



# Full wwPDB X-ray Structure Validation Report ⓘ

Mar 8, 2026 – 04:08 AM UTC

PDB ID : 1JZY / pdb\_00001jzy  
Title : Structural Basis for the Interaction of Antibiotics with the Peptidyl Transferase Center in Eubacteria  
Authors : Schlutzen, F.; Zarivach, R.; Harms, J.; Bashan, A.; Tocilj, A.; Albrecht, R.; Yonath, A.; Franceschi, F.  
Deposited on : 2001-09-17  
Resolution : 3.50 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

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

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

|                                |   |                                                                  |
|--------------------------------|---|------------------------------------------------------------------|
| MolProbity                     | : | 4-5-2 with Phenix2.0                                             |
| Mogul                          | : | 2022.3.0, CSD as543be (2022)                                     |
| Xtriage (Phenix)               | : | NOT EXECUTED                                                     |
| EDS                            | : | NOT EXECUTED                                                     |
| Buster-report                  | : | wwPDB partial adaption of 1.1.7 (2018)                           |
| Percentile statistics          | : | 20250101.v01 (using entries in the PDB archive January 1st 2025) |
| Ideal geometry (proteins)      | : | Engh & Huber (2001)                                              |
| Ideal geometry (DNA, RNA)      | : | Parkinson et al. (1996)                                          |
| Validation Pipeline (wwPDB-VP) | : | 2.49                                                             |

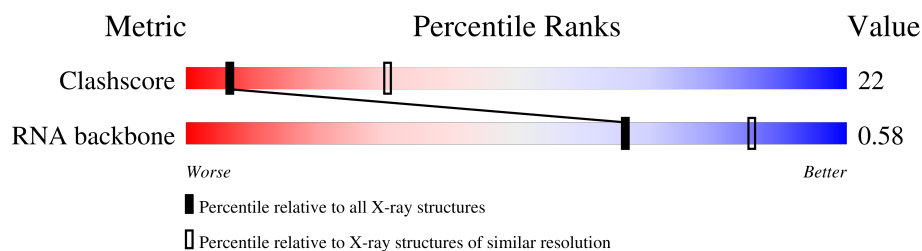
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.50 Å.

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



| Metric       | Whole archive<br>(#Entries) | Similar resolution<br>(#Entries, resolution range(Å)) |
|--------------|-----------------------------|-------------------------------------------------------|
| Clashscore   | 190562                      | 1140 (3.54-3.46)                                      |
| RNA backbone | 3983                        | 1010 (3.98-3.02)                                      |

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

Note EDS was not executed.

| Mol | Chain | Length | Quality of chain                   |
|-----|-------|--------|------------------------------------|
| 1   | A     | 2880   | <br>30%      48%      16%      . . |
| 2   | K     | 205    | <br>96%      .                     |
| 3   | L     | 134    | <br>97%      .                     |
| 4   | M     | 60     | <br>97%      .                     |

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

| Mol | Type | Chain | Res  | Chirality | Geometry | Clashes | Electron density |
|-----|------|-------|------|-----------|----------|---------|------------------|
| 5   | ERY  | A     | 2881 | -         | -        | X       | -                |

## 2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 59970 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a RNA chain called 23S rRNA.

| Mol | Chain | Residues | Atoms |       |       |       |      | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-------|-------|-------|------|---------|---------|-------|
| 1   | A     | 2774     | Total | C     | N     | O     | P    | 0       | 0       | 0     |
|     |       |          | 59532 | 26556 | 10982 | 19221 | 2773 |         |         |       |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment        | Reference   |
|-------|---------|----------|--------|----------------|-------------|
| A     | 1526    | U        | Y      | SEE REMARK 999 | GB 15805042 |

- Molecule 2 is a protein called Ribosomal Protein L4.

| Mol | Chain | Residues | Atoms |     | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|---------|---------|-------|
| 2   | K     | 197      | Total | C   | 0       | 0       | 197   |
|     |       |          | 197   | 197 |         |         |       |

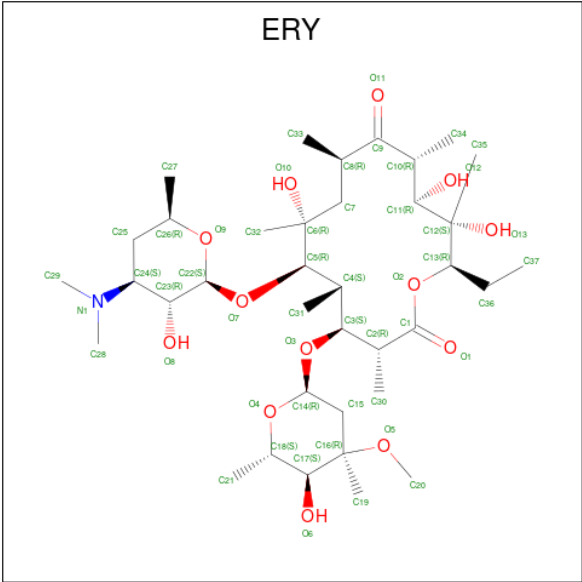
- Molecule 3 is a protein called Ribosomal Protein L22.

| Mol | Chain | Residues | Atoms |     | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|---------|---------|-------|
| 3   | L     | 130      | Total | C   | 0       | 0       | 130   |
|     |       |          | 130   | 130 |         |         |       |

- Molecule 4 is a protein called Ribosomal Protein L32.

| Mol | Chain | Residues | Atoms |    | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|----|---------|---------|-------|
| 4   | M     | 58       | Total | C  | 0       | 0       | 58    |
|     |       |          | 58    | 58 |         |         |       |

- Molecule 5 is ERYTHROMYCIN A (CCD ID: ERY) (formula: C<sub>37</sub>H<sub>67</sub>NO<sub>13</sub>).



| Mol | Chain | Residues | Atoms |    |   |    | ZeroOcc | AltConf |
|-----|-------|----------|-------|----|---|----|---------|---------|
| 5   | A     | 1        | Total | C  | N | O  | 0       | 0       |
|     |       |          | 51    | 37 | 1 | 13 |         |         |

- Molecule 6 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

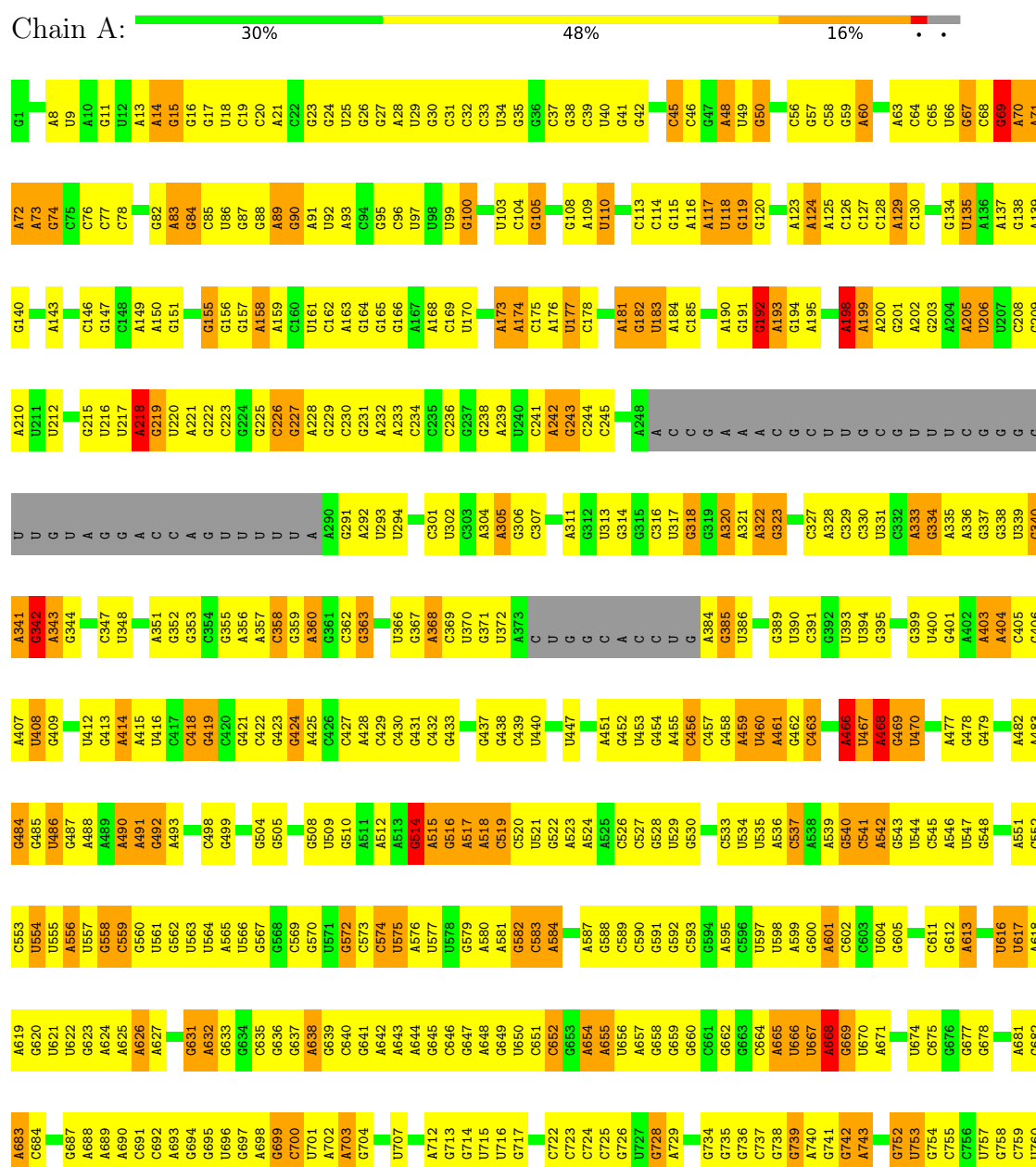
| Mol | Chain | Residues | Atoms |    | ZeroOcc | AltConf |
|-----|-------|----------|-------|----|---------|---------|
| 6   | A     | 2        | Total | Mg | 0       | 0       |
|     |       |          | 2     | 2  |         |         |

### 3 Residue-property plots

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

Note EDS was not executed.

#### • Molecule 1: 23S rRNA

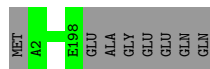


|       |       |       |       |       |       |       |       |       |   |      |      |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|---|------|------|
| A1746 | G1673 | C1529 | G1460 | A1321 | C1252 | U1105 | U1038 | A964  | C | G827 | G761 |
| G1747 | C1673 | U1530 | G1465 | G1321 | C1253 | A1106 | A1039 | C968  | U | C828 | A762 |
| U1748 | C1674 | C1531 | G1466 | G1323 | U1176 | A1107 | A1040 | C969  | A | C829 | A763 |
| G1749 | C1675 | A1532 | C1467 | G1324 | U1177 | U1108 | G1041 | C970  | C | C830 | A764 |
| A1750 | A1603 | G1533 | U1467 | U1325 | C1178 | A1109 | U1044 | A971  | C | G831 | A765 |
| C1677 | A1604 | A1534 | A1468 | U1326 | C1183 | G1110 | G1045 | A972  | A | A832 | A766 |
| G1678 | A1605 | C1535 | U1469 | C1327 | U1187 | G1111 | U1046 | C973  | G | G833 | G767 |
| U1679 | G1606 | G1536 | G1470 | G1328 | U1188 | U1112 | G1047 | A974  | C | U768 |      |
| U1680 | A1607 | U1537 | U1471 | U1329 | A1189 | C1113 | U1048 | C975  | U | A838 | G772 |
| U1681 | U1608 | U1538 | U1472 | G1330 | G1188 | U1114 | C1049 | C976  | U | U840 | G773 |
| A1682 | A1611 | U1539 | U1473 | G1331 | G1189 | U1115 |       | C977  | A | G841 | A774 |
| G1683 | U1612 | U1403 | U1474 | U1332 | G1190 | C1120 |       | C978  |   | A842 | U775 |
| G1684 | U1613 | C1404 | U1475 | U1333 | G1191 | U1121 | G1054 | U978  |   | C843 | G776 |
| A1685 | G1614 | A1405 | U1476 | A1334 | A1192 | G1122 | A1055 | A979  |   | G844 | A777 |
| U1686 | U1547 | U1409 | G1480 | G1337 | U1193 | A1123 | A1056 | G980  |   |      |      |
| A1687 | U1548 | U1410 | U1481 | G1338 | G1194 | G1124 | A1057 | G981  |   | C850 | U784 |
| G1688 | G1617 | C1411 | U1482 | U1339 | U1195 | G1125 | U1058 | G982  |   | C851 | U785 |
| C1689 | U1618 | C1412 | G1483 | C1340 | G1196 | U1126 | A1059 | A983  |   | U852 |      |
| U1690 | A1619 | U1484 | U1484 | G1341 | U1197 | A1127 | C1060 | G984  |   | C853 | U786 |
| G1691 | G1692 | C1582 | U1485 | U1342 | U1198 | G1128 | A1061 | G985  |   |      |      |
| C1692 | A1623 | G1583 | U1486 | U1343 | U1199 | G1129 | A1065 | A994  |   | G854 | A787 |
| A1693 | A1624 | G1554 | C1417 | G1344 | G1200 | A1129 | G1066 | A995  |   | C855 | G788 |
| A1625 | A1625 | A1555 | G1487 | G1345 | G1201 | U1130 | G1067 | A996  |   | U857 | G789 |
| A1626 | A1626 | A1556 | G1488 | C1346 | U1202 | U1131 | A1068 | C997  |   | G858 | A790 |
| C1627 | U1697 | G1557 | U1490 | C1347 | U1203 | G1134 | G1069 | C998  |   | U859 | G791 |
| U1697 | C1698 | C1558 | U1491 | G1348 | G1204 | C1135 | G1070 | A999  |   | U860 | U792 |
| A1699 | A1699 | A1560 | G1493 | A1349 | U1205 | G1136 | G1071 | A1000 |   | G861 | G793 |
| C1632 | G1703 | G1561 | G1494 | G1350 | G1209 | U1137 | U1072 | A1001 |   | A862 | A796 |
| A1634 | G1704 | U1562 | G1495 | G1351 | G1210 | A1138 | G1073 | A1002 |   | C863 | G797 |
| G1635 | U1710 | U1563 | C1497 | G1352 | U1211 | A1139 | G1074 | A1003 |   | C864 | A797 |
| U1711 | C1711 | U1564 | U1498 | A1353 | G1212 | A1140 | C1075 | A1004 |   | A865 | G798 |
| G1712 | G1712 | G1565 | U1499 | A1354 | U1213 | U1141 | U1076 | U1005 |   | U866 | G799 |
| A1714 | G1713 | U1571 | U1500 | A1355 | G1214 | G1142 | U1077 | A1006 |   | G867 | U800 |
| G1715 | U1645 | C1572 | U1430 | U1356 | U1215 | U1143 | G1078 | A1007 |   | A801 | A801 |
| G1716 | U1646 | G1573 | A1433 | G1357 | A1216 | U1144 | G1079 | A1008 |   | C869 | C803 |
| A1717 | C1648 | U1574 | G1435 | G1358 | U1217 | G1146 | A1080 | C870  |   | C870 | C804 |
| U1722 | U1651 | U1575 | G1436 | C1364 | C1218 | G1149 | A1081 | U871  |   | G871 | G805 |
| G1723 | G1652 | A1507 | G1437 | U1365 | C1219 | U1150 | G1082 | U872  |   | U872 | A806 |
| C1724 | C1653 | G1508 | G1438 | A1366 | G1220 | C1151 | C1083 | G873  |   | A874 | A807 |
| A1725 | A1654 | A1509 | G1439 | A1367 | C1221 | U1151 | A1084 | G875  |   | C808 | C808 |
| C1655 | C1581 | A1510 | G1440 | G1368 | G1222 | C1152 | G1085 | C876  |   | C809 | C809 |
| A1582 | A1582 | C1442 | A1441 | G1369 | G1223 | A1153 | C1086 | U877  |   | U810 | U810 |
| A1583 | A1511 | C1443 | C1442 | U1370 | A1224 | A1154 | C1087 | G877  |   | G811 | G811 |
| G1584 | U1512 | C1444 | G1443 | A1371 | G1225 | G1155 | A1088 | C878  |   | G812 | G812 |
| A1585 | C1514 | C1445 | U1446 | G1372 | A1226 | C1160 | C1089 | A879  |   | A813 | A813 |
| U1588 | U1515 | U1447 | U1447 | G1373 | A1227 | U1161 | C1090 | C880  |   | G814 | G814 |
| G1589 | G1519 | U1450 | U1450 | G1374 | C1233 | A1162 | U1092 | A886  |   | A815 | A815 |
| C1590 | G1520 | G1451 | U1451 | G1377 | C1234 | C1163 | U1093 | G887  |   | U816 | U816 |
| U1591 | U1521 | C1452 | C1380 | C1311 | G1240 | G1165 | U1096 | A982  |   | A817 | A817 |
| C1592 | C1522 | U1453 | C1381 | G1312 | G1241 | A1166 | A1097 | A983  |   | G818 | G818 |
| G1593 | A1523 | A1454 | G1382 | U1313 | U1244 | G1167 | G1098 | U954  |   | C819 | C819 |
| U1594 | C1524 | U1455 | G1383 | A1314 | U1245 | A1168 | A1099 | A891  |   | U820 | U820 |
| A1595 | A1525 | C1456 | G1384 | A1315 | G1246 | G1169 | G1100 | A892  |   | A821 | A821 |
| A1596 | U1526 | A1457 | C1385 | G1316 | U1249 | U1170 | G1033 | G892  |   | G    | U823 |
| A1597 | G1527 | A1458 | C1386 | C1319 | G1251 | U1171 | U1101 | G957  |   | G    | U824 |
| C1598 | C1528 | U1459 | G1387 | A1320 |       | U1172 | G1102 | U960  |   | C    | C825 |
|       |       |       |       |       |       | G1173 | G1104 | U1037 |   | C    | U826 |



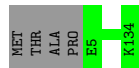
- Molecule 2: Ribosomal Protein L4

Chain K:  96% .



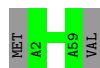
- Molecule 3: Ribosomal Protein L22

Chain L:  97% .



- Molecule 4: Ribosomal Protein L32

Chain M:  97% .



## 4 Data and refinement statistics

Xtriage (Phenix) and EDS were not executed - this section is therefore incomplete.

| Property                                                 | Value                                                      | Source    |
|----------------------------------------------------------|------------------------------------------------------------|-----------|
| Space group                                              | I 2 2 2                                                    | Depositor |
| Cell constants<br>a, b, c, $\alpha$ , $\beta$ , $\gamma$ | 169.20 Å   410.00 Å   695.00 Å<br>90.00°   90.00°   90.00° | Depositor |
| Resolution (Å)                                           | 20.00 – 3.50                                               | Depositor |
| % Data completeness<br>(in resolution range)             | (Not available) (20.00-3.50)                               | Depositor |
| $R_{merge}$                                              | (Not available)                                            | Depositor |
| $R_{sym}$                                                | (Not available)                                            | Depositor |
| Refinement program                                       | CNS, REFMAC                                                | Depositor |
| R, $R_{free}$                                            | 0.268 , 0.301                                              | Depositor |
| Estimated twinning fraction                              | No twinning to report.                                     | Xtriage   |
| Total number of atoms                                    | 59970                                                      | wwPDB-VP  |
| Average B, all atoms (Å <sup>2</sup> )                   | 66.0                                                       | wwPDB-VP  |

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

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

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

| Mol | Chain | Bond lengths |             | Bond angles |                  |
|-----|-------|--------------|-------------|-------------|------------------|
|     |       | RMSZ         | $\# Z  > 5$ | RMSZ        | $\# Z  > 5$      |
| 1   | A     | 0.26         | 0/66661     | 0.59        | 52/103976 (0.1%) |

There are no bond length outliers.

All (52) bond angle outliers are listed below:

| Mol | Chain | Res  | Type | Atoms       | Z    | Observed( $^{\circ}$ ) | Ideal( $^{\circ}$ ) |
|-----|-------|------|------|-------------|------|------------------------|---------------------|
| 1   | A     | 218  | A    | C2'-C3'-O3' | 7.63 | 120.95                 | 109.50              |
| 1   | A     | 813  | A    | C2'-C3'-O3' | 7.23 | 120.35                 | 109.50              |
| 1   | A     | 1715 | A    | C2'-C3'-O3' | 7.21 | 120.31                 | 109.50              |
| 1   | A     | 2608 | A    | C2'-C3'-O3' | 7.20 | 120.29                 | 109.50              |
| 1   | A     | 2324 | G    | C2'-C3'-O3' | 6.91 | 119.86                 | 109.50              |
| 1   | A     | 2693 | U    | C2'-C3'-O3' | 6.90 | 119.86                 | 109.50              |
| 1   | A     | 968  | C    | C2'-C3'-O3' | 6.62 | 119.43                 | 109.50              |
| 1   | A     | 1285 | A    | C2'-C3'-O3' | 6.54 | 119.31                 | 109.50              |
| 1   | A     | 956  | A    | C2'-C3'-O3' | 6.45 | 119.18                 | 109.50              |
| 1   | A     | 984  | A    | C2'-C3'-O3' | 6.42 | 119.14                 | 109.50              |
| 1   | A     | 1746 | A    | C2'-C3'-O3' | 6.41 | 123.32                 | 113.70              |
| 1   | A     | 668  | A    | C2'-C3'-O3' | 6.41 | 119.11                 | 109.50              |
| 1   | A     | 466  | A    | C2'-C3'-O3' | 6.38 | 119.07                 | 109.50              |
| 1   | A     | 824  | U    | C2'-C3'-O3' | 6.33 | 119.00                 | 109.50              |
| 1   | A     | 342  | G    | C2'-C3'-O3' | 6.29 | 118.94                 | 109.50              |
| 1   | A     | 2756 | A    | C2'-C3'-O3' | 6.28 | 118.91                 | 109.50              |
| 1   | A     | 468  | A    | C2'-C3'-O3' | 6.25 | 118.88                 | 109.50              |
| 1   | A     | 842  | A    | C2'-C3'-O3' | 6.21 | 118.82                 | 109.50              |
| 1   | A     | 514  | G    | C2'-C3'-O3' | 6.17 | 118.76                 | 109.50              |
| 1   | A     | 192  | G    | C2'-C3'-O3' | 6.04 | 118.55                 | 109.50              |
| 1   | A     | 1391 | A    | C2'-C3'-O3' | 6.03 | 118.54                 | 109.50              |
| 1   | A     | 2181 | A    | C2'-C3'-O3' | 6.00 | 118.50                 | 109.50              |
| 1   | A     | 1260 | A    | C2'-C3'-O3' | 5.99 | 118.48                 | 109.50              |
| 1   | A     | 972  | C    | C2'-C3'-O3' | 5.96 | 118.44                 | 109.50              |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 1   | A     | 2482 | A    | C2'-C3'-O3' | -5.88 | 104.88      | 113.70   |
| 1   | A     | 1263 | G    | C2'-C3'-O3' | 5.86  | 118.29      | 109.50   |
| 1   | A     | 1926 | U    | C2'-C3'-O3' | 5.84  | 118.26      | 109.50   |
| 1   | A     | 777  | A    | C2'-C3'-O3' | 5.82  | 122.42      | 113.70   |
| 1   | A     | 2245 | A    | C2'-C3'-O3' | 5.79  | 118.19      | 109.50   |
| 1   | A     | 1562 | G    | C2'-C3'-O3' | 5.79  | 118.18      | 109.50   |
| 1   | A     | 69   | G    | C2'-C3'-O3' | 5.75  | 118.12      | 109.50   |
| 1   | A     | 765  | C    | C2'-C3'-O3' | 5.71  | 118.06      | 109.50   |
| 1   | A     | 1354 | A    | C2'-C3'-O3' | 5.69  | 118.04      | 109.50   |
| 1   | A     | 2426 | G    | C2'-C3'-O3' | 5.66  | 117.99      | 109.50   |
| 1   | A     | 2564 | U    | C2'-C3'-O3' | -5.54 | 105.39      | 113.70   |
| 1   | A     | 801  | A    | C2'-C3'-O3' | 5.52  | 117.78      | 109.50   |
| 1   | A     | 1261 | G    | C2'-C3'-O3' | 5.49  | 117.74      | 109.50   |
| 1   | A     | 198  | A    | C2'-C3'-O3' | 5.49  | 117.74      | 109.50   |
| 1   | A     | 2588 | U    | C2'-C3'-O3' | 5.46  | 121.89      | 113.70   |
| 1   | A     | 1266 | G    | C2'-C3'-O3' | 5.44  | 117.66      | 109.50   |
| 1   | A     | 2758 | A    | C2'-C3'-O3' | 5.39  | 117.58      | 109.50   |
| 1   | A     | 1633 | C    | C2'-C3'-O3' | 5.38  | 117.57      | 109.50   |
| 1   | A     | 795  | A    | C2'-C3'-O3' | -5.34 | 105.69      | 113.70   |
| 1   | A     | 1410 | U    | N1-C1'-C2'  | 5.27  | 119.90      | 112.00   |
| 1   | A     | 1800 | A    | C2'-C3'-O3' | -5.26 | 105.81      | 113.70   |
| 1   | A     | 1278 | A    | C2'-C3'-O3' | 5.25  | 117.37      | 109.50   |
| 1   | A     | 1807 | A    | C2'-C3'-O3' | 5.24  | 117.37      | 109.50   |
| 1   | A     | 2498 | U    | C2'-C3'-O3' | -5.20 | 105.90      | 113.70   |
| 1   | A     | 1927 | U    | C2'-C3'-O3' | -5.17 | 105.95      | 113.70   |
| 1   | A     | 1711 | C    | C2'-C3'-O3' | 5.16  | 121.44      | 113.70   |
| 1   | A     | 1049 | C    | N1-C1'-C2'  | 5.12  | 119.67      | 112.00   |
| 1   | A     | 2589 | C    | C2'-C3'-O3' | 5.05  | 117.07      | 109.50   |

There are no chirality outliers.

There are no planarity outliers.

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

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | A     | 59532 | 0        | 30004    | 1918    | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 2   | K     | 197   | 0        | 0        | 0       | 0            |
| 3   | L     | 130   | 0        | 0        | 0       | 0            |
| 4   | M     | 58    | 0        | 0        | 0       | 0            |
| 5   | A     | 51    | 0        | 67       | 22      | 0            |
| 6   | A     | 2     | 0        | 0        | 0       | 0            |
| All | All   | 59970 | 0        | 30071    | 1936    | 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 22.

All (1936) 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:A:1747:G:H4'   | 1:A:1749:G:H1'    | 1.30                     | 1.12              |
| 1:A:2668:U:H4'   | 1:A:2669:C:H5'    | 1.33                     | 1.11              |
| 1:A:940:G:H3'    | 1:A:941:U:H5''    | 1.34                     | 1.09              |
| 1:A:367:G:H2'    | 1:A:368:A:H5''    | 1.34                     | 1.08              |
| 1:A:1199:U:H3'   | 1:A:1200:G:H5''   | 1.35                     | 1.06              |
| 5:A:2881:ERY:H71 | 5:A:2881:ERY:H211 | 1.36                     | 1.05              |
| 1:A:2082:C:H3'   | 1:A:2083:G:H5''   | 1.40                     | 1.03              |
| 1:A:651:C:H2'    | 1:A:652:C:H5''    | 1.36                     | 1.02              |
| 1:A:118:U:H4'    | 1:A:119:G:H5''    | 1.46                     | 0.97              |
| 1:A:1252:C:H2'   | 1:A:1253:C:H5''   | 1.48                     | 0.96              |
| 1:A:2315:A:H1'   | 1:A:2364:C:H5''   | 1.45                     | 0.96              |
| 1:A:1105:U:H2'   | 1:A:1106:A:H5''   | 1.48                     | 0.95              |
| 1:A:2484:G:H8    | 5:A:2881:ERY:H282 | 1.32                     | 0.94              |
| 1:A:104:C:H2'    | 1:A:105:G:H5''    | 1.49                     | 0.94              |
| 1:A:1656:U:H2'   | 1:A:1657:A:H5''   | 1.49                     | 0.94              |
| 1:A:910:C:H3'    | 1:A:911:A:H5''    | 1.49                     | 0.93              |
| 1:A:128:C:H2'    | 1:A:129:A:H5''    | 1.48                     | 0.93              |
| 1:A:1438:G:H2'   | 1:A:1439:G:H5'    | 1.49                     | 0.93              |
| 1:A:742:G:H4'    | 1:A:776:G:H5'     | 1.48                     | 0.92              |
| 1:A:1275:A:H61   | 1:A:2001:G:H2'    | 1.35                     | 0.92              |
| 1:A:1679:U:H2'   | 1:A:1680:U:H5''   | 1.48                     | 0.92              |
| 1:A:88:G:H3'     | 1:A:89:A:H5''     | 1.51                     | 0.90              |
| 1:A:1467:U:H3'   | 1:A:1468:A:H5'    | 1.54                     | 0.89              |
| 1:A:357:A:H2'    | 1:A:358:C:H5'     | 1.52                     | 0.89              |
| 1:A:1572:C:H2'   | 1:A:1573:G:H5''   | 1.53                     | 0.89              |
| 1:A:1073:G:H3'   | 1:A:1074:G:H5''   | 1.53                     | 0.89              |
| 1:A:2361:G:H5''  | 1:A:2362:G:H5'    | 1.55                     | 0.88              |
| 1:A:1528:C:H3'   | 1:A:1529:C:H5''   | 1.53                     | 0.88              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:A:482:A:H2'    | 1:A:483:A:H5'     | 1.55                     | 0.87              |
| 1:A:2038:C:H2'   | 1:A:2483:U:H4'    | 1.53                     | 0.87              |
| 1:A:2484:G:O2'   | 1:A:2485:U:H5'    | 1.75                     | 0.87              |
| 1:A:198:A:H5''   | 1:A:199:A:H5'     | 1.56                     | 0.87              |
| 1:A:918:A:H2'    | 1:A:919:U:H5''    | 1.57                     | 0.86              |
| 1:A:2432:A:H2'   | 1:A:2433:G:H8     | 1.37                     | 0.86              |
| 1:A:2841:U:H1'   | 1:A:2843:A:H1'    | 1.57                     | 0.86              |
| 1:A:2727:G:H2'   | 1:A:2728:A:H5''   | 1.57                     | 0.85              |
| 1:A:942:U:H2'    | 1:A:943:U:O4'     | 1.77                     | 0.85              |
| 1:A:542:A:H2'    | 1:A:543:G:H5'     | 1.58                     | 0.85              |
| 1:A:951:G:H2'    | 1:A:952:A:H5''    | 1.59                     | 0.85              |
| 1:A:940:G:H3'    | 1:A:941:U:C5'     | 2.06                     | 0.84              |
| 1:A:2564:U:H4'   | 1:A:2565:C:C5'    | 2.07                     | 0.84              |
| 1:A:651:C:C2'    | 1:A:652:C:H5''    | 2.09                     | 0.83              |
| 1:A:218:A:H4'    | 1:A:219:G:H4'     | 1.61                     | 0.83              |
| 1:A:2782:G:H22   | 1:A:2867:G:H1     | 1.25                     | 0.82              |
| 1:A:1252:C:C2'   | 1:A:1253:C:H5''   | 2.09                     | 0.82              |
| 1:A:317:U:H2'    | 1:A:318:G:H5''    | 1.60                     | 0.82              |
| 1:A:1380:C:H2'   | 1:A:1381:G:H5'    | 1.62                     | 0.82              |
| 1:A:2564:U:H5''  | 1:A:2565:C:OP1    | 1.78                     | 0.82              |
| 1:A:2783:U:H2'   | 1:A:2785:A:C8     | 2.16                     | 0.81              |
| 1:A:367:G:C2'    | 1:A:368:A:H5''    | 2.11                     | 0.81              |
| 1:A:1022:A:H4'   | 1:A:1023:U:OP1    | 1.81                     | 0.81              |
| 1:A:2663:U:H3    | 1:A:2705:A:H61    | 1.23                     | 0.81              |
| 5:A:2881:ERY:H71 | 5:A:2881:ERY:C21  | 2.10                     | 0.81              |
| 1:A:1222:G:H4'   | 1:A:1225:G:H4'    | 1.64                     | 0.80              |
| 1:A:370:U:H2'    | 1:A:371:G:C8      | 2.16                     | 0.80              |
| 1:A:1019:U:HO2'  | 1:A:1020:A:H8     | 1.25                     | 0.80              |
| 5:A:2881:ERY:O1  | 5:A:2881:ERY:H373 | 1.80                     | 0.80              |
| 1:A:291:G:H1     | 1:A:370:U:H3      | 1.30                     | 0.79              |
| 1:A:1617:G:H2'   | 1:A:1618:U:H5'    | 1.62                     | 0.79              |
| 1:A:1434:U:H2'   | 1:A:1435:G:C8     | 2.18                     | 0.79              |
| 1:A:2240:C:H2'   | 1:A:2241:U:H5''   | 1.63                     | 0.79              |
| 1:A:1679:U:C2'   | 1:A:1680:U:H5''   | 2.12                     | 0.79              |
| 1:A:2096:U:C2'   | 1:A:2097:A:H5'    | 2.11                     | 0.79              |
| 1:A:2727:G:C2'   | 1:A:2728:A:H5''   | 2.12                     | 0.79              |
| 1:A:67:G:N2      | 1:A:72:A:H2'      | 1.98                     | 0.79              |
| 1:A:2564:U:H4'   | 1:A:2565:C:H5'    | 1.64                     | 0.79              |
| 1:A:2096:U:H2'   | 1:A:2097:A:H5'    | 1.62                     | 0.78              |
| 1:A:1279:G:H1'   | 1:A:1280:U:H5     | 1.48                     | 0.78              |
| 1:A:2432:A:H2'   | 1:A:2433:G:C8     | 2.20                     | 0.77              |

