



# Full wwPDB X-ray Structure Validation Report ⓘ

Jan 31, 2016 – 09:08 PM GMT

PDB ID : 1NJO  
Title : The crystal structure of the 50S Large ribosomal subunit from *Deinococcus radiodurans* complexed with a short substrate analog ACCPuromycin (ACCP)  
Authors : Bashan, A.; Agmon, I.; Zarivatch, R.; Schlutzen, 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  
<http://wwpdb.org/validation/2016/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 : 1.7 (RC4), CSD as536be (2015)  
Xtriage (Phenix) : **NOT EXECUTED**  
EDS : **NOT EXECUTED**  
Percentile statistics : 20151230.v01 (using entries in the PDB archive December 30th 2015)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : trunk26865

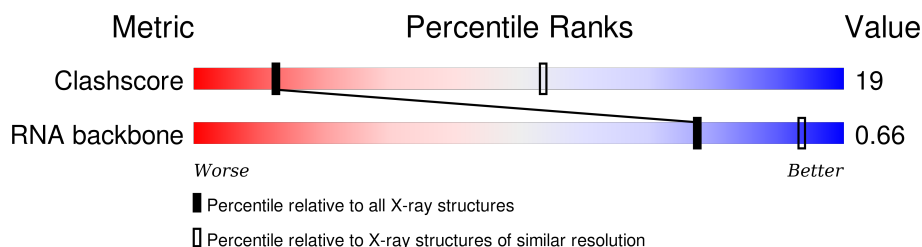
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.70 Å.

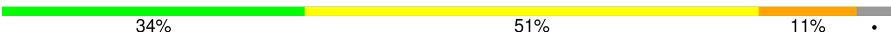

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
Clashscore	102246	1224 (3.90-3.50)
RNA backbone	2183	1067 (4.60-2.80)

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. 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  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	0	2880	 34%                      51%                      11%                      .
2	5	4	 50%                      25%                      25%

## 2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 59455 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
1	0	2766	Total	C	N	O	P	0	0	0
			59359	26479	10949	19166	2765			

- Molecule 2 is a RNA chain called RNA ACC(Puromycin).

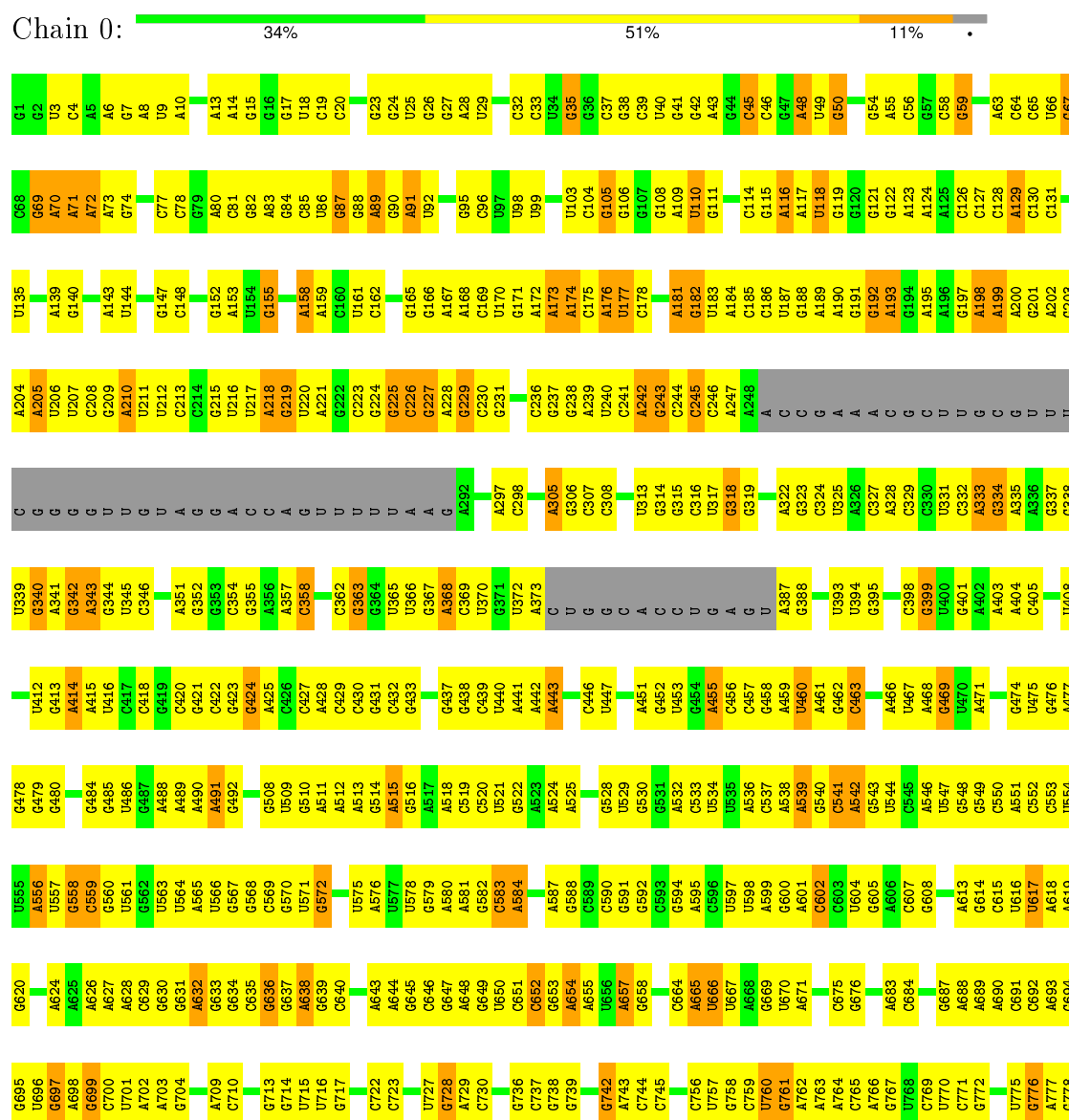
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	5	4	Total	C	N	O	P	0	0	0
			96	50	18	25	3			

### 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 errors displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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. A red dot above a residue indicates a poor fit to the electron density ( $RSRZ > 2$ ). 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



U1909	G1818	U1732	C1655	A1582	G1504	G1436	U1357	A1290	C1218	U1144	G1047	G980	A911	G841	U779
A1910	U1819	U1733	U1656	A1583	U1505	A1437	C1358	G1291	C1219	C1445	C1052	C981	U916	A842	U780
A1911	G1820	A1657	A1657	G1584	A1508	A1441	G1359	A1292	G1220	G1146	C1052	A984	U917	G843	G781
G1912	A1821	G1742	A1658	A1585	A1509	A1442	G1360	A1293	G1221	G1147	C1053	A985	U918	G844	U782
G1913	C1822	C1743	G1659	A1586	A1510	A1443	A1365	G1298	G1222	G1148	C1054	A986	U919	U845	G783
U1914	C1825	C1744	G1660	A1587	A1511	G1444	A1366	U1301	G1223	G1149	C1055	A987	U920	A846	U784
A1915	U1826	C1745	C1661	U1591	A1512	A1445	A1367	U1302	A1224	C1150	U1056	G988	A921	U847	U785
G1916	U1826	A1746	G1662	U1592	A1513	A1446	G1368	C1302	G1225	U1151	A1057	G988	A922	U852	U786
C1917	U1826	G1747	C1663	U1593	U1514	A1447	G1369	U1303	A1226	U1152	A1058	A991	U923	U853	A787
C1829	G1830	U1748	C1664	A1594	U1515	A1448	G1370	U1307	A1227	A1154	A1059	A992	U924	G854	G788
A1919	G1831	A1750	G1665	U1595	U1516	C1449	G1371	C1308	A1231	U1155	A1060	A993	U925	G855	G789
A1920	U1827	U1751	G1666	A1596	A1517	G1450	G1372	U1309	A1232	U1156	G1066	A994	U926	G856	A790
A1921	C1835	G1754	G1667	U1597	C1518	C1451	G1373	C1310	A1233	A1162	A1068	C996	U927	U857	G791
U1922	C1836	G1755	G1668	U1598	G1519	U1452	G1377	G1309	A1234	C1163	G1069	C997	U928	U858	U792
U1923	C1837	U1670	A1670	U1599	G1520	U1453	U1377	C1310	C1235	C1164	G1070	C998	U929	G793	A794
U1924	U1838	A1671	U1671	U1601	C1524	C1455	C1380	U1312	A1242	G1165	G1073	A999	U931	U860	A795
U1925	A1839	G1760	A1672	U1602	C1525	C1456	C1381	U1313	U1243	A1166	G1074	G1000	U932	G861	A796
U1926	G1840	C1762	U1673	A1603	G1527	A1457	G1382	A1314	G1244	A1167	G1075	A1001	U933	U862	A797
G1931	G1841	G1763	U1674	A1604	G1528	A1458	U1383	A1315	U1245	G1168	C1076	C1002	U934	C864	G798
U1932	U1842	A1764	U1675	A1605	C1529	U1459	A1386	G1316	G1246	G1169	C1077	C1003	U935	A865	U800
U1933	U1843	U1766	U1676	U1606	U1530	C1460	A1387	G1317	G1247	U1172	A1081	A1004	U936	U868	C803
U1934	G1855	U1770	U1680	A1607	U1531	A1463	C1388	C1319	G1248	U1173	A1082	C1006	U937	C869	C804
U1935	U1856	A1771	A1681	U1608	A1532	G1465	G1390	A1320	G1249	U1174	A1083	A1007	U938	C870	C805
U1936	G1857	U1772	A1682	G1609	G1533	C1466	U1391	A1321	G1250	U1175	A1084	G1008	U939	U871	G806
U1937	U1858	U1773	A1683	U1610	U1534	C1467	U1392	G1322	C1251	U1176	A1085	G1009	U940	G872	A807
U1938	C1859	C1765	G1684	A1611	U1535	A1468	G1393	G1323	C1252	U1177	A1086	C1010	U941	U873	C808
U1939	G1860	U1767	U1685	U1612	C1540	U1469	U1394	U1324	C1253	A1179	C1087	U942	U942	U874	C809
U1940	A1861	A1776	A1686	G1613	G1543	C1470	A1397	U1325	U1257	C1180	A1088	A944	U943	A874	U810
U1941	G1862	C1687	C1687	C1614	G1544	C1471	G1398	U1326	G1258	C1181	C1089	U945	U944	G875	U811
C1950	C1862	U1778	C1615	C1615	A1545	C1472	C1399	G1327	A1259	U1182	C1090	C1016	U946	A876	G812
G1951	U1865	C1779	C1616	C1616	U1546	C1473	U1399	U1328	G1260	U1183	G1091	C1017	U947	C877	A813
A1952	G1866	A1780	U1617	U1617	C1547	U1474	U1402	U1329	G1261	G1184	U1092	C1018	U948	C878	A814
A1953	U1867	U1781	U1618	U1618	U1548	U1475	U1403	G1330	U1262	G1185	U1093	C1019	U949	A879	C880
A1954	G1868	U1782	A1619	U1619	U1549	U1476	U1404	G1331	G1263	A1187	G1098	A1021	U950	C881	A815
G1955	U1869	C1703	C1620	C1620	U1550	U1477	G1407	G1332	G1264	A1188	A1099	A1022	U951	G882	U816
G1956	G1870	G1704	G1621	G1621	G1551	U1478	U1408	G1333	C1265	A1189	G1100	U1023	U952	G883	A817
C1957	U1881	U1789	G1622	G1622	G1552	U1479	U1409	A1334	G1266	C1190	G1101	U1024	U953	G884	G818
G1958	G1882	C1790	A1624	A1624	C1558	U1480	C1411	G1335	A1267	G1191	A1114	A1025	U954	C889	C819
A1961	A1883	C1791	A1625	A1625	A1561	A1486	G1414	G1336	U1268	A1192	A1115	U1026	U955	A891	U820
C1962	A1884	C1792	A1626	A1626	G1562	C1487	G1415	G1337	G1269	G1193	C1120	U1027	U956	G	G822
G1963	C1885	C1711	C1627	C1627	G1563	C1488	A1416	U1338	C1270	U1194	G1121	G1028	U957	G	A821
A1964	G1886	G1712	G1566	G1566	G1567	G1489	C1417	G1339	C1271	U1195	A1122	C1029	U958	G	U823
U1965	C1887	G1713	G1567	G1567	G1568	U1490	G1419	G1340	G1272	G1196	A1123	U1030	U959	G	U824
C1966	C1888	A1714	A1567	A1567	A1568	C1491	G1419	C1344	C1273	U1197	C1127	U1031	A964	G	C825
U1967	G1889	A1715	A1568	A1568	A1569	C1492	U1424	G1345	A1275	U1198	G1128	A1032	U960	G	C826
G1970	G1890	G1716	A1632	A1632	A1570	A1493	U1425	G1346	A1276	U1199	A1129	G1033	U961	C	C827
C1971	U1891	A1717	A1633	A1633	A1571	A1494	G1426	C1347	U1280	G1200	U1130	G1034	U962	A	C828
G1972	A1896	G1722	G1572	G1572	C1573	U1495	U1427	C1348	A1281	A1203	U1131	G1035	U963	C	C829
C1973	C1897	U1723	C1573	C1573	A1574	G1496	U1428	C1349	U1282	G1204	G1132	U1036	U964	C	C830
U1974	A1899	C1724	A1643	A1643	A1575	C1497	A1429	G1350	A1283	G1205	C1133	U1037	U965	C	G831
G1975	U1900	U1810	G1644	G1644	C1576	G1498	G1430	G1351	U1284	A1137	A1138	A1038	U966	A	A832
U1976	A1901	A1811	C1648	C1648	G1577	U1499	U1431	G1352	G1285	A1139	A1139	A1039	U967	C	A833
C1977	U1902	U1812	U1728	U1728	U1578	U1500	G1432	A1353	U1286	A1140	A1140	G1041	U968	C	A834
U1978	U1903	G1730	U1729	U1729	U1579	C1501	U1433	A1354	A1287	U1141	U1141	U1044	U969	U	U837
C1979	A1906	U1813	U1730	U1730	C1580	G1502	U1434	A1355	A1288	U1142	G1142	U1045	U970	A	A838
A1980	C1907	G1814	C1731	C1731	U1581	G1503	G1435	G1356	A1289	U1217	A1143	U1046	U971	C	U839
A1981	U1908	U1815	U1731	U1731	U1582	G1504	U1436	U1357	U1290	U1218	U1144	U1047	U972	C	U840



## 4 Data and refinement statistics

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

Property	Value	Source
Space group	I 2 2 2	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	169.90 Å   410.40 Å   697.10 Å 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
$R_{sym}$	0.16	Depositor
Refinement program	CNS	Depositor
R, $R_{free}$	0.283 , 0.297	Depositor
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	59455	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	77.0	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: PPU

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
2	5	0.21	0/65	0.56	0/99
All	All	0.14	0/66532	0.63	0/103772

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	1732	0
2	5	96	0	62	1	0
All	All	59455	0	29979	1732	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 (1732) 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''	1.22	1.14
1:0:1141:U:H3	1:0:2008:C:H5''	1.20	1.05
1:0:1073:G:H2'	1:0:1074:G:H4'	1.40	1.00
1:0:2769:C:H2'	1:0:2867:G:H22	1.21	0.99
1:0:2668:U:H4'	1:0:2669:C:H5'	1.45	0.97
1:0:688:A:H62	1:0:816:U:H3	1.09	0.97
1:0:1252:C:H2'	1:0:1253:C:H5''	1.47	0.96
1:0:2636:A:H62	1:0:2643:G:H21	1.12	0.96
1:0:58:C:H3'	1:0:59:G:H5''	1.48	0.96
1:0:1182:U:H2'	1:0:1183:C:H5''	1.47	0.95
1:0:1086:C:H2'	1:0:1087:C:H5''	1.49	0.94
1:0:1496:G:H1	1:0:1527:G:H1	1.14	0.94
1:0:1572:C:H2'	1:0:1573:G:H5''	1.48	0.94
1:0:1747:G:H4'	1:0:1749:G:H1'	1.48	0.94
1:0:471:A:H62	1:0:480:G:H21	1.13	0.94
1:0:221:A:H62	1:0:231:G:H21	1.15	0.94
1:0:225:G:H3'	1:0:226:C:H5'	1.47	0.93
1:0:1953:A:H1'	1:0:1955:G:H1'	1.52	0.92
1:0:847:C:H41	1:0:955:G:H21	1.17	0.92
1:0:1312:G:H5''	1:0:1313:U:H5'	1.52	0.91
1:0:166:G:H21	1:0:184:A:H62	1.12	0.91
1:0:1223:G:H21	1:0:1225:G:H21	0.92	0.91
1:0:831:G:H21	1:0:1203:A:H62	1.16	0.90
1:0:929:A:H3'	1:0:930:A:H5''	1.52	0.90
1:0:789:G:H21	1:0:806:A:H62	1.13	0.89
1:0:1915:A:H62	1:0:1951:G:H21	1.20	0.89
1:0:104:C:H2'	1:0:105:G:H5''	1.56	0.88
1:0:1656:U:H2'	1:0:1657:A:H5''	1.56	0.87
1:0:2633:A:H4'	1:0:2634:G:H4'	1.57	0.87
1:0:1199:U:H3'	1:0:1200:G:H5''	1.55	0.87
1:0:367:G:H2'	1:0:368:A:H5''	1.55	0.87
1:0:403:A:H4'	1:0:425:A:H5'	1.57	0.86

