



# Full wwPDB X-ray Structure Validation Report ⓘ

May 15, 2020 – 01:09 pm BST

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](mailto:validation@mail.wwpdb.org)

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
Xtrriage (Phenix) : **NOT EXECUTED**  
EDS : **NOT EXECUTED**  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.11

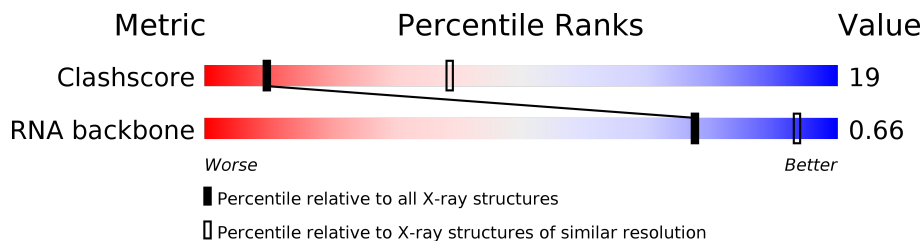
# 1 Overall quality at a glance

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 on the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ .

Note EDS was not executed.

Mol	Chain	Length	Quality of chain				
1	0	2880		34%	51%	11%	•

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](#)

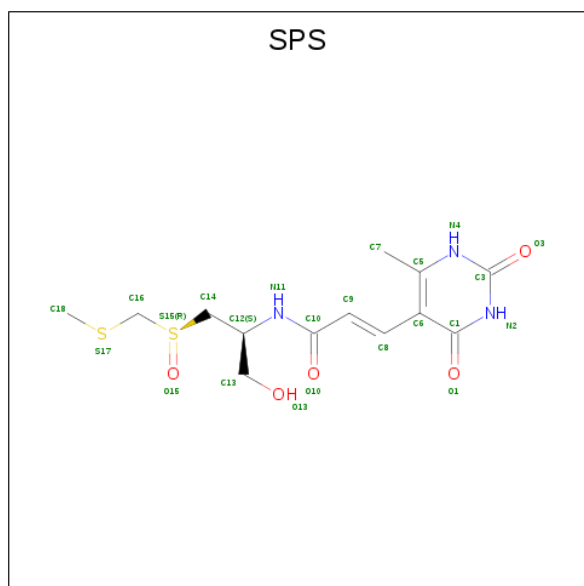
There are 2 unique types of molecules in this entry. The entry contains 59381 atoms, of which 0 are hydrogens and 0 are deuteriums.

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:  $C_{13}H_{19}N_3O_5S_2$ ).



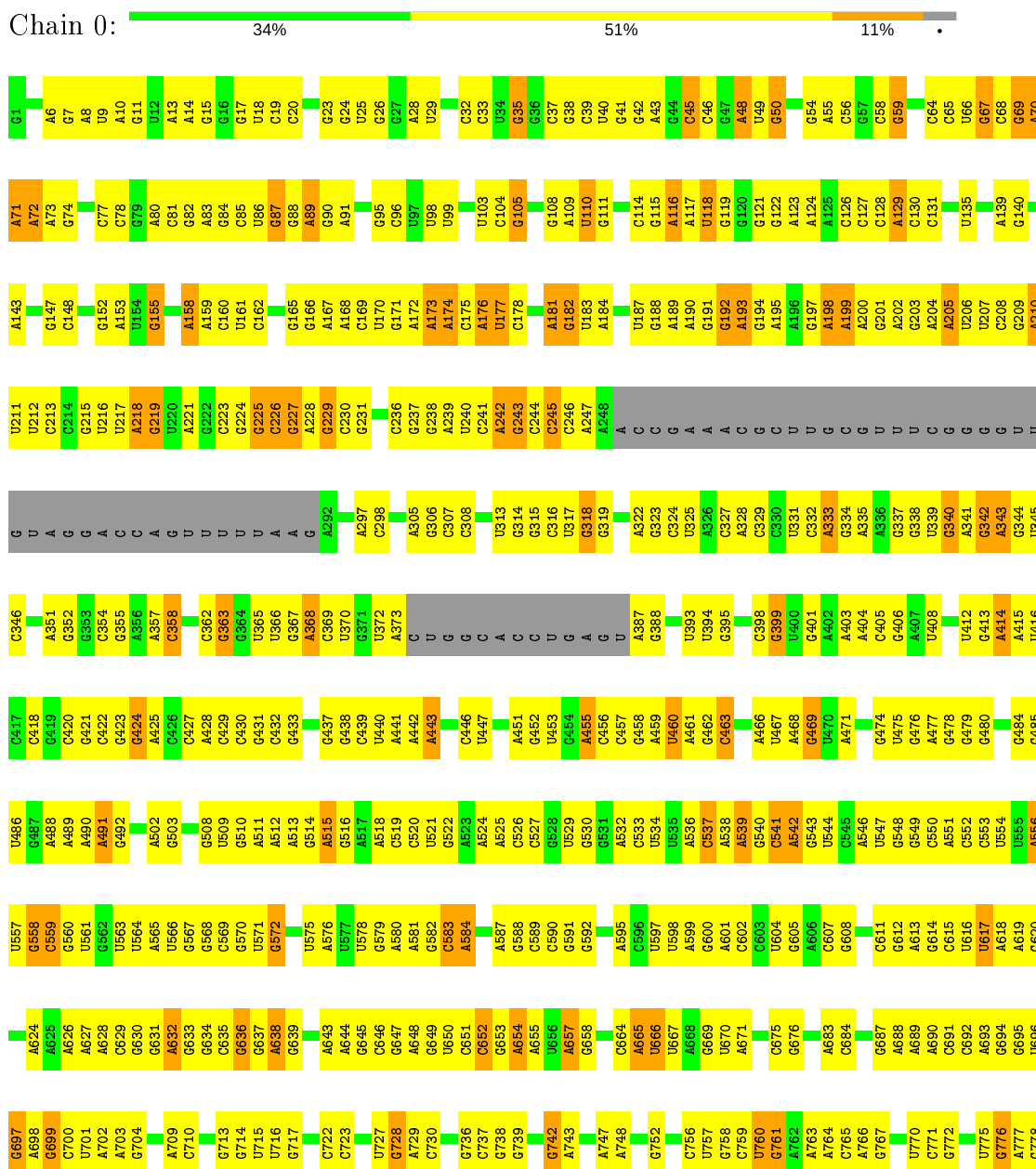
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	S		
2	0	1	22	13	3	4	2	0	0

### 3 Residue-property plots

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

Note EDS was not executed.

