



Full wwPDB X-ray Structure Validation Report ⓘ

Aug 8, 2023 – 08:18 AM EDT

PDB ID : 1NJN
Title : The crystal structure of the 50S Large ribosomal subunit from *Deinococcus radiodurans* complexed with the antibiotic sparsomycin
Authors : Bashan, A.; Agmon, I.; Zarivatch, R.; Schluenzen, F.; Harms, J.M.; Berisio, R.; Bartels, H.; Hansen, H.A.; Yonath, A.
Deposited on : 2003-01-02
Resolution : 3.70 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)
Xtriage (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

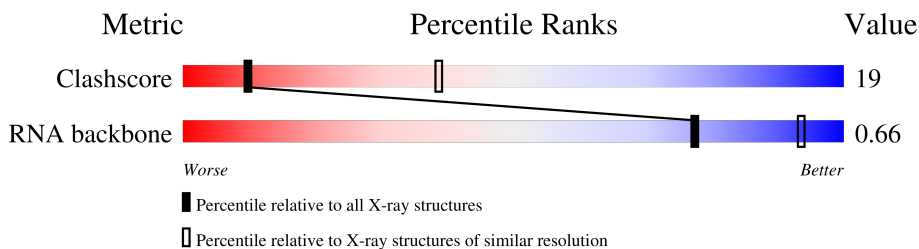
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.70 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
Clashscore	141614	1027 (3.86-3.54)
RNA backbone	3102	1027 (4.40-3.00)

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	

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	SPS	0	2881	X	-	-	-

2 Entry composition [i](#)

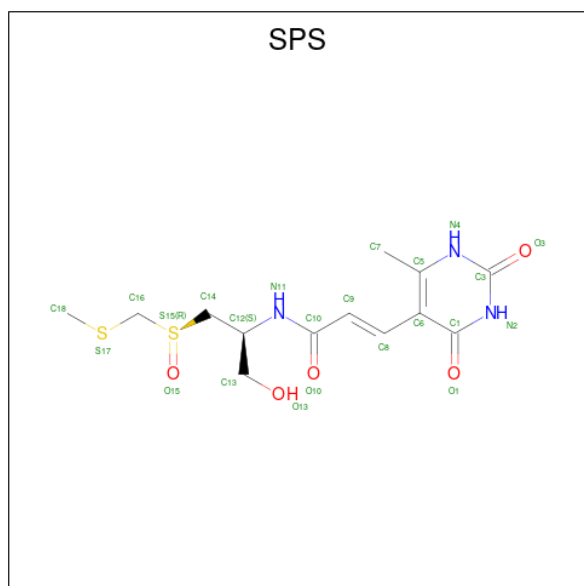
There are 2 unique types of molecules in this entry. The entry contains 59381 atoms, of which 0 are hydrogens and 0 are deuteriums.

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	2766	59359	26479	10949	19166	2765	0	0	0

- Molecule 2 is SPARSOMYCIN (three-letter code: SPS) (formula: $C_{13}H_{19}N_3O_5S_2$).



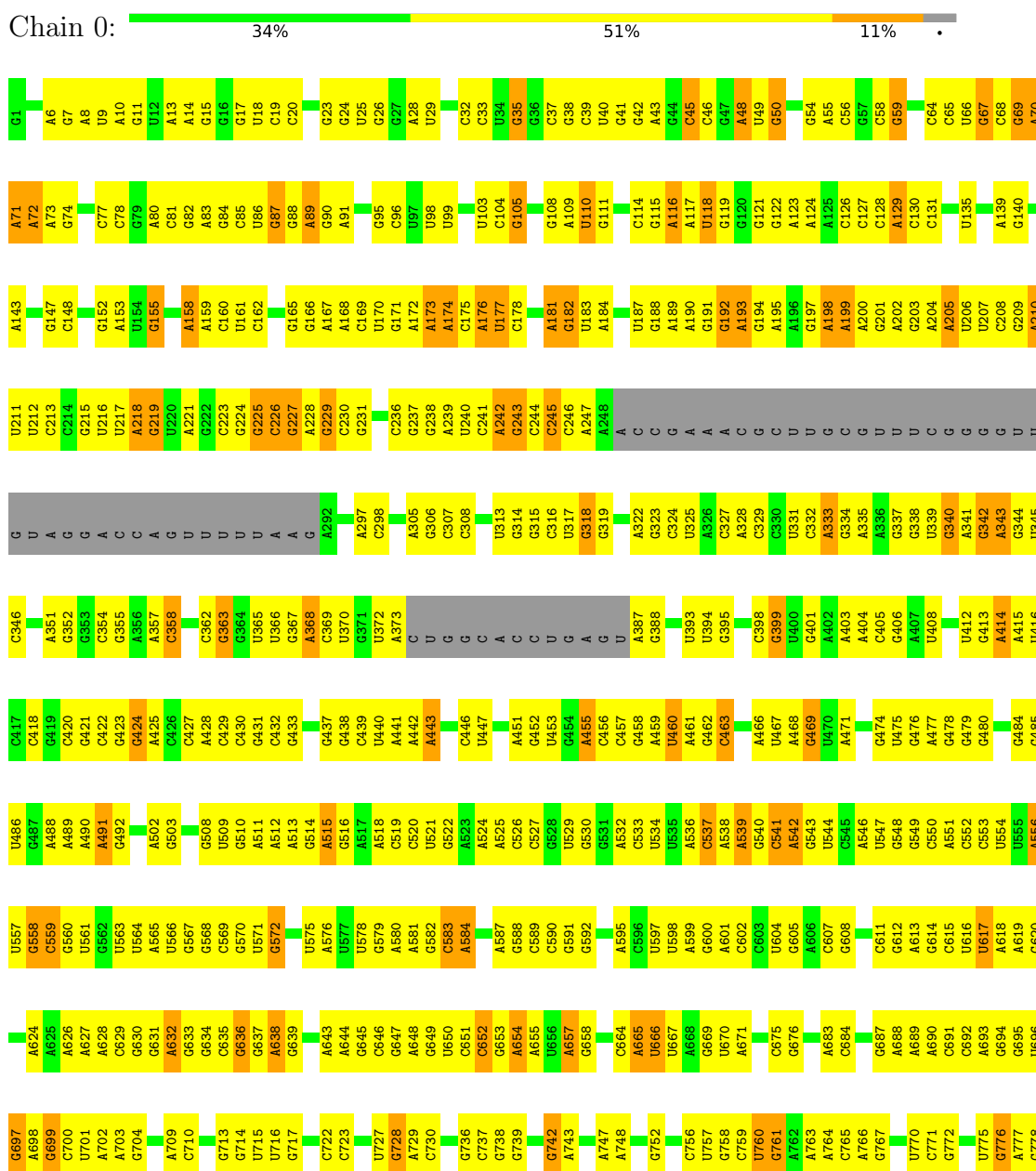
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	S		
2	0	1	22	13	3	4	2	0	0

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



U1810	G1730	C1580	G1503	A1433	U1286	C1214	U1144	U1046	A979	C	U779
A1811	C1731	C1581	G1504	U1494	A1287	A1215	C1145	G1047	G980	A911	U780
U1812	U1732	A1582	U1505	A1494	A1288	G1216	G1146	C1052	C981	U916	U781
A1813	U1733	A1583	G1506	G1436	A1289	U1217	G1147	C1053	A984	U917	U782
G1814	A1733	A1584	G1507	A1437	A1290	C1218	G1148	G1054	G985	U918	G783
G1818	A1736	A1585	G1508	A1437	A1291	C1219	G1149	C1055	U985	U919	U784
U1819	G1737	A1586	A1510	A1441	A1292	G1220	C1150	A1055	A986	U920	U785
G1820	G1742	A1587	A1512	G1442	A1293	C1221	U1151	U1056	G987	G926	U786
A1821	C1743	U1591	A1512	G1443	G1298	G1222	A1154	U1057	G988	A922	A787
C1822	G1743	C1444	C1513	A1444	G1299	G1223	A1155	G1058	G788	A922	G789
C1825	G1744	A1445	C1514	A1445	U1300	A1224	U1156	A1065	A790	U925	A790
U1826	A1746	U1446	C1515	U1446	C1301	G1225	U1156	G1066	A791	C926	G791
U1826	G1747	U1447	A1516	U1447	U1302	A1226	A1162	G1067	A856	C927	U792
U1826	G1747	U1447	C1517	U1447	U1303	A1227	A1162	U1068	A857	C928	G793
C1829	U1748	C1451	C1518	C1451	U1307	A1231	C1163	A1069	A858	G928	U794
C1830	G1749	A1452	G1519	A1452	C1308	U1232	C1164	G1069	A859	A929	A794
G1831	A1750	U1453	G1520	U1453	G1309	U1233	C1165	G1070	C998	A930	A795
G1831	G1750	U1454	G1521	U1454	C1309	A1233	A1166	G1071	A999	G931	A796
C1835	G1754	C1455	C1524	C1455	C1310	G1234	A1167	G1072	G1000	G932	A797
C1836	G1755	A1457	C1524	A1457	C1311	C1235	G1168	G1074	A1001	G933	G798
C1836	G1755	A1458	G1527	A1458	C1312	A1242	C1169	C1075	A1002	G934	G799
G1837	U1676	U1459	C1528	U1459	U1313	G1243	U1172	U1076	C1003	G935	U800
G1838	G1761	C1529	C1529	A1463	A1314	G1243	U1172	U1076	A1004	A936	C804
A1839	C1762	U1530	U1530	A1463	A1315	U1244	G1173	A1081	C1005	C939	G805
A1840	G1763	C1531	C1531	A1464	A1316	U1244	G1173	A1084	C1006	G940	A806
G1841	A1764	A1532	A1532	G1465	G1317	G1245	G1174	U1084	C1007	A1007	A807
G1850	U1765	G1533	G1533	G1466	A1318	G1248	A1175	G1085	U1008	G1008	A808
A1851	G1766	G1533	G1533	U1467	C1319	G1249	U1176	G1086	C1009	U942	C809
G1855	U1770	U1539	U1539	U1468	A1320	A1250	C1177	C1087	U943	U943	U810
G1856	A1771	A1610	C1540	U1469	A1321	G1251	A1179	C1088	A944	A944	U811
G1857	C1772	U1612	G1542	U1470	U1392	C1252	A1180	C1089	U945	U945	G812
C1858	C1773	G1613	G1542	G1471	G1393	C1253	A1181	C1090	G949	G949	A813
A1859	A1774	C1614	U1544	C1472	A1397	G1254	U1182	U1092	G950	G950	G814
A1860	A1775	U1545	A1544	U1473	C1326	U1257	C1183	U1093	A951	A951	A815
G1861	C1692	U1546	U1546	U1474	U1327	G1258	C1184	U1094	A952	A952	U816
C1862	U1778	U1547	U1547	U1475	C1328	A1259	G1185	A1099	A1020	A1020	G817
C1865	C1779	U1548	U1548	U1478	G1330	A1260	A1187	G1100	A1022	A1022	G818
G1866	G1780	C1552	C1552	G1479	G1331	G1261	A1188	A1114	U1023	U1023	C819
G1871	U1785	G1557	G1557	G1480	U1332	U1262	A1189	A1114	G1024	G1024	U820
G1880	U1787	C1558	C1558	U1481	A1333	G1263	C1190	G1120	A1025	A1025	C827
U1881	C1788	A1561	A1561	U1482	U1410	G1264	C1191	G1121	G958	G958	G822
G1882	U1789	G1562	G1562	A1486	C1411	G1265	A1192	A1122	C1027	C1027	U823
A1883	G1791	G1566	G1566	C1487	G1414	G1266	G1193	G1122	U960	U960	C825
A1884	C1792	A1567	A1567	U1488	C1415	G1269	U1194	C1127	U1030	U1030	U826
C1885	A1793	A1568	A1568	U1489	U1338	C1270	U1195	G1128	C1031	C1031	C829
G1886	A1794	G1571	G1571	U1490	C1340	C1271	U1197	U1129	A1032	A1032	C830
G1887	U1799	C1572	C1572	U1491	G1341	G1272	U1198	U1130	G1033	G1033	C831
C1888	A1800	C1573	C1573	U1492	U1342	G1273	U1199	U1131	U1034	U1034	A832
G1889	C1801	A1574	A1574	A1493	U1343	C1274	G1200	G1132	G1035	G1035	A833
G1890	A1802	U1498	U1498	U1494	C1344	G1278	G1201	G1133	G1036	G1036	A834
A1895	U1807	G1575	G1575	U1499	G1345	C1279	U1202	A1137	U1037	U1037	U837
A1896	C1728	U1576	U1576	U1500	C1346	U1280	A1203	A1137	A970	A970	A838
A1899	C1729	U1577	U1577	U1500	U1428	U1281	G1204	A1138	A971	A971	U839
		G1579	G1579	G1502	C1348	G1282	G1205	A1139	C972	C972	C837
					A1349	A1282	U1205	A1140	U973	U973	U837
					G1350	G1283	G1211	U1141	U974	U974	A838
					U1430	G1284	G1211	U1142	C975	C975	U839
					G1432	A1285	G1211	A1143	U978	U978	U840
											G841

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	169.10Å 409.90Å 696.30Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	15.00 – 3.70	Depositor
% Data completeness (in resolution range)	(Not available) (15.00-3.70)	Depositor
R_{merge}	(Not available)	Depositor
R_{sym}	0.13	Depositor
Refinement program	CNS	Depositor
R, R_{free}	0.284 , 0.308	Depositor
Estimated twinning fraction	No twinning to report.	Xtrriage
Total number of atoms	59381	wwPDB-VP
Average B, all atoms (Å ²)	82.0	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: SPS

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	0.14	0/66467	0.63	0/103673

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	1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	0	873	U	Sidechain

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	0	59359	0	29917	1711	0
2	0	22	0	19	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
All	All	59381	0	29936	1711	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 19.

All (1711) 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	1.14
1:0:1073:G:H2'	1:0:1074:G:H4'	1.39	1.02
1:0:2769:C:H2'	1:0:2867:G:H22	1.23	1.01
1:0:1141:U:H3	1:0:2008:C:H5''	1.22	1.01
1:0:2548:G:H2'	1:0:2549:G:H5''	1.44	0.99
1:0:2668:U:H4'	1:0:2669:C:H5'	1.46	0.97
1:0:1252:C:H2'	1:0:1253:C:H5''	1.47	0.97
1:0:2636:A:H62	1:0:2643:G:H21	1.11	0.96
1:0:1182:U:H2'	1:0:1183:C:H5''	1.46	0.96
1:0:1496:G:H1	1:0:1527:G:H1	1.10	0.95
1:0:688:A:H62	1:0:816:U:H3	1.11	0.95
1:0:1572:C:H2'	1:0:1573:G:H5''	1.47	0.95
1:0:847:C:H41	1:0:955:G:H21	1.14	0.94
1:0:1223:G:H21	1:0:1225:G:H21	0.98	0.93
1:0:1747:G:H4'	1:0:1749:G:H1'	1.50	0.93
1:0:789:G:H21	1:0:806:A:H62	1.11	0.93
1:0:1953:A:H1'	1:0:1955:G:H1'	1.51	0.93
1:0:1086:C:H2'	1:0:1087:C:H5''	1.49	0.92
1:0:221:A:H62	1:0:231:G:H21	1.17	0.92
1:0:1312:G:H5''	1:0:1313:U:H5'	1.52	0.92
1:0:166:G:H21	1:0:184:A:H62	1.10	0.92
1:0:1915:A:H62	1:0:1951:G:H21	1.19	0.90
1:0:471:A:H62	1:0:480:G:H21	1.17	0.90
1:0:65:C:H2'	1:0:66:U:H5'	1.54	0.89
1:0:929:A:H3'	1:0:930:A:H5''	1.53	0.89
1:0:104:C:H2'	1:0:105:G:H5''	1.55	0.88
1:0:403:A:H4'	1:0:425:A:H5'	1.56	0.87
1:0:1656:U:H2'	1:0:1657:A:H5''	1.56	0.87
1:0:225:G:H3'	1:0:226:C:H5'	1.54	0.87
1:0:367:G:H2'	1:0:368:A:H5''	1.56	0.87
1:0:1436:G:H1'	1:0:1508:G:H21	1.40	0.86
1:0:128:C:H2'	1:0:129:A:H5''	1.58	0.86
1:0:831:G:H21	1:0:1203:A:H62	1.20	0.86