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:128:C:H2'	1:0:129:A:H5''	1.58	0.86
1:0:2548:G:H2'	1:0:2549:G:H5''	1.58	0.86
1:0:1223:G:H21	1:0:1225:G:N2	1.74	0.85
1:0:1034:U:H1'	1:0:1133:G:H5''	1.60	0.84
1:0:1964:A:H3'	1:0:1965:U:H5'	1.60	0.84
1:0:2047:C:H42	1:0:2425:G:H1	1.25	0.83
1:0:1436:G:H1'	1:0:1508:G:H21	1.41	0.83
1:0:2607:C:H3'	1:0:2608:A:H5'	1.58	0.82
1:0:2794:G:H3'	1:0:2796:A:H62	1.43	0.82
1:0:460:U:H3	1:0:592:G:H1'	1.43	0.82
1:0:2081:U:H2'	1:0:2082:C:H5''	1.62	0.81
1:0:2806:G:H1'	1:0:2858:A:H2'	1.62	0.81
1:0:88:G:H3'	1:0:89:A:H5''	1.61	0.81
1:0:2198:U:H3'	1:0:2199:C:H5''	1.62	0.81
1:0:2522:G:H21	1:0:2625:U:H5''	1.45	0.81
1:0:940:G:H3'	1:0:941:U:C5'	2.09	0.81
1:0:2769:C:H2'	1:0:2867:G:N2	1.96	0.81
1:0:9:U:H3	1:0:2608:A:H62	1.29	0.80
1:0:2426:G:H5'	1:0:2480:C:H41	1.47	0.80
1:0:109:A:H3'	1:0:110:U:H5''	1.62	0.80
1:0:1223:G:N2	1:0:1225:G:H21	1.76	0.79
1:0:1141:U:N3	1:0:2008:C:H5''	1.97	0.79
1:0:2700:U:H3	1:0:2848:A:N6	1.81	0.79
1:0:2491:C:H2'	1:0:2492:G:H5''	1.64	0.79
1:0:1811:A:O2'	1:0:1812:U:H5''	1.82	0.79
1:0:918:A:H2'	1:0:919:U:H5''	1.64	0.79
1:0:2227:C:H2'	1:0:2228:U:H5'	1.66	0.78
1:0:176:A:H1'	1:0:2221:G:H21	1.48	0.78
1:0:70:A:O2'	1:0:72:A:H5''	1.84	0.78
1:0:1432:G:H21	1:0:1596:A:H62	1.28	0.77
1:0:1188:A:H62	1:0:1189:G:H21	1.31	0.77
1:0:181:A:H5''	1:0:182:G:OP1	1.84	0.77
1:0:2770:A:H5'	1:0:2867:G:H22	1.49	0.76
1:0:689:A:H61	1:0:815:A:H61	1.31	0.76
1:0:2261:G:H4'	1:0:2262:C:OP2	1.86	0.76
1:0:2059:U:H5	1:0:2575:U:H3	1.31	0.76
1:0:542:A:H2'	1:0:543:G:H5'	1.67	0.76
1:0:652:C:H42	1:0:657:A:H61	1.32	0.76
1:0:688:A:N6	1:0:816:U:H3	1.85	0.75
1:0:69:G:H5''	1:0:70:A:OP1	1.87	0.75
1:0:2624:G:H4'	1:0:2712:G:H2'	1.69	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2096:U:H2'	1:0:2097:A:H5''	1.69	0.75
1:0:2503:G:H3'	1:0:2504:G:H5''	1.69	0.75
1:0:2548:G:C2'	1:0:2549:G:H5''	2.17	0.74
1:0:616:U:H2'	1:0:617:U:H5''	1.68	0.74
1:0:109:A:C3'	1:0:110:U:H5''	2.18	0.74
1:0:218:A:O2'	1:0:219:G:H4'	1.87	0.74
1:0:1473:U:H4'	1:0:1474:A:C8	2.23	0.74
1:0:1252:C:C2'	1:0:1253:C:H5''	2.18	0.73
1:0:2700:U:H3	1:0:2848:A:H62	1.36	0.73
1:0:1182:U:C2'	1:0:1183:C:H5''	2.17	0.73
1:0:1001:A:H62	1:0:1200:G:H1'	1.53	0.73
1:0:1572:C:C2'	1:0:1573:G:H5''	2.18	0.72
1:0:2241:U:H1'	1:0:2307:A:H1'	1.70	0.72
1:0:69:G:H4'	1:0:70:A:O5'	1.87	0.72
1:0:26:G:N2	1:0:524:A:H62	1.88	0.72
1:0:795:A:H4'	1:0:796:A:N7	2.03	0.72
1:0:471:A:H62	1:0:480:G:N2	1.86	0.72
1:0:202:A:H2'	1:0:203:G:O4'	1.88	0.71
1:0:878:C:H42	1:0:921:A:H62	1.37	0.71
1:0:2721:A:H62	1:0:2743:G:H21	1.38	0.71
1:0:1528:C:H2'	1:0:1529:C:H5''	1.71	0.71
1:0:1908:C:H2'	1:0:1909:U:H4'	1.72	0.71
1:0:65:C:H2'	1:0:66:U:H5'	1.72	0.71
1:0:319:G:H21	1:0:340:G:H21	1.39	0.71
1:0:2691:C:H3'	1:0:2692:A:H5''	1.73	0.71
1:0:1807:A:O2'	1:0:1808:C:H4'	1.89	0.71
1:0:1479:G:N2	1:0:1543:G:H21	1.88	0.71
1:0:2503:G:C3'	1:0:2504:G:H5''	2.21	0.71
1:0:1196:G:H2'	1:0:1197:U:O4'	1.91	0.71
1:0:2380:U:H2'	1:0:2381:A:H5'	1.72	0.71
1:0:1023:U:H1'	1:0:1154:A:N7	2.06	0.71
1:0:1047:G:H1	1:0:1130:U:H3	1.37	0.70
1:0:2510:A:H61	1:0:2641:A:N6	1.89	0.70
1:0:1882:G:H21	1:0:1885:C:N4	1.89	0.70
1:0:1953:A:H1'	1:0:1955:G:C1'	2.21	0.70
1:0:1621:C:H4'	1:0:1626:A:H61	1.56	0.70
1:0:1373:G:H22	1:0:2192:U:H3	1.37	0.70
1:0:514:G:N3	1:0:514:G:H2'	2.06	0.70
1:0:1021:A:H1'	1:0:1164:C:H1'	1.72	0.70
1:0:181:A:H4'	1:0:182:G:H4'	1.74	0.70
1:0:33:C:H42	1:0:466:A:H61	1.39	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2510:A:H61	1:0:2641:A:H61	1.39	0.70
1:0:2522:G:N2	1:0:2625:U:H5''	2.05	0.70
1:0:515:A:H2'	1:0:516:G:H5'	1.73	0.70
1:0:2759:U:H4'	1:0:2760:G:OP2	1.89	0.70
1:0:1529:C:H2'	1:0:1530:U:O4'	1.92	0.70
1:0:576:A:H2	1:0:580:A:H62	1.40	0.70
1:0:1139:A:H1'	1:0:2496:C:H5'	1.73	0.69
1:0:1809:G:H2'	1:0:1810:U:O4'	1.92	0.69
1:0:2570:C:H2'	1:0:2571:G:C8	2.27	0.69
1:0:66:U:H2'	1:0:67:G:N7	2.07	0.69
1:0:2808:U:H3'	1:0:2809:A:H5'	1.74	0.69
1:0:800:U:H3'	1:0:804:C:N4	2.08	0.69
1:0:1838:G:H2'	1:0:1839:A:H5'	1.75	0.69
1:0:538:A:H2'	1:0:539:A:H5''	1.74	0.69
1:0:951:G:H2'	1:0:952:A:H5''	1.73	0.69
1:0:2486:C:H4'	2:5:34:C:O2'	1.93	0.69
1:0:65:C:C2'	1:0:66:U:H5'	2.23	0.69
1:0:1923:U:H4'	1:0:1948:C:H41	1.58	0.69
1:0:1199:U:H3'	1:0:1200:G:C5'	2.22	0.68
1:0:2727:G:H1	1:0:2735:C:H5''	1.59	0.68
1:0:1188:A:N6	1:0:1189:G:H21	1.90	0.68
1:0:2495:G:H2'	1:0:2496:C:C6	2.29	0.68
1:0:2570:C:H2'	1:0:2571:G:H8	1.58	0.68
1:0:2607:C:H1'	1:0:2761:A:H2'	1.76	0.68
1:0:1500:U:H3	1:0:1520:G:H22	1.42	0.68
1:0:653:G:H2'	1:0:654:A:H4'	1.76	0.68
1:0:2015:G:O2'	1:0:2016:A:OP1	2.12	0.68
1:0:1260:A:N6	1:0:1262:U:H1'	2.09	0.68
1:0:1955:G:H2'	1:0:1956:G:H5'	1.75	0.68
1:0:1978:U:H3'	1:0:1979:C:H5''	1.75	0.68
1:0:1791:C:O2'	1:0:1793:A:H5'	1.94	0.68
1:0:941:U:H2'	1:0:942:U:O4'	1.94	0.68
1:0:2095:G:H2'	1:0:2096:U:H5''	1.74	0.67
1:0:2058:U:H5'	1:0:2576:G:H1'	1.74	0.67
1:0:813:A:O2'	1:0:815:A:H5'	1.94	0.67
1:0:1749:G:O6	1:0:2674:C:H4'	1.94	0.67
1:0:225:G:H3'	1:0:226:C:C5'	2.24	0.67
1:0:367:G:C2'	1:0:368:A:H5''	2.24	0.67
1:0:58:C:H3'	1:0:59:G:C5'	2.22	0.67
1:0:2680:U:H3'	1:0:2681:A:H5'	1.76	0.67
1:0:584:A:H4'	1:0:2479:U:H5'	1.76	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1915:A:H62	1:0:1951:G:N2	1.91	0.67
1:0:1474:A:H2'	1:0:1475:U:H5'	1.77	0.67
1:0:1181:C:H2'	1:0:1182:U:H5''	1.76	0.67
1:0:1191:G:H2'	1:0:1192:A:H8	1.59	0.67
1:0:2768:C:H2'	1:0:2769:C:O4'	1.95	0.67
1:0:1086:C:C2'	1:0:1087:C:H5''	2.24	0.67
1:0:805:G:H5''	1:0:806:A:O5'	1.95	0.66
1:0:1685:A:H1'	1:0:1686:A:C5	2.29	0.66
1:0:2491:C:C2'	1:0:2492:G:H5''	2.25	0.66
1:0:1746:A:H2'	1:0:1747:G:H5'	1.77	0.66
1:0:323:G:H5'	1:0:342:G:C6	2.30	0.66
1:0:1312:G:H5'	1:0:1314:A:H1'	1.76	0.66
1:0:588:G:H4'	1:0:2001:G:H5''	1.78	0.66
1:0:2483:U:H1'	1:0:2551:A:C2	2.31	0.66
1:0:665:A:H3'	1:0:666:U:H5''	1.78	0.66
1:0:1487:C:H2'	1:0:1488:G:H8	1.60	0.66
1:0:2324:G:H4'	1:0:2326:C:H5''	1.78	0.66
1:0:805:G:H4'	1:0:806:A:OP2	1.96	0.66
1:0:1686:A:N3	1:0:1686:A:H2'	2.10	0.66
1:0:1352:G:H2'	1:0:1353:A:H8	1.60	0.66
1:0:583:C:N3	1:0:2016:A:H4'	2.11	0.66
1:0:2499:C:H41	1:0:2521:A:H2	1.41	0.65
1:0:1188:A:H62	1:0:1189:G:N2	1.93	0.65
1:0:1888:C:H5''	1:0:1889:G:H5''	1.79	0.65
1:0:651:C:H2'	1:0:652:C:H5''	1.78	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	0.65
1:0:824:U:H1'	1:0:1264:C:H1'	1.77	0.65
1:0:1195:U:H2'	1:0:1196:G:C8	2.32	0.65
1:0:70:A:O2'	1:0:72:A:OP2	2.12	0.65
1:0:236:C:H1'	1:0:632:A:O2'	1.97	0.65
1:0:1938:U:O2'	1:0:1939:U:OP1	2.12	0.65
1:0:175:C:H1'	1:0:2413:A:H61	1.62	0.65
1:0:974:U:H1'	1:0:2229:G:H21	1.59	0.65
1:0:2245:A:H4'	1:0:2246:A:C8	2.32	0.65
1:0:104:C:C2'	1:0:105:G:H5''	2.27	0.64
1:0:2198:U:C3'	1:0:2199:C:H5''	2.27	0.64
1:0:1679:U:H3'	1:0:1680:U:H5''	1.77	0.64
1:0:1679:U:C3'	1:0:1680:U:H5''	2.27	0.64
1:0:13:A:H1'	1:0:536:A:N6	2.13	0.64
1:0:2404:A:O2'	1:0:2405:A:OP2	2.15	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1033:G:H22	1:0:1150:C:H2'	1.62	0.64
1:0:1427:G:H2'	1:0:1428:G:H5'	1.80	0.64
1:0:2236:U:C3'	1:0:2237:C:H5''	2.27	0.64
1:0:2440:C:H1'	1:0:2471:U:H3	1.63	0.64
1:0:1194:U:H2'	1:0:1195:U:C6	2.32	0.64
1:0:727:U:H2'	1:0:728:G:H5''	1.79	0.64
1:0:2312:A:H4'	1:0:2313:G:N7	2.13	0.64
1:0:67:G:H22	1:0:72:A:H2'	1.62	0.64
1:0:2236:U:H2'	1:0:2237:C:H5''	1.77	0.64
1:0:2822:U:H2'	1:0:2823:G:O4'	1.97	0.64
1:0:2080:U:H2'	1:0:2081:U:C6	2.32	0.64
1:0:1341:G:H22	1:0:1664:G:H1	1.46	0.64
1:0:317:U:H2'	1:0:318:G:H5''	1.79	0.64
1:0:777:A:N6	1:0:1766:U:H3	1.94	0.64
1:0:2690:A:OP2	1:0:2694:G:H5'	1.97	0.64
1:0:1807:A:H5'	1:0:1809:G:C1'	2.28	0.64
1:0:83:A:H4'	1:0:84:G:O4'	1.97	0.64
1:0:1900:U:O2'	1:0:1946:U:H5'	1.98	0.64
1:0:831:G:H21	1:0:1203:A:N6	1.93	0.64
1:0:1580:C:H2'	1:0:1581:C:C6	2.32	0.64
1:0:1428:G:H5''	1:0:1429:A:H5'	1.79	0.63
1:0:2035:G:H2'	1:0:2036:G:H8	1.63	0.63
1:0:1198:C:H5''	1:0:1199:U:H5''	1.80	0.63
1:0:26:G:H21	1:0:524:A:H62	1.46	0.63
1:0:191:G:O2'	1:0:192:G:H5'	1.98	0.63
1:0:1715:A:H1'	1:0:1717:A:O4'	1.98	0.63
1:0:998:C:H2'	1:0:999:A:O4'	1.97	0.63
1:0:1250:A:O2'	1:0:1251:G:H4'	1.99	0.63
1:0:927:C:H2'	1:0:928:G:O4'	1.98	0.63
1:0:2261:G:H5''	1:0:2262:C:O5'	1.98	0.63
1:0:952:A:O2'	1:0:1204:G:H4'	1.98	0.63
1:0:128:C:C2'	1:0:129:A:H5''	2.27	0.63
1:0:2617:G:H22	1:0:2755:A:H2'	1.64	0.63
1:0:653:G:N2	1:0:655:A:H1'	2.14	0.63
1:0:67:G:N2	1:0:72:A:H2'	2.13	0.63
1:0:1181:C:C3'	1:0:1182:U:H5''	2.29	0.62
1:0:614:G:H2'	1:0:615:C:C6	2.33	0.62
1:0:2544:A:H2'	1:0:2545:A:H4'	1.81	0.62
1:0:2268:G:H22	1:0:2323:U:H4'	1.64	0.62
1:0:1517:C:H2'	1:0:1518:C:C6	2.34	0.62
1:0:167:A:H62	1:0:183:U:H3	1.47	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2636:A:H62	1:0:2643:G:N2	1.90	0.62
1:0:2418:A:H4'	1:0:2420:C:OP2	1.99	0.62
1:0:59:G:H1'	1:0:73:A:N1	2.15	0.62
1:0:2755:A:O2'	1:0:2756:A:H5'	2.00	0.62
1:0:2508:G:H5''	1:0:2509:A:H5''	1.82	0.62
1:0:2422:C:H2'	1:0:2423:G:H8	1.64	0.62
1:0:1085:G:H2'	1:0:1086:C:C6	2.35	0.62
1:0:1354:A:H62	1:0:1407:G:H22	1.47	0.62
1:0:439:C:H2'	1:0:440:U:O4'	1.99	0.62
1:0:121:G:O2'	1:0:1389:C:H4'	2.00	0.62
1:0:2045:A:H4'	1:0:2421:C:OP2	2.00	0.62
1:0:852:U:H3	1:0:950:G:H1	1.47	0.62
1:0:974:U:H1'	1:0:2229:G:N2	2.15	0.62
1:0:814:G:H3'	1:0:815:A:H5'	1.81	0.62
1:0:542:A:C2'	1:0:543:G:H5'	2.29	0.62
1:0:2381:A:H4'	1:0:2382:C:C5	2.35	0.62
1:0:858:G:H5''	1:0:859:U:H5'	1.80	0.62
1:0:414:A:H2'	1:0:415:A:O4'	1.99	0.62
1:0:362:C:H2'	1:0:363:G:H4'	1.81	0.62
1:0:2769:C:H2'	1:0:2770:A:H5'	1.82	0.62
1:0:221:A:H62	1:0:231:G:N2	1.92	0.62
1:0:1922:U:H1'	1:0:2570:C:O2'	2.00	0.62
1:0:2057:U:O2'	1:0:2576:G:H1'	1.98	0.62
1:0:1333:G:N2	1:0:1344:C:H41	1.96	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	0.62
1:0:824:U:O2'	1:0:1264:C:H1'	2.00	0.62
1:0:742:G:N3	1:0:742:G:H2'	2.13	0.62
1:0:1323:G:H2'	1:0:1324:G:H4'	1.82	0.62
1:0:571:U:H2'	1:0:581:A:H1'	1.82	0.61
1:0:1976:U:H2'	1:0:1977:C:H5'	1.82	0.61
1:0:2721:A:H62	1:0:2743:G:N2	1.99	0.61
1:0:940:G:C3'	1:0:941:U:H5''	2.14	0.61
1:0:2246:A:H2'	1:0:2246:A:N3	2.15	0.61
1:0:181:A:H4'	1:0:182:G:C5'	2.30	0.61
1:0:878:C:H42	1:0:921:A:N6	1.97	0.61
1:0:860:U:C2'	1:0:861:G:H5'	2.31	0.61
1:0:81:C:H2'	1:0:82:G:O4'	2.01	0.61
1:0:1455:C:O2'	1:0:1644:G:H5''	2.00	0.61
1:0:2770:A:H5'	1:0:2867:G:N2	2.16	0.61
1:0:1188:A:H2'	1:0:1189:G:O4'	2.00	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2357:A:H2'	1:0:2358:C:O4'	2.00	0.61
1:0:1066:G:H2'	1:0:1067:G:H4'	1.83	0.61
1:0:2572:U:H2'	1:0:2573:C:C6	2.36	0.61
1:0:1380:C:H2'	1:0:1381:G:H5'	1.81	0.61
1:0:1923:U:H4'	1:0:1948:C:N4	2.16	0.61
1:0:871:U:H1'	1:0:2248:A:H5''	1.83	0.61
1:0:800:U:H3'	1:0:804:C:H41	1.66	0.61
1:0:1426:U:H2'	1:0:1427:G:O4'	2.00	0.61
1:0:2322:U:O2'	1:0:2323:U:H5'	2.00	0.61
1:0:2242:C:N4	1:0:2257:A:H61	1.99	0.61
1:0:2223:U:H2'	1:0:2224:U:O4'	2.01	0.61
1:0:1286:U:H5''	1:0:1663:C:H42	1.66	0.60
1:0:2185:U:H2'	1:0:2186:G:C8	2.36	0.60
1:0:1871:G:N3	1:0:1871:G:H2'	2.16	0.60
1:0:1807:A:H5'	1:0:1809:G:O4'	2.01	0.60
1:0:2604:G:H2'	1:0:2605:C:C6	2.36	0.60
1:0:1713:G:H2'	1:0:1714:A:O4'	2.01	0.60
1:0:1140:A:H61	1:0:2470:U:H6	1.49	0.60
1:0:2727:G:O2'	1:0:2728:A:H5''	2.02	0.60
1:0:831:G:N2	1:0:1203:A:H62	1.95	0.60
1:0:2238:G:H2'	1:0:2239:C:C6	2.37	0.60
1:0:70:A:O3'	1:0:71:A:H3'	2.01	0.60
1:0:1918:G:H4'	1:0:1920:A:N3	2.16	0.60
1:0:1811:A:H1'	1:0:1813:A:C5	2.36	0.60
1:0:669:G:H2'	1:0:670:U:C6	2.37	0.60
1:0:2858:A:H3'	1:0:2859:U:H5'	1.84	0.60
1:0:1458:A:H3'	1:0:1459:U:C5'	2.32	0.60
1:0:2426:G:O6	1:0:2479:U:H2'	2.00	0.60
1:0:1774:A:H1'	1:0:2586:G:H21	1.67	0.60
1:0:2012:A:N7	1:0:2014:A:H5'	2.16	0.60
1:0:2377:U:H2'	1:0:2378:G:C8	2.37	0.60
1:0:2426:G:C5'	1:0:2480:C:H41	2.14	0.60
1:0:73:A:H3'	1:0:73:A:N3	2.17	0.60
1:0:1634:A:O2'	1:0:1635:G:OP1	2.16	0.60
1:0:1088:A:H2'	1:0:1089:C:O4'	2.02	0.59
1:0:17:G:H21	1:0:564:U:H5''	1.66	0.59
1:0:2759:U:H5''	1:0:2760:G:O5'	2.03	0.59
1:0:1625:A:H2'	1:0:1625:A:N3	2.16	0.59
1:0:357:A:H2'	1:0:358:C:H5'	1.84	0.59
