



Full wwPDB X-ray Structure Validation Report ⓘ

Jan 31, 2016 – 09:07 PM GMT

PDB ID : 1NJP
Title : The crystal structure of the 50S Large ribosomal subunit from *Deinococcus radiodurans* complexed with a tRNA acceptor stem mimic (ASM)
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 : 3.50 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.
We welcome your comments at validation@mail.wwpdb.org
A user guide is available at
<http://wwpdb.org/validation/2016/XrayValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

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

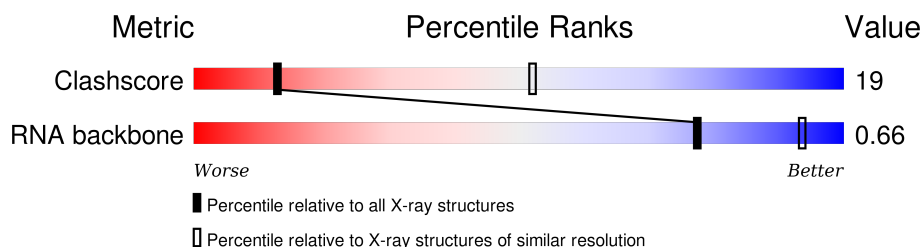
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.50 Å.

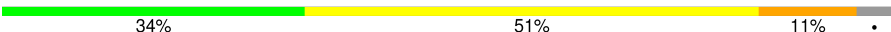
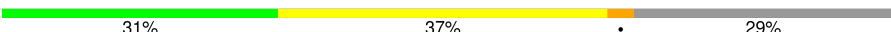

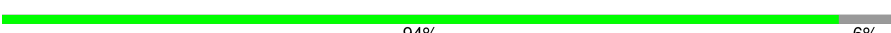
Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
Clashscore	102246	1157 (3.60-3.40)
RNA backbone	2183	1050 (4.20-2.80)

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 ≥ 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	35	 31% 37% • 29%
3	K	141	 88% 12%
4	T	237	 94% 6%

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 60249 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 tRNA acceptor stem mimic.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	5	25	Total	C	N	O	P	0	0	0
			543	249	97	173	24			

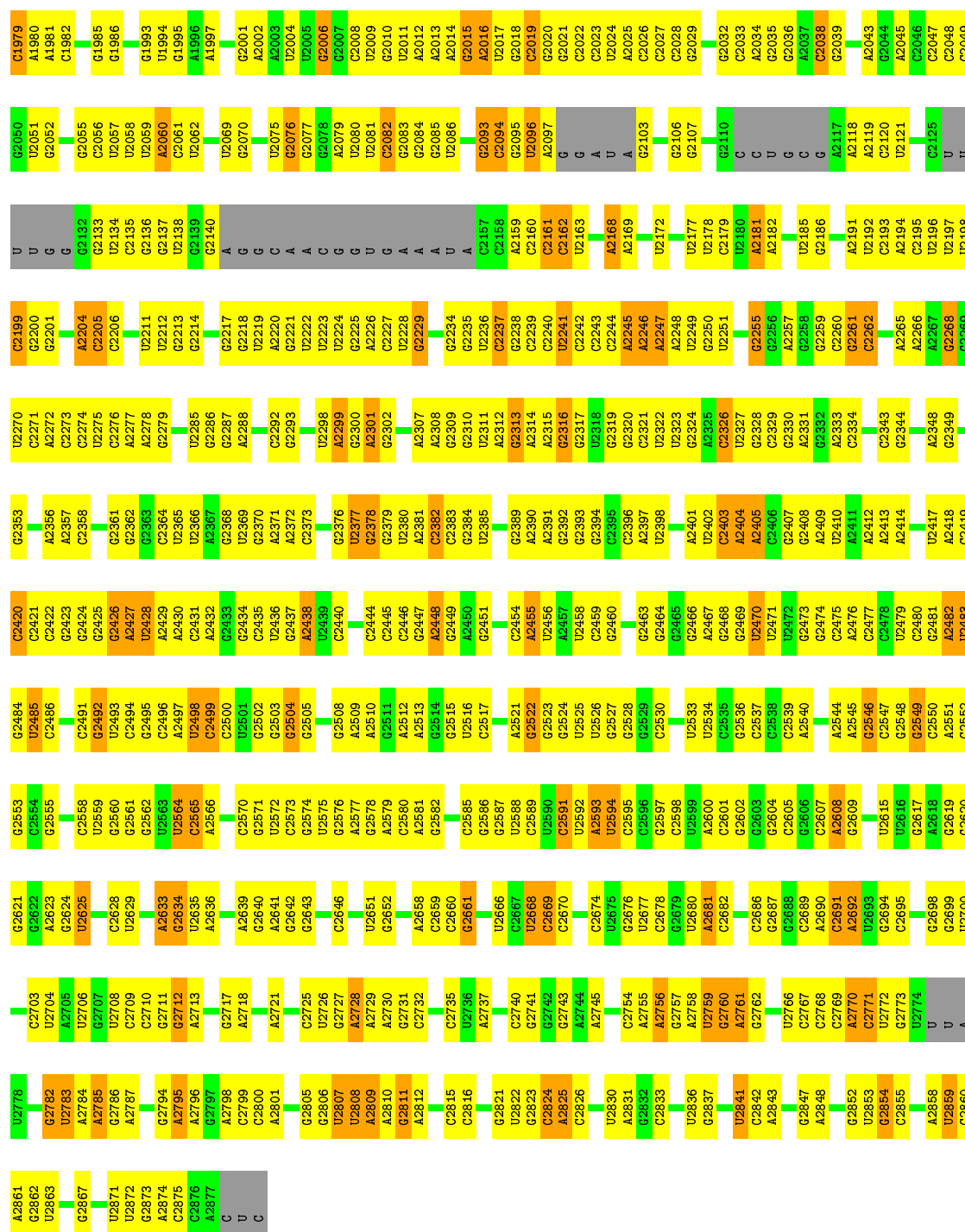
- Molecule 3 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
3	K	124	Total	C	0	0	124
			124	124			

- Molecule 4 is a protein called GENERAL STRESS PROTEIN CTC.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
4	T	223	Total	C	0	0	223
			223	223			