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| Atom-1          | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|------------------|--------------------------|-------------------|
| 1:A:699:G:H5'   | 1:A:700:C:OP2    | 1.85                     | 0.77              |
| 1:A:2476:A:H1'  | 1:A:2477:C:H5    | 1.50                     | 0.77              |
| 1:A:795:A:H5'   | 1:A:796:A:OP1    | 1.85                     | 0.77              |
| 1:A:1355:A:O4'  | 1:A:1410:U:H1'   | 1.85                     | 0.77              |
| 1:A:1711:C:O2'  | 1:A:1712:G:H5''  | 1.83                     | 0.76              |
| 1:A:1947:G:OP1  | 1:A:1947:G:H3'   | 1.86                     | 0.76              |
| 1:A:1071:U:H5'' | 1:A:1072:U:H6    | 1.49                     | 0.76              |
| 1:A:83:A:H4'    | 1:A:84:G:O5'     | 1.85                     | 0.75              |
| 1:A:763:A:H2'   | 1:A:764:A:H5''   | 1.67                     | 0.75              |
| 1:A:487:G:H4'   | 1:A:512:A:N1     | 2.01                     | 0.75              |
| 5:A:2881:ERY:O1 | 5:A:2881:ERY:C37 | 2.34                     | 0.75              |
| 1:A:2286:G:H2'  | 1:A:2287:G:H5''  | 1.69                     | 0.75              |
| 1:A:403:A:H5''  | 1:A:404:A:OP1    | 1.86                     | 0.75              |
| 1:A:2770:A:O2'  | 1:A:2771:C:H5''  | 1.86                     | 0.75              |
| 1:A:1548:U:H2'  | 1:A:1549:C:C5    | 2.22                     | 0.75              |
| 1:A:1926:U:H1'  | 1:A:1928:G:OP2   | 1.86                     | 0.75              |
| 1:A:1071:U:H5'' | 1:A:1072:U:C6    | 2.21                     | 0.74              |
| 1:A:1747:G:H4'  | 1:A:1749:G:C1'   | 2.15                     | 0.74              |
| 1:A:2013:A:H4'  | 1:A:2014:A:C8    | 2.22                     | 0.74              |
| 1:A:1434:U:H2'  | 1:A:1435:G:H8    | 1.51                     | 0.74              |
| 1:A:1669:A:H62  | 1:A:1670:G:H21   | 1.33                     | 0.74              |
| 1:A:2051:U:H3   | 1:A:2409:A:H2    | 1.34                     | 0.74              |
| 1:A:622:U:H2'   | 1:A:623:G:H5'    | 1.69                     | 0.74              |
| 1:A:1827:G:N2   | 1:A:1913:G:H1'   | 2.03                     | 0.74              |
| 1:A:765:C:H4'   | 1:A:766:A:O5'    | 1.88                     | 0.74              |
| 1:A:1325:U:O2'  | 1:A:1326:U:H5''  | 1.87                     | 0.74              |
| 1:A:1685:A:H61  | 1:A:1693:A:H61   | 1.34                     | 0.74              |
| 1:A:2002:A:H61  | 1:A:2018:G:H22   | 1.34                     | 0.74              |
| 1:A:1999:U:H2'  | 1:A:2000:U:H6    | 1.53                     | 0.73              |
| 1:A:366:U:H2'   | 1:A:367:G:H8     | 1.53                     | 0.73              |
| 1:A:1782:A:H62  | 1:A:1820:G:H2'   | 1.53                     | 0.73              |
| 1:A:863:C:H42   | 1:A:939:C:H42    | 1.35                     | 0.73              |
| 1:A:1656:U:C2'  | 1:A:1657:A:H5''  | 2.18                     | 0.73              |
| 1:A:588:G:H2'   | 1:A:589:C:C6     | 2.22                     | 0.73              |
| 1:A:1279:G:H1'  | 1:A:1280:U:C5    | 2.23                     | 0.73              |
| 1:A:1466:C:H2'  | 1:A:1467:U:O4'   | 1.89                     | 0.73              |
| 1:A:1548:U:H3   | 1:A:1554:G:H1    | 1.37                     | 0.72              |
| 1:A:2010:G:H1   | 1:A:2019:C:H42   | 1.36                     | 0.72              |
| 1:A:2083:G:H22  | 1:A:2172:U:H3    | 1.37                     | 0.72              |
| 1:A:2523:G:H1'  | 1:A:2625:U:H5'   | 1.72                     | 0.72              |
| 1:A:1790:G:H1'  | 1:A:1791:C:C5    | 2.24                     | 0.72              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1800:A:H5''   | 1:A:1801:C:OP1    | 1.88                     | 0.72              |
| 1:A:821:A:H2'     | 1:A:822:G:C8      | 2.24                     | 0.72              |
| 5:A:2881:ERY:H211 | 5:A:2881:ERY:C7   | 2.15                     | 0.72              |
| 1:A:752:G:H4'     | 1:A:753:U:OP1     | 1.86                     | 0.72              |
| 1:A:1710:U:H5''   | 1:A:1711:C:OP2    | 1.88                     | 0.72              |
| 1:A:2038:C:O2     | 1:A:2483:U:H5'    | 1.90                     | 0.72              |
| 1:A:526:C:H4'     | 1:A:1275:A:H4'    | 1.72                     | 0.72              |
| 1:A:930:A:H5'     | 1:A:931:G:C8      | 2.24                     | 0.72              |
| 1:A:821:A:H2'     | 1:A:822:G:H8      | 1.54                     | 0.72              |
| 1:A:929:A:H2'     | 1:A:930:A:H5''    | 1.72                     | 0.72              |
| 1:A:128:C:C2'     | 1:A:129:A:H5''    | 2.20                     | 0.72              |
| 1:A:1032:A:H2'    | 1:A:1033:G:H4'    | 1.71                     | 0.72              |
| 1:A:2075:U:H5'    | 1:A:2076:G:OP1    | 1.90                     | 0.72              |
| 1:A:114:C:O2'     | 1:A:124:A:H1'     | 1.90                     | 0.71              |
| 1:A:2242:C:H42    | 1:A:2256:G:H1     | 1.39                     | 0.71              |
| 1:A:2484:G:C8     | 5:A:2881:ERY:H282 | 2.21                     | 0.71              |
| 1:A:1276:U:H2'    | 1:A:1277:G:O4'    | 1.90                     | 0.71              |
| 1:A:2074:U:H3'    | 1:A:2075:U:H5''   | 1.73                     | 0.71              |
| 1:A:2285:U:H3'    | 1:A:2286:G:H5'    | 1.72                     | 0.71              |
| 1:A:918:A:C2'     | 1:A:919:U:H5''    | 2.20                     | 0.71              |
| 1:A:104:C:C2'     | 1:A:105:G:H5''    | 2.21                     | 0.70              |
| 1:A:1528:C:C3'    | 1:A:1529:C:H5''   | 2.21                     | 0.70              |
| 1:A:1827:G:H21    | 1:A:1913:G:H1'    | 1.56                     | 0.70              |
| 1:A:815:A:OP2     | 1:A:815:A:H8      | 1.73                     | 0.70              |
| 1:A:2237:C:C2     | 1:A:2405:A:H5'    | 2.26                     | 0.70              |
| 1:A:1345:G:H5''   | 1:A:1346:C:OP2    | 1.91                     | 0.70              |
| 1:A:804:C:H1'     | 1:A:807:A:H5'     | 1.74                     | 0.70              |
| 1:A:1926:U:C2     | 1:A:1928:G:H5'    | 2.26                     | 0.70              |
| 1:A:1953:A:O2'    | 1:A:1954:A:H5''   | 1.91                     | 0.70              |
| 1:A:616:U:H2'     | 1:A:617:U:H5''    | 1.72                     | 0.70              |
| 1:A:1298:G:N2     | 1:A:1341:G:H5''   | 2.06                     | 0.70              |
| 1:A:2381:A:H5''   | 1:A:2382:C:OP1    | 1.91                     | 0.70              |
| 1:A:2437:G:H5''   | 1:A:2438:A:OP1    | 1.90                     | 0.70              |
| 1:A:366:U:H2'     | 1:A:367:G:C8      | 2.26                     | 0.70              |
| 1:A:1774:A:H4'    | 1:A:2586:G:O2'    | 1.91                     | 0.70              |
| 1:A:482:A:C2'     | 1:A:483:A:H5'     | 2.22                     | 0.70              |
| 1:A:1632:A:H5''   | 1:A:1633:C:OP2    | 1.91                     | 0.70              |
| 1:A:2082:C:H3'    | 1:A:2083:G:C5'    | 2.21                     | 0.70              |
| 1:A:2282:G:H1     | 1:A:2292:C:H42    | 1.38                     | 0.70              |
| 1:A:1975:G:H1'    | 1:A:1977:C:H5     | 1.57                     | 0.69              |
| 1:A:1313:U:H4'    | 1:A:1314:A:O5'    | 1.92                     | 0.69              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:A:2265:A:H4'   | 1:A:2266:A:C4     | 2.26                     | 0.69              |
| 1:A:544:U:H2'    | 1:A:545:C:C6      | 2.27                     | 0.69              |
| 1:A:728:G:H2'    | 1:A:729:A:H5'     | 1.74                     | 0.69              |
| 1:A:1171:A:H3'   | 1:A:1172:U:H5''   | 1.73                     | 0.69              |
| 1:A:1341:G:H2'   | 1:A:1343:C:C5     | 2.26                     | 0.69              |
| 1:A:2103:G:H1    | 1:A:2161:C:H42    | 1.41                     | 0.69              |
| 1:A:109:A:C3'    | 1:A:110:U:H5''    | 2.22                     | 0.69              |
| 1:A:1529:C:H2'   | 1:A:1530:U:O4'    | 1.91                     | 0.69              |
| 1:A:2092:U:H5''  | 1:A:2133:G:H1'    | 1.75                     | 0.69              |
| 1:A:2329:C:H2'   | 1:A:2330:G:O4'    | 1.93                     | 0.69              |
| 1:A:1467:U:H2'   | 1:A:1467:U:O2     | 1.93                     | 0.69              |
| 1:A:1049:C:O2    | 1:A:1049:C:H2'    | 1.90                     | 0.69              |
| 1:A:1275:A:H61   | 1:A:2001:G:C2'    | 2.06                     | 0.69              |
| 1:A:109:A:H3'    | 1:A:110:U:H5''    | 1.73                     | 0.69              |
| 1:A:239:A:H5''   | 1:A:620:G:H5'     | 1.74                     | 0.69              |
| 1:A:333:A:H5'    | 1:A:351:A:H1'     | 1.74                     | 0.68              |
| 1:A:951:G:C2'    | 1:A:952:A:H5''    | 2.23                     | 0.68              |
| 1:A:1819:U:H2'   | 1:A:1820:G:O4'    | 1.93                     | 0.68              |
| 1:A:2633:A:H5''  | 1:A:2634:G:OP1    | 1.92                     | 0.68              |
| 1:A:2227:C:H2'   | 1:A:2228:U:H5'    | 1.75                     | 0.68              |
| 5:A:2881:ERY:O12 | 5:A:2881:ERY:H213 | 1.92                     | 0.68              |
| 1:A:1487:C:H42   | 1:A:1536:G:H22    | 1.38                     | 0.68              |
| 1:A:1782:A:N6    | 1:A:1820:G:H2'    | 2.08                     | 0.68              |
| 1:A:2272:A:H61   | 1:A:2318:U:H3     | 1.42                     | 0.68              |
| 1:A:31:C:H5''    | 1:A:1252:C:OP1    | 1.94                     | 0.68              |
| 1:A:873:U:H1'    | 1:A:2246:A:H5''   | 1.76                     | 0.68              |
| 1:A:1598:C:H2'   | 1:A:1599:G:O4'    | 1.94                     | 0.68              |
| 1:A:1019:U:O2'   | 1:A:1020:A:H8     | 1.76                     | 0.68              |
| 1:A:1277:G:H2'   | 1:A:1997:A:N6     | 2.08                     | 0.68              |
| 1:A:1927:U:H5''  | 1:A:1928:G:OP2    | 1.92                     | 0.68              |
| 1:A:1811:A:H1'   | 1:A:1813:A:C5     | 2.29                     | 0.68              |
| 1:A:1055:A:N6    | 1:A:1123:G:H1'    | 2.09                     | 0.67              |
| 1:A:1697:U:H2'   | 1:A:1698:C:O4'    | 1.93                     | 0.67              |
| 1:A:89:A:H5'     | 1:A:90:G:OP1      | 1.93                     | 0.67              |
| 1:A:1572:C:C2'   | 1:A:1573:G:H5''   | 2.25                     | 0.67              |
| 1:A:1141:U:O2    | 1:A:2008:C:H5''   | 1.93                     | 0.67              |
| 1:A:2480:C:H5''  | 1:A:2482:A:H5''   | 1.77                     | 0.67              |
| 1:A:939:C:H2'    | 1:A:940:G:H8      | 1.58                     | 0.67              |
| 1:A:1380:C:C2'   | 1:A:1381:G:H5'    | 2.25                     | 0.67              |
| 1:A:2379:G:H1    | 1:A:2395:C:H42    | 1.41                     | 0.67              |
| 1:A:2476:A:H1'   | 1:A:2477:C:C5     | 2.30                     | 0.67              |

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| Atom-1          | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:A:1195:U:H2'  | 1:A:1196:G:C8   | 2.29                     | 0.67              |
| 1:A:1358:C:H2'  | 1:A:1359:G:H5'  | 1.75                     | 0.67              |
| 1:A:1836:C:H42  | 1:A:1879:G:H1   | 1.41                     | 0.67              |
| 1:A:2484:G:HO2' | 1:A:2485:U:H6   | 1.41                     | 0.67              |
| 1:A:2668:U:C4'  | 1:A:2669:C:H5'  | 2.20                     | 0.67              |
| 1:A:466:A:H4'   | 1:A:467:U:O5'   | 1.95                     | 0.67              |
| 1:A:2841:U:H1'  | 1:A:2843:A:C1'  | 2.24                     | 0.67              |
| 1:A:459:A:H1'   | 1:A:461:A:N6    | 2.10                     | 0.67              |
| 1:A:632:A:H2'   | 1:A:633:G:O4'   | 1.94                     | 0.67              |
| 1:A:1068:A:H2   | 1:A:1093:U:H3   | 1.43                     | 0.67              |
| 1:A:1601:U:H4'  | 1:A:1602:G:O4'  | 1.95                     | 0.67              |
| 1:A:1073:G:H3'  | 1:A:1074:G:C5'  | 2.25                     | 0.66              |
| 1:A:1763:G:H2'  | 1:A:1764:A:H4'  | 1.77                     | 0.66              |
| 1:A:2772:U:H2'  | 1:A:2773:G:C8   | 2.30                     | 0.66              |
| 1:A:572:G:H5'   | 1:A:581:A:H4'   | 1.77                     | 0.66              |
| 1:A:1985:G:H2'  | 1:A:1986:G:H8   | 1.61                     | 0.66              |
| 1:A:2520:A:H4'  | 1:A:2744:A:N1   | 2.10                     | 0.66              |
| 1:A:1438:G:C2'  | 1:A:1439:G:H5'  | 2.24                     | 0.66              |
| 1:A:910:C:H3'   | 1:A:911:A:C5'   | 2.24                     | 0.66              |
| 1:A:2255:G:H2'  | 1:A:2256:G:H8   | 1.60                     | 0.66              |
| 1:A:208:C:H2'   | 1:A:209:G:O4'   | 1.96                     | 0.66              |
| 1:A:1144:U:O2   | 1:A:1144:U:H2'  | 1.94                     | 0.66              |
| 1:A:2240:C:C2'  | 1:A:2241:U:H5'' | 2.25                     | 0.66              |
| 1:A:587:A:H5'   | 1:A:1268:U:H4'  | 1.78                     | 0.66              |
| 1:A:542:A:C2'   | 1:A:543:G:H5'   | 2.25                     | 0.66              |
| 1:A:2371:A:H2'  | 1:A:2372:A:O4'  | 1.96                     | 0.66              |
| 1:A:2094:C:C5   | 1:A:2103:G:H1'  | 2.31                     | 0.66              |
| 1:A:201:G:H2'   | 1:A:202:A:C8    | 2.30                     | 0.65              |
| 1:A:2822:U:H2'  | 1:A:2823:G:O4'  | 1.96                     | 0.65              |
| 1:A:427:C:H2'   | 1:A:428:A:C8    | 2.31                     | 0.65              |
| 1:A:712:A:H4'   | 1:A:1651:U:C4   | 2.31                     | 0.65              |
| 1:A:2579:A:O2'  | 1:A:2580:C:H5'  | 1.96                     | 0.65              |
| 1:A:641:G:H4'   | 1:A:651:C:O2'   | 1.97                     | 0.65              |
| 1:A:28:A:H2'    | 1:A:29:U:O4'    | 1.97                     | 0.65              |
| 1:A:590:C:H2'   | 1:A:591:G:C8    | 2.32                     | 0.65              |
| 1:A:2175:A:H2'  | 1:A:2176:U:C6   | 2.32                     | 0.65              |
| 1:A:202:A:H2'   | 1:A:203:G:O4'   | 1.96                     | 0.65              |
| 1:A:813:A:H1'   | 1:A:815:A:H5'   | 1.77                     | 0.65              |
| 1:A:1429:A:H2'  | 1:A:1429:A:N3   | 2.12                     | 0.65              |
| 1:A:66:U:H2'    | 1:A:67:G:N7     | 2.12                     | 0.65              |
| 1:A:2285:U:H3'  | 1:A:2286:G:C5'  | 2.27                     | 0.65              |

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| Atom-1          | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:A:2425:G:H1'  | 1:A:2428:U:O4   | 1.97                     | 0.65              |
| 1:A:2426:G:H4'  | 1:A:2427:A:C5'  | 2.27                     | 0.65              |
| 1:A:38:G:H1     | 1:A:453:U:H3    | 1.45                     | 0.65              |
| 1:A:1746:A:H2'  | 1:A:1747:G:H5'  | 1.78                     | 0.65              |
| 1:A:2397:A:H2'  | 1:A:2398:U:C6   | 2.31                     | 0.65              |
| 1:A:1088:A:H2'  | 1:A:1089:C:O4'  | 1.95                     | 0.65              |
| 1:A:2038:C:H2'  | 1:A:2483:U:C4'  | 2.27                     | 0.65              |
| 1:A:2324:G:O2'  | 1:A:2325:A:OP2  | 2.09                     | 0.65              |
| 1:A:2033:C:H2'  | 1:A:2034:A:O4'  | 1.97                     | 0.65              |
| 1:A:218:A:C4'   | 1:A:219:G:H4'   | 2.27                     | 0.64              |
| 1:A:871:U:H1'   | 1:A:2248:A:H5'  | 1.78                     | 0.64              |
| 1:A:1004:A:H2   | 1:A:1173:G:H22  | 1.44                     | 0.64              |
| 1:A:1105:U:C2'  | 1:A:1106:A:H5'' | 2.27                     | 0.64              |
| 1:A:1809:G:H2'  | 1:A:1810:U:O4'  | 1.97                     | 0.64              |
| 1:A:2809:A:O2'  | 1:A:2810:A:H5'  | 1.96                     | 0.64              |
| 1:A:2422:C:H2'  | 1:A:2423:G:H8   | 1.62                     | 0.64              |
| 1:A:1199:U:H3'  | 1:A:1200:G:C5'  | 2.21                     | 0.64              |
| 1:A:2660:C:O2'  | 1:A:2661:G:H5'  | 1.97                     | 0.64              |
| 1:A:83:A:N6     | 1:A:100:G:H1'   | 2.12                     | 0.64              |
| 1:A:1553:G:H2'  | 1:A:1554:G:O4'  | 1.97                     | 0.64              |
| 1:A:1900:U:H2'  | 1:A:1901:A:H5'  | 1.79                     | 0.64              |
| 1:A:117:A:O2'   | 1:A:118:U:H3'   | 1.98                     | 0.64              |
| 1:A:1762:C:O2'  | 1:A:1777:A:H1'  | 1.96                     | 0.64              |
| 1:A:117:A:H5'   | 1:A:118:U:OP1   | 1.98                     | 0.64              |
| 1:A:2680:U:H3'  | 1:A:2681:A:H5'  | 1.80                     | 0.64              |
| 1:A:698:A:H1'   | 1:A:701:U:O4    | 1.97                     | 0.64              |
| 1:A:1895:A:H2'  | 1:A:1896:A:H5'  | 1.80                     | 0.64              |
| 1:A:2737:A:H2'  | 1:A:2738:A:H5'  | 1.79                     | 0.64              |
| 1:A:2860:C:H2'  | 1:A:2861:A:O4'  | 1.96                     | 0.64              |
| 1:A:2498:U:H5'' | 1:A:2499:C:OP1  | 1.98                     | 0.64              |
| 1:A:292:A:H2'   | 1:A:293:U:C6    | 2.32                     | 0.64              |
| 1:A:957:G:N2    | 1:A:983:G:H1'   | 2.13                     | 0.64              |
| 1:A:1060:C:H2'  | 1:A:1061:A:H8   | 1.63                     | 0.64              |
| 1:A:1192:A:O2'  | 1:A:1193:G:H5'  | 1.97                     | 0.64              |
| 1:A:2522:G:H21  | 1:A:2625:U:H5'' | 1.63                     | 0.64              |
| 1:A:1087:C:H2'  | 1:A:1088:A:O4'  | 1.97                     | 0.63              |
| 1:A:2495:G:H2'  | 1:A:2496:C:C6   | 2.33                     | 0.63              |
| 1:A:547:U:H2'   | 1:A:548:G:H8    | 1.63                     | 0.63              |
| 1:A:651:C:H42   | 1:A:658:G:H1    | 1.46                     | 0.63              |
| 1:A:1310:C:OP1  | 1:A:2689:C:H4'  | 1.98                     | 0.63              |
| 1:A:2268:G:H5'' | 1:A:2363:G:O2'  | 1.98                     | 0.63              |

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| Atom-1          | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:A:242:A:O2'   | 1:A:243:G:O5'   | 2.17                     | 0.63              |
| 1:A:1190:C:H2'  | 1:A:1191:G:H5'  | 1.81                     | 0.63              |
| 1:A:2024:U:H2'  | 1:A:2025:A:C8   | 2.34                     | 0.63              |
| 1:A:2481:G:H5'' | 1:A:2482:A:H5'  | 1.80                     | 0.63              |
| 1:A:322:A:H2'   | 1:A:322:A:N3    | 2.14                     | 0.63              |
| 1:A:813:A:C1'   | 1:A:815:A:H5'   | 2.27                     | 0.63              |
| 1:A:1762:C:H2'  | 1:A:1763:G:C8   | 2.34                     | 0.63              |
| 1:A:2321:C:H2'  | 1:A:2322:U:O4'  | 1.97                     | 0.63              |
| 1:A:582:G:O3'   | 1:A:583:C:H3'   | 1.98                     | 0.63              |
| 1:A:805:G:H2'   | 1:A:2419:C:N3   | 2.14                     | 0.63              |
| 1:A:1272:G:H2'  | 1:A:1273:G:C8   | 2.34                     | 0.63              |
| 1:A:1601:U:H5'' | 1:A:1602:G:OP1  | 1.99                     | 0.63              |
| 1:A:1999:U:O2'  | 1:A:2000:U:H5'  | 1.99                     | 0.63              |
| 1:A:2057:U:H2'  | 1:A:2058:U:C6   | 2.34                     | 0.63              |
| 1:A:490:A:H4'   | 1:A:491:A:H5'   | 1.80                     | 0.63              |
| 1:A:619:A:H2'   | 1:A:620:G:C8    | 2.34                     | 0.63              |
| 1:A:878:C:H4'   | 1:A:879:A:OP1   | 1.99                     | 0.63              |
| 1:A:1199:U:C3'  | 1:A:1200:G:H5'' | 2.22                     | 0.63              |
| 1:A:1433:A:H3'  | 1:A:1434:U:C6   | 2.33                     | 0.63              |
| 1:A:579:G:H2'   | 1:A:2013:A:C5   | 2.34                     | 0.63              |
| 1:A:619:A:H2'   | 1:A:620:G:H8    | 1.63                     | 0.63              |
| 1:A:1485:U:H3   | 1:A:1538:A:H2   | 1.47                     | 0.63              |
| 1:A:1690:U:H2'  | 1:A:1691:G:H5'  | 1.79                     | 0.62              |
| 1:A:1698:C:O2'  | 1:A:1754:G:H5'  | 1.99                     | 0.62              |
| 1:A:2092:U:H2'  | 1:A:2093:G:H8   | 1.64                     | 0.62              |
| 1:A:2668:U:H4'  | 1:A:2669:C:C5'  | 2.21                     | 0.62              |
| 1:A:2261:G:H4'  | 1:A:2262:C:OP2  | 2.00                     | 0.62              |
| 1:A:940:G:C3'   | 1:A:941:U:H5''  | 2.20                     | 0.62              |
| 1:A:2459:C:H2'  | 1:A:2460:G:O4'  | 1.98                     | 0.62              |
| 1:A:541:C:H42   | 1:A:572:G:C1'   | 2.12                     | 0.62              |
| 1:A:863:C:N4    | 1:A:939:C:H42   | 1.97                     | 0.62              |
| 1:A:1171:A:H3'  | 1:A:1172:U:C5'  | 2.30                     | 0.62              |
| 1:A:1686:A:H5'' | 1:A:2529:G:OP1  | 2.00                     | 0.62              |
| 1:A:2491:C:C3'  | 1:A:2492:G:H5'' | 2.29                     | 0.62              |
| 1:A:48:A:H1'    | 1:A:50:G:H1'    | 1.81                     | 0.62              |
| 1:A:458:G:H4'   | 1:A:461:A:C4    | 2.34                     | 0.62              |
| 1:A:588:G:H2'   | 1:A:589:C:C5    | 2.35                     | 0.62              |
| 1:A:843:G:O6    | 1:A:2049:C:H1'  | 1.99                     | 0.62              |
| 1:A:1999:U:H2'  | 1:A:2000:U:O4'  | 1.99                     | 0.62              |
| 1:A:2032:G:H2'  | 1:A:2033:C:C6   | 2.35                     | 0.62              |
| 1:A:29:U:H2'    | 1:A:30:G:C8     | 2.34                     | 0.62              |

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| Atom-1          | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:A:2095:G:OP2  | 1:A:2103:G:H4'  | 1.99                     | 0.62              |
| 1:A:2265:A:H5'' | 1:A:2266:A:O4'  | 2.00                     | 0.62              |
| 1:A:2132:G:H2'  | 1:A:2132:G:N3   | 2.15                     | 0.62              |
| 1:A:362:C:H2'   | 1:A:363:G:H4'   | 1.82                     | 0.62              |
| 1:A:1437:A:H2'  | 1:A:1438:G:C8   | 2.35                     | 0.62              |
| 1:A:2014:A:C6   | 1:A:2477:C:H1'  | 2.35                     | 0.62              |
| 1:A:1137:A:H4'  | 1:A:1138:A:H5'' | 1.82                     | 0.62              |
| 1:A:1273:G:H2'  | 1:A:1274:C:O4'  | 1.99                     | 0.62              |
| 1:A:401:G:H2'   | 1:A:403:A:N7    | 2.15                     | 0.61              |
| 1:A:939:C:H2'   | 1:A:940:G:C8    | 2.35                     | 0.61              |
| 1:A:2095:G:H2'  | 1:A:2096:U:H5'' | 1.82                     | 0.61              |
| 1:A:2261:G:H5'' | 1:A:2262:C:O5'  | 2.00                     | 0.61              |
| 1:A:1655:C:H5'' | 1:A:2689:C:O2'  | 2.00                     | 0.61              |
| 1:A:1912:G:H5'' | 1:A:1913:G:OP1  | 2.00                     | 0.61              |
| 1:A:2560:G:H1'  | 1:A:2561:G:N7   | 2.15                     | 0.61              |
| 1:A:1879:G:H2'  | 1:A:1880:G:C8   | 2.35                     | 0.61              |
| 1:A:198:A:C5'   | 1:A:199:A:H5'   | 2.30                     | 0.61              |
| 1:A:1441:A:H4'  | 1:A:1442:C:C6   | 2.35                     | 0.61              |
| 1:A:777:A:O2'   | 1:A:778:G:OP1   | 2.18                     | 0.61              |
| 1:A:1770:U:H5'' | 1:A:1771:A:H5'' | 1.82                     | 0.61              |
| 1:A:2293:G:H2'  | 1:A:2294:U:C6   | 2.35                     | 0.61              |
| 1:A:1227:A:H4'  | 1:A:1252:C:H4'  | 1.83                     | 0.61              |
| 1:A:1679:U:C3'  | 1:A:1680:U:H5'' | 2.30                     | 0.61              |
| 1:A:1750:A:H1'  | 1:A:2690:A:C2   | 2.35                     | 0.61              |
| 1:A:1979:C:H2'  | 1:A:1980:A:H4'  | 1.81                     | 0.61              |
| 1:A:1160:C:H2'  | 1:A:1161:U:C6   | 2.35                     | 0.61              |
| 1:A:1790:G:H1'  | 1:A:1791:C:H5   | 1.64                     | 0.61              |
| 1:A:2377:U:H2'  | 1:A:2378:G:C8   | 2.36                     | 0.61              |
| 1:A:468:A:O2'   | 1:A:469:G:H4'   | 2.01                     | 0.61              |
| 1:A:1007:A:H2'  | 1:A:1008:G:H8   | 1.65                     | 0.61              |
| 1:A:1337:G:H1'  | 1:A:1632:A:N6   | 2.15                     | 0.61              |
| 1:A:1427:G:H2'  | 1:A:1428:G:H5'  | 1.82                     | 0.61              |
| 1:A:1458:A:H3'  | 1:A:1459:U:H5'  | 1.82                     | 0.61              |
| 1:A:201:G:H2'   | 1:A:202:A:H8    | 1.66                     | 0.61              |
| 1:A:1218:C:H2'  | 1:A:1219:C:C6   | 2.35                     | 0.61              |
| 1:A:1278:A:H4'  | 1:A:1279:G:O5'  | 2.01                     | 0.61              |
| 1:A:1811:A:O2'  | 1:A:1812:U:H5'' | 2.00                     | 0.61              |
| 1:A:2073:A:H61  | 1:A:2208:U:H3   | 1.49                     | 0.61              |
| 1:A:221:A:H62   | 1:A:231:G:H21   | 1.49                     | 0.60              |
| 1:A:1975:G:H1'  | 1:A:1977:C:C5   | 2.35                     | 0.60              |
| 1:A:2299:A:H5'  | 1:A:2300:G:C5   | 2.35                     | 0.60              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:2517:C:H2'    | 1:A:2518:C:C6     | 2.36                     | 0.60              |
| 1:A:2589:C:O2'    | 1:A:2590:U:OP2    | 2.18                     | 0.60              |
| 1:A:582:G:H4'     | 1:A:583:C:OP1     | 2.00                     | 0.60              |
| 1:A:625:A:C2'     | 1:A:626:A:H5'     | 2.31                     | 0.60              |
| 1:A:1020:A:C2     | 1:A:1165:G:H4'    | 2.36                     | 0.60              |
| 1:A:1191:G:H2'    | 1:A:1192:A:O4'    | 2.01                     | 0.60              |
| 1:A:1377:G:H5''   | 1:A:1800:A:H5'    | 1.84                     | 0.60              |
| 1:A:1947:G:H5''   | 1:A:1948:C:OP2    | 2.01                     | 0.60              |
| 1:A:2496:C:O2'    | 1:A:2497:A:N3     | 2.34                     | 0.60              |
| 1:A:2615:U:H2'    | 1:A:2616:U:C6     | 2.36                     | 0.60              |
| 1:A:2666:U:H2'    | 1:A:2667:C:O4'    | 2.01                     | 0.60              |
| 5:A:2881:ERY:H312 | 5:A:2881:ERY:H303 | 1.83                     | 0.60              |
| 1:A:333:A:H5'     | 1:A:351:A:C1'     | 2.31                     | 0.60              |
| 1:A:830:C:O2'     | 1:A:852:U:H5''    | 2.01                     | 0.60              |
| 1:A:890:U:H1'     | 1:A:911:A:N6      | 2.16                     | 0.60              |
| 1:A:2162:C:O2'    | 1:A:2163:U:H5'    | 2.01                     | 0.60              |
| 1:A:2564:U:H4'    | 1:A:2565:C:H5''   | 1.81                     | 0.60              |
| 1:A:317:U:C2'     | 1:A:318:G:H5''    | 2.31                     | 0.60              |
| 1:A:2075:U:HO2'   | 1:A:2076:G:H8     | 1.47                     | 0.60              |
| 1:A:2212:U:H2'    | 1:A:2213:G:C8     | 2.36                     | 0.60              |
| 1:A:2503:G:H4'    | 1:A:2744:A:OP1    | 2.01                     | 0.60              |
| 1:A:2824:C:H4'    | 1:A:2825:A:H5'    | 1.82                     | 0.60              |
| 1:A:17:G:H2'      | 1:A:18:U:C6       | 2.36                     | 0.60              |
| 1:A:887:G:O2'     | 1:A:888:G:H5'     | 2.01                     | 0.60              |
| 1:A:1357:U:O2'    | 1:A:1397:A:H2'    | 2.01                     | 0.60              |
| 1:A:1409:U:H5''   | 1:A:1410:U:OP2    | 2.01                     | 0.60              |
| 1:A:918:A:C3'     | 1:A:919:U:H5''    | 2.32                     | 0.60              |
| 1:A:109:A:H2'     | 1:A:110:U:H5''    | 1.83                     | 0.60              |
| 1:A:422:C:H2'     | 1:A:423:G:H8      | 1.65                     | 0.60              |
| 1:A:1473:U:H4'    | 1:A:1474:A:O4'    | 2.02                     | 0.60              |
| 1:A:1829:C:O2'    | 1:A:1830:C:H5'    | 2.00                     | 0.59              |
| 1:A:2264:C:H2'    | 1:A:2265:A:H5'    | 1.82                     | 0.59              |
| 1:A:2588:U:O2'    | 1:A:2589:C:OP1    | 2.19                     | 0.59              |
| 1:A:11:G:H1       | 1:A:2606:G:H5''   | 1.67                     | 0.59              |
| 1:A:37:C:H5'      | 1:A:463:C:O4'     | 2.03                     | 0.59              |
| 1:A:929:A:C2'     | 1:A:930:A:H5''    | 2.32                     | 0.59              |
| 1:A:1036:G:H1'    | 1:A:1145:C:H4'    | 1.82                     | 0.59              |
| 1:A:697:G:H2'     | 1:A:788:G:O6      | 2.02                     | 0.59              |
| 1:A:1086:C:H2'    | 1:A:1087:C:H5''   | 1.84                     | 0.59              |
| 1:A:1617:G:C2'    | 1:A:1618:U:H5'    | 2.32                     | 0.59              |
| 1:A:68:C:O2       | 1:A:72:A:H1'      | 2.03                     | 0.59              |