1:0:2009:U:H3	1:0:2020:G:H1	1.51	0.59
1:0:2547:C:H2'	1:0:2548:G:H8	1.67	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:55:A:H2'	1:0:56:C:C6	2.37	0.59
1:0:653:G:H4'	1:0:2328:G:H4'	1.83	0.59
1:0:2402:U:H5'	1:0:2404:A:C5	2.37	0.59
1:0:455:A:H4'	1:0:1214:C:O2'	2.02	0.59
1:0:1073:G:C2'	1:0:1074:G:H4'	2.26	0.59
1:0:1747:G:H1'	1:0:1749:G:N3	2.18	0.59
1:0:2260:C:H4'	1:0:2368:G:H21	1.66	0.59
1:0:1289:A:O2'	1:0:1290:A:H5'	2.02	0.59
1:0:471:A:N6	1:0:480:G:H21	1.94	0.59
1:0:2243:C:H2'	1:0:2244:C:O4'	2.02	0.59
1:0:2081:U:C2'	1:0:2082:C:H5''	2.32	0.59
1:0:1474:A:N3	1:0:1474:A:H3'	2.17	0.59
1:0:1298:G:N2	1:0:1341:G:H5''	2.18	0.59
1:0:2491:C:C3'	1:0:2492:G:H5''	2.33	0.59
1:0:1141:U:H5'	1:0:2549:G:N2	2.18	0.59
1:0:2565:C:O2'	1:0:2566:A:H5'	2.01	0.59
1:0:2547:C:H2'	1:0:2548:G:C8	2.38	0.59
1:0:366:U:H2'	1:0:367:G:H8	1.67	0.59
1:0:2205:C:H2'	1:0:2206:C:C6	2.38	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'	1.83	0.59
1:0:192:G:O2'	1:0:193:A:OP2	2.19	0.59
1:0:412:U:H2'	1:0:413:G:O4'	2.03	0.59
1:0:521:U:H4'	1:0:1248:G:O2'	2.02	0.59
1:0:804:C:O2'	1:0:806:A:H4'	2.03	0.59
1:0:1683:G:H2'	1:0:1684:G:O4'	2.03	0.59
1:0:242:A:O2'	1:0:243:G:P	2.61	0.59
1:0:1664:G:O5'	1:0:1665:C:OP1	2.21	0.59
1:0:1354:A:O2'	1:0:1355:A:OP1	2.18	0.59
1:0:242:A:O2'	1:0:243:G:O4'	2.21	0.59
1:0:552:C:H2'	1:0:553:C:H4'	1.85	0.59
1:0:2549:G:H2'	1:0:2550:C:O4'	2.02	0.58
1:0:973:U:H2'	1:0:974:U:C6	2.38	0.58
1:0:665:A:H3'	1:0:666:U:C5'	2.33	0.58
1:0:2236:U:C2'	1:0:2237:C:H5''	2.33	0.58
1:0:25:U:H3	1:0:525:A:N6	2.01	0.58
1:0:1180:A:H2'	1:0:1181:C:C6	2.38	0.58
1:0:368:A:H2'	1:0:369:C:O4'	2.03	0.58
1:0:2368:G:H5''	1:0:2369:U:O4'	2.03	0.58
1:0:1251:G:H2'	1:0:1252:C:C6	2.37	0.58
1:0:2677:U:H2'	1:0:2678:C:C6	2.39	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1528:C:C2'	1:0:1529:C:H5''	2.33	0.58
1:0:1994:U:H2'	1:0:1995:G:O4'	2.04	0.58
1:0:1730:G:H2'	1:0:1731:C:C6	2.38	0.58
1:0:1474:A:C2'	1:0:1475:U:H5'	2.33	0.58
1:0:1181:C:C2'	1:0:1182:U:H5''	2.33	0.58
1:0:1472:C:H2'	1:0:1473:U:H5'	1.85	0.58
1:0:984:A:H2'	1:0:1200:G:H22	1.68	0.58
1:0:2607:C:H3'	1:0:2608:A:C5'	2.31	0.58
1:0:1567:A:H2'	1:0:1568:A:O4'	2.04	0.58
1:0:689:A:H2'	1:0:690:A:H5'	1.85	0.58
1:0:1354:A:H62	1:0:1407:G:N2	2.02	0.58
1:0:2548:G:H2'	1:0:2549:G:C5'	2.33	0.58
1:0:404:A:H5'	1:0:425:A:H4'	1.85	0.58
1:0:839:U:H2'	1:0:841:G:O4'	2.03	0.58
1:0:1916:G:H2'	1:0:1917:C:C6	2.39	0.58
1:0:766:A:H2'	1:0:767:G:C8	2.38	0.58
1:0:2422:C:H2'	1:0:2423:G:C8	2.39	0.58
1:0:874:A:H62	1:0:928:G:H21	1.51	0.58
1:0:490:A:O2'	1:0:491:A:H5'	2.03	0.58
1:0:2274:C:H2'	1:0:2275:U:H5'	1.86	0.58
1:0:319:G:H21	1:0:340:G:N2	2.02	0.58
1:0:1779:C:H2'	1:0:1780:A:O4'	2.04	0.58
1:0:118:U:H1'	1:0:143:A:C8	2.39	0.58
1:0:2691:C:H3'	1:0:2692:A:C5'	2.33	0.57
1:0:1301:U:H3	1:0:1339:U:H3	1.51	0.57
1:0:1712:G:H2'	1:0:1713:G:O4'	2.02	0.57
1:0:2222:U:H2'	1:0:2223:U:C6	2.38	0.57
1:0:1615:C:H2'	1:0:1616:C:C6	2.39	0.57
1:0:605:G:H4'	1:0:949:G:O2'	2.04	0.57
1:0:2784:A:H3'	1:0:2785:A:H8	1.70	0.57
1:0:925:U:H4'	1:0:926:C:C5	2.40	0.57
1:0:1514:C:H2'	1:0:1515:U:O4'	2.04	0.57
1:0:2426:G:H22	1:0:2430:A:H62	1.51	0.57
1:0:1223:G:O2'	1:0:1224:A:OP2	2.21	0.57
1:0:486:U:H4'	1:0:520:C:H5'	1.86	0.57
1:0:929:A:H2'	1:0:930:A:H4'	1.86	0.57
1:0:217:U:H5'	1:0:633:G:O2'	2.05	0.57
1:0:2242:C:H42	1:0:2257:A:N6	2.03	0.57
1:0:2794:G:H2'	1:0:2796:A:N7	2.20	0.57
1:0:2426:G:O2'	1:0:2427:A:OP2	2.19	0.57
1:0:931:G:N2	1:0:2247:A:H5''	2.19	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2236:U:H3'	1:0:2237:C:H5''	1.85	0.57
1:0:1137:A:H5''	1:0:1138:A:H5''	1.86	0.57
1:0:1392:U:H2'	1:0:1393:G:H5'	1.87	0.57
1:0:1472:C:C2'	1:0:1473:U:H5'	2.34	0.57
1:0:2459:C:H2'	1:0:2460:G:H5'	1.87	0.57
1:0:628:A:H2'	1:0:629:C:C6	2.40	0.57
1:0:541:C:N4	1:0:572:G:O4'	2.38	0.57
1:0:873:U:P	1:0:928:G:H1	2.28	0.57
1:0:839:U:H5''	1:0:2408:G:OP2	2.05	0.57
1:0:1971:C:H2'	1:0:1972:G:H8	1.70	0.57
1:0:73:A:H4'	1:0:74:G:C1'	2.35	0.57
1:0:1464:A:H4'	1:0:1545:G:H4'	1.86	0.57
1:0:687:G:O2'	1:0:688:A:H5'	2.04	0.56
1:0:369:C:H2'	1:0:370:U:O4'	2.04	0.56
1:0:632:A:H2'	1:0:633:G:H5'	1.86	0.56
1:0:73:A:H4'	1:0:74:G:H1'	1.85	0.56
1:0:1087:C:H2'	1:0:1088:A:O4'	2.05	0.56
1:0:804:C:O2	1:0:807:A:H5'	2.05	0.56
1:0:1431:U:H2'	1:0:1432:G:O4'	2.06	0.56
1:0:629:C:H2'	1:0:630:G:H5'	1.87	0.56
1:0:1220:G:H2'	1:0:1221:C:C6	2.40	0.56
1:0:2437:G:N2	1:0:2469:G:H2'	2.20	0.56
1:0:2018:G:H3'	1:0:2019:C:C5'	2.36	0.56
1:0:2494:C:H2'	1:0:2495:G:C8	2.40	0.56
1:0:2668:U:C4'	1:0:2669:C:H5'	2.29	0.56
1:0:930:A:H4'	1:0:930:A:OP1	2.03	0.56
1:0:1337:G:H1'	1:0:1632:A:N6	2.20	0.56
1:0:1981:A:H4'	1:0:2704:U:O2'	2.06	0.56
1:0:758:G:O2'	1:0:761:G:H1'	2.05	0.56
1:0:2329:C:H2'	1:0:2330:G:H5'	1.88	0.56
1:0:784:U:H2'	1:0:785:U:C6	2.41	0.56
1:0:2560:G:H4'	1:0:2561:G:N7	2.20	0.56
1:0:843:G:O2'	1:0:844:G:OP1	2.15	0.56
1:0:1947:G:OP1	1:0:1947:G:H3'	2.05	0.56
1:0:1280:U:O2'	1:0:1281:A:H5'	2.06	0.56
1:0:2636:A:N6	1:0:2643:G:H21	1.94	0.56
1:0:874:A:N6	1:0:928:G:H21	2.03	0.56
1:0:103:U:H2'	1:0:104:C:C6	2.40	0.56
1:0:176:A:H5''	1:0:177:U:H5	1.71	0.56
1:0:1191:G:H2'	1:0:1192:A:C8	2.40	0.56
1:0:2008:C:H2'	1:0:2009:U:C6	2.41	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2470:U:O2'	1:0:2471:U:H5'	2.06	0.56
1:0:2641:A:H2'	1:0:2642:G:O4'	2.06	0.56
1:0:69:G:O2'	1:0:70:A:H8	1.89	0.56
1:0:114:C:O2'	1:0:124:A:H1'	2.06	0.56
1:0:876:A:H2'	1:0:877:G:C8	2.41	0.56
1:0:158:A:H2'	1:0:159:A:O4'	2.05	0.56
1:0:2437:G:H2'	1:0:2469:G:C2	2.41	0.56
1:0:2437:G:H2'	1:0:2469:G:N2	2.21	0.56
1:0:2783:U:OP1	1:0:2783:U:O4'	2.24	0.56
1:0:59:G:N2	1:0:87:G:N7	2.53	0.56
1:0:1711:C:H4'	1:0:1712:G:C2	2.41	0.56
1:0:630:G:H2'	1:0:631:G:H5'	1.88	0.56
1:0:77:C:H2'	1:0:78:C:C6	2.41	0.56
1:0:2270:U:H2'	1:0:2271:C:C6	2.41	0.56
1:0:2841:U:O2	1:0:2843:A:H1'	2.05	0.56
1:0:1813:A:H2'	1:0:1814:G:C8	2.41	0.56
1:0:1356:G:H1'	1:0:1613:G:C2	2.40	0.55
1:0:583:C:H41	1:0:2017:U:H5	1.53	0.55
1:0:879:A:H2'	1:0:879:A:N3	2.21	0.55
1:0:533:C:H2'	1:0:534:U:O4'	2.06	0.55
1:0:197:G:N2	1:0:440:U:H2'	2.22	0.55
1:0:775:U:O2	1:0:1445:A:H5''	2.06	0.55
1:0:2162:C:H2'	1:0:2163:U:C6	2.41	0.55
1:0:366:U:H2'	1:0:367:G:C8	2.42	0.55
1:0:2095:G:C2'	1:0:2096:U:H5''	2.36	0.55
1:0:2061:C:H1'	1:0:2413:A:H1'	1.89	0.55
1:0:1263:G:O2'	1:0:1264:C:OP1	2.24	0.55
1:0:1258:G:H2'	1:0:1259:A:C8	2.42	0.55
1:0:197:G:H22	1:0:440:U:H2'	1.71	0.55
1:0:1181:C:H3'	1:0:1182:U:H5''	1.89	0.55
1:0:2758:A:H5''	1:0:2759:U:H5	1.71	0.55
1:0:2483:U:H2'	1:0:2484:G:H5'	1.88	0.55
1:0:2321:C:H2'	1:0:2322:U:O4'	2.06	0.55
1:0:241:C:O2'	1:0:242:A:H5''	2.06	0.55
1:0:1669:A:H2'	1:0:1670:G:H4'	1.88	0.55
1:0:558:G:H5''	1:0:559:C:C5	2.41	0.55
1:0:173:A:N3	1:0:173:A:H2'	2.22	0.55
1:0:618:A:H2'	1:0:619:A:O4'	2.07	0.55
1:0:2381:A:H4'	1:0:2382:C:H5	1.70	0.55
1:0:1791:C:H1'	1:0:1793:A:O4'	2.05	0.55
1:0:1200:G:O4'	1:0:1200:G:OP1	2.25	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:515:A:C2'	1:0:516:G:H5'	2.37	0.55
1:0:1789:U:C2'	1:0:1790:G:H5'	2.37	0.55
1:0:1429:A:H62	1:0:1601:U:H5''	1.71	0.55
1:0:2204:A:O2'	1:0:2205:C:P	2.65	0.55
1:0:604:U:H2'	1:0:605:G:C8	2.41	0.55
1:0:2532:G:H1'	1:0:2561:G:N3	2.22	0.55
1:0:226:C:H4'	1:0:227:G:C8	2.42	0.55
1:0:841:G:H3'	1:0:841:G:N3	2.21	0.55
1:0:2379:G:H2'	1:0:2380:U:O4'	2.06	0.55
1:0:1278:A:O2'	1:0:1279:G:P	2.65	0.55
1:0:791:G:H2'	1:0:792:U:C6	2.41	0.55
1:0:166:G:H21	1:0:184:A:N6	1.93	0.55
1:0:951:G:C2'	1:0:952:A:H5''	2.36	0.55
1:0:847:C:N4	1:0:955:G:H21	1.95	0.54
1:0:177:U:H2'	1:0:178:C:C6	2.42	0.54
1:0:1288:A:O2'	1:0:1289:A:H5'	2.07	0.54
1:0:2854:G:H3'	1:0:2854:G:N3	2.22	0.54
1:0:80:A:H2'	1:0:81:C:O4'	2.06	0.54
1:0:782:U:H2'	1:0:783:G:C8	2.42	0.54
1:0:1829:C:H2'	1:0:1830:C:H5'	1.89	0.54
1:0:394:U:H2'	1:0:395:G:H8	1.71	0.54
1:0:1955:G:C2'	1:0:1956:G:H5'	2.37	0.54
1:0:798:G:O2'	1:0:1770:U:H4'	2.07	0.54
1:0:1982:C:H1'	1:0:2666:U:O2'	2.07	0.54
1:0:2168:A:H2'	1:0:2169:A:H5'	1.89	0.54
1:0:468:A:H2'	1:0:469:G:H4'	1.90	0.54
1:0:2466:G:H2'	1:0:2467:A:C8	2.42	0.54
1:0:1313:U:O2'	1:0:1314:A:P	2.66	0.54
1:0:1459:U:H2'	1:0:1475:U:O2'	2.07	0.54
1:0:1818:G:H2'	1:0:1819:U:C6	2.42	0.54
1:0:1746:A:C2'	1:0:1747:G:H5'	2.36	0.54
1:0:162:C:H4'	1:0:195:A:O2'	2.08	0.54
1:0:1279:G:C2'	1:0:1280:U:OP2	2.56	0.54
1:0:2319:G:H2'	1:0:2320:G:C8	2.43	0.54
1:0:1356:G:H5'	1:0:1614:C:OP2	2.08	0.54
1:0:393:U:H2'	1:0:394:U:C6	2.43	0.54
1:0:942:U:O2'	1:0:943:U:H5'	2.07	0.54
1:0:1289:A:H62	1:0:1662:G:H1	1.56	0.54
1:0:1210:C:H2'	1:0:1211:G:O4'	2.08	0.54
1:0:2249:U:H2'	1:0:2250:G:O4'	2.08	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)
1:0:2516:U:H2'	1:0:2517:C:C6	2.42	0.54
1:0:48:A:H4'	1:0:50:G:O4'	2.08	0.54
1:0:2492:G:H2'	1:0:2493:U:O4'	2.07	0.54
1:0:564:U:H2'	1:0:565:A:C8	2.42	0.54
1:0:1463:A:H2'	1:0:1464:A:C8	2.42	0.54
1:0:484:G:O2'	1:0:485:G:H5'	2.07	0.54
1:0:242:A:O2'	1:0:243:G:O5'	2.26	0.54
1:0:775:U:H4'	1:0:776:G:C8	2.43	0.54
1:0:2372:A:H2'	1:0:2373:C:C6	2.43	0.54
1:0:826:U:H2'	1:0:827:C:C6	2.43	0.54
1:0:2440:C:H1'	1:0:2471:U:N3	2.23	0.53
1:0:126:C:H2'	1:0:127:C:C6	2.42	0.53
1:0:728:G:H2'	1:0:729:A:O4'	2.08	0.53
1:0:1333:G:N2	1:0:1344:C:N4	2.55	0.53
1:0:598:U:H2'	1:0:599:A:C8	2.42	0.53
1:0:1273:G:H2'	1:0:1274:C:C6	2.44	0.53
1:0:939:C:H2'	1:0:940:G:C8	2.43	0.53
1:0:173:A:O2'	1:0:174:A:OP1	2.19	0.53
1:0:1976:U:C2'	1:0:1977:C:H5'	2.37	0.53
1:0:67:G:H8	1:0:67:G:O5'	1.90	0.53
1:0:917:U:H2'	1:0:918:A:O4'	2.07	0.53
1:0:1528:C:C3'	1:0:1529:C:H5''	2.38	0.53
1:0:1974:U:H2'	1:0:1975:G:H5''	1.89	0.53
1:0:788:G:H5'	1:0:790:A:H1'	1.89	0.53
1:0:646:C:H2'	1:0:647:G:O4'	2.08	0.53
1:0:832:A:H2'	1:0:833:A:O4'	2.07	0.53
1:0:929:A:H3'	1:0:930:A:C5'	2.33	0.53
1:0:918:A:C2'	1:0:919:U:H5''	2.36	0.53
1:0:33:C:N4	1:0:466:A:H61	2.06	0.53
1:0:1921:A:H2'	1:0:1922:U:H5''	1.90	0.53
1:0:2571:G:H2'	1:0:2572:U:C6	2.42	0.53
1:0:1838:G:C2'	1:0:1839:A:H5'	2.38	0.53
1:0:2498:U:H5''	1:0:2499:C:OP1	2.09	0.53
1:0:1664:G:H4'	1:0:1665:C:O5'	2.07	0.53
1:0:317:U:C3'	1:0:318:G:H5''	2.39	0.53
1:0:2321:C:O2'	1:0:2353:G:H5''	2.09	0.53
1:0:857:U:H2'	1:0:858:G:H5'	1.90	0.53
1:0:225:G:N2	1:0:2410:U:H1'	2.23	0.53
1:0:404:A:H2'	1:0:405:C:C6	2.43	0.53
1:0:878:C:N4	1:0:921:A:H62	2.05	0.53
1:0:1326:U:H2'	1:0:1327:C:H5'	1.90	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2312:A:H1'	1:0:2314:A:C8	2.44	0.53
1:0:1971:C:H2'	1:0:1972:G:C8	2.43	0.53
1:0:1358:C:H2'	1:0:1359:G:C5'	2.38	0.53
1:0:688:A:O2'	1:0:2422:C:H4'	2.08	0.53
1:0:1745:C:H2'	1:0:1746:A:O4'	2.09	0.53
1:0:807:A:H2'	1:0:808:C:C6	2.43	0.53
1:0:2756:A:H1'	1:0:2758:A:N7	2.23	0.53
1:0:1414:G:H2'	1:0:1415:C:C6	2.44	0.53
1:0:960:U:H2'	1:0:961:G:C8	2.43	0.53
1:0:1825:C:C2'	1:0:1826:U:H5'	2.38	0.53
1:0:737:C:H2'	1:0:738:G:O4'	2.09	0.53
1:0:830:C:O2'	1:0:852:U:H5''	2.09	0.53
1:0:1190:C:H2'	1:0:1191:G:C8	2.44	0.53
1:0:1029:C:H2'	1:0:1030:U:H5''	1.91	0.53
1:0:1938:U:C2'	1:0:1939:U:H5'	2.38	0.53
1:0:1301:U:H2'	1:0:1664:G:H21	1.73	0.53
1:0:1763:G:H2'	1:0:1764:A:H4'	1.90	0.53
1:0:212:U:H2'	1:0:213:C:C6	2.44	0.53
1:0:341:A:H1'	1:0:1223:G:O6	2.08	0.53
1:0:1789:U:O2'	1:0:1790:G:H5'	2.08	0.53
1:0:597:U:H3	1:0:683:A:H2'	1.74	0.53
1:0:1497:C:O2'	1:0:1498:G:H5'	2.08	0.53
1:0:2780:A:O2'	1:0:2781:G:H5'	2.09	0.53
1:0:521:U:H2'	1:0:522:G:H5'	1.91	0.53
1:0:2757:G:OP2	1:0:2761:A:H4'	2.09	0.53
1:0:201:G:H2'	1:0:202:A:C8	2.44	0.53
1:0:1502:G:O2'	1:0:1503:G:H5'	2.09	0.53
1:0:1654:A:H2'	1:0:1655:C:C6	2.43	0.53
1:0:1075:C:H2'	1:0:1076:U:O4'	2.09	0.53
1:0:874:A:H62	1:0:928:G:N2	2.07	0.53
1:0:665:A:OP2	1:0:666:U:H5'	2.09	0.53
1:0:1313:U:O4	1:0:1651:U:H5'	2.09	0.52
1:0:2809:A:C2'	1:0:2810:A:H5'	2.39	0.52
1:0:599:A:H2'	1:0:600:G:C8	2.44	0.52
1:0:2536:G:H2'	1:0:2537:C:C6	2.44	0.52
1:0:843:G:O2'	1:0:844:G:H5'	2.10	0.52
1:0:1900:U:H4'	1:0:1946:U:O4'	2.09	0.52
1:0:597:U:H2'	1:0:598:U:C6	2.43	0.52
1:0:1217:U:H2'	1:0:1218:C:C6	2.44	0.52
