



Full wwPDB/EMDatabank EM Map/Model Validation Report ⓘ

Aug 17, 2017 – 08:04 AM EDT

PDB ID : 4D5L
EMDB ID: : EMD-2810
Title : Cryo-EM structures of ribosomal 80S complexes with termination factors and cricket paralysis virus IRES reveal the IRES in the translocated state
Authors : Muhs, M.; Hilal, T.; Mielke, T.; Skabkin, M.A.; Sanbonmatsu, K.Y.; Pestova, T.V.; Spahn, C.M.T.
Deposited on : unknown
Resolution : 9.00 Å(reported)
Based on PDB ID : 4CXC

This is a Full wwPDB/EMDatabank EM Map/Model Validation Report
for a publicly released PDB/EMDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<http://wwpdb.org/validation/2016/EMValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

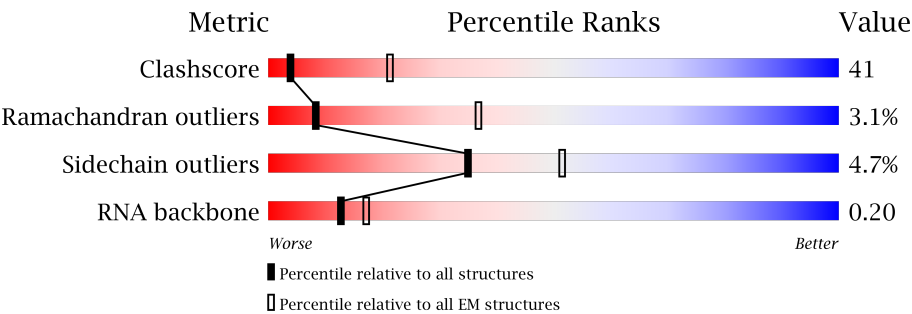
MolProbity : 4.02b-467
Percentile statistics : 20161228.v01 (using entries in the PDB archive December 28th 2016)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et. al. (1996)
Validation Pipeline (wwPDB-VP) : rb-20029824

1 Overall quality at a glance i

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

The reported resolution of this entry is 9.00 Å.

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






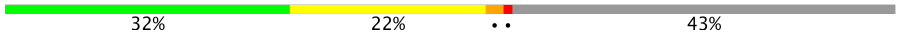




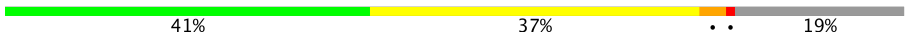

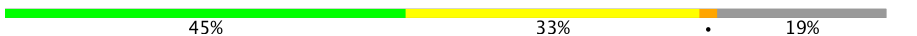

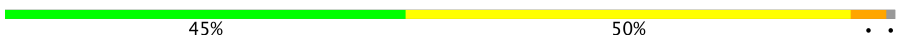
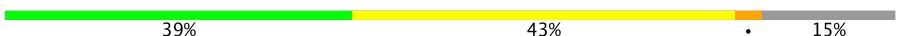











| Metric | Whole archive (#Entries) | EM structures (#Entries) |
|-----------------------|--------------------------|--------------------------|
| Clashscore | 125131 | 1336 |
| Ramachandran outliers | 121729 | 1120 |
| Sidechain outliers | 121581 | 1026 |
| RNA backbone | 3398 | 335 |

The table below summarises the geometric issues observed across the polymeric chains. The red, orange, yellow and green segments on the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. 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 | 1 | 1869 | <div><div>6%38%47%7%</div></div> |
| 2 | A | 295 | <div><div>42%31%26%</div></div> |
| 3 | B | 264 | <div><div>33%41%6%19%</div></div> |
| 4 | C | 293 | <div><div>49%23%24%</div></div> |
| 5 | D | 243 | <div><div>52%34%13%</div></div> |
| 6 | E | 263 | <div><div>54%40%</div></div> |
| 7 | F | 204 | <div><div>49%38%6%8%</div></div> |
| 8 | G | 249 | <div><div>51%39%7%</div></div> |


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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|--|
| 9 | H | 194 |  |
| 10 | I | 208 |  |
| 11 | J | 194 |  |
| 12 | K | 165 |  |
| 13 | L | 158 |  |
| 14 | M | 132 |  |
| 15 | N | 151 |  |
| 16 | O | 151 |  |
| 17 | P | 145 |  |
| 18 | Q | 146 |  |
| 19 | R | 135 |  |
| 20 | S | 152 |  |
| 21 | T | 145 |  |
| 22 | U | 119 |  |
| 23 | V | 83 |  |
| 24 | W | 130 |  |
| 25 | X | 142 |  |
| 26 | Y | 133 |  |
| 27 | Z | 125 |  |
| 28 | a | 115 |  |
| 29 | b | 84 |  |
| 30 | c | 69 |  |
| 31 | d | 56 |  |
| 32 | e | 59 |  |
| 33 | f | 156 |  |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|---|
| 34 | g | 317 |  93% 5% • |

2 Entry composition

There are 34 unique types of molecules in this entry. The entry contains 75320 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 RRNA 2.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-------|------|-------|------|---------|-------|
| 1 | 1 | 1742 | Total | C | N | O | P | 0 | 0 |
| | | | 37159 | 16589 | 6665 | 12164 | 1741 | | |

- Molecule 2 is a protein called 40S RIBOSOMAL PROTEIN ES26.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 2 | A | 218 | Total | C | N | O | S | 0 | 0 |
| | | | 1719 | 1091 | 301 | 319 | 8 | | |

- Molecule 3 is a protein called 40S RIBOSOMAL PROTEIN ES27.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 3 | B | 213 | Total | C | N | O | S | 0 | 0 |
| | | | 1729 | 1098 | 309 | 308 | 14 | | |

- Molecule 4 is a protein called 40S RIBOSOMAL PROTEIN ES28.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 4 | C | 222 | Total | C | N | O | S | 0 | 0 |
| | | | 1724 | 1114 | 296 | 304 | 10 | | |

- Molecule 5 is a protein called 40S RIBOSOMAL PROTEIN US14.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 5 | D | 212 | Total | C | N | O | S | 0 | 0 |
| | | | 1646 | 1050 | 299 | 290 | 7 | | |

- Molecule 6 is a protein called 40S RIBOSOMAL PROTEIN ES30.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 6 | E | 257 | Total | C | N | O | S | 0 | 0 |
| | | | 2031 | 1298 | 381 | 344 | 8 | | |

- Molecule 7 is a protein called 40S RIBOSOMAL PROTEIN ES31.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 7 | F | 188 | Total | C | N | O | S | 0 | 0 |
| | | | 1486 | 930 | 283 | 266 | 7 | | |

- Molecule 8 is a protein called 40S RIBOSOMAL PROTEIN RACK1.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 8 | G | 232 | Total | C | N | O | S | 0 | 0 |
| | | | 1884 | 1176 | 379 | 322 | 7 | | |

- Molecule 9 is a protein called 40S RIBOSOMAL PROTEIN ES7.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 9 | H | 191 | Total | C | N | O | S | 0 | 0 |
| | | | 1535 | 978 | 282 | 274 | 1 | | |

- Molecule 10 is a protein called 40S RIBOSOMAL PROTEIN ES8.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 10 | I | 207 | Total | C | N | O | S | 0 | 0 |
| | | | 1695 | 1064 | 334 | 292 | 5 | | |

- Molecule 11 is a protein called 40S RIBOSOMAL PROTEIN US4.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 11 | J | 179 | Total | C | N | O | S | 0 | 0 |
| | | | 1495 | 953 | 299 | 241 | 2 | | |

- Molecule 12 is a protein called 40S RIBOSOMAL PROTEIN ES10.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 12 | K | 94 | Total | C | N | O | S | 0 | 0 |
| | | | 791 | 519 | 138 | 129 | 5 | | |

- Molecule 13 is a protein called 40S RIBOSOMAL PROTEIN US17.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 13 | L | 146 | Total | C | N | O | S | 0 | 0 |
| | | | 1199 | 764 | 224 | 205 | 6 | | |

- Molecule 14 is a protein called 40S RIBOSOMAL PROTEIN ES12.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 14 | M | 120 | Total | C | N | O | S | 0 | 0 |
| | | | 931 | 584 | 164 | 174 | 9 | | |

- Molecule 15 is a protein called 40S RIBOSOMAL PROTEIN US15.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 15 | N | 150 | Total | C | N | O | S | 0 | 0 |
| | | | 1207 | 773 | 229 | 204 | 1 | | |

- Molecule 16 is a protein called 40S RIBOSOMAL PROTEIN US11.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 16 | O | 137 | Total | C | N | O | S | 0 | 0 |
| | | | 1023 | 627 | 200 | 190 | 6 | | |

- Molecule 17 is a protein called 40S RIBOSOMAL PROTEIN US19.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 17 | P | 118 | Total | C | N | O | S | 0 | 0 |
| | | | 981 | 625 | 183 | 166 | 7 | | |

- Molecule 18 is a protein called 40S RIBOSOMAL PROTEIN US9.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 18 | Q | 139 | Total | C | N | O | S | 0 | 0 |
| | | | 1108 | 704 | 210 | 191 | 3 | | |

- Molecule 19 is a protein called 40S RIBOSOMAL PROTEIN ES17.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 19 | R | 109 | Total | C | N | O | S | 0 | 0 |
| | | | 893 | 561 | 170 | 159 | 3 | | |

- Molecule 20 is a protein called 40S RIBOSOMAL PROTEIN US13.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 20 | S | 142 | Total | C | N | O | S | 0 | 0 |
| | | | 1172 | 736 | 236 | 199 | 1 | | |

- Molecule 21 is a protein called 40S RIBOSOMAL PROTEIN ES19.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 21 | T | 143 | Total | C | N | O | S | 0 | 0 |
| | | | 1112 | 697 | 214 | 198 | 3 | | |

- Molecule 22 is a protein called 40S RIBOSOMAL PROTEIN US10.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 22 | U | 101 | Total | C | N | O | S | 0 | 0 |
| | | | 803 | 502 | 153 | 144 | 4 | | |

- Molecule 23 is a protein called 40S RIBOSOMAL PROTEIN ES21.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 23 | V | 83 | Total | C | N | O | S | 0 | 0 |
| | | | 636 | 393 | 117 | 121 | 5 | | |

- Molecule 24 is a protein called 40S RIBOSOMAL PROTEIN US8.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 24 | W | 129 | Total | C | N | O | S | 0 | 0 |
| | | | 1033 | 659 | 193 | 175 | 6 | | |

- Molecule 25 is a protein called 40S RIBOSOMAL PROTEIN US12.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 25 | X | 134 | Total | C | N | O | S | 0 | 0 |
| | | | 1046 | 663 | 205 | 176 | 2 | | |

- Molecule 26 is a protein called 40S RIBOSOMAL PROTEIN ES24.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 26 | Y | 122 | Total | C | N | O | S | 0 | 0 |
| | | | 1002 | 635 | 196 | 166 | 5 | | |

- Molecule 27 is a protein called 40S RIBOSOMAL PROTEIN ES25.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 27 | Z | 76 | Total | C | N | O | S | 0 | 0 |
| | | | 605 | 387 | 112 | 105 | 1 | | |

- Molecule 28 is a protein called 40S RIBOSOMAL PROTEIN US2.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 28 | a | 96 | Total | C | N | O | S | 0 | 0 |
| | | | 767 | 476 | 159 | 127 | 5 | | |

- Molecule 29 is a protein called 40S RIBOSOMAL PROTEIN ES1.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 29 | b | 80 | Total | C | N | O | S | 0 | 0 |
| | | | 625 | 391 | 116 | 111 | 7 | | |

- Molecule 30 is a protein called 40S RIBOSOMAL PROTEIN US5.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 30 | c | 62 | Total | C | N | O | S | 0 | 0 |
| | | | 490 | 298 | 99 | 91 | 2 | | |

- Molecule 31 is a protein called 40S RIBOSOMAL PROTEIN US3.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 31 | d | 53 | Total | C | N | O | S | 0 | 0 |
| | | | 444 | 278 | 90 | 71 | 5 | | |

- Molecule 32 is a protein called 40S RIBOSOMAL PROTEIN ES4.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 32 | e | 51 | Total | C | N | O | S | 0 | 0 |
| | | | 412 | 258 | 90 | 63 | 1 | | |

- Molecule 33 is a protein called 40S RIBOSOMAL PROTEIN US7.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 33 | f | 61 | Total | C | N | O | S | 0 | 0 |
| | | | 497 | 312 | 94 | 84 | 7 | | |

- Molecule 34 is a protein called 40S RIBOSOMAL PROTEIN ES6.

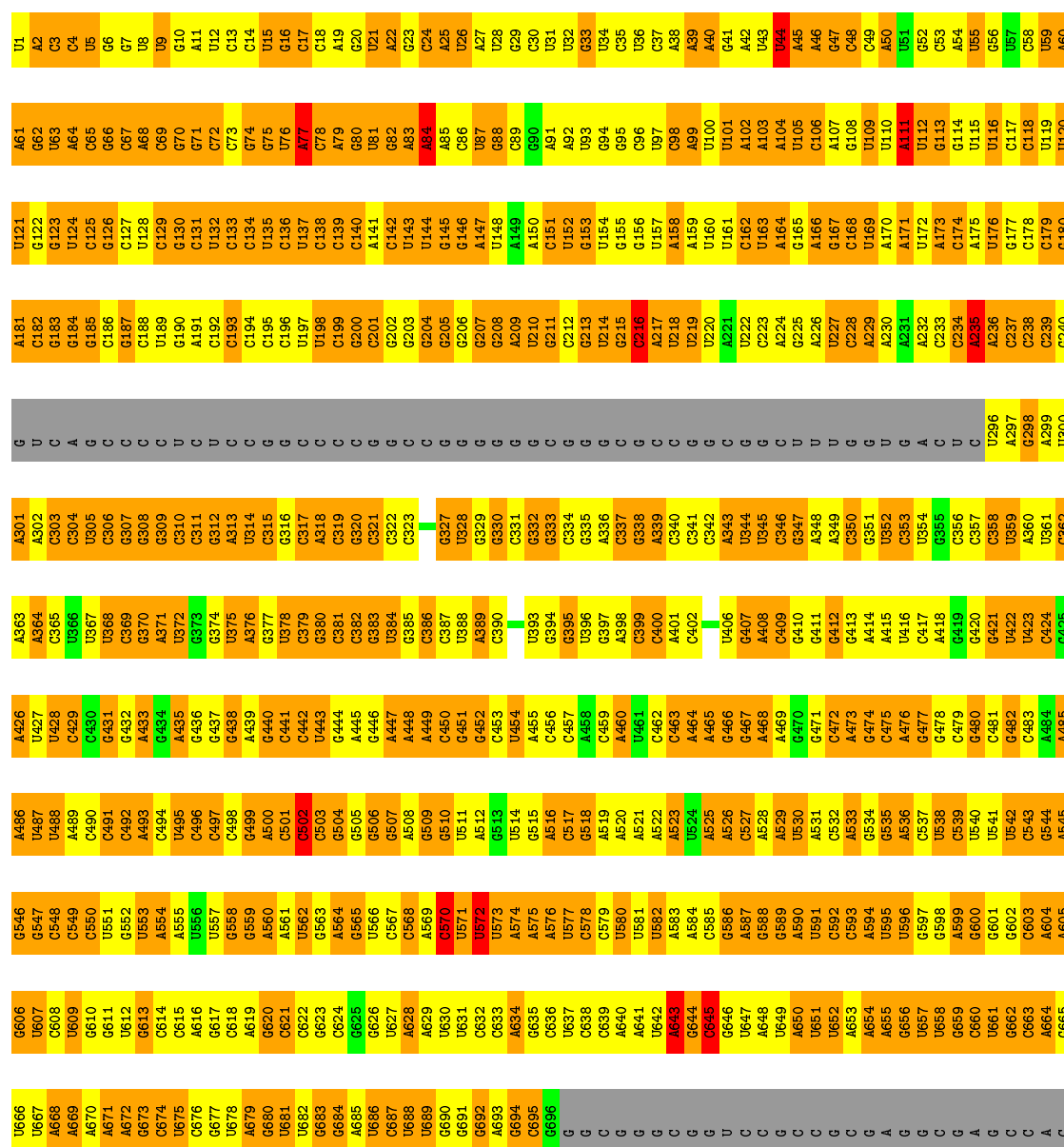
| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 34 | g | 314 | Total | C | N | O | S | 0 | 0 |
| | | | 2440 | 1537 | 425 | 466 | 12 | | |

3 Residue-property plots

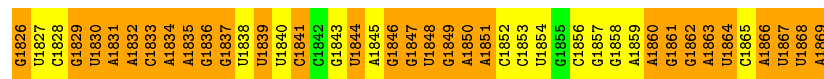
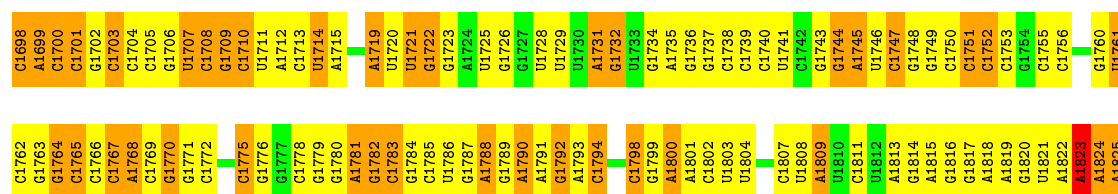
These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded according 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 RRNA 2

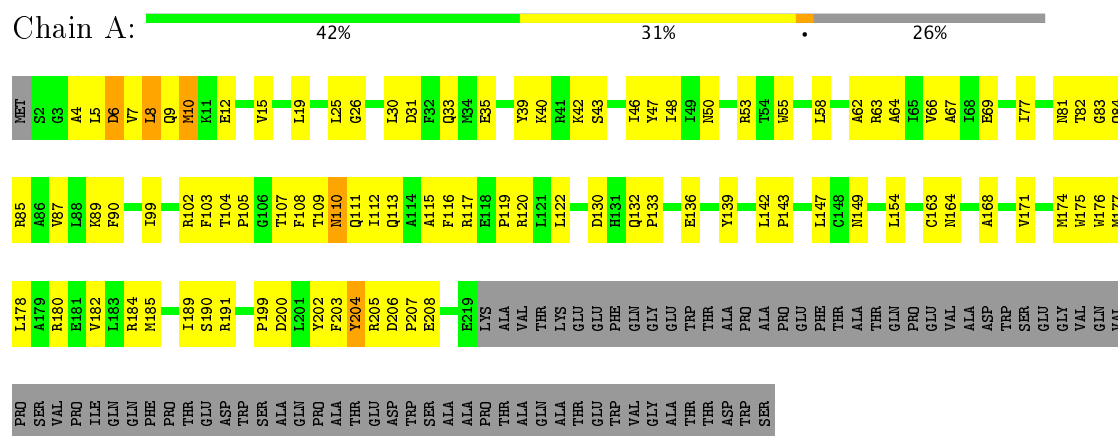
Chain 1: 



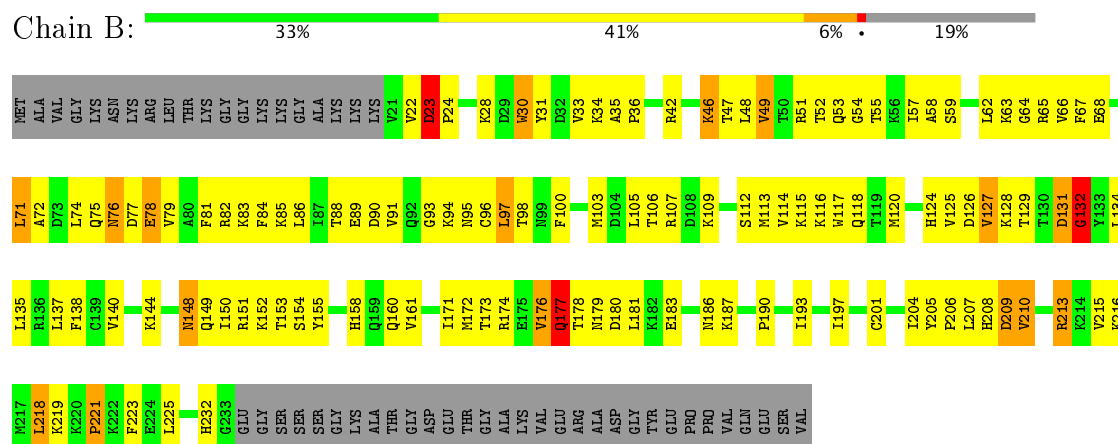
| | | | | | | | | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|---|
| G1633 | U1576 | G1517 | G1456 | A1396 | G1334 | C1272 | G1212 | U1152 | G1092 | A1030 | U968 | G907 | G846 | C |
| G1639 | A1579 | C1518 | U1457 | U1397 | G1335 | C1273 | C1213 | C1153 | A1093 | A1031 | U969 | A908 | A847 | G |
| A1640 | A1580 | G1519 | G1458 | G1398 | C1336 | G1274 | A1214 | U1154 | C1094 | G1032 | G970 | G | U848 | C |
| G1641 | C1581 | G1520 | G1459 | C1399 | C1337 | G1275 | C1215 | U1155 | C1095 | G1033 | G971 | C911 | A849 | C |
| G1642 | C1582 | A1400 | G1461 | U1400 | G1338 | C1276 | C1216 | U1156 | G1096 | A1034 | A972 | A912 | C850 | C |
| G1643 | C1583 | A1401 | U1462 | A1402 | G1339 | C1277 | A1217 | G1157 | G1097 | A1035 | C973 | A913 | C851 | G |
| G1644 | G1584 | C1523 | U1463 | A1403 | U1340 | C1278 | C1218 | G1158 | C1098 | A1036 | C974 | U914 | C852 | U |
| C1645 | U1585 | G1526 | C1464 | U1404 | C1341 | C1279 | C1219 | G1159 | C1099 | G1037 | G975 | G915 | C853 | C |
| G1646 | U1586 | G1527 | A1465 | U1405 | U1342 | G1280 | A1220 | U1160 | A1100 | U1038 | G976 | A916 | C854 | C |
| A1647 | G1587 | C1528 | G1466 | A1406 | U1343 | G1281 | G1221 | U1161 | G1101 | C1039 | C977 | U917 | C855 | C |
| G1648 | A1588 | G1529 | C1467 | A1407 | A1344 | A1282 | C1222 | C1162 | G1102 | G1040 | G978 | U918 | C856 | G |
| U1649 | A1589 | C1530 | U1468 | U1408 | G1345 | C1283 | A1223 | G1163 | G1103 | G1041 | C979 | A919 | U857 | G |
| A1650 | C1590 | U1530 | A1469 | U1409 | U1346 | A1284 | G1224 | G1164 | G1104 | A1042 | A980 | A920 | A858 | G |
| A1651 | C1591 | A1531 | C1470 | A1409 | U1347 | G1285 | U1225 | G1165 | G1105 | G1043 | A981 | G921 | G859 | G |
| G1652 | C1592 | C1532 | C1471 | C1410 | G1348 | G1286 | G1226 | G1166 | C1106 | A1044 | G982 | A922 | G860 | C |
| U1653 | C1593 | G1533 | C1472 | G1411 | G1349 | A1287 | G1227 | G1167 | G1107 | U1045 | A983 | G923 | C861 | C |
| G1654 | A1594 | C1534 | G1473 | C1412 | U1350 | U1288 | A1228 | G1168 | G1108 | U1046 | C984 | G924 | A862 | C |
| C1655 | U1595 | U1535 | A1474 | G1413 | G1351 | U1289 | G1229 | G1169 | C1109 | C1047 | G985 | G925 | C863 | C |
| G1656 | U1596 | G1536 | G1475 | A1414 | G1352 | G1290 | C1230 | A1170 | G1110 | G1048 | G986 | A926 | A864 | C |
| G1657 | C1597 | A1537 | A1476 | C1415 | A1353 | A1291 | C1231 | U1171 | U1111 | A1049 | A987 | C927 | A865 | C |
| G1658 | U1598 | C1538 | U1477 | C1416 | G1354 | C1292 | U1232 | U1172 | U1112 | A1050 | C988 | G928 | U866 | C |
| U1659 | U1599 | U1539 | U1478 | U1417 | C1355 | G1296 | G1233 | U1173 | A1113 | G1051 | C989 | G929 | G867 | C |
| G1660 | G1600 | G1540 | G1479 | C1418 | G1356 | C1297 | C1234 | U1174 | U1114 | A1052 | A990 | G930 | C868 | C |
| A1661 | A1601 | G1541 | A1480 | C1419 | U1357 | U1297 | G1235 | G1175 | U1115 | C1053 | G991 | C931 | A869 | C |
| U1662 | U1602 | C1542 | G1481 | G1420 | U1358 | G1298 | G1236 | G1176 | U1116 | G1054 | A992 | G932 | A870 | C |
| A1663 | G1603 | U1543 | C1482 | A1421 | U1359 | A1299 | C1237 | U1177 | C1117 | A1055 | C993 | G933 | U871 | C |
| A1664 | G1604 | A1544 | A1483 | G1422 | U1360 | U1300 | U1238 | U1178 | C1118 | U1056 | C994 | G934 | A872 | C |
| G1665 | A1605 | C1545 | A1484 | C1423 | G1361 | A1301 | U1239 | U1179 | A1119 | C1057 | C995 | G935 | A873 | C |
| C1666 | G1606 | G1546 | U1485 | G1424 | U1362 | G1302 | A1240 | C1180 | U1120 | A1058 | G999 | G936 | C874 | C |
| U1667 | A1607 | C1547 | A1486 | G1425 | C1363 | C1303 | A1241 | A1181 | G1121 | G1059 | G999 | C937 | U814 | C |
| G1668 | U1608 | G1548 | A1487 | U1426 | U1364 | U1304 | U1242 | A1182 | A1122 | A1060 | A938 | C938 | U815 | C |
| C1669 | G1609 | U1549 | C1488 | C1427 | G1365 | C1305 | U1243 | A1183 | C1123 | U1061 | A1003 | U939 | C876 | C |
| U1670 | G1610 | G1550 | A1489 | G1428 | U1368 | U1306 | U1244 | G1184 | C1124 | A1062 | U1002 | U940 | C877 | C |
| G1671 | G1611 | U1551 | G1490 | G1429 | A1369 | C1307 | G1245 | C1185 | C1125 | C1063 | U1003 | C941 | A878 | C |
| U1672 | G1612 | C1552 | G1491 | C1430 | A1370 | U1308 | A1246 | U1186 | G1126 | G1064 | U1004 | G942 | C879 | C |
| G1673 | G1613 | C1553 | U1492 | G1431 | U1371 | C1309 | C1247 | G1187 | C1127 | G1065 | G1005 | U943 | U820 | C |
| A1614 | G1614 | C1554 | C1493 | U1432 | U1372 | U1310 | U1248 | A1188 | C1128 | U1066 | A944 | A944 | U822 | C |
| U1615 | U1615 | U1555 | U1494 | C1433 | C1373 | C1311 | C1249 | A1189 | G1129 | C1067 | C1007 | U945 | U823 | C |
| U1676 | U1616 | A1556 | G1495 | C1434 | C1374 | G1312 | A1250 | A1190 | G1130 | G1068 | A1008 | U946 | C884 | A |
| U1677 | G1617 | C1557 | U1496 | C1435 | G1375 | A1313 | A1251 | C1191 | G1131 | U1069 | A1009 | G947 | U885 | U |
| A1678 | C1618 | C1558 | G1497 | C1436 | A1376 | U1314 | C1252 | U1192 | C1132 | A1070 | G1010 | C948 | A886 | G |
| A1679 | A1619 | C1559 | A1498 | C1437 | U1377 | U1315 | A1253 | U1193 | A1133 | G1071 | A1011 | G949 | U887 | C |
| G1680 | A1620 | U1560 | U1499 | A1438 | A1378 | C1316 | C1254 | A1194 | G1134 | G1074 | A1012 | C950 | U889 | U |
| U1681 | U1621 | A1561 | G1500 | A1439 | A1379 | G1317 | G1255 | A1195 | C1135 | C1075 | U1013 | C951 | U890 | C |
| C1682 | U1622 | C1562 | C1501 | C1440 | C1380 | G1318 | G1256 | A1196 | U1136 | G1076 | G1014 | G952 | G891 | U |
| C1683 | A1623 | G1563 | C1502 | U1441 | G1381 | U1319 | G1257 | G1197 | U1137 | G1076 | U1015 | G953 | U892 | A |
| G1684 | C1624 | C1564 | C1503 | U1442 | A1382 | G1320 | A1258 | G1198 | C1138 | G1079 | U1016 | U954 | U893 | G |
| U1685 | U1625 | C1565 | U1504 | C1443 | A1383 | G1321 | A1259 | A1199 | C1139 | G1079 | U1017 | A955 | G894 | C |
| G1686 | C1626 | G1566 | U1505 | U1444 | C1384 | G1322 | A1260 | A1200 | G1140 | A1080 | U1018 | G956 | G895 | U |
| C1687 | G1627 | G1567 | A1506 | U1445 | G1385 | U1323 | C1261 | U1201 | G1141 | U1081 | C1019 | A957 | U896 | G |
| C1688 | C1628 | C1568 | G1507 | A1446 | A1386 | G1324 | C1262 | U1202 | G1142 | A1082 | A1020 | G958 | U897 | C |
| G1689 | C1629 | A1569 | G1447 | U1448 | G1387 | G1325 | U1263 | G1203 | A1143 | U1083 | U1021 | G959 | U898 | G |
| U1690 | U1630 | G1570 | U1509 | A1448 | A1388 | U1326 | C1264 | A1204 | U1144 | A1084 | U1022 | U960 | U899 | U |
| U1691 | U1631 | G1571 | G1510 | G1449 | C1389 | G1327 | A1265 | C1205 | A1145 | C1085 | A1023 | G961 | C900 | G |
| U1692 | G1632 | C1572 | U1511 | G1450 | U1390 | G1328 | C1266 | G1206 | C1146 | G1086 | A1024 | A962 | G901 | U |
| G1693 | C1633 | G1573 | C1512 | G1451 | C1391 | U1329 | C1267 | G1207 | C1147 | A1087 | U1025 | A963 | G902 | C |
| U1694 | A1634 | C1574 | C1513 | A1452 | U1392 | G1330 | C1268 | A1208 | A1148 | U1088 | C1026 | A964 | A903 | C |
| A1695 | G1635 | U1575 | G1514 | C1453 | G1393 | C1331 | C1269 | A1209 | U1149 | G1089 | A1027 | U965 | A904 | C |
| G1696 | G1636 | G1576 | G1515 | A1454 | G1394 | A1332 | G1270 | G1210 | A1150 | C1090 | U1028 | U966 | U944 | G |
| A1697 | A1637 | G1577 | G1516 | A1455 | C1395 | U1333 | C1271 | G1211 | G1151 | C1091 | G1029 | C967 | U906 | C |



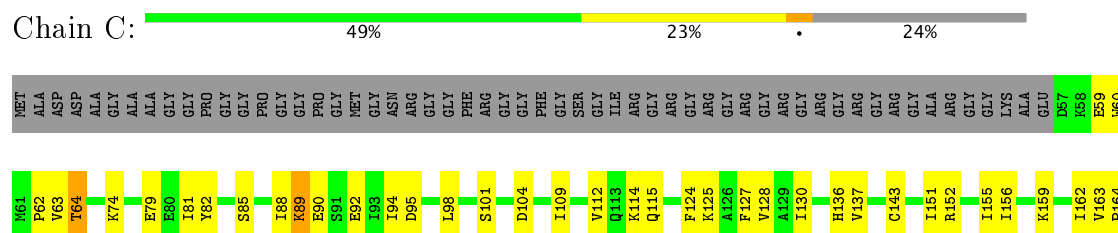
• Molecule 2: 40S RIBOSOMAL PROTEIN ES26



• Molecule 3: 40S RIBOSOMAL PROTEIN ES27



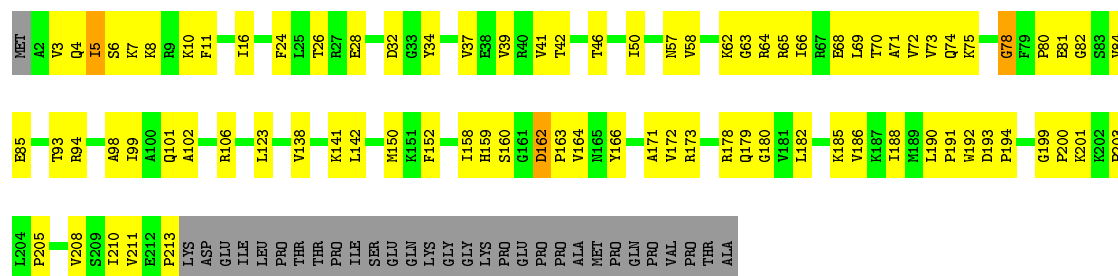
• Molecule 4: 40S RIBOSOMAL PROTEIN ES28





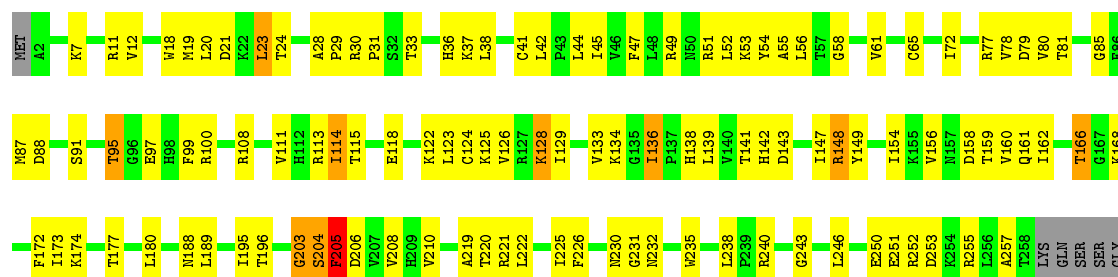
• Molecule 5: 40S RIBOSOMAL PROTEIN US14

Chain D: 52% 34% 13%



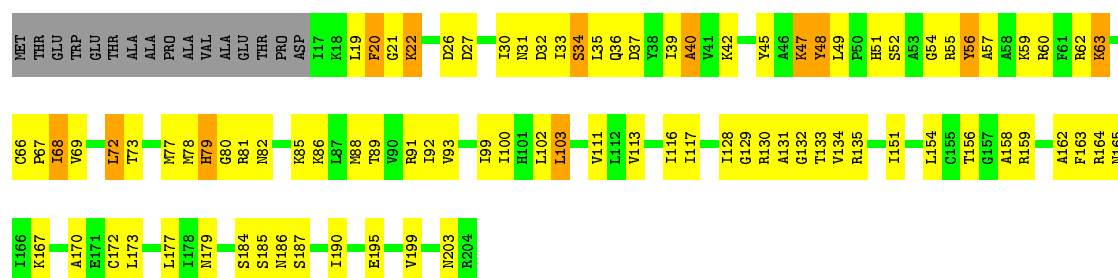
• Molecule 6: 40S RIBOSOMAL PROTEIN ES30

Chain E: 54% 40%



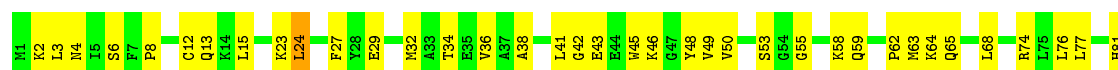
• Molecule 7: 40S RIBOSOMAL PROTEIN ES31

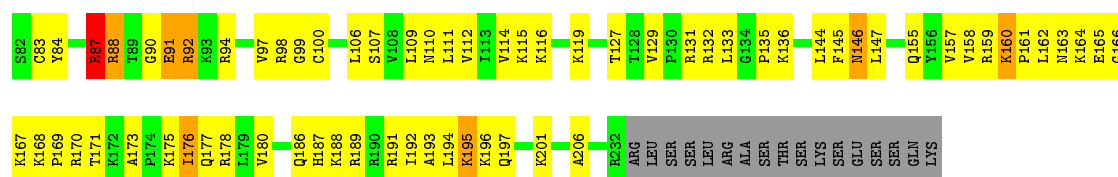
Chain F: 49% 38% 6% 8%



• Molecule 8: 40S RIBOSOMAL PROTEIN RACK1

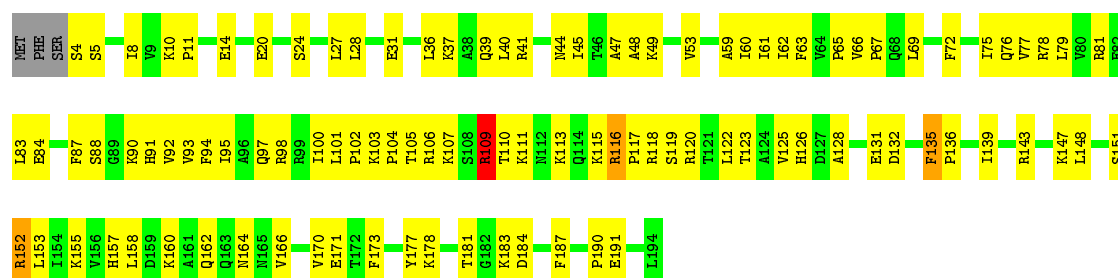
Chain G: 51% 39% 7%





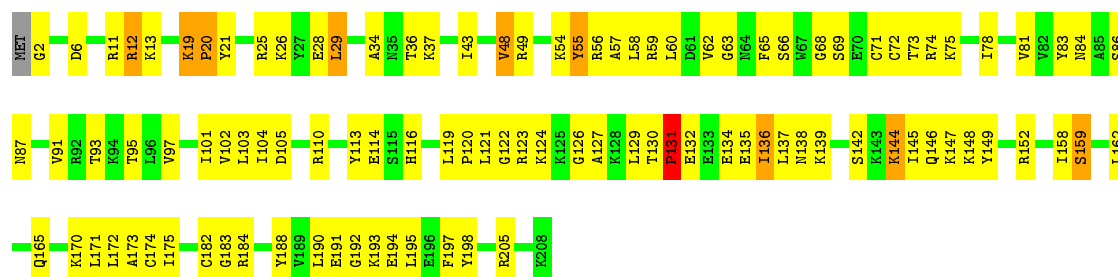
• Molecule 9: 40S RIBOSOMAL PROTEIN ES7

Chain H: 46% 51%



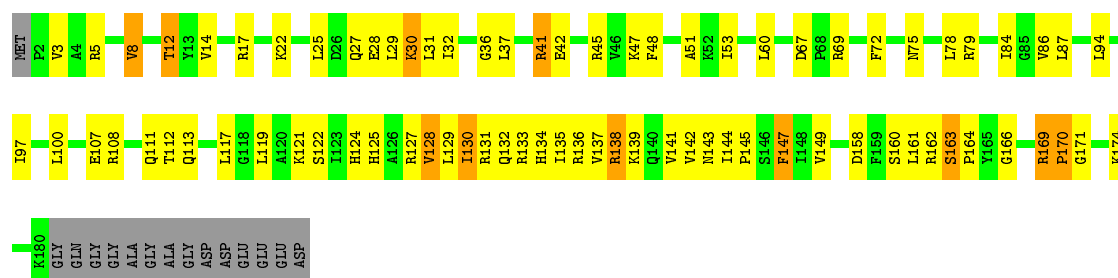
• Molecule 10: 40S RIBOSOMAL PROTEIN ES8

Chain I: 50% 45%



• Molecule 11: 40S RIBOSOMAL PROTEIN US4

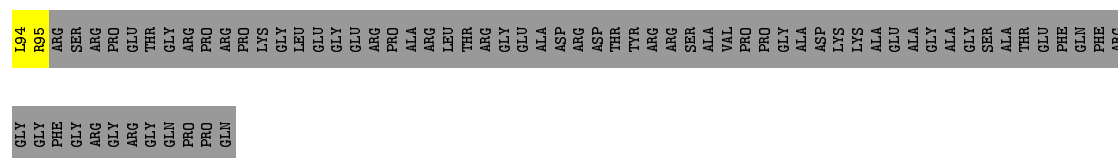
Chain J: 52% 35% 6% 8%



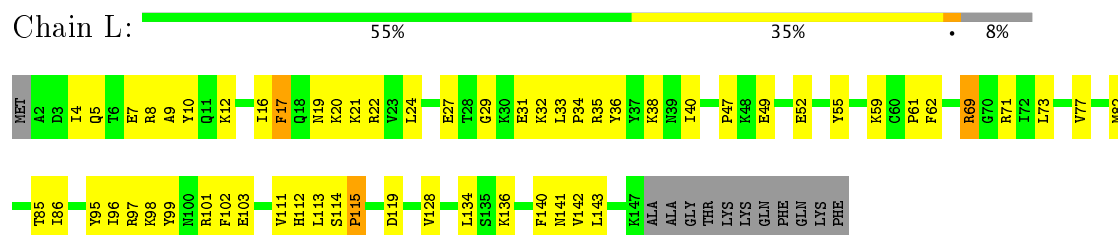
• Molecule 12: 40S RIBOSOMAL PROTEIN ES10

Chain K: 32% 22% 43%

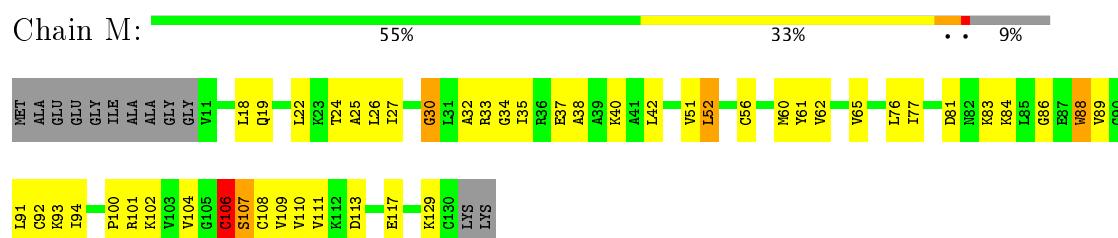




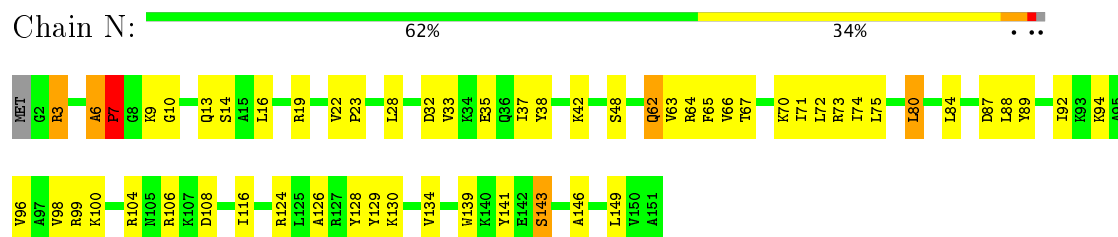
• Molecule 13: 40S RIBOSOMAL PROTEIN US17



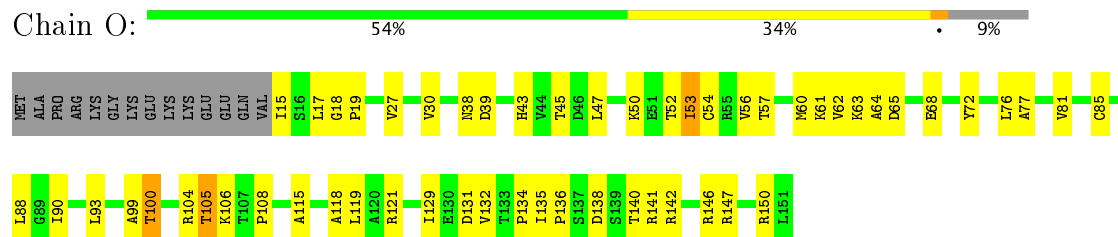
• Molecule 14: 40S RIBOSOMAL PROTEIN ES12



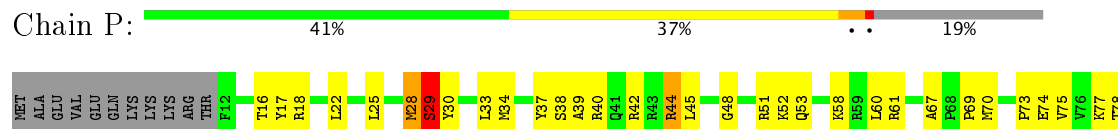
• Molecule 15: 40S RIBOSOMAL PROTEIN US15



• Molecule 16: 40S RIBOSOMAL PROTEIN US11



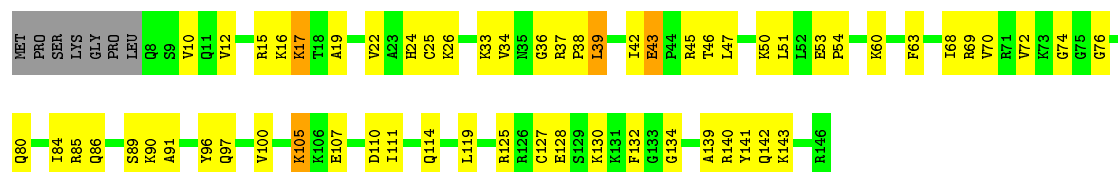
• Molecule 17: 40S RIBOSOMAL PROTEIN US19





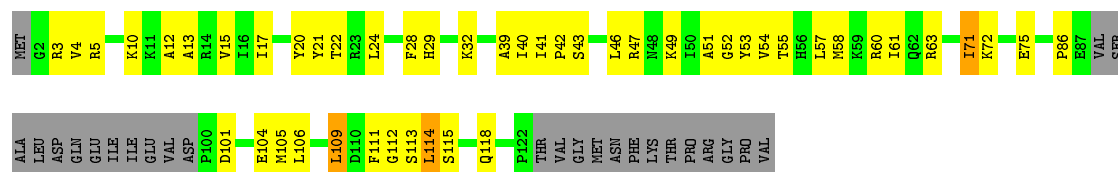
• Molecule 18: 40S RIBOSOMAL PROTEIN US9

Chain Q: 54% 38% 5%



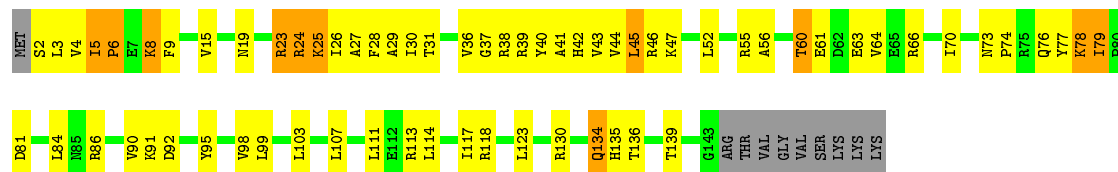
• Molecule 19: 40S RIBOSOMAL PROTEIN ES17

Chain R: 45% 33% 19%



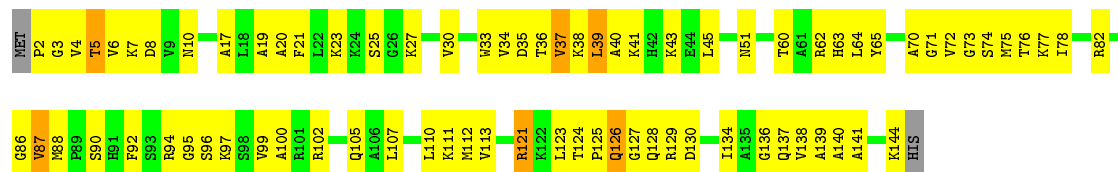
• Molecule 20: 40S RIBOSOMAL PROTEIN US13

Chain S: 49% 37% 7% 7%



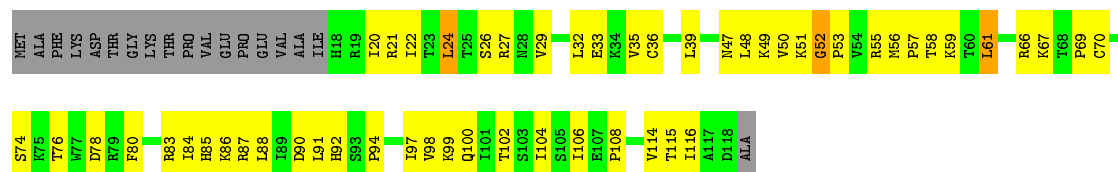
• Molecule 21: 40S RIBOSOMAL PROTEIN ES19

Chain T: 45% 50% 2%



• Molecule 22: 40S RIBOSOMAL PROTEIN US10

Chain U: 39% 43% 15%




- Molecule 29: 40S RIBOSOMAL PROTEIN ES1

Chain b:  90% 5% 5%



- Molecule 30: 40S RIBOSOMAL PROTEIN US5

Chain c:  83% 7% 10%




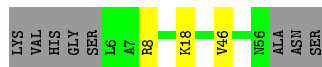
- Molecule 31: 40S RIBOSOMAL PROTEIN US3

Chain d:  88% 7% 5%



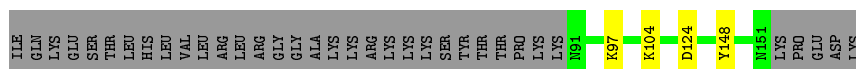
- Molecule 32: 40S RIBOSOMAL PROTEIN ES4

Chain e:  81% 5% 14%



- Molecule 33: 40S RIBOSOMAL PROTEIN US7

Chain f:  37% 61%



- Molecule 34: 40S RIBOSOMAL PROTEIN ES6

Chain g:  93% 5% 2%



4 Experimental information

| Property | Value | Source |
|--------------------------------------|-------------------|-----------|
| Reconstruction method | SINGLE PARTICLE | Depositor |
| Imposed symmetry | POINT, C1 | Depositor |
| Number of particles used | 109596 | Depositor |
| Resolution determination method | Not provided | Depositor |
| CTF correction method | DEFOCUS GROUP | Depositor |
| Microscope | FEI TECNAI F20 | Depositor |
| Voltage (kV) | 300 | Depositor |
| Electron dose ($e^-/\text{\AA}^2$) | 20 | Depositor |
| Minimum defocus (nm) | 2000 | Depositor |
| Maximum defocus (nm) | 4000 | Depositor |
| Magnification | 65520 | Depositor |
| Image detector | KODAK SO-163 FILM | 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 | $\# Z > 2$ | RMSZ | $\# Z > 2$ |
| 1 | 1 | 0.37 | 2/41550 (0.0%) | 0.80 | 6/64763 (0.0%) |
| 10 | I | 0.48 | 0/1724 | 0.72 | 0/2298 |
| 11 | J | 0.45 | 0/1520 | 0.77 | 0/2030 |
| 12 | K | 0.48 | 0/815 | 0.68 | 0/1101 |
| 13 | L | 0.45 | 0/1220 | 0.72 | 0/1633 |
| 14 | M | 0.48 | 0/941 | 0.72 | 0/1264 |
| 15 | N | 0.43 | 0/1231 | 0.73 | 1/1656 (0.1%) |
| 16 | O | 0.46 | 0/1036 | 0.71 | 0/1391 |
| 17 | P | 0.43 | 0/1000 | 0.67 | 0/1335 |
| 18 | Q | 0.43 | 0/1125 | 0.66 | 0/1506 |
| 19 | R | 0.42 | 0/904 | 0.67 | 0/1208 |
| 2 | A | 0.51 | 0/1756 | 0.68 | 0/2386 |
| 20 | S | 0.42 | 0/1190 | 0.68 | 0/1594 |
| 21 | T | 0.44 | 0/1131 | 0.69 | 0/1515 |
| 22 | U | 0.50 | 0/813 | 0.70 | 0/1092 |
| 23 | V | 0.47 | 0/643 | 0.71 | 0/860 |
| 24 | W | 0.44 | 0/1050 | 0.69 | 0/1406 |
| 25 | X | 0.46 | 0/1063 | 0.70 | 0/1421 |
| 26 | Y | 0.45 | 0/1019 | 0.70 | 0/1354 |
| 27 | Z | 0.46 | 0/611 | 0.71 | 0/820 |
| 28 | a | 0.48 | 0/778 | 0.75 | 1/1041 (0.1%) |
| 29 | b | 0.48 | 0/637 | 0.68 | 0/854 |
| 3 | B | 0.51 | 0/1756 | 0.75 | 1/2350 (0.0%) |
| 30 | c | 0.46 | 0/492 | 0.74 | 0/657 |
| 31 | d | 0.51 | 0/454 | 0.77 | 0/603 |
| 32 | e | 0.45 | 0/417 | 0.69 | 0/548 |
| 33 | f | 0.53 | 0/507 | 0.84 | 1/673 (0.1%) |
| 34 | g | 0.45 | 0/2497 | 0.67 | 0/3399 |
| 4 | C | 0.42 | 0/1761 | 0.65 | 0/2379 |
| 5 | D | 0.41 | 0/1672 | 0.66 | 0/2250 |
| 6 | E | 0.47 | 0/2072 | 0.70 | 0/2793 |
| 7 | F | 0.43 | 0/1507 | 0.74 | 0/2026 |
| 8 | G | 0.48 | 0/1907 | 0.74 | 0/2538 |
| 9 | H | 0.46 | 0/1558 | 0.74 | 1/2087 (0.0%) |

| Mol | Chain | Bond lengths | | Bond angles | |
|-----|-------|--------------|----------------|-------------|------------------|
| | | RMSZ | # Z >2 | RMSZ | # Z >2 |
| All | All | 0.42 | 2/80357 (0.0%) | 0.76 | 11/116831 (0.0%) |

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

| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 1 | 1 | 0 | 24 |

All (2) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|-------|-------------|----------|
| 1 | 1 | 992 | A | C6-N6 | -6.31 | 1.28 | 1.33 |
| 1 | 1 | 1286 | G | C2-N2 | -5.29 | 1.29 | 1.34 |

All (11) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 1 | 1 | 502 | C | C3'-C2'-C1' | -6.04 | 96.66 | 101.50 |
| 1 | 1 | 1441 | U | C3'-C2'-C1' | -5.56 | 97.06 | 101.50 |
| 1 | 1 | 645 | C | C3'-C2'-C1' | -5.51 | 97.09 | 101.50 |
| 15 | N | 6 | ALA | N-CA-C | -5.40 | 96.41 | 111.00 |
| 9 | H | 109 | ARG | N-CA-CB | 5.26 | 120.08 | 110.60 |
| 1 | 1 | 1422 | G | C3'-C2'-C1' | -5.25 | 97.30 | 101.50 |
| 1 | 1 | 797 | C | N1-C1'-C2' | -5.24 | 106.23 | 112.00 |
| 3 | B | 132 | GLY | N-CA-C | 5.24 | 126.20 | 113.10 |
| 33 | f | 124 | ASP | N-CA-C | -5.13 | 97.14 | 111.00 |
| 1 | 1 | 1147 | C | C3'-C2'-C1' | -5.06 | 97.45 | 101.50 |
| 28 | a | 5 | ARG | N-CA-CB | -5.06 | 101.49 | 110.60 |

There are no chirality outliers.

All (24) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group |
|-----|-------|------|------|-----------|
| 1 | 1 | 111 | A | Sidechain |
| 1 | 1 | 1120 | U | Sidechain |
| 1 | 1 | 1288 | U | Sidechain |
| 1 | 1 | 1308 | U | Sidechain |
| 1 | 1 | 1414 | A | Sidechain |
| 1 | 1 | 1548 | G | Sidechain |

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| Mol | Chain | Res | Type | Group |
|-----|-------|------|------|-----------|
| 1 | 1 | 1578 | U | Sidechain |
| 1 | 1 | 1624 | U | Sidechain |
| 1 | 1 | 1686 | G | Sidechain |
| 1 | 1 | 1823 | A | Sidechain |
| 1 | 1 | 216 | C | Sidechain |
| 1 | 1 | 235 | A | Sidechain |
| 1 | 1 | 44 | U | Sidechain |
| 1 | 1 | 570 | C | Sidechain |
| 1 | 1 | 572 | U | Sidechain |
| 1 | 1 | 643 | A | Sidechain |
| 1 | 1 | 645 | C | Sidechain |
| 1 | 1 | 747 | U | Sidechain |
| 1 | 1 | 77 | A | Sidechain |
| 1 | 1 | 799 | U | Sidechain |
| 1 | 1 | 84 | A | Sidechain |
| 1 | 1 | 867 | G | Sidechain |
| 1 | 1 | 88 | G | Sidechain |
| 1 | 1 | 897 | U | Sidechain |

5.2 Too-close contacts

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of 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 | 1 | 37159 | 0 | 18780 | 3647 | 0 |
| 2 | A | 1719 | 0 | 1717 | 129 | 0 |
| 3 | B | 1729 | 0 | 1803 | 135 | 0 |
| 4 | C | 1724 | 0 | 1808 | 63 | 0 |
| 5 | D | 1646 | 0 | 1737 | 81 | 0 |
| 6 | E | 2031 | 0 | 2138 | 116 | 0 |
| 7 | F | 1486 | 0 | 1545 | 99 | 0 |
| 8 | G | 1884 | 0 | 2044 | 151 | 0 |
| 9 | H | 1535 | 0 | 1632 | 130 | 0 |
| 10 | I | 1695 | 0 | 1785 | 113 | 0 |
| 11 | J | 1495 | 0 | 1615 | 89 | 0 |
| 12 | K | 791 | 0 | 811 | 45 | 0 |
| 13 | L | 1199 | 0 | 1269 | 69 | 0 |
| 14 | M | 931 | 0 | 961 | 40 | 0 |
| 15 | N | 1207 | 0 | 1294 | 63 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 16 | O | 1023 | 0 | 1050 | 51 | 0 |
| 17 | P | 981 | 0 | 1026 | 55 | 0 |
| 18 | Q | 1108 | 0 | 1174 | 73 | 0 |
| 19 | R | 893 | 0 | 946 | 57 | 0 |
| 20 | S | 1172 | 0 | 1229 | 77 | 0 |
| 21 | T | 1112 | 0 | 1146 | 116 | 0 |
| 22 | U | 803 | 0 | 866 | 68 | 0 |
| 23 | V | 636 | 0 | 637 | 42 | 0 |
| 24 | W | 1033 | 0 | 1080 | 61 | 0 |
| 25 | X | 1046 | 0 | 1110 | 68 | 0 |
| 26 | Y | 1002 | 0 | 1075 | 65 | 0 |
| 27 | Z | 605 | 0 | 665 | 58 | 0 |
| 28 | a | 767 | 0 | 816 | 0 | 0 |
| 29 | b | 625 | 0 | 642 | 0 | 0 |
| 30 | c | 490 | 0 | 520 | 0 | 0 |
| 31 | d | 444 | 0 | 442 | 0 | 0 |
| 32 | e | 412 | 0 | 463 | 0 | 0 |
| 33 | f | 497 | 0 | 497 | 0 | 0 |
| 34 | g | 2440 | 0 | 2396 | 0 | 0 |
| All | All | 75320 | 0 | 58719 | 5138 | 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 41.