- Molecule 1: 23S ribosomal RNA



U1810	G1730	C1580	G1503	A1433	A1353	U1286	C1214	U1144	U1046	A979	C	A842	U779
A1811	C1731	C1581	G1504	U1494	A1354	A1287	A1215	C1145	G1047	G980	A911	G843	U780
U1812	U1732	A1582	U1505	G1436	A1355	A1288	G1216	G1146	U1048	C981	U916	G844	U781
A1813	U1733	A1583	G1506	G1437	A1356	A1289	U1217	G1147	C1052	A984	U917	U845	G782
G1814	A1657	A1584	G1508	U1437	U1357	A1290	C1218	G1148	C1053	G985	U918	A846	G783
G1818	A1658	A1585	A1509	A1441	C1358	G1291	C1219	G1149	C1054	A986	U919	C847	G784
U1819	G1659	A1586	A1510	A1442	U1359	A1292	G1220	C1150	A1055	A986	U919	A848	U785
G1820	C1660	A1587	A1511	G1442	U1365	A1293	C1221	U1151	U1056	G987	G920	U849	U786
A1821	C1661	U1591	A1512	G1443	G1298	G1298	G1222	U1152	A1057	G988	A922	U852	A787
G1822	G1662	U1592	C1444	C1444	A1366	G1223	A1223	A1154	G1058	A991	A922	G788	A788
C1825	G1663	U1593	U1445	A1367	A1367	A1224	A1224	G1155	U1065	U925	U925	G789	G789
U1826	U1664	U1594	U1446	U1446	G1368	G1225	G1225	U1156	G1066	A994	U926	A854	A790
C1829	G1665	A1595	U1447	U1447	U1370	A1226	A1226	A1162	G1067	A995	C927	A855	G791
U1829	A1667	A1596	C1451	C1451	U1371	A1227	A1227	U1163	U1068	C996	G928	A856	U792
C1830	G1668	A1597	A1371	A1371	U1307	A1231	A1231	C1163	A1069	C997	G928	U857	G793
G1831	A1669	U1599	A1372	A1372	C1308	G1068	U1232	C1164	G1070	C998	G929	G858	A794
U1835	G1670	G1599	G1377	G1377	G1309	U1233	U1233	C1165	G1070	C998	A930	U859	A795
C1836	U1601	U1600	U1377	U1377	C1310	A1234	C1234	A1166	G1073	G1000	G932	U860	A796
C1837	A1602	G1602	C1380	C1380	C1311	C1235	C1235	G1168	C1074	A1001	G933	G861	A797
G1838	G1603	C1528	G1381	G1381	G1312	A1242	A1242	C1169	C1075	A1002	G934	C864	G798
A1839	A1604	C1529	U1382	U1382	U1313	G1243	G1243	U1172	U1076	C1003	G935	A865	U800
A1840	G1605	U1530	G1387	G1387	A1314	U1244	U1244	G1173	A1081	U1005	G936	U868	C804
G1841	U1606	C1531	G1388	G1388	A1315	G1245	G1245	A1175	A1084	U1006	C839	G805	G805
U1842	A1607	A1532	U1389	U1389	A1316	G1246	G1246	U1176	U1085	A1007	G940	A806	A806
C1843	G1608	G1533	C1390	C1390	G1317	G1247	G1247	U1177	G1086	G1008	U941	U807	A807
U1844	U1609	U1534	U1391	U1391	A1318	G1248	G1248	U1178	U1087	G1009	U942	C808	C808
G1845	A1610	C1535	G1392	G1392	A1319	A1250	A1250	C1179	C1087	U1010	U943	U873	C809
U1846	U1611	G1536	U1393	U1393	A1320	G1251	G1251	A1179	U1088	A944	U943	U874	U810
C1847	G1612	U1537	G1394	G1394	A1321	C1252	C1252	A1180	C1089	G945	G945	G875	G811
U1848	U1613	A1538	U1395	U1395	G1323	G1253	G1253	A1181	C1090	U1015	G949	A876	G812
U1849	A1614	C1539	U1396	U1396	U1324	G1254	G1254	U1182	G1091	C1016	G949	A877	G813
U1850	U1615	U1540	U1397	U1397	U1325	U1257	U1257	U1183	U1092	G1017	G950	C878	G814
A1851	G1616	C1541	U1398	U1398	U1326	G1258	G1258	G1184	U1093	U1018	G951	A815	A815
U1852	U1617	U1542	G1402	G1402	U1327	A1259	A1259	G1185	U1094	U1019	A952	A879	A816
G1853	A1618	C1543	U1403	U1403	G1328	A1260	A1260	A1186	A1099	A1021	A953	C880	U817
U1854	U1619	U1544	U1407	U1407	U1329	G1261	G1261	A1187	G1100	A1022	U954	G887	G818
U1855	G1620	U1545	G1407	G1407	U1330	U1262	U1262	A1188	A1114	U1023	G955	C819	C819
U1856	U1621	C1546	U1407	U1407	G1331	G1263	G1263	A1189	U1024	A1025	A956	C888	U820
U1857	A1622	U1547	U1410	U1410	G1332	U1264	U1264	C1190	G1120	G957	G957	C889	U821
U1858	G1623	C1548	C1411	C1411	A1333	G1265	G1265	G1191	G1121	U1026	G958	A891	G822
U1859	A1624	U1549	G1414	G1414	A1334	U1266	U1266	G1192	A1122	C1027	C959	G	U823
U1860	U1625	U1550	U1415	U1415	A1335	G1267	G1267	G1193	U1028	U1028	U960	G	U824
U1861	A1626	C1551	C1415	C1415	G1336	U1268	U1268	U1194	C1029	C1029	G961	G	C825
U1862	U1627	U1552	U1416	U1416	U1337	G1269	G1269	U1195	U1030	U1030	U964	G	U826
U1863	G1628	C1553	A1416	A1416	G1338	U1270	U1270	G1196	G1127	C1031	A964	G	U827
U1864	A1629	U1554	C1417	C1417	U1339	C1271	C1271	U1197	G1128	A1032	G965	G	C828
U1865	U1630	U1555	U1417	U1417	C1340	G1272	G1272	C1198	U1129	G1033	A966	C	C829
U1866	A1631	C1556	G1418	G1418	G1341	U1273	U1273	U1199	U1130	U1034	G967	U	C830
U1867	U1632	U1557	U1419	U1419	U1342	C1274	C1274	G1200	G1132	G1035	C968	A	G831
U1868	G1633	C1558	U1424	U1424	C1343	A1278	A1278	G1201	G1133	G1036	U969	C	A832
U1869	A1634	U1559	U1425	U1425	C1344	U1279	U1279	U1202	U1037	U1037	A970	C	A833
U1870	U1635	C1560	U1426	U1426	G1345	G1279	G1279	U1203	A1137	U1038	A971	A	A834
U1871	G1636	U1561	U1427	U1427	C1346	U1280	U1280	G1204	A1138	A1039	C972	G	C835
U1872	A1637	U1562	G1428	G1428	C1347	U1281	U1281	G1205	A1139	A1040	U973	C	U837
U1873	U1638	U1563	U1429	U1429	C1348	A1282	A1282	C1210	A1140	G1041	U974	U	A838
U1874	G1639	C1564	U1430	U1430	A1349	G1283	G1283	G1211	U1141	U1044	C975	U	U839
U1875	U1640	U1565	U1431	U1431	G1350	U1284	U1284	C1211	G1142	U1044	U978	A	U840
U1876	A1641	C1566	G1432	G1432	G1352	A1285	A1285	U1211	A1143	G1045	U978	C	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, $\alpha$ , $\beta$ , $\gamma$	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 <sup>2</sup> )	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
1:0:1656:U:H2'	1:0:1657:A:H5''	1.56	0.87
1:0:403:A:H4'	1:0:425: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
1:0:2522:G:H21	1:0:2625:U:H5''	1.44	0.82
1:0:542:A:H2'	1:0:543:G:H5'	1.62	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
1:0:1811:A:O2'	1:0:1812:U:H5''	1.82	0.79
1:0:67:G:N2	1:0:72:A:H2'	1.98	0.79
1:0:2198:U:H3'	1:0:2199:C:H5''	1.64	0.79
1:0:69:G:H4'	1:0:70:A:O5'	1.81	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
1:0:1252:C:C2'	1:0:1253:C:H5''	2.17	0.74
1:0:66:U:H2'	1:0:67:G:N7	2.02	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
1:0:824:U:H1'	1:0:1264:C:H1'	1.71	0.72
1:0:795:A:H4'	1:0:796:A:N7	2.03	0.72
1:0:1621:C:H4'	1:0:1626:A:H61	1.55	0.72
1:0:1473:U:H4'	1:0:1474:A:C8	2.24	0.72
1:0:616:U:H2'	1:0:617:U:H5''	1.70	0.72
1:0:2522:G:N2	1:0:2625:U:H5''	2.03	0.72
1:0:323:G:H5'	1:0:342:G:C6	2.24	0.72
1:0:1196:G:H2'	1:0:1197:U:O4'	1.90	0.72
1:0:588:G:H4'	1:0:2001:G:H5''	1.71	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
1:0:1139:A:H1'	1:0:2496:C:H5'	1.72	0.70
1:0:514:G:N3	1:0:514:G:H2'	2.06	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
1:0:1838:G:H2'	1:0:1839:A:H5'	1.75	0.69
1:0:951:G:H2'	1:0:952:A:H5''	1.73	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
1:0:26:G:N2	1:0:524:A:H62	1.91	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
1:0:2727:G:H1	1:0:2735:C:H5''	1.58	0.69
1:0:319:G:H21	1:0:340:G:H21	1.40	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
1:0:1791:C:O2'	1:0:1793:A:H5'	1.93	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
1:0:2495:G:H2'	1:0:2496:C:C6	2.29	0.68
1:0:69:G:H5''	1:0:70:A:OP1	1.93	0.68
1:0:1809:G:H2'	1:0:1810:U:O4'	1.93	0.68
1:0:471:A:H62	1:0:480:G:N2	1.90	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
1:0:1500: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
1:0:584: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
1:0:1191: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
1:0:1888:C:H5''	1:0:1889:G:H5''	1.77	0.67
1:0:630:G:H2'	1:0:631: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
1:0:1352:G:H2'	1:0:1353:A:H8	1.60	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
1:0:1474: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
1:0:1487:C:H2'	1:0:1488:G:H8	1.61	0.65
1:0:651:C:H2'	1:0:652:C:H5''	1.78	0.65
1:0:1195:U:H2'	1:0:1196:G:C8	2.31	0.65
1:0:805:G:H4'	1:0:806:A:OP2	1.96	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
1:0:1923:U:H4'	1:0:1948:C:H41	1.61	0.65
1:0:225:G:H3'	1:0:226:C:C5'	2.25	0.65
1:0:2822:U:H2'	1:0:2823:G:O4'	1.96	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
1:0:653: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
1:0:1323: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
1:0:1882: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
1:0:652:C:H42	1:0:657:A:N6	1.95	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
1:0:1181:C:H2'	1:0:1182:U:H5''	1.79	0.64
1:0:317:U:H2'	1:0:318:G: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
1:0:2617: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
1:0:83:A:H4'	1:0:84:G:O4'	1.97	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
1:0:1181: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
1:0:58: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
1:0:1250: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
1:0:1679: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
1:0:927:C:H2'	1:0:928:G:O4'	1.98	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
1:0:1715: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
1:0:653:G:N2	1:0:655:A:H1'	2.14	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
1:0:777:A:N6	1:0:1766:U:H3	1.96	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
1:0:1085: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
1:0:952:A:O2'	1:0:1204:G:H4'	1.99	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:N3	1:0:1871:G:H2'	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
1:0:1333: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
1:0:665:A:H3'	1:0:666:U:H5''	1.82	0.61
1:0:1807:A:H5'	1:0:1809:G:C1'	2.30	0.61
1:0:1947:G:OP1	1:0:1947:G:H3'	2.00	0.61
1:0:742:G:H2'	1:0:742:G:N3	2.13	0.61
1:0:81:C:H2'	1:0:82:G:O4'	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
1:0:2759:U:H5''	1:0:2760:G:O5'	2.01	0.61
1:0:404:A:H5'	1:0:425:A:H4'	1.83	0.61
1:0:860:U:C2'	1:0:861:G:H5'	2.31	0.61
1:0:1900:U:O2'	1:0:1946:U:H5'	2.00	0.61
1:0:583:C:N3	1:0:2016:A:H4'	2.15	0.61
1:0:2242:C:H42	1:0:2257:A:N6	1.99	0.61
1:0:2045:A:H4'	1:0:2421:C:OP2	2.01	0.61
1:0:940:G:C3'	1:0:941:U:H5''	2.15	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
1:0:455: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
1:0:319:G:H21	1:0:340:G:N2	1.99	0.61
1:0:2185:U:H2'	1:0:2186:G:C8	2.36	0.61
1:0:583:C:H41	1:0:2017:U:H5	1.47	0.61
1:0:1712:G:H2'	1:0:1713:G:O4'	2.00	0.60
1:0:167:A:H62	1:0:183:U:H3	1.48	0.60
1:0:2223:U:H2'	1:0:2224:U:O4'	2.01	0.60
1:0:486:U:H4'	1:0:520:C:H5'	1.81	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
1:0:814:G:H3'	1:0:815:A:H5'	1.83	0.60
1:0:1455:C:O2'	1:0:1644:G:H5''	2.01	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2508:G:H5''	1:0:2509:A:H5''	1.84	0.60
1:0:831:G:H21	1:0:1203:A:N6	1.94	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
1:0:2246:A:H2'	1:0:2246:A:N3	2.16	0.60
1:0:439:C:H2'	1:0:440:U:O4'	2.01	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
1:0:1426:U:H2'	1:0:1427:G:O4'	2.01	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
1:0:2381: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
1:0:1298: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
1:0:632:A:H2'	1:0:633:G:H5'	1.82	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
1:0:1458:A:H3'	1:0:1459:U:C5'	2.33	0.59
1:0:925:U:H4'	1:0:926:C:C5	2.37	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
1:0:2238: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
1:0:77:C:H2'	1:0:78:C:C6	2.38	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
1:0:653:G:H4'	1:0:2328:G:H4'	1.83	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
1:0:689:A:H2'	1:0:690:A:H5'	1.84	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
1:0:1664: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
1:0:614: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
1:0:1198: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
1:0:1528: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
1:0:25: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
1:0:1472: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
1:0:974:U:H1'	1:0:2229:G:N2	2.17	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
1:0:1392: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
1:0:242:A:O2'	1:0:243:G:O4'	2.21	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
1:0:1180:A:H2'	1:0:1181:C:C6	2.39	0.58
1:0:176:A:H5''	1:0:177:U:H5	1.69	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
1:0:368:A:H2'	1:0:369:C:O4'	2.04	0.58
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