1:0:38:G:H2'	1:0:39:C:C6	2.44	0.52
1:0:638:A:O2'	1:0:639:G:H5'	2.09	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:870:C:H2'	1:0:871:U:C6	2.43	0.52
1:0:1964:A:H5''	1:0:1965:U:OP2	2.09	0.52
1:0:460:U:N3	1:0:592:G:H1'	2.20	0.52
1:0:181:A:H4'	1:0:182:G:C4'	2.39	0.52
1:0:215:G:O2'	1:0:617:U:H1'	2.08	0.52
1:0:538:A:C2'	1:0:539:A:H5''	2.38	0.52
1:0:1566:G:H4'	1:0:1733:U:O4	2.10	0.52
1:0:757:U:O2'	1:0:758:G:H5'	2.09	0.52
1:0:394:U:H2'	1:0:395:G:C8	2.44	0.52
1:0:1004:A:H2'	1:0:1005:U:H5''	1.90	0.52
1:0:658:G:H4'	1:0:2331:A:H5'	1.91	0.52
1:0:578:U:C1'	1:0:957:G:H21	2.21	0.52
1:0:95:G:H2'	1:0:96:C:C6	2.44	0.52
1:0:2426:G:N2	1:0:2430:A:H62	2.07	0.52
1:0:127:C:H2'	1:0:128:C:C6	2.45	0.52
1:0:2401:A:H2'	1:0:2403:C:C5	2.44	0.52
1:0:2728:A:H2'	1:0:2729:A:O4'	2.09	0.52
1:0:167:A:H2'	1:0:168:A:C8	2.44	0.52
1:0:1970:G:H2'	1:0:1971:C:C6	2.44	0.52
1:0:616:U:C2'	1:0:617:U:H5''	2.36	0.52
1:0:776:G:N3	1:0:776:G:H2'	2.25	0.52
1:0:1234:C:H2'	1:0:1235:C:C6	2.45	0.52
1:0:689:A:N3	1:0:689:A:H3'	2.24	0.52
1:0:1312:G:C5'	1:0:1313:U:H5'	2.34	0.52
1:0:2700:U:N3	1:0:2848:A:N6	2.55	0.52
1:0:1286:U:H5''	1:0:1663:C:N4	2.24	0.52
1:0:2756:A:H4'	1:0:2758:A:OP1	2.09	0.52
1:0:2272:A:H2'	1:0:2273:C:C6	2.45	0.52
1:0:541:C:H2'	1:0:2002:A:C2	2.44	0.52
1:0:230:C:H2'	1:0:231:G:O4'	2.10	0.52
1:0:129:A:H2'	1:0:130:C:C6	2.44	0.52
1:0:9:U:H3	1:0:2608:A:N6	2.02	0.52
1:0:795:A:H4'	1:0:796:A:C8	2.44	0.52
1:0:45:C:H5''	1:0:192:G:C8	2.44	0.52
1:0:1365:U:H1'	1:0:1586:A:H2	1.75	0.52
1:0:476:G:H2'	1:0:477:A:C8	2.44	0.52
1:0:333:A:H1'	1:0:351:A:C4	2.44	0.52
1:0:446:C:H2'	1:0:447:U:C6	2.45	0.52
1:0:2083:G:H2'	1:0:2084:G:O4'	2.10	0.52
1:0:332:C:H2'	1:0:333:A:H5'	1.92	0.52
1:0:70:A:P	1:0:111:G:H4'	2.50	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:71:A:H5''	1:0:72:A:OP2	2.10	0.52
1:0:2504:G:H2'	1:0:2505:G:C8	2.45	0.52
1:0:1288:A:H2'	1:0:1289:A:O4'	2.09	0.52
1:0:1923:U:H1'	1:0:1947:G:H4'	1.92	0.52
1:0:1259:A:H2'	1:0:1260:A:C8	2.45	0.52
1:0:2559:U:H2'	1:0:2560:G:H5'	1.91	0.52
1:0:1597:A:H2'	1:0:1598:C:C6	2.45	0.52
1:0:457:C:H2'	1:0:458:G:O4'	2.10	0.52
1:0:688:A:H1'	1:0:2423:G:H5'	1.92	0.52
1:0:1198:C:C5'	1:0:1199:U:H5''	2.40	0.52
1:0:1949:A:H1'	1:0:2572:U:C4'	2.40	0.52
1:0:1788:C:H2'	1:0:1789:U:C6	2.45	0.52
1:0:2451:G:H2'	1:0:2508:G:N2	2.25	0.52
1:0:58:C:O2	1:0:72:A:H3'	2.10	0.51
1:0:1775:A:H4'	1:0:1776:A:C8	2.45	0.51
1:0:1092:U:H2'	1:0:1093:U:C6	2.44	0.51
1:0:1576:G:H2'	1:0:1577:G:O4'	2.10	0.51
1:0:838:A:H2'	1:0:839:U:C6	2.45	0.51
1:0:2623:A:H2'	1:0:2624:G:O4'	2.10	0.51
1:0:35:G:C1'	1:0:466:A:H1'	2.39	0.51
1:0:317:U:C2'	1:0:318:G:H5''	2.39	0.51
1:0:168:A:H2'	1:0:169:C:C6	2.45	0.51
1:0:158:A:H2'	1:0:159:A:C8	2.45	0.51
1:0:2177:U:H2'	1:0:2178:U:C6	2.45	0.51
1:0:2552:C:H5''	1:0:2553:G:H5''	1.92	0.51
1:0:2213:G:H2'	1:0:2214:G:C8	2.46	0.51
1:0:688:A:HO2'	1:0:2422:C:H4'	1.75	0.51
1:0:1018:C:H2'	1:0:1019:U:C5	2.44	0.51
1:0:2320:G:H2'	1:0:2321:C:O4'	2.09	0.51
1:0:2242:C:N4	1:0:2257:A:N6	2.57	0.51
1:0:491:A:H2'	1:0:491:A:N3	2.26	0.51
1:0:1661:C:O2'	1:0:1662:G:H5'	2.10	0.51
1:0:1352:G:H2'	1:0:1353:A:C8	2.43	0.51
1:0:2703:C:H2'	1:0:2704:U:C6	2.45	0.51
1:0:2532:G:H1'	1:0:2561:G:N2	2.25	0.51
1:0:2426:G:O2'	1:0:2427:A:P	2.68	0.51
1:0:109:A:C2'	1:0:110:U:H5''	2.41	0.51
1:0:2483:U:H1'	1:0:2551:A:N1	2.26	0.51
1:0:2160:C:H2'	1:0:2161:C:C6	2.46	0.51
1:0:1358:C:H2'	1:0:1359:G:H5''	1.92	0.51
1:0:980:G:H2'	1:0:981:C:C6	2.46	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1727:C:H4'	1:0:2833:C:O2	2.10	0.51
1:0:451:A:H2'	1:0:452:G:C8	2.45	0.51
1:0:868:U:H2'	1:0:869:C:C6	2.45	0.51
1:0:512:A:H2'	1:0:513:A:H5'	1.93	0.51
1:0:1683:G:C2'	1:0:1684:G:H5'	2.41	0.51
1:0:2532:G:H1'	1:0:2561:G:H21	1.76	0.51
1:0:959:C:H5''	1:0:972:C:O2'	2.11	0.51
1:0:1860:A:H2'	1:0:1861:G:O4'	2.11	0.51
1:0:1865:C:H2'	1:0:1866:G:O4'	2.10	0.51
1:0:941:U:H4'	1:0:941:U:OP1	2.10	0.51
1:0:590:C:H2'	1:0:591:G:C8	2.45	0.51
1:0:2059:U:H2'	1:0:2060:A:H5''	1.91	0.51
1:0:459:A:H62	1:0:484:G:H1'	1.76	0.51
1:0:1611:U:H2'	1:0:1612:U:O4'	2.11	0.51
1:0:223:C:H4'	1:0:398:C:H1'	1.92	0.51
1:0:69:G:H3'	1:0:111:G:O2'	2.11	0.51
1:0:1677:C:H2'	1:0:1678:G:C8	2.46	0.51
1:0:422:C:H2'	1:0:423:G:H8	1.76	0.51
1:0:1068:A:H2'	1:0:1069:G:C8	2.45	0.51
1:0:243:G:H2'	1:0:244:C:O4'	2.11	0.51
1:0:1819:U:H5''	1:0:1954:A:O3'	2.11	0.51
1:0:1218:C:H2'	1:0:1219:C:C6	2.45	0.51
1:0:1127:C:H2'	1:0:1128:G:H8	1.76	0.51
1:0:170:U:H2'	1:0:171:G:H8	1.76	0.51
1:0:579:G:H2'	1:0:2013:A:N6	2.26	0.51
1:0:742:G:H2'	1:0:1766:U:H1'	1.93	0.51
1:0:1057:A:H3'	1:0:1058:G:C5'	2.41	0.51
1:0:1377:G:H4'	1:0:1800:A:H5'	1.93	0.51
1:0:2660:C:O2'	1:0:2661:G:H5'	2.11	0.51
1:0:2429:A:H5''	1:0:2476:A:C6	2.46	0.50
1:0:619:A:H2'	1:0:620:G:C8	2.46	0.50
1:0:2023:C:H2'	1:0:2024:U:C6	2.46	0.50
1:0:2727:G:C2'	1:0:2728:A:H5''	2.41	0.50
1:0:587:A:H2'	1:0:588:G:H5''	1.93	0.50
1:0:18:U:H2'	1:0:19:C:C6	2.46	0.50
1:0:2872:U:H2'	1:0:2873:G:C8	2.47	0.50
1:0:1038:U:O2	1:0:2466:G:H4'	2.10	0.50
1:0:2079:A:H2'	1:0:2080:U:C6	2.46	0.50
1:0:114:C:H2'	1:0:115:G:O4'	2.11	0.50
1:0:1052:C:H2'	1:0:1053:G:C8	2.45	0.50
1:0:2238:G:H2'	1:0:2239:C:H6	1.76	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1626:A:OP2	1:0:1627:C:H5	1.95	0.50
1:0:2725:C:H2'	1:0:2726:U:C6	2.47	0.50
1:0:2726:U:H2'	1:0:2727:G:O4'	2.11	0.50
1:0:216:U:H5''	1:0:601:A:N6	2.27	0.50
1:0:1354:A:H3'	1:0:1410:U:O2	2.11	0.50
1:0:2178:U:H2'	1:0:2179:C:C6	2.47	0.50
1:0:1861:G:O2'	1:0:1862:C:H5'	2.11	0.50
1:0:116:A:N3	1:0:155:G:H1'	2.26	0.50
1:0:583:C:O2'	1:0:584:A:OP2	2.29	0.50
1:0:841:G:N1	1:0:2226:A:H4'	2.26	0.50
1:0:1194:U:O2'	1:0:1195:U:P	2.70	0.50
1:0:1881:U:H2'	1:0:1882:G:H5'	1.94	0.50
1:0:2057:U:H1'	1:0:2577:A:H1'	1.93	0.50
1:0:25:U:H3	1:0:525:A:H61	1.56	0.50
1:0:599:A:H2'	1:0:600:G:H8	1.76	0.50
1:0:1272:G:H2'	1:0:1273:G:C8	2.47	0.50
1:0:1857:G:H2'	1:0:1859:A:OP2	2.12	0.50
1:0:2446:C:H2'	1:0:2447:G:C8	2.47	0.50
1:0:1424:U:H2'	1:0:1425:G:C8	2.46	0.50
1:0:2397:A:H2'	1:0:2398:U:O4'	2.11	0.50
1:0:1747:G:C4'	1:0:1749:G:H1'	2.31	0.50
1:0:2244:C:N4	1:0:2245:A:N6	2.58	0.50
1:0:964:A:H2'	1:0:965:G:C8	2.47	0.50
1:0:879:A:O2'	1:0:880:C:H5'	2.11	0.50
1:0:2010:G:H2'	1:0:2011:U:O4'	2.12	0.50
1:0:64:C:H2'	1:0:65:C:C6	2.46	0.50
1:0:872:G:H2'	1:0:928:G:N1	2.27	0.50
1:0:1979:C:H42	1:0:2706:U:H6	1.60	0.50
1:0:2821:G:H2'	1:0:2822:U:C6	2.46	0.50
1:0:1279:G:H1'	1:0:1280:U:H5	1.76	0.50
1:0:316:C:H2'	1:0:317:U:C6	2.47	0.50
1:0:210:A:N6	1:0:242:A:N7	2.59	0.50
1:0:2329:C:C2'	1:0:2330:G:H5'	2.42	0.50
1:0:2560:G:N3	1:0:2560:G:H3'	2.27	0.50
1:0:991:A:H61	1:0:2020:G:H21	1.59	0.50
1:0:2428:U:O2'	1:0:2429:A:H5'	2.11	0.50
1:0:2435:C:H2'	1:0:2436:U:C6	2.47	0.50
1:0:215:G:H4'	1:0:617:U:O2'	2.12	0.50
1:0:1164:C:H2'	1:0:1165:G:O4'	2.11	0.50
1:0:1067:G:H2'	1:0:1114:A:H61	1.77	0.50
1:0:788:G:H5'	1:0:790:A:N3	2.26	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2181:A:H2'	1:0:2182:A:H5'	1.92	0.50
1:0:831:G:C2'	1:0:832:A:H5''	2.41	0.50
1:0:2082:C:H2'	1:0:2083:G:O4'	2.11	0.50
1:0:645:G:H2'	1:0:646:C:C6	2.47	0.50
1:0:338:G:O2'	1:0:339:U:H5'	2.12	0.50
1:0:594:G:H21	1:0:1267:A:H62	1.60	0.50
1:0:991:A:N6	1:0:2020:G:H21	2.10	0.50
1:0:1073:G:H2'	1:0:1074:G:C4'	2.29	0.50
1:0:1312:G:H2'	1:0:1643:A:N6	2.26	0.50
1:0:1029:C:OP1	1:0:1047:G:H4'	2.11	0.50
1:0:1920:A:N6	1:0:1923:U:H6	2.10	0.50
1:0:1685:A:H1'	1:0:1686:A:N7	2.27	0.50
1:0:2561:G:O2'	1:0:2562:G:H5'	2.12	0.50
1:0:1055:A:N6	1:0:1122:A:H4'	2.27	0.50
1:0:703:A:H2'	1:0:704:G:H8	1.77	0.50
1:0:2299:A:H2'	1:0:2299:A:N3	2.26	0.50
1:0:864:C:H2'	1:0:865:A:C8	2.46	0.49
1:0:1820:G:O2'	1:0:1821:A:P	2.70	0.49
1:0:1667:A:H2'	1:0:1668:G:H8	1.77	0.49
1:0:2229:G:H2'	1:0:2475:C:OP1	2.12	0.49
1:0:109:A:H3'	1:0:110:U:C5'	2.39	0.49
1:0:1029:C:C3'	1:0:1030:U:H5''	2.43	0.49
1:0:860:U:H2'	1:0:861:G:H5'	1.94	0.49
1:0:792:U:H2'	1:0:793:G:O4'	2.12	0.49
1:0:1785:A:H2'	1:0:1786:C:C6	2.46	0.49
1:0:2805:G:O2'	1:0:2806:G:H5'	2.12	0.49
1:0:26:G:H21	1:0:524:A:N6	2.10	0.49
1:0:2754:C:H2'	1:0:2755:A:O4'	2.12	0.49
1:0:45:C:H2'	1:0:46:C:C6	2.46	0.49
1:0:431:G:H2'	1:0:432:C:C6	2.47	0.49
1:0:1492:A:H2	1:0:1531:C:H41	1.58	0.49
1:0:2580:C:N4	1:0:2582:G:O6	2.45	0.49
1:0:689:A:N6	1:0:815:A:H61	2.06	0.49
1:0:203:G:O2'	1:0:204:A:H5'	2.12	0.49
1:0:1162:A:H2'	1:0:1163:C:C6	2.47	0.49
1:0:2313:G:H2'	1:0:2314:A:H5'	1.94	0.49
1:0:2559:U:C2'	1:0:2560:G:H5'	2.41	0.49
1:0:2161:C:O2'	1:0:2162:C:P	2.71	0.49
1:0:1055:A:O2'	1:0:1058:G:H1'	2.13	0.49
1:0:1895:A:H2'	1:0:1896:A:O4'	2.13	0.49
1:0:2783:U:H2'	1:0:2784:A:O4'	2.12	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:689:A:C2'	1:0:690:A:H5'	2.43	0.49
1:0:165:G:H2'	1:0:166:G:O4'	2.12	0.49
1:0:2404:A:H5''	1:0:2405:A:H3'	1.94	0.49
1:0:597:U:N3	1:0:683:A:H2'	2.27	0.49
1:0:1310:C:OP1	1:0:2689:C:H4'	2.12	0.49
1:0:810:U:H2'	1:0:811:G:C8	2.48	0.49
1:0:1912:G:H2'	1:0:1912:G:N3	2.26	0.49
1:0:2771:C:H2'	1:0:2772:U:C6	2.47	0.49
1:0:1195:U:H2'	1:0:1196:G:H8	1.73	0.49
1:0:1791:C:H2'	1:0:1792:C:H5''	1.95	0.49
1:0:1889:G:H2'	1:0:1890:G:C8	2.48	0.49
1:0:777:A:H62	1:0:1766:U:H3	1.60	0.49
1:0:84:G:H2'	1:0:85:C:C6	2.48	0.49
1:0:441:A:H2'	1:0:442:A:O4'	2.11	0.49
1:0:1445:A:H2'	1:0:1446:U:O4'	2.13	0.49
1:0:693:A:H2'	1:0:694:G:C8	2.47	0.49
1:0:1031:C:H1'	1:0:1151:U:O2	2.13	0.49
1:0:2494:C:H2'	1:0:2495:G:H8	1.78	0.49
1:0:108:G:H2'	1:0:109:A:C8	2.48	0.49
1:0:2503:G:C2'	1:0:2504:G:H5''	2.43	0.49
1:0:1793:A:H2'	1:0:1794:A:C8	2.48	0.49
1:0:2235:G:H2'	1:0:2236:U:C6	2.48	0.49
1:0:83:A:C6	1:0:98:U:H1'	2.46	0.49
1:0:2093:G:H2'	1:0:2094:C:C6	2.47	0.49
1:0:541:C:H2'	1:0:2002:A:N1	2.27	0.49
1:0:930:A:H5'	1:0:931:G:C8	2.47	0.49
1:0:108:G:H2'	1:0:109:A:H8	1.78	0.49
1:0:1665:C:N4	1:0:1993:G:H1	2.11	0.49
1:0:860:U:O2'	1:0:861:G:H5'	2.13	0.49
1:0:1455:C:H2'	1:0:1456:C:C6	2.48	0.49
1:0:2301:A:H2'	1:0:2302:G:O4'	2.13	0.49
1:0:1629:G:N1	1:0:1633:C:N4	2.61	0.49
1:0:1141:U:O2'	1:0:1142:G:OP1	2.26	0.49
1:0:951:G:C3'	1:0:952:A:H5''	2.43	0.49
1:0:2794:G:H3'	1:0:2796:A:N6	2.21	0.49
1:0:2370:G:HO2'	1:0:2371:A:H2	1.61	0.49
1:0:1686:A:H2'	1:0:1687:C:H5'	1.94	0.49
1:0:756:C:H2'	1:0:757:U:C6	2.48	0.49
1:0:2799:C:H2'	1:0:2800:C:O4'	2.12	0.49
1:0:2852:G:H2'	1:0:2853:U:O4'	2.13	0.49
1:0:942:U:C2'	1:0:943:U:H5'	2.42	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:173:A:H61	1:0:844:G:H21	1.59	0.49
1:0:1016:C:H2'	1:0:1017:C:C6	2.48	0.49
1:0:35:G:H1'	1:0:466:A:H1'	1.95	0.49
1:0:1685:A:C6	1:0:1691:G:H1'	2.48	0.49
1:0:1678:G:H2'	1:0:1679:U:C6	2.47	0.49
1:0:790:A:H2'	1:0:791:G:C8	2.48	0.49
1:0:1825:C:O2'	1:0:1826:U:H5'	2.13	0.49
1:0:211:U:O2'	1:0:212:U:H5'	2.13	0.49
1:0:338:G:H1	1:0:346:C:H42	1.61	0.49
1:0:780:U:H2'	1:0:781:G:C8	2.48	0.49
1:0:626:A:O2'	1:0:627:A:H5'	2.13	0.49
1:0:1040:A:H2'	1:0:1041:G:H5'	1.93	0.48
1:0:2426:G:H5'	1:0:2480:C:N4	2.22	0.48
1:0:2564:U:H4'	1:0:2565:C:H5'	1.94	0.48
1:0:1729:C:H2'	1:0:1730:G:C8	2.48	0.48
1:0:213:C:H42	1:0:238:G:H22	1.60	0.48
1:0:1598:C:H2'	1:0:1599:G:O4'	2.13	0.48
1:0:2093:G:O2'	1:0:2094:C:P	2.71	0.48
1:0:1435:G:H21	1:0:1511:A:N6	2.12	0.48
1:0:2026:C:H2'	1:0:2027:C:C6	2.48	0.48
1:0:2574:G:H2'	1:0:2574:G:N3	2.28	0.48
1:0:941:U:H2'	1:0:942:U:C6	2.48	0.48
1:0:2782:G:C2'	1:0:2783:U:OP1	2.61	0.48
1:0:172:A:H4'	1:0:228:A:H4'	1.94	0.48
1:0:181:A:H4'	1:0:182:G:O5'	2.12	0.48
1:0:1715:A:H1'	1:0:1717:A:C1'	2.43	0.48
1:0:429:C:H2'	1:0:430:C:O4'	2.13	0.48
1:0:2343:C:H2'	1:0:2344:G:O4'	2.13	0.48
1:0:1349:A:H2'	1:0:1350:G:C8	2.48	0.48
1:0:1182:U:C3'	1:0:1183:C:H5''	2.43	0.48
1:0:1871:G:C2'	1:0:1871:G:N3	2.76	0.48
1:0:476:G:H21	1:0:696:U:H1'	1.78	0.48
1:0:1038:U:H2'	1:0:1039:A:C8	2.49	0.48
1:0:2492:G:H2'	1:0:2493:U:C6	2.49	0.48
1:0:1495:G:HO2'	1:0:1496:G:P	2.36	0.48
1:0:873:U:O2	1:0:2246:A:H5''	2.13	0.48
1:0:2503:G:H2'	1:0:2504:G:H5''	1.96	0.48
1:0:1679:U:H2'	1:0:1680:U:H5''	1.94	0.48
1:0:1682:A:H2'	1:0:1683:G:C8	2.48	0.48