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| Atom-1          | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:A:579:G:H2'   | 1:A:2013:A:C6   | 2.37                     | 0.59              |
| 1:A:1746:A:O2'  | 1:A:1747:G:OP1  | 2.20                     | 0.59              |
| 1:A:173:A:H61   | 1:A:844:G:H21   | 1.48                     | 0.59              |
| 1:A:241:C:O2'   | 1:A:242:A:H5''  | 2.02                     | 0.59              |
| 1:A:612:G:O3'   | 1:A:613:A:H4'   | 2.02                     | 0.59              |
| 1:A:875:G:H2'   | 1:A:876:A:O4'   | 2.02                     | 0.59              |
| 1:A:1046:U:H2'  | 1:A:1047:G:H8   | 1.68                     | 0.59              |
| 1:A:1275:A:N6   | 1:A:2001:G:O2'  | 2.35                     | 0.59              |
| 1:A:2275:U:H1'  | 1:A:2316:G:N2   | 2.18                     | 0.59              |
| 1:A:2773:G:H2'  | 1:A:2774:U:H5'  | 1.84                     | 0.59              |
| 1:A:566:U:H2'   | 1:A:567:G:C8    | 2.38                     | 0.59              |
| 1:A:582:G:O6    | 1:A:2013:A:H3'  | 2.01                     | 0.59              |
| 1:A:1092:U:H2'  | 1:A:1093:U:C6   | 2.37                     | 0.59              |
| 1:A:2806:G:OP1  | 1:A:2809:A:H4'  | 2.03                     | 0.59              |
| 1:A:165:G:H2'   | 1:A:166:G:O4'   | 2.03                     | 0.59              |
| 1:A:2357:A:H2'  | 1:A:2358:C:H5'  | 1.83                     | 0.59              |
| 1:A:2378:G:H2'  | 1:A:2379:G:H8   | 1.67                     | 0.59              |
| 1:A:77:C:H2'    | 1:A:78:C:C6     | 2.37                     | 0.59              |
| 1:A:337:G:H2'   | 1:A:338:G:H8    | 1.66                     | 0.59              |
| 1:A:831:G:H5'   | 1:A:852:U:OP1   | 2.03                     | 0.59              |
| 1:A:1314:A:H2   | 1:A:1642:G:H21  | 1.50                     | 0.59              |
| 1:A:1919:A:H5'' | 1:A:1920:A:C5'  | 2.33                     | 0.59              |
| 1:A:2469:G:H4'  | 1:A:2470:U:OP1  | 2.02                     | 0.59              |
| 1:A:589:C:O5'   | 1:A:589:C:H6    | 1.86                     | 0.59              |
| 1:A:611:C:H2'   | 1:A:612:G:O4'   | 2.03                     | 0.59              |
| 1:A:1429:A:N6   | 1:A:1601:U:H5'  | 2.17                     | 0.59              |
| 1:A:1905:G:H2'  | 1:A:1906:U:H5'  | 1.83                     | 0.59              |
| 1:A:2009:U:H2'  | 1:A:2010:G:C8   | 2.38                     | 0.59              |
| 1:A:546:A:H2'   | 1:A:547:U:C6    | 2.38                     | 0.58              |
| 1:A:775:U:H3    | 1:A:1445:A:H5'' | 1.68                     | 0.58              |
| 1:A:983:G:OP2   | 1:A:985:G:H5''  | 2.03                     | 0.58              |
| 1:A:2210:C:H2'  | 1:A:2211:U:O4'  | 2.02                     | 0.58              |
| 1:A:2437:G:H2'  | 1:A:2469:G:H1   | 1.68                     | 0.58              |
| 1:A:29:U:H2'    | 1:A:30:G:H8     | 1.68                     | 0.58              |
| 1:A:192:G:H4'   | 1:A:193:A:O5'   | 2.03                     | 0.58              |
| 1:A:666:U:OP1   | 1:A:667:U:H4'   | 2.02                     | 0.58              |
| 1:A:1787:U:H2'  | 1:A:1788:C:C6   | 2.37                     | 0.58              |
| 1:A:2442:C:H2'  | 1:A:2443:C:C6   | 2.38                     | 0.58              |
| 1:A:717:G:H2'   | 1:A:739:G:H21   | 1.67                     | 0.58              |
| 1:A:1086:C:C3'  | 1:A:1087:C:H5'' | 2.34                     | 0.58              |
| 1:A:1474:A:O2'  | 1:A:1475:U:H5'' | 2.02                     | 0.58              |

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| Atom-1          | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-------------------|--------------------------|-------------------|
| 1:A:871:U:O2'   | 1:A:2248:A:H5''   | 2.02                     | 0.58              |
| 1:A:2275:U:H5'' | 1:A:2276:C:OP1    | 2.03                     | 0.58              |
| 1:A:216:U:H2'   | 1:A:217:U:C6      | 2.38                     | 0.58              |
| 1:A:517:A:O3'   | 1:A:518:A:H4'     | 2.04                     | 0.58              |
| 1:A:580:A:H1'   | 1:A:582:G:C8      | 2.39                     | 0.58              |
| 1:A:670:U:H2'   | 1:A:671:A:C8      | 2.38                     | 0.58              |
| 1:A:2783:U:H3'  | 1:A:2865:G:H22    | 1.68                     | 0.58              |
| 1:A:1274:C:O2'  | 1:A:1275:A:H5''   | 2.03                     | 0.58              |
| 1:A:1483:G:H1   | 1:A:1539:U:H3     | 1.49                     | 0.58              |
| 1:A:1712:G:C2'  | 1:A:1713:G:H5'    | 2.33                     | 0.58              |
| 1:A:1775:A:H5'' | 1:A:1776:A:OP1    | 2.03                     | 0.58              |
| 1:A:2555:G:H5'  | 1:A:2557:G:N7     | 2.18                     | 0.58              |
| 1:A:458:G:H5'   | 1:A:461:A:H1'     | 1.85                     | 0.58              |
| 1:A:1592:U:H2'  | 1:A:1593:C:C6     | 2.39                     | 0.58              |
| 1:A:1946:U:H5'' | 1:A:1947:G:OP2    | 2.03                     | 0.58              |
| 1:A:2085:G:O6   | 1:A:2171:U:H1'    | 2.04                     | 0.58              |
| 1:A:2138:U:H2'  | 1:A:2139:G:C8     | 2.39                     | 0.58              |
| 1:A:63:A:H2'    | 1:A:63:A:N3       | 2.19                     | 0.58              |
| 1:A:334:G:N3    | 1:A:344:G:H1'     | 2.19                     | 0.58              |
| 1:A:384:A:H1'   | 1:A:386:U:N3      | 2.19                     | 0.58              |
| 1:A:385:G:H2'   | 1:A:413:G:H1      | 1.69                     | 0.58              |
| 1:A:439:C:H2'   | 1:A:440:U:O4'     | 2.03                     | 0.58              |
| 1:A:536:A:H2'   | 1:A:536:A:N3      | 2.18                     | 0.58              |
| 1:A:645:G:H2'   | 1:A:646:C:C6      | 2.39                     | 0.58              |
| 1:A:937:C:H2'   | 1:A:938:G:O4'     | 2.02                     | 0.58              |
| 1:A:1003:C:H2'  | 1:A:1004:A:H8     | 1.68                     | 0.58              |
| 1:A:1882:G:H21  | 1:A:1885:C:N4     | 2.02                     | 0.58              |
| 1:A:2095:G:C3'  | 1:A:2096:U:H5''   | 2.33                     | 0.58              |
| 1:A:2734:U:H2'  | 1:A:2736:U:OP1    | 2.04                     | 0.58              |
| 1:A:664:C:OP2   | 1:A:666:U:H4'     | 2.03                     | 0.57              |
| 1:A:951:G:C3'   | 1:A:952:A:H5''    | 2.35                     | 0.57              |
| 1:A:1811:A:H1'  | 1:A:1813:A:C4     | 2.39                     | 0.57              |
| 1:A:2274:C:O2'  | 1:A:2275:U:H5'    | 2.04                     | 0.57              |
| 1:A:926:C:C2'   | 1:A:927:C:H5'     | 2.34                     | 0.57              |
| 1:A:1685:A:H61  | 1:A:1693:A:N6     | 2.01                     | 0.57              |
| 1:A:216:U:H5''  | 1:A:601:A:H62     | 1.69                     | 0.57              |
| 1:A:385:G:H2'   | 1:A:413:G:N1      | 2.19                     | 0.57              |
| 1:A:516:G:O2'   | 1:A:517:A:H8      | 1.88                     | 0.57              |
| 1:A:687:G:O2'   | 1:A:688:A:H5'     | 2.05                     | 0.57              |
| 1:A:1830:C:H4'  | 1:A:1831:G:C8     | 2.40                     | 0.57              |
| 1:A:2589:C:H5'  | 5:A:2881:ERY:H371 | 1.86                     | 0.57              |

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| Atom-1            | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-----------------|--------------------------|-------------------|
| 1:A:2705:A:C2     | 1:A:2706:U:H2'  | 2.39                     | 0.57              |
| 1:A:1749:G:O6     | 1:A:2674:C:H4'  | 2.05                     | 0.57              |
| 1:A:2666:U:H2'    | 1:A:2667:C:H5'' | 1.86                     | 0.57              |
| 1:A:2858:A:H3'    | 1:A:2859:U:H5'  | 1.86                     | 0.57              |
| 5:A:2881:ERY:H211 | 5:A:2881:ERY:C9 | 2.33                     | 0.57              |
| 1:A:757:U:C2'     | 1:A:758:G:H5'   | 2.34                     | 0.57              |
| 1:A:1572:C:H2'    | 1:A:1573:G:C5'  | 2.30                     | 0.57              |
| 1:A:109:A:C2'     | 1:A:110:U:H5''  | 2.34                     | 0.57              |
| 1:A:236:C:O2'     | 1:A:632:A:H4'   | 2.05                     | 0.57              |
| 1:A:390:U:H2'     | 1:A:391:C:C6    | 2.39                     | 0.57              |
| 1:A:390:U:H2'     | 1:A:391:C:H6    | 1.70                     | 0.57              |
| 1:A:413:G:O2'     | 1:A:414:A:H5''  | 2.04                     | 0.57              |
| 1:A:952:A:H2'     | 1:A:953:G:C8    | 2.40                     | 0.57              |
| 1:A:1196:G:H2'    | 1:A:1197:U:O4'  | 2.04                     | 0.57              |
| 1:A:1538:A:H2'    | 1:A:1539:U:C6   | 2.38                     | 0.57              |
| 1:A:1691:G:HO2'   | 1:A:1692:C:H5   | 1.52                     | 0.57              |
| 1:A:2076:G:H21    | 1:A:2181:A:N6   | 2.02                     | 0.57              |
| 1:A:2242:C:N4     | 1:A:2256:G:H1   | 2.01                     | 0.57              |
| 1:A:717:G:H2'     | 1:A:739:G:N2    | 2.20                     | 0.57              |
| 1:A:2326:C:H2'    | 1:A:2327:U:C6   | 2.40                     | 0.57              |
| 1:A:2792:C:H1'    | 1:A:2811:G:H21  | 1.70                     | 0.57              |
| 1:A:192:G:C1'     | 1:A:193:A:H4'   | 2.35                     | 0.57              |
| 1:A:2757:G:OP2    | 1:A:2761:A:H1'  | 2.05                     | 0.57              |
| 1:A:1626:A:H5''   | 1:A:1627:C:OP2  | 2.04                     | 0.57              |
| 1:A:1926:U:N1     | 1:A:1928:G:H5'  | 2.20                     | 0.57              |
| 1:A:2104:G:H2'    | 1:A:2105:U:C6   | 2.40                     | 0.57              |
| 1:A:841:G:H4'     | 1:A:844:G:N1    | 2.20                     | 0.57              |
| 1:A:1349:A:H2'    | 1:A:1350:G:C8   | 2.39                     | 0.57              |
| 1:A:1588:A:H2'    | 1:A:1589:G:C8   | 2.40                     | 0.57              |
| 1:A:1791:C:H1'    | 1:A:1793:A:O4'  | 2.05                     | 0.57              |
| 1:A:2672:U:H2'    | 1:A:2673:G:H8   | 1.69                     | 0.57              |
| 1:A:490:A:C4'     | 1:A:491:A:H5'   | 2.35                     | 0.56              |
| 1:A:840:U:H4'     | 1:A:841:G:C2    | 2.40                     | 0.56              |
| 1:A:1141:U:O5'    | 1:A:1141:U:H6   | 1.87                     | 0.56              |
| 1:A:2079:A:H2'    | 1:A:2080:U:C6   | 2.40                     | 0.56              |
| 1:A:2500:C:H4'    | 1:A:2544:A:O4'  | 2.05                     | 0.56              |
| 1:A:613:A:H61     | 1:A:635:C:H42   | 1.53                     | 0.56              |
| 1:A:761:G:O6      | 1:A:764:A:H4'   | 2.05                     | 0.56              |
| 1:A:1055:A:O2'    | 1:A:1056:U:H4'  | 2.05                     | 0.56              |
| 1:A:1746:A:C2'    | 1:A:1747:G:H5'  | 2.35                     | 0.56              |
| 1:A:357:A:C2'     | 1:A:358:C:H5'   | 2.30                     | 0.56              |

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| Atom-1         | Atom-2         | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|----------------|--------------------------|-------------------|
| 1:A:460:U:C4   | 1:A:592:G:H1'  | 2.40                     | 0.56              |
| 1:A:1355:A:C1' | 1:A:1410:U:H1' | 2.35                     | 0.56              |
| 1:A:2642:G:H2' | 1:A:2643:G:O4' | 2.04                     | 0.56              |
| 1:A:2675:U:H2' | 1:A:2676:G:C8  | 2.40                     | 0.56              |
| 1:A:492:G:H2'  | 1:A:517:A:N6   | 2.20                     | 0.56              |
| 1:A:547:U:H2'  | 1:A:548:G:C8   | 2.40                     | 0.56              |
| 1:A:1188:A:H2' | 1:A:1189:G:H5' | 1.86                     | 0.56              |
| 1:A:1402:G:H2' | 1:A:1403:U:O4' | 2.06                     | 0.56              |
| 1:A:2485:U:O2' | 1:A:2486:C:H5' | 2.04                     | 0.56              |
| 1:A:2794:G:H3' | 1:A:2796:A:H62 | 1.70                     | 0.56              |
| 1:A:38:G:H2'   | 1:A:39:C:C6    | 2.40                     | 0.56              |
| 1:A:340:G:C1'  | 1:A:488:A:H1'  | 2.35                     | 0.56              |
| 1:A:394:U:H2'  | 1:A:395:G:C8   | 2.40                     | 0.56              |
| 1:A:404:A:H5'  | 1:A:425:A:H4'  | 1.87                     | 0.56              |
| 1:A:652:C:H42  | 1:A:657:A:N6   | 2.03                     | 0.56              |
| 1:A:926:C:H2'  | 1:A:927:C:H5'  | 1.87                     | 0.56              |
| 1:A:2217:G:H5' | 1:A:2218:G:N7  | 2.21                     | 0.56              |
| 1:A:2521:A:H4' | 1:A:2522:G:H8  | 1.71                     | 0.56              |
| 1:A:2607:C:H1' | 1:A:2761:A:H2' | 1.87                     | 0.56              |
| 1:A:1555:A:H2' | 1:A:1556:A:C8  | 2.41                     | 0.56              |
| 1:A:59:G:H5'   | 1:A:60:A:OP2   | 2.06                     | 0.56              |
| 1:A:67:G:C6    | 1:A:72:A:C2    | 2.94                     | 0.56              |
| 1:A:573:C:H2'  | 1:A:574:C:C6   | 2.40                     | 0.56              |
| 1:A:1890:G:H2' | 1:A:1891:C:O4' | 2.06                     | 0.56              |
| 1:A:103:U:H2'  | 1:A:104:C:C6   | 2.41                     | 0.56              |
| 1:A:438:G:H2'  | 1:A:439:C:C6   | 2.40                     | 0.56              |
| 1:A:1151:U:H4' | 1:A:1153:A:O4' | 2.06                     | 0.56              |
| 1:A:1691:G:H21 | 1:A:1694:A:H61 | 1.52                     | 0.56              |
| 1:A:1994:U:H2' | 1:A:1995:G:O4' | 2.06                     | 0.56              |
| 1:A:2001:G:H2' | 1:A:2001:G:N3  | 2.21                     | 0.56              |
| 1:A:2004:U:O2' | 1:A:2005:U:OP1 | 2.23                     | 0.56              |
| 1:A:95:G:H2'   | 1:A:96:C:C6    | 2.40                     | 0.56              |
| 1:A:694:G:H2'  | 1:A:695:G:C8   | 2.41                     | 0.56              |
| 1:A:817:A:H2'  | 1:A:819:C:C4   | 2.40                     | 0.56              |
| 1:A:818:G:H5'  | 1:A:819:C:OP2  | 2.06                     | 0.56              |
| 1:A:976:C:H5'  | 1:A:2252:A:H1' | 1.88                     | 0.56              |
| 1:A:1251:G:H2' | 1:A:1252:C:O4' | 2.06                     | 0.56              |
| 1:A:1966:C:H4' | 1:A:2585:C:H4' | 1.86                     | 0.56              |
| 1:A:2087:U:H2' | 1:A:2088:U:O4' | 2.05                     | 0.56              |
| 1:A:2179:C:H2' | 1:A:2180:U:O4' | 2.06                     | 0.56              |
| 1:A:2800:C:H2' | 1:A:2801:A:O4' | 2.05                     | 0.56              |

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| Atom-1         | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-----------------|--------------------------|-------------------|
| 1:A:318:G:H21  | 1:A:341:A:H62   | 1.54                     | 0.56              |
| 1:A:595:A:H62  | 1:A:1264:C:H42  | 1.54                     | 0.56              |
| 1:A:1220:G:H2' | 1:A:1221:C:C6   | 2.40                     | 0.56              |
| 1:A:293:U:H2'  | 1:A:294:U:O4'   | 2.06                     | 0.55              |
| 1:A:1486:A:H2' | 1:A:1487:C:C6   | 2.41                     | 0.55              |
| 1:A:2012:A:H2' | 1:A:2014:A:OP1  | 2.06                     | 0.55              |
| 1:A:2273:C:H2' | 1:A:2274:C:C6   | 2.41                     | 0.55              |
| 1:A:26:G:H4'   | 1:A:1273:G:H4'  | 1.89                     | 0.55              |
| 1:A:1065:A:H2' | 1:A:1066:G:C8   | 2.41                     | 0.55              |
| 1:A:1432:G:H21 | 1:A:1596:A:H62  | 1.54                     | 0.55              |
| 1:A:1508:G:H3' | 1:A:1509:A:H5'' | 1.87                     | 0.55              |
| 1:A:1526:U:H2' | 1:A:1527:G:O4'  | 2.07                     | 0.55              |
| 1:A:19:C:H5'   | 1:A:563:U:OP1   | 2.05                     | 0.55              |
| 1:A:841:G:H22  | 1:A:2226:A:H5'  | 1.71                     | 0.55              |
| 1:A:1497:C:O2' | 1:A:1498:G:H5'  | 2.05                     | 0.55              |
| 1:A:1829:C:O2' | 1:A:1910:A:H1'  | 2.07                     | 0.55              |
| 1:A:2724:G:N7  | 1:A:2735:C:H1'  | 2.21                     | 0.55              |
| 1:A:1040:A:H2' | 1:A:1041:G:H5'  | 1.89                     | 0.55              |
| 1:A:1066:G:H3' | 1:A:1067:G:C5'  | 2.36                     | 0.55              |
| 1:A:1900:U:C2' | 1:A:1901:A:H5'  | 2.36                     | 0.55              |
| 1:A:1945:C:H4' | 1:A:1946:U:C5   | 2.42                     | 0.55              |
| 1:A:2043:A:H1' | 1:A:2481:G:C4   | 2.41                     | 0.55              |
| 1:A:2176:U:H2' | 1:A:2177:U:O4'  | 2.06                     | 0.55              |
| 1:A:2758:A:O2' | 1:A:2759:U:OP1  | 2.23                     | 0.55              |
| 1:A:316:C:H2'  | 1:A:317:U:C6    | 2.41                     | 0.55              |
| 1:A:337:G:H2'  | 1:A:338:G:C8    | 2.41                     | 0.55              |
| 1:A:1505:U:H2' | 1:A:1506:C:H5'  | 1.88                     | 0.55              |
| 1:A:1878:C:H2' | 1:A:1879:G:C8   | 2.42                     | 0.55              |
| 1:A:2063:A:H61 | 1:A:2219:U:H3   | 1.54                     | 0.55              |
| 1:A:2270:U:H2' | 1:A:2271:C:C6   | 2.41                     | 0.55              |
| 1:A:2364:C:H2' | 1:A:2365:U:C6   | 2.42                     | 0.55              |
| 1:A:2378:G:H2' | 1:A:2379:G:C8   | 2.42                     | 0.55              |
| 1:A:108:G:H2'  | 1:A:109:A:C8    | 2.41                     | 0.55              |
| 1:A:229:G:O2'  | 1:A:230:C:H5'   | 2.06                     | 0.55              |
| 1:A:690:A:H4'  | 1:A:2053:G:O2'  | 2.07                     | 0.55              |
| 1:A:2273:C:H2' | 1:A:2274:C:H6   | 1.72                     | 0.55              |
| 1:A:65:C:H2'   | 1:A:66:U:H5'    | 1.89                     | 0.55              |
| 1:A:1894:U:H2' | 1:A:1901:A:C6   | 2.40                     | 0.55              |
| 1:A:2018:G:O2' | 1:A:2019:C:OP1  | 2.25                     | 0.55              |
| 1:A:2245:A:O2' | 1:A:2246:A:OP2  | 2.23                     | 0.55              |
| 1:A:27:G:H1'   | 1:A:523:A:H62   | 1.72                     | 0.55              |

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| Atom-1         | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-----------------|--------------------------|-------------------|
| 1:A:331:U:H4'  | 1:A:333:A:N7    | 2.22                     | 0.55              |
| 1:A:558:G:H5'' | 1:A:559:C:C5    | 2.42                     | 0.55              |
| 1:A:959:C:H2'  | 1:A:960:U:C6    | 2.42                     | 0.55              |
| 1:A:1034:U:H4' | 1:A:1134:C:OP1  | 2.06                     | 0.55              |
| 1:A:1352:G:H2' | 1:A:1353:A:C8   | 2.41                     | 0.55              |
| 1:A:1497:C:C2' | 1:A:1498:G:H5'  | 2.37                     | 0.55              |
| 1:A:1536:G:H2' | 1:A:1537:U:C6   | 2.41                     | 0.55              |
| 1:A:1673:C:H42 | 1:A:1987:G:H1   | 1.54                     | 0.55              |
| 1:A:1673:C:N4  | 1:A:1987:G:H1   | 2.04                     | 0.55              |
| 1:A:1819:U:C5' | 1:A:1954:A:H5'  | 2.37                     | 0.55              |
| 1:A:45:C:H2'   | 1:A:46:C:C6     | 2.41                     | 0.55              |
| 1:A:1015:U:H2' | 1:A:1022:A:H3'  | 1.89                     | 0.55              |
| 1:A:1055:A:H62 | 1:A:1123:G:H1'  | 1.72                     | 0.55              |
| 1:A:1900:U:H1' | 1:A:1946:U:O4'  | 2.06                     | 0.55              |
| 1:A:2680:U:H3' | 1:A:2681:A:C5'  | 2.37                     | 0.55              |
| 1:A:65:C:C2'   | 1:A:66:U:H5'    | 2.37                     | 0.54              |
| 1:A:765:C:H1'  | 1:A:766:A:C8    | 2.42                     | 0.54              |
| 1:A:929:A:H2'  | 1:A:930:A:C5'   | 2.36                     | 0.54              |
| 1:A:2048:C:H2' | 1:A:2049:C:C6   | 2.42                     | 0.54              |
| 1:A:2182:A:H2' | 1:A:2183:C:O4'  | 2.07                     | 0.54              |
| 1:A:2193:C:H2' | 1:A:2194:A:O4'  | 2.07                     | 0.54              |
| 1:A:2531:U:C2  | 1:A:2533:U:H5'' | 2.42                     | 0.54              |
| 1:A:318:G:N2   | 1:A:320:A:H3'   | 2.21                     | 0.54              |
| 1:A:533:C:H2'  | 1:A:534:U:O4'   | 2.07                     | 0.54              |
| 1:A:612:G:O2'  | 1:A:613:A:H4'   | 2.07                     | 0.54              |
| 1:A:648:A:N1   | 1:A:662:G:H4'   | 2.22                     | 0.54              |
| 1:A:689:A:H8   | 1:A:2052:G:H21  | 1.55                     | 0.54              |
| 1:A:839:U:H5'  | 1:A:2407:G:H2'  | 1.89                     | 0.54              |
| 1:A:2235:G:H2' | 1:A:2236:U:O4'  | 2.06                     | 0.54              |
| 1:A:2507:U:H1' | 1:A:2515:G:H22  | 1.72                     | 0.54              |
| 1:A:2709:C:H2' | 1:A:2710:C:C6   | 2.42                     | 0.54              |
| 1:A:64:C:H2'   | 1:A:65:C:C6     | 2.43                     | 0.54              |
| 1:A:168:A:H2'  | 1:A:169:C:C6    | 2.42                     | 0.54              |
| 1:A:872:G:HO2' | 1:A:873:U:H5    | 1.55                     | 0.54              |
| 1:A:1451:C:H2' | 1:A:1452:U:C6   | 2.42                     | 0.54              |
| 1:A:2547:C:H2' | 1:A:2548:G:C8   | 2.41                     | 0.54              |
| 1:A:2620:G:H2' | 1:A:2621:G:H8   | 1.71                     | 0.54              |
| 1:A:48:A:H2    | 1:A:118:U:H3    | 1.56                     | 0.54              |
| 1:A:159:A:H2   | 1:A:192:G:H22   | 1.56                     | 0.54              |
| 1:A:540:G:N1   | 1:A:2005:U:H5'' | 2.23                     | 0.54              |
| 1:A:2092:U:H2' | 1:A:2093:G:C8   | 2.43                     | 0.54              |

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| Atom-1          | Atom-2         | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|----------------|--------------------------|-------------------|
| 1:A:2693:U:H2'  | 1:A:2695:C:OP2 | 2.07                     | 0.54              |
| 1:A:2810:A:H61  | 1:A:2853:U:H3' | 1.72                     | 0.54              |
| 1:A:218:A:O2'   | 1:A:219:G:O5'  | 2.21                     | 0.54              |
| 1:A:340:G:H1'   | 1:A:488:A:C4   | 2.42                     | 0.54              |
| 1:A:874:A:H2'   | 1:A:875:G:H5'  | 1.89                     | 0.54              |
| 1:A:2060:A:H3'  | 1:A:2060:A:P   | 2.48                     | 0.54              |
| 1:A:2318:U:H2'  | 1:A:2319:G:C8  | 2.43                     | 0.54              |
| 1:A:457:C:O2'   | 1:A:458:G:H5'  | 2.06                     | 0.54              |
| 1:A:698:A:H5''  | 1:A:699:G:OP1  | 2.08                     | 0.54              |
| 1:A:712:A:H2'   | 1:A:713:G:O4'  | 2.08                     | 0.54              |
| 1:A:1259:A:O2'  | 1:A:1260:A:H5' | 2.08                     | 0.54              |
| 1:A:1315:A:H5'' | 1:A:1316:G:OP1 | 2.07                     | 0.54              |
| 1:A:1793:A:H2'  | 1:A:1794:A:C8  | 2.43                     | 0.54              |
| 1:A:2238:G:H1'  | 1:A:2406:C:C2  | 2.43                     | 0.54              |
| 1:A:2868:G:H2'  | 1:A:2868:G:N3  | 2.23                     | 0.54              |
| 1:A:735:G:O2'   | 1:A:736:G:H5'  | 2.08                     | 0.54              |
| 1:A:790:A:H2'   | 1:A:791:G:H8   | 1.71                     | 0.54              |
| 1:A:801:A:H4'   | 1:A:802:A:H5'  | 1.89                     | 0.54              |
| 1:A:1275:A:N6   | 1:A:2001:G:H2' | 2.16                     | 0.54              |
| 1:A:176:A:H3'   | 1:A:177:U:C5   | 2.43                     | 0.54              |
| 1:A:566:U:H2'   | 1:A:567:G:H8   | 1.71                     | 0.54              |
| 1:A:1618:U:H3'  | 1:A:1619:A:H2  | 1.73                     | 0.54              |
| 1:A:1631:C:H2'  | 1:A:1633:C:OP2 | 2.08                     | 0.54              |
| 1:A:2725:C:H2'  | 1:A:2726:U:C6  | 2.43                     | 0.54              |
| 1:A:40:U:H2'    | 1:A:41:G:C8    | 2.43                     | 0.54              |
| 1:A:742:G:H4'   | 1:A:776:G:C5'  | 2.32                     | 0.54              |
| 1:A:789:G:HO2'  | 1:A:790:A:H8   | 1.54                     | 0.54              |
| 1:A:871:U:H1'   | 1:A:2248:A:C5' | 2.38                     | 0.54              |
| 1:A:1411:C:H2'  | 1:A:1412:C:C6  | 2.42                     | 0.54              |
| 1:A:1467:U:H3   | 1:A:1473:U:H3  | 1.54                     | 0.54              |
| 1:A:1724:C:H2'  | 1:A:1725:C:C6  | 2.42                     | 0.54              |
| 1:A:2571:G:H2'  | 1:A:2572:U:C6  | 2.43                     | 0.54              |
| 1:A:191:G:O2'   | 1:A:192:G:H5'  | 2.07                     | 0.54              |
| 1:A:322:A:O2'   | 1:A:343:A:O4'  | 2.24                     | 0.54              |
| 1:A:340:G:O4'   | 1:A:488:A:H1'  | 2.07                     | 0.54              |
| 1:A:715:U:H2'   | 1:A:716:U:C6   | 2.43                     | 0.54              |
| 1:A:775:U:O2'   | 1:A:776:G:H5'' | 2.08                     | 0.54              |
| 1:A:1711:C:H1'  | 1:A:1712:G:N2  | 2.23                     | 0.54              |
| 1:A:1791:C:H4'  | 1:A:1793:A:H5' | 1.90                     | 0.54              |
| 1:A:2445:C:H2'  | 1:A:2446:C:C6  | 2.43                     | 0.54              |
| 1:A:422:C:H2'   | 1:A:423:G:C8   | 2.43                     | 0.53              |

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| Atom-1            | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-----------------|--------------------------|-------------------|
| 1:A:1066:G:H2'    | 1:A:1067:G:H4'  | 1.90                     | 0.53              |
| 1:A:1079:G:H2'    | 1:A:1080:A:H5'  | 1.90                     | 0.53              |
| 1:A:1123:G:O2'    | 1:A:1124:U:H5'  | 2.08                     | 0.53              |
| 1:A:1281:A:H2'    | 1:A:1282:A:O4'  | 2.08                     | 0.53              |
| 1:A:1333:G:C6     | 1:A:1342:U:H5'  | 2.43                     | 0.53              |
| 1:A:1580:C:H2'    | 1:A:1581:C:C6   | 2.43                     | 0.53              |
| 1:A:2243:C:H2'    | 1:A:2244:C:C6   | 2.44                     | 0.53              |
| 1:A:2861:A:H2'    | 1:A:2862:G:C8   | 2.43                     | 0.53              |
| 1:A:27:G:H1'      | 1:A:523:A:N6    | 2.23                     | 0.53              |
| 1:A:170:U:O3'     | 1:A:816:U:H4'   | 2.08                     | 0.53              |
| 1:A:486:U:O2'     | 1:A:515:A:H1'   | 2.08                     | 0.53              |
| 1:A:1049:C:O2     | 1:A:1049:C:C2'  | 2.56                     | 0.53              |
| 1:A:1072:U:H5''   | 1:A:1073:G:OP1  | 2.08                     | 0.53              |
| 1:A:1466:C:N4     | 1:A:1474:A:H61  | 2.07                     | 0.53              |
| 1:A:181:A:H4'     | 1:A:182:G:OP1   | 2.07                     | 0.53              |
| 1:A:218:A:H4'     | 1:A:219:G:C4'   | 2.37                     | 0.53              |
| 1:A:787:A:H2'     | 1:A:788:G:H8    | 1.73                     | 0.53              |
| 1:A:1084:A:H4'    | 1:A:2454:C:OP1  | 2.08                     | 0.53              |
| 1:A:1329:U:H5'    | 1:A:1405:A:H1'  | 1.90                     | 0.53              |
| 1:A:2785:A:H2'    | 1:A:2786:G:O4'  | 2.08                     | 0.53              |
| 1:A:83:A:H5''     | 1:A:84:G:OP1    | 2.09                     | 0.53              |
| 1:A:674:U:H2'     | 1:A:675:C:O4'   | 2.09                     | 0.53              |
| 1:A:826:U:H2'     | 1:A:827:C:C6    | 2.43                     | 0.53              |
| 1:A:1079:G:H21    | 1:A:1107:A:H5'  | 1.74                     | 0.53              |
| 1:A:1540:C:H2'    | 1:A:1541:G:H8   | 1.73                     | 0.53              |
| 1:A:1575:C:O2'    | 1:A:1576:G:OP1  | 2.22                     | 0.53              |
| 1:A:1766:U:H2'    | 1:A:1767:G:H5'  | 1.91                     | 0.53              |
| 1:A:1953:A:H1'    | 1:A:1955:G:C1'  | 2.39                     | 0.53              |
| 1:A:1033:G:O2'    | 1:A:1034:U:H6   | 1.91                     | 0.53              |
| 1:A:1438:G:H2'    | 1:A:1439:G:C5'  | 2.31                     | 0.53              |
| 1:A:1996:A:O2'    | 1:A:1997:A:H5'  | 2.08                     | 0.53              |
| 1:A:2432:A:H4'    | 1:A:2551:A:O2'  | 2.08                     | 0.53              |
| 1:A:368:A:H2'     | 1:A:369:C:O4'   | 2.08                     | 0.53              |
| 1:A:452:G:H2'     | 1:A:453:U:O4'   | 2.08                     | 0.53              |
| 1:A:651:C:C3'     | 1:A:652:C:H5''  | 2.39                     | 0.53              |
| 1:A:799:C:O2'     | 1:A:800:U:H5'   | 2.08                     | 0.53              |
| 1:A:1070:G:H2'    | 1:A:1071:U:O4'  | 2.09                     | 0.53              |
| 1:A:1188:A:H3'    | 1:A:1189:G:H8   | 1.73                     | 0.53              |
| 1:A:1667:A:H2'    | 1:A:1668:G:C8   | 2.43                     | 0.53              |
| 1:A:2641:A:H2'    | 1:A:2642:G:O4'  | 2.08                     | 0.53              |
| 5:A:2881:ERY:H373 | 5:A:2881:ERY:C1 | 2.38                     | 0.53              |