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
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
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
1:0:173:A:N3	1:0:173:A:H2'	2.19	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
1:0:1915:A:N6	1:0:1951:G:H21	1.98	0.57
1:0:224:G:C5	1:0:226:C:H1'	2.39	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
1:0:322:A:H1'	1:0:343:A:N7	2.19	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
1:0:1137: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
1:0:118:U:H1'	1:0:143:A:C8	2.40	0.57
1:0:2018:G:H3'	1:0:2019:C:C5'	2.35	0.57
1:0:804:C:O2	1:0:807:A:H5'	2.04	0.57
1:0:930:A:H4'	1:0:930:A:OP1	2.02	0.57
1:0:605:G:H4'	1:0:949:G:O2'	2.04	0.57
1:0:1181:C:H3'	1:0:1182:U:H5''	1.87	0.57
1:0:236:C:H1'	1:0:632:A:O2'	2.04	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
1:0:177: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
1:0:1971: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
1:0:242: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
1:0:1181:C:C2'	1:0:1182:U:H5''	2.35	0.57
1:0:984:A:H2'	1:0:1200:G:H22	1.69	0.57
1:0:1711:C:H4'	1:0:1712:G:C2	2.39	0.57
1:0:217:U:H5'	1:0:633:G:O2'	2.05	0.57
1:0:1982:C:H1'	1:0:2666:U: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
1:0:1337:G:H1'	1:0:1632:A:N6	2.20	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
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
1:0:357:A:H2'	1:0:358:C:H5'	1.87	0.57
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
1:0:843:G:O2'	1:0:844:G:OP1	2.15	0.56
1:0:103:U:H2'	1:0:104:C:C6	2.39	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
1:0:225: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
1:0:1191: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
1:0:55:A:H2'	1:0:56:C:C6	2.40	0.56
1:0:1140:A:H61	1:0:2470:U:H6	1.53	0.56
1:0:758:G:O2'	1:0:761:G:H1'	2.05	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
1:0:1073: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
1:0:552: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:N3	1:0:776:G:H2'	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
1:0:2243: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
1:0:1263:G:O2'	1:0:1264:C:OP1	2.24	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