U1909	U1819	G1659	A1587	G1508	A1441	U1357	A1288	G1214	U1044	U978	A	A838	G776
A1940	G1820	G1660	U1591	A1509	C1442	C1358	A1289	U1217	G1044	U979	C	U839	A777
A1911	A1821	C1661	U1592	A1510	G1443	G1359	A1290	U1218	U1046	A979	C	U840	G778
G1912	C1822	C1662	U1593	A1511	G1444	G1360	A1291	C1219	G1047	C981		G841	U779
G1913	G1823	C1663	U1594	A1512	A1445	U1365	A1292	C1218	C1052			A842	U780
U1914	C1825	G1664	U1595	A1513	U1446	A1366	A1293	G1220	U1052	U916		G843	G781
A1915	U1826	C1665	A1596	C1514	U1447	A1367	G1298	C1221	G1053	U917		G844	U782
G1916	G1827	G1666	A1597	U1515	U1448	G1368		G1222	C1054	A918		U845	G783
C1829	C1917	A1667	A1598	U1516	A1449	G1373	U1301	G1223	U1055	U919		A846	U784
G1918	G1830	G1668	C1598	C1517	U1450	G1374	U1302	A1224	U1056	G920		C847	U785
G1919	G1831	A1669	G1599	C1518	C1451	G1375	U1303	G1225	A1057	G983		U852	U786
A1920	C1835	G1670	U1600	G1519	U1452	G1377	C1307	A1226	G1058	A921		U853	A787
A1921	U1836	A1671	U1601	G1520	U1453	G1378	C1308	A1227		A991		C853	G788
U1922	C1836	A1672	G1602	C1524	C1455	C1380	G1309		A1065			G854	G789
U1923	G1837		A1603	C1525	A1456	G1381	C1310	A1231	G1066	A994		G855	A790
C1924	C1838	C1677	A1604	G1526	A1457	G1382	U1311	U1232	G1067	A995		A856	G791
C1925	A1839	G1678	A1605	G1527	A1458	U1383	G1312	A1233	A1068	C996		U857	U792
U1926	A1840	C1679	C1606	G1528	U1459	A1386	U1313	C1234	G1069	C997		G858	G793
U1927	G1841	U1680	A1607	C1529		G1387	A1314	C1235	G1070	C998		U859	A794
G1928	C1842	A1681	U1608	U1530	A1463	C1388	A1315			A999		U860	A795
U1929	G1850	U1766	A1682	C1531	A1464	C1389	G1316	A1242	G1073	G1000		G861	A796
C1930	A1851	G1683	A1610	U1532	C1465	G1390	A1317	G1243	G1074	A1001			A797
G1931	C1855	G1684	U1611	G1533	C1466	A1391	A1318		C1075	C1002		C864	G798
	G1856	A1685	U1612	U1534	U1467	U1392	C1319	G1248	U1076	C1003		A865	C799
G1937	U1856	C1686	G1613	U1535	A1468	G1393	A1320	U1249	A1081	A1004		U868	U800
U1938	G1857	C1687	C1614	C1540	U1469	U1403		A1250		U1005		C869	C803
U1939	C1858		C1615	G1541	G1470	A1397	G1323	G1251	A1082	C1006		C870	C804
U1946	G1859	G1691	A1616	U1542	C1471	G1398	G1324	C1252	A1084	A1007		U871	A805
G1947	A1860	C1692	C1617	G1543	C1472	C1399	U1325	A1253	G1085	G1008		G872	A806
C1948	C1861	U1696	U1618	A1544	U1473	G1402	U1326	G1254	C1086	U942		U873	A807
A1949	G1862		A1619	G1545	U1474	U1403	C1327		C1087	U943		C874	C808
C1950	C1865	G1703	G1620	C1552	U1475		G1328	U1257	A1088	A944		A875	C809
G1951	G1866	G1704	C1621	U1557	U1476	G1407	U1329	G1258	C1089	U1015		A876	U810
A1952	C1867	C1705	C1622	C1558	C1477	U1407	G1330	A1259	C1090	C1016		G877	G811
A1953	G1785	G1706	C1623	G1559	U1478	U1410	G1331	G1261	C1091	C1017		C878	G812
A1954	U1786	U1707	A1624	C1560	G1479	C1411	G1332	G1262	U1092	C1018		A879	A813
G1955	C1787	U1708	A1625	A1561	U1480	G1414	G1333	G1263	U1093	U1019		C880	G814
G1956	U1788	U1710	A1626	U1562	U1481	C1415	A1334	U1264		A1020			
C1957	C1789	C1711	C1627		U1482	C1416	A1335	G1265	G1098	A1021		G887	A815
G1958	G1790	G1712	C1628	G1566	C1487	A1417	G1336	G1266	A1099	A1022		G888	U816
	C1791	A1713	G1629	A1567	U1488	C1418	G1337	A1267	U1023	G1024		C889	A817
A1961	A1884	A1714	A1632	U1568	C1489	C1419	U1339	U1268	A1114	A1025		U890	C818
C1962	C1885	G1715	C1633	G1571	U1490	G1419	G1340	G1269	U1026	G957		A891	C819
G1963	G1886	A1716	A1634	C1572	U1491		C1341	C1270	C1027	C958		G	U820
C1964	C1887	A1717	G1635	C1573	A1492	U1424	U1342	G1271	G1028	C959		G	A821
U1965	A1800	G1722	G1636	G1574	U1493	G1425	C1343	C1272	G1029	U960		G	G822
C1966	C1801	U1723	A1643	A1574	U1494	U1426	G1344	G1273	U1030	G961		G	U823
U1967	G1890	C1724	G1644	C1575	G1495	G1427	C1345	C1274	C1031	A964		G	U824
G1968	G1893	G1725	C1648	G1576	U1496	G1428	C1346	A1275	A1032	G965		C	U825
U1969	U1894	C1727		G1577	C1497	A1429	C1347		G1033	A966		C	U826
G1970	C1895	A1728	U1651	U1578	U1498	G1430	C1348	A1278	U1034	G967		U	C827
A1971	G1896	C1729	U1652	G1579	A1499	U1431	A1349	G1279	G1035	C968		A	C828
G1972	U1810	G1730	G1653	C1580	U1500	G1432	G1350	U1280	G1036	C969		C	C830
C1973	A1811	C1731	C1654	C1581	U1501	U1433	G1351	A1281	C1037	A970		C	G831
U1974	U1812	U1732	A1654	C1582	C1502	A1434	G1352		U1038	A971		A	A832
G1975	A1813	U1733	C1655	A1583	G1503	G1435	A1353	G1284	A1039	C972		G	A833
U1976	G1814		U1656	G1584	U1504	G1436	A1354	A1285	A1040	U973		C	A834
C1977	C1736		A1657	A1585	U1505	A1437	A1355	U1286	G1041	U974		U	G835
U1978	G1818	G1737	A1658	A1586			G1356	A1287		C975			U837

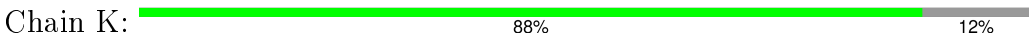


- Molecule 2: tRNA acceptor stem mimic

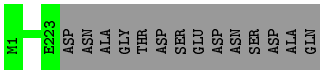
Chain 5:  31% 37% . 29%



- Molecule 3: 50S ribosomal protein L16



● Molecule 4: GENERAL STRESS PROTEIN CTC



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, α , β , γ	169.90 Å 409.90 Å 695.90 Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	15.00 – 3.50	Depositor
% Data completeness (in resolution range)	(Not available) (15.00-3.50)	Depositor
R_{merge}	(Not available)	Depositor
R_{sym}	0.12	Depositor
Refinement program	CNS	Depositor
R, R_{free}	0.244 , 0.295	Depositor
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	60249	wwPDB-VP
Average B, all atoms (Å ²)	81.0	wwPDB-VP

5 Model quality

5.1 Standard geometry

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	0.15	0/563	0.63	0/873
All	All	0.14	0/67030	0.63	0/104546

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

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	1724	0
2	5	543	0	290	11	0
3	K	124	0	0	0	0
4	T	223	0	0	0	0
All	All	60249	0	30207	1731	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 (1731) 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	1.04
1:0:1073:G:H2'	1:0:1074:G:H4'	1.40	1.01
1:0:2548:G:H2'	1:0:2549:G:H5''	1.44	1.00
1:0:2769:C:H2'	1:0:2867:G:H22	1.21	0.99
1:0:2636:A:H62	1:0:2643:G:H21	1.11	0.97
1:0:1252:C:H2'	1:0:1253:C:H5''	1.47	0.96
1:0:2668:U:H4'	1:0:2669:C:H5'	1.47	0.96
1:0:688:A:H62	1:0:816:U:H3	1.09	0.96
1:0:1496:G:H1	1:0:1527:G:H1	1.13	0.95
1:0:1182:U:H2'	1:0:1183:C:H5''	1.47	0.95
1:0:1893:G:H5''	2:5:21:C:H4'	1.47	0.95
1:0:58:C:H3'	1:0:59:G:H5''	1.47	0.94
1:0:1086:C:H2'	1:0:1087:C:H5''	1.49	0.94
1:0:221:A:H62	1:0:231:G:H21	1.15	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
1:0:1953:A:H1'	1:0:1955:G:H1'	1.51	0.92
1:0:1223:G:H21	1:0:1225:G:H21	0.93	0.92
1:0:1312:G:H5''	1:0:1313:U:H5'	1.52	0.92
1:0:847:C:H41	1:0:955:G:H21	1.17	0.91
1:0:166:G:H21	1:0:184:A:H62	1.11	0.90
1:0:789:G:H21	1:0:806:A:H62	1.13	0.90
1:0:929:A:H3'	1:0:930:A:H5''	1.52	0.90
1:0:225:G:H3'	1:0:226:C:H5'	1.51	0.89
1:0:831:G:H21	1:0:1203:A:H62	1.17	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