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:58:C:H3'	1:0:59:G:H5''	1.58	0.85
1:0:2633:A:H4'	1:0:2634:G:H4'	1.58	0.85
1:0:2579:A:H2'	1:0:2580:C:H5''	1.58	0.85
1:0:2047:C:H42	1:0:2425:G:H1	1.23	0.85
1:0:2607:C:H3'	1:0:2608:A:H5'	1.57	0.84
1:0:1964:A:H3'	1:0:1965:U:H5'	1.60	0.83
1:0:88:G:H3'	1:0:89:A:H5''	1.58	0.83
1:0:1034:U:H1'	1:0:1133:G:H5''	1.60	0.83
1:0:2491:C:H2'	1:0:2492:G:H5''	1.61	0.83
1:0:176:A:H1'	1:0:2221:G:H21	1.44	0.82
1:0:542:A:H2'	1:0:543:G:H5'	1.62	0.82
1:0:2522:G:H21	1:0:2625:U:H5''	1.44	0.82
1:0:460:U:H3	1:0:592:G:H1'	1.44	0.82
1:0:1001:A:H62	1:0:1200:G:H1'	1.45	0.82
1:0:2806:G:H1'	1:0:2858:A:H2'	1.62	0.81
1:0:1432:G:H21	1:0:1596:A:H62	1.27	0.81
1:0:2058:U:H5'	1:0:2576:G:H1'	1.62	0.81
1:0:109:A:H3'	1:0:110:U:H5''	1.61	0.81
1:0:2081:U:H2'	1:0:2082:C:H5''	1.62	0.81
1:0:9:U:H3	1:0:2608:A:H62	1.29	0.80
1:0:2794:G:H3'	1:0:2796:A:H62	1.45	0.80
1:0:2769:C:H2'	1:0:2867:G:N2	1.95	0.80
1:0:2770:A:H5'	1:0:2867:G:H22	1.44	0.80
1:0:918:A:H2'	1:0:919:U:H5''	1.63	0.80
1:0:181:A:H5''	1:0:182:G:OP1	1.82	0.79
1:0:940:G:H3'	1:0:941:U:C5'	2.10	0.79
1:0:67:G:N2	1:0:72:A:H2'	1.98	0.79
1:0:1811:A:O2'	1:0:1812:U:H5''	1.82	0.79
1:0:69:G:H4'	1:0:70:A:O5'	1.81	0.79
1:0:2198:U:H3'	1:0:2199:C:H5''	1.64	0.79
1:0:65:C:C2'	1:0:66:U:H5'	2.12	0.79
1:0:2548:G:C2'	1:0:2549:G:H5''	2.11	0.78
1:0:2426:G:H5'	1:0:2480:C:H41	1.48	0.78
1:0:1141:U:N3	1:0:2008:C:H5''	1.99	0.78
1:0:2227:C:H2'	1:0:2228:U:H5'	1.66	0.78
1:0:1188:A:H62	1:0:1189:G:H21	1.29	0.77
1:0:652:C:H42	1:0:657:A:H61	1.31	0.77
1:0:218:A:O2'	1:0:219:G:H4'	1.85	0.77
1:0:2261:G:H4'	1:0:2262:C:OP2	1.87	0.75
1:0:1807:A:O2'	1:0:1808:C:H4'	1.87	0.75
1:0:2096:U:H2'	1:0:2097:A:H5''	1.69	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2624:G:H4'	1:0:2712:G:H2'	1.69	0.74
1:0:2503:G:H3'	1:0:2504:G:H5''	1.69	0.74
1:0:2700:U:H3	1:0:2848:A:N6	1.85	0.74
1:0:688:A:N6	1:0:816:U:H3	1.86	0.74
1:0:689:A:H61	1:0:815:A:H61	1.35	0.74
1:0:66:U:H2'	1:0:67:G:N7	2.02	0.74
1:0:1252:C:C2'	1:0:1253:C:H5''	2.17	0.74
1:0:1572:C:C2'	1:0:1573:G:H5''	2.17	0.74
1:0:2241:U:H1'	1:0:2307:A:H1'	1.69	0.74
1:0:1182:U:C2'	1:0:1183:C:H5''	2.17	0.73
1:0:109:A:C3'	1:0:110:U:H5''	2.18	0.73
1:0:1047:G:H1	1:0:1130:U:H3	1.34	0.73
1:0:974:U:H1'	1:0:2229:G:H21	1.54	0.73
1:0:1223:G:H21	1:0:1225:G:N2	1.80	0.72
1:0:1373:G:H22	1:0:2192:U:H3	1.35	0.72
1:0:795:A:H4'	1:0:796:A:N7	2.03	0.72
1:0:824:U:H1'	1:0:1264:C:H1'	1.71	0.72
1:0:1621:C:H4'	1:0:1626:A:H61	1.55	0.72
1:0:616:U:H2'	1:0:617:U:H5''	1.70	0.72
1:0:1473:U:H4'	1:0:1474:A:C8	2.24	0.72
1:0:323:G:H5'	1:0:342:G:C6	2.24	0.72
1:0:2522:G:N2	1:0:2625:U:H5''	2.03	0.72
1:0:588:G:H4'	1:0:2001:G:H5''	1.71	0.72
1:0:1196:G:H2'	1:0:1197:U:O4'	1.90	0.72
1:0:202:A:H2'	1:0:203:G:O4'	1.88	0.71
1:0:2691:C:H3'	1:0:2692:A:H5''	1.72	0.71
1:0:1528:C:H2'	1:0:1529:C:H5''	1.71	0.71
1:0:2721:A:H62	1:0:2743:G:H21	1.38	0.71
1:0:1908:C:H2'	1:0:1909:U:H4'	1.73	0.71
1:0:2245:A:H4'	1:0:2246:A:C8	2.26	0.71
1:0:2499:C:H41	1:0:2521:A:H2	1.38	0.71
1:0:2503:G:C3'	1:0:2504:G:H5''	2.21	0.71
1:0:839:U:H5''	1:0:2408:G:OP2	1.91	0.71
1:0:181:A:H4'	1:0:182:G:H4'	1.73	0.71
1:0:1953:A:H1'	1:0:1955:G:C1'	2.21	0.71
1:0:514:G:N3	1:0:514:G:H2'	2.06	0.70
1:0:1139:A:H1'	1:0:2496:C:H5'	1.72	0.70
1:0:1479:G:N2	1:0:1543:G:H21	1.88	0.70
1:0:2759:U:H4'	1:0:2760:G:OP2	1.90	0.70
1:0:515:A:H2'	1:0:516:G:H5'	1.73	0.70
1:0:1529:C:H2'	1:0:1530:U:O4'	1.92	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2380:U:H2'	1:0:2381:A:H5'	1.72	0.70
1:0:576:A:H2	1:0:580:A:H62	1.38	0.69
1:0:1023:U:H1'	1:0:1154:A:N7	2.07	0.69
1:0:951:G:H2'	1:0:952:A:H5''	1.73	0.69
1:0:1838:G:H2'	1:0:1839:A:H5'	1.75	0.69
1:0:26:G:N2	1:0:524:A:H62	1.91	0.69
1:0:1188:A:N6	1:0:1189:G:H21	1.89	0.69
1:0:2808:U:H3'	1:0:2809:A:H5'	1.75	0.69
1:0:1021:A:H1'	1:0:1164:C:H1'	1.73	0.69
1:0:1354:A:H62	1:0:1407:G:H22	1.40	0.69
1:0:2607:C:H1'	1:0:2761:A:H2'	1.75	0.69
1:0:1033:G:H22	1:0:1150:C:H2'	1.57	0.69
1:0:1915:A:H62	1:0:1951:G:N2	1.90	0.69
1:0:319:G:H21	1:0:340:G:H21	1.40	0.69
1:0:2727:G:H1	1:0:2735:C:H5''	1.58	0.69
1:0:1260:A:N6	1:0:1262:U:H1'	2.08	0.68
1:0:2491:C:C2'	1:0:2492:G:H5''	2.23	0.68
1:0:2510:A:H61	1:0:2641:A:N6	1.90	0.68
1:0:941:U:H2'	1:0:942:U:O4'	1.93	0.68
1:0:1199:U:H3'	1:0:1200:G:H5''	1.75	0.68
1:0:191:G:O2'	1:0:192:G:H5'	1.93	0.68
1:0:800:U:H3'	1:0:804:C:N4	2.09	0.68
1:0:858:G:H5''	1:0:859:U:H5'	1.74	0.68
1:0:1791:C:O2'	1:0:1793:A:H5'	1.93	0.68
1:0:69:G:H5''	1:0:70:A:OP1	1.93	0.68
1:0:2495:G:H2'	1:0:2496:C:C6	2.29	0.68
1:0:471:A:H62	1:0:480:G:N2	1.90	0.68
1:0:1809:G:H2'	1:0:1810:U:O4'	1.93	0.68
1:0:1978:U:H3'	1:0:1979:C:H5''	1.75	0.68
1:0:166:G:H21	1:0:184:A:N6	1.90	0.68
1:0:1955:G:H2'	1:0:1956:G:H5'	1.75	0.68
1:0:584:A:H4'	1:0:2479:U:H5'	1.75	0.67
1:0:813:A:O2'	1:0:815:A:H5'	1.94	0.67
1:0:1500:U:H3	1:0:1520:G:H22	1.43	0.67
1:0:2324:G:H4'	1:0:2326:C:H5''	1.77	0.67
1:0:2700:U:H3	1:0:2848:A:H62	1.41	0.67
1:0:1191:G:H2'	1:0:1192:A:H8	1.59	0.67
1:0:1746:A:H2'	1:0:1747:G:H5'	1.76	0.67
1:0:1086:C:C2'	1:0:1087:C:H5''	2.24	0.67
1:0:630:G:H2'	1:0:631:G:H5'	1.77	0.67
1:0:1888:C:H5''	1:0:1889:G:H5''	1.77	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1188:A:H62	1:0:1189:G:N2	1.92	0.67
1:0:1312:G:H5'	1:0:1314:A:H1'	1.76	0.67
1:0:2418:A:H1'	1:0:2565:C:H4'	1.75	0.67
1:0:805:G:H5''	1:0:806:A:O5'	1.95	0.67
1:0:2680:U:H3'	1:0:2681:A:H5'	1.76	0.66
1:0:2095:G:H2'	1:0:2096:U:H5''	1.76	0.66
1:0:1685:A:H1'	1:0:1686:A:C5	2.30	0.66
1:0:542:A:C2'	1:0:543:G:H5'	2.25	0.66
1:0:998:C:H2'	1:0:999:A:O4'	1.94	0.66
1:0:1352:G:H2'	1:0:1353:A:H8	1.60	0.66
1:0:1474:A:H2'	1:0:1475:U:H5'	1.78	0.66
1:0:367:G:C2'	1:0:368:A:H5''	2.25	0.66
1:0:33:C:H42	1:0:466:A:H61	1.43	0.66
1:0:1686:A:N3	1:0:1686:A:H2'	2.10	0.65
1:0:651:C:H2'	1:0:652:C:H5''	1.78	0.65
1:0:1487:C:H2'	1:0:1488:G:H8	1.61	0.65
1:0:805:G:H4'	1:0:806:A:OP2	1.96	0.65
1:0:1195:U:H2'	1:0:1196:G:C8	2.31	0.65
1:0:104:C:C2'	1:0:105:G:H5''	2.27	0.65
1:0:1749:G:O6	1:0:2674:C:H4'	1.96	0.65
1:0:175:C:H1'	1:0:2413:A:H61	1.62	0.65
1:0:2758:A:H5''	1:0:2759:U:H5	1.61	0.65
1:0:2770:A:H5'	1:0:2867:G:N2	2.12	0.65
1:0:225:G:H3'	1:0:226:C:C5'	2.25	0.65
1:0:1923:U:H4'	1:0:1948:C:H41	1.61	0.65
1:0:2822:U:H2'	1:0:2823:G:O4'	1.96	0.65
1:0:653:G:H2'	1:0:654:A:H4'	1.79	0.65
1:0:727:U:H2'	1:0:728:G:H5''	1.79	0.65
1:0:1427:G:H2'	1:0:1428:G:H5'	1.79	0.65
1:0:1774:A:H1'	1:0:2586:G:H21	1.62	0.65
1:0:1323:G:H2'	1:0:1324:G:H4'	1.79	0.65
1:0:2009:U:H3	1:0:2020:G:H1	1.45	0.65
1:0:2755:A:O2'	1:0:2756:A:H5'	1.97	0.65
1:0:1194:U:H2'	1:0:1195:U:C6	2.31	0.65
1:0:2242:C:N4	1:0:2257:A:H61	1.95	0.65
1:0:652:C:H42	1:0:657:A:N6	1.95	0.65
1:0:1882:G:H21	1:0:1885:C:N4	1.94	0.65
1:0:2404:A:O2'	1:0:2405:A:OP2	2.15	0.65
1:0:45:C:H5''	1:0:192:G:N7	2.11	0.64
1:0:1938:U:O2'	1:0:1939:U:OP1	2.12	0.64
1:0:1580:C:H2'	1:0:1581:C:C6	2.32	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2198:U:C3'	1:0:2199:C:H5''	2.28	0.64
1:0:2236:U:C3'	1:0:2237:C:H5''	2.28	0.64
1:0:2236:U:H2'	1:0:2237:C:H5''	1.78	0.64
1:0:317:U:H2'	1:0:318:G:H5''	1.79	0.64
1:0:1181:C:H2'	1:0:1182:U:H5''	1.79	0.64
1:0:2357:A:H2'	1:0:2358:C:O4'	1.98	0.64
1:0:2690:A:OP2	1:0:2694:G:H5'	1.97	0.64
1:0:2312:A:H4'	1:0:2313:G:N7	2.13	0.63
1:0:83:A:H4'	1:0:84:G:O4'	1.97	0.63
1:0:2617:G:H22	1:0:2755:A:H2'	1.64	0.63
1:0:2636:A:H62	1:0:2643:G:N2	1.90	0.63
1:0:2261:G:H5''	1:0:2262:C:O5'	1.97	0.63
1:0:1679:U:C3'	1:0:1680:U:H5''	2.28	0.63
1:0:2080:U:H2'	1:0:2081:U:C6	2.33	0.63
1:0:58:C:H3'	1:0:59:G:C5'	2.28	0.63
1:0:70:A:O2'	1:0:72:A:H5''	1.98	0.63
1:0:1181:C:C3'	1:0:1182:U:H5''	2.29	0.63
1:0:1976:U:H2'	1:0:1977:C:H5'	1.81	0.63
1:0:1250:A:O2'	1:0:1251:G:H4'	1.98	0.63
1:0:1811:A:H1'	1:0:1813:A:C5	2.33	0.63
1:0:927:C:H2'	1:0:928:G:O4'	1.98	0.63
1:0:1679:U:H3'	1:0:1680:U:H5''	1.79	0.63
1:0:2544:A:H2'	1:0:2545:A:H4'	1.81	0.63
1:0:128:C:C2'	1:0:129:A:H5''	2.28	0.63
1:0:362:C:H2'	1:0:363:G:H4'	1.80	0.63
1:0:653:G:N2	1:0:655:A:H1'	2.14	0.62
1:0:1715:A:H1'	1:0:1717:A:O4'	1.99	0.62
1:0:2510:A:H61	1:0:2641:A:H61	1.45	0.62
1:0:777:A:N6	1:0:1766:U:H3	1.96	0.62
1:0:1341:G:H22	1:0:1664:G:H1	1.48	0.62
1:0:2370:G:HO2'	1:0:2371:A:H2	1.47	0.62
1:0:852:U:H3	1:0:950:G:H1	1.47	0.62
1:0:121:G:O2'	1:0:1389:C:H4'	2.00	0.62
1:0:414:A:H2'	1:0:415:A:O4'	1.99	0.62
1:0:2268:G:H22	1:0:2323:U:H4'	1.64	0.62
1:0:2422:C:H2'	1:0:2423:G:H8	1.64	0.62
1:0:2440:C:H1'	1:0:2471:U:H3	1.65	0.62
1:0:952:A:O2'	1:0:1204:G:H4'	1.99	0.62
1:0:1085:G:H2'	1:0:1086:C:C6	2.35	0.62
1:0:2035:G:H2'	1:0:2036:G:H8	1.65	0.62
1:0:1223:G:N2	1:0:1225:G:H21	1.83	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1871:G:H2'	1:0:1871:G:N3	2.15	0.62
1:0:942:U:H2'	1:0:943:U:O4'	2.00	0.62
1:0:1656:U:C2'	1:0:1657:A:H5''	2.29	0.61
1:0:2768:C:H2'	1:0:2769:C:O4'	1.99	0.61
1:0:665:A:H3'	1:0:666:U:H5''	1.82	0.61
1:0:1333:G:N2	1:0:1344:C:H41	1.96	0.61
1:0:1428:G:H5''	1:0:1429:A:H5'	1.80	0.61
1:0:2604:G:H2'	1:0:2605:C:C6	2.36	0.61
1:0:81:C:H2'	1:0:82:G:O4'	2.00	0.61
1:0:742:G:H2'	1:0:742:G:N3	2.13	0.61
1:0:1807:A:H5'	1:0:1809:G:C1'	2.30	0.61
1:0:1947:G:H3'	1:0:1947:G:OP1	2.00	0.61
1:0:1066:G:H2'	1:0:1067:G:H4'	1.82	0.61
1:0:1188:A:H2'	1:0:1189:G:O4'	2.00	0.61
1:0:13:A:H1'	1:0:536:A:N6	2.15	0.61
1:0:404:A:H5'	1:0:425:A:H4'	1.83	0.61
1:0:2759:U:H5''	1:0:2760:G:O5'	2.01	0.61
1:0:860:U:C2'	1:0:861:G:H5'	2.31	0.61
1:0:583:C:N3	1:0:2016:A:H4'	2.15	0.61
1:0:940:G:C3'	1:0:941:U:H5''	2.15	0.61
1:0:1900:U:O2'	1:0:1946:U:H5'	2.00	0.61
1:0:2045:A:H4'	1:0:2421:C:OP2	2.01	0.61
1:0:2242:C:H42	1:0:2257:A:N6	1.99	0.61
1:0:1713:G:H2'	1:0:1714:A:O4'	2.00	0.61
1:0:2059:U:H5	1:0:2575:U:H3	1.48	0.61
1:0:2426:G:O2'	1:0:2427:A:OP2	2.18	0.61
1:0:2721:A:H62	1:0:2743:G:N2	1.99	0.61
1:0:319:G:H21	1:0:340:G:N2	1.99	0.61
1:0:455:A:H4'	1:0:1214:C:O2'	2.00	0.61
1:0:2377:U:H2'	1:0:2378:G:C8	2.36	0.61
1:0:583:C:H41	1:0:2017:U:H5	1.47	0.61
1:0:2185:U:H2'	1:0:2186:G:C8	2.36	0.61
1:0:167:A:H62	1:0:183:U:H3	1.48	0.60
1:0:486:U:H4'	1:0:520:C:H5'	1.81	0.60
1:0:1712:G:H2'	1:0:1713:G:O4'	2.00	0.60
1:0:2223:U:H2'	1:0:2224:U:O4'	2.01	0.60
1:0:814:G:H3'	1:0:815:A:H5'	1.83	0.60
1:0:1380:C:H2'	1:0:1381:G:H5'	1.81	0.60
1:0:2260:C:H4'	1:0:2368:G:H21	1.66	0.60
1:0:2574:G:N2	1:0:2576:G:OP2	2.34	0.60
1:0:831:G:H21	1:0:1203:A:N6	1.94	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1455:C:O2'	1:0:1644:G:H5''	2.01	0.60
1:0:2508:G:H5''	1:0:2509:A:H5''	1.84	0.60
1:0:181:A:H4'	1:0:182:G:C5'	2.31	0.60
1:0:871:U:H1'	1:0:2248:A:H5''	1.83	0.60
1:0:439:C:H2'	1:0:440:U:O4'	2.01	0.60
1:0:2246:A:H2'	1:0:2246:A:N3	2.16	0.60
1:0:221:A:H62	1:0:231:G:N2	1.93	0.60
1:0:2727:G:O2'	1:0:2728:A:H5''	2.02	0.60
1:0:158:A:H2'	1:0:159:A:H8	1.66	0.60
1:0:579:G:H2'	1:0:2013:A:N6	2.17	0.60
1:0:1426:U:H2'	1:0:1427:G:O4'	2.01	0.60
1:0:2381:A:H4'	1:0:2382:C:C5	2.36	0.60
1:0:412:U:H2'	1:0:413:G:O4'	2.02	0.60
1:0:521:U:H4'	1:0:1248:G:O2'	2.01	0.60
1:0:632:A:H2'	1:0:633:G:H5'	1.82	0.60
1:0:1298:G:N2	1:0:1341:G:H5''	2.17	0.60
1:0:2418:A:H4'	1:0:2420:C:OP2	2.02	0.60
1:0:1286:U:H5''	1:0:1663:C:H42	1.67	0.59
1:0:1625:A:H2'	1:0:1625:A:N3	2.16	0.59
1:0:2015:G:O2'	1:0:2016:A:OP1	2.15	0.59
1:0:1918:G:H4'	1:0:1920:A:N3	2.16	0.59
1:0:925:U:H4'	1:0:926:C:C5	2.37	0.59
1:0:1458:A:H3'	1:0:1459:U:C5'	2.33	0.59
1:0:1289:A:O2'	1:0:1290:A:H5'	2.02	0.59
1:0:1634:A:O2'	1:0:1635:G:OP1	2.16	0.59
1:0:2547:C:H2'	1:0:2548:G:H8	1.67	0.59
1:0:2549:G:H2'	1:0:2550:C:O4'	2.02	0.59
1:0:459:A:H1'	1:0:466:A:N7	2.16	0.59
1:0:513:A:H4'	1:0:515:A:H5'	1.82	0.59
1:0:77:C:H2'	1:0:78:C:C6	2.38	0.59
1:0:2238:G:H2'	1:0:2239:C:C6	2.38	0.59
1:0:2607:C:H3'	1:0:2608:A:C5'	2.30	0.59
1:0:653:G:H4'	1:0:2328:G:H4'	1.83	0.59
1:0:1994:U:H2'	1:0:1995:G:O4'	2.03	0.59
1:0:2858:A:H3'	1:0:2859:U:H5'	1.85	0.59
1:0:689:A:H2'	1:0:690:A:H5'	1.84	0.59
1:0:1615:C:H2'	1:0:1616:C:C6	2.38	0.59
1:0:1923:U:H4'	1:0:1948:C:N4	2.18	0.59
1:0:1251:G:H2'	1:0:1252:C:C6	2.37	0.59
1:0:1474:A:H3'	1:0:1474:A:N3	2.18	0.59
1:0:1517:C:H2'	1:0:1518:C:C6	2.38	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2081:U:C2'	1:0:2082:C:H5''	2.32	0.59
1:0:614:G:H2'	1:0:615:C:C6	2.37	0.58
1:0:800:U:H3'	1:0:804:C:H41	1.68	0.58
1:0:1664:G:O5'	1:0:1665:C:OP1	2.21	0.58
1:0:2236:U:C2'	1:0:2237:C:H5''	2.33	0.58
1:0:2426:G:C5'	1:0:2480:C:H41	2.15	0.58
1:0:1198:C:H5''	1:0:1199:U:H5''	1.85	0.58
1:0:2491:C:C3'	1:0:2492:G:H5''	2.33	0.58
1:0:1088:A:H2'	1:0:1089:C:O4'	2.04	0.58
1:0:1301:U:H3	1:0:1339:U:H3	1.49	0.58
1:0:1354:A:O2'	1:0:1355:A:OP1	2.18	0.58
1:0:2402:U:H5'	1:0:2404:A:C5	2.38	0.58
1:0:2426:G:O6	1:0:2479:U:H2'	2.02	0.58
1:0:25:U:H3	1:0:525:A:N6	2.02	0.58
1:0:366:U:H2'	1:0:367:G:H8	1.68	0.58
1:0:490:A:O2'	1:0:491:A:H5'	2.03	0.58
1:0:558:G:H5''	1:0:559:C:C5	2.38	0.58
1:0:973:U:H2'	1:0:974:U:C6	2.38	0.58
1:0:1528:C:C2'	1:0:1529:C:H5''	2.34	0.58
1:0:2422:C:H2'	1:0:2423:G:C8	2.39	0.58
1:0:2574:G:H2'	1:0:2574:G:N3	2.18	0.58
1:0:974:U:H1'	1:0:2229:G:N2	2.17	0.58
1:0:1472:C:H2'	1:0:1473:U:H5'	1.85	0.58
1:0:1474:A:C2'	1:0:1475:U:H5'	2.33	0.58
1:0:1916:G:H2'	1:0:1917:C:C6	2.39	0.58
1:0:14:A:H2	1:0:2604:G:HO2'	1.52	0.58
1:0:17:G:H21	1:0:564:U:H5''	1.67	0.58
1:0:242:A:O2'	1:0:243:G:O4'	2.21	0.58
1:0:1392:U:H2'	1:0:1393:G:H5'	1.85	0.58
1:0:1567:A:H2'	1:0:1568:A:O4'	2.04	0.58
1:0:2322:U:O2'	1:0:2323:U:H5'	2.03	0.58
1:0:114:C:O2'	1:0:124:A:H1'	2.04	0.58
1:0:1730:G:H2'	1:0:1731:C:C6	2.38	0.58
1:0:2636:A:N6	1:0:2643:G:H21	1.93	0.58
1:0:176:A:H5''	1:0:177:U:H5	1.69	0.58
1:0:368:A:H2'	1:0:369:C:O4'	2.04	0.58
1:0:1180:A:H2'	1:0:1181:C:C6	2.39	0.58
1:0:2008:C:H2'	1:0:2009:U:C6	2.39	0.58
1:0:2547:C:H2'	1:0:2548:G:C8	2.38	0.58
1:0:687:G:O2'	1:0:688:A:H5'	2.03	0.58
1:0:804:C:O2'	1:0:806:A:H4'	2.04	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2205:C:H2'	1:0:2206:C:C6	2.39	0.58
1:0:2691:C:H3'	1:0:2692:A:C5'	2.33	0.58
1:0:173:A:H2'	1:0:173:A:N3	2.19	0.57
1:0:1354:A:H62	1:0:1407:G:N2	2.01	0.57
1:0:1514:C:H2'	1:0:1515:U:O4'	2.04	0.57
1:0:1747:G:H1'	1:0:1749:G:N3	2.19	0.57
1:0:2677:U:H2'	1:0:2678:C:C6	2.39	0.57
1:0:224:G:C5	1:0:226:C:H1'	2.39	0.57
1:0:322:A:H1'	1:0:343:A:N7	2.19	0.57
1:0:1915:A:N6	1:0:1951:G:H21	1.98	0.57
1:0:2057:U:O2'	1:0:2576:G:H1'	2.04	0.57
1:0:2769:C:H2'	1:0:2770:A:H5'	1.86	0.57
1:0:26:G:H21	1:0:524:A:H62	1.53	0.57
1:0:322:A:H2	1:0:342:G:OP2	1.87	0.57
1:0:118:U:H1'	1:0:143:A:C8	2.40	0.57
1:0:605:G:H4'	1:0:949:G:O2'	2.04	0.57
1:0:804:C:O2	1:0:807:A:H5'	2.04	0.57
1:0:930:A:OP1	1:0:930:A:H4'	2.02	0.57
1:0:1137:A:H5''	1:0:1138:A:H5''	1.85	0.57
1:0:1280:U:O2'	1:0:1281:A:H5'	2.05	0.57
1:0:2018:G:H3'	1:0:2019:C:C5'	2.35	0.57
1:0:236:C:H1'	1:0:632:A:O2'	2.04	0.57
1:0:1181:C:H3'	1:0:1182:U:H5''	1.87	0.57
1:0:177:U:H2'	1:0:178:C:C6	2.40	0.57
1:0:192:G:O2'	1:0:193:A:OP2	2.18	0.57
1:0:1200:G:O2'	1:0:1201:G:H5'	2.03	0.57
1:0:1779:C:H2'	1:0:1780:A:O4'	2.04	0.57
1:0:242:A:O2'	1:0:243:G:P	2.62	0.57
1:0:665:A:H3'	1:0:666:U:C5'	2.35	0.57
1:0:1971:C:H2'	1:0:1972:G:H8	1.70	0.57
1:0:2222:U:H2'	1:0:2223:U:C6	2.39	0.57
1:0:2236:U:H3'	1:0:2237:C:H5''	1.85	0.57
1:0:2244:C:N4	1:0:2245:A:N6	2.53	0.57
1:0:217:U:H5'	1:0:633:G:O2'	2.05	0.57
1:0:766:A:H2'	1:0:767:G:C8	2.40	0.57
1:0:847:C:N4	1:0:955:G:H21	1.93	0.57
1:0:984:A:H2'	1:0:1200:G:H22	1.69	0.57
1:0:1181:C:C2'	1:0:1182:U:H5''	2.35	0.57
1:0:1711:C:H4'	1:0:1712:G:C2	2.39	0.57
1:0:1982:C:H1'	1:0:2666:U:O2'	2.05	0.57
1:0:357:A:H2'	1:0:358:C:H5'	1.87	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1337:G:H1'	1:0:1632:A:N6	2.20	0.57
1:0:1683:G:H2'	1:0:1684:G:O4'	2.05	0.57
1:0:2494:C:H2'	1:0:2495:G:C8	2.40	0.57
1:0:2668:U:C4'	1:0:2669:C:H5'	2.29	0.57
1:0:843:G:O2'	1:0:844:G:OP1	2.15	0.56
1:0:2437:G:N2	1:0:2469:G:H2'	2.20	0.56
1:0:2492:G:H2'	1:0:2493:U:O4'	2.05	0.56
1:0:103:U:H2'	1:0:104:C:C6	2.39	0.56
1:0:225:G:N2	1:0:2410:U:H1'	2.20	0.56
1:0:369:C:H2'	1:0:370:U:O4'	2.04	0.56
1:0:791:G:H2'	1:0:792:U:C6	2.40	0.56
1:0:879:A:H2'	1:0:879:A:N3	2.20	0.56
1:0:1431:U:H2'	1:0:1432:G:O4'	2.06	0.56
1:0:1472:C:C2'	1:0:1473:U:H5'	2.34	0.56
1:0:55:A:H2'	1:0:56:C:C6	2.40	0.56
1:0:758:G:O2'	1:0:761:G:H1'	2.05	0.56
1:0:1140:A:H61	1:0:2470:U:H6	1.53	0.56
1:0:1191:G:H2'	1:0:1192:A:C8	2.40	0.56
1:0:1791:C:H1'	1:0:1793:A:O4'	2.04	0.56
1:0:2274:C:H2'	1:0:2275:U:H5'	1.88	0.56
1:0:2794:G:H2'	1:0:2796:A:N7	2.21	0.56
1:0:538:A:H2'	1:0:539:A:H5''	1.87	0.56
1:0:468:A:H2'	1:0:469:G:H4'	1.88	0.56
1:0:1981:A:H4'	1:0:2704:U:O2'	2.06	0.56
1:0:2368:G:H5''	1:0:2369:U:O4'	2.05	0.56
1:0:2459:C:H2'	1:0:2460:G:H5'	1.88	0.56
1:0:552:C:H2'	1:0:553:C:H4'	1.88	0.56
1:0:616:U:C2'	1:0:617:U:H5''	2.36	0.56
1:0:669:G:H2'	1:0:670:U:C6	2.41	0.56
1:0:776:G:H2'	1:0:776:G:N3	2.21	0.56
1:0:784:U:H2'	1:0:785:U:C6	2.41	0.56
1:0:876:A:H2'	1:0:877:G:C8	2.41	0.56
1:0:1073:G:C2'	1:0:1074:G:H4'	2.26	0.56
1:0:1220:G:H2'	1:0:1221:C:C6	2.41	0.56
1:0:1813:A:H2'	1:0:1814:G:C8	2.40	0.56
1:0:2243:C:H2'	1:0:2244:C:O4'	2.06	0.56
1:0:2321:C:H2'	1:0:2322:U:O4'	2.05	0.56
1:0:2854:G:H3'	1:0:2854:G:N3	2.21	0.56
1:0:197:G:H22	1:0:440:U:H2'	1.71	0.56
1:0:929:A:H2'	1:0:930:A:H4'	1.88	0.56
1:0:1263:G:O2'	1:0:1264:C:OP1	2.24	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:476:G:H21	1:0:696:U:H1'	1.70	0.55
1:0:873:U:P	1:0:928:G:H1	2.29	0.55
1:0:826:U:H2'	1:0:827:C:C6	2.41	0.55
1:0:831:G:N2	1:0:1203:A:H62	1.98	0.55
1:0:1356:G:H1'	1:0:1613:G:C2	2.41	0.55
1:0:1356:G:H5'	1:0:1614:C:OP2	2.06	0.55