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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
1:0:831: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
1:0:826:U:H2'	1:0:827:C:C6	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
1:0:1464:A:H4'	1:0:1545:G:H4'	1.88	0.55
1:0:533:C:H2'	1:0:534:U:O4'	2.06	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
1:0:1912:G:H2'	1:0:1912:G:N3	2.22	0.55
1:0:541:C:H2'	1:0:2002:A:C2	2.41	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
1:0:393: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
1:0:775:U:O2	1:0:1445:A:H5''	2.06	0.55
1:0:2319:G:H2'	1:0:2320:G:C8	2.42	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
1:0:126:C:H2'	1:0:127:C:C6	2.41	0.55
1:0:1463:A:H2'	1:0:1464:A:C8	2.41	0.55
1:0:366:U:H2'	1:0:367:G:C8	2.42	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
1:0:579:G:H2'	1:0:2013:A:H62	1.72	0.55
1:0:1087:C:H2'	1:0:1088:A:O4'	2.07	0.54
1:0:225:G:H21	1:0:2410:U:H1'	1.72	0.54
1:0:2581:A:H2'	1:0:2582:G:H5''	1.89	0.54
1:0:942:U:O2'	1:0:943:U:H5'	2.07	0.54
1:0:1313:U:O2'	1:0:1314:A:P	2.66	0.54
1:0:162:C:H4'	1:0:195:A:O2'	2.07	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:N3	1:0:2560:G:H3'	2.23	0.54
1:0:2641:A:H2'	1:0:2642:G:O4'	2.08	0.54
1:0:394:U:H2'	1:0:395:G:H8	1.71	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:578:U:C1'	1:0:957:G:H21	2.19	0.54
1:0:2570:C:H2'	1:0:2571:G:C8	2.43	0.54
1:0:404:A:H2'	1:0:405:C:C6	2.42	0.54
1:0:48:A:H4'	1:0:50:G:O4'	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
1:0:215:G:H4'	1:0:617:U:O2'	2.08	0.54
1:0:2379:G:H2'	1:0:2380:U:O4'	2.07	0.54
1:0:2783:U:OP1	1:0:2783:U:C6	2.60	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
1:0:1974: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
1:0:752: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
1:0:2229: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
1:0:197: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
1:0:1976: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
1:0:213:C:H42	1:0:238:G:H22	1.54	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
1:0:173:A:O2'	1:0:174:A:OP1	2.19	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
1:0:688:A:O2'	1:0:2422:C:H4'	2.07	0.54
1:0:243:G:H2'	1:0:244:C:O4'	2.08	0.54
1:0:2466:G:H2'	1:0:2467:A:C8	2.43	0.54
1:0:2437:G:H2'	1:0:2469:G:N2	2.23	0.54
1:0:841:G:H3'	1:0:841:G:N3	2.22	0.54
1:0:1210:C:H2'	1:0:1211:G:O4'	2.08	0.54
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
1:0:216:U:H2'	1:0:217:U:O4'	2.08	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
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
1:0:1272:G:H2'	1:0:1273:G:C8	2.43	0.53
1:0:1333:G:N2	1:0:1344:C:N4	2.56	0.53
1:0:1313:U:O4	1:0:1651:U:H5'	2.08	0.53
1:0:2242:C:N4	1:0:2257:A:N6	2.55	0.53
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
1:0:1288: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
1:0:167:A:H2'	1:0:168:A:C8	2.43	0.53
1:0:64:C:H2'	1:0:65:C:C6	2.42	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
1:0:457: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
1:0:236: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
1:0:1838: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
1:0:484:G:O2'	1:0:485:G:H5'	2.08	0.53
1:0:73:A:H4'	1:0:74:G:H1'	1.91	0.53
1:0:1654:A:H2'	1:0:1655:C:C6	2.43	0.53
1:0:798:G:O2'	1:0:1770:U:H4'	2.08	0.53
1:0:1818:G:H2'	1:0:1819:U:C6	2.43	0.53
1:0:181:A:H4'	1:0:182:G:C4'	2.38	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
1:0:1459: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
1:0:960:U:H2'	1:0:961:G:C8	2.43	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