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| Atom-1          | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:A:805:G:H4'   | 1:A:806:A:OP2   | 2.08                     | 0.53              |
| 1:A:1223:G:H5'  | 1:A:1225:G:O4'  | 2.08                     | 0.53              |
| 1:A:2080:U:C2'  | 1:A:2081:U:H5'  | 2.39                     | 0.53              |
| 1:A:2519:C:H2'  | 1:A:2520:A:O4'  | 2.08                     | 0.53              |
| 1:A:117:A:HO2'  | 1:A:118:U:H3'   | 1.74                     | 0.53              |
| 1:A:762:A:H2'   | 1:A:763:A:H8    | 1.74                     | 0.53              |
| 1:A:1475:U:O2   | 1:A:1475:U:H2'  | 2.09                     | 0.53              |
| 1:A:318:G:H22   | 1:A:321:A:C5'   | 2.22                     | 0.53              |
| 1:A:498:C:H2'   | 1:A:499:G:H8    | 1.74                     | 0.53              |
| 1:A:1997:A:H2'  | 1:A:1998:A:C8   | 2.44                     | 0.53              |
| 1:A:2178:U:H2'  | 1:A:2179:C:C6   | 2.44                     | 0.53              |
| 1:A:2443:C:H2'  | 1:A:2444:C:C6   | 2.43                     | 0.53              |
| 1:A:490:A:HO2'  | 1:A:491:A:P     | 2.31                     | 0.53              |
| 1:A:540:G:H2'   | 1:A:541:C:H4'   | 1.91                     | 0.53              |
| 1:A:601:A:H2'   | 1:A:601:A:N3    | 2.24                     | 0.53              |
| 1:A:824:U:H1'   | 1:A:1264:C:H1'  | 1.90                     | 0.53              |
| 1:A:1122:A:H4'  | 1:A:1123:G:O4'  | 2.08                     | 0.53              |
| 1:A:1788:C:H2'  | 1:A:1789:U:C6   | 2.44                     | 0.53              |
| 1:A:2491:C:H2'  | 1:A:2492:G:H5'' | 1.90                     | 0.53              |
| 1:A:2491:C:H3'  | 1:A:2492:G:H5'' | 1.89                     | 0.53              |
| 1:A:14:A:H2'    | 1:A:14:A:N3     | 2.24                     | 0.52              |
| 1:A:68:C:H2'    | 1:A:69:G:C8     | 2.44                     | 0.52              |
| 1:A:541:C:H5    | 1:A:542:A:C4    | 2.26                     | 0.52              |
| 1:A:758:G:O2'   | 1:A:761:G:H1'   | 2.09                     | 0.52              |
| 1:A:973:U:H4'   | 1:A:2475:C:O2'  | 2.09                     | 0.52              |
| 1:A:1000:G:H4'  | 1:A:1168:G:C5'  | 2.39                     | 0.52              |
| 1:A:2075:U:H4'  | 1:A:2076:G:O5'  | 2.09                     | 0.52              |
| 1:A:460:U:H5'   | 1:A:461:A:OP2   | 2.09                     | 0.52              |
| 1:A:526:C:H4'   | 1:A:1275:A:C4'  | 2.38                     | 0.52              |
| 1:A:534:U:H4'   | 1:A:564:U:H4'   | 1.91                     | 0.52              |
| 1:A:625:A:H2'   | 1:A:626:A:H5'   | 1.91                     | 0.52              |
| 1:A:1513:U:H5'' | 1:A:1514:C:OP2  | 2.09                     | 0.52              |
| 1:A:1532:A:H2'  | 1:A:1533:G:H8   | 1.73                     | 0.52              |
| 1:A:1898:U:H5'' | 1:A:1899:A:N7   | 2.24                     | 0.52              |
| 1:A:2493:U:H2'  | 1:A:2494:C:C6   | 2.43                     | 0.52              |
| 1:A:575:U:H4'   | 1:A:822:G:OP2   | 2.10                     | 0.52              |
| 1:A:1528:C:H3'  | 1:A:1529:C:C5'  | 2.33                     | 0.52              |
| 1:A:2666:U:C3'  | 1:A:2667:C:H5'' | 2.39                     | 0.52              |
| 1:A:728:G:C2'   | 1:A:729:A:H5'   | 2.40                     | 0.52              |
| 1:A:765:C:O2'   | 1:A:766:A:OP2   | 2.27                     | 0.52              |
| 1:A:1349:A:H2'  | 1:A:1350:G:H8   | 1.72                     | 0.52              |

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| Atom-1            | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 1:A:1711:C:H1'    | 1:A:1712:G:C2    | 2.45                     | 0.52              |
| 1:A:2059:U:O2'    | 1:A:2060:A:OP1   | 2.26                     | 0.52              |
| 1:A:2075:U:O2'    | 1:A:2076:G:H8    | 1.91                     | 0.52              |
| 1:A:2229:G:H2'    | 1:A:2476:A:OP2   | 2.10                     | 0.52              |
| 1:A:2608:A:O2'    | 1:A:2609:G:O5'   | 2.23                     | 0.52              |
| 1:A:604:U:H2'     | 1:A:605:G:C8     | 2.45                     | 0.52              |
| 1:A:995:A:H5''    | 1:A:996:C:H5     | 1.75                     | 0.52              |
| 1:A:2677:U:H2'    | 1:A:2678:C:C6    | 2.45                     | 0.52              |
| 5:A:2881:ERY:H211 | 5:A:2881:ERY:C11 | 2.40                     | 0.52              |
| 1:A:175:C:H2'     | 1:A:177:U:O4     | 2.10                     | 0.52              |
| 1:A:1686:A:C2     | 1:A:1977:C:H1'   | 2.45                     | 0.52              |
| 1:A:2275:U:H1'    | 1:A:2316:G:H22   | 1.74                     | 0.52              |
| 1:A:2422:C:H2'    | 1:A:2423:G:C8    | 2.42                     | 0.52              |
| 1:A:2698:G:H2'    | 1:A:2699:G:O4'   | 2.10                     | 0.52              |
| 1:A:2828:C:H2'    | 1:A:2829:A:C8    | 2.44                     | 0.52              |
| 1:A:468:A:H1'     | 1:A:470:U:N1     | 2.25                     | 0.52              |
| 1:A:575:U:H2'     | 1:A:576:A:C8     | 2.45                     | 0.52              |
| 1:A:1953:A:H1'    | 1:A:1955:G:H1'   | 1.92                     | 0.52              |
| 1:A:2658:A:O2'    | 1:A:2659:C:H5'   | 2.09                     | 0.52              |
| 1:A:2722:C:H2'    | 1:A:2723:C:C6    | 2.45                     | 0.52              |
| 1:A:592:G:H2'     | 1:A:593:C:C6     | 2.44                     | 0.52              |
| 1:A:824:U:H1'     | 1:A:1264:C:C1'   | 2.39                     | 0.52              |
| 1:A:860:U:H2'     | 1:A:861:G:H5'    | 1.92                     | 0.52              |
| 1:A:972:C:O2'     | 1:A:973:U:OP1    | 2.23                     | 0.52              |
| 1:A:1345:G:N2     | 1:A:1625:A:H3'   | 2.25                     | 0.52              |
| 1:A:1618:U:O2     | 1:A:1618:U:H2'   | 2.10                     | 0.52              |
| 1:A:2226:A:H2'    | 1:A:2227:C:C6    | 2.44                     | 0.52              |
| 1:A:2240:C:H2'    | 1:A:2241:U:C5'   | 2.38                     | 0.52              |
| 1:A:2672:U:H2'    | 1:A:2673:G:C8    | 2.45                     | 0.52              |
| 1:A:2799:C:H2'    | 1:A:2800:C:O4'   | 2.10                     | 0.52              |
| 1:A:32:C:H2'      | 1:A:33:C:C6      | 2.45                     | 0.52              |
| 1:A:83:A:H61      | 1:A:100:G:H1'    | 1.73                     | 0.52              |
| 1:A:763:A:C2      | 1:A:766:A:H1'    | 2.45                     | 0.52              |
| 1:A:1200:G:H2'    | 1:A:1201:G:O4'   | 2.09                     | 0.52              |
| 1:A:1327:C:P      | 1:A:1345:G:H5'   | 2.50                     | 0.52              |
| 1:A:2082:C:C3'    | 1:A:2083:G:H5''  | 2.28                     | 0.52              |
| 1:A:2185:U:H2'    | 1:A:2186:G:C8    | 2.45                     | 0.52              |
| 1:A:2236:U:H2'    | 1:A:2237:C:O4'   | 2.09                     | 0.52              |
| 1:A:2416:U:H2'    | 1:A:2417:U:C6    | 2.45                     | 0.52              |
| 1:A:2561:G:H2'    | 1:A:2561:G:N3    | 2.25                     | 0.52              |
| 1:A:2697:G:H2'    | 1:A:2698:G:C8    | 2.45                     | 0.52              |

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| Atom-1          | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:A:742:G:H2'   | 1:A:742:G:N3    | 2.25                     | 0.52              |
| 1:A:1440:G:H1'  | 1:A:1588:A:N6   | 2.25                     | 0.52              |
| 1:A:1466:C:C2'  | 1:A:1467:U:H5'  | 2.40                     | 0.52              |
| 1:A:1672:A:C2   | 1:A:2032:G:H5'' | 2.44                     | 0.52              |
| 1:A:1195:U:H2'  | 1:A:1196:G:H8   | 1.75                     | 0.51              |
| 1:A:2812:A:H2'  | 1:A:2813:G:H8   | 1.75                     | 0.51              |
| 1:A:113:C:O2'   | 1:A:114:C:H5'   | 2.10                     | 0.51              |
| 1:A:340:G:H1'   | 1:A:488:A:H1'   | 1.93                     | 0.51              |
| 1:A:490:A:H4'   | 1:A:491:A:C5'   | 2.39                     | 0.51              |
| 1:A:868:U:H2'   | 1:A:869:C:C6    | 2.45                     | 0.51              |
| 1:A:1199:U:H2'  | 1:A:1200:G:C8   | 2.45                     | 0.51              |
| 1:A:1364:C:H2'  | 1:A:1365:U:C6   | 2.45                     | 0.51              |
| 1:A:1522:C:H2'  | 1:A:1523:A:O4'  | 2.09                     | 0.51              |
| 1:A:1930:C:H42  | 1:A:1942:G:H1   | 1.57                     | 0.51              |
| 1:A:2045:A:H4'  | 1:A:2421:C:OP2  | 2.09                     | 0.51              |
| 1:A:665:A:H3'   | 1:A:666:U:H5''  | 1.93                     | 0.51              |
| 1:A:701:U:H1'   | 1:A:799:C:O2'   | 2.10                     | 0.51              |
| 1:A:1790:G:O2'  | 1:A:1791:C:H6   | 1.94                     | 0.51              |
| 1:A:2337:A:H2'  | 1:A:2338:C:O4'  | 2.09                     | 0.51              |
| 1:A:2810:A:N6   | 1:A:2853:U:H3'  | 2.25                     | 0.51              |
| 1:A:59:G:H1'    | 1:A:73:A:C2     | 2.45                     | 0.51              |
| 1:A:580:A:H1'   | 1:A:582:G:N7    | 2.25                     | 0.51              |
| 1:A:1675:C:H2'  | 1:A:1676:U:C6   | 2.45                     | 0.51              |
| 1:A:2073:A:N6   | 1:A:2208:U:H3   | 2.08                     | 0.51              |
| 1:A:139:A:H2'   | 1:A:140:G:H8    | 1.76                     | 0.51              |
| 1:A:193:A:H2'   | 1:A:194:G:O4'   | 2.11                     | 0.51              |
| 1:A:490:A:O2'   | 1:A:491:A:O5'   | 2.20                     | 0.51              |
| 1:A:752:G:C4'   | 1:A:753:U:OP1   | 2.57                     | 0.51              |
| 1:A:872:G:H2'   | 1:A:928:G:C6    | 2.46                     | 0.51              |
| 1:A:876:A:H2'   | 1:A:877:G:C8    | 2.46                     | 0.51              |
| 1:A:1007:A:H2'  | 1:A:1008:G:C8   | 2.45                     | 0.51              |
| 1:A:1139:A:O2'  | 1:A:1140:A:O4'  | 2.29                     | 0.51              |
| 1:A:1715:A:O2'  | 1:A:1716:G:H5'' | 2.11                     | 0.51              |
| 1:A:2095:G:C2'  | 1:A:2096:U:H5'' | 2.40                     | 0.51              |
| 1:A:2406:C:H5'' | 1:A:2408:G:OP1  | 2.10                     | 0.51              |
| 1:A:2544:A:H2'  | 1:A:2545:A:O4'  | 2.10                     | 0.51              |
| 1:A:2695:C:H2'  | 1:A:2696:A:H8   | 1.76                     | 0.51              |
| 1:A:218:A:H4'   | 1:A:219:G:C5'   | 2.40                     | 0.51              |
| 1:A:226:C:H4'   | 1:A:227:G:O5'   | 2.10                     | 0.51              |
| 1:A:886:A:H2'   | 1:A:887:G:O4'   | 2.10                     | 0.51              |
| 1:A:1266:G:O2'  | 1:A:1267:A:OP1  | 2.24                     | 0.51              |

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| Atom-1            | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 1:A:1276:U:O2'    | 1:A:1277:G:H5'   | 2.11                     | 0.51              |
| 1:A:1427:G:C2'    | 1:A:1428:G:H5'   | 2.40                     | 0.51              |
| 1:A:2245:A:H1'    | 1:A:2251:U:O4    | 2.09                     | 0.51              |
| 1:A:195:A:C2      | 1:A:212:U:H4'    | 2.46                     | 0.51              |
| 1:A:688:A:H1'     | 1:A:2422:C:O2'   | 2.10                     | 0.51              |
| 1:A:784:U:H2'     | 1:A:785:U:C6     | 2.46                     | 0.51              |
| 1:A:788:G:H5'     | 1:A:790:A:H1'    | 1.93                     | 0.51              |
| 1:A:818:G:O6      | 1:A:2051:U:H5''  | 2.11                     | 0.51              |
| 1:A:1482:U:H2'    | 1:A:1483:G:H8    | 1.75                     | 0.51              |
| 1:A:2185:U:H2'    | 1:A:2186:G:H8    | 1.76                     | 0.51              |
| 1:A:754:G:H2'     | 1:A:755:C:C6     | 2.46                     | 0.51              |
| 1:A:863:C:O2'     | 1:A:864:C:H5'    | 2.11                     | 0.51              |
| 1:A:1142:G:N7     | 1:A:2008:C:H4'   | 2.26                     | 0.51              |
| 1:A:1416:A:O2'    | 1:A:1417:C:H5'   | 2.11                     | 0.51              |
| 1:A:1430:G:H4'    | 1:A:1603:A:H2    | 1.75                     | 0.51              |
| 1:A:1594:U:H2'    | 1:A:1595:A:H8    | 1.75                     | 0.51              |
| 1:A:2094:C:N4     | 1:A:2162:C:H42   | 2.09                     | 0.51              |
| 1:A:2197:U:H2'    | 1:A:2198:U:C6    | 2.46                     | 0.51              |
| 1:A:468:A:O2'     | 1:A:469:G:C4'    | 2.58                     | 0.51              |
| 1:A:599:A:H2'     | 1:A:600:G:C8     | 2.46                     | 0.51              |
| 1:A:1086:C:C2'    | 1:A:1087:C:H5''  | 2.41                     | 0.51              |
| 1:A:1197:U:H2'    | 1:A:1198:C:O4'   | 2.11                     | 0.51              |
| 1:A:1204:G:H2'    | 1:A:1205:G:C8    | 2.45                     | 0.51              |
| 1:A:1275:A:N6     | 1:A:2001:G:C2'   | 2.73                     | 0.51              |
| 1:A:1383:C:H2'    | 1:A:1384:G:O4'   | 2.11                     | 0.51              |
| 1:A:1549:C:H2'    | 1:A:1550:C:C6    | 2.46                     | 0.51              |
| 1:A:1623:C:O2'    | 1:A:1624:A:H5'   | 2.11                     | 0.51              |
| 1:A:1802:A:H2'    | 1:A:1803:G:O4'   | 2.11                     | 0.51              |
| 1:A:2299:A:N3     | 1:A:2299:A:H2'   | 2.26                     | 0.51              |
| 1:A:216:U:H5''    | 1:A:601:A:N6     | 2.26                     | 0.51              |
| 1:A:311:A:H1'     | 1:A:330:C:H1'    | 1.92                     | 0.51              |
| 1:A:1401:G:O2'    | 1:A:1541:G:H5'   | 2.11                     | 0.51              |
| 1:A:1521:U:H2'    | 1:A:1522:C:C5    | 2.46                     | 0.51              |
| 1:A:2067:U:H2'    | 1:A:2068:C:C6    | 2.46                     | 0.51              |
| 1:A:2521:A:H4'    | 1:A:2522:G:C8    | 2.45                     | 0.51              |
| 1:A:2861:A:H2'    | 1:A:2862:G:H8    | 1.75                     | 0.51              |
| 5:A:2881:ERY:H211 | 5:A:2881:ERY:H11 | 1.92                     | 0.51              |
| 1:A:158:A:C2      | 1:A:447:U:H1'    | 2.46                     | 0.50              |
| 1:A:800:U:H2'     | 1:A:804:C:H42    | 1.76                     | 0.50              |
| 1:A:1712:G:H2'    | 1:A:1713:G:H5'   | 1.92                     | 0.50              |
| 1:A:1715:A:H1'    | 1:A:1717:A:OP2   | 2.10                     | 0.50              |

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| Atom-1         | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-----------------|--------------------------|-------------------|
| 1:A:1807:A:O2' | 1:A:1808:C:O5'  | 2.27                     | 0.50              |
| 1:A:1918:G:H3' | 1:A:1945:C:H42  | 1.76                     | 0.50              |
| 1:A:2449:G:O2' | 1:A:2450:A:H5'  | 2.11                     | 0.50              |
| 1:A:2717:G:H2' | 1:A:2718:A:C8   | 2.47                     | 0.50              |
| 1:A:757:U:O2'  | 1:A:758:G:H5'   | 2.12                     | 0.50              |
| 1:A:1020:A:H2  | 1:A:1165:G:H4'  | 1.76                     | 0.50              |
| 1:A:1168:G:H2' | 1:A:1169:C:C6   | 2.46                     | 0.50              |
| 1:A:1482:U:H2' | 1:A:1483:G:C8   | 2.46                     | 0.50              |
| 1:A:1710:U:H3  | 1:A:1821:A:H61  | 1.58                     | 0.50              |
| 1:A:1729:C:H2' | 1:A:1730:G:C8   | 2.45                     | 0.50              |
| 1:A:1834:G:H22 | 1:A:1881:U:H3   | 1.58                     | 0.50              |
| 1:A:1999:U:H2' | 1:A:2000:U:C6   | 2.40                     | 0.50              |
| 1:A:2207:G:H2' | 1:A:2208:U:O4'  | 2.10                     | 0.50              |
| 1:A:2225:G:C2  | 1:A:2405:A:H1'  | 2.45                     | 0.50              |
| 1:A:2613:A:H2' | 1:A:2614:A:H8   | 1.76                     | 0.50              |
| 1:A:514:G:O2'  | 1:A:515:A:P     | 2.68                     | 0.50              |
| 1:A:2048:C:H1' | 1:A:2428:U:O2   | 2.11                     | 0.50              |
| 1:A:591:G:H2'  | 1:A:592:G:C8    | 2.47                     | 0.50              |
| 1:A:604:U:H2'  | 1:A:605:G:H8    | 1.76                     | 0.50              |
| 1:A:796:A:H2'  | 1:A:797:A:H4'   | 1.93                     | 0.50              |
| 1:A:842:A:O2'  | 1:A:843:G:P     | 2.69                     | 0.50              |
| 1:A:1174:G:H2' | 1:A:1175:A:C8   | 2.47                     | 0.50              |
| 1:A:1411:C:H2' | 1:A:1412:C:H6   | 1.76                     | 0.50              |
| 1:A:1681:A:C2  | 1:A:2706:U:H1'  | 2.45                     | 0.50              |
| 1:A:2229:G:N7  | 1:A:2475:C:H5'' | 2.26                     | 0.50              |
| 1:A:2492:G:H2' | 1:A:2493:U:O4'  | 2.12                     | 0.50              |
| 1:A:68:C:C2    | 1:A:72:A:N3     | 2.79                     | 0.50              |
| 1:A:790:A:H2'  | 1:A:791:G:C8    | 2.47                     | 0.50              |
| 1:A:872:G:H5'  | 1:A:873:U:OP1   | 2.12                     | 0.50              |
| 1:A:1149:G:H2' | 1:A:1150:C:H5'  | 1.93                     | 0.50              |
| 1:A:1488:G:N3  | 1:A:1488:G:H2'  | 2.26                     | 0.50              |
| 1:A:1674:C:H2' | 1:A:1675:C:C6   | 2.47                     | 0.50              |
| 1:A:681:A:H2'  | 1:A:683:A:N7    | 2.26                     | 0.50              |
| 1:A:871:U:H2'  | 1:A:2247:A:H2'  | 1.93                     | 0.50              |
| 1:A:1916:G:H2' | 1:A:1917:C:C6   | 2.46                     | 0.50              |
| 1:A:1938:U:H3' | 1:A:2530:C:O2'  | 2.11                     | 0.50              |
| 1:A:2501:U:O2' | 1:A:2626:U:H5'' | 2.12                     | 0.50              |
| 1:A:2854:G:H5' | 1:A:2855:C:OP1  | 2.11                     | 0.50              |
| 1:A:338:G:C2'  | 1:A:339:U:H5'   | 2.41                     | 0.50              |
| 1:A:1467:U:O2  | 1:A:1467:U:C2'  | 2.60                     | 0.50              |
| 1:A:2015:G:H22 | 1:A:2551:A:H1'  | 1.77                     | 0.50              |

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| Atom-1         | Atom-2         | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|----------------|--------------------------|-------------------|
| 1:A:2262:C:H2' | 1:A:2263:C:O4' | 2.12                     | 0.50              |
| 1:A:2294:U:H2' | 1:A:2295:C:C6  | 2.47                     | 0.50              |
| 1:A:2636:A:H62 | 1:A:2643:G:H21 | 1.60                     | 0.50              |
| 1:A:2695:C:H2' | 1:A:2696:A:C8  | 2.47                     | 0.50              |
| 1:A:230:C:H2'  | 1:A:231:G:O4'  | 2.12                     | 0.50              |
| 1:A:690:A:O2'  | 1:A:691:C:H5'  | 2.12                     | 0.50              |
| 1:A:824:U:C1'  | 1:A:1264:C:H1' | 2.42                     | 0.50              |
| 1:A:953:G:H2'  | 1:A:954:U:O4'  | 2.12                     | 0.50              |
| 1:A:1072:U:H4' | 1:A:1073:G:H8  | 1.76                     | 0.50              |
| 1:A:2105:U:H2' | 1:A:2106:G:C8  | 2.47                     | 0.50              |
| 1:A:2264:C:C2' | 1:A:2265:A:H5' | 2.40                     | 0.50              |
| 1:A:2274:C:H2' | 1:A:2275:U:O4' | 2.11                     | 0.50              |
| 1:A:2307:A:H2' | 1:A:2308:A:C8  | 2.47                     | 0.50              |
| 1:A:2322:U:O2' | 1:A:2323:U:H5' | 2.11                     | 0.50              |
| 1:A:2662:C:N4  | 1:A:2707:G:H21 | 2.09                     | 0.50              |
| 1:A:2768:C:O2' | 1:A:2783:U:H1' | 2.12                     | 0.50              |
| 1:A:169:C:H2'  | 1:A:170:U:H5'  | 1.93                     | 0.50              |
| 1:A:638:A:H1'  | 1:A:648:A:C2   | 2.47                     | 0.50              |
| 1:A:930:A:H5'  | 1:A:931:G:N7   | 2.27                     | 0.50              |
| 1:A:1315:A:H5' | 1:A:1624:A:OP1 | 2.12                     | 0.50              |
| 1:A:1633:C:O5' | 1:A:1633:C:H6  | 1.94                     | 0.50              |
| 1:A:1668:G:H1  | 1:A:1989:C:H42 | 1.59                     | 0.50              |
| 1:A:2409:A:O2' | 1:A:2410:U:H5' | 2.12                     | 0.50              |
| 1:A:2686:C:H2' | 1:A:2687:G:C8  | 2.47                     | 0.50              |
| 1:A:195:A:H2   | 1:A:212:U:H4'  | 1.77                     | 0.49              |
| 1:A:226:C:O2'  | 1:A:227:G:OP2  | 2.24                     | 0.49              |
| 1:A:429:C:H2'  | 1:A:430:C:O4'  | 2.12                     | 0.49              |
| 1:A:582:G:H1   | 1:A:2014:A:P   | 2.35                     | 0.49              |
| 1:A:2299:A:H5' | 1:A:2300:G:C4  | 2.47                     | 0.49              |
| 1:A:509:U:H3'  | 1:A:510:G:H8   | 1.76                     | 0.49              |
| 1:A:698:A:H4'  | 1:A:699:G:H5'  | 1.95                     | 0.49              |
| 1:A:973:U:H2'  | 1:A:974:U:C6   | 2.48                     | 0.49              |
| 1:A:1003:C:H2' | 1:A:1004:A:C8  | 2.47                     | 0.49              |
| 1:A:1272:G:H2' | 1:A:1273:G:H8  | 1.76                     | 0.49              |
| 1:A:2357:A:C2' | 1:A:2358:C:H5' | 2.42                     | 0.49              |
| 1:A:2854:G:H4' | 1:A:2855:C:OP1 | 2.12                     | 0.49              |
| 1:A:66:U:H2'   | 1:A:67:G:C8    | 2.46                     | 0.49              |
| 1:A:184:A:H2'  | 1:A:185:C:O4'  | 2.13                     | 0.49              |
| 1:A:668:A:O2'  | 1:A:669:G:P    | 2.70                     | 0.49              |
| 1:A:859:U:O2'  | 1:A:860:U:C6   | 2.62                     | 0.49              |
| 1:A:1410:U:H2' | 1:A:1410:U:O2  | 2.12                     | 0.49              |

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| Atom-1         | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|------------------|--------------------------|-------------------|
| 1:A:1558:C:H2' | 1:A:1559:G:O4'   | 2.11                     | 0.49              |
| 1:A:1819:U:H5' | 1:A:1954:A:H5'   | 1.93                     | 0.49              |
| 1:A:1939:U:H1' | 1:A:2531:U:OP1   | 2.12                     | 0.49              |
| 1:A:2520:A:H4' | 1:A:2744:A:C2    | 2.48                     | 0.49              |
| 1:A:509:U:H2'  | 1:A:510:G:H5'    | 1.94                     | 0.49              |
| 1:A:1678:G:H2' | 1:A:1679:U:C6    | 2.47                     | 0.49              |
| 1:A:2006:G:O5' | 1:A:2596:C:H4'   | 2.12                     | 0.49              |
| 1:A:2500:C:H4' | 1:A:2544:A:C4'   | 2.42                     | 0.49              |
| 1:A:2653:A:H2' | 1:A:2654:A:C8    | 2.47                     | 0.49              |
| 1:A:581:A:C2   | 1:A:582:G:H1'    | 2.48                     | 0.49              |
| 1:A:631:G:H4'  | 1:A:632:A:H8     | 1.78                     | 0.49              |
| 1:A:646:C:H2'  | 1:A:647:G:O4'    | 2.12                     | 0.49              |
| 1:A:1096:A:H2' | 1:A:1097:A:C8    | 2.47                     | 0.49              |
| 1:A:1118:G:H2' | 1:A:1119:U:C5    | 2.47                     | 0.49              |
| 1:A:1166:A:H2' | 1:A:1167:A:H5''  | 1.95                     | 0.49              |
| 1:A:1975:G:H4' | 1:A:1976:U:C5    | 2.47                     | 0.49              |
| 1:A:2589:C:H5' | 5:A:2881:ERY:C37 | 2.42                     | 0.49              |
| 1:A:2633:A:H4' | 1:A:2634:G:H4'   | 1.94                     | 0.49              |
| 1:A:521:U:H2'  | 1:A:522:G:H5'    | 1.94                     | 0.49              |
| 1:A:743:A:OP1  | 1:A:1766:U:H1'   | 2.12                     | 0.49              |
| 1:A:1258:G:H2' | 1:A:1259:A:C8    | 2.48                     | 0.49              |
| 1:A:1661:C:O2' | 1:A:1662:G:H5'   | 2.12                     | 0.49              |
| 1:A:1742:G:H2' | 1:A:1743:C:C6    | 2.46                     | 0.49              |
| 1:A:1834:G:H1  | 1:A:1881:U:H3    | 1.59                     | 0.49              |
| 1:A:1835:C:H2' | 1:A:1836:C:C6    | 2.48                     | 0.49              |
| 1:A:1926:U:H1' | 1:A:1928:G:H5'   | 1.95                     | 0.49              |
| 1:A:2456:U:H1' | 1:A:2459:C:N4    | 2.28                     | 0.49              |
| 1:A:2469:G:C4' | 1:A:2470:U:OP1   | 2.61                     | 0.49              |
| 1:A:405:C:H2'  | 1:A:406:G:H8     | 1.78                     | 0.49              |
| 1:A:638:A:H1'  | 1:A:648:A:N1     | 2.28                     | 0.49              |
| 1:A:649:G:O2'  | 1:A:650:U:H5'    | 2.13                     | 0.49              |
| 1:A:677:G:O2'  | 1:A:678:G:H5'    | 2.13                     | 0.49              |
| 1:A:805:G:H2'  | 1:A:2419:C:C2    | 2.47                     | 0.49              |
| 1:A:1189:G:N2  | 1:A:1190:C:H1'   | 2.28                     | 0.49              |
| 1:A:1456:C:H4' | 1:A:1645:U:OP1   | 2.13                     | 0.49              |
| 1:A:2625:U:H2' | 1:A:2626:U:O4'   | 2.13                     | 0.49              |
| 1:A:2786:G:H2' | 1:A:2787:A:C8    | 2.47                     | 0.49              |
| 1:A:2824:C:H1' | 1:A:2843:A:C4    | 2.48                     | 0.49              |
| 1:A:1474:A:H3' | 1:A:1474:A:N3    | 2.27                     | 0.49              |
| 1:A:2454:C:H2' | 1:A:2455:A:H4'   | 1.94                     | 0.49              |
| 1:A:2812:A:H2' | 1:A:2813:G:C8    | 2.47                     | 0.49              |

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| Atom-1         | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-----------------|--------------------------|-------------------|
| 1:A:192:G:C4'  | 1:A:193:A:H4'   | 2.43                     | 0.49              |
| 1:A:305:A:C2'  | 1:A:306:G:H5'   | 2.42                     | 0.49              |
| 1:A:462:G:H2'  | 1:A:463:C:H5'   | 1.95                     | 0.49              |
| 1:A:693:A:H2'  | 1:A:694:G:C8    | 2.48                     | 0.49              |
| 1:A:736:G:H2'  | 1:A:737:C:O4'   | 2.13                     | 0.49              |
| 1:A:1124:U:H2' | 1:A:1125:G:C8   | 2.48                     | 0.49              |
| 1:A:1244:U:H2' | 1:A:1245:G:C8   | 2.48                     | 0.49              |
| 1:A:1466:C:O2' | 1:A:1467:U:H5'  | 2.12                     | 0.49              |
| 1:A:2092:U:C5' | 1:A:2133:G:H1'  | 2.41                     | 0.49              |
| 1:A:2470:U:O4' | 1:A:2549:G:H5'' | 2.13                     | 0.49              |
| 1:A:2697:G:H2' | 1:A:2698:G:H8   | 1.78                     | 0.49              |
| 1:A:414:A:H2'  | 1:A:415:A:O4'   | 2.12                     | 0.49              |
| 1:A:618:A:H2'  | 1:A:619:A:H5'   | 1.95                     | 0.49              |
| 1:A:734:G:H2'  | 1:A:735:G:C8    | 2.47                     | 0.49              |
| 1:A:1109:A:H2' | 1:A:1110:G:O4'  | 2.13                     | 0.49              |
| 1:A:1326:U:H2' | 1:A:1626:A:C2   | 2.47                     | 0.49              |
| 1:A:1326:U:C2  | 1:A:1626:A:H2   | 2.31                     | 0.49              |
| 1:A:1854:G:H2' | 1:A:1855:G:H8   | 1.78                     | 0.49              |
| 1:A:1970:G:H2' | 1:A:1971:C:C6   | 2.48                     | 0.49              |
| 1:A:418:C:H3'  | 1:A:419:G:H5'   | 1.95                     | 0.48              |
| 1:A:616:U:C2'  | 1:A:617:U:H5''  | 2.41                     | 0.48              |
| 1:A:1086:C:H3' | 1:A:1087:C:H5'' | 1.95                     | 0.48              |
| 1:A:1348:C:H2' | 1:A:1349:A:C8   | 2.48                     | 0.48              |
| 1:A:1683:G:H1  | 1:A:1977:C:H42  | 1.60                     | 0.48              |
| 1:A:1790:G:H1' | 1:A:1791:C:C6   | 2.47                     | 0.48              |
| 1:A:2227:C:C2' | 1:A:2228:U:H5'  | 2.43                     | 0.48              |
| 1:A:40:U:H2'   | 1:A:41:G:H8     | 1.77                     | 0.48              |
| 1:A:327:C:O2'  | 1:A:328:A:H5'   | 2.13                     | 0.48              |
| 1:A:338:G:O2'  | 1:A:339:U:H5'   | 2.13                     | 0.48              |
| 1:A:597:U:H2'  | 1:A:598:U:C6    | 2.48                     | 0.48              |
| 1:A:957:G:H22  | 1:A:983:G:H1'   | 1.75                     | 0.48              |
| 1:A:1087:C:H3' | 1:A:1088:A:C8   | 2.47                     | 0.48              |
| 1:A:1368:G:H2' | 1:A:1369:G:H8   | 1.78                     | 0.48              |
| 1:A:2498:U:O5' | 1:A:2498:U:H6   | 1.96                     | 0.48              |
| 1:A:2504:G:H2' | 1:A:2505:G:H8   | 1.78                     | 0.48              |
| 1:A:2523:G:H1' | 1:A:2625:U:C5'  | 2.41                     | 0.48              |
| 1:A:2688:G:H2' | 1:A:2689:C:C6   | 2.47                     | 0.48              |
| 1:A:221:A:H2'  | 1:A:222:G:O4'   | 2.14                     | 0.48              |
| 1:A:692:C:H2'  | 1:A:693:A:C8    | 2.48                     | 0.48              |
| 1:A:865:A:H2'  | 1:A:866:U:C6    | 2.48                     | 0.48              |
| 1:A:890:U:H1'  | 1:A:911:A:H61   | 1.77                     | 0.48              |