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2633:A:H4'	1:0:2634:G:H4'	1.57	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
1:0:128:C:H2'	1:0:129:A:H5''	1.58	0.86
1:0:1199:U:H3'	1:0:1200:G:H5''	1.56	0.85
1:0:1223:G:H21	1:0:1225:G:N2	1.75	0.85
1:0:1436:G:H1'	1:0:1508:G:H21	1.41	0.84
1:0:1964:A:H3'	1:0:1965:U:H5'	1.60	0.84
1:0:1034:U:H1'	1:0:1133:G:H5''	1.59	0.84
1:0:2426:G:H5'	1:0:2480:C:H41	1.43	0.83
1:0:2794:G:H3'	1:0:2796:A:H62	1.43	0.82
1:0:2607:C:H3'	1:0:2608:A:H5'	1.59	0.82
1:0:109:A:H3'	1:0:110:U:H5''	1.61	0.81
1:0:88:G:H3'	1:0:89:A:H5''	1.60	0.81
1:0:26:G:H21	1:0:524:A:H62	1.25	0.81
1:0:2769:C:H2'	1:0:2867:G:N2	1.95	0.81
1:0:2806:G:H1'	1:0:2858:A:H2'	1.62	0.81
1:0:2522:G:H21	1:0:2625:U:H5''	1.45	0.81
1:0:2081:U:H2'	1:0:2082:C:H5''	1.62	0.81
1:0:2059:U:H5	1:0:2575:U:H3	1.26	0.81
1:0:2198:U:H3'	1:0:2199:C:H5''	1.62	0.81
1:0:940:G:H3'	1:0:941:U:C5'	2.09	0.80
1:0:2700:U:H3	1:0:2848:A:N6	1.79	0.80
1:0:9:U:H3	1:0:2608:A:H62	1.29	0.80
1:0:2491:C:H2'	1:0:2492:G:H5''	1.64	0.80
1:0:176:A:H1'	1:0:2221:G:H21	1.47	0.79
1:0:460:U:H3	1:0:592:G:H1'	1.46	0.79
1:0:1141:U:N3	1:0:2008:C:H5''	1.97	0.79
1:0:1223:G:N2	1:0:1225:G:H21	1.77	0.79
1:0:542:A:H2'	1:0:543:G:H5'	1.65	0.79
1:0:70:A:O3'	1:0:71:A:H3'	1.83	0.79
1:0:1811:A:O2'	1:0:1812:U:H5''	1.82	0.79
1:0:2548:G:C2'	1:0:2549:G:H5''	2.10	0.79
1:0:1432:G:H21	1:0:1596:A:H62	1.27	0.78
1:0:918:A:H2'	1:0:919:U:H5''	1.64	0.78
1:0:2227:C:H2'	1:0:2228:U:H5'	1.66	0.78
1:0:26:G:N2	1:0:524:A:H62	1.81	0.78
1:0:2480:C:H5''	1:0:2482:A:H5'	1.66	0.78
1:0:1188:A:H62	1:0:1189:G:H21	1.30	0.77
1:0:2770:A:H5'	1:0:2867:G:H22	1.48	0.77
1:0:181:A:H5''	1:0:182:G:OP1	1.84	0.77

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:652:C:H42	1:0:657:A:H61	1.31	0.77
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
1:0:688:A:N6	1:0:816:U:H3	1.84	0.76
1:0:65:C:H2'	1:0:66:U:H5'	1.68	0.75
1:0:1807:A:O2'	1:0:1808:C:H4'	1.86	0.75
1:0:2624:G:H4'	1:0:2712:G:H2'	1.69	0.75
1:0:2503:G:H3'	1:0:2504:G:H5''	1.69	0.75
2:5:3:G:H1	2:5:29:U:H3	1.32	0.75
1:0:2096:U:H2'	1:0:2097:A:H5''	1.69	0.74
1:0:218:A:O2'	1:0:219:G:H4'	1.87	0.74
1:0:1001:A:H62	1:0:1200:G:H1'	1.53	0.74
1:0:1252:C:C2'	1:0:1253:C:H5''	2.18	0.73
1:0:2241:U:H1'	1:0:2307:A:H1'	1.69	0.73
1:0:1182:U:C2'	1:0:1183:C:H5''	2.17	0.73
1:0:1473:U:H4'	1:0:1474:A:C8	2.23	0.73
1:0:2700:U:H3	1:0:2848:A:H62	1.35	0.73
1:0:109:A:C3'	1:0:110:U:H5''	2.19	0.72
1:0:2721:A:H62	1:0:2743:G:H21	1.37	0.72
1:0:1572:C:C2'	1:0:1573:G:H5''	2.18	0.72
1:0:1021:A:H1'	1:0:1164:C:H1'	1.71	0.72
1:0:65:C:C2'	1:0:66:U:H5'	2.19	0.72
1:0:471:A:H62	1:0:480:G:N2	1.86	0.72
1:0:795:A:H4'	1:0:796:A:N7	2.03	0.72
1:0:59:G:H1'	1:0:73:A:N1	2.04	0.72
1:0:616:U:H2'	1:0:617:U:H5''	1.70	0.72
1:0:202:A:H2'	1:0:203:G:O4'	1.88	0.71
1:0:1528:C:H2'	1:0:1529:C:H5''	1.71	0.71
1:0:1373:G:H22	1:0:2192:U:H3	1.36	0.71
1:0:1479:G:N2	1:0:1543:G:H21	1.87	0.71
1:0:2426:G:H22	1:0:2431:C:H41	1.38	0.71
1:0:2691:C:H3'	1:0:2692:A:H5''	1.73	0.71
1:0:1196:G:H2'	1:0:1197:U:O4'	1.91	0.71
1:0:2503:G:C3'	1:0:2504:G:H5''	2.21	0.71
1:0:1908:C:H2'	1:0:1909:U:H4'	1.72	0.71
1:0:2552:C:N3	2:5:34:C:H4'	2.04	0.71
1:0:69:G:H4'	1:0:70:A:O5'	1.90	0.71
1:0:1047:G:H1	1:0:1130:U:H3	1.36	0.71
1:0:1882:G:H21	1:0:1885:C:N4	1.88	0.71
1:0:2045:A:H4'	1:0:2421:C:OP2	1.89	0.71
1:0:1621:C:H4'	1:0:1626:A:H61	1.56	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1139:A:H1'	1:0:2496:C:H5'	1.72	0.71
1:0:2380:U:H2'	1:0:2381:A:H5'	1.71	0.70
1:0:2522:G:N2	1:0:2625:U:H5''	2.05	0.70
1:0:1809:G:H2'	1:0:1810:U:O4'	1.91	0.70
1:0:319:G:H21	1:0:340:G:H21	1.40	0.70
1:0:2759:U:H4'	1:0:2760:G:OP2	1.89	0.70
1:0:514:G:N3	1:0:514:G:H2'	2.06	0.70
1:0:515:A:H2'	1:0:516:G:H5'	1.72	0.70
1:0:181:A:H4'	1:0:182:G:H4'	1.74	0.70
1:0:576:A:H2	1:0:580:A:H62	1.40	0.70
1:0:1529:C:H2'	1:0:1530:U:O4'	1.92	0.70
1:0:2510:A:H61	1:0:2641:A:N6	1.89	0.70
1:0:1023:U:H1'	1:0:1154:A:N7	2.06	0.69
1:0:588:G:H4'	1:0:2001:G:H5''	1.74	0.69
1:0:323:G:H5'	1:0:342:G:C6	2.27	0.69
1:0:33:C:H42	1:0:466:A:H61	1.39	0.69
1:0:1188:A:N6	1:0:1189:G:H21	1.89	0.69
1:0:800:U:H3'	1:0:804:C:N4	2.08	0.69
1:0:951:G:H2'	1:0:952:A:H5''	1.73	0.69
1:0:1838:G:H2'	1:0:1839:A:H5'	1.75	0.69
1:0:2808:U:H3'	1:0:2809:A:H5'	1.75	0.69
1:0:2510:A:H61	1:0:2641:A:H61	1.41	0.69
1:0:878:C:H42	1:0:921:A:H62	1.41	0.69
1:0:2727:G:H1	1:0:2735:C:H5''	1.58	0.69
1:0:2058:U:H5'	1:0:2576:G:H1'	1.74	0.68
1:0:1978:U:H3'	1:0:1979:C:H5''	1.74	0.68
1:0:1774:A:H1'	1:0:2586:G:H21	1.58	0.68
1:0:2607:C:H1'	1:0:2761:A:H2'	1.76	0.68
1:0:67:G:N2	1:0:72:A:H2'	2.08	0.68
1:0:1955:G:H2'	1:0:1956:G:H5'	1.75	0.68
1:0:2245:A:H4'	1:0:2246:A:C8	2.29	0.68
1:0:941:U:H2'	1:0:942:U:O4'	1.94	0.68
1:0:813:A:O2'	1:0:815:A:H5'	1.94	0.68
1:0:1791:C:O2'	1:0:1793:A:H5'	1.94	0.67
1:0:2495:G:H2'	1:0:2496:C:C6	2.30	0.67
1:0:1915:A:H62	1:0:1951:G:N2	1.91	0.67
1:0:584:A:H4'	1:0:2479:U:H5'	1.77	0.67
1:0:1923:U:H4'	1:0:1948:C:H41	1.59	0.67
1:0:1953:A:H1'	1:0:1955:G:C1'	2.21	0.67
1:0:653:G:H2'	1:0:654:A:H4'	1.76	0.67
1:0:974:U:H1'	1:0:2229:G:H21	1.58	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1086:C:C2'	1:0:1087:C:H5''	2.24	0.67
1:0:2095:G:H2'	1:0:2096:U:H5''	1.75	0.67
1:0:2499:C:H41	1:0:2521:A:H2	1.41	0.67
1:0:1749:G:O6	1:0:2674:C:H4'	1.95	0.67
1:0:367:G:C2'	1:0:368:A:H5''	2.24	0.67
1:0:1191:G:H2'	1:0:1192:A:H8	1.60	0.67
1:0:2491:C:C2'	1:0:2492:G:H5''	2.25	0.67
1:0:2680:U:H3'	1:0:2681:A:H5'	1.76	0.67
1:0:1312:G:H5'	1:0:1314:A:H1'	1.76	0.66
1:0:1474:A:H2'	1:0:1475:U:H5'	1.77	0.66
1:0:45:C:H5''	1:0:192:G:N7	2.10	0.66
1:0:583:C:N3	1:0:2016:A:H4'	2.10	0.66
1:0:1199:U:H3'	1:0:1200:G:C5'	2.24	0.66
1:0:1188:A:H62	1:0:1189:G:N2	1.92	0.66
1:0:805:G:H5''	1:0:806:A:O5'	1.95	0.66
1:0:1352:G:H2'	1:0:1353:A:H8	1.60	0.66
1:0:2768:C:H2'	1:0:2769:C:O4'	1.95	0.66
1:0:1181:C:H2'	1:0:1182:U:H5''	1.77	0.66
1:0:1746:A:H2'	1:0:1747:G:H5'	1.77	0.66
1:0:1685:A:H1'	1:0:1686:A:C5	2.30	0.66
1:0:58:C:H3'	1:0:59:G:C5'	2.21	0.66
1:0:1487:C:H2'	1:0:1488:G:H8	1.61	0.66
1:0:652:C:H42	1:0:657:A:N6	1.94	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	0.65
1:0:651:C:H2'	1:0:652:C:H5''	1.78	0.65
1:0:2418:A:H4'	1:0:2420:C:OP2	1.96	0.65
1:0:1686:A:N3	1:0:1686:A:H2'	2.11	0.65
1:0:1888:C:H5''	1:0:1889:G:H5''	1.79	0.65
1:0:1966:C:H4'	1:0:2585:C:H4'	1.78	0.65
1:0:66:U:H2'	1:0:67:G:N7	2.11	0.65
1:0:73:A:H3'	1:0:73:A:N3	2.12	0.65
1:0:1195:U:H2'	1:0:1196:G:C8	2.32	0.65
1:0:175:C:H1'	1:0:2413:A:H61	1.62	0.65
1:0:13:A:H1'	1:0:536:A:N6	2.12	0.65
1:0:225:G:H3'	1:0:226:C:C5'	2.26	0.65
1:0:1900:U:O2'	1:0:1946:U:H5'	1.97	0.65
1:0:1033:G:H22	1:0:1150:C:H2'	1.62	0.65
1:0:1427:G:H2'	1:0:1428:G:H5'	1.79	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