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
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
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
1:0:108: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
1:0:2571:G:H2'	1:0:2572:U:C6	2.44	0.53
1:0:728:G:H2'	1:0:729:A:O4'	2.09	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
1:0:857:U:H2'	1:0:858:G:H5'	1.90	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
1:0:129:A:H2'	1:0:130:C:C6	2.43	0.53
1:0:2565:C:O2'	1:0:2566:A:H5'	2.08	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
1:0:2061: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
1:0:70: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
1:0:1358: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
1:0:212:U:H2'	1:0:213:C:C6	2.44	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
1:0:512: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
1:0:1004: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
1:0:1683:G:C2'	1:0:1684:G:H5'	2.39	0.52
1:0:1566:G:H4'	1:0:1733:U:O4	2.10	0.52
1:0:45:C:H5''	1:0:192:G:C8	2.43	0.52
1:0:1938:U:C2'	1:0:1939:U:H5'	2.39	0.52
1:0:38:G:H2'	1:0:39:C:C6	2.44	0.52
1:0:1502:G:O2'	1:0:1503:G:H5'	2.09	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
1:0:1964: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
1:0:590:C:H2'	1:0:591:G:C8	2.43	0.52
1:0:2498:U:H5''	1:0:2499:C:OP1	2.10	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
1:0:599:A:H2'	1:0:600:G:C8	2.44	0.52
1:0:597:U:H3	1:0:683:A:H2'	1.74	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
1:0:204: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
1:0:1763: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
1:0:317:U:C3'	1:0:318:G:H5''	2.40	0.52
1:0:35:G:C1'	1:0:466:A:H1'	2.39	0.52
1:0:688:A:HO2'	1:0:2422:C:H4'	1.74	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
1:0:1217: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
1:0:541: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
1:0:841:G:N1	1:0:2226:A:H4'	2.25	0.52
1:0:830:C:O2'	1:0:852:U:H5''	2.10	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
1:0:226: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
1:0:1597:A:H2'	1:0:1598:C:C6	2.45	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
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
1:0:68:C:O2'	1:0:69:G:H5'	2.09	0.52
1:0:9:U:H3	1:0:2608:A:N6	2.03	0.52
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
1:0:658: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
1:0:108:G:H2'	1:0:109:A:C8	2.46	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
1:0:2560:G:H4'	1:0:2561:G:N7	2.24	0.51
1:0:2559:U:H2'	1:0:2560:G:H5'	1.93	0.51
1:0:564:U:H2'	1:0:565:A:C8	2.44	0.51
1:0:1358:C:H2'	1:0:1359:G:H5''	1.92	0.51
1:0:1286:U:H5''	1:0:1663:C:N4	2.25	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
1:0:460:U:N3	1:0:592:G:H1'	2.21	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
1:0:451:A:H2'	1:0:452:G:C8	2.45	0.51
1:0:491:A:H2'	1:0:491:A:N3	2.26	0.51
1:0:65:C:H2'	1:0:66:U:C5'	2.36	0.51
1:0:597:U:N3	1:0:683:A:H2'	2.26	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
1:0:333:A:H1'	1:0:351:A:C4	2.45	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

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:168:A:H2'	1:0:169:C:C6	2.46	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
1:0:446:C:H2'	1:0:447:U:C6	2.46	0.51
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:N3	1:0:689:A:H3'	2.25	0.51
1:0:763:A:C2	1:0:765:C:H1'	2.46	0.51
1:0:1092:U:H2'	1:0:1093:U:C6	2.45	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
1:0:215:G:O2'	1:0:617:U:H1'	2.09	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
1:0:1312: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
1:0:230:C:H2'	1:0:231:G:O4'	2.11	0.51
1:0:2397:A:H2'	1:0:2398:U:O4'	2.11	0.51
1:0:1819:U:H5''	1:0:1954:A:O3'	2.11	0.51
1:0:1777:A:H5'	1:0:1963:G:H21	1.76	0.51
1:0:2757:G:OP2	1:0:2761:A:H4'	2.10	0.51
1:0:25:U:H3	1:0:525:A:H61	1.56	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
1:0:35: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
1:0:788:G:H5'	1:0:790:A:N3	2.26	0.51
1:0:173:A:H61	1:0:844:G:H21	1.57	0.51
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
1:0:173:A:N6	1:0:844:G:H21	2.09	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
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

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
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
1:0:1141: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
1:0:338: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
1:0:1424: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
1:0:1495:G:HO2'	1:0:1496:G:P	2.34	0.50
1:0:170:U:H2'	1:0:171:G:H8	1.77	0.50
1:0:1038:U:O2	1:0:2466:G:H4'	2.10	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
1:0:109:A:H3'	1:0:110:U:C5'	2.38	0.50
1:0:1194:U:O2'	1:0:1195:U:P	2.70	0.50
1:0:158:A:H2'	1:0:159:A:C8	2.44	0.50
1:0:1923:U:H1'	1:0:1947:G:H4'	1.94	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
1:0:84:G:H2'	1:0:85:C:C6	2.47	0.50
1:0:860:U:O2'	1:0:861:G:H5'	2.12	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
1:0:18:U:H2'	1:0:19:C:C6	2.46	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
1:0:864: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
1:0:1057: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
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

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1770:U:H2'	1:0:1774:A:H62	1.76	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
1:0:1099: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
1:0:165:G:H2'	1:0:166:G:O4'	2.12	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
1:0:316: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
1:0:69:G:O2'	1:0:70:A:C8	2.65	0.50
1:0:1455:C:H2'	1:0:1456:C:C6	2.47	0.49
1:0:1432:G:N2	1:0:1596:A:H62	2.05	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
1:0:868:U:H2'	1:0:869:C:C6	2.46	0.49
1:0:181:A:H4'	1:0:182:G:O5'	2.11	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
1:0:211:U:O2'	1:0:212:U:H5'	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
1:0:1269: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
1:0:189: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
1:0:2220: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
1:0:830: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
1:0:114:C:H2'	1:0:115:G:O4'	2.13	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
1:0:874: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
1:0:1029: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
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

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2487:G:H4'	1:0:2533:U:O2'	2.11	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
1:0:1446: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
1:0:477:A:H2'	1:0:478:G:O4'	2.13	0.49
1:0:568:G:H5''	1:0:1019:U:H5'	1.95	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
1:0:66:U:H2'	1:0:67:G:C8	2.48	0.49
1:0:790:A:H2'	1:0:791:G:C8	2.48	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
1:0:619:A:H2'	1:0:620:G:C8	2.47	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:C2'	1:0:1871:G:N3	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
1:0:427: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
1:0:1164: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
1:0:873:U:O2	1:0:2246:A:H5''	2.13	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
1:0:338:G:H1	1:0:346:C:H42	1.61	0.49
1:0:959:C:H5''	1:0:972:C:O2'	2.13	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
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
1:0:332: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
1:0:1141: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
1:0:83:A:C6	1:0:98:U:H1'	2.47	0.48
1:0:1038:U:H2'	1:0:1039:A:C8	2.48	0.48
1:0:342:G:N2	1:0:1222:G:H1	2.10	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
1:0:367: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
1:0:1046: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
1:0:109:A:C2'	1:0:110:U:H5''	2.44	0.48
1:0:1226:A:C6	1:0:1250:A:H1'	2.48	0.48
1:0:159:A:C2'	1:0:160:C:H5'	2.44	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
1:0:323: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
1:0:595:A:H62	1:0:1264:C:N4	2.11	0.48
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

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
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
1:0:32: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
1:0:810:U:H2'	1:0:811:G:C8	2.49	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
1:0:703: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
1:0:1040: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
1:0:1200: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
1:0:626: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
1:0:1821: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
1:0:452: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
1:0:1014: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
1:0:583: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
1:0:760:U:O2	1:0:1997:A:H1'	2.14	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

