



Full wwPDB X-ray Structure Validation Report ⓘ

Aug 8, 2023 – 10:54 AM EDT

PDB ID : 1P9X
Title : THE CRYSTAL STRUCTURE OF THE 50S LARGE RIBOSOMAL SUB-UNIT FROM DEINOCOCCUS RADIODURANS COMPLEXED WITH TELITHROMYCIN KETOLIDE ANTIBIOTIC
Authors : Berisio, R.; Harms, J.; Schluenzen, F.; Zarivach, R.; Hansen, H.A.; Fucini, P.; Yonath, A.
Deposited on : 2003-05-13
Resolution : 3.40 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

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>.

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

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtrriage (Phenix) : **NOT EXECUTED**
EDS : **NOT EXECUTED**
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.35

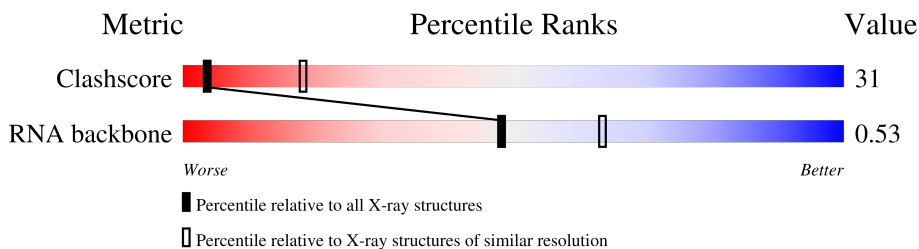
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.40 Å.

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



| Metric | Whole archive (#Entries) | Similar resolution (#Entries, resolution range(Å)) |
|--------------|-----------------------------|---|
| Clashscore | 141614 | 1055 (3.48-3.32) |
| RNA backbone | 3102 | 1006 (3.84-2.96) |

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 ≥ 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 | 0 | 2880 | 20% 56% 18% • 5% |

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 |
|-----|------|-------|------|-----------|----------|---------|------------------|
| 2 | TEL | 0 | 2881 | X | - | - | - |

2 Entry composition [i](#)

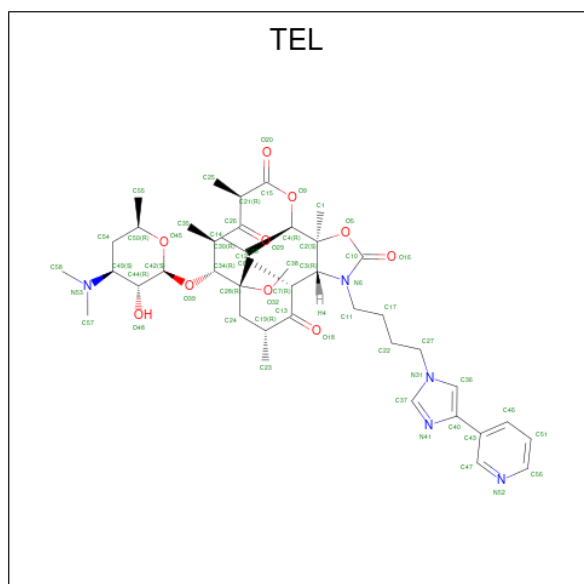
There are 2 unique types of molecules in this entry. The entry contains 58817 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 RIBOSOMAL RNA.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-------|-------|-------|------|---------|---------|-------|
| | | | Total | C | N | O | P | | | |
| 1 | 0 | 2738 | 58759 | 26211 | 10836 | 18975 | 2737 | 0 | 0 | 0 |

- Molecule 2 is TELITHROMYCIN (three-letter code: TEL) (formula: C₄₃H₆₅N₅O₁₀).



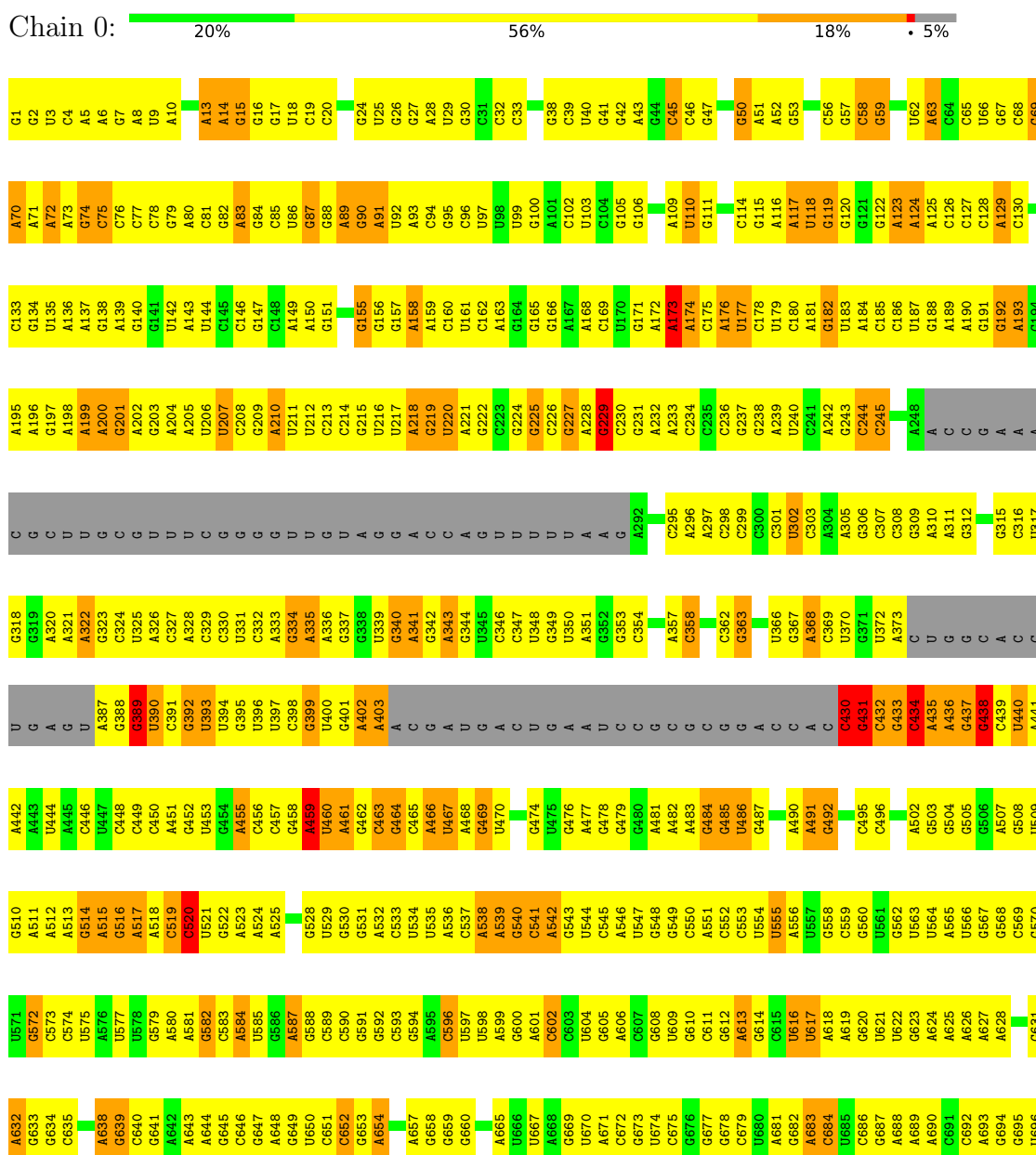
| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf |
|-----|-------|----------|-------|----|---|----|---------|---------|
| | | | Total | C | N | O | | |
| 2 | 0 | 1 | 58 | 43 | 5 | 10 | 0 | 0 |

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 RIBOSOMAL RNA



| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| C1616 | C1617 | A1619 | C1620 | C1621 | C1622 | C1623 | C1624 | A1625 | C1626 | C1627 | C1628 | A1629 | A1630 | A1631 | A1632 | C1633 | A1634 | C1635 | C1641 | C1642 | A1643 | C1644 | C1645 | C1646 | C1647 | C1648 | A1651 | C1652 | C1653 | A1654 | C1655 | A1656 | A1657 | C1661 | C1662 | C1663 | C1664 | C1665 | A1669 | C1670 | A1671 | C1672 | C1673 | C1674 | C1675 | A1676 | C1677 | C1678 | C1679 | A1680 | A1681 | C1682 | C1683 | C1684 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| G697 | A696 | G699 | C700 | U701 | A702 | A703 | G704 | G705 | A706 | U707 | G708 | A712 | G713 | G714 | U715 | U716 | G717 | A718 | C765 | A766 | G767 | U768 | C769 | G772 | A773 | U774 | U775 | G776 | U777 | G778 | U779 | A787 | G788 | G789 | A790 | U791 | G792 | G793 | A794 | G795 | G796 | G797 | G798 | U800 | A801 | A802 | C803 | G804 | G805 | A806 | A807 | C808 | C809 | G810 | A747 | A811 | C812 | C750 | G813 | A814 | A815 | U816 | C817 | C754 | C755 | C756 | U819 | A820 | U821 | G822 | U823 | C760 | U824 | C825 | A762 | U826 | A763 | A764 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C828 | C829 | G830 | C831 | C832 | A833 | A834 | U837 | A838 | U839 | C862 | U840 | C841 | C842 | G843 | G844 | U845 | A846 | C847 | C851 | U852 | C853 | G854 | G855 | A856 | U857 | G858 | C859 | C860 | A861 | U862 | C863 | C864 | C927 | C928 | C929 | A891 | C914 | C915 | U916 | U917 | A918 | U919 | G920 | A921 | C922 | A923 | C924 | C925 | C865 | C926 | C866 | C927 | C867 | A868 | C869 | C870 | C871 | A869 | G933 | C934 | G872 | U873 | A874 | C875 | A876 | C877 | C878 | A879 | C880 | U881 | C882 | A883 | A884 | U885 | C948 | C949 | C950 | U951 | C952 | U953 | U954 | C955 | A956 | G957 | C958 | U959 | C960 | A961 | G963 | C964 | A965 | A966 | C967 | C968 | U969 | A970 | A971 | C972 | U973 | A974 | C975 | U978 | A979 | G980 | C981 | G982 | G983 | A984 | C985 | C986 | C987 | C988 | U989 | A990 | A991 | A992 | C993 | A994 | C995 | C996 | C997 | C998 | A999 | G1000 | G1001 | A1002 | U1003 | C1004 | A1005 | U1006 | C1007 | U1008 | A1009 | C1010 | C1011 | C1012 | C1013 | C1014 | C1015 | C1016 | C1017 | C1018 | U1019 | A1020 | A1021 | A1022 | C1023 | G1024 | A1025 | U1026 | C1027 | G1028 | C1029 | U1030 | C1031 | A1032 | G1033 | U1034 | U1035 | C1036 | U1037 | U1038 | A1039 | A1040 | G1041 | C1042 | A1043 | U1044 | G1045 | U1046 | C1052 | C1053 | C1054 | A1055 | U1056 | G988 | C989 | A1057 | C1058 | A1059 | U1066 | G1067 | A1068 | C1069 | C1070 | U1071 | U1072 | G1073 | C1074 | A1001 | C1002 | U1076 | A1007 | A1078 | C1079 | A1080 | U1081 | A1011 | A1012 | C1013 | C1083 | C1086 | C1087 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A1153 | A1154 | G1155 | U1159 | U1160 | U1161 | C1162 | C1163 | C1164 | C1165 | A1166 | A1167 | G1168 | U1172 | C1173 | C1174 | U1175 | U1176 | U1177 | C1183 | C1184 | C1185 | G1191 | A1192 | C1193 | U1194 | U1195 | C1196 | U1197 | C1198 | U1199 | G1200 | G1201 | U1202 | A1203 | G1204 | C1205 | U1262 | C1263 | C1264 | G1265 | C1266 | A1267 | U1268 | C1269 | C1270 | C1271 | G1272 | C1273 | A | C1276 | C1277 | C1214 | A1278 | C1279 | U1280 | C1281 | A1282 | C1283 | G1284 | A1285 | U1286 | C1288 | A1289 | U1293 | G1294 | U1295 | C1296 | C1297 | A1298 | A1299 | A1300 | U1301 | C1302 | U1303 | U1304 | C1305 | C1308 | G1309 | C1310 | C1311 | G1312 | U1313 | A1314 | A1315 | C1316 | C1317 | A1318 | C1319 | A1320 | A1321 | C1322 | G1323 | G1324 | U1325 | U1326 | A1331 | C1332 | A1333 | U1334 | C1335 | G1336 | C1337 | G1338 | U1339 | C1340 | C1341 | C1342 | U1343 | C1344 | G1345 | C1346 | C1347 | U1348 | A1349 | U1408 | A1409 | C1472 | U1473 | A1474 | U1475 | G1476 | C1477 | U1478 | C1479 | G1480 | U1481 | U1482 | A1483 | G1484 | U1485 | A1486 | C1487 | G1488 | A1489 | U1490 | G1494 | G1495 | G1496 | C1497 | G1498 | A1499 | U1500 | C1501 | G1502 | U1505 | G1508 | A1513 | U1514 | C1515 | A1516 | C1517 | C1518 | C1522 | A1523 | C1524 | G1527 | C1528 | C1529 | U1530 | C1531 | A1532 | C1533 | U1537 | A1538 | U1539 | A1603 | A1604 | A1605 | C1606 | A1607 | U1608 | C1609 | A1610 | U1611 | U1612 | C1613 | A1614 | C1615 | G1616 | G1617 | G1618 | G1619 | C1620 | G1621 | G1622 | A1623 | A1624 | A1625 | C1626 | C1627 | C1628 | A1630 | A1631 | A1632 | C1633 | A1634 | C1635 | G1641 | G1642 | A1643 | G1644 | U1645 | C1646 | U1647 | C1648 | A1651 | C1652 | C1653 | A1654 | C1655 | A1656 | A1657 | C1661 | C1662 | C1663 | C1664 | C1665 | A1669 | C1670 | A1671 | C1672 | C1673 | C1674 | C1675 | A1676 | C1677 | C1678 | C1679 | A1680 | A1681 | C1682 | C1683 | G1684 |

| | | | |
|-------|-------|-------|-------|
| G2678 | G2741 | G2804 | U2872 |
| G2679 | G2742 | G2805 | |
| U2680 | G2743 | G2806 | G2875 |
| A2681 | A2744 | U2807 | C2876 |
| | A2745 | U2808 | A2877 |
| A2684 | G2746 | A2809 | C |
| A2685 | G2747 | A2810 | U |
| C2686 | C2748 | G2811 | C |
| G2687 | A2749 | A2812 | |
| G2688 | | G2813 | |
| C2689 | C2753 | G2814 | |
| A2690 | C2754 | C2815 | |
| C2691 | A2755 | C2816 | |
| A2692 | A2756 | A2817 | |
| U2693 | G2757 | | |
| G2694 | A2758 | G2821 | |
| C2695 | G2694 | U2822 | |
| A2696 | U2759 | G2823 | |
| G2697 | G2760 | C2824 | |
| G2698 | A2761 | A2825 | |
| G2699 | G2762 | C2826 | |
| A2701 | U2763 | G2827 | |
| G2702 | U2764 | C2828 | |
| C2703 | C2765 | A2829 | |
| U2704 | U2766 | U2830 | |
| A2705 | C2767 | A2831 | |
| G2707 | C2768 | | |
| U2708 | C2769 | A2835 | |
| C2709 | A2770 | U2836 | |
| G2710 | C2771 | G2837 | |
| G2711 | U2772 | | |
| G2712 | G2773 | U2841 | |
| A2713 | U2774 | C2842 | |
| A2714 | U | A2843 | |
| C2715 | A | G2844 | |
| G2716 | U2778 | C2845 | |
| G2717 | C2779 | G2846 | |
| A2718 | A2780 | G2847 | |
| U2719 | G2781 | A2848 | |
| A2720 | G2782 | C2849 | |
| C2721 | U2783 | U2850 | |
| C2722 | A2784 | G2851 | |
| G2723 | G2785 | G2852 | |
| G2724 | A2786 | U2853 | |
| C2725 | U2787 | G2854 | |
| U2726 | C2788 | C2855 | |
| G2727 | U2789 | U2856 | |
| A2728 | C2790 | C2857 | |
| A2729 | C2791 | A2858 | |
| A2730 | C2792 | | |
| C2731 | G2793 | G2862 | |
| G2732 | U2794 | U2863 | |
| U2733 | A2795 | C2864 | |
| C2734 | G2796 | G2865 | |
| C2735 | G2797 | A2866 | |
| U2736 | A2798 | G2867 | |
| A2737 | G2799 | G2868 | |
| | U2800 | U2869 | |
| | A2801 | C2870 | |
| | | U2871 | |

4 Data and refinement statistics

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

| Property | Value | Source |
|--|---|-----------|
| Space group | I 2 2 2 | Depositor |
| Cell constants a, b, c, α , β , γ | 170.00Å 414.50Å 693.00Å 90.00° 90.00° 90.00° | Depositor |
| Resolution (Å) | 15.00 – 3.40 | Depositor |
| % Data completeness (in resolution range) | (Not available) (15.00-3.40) | Depositor |
| R_{merge} | 0.18 | Depositor |
| R_{sym} | (Not available) | Depositor |
| Refinement program | CNS | Depositor |
| R, R_{free} | 0.273 , 0.340 | Depositor |
| Estimated twinning fraction | No twinning to report. | Xtrriage |
| Total number of atoms | 58817 | wwPDB-VP |
| Average B, all atoms (Å ²) | 58.0 | 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: TEL

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 | 0 | 0.77 | 20/65792 (0.0%) | 0.71 | 28/102613 (0.0%) |

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

| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 1 | 0 | 0 | 28 |

All (20) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|-------|-------------|----------|
| 1 | 0 | 762 | A | O3'-P | -8.05 | 1.51 | 1.61 |
| 1 | 0 | 1410 | U | N1-C2 | 6.70 | 1.44 | 1.38 |
| 1 | 0 | 2493 | U | N1-C2 | -6.33 | 1.32 | 1.38 |
| 1 | 0 | 1276 | U | N1-C2 | 6.27 | 1.44 | 1.38 |
| 1 | 0 | 2555 | G | C5-C6 | -6.20 | 1.36 | 1.42 |
| 1 | 0 | 950 | G | C5-C6 | 6.14 | 1.48 | 1.42 |
| 1 | 0 | 2039 | G | C5-C6 | -5.70 | 1.36 | 1.42 |
| 1 | 0 | 2523 | G | C5-C6 | -5.65 | 1.36 | 1.42 |
| 1 | 0 | 2505 | G | C5-C6 | 5.32 | 1.47 | 1.42 |
| 1 | 0 | 2699 | G | C5-C6 | -5.26 | 1.37 | 1.42 |
| 1 | 0 | 764 | A | P-O5' | 5.25 | 1.65 | 1.59 |
| 1 | 0 | 464 | G | N9-C4 | -5.24 | 1.33 | 1.38 |
| 1 | 0 | 841 | G | C5-C6 | -5.21 | 1.37 | 1.42 |
| 1 | 0 | 1781 | C | N1-C2 | -5.16 | 1.34 | 1.40 |
| 1 | 0 | 1746 | A | C5-C6 | -5.15 | 1.36 | 1.41 |
| 1 | 0 | 1985 | G | C5-C6 | -5.12 | 1.37 | 1.42 |
| 1 | 0 | 2046 | C | N1-C2 | -5.08 | 1.35 | 1.40 |
| 1 | 0 | 1283 | C | N1-C2 | -5.08 | 1.35 | 1.40 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|-------|-------|-------------|----------|
| 1 | 0 | 765 | C | N1-C2 | -5.06 | 1.35 | 1.40 |
| 1 | 0 | 2592 | U | O3'-P | -5.05 | 1.55 | 1.61 |

All (28) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 1 | 0 | 1182 | U | O4'-C1'-N1 | 13.88 | 119.30 | 108.20 |
| 1 | 0 | 2044 | G | P-O3'-C3' | 11.50 | 133.50 | 119.70 |
| 1 | 0 | 765 | C | N1-C1'-C2' | 11.09 | 128.42 | 114.00 |
| 1 | 0 | 2001 | G | N9-C1'-C2' | -9.80 | 101.22 | 112.00 |
| 1 | 0 | 2041 | A | OP1-P-OP2 | -6.87 | 109.30 | 119.60 |
| 1 | 0 | 764 | A | OP1-P-OP2 | -6.83 | 109.36 | 119.60 |
| 1 | 0 | 2042 | A | OP1-P-OP2 | -6.79 | 109.41 | 119.60 |
| 1 | 0 | 438 | G | N9-C1'-C2' | 6.69 | 122.69 | 114.00 |
| 1 | 0 | 2046 | C | OP1-P-OP2 | -6.65 | 109.63 | 119.60 |
| 1 | 0 | 763 | A | OP1-P-OP2 | -6.54 | 109.79 | 119.60 |
| 1 | 0 | 2044 | G | OP1-P-OP2 | -6.53 | 109.81 | 119.60 |
| 1 | 0 | 430 | C | C5'-C4'-O4' | -6.44 | 101.37 | 109.10 |
| 1 | 0 | 765 | C | O4'-C1'-N1 | 6.44 | 113.36 | 108.20 |
| 1 | 0 | 2040 | A | OP1-P-OP2 | -6.42 | 109.97 | 119.60 |
| 1 | 0 | 1618 | U | C5'-C4'-O4' | -6.42 | 101.40 | 109.10 |
| 1 | 0 | 2045 | A | OP1-P-OP2 | -6.20 | 110.30 | 119.60 |
| 1 | 0 | 765 | C | OP1-P-OP2 | -5.99 | 110.62 | 119.60 |
| 1 | 0 | 765 | C | C2-N1-C1' | -5.86 | 112.35 | 118.80 |
| 1 | 0 | 765 | C | C5'-C4'-O4' | 5.86 | 116.13 | 109.10 |
| 1 | 0 | 434 | C | N1-C1'-C2' | 5.59 | 121.26 | 114.00 |
| 1 | 0 | 765 | C | C6-N1-C1' | 5.54 | 127.45 | 120.80 |
| 1 | 0 | 438 | G | C1'-O4'-C4' | -5.38 | 105.60 | 109.90 |
| 1 | 0 | 173 | A | C2'-C3'-O3' | 5.36 | 122.28 | 113.70 |
| 1 | 0 | 438 | G | O4'-C1'-N9 | 5.36 | 112.49 | 108.20 |
| 1 | 0 | 765 | C | N1-C2-O2 | -5.22 | 115.77 | 118.90 |
| 1 | 0 | 765 | C | O4'-C4'-C3' | -5.19 | 98.81 | 104.00 |
| 1 | 0 | 459 | A | N9-C1'-C2' | 5.14 | 120.68 | 114.00 |
| 1 | 0 | 2041 | A | P-O3'-C3' | 5.03 | 125.74 | 119.70 |

There are no chirality outliers.

All (28) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group |
|-----|-------|------|------|-----------|
| 1 | 0 | 1036 | G | Sidechain |
| 1 | 0 | 1475 | U | Sidechain |
| 1 | 0 | 1619 | A | Sidechain |

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| Mol | Chain | Res | Type | Group |
|-----|-------|------|------|-----------|
| 1 | 0 | 1632 | A | Sidechain |
| 1 | 0 | 1774 | A | Sidechain |
| 1 | 0 | 2051 | U | Sidechain |
| 1 | 0 | 229 | G | Sidechain |
| 1 | 0 | 2439 | U | Sidechain |
| 1 | 0 | 2625 | U | Sidechain |
| 1 | 0 | 2660 | C | Sidechain |
| 1 | 0 | 2700 | U | Sidechain |
| 1 | 0 | 2706 | U | Sidechain |
| 1 | 0 | 2712 | G | Sidechain |
| 1 | 0 | 2762 | G | Sidechain |
| 1 | 0 | 389 | G | Sidechain |
| 1 | 0 | 431 | G | Sidechain |
| 1 | 0 | 438 | G | Sidechain |
| 1 | 0 | 459 | A | Sidechain |
| 1 | 0 | 520 | C | Sidechain |
| 1 | 0 | 555 | U | Sidechain |
| 1 | 0 | 707 | U | Sidechain |
| 1 | 0 | 788 | G | Sidechain |
| 1 | 0 | 796 | A | Sidechain |
| 1 | 0 | 804 | C | Sidechain |
| 1 | 0 | 814 | G | Sidechain |
| 1 | 0 | 871 | U | Sidechain |
| 1 | 0 | 873 | U | Sidechain |
| 1 | 0 | 956 | A | Sidechain |

5.2 Too-close contacts

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1 | 0 | 58759 | 0 | 29615 | 2745 | 0 |
| 2 | 0 | 58 | 0 | 65 | 11 | 0 |
| All | All | 58817 | 0 | 29680 | 2746 | 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 31.