All (5138) 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) |
|----------------|------------------|--------------------------|-------------------|
| 1:1:1431:G:H2' | 1:1:1432:U:C6 | 1.77 | 1.18 |
| 1:1:377:G:H4' | 10:I:97:VAL:HG13 | 1.24 | 1.18 |
| 1:1:571:U:H3' | 1:1:572:U:C5' | 1.77 | 1.15 |
| 1:1:569:A:H2' | 1:1:570:C:H5'' | 1.24 | 1.14 |
| 1:1:1547:C:H3' | 1:1:1548:G:H5'' | 1.29 | 1.14 |
| 1:1:1416:C:H3' | 1:1:1417:C:H5'' | 1.29 | 1.12 |
| 1:1:180:G:H1' | 1:1:181:A:H5' | 1.16 | 1.11 |
| 1:1:1631:U:H5' | 1:1:1631:U:H6 | 1.16 | 1.10 |
| 1:1:179:C:H3' | 1:1:180:G:H5'' | 1.17 | 1.10 |
| 1:1:797:C:H2' | 1:1:798:G:H5'' | 1.28 | 1.10 |
| 1:1:561:A:H3' | 1:1:562:U:H5'' | 1.23 | 1.09 |
| 1:1:1684:C:H2' | 1:1:1685:U:H5' | 1.19 | 1.09 |
| 1:1:1101:U:H2' | 1:1:1102:G:C8 | 1.88 | 1.08 |
| 1:1:181:A:H3' | 1:1:182:C:H5'' | 1.29 | 1.08 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|------------------|--------------------------|-------------------|
| 1:1:1330:G:H4' | 1:1:1331:C:H5' | 1.29 | 1.08 |
| 1:1:751:G:H2' | 1:1:752:G:H8 | 1.17 | 1.08 |
| 1:1:211:G:H2' | 1:1:212:C:H6 | 1.14 | 1.07 |
| 1:1:1258:A:H3' | 1:1:1258:A:N3 | 1.69 | 1.07 |
| 1:1:1833:C:H6 | 1:1:1833:C:H5' | 1.18 | 1.07 |
| 1:1:571:U:H3' | 1:1:572:U:C4' | 1.84 | 1.06 |
| 1:1:475:C:H5' | 1:1:475:C:H6 | 1.20 | 1.06 |
| 1:1:527:C:H3' | 1:1:528:A:C8 | 1.89 | 1.06 |
| 1:1:112:U:H5'' | 1:1:113:G:H5' | 1.37 | 1.06 |
| 1:1:211:G:H5' | 1:1:211:G:H8 | 1.20 | 1.05 |
| 1:1:211:G:H2' | 1:1:212:C:C6 | 1.91 | 1.05 |
| 1:1:1768:A:H2' | 1:1:1769:C:H5' | 1.37 | 1.05 |
| 1:1:527:C:H4' | 11:J:125:HIS:HB2 | 1.34 | 1.05 |
| 1:1:618:C:H1' | 1:1:632:C:H5' | 1.35 | 1.04 |
| 1:1:302:A:H2' | 1:1:303:C:H5'' | 1.31 | 1.04 |
| 1:1:594:A:H1' | 1:1:643:A:N6 | 1.72 | 1.04 |
| 1:1:500:A:H2' | 1:1:501:C:H5'' | 1.39 | 1.03 |
| 1:1:929:G:H21 | 1:1:1104:G:H4' | 1.23 | 1.03 |
| 1:1:43:U:H5' | 1:1:44:U:H5 | 1.20 | 1.03 |
| 10:I:69:SER:HB3 | 13:L:24:LEU:HD11 | 1.37 | 1.03 |
| 1:1:900:C:H2' | 1:1:901:G:C8 | 1.93 | 1.02 |
| 1:1:1441:U:H2' | 1:1:1442:U:H4' | 1.06 | 1.02 |
| 1:1:384:U:H2' | 1:1:385:G:H5'' | 1.35 | 1.02 |
| 1:1:557:U:H3' | 1:1:558:G:C8 | 1.94 | 1.02 |
| 1:1:1637:A:H4' | 1:1:1638:G:C5' | 1.88 | 1.02 |
| 1:1:76:U:H2' | 1:1:77:A:H3' | 1.40 | 1.01 |
| 1:1:302:A:C2' | 1:1:303:C:H5'' | 1.90 | 1.01 |
| 1:1:1442:U:H5' | 1:1:1443:C:H6 | 1.22 | 1.00 |
| 1:1:689:U:H3' | 1:1:690:G:C8 | 1.96 | 1.00 |
| 1:1:1684:C:C2' | 1:1:1685:U:H5' | 1.90 | 1.00 |
| 1:1:307:G:H4' | 1:1:308:G:H5'' | 1.41 | 1.00 |
| 1:1:1589:A:H4' | 21:T:82:ARG:HD3 | 1.43 | 1.00 |
| 1:1:1698:C:H4' | 1:1:1699:A:C8 | 1.97 | 0.99 |
| 1:1:1258:A:H2' | 1:1:1259:A:H4' | 1.44 | 0.99 |
| 1:1:572:U:H2' | 1:1:573:U:C4 | 1.97 | 0.99 |
| 1:1:193:C:H4' | 1:1:209:A:N6 | 1.79 | 0.98 |
| 1:1:1286:G:H1' | 14:M:34:GLY:CA | 1.92 | 0.98 |
| 1:1:1461:G:H21 | 1:1:1465:A:H62 | 1.01 | 0.98 |
| 1:1:1520:G:H5' | 1:1:1521:C:C5 | 1.97 | 0.98 |
| 1:1:683:G:H1' | 1:1:1023:A:C2 | 1.99 | 0.98 |
| 1:1:301:A:H2' | 1:1:302:A:C8 | 1.97 | 0.98 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:1257:G:H4' | 1:1:1258:A:OP2 | 1.63 | 0.98 |
| 1:1:655:A:H4' | 1:1:656:G:H3' | 1.45 | 0.98 |
| 1:1:235:A:HO2' | 1:1:236:A:H8 | 1.00 | 0.97 |
| 2:A:6:ASP:HB3 | 23:V:42:VAL:HG13 | 1.43 | 0.97 |
| 1:1:1414:A:H2' | 1:1:1415:C:C1' | 1.94 | 0.97 |
| 1:1:1695:A:H2' | 1:1:1696:C:O4' | 1.65 | 0.97 |
| 1:1:525:A:H2 | 1:1:561:A:H61 | 1.11 | 0.97 |
| 1:1:1692:U:H2' | 1:1:1693:G:C8 | 1.99 | 0.97 |
| 1:1:229:A:N1 | 1:1:900:C:H1' | 1.80 | 0.97 |
| 1:1:184:G:H8 | 1:1:185:G:H4' | 1.26 | 0.96 |
| 1:1:746:C:H1' | 1:1:747:U:N3 | 1.79 | 0.96 |
| 1:1:1286:G:H1' | 14:M:34:GLY:HA2 | 1.43 | 0.96 |
| 1:1:168:C:H4' | 8:G:131:ARG:HD2 | 1.46 | 0.96 |
| 1:1:571:U:H3' | 1:1:572:U:H5'' | 1.45 | 0.96 |
| 1:1:175:A:H3' | 1:1:176:U:H5'' | 1.47 | 0.96 |
| 1:1:746:C:H1' | 1:1:747:U:C4 | 2.01 | 0.96 |
| 1:1:694:G:H2' | 1:1:695:C:C6 | 2.01 | 0.96 |
| 1:1:1442:U:C5 | 1:1:1443:C:H1' | 2.01 | 0.95 |
| 1:1:179:C:H3' | 1:1:180:G:C5' | 1.96 | 0.95 |
| 1:1:794:A:C2 | 1:1:795:A:H1' | 2.01 | 0.95 |
| 1:1:193:C:H2' | 1:1:194:C:C6 | 2.01 | 0.95 |
| 1:1:559:G:H3' | 1:1:560:A:H5'' | 1.47 | 0.95 |
| 1:1:561:A:H3' | 1:1:562:U:C5' | 1.95 | 0.95 |
| 20:S:45:LEU:HD23 | 20:S:52:LEU:HG | 1.47 | 0.95 |
| 1:1:929:G:N2 | 1:1:1104:G:H4' | 1.81 | 0.95 |
| 1:1:1253:A:H4' | 1:1:1254:C:H5'' | 1.47 | 0.95 |
| 1:1:1832:A:H2' | 1:1:1833:C:H5'' | 1.46 | 0.95 |
| 1:1:475:C:C6 | 1:1:475:C:H5' | 2.02 | 0.95 |
| 1:1:1402:A:H2' | 1:1:1403:C:C4 | 2.02 | 0.94 |
| 1:1:134:C:H3' | 1:1:135:U:H4' | 1.49 | 0.94 |
| 1:1:693:A:H3' | 1:1:694:G:C4' | 1.98 | 0.94 |
| 1:1:570:C:C2' | 1:1:571:U:H5'' | 1.98 | 0.94 |
| 1:1:1750:C:H2' | 1:1:1751:C:H5' | 1.48 | 0.94 |
| 1:1:794:A:H2' | 1:1:795:A:H4' | 1.47 | 0.94 |
| 18:Q:12:VAL:HG21 | 18:Q:91:ALA:HA | 1.47 | 0.93 |
| 1:1:926:A:H2' | 1:1:927:C:O4' | 1.69 | 0.93 |
| 1:1:1621:U:H2' | 1:1:1622:U:H5' | 1.49 | 0.93 |
| 1:1:302:A:H1' | 10:I:73:THR:HB | 1.49 | 0.93 |
| 1:1:1766:C:H3' | 1:1:1767:C:C5 | 2.04 | 0.93 |
| 1:1:573:U:H2' | 1:1:576:A:C2 | 2.04 | 0.93 |
| 1:1:609:U:H2' | 1:1:610:G:H8 | 1.34 | 0.93 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 6:E:129:ILE:HG22 | 6:E:156:VAL:HG22 | 1.50 | 0.93 |
| 1:1:990:A:H62 | 1:1:992:A:H1' | 1.31 | 0.93 |
| 1:1:754:G:H2' | 1:1:755:C:C6 | 2.02 | 0.93 |
| 1:1:942:G:H2' | 1:1:943:U:C6 | 2.04 | 0.92 |
| 1:1:1330:G:C4' | 1:1:1331:C:H5' | 1.98 | 0.92 |
| 1:1:570:C:H2' | 1:1:571:U:H5'' | 1.51 | 0.92 |
| 13:L:40:ILE:HG21 | 13:L:143:LEU:HD11 | 1.52 | 0.92 |
| 1:1:1276:A:H5' | 1:1:1277:C:H5 | 1.34 | 0.91 |
| 1:1:574:A:H5' | 1:1:575:A:N7 | 1.85 | 0.91 |
| 1:1:794:A:H2' | 1:1:795:A:C4' | 1.99 | 0.91 |
| 1:1:1546:G:H21 | 1:1:1670:C:H1' | 1.32 | 0.91 |
| 1:1:210:U:H2' | 1:1:211:G:H5'' | 1.52 | 0.91 |
| 1:1:751:G:H2' | 1:1:752:G:C8 | 2.05 | 0.91 |
| 1:1:1441:U:C2' | 1:1:1442:U:H4' | 1.98 | 0.91 |
| 1:1:1666:C:H3' | 1:1:1667:U:H6 | 1.36 | 0.91 |
| 1:1:1602:U:H2' | 1:1:1603:G:H2' | 1.52 | 0.91 |
| 1:1:804:U:H2' | 1:1:805:U:C6 | 2.04 | 0.91 |
| 1:1:75:G:H1' | 1:1:76:U:C5 | 2.06 | 0.91 |
| 8:G:53:SER:HB2 | 8:G:112:VAL:HG23 | 1.51 | 0.91 |
| 1:1:1280:G:H2' | 1:1:1281:G:H8 | 1.36 | 0.91 |
| 1:1:604:A:H2 | 1:1:605:A:C2 | 1.88 | 0.91 |
| 1:1:1397:U:H4' | 1:1:1398:G:H21 | 1.34 | 0.91 |
| 1:1:60:A:H3' | 1:1:501:C:H41 | 1.34 | 0.90 |
| 11:J:86:VAL:HG12 | 11:J:87:LEU:HD12 | 1.51 | 0.90 |
| 1:1:314:U:OP1 | 1:1:314:U:H4' | 1.70 | 0.90 |
| 1:1:558:G:P | 1:1:558:G:H8 | 1.94 | 0.90 |
| 1:1:184:G:C8 | 1:1:185:G:H4' | 2.06 | 0.90 |
| 1:1:1631:U:H5' | 1:1:1631:U:C6 | 2.06 | 0.90 |
| 1:1:1491:G:H2' | 1:1:1492:U:C6 | 2.05 | 0.90 |
| 1:1:557:U:C3' | 1:1:558:G:C8 | 2.55 | 0.90 |
| 1:1:798:G:H8 | 1:1:867:G:N2 | 1.69 | 0.90 |
| 1:1:958:G:H4' | 1:1:958:G:OP1 | 1.69 | 0.90 |
| 1:1:1157:G:N3 | 1:1:1157:G:H5'' | 1.87 | 0.89 |
| 5:D:158:ILE:HG22 | 5:D:164:VAL:HG22 | 1.54 | 0.89 |
| 1:1:744:G:H4' | 9:H:102:PRO:HG3 | 1.53 | 0.89 |
| 1:1:58:C:H5'' | 1:1:499:G:H21 | 1.36 | 0.89 |
| 1:1:806:U:H2' | 1:1:807:G:H5' | 1.53 | 0.89 |
| 1:1:1441:U:H2' | 1:1:1442:U:C4' | 1.99 | 0.89 |
| 1:1:1431:G:H2' | 1:1:1432:U:C5 | 2.07 | 0.89 |
| 1:1:1531:A:H4' | 1:1:1605:G:H4' | 1.54 | 0.89 |
| 1:1:609:U:H2' | 1:1:610:G:C8 | 2.08 | 0.89 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:1:222:U:H2' | 1:1:223:C:H6 | 1.36 | 0.89 |
| 1:1:383:G:H3' | 1:1:384:U:C6 | 2.07 | 0.89 |
| 1:1:569:A:C2' | 1:1:570:C:H5'' | 2.02 | 0.89 |
| 1:1:1330:G:H4' | 1:1:1331:C:C5' | 2.01 | 0.88 |
| 1:1:444:G:H22 | 1:1:447:A:H5'' | 1.38 | 0.88 |
| 21:T:39:LEU:HD11 | 21:T:43:LYS:HB2 | 1.55 | 0.88 |
| 1:1:310:C:H4' | 1:1:311:C:OP2 | 1.73 | 0.88 |
| 4:C:174:ILE:HG22 | 4:C:175:GLY:H | 1.38 | 0.88 |
| 1:1:1308:U:H1' | 1:1:1309:C:C6 | 2.08 | 0.88 |
| 1:1:339:A:H2' | 1:1:340:C:C6 | 2.08 | 0.88 |
| 15:N:92:ILE:HG21 | 15:N:149:LEU:HD13 | 1.55 | 0.88 |
| 1:1:1138:C:H5'' | 1:1:1139:C:OP1 | 1.74 | 0.88 |
| 1:1:1518:C:H5'' | 1:1:1519:U:H5' | 1.56 | 0.88 |
| 1:1:1638:G:N3 | 1:1:1638:G:H5' | 1.89 | 0.88 |
| 3:B:28:LYS:HD3 | 3:B:48:LEU:HD13 | 1.55 | 0.88 |
| 17:P:34:MET:HG3 | 17:P:45:LEU:HD22 | 1.52 | 0.88 |
| 1:1:229:A:C6 | 1:1:900:C:H1' | 2.09 | 0.88 |
| 19:R:109:LEU:HD13 | 19:R:111:PHE:H | 1.38 | 0.88 |
| 1:1:1692:U:H2' | 1:1:1693:G:H8 | 1.38 | 0.87 |
| 1:1:529:A:H2' | 1:1:530:U:C6 | 2.08 | 0.87 |
| 1:1:66:G:H2' | 8:G:132:ARG:O | 1.74 | 0.87 |
| 1:1:1405:A:C2 | 1:1:1442:U:H6 | 1.92 | 0.87 |
| 1:1:1556:A:P | 1:1:1556:A:H3' | 2.14 | 0.87 |
| 1:1:1765:C:H2' | 1:1:1766:C:O4' | 1.74 | 0.87 |
| 1:1:76:U:H3' | 1:1:77:A:H5'' | 1.57 | 0.87 |
| 1:1:851:C:H4' | 1:1:852:G:C2 | 2.08 | 0.87 |
| 1:1:222:U:H2' | 1:1:223:C:C6 | 2.09 | 0.87 |
| 1:1:68:A:H4' | 1:1:69:C:O5' | 1.74 | 0.87 |
| 1:1:193:C:H2' | 1:1:194:C:H6 | 1.37 | 0.87 |
| 1:1:1690:U:H2' | 1:1:1691:U:H5' | 1.56 | 0.87 |
| 1:1:1768:A:C2' | 1:1:1769:C:H5' | 2.05 | 0.87 |
| 1:1:1079:C:H4' | 1:1:1181:A:N6 | 1.91 | 0.86 |
| 1:1:131:C:N4 | 1:1:215:G:H5' | 1.89 | 0.86 |
| 1:1:106:C:H5'' | 1:1:431:G:H1' | 1.56 | 0.86 |
| 1:1:84:A:HO2' | 1:1:85:A:H8 | 0.89 | 0.86 |
| 1:1:1298:G:H4' | 17:P:78:THR:HA | 1.57 | 0.86 |
| 1:1:1284:A:C5 | 1:1:1286:G:H5' | 2.10 | 0.86 |
| 1:1:192:C:H42 | 1:1:207:G:H1 | 1.23 | 0.86 |
| 1:1:211:G:C8 | 1:1:211:G:H5' | 2.10 | 0.86 |
| 1:1:1340:U:H5'' | 1:1:1341:C:H2' | 1.56 | 0.86 |
| 1:1:184:G:H3' | 1:1:185:G:H4' | 1.55 | 0.86 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 1:1:181:A:C3' | 1:1:182:C:H5'' | 2.05 | 0.86 |
| 1:1:748:C:H42 | 1:1:860:G:P | 1.97 | 0.86 |
| 1:1:1082:A:H2' | 1:1:1084:A:H5'' | 1.57 | 0.86 |
| 1:1:690:G:H2' | 1:1:691:G:C8 | 2.11 | 0.86 |
| 19:R:109:LEU:HD11 | 19:R:111:PHE:HB2 | 1.57 | 0.86 |
| 1:1:1276:A:H5' | 1:1:1277:C:C5 | 2.10 | 0.86 |
| 1:1:1390:U:H2' | 1:1:1391:C:C6 | 2.11 | 0.86 |
| 1:1:1697:A:H1' | 1:1:1698:C:OP2 | 1.75 | 0.86 |
| 1:1:1255:G:H5'' | 1:1:1256:G:H8 | 1.41 | 0.86 |
| 1:1:1416:C:N4 | 1:1:1431:G:C2 | 2.44 | 0.86 |
| 1:1:1442:U:H3' | 1:1:1443:C:C5' | 2.04 | 0.85 |
| 1:1:1554:C:H3' | 1:1:1555:U:H5' | 1.57 | 0.85 |
| 1:1:1832:A:C2' | 1:1:1833:C:H5'' | 2.06 | 0.85 |
| 1:1:1261:C:OP1 | 1:1:1261:C:H4' | 1.75 | 0.85 |
| 1:1:1424:G:H3' | 1:1:1425:G:O4' | 1.76 | 0.85 |
| 1:1:1101:U:H2' | 1:1:1102:G:H8 | 1.39 | 0.85 |
| 1:1:172:U:H3' | 1:1:173:A:H5'' | 1.56 | 0.85 |
| 1:1:1825:A:H2' | 1:1:1826:G:H5'' | 1.59 | 0.85 |
| 1:1:526:A:H2' | 1:1:526:A:N3 | 1.90 | 0.85 |
| 1:1:1781:A:H1' | 1:1:1782:G:OP2 | 1.77 | 0.85 |
| 1:1:573:U:H2' | 1:1:576:A:H2 | 1.42 | 0.85 |
| 1:1:1766:C:H3' | 1:1:1767:C:C6 | 2.12 | 0.85 |
| 1:1:222:U:H5'' | 13:L:17:PHE:O | 1.77 | 0.85 |
| 1:1:576:A:OP1 | 1:1:577:U:H3' | 1.76 | 0.85 |
| 1:1:797:C:C2' | 1:1:798:G:H5'' | 2.06 | 0.85 |
| 1:1:1684:C:H2' | 1:1:1685:U:C5' | 2.05 | 0.85 |
| 1:1:1093:A:H5' | 24:W:3:ARG:HE | 1.39 | 0.84 |
| 1:1:1217:A:H2' | 1:1:1218:C:C6 | 2.11 | 0.84 |
| 1:1:1079:C:H4' | 1:1:1181:A:H61 | 1.40 | 0.84 |
| 1:1:1402:A:H2' | 1:1:1403:C:C5 | 2.12 | 0.84 |
| 1:1:1016:U:H1' | 1:1:1017:U:H5'' | 1.58 | 0.84 |
| 1:1:1049:A:H2 | 1:1:1069:U:H3 | 1.24 | 0.84 |
| 1:1:1476:A:H4' | 1:1:1477:U:C5' | 2.07 | 0.84 |
| 1:1:210:U:C2' | 1:1:211:G:H5'' | 2.08 | 0.84 |
| 1:1:377:G:H4' | 10:I:97:VAL:CG1 | 2.05 | 0.84 |
| 1:1:1476:A:H4' | 1:1:1477:U:H5' | 1.60 | 0.84 |
| 1:1:1579:A:H3' | 1:1:1579:A:N3 | 1.92 | 0.84 |
| 1:1:162:C:H2' | 1:1:163:U:O4' | 1.76 | 0.84 |
| 1:1:20:G:H4' | 1:1:620:G:C2 | 2.12 | 0.84 |
| 1:1:193:C:H4' | 1:1:209:A:C6 | 2.13 | 0.84 |
| 1:1:398:A:H4' | 1:1:399:C:H3' | 1.60 | 0.84 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:1021:U:H5'' | 15:N:128:TYR:CE1 | 2.12 | 0.84 |
| 1:1:1542:C:H6 | 1:1:1542:C:H5'' | 1.43 | 0.84 |
| 1:1:447:A:H5' | 10:I:26:LYS:HD2 | 1.60 | 0.84 |
| 1:1:1280:G:H2' | 1:1:1281:G:C8 | 2.13 | 0.83 |
| 1:1:855:G:H2' | 1:1:856:C:H5' | 1.60 | 0.83 |
| 1:1:1418:C:H5'' | 21:T:129:ARG:CB | 2.07 | 0.83 |
| 1:1:1418:C:H2' | 1:1:1419:C:C6 | 2.13 | 0.83 |
| 1:1:893:U:H2' | 1:1:894:G:C8 | 2.12 | 0.83 |
| 1:1:1103:C:H2' | 1:1:1104:G:H5' | 1.59 | 0.83 |
| 1:1:1257:G:H5'' | 1:1:1257:G:H8 | 1.44 | 0.83 |
| 1:1:216:C:H2' | 1:1:217:A:C8 | 2.12 | 0.83 |
| 1:1:693:A:H3' | 1:1:694:G:H4' | 1.61 | 0.83 |
| 1:1:890:U:H3' | 1:1:891:G:H5'' | 1.60 | 0.83 |
| 1:1:979:C:O2' | 1:1:980:A:H5' | 1.76 | 0.83 |
| 6:E:141:THR:HG22 | 6:E:143:ASP:H | 1.42 | 0.83 |
| 1:1:1214:A:H2' | 1:1:1215:C:H5' | 1.57 | 0.83 |
| 1:1:1483:A:H4' | 5:D:160:SER:CB | 2.08 | 0.83 |
| 1:1:1554:C:H3' | 1:1:1555:U:C5' | 2.09 | 0.83 |
| 1:1:199:C:H4' | 1:1:200:G:OP2 | 1.79 | 0.83 |
| 1:1:798:G:C8 | 1:1:867:G:N2 | 2.47 | 0.83 |
| 1:1:1484:A:H5'' | 5:D:159:HIS:HB3 | 1.61 | 0.83 |
| 1:1:1491:G:H2' | 1:1:1492:U:H6 | 1.40 | 0.83 |
| 22:U:94:PRO:HD2 | 22:U:97:ILE:HD12 | 1.60 | 0.83 |
| 8:G:135:PRO:HG3 | 8:G:144:LEU:HD13 | 1.61 | 0.83 |
| 1:1:1440:C:H2' | 1:1:1441:U:C5 | 2.14 | 0.83 |
| 1:1:1417:C:H2' | 1:1:1418:C:C6 | 2.13 | 0.82 |
| 1:1:797:C:H4' | 9:H:109:ARG:CB | 2.07 | 0.82 |
| 11:J:128:VAL:O | 11:J:132:GLN:HG2 | 1.78 | 0.82 |
| 1:1:59:U:C2' | 1:1:60:A:H5'' | 2.09 | 0.82 |
| 1:1:1103:C:C2' | 1:1:1104:G:H5' | 2.09 | 0.82 |
| 1:1:1276:A:H4' | 1:1:1277:C:O5' | 1.78 | 0.82 |
| 1:1:1445:U:O2' | 1:1:1446:A:H5' | 1.80 | 0.82 |
| 1:1:1557:C:OP2 | 1:1:1557:C:H3' | 1.79 | 0.82 |
| 1:1:640:A:H5'' | 11:J:25:LEU:HD11 | 1.59 | 0.82 |
| 1:1:1098:C:H2' | 1:1:1099:G:C8 | 2.13 | 0.82 |
| 1:1:1416:C:C3' | 1:1:1417:C:H5'' | 2.08 | 0.82 |
| 1:1:1775:C:H2' | 1:1:1776:G:H8 | 1.42 | 0.82 |
| 1:1:70:G:H2' | 1:1:71:G:H4' | 1.61 | 0.82 |
| 2:A:30:LEU:HD21 | 2:A:35:GLU:HA | 1.62 | 0.82 |
| 1:1:569:A:H2' | 1:1:570:C:C5' | 2.08 | 0.82 |
| 1:1:1405:A:C2' | 1:1:1406:G:H5'' | 2.09 | 0.82 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:1:95:G:H1 | 1:1:435:A:H61 | 1.26 | 0.82 |
| 10:I:130:THR:HG22 | 10:I:136:ILE:HA | 1.62 | 0.82 |
| 25:X:87:ASN:HB2 | 25:X:90:CYS:SG | 2.19 | 0.82 |
| 1:1:1016:U:H1' | 1:1:1017:U:C5' | 2.10 | 0.82 |
| 1:1:302:A:H2' | 1:1:303:C:C5' | 2.08 | 0.82 |
| 1:1:1133:A:H2' | 1:1:1134:G:C8 | 2.15 | 0.82 |
| 1:1:1666:C:H3' | 1:1:1667:U:C6 | 2.15 | 0.82 |
| 1:1:1313:A:N1 | 14:M:104:VAL:HG21 | 1.94 | 0.82 |
| 1:1:1534:C:H4' | 1:1:1535:U:H5' | 1.61 | 0.82 |
| 2:A:6:ASP:HB2 | 23:V:42:VAL:HG22 | 1.62 | 0.82 |
| 1:1:1405:A:H2' | 1:1:1406:G:H5'' | 1.62 | 0.81 |
| 3:B:103:MET:HB3 | 3:B:215:VAL:HG12 | 1.60 | 0.81 |
| 1:1:691:G:C2' | 1:1:692:G:H5' | 2.10 | 0.81 |
| 8:G:98:ARG:HD3 | 8:G:106:LEU:HD11 | 1.60 | 0.81 |
| 1:1:1403:C:H3' | 1:1:1404:U:C6 | 2.16 | 0.81 |
| 1:1:175:A:C2 | 1:1:176:U:H1' | 2.16 | 0.81 |
| 10:I:158:ILE:O | 10:I:162:LEU:HB2 | 1.79 | 0.81 |
| 17:P:126:VAL:HG13 | 17:P:127:LYS:H | 1.44 | 0.81 |
| 1:1:1214:A:C6 | 1:1:1686:G:C2 | 2.69 | 0.81 |
| 1:1:1456:G:H5'' | 1:1:1456:G:H8 | 1.45 | 0.81 |
| 1:1:1834:A:H2 | 1:1:1837:G:H22 | 1.26 | 0.81 |
| 1:1:364:A:OP1 | 1:1:364:A:H4' | 1.79 | 0.81 |
| 1:1:559:G:H3' | 1:1:560:A:C5' | 2.10 | 0.81 |
| 1:1:920:A:H2' | 1:1:922:A:H8 | 1.46 | 0.81 |
| 1:1:1411:G:H4' | 1:1:1412:C:OP1 | 1.81 | 0.81 |
| 1:1:186:C:H2' | 1:1:187:G:H8 | 1.46 | 0.81 |
| 1:1:1578:U:OP2 | 1:1:1578:U:H4' | 1.80 | 0.81 |
| 1:1:527:C:C3' | 1:1:528:A:C8 | 2.63 | 0.81 |
| 1:1:952:G:H2' | 1:1:953:C:O4' | 1.81 | 0.81 |
| 1:1:1337:C:H2' | 1:1:1338:G:C8 | 2.15 | 0.81 |
| 1:1:380:G:H2' | 1:1:382:C:H5 | 1.46 | 0.81 |
| 1:1:795:A:H2' | 1:1:796:G:H8 | 1.46 | 0.81 |
| 8:G:12:CYS:SG | 8:G:127:THR:HB | 2.21 | 0.81 |
| 15:N:42:LYS:HE3 | 15:N:80:LEU:HD23 | 1.63 | 0.81 |
| 27:Z:69:THR:HG22 | 27:Z:70:PRO:HD2 | 1.63 | 0.81 |
| 1:1:1413:G:O2' | 1:1:1414:A:H5' | 1.81 | 0.80 |
| 1:1:1442:U:O5' | 1:1:1443:C:H5'' | 1.81 | 0.80 |
| 1:1:1648:G:H4' | 1:1:1649:U:OP2 | 1.81 | 0.80 |
| 1:1:217:A:H4' | 1:1:341:C:H5' | 1.61 | 0.80 |
| 1:1:804:U:H2' | 1:1:805:U:H6 | 1.42 | 0.80 |
| 1:1:886:A:P | 1:1:886:A:H3' | 2.21 | 0.80 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:1:306:C:H2' | 10:I:43:ILE:O | 1.81 | 0.80 |
| 26:Y:35:VAL:HG23 | 26:Y:40:ILE:HD11 | 1.61 | 0.80 |
| 1:1:1133:A:H2' | 1:1:1134:G:H8 | 1.43 | 0.80 |
| 1:1:406:U:H4' | 1:1:407:G:N2 | 1.97 | 0.80 |
| 1:1:66:G:H1' | 8:G:160:LYS:HG2 | 1.61 | 0.80 |
| 6:E:45:ILE:HD12 | 6:E:61:VAL:HG21 | 1.62 | 0.80 |
| 1:1:84:A:H5' | 26:Y:123:ALA:HB2 | 1.62 | 0.80 |
| 1:1:215:G:H2' | 1:1:216:C:C6 | 2.15 | 0.80 |
| 1:1:1307:U:C2' | 1:1:1308:U:H5' | 2.12 | 0.80 |
| 1:1:1307:U:H2' | 1:1:1308:U:H5' | 1.64 | 0.80 |
| 1:1:822:U:H5' | 1:1:822:U:H6 | 1.46 | 0.80 |
| 20:S:66:ARG:O | 20:S:70:ILE:HG12 | 1.82 | 0.80 |
| 1:1:1253:A:H4' | 1:1:1254:C:C5' | 2.11 | 0.80 |
| 1:1:796:G:H22 | 1:1:797:C:H5 | 1.29 | 0.80 |
| 1:1:971:G:H4' | 1:1:972:A:O5' | 1.82 | 0.80 |
| 9:H:79:LEU:HD22 | 9:H:94:PHE:HZ | 1.46 | 0.80 |
| 19:R:21:TYR:CE1 | 19:R:61:ILE:HG21 | 2.17 | 0.80 |
| 1:1:1405:A:O5' | 1:1:1405:A:H8 | 1.65 | 0.80 |
| 1:1:203:G:H2' | 1:1:204:G:C8 | 2.16 | 0.80 |
| 1:1:576:A:OP2 | 1:1:577:U:H5' | 1.82 | 0.80 |
| 1:1:690:G:H2' | 1:1:691:G:H8 | 1.46 | 0.80 |
| 1:1:106:C:H2' | 1:1:107:A:C8 | 2.17 | 0.80 |
| 1:1:1442:U:H5' | 1:1:1443:C:C6 | 2.12 | 0.80 |
| 1:1:1833:C:H5' | 1:1:1833:C:C6 | 2.10 | 0.80 |
| 1:1:67:C:H41 | 8:G:163:ASN:HA | 1.46 | 0.80 |
| 11:J:130:ILE:HG22 | 11:J:135:ILE:HD12 | 1.63 | 0.80 |
| 1:1:1348:G:N2 | 1:1:1381:G:H22 | 1.78 | 0.80 |
| 1:1:889:U:H3' | 1:1:890:U:H5'' | 1.63 | 0.80 |
| 1:1:1030:A:H2' | 1:1:1031:A:H8 | 1.46 | 0.79 |
| 1:1:1634:A:H3' | 1:1:1635:C:H6 | 1.47 | 0.79 |
| 1:1:745:C:H4' | 1:1:746:C:C6 | 2.17 | 0.79 |
| 1:1:1769:C:H2' | 1:1:1770:G:C8 | 2.17 | 0.79 |
| 1:1:500:A:H2' | 1:1:501:C:C5' | 2.12 | 0.79 |
| 1:1:1326:U:H4' | 1:1:1327:G:O5' | 1.82 | 0.79 |
| 1:1:1743:G:H1' | 1:1:1792:G:N2 | 1.97 | 0.79 |
| 1:1:184:G:H2' | 1:1:185:G:O3' | 1.82 | 0.79 |
| 1:1:558:G:H2' | 1:1:559:G:H5'' | 1.64 | 0.79 |
| 1:1:795:A:C2' | 1:1:796:G:H5' | 2.11 | 0.79 |
| 25:X:61:GLN:HB3 | 25:X:62:PRO:CD | 2.13 | 0.79 |
| 1:1:1593:C:H5 | 27:Z:104:ARG:HH21 | 1.30 | 0.79 |
| 1:1:1203:G:C8 | 1:1:1699:A:C2 | 2.70 | 0.79 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:125:C:H4' | 6:E:136:ILE:HA | 1.63 | 0.79 |
| 1:1:1547:C:H3' | 1:1:1548:G:C5' | 2.10 | 0.79 |
| 1:1:317:C:H3' | 1:1:318:A:H5'' | 1.64 | 0.79 |
| 1:1:944:A:H1' | 16:O:136:PRO:HB3 | 1.65 | 0.79 |
| 1:1:1049:A:H2 | 1:1:1069:U:N3 | 1.80 | 0.79 |
| 1:1:1176:G:H2' | 1:1:1177:U:C6 | 2.18 | 0.79 |
| 1:1:1604:G:C2' | 1:1:1605:G:H5' | 2.12 | 0.79 |
| 6:E:18:TRP:HE3 | 6:E:20:LEU:HD11 | 1.47 | 0.79 |
| 6:E:21:ASP:HB2 | 6:E:24:THR:OG1 | 1.83 | 0.79 |
| 22:U:55:ARG:HD2 | 22:U:87:ARG:CZ | 2.13 | 0.79 |
| 4:C:167:ARG:HA | 4:C:181:PRO:HD3 | 1.65 | 0.79 |
| 17:P:60:LEU:HD21 | 17:P:92:SER:HB3 | 1.62 | 0.79 |
| 1:1:1442:U:C4 | 18:Q:22:VAL:HG22 | 2.18 | 0.79 |
| 1:1:1257:G:H5' | 1:1:1258:A:C8 | 2.18 | 0.79 |
| 1:1:1427:C:H2' | 1:1:1428:G:O4' | 1.83 | 0.79 |
| 1:1:1699:A:O5' | 1:1:1699:A:H8 | 1.66 | 0.79 |
| 1:1:179:C:H2' | 1:1:180:G:C2 | 2.18 | 0.78 |
| 1:1:747:U:H1' | 1:1:748:C:H2' | 1.63 | 0.78 |
| 1:1:64:A:H2 | 1:1:84:A:N6 | 1.81 | 0.78 |
| 1:1:1698:C:H4' | 1:1:1699:A:H8 | 1.49 | 0.78 |
| 1:1:618:C:H1' | 1:1:632:C:C5' | 2.12 | 0.78 |
| 1:1:1476:A:C4' | 1:1:1477:U:H5' | 2.14 | 0.78 |
| 1:1:1638:G:C4 | 1:1:1638:G:H5' | 2.18 | 0.78 |
| 1:1:1647:A:O2' | 1:1:1648:G:H5' | 1.82 | 0.78 |
| 1:1:309:G:H4' | 1:1:310:C:OP1 | 1.81 | 0.78 |
| 1:1:740:C:H2' | 1:1:741:C:C6 | 2.18 | 0.78 |
| 1:1:1630:A:H2' | 1:1:1631:U:H5'' | 1.64 | 0.78 |
| 1:1:331:C:H3' | 1:1:332:G:H5'' | 1.66 | 0.78 |
| 17:P:22:LEU:HD21 | 17:P:109:PRO:HB3 | 1.64 | 0.78 |
| 5:D:8:LYS:HG2 | 22:U:61:LEU:HD21 | 1.65 | 0.78 |
| 1:1:376:A:H2' | 1:1:377:G:C8 | 2.17 | 0.78 |
| 1:1:934:G:H5' | 1:1:993:G:N2 | 1.99 | 0.78 |
| 7:F:49:LEU:HD21 | 18:Q:46:THR:HG22 | 1.63 | 0.78 |
| 1:1:1016:U:H4' | 1:1:1017:U:OP1 | 1.81 | 0.78 |
| 1:1:300:U:H2' | 1:1:301:A:C8 | 2.18 | 0.78 |
| 1:1:1654:G:H3' | 1:1:1655:C:H5 | 1.48 | 0.78 |
| 1:1:1456:G:H5'' | 1:1:1456:G:C8 | 2.18 | 0.78 |
| 1:1:42:A:H2' | 1:1:43:U:H5'' | 1.66 | 0.78 |
| 1:1:1413:G:C2' | 1:1:1414:A:H5' | 2.14 | 0.78 |
| 1:1:1473:G:H2' | 1:1:1475:G:N7 | 1.99 | 0.78 |
| 1:1:1769:C:H2' | 1:1:1770:G:H8 | 1.46 | 0.78 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:179:C:OP2 | 1:1:179:C:H6 | 1.67 | 0.78 |
| 12:K:90:VAL:HG13 | 12:K:94:LEU:HD23 | 1.64 | 0.78 |
| 1:1:1625:U:H2' | 1:1:1626:C:C6 | 2.19 | 0.78 |
| 1:1:4:C:H2' | 1:1:5:U:C6 | 2.19 | 0.78 |
| 1:1:1203:G:C8 | 1:1:1699:A:H2 | 2.02 | 0.77 |
| 1:1:1833:C:H6 | 1:1:1833:C:C5' | 1.97 | 0.77 |
| 1:1:815:U:H2' | 1:1:816:A:C8 | 2.18 | 0.77 |
| 1:1:91:A:H5'' | 1:1:92:A:H5'' | 1.66 | 0.77 |
| 1:1:1276:A:H4' | 1:1:1277:C:C5' | 2.14 | 0.77 |
| 1:1:1536:G:H2' | 1:1:1537:A:C8 | 2.19 | 0.77 |
| 1:1:1787:G:H2' | 1:1:1788:A:C8 | 2.19 | 0.77 |
| 1:1:304:C:H4' | 1:1:305:U:OP2 | 1.84 | 0.77 |
| 1:1:639:C:H2' | 1:1:640:A:H8 | 1.48 | 0.77 |
| 1:1:797:C:H5'' | 9:H:106:ARG:O | 1.85 | 0.77 |
| 1:1:527:C:C4' | 11:J:125:HIS:HB2 | 2.14 | 0.77 |
| 1:1:315:C:N3 | 1:1:336:A:H2 | 1.81 | 0.77 |
| 1:1:1442:U:H2' | 1:1:1442:U:O2 | 1.83 | 0.77 |
| 16:O:72:TYR:CE2 | 16:O:76:LEU:HD11 | 2.19 | 0.77 |
| 1:1:1848:U:O2' | 1:1:1849:G:H5' | 1.84 | 0.77 |
| 1:1:1100:A:H2' | 1:1:1101:U:H5' | 1.67 | 0.77 |
| 1:1:655:A:C5 | 1:1:657:U:H5 | 2.03 | 0.77 |
| 1:1:1217:A:H1' | 1:1:1685:U:O2 | 1.85 | 0.77 |
| 1:1:1429:G:H5'' | 1:1:1430:C:OP2 | 1.85 | 0.77 |
| 1:1:179:C:H5'' | 1:1:180:G:N2 | 1.99 | 0.77 |
| 1:1:525:A:H2 | 1:1:561:A:N6 | 1.81 | 0.77 |
| 1:1:911:C:H3' | 1:1:912:C:C6 | 2.20 | 0.77 |
| 1:1:746:C:H5'' | 9:H:104:PRO:O | 1.84 | 0.76 |
| 1:1:1629:C:H5' | 20:S:39:ARG:HH21 | 1.49 | 0.76 |
| 9:H:84:GLU:OE2 | 9:H:91:HIS:HA | 1.85 | 0.76 |
| 1:1:1095:C:H5'' | 24:W:22:LYS:NZ | 2.00 | 0.76 |
| 1:1:1241:A:H1' | 1:1:1267:C:H1' | 1.67 | 0.76 |
| 1:1:1406:G:HO2' | 1:1:1408:U:H5 | 1.34 | 0.76 |
| 1:1:1574:C:H2' | 1:1:1575:G:H5' | 1.67 | 0.76 |
| 1:1:794:A:C2' | 1:1:795:A:H4' | 2.14 | 0.76 |
| 1:1:142:C:H4' | 1:1:143:U:H4' | 1.66 | 0.76 |
| 1:1:1166:G:H1 | 1:1:1193:U:H3 | 1.33 | 0.76 |
| 1:1:1417:C:O2' | 1:1:1418:C:H5' | 1.86 | 0.76 |
| 1:1:1725:U:H2' | 1:1:1726:G:C8 | 2.20 | 0.76 |
| 1:1:1418:C:H2' | 1:1:1419:C:C5 | 2.21 | 0.76 |
| 1:1:313:A:H2' | 8:G:191:ARG:NH2 | 2.00 | 0.76 |
| 18:Q:22:VAL:O | 18:Q:70:VAL:HA | 1.86 | 0.76 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:1287:A:H3' | 1:1:1312:G:H22 | 1.50 | 0.76 |
| 1:1:147:A:H61 | 1:1:170:A:H8 | 1.33 | 0.76 |
| 1:1:1260:A:C2 | 1:1:1620:A:H1' | 2.21 | 0.76 |
| 1:1:658:U:H5'' | 1:1:659:G:C5 | 2.21 | 0.76 |
| 1:1:1637:A:H4' | 1:1:1638:G:H5'' | 1.68 | 0.76 |
| 1:1:798:G:H8 | 1:1:867:G:H22 | 1.30 | 0.76 |
| 1:1:1755:C:H2' | 1:1:1756:C:C6 | 2.21 | 0.76 |
| 1:1:855:G:C2' | 1:1:856:C:H5' | 2.14 | 0.76 |
| 1:1:81:U:H5'' | 1:1:81:U:H6 | 1.50 | 0.76 |
| 1:1:900:C:H2' | 1:1:901:G:N7 | 1.99 | 0.76 |
| 1:1:959:G:H1 | 16:O:65:ASP:HB3 | 1.50 | 0.76 |
| 1:1:1079:C:C2' | 1:1:1080:A:H5' | 2.16 | 0.75 |
| 1:1:557:U:H3' | 1:1:558:G:N7 | 2.00 | 0.75 |
| 1:1:745:C:C2 | 1:1:750:C:H5'' | 2.21 | 0.75 |
| 1:1:1039:C:H2' | 1:1:1040:G:C8 | 2.20 | 0.75 |
| 1:1:1461:G:H21 | 1:1:1465:A:N6 | 1.82 | 0.75 |
| 1:1:59:U:H2' | 1:1:60:A:H5'' | 1.66 | 0.75 |
| 1:1:933:G:O6 | 1:1:992:A:H2 | 1.69 | 0.75 |
| 1:1:1483:A:H4' | 5:D:160:SER:HB3 | 1.67 | 0.75 |
| 1:1:380:G:N1 | 1:1:382:C:H3' | 2.02 | 0.75 |
| 1:1:590:A:H4' | 1:1:591:U:OP1 | 1.86 | 0.75 |
| 3:B:131:ASP:HB3 | 3:B:180:ASP:OD2 | 1.87 | 0.75 |
| 1:1:1079:C:H2' | 1:1:1080:A:H5' | 1.69 | 0.75 |
| 15:N:22:VAL:HG12 | 15:N:66:VAL:HA | 1.68 | 0.75 |
| 17:P:30:TYR:HA | 17:P:33:LEU:HD21 | 1.69 | 0.75 |
| 1:1:1040:G:H2' | 1:1:1041:G:C8 | 2.20 | 0.75 |
| 1:1:1075:C:H2' | 1:1:1076:G:C8 | 2.21 | 0.75 |
| 1:1:1353:A:H2' | 1:1:1354:G:H5'' | 1.66 | 0.75 |
| 1:1:193:C:H5' | 1:1:193:C:H6 | 1.50 | 0.75 |
| 1:1:301:A:H2' | 1:1:302:A:H8 | 1.47 | 0.75 |
| 1:1:32:U:H1' | 1:1:516:A:C2 | 2.21 | 0.75 |
| 1:1:587:A:H2' | 1:1:592:C:N4 | 2.01 | 0.75 |
| 1:1:689:U:H3' | 1:1:690:G:H8 | 1.50 | 0.75 |
| 1:1:111:A:H4' | 1:1:112:U:OP1 | 1.86 | 0.75 |
| 1:1:43:U:H5' | 1:1:44:U:C5 | 2.13 | 0.75 |
| 1:1:444:G:H21 | 1:1:446:G:H3' | 1.51 | 0.75 |
| 1:1:44:U:C6 | 1:1:44:U:H5' | 2.20 | 0.75 |
| 1:1:606:G:C3' | 1:1:607:U:H4' | 2.16 | 0.75 |
| 1:1:91:A:H5'' | 1:1:92:A:C5' | 2.17 | 0.75 |
| 5:D:41:VAL:HG22 | 5:D:46:THR:HG23 | 1.69 | 0.75 |
| 1:1:589:G:H1' | 1:1:590:A:OP1 | 1.85 | 0.75 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:64:A:C2 | 1:1:84:A:N6 | 2.54 | 0.75 |
| 1:1:990:A:N6 | 1:1:992:A:H1' | 2.01 | 0.75 |
| 6:E:220:THR:HG23 | 6:E:225:ILE:HD11 | 1.66 | 0.75 |
| 6:E:253:ASP:O | 6:E:257:ALA:HA | 1.86 | 0.75 |
| 1:1:1116:C:O2 | 1:1:1116:C:H2' | 1.87 | 0.75 |
| 1:1:1575:G:H2' | 1:1:1576:G:C8 | 2.22 | 0.75 |
| 1:1:444:G:N2 | 1:1:447:A:H5'' | 2.01 | 0.75 |
| 1:1:749:U:H2' | 1:1:750:C:C6 | 2.22 | 0.75 |
| 1:1:1225:U:H2' | 1:1:1226:G:H5' | 1.67 | 0.75 |
| 1:1:1261:C:C6 | 1:1:1261:C:H5'' | 2.21 | 0.75 |
| 1:1:130:G:H3' | 1:1:131:C:H5'' | 1.69 | 0.75 |
| 1:1:1518:C:H5'' | 1:1:1519:U:C5' | 2.15 | 0.75 |
| 1:1:207:G:H1' | 1:1:208:G:N7 | 2.02 | 0.75 |
| 1:1:308:G:H4' | 1:1:309:G:O5' | 1.85 | 0.75 |
| 1:1:342:C:N4 | 1:1:343:A:H62 | 1.85 | 0.75 |
| 1:1:560:A:H3' | 11:J:171:GLY:HA3 | 1.68 | 0.75 |
| 1:1:120:U:H2' | 1:1:121:U:O4' | 1.86 | 0.74 |
| 1:1:186:C:H2' | 1:1:187:G:C8 | 2.22 | 0.74 |
| 1:1:84:A:H4' | 26:Y:119:GLY:O | 1.85 | 0.74 |
| 1:1:1039:C:H2' | 1:1:1040:G:H8 | 1.51 | 0.74 |
| 1:1:1164:G:H3' | 1:1:1165:G:N2 | 2.02 | 0.74 |
| 1:1:1296:U:H2' | 1:1:1297:U:H5' | 1.69 | 0.74 |
| 1:1:1439:A:H2' | 1:1:1440:C:C6 | 2.21 | 0.74 |
| 3:B:62:LEU:O | 3:B:65:ARG:HG3 | 1.86 | 0.74 |
| 1:1:1331:C:H5'' | 1:1:1331:C:O2 | 1.87 | 0.74 |
| 1:1:1644:C:H4' | 1:1:1645:C:OP1 | 1.88 | 0.74 |
| 1:1:10:G:C8 | 1:1:1697:A:C2 | 2.76 | 0.74 |
| 1:1:454:U:H2' | 1:1:455:A:C8 | 2.23 | 0.74 |
| 1:1:1016:U:C5 | 1:1:1017:U:C5 | 2.75 | 0.74 |
| 1:1:574:A:H3' | 1:1:575:A:H8 | 1.53 | 0.74 |
| 1:1:987:A:H3' | 1:1:988:C:C5 | 2.22 | 0.74 |
| 1:1:1117:C:H3' | 1:1:1118:C:H5'' | 1.69 | 0.74 |
| 1:1:112:U:H5'' | 1:1:113:G:C5' | 2.17 | 0.74 |
| 1:1:112:U:C5' | 1:1:113:G:H5' | 2.15 | 0.74 |
| 1:1:1412:C:H2' | 1:1:1414:A:OP1 | 1.88 | 0.74 |
| 1:1:1825:A:H8 | 1:1:1825:A:O5' | 1.70 | 0.74 |
| 1:1:683:G:H1' | 1:1:1023:A:H2 | 1.48 | 0.74 |
| 3:B:49:VAL:HG11 | 3:B:58:ALA:HB2 | 1.69 | 0.74 |
| 8:G:77:LEU:O | 8:G:92:ARG:HA | 1.88 | 0.74 |
| 1:1:1403:C:H3' | 1:1:1404:U:H6 | 1.51 | 0.74 |
| 1:1:169:U:H1' | 8:G:133:LEU:HD12 | 1.69 | 0.74 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:1771:G:H2' | 1:1:1772:C:C6 | 2.23 | 0.74 |
| 1:1:886:A:OP2 | 1:1:886:A:H3' | 1.87 | 0.74 |
| 1:1:952:G:H1' | 16:O:52:THR:HB | 1.70 | 0.74 |
| 1:1:1286:G:H1' | 14:M:34:GLY:HA3 | 1.68 | 0.74 |
| 19:R:71:ILE:HD13 | 19:R:75:GLU:HB2 | 1.69 | 0.74 |
| 1:1:1516:G:H2' | 1:1:1517:G:H5' | 1.68 | 0.74 |
| 1:1:384:U:C2' | 1:1:385:G:H5'' | 2.14 | 0.74 |
| 1:1:571:U:H3' | 1:1:572:U:O4' | 1.87 | 0.74 |
| 1:1:899:U:H2' | 1:1:900:C:C6 | 2.22 | 0.74 |
| 2:A:6:ASP:O | 23:V:83:PHE:HB3 | 1.88 | 0.74 |
| 4:C:193:VAL:HG11 | 4:C:240:THR:HG23 | 1.70 | 0.74 |
| 1:1:368:U:H4' | 1:1:369:C:OP1 | 1.87 | 0.74 |
| 1:1:815:U:H2' | 1:1:816:A:H8 | 1.51 | 0.74 |
| 1:1:838:G:N7 | 26:Y:8:ARG:HA | 2.02 | 0.74 |
| 1:1:1070:A:H2' | 1:1:1071:G:O4' | 1.88 | 0.73 |
| 1:1:812:A:H2' | 1:1:813:A:H8 | 1.53 | 0.73 |
| 1:1:1427:C:H6 | 1:1:1427:C:H3' | 1.51 | 0.73 |
| 1:1:1851:A:H8 | 1:1:1851:A:H5'' | 1.53 | 0.73 |
| 1:1:193:C:H4' | 1:1:209:A:H61 | 1.51 | 0.73 |
| 1:1:672:A:H2 | 1:1:1162:C:HO2' | 1.36 | 0.73 |
| 1:1:1370:A:H2' | 1:1:1372:U:H5' | 1.70 | 0.73 |
| 1:1:399:C:H4' | 1:1:400:C:OP2 | 1.89 | 0.73 |
| 1:1:834:C:H4' | 1:1:835:C:O5' | 1.86 | 0.73 |
| 1:1:1567:G:H2' | 1:1:1568:C:H5' | 1.68 | 0.73 |
| 1:1:1787:G:H2' | 1:1:1788:A:H8 | 1.52 | 0.73 |
| 1:1:338:G:H2' | 1:1:339:A:C8 | 2.23 | 0.73 |
| 1:1:1643:U:H1' | 18:Q:142:GLN:OE1 | 1.88 | 0.73 |
| 1:1:491:C:H5'' | 1:1:574:A:N1 | 2.04 | 0.73 |
| 1:1:528:A:H2' | 1:1:529:A:O4' | 1.89 | 0.73 |
| 1:1:884:C:O2' | 1:1:885:U:H5' | 1.86 | 0.73 |
| 5:D:72:VAL:HG13 | 12:K:68:TYR:CD1 | 2.24 | 0.73 |
| 1:1:738:C:H2' | 1:1:739:C:C6 | 2.24 | 0.73 |
| 1:1:1378:A:C4 | 2:A:105:PRO:HB3 | 2.24 | 0.73 |
| 9:H:79:LEU:HD22 | 9:H:94:PHE:CZ | 2.24 | 0.73 |
| 17:P:33:LEU:HD22 | 17:P:87:PRO:HG2 | 1.70 | 0.73 |
| 1:1:1542:C:C6 | 1:1:1542:C:H5'' | 2.23 | 0.73 |
| 1:1:1606:G:H8 | 1:1:1606:G:OP2 | 1.72 | 0.73 |
| 1:1:574:A:H5' | 1:1:575:A:C8 | 2.23 | 0.73 |
| 1:1:849:A:H2' | 1:1:850:C:H6 | 1.52 | 0.73 |
| 1:1:60:A:H5' | 1:1:501:C:H5 | 1.53 | 0.73 |
| 1:1:582:U:H3' | 1:1:583:A:H8 | 1.54 | 0.73 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:65:C:C2' | 1:1:66:G:H3' | 2.19 | 0.73 |
| 1:1:58:C:N4 | 1:1:88:G:C2 | 2.57 | 0.73 |
| 1:1:1123:C:H5'' | 3:B:149:GLN:HE22 | 1.54 | 0.73 |
| 1:1:1807:C:H2' | 1:1:1808:U:C6 | 2.24 | 0.73 |
| 1:1:487:U:H1' | 1:1:488:U:OP1 | 1.87 | 0.73 |
| 1:1:798:G:H1' | 1:1:867:G:H21 | 1.53 | 0.73 |
| 2:A:9:GLN:HB2 | 23:V:83:PHE:CD2 | 2.23 | 0.73 |
| 1:1:1543:U:H1' | 1:1:1544:C:O5' | 1.87 | 0.73 |
| 1:1:1217:A:O2' | 1:1:1685:U:H1' | 1.89 | 0.72 |
| 1:1:1815:A:H3' | 1:1:1816:G:H8 | 1.54 | 0.72 |
| 1:1:184:G:H8 | 1:1:185:G:C4' | 1.99 | 0.72 |
| 1:1:35:C:H2' | 1:1:36:U:C6 | 2.24 | 0.72 |
| 12:K:32:HIS:N | 12:K:33:PRO:HD3 | 2.04 | 0.72 |
| 12:K:32:HIS:H | 12:K:33:PRO:HD3 | 1.53 | 0.72 |
| 1:1:1567:G:C2' | 1:1:1568:C:H5' | 2.19 | 0.72 |
| 1:1:15:U:C2' | 1:1:16:G:H5' | 2.19 | 0.72 |
| 1:1:673:G:H1' | 1:1:1084:A:C4 | 2.23 | 0.72 |
| 1:1:70:G:H2' | 1:1:71:G:C4' | 2.18 | 0.72 |
| 1:1:862:A:N3 | 24:W:105:THR:HG22 | 2.03 | 0.72 |
| 1:1:1176:G:H2' | 1:1:1177:U:H6 | 1.54 | 0.72 |
| 1:1:1576:G:C2' | 1:1:1577:G:H5' | 2.19 | 0.72 |
| 1:1:553:U:H3' | 1:1:554:A:H5'' | 1.71 | 0.72 |
| 13:L:71:ARG:HH12 | 13:L:73:LEU:HD11 | 1.54 | 0.72 |
| 1:1:1503:C:H2' | 1:1:1504:U:C6 | 2.24 | 0.72 |
| 3:B:63:LYS:O | 3:B:88:THR:HB | 1.89 | 0.72 |
| 24:W:16:ASN:O | 24:W:20:ARG:HD2 | 1.90 | 0.72 |
| 26:Y:91:LEU:HD22 | 26:Y:96:LEU:HD11 | 1.72 | 0.72 |
| 27:Z:58:LEU:HD13 | 27:Z:77:LEU:HD22 | 1.70 | 0.72 |
| 1:1:1731:A:H2' | 1:1:1732:G:C8 | 2.24 | 0.72 |
| 1:1:312:G:H4' | 1:1:313:A:OP1 | 1.88 | 0.72 |
| 1:1:933:G:O6 | 1:1:992:A:C2 | 2.43 | 0.72 |
| 1:1:571:U:C3' | 1:1:572:U:C4' | 2.65 | 0.72 |
| 11:J:29:LEU:HA | 11:J:32:ILE:HD12 | 1.70 | 0.72 |
| 17:P:83:MET:HB3 | 17:P:116:LEU:HD12 | 1.71 | 0.72 |
| 1:1:1338:G:H4' | 22:U:74:SER:H | 1.54 | 0.72 |
| 1:1:29:G:H4' | 25:X:129:SER:CB | 2.20 | 0.72 |
| 1:1:1082:A:H2' | 1:1:1084:A:C5' | 2.19 | 0.72 |
| 1:1:1416:C:H3' | 1:1:1417:C:C5' | 2.13 | 0.72 |
| 1:1:65:C:H4' | 8:G:133:LEU:HD22 | 1.70 | 0.72 |
| 1:1:957:A:H4' | 1:1:973:C:H1' | 1.72 | 0.72 |
| 6:E:95:THR:HB | 6:E:97:GLU:OE2 | 1.90 | 0.72 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:1255:G:H3' | 1:1:1256:G:C5' | 2.20 | 0.72 |
| 1:1:217:A:H4' | 1:1:341:C:C5' | 2.19 | 0.72 |
| 1:1:741:C:H3' | 1:1:742:U:O3' | 1.89 | 0.72 |
| 1:1:1203:G:H8 | 1:1:1699:A:C2 | 2.08 | 0.72 |
| 1:1:1414:A:H2' | 1:1:1415:C:O4' | 1.89 | 0.72 |
| 1:1:1555:U:H4' | 1:1:1556:A:OP1 | 1.89 | 0.72 |
| 1:1:604:A:C2 | 1:1:605:A:C2 | 2.76 | 0.72 |
| 1:1:747:U:C2 | 1:1:748:C:H2' | 2.25 | 0.72 |
| 1:1:1036:A:H8 | 1:1:1036:A:O5' | 1.73 | 0.71 |
| 1:1:1579:A:H2' | 1:1:1580:A:O4' | 1.90 | 0.71 |
| 1:1:1704:C:H1' | 1:1:1832:A:N1 | 2.05 | 0.71 |
| 1:1:743:U:H4' | 1:1:744:G:OP2 | 1.88 | 0.71 |
| 1:1:184:G:N7 | 1:1:185:G:H1' | 2.05 | 0.71 |
| 1:1:350:C:N4 | 1:1:351:G:C2 | 2.58 | 0.71 |
| 8:G:64:LYS:HE2 | 8:G:97:VAL:HG11 | 1.73 | 0.71 |
| 1:1:1405:A:H3' | 1:1:1406:G:C5' | 2.20 | 0.71 |
| 1:1:433:A:H5'' | 10:I:25:ARG:HH21 | 1.53 | 0.71 |
| 1:1:84:A:O2' | 1:1:85:A:H8 | 1.67 | 0.71 |
| 27:Z:62:VAL:HG12 | 27:Z:68:ILE:HG13 | 1.72 | 0.71 |
| 1:1:321:C:H2' | 1:1:322:C:C6 | 2.25 | 0.71 |
| 1:1:370:G:H5' | 1:1:370:G:C8 | 2.25 | 0.71 |
| 1:1:414:A:O5' | 1:1:414:A:H8 | 1.73 | 0.71 |
| 1:1:1552:G:H2' | 5:D:3:VAL:HG21 | 1.72 | 0.71 |
| 6:E:124:CYS:SG | 6:E:160:VAL:HG23 | 2.31 | 0.71 |
| 1:1:1426:U:H3' | 1:1:1427:C:H5' | 1.71 | 0.71 |
| 1:1:341:C:O5' | 1:1:341:C:H6 | 1.73 | 0.71 |
| 1:1:736:C:H2' | 1:1:737:G:C8 | 2.26 | 0.71 |
| 1:1:912:C:H2' | 1:1:912:C:OP2 | 1.90 | 0.71 |
| 6:E:38:LEU:HA | 6:E:41:CYS:SG | 2.30 | 0.71 |
| 10:I:36:THR:O | 10:I:95:THR:HA | 1.89 | 0.71 |
| 11:J:133:ARG:O | 11:J:162:ARG:HD2 | 1.89 | 0.71 |
| 2:A:63:ARG:HG2 | 23:V:46:PHE:CZ | 2.25 | 0.71 |
| 1:1:750:C:H2' | 1:1:751:G:H8 | 1.54 | 0.71 |
| 10:I:131:PRO:HG2 | 10:I:138:ASN:CG | 2.10 | 0.71 |
| 1:1:1021:U:H1' | 1:1:1022:U:OP2 | 1.90 | 0.71 |
| 1:1:180:G:Cl' | 1:1:181:A:H5' | 2.08 | 0.71 |
| 1:1:958:G:H3' | 1:1:959:G:C8 | 2.26 | 0.71 |
| 1:1:1396:A:H2 | 1:1:1449:G:H1 | 1.35 | 0.71 |
| 1:1:442:C:H42 | 1:1:449:A:H62 | 1.36 | 0.71 |
| 1:1:992:A:OP1 | 1:1:1133:A:H1' | 1.91 | 0.71 |
| 1:1:1144:A:H1' | 1:1:1199:A:O2' | 1.89 | 0.71 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:1853:C:H2' | 1:1:1854:U:C6 | 2.25 | 0.71 |
| 1:1:408:A:H2' | 1:1:409:C:H4' | 1.72 | 0.71 |
| 7:F:40:ALA:HB3 | 7:F:68:ILE:HG13 | 1.73 | 0.71 |
| 1:1:808:A:O5' | 1:1:808:A:H8 | 1.74 | 0.71 |
| 8:G:161:PRO:HA | 8:G:170:ARG:O | 1.91 | 0.71 |
| 1:1:1493:C:C3' | 1:1:1494:U:H5' | 2.21 | 0.70 |
| 1:1:319:C:H4' | 1:1:320:G:OP2 | 1.90 | 0.70 |
| 1:1:77:A:N3 | 1:1:77:A:H2' | 2.04 | 0.70 |
| 1:1:77:A:H4' | 1:1:78:C:C5 | 2.26 | 0.70 |
| 25:X:51:VAL:HG13 | 25:X:70:VAL:HG13 | 1.73 | 0.70 |
| 1:1:1276:A:N6 | 1:1:1317:C:H42 | 1.89 | 0.70 |
| 1:1:1405:A:C3' | 1:1:1406:G:H5'' | 2.22 | 0.70 |
| 1:1:1468:C:H2' | 1:1:1469:A:H8 | 1.56 | 0.70 |
| 1:1:1469:A:H2' | 1:1:1470:C:C6 | 2.26 | 0.70 |
| 1:1:1784:G:H2' | 1:1:1785:C:C6 | 2.26 | 0.70 |
| 1:1:465:A:H1' | 1:1:466:G:OP2 | 1.90 | 0.70 |
| 1:1:745:C:H4' | 1:1:746:C:C5 | 2.27 | 0.70 |
| 1:1:747:U:H5'' | 1:1:795:A:N6 | 2.06 | 0.70 |
| 1:1:95:G:H1 | 1:1:435:A:N6 | 1.90 | 0.70 |
| 4:C:81:ILE:HG21 | 4:C:88:ILE:HD11 | 1.72 | 0.70 |
| 1:1:527:C:H5' | 11:J:122:SER:CB | 2.21 | 0.70 |
| 1:1:1522:A:C2 | 17:P:128:HIS:HB2 | 2.25 | 0.70 |
| 1:1:1087:A:H3' | 1:1:1088:U:H5' | 1.71 | 0.70 |
| 1:1:1408:U:H2' | 1:1:1409:A:O4' | 1.91 | 0.70 |
| 1:1:1440:C:H2' | 1:1:1441:U:C6 | 2.26 | 0.70 |
| 1:1:1565:C:H2' | 1:1:1566:G:H5' | 1.72 | 0.70 |
| 1:1:1208:A:OP2 | 1:1:1208:A:H4' | 1.90 | 0.70 |
| 1:1:331:C:H2' | 1:1:332:G:O4' | 1.92 | 0.70 |
| 1:1:376:A:H2' | 1:1:377:G:H8 | 1.54 | 0.70 |
| 1:1:528:A:H8 | 1:1:528:A:P | 2.14 | 0.70 |
| 1:1:738:C:H2' | 1:1:739:C:H6 | 1.55 | 0.70 |
| 5:D:73:VAL:HG11 | 5:D:84:VAL:HG21 | 1.73 | 0.70 |
| 9:H:102:PRO:HB2 | 9:H:105:THR:CB | 2.21 | 0.70 |
| 1:1:105:U:H2' | 1:1:106:C:O4' | 1.92 | 0.70 |
| 1:1:1129:G:H3' | 1:1:1130:G:C8 | 2.25 | 0.70 |
| 1:1:412:G:H5' | 1:1:413:G:C8 | 2.26 | 0.70 |
| 1:1:62:G:H2' | 1:1:63:U:O4' | 1.92 | 0.70 |
| 13:L:99:TYR:CE1 | 25:X:14:ARG:HA | 2.26 | 0.70 |
| 1:1:1120:U:H6 | 1:1:1120:U:H5'' | 1.54 | 0.70 |
| 1:1:216:C:H2' | 1:1:217:A:H8 | 1.54 | 0.70 |
| 1:1:558:G:C2' | 1:1:559:G:H5'' | 2.21 | 0.70 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:96:C:H1' | 1:1:474:G:H5' | 1.71 | 0.70 |
| 2:A:67:ALA:HA | 23:V:50:PHE:CE1 | 2.26 | 0.70 |
| 1:1:1030:A:H2' | 1:1:1031:A:C8 | 2.25 | 0.70 |
| 1:1:1287:A:H4' | 1:1:1312:G:N1 | 2.07 | 0.70 |
| 1:1:1348:G:H8 | 1:1:1348:G:O5' | 1.74 | 0.70 |
| 1:1:1736:G:H2' | 1:1:1737:G:C8 | 2.27 | 0.70 |
| 5:D:11:PHE:CE1 | 22:U:27:ARG:HB2 | 2.27 | 0.70 |
| 1:1:1476:A:H4' | 1:1:1477:U:O5' | 1.92 | 0.70 |
| 1:1:131:C:C4 | 1:1:215:G:H5' | 2.26 | 0.70 |
| 1:1:332:G:H4' | 1:1:333:G:OP1 | 1.92 | 0.70 |
| 1:1:444:G:N2 | 1:1:446:G:H3' | 2.07 | 0.70 |
| 12:K:84:HIS:CD2 | 12:K:85:LEU:H | 2.10 | 0.70 |
| 1:1:1520:G:H5' | 1:1:1521:C:H5 | 1.53 | 0.70 |
| 1:1:1764:G:N3 | 1:1:1764:G:H3' | 2.06 | 0.70 |
| 1:1:1833:C:OP1 | 1:1:1840:U:H4' | 1.92 | 0.70 |
| 13:L:96:ILE:HD11 | 13:L:103:GLU:OE1 | 1.91 | 0.70 |
| 1:1:1060:A:H1' | 1:1:1061:U:OP2 | 1.92 | 0.70 |
| 1:1:1558:C:H2' | 1:1:1559:C:C6 | 2.27 | 0.70 |
| 1:1:1599:U:OP1 | 1:1:1599:U:H4' | 1.92 | 0.70 |
| 1:1:1840:U:H2' | 1:1:1841:C:C6 | 2.26 | 0.70 |
| 1:1:528:A:P | 11:J:122:SER:HB2 | 2.32 | 0.70 |
| 1:1:606:G:H3' | 1:1:607:U:H4' | 1.73 | 0.70 |
| 1:1:890:U:H3' | 1:1:891:G:C5' | 2.19 | 0.69 |
| 1:1:845:G:H4' | 6:E:255:ARG:HH12 | 1.57 | 0.69 |
| 13:L:99:TYR:CZ | 25:X:14:ARG:HA | 2.27 | 0.69 |
| 1:1:1483:A:H4' | 5:D:160:SER:HB2 | 1.72 | 0.69 |
| 1:1:1700:C:H4' | 1:1:1701:C:H5' | 1.73 | 0.69 |
| 1:1:1814:G:O5' | 1:1:1814:G:H8 | 1.75 | 0.69 |
| 1:1:334:C:H2' | 1:1:335:G:C8 | 2.27 | 0.69 |
| 1:1:351:G:C8 | 1:1:351:G:H3' | 2.27 | 0.69 |
| 1:1:86:C:H3' | 1:1:87:U:H5'' | 1.73 | 0.69 |
| 1:1:1536:G:H2' | 1:1:1537:A:H8 | 1.57 | 0.69 |
| 1:1:215:G:OP2 | 1:1:215:G:H3' | 1.93 | 0.69 |
| 2:A:82:THR:HA | 2:A:204:TYR:O | 1.90 | 0.69 |
| 3:B:125:VAL:HG11 | 3:B:172:MET:HB3 | 1.73 | 0.69 |
| 1:1:144:U:C6 | 8:G:180:VAL:HG22 | 2.27 | 0.69 |
| 1:1:749:U:O2 | 1:1:795:A:C2 | 2.46 | 0.69 |
| 1:1:78:C:H1' | 1:1:79:A:OP2 | 1.93 | 0.69 |
| 1:1:890:U:H2' | 1:1:890:U:O2 | 1.90 | 0.69 |
| 1:1:1425:G:H2' | 1:1:1426:U:C6 | 2.28 | 0.69 |
| 1:1:1477:U:H1' | 1:1:1478:U:OP2 | 1.92 | 0.69 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-----------------|--------------------------|-------------------|
| 1:1:1493:C:C6 | 1:1:1493:C:H5'' | 2.27 | 0.69 |
| 1:1:1606:G:N2 | 1:1:1632:G:H2' | 2.07 | 0.69 |
| 1:1:176:U:H3' | 1:1:177:G:C8 | 2.27 | 0.69 |
| 1:1:203:G:H2' | 1:1:204:G:H8 | 1.55 | 0.69 |
| 8:G:68:LEU:HD23 | 8:G:100:CYS:HB3 | 1.75 | 0.69 |
| 1:1:448:A:N7 | 10:I:26:LYS:HA | 2.06 | 0.69 |
| 13:L:20:LYS:HE3 | 13:L:21:LYS:NZ | 2.08 | 0.69 |
| 1:1:1092:G:H2' | 1:1:1093:A:H8 | 1.58 | 0.69 |
| 1:1:313:A:H2 | 1:1:315:C:N4 | 1.91 | 0.69 |
| 3:B:79:VAL:HG11 | 3:B:82:ARG:HD3 | 1.74 | 0.69 |
| 12:K:15:LEU:HD23 | 12:K:21:MET:HG2 | 1.75 | 0.69 |
| 1:1:1389:C:H2' | 1:1:1389:C:OP2 | 1.92 | 0.69 |
| 1:1:688:U:H1' | 1:1:689:U:H6 | 1.57 | 0.69 |
| 20:S:43:VAL:HG22 | 21:T:37:VAL:HB | 1.74 | 0.69 |
| 1:1:1284:A:N7 | 1:1:1286:G:H5' | 2.07 | 0.69 |
| 1:1:1634:A:H3' | 1:1:1635:C:C6 | 2.27 | 0.69 |
| 1:1:1663:A:H2 | 1:1:1664:A:C6 | 2.10 | 0.69 |
| 1:1:795:A:C4 | 1:1:796:G:C8 | 2.81 | 0.69 |
| 27:Z:44:LEU:HD21 | 27:Z:78:LYS:HG2 | 1.74 | 0.69 |
| 1:1:1100:A:C2' | 1:1:1101:U:H5' | 2.22 | 0.69 |
| 1:1:1257:G:H5'' | 1:1:1257:G:C8 | 2.27 | 0.69 |
| 1:1:1281:G:N2 | 1:1:1317:C:H1' | 2.08 | 0.69 |
| 1:1:1456:G:H2' | 1:1:1457:U:C6 | 2.28 | 0.69 |
| 1:1:1690:U:C2' | 1:1:1691:U:H5' | 2.22 | 0.69 |
| 1:1:1750:C:C2' | 1:1:1751:C:H5' | 2.23 | 0.69 |
| 1:1:181:A:H4' | 1:1:182:C:OP2 | 1.93 | 0.69 |
| 1:1:380:G:H1 | 1:1:383:G:P | 2.15 | 0.69 |
| 9:H:102:PRO:HB2 | 9:H:105:THR:HB | 1.74 | 0.69 |
| 1:1:65:C:H2' | 1:1:66:G:H3' | 1.75 | 0.69 |
| 1:1:1331:C:H6 | 1:1:1489:A:N6 | 1.90 | 0.68 |
| 1:1:1383:A:O5' | 1:1:1383:A:H8 | 1.76 | 0.68 |
| 1:1:187:G:H2' | 1:1:188:C:C6 | 2.27 | 0.68 |
| 1:1:1453:C:H4' | 19:R:49:LYS:HA | 1.75 | 0.68 |
| 20:S:6:PRO:HD3 | 27:Z:52:LYS:HD3 | 1.75 | 0.68 |
| 1:1:12:U:H2' | 1:1:13:C:C6 | 2.28 | 0.68 |
| 1:1:1397:U:O3' | 1:1:1398:G:H2' | 1.93 | 0.68 |
| 1:1:210:U:C3' | 1:1:211:G:H5'' | 2.22 | 0.68 |
| 1:1:673:G:OP1 | 1:1:673:G:H8 | 1.76 | 0.68 |
| 1:1:907:G:H2' | 1:1:908:A:H8 | 1.58 | 0.68 |
| 22:U:24:LEU:HD11 | 22:U:36:CYS:SG | 2.32 | 0.68 |
| 1:1:1512:C:H2' | 1:1:1513:C:C6 | 2.28 | 0.68 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|------------------|--------------------------|-------------------|
| 1:1:170:A:H2' | 1:1:171:A:C8 | 2.28 | 0.68 |
| 1:1:227:U:H1' | 1:1:228:C:OP2 | 1.92 | 0.68 |
| 1:1:374:G:H2' | 1:1:375:U:C6 | 2.27 | 0.68 |
| 1:1:377:G:H2' | 1:1:378:U:C6 | 2.29 | 0.68 |
| 1:1:65:C:O2' | 1:1:66:G:H3' | 1.93 | 0.68 |
| 1:1:795:A:N3 | 1:1:796:G:C8 | 2.62 | 0.68 |
| 3:B:66:VAL:HG22 | 3:B:85:LYS:HE3 | 1.75 | 0.68 |
| 5:D:75:LYS:HB3 | 12:K:22:VAL:HG11 | 1.75 | 0.68 |
| 1:1:1228:A:H2' | 1:1:1229:G:C8 | 2.28 | 0.68 |
| 1:1:124:U:H3' | 1:1:124:U:H6 | 1.57 | 0.68 |
| 1:1:140:C:H3' | 1:1:140:C:OP1 | 1.94 | 0.68 |
| 1:1:298:G:H2' | 1:1:299:A:H8 | 1.57 | 0.68 |
| 1:1:66:G:H4' | 1:1:67:C:OP2 | 1.93 | 0.68 |
| 1:1:693:A:C5 | 1:1:694:G:H1' | 2.28 | 0.68 |
| 3:B:63:LYS:HE3 | 3:B:91:VAL:CG2 | 2.23 | 0.68 |
| 1:1:1397:U:H4' | 1:1:1398:G:N2 | 2.08 | 0.68 |
| 1:1:1602:U:H2' | 1:1:1603:G:H8 | 1.58 | 0.68 |
| 1:1:1630:A:C2' | 1:1:1631:U:H5'' | 2.23 | 0.68 |
| 1:1:1016:U:C6 | 1:1:1017:U:H5 | 2.12 | 0.68 |
| 1:1:1396:A:C2 | 1:1:1449:G:N1 | 2.59 | 0.68 |
| 1:1:1630:A:H2' | 1:1:1631:U:C5' | 2.23 | 0.68 |
| 1:1:448:A:H4' | 1:1:449:A:O5' | 1.93 | 0.68 |
| 1:1:808:A:H2' | 1:1:809:A:C8 | 2.29 | 0.68 |
| 1:1:912:C:O2' | 1:1:913:A:H4' | 1.93 | 0.68 |
| 1:1:1591:C:H5' | 7:F:85:LYS:HE3 | 1.75 | 0.68 |
| 1:1:1247:C:H4' | 1:1:1248:U:OP1 | 1.93 | 0.68 |
| 1:1:1286:G:H2' | 1:1:1286:G:N3 | 2.09 | 0.68 |
| 1:1:1519:U:H5'' | 1:1:1519:U:C6 | 2.29 | 0.68 |
| 1:1:1750:C:H2' | 1:1:1751:C:C5' | 2.23 | 0.68 |
| 1:1:310:C:H2' | 1:1:340:C:H5' | 1.75 | 0.68 |
| 1:1:59:U:H2' | 1:1:60:A:C5' | 2.24 | 0.68 |
| 21:T:41:LYS:HG2 | 21:T:95:GLY:HA2 | 1.76 | 0.68 |
| 1:1:1405:A:C8 | 1:1:1405:A:H3' | 2.28 | 0.68 |
| 1:1:1587:G:H21 | 21:T:75:MET:HA | 1.59 | 0.68 |
| 1:1:164:A:H3' | 1:1:165:G:C8 | 2.28 | 0.68 |
| 1:1:845:G:H5'' | 6:E:108:ARG:HH12 | 1.58 | 0.68 |
| 13:L:5:GLN:HE22 | 13:L:12:LYS:H | 1.42 | 0.68 |
| 1:1:1648:G:H2' | 18:Q:127:CYS:CA | 2.24 | 0.68 |
| 1:1:1561:A:C4' | 1:1:1583:C:H4' | 2.23 | 0.68 |
| 1:1:1639:G:H2' | 1:1:1639:G:N3 | 2.09 | 0.68 |
| 9:H:109:ARG:CG | 9:H:113:LYS:HA | 2.24 | 0.68 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:1053:C:O2 | 1:1:1053:C:H2' | 1.94 | 0.68 |
| 1:1:1285:G:H4' | 1:1:1286:G:O5' | 1.93 | 0.68 |
| 1:1:1405:A:C2 | 1:1:1442:U:C6 | 2.80 | 0.68 |
| 1:1:1516:G:C2' | 1:1:1517:G:H5' | 2.24 | 0.68 |
| 1:1:465:A:H4' | 1:1:466:G:O5' | 1.94 | 0.68 |
| 1:1:522:A:N1 | 1:1:643:A:H5' | 2.09 | 0.68 |
| 1:1:877:C:H2' | 1:1:878:G:H8 | 1.59 | 0.68 |
| 1:1:901:G:O5' | 1:1:901:G:H8 | 1.77 | 0.68 |
| 1:1:746:C:O5' | 9:H:105:THR:HA | 1.94 | 0.68 |
| 1:1:1109:C:O2 | 1:1:1109:C:H3' | 1.94 | 0.67 |
| 1:1:1696:C:O2' | 1:1:1697:A:H5'' | 1.94 | 0.67 |
| 1:1:1721:U:H4' | 1:1:1722:G:O5' | 1.94 | 0.67 |
| 1:1:1780:G:P | 1:1:1781:A:H5'' | 2.33 | 0.67 |
| 1:1:380:G:C2 | 1:1:382:C:H3' | 2.29 | 0.67 |
| 1:1:529:A:H2' | 1:1:530:U:C5 | 2.29 | 0.67 |
| 1:1:691:G:H2' | 1:1:692:G:H5' | 1.76 | 0.67 |
| 17:P:97:TYR:HB2 | 17:P:102:PHE:CE2 | 2.28 | 0.67 |
| 18:Q:34:VAL:HA | 18:Q:70:VAL:O | 1.94 | 0.67 |
| 23:V:70:LEU:HD12 | 23:V:79:VAL:HG23 | 1.76 | 0.67 |
| 1:1:1240:A:H2' | 1:1:1267:C:O2' | 1.94 | 0.67 |
| 1:1:795:A:H2' | 1:1:796:G:H5' | 1.76 | 0.67 |
| 1:1:907:G:H2' | 1:1:908:A:C8 | 2.29 | 0.67 |
| 1:1:124:U:H3' | 1:1:124:U:C6 | 2.29 | 0.67 |
| 1:1:1328:G:H2' | 1:1:1329:U:C6 | 2.29 | 0.67 |
| 1:1:1622:U:OP2 | 1:1:1623:A:H5' | 1.94 | 0.67 |
| 1:1:1648:G:C8 | 18:Q:125:ARG:HA | 2.29 | 0.67 |
| 1:1:67:C:H5 | 8:G:163:ASN:N | 1.91 | 0.67 |
| 1:1:911:C:H2' | 1:1:912:C:C2 | 2.29 | 0.67 |
| 4:C:174:ILE:HG22 | 4:C:175:GLY:N | 2.09 | 0.67 |
| 10:I:34:ALA:HB2 | 10:I:56:ARG:HD3 | 1.75 | 0.67 |
| 20:S:25:LYS:HE3 | 20:S:52:LEU:O | 1.94 | 0.67 |
| 1:1:1204:A:H2' | 1:1:1205:C:O4' | 1.93 | 0.67 |
| 1:1:1468:C:H2' | 1:1:1469:A:C8 | 2.29 | 0.67 |
| 1:1:1746:U:H2' | 1:1:1747:C:C6 | 2.30 | 0.67 |
| 1:1:358:C:H6 | 1:1:358:C:H5' | 1.59 | 0.67 |
| 1:1:943:U:H3' | 1:1:944:A:H8 | 1.59 | 0.67 |
| 7:F:187:SER:OG | 7:F:190:ILE:HG12 | 1.94 | 0.67 |
| 7:F:103:LEU:HD21 | 27:Z:67:LEU:HD11 | 1.75 | 0.67 |
| 1:1:1005:G:H2' | 1:1:1006:C:C6 | 2.29 | 0.67 |
| 1:1:195:C:H2' | 1:1:196:C:C6 | 2.29 | 0.67 |
| 1:1:384:U:O5' | 1:1:384:U:H6 | 1.77 | 0.67 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:794:A:N3 | 1:1:795:A:H1' | 2.08 | 0.67 |
| 1:1:797:C:H4' | 9:H:109:ARG:HB2 | 1.74 | 0.67 |
| 1:1:124:U:H5' | 6:E:148:ARG:HB3 | 1.74 | 0.67 |
| 1:1:1663:A:C2 | 1:1:1664:A:C6 | 2.83 | 0.67 |
| 1:1:371:A:H5'' | 10:I:11:ARG:HB2 | 1.76 | 0.67 |
| 1:1:399:C:H5'' | 1:1:400:C:C5 | 2.30 | 0.67 |
| 1:1:559:G:H5' | 1:1:560:A:H5'' | 1.76 | 0.67 |
| 1:1:576:A:P | 1:1:577:U:H3' | 2.34 | 0.67 |
| 1:1:746:C:C5 | 1:1:749:U:H4' | 2.29 | 0.67 |
| 25:X:100:VAL:CG1 | 25:X:122:VAL:HG13 | 2.24 | 0.67 |
| 1:1:1296:U:C2' | 1:1:1297:U:H5' | 2.24 | 0.67 |
| 1:1:380:G:H2' | 1:1:382:C:C5 | 2.28 | 0.67 |
| 1:1:636:C:H6 | 1:1:636:C:O5' | 1.77 | 0.67 |
| 18:Q:15:ARG:HA | 18:Q:19:ALA:O | 1.95 | 0.67 |
| 1:1:1008:A:H2' | 1:1:1009:A:O4' | 1.94 | 0.67 |
| 1:1:1016:U:C5 | 1:1:1017:U:H5 | 2.13 | 0.67 |
| 1:1:1427:C:C6 | 1:1:1427:C:H3' | 2.30 | 0.67 |
| 1:1:1587:G:N2 | 21:T:75:MET:HA | 2.10 | 0.67 |
| 1:1:1673:U:H6 | 1:1:1673:U:C5' | 2.06 | 0.67 |
| 1:1:817:G:H8 | 1:1:817:G:O5' | 1.77 | 0.67 |
| 9:H:109:ARG:HA | 9:H:113:LYS:H | 1.59 | 0.67 |
| 1:1:1408:U:H5' | 18:Q:69:ARG:NH2 | 2.10 | 0.67 |
| 1:1:1023:A:H5'' | 15:N:124:ARG:NH2 | 2.09 | 0.67 |
| 1:1:1688:C:O2 | 1:1:1688:C:H2' | 1.94 | 0.67 |
| 1:1:217:A:H4' | 1:1:341:C:C4' | 2.25 | 0.67 |
| 1:1:527:C:H5' | 11:J:122:SER:HB3 | 1.77 | 0.67 |
| 1:1:1076:G:H5' | 15:N:106:ARG:NH1 | 2.09 | 0.67 |
| 1:1:1191:C:H2' | 1:1:1192:U:C6 | 2.29 | 0.67 |
| 1:1:1284:A:N6 | 1:1:1313:A:C2 | 2.63 | 0.67 |
| 1:1:1391:C:H2' | 1:1:1392:U:O4' | 1.95 | 0.67 |
| 1:1:1401:A:H1' | 1:1:1402:A:OP1 | 1.95 | 0.67 |
| 1:1:1442:U:C4 | 1:1:1443:C:H1' | 2.29 | 0.67 |
| 1:1:381:C:O5' | 1:1:381:C:H6 | 1.77 | 0.67 |
| 1:1:42:A:C2' | 1:1:43:U:H5'' | 2.24 | 0.67 |
| 7:F:158:ALA:HB1 | 7:F:173:LEU:HA | 1.76 | 0.67 |
| 1:1:1298:G:H1' | 17:P:79:HIS:HB2 | 1.77 | 0.66 |
| 1:1:1534:C:H2' | 1:1:1599:U:C4 | 2.30 | 0.66 |
| 1:1:1676:U:O5' | 1:1:1676:U:H6 | 1.78 | 0.66 |
| 1:1:172:U:OP1 | 1:1:314:U:H2' | 1.94 | 0.66 |
| 1:1:130:G:H1' | 1:1:181:A:N1 | 2.10 | 0.66 |
| 1:1:428:U:H4' | 1:1:429:C:OP1 | 1.95 | 0.66 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:805:U:N3 | 1:1:858:A:C2 | 2.62 | 0.66 |
| 20:S:5:ILE:CG1 | 20:S:6:PRO:HD2 | 2.25 | 0.66 |
| 1:1:1048:G:H8 | 1:1:1048:G:O5' | 1.79 | 0.66 |
| 1:1:1230:C:C2' | 1:1:1231:C:H5' | 2.24 | 0.66 |
| 1:1:535:G:HO2' | 1:1:536:A:H8 | 1.42 | 0.66 |
| 7:F:72:LEU:HD11 | 7:F:116:ILE:HD11 | 1.77 | 0.66 |
| 21:T:72:VAL:HG12 | 21:T:97:LYS:HE3 | 1.77 | 0.66 |
| 1:1:235:A:O2' | 1:1:236:A:H8 | 1.76 | 0.66 |
| 1:1:338:G:H8 | 1:1:338:G:H5'' | 1.60 | 0.66 |
| 3:B:186:ASN:O | 3:B:190:PRO:HD2 | 1.95 | 0.66 |
| 3:B:97:LEU:HG | 3:B:232:HIS:NE2 | 2.10 | 0.66 |
| 11:J:27:GLN:OE1 | 11:J:30:LYS:HE2 | 1.96 | 0.66 |
| 24:W:30:CYS:SG | 24:W:61:ILE:HD12 | 2.36 | 0.66 |
| 1:1:1160:U:O2' | 1:1:1161:U:H5' | 1.95 | 0.66 |
| 1:1:1361:G:H5' | 1:1:1379:A:OP2 | 1.95 | 0.66 |
| 1:1:172:U:C3' | 1:1:173:A:H5'' | 2.26 | 0.66 |
| 1:1:795:A:C2' | 1:1:796:G:H8 | 2.09 | 0.66 |
| 19:R:109:LEU:O | 19:R:109:LEU:HD22 | 1.94 | 0.66 |
| 21:T:34:VAL:HG22 | 21:T:99:VAL:HG12 | 1.78 | 0.66 |
| 20:S:24:ARG:HA | 27:Z:48:VAL:HG11 | 1.77 | 0.66 |
| 1:1:1167:G:H2' | 1:1:1168:G:O4' | 1.96 | 0.66 |
| 1:1:1721:U:H1' | 1:1:1722:G:OP2 | 1.96 | 0.66 |
| 1:1:640:A:H2' | 1:1:641:A:C8 | 2.30 | 0.66 |
| 2:A:176:TRP:CD2 | 2:A:199:PRO:HB3 | 2.31 | 0.66 |
| 1:1:1389:C:H5' | 5:D:205:PRO:HB3 | 1.77 | 0.66 |
| 1:1:107:A:H2' | 1:1:108:G:C8 | 2.31 | 0.66 |
| 1:1:1377:U:O2' | 1:1:1378:A:H4' | 1.96 | 0.66 |
| 1:1:1410:C:P | 1:1:1413:G:H5'' | 2.35 | 0.66 |
| 1:1:1624:U:H2' | 1:1:1624:U:O2 | 1.94 | 0.66 |
| 1:1:1684:C:C2' | 1:1:1685:U:C5' | 2.70 | 0.66 |
| 1:1:658:U:H5'' | 1:1:659:G:N7 | 2.11 | 0.66 |
| 1:1:312:G:H22 | 8:G:195:LYS:HB2 | 1.61 | 0.66 |
| 1:1:1135:C:H2' | 1:1:1136:U:C6 | 2.30 | 0.66 |
| 1:1:224:A:N1 | 1:1:297:A:N1 | 2.43 | 0.66 |
| 1:1:348:A:H2' | 1:1:349:A:O4' | 1.95 | 0.66 |
| 1:1:540:U:N3 | 1:1:542:U:H5'' | 2.10 | 0.66 |
| 1:1:799:U:H1' | 1:1:800:U:C6 | 2.30 | 0.66 |
| 1:1:915:G:H2' | 1:1:916:A:H5' | 1.76 | 0.66 |
| 3:B:71:LEU:HD13 | 3:B:72:ALA:N | 2.10 | 0.66 |
| 8:G:58:LYS:HA | 8:G:107:SER:HB2 | 1.78 | 0.66 |
| 3:B:30:TRP:CZ3 | 16:O:19:PRO:HB3 | 2.30 | 0.66 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:1557:C:O2 | 1:1:1557:C:H2' | 1.95 | 0.66 |
| 1:1:307:G:H4' | 1:1:308:G:C5' | 2.21 | 0.66 |
| 1:1:582:U:H3' | 1:1:583:A:C8 | 2.31 | 0.66 |
| 1:1:421:G:N2 | 1:1:653:A:H5' | 2.11 | 0.66 |
| 1:1:797:C:C6 | 9:H:106:ARG:HB3 | 2.30 | 0.66 |
| 11:J:111:GLN:NE2 | 11:J:130:ILE:HD12 | 2.10 | 0.66 |
| 1:1:572:U:H3' | 1:1:573:U:N3 | 2.11 | 0.66 |
| 18:Q:37:ARG:HB3 | 21:T:7:LYS:HG3 | 1.77 | 0.66 |
| 23:V:35:ASN:OD1 | 23:V:50:PHE:HB3 | 1.96 | 0.66 |
| 1:1:1389:C:H2' | 1:1:1389:C:P | 2.36 | 0.66 |
| 1:1:305:U:H2' | 10:I:60:LEU:CD2 | 2.26 | 0.66 |
| 1:1:370:G:H8 | 1:1:370:G:H5' | 1.60 | 0.66 |
| 1:1:849:A:H2' | 1:1:850:C:C6 | 2.31 | 0.66 |
| 1:1:869:A:C2 | 1:1:915:G:H1' | 2.31 | 0.66 |
| 1:1:1215:C:H4' | 1:1:1216:C:OP1 | 1.96 | 0.65 |
| 1:1:1439:A:H2' | 1:1:1440:C:N1 | 2.11 | 0.65 |
| 1:1:473:A:H5'' | 1:1:473:A:H8 | 1.62 | 0.65 |
| 17:P:34:MET:CG | 17:P:45:LEU:HD22 | 2.26 | 0.65 |
| 25:X:46:HIS:HB3 | 25:X:101:LEU:HD11 | 1.77 | 0.65 |
| 25:X:51:VAL:HG22 | 25:X:70:VAL:HG11 | 1.79 | 0.65 |
| 1:1:1214:A:N1 | 1:1:1686:G:N3 | 2.44 | 0.65 |
| 1:1:346:C:H6 | 1:1:346:C:H3' | 1.61 | 0.65 |
| 1:1:413:G:H5' | 1:1:814:U:O2 | 1.96 | 0.65 |
| 1:1:575:A:H5'' | 1:1:576:A:N6 | 2.10 | 0.65 |
| 7:F:111:VAL:HG12 | 7:F:177:LEU:HD21 | 1.78 | 0.65 |
| 1:1:1431:G:H2' | 1:1:1432:U:H6 | 1.54 | 0.65 |
| 1:1:1557:C:P | 1:1:1557:C:H3' | 2.36 | 0.65 |
| 1:1:526:A:C8 | 11:J:128:VAL:HG13 | 2.32 | 0.65 |
| 1:1:656:G:H5' | 1:1:662:G:N2 | 2.10 | 0.65 |
| 1:1:796:G:N2 | 1:1:797:C:C5 | 2.65 | 0.65 |
| 4:C:210:PRO:HG3 | 4:C:236:PHE:CE2 | 2.31 | 0.65 |
| 6:E:154:ILE:HG23 | 6:E:158:ASP:OD2 | 1.95 | 0.65 |
| 1:1:1287:A:H2' | 1:1:1287:A:N3 | 2.09 | 0.65 |
| 1:1:185:G:H2' | 1:1:186:C:H5 | 1.61 | 0.65 |
| 1:1:350:C:H2' | 1:1:351:G:H5' | 1.77 | 0.65 |
| 1:1:505:G:C2' | 1:1:506:G:H5' | 2.26 | 0.65 |
| 3:B:153:THR:HB | 3:B:155:TYR:CE2 | 2.31 | 0.65 |
| 3:B:97:LEU:HG | 3:B:232:HIS:CE1 | 2.31 | 0.65 |
| 1:1:305:U:O2 | 10:I:43:ILE:HD11 | 1.97 | 0.65 |
| 1:1:1060:A:H4' | 1:1:1061:U:O5' | 1.96 | 0.65 |
| 1:1:1201:U:O5' | 1:1:1201:U:H6 | 1.79 | 0.65 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-------------------|--------------------------|-------------------|
| 1:1:1556:A:OP2 | 1:1:1556:A:H3' | 1.95 | 0.65 |
| 1:1:1649:U:N3 | 1:1:1675:A:H2 | 1.93 | 0.65 |
| 1:1:1775:C:H2' | 1:1:1776:G:C8 | 2.30 | 0.65 |
| 1:1:298:G:H2' | 1:1:299:A:C8 | 2.31 | 0.65 |
| 1:1:39:A:H1' | 1:1:518:G:H22 | 1.62 | 0.65 |
| 1:1:790:C:H2' | 1:1:791:C:C6 | 2.32 | 0.65 |
| 1:1:879:C:H2' | 1:1:880:G:H8 | 1.61 | 0.65 |
| 1:1:229:A:N6 | 1:1:900:C:H1' | 2.12 | 0.65 |
| 1:1:1034:A:C2' | 1:1:1035:A:H5' | 2.27 | 0.65 |
| 1:1:1840:U:H2' | 1:1:1841:C:H6 | 1.61 | 0.65 |
| 1:1:549:C:H2' | 1:1:550:C:C6 | 2.31 | 0.65 |
| 1:1:639:C:H2' | 1:1:640:A:C8 | 2.31 | 0.65 |
| 1:1:928:G:HO2' | 1:1:929:G:H8 | 1.43 | 0.65 |
| 7:F:35:LEU:HD12 | 7:F:39:ILE:HD11 | 1.78 | 0.65 |
| 1:1:448:A:C8 | 10:I:26:LYS:N | 2.65 | 0.65 |
| 1:1:1648:G:H8 | 18:Q:125:ARG:HA | 1.62 | 0.65 |
| 25:X:112:VAL:HB | 25:X:115:ILE:HD13 | 1.78 | 0.65 |
| 1:1:1217:A:H2' | 1:1:1218:C:C5 | 2.31 | 0.65 |
| 1:1:1303:C:H2' | 1:1:1304:U:C6 | 2.32 | 0.65 |
| 1:1:167:G:H5' | 8:G:8:PRO:O | 1.97 | 0.65 |
| 1:1:1778:C:H2' | 1:1:1779:G:C8 | 2.31 | 0.65 |
| 1:1:197:U:N3 | 1:1:198:U:C5 | 2.65 | 0.65 |
| 1:1:806:U:C2' | 1:1:807:G:H5' | 2.26 | 0.65 |
| 1:1:1408:U:H5' | 18:Q:69:ARG:HH21 | 1.62 | 0.65 |
| 1:1:131:C:O3' | 1:1:132:U:H4' | 1.96 | 0.65 |
| 1:1:1340:U:C5' | 1:1:1341:C:H2' | 2.27 | 0.65 |
| 1:1:1743:G:H1' | 1:1:1792:G:H22 | 1.61 | 0.65 |
| 1:1:1767:C:C2' | 1:1:1768:A:H5' | 2.27 | 0.65 |
| 1:1:385:G:H4' | 1:1:386:C:H5'' | 1.79 | 0.65 |
| 1:1:77:A:N6 | 8:G:155:GLN:HB3 | 2.12 | 0.65 |
| 1:1:1258:A:C3' | 1:1:1258:A:N3 | 2.55 | 0.65 |
| 1:1:1515:G:C8 | 1:1:1515:G:H5'' | 2.30 | 0.65 |
| 1:1:234:C:H2' | 1:1:235:A:H8 | 1.61 | 0.65 |
| 1:1:109:U:O2' | 1:1:855:G:H1' | 1.97 | 0.65 |
| 1:1:1016:U:C6 | 1:1:1017:U:C5 | 2.85 | 0.65 |
| 1:1:1372:U:H5'' | 1:1:1386:A:N3 | 2.12 | 0.65 |
| 1:1:62:G:H5' | 1:1:172:U:C4 | 2.32 | 0.65 |
| 1:1:207:G:H4' | 1:1:208:G:OP1 | 1.97 | 0.65 |
| 1:1:1446:A:N3 | 22:U:55:ARG:HG3 | 2.12 | 0.65 |
| 2:A:9:GLN:HB2 | 23:V:83:PHE:HA | 1.78 | 0.65 |
| 1:1:1603:G:OP2 | 1:1:1603:G:H3' | 1.97 | 0.64 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:1673:U:C5' | 1:1:1673:U:C6 | 2.80 | 0.64 |
| 1:1:1778:C:H2' | 1:1:1779:G:H8 | 1.62 | 0.64 |
| 1:1:526:A:N3 | 1:1:526:A:C2' | 2.59 | 0.64 |
| 4:C:128:VAL:HG11 | 4:C:155:ILE:HG12 | 1.79 | 0.64 |
| 6:E:129:ILE:CG2 | 6:E:156:VAL:HG22 | 2.26 | 0.64 |
| 14:M:52:LEU:HD13 | 14:M:62:VAL:HG13 | 1.79 | 0.64 |
| 1:1:36:U:H2' | 1:1:36:U:O2 | 1.97 | 0.64 |
| 1:1:747:U:H5'' | 1:1:795:A:H62 | 1.60 | 0.64 |
| 1:1:988:C:H6 | 1:1:988:C:O5' | 1.79 | 0.64 |
| 13:L:96:ILE:HD13 | 25:X:14:ARG:HD2 | 1.78 | 0.64 |
| 1:1:1587:G:C6 | 21:T:74:SER:HB3 | 2.31 | 0.64 |
| 23:V:73:ALA:HB1 | 23:V:78:ILE:HG13 | 1.79 | 0.64 |
| 1:1:1034:A:H2' | 1:1:1035:A:H5' | 1.78 | 0.64 |
| 1:1:1326:U:H4' | 1:1:1327:G:C5' | 2.28 | 0.64 |
| 1:1:1413:G:H2' | 1:1:1414:A:O4' | 1.96 | 0.64 |
| 1:1:148:U:H6 | 1:1:148:U:H5'' | 1.61 | 0.64 |
| 1:1:1642:U:O2' | 1:1:1643:U:H5' | 1.97 | 0.64 |
| 1:1:1654:G:H2' | 1:1:1655:C:C5 | 2.33 | 0.64 |
| 1:1:215:G:H2' | 1:1:216:C:H6 | 1.62 | 0.64 |
| 2:A:8:LEU:O | 2:A:55:TRP:HZ2 | 1.80 | 0.64 |
| 1:1:821:G:H1 | 11:J:147:PHE:HE1 | 1.44 | 0.64 |
| 21:T:70:ALA:HB3 | 21:T:121:ARG:HE | 1.62 | 0.64 |
| 1:1:1203:G:H2' | 1:1:1699:A:C2 | 2.33 | 0.64 |
| 1:1:1340:U:H3' | 1:1:1341:C:C6 | 2.33 | 0.64 |
| 1:1:331:C:H3' | 1:1:332:G:C5' | 2.27 | 0.64 |
| 1:1:383:G:H3' | 1:1:384:U:C5 | 2.32 | 0.64 |
| 1:1:539:C:H2' | 1:1:540:U:C6 | 2.33 | 0.64 |
| 1:1:746:C:C5' | 9:H:105:THR:HA | 2.27 | 0.64 |
| 12:K:38:LYS:HG2 | 12:K:40:VAL:HG23 | 1.78 | 0.64 |
| 21:T:34:VAL:CG2 | 21:T:99:VAL:HG12 | 2.27 | 0.64 |
| 1:1:1013:U:H1' | 1:1:1104:G:H1' | 1.80 | 0.64 |
| 1:1:1493:C:H3' | 1:1:1494:U:C5' | 2.27 | 0.64 |
| 1:1:736:C:H2' | 1:1:737:G:H8 | 1.61 | 0.64 |
| 7:F:73:THR:HG22 | 7:F:93:VAL:HG21 | 1.77 | 0.64 |
| 1:1:103:A:H2' | 1:1:105:U:OP1 | 1.98 | 0.64 |
| 1:1:1287:A:C3' | 1:1:1312:G:H22 | 2.10 | 0.64 |
| 1:1:1337:C:H2' | 1:1:1338:G:H8 | 1.60 | 0.64 |
| 1:1:1861:G:H5' | 1:1:1861:G:N3 | 2.13 | 0.64 |
| 1:1:342:C:H42 | 1:1:343:A:N6 | 1.96 | 0.64 |
| 1:1:562:U:H4' | 11:J:132:GLN:OE1 | 1.98 | 0.64 |
| 1:1:576:A:H3' | 1:1:576:A:OP2 | 1.98 | 0.64 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:343:A:H4' | 6:E:128:LYS:NZ | 2.13 | 0.64 |
| 1:1:1332:A:H8 | 1:1:1332:A:H5' | 1.63 | 0.64 |
| 1:1:1565:C:C2' | 1:1:1566:G:H5' | 2.27 | 0.64 |
| 1:1:525:A:H3' | 1:1:525:A:C8 | 2.32 | 0.64 |
| 1:1:577:U:H4' | 1:1:578:C:O5' | 1.96 | 0.64 |
| 1:1:797:C:H2' | 1:1:798:G:C5' | 2.16 | 0.64 |
| 24:W:86:LEU:HD22 | 24:W:113:HIS:HE1 | 1.63 | 0.64 |
| 26:Y:35:VAL:CG2 | 26:Y:40:ILE:HD11 | 2.28 | 0.64 |
| 1:1:1120:U:H2' | 1:1:1121:G:H5' | 1.77 | 0.64 |
| 1:1:1204:A:O5' | 1:1:1204:A:H8 | 1.81 | 0.64 |
| 1:1:1330:G:H4' | 1:1:1331:C:C4' | 2.27 | 0.64 |
| 1:1:1500:G:H2' | 1:1:1501:C:O4' | 1.97 | 0.64 |
| 1:1:1700:C:H4' | 1:1:1701:C:OP2 | 1.97 | 0.64 |
| 1:1:209:A:H4' | 1:1:210:U:OP1 | 1.97 | 0.64 |
| 1:1:520:A:C8 | 1:1:521:A:C8 | 2.86 | 0.64 |
| 1:1:911:C:O2' | 1:1:912:C:H5' | 1.97 | 0.64 |
| 10:I:174:CYS:HB2 | 10:I:190:LEU:HD21 | 1.80 | 0.64 |
| 18:Q:89:SER:CB | 18:Q:119:LEU:HB3 | 2.28 | 0.64 |
| 2:A:63:ARG:HG2 | 23:V:46:PHE:CE2 | 2.32 | 0.64 |
| 1:1:1292:C:H6 | 1:1:1292:C:O5' | 1.80 | 0.64 |
| 1:1:370:G:H4' | 1:1:371:A:OP1 | 1.97 | 0.64 |
| 1:1:558:G:C8 | 1:1:558:G:P | 2.84 | 0.64 |
| 1:1:559:G:C3' | 1:1:560:A:H5'' | 2.25 | 0.64 |
| 1:1:571:U:C3' | 1:1:572:U:O4' | 2.45 | 0.64 |
| 1:1:615:C:H2' | 1:1:616:A:H5' | 1.80 | 0.64 |
| 1:1:744:G:H4' | 9:H:102:PRO:CG | 2.26 | 0.64 |
| 1:1:1798:C:H4' | 10:I:2:GLY:O | 1.98 | 0.64 |
| 13:L:5:GLN:NE2 | 13:L:12:LYS:H | 1.95 | 0.64 |
| 22:U:32:LEU:CD2 | 22:U:85:HIS:HB2 | 2.28 | 0.64 |
| 1:1:1587:G:H1 | 21:T:70:ALA:HB1 | 1.63 | 0.64 |
| 1:1:498:C:H5' | 6:E:7:LYS:HD3 | 1.77 | 0.64 |
| 1:1:5:U:O2' | 1:1:602:G:H4' | 1.98 | 0.64 |
| 1:1:670:A:H1' | 1:1:1164:G:O4' | 1.98 | 0.64 |
| 1:1:838:G:C8 | 26:Y:9:THR:N | 2.63 | 0.64 |
| 1:1:1284:A:C5 | 1:1:1286:G:C5' | 2.81 | 0.63 |
| 1:1:1399:C:H5' | 1:1:1399:C:H6 | 1.63 | 0.63 |
| 1:1:1484:A:H2' | 1:1:1485:U:O4' | 1.98 | 0.63 |
| 1:1:1556:A:H2 | 1:1:1557:C:H5 | 1.46 | 0.63 |
| 1:1:1864:U:O2' | 1:1:1866:A:H2 | 1.81 | 0.63 |
| 1:1:215:G:O2' | 1:1:216:C:H5' | 1.98 | 0.63 |
| 1:1:464:A:H4' | 1:1:465:A:OP2 | 1.96 | 0.63 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:519:A:H2 | 1:1:520:A:C2 | 2.16 | 0.63 |
| 1:1:1484:A:H4' | 5:D:159:HIS:CB | 2.28 | 0.63 |
| 1:1:222:U:H4' | 13:L:21:LYS:HE2 | 1.80 | 0.63 |
| 15:N:129:TYR:O | 15:N:134:VAL:HG12 | 1.98 | 0.63 |
| 2:A:48:ILE:HG21 | 19:R:105:MET:SD | 2.38 | 0.63 |
| 1:1:1103:C:H6 | 1:1:1103:C:O5' | 1.81 | 0.63 |
| 1:1:1130:G:N2 | 1:1:1131:G:C8 | 2.66 | 0.63 |
| 1:1:1443:C:H2' | 1:1:1444:U:H5' | 1.79 | 0.63 |
| 1:1:572:U:H6 | 1:1:572:U:H3' | 1.62 | 0.63 |
| 1:1:587:A:H2' | 1:1:592:C:H41 | 1.62 | 0.63 |
| 1:1:789:G:H2' | 1:1:790:C:C6 | 2.33 | 0.63 |
| 4:C:98:LEU:CD2 | 4:C:101:SER:HB2 | 2.28 | 0.63 |
| 1:1:1597:C:H5'' | 1:1:1598:G:OP2 | 1.98 | 0.63 |
| 1:1:1643:U:H2' | 1:1:1644:C:C6 | 2.32 | 0.63 |
| 1:1:455:A:H2' | 1:1:456:C:C6 | 2.34 | 0.63 |
| 1:1:574:A:H3' | 1:1:575:A:C8 | 2.34 | 0.63 |
| 4:C:242:ASP:OD1 | 4:C:246:LYS:HE3 | 1.98 | 0.63 |
| 1:1:1214:A:C2' | 1:1:1215:C:H5' | 2.28 | 0.63 |
| 1:1:1454:A:N6 | 1:1:1467:C:C5 | 2.67 | 0.63 |
| 1:1:185:G:H2' | 1:1:186:C:C5 | 2.33 | 0.63 |
| 3:B:31:TYR:CE2 | 3:B:94:LYS:HA | 2.33 | 0.63 |
| 4:C:210:PRO:HG3 | 4:C:236:PHE:CZ | 2.34 | 0.63 |
| 6:E:36:HIS:CD2 | 6:E:85:GLY:HA3 | 2.33 | 0.63 |
| 8:G:193:ALA:O | 8:G:197:GLN:HG2 | 1.98 | 0.63 |
| 9:H:4:SER:N | 9:H:24:SER:HG | 1.95 | 0.63 |
| 1:1:1375:G:H2' | 1:1:1376:A:H5' | 1.80 | 0.63 |
| 1:1:1835:A:H2' | 1:1:1835:A:N3 | 2.14 | 0.63 |
| 13:L:61:PRO:HD3 | 13:L:141:ASN:ND2 | 2.13 | 0.63 |
| 21:T:39:LEU:HD11 | 21:T:43:LYS:CB | 2.28 | 0.63 |
| 26:Y:91:LEU:HB3 | 26:Y:97:TYR:HB2 | 1.79 | 0.63 |
| 1:1:1085:C:H1' | 1:1:1086:G:H3' | 1.81 | 0.63 |
| 1:1:1284:A:C8 | 1:1:1286:G:C5' | 2.82 | 0.63 |
| 1:1:1677:U:H2' | 1:1:1677:U:O2 | 1.98 | 0.63 |
| 1:1:380:G:C6 | 1:1:382:C:H5'' | 2.33 | 0.63 |
| 1:1:496:C:H2' | 1:1:497:C:C6 | 2.33 | 0.63 |
| 1:1:753:C:H3' | 1:1:754:G:C4' | 2.29 | 0.63 |
| 4:C:167:ARG:CA | 4:C:181:PRO:HD3 | 2.27 | 0.63 |
| 8:G:188:LYS:HA | 8:G:191:ARG:NH2 | 2.14 | 0.63 |
| 21:T:4:VAL:HG21 | 21:T:139:ALA:CB | 2.27 | 0.63 |
| 1:1:1454:A:N6 | 1:1:1467:C:H5 | 1.96 | 0.63 |
| 1:1:1825:A:C8 | 1:1:1825:A:O5' | 2.52 | 0.63 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:685:A:H2' | 1:1:686:U:H5' | 1.81 | 0.63 |
| 1:1:885:U:O2' | 1:1:886:A:H2' | 1.99 | 0.63 |
| 1:1:983:A:C2' | 1:1:984:C:H5' | 2.28 | 0.63 |
| 5:D:74:GLN:O | 5:D:78:GLY:HA2 | 1.98 | 0.63 |
| 11:J:136:ARG:HB3 | 11:J:158:ASP:O | 1.97 | 0.63 |
| 21:T:112:MET:HG2 | 21:T:127:GLY:HA2 | 1.81 | 0.63 |
| 25:X:61:GLN:HB3 | 25:X:62:PRO:HD3 | 1.80 | 0.63 |
| 1:1:1384:C:C2' | 1:1:1385:G:H5' | 2.29 | 0.63 |
| 1:1:1493:C:C4' | 1:1:1494:U:H5' | 2.28 | 0.63 |
| 1:1:312:G:C4 | 8:G:191:ARG:HD3 | 2.34 | 0.63 |
| 1:1:313:A:H5'' | 8:G:191:ARG:NH1 | 2.13 | 0.63 |
| 1:1:60:A:N3 | 1:1:60:A:H2' | 2.14 | 0.63 |
| 1:1:38:A:H4' | 11:J:5:ARG:HE | 1.64 | 0.63 |
| 20:S:98:VAL:HG21 | 20:S:103:LEU:HD13 | 1.81 | 0.63 |
| 1:1:1057:C:H2' | 1:1:1059:G:N7 | 2.14 | 0.63 |
| 1:1:353:C:H5' | 13:L:71:ARG:NH2 | 2.14 | 0.63 |
| 1:1:69:C:H6 | 1:1:69:C:H5'' | 1.64 | 0.63 |
| 1:1:71:G:H22 | 1:1:80:G:H22 | 1.47 | 0.63 |
| 1:1:1135:C:H2' | 1:1:1136:U:H6 | 1.64 | 0.62 |
| 1:1:1562:C:H5' | 21:T:71:GLY:HA3 | 1.81 | 0.62 |
| 1:1:305:U:H2' | 10:I:60:LEU:HD23 | 1.79 | 0.62 |
| 1:1:35:C:C3' | 1:1:36:U:H6 | 2.12 | 0.62 |
| 1:1:902:G:H2' | 1:1:903:A:H8 | 1.64 | 0.62 |
| 2:A:205:ARG:H | 2:A:208:GLU:HB3 | 1.64 | 0.62 |
| 1:1:1351:G:H5'' | 1:1:1351:G:H8 | 1.63 | 0.62 |
| 1:1:1404:U:H4' | 1:1:1405:A:OP2 | 1.99 | 0.62 |
| 1:1:1260:A:H2 | 1:1:1620:A:H1' | 1.62 | 0.62 |
| 1:1:1734:G:O5' | 1:1:1734:G:H8 | 1.82 | 0.62 |
| 1:1:431:G:H2' | 1:1:432:G:H8 | 1.62 | 0.62 |
| 1:1:591:U:O2 | 1:1:591:U:H2' | 1.99 | 0.62 |
| 1:1:132:U:H5' | 1:1:133:C:C5 | 2.34 | 0.62 |
| 1:1:1462:U:O2' | 1:1:1463:U:H3' | 1.99 | 0.62 |
| 1:1:1587:G:C5 | 21:T:74:SER:HB3 | 2.35 | 0.62 |
| 1:1:1587:G:N3 | 21:T:78:ILE:HB | 2.15 | 0.62 |
| 1:1:745:C:C5' | 9:H:105:THR:HG23 | 2.28 | 0.62 |
| 1:1:812:A:H2' | 1:1:813:A:C8 | 2.33 | 0.62 |
| 3:B:63:LYS:HE3 | 3:B:91:VAL:HG23 | 1.81 | 0.62 |
| 1:1:190:G:H4' | 10:I:116:HIS:O | 1.99 | 0.62 |
| 18:Q:134:GLY:HA3 | 18:Q:140:ARG:HA | 1.82 | 0.62 |
| 1:1:682:U:H3 | 1:1:1023:A:H61 | 1.47 | 0.62 |
| 1:1:1162:C:H2' | 1:1:1163:C:C6 | 2.33 | 0.62 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:1672:U:H2' | 1:1:1673:U:H5'' | 1.80 | 0.62 |
| 1:1:313:A:C2 | 1:1:315:C:N4 | 2.67 | 0.62 |
| 1:1:438:G:H2' | 1:1:439:A:C8 | 2.33 | 0.62 |
| 1:1:693:A:C3' | 1:1:694:G:H4' | 2.28 | 0.62 |
| 3:B:171:ILE:HD13 | 3:B:197:ILE:HD13 | 1.82 | 0.62 |
| 8:G:48:TYR:CD2 | 8:G:116:LYS:HA | 2.35 | 0.62 |
| 9:H:162:GLN:O | 9:H:166:VAL:HB | 2.00 | 0.62 |
| 1:1:1037:G:H4' | 1:1:1845:A:H4' | 1.82 | 0.62 |
| 1:1:1113:A:C2 | 1:1:1120:U:O4 | 2.53 | 0.62 |
| 1:1:1307:U:C2' | 1:1:1308:U:C5' | 2.77 | 0.62 |
| 1:1:172:U:H3' | 1:1:173:A:C5' | 2.29 | 0.62 |
| 1:1:343:A:H4' | 6:E:128:LYS:HZ1 | 1.64 | 0.62 |
| 1:1:582:U:H2' | 1:1:583:A:O4' | 2.00 | 0.62 |
| 1:1:657:U:H3' | 1:1:657:U:H6 | 1.64 | 0.62 |
| 1:1:693:A:C4 | 1:1:694:G:H1' | 2.35 | 0.62 |
| 1:1:920:A:C8 | 1:1:922:A:C8 | 2.87 | 0.62 |
| 1:1:928:G:O2' | 1:1:929:G:H8 | 1.81 | 0.62 |
| 1:1:1023:A:H5' | 15:N:3:ARG:HH21 | 1.64 | 0.62 |
| 1:1:1307:U:H2' | 1:1:1308:U:C5' | 2.29 | 0.62 |
| 1:1:1389:C:O2' | 1:1:1390:U:H6 | 1.83 | 0.62 |
| 1:1:1402:A:C2' | 1:1:1403:C:C5 | 2.82 | 0.62 |
| 1:1:1714:U:H3' | 1:1:1715:A:C8 | 2.34 | 0.62 |
| 1:1:310:C:H2' | 1:1:340:C:C5' | 2.30 | 0.62 |
| 1:1:39:A:OP2 | 11:J:3:VAL:HG13 | 2.00 | 0.62 |
| 1:1:412:G:N7 | 1:1:413:G:H1' | 2.14 | 0.62 |
| 1:1:76:U:H3' | 1:1:77:A:C5' | 2.27 | 0.62 |
| 3:B:134:LEU:HD12 | 3:B:219:LYS:HB2 | 1.82 | 0.62 |
| 3:B:205:TYR:CG | 3:B:206:PRO:HD2 | 2.34 | 0.62 |
| 10:I:120:PRO:HG2 | 10:I:126:GLY:O | 2.00 | 0.62 |
| 1:1:1016:U:H1' | 1:1:1017:U:O5' | 1.99 | 0.62 |
| 1:1:367:U:H6 | 1:1:367:U:H5' | 1.64 | 0.62 |
| 1:1:547:G:H4' | 1:1:548:C:OP2 | 2.00 | 0.62 |
| 1:1:71:G:N2 | 1:1:72:C:H1' | 2.15 | 0.62 |
| 1:1:886:A:H1' | 1:1:887:U:H5' | 1.80 | 0.62 |
| 1:1:1225:U:C2' | 1:1:1226:G:H5' | 2.29 | 0.62 |
| 1:1:1291:A:H8 | 1:1:1291:A:O5' | 1.81 | 0.62 |
| 1:1:1402:A:OP2 | 22:U:51:LYS:HB3 | 1.99 | 0.62 |
| 1:1:192:C:H2' | 1:1:193:C:H5' | 1.82 | 0.62 |
| 1:1:567:C:H2' | 1:1:568:C:H5'' | 1.82 | 0.62 |
| 2:A:4:ALA:HB1 | 23:V:82:ASN:HB3 | 1.82 | 0.62 |
| 1:1:1648:G:H8 | 18:Q:125:ARG:CA | 2.12 | 0.62 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:1566:G:O6 | 21:T:97:LYS:HB2 | 2.00 | 0.62 |
| 1:1:1093:A:H5' | 24:W:3:ARG:NE | 2.13 | 0.62 |
| 1:1:1101:U:H2' | 1:1:1102:G:N7 | 2.15 | 0.62 |
| 1:1:1397:U:H6 | 1:1:1397:U:H3' | 1.65 | 0.62 |
| 1:1:1414:A:H2' | 1:1:1415:C:H1' | 1.79 | 0.62 |
| 1:1:1767:C:O2' | 1:1:1768:A:H5' | 1.98 | 0.62 |
| 1:1:565:G:H2' | 1:1:565:G:N3 | 2.14 | 0.62 |
| 1:1:571:U:H2' | 1:1:572:U:O4' | 1.99 | 0.62 |
| 1:1:746:C:C6 | 1:1:749:U:H4' | 2.35 | 0.62 |
| 1:1:77:A:H1' | 1:1:78:C:OP1 | 1.99 | 0.62 |
| 20:S:5:ILE:HG13 | 20:S:6:PRO:HD2 | 1.81 | 0.62 |
| 1:1:1404:U:H2' | 1:1:1406:G:N7 | 2.14 | 0.62 |
| 1:1:350:C:H42 | 1:1:351:G:N2 | 1.98 | 0.62 |
| 1:1:649:U:H2' | 1:1:650:A:C8 | 2.34 | 0.62 |
| 9:H:87:PHE:CD1 | 9:H:90:LYS:HE2 | 2.35 | 0.62 |
| 11:J:107:GLU:HA | 11:J:112:THR:HG21 | 1.80 | 0.62 |
| 11:J:117:LEU:HB3 | 11:J:119:LEU:HD13 | 1.82 | 0.62 |
| 24:W:10:ALA:O | 24:W:14:ILE:HG12 | 1.99 | 0.62 |
| 9:H:148:LEU:HA | 24:W:42:MET:HG2 | 1.82 | 0.62 |
| 1:1:1148:A:H5' | 1:1:1148:A:N3 | 2.15 | 0.61 |
| 1:1:1287:A:H4' | 1:1:1312:G:C2 | 2.35 | 0.61 |
| 1:1:1414:A:C2' | 1:1:1415:C:O4' | 2.46 | 0.61 |
| 1:1:1673:U:H6 | 1:1:1673:U:H5'' | 1.64 | 0.61 |
| 1:1:168:C:H4' | 8:G:131:ARG:CD | 2.26 | 0.61 |
| 1:1:351:G:H3' | 1:1:351:G:H8 | 1.62 | 0.61 |
| 1:1:869:A:N3 | 1:1:915:G:H1' | 2.14 | 0.61 |
| 13:L:47:PRO:HD2 | 13:L:62:PHE:CE1 | 2.34 | 0.61 |
| 25:X:132:ALA:O | 25:X:138:LYS:HB2 | 1.99 | 0.61 |
| 1:1:681:U:H4' | 25:X:9:THR:HB | 1.81 | 0.61 |
| 20:S:6:PRO:HD3 | 27:Z:52:LYS:CE | 2.30 | 0.61 |
| 1:1:1214:A:N1 | 1:1:1217:A:C4 | 2.68 | 0.61 |
| 1:1:1387:G:H2' | 1:1:1388:A:O4' | 2.00 | 0.61 |
| 1:1:145:G:N3 | 1:1:145:G:H2' | 2.14 | 0.61 |
| 1:1:1463:U:H2' | 1:1:1464:C:C6 | 2.35 | 0.61 |
| 1:1:320:G:OP1 | 1:1:320:G:C8 | 2.53 | 0.61 |
| 2:A:180:ARG:HG2 | 2:A:184:ARG:NH1 | 2.13 | 0.61 |
| 4:C:167:ARG:HA | 4:C:181:PRO:CD | 2.30 | 0.61 |
| 13:L:20:LYS:HE3 | 13:L:21:LYS:HZ2 | 1.65 | 0.61 |
| 1:1:1023:A:H5' | 15:N:3:ARG:NH2 | 2.15 | 0.61 |
| 1:1:1445:U:C2' | 1:1:1446:A:H5' | 2.29 | 0.61 |
| 1:1:1576:G:O2' | 1:1:1577:G:H5' | 2.01 | 0.61 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:1808:U:H2' | 1:1:1809:A:C8 | 2.35 | 0.61 |
| 1:1:367:U:H5' | 1:1:367:U:C6 | 2.35 | 0.61 |
| 1:1:569:A:C5 | 1:1:570:C:C5 | 2.88 | 0.61 |
| 1:1:60:A:H4' | 1:1:61:A:O5' | 1.99 | 0.61 |
| 1:1:659:G:N3 | 1:1:659:G:H2' | 2.14 | 0.61 |
| 1:1:795:A:H2' | 1:1:796:G:C8 | 2.33 | 0.61 |
| 1:1:684:G:C5 | 1:1:920:A:C8 | 2.88 | 0.61 |
| 11:J:169:ARG:N | 11:J:170:PRO:HD3 | 2.15 | 0.61 |
| 7:F:48:TYR:CE1 | 18:Q:50:LYS:HG3 | 2.36 | 0.61 |
| 2:A:6:ASP:CB | 23:V:42:VAL:HG22 | 2.30 | 0.61 |
| 24:W:77:PRO:HG2 | 24:W:79:PHE:CE1 | 2.35 | 0.61 |
| 1:1:1529:C:H2' | 1:1:1530:U:H5' | 1.81 | 0.61 |
| 1:1:1540:G:H8 | 1:1:1540:G:H5' | 1.65 | 0.61 |
| 1:1:1567:G:H8 | 1:1:1567:G:OP1 | 1.83 | 0.61 |
| 1:1:1771:G:H2' | 1:1:1772:C:H6 | 1.66 | 0.61 |
| 1:1:360:A:OP1 | 1:1:360:A:H2' | 2.00 | 0.61 |
| 1:1:54:A:H3' | 1:1:55:U:C5' | 2.30 | 0.61 |
| 6:E:173:ILE:HD13 | 6:E:230:ASN:HB2 | 1.82 | 0.61 |
| 1:1:526:A:C2' | 11:J:128:VAL:HG22 | 2.29 | 0.61 |
| 2:A:6:ASP:C | 23:V:83:PHE:HB3 | 2.20 | 0.61 |
| 24:W:14:ILE:HD13 | 24:W:25:VAL:HG11 | 1.82 | 0.61 |
| 1:1:1254:C:H4' | 1:1:1254:C:OP1 | 2.00 | 0.61 |
| 1:1:1398:G:N3 | 1:1:1398:G:H2' | 2.14 | 0.61 |
| 1:1:1604:G:H2' | 1:1:1605:G:H5' | 1.81 | 0.61 |
| 1:1:213:G:H2' | 1:1:214:U:H6 | 1.66 | 0.61 |
| 1:1:321:C:H2' | 1:1:322:C:H6 | 1.63 | 0.61 |
| 1:1:602:G:H3' | 1:1:603:C:H5'' | 1.80 | 0.61 |
| 1:1:1378:A:C2 | 2:A:105:PRO:HB3 | 2.36 | 0.61 |
| 2:A:205:ARG:HG3 | 2:A:207:PRO:HD2 | 1.81 | 0.61 |
| 8:G:2:LYS:HE3 | 8:G:15:LEU:HD11 | 1.81 | 0.61 |
| 1:1:332:G:C8 | 8:G:186:GLN:HB2 | 2.36 | 0.61 |
| 9:H:132:ASP:O | 9:H:135:PHE:HB2 | 2.00 | 0.61 |
| 1:1:1036:A:C2 | 1:1:1844:U:H4' | 2.36 | 0.61 |
| 1:1:10:G:N7 | 1:1:1697:A:C2 | 2.69 | 0.61 |
| 1:1:1147:C:H3' | 1:1:1147:C:C6 | 2.36 | 0.61 |
| 1:1:1348:G:H2' | 1:1:1349:G:C8 | 2.36 | 0.61 |
| 1:1:1375:G:C2' | 1:1:1376:A:H5' | 2.30 | 0.61 |
| 1:1:1389:C:O2' | 1:1:1390:U:C6 | 2.52 | 0.61 |
| 1:1:751:G:C4 | 1:1:752:G:C8 | 2.88 | 0.61 |
| 1:1:753:C:N4 | 1:1:754:G:C2 | 2.69 | 0.61 |
| 1:1:1442:U:H3' | 1:1:1443:C:H5'' | 1.82 | 0.61 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:1:1620:A:H2' | 1:1:1624:U:C4 | 2.35 | 0.61 |
| 1:1:747:U:C1' | 1:1:748:C:H2' | 2.30 | 0.61 |
| 1:1:806:U:H6 | 1:1:806:U:O5' | 1.84 | 0.61 |
| 1:1:884:C:H2' | 1:1:885:U:H6 | 1.66 | 0.61 |
| 1:1:987:A:H3' | 1:1:988:C:C6 | 2.36 | 0.61 |
| 10:I:165:GLN:HE21 | 10:I:172:LEU:HD23 | 1.65 | 0.61 |
| 1:1:925:G:H1 | 1:1:1017:U:H3 | 1.48 | 0.61 |
| 1:1:1405:A:H2 | 1:1:1442:U:H6 | 1.41 | 0.61 |
| 1:1:1443:C:C2' | 1:1:1444:U:H5' | 2.31 | 0.61 |
| 1:1:1700:C:H4' | 1:1:1701:C:C5' | 2.29 | 0.61 |
| 1:1:1741:U:O4 | 1:1:1793:A:C2 | 2.54 | 0.61 |
| 1:1:25:A:H2' | 1:1:26:U:C6 | 2.35 | 0.61 |
| 6:E:148:ARG:HD3 | 6:E:148:ARG:H | 1.65 | 0.61 |
| 7:F:30:ILE:CD1 | 7:F:39:ILE:HD12 | 2.30 | 0.61 |
| 1:1:1092:G:H2' | 1:1:1093:A:C8 | 2.36 | 0.61 |
| 1:1:1255:G:C5' | 1:1:1256:G:H8 | 2.11 | 0.61 |
| 1:1:1549:U:C2' | 1:1:1550:G:H5' | 2.30 | 0.61 |
| 1:1:1800:A:H3' | 1:1:1801:A:H8 | 1.66 | 0.61 |
| 1:1:1820:G:H2' | 1:1:1821:U:C6 | 2.36 | 0.61 |
| 1:1:1863:A:N3 | 1:1:1863:A:H2' | 2.15 | 0.61 |
| 1:1:796:G:N2 | 1:1:797:C:H5 | 1.96 | 0.61 |
| 2:A:81:ASN:OD1 | 2:A:205:ARG:HD2 | 1.99 | 0.61 |
| 8:G:164:LYS:HG2 | 8:G:166:GLY:H | 1.66 | 0.61 |
| 1:1:1298:G:H4' | 17:P:78:THR:CA | 2.28 | 0.61 |
| 1:1:572:U:P | 26:Y:59:GLY:N | 2.74 | 0.61 |
| 1:1:124:U:C3' | 1:1:124:U:C6 | 2.84 | 0.61 |
| 1:1:1335:G:C2' | 1:1:1336:C:H5' | 2.31 | 0.61 |
| 1:1:1416:C:C4 | 1:1:1431:G:N2 | 2.68 | 0.61 |
| 1:1:175:A:C2 | 1:1:176:U:C1' | 2.83 | 0.61 |
| 1:1:398:A:C4' | 1:1:399:C:H3' | 2.29 | 0.61 |
| 1:1:532:C:H2' | 1:1:533:A:O4' | 2.01 | 0.61 |
| 1:1:694:G:C2' | 1:1:695:C:C6 | 2.83 | 0.61 |
| 1:1:746:C:P | 1:1:746:C:H2' | 2.41 | 0.61 |
| 2:A:40:LYS:NZ | 19:R:101:ASP:HA | 2.16 | 0.61 |
| 18:Q:24:HIS:O | 18:Q:68:ILE:HA | 2.01 | 0.61 |
| 19:R:51:ALA:HA | 19:R:54:VAL:HG12 | 1.83 | 0.61 |
| 1:1:1202:U:C3' | 1:1:1203:G:H5'' | 2.31 | 0.60 |
| 1:1:1214:A:C2 | 1:1:1217:A:C8 | 2.89 | 0.60 |
| 1:1:1253:A:H5'' | 1:1:1253:A:N3 | 2.15 | 0.60 |
| 1:1:1493:C:H6 | 1:1:1493:C:H5'' | 1.65 | 0.60 |
| 1:1:1529:C:C2' | 1:1:1530:U:H5' | 2.31 | 0.60 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:1577:G:H1' | 1:1:1582:C:O2 | 2.01 | 0.60 |
| 1:1:1859:A:H2' | 1:1:1860:A:O4' | 2.01 | 0.60 |
| 1:1:867:G:H8 | 1:1:867:G:P | 2.24 | 0.60 |
| 21:T:41:LYS:CG | 21:T:95:GLY:HA2 | 2.31 | 0.60 |
| 1:1:1124:C:H6 | 1:1:1124:C:O5' | 1.84 | 0.60 |
| 1:1:1277:C:H3' | 1:1:1278:A:H8 | 1.66 | 0.60 |
| 1:1:1420:G:OP2 | 1:1:1420:G:H8 | 1.84 | 0.60 |
| 1:1:1415:C:H42 | 1:1:1431:G:H1 | 1.49 | 0.60 |
| 1:1:1678:A:H2' | 1:1:1679:A:H5' | 1.82 | 0.60 |
| 1:1:24:C:H42 | 1:1:650:A:H61 | 1.49 | 0.60 |
| 1:1:593:C:H1' | 1:1:594:A:O5' | 2.01 | 0.60 |
| 1:1:863:U:O5' | 1:1:863:U:H6 | 1.84 | 0.60 |
| 7:F:111:VAL:HG12 | 7:F:177:LEU:CD2 | 2.32 | 0.60 |
| 10:I:131:PRO:HG2 | 10:I:138:ASN:OD1 | 2.00 | 0.60 |
| 12:K:27:VAL:O | 12:K:28:HIS:HB3 | 2.01 | 0.60 |
| 21:T:27:LYS:HD3 | 21:T:110:LEU:HD11 | 1.82 | 0.60 |
| 1:1:1065:G:C2 | 1:1:1066:U:H1' | 2.36 | 0.60 |
| 1:1:131:C:H4' | 1:1:132:U:O5' | 2.01 | 0.60 |
| 1:1:1351:G:H5'' | 1:1:1351:G:C8 | 2.36 | 0.60 |
| 1:1:1393:G:H5'' | 1:1:1394:G:OP2 | 2.02 | 0.60 |
| 1:1:1540:G:H2' | 1:1:1541:G:O4' | 2.00 | 0.60 |
| 1:1:1561:A:O4' | 1:1:1583:C:H4' | 2.00 | 0.60 |
| 1:1:1832:A:C3' | 1:1:1833:C:H5'' | 2.29 | 0.60 |
| 1:1:1849:G:C2' | 1:1:1850:A:H5' | 2.31 | 0.60 |
| 1:1:237:C:H1' | 1:1:238:C:H5' | 1.83 | 0.60 |
| 1:1:435:A:N3 | 1:1:450:C:H5 | 1.98 | 0.60 |
| 1:1:862:A:H2' | 1:1:863:U:C6 | 2.36 | 0.60 |
| 1:1:879:C:H2' | 1:1:880:G:C8 | 2.35 | 0.60 |
| 22:U:21:ARG:HE | 22:U:88:LEU:HB3 | 1.65 | 0.60 |
| 24:W:11:LEU:HD11 | 24:W:37:PHE:CE2 | 2.36 | 0.60 |
| 1:1:1515:G:H8 | 1:1:1515:G:H5'' | 1.65 | 0.60 |
| 1:1:1654:G:C3' | 1:1:1655:C:H5 | 2.14 | 0.60 |
| 1:1:15:U:H2' | 1:1:16:G:H5' | 1.83 | 0.60 |
| 1:1:741:C:C4 | 1:1:744:G:N1 | 2.70 | 0.60 |
| 1:1:869:A:C2 | 1:1:915:G:C1' | 2.84 | 0.60 |
| 2:A:58:LEU:HD21 | 2:A:177:MET:HG2 | 1.83 | 0.60 |
| 3:B:114:VAL:HG22 | 3:B:120:MET:SD | 2.42 | 0.60 |
| 5:D:94:ARG:HG2 | 5:D:101:GLN:NE2 | 2.16 | 0.60 |
| 10:I:194:GLU:OE1 | 13:L:20:LYS:HD3 | 2.01 | 0.60 |
| 18:Q:36:GLY:O | 21:T:7:LYS:HG2 | 2.01 | 0.60 |
| 1:1:96:C:O4' | 1:1:474:G:H4' | 2.02 | 0.60 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:605:A:H3' | 1:1:607:U:OP2 | 2.02 | 0.60 |
| 7:F:102:LEU:HB3 | 27:Z:67:LEU:HD22 | 1.84 | 0.60 |
| 22:U:49:LYS:HB3 | 22:U:92:HIS:HB3 | 1.83 | 0.60 |
| 1:1:1663:A:H2 | 1:1:1664:A:N6 | 1.99 | 0.60 |
| 1:1:1714:U:H3' | 1:1:1715:A:H8 | 1.66 | 0.60 |
| 1:1:181:A:H3' | 1:1:182:C:C5' | 2.19 | 0.60 |
| 1:1:342:C:H42 | 1:1:343:A:H62 | 1.48 | 0.60 |
| 1:1:43:U:H3' | 1:1:44:U:C5' | 2.30 | 0.60 |
| 1:1:525:A:H8 | 1:1:525:A:H3' | 1.65 | 0.60 |
| 1:1:562:U:H2' | 1:1:563:G:C8 | 2.36 | 0.60 |
| 1:1:587:A:H8 | 1:1:587:A:OP2 | 1.85 | 0.60 |
| 1:1:655:A:C8 | 1:1:657:U:H5 | 2.20 | 0.60 |
| 6:E:173:ILE:HG21 | 6:E:230:ASN:HB2 | 1.83 | 0.60 |
| 1:1:688:U:H5'' | 9:H:103:LYS:HD2 | 1.84 | 0.60 |
| 11:J:117:LEU:CB | 11:J:119:LEU:HD13 | 2.31 | 0.60 |
| 14:M:61:TYR:HE1 | 14:M:107:SER:CB | 2.13 | 0.60 |
| 24:W:50:PHE:HB2 | 24:W:62:VAL:O | 2.01 | 0.60 |
| 26:Y:84:LYS:HE2 | 26:Y:85:ASN:OD1 | 2.01 | 0.60 |
| 27:Z:94:LYS:O | 27:Z:96:LEU:N | 2.33 | 0.60 |
| 1:1:1320:G:C2 | 1:1:1321:G:H1' | 2.36 | 0.60 |
| 1:1:1489:A:H5' | 1:1:1490:G:H5' | 1.84 | 0.60 |
| 1:1:1494:U:H1' | 1:1:1495:G:OP2 | 2.01 | 0.60 |
| 1:1:1614:A:H2' | 1:1:1615:U:H6 | 1.66 | 0.60 |
| 1:1:184:G:H3' | 1:1:185:G:C4' | 2.30 | 0.60 |
| 1:1:193:C:H1' | 1:1:208:G:C2 | 2.37 | 0.60 |
| 1:1:577:U:H4' | 1:1:578:C:C4' | 2.32 | 0.60 |
| 1:1:683:G:C2 | 1:1:1023:A:C5 | 2.89 | 0.60 |
| 1:1:69:C:H5'' | 1:1:69:C:C6 | 2.36 | 0.60 |
| 2:A:62:ALA:O | 2:A:66:VAL:HG23 | 2.01 | 0.60 |
| 5:D:190:LEU:HB3 | 5:D:200:PRO:HD3 | 1.83 | 0.60 |
| 7:F:32:ASP:HB2 | 7:F:117:ILE:CG2 | 2.32 | 0.60 |
| 11:J:138:ARG:HG2 | 11:J:139:LYS:H | 1.67 | 0.60 |
| 16:O:118:ALA:O | 16:O:121:ARG:HG2 | 2.02 | 0.60 |
| 1:1:1522:A:C2 | 17:P:128:HIS:CB | 2.85 | 0.60 |
| 1:1:102:A:H4' | 1:1:103:A:O5' | 2.02 | 0.60 |
| 1:1:1121:G:H2' | 1:1:1122:A:C8 | 2.37 | 0.60 |
| 1:1:1223:A:C2 | 1:1:1224:G:H1' | 2.37 | 0.60 |
| 1:1:1251:A:H2' | 1:1:1252:C:H5' | 1.83 | 0.60 |
| 1:1:1699:A:O5' | 1:1:1699:A:C8 | 2.52 | 0.60 |
| 1:1:300:U:H2' | 1:1:301:A:H8 | 1.63 | 0.60 |
| 1:1:746:C:OP2 | 1:1:746:C:H3' | 2.01 | 0.60 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:1021:U:H5'' | 15:N:128:TYR:HE1 | 1.63 | 0.60 |
| 1:1:1208:A:H61 | 1:1:1691:U:H3 | 1.49 | 0.60 |
| 1:1:1322:G:H8 | 1:1:1322:G:O5' | 1.85 | 0.60 |
| 1:1:1331:C:H2' | 1:1:1331:C:O2 | 2.00 | 0.60 |
| 1:1:1418:C:H5'' | 21:T:129:ARG:HB3 | 1.83 | 0.60 |
| 1:1:1513:C:H6 | 1:1:1513:C:O5' | 1.84 | 0.60 |
| 1:1:1587:G:O2' | 21:T:77:LYS:HB3 | 2.01 | 0.60 |
| 1:1:1655:C:H2' | 1:1:1656:G:C8 | 2.37 | 0.60 |
| 1:1:439:A:H4' | 1:1:1799:G:H4' | 1.84 | 0.60 |
| 10:I:130:THR:OG1 | 10:I:131:PRO:HD2 | 2.02 | 0.60 |
| 20:S:70:ILE:HD13 | 20:S:77:TYR:CD1 | 2.37 | 0.60 |
| 1:1:1038:U:H1' | 1:1:1181:A:C2 | 2.37 | 0.60 |
| 1:1:1196:A:H2' | 1:1:1197:G:O4' | 2.02 | 0.60 |
| 1:1:1325:G:C2' | 1:1:1326:U:H5'' | 2.32 | 0.60 |
| 1:1:1348:G:H2' | 1:1:1349:G:H8 | 1.67 | 0.60 |
| 1:1:1445:U:H4' | 22:U:57:PRO:HB3 | 1.82 | 0.60 |
| 1:1:1561:A:H4' | 1:1:1583:C:H4' | 1.83 | 0.60 |
| 1:1:1755:C:H2' | 1:1:1756:C:H6 | 1.67 | 0.60 |
| 1:1:195:C:H2' | 1:1:196:C:H6 | 1.67 | 0.60 |
| 1:1:479:C:C2' | 1:1:480:G:H5' | 2.32 | 0.60 |
| 1:1:483:C:H5'' | 25:X:48:LYS:HG3 | 1.84 | 0.60 |
| 1:1:600:G:H5'' | 1:1:601:G:OP2 | 2.02 | 0.60 |
| 1:1:743:U:H5' | 1:1:744:G:N7 | 2.16 | 0.60 |
| 11:J:53:ILE:HG23 | 11:J:97:ILE:HD11 | 1.83 | 0.60 |
| 14:M:35:ILE:HD11 | 14:M:61:TYR:CZ | 2.36 | 0.60 |
| 1:1:571:U:C1' | 26:Y:60:PHE:H | 2.15 | 0.60 |
| 1:1:130:G:H5' | 8:G:195:LYS:NZ | 2.17 | 0.59 |
| 1:1:1331:C:H6 | 1:1:1489:A:H62 | 1.49 | 0.59 |
| 1:1:1348:G:H8 | 1:1:1348:G:P | 2.25 | 0.59 |
| 1:1:158:A:H2' | 1:1:159:A:O4' | 2.02 | 0.59 |
| 1:1:1636:G:H1' | 7:F:164:ARG:HH22 | 1.67 | 0.59 |
| 1:1:1782:G:N3 | 1:1:1783:C:N4 | 2.49 | 0.59 |
| 1:1:77:A:N7 | 8:G:155:GLN:HA | 2.15 | 0.59 |
| 8:G:8:PRO:CG | 8:G:112:VAL:HG13 | 2.32 | 0.59 |
| 19:R:105:MET:HG2 | 19:R:106:LEU:N | 2.17 | 0.59 |
| 1:1:1206:G:C2 | 1:1:1208:A:C8 | 2.90 | 0.59 |
| 1:1:1416:C:N4 | 1:1:1417:C:C2 | 2.70 | 0.59 |
| 1:1:1534:C:H1' | 1:1:1535:U:OP2 | 2.01 | 0.59 |
| 1:1:1549:U:H2' | 1:1:1550:G:H8 | 1.67 | 0.59 |
| 1:1:1616:U:O2 | 1:1:1616:U:H2' | 2.02 | 0.59 |
| 1:1:1683:C:O5' | 1:1:1683:C:H6 | 1.85 | 0.59 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-------------------|--------------------------|-------------------|
| 1:1:1687:C:H3' | 1:1:1688:C:H6 | 1.65 | 0.59 |
| 1:1:16:G:H2' | 1:1:17:C:C6 | 2.37 | 0.59 |
| 1:1:211:G:C5' | 1:1:211:G:H8 | 2.06 | 0.59 |
| 1:1:450:C:H2' | 1:1:451:G:H4' | 1.84 | 0.59 |
| 1:1:486:A:H8 | 1:1:486:A:O5' | 1.85 | 0.59 |
| 1:1:671:A:H5'' | 1:1:671:A:C8 | 2.36 | 0.59 |
| 1:1:797:C:H4' | 9:H:109:ARG:HB3 | 1.83 | 0.59 |
| 1:1:897:U:O2' | 1:1:898:U:H5'' | 2.03 | 0.59 |
| 10:I:55:TYR:CD1 | 10:I:55:TYR:N | 2.70 | 0.59 |
| 21:T:39:LEU:CD1 | 21:T:43:LYS:HB2 | 2.30 | 0.59 |
| 25:X:105:PHE:CZ | 25:X:121:LYS:HD2 | 2.37 | 0.59 |
| 1:1:1016:U:C1' | 1:1:1017:U:H5'' | 2.32 | 0.59 |
| 1:1:101:U:O5' | 1:1:101:U:H6 | 1.85 | 0.59 |
| 1:1:1021:U:OP2 | 1:1:1021:U:H2' | 2.03 | 0.59 |
| 1:1:130:G:H8 | 1:1:130:G:P | 2.25 | 0.59 |
| 1:1:144:U:C5 | 8:G:180:VAL:HG22 | 2.37 | 0.59 |
| 1:1:1466:G:C6 | 1:1:1467:C:C4 | 2.90 | 0.59 |
| 1:1:1617:G:H2' | 1:1:1619:A:OP2 | 2.03 | 0.59 |
| 1:1:1658:G:H2' | 1:1:1659:U:H5' | 1.84 | 0.59 |
| 1:1:311:C:OP1 | 1:1:311:C:H2' | 2.02 | 0.59 |
| 1:1:315:C:H6 | 1:1:315:C:H5'' | 1.66 | 0.59 |
| 1:1:380:G:C2 | 1:1:382:C:C6 | 2.89 | 0.59 |
| 1:1:508:A:N3 | 1:1:508:A:H2' | 2.17 | 0.59 |
| 1:1:66:G:C8 | 8:G:160:LYS:HD2 | 2.36 | 0.59 |
| 1:1:945:U:H3' | 1:1:946:U:C6 | 2.37 | 0.59 |
| 20:S:25:LYS:HE2 | 20:S:27:ALA:HB3 | 1.82 | 0.59 |
| 1:1:407:G:C5 | 25:X:36:LEU:HD13 | 2.36 | 0.59 |
| 27:Z:62:VAL:N | 27:Z:63:PRO:CD | 2.64 | 0.59 |
| 1:1:18:C:H5' | 1:1:1194:A:N6 | 2.17 | 0.59 |
| 1:1:1230:C:H2' | 1:1:1231:C:H5' | 1.83 | 0.59 |
| 1:1:1389:C:HO2' | 1:1:1390:U:H6 | 1.41 | 0.59 |
| 1:1:1601:A:O2' | 1:1:1602:U:H5'' | 2.02 | 0.59 |
| 1:1:1848:U:H4' | 1:1:1849:G:OP1 | 2.02 | 0.59 |
| 1:1:316:G:H2' | 1:1:317:C:C6 | 2.37 | 0.59 |
| 1:1:374:G:H2' | 1:1:375:U:H6 | 1.67 | 0.59 |
| 1:1:43:U:H3' | 1:1:44:U:H5' | 1.84 | 0.59 |
| 1:1:957:A:C4' | 1:1:973:C:H1' | 2.32 | 0.59 |
| 2:A:12:GLU:HA | 2:A:15:VAL:HG22 | 1.84 | 0.59 |
| 2:A:180:ARG:HG2 | 2:A:184:ARG:HH12 | 1.65 | 0.59 |
| 8:G:2:LYS:CE | 8:G:15:LEU:HD11 | 2.32 | 0.59 |
| 20:S:86:ARG:NH2 | 20:S:107:LEU:HD21 | 2.17 | 0.59 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 22:U:56:MET:HG3 | 22:U:57:PRO:HD2 | 1.84 | 0.59 |
| 1:1:1014:G:H2' | 1:1:1015:U:C6 | 2.37 | 0.59 |
| 1:1:999:G:OP1 | 1:1:1034:A:H1' | 2.02 | 0.59 |
| 1:1:1049:A:H2' | 1:1:1050:A:C5' | 2.33 | 0.59 |
| 1:1:1401:A:H1' | 1:1:1402:A:P | 2.43 | 0.59 |
| 1:1:1473:G:H8 | 1:1:1475:G:OP2 | 1.85 | 0.59 |
| 1:1:1751:C:C2' | 1:1:1752:C:H5' | 2.32 | 0.59 |
| 1:1:858:A:C2 | 1:1:859:G:C5 | 2.90 | 0.59 |
| 10:I:104:ILE:HB | 10:I:171:LEU:HB3 | 1.83 | 0.59 |
| 1:1:1461:G:N2 | 1:1:1466:G:C4 | 2.70 | 0.59 |
| 1:1:1648:G:H2' | 18:Q:127:CYS:C | 2.23 | 0.59 |
| 1:1:1684:C:C3' | 1:1:1685:U:H5' | 2.32 | 0.59 |
| 1:1:1834:A:C2 | 1:1:1837:G:N2 | 2.70 | 0.59 |
| 3:B:103:MET:CB | 3:B:215:VAL:HG12 | 2.31 | 0.59 |
| 12:K:32:HIS:H | 12:K:33:PRO:CD | 2.13 | 0.59 |
| 22:U:51:LYS:HB2 | 22:U:90:ASP:HB2 | 1.85 | 0.59 |
| 1:1:1411:G:H2' | 1:1:1411:G:N3 | 2.17 | 0.59 |
| 1:1:1784:G:H2' | 1:1:1785:C:H6 | 1.67 | 0.59 |
| 1:1:46:A:O5' | 1:1:47:G:H5'' | 2.03 | 0.59 |
| 1:1:514:U:H3' | 1:1:515:G:C8 | 2.38 | 0.59 |
| 1:1:667:U:H5'' | 1:1:1087:A:C2 | 2.38 | 0.59 |
| 1:1:684:G:H2' | 1:1:685:A:C8 | 2.38 | 0.59 |
| 15:N:42:LYS:HE3 | 15:N:80:LEU:CD2 | 2.32 | 0.59 |
| 1:1:959:G:N1 | 16:O:65:ASP:HB3 | 2.17 | 0.59 |
| 17:P:28:MET:O | 17:P:29:SER:HB3 | 2.00 | 0.59 |
| 1:1:1157:G:H1' | 24:W:76:SER:HB2 | 1.85 | 0.59 |
| 1:1:1488:C:O2' | 1:1:1489:A:H4' | 2.03 | 0.59 |
| 1:1:184:G:H3' | 1:1:185:G:C5' | 2.33 | 0.59 |
| 1:1:184:G:H3' | 1:1:185:G:H5'' | 1.85 | 0.59 |
| 1:1:96:C:H1' | 1:1:474:G:C5' | 2.33 | 0.59 |
| 11:J:141:VAL:HG13 | 11:J:162:ARG:NH2 | 2.18 | 0.59 |
| 1:1:1127:C:O2' | 1:1:1128:C:H5' | 2.02 | 0.59 |
| 1:1:1551:U:H3' | 1:1:1551:U:O2 | 2.03 | 0.59 |
| 1:1:1534:C:H2' | 1:1:1599:U:O4 | 2.03 | 0.59 |
| 1:1:223:C:H2' | 1:1:224:A:H8 | 1.66 | 0.59 |
| 1:1:158:A:O4' | 1:1:464:A:C8 | 2.56 | 0.59 |
| 1:1:468:A:H2' | 1:1:469:A:O4' | 2.02 | 0.59 |
| 1:1:602:G:H8 | 1:1:602:G:O5' | 1.86 | 0.59 |
| 1:1:965:U:O5' | 1:1:965:U:H6 | 1.85 | 0.59 |
| 3:B:127:VAL:HG22 | 3:B:128:LYS:H | 1.68 | 0.59 |
| 18:Q:50:LYS:HG2 | 18:Q:85:ARG:HD2 | 1.85 | 0.59 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 20:S:24:ARG:O | 20:S:55:ARG:HD3 | 2.02 | 0.59 |
| 25:X:41:PHE:HE1 | 25:X:120:PHE:CE1 | 2.21 | 0.59 |
| 1:1:1344:A:N3 | 1:1:1345:G:H1' | 2.18 | 0.59 |
| 1:1:133:C:C5 | 1:1:134:C:H1' | 2.38 | 0.59 |
| 1:1:1405:A:C3' | 1:1:1405:A:C8 | 2.86 | 0.59 |
| 1:1:167:G:H5'' | 1:1:168:C:OP2 | 2.03 | 0.59 |
| 1:1:382:C:H2' | 1:1:383:G:N2 | 2.18 | 0.59 |
| 1:1:428:U:H2' | 1:1:429:C:C6 | 2.36 | 0.59 |
| 1:1:522:A:H8 | 1:1:522:A:O5' | 1.85 | 0.59 |
| 1:1:76:U:H2' | 1:1:77:A:C3' | 2.25 | 0.59 |
| 5:D:68:GLU:O | 5:D:72:VAL:HG23 | 2.02 | 0.59 |
| 1:1:1276:A:H4' | 1:1:1277:C:H5'' | 1.85 | 0.58 |
| 1:1:1380:C:H2' | 1:1:1381:G:C1' | 2.33 | 0.58 |
| 1:1:1439:A:P | 1:1:1439:A:H8 | 2.25 | 0.58 |
| 1:1:1520:G:C4 | 1:1:1520:G:H5'' | 2.38 | 0.58 |
| 1:1:1649:U:H3' | 1:1:1649:U:H6 | 1.68 | 0.58 |
| 1:1:170:A:H3' | 1:1:171:A:C8 | 2.38 | 0.58 |
| 1:1:747:U:C2 | 1:1:748:C:C2' | 2.86 | 0.58 |
| 1:1:940:U:O2 | 1:1:940:U:H2' | 2.02 | 0.58 |
| 1:1:991:G:H2' | 1:1:991:G:N3 | 2.16 | 0.58 |
| 4:C:82:TYR:CE1 | 4:C:164:PRO:HD3 | 2.38 | 0.58 |
| 5:D:191:PRO:O | 5:D:200:PRO:HD2 | 2.03 | 0.58 |
| 18:Q:134:GLY:HA3 | 18:Q:139:ALA:O | 2.02 | 0.58 |
| 1:1:1542:C:C6 | 1:1:1542:C:C5' | 2.85 | 0.58 |
| 1:1:1598:G:H4' | 1:1:1600:G:O6 | 2.02 | 0.58 |
| 1:1:184:G:C8 | 1:1:185:G:C4' | 2.78 | 0.58 |
| 1:1:312:G:H22 | 8:G:195:LYS:CB | 2.15 | 0.58 |
| 1:1:111:A:N6 | 1:1:351:G:N3 | 2.51 | 0.58 |
| 1:1:39:A:O5' | 1:1:39:A:H8 | 1.85 | 0.58 |
| 1:1:900:C:C2' | 1:1:901:G:C8 | 2.78 | 0.58 |
| 1:1:67:C:C5 | 8:G:162:LEU:C | 2.77 | 0.58 |
| 11:J:36:GLY:HA2 | 11:J:124:HIS:CE1 | 2.39 | 0.58 |
| 19:R:17:ILE:HG21 | 19:R:61:ILE:HD11 | 1.85 | 0.58 |
| 22:U:49:LYS:HB3 | 22:U:92:HIS:CB | 2.33 | 0.58 |
| 1:1:1089:G:H2' | 1:1:1090:C:C6 | 2.38 | 0.58 |
| 1:1:1102:G:H1 | 1:1:1130:G:H22 | 1.50 | 0.58 |
| 1:1:1160:U:C2' | 1:1:1161:U:H5' | 2.33 | 0.58 |
| 1:1:1242:U:O2' | 1:1:1518:C:H4' | 2.03 | 0.58 |
| 1:1:169:U:H5'' | 1:1:169:U:H6 | 1.67 | 0.58 |
| 1:1:20:G:H2' | 1:1:21:U:H5' | 1.85 | 0.58 |
| 1:1:535:G:O2' | 1:1:536:A:H8 | 1.86 | 0.58 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:84:A:O3' | 26:Y:119:GLY:HA3 | 2.03 | 0.58 |
| 3:B:47:THR:HB | 3:B:65:ARG:NH1 | 2.18 | 0.58 |
| 9:H:102:PRO:HB2 | 9:H:105:THR:OG1 | 2.03 | 0.58 |
| 21:T:25:SER:HB3 | 21:T:27:LYS:HG3 | 1.84 | 0.58 |
| 1:1:1141:G:O4' | 1:1:1151:G:H4' | 2.02 | 0.58 |
| 1:1:1301:A:N3 | 1:1:1301:A:H3' | 2.17 | 0.58 |
| 1:1:1334:G:H2' | 1:1:1335:G:O4' | 2.04 | 0.58 |
| 1:1:1506:A:H5' | 1:1:1508:A:N7 | 2.18 | 0.58 |
| 1:1:1701:C:H4' | 1:1:1701:C:OP2 | 2.02 | 0.58 |
| 1:1:340:C:O5' | 1:1:340:C:H6 | 1.87 | 0.58 |
| 1:1:360:A:H4' | 1:1:361:U:O5' | 2.04 | 0.58 |
| 1:1:577:U:H4' | 1:1:578:C:O4' | 2.03 | 0.58 |
| 1:1:750:C:H2' | 1:1:751:G:C8 | 2.37 | 0.58 |
| 1:1:981:A:H8 | 1:1:981:A:O5' | 1.85 | 0.58 |
| 3:B:31:TYR:OH | 3:B:91:VAL:HG13 | 2.03 | 0.58 |
| 2:A:111:GLN:OE1 | 4:C:89:LYS:HG2 | 2.04 | 0.58 |
| 27:Z:62:VAL:N | 27:Z:63:PRO:HD2 | 2.18 | 0.58 |
| 1:1:1002:U:C2' | 1:1:1003:U:H5' | 2.34 | 0.58 |
| 1:1:130:G:N7 | 1:1:131:C:C2 | 2.72 | 0.58 |
| 1:1:1325:G:H2' | 1:1:1326:U:H5'' | 1.86 | 0.58 |
| 1:1:1405:A:N3 | 1:1:1442:U:C6 | 2.71 | 0.58 |
| 1:1:1497:G:H4' | 1:1:1498:A:OP2 | 2.03 | 0.58 |
| 1:1:1604:G:H2' | 1:1:1605:G:O4' | 2.03 | 0.58 |
| 1:1:1607:A:C2' | 1:1:1608:U:H5' | 2.33 | 0.58 |
| 1:1:1653:U:H2' | 1:1:1654:G:C8 | 2.39 | 0.58 |
| 1:1:167:G:H3' | 1:1:168:C:H5'' | 1.86 | 0.58 |
| 1:1:1698:C:H3' | 1:1:1699:A:H5' | 1.84 | 0.58 |
| 1:1:215:G:OP2 | 1:1:216:C:H5 | 1.86 | 0.58 |
| 1:1:573:U:H3' | 1:1:573:U:O2 | 2.03 | 0.58 |
| 1:1:672:A:H2 | 1:1:1162:C:O2' | 1.85 | 0.58 |
| 6:E:125:LYS:HB2 | 6:E:226:PHE:CE1 | 2.39 | 0.58 |
| 1:1:216:C:H5'' | 6:E:134:LYS:CE | 2.33 | 0.58 |
| 10:I:68:GLY:C | 13:L:21:LYS:HE3 | 2.23 | 0.58 |
| 1:1:1311:C:H5'' | 14:M:40:LYS:HZ1 | 1.69 | 0.58 |
| 17:P:75:VAL:HG21 | 17:P:104:GLN:HG2 | 1.86 | 0.58 |
| 21:T:77:LYS:NZ | 21:T:94:ARG:HE | 2.01 | 0.58 |
| 24:W:102:ILE:HB | 24:W:113:HIS:HB2 | 1.83 | 0.58 |
| 1:1:10:G:OP1 | 1:1:1697:A:H5' | 2.04 | 0.58 |
| 1:1:1079:C:C4' | 1:1:1181:A:H61 | 2.14 | 0.58 |
| 1:1:1431:G:C2 | 1:1:1432:U:N3 | 2.71 | 0.58 |
| 1:1:593:C:C6 | 1:1:593:C:OP2 | 2.56 | 0.58 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|------------------|--------------------------|-------------------|
| 1:1:822:U:H5' | 1:1:822:U:C6 | 2.34 | 0.58 |
| 7:F:36:GLN:O | 7:F:37:ASP:HB2 | 2.02 | 0.58 |
| 9:H:109:ARG:CA | 9:H:113:LYS:H | 2.16 | 0.58 |
| 1:1:1002:U:H2' | 1:1:1003:U:H5' | 1.84 | 0.58 |
| 1:1:1180:C:H3' | 1:1:1180:C:H6 | 1.68 | 0.58 |
| 1:1:1271:C:OP1 | 1:1:1303:C:H1' | 2.03 | 0.58 |
| 1:1:1828:C:H3' | 1:1:1829:G:H8 | 1.68 | 0.58 |
| 1:1:543:C:H6 | 1:1:543:C:H3' | 1.69 | 0.58 |
| 4:C:253:PRO:HD3 | 24:W:68:ARG:NH2 | 2.18 | 0.58 |
| 9:H:109:ARG:HG3 | 9:H:113:LYS:HA | 1.84 | 0.58 |
| 12:K:47:LYS:O | 12:K:50:GLN:HG2 | 2.03 | 0.58 |
| 1:1:1311:C:H6 | 1:1:1311:C:C5' | 2.17 | 0.58 |
| 1:1:1311:C:H5'' | 1:1:1311:C:H6 | 1.68 | 0.58 |
| 1:1:1685:U:C5 | 1:1:1686:G:N7 | 2.71 | 0.58 |
| 1:1:1686:G:C6 | 1:1:1687:C:C4 | 2.92 | 0.58 |
| 1:1:1839:U:H3 | 1:1:1860:A:H61 | 1.51 | 0.58 |
| 1:1:420:G:H1' | 1:1:661:U:H3 | 1.69 | 0.58 |
| 1:1:77:A:H4' | 1:1:78:C:C4 | 2.39 | 0.58 |
| 1:1:871:U:O2 | 1:1:871:U:H2' | 2.03 | 0.58 |
| 1:1:604:A:H5' | 11:J:22:LYS:HB2 | 1.85 | 0.58 |
| 1:1:827:A:C5' | 11:J:8:VAL:HG13 | 2.34 | 0.58 |
| 19:R:12:ALA:O | 19:R:15:VAL:HG12 | 2.04 | 0.58 |
| 1:1:1104:G:H2' | 1:1:1105:G:O4' | 2.04 | 0.58 |
| 1:1:1375:G:H8 | 1:1:1375:G:O5' | 1.87 | 0.58 |
| 1:1:1438:A:H3' | 1:1:1439:A:C8 | 2.39 | 0.58 |
| 1:1:164:A:H2' | 1:1:165:G:C8 | 2.39 | 0.58 |
| 1:1:1864:U:O2' | 1:1:1866:A:C2 | 2.56 | 0.58 |
| 1:1:894:G:H2' | 1:1:895:G:H8 | 1.69 | 0.58 |
| 2:A:81:ASN:OD1 | 2:A:205:ARG:HA | 2.04 | 0.58 |
| 20:S:6:PRO:HD3 | 27:Z:52:LYS:CD | 2.34 | 0.58 |
| 24:W:55:ASP:HB3 | 24:W:58:ALA:O | 2.03 | 0.58 |
| 1:1:1244:U:H2' | 1:1:1245:G:C8 | 2.39 | 0.58 |
| 1:1:134:C:H3' | 1:1:135:U:C4' | 2.28 | 0.58 |
| 1:1:1385:G:H5'' | 5:D:160:SER:OG | 2.04 | 0.58 |
| 1:1:1404:U:H2' | 1:1:1406:G:C5 | 2.39 | 0.58 |
| 1:1:1800:A:H5'' | 1:1:1801:A:OP2 | 2.04 | 0.58 |
| 1:1:1860:A:C2 | 1:1:1862:G:O4' | 2.57 | 0.58 |
| 1:1:307:G:H4' | 1:1:308:G:OP1 | 2.02 | 0.58 |
| 1:1:528:A:O5' | 1:1:528:A:H8 | 1.87 | 0.58 |
| 1:1:67:C:H2' | 8:G:162:LEU:HD23 | 1.86 | 0.58 |
| 1:1:830:A:N3 | 1:1:830:A:H3' | 2.19 | 0.58 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-------------------|--------------------------|-------------------|
| 1:1:988:C:C6 | 1:1:988:C:O5' | 2.57 | 0.58 |
| 9:H:109:ARG:HA | 9:H:113:LYS:N | 2.18 | 0.58 |
| 1:1:528:A:O4' | 11:J:121:LYS:HB3 | 2.04 | 0.58 |
| 1:1:1544:C:H4' | 18:Q:80:GLN:HE22 | 1.68 | 0.58 |
| 1:1:1389:C:H5'' | 19:R:43:SER:HB2 | 1.84 | 0.58 |
| 20:S:23:ARG:H | 20:S:23:ARG:HD3 | 1.68 | 0.58 |
| 26:Y:59:GLY:O | 26:Y:71:GLY:HA2 | 2.03 | 0.58 |
| 1:1:1101:U:H5'' | 3:B:151:ARG:HD2 | 1.86 | 0.57 |
| 1:1:1263:U:H3' | 1:1:1264:C:H6 | 1.69 | 0.57 |
| 1:1:606:G:H3' | 1:1:607:U:C4' | 2.33 | 0.57 |
| 1:1:655:A:C5 | 1:1:657:U:C5 | 2.89 | 0.57 |
| 1:1:229:A:H2' | 1:1:888:U:O2 | 2.04 | 0.57 |
| 1:1:913:A:N3 | 1:1:913:A:H2' | 2.19 | 0.57 |
| 1:1:454:U:H5'' | 8:G:76:LEU:HD22 | 1.85 | 0.57 |
| 10:I:103:LEU:HA | 10:I:171:LEU:O | 2.04 | 0.57 |
| 16:O:77:ALA:O | 16:O:81:VAL:HG23 | 2.03 | 0.57 |
| 25:X:123:VAL:O | 25:X:130:LEU:HG | 2.05 | 0.57 |
| 1:1:1026:C:O2' | 1:1:1161:U:H4' | 2.04 | 0.57 |
| 1:1:1286:G:N2 | 1:1:1312:G:O6 | 2.37 | 0.57 |
| 1:1:1335:G:H2' | 1:1:1336:C:H5' | 1.85 | 0.57 |
| 1:1:1403:C:C5 | 1:1:1404:U:C2 | 2.93 | 0.57 |
| 3:B:24:PRO:O | 3:B:28:LYS:HG3 | 2.04 | 0.57 |
| 7:F:32:ASP:CB | 7:F:117:ILE:HG23 | 2.34 | 0.57 |
| 8:G:160:LYS:HD3 | 8:G:161:PRO:O | 2.04 | 0.57 |
| 12:K:84:HIS:CG | 12:K:85:LEU:H | 2.22 | 0.57 |
| 1:1:1354:G:H2' | 1:1:1356:G:N7 | 2.19 | 0.57 |
| 1:1:1576:G:H2' | 1:1:1577:G:O4' | 2.04 | 0.57 |
| 1:1:1656:G:H2' | 1:1:1657:G:C8 | 2.38 | 0.57 |
| 1:1:455:A:H2' | 1:1:456:C:H6 | 1.68 | 0.57 |
| 1:1:510:G:OP2 | 1:1:510:G:H8 | 1.87 | 0.57 |
| 1:1:876:C:H2' | 1:1:877:C:C6 | 2.39 | 0.57 |
| 1:1:999:G:H2' | 1:1:1000:C:C6 | 2.39 | 0.57 |
| 2:A:130:ASP:O | 2:A:133:PRO:HD2 | 2.05 | 0.57 |
| 3:B:107:ARG:HG3 | 16:O:131:ASP:O | 2.04 | 0.57 |
| 7:F:163:PHE:CD2 | 7:F:164:ARG:HG3 | 2.39 | 0.57 |
| 1:1:745:C:H5' | 9:H:105:THR:HG23 | 1.86 | 0.57 |
| 9:H:63:PHE:CE2 | 9:H:95:ILE:HD11 | 2.39 | 0.57 |
| 14:M:32:ALA:HB3 | 14:M:110:VAL:HG22 | 1.86 | 0.57 |
| 1:1:1340:U:H3' | 1:1:1341:C:C5 | 2.39 | 0.57 |
| 1:1:1401:A:C1' | 1:1:1402:A:OP1 | 2.53 | 0.57 |
| 1:1:143:U:O4 | 1:1:328:U:H4' | 2.04 | 0.57 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:1520:G:C5' | 1:1:1521:C:C5 | 2.82 | 0.57 |
| 1:1:1696:C:H6 | 1:1:1696:C:O5' | 1.87 | 0.57 |
| 1:1:206:G:H2' | 1:1:207:G:H8 | 1.67 | 0.57 |
| 1:1:301:A:C2' | 1:1:302:A:H8 | 2.17 | 0.57 |
| 1:1:893:U:H2' | 1:1:894:G:H8 | 1.68 | 0.57 |
| 2:A:33:GLN:HB2 | 2:A:154:LEU:HD12 | 1.86 | 0.57 |
| 8:G:8:PRO:HG2 | 8:G:112:VAL:HG13 | 1.86 | 0.57 |
| 12:K:38:LYS:HE3 | 12:K:40:VAL:HG21 | 1.84 | 0.57 |
| 3:B:46:LYS:NZ | 16:O:27:VAL:HA | 2.19 | 0.57 |
| 17:P:33:LEU:O | 17:P:37:TYR:HD1 | 1.88 | 0.57 |
| 1:1:1161:U:H3' | 1:1:1161:U:H6 | 1.69 | 0.57 |
| 1:1:184:G:C3' | 1:1:185:G:H4' | 2.29 | 0.57 |
| 1:1:337:C:C2' | 1:1:337:C:O2 | 2.53 | 0.57 |
| 1:1:60:A:C5' | 1:1:501:C:H5 | 2.16 | 0.57 |
| 1:1:636:C:H2' | 1:1:637:U:C6 | 2.39 | 0.57 |
| 1:1:636:C:H2' | 1:1:637:U:O4' | 2.04 | 0.57 |
| 3:B:63:LYS:HE3 | 3:B:91:VAL:HB | 1.86 | 0.57 |
| 9:H:158:LEU:HD11 | 9:H:187:PHE:CD2 | 2.40 | 0.57 |
| 1:1:743:U:H5 | 9:H:97:GLN:HE22 | 1.51 | 0.57 |
| 20:S:42:HIS:HA | 20:S:45:LEU:HD22 | 1.87 | 0.57 |
| 27:Z:58:LEU:CD1 | 27:Z:77:LEU:HD22 | 2.35 | 0.57 |
| 1:1:1311:C:C4 | 1:1:1312:G:O6 | 2.57 | 0.57 |
| 1:1:1413:G:N2 | 1:1:1414:A:H1' | 2.20 | 0.57 |
| 1:1:1535:U:H6 | 7:F:82:ASN:OD1 | 1.88 | 0.57 |
| 1:1:130:G:H1' | 1:1:181:A:C2 | 2.39 | 0.57 |
| 1:1:186:C:H6 | 1:1:186:C:O5' | 1.88 | 0.57 |
| 1:1:319:C:H1' | 1:1:320:G:OP1 | 2.04 | 0.57 |
| 1:1:435:A:C2 | 1:1:474:G:OP2 | 2.58 | 0.57 |
| 1:1:492:C:H42 | 1:1:508:A:H62 | 1.52 | 0.57 |
| 1:1:980:A:H2' | 1:1:981:A:C8 | 2.40 | 0.57 |
| 1:1:987:A:H3' | 1:1:988:C:H5 | 1.69 | 0.57 |
| 2:A:39:TYR:CE2 | 2:A:50:ASN:HB2 | 2.40 | 0.57 |
| 5:D:210:ILE:HG12 | 19:R:39:ALA:CB | 2.34 | 0.57 |
| 9:H:44:ASN:O | 9:H:65:PRO:HD2 | 2.05 | 0.57 |
| 11:J:94:LEU:O | 11:J:97:ILE:HG22 | 2.04 | 0.57 |
| 15:N:87:ASP:HB2 | 15:N:129:TYR:OH | 2.04 | 0.57 |
| 20:S:134:GLN:HG2 | 20:S:135:HIS:N | 2.19 | 0.57 |
| 20:S:26:ILE:HA | 20:S:56:ALA:HB2 | 1.85 | 0.57 |
| 1:1:1017:U:H6 | 1:1:1017:U:H5'' | 1.70 | 0.57 |
| 1:1:124:U:H5' | 6:E:148:ARG:CB | 2.35 | 0.57 |
| 1:1:129:C:H1' | 1:1:182:C:N4 | 2.20 | 0.57 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-----------------|--------------------------|-------------------|
| 1:1:1432:U:OP2 | 1:1:1432:U:C5 | 2.57 | 0.57 |
| 1:1:1575:G:H2' | 1:1:1576:G:H8 | 1.70 | 0.57 |
| 1:1:1607:A:H2' | 1:1:1608:U:H5' | 1.86 | 0.57 |
| 1:1:1641:A:H5'' | 1:1:1641:A:H8 | 1.68 | 0.57 |
| 1:1:1648:G:H8 | 18:Q:125:ARG:CB | 2.18 | 0.57 |
| 1:1:1654:G:H3' | 1:1:1655:C:C5 | 2.35 | 0.57 |
| 1:1:176:U:H2' | 1:1:177:G:O4' | 2.05 | 0.57 |
| 1:1:1828:C:H3' | 1:1:1829:G:C8 | 2.39 | 0.57 |
| 1:1:1834:A:H2 | 1:1:1837:G:N2 | 2.00 | 0.57 |
| 21:T:121:ARG:HD2 | 21:T:121:ARG:O | 2.04 | 0.57 |
| 24:W:39:THR:HG22 | 24:W:43:LYS:HE3 | 1.86 | 0.57 |
| 1:1:1208:A:OP2 | 1:1:1835:A:C2 | 2.57 | 0.57 |
| 1:1:1231:C:H2' | 1:1:1232:U:C6 | 2.40 | 0.57 |
| 1:1:1378:A:C5 | 2:A:105:PRO:HB3 | 2.40 | 0.57 |
| 1:1:1405:A:C3' | 1:1:1406:G:C5' | 2.82 | 0.57 |
| 1:1:1471:C:H3' | 1:1:1472:C:C6 | 2.39 | 0.57 |
| 1:1:1686:G:C2 | 1:1:1687:C:C2 | 2.92 | 0.57 |
| 1:1:27:A:H2' | 1:1:28:U:C6 | 2.40 | 0.57 |
| 1:1:379:C:O2 | 1:1:379:C:H2' | 2.04 | 0.57 |
| 1:1:590:A:N3 | 1:1:590:A:H2' | 2.19 | 0.57 |
| 1:1:67:C:H41 | 8:G:163:ASN:CA | 2.16 | 0.57 |
| 11:J:122:SER:HB3 | 11:J:125:HIS:H | 1.68 | 0.57 |
| 12:K:90:VAL:HG11 | 12:K:95:ARG:HG2 | 1.87 | 0.57 |
| 17:P:17:TYR:O | 20:S:91:LYS:HB3 | 2.03 | 0.57 |
| 25:X:68:LYS:HB2 | 25:X:85:VAL:HB | 1.87 | 0.57 |
| 1:1:1307:U:C3' | 1:1:1308:U:H5' | 2.33 | 0.57 |
| 1:1:1414:A:C2 | 1:1:1415:C:N3 | 2.72 | 0.57 |
| 1:1:1579:A:H2' | 1:1:1580:A:C4' | 2.35 | 0.57 |
| 1:1:179:C:H5'' | 1:1:180:G:H21 | 1.66 | 0.57 |
| 1:1:346:C:H3' | 1:1:346:C:C6 | 2.40 | 0.57 |
| 1:1:471:G:H4' | 1:1:472:C:OP1 | 2.05 | 0.57 |
| 1:1:745:C:O2 | 1:1:750:C:H5'' | 2.04 | 0.57 |
| 1:1:839:C:H42 | 26:Y:49:LYS:HB2 | 1.69 | 0.57 |
| 1:1:931:C:O5' | 1:1:931:C:H6 | 1.87 | 0.57 |
| 1:1:941:C:H2' | 1:1:942:G:O4' | 2.03 | 0.57 |
| 7:F:102:LEU:O | 27:Z:66:LYS:HE2 | 2.04 | 0.57 |
| 14:M:26:LEU:HG | 14:M:89:VAL:O | 2.05 | 0.57 |
| 1:1:1289:U:H3' | 1:1:1289:U:O2 | 2.05 | 0.57 |
| 1:1:1442:U:C6 | 1:1:1443:C:H1' | 2.38 | 0.57 |
| 1:1:1586:U:H2' | 1:1:1587:G:O5' | 2.05 | 0.57 |
| 1:1:187:G:H2' | 1:1:188:C:H6 | 1.69 | 0.57 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:189:U:O5' | 1:1:189:U:H6 | 1.87 | 0.57 |
| 1:1:435:A:C2 | 1:1:450:C:H5 | 2.22 | 0.57 |
| 1:1:567:C:H3' | 1:1:568:C:H5' | 1.87 | 0.57 |
| 1:1:572:U:H5 | 1:1:576:A:H62 | 1.52 | 0.57 |
| 1:1:67:C:H6 | 8:G:162:LEU:HD23 | 1.69 | 0.57 |
| 15:N:75:LEU:HA | 15:N:80:LEU:HD12 | 1.86 | 0.57 |
| 19:R:13:ALA:HB1 | 19:R:54:VAL:HB | 1.87 | 0.57 |
| 22:U:67:LYS:HD3 | 22:U:76:THR:HG21 | 1.87 | 0.57 |
| 1:1:1426:U:C4 | 1:1:1427:C:C4 | 2.93 | 0.56 |
| 1:1:1426:U:C4 | 1:1:1427:C:C5 | 2.93 | 0.56 |
| 1:1:1579:A:C8 | 22:U:56:MET:HG2 | 2.40 | 0.56 |
| 1:1:1600:G:H2' | 1:1:1600:G:N3 | 2.19 | 0.56 |
| 1:1:306:C:O2' | 1:1:307:G:H5' | 2.05 | 0.56 |
| 1:1:604:A:H1' | 1:1:605:A:OP1 | 2.04 | 0.56 |
| 1:1:67:C:H5' | 8:G:162:LEU:HD23 | 1.87 | 0.56 |
| 1:1:77:A:C6 | 8:G:155:GLN:HB3 | 2.40 | 0.56 |
| 1:1:797:C:O2' | 9:H:109:ARG:HD2 | 2.05 | 0.56 |
| 9:H:100:ILE:HD13 | 9:H:122:LEU:HA | 1.87 | 0.56 |
| 15:N:139:TRP:HH2 | 15:N:149:LEU:HD21 | 1.70 | 0.56 |
| 16:O:18:GLY:H | 16:O:19:PRO:HD2 | 1.70 | 0.56 |
| 16:O:57:THR:OG1 | 16:O:60:MET:HG3 | 2.04 | 0.56 |
| 17:P:30:TYR:HA | 17:P:33:LEU:CD2 | 2.33 | 0.56 |
| 19:R:113:SER:O | 19:R:114:LEU:HG | 2.05 | 0.56 |
| 19:R:60:ARG:O | 19:R:63:ARG:HB2 | 2.05 | 0.56 |
| 21:T:76:THR:HG22 | 21:T:95:GLY:H | 1.70 | 0.56 |
| 1:1:1095:C:H5'' | 24:W:22:LYS:HZ3 | 1.69 | 0.56 |
| 1:1:1143:A:H2' | 1:1:1144:A:C8 | 2.40 | 0.56 |
| 1:1:1351:G:C5' | 1:1:1351:G:C8 | 2.88 | 0.56 |
| 1:1:1418:C:H5'' | 21:T:129:ARG:HB2 | 1.85 | 0.56 |
| 1:1:1418:C:O2' | 1:1:1419:C:H5' | 2.05 | 0.56 |
| 1:1:15:U:O5' | 1:1:15:U:H6 | 1.88 | 0.56 |
| 1:1:1631:U:C4 | 1:1:1632:G:C2 | 2.93 | 0.56 |
| 1:1:1768:A:H2' | 1:1:1769:C:C5' | 2.22 | 0.56 |
| 1:1:35:C:O5' | 1:1:35:C:H6 | 1.88 | 0.56 |
| 1:1:396:U:H2' | 1:1:397:G:O4' | 2.05 | 0.56 |
| 1:1:656:G:H4' | 1:1:657:U:OP2 | 2.03 | 0.56 |
| 1:1:694:G:H2' | 1:1:695:C:C5 | 2.40 | 0.56 |
| 1:1:748:C:N4 | 1:1:860:G:P | 2.76 | 0.56 |
| 1:1:876:C:C6 | 1:1:877:C:C5 | 2.93 | 0.56 |
| 5:D:74:GLN:NE2 | 5:D:80:PRO:HA | 2.20 | 0.56 |
| 6:E:205:PHE:CE1 | 6:E:221:ARG:HD3 | 2.41 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 7:F:103:LEU:CD2 | 27:Z:67:LEU:HD11 | 2.34 | 0.56 |
| 1:1:1255:G:H3' | 1:1:1256:G:H5' | 1.86 | 0.56 |
| 1:1:1384:C:H2' | 1:1:1385:G:H5' | 1.87 | 0.56 |
| 1:1:1495:G:O6 | 22:U:69:PRO:HB3 | 2.05 | 0.56 |
| 1:1:1621:U:H2' | 1:1:1622:U:C5' | 2.32 | 0.56 |
| 1:1:1802:C:H2' | 1:1:1803:U:O4' | 2.05 | 0.56 |
| 1:1:539:C:H3' | 1:1:539:C:C6 | 2.40 | 0.56 |
| 1:1:547:G:O5' | 1:1:548:C:H5'' | 2.05 | 0.56 |
| 1:1:81:U:H5' | 1:1:82:G:OP2 | 2.05 | 0.56 |
| 1:1:893:U:H6 | 1:1:893:U:O5' | 1.88 | 0.56 |
| 1:1:911:C:H3' | 1:1:912:C:C5 | 2.39 | 0.56 |
| 1:1:99:A:H2' | 1:1:100:U:O4' | 2.06 | 0.56 |
| 9:H:177:TYR:CZ | 9:H:181:THR:HG21 | 2.40 | 0.56 |
| 11:J:48:PHE:O | 11:J:51:ALA:HB3 | 2.06 | 0.56 |
| 20:S:77:TYR:O | 20:S:78:LYS:HB2 | 2.05 | 0.56 |
| 1:1:1216:C:H3' | 1:1:1217:A:C5' | 2.35 | 0.56 |
| 1:1:125:C:H6 | 1:1:125:C:P | 2.28 | 0.56 |
| 1:1:1783:C:H2' | 1:1:1783:C:O2 | 2.05 | 0.56 |
| 1:1:327:G:H4' | 1:1:328:U:OP1 | 2.05 | 0.56 |
| 1:1:365:C:O2 | 1:1:365:C:H2' | 2.04 | 0.56 |
| 1:1:691:G:O2' | 1:1:692:G:H5' | 2.05 | 0.56 |
| 1:1:798:G:H1' | 1:1:867:G:N2 | 2.20 | 0.56 |
| 1:1:983:A:H2' | 1:1:984:C:H5' | 1.87 | 0.56 |
| 4:C:200:ARG:HA | 4:C:221:ASP:OD2 | 2.06 | 0.56 |
| 6:E:173:ILE:HD13 | 6:E:230:ASN:CB | 2.35 | 0.56 |
| 10:I:192:GLY:HA3 | 13:L:20:LYS:CB | 2.36 | 0.56 |
| 1:1:1130:G:H4' | 15:N:10:GLY:CA | 2.36 | 0.56 |
| 1:1:1016:U:C5 | 15:N:14:SER:HB2 | 2.41 | 0.56 |
| 1:1:1410:C:OP1 | 1:1:1413:G:H5'' | 2.05 | 0.56 |
| 1:1:1602:U:H3' | 1:1:1602:U:H6 | 1.70 | 0.56 |
| 1:1:1624:U:O5' | 1:1:1624:U:C6 | 2.59 | 0.56 |
| 1:1:1644:C:H2' | 1:1:1645:C:C6 | 2.40 | 0.56 |
| 1:1:1698:C:C4' | 1:1:1699:A:C8 | 2.83 | 0.56 |
| 1:1:426:A:H2' | 1:1:426:A:N3 | 2.20 | 0.56 |
| 1:1:77:A:N7 | 8:G:155:GLN:CA | 2.69 | 0.56 |
| 3:B:134:LEU:HB2 | 3:B:219:LYS:HB2 | 1.86 | 0.56 |
| 1:1:125:C:H3' | 6:E:149:TYR:OH | 2.05 | 0.56 |
| 7:F:42:LYS:HB2 | 7:F:45:TYR:CD1 | 2.41 | 0.56 |
| 8:G:38:ALA:HB1 | 8:G:41:LEU:HD12 | 1.87 | 0.56 |
| 10:I:158:ILE:HG13 | 10:I:158:ILE:O | 2.05 | 0.56 |
| 1:1:1116:C:O2 | 1:1:1116:C:C2' | 2.52 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:1:1230:C:O2' | 1:1:1231:C:H5' | 2.05 | 0.56 |
| 1:1:1284:A:N7 | 1:1:1286:G:C5' | 2.68 | 0.56 |
| 1:1:1618:C:H5'' | 1:1:1618:C:H6 | 1.69 | 0.56 |
| 1:1:1214:A:N1 | 1:1:1686:G:C2 | 2.74 | 0.56 |
| 1:1:170:A:C3' | 1:1:171:A:H8 | 2.19 | 0.56 |
| 1:1:23:G:H2' | 1:1:24:C:C6 | 2.41 | 0.56 |
| 1:1:217:A:H4' | 1:1:341:C:H4' | 1.88 | 0.56 |
| 1:1:359:U:O5' | 1:1:359:U:H6 | 1.88 | 0.56 |
| 1:1:482:G:H22 | 1:1:485:A:H2 | 1.53 | 0.56 |
| 1:1:869:A:C4 | 1:1:915:G:H1' | 2.41 | 0.56 |
| 1:1:924:G:H2' | 1:1:925:G:H8 | 1.70 | 0.56 |
| 1:1:1125:C:H4' | 2:A:43:SER:O | 2.05 | 0.56 |
| 7:F:19:LEU:HD11 | 7:F:22:LYS:HD3 | 1.86 | 0.56 |
| 1:1:797:C:C4' | 9:H:109:ARG:HB2 | 2.34 | 0.56 |
| 9:H:83:LEU:CB | 9:H:92:VAL:HG21 | 2.36 | 0.56 |
| 12:K:50:GLN:HA | 12:K:53:LYS:HE2 | 1.86 | 0.56 |
| 24:W:28:ARG:HB3 | 24:W:29:PRO:CD | 2.36 | 0.56 |
| 1:1:838:G:H8 | 26:Y:9:THR:HG1 | 1.54 | 0.56 |
| 1:1:133:C:H3' | 1:1:134:C:H4' | 1.85 | 0.56 |
| 1:1:1405:A:N3 | 1:1:1442:U:C5 | 2.73 | 0.56 |
| 1:1:1499:U:O2' | 1:1:1500:G:H5' | 2.06 | 0.56 |
| 1:1:1681:U:O5' | 1:1:1681:U:H6 | 1.89 | 0.56 |
| 1:1:370:G:C4' | 1:1:371:A:OP1 | 2.53 | 0.56 |
| 1:1:684:G:C5 | 1:1:920:A:N7 | 2.74 | 0.56 |
| 22:U:78:ASP:HB3 | 22:U:80:PHE:CZ | 2.41 | 0.56 |
| 1:1:1043:G:H8 | 1:1:1043:G:O5' | 1.88 | 0.56 |
| 1:1:1276:A:N6 | 1:1:1317:C:N4 | 2.54 | 0.56 |
| 1:1:1394:G:H2' | 1:1:1395:C:H5' | 1.87 | 0.56 |
| 1:1:1396:A:H2 | 1:1:1449:G:H22 | 1.53 | 0.56 |
| 1:1:1476:A:C3' | 1:1:1477:U:H5' | 2.35 | 0.56 |
| 1:1:1821:U:H2' | 1:1:1822:A:C8 | 2.41 | 0.56 |
| 1:1:209:A:O2' | 1:1:210:U:H5'' | 2.05 | 0.56 |
| 1:1:423:U:H5'' | 1:1:424:C:OP2 | 2.05 | 0.56 |
| 1:1:549:C:H2' | 1:1:550:C:H6 | 1.71 | 0.56 |
| 1:1:583:A:H2' | 1:1:584:A:C8 | 2.41 | 0.56 |
| 1:1:58:C:H5'' | 1:1:499:G:N2 | 2.13 | 0.56 |
| 1:1:688:U:H1' | 1:1:689:U:C6 | 2.39 | 0.56 |
| 1:1:93:U:H2' | 1:1:94:G:O4' | 2.06 | 0.56 |
| 1:1:97:U:H5' | 1:1:98:C:OP2 | 2.04 | 0.56 |
| 3:B:65:ARG:HG2 | 16:O:50:LYS:HD2 | 1.88 | 0.56 |
| 1:1:1667:U:H5'' | 18:Q:141:TYR:OH | 2.05 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 22:U:29:VAL:O | 22:U:33:GLU:HG2 | 2.06 | 0.56 |
| 1:1:1242:U:H4' | 1:1:1243:U:O5' | 2.04 | 0.56 |
| 1:1:155:G:H2' | 1:1:156:G:C8 | 2.40 | 0.56 |
| 1:1:1579:A:C8 | 22:U:86:LYS:HD3 | 2.40 | 0.56 |
| 1:1:1830:U:H1' | 1:1:1831:A:OP2 | 2.06 | 0.56 |
| 1:1:372:U:H3' | 1:1:372:U:C6 | 2.41 | 0.56 |
| 1:1:385:G:H4' | 1:1:386:C:C5' | 2.35 | 0.56 |
| 1:1:61:A:H1' | 1:1:62:G:P | 2.45 | 0.56 |
| 1:1:84:A:O2' | 1:1:85:A:C8 | 2.49 | 0.56 |
| 1:1:913:A:H61 | 9:H:119:SER:C | 2.08 | 0.56 |
| 22:U:22:ILE:HD11 | 22:U:91:LEU:HD11 | 1.88 | 0.56 |
| 1:1:1261:C:H3' | 1:1:1262:C:H5'' | 1.88 | 0.56 |
| 1:1:1361:G:H1' | 1:1:1380:C:H41 | 1.70 | 0.56 |
| 1:1:1387:G:H8 | 1:1:1387:G:O5' | 1.89 | 0.56 |
| 1:1:1405:A:C8 | 1:1:1406:G:H5' | 2.40 | 0.56 |
| 1:1:1599:U:N3 | 7:F:165:ASN:N | 2.54 | 0.56 |
| 1:1:1649:U:C6 | 1:1:1649:U:H3' | 2.41 | 0.56 |
| 1:1:1557:C:H42 | 1:1:1661:A:C4' | 2.19 | 0.56 |
| 1:1:1653:U:H3 | 1:1:1671:G:H1 | 1.54 | 0.56 |
| 1:1:1686:G:H3' | 1:1:1687:C:H6 | 1.71 | 0.56 |
| 1:1:193:C:H1' | 1:1:208:G:N1 | 2.21 | 0.56 |
| 1:1:457:C:O4' | 1:1:1801:A:H4' | 2.06 | 0.56 |
| 1:1:584:A:P | 1:1:584:A:H8 | 2.29 | 0.56 |
| 1:1:672:A:O2' | 1:1:673:G:H5'' | 2.06 | 0.56 |
| 1:1:693:A:H3' | 1:1:694:G:O4' | 2.05 | 0.56 |
| 2:A:120:ARG:O | 2:A:143:PRO:HD2 | 2.06 | 0.56 |
| 2:A:81:ASN:HA | 2:A:84:GLN:HB2 | 1.88 | 0.56 |
| 3:B:81:PHE:O | 3:B:82:ARG:HB2 | 2.06 | 0.56 |
| 1:1:65:C:H4' | 8:G:133:LEU:CD2 | 2.36 | 0.56 |
| 12:K:32:HIS:N | 12:K:33:PRO:CD | 2.68 | 0.56 |
| 1:1:1011:A:O5' | 1:1:1011:A:H8 | 1.89 | 0.56 |
| 1:1:1113:A:C2 | 1:1:1120:U:C4 | 2.93 | 0.56 |
| 1:1:1362:U:H4' | 1:1:1363:C:OP2 | 2.06 | 0.56 |
| 1:1:1520:G:H4' | 1:1:1521:C:OP2 | 2.04 | 0.56 |
| 1:1:1739:C:O5' | 1:1:1739:C:H6 | 1.89 | 0.56 |
| 1:1:386:C:O2 | 1:1:386:C:H2' | 2.05 | 0.56 |
| 1:1:408:A:C2' | 1:1:409:C:H4' | 2.36 | 0.56 |
| 5:D:32:ASP:HB3 | 5:D:57:ASN:HB2 | 1.88 | 0.56 |
| 1:1:125:C:H3' | 6:E:149:TYR:CZ | 2.41 | 0.56 |
| 9:H:160:LYS:HE3 | 9:H:191:GLU:N | 2.21 | 0.56 |
| 1:1:381:C:H5'' | 10:I:48:VAL:HG22 | 1.88 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 11:J:141:VAL:HG22 | 11:J:162:ARG:HH22 | 1.71 | 0.56 |
| 12:K:12:TYR:CE1 | 12:K:52:LEU:HD11 | 2.41 | 0.56 |
| 1:1:952:G:H1' | 16:O:52:THR:CB | 2.36 | 0.56 |
| 24:W:77:PRO:HG2 | 24:W:79:PHE:CZ | 2.41 | 0.56 |
| 1:1:1272:C:H2' | 1:1:1273:C:C6 | 2.42 | 0.55 |
| 1:1:136:C:H1' | 1:1:137:U:OP1 | 2.06 | 0.55 |
| 1:1:1461:G:N2 | 1:1:1466:G:C5 | 2.74 | 0.55 |
| 1:1:1549:U:O2' | 1:1:1550:G:H5' | 2.06 | 0.55 |
| 1:1:130:G:C1' | 1:1:181:A:N1 | 2.68 | 0.55 |
| 1:1:59:U:H5'' | 1:1:502:C:H5' | 1.88 | 0.55 |
| 1:1:576:A:C8 | 1:1:576:A:OP2 | 2.58 | 0.55 |
| 2:A:110:ASN:HD21 | 2:A:113:GLN:HB2 | 1.70 | 0.55 |
| 14:M:65:VAL:HG21 | 14:M:108:CYS:SG | 2.46 | 0.55 |
| 1:1:1130:G:H4' | 15:N:10:GLY:HA2 | 1.88 | 0.55 |
| 21:T:63:HIS:CE1 | 21:T:78:ILE:HD13 | 2.40 | 0.55 |
| 1:1:1054:G:O5' | 1:1:1054:G:H8 | 1.89 | 0.55 |
| 1:1:1180:C:H2' | 1:1:1181:A:H5' | 1.87 | 0.55 |
| 1:1:1431:G:N2 | 1:1:1432:U:C2 | 2.74 | 0.55 |
| 1:1:1791:A:H2' | 1:1:1792:G:O4' | 2.06 | 0.55 |
| 1:1:302:A:H4' | 10:I:73:THR:O | 2.07 | 0.55 |
| 1:1:504:G:C2' | 1:1:505:G:H5' | 2.36 | 0.55 |
| 1:1:753:C:H3' | 1:1:754:G:O4' | 2.07 | 0.55 |
| 3:B:68:GLU:OE2 | 3:B:83:LYS:HE2 | 2.06 | 0.55 |
| 5:D:64:ARG:O | 5:D:68:GLU:HG3 | 2.05 | 0.55 |
| 9:H:87:PHE:CE1 | 9:H:90:LYS:HE2 | 2.41 | 0.55 |
| 1:1:197:U:O5' | 1:1:197:U:H6 | 1.89 | 0.55 |
| 1:1:215:G:O5' | 1:1:215:G:H8 | 1.89 | 0.55 |
| 1:1:343:A:O5' | 1:1:343:A:H8 | 1.89 | 0.55 |
| 1:1:351:G:C8 | 1:1:351:G:C3' | 2.87 | 0.55 |
| 1:1:39:A:P | 11:J:3:VAL:HG13 | 2.46 | 0.55 |
| 1:1:429:C:O2 | 1:1:429:C:H2' | 2.05 | 0.55 |
| 1:1:59:U:H6 | 1:1:59:U:H3' | 1.70 | 0.55 |
| 1:1:805:U:N3 | 1:1:858:A:H2 | 2.05 | 0.55 |
| 1:1:902:G:H2' | 1:1:903:A:C8 | 2.41 | 0.55 |
| 1:1:915:G:C2' | 1:1:916:A:H5' | 2.36 | 0.55 |
| 2:A:205:ARG:HG3 | 2:A:206:ASP:N | 2.21 | 0.55 |
| 10:I:194:GLU:HG2 | 10:I:195:LEU:N | 2.19 | 0.55 |
| 11:J:87:LEU:HD11 | 11:J:100:LEU:HD11 | 1.87 | 0.55 |
| 16:O:27:VAL:HG12 | 16:O:90:ILE:HG12 | 1.88 | 0.55 |
| 20:S:8:LYS:HD3 | 20:S:8:LYS:O | 2.06 | 0.55 |
| 22:U:50:VAL:HG22 | 22:U:91:LEU:HD22 | 1.86 | 0.55 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|------------------|--------------------------|-------------------|
| 24:W:22:LYS:O | 24:W:65:LEU:HD12 | 2.05 | 0.55 |
| 27:Z:69:THR:CG2 | 27:Z:70:PRO:HD2 | 2.34 | 0.55 |
| 1:1:1472:C:O2 | 1:1:1472:C:C2' | 2.54 | 0.55 |
| 1:1:29:G:H4' | 25:X:129:SER:HB3 | 1.86 | 0.55 |
| 1:1:544:G:H4' | 1:1:545:A:OP1 | 2.05 | 0.55 |
| 1:1:636:C:C6 | 1:1:636:C:O5' | 2.59 | 0.55 |
| 3:B:153:THR:HB | 3:B:155:TYR:CD2 | 2.41 | 0.55 |
| 1:1:1637:A:H4' | 1:1:1638:G:O5' | 1.94 | 0.55 |
| 1:1:1835:A:C2' | 1:1:1835:A:N3 | 2.69 | 0.55 |
| 1:1:635:G:H2' | 1:1:636:C:H6 | 1.71 | 0.55 |
| 1:1:743:U:O2 | 9:H:100:ILE:HB | 2.07 | 0.55 |
| 1:1:819:G:H2' | 1:1:820:U:C6 | 2.42 | 0.55 |
| 1:1:951:C:N3 | 1:1:975:G:O6 | 2.38 | 0.55 |
| 2:A:77:ILE:HG12 | 2:A:99:ILE:CG2 | 2.36 | 0.55 |
| 12:K:29:MET:N | 12:K:30:PRO:HD3 | 2.21 | 0.55 |
| 1:1:1410:C:H3' | 1:1:1411:G:H3' | 1.88 | 0.55 |
| 1:1:1578:U:H4' | 1:1:1579:A:OP2 | 2.06 | 0.55 |
| 1:1:46:A:H4' | 1:1:47:G:H5' | 1.89 | 0.55 |
| 1:1:235:A:N6 | 1:1:894:G:C2 | 2.75 | 0.55 |
| 3:B:116:LYS:HE2 | 3:B:117:TRP:CZ3 | 2.41 | 0.55 |
| 9:H:102:PRO:HG2 | 9:H:105:THR:HB | 1.88 | 0.55 |
| 1:1:838:G:H8 | 26:Y:9:THR:H | 1.45 | 0.55 |
| 1:1:1383:A:O5' | 1:1:1383:A:C8 | 2.59 | 0.55 |
| 1:1:1413:G:H2' | 1:1:1414:A:C8 | 2.42 | 0.55 |
| 1:1:1443:C:C3' | 1:1:1444:U:H5' | 2.36 | 0.55 |
| 1:1:1677:U:O2 | 1:1:1678:A:H8 | 1.89 | 0.55 |
| 1:1:628:A:N6 | 5:D:179:GLN:HE22 | 2.04 | 0.55 |
| 1:1:72:C:H2' | 1:1:73:C:O4' | 2.06 | 0.55 |
| 1:1:905:C:H2' | 1:1:906:U:C6 | 2.41 | 0.55 |
| 1:1:125:C:O4' | 6:E:136:ILE:HG22 | 2.07 | 0.55 |
| 7:F:56:TYR:O | 7:F:62:ARG:HG3 | 2.06 | 0.55 |
| 10:I:122:GLY:O | 10:I:124:LYS:N | 2.40 | 0.55 |
| 17:P:17:TYR:HB3 | 17:P:25:LEU:HD11 | 1.88 | 0.55 |
| 20:S:38:ARG:O | 20:S:42:HIS:HD2 | 1.90 | 0.55 |
| 1:1:1214:A:C6 | 1:1:1217:A:C4 | 2.94 | 0.55 |
| 1:1:1266:C:H2' | 1:1:1267:C:C6 | 2.41 | 0.55 |
| 1:1:1277:C:H3' | 1:1:1278:A:C8 | 2.42 | 0.55 |
| 1:1:1415:C:C2' | 1:1:1416:C:H5' | 2.37 | 0.55 |
| 1:1:1473:G:C8 | 1:1:1475:G:OP2 | 2.59 | 0.55 |
| 1:1:1790:A:C2' | 1:1:1791:A:H5' | 2.35 | 0.55 |
| 1:1:26:U:H6 | 1:1:26:U:O5' | 1.90 | 0.55 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:29:G:H4' | 25:X:129:SER:HB2 | 1.89 | 0.55 |
| 1:1:743:U:H3' | 1:1:744:G:H8 | 1.71 | 0.55 |
| 1:1:83:A:O2' | 26:Y:123:ALA:HB1 | 2.07 | 0.55 |
| 1:1:900:C:H2' | 1:1:901:G:C5 | 2.41 | 0.55 |
| 1:1:927:C:H2' | 1:1:928:G:H5' | 1.88 | 0.55 |
| 7:F:39:ILE:HG23 | 7:F:68:ILE:HG21 | 1.88 | 0.55 |
| 1:1:743:U:H2' | 9:H:100:ILE:O | 2.07 | 0.55 |
| 11:J:113:GLN:O | 11:J:117:LEU:HG | 2.06 | 0.55 |
| 1:1:1669:G:H5' | 18:Q:130:LYS:HB3 | 1.88 | 0.55 |
| 24:W:36:ARG:CG | 24:W:110:ILE:HD12 | 2.37 | 0.55 |
| 25:X:32:LEU:HD22 | 25:X:34:THR:HB | 1.89 | 0.55 |
| 1:1:1164:G:H3' | 1:1:1165:G:C2 | 2.41 | 0.55 |
| 1:1:1493:C:H3' | 1:1:1494:U:H5' | 1.85 | 0.55 |
| 1:1:1698:C:H5' | 1:1:1699:A:C8 | 2.41 | 0.55 |
| 1:1:572:U:C6 | 1:1:572:U:H3' | 2.42 | 0.55 |
| 1:1:573:U:C2' | 1:1:576:A:C2 | 2.86 | 0.55 |
| 1:1:646:G:H5'' | 1:1:646:G:C8 | 2.42 | 0.55 |
| 1:1:86:C:C3' | 1:1:87:U:H5'' | 2.36 | 0.55 |
| 1:1:684:G:C6 | 1:1:920:A:C8 | 2.95 | 0.55 |
| 5:D:39:VAL:O | 22:U:108:PRO:HB3 | 2.07 | 0.55 |
| 11:J:41:ARG:HD3 | 11:J:42:GLU:N | 2.21 | 0.55 |
| 1:1:581:U:H5'' | 26:Y:64:PHE:CE1 | 2.42 | 0.55 |
| 1:1:1168:G:C2' | 1:1:1169:G:H5' | 2.37 | 0.55 |
| 1:1:144:U:H6 | 8:G:180:VAL:HG22 | 1.69 | 0.55 |
| 1:1:1534:C:OP2 | 1:1:1599:U:H5 | 1.90 | 0.55 |
| 1:1:1539:U:H2' | 1:1:1540:G:H5' | 1.89 | 0.55 |
| 1:1:1578:U:C5 | 5:D:5:ILE:HA | 2.42 | 0.55 |
| 1:1:1672:U:C2' | 1:1:1673:U:H5'' | 2.37 | 0.55 |
| 1:1:36:U:C2 | 1:1:520:A:C2 | 2.95 | 0.55 |
| 1:1:4:C:H5 | 1:1:655:A:OP1 | 1.90 | 0.55 |
| 1:1:798:G:H5' | 1:1:798:G:N3 | 2.22 | 0.55 |
| 6:E:149:TYR:CZ | 8:G:206:ALA:HA | 2.42 | 0.55 |
| 18:Q:33:LYS:HE3 | 18:Q:36:GLY:HA2 | 1.88 | 0.55 |
| 24:W:36:ARG:HG2 | 24:W:110:ILE:HD12 | 1.87 | 0.55 |
| 1:1:571:U:H1' | 26:Y:60:PHE:H | 1.72 | 0.55 |
| 1:1:1202:U:H3' | 1:1:1203:G:H5'' | 1.88 | 0.54 |
| 1:1:1204:A:C8 | 1:1:1204:A:O5' | 2.60 | 0.54 |
| 1:1:153:G:H1 | 1:1:165:G:H22 | 1.52 | 0.54 |
| 1:1:214:U:H2' | 1:1:214:U:O2 | 2.07 | 0.54 |
| 1:1:305:U:C2' | 1:1:305:U:O2 | 2.55 | 0.54 |
| 1:1:526:A:N9 | 11:J:128:VAL:HG13 | 2.23 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 1:1:751:G:C2' | 1:1:752:G:H8 | 2.04 | 0.54 |
| 1:1:808:A:H4' | 6:E:219:ALA:O | 2.06 | 0.54 |
| 1:1:888:U:C6 | 1:1:888:U:H3' | 2.43 | 0.54 |
| 1:1:919:A:N1 | 15:N:64:ARG:HD3 | 2.22 | 0.54 |
| 1:1:970:G:H1' | 1:1:971:G:OP1 | 2.06 | 0.54 |
| 2:A:185:MET:HG2 | 23:V:46:PHE:CE1 | 2.42 | 0.54 |
| 2:A:89:LYS:HB2 | 2:A:202:TYR:CE2 | 2.42 | 0.54 |
| 2:A:205:ARG:HG3 | 2:A:206:ASP:H | 1.71 | 0.54 |
| 2:A:5:LEU:O | 2:A:6:ASP:HB2 | 2.07 | 0.54 |
| 7:F:51:HIS:CD2 | 7:F:86:LYS:HD3 | 2.42 | 0.54 |
| 11:J:28:GLU:O | 11:J:32:ILE:HG13 | 2.07 | 0.54 |
| 1:1:1579:A:N6 | 22:U:88:LEU:HD22 | 2.22 | 0.54 |
| 1:1:1012:A:H4' | 1:1:1130:G:O2' | 2.07 | 0.54 |
| 1:1:1178:U:H1' | 1:1:1184:G:N2 | 2.22 | 0.54 |
| 1:1:1214:A:N6 | 1:1:1217:A:C2 | 2.75 | 0.54 |
| 1:1:1534:C:H5' | 1:1:1536:G:C1' | 2.37 | 0.54 |
| 1:1:1556:A:C2 | 1:1:1557:C:C5 | 2.96 | 0.54 |
| 1:1:1557:C:O2 | 1:1:1557:C:C2' | 2.56 | 0.54 |
| 1:1:1746:U:H2' | 1:1:1747:C:H6 | 1.70 | 0.54 |
| 1:1:175:A:H3' | 1:1:176:U:C5' | 2.31 | 0.54 |
| 1:1:307:G:O6 | 1:1:1788:A:H4' | 2.07 | 0.54 |
| 1:1:478:G:O5' | 1:1:478:G:H8 | 1.91 | 0.54 |
| 1:1:572:U:P | 26:Y:59:GLY:H | 2.29 | 0.54 |
| 1:1:586:G:C2 | 1:1:587:A:H1' | 2.42 | 0.54 |
| 1:1:798:G:N1 | 1:1:799:U:C4 | 2.75 | 0.54 |
| 1:1:808:A:H5'' | 6:E:188:ASN:HD21 | 1.72 | 0.54 |
| 1:1:902:G:O2' | 1:1:903:A:H5' | 2.05 | 0.54 |
| 1:1:78:C:N3 | 8:G:173:ALA:HB3 | 2.22 | 0.54 |
| 10:I:101:ILE:HD11 | 10:I:198:TYR:CD1 | 2.42 | 0.54 |
| 19:R:109:LEU:HD13 | 19:R:111:PHE:N | 2.16 | 0.54 |
| 1:1:1023:A:H8 | 1:1:1023:A:O5' | 1.91 | 0.54 |
| 1:1:664:A:H61 | 1:1:1163:C:H42 | 1.55 | 0.54 |
| 1:1:1332:A:H1' | 5:D:141:LYS:NZ | 2.22 | 0.54 |
| 1:1:1452:A:C5 | 1:1:1475:G:C6 | 2.96 | 0.54 |
| 1:1:1494:U:H1' | 1:1:1495:G:P | 2.47 | 0.54 |
| 1:1:1644:C:H6 | 1:1:1644:C:O5' | 1.90 | 0.54 |
| 1:1:476:A:H3' | 1:1:477:G:H8 | 1.72 | 0.54 |
| 1:1:674:C:H2' | 1:1:675:U:C6 | 2.43 | 0.54 |
| 1:1:789:G:H2' | 1:1:790:C:H6 | 1.73 | 0.54 |
| 1:1:10:G:H1' | 4:C:115:GLN:OE1 | 2.08 | 0.54 |
| 15:N:67:THR:HG21 | 15:N:74:ILE:HD11 | 1.89 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 18:Q:33:LYS:HD3 | 18:Q:69:ARG:HD3 | 1.89 | 0.54 |
| 1:1:1654:G:H4' | 21:T:82:ARG:NH2 | 2.22 | 0.54 |
| 26:Y:87:PRO:HD2 | 26:Y:90:ARG:HD2 | 1.90 | 0.54 |
| 27:Z:43:LYS:HG3 | 27:Z:44:LEU:O | 2.07 | 0.54 |
| 1:1:1033:G:H5'' | 1:1:1034:A:OP1 | 2.07 | 0.54 |
| 1:1:1422:G:H2' | 1:1:1422:G:N3 | 2.21 | 0.54 |
| 1:1:1461:G:N2 | 1:1:1465:A:H62 | 1.86 | 0.54 |
| 1:1:1689:C:H2' | 1:1:1690:U:C6 | 2.42 | 0.54 |
| 1:1:345:U:C6 | 1:1:345:U:H3' | 2.42 | 0.54 |
| 1:1:689:U:H5' | 1:1:690:G:OP2 | 2.08 | 0.54 |
| 1:1:91:A:H5'' | 1:1:92:A:H5' | 1.90 | 0.54 |
| 2:A:110:ASN:C | 2:A:110:ASN:HD22 | 2.11 | 0.54 |
| 3:B:197:ILE:O | 3:B:201:CYS:HB2 | 2.07 | 0.54 |
| 6:E:45:ILE:HD12 | 6:E:61:VAL:CG2 | 2.33 | 0.54 |
| 10:I:66:SER:HA | 10:I:73:THR:HA | 1.89 | 0.54 |
| 25:X:90:CYS:O | 25:X:94:ILE:HG13 | 2.08 | 0.54 |
| 1:1:1284:A:P | 1:1:1284:A:C8 | 3.01 | 0.54 |
| 1:1:1416:C:N4 | 1:1:1431:G:N2 | 2.55 | 0.54 |
| 1:1:448:A:N7 | 10:I:26:LYS:N | 2.56 | 0.54 |
| 1:1:460:A:H2 | 1:1:469:A:H61 | 1.56 | 0.54 |
| 1:1:569:A:C6 | 1:1:570:C:C4 | 2.95 | 0.54 |
| 1:1:811:A:H1' | 1:1:812:A:C8 | 2.42 | 0.54 |
| 3:B:91:VAL:HG22 | 3:B:96:CYS:HB2 | 1.89 | 0.54 |
| 1:1:1454:A:H5' | 19:R:5:ARG:NH2 | 2.23 | 0.54 |
| 21:T:124:THR:HB | 21:T:125:PRO:HD2 | 1.89 | 0.54 |
| 1:1:1086:G:N3 | 1:1:1086:G:H2' | 2.22 | 0.54 |
| 1:1:1288:U:P | 1:1:1311:C:N3 | 2.81 | 0.54 |
| 1:1:211:G:C4 | 1:1:212:C:C5 | 2.96 | 0.54 |
| 1:1:223:C:H2' | 1:1:224:A:C8 | 2.42 | 0.54 |
| 1:1:35:C:H2' | 1:1:36:U:H6 | 1.72 | 0.54 |
| 1:1:380:G:H1 | 1:1:382:C:H3' | 1.71 | 0.54 |
| 1:1:399:C:H5'' | 1:1:400:C:H5 | 1.71 | 0.54 |
| 1:1:465:A:C4' | 1:1:466:G:O5' | 2.56 | 0.54 |
| 1:1:656:G:C4' | 1:1:657:U:OP2 | 2.55 | 0.54 |
| 1:1:686:U:O2' | 1:1:687:C:H5' | 2.06 | 0.54 |
| 1:1:823:U:OP1 | 1:1:823:U:H3' | 2.07 | 0.54 |
| 3:B:81:PHE:CD2 | 3:B:82:ARG:HG3 | 2.42 | 0.54 |
| 8:G:136:LYS:O | 8:G:176:ILE:HG22 | 2.08 | 0.54 |
| 22:U:32:LEU:HD23 | 22:U:85:HIS:HB2 | 1.90 | 0.54 |
| 23:V:24:ILE:HG23 | 23:V:28:ASP:HB2 | 1.90 | 0.54 |
| 24:W:86:LEU:HD22 | 24:W:113:HIS:CE1 | 2.43 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 24:W:76:SER:HB3 | 24:W:77:PRO:HD3 | 1.89 | 0.54 |
| 1:1:1068:G:H2' | 1:1:1069:U:C5 | 2.43 | 0.54 |
| 1:1:1120:U:C2' | 1:1:1121:G:H5' | 2.38 | 0.54 |
| 1:1:1137:U:H6 | 1:1:1137:U:OP2 | 1.90 | 0.54 |
| 1:1:1280:G:C2 | 1:1:1281:G:C5 | 2.95 | 0.54 |
| 1:1:1286:G:N2 | 1:1:1312:G:C6 | 2.75 | 0.54 |
| 1:1:1380:C:H2' | 1:1:1381:G:C8 | 2.43 | 0.54 |
| 1:1:1419:C:H2' | 1:1:1420:G:C8 | 2.43 | 0.54 |
| 1:1:1490:G:N3 | 1:1:1490:G:H2' | 2.22 | 0.54 |
| 1:1:1552:G:C8 | 1:1:1578:U:O4 | 2.60 | 0.54 |
| 1:1:172:U:H2' | 1:1:172:U:O2 | 2.07 | 0.54 |
| 1:1:1743:G:H21 | 1:1:1791:A:H62 | 1.56 | 0.54 |
| 1:1:317:C:H3' | 1:1:318:A:C5' | 2.38 | 0.54 |
| 1:1:350:C:N4 | 1:1:351:G:N2 | 2.55 | 0.54 |
| 1:1:428:U:H2' | 1:1:429:C:H6 | 1.71 | 0.54 |
| 1:1:448:A:C5 | 10:I:26:LYS:HA | 2.43 | 0.54 |
| 1:1:854:A:O5' | 1:1:854:A:H8 | 1.91 | 0.54 |
| 1:1:866:U:O5' | 1:1:866:U:H6 | 1.91 | 0.54 |
| 3:B:193:ILE:O | 3:B:197:ILE:HG12 | 2.08 | 0.54 |
| 7:F:100:ILE:HA | 7:F:103:LEU:HD12 | 1.90 | 0.54 |
| 8:G:91:GLU:O | 8:G:91:GLU:HG2 | 2.08 | 0.54 |
| 11:J:137:VAL:HB | 11:J:142:VAL:HG23 | 1.88 | 0.54 |
| 1:1:386:C:P | 13:L:136:LYS:HD3 | 2.48 | 0.54 |
| 18:Q:51:LEU:HD11 | 18:Q:84:ILE:HG22 | 1.89 | 0.54 |
| 9:H:148:LEU:HA | 24:W:42:MET:SD | 2.47 | 0.54 |
| 1:1:1440:C:O5' | 1:1:1440:C:H6 | 1.89 | 0.54 |
| 1:1:1508:A:H8 | 1:1:1508:A:OP2 | 1.91 | 0.54 |
| 1:1:1598:G:H4' | 1:1:1600:G:N7 | 2.23 | 0.54 |
| 1:1:1686:G:H5' | 1:1:1687:C:OP2 | 2.07 | 0.54 |
| 1:1:1691:U:O2' | 1:1:1692:U:C6 | 2.59 | 0.54 |
| 1:1:528:A:OP1 | 11:J:122:SER:HB2 | 2.06 | 0.54 |
| 1:1:611:G:N2 | 1:1:633:C:H1' | 2.22 | 0.54 |
| 1:1:655:A:C4 | 1:1:657:U:H5 | 2.25 | 0.54 |
| 11:J:60:LEU:HB2 | 11:J:94:LEU:HD11 | 1.88 | 0.54 |
| 1:1:1165:G:H4' | 1:1:1166:G:C5' | 2.38 | 0.54 |
| 1:1:1472:C:H2' | 1:1:1472:C:O2 | 2.06 | 0.54 |
| 1:1:558:G:O5' | 1:1:558:G:H8 | 1.89 | 0.54 |
| 1:1:847:A:N3 | 1:1:847:A:H2' | 2.22 | 0.54 |
| 1:1:963:A:H2' | 1:1:964:A:O4' | 2.08 | 0.54 |
| 3:B:59:SER:O | 3:B:63:LYS:HD3 | 2.08 | 0.54 |
| 3:B:63:LYS:HE3 | 3:B:91:VAL:CB | 2.38 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 6:E:49:ARG:HA | 6:E:55:ALA:O | 2.07 | 0.54 |
| 9:H:135:PHE:HB3 | 9:H:136:PRO:HD3 | 1.89 | 0.54 |
| 20:S:81:ASP:HB2 | 20:S:95:TYR:CD1 | 2.43 | 0.54 |
| 22:U:53:PRO:HB2 | 22:U:55:ARG:HH12 | 1.73 | 0.54 |
| 27:Z:103:HIS:CG | 27:Z:104:ARG:H | 2.26 | 0.54 |
| 1:1:1101:U:C6 | 1:1:1101:U:H3' | 2.44 | 0.54 |
| 1:1:133:C:C4 | 1:1:134:C:H1' | 2.43 | 0.54 |
| 1:1:1426:U:O4 | 1:1:1427:C:C4 | 2.61 | 0.54 |
| 1:1:1662:U:H2' | 1:1:1663:A:H5' | 1.90 | 0.54 |
| 1:1:170:A:C3' | 1:1:171:A:C8 | 2.91 | 0.54 |
| 1:1:1714:U:O5' | 1:1:1714:U:H6 | 1.91 | 0.54 |
| 1:1:192:C:N4 | 1:1:207:G:H1 | 1.99 | 0.54 |
| 1:1:37:C:H3' | 1:1:38:A:H5'' | 1.90 | 0.54 |
| 1:1:490:C:H6 | 1:1:490:C:O5' | 1.91 | 0.54 |
| 1:1:505:G:H2' | 1:1:506:G:H5' | 1.90 | 0.54 |
| 1:1:609:U:H6 | 1:1:609:U:O5' | 1.91 | 0.54 |
| 1:1:635:G:H2' | 1:1:636:C:C6 | 2.43 | 0.54 |
| 1:1:684:G:C8 | 1:1:920:A:C6 | 2.96 | 0.54 |
| 3:B:35:ALA:HB1 | 3:B:36:PRO:HD2 | 1.88 | 0.54 |
| 7:F:33:ILE:O | 7:F:34:SER:HB3 | 2.08 | 0.54 |
| 17:P:53:GLN:OE1 | 17:P:83:MET:HG3 | 2.08 | 0.54 |
| 22:U:99:LYS:HA | 22:U:102:THR:OG1 | 2.07 | 0.54 |
| 25:X:39:ASN:OD1 | 25:X:41:PHE:HB2 | 2.08 | 0.54 |
| 1:1:1035:A:OP2 | 1:1:1035:A:C8 | 2.60 | 0.53 |
| 1:1:1129:G:C3' | 1:1:1130:G:C8 | 2.92 | 0.53 |
| 1:1:1221:G:H2' | 1:1:1222:G:C8 | 2.43 | 0.53 |
| 1:1:1649:U:C6 | 1:1:1649:U:O5' | 2.61 | 0.53 |
| 1:1:35:C:C2' | 1:1:36:U:H6 | 2.21 | 0.53 |
| 1:1:369:C:C2' | 1:1:370:G:H5'' | 2.38 | 0.53 |
| 1:1:465:A:H4' | 1:1:466:G:O4' | 2.09 | 0.53 |
| 1:1:804:U:H2' | 1:1:805:U:C5 | 2.40 | 0.53 |
| 5:D:208:VAL:HG13 | 19:R:40:ILE:O | 2.08 | 0.53 |
| 6:E:195:ILE:HA | 6:E:210:VAL:HG12 | 1.89 | 0.53 |
| 7:F:162:ALA:HB2 | 7:F:172:CYS:HB2 | 1.89 | 0.53 |
| 9:H:148:LEU:HA | 24:W:42:MET:CG | 2.38 | 0.53 |
| 18:Q:33:LYS:CE | 18:Q:36:GLY:HA2 | 2.38 | 0.53 |
| 1:1:1035:A:H3' | 1:1:1035:A:C8 | 2.43 | 0.53 |
| 1:1:1165:G:H4' | 1:1:1166:G:H5'' | 1.90 | 0.53 |
| 1:1:1350:U:O2' | 2:A:110:ASN:HB2 | 2.09 | 0.53 |
| 1:1:1403:C:C5 | 1:1:1404:U:N1 | 2.75 | 0.53 |
| 1:1:148:U:H6 | 1:1:148:U:C5' | 2.21 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:1274:G:N2 | 1:1:1510:G:H21 | 2.06 | 0.53 |
| 1:1:1631:U:C5' | 1:1:1631:U:H6 | 2.05 | 0.53 |
| 1:1:169:U:H1' | 8:G:133:LEU:CD1 | 2.36 | 0.53 |
| 1:1:358:C:H5' | 1:1:358:C:C6 | 2.40 | 0.53 |
| 1:1:525:A:C8 | 1:1:525:A:C3' | 2.90 | 0.53 |
| 4:C:98:LEU:HD23 | 4:C:101:SER:HB2 | 1.90 | 0.53 |
| 7:F:128:ILE:HG22 | 7:F:130:ARG:HG2 | 1.90 | 0.53 |
| 7:F:60:ARG:HH11 | 7:F:60:ARG:HG2 | 1.72 | 0.53 |
| 9:H:123:THR:HA | 9:H:126:HIS:CE1 | 2.44 | 0.53 |
| 12:K:29:MET:N | 12:K:30:PRO:CD | 2.71 | 0.53 |
| 18:Q:97:GLN:HB2 | 18:Q:105:LYS:HE3 | 1.90 | 0.53 |
| 1:1:1492:U:H4' | 22:U:70:CYS:SG | 2.48 | 0.53 |
| 1:1:1047:C:H1' | 16:O:141:ARG:HG2 | 1.91 | 0.53 |
| 1:1:1512:C:H2' | 1:1:1513:C:C5 | 2.44 | 0.53 |
| 1:1:1533:A:N3 | 1:1:1533:A:H2' | 2.22 | 0.53 |
| 1:1:193:C:H1' | 1:1:208:G:N2 | 2.24 | 0.53 |
| 1:1:448:A:N7 | 10:I:26:LYS:CA | 2.71 | 0.53 |
| 1:1:530:U:H2' | 1:1:531:A:O4' | 2.09 | 0.53 |
| 1:1:618:C:O4' | 1:1:632:C:H4' | 2.08 | 0.53 |
| 1:1:833:C:H4' | 1:1:834:C:OP2 | 2.07 | 0.53 |
| 1:1:851:C:H4' | 1:1:852:G:N2 | 2.22 | 0.53 |
| 2:A:177:MET:HG3 | 2:A:180:ARG:HH12 | 1.72 | 0.53 |
| 2:A:77:ILE:HD12 | 2:A:122:LEU:HD11 | 1.91 | 0.53 |
| 5:D:24:PHE:HE1 | 5:D:72:VAL:HG11 | 1.73 | 0.53 |
| 2:A:9:GLN:CB | 23:V:83:PHE:HA | 2.38 | 0.53 |
| 1:1:1004:U:O5' | 1:1:1004:U:H6 | 1.92 | 0.53 |
| 1:1:1131:G:H2' | 1:1:1132:C:C6 | 2.43 | 0.53 |
| 1:1:1170:A:O3' | 1:1:1171:G:H4' | 2.08 | 0.53 |
| 1:1:1752:C:C2' | 1:1:1753:C:H5' | 2.39 | 0.53 |
| 1:1:201:C:O2 | 1:1:201:C:H3' | 2.08 | 0.53 |
| 1:1:557:U:C2' | 1:1:558:G:C8 | 2.91 | 0.53 |
| 1:1:562:U:H3' | 1:1:562:U:H6 | 1.72 | 0.53 |
| 1:1:795:A:C2 | 1:1:796:G:N9 | 2.77 | 0.53 |
| 1:1:800:U:C5' | 1:1:800:U:H6 | 2.21 | 0.53 |
| 1:1:862:A:H2' | 1:1:863:U:H6 | 1.74 | 0.53 |
| 1:1:919:A:N3 | 1:1:919:A:H2' | 2.23 | 0.53 |
| 1:1:951:C:H1' | 1:1:976:G:C2 | 2.43 | 0.53 |
| 5:D:166:TYR:CD1 | 5:D:200:PRO:HB3 | 2.44 | 0.53 |
| 9:H:102:PRO:HG3 | 9:H:105:THR:HG21 | 1.90 | 0.53 |
| 10:I:69:SER:CB | 13:L:24:LEU:HD11 | 2.25 | 0.53 |
| 16:O:43:HIS:CE1 | 16:O:52:THR:HG23 | 2.43 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 20:S:47:LYS:HE2 | 20:S:79:ILE:CG1 | 2.38 | 0.53 |
| 24:W:14:ILE:HD11 | 24:W:27:ILE:HD11 | 1.91 | 0.53 |
| 24:W:37:PHE:CD1 | 24:W:103:VAL:HG21 | 2.43 | 0.53 |
| 1:1:1043:G:H4' | 1:1:1044:G:OP1 | 2.09 | 0.53 |
| 1:1:1425:G:H2' | 1:1:1426:U:C1' | 2.38 | 0.53 |
| 1:1:1602:U:H2' | 1:1:1603:G:C8 | 2.43 | 0.53 |
| 1:1:1822:A:C6 | 1:1:1823:A:C6 | 2.97 | 0.53 |
| 1:1:213:G:H2' | 1:1:214:U:O4' | 2.07 | 0.53 |
| 1:1:301:A:C2' | 1:1:302:A:C8 | 2.84 | 0.53 |
| 1:1:562:U:OP1 | 1:1:562:U:H4' | 2.08 | 0.53 |
| 1:1:657:U:H3' | 1:1:657:U:C6 | 2.43 | 0.53 |
| 1:1:684:G:C8 | 1:1:920:A:C5 | 2.96 | 0.53 |
| 1:1:743:U:O2 | 1:1:743:U:H5'' | 2.08 | 0.53 |
| 1:1:803:C:H2' | 1:1:804:U:C6 | 2.44 | 0.53 |
| 1:1:803:C:H4' | 24:W:80:ASP:OD2 | 2.09 | 0.53 |
| 1:1:850:C:H2' | 1:1:851:C:H5'' | 1.90 | 0.53 |
| 1:1:886:A:O2' | 1:1:887:U:H5' | 2.08 | 0.53 |
| 6:E:97:GLU:HB3 | 6:E:99:PHE:CE2 | 2.44 | 0.53 |
| 1:1:66:G:C1' | 8:G:160:LYS:HG2 | 2.33 | 0.53 |
| 8:G:164:LYS:HG2 | 8:G:165:GLU:N | 2.24 | 0.53 |
| 1:1:746:C:C5' | 9:H:104:PRO:C | 2.77 | 0.53 |
| 9:H:75:ILE:HG22 | 9:H:75:ILE:O | 2.08 | 0.53 |
| 10:I:57:ALA:HB2 | 10:I:183:GLY:HA2 | 1.91 | 0.53 |
| 12:K:3:MET:SD | 12:K:47:LYS:HD3 | 2.48 | 0.53 |
| 18:Q:96:TYR:HA | 18:Q:100:VAL:HG23 | 1.90 | 0.53 |
| 25:X:36:LEU:O | 25:X:42:GLY:HA2 | 2.09 | 0.53 |
| 1:1:1102:G:H22 | 1:1:1130:G:N2 | 2.06 | 0.53 |
| 1:1:1413:G:C2 | 1:1:1414:A:C4 | 2.97 | 0.53 |
| 1:1:1414:A:H2' | 1:1:1415:C:N1 | 2.22 | 0.53 |
| 1:1:1461:G:H5'' | 1:1:1462:U:OP2 | 2.09 | 0.53 |
| 1:1:1493:C:H4' | 1:1:1494:U:H5' | 1.90 | 0.53 |
| 1:1:1621:U:H3' | 1:1:1621:U:O2 | 2.08 | 0.53 |
| 1:1:1825:A:H2' | 1:1:1826:G:C5' | 2.34 | 0.53 |
| 1:1:307:G:C4' | 1:1:308:G:H5'' | 2.27 | 0.53 |
| 1:1:316:G:C2 | 1:1:335:G:C2 | 2.97 | 0.53 |
| 1:1:39:A:C2 | 1:1:517:C:H1' | 2.44 | 0.53 |
| 1:1:563:G:C4 | 1:1:564:A:C8 | 2.97 | 0.53 |
| 1:1:587:A:C8 | 1:1:587:A:OP2 | 2.62 | 0.53 |
| 1:1:890:U:C2' | 1:1:890:U:O2 | 2.55 | 0.53 |
| 1:1:958:G:H5' | 1:1:959:G:N7 | 2.24 | 0.53 |
| 5:D:99:ILE:HG12 | 5:D:171:ALA:HB2 | 1.89 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 8:G:160:LYS:HG3 | 8:G:160:LYS:O | 2.06 | 0.53 |
| 15:N:28:LEU:HD11 | 15:N:32:ASP:CB | 2.38 | 0.53 |
| 1:1:1215:C:H5' | 1:1:1217:A:H62 | 1.74 | 0.53 |
| 1:1:1282:A:H2' | 1:1:1283:C:H5' | 1.88 | 0.53 |
| 1:1:1313:A:C5' | 1:1:1314:U:H5 | 2.22 | 0.53 |
| 1:1:1549:U:H6 | 1:1:1549:U:O5' | 1.92 | 0.53 |
| 1:1:153:G:H1 | 1:1:165:G:N2 | 2.06 | 0.53 |
| 1:1:344:U:H2' | 1:1:345:U:N1 | 2.23 | 0.53 |
| 1:1:527:C:H5'' | 1:1:528:A:OP2 | 2.09 | 0.53 |
| 1:1:546:G:H1' | 1:1:548:C:H5 | 1.74 | 0.53 |
| 1:1:577:U:C4' | 1:1:578:C:O4' | 2.56 | 0.53 |
| 1:1:96:C:H2' | 1:1:97:U:O4' | 2.08 | 0.53 |
| 21:T:4:VAL:CG2 | 21:T:136:GLY:HA2 | 2.38 | 0.53 |
| 25:X:82:THR:OG1 | 25:X:118:VAL:HG22 | 2.09 | 0.53 |
| 1:1:1504:U:H6 | 1:1:1504:U:O5' | 1.91 | 0.53 |
| 1:1:1571:G:C2 | 1:1:1572:C:H1' | 2.44 | 0.53 |
| 1:1:1592:C:H2' | 1:1:1593:C:C6 | 2.43 | 0.53 |
| 1:1:164:A:C3' | 1:1:165:G:C8 | 2.91 | 0.53 |
| 1:1:36:U:C2 | 1:1:520:A:N1 | 2.77 | 0.53 |
| 1:1:452:G:H2' | 1:1:453:C:H6 | 1.74 | 0.53 |
| 1:1:523:A:O5' | 1:1:523:A:H8 | 1.91 | 0.53 |
| 1:1:553:U:H3' | 1:1:554:A:C5' | 2.38 | 0.53 |
| 1:1:613:G:O2' | 1:1:626:G:H4' | 2.09 | 0.53 |
| 1:1:747:U:N1 | 1:1:748:C:H2' | 2.24 | 0.53 |
| 1:1:799:U:C6 | 1:1:800:U:C2 | 2.96 | 0.53 |
| 1:1:970:G:H4' | 1:1:971:G:OP2 | 2.08 | 0.53 |
| 5:D:98:ALA:CA | 5:D:188:ILE:HD12 | 2.38 | 0.53 |
| 8:G:46:LYS:HB2 | 8:G:119:LYS:HG2 | 1.91 | 0.53 |
| 9:H:105:THR:HG22 | 9:H:105:THR:O | 2.09 | 0.53 |
| 10:I:113:TYR:HE2 | 10:I:119:LEU:HD23 | 1.74 | 0.53 |
| 2:A:40:LYS:HD2 | 19:R:104:GLU:HB2 | 1.90 | 0.53 |
| 25:X:95:GLU:HB2 | 25:X:98:ASP:OD2 | 2.09 | 0.53 |
| 1:1:1406:G:O4' | 1:1:1407:U:H5' | 2.08 | 0.53 |
| 1:1:1457:U:H2' | 1:1:1458:G:C8 | 2.44 | 0.53 |
| 1:1:1663:A:C2 | 1:1:1664:A:N1 | 2.77 | 0.53 |
| 1:1:172:U:C2' | 1:1:172:U:O2 | 2.57 | 0.53 |
| 1:1:28:U:H4' | 25:X:124:LYS:NZ | 2.23 | 0.53 |
| 1:1:67:C:C5 | 8:G:163:ASN:C | 2.82 | 0.53 |
| 7:F:116:ILE:HD13 | 7:F:154:LEU:HD12 | 1.90 | 0.53 |
| 9:H:170:VAL:HG13 | 9:H:187:PHE:CD1 | 2.44 | 0.53 |
| 12:K:11:ILE:CG1 | 12:K:38:LYS:HE2 | 2.39 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:1419:C:O2' | 21:T:3:GLY:HA2 | 2.09 | 0.53 |
| 1:1:1050:A:OP1 | 1:1:1846:G:N2 | 2.40 | 0.53 |
| 1:1:1344:A:O2' | 1:1:1345:G:C8 | 2.62 | 0.53 |
| 1:1:1428:G:H5'' | 1:1:1428:G:H8 | 1.74 | 0.53 |
| 1:1:1396:A:H2 | 1:1:1449:G:N1 | 2.00 | 0.53 |
| 1:1:1648:G:H3' | 1:1:1648:G:N3 | 2.23 | 0.53 |
| 1:1:1700:C:C2 | 1:1:1834:A:N6 | 2.77 | 0.53 |
| 1:1:91:A:P | 1:1:446:G:H22 | 2.32 | 0.53 |
| 1:1:589:G:C1' | 1:1:590:A:OP1 | 2.54 | 0.53 |
| 1:1:602:G:H3' | 1:1:603:C:C5' | 2.39 | 0.53 |
| 1:1:604:A:H4' | 1:1:605:A:OP2 | 2.09 | 0.53 |
| 1:1:675:U:O5' | 1:1:675:U:H6 | 1.92 | 0.53 |
| 2:A:110:ASN:OD1 | 2:A:113:GLN:HG2 | 2.08 | 0.53 |
| 3:B:177:GLN:O | 3:B:177:GLN:HG2 | 2.09 | 0.53 |
| 9:H:102:PRO:CG | 9:H:105:THR:HB | 2.39 | 0.53 |
| 9:H:158:LEU:HD11 | 9:H:187:PHE:HD2 | 1.73 | 0.53 |
| 9:H:83:LEU:HB2 | 9:H:92:VAL:HG21 | 1.90 | 0.53 |
| 10:I:81:VAL:O | 10:I:91:VAL:HG13 | 2.09 | 0.53 |
| 1:1:526:A:O2' | 11:J:124:HIS:O | 2.25 | 0.53 |
| 10:I:192:GLY:HA3 | 13:L:20:LYS:HA | 1.91 | 0.53 |
| 14:M:33:ARG:HH21 | 14:M:91:LEU:HD23 | 1.73 | 0.53 |
| 19:R:55:THR:O | 19:R:58:MET:HB2 | 2.09 | 0.53 |
| 20:S:15:VAL:O | 20:S:19:ASN:HB2 | 2.09 | 0.53 |
| 23:V:41:LYS:C | 23:V:43:THR:H | 2.13 | 0.53 |
| 24:W:104:LEU:CD2 | 24:W:125:ILE:HG12 | 2.39 | 0.53 |
| 1:1:1152:U:O5' | 1:1:1152:U:H6 | 1.92 | 0.52 |
| 1:1:1265:A:H2' | 1:1:1265:A:N3 | 2.24 | 0.52 |
| 1:1:1497:G:H4' | 1:1:1498:A:H5' | 1.91 | 0.52 |
| 1:1:1606:G:H21 | 1:1:1632:G:H2' | 1.70 | 0.52 |
| 1:1:1682:C:H2' | 1:1:1683:C:C6 | 2.44 | 0.52 |
| 1:1:314:U:O2 | 1:1:314:U:C2' | 2.57 | 0.52 |
| 1:1:336:A:C2 | 1:1:337:C:H5 | 2.27 | 0.52 |
| 1:1:655:A:N7 | 1:1:657:U:H5 | 2.06 | 0.52 |
| 1:1:747:U:O2 | 1:1:748:C:H3' | 2.09 | 0.52 |
| 1:1:918:U:C5 | 1:1:919:A:C8 | 2.97 | 0.52 |
| 3:B:120:MET:HE2 | 3:B:140:VAL:HG21 | 1.90 | 0.52 |
| 3:B:31:TYR:CZ | 3:B:91:VAL:HG13 | 2.44 | 0.52 |
| 3:B:33:VAL:HG11 | 3:B:67:PHE:CZ | 2.43 | 0.52 |
| 4:C:82:TYR:CZ | 4:C:164:PRO:HD3 | 2.44 | 0.52 |
| 5:D:7:LYS:HD3 | 5:D:10:LYS:HE2 | 1.91 | 0.52 |
| 6:E:87:MET:HE1 | 6:E:123:LEU:HB2 | 1.91 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 6:E:238:LEU:HD23 | 6:E:238:LEU:H | 1.74 | 0.52 |
| 11:J:111:GLN:HE22 | 11:J:130:ILE:HD12 | 1.74 | 0.52 |
| 22:U:78:ASP:HB3 | 22:U:80:PHE:CE2 | 2.43 | 0.52 |
| 1:1:1049:A:H2' | 1:1:1050:A:H5' | 1.91 | 0.52 |
| 1:1:138:C:OP1 | 1:1:138:C:H4' | 2.09 | 0.52 |
| 1:1:1415:C:H2' | 1:1:1416:C:H5' | 1.91 | 0.52 |
| 1:1:151:C:OP1 | 26:Y:120:THR:HA | 2.09 | 0.52 |
| 1:1:1635:C:O5' | 1:1:1635:C:H6 | 1.92 | 0.52 |
| 1:1:1815:A:H3' | 1:1:1816:G:C8 | 2.40 | 0.52 |
| 1:1:188:C:H2' | 1:1:189:U:C6 | 2.44 | 0.52 |
| 1:1:314:U:H2' | 1:1:314:U:O2 | 2.08 | 0.52 |
| 1:1:640:A:H5'' | 11:J:25:LEU:CD1 | 2.33 | 0.52 |
| 1:1:745:C:C5 | 9:H:107:LYS:HD3 | 2.44 | 0.52 |
| 1:1:1095:C:H5'' | 24:W:22:LYS:HZ1 | 1.75 | 0.52 |
| 1:1:10:G:H2' | 1:1:11:A:C8 | 2.44 | 0.52 |
| 1:1:1221:G:O2' | 1:1:1222:G:H5' | 2.09 | 0.52 |
| 1:1:1266:C:H2' | 1:1:1267:C:H6 | 1.75 | 0.52 |
| 1:1:1414:A:H2' | 1:1:1415:C:C6 | 2.44 | 0.52 |
| 1:1:1602:U:C2' | 1:1:1603:G:H2' | 2.34 | 0.52 |
| 1:1:1619:A:N3 | 1:1:1619:A:H2' | 2.23 | 0.52 |
| 1:1:1747:C:H2' | 1:1:1748:G:C8 | 2.44 | 0.52 |
| 1:1:302:A:C4' | 10:I:73:THR:O | 2.58 | 0.52 |
| 1:1:595:U:H2' | 1:1:596:U:C6 | 2.45 | 0.52 |
| 1:1:599:A:H5'' | 1:1:600:G:OP1 | 2.09 | 0.52 |
| 8:G:23:LYS:HD3 | 8:G:41:LEU:HD23 | 1.90 | 0.52 |
| 8:G:55:GLY:O | 8:G:62:PRO:HA | 2.08 | 0.52 |
| 9:H:147:LYS:HE3 | 9:H:153:LEU:HD11 | 1.90 | 0.52 |
| 10:I:119:LEU:HG | 10:I:121:LEU:HD12 | 1.91 | 0.52 |
| 22:U:50:VAL:HG22 | 22:U:91:LEU:CD2 | 2.39 | 0.52 |
| 1:1:1148:A:N3 | 1:1:1148:A:C5' | 2.72 | 0.52 |
| 1:1:1161:U:H3' | 1:1:1161:U:C6 | 2.44 | 0.52 |
| 1:1:1239:U:H2' | 1:1:1241:A:OP2 | 2.10 | 0.52 |
| 1:1:1410:C:OP2 | 1:1:1413:G:H5'' | 2.10 | 0.52 |
| 1:1:1442:U:H3' | 1:1:1443:C:C4' | 2.39 | 0.52 |
| 1:1:1622:U:H6 | 1:1:1622:U:H3' | 1.73 | 0.52 |
| 1:1:178:C:H3' | 1:1:179:C:C6 | 2.44 | 0.52 |
| 1:1:748:C:H5'' | 1:1:749:U:C5 | 2.44 | 0.52 |
| 1:1:829:C:H4' | 1:1:830:A:OP1 | 2.08 | 0.52 |
| 3:B:179:ASN:O | 3:B:180:ASP:HB2 | 2.10 | 0.52 |
| 1:1:67:C:C6 | 8:G:164:LYS:HB2 | 2.45 | 0.52 |
| 5:D:28:GLU:HG2 | 12:K:61:GLN:HG3 | 1.90 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 18:Q:86:GLN:HE21 | 18:Q:90:LYS:NZ | 2.07 | 0.52 |
| 1:1:571:U:H1' | 26:Y:60:PHE:N | 2.23 | 0.52 |
| 1:1:1272:C:O2' | 1:1:1273:C:H5' | 2.10 | 0.52 |
| 1:1:1368:U:H2' | 1:1:1370:A:OP2 | 2.09 | 0.52 |
| 1:1:1420:G:H1' | 21:T:3:GLY:N | 2.24 | 0.52 |
| 1:1:1530:U:H4' | 21:T:86:GLY:O | 2.10 | 0.52 |
| 1:1:1673:U:H5' | 1:1:1673:U:C6 | 2.44 | 0.52 |
| 1:1:39:A:H1' | 1:1:518:G:N2 | 2.23 | 0.52 |
| 1:1:557:U:H2' | 1:1:558:G:C8 | 2.45 | 0.52 |
| 1:1:571:U:C2' | 1:1:572:U:O4' | 2.56 | 0.52 |
| 1:1:591:U:O2 | 1:1:591:U:C2' | 2.57 | 0.52 |
| 1:1:693:A:C8 | 1:1:694:G:H1' | 2.44 | 0.52 |
| 1:1:740:C:H2' | 1:1:741:C:H6 | 1.69 | 0.52 |
| 1:1:835:C:C2' | 1:1:835:C:O2 | 2.57 | 0.52 |
| 1:1:84:A:H5' | 26:Y:123:ALA:CB | 2.37 | 0.52 |
| 3:B:129:THR:HG22 | 3:B:176:VAL:HG12 | 1.91 | 0.52 |
| 6:E:23:LEU:HG | 6:E:23:LEU:O | 2.08 | 0.52 |
| 21:T:102:ARG:HA | 21:T:105:GLN:OE1 | 2.10 | 0.52 |
| 1:1:1174:U:O5' | 1:1:1174:U:H6 | 1.93 | 0.52 |
| 1:1:1389:C:H6 | 1:1:1389:C:O5' | 1.92 | 0.52 |
| 1:1:1430:C:O2' | 21:T:5:THR:HB | 2.09 | 0.52 |
| 1:1:1440:C:H2' | 1:1:1441:U:H5 | 1.69 | 0.52 |
| 1:1:1705:C:H2' | 1:1:1706:G:C8 | 2.45 | 0.52 |
| 1:1:315:C:O2' | 1:1:316:G:H5' | 2.10 | 0.52 |
| 1:1:495:U:H2' | 1:1:496:C:O4' | 2.09 | 0.52 |
| 1:1:65:C:H2' | 1:1:66:G:C3' | 2.40 | 0.52 |
| 1:1:847:A:H3' | 1:1:848:U:H6 | 1.75 | 0.52 |
| 4:C:74:LYS:HG3 | 4:C:272:HIS:CD2 | 2.45 | 0.52 |
| 6:E:72:ILE:HB | 6:E:77:ARG:HG3 | 1.91 | 0.52 |
| 11:J:37:LEU:HD23 | 11:J:127:ARG:NH2 | 2.23 | 0.52 |
| 12:K:15:LEU:O | 12:K:15:LEU:HD22 | 2.09 | 0.52 |
| 14:M:24:THR:O | 14:M:27:ILE:HG12 | 2.10 | 0.52 |
| 16:O:93:LEU:HD12 | 16:O:119:LEU:HD23 | 1.90 | 0.52 |
| 1:1:1016:U:C4' | 1:1:1017:U:OP1 | 2.53 | 0.52 |
| 1:1:1161:U:H2' | 1:1:1162:C:O5' | 2.10 | 0.52 |
| 1:1:1402:A:C8 | 1:1:1403:C:H5 | 2.27 | 0.52 |
| 1:1:1427:C:C6 | 1:1:1427:C:C3' | 2.89 | 0.52 |
| 1:1:20:G:H4' | 1:1:620:G:N1 | 2.25 | 0.52 |
| 1:1:901:G:C5 | 1:1:902:G:N7 | 2.78 | 0.52 |
| 1:1:1599:U:H3 | 7:F:165:ASN:C | 2.13 | 0.52 |
| 25:X:32:LEU:C | 25:X:34:THR:H | 2.14 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 27:Z:70:PRO:HD3 | 27:Z:107:VAL:HB | 1.92 | 0.52 |
| 1:1:1203:G:H2' | 1:1:1699:A:H2 | 1.74 | 0.52 |
| 1:1:1324:G:H2' | 1:1:1325:G:C8 | 2.44 | 0.52 |
| 1:1:1556:A:C2 | 1:1:1557:C:H5 | 2.26 | 0.52 |
| 1:1:1588:A:H2' | 1:1:1589:A:C8 | 2.44 | 0.52 |
| 1:1:1603:G:H4' | 1:1:1604:G:OP2 | 2.04 | 0.52 |
| 1:1:1607:A:H1' | 1:1:1633:A:C2 | 2.45 | 0.52 |
| 1:1:301:A:H1' | 10:I:71:CYS:O | 2.09 | 0.52 |
| 1:1:37:C:H6 | 1:1:37:C:O5' | 1.91 | 0.52 |
| 1:1:499:G:N2 | 1:1:502:C:C4 | 2.78 | 0.52 |
| 1:1:552:G:O5' | 1:1:552:G:H8 | 1.93 | 0.52 |
| 1:1:564:A:N6 | 1:1:586:G:H1 | 2.07 | 0.52 |
| 1:1:904:A:H2' | 1:1:905:C:H6 | 1.73 | 0.52 |
| 1:1:914:U:H5'' | 1:1:914:U:H6 | 1.74 | 0.52 |
| 1:1:920:A:C8 | 1:1:922:A:N7 | 2.78 | 0.52 |
| 4:C:104:ASP:HB3 | 4:C:130:ILE:HG22 | 1.92 | 0.52 |
| 8:G:133:LEU:N | 8:G:133:LEU:HD23 | 2.25 | 0.52 |
| 1:1:1648:G:O2' | 18:Q:127:CYS:HA | 2.10 | 0.52 |
| 21:T:111:LYS:O | 21:T:126:GLN:HB2 | 2.08 | 0.52 |
| 21:T:129:ARG:HG3 | 21:T:130:ASP:N | 2.24 | 0.52 |
| 27:Z:97:ILE:HD12 | 27:Z:109:TYR:CG | 2.44 | 0.52 |
| 1:1:1403:C:C4 | 1:1:1404:U:H1' | 2.44 | 0.52 |
| 1:1:1446:A:O2' | 1:1:1447:G:H5'' | 2.10 | 0.52 |
| 1:1:1655:C:O5' | 1:1:1655:C:H6 | 1.92 | 0.52 |
| 1:1:1672:U:C3' | 1:1:1673:U:H5'' | 2.40 | 0.52 |
| 1:1:1853:C:H2' | 1:1:1854:U:H6 | 1.71 | 0.52 |
| 1:1:19:A:O2' | 1:1:621:C:H1' | 2.09 | 0.52 |
| 1:1:345:U:H2' | 1:1:346:C:C5' | 2.40 | 0.52 |
| 1:1:48:C:H2' | 1:1:49:C:O4' | 2.09 | 0.52 |
| 1:1:791:C:H2' | 1:1:792:C:C6 | 2.45 | 0.52 |
| 1:1:877:C:H2' | 1:1:878:G:C8 | 2.42 | 0.52 |
| 1:1:904:A:H2' | 1:1:905:C:C6 | 2.45 | 0.52 |
| 3:B:58:ALA:O | 3:B:63:LYS:HG3 | 2.10 | 0.52 |
| 5:D:3:VAL:HG13 | 5:D:5:ILE:HG13 | 1.91 | 0.52 |
| 6:E:158:ASP:OD1 | 6:E:174:LYS:HG2 | 2.09 | 0.52 |
| 12:K:26:ASP:OD2 | 12:K:33:PRO:HG2 | 2.09 | 0.52 |
| 16:O:136:PRO:HB2 | 16:O:138:ASP:O | 2.09 | 0.52 |
| 1:1:1562:C:H5' | 21:T:71:GLY:CA | 2.40 | 0.52 |
| 25:X:18:ARG:O | 25:X:21:LYS:HB3 | 2.10 | 0.52 |
| 1:1:1017:U:H2' | 1:1:1018:U:O4' | 2.10 | 0.52 |
| 1:1:1557:C:N3 | 1:1:1661:A:H4' | 2.25 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:1654:G:O5' | 1:1:1654:G:H8 | 1.93 | 0.52 |
| 1:1:170:A:C2' | 1:1:171:A:C8 | 2.93 | 0.52 |
| 1:1:1761:U:H3 | 1:1:1771:G:H1 | 1.58 | 0.52 |
| 1:1:313:A:H2' | 8:G:191:ARG:HH21 | 1.74 | 0.52 |
| 1:1:475:C:C5' | 1:1:475:C:C6 | 2.86 | 0.52 |
| 1:1:572:U:C6 | 1:1:572:U:C3' | 2.93 | 0.52 |
| 1:1:850:C:O2 | 1:1:850:C:H2' | 2.10 | 0.52 |
| 3:B:208:HIS:O | 3:B:209:ASP:HB2 | 2.10 | 0.52 |
| 12:K:27:VAL:HG23 | 12:K:30:PRO:HD3 | 1.92 | 0.52 |
| 15:N:92:ILE:O | 15:N:96:VAL:HG23 | 2.10 | 0.52 |
| 17:P:18:ARG:NH2 | 17:P:38:SER:HB2 | 2.24 | 0.52 |
| 20:S:30:ILE:HG22 | 20:S:36:VAL:HG11 | 1.92 | 0.52 |
| 1:1:1630:A:H5'' | 20:S:37:GLY:N | 2.25 | 0.52 |
| 21:T:39:LEU:HD21 | 21:T:43:LYS:H | 1.74 | 0.52 |
| 1:1:1042:A:H2' | 1:1:1043:G:O5' | 2.09 | 0.51 |
| 1:1:1132:C:O5' | 1:1:1132:C:H6 | 1.93 | 0.51 |
| 1:1:1311:C:OP2 | 1:1:1311:C:C5 | 2.64 | 0.51 |
| 1:1:138:C:OP2 | 1:1:139:C:H5'' | 2.10 | 0.51 |
| 1:1:1534:C:C1' | 1:1:1535:U:OP2 | 2.59 | 0.51 |
| 1:1:1534:C:OP1 | 1:1:1534:C:H3' | 2.09 | 0.51 |
| 1:1:1696:C:O2' | 1:1:1697:A:C8 | 2.58 | 0.51 |
| 1:1:1782:G:P | 1:1:1782:G:O4' | 2.68 | 0.51 |
| 1:1:529:A:C2' | 1:1:530:U:C6 | 2.88 | 0.51 |
| 1:1:889:U:H3' | 1:1:890:U:C5' | 2.36 | 0.51 |
| 1:1:973:C:H3' | 1:1:973:C:H6 | 1.75 | 0.51 |
| 2:A:189:ILE:HG22 | 2:A:190:SER:O | 2.10 | 0.51 |
| 2:A:30:LEU:HD22 | 2:A:35:GLU:OE1 | 2.10 | 0.51 |
| 3:B:71:LEU:HD13 | 3:B:71:LEU:C | 2.31 | 0.51 |
| 4:C:94:ILE:HD13 | 4:C:159:LYS:O | 2.10 | 0.51 |
| 5:D:106:ARG:HH12 | 5:D:173:ARG:CB | 2.24 | 0.51 |
| 5:D:194:PRO:HA | 5:D:201:LYS:HA | 1.92 | 0.51 |
| 5:D:94:ARG:HG2 | 5:D:101:GLN:HE22 | 1.75 | 0.51 |
| 1:1:913:A:C6 | 9:H:120:ARG:HB3 | 2.45 | 0.51 |
| 20:S:4:VAL:HG12 | 20:S:5:ILE:O | 2.10 | 0.51 |
| 1:1:1567:G:H1' | 21:T:38:LYS:HG3 | 1.91 | 0.51 |
| 1:1:1562:C:C5' | 21:T:71:GLY:HA3 | 2.40 | 0.51 |
| 27:Z:92:LEU:HD13 | 27:Z:109:TYR:HE1 | 1.75 | 0.51 |
| 1:1:1567:G:C8 | 1:1:1567:G:OP1 | 2.62 | 0.51 |
| 1:1:1549:U:H3 | 1:1:1584:G:N2 | 2.08 | 0.51 |
| 1:1:1694:U:O2' | 1:1:1834:A:H5'' | 2.11 | 0.51 |
| 1:1:1868:U:H4' | 1:1:1868:U:OP1 | 2.02 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:310:C:C2' | 1:1:340:C:H5' | 2.41 | 0.51 |
| 1:1:39:A:H2' | 1:1:40:A:O4' | 2.09 | 0.51 |
| 1:1:455:A:C8 | 1:1:455:A:H3' | 2.46 | 0.51 |
| 1:1:83:A:H2' | 26:Y:123:ALA:CB | 2.40 | 0.51 |
| 2:A:8:LEU:HG | 2:A:191:ARG:NE | 2.26 | 0.51 |
| 4:C:209:VAL:HB | 4:C:210:PRO:HD3 | 1.92 | 0.51 |
| 4:C:252:THR:OG1 | 4:C:253:PRO:HD2 | 2.10 | 0.51 |
| 4:C:260:VAL:O | 4:C:261:PHE:HB2 | 2.10 | 0.51 |
| 7:F:51:HIS:HA | 7:F:86:LYS:NZ | 2.25 | 0.51 |
| 8:G:45:TRP:HA | 8:G:48:TYR:CE1 | 2.44 | 0.51 |
| 1:1:797:C:P | 9:H:109:ARG:H | 2.33 | 0.51 |
| 9:H:109:ARG:HG3 | 9:H:113:LYS:HD2 | 1.92 | 0.51 |
| 4:C:267:GLN:HE22 | 23:V:35:ASN:HB2 | 1.75 | 0.51 |
| 1:1:1362:U:H3' | 1:1:1363:C:C2 | 2.46 | 0.51 |
| 1:1:368:U:OP1 | 1:1:369:C:H4' | 2.10 | 0.51 |
| 1:1:452:G:H2' | 1:1:453:C:C6 | 2.46 | 0.51 |
| 1:1:643:A:H4' | 1:1:644:G:H5' | 1.92 | 0.51 |
| 1:1:67:C:H5 | 8:G:162:LEU:C | 2.13 | 0.51 |
| 1:1:934:G:H5' | 1:1:993:G:H22 | 1.75 | 0.51 |
| 1:1:944:A:N3 | 1:1:944:A:H2' | 2.25 | 0.51 |
| 1:1:1500:G:O4' | 5:D:180:GLY:HA2 | 2.11 | 0.51 |
| 16:O:30:VAL:HG21 | 16:O:47:LEU:HA | 1.92 | 0.51 |
| 18:Q:24:HIS:HB3 | 18:Q:69:ARG:H | 1.74 | 0.51 |
| 19:R:109:LEU:CD1 | 19:R:111:PHE:HB2 | 2.36 | 0.51 |
| 21:T:4:VAL:HG21 | 21:T:139:ALA:HB3 | 1.92 | 0.51 |
| 24:W:52:ILE:HG12 | 24:W:61:ILE:HG12 | 1.92 | 0.51 |
| 1:1:1099:G:C2 | 1:1:1134:G:N2 | 2.79 | 0.51 |
| 1:1:111:A:C4' | 1:1:112:U:OP1 | 2.56 | 0.51 |
| 1:1:1349:G:H2' | 1:1:1350:U:C6 | 2.46 | 0.51 |
| 1:1:1461:G:C2 | 1:1:1466:G:C6 | 2.99 | 0.51 |
| 1:1:1559:C:H6 | 1:1:1559:C:O5' | 1.92 | 0.51 |
| 1:1:1548:G:O6 | 1:1:1584:G:C2 | 2.64 | 0.51 |
| 1:1:1767:C:C6 | 1:1:1767:C:H3' | 2.46 | 0.51 |
| 1:1:438:G:N2 | 1:1:439:A:C6 | 2.78 | 0.51 |