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1500:U:H3	1:0:1520:G:H22	1.45	0.64
1:0:2312:A:H4'	1:0:2313:G:N7	2.12	0.64
1:0:1938:U:O2'	1:0:1939:U:OP1	2.13	0.64
1:0:777:A:N6	1:0:1766:U:H3	1.94	0.64
1:0:727:U:H2'	1:0:728:G:H5''	1.79	0.64
1:0:665:A:H3'	1:0:666:U:H5''	1.79	0.64
1:0:317:U:H2'	1:0:318:G:H5''	1.78	0.64
1:0:1354:A:H62	1:0:1407:G:H22	1.45	0.64
1:0:2404:A:O2'	1:0:2405:A:OP2	2.15	0.64
1:0:2236:U:C3'	1:0:2237:C:H5''	2.28	0.64
1:0:2236:U:H2'	1:0:2237:C:H5''	1.77	0.64
1:0:571:U:H2'	1:0:581:A:H1'	1.79	0.64
1:0:2426:G:N2	1:0:2431:C:H41	1.95	0.64
1:0:1194:U:H2'	1:0:1195:U:C6	2.32	0.64
1:0:1679:U:C3'	1:0:1680:U:H5''	2.28	0.64
1:0:2822:U:H2'	1:0:2823:G:O4'	1.97	0.64
1:0:73:A:H4'	1:0:74:G:C1'	2.27	0.64
1:0:1679:U:H3'	1:0:1680:U:H5''	1.78	0.64
1:0:1341:G:H22	1:0:1664:G:H1	1.46	0.64
1:0:2080:U:H2'	1:0:2081:U:C6	2.33	0.64
1:0:2690:A:OP2	1:0:2694:G:H5'	1.97	0.64
1:0:2426:G:O6	1:0:2479:U:H2'	1.97	0.64
1:0:2440:C:H1'	1:0:2471:U:H3	1.63	0.64
1:0:2422:C:H2'	1:0:2423:G:H8	1.62	0.64
1:0:83:A:H4'	1:0:84:G:O4'	1.97	0.64
1:0:236:C:H1'	1:0:632:A:O2'	1.97	0.64
1:0:1198:C:H5''	1:0:1199:U:H5''	1.80	0.63
1:0:1580:C:H2'	1:0:1581:C:C6	2.33	0.63
1:0:2636:A:H62	1:0:2643:G:N2	1.90	0.63
1:0:653:G:N2	1:0:655:A:H1'	2.14	0.63
1:0:858:G:H5''	1:0:859:U:H5'	1.79	0.63
1:0:1250:A:O2'	1:0:1251:G:H4'	1.98	0.63
1:0:1715:A:H1'	1:0:1717:A:O4'	1.99	0.63
1:0:831:G:H21	1:0:1203:A:N6	1.93	0.63
1:0:952:A:O2'	1:0:1204:G:H4'	1.98	0.63
1:0:69:G:H5''	1:0:70:A:OP1	1.98	0.63
1:0:927:C:H2'	1:0:928:G:O4'	1.98	0.63
1:0:128:C:C2'	1:0:129:A:H5''	2.27	0.63
1:0:998:C:H2'	1:0:999:A:O4'	1.97	0.63
1:0:2261:G:H5''	1:0:2262:C:O5'	1.98	0.63
1:0:2617:G:H22	1:0:2755:A:H2'	1.64	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1181:C:C3'	1:0:1182:U:H5''	2.29	0.62
1:0:167:A:H62	1:0:183:U:H3	1.46	0.62
1:0:614:G:H2'	1:0:615:C:C6	2.34	0.62
1:0:2770:A:H5'	1:0:2867:G:N2	2.14	0.62
1:0:942:U:H2'	1:0:943:U:O4'	2.00	0.62
1:0:542:A:C2'	1:0:543:G:H5'	2.30	0.62
1:0:2721:A:H62	1:0:2743:G:N2	1.98	0.62
1:0:1428:G:H5''	1:0:1429:A:H5'	1.80	0.62
1:0:221:A:H62	1:0:231:G:N2	1.91	0.62
1:0:852:U:H3	1:0:950:G:H1	1.47	0.62
1:0:1807:A:H5'	1:0:1809:G:C1'	2.30	0.62
1:0:1323:G:H2'	1:0:1324:G:H4'	1.81	0.62
1:0:1517:C:H2'	1:0:1518:C:C6	2.34	0.62
1:0:362:C:H2'	1:0:363:G:H4'	1.80	0.62
1:0:2015:G:O2'	1:0:2016:A:OP1	2.12	0.62
1:0:1085:G:H2'	1:0:1086:C:C6	2.35	0.62
1:0:2755:A:O2'	1:0:2756:A:H5'	2.00	0.62
1:0:414:A:H2'	1:0:415:A:O4'	1.99	0.62
1:0:121:G:O2'	1:0:1389:C:H4'	2.00	0.62
1:0:55:A:H2'	1:0:56:C:C6	2.35	0.62
1:0:1976:U:H2'	1:0:1977:C:H5'	1.82	0.62
1:0:455:A:H4'	1:0:1214:C:O2'	1.99	0.62
1:0:2508:G:H5''	1:0:2509:A:H5''	1.82	0.62
1:0:439:C:H2'	1:0:440:U:O4'	2.00	0.62
1:0:871:U:H1'	1:0:2248:A:H5''	1.82	0.62
1:0:1333:G:N2	1:0:1344:C:H41	1.96	0.62
1:0:1656:U:C2'	1:0:1657:A:H5''	2.29	0.61
1:0:2381:A:H4'	1:0:2382:C:C5	2.35	0.61
1:0:940:G:C3'	1:0:941:U:H5''	2.14	0.61
1:0:2357:A:H2'	1:0:2358:C:O4'	2.00	0.61
1:0:2544:A:H2'	1:0:2545:A:H4'	1.82	0.61
1:0:191:G:O2'	1:0:192:G:H5'	2.00	0.61
1:0:2571:G:H2'	1:0:2572:U:C6	2.36	0.61
1:0:2268:G:H22	1:0:2323:U:H4'	1.65	0.61
1:0:742:G:N3	1:0:742:G:H2'	2.13	0.61
1:0:1455:C:O2'	1:0:1644:G:H5''	2.00	0.61
1:0:974:U:H1'	1:0:2229:G:N2	2.15	0.61
1:0:2426:G:C5'	1:0:2480:C:H41	2.13	0.61
1:0:81:C:H2'	1:0:82:G:O4'	2.00	0.61
1:0:860:U:C2'	1:0:861:G:H5'	2.31	0.61
1:0:2242:C:N4	1:0:2257:A:H61	1.98	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:814:G:H3'	1:0:815:A:H5'	1.82	0.61
1:0:181:A:H4'	1:0:182:G:C5'	2.30	0.61
1:0:2035:G:H2'	1:0:2036:G:H8	1.65	0.61
1:0:1188:A:H2'	1:0:1189:G:O4'	2.00	0.61
1:0:1260:A:N6	1:0:1262:U:H1'	2.15	0.61
1:0:1923:U:H4'	1:0:1948:C:N4	2.16	0.61
1:0:1871:G:N3	1:0:1871:G:H2'	2.16	0.61
1:0:71:A:O2'	1:0:72:A:OP1	2.17	0.61
1:0:2246:A:H2'	1:0:2246:A:N3	2.16	0.61
1:0:1426:U:H2'	1:0:1427:G:O4'	2.00	0.61
1:0:2223:U:H2'	1:0:2224:U:O4'	2.00	0.61
1:0:1286:U:H5''	1:0:1663:C:H42	1.66	0.61
1:0:2185:U:H2'	1:0:2186:G:C8	2.36	0.61
1:0:1380:C:H2'	1:0:1381:G:H5'	1.81	0.61