All (2746) 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) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:0:940:G:H3' | 1:0:941:U:H5'' | 1.24 | 1.18 |
| 1:0:752:G:H5' | 1:0:1775:A:H61 | 1.07 | 1.13 |
| 1:0:1572:C:H2' | 1:0:1573:G:H5'' | 1.21 | 1.10 |
| 1:0:2451:G:H1' | 1:0:2457:A:H61 | 1.16 | 1.09 |
| 1:0:387:A:H5' | 1:0:436:A:H62 | 1.07 | 1.08 |
| 1:0:588:G:H4' | 1:0:2001:G:C4' | 1.85 | 1.06 |
| 1:0:1656:U:H2' | 1:0:1657:A:H5'' | 1.38 | 1.05 |
| 1:0:2841:U:H1' | 1:0:2843:A:H1' | 1.34 | 1.04 |
| 1:0:2496:C:H42 | 1:0:2546:G:H1 | 1.05 | 1.02 |
| 1:0:436:A:H4' | 1:0:437:G:H5'' | 1.42 | 1.01 |
| 1:0:2198:U:H3' | 1:0:2199:C:H5'' | 1.39 | 1.01 |
| 1:0:2498:U:H5'' | 1:0:2499:C:OP1 | 1.59 | 1.00 |
| 1:0:2771:C:H42 | 1:0:2780:A:N6 | 1.59 | 1.00 |
| 1:0:588:G:C4' | 1:0:2001:G:H4' | 1.92 | 0.99 |
| 1:0:1449:C:H2' | 1:0:1450:G:H5'' | 1.44 | 0.98 |
| 1:0:951:G:H2' | 1:0:952:A:H5'' | 1.46 | 0.98 |
| 1:0:321:A:O2' | 1:0:322:A:H3' | 1.62 | 0.98 |
| 1:0:681:A:H2' | 1:0:683:A:H62 | 1.27 | 0.98 |
| 1:0:588:G:H4' | 1:0:2001:G:H4' | 0.98 | 0.96 |
| 1:0:430:C:H4' | 1:0:2386:G:N2 | 1.81 | 0.95 |
| 1:0:1673:C:N4 | 1:0:1987:G:H1 | 1.64 | 0.95 |
| 1:0:983:G:OP2 | 1:0:985:G:H5'' | 1.65 | 0.94 |
| 1:0:1747:G:H4' | 1:0:1749:G:H1' | 1.49 | 0.94 |
| 1:0:2660:C:O2' | 1:0:2661:G:H5' | 1.66 | 0.94 |
| 1:0:681:A:H2' | 1:0:683:A:N6 | 1.81 | 0.94 |
| 1:0:1572:C:C2' | 1:0:1573:G:H5'' | 1.96 | 0.94 |
| 1:0:794:A:H5' | 1:0:795:A:H5'' | 1.48 | 0.94 |
| 1:0:614:G:N2 | 1:0:634:G:H22 | 1.65 | 0.94 |
| 1:0:616:U:H2' | 1:0:617:U:H5'' | 1.50 | 0.93 |
| 1:0:317:U:H3 | 1:0:321:A:H62 | 1.07 | 0.93 |
| 1:0:1855:G:H4' | 1:0:2390:A:H4' | 1.51 | 0.93 |
| 1:0:2194:A:H3' | 1:0:2195:C:H5'' | 1.48 | 0.92 |
| 1:0:430:C:H4' | 1:0:2386:G:H21 | 1.35 | 0.92 |
| 1:0:1823:G:H1 | 1:0:1957:C:H42 | 1.10 | 0.92 |
| 1:0:1673:C:H42 | 1:0:1987:G:H1 | 1.09 | 0.92 |
| 1:0:1294:G:H1 | 1:0:1302:C:H42 | 1.09 | 0.92 |
| 1:0:752:G:H5' | 1:0:1775:A:N6 | 1.85 | 0.92 |
| 1:0:2380:U:H2' | 1:0:2381:A:H5' | 1.51 | 0.92 |
| 1:0:2395:C:H2' | 1:0:2396:C:H5'' | 1.51 | 0.92 |
| 1:0:2771:C:H42 | 1:0:2780:A:H61 | 0.93 | 0.91 |
| 1:0:614:G:H22 | 1:0:634:G:N2 | 1.67 | 0.91 |
| 1:0:1791:C:H2' | 1:0:1792:C:H5'' | 1.50 | 0.91 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:0:1937:G:H1' | 1:0:2530:C:H4' | 1.49 | 0.91 |
| 1:0:614:G:H22 | 1:0:634:G:H22 | 1.11 | 0.91 |
| 1:0:317:U:H3 | 1:0:321:A:N6 | 1.68 | 0.90 |
| 1:0:683:A:H3' | 1:0:683:A:OP2 | 1.71 | 0.90 |
| 1:0:321:A:HO2' | 1:0:322:A:H8 | 0.94 | 0.90 |
| 1:0:2804:G:H2' | 1:0:2805:G:H5'' | 1.53 | 0.90 |
| 1:0:1651:U:H5'' | 1:0:1652:G:OP2 | 1.72 | 0.90 |
| 1:0:387:A:C5' | 1:0:436:A:H62 | 1.86 | 0.89 |
| 1:0:2388:G:H2' | 1:0:2389:G:O4' | 1.73 | 0.89 |
| 1:0:1108:U:H2' | 1:0:1109:A:H5' | 1.54 | 0.89 |
| 1:0:2119:A:N6 | 1:0:2138:U:H3 | 1.71 | 0.89 |
| 1:0:2043:A:H1' | 1:0:2481:G:H1' | 1.52 | 0.89 |
| 1:0:1656:U:C2' | 1:0:1657:A:H5'' | 2.03 | 0.88 |
| 1:0:1029:C:H2' | 1:0:1030:U:H5'' | 1.55 | 0.88 |
| 1:0:1452:U:H3 | 1:0:1569:A:H62 | 1.18 | 0.88 |
| 1:0:2378:G:H1 | 1:0:2396:C:H42 | 1.18 | 0.88 |
| 1:0:588:G:HO2' | 1:0:2001:G:HO2' | 1.20 | 0.88 |
| 1:0:613:A:H2' | 1:0:614:G:H8 | 1.36 | 0.88 |
| 1:0:2063:A:H61 | 1:0:2219:U:H3 | 0.92 | 0.88 |
| 1:0:387:A:H5' | 1:0:436:A:N6 | 1.88 | 0.87 |
| 1:0:990:A:H5' | 1:0:991:A:H5'' | 1.56 | 0.87 |
| 1:0:2043:A:H1' | 1:0:2481:G:C1' | 2.05 | 0.86 |
| 1:0:2063:A:N6 | 1:0:2219:U:H3 | 1.72 | 0.86 |
| 1:0:2532:G:H3' | 1:0:2533:U:H5'' | 1.57 | 0.86 |
| 1:0:27:G:H1' | 1:0:523:A:N6 | 1.91 | 0.86 |
| 1:0:1908:C:H2' | 1:0:1909:U:H4' | 1.57 | 0.86 |
| 1:0:2311:U:H4' | 1:0:2315:A:H61 | 1.36 | 0.86 |
| 1:0:2841:U:H1' | 1:0:2843:A:C1' | 2.06 | 0.86 |
| 1:0:804:C:O2 | 1:0:804:C:H2' | 1.76 | 0.86 |
| 1:0:2268:G:H5'' | 1:0:2363:G:O2' | 1.76 | 0.85 |
| 1:0:68:C:H1' | 1:0:72:A:H1' | 1.59 | 0.85 |
| 1:0:1776:A:H4' | 1:0:1965:U:O2' | 1.76 | 0.85 |
| 1:0:2410:U:O2 | 1:0:2412:A:H8 | 1.58 | 0.85 |
| 1:0:875:G:H2' | 1:0:876:A:O4' | 1.76 | 0.85 |
| 1:0:2119:A:H61 | 1:0:2138:U:H3 | 1.20 | 0.85 |
| 1:0:204:A:N6 | 1:0:2386:G:H1' | 1.91 | 0.85 |
| 1:0:1949:A:H1' | 1:0:2572:U:H5' | 1.58 | 0.85 |
| 1:0:2469:G:H5'' | 1:0:2470:U:OP1 | 1.76 | 0.85 |
| 1:0:1679:U:H2' | 1:0:1680:U:H5' | 1.58 | 0.85 |
| 1:0:1182:U:H2' | 1:0:1183:C:H5'' | 1.58 | 0.85 |
| 1:0:334:G:N3 | 1:0:344:G:H1' | 1.93 | 0.84 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:0:942:U:H2' | 1:0:943:U:O4' | 1.76 | 0.84 |
| 1:0:1029:C:N4 | 1:0:1153:A:H61 | 1.74 | 0.84 |
| 1:0:200:A:N6 | 1:0:435:A:H62 | 1.76 | 0.84 |
| 1:0:362:C:H2' | 1:0:363:G:H4' | 1.60 | 0.84 |
| 1:0:1916:G:H1 | 1:0:1950:C:H42 | 1.25 | 0.84 |
| 1:0:2085:G:H22 | 1:0:2171:U:H1' | 1.42 | 0.84 |
| 1:0:940:G:H3' | 1:0:941:U:C5' | 2.06 | 0.84 |
| 1:0:1900:U:H4' | 1:0:1946:U:H4' | 1.58 | 0.84 |
| 1:0:588:G:H2' | 1:0:589:C:C6 | 2.13 | 0.84 |
| 1:0:1582:A:H2' | 1:0:1583:A:H5' | 1.59 | 0.83 |
| 1:0:846:A:H62 | 1:0:955:G:N2 | 1.75 | 0.83 |
| 1:0:2380:U:C2' | 1:0:2381:A:H5' | 2.09 | 0.83 |
| 1:0:1900:U:H2' | 1:0:1901:A:O4' | 1.78 | 0.83 |
| 1:0:1791:C:H1' | 1:0:1793:A:H5' | 1.60 | 0.82 |
| 1:0:2081:U:H2' | 1:0:2082:C:H5'' | 1.60 | 0.82 |
| 1:0:918:A:H3' | 1:0:919:U:H5'' | 1.60 | 0.82 |
| 1:0:1449:C:C2' | 1:0:1450:G:H5'' | 2.09 | 0.82 |
| 1:0:2549:G:H2' | 1:0:2550:C:O4' | 1.79 | 0.82 |
| 1:0:2824:C:O2 | 1:0:2824:C:H2' | 1.79 | 0.82 |
| 1:0:1634:A:H4' | 1:0:1635:G:OP1 | 1.77 | 0.81 |
| 1:0:1329:U:H5' | 1:0:1405:A:H1' | 1.61 | 0.81 |
| 1:0:2442:C:H42 | 1:0:2466:G:H1 | 1.25 | 0.81 |
| 1:0:114:C:O2' | 1:0:124:A:H1' | 1.80 | 0.81 |
| 1:0:1039:A:N6 | 1:0:1136:G:H2' | 1.96 | 0.81 |
| 1:0:162:C:H5' | 1:0:195:A:H1' | 1.62 | 0.81 |
| 1:0:2599:U:H2' | 1:0:2600:A:H5'' | 1.61 | 0.81 |
| 1:0:765:C:O2' | 1:0:766:A:OP2 | 1.97 | 0.81 |
| 1:0:1911:A:H2' | 1:0:1912:G:H5' | 1.63 | 0.81 |
| 1:0:796:A:H4' | 1:0:2568:A:OP1 | 1.81 | 0.81 |
| 1:0:834:A:H62 | 1:0:983:G:H21 | 1.29 | 0.81 |
| 1:0:109:A:H2' | 1:0:110:U:H5'' | 1.63 | 0.81 |
| 1:0:202:A:H2' | 1:0:203:G:O4' | 1.79 | 0.81 |
| 1:0:204:A:H62 | 1:0:2386:G:H1' | 1.44 | 0.80 |
| 1:0:2680:U:C5' | 1:0:2681:A:H5'' | 2.11 | 0.80 |
| 1:0:490:A:H2' | 1:0:491:A:H3' | 1.63 | 0.80 |
| 1:0:1001:A:H5'' | 1:0:1168:G:OP2 | 1.81 | 0.80 |
| 1:0:2456:U:H1' | 1:0:2460:G:H1 | 1.47 | 0.80 |
| 1:0:431:G:O6 | 1:0:433:G:N2 | 2.15 | 0.80 |
| 1:0:613:A:H2' | 1:0:614:G:C8 | 2.16 | 0.80 |
| 1:0:1930:C:H42 | 1:0:1942:G:H1 | 1.29 | 0.80 |
| 1:0:929:A:H3' | 1:0:930:A:H5'' | 1.64 | 0.80 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:0:864:C:H1' | 1:0:940:G:H22 | 1.47 | 0.79 |
| 1:0:2266:A:H61 | 1:0:2323:U:H1' | 1.47 | 0.79 |
| 1:0:244:C:H2' | 1:0:245:C:H5'' | 1.64 | 0.79 |
| 1:0:2436:U:H2' | 1:0:2437:G:O4' | 1.82 | 0.79 |
| 1:0:2771:C:N4 | 1:0:2780:A:H61 | 1.77 | 0.79 |
| 1:0:689:A:H8 | 1:0:2052:G:H21 | 1.31 | 0.79 |
| 1:0:2382:C:H42 | 1:0:2393:G:H1 | 1.28 | 0.79 |
| 1:0:2418:A:H5'' | 1:0:2419:C:OP1 | 1.83 | 0.79 |
| 1:0:759:C:O2 | 1:0:2590:U:H4' | 1.83 | 0.79 |
| 1:0:611:C:O2' | 1:0:614:G:H5'' | 1.83 | 0.79 |
| 1:0:490:A:O2' | 1:0:491:A:H5' | 1.82 | 0.78 |
| 1:0:2804:G:C2' | 1:0:2805:G:H5'' | 2.13 | 0.78 |
| 1:0:1860:A:H2' | 1:0:1861:G:H5' | 1.64 | 0.78 |
| 1:0:2378:G:H1 | 1:0:2396:C:N4 | 1.82 | 0.78 |
| 1:0:2451:G:H1' | 1:0:2457:A:N6 | 1.97 | 0.78 |
| 1:0:1811:A:H5'' | 1:0:1812:U:OP1 | 1.83 | 0.78 |
| 1:0:653:G:H2' | 1:0:654:A:H4' | 1.64 | 0.77 |
| 1:0:109:A:C3' | 1:0:110:U:H5'' | 2.13 | 0.77 |
| 1:0:165:G:H2' | 1:0:166:G:O4' | 1.85 | 0.77 |
| 1:0:587:A:H2' | 1:0:588:G:H5'' | 1.67 | 0.77 |
| 1:0:27:G:H1' | 1:0:523:A:H62 | 1.49 | 0.77 |
| 1:0:2329:C:H2' | 1:0:2330:G:O4' | 1.84 | 0.77 |
| 1:0:38:G:H1 | 1:0:453:U:H3 | 1.31 | 0.77 |
| 1:0:393:U:H2' | 1:0:394:U:O4' | 1.84 | 0.77 |
| 1:0:1139:A:H1' | 1:0:2495:G:O2' | 1.84 | 0.77 |
| 1:0:192:G:H1' | 1:0:193:A:H4' | 1.66 | 0.77 |
| 1:0:396:U:H2' | 1:0:398:C:N4 | 1.99 | 0.77 |
| 1:0:681:A:C2' | 1:0:683:A:H62 | 1.97 | 0.77 |
| 1:0:1706:A:N7 | 1:0:1717:A:N1 | 2.32 | 0.77 |
| 1:0:1955:G:C2' | 1:0:1956:G:H5' | 2.15 | 0.77 |
| 1:0:243:G:C6 | 1:0:244:C:H1' | 2.19 | 0.77 |
| 1:0:1683:G:H2' | 1:0:1684:G:O4' | 1.84 | 0.77 |
| 1:0:2034:A:C5' | 1:0:2557:G:H5'' | 2.15 | 0.77 |
| 1:0:460:U:N3 | 1:0:592:G:H1' | 2.00 | 0.77 |
| 1:0:552:C:H2' | 1:0:553:C:H5' | 1.67 | 0.76 |
| 1:0:2669:C:O2 | 1:0:2669:C:H2' | 1.83 | 0.76 |
| 1:0:926:C:H2' | 1:0:927:C:H5' | 1.67 | 0.76 |
| 1:0:1823:G:H1 | 1:0:1957:C:N4 | 1.83 | 0.76 |
| 1:0:1856:U:H5' | 1:0:2389:G:O2' | 1.85 | 0.76 |
| 1:0:225:G:O5' | 1:0:226:C:H5' | 1.85 | 0.76 |
| 1:0:1528:C:H3' | 1:0:1529:C:H5'' | 1.65 | 0.76 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:0:2599:U:C2' | 1:0:2600:A:H5'' | 2.15 | 0.76 |
| 1:0:574:C:H4' | 1:0:1266:G:O6 | 1.85 | 0.76 |
| 1:0:1955:G:O2' | 1:0:1956:G:H5' | 1.84 | 0.76 |
| 1:0:2797:G:H2' | 1:0:2798:A:H5'' | 1.68 | 0.76 |
| 1:0:2228:U:H4' | 1:0:2254:C:H5 | 1.51 | 0.76 |
| 1:0:2476:A:O2' | 1:0:2477:C:H5' | 1.86 | 0.76 |
| 1:0:2812:A:H2' | 1:0:2813:G:C8 | 2.20 | 0.76 |
| 1:0:1294:G:H1 | 1:0:1302:C:N4 | 1.83 | 0.76 |
| 1:0:168:A:H2' | 1:0:169:C:C6 | 2.20 | 0.76 |
| 1:0:210:A:H61 | 1:0:442:A:H61 | 1.34 | 0.76 |
| 1:0:1073:G:H2' | 1:0:1074:G:C4' | 2.15 | 0.76 |
| 1:0:1302:C:O2' | 1:0:1343:C:H4' | 1.86 | 0.76 |
| 1:0:2266:A:N6 | 1:0:2323:U:H1' | 2.01 | 0.76 |
| 1:0:951:G:C2' | 1:0:952:A:H5'' | 2.15 | 0.75 |
| 1:0:2475:C:H2' | 1:0:2476:A:O4' | 1.86 | 0.75 |
| 1:0:2672:U:H2' | 1:0:2673:G:H8 | 1.50 | 0.75 |
| 1:0:1921:A:H2' | 1:0:1922:U:H5'' | 1.66 | 0.75 |
| 1:0:460:U:C4 | 1:0:592:G:H1' | 2.21 | 0.75 |
| 1:0:1998:A:H2' | 1:0:1999:U:H5' | 1.67 | 0.75 |
| 1:0:2377:U:H2' | 1:0:2378:G:H8 | 1.50 | 0.75 |
| 1:0:437:G:H2' | 1:0:438:G:H4' | 1.68 | 0.75 |
| 1:0:760:U:O2 | 1:0:1997:A:H1' | 1.85 | 0.75 |
| 1:0:128:C:H2' | 1:0:129:A:H5'' | 1.67 | 0.75 |
| 1:0:328:A:O2' | 1:0:329:C:H5' | 1.87 | 0.75 |
| 1:0:940:G:C3' | 1:0:941:U:H5'' | 2.13 | 0.75 |
| 1:0:1778:U:H5' | 1:0:2568:A:O2' | 1.86 | 0.75 |
| 1:0:2310:G:H2' | 1:0:2311:U:O4' | 1.86 | 0.75 |
| 1:0:468:A:H1' | 1:0:470:U:C2 | 2.22 | 0.75 |
| 1:0:918:A:C3' | 1:0:919:U:H5'' | 2.16 | 0.75 |
| 1:0:596:C:H1' | 1:0:684:C:O4' | 1.86 | 0.75 |
| 1:0:109:A:C2' | 1:0:110:U:H5'' | 2.17 | 0.75 |
| 1:0:687:G:O2' | 1:0:688:A:H5' | 1.87 | 0.75 |
| 1:0:400:U:H4' | 1:0:401:G:C8 | 2.22 | 0.74 |
| 1:0:777:A:H62 | 1:0:1767:G:H1' | 1.52 | 0.74 |
| 1:0:826:U:O2' | 1:0:1238:A:H1' | 1.87 | 0.74 |
| 1:0:1680:U:HO2' | 1:0:1681:A:H8 | 1.35 | 0.74 |
| 1:0:700:C:H1' | 1:0:801:A:H5' | 1.69 | 0.74 |
| 1:0:1528:C:C3' | 1:0:1529:C:H5'' | 2.17 | 0.74 |
| 1:0:1529:C:H2' | 1:0:1530:U:O4' | 1.86 | 0.74 |
| 1:0:929:A:N7 | 1:0:2247:A:N1 | 2.36 | 0.74 |
| 1:0:964:A:H2' | 1:0:965:G:H8 | 1.52 | 0.74 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|------------------|--------------------------|-------------------|
| 1:0:1066:G:H3' | 1:0:1067:G:H5'' | 1.68 | 0.74 |
| 1:0:2194:A:C3' | 1:0:2195:C:H5'' | 2.17 | 0.74 |
| 1:0:2395:C:C2' | 1:0:2396:C:H5'' | 2.17 | 0.74 |
| 1:0:1088:A:H2' | 1:0:1089:C:O4' | 1.87 | 0.74 |
| 1:0:514:G:N3 | 1:0:514:G:H2' | 2.01 | 0.74 |
| 1:0:987:G:H2' | 1:0:988:G:H8 | 1.50 | 0.74 |
| 1:0:2377:U:H2' | 1:0:2378:G:C8 | 2.23 | 0.74 |
| 1:0:633:G:H2' | 1:0:634:G:C8 | 2.23 | 0.73 |
| 1:0:2483:U:H5' | 1:0:2484:G:OP2 | 1.89 | 0.73 |
| 1:0:2686:C:H2' | 1:0:2687:G:C8 | 2.24 | 0.73 |
| 1:0:1043:A:H2 | 1:0:1133:G:H22 | 1.37 | 0.73 |
| 1:0:2788:C:O2' | 1:0:2789:U:H5' | 1.87 | 0.73 |
| 1:0:339:U:O2 | 1:0:339:U:H2' | 1.88 | 0.73 |
| 1:0:1260:A:HO2' | 1:0:1261:G:P | 2.12 | 0.73 |
| 1:0:1299:A:H2' | 1:0:1301:U:OP2 | 1.88 | 0.73 |
| 1:0:840:U:H4' | 1:0:841:G:C2 | 2.24 | 0.73 |
| 1:0:942:U:H2' | 1:0:943:U:C4' | 2.18 | 0.73 |
| 1:0:1923:U:H5' | 1:0:1924:C:OP1 | 1.89 | 0.73 |
| 1:0:542:A:H2' | 1:0:543:G:H5' | 1.69 | 0.72 |
| 1:0:1149:G:H22 | 1:0:1154:A:C1' | 2.01 | 0.72 |
| 1:0:214:C:H2' | 1:0:215:G:H8 | 1.54 | 0.72 |
| 1:0:2811:G:H2' | 1:0:2812:A:C8 | 2.24 | 0.72 |
| 1:0:485:G:O2' | 1:0:486:U:OP1 | 2.06 | 0.72 |
| 1:0:1326:U:O2 | 1:0:1326:U:H2' | 1.89 | 0.72 |
| 1:0:1337:G:H1' | 1:0:1632:A:N6 | 2.04 | 0.72 |
| 1:0:1373:G:H2' | 1:0:1374:G:H5' | 1.71 | 0.72 |
| 1:0:311:A:H1' | 1:0:330:C:H1' | 1.70 | 0.72 |
| 1:0:1795:C:H2' | 1:0:1796:A:H8 | 1.53 | 0.72 |
| 1:0:717:G:H1' | 1:0:740:A:H61 | 1.53 | 0.72 |
| 1:0:825:C:H1' | 1:0:1263:G:C2 | 2.25 | 0.72 |
| 1:0:2680:U:H5' | 1:0:2681:A:H5'' | 1.72 | 0.72 |
| 1:0:482:A:C2' | 1:0:483:A:H5' | 2.20 | 0.72 |
| 1:0:816:U:H2' | 1:0:817:A:H5' | 1.70 | 0.72 |
| 1:0:930:A:OP1 | 1:0:930:A:H4' | 1.90 | 0.72 |
| 1:0:2041:A:H61 | 2:0:2881:TEL:C58 | 2.02 | 0.72 |
| 1:0:1979:C:H2' | 1:0:1980:A:O4' | 1.88 | 0.72 |
| 1:0:369:C:H2' | 1:0:370:U:O4' | 1.90 | 0.72 |
| 1:0:1578:U:H2' | 1:0:1579:G:C8 | 2.25 | 0.72 |
| 1:0:1918:G:H1' | 1:0:1947:G:N2 | 2.05 | 0.72 |
| 1:0:1582:A:C2' | 1:0:1583:A:H5' | 2.19 | 0.71 |
| 1:0:1016:C:H1' | 1:0:1154:A:N3 | 2.05 | 0.71 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:0:2532:G:C3' | 1:0:2533:U:H5'' | 2.20 | 0.71 |
| 1:0:2700:U:H3 | 1:0:2848:A:H62 | 1.38 | 0.71 |
| 1:0:1149:G:H22 | 1:0:1154:A:H1' | 1.53 | 0.71 |
| 1:0:324:C:H2' | 1:0:325:U:O4' | 1.90 | 0.71 |
| 1:0:541:C:H42 | 1:0:572:G:H4' | 1.56 | 0.71 |
| 1:0:1055:A:N1 | 1:0:1122:A:H5' | 2.06 | 0.71 |
| 1:0:2814:G:H2' | 1:0:2815:C:C6 | 2.26 | 0.71 |
| 1:0:1263:G:O2' | 1:0:1264:C:OP1 | 2.07 | 0.71 |
| 1:0:1795:C:H2' | 1:0:1796:A:C8 | 2.25 | 0.71 |
| 1:0:2593:A:O2' | 1:0:2594:U:H5' | 1.90 | 0.71 |
| 1:0:197:G:H1' | 1:0:211:U:H1' | 1.71 | 0.71 |
| 1:0:1982:C:H4' | 1:0:2703:C:O2 | 1.90 | 0.71 |
| 1:0:2299:A:H5' | 1:0:2300:G:C4 | 2.26 | 0.71 |
| 1:0:766:A:H2' | 1:0:767:G:C8 | 2.26 | 0.71 |
| 1:0:864:C:H1' | 1:0:940:G:N2 | 2.04 | 0.71 |
| 1:0:1719:G:H2' | 1:0:1720:G:H8 | 1.56 | 0.71 |
| 1:0:2660:C:O2 | 1:0:2660:C:H2' | 1.89 | 0.71 |
| 1:0:430:C:H6 | 1:0:430:C:H5'' | 1.56 | 0.71 |
| 1:0:616:U:C2' | 1:0:617:U:H5'' | 2.20 | 0.71 |
| 1:0:984:A:H1' | 1:0:1202:U:C4 | 2.25 | 0.71 |
| 1:0:1252:C:O2' | 1:0:1253:C:H5'' | 1.91 | 0.71 |
| 1:0:1345:G:H5'' | 1:0:1346:C:OP2 | 1.90 | 0.71 |
| 1:0:1712:G:H3' | 1:0:1712:G:N3 | 2.05 | 0.71 |
| 1:0:88:G:H3' | 1:0:89:A:H5'' | 1.73 | 0.71 |
| 1:0:1177:U:H2' | 1:0:1178:C:C6 | 2.25 | 0.71 |
| 1:0:1729:C:H2' | 1:0:1730:G:C8 | 2.26 | 0.71 |
| 1:0:2404:A:H5'' | 1:0:2405:A:H5'' | 1.73 | 0.71 |
| 1:0:2599:U:C3' | 1:0:2600:A:H5'' | 2.21 | 0.71 |
| 1:0:2727:G:C2' | 1:0:2728:A:H5'' | 2.21 | 0.71 |
| 1:0:1007:A:H2' | 1:0:1008:G:H8 | 1.55 | 0.70 |
| 1:0:484:G:O2' | 1:0:485:G:H5' | 1.91 | 0.70 |
| 1:0:1073:G:H2' | 1:0:1074:G:H4' | 1.71 | 0.70 |
| 1:0:1252:C:C2' | 1:0:1253:C:H5'' | 2.20 | 0.70 |
| 1:0:2198:U:C3' | 1:0:2199:C:H5'' | 2.19 | 0.70 |
| 1:0:200:A:N6 | 1:0:435:A:N6 | 2.39 | 0.70 |
| 1:0:1466:C:H2' | 1:0:1467:U:O4' | 1.92 | 0.70 |
| 1:0:700:C:O2 | 1:0:800:U:O3' | 2.09 | 0.70 |
| 1:0:1541:G:H1 | 1:0:1562:G:H1 | 1.38 | 0.70 |
| 1:0:1681:A:C2 | 1:0:2706:U:H1' | 2.26 | 0.70 |
| 1:0:2447:G:H1 | 1:0:2460:G:H2' | 1.56 | 0.70 |
| 1:0:588:G:H2' | 1:0:589:C:C5 | 2.26 | 0.70 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:0:2713:A:H2' | 1:0:2714:A:C8 | 2.26 | 0.70 |
| 1:0:2812:A:H2' | 1:0:2813:G:H8 | 1.56 | 0.70 |
| 1:0:540:G:C6 | 1:0:2005:U:H5'' | 2.27 | 0.70 |
| 1:0:826:U:H2' | 1:0:827:C:C6 | 2.26 | 0.70 |
| 1:0:1154:A:O2' | 1:0:1155:G:OP1 | 2.08 | 0.70 |
| 1:0:2686:C:H2' | 1:0:2687:G:H8 | 1.55 | 0.70 |
| 1:0:16:G:O2' | 1:0:17:G:H5' | 1.92 | 0.70 |
| 1:0:1680:U:H1' | 1:0:2665:G:O2' | 1.91 | 0.70 |
| 1:0:218:A:N1 | 1:0:232:A:H5'' | 2.07 | 0.70 |
| 1:0:841:G:H2' | 1:0:842:A:C8 | 2.26 | 0.70 |
| 1:0:1356:G:H5'' | 1:0:1614:C:OP2 | 1.92 | 0.70 |
| 1:0:2565:C:H2' | 1:0:2566:A:C8 | 2.27 | 0.70 |
| 1:0:1791:C:O2' | 1:0:1793:A:H5' | 1.92 | 0.70 |
| 1:0:296:A:H2' | 1:0:297:A:H8 | 1.57 | 0.69 |
| 1:0:1026:U:H2' | 1:0:1027:C:C6 | 2.26 | 0.69 |
| 1:0:2754:C:H2' | 1:0:2755:A:H8 | 1.57 | 0.69 |
| 1:0:742:G:H5' | 1:0:743:A:H5'' | 1.73 | 0.69 |
| 1:0:343:A:N6 | 1:0:346:C:C5 | 2.60 | 0.69 |
| 1:0:1912:G:H2' | 1:0:1912:G:N3 | 2.06 | 0.69 |
| 1:0:1918:G:H2' | 1:0:1945:C:H42 | 1.57 | 0.69 |
| 1:0:1655:C:OP1 | 1:0:2690:A:H5' | 1.90 | 0.69 |
| 1:0:52:A:H62 | 1:0:115:G:H21 | 1.39 | 0.69 |
| 1:0:765:C:O2' | 1:0:766:A:P | 2.50 | 0.69 |
| 1:0:937:C:H2' | 1:0:938:G:O4' | 1.92 | 0.69 |
| 1:0:651:C:C2' | 1:0:652:C:H5'' | 2.22 | 0.69 |
| 1:0:677:G:H1' | 1:0:951:G:H5'' | 1.75 | 0.69 |
| 1:0:871:U:O2 | 1:0:2247:A:H2' | 1.93 | 0.69 |
| 1:0:1195:U:H2' | 1:0:1196:G:C8 | 2.28 | 0.69 |
| 1:0:2692:A:H2' | 1:0:2692:A:N3 | 2.07 | 0.69 |
| 1:0:990:A:C5' | 1:0:991:A:H5'' | 2.22 | 0.69 |
| 1:0:1147:G:H2' | 1:0:1148:G:H8 | 1.57 | 0.69 |
| 1:0:2137:G:H2' | 1:0:2138:U:C6 | 2.28 | 0.69 |
| 1:0:2721:A:H61 | 1:0:2743:G:H1' | 1.57 | 0.69 |
| 1:0:181:A:H5'' | 1:0:182:G:OP1 | 1.93 | 0.69 |
| 1:0:482:A:H2' | 1:0:483:A:H5' | 1.73 | 0.69 |
| 1:0:1429:A:H1' | 1:0:1603:A:C6 | 2.28 | 0.69 |
| 1:0:2447:G:O2' | 1:0:2448:A:H5'' | 1.93 | 0.69 |
| 1:0:119:G:H4' | 1:0:142:U:H2' | 1.75 | 0.69 |
| 1:0:192:G:C1' | 1:0:193:A:H4' | 2.23 | 0.69 |
| 1:0:474:G:N2 | 1:0:476:G:H3' | 2.07 | 0.69 |
| 1:0:590:C:H2' | 1:0:591:G:C8 | 2.28 | 0.69 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:0:658:G:H2' | 1:0:659:G:H8 | 1.57 | 0.69 |
| 1:0:1854:G:H2' | 1:0:1855:G:H8 | 1.57 | 0.69 |
| 1:0:1978:U:H3' | 1:0:1979:C:H5'' | 1.74 | 0.69 |
| 1:0:431:G:H2' | 1:0:432:C:O5' | 1.93 | 0.68 |
| 1:0:644:A:H2' | 1:0:645:G:H5' | 1.73 | 0.68 |
| 1:0:2059:U:H5'' | 1:0:2217:G:H1 | 1.58 | 0.68 |
| 1:0:2404:A:H5' | 1:0:2406:C:O4' | 1.94 | 0.68 |
| 1:0:2708:U:H2' | 1:0:2709:C:C6 | 2.28 | 0.68 |
| 1:0:218:A:H4' | 1:0:219:G:O5' | 1.94 | 0.68 |
| 1:0:56:C:H2' | 1:0:57:G:O4' | 1.93 | 0.68 |
| 1:0:598:U:H2' | 1:0:599:A:C8 | 2.29 | 0.68 |
| 1:0:818:G:N1 | 1:0:2050:G:O2' | 2.27 | 0.68 |
| 1:0:1032:A:H3' | 1:0:1033:G:H5'' | 1.75 | 0.68 |
| 1:0:1234:C:O2' | 1:0:1235:C:H5' | 1.92 | 0.68 |
| 1:0:552:C:C2' | 1:0:553:C:H5' | 2.23 | 0.68 |
| 1:0:952:A:H2' | 1:0:953:G:C8 | 2.28 | 0.68 |
| 1:0:2238:G:H4' | 1:0:2407:G:OP2 | 1.93 | 0.68 |
| 1:0:2240:C:H1' | 1:0:2367:A:H1' | 1.75 | 0.68 |
| 1:0:2652:G:H2' | 1:0:2653:A:H8 | 1.58 | 0.68 |
| 1:0:244:C:C2' | 1:0:245:C:H5'' | 2.23 | 0.68 |
| 1:0:1315:A:H5'' | 1:0:1316:G:OP2 | 1.94 | 0.68 |
| 1:0:81:C:H5' | 1:0:306:G:O2' | 1.94 | 0.68 |
| 1:0:688:A:H1' | 1:0:2422:C:O2' | 1.94 | 0.68 |
| 1:0:716:U:H2' | 1:0:717:G:O4' | 1.93 | 0.68 |
| 1:0:1337:G:H4' | 1:0:1632:A:H62 | 1.59 | 0.68 |
| 1:0:1608:U:H2' | 1:0:1609:G:H8 | 1.58 | 0.68 |
| 1:0:1626:A:H5'' | 1:0:1627:C:OP2 | 1.94 | 0.68 |
| 1:0:1706:A:H2' | 1:0:1707:A:O4' | 1.94 | 0.68 |
| 1:0:2311:U:H4' | 1:0:2315:A:N6 | 2.09 | 0.68 |
| 1:0:1036:G:H1' | 1:0:1145:C:H4' | 1.74 | 0.68 |
| 1:0:1368:G:H2' | 1:0:1369:G:H8 | 1.57 | 0.68 |
| 1:0:2081:U:C2' | 1:0:2082:C:H5'' | 2.24 | 0.68 |
| 1:0:2309:G:H1 | 1:0:2364:C:N4 | 1.89 | 0.68 |
| 1:0:2702:G:H2' | 1:0:2703:C:C6 | 2.28 | 0.68 |
| 1:0:309:G:H21 | 1:0:351:A:H62 | 1.41 | 0.68 |
| 1:0:933:G:H2' | 1:0:934:G:H8 | 1.58 | 0.68 |
| 1:0:1922:U:O2 | 1:0:2571:G:H4' | 1.94 | 0.68 |
| 1:0:718:A:H62 | 1:0:739:G:H1' | 1.58 | 0.68 |
| 1:0:1655:C:H5'' | 1:0:2689:C:O2' | 1.93 | 0.68 |
| 1:0:366:U:H2' | 1:0:367:G:H8 | 1.58 | 0.67 |
| 1:0:1514:C:H5' | 1:0:1593:C:H5'' | 1.75 | 0.67 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-------------------|--------------------------|-------------------|
| 1:0:1766:U:H2' | 1:0:1767:G:O4' | 1.94 | 0.67 |
| 1:0:591:G:H2' | 1:0:592:G:C8 | 2.28 | 0.67 |
| 1:0:699:G:H5' | 1:0:700:C:OP2 | 1.94 | 0.67 |
| 1:0:1549:C:H2' | 1:0:1550:C:O4' | 1.93 | 0.67 |
| 1:0:1937:G:H1' | 1:0:2530:C:C4' | 2.22 | 0.67 |
| 1:0:15:G:H22 | 1:0:536:A:H2 | 1.42 | 0.67 |
| 1:0:1161:U:H2' | 1:0:1162:A:H8 | 1.60 | 0.67 |
| 1:0:1202:U:H2' | 1:0:1203:A:H8 | 1.60 | 0.67 |
| 1:0:1582:A:H62 | 1:0:1584:G:H21 | 1.40 | 0.67 |
| 1:0:1777:A:O2' | 1:0:1778:U:OP1 | 2.12 | 0.67 |
| 1:0:1859:A:H2' | 1:0:1860:A:H8 | 1.60 | 0.67 |
| 1:0:2041:A:H61 | 2:0:2881:TEL:H582 | 1.58 | 0.67 |
| 1:0:2736:U:O2' | 1:0:2737:A:H5' | 1.95 | 0.67 |
| 1:0:594:G:C6 | 1:0:1264:C:N4 | 2.55 | 0.67 |
| 1:0:109:A:H3' | 1:0:110:U:H5'' | 1.76 | 0.67 |
| 1:0:368:A:H2' | 1:0:369:C:O4' | 1.94 | 0.67 |
| 1:0:389:G:C8 | 1:0:389:G:H3' | 2.30 | 0.67 |
| 1:0:815:A:O2' | 1:0:816:U:H5' | 1.95 | 0.67 |
| 1:0:831:G:H21 | 1:0:1203:A:H62 | 1.41 | 0.67 |
| 1:0:1222:G:H1' | 1:0:1251:G:N2 | 2.09 | 0.67 |
| 1:0:2033:C:H2' | 1:0:2034:A:O4' | 1.94 | 0.67 |
| 1:0:1021:A:H1' | 1:0:1164:C:H1' | 1.77 | 0.67 |
| 1:0:1029:C:C2' | 1:0:1030:U:H5'' | 2.24 | 0.67 |
| 1:0:1930:C:N4 | 1:0:1942:G:H1 | 1.92 | 0.67 |
| 1:0:2410:U:O2 | 1:0:2412:A:C8 | 2.44 | 0.67 |
| 1:0:2432:A:H4' | 1:0:2551:A:O2' | 1.95 | 0.67 |
| 1:0:1141:U:O2' | 1:0:1142:G:OP1 | 2.12 | 0.67 |
| 1:0:1247:U:H2' | 1:0:1248:G:O4' | 1.95 | 0.67 |
| 1:0:1883:A:N3 | 1:0:1953:A:N7 | 2.43 | 0.67 |
| 1:0:2369:U:H2' | 1:0:2370:G:H8 | 1.59 | 0.67 |
| 1:0:38:G:H2' | 1:0:39:C:C6 | 2.30 | 0.66 |
| 1:0:73:A:N3 | 1:0:73:A:H2' | 2.10 | 0.66 |
| 1:0:139:A:H2' | 1:0:140:G:H8 | 1.58 | 0.66 |
| 1:0:1288:A:H2' | 1:0:1289:A:O4' | 1.95 | 0.66 |
| 1:0:1911:A:C2' | 1:0:1912:G:H5' | 2.25 | 0.66 |
| 1:0:2245:A:O2' | 1:0:2246:A:OP2 | 2.11 | 0.66 |
| 1:0:1804:U:H2' | 1:0:1805:G:H8 | 1.60 | 0.66 |
| 1:0:741:G:H5' | 1:0:742:G:OP2 | 1.94 | 0.66 |
| 1:0:1182:U:C2' | 1:0:1183:C:H5'' | 2.25 | 0.66 |
| 1:0:1223:G:H5' | 1:0:1225:G:O4' | 1.95 | 0.66 |
| 1:0:2396:C:H2' | 1:0:2397:A:H5' | 1.77 | 0.66 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:0:2521:A:H5' | 1:0:2522:G:OP1 | 1.95 | 0.66 |
| 1:0:2675:U:H2' | 1:0:2676:G:C8 | 2.29 | 0.66 |
| 1:0:1071:U:H2' | 1:0:1072:U:H5' | 1.77 | 0.66 |
| 1:0:541:C:H42 | 1:0:572:G:C4' | 2.08 | 0.66 |
| 1:0:1634:A:O2' | 1:0:1635:G:H5' | 1.95 | 0.66 |
| 1:0:1679:U:C2' | 1:0:1680:U:H5' | 2.26 | 0.66 |
| 1:0:1958:G:H2' | 1:0:1959:U:C6 | 2.31 | 0.66 |
| 1:0:2429:A:H5'' | 1:0:2476:A:H62 | 1.60 | 0.66 |
| 1:0:865:A:H2' | 1:0:866:U:C6 | 2.30 | 0.66 |
| 1:0:2274:C:H2' | 1:0:2275:U:H5' | 1.77 | 0.66 |
| 1:0:2816:C:H1' | 1:0:2852:G:H22 | 1.59 | 0.66 |
| 1:0:336:A:H2' | 1:0:337:G:C8 | 2.31 | 0.66 |
| 1:0:340:G:H5' | 1:0:341:A:OP1 | 1.95 | 0.66 |
| 1:0:589:C:H5' | 1:0:2001:G:O2' | 1.96 | 0.66 |
| 1:0:1083:C:N3 | 1:0:1103:C:C5 | 2.63 | 0.66 |
| 1:0:2402:U:H4' | 1:0:2404:A:N7 | 2.10 | 0.66 |
| 1:0:762:A:O2' | 1:0:1633:C:H1' | 1.95 | 0.66 |
| 1:0:1561:A:H2' | 1:0:1562:G:O4' | 1.96 | 0.66 |
| 1:0:2804:G:C3' | 1:0:2805:G:H5'' | 2.25 | 0.66 |
| 1:0:772:G:H2' | 1:0:773:G:H8 | 1.61 | 0.65 |
| 1:0:681:A:C2' | 1:0:683:A:N6 | 2.55 | 0.65 |
| 1:0:1218:C:H2' | 1:0:1219:C:C6 | 2.32 | 0.65 |
| 1:0:1776:A:H4' | 1:0:1965:U:HO2' | 1.60 | 0.65 |
| 1:0:2048:C:H2' | 1:0:2049:C:H6 | 1.61 | 0.65 |
| 1:0:2483:U:H3' | 1:0:2484:G:H5'' | 1.77 | 0.65 |
| 1:0:2782:G:H2' | 1:0:2783:U:H5' | 1.77 | 0.65 |
| 1:0:78:C:H2' | 1:0:79:G:H8 | 1.61 | 0.65 |
| 1:0:542:A:C2' | 1:0:543:G:H5' | 2.25 | 0.65 |
| 1:0:759:C:H5' | 1:0:761:G:H1' | 1.78 | 0.65 |
| 1:0:1198:C:OP1 | 1:0:1199:U:H1' | 1.96 | 0.65 |
| 1:0:1435:G:H2' | 1:0:1436:G:H8 | 1.59 | 0.65 |
| 1:0:1458:A:H3' | 1:0:1459:U:C5' | 2.25 | 0.65 |
| 1:0:1625:A:H2' | 1:0:1625:A:N3 | 2.11 | 0.65 |
| 1:0:389:G:H3' | 1:0:389:G:H8 | 1.59 | 0.65 |
| 1:0:1572:C:H2' | 1:0:1573:G:C5' | 2.14 | 0.65 |
| 1:0:1662:G:H5'' | 1:0:1663:C:H5' | 1.77 | 0.65 |
| 1:0:2526:U:H2' | 1:0:2527:G:C8 | 2.31 | 0.65 |
| 1:0:2778:U:H2' | 1:0:2779:C:C6 | 2.30 | 0.65 |
| 1:0:430:C:C4' | 1:0:2386:G:N2 | 2.56 | 0.65 |
| 1:0:728:G:H2' | 1:0:729:A:O4' | 1.96 | 0.65 |
| 1:0:843:G:N3 | 1:0:2427:A:N6 | 2.44 | 0.65 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:0:2034:A:H5' | 1:0:2557:G:H5'' | 1.78 | 0.65 |
| 1:0:983:G:H3' | 1:0:984:A:H5'' | 1.79 | 0.65 |
| 1:0:1407:G:H2' | 1:0:1408:A:O4' | 1.96 | 0.65 |
| 1:0:2324:G:O2' | 1:0:2325:A:OP2 | 2.12 | 0.65 |
| 1:0:2398:U:H2' | 1:0:2399:C:C6 | 2.32 | 0.65 |
| 1:0:133:C:H2' | 1:0:134:G:O4' | 1.96 | 0.65 |