1:0:1789:U:C2'	1:0:1790:G:H5'	2.36	0.55
1:0:1829:C:H2'	1:0:1830:C:H5'	1.88	0.55
1:0:2270:U:H2'	1:0:2271:C:C6	2.42	0.55
1:0:533:C:H2'	1:0:534:U:O4'	2.06	0.55
1:0:1464:A:H4'	1:0:1545:G:H4'	1.88	0.55
1:0:1326:U:H2'	1:0:1327:C:H5'	1.87	0.55
1:0:2329:C:H2'	1:0:2330:G:H5'	1.89	0.55
1:0:1278:A:O2'	1:0:1279:G:P	2.64	0.55
1:0:393:U:H2'	1:0:394:U:C6	2.42	0.55
1:0:515:A:C2'	1:0:516:G:H5'	2.37	0.55
1:0:541:C:H2'	1:0:2002:A:C2	2.41	0.55
1:0:1912:G:H2'	1:0:1912:G:N3	2.22	0.55
1:0:2012:A:N7	1:0:2014:A:H5'	2.20	0.55
1:0:2437:G:H2'	1:0:2469:G:C2	2.42	0.55
1:0:775:U:O2	1:0:1445:A:H5''	2.06	0.55
1:0:839:U:H2'	1:0:841:G:O4'	2.07	0.55
1:0:951:G:C2'	1:0:952:A:H5''	2.36	0.55
1:0:2319:G:H2'	1:0:2320:G:C8	2.42	0.55
1:0:126:C:H2'	1:0:127:C:C6	2.41	0.55
1:0:366:U:H2'	1:0:367:G:C8	2.42	0.55
1:0:1463:A:H2'	1:0:1464:A:C8	2.41	0.55
1:0:579:G:H2'	1:0:2013:A:H62	1.72	0.55
1:0:1746:A:C2'	1:0:1747:G:H5'	2.36	0.55
1:0:2095:G:C2'	1:0:2096:U:H5''	2.37	0.55
1:0:225:G:H21	1:0:2410:U:H1'	1.72	0.54
1:0:942:U:O2'	1:0:943:U:H5'	2.07	0.54
1:0:1087:C:H2'	1:0:1088:A:O4'	2.07	0.54
1:0:2581:A:H2'	1:0:2582:G:H5''	1.89	0.54
1:0:162:C:H4'	1:0:195:A:O2'	2.07	0.54
1:0:394:U:H2'	1:0:395:G:H8	1.71	0.54
1:0:578:U:C1'	1:0:957:G:H21	2.19	0.54
1:0:1313:U:O2'	1:0:1314:A:P	2.66	0.54
1:0:2204:A:O2'	1:0:2205:C:P	2.65	0.54
1:0:2249:U:H2'	1:0:2250:G:O4'	2.08	0.54
1:0:2560:G:H3'	1:0:2560:G:N3	2.23	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2641:A:H2'	1:0:2642:G:O4'	2.08	0.54
1:0:48:A:H4'	1:0:50:G:O4'	2.08	0.54
1:0:404:A:H2'	1:0:405:C:C6	2.42	0.54
1:0:2570:C:H2'	1:0:2571:G:C8	2.43	0.54
1:0:215:G:H4'	1:0:617:U:O2'	2.08	0.54
1:0:1279:G:C2'	1:0:1280:U:OP2	2.56	0.54
1:0:1949:A:H1'	1:0:2572:U:C4'	2.38	0.54
1:0:1955:G:C2'	1:0:1956:G:H5'	2.37	0.54
1:0:2162:C:H2'	1:0:2163:U:C6	2.42	0.54
1:0:58:C:O2	1:0:72:A:H3'	2.08	0.54
1:0:598:U:H2'	1:0:599:A:C8	2.42	0.54
1:0:2379:G:H2'	1:0:2380:U:O4'	2.07	0.54
1:0:2783:U:C6	1:0:2783:U:OP1	2.60	0.54
1:0:752:G:H5'	1:0:1775:A:N6	2.23	0.54
1:0:838:A:H2'	1:0:839:U:C6	2.43	0.54
1:0:843:G:O2'	1:0:844:G:H5'	2.08	0.54
1:0:1974:U:H2'	1:0:1975:G:H5''	1.88	0.54
1:0:2168:A:H2'	1:0:2169:A:H5'	1.89	0.54
1:0:2381:A:H4'	1:0:2382:C:H5	1.71	0.54
1:0:197:G:N2	1:0:440:U:H2'	2.23	0.54
1:0:918:A:C2'	1:0:919:U:H5''	2.35	0.54
1:0:2229:G:H2'	1:0:2475:C:OP1	2.08	0.54
1:0:2783:U:H2'	1:0:2784:A:O4'	2.07	0.54
1:0:213:C:H42	1:0:238:G:H22	1.54	0.54
1:0:1976:U:C2'	1:0:1977:C:H5'	2.37	0.54
1:0:2017:U:O2'	1:0:2018:G:H5'	2.07	0.54
1:0:173:A:O2'	1:0:174:A:OP1	2.19	0.54
1:0:243:G:H2'	1:0:244:C:O4'	2.08	0.54
1:0:688:A:O2'	1:0:2422:C:H4'	2.07	0.54
1:0:841:G:H3'	1:0:841:G:N3	2.22	0.54
1:0:1258:G:H2'	1:0:1259:A:C8	2.43	0.54
1:0:1745:C:H2'	1:0:1746:A:O4'	2.08	0.54
1:0:1825:C:C2'	1:0:1826:U:H5'	2.38	0.54
1:0:2245:A:H4'	1:0:2246:A:N7	2.23	0.54
1:0:2321:C:O2'	1:0:2353:G:H5''	2.08	0.54
1:0:2437:G:H2'	1:0:2469:G:N2	2.23	0.54
1:0:2466:G:H2'	1:0:2467:A:C8	2.43	0.54
1:0:216:U:H2'	1:0:217:U:O4'	2.08	0.54
1:0:242:A:O2'	1:0:243:G:O5'	2.25	0.54
1:0:604:U:H2'	1:0:605:G:C8	2.42	0.54
1:0:1210:C:H2'	1:0:1211:G:O4'	2.08	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1528:C:C3'	1:0:1529:C:H5''	2.38	0.54
1:0:2023:C:H2'	1:0:2024:U:C6	2.43	0.54
1:0:241:C:O2'	1:0:242:A:H5''	2.07	0.53
1:0:832:A:H2'	1:0:833:A:O4'	2.07	0.53
1:0:939:C:H2'	1:0:940:G:C8	2.43	0.53
1:0:1272:G:H2'	1:0:1273:G:C8	2.43	0.53
1:0:1313:U:O4	1:0:1651:U:H5'	2.08	0.53
1:0:1333:G:N2	1:0:1344:C:N4	2.56	0.53
1:0:2242:C:N4	1:0:2257:A:N6	2.55	0.53
1:0:64:C:H2'	1:0:65:C:C6	2.42	0.53
1:0:167:A:H2'	1:0:168:A:C8	2.43	0.53
1:0:1288:A:O2'	1:0:1289:A:H5'	2.08	0.53
1:0:1669:A:H2'	1:0:1670:G:H4'	1.90	0.53
1:0:457:C:H2'	1:0:458:G:O4'	2.08	0.53
1:0:737:C:H2'	1:0:738:G:O4'	2.08	0.53
1:0:879:A:O2'	1:0:880:C:H5'	2.07	0.53
1:0:1068:A:H2'	1:0:1069:G:C8	2.42	0.53
1:0:2470:U:O2'	1:0:2471:U:H5'	2.08	0.53
1:0:2809:A:C2'	1:0:2810:A:H5'	2.38	0.53
1:0:236:C:O2	1:0:632:A:H1'	2.09	0.53
1:0:782:U:H2'	1:0:783:G:C8	2.43	0.53
1:0:824:U:H1'	1:0:1264:C:C1'	2.38	0.53
1:0:917:U:H2'	1:0:918:A:O4'	2.07	0.53
1:0:73:A:H4'	1:0:74:G:H1'	1.91	0.53
1:0:484:G:O2'	1:0:485:G:H5'	2.08	0.53
1:0:1838:G:C2'	1:0:1839:A:H5'	2.39	0.53
1:0:2483:U:H1'	1:0:2551:A:H2	1.74	0.53
1:0:181:A:H4'	1:0:182:G:C4'	2.38	0.53
1:0:798:G:O2'	1:0:1770:U:H4'	2.08	0.53
1:0:1654:A:H2'	1:0:1655:C:C6	2.43	0.53
1:0:1818:G:H2'	1:0:1819:U:C6	2.43	0.53
1:0:1900:U:H4'	1:0:1946:U:O4'	2.09	0.53
1:0:1971:C:H2'	1:0:1972:G:C8	2.44	0.53
1:0:2451:G:H2'	1:0:2508:G:N2	2.24	0.53
1:0:2516:U:H2'	1:0:2517:C:C6	2.43	0.53
1:0:960:U:H2'	1:0:961:G:C8	2.43	0.53
1:0:1459:U:H2'	1:0:1475:U:O2'	2.08	0.53
1:0:2841:U:O2	1:0:2843:A:H1'	2.08	0.53
1:0:161:U:H2'	1:0:162:C:C6	2.44	0.53
1:0:646:C:H2'	1:0:647:G:O4'	2.08	0.53
1:0:688:A:H1'	1:0:2423:G:H5'	1.91	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:878:C:H42	1:0:921:A:N6	2.06	0.53
1:0:931:G:N2	1:0:2247:A:H5''	2.23	0.53
1:0:1190:C:H2'	1:0:1191:G:C8	2.44	0.53
1:0:1312:G:C5'	1:0:1313:U:H5'	2.33	0.53
1:0:1429:A:H62	1:0:1601:U:H5''	1.73	0.53
1:0:73:A:H4'	1:0:74:G:C1'	2.38	0.53
1:0:80:A:H2'	1:0:81:C:O4'	2.08	0.53
1:0:108:G:H2'	1:0:109:A:H8	1.73	0.53
1:0:127:C:H2'	1:0:128:C:C6	2.44	0.53
1:0:201:G:H2'	1:0:202:A:C8	2.44	0.53
1:0:728:G:H2'	1:0:729:A:O4'	2.09	0.53
1:0:857:U:H2'	1:0:858:G:H5'	1.90	0.53
1:0:2571:G:H2'	1:0:2572:U:C6	2.44	0.53
1:0:129:A:H2'	1:0:130:C:C6	2.43	0.53
1:0:788:G:H5'	1:0:790:A:H1'	1.90	0.53
1:0:941:U:H4'	1:0:941:U:OP1	2.08	0.53
1:0:1075:C:H2'	1:0:1076:U:O4'	2.09	0.53
1:0:1234:C:H2'	1:0:1235:C:C6	2.44	0.53
1:0:1259:A:H2'	1:0:1260:A:C8	2.44	0.53
1:0:2565:C:O2'	1:0:2566:A:H5'	2.08	0.53
1:0:70:A:P	1:0:111:G:H4'	2.49	0.52
1:0:824:U:O2'	1:0:1264:C:H1'	2.09	0.52
1:0:2061:C:H1'	1:0:2413:A:H1'	1.91	0.52
1:0:2504:G:H2'	1:0:2505:G:C8	2.44	0.52
1:0:212:U:H2'	1:0:213:C:C6	2.44	0.52
1:0:512:A:H2'	1:0:513:A:H5'	1.91	0.52
1:0:870:C:H2'	1:0:871:U:C6	2.44	0.52
1:0:929:A:H3'	1:0:930:A:C5'	2.34	0.52
1:0:1358:C:H2'	1:0:1359:G:C5'	2.39	0.52
1:0:1497:C:O2'	1:0:1498:G:H5'	2.08	0.52
1:0:2177:U:H2'	1:0:2178:U:C6	2.44	0.52
1:0:2440:C:H1'	1:0:2471:U:N3	2.25	0.52
1:0:38:G:H2'	1:0:39:C:C6	2.44	0.52
1:0:45:C:H5''	1:0:192:G:C8	2.43	0.52
1:0:1004:A:H2'	1:0:1005:U:H5''	1.90	0.52
1:0:1223:G:O2'	1:0:1224:A:OP2	2.22	0.52
1:0:1414:G:H2'	1:0:1415:C:C6	2.44	0.52
1:0:1566:G:H4'	1:0:1733:U:O4	2.10	0.52
1:0:1683:G:C2'	1:0:1684:G:H5'	2.39	0.52
1:0:1938:U:C2'	1:0:1939:U:H5'	2.39	0.52
1:0:590:C:H2'	1:0:591:G:C8	2.43	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1365:U:H1'	1:0:1586:A:H2	1.74	0.52
1:0:1502:G:O2'	1:0:1503:G:H5'	2.09	0.52
1:0:1964:A:H5''	1:0:1965:U:OP2	2.09	0.52
1:0:2372:A:H2'	1:0:2373:C:C6	2.44	0.52
1:0:476:G:H2'	1:0:477:A:C8	2.44	0.52
1:0:521:U:H2'	1:0:522:G:H5'	1.91	0.52
1:0:583:C:O2'	1:0:584:A:OP2	2.26	0.52
1:0:597:U:H3	1:0:683:A:H2'	1.74	0.52
1:0:599:A:H2'	1:0:600:G:C8	2.44	0.52
1:0:2498:U:H5''	1:0:2499:C:OP1	2.10	0.52
1:0:204:A:H4'	1:0:205:A:N7	2.25	0.52
1:0:628:A:H2'	1:0:629:C:C6	2.45	0.52
1:0:874:A:N6	1:0:928:G:H21	2.08	0.52
1:0:1018:C:H2'	1:0:1019:U:C5	2.44	0.52
1:0:1288:A:H2'	1:0:1289:A:O4'	2.09	0.52
1:0:1789:U:O2'	1:0:1790:G:H5'	2.09	0.52
1:0:35:G:C1'	1:0:466:A:H1'	2.39	0.52
1:0:55:A:N6	1:0:69:G:O6	2.42	0.52
1:0:95:G:H2'	1:0:96:C:C6	2.44	0.52
1:0:317:U:C3'	1:0:318:G:H5''	2.40	0.52
1:0:688:A:HO2'	1:0:2422:C:H4'	1.74	0.52
1:0:1763:G:H2'	1:0:1764:A:H4'	1.91	0.52
1:0:1788:C:H2'	1:0:1789:U:C6	2.45	0.52
1:0:2312:A:H1'	1:0:2314:A:C8	2.45	0.52
1:0:2623:A:H2'	1:0:2624:G:O4'	2.09	0.52
1:0:2728:A:H2'	1:0:2729:A:O4'	2.10	0.52
1:0:541:C:H2'	1:0:2002:A:N1	2.24	0.52
1:0:638:A:O2'	1:0:639:G:H5'	2.10	0.52
1:0:830:C:O2'	1:0:852:U:H5''	2.10	0.52
1:0:841:G:N1	1:0:2226:A:H4'	2.25	0.52
1:0:1217:U:H2'	1:0:1218:C:C6	2.45	0.52
1:0:1970:G:H2'	1:0:1971:C:C6	2.44	0.52
1:0:226:C:H4'	1:0:227:G:C8	2.45	0.52
1:0:394:U:H2'	1:0:395:G:C8	2.45	0.52
1:0:597:U:H2'	1:0:598:U:C6	2.44	0.52
1:0:757:U:O2'	1:0:758:G:H5'	2.10	0.52
1:0:807:A:H2'	1:0:808:C:C6	2.44	0.52
1:0:1029:C:H2'	1:0:1030:U:H5''	1.92	0.52
1:0:1611:U:H2'	1:0:1612:U:O4'	2.10	0.52
1:0:1664:G:H4'	1:0:1665:C:O5'	2.09	0.52
1:0:9:U:H3	1:0:2608:A:N6	2.03	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:68:C:O2'	1:0:69:G:H5'	2.09	0.52
1:0:1597:A:H2'	1:0:1598:C:C6	2.45	0.52
1:0:1775:A:H4'	1:0:1776:A:C8	2.45	0.52
1:0:1807:A:H5'	1:0:1809:G:O4'	2.10	0.52
1:0:2160:C:H2'	1:0:2161:C:C6	2.45	0.52
1:0:658:G:H4'	1:0:2331:A:H5'	1.92	0.51
1:0:795:A:H4'	1:0:796:A:C8	2.45	0.51
1:0:991:A:H61	1:0:2020:G:H21	1.58	0.51
1:0:1377:G:H4'	1:0:1800:A:H5'	1.93	0.51
1:0:2213:G:H2'	1:0:2214:G:C8	2.45	0.51
1:0:108:G:H2'	1:0:109:A:C8	2.46	0.51
1:0:564:U:H2'	1:0:565:A:C8	2.44	0.51
1:0:1301:U:H2'	1:0:1664:G:H21	1.74	0.51
1:0:1352:G:H2'	1:0:1353:A:C8	2.43	0.51
1:0:1979:C:H42	1:0:2706:U:H6	1.58	0.51
1:0:2320:G:H2'	1:0:2321:C:O4'	2.09	0.51
1:0:2559:U:H2'	1:0:2560:G:H5'	1.93	0.51
1:0:2560:G:H4'	1:0:2561:G:N7	2.24	0.51
1:0:460:U:N3	1:0:592:G:H1'	2.21	0.51
1:0:1286:U:H5''	1:0:1663:C:N4	2.25	0.51
1:0:1358:C:H2'	1:0:1359:G:H5''	1.92	0.51
1:0:1727:C:H4'	1:0:2833:C:O2	2.09	0.51
1:0:1860:A:H2'	1:0:1861:G:O4'	2.11	0.51
1:0:65:C:H2'	1:0:66:U:C5'	2.36	0.51
1:0:451:A:H2'	1:0:452:G:C8	2.45	0.51
1:0:491:A:N3	1:0:491:A:H2'	2.26	0.51
1:0:597:U:N3	1:0:683:A:H2'	2.26	0.51
1:0:984:A:H2'	1:0:1200:G:N2	2.24	0.51
1:0:1921:A:H2'	1:0:1922:U:H5''	1.92	0.51
1:0:2083:G:H2'	1:0:2084:G:O4'	2.11	0.51
1:0:2401:A:H2'	1:0:2403:C:C5	2.45	0.51
1:0:333:A:H1'	1:0:351:A:C4	2.45	0.51
1:0:1033:G:H22	1:0:1150:C:C2'	2.24	0.51
1:0:1199:U:O4	1:0:1201:G:N7	2.43	0.51
1:0:1218:C:H2'	1:0:1219:C:C6	2.45	0.51
1:0:1861:G:O2'	1:0:1862:C:H5'	2.10	0.51
1:0:1865:C:H2'	1:0:1866:G:O4'	2.10	0.51
1:0:2272:A:H2'	1:0:2273:C:C6	2.46	0.51
1:0:2426:G:O2'	1:0:2427:A:P	2.68	0.51
1:0:168:A:H2'	1:0:169:C:C6	2.46	0.51
1:0:446:C:H2'	1:0:447:U:C6	2.46	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:539:A:N6	1:0:2024:U:H3	2.08	0.51
1:0:629:C:H2'	1:0:630:G:H5'	1.93	0.51
1:0:689:A:H3'	1:0:689:A:N3	2.25	0.51
1:0:763:A:C2	1:0:765:C:H1'	2.46	0.51
1:0:1001:A:N6	1:0:1200:G:H1'	2.22	0.51
1:0:1661:C:O2'	1:0:1662:G:H5'	2.10	0.51
1:0:2059:U:H2'	1:0:2060:A:H5''	1.91	0.51
1:0:2428:U:O2'	1:0:2429:A:H5'	2.10	0.51
1:0:2536:G:H2'	1:0:2537:C:C6	2.46	0.51
1:0:215:G:O2'	1:0:617:U:H1'	2.09	0.51
1:0:317:U:C2'	1:0:318:G:H5''	2.40	0.51
1:0:587:A:H2'	1:0:588:G:H5''	1.92	0.51
1:0:831:G:C2'	1:0:832:A:H5''	2.40	0.51
1:0:980:G:H2'	1:0:981:C:C6	2.46	0.51
1:0:1092:U:H2'	1:0:1093:U:C6	2.45	0.51
1:0:230:C:H2'	1:0:231:G:O4'	2.11	0.51
1:0:1312:G:H2'	1:0:1643:A:N6	2.25	0.51
1:0:1791:C:H2'	1:0:1792:C:H5''	1.93	0.51
1:0:2079:A:H2'	1:0:2080:U:C6	2.46	0.51
1:0:2397:A:H2'	1:0:2398:U:O4'	2.11	0.51
1:0:25:U:H3	1:0:525:A:H61	1.56	0.51
1:0:1777:A:H5'	1:0:1963:G:H21	1.76	0.51
1:0:1819:U:H5''	1:0:1954:A:O3'	2.11	0.51
1:0:2757:G:OP2	1:0:2761:A:H4'	2.10	0.51
1:0:35:G:H1'	1:0:466:A:H1'	1.93	0.51
1:0:67:G:H22	1:0:72:A:H2'	1.76	0.51
1:0:173:A:H61	1:0:844:G:H21	1.57	0.51
1:0:788:G:H5'	1:0:790:A:N3	2.26	0.51
1:0:1677:C:H2'	1:0:1678:G:C8	2.46	0.51
1:0:1793:A:H2'	1:0:1794:A:C8	2.46	0.51
1:0:2756:A:H1'	1:0:2758:A:N7	2.26	0.51
1:0:2758:A:H5''	1:0:2759:U:C5	2.44	0.51
1:0:173:A:N6	1:0:844:G:H21	2.09	0.50
1:0:1127:C:H2'	1:0:1128:G:H8	1.76	0.50
1:0:1141:U:H5'	1:0:2549:G:N2	2.26	0.50
1:0:2727:G:C2'	1:0:2728:A:H5''	2.41	0.50
1:0:571:U:H2'	1:0:581:A:H1'	1.93	0.50
1:0:645:G:H2'	1:0:646:C:C6	2.46	0.50
1:0:878:C:H42	1:0:921:A:H62	1.58	0.50
1:0:1052:C:H2'	1:0:1053:G:C8	2.45	0.50
1:0:1055:A:N6	1:0:1122:A:H4'	2.26	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1881:U:H2'	1:0:1882:G:H5'	1.94	0.50
1:0:2532:G:H1'	1:0:2561:G:N3	2.26	0.50
1:0:2783:U:O2'	1:0:2784:A:H4'	2.10	0.50
1:0:338:G:O2'	1:0:339:U:H5'	2.12	0.50
1:0:792:U:H2'	1:0:793:G:O4'	2.11	0.50
1:0:872:G:H2'	1:0:928:G:N1	2.27	0.50
1:0:1141:U:O2'	1:0:1142:G:OP1	2.25	0.50
1:0:1435:G:H21	1:0:1511:A:N6	2.10	0.50
1:0:1793:A:H2'	1:0:1794:A:H8	1.77	0.50
1:0:1424:U:H2'	1:0:1425:G:C8	2.46	0.50
1:0:2432:A:H4'	1:0:2551:A:O2'	2.12	0.50
1:0:2579:A:C2'	1:0:2580:C:H5''	2.34	0.50
1:0:2703:C:H2'	1:0:2704:U:C6	2.46	0.50
1:0:170:U:H2'	1:0:171:G:H8	1.77	0.50
1:0:223:C:H4'	1:0:398:C:H1'	1.93	0.50
1:0:665:A:OP2	1:0:666:U:H5'	2.12	0.50
1:0:689:A:C2'	1:0:690:A:H5'	2.42	0.50
1:0:1038:U:O2	1:0:2466:G:H4'	2.10	0.50
1:0:1495:G:HO2'	1:0:1496:G:P	2.34	0.50
1:0:84:G:H2'	1:0:85:C:C6	2.47	0.50
1:0:109:A:H3'	1:0:110:U:C5'	2.38	0.50
1:0:158:A:H2'	1:0:159:A:C8	2.44	0.50
1:0:599:A:H2'	1:0:600:G:H8	1.76	0.50
1:0:618:A:H2'	1:0:619:A:O4'	2.12	0.50
1:0:632:A:C2'	1:0:633:G:H5'	2.42	0.50
1:0:860:U:O2'	1:0:861:G:H5'	2.12	0.50
1:0:1194:U:O2'	1:0:1195:U:P	2.70	0.50
1:0:1923:U:H1'	1:0:1947:G:H4'	1.94	0.50
1:0:18:U:H2'	1:0:19:C:C6	2.46	0.50
1:0:864:C:H2'	1:0:865:A:H8	1.77	0.50
1:0:964:A:H2'	1:0:965:G:C8	2.47	0.50
1:0:1055:A:O2'	1:0:1058:G:H1'	2.12	0.50
1:0:1067:G:H2'	1:0:1114:A:H61	1.77	0.50
1:0:1289:A:H62	1:0:1662:G:H1	1.60	0.50
1:0:1922:U:H1'	1:0:2570:C:O2'	2.11	0.50
1:0:2178:U:H2'	1:0:2179:C:C6	2.47	0.50
1:0:45:C:H2'	1:0:46:C:C6	2.46	0.50
1:0:775:U:H4'	1:0:776:G:C8	2.47	0.50
1:0:1057:A:H3'	1:0:1058:G:C5'	2.41	0.50
1:0:1073:G:H2'	1:0:1074:G:C4'	2.28	0.50
1:0:1162:A:H2'	1:0:1163:C:C6	2.47	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1195:U:H2'	1:0:1196:G:H8	1.73	0.50
1:0:1225:G:H2'	1:0:1249:G:H1	1.77	0.50
1:0:1770:U:H2'	1:0:1774:A:H62	1.76	0.50
1:0:69:G:O2'	1:0:70:A:C8	2.65	0.50
1:0:165:G:H2'	1:0:166:G:O4'	2.12	0.50
1:0:316:C:H2'	1:0:317:U:C6	2.47	0.50
1:0:431:G:H2'	1:0:432:C:C6	2.47	0.50
1:0:1099:A:H5''	1:0:1100:G:N7	2.26	0.50
1:0:1354:A:H3'	1:0:1410:U:O2	2.11	0.50
1:0:1785:A:H2'	1:0:1786:C:C6	2.46	0.50
1:0:2757:G:H5'	1:0:2761:A:H1'	1.94	0.50
1:0:868:U:H2'	1:0:869:C:C6	2.46	0.49
1:0:1432:G:N2	1:0:1596:A:H62	2.05	0.49
1:0:1455:C:H2'	1:0:1456:C:C6	2.47	0.49
1:0:1679:U:H2'	1:0:1680:U:H5''	1.93	0.49
1:0:2754:C:H2'	1:0:2755:A:O4'	2.12	0.49
1:0:181:A:H4'	1:0:182:G:O5'	2.11	0.49
1:0:211:U:O2'	1:0:212:U:H5'	2.12	0.49
1:0:1820:G:O2'	1:0:1821:A:P	2.70	0.49
1:0:2010:G:H2'	1:0:2011:U:O4'	2.12	0.49
1:0:2435:C:H2'	1:0:2436:U:C6	2.47	0.49
1:0:2821:G:H2'	1:0:2822:U:C6	2.47	0.49
1:0:189:A:H2'	1:0:190:A:C8	2.47	0.49
1:0:203:G:O2'	1:0:204:A:H5'	2.12	0.49
1:0:830:C:O2	1:0:852:U:H4'	2.12	0.49
1:0:864:C:H2'	1:0:865:A:C8	2.46	0.49
1:0:1269:G:H2'	1:0:1270:C:C6	2.48	0.49
1:0:1678:G:H2'	1:0:1679:U:C6	2.46	0.49
1:0:1715:A:H1'	1:0:1717:A:C1'	2.42	0.49
1:0:2220:A:H2'	1:0:2221:G:C8	2.47	0.49
1:0:2805:G:O2'	1:0:2806:G:H5'	2.11	0.49
1:0:114:C:H2'	1:0:115:G:O4'	2.13	0.49
1:0:874:A:H62	1:0:928:G:H21	1.58	0.49
1:0:874:A:H62	1:0:928:G:N2	2.11	0.49
1:0:1857:G:H2'	1:0:1859:A:OP2	2.13	0.49
1:0:2446:C:H2'	1:0:2447:G:C8	2.47	0.49
1:0:422:C:H2'	1:0:423:G:H8	1.78	0.49
1:0:459:A:H62	1:0:484:G:H1'	1.78	0.49
1:0:780:U:H2'	1:0:781:G:C8	2.48	0.49
1:0:1029:C:C3'	1:0:1030:U:H5''	2.43	0.49
1:0:1354:A:N6	1:0:1407:G:H22	2.09	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1626:A:OP2	1:0:1627:C:H5	1.95	0.49
1:0:2093:G:H2'	1:0:2094:C:C6	2.47	0.49
1:0:2343:C:H2'	1:0:2344:G:O4'	2.13	0.49
1:0:2487:G:H4'	1:0:2533:U:O2'	2.11	0.49
1:0:477:A:H2'	1:0:478:G:O4'	2.13	0.49
1:0:1446:U:H2'	1:0:1447:U:C6	2.46	0.49
1:0:1492:A:H2	1:0:1531:C:H41	1.59	0.49
1:0:1667:A:H2'	1:0:1668:G:H8	1.78	0.49
1:0:1682:A:H2'	1:0:1683:G:C8	2.47	0.49
1:0:2082:C:H2'	1:0:2083:G:O4'	2.12	0.49
1:0:2161:C:O2'	1:0:2162:C:P	2.71	0.49
1:0:2329:C:C2'	1:0:2330:G:H5'	2.43	0.49
1:0:66:U:H2'	1:0:67:G:C8	2.48	0.49
1:0:568:G:H5''	1:0:1019:U:H5'	1.95	0.49
1:0:790:A:H2'	1:0:791:G:C8	2.48	0.49
1:0:1029:C:OP1	1:0:1047:G:H4'	2.12	0.49
1:0:1436:G:H1'	1:0:1508:G:N2	2.18	0.49
1:0:1729:C:H2'	1:0:1730:G:C8	2.47	0.49
1:0:2725:C:H2'	1:0:2726:U:C6	2.48	0.49
1:0:619:A:H2'	1:0:620:G:C8	2.47	0.49
1:0:1518:C:HO2'	1:0:1519:G:P	2.36	0.49
1:0:1685:A:N6	1:0:1691:G:H1'	2.28	0.49
1:0:2313:G:H2'	1:0:2314:A:H5'	1.95	0.49
1:0:427:C:H2'	1:0:428:A:C8	2.48	0.49
1:0:942:U:C2'	1:0:943:U:H5'	2.42	0.49
1:0:1436:G:C1'	1:0:1508:G:H21	2.20	0.49
1:0:1747:G:C4'	1:0:1749:G:H1'	2.32	0.49
1:0:1821:A:H5''	1:0:1822:C:H5	1.78	0.49
1:0:1871:G:N3	1:0:1871:G:C2'	2.76	0.49
1:0:1895:A:H2'	1:0:1896:A:O4'	2.13	0.49
1:0:2278:A:H2'	1:0:2279:G:C8	2.48	0.49
1:0:2301:A:H2'	1:0:2302:G:O4'	2.13	0.49
1:0:2426:G:H22	1:0:2430:A:H62	1.61	0.49
1:0:2726:U:H2'	1:0:2727:G:O4'	2.13	0.49
1:0:338:G:H1	1:0:346:C:H42	1.61	0.49
1:0:873:U:O2	1:0:2246:A:H5''	2.13	0.49
1:0:959:C:H5''	1:0:972:C:O2'	2.13	0.49
1:0:1164:C:H2'	1:0:1165:G:O4'	2.12	0.49
1:0:2093:G:O2'	1:0:2094:C:P	2.71	0.49
1:0:2503:G:C2'	1:0:2504:G:H5''	2.43	0.49
1:0:2757:G:H5'	1:0:2761:A:C1'	2.43	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:332:C:H2'	1:0:333:A:H5'	1.94	0.48
1:0:441:A:H2'	1:0:442:A:O4'	2.12	0.48
1:0:951:G:C3'	1:0:952:A:H5''	2.43	0.48
1:0:1686:A:O2'	1:0:2528:G:H5'	2.13	0.48
1:0:1889:G:H2'	1:0:1890:G:C8	2.48	0.48
1:0:2235:G:H2'	1:0:2236:U:C6	2.48	0.48
1:0:2468:G:H2'	1:0:2469:G:O4'	2.13	0.48
1:0:2499:C:N4	1:0:2521:A:H2	2.09	0.48
1:0:2809:A:H2'	1:0:2810:A:H5'	1.95	0.48
1:0:83:A:C6	1:0:98:U:H1'	2.47	0.48
1:0:1141:U:O2'	1:0:1142:G:P	2.71	0.48
1:0:1429:A:H1'	1:0:1603:A:C6	2.48	0.48
1:0:2424:G:H2'	1:0:2425:G:O4'	2.13	0.48
1:0:342:G:N2	1:0:1222:G:H1	2.10	0.48
1:0:367:G:C3'	1:0:368:A:H5''	2.43	0.48
1:0:756:C:H2'	1:0:757:U:C6	2.48	0.48
1:0:1038:U:H2'	1:0:1039:A:C8	2.48	0.48