1:0:1066:G:H2'	1:0:1067:G:H4'	1.83	0.60
1:0:1713:G:H2'	1:0:1714:A:O4'	2.00	0.60
1:0:800:U:H3'	1:0:804:C:H41	1.66	0.60
1:0:1811:A:H1'	1:0:1813:A:C5	2.35	0.60
1:0:2238:G:H2'	1:0:2239:C:C6	2.37	0.60
1:0:878:C:H42	1:0:921:A:N6	1.99	0.60
1:0:2604:G:H2'	1:0:2605:C:C6	2.37	0.60
1:0:2009:U:H3	1:0:2020:G:H1	1.50	0.60
1:0:2727:G:O2'	1:0:2728:A:H5''	2.02	0.60
1:0:1088:A:H2'	1:0:1089:C:O4'	2.02	0.60
1:0:2243:C:H2'	1:0:2244:C:O4'	2.02	0.60
1:0:2769:C:H2'	1:0:2770:A:H5'	1.84	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
1:0:192:G:O2'	1:0:193:A:OP2	2.18	0.60
1:0:2322:U:O2'	1:0:2323:U:H5'	2.01	0.60
1:0:1073:G:C2'	1:0:1074:G:H4'	2.26	0.60
1:0:2260:C:H4'	1:0:2368:G:H21	1.66	0.60
1:0:2370:G:HO2'	1:0:2371:A:H2	1.49	0.60
1:0:1807:A:H5'	1:0:1809:G:O4'	2.01	0.60
1:0:2759:U:H5''	1:0:2760:G:O5'	2.02	0.60
1:0:1625:A:H2'	1:0:1625:A:N3	2.16	0.60
1:0:669:G:H2'	1:0:670:U:C6	2.37	0.60
1:0:2549:G:H2'	1:0:2550:C:O4'	2.02	0.60
1:0:1289:A:O2'	1:0:1290:A:H5'	2.02	0.60
1:0:459:A:H1'	1:0:466:A:N7	2.16	0.59
1:0:2402:U:H5'	1:0:2404:A:C5	2.37	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1712:G:H2'	1:0:1713:G:O4'	2.01	0.59
1:0:2784:A:H3'	1:0:2785:A:H8	1.67	0.59
1:0:541:C:H2'	1:0:2002:A:N1	2.17	0.59
1:0:471:A:N6	1:0:480:G:H21	1.94	0.59
1:0:2377:U:H2'	1:0:2378:G:C8	2.37	0.59
1:0:73:A:H4'	1:0:74:G:H1'	1.83	0.59
1:0:804:C:O2'	1:0:806:A:H4'	2.03	0.59
1:0:831:G:N2	1:0:1203:A:H62	1.96	0.59
1:0:653:G:H4'	1:0:2328:G:H4'	1.83	0.59
1:0:412:U:H2'	1:0:413:G:O4'	2.03	0.59
1:0:2491:C:C3'	1:0:2492:G:H5''	2.33	0.59
1:0:366:U:H2'	1:0:367:G:H8	1.67	0.59
1:0:404:A:H5'	1:0:425:A:H4'	1.84	0.59
1:0:1298:G:N2	1:0:1341:G:H5''	2.18	0.59
1:0:1747:G:H1'	1:0:1749:G:N3	2.18	0.59
1:0:2081:U:C2'	1:0:2082:C:H5''	2.32	0.59
2:5:29:U:H2'	2:5:30:C:C6	2.36	0.59
1:0:513:A:H4'	1:0:515:A:H5'	1.83	0.59
1:0:17:G:H21	1:0:564:U:H5''	1.66	0.59
1:0:1634:A:O2'	1:0:1635:G:OP1	2.16	0.59
1:0:2205:C:H2'	1:0:2206:C:C6	2.38	0.59
1:0:2564:U:O2'	1:0:2565:C:O5'	2.16	0.59
1:0:1683:G:H2'	1:0:1684:G:O4'	2.03	0.59
1:0:2547:C:H2'	1:0:2548:G:H8	1.68	0.59
1:0:973:U:H2'	1:0:974:U:C6	2.38	0.59
1:0:357:A:H2'	1:0:358:C:H5'	1.85	0.58
1:0:368:A:H2'	1:0:369:C:O4'	2.03	0.58
1:0:1474:A:N3	1:0:1474:A:H3'	2.18	0.58
1:0:2236:U:C2'	1:0:2237:C:H5''	2.33	0.58
1:0:1664:G:O5'	1:0:1665:C:OP1	2.21	0.58
1:0:242:A:O2'	1:0:243:G:O4'	2.21	0.58
1:0:242:A:O2'	1:0:243:G:P	2.61	0.58
1:0:1180:A:H2'	1:0:1181:C:C6	2.38	0.58
1:0:2368:G:H5''	1:0:2369:U:O4'	2.03	0.58
1:0:2422:C:H2'	1:0:2423:G:C8	2.39	0.58
1:0:1472:C:H2'	1:0:1473:U:H5'	1.85	0.58
1:0:1474:A:C2'	1:0:1475:U:H5'	2.33	0.58
1:0:1528:C:C2'	1:0:1529:C:H5''	2.33	0.58
1:0:1354:A:O2'	1:0:1355:A:OP1	2.18	0.58
1:0:1301:U:H3	1:0:1339:U:H3	1.50	0.58
1:0:1916:G:H2'	1:0:1917:C:C6	2.39	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2677:U:H2'	1:0:2678:C:C6	2.39	0.58
1:0:839:U:H5''	1:0:2408:G:OP2	2.03	0.58
1:0:1354:A:H62	1:0:1407:G:N2	2.01	0.58
1:0:1251:G:H2'	1:0:1252:C:C6	2.38	0.58
1:0:67:G:N2	1:0:73:A:O5'	2.36	0.58
1:0:521:U:H4'	1:0:1248:G:O2'	2.03	0.58
1:0:1567:A:H2'	1:0:1568:A:O4'	2.04	0.58
1:0:1730:G:H2'	1:0:1731:C:C6	2.38	0.58
1:0:984:A:H2'	1:0:1200:G:H22	1.68	0.58
1:0:665:A:H3'	1:0:666:U:C5'	2.34	0.58
1:0:1392:U:H2'	1:0:1393:G:H5'	1.85	0.58
1:0:2547:C:H2'	1:0:2548:G:C8	2.38	0.58
1:0:2794:G:H2'	1:0:2796:A:N7	2.19	0.58
1:0:319:G:H21	1:0:340:G:N2	2.02	0.58
1:0:2758:A:H5''	1:0:2759:U:H5	1.68	0.58
1:0:1779:C:H2'	1:0:1780:A:O4'	2.03	0.58
1:0:2560:G:H4'	1:0:2561:G:N7	2.19	0.58
1:0:1181:C:C2'	1:0:1182:U:H5''	2.34	0.58
1:0:490:A:O2'	1:0:491:A:H5'	2.03	0.58
1:0:1994:U:H2'	1:0:1995:G:O4'	2.04	0.58
1:0:217:U:H5'	1:0:633:G:O2'	2.04	0.58
1:0:2426:G:O2'	1:0:2427:A:OP2	2.19	0.58
1:0:689:A:H2'	1:0:690:A:H5'	1.85	0.58
1:0:925:U:H4'	1:0:926:C:C5	2.39	0.58
1:0:552:C:H2'	1:0:553:C:H4'	1.86	0.58
1:0:2607:C:H3'	1:0:2608:A:C5'	2.31	0.57
1:0:839:U:H2'	1:0:841:G:O4'	2.04	0.57
1:0:2691:C:H3'	1:0:2692:A:C5'	2.33	0.57
1:0:2242:C:H42	1:0:2257:A:N6	2.02	0.57
1:0:59:G:N2	1:0:87:G:N7	2.52	0.57