| 1:0:1552:C:H2' | 1:0:1553:G:H5' | 1.79 | 0.65 |
| 1:0:2651:U:O2' | 1:0:2652:G:H5' | 1.96 | 0.65 |
| 1:0:457:C:H2' | 1:0:458:G:O4' | 1.96 | 0.65 |
| 1:0:2034:A:H5'' | 1:0:2557:G:H5'' | 1.78 | 0.65 |
| 1:0:2312:A:H1' | 1:0:2314:A:C5 | 2.32 | 0.65 |
| 1:0:534:U:O2' | 1:0:535:U:H5' | 1.97 | 0.65 |
| 1:0:1358:C:H2' | 1:0:1359:G:H5' | 1.79 | 0.65 |
| 1:0:2020:G:H2' | 1:0:2021:G:C8 | 2.31 | 0.65 |
| 1:0:2334:C:C3' | 1:0:2335:U:H5'' | 2.27 | 0.65 |
| 1:0:1353:A:H2' | 1:0:1353:A:N3 | 2.11 | 0.65 |
| 1:0:1807:A:H1' | 1:0:1809:G:C8 | 2.32 | 0.65 |
| 1:0:2824:C:H4' | 1:0:2825:A:H5' | 1.79 | 0.65 |
| 1:0:175:C:H1' | 1:0:2413:A:H61 | 1.62 | 0.64 |
| 1:0:430:C:H6 | 1:0:430:C:C5' | 2.09 | 0.64 |
| 1:0:984:A:H1' | 1:0:1202:U:C5 | 2.32 | 0.64 |
| 1:0:1086:C:H2' | 1:0:1087:C:H5'' | 1.78 | 0.64 |
| 1:0:1230:C:H2' | 1:0:1231:A:H8 | 1.62 | 0.64 |
| 1:0:1681:A:H61 | 1:0:1979:C:N4 | 1.96 | 0.64 |
| 1:0:1725:C:N4 | 1:0:1741:G:H1 | 1.95 | 0.64 |
| 1:0:874:A:H2' | 1:0:875:G:O4' | 1.97 | 0.64 |
| 1:0:1058:G:H2' | 1:0:1121:G:H1 | 1.63 | 0.64 |
| 1:0:2261:G:H4' | 1:0:2262:C:OP2 | 1.95 | 0.64 |
| 1:0:540:G:O6 | 1:0:2006:G:OP1 | 2.16 | 0.64 |
| 1:0:587:A:C2' | 1:0:588:G:H5'' | 2.27 | 0.64 |
| 1:0:789:G:H1' | 1:0:806:A:C6 | 2.33 | 0.64 |
| 1:0:813:A:H2' | 1:0:813:A:N3 | 2.12 | 0.64 |
| 1:0:1078:A:H2' | 1:0:1079:G:H8 | 1.62 | 0.64 |
| 1:0:1791:C:C2' | 1:0:1792:C:H5'' | 2.26 | 0.64 |
| 1:0:1223:G:N3 | 1:0:1225:G:N3 | 2.46 | 0.64 |
| 1:0:1303:U:H2' | 1:0:1304:U:C6 | 2.32 | 0.64 |
| 1:0:1764:A:N7 | 1:0:1821:A:H1' | 2.12 | 0.64 |
| 1:0:1955:G:H2' | 1:0:1956:G:H8 | 1.62 | 0.64 |
| 1:0:2560:G:H3' | 1:0:2560:G:N3 | 2.12 | 0.64 |
| 1:0:2633:A:O2' | 1:0:2634:G:H4' | 1.98 | 0.64 |
| 1:0:2091:C:H2' | 1:0:2092:U:O4' | 1.97 | 0.64 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:0:2389:G:H2' | 1:0:2390:A:C8 | 2.33 | 0.64 |
| 1:0:2671:C:H2' | 1:0:2672:U:C6 | 2.32 | 0.64 |
| 1:0:1937:G:N3 | 1:0:2530:C:H5'' | 2.13 | 0.64 |
| 1:0:1948:C:OP2 | 1:0:1949:A:H3' | 1.97 | 0.64 |
| 1:0:781:G:N2 | 1:0:1392:U:H1' | 2.13 | 0.64 |
| 1:0:2713:A:H2' | 1:0:2714:A:H8 | 1.61 | 0.64 |
| 1:0:765:C:HO2' | 1:0:766:A:P | 2.20 | 0.64 |
| 1:0:1299:A:O2' | 1:0:1300:A:OP1 | 2.15 | 0.64 |
| 1:0:1680:U:O2' | 1:0:1681:A:H8 | 1.80 | 0.64 |
| 1:0:2096:U:H3' | 1:0:2097:A:H5'' | 1.80 | 0.64 |
| 1:0:367:G:C3' | 1:0:368:A:H5'' | 2.28 | 0.63 |
| 1:0:952:A:O2' | 1:0:1204:G:H4' | 1.99 | 0.63 |
| 1:0:1437:A:H2' | 1:0:1438:G:H8 | 1.62 | 0.63 |
| 1:0:873:U:H3 | 1:0:930:A:N6 | 1.96 | 0.63 |
| 1:0:1332:G:N1 | 1:0:1333:G:N2 | 2.46 | 0.63 |
| 1:0:1337:G:C4' | 1:0:1632:A:H62 | 2.12 | 0.63 |
| 1:0:651:C:H2' | 1:0:652:C:H5'' | 1.78 | 0.63 |
| 1:0:1225:G:H2' | 1:0:1249:G:N2 | 2.13 | 0.63 |
| 1:0:2191:A:H2' | 1:0:2192:U:OP1 | 1.99 | 0.63 |
| 1:0:2274:C:H2' | 1:0:2275:U:C5' | 2.28 | 0.63 |
| 1:0:1886:G:H2' | 1:0:1887:G:H8 | 1.63 | 0.63 |
| 1:0:2334:C:H2' | 1:0:2335:U:H5'' | 1.81 | 0.63 |
| 1:0:2549:G:O2' | 1:0:2550:C:H5' | 1.98 | 0.63 |
| 1:0:1141:U:O2 | 1:0:2008:C:H5'' | 1.99 | 0.63 |
| 1:0:1451:C:H2' | 1:0:1452:U:H6 | 1.62 | 0.63 |
| 1:0:2382:C:N4 | 1:0:2393:G:H1 | 1.95 | 0.63 |
| 1:0:2517:C:H2' | 1:0:2518:C:C6 | 2.34 | 0.63 |
| 1:0:1242:A:O2' | 1:0:1243:G:H5' | 1.99 | 0.63 |
| 1:0:1299:A:HO2' | 1:0:1300:A:P | 2.22 | 0.63 |
| 1:0:1345:G:C5 | 1:0:1625:A:N6 | 2.66 | 0.63 |
| 1:0:2299:A:H5' | 1:0:2300:G:C5 | 2.34 | 0.63 |
| 1:0:68:C:O2 | 1:0:68:C:H2' | 1.99 | 0.63 |
| 1:0:1588:A:H2' | 1:0:1589:G:H8 | 1.64 | 0.63 |
| 1:0:2426:G:H1' | 1:0:2480:C:C5 | 2.34 | 0.63 |
| 1:0:2428:U:H2' | 1:0:2428:U:O2 | 1.98 | 0.63 |
| 1:0:321:A:O2' | 1:0:322:A:H8 | 1.74 | 0.63 |
| 1:0:612:G:O3' | 1:0:613:A:H4' | 1.99 | 0.63 |
| 1:0:2495:G:H2' | 1:0:2496:C:O4' | 1.98 | 0.63 |
| 1:0:1161:U:H2' | 1:0:1162:A:C8 | 2.34 | 0.63 |
| 1:0:1679:U:O2 | 1:0:2666:U:H5'' | 1.99 | 0.63 |
| 1:0:1982:C:H5'' | 1:0:2703:C:O2' | 1.98 | 0.63 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:0:2043:A:O2' | 1:0:2481:G:O4' | 2.17 | 0.63 |
| 1:0:2384:G:H5'' | 1:0:2385:U:H5'' | 1.79 | 0.63 |
| 1:0:1380:C:H2' | 1:0:1381:G:H5' | 1.80 | 0.62 |
| 1:0:1725:C:H42 | 1:0:1741:G:H1 | 1.47 | 0.62 |
| 1:0:1791:C:H1' | 1:0:1793:A:C5' | 2.29 | 0.62 |
| 1:0:2261:G:H5'' | 1:0:2262:C:O5' | 1.98 | 0.62 |
| 1:0:2687:G:O2' | 1:0:2688:G:H5' | 1.99 | 0.62 |
| 1:0:550:C:H2' | 1:0:551:A:C8 | 2.34 | 0.62 |
| 1:0:1259:A:O2' | 1:0:1260:A:H5' | 1.99 | 0.62 |
| 1:0:2380:U:H2' | 1:0:2381:A:C5' | 2.28 | 0.62 |
| 1:0:7:G:H2' | 1:0:8:A:C8 | 2.34 | 0.62 |
| 1:0:200:A:H62 | 1:0:435:A:H62 | 1.47 | 0.62 |
| 1:0:323:G:H2' | 1:0:324:C:C6 | 2.34 | 0.62 |
| 1:0:2753:C:H2' | 1:0:2754:C:C6 | 2.35 | 0.62 |
| 1:0:2754:C:H2' | 1:0:2755:A:C8 | 2.34 | 0.62 |
| 1:0:2756:A:O2' | 1:0:2757:G:OP2 | 2.15 | 0.62 |
| 1:0:2763:U:H2' | 1:0:2764:U:O4' | 1.99 | 0.62 |
| 1:0:198:A:H62 | 1:0:439:C:H42 | 1.46 | 0.62 |
| 1:0:210:A:N6 | 1:0:442:A:H61 | 1.98 | 0.62 |
| 1:0:1029:C:N4 | 1:0:1153:A:N6 | 2.46 | 0.62 |
| 1:0:1089:C:H2' | 1:0:1099:A:O4' | 2.00 | 0.62 |
| 1:0:1218:C:H2' | 1:0:1219:C:H6 | 1.64 | 0.62 |
| 1:0:1416:A:O2' | 1:0:1417:C:H5' | 1.98 | 0.62 |
| 1:0:1698:C:H4' | 1:0:1699:A:OP1 | 2.00 | 0.62 |
| 1:0:1871:G:H3' | 1:0:1871:G:N3 | 2.14 | 0.62 |
| 1:0:2672:U:H2' | 1:0:2673:G:C8 | 2.33 | 0.62 |
| 1:0:574:C:C4' | 1:0:1266:G:O6 | 2.47 | 0.62 |
| 1:0:645:G:H2' | 1:0:646:C:C6 | 2.35 | 0.62 |
| 1:0:1114:A:H2' | 1:0:1115:C:O4' | 1.98 | 0.62 |
| 1:0:1719:G:H2' | 1:0:1720:G:C8 | 2.35 | 0.62 |
| 1:0:1981:A:H4' | 1:0:2704:U:H4' | 1.80 | 0.62 |
| 1:0:2024:U:H2' | 1:0:2025:A:C8 | 2.34 | 0.62 |
| 1:0:2565:C:H2' | 1:0:2566:A:H8 | 1.62 | 0.62 |
| 1:0:2746:G:H2' | 1:0:2746:G:N3 | 2.13 | 0.62 |
| 1:0:2870:C:H2' | 1:0:2871:U:C6 | 2.35 | 0.62 |
| 1:0:2:G:H2' | 1:0:3:U:C6 | 2.33 | 0.62 |
| 1:0:168:A:H2' | 1:0:169:C:H6 | 1.62 | 0.62 |
| 1:0:562:G:H2' | 1:0:563:U:C6 | 2.35 | 0.62 |
| 1:0:788:G:N2 | 1:0:801:A:OP2 | 2.33 | 0.62 |
| 1:0:1900:U:H4' | 1:0:1946:U:C4' | 2.30 | 0.62 |
| 1:0:2343:C:H2' | 1:0:2344:G:O4' | 1.99 | 0.62 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:0:214:C:H2' | 1:0:215:G:C8 | 2.34 | 0.62 |
| 1:0:367:G:H3' | 1:0:368:A:H5'' | 1.81 | 0.62 |
| 1:0:396:U:H2' | 1:0:398:C:H41 | 1.63 | 0.62 |
| 1:0:597:U:H2' | 1:0:598:U:C6 | 2.34 | 0.62 |
| 1:0:707:U:OP1 | 1:0:1585:A:H1' | 2.00 | 0.62 |
| 1:0:1782:A:N6 | 1:0:1820:G:H2' | 2.14 | 0.62 |
| 1:0:1869:A:H2' | 1:0:1870:U:O4' | 2.00 | 0.62 |
| 1:0:2049:C:H2' | 1:0:2050:G:H5' | 1.82 | 0.62 |
| 1:0:2691:C:H3' | 1:0:2692:A:H5'' | 1.81 | 0.62 |
| 1:0:2870:C:H2' | 1:0:2871:U:H6 | 1.65 | 0.62 |
| 1:0:222:G:N2 | 1:0:231:G:H1' | 2.15 | 0.62 |
| 1:0:431:G:N1 | 1:0:432:C:N4 | 2.48 | 0.62 |
| 1:0:538:A:C2 | 1:0:2025:A:H2' | 2.35 | 0.62 |
| 1:0:1555:A:H2' | 1:0:1556:A:C8 | 2.35 | 0.62 |
| 1:0:1194:U:H2' | 1:0:1195:U:C6 | 2.34 | 0.62 |
| 1:0:1278:A:O2' | 1:0:1279:G:H4' | 2.00 | 0.62 |
| 1:0:2533:U:H2' | 1:0:2534:U:C6 | 2.34 | 0.62 |
| 1:0:699:G:C5' | 1:0:700:C:OP2 | 2.48 | 0.62 |
| 1:0:837:U:H2' | 1:0:838:A:C8 | 2.34 | 0.62 |
| 1:0:2266:A:HO2' | 1:0:2267:A:H8 | 1.48 | 0.62 |
| 1:0:2824:C:O2 | 1:0:2824:C:C2' | 2.46 | 0.62 |
| 1:0:330:C:H2' | 1:0:331:U:H6 | 1.64 | 0.61 |
| 1:0:431:G:C6 | 1:0:433:G:N2 | 2.67 | 0.61 |
| 1:0:569:C:N4 | 1:0:570:G:C6 | 2.67 | 0.61 |
| 1:0:873:U:O2 | 1:0:2247:A:O5' | 2.17 | 0.61 |
| 1:0:978:U:H2' | 1:0:979:A:C8 | 2.35 | 0.61 |
| 1:0:1102:G:N1 | 1:0:1112:U:H1' | 2.15 | 0.61 |
| 1:0:1979:C:O2' | 1:0:1980:A:H5' | 2.00 | 0.61 |
| 1:0:2495:G:H2' | 1:0:2496:C:C1' | 2.30 | 0.61 |
| 1:0:244:C:C3' | 1:0:245:C:H5'' | 2.30 | 0.61 |
| 1:0:1338:G:H4' | 1:0:1339:U:OP1 | 1.99 | 0.61 |
| 1:0:2520:A:H1' | 1:0:2744:A:H2 | 1.65 | 0.61 |
| 1:0:2728:A:N1 | 1:0:2736:U:H1' | 2.14 | 0.61 |
| 1:0:1288:A:H62 | 1:0:1309:G:C4' | 2.13 | 0.61 |
| 1:0:2262:C:H2' | 1:0:2263:C:O4' | 2.00 | 0.61 |
| 1:0:495:C:H2' | 1:0:496:C:C6 | 2.35 | 0.61 |
| 1:0:834:A:H62 | 1:0:983:G:N2 | 1.97 | 0.61 |
| 1:0:1033:G:O2' | 1:0:1034:U:P | 2.58 | 0.61 |
| 1:0:1764:A:H2' | 1:0:1765:C:H5' | 1.81 | 0.61 |
| 1:0:2059:U:C5' | 1:0:2217:G:H1 | 2.13 | 0.61 |
| 1:0:14:A:H2' | 1:0:14:A:N3 | 2.14 | 0.61 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-----------------|--------------------------|-------------------|
| 1:0:564:U:H2' | 1:0:565:A:C8 | 2.34 | 0.61 |
| 1:0:1720:G:O2' | 1:0:1721:G:H5' | 2.00 | 0.61 |
| 1:0:2243:C:H2' | 1:0:2244:C:O4' | 2.01 | 0.61 |
| 1:0:2692:A:OP1 | 1:0:2692:A:O4' | 2.19 | 0.61 |
| 1:0:822:G:O2' | 1:0:823:U:H5' | 2.00 | 0.61 |
| 1:0:1354:A:H62 | 1:0:1407:G:H1 | 1.48 | 0.61 |
| 1:0:1392:U:O2 | 1:0:1392:U:H2' | 2.00 | 0.61 |
| 1:0:2096:U:C3' | 1:0:2097:A:H5'' | 2.31 | 0.61 |
| 1:0:2391:A:H2' | 1:0:2392:G:O4' | 1.99 | 0.61 |
| 1:0:158:A:H1' | 1:0:448:C:H5' | 1.83 | 0.61 |
| 1:0:541:C:H42 | 1:0:572:G:C5' | 2.14 | 0.61 |
| 1:0:1617:G:H2' | 1:0:1618:U:H5' | 1.82 | 0.61 |
| 1:0:1975:G:H22 | 1:0:1979:C:H5 | 1.47 | 0.61 |
| 1:0:2105:U:H2' | 1:0:2106:G:C8 | 2.35 | 0.61 |
| 1:0:2658:A:O2' | 1:0:2659:C:H5' | 2.01 | 0.61 |
| 1:0:879:A:H2' | 1:0:879:A:N3 | 2.16 | 0.61 |
| 1:0:987:G:H2' | 1:0:988:G:C8 | 2.33 | 0.61 |
| 1:0:2351:G:H2' | 1:0:2351:G:N3 | 2.15 | 0.61 |
| 1:0:2477:C:H3' | 1:0:2477:C:H6 | 1.65 | 0.61 |
| 1:0:2727:G:O2' | 1:0:2728:A:H5'' | 1.99 | 0.61 |
| 1:0:2748:C:H2' | 1:0:2749:A:H8 | 1.65 | 0.61 |
| 1:0:460:U:H3 | 1:0:592:G:H1' | 1.66 | 0.61 |
| 1:0:665:A:H2' | 1:0:665:A:N3 | 2.15 | 0.61 |
| 1:0:796:A:H2' | 1:0:796:A:N3 | 2.14 | 0.61 |
| 1:0:809:C:H2' | 1:0:810:U:C6 | 2.35 | 0.61 |
| 1:0:1429:A:O2' | 1:0:1430:G:H4' | 2.00 | 0.61 |
| 1:0:1775:A:O5' | 1:0:1775:A:H8 | 1.83 | 0.61 |
| 1:0:1997:A:H2' | 1:0:1998:A:C8 | 2.36 | 0.61 |
| 1:0:987:G:H5' | 1:0:1167:A:N6 | 2.16 | 0.60 |
| 1:0:65:C:H2' | 1:0:66:U:O4' | 2.01 | 0.60 |
| 1:0:706:A:H2' | 1:0:707:U:C6 | 2.37 | 0.60 |
| 1:0:804:C:O2 | 1:0:804:C:C2' | 2.45 | 0.60 |
| 1:0:824:U:H1' | 1:0:1264:C:O2 | 2.00 | 0.60 |
| 1:0:1281:A:H2' | 1:0:1282:A:O4' | 2.01 | 0.60 |
| 1:0:1582:A:C3' | 1:0:1583:A:H5' | 2.30 | 0.60 |
| 1:0:1790:G:H4' | 1:0:1791:C:C6 | 2.37 | 0.60 |
| 1:0:674:U:H2' | 1:0:675:C:O4' | 2.02 | 0.60 |
| 1:0:1172:U:H2' | 1:0:1173:G:H8 | 1.64 | 0.60 |
| 1:0:1621:C:O4' | 1:0:1626:A:N1 | 2.33 | 0.60 |
| 1:0:2225:G:H2' | 1:0:2226:A:C8 | 2.36 | 0.60 |
| 1:0:2487:G:H2' | 1:0:2488:G:H8 | 1.65 | 0.60 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:0:330:C:H2' | 1:0:331:U:C6 | 2.36 | 0.60 |
| 1:0:388:G:P | 1:0:436:A:H61 | 2.24 | 0.60 |
| 1:0:466:A:C2' | 1:0:467:U:OP2 | 2.49 | 0.60 |
| 1:0:468:A:O2' | 1:0:469:G:H4' | 2.01 | 0.60 |
| 1:0:73:A:O3' | 1:0:74:G:H4' | 2.00 | 0.60 |
| 1:0:216:U:H2' | 1:0:217:U:O4' | 2.01 | 0.60 |
| 1:0:1474:A:H3' | 1:0:1474:A:N3 | 2.16 | 0.60 |
| 1:0:2498:U:H3' | 1:0:2498:U:OP2 | 2.00 | 0.60 |
| 1:0:510:G:H2' | 1:0:512:A:OP2 | 2.00 | 0.60 |
| 1:0:1932:G:H3' | 1:0:1933:G:C8 | 2.36 | 0.60 |
| 1:0:2463:G:H2' | 1:0:2464:G:H8 | 1.65 | 0.60 |
| 1:0:2867:G:H2' | 1:0:2867:G:N3 | 2.16 | 0.60 |
| 1:0:357:A:H2' | 1:0:358:C:H5' | 1.84 | 0.60 |
| 1:0:688:A:H2' | 1:0:689:A:N3 | 2.15 | 0.60 |
| 1:0:1057:A:H3' | 1:0:1058:G:C5' | 2.32 | 0.60 |
| 1:0:1223:G:H5'' | 1:0:1224:A:OP1 | 2.02 | 0.60 |
| 1:0:1532:A:H2' | 1:0:1533:G:C8 | 2.37 | 0.60 |
| 1:0:2000:U:H3' | 1:0:2001:G:H5'' | 1.83 | 0.60 |
| 1:0:2136:G:H2' | 1:0:2137:G:C8 | 2.36 | 0.60 |
| 1:0:2322:U:O2' | 1:0:2323:U:H5' | 2.02 | 0.60 |
| 1:0:2496:C:H2' | 1:0:2497:A:H5'' | 1.84 | 0.60 |
| 1:0:460:U:H4' | 1:0:461:A:OP2 | 2.01 | 0.60 |
| 1:0:827:C:O2' | 1:0:828:C:H5' | 2.01 | 0.60 |
| 1:0:872:G:O2' | 1:0:873:U:H5'' | 2.01 | 0.60 |
| 1:0:1016:C:H1' | 1:0:1154:A:C2 | 2.37 | 0.60 |
| 1:0:1184:G:H2' | 1:0:1185:C:H5' | 1.84 | 0.60 |
| 1:0:1725:C:H2' | 1:0:1726:C:H6 | 1.67 | 0.60 |
| 1:0:579:G:H2' | 1:0:2013:A:N7 | 2.16 | 0.60 |
| 1:0:644:A:C2' | 1:0:645:G:H5' | 2.32 | 0.60 |
| 1:0:658:G:H2' | 1:0:659:G:C8 | 2.37 | 0.60 |
| 1:0:1700:C:H2' | 1:0:1701:C:C6 | 2.36 | 0.60 |
| 1:0:1886:G:H2' | 1:0:1887:G:C8 | 2.37 | 0.60 |
| 1:0:2278:A:H61 | 1:0:2296:U:H3 | 1.49 | 0.60 |
| 1:0:2425:G:H2' | 1:0:2480:C:H5 | 1.67 | 0.60 |
| 1:0:2432:A:H2' | 1:0:2433:G:H8 | 1.65 | 0.60 |
| 1:0:311:A:H1' | 1:0:330:C:C1' | 2.31 | 0.60 |
| 1:0:573:C:HO2' | 1:0:1266:G:H1 | 1.50 | 0.60 |
| 1:0:857:U:H2' | 1:0:858:G:O4' | 2.02 | 0.60 |
| 1:0:436:A:H4' | 1:0:437:G:C5' | 2.26 | 0.59 |
| 1:0:787:A:H2' | 1:0:788:G:N7 | 2.17 | 0.59 |
| 1:0:1244:U:H2' | 1:0:1245:G:C8 | 2.37 | 0.59 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:0:1621:C:O4' | 1:0:1626:A:C2 | 2.55 | 0.59 |
| 1:0:1999:U:H2' | 1:0:2000:U:O4' | 2.02 | 0.59 |
| 1:0:2309:G:H1 | 1:0:2364:C:H42 | 1.49 | 0.59 |
| 1:0:792:U:O2' | 1:0:793:G:H5' | 2.01 | 0.59 |
| 1:0:1353:A:H5'' | 1:0:1354:A:N7 | 2.16 | 0.59 |
| 1:0:2633:A:H5'' | 1:0:2634:G:OP1 | 2.02 | 0.59 |
| 1:0:66:U:H2' | 1:0:67:G:C8 | 2.36 | 0.59 |
| 1:0:1175:A:H2' | 1:0:1176:U:C6 | 2.38 | 0.59 |
| 1:0:1326:U:O2 | 1:0:1326:U:C2' | 2.49 | 0.59 |
| 1:0:2384:G:H5'' | 1:0:2385:U:C5' | 2.32 | 0.59 |
| 1:0:2659:C:H2' | 1:0:2660:C:H6 | 1.66 | 0.59 |
| 1:0:68:C:H2' | 1:0:69:G:C8 | 2.36 | 0.59 |
| 1:0:633:G:H2' | 1:0:634:G:H8 | 1.66 | 0.59 |
| 1:0:802:A:N3 | 1:0:802:A:H2' | 2.16 | 0.59 |
| 1:0:820:U:H2' | 1:0:821:A:H8 | 1.67 | 0.59 |
| 1:0:1904:G:H2' | 1:0:1905:G:O4' | 2.02 | 0.59 |
| 1:0:2500:C:H4' | 1:0:2544:A:O4' | 2.03 | 0.59 |
| 1:0:834:A:N6 | 1:0:983:G:H21 | 1.99 | 0.59 |
| 1:0:998:C:H1' | 1:0:1012:A:H1' | 1.84 | 0.59 |
| 1:0:1376:C:H2' | 1:0:1377:G:C8 | 2.37 | 0.59 |
| 1:0:2386:G:H2' | 1:0:2386:G:N3 | 2.17 | 0.59 |
| 1:0:757:U:H2' | 1:0:758:G:H5' | 1.85 | 0.59 |
| 1:0:956:A:O2' | 1:0:957:G:P | 2.60 | 0.59 |
| 1:0:1139:A:H1' | 1:0:2495:G:HO2' | 1.66 | 0.59 |
| 1:0:1225:G:H2' | 1:0:1249:G:H22 | 1.67 | 0.59 |
| 1:0:1298:G:O6 | 1:0:1342:U:C6 | 2.56 | 0.59 |
| 1:0:1391:A:O2' | 1:0:1392:U:P | 2.60 | 0.59 |
| 1:0:1578:U:H2' | 1:0:1579:G:H8 | 1.66 | 0.59 |
| 1:0:2469:G:H4' | 1:0:2470:U:O5' | 2.03 | 0.59 |
| 1:0:2483:U:H3' | 1:0:2484:G:C5' | 2.33 | 0.59 |
| 1:0:2652:G:O2' | 1:0:2653:A:H5' | 2.02 | 0.59 |
| 1:0:2863:U:H2' | 1:0:2864:C:C6 | 2.37 | 0.59 |
| 1:0:824:U:C1' | 1:0:1264:C:O2 | 2.50 | 0.59 |
| 1:0:1110:G:H2' | 1:0:1111:C:C6 | 2.38 | 0.59 |
| 1:0:1304:U:O2' | 1:0:1305:C:H5' | 2.03 | 0.59 |
| 1:0:2312:A:H1' | 1:0:2314:A:N7 | 2.17 | 0.59 |
| 1:0:244:C:H2' | 1:0:245:C:O4' | 2.03 | 0.59 |
| 1:0:333:A:O2' | 1:0:350:U:H2' | 2.02 | 0.59 |
| 1:0:759:C:C5' | 1:0:761:G:H1' | 2.33 | 0.59 |
| 1:0:1437:A:O2' | 1:0:1515:U:H4' | 2.02 | 0.59 |
| 1:0:2680:U:H5'' | 1:0:2681:A:H5'' | 1.83 | 0.59 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-----------------|--------------------------|-------------------|
| 1:0:698:A:H1' | 1:0:700:C:C5 | 2.38 | 0.59 |
| 1:0:872:G:O2' | 1:0:2247:A:H1' | 2.03 | 0.59 |
| 1:0:1325:U:H5' | 1:0:1326:U:C6 | 2.38 | 0.59 |
| 1:0:2321:C:H2' | 1:0:2322:U:O4' | 2.03 | 0.59 |
| 1:0:233:A:H2' | 1:0:234:C:C6 | 2.38 | 0.59 |
| 1:0:1548:U:H3 | 1:0:1554:G:H1 | 1.49 | 0.59 |
| 1:0:1949:A:H1' | 1:0:2572:U:C5' | 2.30 | 0.59 |
| 1:0:2015:G:O2' | 1:0:2016:A:OP1 | 2.18 | 0.59 |
| 1:0:161:U:H2' | 1:0:162:C:C6 | 2.37 | 0.58 |
| 1:0:336:A:H2' | 1:0:337:G:H8 | 1.67 | 0.58 |
| 1:0:468:A:C2' | 1:0:469:G:H4' | 2.33 | 0.58 |
| 1:0:647:G:H4' | 1:0:649:G:O3' | 2.03 | 0.58 |
| 1:0:986:A:H2' | 1:0:987:G:H5' | 1.84 | 0.58 |
| 1:0:1222:G:H1' | 1:0:1251:G:H22 | 1.68 | 0.58 |
| 1:0:1764:A:OP1 | 1:0:1820:G:H3' | 2.02 | 0.58 |
| 1:0:2185:U:H2' | 1:0:2186:G:C8 | 2.38 | 0.58 |
| 1:0:2356:A:H2' | 1:0:2357:A:C8 | 2.38 | 0.58 |
| 1:0:2629:U:H2' | 1:0:2630:C:C6 | 2.37 | 0.58 |
| 1:0:693:A:H2' | 1:0:694:G:C8 | 2.37 | 0.58 |
| 1:0:2107:G:H2' | 1:0:2108:G:H8 | 1.67 | 0.58 |
| 1:0:2326:C:H42 | 1:0:2350:G:N2 | 2.00 | 0.58 |
| 1:0:569:C:N4 | 1:0:570:G:O6 | 2.36 | 0.58 |
| 1:0:1180:A:O2' | 1:0:1181:C:H5' | 2.03 | 0.58 |
| 1:0:1764:A:N7 | 1:0:1821:A:C1' | 2.66 | 0.58 |
| 1:0:2061:C:H5' | 1:0:2413:A:H4' | 1.85 | 0.58 |
| 1:0:2083:G:H22 | 1:0:2172:U:H3 | 1.51 | 0.58 |
| 1:0:2395:C:H2' | 1:0:2396:C:C5' | 2.29 | 0.58 |
| 1:0:2607:C:H3' | 1:0:2608:A:H5'' | 1.85 | 0.58 |
| 1:0:2624:G:H4' | 1:0:2712:G:H2' | 1.84 | 0.58 |
| 1:0:2843:A:N6 | 1:0:2844:G:C6 | 2.72 | 0.58 |
| 1:0:3:U:H2' | 1:0:4:C:C6 | 2.38 | 0.58 |
| 1:0:67:G:N2 | 1:0:73:A:H8 | 2.01 | 0.58 |
| 1:0:457:C:O2' | 1:0:458:G:H5' | 2.04 | 0.58 |
| 1:0:801:A:O2' | 1:0:802:A:P | 2.61 | 0.58 |
| 1:0:1633:C:O2' | 1:0:1634:A:H3' | 2.04 | 0.58 |
| 1:0:2555:G:H2' | 1:0:2555:G:N3 | 2.17 | 0.58 |
| 1:0:165:G:O2' | 1:0:166:G:H5' | 2.04 | 0.58 |
| 1:0:1865:C:H2' | 1:0:1866:G:O4' | 2.03 | 0.58 |
| 1:0:1980:A:O2' | 1:0:1981:A:H5' | 2.03 | 0.58 |
| 1:0:86:U:H1' | 1:0:95:G:N2 | 2.18 | 0.58 |
| 1:0:389:G:C8 | 1:0:389:G:C3' | 2.87 | 0.58 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-------------------|--------------------------|-------------------|
| 1:0:543:G:H2' | 1:0:544:U:C6 | 2.39 | 0.58 |
| 1:0:597:U:H3 | 1:0:683:A:HO2' | 1.47 | 0.58 |
| 1:0:787:A:H2' | 1:0:788:G:C8 | 2.39 | 0.58 |
| 1:0:855:G:O2' | 1:0:856:A:H5' | 2.03 | 0.58 |
| 1:0:1212:U:H2' | 1:0:1213:U:C6 | 2.39 | 0.58 |
| 1:0:1860:A:C2' | 1:0:1861:G:H5' | 2.33 | 0.58 |
| 1:0:128:C:C2' | 1:0:129:A:H5'' | 2.33 | 0.58 |
| 1:0:590:C:H2' | 1:0:591:G:H8 | 1.66 | 0.58 |
| 1:0:847:C:N4 | 1:0:955:G:N2 | 2.52 | 0.58 |
| 1:0:877:G:H2' | 1:0:878:C:C6 | 2.38 | 0.58 |
| 1:0:1337:G:H1' | 1:0:1632:A:H61 | 1.67 | 0.58 |
| 1:0:2484:G:H5' | 2:0:2881:TEL:H571 | 1.85 | 0.58 |
| 1:0:2544:A:H2' | 1:0:2545:A:C1' | 2.33 | 0.58 |
| 1:0:70:A:H5' | 1:0:71:A:OP1 | 2.03 | 0.58 |
| 1:0:1001:A:H3' | 1:0:1002:C:H5'' | 1.86 | 0.58 |
| 1:0:1821:A:H3' | 1:0:1822:C:C6 | 2.38 | 0.58 |
| 1:0:1927:U:H4' | 1:0:1938:U:O2' | 2.04 | 0.58 |
| 1:0:2269:G:H2' | 1:0:2270:U:O4' | 2.03 | 0.58 |
| 1:0:199:A:OP1 | 1:0:438:G:O6 | 2.21 | 0.58 |
| 1:0:224:G:H1' | 1:0:399:G:O6 | 2.04 | 0.58 |
| 1:0:782:U:H2' | 1:0:783:G:H8 | 1.68 | 0.58 |
| 1:0:1299:A:N6 | 1:0:1302:C:N4 | 2.52 | 0.58 |
| 1:0:1337:G:C1' | 1:0:1632:A:N6 | 2.66 | 0.58 |
| 1:0:1378:A:H2' | 1:0:1379:A:C8 | 2.39 | 0.58 |
| 1:0:1465:G:H2' | 1:0:1466:C:O4' | 2.03 | 0.58 |
| 1:0:2326:C:O2' | 1:0:2327:U:H5' | 2.04 | 0.58 |
| 1:0:2432:A:H4' | 1:0:2551:A:HO2' | 1.67 | 0.58 |
| 1:0:62:U:H5' | 1:0:63:A:OP1 | 2.04 | 0.58 |
| 1:0:605:G:C2 | 1:0:606:A:C5 | 2.91 | 0.58 |
| 1:0:651:C:C3' | 1:0:652:C:H5'' | 2.34 | 0.58 |
| 1:0:697:G:N2 | 1:0:807:A:H2 | 2.02 | 0.58 |
| 1:0:788:G:H2' | 1:0:807:A:C5 | 2.39 | 0.58 |
| 1:0:1955:G:H2' | 1:0:1956:G:H5' | 1.86 | 0.58 |
| 1:0:2493:U:H2' | 1:0:2494:C:C6 | 2.39 | 0.58 |
| 1:0:755:C:H2' | 1:0:756:C:C6 | 2.39 | 0.57 |
| 1:0:861:G:H1' | 1:0:944:A:N3 | 2.18 | 0.57 |
| 1:0:1438:G:H2' | 1:0:1439:G:H5' | 1.85 | 0.57 |
| 1:0:1464:A:H2' | 1:0:1465:G:O4' | 2.04 | 0.57 |
| 1:0:2158:C:H2' | 1:0:2159:A:C8 | 2.37 | 0.57 |
| 1:0:114:C:H2' | 1:0:115:G:O4' | 2.03 | 0.57 |
| 1:0:210:A:H61 | 1:0:442:A:N6 | 2.02 | 0.57 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-----------------|--------------------------|-------------------|
| 1:0:670:U:H2' | 1:0:671:A:C8 | 2.39 | 0.57 |
| 1:0:763:A:H5'' | 1:0:1631:C:H42 | 1.68 | 0.57 |
| 1:0:1829:C:H42 | 1:0:1886:G:H1 | 1.52 | 0.57 |
| 1:0:2121:U:H2' | 1:0:2122:G:C8 | 2.38 | 0.57 |
| 1:0:2369:U:H2' | 1:0:2370:G:C8 | 2.40 | 0.57 |
| 1:0:871:U:O2 | 1:0:871:U:H2' | 2.03 | 0.57 |
| 1:0:1953:A:O2' | 1:0:1955:G:O4' | 2.21 | 0.57 |
| 1:0:2334:C:H3' | 1:0:2335:U:H5'' | 1.87 | 0.57 |
| 1:0:2350:G:H2' | 1:0:2351:G:H8 | 1.68 | 0.57 |
| 1:0:2491:C:C3' | 1:0:2492:G:H5'' | 2.34 | 0.57 |
| 1:0:2690:A:OP1 | 1:0:2692:A:OP2 | 2.22 | 0.57 |
| 1:0:641:G:H4' | 1:0:651:C:O2' | 2.04 | 0.57 |
| 1:0:717:G:H1' | 1:0:740:A:N6 | 2.18 | 0.57 |
| 1:0:1139:A:H61 | 1:0:2497:A:H61 | 1.50 | 0.57 |
| 1:0:1194:U:H2' | 1:0:1195:U:H6 | 1.70 | 0.57 |
| 1:0:2615:U:H3 | 1:0:2762:G:H1 | 1.52 | 0.57 |
| 1:0:861:G:C8 | 1:0:862:A:N7 | 2.72 | 0.57 |
| 1:0:867:G:O2' | 1:0:868:U:H5' | 2.05 | 0.57 |
| 1:0:1265:G:C2 | 1:0:1266:G:N2 | 2.72 | 0.57 |
| 1:0:1393:G:H1' | 1:0:1585:A:N6 | 2.19 | 0.57 |
| 1:0:68:C:C1' | 1:0:72:A:H1' | 2.34 | 0.57 |
| 1:0:87:G:H2' | 1:0:87:G:N3 | 2.20 | 0.57 |
| 1:0:322:A:H2' | 1:0:342:G:OP1 | 2.04 | 0.57 |
| 1:0:468:A:H2' | 1:0:469:G:H4' | 1.86 | 0.57 |
| 1:0:639:G:H2' | 1:0:640:C:C6 | 2.40 | 0.57 |
| 1:0:2532:G:H2' | 1:0:2533:U:O4' | 2.04 | 0.57 |
| 1:0:514:G:N3 | 1:0:514:G:C2' | 2.66 | 0.57 |
| 1:0:852:U:H2' | 1:0:853:C:C6 | 2.39 | 0.57 |
| 1:0:1395:A:H2' | 1:0:1396:C:O4' | 2.05 | 0.57 |
| 1:0:1793:A:H2' | 1:0:1794:A:C8 | 2.38 | 0.57 |
| 1:0:2390:A:O2' | 1:0:2391:A:H5' | 2.05 | 0.57 |
| 1:0:1136:G:C6 | 1:0:1137:A:N6 | 2.73 | 0.57 |
| 1:0:1758:C:O2' | 1:0:1759:A:H5' | 2.05 | 0.57 |
| 1:0:2034:A:N6 | 1:0:2593:A:N7 | 2.51 | 0.57 |
| 1:0:2334:C:C2' | 1:0:2335:U:H5'' | 2.34 | 0.57 |
| 1:0:2442:C:N4 | 1:0:2466:G:H1 | 2.01 | 0.57 |
| 1:0:449:C:H2' | 1:0:450:C:H6 | 1.69 | 0.57 |
| 1:0:552:C:H2' | 1:0:553:C:C5' | 2.35 | 0.57 |
| 1:0:677:G:O2' | 1:0:678:G:H5' | 2.04 | 0.57 |
| 1:0:2056:C:O2' | 1:0:2057:U:H5' | 2.04 | 0.57 |
| 1:0:2672:U:H5' | 1:0:2844:G:N2 | 2.19 | 0.57 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|----------------|--------------------------|-------------------|
| 1:0:531:G:H2' | 1:0:532:A:C8 | 2.40 | 0.57 |
| 1:0:580:A:N3 | 1:0:582:G:N7 | 2.53 | 0.57 |
| 1:0:723:C:H2' | 1:0:724:C:C6 | 2.40 | 0.57 |
| 1:0:747:A:H2' | 1:0:748:A:O4' | 2.05 | 0.57 |
| 1:0:797:A:H5' | 1:0:798:G:OP1 | 2.05 | 0.57 |
| 1:0:1069:G:O2' | 1:0:1070:G:H5' | 2.03 | 0.57 |
| 1:0:1554:G:H2' | 1:0:1555:A:C8 | 2.39 | 0.57 |
| 1:0:435:A:N1 | 1:0:436:A:N3 | 2.53 | 0.56 |
| 1:0:1103:C:H2' | 1:0:1104:G:C8 | 2.40 | 0.56 |
| 1:0:1200:G:H2' | 1:0:1201:G:O4' | 2.05 | 0.56 |
| 1:0:1785:A:O2' | 1:0:1883:A:H2' | 2.05 | 0.56 |
| 1:0:202:A:C2 | 1:0:203:G:H1' | 2.41 | 0.56 |
| 1:0:1313:U:O2' | 1:0:1314:A:P | 2.64 | 0.56 |
| 1:0:1596:A:H2' | 1:0:1597:A:O4' | 2.05 | 0.56 |
| 1:0:1981:A:O2' | 1:0:2704:U:H1' | 2.05 | 0.56 |
| 1:0:2048:C:H2' | 1:0:2049:C:C6 | 2.40 | 0.56 |
| 1:0:2512:A:H2' | 1:0:2513:A:C8 | 2.40 | 0.56 |
| 1:0:439:C:H3' | 1:0:440:U:C6 | 2.40 | 0.56 |
| 1:0:1021:A:N3 | 1:0:1164:C:H1' | 2.20 | 0.56 |
| 1:0:1286:U:H5'' | 1:0:1663:C:N4 | 2.19 | 0.56 |
| 1:0:1344:C:O2' | 1:0:1345:G:H8 | 1.88 | 0.56 |
| 1:0:1457:A:H2' | 1:0:1458:A:O4' | 2.04 | 0.56 |
| 1:0:1608:U:H2' | 1:0:1609:G:C8 | 2.39 | 0.56 |
| 1:0:1617:G:H2' | 1:0:1618:U:C5' | 2.36 | 0.56 |
| 1:0:2014:A:N7 | 1:0:2477:C:O2 | 2.39 | 0.56 |
| 1:0:2161:C:H2' | 1:0:2162:C:C5 | 2.40 | 0.56 |
| 1:0:2261:G:N2 | 1:0:2406:C:N3 | 2.51 | 0.56 |
| 1:0:2478:C:H2' | 1:0:2479:U:C6 | 2.41 | 0.56 |
| 1:0:45:C:OP2 | 1:0:192:G:H3' | 2.05 | 0.56 |
| 1:0:391:C:H2' | 1:0:392:G:H8 | 1.70 | 0.56 |
| 1:0:1285:A:OP2 | 1:0:1663:C:H2' | 2.05 | 0.56 |
| 1:0:1474:A:H2' | 1:0:1475:U:H5' | 1.88 | 0.56 |
| 1:0:1655:C:H4' | 1:0:2689:C:O2 | 2.06 | 0.56 |
| 1:0:1811:A:H4' | 1:0:1813:A:C8 | 2.39 | 0.56 |
| 1:0:2058:U:H5' | 1:0:2576:G:H1' | 1.87 | 0.56 |
| 1:0:2771:C:H5' | 1:0:2867:G:H22 | 1.69 | 0.56 |
| 1:0:478:G:O2' | 1:0:479:G:H5' | 2.05 | 0.56 |
| 1:0:821:A:H2' | 1:0:822:G:H8 | 1.70 | 0.56 |
| 1:0:1318:A:O2' | 1:0:1319:C:H5' | 2.05 | 0.56 |
| 1:0:2397:A:H2' | 1:0:2398:U:C6 | 2.41 | 0.56 |
| 1:0:2569:A:H2' | 1:0:2570:C:C6 | 2.41 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:0:69:G:O2' | 1:0:70:A:P | 2.64 | 0.56 |
| 1:0:335:A:N6 | 1:0:349:G:O2' | 2.37 | 0.56 |
| 1:0:1102:G:H1 | 1:0:1112:U:H1' | 1.70 | 0.56 |
| 1:0:1345:G:N3 | 1:0:1626:A:N7 | 2.53 | 0.56 |
| 1:0:2034:A:H8 | 1:0:2034:A:OP2 | 1.87 | 0.56 |
| 1:0:2212:U:H2' | 1:0:2213:G:C8 | 2.40 | 0.56 |
| 1:0:2830:U:H2' | 1:0:2831:A:H8 | 1.71 | 0.56 |
| 1:0:119:G:H2' | 1:0:120:G:H8 | 1.70 | 0.56 |
| 1:0:346:C:O2 | 1:0:346:C:H2' | 2.04 | 0.56 |
| 1:0:1340:C:H2' | 1:0:1341:G:O4' | 2.06 | 0.56 |
| 1:0:1922:U:H1' | 1:0:2570:C:O2' | 2.06 | 0.56 |
| 1:0:1933:G:H8 | 1:0:1933:G:O5' | 1.88 | 0.56 |
| 1:0:2780:A:H2' | 1:0:2780:A:N3 | 2.20 | 0.56 |
| 1:0:694:G:H2' | 1:0:695:G:C8 | 2.41 | 0.56 |
