
| 35  | AC    | 114 | A    |
| 35  | AC    | 115 | C    |
| 35  | AC    | 116 | U    |
| 35  | AC    | 117 | A    |
| 35  | AC    | 119 | A    |
| 35  | AC    | 122 | A    |
| 35  | AC    | 123 | A    |
| 35  | AC    | 135 | G    |
| 35  | AC    | 136 | A    |
| 35  | AC    | 137 | A    |
| 35  | AC    | 138 | U    |
| 35  | AC    | 139 | A    |
| 35  | AC    | 140 | G    |
| 35  | AC    | 142 | G    |
| 35  | AC    | 145 | A    |
| 35  | AC    | 146 | C    |
| 35  | AC    | 156 | A    |
| 36  | AB    | 3   | A    |
| 36  | AB    | 7   | G    |
| 36  | AB    | 13  | A    |
| 36  | AB    | 16  | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 36  | AB    | 18  | A    |
| 36  | AB    | 22  | G    |
| 36  | AB    | 25  | A    |
| 36  | AB    | 26  | C    |
| 36  | AB    | 27  | A    |
| 36  | AB    | 33  | U    |
| 36  | AB    | 38  | U    |
| 36  | AB    | 39  | C    |
| 36  | AB    | 40  | A    |
| 36  | AB    | 48  | G    |
| 36  | AB    | 51  | G    |
| 36  | AB    | 53  | U    |
| 36  | AB    | 54  | A    |
| 36  | AB    | 63  | A    |
| 36  | AB    | 64  | A    |
| 36  | AB    | 69  | U    |
| 36  | AB    | 71  | G    |
| 36  | AB    | 74  | A    |
| 36  | AB    | 76  | U    |
| 36  | AB    | 89  | G    |
| 36  | AB    | 93  | G    |
| 36  | AB    | 97  | G    |
| 36  | AB    | 100 | A    |
| 36  | AB    | 110 | G    |