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| Atom-1            | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 1:A:1356:G:H1'    | 1:A:1613:G:N3    | 2.28                     | 0.48              |
| 1:A:1905:G:C2'    | 1:A:1906:U:H5'   | 2.43                     | 0.48              |
| 1:A:2025:A:H2'    | 1:A:2026:C:H5''  | 1.96                     | 0.48              |
| 1:A:2095:G:H3'    | 1:A:2096:U:H5''  | 1.94                     | 0.48              |
| 1:A:2505:G:H2'    | 1:A:2506:C:C6    | 2.48                     | 0.48              |
| 1:A:2620:G:H2'    | 1:A:2621:G:C8    | 2.48                     | 0.48              |
| 1:A:215:G:H2'     | 1:A:216:U:O4'    | 2.13                     | 0.48              |
| 1:A:455:A:O4'     | 1:A:1215:A:H4'   | 2.14                     | 0.48              |
| 1:A:520:C:O2'     | 1:A:1249:G:H5'   | 2.13                     | 0.48              |
| 1:A:577:U:H4'     | 1:A:956:A:N6     | 2.28                     | 0.48              |
| 1:A:888:G:H2'     | 1:A:889:C:O4'    | 2.12                     | 0.48              |
| 1:A:1019:U:O2'    | 1:A:1020:A:O5'   | 2.31                     | 0.48              |
| 1:A:1687:C:O2'    | 1:A:1977:C:H4'   | 2.12                     | 0.48              |
| 1:A:2318:U:H2'    | 1:A:2319:G:H8    | 1.79                     | 0.48              |
| 1:A:177:U:H2'     | 1:A:178:C:C6     | 2.48                     | 0.48              |
| 1:A:514:G:HO2'    | 1:A:515:A:P      | 2.37                     | 0.48              |
| 1:A:541:C:H42     | 1:A:572:G:H1'    | 1.78                     | 0.48              |
| 1:A:800:U:H2'     | 1:A:804:C:N4     | 2.27                     | 0.48              |
| 1:A:815:A:OP2     | 1:A:815:A:C8     | 2.61                     | 0.48              |
| 1:A:2015:G:N7     | 1:A:2038:C:C5    | 2.81                     | 0.48              |
| 1:A:2122:G:H2'    | 1:A:2123:G:C8    | 2.48                     | 0.48              |
| 1:A:2487:G:O3'    | 1:A:2534:U:H5'   | 2.14                     | 0.48              |
| 1:A:2570:C:H2'    | 1:A:2571:G:C8    | 2.48                     | 0.48              |
| 1:A:2712:G:H5'    | 1:A:2713:A:C8    | 2.49                     | 0.48              |
| 5:A:2881:ERY:H303 | 5:A:2881:ERY:C31 | 2.42                     | 0.48              |
| 1:A:636:G:H2'     | 1:A:637:G:H5'    | 1.95                     | 0.48              |
| 1:A:831:G:H2'     | 1:A:832:A:H5''   | 1.96                     | 0.48              |
| 1:A:1098:G:O2'    | 1:A:1100:G:H5'   | 2.13                     | 0.48              |
| 1:A:1498:G:H2'    | 1:A:1499:A:O4'   | 2.13                     | 0.48              |
| 1:A:1653:C:H2'    | 1:A:1654:A:C8    | 2.49                     | 0.48              |
| 1:A:2549:G:H2'    | 1:A:2550:C:O4'   | 2.13                     | 0.48              |
| 1:A:2796:A:H2'    | 1:A:2797:G:C8    | 2.49                     | 0.48              |
| 1:A:1329:U:H2'    | 1:A:1330:G:C8    | 2.49                     | 0.48              |
| 1:A:1370:U:H2'    | 1:A:1371:G:C8    | 2.49                     | 0.48              |
| 1:A:1426:U:H2'    | 1:A:1427:G:O4'   | 2.13                     | 0.48              |
| 1:A:1919:A:H5''   | 1:A:1920:A:O5'   | 2.14                     | 0.48              |
| 5:A:2881:ERY:C21  | 5:A:2881:ERY:O12 | 2.60                     | 0.48              |
| 1:A:34:U:H5'      | 1:A:35:G:OP2     | 2.13                     | 0.48              |
| 1:A:2494:C:H2'    | 1:A:2495:G:C8    | 2.48                     | 0.48              |
| 1:A:590:C:H2'     | 1:A:591:G:H8     | 1.76                     | 0.48              |
| 1:A:1060:C:H2'    | 1:A:1061:A:C8    | 2.47                     | 0.48              |

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| Atom-1         | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-----------------|--------------------------|-------------------|
| 1:A:1321:A:H2' | 1:A:1322:G:O4'  | 2.13                     | 0.48              |
| 1:A:1532:A:H2' | 1:A:1533:G:C8   | 2.48                     | 0.48              |
| 1:A:1974:U:H2' | 1:A:1975:G:C5'  | 2.43                     | 0.48              |
| 1:A:1974:U:H2' | 1:A:1975:G:H5'  | 1.94                     | 0.48              |
| 1:A:2009:U:O5' | 1:A:2009:U:H6   | 1.97                     | 0.48              |
| 1:A:2552:C:OP1 | 1:A:2553:G:H5'' | 2.14                     | 0.48              |
| 1:A:162:C:H4'  | 1:A:195:A:H4'   | 1.96                     | 0.48              |
| 1:A:304:A:H2'  | 1:A:305:A:H5''  | 1.96                     | 0.48              |
| 1:A:694:G:H2'  | 1:A:695:G:H8    | 1.77                     | 0.48              |
| 1:A:717:G:H1'  | 1:A:740:A:N6    | 2.28                     | 0.48              |
| 1:A:926:C:H2'  | 1:A:927:C:C5'   | 2.44                     | 0.48              |
| 1:A:1073:G:H2' | 1:A:1074:G:H4'  | 1.96                     | 0.48              |
| 1:A:1190:C:C2' | 1:A:1191:G:H5'  | 2.42                     | 0.48              |
| 1:A:1763:G:H2' | 1:A:1764:A:C4'  | 2.43                     | 0.48              |
| 1:A:228:A:C6   | 1:A:229:G:H1'   | 2.49                     | 0.47              |
| 1:A:831:G:C2'  | 1:A:832:A:H5''  | 2.44                     | 0.47              |
| 1:A:1440:G:H1' | 1:A:1588:A:H61  | 1.79                     | 0.47              |
| 1:A:2010:G:H1  | 1:A:2019:C:N4   | 2.08                     | 0.47              |
| 1:A:2361:G:OP1 | 1:A:2362:G:H5'' | 2.13                     | 0.47              |
| 1:A:2491:C:C2' | 1:A:2492:G:H5'' | 2.43                     | 0.47              |
| 1:A:2624:G:H4' | 1:A:2712:G:H2'  | 1.95                     | 0.47              |
| 1:A:2635:U:H2' | 1:A:2636:A:O5'  | 2.14                     | 0.47              |
| 1:A:2708:U:H2' | 1:A:2709:C:C6   | 2.48                     | 0.47              |
| 1:A:41:G:O2'   | 1:A:42:G:H5'    | 2.14                     | 0.47              |
| 1:A:65:C:H2'   | 1:A:66:U:C4'    | 2.44                     | 0.47              |
| 1:A:318:G:H21  | 1:A:341:A:N6    | 2.12                     | 0.47              |
| 1:A:699:G:N2   | 1:A:801:A:H61   | 2.12                     | 0.47              |
| 1:A:942:U:H2'  | 1:A:943:U:C4'   | 2.44                     | 0.47              |
| 1:A:985:G:H1'  | 1:A:1001:A:H62  | 1.79                     | 0.47              |
| 1:A:1541:G:N2  | 1:A:1562:G:H22  | 2.11                     | 0.47              |
| 1:A:1894:U:H2' | 1:A:1901:A:N1   | 2.29                     | 0.47              |
| 1:A:1900:U:H2' | 1:A:1901:A:C5'  | 2.45                     | 0.47              |
| 1:A:2823:G:H1' | 1:A:2843:A:N6   | 2.29                     | 0.47              |
| 1:A:57:G:N2    | 1:A:69:G:C4     | 2.83                     | 0.47              |
| 1:A:85:C:H2'   | 1:A:86:U:O4'    | 2.14                     | 0.47              |
| 1:A:233:A:H2'  | 1:A:234:C:C6    | 2.50                     | 0.47              |
| 1:A:342:G:O2'  | 1:A:343:A:H5'   | 2.15                     | 0.47              |
| 1:A:477:A:H2'  | 1:A:478:G:H5'   | 1.96                     | 0.47              |
| 1:A:707:U:H1'  | 1:A:1392:U:O2   | 2.14                     | 0.47              |
| 1:A:773:G:H5'  | 1:A:1767:G:OP1  | 2.15                     | 0.47              |
| 1:A:978:U:H2'  | 1:A:979:A:C8    | 2.49                     | 0.47              |

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| Atom-1         | Atom-2         | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|----------------|--------------------------|-------------------|
| 1:A:1415:C:O2' | 1:A:1416:A:H5' | 2.14                     | 0.47              |
| 1:A:1485:U:H2' | 1:A:1486:A:C8  | 2.49                     | 0.47              |
| 1:A:1737:G:H2' | 1:A:1738:U:C6  | 2.49                     | 0.47              |
| 1:A:1947:G:H2' | 1:A:1950:C:OP2 | 2.14                     | 0.47              |
| 1:A:2204:A:H4' | 1:A:2205:C:O4' | 2.14                     | 0.47              |
| 1:A:2365:U:H2' | 1:A:2366:U:C6  | 2.49                     | 0.47              |
| 1:A:128:C:C3'  | 1:A:129:A:H5'' | 2.44                     | 0.47              |
| 1:A:205:A:H2'  | 1:A:206:U:H5'  | 1.97                     | 0.47              |
| 1:A:556:A:H2'  | 1:A:557:U:H5'  | 1.96                     | 0.47              |
| 1:A:1817:U:H2' | 1:A:1818:G:C8  | 2.49                     | 0.47              |
| 1:A:1928:G:H2' | 1:A:1929:U:O4' | 2.13                     | 0.47              |
| 1:A:2740:C:H2' | 1:A:2741:G:C8  | 2.49                     | 0.47              |
| 1:A:227:G:H2'  | 1:A:228:A:C8   | 2.50                     | 0.47              |
| 1:A:654:A:O2'  | 1:A:655:A:O4'  | 2.29                     | 0.47              |
| 1:A:701:U:O2'  | 1:A:702:A:H5'  | 2.14                     | 0.47              |
| 1:A:1030:U:O2' | 1:A:1031:C:H5' | 2.14                     | 0.47              |
| 1:A:1079:G:C2' | 1:A:1080:A:H5' | 2.45                     | 0.47              |
| 1:A:1445:A:H2' | 1:A:1446:U:O4' | 2.14                     | 0.47              |
| 1:A:1487:C:N4  | 1:A:1536:G:H22 | 2.09                     | 0.47              |
| 1:A:2076:G:H21 | 1:A:2181:A:H62 | 1.61                     | 0.47              |
| 1:A:2091:C:H2' | 1:A:2092:U:H5' | 1.95                     | 0.47              |
| 1:A:2773:G:H2' | 1:A:2774:U:C5' | 2.44                     | 0.47              |
| 1:A:37:C:H2'   | 1:A:38:G:C8    | 2.49                     | 0.47              |
| 1:A:877:G:H1'  | 1:A:926:C:N4   | 2.30                     | 0.47              |
| 1:A:931:G:H2'  | 1:A:932:G:O4'  | 2.15                     | 0.47              |
| 1:A:1876:C:H2' | 1:A:1877:C:H5' | 1.96                     | 0.47              |
| 1:A:2091:C:C2' | 1:A:2092:U:H5' | 2.44                     | 0.47              |
| 1:A:2204:A:H4' | 1:A:2205:C:O5' | 2.14                     | 0.47              |
| 1:A:2378:G:H1  | 1:A:2396:C:H42 | 1.62                     | 0.47              |
| 1:A:2605:C:O2' | 1:A:2606:G:H5' | 2.13                     | 0.47              |
| 1:A:71:A:N6    | 1:A:110:U:H4'  | 2.30                     | 0.47              |
| 1:A:498:C:H2'  | 1:A:499:G:C8   | 2.49                     | 0.47              |
| 1:A:509:U:H3'  | 1:A:510:G:C8   | 2.49                     | 0.47              |
| 1:A:638:A:O2'  | 1:A:639:G:H5'  | 2.14                     | 0.47              |
| 1:A:1083:C:H1' | 1:A:1103:C:OP2 | 2.14                     | 0.47              |
| 1:A:1424:U:H2' | 1:A:1425:G:C8  | 2.50                     | 0.47              |
| 1:A:1511:A:H3' | 1:A:1512:A:C2  | 2.49                     | 0.47              |
| 1:A:1656:U:O2' | 1:A:2678:C:H4' | 2.15                     | 0.47              |
| 1:A:1685:A:H1' | 1:A:1686:A:C6  | 2.50                     | 0.47              |
| 1:A:1750:A:OP2 | 1:A:1751:A:OP2 | 2.33                     | 0.47              |
| 1:A:1979:C:H2' | 1:A:1980:A:C4' | 2.44                     | 0.47              |

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| Atom-1          | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:A:2348:A:H2'  | 1:A:2349:G:C8   | 2.50                     | 0.47              |
| 1:A:2404:A:H4'  | 1:A:2405:A:H5'' | 1.97                     | 0.47              |
| 1:A:734:G:H2'   | 1:A:735:G:H8    | 1.79                     | 0.47              |
| 1:A:799:C:H5''  | 1:A:1771:A:C8   | 2.50                     | 0.47              |
| 1:A:1563:U:H2'  | 1:A:1564:U:C6   | 2.49                     | 0.47              |
| 1:A:1591:U:H2'  | 1:A:1592:U:O4'  | 2.14                     | 0.47              |
| 1:A:1612:U:H2'  | 1:A:1613:G:C8   | 2.50                     | 0.47              |
| 1:A:1764:A:N7   | 1:A:1821:A:H1'  | 2.29                     | 0.47              |
| 1:A:1766:U:C2'  | 1:A:1767:G:H5'  | 2.45                     | 0.47              |
| 1:A:1971:C:H2'  | 1:A:1972:G:H8   | 1.79                     | 0.47              |
| 1:A:424:G:H3'   | 1:A:2385:U:C5   | 2.50                     | 0.47              |
| 1:A:1699:A:C2   | 1:A:1748:U:H1'  | 2.50                     | 0.47              |
| 1:A:1880:G:H2'  | 1:A:1881:U:C6   | 2.49                     | 0.47              |
| 1:A:2674:C:H2'  | 1:A:2675:U:C6   | 2.50                     | 0.47              |
| 1:A:2778:U:O2'  | 1:A:2779:C:H5'  | 2.14                     | 0.47              |
| 1:A:84:G:H2'    | 1:A:85:C:O4'    | 2.14                     | 0.47              |
| 1:A:109:A:H2'   | 1:A:110:U:C5'   | 2.45                     | 0.47              |
| 1:A:336:A:H2'   | 1:A:337:G:C8    | 2.49                     | 0.47              |
| 1:A:872:G:H2'   | 1:A:928:G:O6    | 2.15                     | 0.47              |
| 1:A:1930:C:H2'  | 1:A:1931:G:O4'  | 2.15                     | 0.47              |
| 1:A:2686:C:H2'  | 1:A:2687:G:H8   | 1.80                     | 0.47              |
| 1:A:2717:G:H2'  | 1:A:2718:A:H8   | 1.79                     | 0.47              |
| 1:A:2786:G:H2'  | 1:A:2787:A:H8   | 1.80                     | 0.47              |
| 1:A:178:C:O5'   | 1:A:178:C:H6    | 1.98                     | 0.46              |
| 1:A:453:U:O2'   | 1:A:454:G:H5'   | 2.15                     | 0.46              |
| 1:A:458:G:C5'   | 1:A:461:A:H1'   | 2.45                     | 0.46              |
| 1:A:763:A:C2'   | 1:A:764:A:H5''  | 2.42                     | 0.46              |
| 1:A:1521:U:H2'  | 1:A:1522:C:H5   | 1.79                     | 0.46              |
| 1:A:1699:A:H61  | 1:A:1723:U:H3   | 1.63                     | 0.46              |
| 1:A:1879:G:H2'  | 1:A:1880:G:H8   | 1.76                     | 0.46              |
| 1:A:1949:A:HO2' | 1:A:2571:G:HO2' | 1.61                     | 0.46              |
| 1:A:1955:G:H2'  | 1:A:1956:G:H8   | 1.79                     | 0.46              |
| 1:A:1999:U:H5'' | 1:A:2041:A:OP1  | 2.15                     | 0.46              |
| 1:A:2109:A:O2'  | 1:A:2110:G:H5'  | 2.15                     | 0.46              |
| 1:A:569:C:H2'   | 1:A:570:G:C8    | 2.50                     | 0.46              |
| 1:A:956:A:O2'   | 1:A:957:G:OP1   | 2.33                     | 0.46              |
| 1:A:1162:A:H2'  | 1:A:1163:C:O4'  | 2.16                     | 0.46              |
| 1:A:1271:C:H2'  | 1:A:1272:G:C8   | 2.51                     | 0.46              |
| 1:A:1391:A:O2'  | 1:A:1392:U:O5'  | 2.33                     | 0.46              |
| 1:A:1923:U:HO2' | 1:A:1924:C:H6   | 1.63                     | 0.46              |
| 1:A:2239:C:H2'  | 1:A:2240:C:C6   | 2.49                     | 0.46              |

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| Atom-1          | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:A:2272:A:N6   | 1:A:2318:U:H3   | 2.13                     | 0.46              |
| 1:A:2610:G:O4'  | 1:A:2866:A:H4'  | 2.15                     | 0.46              |
| 1:A:73:A:O2'    | 1:A:74:G:P      | 2.74                     | 0.46              |
| 1:A:323:G:H4'   | 1:A:342:G:N1    | 2.31                     | 0.46              |
| 1:A:415:A:O2'   | 1:A:416:U:H5'   | 2.15                     | 0.46              |
| 1:A:1074:G:H2'  | 1:A:1075:C:C6   | 2.51                     | 0.46              |
| 1:A:1457:A:H2'  | 1:A:1458:A:C8   | 2.50                     | 0.46              |
| 1:A:2014:A:O2'  | 1:A:2434:G:H4'  | 2.15                     | 0.46              |
| 1:A:2056:C:O2'  | 1:A:2057:U:H5'  | 2.16                     | 0.46              |
| 1:A:2080:U:H2'  | 1:A:2081:U:H5'  | 1.97                     | 0.46              |
| 1:A:2122:G:H2'  | 1:A:2123:G:H8   | 1.79                     | 0.46              |
| 1:A:2516:U:H2'  | 1:A:2517:C:C6   | 2.51                     | 0.46              |
| 1:A:8:A:H2'     | 1:A:9:U:C6      | 2.51                     | 0.46              |
| 1:A:789:G:C2'   | 1:A:790:A:OP2   | 2.63                     | 0.46              |
| 1:A:813:A:O2'   | 1:A:814:G:P     | 2.74                     | 0.46              |
| 1:A:1083:C:N3   | 1:A:1103:C:C5   | 2.83                     | 0.46              |
| 1:A:1083:C:N4   | 1:A:1103:C:C4   | 2.83                     | 0.46              |
| 1:A:1286:U:H4'  | 1:A:1288:A:OP1  | 2.16                     | 0.46              |
| 1:A:1312:G:H5'' | 1:A:1313:U:H5'' | 1.97                     | 0.46              |
| 1:A:1358:C:C2'  | 1:A:1359:G:H5'  | 2.45                     | 0.46              |
| 1:A:1541:G:H22  | 1:A:1561:A:H61  | 1.64                     | 0.46              |
| 1:A:1656:U:H2'  | 1:A:1657:A:C5'  | 2.34                     | 0.46              |
| 1:A:1920:A:H5'' | 1:A:1921:A:OP2  | 2.15                     | 0.46              |
| 1:A:2204:A:P    | 1:A:2204:A:H8   | 2.38                     | 0.46              |
| 1:A:2205:C:H2'  | 1:A:2206:C:O4'  | 2.16                     | 0.46              |
| 1:A:2234:G:H2'  | 1:A:2235:G:O4'  | 2.14                     | 0.46              |
| 1:A:2418:A:O2'  | 1:A:2419:C:OP2  | 2.30                     | 0.46              |
| 1:A:2621:G:O2'  | 1:A:2622:G:H5'  | 2.16                     | 0.46              |
| 1:A:923:A:H2    | 1:A:2256:G:N3   | 2.13                     | 0.46              |
| 1:A:1466:C:H42  | 1:A:1474:A:H61  | 1.64                     | 0.46              |
| 1:A:1672:A:N1   | 1:A:2032:G:H5'' | 2.29                     | 0.46              |
| 1:A:1698:C:H2'  | 1:A:1753:A:H2'  | 1.97                     | 0.46              |
| 1:A:2022:C:H2'  | 1:A:2023:C:C6   | 2.51                     | 0.46              |
| 1:A:2090:U:H2'  | 1:A:2091:C:C5   | 2.49                     | 0.46              |
| 1:A:2662:C:H42  | 1:A:2707:G:H21  | 1.64                     | 0.46              |
| 1:A:2839:G:H2'  | 1:A:2840:U:C6   | 2.50                     | 0.46              |
| 1:A:222:G:O2'   | 1:A:223:C:H5'   | 2.15                     | 0.46              |
| 1:A:1499:A:H2'  | 1:A:1500:U:C6   | 2.51                     | 0.46              |
| 1:A:1919:A:H5'' | 1:A:1920:A:O4'  | 2.16                     | 0.46              |
| 1:A:2058:U:H3'  | 1:A:2217:G:N2   | 2.30                     | 0.46              |
| 1:A:2208:U:H2'  | 1:A:2209:G:H8   | 1.79                     | 0.46              |

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| Atom-1          | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:A:2398:U:H2'  | 1:A:2399:C:C6   | 2.50                     | 0.46              |
| 1:A:695:G:O2'   | 1:A:696:U:H5'   | 2.15                     | 0.46              |
| 1:A:850:C:O2'   | 1:A:851:C:H5'   | 2.15                     | 0.46              |
| 1:A:1046:U:H2'  | 1:A:1047:G:C8   | 2.50                     | 0.46              |
| 1:A:1215:A:H2'  | 1:A:1216:G:C8   | 2.51                     | 0.46              |
| 1:A:1338:G:H5'  | 1:A:1339:U:OP1  | 2.16                     | 0.46              |
| 1:A:1466:C:H2'  | 1:A:1467:U:C5'  | 2.45                     | 0.46              |
| 1:A:2229:G:C8   | 1:A:2475:C:H5'' | 2.50                     | 0.46              |
| 1:A:2627:G:H2'  | 1:A:2628:C:O4'  | 2.16                     | 0.46              |
| 1:A:451:A:H2'   | 1:A:452:G:C8    | 2.51                     | 0.46              |
| 1:A:541:C:P     | 1:A:570:G:H1    | 2.39                     | 0.46              |
| 1:A:857:U:H2'   | 1:A:858:G:O4'   | 2.16                     | 0.46              |
| 1:A:872:G:O2'   | 1:A:873:U:H5    | 1.98                     | 0.46              |
| 1:A:1263:G:O2'  | 1:A:1264:C:OP1  | 2.29                     | 0.46              |
| 1:A:1326:U:O2   | 1:A:1326:U:C2'  | 2.64                     | 0.46              |
| 1:A:1973:C:H2'  | 1:A:1974:U:C6   | 2.51                     | 0.46              |
| 1:A:2201:G:H2'  | 1:A:2202:G:H8   | 1.81                     | 0.46              |
| 1:A:2756:A:H4'  | 1:A:2757:G:O5'  | 2.16                     | 0.46              |
| 1:A:219:G:HO2'  | 1:A:220:U:H5    | 1.62                     | 0.46              |
| 1:A:889:C:H2'   | 1:A:890:U:O4'   | 2.16                     | 0.46              |
| 1:A:933:G:H2'   | 1:A:934:G:H8    | 1.80                     | 0.46              |
| 1:A:1386:A:H2'  | 1:A:1387:G:O4'  | 2.16                     | 0.46              |
| 1:A:1654:A:H2'  | 1:A:1655:C:C6   | 2.51                     | 0.46              |
| 1:A:1871:G:H3'  | 1:A:1871:G:N3   | 2.30                     | 0.46              |
| 1:A:1917:C:O2'  | 1:A:1918:G:H5'  | 2.16                     | 0.46              |
| 1:A:2246:A:H61  | 1:A:2251:U:H3   | 1.64                     | 0.46              |
| 1:A:1326:U:H2'  | 1:A:1326:U:O2   | 2.16                     | 0.46              |
| 1:A:1441:A:H4'  | 1:A:1442:C:N1   | 2.31                     | 0.46              |
| 1:A:1640:C:H2'  | 1:A:1641:C:H6   | 1.81                     | 0.46              |
| 1:A:2426:G:H5'' | 1:A:2427:A:H5'' | 1.97                     | 0.46              |
| 1:A:139:A:H2'   | 1:A:140:G:C8    | 2.50                     | 0.45              |
| 1:A:389:G:H2'   | 1:A:390:U:C6    | 2.50                     | 0.45              |
| 1:A:681:A:C2'   | 1:A:683:A:H62   | 2.29                     | 0.45              |
| 1:A:775:U:H4'   | 1:A:776:G:O5'   | 2.16                     | 0.45              |
| 1:A:1056:U:H1'  | 1:A:1058:G:N1   | 2.30                     | 0.45              |
| 1:A:1196:G:C2   | 1:A:1197:U:H1'  | 2.51                     | 0.45              |
| 1:A:1824:C:H2'  | 1:A:1825:C:H5'  | 1.98                     | 0.45              |
| 1:A:2246:A:H3'  | 1:A:2246:A:N3   | 2.32                     | 0.45              |
| 1:A:412:U:H2'   | 1:A:413:G:O4'   | 2.16                     | 0.45              |
| 1:A:456:C:O2'   | 1:A:457:C:H5'   | 2.15                     | 0.45              |
| 1:A:459:A:C6    | 1:A:484:G:H1'   | 2.51                     | 0.45              |

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| Atom-1          | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:A:777:A:C3'   | 1:A:778:G:H5'   | 2.46                     | 0.45              |
| 1:A:801:A:O2'   | 1:A:802:A:OP2   | 2.28                     | 0.45              |
| 1:A:814:G:O2'   | 1:A:815:A:OP1   | 2.31                     | 0.45              |
| 1:A:876:A:H2'   | 1:A:877:G:H8    | 1.80                     | 0.45              |
| 1:A:980:G:H2'   | 1:A:981:C:O4'   | 2.16                     | 0.45              |
| 1:A:981:C:H2'   | 1:A:982:C:C6    | 2.51                     | 0.45              |
| 1:A:1039:A:N6   | 1:A:1136:G:H2'  | 2.30                     | 0.45              |
| 1:A:1198:C:H3'  | 1:A:1199:U:H5'  | 1.98                     | 0.45              |
| 1:A:1466:C:H2'  | 1:A:1467:U:C4'  | 2.45                     | 0.45              |
| 1:A:1811:A:C2'  | 1:A:1812:U:OP2  | 2.64                     | 0.45              |
| 1:A:2054:A:H2'  | 1:A:2055:G:H8   | 1.82                     | 0.45              |
| 1:A:2063:A:N6   | 1:A:2219:U:H3   | 2.14                     | 0.45              |
| 1:A:2369:U:O2'  | 1:A:2370:G:H5'  | 2.17                     | 0.45              |
| 1:A:2633:A:H4'  | 1:A:2634:G:O5'  | 2.16                     | 0.45              |
| 1:A:2766:U:O2'  | 1:A:2767:C:H5'  | 2.16                     | 0.45              |
| 1:A:460:U:O4    | 1:A:592:G:H1'   | 2.16                     | 0.45              |
| 1:A:492:G:H1    | 1:A:519:C:H42   | 1.62                     | 0.45              |
| 1:A:658:G:H2'   | 1:A:659:G:H8    | 1.81                     | 0.45              |
| 1:A:1333:G:N2   | 1:A:1344:C:H41  | 2.14                     | 0.45              |
| 1:A:1429:A:H1'  | 1:A:1603:A:N6   | 2.32                     | 0.45              |
| 1:A:1715:A:O2'  | 1:A:1716:G:P    | 2.74                     | 0.45              |
| 1:A:1971:C:H2'  | 1:A:1972:G:C8   | 2.52                     | 0.45              |
| 1:A:2169:A:O2'  | 1:A:2170:C:H5'  | 2.16                     | 0.45              |
| 1:A:2361:G:H5'' | 1:A:2362:G:C5'  | 2.36                     | 0.45              |
| 1:A:2418:A:O2'  | 1:A:2419:C:H5'' | 2.17                     | 0.45              |
| 1:A:2547:C:H2'  | 1:A:2548:G:H8   | 1.80                     | 0.45              |
| 1:A:2607:C:O2'  | 1:A:2761:A:H2'  | 2.16                     | 0.45              |
| 1:A:841:G:N2    | 1:A:2226:A:H5'  | 2.31                     | 0.45              |
| 1:A:1196:G:O2'  | 1:A:1197:U:H5'  | 2.16                     | 0.45              |
| 1:A:1209:G:O2'  | 1:A:1210:C:H5'  | 2.17                     | 0.45              |
| 1:A:1711:C:O2'  | 1:A:1712:G:OP2  | 2.30                     | 0.45              |
| 1:A:2074:U:C3'  | 1:A:2075:U:H5'' | 2.45                     | 0.45              |
| 1:A:2666:U:C2'  | 1:A:2667:C:H5'' | 2.46                     | 0.45              |
| 1:A:116:A:H2'   | 1:A:118:U:O4    | 2.16                     | 0.45              |
| 1:A:301:C:H2'   | 1:A:302:U:O4'   | 2.16                     | 0.45              |
| 1:A:338:G:H2'   | 1:A:339:U:H5'   | 1.98                     | 0.45              |
| 1:A:431:G:H2'   | 1:A:432:C:C6    | 2.51                     | 0.45              |
| 1:A:1307:U:O2'  | 1:A:1308:C:H5'  | 2.17                     | 0.45              |
| 1:A:1915:A:H62  | 1:A:1951:G:H21  | 1.65                     | 0.45              |
| 1:A:1983:G:HO2' | 1:A:2668:U:H5   | 1.64                     | 0.45              |
| 1:A:2407:G:H4'  | 1:A:2408:G:C4   | 2.51                     | 0.45              |