| 1:0:879:A:H2' | 1:0:880:C:C5' | 2.36 | 0.56 |
| 1:0:1210:C:H2' | 1:0:1211:G:C8 | 2.40 | 0.56 |
| 1:0:1252:C:H2' | 1:0:1253:C:H5'' | 1.87 | 0.56 |
| 1:0:1987:G:C2' | 1:0:1988:A:H5' | 2.36 | 0.56 |
| 1:0:2229:G:H5'' | 1:0:2230:G:H5'' | 1.88 | 0.56 |
| 1:0:2429:A:H5'' | 1:0:2476:A:N6 | 2.20 | 0.56 |
| 1:0:2496:C:N4 | 1:0:2546:G:H1 | 1.89 | 0.56 |
| 1:0:2624:G:H4' | 1:0:2712:G:C2' | 2.36 | 0.56 |
| 1:0:2624:G:H4' | 1:0:2712:G:O2' | 2.06 | 0.56 |
| 1:0:2824:C:H1' | 1:0:2843:A:C2 | 2.40 | 0.56 |
| 1:0:449:C:H2' | 1:0:450:C:C6 | 2.40 | 0.56 |
| 1:0:563:U:H2' | 1:0:564:U:C6 | 2.40 | 0.56 |
| 1:0:573:C:H2' | 1:0:574:C:O4' | 2.06 | 0.56 |
| 1:0:682:G:N3 | 1:0:682:G:H2' | 2.19 | 0.56 |
| 1:0:742:G:N2 | 1:0:1766:U:C6 | 2.74 | 0.56 |
| 1:0:971:A:C2 | 1:0:2475:C:H1' | 2.41 | 0.56 |
| 1:0:1073:G:H3' | 1:0:1074:G:H5'' | 1.88 | 0.56 |
| 1:0:1964:A:OP1 | 1:0:1965:U:OP2 | 2.24 | 0.56 |
| 1:0:2498:U:C5' | 1:0:2499:C:OP1 | 2.44 | 0.56 |
| 1:0:117:A:H5' | 1:0:118:U:OP1 | 2.06 | 0.56 |
| 1:0:324:C:O5' | 1:0:324:C:H6 | 1.88 | 0.56 |
| 1:0:400:U:H4' | 1:0:401:G:N9 | 2.20 | 0.56 |
| 1:0:455:A:H4' | 1:0:1214:C:O2' | 2.05 | 0.56 |
| 1:0:681:A:N6 | 1:0:683:A:H2' | 2.21 | 0.56 |
| 1:0:871:U:C2 | 1:0:2247:A:H2' | 2.41 | 0.56 |
| 1:0:887:G:O2' | 1:0:888:G:H5' | 2.06 | 0.56 |
| 1:0:929:A:C3' | 1:0:930:A:H5'' | 2.36 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|----------------|--------------------------|-------------------|
| 1:0:1021:A:H1' | 1:0:1164:C:C1' | 2.35 | 0.56 |
| 1:0:1044:U:H5' | 1:0:1045:G:OP1 | 2.06 | 0.56 |
| 1:0:1537:U:H2' | 1:0:1538:A:C8 | 2.40 | 0.56 |
| 1:0:1797:C:H2' | 1:0:1798:G:O4' | 2.05 | 0.56 |
| 1:0:2073:A:N6 | 1:0:2208:U:H3 | 2.03 | 0.56 |
| 1:0:2085:G:H22 | 1:0:2171:U:C1' | 2.15 | 0.56 |
| 1:0:2198:U:H3' | 1:0:2199:C:C5' | 2.26 | 0.56 |
| 1:0:2402:U:O2' | 1:0:2404:A:H2' | 2.05 | 0.56 |
| 1:0:2783:U:N3 | 1:0:2785:A:N6 | 2.54 | 0.55 |
| 1:0:1226:A:H62 | 1:0:1249:G:H1' | 1.72 | 0.55 |
| 1:0:1698:C:H5'' | 1:0:1699:A:OP2 | 2.06 | 0.55 |
| 1:0:1811:A:H1' | 1:0:1813:A:C6 | 2.41 | 0.55 |
| 1:0:503:G:H2' | 1:0:504:G:O4' | 2.05 | 0.55 |
| 1:0:979:A:H2' | 1:0:980:G:C8 | 2.42 | 0.55 |
| 1:0:1378:A:H2' | 1:0:1379:A:H8 | 1.71 | 0.55 |
| 1:0:1471:G:O2' | 1:0:1472:C:H5' | 2.07 | 0.55 |
| 1:0:2784:A:OP1 | 1:0:2784:A:H3' | 2.05 | 0.55 |
| 1:0:219:G:C2' | 1:0:220:U:OP2 | 2.55 | 0.55 |
| 1:0:486:U:O2' | 1:0:515:A:H1' | 2.07 | 0.55 |
| 1:0:781:G:H21 | 1:0:1392:U:H1' | 1.70 | 0.55 |
| 1:0:837:U:H2' | 1:0:838:A:H8 | 1.72 | 0.55 |
| 1:0:1498:G:O2' | 1:0:1499:A:H5' | 2.06 | 0.55 |
| 1:0:1962:C:O2' | 1:0:1963:G:H5' | 2.06 | 0.55 |
| 1:0:2003:A:C2 | 1:0:2018:G:N2 | 2.74 | 0.55 |
| 1:0:2191:A:C2' | 1:0:2192:U:OP1 | 2.54 | 0.55 |
| 1:0:2298:U:H4' | 1:0:2299:A:N7 | 2.21 | 0.55 |
| 1:0:2779:C:O2' | 1:0:2780:A:H5' | 2.06 | 0.55 |
| 1:0:1125:G:H2' | 1:0:1126:A:C8 | 2.41 | 0.55 |
| 1:0:1301:U:C4 | 1:0:1340:C:H1' | 2.42 | 0.55 |
| 1:0:1370:U:H2' | 1:0:1371:G:O4' | 2.06 | 0.55 |
| 1:0:1531:C:H2' | 1:0:1532:A:H5' | 1.88 | 0.55 |
| 1:0:1695:U:C2' | 1:0:1696:C:H5' | 2.36 | 0.55 |
| 1:0:2261:G:H1 | 1:0:2406:C:H42 | 1.52 | 0.55 |
| 1:0:2655:C:H2' | 1:0:2656:G:C8 | 2.41 | 0.55 |
| 1:0:2796:A:H2' | 1:0:2797:G:H8 | 1.70 | 0.55 |
| 1:0:2854:G:H2' | 1:0:2854:G:N3 | 2.21 | 0.55 |
| 1:0:243:G:H3' | 1:0:244:C:H5'' | 1.89 | 0.55 |
| 1:0:751:G:C2 | 1:0:752:G:H1' | 2.41 | 0.55 |
| 1:0:1726:C:H1' | 1:0:2835:A:H1' | 1.89 | 0.55 |
| 1:0:1987:G:H2' | 1:0:1988:A:H5' | 1.89 | 0.55 |
| 1:0:2069:U:H2' | 1:0:2070:G:H8 | 1.71 | 0.55 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-----------------|--------------------------|-------------------|
| 1:0:2664:G:H2' | 1:0:2665:G:H8 | 1.72 | 0.55 |
| 1:0:95:G:H2' | 1:0:96:C:C6 | 2.42 | 0.55 |
| 1:0:459:A:N6 | 1:0:484:G:H1' | 2.21 | 0.55 |
| 1:0:510:G:N2 | 1:0:513:A:OP2 | 2.40 | 0.55 |
| 1:0:1196:G:C2' | 1:0:1197:U:H5' | 2.37 | 0.55 |
| 1:0:1414:G:H2' | 1:0:1415:C:C6 | 2.42 | 0.55 |
| 1:0:1594:U:H2' | 1:0:1595:A:C8 | 2.41 | 0.55 |
| 1:0:2496:C:C4 | 1:0:2521:A:C6 | 2.95 | 0.55 |
| 1:0:58:C:H2' | 1:0:59:G:O4' | 2.07 | 0.55 |
| 1:0:941:U:H4' | 1:0:941:U:OP1 | 2.05 | 0.55 |
| 1:0:1112:U:H2' | 1:0:1113:C:C5 | 2.41 | 0.55 |
| 1:0:1554:G:H2' | 1:0:1555:A:H8 | 1.70 | 0.55 |
| 1:0:1603:A:H2' | 1:0:1604:A:C8 | 2.42 | 0.55 |
| 1:0:1763:G:C6 | 1:0:1963:G:N2 | 2.74 | 0.55 |
| 1:0:28:A:H61 | 1:0:522:G:H4' | 1.71 | 0.55 |
| 1:0:820:U:H2' | 1:0:821:A:C8 | 2.41 | 0.55 |
| 1:0:1015:U:H5' | 1:0:1021:A:N6 | 2.22 | 0.55 |
| 1:0:1468:A:H3' | 1:0:1469:U:H5'' | 1.88 | 0.55 |
| 1:0:1626:A:H4' | 1:0:1627:C:OP1 | 2.07 | 0.55 |
| 1:0:2667:C:H42 | 1:0:2699:G:H3' | 1.71 | 0.55 |
| 1:0:308:C:H2' | 1:0:309:G:O4' | 2.07 | 0.55 |
| 1:0:441:A:H2' | 1:0:442:A:O4' | 2.06 | 0.55 |
| 1:0:1367:A:H2' | 1:0:1368:G:O4' | 2.07 | 0.55 |
| 1:0:1482:U:H2' | 1:0:1483:G:C8 | 2.41 | 0.55 |
| 1:0:1942:G:H2' | 1:0:1943:A:O4' | 2.06 | 0.55 |
| 1:0:2306:A:H2' | 1:0:2307:A:C8 | 2.41 | 0.55 |
| 1:0:2674:C:H2' | 1:0:2675:U:C6 | 2.42 | 0.55 |
| 1:0:2796:A:H2' | 1:0:2797:G:C8 | 2.43 | 0.55 |
| 1:0:1213:U:H2' | 1:0:1214:C:C6 | 2.42 | 0.54 |
| 1:0:1303:U:H2' | 1:0:1304:U:H6 | 1.71 | 0.54 |
| 1:0:1376:C:H2' | 1:0:1377:G:H8 | 1.71 | 0.54 |
| 1:0:1695:U:H2' | 1:0:1696:C:H5' | 1.90 | 0.54 |
| 1:0:1774:A:O2' | 1:0:2586:G:H1' | 2.06 | 0.54 |
| 1:0:1818:G:H2' | 1:0:1819:U:H6 | 1.72 | 0.54 |
| 1:0:2054:A:H2 | 1:0:2419:C:H41 | 1.54 | 0.54 |
| 1:0:2213:G:O2' | 1:0:2214:G:H5' | 2.06 | 0.54 |
| 1:0:2252:A:H2' | 1:0:2253:A:O4' | 2.07 | 0.54 |
| 1:0:2437:G:O2' | 1:0:2438:A:N7 | 2.34 | 0.54 |
| 1:0:2716:G:H2' | 1:0:2717:G:H8 | 1.71 | 0.54 |
| 1:0:2721:A:H2' | 1:0:2722:C:O4' | 2.07 | 0.54 |
| 1:0:718:A:C2 | 1:0:740:A:H1' | 2.41 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|----------------|--------------------------|-------------------|
| 1:0:928:G:HO2' | 1:0:929:A:H8 | 1.55 | 0.54 |
| 1:0:984:A:N3 | 1:0:984:A:H2' | 2.21 | 0.54 |
| 1:0:1076:U:H2' | 1:0:1077:U:O4' | 2.06 | 0.54 |
| 1:0:1345:G:N7 | 1:0:1625:A:N6 | 2.54 | 0.54 |
| 1:0:1479:G:H2' | 1:0:1480:G:H8 | 1.72 | 0.54 |
| 1:0:1587:A:H2' | 1:0:1588:A:C8 | 2.42 | 0.54 |
| 1:0:1618:U:H3' | 1:0:1619:A:H2 | 1.72 | 0.54 |
| 1:0:1790:G:C8 | 1:0:1811:A:N6 | 2.75 | 0.54 |
| 1:0:2018:G:O2' | 1:0:2019:C:OP1 | 2.21 | 0.54 |
| 1:0:2446:C:H2' | 1:0:2447:G:O4' | 2.07 | 0.54 |
| 1:0:2668:U:O2 | 1:0:2693:U:O4' | 2.24 | 0.54 |
| 1:0:391:C:H2' | 1:0:392:G:C8 | 2.43 | 0.54 |
| 1:0:433:G:H1' | 1:0:434:C:C5 | 2.42 | 0.54 |
| 1:0:435:A:N1 | 1:0:436:A:C4 | 2.75 | 0.54 |
| 1:0:652:C:H5' | 1:0:652:C:H6 | 1.72 | 0.54 |
| 1:0:975:C:O5' | 1:0:975:C:H6 | 1.90 | 0.54 |
| 1:0:1260:A:O2' | 1:0:1261:G:OP1 | 2.21 | 0.54 |
| 1:0:1428:G:H5'' | 1:0:1429:A:H5' | 1.89 | 0.54 |
| 1:0:2544:A:H2' | 1:0:2545:A:H1' | 1.88 | 0.54 |
| 1:0:8:A:H2' | 1:0:9:U:C6 | 2.43 | 0.54 |
| 1:0:395:G:H2' | 1:0:396:U:H5' | 1.90 | 0.54 |
| 1:0:435:A:H2' | 1:0:436:A:O5' | 2.08 | 0.54 |
| 1:0:1975:G:O2' | 1:0:1976:U:P | 2.65 | 0.54 |
| 1:0:2204:A:O2' | 1:0:2205:C:P | 2.65 | 0.54 |
| 1:0:2644:A:H2' | 1:0:2645:C:C6 | 2.42 | 0.54 |
| 1:0:2690:A:H3' | 1:0:2691:C:H5' | 1.89 | 0.54 |
| 1:0:1424:U:H2' | 1:0:1425:G:C8 | 2.42 | 0.54 |
| 1:0:1826:U:O2' | 1:0:1952:A:H2' | 2.07 | 0.54 |
| 1:0:1831:G:O2' | 1:0:1832:G:H5' | 2.08 | 0.54 |
| 1:0:2271:C:H4' | 1:0:2354:G:O4' | 2.08 | 0.54 |
| 1:0:2507:U:HO2' | 1:0:2508:G:H8 | 1.54 | 0.54 |
| 1:0:239:A:H5' | 1:0:619:A:O2' | 2.07 | 0.54 |
| 1:0:459:A:O2' | 1:0:461:A:N6 | 2.38 | 0.54 |
| 1:0:466:A:O3' | 1:0:467:U:H4' | 2.08 | 0.54 |
| 1:0:1276:U:H3 | 1:0:1999:U:H3 | 1.55 | 0.54 |
| 1:0:1451:C:H2' | 1:0:1452:U:C6 | 2.41 | 0.54 |
| 1:0:1452:U:O2' | 1:0:1453:A:H5' | 2.08 | 0.54 |
| 1:0:1618:U:H3' | 1:0:1619:A:C2 | 2.43 | 0.54 |
| 1:0:2345:A:H2' | 1:0:2346:G:O4' | 2.08 | 0.54 |
| 1:0:2821:G:H2' | 1:0:2822:U:O4' | 2.07 | 0.54 |
| 1:0:295:C:N4 | 1:0:296:A:H62 | 2.06 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-----------------|--------------------------|-------------------|
| 1:0:788:G:N2 | 1:0:801:A:P | 2.80 | 0.54 |
| 1:0:846:A:N6 | 1:0:955:G:N2 | 2.53 | 0.54 |
| 1:0:1315:A:H4' | 1:0:1316:G:OP1 | 2.07 | 0.54 |
| 1:0:1778:U:H4' | 1:0:2568:A:O3' | 2.08 | 0.54 |
| 1:0:1781:C:H2' | 1:0:1782:A:C5 | 2.43 | 0.54 |
| 1:0:2072:C:H2' | 1:0:2073:A:O4' | 2.08 | 0.54 |
| 1:0:2109:A:H2' | 1:0:2110:G:C8 | 2.42 | 0.54 |
| 1:0:2201:G:H2' | 1:0:2202:G:H8 | 1.73 | 0.54 |
| 1:0:459:A:H1' | 1:0:461:A:N6 | 2.22 | 0.54 |
| 1:0:964:A:H2' | 1:0:965:G:C8 | 2.38 | 0.54 |
| 1:0:2492:G:H2' | 1:0:2493:U:C6 | 2.42 | 0.54 |
| 1:0:2668:U:H4' | 1:0:2669:C:H5'' | 1.90 | 0.54 |
| 1:0:2721:A:N6 | 1:0:2743:G:H1' | 2.23 | 0.54 |
| 1:0:2773:G:H1 | 1:0:2779:C:H42 | 1.56 | 0.54 |
| 1:0:466:A:O2' | 1:0:467:U:OP2 | 2.24 | 0.54 |
| 1:0:476:G:C6 | 1:0:477:A:N6 | 2.76 | 0.54 |
| 1:0:817:A:H2' | 1:0:819:C:C4 | 2.43 | 0.54 |
| 1:0:2014:A:N7 | 1:0:2477:C:H1' | 2.23 | 0.54 |
| 1:0:2204:A:O2' | 1:0:2205:C:OP2 | 2.25 | 0.54 |
| 1:0:2228:U:H4' | 1:0:2254:C:C5 | 2.40 | 0.54 |
| 1:0:80:A:H2' | 1:0:81:C:C6 | 2.43 | 0.54 |
| 1:0:1825:C:O2' | 1:0:1826:U:H5' | 2.08 | 0.54 |
| 1:0:2002:A:C2' | 1:0:2003:A:O5' | 2.56 | 0.54 |
| 1:0:2053:G:H2' | 1:0:2054:A:C8 | 2.43 | 0.54 |
| 1:0:2282:G:H1 | 1:0:2292:C:H42 | 1.54 | 0.54 |
| 1:0:2357:A:H2' | 1:0:2358:C:O4' | 2.07 | 0.54 |
| 1:0:69:G:H4' | 1:0:70:A:OP1 | 2.08 | 0.53 |
| 1:0:136:A:H2' | 1:0:137:A:O4' | 2.08 | 0.53 |
| 1:0:162:C:H2' | 1:0:163:A:H8 | 1.73 | 0.53 |
| 1:0:621:U:H2' | 1:0:622:U:C6 | 2.43 | 0.53 |
| 1:0:700:C:H2' | 1:0:701:U:C6 | 2.43 | 0.53 |
| 1:0:1443:G:H1' | 1:0:1584:G:N3 | 2.22 | 0.53 |
| 1:0:1804:U:H2' | 1:0:1805:G:C8 | 2.41 | 0.53 |
| 1:0:2086:U:H2' | 1:0:2087:U:C6 | 2.43 | 0.53 |
| 1:0:2726:U:H2' | 1:0:2727:G:O4' | 2.08 | 0.53 |
| 1:0:550:C:H2' | 1:0:551:A:H8 | 1.71 | 0.53 |
| 1:0:2299:A:H5' | 1:0:2300:G:C8 | 2.43 | 0.53 |
| 1:0:2469:G:C5' | 1:0:2470:U:OP1 | 2.54 | 0.53 |
| 1:0:2782:G:C2' | 1:0:2783:U:H5' | 2.39 | 0.53 |
| 1:0:195:A:H2' | 1:0:196:A:O4' | 2.08 | 0.53 |
| 1:0:574:C:H2' | 1:0:575:U:C6 | 2.43 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|----------------|--------------------------|-------------------|
| 1:0:1253:C:H2' | 1:0:1254:G:C5' | 2.38 | 0.53 |
| 1:0:1417:C:O2' | 1:0:1418:C:H5' | 2.09 | 0.53 |
| 1:0:1582:A:H3' | 1:0:1583:A:C5' | 2.38 | 0.53 |
| 1:0:1617:G:H3' | 1:0:1618:U:O2 | 2.08 | 0.53 |
| 1:0:1821:A:H5'' | 1:0:1822:C:C5 | 2.44 | 0.53 |
| 1:0:2020:G:H2' | 1:0:2021:G:H8 | 1.72 | 0.53 |
| 1:0:2621:G:O2' | 1:0:2622:G:H5' | 2.08 | 0.53 |
| 1:0:538:A:H62 | 1:0:2759:U:H3 | 1.56 | 0.53 |
| 1:0:1244:U:H2' | 1:0:1245:G:H8 | 1.73 | 0.53 |
| 1:0:1247:U:O2' | 1:0:1248:G:H5' | 2.09 | 0.53 |
| 1:0:1267:A:OP1 | 1:0:1269:G:H8 | 1.91 | 0.53 |
| 1:0:1312:G:H4' | 1:0:1314:A:N3 | 2.24 | 0.53 |
| 1:0:1355:A:H1' | 1:0:1410:U:H4' | 1.90 | 0.53 |
| 1:0:1669:A:N6 | 1:0:1670:G:C2 | 2.76 | 0.53 |
| 1:0:1697:U:H2' | 1:0:1698:C:O4' | 2.08 | 0.53 |
| 1:0:1846:A:H2' | 1:0:1847:G:O4' | 2.08 | 0.53 |
| 1:0:2696:A:H2' | 1:0:2697:G:H8 | 1.72 | 0.53 |
| 1:0:139:A:H2' | 1:0:140:G:C8 | 2.41 | 0.53 |
| 1:0:159:A:H2' | 1:0:160:C:C6 | 2.44 | 0.53 |
| 1:0:178:C:H2' | 1:0:179:U:H6 | 1.73 | 0.53 |
| 1:0:507:A:H2' | 1:0:508:G:O4' | 2.09 | 0.53 |
| 1:0:742:G:H2' | 1:0:742:G:N3 | 2.23 | 0.53 |
| 1:0:1033:G:O2' | 1:0:1034:U:OP2 | 2.23 | 0.53 |
| 1:0:1467:U:H3' | 1:0:1468:A:H5' | 1.89 | 0.53 |
| 1:0:2085:G:H2' | 1:0:2086:U:C6 | 2.42 | 0.53 |
| 1:0:2432:A:H2' | 1:0:2433:G:C8 | 2.44 | 0.53 |
| 1:0:52:A:H2' | 1:0:53:G:H5' | 1.90 | 0.53 |
| 1:0:653:G:H21 | 1:0:657:A:N6 | 2.06 | 0.53 |
| 1:0:797:A:O2' | 1:0:798:G:C8 | 2.61 | 0.53 |
| 1:0:861:G:N2 | 1:0:943:U:HO2' | 2.07 | 0.53 |
| 1:0:1327:C:P | 1:0:1345:G:H5' | 2.49 | 0.53 |
| 1:0:1336:G:C2' | 1:0:1337:G:H5' | 2.39 | 0.53 |
| 1:0:1459:U:H2' | 1:0:1475:U:O2' | 2.08 | 0.53 |
| 1:0:1685:A:O2' | 1:0:1686:A:O5' | 2.25 | 0.53 |
| 1:0:1938:U:O2' | 1:0:1939:U:OP1 | 2.23 | 0.53 |
| 1:0:2069:U:H2' | 1:0:2070:G:C8 | 2.44 | 0.53 |
| 1:0:2652:G:H2' | 1:0:2653:A:C8 | 2.41 | 0.53 |
| 1:0:27:G:HO2' | 1:0:28:A:H8 | 1.55 | 0.53 |
| 1:0:315:G:H2' | 1:0:316:C:C6 | 2.44 | 0.53 |
| 1:0:521:U:H2' | 1:0:522:G:H5' | 1.90 | 0.53 |
| 1:0:1446:U:O2' | 1:0:1447:U:H5' | 2.09 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|----------------|--------------------------|-------------------|
| 1:0:1686:A:N3 | 1:0:1686:A:H2' | 2.23 | 0.53 |
| 1:0:1807:A:O2' | 1:0:1808:C:H4' | 2.09 | 0.53 |
| 1:0:1981:A:O3' | 1:0:2704:U:H4' | 2.09 | 0.53 |
| 1:0:2784:A:H4' | 1:0:2786:G:N7 | 2.24 | 0.53 |
| 1:0:2817:A:C2 | 1:0:2851:G:N1 | 2.76 | 0.53 |
| 1:0:176:A:H8 | 1:0:177:U:H5 | 1.57 | 0.53 |
| 1:0:701:U:O2' | 1:0:1771:A:H2 | 1.90 | 0.53 |
| 1:0:1449:C:H2' | 1:0:1450:G:C5' | 2.29 | 0.53 |
| 1:0:2249:U:C2' | 1:0:2250:G:H5' | 2.39 | 0.53 |
| 1:0:756:C:H2' | 1:0:757:U:H6 | 1.73 | 0.53 |
| 1:0:956:A:HO2' | 1:0:957:G:P | 2.32 | 0.53 |
| 1:0:966:A:H2' | 1:0:967:G:H5' | 1.91 | 0.53 |
| 1:0:1380:C:C2' | 1:0:1381:G:H5' | 2.38 | 0.53 |
| 1:0:1485:U:H2' | 1:0:1486:A:C8 | 2.44 | 0.53 |
| 1:0:1681:A:H2 | 1:0:2706:U:H1' | 1.70 | 0.53 |
| 1:0:1816:G:H2' | 1:0:1817:U:O4' | 2.09 | 0.53 |
| 1:0:1999:U:O2' | 1:0:2000:U:H5' | 2.08 | 0.53 |
| 1:0:2301:A:H2' | 1:0:2302:G:H5' | 1.91 | 0.53 |
| 1:0:2671:C:H2' | 1:0:2672:U:H6 | 1.73 | 0.53 |
| 1:0:789:G:N3 | 1:0:806:A:N6 | 2.56 | 0.53 |
| 1:0:879:A:H2' | 1:0:880:C:H5' | 1.89 | 0.53 |
| 1:0:940:G:C8 | 1:0:941:U:H5'' | 2.44 | 0.53 |
| 1:0:1883:A:H1' | 1:0:1953:A:N7 | 2.24 | 0.53 |
| 1:0:2217:G:H5' | 1:0:2218:G:N7 | 2.23 | 0.53 |
| 1:0:2279:G:H2' | 1:0:2280:A:C8 | 2.43 | 0.53 |
| 1:0:2487:G:H2' | 1:0:2488:G:C8 | 2.44 | 0.53 |
| 1:0:2535:C:H2' | 1:0:2536:G:O4' | 2.08 | 0.53 |
| 1:0:2612:G:H2' | 1:0:2613:A:C8 | 2.43 | 0.53 |
| 1:0:2764:U:H2' | 1:0:2765:C:C6 | 2.44 | 0.53 |
| 1:0:708:G:H1 | 1:0:780:U:H3 | 1.55 | 0.52 |
| 1:0:932:G:H2' | 1:0:933:G:C8 | 2.44 | 0.52 |
| 1:0:1030:U:C2' | 1:0:1031:C:H5' | 2.39 | 0.52 |
| 1:0:1336:G:H2' | 1:0:1337:G:H5' | 1.91 | 0.52 |
| 1:0:1810:U:H4' | 1:0:1813:A:H1' | 1.91 | 0.52 |
| 1:0:2260:C:H2' | 1:0:2261:G:C8 | 2.44 | 0.52 |
| 1:0:2266:A:O2' | 1:0:2267:A:H8 | 1.92 | 0.52 |
| 1:0:2526:U:C4 | 1:0:2545:A:N7 | 2.77 | 0.52 |
| 1:0:67:G:H2' | 1:0:68:C:O4' | 2.08 | 0.52 |
| 1:0:296:A:H2' | 1:0:297:A:C8 | 2.43 | 0.52 |
| 1:0:599:A:H2' | 1:0:600:G:O4' | 2.10 | 0.52 |
| 1:0:778:G:H2' | 1:0:779:U:C6 | 2.44 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:0:831:G:H5' | 1:0:852:U:OP1 | 2.10 | 0.52 |
| 1:0:839:U:OP1 | 1:0:2408:G:OP2 | 2.28 | 0.52 |
| 1:0:1001:A:N6 | 1:0:1200:G:O3' | 2.42 | 0.52 |
| 1:0:1036:G:C4 | 1:0:1145:C:O4' | 2.63 | 0.52 |
| 1:0:1332:G:H2' | 1:0:1333:G:O4' | 2.09 | 0.52 |
| 1:0:1364:C:H2' | 1:0:1365:U:C6 | 2.45 | 0.52 |
| 1:0:1979:C:O4' | 1:0:1979:C:OP1 | 2.28 | 0.52 |
| 1:0:2175:A:H2' | 1:0:2176:U:C6 | 2.44 | 0.52 |
| 1:0:2225:G:H1 | 1:0:2237:C:H42 | 1.57 | 0.52 |
| 1:0:57:G:N2 | 1:0:72:A:C8 | 2.77 | 0.52 |
| 1:0:316:C:O5' | 1:0:316:C:H6 | 1.93 | 0.52 |
| 1:0:545:C:O2' | 1:0:546:A:H5' | 2.09 | 0.52 |
| 1:0:678:G:O2' | 1:0:679:C:H5' | 2.09 | 0.52 |
| 1:0:1253:C:H2' | 1:0:1254:G:H5' | 1.92 | 0.52 |
| 1:0:1671:A:O2' | 1:0:1672:A:H5' | 2.09 | 0.52 |
| 1:0:2034:A:C6 | 1:0:2593:A:N6 | 2.77 | 0.52 |
| 1:0:2044:G:H1' | 1:0:2482:A:N1 | 2.25 | 0.52 |
| 1:0:2270:U:O2' | 1:0:2353:G:H1' | 2.10 | 0.52 |
| 1:0:757:U:C2' | 1:0:758:G:H5' | 2.39 | 0.52 |
| 1:0:766:A:H2' | 1:0:767:G:H8 | 1.73 | 0.52 |
| 1:0:940:G:N7 | 1:0:941:U:C6 | 2.78 | 0.52 |
| 1:0:2004:U:OP2 | 1:0:2005:U:H5 | 1.92 | 0.52 |
| 1:0:2265:A:H5'' | 1:0:2266:A:O4' | 2.09 | 0.52 |
| 1:0:2745:A:H3' | 1:0:2745:A:N3 | 2.25 | 0.52 |
| 1:0:436:A:H4' | 1:0:437:G:OP1 | 2.08 | 0.52 |
| 1:0:437:G:H2' | 1:0:438:G:C4' | 2.37 | 0.52 |
| 1:0:727:U:H2' | 1:0:728:G:H5'' | 1.90 | 0.52 |
| 1:0:1791:C:H1' | 1:0:1793:A:C4' | 2.40 | 0.52 |
| 1:0:2756:A:H4' | 1:0:2758:A:OP1 | 2.09 | 0.52 |
| 1:0:324:C:C2' | 1:0:325:U:H5' | 2.39 | 0.52 |
| 1:0:532:A:H2' | 1:0:533:C:C6 | 2.44 | 0.52 |
| 1:0:651:C:C3' | 1:0:652:C:C5' | 2.88 | 0.52 |
| 1:0:773:G:H2' | 1:0:774:A:H5' | 1.90 | 0.52 |
| 1:0:1001:A:C3' | 1:0:1002:C:H5'' | 2.40 | 0.52 |
| 1:0:1479:G:H2' | 1:0:1480:G:C8 | 2.44 | 0.52 |
| 1:0:1687:C:O2' | 1:0:1977:C:H4' | 2.09 | 0.52 |
| 1:0:2204:A:H1' | 1:0:2205:C:C5 | 2.45 | 0.52 |
| 1:0:2510:A:H61 | 1:0:2641:A:H61 | 1.57 | 0.52 |
| 1:0:208:C:H2' | 1:0:209:G:O4' | 2.10 | 0.52 |
| 1:0:616:U:OP2 | 1:0:616:U:O4' | 2.27 | 0.52 |
| 1:0:783:G:H1' | 1:0:1392:U:O4 | 2.10 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-------------------|--------------------------|-------------------|
| 1:0:930:A:N7 | 1:0:931:G:H1' | 2.25 | 0.52 |
| 1:0:1260:A:O2' | 1:0:1261:G:P | 2.66 | 0.52 |
| 1:0:1442:C:H4' | 1:0:1442:C:OP1 | 2.10 | 0.52 |
| 1:0:1761:G:H2' | 1:0:1762:C:H5' | 1.92 | 0.52 |
| 1:0:1764:A:C5 | 1:0:1821:A:H1' | 2.45 | 0.52 |
| 1:0:2041:A:H8 | 1:0:2041:A:O5' | 1.92 | 0.52 |
| 1:0:2484:G:OP2 | 2:0:2881:TEL:H581 | 2.10 | 0.52 |
| 1:0:2609:G:H1' | 1:0:2868:G:H1' | 1.90 | 0.52 |
| 1:0:2817:A:C2 | 1:0:2851:G:C6 | 2.97 | 0.52 |
| 1:0:222:G:H22 | 1:0:231:G:H1' | 1.75 | 0.52 |
| 1:0:531:G:H2' | 1:0:532:A:H8 | 1.74 | 0.52 |
| 1:0:841:G:H3' | 1:0:841:G:N3 | 2.24 | 0.52 |
| 1:0:1322:G:O2' | 1:0:1323:G:H5' | 2.09 | 0.52 |
| 1:0:1532:A:H2' | 1:0:1533:G:H8 | 1.74 | 0.52 |
| 1:0:1783:G:H2' | 1:0:1784:C:O4' | 2.09 | 0.52 |
| 1:0:2407:G:H5'' | 1:0:2408:G:OP1 | 2.08 | 0.52 |
| 1:0:66:U:H2' | 1:0:67:G:N7 | 2.25 | 0.52 |
| 1:0:201:G:N7 | 1:0:432:C:H4' | 2.25 | 0.52 |
| 1:0:1128:G:O2' | 1:0:1129:A:H5' | 2.10 | 0.52 |
| 1:0:1463:A:H1' | 1:0:1543:G:N2 | 2.25 | 0.52 |
| 1:0:1624:A:C6 | 1:0:1627:C:C2 | 2.98 | 0.52 |
| 1:0:1823:G:C6 | 1:0:1824:C:N4 | 2.78 | 0.52 |
| 1:0:1982:C:OP1 | 1:0:2704:U:H5' | 2.09 | 0.52 |
| 1:0:2520:A:H4' | 1:0:2744:A:N1 | 2.24 | 0.52 |
| 1:0:2668:U:H5' | 1:0:2669:C:OP1 | 2.10 | 0.52 |
| 1:0:162:C:C5' | 1:0:195:A:H1' | 2.36 | 0.52 |
| 1:0:604:U:H2' | 1:0:605:G:O4' | 2.10 | 0.52 |
| 1:0:1067:G:N1 | 1:0:1113:C:OP2 | 2.43 | 0.52 |
| 1:0:1549:C:H3' | 1:0:1550:C:C6 | 2.45 | 0.52 |
| 1:0:1852:G:H2' | 1:0:1853:C:C6 | 2.45 | 0.52 |
| 1:0:1982:C:OP1 | 1:0:2703:C:O2' | 2.24 | 0.52 |
| 1:0:2024:U:O2' | 1:0:2025:A:H5' | 2.09 | 0.52 |
| 1:0:2586:G:H2' | 1:0:2587:G:C8 | 2.45 | 0.52 |
| 1:0:2677:U:O2' | 1:0:2678:C:H5' | 2.10 | 0.52 |
| 1:0:2758:A:O2' | 1:0:2759:U:P | 2.68 | 0.52 |
| 1:0:92:U:H2' | 1:0:93:A:C8 | 2.45 | 0.51 |
| 1:0:430:C:O2' | 1:0:2386:G:C2 | 2.63 | 0.51 |
| 1:0:465:C:O2' | 1:0:483:A:N6 | 2.43 | 0.51 |
| 1:0:749:C:O5' | 1:0:749:C:H6 | 1.94 | 0.51 |
| 1:0:984:A:C2 | 1:0:1200:G:N1 | 2.75 | 0.51 |
| 1:0:1280:U:H3 | 1:0:1996:A:H62 | 1.57 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:0:1284:G:O2' | 1:0:1633:C:H4' | 2.10 | 0.51 |
| 1:0:1413:U:H2' | 1:0:1414:G:C8 | 2.44 | 0.51 |
| 1:0:1486:A:H2' | 1:0:1487:C:C6 | 2.45 | 0.51 |
| 1:0:1545:G:H2' | 1:0:1546:C:H6 | 1.75 | 0.51 |
| 1:0:1718:A:H2' | 1:0:1719:G:H5' | 1.92 | 0.51 |
| 1:0:1724:C:O2 | 1:0:1725:C:C5 | 2.62 | 0.51 |
| 1:0:2235:G:O2' | 1:0:2236:U:H5' | 2.10 | 0.51 |
| 1:0:2396:C:C2' | 1:0:2397:A:H5' | 2.40 | 0.51 |
| 1:0:122:G:O2' | 1:0:123:A:H5'' | 2.10 | 0.51 |
| 1:0:393:U:H2' | 1:0:394:U:C6 | 2.45 | 0.51 |
| 1:0:487:G:H4' | 1:0:511:A:H61 | 1.75 | 0.51 |
| 1:0:638:A:O2' | 1:0:639:G:H5' | 2.11 | 0.51 |
| 1:0:1337:G:O2' | 1:0:1632:A:N6 | 2.44 | 0.51 |
| 1:0:2007:G:H2' | 1:0:2008:C:C6 | 2.46 | 0.51 |
| 1:0:2060:A:H61 | 1:0:2222:U:H3 | 1.58 | 0.51 |
| 1:0:460:U:C4' | 1:0:461:A:OP2 | 2.58 | 0.51 |
| 1:0:839:U:H5'' | 1:0:2408:G:P | 2.50 | 0.51 |
| 1:0:1149:G:N2 | 1:0:1154:A:C4 | 2.79 | 0.51 |
| 1:0:1528:C:C2' | 1:0:1529:C:H5'' | 2.41 | 0.51 |
| 1:0:1823:G:H2' | 1:0:1824:C:C6 | 2.45 | 0.51 |
| 1:0:1998:A:C2' | 1:0:1999:U:H5' | 2.39 | 0.51 |
| 1:0:29:U:H2' | 1:0:30:G:H8 | 1.73 | 0.51 |
| 1:0:431:G:C2 | 1:0:432:C:H5 | 2.29 | 0.51 |
| 1:0:441:A:C2' | 1:0:442:A:H5' | 2.41 | 0.51 |
| 1:0:513:A:H5'' | 1:0:514:G:OP1 | 2.11 | 0.51 |
| 1:0:942:U:C2' | 1:0:943:U:H5' | 2.40 | 0.51 |
| 1:0:1007:A:H2' | 1:0:1008:G:C8 | 2.42 | 0.51 |
| 1:0:1573:G:O6 | 1:0:1574:A:N6 | 2.43 | 0.51 |
| 1:0:1603:A:H2' | 1:0:1604:A:H8 | 1.76 | 0.51 |
| 1:0:1670:G:H4' | 1:0:1670:G:OP1 | 2.10 | 0.51 |
| 1:0:1716:G:O6 | 1:0:1754:G:H1' | 2.11 | 0.51 |
| 1:0:1829:C:N4 | 1:0:1886:G:H1 | 2.08 | 0.51 |
| 1:0:1983:G:H2' | 1:0:1984:A:C8 | 2.45 | 0.51 |
| 1:0:2014:A:H62 | 1:0:2477:C:H1' | 1.75 | 0.51 |
| 1:0:2208:U:H2' | 1:0:2209:G:H8 | 1.76 | 0.51 |
| 1:0:2218:G:N2 | 1:0:2219:U:H1' | 2.25 | 0.51 |
| 1:0:2372:A:O2' | 1:0:2373:C:H5' | 2.10 | 0.51 |
| 1:0:2512:A:H2' | 1:0:2513:A:H8 | 1.75 | 0.51 |
| 1:0:627:A:H2' | 1:0:628:A:C8 | 2.46 | 0.51 |
| 1:0:846:A:H2' | 1:0:847:C:C6 | 2.45 | 0.51 |
| 1:0:1324:G:HO2' | 1:0:1326:U:H5 | 1.56 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:0:1514:C:H5' | 1:0:1593:C:C5' | 2.41 | 0.51 |
| 1:0:1777:A:HO2' | 1:0:1778:U:P | 2.33 | 0.51 |
| 1:0:1787:U:H2' | 1:0:1788:C:H6 | 1.75 | 0.51 |
| 1:0:1859:A:H2' | 1:0:1860:A:C8 | 2.43 | 0.51 |
| 1:0:155:G:O2' | 1:0:156:G:H5' | 2.09 | 0.51 |
| 1:0:460:U:O4 | 1:0:592:G:H1' | 2.11 | 0.51 |
| 1:0:1355:A:O4' | 1:0:1410:U:H1' | 2.10 | 0.51 |
| 1:0:1821:A:H3' | 1:0:1822:C:H6 | 1.74 | 0.51 |
| 1:0:2348:A:N6 | 1:0:2361:G:H22 | 2.08 | 0.51 |
| 1:0:2352:A:H2' | 1:0:2353:G:C8 | 2.45 | 0.51 |
| 1:0:357:A:OP2 | 1:0:358:C:H1' | 2.11 | 0.51 |
| 1:0:431:G:C2' | 1:0:432:C:O5' | 2.58 | 0.51 |
| 1:0:866:U:H2' | 1:0:867:G:C8 | 2.45 | 0.51 |
| 1:0:1415:C:O2' | 1:0:1416:A:H5' | 2.10 | 0.51 |
| 1:0:1459:U:N3 | 1:0:1476:G:O5' | 2.33 | 0.51 |
| 1:0:1623:C:H5' | 1:0:1624:A:H5'' | 1.92 | 0.51 |
| 1:0:1875:C:H2' | 1:0:1876:C:C6 | 2.44 | 0.51 |
| 1:0:1890:G:H2' | 1:0:1891:C:C6 | 2.45 | 0.51 |
| 1:0:2002:A:H2' | 1:0:2003:A:O5' | 2.11 | 0.51 |
| 1:0:2039:G:OP2 | 1:0:2483:U:O5' | 2.29 | 0.51 |
| 1:0:2173:G:H2' | 1:0:2174:G:O4' | 2.10 | 0.51 |
| 1:0:2680:U:H5' | 1:0:2681:A:C5' | 2.40 | 0.51 |
| 1:0:503:G:H2' | 1:0:504:G:C8 | 2.45 | 0.51 |
| 1:0:566:U:H2' | 1:0:567:G:H8 | 1.76 | 0.51 |
| 1:0:853:C:N3 | 1:0:950:G:O6 | 2.44 | 0.51 |
| 1:0:956:A:C2' | 1:0:957:G:O5' | 2.58 | 0.51 |
| 1:0:1477:C:O2' | 1:0:2681:A:H1' | 2.11 | 0.51 |
| 1:0:1739:G:H2' | 1:0:1740:G:C8 | 2.46 | 0.51 |
| 1:0:1813:A:H2' | 1:0:1814:G:C8 | 2.46 | 0.51 |
| 1:0:2021:G:O2' | 1:0:2022:C:H5' | 2.11 | 0.51 |
| 1:0:115:G:C2 | 1:0:117:A:N6 | 2.79 | 0.51 |
| 1:0:192:G:O2' | 1:0:193:A:OP2 | 2.28 | 0.51 |
| 1:0:701:U:O2' | 1:0:702:A:H5' | 2.11 | 0.51 |
| 1:0:974:U:H1' | 1:0:2229:G:C2 | 2.46 | 0.51 |
| 1:0:1948:C:C4 | 1:0:1949:A:N6 | 2.79 | 0.51 |
| 1:0:2553:G:H8 | 1:0:2553:G:O5' | 1.93 | 0.51 |
| 1:0:2664:G:O2' | 1:0:2665:G:H5' | 2.11 | 0.51 |
| 1:0:2876:C:H2' | 1:0:2877:A:H8 | 1.76 | 0.51 |
| 1:0:433:G:O2' | 1:0:434:C:C6 | 2.63 | 0.51 |
| 1:0:520:C:H2' | 1:0:521:U:O4' | 2.10 | 0.51 |
| 1:0:986:A:N7 | 1:0:987:G:C8 | 2.79 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-----------------|--------------------------|-------------------|
| 1:0:1133:G:O2' | 1:0:1134:C:H5' | 2.11 | 0.51 |
| 1:0:1354:A:H3' | 1:0:1410:U:O2 | 2.11 | 0.51 |
| 1:0:1582:A:H62 | 1:0:1584:G:N2 | 2.07 | 0.51 |
| 1:0:1787:U:H2' | 1:0:1788:C:C6 | 2.46 | 0.51 |
| 1:0:1827:G:H1' | 1:0:1914:U:O4 | 2.10 | 0.51 |
| 1:0:2107:G:H2' | 1:0:2108:G:C8 | 2.46 | 0.51 |
| 1:0:2210:C:H2' | 1:0:2211:U:O4' | 2.11 | 0.51 |
| 1:0:2249:U:H2' | 1:0:2250:G:H5' | 1.93 | 0.51 |
| 1:0:2394:G:H2' | 1:0:2395:C:C6 | 2.46 | 0.51 |
| 1:0:2530:C:H2' | 1:0:2531:U:O4' | 2.11 | 0.51 |
| 1:0:2660:C:O2 | 1:0:2660:C:C2' | 2.59 | 0.51 |
| 1:0:671:A:H2' | 1:0:672:C:C6 | 2.46 | 0.50 |
| 1:0:805:G:O3' | 1:0:806:A:O4' | 2.29 | 0.50 |
| 1:0:1938:U:O2 | 1:0:1938:U:H2' | 2.09 | 0.50 |
| 1:0:2516:U:H2' | 1:0:2517:C:C6 | 2.45 | 0.50 |
| 1:0:2574:G:N2 | 1:0:2577:A:OP2 | 2.41 | 0.50 |
| 1:0:2627:G:O2' | 1:0:2628:C:H5' | 2.11 | 0.50 |
| 1:0:2710:C:O2' | 1:0:2711:G:H5' | 2.12 | 0.50 |
| 1:0:541:C:H42 | 1:0:572:G:H5'' | 1.76 | 0.50 |