| 1:1:547:G:OP2 | 1:1:548:C:C5 | 2.64 | 0.51 |
| 1:1:551:U:H6 | 1:1:551:U:O5' | 1.93 | 0.51 |
| 1:1:571:U:C2' | 1:1:572:U:C4' | 2.89 | 0.51 |
| 1:1:746:C:H1' | 1:1:747:U:C2 | 2.42 | 0.51 |
| 1:1:894:G:H2' | 1:1:895:G:C8 | 2.46 | 0.51 |
| 3:B:144:LYS:HB2 | 3:B:208:HIS:HB2 | 1.92 | 0.51 |
| 6:E:95:THR:HB | 6:E:97:GLU:CD | 2.30 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 9:H:103:LYS:HB2 | 9:H:104:PRO:HD3 | 1.91 | 0.51 |
| 16:O:104:ARG:HA | 16:O:142:ARG:NH1 | 2.26 | 0.51 |
| 16:O:99:ALA:CB | 16:O:108:PRO:HA | 2.41 | 0.51 |
| 25:X:122:VAL:O | 25:X:130:LEU:HD11 | 2.11 | 0.51 |
| 1:1:1005:G:H2' | 1:1:1006:C:H6 | 1.73 | 0.51 |
| 1:1:1109:C:O2 | 1:1:1109:C:C3' | 2.59 | 0.51 |
| 1:1:1117:C:H5'' | 1:1:1118:C:OP2 | 2.11 | 0.51 |
| 1:1:1130:G:C5' | 15:N:10:GLY:HA2 | 2.41 | 0.51 |
| 1:1:1132:C:OP2 | 1:1:1132:C:C5 | 2.64 | 0.51 |
| 1:1:1138:C:H5'' | 1:1:1139:C:P | 2.49 | 0.51 |
| 1:1:1413:G:H2' | 1:1:1414:A:H8 | 1.74 | 0.51 |
| 1:1:1649:U:C6 | 1:1:1649:U:C3' | 2.93 | 0.51 |
| 1:1:1678:A:C2' | 1:1:1679:A:H5' | 2.40 | 0.51 |
| 1:1:1709:G:OP2 | 1:1:1709:G:H8 | 1.94 | 0.51 |
| 1:1:1790:A:O2' | 1:1:1791:A:H5' | 2.11 | 0.51 |
| 1:1:35:C:C2' | 1:1:36:U:C6 | 2.92 | 0.51 |
| 1:1:369:C:H2' | 1:1:370:G:H5' | 1.93 | 0.51 |
| 1:1:448:A:H4' | 1:1:449:A:C5' | 2.41 | 0.51 |
| 1:1:547:G:OP2 | 1:1:548:C:C6 | 2.63 | 0.51 |
| 1:1:88:G:C2 | 1:1:89:C:C2 | 2.99 | 0.51 |
| 5:D:70:THR:O | 5:D:74:GLN:HG3 | 2.11 | 0.51 |
| 6:E:180:LEU:HD13 | 6:E:232:ASN:H | 1.75 | 0.51 |
| 7:F:89:THR:O | 7:F:93:VAL:HG23 | 2.10 | 0.51 |
| 17:P:85:ILE:HD13 | 17:P:111:MET:HB3 | 1.93 | 0.51 |
| 21:T:138:VAL:O | 21:T:141:ALA:HB3 | 2.11 | 0.51 |
| 22:U:58:THR:HG23 | 22:U:84:ILE:O | 2.10 | 0.51 |
| 1:1:1133:A:C2 | 1:1:1134:G:C5 | 2.98 | 0.51 |
| 1:1:1279:C:O2' | 1:1:1280:G:H5' | 2.10 | 0.51 |
| 1:1:1356:G:H2' | 1:1:1357:A:C8 | 2.46 | 0.51 |
| 1:1:1426:U:C3' | 1:1:1427:C:H5' | 2.39 | 0.51 |
| 1:1:1597:C:H3' | 1:1:1598:G:C8 | 2.46 | 0.51 |
| 1:1:1214:A:C2 | 1:1:1686:G:N3 | 2.79 | 0.51 |
| 1:1:181:A:H2' | 1:1:181:A:N3 | 2.24 | 0.51 |
| 1:1:584:A:O2' | 1:1:585:C:H5' | 2.11 | 0.51 |
| 1:1:671:A:H8 | 1:1:671:A:H5'' | 1.76 | 0.51 |
| 2:A:63:ARG:HG2 | 23:V:46:PHE:HZ | 1.74 | 0.51 |
| 5:D:3:VAL:HG13 | 5:D:5:ILE:CG1 | 2.41 | 0.51 |
| 22:U:104:ILE:HD13 | 22:U:106:ILE:HG22 | 1.93 | 0.51 |
| 1:1:1427:C:C4 | 1:1:1428:G:C8 | 2.99 | 0.51 |
| 1:1:1635:C:C6 | 1:1:1635:C:O5' | 2.64 | 0.51 |
| 1:1:1673:U:H3' | 1:1:1674:G:H8 | 1.74 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:191:A:C2 | 1:1:192:C:N1 | 2.79 | 0.51 |
| 1:1:198:U:H6 | 1:1:198:U:H5'' | 1.76 | 0.51 |
| 1:1:45:A:H8 | 1:1:45:A:OP1 | 1.93 | 0.51 |
| 1:1:587:A:C2' | 1:1:592:C:N4 | 2.71 | 0.51 |
| 1:1:601:G:H5'' | 1:1:602:G:OP2 | 2.10 | 0.51 |
| 1:1:924:G:H2' | 1:1:925:G:C8 | 2.45 | 0.51 |
| 1:1:994:C:H2' | 1:1:995:G:O4' | 2.11 | 0.51 |
| 2:A:200:ASP:HB3 | 19:R:86:PRO:HB2 | 1.92 | 0.51 |
| 9:H:28:LEU:O | 9:H:31:GLU:HG2 | 2.10 | 0.51 |
| 9:H:72:PHE:CZ | 9:H:94:PHE:HB2 | 2.45 | 0.51 |
| 21:T:96:SER:O | 21:T:99:VAL:HG22 | 2.10 | 0.51 |
| 1:1:111:A:N6 | 1:1:351:G:H21 | 2.09 | 0.51 |
| 1:1:1618:C:H5' | 1:1:1619:A:OP2 | 2.10 | 0.51 |
| 1:1:519:A:C2 | 1:1:520:A:C2 | 2.98 | 0.51 |
| 1:1:572:U:C3' | 1:1:573:U:N3 | 2.73 | 0.51 |
| 1:1:890:U:C3' | 1:1:891:G:H5'' | 2.38 | 0.51 |
| 1:1:992:A:H8 | 1:1:992:A:O5' | 1.94 | 0.51 |
| 2:A:110:ASN:HD21 | 2:A:113:GLN:CG | 2.23 | 0.51 |
| 6:E:125:LYS:HB3 | 6:E:142:HIS:ND1 | 2.26 | 0.51 |
| 11:J:147:PHE:CE2 | 11:J:149:VAL:HG22 | 2.46 | 0.51 |
| 1:1:1130:G:H5' | 15:N:10:GLY:HA2 | 1.91 | 0.51 |
| 1:1:956:G:O5' | 16:O:60:MET:HA | 2.10 | 0.51 |
| 1:1:1370:A:H62 | 19:R:4:VAL:HB | 1.76 | 0.51 |
| 20:S:24:ARG:HG3 | 20:S:25:LYS:H | 1.75 | 0.51 |
| 20:S:5:ILE:O | 20:S:6:PRO:C | 2.49 | 0.51 |
| 22:U:32:LEU:O | 22:U:35:VAL:HG12 | 2.10 | 0.51 |
| 1:1:1147:C:C3' | 1:1:1147:C:C6 | 2.94 | 0.51 |
| 1:1:1217:A:H2' | 1:1:1218:C:H6 | 1.71 | 0.51 |
| 1:1:1415:C:C3' | 1:1:1416:C:H5' | 2.41 | 0.51 |
| 1:1:1506:A:C5' | 1:1:1508:A:N7 | 2.74 | 0.51 |
| 1:1:1531:A:H2' | 1:1:1532:C:C6 | 2.46 | 0.51 |
| 1:1:337:C:H2' | 1:1:337:C:O2 | 2.10 | 0.51 |
| 1:1:346:C:C3' | 1:1:346:C:C6 | 2.94 | 0.51 |
| 1:1:482:G:N2 | 1:1:485:A:H2 | 2.09 | 0.51 |
| 1:1:660:C:C2 | 13:L:98:LYS:O | 2.64 | 0.51 |
| 1:1:678:U:O5' | 1:1:678:U:C6 | 2.64 | 0.51 |
| 1:1:888:U:C3' | 1:1:888:U:C6 | 2.94 | 0.51 |
| 2:A:58:LEU:HD11 | 2:A:178:LEU:HB2 | 1.93 | 0.51 |
| 10:I:68:GLY:HA3 | 13:L:21:LYS:HE3 | 1.93 | 0.51 |
| 26:Y:91:LEU:CB | 26:Y:97:TYR:HB2 | 2.41 | 0.51 |
| 1:1:1283:C:H6 | 1:1:1283:C:O5' | 1.94 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:1284:A:OP2 | 1:1:1284:A:C8 | 2.64 | 0.51 |
| 1:1:1359:U:OP2 | 1:1:1359:U:H6 | 1.93 | 0.51 |
| 1:1:1417:C:H2' | 1:1:1418:C:O4' | 2.09 | 0.51 |
| 1:1:1484:A:O2' | 1:1:1485:U:H5' | 2.11 | 0.51 |
| 1:1:1569:A:H5'' | 1:1:1570:G:OP2 | 2.10 | 0.51 |
| 1:1:412:G:H5' | 1:1:413:G:H8 | 1.72 | 0.51 |
| 1:1:428:U:C2' | 1:1:429:C:H6 | 2.24 | 0.51 |
| 1:1:571:U:H2' | 1:1:572:U:C4' | 2.41 | 0.51 |
| 1:1:67:C:C2 | 8:G:164:LYS:HB2 | 2.45 | 0.51 |
| 1:1:752:G:N2 | 1:1:753:C:C5 | 2.79 | 0.51 |
| 2:A:33:GLN:NE2 | 23:V:63:GLY:HA3 | 2.25 | 0.51 |
| 4:C:124:PHE:O | 4:C:143:CYS:HA | 2.10 | 0.51 |
| 11:J:86:VAL:HG12 | 11:J:87:LEU:CD1 | 2.34 | 0.51 |
| 12:K:84:HIS:CG | 12:K:85:LEU:N | 2.79 | 0.51 |
| 1:1:1018:U:H1' | 15:N:48:SER:OG | 2.11 | 0.50 |
| 1:1:1049:A:C2 | 1:1:1069:U:N3 | 2.71 | 0.50 |
| 1:1:1089:G:H2' | 1:1:1090:C:H6 | 1.74 | 0.50 |
| 1:1:1135:C:O2' | 1:1:1136:U:H5' | 2.10 | 0.50 |
| 1:1:1301:A:HO2' | 1:1:1302:G:P | 2.34 | 0.50 |
| 1:1:1788:A:H2' | 1:1:1788:A:N3 | 2.26 | 0.50 |
| 1:1:210:U:C3' | 1:1:211:G:C5' | 2.89 | 0.50 |
| 1:1:571:U:C3' | 1:1:572:U:H5'' | 2.31 | 0.50 |
| 4:C:63:VAL:O | 4:C:64:THR:CB | 2.59 | 0.50 |
| 5:D:24:PHE:CE1 | 5:D:72:VAL:HG11 | 2.46 | 0.50 |
| 8:G:135:PRO:HG3 | 8:G:144:LEU:CD1 | 2.39 | 0.50 |
| 9:H:170:VAL:HA | 9:H:173:PHE:CD2 | 2.46 | 0.50 |
| 9:H:5:SER:HA | 9:H:8:ILE:HD12 | 1.93 | 0.50 |
| 1:1:743:U:C4 | 9:H:98:ARG:O | 2.63 | 0.50 |
| 13:L:22:ARG:HG3 | 13:L:27:GLU:O | 2.11 | 0.50 |
| 5:D:213:PRO:HD3 | 19:R:20:TYR:CZ | 2.46 | 0.50 |
| 20:S:41:ALA:O | 20:S:45:LEU:HD13 | 2.11 | 0.50 |
| 1:1:83:A:C2' | 26:Y:123:ALA:HB1 | 2.42 | 0.50 |
| 1:1:100:U:H2' | 1:1:101:U:O5' | 2.11 | 0.50 |
| 1:1:11:A:O5' | 1:1:11:A:H8 | 1.94 | 0.50 |
| 1:1:1479:G:N3 | 1:1:1479:G:H2' | 2.25 | 0.50 |
| 1:1:148:U:H5'' | 1:1:148:U:C6 | 2.43 | 0.50 |
| 1:1:1648:G:H2' | 18:Q:127:CYS:HA | 1.93 | 0.50 |
| 1:1:1704:C:C1' | 1:1:1832:A:N1 | 2.75 | 0.50 |
| 1:1:193:C:H4' | 1:1:209:A:N1 | 2.27 | 0.50 |
| 1:1:222:U:C4' | 13:L:21:LYS:HE2 | 2.40 | 0.50 |
| 1:1:73:C:O2' | 1:1:74:G:H5' | 2.12 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:797:C:C2' | 1:1:798:G:C5' | 2.82 | 0.50 |
| 1:1:867:G:H8 | 1:1:867:G:O5' | 1.94 | 0.50 |
| 1:1:978:G:C6 | 1:1:979:C:N4 | 2.79 | 0.50 |
| 7:F:79:HIS:O | 7:F:81:ARG:N | 2.44 | 0.50 |
| 1:1:65:C:O3' | 8:G:133:LEU:HD22 | 2.11 | 0.50 |
| 11:J:169:ARG:H | 11:J:170:PRO:HD3 | 1.77 | 0.50 |
| 15:N:84:LEU:HD23 | 15:N:89:TYR:HD2 | 1.75 | 0.50 |
| 27:Z:73:VAL:HG13 | 27:Z:77:LEU:HD12 | 1.94 | 0.50 |
| 1:1:1397:U:C6 | 1:1:1397:U:C3' | 2.95 | 0.50 |
| 1:1:1523:C:O5' | 1:1:1523:C:H6 | 1.94 | 0.50 |
| 1:1:1547:C:H4' | 1:1:1547:C:OP1 | 2.12 | 0.50 |
| 1:1:1586:U:C2' | 1:1:1587:G:O5' | 2.59 | 0.50 |
| 1:1:1217:A:C1' | 1:1:1685:U:O2 | 2.58 | 0.50 |
| 1:1:499:G:N3 | 1:1:499:G:H2' | 2.25 | 0.50 |
| 1:1:53:C:H2' | 1:1:54:A:H5' | 1.92 | 0.50 |
| 1:1:76:U:C2' | 1:1:77:A:H3' | 2.27 | 0.50 |
| 1:1:798:G:C2 | 1:1:799:U:C4 | 2.99 | 0.50 |
| 1:1:1202:U:H4' | 4:C:114:LYS:HE3 | 1.93 | 0.50 |
| 10:I:191:GLU:HG3 | 13:L:20:LYS:HD2 | 1.92 | 0.50 |
| 15:N:63:VAL:HB | 15:N:71:ILE:HD11 | 1.94 | 0.50 |
| 1:1:925:G:H1' | 15:N:87:ASP:OD1 | 2.12 | 0.50 |
| 16:O:15:ILE:HG13 | 16:O:15:ILE:O | 2.10 | 0.50 |
| 19:R:5:ARG:O | 19:R:10:LYS:HE2 | 2.11 | 0.50 |
| 25:X:50:ILE:HG23 | 25:X:97:ASN:HA | 1.93 | 0.50 |
| 1:1:1255:G:OP2 | 1:1:1256:G:N7 | 2.44 | 0.50 |
| 1:1:1452:A:H4' | 1:1:1453:C:O5' | 2.11 | 0.50 |
| 1:1:1454:A:O2' | 1:1:1455:A:C8 | 2.64 | 0.50 |
| 1:1:1231:C:H1' | 1:1:1528:G:N2 | 2.27 | 0.50 |
| 1:1:1574:C:C2' | 1:1:1575:G:H5' | 2.39 | 0.50 |
| 1:1:1622:U:H3' | 1:1:1623:A:C5' | 2.40 | 0.50 |
| 1:1:197:U:N3 | 1:1:198:U:H5 | 2.07 | 0.50 |
| 1:1:411:G:N2 | 1:1:412:G:H1' | 2.27 | 0.50 |
| 1:1:649:U:H2' | 1:1:650:A:H8 | 1.74 | 0.50 |
| 1:1:75:G:N2 | 1:1:78:C:H4' | 2.26 | 0.50 |
| 1:1:794:A:N3 | 1:1:795:A:C1' | 2.72 | 0.50 |
| 1:1:808:A:O5' | 1:1:808:A:C8 | 2.59 | 0.50 |
| 1:1:876:C:P | 1:1:876:C:C6 | 3.04 | 0.50 |
| 2:A:39:TYR:CE2 | 19:R:109:LEU:HG | 2.46 | 0.50 |
| 5:D:213:PRO:HD3 | 19:R:20:TYR:CE1 | 2.46 | 0.50 |
| 8:G:109:LEU:HD22 | 8:G:109:LEU:N | 4.50 | 0.50 |
| 8:G:53:SER:CB | 8:G:112:VAL:HG23 | 2.34 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 9:H:102:PRO:CB | 9:H:105:THR:HB | 2.38 | 0.50 |
| 12:K:31:LYS:O | 12:K:32:HIS:HB2 | 2.12 | 0.50 |
| 12:K:12:TYR:HB3 | 12:K:79:LEU:HD22 | 1.94 | 0.50 |
| 1:1:1648:G:C2' | 18:Q:127:CYS:HA | 2.42 | 0.50 |
| 25:X:86:PRO:HB3 | 25:X:121:LYS:HZ2 | 1.76 | 0.50 |
| 1:1:1016:U:C4 | 1:1:1017:U:C5 | 2.99 | 0.50 |
| 1:1:1203:G:C2' | 1:1:1699:A:C2 | 2.95 | 0.50 |
| 1:1:1243:U:H2' | 1:1:1244:U:O4' | 2.12 | 0.50 |
| 1:1:132:U:OP1 | 1:1:133:C:H5 | 1.94 | 0.50 |
| 1:1:1649:U:O2' | 1:1:1650:A:H5' | 2.11 | 0.50 |
| 1:1:1664:A:H4' | 1:1:1664:A:OP1 | 2.09 | 0.50 |
| 1:1:1700:C:H5'' | 1:1:1701:C:H5' | 1.93 | 0.50 |
| 1:1:1818:A:H8 | 1:1:1818:A:O5' | 1.94 | 0.50 |
| 1:1:369:C:H2' | 1:1:370:G:C5' | 2.42 | 0.50 |
| 1:1:684:G:C2 | 1:1:920:A:O4' | 2.65 | 0.50 |
| 2:A:168:ALA:HB3 | 2:A:203:PHE:CE1 | 2.46 | 0.50 |
| 1:1:1101:U:H5'' | 3:B:151:ARG:CD | 2.40 | 0.50 |
| 5:D:98:ALA:HA | 5:D:188:ILE:HD12 | 1.93 | 0.50 |
| 9:H:37:LYS:HE2 | 9:H:41:ARG:NH2 | 2.27 | 0.50 |
| 10:I:83:TYR:HD1 | 10:I:205:ARG:HD2 | 1.76 | 0.50 |
| 11:J:12:THR:O | 11:J:45:ARG:HA | 2.11 | 0.50 |
| 2:A:40:LYS:HZ3 | 19:R:101:ASP:HA | 1.77 | 0.50 |
| 21:T:107:LEU:HB3 | 21:T:113:VAL:CG2 | 2.42 | 0.50 |
| 25:X:61:GLN:HB3 | 25:X:62:PRO:HD2 | 1.90 | 0.50 |
| 1:1:1013:U:H6 | 1:1:1013:U:O5' | 1.94 | 0.50 |
| 1:1:142:C:H2' | 1:1:142:C:O2 | 2.11 | 0.50 |
| 1:1:1869:A:H8 | 1:1:1869:A:O5' | 1.93 | 0.50 |
| 1:1:443:U:C6 | 1:1:443:U:H5' | 2.47 | 0.50 |
| 1:1:525:A:H2' | 1:1:526:A:OP2 | 2.11 | 0.50 |
| 1:1:543:C:C6 | 1:1:543:C:H3' | 2.46 | 0.50 |
| 2:A:9:GLN:CA | 23:V:83:PHE:HA | 2.41 | 0.50 |
| 4:C:104:ASP:CB | 4:C:130:ILE:HG22 | 2.41 | 0.50 |
| 4:C:85:SER:HA | 23:V:26:ALA:O | 2.11 | 0.50 |
| 6:E:42:LEU:CD1 | 6:E:47:PHE:HB2 | 2.42 | 0.50 |
| 7:F:116:ILE:HD13 | 7:F:154:LEU:CD1 | 2.42 | 0.50 |
| 8:G:38:ALA:HB3 | 8:G:48:TYR:HB2 | 1.94 | 0.50 |
| 14:M:38:ALA:O | 14:M:42:LEU:HG | 2.12 | 0.50 |
| 18:Q:89:SER:HB2 | 18:Q:119:LEU:HB3 | 1.93 | 0.50 |
| 19:R:5:ARG:HH11 | 19:R:53:TYR:HB2 | 1.75 | 0.50 |
| 20:S:36:VAL:HG13 | 20:S:40:TYR:HD1 | 1.76 | 0.50 |
| 1:1:1373:C:H2' | 1:1:1374:C:H6 | 1.76 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:1397:U:C6 | 1:1:1397:U:H3' | 2.47 | 0.50 |
| 1:1:1452:A:C6 | 1:1:1475:G:C5 | 3.00 | 0.50 |
| 1:1:204:G:C2' | 1:1:205:G:H5' | 2.42 | 0.50 |
| 1:1:214:U:C6 | 1:1:214:U:O5' | 2.64 | 0.50 |
| 1:1:369:C:H2' | 1:1:370:G:H8 | 1.75 | 0.50 |
| 1:1:382:C:C6 | 1:1:382:C:OP2 | 2.65 | 0.50 |
| 1:1:44:U:H6 | 1:1:44:U:H5' | 1.69 | 0.50 |
| 1:1:498:C:H5'' | 1:1:499:G:OP2 | 2.12 | 0.50 |
| 1:1:70:G:H3' | 1:1:71:G:H5'' | 1.94 | 0.50 |
| 2:A:83:GLY:O | 2:A:87:VAL:HG23 | 2.12 | 0.50 |
| 3:B:132:GLY:HA3 | 3:B:221:PRO:HB3 | 1.94 | 0.50 |
| 6:E:252:ARG:NH1 | 6:E:252:ARG:HB3 | 2.26 | 0.50 |
| 13:L:35:ARG:HG2 | 13:L:36:TYR:N | 2.27 | 0.50 |
| 17:P:75:VAL:HG23 | 17:P:93:MET:HG3 | 1.94 | 0.50 |
| 20:S:118:ARG:HA | 20:S:123:LEU:HD11 | 1.92 | 0.50 |
| 23:V:22:ARG:HH21 | 23:V:56:CYS:HB2 | 1.76 | 0.50 |
| 1:1:840:C:O2 | 26:Y:14:THR:HG23 | 2.10 | 0.50 |
| 27:Z:50:PHE:CE2 | 27:Z:55:TYR:CD1 | 2.99 | 0.50 |
| 1:1:1132:C:O5' | 1:1:1132:C:C6 | 2.65 | 0.50 |
| 1:1:1180:C:C2' | 1:1:1181:A:H5' | 2.40 | 0.50 |
| 1:1:1038:U:H1' | 1:1:1181:A:H2 | 1.75 | 0.50 |
| 1:1:1234:C:H4' | 1:1:1246:A:N1 | 2.27 | 0.50 |
| 1:1:1442:U:O2 | 1:1:1442:U:C2' | 2.57 | 0.50 |
| 1:1:1606:G:H5' | 21:T:86:GLY:CA | 2.42 | 0.50 |
| 1:1:1685:U:C4 | 1:1:1686:G:N7 | 2.80 | 0.50 |
| 1:1:131:C:N3 | 1:1:215:G:O4' | 2.45 | 0.50 |
| 1:1:809:A:C6 | 1:1:810:A:N6 | 2.80 | 0.50 |
| 1:1:834:C:H5' | 1:1:836:G:OP2 | 2.12 | 0.50 |
| 1:1:867:G:N2 | 1:1:868:G:C2 | 2.79 | 0.50 |
| 1:1:973:C:H5 | 1:1:974:C:C4 | 2.30 | 0.50 |
| 2:A:33:GLN:CB | 2:A:154:LEU:HD12 | 2.41 | 0.50 |
| 27:Z:43:LYS:HZ1 | 27:Z:44:LEU:H | 1.60 | 0.50 |
| 1:1:1132:C:OP2 | 1:1:1132:C:H5 | 1.95 | 0.50 |
| 1:1:1191:C:O2' | 1:1:1192:U:H5' | 2.12 | 0.50 |
| 1:1:1195:A:C2 | 1:1:1196:A:C5 | 3.00 | 0.50 |
| 1:1:1446:A:H5'' | 22:U:58:THR:OG1 | 2.11 | 0.50 |
| 1:1:1546:G:N2 | 1:1:1670:C:H1' | 2.14 | 0.50 |
| 1:1:1676:U:O5' | 1:1:1676:U:C6 | 2.61 | 0.50 |
| 1:1:504:G:H2' | 1:1:505:G:H5' | 1.94 | 0.50 |
| 1:1:661:U:H5' | 1:1:662:G:H3' | 1.94 | 0.50 |
| 1:1:15:U:O4' | 1:1:668:A:C2 | 2.64 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:695:C:OP2 | 1:1:695:C:C5 | 2.65 | 0.50 |
| 1:1:752:G:O2' | 1:1:753:C:H5' | 2.12 | 0.50 |
| 1:1:77:A:H5'' | 1:1:78:C:H41 | 1.77 | 0.50 |
| 1:1:928:G:O2' | 1:1:929:G:H5'' | 2.12 | 0.50 |
| 2:A:7:VAL:HG23 | 2:A:191:ARG:HG2 | 1.94 | 0.50 |
| 3:B:218:LEU:HD22 | 3:B:219:LYS:H | 1.77 | 0.50 |
| 5:D:172:VAL:HG22 | 5:D:185:LYS:HG2 | 1.93 | 0.50 |
| 10:I:57:ALA:HB1 | 10:I:60:LEU:HD21 | 1.92 | 0.50 |
| 11:J:129:LEU:O | 11:J:134:HIS:HB2 | 2.12 | 0.50 |
| 14:M:93:LYS:HE2 | 14:M:101:ARG:HH21 | 1.77 | 0.50 |
| 18:Q:60:LYS:NZ | 18:Q:60:LYS:HB2 | 2.27 | 0.50 |
| 25:X:100:VAL:HA | 25:X:124:LYS:O | 2.12 | 0.50 |
| 1:1:1308:U:H1' | 1:1:1309:C:N1 | 2.27 | 0.49 |
| 1:1:1447:G:P | 22:U:87:ARG:HH22 | 2.35 | 0.49 |
| 1:1:1762:C:H2' | 1:1:1763:G:C8 | 2.47 | 0.49 |
| 1:1:37:C:C3' | 1:1:38:A:H5'' | 2.42 | 0.49 |
| 1:1:61:A:H4' | 1:1:62:G:OP2 | 2.12 | 0.49 |
| 1:1:872:A:H2' | 1:1:874:G:N2 | 2.26 | 0.49 |
| 2:A:110:ASN:O | 2:A:116:PHE:HD1 | 1.95 | 0.49 |
| 3:B:71:LEU:HD22 | 3:B:75:GLN:HB2 | 1.93 | 0.49 |
| 7:F:26:ASP:O | 7:F:27:ASP:HB2 | 2.11 | 0.49 |
| 7:F:91:ARG:HA | 7:F:91:ARG:HE | 1.76 | 0.49 |
| 8:G:23:LYS:HE2 | 8:G:42:GLY:H | 1.77 | 0.49 |
| 9:H:109:ARG:CG | 9:H:110:THR:N | 2.74 | 0.49 |
| 1:1:1157:G:H1' | 24:W:76:SER:CB | 2.41 | 0.49 |
| 1:1:1075:C:H2' | 1:1:1076:G:H8 | 1.75 | 0.49 |
| 1:1:1196:A:C2' | 1:1:1197:G:H5' | 2.42 | 0.49 |
| 1:1:1452:A:C6 | 1:1:1476:A:C6 | 3.00 | 0.49 |
| 1:1:1477:U:H1' | 1:1:1478:U:P | 2.52 | 0.49 |
| 1:1:1483:A:H2' | 1:1:1483:A:N3 | 2.27 | 0.49 |
| 1:1:1624:U:O2 | 1:1:1624:U:C2' | 2.58 | 0.49 |
| 1:1:1860:A:C4 | 1:1:1862:G:C8 | 2.99 | 0.49 |
| 1:1:219:U:C6 | 1:1:219:U:C5' | 2.95 | 0.49 |
| 1:1:238:C:O2' | 1:1:239:C:C6 | 2.63 | 0.49 |
| 1:1:387:C:H2' | 1:1:388:U:C6 | 2.47 | 0.49 |
| 1:1:4:C:H2' | 1:1:5:U:H6 | 1.71 | 0.49 |
| 1:1:655:A:C8 | 1:1:657:U:C5 | 3.00 | 0.49 |
| 1:1:746:C:H5'' | 9:H:104:PRO:C | 2.32 | 0.49 |
| 1:1:973:C:C5 | 1:1:974:C:C4 | 2.99 | 0.49 |
| 1:1:1350:U:O2' | 2:A:112:ILE:HB | 2.12 | 0.49 |
| 2:A:67:ALA:HA | 23:V:50:PHE:CZ | 2.47 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 3:B:140:VAL:O | 3:B:210:VAL:HA | 2.11 | 0.49 |
| 3:B:30:TRP:HE1 | 16:O:17:LEU:CD2 | 2.24 | 0.49 |
| 8:G:6:SER:O | 8:G:8:PRO:HD3 | 2.13 | 0.49 |
| 9:H:109:ARG:CG | 9:H:110:THR:H | 2.23 | 0.49 |
| 14:M:32:ALA:HB3 | 14:M:110:VAL:CG2 | 2.42 | 0.49 |
| 15:N:33:VAL:HG12 | 15:N:37:ILE:CD1 | 2.41 | 0.49 |
| 24:W:114:GLU:O | 24:W:117:ARG:HG2 | 2.12 | 0.49 |
| 1:1:1168:G:H2' | 1:1:1169:G:H5' | 1.94 | 0.49 |
| 1:1:1260:A:O5' | 1:1:1260:A:H8 | 1.95 | 0.49 |
| 1:1:1406:G:C4' | 1:1:1407:U:C5' | 2.90 | 0.49 |
| 1:1:1656:G:H2' | 1:1:1657:G:H8 | 1.76 | 0.49 |
| 1:1:22:A:C2 | 1:1:653:A:C2 | 3.00 | 0.49 |
| 1:1:350:C:C2' | 1:1:351:G:H5' | 2.43 | 0.49 |
| 1:1:682:U:H3 | 1:1:1023:A:N6 | 2.08 | 0.49 |
| 1:1:985:G:H8 | 1:1:985:G:OP2 | 1.93 | 0.49 |
| 3:B:35:ALA:HB3 | 3:B:42:ARG:HA | 1.94 | 0.49 |
| 4:C:256:TRP:NE1 | 24:W:68:ARG:HD3 | 2.27 | 0.49 |
| 24:W:18:GLU:OE2 | 24:W:65:LEU:HD22 | 2.12 | 0.49 |
| 25:X:123:VAL:HA | 25:X:130:LEU:CD1 | 2.42 | 0.49 |
| 1:1:1416:C:C5 | 1:1:1417:C:C6 | 3.00 | 0.49 |
| 1:1:1431:G:C2 | 1:1:1432:U:C2 | 3.00 | 0.49 |
| 1:1:1453:C:H3' | 1:1:1453:C:O2 | 2.12 | 0.49 |
| 1:1:1555:U:O2' | 1:1:1556:A:H5' | 2.11 | 0.49 |
| 1:1:1579:A:H62 | 22:U:88:LEU:HD22 | 1.75 | 0.49 |
| 1:1:1707:U:C2' | 1:1:1708:C:H5' | 2.42 | 0.49 |
| 1:1:1731:A:H2' | 1:1:1732:G:H8 | 1.75 | 0.49 |
| 1:1:181:A:C8 | 8:G:196:LYS:HB2 | 2.48 | 0.49 |
| 1:1:500:A:H2 | 1:1:502:C:O5' | 1.96 | 0.49 |
| 1:1:559:G:H2' | 1:1:561:A:H1' | 1.94 | 0.49 |
| 1:1:743:U:H2' | 9:H:100:ILE:H | 1.77 | 0.49 |
| 1:1:746:C:C1' | 1:1:747:U:C4 | 2.88 | 0.49 |
| 1:1:813:A:H2' | 1:1:814:U:H5' | 1.93 | 0.49 |
| 1:1:860:G:C6 | 1:1:861:A:N1 | 2.80 | 0.49 |
| 6:E:133:VAL:O | 6:E:136:ILE:HG23 | 2.12 | 0.49 |
| 6:E:19:MET:CE | 6:E:108:ARG:HG2 | 2.43 | 0.49 |
| 10:I:146:GLN:O | 10:I:149:TYR:HB2 | 2.12 | 0.49 |
| 13:L:59:LYS:HD3 | 13:L:134:LEU:HD23 | 1.94 | 0.49 |
| 1:1:1198:G:N3 | 1:1:1198:G:H2' | 2.26 | 0.49 |
| 1:1:1241:A:C1' | 1:1:1267:C:H1' | 2.40 | 0.49 |
| 1:1:1284:A:C8 | 1:1:1286:G:H5'' | 2.47 | 0.49 |
| 1:1:1589:A:H2' | 1:1:1653:U:O2' | 2.13 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:1658:G:C6 | 1:1:1659:U:N3 | 2.80 | 0.49 |
| 1:1:219:U:H5'' | 1:1:219:U:H6 | 1.78 | 0.49 |
| 1:1:234:C:H2' | 1:1:235:A:C8 | 2.45 | 0.49 |
| 1:1:36:U:O2 | 1:1:520:A:H2 | 1.93 | 0.49 |
| 1:1:380:G:H3' | 1:1:382:C:OP2 | 2.11 | 0.49 |
| 1:1:440:G:H2' | 1:1:441:C:O4' | 2.13 | 0.49 |
| 1:1:435:A:H2 | 1:1:474:G:OP2 | 1.96 | 0.49 |
| 1:1:59:U:C3' | 1:1:60:A:H5'' | 2.40 | 0.49 |
| 1:1:683:G:C4 | 1:1:1023:A:N1 | 2.80 | 0.49 |
| 1:1:684:G:O4' | 1:1:920:A:C2 | 2.66 | 0.49 |
| 1:1:79:A:N3 | 1:1:79:A:H2' | 2.27 | 0.49 |
| 3:B:128:LYS:HB2 | 3:B:134:LEU:CD2 | 2.43 | 0.49 |
| 11:J:163:SER:N | 11:J:164:PRO:HD2 | 2.26 | 0.49 |
| 12:K:84:HIS:HD2 | 14:M:27:ILE:HD12 | 1.77 | 0.49 |
| 16:O:56:VAL:HG21 | 16:O:81:VAL:HG22 | 1.93 | 0.49 |
| 1:1:1191:C:H2' | 1:1:1192:U:H6 | 1.74 | 0.49 |
| 1:1:1196:A:H2' | 1:1:1197:G:C5' | 2.42 | 0.49 |
| 1:1:1432:U:O5' | 1:1:1432:U:H6 | 1.95 | 0.49 |
| 1:1:1493:C:C3' | 1:1:1494:U:C5' | 2.86 | 0.49 |
| 1:1:1597:C:H4' | 1:1:1603:G:O6 | 2.12 | 0.49 |
| 1:1:1614:A:H2' | 1:1:1615:U:C6 | 2.47 | 0.49 |
| 1:1:1635:C:H2' | 1:1:1635:C:O2 | 2.11 | 0.49 |
| 1:1:313:A:C8 | 8:G:191:ARG:NE | 2.81 | 0.49 |
| 1:1:343:A:C2 | 1:1:344:U:C2 | 3.00 | 0.49 |
| 1:1:372:U:C6 | 1:1:372:U:C3' | 2.95 | 0.49 |
| 1:1:672:A:H3' | 1:1:672:A:OP2 | 2.11 | 0.49 |
| 1:1:71:G:H1 | 1:1:80:G:H1 | 1.60 | 0.49 |
| 1:1:751:G:N3 | 1:1:752:G:C8 | 2.80 | 0.49 |
| 1:1:858:A:C2 | 1:1:859:G:C6 | 3.01 | 0.49 |
| 4:C:270:THR:HA | 4:C:273:LEU:HD12 | 1.95 | 0.49 |
| 6:E:52:LEU:O | 6:E:53:LYS:HB2 | 2.13 | 0.49 |
| 8:G:32:MET:HE1 | 8:G:65:GLN:HB2 | 1.94 | 0.49 |
| 1:1:527:C:O2' | 11:J:121:LYS:HB2 | 2.12 | 0.49 |
| 17:P:111:MET:HG2 | 17:P:119:PHE:CE1 | 2.47 | 0.49 |
| 1:1:83:A:H2' | 26:Y:123:ALA:HB1 | 1.93 | 0.49 |
| 1:1:1418:C:C2' | 1:1:1419:C:C6 | 2.92 | 0.49 |
| 1:1:1558:C:H2' | 1:1:1559:C:H6 | 1.76 | 0.49 |
| 1:1:1823:A:H4' | 1:1:1824:A:O5' | 2.11 | 0.49 |
| 1:1:1851:A:C8 | 1:1:1851:A:H5'' | 2.41 | 0.49 |
| 1:1:539:C:C3' | 1:1:539:C:C6 | 2.95 | 0.49 |
| 1:1:586:G:N2 | 1:1:587:A:H1' | 2.27 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:794:A:C2 | 1:1:795:A:C1' | 2.88 | 0.49 |
| 1:1:893:U:H2' | 1:1:894:G:O4' | 2.12 | 0.49 |
| 1:1:89:C:H5'' | 1:1:89:C:H6 | 1.77 | 0.49 |
| 7:F:32:ASP:HB3 | 7:F:117:ILE:HG23 | 1.95 | 0.49 |
| 8:G:186:GLN:HA | 8:G:189:ARG:NH2 | 2.27 | 0.49 |
| 11:J:161:LEU:HA | 11:J:166:GLY:HA3 | 1.94 | 0.49 |
| 21:T:73:GLY:O | 21:T:76:THR:HB | 2.13 | 0.49 |
| 22:U:26:SER:HB2 | 22:U:32:LEU:HB2 | 1.95 | 0.49 |
| 23:V:74:LYS:HA | 23:V:79:VAL:HG12 | 1.94 | 0.49 |
| 1:1:1016:U:C6 | 15:N:14:SER:OG | 2.60 | 0.49 |
| 1:1:1415:C:N3 | 1:1:1416:C:C5 | 2.80 | 0.49 |
| 1:1:1583:C:N4 | 1:1:1584:G:C6 | 2.80 | 0.49 |
| 1:1:211:G:C5' | 1:1:211:G:C8 | 2.88 | 0.49 |
| 1:1:331:C:C3' | 1:1:332:G:H5'' | 2.40 | 0.49 |
| 1:1:359:U:H2' | 1:1:362:C:H5 | 1.78 | 0.49 |
| 1:1:442:C:C3' | 1:1:443:U:H5'' | 2.43 | 0.49 |
| 1:1:508:A:H3' | 1:1:509:G:H8 | 1.77 | 0.49 |
| 1:1:571:U:O3' | 26:Y:59:GLY:HA2 | 2.13 | 0.49 |
| 1:1:572:U:H3' | 1:1:573:U:C2 | 2.48 | 0.49 |
| 1:1:76:U:O2' | 1:1:77:A:H2' | 2.13 | 0.49 |
| 2:A:77:ILE:HG12 | 2:A:99:ILE:HG22 | 1.95 | 0.49 |
| 10:I:197:PHE:HE1 | 13:L:10:TYR:O | 1.96 | 0.49 |
| 12:K:50:GLN:HA | 12:K:53:LYS:HG2 | 1.94 | 0.49 |
| 10:I:191:GLU:CG | 13:L:20:LYS:HD2 | 2.43 | 0.49 |
| 19:R:111:PHE:CD1 | 19:R:114:LEU:HD11 | 2.48 | 0.49 |
| 1:1:1052:A:H5'' | 1:1:1053:C:OP2 | 2.13 | 0.49 |
| 1:1:1087:A:H3' | 1:1:1088:U:C5' | 2.42 | 0.49 |
| 1:1:1113:A:H2 | 1:1:1120:U:C4 | 2.30 | 0.49 |
| 1:1:668:A:H1' | 1:1:1198:G:H1' | 1.95 | 0.49 |
| 1:1:1206:G:H1' | 1:1:1834:A:N3 | 2.28 | 0.49 |
| 1:1:125:C:H6 | 1:1:125:C:OP2 | 1.96 | 0.49 |
| 1:1:1419:C:H2' | 1:1:1420:G:H8 | 1.78 | 0.49 |
| 1:1:1469:A:C2 | 1:1:1470:C:C2 | 3.01 | 0.49 |
| 1:1:1482:C:C5 | 1:1:1483:A:H8 | 2.30 | 0.49 |
| 1:1:1687:C:O2 | 1:1:1687:C:H2' | 2.12 | 0.49 |
| 1:1:345:U:H2' | 1:1:346:C:O5' | 2.13 | 0.49 |
| 1:1:370:G:O4' | 1:1:371:A:C8 | 2.66 | 0.49 |
| 1:1:96:C:C1' | 1:1:474:G:H4' | 2.43 | 0.49 |
| 1:1:71:G:C2 | 1:1:72:C:H1' | 2.48 | 0.49 |
| 1:1:990:A:H1' | 1:1:991:G:N2 | 2.28 | 0.49 |
| 1:1:312:G:H22 | 8:G:195:LYS:HG3 | 1.76 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 16:O:27:VAL:CG1 | 16:O:90:ILE:HG12 | 2.42 | 0.49 |
| 18:Q:24:HIS:NE2 | 18:Q:26:LYS:HD3 | 2.27 | 0.49 |
| 20:S:37:GLY:H | 20:S:40:TYR:HB3 | 1.76 | 0.49 |
| 20:S:43:VAL:HG22 | 21:T:37:VAL:CB | 2.41 | 0.49 |
| 24:W:101:PHE:HB3 | 24:W:129:PHE:CZ | 2.48 | 0.49 |
| 1:1:483:C:OP1 | 25:X:47:ALA:HA | 2.13 | 0.49 |
| 1:1:1020:A:H8 | 1:1:1020:A:O5' | 1.96 | 0.49 |
| 1:1:1129:G:C3' | 1:1:1130:G:H8 | 2.26 | 0.49 |
| 1:1:1406:G:O2' | 1:1:1408:U:H5 | 1.95 | 0.49 |
| 1:1:1576:G:H2' | 1:1:1577:G:H5' | 1.94 | 0.49 |
| 1:1:1607:A:N6 | 1:1:1632:G:H1' | 2.28 | 0.49 |
| 1:1:540:U:C2 | 1:1:542:U:H5'' | 2.48 | 0.49 |
| 1:1:563:G:H2' | 1:1:564:A:H8 | 1.78 | 0.49 |
| 1:1:572:U:H2' | 1:1:573:U:N3 | 2.26 | 0.49 |
| 1:1:593:C:OP2 | 1:1:593:C:H6 | 1.96 | 0.49 |
| 1:1:884:C:H2' | 1:1:885:U:C6 | 2.47 | 0.49 |
| 2:A:103:PHE:CD2 | 2:A:132:GLN:HB2 | 2.47 | 0.49 |
| 3:B:31:TYR:CZ | 3:B:94:LYS:HA | 2.47 | 0.49 |
| 4:C:62:PRO:HA | 4:C:90:GLU:OE2 | 2.13 | 0.49 |
| 1:1:448:A:N7 | 10:I:25:ARG:C | 2.66 | 0.49 |
| 12:K:12:TYR:CD1 | 12:K:52:LEU:HD11 | 2.47 | 0.49 |
| 20:S:74:PRO:CG | 20:S:84:LEU:HD21 | 2.43 | 0.49 |
| 25:X:61:GLN:CB | 25:X:62:PRO:CD | 2.89 | 0.49 |
| 1:1:1407:U:OP2 | 1:1:1408:U:C6 | 2.66 | 0.48 |
| 1:1:1448:A:H2' | 1:1:1449:G:H8 | 1.77 | 0.48 |
| 1:1:1483:A:C2' | 1:1:1483:A:N3 | 2.75 | 0.48 |
| 1:1:1560:U:H2' | 1:1:1561:A:H8 | 1.78 | 0.48 |
| 1:1:130:G:H4' | 1:1:181:A:H61 | 1.77 | 0.48 |
| 1:1:1866:A:C4' | 1:1:1866:A:OP1 | 2.61 | 0.48 |
| 1:1:213:G:H2' | 1:1:214:U:C6 | 2.48 | 0.48 |
| 1:1:563:G:O6 | 1:1:592:C:N3 | 2.46 | 0.48 |
| 1:1:933:G:H2' | 1:1:993:G:N2 | 2.28 | 0.48 |
| 8:G:167:LYS:HG2 | 8:G:167:LYS:O | 2.13 | 0.48 |
| 12:K:31:LYS:O | 12:K:32:HIS:CB | 2.61 | 0.48 |
| 15:N:33:VAL:HG12 | 15:N:37:ILE:HD11 | 1.95 | 0.48 |
| 1:1:1120:U:H6 | 1:1:1120:U:C5' | 2.24 | 0.48 |
| 1:1:129:C:C3' | 1:1:130:G:C8 | 2.96 | 0.48 |
| 1:1:1590:C:O4' | 1:1:1653:U:H4' | 2.13 | 0.48 |
| 1:1:1606:G:C8 | 1:1:1606:G:OP2 | 2.61 | 0.48 |
| 1:1:1643:U:C4 | 1:1:1644:C:N4 | 2.81 | 0.48 |
| 1:1:421:G:H21 | 1:1:653:A:H5' | 1.76 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:A:25:LEU:O | 2:A:164:ASN:HB2 | 2.13 | 0.48 |
| 2:A:185:MET:HG2 | 23:V:46:PHE:CD1 | 2.48 | 0.48 |
| 3:B:30:TRP:NE1 | 3:B:48:LEU:HB3 | 2.28 | 0.48 |
| 1:1:154:U:C4' | 8:G:13:GLN:HB3 | 2.43 | 0.48 |
| 1:1:67:C:H1' | 8:G:164:LYS:HD2 | 1.94 | 0.48 |
| 8:G:194:LEU:HA | 8:G:197:GLN:HB2 | 1.94 | 0.48 |
| 9:H:20:GLU:HG2 | 9:H:48:ALA:HB3 | 1.94 | 0.48 |
| 18:Q:37:ARG:CB | 21:T:7:LYS:HG3 | 2.41 | 0.48 |
| 18:Q:37:ARG:HB3 | 21:T:7:LYS:HE2 | 1.94 | 0.48 |
| 19:R:106:LEU:HB3 | 19:R:112:GLY:HA2 | 1.95 | 0.48 |
| 25:X:54:LYS:HD2 | 25:X:91:LEU:HD11 | 1.94 | 0.48 |
| 1:1:106:C:H2' | 1:1:107:A:H8 | 1.72 | 0.48 |
| 1:1:1280:G:N2 | 1:1:1318:G:C4 | 2.81 | 0.48 |
| 1:1:1439:A:C8 | 1:1:1439:A:P | 3.05 | 0.48 |
| 1:1:1214:A:C4 | 1:1:1686:G:N2 | 2.81 | 0.48 |
| 1:1:380:G:N2 | 1:1:382:C:C6 | 2.81 | 0.48 |
| 1:1:380:G:N3 | 1:1:382:C:C5 | 2.81 | 0.48 |
| 1:1:562:U:C4' | 11:J:132:GLN:OE1 | 2.60 | 0.48 |
| 1:1:657:U:C6 | 1:1:657:U:C3' | 2.95 | 0.48 |
| 1:1:751:G:O2' | 1:1:752:G:H5' | 2.12 | 0.48 |
| 2:A:63:ARG:HA | 23:V:46:PHE:CE2 | 2.47 | 0.48 |
| 7:F:179:ASN:CB | 7:F:187:SER:HB3 | 2.43 | 0.48 |
| 1:1:332:G:N7 | 8:G:186:GLN:HB2 | 2.27 | 0.48 |
| 1:1:746:C:H5' | 9:H:104:PRO:C | 2.34 | 0.48 |
| 17:P:125:PRO:O | 17:P:126:VAL:HB | 2.13 | 0.48 |
| 1:1:1654:G:H4' | 21:T:82:ARG:CZ | 2.43 | 0.48 |
| 4:C:79:GLU:OE1 | 23:V:12:TYR:HD1 | 1.97 | 0.48 |
| 25:X:25:LYS:O | 25:X:28:LYS:HB3 | 2.14 | 0.48 |
| 25:X:51:VAL:HG13 | 25:X:70:VAL:CG1 | 2.43 | 0.48 |
| 1:1:1187:G:O5' | 1:1:1187:G:H8 | 1.97 | 0.48 |
| 1:1:1281:G:N1 | 1:1:1282:A:C6 | 2.82 | 0.48 |
| 1:1:1286:G:C2' | 1:1:1286:G:N3 | 2.76 | 0.48 |
| 1:1:1401:A:C1' | 1:1:1402:A:P | 3.01 | 0.48 |
| 1:1:1425:G:C5 | 1:1:1426:U:C4 | 3.01 | 0.48 |
| 1:1:1678:A:H2 | 1:1:1680:G:P | 2.36 | 0.48 |
| 1:1:1208:A:N6 | 1:1:1691:U:H3 | 2.11 | 0.48 |
| 1:1:193:C:C4' | 1:1:209:A:C6 | 2.93 | 0.48 |
| 1:1:345:U:C3' | 1:1:345:U:C6 | 2.96 | 0.48 |
| 1:1:102:A:C5 | 1:1:408:A:C2 | 3.01 | 0.48 |
| 1:1:431:G:H2' | 1:1:432:G:C8 | 2.47 | 0.48 |
| 1:1:564:A:H61 | 1:1:586:G:H1 | 1.60 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-------------------|--------------------------|-------------------|
| 1:1:59:U:OP2 | 1:1:59:U:H4' | 2.13 | 0.48 |
| 1:1:616:A:H8 | 1:1:616:A:O5' | 1.96 | 0.48 |
| 1:1:740:C:O5' | 1:1:740:C:H6 | 1.97 | 0.48 |
| 1:1:905:C:H2' | 1:1:906:U:H6 | 1.78 | 0.48 |
| 1:1:990:A:H2' | 1:1:991:G:O5' | 2.13 | 0.48 |
| 6:E:49:ARG:HH21 | 6:E:58:GLY:CA | 2.26 | 0.48 |
| 18:Q:107:GLU:O | 18:Q:111:ILE:HG12 | 2.13 | 0.48 |
| 1:1:1036:A:H2' | 1:1:1037:G:H5' | 1.94 | 0.48 |
| 1:1:1060:A:C8 | 1:1:1062:A:C5 | 3.02 | 0.48 |
| 1:1:1135:C:C2' | 1:1:1136:U:H5' | 2.43 | 0.48 |
| 1:1:1373:C:H2' | 1:1:1374:C:C6 | 2.48 | 0.48 |
| 1:1:1402:A:H3' | 1:1:1403:C:C5 | 2.48 | 0.48 |
| 1:1:1404:U:OP2 | 1:1:1404:U:C6 | 2.66 | 0.48 |
| 1:1:1418:C:H5'' | 21:T:129:ARG:CA | 2.43 | 0.48 |
| 1:1:1420:G:H1' | 21:T:3:GLY:H | 1.78 | 0.48 |
| 1:1:1548:G:O6 | 1:1:1584:G:N3 | 2.47 | 0.48 |
| 1:1:1613:G:H2' | 1:1:1614:A:O5' | 2.13 | 0.48 |
| 1:1:1261:C:C5 | 1:1:1619:A:N6 | 2.81 | 0.48 |
| 1:1:1781:A:C4 | 1:1:1782:G:N2 | 2.80 | 0.48 |
| 1:1:1836:G:OP1 | 1:1:1839:U:H4' | 2.12 | 0.48 |
| 1:1:191:A:OP1 | 10:I:147:LYS:N | 2.47 | 0.48 |
| 1:1:232:A:OP2 | 1:1:890:U:H1' | 2.12 | 0.48 |
| 1:1:60:A:H5' | 1:1:501:C:C5 | 2.42 | 0.48 |
| 1:1:691:G:H2' | 1:1:692:G:H8 | 1.78 | 0.48 |
| 1:1:77:A:N3 | 1:1:77:A:C2' | 2.74 | 0.48 |
| 1:1:911:C:H2' | 1:1:912:C:N3 | 2.29 | 0.48 |
| 1:1:92:A:N7 | 1:1:446:G:H2' | 2.28 | 0.48 |
| 3:B:83:LYS:HD2 | 3:B:106:THR:HG22 | 1.95 | 0.48 |
| 1:1:4:C:H4' | 4:C:207:ALA:HB2 | 1.94 | 0.48 |
| 5:D:37:VAL:HG12 | 5:D:50:ILE:HG12 | 1.95 | 0.48 |
| 9:H:109:ARG:NE | 9:H:113:LYS:HD3 | 2.28 | 0.48 |
| 9:H:178:LYS:HE2 | 9:H:184:ASP:OD1 | 2.13 | 0.48 |
| 21:T:25:SER:HB3 | 21:T:27:LYS:HE3 | 1.94 | 0.48 |
| 24:W:83:LEU:O | 24:W:86:LEU:HG | 2.13 | 0.48 |
| 26:Y:98:GLU:HG2 | 26:Y:99:LYS:N | 2.29 | 0.48 |
| 1:1:1225:U:H6 | 1:1:1225:U:O5' | 1.96 | 0.48 |
| 1:1:1261:C:H3' | 1:1:1262:C:C5' | 2.42 | 0.48 |
| 1:1:1396:A:H2 | 1:1:1449:G:N2 | 2.12 | 0.48 |
| 1:1:1535:U:C6 | 7:F:82:ASN:OD1 | 2.67 | 0.48 |
| 1:1:1677:U:O2 | 1:1:1677:U:C2' | 2.62 | 0.48 |
| 1:1:319:C:OP1 | 1:1:319:C:H4' | 2.14 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:385:G:H5' | 1:1:386:C:C5 | 2.48 | 0.48 |
| 1:1:550:C:H2' | 1:1:551:U:C6 | 2.48 | 0.48 |
| 1:1:560:A:O3' | 1:1:561:A:H8 | 1.97 | 0.48 |
| 1:1:754:G:H2' | 1:1:755:C:H6 | 1.73 | 0.48 |
| 1:1:794:A:H2' | 1:1:795:A:O4' | 2.12 | 0.48 |
| 1:1:793:G:H2' | 1:1:794:A:O4' | 2.14 | 0.48 |
| 1:1:978:G:H2' | 1:1:979:C:C6 | 2.49 | 0.48 |
| 1:1:1351:G:C4' | 2:A:110:ASN:HB3 | 2.44 | 0.48 |
| 6:E:91:SER:HA | 6:E:97:GLU:O | 2.14 | 0.48 |
| 1:1:743:U:C2' | 9:H:100:ILE:O | 2.61 | 0.48 |
| 9:H:109:ARG:HG3 | 9:H:113:LYS:CD | 2.43 | 0.48 |
| 16:O:18:GLY:H | 16:O:19:PRO:CD | 2.26 | 0.48 |
| 17:P:22:LEU:HA | 17:P:25:LEU:HD12 | 1.95 | 0.48 |
| 1:1:1648:G:H21 | 18:Q:128:GLU:HG3 | 1.78 | 0.48 |
| 20:S:42:HIS:NE2 | 21:T:45:LEU:HD11 | 2.28 | 0.48 |
| 21:T:34:VAL:HG22 | 21:T:99:VAL:CG1 | 2.43 | 0.48 |
| 22:U:20:ILE:CD1 | 22:U:116:ILE:HG12 | 2.43 | 0.48 |
| 22:U:83:ARG:HB3 | 22:U:85:HIS:CE1 | 2.49 | 0.48 |
| 1:1:1169:G:OP2 | 1:1:1170:A:H2' | 2.14 | 0.48 |
| 1:1:1258:A:N7 | 1:1:1259:A:N3 | 2.62 | 0.48 |
| 1:1:1432:U:N3 | 1:1:1433:C:N4 | 2.62 | 0.48 |
| 1:1:1647:A:C5 | 7:F:57:ALA:HB1 | 2.48 | 0.48 |
| 1:1:1649:U:C5 | 1:1:1674:G:N2 | 2.82 | 0.48 |
| 1:1:1649:U:H5 | 1:1:1674:G:N2 | 2.10 | 0.48 |
| 1:1:232:A:OP2 | 1:1:890:U:C6 | 2.66 | 0.48 |
| 1:1:24:C:H6 | 1:1:24:C:O5' | 1.96 | 0.48 |
| 1:1:369:C:C2' | 1:1:370:G:C5' | 2.92 | 0.48 |
| 1:1:527:C:H3' | 1:1:528:A:N7 | 2.25 | 0.48 |
| 1:1:63:U:H6 | 1:1:63:U:H5'' | 1.79 | 0.48 |
| 1:1:741:C:N4 | 1:1:744:G:H22 | 2.11 | 0.48 |
| 1:1:79:A:H3' | 1:1:80:G:C8 | 2.49 | 0.48 |
| 1:1:836:G:O6 | 26:Y:9:THR:O | 2.32 | 0.48 |
| 2:A:5:LEU:HD22 | 2:A:8:LEU:CD1 | 2.44 | 0.48 |
| 6:E:136:ILE:O | 6:E:136:ILE:HG12 | 2.12 | 0.48 |
| 8:G:32:MET:CE | 8:G:65:GLN:HB2 | 2.43 | 0.48 |
| 10:I:138:ASN:OD1 | 10:I:144:LYS:HE3 | 2.13 | 0.48 |
| 10:I:193:LYS:HE2 | 13:L:5:GLN:OE1 | 2.14 | 0.48 |
| 11:J:67:ASP:OD1 | 11:J:69:ARG:HB3 | 2.14 | 0.48 |
| 2:A:40:LYS:HB2 | 19:R:105:MET:HA | 1.96 | 0.48 |
| 19:R:106:LEU:HA | 19:R:109:LEU:HD12 | 1.96 | 0.48 |
| 19:R:24:LEU:HB3 | 19:R:58:MET:SD | 2.53 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 21:T:123:LEU:HD12 | 21:T:128:GLN:OE1 | 2.13 | 0.48 |
| 2:A:5:LEU:HD21 | 23:V:39:VAL:HG11 | 1.96 | 0.48 |
| 9:H:143:ARG:HD3 | 24:W:51:GLU:OE2 | 2.13 | 0.48 |
| 26:Y:94:HIS:HB3 | 26:Y:96:LEU:HD23 | 1.95 | 0.48 |
| 27:Z:113:THR:O | 27:Z:113:THR:HG22 | 2.14 | 0.48 |
| 1:1:1166:G:C2 | 1:1:1167:G:C8 | 3.02 | 0.48 |
| 1:1:1587:G:H4' | 1:1:1588:A:OP2 | 2.14 | 0.48 |
| 1:1:159:A:O5' | 1:1:159:A:H8 | 1.97 | 0.48 |
| 1:1:1663:A:O2' | 1:1:1664:A:H5'' | 2.14 | 0.48 |
| 1:1:1704:C:H1' | 1:1:1832:A:C6 | 2.48 | 0.48 |
| 1:1:218:U:H2' | 1:1:219:U:O4' | 2.14 | 0.48 |
| 1:1:224:A:H61 | 1:1:297:A:H61 | 1.62 | 0.48 |
| 1:1:377:G:H2' | 1:1:378:U:H6 | 1.75 | 0.48 |
| 1:1:426:A:C8 | 1:1:426:A:OP1 | 2.67 | 0.48 |
| 1:1:455:A:H2' | 1:1:456:C:O4' | 2.13 | 0.48 |
| 1:1:46:A:H4' | 1:1:47:G:C5' | 2.43 | 0.48 |
| 1:1:558:G:C2 | 1:1:559:G:N7 | 2.82 | 0.48 |
| 1:1:572:U:H3' | 1:1:573:U:H3 | 1.77 | 0.48 |
| 1:1:69:C:N4 | 1:1:82:G:N3 | 2.62 | 0.48 |
| 1:1:886:A:P | 1:1:886:A:C3' | 3.00 | 0.48 |
| 1:1:929:G:H5' | 1:1:930:C:OP2 | 2.14 | 0.48 |
| 2:A:6:ASP:HB3 | 23:V:42:VAL:CG1 | 2.27 | 0.48 |
| 5:D:138:VAL:CG1 | 5:D:182:LEU:HD11 | 2.44 | 0.48 |
| 6:E:11:ARG:HD3 | 6:E:28:ALA:HB2 | 1.95 | 0.48 |
| 7:F:156:THR:HA | 7:F:159:ARG:NH1 | 2.28 | 0.48 |
| 7:F:48:TYR:HD1 | 7:F:49:LEU:H | 1.61 | 0.48 |
| 8:G:36:VAL:HB | 8:G:50:VAL:O | 2.14 | 0.48 |
| 15:N:70:LYS:HG3 | 15:N:73:ARG:HB2 | 1.96 | 0.48 |
| 27:Z:69:THR:HG22 | 27:Z:70:PRO:CD | 2.39 | 0.48 |
| 1:1:1061:U:O4 | 1:1:1849:G:H5'' | 2.14 | 0.48 |
| 1:1:1083:A:C2' | 1:1:1858:G:H21 | 2.26 | 0.48 |
| 1:1:120:U:H6 | 1:1:120:U:H5' | 1.78 | 0.48 |
| 1:1:1417:C:C4 | 1:1:1418:C:C4 | 3.01 | 0.48 |
| 1:1:1625:U:H4' | 1:1:1663:A:H4' | 1.94 | 0.48 |
| 1:1:170:A:H3' | 1:1:171:A:H8 | 1.79 | 0.48 |
| 1:1:332:G:C4' | 1:1:333:G:OP1 | 2.60 | 0.48 |
| 1:1:342:C:N4 | 1:1:343:A:N6 | 2.55 | 0.48 |
| 1:1:382:C:H2' | 1:1:383:G:C2 | 2.49 | 0.48 |
| 1:1:467:G:C2' | 1:1:468:A:H5' | 2.43 | 0.48 |
| 1:1:504:G:O2' | 1:1:505:G:H5' | 2.14 | 0.48 |
| 1:1:633:C:H2' | 1:1:634:A:C8 | 2.49 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:1:693:A:C8 | 1:1:694:G:C1' | 2.97 | 0.48 |
| 1:1:795:A:H3' | 1:1:796:G:C8 | 2.48 | 0.48 |
| 1:1:798:G:N2 | 1:1:799:U:C2 | 2.82 | 0.48 |
| 1:1:838:G:H21 | 1:1:838:G:P | 2.36 | 0.48 |
| 1:1:906:U:H2' | 1:1:907:G:C8 | 2.49 | 0.48 |
| 1:1:976:G:H2' | 1:1:977:C:C6 | 2.49 | 0.48 |
| 3:B:77:ASP:O | 3:B:78:GLU:HB2 | 2.13 | 0.48 |
| 13:L:71:ARG:NH2 | 13:L:140:PHE:HZ | 2.11 | 0.48 |
| 14:M:86:GLY:HA2 | 14:M:91:LEU:HB2 | 1.95 | 0.48 |
| 17:P:48:GLY:O | 17:P:52:LYS:HE2 | 2.14 | 0.48 |
| 1:1:1419:C:H1' | 21:T:3:GLY:HA3 | 1.94 | 0.48 |
| 21:T:62:ARG:O | 21:T:65:TYR:HB3 | 2.14 | 0.48 |
| 22:U:20:ILE:HG21 | 22:U:98:VAL:CG2 | 2.44 | 0.48 |
| 24:W:28:ARG:HB3 | 24:W:29:PRO:HD3 | 1.96 | 0.48 |
| 25:X:86:PRO:HB3 | 25:X:121:LYS:NZ | 2.29 | 0.48 |
| 1:1:1142:G:O5' | 1:1:1142:G:H8 | 1.96 | 0.48 |
| 1:1:1206:G:C6 | 1:1:1208:A:N7 | 2.82 | 0.48 |
| 1:1:1557:C:C3' | 1:1:1557:C:P | 3.02 | 0.48 |
| 1:1:1678:A:H2 | 1:1:1679:A:O3' | 1.96 | 0.48 |
| 1:1:1822:A:N1 | 1:1:1823:A:C6 | 2.82 | 0.48 |
| 1:1:1:U:H3' | 1:1:1:U:O2 | 2.14 | 0.48 |
| 1:1:305:U:H3' | 1:1:305:U:O2 | 2.13 | 0.48 |
| 1:1:338:G:C8 | 1:1:338:G:H5'' | 2.46 | 0.48 |
| 1:1:35:C:N3 | 1:1:520:A:N6 | 2.62 | 0.48 |
| 1:1:78:C:H1' | 1:1:79:A:P | 2.53 | 0.48 |
| 2:A:107:THR:HG23 | 2:A:115:ALA:O | 2.14 | 0.48 |
| 3:B:135:LEU:HD12 | 3:B:215:VAL:HG21 | 1.96 | 0.48 |
| 1:1:216:C:H5'' | 6:E:134:LYS:HE3 | 1.95 | 0.48 |
| 7:F:66:CYS:SG | 7:F:67:PRO:HD2 | 2.54 | 0.48 |
| 8:G:131:ARG:HB2 | 8:G:131:ARG:NH1 | 2.29 | 0.48 |
| 8:G:4:ASN:HB3 | 8:G:110:ASN:OD1 | 2.13 | 0.48 |
| 17:P:119:PHE:CE1 | 20:S:117:ILE:HG23 | 2.48 | 0.48 |
| 21:T:60:THR:HG23 | 21:T:121:ARG:HH12 | 1.79 | 0.48 |
| 21:T:70:ALA:HB3 | 21:T:121:ARG:NE | 2.28 | 0.48 |
| 25:X:100:VAL:HG13 | 25:X:122:VAL:HG13 | 1.94 | 0.48 |
| 1:1:1053:C:O2 | 1:1:1053:C:C2' | 2.61 | 0.47 |
| 1:1:1439:A:O5' | 1:1:1439:A:H8 | 1.97 | 0.47 |
| 1:1:158:A:H62 | 8:G:59:GLN:HE21 | 1.62 | 0.47 |
| 1:1:1051:G:OP1 | 1:1:1847:G:H4' | 2.14 | 0.47 |
| 1:1:33:G:H2' | 1:1:34:U:H6 | 1.78 | 0.47 |
| 1:1:345:U:H2' | 1:1:346:C:H5' | 1.94 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:59:U:H3' | 1:1:59:U:C6 | 2.48 | 0.47 |
| 1:1:62:G:H5' | 1:1:172:U:N3 | 2.29 | 0.47 |
| 1:1:836:G:OP1 | 1:1:836:G:H8 | 1.96 | 0.47 |
| 2:A:108:PHE:HD2 | 2:A:136:GLU:OE1 | 1.97 | 0.47 |
| 2:A:48:ILE:CG2 | 19:R:105:MET:SD | 3.02 | 0.47 |
| 4:C:98:LEU:HG | 4:C:101:SER:HB2 | 1.95 | 0.47 |
| 7:F:34:SER:C | 7:F:36:GLN:H | 2.16 | 0.47 |
| 8:G:24:LEU:HA | 8:G:27:PHE:CD2 | 2.49 | 0.47 |
| 10:I:84:ASN:OD1 | 10:I:86:SER:HB2 | 2.13 | 0.47 |
| 11:J:60:LEU:CB | 11:J:94:LEU:HD11 | 2.43 | 0.47 |
| 24:W:18:GLU:HG3 | 24:W:69:LEU:HB2 | 1.96 | 0.47 |
| 27:Z:103:HIS:CG | 27:Z:104:ARG:N | 2.82 | 0.47 |
| 1:1:1013:U:C1' | 1:1:1104:G:H1' | 2.44 | 0.47 |
| 1:1:1016:U:C5 | 15:N:14:SER:CB | 2.97 | 0.47 |
| 1:1:1161:U:H2' | 1:1:1162:C:C5' | 2.44 | 0.47 |
| 1:1:1214:A:C5 | 1:1:1217:A:C6 | 3.03 | 0.47 |
| 1:1:1388:A:H2' | 1:1:1389:C:O5' | 2.13 | 0.47 |
| 1:1:158:A:O4' | 1:1:464:A:H8 | 1.95 | 0.47 |
| 1:1:1743:G:O2' | 1:1:1744:G:H5' | 2.14 | 0.47 |
| 1:1:1751:C:H2' | 1:1:1752:C:H5' | 1.96 | 0.47 |
| 1:1:305:U:H2' | 1:1:305:U:O2 | 2.15 | 0.47 |
| 1:1:358:C:H6 | 1:1:358:C:C5' | 2.27 | 0.47 |
| 1:1:396:U:O2' | 1:1:397:G:H5' | 2.14 | 0.47 |
| 1:1:659:G:N3 | 1:1:659:G:C2' | 2.77 | 0.47 |
| 1:1:827:A:H2' | 1:1:828:G:H5' | 1.96 | 0.47 |
| 1:1:899:U:H2' | 1:1:900:C:N1 | 2.29 | 0.47 |
| 1:1:911:C:H5'' | 1:1:912:C:C4 | 2.48 | 0.47 |
| 1:1:1351:G:C5' | 2:A:110:ASN:HB3 | 2.44 | 0.47 |
| 2:A:58:LEU:HD11 | 2:A:178:LEU:CA | 2.44 | 0.47 |
| 2:A:5:LEU:CD2 | 23:V:44:GLY:HA2 | 2.44 | 0.47 |
| 1:1:14:C:H5' | 4:C:190:SER:OG | 2.14 | 0.47 |
| 7:F:113:VAL:O | 7:F:117:ILE:HD13 | 2.14 | 0.47 |
| 10:I:192:GLY:HA3 | 13:L:20:LYS:CA | 2.45 | 0.47 |
| 11:J:161:LEU:O | 11:J:161:LEU:HG | 2.14 | 0.47 |
| 22:U:97:ILE:O | 22:U:100:GLN:HB3 | 2.14 | 0.47 |
| 25:X:48:LYS:HD3 | 25:X:99:GLU:OE2 | 2.14 | 0.47 |
| 20:S:6:PRO:HD3 | 27:Z:52:LYS:HE2 | 1.95 | 0.47 |
| 27:Z:92:LEU:HD13 | 27:Z:109:TYR:CE1 | 2.48 | 0.47 |
| 1:1:1344:A:H5'' | 1:1:1370:A:H4' | 1.96 | 0.47 |
| 1:1:1396:A:H2' | 1:1:1397:U:H5' | 1.96 | 0.47 |
| 1:1:189:U:H6 | 1:1:189:U:P | 2.37 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:18:C:H6 | 1:1:18:C:O5' | 1.97 | 0.47 |
| 1:1:545:A:C8 | 1:1:545:A:H3' | 2.50 | 0.47 |
| 1:1:525:A:C4 | 1:1:588:G:O6 | 2.66 | 0.47 |
| 1:1:63:U:OP1 | 1:1:315:C:H4' | 2.14 | 0.47 |
| 1:1:75:G:H22 | 1:1:78:C:H4' | 1.78 | 0.47 |
| 3:B:171:ILE:HG12 | 3:B:174:ARG:HH22 | 1.80 | 0.47 |
| 7:F:162:ALA:HB2 | 7:F:172:CYS:SG | 2.54 | 0.47 |
| 8:G:189:ARG:O | 8:G:192:ILE:HG22 | 2.14 | 0.47 |
| 9:H:109:ARG:HG2 | 9:H:113:LYS:HA | 1.97 | 0.47 |
| 10:I:191:GLU:C | 13:L:20:LYS:HB2 | 2.35 | 0.47 |
| 26:Y:11:LYS:O | 26:Y:23:MET:HA | 2.14 | 0.47 |
| 1:1:1114:U:H1' | 1:1:1115:U:H2' | 1.96 | 0.47 |
| 1:1:1307:U:H4' | 1:1:1308:U:OP1 | 2.15 | 0.47 |
| 1:1:1336:C:H2' | 1:1:1337:C:O4' | 2.13 | 0.47 |
| 1:1:1357:A:O2' | 4:C:112:VAL:HB | 2.14 | 0.47 |
| 1:1:1649:U:N3 | 1:1:1675:A:C2 | 2.80 | 0.47 |
| 1:1:1698:C:H4' | 1:1:1699:A:OP2 | 2.13 | 0.47 |
| 1:1:1859:A:H8 | 1:1:1859:A:O5' | 1.97 | 0.47 |
| 1:1:186:C:C6 | 1:1:186:C:O5' | 2.66 | 0.47 |
| 1:1:450:C:H6 | 1:1:450:C:H5" | 1.80 | 0.47 |
| 1:1:684:G:H2' | 1:1:685:A:H8 | 1.79 | 0.47 |
| 1:1:795:A:O2' | 1:1:796:G:H5' | 2.14 | 0.47 |
| 3:B:65:ARG:HG2 | 16:O:50:LYS:CE | 2.44 | 0.47 |
| 4:C:125:LYS:HE2 | 4:C:127:PHE:CZ | 2.50 | 0.47 |
| 1:1:157:U:H5' | 8:G:58:LYS:O | 2.14 | 0.47 |
| 9:H:181:THR:HG22 | 9:H:183:LYS:HD3 | 1.97 | 0.47 |
| 15:N:94:LYS:O | 15:N:98:VAL:HG23 | 2.14 | 0.47 |
| 19:R:28:PHE:HE1 | 19:R:52:GLY:N | 2.12 | 0.47 |
| 20:S:61:GLU:O | 20:S:64:VAL:HB | 2.13 | 0.47 |
| 23:V:41:LYS:O | 23:V:43:THR:N | 2.46 | 0.47 |
| 7:F:167:LYS:HA | 27:Z:71:ALA:CB | 2.44 | 0.47 |
| 1:1:125:C:C6 | 1:1:125:C:P | 3.08 | 0.47 |
| 1:1:1392:U:O2 | 1:1:1392:U:H2' | 2.13 | 0.47 |
| 1:1:1417:C:C2' | 1:1:1418:C:H5' | 2.44 | 0.47 |
| 1:1:1428:G:H5" | 1:1:1428:G:C8 | 2.49 | 0.47 |
| 1:1:1580:A:H3' | 1:1:1581:C:C5' | 2.45 | 0.47 |
| 1:1:1698:C:O2 | 1:1:1698:C:C2' | 2.61 | 0.47 |
| 1:1:1825:A:H3' | 1:1:1825:A:C8 | 2.49 | 0.47 |
| 1:1:520:A:H8 | 1:1:521:A:C8 | 2.33 | 0.47 |
| 3:B:134:LEU:HD12 | 3:B:219:LYS:CB | 2.44 | 0.47 |
| 3:B:197:ILE:HG13 | 3:B:210:VAL:HG11 | 1.97 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 5:D:37:VAL:CG1 | 5:D:50:ILE:HG12 | 2.45 | 0.47 |
| 1:1:167:G:H4' | 8:G:8:PRO:O | 2.15 | 0.47 |
| 1:1:746:C:H5' | 9:H:105:THR:N | 2.30 | 0.47 |
| 11:J:131:ARG:HB3 | 11:J:131:ARG:NH1 | 2.29 | 0.47 |
| 13:L:36:TYR:CE2 | 13:L:38:LYS:HB2 | 2.49 | 0.47 |
| 25:X:100:VAL:HG11 | 25:X:122:VAL:HG13 | 1.94 | 0.47 |
| 1:1:841:G:H8 | 26:Y:12:PHE:CE2 | 2.33 | 0.47 |
| 1:1:100:U:H2' | 1:1:101:U:C5' | 2.45 | 0.47 |
| 1:1:1060:A:N3 | 1:1:1060:A:H2' | 2.29 | 0.47 |
| 1:1:1091:C:O2' | 1:1:1092:G:H5' | 2.15 | 0.47 |
| 1:1:1179:G:H8 | 1:1:1179:G:O5' | 1.98 | 0.47 |
| 1:1:1285:G:C4' | 1:1:1286:G:O5' | 2.61 | 0.47 |
| 1:1:1330:G:C5' | 1:1:1331:C:H5' | 2.45 | 0.47 |
| 1:1:1481:G:H8 | 1:1:1481:G:O5' | 1.97 | 0.47 |
| 1:1:1559:C:C6 | 1:1:1559:C:O5' | 2.66 | 0.47 |
| 1:1:1617:G:H2' | 1:1:1618:C:H5' | 1.96 | 0.47 |
| 1:1:1678:A:C2 | 1:1:1679:A:O3' | 2.67 | 0.47 |
| 1:1:1693:G:H2' | 1:1:1694:U:O4' | 2.15 | 0.47 |
| 1:1:172:U:C5 | 1:1:337:C:H1' | 2.50 | 0.47 |
| 1:1:1771:G:O2' | 1:1:1772:C:H5' | 2.14 | 0.47 |
| 1:1:1824:A:H5'' | 1:1:1824:A:N3 | 2.29 | 0.47 |
| 1:1:1087:A:N7 | 1:1:1861:G:C6 | 2.83 | 0.47 |
| 1:1:1862:G:HO2' | 1:1:1863:A:P | 2.37 | 0.47 |
| 1:1:567:C:C3' | 1:1:568:C:H5' | 2.44 | 0.47 |
| 1:1:641:A:H2' | 1:1:642:U:H5' | 1.97 | 0.47 |
| 1:1:93:U:H3' | 1:1:94:G:H8 | 1.80 | 0.47 |
| 3:B:49:VAL:HG21 | 3:B:58:ALA:HB2 | 1.96 | 0.47 |
| 5:D:106:ARG:HH12 | 5:D:173:ARG:HB2 | 1.78 | 0.47 |
| 1:1:125:C:H5' | 6:E:136:ILE:HB | 1.95 | 0.47 |
| 6:E:122:LYS:O | 6:E:162:ILE:HG22 | 2.14 | 0.47 |
| 7:F:163:PHE:CE2 | 7:F:164:ARG:HG3 | 2.49 | 0.47 |
| 9:H:78:ARG:O | 9:H:81:ARG:HB3 | 2.15 | 0.47 |
| 14:M:76:LEU:HB3 | 14:M:129:LYS:O | 2.14 | 0.47 |
| 16:O:115:ALA:O | 16:O:119:LEU:HD13 | 2.14 | 0.47 |
| 18:Q:12:VAL:HG11 | 18:Q:91:ALA:N | 2.29 | 0.47 |
| 27:Z:50:PHE:HE2 | 27:Z:55:TYR:CD1 | 2.32 | 0.47 |
| 1:1:1074:C:H2' | 1:1:1075:C:C6 | 2.49 | 0.47 |
| 1:1:125:C:C6 | 1:1:125:C:OP1 | 2.68 | 0.47 |
| 1:1:1624:U:OP2 | 1:1:1624:U:C5 | 2.67 | 0.47 |
| 1:1:1714:U:C3' | 1:1:1715:A:H8 | 2.27 | 0.47 |
| 1:1:181:A:O5' | 1:1:182:C:C5' | 2.63 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:192:C:C2' | 1:1:193:C:H5' | 2.43 | 0.47 |
| 1:1:23:G:C5 | 1:1:24:C:C4 | 3.02 | 0.47 |
| 1:1:380:G:N2 | 1:1:382:C:H3' | 2.30 | 0.47 |
| 1:1:527:C:C5' | 1:1:527:C:H6 | 2.28 | 0.47 |
| 1:1:884:C:C2' | 1:1:885:U:H5' | 2.45 | 0.47 |
| 1:1:912:C:O2' | 1:1:913:A:C4' | 2.61 | 0.47 |
| 1:1:993:G:C2' | 1:1:994:C:H5' | 2.45 | 0.47 |
| 4:C:255:LEU:O | 4:C:255:LEU:HG | 2.14 | 0.47 |
| 6:E:87:MET:CE | 6:E:123:LEU:HD12 | 2.45 | 0.47 |
| 14:M:30:GLY:HA3 | 14:M:113:ASP:OD1 | 2.15 | 0.47 |
| 18:Q:39:LEU:O | 18:Q:42:ILE:HG13 | 2.14 | 0.47 |
| 18:Q:96:TYR:HA | 18:Q:100:VAL:CG2 | 2.44 | 0.47 |
| 19:R:5:ARG:HB2 | 19:R:10:LYS:HE2 | 1.96 | 0.47 |
| 20:S:27:ALA:HB1 | 20:S:41:ALA:HB1 | 1.97 | 0.47 |
| 26:Y:59:GLY:O | 26:Y:71:GLY:CA | 2.62 | 0.47 |
| 1:1:1015:U:C5 | 15:N:13:GLN:O | 2.68 | 0.47 |
| 1:1:1195:A:C2 | 1:1:1196:A:N7 | 2.83 | 0.47 |
| 1:1:1245:G:H2' | 1:1:1246:A:C8 | 2.49 | 0.47 |
| 1:1:1356:G:O5' | 1:1:1356:G:H8 | 1.96 | 0.47 |
| 1:1:1361:G:N7 | 1:1:1362:U:C5 | 2.83 | 0.47 |
| 1:1:1547:C:H5'' | 1:1:1547:C:H6 | 1.79 | 0.47 |
| 1:1:159:A:H8 | 1:1:159:A:P | 2.38 | 0.47 |
| 1:1:1649:U:C2' | 1:1:1650:A:H5' | 2.44 | 0.47 |
| 1:1:1704:C:H6 | 1:1:1704:C:O5' | 1.97 | 0.47 |
| 1:1:1867:U:H1' | 1:1:1868:U:O5' | 2.14 | 0.47 |
| 1:1:36:U:N3 | 1:1:520:A:N1 | 2.63 | 0.47 |
| 1:1:515:G:H8 | 1:1:515:G:O5' | 1.98 | 0.47 |
| 1:1:583:A:C3' | 1:1:584:A:C8 | 2.97 | 0.47 |
| 1:1:684:G:C4 | 1:1:920:A:C8 | 3.03 | 0.47 |
| 1:1:841:G:C8 | 26:Y:12:PHE:CZ | 3.02 | 0.47 |
| 1:1:934:G:H5' | 1:1:993:G:H21 | 1.75 | 0.47 |
| 2:A:110:ASN:HD21 | 2:A:113:GLN:CB | 2.28 | 0.47 |
| 2:A:5:LEU:HD22 | 2:A:8:LEU:HD12 | 1.97 | 0.47 |
| 3:B:160:GLN:HE21 | 3:B:204:ILE:CG2 | 2.28 | 0.47 |
| 3:B:71:LEU:HA | 3:B:74:LEU:HB3 | 1.97 | 0.47 |
| 8:G:53:SER:HB3 | 8:G:110:ASN:C | 2.34 | 0.47 |
| 9:H:53:VAL:HG11 | 9:H:171:GLU:HG3 | 1.97 | 0.47 |
| 1:1:1208:A:C6 | 1:1:1692:U:O2 | 2.68 | 0.47 |
| 1:1:475:C:C5' | 1:1:475:C:H6 | 2.07 | 0.47 |
| 1:1:691:G:C4 | 1:1:692:G:C8 | 3.02 | 0.47 |
| 1:1:888:U:H5' | 1:1:889:U:OP2 | 2.14 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:949:G:O5' | 1:1:949:G:H8 | 1.98 | 0.47 |
| 3:B:124:HIS:HB3 | 3:B:138:PHE:CE2 | 2.50 | 0.47 |
| 3:B:71:LEU:O | 3:B:71:LEU:HD22 | 2.15 | 0.47 |
| 6:E:114:ILE:HG23 | 6:E:118:GLU:HB2 | 1.94 | 0.47 |
| 8:G:87:ARG:O | 8:G:88:ARG:HB3 | 2.15 | 0.47 |
| 10:I:48:VAL:HG21 | 10:I:54:LYS:HD3 | 1.97 | 0.47 |
| 16:O:85:CYS:HA | 16:O:88:LEU:HD12 | 1.95 | 0.47 |
| 20:S:46:ARG:CZ | 21:T:37:VAL:HG22 | 2.44 | 0.47 |
| 26:Y:41:ARG:HH12 | 26:Y:94:HIS:CD2 | 2.32 | 0.47 |
| 1:1:1208:A:P | 1:1:1835:A:C2 | 3.08 | 0.47 |
| 1:1:1411:G:N3 | 1:1:1411:G:C2' | 2.77 | 0.47 |
| 1:1:1689:C:H2' | 1:1:1690:U:H6 | 1.79 | 0.47 |
| 1:1:1769:C:C6 | 1:1:1769:C:O5' | 2.67 | 0.47 |
| 1:1:298:G:O2' | 1:1:299:A:H5' | 2.14 | 0.47 |
| 1:1:521:A:N6 | 1:1:522:A:C2 | 2.83 | 0.47 |
| 1:1:558:G:OP2 | 1:1:558:G:C8 | 2.68 | 0.47 |
| 1:1:563:G:C5 | 1:1:564:A:N7 | 2.83 | 0.47 |
| 1:1:78:C:C1' | 1:1:79:A:OP2 | 2.61 | 0.47 |
| 1:1:876:C:H2' | 1:1:877:C:H6 | 1.79 | 0.47 |
| 1:1:953:C:H2' | 1:1:954:U:O4' | 2.15 | 0.47 |
| 3:B:57:ILE:HG22 | 3:B:59:SER:H | 1.78 | 0.47 |
| 4:C:63:VAL:O | 4:C:64:THR:HB | 2.15 | 0.47 |
| 6:E:124:CYS:HB2 | 6:E:141:THR:CG2 | 2.45 | 0.47 |
| 7:F:40:ALA:O | 7:F:42:LYS:HG3 | 2.14 | 0.47 |
| 1:1:869:A:N7 | 9:H:115:LYS:HB3 | 2.30 | 0.47 |
| 10:I:158:ILE:O | 10:I:159:SER:O | 2.33 | 0.47 |
| 15:N:100:LYS:HG2 | 15:N:104:ARG:NH1 | 2.29 | 0.47 |
| 21:T:41:LYS:HG2 | 21:T:94:ARG:O | 2.15 | 0.47 |
| 24:W:99:PHE:O | 24:W:101:PHE:N | 2.48 | 0.47 |
| 25:X:106:GLY:O | 25:X:107:ARG:O | 2.33 | 0.47 |
| 26:Y:100:LYS:HG2 | 26:Y:100:LYS:O | 2.14 | 0.47 |
| 1:1:1017:U:C5 | 1:1:1018:U:C5 | 3.03 | 0.47 |
| 1:1:1161:U:C6 | 1:1:1161:U:C3' | 2.98 | 0.47 |
| 1:1:1298:G:H1' | 17:P:79:HIS:CB | 2.43 | 0.47 |
| 1:1:1618:C:H5'' | 1:1:1618:C:C6 | 2.49 | 0.47 |
| 1:1:1638:G:C5 | 1:1:1638:G:OP2 | 2.68 | 0.47 |
| 1:1:1709:G:H2' | 1:1:1710:C:H5'' | 1.97 | 0.47 |
| 1:1:178:C:H2' | 1:1:179:C:C1' | 2.44 | 0.47 |
| 1:1:1829:G:O5' | 1:1:1829:G:C8 | 2.68 | 0.47 |
| 1:1:215:G:P | 1:1:215:G:H3' | 2.55 | 0.47 |
| 1:1:462:C:H2' | 1:1:463:C:O5' | 2.15 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:525:A:C2 | 1:1:561:A:N6 | 2.71 | 0.47 |
| 1:1:673:G:H1' | 1:1:1084:A:N3 | 2.30 | 0.47 |
| 1:1:743:U:H5'' | 1:1:743:U:C2 | 2.50 | 0.47 |
| 1:1:745:C:H3' | 9:H:105:THR:HG23 | 1.98 | 0.47 |
| 1:1:1352:G:H5'' | 2:A:139:TYR:CZ | 2.50 | 0.47 |
| 3:B:105:LEU:HD11 | 3:B:109:LYS:HG2 | 1.97 | 0.47 |
| 3:B:140:VAL:HB | 3:B:213:ARG:HH12 | 1.80 | 0.47 |
| 3:B:160:GLN:NE2 | 3:B:204:ILE:HG23 | 2.29 | 0.47 |
| 6:E:173:ILE:HG21 | 6:E:230:ASN:HD22 | 1.78 | 0.47 |
| 9:H:125:VAL:O | 9:H:128:ALA:HB3 | 2.15 | 0.47 |
| 10:I:48:VAL:HG21 | 10:I:54:LYS:CD | 2.44 | 0.47 |
| 1:1:919:A:H2 | 15:N:64:ARG:NH1 | 2.12 | 0.47 |
| 17:P:22:LEU:HD11 | 17:P:109:PRO:CG | 2.45 | 0.47 |
| 1:1:1006:C:H6 | 1:1:1006:C:O5' | 1.98 | 0.46 |
| 1:1:1426:U:C5 | 1:1:1427:C:C5 | 3.02 | 0.46 |
| 1:1:1534:C:H5' | 1:1:1536:G:H1' | 1.97 | 0.46 |
| 1:1:1654:G:C3' | 1:1:1655:C:C5 | 2.98 | 0.46 |
| 1:1:305:U:C6 | 1:1:305:U:OP1 | 2.68 | 0.46 |
| 1:1:388:U:H3' | 1:1:389:A:H8 | 1.81 | 0.46 |
| 1:1:664:A:H2' | 1:1:664:A:N3 | 2.29 | 0.46 |
| 1:1:944:A:H4' | 16:O:134:PRO:HB2 | 1.95 | 0.46 |
| 2:A:171:VAL:O | 2:A:175:TRP:HD1 | 1.97 | 0.46 |
| 4:C:167:ARG:C | 4:C:181:PRO:HD3 | 2.35 | 0.46 |
| 1:1:67:C:N4 | 8:G:168:LYS:O | 2.46 | 0.46 |
| 10:I:131:PRO:HG3 | 10:I:147:LYS:HE3 | 1.96 | 0.46 |
| 11:J:122:SER:O | 11:J:125:HIS:HB3 | 2.14 | 0.46 |
| 1:1:526:A:O3' | 11:J:124:HIS:HB3 | 2.14 | 0.46 |
| 1:1:1512:C:H5' | 12:K:29:MET:SD | 2.55 | 0.46 |
| 17:P:84:ILE:HD11 | 17:P:115:TYR:CE2 | 2.50 | 0.46 |
| 22:U:22:ILE:HG12 | 22:U:114:VAL:HG12 | 1.96 | 0.46 |
| 4:C:82:TYR:CD1 | 23:V:26:ALA:HB1 | 2.50 | 0.46 |
| 1:1:28:U:H4' | 25:X:124:LYS:HZ1 | 1.80 | 0.46 |
| 27:Z:44:LEU:HD22 | 27:Z:46:ASN:OD1 | 2.14 | 0.46 |
| 1:1:1137:U:C6 | 1:1:1137:U:OP2 | 2.68 | 0.46 |
| 1:1:1282:A:C2' | 1:1:1283:C:H5' | 2.45 | 0.46 |
| 1:1:1304:U:O5' | 1:1:1304:U:H6 | 1.99 | 0.46 |
| 1:1:1529:C:H6 | 1:1:1529:C:O5' | 1.99 | 0.46 |
| 1:1:1610:G:H2' | 1:1:1611:G:O4' | 2.15 | 0.46 |
| 1:1:1803:U:H2' | 1:1:1804:U:C6 | 2.50 | 0.46 |
| 1:1:311:C:C2' | 1:1:311:C:O2 | 2.63 | 0.46 |
| 1:1:474:G:H8 | 1:1:474:G:OP1 | 1.97 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:543:C:C6 | 1:1:543:C:C3' | 2.97 | 0.46 |
| 1:1:61:A:P | 1:1:61:A:H3' | 2.55 | 0.46 |
| 1:1:684:G:H2' | 1:1:685:A:O4' | 2.15 | 0.46 |
| 1:1:927:C:C2' | 1:1:928:G:H5' | 2.46 | 0.46 |
| 6:E:44:LEU:HD12 | 6:E:79:ASP:O | 2.16 | 0.46 |
| 14:M:35:ILE:HD11 | 14:M:61:TYR:OH | 2.15 | 0.46 |
| 16:O:56:VAL:HG12 | 16:O:77:ALA:HB1 | 1.97 | 0.46 |
| 17:P:44:ARG:HD3 | 17:P:44:ARG:C | 2.36 | 0.46 |
| 20:S:4:VAL:HG21 | 27:Z:49:LEU:HD11 | 1.97 | 0.46 |
| 23:V:67:ASP:O | 23:V:70:LEU:HB3 | 2.16 | 0.46 |
| 25:X:68:LYS:CB | 25:X:85:VAL:HB | 2.45 | 0.46 |
| 1:1:1085:C:H4' | 1:1:1086:G:H21 | 1.79 | 0.46 |
| 1:1:1153:C:O2 | 1:1:1153:C:H2' | 2.14 | 0.46 |
| 1:1:1202:U:H3 | 1:1:1697:A:H61 | 1.62 | 0.46 |
| 1:1:1220:A:N6 | 1:1:1221:G:C6 | 2.83 | 0.46 |
| 1:1:1284:A:H3' | 1:1:1285:G:C4' | 2.46 | 0.46 |
| 1:1:1406:G:O4' | 1:1:1407:U:C5' | 2.64 | 0.46 |
| 1:1:173:A:H2' | 1:1:174:C:C6 | 2.50 | 0.46 |
| 1:1:1767:C:C6 | 1:1:1767:C:C3' | 2.99 | 0.46 |
| 1:1:197:U:C4 | 1:1:198:U:H5 | 2.33 | 0.46 |
| 1:1:20:G:H4' | 1:1:620:G:N2 | 2.28 | 0.46 |
| 1:1:417:C:H5' | 1:1:418:A:OP2 | 2.15 | 0.46 |
| 1:1:852:G:N3 | 1:1:852:G:H2' | 2.29 | 0.46 |
| 1:1:985:G:C3' | 1:1:986:G:H5' | 2.45 | 0.46 |
| 6:E:19:MET:HE3 | 6:E:108:ARG:HG2 | 1.98 | 0.46 |
| 8:G:8:PRO:HG3 | 8:G:112:VAL:HG13 | 1.97 | 0.46 |
| 9:H:131:GLU:OE2 | 9:H:139:ILE:HD11 | 2.15 | 0.46 |
| 10:I:65:PHE:O | 10:I:73:THR:HA | 2.15 | 0.46 |
| 11:J:136:ARG:HD2 | 11:J:160:SER:HB2 | 1.97 | 0.46 |
| 13:L:4:ILE:HG21 | 13:L:55:TYR:HA | 1.95 | 0.46 |
| 17:P:111:MET:HG2 | 17:P:119:PHE:CZ | 2.50 | 0.46 |
| 18:Q:33:LYS:HD3 | 18:Q:69:ARG:CD | 2.45 | 0.46 |
| 24:W:25:VAL:O | 24:W:62:VAL:HA | 2.15 | 0.46 |
| 1:1:1076:G:H5' | 15:N:106:ARG:HH11 | 1.78 | 0.46 |
| 1:1:1085:C:H1' | 1:1:1086:G:H5'' | 1.96 | 0.46 |
| 1:1:1288:U:OP2 | 1:1:1311:C:C2 | 2.68 | 0.46 |
| 1:1:1332:A:OP1 | 1:1:1332:A:H3' | 2.16 | 0.46 |
| 1:1:1338:G:H4' | 22:U:74:SER:N | 2.27 | 0.46 |
| 1:1:1414:A:C6 | 1:1:1415:C:N4 | 2.84 | 0.46 |
| 1:1:1521:C:H2' | 20:S:136:THR:OG1 | 2.16 | 0.46 |
| 1:1:1555:U:C2' | 1:1:1556:A:H5' | 2.45 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:331:C:C3' | 1:1:332:G:C5' | 2.92 | 0.46 |
| 1:1:423:U:C4 | 1:1:424:C:C5 | 3.04 | 0.46 |
| 1:1:520:A:H2' | 1:1:521:A:O4' | 2.14 | 0.46 |
| 1:1:668:A:C1' | 1:1:1198:G:H1' | 2.45 | 0.46 |
| 1:1:743:U:H5 | 9:H:97:GLN:NE2 | 2.12 | 0.46 |
| 1:1:77:A:H5'' | 1:1:78:C:N4 | 2.30 | 0.46 |
| 1:1:805:U:O5' | 1:1:805:U:C6 | 2.68 | 0.46 |
| 1:1:856:C:C2' | 1:1:857:U:H5' | 2.45 | 0.46 |
| 6:E:133:VAL:O | 6:E:136:ILE:CG2 | 2.63 | 0.46 |
| 6:E:18:TRP:HB3 | 6:E:20:LEU:HG | 1.98 | 0.46 |
| 15:N:70:LYS:HE3 | 15:N:73:ARG:NH1 | 2.29 | 0.46 |
| 17:P:85:ILE:CD1 | 17:P:111:MET:HB3 | 2.46 | 0.46 |
| 17:P:17:TYR:CB | 17:P:25:LEU:HD11 | 2.45 | 0.46 |
| 21:T:82:ARG:HG3 | 21:T:90:SER:OG | 2.16 | 0.46 |
| 1:1:1043:G:H1' | 1:1:1044:G:O5' | 2.15 | 0.46 |
| 1:1:1284:A:C4 | 1:1:1286:G:H5'' | 2.50 | 0.46 |
| 1:1:1607:A:C2 | 1:1:1608:U:H1' | 2.50 | 0.46 |
| 1:1:1697:A:O2' | 1:1:1698:C:P | 2.73 | 0.46 |
| 1:1:1740:C:H5'' | 10:I:58:LEU:HD11 | 1.97 | 0.46 |
| 1:1:1862:G:H4' | 1:1:1863:A:OP1 | 2.15 | 0.46 |
| 1:1:395:G:C8 | 1:1:395:G:O5' | 2.69 | 0.46 |
| 1:1:577:U:O4' | 1:1:577:U:O2 | 2.33 | 0.46 |
| 1:1:958:G:C6 | 1:1:959:G:C2 | 3.03 | 0.46 |
| 2:A:12:GLU:HB3 | 19:R:115:SER:HB2 | 1.98 | 0.46 |
| 2:A:12:GLU:O | 2:A:15:VAL:HG22 | 2.16 | 0.46 |
| 3:B:30:TRP:CD1 | 3:B:48:LEU:HB3 | 2.50 | 0.46 |
| 4:C:109:ILE:HD11 | 4:C:151:ILE:HD11 | 1.96 | 0.46 |
| 6:E:108:ARG:NH2 | 6:E:240:ARG:HH12 | 2.14 | 0.46 |
| 7:F:100:ILE:CD1 | 7:F:177:LEU:HD22 | 2.46 | 0.46 |
| 1:1:78:C:O3' | 8:G:175:LYS:HG2 | 2.15 | 0.46 |
| 8:G:62:PRO:HG2 | 8:G:83:CYS:SG | 2.55 | 0.46 |
| 14:M:25:ALA:HB1 | 14:M:111:VAL:HG13 | 1.97 | 0.46 |
| 1:1:1286:G:C1' | 14:M:34:GLY:HA3 | 2.43 | 0.46 |
| 18:Q:34:VAL:O | 18:Q:37:ARG:HG2 | 2.15 | 0.46 |
| 20:S:39:ARG:HH11 | 21:T:39:LEU:H | 1.63 | 0.46 |
| 21:T:40:ALA:O | 21:T:41:LYS:HB2 | 2.15 | 0.46 |
| 1:1:1447:G:H1' | 22:U:55:ARG:HE | 1.80 | 0.46 |
| 1:1:1142:G:N2 | 1:1:1145:A:OP2 | 2.48 | 0.46 |
| 1:1:1175:G:H2' | 1:1:1176:G:C8 | 2.51 | 0.46 |
| 1:1:1432:U:C4 | 1:1:1433:C:N4 | 2.83 | 0.46 |
| 1:1:1473:G:H5' | 1:1:1474:A:OP2 | 2.15 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:1529:C:H5' | 1:1:1666:C:OP1 | 2.16 | 0.46 |
| 1:1:1539:U:H2' | 1:1:1540:G:C5' | 2.46 | 0.46 |
| 1:1:1668:U:H5'' | 18:Q:132:PHE:HA | 1.98 | 0.46 |
| 1:1:1688:C:C2 | 1:1:1689:C:C5 | 3.04 | 0.46 |
| 1:1:1712:A:H2' | 1:1:1713:C:C6 | 2.50 | 0.46 |
| 1:1:1766:C:H2' | 1:1:1766:C:O2 | 2.15 | 0.46 |
| 1:1:2:A:H3' | 1:1:3:C:H5' | 1.98 | 0.46 |
| 1:1:438:G:H8 | 1:1:438:G:O5' | 1.99 | 0.46 |
| 1:1:593:C:C6 | 1:1:593:C:P | 3.09 | 0.46 |
| 1:1:522:A:C6 | 1:1:643:A:H5' | 2.50 | 0.46 |
| 1:1:746:C:O2' | 1:1:747:U:C2 | 2.65 | 0.46 |
| 1:1:751:G:C4 | 1:1:752:G:N7 | 2.84 | 0.46 |
| 1:1:920:A:H2' | 1:1:922:A:C8 | 2.37 | 0.46 |
| 7:F:78:MET:O | 7:F:79:HIS:HB3 | 2.15 | 0.46 |
| 7:F:92:ILE:HG23 | 7:F:170:ALA:HB2 | 1.97 | 0.46 |
| 13:L:20:LYS:HE3 | 13:L:21:LYS:HZ3 | 1.80 | 0.46 |
| 20:S:91:LYS:HE3 | 20:S:113:ARG:HH12 | 1.81 | 0.46 |
| 22:U:24:LEU:HD23 | 22:U:24:LEU:N | 2.30 | 0.46 |
| 1:1:1058:A:C2' | 1:1:1059:G:H5' | 2.46 | 0.46 |
| 1:1:105:U:C4 | 1:1:106:C:C4 | 3.03 | 0.46 |
| 1:1:1387:G:H2' | 1:1:1388:A:H8 | 1.80 | 0.46 |
| 1:1:1431:G:C4 | 1:1:1432:U:C4 | 3.04 | 0.46 |
| 1:1:1601:A:N1 | 1:1:1635:C:C4 | 2.84 | 0.46 |
| 1:1:1253:A:N7 | 1:1:1666:C:H4' | 2.30 | 0.46 |
| 1:1:1864:U:HO2' | 1:1:1866:A:H2 | 1.54 | 0.46 |
| 1:1:217:A:C2' | 1:1:218:U:H5' | 2.46 | 0.46 |
| 1:1:21:U:H3 | 1:1:654:A:H2 | 1.64 | 0.46 |
| 1:1:39:A:N6 | 1:1:515:G:H21 | 2.14 | 0.46 |
| 1:1:440:G:H5'' | 1:1:1798:C:O2' | 2.15 | 0.46 |
| 1:1:467:G:OP2 | 1:1:467:G:C8 | 2.68 | 0.46 |
| 1:1:564:A:H2' | 1:1:565:G:OP1 | 2.15 | 0.46 |
| 1:1:891:G:H8 | 1:1:891:G:O5' | 1.98 | 0.46 |
| 1:1:42:A:H4' | 1:1:98:C:OP2 | 2.16 | 0.46 |
| 2:A:8:LEU:HG | 2:A:191:ARG:CZ | 2.46 | 0.46 |
| 3:B:84:PHE:CD1 | 3:B:100:PHE:CE2 | 3.04 | 0.46 |
| 3:B:77:ASP:O | 3:B:78:GLU:CB | 2.63 | 0.46 |
| 6:E:88:ASP:HA | 6:E:122:LYS:HE3 | 1.97 | 0.46 |
| 10:I:144:LYS:O | 10:I:147:LYS:HG2 | 2.16 | 0.46 |
| 10:I:83:TYR:N | 10:I:91:VAL:HG21 | 2.31 | 0.46 |
| 15:N:62:GLN:CG | 15:N:65:PHE:HD1 | 2.29 | 0.46 |
| 17:P:34:MET:O | 17:P:42:ARG:HG2 | 2.16 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 20:S:60:THR:O | 20:S:63:GLU:HB2 | 2.14 | 0.46 |
| 1:1:935:G:C2 | 1:1:1008:A:C2 | 3.03 | 0.46 |
| 1:1:1288:U:C2 | 1:1:1315:U:H1' | 2.50 | 0.46 |
| 1:1:1352:G:OP1 | 2:A:109:THR:HB | 2.16 | 0.46 |
| 1:1:1387:G:H2' | 1:1:1388:A:C8 | 2.51 | 0.46 |
| 1:1:1406:G:H4' | 1:1:1407:U:C5' | 2.46 | 0.46 |
| 1:1:1416:C:C3' | 1:1:1417:C:C5' | 2.86 | 0.46 |
| 1:1:175:A:C6 | 1:1:176:U:C6 | 3.04 | 0.46 |
| 1:1:342:C:C6 | 1:1:342:C:H5'' | 2.51 | 0.46 |
| 1:1:369:C:O2' | 1:1:370:G:H5'' | 2.15 | 0.46 |
| 1:1:441:C:C5 | 1:1:448:A:N3 | 2.84 | 0.46 |
| 1:1:572:U:C2' | 1:1:573:U:C4 | 2.85 | 0.46 |
| 1:1:600:G:C2 | 1:1:601:G:C5 | 3.04 | 0.46 |
| 1:1:604:A:OP2 | 1:1:604:A:H3' | 2.16 | 0.46 |
| 1:1:615:C:C2' | 1:1:616:A:H5' | 2.45 | 0.46 |
| 1:1:67:C:C5 | 8:G:162:LEU:HG | 2.51 | 0.46 |
| 1:1:74:G:N3 | 1:1:74:G:H2' | 2.31 | 0.46 |
| 1:1:984:C:H2' | 1:1:985:G:C8 | 2.51 | 0.46 |
| 1:1:1350:U:H4' | 2:A:112:ILE:HD13 | 1.98 | 0.46 |
| 6:E:246:LEU:HD23 | 6:E:250:GLU:HB3 | 1.97 | 0.46 |
| 9:H:105:THR:CG2 | 9:H:105:THR:O | 2.64 | 0.46 |
| 1:1:371:A:C5' | 10:I:11:ARG:HB2 | 2.44 | 0.46 |
| 14:M:89:VAL:CG1 | 14:M:91:LEU:HG | 2.46 | 0.46 |
| 20:S:24:ARG:HA | 27:Z:48:VAL:CG1 | 2.43 | 0.46 |
| 1:1:1079:C:C3' | 1:1:1080:A:H5' | 2.46 | 0.46 |
| 1:1:1225:U:C6 | 1:1:1225:U:O5' | 2.69 | 0.46 |
| 1:1:1375:G:H3' | 1:1:1375:G:C8 | 2.50 | 0.46 |
| 1:1:1454:A:H61 | 1:1:1467:C:H41 | 1.62 | 0.46 |
| 1:1:1552:G:H2' | 5:D:3:VAL:CG2 | 2.44 | 0.46 |
| 1:1:1556:A:H2 | 1:1:1557:C:C5 | 2.26 | 0.46 |
| 1:1:1778:C:H6 | 1:1:1778:C:O5' | 1.99 | 0.46 |
| 1:1:316:G:C6 | 1:1:317:C:N4 | 2.84 | 0.46 |
| 1:1:346:C:H5'' | 6:E:38:LEU:CD1 | 2.46 | 0.46 |
| 1:1:532:C:C5 | 1:1:533:A:C8 | 3.04 | 0.46 |
| 1:1:594:A:C1' | 1:1:643:A:N6 | 2.62 | 0.46 |
| 1:1:656:G:H4' | 1:1:657:U:H5' | 1.98 | 0.46 |
| 1:1:745:C:O5' | 9:H:105:THR:HG23 | 2.15 | 0.46 |
| 1:1:798:G:H3' | 1:1:798:G:N3 | 2.31 | 0.46 |
| 1:1:901:G:O2' | 1:1:902:G:H5' | 2.15 | 0.46 |
| 22:U:66:ARG:H | 22:U:66:ARG:HD2 | 1.80 | 0.46 |
| 27:Z:54:THR:HB | 27:Z:58:LEU:HD11 | 1.97 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:1341:C:H6 | 1:1:1341:C:O5' | 1.98 | 0.46 |
| 1:1:1348:G:N2 | 1:1:1381:G:N2 | 2.56 | 0.46 |
| 1:1:1403:C:C6 | 1:1:1404:U:C6 | 3.04 | 0.46 |
| 1:1:1465:A:C5 | 1:1:1466:G:H1' | 2.50 | 0.46 |
| 1:1:154:U:O4' | 8:G:13:GLN:HB3 | 2.16 | 0.46 |
| 1:1:1616:U:O2 | 1:1:1616:U:C2' | 2.64 | 0.46 |
| 1:1:1628:C:H2' | 1:1:1629:C:C6 | 2.51 | 0.46 |
| 1:1:1695:A:H3' | 1:1:1696:C:C6 | 2.51 | 0.46 |
| 1:1:1752:C:O2' | 1:1:1753:C:H5' | 2.15 | 0.46 |
| 1:1:1808:U:H6 | 1:1:1808:U:O5' | 1.99 | 0.46 |
| 1:1:1850:A:O5' | 1:1:1850:A:H8 | 1.99 | 0.46 |
| 1:1:215:G:C8 | 1:1:215:G:O5' | 2.68 | 0.46 |
| 1:1:570:C:C3' | 1:1:571:U:H5'' | 2.41 | 0.46 |
| 1:1:685:A:O5' | 1:1:685:A:H8 | 1.99 | 0.46 |
| 1:1:831:G:H2' | 1:1:832:G:H8 | 1.81 | 0.46 |
| 2:A:62:ALA:HB1 | 2:A:185:MET:SD | 2.56 | 0.46 |
| 5:D:190:LEU:CB | 5:D:200:PRO:HD3 | 2.46 | 0.46 |
| 1:1:797:C:H41 | 9:H:104:PRO:HA | 1.81 | 0.46 |
| 10:I:191:GLU:HG3 | 13:L:20:LYS:HB2 | 1.98 | 0.46 |
| 26:Y:41:ARG:NH2 | 26:Y:53:ASP:HA | 2.31 | 0.46 |
| 1:1:1082:A:H2' | 1:1:1084:A:O5' | 2.16 | 0.45 |
| 1:1:1203:G:C2' | 1:1:1699:A:H2 | 2.29 | 0.45 |
| 1:1:1280:G:O2' | 1:1:1281:G:H5' | 2.16 | 0.45 |
| 1:1:1348:G:H22 | 1:1:1381:G:H1 | 1.65 | 0.45 |
| 1:1:1348:G:C2 | 1:1:1382:A:C2 | 3.03 | 0.45 |
| 1:1:1721:U:C4' | 1:1:1722:G:O5' | 2.64 | 0.45 |
| 1:1:1780:G:OP2 | 1:1:1781:A:C8 | 2.69 | 0.45 |
| 1:1:235:A:C4 | 1:1:236:A:C8 | 3.04 | 0.45 |
| 1:1:302:A:O2' | 10:I:74:ARG:HA | 2.16 | 0.45 |
| 1:1:538:U:H5'' | 1:1:539:C:OP2 | 2.16 | 0.45 |
| 1:1:681:U:H6 | 1:1:681:U:O5' | 1.98 | 0.45 |
| 1:1:743:U:O2 | 1:1:743:U:H2' | 2.15 | 0.45 |
| 1:1:77:A:C4' | 1:1:78:C:C5 | 2.99 | 0.45 |
| 8:G:106:LEU:HD22 | 8:G:106:LEU:H | 1.81 | 0.45 |
| 8:G:114:VAL:HG12 | 8:G:115:LYS:HG3 | 1.99 | 0.45 |
| 9:H:147:LYS:HD2 | 9:H:151:SER:HB2 | 1.97 | 0.45 |
| 16:O:61:LYS:HD3 | 16:O:76:LEU:HD13 | 1.98 | 0.45 |
| 1:1:1454:A:H5'' | 19:R:3:ARG:HD2 | 1.96 | 0.45 |
| 26:Y:97:TYR:O | 26:Y:98:GLU:CB | 2.63 | 0.45 |
| 20:S:9:PHE:CD2 | 27:Z:49:LEU:HD22 | 2.50 | 0.45 |
| 1:1:1035:A:C3' | 1:1:1035:A:C8 | 2.99 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:1204:A:O2' | 1:1:1699:A:H2' | 2.16 | 0.45 |
| 1:1:1284:A:N7 | 1:1:1286:G:OP2 | 2.49 | 0.45 |
| 1:1:1394:G:C6 | 1:1:1474:A:C2 | 3.05 | 0.45 |
| 1:1:1395:C:O2' | 1:1:1396:A:H5' | 2.16 | 0.45 |
| 1:1:1534:C:H3' | 1:1:1534:C:P | 2.56 | 0.45 |
| 1:1:1602:U:H3' | 1:1:1602:U:C6 | 2.50 | 0.45 |
| 1:1:1622:U:C6 | 1:1:1622:U:H3' | 2.50 | 0.45 |
| 1:1:1630:A:C6 | 1:1:1631:U:C4 | 3.04 | 0.45 |
| 1:1:1647:A:O2' | 1:1:1648:G:C5' | 2.61 | 0.45 |
| 1:1:1695:A:C6 | 1:1:1696:C:O2 | 2.69 | 0.45 |
| 1:1:1738:C:O5' | 1:1:1738:C:H6 | 1.99 | 0.45 |
| 1:1:179:C:OP2 | 1:1:179:C:C6 | 2.58 | 0.45 |
| 1:1:193:C:C5' | 1:1:193:C:H6 | 2.24 | 0.45 |
| 1:1:332:G:H1' | 1:1:333:G:N7 | 2.31 | 0.45 |
| 1:1:569:A:C3' | 1:1:570:C:H5'' | 2.46 | 0.45 |
| 1:1:667:U:H2' | 1:1:668:A:H5'' | 1.96 | 0.45 |
| 1:1:681:U:H2' | 1:1:682:U:H5' | 1.98 | 0.45 |
| 1:1:831:G:H2' | 1:1:832:G:C8 | 2.51 | 0.45 |
| 2:A:178:LEU:O | 2:A:182:VAL:HG23 | 2.15 | 0.45 |
| 2:A:39:TYR:CZ | 2:A:50:ASN:HB2 | 2.51 | 0.45 |
| 5:D:58:VAL:HA | 5:D:65:ARG:HD3 | 1.97 | 0.45 |
| 9:H:27:LEU:O | 9:H:40:LEU:HD11 | 2.17 | 0.45 |
| 11:J:75:ASN:O | 11:J:79:ARG:HB2 | 2.16 | 0.45 |
| 1:1:1648:G:H21 | 18:Q:128:GLU:CB | 2.29 | 0.45 |
| 20:S:27:ALA:HB2 | 20:S:45:LEU:HD21 | 1.97 | 0.45 |
| 20:S:73:ASN:HD22 | 20:S:76:GLN:HB2 | 1.81 | 0.45 |
| 20:S:74:PRO:HG2 | 20:S:84:LEU:HD21 | 1.96 | 0.45 |
| 20:S:70:ILE:HD13 | 20:S:77:TYR:CE1 | 2.52 | 0.45 |
| 24:W:94:LEU:HD12 | 24:W:97:ARG:HH22 | 1.80 | 0.45 |
| 1:1:84:A:H3' | 26:Y:122:LYS:HD2 | 1.98 | 0.45 |
| 1:1:1600:G:P | 27:Z:43:LYS:HD2 | 2.56 | 0.45 |
| 1:1:683:G:C1' | 1:1:1023:A:C2 | 2.86 | 0.45 |
| 1:1:1101:U:C6 | 1:1:1101:U:C3' | 2.98 | 0.45 |
| 1:1:1132:C:C5' | 1:1:1132:C:H6 | 2.30 | 0.45 |
| 1:1:1201:U:C6 | 1:1:1201:U:O5' | 2.67 | 0.45 |
| 1:1:1260:A:C8 | 1:1:1260:A:O5' | 2.70 | 0.45 |
| 1:1:1277:C:H2' | 1:1:1277:C:O2 | 2.16 | 0.45 |
| 1:1:1289:U:C5 | 1:1:1311:C:O2 | 2.70 | 0.45 |
| 1:1:1415:C:H5'' | 1:1:1415:C:C6 | 2.52 | 0.45 |
| 1:1:1579:A:N7 | 22:U:56:MET:HG2 | 2.32 | 0.45 |
| 1:1:1593:C:H5 | 27:Z:104:ARG:NH2 | 2.05 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:1532:C:H3' | 1:1:1637:A:H62 | 1.81 | 0.45 |
| 1:1:1639:G:C2' | 1:1:1639:G:N3 | 2.79 | 0.45 |
| 1:1:1654:G:C2' | 1:1:1655:C:C5 | 2.99 | 0.45 |
| 1:1:1814:G:O5' | 1:1:1814:G:C8 | 2.62 | 0.45 |
| 1:1:446:G:OP1 | 10:I:49:ARG:O | 2.34 | 0.45 |
| 1:1:567:C:H2' | 1:1:568:C:C5' | 2.44 | 0.45 |
| 1:1:621:C:H2' | 1:1:621:C:O2 | 2.15 | 0.45 |
| 1:1:850:C:H2' | 1:1:851:C:C5' | 2.45 | 0.45 |
| 1:1:899:U:C2' | 1:1:900:C:C6 | 2.98 | 0.45 |
| 2:A:40:LYS:HB2 | 19:R:105:MET:CA | 2.46 | 0.45 |
| 1:1:381:C:H5'' | 10:I:48:VAL:CG2 | 2.46 | 0.45 |
| 12:K:59:LYS:HB2 | 12:K:70:TYR:CD2 | 2.51 | 0.45 |
| 1:1:386:C:OP2 | 13:L:136:LYS:HD3 | 2.16 | 0.45 |
| 16:O:106:LYS:HE3 | 16:O:135:ILE:HG22 | 1.97 | 0.45 |
| 18:Q:45:ARG:HH21 | 21:T:10:ASN:HD21 | 1.65 | 0.45 |
| 1:1:1120:U:O4 | 1:1:1121:G:C5 | 2.69 | 0.45 |
| 1:1:1322:G:H3' | 1:1:1322:G:C8 | 2.51 | 0.45 |
| 1:1:1338:G:H2' | 1:1:1339:U:C6 | 2.51 | 0.45 |
| 1:1:1413:G:C4 | 1:1:1414:A:C8 | 3.05 | 0.45 |
| 1:1:1586:U:O2 | 1:1:1587:G:C8 | 2.69 | 0.45 |
| 1:1:428:U:C3' | 1:1:429:C:H6 | 2.28 | 0.45 |
| 1:1:559:G:C5' | 1:1:560:A:H5'' | 2.46 | 0.45 |
| 1:1:598:G:C8 | 1:1:598:G:O5' | 2.69 | 0.45 |
| 1:1:685:A:O5' | 1:1:685:A:C8 | 2.69 | 0.45 |
| 1:1:794:A:O5' | 1:1:794:A:H8 | 2.00 | 0.45 |
| 1:1:794:A:O2' | 1:1:795:A:H4' | 2.16 | 0.45 |
| 3:B:176:VAL:O | 3:B:178:THR:N | 2.50 | 0.45 |
| 4:C:94:ILE:HG13 | 4:C:95:ASP:N | 2.31 | 0.45 |
| 1:1:1484:A:C5' | 5:D:159:HIS:HB3 | 2.37 | 0.45 |
| 6:E:49:ARG:HH21 | 6:E:58:GLY:HA2 | 1.82 | 0.45 |
| 8:G:127:THR:CG2 | 8:G:129:VAL:HG23 | 2.46 | 0.45 |
| 21:T:110:LEU:HB3 | 21:T:112:MET:HG3 | 1.99 | 0.45 |
| 27:Z:54:THR:O | 27:Z:58:LEU:HG | 2.16 | 0.45 |
| 1:1:100:U:H2' | 1:1:101:U:H5' | 1.99 | 0.45 |
| 1:1:1177:U:H2' | 1:1:1178:U:H6 | 1.80 | 0.45 |
| 1:1:1210:G:H4' | 2:A:85:ARG:CZ | 47.66 | 0.45 |
| 1:1:1292:C:C6 | 1:1:1292:C:O5' | 2.65 | 0.45 |
| 1:1:1326:U:O2 | 1:1:1326:U:O4' | 2.35 | 0.45 |
| 1:1:133:C:H3' | 1:1:134:C:C5' | 2.47 | 0.45 |
| 1:1:1395:C:H2' | 1:1:1396:A:O4' | 2.16 | 0.45 |
| 1:1:1632:G:H4' | 1:1:1632:G:OP1 | 2.17 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:1765:C:H2' | 1:1:1766:C:C1' | 2.46 | 0.45 |
| 1:1:1782:G:C2 | 1:1:1783:C:N4 | 2.84 | 0.45 |
| 1:1:313:A:H5'' | 8:G:191:ARG:HH12 | 1.81 | 0.45 |
| 1:1:494:C:O2' | 1:1:495:U:H5' | 2.16 | 0.45 |
| 1:1:694:G:H4' | 1:1:694:G:OP1 | 2.16 | 0.45 |
| 1:1:69:C:C3' | 1:1:69:C:C6 | 2.99 | 0.45 |
| 1:1:901:G:H8 | 1:1:901:G:P | 2.38 | 0.45 |
| 1:1:93:U:H3' | 1:1:94:G:C8 | 2.52 | 0.45 |
| 3:B:158:HIS:O | 3:B:161:VAL:HB | 2.17 | 0.45 |
| 5:D:162:ASP:N | 5:D:163:PRO:HD2 | 2.32 | 0.45 |
| 6:E:125:LYS:H | 6:E:142:HIS:CE1 | 2.34 | 0.45 |
| 7:F:184:SER:O | 7:F:186:ASN:N | 2.49 | 0.45 |
| 1:1:143:U:C2 | 8:G:180:VAL:HG11 | 2.52 | 0.45 |
| 14:M:61:TYR:CE1 | 14:M:107:SER:CB | 2.98 | 0.45 |
| 14:M:19:GLN:HA | 14:M:88:TRP:CD1 | 2.51 | 0.45 |
| 22:U:32:LEU:HD21 | 22:U:87:ARG:HG2 | 1.97 | 0.45 |
| 26:Y:103:SER:HB2 | 26:Y:107:ARG:CG | 2.46 | 0.45 |
| 1:1:1013:U:C4' | 1:1:1129:G:H21 | 2.29 | 0.45 |
| 1:1:1188:A:OP1 | 1:1:1188:A:H4' | 2.17 | 0.45 |
| 1:1:1195:A:H5'' | 1:1:1195:A:H8 | 1.81 | 0.45 |
| 1:1:1394:G:C2' | 1:1:1395:C:H5' | 2.46 | 0.45 |
| 1:1:1494:U:C1' | 1:1:1495:G:OP2 | 2.65 | 0.45 |
| 1:1:1518:C:H5'' | 1:1:1519:U:H5'' | 1.97 | 0.45 |
| 1:1:1849:G:H2' | 1:1:1850:A:H5' | 1.99 | 0.45 |
| 1:1:381:C:C5' | 1:1:381:C:H6 | 2.30 | 0.45 |
| 1:1:422:U:O2 | 1:1:652:U:H5'' | 2.17 | 0.45 |
| 1:1:840:C:H4' | 1:1:841:G:OP2 | 2.17 | 0.45 |
| 2:A:42:LYS:HB3 | 2:A:46:ILE:H | 1.82 | 0.45 |
| 3:B:84:PHE:CE1 | 3:B:100:PHE:HE2 | 2.35 | 0.45 |
| 3:B:172:MET:O | 3:B:176:VAL:HG23 | 2.16 | 0.45 |
| 6:E:99:PHE:CD1 | 6:E:111:VAL:HB | 2.51 | 0.45 |
| 8:G:84:TYR:OH | 8:G:91:GLU:HB3 | 2.15 | 0.45 |
| 1:1:1083:A:C2 | 1:1:1861:G:C4 | 3.04 | 0.45 |
| 1:1:1277:C:H5'' | 1:1:1277:C:C6 | 2.52 | 0.45 |
| 1:1:133:C:C6 | 1:1:134:C:H4' | 2.51 | 0.45 |
| 1:1:1377:U:O2 | 1:1:1379:A:H5' | 2.17 | 0.45 |
| 1:1:1639:G:OP1 | 1:1:1639:G:H4' | 2.17 | 0.45 |
| 1:1:1684:C:C3' | 1:1:1685:U:C5' | 2.95 | 0.45 |
| 1:1:178:C:H2' | 1:1:179:C:O4' | 2.15 | 0.45 |
| 1:1:184:G:C8 | 1:1:185:G:H1' | 2.51 | 0.45 |
| 1:1:203:G:O5' | 1:1:203:G:H8 | 1.99 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:1:104:A:H62 | 1:1:352:U:H5 | 1.63 | 0.45 |
| 1:1:374:G:O6 | 1:1:385:G:O6 | 2.35 | 0.45 |
| 1:1:548:C:H2' | 1:1:548:C:O2 | 2.17 | 0.45 |
| 1:1:67:C:C4 | 8:G:164:LYS:N | 2.85 | 0.45 |
| 1:1:753:C:C4 | 1:1:754:G:C4 | 3.04 | 0.45 |
| 1:1:753:C:N4 | 1:1:754:G:N3 | 2.65 | 0.45 |
| 8:G:15:LEU:HD13 | 8:G:15:LEU:C | 2.37 | 0.45 |
| 13:L:101:ARG:CB | 25:X:10:ALA:HB2 | 2.47 | 0.45 |
| 13:L:128:VAL:HG12 | 13:L:142:VAL:HA | 1.98 | 0.45 |
| 10:I:68:GLY:CA | 13:L:21:LYS:HE3 | 2.47 | 0.45 |
| 15:N:99:ARG:HH12 | 15:N:143:SER:HA | 1.82 | 0.45 |
| 19:R:105:MET:CG | 19:R:106:LEU:N | 2.79 | 0.45 |
| 21:T:113:VAL:HG13 | 21:T:121:ARG:HB2 | 1.99 | 0.45 |
| 1:1:1420:G:O2' | 21:T:2:PRO:HA | 2.16 | 0.45 |
| 1:1:1401:A:H4' | 22:U:52:GLY:HA3 | 1.99 | 0.45 |
| 26:Y:7:ILE:HG23 | 26:Y:25:ILE:HG23 | 1.98 | 0.45 |
| 1:1:1420:G:OP2 | 1:1:1420:G:C8 | 2.68 | 0.45 |
| 1:1:1565:C:H2' | 1:1:1566:G:C5' | 2.45 | 0.45 |
| 1:1:1602:U:C6 | 1:1:1602:U:C3' | 3.00 | 0.45 |
| 1:1:1661:A:C5 | 1:1:1662:U:N3 | 2.85 | 0.45 |
| 1:1:1676:U:H3' | 1:1:1677:U:H5'' | 1.98 | 0.45 |
| 1:1:1750:C:C6 | 1:1:1750:C:O5' | 2.70 | 0.45 |
| 1:1:1206:G:N3 | 1:1:1834:A:H1' | 2.32 | 0.45 |
| 1:1:189:U:C6 | 1:1:189:U:P | 3.10 | 0.45 |
| 1:1:336:A:N3 | 1:1:337:C:H5 | 2.15 | 0.45 |
| 1:1:594:A:H1' | 1:1:643:A:H62 | 1.75 | 0.45 |
| 6:E:87:MET:HE1 | 6:E:123:LEU:HD12 | 1.99 | 0.45 |
| 6:E:29:PRO:HB3 | 6:E:45:ILE:HG21 | 1.99 | 0.45 |
| 6:E:52:LEU:HB3 | 6:E:54:TYR:CD2 | 2.51 | 0.45 |
| 7:F:162:ALA:HB2 | 7:F:172:CYS:CB | 2.47 | 0.45 |
| 7:F:20:PHE:CD2 | 7:F:21:GLY:N | 2.81 | 0.45 |
| 5:D:62:LYS:HB3 | 12:K:94:LEU:O | 2.16 | 0.45 |
| 14:M:18:LEU:O | 14:M:22:LEU:HD13 | 2.17 | 0.45 |
| 15:N:141:TYR:CE1 | 15:N:146:ALA:HB2 | 2.51 | 0.45 |
| 18:Q:53:GLU:HB3 | 18:Q:54:PRO:HD3 | 1.99 | 0.45 |
| 1:1:1608:U:H5'' | 20:S:130:ARG:NH1 | 2.32 | 0.45 |
| 21:T:76:THR:CG2 | 21:T:95:GLY:H | 2.29 | 0.45 |
| 24:W:17:ALA:CB | 24:W:25:VAL:HG22 | 2.46 | 0.45 |
| 25:X:98:ASP:O | 25:X:100:VAL:HG23 | 2.16 | 0.45 |
| 26:Y:29:HIS:CG | 26:Y:35:VAL:HG13 | 2.51 | 0.45 |
| 1:1:1406:G:C1' | 1:1:1407:U:O5' | 2.65 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|------------------|--------------------------|-------------------|
| 1:1:1452:A:C6 | 1:1:1475:G:C6 | 3.05 | 0.45 |
| 1:1:157:U:H6 | 1:1:157:U:O5' | 1.99 | 0.45 |
| 1:1:1598:G:H4' | 1:1:1600:G:C6 | 2.51 | 0.45 |
| 1:1:1603:G:H5' | 20:S:38:ARG:NE | 2.32 | 0.45 |
| 1:1:1635:C:H3' | 1:1:1636:G:C5' | 2.47 | 0.45 |
| 1:1:1214:A:C5 | 1:1:1686:G:C2 | 3.04 | 0.45 |
| 1:1:181:A:P | 1:1:182:C:H5' | 2.57 | 0.45 |
| 1:1:1833:C:C5' | 1:1:1833:C:C6 | 2.85 | 0.45 |
| 1:1:212:C:H2' | 1:1:212:C:O2 | 2.15 | 0.45 |
| 1:1:23:G:H2' | 1:1:24:C:O4' | 2.17 | 0.45 |
| 1:1:411:G:C2 | 1:1:412:G:H1' | 2.52 | 0.45 |
| 1:1:746:C:OP2 | 1:1:746:C:C3' | 2.65 | 0.45 |
| 8:G:159:ARG:HB3 | 8:G:171:THR:CG2 | 2.47 | 0.45 |
| 8:G:177:GLN:O | 8:G:178:ARG:HB2 | 2.17 | 0.45 |
| 1:1:190:G:C4' | 10:I:116:HIS:O | 2.64 | 0.45 |
| 18:Q:16:LYS:HD3 | 18:Q:17:LYS:HG2 | 1.97 | 0.45 |
| 1:1:1028:A:H3' | 1:1:1029:G:C8 | 2.52 | 0.45 |
| 1:1:1087:A:H4' | 1:1:1088:U:OP2 | 2.16 | 0.45 |
| 1:1:1230:C:H2' | 1:1:1231:C:C5' | 2.46 | 0.45 |
| 1:1:1315:U:O5' | 1:1:1315:U:H6 | 2.00 | 0.45 |
| 1:1:1370:A:C5 | 1:1:1372:U:O4' | 2.70 | 0.45 |
| 1:1:1484:A:H4' | 5:D:159:HIS:HB3 | 1.99 | 0.45 |
| 1:1:1532:C:OP1 | 1:1:1533:A:H1' | 2.16 | 0.45 |
| 1:1:1561:A:N6 | 1:1:1575:G:C4 | 2.85 | 0.45 |
| 1:1:1576:G:H2' | 1:1:1577:G:C8 | 2.52 | 0.45 |
| 1:1:1605:G:H21 | 1:1:1634:A:H62 | 1.65 | 0.45 |
| 1:1:1641:A:H5'' | 1:1:1641:A:C8 | 2.50 | 0.45 |
| 1:1:133:C:C2 | 1:1:179:C:OP1 | 2.69 | 0.45 |
| 1:1:191:A:OP1 | 10:I:147:LYS:HB3 | 2.17 | 0.45 |
| 1:1:35:C:C3' | 1:1:36:U:C6 | 2.97 | 0.45 |
| 1:1:519:A:N1 | 1:1:520:A:C6 | 2.85 | 0.45 |
| 1:1:36:U:H5' | 1:1:580:U:O2' | 2.17 | 0.45 |
| 1:1:870:A:C6 | 1:1:916:A:C5 | 3.05 | 0.45 |
| 2:A:120:ARG:NE | 2:A:120:ARG:HA | 2.32 | 0.45 |
| 2:A:203:PHE:HE2 | 2:A:208:GLU:OE1 | 2.00 | 0.45 |
| 3:B:186:ASN:O | 3:B:190:PRO:CD | 2.63 | 0.45 |
| 3:B:62:LEU:HD23 | 3:B:65:ARG:HH21 | 1.81 | 0.45 |
| 7:F:91:ARG:HA | 7:F:91:ARG:NE | 2.31 | 0.45 |
| 8:G:194:LEU:O | 8:G:197:GLN:HB2 | 2.17 | 0.45 |
| 9:H:47:ALA:O | 9:H:63:PHE:HD1 | 2.00 | 0.45 |
| 10:I:37:LYS:HB2 | 10:I:59:ARG:HG2 | 1.98 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 19:R:5:ARG:HG3 | 19:R:53:TYR:CD1 | 2.52 | 0.45 |
| 1:1:1418:C:H5'' | 21:T:129:ARG:HA | 1.99 | 0.45 |
| 24:W:80:ASP:OD1 | 24:W:124:LYS:HG2 | 2.16 | 0.45 |
| 1:1:1034:A:C6 | 1:1:1082:A:C4 | 3.05 | 0.44 |
| 1:1:1071:G:H8 | 1:1:1071:G:O5' | 2.00 | 0.44 |
| 1:1:1375:G:H2' | 1:1:1376:A:C5' | 2.46 | 0.44 |
| 1:1:1547:C:H42 | 1:1:1656:G:H4' | 1.82 | 0.44 |
| 1:1:1655:C:H2' | 1:1:1656:G:H8 | 1.78 | 0.44 |
| 1:1:1665:G:C2 | 21:T:87:VAL:HB | 2.51 | 0.44 |
| 1:1:845:G:H5'' | 6:E:108:ARG:NH1 | 2.28 | 0.44 |
| 1:1:876:C:C6 | 1:1:877:C:H5 | 2.35 | 0.44 |
| 1:1:969:U:H1' | 1:1:971:G:O6 | 2.17 | 0.44 |
| 1:1:95:G:O2' | 1:1:96:C:H5' | 2.17 | 0.44 |
| 2:A:142:LEU:HD12 | 2:A:142:LEU:O | 2.16 | 0.44 |
| 3:B:66:VAL:HA | 3:B:86:LEU:O | 2.17 | 0.44 |
| 4:C:98:LEU:CG | 4:C:101:SER:HB2 | 2.47 | 0.44 |
| 6:E:30:ARG:O | 6:E:30:ARG:HG3 | 2.17 | 0.44 |
| 8:G:38:ALA:O | 8:G:41:LEU:HB2 | 2.17 | 0.44 |
| 8:G:63:MET:HE2 | 8:G:99:GLY:O | 2.17 | 0.44 |
| 9:H:83:LEU:HB3 | 9:H:92:VAL:HG21 | 1.98 | 0.44 |
| 10:I:68:GLY:HA3 | 13:L:21:LYS:NZ | 2.32 | 0.44 |
| 13:L:71:ARG:HH12 | 13:L:73:LEU:CD1 | 2.28 | 0.44 |
| 1:1:1854:U:H5'' | 16:O:150:ARG:HH22 | 1.81 | 0.44 |
| 18:Q:60:LYS:HA | 18:Q:63:PHE:CE1 | 2.52 | 0.44 |
| 20:S:25:LYS:HD2 | 20:S:28:PHE:H | 1.82 | 0.44 |
| 21:T:6:VAL:HG22 | 21:T:65:TYR:CE2 | 2.52 | 0.44 |
| 1:1:1081:U:C2' | 1:1:1082:A:H5' | 2.47 | 0.44 |
| 1:1:1127:C:C2' | 1:1:1128:C:H5' | 2.48 | 0.44 |
| 1:1:1130:G:C8 | 1:1:1130:G:O5' | 2.71 | 0.44 |
| 1:1:1196:A:O2' | 1:1:1197:G:H5' | 2.16 | 0.44 |
| 1:1:1321:G:N2 | 1:1:1322:G:C4 | 2.85 | 0.44 |
| 1:1:1340:U:H3' | 1:1:1341:C:H6 | 1.77 | 0.44 |
| 1:1:1417:C:C4 | 1:1:1418:C:N4 | 2.85 | 0.44 |
| 1:1:1695:A:C5 | 1:1:1696:C:C2 | 3.05 | 0.44 |
| 1:1:174:C:H6 | 1:1:174:C:H5'' | 1.83 | 0.44 |
| 1:1:1846:G:H3' | 1:1:1847:G:H8 | 1.81 | 0.44 |
| 1:1:311:C:O2 | 1:1:311:C:H2' | 2.18 | 0.44 |
| 1:1:338:G:H2' | 1:1:339:A:N7 | 2.32 | 0.44 |
| 1:1:573:U:C3' | 1:1:573:U:O2 | 2.65 | 0.44 |
| 1:1:59:U:C3' | 1:1:59:U:C6 | 3.00 | 0.44 |
| 1:1:611:G:O5' | 1:1:611:G:H8 | 2.01 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 2:A:9:GLN:HG3 | 2:A:10:MET:N | 2.32 | 0.44 |
| 8:G:64:LYS:O | 8:G:100:CYS:HB2 | 2.18 | 0.44 |
| 10:I:130:THR:O | 10:I:132:GLU:N | 2.50 | 0.44 |
| 15:N:28:LEU:HD11 | 15:N:32:ASP:HB3 | 1.99 | 0.44 |
| 1:1:1099:G:O5' | 1:1:1099:G:H8 | 2.00 | 0.44 |
| 1:1:1120:U:H3' | 1:1:1120:U:C6 | 2.52 | 0.44 |
| 1:1:1280:G:C2 | 1:1:1281:G:C6 | 3.06 | 0.44 |
| 1:1:130:G:H5' | 8:G:195:LYS:HZ3 | 1.82 | 0.44 |
| 1:1:130:G:O6 | 1:1:131:C:C5 | 2.71 | 0.44 |
| 1:1:1348:G:C8 | 1:1:1348:G:O5' | 2.62 | 0.44 |
| 1:1:1417:C:C5 | 1:1:1418:C:N4 | 2.85 | 0.44 |
| 1:1:1544:C:H4' | 18:Q:80:GLN:NE2 | 2.32 | 0.44 |
| 1:1:1561:A:C6 | 1:1:1575:G:N3 | 2.85 | 0.44 |
| 1:1:1579:A:C3' | 1:1:1579:A:N3 | 2.71 | 0.44 |
| 1:1:1609:C:C5' | 1:1:1609:C:C6 | 3.00 | 0.44 |
| 1:1:1620:A:H5' | 17:P:115:TYR:OH | 2.17 | 0.44 |
| 1:1:1679:A:C4' | 1:1:1679:A:OP2 | 2.65 | 0.44 |
| 1:1:190:G:H8 | 1:1:190:G:O5' | 2.01 | 0.44 |
| 1:1:320:G:HO2' | 1:1:321:C:P | 2.40 | 0.44 |
| 1:1:574:A:N7 | 1:1:575:A:H1' | 2.33 | 0.44 |
| 1:1:746:C:OP2 | 1:1:746:C:H2' | 2.17 | 0.44 |
| 4:C:163:VAL:HB | 4:C:164:PRO:HD2 | 1.99 | 0.44 |
| 6:E:251:GLU:O | 6:E:255:ARG:HG3 | 2.17 | 0.44 |
| 9:H:31:GLU:HB3 | 9:H:40:LEU:HD13 | 1.98 | 0.44 |
| 13:L:95:TYR:HB2 | 13:L:102:PHE:CE2 | 2.52 | 0.44 |
| 21:T:6:VAL:HG22 | 21:T:65:TYR:HE2 | 1.82 | 0.44 |
| 22:U:20:ILE:HG21 | 22:U:98:VAL:HG22 | 1.99 | 0.44 |
| 1:1:125:C:H4' | 6:E:136:ILE:CA | 2.40 | 0.44 |
| 1:1:1371:U:O2' | 1:1:1372:U:P | 2.76 | 0.44 |
| 1:1:1403:C:H2' | 1:1:1404:U:O5' | 2.17 | 0.44 |
| 1:1:1407:U:OP2 | 1:1:1408:U:C5 | 2.71 | 0.44 |
| 1:1:1416:C:C6 | 1:1:1417:C:H5'' | 2.53 | 0.44 |
| 1:1:1631:U:H2' | 1:1:1632:G:O4' | 2.17 | 0.44 |
| 1:1:1214:A:H61 | 1:1:1685:U:H3 | 1.64 | 0.44 |
| 1:1:571:U:C2' | 1:1:572:U:H4' | 2.47 | 0.44 |
| 1:1:578:C:OP2 | 1:1:578:C:C6 | 2.71 | 0.44 |
| 1:1:749:U:O2 | 1:1:795:A:N1 | 2.50 | 0.44 |
| 1:1:824:C:O2 | 11:J:144:ILE:HG21 | 2.17 | 0.44 |
| 1:1:946:U:H2' | 1:1:947:G:O4' | 2.17 | 0.44 |
| 1:1:1378:A:N3 | 2:A:105:PRO:HB3 | 2.32 | 0.44 |
| 2:A:205:ARG:HD2 | 2:A:205:ARG:HA | 1.88 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 2:A:82:THR:HG22 | 2:A:205:ARG:HB2 | 1.99 | 0.44 |
| 6:E:160:VAL:HG12 | 6:E:172:PHE:HB3 | 1.99 | 0.44 |
| 6:E:177:THR:HG23 | 6:E:196:THR:O | 2.18 | 0.44 |
| 9:H:117:PRO:HD2 | 9:H:120:ARG:HD3 | 1.99 | 0.44 |
| 9:H:63:PHE:CD2 | 9:H:95:ILE:HD11 | 2.51 | 0.44 |
| 10:I:68:GLY:HA3 | 13:L:21:LYS:CE | 2.46 | 0.44 |
| 14:M:51:VAL:HG22 | 14:M:109:VAL:O | 2.16 | 0.44 |
| 1:1:1043:G:O2' | 1:1:1044:G:H8 | 2.01 | 0.44 |
| 1:1:1103:C:H2' | 1:1:1104:G:H8 | 1.82 | 0.44 |
| 1:1:1223:A:O2' | 1:1:1651:A:H4' | 2.18 | 0.44 |
| 1:1:1242:U:H4' | 1:1:1243:U:C5' | 2.48 | 0.44 |
| 1:1:9:U:O2 | 1:1:12:U:H5 | 2.00 | 0.44 |
| 1:1:1402:A:C8 | 1:1:1403:C:C5 | 3.05 | 0.44 |
| 1:1:1769:C:O5' | 1:1:1769:C:H6 | 2.00 | 0.44 |
| 1:1:1782:G:O2' | 1:1:1783:C:C6 | 2.68 | 0.44 |
| 1:1:181:A:C3' | 1:1:182:C:C5' | 2.87 | 0.44 |
| 1:1:308:G:N3 | 1:1:308:G:OP1 | 2.51 | 0.44 |
| 1:1:312:G:H22 | 8:G:195:LYS:CG | 2.31 | 0.44 |
| 1:1:33:G:H2' | 1:1:34:U:C6 | 2.53 | 0.44 |
| 1:1:528:A:C8 | 1:1:528:A:P | 3.04 | 0.44 |
| 1:1:743:U:C5 | 9:H:98:ARG:O | 2.70 | 0.44 |
| 5:D:192:TRP:CD1 | 5:D:203:PRO:HA | 2.53 | 0.44 |
| 5:D:74:GLN:O | 5:D:78:GLY:CA | 2.64 | 0.44 |
| 6:E:21:ASP:HB2 | 6:E:24:THR:HG1 | 1.78 | 0.44 |
| 8:G:74:ARG:HB3 | 8:G:94:ARG:HE | 1.83 | 0.44 |
| 10:I:104:ILE:HG22 | 10:I:105:ASP:N | 2.33 | 0.44 |
| 10:I:83:TYR:CD1 | 10:I:205:ARG:HD2 | 2.53 | 0.44 |
| 1:1:1314:U:H3 | 12:K:2:LEU:HD11 | 1.82 | 0.44 |
| 12:K:11:ILE:HG12 | 12:K:38:LYS:HE2 | 1.99 | 0.44 |
| 17:P:126:VAL:HG13 | 17:P:127:LYS:N | 2.23 | 0.44 |
| 17:P:29:SER:O | 17:P:33:LEU:HD23 | 2.17 | 0.44 |
| 21:T:36:THR:O | 21:T:37:VAL:HB | 2.17 | 0.44 |
| 1:1:1196:A:C2 | 1:1:1197:G:H1' | 2.53 | 0.44 |
| 1:1:1363:C:O2 | 1:1:1363:C:O4' | 2.34 | 0.44 |
| 1:1:1348:G:H22 | 1:1:1381:G:H22 | 1.63 | 0.44 |
| 1:1:1495:G:N7 | 22:U:69:PRO:HB2 | 2.32 | 0.44 |
| 1:1:1657:G:H1 | 1:1:1667:U:H3 | 1.66 | 0.44 |
| 1:1:1696:C:O2 | 1:1:1697:A:C8 | 2.71 | 0.44 |
| 1:1:1739:C:C6 | 1:1:1739:C:O5' | 2.70 | 0.44 |
| 1:1:398:A:H4' | 1:1:399:C:C3' | 2.41 | 0.44 |
| 1:1:479:C:O2' | 1:1:480:G:H5' | 2.17 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:663:C:C2 | 1:1:664:A:C8 | 3.05 | 0.44 |
| 1:1:742:U:H6 | 9:H:49:LYS:HZ2 | 1.64 | 0.44 |
| 1:1:746:C:H4' | 1:1:747:U:OP1 | 2.17 | 0.44 |
| 1:1:999:G:H2' | 1:1:1000:C:H6 | 1.81 | 0.44 |
| 3:B:66:VAL:HG22 | 3:B:85:LYS:HG3 | 2.00 | 0.44 |
| 8:G:50:VAL:HG11 | 8:G:111:LEU:HB3 | 1.99 | 0.44 |
| 8:G:195:LYS:HD3 | 8:G:195:LYS:C | 2.38 | 0.44 |
| 8:G:90:GLY:C | 8:G:92:ARG:H | 2.20 | 0.44 |
| 10:I:26:LYS:O | 10:I:29:LEU:HD23 | 2.17 | 0.44 |
| 11:J:117:LEU:HB2 | 11:J:119:LEU:HD13 | 2.00 | 0.44 |
| 15:N:35:GLU:HA | 15:N:38:TYR:CE2 | 2.52 | 0.44 |
| 15:N:38:TYR:HB2 | 15:N:80:LEU:HD22 | 2.00 | 0.44 |
| 15:N:84:LEU:HD11 | 15:N:88:LEU:HD23 | 2.00 | 0.44 |
| 18:Q:17:LYS:O | 18:Q:17:LYS:HG3 | 2.18 | 0.44 |
| 21:T:107:LEU:HB3 | 21:T:113:VAL:HG23 | 1.98 | 0.44 |
| 21:T:30:VAL:HG11 | 21:T:35:ASP:OD1 | 2.17 | 0.44 |
| 21:T:75:MET:HA | 21:T:78:ILE:HG22 | 1.98 | 0.44 |
| 22:U:53:PRO:HB2 | 22:U:55:ARG:NH1 | 2.32 | 0.44 |
| 1:1:1149:A:O2' | 1:1:1150:A:H3' | 2.18 | 0.44 |
| 1:1:1214:A:C6 | 1:1:1217:A:C2 | 3.05 | 0.44 |
| 1:1:1579:A:C3' | 1:1:1580:A:H5'' | 2.47 | 0.44 |
| 1:1:181:A:C8 | 8:G:192:ILE:HG13 | 2.53 | 0.44 |
| 1:1:360:A:N3 | 1:1:362:C:H3' | 2.33 | 0.44 |
| 1:1:497:C:H2' | 1:1:498:C:C6 | 2.53 | 0.44 |
| 1:1:505:G:O2' | 1:1:506:G:H5' | 2.18 | 0.44 |
| 1:1:528:A:C2' | 1:1:529:A:H5' | 2.47 | 0.44 |
| 1:1:572:U:H6 | 1:1:572:U:C3' | 2.27 | 0.44 |
| 1:1:66:G:H1' | 1:1:67:C:OP1 | 2.18 | 0.44 |
| 1:1:876:C:H6 | 1:1:876:C:H3' | 1.81 | 0.44 |
| 2:A:204:TYR:HA | 2:A:208:GLU:HG2 | 2.00 | 0.44 |
| 3:B:173:THR:O | 3:B:177:GLN:NE2 | 2.51 | 0.44 |
| 3:B:66:VAL:CG2 | 3:B:85:LYS:HE3 | 2.47 | 0.44 |
| 7:F:158:ALA:CB | 7:F:173:LEU:HA | 2.47 | 0.44 |
| 7:F:59:LYS:HB3 | 7:F:62:ARG:HG2 | 2.00 | 0.44 |
| 8:G:59:GLN:HG2 | 8:G:59:GLN:O | 2.18 | 0.44 |
| 1:1:1790:A:H4' | 8:G:81:HIS:CE1 | 2.52 | 0.44 |
| 9:H:115:LYS:O | 9:H:117:PRO:HD3 | 2.18 | 0.44 |
| 10:I:131:PRO:HG3 | 10:I:147:LYS:HZ1 | 1.83 | 0.44 |
| 10:I:173:ALA:HB1 | 10:I:188:TYR:O | 2.17 | 0.44 |
| 10:I:29:LEU:HD21 | 10:I:49:ARG:HD3 | 1.98 | 0.44 |
| 6:E:252:ARG:HH11 | 11:J:72:PHE:HD1 | 1.64 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 11:J:84:ILE:CG2 | 11:J:108:ARG:HG3 | 2.48 | 0.44 |
| 13:L:101:ARG:C | 25:X:10:ALA:HB2 | 2.38 | 0.44 |
| 14:M:56:CYS:SG | 14:M:61:TYR:CD1 | 3.09 | 0.44 |
| 3:B:65:ARG:HA | 16:O:50:LYS:NZ | 2.33 | 0.44 |
| 19:R:105:MET:HG2 | 19:R:106:LEU:H | 1.82 | 0.44 |
| 1:1:1665:G:N2 | 21:T:87:VAL:HB | 2.33 | 0.44 |
| 1:1:1256:G:C5 | 1:1:1257:G:H1' | 2.53 | 0.44 |
| 1:1:1425:G:C6 | 1:1:1426:U:O4 | 2.71 | 0.44 |
| 1:1:1510:G:C8 | 1:1:1510:G:OP2 | 2.71 | 0.44 |
| 1:1:1598:G:C4' | 1:1:1600:G:O6 | 2.66 | 0.44 |
| 1:1:1831:A:C2' | 1:1:1832:A:H5' | 2.48 | 0.44 |
| 1:1:502:C:H1' | 1:1:503:C:O5' | 2.18 | 0.44 |
| 1:1:573:U:N3 | 1:1:576:A:C5 | 2.86 | 0.44 |
| 1:1:644:G:H2' | 1:1:645:C:C6 | 2.51 | 0.44 |
| 1:1:906:U:H2' | 1:1:907:G:H8 | 1.82 | 0.44 |
| 8:G:195:LYS:O | 8:G:195:LYS:HD3 | 2.17 | 0.44 |
| 12:K:13:GLU:OE1 | 12:K:83:LEU:HD13 | 2.17 | 0.44 |
| 14:M:51:VAL:HG12 | 14:M:77:ILE:CG1 | 2.48 | 0.44 |
| 16:O:18:GLY:N | 16:O:19:PRO:CD | 2.80 | 0.44 |
| 22:U:94:PRO:CD | 22:U:97:ILE:HD12 | 2.38 | 0.44 |
| 24:W:74:VAL:HG13 | 24:W:126:LEU:O | 2.18 | 0.44 |
| 1:1:1016:U:O2' | 1:1:1017:U:H5'' | 2.17 | 0.44 |
| 1:1:1115:U:O3' | 1:1:1116:C:H3' | 2.18 | 0.44 |
| 1:1:1317:C:O5' | 1:1:1506:A:N6 | 2.51 | 0.44 |
| 1:1:1670:C:O5' | 1:1:1670:C:H6 | 2.01 | 0.44 |
| 1:1:1762:C:H2' | 1:1:1763:G:H8 | 1.82 | 0.44 |
| 1:1:315:C:H6 | 1:1:315:C:C5' | 2.31 | 0.44 |
| 1:1:334:C:H2' | 1:1:335:G:H8 | 1.76 | 0.44 |
| 1:1:389:A:N3 | 1:1:389:A:H2' | 2.33 | 0.44 |
| 1:1:899:U:H3' | 1:1:900:C:C6 | 2.52 | 0.44 |
| 3:B:179:ASN:HB2 | 3:B:183:GLU:HB2 | 2.00 | 0.44 |
| 3:B:180:ASP:HB3 | 3:B:181:LEU:H | 1.57 | 0.44 |
| 6:E:203:GLY:O | 6:E:204:SER:HB2 | 2.17 | 0.44 |
| 7:F:48:TYR:CD1 | 7:F:49:LEU:N | 2.86 | 0.44 |
| 7:F:39:ILE:HG23 | 7:F:68:ILE:HG12 | 2.00 | 0.44 |
| 9:H:31:GLU:HB3 | 9:H:40:LEU:HD22 | 2.00 | 0.44 |
| 13:L:86:ILE:HG13 | 13:L:111:VAL:HG13 | 2.00 | 0.44 |
| 13:L:55:TYR:CD2 | 13:L:115:PRO:HG2 | 2.53 | 0.44 |
| 13:L:82:MET:HG2 | 13:L:85:THR:CG2 | 2.48 | 0.44 |
| 18:Q:89:SER:OG | 18:Q:119:LEU:HD13 | 2.18 | 0.44 |
| 18:Q:12:VAL:CG1 | 18:Q:90:LYS:HB2 | 2.48 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|------------------|--------------------------|-------------------|
| 1:1:1109:C:O2 | 1:1:1109:C:C2' | 2.66 | 0.43 |
| 1:1:1221:G:H2' | 1:1:1222:G:O4' | 2.17 | 0.43 |
| 1:1:1237:C:H2' | 1:1:1238:U:O4' | 2.18 | 0.43 |
| 1:1:125:C:O2' | 1:1:126:G:H5'' | 2.18 | 0.43 |
| 1:1:1406:G:C4' | 1:1:1407:U:H5' | 2.48 | 0.43 |
| 1:1:1471:C:O5' | 1:1:1471:C:H6 | 2.01 | 0.43 |
| 1:1:1533:A:C5 | 1:1:1604:G:O4' | 2.71 | 0.43 |
| 1:1:1745:A:N3 | 1:1:1745:A:H3' | 2.32 | 0.43 |
| 1:1:1767:C:H3' | 1:1:1767:C:H6 | 1.80 | 0.43 |
| 1:1:317:C:H4' | 1:1:317:C:OP1 | 2.19 | 0.43 |
| 1:1:593:C:C4' | 1:1:594:A:OP1 | 2.66 | 0.43 |
| 1:1:67:C:C5 | 8:G:164:LYS:HB2 | 2.53 | 0.43 |
| 1:1:795:A:C2 | 1:1:796:G:H1' | 2.53 | 0.43 |
| 2:A:77:ILE:HG12 | 2:A:99:ILE:HG21 | 1.99 | 0.43 |
| 3:B:129:THR:HB | 3:B:180:ASP:HA | 1.99 | 0.43 |
| 3:B:47:THR:HB | 3:B:65:ARG:HH11 | 1.81 | 0.43 |
| 3:B:66:VAL:CG2 | 3:B:85:LYS:HG3 | 2.48 | 0.43 |
| 4:C:191:VAL:HA | 4:C:227:ARG:O | 2.17 | 0.43 |
| 6:E:36:HIS:CG | 6:E:85:GLY:HA3 | 2.53 | 0.43 |
| 7:F:131:ALA:O | 7:F:133:THR:N | 2.51 | 0.43 |
| 7:F:99:ILE:HD11 | 27:Z:106:GLN:OE1 | 2.18 | 0.43 |
| 11:J:137:VAL:HB | 11:J:142:VAL:CG2 | 2.48 | 0.43 |
| 17:P:100:LYS:O | 17:P:101:THR:HB | 2.18 | 0.43 |
| 17:P:58:LYS:HG2 | 17:P:61:ARG:HH21 | 1.83 | 0.43 |
| 18:Q:110:ASP:O | 18:Q:114:GLN:HG2 | 2.18 | 0.43 |
| 22:U:39:LEU:C | 22:U:39:LEU:HD13 | 2.38 | 0.43 |
| 1:1:1447:G:OP1 | 22:U:85:HIS:ND1 | 2.51 | 0.43 |
| 26:Y:12:PHE:HA | 26:Y:22:GLN:O | 2.18 | 0.43 |
| 1:1:1050:A:H2' | 1:1:1051:G:C5' | 2.48 | 0.43 |
| 1:1:10:G:C8 | 1:1:1697:A:H2 | 2.32 | 0.43 |
| 1:1:1347:U:H2' | 1:1:1347:U:O2 | 2.17 | 0.43 |
| 1:1:1418:C:C5' | 21:T:129:ARG:HA | 2.49 | 0.43 |
| 1:1:1511:U:H2' | 1:1:1512:C:O4' | 2.18 | 0.43 |
| 1:1:1571:G:H2' | 1:1:1572:C:O4' | 2.18 | 0.43 |
| 1:1:1829:G:O5' | 1:1:1829:G:H8 | 2.01 | 0.43 |
| 1:1:401:A:N7 | 1:1:402:C:C5 | 2.85 | 0.43 |
| 1:1:438:G:H2' | 1:1:439:A:H8 | 1.77 | 0.43 |
| 1:1:69:C:H3' | 1:1:69:C:C6 | 2.53 | 0.43 |
| 1:1:805:U:OP1 | 24:W:82:GLN:HG3 | 2.18 | 0.43 |
| 1:1:900:C:C4 | 1:1:901:G:O6 | 2.71 | 0.43 |
| 1:1:973:C:C6 | 1:1:973:C:H3' | 2.53 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 3:B:109:LYS:O | 3:B:113:MET:HG2 | 2.18 | 0.43 |
| 3:B:112:SER:O | 3:B:115:LYS:HE2 | 2.18 | 0.43 |
| 4:C:60:TRP:CD1 | 4:C:92:GLU:OE1 | 2.71 | 0.43 |
| 7:F:100:ILE:HD11 | 7:F:177:LEU:HD22 | 2.00 | 0.43 |
| 17:P:60:LEU:HD21 | 17:P:92:SER:CB | 2.43 | 0.43 |
| 1:1:1654:G:H5' | 21:T:82:ARG:NH2 | 2.33 | 0.43 |
| 25:X:41:PHE:HB3 | 25:X:44:ALA:HB3 | 1.99 | 0.43 |
| 26:Y:45:ALA:HB1 | 26:Y:50:THR:O | 2.18 | 0.43 |
| 1:1:1043:G:C8 | 1:1:1043:G:O5' | 2.71 | 0.43 |
| 1:1:1083:A:H2' | 1:1:1858:G:H21 | 1.83 | 0.43 |
| 1:1:123:G:OP1 | 1:1:123:G:H4' | 2.19 | 0.43 |
| 1:1:1404:U:H6 | 1:1:1404:U:OP2 | 1.99 | 0.43 |
| 1:1:1442:U:C5' | 1:1:1443:C:H5'' | 2.47 | 0.43 |
| 1:1:164:A:H3' | 1:1:165:G:H8 | 1.81 | 0.43 |
| 1:1:165:G:O2' | 1:1:166:A:H5' | 2.18 | 0.43 |
| 1:1:20:G:C2' | 1:1:21:U:H5' | 2.48 | 0.43 |
| 1:1:313:A:C6 | 8:G:187:HIS:NE2 | 2.86 | 0.43 |
| 1:1:92:A:C8 | 1:1:446:G:H2' | 2.53 | 0.43 |
| 3:B:75:GLN:O | 3:B:76:ASN:CB | 2.66 | 0.43 |
| 10:I:102:VAL:HG12 | 10:I:103:LEU:N | 2.33 | 0.43 |
| 10:I:19:LYS:HA | 10:I:20:PRO:HD3 | 1.85 | 0.43 |
| 14:M:19:GLN:HB3 | 14:M:88:TRP:CE2 | 2.53 | 0.43 |
| 18:Q:10:VAL:HB | 18:Q:25:CYS:HB3 | 1.98 | 0.43 |
| 19:R:51:ALA:CA | 19:R:54:VAL:HG12 | 2.46 | 0.43 |
| 20:S:77:TYR:O | 20:S:78:LYS:CB | 2.66 | 0.43 |
| 21:T:75:MET:HB2 | 21:T:121:ARG:NH2 | 2.33 | 0.43 |
| 1:1:1606:G:H5' | 21:T:86:GLY:HA3 | 1.99 | 0.43 |
| 23:V:17:CYS:SG | 23:V:56:CYS:N | 2.91 | 0.43 |
| 24:W:7:LEU:HA | 24:W:34:ILE:HG12 | 2.00 | 0.43 |
| 25:X:123:VAL:HA | 25:X:130:LEU:HD12 | 2.00 | 0.43 |
| 1:1:659:G:H3' | 25:X:17:ARG:HH21 | 1.82 | 0.43 |
| 1:1:1043:G:N3 | 1:1:1044:G:C8 | 2.86 | 0.43 |
| 1:1:1120:U:C6 | 1:1:1120:U:C3' | 3.00 | 0.43 |
| 1:1:1122:A:H4' | 3:B:205:TYR:CD1 | 2.53 | 0.43 |
| 1:1:118:C:H2' | 1:1:119:U:O4' | 2.18 | 0.43 |
| 1:1:1265:A:N3 | 1:1:1265:A:C2' | 2.81 | 0.43 |
| 1:1:1275:G:O6 | 1:1:1506:A:H8 | 2.01 | 0.43 |
| 1:1:1311:C:C6 | 1:1:1311:C:OP2 | 2.71 | 0.43 |
| 1:1:1341:C:C6 | 1:1:1341:C:O5' | 2.71 | 0.43 |
| 1:1:1353:A:C2' | 1:1:1354:G:H5'' | 2.45 | 0.43 |
| 1:1:164:A:C2' | 1:1:165:G:C8 | 3.01 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:1700:C:C4' | 1:1:1701:C:OP2 | 2.67 | 0.43 |
| 1:1:29:G:C5' | 25:X:129:SER:HB3 | 2.47 | 0.43 |
| 1:1:428:U:H3' | 1:1:429:C:C5 | 2.53 | 0.43 |
| 1:1:441:C:H41 | 1:1:448:A:H1' | 1.82 | 0.43 |
| 1:1:493:A:O2' | 1:1:494:C:H5' | 2.18 | 0.43 |
| 1:1:835:C:H2' | 1:1:835:C:O2 | 2.18 | 0.43 |
| 1:1:99:A:H2' | 1:1:100:U:C6 | 2.53 | 0.43 |
| 2:A:50:ASN:HD21 | 2:A:53:ARG:CG | 2.32 | 0.43 |
| 2:A:90:PHE:CZ | 2:A:178:LEU:HD22 | 2.53 | 0.43 |
| 6:E:123:LEU:HD23 | 6:E:161:GLN:HA | 2.00 | 0.43 |
| 7:F:129:GLY:HA2 | 7:F:134:VAL:HG12 | 1.99 | 0.43 |
| 7:F:49:LEU:HD22 | 18:Q:47:LEU:HD23 | 2.00 | 0.43 |
| 7:F:59:LYS:HB3 | 7:F:62:ARG:CG | 2.49 | 0.43 |
| 7:F:69:VAL:O | 7:F:72:LEU:HB2 | 2.18 | 0.43 |
| 8:G:162:LEU:HG | 8:G:163:ASN:N | 2.32 | 0.43 |
| 9:H:31:GLU:CD | 9:H:40:LEU:HD22 | 2.39 | 0.43 |
| 9:H:47:ALA:H | 9:H:63:PHE:HB2 | 1.84 | 0.43 |
| 13:L:95:TYR:CE2 | 13:L:97:ARG:HA | 2.53 | 0.43 |
| 14:M:65:VAL:CG2 | 14:M:108:CYS:SG | 3.07 | 0.43 |
| 18:Q:38:PRO:HD2 | 21:T:7:LYS:O | 2.19 | 0.43 |
| 19:R:51:ALA:HA | 19:R:54:VAL:CG1 | 2.48 | 0.43 |
| 21:T:123:LEU:H | 21:T:123:LEU:HD23 | 1.83 | 0.43 |
| 23:V:78:ILE:HB | 23:V:81:LYS:NZ | 2.34 | 0.43 |
| 9:H:148:LEU:N | 24:W:42:MET:HE2 | 2.34 | 0.43 |
| 1:1:1094:C:C2' | 1:1:1095:C:H5' | 2.49 | 0.43 |
| 1:1:133:C:H6 | 1:1:133:C:O5' | 2.01 | 0.43 |
| 1:1:136:C:H4' | 1:1:137:U:OP2 | 2.17 | 0.43 |
| 1:1:1431:G:C2' | 1:1:1432:U:C6 | 2.73 | 0.43 |
| 1:1:1453:C:H2' | 1:1:1454:A:O3' | 2.18 | 0.43 |
| 1:1:1547:C:H42 | 1:1:1656:G:C4' | 2.31 | 0.43 |
| 1:1:1622:U:C6 | 1:1:1622:U:C3' | 3.01 | 0.43 |
| 1:1:1217:A:N3 | 1:1:1685:U:O2 | 2.51 | 0.43 |
| 1:1:1747:C:H2' | 1:1:1748:G:H8 | 1.82 | 0.43 |
| 1:1:1829:G:H1' | 1:1:1850:A:H2 | 1.84 | 0.43 |
| 1:1:313:A:OP1 | 1:1:313:A:H4' | 2.18 | 0.43 |
| 1:1:338:G:H8 | 1:1:338:G:C5' | 2.30 | 0.43 |
| 1:1:380:G:C2 | 1:1:382:C:H6 | 2.34 | 0.43 |
| 1:1:435:A:H2' | 1:1:450:C:C6 | 2.54 | 0.43 |
| 1:1:557:U:H2' | 1:1:558:G:N9 | 2.34 | 0.43 |
| 1:1:583:A:O3' | 1:1:584:A:H8 | 2.01 | 0.43 |
| 1:1:621:C:H5'' | 1:1:622:C:OP2 | 2.19 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:1:692:G:O2' | 1:1:693:A:H5' | 2.19 | 0.43 |
| 1:1:951:C:O2 | 1:1:975:G:N1 | 2.51 | 0.43 |
| 1:1:977:C:C6 | 1:1:977:C:OP2 | 2.71 | 0.43 |
| 3:B:135:LEU:HD23 | 3:B:135:LEU:N | 2.34 | 0.43 |
| 3:B:137:LEU:HB3 | 3:B:215:VAL:HG23 | 2.01 | 0.43 |
| 3:B:90:ASP:OD1 | 3:B:97:LEU:HB2 | 2.19 | 0.43 |
| 7:F:165:ASN:ND2 | 7:F:167:LYS:HB2 | 2.33 | 0.43 |
| 1:1:67:C:C4 | 8:G:164:LYS:HB2 | 2.53 | 0.43 |
| 8:G:36:VAL:O | 8:G:49:VAL:HA | 2.18 | 0.43 |
| 10:I:103:LEU:HD23 | 10:I:170:LYS:HB2 | 1.99 | 0.43 |
| 10:I:190:LEU:HD22 | 10:I:194:GLU:HG3 | 2.01 | 0.43 |
| 23:V:79:VAL:HG13 | 23:V:80:SER:N | 2.33 | 0.43 |
| 27:Z:87:ALA:O | 27:Z:91:LEU:HD13 | 2.18 | 0.43 |
| 1:1:1066:U:H2' | 1:1:1067:C:C6 | 2.54 | 0.43 |
| 1:1:1188:A:H3' | 1:1:1189:A:C8 | 2.53 | 0.43 |
| 1:1:152:U:OP2 | 1:1:152:U:C6 | 2.71 | 0.43 |
| 1:1:1668:U:H3' | 1:1:1669:G:H5'' | 1.99 | 0.43 |
| 1:1:1700:C:N3 | 1:1:1834:A:N6 | 2.66 | 0.43 |
| 1:1:1794:C:O5' | 1:1:1794:C:H6 | 2.00 | 0.43 |
| 1:1:1815:A:O5' | 1:1:1815:A:H8 | 2.01 | 0.43 |
| 1:1:28:U:H2' | 1:1:29:G:H8 | 1.82 | 0.43 |
| 1:1:562:U:C6 | 1:1:562:U:C3' | 3.01 | 0.43 |
| 1:1:901:G:C4 | 1:1:902:G:C8 | 3.07 | 0.43 |
| 1:1:941:C:H2' | 1:1:942:G:C8 | 2.53 | 0.43 |
| 1:1:985:G:H4' | 1:1:986:G:H5' | 2.00 | 0.43 |
| 3:B:49:VAL:HG22 | 3:B:65:ARG:NH2 | 2.33 | 0.43 |
| 3:B:54:GLY:O | 3:B:55:THR:HB | 2.19 | 0.43 |
| 3:B:82:ARG:HG2 | 3:B:103:MET:CE | 2.48 | 0.43 |
| 3:B:86:LEU:HB3 | 3:B:98:THR:OG1 | 2.19 | 0.43 |
| 5:D:205:PRO:O | 19:R:42:PRO:HG2 | 2.18 | 0.43 |
| 5:D:210:ILE:HG12 | 19:R:39:ALA:HB1 | 2.00 | 0.43 |
| 5:D:82:GLY:O | 5:D:85:GLU:HB2 | 2.18 | 0.43 |
| 1:1:65:C:C4' | 8:G:133:LEU:HD22 | 2.46 | 0.43 |
| 1:1:827:A:O5' | 11:J:8:VAL:HG13 | 2.19 | 0.43 |
| 20:S:86:ARG:HH22 | 20:S:107:LEU:HD21 | 1.84 | 0.43 |
| 20:S:24:ARG:HE | 20:S:29:ALA:HA | 1.84 | 0.43 |
| 23:V:30:ALA:HB1 | 23:V:60:ARG:HD3 | 2.01 | 0.43 |
| 26:Y:119:GLY:HA2 | 26:Y:122:LYS:HB3 | 2.01 | 0.43 |
| 1:1:1086:G:OP1 | 1:1:1086:G:C2 | 2.71 | 0.43 |
| 1:1:1173:A:C6 | 1:1:1188:A:C8 | 3.06 | 0.43 |
| 1:1:1398:G:OP1 | 1:1:1398:G:C2 | 2.71 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:1438:A:OP1 | 1:1:1438:A:C4' | 2.67 | 0.43 |
| 1:1:1494:U:C1' | 1:1:1495:G:P | 3.06 | 0.43 |
| 1:1:1535:U:H1' | 7:F:88:MET:SD | 2.59 | 0.43 |
| 1:1:1627:C:H2' | 1:1:1628:C:C6 | 2.53 | 0.43 |
| 1:1:1638:G:C5' | 1:1:1638:G:N3 | 2.73 | 0.43 |
| 1:1:1648:G:H8 | 18:Q:125:ARG:HB2 | 1.82 | 0.43 |
| 1:1:1703:C:C4 | 1:1:1704:C:C4 | 3.06 | 0.43 |
| 1:1:1830:U:C6 | 1:1:1830:U:O5' | 2.72 | 0.43 |
| 1:1:211:G:H2' | 1:1:212:C:C5 | 2.48 | 0.43 |
| 1:1:331:C:H41 | 8:G:189:ARG:HH12 | 1.66 | 0.43 |
| 1:1:116:U:H3 | 1:1:347:G:H1 | 1.67 | 0.43 |
| 1:1:360:A:H4' | 1:1:361:U:C5' | 2.49 | 0.43 |
| 1:1:465:A:OP2 | 1:1:465:A:H8 | 2.02 | 0.43 |
| 1:1:751:G:C2' | 1:1:752:G:C8 | 2.90 | 0.43 |
| 1:1:1377:U:C5 | 2:A:102:ARG:HD3 | 2.54 | 0.43 |
| 3:B:22:VAL:O | 3:B:23:ASP:C | 2.57 | 0.43 |
| 3:B:84:PHE:CZ | 3:B:103:MET:SD | 3.12 | 0.43 |
| 5:D:65:ARG:O | 5:D:69:LEU:HG | 2.19 | 0.43 |
| 1:1:616:A:N3 | 6:E:12:VAL:HG21 | 61.27 | 0.43 |
| 7:F:32:ASP:CB | 7:F:117:ILE:CG2 | 2.94 | 0.43 |
| 7:F:52:SER:C | 7:F:54:GLY:H | 2.21 | 0.43 |
| 7:F:72:LEU:HD22 | 7:F:151:ILE:HG12 | 2.00 | 0.43 |
| 8:G:127:THR:HG23 | 8:G:129:VAL:HG23 | 2.01 | 0.43 |
| 10:I:6:ASP:HB3 | 10:I:28:GLU:CD | 2.38 | 0.43 |
| 1:1:1216:C:H1' | 18:Q:143:LYS:NZ | 2.33 | 0.43 |
| 19:R:41:ILE:HG21 | 19:R:47:ARG:HB2 | 2.00 | 0.43 |
| 25:X:32:LEU:O | 25:X:34:THR:N | 2.51 | 0.43 |
| 1:1:1412:C:C4 | 1:1:1414:A:H5'' | 2.53 | 0.43 |
| 1:1:1416:C:C4 | 1:1:1417:C:O4' | 2.71 | 0.43 |
| 1:1:1543:U:C4' | 1:1:1544:C:OP1 | 2.66 | 0.43 |
| 1:1:1561:A:H1' | 1:1:1583:C:H5' | 2.00 | 0.43 |
| 1:1:1597:C:OP2 | 27:Z:82:SER:HB3 | 2.19 | 0.43 |
| 1:1:1620:A:C2 | 1:1:1624:U:H1' | 2.54 | 0.43 |
| 1:1:1647:A:H1' | 1:1:1649:U:O4' | 2.19 | 0.43 |
| 1:1:493:A:H1' | 1:1:573:U:O3' | 2.18 | 0.43 |
| 1:1:474:G:N2 | 1:1:507:G:O2' | 2.51 | 0.43 |
| 1:1:560:A:O3' | 1:1:561:A:C8 | 2.72 | 0.43 |
| 1:1:587:A:C2' | 1:1:592:C:H41 | 2.27 | 0.43 |
| 1:1:952:G:C2 | 1:1:975:G:N1 | 2.86 | 0.43 |
| 1:1:982:G:H5' | 1:1:1044:G:OP1 | 2.19 | 0.43 |
| 4:C:261:PHE:HE1 | 23:V:16:LYS:O | 2.02 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 5:D:166:TYR:CE1 | 5:D:200:PRO:HB3 | 2.54 | 0.43 |
| 6:E:139:LEU:HD22 | 6:E:147:ILE:HD12 | 2.01 | 0.43 |
| 6:E:208:VAL:HG11 | 6:E:225:ILE:CD1 | 2.49 | 0.43 |
| 1:1:77:A:C5 | 8:G:155:GLN:HB3 | 2.53 | 0.43 |
| 9:H:10:LYS:N | 9:H:11:PRO:HD3 | 2.34 | 0.43 |
| 10:I:63:GLY:O | 10:I:75:LYS:HD2 | 2.19 | 0.43 |
| 1:1:526:A:O2' | 11:J:128:VAL:HG22 | 2.19 | 0.43 |
| 14:M:81:ASP:OD1 | 14:M:84:LYS:HB2 | 2.19 | 0.43 |
| 20:S:41:ALA:O | 20:S:44:VAL:HB | 2.17 | 0.43 |
| 22:U:51:LYS:HE3 | 22:U:90:ASP:CB | 2.48 | 0.43 |
| 1:1:571:U:O2' | 26:Y:59:GLY:HA2 | 2.18 | 0.43 |
| 1:1:1129:G:H3' | 1:1:1130:G:N7 | 2.33 | 0.43 |
| 1:1:1325:G:H8 | 1:1:1325:G:OP2 | 2.02 | 0.43 |
| 1:1:1416:C:N4 | 1:1:1417:C:N1 | 2.67 | 0.43 |
| 1:1:1438:A:OP1 | 1:1:1438:A:H4' | 2.17 | 0.43 |
| 1:1:1575:G:C2 | 1:1:1576:G:C6 | 3.06 | 0.43 |
| 1:1:1589:A:H2' | 1:1:1590:C:C6 | 2.54 | 0.43 |
| 1:1:1829:G:C4 | 1:1:1830:U:H5 | 2.37 | 0.43 |
| 1:1:25:A:C8 | 1:1:25:A:H3' | 2.53 | 0.43 |
| 1:1:426:A:C2' | 1:1:426:A:N3 | 2.82 | 0.43 |
| 1:1:439:A:C2' | 1:1:440:G:H5' | 2.48 | 0.43 |
| 1:1:52:G:O5' | 1:1:52:G:H8 | 2.02 | 0.43 |
| 1:1:571:U:O5' | 1:1:572:U:H5'' | 2.19 | 0.43 |
| 1:1:678:U:H3' | 1:1:678:U:H6 | 1.83 | 0.43 |
| 1:1:810:A:H3' | 1:1:810:A:C8 | 2.54 | 0.43 |
| 1:1:863:U:O5' | 1:1:863:U:C6 | 2.69 | 0.43 |
| 1:1:876:C:O2' | 1:1:877:C:H5' | 2.19 | 0.43 |
| 4:C:173:LYS:N | 4:C:173:LYS:HD2 | 2.34 | 0.43 |
| 6:E:126:VAL:HG13 | 6:E:139:LEU:HG | 2.00 | 0.43 |
| 7:F:179:ASN:HB2 | 7:F:187:SER:HB3 | 2.00 | 0.43 |
| 1:1:77:A:H62 | 8:G:155:GLN:HB3 | 1.84 | 0.43 |
| 8:G:50:VAL:HG13 | 8:G:112:VAL:O | 2.19 | 0.43 |
| 10:I:12:ARG:HG3 | 10:I:13:LYS:N | 2.34 | 0.43 |
| 1:1:1031:A:H1' | 15:N:116:ILE:CD1 | 2.48 | 0.43 |
| 15:N:84:LEU:HD23 | 15:N:89:TYR:CD2 | 2.53 | 0.43 |
| 21:T:134:ILE:O | 21:T:137:GLN:HG2 | 2.19 | 0.43 |
| 24:W:28:ARG:CB | 24:W:29:PRO:CD | 2.96 | 0.43 |
| 25:X:41:PHE:CE1 | 25:X:120:PHE:CE1 | 3.06 | 0.43 |
| 1:1:1130:G:C2 | 1:1:1131:G:C8 | 3.07 | 0.43 |
| 1:1:1102:G:N2 | 1:1:1130:G:N2 | 2.66 | 0.43 |
| 1:1:1177:U:H2' | 1:1:1178:U:C6 | 2.53 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-------------------|--------------------------|-------------------|
| 1:1:1218:C:C2' | 1:1:1219:C:H5' | 2.48 | 0.43 |
| 1:1:1261:C:H2' | 1:1:1261:C:O2 | 2.18 | 0.43 |
| 1:1:1689:C:H2' | 1:1:1690:U:O4' | 2.19 | 0.43 |
| 1:1:361:U:H4' | 1:1:362:C:H5' | 2.01 | 0.43 |
| 1:1:43:U:C5' | 1:1:44:U:H5 | 2.08 | 0.43 |
| 1:1:500:A:C2' | 1:1:501:C:C5' | 2.91 | 0.43 |
| 1:1:558:G:O5' | 1:1:558:G:C8 | 2.70 | 0.43 |
| 1:1:618:C:C1' | 1:1:632:C:H5' | 2.25 | 0.43 |
| 1:1:853:C:O2 | 1:1:853:C:O4' | 2.36 | 0.43 |
| 1:1:875:A:O3' | 1:1:876:C:C6 | 2.71 | 0.43 |
| 1:1:878:G:N2 | 1:1:908:A:C2 | 2.87 | 0.43 |
| 1:1:684:G:C4 | 1:1:920:A:C4 | 3.07 | 0.43 |
| 1:1:936:G:H2' | 1:1:937:C:C6 | 2.53 | 0.43 |
| 5:D:80:PRO:C | 5:D:82:GLY:H | 2.21 | 0.43 |
| 1:1:343:A:C4' | 6:E:128:LYS:HZ1 | 2.31 | 0.43 |
| 7:F:77:MET:HB3 | 7:F:89:THR:OG1 | 2.19 | 0.43 |
| 10:I:97:VAL:O | 10:I:175:ILE:HD11 | 2.18 | 0.43 |
| 1:1:1130:G:C4' | 15:N:10:GLY:HA2 | 2.49 | 0.43 |
| 1:1:924:G:H5'' | 15:N:3:ARG:HD2 | 2.01 | 0.43 |
| 15:N:16:LEU:H | 24:W:57:ARG:HH21 | 1.67 | 0.43 |
| 25:X:60:LYS:O | 25:X:61:GLN:HB2 | 2.19 | 0.43 |
| 6:E:56:LEU:HB2 | 26:Y:22:GLN:HE22 | 1.84 | 0.43 |
| 26:Y:78:SER:HB3 | 26:Y:81:TYR:CD2 | 2.54 | 0.43 |
| 1:1:1115:U:H4' | 1:1:1116:C:OP2 | 2.17 | 0.42 |
| 1:1:1313:A:O5' | 1:1:1314:U:H5 | 2.02 | 0.42 |
| 1:1:1387:G:C4 | 1:1:1388:A:C8 | 3.07 | 0.42 |
| 1:1:1430:C:H2' | 1:1:1430:C:O2 | 2.19 | 0.42 |
| 1:1:1719:A:H8 | 1:1:1719:A:O5' | 2.02 | 0.42 |
| 1:1:1764:G:C3' | 1:1:1764:G:N3 | 2.80 | 0.42 |
| 1:1:1766:C:H5' | 1:1:1767:C:OP2 | 2.18 | 0.42 |
| 1:1:217:A:O2' | 1:1:218:U:H5' | 2.18 | 0.42 |
| 1:1:22:A:H1' | 11:J:17:ARG:HH11 | 1.83 | 0.42 |
| 1:1:401:A:H2' | 1:1:402:C:H5' | 2.01 | 0.42 |
| 1:1:792:C:H2' | 1:1:793:G:C8 | 2.54 | 0.42 |
| 1:1:911:C:H5'' | 1:1:912:C:N4 | 2.34 | 0.42 |
| 3:B:183:GLU:HG3 | 3:B:187:LYS:HE3 | 2.01 | 0.42 |
| 4:C:136:HIS:HB3 | 4:C:162:ILE:HD11 | 2.01 | 0.42 |
| 6:E:124:CYS:SG | 6:E:162:ILE:HB | 2.59 | 0.42 |
| 8:G:197:GLN:O | 8:G:201:LYS:HG3 | 2.18 | 0.42 |
| 8:G:64:LYS:HE2 | 8:G:97:VAL:CG1 | 2.44 | 0.42 |
| 9:H:101:LEU:HB2 | 9:H:116:ARG:HG3 | 2.01 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 9:H:59:ALA:CB | 9:H:91:HIS:HB2 | 2.49 | 0.42 |
| 1:1:527:C:C1' | 11:J:125:HIS:ND1 | 2.82 | 0.42 |
| 11:J:125:HIS:NE2 | 11:J:129:LEU:HD11 | 2.33 | 0.42 |
| 16:O:53:ILE:HG22 | 16:O:54:CYS:N | 2.34 | 0.42 |
| 20:S:118:ARG:HA | 20:S:123:LEU:CD1 | 2.49 | 0.42 |
| 1:1:839:C:C4 | 26:Y:48:TYR:O | 2.72 | 0.42 |
| 27:Z:43:LYS:HE3 | 27:Z:44:LEU:O | 2.19 | 0.42 |
| 1:1:1180:C:C6 | 1:1:1180:C:H3' | 2.49 | 0.42 |
| 1:1:1181:A:H2' | 1:1:1182:A:O4' | 2.19 | 0.42 |
| 1:1:1456:G:C5' | 1:1:1456:G:C8 | 2.96 | 0.42 |
| 1:1:1637:A:H4' | 1:1:1638:G:H5' | 1.91 | 0.42 |
| 1:1:148:U:C4 | 1:1:169:U:C4 | 3.06 | 0.42 |
| 1:1:1711:U:H2' | 1:1:1712:A:C8 | 2.54 | 0.42 |
| 1:1:1746:U:O5' | 1:1:1746:U:H6 | 2.02 | 0.42 |
| 1:1:1781:A:O2' | 1:1:1782:G:P | 2.76 | 0.42 |
| 1:1:237:C:HO2' | 1:1:238:C:P | 2.42 | 0.42 |
| 1:1:409:C:H5 | 1:1:426:A:H5' | 1.84 | 0.42 |
| 1:1:553:U:C3' | 1:1:554:A:H5'' | 2.46 | 0.42 |
| 1:1:905:C:O5' | 1:1:905:C:H6 | 2.02 | 0.42 |
| 2:A:30:LEU:HD23 | 2:A:31:ASP:O | 2.20 | 0.42 |
| 1:1:346:C:O4' | 6:E:33:THR:HG22 | 2.19 | 0.42 |
| 1:1:797:C:C5 | 9:H:106:ARG:HB3 | 2.53 | 0.42 |
| 1:1:527:C:O2' | 11:J:121:LYS:HE3 | 2.18 | 0.42 |
| 14:M:111:VAL:HG12 | 14:M:113:ASP:O | 2.19 | 0.42 |
| 17:P:110:GLU:OE1 | 20:S:113:ARG:HG3 | 2.19 | 0.42 |
| 19:R:51:ALA:O | 19:R:54:VAL:HG12 | 2.19 | 0.42 |
| 20:S:43:VAL:HA | 21:T:37:VAL:HG21 | 2.00 | 0.42 |
| 22:U:55:ARG:HD2 | 22:U:87:ARG:NH1 | 2.34 | 0.42 |
| 1:1:1092:G:H1' | 24:W:2:VAL:O | 2.18 | 0.42 |
| 1:1:1165:G:N2 | 25:X:23:HIS:CG | 2.87 | 0.42 |
| 1:1:1065:G:N3 | 1:1:1065:G:H2' | 2.34 | 0.42 |
| 1:1:1261:C:H6 | 1:1:1261:C:H5'' | 1.79 | 0.42 |
| 1:1:1276:A:O5' | 1:1:1276:A:N3 | 2.52 | 0.42 |
| 1:1:129:C:H3' | 1:1:130:G:C8 | 2.55 | 0.42 |
| 1:1:1334:G:C2' | 1:1:1335:G:H5' | 2.49 | 0.42 |
| 1:1:1421:A:H3' | 1:1:1422:G:C8 | 2.54 | 0.42 |
| 1:1:1456:G:H2' | 1:1:1457:U:H6 | 1.82 | 0.42 |
| 1:1:1548:G:C6 | 1:1:1584:G:N2 | 2.87 | 0.42 |
| 1:1:1588:A:C6 | 1:1:1589:A:C6 | 3.06 | 0.42 |
| 1:1:180:G:H2' | 1:1:180:G:N3 | 2.34 | 0.42 |
| 1:1:343:A:C8 | 1:1:343:A:O5' | 2.71 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:444:G:H22 | 1:1:447:A:C5' | 2.22 | 0.42 |
| 1:1:534:G:H2' | 1:1:535:G:C4' | 2.49 | 0.42 |
| 1:1:650:A:H3' | 1:1:651:U:H6 | 1.84 | 0.42 |
| 1:1:672:A:OP2 | 1:1:673:G:H5' | 2.19 | 0.42 |
| 1:1:837:A:H5' | 1:1:837:A:N3 | 2.34 | 0.42 |
| 1:1:838:G:H8 | 26:Y:9:THR:OG1 | 2.01 | 0.42 |
| 1:1:867:G:C8 | 1:1:867:G:OP2 | 2.72 | 0.42 |
| 1:1:95:G:C2' | 1:1:96:C:H5' | 2.49 | 0.42 |
| 2:A:117:ARG:HG2 | 2:A:119:PRO:HD3 | 2.01 | 0.42 |
| 3:B:65:ARG:HG2 | 16:O:50:LYS:CD | 2.49 | 0.42 |
| 4:C:128:VAL:HG11 | 4:C:155:ILE:CG1 | 2.49 | 0.42 |
| 1:1:1578:U:C6 | 5:D:6:SER:N | 2.88 | 0.42 |
| 1:1:169:U:C1' | 8:G:133:LEU:HD12 | 2.44 | 0.42 |
| 1:1:64:A:P | 8:G:136:LYS:HZ1 | 2.41 | 0.42 |
| 9:H:177:TYR:HE2 | 9:H:183:LYS:HB2 | 1.84 | 0.42 |
| 10:I:114:GLU:OE2 | 10:I:129:LEU:HD13 | 2.19 | 0.42 |
| 17:P:60:LEU:C | 17:P:60:LEU:HD13 | 2.40 | 0.42 |
| 18:Q:38:PRO:HG2 | 21:T:8:ASP:HA | 2.01 | 0.42 |
| 24:W:104:LEU:O | 24:W:110:ILE:HG23 | 2.20 | 0.42 |
| 1:1:659:G:H3' | 25:X:17:ARG:NH2 | 2.34 | 0.42 |
| 27:Z:113:THR:O | 27:Z:114:LYS:HB3 | 2.19 | 0.42 |
| 1:1:1122:A:H2' | 1:1:1123:C:H5' | 2.01 | 0.42 |
| 1:1:1195:A:H2' | 1:1:1196:A:H8 | 1.85 | 0.42 |
| 1:1:1227:G:N7 | 1:1:1638:G:C8 | 2.87 | 0.42 |
| 1:1:1331:C:C2' | 1:1:1331:C:O2 | 2.65 | 0.42 |
| 1:1:1520:G:N3 | 1:1:1520:G:H5'' | 2.34 | 0.42 |
| 1:1:211:G:C8 | 1:1:211:G:H3' | 2.55 | 0.42 |
| 1:1:486:A:C8 | 1:1:486:A:O5' | 2.70 | 0.42 |
| 1:1:559:G:H3' | 1:1:560:A:C4' | 2.49 | 0.42 |
| 1:1:616:A:N1 | 1:1:632:C:H1' | 2.35 | 0.42 |
| 1:1:790:C:H2' | 1:1:791:C:H6 | 1.81 | 0.42 |
| 1:1:798:G:N3 | 1:1:798:G:C5' | 2.81 | 0.42 |
| 1:1:813:A:H2' | 1:1:814:U:C5' | 2.49 | 0.42 |
| 2:A:180:ARG:HB3 | 2:A:180:ARG:NH1 | 2.34 | 0.42 |
| 3:B:128:LYS:HB2 | 3:B:134:LEU:HD23 | 2.00 | 0.42 |
| 5:D:106:ARG:HH22 | 5:D:173:ARG:HG3 | 1.84 | 0.42 |
| 5:D:210:ILE:HG12 | 19:R:39:ALA:HB2 | 2.01 | 0.42 |
| 5:D:26:THR:HB | 5:D:34:TYR:OH | 2.18 | 0.42 |
| 1:1:67:C:C5 | 8:G:163:ASN:N | 2.79 | 0.42 |
| 10:I:145:ILE:HA | 10:I:148:LYS:CE | 2.49 | 0.42 |
| 11:J:171:GLY:O | 11:J:174:LYS:HB2 | 2.18 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 13:L:96:ILE:HD12 | 25:X:10:ALA:HB1 | 2.01 | 0.42 |
| 17:P:86:LEU:CD1 | 17:P:88:GLU:HB3 | 2.50 | 0.42 |
| 18:Q:80:GLN:O | 18:Q:84:ILE:HG13 | 2.20 | 0.42 |
| 2:A:200:ASP:O | 19:R:86:PRO:HG2 | 2.19 | 0.42 |
| 20:S:86:ARG:NH1 | 20:S:98:VAL:HG11 | 2.35 | 0.42 |
| 21:T:124:THR:HB | 21:T:125:PRO:CD | 2.50 | 0.42 |
| 26:Y:27:VAL:HG11 | 26:Y:35:VAL:HG21 | 2.01 | 0.42 |
| 1:1:682:U:C2 | 1:1:1024:A:N1 | 2.87 | 0.42 |
| 1:1:1139:C:O2 | 1:1:1139:C:O4' | 2.37 | 0.42 |
| 1:1:1215:C:C5' | 1:1:1217:A:H62 | 2.32 | 0.42 |
| 1:1:1258:A:OP2 | 1:1:1258:A:C4 | 2.73 | 0.42 |
| 1:1:1288:U:OP2 | 1:1:1311:C:N3 | 2.52 | 0.42 |
| 1:1:1270:G:O2' | 1:1:1301:A:N7 | 2.52 | 0.42 |
| 1:1:1378:A:C6 | 2:A:105:PRO:HB3 | 2.54 | 0.42 |
| 1:1:1649:U:O5' | 1:1:1649:U:H6 | 2.03 | 0.42 |
| 1:1:168:C:H2' | 1:1:169:U:C6 | 2.54 | 0.42 |
| 1:1:175:A:C3' | 1:1:176:U:H5'' | 2.34 | 0.42 |
| 1:1:317:C:H5'' | 1:1:317:C:C6 | 2.55 | 0.42 |
| 1:1:33:G:O6 | 1:1:522:A:H2 | 2.03 | 0.42 |
| 1:1:662:G:H4' | 1:1:663:C:O5' | 2.20 | 0.42 |
| 1:1:746:C:OP2 | 1:1:746:C:C2' | 2.67 | 0.42 |
| 1:1:823:U:H5' | 26:Y:64:PHE:HD2 | 1.84 | 0.42 |
| 1:1:883:U:H6 | 1:1:883:U:O5' | 2.02 | 0.42 |
| 3:B:158:HIS:HA | 3:B:161:VAL:HB | 2.01 | 0.42 |
| 3:B:34:LYS:HD2 | 3:B:95:ASN:OD1 | 2.20 | 0.42 |
| 3:B:72:ALA:HB1 | 3:B:79:VAL:O | 2.20 | 0.42 |
| 4:C:168:GLY:N | 4:C:179:THR:O | 2.47 | 0.42 |
| 1:1:1647:A:C6 | 7:F:57:ALA:CB | 3.02 | 0.42 |
| 7:F:47:LYS:CE | 7:F:67:PRO:HG2 | 2.49 | 0.42 |
| 8:G:160:LYS:HE2 | 8:G:161:PRO:HD2 | 2.01 | 0.42 |
| 1:1:745:C:O2' | 9:H:107:LYS:HB3 | 2.19 | 0.42 |
| 9:H:152:ARG:HD3 | 9:H:152:ARG:N | 2.35 | 0.42 |
| 5:D:71:ALA:HB3 | 12:K:20:VAL:HG21 | 2.01 | 0.42 |
| 12:K:43:LEU:HD23 | 12:K:44:HIS:H | 1.85 | 0.42 |
| 13:L:31:GLU:HG2 | 13:L:32:LYS:N | 2.35 | 0.42 |
| 13:L:9:ALA:CB | 13:L:12:LYS:HE2 | 2.49 | 0.42 |
| 3:B:46:LYS:HZ1 | 16:O:27:VAL:HA | 1.85 | 0.42 |
| 1:1:1643:U:H4' | 18:Q:143:LYS:O | 2.19 | 0.42 |
| 20:S:113:ARG:O | 20:S:117:ILE:HG13 | 2.20 | 0.42 |
| 20:S:27:ALA:HB1 | 20:S:41:ALA:CB | 2.49 | 0.42 |
| 1:1:1587:G:H1' | 21:T:78:ILE:HB | 2.01 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 27:Z:94:LYS:C | 27:Z:96:LEU:H | 2.23 | 0.42 |
| 1:1:10:G:H2' | 1:1:11:A:H8 | 1.84 | 0.42 |
| 1:1:1161:U:C5 | 1:1:1162:C:C5 | 3.08 | 0.42 |
| 1:1:1245:G:H2' | 1:1:1246:A:H8 | 1.84 | 0.42 |
| 1:1:1255:G:C5' | 1:1:1256:G:C8 | 2.98 | 0.42 |
| 1:1:1332:A:H1' | 5:D:141:LYS:HZ1 | 1.82 | 0.42 |
| 1:1:1425:G:C2' | 1:1:1426:U:C6 | 3.01 | 0.42 |
| 1:1:1519:U:C6 | 1:1:1623:A:N6 | 2.87 | 0.42 |
| 1:1:1659:U:H6 | 1:1:1660:C:O2 | 2.03 | 0.42 |
| 1:1:1698:C:C5' | 1:1:1699:A:C8 | 3.03 | 0.42 |
| 1:1:16:G:H5'' | 1:1:669:A:N1 | 2.34 | 0.42 |
| 1:1:1750:C:C2' | 1:1:1751:C:C5' | 2.92 | 0.42 |
| 1:1:1766:C:C5 | 1:1:1767:C:N4 | 2.88 | 0.42 |
| 1:1:296:U:C2 | 1:1:297:A:C8 | 3.08 | 0.42 |
| 1:1:35:C:H3' | 1:1:36:U:C6 | 2.54 | 0.42 |
| 1:1:428:U:C3' | 1:1:429:C:C6 | 3.02 | 0.42 |
| 1:1:500:A:C2' | 1:1:501:C:H5'' | 2.30 | 0.42 |
| 1:1:572:U:C2' | 1:1:573:U:N3 | 2.83 | 0.42 |
| 1:1:876:C:C5 | 1:1:876:C:OP2 | 2.73 | 0.42 |
| 2:A:147:LEU:HB3 | 2:A:163:CYS:SG | 2.59 | 0.42 |
| 1:1:1124:C:C5' | 3:B:150:ILE:HG12 | 2.50 | 0.42 |
| 4:C:183:LYS:CE | 24:W:95:PRO:HA | 2.50 | 0.42 |
| 6:E:133:VAL:O | 6:E:134:LYS:HB2 | 2.20 | 0.42 |
| 6:E:97:GLU:HG3 | 6:E:113:ARG:CZ | 2.49 | 0.42 |
| 7:F:31:ASN:OD1 | 7:F:117:ILE:HG21 | 2.18 | 0.42 |
| 7:F:69:VAL:O | 7:F:73:THR:HG23 | 2.19 | 0.42 |
| 1:1:913:A:N6 | 9:H:120:ARG:HA | 2.35 | 0.42 |
| 11:J:136:ARG:HB2 | 11:J:162:ARG:NH2 | 2.33 | 0.42 |
| 12:K:3:MET:CG | 12:K:47:LYS:HD3 | 2.50 | 0.42 |
| 13:L:16:ILE:CG1 | 13:L:36:TYR:HD1 | 2.33 | 0.42 |
| 14:M:33:ARG:HE | 14:M:91:LEU:HD21 | 1.84 | 0.42 |
| 17:P:96:VAL:HB | 17:P:120:SER:HB2 | 2.01 | 0.42 |
| 20:S:39:ARG:NH1 | 21:T:39:LEU:H | 2.16 | 0.42 |
| 21:T:36:THR:O | 21:T:37:VAL:CB | 2.67 | 0.42 |
| 22:U:48:LEU:HD21 | 22:U:97:ILE:HG21 | 2.02 | 0.42 |
| 25:X:41:PHE:HE1 | 25:X:120:PHE:CD1 | 2.38 | 0.42 |
| 1:1:1023:A:H5'' | 15:N:124:ARG:HH21 | 1.84 | 0.42 |
| 1:1:1106:C:H2' | 1:1:1107:G:C8 | 2.54 | 0.42 |
| 1:1:1130:G:H2' | 1:1:1131:G:H5'' | 2.01 | 0.42 |
| 1:1:670:A:N3 | 1:1:1164:G:H1' | 2.34 | 0.42 |
| 1:1:1214:A:C6 | 1:1:1686:G:N1 | 2.87 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:1442:U:C6 | 1:1:1443:C:C1' | 3.02 | 0.42 |
| 1:1:1455:A:H5'' | 1:1:1456:G:OP2 | 2.18 | 0.42 |
| 1:1:1458:G:N1 | 1:1:1469:A:C6 | 2.88 | 0.42 |
| 1:1:1484:A:H4' | 5:D:159:HIS:HB2 | 2.01 | 0.42 |
| 1:1:1576:G:H2' | 1:1:1577:G:H8 | 1.85 | 0.42 |
| 1:1:1591:C:O2 | 1:1:1591:C:H2' | 2.18 | 0.42 |
| 1:1:1782:G:H1' | 1:1:1783:C:C5 | 2.54 | 0.42 |
| 1:1:1849:G:O2' | 1:1:1850:A:H5' | 2.18 | 0.42 |
| 1:1:474:G:C6 | 1:1:475:C:N4 | 2.88 | 0.42 |
| 1:1:485:A:H5'' | 1:1:486:A:OP1 | 2.19 | 0.42 |
| 1:1:561:A:C3' | 1:1:562:U:C5' | 2.84 | 0.42 |
| 1:1:746:C:C6 | 1:1:749:U:C4' | 3.02 | 0.42 |
| 2:A:69:GLU:HB2 | 4:C:270:THR:HG21 | 2.02 | 0.42 |
| 1:1:1500:G:H4' | 5:D:178:ARG:O | 2.20 | 0.42 |
| 6:E:136:ILE:HD11 | 6:E:138:HIS:CE1 | 2.55 | 0.42 |
| 1:1:846:G:H2' | 6:E:19:MET:SD | 2.60 | 0.42 |
| 6:E:80:VAL:HG13 | 6:E:81:THR:HG23 | 2.02 | 0.42 |
| 7:F:63:LYS:HB2 | 7:F:63:LYS:HZ2 | 1.85 | 0.42 |
| 8:G:45:TRP:HA | 8:G:48:TYR:CD1 | 2.54 | 0.42 |
| 11:J:137:VAL:O | 11:J:138:ARG:HB3 | 2.19 | 0.42 |
| 17:P:77:LYS:HD3 | 17:P:102:PHE:CD1 | 2.54 | 0.42 |
| 21:T:102:ARG:HD3 | 21:T:102:ARG:O | 2.20 | 0.42 |
| 24:W:36:ARG:O | 24:W:40:VAL:HG23 | 2.20 | 0.42 |
| 24:W:47:ILE:HG22 | 24:W:69:LEU:HD11 | 2.01 | 0.42 |
| 1:1:1035:A:H8 | 1:1:1035:A:OP2 | 2.02 | 0.42 |
| 1:1:1212:G:N1 | 1:1:1688:C:C2 | 2.88 | 0.42 |
| 1:1:1282:A:H2' | 1:1:1283:C:C5' | 2.50 | 0.42 |
| 1:1:1402:A:C3' | 1:1:1403:C:C5 | 3.03 | 0.42 |
| 1:1:1404:U:H3 | 1:1:1440:C:N4 | 2.18 | 0.42 |
| 1:1:1543:U:H4' | 1:1:1544:C:OP1 | 2.19 | 0.42 |
| 1:1:1549:U:H2' | 1:1:1550:G:C8 | 2.51 | 0.42 |
| 1:1:1604:G:O2' | 1:1:1605:G:H5' | 2.17 | 0.42 |
| 1:1:166:A:H2' | 1:1:167:G:C8 | 2.55 | 0.42 |
| 1:1:1822:A:C3' | 1:1:1823:A:H5'' | 2.49 | 0.42 |
| 1:1:1860:A:C2 | 1:1:1862:G:C8 | 3.08 | 0.42 |
| 1:1:54:A:O2' | 1:1:451:G:N1 | 2.47 | 0.42 |
| 1:1:49:C:H2' | 1:1:49:C:O2 | 2.19 | 0.42 |
| 1:1:500:A:N1 | 1:1:502:C:OP2 | 2.52 | 0.42 |
| 1:1:618:C:C1' | 1:1:632:C:C5' | 2.91 | 0.42 |
| 1:1:827:A:C2' | 1:1:828:G:H5' | 2.49 | 0.42 |
| 1:1:977:C:H6 | 1:1:977:C:OP2 | 2.03 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 4:C:196:ILE:HB | 4:C:223:TYR:HB2 | 2.01 | 0.42 |
| 5:D:123:LEU:HD11 | 5:D:152:PHE:HB3 | 2.01 | 0.42 |
| 5:D:24:PHE:HE1 | 5:D:72:VAL:CG1 | 2.32 | 0.42 |
| 6:E:149:TYR:CE2 | 8:G:206:ALA:HA | 2.55 | 0.42 |
| 6:E:203:GLY:O | 6:E:204:SER:CB | 2.67 | 0.42 |
| 7:F:47:LYS:HE3 | 7:F:67:PRO:HG2 | 2.02 | 0.42 |
| 8:G:2:LYS:HE2 | 8:G:15:LEU:HD11 | 2.02 | 0.42 |
| 9:H:76:GLN:HG3 | 9:H:77:VAL:N | 2.33 | 0.42 |
| 11:J:133:ARG:HA | 11:J:143:ASN:HD22 | 1.84 | 0.42 |
| 15:N:6:ALA:HB1 | 15:N:7:PRO:HD2 | 2.01 | 0.42 |
| 19:R:13:ALA:HB1 | 19:R:54:VAL:CB | 2.48 | 0.42 |
| 22:U:47:ASN:C | 22:U:48:LEU:HD12 | 2.40 | 0.42 |
| 22:U:51:LYS:HE3 | 22:U:90:ASP:HB3 | 2.01 | 0.42 |
| 20:S:4:VAL:HG21 | 27:Z:49:LEU:CD1 | 2.49 | 0.42 |
| 27:Z:58:LEU:HD22 | 27:Z:77:LEU:HD22 | 2.01 | 0.42 |
| 1:1:1057:C:O2 | 1:1:1057:C:O4' | 2.38 | 0.42 |
| 1:1:1227:G:N3 | 1:1:1227:G:H2' | 2.35 | 0.42 |
| 1:1:1284:A:H4' | 1:1:1287:A:N6 | 2.35 | 0.42 |
| 1:1:1311:C:H5'' | 14:M:40:LYS:NZ | 2.34 | 0.42 |
| 1:1:1353:A:H2' | 1:1:1354:G:C5' | 2.43 | 0.42 |
| 1:1:1578:U:C2 | 5:D:4:GLN:O | 2.73 | 0.42 |
| 1:1:1628:C:H6 | 1:1:1628:C:O5' | 2.02 | 0.42 |
| 1:1:1682:C:H3' | 1:1:1682:C:H6 | 1.83 | 0.42 |
| 1:1:179:C:H2' | 1:1:180:G:N3 | 2.34 | 0.42 |
| 1:1:1839:U:H1' | 1:1:1863:A:N7 | 2.35 | 0.42 |
| 1:1:190:G:C2 | 1:1:191:A:C8 | 3.08 | 0.42 |
| 1:1:222:U:H6 | 1:1:222:U:O5' | 2.03 | 0.42 |
| 1:1:37:C:H2' | 1:1:38:A:H5'' | 2.01 | 0.42 |
| 2:A:30:LEU:HB2 | 2:A:47:TYR:CE2 | 2.55 | 0.42 |
| 3:B:223:PHE:HE1 | 3:B:225:LEU:HD13 | 1.85 | 0.42 |
| 4:C:60:TRP:C | 4:C:60:TRP:CD1 | 2.93 | 0.42 |
| 6:E:133:VAL:O | 6:E:136:ILE:HD13 | 2.19 | 0.42 |
| 7:F:20:PHE:HD2 | 7:F:21:GLY:H | 1.58 | 0.42 |
| 7:F:40:ALA:CB | 7:F:67:PRO:HA | 2.50 | 0.42 |
| 9:H:143:ARG:HB2 | 9:H:155:LYS:O | 2.20 | 0.42 |
| 9:H:157:HIS:HD1 | 9:H:190:PRO:HG3 | 1.85 | 0.42 |
| 10:I:191:GLU:HG3 | 13:L:20:LYS:CG | 2.49 | 0.42 |
| 13:L:22:ARG:HD2 | 13:L:27:GLU:CD | 2.41 | 0.42 |
| 22:U:20:ILE:HG13 | 22:U:98:VAL:CG2 | 2.50 | 0.42 |
| 1:1:1139:C:H2' | 1:1:1140:G:C5' | 2.49 | 0.42 |
| 1:1:1204:A:C2 | 1:1:1205:C:C2 | 3.08 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:1236:G:H3' | 1:1:1237:C:H6 | 1.85 | 0.42 |
| 1:1:142:C:H4' | 1:1:143:U:O5' | 2.20 | 0.42 |
| 1:1:1478:U:H2' | 1:1:1479:G:O4' | 2.20 | 0.42 |
| 1:1:1630:A:H2' | 1:1:1631:U:H5' | 2.01 | 0.42 |
| 1:1:1686:G:H5' | 1:1:1687:C:P | 2.60 | 0.42 |
| 1:1:1688:C:O2 | 1:1:1688:C:C2' | 2.60 | 0.42 |
| 1:1:1703:C:H3' | 1:1:1704:C:C5 | 2.54 | 0.42 |
| 1:1:1848:U:C6 | 1:1:1848:U:H3' | 2.55 | 0.42 |
| 1:1:239:C:C4 | 1:1:240:G:N7 | 2.88 | 0.42 |
| 1:1:342:C:H6 | 1:1:342:C:H5'' | 1.84 | 0.42 |
| 1:1:441:C:O2 | 1:1:441:C:H2' | 2.20 | 0.42 |
| 1:1:71:G:C2 | 1:1:72:C:C1' | 3.03 | 0.42 |
| 1:1:746:C:O5' | 1:1:746:C:H2' | 2.20 | 0.42 |
| 1:1:950:C:H2' | 1:1:950:C:O2 | 2.20 | 0.42 |
| 1:1:973:C:C6 | 1:1:973:C:C3' | 3.03 | 0.42 |
| 1:1:979:C:HO2' | 1:1:980:A:H5' | 1.80 | 0.42 |
| 3:B:51:ARG:C | 3:B:53:GLN:H | 2.22 | 0.42 |
| 4:C:59:GLU:HG2 | 4:C:60:TRP:N | 2.35 | 0.42 |
| 6:E:173:ILE:CD1 | 6:E:235:TRP:HZ2 | 2.33 | 0.42 |
| 7:F:21:GLY:O | 7:F:22:LYS:HB2 | 2.20 | 0.42 |
| 15:N:80:LEU:H | 15:N:80:LEU:HG | 1.70 | 0.42 |
| 16:O:61:LYS:HD3 | 16:O:76:LEU:HB3 | 2.02 | 0.42 |
| 16:O:56:VAL:HG21 | 16:O:81:VAL:CG2 | 2.50 | 0.42 |
| 19:R:29:HIS:O | 19:R:32:LYS:HG2 | 2.20 | 0.42 |
| 21:T:126:GLN:HA | 21:T:129:ARG:HG2 | 2.02 | 0.42 |
| 21:T:72:VAL:HG13 | 21:T:100:ALA:HB1 | 2.02 | 0.42 |
| 1:1:1025:U:H2' | 1:1:1026:C:O5' | 2.19 | 0.41 |
| 1:1:1081:U:O2' | 1:1:1082:A:H5' | 2.19 | 0.41 |
| 1:1:1180:C:C6 | 1:1:1180:C:C3' | 3.02 | 0.41 |
| 1:1:125:C:H42 | 1:1:129:C:P | 2.43 | 0.41 |
| 1:1:1402:A:H3' | 1:1:1403:C:C6 | 2.55 | 0.41 |
| 1:1:1403:C:C5 | 1:1:1404:U:C1' | 3.03 | 0.41 |
| 1:1:1475:G:H8 | 1:1:1475:G:OP2 | 2.03 | 0.41 |
| 1:1:1554:C:C3' | 1:1:1555:U:C5' | 2.89 | 0.41 |
| 1:1:1570:G:H8 | 1:1:1570:G:O5' | 2.03 | 0.41 |
| 1:1:1599:U:C5 | 7:F:164:ARG:HA | 2.55 | 0.41 |
| 1:1:15:U:O2' | 1:1:16:G:H5' | 2.20 | 0.41 |
| 1:1:1739:C:H2' | 1:1:1740:C:O4' | 2.19 | 0.41 |
| 1:1:343:A:P | 1:1:343:A:H8 | 2.43 | 0.41 |
| 1:1:389:A:H2' | 1:1:390:C:C6 | 2.55 | 0.41 |
| 1:1:4:C:H2' | 1:1:5:U:C5 | 2.53 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:502:C:O2' | 1:1:503:C:C6 | 2.71 | 0.41 |
| 1:1:683:G:C4 | 1:1:1023:A:C6 | 3.08 | 0.41 |
| 1:1:688:U:O4' | 1:1:688:U:O2 | 2.37 | 0.41 |
| 1:1:942:G:OP2 | 1:1:942:G:H8 | 2.03 | 0.41 |
| 3:B:151:ARG:CZ | 3:B:153:THR:OG1 | 2.68 | 0.41 |
| 3:B:63:LYS:C | 3:B:65:ARG:H | 2.23 | 0.41 |
| 6:E:173:ILE:HD12 | 6:E:235:TRP:HZ2 | 1.84 | 0.41 |
| 7:F:130:ARG:O | 7:F:131:ALA:HB3 | 2.20 | 0.41 |
| 7:F:199:VAL:HG13 | 7:F:203:ASN:ND2 | 2.35 | 0.41 |
| 7:F:22:LYS:O | 7:F:22:LYS:HG3 | 2.20 | 0.41 |
| 7:F:30:ILE:HD13 | 7:F:39:ILE:HD12 | 2.02 | 0.41 |
| 1:1:527:C:OP1 | 11:J:124:HIS:HB2 | 2.20 | 0.41 |
| 16:O:62:VAL:HG12 | 16:O:64:ALA:H | 1.85 | 0.41 |
| 21:T:144:LYS:O | 21:T:144:LYS:HG2 | 2.20 | 0.41 |
| 21:T:82:ARG:HD2 | 21:T:82:ARG:HA | 1.86 | 0.41 |
| 1:1:85:A:OP1 | 26:Y:119:GLY:N | 2.52 | 0.41 |
| 1:1:1043:G:C4 | 1:1:1044:G:C8 | 3.08 | 0.41 |
| 1:1:1089:G:C2' | 1:1:1090:C:H5' | 2.50 | 0.41 |
| 1:1:1214:A:C2 | 1:1:1217:A:C5 | 3.08 | 0.41 |
| 1:1:1263:U:C6 | 1:1:1264:C:C6 | 3.08 | 0.41 |
| 1:1:1406:G:H1' | 1:1:1407:U:O5' | 2.20 | 0.41 |
| 1:1:145:G:N2 | 1:1:146:G:N7 | 2.68 | 0.41 |
| 1:1:1561:A:N1 | 1:1:1575:G:H1' | 2.35 | 0.41 |
| 1:1:1567:G:C3' | 1:1:1568:C:H5' | 2.50 | 0.41 |
| 1:1:213:G:O5' | 1:1:213:G:C8 | 2.73 | 0.41 |
| 1:1:330:G:N3 | 1:1:330:G:H2' | 2.35 | 0.41 |
| 1:1:59:U:C5 | 1:1:501:C:H2' | 2.55 | 0.41 |
| 1:1:526:A:H2 | 1:1:527:C:C6 | 2.38 | 0.41 |
| 1:1:61:A:C1' | 1:1:62:G:P | 3.08 | 0.41 |
| 1:1:659:G:C2 | 1:1:663:C:C4 | 3.08 | 0.41 |
| 1:1:746:C:O5' | 1:1:746:C:C2' | 2.68 | 0.41 |
| 1:1:795:A:C2 | 1:1:796:G:C8 | 3.08 | 0.41 |
| 1:1:820:U:H3 | 1:1:828:G:H1 | 1.67 | 0.41 |
| 1:1:845:G:H4' | 6:E:255:ARG:NH1 | 2.31 | 0.41 |
| 1:1:870:A:C6 | 1:1:916:A:C6 | 3.08 | 0.41 |
| 1:1:872:A:N3 | 1:1:872:A:H5'' | 2.36 | 0.41 |
| 2:A:147:LEU:HD13 | 2:A:174:MET:HE3 | 2.00 | 0.41 |
| 3:B:115:LYS:H | 3:B:118:GLN:HE21 | 1.68 | 0.41 |
| 3:B:126:ASP:O | 3:B:127:VAL:HB | 2.20 | 0.41 |
| 3:B:89:GLU:HG3 | 3:B:223:PHE:CE2 | 2.55 | 0.41 |
| 10:I:135:GLU:HG2 | 10:I:135:GLU:O | 2.19 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 15:N:126:ALA:O | 15:N:130:LYS:HG3 | 2.20 | 0.41 |
| 22:U:55:ARG:HD2 | 22:U:87:ARG:NE | 2.34 | 0.41 |
| 4:C:250:TYR:HE2 | 24:W:99:PHE:CZ | 2.37 | 0.41 |
| 1:1:571:U:O3' | 26:Y:59:GLY:N | 2.53 | 0.41 |
| 27:Z:97:ILE:HD12 | 27:Z:109:TYR:CD1 | 2.55 | 0.41 |
| 27:Z:68:ILE:HG23 | 27:Z:73:VAL:HG23 | 2.01 | 0.41 |
| 1:1:1204:A:O4' | 1:1:1699:A:C2 | 2.73 | 0.41 |
| 1:1:1411:G:C2' | 1:1:1412:C:H5'' | 2.50 | 0.41 |
| 1:1:1426:U:H2' | 1:1:1426:U:O2 | 2.21 | 0.41 |
| 1:1:1609:C:C5' | 1:1:1609:C:H6 | 2.33 | 0.41 |
| 1:1:1690:U:N3 | 1:1:1691:U:C5 | 2.89 | 0.41 |
| 1:1:214:U:C2' | 1:1:214:U:O2 | 2.67 | 0.41 |
| 1:1:300:U:C2' | 1:1:301:A:C8 | 2.98 | 0.41 |
| 1:1:323:C:H6 | 1:1:323:C:O5' | 2.03 | 0.41 |
| 1:1:454:U:H5'' | 8:G:76:LEU:CD2 | 2.50 | 0.41 |
| 1:1:586:G:H2' | 1:1:586:G:N3 | 2.35 | 0.41 |
| 1:1:586:G:C2 | 1:1:587:A:C1' | 3.03 | 0.41 |
| 1:1:694:G:H3' | 1:1:695:C:C5 | 2.56 | 0.41 |
| 2:A:64:ALA:O | 2:A:67:ALA:HB3 | 2.21 | 0.41 |
| 3:B:93:GLY:O | 3:B:94:LYS:HB2 | 2.20 | 0.41 |
| 6:E:65:CYS:O | 6:E:78:VAL:HG12 | 2.21 | 0.41 |
| 10:I:84:ASN:HB3 | 10:I:87:ASN:O | 2.20 | 0.41 |
| 12:K:2:LEU:O | 12:K:44:HIS:HE1 | 2.03 | 0.41 |
| 1:1:1130:G:H4' | 15:N:9:LYS:O | 2.20 | 0.41 |
| 16:O:147:ARG:HH12 | 16:O:150:ARG:HH11 | 1.68 | 0.41 |
| 17:P:34:MET:O | 17:P:37:TYR:HB2 | 2.20 | 0.41 |
| 21:T:137:GLN:O | 21:T:140:ALA:HB3 | 2.21 | 0.41 |
| 1:1:1120:U:C6 | 1:1:1120:U:C4' | 3.03 | 0.41 |
| 1:1:1205:C:H2' | 1:1:1205:C:O2 | 2.19 | 0.41 |
| 1:1:1283:C:O3' | 1:1:1284:A:C8 | 2.74 | 0.41 |
| 1:1:1342:U:H4' | 1:1:1343:U:OP1 | 2.20 | 0.41 |
| 1:1:1397:U:H6 | 1:1:1397:U:C3' | 2.30 | 0.41 |
| 1:1:1431:G:C2' | 1:1:1432:U:C5 | 2.92 | 0.41 |
| 1:1:1260:A:C5 | 1:1:1619:A:N1 | 2.89 | 0.41 |
| 1:1:1631:U:N3 | 1:1:1632:G:N2 | 2.67 | 0.41 |
| 1:1:1673:U:H3' | 1:1:1674:G:C8 | 2.54 | 0.41 |
| 1:1:1685:U:C6 | 1:1:1686:G:C8 | 3.08 | 0.41 |
| 1:1:1835:A:H5'' | 1:1:1863:A:H1' | 2.02 | 0.41 |
| 1:1:190:G:C2 | 1:1:191:A:N7 | 2.88 | 0.41 |
| 1:1:211:G:C3' | 1:1:211:G:C8 | 3.04 | 0.41 |
| 1:1:358:C:H2' | 1:1:359:U:O5' | 2.21 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:359:U:H2' | 1:1:362:C:C5 | 2.55 | 0.41 |
| 1:1:45:A:N6 | 1:1:481:C:H4' | 2.35 | 0.41 |
| 1:1:494:C:C2' | 1:1:495:U:H5' | 2.50 | 0.41 |
| 1:1:495:U:H6 | 1:1:495:U:OP2 | 2.03 | 0.41 |
| 1:1:912:C:C6 | 1:1:912:C:OP2 | 2.73 | 0.41 |
| 1:1:954:U:N3 | 1:1:971:G:N2 | 2.69 | 0.41 |
| 1:1:98:C:H4' | 1:1:99:A:OP1 | 2.21 | 0.41 |
| 6:E:206:ASP:HB2 | 6:E:222:LEU:CD1 | 2.51 | 0.41 |
| 9:H:49:LYS:O | 9:H:60:ILE:HD12 | 2.19 | 0.41 |
| 1:1:193:C:OP1 | 10:I:139:LYS:HE2 | 2.20 | 0.41 |
| 11:J:28:GLU:O | 11:J:31:LEU:HB3 | 2.20 | 0.41 |
| 12:K:11:ILE:HA | 12:K:38:LYS:HE2 | 2.02 | 0.41 |
| 13:L:40:ILE:HD13 | 13:L:143:LEU:HD11 | 2.02 | 0.41 |
| 1:1:944:A:H5' | 16:O:134:PRO:CB | 2.51 | 0.41 |
| 20:S:46:ARG:NH1 | 21:T:37:VAL:HG22 | 2.35 | 0.41 |
| 1:1:1447:G:H1' | 22:U:55:ARG:HH21 | 1.85 | 0.41 |
| 25:X:32:LEU:CD2 | 25:X:34:THR:HB | 2.49 | 0.41 |
| 1:1:130:G:H3' | 1:1:131:C:C5' | 2.46 | 0.41 |
| 1:1:132:U:OP1 | 1:1:133:C:C5 | 2.73 | 0.41 |
| 1:1:1483:A:H3' | 1:1:1483:A:N3 | 2.35 | 0.41 |
| 1:1:1535:U:HO2' | 1:1:1536:G:P | 2.44 | 0.41 |
| 1:1:157:U:O5' | 1:1:157:U:C6 | 2.73 | 0.41 |
| 1:1:1639:G:OP1 | 1:1:1639:G:C4' | 2.68 | 0.41 |
| 1:1:1643:U:C2 | 1:1:1644:C:C5 | 3.08 | 0.41 |
| 1:1:1686:G:C5 | 1:1:1687:C:C5 | 3.08 | 0.41 |
| 1:1:1745:A:C2 | 1:1:1746:U:C5 | 3.08 | 0.41 |
| 1:1:1748:G:H1 | 1:1:1786:U:H3 | 1.67 | 0.41 |
| 1:1:206:G:O5' | 1:1:206:G:H8 | 2.02 | 0.41 |
| 1:1:36:U:O2 | 1:1:520:A:C2 | 2.72 | 0.41 |
| 1:1:378:U:H6 | 1:1:378:U:O5' | 2.03 | 0.41 |
| 1:1:569:A:O2' | 26:Y:36:PRO:HA | 2.21 | 0.41 |
| 1:1:790:C:C6 | 1:1:790:C:O5' | 2.73 | 0.41 |
| 1:1:795:A:C3' | 1:1:796:G:H8 | 2.33 | 0.41 |
| 1:1:885:U:O3' | 1:1:886:A:H2' | 2.20 | 0.41 |
| 5:D:102:ALA:HB2 | 5:D:186:VAL:HG21 | 2.02 | 0.41 |
| 6:E:166:THR:OG1 | 6:E:168:LYS:HG3 | 2.20 | 0.41 |
| 8:G:145:PHE:O | 8:G:146:ASN:CB | 2.68 | 0.41 |
| 1:1:66:G:N2 | 8:G:158:VAL:HG21 | 2.35 | 0.41 |
| 8:G:23:LYS:HB3 | 8:G:41:LEU:HD23 | 2.03 | 0.41 |
| 10:I:83:TYR:H | 10:I:91:VAL:HG21 | 1.85 | 0.41 |
| 1:1:527:C:H1' | 11:J:125:HIS:ND1 | 2.36 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 13:L:59:LYS:HB2 | 13:L:112:HIS:CE1 | 2.56 | 0.41 |
| 17:P:51:ARG:HG2 | 17:P:51:ARG:O | 2.21 | 0.41 |
| 17:P:69:PRO:O | 17:P:70:MET:HB2 | 2.20 | 0.41 |
| 20:S:52:LEU:HD12 | 20:S:52:LEU:N | 2.36 | 0.41 |
| 21:T:20:ALA:O | 21:T:23:LYS:HB2 | 2.20 | 0.41 |
| 25:X:39:ASN:HB2 | 25:X:40:PRO:HD2 | 2.02 | 0.41 |
| 1:1:1057:C:C6 | 1:1:1059:G:OP2 | 2.74 | 0.41 |
| 1:1:1214:A:N6 | 1:1:1686:G:C6 | 2.88 | 0.41 |
| 1:1:1257:G:C5' | 1:1:1257:G:C8 | 2.99 | 0.41 |
| 1:1:1675:A:H2' | 1:1:1676:U:O4' | 2.20 | 0.41 |
| 1:1:1829:G:H2' | 1:1:1829:G:N3 | 2.35 | 0.41 |
| 1:1:1868:U:O2' | 1:1:1869:A:P | 2.78 | 0.41 |
| 1:1:476:A:H3' | 1:1:477:G:C8 | 2.53 | 0.41 |
| 1:1:534:G:H2' | 1:1:535:G:H4' | 2.02 | 0.41 |
| 1:1:740:C:C4 | 1:1:741:C:N4 | 2.88 | 0.41 |
| 1:1:750:C:O5' | 1:1:750:C:H6 | 2.03 | 0.41 |
| 1:1:790:C:O5' | 1:1:790:C:H6 | 2.04 | 0.41 |
| 3:B:153:THR:HB | 3:B:155:TYR:HE2 | 1.85 | 0.41 |
| 3:B:183:GLU:O | 3:B:186:ASN:HB3 | 2.21 | 0.41 |
| 3:B:82:ARG:HG2 | 3:B:103:MET:HE1 | 2.03 | 0.41 |
| 4:C:152:ARG:O | 4:C:156:ILE:HG12 | 2.20 | 0.41 |
| 6:E:159:THR:HG23 | 6:E:226:PHE:CE1 | 2.56 | 0.41 |
| 9:H:109:ARG:HD3 | 9:H:110:THR:H | 1.85 | 0.41 |
| 15:N:33:VAL:O | 15:N:37:ILE:HG13 | 2.19 | 0.41 |
| 1:1:958:G:OP2 | 16:O:39:ASP:HB3 | 2.21 | 0.41 |
| 1:1:1528:G:OP2 | 18:Q:142:GLN:HG2 | 2.21 | 0.41 |
| 20:S:111:LEU:HD23 | 20:S:114:LEU:HD12 | 2.03 | 0.41 |
| 26:Y:7:ILE:HG12 | 26:Y:27:VAL:HG22 | 2.02 | 0.41 |
| 1:1:1142:G:H8 | 1:1:1142:G:P | 2.44 | 0.41 |
| 1:1:1239:U:H6 | 1:1:1239:U:O5' | 2.04 | 0.41 |
| 1:1:1312:G:C8 | 14:M:37:GLU:CG | 3.04 | 0.41 |
| 1:1:1469:A:C5 | 1:1:1470:C:C4 | 3.09 | 0.41 |
| 1:1:1568:C:N4 | 1:1:1569:A:C6 | 2.89 | 0.41 |
| 1:1:1636:G:OP1 | 1:1:1638:G:N2 | 2.53 | 0.41 |
| 1:1:1666:C:H5' | 1:1:1667:U:OP2 | 2.21 | 0.41 |
| 1:1:1672:U:H2' | 1:1:1673:U:H6 | 1.86 | 0.41 |
| 1:1:1649:U:C2 | 1:1:1675:A:H2 | 2.39 | 0.41 |
| 1:1:1743:G:C2' | 1:1:1744:G:H5' | 2.51 | 0.41 |
| 1:1:393:U:H4' | 1:1:394:G:OP1 | 2.21 | 0.41 |
| 1:1:466:G:N3 | 1:1:466:G:H3' | 2.36 | 0.41 |
| 1:1:467:G:H8 | 1:1:467:G:H5'' | 1.85 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:545:A:C3' | 1:1:545:A:C8 | 3.03 | 0.41 |
| 1:1:600:G:H2' | 1:1:601:G:C8 | 2.55 | 0.41 |
| 1:1:25:A:C2 | 1:1:649:U:O2 | 2.74 | 0.41 |
| 1:1:9:U:O2 | 1:1:12:U:C5 | 2.73 | 0.41 |
| 5:D:70:THR:HG23 | 5:D:84:VAL:O | 2.20 | 0.41 |
| 6:E:124:CYS:HB2 | 6:E:141:THR:HG23 | 2.02 | 0.41 |
| 7:F:55:ARG:O | 7:F:57:ALA:N | 2.53 | 0.41 |
| 9:H:31:GLU:HA | 9:H:36:LEU:HB2 | 2.03 | 0.41 |
| 9:H:66:VAL:N | 9:H:67:PRO:CD | 2.83 | 0.41 |
| 1:1:526:A:H1' | 11:J:128:VAL:HG13 | 2.02 | 0.41 |
| 12:K:83:LEU:O | 12:K:84:HIS:HB3 | 2.21 | 0.41 |
| 13:L:77:VAL:HG22 | 13:L:86:ILE:HD12 | 2.02 | 0.41 |
| 14:M:92:CYS:SG | 14:M:94:ILE:HG23 | 2.60 | 0.41 |
| 16:O:38:ASN:O | 16:O:68:GLU:HG3 | 2.21 | 0.41 |
| 17:P:86:LEU:HB2 | 17:P:87:PRO:HD2 | 2.03 | 0.41 |
| 21:T:123:LEU:N | 21:T:123:LEU:HD23 | 2.35 | 0.41 |
| 21:T:87:VAL:HG23 | 21:T:88:MET:H | 1.86 | 0.41 |
| 1:1:1492:U:C4' | 22:U:70:CYS:SG | 3.09 | 0.41 |
| 1:1:1122:A:C2' | 1:1:1123:C:H5' | 2.49 | 0.41 |
| 1:1:1206:G:C6 | 1:1:1693:G:C2 | 3.08 | 0.41 |
| 1:1:1265:A:C2 | 1:1:1266:C:C6 | 3.08 | 0.41 |
| 1:1:1322:G:H2' | 1:1:1323:U:O4' | 2.21 | 0.41 |
| 1:1:1391:C:H2' | 1:1:1392:U:C1' | 2.51 | 0.41 |
| 1:1:1439:A:OP2 | 1:1:1439:A:C8 | 2.73 | 0.41 |
| 1:1:1484:A:C2' | 1:1:1485:U:H5' | 2.51 | 0.41 |
| 1:1:1579:A:H3' | 1:1:1580:A:H5'' | 2.03 | 0.41 |
| 1:1:158:A:O5' | 1:1:158:A:H8 | 2.04 | 0.41 |
| 1:1:176:U:C4 | 1:1:177:G:C2 | 3.09 | 0.41 |
| 1:1:182:C:HO2' | 1:1:183:G:H8 | 1.68 | 0.41 |
| 1:1:23:G:H2' | 1:1:24:C:H6 | 1.85 | 0.41 |
| 1:1:313:A:OP1 | 1:1:313:A:C4' | 2.68 | 0.41 |
| 1:1:402:C:O5' | 1:1:402:C:C6 | 2.74 | 0.41 |
| 1:1:422:U:C6 | 1:1:422:U:C5' | 3.04 | 0.41 |
| 1:1:504:G:H2' | 1:1:505:G:C5' | 2.51 | 0.41 |
| 1:1:50:A:OP2 | 1:1:472:C:N4 | 2.54 | 0.41 |
| 1:1:567:C:C3' | 1:1:568:C:C5' | 2.99 | 0.41 |
| 1:1:583:A:C2' | 1:1:584:A:C8 | 3.04 | 0.41 |
| 1:1:601:G:H1 | 1:1:621:C:H42 | 1.69 | 0.41 |
| 1:1:655:A:C4 | 1:1:657:U:C5 | 3.08 | 0.41 |
| 1:1:813:A:C5 | 1:1:814:U:C5 | 3.08 | 0.41 |
| 1:1:93:U:O4' | 1:1:93:U:O2 | 2.38 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:I:986:G:H22 | 16:O:135:ILE:HD12 | 1.85 | 0.41 |
| 2:A:103:PHE:CD1 | 2:A:133:PRO:HG3 | 2.55 | 0.41 |
| 2:A:205:ARG:O | 2:A:208:GLU:HB3 | 2.21 | 0.41 |
| 6:E:252:ARG:HH11 | 6:E:252:ARG:HB3 | 1.84 | 0.41 |
| 9:H:37:LYS:HE2 | 9:H:41:ARG:HH21 | 1.86 | 0.41 |
| 9:H:61:ILE:HG22 | 9:H:93:VAL:CG2 | 2.50 | 0.41 |
| 9:H:62:ILE:HG22 | 9:H:93:VAL:O | 2.21 | 0.41 |
| 1:I:191:A:H4' | 10:I:147:LYS:NZ | 2.35 | 0.41 |
| 11:J:14:VAL:CG2 | 11:J:48:PHE:HD1 | 2.33 | 0.41 |
| 13:L:33:LEU:HB2 | 13:L:34:PRO:HD3 | 2.02 | 0.41 |
| 14:M:106:CYS:O | 14:M:107:SER:CB | 2.69 | 0.41 |
| 15:N:19:ARG:NH2 | 15:N:23:PRO:HA | 2.36 | 0.41 |
| 17:P:67:ALA:HB2 | 17:P:73:PRO:HB3 | 2.03 | 0.41 |
| 20:S:47:LYS:HE2 | 20:S:79:ILE:HG13 | 2.01 | 0.41 |
| 21:T:19:ALA:O | 21:T:23:LYS:HG3 | 2.21 | 0.41 |
| 1:I:29:G:H5'' | 25:X:129:SER:HB3 | 2.02 | 0.41 |
| 1:I:1066:U:H2' | 1:I:1067:C:H6 | 1.85 | 0.41 |
| 1:I:1222:G:O5' | 1:I:1222:G:H8 | 2.02 | 0.41 |
| 1:I:1250:A:H4' | 1:I:1251:A:OP2 | 2.20 | 0.41 |
| 1:I:1251:A:C2' | 1:I:1252:C:H5' | 2.49 | 0.41 |
| 1:I:1285:G:OP1 | 1:I:1286:G:N7 | 2.53 | 0.41 |
| 1:I:1350:U:O3' | 2:A:110:ASN:HB2 | 2.20 | 0.41 |
| 1:I:1556:A:C3' | 1:I:1556:A:P | 2.98 | 0.41 |
| 1:I:1599:U:O2' | 1:I:1600:G:H5'' | 2.21 | 0.41 |
| 1:I:301:A:O2' | 10:I:72:CYS:HA | 2.21 | 0.41 |
| 1:I:172:U:P | 1:I:314:U:H2' | 2.61 | 0.41 |
| 1:I:319:C:C4' | 1:I:320:G:OP2 | 2.64 | 0.41 |
| 1:I:382:C:C2' | 1:I:383:G:N2 | 2.83 | 0.41 |
| 1:I:450:C:H2' | 1:I:451:G:C4' | 2.48 | 0.41 |
| 1:I:522:A:N1 | 1:I:643:A:C5' | 2.82 | 0.41 |
| 1:I:690:G:C2 | 1:I:691:G:C5 | 3.09 | 0.41 |
| 2:A:120:ARG:HA | 2:A:120:ARG:HE | 1.86 | 0.41 |
| 4:C:171:GLY:O | 4:C:172:ASN:CB | 2.69 | 0.41 |
| 5:D:158:ILE:CG2 | 5:D:164:VAL:HG22 | 2.39 | 0.41 |
| 1:I:353:C:C5' | 13:L:71:ARG:NH2 | 2.82 | 0.41 |
| 15:N:92:ILE:CG2 | 15:N:149:LEU:HD13 | 2.39 | 0.41 |
| 16:O:30:VAL:CG2 | 16:O:47:LEU:HA | 2.51 | 0.41 |
| 23:V:43:THR:HG22 | 23:V:45:ARG:CB | 2.51 | 0.41 |
| 25:X:80:LYS:H | 25:X:80:LYS:HG3 | 1.71 | 0.41 |
| 27:Z:107:VAL:CG1 | 27:Z:109:TYR:HE2 | 2.34 | 0.41 |
| 1:I:1024:A:H2' | 1:I:1025:U:C6 | 2.56 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:1:1113:A:N1 | 1:1:1120:U:O4 | 2.54 | 0.41 |
| 1:1:1204:A:C6 | 1:1:1205:C:C4 | 3.09 | 0.41 |
| 1:1:1216:C:OP1 | 1:1:1217:A:C8 | 2.74 | 0.41 |
| 1:1:1313:A:H5'' | 1:1:1314:U:H5 | 1.86 | 0.41 |
| 1:1:1344:A:N6 | 1:1:1386:A:H5' | 2.36 | 0.41 |
| 1:1:1491:G:C4 | 1:1:1492:U:C5 | 3.09 | 0.41 |
| 1:1:1518:C:OP1 | 1:1:1520:G:H8 | 2.03 | 0.41 |
| 1:1:1614:A:O2' | 1:1:1615:U:H5' | 2.21 | 0.41 |
| 1:1:1636:G:H1' | 7:F:164:ARG:NH2 | 2.34 | 0.41 |
| 1:1:1731:A:C6 | 1:1:1732:G:C6 | 3.09 | 0.41 |
| 1:1:1781:A:C2 | 1:1:1782:G:N2 | 2.89 | 0.41 |
| 1:1:1862:G:O2' | 1:1:1863:A:P | 2.78 | 0.41 |
| 1:1:186:C:O2' | 1:1:187:G:H5' | 2.21 | 0.41 |
| 1:1:563:G:O5' | 1:1:563:G:H8 | 2.04 | 0.41 |
| 1:1:571:U:O3' | 26:Y:59:GLY:CA | 2.69 | 0.41 |
| 1:1:574:A:C5' | 1:1:575:A:N7 | 2.69 | 0.41 |
| 1:1:576:A:H3' | 1:1:576:A:P | 2.61 | 0.41 |
| 1:1:679:A:H2' | 1:1:680:G:H5' | 2.03 | 0.41 |
| 1:1:679:A:C2' | 1:1:680:G:H5' | 2.51 | 0.41 |
| 1:1:693:A:P | 1:1:694:G:H5'' | 2.61 | 0.41 |
| 1:1:830:A:C6 | 1:1:845:G:C2 | 3.09 | 0.41 |
| 1:1:93:U:C5 | 1:1:94:G:H1' | 2.56 | 0.41 |
| 6:E:125:LYS:O | 6:E:141:THR:HA | 2.21 | 0.41 |
| 6:E:31:PRO:HG2 | 6:E:38:LEU:HG | 2.02 | 0.41 |
| 9:H:8:ILE:HG23 | 9:H:45:ILE:O | 2.21 | 0.41 |
| 11:J:130:ILE:HD11 | 11:J:145:PRO:HB3 | 2.03 | 0.41 |
| 13:L:22:ARG:HD2 | 13:L:27:GLU:HB3 | 2.03 | 0.41 |
| 15:N:62:GLN:HG2 | 15:N:65:PHE:CD1 | 2.56 | 0.41 |
| 22:U:35:VAL:HG21 | 22:U:106:ILE:HD13 | 2.02 | 0.41 |
| 24:W:39:THR:O | 24:W:43:LYS:HG3 | 2.20 | 0.41 |
| 26:Y:99:LYS:H | 26:Y:99:LYS:HG3 | 1.63 | 0.41 |
| 1:1:1102:G:C2' | 1:1:1103:C:H5' | 2.51 | 0.41 |
| 1:1:1519:U:H5'' | 1:1:1519:U:H6 | 1.80 | 0.41 |
| 1:1:1530:U:O2' | 1:1:1531:A:H8 | 2.03 | 0.41 |
| 1:1:1580:A:H3' | 1:1:1581:C:H5' | 2.03 | 0.41 |
| 1:1:1647:A:H1' | 1:1:1649:U:C1' | 2.51 | 0.41 |
| 1:1:1663:A:C2 | 1:1:1664:A:N6 | 2.86 | 0.41 |
| 1:1:168:C:C4 | 1:1:169:U:O4 | 2.74 | 0.41 |
| 1:1:183:G:O2' | 1:1:184:G:H5' | 2.21 | 0.41 |
| 1:1:302:A:C3' | 1:1:303:C:H5'' | 2.49 | 0.41 |
| 1:1:569:A:C4 | 1:1:570:C:C6 | 3.09 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:1:673:G:C8 | 1:1:1084:A:C6 | 3.10 | 0.41 |
| 1:1:679:A:H3' | 1:1:680:G:H8 | 1.86 | 0.41 |
| 1:1:743:U:P | 1:1:743:U:O4' | 2.78 | 0.41 |
| 1:1:754:G:C5 | 1:1:755:C:C4 | 3.09 | 0.41 |
| 6:E:100:ARG:NH2 | 6:E:118:GLU:HB3 | 2.36 | 0.41 |
| 7:F:34:SER:O | 7:F:35:LEU:HB2 | 2.21 | 0.41 |
| 9:H:39:GLN:HG3 | 9:H:75:ILE:HB | 2.03 | 0.41 |
| 10:I:119:LEU:HD12 | 10:I:127:ALA:O | 2.21 | 0.41 |
| 15:N:22:VAL:HB | 15:N:23:PRO:HD2 | 2.02 | 0.41 |
| 21:T:65:TYR:CE1 | 21:T:128:GLN:OE1 | 2.73 | 0.41 |
| 26:Y:20:ARG:HD2 | 26:Y:20:ARG:C | 2.41 | 0.41 |
| 27:Z:43:LYS:NZ | 27:Z:44:LEU:H | 2.17 | 0.41 |
| 1:1:1021:U:H4' | 1:1:1022:U:O5' | 2.21 | 0.40 |
| 1:1:1096:G:HO2' | 1:1:1097:G:P | 2.44 | 0.40 |
| 1:1:1013:U:O2' | 1:1:1104:G:H1' | 2.21 | 0.40 |
| 1:1:1284:A:H4' | 1:1:1287:A:C6 | 2.56 | 0.40 |
| 1:1:1305:C:H2' | 1:1:1306:U:C6 | 2.56 | 0.40 |
| 1:1:1350:U:C6 | 1:1:1350:U:O5' | 2.73 | 0.40 |
| 1:1:1411:G:C2 | 1:1:1412:C:H5 | 2.39 | 0.40 |
| 1:1:1427:C:C5 | 1:1:1428:G:C8 | 3.09 | 0.40 |
| 1:1:1798:C:H2' | 1:1:1799:G:O4' | 2.21 | 0.40 |
| 1:1:189:U:OP2 | 1:1:189:U:C5 | 2.74 | 0.40 |
| 1:1:491:C:H2' | 1:1:492:C:O4' | 2.20 | 0.40 |
| 1:1:495:U:C6 | 1:1:495:U:OP2 | 2.74 | 0.40 |
| 1:1:510:G:O2' | 1:1:511:U:H5' | 2.21 | 0.40 |
| 1:1:540:U:H3 | 1:1:542:U:H5'' | 1.85 | 0.40 |
| 1:1:593:C:H4' | 1:1:594:A:OP1 | 2.21 | 0.40 |
| 1:1:641:A:C2' | 1:1:642:U:H5' | 2.50 | 0.40 |
| 1:1:796:G:H2' | 1:1:797:C:C5' | 2.51 | 0.40 |
| 1:1:847:A:H5' | 1:1:848:U:OP2 | 2.21 | 0.40 |
| 1:1:969:U:H4' | 1:1:969:U:OP1 | 2.21 | 0.40 |
| 1:1:990:A:CI' | 1:1:991:G:N2 | 2.84 | 0.40 |
| 7:F:36:GLN:O | 7:F:37:ASP:CB | 2.68 | 0.40 |
| 9:H:11:PRO:HA | 9:H:14:GLU:O | 2.21 | 0.40 |
| 10:I:110:ARG:HG3 | 10:I:120:PRO:O | 2.21 | 0.40 |
| 13:L:113:LEU:HD22 | 13:L:114:SER:N | 2.37 | 0.40 |
| 21:T:77:LYS:O | 21:T:92:PHE:HZ | 2.04 | 0.40 |
| 27:Z:106:GLN:OE1 | 27:Z:108:ILE:HD11 | 2.20 | 0.40 |
| 27:Z:43:LYS:HZ1 | 27:Z:44:LEU:N | 2.19 | 0.40 |
| 27:Z:59:CYS:SG | 27:Z:60:LYS:HD2 | 2.61 | 0.40 |
| 1:1:1002:U:O2' | 1:1:1003:U:H5' | 2.21 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:1020:A:O2' | 1:1:1021:U:P | 2.79 | 0.40 |
| 1:1:1102:G:H1 | 1:1:1130:G:N2 | 2.17 | 0.40 |
| 1:1:1139:C:H2' | 1:1:1140:G:H5' | 2.03 | 0.40 |
| 1:1:1180:C:C5 | 1:1:1181:A:C5 | 3.09 | 0.40 |
| 1:1:1285:G:H5'' | 1:1:1286:G:C8 | 2.57 | 0.40 |
| 1:1:1287:A:N3 | 1:1:1287:A:C2' | 2.82 | 0.40 |
| 1:1:1320:G:H2' | 1:1:1321:G:O4' | 2.20 | 0.40 |
| 1:1:1325:G:C8 | 1:1:1325:G:OP2 | 2.74 | 0.40 |
| 1:1:1454:A:H61 | 1:1:1467:C:N4 | 2.19 | 0.40 |
| 1:1:1621:U:C3' | 1:1:1621:U:O2 | 2.68 | 0.40 |
| 1:1:1639:G:C5' | 1:1:1640:A:OP2 | 2.69 | 0.40 |
| 1:1:1698:C:C3' | 1:1:1699:A:H5' | 2.50 | 0.40 |
| 1:1:1825:A:C3' | 1:1:1825:A:C8 | 3.04 | 0.40 |
| 1:1:201:C:C3' | 1:1:201:C:O2 | 2.69 | 0.40 |
| 1:1:211:G:C8 | 1:1:211:G:C4' | 3.04 | 0.40 |
| 1:1:212:C:C5 | 1:1:212:C:OP2 | 2.74 | 0.40 |
| 1:1:300:U:C2' | 1:1:301:A:H8 | 2.31 | 0.40 |
| 1:1:31:U:H2' | 1:1:32:U:O5' | 2.21 | 0.40 |
| 1:1:36:U:C2' | 1:1:36:U:O2 | 2.63 | 0.40 |
| 1:1:527:C:H5' | 11:J:122:SER:HB2 | 2.00 | 0.40 |
| 1:1:559:G:H5' | 1:1:560:A:OP2 | 2.21 | 0.40 |
| 1:1:59:U:H5 | 1:1:501:C:H2' | 1.86 | 0.40 |
| 1:1:745:C:C6 | 9:H:107:LYS:HD3 | 2.56 | 0.40 |
| 1:1:753:C:OP2 | 1:1:754:G:H8 | 2.04 | 0.40 |
| 1:1:840:C:H1' | 26:Y:14:THR:OG1 | 2.21 | 0.40 |
| 1:1:870:A:C5 | 1:1:916:A:C6 | 3.09 | 0.40 |
| 1:1:925:G:H2' | 1:1:925:G:N3 | 2.36 | 0.40 |
| 1:1:958:G:C5' | 1:1:959:G:N7 | 2.84 | 0.40 |
| 1:1:979:C:H6 | 1:1:979:C:OP2 | 2.04 | 0.40 |
| 6:E:246:LEU:HB3 | 6:E:250:GLU:HB2 | 2.03 | 0.40 |
| 10:I:138:ASN:ND2 | 10:I:139:LYS:H | 2.19 | 0.40 |
| 10:I:182:CYS:O | 10:I:184:ARG:HG3 | 2.22 | 0.40 |
| 14:M:56:CYS:SG | 14:M:61:TYR:CE1 | 3.10 | 0.40 |
| 15:N:64:ARG:NH1 | 15:N:64:ARG:HB3 | 2.36 | 0.40 |
| 17:P:34:MET:HA | 17:P:37:TYR:CD1 | 2.56 | 0.40 |
| 1:1:1442:U:N3 | 18:Q:22:VAL:HG22 | 2.35 | 0.40 |
| 1:1:1562:C:P | 21:T:71:GLY:HA3 | 2.61 | 0.40 |
| 2:A:9:GLN:CB | 23:V:83:PHE:CD2 | 2.99 | 0.40 |
| 1:1:1036:A:C2' | 1:1:1037:G:H5' | 2.51 | 0.40 |
| 1:1:1330:G:H4' | 1:1:1331:C:H4' | 2.00 | 0.40 |
| 1:1:1403:C:O5' | 1:1:1403:C:H6 | 2.04 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:1:1489:A:C3' | 1:1:1490:G:H5' | 2.52 | 0.40 |
| 1:1:156:G:H3' | 1:1:157:U:C5 | 2.56 | 0.40 |
| 1:1:1673:U:P | 18:Q:76:GLY:HA3 | 2.61 | 0.40 |
| 1:1:1686:G:N3 | 1:1:1686:G:H2' | 2.35 | 0.40 |
| 1:1:24:C:O2' | 1:1:415:A:H4' | 2.21 | 0.40 |
| 1:1:437:G:C5 | 1:1:438:G:C5 | 3.10 | 0.40 |
| 1:1:654:A:C5 | 1:1:655:A:N1 | 2.90 | 0.40 |
| 1:1:78:C:O2 | 1:1:78:C:C2' | 2.69 | 0.40 |
| 1:1:795:A:C2 | 1:1:796:G:C1' | 3.04 | 0.40 |
| 1:1:928:G:H2' | 1:1:928:G:O5' | 2.21 | 0.40 |
| 1:1:992:A:H5'' | 1:1:1132:C:O2 | 2.21 | 0.40 |
| 2:A:108:PHE:HB2 | 2:A:136:GLU:HB3 | 2.03 | 0.40 |
| 2:A:26:GLY:HA2 | 2:A:149:ASN:HD21 | 1.86 | 0.40 |
| 2:A:39:TYR:CD2 | 2:A:50:ASN:HA | 2.56 | 0.40 |
| 3:B:135:LEU:HD23 | 3:B:135:LEU:H | 1.85 | 0.40 |
| 3:B:223:PHE:CE1 | 3:B:225:LEU:HD13 | 2.56 | 0.40 |
| 3:B:71:LEU:HD11 | 3:B:79:VAL:HG21 | 2.04 | 0.40 |
| 7:F:55:ARG:C | 7:F:57:ALA:H | 2.25 | 0.40 |
| 7:F:60:ARG:HG2 | 7:F:60:ARG:NH1 | 2.36 | 0.40 |
| 9:H:69:LEU:C | 9:H:69:LEU:HD13 | 2.42 | 0.40 |
| 16:O:104:ARG:HG2 | 16:O:105:THR:N | 2.37 | 0.40 |
| 1:1:1543:U:C2 | 18:Q:43:GLU:HG2 | 2.55 | 0.40 |
| 22:U:22:ILE:HD11 | 22:U:91:LEU:CD1 | 2.50 | 0.40 |
| 13:L:99:TYR:OH | 25:X:17:ARG:HB2 | 2.20 | 0.40 |
| 26:Y:114:MET:HG3 | 26:Y:122:LYS:HG3 | 2.02 | 0.40 |
| 1:1:1016:U:O2' | 1:1:1017:U:C5' | 2.70 | 0.40 |
| 1:1:1050:A:H2' | 1:1:1051:G:O5' | 2.22 | 0.40 |
| 1:1:1208:A:C2 | 1:1:1209:A:C5 | 3.09 | 0.40 |
| 1:1:1316:C:O5' | 1:1:1316:C:H6 | 2.05 | 0.40 |
| 1:1:1405:A:N3 | 1:1:1442:U:H5 | 2.17 | 0.40 |
| 1:1:1430:C:C6 | 1:1:1430:C:O5' | 2.75 | 0.40 |
| 1:1:1448:A:H2' | 1:1:1449:G:C8 | 2.56 | 0.40 |
| 1:1:1232:U:H3 | 1:1:1526:G:H1 | 1.69 | 0.40 |
| 1:1:1643:U:H1' | 18:Q:142:GLN:CD | 2.41 | 0.40 |
| 1:1:190:G:C6 | 1:1:191:A:N7 | 2.89 | 0.40 |
| 1:1:193:C:H5' | 1:1:193:C:C6 | 2.41 | 0.40 |
| 1:1:219:U:H6 | 1:1:219:U:C5' | 2.33 | 0.40 |
| 1:1:235:A:O2' | 1:1:236:A:P | 2.80 | 0.40 |
| 1:1:439:A:O2' | 1:1:440:G:H5' | 2.21 | 0.40 |
| 1:1:528:A:O2' | 1:1:529:A:H5' | 2.21 | 0.40 |
| 1:1:558:G:H4' | 1:1:559:G:OP1 | 2.22 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:1:60:A:N3 | 1:1:60:A:C2' | 2.83 | 0.40 |
| 1:1:69:C:C5' | 1:1:69:C:H6 | 2.32 | 0.40 |
| 1:1:741:C:N4 | 1:1:744:G:H1 | 2.19 | 0.40 |
| 1:1:980:A:OP2 | 1:1:980:A:H8 | 2.03 | 0.40 |
| 10:I:148:LYS:HB3 | 10:I:152:ARG:HE | 1.87 | 0.40 |
| 13:L:49:GLU:HA | 13:L:52:GLU:OE2 | 2.21 | 0.40 |
| 13:L:69:ARG:HD3 | 13:L:69:ARG:H | 1.87 | 0.40 |
| 15:N:64:ARG:HB3 | 15:N:64:ARG:HH11 | 1.85 | 0.40 |
| 19:R:54:VAL:O | 19:R:57:LEU:HB2 | 2.21 | 0.40 |
| 20:S:98:VAL:CG2 | 20:S:103:LEU:HD13 | 2.48 | 0.40 |
| 21:T:17:ALA:HB1 | 21:T:21:PHE:HE2 | 1.85 | 0.40 |
| 21:T:27:LYS:HD3 | 21:T:110:LEU:CD1 | 2.49 | 0.40 |
| 26:Y:20:ARG:HB3 | 26:Y:76:TYR:CD2 | 2.57 | 0.40 |
| 20:S:2:SER:HB2 | 27:Z:50:PHE:CE1 | 2.57 | 0.40 |
| 1:1:1221:G:H2' | 1:1:1222:G:H8 | 1.85 | 0.40 |
| 1:1:1428:G:C6 | 1:1:1429:G:C5 | 3.10 | 0.40 |
| 1:1:1587:G:C6 | 21:T:74:SER:CB | 3.03 | 0.40 |
| 1:1:164:A:C3' | 1:1:165:G:H8 | 2.33 | 0.40 |
| 1:1:1699:A:H8 | 1:1:1699:A:P | 2.45 | 0.40 |
| 1:1:1726:G:H1 | 1:1:1808:U:H3 | 1.70 | 0.40 |
| 1:1:181:A:C4' | 1:1:182:C:OP2 | 2.67 | 0.40 |
| 1:1:227:U:H1' | 1:1:228:C:P | 2.61 | 0.40 |
| 1:1:301:A:C1' | 10:I:71:CYS:O | 2.70 | 0.40 |
| 1:1:337:C:H3' | 1:1:337:C:O2 | 2.21 | 0.40 |
| 1:1:343:A:O2' | 1:1:344:U:P | 2.79 | 0.40 |
| 1:1:514:U:H3' | 1:1:515:G:H8 | 1.82 | 0.40 |
| 1:1:573:U:C4 | 1:1:576:A:C5 | 3.08 | 0.40 |
| 1:1:59:U:H2' | 1:1:60:A:H5' | 2.02 | 0.40 |
| 1:1:79:A:H3' | 1:1:80:G:H8 | 1.85 | 0.40 |
| 8:G:3:LEU:O | 8:G:15:LEU:HD22 | 2.21 | 0.40 |
| 10:I:144:LYS:HB2 | 10:I:144:LYS:HE2 | 1.87 | 0.40 |
| 11:J:12:THR:CG2 | 11:J:45:ARG:HG3 | 2.52 | 0.40 |
| 12:K:10:ALA:C | 12:K:38:LYS:HZ3 | 2.24 | 0.40 |
| 13:L:61:PRO:HD3 | 13:L:141:ASN:HD21 | 1.83 | 0.40 |
| 15:N:72:LEU:HD13 | 15:N:72:LEU:O | 2.21 | 0.40 |
| 17:P:83:MET:SD | 17:P:89:MET:SD | 3.20 | 0.40 |
| 5:D:205:PRO:HA | 19:R:42:PRO:HG2 | 2.03 | 0.40 |
| 20:S:23:ARG:HD3 | 20:S:23:ARG:N | 2.36 | 0.40 |
| 22:U:24:LEU:HG | 22:U:87:ARG:HB2 | 2.02 | 0.40 |
| 27:Z:71:ALA:O | 27:Z:75:GLU:HG2 | 2.20 | 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 | |
|-----|-------|---------------|-----------|---------|----------|-------------|----|
| 2 | A | 216/295 (73%) | 209 (97%) | 5 (2%) | 2 (1%) | 20 | 63 |
| 3 | B | 211/264 (80%) | 176 (83%) | 18 (8%) | 17 (8%) | 1 | 16 |
| 4 | C | 220/293 (75%) | 213 (97%) | 2 (1%) | 5 (2%) | 7 | 43 |
| 5 | D | 210/243 (86%) | 201 (96%) | 4 (2%) | 5 (2%) | 7 | 42 |
| 6 | E | 255/263 (97%) | 237 (93%) | 13 (5%) | 5 (2%) | 9 | 46 |
| 7 | F | 186/204 (91%) | 163 (88%) | 13 (7%) | 10 (5%) | 2 | 25 |
| 8 | G | 230/249 (92%) | 216 (94%) | 5 (2%) | 9 (4%) | 3 | 31 |
| 9 | H | 189/194 (97%) | 178 (94%) | 7 (4%) | 4 (2%) | 8 | 45 |
| 10 | I | 205/208 (99%) | 184 (90%) | 14 (7%) | 7 (3%) | 4 | 35 |
| 11 | J | 177/194 (91%) | 168 (95%) | 6 (3%) | 3 (2%) | 11 | 50 |
| 12 | K | 92/165 (56%) | 84 (91%) | 1 (1%) | 7 (8%) | 1 | 18 |
| 13 | L | 144/158 (91%) | 133 (92%) | 5 (4%) | 6 (4%) | 3 | 30 |
| 14 | M | 118/132 (89%) | 111 (94%) | 1 (1%) | 6 (5%) | 2 | 26 |
| 15 | N | 148/151 (98%) | 138 (93%) | 5 (3%) | 5 (3%) | 4 | 35 |
| 16 | O | 135/151 (89%) | 129 (96%) | 3 (2%) | 3 (2%) | 8 | 44 |
| 17 | P | 116/145 (80%) | 106 (91%) | 5 (4%) | 5 (4%) | 3 | 29 |
| 18 | Q | 137/146 (94%) | 129 (94%) | 6 (4%) | 2 (2%) | 12 | 53 |
| 19 | R | 105/135 (78%) | 99 (94%) | 4 (4%) | 2 (2%) | 9 | 47 |
| 20 | S | 140/152 (92%) | 125 (89%) | 7 (5%) | 8 (6%) | 2 | 24 |
| 21 | T | 141/145 (97%) | 135 (96%) | 4 (3%) | 2 (1%) | 13 | 54 |
| 22 | U | 99/119 (83%) | 95 (96%) | 3 (3%) | 1 (1%) | 18 | 61 |
| 23 | V | 81/83 (98%) | 78 (96%) | 1 (1%) | 2 (2%) | 6 | 41 |
| 24 | W | 127/130 (98%) | 118 (93%) | 7 (6%) | 2 (2%) | 11 | 51 |
| 25 | X | 132/142 (93%) | 120 (91%) | 5 (4%) | 7 (5%) | 2 | 26 |
| 26 | Y | 120/133 (90%) | 114 (95%) | 2 (2%) | 4 (3%) | 4 | 35 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|-----|-------|-----------------|------------|----------|----------|-------------|-----|
| 27 | Z | 74/125 (59%) | 71 (96%) | 0 | 3 (4%) | 3 | 30 |
| 28 | a | 94/115 (82%) | 85 (90%) | 5 (5%) | 4 (4%) | 3 | 29 |
| 29 | b | 78/84 (93%) | 70 (90%) | 8 (10%) | 0 | 100 | 100 |
| 30 | c | 60/69 (87%) | 57 (95%) | 1 (2%) | 2 (3%) | 4 | 35 |
| 31 | d | 51/56 (91%) | 44 (86%) | 7 (14%) | 0 | 100 | 100 |
| 32 | e | 49/59 (83%) | 43 (88%) | 5 (10%) | 1 (2%) | 9 | 46 |
| 33 | f | 59/156 (38%) | 53 (90%) | 6 (10%) | 0 | 100 | 100 |
| 34 | g | 312/317 (98%) | 291 (93%) | 14 (4%) | 7 (2%) | 8 | 44 |
| All | All | 4711/5475 (86%) | 4373 (93%) | 192 (4%) | 146 (3%) | 8 | 37 |