1:0:1380:C:N4	1:0:1799:A:N1	2.62	0.48
1:0:2085:G:H2'	1:0:2086:U:C6	2.49	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:427:C:H2'	1:0:428:A:C8	2.49	0.48
1:0:2434:G:H2'	1:0:2435:C:C6	2.49	0.48
1:0:1458:A:H3'	1:0:1459:U:H5'	1.96	0.48
1:0:2308:A:H2'	1:0:2309:G:C8	2.48	0.48
1:0:204:A:H4'	1:0:205:A:N7	2.28	0.48
1:0:742:G:N3	1:0:742:G:C2'	2.77	0.48
1:0:1099:A:H5''	1:0:1100:G:N7	2.28	0.48
1:0:1141:U:O2'	1:0:1142:G:P	2.72	0.48
1:0:2421:C:O2'	1:0:2422:C:H5'	2.13	0.48
1:0:367:G:C3'	1:0:368:A:H5''	2.44	0.48
1:0:2220:A:H2'	1:0:2221:G:C8	2.48	0.48
1:0:1807:A:HO2'	1:0:1808:C:P	2.36	0.48
1:0:1046:U:H2'	1:0:1047:G:C8	2.49	0.48
1:0:323:G:H2'	1:0:324:C:C6	2.48	0.48
1:0:210:A:N6	1:0:442:A:H61	2.11	0.48
1:0:2708:U:H2'	1:0:2709:C:C6	2.49	0.48
1:0:42:G:H2'	1:0:43:A:O4'	2.13	0.48
1:0:830:C:O2	1:0:852:U:H4'	2.14	0.48
1:0:1391:A:H2'	1:0:1392:U:C5	2.49	0.48
1:0:477:A:H2'	1:0:478:G:O4'	2.14	0.48
1:0:2025:A:H2'	1:0:2026:C:H5''	1.94	0.48
1:0:1742:G:H2'	1:0:1743:C:C6	2.48	0.48
1:0:225:G:H21	1:0:2410:U:H1'	1.77	0.48
1:0:2424:G:H2'	1:0:2425:G:O4'	2.14	0.48
1:0:1436:G:H2'	1:0:1437:A:C8	2.49	0.48
1:0:2377:U:O2'	1:0:2378:G:P	2.71	0.48
1:0:568:G:H5''	1:0:1019:U:H5'	1.95	0.48
1:0:1686:A:O2'	1:0:2528:G:H5'	2.14	0.48
1:0:1429:A:H1'	1:0:1603:A:C6	2.49	0.48
1:0:478:G:O2'	1:0:479:G:H5'	2.14	0.48
1:0:979:A:H2'	1:0:980:G:C8	2.49	0.48
1:0:1316:G:H2'	1:0:1317:G:C8	2.49	0.48
1:0:2815:C:H2'	1:0:2816:C:C6	2.49	0.48
1:0:569:C:H2'	1:0:570:G:C8	2.49	0.48
1:0:1571:G:H2'	1:0:1572:C:C6	2.49	0.48
1:0:239:A:H4'	1:0:620:G:H5'	1.95	0.48
1:0:1033:G:H22	1:0:1150:C:C2'	2.26	0.48
1:0:2204:A:O2'	1:0:2205:C:OP2	2.32	0.48
1:0:2212:U:H2'	1:0:2213:G:C8	2.49	0.48
1:0:1326:U:H1'	1:0:1626:A:N3	2.29	0.48
1:0:1684:G:H2'	1:0:1974:U:O4	2.14	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2372:A:H2'	1:0:2373:C:H6	1.77	0.48
1:0:240:U:H4'	1:0:443:A:H5'	1.96	0.48
1:0:2830:U:H2'	1:0:2831:A:C8	2.49	0.48
1:0:845:U:H2'	1:0:846:A:C8	2.49	0.48
1:0:2721:A:N6	1:0:2743:G:H21	2.10	0.47
1:0:1712:G:N3	1:0:1712:G:H3'	2.29	0.47
1:0:670:U:H2'	1:0:671:A:C8	2.49	0.47
1:0:864:C:H2'	1:0:865:A:H8	1.79	0.47
1:0:1036:G:H1'	1:0:1145:C:C4'	2.44	0.47
1:0:546:A:H2'	1:0:547:U:C6	2.49	0.47
1:0:974:U:H2'	1:0:975:C:C6	2.49	0.47
1:0:1028:G:H2'	1:0:1029:C:C6	2.50	0.47
1:0:664:C:H2'	1:0:665:A:C8	2.49	0.47
1:0:452:G:H2'	1:0:453:U:O4'	2.14	0.47
1:0:2278:A:H2'	1:0:2279:G:C8	2.49	0.47
1:0:2316:G:H2'	1:0:2317:G:H8	1.78	0.47
1:0:1471:G:H1	1:0:2682:C:H42	1.62	0.47
1:0:595:A:H62	1:0:1264:C:N4	2.12	0.47
1:0:190:A:H2'	1:0:191:G:C8	2.49	0.47
1:0:192:G:C4'	1:0:193:A:H4'	2.45	0.47
1:0:548:G:H2'	1:0:549:G:C8	2.49	0.47
1:0:1014:G:O2'	1:0:1015:U:H5'	2.14	0.47
1:0:2009:U:H2'	1:0:2010:G:C8	2.49	0.47
1:0:583:C:O2'	1:0:584:A:P	2.71	0.47
1:0:67:G:N2	1:0:73:A:O5'	2.47	0.47
1:0:2035:G:H2'	1:0:2036:G:C8	2.45	0.47
1:0:2168:A:C2'	1:0:2169:A:H5'	2.44	0.47
1:0:1821:A:H5''	1:0:1822:C:H5	1.79	0.47
1:0:2468:G:H2'	1:0:2469:G:O4'	2.15	0.47
1:0:1226:A:C6	1:0:1250:A:H1'	2.49	0.47
1:0:224:G:C5	1:0:226:C:H1'	2.48	0.47
1:0:701:U:H1'	1:0:800:U:H5'	1.97	0.47
1:0:824:U:H1'	1:0:1264:C:C1'	2.43	0.47
1:0:1793:A:H2'	1:0:1794:A:H8	1.80	0.47
1:0:161:U:H2'	1:0:162:C:C6	2.49	0.47
1:0:1069:G:O2'	1:0:1070:G:H5'	2.14	0.47
1:0:1821:A:H3'	1:0:1822:C:H6	1.80	0.47
1:0:1316:G:H2'	1:0:1317:G:H8	1.79	0.47
1:0:2523:G:O2'	1:0:2524:G:H5'	2.14	0.47
1:0:1436:G:C1'	1:0:1508:G:H21	2.21	0.47
1:0:2378:G:H2'	1:0:2379:G:H8	1.80	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2402:U:H5'	1:0:2404:A:N7	2.30	0.47
1:0:2211:U:H2'	1:0:2212:U:C6	2.49	0.47
1:0:2069:U:H2'	1:0:2070:G:C8	2.49	0.47
1:0:1386:A:H2'	1:0:1387:G:O4'	2.14	0.47
1:0:1039:A:H2'	1:0:1040:A:C8	2.48	0.47
1:0:1436:G:H1'	1:0:1508:G:N2	2.18	0.47
1:0:1809:G:O2'	1:0:1810:U:H5'	2.14	0.47
1:0:565:A:H2'	1:0:566:U:C6	2.50	0.47
1:0:1263:G:O2'	1:0:1264:C:P	2.73	0.47
1:0:2021:G:H2'	1:0:2022:C:C6	2.50	0.47
1:0:1679:U:C2'	1:0:1680:U:H5''	2.45	0.47
1:0:1344:C:H2'	1:0:1346:C:OP1	2.14	0.47
1:0:84:G:O2'	1:0:85:C:H5'	2.15	0.47
1:0:1981:A:H2'	1:0:1982:C:C6	2.49	0.47
1:0:763:A:C2	1:0:765:C:H1'	2.49	0.47
1:0:643:A:H2'	1:0:644:A:C8	2.49	0.47
1:0:703:A:H2'	1:0:704:G:C8	2.50	0.47
1:0:780:U:H2'	1:0:781:G:H8	1.80	0.47
1:0:2062:U:H4'	1:0:2412:A:H2	1.79	0.47
1:0:2658:A:H2'	1:0:2659:C:C6	2.50	0.47
1:0:635:C:H3'	1:0:636:G:H5''	1.97	0.47
1:0:246:C:N3	1:0:247:A:N6	2.63	0.47
1:0:2651:U:H2'	1:0:2652:G:C8	2.50	0.47
1:0:1184:G:H2'	1:0:1185:C:H5'	1.97	0.47
1:0:926:C:H2'	1:0:927:C:H5'	1.95	0.47
1:0:2757:G:H5'	1:0:2761:A:H1'	1.97	0.47
1:0:109:A:H2'	1:0:110:U:H5''	1.97	0.47
1:0:2307:A:H2'	1:0:2308:A:C8	2.50	0.47
1:0:1259:A:H2'	1:0:1260:A:O4'	2.14	0.47
1:0:1993:G:H2'	1:0:1994:U:C6	2.50	0.47
1:0:2564:U:H5''	1:0:2565:C:H5'	1.96	0.47
1:0:2204:A:H1'	1:0:2205:C:C5	2.49	0.47
1:0:2560:G:H4'	1:0:2561:G:C8	2.50	0.47
1:0:2642:G:H2'	1:0:2643:G:O4'	2.15	0.47
1:0:1915:A:N6	1:0:1951:G:H21	1.99	0.47
1:0:539:A:N6	1:0:2024:U:H3	2.12	0.47
1:0:1578:U:H2'	1:0:1579:G:C8	2.50	0.47
1:0:629:C:C2'	1:0:630:G:H5'	2.44	0.47
1:0:432:C:H2'	1:0:433:G:H8	1.80	0.47
1:0:1418:C:H2'	1:0:1419:G:H8	1.80	0.47
1:0:556:A:H2'	1:0:557:U:H5'	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2137:G:H2'	1:0:2138:U:C6	2.50	0.47
1:0:2199:C:H2'	1:0:2200:G:C8	2.49	0.47
1:0:173:A:N6	1:0:844:G:H21	2.13	0.47
1:0:534:U:H4'	1:0:564:U:O2'	2.15	0.47
1:0:2809:A:H2'	1:0:2810:A:H5'	1.97	0.47
1:0:2727:G:N1	1:0:2735:C:H5''	2.29	0.47
1:0:241:C:C2'	1:0:242:A:H5''	2.44	0.47
1:0:758:G:H2'	1:0:759:C:H5'	1.96	0.47
1:0:1269:G:H2'	1:0:1270:C:C6	2.50	0.47
1:0:1039:A:H2'	1:0:1040:A:H8	1.80	0.46
1:0:971:A:H2	1:0:2475:C:H1'	1.80	0.46
1:0:2782:G:H2'	1:0:2783:U:OP1	2.15	0.46
1:0:55:A:H2'	1:0:56:C:H6	1.80	0.46
1:0:869:C:O2'	1:0:870:C:H5'	2.15	0.46
1:0:819:C:H2'	1:0:820:U:C6	2.50	0.46
1:0:2403:C:H2'	1:0:2408:G:O2'	2.15	0.46
1:0:2504:G:H2'	1:0:2505:G:H8	1.79	0.46
1:0:2057:U:H2'	1:0:2058:U:C6	2.50	0.46
1:0:2324:G:C4'	1:0:2326:C:H5''	2.43	0.46
1:0:2499:C:N4	1:0:2521:A:H2	2.10	0.46
1:0:1354:A:N6	1:0:1407:G:H22	2.11	0.46
1:0:776:G:N3	1:0:776:G:C2'	2.79	0.46
1:0:1829:C:C2'	1:0:1830:C:H5'	2.45	0.46
1:0:207:U:H2'	1:0:208:C:C6	2.50	0.46
1:0:2393:G:H2'	1:0:2394:G:H8	1.80	0.46
1:0:1572:C:C3'	1:0:1573:G:H5''	2.45	0.46
1:0:2858:A:H3'	1:0:2859:U:C5'	2.44	0.46
1:0:595:A:H2	1:0:822:G:N3	2.14	0.46
1:0:1975:G:H4'	1:0:1976:U:H5	1.80	0.46
1:0:152:G:O2'	1:0:153:A:H5'	2.15	0.46
1:0:986:A:H2'	1:0:987:G:H5'	1.97	0.46
1:0:2437:G:H4'	1:0:2438:A:N7	2.30	0.46
1:0:878:C:O2'	1:0:879:A:P	2.72	0.46
1:0:1480:G:H2'	1:0:1481:U:H5'	1.98	0.46
1:0:236:C:O2	1:0:632:A:H1'	2.15	0.46
1:0:2448:A:H2'	1:0:2449:G:O4'	2.14	0.46
1:0:198:A:O2'	1:0:199:A:P	2.74	0.46
1:0:2783:U:O2'	1:0:2784:A:H4'	2.16	0.46
1:0:1495:G:H2'	1:0:1496:G:C8	2.51	0.46
1:0:798:G:H2'	1:0:799:C:H5'	1.97	0.46
1:0:1290:A:H2'	1:0:1291:G:C8	2.51	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2825:A:H2'	1:0:2826:C:C6	2.50	0.46
1:0:697:G:C2'	1:0:698:A:H5'	2.46	0.46
1:0:2717:G:H2'	1:0:2718:A:C8	2.51	0.46
1:0:387:A:H2'	1:0:388:G:O4'	2.16	0.46
1:0:2014:A:H62	1:0:2477:C:H1'	1.79	0.46
1:0:1496:G:H5'	1:0:1575:C:N4	2.30	0.46
1:0:1486:A:H2'	1:0:1487:C:C6	2.50	0.46
1:0:1579:G:H2'	1:0:1580:C:C6	2.51	0.46
1:0:2532:G:H1'	1:0:2561:G:C2	2.50	0.46
1:0:337:G:H2'	1:0:338:G:C8	2.51	0.46
1:0:2276:C:O2	1:0:2301:A:H1'	2.16	0.46
1:0:771:C:H2'	1:0:772:G:H8	1.80	0.46
1:0:2444:C:O2'	1:0:2445:C:H5'	2.16	0.46
1:0:887:G:O2'	1:0:888:G:H5'	2.15	0.46
1:0:2698:G:H2'	1:0:2699:G:C8	2.51	0.46
1:0:1140:A:N6	1:0:2469:G:H5''	2.31	0.46
1:0:2784:A:H3'	1:0:2785:A:C8	2.48	0.46
1:0:9:U:H2'	1:0:10:A:C8	2.51	0.46
1:0:85:C:O2'	1:0:86:U:H5'	2.16	0.46
1:0:2526:U:H2'	1:0:2527:G:C8	2.51	0.46
1:0:2533:U:H2'	1:0:2534:U:C6	2.51	0.46
1:0:1147:G:H2'	1:0:1148:G:C8	2.51	0.46
1:0:1452:U:H5'	1:0:1532:A:O2'	2.15	0.46
1:0:1223:G:H4'	1:0:1224:A:O5'	2.16	0.46
1:0:365:U:H2'	1:0:366:U:C6	2.51	0.46
1:0:324:C:H2'	1:0:325:U:O4'	2.15	0.46
1:0:1429:A:N6	1:0:1602:G:H5'	2.31	0.46
1:0:1301:U:H2'	1:0:1664:G:N2	2.30	0.46
1:0:2329:C:N4	1:0:2361:G:H22	2.14	0.46
1:0:738:G:H2'	1:0:739:G:O4'	2.15	0.46
1:0:2800:C:H2'	1:0:2801:A:O4'	2.15	0.46
1:0:636:G:H2'	1:0:637:G:H5'	1.97	0.46
1:0:1760:G:H2'	1:0:1761:G:C8	2.50	0.46
1:0:1962:C:O2'	1:0:1963:G:H5'	2.16	0.46
1:0:2426:G:HO2'	1:0:2427:A:P	2.39	0.46
1:0:2668:U:O2'	1:0:2669:C:P	2.74	0.46
1:0:689:A:C8	1:0:2422:C:H1'	2.51	0.46
1:0:1495:G:O2'	1:0:1496:G:P	2.73	0.46
1:0:952:A:H2'	1:0:953:G:O4'	2.16	0.46
1:0:2676:G:H2'	1:0:2677:U:C6	2.51	0.46
1:0:918:A:H2'	1:0:919:U:C5'	2.42	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2055:G:H2'	1:0:2056:C:C6	2.51	0.46
1:0:313:U:H2'	1:0:314:G:C8	2.50	0.46
1:0:1068:A:H2'	1:0:1069:G:H8	1.81	0.46
1:0:635:C:C3'	1:0:636:G:H5''	2.46	0.46
1:0:2333:A:H2'	1:0:2334:C:C6	2.51	0.46
1:0:1835:C:H2'	1:0:1836:C:C6	2.50	0.46
1:0:1836:C:H2'	1:0:1837:G:C8	2.50	0.46
1:0:932:G:H2'	1:0:933:G:C8	2.51	0.46
1:0:1427:G:C2'	1:0:1428:G:H5'	2.44	0.46
1:0:1279:G:H2'	1:0:1280:U:OP2	2.16	0.46
1:0:1278:A:H4'	1:0:1279:G:O5'	2.16	0.46
1:0:2459:C:C2'	1:0:2460:G:H5'	2.46	0.46
1:0:2093:G:H2'	1:0:2094:C:C5	2.51	0.46
1:0:2278:A:H2'	1:0:2279:G:H8	1.81	0.46
1:0:560:G:H2'	1:0:561:U:C6	2.50	0.46
1:0:2196:U:H2'	1:0:2197:U:C6	2.51	0.46
1:0:2633:A:N6	1:0:2646:C:N4	2.63	0.46
1:0:8:A:H2'	1:0:9:U:C6	2.50	0.46
1:0:567:G:H2'	1:0:568:G:C8	2.51	0.46
1:0:1029:C:H3'	1:0:1030:U:H5''	1.96	0.46
1:0:32:C:H2'	1:0:33:C:C6	2.51	0.46
1:0:1619:A:H3'	1:0:1619:A:N3	2.31	0.46
1:0:2161:C:H2'	1:0:2162:C:C6	2.50	0.46
1:0:19:C:H2'	1:0:20:C:C6	2.50	0.46
1:0:760:U:O2	1:0:1997:A:H1'	2.16	0.46
1:0:1120:C:H2'	1:0:2731:G:N2	2.31	0.46
1:0:1313:U:O2'	1:0:1314:A:O5'	2.32	0.45
1:0:130:C:H2'	1:0:131:C:C6	2.51	0.45
1:0:2259:G:H2'	1:0:2260:C:C6	2.51	0.45
1:0:1257:U:H2'	1:0:1258:G:C8	2.51	0.45
1:0:1685:A:N6	1:0:1691:G:H1'	2.31	0.45
1:0:632:A:C2'	1:0:633:G:H5'	2.46	0.45
1:0:1331:G:H2'	1:0:1332:G:C8	2.51	0.45
1:0:758:G:N2	1:0:763:A:N1	2.63	0.45
1:0:2558:C:O2'	1:0:2559:U:H5'	2.16	0.45
1:0:2093:G:O2'	1:0:2094:C:OP1	2.33	0.45
1:0:2628:C:H2'	1:0:2629:U:C6	2.51	0.45
1:0:2106:G:H2'	1:0:2107:G:C8	2.51	0.45
1:0:1966:C:H4'	1:0:2585:C:H4'	1.97	0.45
1:0:2018:G:H3'	1:0:2019:C:H5'	1.98	0.45
1:0:931:G:O2'	1:0:932:G:H5'	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1888:C:H5''	1:0:1889:G:C5'	2.46	0.45
1:0:1937:G:N3	1:0:2530:C:H5'	2.31	0.45
1:0:1380:C:C2'	1:0:1381:G:H5'	2.45	0.45
1:0:2193:C:H2'	1:0:2194:A:O4'	2.16	0.45
1:0:2493:U:H2'	1:0:2494:C:C6	2.52	0.45
1:0:2668:U:HO2'	1:0:2669:C:P	2.39	0.45
1:0:1747:G:H1'	1:0:1749:G:C2	2.51	0.45
1:0:872:G:O2'	1:0:2247:A:N3	2.48	0.45
1:0:2376:G:H2'	1:0:2377:U:C6	2.52	0.45
1:0:1949:A:O2'	1:0:2572:U:H5'	2.16	0.45
1:0:2022:C:H2'	1:0:2023:C:C6	2.51	0.45
1:0:1259:A:H2'	1:0:1260:A:H8	1.80	0.45
1:0:1886:G:H2'	1:0:1887:G:C8	2.51	0.45
1:0:601:A:H3'	1:0:602:C:C5'	2.46	0.45
1:0:1429:A:O2'	1:0:1430:G:H4'	2.16	0.45
1:0:2418:A:H1'	1:0:2565:C:H4'	1.97	0.45
1:0:2824:C:H1'	1:0:2843:A:C2	2.51	0.45
1:0:694:G:H2'	1:0:695:G:H8	1.81	0.45
1:0:199:A:H61	1:0:209:G:H1'	1.82	0.45
1:0:2862:G:O2'	1:0:2863:U:H5'	2.16	0.45
1:0:1703:C:H2'	1:0:1704:G:O4'	2.16	0.45
1:0:1906:U:H2'	1:0:1907:C:C6	2.51	0.45
1:0:187:U:H2'	1:0:188:G:C8	2.52	0.45
1:0:2475:C:H2'	1:0:2476:A:H5'	1.98	0.45
1:0:54:G:H2'	1:0:55:A:C8	2.51	0.45
1:0:2807:U:C5	1:0:2859:U:H4'	2.52	0.45
1:0:317:U:H3'	1:0:318:G:H5''	1.97	0.45
1:0:307:C:H2'	1:0:308:C:C6	2.52	0.45
1:0:675:C:H2'	1:0:676:G:C8	2.52	0.45
1:0:2600:A:H2'	1:0:2601:C:C6	2.52	0.45
1:0:40:U:H2'	1:0:41:G:C8	2.51	0.45
1:0:1223:G:O2'	1:0:1224:A:P	2.74	0.45
1:0:831:G:H5'	1:0:852:U:OP1	2.17	0.45
1:0:340:G:H1'	1:0:488:A:C4	2.52	0.45
1:0:489:A:N6	1:0:491:A:H62	2.14	0.45
1:0:1278:A:HO2'	1:0:1279:G:P	2.37	0.45
1:0:2709:C:H2'	1:0:2710:C:C6	2.51	0.45
1:0:845:U:H2'	1:0:846:A:H8	1.80	0.45
1:0:697:G:O2'	1:0:698:A:H5'	2.17	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