| 1:0:625:A:N3 | 1:0:625:A:H2' | 2.26 | 0.50 |
| 1:0:944:A:H2' | 1:0:945:G:O4' | 2.11 | 0.50 |
| 1:0:995:A:H5'' | 1:0:996:C:H5 | 1.75 | 0.50 |
| 1:0:2121:U:H2' | 1:0:2122:G:H8 | 1.76 | 0.50 |
| 1:0:2390:A:H2' | 1:0:2391:A:O4' | 2.12 | 0.50 |
| 1:0:2491:C:H2' | 1:0:2492:G:H5'' | 1.93 | 0.50 |
| 1:0:2705:A:O2' | 1:0:2706:U:C6 | 2.64 | 0.50 |
| 1:0:2753:C:H2' | 1:0:2754:C:H6 | 1.74 | 0.50 |
| 1:0:340:G:H4' | 1:0:341:A:C5' | 2.41 | 0.50 |
| 1:0:492:G:H2' | 1:0:517:A:C2 | 2.46 | 0.50 |
| 1:0:701:U:H4' | 1:0:1771:A:C2 | 2.47 | 0.50 |
| 1:0:914:C:H2' | 1:0:915:C:C6 | 2.46 | 0.50 |
| 1:0:941:U:H2' | 1:0:942:U:N1 | 2.26 | 0.50 |
| 1:0:1822:C:H2' | 1:0:1823:G:C8 | 2.47 | 0.50 |
| 1:0:1877:C:H2' | 1:0:1878:C:C6 | 2.46 | 0.50 |
| 1:0:2618:A:H1' | 1:0:2758:A:C2 | 2.46 | 0.50 |
| 1:0:2716:G:O2' | 1:0:2717:G:H5' | 2.12 | 0.50 |
| 1:0:7:G:H2' | 1:0:8:A:H8 | 1.74 | 0.50 |
| 1:0:218:A:O2' | 1:0:219:G:P | 2.69 | 0.50 |
| 1:0:228:A:C5 | 1:0:229:G:H1' | 2.46 | 0.50 |
| 1:0:462:G:H2' | 1:0:463:C:H5' | 1.92 | 0.50 |
| 1:0:539:A:H2' | 1:0:540:G:OP2 | 2.12 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|----------------|--------------------------|-------------------|
| 1:0:765:C:H4' | 1:0:766:A:H5' | 1.93 | 0.50 |
| 1:0:1172:U:H2' | 1:0:1173:G:C8 | 2.45 | 0.50 |
| 1:0:1645:U:H2' | 1:0:1646:G:C8 | 2.46 | 0.50 |
| 1:0:2522:G:H5'' | 1:0:2746:G:O3' | 2.12 | 0.50 |
| 1:0:2669:C:H2' | 1:0:2670:C:OP2 | 2.11 | 0.50 |
| 1:0:2765:C:H2' | 1:0:2766:U:C6 | 2.46 | 0.50 |
| 1:0:2:G:H2' | 1:0:3:U:H6 | 1.76 | 0.50 |
| 1:0:322:A:H2' | 1:0:342:G:P | 2.51 | 0.50 |
| 1:0:539:A:C2' | 1:0:540:G:OP2 | 2.59 | 0.50 |
| 1:0:773:G:C2' | 1:0:774:A:H5' | 2.42 | 0.50 |
| 1:0:807:A:C6 | 1:0:808:C:C4 | 2.99 | 0.50 |
| 1:0:1035:G:H21 | 1:0:1155:G:C4' | 2.23 | 0.50 |
| 1:0:1196:G:H2' | 1:0:1197:U:H5' | 1.93 | 0.50 |
| 1:0:1746:A:H2' | 1:0:1747:G:H5' | 1.94 | 0.50 |
| 1:0:2620:G:H2' | 1:0:2621:G:H8 | 1.77 | 0.50 |
| 1:0:109:A:H2' | 1:0:110:U:C5' | 2.40 | 0.50 |
| 1:0:688:A:O2' | 1:0:2422:C:H4' | 2.11 | 0.50 |
| 1:0:733:G:H2' | 1:0:734:G:H8 | 1.76 | 0.50 |
| 1:0:768:U:H2' | 1:0:769:C:O4' | 2.12 | 0.50 |
| 1:0:1036:G:N3 | 1:0:1145:C:O4' | 2.45 | 0.50 |
| 1:0:1299:A:O2' | 1:0:1300:A:P | 2.69 | 0.50 |
| 1:0:1789:U:C2 | 1:0:1811:A:H2 | 2.30 | 0.50 |
| 1:0:2407:G:H5' | 1:0:2408:G:C2 | 2.47 | 0.50 |
| 1:0:2519:C:C4 | 1:0:2520:A:N7 | 2.80 | 0.50 |
| 1:0:2551:A:H2' | 1:0:2551:A:N3 | 2.26 | 0.50 |
| 1:0:14:A:H62 | 1:0:15:G:N2 | 2.10 | 0.50 |
| 1:0:32:C:H5' | 1:0:1251:G:OP1 | 2.11 | 0.50 |
| 1:0:357:A:H3' | 1:0:358:C:O4' | 2.11 | 0.50 |
| 1:0:577:U:H4' | 1:0:956:A:N6 | 2.26 | 0.50 |
| 1:0:598:U:H2' | 1:0:599:A:H8 | 1.72 | 0.50 |
| 1:0:715:U:H2' | 1:0:716:U:C6 | 2.46 | 0.50 |
| 1:0:813:A:O2' | 1:0:815:A:H5' | 2.12 | 0.50 |
| 1:0:857:U:O2' | 1:0:858:G:H5' | 2.11 | 0.50 |
| 1:0:953:G:H2' | 1:0:954:U:O4' | 2.12 | 0.50 |
| 1:0:971:A:H2 | 1:0:2475:C:H1' | 1.76 | 0.50 |
| 1:0:1447:U:H1' | 1:0:1577:G:N2 | 2.26 | 0.50 |
| 1:0:1542:G:H21 | 1:0:1561:A:H62 | 1.59 | 0.50 |
| 1:0:2018:G:O2' | 1:0:2019:C:P | 2.70 | 0.50 |
| 1:0:2351:G:N2 | 1:0:2352:A:N9 | 2.60 | 0.50 |
| 1:0:2520:A:H1' | 1:0:2744:A:C2 | 2.46 | 0.50 |
| 1:0:2522:G:O4' | 1:0:2746:G:H4' | 2.12 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-------------------|--------------------------|-------------------|
| 1:0:195:A:H2' | 1:0:196:A:H5' | 1.92 | 0.50 |
| 1:0:820:U:H1' | 1:0:2424:G:OP1 | 2.11 | 0.50 |
| 1:0:1255:A:H2' | 1:0:1256:C:C6 | 2.47 | 0.50 |
| 1:0:1363:C:O2' | 1:0:1364:C:H5' | 2.11 | 0.50 |
| 1:0:1685:A:HO2' | 1:0:1686:A:P | 2.33 | 0.50 |
| 1:0:2268:G:H5'' | 1:0:2363:G:HO2' | 1.75 | 0.50 |
| 1:0:2623:A:H2' | 1:0:2624:G:O4' | 2.11 | 0.50 |
| 1:0:2756:A:O2' | 1:0:2757:G:P | 2.69 | 0.50 |
| 1:0:183:U:H2' | 1:0:184:A:H8 | 1.77 | 0.50 |
| 1:0:567:G:O2' | 1:0:568:G:H5' | 2.12 | 0.50 |
| 1:0:931:G:N1 | 1:0:2247:A:H5'' | 2.27 | 0.50 |
| 1:0:956:A:C2 | 1:0:2427:A:H1' | 2.46 | 0.50 |
| 1:0:1013:G:N2 | 1:0:1165:G:H1' | 2.26 | 0.50 |
| 1:0:2014:A:H62 | 1:0:2477:C:C1' | 2.25 | 0.50 |
| 1:0:2642:G:H2' | 1:0:2643:G:O4' | 2.11 | 0.50 |
| 1:0:2796:A:HO2' | 1:0:2801:A:H2 | 1.59 | 0.50 |
| 1:0:143:A:O2' | 1:0:144:U:H5' | 2.12 | 0.49 |
| 1:0:236:C:H2' | 1:0:237:G:H8 | 1.77 | 0.49 |
| 1:0:239:A:H5'' | 1:0:620:G:H5' | 1.93 | 0.49 |
| 1:0:357:A:H3' | 1:0:358:C:C5' | 2.42 | 0.49 |
| 1:0:1166:A:C2' | 1:0:1167:A:H5'' | 2.41 | 0.49 |
| 1:0:2231:G:O2' | 1:0:2232:G:H5' | 2.12 | 0.49 |
| 1:0:2280:A:H2' | 1:0:2281:C:C6 | 2.47 | 0.49 |
| 1:0:2307:A:H2' | 1:0:2308:A:C8 | 2.47 | 0.49 |
| 1:0:2672:U:H5' | 1:0:2844:G:H22 | 1.77 | 0.49 |
| 1:0:208:C:C2' | 1:0:209:G:H5' | 2.42 | 0.49 |
| 1:0:508:G:O2' | 1:0:509:U:H5' | 2.12 | 0.49 |
| 1:0:509:U:H2' | 1:0:510:G:O4' | 2.12 | 0.49 |
| 1:0:677:G:C1' | 1:0:951:G:H5'' | 2.40 | 0.49 |
| 1:0:982:C:H2' | 1:0:983:G:O4' | 2.12 | 0.49 |
| 1:0:2016:A:N6 | 1:0:2019:C:N3 | 2.61 | 0.49 |
| 1:0:2030:U:O2' | 1:0:2031:A:H5' | 2.11 | 0.49 |
| 1:0:2484:G:O4' | 2:0:2881:TEL:H572 | 2.13 | 0.49 |
| 1:0:2852:G:C2' | 1:0:2853:U:H5' | 2.42 | 0.49 |
| 1:0:26:G:C6 | 1:0:27:G:N1 | 2.80 | 0.49 |
| 1:0:26:G:N1 | 1:0:27:G:N2 | 2.60 | 0.49 |
| 1:0:52:A:H62 | 1:0:115:G:N2 | 2.07 | 0.49 |
| 1:0:389:G:C8 | 1:0:390:U:O4' | 2.66 | 0.49 |
| 1:0:431:G:C4 | 1:0:432:C:C5 | 3.00 | 0.49 |
| 1:0:643:A:O2' | 1:0:644:A:H5' | 2.12 | 0.49 |
| 1:0:681:A:H2' | 1:0:683:A:C6 | 2.45 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-----------------|--------------------------|-------------------|
| 1:0:998:C:H2' | 1:0:999:A:H5' | 1.94 | 0.49 |
| 1:0:1296:G:H2' | 1:0:1298:G:OP2 | 2.12 | 0.49 |
| 1:0:1582:A:H3' | 1:0:1583:A:H5' | 1.93 | 0.49 |
| 1:0:1614:C:H2' | 1:0:1615:C:C6 | 2.46 | 0.49 |
| 1:0:1691:G:H4' | 1:0:1692:C:OP1 | 2.12 | 0.49 |
| 1:0:1916:G:H1 | 1:0:1950:C:N4 | 2.02 | 0.49 |
| 1:0:1932:G:H3' | 1:0:1933:G:N7 | 2.27 | 0.49 |
| 1:0:2197:U:H2' | 1:0:2198:U:C6 | 2.48 | 0.49 |
| 1:0:2677:U:H3 | 1:0:2688:G:H1 | 1.58 | 0.49 |
| 1:0:2748:C:H2' | 1:0:2749:A:C8 | 2.47 | 0.49 |
| 1:0:431:G:N3 | 1:0:432:C:H5 | 2.11 | 0.49 |
| 1:0:717:G:H2' | 1:0:739:G:N2 | 2.27 | 0.49 |
| 1:0:947:C:H2' | 1:0:948:C:C6 | 2.48 | 0.49 |
| 1:0:951:G:C3' | 1:0:952:A:H5'' | 2.41 | 0.49 |
| 1:0:989:G:H2' | 1:0:990:A:O4' | 2.12 | 0.49 |
| 1:0:1227:A:H2' | 1:0:1228:G:O4' | 2.12 | 0.49 |
| 1:0:1473:U:H4' | 1:0:1474:A:C5 | 2.47 | 0.49 |
| 1:0:1778:U:H3' | 1:0:1778:U:OP2 | 2.12 | 0.49 |
| 1:0:1921:A:C2' | 1:0:1922:U:H5'' | 2.38 | 0.49 |
| 1:0:2228:U:C1' | 1:0:2254:C:H41 | 2.25 | 0.49 |
| 1:0:2388:G:H2' | 1:0:2389:G:C1' | 2.41 | 0.49 |
| 1:0:2714:A:H2' | 1:0:2715:C:O4' | 2.12 | 0.49 |
| 1:0:19:C:H2' | 1:0:20:C:H6 | 1.76 | 0.49 |
| 1:0:219:G:H2' | 1:0:220:U:OP2 | 2.13 | 0.49 |
| 1:0:339:U:O2 | 1:0:339:U:C2' | 2.59 | 0.49 |
| 1:0:592:G:C6 | 1:0:593:C:N4 | 2.81 | 0.49 |
| 1:0:672:C:O2' | 1:0:673:G:H5' | 2.12 | 0.49 |
| 1:0:761:G:H8 | 1:0:763:A:OP2 | 1.96 | 0.49 |
| 1:0:941:U:H2' | 1:0:942:U:C6 | 2.47 | 0.49 |
| 1:0:1066:G:C3' | 1:0:1067:G:H5'' | 2.38 | 0.49 |
| 1:0:2049:C:H2' | 1:0:2050:G:C5' | 2.42 | 0.49 |
| 1:0:2060:A:N6 | 1:0:2222:U:H3 | 2.11 | 0.49 |
| 1:0:2082:C:H2' | 1:0:2083:G:C8 | 2.48 | 0.49 |
| 1:0:2161:C:O2' | 1:0:2162:C:P | 2.70 | 0.49 |
| 1:0:2548:G:H2' | 1:0:2549:G:H5' | 1.93 | 0.49 |
| 1:0:2783:U:H3 | 1:0:2785:A:N6 | 2.10 | 0.49 |
| 1:0:203:G:N2 | 1:0:207:U:C4 | 2.80 | 0.49 |
| 1:0:485:G:O2' | 1:0:486:U:P | 2.69 | 0.49 |
| 1:0:833:A:N3 | 1:0:954:U:O2' | 2.46 | 0.49 |
| 1:0:1175:A:H2' | 1:0:1176:U:H6 | 1.78 | 0.49 |
| 1:0:1540:C:H2' | 1:0:1541:G:O4' | 2.11 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:0:1705:U:O4' | 1:0:1718:A:N6 | 2.45 | 0.49 |
| 1:0:1919:A:O4' | 1:0:1923:U:C5 | 2.65 | 0.49 |
| 1:0:1937:G:H2' | 1:0:1939:U:C4 | 2.47 | 0.49 |
| 1:0:2606:G:HO2' | 1:0:2761:A:H2 | 1.60 | 0.49 |
| 1:0:190:A:H2' | 1:0:191:G:C8 | 2.48 | 0.49 |
| 1:0:344:G:H2' | 1:0:344:G:N3 | 2.28 | 0.49 |
| 1:0:482:A:H2' | 1:0:483:A:C5' | 2.43 | 0.49 |
| 1:0:838:A:H2' | 1:0:839:U:O4' | 2.13 | 0.49 |
| 1:0:1872:A:O2' | 1:0:1873:A:H5' | 2.13 | 0.49 |
| 1:0:1875:C:H2' | 1:0:1876:C:H6 | 1.77 | 0.49 |
| 1:0:2093:G:O2' | 1:0:2094:C:P | 2.71 | 0.49 |
| 1:0:2245:A:H4' | 1:0:2246:A:O5' | 2.13 | 0.49 |
| 1:0:2308:A:H2' | 1:0:2309:G:C8 | 2.47 | 0.49 |
| 1:0:2347:C:H2' | 1:0:2348:A:C8 | 2.47 | 0.49 |
| 1:0:39:C:H2' | 1:0:40:U:C6 | 2.47 | 0.49 |
| 1:0:88:G:H3' | 1:0:89:A:C5' | 2.40 | 0.49 |
| 1:0:173:A:H2 | 1:0:818:G:N3 | 2.10 | 0.49 |
| 1:0:566:U:H2' | 1:0:567:G:C8 | 2.48 | 0.49 |
| 1:0:704:G:H2' | 1:0:705:C:O4' | 2.13 | 0.49 |
| 1:0:838:A:H4' | 1:0:2407:G:C5 | 2.48 | 0.49 |
| 1:0:860:U:H3 | 1:0:945:G:N2 | 2.10 | 0.49 |
| 1:0:942:U:H6 | 1:0:942:U:O5' | 1.95 | 0.49 |
| 1:0:1137:A:H4' | 1:0:1138:A:H5'' | 1.95 | 0.49 |
| 1:0:1147:G:H2' | 1:0:1148:G:C8 | 2.43 | 0.49 |
| 1:0:2203:G:H4' | 1:0:2205:C:N3 | 2.28 | 0.49 |
| 1:0:2336:G:N2 | 1:0:2339:A:OP2 | 2.43 | 0.49 |
| 1:0:2433:G:N1 | 1:0:2478:C:N4 | 2.61 | 0.49 |
| 1:0:2544:A:H2' | 1:0:2545:A:O4' | 2.13 | 0.49 |
| 1:0:2795:A:C2' | 1:0:2796:A:OP1 | 2.60 | 0.49 |
| 1:0:2800:C:H2' | 1:0:2801:A:H5' | 1.94 | 0.49 |
| 1:0:778:G:H2' | 1:0:779:U:H6 | 1.78 | 0.49 |
| 1:0:826:U:HO2' | 1:0:1238:A:H1' | 1.73 | 0.49 |
| 1:0:921:A:O2' | 1:0:923:A:OP2 | 2.22 | 0.49 |
| 1:0:1368:G:H2' | 1:0:1369:G:C8 | 2.44 | 0.49 |
| 1:0:1391:A:O2' | 1:0:1392:U:C6 | 2.66 | 0.49 |
| 1:0:1764:A:C2' | 1:0:1765:C:H5' | 2.43 | 0.49 |
| 1:0:2062:U:H2' | 1:0:2063:A:O4' | 2.12 | 0.49 |
| 1:0:2723:C:O2' | 1:0:2724:G:H5' | 2.13 | 0.49 |
| 1:0:50:G:H2' | 1:0:117:A:N1 | 2.28 | 0.49 |
| 1:0:70:A:H4' | 1:0:72:A:OP2 | 2.13 | 0.49 |
| 1:0:159:A:H1' | 1:0:446:C:O2' | 2.12 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:0:394:U:O5' | 1:0:394:U:H6 | 1.96 | 0.49 |
| 1:0:1293:A:H2' | 1:0:1294:G:C8 | 2.47 | 0.49 |
| 1:0:1310:C:H2' | 1:0:1311:C:H6 | 1.76 | 0.49 |
| 1:0:1653:C:H2' | 1:0:1654:A:C8 | 2.48 | 0.49 |
| 1:0:2559:U:C2' | 1:0:2560:G:H5' | 2.42 | 0.49 |
| 1:0:2728:A:C6 | 1:0:2736:U:H1' | 2.47 | 0.49 |
| 1:0:118:U:O2 | 1:0:143:A:N7 | 2.46 | 0.48 |
| 1:0:520:C:O2' | 1:0:1249:G:H5'' | 2.12 | 0.48 |
| 1:0:968:C:C2' | 1:0:969:U:OP1 | 2.61 | 0.48 |
| 1:0:1226:A:N6 | 1:0:1249:G:H1' | 2.28 | 0.48 |
| 1:0:1973:C:H2' | 1:0:1974:U:O4' | 2.13 | 0.48 |
| 1:0:2451:G:C1' | 1:0:2457:A:H61 | 2.06 | 0.48 |
| 1:0:69:G:H3' | 1:0:111:G:O2' | 2.13 | 0.48 |
| 1:0:125:A:H5'' | 1:0:126:C:C6 | 2.48 | 0.48 |
| 1:0:459:A:N6 | 1:0:484:G:C1' | 2.76 | 0.48 |
| 1:0:614:G:N2 | 1:0:634:G:N2 | 2.38 | 0.48 |
| 1:0:621:U:H2' | 1:0:622:U:H6 | 1.77 | 0.48 |
| 1:0:733:G:H2' | 1:0:734:G:C8 | 2.48 | 0.48 |
| 1:0:942:U:O2' | 1:0:943:U:H5' | 2.13 | 0.48 |
| 1:0:1494:G:O6 | 1:0:1529:C:N3 | 2.46 | 0.48 |
| 1:0:2040:A:OP2 | 1:0:2483:U:OP1 | 2.31 | 0.48 |
| 1:0:2270:U:H5'' | 1:0:2359:U:O2' | 2.12 | 0.48 |
| 1:0:2349:G:H2' | 1:0:2350:G:O4' | 2.13 | 0.48 |
| 1:0:2407:G:H4' | 1:0:2408:G:C4 | 2.48 | 0.48 |
| 1:0:2427:A:OP2 | 1:0:2478:C:OP2 | 2.30 | 0.48 |
| 1:0:2549:G:C2' | 1:0:2550:C:H5' | 2.43 | 0.48 |
| 1:0:2671:C:H4' | 1:0:2845:C:O2 | 2.13 | 0.48 |
| 1:0:78:C:H1' | 1:0:357:A:N1 | 2.28 | 0.48 |
| 1:0:430:C:O2' | 1:0:2386:G:N2 | 2.47 | 0.48 |
| 1:0:524:A:H1' | 1:0:590:C:O2' | 2.13 | 0.48 |
| 1:0:756:C:H2' | 1:0:757:U:C6 | 2.48 | 0.48 |
| 1:0:931:G:H2' | 1:0:932:G:H5' | 1.95 | 0.48 |
| 1:0:978:U:H2' | 1:0:979:A:H8 | 1.78 | 0.48 |
| 1:0:1408:A:H5'' | 1:0:1409:U:OP1 | 2.13 | 0.48 |
| 1:0:1918:G:C4 | 1:0:1945:C:N4 | 2.81 | 0.48 |
| 1:0:1964:A:H5'' | 1:0:1965:U:OP2 | 2.13 | 0.48 |
| 1:0:2229:G:H8 | 1:0:2229:G:OP1 | 1.96 | 0.48 |
| 1:0:2374:C:H42 | 1:0:2400:G:H1 | 1.61 | 0.48 |
| 1:0:2397:A:H2' | 1:0:2398:U:O4' | 2.13 | 0.48 |
| 1:0:2542:U:H2' | 1:0:2544:A:OP2 | 2.13 | 0.48 |
| 1:0:2816:C:H1' | 1:0:2852:G:N2 | 2.28 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|----------------|--------------------------|-------------------|
| 1:0:2869:U:H2' | 1:0:2870:C:C6 | 2.48 | 0.48 |
| 1:0:84:G:H2' | 1:0:85:C:C6 | 2.48 | 0.48 |
| 1:0:138:G:H2' | 1:0:139:A:C8 | 2.48 | 0.48 |
| 1:0:191:G:O2' | 1:0:192:G:H5' | 2.13 | 0.48 |
| 1:0:697:G:C4 | 1:0:788:G:O6 | 2.66 | 0.48 |
| 1:0:991:A:H2 | 1:0:2020:G:N3 | 2.11 | 0.48 |
| 1:0:1766:U:C2' | 1:0:1767:G:H5' | 2.43 | 0.48 |
| 1:0:1783:G:H1 | 1:0:1820:G:H1' | 1.78 | 0.48 |
| 1:0:1996:A:O2' | 1:0:1997:A:H5' | 2.13 | 0.48 |
| 1:0:2059:U:H5'' | 1:0:2217:G:N1 | 2.25 | 0.48 |
| 1:0:2199:C:H2' | 1:0:2200:G:C8 | 2.49 | 0.48 |
| 1:0:2350:G:C2 | 1:0:2351:G:N7 | 2.82 | 0.48 |
| 1:0:2548:G:H2' | 1:0:2549:G:C5' | 2.43 | 0.48 |
| 1:0:388:G:OP2 | 1:0:388:G:H8 | 1.97 | 0.48 |
| 1:0:538:A:N6 | 1:0:2759:U:N3 | 2.61 | 0.48 |
| 1:0:838:A:H2' | 1:0:839:U:C6 | 2.48 | 0.48 |
| 1:0:1038:U:C4 | 1:0:2467:A:H5' | 2.49 | 0.48 |
| 1:0:1531:C:C2' | 1:0:1532:A:H5' | 2.43 | 0.48 |
| 1:0:1999:U:C2' | 1:0:2000:U:H5' | 2.43 | 0.48 |
| 1:0:2076:G:C2 | 1:0:2181:A:N6 | 2.81 | 0.48 |
| 1:0:2205:C:O2' | 1:0:2206:C:H5' | 2.13 | 0.48 |
| 1:0:2765:C:H2' | 1:0:2766:U:H6 | 1.78 | 0.48 |
| 1:0:65:C:C2' | 1:0:66:U:H5' | 2.44 | 0.48 |
| 1:0:67:G:C6 | 1:0:72:A:C2 | 3.01 | 0.48 |
| 1:0:81:C:H5'' | 1:0:307:C:H5' | 1.96 | 0.48 |
| 1:0:92:U:H2' | 1:0:93:A:O4' | 2.14 | 0.48 |
| 1:0:221:A:H2' | 1:0:222:G:H5' | 1.94 | 0.48 |
| 1:0:638:A:C2' | 1:0:639:G:H5' | 2.44 | 0.48 |
| 1:0:742:G:H5' | 1:0:743:A:C5' | 2.42 | 0.48 |
| 1:0:1033:G:HO2' | 1:0:1034:U:P | 2.33 | 0.48 |
| 1:0:1092:U:H2' | 1:0:1093:U:C6 | 2.48 | 0.48 |
| 1:0:1223:G:H5' | 1:0:1225:G:C5' | 2.43 | 0.48 |
| 1:0:1299:A:N6 | 1:0:1302:C:C4 | 2.81 | 0.48 |
| 1:0:1356:G:C5' | 1:0:1614:C:OP2 | 2.62 | 0.48 |
| 1:0:81:C:C5' | 1:0:307:C:H5' | 2.44 | 0.48 |
| 1:0:762:A:H2' | 1:0:763:A:H8 | 1.78 | 0.48 |
| 1:0:946:U:O5' | 1:0:946:U:H6 | 1.96 | 0.48 |
| 1:0:961:G:H2' | 1:0:962:C:C6 | 2.48 | 0.48 |
| 1:0:1312:G:H5'' | 1:0:1313:U:OP1 | 2.13 | 0.48 |
| 1:0:1341:G:H2' | 1:0:1343:C:C4 | 2.48 | 0.48 |
| 1:0:1854:G:H2' | 1:0:1855:G:C8 | 2.44 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:0:2225:G:N2 | 1:0:2405:A:HO2' | 2.12 | 0.48 |
| 1:0:2548:G:C2' | 1:0:2549:G:H5'' | 2.44 | 0.48 |
| 1:0:2555:G:N3 | 1:0:2555:G:C2' | 2.76 | 0.48 |
| 1:0:2727:G:H2' | 1:0:2728:A:H5'' | 1.94 | 0.48 |
| 1:0:180:C:N3 | 1:0:181:A:C6 | 2.82 | 0.48 |
| 1:0:433:G:C2' | 1:0:434:C:OP2 | 2.61 | 0.48 |
| 1:0:529:U:H2' | 1:0:530:G:H8 | 1.78 | 0.48 |
| 1:0:1313:U:O2' | 1:0:1314:A:OP2 | 2.25 | 0.48 |
| 1:0:2011:U:H3 | 1:0:2016:A:N6 | 2.12 | 0.48 |
| 1:0:698:A:C1' | 1:0:700:C:C5 | 2.97 | 0.48 |
| 1:0:825:C:H1' | 1:0:1263:G:N1 | 2.27 | 0.48 |
| 1:0:882:C:H2' | 1:0:883:A:O4' | 2.14 | 0.48 |
| 1:0:1118:G:H2' | 1:0:1119:U:C6 | 2.49 | 0.48 |
| 1:0:1712:G:N3 | 1:0:1712:G:C3' | 2.75 | 0.48 |
| 1:0:1950:C:H2' | 1:0:1951:G:H5' | 1.94 | 0.48 |
| 1:0:1982:C:H5'' | 1:0:2703:C:C2' | 2.43 | 0.48 |
| 1:0:2347:C:H2' | 1:0:2348:A:O4' | 2.14 | 0.48 |
| 1:0:2599:U:H3' | 1:0:2600:A:H5'' | 1.95 | 0.48 |
| 1:0:163:A:C2 | 1:0:188:G:C4 | 3.02 | 0.48 |
| 1:0:173:A:O2' | 1:0:174:A:OP1 | 2.30 | 0.48 |
| 1:0:192:G:O2' | 1:0:193:A:P | 2.72 | 0.48 |
| 1:0:477:A:N3 | 1:0:696:U:H1' | 2.28 | 0.48 |
| 1:0:502:A:H2' | 1:0:503:G:H5' | 1.95 | 0.48 |
| 1:0:605:G:H2' | 1:0:606:A:C8 | 2.48 | 0.48 |
| 1:0:772:G:H2' | 1:0:773:G:C8 | 2.47 | 0.48 |
| 1:0:931:G:H1 | 1:0:2247:A:H5'' | 1.78 | 0.48 |
| 1:0:986:A:H2 | 1:0:1001:A:O4' | 1.96 | 0.48 |
| 1:0:1327:C:OP1 | 1:0:1345:G:H5' | 2.14 | 0.48 |
| 1:0:1922:U:O2' | 1:0:2571:G:H1' | 2.13 | 0.48 |
| 1:0:1955:G:O2' | 1:0:1956:G:C5' | 2.57 | 0.48 |
| 1:0:2448:A:H2' | 1:0:2449:G:O4' | 2.13 | 0.48 |
| 1:0:2555:G:H3' | 1:0:2555:G:OP1 | 2.14 | 0.48 |
| 1:0:2732:C:H3' | 1:0:2733:A:H8 | 1.79 | 0.48 |
| 1:0:119:G:H2' | 1:0:120:G:C8 | 2.49 | 0.47 |
| 1:0:649:G:N1 | 1:0:660:G:N1 | 2.62 | 0.47 |
| 1:0:763:A:H5'' | 1:0:1631:C:N4 | 2.29 | 0.47 |
| 1:0:876:A:H2' | 1:0:877:G:C8 | 2.49 | 0.47 |
| 1:0:1108:U:C2' | 1:0:1109:A:H5' | 2.34 | 0.47 |
| 1:0:1605:A:H2' | 1:0:1606:C:C6 | 2.49 | 0.47 |
| 1:0:1923:U:HO2' | 1:0:1924:C:H5 | 1.61 | 0.47 |
| 1:0:2463:G:H2' | 1:0:2464:G:C8 | 2.47 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-----------------|--------------------------|-------------------|
| 1:0:2548:G:O2' | 1:0:2549:G:H5'' | 2.14 | 0.47 |
| 1:0:2695:C:H2' | 1:0:2696:A:H8 | 1.78 | 0.47 |
| 1:0:594:G:N1 | 1:0:1264:C:N4 | 2.57 | 0.47 |
| 1:0:1055:A:H1' | 1:0:1058:G:H1' | 1.96 | 0.47 |
| 1:0:1489:C:H3' | 1:0:1490:U:H5' | 1.97 | 0.47 |
| 1:0:1618:U:OP2 | 1:0:1619:A:N1 | 2.47 | 0.47 |
| 1:0:1679:U:H2' | 1:0:1680:U:C5' | 2.37 | 0.47 |
| 1:0:2157:C:H2' | 1:0:2158:C:C6 | 2.49 | 0.47 |
| 1:0:2246:A:H3' | 1:0:2246:A:N3 | 2.30 | 0.47 |
| 1:0:2597:G:H2' | 1:0:2598:C:H6 | 1.79 | 0.47 |
| 1:0:2764:U:H2' | 1:0:2765:C:C5 | 2.49 | 0.47 |
| 1:0:548:G:O2' | 1:0:549:G:H5' | 2.14 | 0.47 |
| 1:0:608:G:O2' | 1:0:609:U:H5' | 2.15 | 0.47 |
| 1:0:1040:A:C8 | 1:0:1041:G:C8 | 3.02 | 0.47 |
| 1:0:1528:C:H2' | 1:0:1529:C:H5'' | 1.95 | 0.47 |
| 1:0:1545:G:H2' | 1:0:1546:C:C6 | 2.48 | 0.47 |
| 1:0:1641:C:H2' | 1:0:1642:G:H5' | 1.96 | 0.47 |
| 1:0:1791:C:C1' | 1:0:1793:A:H5' | 2.38 | 0.47 |
| 1:0:1888:C:H2' | 1:0:1913:G:C5 | 2.49 | 0.47 |
| 1:0:2549:G:H5' | 1:0:2549:G:H8 | 1.79 | 0.47 |
| 1:0:2605:C:H2' | 1:0:2606:G:O4' | 2.14 | 0.47 |
| 1:0:2650:G:O2' | 1:0:2651:U:H5' | 2.13 | 0.47 |
| 1:0:577:U:H4' | 1:0:956:A:H61 | 1.79 | 0.47 |
| 1:0:803:C:H6 | 1:0:803:C:H3' | 1.80 | 0.47 |
| 1:0:839:U:H5' | 1:0:2407:G:H2' | 1.95 | 0.47 |
| 1:0:923:A:O4' | 1:0:2243:C:H4' | 2.15 | 0.47 |
| 1:0:1293:A:H2' | 1:0:1294:G:H8 | 1.79 | 0.47 |
| 1:0:1386:A:H2' | 1:0:1387:G:O4' | 2.14 | 0.47 |
| 1:0:1435:G:H2' | 1:0:1436:G:C8 | 2.45 | 0.47 |
| 1:0:2001:G:H3' | 1:0:2001:G:C8 | 2.50 | 0.47 |
| 1:0:2377:U:O2' | 1:0:2378:G:P | 2.72 | 0.47 |
| 1:0:2467:A:H2' | 1:0:2468:G:H8 | 1.78 | 0.47 |
| 1:0:2532:G:H2' | 1:0:2533:U:C4' | 2.44 | 0.47 |
| 1:0:2607:C:O2' | 1:0:2762:G:OP1 | 2.33 | 0.47 |
| 1:0:26:G:H2' | 1:0:27:G:O4' | 2.15 | 0.47 |
| 1:0:178:C:O2' | 1:0:179:U:H5' | 2.13 | 0.47 |
| 1:0:187:U:H2' | 1:0:188:G:H8 | 1.79 | 0.47 |
| 1:0:1293:A:O2' | 1:0:1294:G:H5' | 2.15 | 0.47 |
| 1:0:1356:G:H1' | 1:0:1613:G:C2 | 2.50 | 0.47 |
| 1:0:1407:G:O2' | 1:0:1408:A:H5' | 2.15 | 0.47 |
| 1:0:1424:U:H2' | 1:0:1425:G:H8 | 1.79 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:0:2073:A:H61 | 1:0:2208:U:H3 | 1.62 | 0.47 |
| 1:0:2876:C:H2' | 1:0:2877:A:C8 | 2.49 | 0.47 |
| 1:0:200:A:C6 | 1:0:435:A:C5 | 3.03 | 0.47 |
| 1:0:690:A:H4' | 1:0:2053:G:O2' | 2.14 | 0.47 |
| 1:0:831:G:N2 | 1:0:1203:A:H62 | 2.11 | 0.47 |
| 1:0:939:C:N3 | 1:0:940:G:O6 | 2.48 | 0.47 |
| 1:0:1975:G:O2' | 1:0:1976:U:O5' | 2.33 | 0.47 |
| 1:0:2080:U:H2' | 1:0:2081:U:C6 | 2.49 | 0.47 |
| 1:0:2629:U:H3 | 1:0:2649:A:H61 | 1.60 | 0.47 |
| 1:0:105:G:O2' | 1:0:106:G:H5' | 2.14 | 0.47 |
| 1:0:195:A:C2' | 1:0:196:A:H5' | 2.44 | 0.47 |
| 1:0:301:C:H2' | 1:0:302:U:O4' | 2.14 | 0.47 |
| 1:0:320:A:N3 | 1:0:340:G:H2' | 2.29 | 0.47 |
| 1:0:398:C:H42 | 1:0:402:A:N6 | 2.13 | 0.47 |
| 1:0:564:U:H2' | 1:0:565:A:H8 | 1.80 | 0.47 |
| 1:0:593:C:H2' | 1:0:594:G:C8 | 2.49 | 0.47 |
| 1:0:782:U:H2' | 1:0:783:G:C8 | 2.49 | 0.47 |
| 1:0:1073:G:C3' | 1:0:1074:G:H5'' | 2.45 | 0.47 |
| 1:0:1086:C:O5' | 1:0:1086:C:H6 | 1.97 | 0.47 |
| 1:0:1256:C:H2' | 1:0:1257:U:C6 | 2.50 | 0.47 |
| 1:0:1313:U:C4 | 1:0:1651:U:H1' | 2.50 | 0.47 |
| 1:0:1341:G:N2 | 1:0:1343:C:O2 | 2.48 | 0.47 |
| 1:0:1391:A:O2' | 1:0:1392:U:O5' | 2.32 | 0.47 |
| 1:0:1574:A:C2 | 1:0:1576:G:H1' | 2.49 | 0.47 |
| 1:0:1629:G:H3' | 1:0:1630:A:C5' | 2.44 | 0.47 |
| 1:0:1736:C:H2' | 1:0:1737:G:H8 | 1.79 | 0.47 |
| 1:0:1773:C:H1' | 1:0:2588:U:O4' | 2.15 | 0.47 |
| 1:0:2134:U:O5' | 1:0:2134:U:H6 | 1.98 | 0.47 |
| 1:0:2200:G:H2' | 1:0:2201:G:C8 | 2.49 | 0.47 |
| 1:0:2204:A:C2' | 1:0:2205:C:OP2 | 2.63 | 0.47 |
| 1:0:2207:G:H2' | 1:0:2208:U:O4' | 2.14 | 0.47 |
| 1:0:2598:C:H2' | 1:0:2599:U:C6 | 2.50 | 0.47 |
| 1:0:2633:A:H4' | 1:0:2634:G:OP1 | 2.14 | 0.47 |
| 1:0:2760:G:H5' | 1:0:2761:A:C8 | 2.50 | 0.47 |
| 1:0:200:A:N1 | 1:0:435:A:N7 | 2.63 | 0.47 |
| 1:0:203:G:O6 | 1:0:431:G:O3' | 2.32 | 0.47 |
| 1:0:788:G:H5' | 1:0:790:A:N3 | 2.30 | 0.47 |
| 1:0:1106:A:H2' | 1:0:1107:A:C8 | 2.50 | 0.47 |
| 1:0:1259:A:C2' | 1:0:1260:A:H5' | 2.45 | 0.47 |
| 1:0:1373:G:H1 | 1:0:2192:U:H3 | 1.63 | 0.47 |
| 1:0:1431:U:H5'' | 1:0:1604:A:H1' | 1.97 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|----------------|--------------------------|-------------------|
| 1:0:1806:G:O6 | 1:0:1807:A:N6 | 2.47 | 0.47 |
| 1:0:1820:G:H4' | 1:0:1821:A:OP1 | 2.14 | 0.47 |
| 1:0:1906:U:H2' | 1:0:1907:C:C6 | 2.50 | 0.47 |
| 1:0:1963:G:H2' | 1:0:1964:A:OP1 | 2.15 | 0.47 |
| 1:0:2061:C:O2' | 1:0:2062:U:H5' | 2.15 | 0.47 |
| 1:0:2161:C:H2' | 1:0:2162:C:C6 | 2.50 | 0.47 |
| 1:0:2225:G:N2 | 1:0:2405:A:O2' | 2.48 | 0.47 |
| 1:0:2386:G:C2 | 1:0:2387:U:C4 | 3.03 | 0.47 |
| 1:0:2496:C:C2 | 1:0:2521:A:N6 | 2.82 | 0.47 |
| 1:0:459:A:C2 | 1:0:466:A:N7 | 2.83 | 0.47 |
| 1:0:673:G:H2' | 1:0:674:U:C6 | 2.49 | 0.47 |
| 1:0:830:C:H3' | 1:0:831:G:H8 | 1.80 | 0.47 |
| 1:0:1207:G:H2' | 1:0:1208:A:C8 | 2.50 | 0.47 |
| 1:0:1442:C:H3' | 1:0:1443:G:C5' | 2.45 | 0.47 |
| 1:0:1480:G:C2' | 1:0:1481:U:H5' | 2.45 | 0.47 |
| 1:0:2040:A:C6 | 1:0:2041:A:C6 | 3.03 | 0.47 |
| 1:0:2225:G:H2' | 1:0:2226:A:H8 | 1.80 | 0.47 |
| 1:0:2240:C:H2' | 1:0:2241:U:H5' | 1.96 | 0.47 |
| 1:0:2324:G:H4' | 1:0:2325:A:O5' | 2.15 | 0.47 |
| 1:0:2477:C:H3' | 1:0:2477:C:C6 | 2.48 | 0.47 |
| 1:0:295:C:N4 | 1:0:296:A:N6 | 2.62 | 0.47 |
| 1:0:387:A:H3' | 1:0:388:G:C8 | 2.50 | 0.47 |
| 1:0:580:A:H1' | 1:0:582:G:N7 | 2.30 | 0.47 |
| 1:0:718:A:N6 | 1:0:739:G:H1' | 2.26 | 0.47 |
| 1:0:853:C:C2 | 1:0:950:G:N1 | 2.83 | 0.47 |
| 1:0:1039:A:H1' | 1:0:2466:G:O5' | 2.15 | 0.47 |
| 1:0:1199:U:C5 | 1:0:1201:G:O6 | 2.68 | 0.47 |
| 1:0:1302:C:OP2 | 1:0:1302:C:H6 | 1.98 | 0.47 |
| 1:0:1465:G:H2' | 1:0:1466:C:C1' | 2.45 | 0.47 |
| 1:0:1674:C:H2' | 1:0:1675:C:C6 | 2.50 | 0.47 |
| 1:0:1949:A:N3 | 1:0:2572:U:O4' | 2.48 | 0.47 |
| 1:0:1982:C:O2' | 1:0:1983:G:H5' | 2.15 | 0.47 |
| 1:0:2194:A:H2' | 1:0:2195:C:O4' | 2.15 | 0.47 |
| 1:0:2351:G:N2 | 1:0:2352:A:C4 | 2.83 | 0.47 |
| 1:0:2515:G:O2' | 1:0:2516:U:H5' | 2.15 | 0.47 |
| 1:0:2695:C:O5' | 1:0:2695:C:H6 | 1.97 | 0.47 |
| 1:0:46:C:H2' | 1:0:47:G:H8 | 1.80 | 0.46 |
| 1:0:176:A:C8 | 1:0:177:U:H5 | 2.33 | 0.46 |
| 1:0:357:A:C2' | 1:0:358:C:H5' | 2.45 | 0.46 |
| 1:0:1147:G:C4 | 1:0:1148:G:C8 | 3.03 | 0.46 |
| 1:0:1396:C:O5' | 1:0:1396:C:H6 | 1.99 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-----------------|--------------------------|-------------------|
| 1:0:1443:G:N3 | 1:0:1584:G:C2 | 2.83 | 0.46 |
| 1:0:1949:A:N3 | 1:0:2571:G:O2' | 2.40 | 0.46 |
| 1:0:2228:U:H1' | 1:0:2254:C:H41 | 1.79 | 0.46 |
| 1:0:2387:U:C2' | 1:0:2388:G:H5' | 2.45 | 0.46 |
| 1:0:2441:U:H2' | 1:0:2442:C:C6 | 2.49 | 0.46 |
| 1:0:2447:G:N1 | 1:0:2460:G:H2' | 2.27 | 0.46 |
| 1:0:2534:U:H2' | 1:0:2535:C:H5' | 1.98 | 0.46 |
| 1:0:2658:A:H2' | 1:0:2659:C:O4' | 2.14 | 0.46 |
| 1:0:460:U:H5' | 1:0:461:A:OP2 | 2.14 | 0.46 |
| 1:0:516:G:C2' | 1:0:517:A:OP2 | 2.62 | 0.46 |
| 1:0:540:G:N2 | 1:0:2004:U:O2' | 2.49 | 0.46 |
| 1:0:616:U:C3' | 1:0:617:U:H5'' | 2.45 | 0.46 |
| 1:0:658:G:H1' | 1:0:2330:G:C5' | 2.45 | 0.46 |
| 1:0:919:U:N3 | 1:0:920:G:N7 | 2.63 | 0.46 |
| 1:0:983:G:P | 1:0:985:G:H5'' | 2.53 | 0.46 |
| 1:0:1272:G:H2' | 1:0:1273:G:H8 | 1.80 | 0.46 |
| 1:0:1496:G:N2 | 1:0:1527:G:H22 | 2.12 | 0.46 |
| 1:0:1641:C:C2' | 1:0:1642:G:H5' | 2.45 | 0.46 |
| 1:0:1745:C:N3 | 1:0:2696:A:O2' | 2.47 | 0.46 |
| 1:0:1861:G:H2' | 1:0:1862:C:O4' | 2.15 | 0.46 |
| 1:0:2120:C:H42 | 1:0:2137:G:H1 | 1.61 | 0.46 |
| 1:0:2437:G:O2' | 1:0:2439:U:O4 | 2.33 | 0.46 |
| 1:0:2477:C:C6 | 1:0:2477:C:C3' | 2.98 | 0.46 |
| 1:0:2499:C:C6 | 1:0:2546:G:H1' | 2.49 | 0.46 |
| 1:0:2570:C:O2' | 1:0:2571:G:H5' | 2.15 | 0.46 |
| 1:0:2597:G:H2' | 1:0:2598:C:C6 | 2.50 | 0.46 |
| 1:0:2691:C:C3' | 1:0:2692:A:H5'' | 2.46 | 0.46 |