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
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:H2'	1:0:2795:A:N3	2.28	0.47
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
1:0:776:G:N3	1:0:776:G:C2'	2.77	0.47
1:0:701:U:H1'	1:0:800:U:H5'	1.96	0.47
1:0:953:G:H4'	1:0:1203:A:O2'	2.14	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
1:0:324:C:H2'	1:0:325:U:O4'	2.14	0.47
1:0:548:G:H2'	1:0:549:G:C8	2.49	0.47
1:0:541:C:N4	1:0:572:G:O4'	2.47	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
1:0:974:U:H2'	1:0:975:C:C6	2.49	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
1:0:187:U:H2'	1:0:188:G:C8	2.50	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
1:0:582:G:H2'	1:0:583:C:H3'	1.95	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
1:0:210:A:N6	1:0:242:A:N7	2.62	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
1:0:240: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
1:0:1039:A:H2'	1:0:1040:A:H8	1.79	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
1:0:1326:U:H1'	1:0:1626:A:N3	2.30	0.47
1:0:1684:G:H2'	1:0:1974:U:O4	2.15	0.47
1:0:199:A:H61	1:0:209:G:H1'	1.80	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
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
1:0:2057:U:H1'	1:0:2577:A:H1'	1.95	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
1:0:245: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
1:0:70:A:O3'	1:0:71:A:H3'	2.14	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
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
1:0:152:G:O2'	1:0:153:A:H5'	2.15	0.47
1:0:1579:G:H2'	1:0:1580:C:C6	2.50	0.47
1:0:742:G:H2'	1:0:1766:U:H1'	1.96	0.47
1:0:198:A:O2'	1:0:199:A:P	2.73	0.47
1:0:2069:U:H2'	1:0:2070:G:C8	2.49	0.47
1:0:2062:U:H4'	1:0:2412:A:H2	1.78	0.47
1:0:560:G:H2'	1:0:561:U:C6	2.49	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
1:0:1039: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
1:0:432:C:H2'	1:0:433:G:H8	1.79	0.47
1:0:742:G:N3	1:0:742:G:C2'	2.78	0.47
1:0:542:A:OP2	1:0:2003:A:H1'	2.15	0.47
1:0:216:U:H5''	1:0:601:A:N6	2.30	0.47
1:0:2276:C:O2	1:0:2301:A:H1'	2.15	0.47
1:0:246:C:N3	1:0:247:A:N6	2.62	0.47
1:0:2782:G:H2'	1:0:2783:U:OP1	2.15	0.47
1:0:478:G:O2'	1:0:479:G:H5'	2.15	0.47
1:0:689:A:N6	1:0:815:A:H61	2.08	0.47
1:0:8:A:H2'	1:0:9:U:C6	2.49	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
1:0:1486:A:H2'	1:0:1487:C:C6	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
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
1:0:2015:G:OP2	1:0:2434:G:H5'	2.15	0.47
1:0:758:G:H2'	1:0:759:C:H5'	1.97	0.47
1:0:1033:G:N2	1:0:1150:C:H2'	2.26	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
1:0:1120:C:H2'	1:0:2731:G:N2	2.30	0.47
1:0:2727:G:N1	1:0:2735:C:H5''	2.29	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
1:0:1998:A:H2'	1:0:1999:U:H5'	1.97	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
1:0:9:U:H2'	1:0:10:A:C8	2.50	0.46
1:0:341:A:H1'	1:0:1223:G:O6	2.15	0.46
1:0:2316:G:H2'	1:0:2317:G:H8	1.79	0.46
1:0:210:A:N6	1:0:442:A:H61	2.12	0.46
1:0:534:U:H4'	1:0:564:U:O2'	2.15	0.46
1:0:1578:U:H2'	1:0:1579:G:C8	2.51	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:C2'	1:0:1912:G:N3	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
1:0:207:U:H2'	1:0:208:C:C6	2.50	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
1:0:2800:C:H2'	1:0:2801:A:O4'	2.14	0.46
1:0:918:A:H2'	1:0:919:U:C5'	2.41	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:967:G:H1'	1:0:970:A:N7	2.30	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
1:0:689:A:C8	1:0:2422:C:H1'	2.51	0.46
1:0:88:G:H3'	1:0:89:A:C5'	2.38	0.46
1:0:1029:C:H3'	1:0:1030:U:H5''	1.96	0.46
1:0:1495:G:O2'	1:0:1496:G:P	2.73	0.46
1:0:1429:A:N6	1:0:1602:G:H5'	2.31	0.46
1:0:1918:G:H4'	1:0:1920:A:C2	2.51	0.46
1:0:241:C:C2'	1:0:242:A:H5''	2.45	0.46
1:0:2708:U:H2'	1:0:2709:C:C6	2.51	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
1:0:306: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
1:0:1278: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
1:0:187:U:H2'	1:0:188:G:H8	1.80	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
1:0:1142:G:OP1	1:0:2494:C:H4'	2.16	0.46
1:0:2600:A:H2'	1:0:2601: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
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
1:0:239:A:H4'	1:0:620:G:H5'	1.97	0.46
1:0:84:G:O2'	1:0:85:C:H5'	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
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
1:0:337:G:H2'	1:0:338:G:C8	2.51	0.46
1:0:343:A:P	1:0:343:A:H3'	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
1:0:1290:A:H2'	1:0:1291:G:C8	2.51	0.46
1:0:1712:G:N3	1:0:1712:G:H3'	2.31	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
1:0:1949:A:H1'	1:0:2572:U:H4'	1.98	0.46
1:0:462:G:H2'	1:0:463:C:H5'	1.98	0.46
1:0:26:G:H21	1:0:524:A:N6	2.13	0.46
1:0:819:C:H2'	1:0:820:U:C6	2.51	0.46
1:0:1200:G:C8	1:0:1200:G:OP1	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
1:0:636: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
1:0:1301: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
1:0:365: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
1:0:1007:A:H2'	1:0:1008:G:C8	2.51	0.45
1:0:1257:U:H2'	1:0:1258:G:C8	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1504:G:O2'	1:0:1505:U:H5'	2.16	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
1:0:192:G:O2'	1:0:193:A:C5'	2.65	0.45
1:0:1665:C:N4	1:0:1993:G:H1	2.14	0.45
1:0:1140:A:N6	1:0:2469:G:H5''	2.32	0.45
1:0:2784:A:H3'	1:0:2785:A:C8	2.51	0.45
1:0:703:A:H2'	1:0:704:G:C8	2.51	0.45
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
1:0:1251: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
1:0:616: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
1:0:1319: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
1:0:2159: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
1:0:1949:A:H1'	1:0:2572:U:H5'	1.97	0.45
1:0:2698:G:H2'	1:0:2699:G:C8	2.52	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
1:0:1227: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
1:0:297: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
1:0:1008:G:H2'	1:0:1009:C:C6	2.51	0.45
1:0:117:A:H4'	1:0:118:U:C6	2.52	0.45
1:0:1204:G:H2'	1:0:1205:G:C8	2.51	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)
1:0:19:C:H2'	1:0:20:C:C6	2.50	0.45
1:0:172:A:H4'	1:0:228:A:H4'	1.98	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
1:0:509: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
1:0:81:C:H4'	1:0:307:C:H5'	1.98	0.45
1:0:935:C:H2'	1:0:936:A:C8	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
1:0:340:G:H1'	1:0:488:A:C4	2.52	0.45
1:0:37:C:H2'	1:0:38:G:C8	2.52	0.45
1:0:709:A:H2'	1:0:710:C:C6	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
1:0:211:U:C2'	1:0:212:U:H5'	2.46	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
1:0:40:U:H2'	1:0:41:G:C8	2.51	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
1:0:1307: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
1:0:215:G:H1'	1:0:617:U:O2	2.17	0.45
1:0:2475:C:H2'	1:0:2476:A:H5'	1.99	0.45
1:0:2418:A:N6	1:0:2581:A:OP1	2.50	0.45
1:0:2825:A:H2'	1:0:2826:C:C6	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
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
1:0:1353: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
1:0:959:C:H2'	1:0:960:U:C6	2.52	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
1:0:307: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
1:0:1279: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
1:0:158:A:O2'	1:0:159:A:H5'	2.17	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
1:0:403: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
1:0:1016: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:N3	1:0:2555:G:H2'	2.32	0.44
1:0:2772:U:H2'	1:0:2773:G:C8	2.52	0.44
1:0:2807:U:C5	1:0:2859:U:H4'	2.52	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