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| Atom-1         | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-----------------|--------------------------|-------------------|
| 1:A:432:C:H2'  | 1:A:433:G:O4'   | 2.17                     | 0.45              |
| 1:A:918:A:H2'  | 1:A:919:U:C5'   | 2.40                     | 0.45              |
| 1:A:948:C:H2'  | 1:A:949:G:C8    | 2.51                     | 0.45              |
| 1:A:1427:G:H21 | 1:A:1604:A:H62  | 1.63                     | 0.45              |
| 1:A:1541:G:H22 | 1:A:1561:A:N6   | 2.14                     | 0.45              |
| 1:A:1774:A:H5' | 1:A:2587:G:H4'  | 1.99                     | 0.45              |
| 1:A:2015:G:N7  | 1:A:2038:C:H5   | 2.14                     | 0.45              |
| 1:A:2069:U:H2' | 1:A:2070:G:C8   | 2.52                     | 0.45              |
| 1:A:2404:A:O2' | 1:A:2405:A:OP2  | 2.32                     | 0.45              |
| 1:A:2613:A:H2' | 1:A:2614:A:C8   | 2.51                     | 0.45              |
| 1:A:2666:U:H3' | 1:A:2667:C:H5'' | 1.98                     | 0.45              |
| 1:A:90:G:H5'   | 1:A:91:A:OP2    | 2.16                     | 0.45              |
| 1:A:393:U:H2'  | 1:A:394:U:C6    | 2.51                     | 0.45              |
| 1:A:757:U:H2'  | 1:A:758:G:H5'   | 1.97                     | 0.45              |
| 1:A:1112:U:H2' | 1:A:1113:C:C5   | 2.51                     | 0.45              |
| 1:A:1712:G:N3  | 1:A:1712:G:H3'  | 2.32                     | 0.45              |
| 1:A:1937:G:N2  | 1:A:1939:U:H3   | 2.14                     | 0.45              |
| 1:A:2049:C:O2' | 1:A:2050:G:H5'  | 2.16                     | 0.45              |
| 1:A:2095:G:H2' | 1:A:2096:U:C5'  | 2.46                     | 0.45              |
| 1:A:2095:G:H2' | 1:A:2096:U:O4'  | 2.16                     | 0.45              |
| 1:A:2205:C:O2' | 1:A:2206:C:H5'  | 2.17                     | 0.45              |
| 1:A:65:C:H2'   | 1:A:66:U:C5'    | 2.46                     | 0.45              |
| 1:A:126:C:H2'  | 1:A:127:C:C6    | 2.52                     | 0.45              |
| 1:A:1065:A:H2' | 1:A:1066:G:H8   | 1.80                     | 0.45              |
| 1:A:1589:G:H2' | 1:A:1590:C:H5'  | 1.98                     | 0.45              |
| 1:A:1926:U:O2' | 1:A:1927:U:P    | 2.75                     | 0.45              |
| 1:A:2721:A:H2' | 1:A:2722:C:O4'  | 2.17                     | 0.45              |
| 1:A:15:G:C2'   | 1:A:16:G:H5'    | 2.47                     | 0.45              |
| 1:A:700:C:O5'  | 1:A:700:C:H6    | 2.00                     | 0.45              |
| 1:A:1012:A:H2' | 1:A:1013:G:O4'  | 2.17                     | 0.45              |
| 1:A:1033:G:O2' | 1:A:1034:U:C6   | 2.65                     | 0.45              |
| 1:A:1166:A:C2' | 1:A:1167:A:H5'' | 2.47                     | 0.45              |
| 1:A:1193:G:H2' | 1:A:1194:U:C6   | 2.52                     | 0.45              |
| 1:A:1292:A:H2' | 1:A:1293:A:C8   | 2.52                     | 0.45              |
| 1:A:1348:C:H2' | 1:A:1349:A:H8   | 1.82                     | 0.45              |
| 1:A:1480:G:H2' | 1:A:1481:U:O4'  | 2.17                     | 0.45              |
| 1:A:1634:A:O2' | 1:A:1635:G:OP1  | 2.27                     | 0.45              |
| 1:A:1727:C:H4' | 1:A:2833:C:O2   | 2.16                     | 0.45              |
| 1:A:639:G:O2'  | 1:A:640:C:H5'   | 2.17                     | 0.45              |
| 1:A:850:C:N4   | 1:A:952:A:N6    | 2.65                     | 0.45              |
| 1:A:929:A:C3'  | 1:A:930:A:H5''  | 2.47                     | 0.45              |

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| Atom-1         | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-----------------|--------------------------|-------------------|
| 1:A:1066:G:H3' | 1:A:1067:G:H5'' | 1.97                     | 0.45              |
| 1:A:1322:G:O2' | 1:A:1323:G:H5'  | 2.18                     | 0.45              |
| 1:A:1437:A:H5' | 1:A:1515:U:O2'  | 2.17                     | 0.45              |
| 1:A:2484:G:O2' | 1:A:2485:U:H6   | 1.97                     | 0.45              |
| 1:A:2564:U:C5' | 1:A:2565:C:OP1  | 2.59                     | 0.45              |
| 1:A:357:A:H3'  | 1:A:358:C:O4'   | 2.16                     | 0.44              |
| 1:A:524:A:H1'  | 1:A:590:C:O2'   | 2.16                     | 0.44              |
| 1:A:785:U:H5'  | 1:A:1368:G:O2'  | 2.18                     | 0.44              |
| 1:A:864:C:H2'  | 1:A:865:A:C8    | 2.52                     | 0.44              |
| 1:A:957:G:H2'  | 1:A:958:G:H8    | 1.81                     | 0.44              |
| 1:A:1218:C:H2' | 1:A:1219:C:H6   | 1.81                     | 0.44              |
| 1:A:1465:G:H2' | 1:A:1466:C:O4'  | 2.17                     | 0.44              |
| 1:A:2094:C:H2' | 1:A:2095:G:C8   | 2.52                     | 0.44              |
| 1:A:2124:C:H2' | 1:A:2125:C:C5   | 2.51                     | 0.44              |
| 1:A:551:A:H2'  | 1:A:552:C:C6    | 2.52                     | 0.44              |
| 1:A:1277:G:O5' | 1:A:1277:G:H8   | 2.00                     | 0.44              |
| 1:A:1429:A:H1' | 1:A:1603:A:H61  | 1.81                     | 0.44              |
| 1:A:1452:U:O2' | 1:A:1453:A:H5'  | 2.17                     | 0.44              |
| 1:A:1502:G:H2' | 1:A:1503:G:H8   | 1.82                     | 0.44              |
| 1:A:1652:G:H8  | 1:A:1652:G:OP2  | 2.00                     | 0.44              |
| 1:A:1655:C:OP1 | 1:A:2690:A:H5'  | 2.16                     | 0.44              |
| 1:A:2189:A:H3' | 1:A:2190:A:C5'  | 2.47                     | 0.44              |
| 1:A:2355:A:H2' | 1:A:2356:A:O4'  | 2.17                     | 0.44              |
| 1:A:2771:C:N4  | 1:A:2780:A:H61  | 2.16                     | 0.44              |
| 1:A:68:C:H1'   | 1:A:72:A:O2'    | 2.17                     | 0.44              |
| 1:A:190:A:H2'  | 1:A:191:G:C8    | 2.52                     | 0.44              |
| 1:A:218:A:N1   | 1:A:232:A:H5''  | 2.32                     | 0.44              |
| 1:A:305:A:H2'  | 1:A:306:G:O4'   | 2.18                     | 0.44              |
| 1:A:636:G:C2'  | 1:A:637:G:H5'   | 2.47                     | 0.44              |
| 1:A:789:G:O2'  | 1:A:790:A:H8    | 2.00                     | 0.44              |
| 1:A:1345:G:H22 | 1:A:1625:A:H3'  | 1.83                     | 0.44              |
| 1:A:1519:G:H2' | 1:A:1520:G:C8   | 2.53                     | 0.44              |
| 1:A:305:A:H2'  | 1:A:306:G:H5'   | 1.99                     | 0.44              |
| 1:A:564:U:H2'  | 1:A:565:A:C8    | 2.53                     | 0.44              |
| 1:A:714:G:O2'  | 1:A:715:U:H5'   | 2.17                     | 0.44              |
| 1:A:1428:G:H2' | 1:A:1602:G:N2   | 2.33                     | 0.44              |
| 1:A:2264:C:O2' | 1:A:2266:A:H1'  | 2.18                     | 0.44              |
| 1:A:2854:G:C4' | 1:A:2855:C:OP1  | 2.66                     | 0.44              |
| 1:A:84:G:O2'   | 1:A:85:C:H5'    | 2.16                     | 0.44              |
| 1:A:198:A:C4'  | 1:A:199:A:H5'   | 2.47                     | 0.44              |
| 1:A:622:U:H2'  | 1:A:626:A:H61   | 1.82                     | 0.44              |

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| Atom-1          | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:A:668:A:O2'   | 1:A:669:G:O4'   | 2.35                     | 0.44              |
| 1:A:1019:U:O2'  | 1:A:1020:A:P    | 2.75                     | 0.44              |
| 1:A:1145:C:H5'  | 1:A:1146:G:OP2  | 2.16                     | 0.44              |
| 1:A:1306:U:H2'  | 1:A:1307:U:C6   | 2.53                     | 0.44              |
| 1:A:1429:A:N3   | 1:A:1429:A:C2'  | 2.81                     | 0.44              |
| 1:A:2392:G:H2'  | 1:A:2393:G:H8   | 1.82                     | 0.44              |
| 1:A:322:A:O2'   | 1:A:323:G:P     | 2.76                     | 0.44              |
| 1:A:998:C:H2'   | 1:A:999:A:O4'   | 2.17                     | 0.44              |
| 1:A:1660:G:O2'  | 1:A:1661:C:H5'  | 2.18                     | 0.44              |
| 1:A:134:G:H2'   | 1:A:135:U:H5'   | 1.99                     | 0.44              |
| 1:A:182:G:C2'   | 1:A:183:U:OP2   | 2.65                     | 0.44              |
| 1:A:347:C:H2'   | 1:A:348:U:C6    | 2.53                     | 0.44              |
| 1:A:984:A:HO2'  | 1:A:985:G:P     | 2.41                     | 0.44              |
| 1:A:1274:C:C2'  | 1:A:1275:A:H5'' | 2.48                     | 0.44              |
| 1:A:1283:C:OP1  | 1:A:1284:G:H5'  | 2.17                     | 0.44              |
| 1:A:1533:G:H2'  | 1:A:1534:A:H8   | 1.82                     | 0.44              |
| 1:A:2262:C:C5   | 1:A:2368:G:H2'  | 2.53                     | 0.44              |
| 1:A:2455:A:H2'  | 1:A:2456:U:O4'  | 2.18                     | 0.44              |
| 1:A:2608:A:O2'  | 1:A:2609:G:P    | 2.76                     | 0.44              |
| 1:A:2633:A:C2   | 1:A:2644:A:H5'' | 2.53                     | 0.44              |
| 1:A:2807:U:H5'' | 1:A:2808:U:H5'' | 1.99                     | 0.44              |
| 1:A:404:A:H2'   | 1:A:405:C:O4'   | 2.18                     | 0.44              |
| 1:A:575:U:H2'   | 1:A:576:A:H8    | 1.83                     | 0.44              |
| 1:A:838:A:H4'   | 1:A:2407:G:C5   | 2.53                     | 0.44              |
| 1:A:929:A:C2'   | 1:A:930:A:C5'   | 2.96                     | 0.44              |
| 1:A:984:A:H5'   | 1:A:1202:U:H1'  | 1.99                     | 0.44              |
| 1:A:1999:U:H5'' | 1:A:2041:A:P    | 2.58                     | 0.44              |
| 1:A:2390:A:H2'  | 1:A:2391:A:H8   | 1.83                     | 0.44              |
| 1:A:2466:G:H2'  | 1:A:2467:A:H8   | 1.83                     | 0.44              |
| 1:A:2476:A:O2'  | 1:A:2477:C:P    | 2.76                     | 0.44              |
| 1:A:2510:A:H61  | 1:A:2641:A:N6   | 2.15                     | 0.44              |
| 1:A:2759:U:H5'' | 1:A:2760:G:O5'  | 2.17                     | 0.44              |
| 1:A:86:U:H1'    | 1:A:95:G:N2     | 2.33                     | 0.44              |
| 1:A:342:G:O2'   | 1:A:343:A:OP1   | 2.31                     | 0.44              |
| 1:A:1446:U:H2'  | 1:A:1447:U:O4'  | 2.18                     | 0.44              |
| 1:A:1458:A:H3'  | 1:A:1459:U:C5'  | 2.46                     | 0.44              |
| 1:A:1508:G:C3'  | 1:A:1509:A:H5'' | 2.48                     | 0.44              |
| 1:A:2282:G:H1   | 1:A:2292:C:N4   | 2.09                     | 0.44              |
| 1:A:2470:U:H2'  | 1:A:2471:U:H5'  | 2.00                     | 0.44              |
| 1:A:2510:A:H61  | 1:A:2641:A:H61  | 1.65                     | 0.44              |
| 1:A:2796:A:H2'  | 1:A:2797:G:O4'  | 2.18                     | 0.44              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:116:A:C2      | 1:A:155:G:H1'     | 2.53                     | 0.43              |
| 1:A:137:A:H2'     | 1:A:138:G:O4'     | 2.18                     | 0.43              |
| 1:A:356:A:H2'     | 1:A:357:A:H8      | 1.83                     | 0.43              |
| 1:A:597:U:H2'     | 1:A:598:U:H6      | 1.82                     | 0.43              |
| 1:A:877:G:H2'     | 1:A:878:C:C6      | 2.53                     | 0.43              |
| 1:A:1458:A:C3'    | 1:A:1459:U:H5'    | 2.46                     | 0.43              |
| 1:A:2095:G:H2'    | 1:A:2096:U:C4'    | 2.48                     | 0.43              |
| 5:A:2881:ERY:H191 | 5:A:2881:ERY:H202 | 1.44                     | 0.43              |
| 1:A:20:C:H2'      | 1:A:21:A:C8       | 2.52                     | 0.43              |
| 1:A:352:G:H2'     | 1:A:353:G:C8      | 2.52                     | 0.43              |
| 1:A:421:G:H2'     | 1:A:422:C:C6      | 2.53                     | 0.43              |
| 1:A:875:G:H2'     | 1:A:876:A:C8      | 2.52                     | 0.43              |
| 1:A:1279:G:O2'    | 1:A:1280:U:P      | 2.76                     | 0.43              |
| 1:A:1373:G:H2'    | 1:A:1374:G:H5'    | 2.00                     | 0.43              |
| 1:A:1583:A:H4'    | 1:A:1584:G:N3     | 2.33                     | 0.43              |
| 1:A:1757:C:H2'    | 1:A:1758:C:C6     | 2.53                     | 0.43              |
| 1:A:1926:U:C1'    | 1:A:1928:G:H5'    | 2.48                     | 0.43              |
| 1:A:1953:A:H1'    | 1:A:1955:G:O4'    | 2.18                     | 0.43              |
| 1:A:2629:U:H2'    | 1:A:2630:C:C6     | 2.53                     | 0.43              |
| 1:A:306:G:N2      | 1:A:355:G:H1'     | 2.33                     | 0.43              |
| 1:A:740:A:O2'     | 1:A:741:G:H5'     | 2.18                     | 0.43              |
| 1:A:813:A:O2'     | 1:A:814:G:C5'     | 2.66                     | 0.43              |
| 1:A:1040:A:C2'    | 1:A:1041:G:H5'    | 2.48                     | 0.43              |
| 1:A:1164:C:H2'    | 1:A:1165:G:O4'    | 2.17                     | 0.43              |
| 1:A:1356:G:H5'    | 1:A:1614:C:OP2    | 2.18                     | 0.43              |
| 1:A:1487:C:H2'    | 1:A:1488:G:O4'    | 2.18                     | 0.43              |
| 1:A:1562:G:O2'    | 1:A:1563:U:P      | 2.76                     | 0.43              |
| 1:A:2235:G:O2'    | 1:A:2236:U:H5'    | 2.17                     | 0.43              |
| 5:A:2881:ERY:C21  | 5:A:2881:ERY:C9   | 2.97                     | 0.43              |
| 1:A:68:C:H2'      | 1:A:69:G:H8       | 1.82                     | 0.43              |
| 1:A:216:U:C5'     | 1:A:601:A:H62     | 2.30                     | 0.43              |
| 1:A:537:C:C6      | 1:A:2759:U:H2'    | 2.52                     | 0.43              |
| 1:A:616:U:H2'     | 1:A:617:U:C5'     | 2.44                     | 0.43              |
| 1:A:698:A:H4'     | 1:A:700:C:OP2     | 2.19                     | 0.43              |
| 1:A:822:G:O4'     | 1:A:1267:A:H1'    | 2.18                     | 0.43              |
| 1:A:1258:G:H2'    | 1:A:1259:A:H8     | 1.82                     | 0.43              |
| 1:A:1308:C:H2'    | 1:A:1309:G:H8     | 1.83                     | 0.43              |
| 1:A:1354:A:O2'    | 1:A:1355:A:H5'    | 2.18                     | 0.43              |
| 1:A:1722:G:H2'    | 1:A:1723:U:C6     | 2.52                     | 0.43              |
| 1:A:1769:U:C4     | 1:A:1775:A:H1'    | 2.53                     | 0.43              |
| 1:A:1811:A:H2'    | 1:A:1812:U:OP2    | 2.19                     | 0.43              |

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| Atom-1          | Atom-2         | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|----------------|--------------------------|-------------------|
| 1:A:2356:A:H2'  | 1:A:2357:A:C8  | 2.52                     | 0.43              |
| 1:A:2426:G:O2'  | 1:A:2427:A:OP2 | 2.27                     | 0.43              |
| 1:A:67:G:H2'    | 1:A:68:C:O4'   | 2.18                     | 0.43              |
| 1:A:1215:A:H2'  | 1:A:1216:G:H8  | 1.84                     | 0.43              |
| 1:A:1278:A:O2'  | 1:A:1279:G:P   | 2.77                     | 0.43              |
| 1:A:1420:A:H2'  | 1:A:1421:U:C6  | 2.53                     | 0.43              |
| 1:A:1550:C:N3   | 1:A:1553:G:C6  | 2.86                     | 0.43              |
| 1:A:1895:A:C2'  | 1:A:1896:A:H5' | 2.47                     | 0.43              |
| 1:A:1911:A:O2'  | 1:A:1912:G:H5' | 2.19                     | 0.43              |
| 1:A:2372:A:H2'  | 1:A:2373:C:C6  | 2.53                     | 0.43              |
| 1:A:2627:G:O2'  | 1:A:2628:C:H5' | 2.18                     | 0.43              |
| 1:A:103:U:H2'   | 1:A:104:C:H6   | 1.83                     | 0.43              |
| 1:A:321:A:N1    | 1:A:323:G:H1'  | 2.34                     | 0.43              |
| 1:A:359:G:H2'   | 1:A:360:A:C8   | 2.54                     | 0.43              |
| 1:A:466:A:O2'   | 1:A:467:U:OP2  | 2.28                     | 0.43              |
| 1:A:813:A:O4'   | 1:A:815:A:H5'  | 2.17                     | 0.43              |
| 1:A:814:G:HO2'  | 1:A:815:A:P    | 2.42                     | 0.43              |
| 1:A:1308:C:H2'  | 1:A:1309:G:C8  | 2.54                     | 0.43              |
| 1:A:1391:A:O2'  | 1:A:1392:U:P   | 2.75                     | 0.43              |
| 1:A:1603:A:O2'  | 1:A:1604:A:H5' | 2.19                     | 0.43              |
| 1:A:1633:C:H4'  | 1:A:1634:A:OP1 | 2.18                     | 0.43              |
| 1:A:2120:C:H2'  | 1:A:2121:U:H5' | 2.00                     | 0.43              |
| 1:A:2466:G:H2'  | 1:A:2467:A:C8  | 2.53                     | 0.43              |
| 1:A:2469:G:H5'' | 1:A:2470:U:OP1 | 2.19                     | 0.43              |
| 1:A:2491:C:H2'  | 1:A:2492:G:O4' | 2.18                     | 0.43              |
| 1:A:2602:G:H2'  | 1:A:2603:G:H8  | 1.84                     | 0.43              |
| 1:A:2827:G:H2'  | 1:A:2828:C:O4' | 2.17                     | 0.43              |
| 1:A:2870:C:H2'  | 1:A:2871:U:C6  | 2.54                     | 0.43              |
| 1:A:371:G:O2'   | 1:A:372:U:H5'  | 2.18                     | 0.43              |
| 1:A:562:G:H2'   | 1:A:563:U:O4'  | 2.18                     | 0.43              |
| 1:A:842:A:HO2'  | 1:A:843:G:P    | 2.42                     | 0.43              |
| 1:A:1003:C:O2'  | 1:A:1004:A:H5' | 2.19                     | 0.43              |
| 1:A:1292:A:H2'  | 1:A:1293:A:H8  | 1.83                     | 0.43              |
| 1:A:1359:G:N2   | 1:A:1617:G:H1' | 2.33                     | 0.43              |
| 1:A:1468:A:H3'  | 1:A:1469:U:C5' | 2.48                     | 0.43              |
| 1:A:1482:U:H1'  | 1:A:1562:G:N2  | 2.33                     | 0.43              |
| 1:A:1502:G:H2'  | 1:A:1503:G:C8  | 2.53                     | 0.43              |
| 1:A:1985:G:H2'  | 1:A:1986:G:C8  | 2.48                     | 0.43              |
| 1:A:182:G:O2'   | 1:A:183:U:C6   | 2.72                     | 0.43              |
| 1:A:491:A:H2'   | 1:A:492:G:OP1  | 2.19                     | 0.43              |
| 1:A:832:A:H2'   | 1:A:833:A:O4'  | 2.18                     | 0.43              |

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| Atom-1          | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:A:1031:C:H4'  | 1:A:1032:A:C4   | 2.54                     | 0.43              |
| 1:A:1611:U:H2'  | 1:A:1612:U:O4'  | 2.19                     | 0.43              |
| 1:A:1830:C:H4'  | 1:A:1831:G:N7   | 2.34                     | 0.43              |
| 1:A:2306:A:H2'  | 1:A:2307:A:C8   | 2.53                     | 0.43              |
| 1:A:2476:A:O2'  | 1:A:2477:C:O5'  | 2.36                     | 0.43              |
| 1:A:2737:A:H2'  | 1:A:2737:A:N3   | 2.34                     | 0.43              |
| 1:A:478:G:O2'   | 1:A:479:G:H5'   | 2.19                     | 0.43              |
| 1:A:508:G:O2'   | 1:A:509:U:H5'   | 2.19                     | 0.43              |
| 1:A:528:G:H2'   | 1:A:529:U:C6    | 2.53                     | 0.43              |
| 1:A:931:G:O2'   | 1:A:932:G:H5'   | 2.19                     | 0.43              |
| 1:A:1044:U:H5'  | 1:A:1045:G:OP1  | 2.18                     | 0.43              |
| 1:A:1468:A:H3'  | 1:A:1469:U:H5'' | 2.01                     | 0.43              |
| 1:A:1473:U:H1'  | 1:A:1474:A:N7   | 2.34                     | 0.43              |
| 1:A:1888:C:H2'  | 1:A:1913:G:N7   | 2.33                     | 0.43              |
| 1:A:1943:A:C2'  | 1:A:1944:C:H5'  | 2.49                     | 0.43              |
| 1:A:2002:A:H61  | 1:A:2018:G:N2   | 2.07                     | 0.43              |
| 1:A:2120:C:H2'  | 1:A:2121:U:O4'  | 2.19                     | 0.43              |
| 1:A:2273:C:O5'  | 1:A:2273:C:H6   | 2.02                     | 0.43              |
| 1:A:2429:A:H5'' | 1:A:2476:A:C6   | 2.53                     | 0.43              |
| 1:A:2585:C:H2'  | 1:A:2586:G:C8   | 2.54                     | 0.43              |
| 1:A:82:G:H22    | 1:A:100:G:H2'   | 1.84                     | 0.43              |
| 1:A:459:A:H1'   | 1:A:461:A:H62   | 1.81                     | 0.43              |
| 1:A:529:U:H2'   | 1:A:530:G:C8    | 2.54                     | 0.43              |
| 1:A:725:C:H2'   | 1:A:726:G:N7    | 2.34                     | 0.43              |
| 1:A:824:U:O2    | 1:A:1263:G:H3'  | 2.18                     | 0.43              |
| 1:A:911:A:H2'   | 1:A:912:A:C8    | 2.54                     | 0.43              |
| 1:A:1083:C:N4   | 1:A:1103:C:N4   | 2.67                     | 0.43              |
| 1:A:1314:A:H2'  | 1:A:1316:G:OP2  | 2.19                     | 0.43              |
| 1:A:1495:G:H1   | 1:A:1527:G:H22  | 1.67                     | 0.43              |
| 1:A:1824:C:C2'  | 1:A:1825:C:H5'  | 2.49                     | 0.43              |
| 1:A:33:C:O2     | 1:A:34:U:H5     | 2.02                     | 0.42              |
| 1:A:352:G:H2'   | 1:A:353:G:H8    | 1.84                     | 0.42              |
| 1:A:384:A:H1'   | 1:A:386:U:C4    | 2.54                     | 0.42              |
| 1:A:565:A:H2'   | 1:A:566:U:O4'   | 2.18                     | 0.42              |
| 1:A:583:C:O2'   | 1:A:584:A:P     | 2.77                     | 0.42              |
| 1:A:874:A:C2'   | 1:A:875:G:H5'   | 2.48                     | 0.42              |
| 1:A:1038:U:N3   | 1:A:2467:A:H5'  | 2.34                     | 0.42              |
| 1:A:1134:C:H2'  | 1:A:1135:C:C6   | 2.54                     | 0.42              |
| 1:A:1315:A:C5'  | 1:A:1624:A:OP1  | 2.65                     | 0.42              |
| 1:A:2379:G:H1   | 1:A:2395:C:N4   | 2.11                     | 0.42              |
| 1:A:2482:A:O5'  | 1:A:2483:U:OP1  | 2.37                     | 0.42              |

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| Atom-1          | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:A:2486:C:H4'  | 1:A:2552:C:N4   | 2.34                     | 0.42              |
| 1:A:2784:A:OP1  | 1:A:2784:A:H3'  | 2.19                     | 0.42              |
| 1:A:2804:G:H2'  | 1:A:2805:G:C8   | 2.53                     | 0.42              |
| 1:A:129:A:H2'   | 1:A:130:C:C6    | 2.54                     | 0.42              |
| 1:A:407:A:H2'   | 1:A:408:U:C6    | 2.55                     | 0.42              |
| 1:A:925:U:H4'   | 1:A:926:C:OP1   | 2.19                     | 0.42              |
| 1:A:1071:U:H6   | 1:A:1072:U:C5   | 2.37                     | 0.42              |
| 1:A:1202:U:H2'  | 1:A:1203:A:H8   | 1.85                     | 0.42              |
| 1:A:1223:G:H4'  | 1:A:1224:A:H5'' | 2.00                     | 0.42              |
| 1:A:1329:U:H2'  | 1:A:1330:G:H8   | 1.85                     | 0.42              |
| 1:A:1444:C:H2'  | 1:A:1445:A:C8   | 2.54                     | 0.42              |
| 1:A:1588:A:H2'  | 1:A:1589:G:H8   | 1.84                     | 0.42              |
| 1:A:1617:G:C3'  | 1:A:1618:U:H5'  | 2.49                     | 0.42              |
| 1:A:2119:A:N6   | 1:A:2138:U:H1'  | 2.34                     | 0.42              |
| 1:A:2362:G:O2'  | 1:A:2363:G:H5'  | 2.19                     | 0.42              |
| 1:A:2437:G:H2'  | 1:A:2469:G:H22  | 1.85                     | 0.42              |
| 1:A:2558:C:O2'  | 1:A:2559:U:H5'  | 2.19                     | 0.42              |
| 1:A:2568:A:H2'  | 1:A:2569:A:C8   | 2.55                     | 0.42              |
| 1:A:2579:A:C2'  | 1:A:2580:C:H5'  | 2.49                     | 0.42              |
| 1:A:2635:U:C2'  | 1:A:2636:A:O5'  | 2.67                     | 0.42              |
| 1:A:2784:A:H4'  | 1:A:2786:G:OP2  | 2.19                     | 0.42              |
| 1:A:2796:A:H2'  | 1:A:2797:G:H8   | 1.85                     | 0.42              |
| 1:A:48:A:C1'    | 1:A:50:G:H1'    | 2.47                     | 0.42              |
| 1:A:403:A:H4'   | 1:A:404:A:O5'   | 2.19                     | 0.42              |
| 1:A:490:A:H1'   | 1:A:491:A:H3'   | 2.01                     | 0.42              |
| 1:A:620:G:H2'   | 1:A:621:U:C6    | 2.54                     | 0.42              |
| 1:A:703:A:H2'   | 1:A:704:G:H8    | 1.84                     | 0.42              |
| 1:A:716:U:H2'   | 1:A:717:G:O4'   | 2.19                     | 0.42              |
| 1:A:854:G:H2'   | 1:A:855:G:C8    | 2.55                     | 0.42              |
| 1:A:879:A:H2'   | 1:A:879:A:N3    | 2.33                     | 0.42              |
| 1:A:1240:G:H2'  | 1:A:1241:G:C8   | 2.55                     | 0.42              |
| 1:A:1367:A:H2'  | 1:A:1368:G:O4'  | 2.19                     | 0.42              |
| 1:A:1686:A:O3'  | 1:A:2528:G:H5'  | 2.19                     | 0.42              |
| 1:A:2062:U:H2'  | 1:A:2063:A:O4'  | 2.19                     | 0.42              |
| 1:A:2181:A:HO2' | 1:A:2182:A:P    | 2.42                     | 0.42              |
| 1:A:2457:A:H2'  | 1:A:2458:U:O4'  | 2.19                     | 0.42              |
| 1:A:85:C:O2'    | 1:A:86:U:H5'    | 2.19                     | 0.42              |
| 1:A:118:U:H1'   | 1:A:143:A:C8    | 2.54                     | 0.42              |
| 1:A:150:A:C2'   | 1:A:151:G:H5'   | 2.49                     | 0.42              |
| 1:A:173:A:O2'   | 1:A:174:A:OP1   | 2.34                     | 0.42              |
| 1:A:723:C:O2'   | 1:A:724:C:H5'   | 2.20                     | 0.42              |

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| Atom-1         | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-----------------|--------------------------|-------------------|
| 1:A:773:G:C2'  | 1:A:774:A:H5'   | 2.50                     | 0.42              |
| 1:A:1341:G:N2  | 1:A:1664:G:H22  | 2.17                     | 0.42              |
| 1:A:1429:A:H62 | 1:A:1601:U:H5'  | 1.85                     | 0.42              |
| 1:A:2312:A:O2' | 1:A:2313:G:P    | 2.78                     | 0.42              |
| 1:A:468:A:H1'  | 1:A:470:U:C6    | 2.54                     | 0.42              |
| 1:A:490:A:O2'  | 1:A:492:G:H5''  | 2.20                     | 0.42              |
| 1:A:518:A:O2'  | 1:A:519:C:C6    | 2.73                     | 0.42              |
| 1:A:759:C:OP1  | 1:A:761:G:H4'   | 2.20                     | 0.42              |
| 1:A:1144:U:O2  | 1:A:1144:U:C2'  | 2.64                     | 0.42              |
| 1:A:1194:U:H2' | 1:A:1195:U:C6   | 2.54                     | 0.42              |
| 1:A:1313:U:O2' | 1:A:1314:A:P    | 2.77                     | 0.42              |
| 1:A:1432:G:H22 | 1:A:1594:U:H3'  | 1.85                     | 0.42              |
| 1:A:114:C:H2'  | 1:A:115:G:O4'   | 2.19                     | 0.42              |
| 1:A:540:G:C2   | 1:A:2005:U:H5'' | 2.54                     | 0.42              |
| 1:A:588:G:H4'  | 1:A:2001:G:O2'  | 2.19                     | 0.42              |
| 1:A:944:A:O2'  | 1:A:945:G:H5'   | 2.19                     | 0.42              |
| 1:A:1325:U:O2' | 1:A:1326:U:OP2  | 2.33                     | 0.42              |
| 1:A:1356:G:H1' | 1:A:1613:G:C4   | 2.55                     | 0.42              |
| 1:A:1769:U:O4  | 1:A:1775:A:H1'  | 2.20                     | 0.42              |
| 1:A:682:G:H2'  | 1:A:683:A:O5'   | 2.19                     | 0.42              |
| 1:A:824:U:O2'  | 1:A:825:C:P     | 2.78                     | 0.42              |
| 1:A:1032:A:H3' | 1:A:1033:G:H5'' | 2.02                     | 0.42              |
| 1:A:1424:U:H2' | 1:A:1425:G:H8   | 1.84                     | 0.42              |
| 1:A:1683:G:H2' | 1:A:1684:G:O4'  | 2.20                     | 0.42              |
| 1:A:2204:A:O2' | 1:A:2205:C:OP2  | 2.26                     | 0.42              |
| 1:A:2357:A:H2' | 1:A:2358:C:C5'  | 2.49                     | 0.42              |
| 1:A:2374:C:H2' | 1:A:2375:G:O4'  | 2.20                     | 0.42              |
| 1:A:2404:A:H4' | 1:A:2405:A:C5'  | 2.49                     | 0.42              |
| 1:A:2454:C:C2' | 1:A:2455:A:H4'  | 2.49                     | 0.42              |
| 1:A:2463:G:O2' | 1:A:2464:G:H5'  | 2.20                     | 0.42              |
| 1:A:2633:A:N6  | 1:A:2646:C:N4   | 2.68                     | 0.42              |
| 1:A:2811:G:H2' | 1:A:2812:A:C8   | 2.54                     | 0.42              |
| 1:A:2814:G:H2' | 1:A:2815:C:C6   | 2.54                     | 0.42              |
| 1:A:2874:A:H2' | 1:A:2875:C:C6   | 2.53                     | 0.42              |
| 1:A:69:G:H4'   | 1:A:70:A:OP1    | 2.20                     | 0.42              |
| 1:A:92:U:H2'   | 1:A:93:A:C8     | 2.54                     | 0.42              |
| 1:A:192:G:H1'  | 1:A:193:A:H4'   | 2.02                     | 0.42              |
| 1:A:999:A:H4'  | 1:A:1166:A:H61  | 1.85                     | 0.42              |
| 1:A:1028:G:H2' | 1:A:1029:C:C6   | 2.55                     | 0.42              |
| 1:A:1350:G:O2' | 1:A:1351:G:H5'  | 2.19                     | 0.42              |
| 1:A:1467:U:H3' | 1:A:1468:A:C5'  | 2.37                     | 0.42              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:1680:U:O2'   | 1:A:2665:G:H4'   | 2.20                     | 0.42              |
| 1:A:1791:C:C4'   | 1:A:1793:A:H5'   | 2.49                     | 0.42              |
| 1:A:1851:A:H61   | 1:A:1867:A:H1'   | 1.85                     | 0.42              |
| 1:A:1926:U:H4'   | 1:A:1927:U:O5'   | 2.20                     | 0.42              |
| 1:A:1948:C:H2'   | 1:A:1949:A:C8    | 2.55                     | 0.42              |
| 1:A:2524:G:H2'   | 1:A:2525:U:O4'   | 2.20                     | 0.42              |
| 1:A:2787:A:O2'   | 1:A:2788:C:H5'   | 2.19                     | 0.42              |
| 1:A:317:U:C3'    | 1:A:318:G:H5''   | 2.50                     | 0.42              |
| 1:A:646:C:O2'    | 1:A:650:U:H5''   | 2.20                     | 0.42              |
| 1:A:810:U:H2'    | 1:A:811:G:C8     | 2.55                     | 0.42              |
| 1:A:948:C:H2'    | 1:A:949:G:H8     | 1.85                     | 0.42              |
| 1:A:1013:G:O2'   | 1:A:1014:G:H5'   | 2.19                     | 0.42              |
| 1:A:1607:A:H2'   | 1:A:1608:U:C6    | 2.55                     | 0.42              |
| 1:A:1623:C:C2'   | 1:A:1624:A:OP2   | 2.68                     | 0.42              |
| 1:A:1686:A:H2'   | 1:A:1686:A:N3    | 2.34                     | 0.42              |
| 1:A:1880:G:H2'   | 1:A:1881:U:H6    | 1.85                     | 0.42              |
| 5:A:2881:ERY:C37 | 5:A:2881:ERY:C1  | 2.96                     | 0.42              |
| 1:A:56:C:H2'     | 1:A:57:G:O4'     | 2.19                     | 0.42              |
| 1:A:64:C:H2'     | 1:A:65:C:H6      | 1.84                     | 0.42              |
| 1:A:527:C:O2'    | 1:A:528:G:H5'    | 2.19                     | 0.42              |
| 1:A:529:U:H2'    | 1:A:530:G:H8     | 1.84                     | 0.42              |
| 1:A:800:U:H3'    | 1:A:804:C:N4     | 2.35                     | 0.42              |
| 1:A:801:A:P      | 1:A:804:C:H41    | 2.43                     | 0.42              |
| 1:A:850:C:N4     | 1:A:952:A:H61    | 2.16                     | 0.42              |
| 1:A:1141:U:H4'   | 1:A:1142:G:OP1   | 2.20                     | 0.42              |
| 1:A:1212:U:H2'   | 1:A:1213:U:C6    | 2.55                     | 0.42              |
| 1:A:1261:G:H4'   | 1:A:1262:U:OP1   | 2.20                     | 0.42              |
| 1:A:1399:C:O2'   | 1:A:1400:A:H5'   | 2.19                     | 0.42              |
| 1:A:1888:C:H2'   | 1:A:1913:G:C5    | 2.55                     | 0.42              |
| 1:A:1984:A:H2'   | 1:A:1985:G:C8    | 2.55                     | 0.42              |
| 1:A:2026:C:H2'   | 1:A:2027:C:C6    | 2.55                     | 0.42              |
| 1:A:2508:G:H5''  | 1:A:2509:A:H5''  | 2.02                     | 0.42              |
| 5:A:2881:ERY:C21 | 5:A:2881:ERY:C11 | 2.98                     | 0.42              |
| 1:A:514:G:O2'    | 1:A:515:A:OP2    | 2.35                     | 0.41              |
| 1:A:700:C:H1'    | 1:A:801:A:O4'    | 2.20                     | 0.41              |
| 1:A:1021:A:H1'   | 1:A:1164:C:H1'   | 2.01                     | 0.41              |
| 1:A:1226:A:H62   | 1:A:1249:G:H1'   | 1.84                     | 0.41              |
| 1:A:2029:G:H2'   | 1:A:2030:U:C6    | 2.55                     | 0.41              |
| 1:A:2507:U:O2'   | 1:A:2508:G:H3'   | 2.20                     | 0.41              |
| 1:A:2623:A:H2'   | 1:A:2624:G:O4'   | 2.20                     | 0.41              |
| 1:A:2759:U:H4'   | 1:A:2760:G:O5'   | 2.20                     | 0.41              |