| 1:0:389:G:C8 | 1:0:390:U:O2 | 2.69 | 0.46 |
| 1:0:538:A:N1 | 1:0:2025:A:H2' | 2.29 | 0.46 |
| 1:0:1030:U:H2' | 1:0:1031:C:H5' | 1.96 | 0.46 |
| 1:0:1468:A:H8 | 1:0:1468:A:O5' | 1.98 | 0.46 |
| 1:0:1629:G:N1 | 1:0:1633:C:N4 | 2.63 | 0.46 |
| 1:0:2570:C:H42 | 1:0:2582:G:H1 | 1.64 | 0.46 |
| 1:0:200:A:C6 | 1:0:435:A:N6 | 2.84 | 0.46 |
| 1:0:318:G:N2 | 1:0:321:A:C8 | 2.83 | 0.46 |
| 1:0:474:G:H22 | 1:0:476:G:H3' | 1.76 | 0.46 |
| 1:0:583:C:H5'' | 1:0:584:A:C5' | 2.45 | 0.46 |
| 1:0:707:U:H5'' | 1:0:1585:A:C4 | 2.50 | 0.46 |
| 1:0:755:C:O2' | 1:0:756:C:H5' | 2.16 | 0.46 |
| 1:0:851:C:C4 | 1:0:952:A:N6 | 2.84 | 0.46 |
| 1:0:863:C:H2' | 1:0:864:C:O4' | 2.15 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|----------------|--------------------------|-------------------|
| 1:0:990:A:H5' | 1:0:991:A:C5' | 2.39 | 0.46 |
| 1:0:1129:A:H2' | 1:0:1130:U:C6 | 2.50 | 0.46 |
| 1:0:1217:U:H2' | 1:0:1218:C:H6 | 1.81 | 0.46 |
| 1:0:1278:A:HO2' | 1:0:1279:G:P | 2.39 | 0.46 |
| 1:0:1339:U:O2' | 1:0:1993:G:H1' | 2.16 | 0.46 |
| 1:0:1699:A:OP1 | 1:0:1716:G:N2 | 2.49 | 0.46 |
| 1:0:1872:A:O2' | 1:0:2070:G:H5' | 2.16 | 0.46 |
| 1:0:2079:A:O2' | 1:0:2080:U:H5' | 2.15 | 0.46 |
| 1:0:2463:G:O2' | 1:0:2464:G:H5' | 2.15 | 0.46 |
| 1:0:2608:A:N6 | 1:0:2869:U:C2 | 2.82 | 0.46 |
| 1:0:2620:G:H2' | 1:0:2621:G:C8 | 2.50 | 0.46 |
| 1:0:2678:C:O2' | 1:0:2679:G:H5' | 2.16 | 0.46 |
| 1:0:2782:G:C2 | 1:0:2866:A:N6 | 2.84 | 0.46 |
| 1:0:2824:C:O2' | 1:0:2825:A:P | 2.74 | 0.46 |
| 1:0:2825:A:C2 | 1:0:2844:G:H4' | 2.51 | 0.46 |
| 1:0:2865:G:H8 | 1:0:2865:G:O5' | 1.99 | 0.46 |
| 1:0:157:G:O6 | 1:0:191:G:N7 | 2.48 | 0.46 |
| 1:0:402:A:OP2 | 1:0:403:A:OP2 | 2.33 | 0.46 |
| 1:0:622:U:H2' | 1:0:623:G:O4' | 2.16 | 0.46 |
| 1:0:1194:U:HO2' | 1:0:1195:U:P | 2.39 | 0.46 |
| 1:0:1302:C:OP2 | 1:0:1302:C:C6 | 2.69 | 0.46 |
| 1:0:1402:G:H2' | 1:0:1403:U:O4' | 2.16 | 0.46 |
| 1:0:1622:G:H5'' | 1:0:1624:A:O4' | 2.16 | 0.46 |
| 1:0:1983:G:H2' | 1:0:1984:A:H8 | 1.81 | 0.46 |
| 1:0:2121:U:H3 | 1:0:2136:G:H1 | 1.64 | 0.46 |
| 1:0:2559:U:H2' | 1:0:2560:G:H5' | 1.97 | 0.46 |
| 1:0:2569:A:H2' | 1:0:2570:C:H6 | 1.80 | 0.46 |
| 1:0:2655:C:H2' | 1:0:2656:G:H8 | 1.79 | 0.46 |
| 1:0:2787:A:H2' | 1:0:2788:C:C6 | 2.51 | 0.46 |
| 1:0:2867:G:N3 | 1:0:2867:G:C2' | 2.79 | 0.46 |
| 1:0:85:C:O2' | 1:0:86:U:H5' | 2.15 | 0.46 |
| 1:0:176:A:O2' | 1:0:177:U:OP1 | 2.32 | 0.46 |
| 1:0:439:C:O2 | 1:0:439:C:H2' | 2.16 | 0.46 |
| 1:0:697:G:H2' | 1:0:700:C:N4 | 2.30 | 0.46 |
| 1:0:886:A:H2' | 1:0:887:G:O4' | 2.16 | 0.46 |
| 1:0:1253:C:C2' | 1:0:1254:G:H5' | 2.46 | 0.46 |
| 1:0:1373:G:C2' | 1:0:1374:G:H5' | 2.43 | 0.46 |
| 1:0:1686:A:H5'' | 1:0:2529:G:OP1 | 2.15 | 0.46 |
| 1:0:1725:C:H2' | 1:0:1726:C:C6 | 2.48 | 0.46 |
| 1:0:1964:A:H3' | 1:0:1965:U:H5' | 1.98 | 0.46 |
| 1:0:2043:A:C2' | 1:0:2044:G:OP2 | 2.64 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-------------------|--------------------------|-------------------|
| 1:0:2716:G:H2' | 1:0:2717:G:C8 | 2.51 | 0.46 |
| 1:0:2721:A:H3' | 1:0:2722:C:C6 | 2.51 | 0.46 |
| 1:0:19:C:H2' | 1:0:20:C:C6 | 2.50 | 0.46 |
| 1:0:129:A:H2' | 1:0:130:C:O4' | 2.16 | 0.46 |
| 1:0:198:A:O4' | 1:0:210:A:H1' | 2.15 | 0.46 |
| 1:0:243:G:H3' | 1:0:244:C:C5' | 2.46 | 0.46 |
| 1:0:339:U:O4 | 1:0:342:G:H5'' | 2.16 | 0.46 |
| 1:0:958:G:H2' | 1:0:959:C:C6 | 2.51 | 0.46 |
| 1:0:1197:U:H2' | 1:0:1198:C:O4' | 2.15 | 0.46 |
| 1:0:1217:U:H2' | 1:0:1218:C:C6 | 2.51 | 0.46 |
| 1:0:1287:A:C2 | 1:0:1315:A:H2 | 2.34 | 0.46 |
| 1:0:1316:G:C2 | 1:0:1317:G:C8 | 3.03 | 0.46 |
| 1:0:1456:C:H2' | 1:0:1457:A:C8 | 2.51 | 0.46 |
| 1:0:1643:A:H2' | 1:0:1644:G:H8 | 1.80 | 0.46 |
| 1:0:1684:G:H2' | 1:0:1974:U:O4 | 2.15 | 0.46 |
| 1:0:1693:A:H2 | 1:0:1976:U:OP1 | 1.99 | 0.46 |
| 1:0:1834:G:H2' | 1:0:1835:C:O4' | 2.15 | 0.46 |
| 1:0:1873:A:H2 | 1:0:2214:G:H1' | 1.81 | 0.46 |
| 1:0:2041:A:N6 | 2:0:2881:TEL:H582 | 2.30 | 0.46 |
| 1:0:2133:G:H2' | 1:0:2134:U:C6 | 2.50 | 0.46 |
| 1:0:2181:A:O5' | 1:0:2181:A:H8 | 1.98 | 0.46 |
| 1:0:2722:C:O5' | 1:0:2722:C:H6 | 1.98 | 0.46 |
| 1:0:24:G:H2' | 1:0:25:U:C6 | 2.51 | 0.46 |
| 1:0:127:C:H2' | 1:0:128:C:C6 | 2.50 | 0.46 |
| 1:0:646:C:O2 | 1:0:650:U:H4' | 2.15 | 0.46 |
| 1:0:681:A:O2' | 1:0:683:A:N6 | 2.49 | 0.46 |
| 1:0:713:G:H2' | 1:0:714:G:O4' | 2.15 | 0.46 |
| 1:0:1704:G:H1' | 1:0:1719:G:N2 | 2.30 | 0.46 |
| 1:0:1724:C:H1' | 1:0:1747:G:C4 | 2.50 | 0.46 |
| 1:0:1772:C:O2' | 1:0:1773:C:H5' | 2.15 | 0.46 |
| 1:0:1924:C:H2' | 1:0:1925:C:O4' | 2.16 | 0.46 |
| 1:0:2402:U:H4' | 1:0:2404:A:C5 | 2.51 | 0.46 |
| 1:0:2430:A:P | 1:0:2476:A:H61 | 2.38 | 0.46 |
| 1:0:2447:G:O2' | 1:0:2448:A:C5' | 2.63 | 0.46 |
| 1:0:433:G:H2' | 1:0:434:C:OP2 | 2.16 | 0.46 |
| 1:0:653:G:H21 | 1:0:657:A:H61 | 1.64 | 0.46 |
| 1:0:796:A:H2 | 1:0:797:A:H4' | 1.81 | 0.46 |
| 1:0:1358:C:H1' | 1:0:1409:U:H3 | 1.81 | 0.46 |
| 1:0:1435:G:O2' | 1:0:1436:G:H5' | 2.16 | 0.46 |
| 1:0:1651:U:C5' | 1:0:1652:G:OP2 | 2.56 | 0.46 |
| 1:0:1885:C:H2' | 1:0:1886:G:H5' | 1.98 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-----------------|--------------------------|-------------------|
| 1:0:1955:G:H2' | 1:0:1956:G:C8 | 2.48 | 0.46 |
| 1:0:2279:G:H2' | 1:0:2280:A:H8 | 1.81 | 0.46 |
| 1:0:40:U:H2' | 1:0:41:G:C8 | 2.51 | 0.46 |
| 1:0:78:C:O2' | 1:0:79:G:H5' | 2.16 | 0.46 |
| 1:0:697:G:N2 | 1:0:807:A:C2 | 2.81 | 0.46 |
| 1:0:751:G:H2' | 1:0:752:G:O4' | 2.16 | 0.46 |
| 1:0:796:A:N3 | 1:0:796:A:C2' | 2.78 | 0.46 |
| 1:0:1059:A:H2 | 1:0:1123:G:N2 | 2.14 | 0.46 |
| 1:0:1142:G:O6 | 1:0:2008:C:H1' | 2.16 | 0.46 |
| 1:0:1445:A:H2' | 1:0:1446:U:C6 | 2.51 | 0.46 |
| 1:0:1522:C:H2' | 1:0:1523:A:O4' | 2.16 | 0.46 |
| 1:0:1622:G:H4' | 1:0:1624:A:N3 | 2.30 | 0.46 |
| 1:0:1696:C:H3' | 1:0:1697:U:C6 | 2.51 | 0.46 |
| 1:0:2080:U:H2' | 1:0:2081:U:H6 | 1.81 | 0.46 |
| 1:0:2197:U:H2' | 1:0:2198:U:H6 | 1.81 | 0.46 |
| 1:0:2695:C:H2' | 1:0:2696:A:C8 | 2.51 | 0.46 |
| 1:0:2744:A:N6 | 1:0:2746:G:C2 | 2.84 | 0.46 |
| 1:0:2756:A:H4' | 1:0:2757:G:O5' | 2.16 | 0.46 |
| 1:0:2828:C:O2' | 1:0:2829:A:H5' | 2.16 | 0.46 |
| 1:0:67:G:C5 | 1:0:72:A:C2 | 3.03 | 0.45 |
| 1:0:439:C:H5'' | 1:0:440:U:H5 | 1.81 | 0.45 |
| 1:0:622:U:C2' | 1:0:623:G:H5' | 2.46 | 0.45 |
| 1:0:677:G:H4' | 1:0:952:A:OP1 | 2.16 | 0.45 |
| 1:0:982:C:H2' | 1:0:983:G:C8 | 2.51 | 0.45 |
| 1:0:1055:A:OP1 | 1:0:1057:A:H5' | 2.16 | 0.45 |
| 1:0:1750:A:C5' | 1:0:2695:C:H1' | 2.47 | 0.45 |
| 1:0:1819:U:H2' | 1:0:1820:G:O4' | 2.15 | 0.45 |
| 1:0:2767:C:H2' | 1:0:2768:C:C6 | 2.51 | 0.45 |
| 1:0:162:C:H2' | 1:0:163:A:C8 | 2.51 | 0.45 |
| 1:0:638:A:H2' | 1:0:639:G:O4' | 2.16 | 0.45 |
| 1:0:821:A:H2' | 1:0:822:G:C8 | 2.49 | 0.45 |
| 1:0:970:A:H2' | 1:0:971:A:C8 | 2.51 | 0.45 |
| 1:0:987:G:C5' | 1:0:1167:A:H62 | 2.29 | 0.45 |
| 1:0:2386:G:C2 | 1:0:2387:U:C5 | 3.05 | 0.45 |
| 1:0:341:A:N1 | 1:0:1223:G:N7 | 2.64 | 0.45 |
| 1:0:698:A:H1' | 1:0:701:U:O4 | 2.17 | 0.45 |
| 1:0:861:G:N2 | 1:0:943:U:C2' | 2.79 | 0.45 |
| 1:0:1068:A:H2' | 1:0:1069:G:C8 | 2.51 | 0.45 |
| 1:0:1086:C:C2' | 1:0:1087:C:H5'' | 2.45 | 0.45 |
| 1:0:1376:C:H2' | 1:0:1377:G:O4' | 2.17 | 0.45 |
| 1:0:1408:A:H2' | 1:0:1411:C:N4 | 2.30 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-----------------|--------------------------|-------------------|
| 1:0:1928:G:O6 | 1:0:1943:A:N6 | 2.48 | 0.45 |
| 1:0:2484:G:N3 | 1:0:2485:U:H5 | 2.14 | 0.45 |
| 1:0:2507:U:O2' | 1:0:2508:G:H8 | 1.99 | 0.45 |
| 1:0:2586:G:H2' | 1:0:2587:G:O4' | 2.15 | 0.45 |
| 1:0:2773:G:H1 | 1:0:2779:C:N4 | 2.13 | 0.45 |
| 1:0:2824:C:C2' | 1:0:2825:A:OP2 | 2.64 | 0.45 |
| 1:0:2824:C:O2' | 1:0:2825:A:O5' | 2.33 | 0.45 |
| 1:0:1:G:H2' | 1:0:2:G:C8 | 2.52 | 0.45 |
| 1:0:692:C:H2' | 1:0:693:A:C8 | 2.51 | 0.45 |
| 1:0:703:A:O2' | 1:0:704:G:H5' | 2.16 | 0.45 |
| 1:0:788:G:H21 | 1:0:801:A:P | 2.40 | 0.45 |
| 1:0:856:A:H2' | 1:0:857:U:H5' | 1.98 | 0.45 |
| 1:0:1029:C:C3' | 1:0:1030:U:H5'' | 2.46 | 0.45 |
| 1:0:1184:G:C2' | 1:0:1185:C:H5' | 2.47 | 0.45 |
| 1:0:1392:U:O2 | 1:0:1392:U:C2' | 2.65 | 0.45 |
| 1:0:1399:C:H2' | 1:0:1400:A:C8 | 2.50 | 0.45 |
| 1:0:1438:G:C2' | 1:0:1439:G:H5' | 2.45 | 0.45 |
| 1:0:1467:U:H3' | 1:0:1468:A:C5' | 2.46 | 0.45 |
| 1:0:1661:C:H2' | 1:0:1662:G:H8 | 1.81 | 0.45 |
| 1:0:1763:G:N1 | 1:0:1963:G:N2 | 2.64 | 0.45 |
| 1:0:2085:G:N2 | 1:0:2171:U:H1' | 2.21 | 0.45 |
| 1:0:2410:U:O2 | 1:0:2410:U:H2' | 2.15 | 0.45 |
| 1:0:192:G:O2' | 1:0:193:A:H4' | 2.16 | 0.45 |
| 1:0:200:A:H62 | 1:0:435:A:N6 | 2.09 | 0.45 |
| 1:0:431:G:C4 | 1:0:432:C:H5 | 2.35 | 0.45 |
| 1:0:459:A:H1' | 1:0:466:A:H62 | 1.81 | 0.45 |
| 1:0:776:G:H3' | 1:0:776:G:N3 | 2.32 | 0.45 |
| 1:0:946:U:O2' | 1:0:947:C:H5' | 2.17 | 0.45 |
| 1:0:1605:A:H2' | 1:0:1606:C:H6 | 1.81 | 0.45 |
| 1:0:1618:U:O5' | 1:0:1618:U:C2 | 2.69 | 0.45 |
| 1:0:1624:A:O2' | 1:0:1625:A:H5' | 2.17 | 0.45 |
| 1:0:1818:G:H2' | 1:0:1819:U:C6 | 2.52 | 0.45 |
| 1:0:1914:U:O2' | 1:0:1915:A:H5' | 2.16 | 0.45 |
| 1:0:1951:G:H4' | 1:0:1956:G:H4' | 1.99 | 0.45 |
| 1:0:1993:G:O2' | 1:0:1994:U:H5' | 2.17 | 0.45 |
| 1:0:2357:A:C2' | 1:0:2358:C:H5' | 2.47 | 0.45 |
| 1:0:2856:U:H2' | 1:0:2857:C:C6 | 2.52 | 0.45 |
| 1:0:17:G:H2' | 1:0:18:U:C6 | 2.51 | 0.45 |
| 1:0:162:C:H4' | 1:0:195:A:O2' | 2.17 | 0.45 |
| 1:0:387:A:C4' | 1:0:436:A:H62 | 2.30 | 0.45 |
| 1:0:430:C:HO2' | 1:0:2386:G:N2 | 2.15 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:0:706:A:H2' | 1:0:707:U:O4' | 2.16 | 0.45 |
| 1:0:753:U:H1' | 1:0:1964:A:C4 | 2.52 | 0.45 |
| 1:0:780:U:O2' | 1:0:781:G:H5' | 2.17 | 0.45 |
| 1:0:874:A:C2 | 1:0:875:G:H1' | 2.51 | 0.45 |
| 1:0:882:C:C2 | 1:0:883:A:C8 | 3.05 | 0.45 |
| 1:0:1785:A:H2' | 1:0:1786:C:C6 | 2.51 | 0.45 |
| 1:0:1929:U:H3 | 1:0:1943:A:N6 | 2.15 | 0.45 |
| 1:0:2396:C:H2' | 1:0:2397:A:C5' | 2.45 | 0.45 |
| 1:0:2541:U:H2' | 1:0:2542:U:O4' | 2.17 | 0.45 |
| 1:0:2669:C:C2' | 1:0:2670:C:OP2 | 2.65 | 0.45 |
| 1:0:192:G:H4' | 1:0:193:A:O5' | 2.17 | 0.45 |
| 1:0:395:G:C2' | 1:0:396:U:H5' | 2.47 | 0.45 |
| 1:0:625:A:H2' | 1:0:626:A:H5' | 1.99 | 0.45 |
| 1:0:1707:A:N7 | 1:0:1714:A:H2 | 2.15 | 0.45 |
| 1:0:1724:C:C2 | 1:0:1725:C:C5 | 3.05 | 0.45 |
| 1:0:1740:G:O2' | 1:0:1741:G:H5' | 2.17 | 0.45 |
| 1:0:1970:G:O2' | 1:0:1971:C:H5' | 2.16 | 0.45 |
| 1:0:2635:U:H3 | 1:0:2644:A:H8 | 1.64 | 0.45 |
| 1:0:2724:G:O2' | 1:0:2725:C:H5' | 2.17 | 0.45 |
| 1:0:73:A:N6 | 1:0:87:G:OP2 | 2.40 | 0.45 |
| 1:0:689:A:H2' | 1:0:690:A:H5' | 1.99 | 0.45 |
| 1:0:775:U:H4' | 1:0:776:G:C8 | 2.52 | 0.45 |
| 1:0:824:U:O4' | 1:0:1264:C:O2 | 2.35 | 0.45 |
| 1:0:1223:G:C5' | 1:0:1224:A:OP1 | 2.65 | 0.45 |
| 1:0:1288:A:H2' | 1:0:1289:A:C4' | 2.46 | 0.45 |
| 1:0:1302:C:O2' | 1:0:1303:U:H5' | 2.16 | 0.45 |
| 1:0:1500:U:H2' | 1:0:1501:C:C6 | 2.52 | 0.45 |
| 1:0:1724:C:H1' | 1:0:1747:G:N3 | 2.32 | 0.45 |
| 1:0:1849:G:N2 | 1:0:1869:A:N6 | 2.64 | 0.45 |
| 1:0:1918:G:H1' | 1:0:1947:G:C2 | 2.51 | 0.45 |
| 1:0:2204:A:H4' | 1:0:2205:C:O4' | 2.17 | 0.45 |
| 1:0:2239:C:H2' | 1:0:2240:C:H6 | 1.82 | 0.45 |
| 1:0:2240:C:H2' | 1:0:2241:U:C5' | 2.47 | 0.45 |
| 1:0:2338:C:H2' | 1:0:2339:A:C8 | 2.52 | 0.45 |
| 1:0:2827:G:H2' | 1:0:2828:C:C6 | 2.52 | 0.45 |
| 2:0:2881:TEL:H231 | 2:0:2881:TEL:H332 | 1.99 | 0.45 |
| 1:0:173:A:C2 | 1:0:818:G:H1' | 2.51 | 0.45 |
| 1:0:582:G:N1 | 1:0:2014:A:OP2 | 2.44 | 0.45 |
| 1:0:585:U:H5'' | 1:0:2482:A:OP1 | 2.17 | 0.45 |
| 1:0:737:C:H2' | 1:0:738:G:O4' | 2.17 | 0.45 |
| 1:0:802:A:N3 | 1:0:802:A:C2' | 2.80 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-----------------|--------------------------|-------------------|
| 1:0:854:G:H2' | 1:0:855:G:C8 | 2.52 | 0.45 |
| 1:0:861:G:N2 | 1:0:943:U:H2' | 2.31 | 0.45 |
| 1:0:872:G:O2' | 1:0:2247:A:N3 | 2.49 | 0.45 |
| 1:0:875:G:H3' | 1:0:876:A:H8 | 1.81 | 0.45 |
| 1:0:1035:G:H21 | 1:0:1155:G:H5' | 1.82 | 0.45 |
| 1:0:1035:G:C6 | 1:0:1036:G:O6 | 2.70 | 0.45 |
| 1:0:1265:G:H2' | 1:0:1266:G:O4' | 2.16 | 0.45 |
| 1:0:1349:A:H2' | 1:0:1350:G:C8 | 2.52 | 0.45 |
| 1:0:1830:C:N4 | 1:0:1881:U:H3' | 2.32 | 0.45 |
| 1:0:1975:G:O4' | 1:0:1977:C:H5 | 2.00 | 0.45 |
| 1:0:2013:A:C2' | 1:0:2014:A:OP2 | 2.64 | 0.45 |
| 1:0:2513:A:C2 | 1:0:2514:G:H1' | 2.52 | 0.45 |
| 1:0:2694:G:H2' | 1:0:2695:C:C6 | 2.52 | 0.45 |
| 1:0:150:A:H2' | 1:0:151:G:H5' | 1.99 | 0.45 |
| 1:0:631:G:H5'' | 1:0:632:A:OP1 | 2.17 | 0.45 |
| 1:0:740:A:H2' | 1:0:741:G:O4' | 2.17 | 0.45 |
| 1:0:813:A:H1' | 1:0:815:A:H4' | 1.98 | 0.45 |
| 1:0:846:A:H62 | 1:0:955:G:H22 | 1.56 | 0.45 |
| 1:0:1149:G:N2 | 1:0:1154:A:H1' | 2.28 | 0.45 |
| 1:0:1629:G:H3' | 1:0:1630:A:H5'' | 1.99 | 0.45 |
| 1:0:1913:G:H2' | 1:0:1914:U:OP2 | 2.16 | 0.45 |
| 1:0:2161:C:O2' | 1:0:2162:C:OP1 | 2.30 | 0.45 |
| 1:0:2380:U:O2' | 1:0:2381:A:H5' | 2.17 | 0.45 |
| 1:0:81:C:H2' | 1:0:82:G:O4' | 2.16 | 0.44 |
| 1:0:208:C:H2' | 1:0:209:G:H5' | 1.99 | 0.44 |
| 1:0:324:C:H2' | 1:0:325:U:C5' | 2.47 | 0.44 |
| 1:0:430:C:C5' | 1:0:430:C:C6 | 2.97 | 0.44 |
| 1:0:441:A:O2' | 1:0:442:A:H5' | 2.16 | 0.44 |
| 1:0:688:A:N7 | 1:0:816:U:O4 | 2.50 | 0.44 |
| 1:0:697:G:C5 | 1:0:788:G:O6 | 2.70 | 0.44 |
| 1:0:830:C:O2' | 1:0:852:U:H5'' | 2.17 | 0.44 |
| 1:0:1192:A:H2' | 1:0:1193:G:H8 | 1.82 | 0.44 |
| 1:0:1385:C:H2' | 1:0:1386:A:H8 | 1.82 | 0.44 |
| 1:0:1388:C:H2' | 1:0:1389:C:H6 | 1.81 | 0.44 |
| 1:0:1406:A:O3' | 1:0:1407:G:H8 | 2.00 | 0.44 |
| 1:0:1474:A:H2' | 1:0:1476:G:OP1 | 2.17 | 0.44 |
| 1:0:1621:C:O4' | 1:0:1626:A:C6 | 2.70 | 0.44 |
| 1:0:1758:C:C2' | 1:0:1759:A:H5' | 2.47 | 0.44 |
| 1:0:1804:U:O2' | 1:0:1805:G:H5' | 2.17 | 0.44 |
| 1:0:2005:U:O2' | 1:0:2017:U:C2 | 2.70 | 0.44 |
| 1:0:2274:C:C2' | 1:0:2275:U:C5' | 2.95 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-----------------|--------------------------|-------------------|
| 1:0:2410:U:H2' | 1:0:2412:A:OP2 | 2.16 | 0.44 |
| 1:0:2455:A:H2' | 1:0:2455:A:N3 | 2.32 | 0.44 |
| 1:0:2633:A:C4' | 1:0:2634:G:OP1 | 2.65 | 0.44 |
| 1:0:2667:C:N4 | 1:0:2699:G:H3' | 2.30 | 0.44 |
| 1:0:2816:C:H2' | 1:0:2817:A:C8 | 2.52 | 0.44 |
| 1:0:734:G:H2' | 1:0:735:G:H8 | 1.81 | 0.44 |
| 1:0:873:U:C4 | 1:0:929:A:N6 | 2.85 | 0.44 |
| 1:0:1528:C:H3' | 1:0:1529:C:C5' | 2.40 | 0.44 |
| 1:0:1948:C:N4 | 1:0:1949:A:N6 | 2.65 | 0.44 |
| 1:0:2212:U:H2' | 1:0:2213:G:H8 | 1.79 | 0.44 |
| 1:0:2239:C:H2' | 1:0:2240:C:C6 | 2.52 | 0.44 |
| 1:0:2242:C:N4 | 1:0:2257:A:C6 | 2.85 | 0.44 |
| 1:0:2578:G:N2 | 1:0:2579:A:H1' | 2.33 | 0.44 |
| 1:0:2585:C:O2' | 1:0:2586:G:H5' | 2.17 | 0.44 |
| 1:0:2706:U:O2 | 1:0:2706:U:H2' | 2.18 | 0.44 |
| 1:0:180:C:N3 | 1:0:181:A:N6 | 2.66 | 0.44 |
| 1:0:226:C:H4' | 1:0:227:G:C8 | 2.53 | 0.44 |
| 1:0:653:G:H4' | 1:0:2328:G:H4' | 1.99 | 0.44 |
| 1:0:658:G:H1' | 1:0:2330:G:H5'' | 1.99 | 0.44 |
| 1:0:756:C:H2' | 1:0:757:U:O4' | 2.17 | 0.44 |
| 1:0:873:U:H1' | 1:0:2246:A:H5'' | 2.00 | 0.44 |
| 1:0:1083:C:N4 | 1:0:1103:C:C4 | 2.85 | 0.44 |
| 1:0:1216:G:O2' | 1:0:1217:U:H5' | 2.16 | 0.44 |
| 1:0:1355:A:H1' | 1:0:1410:U:C4' | 2.47 | 0.44 |
| 1:0:1391:A:O2' | 1:0:1392:U:OP1 | 2.35 | 0.44 |
| 1:0:1463:A:O2' | 1:0:1543:G:N2 | 2.51 | 0.44 |
| 1:0:1625:A:O2' | 1:0:1632:A:H4' | 2.17 | 0.44 |
| 1:0:2082:C:N4 | 1:0:2174:G:N2 | 2.65 | 0.44 |
| 1:0:2505:G:H22 | 1:0:2517:C:H1' | 1.83 | 0.44 |
| 1:0:2800:C:C2' | 1:0:2801:A:H5' | 2.47 | 0.44 |
| 1:0:4:C:O2' | 1:0:5:A:H5' | 2.17 | 0.44 |
| 1:0:26:G:C2 | 1:0:27:G:N2 | 2.85 | 0.44 |
| 1:0:402:A:H2' | 1:0:403:A:O4' | 2.17 | 0.44 |
| 1:0:434:C:O2 | 1:0:434:C:C2' | 2.66 | 0.44 |
| 1:0:439:C:H3' | 1:0:440:U:C5 | 2.53 | 0.44 |
| 1:0:591:G:H2' | 1:0:592:G:H8 | 1.80 | 0.44 |
| 1:0:1001:A:N7 | 1:0:1200:G:H4' | 2.33 | 0.44 |
| 1:0:1030:U:H2' | 1:0:1031:C:O4' | 2.18 | 0.44 |
| 1:0:1711:C:H4' | 1:0:1712:G:N2 | 2.32 | 0.44 |
| 1:0:1970:G:H2' | 1:0:1971:C:C6 | 2.53 | 0.44 |
| 1:0:1999:U:O5' | 1:0:1999:U:H6 | 2.00 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-----------------|--------------------------|-------------------|
| 1:0:2013:A:H2' | 1:0:2014:A:OP2 | 2.18 | 0.44 |
| 1:0:2095:G:H2' | 1:0:2096:U:H5'' | 1.99 | 0.44 |
| 1:0:2363:G:C2' | 1:0:2364:C:OP1 | 2.66 | 0.44 |
| 1:0:2797:G:H2' | 1:0:2798:A:C5' | 2.44 | 0.44 |
| 1:0:192:G:O2' | 1:0:193:A:C5' | 2.65 | 0.44 |
| 1:0:236:C:H2' | 1:0:237:G:C8 | 2.52 | 0.44 |
| 1:0:239:A:H2' | 1:0:240:U:O4' | 2.17 | 0.44 |
| 1:0:353:G:H2' | 1:0:354:C:C6 | 2.52 | 0.44 |
| 1:0:926:C:H2' | 1:0:926:C:O2 | 2.17 | 0.44 |
| 1:0:939:C:C4 | 1:0:940:G:O6 | 2.71 | 0.44 |
| 1:0:1142:G:H2' | 1:0:1143:A:C8 | 2.53 | 0.44 |
| 1:0:1196:G:H2' | 1:0:1197:U:C5' | 2.48 | 0.44 |
| 1:0:1310:C:H2' | 1:0:1311:C:C6 | 2.52 | 0.44 |
| 1:0:1401:G:O2' | 1:0:1402:G:H5' | 2.17 | 0.44 |
| 1:0:1630:A:H8 | 1:0:1630:A:OP2 | 2.00 | 0.44 |
| 1:0:1751:A:H2' | 1:0:1752:U:C6 | 2.52 | 0.44 |
| 1:0:2043:A:O2' | 1:0:2481:G:O5' | 2.36 | 0.44 |
| 1:0:2178:U:H2' | 1:0:2179:C:H6 | 1.82 | 0.44 |
| 1:0:2227:C:H2' | 1:0:2228:U:H5' | 2.00 | 0.44 |
| 1:0:2467:A:H2' | 1:0:2468:G:C8 | 2.53 | 0.44 |
| 1:0:2491:C:C2' | 1:0:2492:G:H5'' | 2.47 | 0.44 |
| 1:0:2609:G:O4' | 1:0:2868:G:N3 | 2.51 | 0.44 |
| 1:0:2661:G:H2' | 1:0:2662:C:O4' | 2.18 | 0.44 |
| 1:0:502:A:C2' | 1:0:503:G:H5' | 2.48 | 0.44 |
| 1:0:755:C:H2' | 1:0:756:C:O4' | 2.18 | 0.44 |
| 1:0:1086:C:H2' | 1:0:1087:C:C5' | 2.46 | 0.44 |
| 1:0:1199:U:H3' | 1:0:1200:G:H5'' | 2.00 | 0.44 |
| 1:0:1257:U:O2' | 1:0:1258:G:H5' | 2.16 | 0.44 |
| 1:0:1312:G:O2' | 1:0:1314:A:C2 | 2.66 | 0.44 |
| 1:0:1321:A:N1 | 1:0:1624:A:N1 | 2.66 | 0.44 |
| 1:0:1437:A:H2' | 1:0:1438:G:C8 | 2.48 | 0.44 |
| 1:0:2105:U:H2' | 1:0:2106:G:H8 | 1.81 | 0.44 |
| 1:0:2299:A:H5' | 1:0:2300:G:N9 | 2.32 | 0.44 |
| 1:0:2315:A:O2' | 1:0:2364:C:H5'' | 2.17 | 0.44 |
| 1:0:2343:C:H2' | 1:0:2344:G:C8 | 2.53 | 0.44 |
| 1:0:2666:U:H2' | 1:0:2667:C:O4' | 2.18 | 0.44 |
| 1:0:2676:G:H2' | 1:0:2677:U:C6 | 2.53 | 0.44 |
| 1:0:2728:A:H2' | 1:0:2729:A:O4' | 2.17 | 0.44 |
| 1:0:5:A:H2' | 1:0:6:A:H8 | 1.83 | 0.44 |
| 1:0:78:C:H2' | 1:0:79:G:C8 | 2.48 | 0.44 |
| 1:0:216:U:H2' | 1:0:217:U:C6 | 2.53 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|------------------|--------------------------|-------------------|
| 1:0:324:C:O2' | 1:0:325:U:H5' | 2.17 | 0.44 |
| 1:0:538:A:N6 | 1:0:2759:U:H3 | 2.15 | 0.44 |
| 1:0:572:G:OP2 | 1:0:581:A:H5' | 2.17 | 0.44 |
| 1:0:620:G:H1 | 1:0:628:A:N6 | 2.15 | 0.44 |
| 1:0:742:G:N3 | 1:0:742:G:C2' | 2.79 | 0.44 |
| 1:0:982:C:OP2 | 1:0:985:G:N1 | 2.50 | 0.44 |
| 1:0:1083:C:N4 | 1:0:1104:G:C6 | 2.85 | 0.44 |
| 1:0:1514:C:H4' | 1:0:1592:U:O2' | 2.18 | 0.44 |
| 1:0:2428:U:O2 | 1:0:2428:U:C2' | 2.66 | 0.44 |
| 1:0:224:G:C1' | 1:0:399:G:O6 | 2.66 | 0.44 |
| 1:0:357:A:C3' | 1:0:358:C:H5' | 2.47 | 0.44 |
| 1:0:469:G:O2' | 1:0:470:U:C5 | 2.70 | 0.44 |
| 1:0:547:U:H2' | 1:0:548:G:H8 | 1.82 | 0.44 |
| 1:0:698:A:OP2 | 1:0:787:A:N1 | 2.51 | 0.44 |
| 1:0:968:C:H2' | 1:0:969:U:OP1 | 2.17 | 0.44 |
| 1:0:993:C:O5' | 1:0:993:C:H6 | 2.01 | 0.44 |
| 1:0:1001:A:H2' | 1:0:1002:C:H5'' | 1.99 | 0.44 |
| 1:0:1153:A:C2 | 1:0:1155:G:C6 | 3.06 | 0.44 |
| 1:0:1177:U:N3 | 1:0:1197:U:O2 | 2.51 | 0.44 |
| 1:0:1249:G:C2' | 1:0:1250:A:OP2 | 2.66 | 0.44 |
| 1:0:1253:C:H2' | 1:0:1254:G:O4' | 2.17 | 0.44 |
| 1:0:1866:G:H8 | 1:0:1866:G:O5' | 2.00 | 0.44 |
| 1:0:1929:U:H3 | 1:0:1943:A:H61 | 1.64 | 0.44 |
| 1:0:1932:G:H2' | 1:0:1932:G:N3 | 2.33 | 0.44 |
| 1:0:2010:G:O2' | 1:0:2011:U:H5' | 2.18 | 0.44 |
| 1:0:2590:U:H1' | 2:0:2881:TEL:H21 | 2.00 | 0.44 |
| 1:0:29:U:O5' | 1:0:29:U:H6 | 2.01 | 0.44 |
| 1:0:93:A:O2' | 1:0:94:C:H5' | 2.18 | 0.44 |
| 1:0:189:A:O2' | 1:0:190:A:H5' | 2.17 | 0.44 |
| 1:0:200:A:C6 | 1:0:435:A:C6 | 3.05 | 0.44 |
| 1:0:503:G:H2' | 1:0:504:G:H8 | 1.81 | 0.44 |
| 1:0:1052:C:O5' | 1:0:1052:C:H6 | 2.00 | 0.44 |
| 1:0:1194:U:O2' | 1:0:1195:U:P | 2.76 | 0.44 |
| 1:0:1272:G:H2' | 1:0:1273:G:C8 | 2.52 | 0.44 |
| 1:0:1333:G:N2 | 1:0:1344:C:N4 | 2.65 | 0.44 |
| 1:0:1800:A:N3 | 1:0:1802:A:N1 | 2.66 | 0.44 |
| 1:0:1981:A:H4' | 1:0:2704:U:O2' | 2.18 | 0.44 |
| 1:0:2122:G:H2' | 1:0:2123:G:C8 | 2.52 | 0.44 |
| 1:0:2348:A:H61 | 1:0:2361:G:N2 | 2.16 | 0.44 |
| 1:0:2498:U:H3' | 1:0:2498:U:P | 2.58 | 0.44 |
| 1:0:2498:U:H5' | 1:0:2546:G:N2 | 2.33 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-------------------|--------------------------|-------------------|
| 1:0:2622:G:H2' | 1:0:2623:A:O4' | 2.18 | 0.44 |
| 1:0:2828:C:H2' | 1:0:2829:A:H8 | 1.83 | 0.44 |
| 1:0:16:G:C2' | 1:0:17:G:H5' | 2.48 | 0.43 |
| 1:0:52:A:C2' | 1:0:53:G:H5' | 2.48 | 0.43 |
| 1:0:326:A:H2' | 1:0:327:C:O4' | 2.18 | 0.43 |
| 1:0:810:U:H2' | 1:0:811:G:C8 | 2.52 | 0.43 |
| 1:0:1013:G:H22 | 1:0:1165:G:H1' | 1.83 | 0.43 |
| 1:0:1034:U:H2' | 1:0:1035:G:H5' | 2.00 | 0.43 |
| 1:0:1703:C:H2' | 1:0:1704:G:O4' | 2.18 | 0.43 |
| 1:0:1821:A:H5'' | 1:0:1822:C:H5 | 1.82 | 0.43 |
| 1:0:1904:G:H2' | 1:0:1905:G:C8 | 2.53 | 0.43 |
| 1:0:2043:A:H1' | 1:0:2481:G:O4' | 2.17 | 0.43 |
| 1:0:2387:U:H2' | 1:0:2388:G:H5' | 2.00 | 0.43 |
| 1:0:2709:C:H2' | 1:0:2710:C:C6 | 2.53 | 0.43 |
| 1:0:2824:C:H1' | 1:0:2843:A:C4 | 2.53 | 0.43 |
| 1:0:436:A:C4' | 1:0:437:G:OP1 | 2.65 | 0.43 |
| 1:0:451:A:H2' | 1:0:452:G:O4' | 2.18 | 0.43 |
| 1:0:504:G:O2' | 1:0:505:G:H5' | 2.18 | 0.43 |
| 1:0:568:G:H2' | 1:0:569:C:O4' | 2.18 | 0.43 |
| 1:0:587:A:C3' | 1:0:588:G:H5'' | 2.48 | 0.43 |
| 1:0:855:G:H2' | 1:0:856:A:O4' | 2.18 | 0.43 |
| 1:0:1445:A:H2' | 1:0:1446:U:O4' | 2.19 | 0.43 |
| 1:0:1474:A:C2' | 1:0:1475:U:H5' | 2.47 | 0.43 |
| 1:0:2002:A:H61 | 1:0:2018:G:H22 | 1.65 | 0.43 |
| 1:0:2082:C:H2' | 1:0:2083:G:H8 | 1.83 | 0.43 |
| 1:0:2875:C:O2' | 1:0:2876:C:H5' | 2.17 | 0.43 |
| 1:0:203:G:O2' | 1:0:204:A:H5' | 2.18 | 0.43 |
| 1:0:321:A:N1 | 1:0:323:G:H1' | 2.34 | 0.43 |
| 1:0:600:G:O6 | 1:0:602:C:N4 | 2.51 | 0.43 |
| 1:0:1052:C:H2' | 1:0:1053:G:C8 | 2.53 | 0.43 |
| 1:0:1223:G:H5' | 1:0:1225:G:H5' | 1.99 | 0.43 |
| 1:0:1388:C:H2' | 1:0:1389:C:C6 | 2.53 | 0.43 |
| 1:0:2015:G:N3 | 1:0:2015:G:C2' | 2.81 | 0.43 |
| 1:0:2041:A:H61 | 2:0:2881:TEL:H581 | 1.78 | 0.43 |
| 1:0:2409:A:N7 | 1:0:2410:U:H5 | 2.16 | 0.43 |
| 1:0:2792:C:C3' | 1:0:2793:G:H5'' | 2.48 | 0.43 |
| 1:0:2814:G:H2' | 1:0:2815:C:H6 | 1.75 | 0.43 |
| 1:0:32:C:H2' | 1:0:33:C:O4' | 2.18 | 0.43 |
| 1:0:190:A:H2' | 1:0:191:G:H8 | 1.82 | 0.43 |
| 1:0:317:U:N3 | 1:0:321:A:N6 | 2.49 | 0.43 |
| 1:0:320:A:N7 | 1:0:341:A:N7 | 2.67 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-----------------|--------------------------|-------------------|
| 1:0:490:A:C2' | 1:0:491:A:H5' | 2.47 | 0.43 |
| 1:0:815:A:H2' | 1:0:816:U:O4' | 2.19 | 0.43 |
| 1:0:1625:A:N3 | 1:0:1625:A:C2' | 2.80 | 0.43 |
| 1:0:1779:C:O5' | 1:0:1779:C:H6 | 2.01 | 0.43 |
| 1:0:1779:C:O2' | 1:0:1780:A:H5' | 2.18 | 0.43 |
| 1:0:1838:G:H2' | 1:0:1839:A:O4' | 2.19 | 0.43 |
| 1:0:2299:A:O2' | 1:0:2312:A:N6 | 2.52 | 0.43 |
| 1:0:2343:C:O2' | 1:0:2344:G:H5' | 2.18 | 0.43 |
| 1:0:2377:U:H6 | 1:0:2377:U:O5' | 2.01 | 0.43 |
| 1:0:2817:A:N1 | 1:0:2851:G:C6 | 2.86 | 0.43 |
| 1:0:202:A:O2' | 1:0:203:G:H5' | 2.18 | 0.43 |
| 1:0:700:C:O4' | 1:0:801:A:O4' | 2.36 | 0.43 |
| 1:0:782:U:HO2' | 1:0:1392:U:H6 | 1.65 | 0.43 |
| 1:0:788:G:H2' | 1:0:807:A:C4 | 2.53 | 0.43 |
| 1:0:1610:A:H2' | 1:0:1611:U:C6 | 2.54 | 0.43 |
| 1:0:1984:A:H2' | 1:0:1985:G:H8 | 1.82 | 0.43 |
| 1:0:2493:U:O2' | 1:0:2494:C:H5' | 2.18 | 0.43 |
| 1:0:201:G:N2 | 1:0:202:A:C4 | 2.86 | 0.43 |
| 1:0:219:G:C2' | 1:0:231:G:H1 | 2.30 | 0.43 |
| 1:0:457:C:H5' | 1:0:1261:G:O6 | 2.19 | 0.43 |
| 1:0:516:G:H2' | 1:0:517:A:OP2 | 2.19 | 0.43 |
| 1:0:935:C:H2' | 1:0:936:A:H8 | 1.83 | 0.43 |
| 1:0:935:C:O2' | 1:0:936:A:H5' | 2.19 | 0.43 |
| 1:0:952:A:HO2' | 1:0:1204:G:H4' | 1.84 | 0.43 |
| 1:0:1029:C:H41 | 1:0:1153:A:H61 | 1.56 | 0.43 |
| 1:0:1055:A:H61 | 1:0:1122:A:C5' | 2.31 | 0.43 |
| 1:0:1094:C:H2' | 1:0:1096:A:OP2 | 2.19 | 0.43 |
| 1:0:1154:A:C8 | 1:0:1154:A:H3' | 2.54 | 0.43 |
| 1:0:1217:U:O2' | 1:0:1218:C:H5' | 2.19 | 0.43 |
| 1:0:1274:C:O5' | 1:0:1274:C:H6 | 2.02 | 0.43 |