All (146) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3 | B | 76 | ASN |
| 3 | B | 132 | GLY |
| 3 | B | 148 | ASN |
| 3 | B | 154 | SER |
| 3 | B | 176 | VAL |
| 3 | B | 177 | GLN |
| 3 | B | 207 | LEU |
| 3 | B | 221 | PRO |
| 4 | C | 64 | THR |
| 4 | C | 172 | ASN |
| 4 | C | 176 | LYS |
| 5 | D | 78 | GLY |
| 5 | D | 199 | GLY |
| 6 | E | 204 | SER |
| 6 | E | 205 | PHE |
| 7 | F | 20 | PHE |
| 7 | F | 22 | LYS |
| 7 | F | 40 | ALA |
| 7 | F | 48 | TYR |
| 7 | F | 80 | GLY |
| 7 | F | 132 | GLY |
| 7 | F | 185 | SER |
| 8 | G | 43 | GLU |
| 8 | G | 146 | ASN |
| 8 | G | 147 | LEU |
| 8 | G | 169 | PRO |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 9 | H | 88 | SER |
| 9 | H | 135 | PHE |
| 10 | I | 123 | ARG |
| 10 | I | 131 | PRO |
| 10 | I | 134 | GLU |
| 10 | I | 142 | SER |
| 10 | I | 159 | SER |
| 12 | K | 30 | PRO |
| 12 | K | 32 | HIS |
| 12 | K | 36 | ALA |
| 12 | K | 84 | HIS |
| 12 | K | 87 | PRO |
| 13 | L | 8 | ARG |
| 13 | L | 19 | ASN |
| 15 | N | 7 | PRO |
| 15 | N | 108 | ASP |
| 16 | O | 100 | THR |
| 16 | O | 146 | ARG |
| 17 | P | 29 | SER |
| 17 | P | 126 | VAL |
| 19 | R | 72 | LYS |
| 20 | S | 78 | LYS |
| 20 | S | 79 | ILE |
| 20 | S | 134 | GLN |
| 21 | T | 37 | VAL |
| 22 | U | 52 | GLY |
| 23 | V | 42 | VAL |
| 24 | W | 100 | GLY |
| 25 | X | 61 | GLN |
| 25 | X | 106 | GLY |
| 25 | X | 107 | ARG |
| 25 | X | 116 | PRO |
| 26 | Y | 33 | ALA |
| 26 | Y | 98 | GLU |
| 27 | Z | 95 | GLY |
| 34 | g | 255 | SER |
| 34 | g | 284 | PRO |
| 2 | A | 6 | ASP |
| 3 | B | 52 | THR |
| 3 | B | 78 | GLU |
| 3 | B | 127 | VAL |
| 3 | B | 209 | ASP |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 4 | C | 174 | ILE |
| 5 | D | 81 | GLU |
| 6 | E | 231 | GLY |
| 6 | E | 243 | GLY |
| 7 | F | 34 | SER |
| 7 | F | 56 | TYR |
| 8 | G | 87 | ARG |
| 8 | G | 157 | VAL |
| 9 | H | 164 | ASN |
| 12 | K | 64 | TRP |
| 13 | L | 119 | ASP |
| 14 | M | 30 | GLY |
| 14 | M | 60 | MET |
| 14 | M | 106 | CYS |
| 14 | M | 107 | SER |
| 15 | N | 143 | SER |
| 19 | R | 114 | LEU |
| 20 | S | 24 | ARG |
| 20 | S | 31 | THR |
| 20 | S | 90 | VAL |
| 20 | S | 92 | ASP |
| 23 | V | 48 | GLY |
| 28 | a | 61 | ALA |
| 34 | g | 276 | SER |
| 3 | B | 49 | VAL |
| 3 | B | 213 | ARG |
| 5 | D | 142 | LEU |
| 6 | E | 203 | GLY |
| 7 | F | 79 | HIS |
| 8 | G | 91 | GLU |
| 8 | G | 92 | ARG |
| 9 | H | 109 | ARG |
| 13 | L | 7 | GLU |
| 14 | M | 102 | LYS |
| 15 | N | 3 | ARG |
| 18 | Q | 17 | LYS |
| 18 | Q | 74 | GLY |
| 25 | X | 33 | GLY |
| 25 | X | 86 | PRO |
| 26 | Y | 64 | PHE |
| 27 | Z | 113 | THR |
| 28 | a | 81 | SER |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 30 | c | 38 | THR |
| 15 | N | 62 | GLN |
| 17 | P | 39 | ALA |
| 24 | W | 28 | ARG |
| 25 | X | 75 | ILE |
| 26 | Y | 119 | GLY |
| 30 | c | 64 | GLU |
| 34 | g | 146 | SER |
| 4 | C | 261 | PHE |
| 8 | G | 88 | ARG |
| 11 | J | 138 | ARG |
| 11 | J | 169 | ARG |
| 13 | L | 115 | PRO |
| 17 | P | 28 | MET |
| 17 | P | 125 | PRO |
| 21 | T | 51 | ASN |
| 27 | Z | 114 | LYS |
| 28 | a | 38 | LYS |
| 32 | e | 8 | ARG |
| 2 | A | 104 | THR |
| 3 | B | 23 | ASP |
| 3 | B | 210 | VAL |
| 10 | I | 12 | ARG |
| 20 | S | 6 | PRO |
| 28 | a | 84 | VAL |
| 3 | B | 64 | GLY |
| 11 | J | 170 | PRO |
| 12 | K | 86 | PRO |
| 13 | L | 29 | GLY |
| 14 | M | 100 | PRO |
| 34 | g | 103 | GLY |
| 10 | I | 20 | PRO |
| 16 | O | 53 | ILE |
| 34 | g | 61 | GLY |
| 34 | g | 265 | ILE |
| 5 | D | 63 | GLY |