All (289) RNA pucker outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 25  | C    |
| 1   | A     | 39  | A    |
| 1   | A     | 45  | U    |
| 1   | A     | 105 | A    |
| 1   | A     | 116 | A    |
| 1   | A     | 138 | U    |
| 1   | A     | 139 | A    |
| 1   | A     | 156 | A    |
| 1   | A     | 157 | G    |
| 1   | A     | 161 | U    |
| 1   | A     | 206 | A    |
| 1   | A     | 246 | A    |
| 1   | A     | 248 | G    |
| 1   | A     | 250 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 251  | U    |
| 1   | A     | 273  | A    |
| 1   | A     | 291  | A    |
| 1   | A     | 383  | G    |
| 1   | A     | 386  | U    |
| 1   | A     | 423  | A    |
| 1   | A     | 474  | A    |
| 1   | A     | 525  | G    |
| 1   | A     | 544  | G    |
| 1   | A     | 586  | A    |
| 1   | A     | 589  | U    |
| 1   | A     | 614  | A    |
| 1   | A     | 752  | U    |
| 1   | A     | 753  | U    |
| 1   | A     | 789  | U    |
| 1   | A     | 790  | U    |
| 1   | A     | 793  | G    |
| 1   | A     | 805  | A    |
| 1   | A     | 815  | G    |
| 1   | A     | 844  | G    |
| 1   | A     | 876  | U    |
| 1   | A     | 919  | U    |
| 1   | A     | 930  | A    |
| 1   | A     | 973  | G    |
| 1   | A     | 975  | A    |
| 1   | A     | 981  | U    |
| 1   | A     | 983  | G    |
| 1   | A     | 1028 | U    |
| 1   | A     | 1071 | G    |
| 1   | A     | 1073 | U    |
| 1   | A     | 1099 | A    |
| 1   | A     | 1100 | U    |
| 1   | A     | 1182 | A    |
| 1   | A     | 1209 | G    |
| 1   | A     | 1259 | C    |
| 1   | A     | 1283 | U    |
| 1   | A     | 1284 | A    |
| 1   | A     | 1295 | A    |
| 1   | A     | 1381 | C    |
| 1   | A     | 1386 | U    |
| 1   | A     | 1400 | U    |
| 1   | A     | 1413 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 1414 | A    |
| 1   | A     | 1421 | A    |
| 1   | A     | 1423 | A    |
| 1   | A     | 1430 | G    |
| 1   | A     | 1431 | A    |
| 1   | A     | 1448 | U    |
| 1   | A     | 1455 | C    |
| 1   | A     | 1623 | U    |
| 1   | A     | 1624 | U    |
| 1   | A     | 1645 | C    |
| 1   | A     | 1660 | U    |
| 1   | A     | 1673 | A    |
| 1   | A     | 1692 | A    |
| 1   | A     | 1703 | U    |
| 1   | A     | 1705 | C    |
| 1   | A     | 1786 | U    |
| 1   | A     | 1817 | U    |
| 1   | A     | 1818 | A    |
| 1   | A     | 1819 | U    |
| 1   | A     | 1834 | A    |
| 1   | A     | 1865 | G    |
| 1   | A     | 1870 | A    |
| 1   | A     | 1897 | A    |
| 1   | A     | 1898 | G    |
| 1   | A     | 1912 | C    |
| 1   | A     | 1976 | G    |
| 1   | A     | 1977 | G    |
| 1   | A     | 2048 | A    |
| 1   | A     | 2053 | U    |
| 1   | A     | 2071 | U    |
| 2   | 7     | 32   | U    |
| 2   | 7     | 33   | C    |
| 2   | 7     | 56   | U    |
| 34  | AA    | 10   | G    |
| 34  | AA    | 11   | A    |
| 34  | AA    | 13   | G    |
| 34  | AA    | 21   | G    |
| 34  | AA    | 25   | A    |
| 34  | AA    | 40   | A    |
| 34  | AA    | 43   | A    |
| 34  | AA    | 61   | A    |
| 34  | AA    | 62   | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 34  | AA    | 65  | A    |
| 34  | AA    | 124 | U    |
| 34  | AA    | 149 | A    |
| 34  | AA    | 162 | U    |
| 34  | AA    | 179 | G    |
| 34  | AA    | 181 | C    |
| 34  | AA    | 206 | A    |
| 34  | AA    | 215 | C    |
| 34  | AA    | 257 | U    |
| 34  | AA    | 270 | U    |
| 34  | AA    | 289 | A    |
| 34  | AA    | 337 | A    |
| 34  | AA    | 344 | A    |
| 34  | AA    | 353 | G    |
| 34  | AA    | 358 | C    |
| 34  | AA    | 385 | G    |
| 34  | AA    | 411 | U    |
| 34  | AA    | 416 | G    |
| 34  | AA    | 432 | A    |
| 34  | AA    | 500 | A    |
| 34  | AA    | 501 | U    |
| 34  | AA    | 504 | A    |
| 34  | AA    | 505 | A    |
| 34  | AA    | 579 | C    |
| 34  | AA    | 580 | A    |
| 34  | AA    | 581 | C    |
| 34  | AA    | 583 | U    |
| 34  | AA    | 593 | A    |
| 34  | AA    | 594 | C    |
| 34  | AA    | 597 | A    |
| 34  | AA    | 607 | A    |
| 34  | AA    | 608 | A    |
| 34  | AA    | 620 | U    |
| 34  | AA    | 621 | C    |
| 34  | AA    | 641 | G    |
| 34  | AA    | 645 | A    |
| 34  | AA    | 652 | A    |
| 34  | AA    | 666 | U    |
| 34  | AA    | 667 | U    |
| 34  | AA    | 673 | U    |
| 34  | AA    | 674 | U    |
| 34  | AA    | 681 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 34  | AA    | 683  | A    |
| 34  | AA    | 697  | A    |
| 34  | AA    | 698  | G    |
| 34  | AA    | 702  | U    |