1:0:1349:A:H2'	1:0:1350:G:C8	2.48	0.48
1:0:1445:A:H2'	1:0:1446:U:O4'	2.14	0.48
1:0:2493:U:H2'	1:0:2494:C:C6	2.48	0.48
1:0:2494:C:H2'	1:0:2495:G:H8	1.79	0.48
1:0:2712:G:H5'	1:0:2713:A:C8	2.48	0.48
1:0:2783:U:H2'	1:0:2784:A:C4'	2.42	0.48
1:0:109:A:C2'	1:0:110:U:H5''	2.44	0.48
1:0:159:A:C2'	1:0:160:C:H5'	2.44	0.48
1:0:323:G:H2'	1:0:324:C:C6	2.48	0.48
1:0:860:U:H2'	1:0:861:G:H5'	1.96	0.48
1:0:930:A:H5'	1:0:931:G:C8	2.48	0.48
1:0:1046:U:H2'	1:0:1047:G:C8	2.49	0.48
1:0:1068:A:H2'	1:0:1069:G:H8	1.78	0.48
1:0:1226:A:C6	1:0:1250:A:H1'	2.48	0.48
1:0:1629:G:N1	1:0:1633:C:N4	2.61	0.48
1:0:1742:G:H2'	1:0:1743:C:C6	2.48	0.48
1:0:2238:G:H2'	1:0:2239:C:H6	1.78	0.48
1:0:2421:C:O2'	1:0:2422:C:H5'	2.12	0.48
1:0:2426:G:H5'	1:0:2480:C:N4	2.23	0.48
1:0:2872:U:H2'	1:0:2873:G:C8	2.49	0.48
1:0:32:C:H2'	1:0:33:C:C6	2.48	0.48
1:0:42:G:H2'	1:0:43:A:O4'	2.13	0.48
1:0:595:A:H62	1:0:1264:C:N4	2.11	0.48
1:0:810:U:H2'	1:0:811:G:C8	2.49	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1310:C:OP1	1:0:2689:C:H4'	2.13	0.48
1:0:2429:A:H5''	1:0:2476:A:C6	2.48	0.48
1:0:2503:G:H2'	1:0:2504:G:H5''	1.96	0.48
1:0:2721:A:N6	1:0:2743:G:H21	2.10	0.48
1:0:2852:G:H2'	1:0:2853:U:O4'	2.13	0.48
1:0:703:A:H2'	1:0:704:G:H8	1.79	0.48
1:0:845:U:H2'	1:0:846:A:C8	2.49	0.48
1:0:926:C:H2'	1:0:927:C:H5'	1.95	0.48
1:0:2085:G:H2'	1:0:2086:U:C6	2.49	0.48
1:0:2212:U:H2'	1:0:2213:G:C8	2.48	0.48
1:0:2299:A:H2'	1:0:2299:A:N3	2.28	0.48
1:0:2799:C:H2'	1:0:2800:C:O4'	2.13	0.48
1:0:2809:A:N6	1:0:2854:G:H2'	2.29	0.48
1:0:1040:A:H2'	1:0:1041:G:H5'	1.94	0.48
1:0:1458:A:H3'	1:0:1459:U:H5'	1.96	0.48
1:0:1685:A:H1'	1:0:1686:A:N7	2.28	0.48
1:0:2009:U:H2'	1:0:2010:G:C8	2.48	0.48
1:0:2378:G:H2'	1:0:2379:G:H8	1.79	0.48
1:0:2523:G:O2'	1:0:2524:G:H5'	2.13	0.48
1:0:2794:G:H3'	1:0:2796:A:N6	2.22	0.48
1:0:2830:U:H2'	1:0:2831:A:C8	2.49	0.48
1:0:626:A:O2'	1:0:627:A:H5'	2.13	0.48
1:0:643:A:H2'	1:0:644:A:C8	2.48	0.48
1:0:1200:G:H2'	1:0:1201:G:O4'	2.14	0.48
1:0:1436:G:H2'	1:0:1437:A:C8	2.49	0.48
1:0:1937:G:N3	1:0:2530:C:H5'	2.29	0.48
1:0:452:G:H2'	1:0:453:U:O4'	2.14	0.48
1:0:471:A:N6	1:0:480:G:H21	1.99	0.48
1:0:1821:A:H3'	1:0:1822:C:H6	1.79	0.48
1:0:1981:A:H2'	1:0:1982:C:C6	2.48	0.48
1:0:2181:A:H2'	1:0:2182:A:H5'	1.94	0.48
1:0:2572:U:H2'	1:0:2573:C:C6	2.49	0.48
1:0:583:C:O2'	1:0:584:A:P	2.71	0.48
1:0:693:A:H2'	1:0:694:G:C8	2.48	0.48
1:0:1014:G:O2'	1:0:1015:U:H5'	2.14	0.48
1:0:1031:C:H1'	1:0:1151:U:O2	2.14	0.48
1:0:2700:U:N3	1:0:2848:A:N6	2.60	0.48
1:0:429:C:H2'	1:0:430:C:O4'	2.14	0.47
1:0:546:A:H2'	1:0:547:U:C6	2.49	0.47
1:0:697:G:C2'	1:0:698:A:H5'	2.44	0.47
1:0:701:U:H1'	1:0:800:U:H5'	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:760:U:O2	1:0:1997:A:H1'	2.14	0.47
1:0:776:G:N3	1:0:776:G:C2'	2.77	0.47
1:0:2055:G:H2'	1:0:2056:C:C6	2.49	0.47
1:0:2377:U:O2'	1:0:2378:G:P	2.72	0.47
1:0:2404:A:H5''	1:0:2405:A:H3'	1.96	0.47
1:0:2429:A:O2'	1:0:2430:A:H5'	2.14	0.47
1:0:2574:G:N3	1:0:2574:G:C2'	2.76	0.47
1:0:2756:A:H4'	1:0:2758:A:OP1	2.13	0.47
1:0:2795:A:N3	1:0:2795:A:H2'	2.28	0.47
1:0:324:C:H2'	1:0:325:U:O4'	2.14	0.47
1:0:541:C:N4	1:0:572:G:O4'	2.47	0.47
1:0:548:G:H2'	1:0:549:G:C8	2.49	0.47
1:0:675:C:H2'	1:0:676:G:C8	2.49	0.47
1:0:878:C:N4	1:0:921:A:H62	2.12	0.47
1:0:953:G:H4'	1:0:1203:A:O2'	2.14	0.47
1:0:974:U:H2'	1:0:975:C:C6	2.49	0.47
1:0:1223:G:O2'	1:0:1224:A:P	2.73	0.47
1:0:1598:C:H2'	1:0:1599:G:O4'	2.14	0.47
1:0:1679:U:C2'	1:0:1680:U:H5''	2.44	0.47
1:0:187:U:H2'	1:0:188:G:C8	2.50	0.47
1:0:582:G:H2'	1:0:583:C:H3'	1.95	0.47
1:0:1182:U:C3'	1:0:1183:C:H5''	2.44	0.47
1:0:1263:G:O2'	1:0:1264:C:P	2.72	0.47
1:0:1572:C:C3'	1:0:1573:G:H5''	2.44	0.47
1:0:1937:G:H4'	1:0:2529:G:H21	1.78	0.47
1:0:2026:C:H2'	1:0:2027:C:C6	2.49	0.47
1:0:2504:G:H2'	1:0:2505:G:H8	1.78	0.47
1:0:2660:C:O2'	1:0:2661:G:H5'	2.14	0.47
1:0:210:A:N6	1:0:242:A:N7	2.62	0.47
1:0:240:U:H4'	1:0:443:A:H5'	1.97	0.47
1:0:780:U:H2'	1:0:781:G:H8	1.79	0.47
1:0:1344:C:H2'	1:0:1346:C:OP1	2.14	0.47
1:0:1685:A:C6	1:0:1691:G:H1'	2.50	0.47
1:0:2168:A:C2'	1:0:2169:A:H5'	2.44	0.47
1:0:2308:A:H2'	1:0:2309:G:C8	2.48	0.47
1:0:70:A:O3'	1:0:71:A:H3'	2.14	0.47
1:0:199:A:H61	1:0:209:G:H1'	1.80	0.47
1:0:245:C:H5'	1:0:372:U:O2'	2.15	0.47
1:0:569:C:H2'	1:0:570:G:C8	2.50	0.47
1:0:869:C:O2'	1:0:870:C:H5'	2.15	0.47
1:0:991:A:N6	1:0:2020:G:H21	2.13	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1039:A:H2'	1:0:1040:A:H8	1.79	0.47
1:0:1326:U:H1'	1:0:1626:A:N3	2.30	0.47
1:0:1480:G:H2'	1:0:1481:U:H5'	1.97	0.47
1:0:1619:A:H3'	1:0:1619:A:N3	2.30	0.47
1:0:1684:G:H2'	1:0:1974:U:O4	2.15	0.47
1:0:2057:U:H1'	1:0:2577:A:H1'	1.95	0.47
1:0:2204:A:O2'	1:0:2205:C:OP2	2.32	0.47
1:0:2483:U:H1'	1:0:2551:A:C2	2.50	0.47
1:0:2642:G:H2'	1:0:2643:G:O4'	2.15	0.47
1:0:2651:U:H2'	1:0:2652:G:C8	2.49	0.47
1:0:152:G:O2'	1:0:153:A:H5'	2.15	0.47
1:0:198:A:O2'	1:0:199:A:P	2.73	0.47
1:0:560:G:H2'	1:0:561:U:C6	2.49	0.47
1:0:742:G:H2'	1:0:1766:U:H1'	1.96	0.47
1:0:941:U:H2'	1:0:942:U:C6	2.49	0.47
1:0:986:A:H2'	1:0:987:G:H5'	1.96	0.47
1:0:1036:G:H1'	1:0:1145:C:C4'	2.44	0.47
1:0:1316:G:H2'	1:0:1317:G:C8	2.49	0.47
1:0:1579:G:H2'	1:0:1580:C:C6	2.50	0.47
1:0:2062:U:H4'	1:0:2412:A:H2	1.78	0.47
1:0:2069:U:H2'	1:0:2070:G:C8	2.49	0.47
1:0:8:A:H2'	1:0:9:U:C6	2.49	0.47
1:0:216:U:H5''	1:0:601:A:N6	2.30	0.47
1:0:246:C:N3	1:0:247:A:N6	2.62	0.47
1:0:432:C:H2'	1:0:433:G:H8	1.79	0.47
1:0:478:G:O2'	1:0:479:G:H5'	2.15	0.47
1:0:542:A:OP2	1:0:2003:A:H1'	2.15	0.47
1:0:689:A:N6	1:0:815:A:H61	2.08	0.47
1:0:742:G:N3	1:0:742:G:C2'	2.78	0.47
1:0:1039:A:H2'	1:0:1040:A:C8	2.48	0.47
1:0:1286:U:H4'	1:0:1288:A:OP1	2.15	0.47
1:0:1316:G:H2'	1:0:1317:G:H8	1.79	0.47
1:0:1391:A:H2'	1:0:1392:U:C5	2.50	0.47
1:0:1686:A:H2'	1:0:1687:C:H5'	1.96	0.47
1:0:2276:C:O2	1:0:2301:A:H1'	2.15	0.47
1:0:2782:G:H2'	1:0:2783:U:OP1	2.15	0.47
1:0:758:G:H2'	1:0:759:C:H5'	1.97	0.47
1:0:1028:G:H2'	1:0:1029:C:C6	2.50	0.47
1:0:1184:G:H2'	1:0:1185:C:H5'	1.97	0.47
1:0:1259:A:H2'	1:0:1260:A:O4'	2.14	0.47
1:0:1273:G:H2'	1:0:1274:C:C6	2.50	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1486:A:H2'	1:0:1487:C:C6	2.49	0.47
1:0:2015:G:OP2	1:0:2434:G:H5'	2.15	0.47
1:0:2244:C:H1'	1:0:2255:G:N1	2.30	0.47
1:0:2324:G:C4'	1:0:2326:C:H5''	2.42	0.47
1:0:595:A:H2	1:0:822:G:N3	2.13	0.47
1:0:601:A:H3'	1:0:602:C:C5'	2.44	0.47
1:0:664:C:H2'	1:0:665:A:C8	2.50	0.47
1:0:738:G:H2'	1:0:739:G:O4'	2.14	0.47
1:0:931:G:O2'	1:0:932:G:H5'	2.15	0.47
1:0:979:A:H2'	1:0:980:G:C8	2.50	0.47
1:0:1033:G:N2	1:0:1150:C:H2'	2.26	0.47
1:0:1120:C:H2'	1:0:2731:G:N2	2.30	0.47
1:0:1279:G:H2'	1:0:1280:U:OP2	2.15	0.47
1:0:1825:C:O2'	1:0:1826:U:H5'	2.15	0.47
1:0:2196:U:H2'	1:0:2197:U:C6	2.50	0.47
1:0:2211:U:H2'	1:0:2212:U:C6	2.50	0.47
1:0:2329:C:N4	1:0:2361:G:H22	2.13	0.47
1:0:2448:A:H2'	1:0:2449:G:O4'	2.14	0.47
1:0:2727:G:N1	1:0:2735:C:H5''	2.29	0.47
1:0:567:G:H2'	1:0:568:G:C8	2.50	0.47
1:0:699:G:H3'	1:0:699:G:N3	2.31	0.47
1:0:932:G:H2'	1:0:933:G:C8	2.50	0.47
1:0:952:A:H2'	1:0:953:G:O4'	2.15	0.47
1:0:1998:A:H2'	1:0:1999:U:H5'	1.97	0.47
1:0:9:U:H2'	1:0:10:A:C8	2.50	0.46
1:0:210:A:N6	1:0:442:A:H61	2.12	0.46
1:0:341:A:H1'	1:0:1223:G:O6	2.15	0.46
1:0:534:U:H4'	1:0:564:U:O2'	2.15	0.46
1:0:2316:G:H2'	1:0:2317:G:H8	1.79	0.46
1:0:1578:U:H2'	1:0:1579:G:C8	2.51	0.46
1:0:207:U:H2'	1:0:208:C:C6	2.50	0.46
1:0:918:A:H2'	1:0:919:U:C5'	2.41	0.46
1:0:967:G:H1'	1:0:970:A:N7	2.30	0.46
1:0:1016:C:H2'	1:0:1017:C:C6	2.50	0.46
1:0:1418:C:H2'	1:0:1419:G:H8	1.80	0.46
1:0:1452:U:H5'	1:0:1532:A:O2'	2.14	0.46
1:0:1912:G:N3	1:0:1912:G:C2'	2.78	0.46
1:0:1920:A:N6	1:0:1923:U:H6	2.13	0.46
1:0:1962:C:O2'	1:0:1963:G:H5'	2.16	0.46
1:0:2278:A:H2'	1:0:2279:G:H8	1.81	0.46
1:0:2676:G:H2'	1:0:2677:U:C6	2.50	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2800:C:H2'	1:0:2801:A:O4'	2.14	0.46
1:0:88:G:H3'	1:0:89:A:C5'	2.38	0.46
1:0:689:A:C8	1:0:2422:C:H1'	2.51	0.46
1:0:1829:C:C2'	1:0:1830:C:H5'	2.45	0.46
1:0:1966:C:H4'	1:0:2585:C:H4'	1.96	0.46
1:0:2058:U:H3'	1:0:2217:G:N1	2.31	0.46
1:0:2526:U:H2'	1:0:2527:G:C8	2.50	0.46
1:0:2658:A:H2'	1:0:2659:C:C6	2.51	0.46
1:0:2785:A:H2'	1:0:2786:G:O4'	2.15	0.46
1:0:2815:C:H2'	1:0:2816:C:C6	2.51	0.46
1:0:241:C:C2'	1:0:242:A:H5''	2.45	0.46
1:0:1029:C:H3'	1:0:1030:U:H5''	1.96	0.46
1:0:1429:A:N6	1:0:1602:G:H5'	2.31	0.46
1:0:1495:G:O2'	1:0:1496:G:P	2.73	0.46
1:0:1918:G:H4'	1:0:1920:A:C2	2.51	0.46
1:0:2708:U:H2'	1:0:2709:C:C6	2.51	0.46
1:0:306:G:H2'	1:0:307:C:C6	2.51	0.46
1:0:387:A:H2'	1:0:388:G:O4'	2.16	0.46
1:0:1386:A:H2'	1:0:1387:G:O4'	2.16	0.46
1:0:2057:U:H2'	1:0:2058:U:C6	2.50	0.46
1:0:2437:G:H4'	1:0:2438:A:N7	2.30	0.46
1:0:2717:G:H2'	1:0:2718:A:C8	2.51	0.46
1:0:187:U:H2'	1:0:188:G:H8	1.80	0.46
1:0:1142:G:OP1	1:0:2494:C:H4'	2.16	0.46
1:0:1278:A:O2'	1:0:1279:G:O5'	2.34	0.46
1:0:1427:G:C2'	1:0:1428:G:H5'	2.44	0.46
1:0:1836:C:H2'	1:0:1837:G:C8	2.50	0.46
1:0:1855:G:H4'	1:0:2390:A:H4'	1.97	0.46
1:0:1888:C:H5''	1:0:1889:G:C5'	2.45	0.46
1:0:2199:C:H2'	1:0:2200:G:C8	2.49	0.46
1:0:2600:A:H2'	1:0:2601:C:C6	2.51	0.46
1:0:84:G:O2'	1:0:85:C:H5'	2.15	0.46
1:0:239:A:H4'	1:0:620:G:H5'	1.97	0.46
1:0:313:U:H2'	1:0:314:G:C8	2.50	0.46
1:0:421:G:H2'	1:0:422:C:C6	2.51	0.46
1:0:1571:G:H2'	1:0:1572:C:C6	2.51	0.46
1:0:1888:C:C5'	1:0:1889:G:H5''	2.44	0.46
1:0:1993:G:H2'	1:0:1994:U:C6	2.51	0.46
1:0:2035:G:H2'	1:0:2036:G:C8	2.47	0.46
1:0:2369:U:H2'	1:0:2370:G:C8	2.51	0.46
1:0:2633:A:N6	1:0:2646:C:N4	2.63	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:337:G:H2'	1:0:338:G:C8	2.51	0.46
1:0:343:A:H3'	1:0:343:A:P	2.55	0.46
1:0:635:C:H3'	1:0:636:G:H5''	1.98	0.46
1:0:771:C:H2'	1:0:772:G:H8	1.80	0.46
1:0:1069:G:O2'	1:0:1070:G:H5'	2.16	0.46
1:0:1429:A:O2'	1:0:1430:G:H4'	2.16	0.46
1:0:1760:G:H2'	1:0:1761:G:C8	2.51	0.46
1:0:2307:A:H2'	1:0:2308:A:C8	2.51	0.46
1:0:2402:U:H5'	1:0:2404:A:N7	2.31	0.46
1:0:2620:G:H2'	1:0:2621:G:H8	1.81	0.46
1:0:2628:C:H2'	1:0:2629:U:C6	2.51	0.46
1:0:2635:U:H2'	1:0:2636:A:C8	2.51	0.46
1:0:2668:U:O2'	1:0:2669:C:P	2.74	0.46
1:0:26:G:H21	1:0:524:A:N6	2.13	0.46
1:0:462:G:H2'	1:0:463:C:H5'	1.98	0.46
1:0:819:C:H2'	1:0:820:U:C6	2.51	0.46
1:0:1290:A:H2'	1:0:1291:G:C8	2.51	0.46
1:0:1712:G:H3'	1:0:1712:G:N3	2.31	0.46
1:0:1949:A:H1'	1:0:2572:U:H4'	1.98	0.46
1:0:2204:A:H1'	1:0:2205:C:C5	2.51	0.46
1:0:2372:A:H2'	1:0:2373:C:H6	1.80	0.46
1:0:2483:U:H2'	1:0:2484:G:H5'	1.96	0.46
1:0:636:G:H2'	1:0:637:G:H5'	1.97	0.45
1:0:653:G:H21	1:0:655:A:H1'	1.80	0.45
1:0:1200:G:OP1	1:0:1200:G:C8	2.69	0.45
1:0:1259:A:H2'	1:0:1260:A:H8	1.80	0.45
1:0:1495:G:H2'	1:0:1496:G:C8	2.52	0.45
1:0:1790:G:O3'	1:0:1791:C:H6	1.99	0.45
1:0:2277:A:H2'	1:0:2278:A:O4'	2.16	0.45
1:0:2310:G:H2'	1:0:2311:U:O4'	2.15	0.45
1:0:2694:G:H2'	1:0:2695:C:C6	2.51	0.45
1:0:365:U:H2'	1:0:366:U:C6	2.52	0.45
1:0:556:A:H2'	1:0:557:U:H5'	1.98	0.45
1:0:1301:U:H2'	1:0:1664:G:N2	2.31	0.45
1:0:1313:U:O2'	1:0:1314:A:O5'	2.30	0.45
1:0:2106:G:H2'	1:0:2107:G:C8	2.51	0.45
1:0:2376:G:H2'	1:0:2377:U:C6	2.52	0.45
1:0:2426:G:HO2'	1:0:2427:A:P	2.39	0.45
1:0:2581:A:H2'	1:0:2582:G:C5'	2.46	0.45
1:0:192:G:O2'	1:0:193:A:C5'	2.65	0.45
1:0:703:A:H2'	1:0:704:G:C8	2.51	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:859:U:H4'	1:0:860:U:C5	2.52	0.45
1:0:872:G:O2'	1:0:2247:A:N3	2.49	0.45
1:0:1007:A:H2'	1:0:1008:G:C8	2.51	0.45
1:0:1140:A:N6	1:0:2469:G:H5''	2.32	0.45
1:0:1257:U:H2'	1:0:1258:G:C8	2.52	0.45
1:0:1504:G:O2'	1:0:1505:U:H5'	2.16	0.45
1:0:1665:C:N4	1:0:1993:G:H1	2.14	0.45
1:0:1703:C:H2'	1:0:1704:G:O4'	2.16	0.45
1:0:1821:A:H5''	1:0:1822:C:C5	2.51	0.45
1:0:2784:A:H3'	1:0:2785:A:C8	2.51	0.45
1:0:616:U:C3'	1:0:617:U:H5''	2.47	0.45
1:0:837:U:H2'	1:0:838:A:C8	2.52	0.45
1:0:968:C:H2'	1:0:970:A:OP1	2.17	0.45
1:0:1251:G:H2'	1:0:1252:C:H6	1.80	0.45
1:0:2025:A:H2'	1:0:2026:C:H5''	1.97	0.45
1:0:2093:G:H2'	1:0:2094:C:C5	2.51	0.45
1:0:2235:G:H2'	1:0:2236:U:H6	1.81	0.45
1:0:319:G:H1'	1:0:511:A:H5'	1.98	0.45
1:0:529:U:H2'	1:0:530:G:C8	2.51	0.45
1:0:845:U:H2'	1:0:846:A:H8	1.80	0.45
1:0:971:A:H2	1:0:2475:C:H1'	1.81	0.45
1:0:1319:C:H2'	1:0:1320:A:H8	1.81	0.45
1:0:1447:U:O2	1:0:1576:G:O6	2.34	0.45
1:0:1906:U:H2'	1:0:1907:C:C6	2.51	0.45
1:0:1949:A:H1'	1:0:2572:U:H5'	1.97	0.45
1:0:2159:A:H2'	1:0:2160:C:C6	2.51	0.45
1:0:2204:A:O2'	1:0:2205:C:C6	2.69	0.45
1:0:2356:A:H2'	1:0:2357:A:C8	2.52	0.45
1:0:2698:G:H2'	1:0:2699:G:C8	2.52	0.45
1:0:297:A:H2'	1:0:298:C:C6	2.50	0.45
1:0:437:G:O2'	1:0:438:G:H5'	2.15	0.45
1:0:887:G:O2'	1:0:888:G:H5'	2.16	0.45
1:0:1227:A:H62	1:0:1248:G:H21	1.64	0.45
1:0:1291:G:H2'	1:0:1292:A:C8	2.52	0.45
1:0:1380:C:C2'	1:0:1381:G:H5'	2.46	0.45
1:0:1519:G:H2'	1:0:1520:G:C8	2.51	0.45
1:0:1659:G:H2'	1:0:1660:G:C8	2.51	0.45
1:0:19:C:H2'	1:0:20:C:C6	2.50	0.45
1:0:81:C:H4'	1:0:307:C:H5'	1.98	0.45
1:0:117:A:H4'	1:0:118:U:C6	2.52	0.45
1:0:130:C:H2'	1:0:131:C:C6	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:172:A:H4'	1:0:228:A:H4'	1.98	0.45
1:0:509:U:H2'	1:0:510:G:O4'	2.16	0.45
1:0:788:G:C5'	1:0:790:A:H1'	2.46	0.45
1:0:935:C:H2'	1:0:936:A:C8	2.52	0.45
1:0:1008:G:H2'	1:0:1009:C:C6	2.51	0.45
1:0:1204:G:H2'	1:0:1205:G:C8	2.51	0.45
1:0:2393:G:H2'	1:0:2394:G:H8	1.82	0.45
1:0:2403:C:H2'	1:0:2408:G:O2'	2.17	0.45
1:0:37:C:H2'	1:0:38:G:C8	2.52	0.45
1:0:340:G:H1'	1:0:488:A:C4	2.52	0.45
1:0:709:A:H2'	1:0:710:C:C6	2.52	0.45
1:0:1278:A:H4'	1:0:1279:G:O5'	2.17	0.45
1:0:1586:A:H2'	1:0:1587:A:C8	2.52	0.45
1:0:1605:A:H2'	1:0:1606:C:C6	2.52	0.45
1:0:2021:G:H2'	1:0:2022:C:C6	2.52	0.45
1:0:2444:C:O2'	1:0:2445:C:H5'	2.17	0.45
1:0:2824:C:H1'	1:0:2843:A:C2	2.51	0.45
1:0:40:U:H2'	1:0:41:G:C8	2.51	0.45
1:0:211:U:C2'	1:0:212:U:H5'	2.46	0.45
1:0:520:C:H2'	1:0:521:U:O4'	2.17	0.45
1:0:547:U:H2'	1:0:548:G:C8	2.51	0.45
1:0:798:G:H2'	1:0:799:C:H5'	1.99	0.45
1:0:838:A:H4'	1:0:2407:G:C5	2.52	0.45
1:0:1130:U:H2'	1:0:1131:G:C8	2.52	0.45
1:0:1367:A:H2'	1:0:1368:G:O4'	2.17	0.45
1:0:1452:U:H5''	1:0:1533:G:H5'	1.99	0.45
1:0:1859:A:H2'	1:0:1860:A:C8	2.52	0.45
1:0:2161:C:H2'	1:0:2162:C:C6	2.51	0.45
1:0:2434:G:H2'	1:0:2435:C:C6	2.52	0.45
1:0:2459:C:C2'	1:0:2460:G:H5'	2.46	0.45
1:0:2591:C:O2'	1:0:2592:U:H5'	2.17	0.45
1:0:2710:C:O2'	1:0:2711:G:H5'	2.17	0.45
1:0:2784:A:H3'	1:0:2785:A:H8	1.80	0.45
1:0:2858:A:H3'	1:0:2859:U:C5'	2.45	0.45
1:0:215:G:H1'	1:0:617:U:O2	2.17	0.45
1:0:811:G:O2'	1:0:812:G:H5'	2.17	0.45
1:0:841:G:H4'	1:0:844:G:N1	2.32	0.45
1:0:1307:U:H2'	1:0:1308:C:O4'	2.17	0.45
1:0:1712:G:C2'	1:0:1713:G:H5'	2.46	0.45
1:0:1835:C:H2'	1:0:1836:C:C6	2.52	0.45
1:0:2418:A:N6	1:0:2581:A:OP1	2.50	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2475:C:H2'	1:0:2476:A:H5'	1.99	0.45
1:0:2825:A:H2'	1:0:2826:C:C6	2.52	0.45
1:0:959:C:H2'	1:0:960:U:C6	2.52	0.44
1:0:1353:A:H1'	1:0:1619:A:O4'	2.16	0.44
1:0:1494:G:H2'	1:0:1495:G:C8	2.52	0.44
1:0:1608:U:H2'	1:0:1609:G:C8	2.52	0.44
1:0:1938:U:H2'	1:0:1939:U:H5'	1.98	0.44
1:0:2137:G:H2'	1:0:2138:U:C6	2.52	0.44
1:0:2193:C:H2'	1:0:2194:A:O4'	2.17	0.44
1:0:2333:A:H2'	1:0:2334:C:C6	2.53	0.44
1:0:2559:U:C2'	1:0:2560:G:H5'	2.46	0.44
1:0:2639:A:H2'	1:0:2640:G:O4'	2.16	0.44
1:0:307:C:H2'	1:0:308:C:C6	2.53	0.44
1:0:328:A:O2'	1:0:329:C:H5'	2.17	0.44
1:0:539:A:O2'	1:0:540:G:C4	2.70	0.44
1:0:635:C:C3'	1:0:636:G:H5''	2.47	0.44
1:0:786:U:H2'	1:0:787:A:H5'	1.98	0.44
1:0:1031:C:H4'	1:0:1032:A:C8	2.52	0.44
1:0:1221:C:H2'	1:0:1222:G:H8	1.81	0.44
1:0:2594:U:H2'	1:0:2595:C:C6	2.52	0.44
1:0:158:A:O2'	1:0:159:A:H5'	2.17	0.44
1:0:403:A:H4'	1:0:425:A:C5'	2.39	0.44
1:0:415:A:C2'	1:0:416:U:H5'	2.46	0.44
1:0:736:G:H2'	1:0:737:C:O4'	2.17	0.44
1:0:1279:G:H1'	1:0:1280:U:H5	1.82	0.44
1:0:1331:G:H2'	1:0:1332:G:C8	2.53	0.44
1:0:1917:C:H2'	1:0:1918:G:H5'	2.00	0.44
1:0:1921:A:C3'	1:0:1922:U:H5''	2.47	0.44
1:0:2018:G:H3'	1:0:2019:C:H5'	1.99	0.44
1:0:489:A:N6	1:0:491:A:H62	2.15	0.44
1:0:694:G:H2'	1:0:695:G:H8	1.82	0.44
1:0:827:C:H2'	1:0:828:C:C6	2.52	0.44
1:0:1016:C:H5''	1:0:1023:U:OP2	2.18	0.44
1:0:1278:A:O2'	1:0:1279:G:OP2	2.36	0.44
1:0:1283:C:OP1	1:0:1284:G:H5'	2.18	0.44
1:0:1975:G:H4'	1:0:1976:U:H5	1.82	0.44
1:0:2220:A:H2'	1:0:2221:G:H8	1.82	0.44
1:0:2239:C:O2'	1:0:2240:C:H5'	2.17	0.44
1:0:2321:C:C2'	1:0:2322:U:H5'	2.47	0.44
1:0:2555:G:H2'	1:0:2555:G:N3	2.32	0.44
1:0:2772:U:H2'	1:0:2773:G:C8	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2807:U:C5	1:0:2859:U:H4'	2.52	0.44
1:0:173:A:N3	1:0:173:A:C2'	2.81	0.44
1:0:181:A:C5'	1:0:182:G:OP1	2.61	0.44
1:0:420:C:H2'	1:0:421:G:C8	2.53	0.44
1:0:575:U:H2'	1:0:576:A:C8	2.53	0.44
1:0:644:A:H2'	1:0:645:G:H5'	1.99	0.44
1:0:701:U:H2'	1:0:702:A:O4'	2.18	0.44
1:0:715:U:H2'	1:0:716:U:C6	2.52	0.44
1:0:1225:G:H2'	1:0:1249:G:N1	2.32	0.44
1:0:1380:C:N4	1:0:1799:A:N1	2.66	0.44
1:0:2244:C:H1'	1:0:2255:G:H1	1.83	0.44
1:0:2512:A:H2'	1:0:2513:A:O4'	2.18	0.44
1:0:2555:G:N3	1:0:2555:G:C2'	2.81	0.44
1:0:2668:U:C2'	1:0:2669:C:OP2	2.66	0.44
1:0:2709:C:H2'	1:0:2710:C:C6	2.52	0.44
1:0:192:G:H4'	1:0:193:A:O5'	2.17	0.44
1:0:617:U:H2'	1:0:618:A:O4'	2.18	0.44
1:0:1147:G:H2'	1:0:1148:G:C8	2.53	0.44
1:0:1163:C:O2'	1:0:1164:C:H5'	2.16	0.44
1:0:1346:C:H2'	1:0:1347:C:C6	2.52	0.44
1:0:1677:C:H2'	1:0:1678:G:H8	1.82	0.44
1:0:1840:A:H2'	1:0:1841:G:H5'	2.00	0.44
1:0:1949:A:O2'	1:0:2572:U:H5'	2.17	0.44
1:0:1961:A:H2'	1:0:1962:C:O4'	2.17	0.44
1:0:2377:U:O2'	1:0:2378:G:OP1	2.33	0.44
1:0:2474:G:O2'	1:0:2475:C:H5'	2.17	0.44
1:0:317:U:H3'	1:0:318:G:H5''	1.98	0.44
1:0:611:C:C2'	1:0:612:G:H5'	2.48	0.44
1:0:820:U:H1'	1:0:2424:G:OP1	2.17	0.44