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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 | |
|-----|-------|---------------|-----------|----------|-------------|----|
| 2 | A | 181/243 (74%) | 176 (97%) | 5 (3%) | 49 | 74 |
| 3 | B | 194/231 (84%) | 183 (94%) | 11 (6%) | 24 | 56 |
| 4 | C | 188/225 (84%) | 181 (96%) | 7 (4%) | 39 | 68 |
| 5 | D | 175/202 (87%) | 166 (95%) | 9 (5%) | 28 | 60 |
| 6 | E | 220/225 (98%) | 208 (94%) | 12 (6%) | 25 | 58 |
| 7 | F | 158/170 (93%) | 151 (96%) | 7 (4%) | 33 | 63 |
| 8 | G | 202/218 (93%) | 195 (96%) | 7 (4%) | 41 | 69 |
| 9 | H | 171/174 (98%) | 167 (98%) | 4 (2%) | 56 | 79 |
| 10 | I | 179/180 (99%) | 167 (93%) | 12 (7%) | 19 | 51 |
| 11 | J | 160/168 (95%) | 150 (94%) | 10 (6%) | 21 | 53 |
| 12 | K | 85/136 (62%) | 82 (96%) | 3 (4%) | 41 | 69 |
| 13 | L | 133/142 (94%) | 131 (98%) | 2 (2%) | 70 | 85 |
| 14 | M | 102/108 (94%) | 97 (95%) | 5 (5%) | 29 | 61 |
| 15 | N | 130/131 (99%) | 128 (98%) | 2 (2%) | 70 | 85 |
| 16 | O | 107/119 (90%) | 100 (94%) | 7 (6%) | 20 | 52 |
| 17 | P | 107/130 (82%) | 102 (95%) | 5 (5%) | 30 | 62 |
| 18 | Q | 115/121 (95%) | 111 (96%) | 4 (4%) | 41 | 69 |
| 19 | R | 99/122 (81%) | 94 (95%) | 5 (5%) | 28 | 60 |
| 20 | S | 123/132 (93%) | 114 (93%) | 9 (7%) | 16 | 49 |
| 21 | T | 113/115 (98%) | 106 (94%) | 7 (6%) | 21 | 54 |
| 22 | U | 93/107 (87%) | 89 (96%) | 4 (4%) | 33 | 64 |
| 23 | V | 67/67 (100%) | 66 (98%) | 1 (2%) | 70 | 85 |
| 24 | W | 112/113 (99%) | 107 (96%) | 5 (4%) | 32 | 63 |
| 25 | X | 108/114 (95%) | 103 (95%) | 5 (5%) | 31 | 62 |
| 26 | Y | 107/115 (93%) | 101 (94%) | 6 (6%) | 25 | 57 |
| 27 | Z | 67/103 (65%) | 63 (94%) | 4 (6%) | 22 | 55 |
| 28 | a | 83/98 (85%) | 76 (92%) | 7 (8%) | 13 | 43 |
| 29 | b | 72/76 (95%) | 68 (94%) | 4 (6%) | 25 | 57 |
| 30 | c | 55/62 (89%) | 52 (94%) | 3 (6%) | 25 | 58 |
| 31 | d | 47/49 (96%) | 43 (92%) | 4 (8%) | 12 | 42 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|-----------------|------------|----------|-------------|----|
| 32 | e | 42/48 (88%) | 40 (95%) | 2 (5%) | 30 | 61 |
| 33 | f | 54/140 (39%) | 51 (94%) | 3 (6%) | 25 | 57 |
| 34 | g | 272/275 (99%) | 260 (96%) | 12 (4%) | 33 | 63 |
| All | All | 4121/4659 (88%) | 3928 (95%) | 193 (5%) | 35 | 62 |