1:0:929:A:H2'	1:0:930:A:H4'	1.86	0.57
1:0:873:U:P	1:0:928:G:H1	2.27	0.57
1:0:766:A:H2'	1:0:767:G:C8	2.39	0.57
1:0:605:G:H4'	1:0:949:G:O2'	2.04	0.57
1:0:1615:C:H2'	1:0:1616:C:C6	2.39	0.57
1:0:2426:G:H22	1:0:2431:C:N4	2.02	0.57
1:0:1223:G:O2'	1:0:1224:A:OP2	2.21	0.57
1:0:2222:U:H2'	1:0:2223:U:C6	2.39	0.57
1:0:118:U:H1'	1:0:143:A:C8	2.40	0.57
1:0:1514:C:H2'	1:0:1515:U:O4'	2.04	0.57
1:0:2636:A:N6	1:0:2643:G:H21	1.93	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1918:G:H4'	1:0:1920:A:N3	2.20	0.57
1:0:1137:A:H5''	1:0:1138:A:H5''	1.85	0.57
1:0:583:C:H41	1:0:2017:U:H5	1.51	0.57
1:0:687:G:O2'	1:0:688:A:H5'	2.04	0.57
1:0:931:G:N2	1:0:2247:A:H5''	2.18	0.57
1:0:2236:U:H3'	1:0:2237:C:H5''	1.85	0.57
1:0:1140:A:H61	1:0:2470:U:H6	1.52	0.57
1:0:2274:C:H2'	1:0:2275:U:H5'	1.87	0.57
1:0:1981:A:H4'	1:0:2704:U:O2'	2.05	0.57
1:0:1915:A:N6	1:0:1951:G:H21	1.99	0.57
1:0:176:A:H5''	1:0:177:U:H5	1.70	0.57
1:0:632:A:H2'	1:0:633:G:H5'	1.85	0.57
1:0:369:C:H2'	1:0:370:U:O4'	2.04	0.56
1:0:1431:U:H2'	1:0:1432:G:O4'	2.05	0.56
1:0:1472:C:C2'	1:0:1473:U:H5'	2.34	0.56
1:0:2057:U:O2'	1:0:2576:G:H1'	2.04	0.56
1:0:1971:C:H2'	1:0:1972:G:H8	1.70	0.56
1:0:628:A:H2'	1:0:629:C:C6	2.40	0.56
1:0:874:A:H62	1:0:928:G:H21	1.52	0.56
1:0:1220:G:H2'	1:0:1221:C:C6	2.40	0.56
1:0:158:A:H2'	1:0:159:A:O4'	2.05	0.56
1:0:1464:A:H4'	1:0:1545:G:H4'	1.86	0.56
1:0:2437:G:N2	1:0:2469:G:H2'	2.20	0.56
1:0:804:C:O2	1:0:807:A:H5'	2.05	0.56
1:0:843:G:O2'	1:0:844:G:OP1	2.15	0.56
1:0:1280:U:O2'	1:0:1281:A:H5'	2.06	0.56
1:0:197:G:H22	1:0:440:U:H2'	1.70	0.56
1:0:2841:U:O2	1:0:2843:A:H1'	2.05	0.56
1:0:2008:C:H2'	1:0:2009:U:C6	2.40	0.56
1:0:2437:G:H2'	1:0:2469:G:N2	2.21	0.56
1:0:930:A:H4'	1:0:930:A:OP1	2.03	0.56
1:0:533:C:H2'	1:0:534:U:O4'	2.05	0.56
1:0:784:U:H2'	1:0:785:U:C6	2.41	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	2.41	0.56
1:0:1813:A:H2'	1:0:1814:G:C8	2.40	0.56
1:0:1087:C:H2'	1:0:1088:A:O4'	2.06	0.56
1:0:197:G:N2	1:0:440:U:H2'	2.21	0.56
1:0:2329:C:H2'	1:0:2330:G:H5'	1.88	0.56
1:0:2047:C:H42	1:0:2425:G:H1	1.54	0.56
1:0:2437:G:H2'	1:0:2469:G:C2	2.41	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:874:A:N6	1:0:928:G:H21	2.04	0.56
1:0:1191:G:H2'	1:0:1192:A:C8	2.40	0.56
1:0:103:U:H2'	1:0:104:C:C6	2.40	0.56
1:0:1356:G:H1'	1:0:1613:G:C2	2.40	0.56
1:0:2270:U:H2'	1:0:2271:C:C6	2.41	0.56
1:0:2459:C:H2'	1:0:2460:G:H5'	1.88	0.56
1:0:879:A:H2'	1:0:879:A:N3	2.21	0.56
1:0:1337:G:H1'	1:0:1632:A:N6	2.21	0.56
1:0:876:A:H2'	1:0:877:G:C8	2.41	0.56
1:0:758:G:O2'	1:0:761:G:H1'	2.06	0.56
1:0:2668:U:C4'	1:0:2669:C:H5'	2.30	0.55
1:0:366:U:H2'	1:0:367:G:C8	2.41	0.55
1:0:114:C:O2'	1:0:124:A:H1'	2.06	0.55
1:0:2641:A:H2'	1:0:2642:G:O4'	2.07	0.55
1:0:1181:C:H3'	1:0:1182:U:H5''	1.89	0.55
1:0:69:G:H3'	1:0:111:G:O2'	2.06	0.55
1:0:173:A:N3	1:0:173:A:H2'	2.21	0.55
1:0:616:U:C2'	1:0:617:U:H5''	2.37	0.55
1:0:824:U:O2'	1:0:1264:C:H1'	2.06	0.55
1:0:2783:U:OP1	1:0:2783:U:O4'	2.24	0.55
1:0:618:A:H2'	1:0:619:A:O4'	2.07	0.55
1:0:1949:A:H1'	1:0:2572:U:C4'	2.36	0.55
1:0:1711:C:H4'	1:0:1712:G:C2	2.41	0.55
1:0:2012:A:N7	1:0:2014:A:H5'	2.20	0.55
1:0:515:A:C2'	1:0:516:G:H5'	2.37	0.55
1:0:1258:G:H2'	1:0:1259:A:C8	2.42	0.55
1:0:1982:C:H1'	1:0:2666:U:O2'	2.06	0.55
1:0:2572:U:H2'	1:0:2573:C:C6	2.42	0.55
1:0:2321:C:H2'	1:0:2322:U:O4'	2.06	0.55
1:0:2162:C:H2'	1:0:2163:U:C6	2.41	0.55
1:0:1947:G:OP1	1:0:1947:G:H3'	2.06	0.55
1:0:2095:G:C2'	1:0:2096:U:H5''	2.37	0.55
1:0:2381:A:H4'	1:0:2382:C:H5	1.70	0.55
1:0:2061:C:H1'	1:0:2413:A:H1'	1.89	0.55
1:0:604:U:H2'	1:0:605:G:C8	2.41	0.55
1:0:1669:A:H2'	1:0:1670:G:H4'	1.89	0.55
1:0:775:U:O2	1:0:1445:A:H5''	2.06	0.55
1:0:791:G:H2'	1:0:792:U:C6	2.41	0.55
1:0:67:G:H8	1:0:67:G:O5'	1.90	0.55
1:0:166:G:H21	1:0:184:A:N6	1.92	0.55
1:0:177:U:H2'	1:0:178:C:C6	2.42	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1791:C:H1'	1:0:1793:A:O4'	2.06	0.55
1:0:241:C:O2'	1:0:242:A:H5''	2.06	0.55
1:0:558:G:H5''	1:0:559:C:C5	2.42	0.55
1:0:2492:G:H2'	1:0:2493:U:O4'	2.06	0.55
1:0:2204:A:O2'	1:0:2205:C:P	2.65	0.55