1:0:1075:C:H2'	1:0:1076:U:C6	2.53	0.44
1:0:1518:C:O2'	1:0:1519:G:P	2.75	0.44
1:0:1519:G:H2'	1:0:1520:G:O4'	2.18	0.44
1:0:1614:C:H2'	1:0:1615:C:C6	2.52	0.44
1:0:1634:A:O2'	1:0:1635:G:H5'	2.17	0.44
1:0:2261:G:H4'	1:0:2368:G:O2'	2.18	0.44
1:0:2524:G:H2'	1:0:2525:U:O4'	2.17	0.44
1:0:181:A:C4'	1:0:182:G:H4'	2.46	0.44
1:0:475:U:H2'	1:0:476:G:O4'	2.17	0.44
1:0:520:C:O2'	1:0:1249:G:H5''	2.18	0.44
1:0:820:U:H2'	1:0:821:A:C8	2.52	0.44
1:0:879:A:C2'	1:0:880:C:H5'	2.47	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1880:G:H2'	1:0:1881:U:C6	2.53	0.44
1:0:1888:C:C4'	1:0:1889:G:H5''	2.48	0.44
1:0:2022:C:H2'	1:0:2023:C:C6	2.53	0.44
1:0:2213:G:H2'	1:0:2214:G:H8	1.83	0.44
1:0:2259:G:H2'	1:0:2260:C:C6	2.53	0.44
1:0:2475:C:C2'	1:0:2476:A:H5'	2.48	0.44
1:0:514:G:N3	1:0:514:G:C2'	2.79	0.44
1:0:1312:G:H5''	1:0:1313:U:C5'	2.36	0.44
1:0:2217:G:H5'	1:0:2219:U:O4	2.17	0.44
1:0:2227:C:C2'	1:0:2228:U:H5'	2.41	0.44
1:0:338:G:H2'	1:0:339:U:O4'	2.18	0.43
1:0:575:U:H4'	1:0:822:G:OP2	2.18	0.43
1:0:607:C:H2'	1:0:608:G:C8	2.53	0.43
1:0:1194:U:H2'	1:0:1195:U:H6	1.78	0.43
1:0:1886:G:H2'	1:0:1887:G:C8	2.53	0.43
1:0:67:G:H8	1:0:67:G:O5'	2.02	0.43
1:0:192:G:O2'	1:0:193:A:P	2.75	0.43
1:0:430:C:H2'	1:0:431:G:C8	2.53	0.43
1:0:697:G:O2'	1:0:698:A:H5'	2.18	0.43
1:0:878:C:O2'	1:0:879:A:P	2.75	0.43
1:0:916:U:H2'	1:0:917:U:C6	2.53	0.43
1:0:1478:U:H2'	1:0:1479:G:C8	2.53	0.43
1:0:1480:G:C2'	1:0:1481:U:H5'	2.47	0.43
1:0:1801:C:H3'	1:0:1802:A:H5'	2.00	0.43
1:0:2161:C:O2'	1:0:2162:C:OP1	2.34	0.43
1:0:2602:G:OP1	1:0:2801:A:H1'	2.19	0.43
1:0:2824:C:H2'	1:0:2825:A:OP2	2.18	0.43
1:0:116:A:N3	1:0:155:G:H1'	2.34	0.43
1:0:215:G:H2'	1:0:216:U:O4'	2.18	0.43
1:0:1451:C:H2'	1:0:1452:U:C6	2.53	0.43
1:0:1532:A:H2'	1:0:1533:G:C8	2.53	0.43
1:0:2497:A:O5'	1:0:2497:A:N3	2.51	0.43
1:0:2569:A:H2'	1:0:2570:C:C6	2.53	0.43
1:0:2862:G:O2'	1:0:2863:U:H5'	2.18	0.43
1:0:33:C:N4	1:0:466:A:H61	2.12	0.43
1:0:201:G:H2'	1:0:202:A:H8	1.83	0.43
1:0:351:A:H2'	1:0:352:G:O4'	2.19	0.43
1:0:457:C:O2'	1:0:458:G:H5'	2.18	0.43
1:0:652:C:N4	1:0:657:A:H61	2.08	0.43
1:0:777:A:H62	1:0:1766:U:H3	1.62	0.43
1:0:789:G:N2	1:0:806:A:H62	1.95	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:831:G:H2'	1:0:832:A:H5''	2.00	0.43
1:0:1604:A:H2'	1:0:1605:A:O4'	2.19	0.43
1:0:1750:A:H1'	1:0:2690:A:C2	2.53	0.43
1:0:1886:G:H2'	1:0:1887:G:H8	1.83	0.43
1:0:2058:U:H3'	1:0:2217:G:H1	1.83	0.43
1:0:2083:G:N2	1:0:2172:U:H3	2.16	0.43
1:0:2240:C:H2'	1:0:2241:U:H5'	1.99	0.43
1:0:2615:U:H3	1:0:2762:G:H1	1.65	0.43
1:0:2633:A:H61	1:0:2646:C:N4	2.15	0.43
1:0:54:G:H2'	1:0:55:A:C8	2.53	0.43
1:0:242:A:N6	1:0:441:A:N7	2.67	0.43
1:0:474:G:N2	1:0:476:G:H3'	2.34	0.43
1:0:831:G:H5'	1:0:852:U:OP1	2.19	0.43
1:0:1172:U:H2'	1:0:1173:G:C8	2.53	0.43
1:0:1463:A:H2'	1:0:1464:A:H8	1.82	0.43
1:0:1773:C:H1'	1:0:2588:U:H5''	2.01	0.43
1:0:1919:A:H5''	1:0:1920:A:O5'	2.18	0.43
1:0:2426:G:H22	1:0:2431:C:N4	2.16	0.43
1:0:2473:G:O2'	1:0:2474:G:H5'	2.18	0.43
1:0:2574:G:H1'	1:0:2576:G:O6	2.17	0.43
1:0:2619:G:H2'	1:0:2620:G:C8	2.53	0.43
1:0:23:G:H2'	1:0:24:G:C8	2.54	0.43
1:0:147:G:C2	1:0:148:C:H1'	2.54	0.43
1:0:237:G:H2'	1:0:238:G:O4'	2.18	0.43
1:0:565:A:H2'	1:0:566:U:C6	2.54	0.43
1:0:591:G:H2'	1:0:592:G:C8	2.54	0.43
1:0:1030:U:OP1	1:0:1046:U:H1'	2.18	0.43
1:0:2133:G:H2'	1:0:2134:U:C6	2.54	0.43
1:0:2436:U:H2'	1:0:2437:G:O4'	2.19	0.43
1:0:2458:U:OP1	1:0:2516:U:H1'	2.19	0.43
1:0:10:A:O2'	1:0:11:G:H5'	2.18	0.43
1:0:59:G:N2	1:0:87:G:N7	2.65	0.43
1:0:69:G:O2'	1:0:70:A:H8	2.02	0.43
1:0:73:A:H4'	1:0:74:G:O4'	2.19	0.43
1:0:109:A:H2'	1:0:110:U:H5''	2.01	0.43
1:0:2094:C:C4	1:0:2103:G:H1'	2.54	0.43
1:0:2136:G:H2'	1:0:2137:G:C8	2.53	0.43
1:0:2500:C:H4'	1:0:2544:A:C4'	2.49	0.43
1:0:2680:U:H3'	1:0:2681:A:C5'	2.47	0.43
1:0:2860:C:H2'	1:0:2861:A:O4'	2.19	0.43
1:0:69:G:H3'	1:0:111:G:O2'	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:192:G:O2'	1:0:193:A:H5''	2.18	0.43
1:0:488:A:H2'	1:0:489:A:C8	2.53	0.43
1:0:508:G:H2'	1:0:509:U:C6	2.53	0.43
1:0:604:U:H2'	1:0:605:G:H8	1.82	0.43
1:0:871:U:H1'	1:0:2248:A:C5'	2.48	0.43
1:0:878:C:O2'	1:0:879:A:OP1	2.36	0.43
1:0:1489:C:H3'	1:0:1490:U:H5'	2.00	0.43
1:0:1566:G:H2'	1:0:1567:A:C8	2.54	0.43
1:0:1628:C:H2'	1:0:1629:G:C8	2.53	0.43
1:0:1665:C:H2'	1:0:1666:G:C8	2.54	0.43
1:0:2033:C:H2'	1:0:2034:A:O4'	2.18	0.43
1:0:2083:G:H22	1:0:2172:U:H3	1.65	0.43
1:0:2225:G:O2'	1:0:2226:A:H5'	2.19	0.43
1:0:584:A:H4'	1:0:2479:U:C5'	2.47	0.43
1:0:716:U:H2'	1:0:717:G:O4'	2.19	0.43
1:0:833:A:H2'	1:0:834:A:C8	2.53	0.43
1:0:1155:G:H2'	1:0:1156:U:O4'	2.19	0.43
1:0:1271:C:H2'	1:0:1272:G:C8	2.54	0.43
1:0:1326:U:H4'	1:0:1345:G:H4'	2.00	0.43
1:0:1332:G:H2'	1:0:1333:G:O4'	2.19	0.43
1:0:1975:G:H1'	1:0:1977:C:N4	2.33	0.43
1:0:2217:G:N3	1:0:2217:G:C2'	2.82	0.43
1:0:2292:C:H2'	1:0:2293:G:C8	2.54	0.43
1:0:121:G:H2'	1:0:122:G:O4'	2.19	0.43
1:0:859:U:H4'	1:0:860:U:H5	1.84	0.43
1:0:1466:C:H2'	1:0:1467:U:O4'	2.18	0.43
1:0:1471:G:H1	1:0:2682:C:H42	1.66	0.43
1:0:1594:U:H2'	1:0:1595:A:H8	1.84	0.43
1:0:2265:A:H5''	1:0:2266:A:O4'	2.19	0.43
1:0:2392:G:H2'	1:0:2393:G:C8	2.54	0.43
1:0:2808:U:H3'	1:0:2809:A:C5'	2.46	0.43
1:0:168:A:H2'	1:0:169:C:H6	1.83	0.42
1:0:192:G:C4'	1:0:193:A:H4'	2.49	0.42
1:0:239:A:H5'	1:0:619:A:O2'	2.18	0.42
1:0:404:A:H1'	1:0:424:G:O2'	2.18	0.42
1:0:764:A:H3'	1:0:764:A:N3	2.34	0.42
1:0:1046:U:H2'	1:0:1047:G:H8	1.84	0.42
1:0:1341:G:N2	1:0:1343:C:H1'	2.34	0.42
1:0:1594:U:H2'	1:0:1595:A:C8	2.54	0.42
1:0:1747:G:H1'	1:0:1749:G:C2	2.53	0.42
1:0:1944:C:H2'	1:0:1945:C:O4'	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2380:U:C2'	1:0:2381:A:H5'	2.44	0.42
1:0:2640:G:H2'	1:0:2641:A:O4'	2.18	0.42
1:0:28:A:H2'	1:0:29:U:C6	2.54	0.42
1:0:128:C:C3'	1:0:129:A:H5''	2.49	0.42
1:0:172:A:N3	1:0:227:G:N2	2.67	0.42
1:0:190:A:H2'	1:0:191:G:C8	2.53	0.42
1:0:694:G:H2'	1:0:695:G:C8	2.54	0.42
1:0:944:A:H2'	1:0:945:G:O4'	2.19	0.42
1:0:964:A:H2'	1:0:965:G:H8	1.83	0.42
1:0:1762:C:H2'	1:0:1763:G:C8	2.54	0.42
1:0:2558:C:O2'	1:0:2559:U:H5'	2.19	0.42
1:0:85:C:O2'	1:0:86:U:H5'	2.20	0.42
1:0:533:C:H1'	1:0:563:U:O2'	2.19	0.42
1:0:722:C:H2'	1:0:723:C:C6	2.54	0.42
1:0:1561:A:H2'	1:0:1562:G:O4'	2.19	0.42
1:0:1888:C:H2'	1:0:1913:G:C6	2.54	0.42
1:0:1899:A:O2'	1:0:1946:U:H1'	2.19	0.42
1:0:2393:G:H2'	1:0:2394:G:C8	2.54	0.42
1:0:2661:G:O2'	1:0:2662:C:H5'	2.19	0.42
1:0:607:C:H2'	1:0:608:G:H8	1.84	0.42
1:0:1200:G:C2'	1:0:1201:G:H5'	2.50	0.42
1:0:2390:A:H2'	1:0:2391:A:C8	2.55	0.42
1:0:2498:U:H1'	1:0:2500:C:H41	1.84	0.42
1:0:2500:C:H4'	1:0:2544:A:O4'	2.19	0.42
1:0:65:C:C3'	1:0:66:U:H5'	2.50	0.42
1:0:119:G:H1'	1:0:129:A:N1	2.34	0.42
1:0:629:C:C2'	1:0:630:G:H5'	2.49	0.42
1:0:1312:G:H2'	1:0:1643:A:H61	1.84	0.42
1:0:1446:U:H2'	1:0:1447:U:H6	1.83	0.42
1:0:1489:C:H3'	1:0:1490:U:C5'	2.49	0.42
1:0:1722:G:H2'	1:0:1723:U:C6	2.54	0.42
1:0:2205:C:H2'	1:0:2206:C:H6	1.83	0.42
1:0:2455:A:O2'	1:0:2456:U:H5'	2.20	0.42
1:0:2766:U:O2'	1:0:2767:C:H5'	2.19	0.42
1:0:211:U:H2'	1:0:212:U:O4'	2.20	0.42
1:0:331:U:H2'	1:0:332:C:H5''	2.00	0.42
1:0:543:G:H2'	1:0:544:U:C6	2.55	0.42
1:0:1026:U:H2'	1:0:1027:C:C6	2.55	0.42
1:0:1175:A:H2'	1:0:1176:U:C6	2.55	0.42
1:0:1591:U:H2'	1:0:1592:U:O4'	2.19	0.42
1:0:1917:C:C2'	1:0:1918:G:H5'	2.49	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2250:G:O2'	1:0:2251:U:H5'	2.20	0.42
1:0:2463:G:O2'	1:0:2464:G:H5'	2.19	0.42
1:0:114:C:H4'	1:0:124:A:O2'	2.19	0.42
1:0:210:A:N6	1:0:442:A:N6	2.68	0.42
1:0:611:C:H2'	1:0:612:G:H5'	2.02	0.42
1:0:670:U:H2'	1:0:671:A:C8	2.54	0.42
1:0:689:A:H8	1:0:2422:C:H1'	1.84	0.42
1:0:1002:C:H2'	1:0:1003:C:C6	2.55	0.42
1:0:1354:A:C2	1:0:1411:C:H4'	2.55	0.42
1:0:1621:C:C4'	1:0:1626:A:H61	2.30	0.42
1:0:1743:C:H2'	1:0:1744:G:C8	2.55	0.42
1:0:1836:C:H2'	1:0:1837:G:H8	1.84	0.42
1:0:1930:C:H2'	1:0:1931:G:C8	2.54	0.42
1:0:2034:A:N6	1:0:2593:A:N7	2.67	0.42
1:0:2245:A:H2'	1:0:2246:A:OP2	2.19	0.42
1:0:2506:C:H2'	1:0:2507:U:C6	2.54	0.42
1:0:2515:G:H2'	1:0:2516:U:C6	2.54	0.42
1:0:2795:A:N3	1:0:2795:A:C2'	2.82	0.42
1:0:59:G:H1'	1:0:73:A:N1	2.35	0.42
1:0:161:U:H4'	1:0:194:G:H21	1.85	0.42
1:0:217:U:H5'	1:0:633:G:HO2'	1.85	0.42
1:0:537:C:C6	1:0:2759:U:H2'	2.55	0.42
1:0:1242:A:H2'	1:0:1243:G:C8	2.54	0.42
1:0:2378:G:H2'	1:0:2379:G:C8	2.54	0.42
1:0:2470:U:H1'	1:0:2548:G:O3'	2.19	0.42
1:0:48:A:O5'	1:0:50:G:H4'	2.20	0.42
1:0:688:A:H1'	1:0:2422:C:O2'	2.20	0.42
1:0:820:U:H5'	1:0:2424:G:H4'	2.01	0.42
1:0:860:U:H2'	1:0:860:U:O2	2.19	0.42
1:0:930:A:H3'	1:0:931:G:H8	1.84	0.42
1:0:1168:G:H2'	1:0:1169:C:C6	2.54	0.42
1:0:1811:A:H1'	1:0:1813:A:C4	2.55	0.42
1:0:1829:C:O2'	1:0:1910:A:H1'	2.20	0.42
1:0:2276:C:O2'	1:0:2277:A:H5'	2.20	0.42
1:0:2811:G:H2'	1:0:2812:A:C8	2.55	0.42
1:0:17:G:N2	1:0:564:U:H5''	2.34	0.42
1:0:405:C:H2'	1:0:406:G:C8	2.55	0.42
1:0:873:U:C2	1:0:2246:A:H5''	2.54	0.42
1:0:890:U:H2'	1:0:891:A:C8	2.55	0.42
1:0:1292:A:H2'	1:0:1293:A:H8	1.85	0.42
1:0:1302:C:H2'	1:0:1303:U:C6	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1324:G:O2'	1:0:1325:U:H5'	2.19	0.42
1:0:2028:C:O2'	1:0:2029:G:H5'	2.19	0.42
1:0:2038:C:H5'	1:0:2039:G:C5'	2.50	0.42
1:0:2502:G:H2'	1:0:2503:G:H8	1.85	0.42
1:0:521:U:C2'	1:0:522:G:H5'	2.50	0.41
1:0:838:A:H4'	1:0:2407:G:C6	2.55	0.41
1:0:1671:A:H1'	1:0:2798:A:H5'	2.01	0.41
1:0:1956:G:H2'	1:0:1957:C:O4'	2.20	0.41
1:0:2740:C:O2'	1:0:2741:G:H5'	2.20	0.41
1:0:2836:U:H2'	1:0:2837:G:C8	2.55	0.41
1:0:2874:A:H2'	1:0:2875:C:C6	2.55	0.41
1:0:198:A:O2'	1:0:199:A:OP2	2.30	0.41
1:0:476:G:H2'	1:0:477:A:H8	1.85	0.41
1:0:526:C:H2'	1:0:527:C:C6	2.55	0.41
1:0:824:U:C1'	1:0:1264:C:H1'	2.47	0.41
1:0:1029:C:C2'	1:0:1030:U:H5''	2.50	0.41
1:0:1204:G:H2'	1:0:1205:G:H8	1.85	0.41
1:0:1532:A:H2'	1:0:1533:G:H8	1.85	0.41
1:0:1539:U:H2'	1:0:1540:C:C6	2.55	0.41
1:0:1671:A:H2'	1:0:1672:A:H8	1.85	0.41
1:0:2404:A:H4'	1:0:2405:A:O5'	2.19	0.41
1:0:6:A:H2'	1:0:7:G:C8	2.56	0.41
1:0:105:G:H21	1:0:357:A:N6	2.18	0.41
1:0:649:G:H2'	1:0:650:U:C6	2.55	0.41
1:0:690:A:O2'	1:0:691:C:H5'	2.21	0.41
1:0:691:C:H2'	1:0:692:C:C6	2.56	0.41
1:0:1343:C:H2'	1:0:1344:C:C6	2.56	0.41
1:0:2120:C:H2'	1:0:2121:U:O4'	2.21	0.41
1:0:2204:A:HO2'	1:0:2205:C:H6	1.63	0.41
1:0:2242:C:H2'	1:0:2243:C:C6	2.55	0.41
1:0:2320:G:H2'	1:0:2321:C:C6	2.56	0.41
1:0:2348:A:H2'	1:0:2349:G:C8	2.54	0.41
1:0:2627:G:H2'	1:0:2628:C:C6	2.54	0.41
1:0:2784:A:H5''	1:0:2785:A:N7	2.36	0.41
1:0:2824:C:HO2'	1:0:2825:A:P	2.42	0.41
1:0:178:C:H4'	1:0:399:G:C2	2.55	0.41
1:0:315:G:H2'	1:0:316:C:C6	2.55	0.41
1:0:415:A:O2'	1:0:416:U:H5'	2.20	0.41
1:0:539:A:N6	1:0:2024:U:N3	2.68	0.41
1:0:630:G:C2'	1:0:631:G:H5'	2.49	0.41
1:0:810:U:H2'	1:0:811:G:H8	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1017:C:H2'	1:0:1018:C:O4'	2.19	0.41
1:0:1028:G:H2'	1:0:1029:C:H6	1.85	0.41
1:0:1530:U:HO2'	1:0:1531:C:H6	1.64	0.41
1:0:1557:G:H2'	1:0:1558:C:C6	2.55	0.41
1:0:2027:C:H2'	1:0:2028:C:C6	2.55	0.41
1:0:2093:G:O2'	1:0:2094:C:OP1	2.33	0.41
1:0:2597:G:H2'	1:0:2598:C:C6	2.55	0.41
1:0:438:G:H2'	1:0:439:C:C6	2.55	0.41
1:0:653:G:C2	1:0:655:A:H1'	2.55	0.41
1:0:747:A:H2'	1:0:748:A:H8	1.85	0.41
1:0:871:U:O2	1:0:2247:A:H2'	2.19	0.41
1:0:950:G:H2'	1:0:951:G:H8	1.84	0.41
1:0:1084:A:H4'	1:0:2454:C:OP1	2.20	0.41
1:0:1415:C:O2'	1:0:1416:A:H5'	2.21	0.41
1:0:1455:C:HO2'	1:0:1644:G:H5''	1.86	0.41
1:0:1495:G:O2'	1:0:1496:G:OP1	2.35	0.41
1:0:1499:A:H2'	1:0:1500:U:C6	2.55	0.41
1:0:1542:G:H21	1:0:1561:A:H62	1.69	0.41
1:0:1809:G:O2'	1:0:1810:U:H5'	2.20	0.41
1:0:2451:G:H2'	1:0:2508:G:H21	1.85	0.41
1:0:2651:U:H2'	1:0:2652:G:H8	1.86	0.41
1:0:327:C:O2'	1:0:328:A:H5'	2.20	0.41
1:0:532:A:H2'	1:0:533:C:C6	2.56	0.41
1:0:579:G:H2'	1:0:2013:A:C6	2.55	0.41
1:0:581:A:H61	1:0:2012:A:H2	1.68	0.41
1:0:635:C:H2'	1:0:636:G:H5''	2.02	0.41
1:0:854:G:H2'	1:0:855:G:C8	2.56	0.41
1:0:1041:G:O2'	1:0:2445:C:H4'	2.20	0.41
1:0:1189:G:O2'	1:0:1190:C:H5'	2.21	0.41
1:0:1341:G:N2	1:0:1664:G:H1	2.17	0.41
1:0:1402:G:H2'	1:0:1403:U:O4'	2.21	0.41
1:0:1586:A:H2'	1:0:1587:A:H8	1.86	0.41
1:0:1825:C:H2'	1:0:1826:U:H5'	2.01	0.41
1:0:2772:U:H2'	1:0:2773:G:H8	1.86	0.41
1:0:818:G:H5'	1:0:819:C:OP2	2.21	0.41
1:0:1065:A:H2'	1:0:1066:G:C8	2.56	0.41
1:0:1193:G:O2'	1:0:1194:U:P	2.78	0.41
1:0:1200:G:OP1	1:0:1200:G:H8	2.03	0.41
1:0:1231:A:H2'	1:0:1232:U:O4'	2.20	0.41
1:0:1253:C:H2'	1:0:1254:G:O4'	2.21	0.41
1:0:1479:G:H2'	1:0:1480:G:C8	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2200:G:H2'	1:0:2201:G:C8	2.56	0.41
1:0:2217:G:N3	1:0:2217:G:H2'	2.35	0.41
1:0:2270:U:O2'	1:0:2353:G:H1'	2.20	0.41
1:0:2539:C:H2'	1:0:2540:A:C8	2.55	0.41
1:0:2546:G:H2'	1:0:2547:C:C6	2.56	0.41
1:0:2756:A:H1'	1:0:2758:A:C5	2.56	0.41
1:0:2861:A:O2'	1:0:2862:G:H5'	2.21	0.41
1:0:550:C:H2'	1:0:551:A:H8	1.86	0.41
1:0:634:G:H2'	1:0:635:C:C6	2.55	0.41
1:0:675:C:H2'	1:0:676:G:H8	1.85	0.41
1:0:713:G:H2'	1:0:714:G:C8	2.56	0.41
1:0:925:U:H4'	1:0:926:C:C6	2.56	0.41
1:0:1443:G:N3	1:0:1584:G:N1	2.69	0.41
1:0:1528:C:H3'	1:0:1529:C:H5''	2.03	0.41
1:0:1676:U:H2'	1:0:1677:C:C6	2.56	0.41
1:0:1791:C:H1'	1:0:1793:A:C4'	2.51	0.41
1:0:1957:C:O2'	1:0:1958:G:H5'	2.20	0.41
1:0:2161:C:H2'	1:0:2162:C:C5	2.56	0.41
1:0:139:A:H2'	1:0:140:G:C8	2.55	0.41
1:0:314:G:H2'	1:0:315:G:C8	2.55	0.41
1:0:589:C:H2'	1:0:590:C:C6	2.55	0.41
1:0:644:A:H2'	1:0:645:G:O4'	2.21	0.41
1:0:840:U:H4'	1:0:841:G:C2	2.55	0.41
1:0:956:A:H2'	1:0:956:A:N3	2.35	0.41
1:0:987:G:H2'	1:0:988:G:H8	1.85	0.41
1:0:1143:A:H2'	1:0:1144:U:C6	2.56	0.41
1:0:1187:A:C2'	1:0:1188:A:O5'	2.69	0.41
1:0:1336:G:N2	1:0:1632:A:N6	2.69	0.41
1:0:1358:C:H2'	1:0:1359:G:H5'	2.03	0.41
1:0:1696:C:H42	1:0:1755:G:H5''	1.86	0.41
1:0:1850:G:H2'	1:0:1851:A:C8	2.55	0.41
1:0:1900:U:H2'	1:0:1901:A:H5'	2.03	0.41
1:0:2048:C:H2'	1:0:2049:C:H6	1.85	0.41
1:0:2076:G:H2'	1:0:2077:G:C8	2.55	0.41
1:0:2096:U:C2'	1:0:2097:A:H5''	2.44	0.41
1:0:2234:G:H2'	1:0:2235:G:O4'	2.21	0.41
1:0:2241:U:H4'	1:0:2307:A:C2	2.55	0.41
1:0:2365:U:O2'	1:0:2366:U:H5'	2.21	0.41
1:0:2392:G:H2'	1:0:2393:G:H8	1.85	0.41
1:0:2492:G:H2'	1:0:2493:U:C6	2.56	0.41
1:0:2782:G:C2'	1:0:2783:U:OP1	2.69	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:344:G:O2'	1:0:345:U:H5'	2.21	0.41
1:0:808:C:H2'	1:0:809:C:C6	2.56	0.41
1:0:827:C:H2'	1:0:828:C:H6	1.87	0.41
1:0:856:A:H2'	1:0:857:U:O4'	2.20	0.41
1:0:1055:A:H61	1:0:1122:A:H4'	1.86	0.41
1:0:1286:U:H2'	1:0:2692:A:H2	1.85	0.41
1:0:1947:G:H8	1:0:1947:G:P	2.44	0.41
1:0:1949:A:H1'	1:0:2572:U:C5'	2.51	0.41
1:0:2321:C:H2'	1:0:2322:U:H5'	2.02	0.41
1:0:2383:C:C2'	1:0:2384:G:H5'	2.51	0.41
1:0:2389:G:H2'	1:0:2390:A:O4'	2.21	0.41
1:0:2485:U:O2'	1:0:2486:C:H5'	2.21	0.41
1:0:314:G:H2'	1:0:315:G:H8	1.86	0.40
1:0:354:C:H2'	1:0:355:G:O4'	2.21	0.40
1:0:502:A:H2'	1:0:503:G:O4'	2.21	0.40
1:0:848:A:H2'	1:0:849:G:H8	1.85	0.40
1:0:978:U:H2'	1:0:979:A:C8	2.56	0.40
1:0:1054:C:H2'	1:0:1055:A:H5'	2.02	0.40
1:0:1162:A:H2'	1:0:1163:C:H6	1.86	0.40
1:0:1177:U:H2'	1:0:1178:C:C6	2.56	0.40
1:0:1398:G:H2'	1:0:1399:C:C6	2.56	0.40
1:0:1463:A:H1'	1:0:1543:G:N2	2.37	0.40
1:0:1518:C:C2'	1:0:1519:G:O5'	2.70	0.40
1:0:1821:A:H3'	1:0:1822:C:C6	2.56	0.40
1:0:2058:U:H5'	1:0:2576:G:C1'	2.41	0.40
1:0:2326:C:H2'	1:0:2327:U:C6	2.56	0.40
1:0:2573:C:O5'	1:0:2573:C:H6	2.04	0.40
1:0:2586:G:H2'	1:0:2587:G:O4'	2.21	0.40
1:0:2633:A:H5''	1:0:2634:G:OP1	2.21	0.40
1:0:14:A:H2	1:0:2604:G:O2'	2.04	0.40
1:0:82:G:O2'	1:0:83:A:H5'	2.21	0.40
1:0:317:U:H3'	1:0:318:G:C5'	2.52	0.40
1:0:432:C:H2'	1:0:433:G:C8	2.57	0.40
1:0:729:A:O2'	1:0:730:C:H5'	2.21	0.40
1:0:878:C:HO2'	1:0:879:A:P	2.44	0.40
1:0:1055:A:H2	1:0:1121:G:H2'	1.87	0.40
1:0:1215:A:H2'	1:0:1216:G:H8	1.85	0.40
1:0:1329:U:H2'	1:0:1330:G:C8	2.57	0.40
1:0:1547:U:H2'	1:0:1548:U:C6	2.56	0.40
1:0:1671:A:C1'	1:0:2798:A:H5'	2.51	0.40
1:0:1708:C:H2'	1:0:1709:U:O4'	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1736:C:H2'	1:0:1737:G:C8	2.57	0.40
1:0:2204:A:C2'	1:0:2205:C:OP2	2.69	0.40
1:0:2476:A:HO2'	1:0:2477:C:H5	1.64	0.40
1:0:13:A:H1'	1:0:536:A:H62	1.86	0.40
1:0:229:G:H2'	1:0:230:C:C6	2.56	0.40
1:0:1337:G:H1'	1:0:1632:A:C6	2.56	0.40
1:0:1358:C:C2'	1:0:1359:G:H5''	2.52	0.40
1:0:1365:U:H5'	1:0:1587:A:H1'	2.04	0.40
1:0:1370:U:H2'	1:0:1371:G:O4'	2.22	0.40
1:0:1429:A:H1'	1:0:1603:A:N1	2.36	0.40
1:0:1466:C:O2'	1:0:1467:U:H5'	2.21	0.40
1:0:2054:A:H2'	1:0:2055:G:C8	2.57	0.40
1:0:2448:A:C2'	1:0:2449:G:H5'	2.51	0.40
1:0:2522:G:O2'	1:0:2523:G:H5'	2.21	0.40
1:0:2678:C:H2'	1:0:2679:G:H8	1.87	0.40
1:0:770:U:H2'	1:0:771:C:C6	2.57	0.40
1:0:949:G:H2'	1:0:950:G:C8	2.57	0.40
1:0:950:G:H2'	1:0:951:G:C8	2.56	0.40
1:0:1008:G:H2'	1:0:1009:C:H6	1.85	0.40
1:0:1223:G:O2'	1:0:1224:A:H5''	2.22	0.40
1:0:1244:U:H2'	1:0:1245:G:C8	2.57	0.40
1:0:1656:U:O2'	1:0:2678:C:H4'	2.22	0.40
1:0:1787:U:H2'	1:0:1788:C:C6	2.57	0.40
1:0:2329:C:H41	1:0:2361:G:N2	2.19	0.40
1:0:2467:A:H2'	1:0:2468:G:C8	2.56	0.40
1:0:2484:G:H21	1:0:2485:U:H5	1.69	0.40
1:0:2698:G:H2'	1:0:2699:G:O4'	2.21	0.40
1:0:646:C:O2'	1:0:650:U:H5''	2.21	0.40
1:0:931:G:H2'	1:0:932:G:O4'	2.22	0.40
1:0:1451:C:H2'	1:0:1452:U:H6	1.87	0.40
1:0:1685:A:O2'	1:0:1686:A:O5'	2.40	0.40
1:0:1778:U:H4'	1:0:2568:A:O2'	2.22	0.40
1:0:1939:U:O2	1:0:1968:G:H4'	2.21	0.40
1:0:1962:C:H2'	1:0:1963:G:H8	1.87	0.40
1:0:2075:U:H1'	1:0:2204:A:C2	2.56	0.40
1:0:2300:G:N3	1:0:2300:G:H3'	2.36	0.40
1:0:2552:C:OP1	1:0:2553:G:H5''	2.21	0.40
1:0:2653:A:H2'	1:0:2654:A:C8	2.57	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	2757/2880 (95%)	413 (14%)	39 (1%)