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:827:C:H2'	1:0:828:C: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
1:0:173: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
1:0:2244: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:C2'	1:0:2555:G:N3	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
1:0:420: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
1:0:1147: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
1:0:192:G:H4'	1:0:193:A:O5'	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
1:0:1949:A:O2'	1:0:2572:U:H5'	2.17	0.44
1:0:617:U:H2'	1:0:618:A:O4'	2.18	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
1:0:317: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
1:0:181:A:C4'	1:0:182:G:H4'	2.46	0.44
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

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
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
1:0:475: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
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
1:0:514:G:C2'	1:0:514:G:N3	2.79	0.44
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
1:0:338: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
1:0:1478: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
1:0:192:G:O2'	1:0:193:A:P	2.75	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
1:0:430:C:H2'	1:0:431:G:C8	2.53	0.43
1:0:67:G:H8	1:0:67:G:O5'	2.02	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
1:0:116:A:N3	1:0:155:G:H1'	2.34	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
1:0:215:G:H2'	1:0:216:U:O4'	2.18	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
1:0:1604: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
1:0:777:A:H62	1:0:1766:U:H3	1.62	0.43
1:0:1886:G:H2'	1:0:1887:G:H8	1.83	0.43
1:0:201:G:H2'	1:0:202:A:H8	1.83	0.43
1:0:2083:G:N2	1:0:2172:U:H3	2.16	0.43
1:0:2058:U:H3'	1:0:2217:G:H1	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2240:C:H2'	1:0:2241:U:H5'	1.99	0.43
1:0:2633:A:H61	1:0:2646:C:N4	2.15	0.43
1:0:2615:U:H3	1:0:2762:G:H1	1.65	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
1:0:33:C:N4	1:0:466:A:H61	2.12	0.43
1:0:652:C:N4	1:0:657:A:H61	2.08	0.43
1:0:789:G:N2	1:0:806:A:H62	1.95	0.43
1:0:831:G:H2'	1:0:832:A:H5''	2.00	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
1:0:1919: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
1:0:242:A:N6	1:0:441:A:N7	2.67	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
1:0:1773:C:H1'	1:0:2588:U:H5''	2.01	0.43
1:0:2619:G:H2'	1:0:2620:G:C8	2.53	0.43
1:0:474:G:N2	1:0:476:G:H3'	2.34	0.43
1:0:54:G:H2'	1:0:55:A:C8	2.53	0.43
1:0:831:G:H5'	1:0:852:U:OP1	2.19	0.43
1:0:1030:U:OP1	1:0:1046:U:H1'	2.18	0.43
1:0:147:G:C2	1:0:148:C:H1'	2.54	0.43
1:0:2133:G:H2'	1:0:2134:U:C6	2.54	0.43
1:0:237:G:H2'	1:0:238:G:O4'	2.18	0.43
1:0:2436:U:H2'	1:0:2437:G:O4'	2.19	0.43
1:0:23:G:H2'	1:0:24:G:C8	2.54	0.43
1:0:2458:U:OP1	1:0:2516:U:H1'	2.19	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
1:0:109:A:H2'	1:0:110:U:H5''	2.01	0.43
1:0:10:A:O2'	1:0:11:G:H5'	2.18	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:O2'	1:0:70:A:H8	2.02	0.43
1:0:73:A:H4'	1:0:74:G:O4'	2.19	0.43
1:0:59:G:N2	1:0:87:G:N7	2.65	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)
1:0:1489: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
1:0:192:G:O2'	1:0:193:A:H5''	2.18	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
1:0:488: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
1:0:1155: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
1:0:1332:G:H2'	1:0:1333:G:O4'	2.19	0.43
1:0:1326:U:H4'	1:0:1345:G:H4'	2.00	0.43
1:0:1975:G:H1'	1:0:1977:C:N4	2.33	0.43
1:0:2217:G:C2'	1:0:2217:G:N3	2.82	0.43
1:0:2292:C:H2'	1:0:2293:G:C8	2.54	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
1:0:121:G:H2'	1:0:122:G:O4'	2.19	0.43
1:0:1466:C:H2'	1:0:1467:U:O4'	2.18	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
1:0:1471:G:H1	1:0:2682:C:H42	1.66	0.43
1:0:2808:U:H3'	1:0:2809:A:C5'	2.46	0.43
1:0:859:U:H4'	1:0:860:U:H5	1.84	0.43
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
1:0:168:A:H2'	1:0:169:C:H6	1.83	0.42
1:0:1747:G:H1'	1:0:1749:G:C2	2.53	0.42
1:0:192:G:C4'	1:0:193:A:H4'	2.49	0.42
1:0:1944:C:H2'	1:0:1945:C:O4'	2.19	0.42
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
1:0:404:A:H1'	1:0:424:G:O2'	2.18	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:239:A:H5'	1:0:619:A:O2'	2.18	0.42
1:0:764:A:H3'	1:0:764:A:N3	2.34	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
1:0:1762:C:H2'	1:0:1763:G:C8	2.54	0.42
1:0:190:A:H2'	1:0:191:G:C8	2.53	0.42
1:0:2558:C:O2'	1:0:2559:U:H5'	2.19	0.42
1:0:28:A:H2'	1:0:29:U:C6	2.54	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
1:0:1561: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
1:0:533: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
1:0:85:C:O2'	1:0:86:U:H5'	2.20	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
1:0:607:C:H2'	1:0:608:G:H8	1.84	0.42
1:0:119:G:H1'	1:0:129:A:N1	2.34	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
1:0:1312:G:H2'	1:0:1643:A:H61	1.84	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
1:0:629:C:C2'	1:0:630:G:H5'	2.49	0.42
1:0:65:C:C3'	1:0:66:U:H5'	2.50	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
1:0:211:U:H2'	1:0:212:U:O4'	2.20	0.42
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