| 1:0:1358:C:C2' | 1:0:1359:G:H5' | 2.47 | 0.43 |
| 1:0:1654:A:H4' | 1:0:2690:A:O2' | 2.19 | 0.43 |
| 1:0:1715:A:O2' | 1:0:1716:G:H5'' | 2.18 | 0.43 |
| 1:0:1715:A:O2' | 1:0:1716:G:C5' | 2.67 | 0.43 |
| 1:0:1922:U:O2' | 1:0:2571:G:C1' | 2.66 | 0.43 |
| 1:0:2178:U:H2' | 1:0:2179:C:C6 | 2.53 | 0.43 |
| 1:0:82:G:O2' | 1:0:83:A:H5' | 2.19 | 0.43 |
| 1:0:486:U:OP2 | 1:0:486:U:H6 | 2.01 | 0.43 |
| 1:0:738:G:H2' | 1:0:739:G:O4' | 2.18 | 0.43 |
| 1:0:915:C:H2' | 1:0:916:U:C6 | 2.53 | 0.43 |
| 1:0:1325:U:H5' | 1:0:1326:U:H6 | 1.82 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|----------------|--------------------------|-------------------|
| 1:0:1370:U:O2' | 1:0:1371:G:H5' | 2.18 | 0.43 |
| 1:0:1900:U:H3' | 1:0:1901:A:H8 | 1.82 | 0.43 |
| 1:0:2176:U:C2' | 1:0:2177:U:H5' | 2.49 | 0.43 |
| 1:0:2240:C:C1' | 1:0:2367:A:H1' | 2.45 | 0.43 |
| 1:0:2694:G:H8 | 1:0:2694:G:OP1 | 2.01 | 0.43 |
| 1:0:139:A:O2' | 1:0:140:G:H5' | 2.19 | 0.43 |
| 1:0:221:A:C2' | 1:0:222:G:H5' | 2.49 | 0.43 |
| 1:0:322:A:C6 | 1:0:339:U:O2 | 2.72 | 0.43 |
| 1:0:744:C:H2' | 1:0:745:C:C6 | 2.53 | 0.43 |
| 1:0:1089:C:C2 | 1:0:1099:A:H4' | 2.54 | 0.43 |
| 1:0:1444:C:H2' | 1:0:1445:A:C8 | 2.54 | 0.43 |
| 1:0:1458:A:C3' | 1:0:1459:U:C5' | 2.95 | 0.43 |
| 1:0:1566:G:H2' | 1:0:1567:A:C8 | 2.53 | 0.43 |
| 1:0:1625:A:H1' | 1:0:1632:A:H1' | 2.00 | 0.43 |
| 1:0:1913:G:C2' | 1:0:1914:U:OP2 | 2.67 | 0.43 |
| 1:0:2082:C:H2' | 1:0:2083:G:O4' | 2.19 | 0.43 |
| 1:0:2790:C:H2' | 1:0:2791:C:H6 | 1.84 | 0.43 |
| 1:0:367:G:H2' | 1:0:368:A:H5'' | 2.00 | 0.43 |
| 1:0:695:G:N2 | 1:0:809:C:C2 | 2.86 | 0.43 |
| 1:0:830:C:C5 | 1:0:831:G:N7 | 2.86 | 0.43 |
| 1:0:942:U:H2' | 1:0:943:U:C5' | 2.49 | 0.43 |
| 1:0:1054:C:H2' | 1:0:1055:A:H5' | 2.00 | 0.43 |
| 1:0:1071:U:C2' | 1:0:1072:U:H5' | 2.47 | 0.43 |
| 1:0:1083:C:N4 | 1:0:1104:G:O6 | 2.51 | 0.43 |
| 1:0:1088:A:O2' | 1:0:1089:C:H5' | 2.19 | 0.43 |
| 1:0:1501:C:H2' | 1:0:1502:G:O4' | 2.18 | 0.43 |
| 1:0:1686:A:N3 | 1:0:1686:A:C2' | 2.81 | 0.43 |
| 1:0:1790:G:HO2' | 1:0:1791:C:H6 | 1.59 | 0.43 |
| 1:0:1908:C:C2' | 1:0:1909:U:H4' | 2.40 | 0.43 |
| 1:0:1912:G:N3 | 1:0:1912:G:C2' | 2.78 | 0.43 |
| 1:0:2028:C:H2' | 1:0:2029:G:O5' | 2.17 | 0.43 |
| 1:0:2033:C:H2' | 1:0:2034:A:C1' | 2.48 | 0.43 |
| 1:0:2107:G:O2' | 1:0:2108:G:H5' | 2.19 | 0.43 |
| 1:0:2418:A:H5' | 1:0:2420:C:OP2 | 2.18 | 0.43 |
| 1:0:2492:G:H2' | 1:0:2493:U:O4' | 2.18 | 0.43 |
| 1:0:75:C:O5' | 1:0:75:C:H6 | 2.01 | 0.43 |
| 1:0:90:G:H3' | 1:0:91:A:C5' | 2.48 | 0.43 |
| 1:0:128:C:C3' | 1:0:129:A:H5'' | 2.48 | 0.43 |
| 1:0:202:A:N6 | 1:0:432:C:OP2 | 2.37 | 0.43 |
| 1:0:596:C:C1' | 1:0:684:C:O4' | 2.63 | 0.43 |
| 1:0:750:C:H2' | 1:0:751:G:O4' | 2.18 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|----------------|--------------------------|-------------------|
| 1:0:797:A:O2' | 1:0:798:G:H8 | 2.02 | 0.43 |
| 1:0:807:A:C5 | 1:0:808:C:C4 | 3.07 | 0.43 |
| 1:0:930:A:N3 | 1:0:930:A:O4' | 2.51 | 0.43 |
| 1:0:957:G:O2' | 1:0:958:G:H5' | 2.19 | 0.43 |
| 1:0:1125:G:H2' | 1:0:1126:A:H8 | 1.81 | 0.43 |
| 1:0:1204:G:H2' | 1:0:1205:G:H8 | 1.84 | 0.43 |
| 1:0:1278:A:O2' | 1:0:1279:G:P | 2.76 | 0.43 |
| 1:0:1582:A:C3' | 1:0:1583:A:C5' | 2.93 | 0.43 |
| 1:0:1738:U:O2' | 1:0:1739:G:H5' | 2.19 | 0.43 |
| 1:0:1937:G:N3 | 1:0:2530:C:C5' | 2.82 | 0.43 |
| 1:0:2123:G:H2' | 1:0:2124:C:C6 | 2.54 | 0.43 |
| 1:0:2196:U:H2' | 1:0:2197:U:O4' | 2.19 | 0.43 |
| 1:0:2519:C:C5 | 1:0:2520:A:N7 | 2.87 | 0.43 |
| 1:0:102:C:H2' | 1:0:103:U:O4' | 2.19 | 0.42 |
| 1:0:174:A:O2' | 1:0:2223:U:OP1 | 2.29 | 0.42 |
| 1:0:322:A:C2 | 1:0:346:C:C4 | 3.07 | 0.42 |
| 1:0:481:A:H3' | 1:0:482:A:C8 | 2.54 | 0.42 |
| 1:0:515:A:H2' | 1:0:516:G:H5' | 2.00 | 0.42 |
| 1:0:860:U:O5' | 1:0:860:U:H6 | 2.02 | 0.42 |
| 1:0:880:C:OP1 | 1:0:881:U:OP2 | 2.37 | 0.42 |
| 1:0:1316:G:C4 | 1:0:1317:G:C8 | 3.06 | 0.42 |
| 1:0:1630:A:H2' | 1:0:1631:C:H5' | 2.01 | 0.42 |
| 1:0:1655:C:H2' | 1:0:1656:U:O4' | 2.19 | 0.42 |
| 1:0:1975:G:HO2' | 1:0:1976:U:P | 2.42 | 0.42 |
| 1:0:2023:C:H2' | 1:0:2024:U:C6 | 2.54 | 0.42 |
| 1:0:2571:G:H2' | 1:0:2572:U:C6 | 2.54 | 0.42 |
| 1:0:2593:A:C2' | 1:0:2594:U:H5' | 2.48 | 0.42 |
| 1:0:193:A:N7 | 1:0:444:U:N3 | 2.67 | 0.42 |
| 1:0:434:C:C2' | 1:0:435:A:OP2 | 2.66 | 0.42 |
| 1:0:469:G:O2' | 1:0:470:U:H5 | 2.02 | 0.42 |
| 1:0:697:G:C6 | 1:0:788:G:N7 | 2.88 | 0.42 |
| 1:0:931:G:H22 | 1:0:2247:A:C5' | 2.32 | 0.42 |
| 1:0:956:A:O2' | 1:0:957:G:OP1 | 2.36 | 0.42 |
| 1:0:1090:C:O2' | 1:0:1091:C:H5' | 2.18 | 0.42 |
| 1:0:1091:C:O2' | 1:0:1092:U:H5' | 2.19 | 0.42 |
| 1:0:1389:C:H2' | 1:0:1390:G:O4' | 2.19 | 0.42 |
| 1:0:1685:A:O2' | 1:0:1686:A:P | 2.77 | 0.42 |
| 1:0:1730:G:O2' | 1:0:1731:C:H5' | 2.20 | 0.42 |
| 1:0:1930:C:H2' | 1:0:1931:G:H5' | 2.01 | 0.42 |
| 1:0:2194:A:C3' | 1:0:2195:C:C5' | 2.95 | 0.42 |
| 1:0:2495:G:C2' | 1:0:2496:C:O4' | 2.65 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:0:2529:G:H2' | 1:0:2530:C:H5' | 2.01 | 0.42 |
| 1:0:2584:U:H2' | 1:0:2585:C:C6 | 2.54 | 0.42 |
| 1:0:2763:U:O2' | 1:0:2764:U:H5' | 2.18 | 0.42 |
| 1:0:2792:C:H2' | 1:0:2793:G:O4' | 2.18 | 0.42 |
| 1:0:159:A:O2' | 1:0:160:C:H5' | 2.18 | 0.42 |
| 1:0:746:G:OP2 | 1:0:774:A:N6 | 2.44 | 0.42 |
| 1:0:789:G:H2' | 1:0:790:A:OP2 | 2.18 | 0.42 |
| 1:0:987:G:C5' | 1:0:1167:A:N6 | 2.81 | 0.42 |
| 1:0:1313:U:N3 | 1:0:1651:U:H1' | 2.34 | 0.42 |
| 1:0:1419:G:O2' | 1:0:1420:A:H5' | 2.19 | 0.42 |
| 1:0:1473:U:H5' | 1:0:1474:A:C8 | 2.54 | 0.42 |
| 1:0:1485:U:O2 | 1:0:1538:A:H2 | 2.03 | 0.42 |
| 1:0:1611:U:O2' | 1:0:1612:U:H5' | 2.18 | 0.42 |
| 1:0:1624:A:N6 | 1:0:1627:C:C2 | 2.87 | 0.42 |
| 1:0:2161:C:H2' | 1:0:2162:C:H5 | 1.85 | 0.42 |
| 1:0:2244:C:N3 | 1:0:2245:A:N6 | 2.68 | 0.42 |
| 1:0:2506:C:O2' | 1:0:2507:U:H5' | 2.17 | 0.42 |
| 1:0:2549:G:H2' | 1:0:2550:C:C5' | 2.49 | 0.42 |
| 1:0:2867:G:HO2' | 1:0:2868:G:P | 2.42 | 0.42 |
| 1:0:173:A:H61 | 1:0:844:G:H1' | 1.83 | 0.42 |
| 1:0:177:U:OP2 | 1:0:178:C:OP2 | 2.37 | 0.42 |
| 1:0:747:A:O2' | 1:0:748:A:H5' | 2.19 | 0.42 |
| 1:0:1248:G:N1 | 1:0:1249:G:N2 | 2.68 | 0.42 |
| 1:0:1461:C:H2' | 1:0:1462:C:C6 | 2.54 | 0.42 |
| 1:0:2276:C:H1' | 1:0:2301:A:N3 | 2.35 | 0.42 |
| 1:0:2278:A:H2' | 1:0:2279:G:C8 | 2.55 | 0.42 |
| 1:0:2732:C:H3' | 1:0:2733:A:C8 | 2.54 | 0.42 |
| 1:0:40:U:H2' | 1:0:41:G:H8 | 1.84 | 0.42 |
| 1:0:192:G:HO2' | 1:0:193:A:P | 2.42 | 0.42 |
| 1:0:195:A:H2' | 1:0:196:A:C5' | 2.50 | 0.42 |
| 1:0:195:A:H61 | 1:0:212:U:H4' | 1.84 | 0.42 |
| 1:0:341:A:C2 | 1:0:1223:G:N7 | 2.88 | 0.42 |
| 1:0:431:G:C2 | 1:0:432:C:C5 | 3.07 | 0.42 |
| 1:0:1154:A:H3' | 1:0:1154:A:H8 | 1.85 | 0.42 |
| 1:0:1440:G:H1' | 1:0:1588:A:H61 | 1.84 | 0.42 |
| 1:0:1641:C:H2' | 1:0:1642:G:C5' | 2.50 | 0.42 |
| 1:0:1791:C:H2' | 1:0:1792:C:C5' | 2.35 | 0.42 |
| 1:0:2792:C:H2' | 1:0:2793:G:H5'' | 2.02 | 0.42 |
| 1:0:2836:U:O2' | 1:0:2837:G:H5' | 2.19 | 0.42 |
| 1:0:988:G:N3 | 1:0:1012:A:H2 | 2.18 | 0.42 |
| 1:0:1073:G:H2' | 1:0:1074:G:C5' | 2.48 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-----------------|--------------------------|-------------------|
| 1:0:1194:U:O2' | 1:0:1195:U:O5' | 2.38 | 0.42 |
| 1:0:1312:G:C4' | 1:0:1314:A:N3 | 2.83 | 0.42 |
| 1:0:1365:U:H1' | 1:0:1586:A:C2 | 2.55 | 0.42 |
| 1:0:1383:C:H2' | 1:0:1384:G:O4' | 2.20 | 0.42 |
| 1:0:1459:U:O4 | 1:0:1476:G:H5'' | 2.19 | 0.42 |
| 1:0:1729:C:H2' | 1:0:1730:G:H8 | 1.83 | 0.42 |
| 1:0:2109:A:H2' | 1:0:2110:G:H8 | 1.85 | 0.42 |
| 1:0:2274:C:H2' | 1:0:2275:U:H5'' | 1.99 | 0.42 |
| 1:0:2505:G:N1 | 1:0:2517:C:O2 | 2.52 | 0.42 |
| 1:0:2526:U:C5 | 1:0:2545:A:N7 | 2.88 | 0.42 |
| 1:0:76:C:H2' | 1:0:77:C:C6 | 2.55 | 0.42 |
| 1:0:91:A:H2' | 1:0:92:U:C6 | 2.54 | 0.42 |
| 1:0:146:C:H2' | 1:0:147:G:C8 | 2.54 | 0.42 |
| 1:0:172:A:N1 | 1:0:178:C:N3 | 2.68 | 0.42 |
| 1:0:230:C:H2' | 1:0:231:G:O4' | 2.19 | 0.42 |
| 1:0:458:G:H4' | 1:0:461:A:C4 | 2.54 | 0.42 |
| 1:0:790:A:O2' | 1:0:791:G:H5' | 2.20 | 0.42 |
| 1:0:1017:C:N3 | 1:0:1148:G:N1 | 2.68 | 0.42 |
| 1:0:1300:A:N3 | 1:0:1300:A:H2' | 2.34 | 0.42 |
| 1:0:1717:A:O2' | 1:0:1757:C:OP1 | 2.27 | 0.42 |
| 1:0:1872:A:H1' | 1:0:2070:G:H5' | 2.02 | 0.42 |
| 1:0:2446:C:H2' | 1:0:2447:G:C1' | 2.49 | 0.42 |
| 1:0:2462:C:H2' | 1:0:2463:G:H5' | 2.02 | 0.42 |
| 1:0:2490:U:H2' | 1:0:2491:C:C6 | 2.54 | 0.42 |
| 1:0:2539:C:N4 | 1:0:2540:A:N6 | 2.68 | 0.42 |
| 1:0:73:A:H2' | 1:0:74:G:OP2 | 2.20 | 0.42 |
| 1:0:238:G:O4' | 1:0:618:A:H2 | 2.03 | 0.42 |
| 1:0:298:C:H2' | 1:0:299:C:C6 | 2.55 | 0.42 |
| 1:0:458:G:H4' | 1:0:461:A:N3 | 2.35 | 0.42 |
| 1:0:528:G:H2' | 1:0:529:U:C6 | 2.54 | 0.42 |
| 1:0:1011:A:N6 | 1:0:1166:A:C8 | 2.88 | 0.42 |
| 1:0:1108:U:H2' | 1:0:1109:A:C5' | 2.39 | 0.42 |
| 1:0:1287:A:C2 | 1:0:1661:C:O2' | 2.73 | 0.42 |
| 1:0:1337:G:O2' | 1:0:1632:A:C6 | 2.72 | 0.42 |
| 1:0:1571:G:H2' | 1:0:1572:C:O4' | 2.20 | 0.42 |
| 1:0:1894:U:H3 | 1:0:1901:A:H61 | 1.66 | 0.42 |
| 1:0:346:C:O2' | 1:0:347:C:H5' | 2.19 | 0.42 |
| 1:0:387:A:O5' | 1:0:436:A:N7 | 2.53 | 0.42 |
| 1:0:461:A:H61 | 1:0:466:A:N6 | 2.17 | 0.42 |
| 1:0:742:G:N2 | 1:0:1766:U:C1' | 2.83 | 0.42 |
| 1:0:879:A:H2' | 1:0:880:C:O5' | 2.20 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:0:1029:C:N4 | 1:0:1153:A:C6 | 2.85 | 0.42 |
| 1:0:1125:G:H2' | 1:0:1126:A:O4' | 2.18 | 0.42 |
| 1:0:1550:C:C2' | 1:0:1551:U:O5' | 2.68 | 0.42 |
| 1:0:1749:G:H2' | 1:0:1750:A:OP1 | 2.19 | 0.42 |
| 1:0:2087:U:H2' | 1:0:2088:U:C6 | 2.54 | 0.42 |
| 1:0:2301:A:C2' | 1:0:2302:G:H5' | 2.50 | 0.42 |
| 1:0:2538:C:H2' | 1:0:2539:C:H6 | 1.85 | 0.42 |
| 1:0:174:A:H2' | 1:0:175:C:O4' | 2.20 | 0.42 |
| 1:0:332:C:H5'' | 1:0:333:A:OP2 | 2.20 | 0.42 |
| 1:0:577:U:H5' | 1:0:956:A:H62 | 1.85 | 0.42 |
| 1:0:801:A:HO2' | 1:0:802:A:P | 2.42 | 0.42 |
| 1:0:805:G:O6 | 1:0:2419:C:O4' | 2.38 | 0.42 |
| 1:0:914:C:H2' | 1:0:915:C:H6 | 1.83 | 0.42 |
| 1:0:1205:G:O2' | 1:0:1206:G:H5' | 2.20 | 0.42 |
| 1:0:1271:C:H2' | 1:0:1272:G:C8 | 2.55 | 0.42 |
| 1:0:1514:C:OP2 | 1:0:1593:C:H5'' | 2.19 | 0.42 |
| 1:0:1542:G:N2 | 1:0:1561:A:H62 | 2.18 | 0.42 |
| 1:0:1552:C:C2' | 1:0:1553:G:H5' | 2.50 | 0.42 |
| 1:0:1770:U:H6 | 1:0:1770:U:H3' | 1.85 | 0.42 |
| 1:0:1883:A:H1' | 1:0:1953:A:C8 | 2.55 | 0.42 |
| 1:0:1900:U:O2' | 1:0:1946:U:C5' | 2.68 | 0.42 |
| 1:0:1922:U:HO2' | 1:0:2571:G:C1' | 2.33 | 0.42 |
| 1:0:2696:A:H2' | 1:0:2697:G:C8 | 2.53 | 0.42 |
| 1:0:2756:A:N6 | 1:0:2762:G:C4 | 2.88 | 0.42 |
| 1:0:180:C:O5' | 1:0:180:C:H6 | 2.02 | 0.41 |
| 1:0:200:A:H1' | 1:0:432:C:N3 | 2.35 | 0.41 |
| 1:0:244:C:H2' | 1:0:245:C:C5' | 2.41 | 0.41 |
| 1:0:310:A:C4 | 1:0:333:A:N6 | 2.88 | 0.41 |
| 1:0:2034:A:N6 | 1:0:2593:A:C5 | 2.88 | 0.41 |
| 1:0:2309:G:O2' | 1:0:2310:G:H5' | 2.19 | 0.41 |
| 1:0:2526:U:H2' | 1:0:2527:G:H8 | 1.81 | 0.41 |
| 1:0:42:G:H2' | 1:0:43:A:O4' | 2.19 | 0.41 |
| 1:0:73:A:O3' | 1:0:74:G:C4' | 2.66 | 0.41 |
| 1:0:298:C:H2' | 1:0:299:C:H6 | 1.83 | 0.41 |
| 1:0:367:G:C2' | 1:0:368:A:H5'' | 2.49 | 0.41 |
| 1:0:439:C:H5'' | 1:0:440:U:C5 | 2.56 | 0.41 |
| 1:0:524:A:H2' | 1:0:525:A:C8 | 2.55 | 0.41 |
| 1:0:634:G:O2' | 1:0:635:C:H5' | 2.20 | 0.41 |
| 1:0:805:G:H8 | 1:0:805:G:H5' | 1.85 | 0.41 |
| 1:0:817:A:H2' | 1:0:819:C:N4 | 2.35 | 0.41 |
| 1:0:984:A:H2 | 1:0:1200:G:N1 | 2.15 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|------------------|--------------------------|-------------------|
| 1:0:1312:G:N2 | 1:0:1657:A:H5' | 2.35 | 0.41 |
| 1:0:1354:A:N6 | 1:0:1407:G:H1 | 2.14 | 0.41 |
| 1:0:1440:G:H3' | 1:0:1441:A:C5' | 2.50 | 0.41 |
| 1:0:1548:U:H2' | 1:0:1549:C:H6 | 1.85 | 0.41 |
| 1:0:1635:G:H2' | 1:0:1635:G:N3 | 2.33 | 0.41 |
| 1:0:1899:A:O5' | 1:0:1899:A:H8 | 2.03 | 0.41 |
| 1:0:1900:U:O2' | 1:0:1946:U:H5'' | 2.19 | 0.41 |
| 1:0:1975:G:N2 | 1:0:1979:C:H5 | 2.13 | 0.41 |
| 1:0:2038:C:OP1 | 1:0:2039:G:H4' | 2.20 | 0.41 |
| 1:0:2326:C:N4 | 1:0:2350:G:N2 | 2.68 | 0.41 |
| 1:0:2491:C:H42 | 1:0:2553:G:H1 | 1.67 | 0.41 |
| 1:0:2505:G:N1 | 1:0:2517:C:C2 | 2.88 | 0.41 |
| 1:0:321:A:H4' | 1:0:322:A:N7 | 2.36 | 0.41 |
| 1:0:346:C:O2 | 1:0:346:C:C2' | 2.68 | 0.41 |
| 1:0:477:A:H1' | 1:0:696:U:O4' | 2.20 | 0.41 |
| 1:0:610:G:N2 | 1:0:614:G:O3' | 2.53 | 0.41 |
| 1:0:847:C:H41 | 1:0:955:G:N2 | 2.18 | 0.41 |
| 1:0:980:G:H2' | 1:0:981:C:O4' | 2.20 | 0.41 |
| 1:0:1159:U:O2' | 1:0:1160:C:H5' | 2.20 | 0.41 |
| 1:0:1550:C:H2' | 1:0:1551:U:O5' | 2.20 | 0.41 |
| 1:0:1750:A:C8 | 1:0:2675:U:H1' | 2.56 | 0.41 |
| 1:0:1762:C:O2' | 1:0:1777:A:O4' | 2.37 | 0.41 |
| 1:0:1872:A:H2' | 1:0:1873:A:C8 | 2.56 | 0.41 |
| 1:0:1873:A:H4' | 1:0:2069:U:H4' | 2.02 | 0.41 |
| 1:0:2015:G:N3 | 1:0:2015:G:H2' | 2.34 | 0.41 |
| 1:0:2281:C:H6 | 1:0:2281:C:O5' | 2.04 | 0.41 |
| 1:0:2484:G:H5' | 2:0:2881:TEL:C57 | 2.48 | 0.41 |
| 1:0:2496:C:C4 | 1:0:2521:A:N6 | 2.88 | 0.41 |
| 1:0:2741:G:H2' | 1:0:2742:G:C8 | 2.55 | 0.41 |
| 1:0:16:G:HO2' | 1:0:17:G:H5' | 1.80 | 0.41 |
| 1:0:58:C:O4' | 1:0:72:A:C8 | 2.74 | 0.41 |
| 1:0:114:C:O2' | 1:0:115:G:H5' | 2.21 | 0.41 |
| 1:0:593:C:O5' | 1:0:593:C:H6 | 2.04 | 0.41 |
| 1:0:718:A:N6 | 1:0:739:G:O2' | 2.52 | 0.41 |
| 1:0:1078:A:H2' | 1:0:1079:G:C8 | 2.49 | 0.41 |
| 1:0:1083:C:C4 | 1:0:1104:G:O6 | 2.73 | 0.41 |
| 1:0:1166:A:H2' | 1:0:1167:A:H5'' | 2.02 | 0.41 |
| 1:0:1211:G:N2 | 1:0:1263:G:C4 | 2.88 | 0.41 |
| 1:0:1221:C:H2' | 1:0:1222:G:C8 | 2.55 | 0.41 |
| 1:0:1684:G:H2' | 1:0:1685:A:OP2 | 2.20 | 0.41 |
| 1:0:1739:G:H2' | 1:0:1740:G:H8 | 1.85 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|----------------|--------------------------|-------------------|
| 1:0:1783:G:O2' | 1:0:1784:C:H5' | 2.20 | 0.41 |
| 1:0:1945:C:O2' | 1:0:1946:U:C6 | 2.73 | 0.41 |
| 1:0:2698:G:H2' | 1:0:2699:G:O4' | 2.21 | 0.41 |
| 1:0:81:C:H4' | 1:0:307:C:H5' | 2.01 | 0.41 |
| 1:0:197:G:OP2 | 1:0:439:C:OP2 | 2.38 | 0.41 |
| 1:0:369:C:O2' | 1:0:370:U:H5' | 2.20 | 0.41 |
| 1:0:742:G:N2 | 1:0:1766:U:N1 | 2.68 | 0.41 |
| 1:0:751:G:N3 | 1:0:752:G:H1' | 2.35 | 0.41 |
| 1:0:779:U:H6 | 1:0:779:U:O5' | 2.03 | 0.41 |
| 1:0:781:G:H2' | 1:0:782:U:C6 | 2.56 | 0.41 |
| 1:0:846:A:H2' | 1:0:847:C:H6 | 1.84 | 0.41 |
| 1:0:1316:G:C6 | 1:0:1317:G:N7 | 2.88 | 0.41 |
| 1:0:1454:U:H2' | 1:0:1455:C:C6 | 2.55 | 0.41 |
| 1:0:1467:U:HO2' | 1:0:2681:A:N6 | 2.18 | 0.41 |
| 1:0:1685:A:N1 | 1:0:1691:G:H1' | 2.36 | 0.41 |
| 1:0:1723:U:H6 | 1:0:1723:U:O5' | 2.03 | 0.41 |
| 1:0:2061:C:C5' | 1:0:2413:A:H4' | 2.50 | 0.41 |
| 1:0:2433:G:O6 | 1:0:2477:C:N4 | 2.54 | 0.41 |
| 1:0:2871:U:H2' | 1:0:2872:U:C6 | 2.55 | 0.41 |
| 1:0:197:G:C1' | 1:0:211:U:H1' | 2.45 | 0.41 |
| 1:0:346:C:C2' | 1:0:347:C:H5' | 2.51 | 0.41 |
| 1:0:459:A:N7 | 1:0:484:G:C5 | 2.89 | 0.41 |
| 1:0:462:G:H8 | 1:0:462:G:O5' | 2.03 | 0.41 |
| 1:0:474:G:C6 | 1:0:478:G:O6 | 2.73 | 0.41 |
| 1:0:919:U:C4 | 1:0:920:G:N7 | 2.88 | 0.41 |
| 1:0:1191:G:O2' | 1:0:1192:A:H5' | 2.20 | 0.41 |
| 1:0:1462:C:O2' | 1:0:1560:A:H1' | 2.19 | 0.41 |
| 1:0:1545:G:N2 | 1:0:1558:C:O2 | 2.54 | 0.41 |
| 1:0:1972:G:H2' | 1:0:1973:C:O4' | 2.21 | 0.41 |
| 1:0:2226:A:H2' | 1:0:2227:C:C6 | 2.55 | 0.41 |
| 1:0:2314:A:H1' | 1:0:2315:A:N7 | 2.35 | 0.41 |
| 1:0:2514:G:H2' | 1:0:2515:G:H8 | 1.85 | 0.41 |
| 1:0:9:U:O2' | 1:0:10:A:H5' | 2.20 | 0.41 |
| 1:0:357:A:H3' | 1:0:358:C:H5' | 2.02 | 0.41 |
| 1:0:774:A:H8 | 1:0:774:A:O5' | 2.04 | 0.41 |
| 1:0:833:A:H1' | 1:0:954:U:O2' | 2.21 | 0.41 |
| 1:0:1033:G:O2' | 1:0:1035:G:N7 | 2.54 | 0.41 |
| 1:0:1139:A:N6 | 1:0:2497:A:H61 | 2.16 | 0.41 |
| 1:0:1273:G:H2' | 1:0:1274:C:C6 | 2.56 | 0.41 |
| 1:0:1588:A:H2' | 1:0:1589:G:C8 | 2.50 | 0.41 |
| 1:0:1629:G:C6 | 1:0:1633:C:N4 | 2.89 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:0:1761:G:C2' | 1:0:1762:C:H5' | 2.49 | 0.41 |
| 1:0:2018:G:HO2' | 1:0:2019:C:P | 2.39 | 0.41 |
| 1:0:2034:A:H2 | 1:0:2035:G:O6 | 2.03 | 0.41 |
| 1:0:2302:G:H2' | 1:0:2303:C:O4' | 2.19 | 0.41 |
| 1:0:2382:C:N3 | 1:0:2393:G:N2 | 2.54 | 0.41 |
| 1:0:2684:A:H3' | 1:0:2685:A:H8 | 1.85 | 0.41 |
| 1:0:162:C:H5' | 1:0:195:A:C1' | 2.41 | 0.41 |
| 1:0:387:A:N6 | 1:0:388:G:N2 | 2.69 | 0.41 |
| 1:0:545:C:N4 | 1:0:546:A:N6 | 2.68 | 0.41 |
| 1:0:677:G:C2' | 1:0:678:G:H5' | 2.50 | 0.41 |
| 1:0:922:A:H2' | 1:0:923:A:C8 | 2.56 | 0.41 |
| 1:0:1219:C:H2' | 1:0:1220:G:O5' | 2.21 | 0.41 |
| 1:0:1260:A:C2' | 1:0:1261:G:O5' | 2.68 | 0.41 |
| 1:0:1341:G:H2' | 1:0:1343:C:C5 | 2.55 | 0.41 |
| 1:0:1698:C:H2' | 1:0:1753:A:H2' | 2.01 | 0.41 |
| 1:0:1755:G:H2' | 1:0:1756:C:C6 | 2.56 | 0.41 |
| 1:0:1809:G:H2' | 1:0:1810:U:O4' | 2.21 | 0.41 |
| 1:0:2633:A:C5' | 1:0:2634:G:OP1 | 2.68 | 0.41 |
| 1:0:26:G:C6 | 1:0:27:G:C2 | 3.09 | 0.41 |
| 1:0:122:G:N2 | 1:0:124:A:H4' | 2.36 | 0.41 |
| 1:0:200:A:C6 | 1:0:435:A:N7 | 2.88 | 0.41 |
| 1:0:200:A:H4' | 1:0:432:C:O2 | 2.21 | 0.41 |
| 1:0:306:G:H2' | 1:0:307:C:C6 | 2.56 | 0.41 |
| 1:0:340:G:C5' | 1:0:341:A:OP1 | 2.65 | 0.41 |
| 1:0:434:C:H2' | 1:0:435:A:OP2 | 2.21 | 0.41 |
| 1:0:459:A:H1' | 1:0:466:A:N6 | 2.36 | 0.41 |
| 1:0:486:U:OP2 | 1:0:486:U:C6 | 2.74 | 0.41 |
| 1:0:700:C:C1' | 1:0:801:A:O4' | 2.69 | 0.41 |
| 1:0:767:G:H2' | 1:0:768:U:C6 | 2.55 | 0.41 |
| 1:0:853:C:H2' | 1:0:854:G:H8 | 1.86 | 0.41 |
| 1:0:889:C:O2' | 1:0:890:U:H5' | 2.20 | 0.41 |
| 1:0:1035:G:H21 | 1:0:1155:G:C5' | 2.34 | 0.41 |
| 1:0:1045:G:H2' | 1:0:1046:U:C6 | 2.56 | 0.41 |
| 1:0:1057:A:H3' | 1:0:1058:G:H5'' | 2.00 | 0.41 |
| 1:0:1184:G:C6 | 1:0:1185:C:N4 | 2.89 | 0.41 |
| 1:0:1281:A:H1' | 1:0:2592:U:O2 | 2.21 | 0.41 |
| 1:0:1342:U:C5' | 1:0:1343:C:H5 | 2.34 | 0.41 |
| 1:0:1394:G:H1' | 1:0:1587:A:C2 | 2.56 | 0.41 |
| 1:0:1450:G:H2' | 1:0:1451:C:O4' | 2.20 | 0.41 |
| 1:0:1548:U:H2' | 1:0:1549:C:C6 | 2.56 | 0.41 |
| 1:0:1749:G:C2' | 1:0:1750:A:OP1 | 2.69 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:0:1777:A:O2' | 1:0:1778:U:P | 2.77 | 0.41 |
| 1:0:1856:U:O3' | 1:0:2388:G:O2' | 2.39 | 0.41 |
| 1:0:1908:C:H6 | 1:0:1908:C:O5' | 2.03 | 0.41 |
| 1:0:2334:C:H3' | 1:0:2335:U:C5' | 2.50 | 0.41 |
| 1:0:2380:U:H2' | 1:0:2380:U:O2 | 2.20 | 0.41 |
| 1:0:2404:A:O2' | 1:0:2405:A:OP2 | 2.34 | 0.41 |
| 1:0:2434:G:H2' | 1:0:2435:C:C6 | 2.56 | 0.41 |
| 1:0:2498:U:H5' | 1:0:2546:G:H21 | 1.86 | 0.41 |
| 1:0:2519:C:H2' | 1:0:2520:A:O4' | 2.21 | 0.41 |
| 1:0:2571:G:C5 | 1:0:2572:U:C4 | 3.08 | 0.41 |
| 1:0:2746:G:N3 | 1:0:2746:G:C2' | 2.83 | 0.41 |
| 1:0:2830:U:H2' | 1:0:2831:A:C8 | 2.52 | 0.41 |
| 1:0:172:A:H1' | 1:0:228:A:H1' | 2.03 | 0.41 |
| 1:0:212:U:H2' | 1:0:213:C:C6 | 2.55 | 0.41 |
| 1:0:324:C:H2' | 1:0:325:U:H5' | 2.02 | 0.41 |
| 1:0:487:G:H4' | 1:0:511:A:N6 | 2.36 | 0.41 |
| 1:0:605:G:N1 | 1:0:606:A:C6 | 2.90 | 0.41 |
| 1:0:871:U:H1' | 1:0:2248:A:H5'' | 2.03 | 0.41 |
| 1:0:991:A:C2 | 1:0:2020:G:N3 | 2.89 | 0.41 |
| 1:0:1018:C:H6 | 1:0:1018:C:O5' | 2.04 | 0.41 |
| 1:0:1038:U:O2' | 1:0:1039:A:H5' | 2.21 | 0.41 |
| 1:0:1286:U:H4' | 1:0:1288:A:OP1 | 2.21 | 0.41 |
| 1:0:1333:G:N7 | 1:0:1342:U:H5' | 2.35 | 0.41 |
| 1:0:1352:G:H2' | 1:0:1353:A:C8 | 2.56 | 0.41 |
| 1:0:1452:U:C2' | 1:0:1453:A:H5' | 2.51 | 0.41 |
| 1:0:1618:U:O2 | 1:0:1618:U:O5' | 2.38 | 0.41 |
| 1:0:1619:A:O5' | 1:0:1619:A:N3 | 2.54 | 0.41 |
| 1:0:1661:C:H2' | 1:0:1662:G:C8 | 2.56 | 0.41 |
| 1:0:1672:A:C2 | 1:0:2032:G:H4' | 2.56 | 0.41 |
| 1:0:1750:A:H5'' | 1:0:2695:C:H1' | 2.02 | 0.41 |
| 1:0:2262:C:C5 | 1:0:2368:G:H2' | 2.56 | 0.41 |
| 1:0:2357:A:H2' | 1:0:2358:C:H5' | 2.03 | 0.41 |
| 1:0:2616:U:H3 | 1:0:2756:A:H62 | 1.69 | 0.41 |
| 1:0:2823:G:O2' | 1:0:2843:A:N6 | 2.54 | 0.41 |
| 1:0:13:A:H4' | 1:0:14:A:H8 | 1.86 | 0.40 |
| 1:0:190:A:O2' | 1:0:191:G:H5' | 2.20 | 0.40 |
| 1:0:439:C:C4 | 1:0:440:U:C2 | 3.09 | 0.40 |
| 1:0:516:G:O2' | 1:0:517:A:C8 | 2.73 | 0.40 |
| 1:0:853:C:N3 | 1:0:950:G:C6 | 2.89 | 0.40 |
| 1:0:1141:U:O2' | 1:0:1142:G:P | 2.78 | 0.40 |
| 1:0:1419:G:H2' | 1:0:1420:A:O4' | 2.20 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|------------------|--------------------------|-------------------|
| 1:0:1456:C:H2' | 1:0:1457:A:H8 | 1.86 | 0.40 |
| 1:0:1681:A:C2 | 1:0:2706:U:C1' | 3.00 | 0.40 |
| 1:0:1894:U:O5' | 1:0:1894:U:H6 | 2.03 | 0.40 |
| 1:0:2041:A:N1 | 2:0:2881:TEL:O48 | 2.45 | 0.40 |
| 1:0:2204:A:P | 1:0:2204:A:H8 | 2.44 | 0.40 |
| 1:0:2532:G:C3' | 1:0:2533:U:C5' | 2.96 | 0.40 |
| 1:0:2843:A:N6 | 1:0:2844:G:N1 | 2.69 | 0.40 |
| 1:0:171:G:C2 | 1:0:179:U:C2 | 3.09 | 0.40 |
| 1:0:173:A:HO2' | 1:0:174:A:P | 2.43 | 0.40 |
| 1:0:178:C:O4' | 1:0:399:G:N2 | 2.54 | 0.40 |
| 1:0:464:G:H2' | 1:0:465:C:H6 | 1.86 | 0.40 |
| 1:0:619:A:H2' | 1:0:620:G:H8 | 1.87 | 0.40 |
| 1:0:748:A:H3' | 1:0:749:C:C5 | 2.57 | 0.40 |
| 1:0:1233:A:H2' | 1:0:1234:C:OP1 | 2.22 | 0.40 |
| 1:0:1234:C:H2' | 1:0:1235:C:H6 | 1.86 | 0.40 |
| 1:0:1446:U:H2' | 1:0:1447:U:O4' | 2.22 | 0.40 |
| 1:0:1458:A:H5'' | 1:0:1459:U:OP2 | 2.21 | 0.40 |
| 1:0:1597:A:H2' | 1:0:1598:C:C6 | 2.56 | 0.40 |
| 1:0:1778:U:O2' | 1:0:1779:C:H5' | 2.21 | 0.40 |
| 1:0:1816:G:O2' | 1:0:1817:U:H5' | 2.21 | 0.40 |
| 1:0:1994:U:H2' | 1:0:1995:G:H5' | 2.03 | 0.40 |
| 1:0:2082:C:O2' | 1:0:2083:G:H5' | 2.20 | 0.40 |
| 1:0:2322:U:C2' | 1:0:2323:U:H5' | 2.51 | 0.40 |
| 1:0:2633:A:C2 | 1:0:2644:A:H5'' | 2.56 | 0.40 |
| 1:0:2756:A:O2' | 1:0:2757:G:C5' | 2.69 | 0.40 |
| 1:0:14:A:N6 | 1:0:15:G:H21 | 2.19 | 0.40 |
| 1:0:474:G:N2 | 1:0:476:G:C8 | 2.87 | 0.40 |
| 1:0:686:C:H2' | 1:0:687:G:H8 | 1.86 | 0.40 |
| 1:0:701:U:O5' | 1:0:701:U:H6 | 2.04 | 0.40 |
| 1:0:743:A:C6 | 1:0:744:C:C4 | 3.10 | 0.40 |
| 1:0:796:A:C2 | 1:0:797:A:H4' | 2.57 | 0.40 |
| 1:0:1294:G:N1 | 1:0:1302:C:N4 | 2.55 | 0.40 |
| 1:0:1406:A:O5' | 1:0:1406:A:H8 | 2.04 | 0.40 |
| 1:0:1489:C:H3' | 1:0:1490:U:C5' | 2.51 | 0.40 |
| 1:0:1679:U:C2' | 1:0:1680:U:C5' | 2.97 | 0.40 |
| 1:0:1688:U:N3 | 1:0:1691:G:OP2 | 2.52 | 0.40 |
| 1:0:2264:C:H2' | 1:0:2265:A:H5' | 2.02 | 0.40 |
| 1:0:2783:U:C2 | 1:0:2866:A:N6 | 2.89 | 0.40 |
| 1:0:2816:C:O2 | 1:0:2852:G:N1 | 2.54 | 0.40 |
| 1:0:2862:G:O2' | 1:0:2863:U:H5' | 2.21 | 0.40 |
| 1:0:185:C:O2' | 1:0:186:C:H5' | 2.22 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:0:329:C:H2' | 1:0:330:C:C6 | 2.57 | 0.40 |
| 1:0:541:C:N4 | 1:0:572:G:H5'' | 2.36 | 0.40 |
| 1:0:683:A:H5'' | 1:0:684:C:O5' | 2.21 | 0.40 |
| 1:0:698:A:C4' | 1:0:700:C:H5 | 2.35 | 0.40 |
| 1:0:834:A:O2' | 1:0:955:G:H4' | 2.22 | 0.40 |
| 1:0:844:G:H2' | 1:0:845:U:O4' | 2.21 | 0.40 |
| 1:0:873:U:N3 | 1:0:930:A:C6 | 2.69 | 0.40 |
| 1:0:874:A:C4 | 1:0:929:A:N6 | 2.89 | 0.40 |
| 1:0:924:C:H2' | 1:0:925:U:O4' | 2.22 | 0.40 |
| 1:0:1135:C:O2' | 1:0:1136:G:H5' | 2.22 | 0.40 |
| 1:0:1145:C:O5' | 1:0:1146:G:OP2 | 2.39 | 0.40 |
| 1:0:1308:C:H2' | 1:0:1309:G:H8 | 1.87 | 0.40 |
| 1:0:1450:G:O2' | 1:0:1451:C:H5' | 2.21 | 0.40 |
| 1:0:1676:U:O2' | 1:0:1677:C:H5' | 2.22 | 0.40 |
| 1:0:2363:G:H2' | 1:0:2364:C:OP1 | 2.21 | 0.40 |
| 1:0:2377:U:O2' | 1:0:2378:G:OP1 | 2.36 | 0.40 |
| 1:0:2499:C:N1 | 1:0:2546:G:H1' | 2.37 | 0.40 |
| 1:0:2548:G:C2' | 1:0:2549:G:C5' | 3.00 | 0.40 |
| 1:0:2792:C:H3' | 1:0:2793:G:H5'' | 2.04 | 0.40 |
| 1:0:2852:G:H2' | 1:0:2853:U:H5' | 2.03 | 0.40 |
| 1:0:38:G:H2' | 1:0:39:C:H6 | 1.80 | 0.40 |
| 1:0:174:A:H2 | 1:0:2413:A:H62 | 1.69 | 0.40 |
| 1:0:441:A:H2' | 1:0:442:A:H5' | 2.04 | 0.40 |
| 1:0:516:G:H5'' | 1:0:519:C:H1' | 2.04 | 0.40 |
| 1:0:839:U:N3 | 1:0:841:G:H1' | 2.36 | 0.40 |
| 1:0:1029:C:H6 | 1:0:1029:C:O5' | 2.05 | 0.40 |
| 1:0:1177:U:C2 | 1:0:1197:U:O2 | 2.75 | 0.40 |
| 1:0:1340:C:O2' | 1:0:1341:G:H5' | 2.21 | 0.40 |
| 1:0:1366:A:N7 | 1:0:1390:G:C2 | 2.89 | 0.40 |
| 1:0:1430:G:H2' | 1:0:1431:U:C6 | 2.56 | 0.40 |
| 1:0:1706:A:H2' | 1:0:1707:A:C5' | 2.51 | 0.40 |
| 1:0:1725:C:O2' | 1:0:1726:C:H5' | 2.22 | 0.40 |
| 1:0:1938:U:O2 | 1:0:1938:U:C2' | 2.69 | 0.40 |
| 1:0:1987:G:H2' | 1:0:1988:A:C5' | 2.52 | 0.40 |
| 1:0:2104:G:H2' | 1:0:2105:U:C6 | 2.56 | 0.40 |
| 1:0:2160:C:H2' | 1:0:2161:C:C6 | 2.56 | 0.40 |
| 1:0:2236:U:H2' | 1:0:2237:C:O4' | 2.22 | 0.40 |
| 1:0:2322:U:H4' | 1:0:2352:A:O3' | 2.22 | 0.40 |
| 1:0:2691:C:H5'' | 1:0:2694:G:H5' | 2.04 | 0.40 |