All (413) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	0	15	G
1	0	35	G
1	0	45	C
1	0	48	A
1	0	49	U
1	0	50	G
1	0	59	G
1	0	67	G
1	0	70	A
1	0	71	A
1	0	72	A
1	0	87	G
1	0	89	A
1	0	90	G
1	0	91	A
1	0	99	U
1	0	105	G
1	0	110	U
1	0	116	A
1	0	118	U
1	0	123	A
1	0	129	A
1	0	135	U
1	0	155	G
1	0	158	A

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Mol	Chain	Res	Type
1	0	173	A
1	0	174	A
1	0	176	A
1	0	177	U
1	0	181	A
1	0	182	G
1	0	193	A
1	0	199	A
1	0	200	A
1	0	205	A
1	0	206	U
1	0	210	A
1	0	218	A
1	0	219	G
1	0	225	G
1	0	226	C
1	0	227	G
1	0	229	G
1	0	242	A
1	0	243	G
1	0	245	C
1	0	305	A
1	0	318	G
1	0	333	A
1	0	334	G
1	0	335	A
1	0	340	G
1	0	342	G
1	0	343	A
1	0	358	C
1	0	363	G
1	0	368	A
1	0	373	A
1	0	399	G
1	0	401	G
1	0	408	U
1	0	414	A
1	0	418	C
1	0	424	G
1	0	443	A
1	0	455	A
1	0	456	C