All (193) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2 | A | 8 | LEU |
| 2 | A | 10 | MET |
| 2 | A | 19 | LEU |
| 2 | A | 110 | ASN |
| 2 | A | 204 | TYR |
| 3 | B | 23 | ASP |
| 3 | B | 30 | TRP |
| 3 | B | 46 | LYS |
| 3 | B | 71 | LEU |
| 3 | B | 97 | LEU |
| 3 | B | 131 | ASP |
| 3 | B | 148 | ASN |
| 3 | B | 152 | LYS |
| 3 | B | 177 | GLN |
| 3 | B | 216 | LYS |
| 3 | B | 218 | LEU |
| 4 | C | 89 | LYS |
| 4 | C | 137 | VAL |
| 4 | C | 205 | VAL |
| 4 | C | 209 | VAL |
| 4 | C | 240 | THR |
| 4 | C | 252 | THR |
| 4 | C | 256 | TRP |
| 5 | D | 5 | ILE |
| 5 | D | 16 | ILE |
| 5 | D | 42 | THR |
| 5 | D | 66 | ILE |
| 5 | D | 93 | THR |
| 5 | D | 150 | MET |
| 5 | D | 162 | ASP |
| 5 | D | 193 | ASP |
| 5 | D | 211 | VAL |
| 6 | E | 23 | LEU |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 6 | E | 37 | LYS |
| 6 | E | 51 | ARG |
| 6 | E | 95 | THR |
| 6 | E | 114 | ILE |
| 6 | E | 115 | THR |
| 6 | E | 128 | LYS |
| 6 | E | 136 | ILE |
| 6 | E | 148 | ARG |
| 6 | E | 166 | THR |
| 6 | E | 189 | LEU |
| 6 | E | 205 | PHE |
| 7 | F | 47 | LYS |
| 7 | F | 63 | LYS |
| 7 | F | 68 | ILE |
| 7 | F | 72 | LEU |
| 7 | F | 103 | LEU |
| 7 | F | 135 | ARG |
| 7 | F | 195 | GLU |
| 8 | G | 24 | LEU |
| 8 | G | 29 | GLU |
| 8 | G | 34 | THR |
| 8 | G | 87 | ARG |
| 8 | G | 160 | LYS |
| 8 | G | 176 | ILE |
| 8 | G | 195 | LYS |
| 9 | H | 111 | LYS |
| 9 | H | 116 | ARG |
| 9 | H | 118 | ARG |
| 9 | H | 152 | ARG |
| 10 | I | 19 | LYS |
| 10 | I | 21 | TYR |
| 10 | I | 29 | LEU |
| 10 | I | 48 | VAL |
| 10 | I | 55 | TYR |
| 10 | I | 62 | VAL |
| 10 | I | 78 | ILE |
| 10 | I | 93 | THR |
| 10 | I | 131 | PRO |
| 10 | I | 136 | ILE |
| 10 | I | 137 | LEU |
| 10 | I | 144 | LYS |
| 11 | J | 8 | VAL |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 11 | J | 12 | THR |
| 11 | J | 30 | LYS |
| 11 | J | 41 | ARG |
| 11 | J | 47 | LYS |
| 11 | J | 78 | LEU |
| 11 | J | 128 | VAL |
| 11 | J | 130 | ILE |
| 11 | J | 147 | PHE |
| 11 | J | 163 | SER |
| 12 | K | 15 | LEU |
| 12 | K | 70 | TYR |
| 12 | K | 84 | HIS |
| 13 | L | 17 | PHE |
| 13 | L | 69 | ARG |
| 14 | M | 52 | LEU |
| 14 | M | 83 | LYS |
| 14 | M | 88 | TRP |
| 14 | M | 106 | CYS |
| 14 | M | 117 | GLU |
| 15 | N | 7 | PRO |
| 15 | N | 80 | LEU |
| 16 | O | 45 | THR |
| 16 | O | 63 | LYS |
| 16 | O | 100 | THR |
| 16 | O | 105 | THR |
| 16 | O | 129 | ILE |
| 16 | O | 132 | VAL |
| 16 | O | 140 | THR |
| 17 | P | 16 | THR |
| 17 | P | 29 | SER |
| 17 | P | 40 | ARG |
| 17 | P | 44 | ARG |
| 17 | P | 74 | GLU |
| 18 | Q | 39 | LEU |
| 18 | Q | 43 | GLU |
| 18 | Q | 72 | VAL |
| 18 | Q | 105 | LYS |
| 19 | R | 22 | THR |
| 19 | R | 46 | LEU |
| 19 | R | 71 | ILE |
| 19 | R | 109 | LEU |
| 19 | R | 118 | GLN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 20 | S | 3 | LEU |
| 20 | S | 5 | ILE |
| 20 | S | 8 | LYS |
| 20 | S | 23 | ARG |
| 20 | S | 25 | LYS |
| 20 | S | 45 | LEU |
| 20 | S | 60 | THR |
| 20 | S | 99 | LEU |
| 20 | S | 139 | THR |
| 21 | T | 5 | THR |
| 21 | T | 33 | TRP |
| 21 | T | 39 | LEU |
| 21 | T | 64 | LEU |
| 21 | T | 87 | VAL |
| 21 | T | 121 | ARG |
| 21 | T | 126 | GLN |
| 22 | U | 24 | LEU |
| 22 | U | 59 | LYS |
| 22 | U | 61 | LEU |
| 22 | U | 115 | THR |
| 23 | V | 2 | GLN |
| 24 | W | 4 | MET |
| 24 | W | 11 | LEU |
| 24 | W | 20 | ARG |
| 24 | W | 97 | ARG |
| 24 | W | 98 | GLN |
| 25 | X | 17 | ARG |
| 25 | X | 31 | HIS |
| 25 | X | 37 | LYS |
| 25 | X | 80 | LYS |
| 25 | X | 81 | ILE |
| 26 | Y | 20 | ARG |
| 26 | Y | 21 | LYS |
| 26 | Y | 54 | VAL |
| 26 | Y | 84 | LYS |
| 26 | Y | 99 | LYS |
| 26 | Y | 100 | LYS |
| 27 | Z | 43 | LYS |
| 27 | Z | 62 | VAL |
| 27 | Z | 67 | LEU |
| 27 | Z | 111 | ARG |
| 28 | a | 21 | ILE |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 28 | a | 23 | CYS |
| 28 | a | 32 | LYS |
| 28 | a | 37 | LYS |
| 28 | a | 64 | LEU |
| 28 | a | 71 | LEU |
| 28 | a | 84 | VAL |
| 29 | b | 7 | LEU |
| 29 | b | 56 | CYS |
| 29 | b | 59 | CYS |
| 29 | b | 63 | LEU |
| 30 | c | 9 | ILE |
| 30 | c | 17 | VAL |
| 30 | c | 32 | VAL |
| 31 | d | 28 | HIS |
| 31 | d | 40 | ARG |
| 31 | d | 44 | ARG |
| 31 | d | 48 | LYS |
| 32 | e | 18 | LYS |
| 32 | e | 46 | VAL |
| 33 | f | 97 | LYS |
| 33 | f | 104 | LYS |
| 33 | f | 148 | TYR |
| 34 | g | 20 | GLN |
| 34 | g | 26 | GLN |
| 34 | g | 54 | ILE |
| 34 | g | 94 | THR |
| 34 | g | 99 | ARG |
| 34 | g | 157 | SER |
| 34 | g | 164 | ILE |
| 34 | g | 189 | ILE |
| 34 | g | 255 | SER |
| 34 | g | 266 | ILE |
| 34 | g | 287 | THR |
| 34 | g | 289 | LEU |