1:0:2470:U:O2'	1:0:2471:U:H5'	2.07	0.55
1:0:951:G:C2'	1:0:952:A:H5''	2.36	0.55
1:0:1789:U:C2'	1:0:1790:G:H5'	2.37	0.55
1:0:1829:C:H2'	1:0:1830:C:H5'	1.89	0.55
1:0:1141:U:H5'	1:0:2549:G:N2	2.21	0.55
1:0:1288:A:O2'	1:0:1289:A:H5'	2.07	0.55
1:0:2854:G:H3'	1:0:2854:G:N3	2.22	0.55
1:0:80:A:H2'	1:0:81:C:O4'	2.06	0.55
1:0:1921:A:H2'	1:0:1922:U:H5''	1.89	0.55
1:0:782:U:H2'	1:0:783:G:C8	2.42	0.55
1:0:2379:G:H2'	1:0:2380:U:O4'	2.06	0.54
1:0:1278:A:O2'	1:0:1279:G:P	2.65	0.54
1:0:1922:U:H1'	1:0:2570:C:O2'	2.07	0.54
1:0:841:G:H3'	1:0:841:G:N3	2.21	0.54
1:0:77:C:H2'	1:0:78:C:C6	2.42	0.54
1:0:587:A:H2'	1:0:588:G:H5''	1.90	0.54
1:0:1429:A:H62	1:0:1601:U:H5''	1.72	0.54
1:0:1356:G:H5'	1:0:1614:C:OP2	2.07	0.54
1:0:1463:A:H2'	1:0:1464:A:C8	2.41	0.54
1:0:1926:U:O2'	1:0:1928:G:H5'	2.08	0.54
1:0:394:U:H2'	1:0:395:G:H8	1.71	0.54
1:0:688:A:O2'	1:0:2422:C:H4'	2.07	0.54
1:0:1955:G:C2'	1:0:1956:G:H5'	2.37	0.54
1:0:1313:U:O2'	1:0:1314:A:P	2.66	0.54
1:0:847:C:N4	1:0:955:G:H21	1.95	0.54
1:0:162:C:H4'	1:0:195:A:O2'	2.08	0.54
1:0:48:A:H4'	1:0:50:G:O4'	2.08	0.54
1:0:2319:G:H2'	1:0:2320:G:C8	2.42	0.54
1:0:564:U:H2'	1:0:565:A:C8	2.41	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
1:0:468:A:H2'	1:0:469:G:H4'	1.90	0.54
1:0:67:G:H22	1:0:72:A:H2'	1.73	0.54
1:0:1459:U:H2'	1:0:1475:U:O2'	2.08	0.54
1:0:1818:G:H2'	1:0:1819:U:C6	2.42	0.54
1:0:2168:A:H2'	1:0:2169:A:H5'	1.89	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2432:A:H4'	1:0:2551:A:O2'	2.07	0.54
1:0:942:U:O2'	1:0:943:U:H5'	2.07	0.54
1:0:2466:G:H2'	1:0:2467:A:C8	2.42	0.54
1:0:541:C:N4	1:0:572:G:O4'	2.41	0.54
1:0:1746:A:C2'	1:0:1747:G:H5'	2.37	0.54
1:0:798:G:O2'	1:0:1770:U:H4'	2.08	0.54
1:0:1279:G:C2'	1:0:1280:U:OP2	2.56	0.54
1:0:393:U:H2'	1:0:394:U:C6	2.43	0.54
1:0:1974:U:H2'	1:0:1975:G:H5''	1.88	0.54
1:0:486:U:H4'	1:0:520:C:H5'	1.89	0.54
1:0:1920:A:N6	1:0:1923:U:H6	2.06	0.54
1:0:26:G:H21	1:0:524:A:N6	2.02	0.54
1:0:1664:G:H4'	1:0:1665:C:O5'	2.07	0.54
1:0:2560:G:N3	1:0:2560:G:H3'	2.23	0.54
1:0:598:U:H2'	1:0:599:A:C8	2.42	0.54
1:0:538:A:H2'	1:0:539:A:H5''	1.90	0.54
1:0:646:C:H2'	1:0:647:G:O4'	2.07	0.54
1:0:126:C:H2'	1:0:127:C:C6	2.42	0.54
1:0:484:G:O2'	1:0:485:G:H5'	2.08	0.54
1:0:242:A:O2'	1:0:243:G:O5'	2.25	0.54
1:0:2516:U:H2'	1:0:2517:C:C6	2.43	0.54
1:0:2440:C:H1'	1:0:2471:U:N3	2.23	0.53
1:0:404:A:H2'	1:0:405:C:C6	2.43	0.53
1:0:2700:U:N3	1:0:2848:A:N6	2.54	0.53
1:0:1326:U:H2'	1:0:1327:C:H5'	1.89	0.53
1:0:2418:A:H1'	1:0:2565:C:H4'	1.90	0.53
1:0:1333:G:N2	1:0:1344:C:N4	2.56	0.53
1:0:216:U:H2'	1:0:217:U:O4'	2.08	0.53
1:0:226:C:H4'	1:0:227:G:C8	2.43	0.53
1:0:1528:C:C3'	1:0:1529:C:H5''	2.38	0.53
1:0:1789:U:O2'	1:0:1790:G:H5'	2.08	0.53
1:0:775:U:H4'	1:0:776:G:C8	2.43	0.53
1:0:1825:C:C2'	1:0:1826:U:H5'	2.38	0.53
1:0:826:U:H2'	1:0:827:C:C6	2.44	0.53
1:0:1745:C:H2'	1:0:1746:A:O4'	2.09	0.53
1:0:832:A:H2'	1:0:833:A:O4'	2.07	0.53
1:0:728:G:H2'	1:0:729:A:O4'	2.08	0.53
1:0:2321:C:O2'	1:0:2353:G:H5''	2.09	0.53
1:0:929:A:H3'	1:0:930:A:C5'	2.33	0.53
1:0:173:A:O2'	1:0:174:A:OP1	2.20	0.53
1:0:1289:A:H62	1:0:1662:G:H1	1.56	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1301:U:H2'	1:0:1664:G:H21	1.73	0.53
1:0:857:U:H2'	1:0:858:G:H5'	1.90	0.53
1:0:776:G:N3	1:0:776:G:H2'	2.24	0.53
1:0:1273:G:H2'	1:0:1274:C:C6	2.44	0.53
1:0:737:C:H2'	1:0:738:G:O4'	2.09	0.53
1:0:225:G:N2	1:0:2410:U:H1'	2.23	0.53
1:0:917:U:H2'	1:0:918:A:O4'	2.08	0.53
1:0:843:G:O2'	1:0:844:G:H5'	2.09	0.53
1:0:2312:A:H1'	1:0:2314:A:C8	2.44	0.53
1:0:1976:U:C2'	1:0:1977:C:H5'	2.37	0.53
1:0:1358:C:H2'	1:0:1359:G:C5'	2.38	0.53
1:0:918:A:C2'	1:0:919:U:H5''	2.36	0.53
1:0:824:U:H1'	1:0:1264:C:H1'	1.90	0.53
1:0:1838:G:C2'	1:0:1839:A:H5'	2.39	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
1:0:1075:C:H2'	1:0:1076:U:O4'	2.09	0.53
1:0:73:A:H4'	1:0:74:G:O4'	2.09	0.53
1:0:1971:C:H2'	1:0:1972:G:C8	2.44	0.53
1:0:1365:U:H1'	1:0:1586:A:H2	1.74	0.53
1:0:807:A:H2'	1:0:808:C:C6	2.43	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