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Mol	Chain	Res	Type
1	0	460	U
1	0	461	A
1	0	463	C
1	0	467	U
1	0	469	G
1	0	491	A
1	0	492	G
1	0	515	A
1	0	518	A
1	0	519	C
1	0	537	C
1	0	539	A
1	0	541	C
1	0	542	A
1	0	554	U
1	0	556	A
1	0	558	G
1	0	559	C
1	0	572	G
1	0	584	A
1	0	613	A
1	0	617	U
1	0	624	A
1	0	632	A
1	0	636	G
1	0	638	A
1	0	648	A
1	0	652	C
1	0	654	A
1	0	657	A
1	0	665	A
1	0	666	U
1	0	667	U
1	0	684	C
1	0	697	G
1	0	699	G
1	0	700	C
1	0	728	G
1	0	742	G
1	0	743	A
1	0	760	U
1	0	761	G

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Mol	Chain	Res	Type
1	0	776	G
1	0	778	G
1	0	789	G
1	0	794	A
1	0	796	A
1	0	797	A
1	0	798	G
1	0	806	A
1	0	813	A
1	0	818	G
1	0	825	C
1	0	832	A
1	0	840	U
1	0	841	G
1	0	844	G
1	0	860	U
1	0	873	U
1	0	879	A
1	0	919	U
1	0	922	A
1	0	926	C
1	0	930	A
1	0	931	G
1	0	941	U
1	0	944	A
1	0	952	A
1	0	957	G
1	0	969	U
1	0	970	A
1	0	972	C
1	0	973	U
1	0	984	A
1	0	994	A
1	0	996	C
1	0	1005	U
1	0	1006	C
1	0	1023	U
1	0	1024	G
1	0	1030	U
1	0	1032	A
1	0	1033	G
1	0	1036	G