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (86) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2 | A | 50 | ASN |
| 2 | A | 110 | ASN |
| 2 | A | 215 | GLN |
| 3 | B | 40 | ASN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3 | B | 53 | GLN |
| 3 | B | 149 | GLN |
| 3 | B | 157 | GLN |
| 3 | B | 160 | GLN |
| 3 | B | 177 | GLN |
| 4 | C | 267 | GLN |
| 5 | D | 4 | GLN |
| 5 | D | 56 | GLN |
| 5 | D | 57 | ASN |
| 5 | D | 101 | GLN |
| 5 | D | 179 | GLN |
| 6 | E | 36 | HIS |
| 6 | E | 138 | HIS |
| 6 | E | 188 | ASN |
| 6 | E | 216 | ASN |
| 6 | E | 230 | ASN |
| 7 | F | 29 | GLN |
| 7 | F | 82 | ASN |
| 7 | F | 95 | HIS |
| 7 | F | 107 | ASN |
| 7 | F | 110 | GLN |
| 7 | F | 114 | ASN |
| 7 | F | 165 | ASN |
| 7 | F | 203 | ASN |
| 8 | G | 65 | GLN |
| 8 | G | 81 | HIS |
| 8 | G | 105 | ASN |
| 9 | H | 25 | GLN |
| 9 | H | 76 | GLN |
| 9 | H | 97 | GLN |
| 9 | H | 112 | ASN |
| 10 | I | 22 | HIS |
| 11 | J | 124 | HIS |
| 11 | J | 143 | ASN |
| 12 | K | 44 | HIS |
| 12 | K | 84 | HIS |
| 13 | L | 5 | GLN |
| 13 | L | 112 | HIS |
| 14 | M | 19 | GLN |
| 15 | N | 105 | ASN |
| 16 | O | 32 | HIS |
| 16 | O | 43 | HIS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 17 | P | 35 | GLN |
| 17 | P | 104 | GLN |
| 18 | Q | 11 | GLN |
| 18 | Q | 48 | GLN |
| 18 | Q | 80 | GLN |
| 18 | Q | 86 | GLN |
| 19 | R | 62 | GLN |
| 20 | S | 19 | ASN |
| 20 | S | 73 | ASN |
| 20 | S | 85 | ASN |
| 20 | S | 87 | GLN |
| 21 | T | 63 | HIS |
| 21 | T | 126 | GLN |
| 22 | U | 100 | GLN |
| 23 | V | 2 | GLN |
| 24 | W | 24 | GLN |
| 24 | W | 82 | GLN |
| 24 | W | 113 | HIS |
| 25 | X | 61 | GLN |
| 25 | X | 73 | GLN |
| 25 | X | 77 | ASN |
| 26 | Y | 19 | GLN |
| 26 | Y | 22 | GLN |
| 26 | Y | 29 | HIS |
| 27 | Z | 103 | HIS |
| 28 | a | 19 | GLN |
| 29 | b | 49 | HIS |
| 30 | c | 45 | ASN |
| 31 | d | 5 | GLN |
| 31 | d | 16 | GLN |
| 31 | d | 26 | ASN |
| 31 | d | 41 | GLN |
| 32 | e | 22 | GLN |
| 32 | e | 44 | ASN |
| 34 | g | 20 | GLN |
| 34 | g | 26 | GLN |
| 34 | g | 56 | GLN |
| 34 | g | 64 | HIS |
| 34 | g | 117 | ASN |
| 34 | g | 196 | ASN |