| 34  | AA    | 703  | U    |
| 34  | AA    | 715  | U    |
| 34  | AA    | 721  | U    |
| 34  | AA    | 754  | A    |
| 34  | AA    | 764  | G    |
| 34  | AA    | 809  | A    |
| 34  | AA    | 821  | C    |
| 34  | AA    | 859  | C    |
| 34  | AA    | 888  | A    |
| 34  | AA    | 889  | U    |
| 34  | AA    | 935  | A    |
| 34  | AA    | 965  | A    |
| 34  | AA    | 998  | U    |
| 34  | AA    | 1013 | U    |
| 34  | AA    | 1032 | A    |
| 34  | AA    | 1035 | G    |
| 34  | AA    | 1042 | C    |
| 34  | AA    | 1078 | C    |
| 34  | AA    | 1080 | C    |
| 34  | AA    | 1101 | A    |
| 34  | AA    | 1115 | G    |
| 34  | AA    | 1197 | U    |
| 34  | AA    | 1204 | A    |
| 34  | AA    | 1205 | U    |
| 34  | AA    | 1206 | U    |
| 34  | AA    | 1217 | U    |
| 34  | AA    | 1222 | U    |
| 34  | AA    | 1224 | A    |
| 34  | AA    | 1230 | A    |
| 34  | AA    | 1234 | A    |
| 34  | AA    | 1272 | U    |
| 34  | AA    | 1336 | U    |
| 34  | AA    | 1422 | A    |
| 34  | AA    | 1431 | A    |
| 34  | AA    | 1435 | G    |
| 34  | AA    | 1457 | G    |
| 34  | AA    | 1459 | U    |
| 34  | AA    | 1503 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 34  | AA    | 1504 | A    |
| 34  | AA    | 1538 | U    |
| 34  | AA    | 1566 | A    |
| 34  | AA    | 1574 | C    |
| 34  | AA    | 1632 | G    |
| 34  | AA    | 1642 | G    |
| 34  | AA    | 1643 | U    |
| 34  | AA    | 1658 | G    |
| 34  | AA    | 1705 | A    |
| 34  | AA    | 1736 | A    |
| 34  | AA    | 1748 | A    |
| 34  | AA    | 1750 | U    |
| 34  | AA    | 1779 | A    |
| 34  | AA    | 1794 | U    |
| 34  | AA    | 1805 | U    |
| 34  | AA    | 1841 | U    |
| 34  | AA    | 1873 | U    |
| 34  | AA    | 1881 | C    |
| 34  | AA    | 1898 | U    |
| 34  | AA    | 1913 | A    |
| 34  | AA    | 1964 | G    |
| 34  | AA    | 1980 | G    |
| 34  | AA    | 1989 | A    |
| 34  | AA    | 1990 | A    |
| 34  | AA    | 1996 | C    |
| 34  | AA    | 1999 | A    |
| 34  | AA    | 2015 | C    |
| 34  | AA    | 2033 | C    |
| 34  | AA    | 2096 | G    |
| 34  | AA    | 2109 | A    |
| 34  | AA    | 2146 | A    |
| 34  | AA    | 2153 | A    |
| 34  | AA    | 2180 | U    |
| 34  | AA    | 2193 | U    |
| 34  | AA    | 2219 | A    |
| 34  | AA    | 2394 | C    |
| 34  | AA    | 2437 | A    |
| 34  | AA    | 2523 | U    |
| 34  | AA    | 2590 | U    |
| 34  | AA    | 2618 | G    |
| 34  | AA    | 2665 | A    |
| 34  | AA    | 2696 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 34  | AA    | 2697 | A    |
| 34  | AA    | 2727 | U    |
| 34  | AA    | 2816 | U    |
| 34  | AA    | 2822 | U    |
| 34  | AA    | 2832 | A    |
| 34  | AA    | 2883 | U    |
| 34  | AA    | 2885 | A    |
| 34  | AA    | 2886 | A    |
| 34  | AA    | 2919 | A    |
| 34  | AA    | 2932 | A    |
| 34  | AA    | 2958 | G    |
| 34  | AA    | 2959 | G    |
| 34  | AA    | 3016 | G    |
| 34  | AA    | 3018 | A    |
| 34  | AA    | 3034 | A    |
| 34  | AA    | 3067 | G    |
| 34  | AA    | 3111 | U    |
| 34  | AA    | 3130 | U    |
| 34  | AA    | 3137 | U    |
| 34  | AA    | 3139 | C    |
| 34  | AA    | 3140 | U    |
| 34  | AA    | 3160 | A    |
| 34  | AA    | 3167 | A    |
| 34  | AA    | 3229 | C    |
| 34  | AA    | 3230 | G    |
| 34  | AA    | 3232 | U    |
| 34  | AA    | 3245 | U    |
| 34  | AA    | 3309 | G    |
| 34  | AA    | 3361 | U    |
| 34  | AA    | 3379 | A    |
| 34  | AA    | 3381 | A    |
| 34  | AA    | 3382 | U    |
| 34  | AA    | 3391 | G    |
| 34  | AA    | 3414 | G    |
| 34  | AA    | 3434 | A    |
| 34  | AA    | 3476 | A    |
| 34  | AA    | 3505 | U    |
| 34  | AA    | 3526 | U    |
| 34  | AA    | 3575 | U    |
| 34  | AA    | 3577 | A    |
| 34  | AA    | 3585 | A    |
| 34  | AA    | 3588 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 34  | AA    | 3590 | A    |
| 34  | AA    | 3627 | C    |
| 34  | AA    | 3658 | G    |
| 34  | AA    | 3662 | U    |
| 34  | AA    | 3664 | G    |
| 34  | AA    | 3667 | C    |
| 34  | AA    | 3698 | U    |
| 34  | AA    | 3711 | U    |
| 34  | AA    | 3727 | A    |
| 34  | AA    | 3736 | A    |
| 34  | AA    | 3767 | U    |
| 34  | AA    | 3769 | U    |
| 34  | AA    | 3782 | A    |
| 35  | AC    | 35   | A    |
| 35  | AC    | 37   | A    |
| 35  | AC    | 75   | A    |
| 35  | AC    | 134  | G    |
| 35  | AC    | 139  | A    |
| 35  | AC    | 145  | A    |
| 36  | AB    | 13   | A    |
| 36  | AB    | 39   | C    |
| 36  | AB    | 84   | U    |
| 36  | AB    | 88   | A    |