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
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
1:0:1002:C:H2'	1:0:1003:C:C6	2.55	0.42
1:0:114:C:H4'	1:0:124:A:O2'	2.19	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
1:0:210:A:N6	1:0:442:A:N6	2.68	0.42
1:0:2245:A:H2'	1:0:2246:A:OP2	2.19	0.42
1:0:689:A:H8	1:0:2422:C:H1'	1.84	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
1:0:2034:A:N6	1:0:2593:A:N7	2.67	0.42
1:0:2795:A:N3	1:0:2795:A:C2'	2.82	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
1:0:1242:A:H2'	1:0:1243:G:C8	2.54	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
1:0:2378: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
1:0:537:C:C6	1:0:2759:U:H2'	2.55	0.42
1:0:59:G:H1'	1:0:73:A:N1	2.35	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
1:0:820:U:H5'	1:0:2424:G:H4'	2.01	0.42
1:0:2811:G:H2'	1:0:2812:A:C8	2.55	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
1:0:860:U:O2	1:0:860:U:H2'	2.19	0.42
1:0:930:A:H3'	1:0:931:G:H8	1.84	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
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
1:0:873:U:C2	1:0:2246:A:H5''	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2502:G:H2'	1:0:2503:G:H8	1.85	0.42
1:0:405:C:H2'	1:0:406:G:C8	2.55	0.42
1:0:17:G:N2	1:0:564:U:H5''	2.34	0.42
1:0:890:U:H2'	1:0:891:A:C8	2.55	0.42
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
1:0:838:A:H4'	1:0:2407:G:C6	2.55	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
1:0:521:U:C2'	1:0:522:G:H5'	2.50	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
1:0:824:U:C1'	1:0:1264:C:H1'	2.47	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
1:0:198:A:O2'	1:0:199:A:OP2	2.30	0.41
1:0:2404:A:H4'	1:0:2405:A:O5'	2.19	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
1:0:1343: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
1:0:105: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
1:0:691:C:H2'	1:0:692:C:C6	2.56	0.41
1:0:690:A:O2'	1:0:691:C:H5'	2.21	0.41
1:0:6:A:H2'	1:0:7:G:C8	2.56	0.41
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
1:0:539:A:N6	1:0:2024:U:N3	2.68	0.41
1:0:2027:C:H2'	1:0:2028:C:C6	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
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
1:0:315:G:H2'	1:0:316:C:C6	2.55	0.41
1:0:178:C:H4'	1:0:399:G:C2	2.55	0.41
1:0:415:A:O2'	1:0:416:U:H5'	2.20	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
1:0:1415:C:O2'	1:0:1416:A:H5'	2.21	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
1:0:1455:C:HO2'	1:0:1644:G:H5''	1.86	0.41
1:0:1809:G:O2'	1:0:1810:U:H5'	2.20	0.41
1:0:871:U:O2	1:0:2247:A:H2'	2.19	0.41
1:0:1084:A:H4'	1:0:2454:C:OP1	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
1:0:438: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
1:0:950:G:H2'	1:0:951:G:H8	1.84	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
1:0:1402: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
1:0:1341:G:N2	1:0:1664:G:H1	2.17	0.41
1:0:1825:C:H2'	1:0:1826:U:H5'	2.01	0.41
1:0:581:A:H61	1:0:2012:A:H2	1.68	0.41
1:0:2772:U:H2'	1:0:2773: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
1:0:635: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
1:0:1065: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
1:0:2200:G:H2'	1:0:2201:G:C8	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2217:G:H2'	1:0:2217:G:N3	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
1:0:818:G:H5'	1:0:819:C:OP2	2.21	0.41
1:0:1528:C:H3'	1:0:1529:C:H5''	2.03	0.41
1:0:1443:G:N3	1:0:1584:G:N1	2.69	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
1:0:550: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
1:0:1143:A:H2'	1:0:1144:U:C6	2.56	0.41
1:0:139:A:H2'	1:0:140:G:C8	2.55	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
1:0:2241:U:H4'	1:0:2307:A:C2	2.55	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
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
1:0:987:G:H2'	1:0:988:G:H8	1.85	0.41
1:0:1187:A:C2'	1:0:1188:A:O5'	2.69	0.41
1:0:1358:C:H2'	1:0:1359:G:H5'	2.03	0.41
1:0:1336:G:N2	1:0:1632:A:N6	2.69	0.41
1:0:1696:C:H42	1:0:1755:G:H5''	1.86	0.41
1:0:2234:G:H2'	1:0:2235:G:O4'	2.21	0.41
1:0:2365:U:O2'	1:0:2366:U:H5'	2.21	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
1:0:956:A:N3	1:0:956:A:H2'	2.35	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
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:P	1:0:1947:G:H8	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
1:0:344: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
1:0:1054: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
1:0:1518:C:C2'	1:0:1519:G:O5'	2.70	0.40
1:0:1463:A:H1'	1:0:1543:G:N2	2.37	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
1:0:314: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
1:0:1055: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
1:0:14:A:H2	1:0:2604:G:O2'	2.04	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
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
1:0:317: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

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:729:A:O2'	1:0:730:C:H5'	2.21	0.40
1:0:82:G:O2'	1:0:83:A:H5'	2.21	0.40
1:0:878:C:HO2'	1:0:879:A:P	2.44	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
1:0:13:A:H1'	1:0:536:A:H62	1.86	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
1:0:229:G:H2'	1:0:230:C:C6	2.56	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
1:0:1008: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
1:0:770: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
1:0:1451: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
1:0:1962:C:H2'	1:0:1963:G:H8	1.87	0.40
1:0:1939:U:O2	1:0:1968:G:H4'	2.21	0.40
1:0:2075:U:H1'	1:0:2204:A:C2	2.56	0.40
1:0:2300:G:H3'	1:0:2300:G:N3	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
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

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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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
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

*Continued on next page...*

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
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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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
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

*Continued on next page...*

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
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

*Continued on next page...*

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
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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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
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

*Continued on next page...*

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
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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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
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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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
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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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
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:

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
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 carbohydrates 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	C1-N2-C3	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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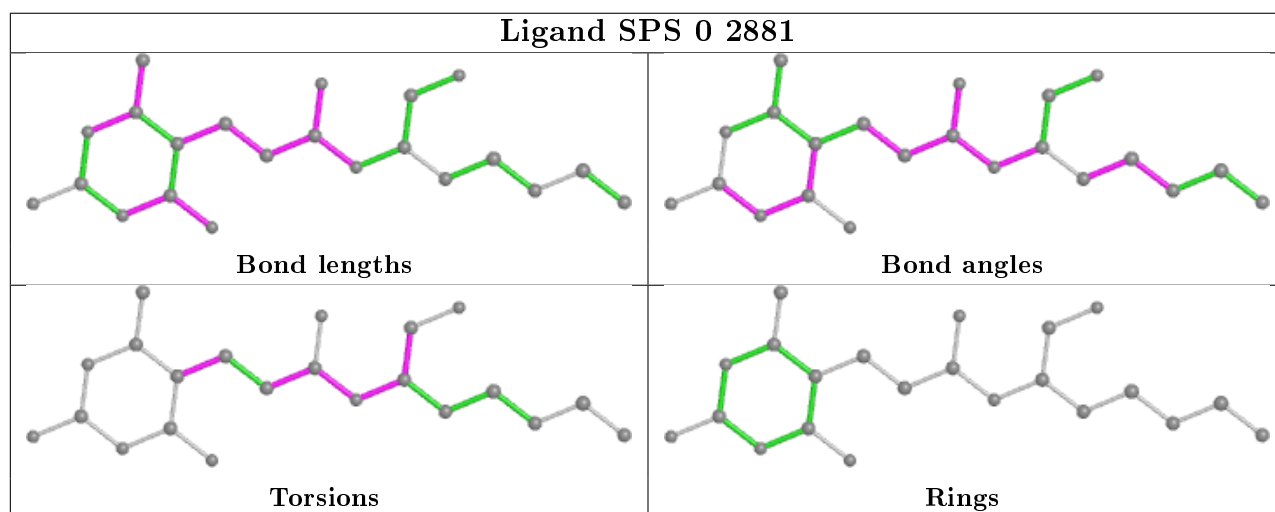
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Mol	Chain	Res	Type	Atoms
2	0	2881	SPS	N11-C10-C9-C8

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.