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:462:G:H2'	1:0:463:C:H5'	1.99	0.45
1:0:2475:C:C2'	1:0:2476:A:H5'	2.46	0.45
1:0:1770:U:H2'	1:0:1774:A:H62	1.81	0.45
1:0:2809:A:N6	1:0:2854:G:H2'	2.31	0.45
1:0:1886:G:H2'	1:0:1887:G:H8	1.82	0.45
1:0:1938:U:H2'	1:0:1939:U:H5'	1.97	0.45
1:0:13:A:H1'	1:0:536:A:H62	1.82	0.45
1:0:2694:G:H2'	1:0:2695:C:C6	2.52	0.45
1:0:306:G:H2'	1:0:307:C:C6	2.52	0.45
1:0:81:C:H4'	1:0:307:C:H5'	1.98	0.45
1:0:788:G:C5'	1:0:790:A:H1'	2.46	0.45
1:0:1586:A:H2'	1:0:1587:A:C8	2.52	0.45
1:0:2277:A:H2'	1:0:2278:A:O4'	2.16	0.45
1:0:2474:G:O2'	1:0:2475:C:H5'	2.16	0.45
1:0:1225:G:H2'	1:0:1249:G:H1	1.82	0.45
1:0:1286:U:H4'	1:0:1288:A:OP1	2.17	0.45
1:0:2204:A:O2'	1:0:2205:C:C6	2.69	0.45
1:0:421:G:H2'	1:0:422:C:C6	2.51	0.45
1:0:2524:G:H2'	1:0:2525:U:O4'	2.16	0.45
1:0:709:A:H2'	1:0:710:C:C6	2.52	0.45
1:0:529:U:H2'	1:0:530:G:C8	2.51	0.45
1:0:916:U:H2'	1:0:917:U:C6	2.52	0.45
1:0:1888:C:C5'	1:0:1889:G:H5''	2.45	0.45
1:0:192:G:H4'	1:0:193:A:O5'	2.16	0.45
1:0:1677:C:H2'	1:0:1678:G:H8	1.82	0.45
1:0:2321:C:C2'	1:0:2322:U:H5'	2.46	0.45
1:0:1712:G:C2'	1:0:1713:G:H5'	2.46	0.45
1:0:541:C:O2	1:0:2002:A:N1	2.50	0.45
1:0:1251:G:H2'	1:0:1252:C:H6	1.80	0.45
1:0:2639:A:H2'	1:0:2640:G:O4'	2.16	0.45
1:0:1494:G:H2'	1:0:1495:G:C8	2.51	0.45
1:0:2377:U:O2'	1:0:2378:G:OP1	2.33	0.45
1:0:1130:U:H2'	1:0:1131:G:C8	2.52	0.45
1:0:1163:C:O2'	1:0:1164:C:H5'	2.16	0.45
1:0:2205:C:H2'	1:0:2206:C:H6	1.80	0.45
1:0:211:U:C2'	1:0:212:U:H5'	2.46	0.45
1:0:811:G:O2'	1:0:812:G:H5'	2.17	0.45
1:0:1307:U:H2'	1:0:1308:C:O4'	2.17	0.45
1:0:2591:C:O2'	1:0:2592:U:H5'	2.17	0.45
1:0:2455:A:O2'	1:0:2456:U:H5'	2.17	0.45
1:0:58:C:O2	1:0:73:A:OP2	2.34	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2235:G:H2'	1:0:2236:U:H6	1.81	0.45
1:0:2159:A:H2'	1:0:2160:C:C6	2.52	0.45
1:0:1452:U:H5''	1:0:1533:G:H5'	1.99	0.45
1:0:1855:G:H4'	1:0:2390:A:H4'	1.99	0.45
1:0:699:G:H3'	1:0:699:G:N3	2.32	0.45
1:0:1888:C:C4'	1:0:1889:G:H5''	2.47	0.44
1:0:1937:G:H4'	1:0:2529:G:H21	1.81	0.44
1:0:1346:C:H2'	1:0:1347:C:C6	2.52	0.44
1:0:1628:C:H2'	1:0:1629:G:C8	2.52	0.44
1:0:2512:A:H2'	1:0:2513:A:O4'	2.17	0.44
1:0:1007:A:H2'	1:0:1008:G:C8	2.52	0.44
1:0:1608:U:H2'	1:0:1609:G:C8	2.52	0.44
1:0:1367:A:H2'	1:0:1368:G:O4'	2.17	0.44
1:0:2429:A:O2'	1:0:2430:A:H5'	2.16	0.44
1:0:582:G:H2'	1:0:583:C:H3'	2.00	0.44
1:0:1204:G:H2'	1:0:1205:G:C8	2.52	0.44
1:0:837:U:H2'	1:0:838:A:C8	2.53	0.44
1:0:2239:C:O2'	1:0:2240:C:H5'	2.17	0.44
1:0:1291:G:H2'	1:0:1292:A:C8	2.52	0.44
1:0:653:G:H21	1:0:655:A:H1'	1.81	0.44
1:0:331:U:H2'	1:0:332:C:H5''	1.98	0.44
1:0:1859:A:H2'	1:0:1860:A:C8	2.53	0.44
1:0:1777:A:H5'	1:0:1963:G:H21	1.82	0.44
1:0:968:C:H2'	1:0:970:A:OP1	2.18	0.44
1:0:2120:C:H2'	1:0:2121:U:O4'	2.18	0.44
1:0:2668:U:C2'	1:0:2669:C:OP2	2.66	0.44
1:0:2510:A:N6	1:0:2641:A:H61	2.10	0.44
1:0:69:G:O2'	1:0:70:A:C8	2.66	0.44
1:0:514:G:C2'	1:0:514:G:N3	2.79	0.44
1:0:117:A:H4'	1:0:118:U:C6	2.53	0.44
1:0:736:G:H2'	1:0:737:C:O4'	2.17	0.44
1:0:237:G:H2'	1:0:238:G:O4'	2.17	0.44
1:0:245:C:H5'	1:0:372:U:O2'	2.17	0.44
1:0:935:C:H2'	1:0:936:A:C8	2.52	0.44
1:0:403:A:H4'	1:0:425:A:C5'	2.39	0.44
1:0:2227:C:C2'	1:0:2228:U:H5'	2.41	0.44
1:0:2240:C:H2'	1:0:2241:U:H5'	1.98	0.44
1:0:437:G:O2'	1:0:438:G:H5'	2.16	0.44
1:0:2393:G:H2'	1:0:2394:G:C8	2.53	0.44
1:0:1002:C:H2'	1:0:1003:C:C6	2.53	0.44
1:0:2002:A:H61	1:0:2018:G:N2	2.16	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2712:G:H5'	1:0:2713:A:C8	2.52	0.44
1:0:192:G:O2'	1:0:193:A:C5'	2.66	0.44
1:0:1278:A:O2'	1:0:1279:G:O5'	2.35	0.44
1:0:604:U:H2'	1:0:605:G:H8	1.82	0.44
1:0:644:A:H2'	1:0:645:G:H5'	1.99	0.44
1:0:1821:A:H5''	1:0:1822:C:C5	2.52	0.44
1:0:2136:G:H2'	1:0:2137:G:C8	2.52	0.44
1:0:2619:G:H2'	1:0:2620:G:C8	2.53	0.44
1:0:1319:C:H2'	1:0:1320:A:H8	1.82	0.44
1:0:2860:C:H2'	1:0:2861:A:O4'	2.18	0.44
1:0:1016:C:H5''	1:0:1023:U:OP2	2.18	0.44
1:0:575:U:H4'	1:0:822:G:OP2	2.17	0.44
1:0:210:A:N6	1:0:442:A:N6	2.66	0.44
1:0:2824:C:H2'	1:0:2825:A:OP2	2.17	0.44
1:0:2161:C:O2'	1:0:2162:C:OP1	2.34	0.44
1:0:2094:C:C4	1:0:2103:G:H1'	2.53	0.44
1:0:1008:G:H2'	1:0:1009:C:C6	2.52	0.44
1:0:715:U:H2'	1:0:716:U:C6	2.52	0.44
1:0:23:G:H2'	1:0:24:G:C8	2.53	0.44
1:0:1840:A:H2'	1:0:1841:G:H5'	2.00	0.44
1:0:520:C:O2'	1:0:1249:G:H5''	2.18	0.44
1:0:1917:C:H2'	1:0:1918:G:H5'	2.00	0.44
1:0:1353:A:H1'	1:0:1619:A:O4'	2.17	0.44
1:0:1614:C:H2'	1:0:1615:C:C6	2.52	0.44
1:0:114:C:H4'	1:0:124:A:O2'	2.17	0.44
1:0:1912:G:C2'	1:0:1912:G:N3	2.79	0.44
1:0:2574:G:N3	1:0:2574:G:C2'	2.80	0.44
1:0:1605:A:H2'	1:0:1606:C:C6	2.53	0.44
1:0:63:A:O2'	1:0:64:C:H5'	2.18	0.44
1:0:701:U:H2'	1:0:702:A:O4'	2.18	0.44
1:0:841:G:H4'	1:0:844:G:N1	2.33	0.44
1:0:2458:U:OP1	1:0:2516:U:H1'	2.18	0.44
1:0:959:C:H2'	1:0:960:U:C6	2.53	0.44
1:0:37:C:H2'	1:0:38:G:C8	2.53	0.44
1:0:475:U:H2'	1:0:476:G:O4'	2.17	0.44
1:0:351:A:H2'	1:0:352:G:O4'	2.18	0.44
1:0:1504:G:O2'	1:0:1505:U:H5'	2.18	0.44
1:0:2265:A:H5''	1:0:2266:A:O4'	2.18	0.44
1:0:147:G:C2	1:0:148:C:H1'	2.53	0.44
1:0:2017:U:O2'	1:0:2018:G:H5'	2.17	0.44
1:0:2635:U:H2'	1:0:2636:A:C8	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:67:G:C6	1:0:72:A:C2	3.05	0.44
1:0:838:A:H4'	1:0:2407:G:C5	2.53	0.44
1:0:181:A:C4'	1:0:182:G:H4'	2.46	0.44
1:0:2369:U:H2'	1:0:2370:G:C8	2.53	0.44
1:0:1750:A:H1'	1:0:2690:A:C2	2.52	0.44
1:0:1899:A:O2'	1:0:1946:U:H1'	2.18	0.44
1:0:91:A:H2'	1:0:92:U:C6	2.53	0.44
1:0:1155:G:H2'	1:0:1156:U:O4'	2.18	0.44
1:0:584:A:H4'	1:0:2479:U:C5'	2.46	0.43
1:0:1312:G:H5''	1:0:1313:U:C5'	2.36	0.43
1:0:1017:C:H2'	1:0:1018:C:O4'	2.17	0.43
1:0:1880:G:H2'	1:0:1881:U:C6	2.53	0.43
1:0:2484:G:H3'	1:0:2555:G:H1	1.83	0.43
1:0:192:G:H4'	1:0:193:A:H4'	1.99	0.43
1:0:415:A:C2'	1:0:416:U:H5'	2.47	0.43
1:0:2620:G:H2'	1:0:2621:G:H8	1.83	0.43
1:0:716:U:H2'	1:0:717:G:O4'	2.18	0.43
1:0:508:G:H2'	1:0:509:U:C6	2.52	0.43
1:0:1466:C:H2'	1:0:1467:U:O4'	2.17	0.43
1:0:925:U:H4'	1:0:926:C:C6	2.53	0.43
1:0:1480:G:C2'	1:0:1481:U:H5'	2.47	0.43
1:0:2310:G:H2'	1:0:2311:U:O4'	2.18	0.43
1:0:859:U:H4'	1:0:860:U:C5	2.54	0.43
1:0:694:G:H2'	1:0:695:G:C8	2.53	0.43
1:0:2392:G:H2'	1:0:2393:G:C8	2.53	0.43
1:0:1961:A:H2'	1:0:1962:C:O4'	2.18	0.43
1:0:187:U:H2'	1:0:188:G:H8	1.82	0.43
1:0:2680:U:H3'	1:0:2681:A:C5'	2.47	0.43
1:0:1518:C:O2'	1:0:1519:G:P	2.76	0.43
1:0:2356:A:H2'	1:0:2357:A:C8	2.53	0.43
1:0:242:A:O2'	1:0:243:G:OP2	2.37	0.43
1:0:634:G:H2'	1:0:635:C:C6	2.53	0.43
1:0:987:G:H2'	1:0:988:G:H8	1.83	0.43
1:0:55:A:N6	1:0:69:G:O6	2.51	0.43
1:0:88:G:H3'	1:0:89:A:C5'	2.41	0.43
1:0:173:A:N3	1:0:173:A:C2'	2.81	0.43
1:0:575:U:H2'	1:0:576:A:C8	2.53	0.43
1:0:420:C:H2'	1:0:421:G:C8	2.53	0.43
1:0:1055:A:H2	1:0:1121:G:H2'	1.84	0.43
1:0:547:U:H2'	1:0:548:G:C8	2.53	0.43
1:0:2795:A:N3	1:0:2795:A:H2'	2.32	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2002:A:H61	1:0:2018:G:H21	1.67	0.43
1:0:2785:A:H2'	1:0:2786:G:O4'	2.18	0.43
1:0:2245:A:HO2'	1:0:2246:A:P	2.41	0.43
1:0:840:U:H4'	1:0:841:G:C2	2.53	0.43
1:0:543:G:H2'	1:0:544:U:C6	2.53	0.43
1:0:215:G:H1'	1:0:617:U:O2	2.19	0.43
1:0:1326:U:H4'	1:0:1345:G:H4'	2.01	0.43
1:0:1975:G:H1'	1:0:1977:C:N4	2.33	0.43
1:0:1075:C:H2'	1:0:1076:U:C6	2.54	0.43
1:0:1561:A:H2'	1:0:1562:G:O4'	2.18	0.43
1:0:2034:A:N6	1:0:2593:A:N7	2.66	0.43
1:0:814:G:H3'	1:0:815:A:C5'	2.49	0.43
1:0:520:C:H2'	1:0:521:U:O4'	2.19	0.43
1:0:871:U:H1'	1:0:2248:A:C5'	2.47	0.43
1:0:984:A:H2'	1:0:1200:G:N2	2.32	0.43
1:0:2757:G:H5'	1:0:2761:A:C1'	2.49	0.43
1:0:168:A:H2'	1:0:169:C:H6	1.83	0.43
1:0:338:G:H2'	1:0:339:U:O4'	2.19	0.43
1:0:594:G:N2	1:0:1267:A:H62	2.16	0.43
1:0:1031:C:H4'	1:0:1032:A:C8	2.54	0.43
1:0:2276:C:O2'	1:0:2277:A:H5'	2.19	0.43
1:0:967:G:H1'	1:0:970:A:N7	2.34	0.43
1:0:762:A:H5'	1:0:1284:G:H1'	1.99	0.43
1:0:2874:A:H2'	1:0:2875:C:C6	2.54	0.43
1:0:1187:A:HO2'	1:0:1188:A:P	2.40	0.43
1:0:878:C:HO2'	1:0:879:A:P	2.42	0.43
1:0:1918:G:H4'	1:0:1920:A:C2	2.54	0.43
1:0:322:A:H1'	1:0:343:A:N7	2.33	0.43
1:0:1271:C:H2'	1:0:1272:G:C8	2.54	0.43
1:0:457:C:O2'	1:0:458:G:H5'	2.19	0.43
1:0:2772:U:H2'	1:0:2773:G:C8	2.53	0.43
1:0:3:U:H2'	1:0:4:C:C6	2.53	0.43
1:0:1227:A:H62	1:0:1248:G:H21	1.66	0.43
1:0:2244:C:H1'	1:0:2255:G:N1	2.34	0.43
1:0:820:U:H2'	1:0:821:A:C8	2.53	0.43
1:0:2572:U:C4	1:0:2573:C:N4	2.87	0.43
1:0:1665:C:H2'	1:0:1666:G:C8	2.54	0.43
1:0:1518:C:C2'	1:0:1519:G:O5'	2.67	0.43
1:0:2213:G:H2'	1:0:2214:G:H8	1.84	0.43
1:0:2436:U:H2'	1:0:2437:G:O4'	2.19	0.43
1:0:2786:G:H2'	1:0:2787:A:C8	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2785:A:O2'	1:0:2786:G:H5'	2.19	0.43
1:0:953:G:H4'	1:0:1203:A:O2'	2.19	0.43
1:0:820:U:H1'	1:0:2424:G:OP1	2.18	0.43
1:0:2225:G:O2'	1:0:2226:A:H5'	2.19	0.43
1:0:1478:U:H2'	1:0:1479:G:C8	2.54	0.43
1:0:1194:U:H2'	1:0:1195:U:H6	1.79	0.43
1:0:1604:A:H2'	1:0:1605:A:O4'	2.19	0.43
1:0:2292:C:H2'	1:0:2293:G:C8	2.54	0.43
1:0:722:C:H2'	1:0:723:C:C6	2.54	0.43
1:0:2497:A:N3	1:0:2497:A:O5'	2.52	0.43
1:0:181:A:C5'	1:0:182:G:OP1	2.62	0.43
1:0:201:G:H2'	1:0:202:A:H8	1.84	0.43
1:0:1193:G:O2'	1:0:1194:U:P	2.76	0.43
1:0:17:G:N2	1:0:564:U:H5''	2.33	0.43
1:0:653:G:C2	1:0:655:A:H1'	2.54	0.43
1:0:758:G:N3	1:0:763:A:N6	2.64	0.43
1:0:810:U:H2'	1:0:811:G:H8	1.83	0.43
1:0:2602:G:OP1	1:0:2801:A:H1'	2.19	0.43
1:0:1532:A:H2'	1:0:1533:G:C8	2.53	0.43
1:0:2033:C:H2'	1:0:2034:A:O4'	2.18	0.43
1:0:607:C:H2'	1:0:608:G:C8	2.54	0.43
1:0:541:C:H42	1:0:572:G:C1'	2.32	0.42
1:0:128:C:C3'	1:0:129:A:H5''	2.49	0.42
1:0:1292:A:H2'	1:0:1293:A:H8	1.84	0.42
1:0:2808:U:H3'	1:0:2809:A:C5'	2.47	0.42
1:0:538:A:C3'	1:0:539:A:H5''	2.49	0.42
1:0:1790:G:O3'	1:0:1791:C:H6	2.02	0.42
1:0:342:G:H2'	1:0:343:A:C5'	2.48	0.42
1:0:1938:U:H3'	1:0:2530:C:O2'	2.19	0.42
1:0:1341:G:N2	1:0:1664:G:H1	2.15	0.42
1:0:211:U:H2'	1:0:212:U:O4'	2.19	0.42
1:0:1743:C:H2'	1:0:1744:G:C8	2.54	0.42
1:0:1591:U:H2'	1:0:1592:U:O4'	2.18	0.42
1:0:54:G:H2'	1:0:55:A:H8	1.84	0.42
1:0:63:A:N6	1:0:89:A:N1	2.68	0.42
1:0:2083:G:H22	1:0:2172:U:H3	1.66	0.42
1:0:121:G:H2'	1:0:122:G:O4'	2.19	0.42
1:0:1455:C:HO2'	1:0:1644:G:H5''	1.85	0.42
1:0:1634:A:O2'	1:0:1635:G:H5'	2.18	0.42
1:0:242:A:N6	1:0:441:A:N7	2.66	0.42
1:0:944:A:H2'	1:0:945:G:O4'	2.19	0.42