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Mol	Chain	Res	Type
1	0	1037	U
1	0	1044	U
1	0	1055	A
1	0	1056	U
1	0	1057	A
1	0	1067	G
1	0	1073	G
1	0	1074	G
1	0	1075	C
1	0	1081	A
1	0	1087	C
1	0	1090	C
1	0	1099	A
1	0	1122	A
1	0	1137	A
1	0	1138	A
1	0	1142	G
1	0	1145	C
1	0	1146	G
1	0	1155	G
1	0	1167	A
1	0	1182	U
1	0	1183	C
1	0	1185	C
1	0	1188	A
1	0	1194	U
1	0	1195	U
1	0	1199	U
1	0	1200	G
1	0	1224	A
1	0	1253	C
1	0	1262	U
1	0	1264	C
1	0	1266	G
1	0	1269	G
1	0	1278	A
1	0	1279	G
1	0	1280	U
1	0	1284	G
1	0	1285	A
1	0	1288	A
1	0	1314	A

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Mol	Chain	Res	Type
1	0	1324	G
1	0	1325	U
1	0	1334	A
1	0	1338	G
1	0	1342	U
1	0	1343	C
1	0	1355	A
1	0	1356	G
1	0	1359	G
1	0	1391	A
1	0	1392	U
1	0	1397	A
1	0	1398	G
1	0	1433	A
1	0	1441	A
1	0	1442	C
1	0	1443	G
1	0	1459	U
1	0	1465	G
1	0	1468	A
1	0	1469	U
1	0	1470	G
1	0	1475	U
1	0	1482	U
1	0	1490	U
1	0	1496	G
1	0	1505	U
1	0	1508	G
1	0	1509	A
1	0	1513	U
1	0	1519	G
1	0	1524	C
1	0	1529	C
1	0	1552	C
1	0	1571	G
1	0	1573	G
1	0	1574	A
1	0	1576	G
1	0	1582	A
1	0	1583	A
1	0	1585	A
1	0	1618	U

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Mol	Chain	Res	Type
1	0	1623	C
1	0	1624	A
1	0	1625	A
1	0	1632	A
1	0	1633	C
1	0	1634	A
1	0	1635	G
1	0	1648	C
1	0	1651	U
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	1691	G
1	0	1692	C
1	0	1710	U
1	0	1712	G
1	0	1715	A
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	1764	A
1	0	1771	A
1	0	1772	C
1	0	1778	U
1	0	1792	C
1	0	1800	A
1	0	1801	C
1	0	1802	A
1	0	1807	A
1	0	1808	C
1	0	1821	A
1	0	1831	G
1	0	1884	A

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Mol	Chain	Res	Type
1	0	1889	G
1	0	1920	A
1	0	1922	U
1	0	1926	U
1	0	1938	U
1	0	1939	U
1	0	1946	U
1	0	1949	A
1	0	1950	C
1	0	1954	A
1	0	1955	G
1	0	1956	G
1	0	1979	C
1	0	1980	A
1	0	2004	U
1	0	2006	G
1	0	2014	A
1	0	2015	G
1	0	2016	A
1	0	2019	C
1	0	2038	C
1	0	2043	A
1	0	2051	U
1	0	2052	G
1	0	2060	A
1	0	2076	G
1	0	2082	C
1	0	2094	C
1	0	2096	U
1	0	2118	A
1	0	2140	G
1	0	2162	C
1	0	2168	A
1	0	2181	A
1	0	2191	A
1	0	2195	C
1	0	2199	C
1	0	2205	C
1	0	2218	G
1	0	2229	G
1	0	2237	C
1	0	2241	U

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Mol	Chain	Res	Type
1	0	2245	A
1	0	2246	A
1	0	2247	A
1	0	2255	G
1	0	2262	C
1	0	2268	G
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	2313	G
1	0	2315	A
1	0	2316	G
1	0	2326	C
1	0	2362	G
1	0	2364	C
1	0	2378	G
1	0	2382	C
1	0	2385	U
1	0	2396	C
1	0	2403	C
1	0	2405	A
1	0	2408	G
1	0	2409	A
1	0	2414	A
1	0	2420	C
1	0	2427	A
1	0	2428	U
1	0	2438	A
1	0	2448	A
1	0	2455	A
1	0	2470	U
1	0	2481	G
1	0	2482	A
1	0	2483	U
1	0	2484	G
1	0	2485	U
1	0	2492	G

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Mol	Chain	Res	Type
1	0	2498	U
1	0	2499	C
1	0	2504	G
1	0	2522	G
1	0	2546	G
1	0	2549	G
1	0	2561	G
1	0	2578	G
1	0	2580	C
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	2608	A
1	0	2609	G
1	0	2625	U
1	0	2633	A
1	0	2634	G
1	0	2661	G
1	0	2669	C
1	0	2670	C
1	0	2681	A
1	0	2691	C
1	0	2692	A
1	0	2712	G
1	0	2728	A
1	0	2730	A
1	0	2732	C
1	0	2737	A
1	0	2745	A
1	0	2756	A
1	0	2760	G
1	0	2761	A
1	0	2770	A
1	0	2771	C
1	0	2783	U
1	0	2785	A
1	0	2795	A
1	0	2807	U

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Mol	Chain	Res	Type
1	0	2808	U
1	0	2809	A
1	0	2811	G
1	0	2825	A
1	0	2841	U
1	0	2842	C
1	0	2847	G
1	0	2854	G
1	0	2855	C
1	0	2859	U

All (39) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	0	69	G
1	0	173	A
1	0	181	A
1	0	192	G
1	0	198	A
1	0	242	A
1	0	583	C
1	0	805	G
1	0	843	G
1	0	878	C
1	0	1141	U
1	0	1187	A
1	0	1193	G
1	0	1194	U
1	0	1223	G
1	0	1263	G
1	0	1278	A
1	0	1279	G
1	0	1313	U
1	0	1354	A
1	0	1495	G
1	0	1518	C
1	0	1634	A
1	0	1664	G
1	0	1807	A
1	0	1820	G
1	0	1938	U
1	0	2015	G

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Mol	Chain	Res	Type
1	0	2093	G
1	0	2161	C
1	0	2204	A
1	0	2245	A
1	0	2261	G
1	0	2377	U
1	0	2404	A
1	0	2426	G
1	0	2668	U
1	0	2759	U
1	0	2824	C

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

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	SPS	0	2881	-	19,22,23	4.39	9 (47%)	17,28,30	4.15	8 (47%)

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	SPS	0	2881	-	1/1/2/6	8/15/16/18	0/1/1/1

All (9) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	0	2881	SPS	O10-C10	9.77	1.43	1.24
2	0	2881	SPS	C9-C8	8.37	1.54	1.33
2	0	2881	SPS	O1-C1	7.62	1.43	1.24
2	0	2881	SPS	C10-N11	6.53	1.50	1.34
2	0	2881	SPS	C1-N2	5.41	1.42	1.33
2	0	2881	SPS	C5-N4	5.35	1.42	1.34
2	0	2881	SPS	C6-C8	3.88	1.55	1.47
2	0	2881	SPS	C7-C5	2.91	1.55	1.50
2	0	2881	SPS	C9-C10	2.88	1.54	1.48

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	0	2881	SPS	C12-N11-C10	-7.51	111.98	122.57
2	0	2881	SPS	C14-S15-C16	6.41	109.79	101.04
2	0	2881	SPS	C3-N2-C1	6.34	120.49	115.14
2	0	2881	SPS	C8-C9-C10	-6.10	109.64	121.56
2	0	2881	SPS	O10-C10-C9	-5.85	109.69	123.03
2	0	2881	SPS	C6-C1-N2	-5.84	120.33	124.40
2	0	2881	SPS	C9-C10-N11	5.37	124.88	114.56
2	0	2881	SPS	O10-C10-N11	2.33	125.43	122.35

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
2	0	2881	SPS	C12

All (8) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	0	2881	SPS	C9-C10-N11-C12
2	0	2881	SPS	O10-C10-N11-C12
2	0	2881	SPS	C14-C12-C13-O13
2	0	2881	SPS	N11-C12-C13-O13
2	0	2881	SPS	C13-C12-N11-C10
2	0	2881	SPS	C1-C6-C8-C9
2	0	2881	SPS	O10-C10-C9-C8

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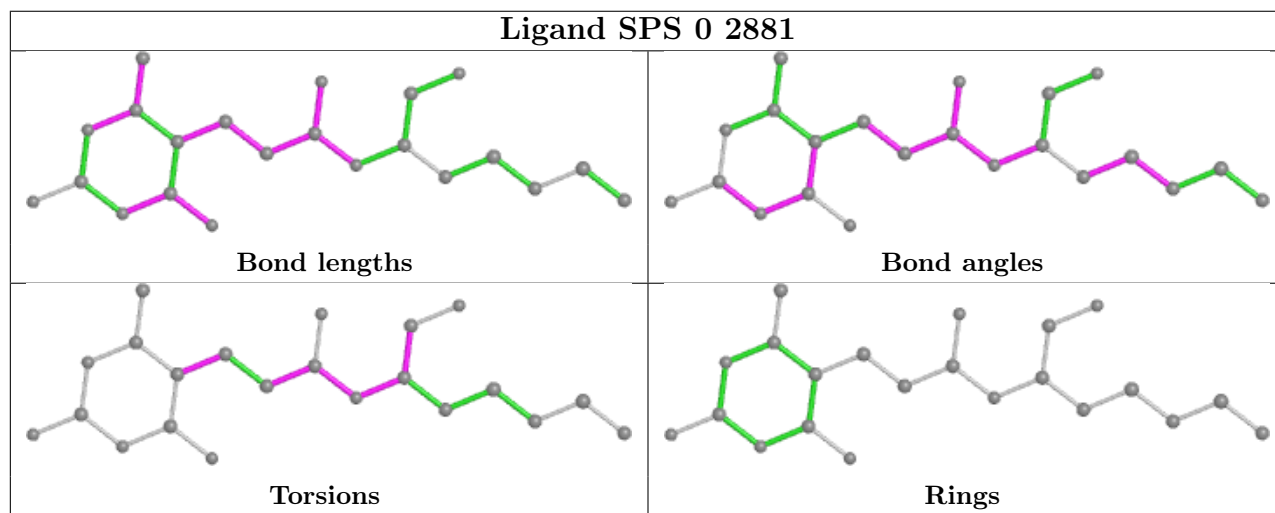
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Mol	Chain	Res	Type	Atoms
2	0	2881	SPS	N11-C10-C9-C8

There are no ring outliers.

No monomer is involved in short contacts.

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.