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| Atom-1           | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-----------------|--------------------------|-------------------|
| 1:A:611:C:C2'    | 1:A:612:G:H5'   | 2.50                     | 0.41              |
| 1:A:879:A:O2'    | 1:A:880:C:P     | 2.78                     | 0.41              |
| 1:A:982:C:H2'    | 1:A:983:G:C8    | 2.55                     | 0.41              |
| 1:A:1072:U:H1'   | 1:A:1073:G:N7   | 2.35                     | 0.41              |
| 1:A:1377:G:H5'   | 1:A:1800:A:O4'  | 2.20                     | 0.41              |
| 1:A:1386:A:H5''  | 1:A:2191:A:N6   | 2.35                     | 0.41              |
| 1:A:1553:G:O5'   | 1:A:1553:G:H8   | 2.03                     | 0.41              |
| 1:A:1703:C:H2'   | 1:A:1704:G:O4'  | 2.20                     | 0.41              |
| 1:A:2440:C:H1'   | 1:A:2471:U:C2   | 2.54                     | 0.41              |
| 1:A:328:A:O2'    | 1:A:329:C:H5'   | 2.20                     | 0.41              |
| 1:A:384:A:O2'    | 1:A:385:G:H4'   | 2.20                     | 0.41              |
| 1:A:457:C:H2'    | 1:A:458:G:O4'   | 2.20                     | 0.41              |
| 1:A:558:G:H5''   | 1:A:559:C:H5    | 1.83                     | 0.41              |
| 1:A:583:C:H4'    | 1:A:584:A:OP2   | 2.20                     | 0.41              |
| 1:A:722:C:H2'    | 1:A:723:C:C6    | 2.55                     | 0.41              |
| 1:A:957:G:H2'    | 1:A:958:G:C8    | 2.55                     | 0.41              |
| 1:A:982:C:O2'    | 1:A:994:A:N3    | 2.53                     | 0.41              |
| 1:A:2032:G:H2'   | 1:A:2033:C:H6   | 1.81                     | 0.41              |
| 1:A:2298:U:H5'   | 1:A:2299:A:OP1  | 2.20                     | 0.41              |
| 1:A:2600:A:O2'   | 1:A:2601:C:H5'  | 2.20                     | 0.41              |
| 5:A:2881:ERY:H18 | 5:A:2881:ERY:H5 | 2.02                     | 0.41              |
| 1:A:76:C:H2'     | 1:A:77:C:C6     | 2.55                     | 0.41              |
| 1:A:161:U:H2'    | 1:A:162:C:C6    | 2.55                     | 0.41              |
| 1:A:306:G:O2'    | 1:A:307:C:H5'   | 2.19                     | 0.41              |
| 1:A:504:G:O2'    | 1:A:505:G:H5'   | 2.20                     | 0.41              |
| 1:A:984:A:O2'    | 1:A:985:G:P     | 2.77                     | 0.41              |
| 1:A:1056:U:H1'   | 1:A:1058:G:H1   | 1.85                     | 0.41              |
| 1:A:1111:C:H2'   | 1:A:1112:U:H5'  | 2.01                     | 0.41              |
| 1:A:1301:U:O2'   | 1:A:1302:C:P    | 2.78                     | 0.41              |
| 1:A:1319:C:O2'   | 1:A:1320:A:H5'  | 2.20                     | 0.41              |
| 1:A:1473:U:O2'   | 1:A:1474:A:OP2  | 2.38                     | 0.41              |
| 1:A:1604:A:H2'   | 1:A:1605:A:O4'  | 2.20                     | 0.41              |
| 1:A:1790:G:C2'   | 1:A:1791:C:OP2  | 2.68                     | 0.41              |
| 1:A:2522:G:H2'   | 1:A:2523:G:C8   | 2.55                     | 0.41              |
| 1:A:2539:C:H2'   | 1:A:2540:A:C8   | 2.56                     | 0.41              |
| 1:A:2622:G:H2'   | 1:A:2623:A:O4'  | 2.20                     | 0.41              |
| 1:A:2676:G:H2'   | 1:A:2677:U:O4'  | 2.20                     | 0.41              |
| 1:A:2745:A:H3'   | 1:A:2745:A:N3   | 2.35                     | 0.41              |
| 1:A:772:G:H2'    | 1:A:773:G:H8    | 1.85                     | 0.41              |
| 1:A:775:U:O2'    | 1:A:776:G:OP2   | 2.29                     | 0.41              |
| 1:A:852:U:H2'    | 1:A:853:C:C6    | 2.56                     | 0.41              |

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| Atom-1          | Atom-2         | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|----------------|--------------------------|-------------------|
| 1:A:925:U:H5''  | 1:A:926:C:OP1  | 2.20                     | 0.41              |
| 1:A:930:A:H3'   | 1:A:931:G:C8   | 2.55                     | 0.41              |
| 1:A:1127:C:H2'  | 1:A:1128:G:H5' | 2.02                     | 0.41              |
| 1:A:1177:U:H2'  | 1:A:1178:C:C6  | 2.55                     | 0.41              |
| 1:A:1353:A:H2'  | 1:A:1618:U:O2  | 2.20                     | 0.41              |
| 1:A:1664:G:O5'  | 1:A:1665:C:OP1 | 2.38                     | 0.41              |
| 1:A:1809:G:C2   | 1:A:1810:U:H1' | 2.55                     | 0.41              |
| 1:A:2016:A:O2'  | 1:A:2017:U:P   | 2.79                     | 0.41              |
| 1:A:2158:C:H2'  | 1:A:2159:A:C8  | 2.55                     | 0.41              |
| 1:A:2265:A:H4'  | 1:A:2266:A:N9  | 2.35                     | 0.41              |
| 1:A:2429:A:H5'' | 1:A:2476:A:C5  | 2.55                     | 0.41              |
| 1:A:2473:G:O2'  | 1:A:2474:G:H5' | 2.21                     | 0.41              |
| 1:A:2690:A:H5'' | 1:A:2691:C:H5' | 2.02                     | 0.41              |
| 1:A:114:C:H4'   | 1:A:124:A:O2'  | 2.21                     | 0.41              |
| 1:A:313:U:H2'   | 1:A:314:G:C8   | 2.56                     | 0.41              |
| 1:A:572:G:H5'   | 1:A:581:A:C4'  | 2.49                     | 0.41              |
| 1:A:642:A:H2'   | 1:A:643:A:O4'  | 2.20                     | 0.41              |
| 1:A:644:A:H2'   | 1:A:645:G:O4'  | 2.21                     | 0.41              |
| 1:A:677:G:H4'   | 1:A:951:G:O3'  | 2.21                     | 0.41              |
| 1:A:767:G:H2'   | 1:A:768:U:C6   | 2.56                     | 0.41              |
| 1:A:773:G:H2'   | 1:A:774:A:H5'  | 2.02                     | 0.41              |
| 1:A:911:A:H2'   | 1:A:912:A:H8   | 1.85                     | 0.41              |
| 1:A:942:U:O5'   | 1:A:942:U:H6   | 2.03                     | 0.41              |
| 1:A:1333:G:N2   | 1:A:1344:C:C5  | 2.89                     | 0.41              |
| 1:A:1579:G:O2'  | 1:A:1580:C:H5' | 2.20                     | 0.41              |
| 1:A:1669:A:N6   | 1:A:1670:G:H21 | 2.07                     | 0.41              |
| 1:A:1698:C:H4'  | 1:A:1754:G:C8  | 2.56                     | 0.41              |
| 1:A:2407:G:H5'' | 1:A:2408:G:C2  | 2.55                     | 0.41              |
| 1:A:2407:G:O5'  | 1:A:2408:G:OP1 | 2.39                     | 0.41              |
| 1:A:2807:U:H1'  | 1:A:2809:A:C5  | 2.55                     | 0.41              |
| 1:A:117:A:H4'   | 1:A:118:U:O5'  | 2.21                     | 0.41              |
| 1:A:125:A:H5''  | 1:A:126:C:C6   | 2.56                     | 0.41              |
| 1:A:146:C:H2'   | 1:A:147:G:C8   | 2.55                     | 0.41              |
| 1:A:227:G:H2'   | 1:A:228:A:H8   | 1.86                     | 0.41              |
| 1:A:331:U:H4'   | 1:A:333:A:C8   | 2.55                     | 0.41              |
| 1:A:400:U:H4'   | 1:A:401:G:N9   | 2.35                     | 0.41              |
| 1:A:827:C:H2'   | 1:A:828:C:C6   | 2.55                     | 0.41              |
| 1:A:1121:G:H4'  | 1:A:2731:G:N2  | 2.35                     | 0.41              |
| 1:A:1227:A:C4'  | 1:A:1252:C:H4' | 2.50                     | 0.41              |
| 1:A:1450:G:H1'  | 1:A:1493:A:H1' | 2.01                     | 0.41              |
| 1:A:1800:A:C5'  | 1:A:1801:C:OP1 | 2.64                     | 0.41              |

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| Atom-1          | Atom-2         | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|----------------|--------------------------|-------------------|
| 1:A:2070:G:H2'  | 1:A:2071:G:C8  | 2.56                     | 0.41              |
| 1:A:2553:G:H2'  | 1:A:2554:C:O4' | 2.20                     | 0.41              |
| 1:A:2664:G:O2'  | 1:A:2665:G:H5' | 2.19                     | 0.41              |
| 1:A:2785:A:O2'  | 1:A:2786:G:H5' | 2.20                     | 0.41              |
| 1:A:163:A:H2'   | 1:A:164:G:H8   | 1.85                     | 0.41              |
| 1:A:462:G:H1    | 1:A:466:A:P    | 2.44                     | 0.41              |
| 1:A:553:C:H5'   | 1:A:554:U:OP1  | 2.21                     | 0.41              |
| 1:A:560:G:H2'   | 1:A:561:U:C6   | 2.55                     | 0.41              |
| 1:A:618:A:C2'   | 1:A:619:A:H5'  | 2.50                     | 0.41              |
| 1:A:631:G:H4'   | 1:A:632:A:C8   | 2.54                     | 0.41              |
| 1:A:652:C:N4    | 1:A:657:A:N6   | 2.67                     | 0.41              |
| 1:A:762:A:H2'   | 1:A:763:A:C8   | 2.54                     | 0.41              |
| 1:A:807:A:H2'   | 1:A:808:C:C6   | 2.56                     | 0.41              |
| 1:A:1077:U:H2'  | 1:A:1079:G:OP2 | 2.20                     | 0.41              |
| 1:A:1278:A:O2'  | 1:A:1279:G:OP2 | 2.38                     | 0.41              |
| 1:A:1289:A:H2'  | 1:A:1290:A:C8  | 2.56                     | 0.41              |
| 1:A:1574:A:O2'  | 1:A:1575:C:H3' | 2.21                     | 0.41              |
| 1:A:1664:G:H4'  | 1:A:1665:C:O5' | 2.20                     | 0.41              |
| 1:A:1687:C:H2'  | 1:A:1688:U:O4' | 2.21                     | 0.41              |
| 1:A:1976:U:O2'  | 1:A:1977:C:H5' | 2.20                     | 0.41              |
| 1:A:2254:C:C2'  | 1:A:2255:G:OP2 | 2.68                     | 0.41              |
| 1:A:2492:G:H2'  | 1:A:2493:U:C6  | 2.56                     | 0.41              |
| 1:A:2722:C:H2'  | 1:A:2723:C:H6  | 1.85                     | 0.41              |
| 1:A:29:U:O5'    | 1:A:29:U:H6    | 2.04                     | 0.41              |
| 1:A:48:A:H2     | 1:A:118:U:N3   | 2.16                     | 0.41              |
| 1:A:150:A:H2'   | 1:A:151:G:H5'  | 2.01                     | 0.41              |
| 1:A:176:A:H5''  | 1:A:177:U:C5   | 2.55                     | 0.41              |
| 1:A:386:U:H5    | 1:A:413:G:N2   | 2.18                     | 0.41              |
| 1:A:534:U:H2'   | 1:A:535:U:C6   | 2.56                     | 0.41              |
| 1:A:682:G:C2'   | 1:A:683:A:O5'  | 2.69                     | 0.41              |
| 1:A:692:C:H2'   | 1:A:693:A:H8   | 1.86                     | 0.41              |
| 1:A:838:A:H4'   | 1:A:2407:G:N7  | 2.36                     | 0.41              |
| 1:A:995:A:C5'   | 1:A:996:C:H5   | 2.34                     | 0.41              |
| 1:A:1022:A:O2'  | 1:A:1023:U:H4' | 2.20                     | 0.41              |
| 1:A:1163:C:H2'  | 1:A:1164:C:H6  | 1.85                     | 0.41              |
| 1:A:1226:A:C6   | 1:A:1250:A:H1' | 2.56                     | 0.41              |
| 1:A:1260:A:H4'  | 1:A:1261:G:OP1 | 2.20                     | 0.41              |
| 1:A:1368:G:H2'  | 1:A:1369:G:C8  | 2.55                     | 0.41              |
| 1:A:1473:U:H1'  | 1:A:1474:A:C5  | 2.55                     | 0.41              |
| 1:A:1504:G:HO2' | 1:A:1505:U:H5  | 1.69                     | 0.41              |
| 1:A:1520:G:O2'  | 1:A:1521:U:H5' | 2.21                     | 0.41              |

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| Atom-1          | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:A:1547:U:H2'  | 1:A:1548:U:C6   | 2.56                     | 0.41              |
| 1:A:1564:U:O2'  | 1:A:1565:G:H5'  | 2.21                     | 0.41              |
| 1:A:1641:C:H2'  | 1:A:1642:G:O4'  | 2.20                     | 0.41              |
| 1:A:1674:C:H6   | 1:A:1674:C:O5'  | 2.04                     | 0.41              |
| 1:A:1825:C:O2'  | 1:A:1826:U:H5'  | 2.20                     | 0.41              |
| 1:A:1825:C:H2'  | 1:A:1826:U:H6   | 1.86                     | 0.41              |
| 1:A:1898:U:H5'' | 1:A:1899:A:C8   | 2.55                     | 0.41              |
| 1:A:1898:U:H5'  | 1:A:1899:A:OP2  | 2.20                     | 0.41              |
| 1:A:1926:U:O2'  | 1:A:1927:U:OP2  | 2.37                     | 0.41              |
| 1:A:2026:C:H2'  | 1:A:2027:C:H6   | 1.85                     | 0.41              |
| 1:A:2496:C:O2'  | 1:A:2497:A:H3'  | 2.20                     | 0.41              |
| 1:A:2661:G:H2'  | 1:A:2662:C:H5'  | 2.03                     | 0.41              |
| 1:A:2756:A:O2'  | 1:A:2757:G:OP2  | 2.37                     | 0.41              |
| 1:A:2810:A:HO2' | 1:A:2811:G:H8   | 1.58                     | 0.41              |
| 1:A:477:A:C2'   | 1:A:478:G:H5'   | 2.51                     | 0.41              |
| 1:A:640:C:H4'   | 1:A:660:G:H21   | 1.86                     | 0.41              |
| 1:A:742:G:N3    | 1:A:742:G:C2'   | 2.84                     | 0.41              |
| 1:A:1252:C:O2'  | 1:A:1253:C:H5'' | 2.21                     | 0.41              |
| 1:A:1282:A:O2'  | 1:A:1283:C:H5'  | 2.20                     | 0.41              |
| 1:A:1631:C:O2'  | 1:A:1632:A:P    | 2.79                     | 0.41              |
| 1:A:1760:G:H2'  | 1:A:1761:G:H8   | 1.85                     | 0.41              |
| 1:A:1886:G:H2'  | 1:A:1887:G:H8   | 1.86                     | 0.41              |
| 1:A:1949:A:H5'' | 1:A:1950:C:OP1  | 2.21                     | 0.41              |
| 1:A:2166:G:O2'  | 1:A:2167:A:H5'  | 2.20                     | 0.41              |
| 1:A:2668:U:O2'  | 1:A:2669:C:P    | 2.78                     | 0.41              |
| 1:A:155:G:H2'   | 1:A:156:G:O4'   | 2.21                     | 0.40              |
| 1:A:490:A:O2'   | 1:A:492:G:C5'   | 2.69                     | 0.40              |
| 1:A:851:C:O2'   | 1:A:852:U:H5'   | 2.20                     | 0.40              |
| 1:A:1273:G:H2'  | 1:A:1274:C:C6   | 2.56                     | 0.40              |
| 1:A:1285:A:O2'  | 1:A:1286:U:P    | 2.78                     | 0.40              |
| 1:A:1338:G:H5'  | 1:A:1339:U:P    | 2.61                     | 0.40              |
| 1:A:1397:A:O2'  | 1:A:1398:G:H5'' | 2.21                     | 0.40              |
| 1:A:1467:U:N3   | 1:A:1473:U:N3   | 2.66                     | 0.40              |
| 1:A:1618:U:H3'  | 1:A:1619:A:C2   | 2.55                     | 0.40              |
| 1:A:1662:G:H5'' | 1:A:1663:C:O4'  | 2.21                     | 0.40              |
| 1:A:1925:C:C4   | 1:A:1926:U:C4   | 3.09                     | 0.40              |
| 1:A:1972:G:H2'  | 1:A:1973:C:C6   | 2.56                     | 0.40              |
| 1:A:2322:U:HO2' | 1:A:2323:U:H5'  | 1.86                     | 0.40              |
| 1:A:2526:U:H2'  | 1:A:2527:G:C8   | 2.56                     | 0.40              |
| 1:A:2694:G:H2'  | 1:A:2695:C:O4'  | 2.21                     | 0.40              |
| 1:A:2807:U:O4   | 1:A:2859:U:H5'  | 2.20                     | 0.40              |

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| Atom-1          | Atom-2         | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|----------------|--------------------------|-------------------|
| 1:A:20:C:H2'    | 1:A:21:A:H8    | 1.86                     | 0.40              |
| 1:A:155:G:H2'   | 1:A:156:G:H8   | 1.85                     | 0.40              |
| 1:A:157:G:H5'   | 1:A:158:A:OP1  | 2.20                     | 0.40              |
| 1:A:612:G:H4'   | 1:A:613:A:O3'  | 2.21                     | 0.40              |
| 1:A:797:A:O2'   | 1:A:798:G:C8   | 2.74                     | 0.40              |
| 1:A:804:C:O2'   | 1:A:806:A:H1'  | 2.22                     | 0.40              |
| 1:A:1240:G:H2'  | 1:A:1241:G:H8  | 1.86                     | 0.40              |
| 1:A:1626:A:H5'' | 1:A:1627:C:P   | 2.62                     | 0.40              |
| 1:A:1685:A:N1   | 1:A:1691:G:H1' | 2.36                     | 0.40              |
| 1:A:1685:A:HO2' | 1:A:1686:A:P   | 2.45                     | 0.40              |
| 1:A:1982:C:H5'' | 1:A:2703:C:O2' | 2.21                     | 0.40              |
| 1:A:2202:G:H2'  | 1:A:2203:G:O4' | 2.21                     | 0.40              |
| 1:A:2828:C:H2'  | 1:A:2829:A:H8  | 1.87                     | 0.40              |
| 1:A:14:A:H61    | 1:A:2603:G:H21 | 1.70                     | 0.40              |
| 1:A:155:G:O2'   | 1:A:156:G:H5'  | 2.21                     | 0.40              |
| 1:A:176:A:H3'   | 1:A:177:U:H5   | 1.83                     | 0.40              |
| 1:A:437:G:O2'   | 1:A:438:G:H5'  | 2.21                     | 0.40              |
| 1:A:461:A:O2'   | 1:A:462:G:H5'  | 2.22                     | 0.40              |
| 1:A:469:G:C2'   | 1:A:470:U:OP2  | 2.68                     | 0.40              |
| 1:A:493:A:N6    | 1:A:516:G:H2'  | 2.36                     | 0.40              |
| 1:A:563:U:O2'   | 1:A:564:U:H5'  | 2.20                     | 0.40              |
| 1:A:573:C:H2'   | 1:A:574:C:O4'  | 2.20                     | 0.40              |
| 1:A:636:G:H2'   | 1:A:637:G:C5'  | 2.51                     | 0.40              |
| 1:A:805:G:H5''  | 1:A:806:A:O5'  | 2.21                     | 0.40              |
| 1:A:914:C:O2'   | 1:A:915:C:H5'  | 2.21                     | 0.40              |
| 1:A:941:U:H2'   | 1:A:942:U:C6   | 2.56                     | 0.40              |
| 1:A:1136:G:C6   | 1:A:1137:A:N6  | 2.90                     | 0.40              |
| 1:A:1680:U:H4'  | 1:A:2666:U:OP1 | 2.21                     | 0.40              |
| 1:A:1756:C:O2'  | 1:A:1757:C:H5' | 2.22                     | 0.40              |
| 1:A:1763:G:H2'  | 1:A:1764:A:C5' | 2.52                     | 0.40              |
| 1:A:2013:A:H4'  | 1:A:2014:A:N7  | 2.35                     | 0.40              |
| 1:A:2094:C:H41  | 1:A:2162:C:H42 | 1.68                     | 0.40              |
| 1:A:2237:C:N3   | 1:A:2405:A:H5' | 2.36                     | 0.40              |
| 1:A:2624:G:H4'  | 1:A:2712:G:C2' | 2.52                     | 0.40              |
| 1:A:2740:C:H2'  | 1:A:2741:G:H8  | 1.86                     | 0.40              |
| 1:A:2830:U:H2'  | 1:A:2831:A:H8  | 1.86                     | 0.40              |
| 1:A:18:U:O2'    | 1:A:563:U:H5'' | 2.21                     | 0.40              |
| 1:A:238:G:O2'   | 1:A:239:A:H5'  | 2.20                     | 0.40              |
| 1:A:492:G:H1'   | 1:A:516:G:H21  | 1.87                     | 0.40              |
| 1:A:593:C:H6    | 1:A:593:C:O5'  | 2.04                     | 0.40              |
| 1:A:651:C:C3'   | 1:A:652:C:C5'  | 3.00                     | 0.40              |

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| Atom-1         | Atom-2         | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|----------------|--------------------------|-------------------|
| 1:A:792:U:H2'  | 1:A:793:G:O4'  | 2.22                     | 0.40              |
| 1:A:799:C:H2'  | 1:A:800:U:O4'  | 2.21                     | 0.40              |
| 1:A:1039:A:H61 | 1:A:1136:G:H2' | 1.87                     | 0.40              |
| 1:A:1223:G:H4' | 1:A:1224:A:C5' | 2.51                     | 0.40              |
| 1:A:1534:A:O2' | 1:A:1535:C:H5' | 2.21                     | 0.40              |
| 1:A:1829:C:C2' | 1:A:1830:C:H5' | 2.52                     | 0.40              |
| 1:A:2181:A:O2' | 1:A:2182:A:P   | 2.79                     | 0.40              |
| 1:A:2661:G:C2' | 1:A:2662:C:H5' | 2.51                     | 0.40              |
| 1:A:24:G:H2'   | 1:A:25:U:C6    | 2.55                     | 0.40              |
| 1:A:173:A:H3'  | 1:A:173:A:N3   | 2.37                     | 0.40              |
| 1:A:182:G:O2'  | 1:A:183:U:H6   | 2.04                     | 0.40              |
| 1:A:243:G:H2'  | 1:A:244:C:O4'  | 2.21                     | 0.40              |
| 1:A:1029:C:N4  | 1:A:1153:A:H61 | 2.19                     | 0.40              |
| 1:A:1072:U:C5' | 1:A:1073:G:OP1 | 2.69                     | 0.40              |
| 1:A:1540:C:H2' | 1:A:1541:G:C8  | 2.56                     | 0.40              |
| 1:A:1611:U:C2' | 1:A:1612:U:H5' | 2.51                     | 0.40              |
| 1:A:1624:A:C2' | 1:A:1625:A:H5' | 2.52                     | 0.40              |
| 1:A:1820:G:H4' | 1:A:1821:A:OP1 | 2.21                     | 0.40              |
| 1:A:1999:U:H5' | 1:A:2041:A:H5' | 2.04                     | 0.40              |
| 1:A:2455:A:O2' | 1:A:2456:U:H5' | 2.21                     | 0.40              |
| 1:A:2760:G:O2' | 1:A:2761:A:OP1 | 2.32                     | 0.40              |
| 1:A:2785:A:C2' | 1:A:2786:G:H5' | 2.52                     | 0.40              |

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

There are no protein backbone outliers to report in this entry.

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

There are no protein residues with a non-rotameric sidechain to report in this entry.

### 5.3.3 RNA [i](#)

| Mol | Chain | Analysed        | Backbone Outliers | Pucker Outliers |
|-----|-------|-----------------|-------------------|-----------------|
| 1   | A     | 2765/2880 (96%) | 561 (20%)         | 144 (5%)        |