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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	0.42
1:0:616:U:C3'	1:0:617:U:H5''	2.50	0.42
1:0:1500:U:H2'	1:0:1501:C:C6	2.55	0.42
1:0:189:A:H2'	1:0:190:A:C8	2.54	0.42
1:0:509:U:H2'	1:0:510:G:O4'	2.19	0.42
1:0:2615:U:H3	1:0:2762:G:H1	1.66	0.42
1:0:1801:C:H3'	1:0:1802:A:H5'	2.01	0.42
1:0:2133:G:H2'	1:0:2134:U:C6	2.55	0.42
1:0:2261:G:H4'	1:0:2368:G:O2'	2.20	0.42
1:0:2380:U:C2'	1:0:2381:A:H5'	2.44	0.42
1:0:532:A:H2'	1:0:533:C:C6	2.55	0.42
1:0:192:G:O2'	1:0:193:A:P	2.77	0.42
1:0:2500:C:H4'	1:0:2544:A:C4'	2.49	0.42
1:0:860:U:O2	1:0:860:U:H2'	2.18	0.42
1:0:415:A:O2'	1:0:416:U:H5'	2.20	0.42
1:0:1566:G:H2'	1:0:1567:A:C8	2.54	0.42
1:0:1762:C:H2'	1:0:1763:G:C8	2.54	0.42
1:0:1057:A:H3'	1:0:1058:G:H5'	2.00	0.42
1:0:786:U:H2'	1:0:787:A:H5'	2.01	0.42
1:0:764:A:H3'	1:0:764:A:N3	2.34	0.42
1:0:2473:G:O2'	1:0:2474:G:H5'	2.19	0.42
1:0:2640:G:H2'	1:0:2641:A:O4'	2.18	0.42
1:0:879:A:C2'	1:0:880:C:H5'	2.49	0.42
1:0:1193:G:O2'	1:0:1194:U:OP1	2.36	0.42
1:0:1029:C:C2'	1:0:1030:U:H5''	2.49	0.42
1:0:1626:A:H5''	1:0:1627:C:OP2	2.20	0.42
1:0:1917:C:C2'	1:0:1918:G:H5'	2.49	0.42
1:0:1499:A:H2'	1:0:1500:U:C6	2.54	0.42
1:0:192:G:O2'	1:0:193:A:H5''	2.19	0.42
1:0:521:U:C2'	1:0:522:G:H5'	2.50	0.42
1:0:2633:A:H61	1:0:2646:C:N4	2.18	0.42
1:0:404:A:H1'	1:0:424:G:O2'	2.19	0.42
1:0:178:C:H4'	1:0:399:G:C2	2.55	0.42
1:0:652:C:N4	1:0:657:A:H61	2.09	0.42
1:0:878:C:O2'	1:0:879:A:OP1	2.35	0.42
1:0:2217:G:N3	1:0:2217:G:C2'	2.83	0.42
1:0:2555:G:N3	1:0:2555:G:H3'	2.35	0.42
1:0:81:C:O2'	1:0:82:G:H5'	2.20	0.42
1:0:2250:G:O2'	1:0:2251:U:H5'	2.20	0.42
1:0:1274:C:O2'	1:0:1275:A:H5'	2.19	0.42
1:0:1358:C:H2'	1:0:1359:G:H5'	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2710:C:O2'	1:0:2711:G:H5'	2.19	0.42
1:0:198:A:O2'	1:0:199:A:OP2	2.30	0.42
1:0:1451:C:H2'	1:0:1452:U:C6	2.54	0.42
1:0:1489:C:H3'	1:0:1490:U:C5'	2.50	0.42
1:0:2594:U:H2'	1:0:2595:C:C6	2.55	0.42
1:0:1168:G:H2'	1:0:1169:C:C6	2.54	0.42
1:0:2633:A:H5''	1:0:2634:G:OP1	2.20	0.42
1:0:1332:G:H2'	1:0:1333:G:O4'	2.20	0.42
1:0:1343:C:H2'	1:0:1344:C:C6	2.55	0.42
1:0:2161:C:H2'	1:0:2162:C:C5	2.55	0.42
1:0:2658:A:H2'	1:0:2659:C:H6	1.84	0.42
1:0:1143:A:H2'	1:0:1144:U:C6	2.55	0.42
1:0:1708:C:H2'	1:0:1709:U:O4'	2.19	0.42
1:0:2463:G:O2'	1:0:2464:G:H5'	2.20	0.42
1:0:1930:C:H2'	1:0:1931:G:C8	2.55	0.42
1:0:1495:G:O2'	1:0:1496:G:OP1	2.35	0.42
1:0:172:A:N3	1:0:227:G:N2	2.66	0.42
1:0:1957:C:O2'	1:0:1958:G:H5'	2.19	0.42
1:0:1225:G:H2'	1:0:1249:G:N1	2.34	0.42
1:0:871:U:O2	1:0:2247:A:H2'	2.19	0.42
1:0:119:G:H1'	1:0:129:A:N1	2.35	0.42
1:0:319:G:H1'	1:0:511:A:H5'	2.01	0.42
1:0:1807:A:O2'	1:0:1808:C:C4'	2.64	0.42
1:0:1016:C:H2'	1:0:1017:C:H6	1.85	0.42
1:0:1030:U:OP1	1:0:1046:U:H1'	2.20	0.42
1:0:2217:G:H5'	1:0:2219:U:O4	2.19	0.42
1:0:1033:G:N2	1:0:1150:C:H2'	2.30	0.42
1:0:14:A:H2	1:0:2604:G:O2'	2.03	0.42
1:0:48:A:O5'	1:0:50:G:H4'	2.20	0.42
1:0:579:G:H2'	1:0:2013:A:H62	1.85	0.42
1:0:2581:A:H2'	1:0:2582:G:OP1	2.20	0.42
1:0:2027:C:H2'	1:0:2028:C:C6	2.55	0.42
1:0:987:G:H2'	1:0:988:G:C8	2.55	0.42
1:0:1836:C:H2'	1:0:1837:G:H8	1.84	0.42
1:0:2245:A:C2'	1:0:2246:A:OP2	2.67	0.42
1:0:2633:A:H4'	1:0:2634:G:C4'	2.40	0.42
1:0:820:U:H5'	1:0:2424:G:H4'	2.00	0.42
1:0:617:U:H2'	1:0:618:A:O4'	2.19	0.42
1:0:239:A:H5'	1:0:619:A:O2'	2.19	0.42
1:0:566:U:H2'	1:0:567:G:C8	2.55	0.42
1:0:1028:G:H2'	1:0:1029:C:H6	1.85	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1046:U:H2'	1:0:1047:G:H8	1.85	0.42
1:0:2576:G:H2'	1:0:2577:A:C8	2.55	0.42
1:0:322:A:H2	1:0:342:G:OP2	2.02	0.42
1:0:2311:U:HO2'	1:0:2312:A:H8	1.63	0.42
1:0:1065:A:H2'	1:0:1066:G:C8	2.55	0.42
1:0:2032:G:O2'	1:0:2033:C:H5'	2.20	0.42
1:0:2778:U:O2'	1:0:2779:C:H5'	2.19	0.42
1:0:73:A:H4'	1:0:74:G:O4'	2.20	0.42
1:0:1479:G:H2'	1:0:1480:G:C8	2.54	0.42
1:0:438:G:H2'	1:0:439:C:C6	2.54	0.42
1:0:644:A:H2'	1:0:645:G:O4'	2.20	0.42
1:0:1671:A:H2'	1:0:1672:A:H8	1.85	0.42
1:0:1231:A:H2'	1:0:1232:U:O4'	2.19	0.42
1:0:328:A:O2'	1:0:329:C:H5'	2.20	0.42
1:0:354:C:H2'	1:0:355:G:O4'	2.20	0.42
1:0:2768:C:H1'	1:0:2784:A:N7	2.35	0.41
1:0:833:A:H2'	1:0:834:A:C8	2.54	0.41
1:0:2220:A:H2'	1:0:2221:G:H8	1.85	0.41
1:0:533:C:H1'	1:0:563:U:O2'	2.20	0.41
1:0:1921:A:C3'	1:0:1922:U:H5''	2.50	0.41
1:0:430:C:H2'	1:0:431:G:C8	2.55	0.41
1:0:2028:C:O2'	1:0:2029:G:H5'	2.20	0.41
1:0:635:C:H2'	1:0:636:G:H5''	2.01	0.41
1:0:327:C:O2'	1:0:328:A:H5'	2.20	0.41
1:0:1448:A:H2'	1:0:1449:C:C6	2.55	0.41
1:0:956:A:N3	1:0:956:A:H2'	2.35	0.41
1:0:2470:U:H1'	1:0:2548:G:O3'	2.19	0.41
1:0:65:C:C3'	1:0:66:U:H5'	2.49	0.41
1:0:2056:C:H2'	1:0:2057:U:H6	1.85	0.41
1:0:315:G:H2'	1:0:316:C:C6	2.55	0.41
1:0:2320:G:H2'	1:0:2321:C:C6	2.55	0.41
1:0:1829:C:O2'	1:0:1910:A:H1'	2.20	0.41
1:0:827:C:H2'	1:0:828:C:C6	2.55	0.41
1:0:649:G:H2'	1:0:650:U:C6	2.55	0.41
1:0:646:C:O2'	1:0:650:U:H5''	2.20	0.41
1:0:2448:A:C2'	1:0:2449:G:H5'	2.49	0.41
1:0:1962:C:H2'	1:0:1963:G:H8	1.85	0.41
1:0:607:C:H2'	1:0:608:G:H8	1.84	0.41
1:0:1172:U:H2'	1:0:1173:G:C8	2.55	0.41
1:0:2011:U:H2'	1:0:2012:A:C8	2.56	0.41
1:0:2546:G:H2'	1:0:2547:C:C6	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1956:G:H2'	1:0:1957:C:O4'	2.20	0.41
1:0:2502:G:H2'	1:0:2503:G:H8	1.85	0.41
1:0:1354:A:C2	1:0:1411:C:H4'	2.55	0.41
1:0:2392:G:H2'	1:0:2393:G:H8	1.85	0.41
1:0:1026:U:H2'	1:0:1027:C:C6	2.56	0.41
1:0:2348:A:H2'	1:0:2349:G:C8	2.54	0.41
1:0:2836:U:H2'	1:0:2837:G:C8	2.55	0.41
1:0:1557:G:H2'	1:0:1558:C:C6	2.55	0.41
1:0:831:G:H2'	1:0:832:A:H5''	2.02	0.41
1:0:930:A:H3'	1:0:931:G:H8	1.85	0.41
1:0:591:G:H2'	1:0:592:G:C8	2.56	0.41
1:0:1888:C:H2'	1:0:1913:G:C6	2.56	0.41
1:0:1341:G:N2	1:0:1343:C:H1'	2.35	0.41
1:0:1281:A:N6	1:0:1995:G:O2'	2.53	0.41
1:0:1671:A:C1'	1:0:2798:A:H5'	2.50	0.41
1:0:1594:U:H2'	1:0:1595:A:C8	2.56	0.41
1:0:1177:U:H2'	1:0:1178:C:C6	2.55	0.41
1:0:925:U:H5''	1:0:926:C:OP1	2.20	0.41
1:0:488:A:H2'	1:0:489:A:C8	2.55	0.41
1:0:1286:U:H2'	1:0:2692:A:H2	1.85	0.41
1:0:1193:G:HO2'	1:0:1194:U:P	2.43	0.41
1:0:513:A:C4'	1:0:515:A:H5'	2.48	0.41
1:0:2057:U:H2'	1:0:2058:U:H6	1.86	0.41
1:0:2217:G:H4'	1:0:2219:U:C5	2.56	0.41
1:0:158:A:H2'	1:0:159:A:H8	1.85	0.41
1:0:2487:G:H4'	1:0:2533:U:O2'	2.20	0.41
1:0:1402:G:H2'	1:0:1403:U:O4'	2.21	0.41
1:0:2076:G:H2'	1:0:2077:G:C8	2.54	0.41
1:0:1329:U:H2'	1:0:1330:G:C8	2.56	0.41
1:0:1722:G:H2'	1:0:1723:U:C6	2.55	0.41
1:0:1140:A:H2	1:0:2548:G:HO2'	1.67	0.41
1:0:798:G:OP2	1:0:805:G:N7	2.53	0.41
1:0:1656:U:O2'	1:0:2678:C:H4'	2.21	0.41
1:0:1189:G:O2'	1:0:1190:C:H5'	2.21	0.41
1:0:2096:U:C2'	1:0:2097:A:H5''	2.44	0.41
1:0:317:U:H3'	1:0:318:G:C5'	2.51	0.41
1:0:2321:C:H2'	1:0:2322:U:H5'	2.02	0.41
1:0:669:G:H2'	1:0:670:U:H6	1.84	0.41
1:0:628:A:H2'	1:0:629:C:H6	1.82	0.41
1:0:2515:G:H2'	1:0:2516:U:C6	2.55	0.41
1:0:1365:U:H5'	1:0:1587:A:H1'	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2871:U:H2'	1:0:2872:U:H6	1.85	0.41
1:0:2698:G:H2'	1:0:2699:G:O4'	2.20	0.41
1:0:2740:C:O2'	1:0:2741:G:H5'	2.20	0.41
1:0:28:A:H2'	1:0:29:U:C6	2.55	0.41
1:0:2015:G:OP2	1:0:2434:G:H5'	2.21	0.41
1:0:690:A:O2'	1:0:691:C:H5'	2.21	0.41
1:0:67:G:C4	1:0:73:A:C8	3.08	0.41
1:0:2245:A:O2'	1:0:2246:A:P	2.79	0.41
1:0:964:A:H1'	1:0:2245:A:OP2	2.20	0.41
1:0:964:A:H2'	1:0:965:G:H8	1.85	0.41
1:0:2586:G:H2'	1:0:2587:G:O4'	2.21	0.41
1:0:2378:G:H2'	1:0:2379:G:C8	2.55	0.41
1:0:2056:C:H2'	1:0:2057:U:C6	2.56	0.41
1:0:2058:U:H3'	1:0:2217:G:N1	2.36	0.41
1:0:1464:A:H4'	1:0:1545:G:C4'	2.51	0.41
1:0:2780:A:H2'	1:0:2781:G:C8	2.56	0.41
1:0:639:G:O2'	1:0:640:C:H5'	2.21	0.41
1:0:474:G:N2	1:0:476:G:H3'	2.36	0.41
1:0:2795:A:N3	1:0:2795:A:C2'	2.83	0.41
1:0:2467:A:H2'	1:0:2468:G:C8	2.55	0.41
1:0:688:A:H1'	1:0:2422:C:O2'	2.21	0.41
1:0:873:U:C2	1:0:2246:A:H5''	2.55	0.41
1:0:874:A:H2'	1:0:875:G:H5'	2.03	0.41
1:0:808:C:H2'	1:0:809:C:C6	2.56	0.41
1:0:2083:G:N2	1:0:2172:U:H3	2.18	0.41
1:0:2226:A:H2'	1:0:2227:C:H6	1.86	0.41
1:0:1787:U:H2'	1:0:1788:C:C6	2.56	0.41
1:0:314:G:H2'	1:0:315:G:H8	1.86	0.41
1:0:307:C:H2'	1:0:308:C:H6	1.86	0.41
1:0:82:G:O2'	1:0:83:A:H5'	2.21	0.41
1:0:1900:U:H2'	1:0:1901:A:H5'	2.03	0.41
1:0:857:U:C2'	1:0:858:G:H5'	2.50	0.41
1:0:1415:C:O2'	1:0:1416:A:H5'	2.21	0.41
1:0:2597:G:H2'	1:0:2598:C:C6	2.56	0.41
1:0:139:A:H2'	1:0:140:G:C8	2.55	0.41
1:0:1313:U:O2'	1:0:1314:A:OP2	2.39	0.41
1:0:868:U:H2'	1:0:869:C:H6	1.85	0.41
1:0:2200:G:H2'	1:0:2201:G:C8	2.56	0.41
1:0:2059:U:H5	1:0:2575:U:N3	2.08	0.41
1:0:1621:C:C4'	1:0:1626:A:H61	2.31	0.41
1:0:2758:A:H5''	1:0:2759:U:C5	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1685:A:O2'	1:0:1686:A:O5'	2.39	0.41
1:0:2326:C:H2'	1:0:2327:U:C6	2.56	0.41
1:0:2555:G:C2'	1:0:2555:G:N3	2.83	0.41
1:0:1887:G:O2'	1:0:1888:C:H5'	2.21	0.41
1:0:1676:U:H2'	1:0:1677:C:C6	2.56	0.41
1:0:2312:A:H1'	1:0:2314:A:N9	2.35	0.41
1:0:2564:U:C4'	1:0:2565:C:H5'	2.50	0.41
1:0:1221:C:H2'	1:0:1222:G:H8	1.85	0.41
1:0:2824:C:HO2'	1:0:2825:A:P	2.43	0.41
1:0:978:U:H2'	1:0:979:A:C8	2.55	0.41
1:0:1098:G:H21	1:0:1100:G:H4'	1.86	0.41
1:0:2651:U:H2'	1:0:2652:G:H8	1.86	0.41
1:0:40:U:H2'	1:0:41:G:H8	1.86	0.41
1:0:2390:A:H2'	1:0:2391:A:C8	2.56	0.41
1:0:853:C:H2'	1:0:854:G:C8	2.56	0.41
1:0:2811:G:H2'	1:0:2812:A:C8	2.56	0.41
1:0:1985:G:H2'	1:0:1986:G:C8	2.56	0.41
1:0:1944:C:H2'	1:0:1945:C:O4'	2.21	0.41
1:0:769:C:H2'	1:0:770:U:O4'	2.20	0.41
1:0:2383:C:H2'	1:0:2384:G:O4'	2.20	0.41
1:0:1084:A:H4'	1:0:2454:C:OP1	2.20	0.41
1:0:689:A:H8	1:0:2422:C:H1'	1.85	0.41
1:0:691:C:H2'	1:0:692:C:C6	2.56	0.41
1:0:229:G:H2'	1:0:230:C:C6	2.56	0.41
1:0:218:A:H1'	1:0:220:U:C4	2.56	0.41
1:0:729:A:O2'	1:0:730:C:H5'	2.21	0.41
1:0:314:G:H2'	1:0:315:G:C8	2.55	0.41
1:0:1337:G:H1'	1:0:1632:A:C6	2.56	0.41
1:0:1586:A:H2'	1:0:1587:A:H8	1.86	0.41
1:0:2134:U:H2'	1:0:2135:C:C6	2.56	0.41
1:0:1302:C:H2'	1:0:1303:U:C6	2.56	0.41
1:0:1242:A:H2'	1:0:1243:G:C8	2.55	0.41
1:0:6:A:H2'	1:0:7:G:C8	2.56	0.41
1:0:1142:G:OP1	1:0:2494:C:H4'	2.21	0.40
1:0:27:G:N2	1:0:522:G:HO2'	2.19	0.40
1:0:2241:U:H4'	1:0:2307:A:C2	2.56	0.40
1:0:1528:C:H3'	1:0:1529:C:H5''	2.03	0.40
1:0:1888:C:H4'	1:0:1889:G:H5''	2.02	0.40
1:0:305:A:H2'	1:0:306:G:O4'	2.21	0.40
1:0:2824:C:C2'	1:0:2825:A:OP2	2.70	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)
1:0:1532:A:H2'	1:0:1533:G:H8	1.86	0.40
1:0:1594:U:H2'	1:0:1595:A:H8	1.86	0.40
1:0:1617:G:H2'	1:0:1618:U:H5'	2.03	0.40
1:0:540:G:O6	1:0:2006:G:OP1	2.40	0.40
1:0:713:G:H2'	1:0:714:G:C8	2.56	0.40
1:0:185:C:H2'	1:0:186:C:C6	2.56	0.40
1:0:2048:C:H2'	1:0:2049:C:H6	1.86	0.40
1:0:1398:G:H2'	1:0:1399:C:C6	2.56	0.40
1:0:930:A:H5'	1:0:931:G:N7	2.37	0.40
1:0:838:A:H4'	1:0:2407:G:C6	2.57	0.40
1:0:2432:A:H4'	1:0:2551:A:O2'	2.21	0.40
1:0:2432:A:O2'	1:0:2433:G:H5'	2.20	0.40
1:0:2500:C:H4'	1:0:2544:A:O4'	2.21	0.40
1:0:856:A:H2'	1:0:857:U:O4'	2.20	0.40
1:0:758:G:H2'	1:0:761:G:N3	2.36	0.40
1:0:1446:U:H2'	1:0:1447:U:C6	2.55	0.40
1:0:477:A:H2'	1:0:478:G:H5'	2.02	0.40
1:0:2389:G:H2'	1:0:2390:A:O4'	2.21	0.40
1:0:2383:C:C2'	1:0:2384:G:H5'	2.51	0.40
1:0:1539:U:H2'	1:0:1540:C:C6	2.56	0.40
1:0:550:C:H2'	1:0:551:A:H8	1.86	0.40
1:0:2506:C:H2'	1:0:2507:U:C6	2.56	0.40
1:0:1040:A:C2'	1:0:1041:G:H5'	2.51	0.40
1:0:1204:G:H2'	1:0:1205:G:H8	1.86	0.40
1:0:931:G:H2'	1:0:932:G:O4'	2.21	0.40
1:0:1625:A:C4	1:0:1632:A:H1'	2.56	0.40
1:0:1147:G:H2'	1:0:1148:G:H8	1.86	0.40
1:0:528:G:H2'	1:0:529:U:C6	2.57	0.40
1:0:854:G:H2'	1:0:855:G:C8	2.57	0.40
1:0:334:G:N3	1:0:344:G:H1'	2.37	0.40
1:0:2038:C:H5'	1:0:2039:G:C5'	2.51	0.40
1:0:1187:A:O2'	1:0:1188:A:P	2.79	0.40
1:0:2502:G:H2'	1:0:2503:G:C8	2.56	0.40
1:0:2378:G:O2'	1:0:2379:G:H5'	2.22	0.40
1:0:1162:A:H2'	1:0:1163:C:H6	1.86	0.40
1:0:1686:A:C2'	1:0:1687:C:H5'	2.51	0.40
1:0:2234:G:H2'	1:0:2235:G:O4'	2.22	0.40
1:0:1381:G:O2'	1:0:1382:G:H5'	2.21	0.40
1:0:1336:G:N2	1:0:1632:A:N6	2.69	0.40
1:0:344:G:O2'	1:0:345:U:H5'	2.21	0.40
1:0:1696:C:H42	1:0:1755:G:H5"	1.87	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2539:C:H2'	1:0:2540:A:C8	2.56	0.40
1:0:744:C:H2'	1:0:745:C:C6	2.56	0.40
1:0:1443:G:N3	1:0:1584:G:N1	2.69	0.40
1:0:1370:U:H2'	1:0:1371:G:O4'	2.22	0.40
1:0:1850:G:H2'	1:0:1851:A:C8	2.56	0.40
1:0:2467:A:H2'	1:0:2468:G:H8	1.86	0.40
1:0:953:G:H2'	1:0:954:U:O4'	2.21	0.40
1:0:105:G:O2'	1:0:106:G:H5'	2.21	0.40
1:0:2081:U:H2'	1:0:2082:C:C5'	2.43	0.40
1:0:1194:U:O2'	1:0:1195:U:O5'	2.40	0.40
1:0:2217:G:N3	1:0:2217:G:H2'	2.36	0.40
1:0:143:A:H2'	1:0:144:U:O4'	2.22	0.40
1:0:1418:C:H2'	1:0:1419:G:C8	2.55	0.40
1:0:1671:A:H1'	1:0:2798:A:H5'	2.03	0.40
1:0:334:G:N2	1:0:344:G:N3	2.70	0.40
1:0:2365:U:O2'	1:0:2366:U:H5'	2.22	0.40
1:0:1244:U:H2'	1:0:1245:G:C8	2.57	0.40
1:0:890:U:H2'	1:0:891:A:C8	2.57	0.40
1:0:1547:U:H2'	1:0:1548:U:C6	2.56	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%)	411 (14%)	43 (1%)
2	5	2/4 (50%)	2 (100%)	0
All	All	2759/2884 (95%)	413 (14%)	43 (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
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