## 5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

## 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

There are no ligands in this entry.

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues

The following chains have linkage breaks:

| Mol | Chain | Number of breaks |
|-----|-------|------------------|
| 63  | AW    | 1                |

All chain breaks are listed below:

| Model | Chain | Residue-1 | Atom-1 | Residue-2 | Atom-2 | Distance (Å) |
|-------|-------|-----------|--------|-----------|--------|--------------|
| 1     | AW    | 154:ASN   | C      | 197:UNK   | N      | 30.56        |

## 6 Map visualisation

This section contains visualisations of the EMDB entry EMD-6454. These allow visual inspection of the internal detail of the map and identification of artifacts.

No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

### 6.1 Orthogonal projections

This section was not generated.

### 6.2 Central slices

This section was not generated.

### 6.3 Largest variance slices

This section was not generated.

### 6.4 Orthogonal surface views

This section was not generated.

### 6.5 Mask visualisation

This section was not generated. No masks/segmentation were deposited.

## 7 Map analysis ⓘ

This section contains the results of statistical analysis of the map.

### 7.1 Map-value distribution ⓘ

This section was not generated.

### 7.2 Volume estimate versus contour level ⓘ

This section was not generated.

### 7.3 Rotationally averaged power spectrum ⓘ

This section was not generated. The rotationally averaged power spectrum had issues being displayed.



## 8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

## 9 Map-model fit

This section was not generated.