5.3.3 RNA ⓘ

| Mol | Chain | Analysed | Backbone Outliers | Pucker Outliers |
|-----|-------|-----------------|-------------------|-----------------|
| 1 | 1 | 1738/1869 (92%) | 1037 (59%) | 152 (8%) |

All (1037) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | 1 | 2 | A |
| 1 | 1 | 3 | C |
| 1 | 1 | 4 | C |
| 1 | 1 | 5 | U |
| 1 | 1 | 6 | G |
| 1 | 1 | 7 | G |
| 1 | 1 | 8 | U |
| 1 | 1 | 9 | U |
| 1 | 1 | 15 | U |
| 1 | 1 | 16 | G |
| 1 | 1 | 17 | C |
| 1 | 1 | 21 | U |
| 1 | 1 | 22 | A |
| 1 | 1 | 24 | C |
| 1 | 1 | 25 | A |
| 1 | 1 | 26 | U |
| 1 | 1 | 30 | C |
| 1 | 1 | 33 | G |
| 1 | 1 | 39 | A |
| 1 | 1 | 40 | A |
| 1 | 1 | 41 | G |
| 1 | 1 | 44 | U |
| 1 | 1 | 45 | A |
| 1 | 1 | 46 | A |
| 1 | 1 | 47 | G |
| 1 | 1 | 48 | C |
| 1 | 1 | 50 | A |
| 1 | 1 | 55 | U |
| 1 | 1 | 56 | G |
| 1 | 1 | 59 | U |
| 1 | 1 | 60 | A |
| 1 | 1 | 61 | A |
| 1 | 1 | 62 | G |
| 1 | 1 | 63 | U |
| 1 | 1 | 64 | A |
| 1 | 1 | 65 | C |
| 1 | 1 | 66 | G |
| 1 | 1 | 67 | C |

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Continued from previous page...

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | 1 | 68 | A |
| 1 | 1 | 69 | C |
| 1 | 1 | 70 | G |
| 1 | 1 | 71 | G |
| 1 | 1 | 72 | C |
| 1 | 1 | 74 | G |
| 1 | 1 | 75 | G |
| 1 | 1 | 76 | U |
| 1 | 1 | 77 | A |
| 1 | 1 | 78 | C |
| 1 | 1 | 79 | A |
| 1 | 1 | 80 | G |
| 1 | 1 | 81 | U |
| 1 | 1 | 82 | G |
| 1 | 1 | 83 | A |
| 1 | 1 | 84 | A |
| 1 | 1 | 87 | U |
| 1 | 1 | 98 | C |
| 1 | 1 | 99 | A |
| 1 | 1 | 101 | U |
| 1 | 1 | 103 | A |
| 1 | 1 | 104 | A |
| 1 | 1 | 105 | U |
| 1 | 1 | 106 | C |
| 1 | 1 | 109 | U |
| 1 | 1 | 110 | U |
| 1 | 1 | 111 | A |
| 1 | 1 | 112 | U |
| 1 | 1 | 113 | G |
| 1 | 1 | 114 | G |
| 1 | 1 | 115 | U |
| 1 | 1 | 116 | U |
| 1 | 1 | 117 | C |
| 1 | 1 | 118 | C |
| 1 | 1 | 120 | U |
| 1 | 1 | 121 | U |
| 1 | 1 | 122 | G |
| 1 | 1 | 123 | G |
| 1 | 1 | 124 | U |
| 1 | 1 | 125 | C |
| 1 | 1 | 126 | G |
| 1 | 1 | 127 | C |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | 1 | 128 | U |
| 1 | 1 | 129 | C |
| 1 | 1 | 130 | G |
| 1 | 1 | 131 | C |
| 1 | 1 | 132 | U |
| 1 | 1 | 133 | C |
| 1 | 1 | 134 | C |
| 1 | 1 | 135 | U |
| 1 | 1 | 136 | C |
| 1 | 1 | 137 | U |
| 1 | 1 | 138 | C |
| 1 | 1 | 139 | C |
| 1 | 1 | 140 | C |
| 1 | 1 | 141 | A |
| 1 | 1 | 142 | C |
| 1 | 1 | 143 | U |
| 1 | 1 | 144 | U |
| 1 | 1 | 145 | G |
| 1 | 1 | 146 | G |
| 1 | 1 | 147 | A |
| 1 | 1 | 150 | A |
| 1 | 1 | 151 | C |
| 1 | 1 | 152 | U |
| 1 | 1 | 153 | G |
| 1 | 1 | 158 | A |
| 1 | 1 | 160 | U |
| 1 | 1 | 161 | U |
| 1 | 1 | 162 | C |
| 1 | 1 | 163 | U |
| 1 | 1 | 164 | A |
| 1 | 1 | 166 | A |
| 1 | 1 | 167 | G |
| 1 | 1 | 168 | C |
| 1 | 1 | 169 | U |
| 1 | 1 | 171 | A |
| 1 | 1 | 173 | A |
| 1 | 1 | 174 | C |
| 1 | 1 | 176 | U |
| 1 | 1 | 179 | C |
| 1 | 1 | 180 | G |
| 1 | 1 | 181 | A |
| 1 | 1 | 182 | C |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | 1 | 183 | G |
| 1 | 1 | 184 | G |
| 1 | 1 | 185 | G |
| 1 | 1 | 187 | G |
| 1 | 1 | 193 | C |
| 1 | 1 | 198 | U |
| 1 | 1 | 199 | C |
| 1 | 1 | 200 | G |
| 1 | 1 | 201 | C |
| 1 | 1 | 202 | G |
| 1 | 1 | 204 | G |
| 1 | 1 | 205 | G |
| 1 | 1 | 207 | G |
| 1 | 1 | 208 | G |
| 1 | 1 | 209 | A |
| 1 | 1 | 210 | U |
| 1 | 1 | 211 | G |
| 1 | 1 | 213 | G |
| 1 | 1 | 214 | U |
| 1 | 1 | 215 | G |
| 1 | 1 | 216 | C |
| 1 | 1 | 217 | A |
| 1 | 1 | 218 | U |
| 1 | 1 | 219 | U |
| 1 | 1 | 220 | U |
| 1 | 1 | 225 | G |
| 1 | 1 | 226 | A |
| 1 | 1 | 227 | U |
| 1 | 1 | 228 | C |
| 1 | 1 | 229 | A |
| 1 | 1 | 230 | A |
| 1 | 1 | 233 | C |
| 1 | 1 | 234 | C |
| 1 | 1 | 235 | A |
| 1 | 1 | 236 | A |
| 1 | 1 | 237 | C |
| 1 | 1 | 238 | C |
| 1 | 1 | 239 | C |
| 1 | 1 | 298 | G |
| 1 | 1 | 301 | A |
| 1 | 1 | 303 | C |
| 1 | 1 | 304 | C |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | 1 | 305 | U |
| 1 | 1 | 306 | C |
| 1 | 1 | 307 | G |
| 1 | 1 | 308 | G |
| 1 | 1 | 309 | G |
| 1 | 1 | 310 | C |
| 1 | 1 | 311 | C |
| 1 | 1 | 312 | G |
| 1 | 1 | 313 | A |
| 1 | 1 | 314 | U |
| 1 | 1 | 315 | C |
| 1 | 1 | 317 | C |
| 1 | 1 | 318 | A |
| 1 | 1 | 319 | C |
| 1 | 1 | 320 | G |
| 1 | 1 | 321 | C |
| 1 | 1 | 327 | G |
| 1 | 1 | 328 | U |
| 1 | 1 | 329 | G |
| 1 | 1 | 330 | G |
| 1 | 1 | 332 | G |
| 1 | 1 | 333 | G |
| 1 | 1 | 337 | C |
| 1 | 1 | 338 | G |
| 1 | 1 | 339 | A |
| 1 | 1 | 343 | A |
| 1 | 1 | 344 | U |
| 1 | 1 | 345 | U |
| 1 | 1 | 346 | C |
| 1 | 1 | 347 | G |
| 1 | 1 | 350 | C |
| 1 | 1 | 352 | U |
| 1 | 1 | 353 | C |
| 1 | 1 | 354 | U |
| 1 | 1 | 356 | C |
| 1 | 1 | 357 | C |
| 1 | 1 | 358 | C |
| 1 | 1 | 359 | U |
| 1 | 1 | 362 | C |
| 1 | 1 | 363 | A |
| 1 | 1 | 364 | A |
| 1 | 1 | 368 | U |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | 1 | 369 | C |
| 1 | 1 | 371 | A |
| 1 | 1 | 372 | U |
| 1 | 1 | 375 | U |
| 1 | 1 | 376 | A |
| 1 | 1 | 378 | U |
| 1 | 1 | 379 | C |
| 1 | 1 | 380 | G |
| 1 | 1 | 381 | C |
| 1 | 1 | 382 | C |
| 1 | 1 | 383 | G |
| 1 | 1 | 384 | U |
| 1 | 1 | 386 | C |
| 1 | 1 | 389 | A |
| 1 | 1 | 395 | G |
| 1 | 1 | 399 | C |
| 1 | 1 | 400 | C |
| 1 | 1 | 407 | G |
| 1 | 1 | 408 | A |
| 1 | 1 | 409 | C |
| 1 | 1 | 410 | G |
| 1 | 1 | 412 | G |
| 1 | 1 | 416 | U |
| 1 | 1 | 421 | G |
| 1 | 1 | 422 | U |
| 1 | 1 | 423 | U |
| 1 | 1 | 424 | C |
| 1 | 1 | 426 | A |
| 1 | 1 | 427 | U |
| 1 | 1 | 429 | C |
| 1 | 1 | 431 | G |
| 1 | 1 | 433 | A |
| 1 | 1 | 435 | A |
| 1 | 1 | 436 | G |
| 1 | 1 | 438 | G |
| 1 | 1 | 440 | G |
| 1 | 1 | 441 | C |
| 1 | 1 | 442 | C |
| 1 | 1 | 443 | U |
| 1 | 1 | 445 | A |
| 1 | 1 | 447 | A |
| 1 | 1 | 448 | A |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | 1 | 449 | A |
| 1 | 1 | 450 | C |
| 1 | 1 | 451 | G |
| 1 | 1 | 452 | G |
| 1 | 1 | 454 | U |
| 1 | 1 | 459 | C |
| 1 | 1 | 460 | A |
| 1 | 1 | 463 | C |
| 1 | 1 | 464 | A |
| 1 | 1 | 465 | A |
| 1 | 1 | 466 | G |
| 1 | 1 | 467 | G |
| 1 | 1 | 468 | A |
| 1 | 1 | 472 | C |
| 1 | 1 | 473 | A |
| 1 | 1 | 474 | G |
| 1 | 1 | 475 | C |
| 1 | 1 | 476 | A |
| 1 | 1 | 477 | G |
| 1 | 1 | 480 | G |
| 1 | 1 | 482 | G |
| 1 | 1 | 485 | A |
| 1 | 1 | 487 | U |
| 1 | 1 | 488 | U |
| 1 | 1 | 489 | A |
| 1 | 1 | 491 | C |
| 1 | 1 | 492 | C |
| 1 | 1 | 493 | A |
| 1 | 1 | 495 | U |
| 1 | 1 | 496 | C |
| 1 | 1 | 497 | C |
| 1 | 1 | 499 | G |
| 1 | 1 | 500 | A |
| 1 | 1 | 501 | C |
| 1 | 1 | 502 | C |
| 1 | 1 | 503 | C |
| 1 | 1 | 504 | G |
| 1 | 1 | 506 | G |
| 1 | 1 | 507 | G |
| 1 | 1 | 509 | G |
| 1 | 1 | 510 | G |
| 1 | 1 | 512 | A |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | 1 | 516 | A |
| 1 | 1 | 517 | C |
| 1 | 1 | 518 | G |
| 1 | 1 | 523 | A |
| 1 | 1 | 525 | A |
| 1 | 1 | 526 | A |
| 1 | 1 | 527 | C |
| 1 | 1 | 529 | A |
| 1 | 1 | 530 | U |
| 1 | 1 | 533 | A |
| 1 | 1 | 535 | G |
| 1 | 1 | 536 | A |
| 1 | 1 | 537 | C |
| 1 | 1 | 538 | U |
| 1 | 1 | 539 | C |
| 1 | 1 | 541 | U |
| 1 | 1 | 542 | U |
| 1 | 1 | 543 | C |
| 1 | 1 | 544 | G |
| 1 | 1 | 545 | A |
| 1 | 1 | 546 | G |
| 1 | 1 | 547 | G |
| 1 | 1 | 548 | C |
| 1 | 1 | 549 | C |
| 1 | 1 | 550 | C |
| 1 | 1 | 553 | U |
| 1 | 1 | 554 | A |
| 1 | 1 | 555 | A |
| 1 | 1 | 559 | G |
| 1 | 1 | 560 | A |
| 1 | 1 | 562 | U |
| 1 | 1 | 564 | A |
| 1 | 1 | 565 | G |
| 1 | 1 | 566 | U |
| 1 | 1 | 568 | C |
| 1 | 1 | 570 | C |
| 1 | 1 | 571 | U |
| 1 | 1 | 572 | U |
| 1 | 1 | 573 | U |
| 1 | 1 | 574 | A |
| 1 | 1 | 575 | A |
| 1 | 1 | 576 | A |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | 1 | 577 | U |
| 1 | 1 | 578 | C |
| 1 | 1 | 579 | C |
| 1 | 1 | 580 | U |
| 1 | 1 | 582 | U |
| 1 | 1 | 586 | G |
| 1 | 1 | 587 | A |
| 1 | 1 | 588 | G |
| 1 | 1 | 589 | G |
| 1 | 1 | 590 | A |
| 1 | 1 | 591 | U |
| 1 | 1 | 592 | C |
| 1 | 1 | 593 | C |
| 1 | 1 | 594 | A |
| 1 | 1 | 595 | U |
| 1 | 1 | 596 | U |
| 1 | 1 | 597 | G |
| 1 | 1 | 599 | A |
| 1 | 1 | 600 | G |
| 1 | 1 | 603 | C |
| 1 | 1 | 604 | A |
| 1 | 1 | 605 | A |
| 1 | 1 | 606 | G |
| 1 | 1 | 607 | U |
| 1 | 1 | 608 | C |
| 1 | 1 | 609 | U |
| 1 | 1 | 612 | U |
| 1 | 1 | 613 | G |
| 1 | 1 | 614 | C |
| 1 | 1 | 617 | G |
| 1 | 1 | 619 | A |
| 1 | 1 | 620 | G |
| 1 | 1 | 621 | C |
| 1 | 1 | 623 | G |
| 1 | 1 | 624 | C |
| 1 | 1 | 627 | U |
| 1 | 1 | 628 | A |
| 1 | 1 | 629 | A |
| 1 | 1 | 630 | U |
| 1 | 1 | 631 | U |
| 1 | 1 | 634 | A |
| 1 | 1 | 638 | C |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | 1 | 643 | A |
| 1 | 1 | 644 | G |
| 1 | 1 | 645 | C |
| 1 | 1 | 647 | U |
| 1 | 1 | 648 | A |
| 1 | 1 | 650 | A |
| 1 | 1 | 651 | U |
| 1 | 1 | 652 | U |
| 1 | 1 | 654 | A |
| 1 | 1 | 655 | A |
| 1 | 1 | 656 | G |
| 1 | 1 | 657 | U |
| 1 | 1 | 658 | U |
| 1 | 1 | 659 | G |
| 1 | 1 | 660 | C |
| 1 | 1 | 661 | U |
| 1 | 1 | 663 | C |
| 1 | 1 | 664 | A |
| 1 | 1 | 665 | G |
| 1 | 1 | 666 | U |
| 1 | 1 | 668 | A |
| 1 | 1 | 669 | A |
| 1 | 1 | 671 | A |
| 1 | 1 | 672 | A |
| 1 | 1 | 673 | G |
| 1 | 1 | 674 | C |
| 1 | 1 | 675 | U |
| 1 | 1 | 676 | C |
| 1 | 1 | 677 | G |
| 1 | 1 | 679 | A |
| 1 | 1 | 680 | G |
| 1 | 1 | 681 | U |
| 1 | 1 | 683 | G |
| 1 | 1 | 684 | G |
| 1 | 1 | 686 | U |
| 1 | 1 | 688 | U |
| 1 | 1 | 689 | U |
| 1 | 1 | 692 | G |
| 1 | 1 | 694 | G |
| 1 | 1 | 695 | C |
| 1 | 1 | 742 | U |
| 1 | 1 | 743 | U |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | 1 | 744 | G |
| 1 | 1 | 745 | C |
| 1 | 1 | 746 | C |
| 1 | 1 | 747 | U |
| 1 | 1 | 748 | C |
| 1 | 1 | 749 | U |
| 1 | 1 | 750 | C |
| 1 | 1 | 754 | G |
| 1 | 1 | 755 | C |
| 1 | 1 | 793 | G |
| 1 | 1 | 795 | A |
| 1 | 1 | 796 | G |
| 1 | 1 | 797 | C |
| 1 | 1 | 798 | G |
| 1 | 1 | 799 | U |
| 1 | 1 | 800 | U |
| 1 | 1 | 801 | U |
| 1 | 1 | 802 | A |
| 1 | 1 | 803 | C |
| 1 | 1 | 804 | U |
| 1 | 1 | 807 | G |
| 1 | 1 | 810 | A |
| 1 | 1 | 812 | A |
| 1 | 1 | 815 | U |
| 1 | 1 | 816 | A |
| 1 | 1 | 818 | A |
| 1 | 1 | 819 | G |
| 1 | 1 | 820 | U |
| 1 | 1 | 821 | G |
| 1 | 1 | 822 | U |
| 1 | 1 | 823 | U |
| 1 | 1 | 825 | A |
| 1 | 1 | 827 | A |
| 1 | 1 | 829 | C |
| 1 | 1 | 830 | A |
| 1 | 1 | 831 | G |
| 1 | 1 | 834 | C |
| 1 | 1 | 835 | C |
| 1 | 1 | 837 | A |
| 1 | 1 | 838 | G |
| 1 | 1 | 839 | C |
| 1 | 1 | 840 | C |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | 1 | 841 | G |
| 1 | 1 | 842 | C |
| 1 | 1 | 844 | U |
| 1 | 1 | 845 | G |
| 1 | 1 | 847 | A |
| 1 | 1 | 848 | U |
| 1 | 1 | 851 | C |
| 1 | 1 | 852 | G |
| 1 | 1 | 856 | C |
| 1 | 1 | 861 | A |
| 1 | 1 | 862 | A |
| 1 | 1 | 863 | U |
| 1 | 1 | 865 | A |
| 1 | 1 | 869 | A |
| 1 | 1 | 870 | A |
| 1 | 1 | 873 | G |
| 1 | 1 | 874 | G |
| 1 | 1 | 875 | A |
| 1 | 1 | 876 | C |
| 1 | 1 | 886 | A |
| 1 | 1 | 887 | U |
| 1 | 1 | 888 | U |
| 1 | 1 | 889 | U |
| 1 | 1 | 890 | U |
| 1 | 1 | 891 | G |
| 1 | 1 | 896 | U |
| 1 | 1 | 897 | U |
| 1 | 1 | 898 | U |
| 1 | 1 | 899 | U |
| 1 | 1 | 900 | C |
| 1 | 1 | 911 | C |
| 1 | 1 | 912 | C |
| 1 | 1 | 913 | A |
| 1 | 1 | 914 | U |
| 1 | 1 | 915 | G |
| 1 | 1 | 917 | U |
| 1 | 1 | 918 | U |
| 1 | 1 | 919 | A |
| 1 | 1 | 920 | A |
| 1 | 1 | 921 | G |
| 1 | 1 | 924 | G |
| 1 | 1 | 930 | C |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | 1 | 933 | G |
| 1 | 1 | 937 | C |
| 1 | 1 | 938 | A |
| 1 | 1 | 943 | U |
| 1 | 1 | 946 | U |
| 1 | 1 | 950 | C |
| 1 | 1 | 951 | C |
| 1 | 1 | 953 | C |
| 1 | 1 | 955 | A |
| 1 | 1 | 956 | G |
| 1 | 1 | 957 | A |
| 1 | 1 | 958 | G |
| 1 | 1 | 959 | G |
| 1 | 1 | 960 | U |
| 1 | 1 | 961 | G |
| 1 | 1 | 962 | A |
| 1 | 1 | 963 | A |
| 1 | 1 | 966 | U |
| 1 | 1 | 967 | C |
| 1 | 1 | 968 | U |
| 1 | 1 | 969 | U |
| 1 | 1 | 970 | G |
| 1 | 1 | 971 | G |
| 1 | 1 | 972 | A |
| 1 | 1 | 975 | G |
| 1 | 1 | 977 | C |
| 1 | 1 | 979 | C |
| 1 | 1 | 980 | A |
| 1 | 1 | 984 | C |
| 1 | 1 | 985 | G |
| 1 | 1 | 988 | C |
| 1 | 1 | 990 | A |
| 1 | 1 | 991 | G |
| 1 | 1 | 995 | G |
| 1 | 1 | 999 | G |
| 1 | 1 | 1000 | C |
| 1 | 1 | 1004 | U |
| 1 | 1 | 1006 | C |
| 1 | 1 | 1007 | C |
| 1 | 1 | 1009 | A |
| 1 | 1 | 1011 | A |
| 1 | 1 | 1015 | U |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | 1 | 1016 | U |
| 1 | 1 | 1017 | U |
| 1 | 1 | 1018 | U |
| 1 | 1 | 1019 | C |
| 1 | 1 | 1020 | A |
| 1 | 1 | 1021 | U |
| 1 | 1 | 1022 | U |
| 1 | 1 | 1023 | A |
| 1 | 1 | 1024 | A |
| 1 | 1 | 1029 | G |
| 1 | 1 | 1033 | G |
| 1 | 1 | 1034 | A |
| 1 | 1 | 1035 | A |
| 1 | 1 | 1036 | A |
| 1 | 1 | 1040 | G |
| 1 | 1 | 1044 | G |
| 1 | 1 | 1045 | U |
| 1 | 1 | 1049 | A |
| 1 | 1 | 1050 | A |
| 1 | 1 | 1051 | G |
| 1 | 1 | 1052 | A |
| 1 | 1 | 1053 | C |
| 1 | 1 | 1055 | A |
| 1 | 1 | 1057 | C |
| 1 | 1 | 1058 | A |
| 1 | 1 | 1060 | A |
| 1 | 1 | 1061 | U |
| 1 | 1 | 1062 | A |
| 1 | 1 | 1064 | C |
| 1 | 1 | 1065 | G |
| 1 | 1 | 1067 | C |
| 1 | 1 | 1076 | G |
| 1 | 1 | 1083 | A |
| 1 | 1 | 1084 | A |
| 1 | 1 | 1085 | C |
| 1 | 1 | 1086 | G |
| 1 | 1 | 1087 | A |
| 1 | 1 | 1088 | U |
| 1 | 1 | 1089 | G |
| 1 | 1 | 1090 | C |
| 1 | 1 | 1096 | G |
| 1 | 1 | 1097 | G |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | 1 | 1101 | U |
| 1 | 1 | 1104 | G |
| 1 | 1 | 1108 | G |
| 1 | 1 | 1109 | C |
| 1 | 1 | 1110 | G |
| 1 | 1 | 1112 | U |
| 1 | 1 | 1115 | U |
| 1 | 1 | 1116 | C |
| 1 | 1 | 1117 | C |
| 1 | 1 | 1118 | C |
| 1 | 1 | 1120 | U |
| 1 | 1 | 1121 | G |
| 1 | 1 | 1124 | C |
| 1 | 1 | 1131 | G |
| 1 | 1 | 1132 | C |
| 1 | 1 | 1133 | A |
| 1 | 1 | 1136 | U |
| 1 | 1 | 1137 | U |
| 1 | 1 | 1139 | C |
| 1 | 1 | 1140 | G |
| 1 | 1 | 1141 | G |
| 1 | 1 | 1143 | A |
| 1 | 1 | 1144 | A |
| 1 | 1 | 1147 | C |
| 1 | 1 | 1148 | A |
| 1 | 1 | 1149 | A |
| 1 | 1 | 1150 | A |
| 1 | 1 | 1151 | G |
| 1 | 1 | 1153 | C |
| 1 | 1 | 1154 | U |
| 1 | 1 | 1155 | U |
| 1 | 1 | 1157 | G |
| 1 | 1 | 1158 | G |
| 1 | 1 | 1161 | U |
| 1 | 1 | 1163 | C |
| 1 | 1 | 1164 | G |
| 1 | 1 | 1165 | G |
| 1 | 1 | 1166 | G |
| 1 | 1 | 1169 | G |
| 1 | 1 | 1170 | A |
| 1 | 1 | 1171 | G |
| 1 | 1 | 1176 | G |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | 1 | 1182 | A |
| 1 | 1 | 1183 | A |
| 1 | 1 | 1186 | U |
| 1 | 1 | 1189 | A |
| 1 | 1 | 1194 | A |
| 1 | 1 | 1195 | A |
| 1 | 1 | 1198 | G |
| 1 | 1 | 1199 | A |
| 1 | 1 | 1200 | A |
| 1 | 1 | 1203 | G |
| 1 | 1 | 1205 | C |
| 1 | 1 | 1206 | G |
| 1 | 1 | 1207 | G |
| 1 | 1 | 1215 | C |
| 1 | 1 | 1216 | C |
| 1 | 1 | 1217 | A |
| 1 | 1 | 1218 | C |
| 1 | 1 | 1219 | C |
| 1 | 1 | 1221 | G |
| 1 | 1 | 1223 | A |
| 1 | 1 | 1224 | G |
| 1 | 1 | 1235 | G |
| 1 | 1 | 1236 | G |
| 1 | 1 | 1237 | C |
| 1 | 1 | 1242 | U |
| 1 | 1 | 1243 | U |
| 1 | 1 | 1245 | G |
| 1 | 1 | 1246 | A |
| 1 | 1 | 1247 | C |
| 1 | 1 | 1248 | U |
| 1 | 1 | 1249 | C |
| 1 | 1 | 1251 | A |
| 1 | 1 | 1253 | A |
| 1 | 1 | 1254 | C |
| 1 | 1 | 1255 | G |
| 1 | 1 | 1256 | G |
| 1 | 1 | 1257 | G |
| 1 | 1 | 1258 | A |
| 1 | 1 | 1259 | A |
| 1 | 1 | 1260 | A |
| 1 | 1 | 1261 | C |
| 1 | 1 | 1262 | C |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | 1 | 1263 | U |
| 1 | 1 | 1264 | C |
| 1 | 1 | 1265 | A |
| 1 | 1 | 1266 | C |
| 1 | 1 | 1267 | C |
| 1 | 1 | 1268 | C |
| 1 | 1 | 1269 | G |
| 1 | 1 | 1270 | G |
| 1 | 1 | 1273 | C |
| 1 | 1 | 1274 | G |
| 1 | 1 | 1275 | G |
| 1 | 1 | 1276 | A |
| 1 | 1 | 1277 | C |
| 1 | 1 | 1278 | A |
| 1 | 1 | 1279 | C |
| 1 | 1 | 1282 | A |
| 1 | 1 | 1284 | A |
| 1 | 1 | 1285 | G |
| 1 | 1 | 1286 | G |
| 1 | 1 | 1287 | A |
| 1 | 1 | 1288 | U |
| 1 | 1 | 1289 | U |
| 1 | 1 | 1297 | U |
| 1 | 1 | 1300 | U |
| 1 | 1 | 1301 | A |
| 1 | 1 | 1302 | G |
| 1 | 1 | 1303 | C |
| 1 | 1 | 1307 | U |
| 1 | 1 | 1308 | U |
| 1 | 1 | 1310 | U |
| 1 | 1 | 1311 | C |
| 1 | 1 | 1312 | G |
| 1 | 1 | 1313 | A |
| 1 | 1 | 1314 | U |
| 1 | 1 | 1315 | U |
| 1 | 1 | 1317 | C |
| 1 | 1 | 1318 | G |
| 1 | 1 | 1323 | U |
| 1 | 1 | 1324 | G |
| 1 | 1 | 1325 | G |
| 1 | 1 | 1326 | U |
| 1 | 1 | 1327 | G |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | 1 | 1330 | G |
| 1 | 1 | 1331 | C |
| 1 | 1 | 1332 | A |
| 1 | 1 | 1333 | U |
| 1 | 1 | 1335 | G |
| 1 | 1 | 1343 | U |
| 1 | 1 | 1344 | A |
| 1 | 1 | 1345 | G |
| 1 | 1 | 1347 | U |
| 1 | 1 | 1349 | G |
| 1 | 1 | 1351 | G |
| 1 | 1 | 1352 | G |
| 1 | 1 | 1354 | G |
| 1 | 1 | 1357 | A |
| 1 | 1 | 1358 | U |
| 1 | 1 | 1359 | U |
| 1 | 1 | 1360 | U |
| 1 | 1 | 1363 | C |
| 1 | 1 | 1364 | U |
| 1 | 1 | 1368 | U |
| 1 | 1 | 1369 | A |
| 1 | 1 | 1371 | U |
| 1 | 1 | 1372 | U |
| 1 | 1 | 1378 | A |
| 1 | 1 | 1381 | G |
| 1 | 1 | 1382 | A |
| 1 | 1 | 1384 | C |
| 1 | 1 | 1389 | C |
| 1 | 1 | 1390 | U |
| 1 | 1 | 1392 | U |
| 1 | 1 | 1393 | G |
| 1 | 1 | 1394 | G |
| 1 | 1 | 1395 | C |
| 1 | 1 | 1397 | U |
| 1 | 1 | 1399 | C |
| 1 | 1 | 1401 | A |
| 1 | 1 | 1402 | A |
| 1 | 1 | 1403 | C |
| 1 | 1 | 1404 | U |
| 1 | 1 | 1405 | A |
| 1 | 1 | 1406 | G |
| 1 | 1 | 1407 | U |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | 1 | 1408 | U |
| 1 | 1 | 1409 | A |
| 1 | 1 | 1410 | C |
| 1 | 1 | 1411 | G |
| 1 | 1 | 1412 | C |
| 1 | 1 | 1413 | G |
| 1 | 1 | 1415 | C |
| 1 | 1 | 1416 | C |
| 1 | 1 | 1417 | C |
| 1 | 1 | 1419 | C |
| 1 | 1 | 1420 | G |
| 1 | 1 | 1421 | A |
| 1 | 1 | 1422 | G |
| 1 | 1 | 1423 | C |
| 1 | 1 | 1424 | G |
| 1 | 1 | 1425 | G |
| 1 | 1 | 1426 | U |
| 1 | 1 | 1427 | C |
| 1 | 1 | 1428 | G |
| 1 | 1 | 1429 | G |
| 1 | 1 | 1430 | C |
| 1 | 1 | 1431 | G |
| 1 | 1 | 1432 | U |
| 1 | 1 | 1433 | C |
| 1 | 1 | 1434 | C |
| 1 | 1 | 1435 | C |
| 1 | 1 | 1436 | C |
| 1 | 1 | 1437 | C |
| 1 | 1 | 1438 | A |
| 1 | 1 | 1440 | C |
| 1 | 1 | 1441 | U |
| 1 | 1 | 1442 | U |
| 1 | 1 | 1443 | C |
| 1 | 1 | 1444 | U |
| 1 | 1 | 1445 | U |
| 1 | 1 | 1446 | A |
| 1 | 1 | 1447 | G |
| 1 | 1 | 1448 | A |
| 1 | 1 | 1451 | G |
| 1 | 1 | 1453 | C |
| 1 | 1 | 1454 | A |
| 1 | 1 | 1455 | A |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | 1 | 1456 | G |
| 1 | 1 | 1457 | U |
| 1 | 1 | 1461 | G |
| 1 | 1 | 1462 | U |
| 1 | 1 | 1463 | U |
| 1 | 1 | 1464 | C |
| 1 | 1 | 1465 | A |
| 1 | 1 | 1466 | G |
| 1 | 1 | 1467 | C |
| 1 | 1 | 1471 | C |
| 1 | 1 | 1472 | C |
| 1 | 1 | 1473 | G |
| 1 | 1 | 1475 | G |
| 1 | 1 | 1476 | A |
| 1 | 1 | 1477 | U |
| 1 | 1 | 1478 | U |
| 1 | 1 | 1480 | A |
| 1 | 1 | 1481 | G |
| 1 | 1 | 1482 | C |
| 1 | 1 | 1484 | A |
| 1 | 1 | 1486 | A |
| 1 | 1 | 1489 | A |
| 1 | 1 | 1490 | G |
| 1 | 1 | 1493 | C |
| 1 | 1 | 1494 | U |
| 1 | 1 | 1495 | G |
| 1 | 1 | 1496 | U |
| 1 | 1 | 1498 | A |
| 1 | 1 | 1500 | G |
| 1 | 1 | 1505 | U |
| 1 | 1 | 1507 | G |
| 1 | 1 | 1508 | A |
| 1 | 1 | 1509 | U |
| 1 | 1 | 1510 | G |
| 1 | 1 | 1511 | U |
| 1 | 1 | 1513 | C |
| 1 | 1 | 1514 | G |
| 1 | 1 | 1517 | G |
| 1 | 1 | 1520 | G |
| 1 | 1 | 1521 | C |
| 1 | 1 | 1522 | A |
| 1 | 1 | 1523 | C |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | 1 | 1528 | G |
| 1 | 1 | 1529 | C |
| 1 | 1 | 1530 | U |
| 1 | 1 | 1531 | A |
| 1 | 1 | 1535 | U |
| 1 | 1 | 1536 | G |
| 1 | 1 | 1539 | U |
| 1 | 1 | 1540 | G |
| 1 | 1 | 1541 | G |
| 1 | 1 | 1542 | C |
| 1 | 1 | 1543 | U |
| 1 | 1 | 1544 | C |
| 1 | 1 | 1545 | A |
| 1 | 1 | 1546 | G |
| 1 | 1 | 1547 | C |
| 1 | 1 | 1548 | G |
| 1 | 1 | 1549 | U |
| 1 | 1 | 1550 | G |
| 1 | 1 | 1551 | U |
| 1 | 1 | 1553 | C |
| 1 | 1 | 1554 | C |
| 1 | 1 | 1555 | U |
| 1 | 1 | 1556 | A |
| 1 | 1 | 1557 | C |
| 1 | 1 | 1558 | C |
| 1 | 1 | 1560 | U |
| 1 | 1 | 1561 | A |
| 1 | 1 | 1563 | G |
| 1 | 1 | 1568 | C |
| 1 | 1 | 1569 | A |
| 1 | 1 | 1570 | G |
| 1 | 1 | 1573 | G |
| 1 | 1 | 1574 | C |
| 1 | 1 | 1577 | G |
| 1 | 1 | 1578 | U |
| 1 | 1 | 1579 | A |
| 1 | 1 | 1580 | A |
| 1 | 1 | 1581 | C |
| 1 | 1 | 1582 | C |
| 1 | 1 | 1585 | U |
| 1 | 1 | 1586 | U |
| 1 | 1 | 1587 | G |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | 1 | 1588 | A |
| 1 | 1 | 1589 | A |
| 1 | 1 | 1591 | C |
| 1 | 1 | 1595 | U |
| 1 | 1 | 1597 | C |
| 1 | 1 | 1598 | G |
| 1 | 1 | 1599 | U |
| 1 | 1 | 1600 | G |
| 1 | 1 | 1601 | A |
| 1 | 1 | 1602 | U |
| 1 | 1 | 1603 | G |
| 1 | 1 | 1604 | G |
| 1 | 1 | 1605 | G |
| 1 | 1 | 1607 | A |
| 1 | 1 | 1609 | C |
| 1 | 1 | 1610 | G |
| 1 | 1 | 1612 | G |
| 1 | 1 | 1614 | A |
| 1 | 1 | 1615 | U |
| 1 | 1 | 1617 | G |
| 1 | 1 | 1618 | C |
| 1 | 1 | 1620 | A |
| 1 | 1 | 1621 | U |
| 1 | 1 | 1622 | U |
| 1 | 1 | 1623 | A |
| 1 | 1 | 1624 | U |
| 1 | 1 | 1625 | U |
| 1 | 1 | 1627 | C |
| 1 | 1 | 1631 | U |
| 1 | 1 | 1632 | G |
| 1 | 1 | 1635 | C |
| 1 | 1 | 1636 | G |
| 1 | 1 | 1637 | A |
| 1 | 1 | 1638 | G |
| 1 | 1 | 1639 | G |
| 1 | 1 | 1640 | A |
| 1 | 1 | 1644 | C |
| 1 | 1 | 1645 | C |
| 1 | 1 | 1647 | A |
| 1 | 1 | 1648 | G |
| 1 | 1 | 1649 | U |
| 1 | 1 | 1651 | A |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | 1 | 1652 | G |
| 1 | 1 | 1654 | G |
| 1 | 1 | 1655 | C |
| 1 | 1 | 1656 | G |
| 1 | 1 | 1660 | C |
| 1 | 1 | 1661 | A |
| 1 | 1 | 1662 | U |
| 1 | 1 | 1664 | A |
| 1 | 1 | 1665 | G |
| 1 | 1 | 1666 | C |
| 1 | 1 | 1669 | G |
| 1 | 1 | 1671 | G |
| 1 | 1 | 1672 | U |
| 1 | 1 | 1673 | U |
| 1 | 1 | 1674 | G |
| 1 | 1 | 1677 | U |
| 1 | 1 | 1678 | A |
| 1 | 1 | 1679 | A |
| 1 | 1 | 1680 | G |
| 1 | 1 | 1682 | C |
| 1 | 1 | 1684 | C |
| 1 | 1 | 1685 | U |
| 1 | 1 | 1686 | G |
| 1 | 1 | 1687 | C |
| 1 | 1 | 1688 | C |
| 1 | 1 | 1689 | C |
| 1 | 1 | 1691 | U |
| 1 | 1 | 1692 | U |
| 1 | 1 | 1694 | U |
| 1 | 1 | 1696 | C |
| 1 | 1 | 1697 | A |
| 1 | 1 | 1698 | C |
| 1 | 1 | 1699 | A |
| 1 | 1 | 1700 | C |
| 1 | 1 | 1701 | C |
| 1 | 1 | 1702 | G |
| 1 | 1 | 1703 | C |
| 1 | 1 | 1707 | U |
| 1 | 1 | 1708 | C |
| 1 | 1 | 1709 | G |
| 1 | 1 | 1710 | C |
| 1 | 1 | 1714 | U |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | 1 | 1719 | A |
| 1 | 1 | 1720 | U |
| 1 | 1 | 1721 | U |
| 1 | 1 | 1722 | G |
| 1 | 1 | 1723 | G |
| 1 | 1 | 1728 | U |
| 1 | 1 | 1729 | U |
| 1 | 1 | 1731 | A |
| 1 | 1 | 1732 | G |
| 1 | 1 | 1735 | A |
| 1 | 1 | 1744 | G |
| 1 | 1 | 1745 | A |
| 1 | 1 | 1747 | C |
| 1 | 1 | 1749 | G |
| 1 | 1 | 1751 | C |
| 1 | 1 | 1752 | C |
| 1 | 1 | 1760 | G |
| 1 | 1 | 1761 | U |
| 1 | 1 | 1764 | G |
| 1 | 1 | 1765 | C |
| 1 | 1 | 1767 | C |
| 1 | 1 | 1768 | A |
| 1 | 1 | 1770 | G |
| 1 | 1 | 1775 | C |
| 1 | 1 | 1781 | A |
| 1 | 1 | 1782 | G |
| 1 | 1 | 1783 | C |
| 1 | 1 | 1788 | A |
| 1 | 1 | 1789 | G |
| 1 | 1 | 1790 | A |
| 1 | 1 | 1792 | G |
| 1 | 1 | 1794 | C |
| 1 | 1 | 1798 | C |
| 1 | 1 | 1800 | A |
| 1 | 1 | 1809 | A |
| 1 | 1 | 1811 | C |
| 1 | 1 | 1813 | A |
| 1 | 1 | 1817 | G |
| 1 | 1 | 1819 | A |
| 1 | 1 | 1823 | A |
| 1 | 1 | 1824 | A |
| 1 | 1 | 1825 | A |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | 1 | 1826 | G |
| 1 | 1 | 1827 | U |
| 1 | 1 | 1829 | G |
| 1 | 1 | 1831 | A |
| 1 | 1 | 1832 | A |
| 1 | 1 | 1833 | C |
| 1 | 1 | 1834 | A |
| 1 | 1 | 1835 | A |
| 1 | 1 | 1836 | G |
| 1 | 1 | 1837 | G |
| 1 | 1 | 1838 | U |
| 1 | 1 | 1839 | U |
| 1 | 1 | 1841 | C |
| 1 | 1 | 1843 | G |
| 1 | 1 | 1844 | U |
| 1 | 1 | 1846 | G |
| 1 | 1 | 1847 | G |
| 1 | 1 | 1849 | G |
| 1 | 1 | 1850 | A |
| 1 | 1 | 1851 | A |
| 1 | 1 | 1852 | C |
| 1 | 1 | 1856 | C |
| 1 | 1 | 1857 | G |
| 1 | 1 | 1860 | A |
| 1 | 1 | 1861 | G |
| 1 | 1 | 1862 | G |
| 1 | 1 | 1863 | A |
| 1 | 1 | 1864 | U |
| 1 | 1 | 1865 | C |
| 1 | 1 | 1866 | A |
| 1 | 1 | 1867 | U |
| 1 | 1 | 1868 | U |
| 1 | 1 | 1869 | A |

All (152) RNA pucker outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | 1 | 24 | C |
| 1 | 1 | 44 | U |
| 1 | 1 | 61 | A |
| 1 | 1 | 64 | A |
| 1 | 1 | 66 | G |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | 1 | 68 | A |
| 1 | 1 | 77 | A |
| 1 | 1 | 78 | C |
| 1 | 1 | 102 | A |
| 1 | 1 | 111 | A |
| 1 | 1 | 113 | G |
| 1 | 1 | 124 | U |
| 1 | 1 | 131 | C |
| 1 | 1 | 136 | C |
| 1 | 1 | 139 | C |
| 1 | 1 | 140 | C |
| 1 | 1 | 147 | A |
| 1 | 1 | 162 | C |
| 1 | 1 | 181 | A |
| 1 | 1 | 183 | G |
| 1 | 1 | 199 | C |
| 1 | 1 | 200 | G |
| 1 | 1 | 207 | G |
| 1 | 1 | 209 | A |
| 1 | 1 | 227 | U |
| 1 | 1 | 304 | C |
| 1 | 1 | 307 | G |
| 1 | 1 | 308 | G |
| 1 | 1 | 310 | C |
| 1 | 1 | 312 | G |
| 1 | 1 | 317 | C |
| 1 | 1 | 319 | C |
| 1 | 1 | 332 | G |
| 1 | 1 | 338 | G |
| 1 | 1 | 356 | C |
| 1 | 1 | 363 | A |
| 1 | 1 | 368 | U |
| 1 | 1 | 370 | G |
| 1 | 1 | 383 | G |
| 1 | 1 | 399 | C |
| 1 | 1 | 428 | U |
| 1 | 1 | 448 | A |
| 1 | 1 | 465 | A |
| 1 | 1 | 475 | C |
| 1 | 1 | 486 | A |
| 1 | 1 | 487 | U |
| 1 | 1 | 501 | C |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | 1 | 517 | C |
| 1 | 1 | 544 | G |
| 1 | 1 | 546 | G |
| 1 | 1 | 547 | G |
| 1 | 1 | 558 | G |
| 1 | 1 | 577 | U |
| 1 | 1 | 578 | C |
| 1 | 1 | 589 | G |
| 1 | 1 | 590 | A |
| 1 | 1 | 593 | C |
| 1 | 1 | 604 | A |
| 1 | 1 | 656 | G |
| 1 | 1 | 662 | G |
| 1 | 1 | 671 | A |
| 1 | 1 | 687 | C |
| 1 | 1 | 743 | U |
| 1 | 1 | 799 | U |
| 1 | 1 | 811 | A |
| 1 | 1 | 821 | G |
| 1 | 1 | 822 | U |
| 1 | 1 | 833 | C |
| 1 | 1 | 834 | C |
| 1 | 1 | 840 | C |
| 1 | 1 | 899 | U |
| 1 | 1 | 913 | A |
| 1 | 1 | 970 | G |
| 1 | 1 | 971 | G |
| 1 | 1 | 1015 | U |
| 1 | 1 | 1016 | U |
| 1 | 1 | 1020 | A |
| 1 | 1 | 1021 | U |
| 1 | 1 | 1043 | G |
| 1 | 1 | 1060 | A |
| 1 | 1 | 1088 | U |
| 1 | 1 | 1108 | G |
| 1 | 1 | 1114 | U |
| 1 | 1 | 1115 | U |
| 1 | 1 | 1138 | C |
| 1 | 1 | 1150 | A |
| 1 | 1 | 1164 | G |
| 1 | 1 | 1198 | G |
| 1 | 1 | 1215 | C |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | 1 | 1242 | U |
| 1 | 1 | 1247 | C |
| 1 | 1 | 1250 | A |
| 1 | 1 | 1253 | A |
| 1 | 1 | 1257 | G |
| 1 | 1 | 1259 | A |
| 1 | 1 | 1261 | C |
| 1 | 1 | 1264 | C |
| 1 | 1 | 1277 | C |
| 1 | 1 | 1285 | G |
| 1 | 1 | 1301 | A |
| 1 | 1 | 1307 | U |
| 1 | 1 | 1308 | U |
| 1 | 1 | 1311 | C |
| 1 | 1 | 1313 | A |
| 1 | 1 | 1326 | U |
| 1 | 1 | 1342 | U |
| 1 | 1 | 1351 | G |
| 1 | 1 | 1362 | U |
| 1 | 1 | 1401 | A |
| 1 | 1 | 1404 | U |
| 1 | 1 | 1406 | G |
| 1 | 1 | 1411 | G |
| 1 | 1 | 1456 | G |
| 1 | 1 | 1476 | A |
| 1 | 1 | 1477 | U |
| 1 | 1 | 1494 | U |
| 1 | 1 | 1497 | G |
| 1 | 1 | 1508 | A |
| 1 | 1 | 1520 | G |
| 1 | 1 | 1534 | C |
| 1 | 1 | 1542 | C |
| 1 | 1 | 1543 | U |
| 1 | 1 | 1555 | U |
| 1 | 1 | 1556 | A |
| 1 | 1 | 1578 | U |
| 1 | 1 | 1586 | U |
| 1 | 1 | 1603 | G |
| 1 | 1 | 1624 | U |
| 1 | 1 | 1631 | U |
| 1 | 1 | 1635 | C |
| 1 | 1 | 1637 | A |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | 1 | 1638 | G |
| 1 | 1 | 1644 | C |
| 1 | 1 | 1648 | G |
| 1 | 1 | 1654 | G |
| 1 | 1 | 1655 | C |
| 1 | 1 | 1673 | U |
| 1 | 1 | 1697 | A |
| 1 | 1 | 1698 | C |
| 1 | 1 | 1700 | C |
| 1 | 1 | 1721 | U |
| 1 | 1 | 1781 | A |
| 1 | 1 | 1823 | A |
| 1 | 1 | 1824 | A |
| 1 | 1 | 1830 | U |
| 1 | 1 | 1833 | C |
| 1 | 1 | 1834 | A |
| 1 | 1 | 1836 | G |
| 1 | 1 | 1848 | U |
| 1 | 1 | 1860 | A |
| 1 | 1 | 1862 | G |
| 1 | 1 | 1867 | U |

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

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

5.5 Carbohydrates ⓘ

There are no carbohydrates in this entry.

5.6 Ligand geometry ⓘ

There are no ligands in this entry.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.