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Mol	Chain	Res	Type
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
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

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Mol	Chain	Res	Type
1	0	559	C
1	0	572	G
1	0	584	A
1	0	602	C
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
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	803	C
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

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Mol	Chain	Res	Type
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
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

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Mol	Chain	Res	Type
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
1	0	1324	G
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

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Mol	Chain	Res	Type
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
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

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Mol	Chain	Res	Type
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	1778	U
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
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	2015	G
1	0	2016	A

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Mol	Chain	Res	Type
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	2119	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
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

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Mol	Chain	Res	Type
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	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
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	2553	G
1	0	2565	C
1	0	2578	G
1	0	2581	A
1	0	2582	G
1	0	2588	U
1	0	2589	C
1	0	2591	C
1	0	2593	A
1	0	2594	U
1	0	2608	A
1	0	2609	G
1	0	2625	U

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Mol	Chain	Res	Type
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
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
2	5	33	C
2	5	34	C

All (43) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	0	69	G
1	0	71	A
1	0	173	A

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Mol	Chain	Res	Type
1	0	181	A
1	0	192	G
1	0	198	A
1	0	242	A
1	0	342	G
1	0	583	C
1	0	805	G
1	0	843	G
1	0	878	C
1	0	1074	G
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
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	2782	G
1	0	2824	C

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

1 non-standard protein/DNA/RNA residue 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	PPU	5	35	2	30,40,41	2.76	6 (20%)	37,57,60	1.26	5 (13%)

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	PPU	5	35	2	-	0/21/43/44	0/4/4/4

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	5	35	PPU	OC-CM	-4.89	1.27	1.42
2	5	35	PPU	CE2-CZ	2.66	1.44	1.38
2	5	35	PPU	CD2-CG	2.70	1.44	1.38
2	5	35	PPU	C6-N1	3.32	1.38	1.34
2	5	35	PPU	CE1-CZ	3.74	1.46	1.38
2	5	35	PPU	C-N3'	11.86	1.61	1.34

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	5	35	PPU	C4'-C3'-N3'	-3.05	107.25	113.61
2	5	35	PPU	C-CA-N	2.04	117.83	108.73
2	5	35	PPU	C9-N6-C6	2.16	126.28	119.48
2	5	35	PPU	CM-OC-CZ	2.77	123.99	117.51
2	5	35	PPU	C2-N1-C6	4.00	119.95	111.43

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

## 5.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

## 5.6 Ligand geometry [i](#)

There are no ligands in this entry.

## 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 [i](#)

### 6.1 Protein, DNA and RNA chains [i](#)

EDS was not executed - this section will therefore be empty.

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

EDS was not executed - this section will therefore be empty.

### 6.3 Carbohydrates [i](#)

EDS was not executed - this section will therefore be empty.

### 6.4 Ligands [i](#)

EDS was not executed - this section will therefore be empty.

### 6.5 Other polymers [i](#)

EDS was not executed - this section will therefore be empty.