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

There are no protein molecules in this entry.

5.3.2 Protein sidechains [i](#)

There are no protein molecules in this entry.

5.3.3 RNA [i](#)

| Mol | Chain | Analysed | Backbone Outliers | Pucker Outliers |
|-----|-------|-----------------|-------------------|-----------------|
| 1 | 0 | 2727/2880 (94%) | 580 (21%) | 62 (2%) |

All (580) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | 0 | 13 | A |
| 1 | 0 | 14 | A |
| 1 | 0 | 15 | G |
| 1 | 0 | 45 | C |
| 1 | 0 | 50 | G |
| 1 | 0 | 51 | A |
| 1 | 0 | 58 | C |
| 1 | 0 | 59 | G |
| 1 | 0 | 63 | A |
| 1 | 0 | 70 | A |
| 1 | 0 | 72 | A |
| 1 | 0 | 74 | G |
| 1 | 0 | 75 | C |
| 1 | 0 | 83 | A |
| 1 | 0 | 87 | G |
| 1 | 0 | 89 | A |
| 1 | 0 | 90 | G |
| 1 | 0 | 91 | A |
| 1 | 0 | 97 | U |
| 1 | 0 | 99 | U |
| 1 | 0 | 100 | G |
| 1 | 0 | 110 | U |
| 1 | 0 | 116 | A |
| 1 | 0 | 117 | A |
| 1 | 0 | 118 | U |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | 0 | 119 | G |
| 1 | 0 | 123 | A |
| 1 | 0 | 124 | A |
| 1 | 0 | 129 | A |
| 1 | 0 | 135 | U |
| 1 | 0 | 149 | A |
| 1 | 0 | 155 | G |
| 1 | 0 | 158 | A |
| 1 | 0 | 173 | A |
| 1 | 0 | 174 | A |
| 1 | 0 | 176 | A |
| 1 | 0 | 177 | U |
| 1 | 0 | 182 | G |
| 1 | 0 | 193 | A |
| 1 | 0 | 199 | A |
| 1 | 0 | 200 | A |
| 1 | 0 | 201 | G |
| 1 | 0 | 205 | A |
| 1 | 0 | 206 | U |
| 1 | 0 | 207 | U |
| 1 | 0 | 210 | A |
| 1 | 0 | 218 | A |
| 1 | 0 | 219 | G |
| 1 | 0 | 220 | U |
| 1 | 0 | 225 | G |
| 1 | 0 | 227 | G |
| 1 | 0 | 229 | G |
| 1 | 0 | 242 | A |
| 1 | 0 | 244 | C |
| 1 | 0 | 245 | C |
| 1 | 0 | 302 | U |
| 1 | 0 | 303 | C |
| 1 | 0 | 305 | A |
| 1 | 0 | 312 | G |
| 1 | 0 | 322 | A |
| 1 | 0 | 334 | G |
| 1 | 0 | 335 | A |
| 1 | 0 | 340 | G |
| 1 | 0 | 341 | A |
| 1 | 0 | 343 | A |
| 1 | 0 | 348 | U |
| 1 | 0 | 358 | C |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | 0 | 363 | G |
| 1 | 0 | 368 | A |
| 1 | 0 | 372 | U |
| 1 | 0 | 373 | A |
| 1 | 0 | 389 | G |
| 1 | 0 | 390 | U |
| 1 | 0 | 392 | G |
| 1 | 0 | 393 | U |
| 1 | 0 | 397 | U |
| 1 | 0 | 399 | G |
| 1 | 0 | 402 | A |
| 1 | 0 | 403 | A |
| 1 | 0 | 431 | G |
| 1 | 0 | 432 | C |
| 1 | 0 | 433 | G |
| 1 | 0 | 434 | C |
| 1 | 0 | 435 | A |
| 1 | 0 | 437 | G |
| 1 | 0 | 438 | G |
| 1 | 0 | 440 | U |
| 1 | 0 | 455 | A |
| 1 | 0 | 456 | C |
| 1 | 0 | 459 | A |
| 1 | 0 | 460 | U |
| 1 | 0 | 461 | A |
| 1 | 0 | 463 | C |
| 1 | 0 | 467 | U |
| 1 | 0 | 469 | G |
| 1 | 0 | 484 | G |
| 1 | 0 | 486 | U |
| 1 | 0 | 491 | A |
| 1 | 0 | 492 | G |
| 1 | 0 | 514 | G |
| 1 | 0 | 515 | A |
| 1 | 0 | 517 | A |
| 1 | 0 | 518 | A |
| 1 | 0 | 519 | C |
| 1 | 0 | 520 | C |
| 1 | 0 | 537 | C |
| 1 | 0 | 538 | A |
| 1 | 0 | 540 | G |
| 1 | 0 | 541 | C |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | 0 | 542 | A |
| 1 | 0 | 554 | U |
| 1 | 0 | 555 | U |
| 1 | 0 | 556 | A |
| 1 | 0 | 558 | G |
| 1 | 0 | 559 | C |
| 1 | 0 | 560 | G |
| 1 | 0 | 572 | G |
| 1 | 0 | 582 | G |
| 1 | 0 | 584 | A |
| 1 | 0 | 587 | A |
| 1 | 0 | 596 | C |
| 1 | 0 | 601 | A |
| 1 | 0 | 602 | C |
| 1 | 0 | 613 | A |
| 1 | 0 | 616 | U |
| 1 | 0 | 617 | U |
| 1 | 0 | 624 | A |
| 1 | 0 | 632 | A |
| 1 | 0 | 638 | A |
| 1 | 0 | 639 | G |
| 1 | 0 | 648 | A |
| 1 | 0 | 652 | C |
| 1 | 0 | 654 | A |
| 1 | 0 | 667 | U |
| 1 | 0 | 669 | G |
| 1 | 0 | 683 | A |
| 1 | 0 | 684 | C |
| 1 | 0 | 698 | A |
| 1 | 0 | 699 | G |
| 1 | 0 | 700 | C |
| 1 | 0 | 712 | A |
| 1 | 0 | 728 | G |
| 1 | 0 | 742 | G |
| 1 | 0 | 743 | A |
| 1 | 0 | 753 | U |
| 1 | 0 | 760 | U |
| 1 | 0 | 761 | G |
| 1 | 0 | 765 | C |
| 1 | 0 | 766 | A |
| 1 | 0 | 775 | U |
| 1 | 0 | 778 | G |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | 0 | 787 | A |
| 1 | 0 | 789 | G |
| 1 | 0 | 790 | A |
| 1 | 0 | 794 | A |
| 1 | 0 | 795 | A |
| 1 | 0 | 796 | A |
| 1 | 0 | 797 | A |
| 1 | 0 | 798 | G |
| 1 | 0 | 801 | A |
| 1 | 0 | 802 | A |
| 1 | 0 | 803 | C |
| 1 | 0 | 804 | C |
| 1 | 0 | 805 | G |
| 1 | 0 | 806 | A |
| 1 | 0 | 807 | A |
| 1 | 0 | 815 | A |
| 1 | 0 | 818 | G |
| 1 | 0 | 819 | C |
| 1 | 0 | 825 | C |
| 1 | 0 | 832 | A |
| 1 | 0 | 840 | U |
| 1 | 0 | 841 | G |
| 1 | 0 | 843 | G |
| 1 | 0 | 844 | G |
| 1 | 0 | 860 | U |
| 1 | 0 | 869 | C |
| 1 | 0 | 873 | U |
| 1 | 0 | 880 | C |
| 1 | 0 | 919 | U |
| 1 | 0 | 922 | A |
| 1 | 0 | 926 | C |
| 1 | 0 | 930 | A |
| 1 | 0 | 931 | G |
| 1 | 0 | 939 | C |
| 1 | 0 | 941 | U |
| 1 | 0 | 943 | U |
| 1 | 0 | 944 | A |
| 1 | 0 | 952 | A |
| 1 | 0 | 956 | A |
| 1 | 0 | 957 | G |
| 1 | 0 | 969 | U |
| 1 | 0 | 970 | A |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | 0 | 972 | C |
| 1 | 0 | 984 | A |
| 1 | 0 | 985 | G |
| 1 | 0 | 990 | A |
| 1 | 0 | 994 | A |
| 1 | 0 | 996 | C |
| 1 | 0 | 1016 | C |
| 1 | 0 | 1019 | U |
| 1 | 0 | 1023 | U |
| 1 | 0 | 1024 | G |
| 1 | 0 | 1030 | U |
| 1 | 0 | 1032 | A |
| 1 | 0 | 1033 | G |
| 1 | 0 | 1034 | U |
| 1 | 0 | 1036 | G |
| 1 | 0 | 1037 | U |
| 1 | 0 | 1044 | U |
| 1 | 0 | 1055 | A |
| 1 | 0 | 1056 | U |
| 1 | 0 | 1057 | A |
| 1 | 0 | 1058 | G |
| 1 | 0 | 1059 | A |
| 1 | 0 | 1067 | G |
| 1 | 0 | 1071 | U |
| 1 | 0 | 1073 | G |
| 1 | 0 | 1074 | G |
| 1 | 0 | 1081 | A |
| 1 | 0 | 1082 | G |
| 1 | 0 | 1087 | C |
| 1 | 0 | 1090 | C |
| 1 | 0 | 1099 | A |
| 1 | 0 | 1130 | U |
| 1 | 0 | 1137 | A |
| 1 | 0 | 1138 | A |
| 1 | 0 | 1141 | U |
| 1 | 0 | 1142 | G |
| 1 | 0 | 1145 | C |
| 1 | 0 | 1146 | G |
| 1 | 0 | 1152 | C |
| 1 | 0 | 1153 | A |
| 1 | 0 | 1155 | G |
| 1 | 0 | 1166 | A |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | 0 | 1167 | A |
| 1 | 0 | 1183 | C |
| 1 | 0 | 1185 | C |
| 1 | 0 | 1195 | U |
| 1 | 0 | 1199 | U |
| 1 | 0 | 1200 | G |
| 1 | 0 | 1223 | G |
| 1 | 0 | 1224 | A |
| 1 | 0 | 1233 | A |
| 1 | 0 | 1235 | C |
| 1 | 0 | 1250 | A |
| 1 | 0 | 1251 | G |
| 1 | 0 | 1253 | C |
| 1 | 0 | 1261 | G |
| 1 | 0 | 1262 | U |
| 1 | 0 | 1264 | C |
| 1 | 0 | 1265 | G |
| 1 | 0 | 1267 | A |
| 1 | 0 | 1269 | G |
| 1 | 0 | 1274 | C |
| 1 | 0 | 1278 | A |
| 1 | 0 | 1279 | G |
| 1 | 0 | 1284 | G |
| 1 | 0 | 1285 | A |
| 1 | 0 | 1286 | U |
| 1 | 0 | 1288 | A |
| 1 | 0 | 1289 | A |
| 1 | 0 | 1300 | A |
| 1 | 0 | 1302 | C |
| 1 | 0 | 1313 | U |
| 1 | 0 | 1314 | A |
| 1 | 0 | 1316 | G |
| 1 | 0 | 1324 | G |
| 1 | 0 | 1327 | C |
| 1 | 0 | 1334 | A |
| 1 | 0 | 1338 | G |
| 1 | 0 | 1339 | U |
| 1 | 0 | 1342 | U |
| 1 | 0 | 1343 | C |
| 1 | 0 | 1346 | C |
| 1 | 0 | 1354 | A |
| 1 | 0 | 1356 | G |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | 0 | 1359 | G |
| 1 | 0 | 1391 | A |
| 1 | 0 | 1392 | U |
| 1 | 0 | 1397 | A |
| 1 | 0 | 1398 | G |
| 1 | 0 | 1407 | G |
| 1 | 0 | 1411 | C |
| 1 | 0 | 1433 | A |
| 1 | 0 | 1441 | A |
| 1 | 0 | 1442 | C |
| 1 | 0 | 1443 | G |
| 1 | 0 | 1450 | G |
| 1 | 0 | 1459 | U |
| 1 | 0 | 1460 | G |
| 1 | 0 | 1468 | A |
| 1 | 0 | 1469 | U |
| 1 | 0 | 1470 | G |
| 1 | 0 | 1474 | A |
| 1 | 0 | 1475 | U |
| 1 | 0 | 1476 | G |
| 1 | 0 | 1482 | U |
| 1 | 0 | 1489 | C |
| 1 | 0 | 1490 | U |
| 1 | 0 | 1505 | U |
| 1 | 0 | 1508 | G |
| 1 | 0 | 1513 | U |
| 1 | 0 | 1514 | C |
| 1 | 0 | 1524 | C |
| 1 | 0 | 1529 | C |
| 1 | 0 | 1552 | C |
| 1 | 0 | 1553 | G |
| 1 | 0 | 1573 | G |
| 1 | 0 | 1574 | A |
| 1 | 0 | 1583 | A |
| 1 | 0 | 1585 | A |
| 1 | 0 | 1614 | C |
| 1 | 0 | 1618 | U |
| 1 | 0 | 1619 | A |
| 1 | 0 | 1623 | C |
| 1 | 0 | 1624 | A |
| 1 | 0 | 1625 | A |
| 1 | 0 | 1627 | C |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | 0 | 1631 | C |
| 1 | 0 | 1634 | A |
| 1 | 0 | 1635 | G |
| 1 | 0 | 1648 | C |
| 1 | 0 | 1652 | G |
| 1 | 0 | 1657 | A |
| 1 | 0 | 1664 | G |
| 1 | 0 | 1665 | C |
| 1 | 0 | 1670 | G |
| 1 | 0 | 1671 | A |
| 1 | 0 | 1680 | U |
| 1 | 0 | 1685 | A |
| 1 | 0 | 1686 | A |
| 1 | 0 | 1691 | G |
| 1 | 0 | 1692 | C |
| 1 | 0 | 1699 | A |
| 1 | 0 | 1711 | C |
| 1 | 0 | 1712 | G |
| 1 | 0 | 1715 | A |
| 1 | 0 | 1716 | G |
| 1 | 0 | 1717 | A |
| 1 | 0 | 1724 | C |
| 1 | 0 | 1733 | U |
| 1 | 0 | 1748 | U |
| 1 | 0 | 1749 | G |
| 1 | 0 | 1750 | A |
| 1 | 0 | 1754 | G |
| 1 | 0 | 1755 | G |
| 1 | 0 | 1763 | G |
| 1 | 0 | 1764 | A |
| 1 | 0 | 1770 | U |
| 1 | 0 | 1771 | A |
| 1 | 0 | 1772 | C |
| 1 | 0 | 1773 | C |
| 1 | 0 | 1776 | A |
| 1 | 0 | 1778 | U |
| 1 | 0 | 1792 | C |
| 1 | 0 | 1799 | A |
| 1 | 0 | 1800 | A |
| 1 | 0 | 1801 | C |
| 1 | 0 | 1802 | A |
| 1 | 0 | 1807 | A |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | 0 | 1808 | C |
| 1 | 0 | 1812 | U |
| 1 | 0 | 1821 | A |
| 1 | 0 | 1831 | G |
| 1 | 0 | 1840 | A |
| 1 | 0 | 1864 | G |
| 1 | 0 | 1884 | A |
| 1 | 0 | 1889 | G |
| 1 | 0 | 1900 | U |
| 1 | 0 | 1909 | U |
| 1 | 0 | 1919 | A |
| 1 | 0 | 1920 | A |
| 1 | 0 | 1922 | U |
| 1 | 0 | 1924 | C |
| 1 | 0 | 1926 | U |
| 1 | 0 | 1927 | U |
| 1 | 0 | 1928 | G |
| 1 | 0 | 1930 | C |
| 1 | 0 | 1933 | G |
| 1 | 0 | 1938 | U |
| 1 | 0 | 1939 | U |
| 1 | 0 | 1946 | U |
| 1 | 0 | 1947 | G |
| 1 | 0 | 1948 | C |
| 1 | 0 | 1949 | A |
| 1 | 0 | 1950 | C |
| 1 | 0 | 1953 | A |
| 1 | 0 | 1954 | A |
| 1 | 0 | 1955 | G |
| 1 | 0 | 1956 | G |
| 1 | 0 | 1964 | A |
| 1 | 0 | 1975 | G |
| 1 | 0 | 1976 | U |
| 1 | 0 | 1979 | C |
| 1 | 0 | 1980 | A |
| 1 | 0 | 2002 | A |
| 1 | 0 | 2003 | A |
| 1 | 0 | 2004 | U |
| 1 | 0 | 2005 | U |
| 1 | 0 | 2006 | G |
| 1 | 0 | 2013 | A |
| 1 | 0 | 2014 | A |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | 0 | 2015 | G |
| 1 | 0 | 2016 | A |
| 1 | 0 | 2019 | C |
| 1 | 0 | 2026 | C |
| 1 | 0 | 2038 | C |
| 1 | 0 | 2039 | G |
| 1 | 0 | 2043 | A |
| 1 | 0 | 2044 | G |
| 1 | 0 | 2045 | A |
| 1 | 0 | 2046 | C |
| 1 | 0 | 2047 | C |
| 1 | 0 | 2050 | G |
| 1 | 0 | 2051 | U |
| 1 | 0 | 2052 | G |
| 1 | 0 | 2060 | A |
| 1 | 0 | 2075 | U |
| 1 | 0 | 2076 | G |
| 1 | 0 | 2082 | C |
| 1 | 0 | 2094 | C |
| 1 | 0 | 2096 | U |
| 1 | 0 | 2118 | A |
| 1 | 0 | 2119 | A |
| 1 | 0 | 2121 | U |
| 1 | 0 | 2140 | G |
| 1 | 0 | 2162 | C |
| 1 | 0 | 2168 | A |
| 1 | 0 | 2181 | A |
| 1 | 0 | 2191 | A |
| 1 | 0 | 2192 | U |
| 1 | 0 | 2195 | C |
| 1 | 0 | 2199 | C |
| 1 | 0 | 2205 | C |
| 1 | 0 | 2218 | G |
| 1 | 0 | 2229 | G |
| 1 | 0 | 2230 | G |
| 1 | 0 | 2241 | U |
| 1 | 0 | 2245 | A |
| 1 | 0 | 2246 | A |
| 1 | 0 | 2247 | A |
| 1 | 0 | 2255 | G |
| 1 | 0 | 2262 | C |
| 1 | 0 | 2265 | A |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | 0 | 2267 | A |
| 1 | 0 | 2268 | G |
| 1 | 0 | 2284 | U |
| 1 | 0 | 2285 | U |
| 1 | 0 | 2286 | G |
| 1 | 0 | 2287 | G |
| 1 | 0 | 2288 | A |
| 1 | 0 | 2298 | U |
| 1 | 0 | 2299 | A |
| 1 | 0 | 2300 | G |
| 1 | 0 | 2301 | A |
| 1 | 0 | 2312 | A |
| 1 | 0 | 2313 | G |
| 1 | 0 | 2314 | A |
| 1 | 0 | 2315 | A |
| 1 | 0 | 2316 | G |
| 1 | 0 | 2324 | G |
| 1 | 0 | 2325 | A |
| 1 | 0 | 2326 | C |
| 1 | 0 | 2335 | U |
| 1 | 0 | 2340 | C |
| 1 | 0 | 2351 | G |
| 1 | 0 | 2362 | G |
| 1 | 0 | 2364 | C |
| 1 | 0 | 2378 | G |
| 1 | 0 | 2381 | A |
| 1 | 0 | 2385 | U |
| 1 | 0 | 2386 | G |
| 1 | 0 | 2389 | G |
| 1 | 0 | 2396 | C |
| 1 | 0 | 2402 | U |
| 1 | 0 | 2403 | C |
| 1 | 0 | 2405 | A |
| 1 | 0 | 2406 | C |
| 1 | 0 | 2407 | G |
| 1 | 0 | 2408 | G |
| 1 | 0 | 2409 | A |
| 1 | 0 | 2410 | U |
| 1 | 0 | 2411 | A |
| 1 | 0 | 2414 | A |
| 1 | 0 | 2419 | C |
| 1 | 0 | 2426 | G |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | 0 | 2427 | A |
| 1 | 0 | 2428 | U |
| 1 | 0 | 2447 | G |
| 1 | 0 | 2448 | A |
| 1 | 0 | 2455 | A |
| 1 | 0 | 2470 | U |
| 1 | 0 | 2476 | A |
| 1 | 0 | 2477 | C |
| 1 | 0 | 2480 | C |
| 1 | 0 | 2481 | G |
| 1 | 0 | 2482 | A |
| 1 | 0 | 2483 | U |
| 1 | 0 | 2492 | G |
| 1 | 0 | 2496 | C |
| 1 | 0 | 2497 | A |
| 1 | 0 | 2498 | U |
| 1 | 0 | 2499 | C |
| 1 | 0 | 2521 | A |
| 1 | 0 | 2522 | G |
| 1 | 0 | 2533 | U |
| 1 | 0 | 2545 | A |
| 1 | 0 | 2546 | G |
| 1 | 0 | 2549 | G |
| 1 | 0 | 2551 | A |
| 1 | 0 | 2552 | C |
| 1 | 0 | 2553 | G |
| 1 | 0 | 2557 | G |
| 1 | 0 | 2561 | G |
| 1 | 0 | 2565 | C |
| 1 | 0 | 2578 | G |
| 1 | 0 | 2581 | A |
| 1 | 0 | 2582 | G |
| 1 | 0 | 2588 | U |
| 1 | 0 | 2589 | C |
| 1 | 0 | 2591 | C |
| 1 | 0 | 2593 | A |
| 1 | 0 | 2594 | U |
| 1 | 0 | 2600 | A |
| 1 | 0 | 2608 | A |
| 1 | 0 | 2609 | G |
| 1 | 0 | 2625 | U |
| 1 | 0 | 2633 | A |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | 0 | 2634 | G |
| 1 | 0 | 2660 | C |
| 1 | 0 | 2661 | G |
| 1 | 0 | 2669 | C |
| 1 | 0 | 2670 | C |
| 1 | 0 | 2692 | A |
| 1 | 0 | 2693 | U |
| 1 | 0 | 2694 | G |
| 1 | 0 | 2706 | U |
| 1 | 0 | 2707 | G |
| 1 | 0 | 2712 | G |
| 1 | 0 | 2713 | A |
| 1 | 0 | 2719 | U |
| 1 | 0 | 2728 | A |
| 1 | 0 | 2730 | A |
| 1 | 0 | 2732 | C |
| 1 | 0 | 2735 | C |
| 1 | 0 | 2737 | A |
| 1 | 0 | 2745 | A |
| 1 | 0 | 2756 | A |
| 1 | 0 | 2757 | G |
| 1 | 0 | 2758 | A |
| 1 | 0 | 2759 | U |
| 1 | 0 | 2760 | G |
| 1 | 0 | 2761 | A |
| 1 | 0 | 2769 | C |
| 1 | 0 | 2771 | C |
| 1 | 0 | 2774 | U |
| 1 | 0 | 2782 | G |
| 1 | 0 | 2783 | U |
| 1 | 0 | 2785 | A |
| 1 | 0 | 2793 | G |
| 1 | 0 | 2796 | A |
| 1 | 0 | 2798 | A |
| 1 | 0 | 2805 | G |
| 1 | 0 | 2807 | U |
| 1 | 0 | 2808 | U |
| 1 | 0 | 2809 | A |
| 1 | 0 | 2810 | A |
| 1 | 0 | 2823 | G |
| 1 | 0 | 2825 | A |
| 1 | 0 | 2841 | U |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | 0 | 2842 | C |
| 1 | 0 | 2847 | G |
| 1 | 0 | 2849 | C |
| 1 | 0 | 2854 | G |
| 1 | 0 | 2855 | C |
| 1 | 0 | 2858 | A |
| 1 | 0 | 2866 | A |
| 1 | 0 | 2867 | G |
| 1 | 0 | 2868 | G |

All (62) RNA pucker outliers are listed below:

| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | 0 | 69 | G |
| 1 | 0 | 117 | A |
| 1 | 0 | 173 | A |
| 1 | 0 | 176 | A |
| 1 | 0 | 192 | G |
| 1 | 0 | 218 | A |
| 1 | 0 | 219 | G |
| 1 | 0 | 430 | C |
| 1 | 0 | 434 | C |
| 1 | 0 | 436 | A |
| 1 | 0 | 438 | G |
| 1 | 0 | 460 | U |
| 1 | 0 | 466 | A |
| 1 | 0 | 485 | G |
| 1 | 0 | 516 | G |
| 1 | 0 | 539 | A |
| 1 | 0 | 765 | C |
| 1 | 0 | 789 | G |
| 1 | 0 | 801 | A |
| 1 | 0 | 956 | A |
| 1 | 0 | 1033 | G |
| 1 | 0 | 1141 | U |
| 1 | 0 | 1154 | A |
| 1 | 0 | 1194 | U |
| 1 | 0 | 1249 | G |
| 1 | 0 | 1260 | A |
| 1 | 0 | 1263 | G |
| 1 | 0 | 1278 | A |
| 1 | 0 | 1299 | A |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | 0 | 1313 | U |
| 1 | 0 | 1315 | A |
| 1 | 0 | 1338 | G |
| 1 | 0 | 1345 | G |
| 1 | 0 | 1391 | A |
| 1 | 0 | 1617 | G |
| 1 | 0 | 1626 | A |
| 1 | 0 | 1634 | A |
| 1 | 0 | 1685 | A |
| 1 | 0 | 1691 | G |
| 1 | 0 | 1698 | C |
| 1 | 0 | 1715 | A |
| 1 | 0 | 1820 | G |
| 1 | 0 | 1975 | G |
| 1 | 0 | 2013 | A |
| 1 | 0 | 2015 | G |
| 1 | 0 | 2018 | G |
| 1 | 0 | 2093 | G |
| 1 | 0 | 2161 | C |
| 1 | 0 | 2191 | A |
| 1 | 0 | 2204 | A |
| 1 | 0 | 2245 | A |
| 1 | 0 | 2261 | G |
| 1 | 0 | 2312 | A |
| 1 | 0 | 2324 | G |
| 1 | 0 | 2377 | U |
| 1 | 0 | 2404 | A |
| 1 | 0 | 2469 | G |
| 1 | 0 | 2633 | A |
| 1 | 0 | 2756 | A |
| 1 | 0 | 2758 | A |
| 1 | 0 | 2824 | C |
| 1 | 0 | 2867 | G |

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry

1 ligand is modelled in this entry.

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 |
| 2 | TEL | 0 | 2881 | - | 59,62,62 | 3.60 | 31 (52%) | 77,92,92 | 3.46 | 33 (42%) |

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 |
|-----|------|-------|------|------|-----------|---------------|---------|
| 2 | TEL | 0 | 2881 | - | 1/1/19/19 | 23/73/108/108 | 0/4/5/5 |

All (31) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 2 | 0 | 2881 | TEL | C30-C34 | 12.60 | 1.72 | 1.54 |
| 2 | 0 | 2881 | TEL | C7-C3 | 8.59 | 1.65 | 1.54 |
| 2 | 0 | 2881 | TEL | C24-C28 | 7.93 | 1.64 | 1.52 |
| 2 | 0 | 2881 | TEL | O9-C15 | 7.30 | 1.51 | 1.34 |
| 2 | 0 | 2881 | TEL | C47-C43 | 6.74 | 1.51 | 1.39 |
| 2 | 0 | 2881 | TEL | C24-C19 | 6.22 | 1.62 | 1.54 |
| 2 | 0 | 2881 | TEL | C51-C46 | 5.32 | 1.50 | 1.38 |
| 2 | 0 | 2881 | TEL | C30-C26 | 5.28 | 1.60 | 1.52 |
| 2 | 0 | 2881 | TEL | C11-N6 | 4.98 | 1.55 | 1.46 |
| 2 | 0 | 2881 | TEL | C21-C26 | 4.96 | 1.60 | 1.52 |
| 2 | 0 | 2881 | TEL | O5-C10 | 4.23 | 1.42 | 1.35 |
| 2 | 0 | 2881 | TEL | C2-C4 | 4.18 | 1.66 | 1.54 |
| 2 | 0 | 2881 | TEL | C44-C49 | 4.15 | 1.62 | 1.53 |
| 2 | 0 | 2881 | TEL | C56-N52 | 3.49 | 1.44 | 1.33 |
| 2 | 0 | 2881 | TEL | C10-N6 | 3.36 | 1.41 | 1.35 |
| 2 | 0 | 2881 | TEL | O32-C28 | 3.32 | 1.51 | 1.44 |
| 2 | 0 | 2881 | TEL | C28-C34 | 3.29 | 1.64 | 1.55 |
| 2 | 0 | 2881 | TEL | C49-N53 | 3.20 | 1.55 | 1.48 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 2 | 0 | 2881 | TEL | C33-C28 | 3.15 | 1.59 | 1.52 |
| 2 | 0 | 2881 | TEL | C21-C15 | 3.03 | 1.57 | 1.51 |
| 2 | 0 | 2881 | TEL | C8-C4 | 2.94 | 1.63 | 1.53 |
| 2 | 0 | 2881 | TEL | C3-N6 | 2.75 | 1.53 | 1.47 |
| 2 | 0 | 2881 | TEL | O16-C10 | 2.72 | 1.25 | 1.21 |
| 2 | 0 | 2881 | TEL | C37-N41 | -2.55 | 1.30 | 1.35 |
| 2 | 0 | 2881 | TEL | C36-N31 | 2.54 | 1.41 | 1.38 |
| 2 | 0 | 2881 | TEL | O29-C26 | 2.41 | 1.25 | 1.21 |
| 2 | 0 | 2881 | TEL | O18-C13 | 2.37 | 1.25 | 1.21 |
| 2 | 0 | 2881 | TEL | C12-C7 | 2.33 | 1.58 | 1.53 |
| 2 | 0 | 2881 | TEL | C1-C2 | 2.31 | 1.57 | 1.52 |
| 2 | 0 | 2881 | TEL | O39-C34 | 2.03 | 1.49 | 1.44 |
| 2 | 0 | 2881 | TEL | O9-C4 | 2.03 | 1.49 | 1.46 |

All (33) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|--------|-------------|----------|
| 2 | 0 | 2881 | TEL | O9-C15-C21 | 13.29 | 124.38 | 110.88 |
| 2 | 0 | 2881 | TEL | C3-N6-C10 | -11.45 | 96.35 | 111.69 |
| 2 | 0 | 2881 | TEL | C42-O39-C34 | 7.20 | 128.76 | 116.25 |
| 2 | 0 | 2881 | TEL | O20-C15-C21 | -6.87 | 115.73 | 124.77 |
| 2 | 0 | 2881 | TEL | C11-N6-C10 | -6.78 | 113.68 | 122.25 |
| 2 | 0 | 2881 | TEL | C2-O5-C10 | -6.44 | 104.19 | 109.29 |
| 2 | 0 | 2881 | TEL | C1-C2-C3 | -6.28 | 109.14 | 116.69 |
| 2 | 0 | 2881 | TEL | O39-C34-C28 | -6.27 | 91.39 | 106.40 |
| 2 | 0 | 2881 | TEL | C24-C28-C34 | 6.08 | 117.61 | 110.25 |
| 2 | 0 | 2881 | TEL | O9-C4-C2 | 5.53 | 117.95 | 105.48 |
| 2 | 0 | 2881 | TEL | C28-C24-C19 | 5.35 | 125.17 | 116.11 |
| 2 | 0 | 2881 | TEL | C4-O9-C15 | -4.99 | 109.31 | 118.18 |
| 2 | 0 | 2881 | TEL | C12-C7-C13 | -4.40 | 100.44 | 108.08 |
| 2 | 0 | 2881 | TEL | O9-C4-C8 | -4.31 | 99.19 | 107.40 |
| 2 | 0 | 2881 | TEL | O5-C2-C3 | -3.80 | 99.32 | 103.16 |
| 2 | 0 | 2881 | TEL | C35-C30-C26 | -3.71 | 101.64 | 108.08 |
| 2 | 0 | 2881 | TEL | O32-C28-C34 | -3.38 | 100.90 | 107.85 |
| 2 | 0 | 2881 | TEL | C33-C28-C34 | -3.29 | 104.74 | 109.75 |
| 2 | 0 | 2881 | TEL | C1-C2-C4 | -3.22 | 106.62 | 112.36 |
| 2 | 0 | 2881 | TEL | C56-N52-C47 | 2.89 | 121.84 | 116.85 |
| 2 | 0 | 2881 | TEL | C36-C40-C43 | -2.70 | 123.05 | 129.15 |
| 2 | 0 | 2881 | TEL | C54-C49-N53 | -2.70 | 108.05 | 115.67 |
| 2 | 0 | 2881 | TEL | O29-C26-C30 | -2.68 | 116.79 | 120.60 |
| 2 | 0 | 2881 | TEL | C24-C19-C13 | -2.68 | 108.72 | 113.32 |
| 2 | 0 | 2881 | TEL | O5-C2-C1 | 2.62 | 111.53 | 106.93 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2 | 0 | 2881 | TEL | C17-C11-N6 | 2.48 | 117.15 | 113.31 |
| 2 | 0 | 2881 | TEL | C55-C50-C54 | -2.37 | 109.68 | 113.40 |
| 2 | 0 | 2881 | TEL | C54-C49-C44 | -2.23 | 106.76 | 109.97 |
| 2 | 0 | 2881 | TEL | O9-C15-O20 | -2.18 | 119.86 | 123.94 |
| 2 | 0 | 2881 | TEL | O32-C28-C24 | 2.15 | 110.43 | 105.71 |
| 2 | 0 | 2881 | TEL | C14-C8-C4 | 2.13 | 118.43 | 113.13 |
| 2 | 0 | 2881 | TEL | C23-C19-C24 | 2.12 | 113.71 | 109.81 |
| 2 | 0 | 2881 | TEL | O29-C26-C21 | -2.01 | 116.91 | 120.68 |

All (1) chirality outliers are listed below:

| Mol | Chain | Res | Type | Atom |
|-----|-------|------|------|------|
| 2 | 0 | 2881 | TEL | C21 |

All (23) torsion outliers are listed below:

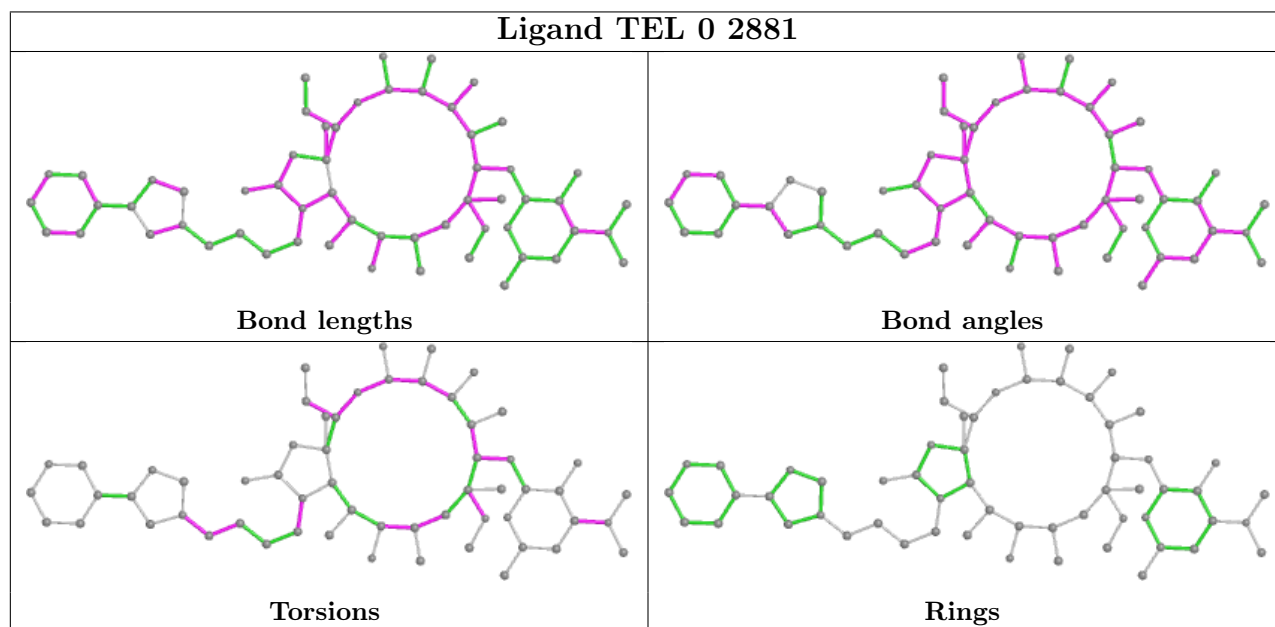
| Mol | Chain | Res | Type | Atoms |
|-----|-------|------|------|-----------------|
| 2 | 0 | 2881 | TEL | C7-C13-C19-C24 |
| 2 | 0 | 2881 | TEL | O9-C15-C21-C25 |
| 2 | 0 | 2881 | TEL | C25-C21-C26-O29 |
| 2 | 0 | 2881 | TEL | C25-C21-C26-C30 |
| 2 | 0 | 2881 | TEL | C26-C30-C34-C28 |
| 2 | 0 | 2881 | TEL | C28-C34-O39-C42 |
| 2 | 0 | 2881 | TEL | C30-C34-O39-C42 |
| 2 | 0 | 2881 | TEL | C17-C22-C27-N31 |
| 2 | 0 | 2881 | TEL | C21-C15-O9-C4 |
| 2 | 0 | 2881 | TEL | C2-C4-C8-C14 |
| 2 | 0 | 2881 | TEL | C54-C49-N53-C58 |
| 2 | 0 | 2881 | TEL | O20-C15-O9-C4 |
| 2 | 0 | 2881 | TEL | O20-C15-C21-C25 |
| 2 | 0 | 2881 | TEL | C13-C19-C24-C28 |
| 2 | 0 | 2881 | TEL | C15-C21-C26-O29 |
| 2 | 0 | 2881 | TEL | C15-C21-C26-C30 |
| 2 | 0 | 2881 | TEL | O9-C4-C8-C14 |
| 2 | 0 | 2881 | TEL | C23-C19-C24-C28 |
| 2 | 0 | 2881 | TEL | C17-C11-N6-C10 |
| 2 | 0 | 2881 | TEL | C22-C27-N31-C36 |
| 2 | 0 | 2881 | TEL | C34-C28-O32-C38 |
| 2 | 0 | 2881 | TEL | C2-C4-O9-C15 |
| 2 | 0 | 2881 | TEL | O18-C13-C19-C24 |

There are no ring outliers.

1 monomer is involved in 11 short contacts:

| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|------|------|---------|--------------|
| 2 | 0 | 2881 | TEL | 11 | 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.