All (561) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 13  | A    |
| 1   | A     | 14  | A    |
| 1   | A     | 15  | G    |
| 1   | A     | 23  | G    |
| 1   | A     | 45  | C    |
| 1   | A     | 48  | A    |
| 1   | A     | 49  | U    |
| 1   | A     | 50  | G    |
| 1   | A     | 58  | C    |
| 1   | A     | 60  | A    |
| 1   | A     | 67  | G    |
| 1   | A     | 70  | A    |
| 1   | A     | 71  | A    |
| 1   | A     | 72  | A    |
| 1   | A     | 74  | G    |
| 1   | A     | 84  | G    |
| 1   | A     | 87  | G    |
| 1   | A     | 89  | A    |
| 1   | A     | 90  | G    |
| 1   | A     | 97  | U    |
| 1   | A     | 99  | U    |
| 1   | A     | 100 | G    |
| 1   | A     | 105 | G    |
| 1   | A     | 110 | U    |
| 1   | A     | 117 | A    |
| 1   | A     | 118 | U    |
| 1   | A     | 119 | G    |
| 1   | A     | 120 | G    |
| 1   | A     | 123 | A    |
| 1   | A     | 124 | A    |
| 1   | A     | 129 | A    |
| 1   | A     | 135 | U    |
| 1   | A     | 149 | A    |
| 1   | A     | 155 | G    |
| 1   | A     | 158 | A    |
| 1   | A     | 173 | A    |
| 1   | A     | 174 | A    |
| 1   | A     | 177 | U    |
| 1   | A     | 181 | A    |
| 1   | A     | 182 | G    |
| 1   | A     | 183 | U    |
| 1   | A     | 193 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 199 | A    |
| 1   | A     | 200 | A    |
| 1   | A     | 205 | A    |
| 1   | A     | 206 | U    |
| 1   | A     | 210 | A    |
| 1   | A     | 218 | A    |
| 1   | A     | 219 | G    |
| 1   | A     | 225 | G    |
| 1   | A     | 226 | C    |
| 1   | A     | 227 | G    |
| 1   | A     | 242 | A    |
| 1   | A     | 243 | G    |
| 1   | A     | 245 | C    |
| 1   | A     | 305 | A    |
| 1   | A     | 318 | G    |
| 1   | A     | 320 | A    |
| 1   | A     | 323 | G    |
| 1   | A     | 333 | A    |
| 1   | A     | 334 | G    |
| 1   | A     | 335 | A    |
| 1   | A     | 340 | G    |
| 1   | A     | 341 | A    |
| 1   | A     | 342 | G    |
| 1   | A     | 343 | A    |
| 1   | A     | 358 | C    |
| 1   | A     | 360 | A    |
| 1   | A     | 363 | G    |
| 1   | A     | 368 | A    |
| 1   | A     | 385 | G    |
| 1   | A     | 399 | G    |
| 1   | A     | 403 | A    |
| 1   | A     | 404 | A    |
| 1   | A     | 408 | U    |
| 1   | A     | 409 | G    |
| 1   | A     | 414 | A    |
| 1   | A     | 418 | C    |
| 1   | A     | 419 | G    |
| 1   | A     | 424 | G    |
| 1   | A     | 456 | C    |
| 1   | A     | 459 | A    |
| 1   | A     | 460 | U    |
| 1   | A     | 461 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 463 | C    |
| 1   | A     | 467 | U    |
| 1   | A     | 469 | G    |
| 1   | A     | 470 | U    |
| 1   | A     | 484 | G    |
| 1   | A     | 486 | U    |
| 1   | A     | 491 | A    |
| 1   | A     | 492 | G    |
| 1   | A     | 514 | G    |
| 1   | A     | 515 | A    |
| 1   | A     | 517 | A    |
| 1   | A     | 518 | A    |
| 1   | A     | 519 | C    |
| 1   | A     | 537 | C    |
| 1   | A     | 540 | G    |
| 1   | A     | 541 | C    |
| 1   | A     | 542 | A    |
| 1   | A     | 554 | U    |
| 1   | A     | 555 | U    |
| 1   | A     | 556 | A    |
| 1   | A     | 558 | G    |
| 1   | A     | 559 | C    |
| 1   | A     | 572 | G    |
| 1   | A     | 575 | U    |
| 1   | A     | 582 | G    |
| 1   | A     | 583 | C    |
| 1   | A     | 584 | A    |
| 1   | A     | 601 | A    |
| 1   | A     | 602 | C    |
| 1   | A     | 613 | A    |
| 1   | A     | 616 | U    |
| 1   | A     | 617 | U    |
| 1   | A     | 624 | A    |
| 1   | A     | 626 | A    |
| 1   | A     | 627 | A    |
| 1   | A     | 631 | G    |
| 1   | A     | 632 | A    |
| 1   | A     | 638 | A    |
| 1   | A     | 652 | C    |
| 1   | A     | 655 | A    |
| 1   | A     | 656 | U    |
| 1   | A     | 665 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 666 | U    |
| 1   | A     | 667 | U    |
| 1   | A     | 668 | A    |
| 1   | A     | 669 | G    |
| 1   | A     | 683 | A    |
| 1   | A     | 684 | C    |
| 1   | A     | 699 | G    |
| 1   | A     | 700 | C    |
| 1   | A     | 703 | A    |
| 1   | A     | 728 | G    |
| 1   | A     | 739 | G    |
| 1   | A     | 742 | G    |
| 1   | A     | 743 | A    |
| 1   | A     | 753 | U    |
| 1   | A     | 760 | U    |
| 1   | A     | 766 | A    |
| 1   | A     | 776 | G    |
| 1   | A     | 778 | G    |
| 1   | A     | 787 | A    |
| 1   | A     | 789 | G    |
| 1   | A     | 790 | A    |
| 1   | A     | 794 | A    |
| 1   | A     | 795 | A    |
| 1   | A     | 796 | A    |
| 1   | A     | 797 | A    |
| 1   | A     | 798 | G    |
| 1   | A     | 802 | A    |
| 1   | A     | 803 | C    |
| 1   | A     | 804 | C    |
| 1   | A     | 805 | G    |
| 1   | A     | 806 | A    |
| 1   | A     | 807 | A    |
| 1   | A     | 813 | A    |
| 1   | A     | 814 | G    |
| 1   | A     | 815 | A    |
| 1   | A     | 818 | G    |
| 1   | A     | 819 | C    |
| 1   | A     | 825 | C    |
| 1   | A     | 832 | A    |
| 1   | A     | 840 | U    |
| 1   | A     | 841 | G    |
| 1   | A     | 843 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 844  | G    |
| 1   | A     | 859  | U    |
| 1   | A     | 873  | U    |
| 1   | A     | 879  | A    |
| 1   | A     | 880  | C    |
| 1   | A     | 910  | C    |
| 1   | A     | 911  | A    |
| 1   | A     | 913  | A    |
| 1   | A     | 919  | U    |
| 1   | A     | 922  | A    |
| 1   | A     | 926  | C    |
| 1   | A     | 930  | A    |
| 1   | A     | 939  | C    |
| 1   | A     | 941  | U    |
| 1   | A     | 944  | A    |
| 1   | A     | 952  | A    |
| 1   | A     | 957  | G    |
| 1   | A     | 964  | A    |
| 1   | A     | 969  | U    |
| 1   | A     | 970  | A    |
| 1   | A     | 972  | C    |
| 1   | A     | 973  | U    |
| 1   | A     | 985  | G    |
| 1   | A     | 994  | A    |
| 1   | A     | 995  | A    |
| 1   | A     | 996  | C    |
| 1   | A     | 1006 | C    |
| 1   | A     | 1007 | A    |
| 1   | A     | 1016 | C    |
| 1   | A     | 1019 | U    |
| 1   | A     | 1020 | A    |
| 1   | A     | 1022 | A    |
| 1   | A     | 1023 | U    |
| 1   | A     | 1024 | G    |
| 1   | A     | 1032 | A    |
| 1   | A     | 1033 | G    |
| 1   | A     | 1034 | U    |
| 1   | A     | 1036 | G    |
| 1   | A     | 1037 | U    |
| 1   | A     | 1044 | U    |
| 1   | A     | 1045 | G    |
| 1   | A     | 1054 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 1055 | A    |
| 1   | A     | 1056 | U    |
| 1   | A     | 1057 | A    |
| 1   | A     | 1058 | G    |
| 1   | A     | 1060 | C    |
| 1   | A     | 1067 | G    |
| 1   | A     | 1072 | U    |
| 1   | A     | 1073 | G    |
| 1   | A     | 1074 | G    |
| 1   | A     | 1075 | C    |
| 1   | A     | 1081 | A    |
| 1   | A     | 1082 | G    |
| 1   | A     | 1083 | C    |
| 1   | A     | 1087 | C    |
| 1   | A     | 1090 | C    |
| 1   | A     | 1101 | U    |
| 1   | A     | 1106 | A    |
| 1   | A     | 1122 | A    |
| 1   | A     | 1130 | U    |
| 1   | A     | 1137 | A    |
| 1   | A     | 1138 | A    |
| 1   | A     | 1142 | G    |
| 1   | A     | 1145 | C    |
| 1   | A     | 1146 | G    |
| 1   | A     | 1149 | G    |
| 1   | A     | 1152 | C    |
| 1   | A     | 1153 | A    |
| 1   | A     | 1154 | A    |
| 1   | A     | 1155 | G    |
| 1   | A     | 1167 | A    |
| 1   | A     | 1172 | U    |
| 1   | A     | 1173 | G    |
| 1   | A     | 1183 | C    |
| 1   | A     | 1187 | A    |
| 1   | A     | 1191 | G    |
| 1   | A     | 1199 | U    |
| 1   | A     | 1200 | G    |
| 1   | A     | 1224 | A    |
| 1   | A     | 1225 | G    |
| 1   | A     | 1233 | A    |
| 1   | A     | 1234 | C    |
| 1   | A     | 1253 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 1261 | G    |
| 1   | A     | 1262 | U    |
| 1   | A     | 1264 | C    |
| 1   | A     | 1266 | G    |
| 1   | A     | 1267 | A    |
| 1   | A     | 1269 | G    |
| 1   | A     | 1275 | A    |
| 1   | A     | 1278 | A    |
| 1   | A     | 1279 | G    |
| 1   | A     | 1280 | U    |
| 1   | A     | 1284 | G    |
| 1   | A     | 1285 | A    |
| 1   | A     | 1286 | U    |
| 1   | A     | 1288 | A    |
| 1   | A     | 1289 | A    |
| 1   | A     | 1300 | A    |
| 1   | A     | 1302 | C    |
| 1   | A     | 1314 | A    |
| 1   | A     | 1315 | A    |
| 1   | A     | 1316 | G    |
| 1   | A     | 1324 | G    |
| 1   | A     | 1326 | U    |
| 1   | A     | 1327 | C    |
| 1   | A     | 1334 | A    |
| 1   | A     | 1338 | G    |
| 1   | A     | 1339 | U    |
| 1   | A     | 1342 | U    |
| 1   | A     | 1343 | C    |
| 1   | A     | 1346 | C    |
| 1   | A     | 1354 | A    |
| 1   | A     | 1355 | A    |
| 1   | A     | 1356 | G    |
| 1   | A     | 1358 | C    |
| 1   | A     | 1359 | G    |
| 1   | A     | 1391 | A    |
| 1   | A     | 1392 | U    |
| 1   | A     | 1397 | A    |
| 1   | A     | 1398 | G    |
| 1   | A     | 1410 | U    |
| 1   | A     | 1411 | C    |
| 1   | A     | 1430 | G    |
| 1   | A     | 1433 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 1434 | U    |
| 1   | A     | 1442 | C    |
| 1   | A     | 1443 | G    |
| 1   | A     | 1459 | U    |
| 1   | A     | 1460 | G    |
| 1   | A     | 1468 | A    |
| 1   | A     | 1469 | U    |
| 1   | A     | 1470 | G    |
| 1   | A     | 1474 | A    |
| 1   | A     | 1475 | U    |
| 1   | A     | 1476 | G    |
| 1   | A     | 1482 | U    |
| 1   | A     | 1490 | U    |
| 1   | A     | 1505 | U    |
| 1   | A     | 1507 | A    |
| 1   | A     | 1509 | A    |
| 1   | A     | 1513 | U    |
| 1   | A     | 1514 | C    |
| 1   | A     | 1522 | C    |
| 1   | A     | 1524 | C    |
| 1   | A     | 1525 | A    |
| 1   | A     | 1526 | U    |
| 1   | A     | 1529 | C    |
| 1   | A     | 1551 | U    |
| 1   | A     | 1553 | G    |
| 1   | A     | 1563 | U    |
| 1   | A     | 1564 | U    |
| 1   | A     | 1571 | G    |
| 1   | A     | 1573 | G    |
| 1   | A     | 1574 | A    |
| 1   | A     | 1575 | C    |
| 1   | A     | 1576 | G    |
| 1   | A     | 1583 | A    |
| 1   | A     | 1585 | A    |
| 1   | A     | 1602 | G    |
| 1   | A     | 1618 | U    |
| 1   | A     | 1623 | C    |
| 1   | A     | 1624 | A    |
| 1   | A     | 1625 | A    |
| 1   | A     | 1627 | C    |
| 1   | A     | 1632 | A    |
| 1   | A     | 1633 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 1634 | A    |
| 1   | A     | 1635 | G    |
| 1   | A     | 1648 | C    |
| 1   | A     | 1652 | G    |
| 1   | A     | 1657 | A    |
| 1   | A     | 1664 | G    |
| 1   | A     | 1665 | C    |
| 1   | A     | 1671 | A    |
| 1   | A     | 1680 | U    |
| 1   | A     | 1686 | A    |
| 1   | A     | 1691 | G    |
| 1   | A     | 1692 | C    |
| 1   | A     | 1699 | A    |
| 1   | A     | 1711 | C    |
| 1   | A     | 1712 | G    |
| 1   | A     | 1715 | A    |
| 1   | A     | 1716 | G    |
| 1   | A     | 1717 | A    |
| 1   | A     | 1724 | C    |
| 1   | A     | 1733 | U    |
| 1   | A     | 1734 | C    |
| 1   | A     | 1735 | G    |
| 1   | A     | 1747 | G    |
| 1   | A     | 1748 | U    |
| 1   | A     | 1749 | G    |
| 1   | A     | 1750 | A    |
| 1   | A     | 1754 | G    |
| 1   | A     | 1755 | G    |
| 1   | A     | 1764 | A    |
| 1   | A     | 1771 | A    |
| 1   | A     | 1773 | C    |
| 1   | A     | 1774 | A    |
| 1   | A     | 1776 | A    |
| 1   | A     | 1778 | U    |
| 1   | A     | 1790 | G    |
| 1   | A     | 1791 | C    |
| 1   | A     | 1792 | C    |
| 1   | A     | 1793 | A    |
| 1   | A     | 1800 | A    |
| 1   | A     | 1801 | C    |
| 1   | A     | 1802 | A    |
| 1   | A     | 1807 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 1808 | C    |
| 1   | A     | 1812 | U    |
| 1   | A     | 1821 | A    |
| 1   | A     | 1831 | G    |
| 1   | A     | 1840 | A    |
| 1   | A     | 1857 | G    |
| 1   | A     | 1884 | A    |
| 1   | A     | 1889 | G    |
| 1   | A     | 1890 | G    |
| 1   | A     | 1896 | A    |
| 1   | A     | 1907 | C    |
| 1   | A     | 1909 | U    |
| 1   | A     | 1913 | G    |
| 1   | A     | 1919 | A    |
| 1   | A     | 1920 | A    |
| 1   | A     | 1922 | U    |
| 1   | A     | 1926 | U    |
| 1   | A     | 1927 | U    |
| 1   | A     | 1928 | G    |
| 1   | A     | 1938 | U    |
| 1   | A     | 1939 | U    |
| 1   | A     | 1946 | U    |
| 1   | A     | 1947 | G    |
| 1   | A     | 1948 | C    |
| 1   | A     | 1949 | A    |
| 1   | A     | 1950 | C    |
| 1   | A     | 1953 | A    |
| 1   | A     | 1954 | A    |
| 1   | A     | 1955 | G    |
| 1   | A     | 1964 | A    |
| 1   | A     | 1976 | U    |
| 1   | A     | 1979 | C    |
| 1   | A     | 2001 | G    |
| 1   | A     | 2004 | U    |
| 1   | A     | 2005 | U    |
| 1   | A     | 2006 | G    |
| 1   | A     | 2014 | A    |
| 1   | A     | 2015 | G    |
| 1   | A     | 2016 | A    |
| 1   | A     | 2017 | U    |
| 1   | A     | 2019 | C    |
| 1   | A     | 2038 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 2043 | A    |
| 1   | A     | 2051 | U    |
| 1   | A     | 2052 | G    |
| 1   | A     | 2060 | A    |
| 1   | A     | 2075 | U    |
| 1   | A     | 2076 | G    |
| 1   | A     | 2082 | C    |
| 1   | A     | 2083 | G    |
| 1   | A     | 2096 | U    |
| 1   | A     | 2097 | A    |
| 1   | A     | 2118 | A    |
| 1   | A     | 2125 | C    |
| 1   | A     | 2140 | G    |
| 1   | A     | 2162 | C    |
| 1   | A     | 2181 | A    |
| 1   | A     | 2182 | A    |
| 1   | A     | 2190 | A    |
| 1   | A     | 2191 | A    |
| 1   | A     | 2195 | C    |
| 1   | A     | 2199 | C    |
| 1   | A     | 2205 | C    |
| 1   | A     | 2218 | G    |
| 1   | A     | 2229 | G    |
| 1   | A     | 2241 | U    |
| 1   | A     | 2245 | A    |
| 1   | A     | 2246 | A    |
| 1   | A     | 2247 | A    |
| 1   | A     | 2255 | G    |
| 1   | A     | 2262 | C    |
| 1   | A     | 2265 | A    |
| 1   | A     | 2268 | G    |
| 1   | A     | 2276 | C    |
| 1   | A     | 2283 | G    |
| 1   | A     | 2284 | U    |
| 1   | A     | 2285 | U    |
| 1   | A     | 2286 | G    |
| 1   | A     | 2291 | U    |
| 1   | A     | 2298 | U    |
| 1   | A     | 2299 | A    |
| 1   | A     | 2300 | G    |
| 1   | A     | 2301 | A    |
| 1   | A     | 2313 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 2314 | A    |
| 1   | A     | 2315 | A    |
| 1   | A     | 2316 | G    |
| 1   | A     | 2325 | A    |
| 1   | A     | 2326 | C    |
| 1   | A     | 2350 | G    |
| 1   | A     | 2364 | C    |
| 1   | A     | 2369 | U    |
| 1   | A     | 2382 | C    |
| 1   | A     | 2385 | U    |
| 1   | A     | 2403 | C    |
| 1   | A     | 2404 | A    |
| 1   | A     | 2405 | A    |
| 1   | A     | 2407 | G    |
| 1   | A     | 2408 | G    |
| 1   | A     | 2409 | A    |
| 1   | A     | 2418 | A    |
| 1   | A     | 2419 | C    |
| 1   | A     | 2420 | C    |
| 1   | A     | 2427 | A    |
| 1   | A     | 2428 | U    |
| 1   | A     | 2438 | A    |
| 1   | A     | 2455 | A    |
| 1   | A     | 2457 | A    |
| 1   | A     | 2470 | U    |
| 1   | A     | 2477 | C    |
| 1   | A     | 2481 | G    |
| 1   | A     | 2482 | A    |
| 1   | A     | 2483 | U    |
| 1   | A     | 2484 | G    |
| 1   | A     | 2485 | U    |
| 1   | A     | 2492 | G    |
| 1   | A     | 2498 | U    |
| 1   | A     | 2499 | C    |
| 1   | A     | 2505 | G    |
| 1   | A     | 2508 | G    |
| 1   | A     | 2521 | A    |
| 1   | A     | 2522 | G    |
| 1   | A     | 2545 | A    |
| 1   | A     | 2546 | G    |
| 1   | A     | 2561 | G    |
| 1   | A     | 2565 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 2581 | A    |
| 1   | A     | 2582 | G    |
| 1   | A     | 2588 | U    |
| 1   | A     | 2589 | C    |
| 1   | A     | 2590 | U    |
| 1   | A     | 2591 | C    |
| 1   | A     | 2593 | A    |
| 1   | A     | 2594 | U    |
| 1   | A     | 2608 | A    |
| 1   | A     | 2609 | G    |
| 1   | A     | 2616 | U    |
| 1   | A     | 2625 | U    |
| 1   | A     | 2633 | A    |
| 1   | A     | 2634 | G    |
| 1   | A     | 2636 | A    |
| 1   | A     | 2661 | G    |
| 1   | A     | 2667 | C    |
| 1   | A     | 2668 | U    |
| 1   | A     | 2669 | C    |
| 1   | A     | 2681 | A    |
| 1   | A     | 2691 | C    |
| 1   | A     | 2692 | A    |
| 1   | A     | 2694 | G    |
| 1   | A     | 2705 | A    |
| 1   | A     | 2707 | G    |
| 1   | A     | 2712 | G    |
| 1   | A     | 2713 | A    |
| 1   | A     | 2728 | A    |
| 1   | A     | 2730 | A    |
| 1   | A     | 2732 | C    |
| 1   | A     | 2735 | C    |
| 1   | A     | 2736 | U    |
| 1   | A     | 2737 | A    |
| 1   | A     | 2744 | A    |
| 1   | A     | 2745 | A    |
| 1   | A     | 2757 | G    |
| 1   | A     | 2758 | A    |
| 1   | A     | 2759 | U    |
| 1   | A     | 2760 | G    |
| 1   | A     | 2761 | A    |
| 1   | A     | 2771 | C    |
| 1   | A     | 2774 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 2783 | U    |
| 1   | A     | 2784 | A    |
| 1   | A     | 2785 | A    |
| 1   | A     | 2793 | G    |
| 1   | A     | 2795 | A    |
| 1   | A     | 2796 | A    |
| 1   | A     | 2808 | U    |
| 1   | A     | 2809 | A    |
| 1   | A     | 2811 | G    |
| 1   | A     | 2825 | A    |
| 1   | A     | 2841 | U    |
| 1   | A     | 2842 | C    |
| 1   | A     | 2847 | G    |
| 1   | A     | 2849 | C    |
| 1   | A     | 2855 | C    |

All (144) RNA pucker outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 69  | G    |
| 1   | A     | 73  | A    |
| 1   | A     | 83  | A    |
| 1   | A     | 117 | A    |
| 1   | A     | 173 | A    |
| 1   | A     | 181 | A    |
| 1   | A     | 182 | G    |
| 1   | A     | 192 | G    |
| 1   | A     | 198 | A    |
| 1   | A     | 218 | A    |
| 1   | A     | 226 | C    |
| 1   | A     | 242 | A    |
| 1   | A     | 322 | A    |
| 1   | A     | 333 | A    |
| 1   | A     | 342 | G    |
| 1   | A     | 403 | A    |
| 1   | A     | 408 | U    |
| 1   | A     | 466 | A    |
| 1   | A     | 468 | A    |
| 1   | A     | 469 | G    |
| 1   | A     | 485 | G    |
| 1   | A     | 490 | A    |
| 1   | A     | 514 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 516  | G    |
| 1   | A     | 539  | A    |
| 1   | A     | 574  | C    |
| 1   | A     | 582  | G    |
| 1   | A     | 583  | C    |
| 1   | A     | 654  | A    |
| 1   | A     | 668  | A    |
| 1   | A     | 699  | G    |
| 1   | A     | 738  | G    |
| 1   | A     | 752  | G    |
| 1   | A     | 765  | C    |
| 1   | A     | 775  | U    |
| 1   | A     | 777  | A    |
| 1   | A     | 789  | G    |
| 1   | A     | 795  | A    |
| 1   | A     | 801  | A    |
| 1   | A     | 805  | G    |
| 1   | A     | 813  | A    |
| 1   | A     | 814  | G    |
| 1   | A     | 824  | U    |
| 1   | A     | 842  | A    |
| 1   | A     | 843  | G    |
| 1   | A     | 878  | C    |
| 1   | A     | 879  | A    |
| 1   | A     | 925  | U    |
| 1   | A     | 929  | A    |
| 1   | A     | 956  | A    |
| 1   | A     | 968  | C    |
| 1   | A     | 972  | C    |
| 1   | A     | 984  | A    |
| 1   | A     | 1019 | U    |
| 1   | A     | 1022 | A    |
| 1   | A     | 1033 | G    |
| 1   | A     | 1074 | G    |
| 1   | A     | 1141 | U    |
| 1   | A     | 1223 | G    |
| 1   | A     | 1233 | A    |
| 1   | A     | 1260 | A    |
| 1   | A     | 1261 | G    |
| 1   | A     | 1263 | G    |
| 1   | A     | 1266 | G    |
| 1   | A     | 1278 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 1279 | G    |
| 1   | A     | 1285 | A    |
| 1   | A     | 1301 | U    |
| 1   | A     | 1313 | U    |
| 1   | A     | 1314 | A    |
| 1   | A     | 1325 | U    |
| 1   | A     | 1345 | G    |
| 1   | A     | 1354 | A    |
| 1   | A     | 1355 | A    |
| 1   | A     | 1357 | U    |
| 1   | A     | 1391 | A    |
| 1   | A     | 1409 | U    |
| 1   | A     | 1473 | U    |
| 1   | A     | 1575 | C    |
| 1   | A     | 1623 | C    |
| 1   | A     | 1626 | A    |
| 1   | A     | 1631 | C    |
| 1   | A     | 1632 | A    |
| 1   | A     | 1633 | C    |
| 1   | A     | 1634 | A    |
| 1   | A     | 1664 | G    |
| 1   | A     | 1685 | A    |
| 1   | A     | 1710 | U    |
| 1   | A     | 1711 | C    |
| 1   | A     | 1746 | A    |
| 1   | A     | 1773 | C    |
| 1   | A     | 1790 | G    |
| 1   | A     | 1800 | A    |
| 1   | A     | 1807 | A    |
| 1   | A     | 1811 | A    |
| 1   | A     | 1820 | G    |
| 1   | A     | 1912 | G    |
| 1   | A     | 1919 | A    |
| 1   | A     | 1926 | U    |
| 1   | A     | 1927 | U    |
| 1   | A     | 1938 | U    |
| 1   | A     | 1975 | G    |
| 1   | A     | 2004 | U    |
| 1   | A     | 2015 | G    |
| 1   | A     | 2016 | A    |
| 1   | A     | 2018 | G    |
| 1   | A     | 2059 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 2075 | U    |
| 1   | A     | 2181 | A    |
| 1   | A     | 2204 | A    |
| 1   | A     | 2245 | A    |
| 1   | A     | 2254 | C    |
| 1   | A     | 2261 | G    |
| 1   | A     | 2312 | A    |
| 1   | A     | 2324 | G    |
| 1   | A     | 2404 | A    |
| 1   | A     | 2418 | A    |
| 1   | A     | 2426 | G    |
| 1   | A     | 2427 | A    |
| 1   | A     | 2437 | G    |
| 1   | A     | 2469 | G    |
| 1   | A     | 2476 | A    |
| 1   | A     | 2482 | A    |
| 1   | A     | 2497 | A    |
| 1   | A     | 2498 | U    |
| 1   | A     | 2504 | G    |
| 1   | A     | 2560 | G    |
| 1   | A     | 2564 | U    |
| 1   | A     | 2588 | U    |
| 1   | A     | 2589 | C    |
| 1   | A     | 2592 | U    |
| 1   | A     | 2608 | A    |
| 1   | A     | 2615 | U    |
| 1   | A     | 2633 | A    |
| 1   | A     | 2668 | U    |
| 1   | A     | 2693 | U    |
| 1   | A     | 2743 | G    |
| 1   | A     | 2756 | A    |
| 1   | A     | 2758 | A    |
| 1   | A     | 2759 | U    |
| 1   | A     | 2760 | G    |
| 1   | A     | 2810 | A    |
| 1   | A     | 2824 | C    |
| 1   | A     | 2854 | G    |

## 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 [i](#)

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

Of 3 ligands modelled in this entry, 2 are monoatomic - leaving 1 for Mogul analysis.

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

| Mol | Type | Chain | Res  | Link | Bond lengths |      |             | Bond angles |      |             |
|-----|------|-------|------|------|--------------|------|-------------|-------------|------|-------------|
|     |      |       |      |      | Counts       | RMSZ | $\# Z  > 2$ | Counts      | RMSZ | $\# Z  > 2$ |
| 5   | ERY  | A     | 2881 | -    | 53,53,53     | 1.63 | 11 (20%)    | 82,82,82    | 3.06 | 45 (54%)    |

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

| Mol | Type | Chain | Res  | Link | Chirals | Torsions     | Rings   |
|-----|------|-------|------|------|---------|--------------|---------|
| 5   | ERY  | A     | 2881 | -    | -       | 7/72/107/107 | 1/3/3/3 |

All (11) bond length outliers are listed below:

| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 5   | A     | 2881 | ERY  | C7-C8   | 4.91  | 1.60        | 1.54     |
| 5   | A     | 2881 | ERY  | O2-C13  | -3.41 | 1.40        | 1.46     |
| 5   | A     | 2881 | ERY  | C7-C6   | 3.36  | 1.59        | 1.54     |
| 5   | A     | 2881 | ERY  | C35-C12 | 3.17  | 1.58        | 1.52     |
| 5   | A     | 2881 | ERY  | C15-C14 | 2.99  | 1.58        | 1.51     |
| 5   | A     | 2881 | ERY  | C33-C8  | 2.62  | 1.61        | 1.52     |
| 5   | A     | 2881 | ERY  | C19-C16 | -2.44 | 1.47        | 1.52     |
| 5   | A     | 2881 | ERY  | C15-C16 | 2.33  | 1.57        | 1.52     |
| 5   | A     | 2881 | ERY  | C32-C6  | 2.30  | 1.56        | 1.52     |
| 5   | A     | 2881 | ERY  | C12-C13 | 2.19  | 1.58        | 1.55     |
| 5   | A     | 2881 | ERY  | C2-C1   | 2.16  | 1.56        | 1.51     |

All (45) bond angle outliers are listed below:

| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 5   | A     | 2881 | ERY  | O3-C3-C4    | 7.41  | 116.97      | 108.23   |
| 5   | A     | 2881 | ERY  | C33-C8-C7   | 6.94  | 122.79      | 109.88   |
| 5   | A     | 2881 | ERY  | C19-C16-C17 | 6.93  | 124.81      | 111.19   |
| 5   | A     | 2881 | ERY  | O5-C16-C17  | 6.65  | 113.50      | 103.86   |
| 5   | A     | 2881 | ERY  | C6-C5-C4    | 6.45  | 123.24      | 113.89   |
| 5   | A     | 2881 | ERY  | O5-C16-C15  | -5.51 | 104.47      | 112.95   |
| 5   | A     | 2881 | ERY  | C15-C16-C17 | -5.51 | 98.21       | 107.64   |
| 5   | A     | 2881 | ERY  | C27-C26-C25 | -5.28 | 105.28      | 113.27   |
| 5   | A     | 2881 | ERY  | C20-O5-C16  | -5.10 | 107.13      | 117.51   |
| 5   | A     | 2881 | ERY  | O5-C16-C19  | -4.85 | 98.23       | 110.77   |
| 5   | A     | 2881 | ERY  | C31-C4-C3   | 4.47  | 119.28      | 111.40   |
| 5   | A     | 2881 | ERY  | C35-C12-C13 | -4.28 | 105.47      | 111.26   |
| 5   | A     | 2881 | ERY  | C34-C10-C9  | -4.03 | 101.03      | 108.09   |
| 5   | A     | 2881 | ERY  | O7-C22-O9   | -3.94 | 100.33      | 110.69   |
| 5   | A     | 2881 | ERY  | C16-C15-C14 | -3.93 | 108.35      | 114.99   |
| 5   | A     | 2881 | ERY  | O7-C5-C4    | -3.83 | 106.04      | 111.58   |
| 5   | A     | 2881 | ERY  | C35-C12-C11 | -3.81 | 106.54      | 113.14   |
| 5   | A     | 2881 | ERY  | C32-C6-C5   | 3.78  | 116.59      | 110.13   |
| 5   | A     | 2881 | ERY  | O4-C18-C21  | 3.71  | 114.98      | 106.74   |
| 5   | A     | 2881 | ERY  | C14-O3-C3   | 3.67  | 122.03      | 114.72   |
| 5   | A     | 2881 | ERY  | C19-C16-C15 | 3.46  | 116.68      | 110.64   |
| 5   | A     | 2881 | ERY  | C7-C6-C5    | -3.46 | 103.83      | 110.38   |
| 5   | A     | 2881 | ERY  | C11-C10-C9  | 3.32  | 114.79      | 109.48   |
| 5   | A     | 2881 | ERY  | O10-C6-C32  | 3.29  | 116.11      | 108.48   |
| 5   | A     | 2881 | ERY  | O6-C17-C18  | -3.18 | 103.98      | 109.46   |
| 5   | A     | 2881 | ERY  | O4-C14-C15  | -3.15 | 106.19      | 112.08   |
| 5   | A     | 2881 | ERY  | C12-C11-C10 | 3.04  | 119.96      | 116.40   |
| 5   | A     | 2881 | ERY  | O2-C1-C2    | -2.85 | 105.44      | 111.53   |
| 5   | A     | 2881 | ERY  | C25-C24-C23 | -2.83 | 105.95      | 110.02   |
| 5   | A     | 2881 | ERY  | O13-C12-C13 | 2.81  | 111.53      | 107.24   |
| 5   | A     | 2881 | ERY  | C7-C8-C9    | -2.79 | 108.65      | 113.32   |
| 5   | A     | 2881 | ERY  | O7-C5-C6    | -2.72 | 103.15      | 106.40   |
| 5   | A     | 2881 | ERY  | C34-C10-C11 | 2.63  | 117.62      | 114.30   |
| 5   | A     | 2881 | ERY  | C3-C2-C1    | 2.59  | 115.17      | 109.93   |
| 5   | A     | 2881 | ERY  | C30-C2-C3   | -2.55 | 107.30      | 113.00   |
| 5   | A     | 2881 | ERY  | O12-C11-C10 | 2.54  | 114.37      | 110.77   |
| 5   | A     | 2881 | ERY  | C29-N1-C24  | 2.53  | 120.44      | 113.15   |
| 5   | A     | 2881 | ERY  | C32-C6-C7   | -2.49 | 107.05      | 111.09   |
| 5   | A     | 2881 | ERY  | O2-C13-C36  | 2.45  | 111.91      | 107.36   |
| 5   | A     | 2881 | ERY  | O1-C1-C2    | 2.29  | 130.07      | 124.11   |
| 5   | A     | 2881 | ERY  | O8-C23-C22  | -2.22 | 104.77      | 110.08   |
| 5   | A     | 2881 | ERY  | O13-C12-C35 | 2.19  | 112.30      | 107.84   |
| 5   | A     | 2881 | ERY  | O12-C11-C12 | -2.15 | 102.62      | 106.57   |

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| Mol | Chain | Res  | Type | Atoms       | Z    | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|------|-------------|----------|
| 5   | A     | 2881 | ERY  | C30-C2-C1   | 2.10 | 113.66      | 108.97   |
| 5   | A     | 2881 | ERY  | C22-C23-C24 | 2.02 | 112.39      | 109.15   |

There are no chirality outliers.

All (7) torsion outliers are listed below:

| Mol | Chain | Res  | Type | Atoms          |
|-----|-------|------|------|----------------|
| 5   | A     | 2881 | ERY  | C17-C16-O5-C20 |
| 5   | A     | 2881 | ERY  | O4-C14-O3-C3   |
| 5   | A     | 2881 | ERY  | C1-C2-C3-O3    |
| 5   | A     | 2881 | ERY  | C6-C7-C8-C33   |
| 5   | A     | 2881 | ERY  | C1-C2-C3-C4    |
| 5   | A     | 2881 | ERY  | C30-C2-C3-C4   |
| 5   | A     | 2881 | ERY  | C15-C16-O5-C20 |

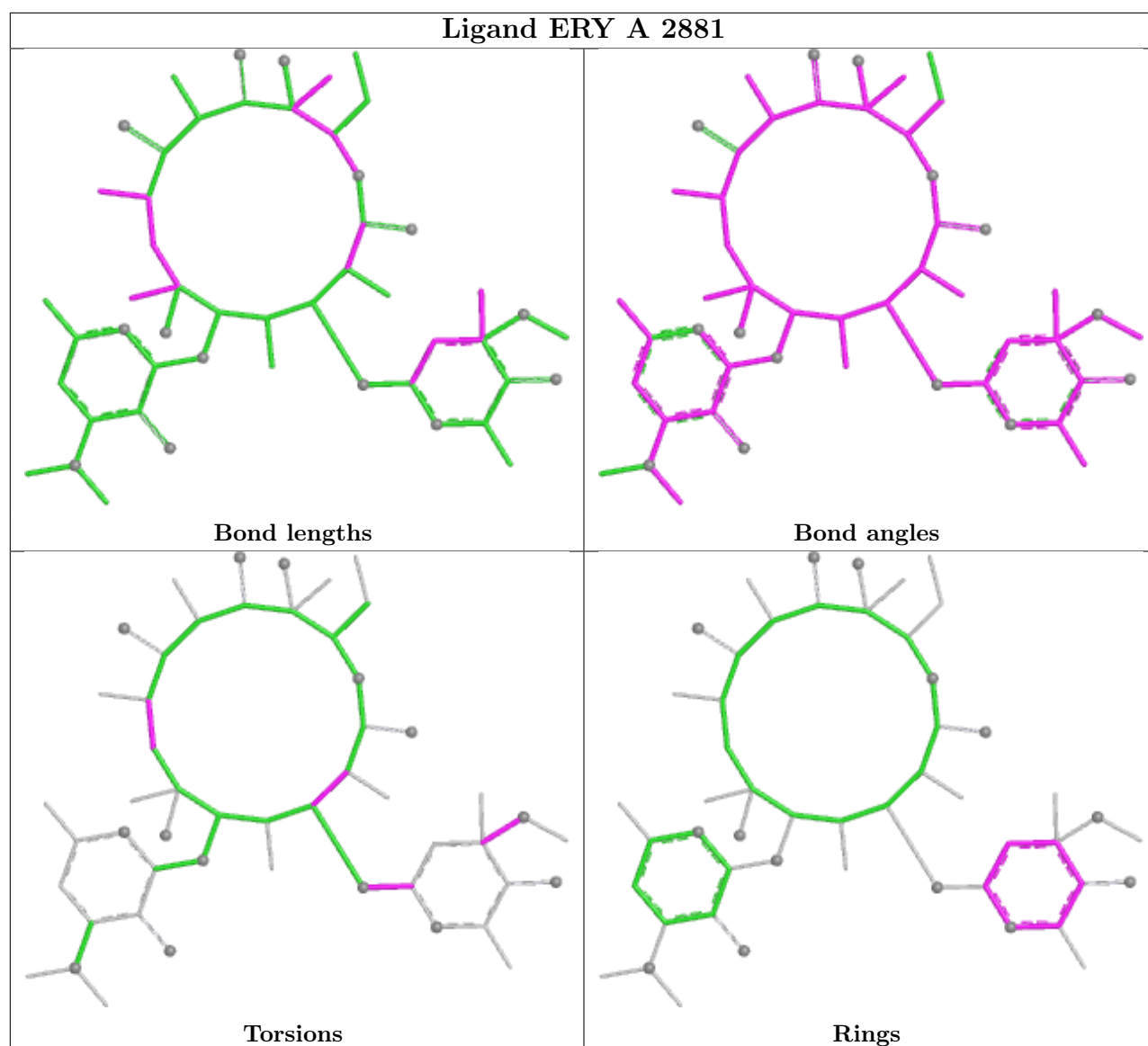
All (1) ring outliers are listed below:

| Mol | Chain | Res  | Type | Atoms                  |
|-----|-------|------|------|------------------------|
| 5   | A     | 2881 | ERY  | C14-C15-C16-C17-C18-O4 |

1 monomer is involved in 22 short contacts:

| Mol | Chain | Res  | Type | Clashes | Symm-Clashes |
|-----|-------|------|------|---------|--------------|
| 5   | A     | 2881 | ERY  | 22      | 0            |

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

## 6 Fit of model and data ⓘ

### 6.1 Protein, DNA and RNA chains ⓘ

EDS was not executed - this section is therefore empty.

### 6.2 Non-standard residues in protein, DNA, RNA chains ⓘ

EDS was not executed - this section is therefore empty.

### 6.3 Carbohydrates ⓘ

EDS was not executed - this section is therefore empty.

### 6.4 Ligands ⓘ

EDS was not executed - this section is therefore empty.

### 6.5 Other polymers ⓘ

EDS was not executed - this section is therefore empty.