1:0:33:C:N4	1:0:466:A:H61	2.07	0.53
1:0:317:U:C3'	1:0:318:G:H5''	2.39	0.53
1:0:1763:G:H2'	1:0:1764:A:H4'	1.90	0.53
1:0:1497:C:O2'	1:0:1498:G:H5'	2.08	0.53
1:0:1502:G:O2'	1:0:1503:G:H5'	2.09	0.53
1:0:167:A:H2'	1:0:168:A:C8	2.44	0.53
1:0:1004:A:H2'	1:0:1005:U:H5''	1.89	0.53
1:0:578:U:C1'	1:0:957:G:H21	2.20	0.53
1:0:1313:U:O4	1:0:1651:U:H5'	2.09	0.53
1:0:2756:A:H1'	1:0:2758:A:N7	2.23	0.53
1:0:2728:A:H2'	1:0:2729:A:O4'	2.09	0.53
1:0:2498:U:H5''	1:0:2499:C:OP1	2.10	0.53
1:0:45:C:H5''	1:0:192:G:C8	2.43	0.53
1:0:2536:G:H2'	1:0:2537:C:C6	2.44	0.53
1:0:1654:A:H2'	1:0:1655:C:C6	2.44	0.53
1:0:38:G:H2'	1:0:39:C:C6	2.44	0.53
1:0:870:C:H2'	1:0:871:U:C6	2.43	0.52
1:0:1200:G:O4'	1:0:1200:G:OP1	2.28	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1566:G:H4'	1:0:1733:U:O4	2.09	0.52
1:0:788:G:H5'	1:0:790:A:H1'	1.90	0.52
1:0:212:U:H2'	1:0:213:C:C6	2.44	0.52
1:0:2372:A:H2'	1:0:2373:C:C6	2.44	0.52
1:0:874:A:H62	1:0:928:G:N2	2.07	0.52
1:0:181:A:H4'	1:0:182:G:C4'	2.39	0.52
1:0:1162:A:H2'	1:0:1163:C:C6	2.44	0.52
1:0:201:G:H2'	1:0:202:A:C8	2.44	0.52
1:0:599:A:H2'	1:0:600:G:C8	2.44	0.52
1:0:1775:A:H4'	1:0:1776:A:C8	2.44	0.52
2:5:4:G:H2'	2:5:5:C:C6	2.45	0.52
1:0:1312:G:C5'	1:0:1313:U:H5'	2.33	0.52
1:0:2244:C:N4	1:0:2245:A:N6	2.57	0.52
1:0:2757:G:OP2	1:0:2761:A:H4'	2.09	0.52
1:0:1029:C:H2'	1:0:1030:U:H5''	1.91	0.52
1:0:1263:G:O2'	1:0:1264:C:OP1	2.27	0.52
1:0:2809:A:C2'	1:0:2810:A:H5'	2.39	0.52
1:0:158:A:H2'	1:0:159:A:C8	2.45	0.52
1:0:2483:U:H1'	1:0:2551:A:H2	1.74	0.52
1:0:2426:G:O2'	1:0:2427:A:P	2.67	0.52
1:0:2401:A:H2'	1:0:2403:C:C5	2.44	0.52
1:0:1288:A:H2'	1:0:1289:A:O4'	2.09	0.52
1:0:665:A:OP2	1:0:666:U:H5'	2.10	0.52
1:0:2561:G:C2'	1:0:2562:G:H5'	2.40	0.52
1:0:1970:G:H2'	1:0:1971:C:C6	2.44	0.52
1:0:394:U:H2'	1:0:395:G:C8	2.44	0.52
1:0:597:U:H3	1:0:683:A:H2'	1.74	0.52
1:0:658:G:H4'	1:0:2331:A:H5'	1.91	0.52
1:0:1217:U:H2'	1:0:1218:C:C6	2.45	0.52
1:0:638:A:O2'	1:0:639:G:H5'	2.09	0.52
1:0:939:C:H2'	1:0:940:G:C8	2.45	0.52
1:0:688:A:HO2'	1:0:2422:C:H4'	1.74	0.52
1:0:1964:A:H5''	1:0:1965:U:OP2	2.09	0.52
1:0:9:U:H3	1:0:2608:A:N6	2.02	0.52
1:0:1286:U:H5''	1:0:1663:C:N4	2.24	0.52
1:0:1899:A:O2'	1:0:1946:U:H1'	2.10	0.52
1:0:597:U:H2'	1:0:598:U:C6	2.44	0.52
1:0:1234:C:H2'	1:0:1235:C:C6	2.45	0.52
1:0:127:C:H2'	1:0:128:C:C6	2.45	0.52
1:0:129:A:H2'	1:0:130:C:C6	2.44	0.52
1:0:2059:U:H2'	1:0:2060:A:H5''	1.90	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1900:U:H4'	1:0:1946:U:O4'	2.09	0.52
1:0:2451:G:H2'	1:0:2508:G:N2	2.25	0.52
1:0:95:G:H2'	1:0:96:C:C6	2.44	0.52
1:0:341:A:H1'	1:0:1223:G:O6	2.09	0.52
1:0:2574:G:H1'	1:0:2576:G:O6	2.10	0.52
1:0:629:C:H2'	1:0:630:G:H5'	1.91	0.52
1:0:757:U:O2'	1:0:758:G:H5'	2.09	0.52
1:0:688:A:H1'	1:0:2423:G:H5'	1.92	0.52
1:0:2083:G:H2'	1:0:2084:G:O4'	2.10	0.52
1:0:795:A:H4'	1:0:796:A:C8	2.44	0.52
1:0:689:A:N3	1:0:689:A:H3'	2.24	0.52
1:0:230:C:H2'	1:0:231:G:O4'	2.10	0.52
1:0:224:G:C5	1:0:226:C:H1'	2.44	0.52
1:0:838:A:H2'	1:0:839:U:C6	2.45	0.52
1:0:2504:G:H2'	1:0:2505:G:C8	2.45	0.52
1:0:1788:C:H2'	1:0:1789:U:C6	2.45	0.52
1:0:2242:C:N4	1:0:2257:A:N6	2.57	0.52
1:0:2160:C:H2'	1:0:2161:C:C6	2.45	0.52
1:0:2272:A:H2'	1:0:2273:C:C6	2.45	0.52
1:0:333:A:H1'	1:0:351:A:C4	2.44	0.52
1:0:476:G:H2'	1:0:477:A:C8	2.45	0.52
1:0:491:A:H2'	1:0:491:A:N3	2.25	0.52
1:0:512:A:H2'	1:0:513:A:H5'	1.92	0.52
1:0:2057:U:H1'	1:0:2577:A:H1'	1.91	0.52
1:0:317:U:C2'	1:0:318:G:H5''	2.39	0.52
1:0:168:A:H2'	1:0:169:C:C6	2.45	0.52
1:0:1377:G:H4'	1:0:1800:A:H5'	1.92	0.52
1:0:446:C:H2'	1:0:447:U:C6	2.45	0.52
1:0:1923:U:H1'	1:0:1947:G:H4'	1.92	0.51
1:0:215:G:O2'	1:0:617:U:H1'	2.09	0.51
1:0:1889:G:H2'	1:0:1890:G:C8	2.45	0.51
1:0:1597:A:H2'	1:0:1598:C:C6	2.45	0.51
1:0:980:G:H2'	1:0:981:C:C6	2.45	0.51
1:0:2623:A:H2'	1:0:2624:G:O4'	2.10	0.51
1:0:1352:G:H2'	1:0:1353:A:C8	2.43	0.51
1:0:2320:G:H2'	1:0:2321:C:O4'	2.09	0.51
1:0:2703:C:H2'	1:0:2704:U:C6	2.45	0.51
1:0:1358:C:H2'	1:0:1359:G:H5''	1.92	0.51
1:0:1677:C:H2'	1:0:1678:G:C8	2.46	0.51
1:0:243:G:H2'	1:0:244:C:O4'	2.11	0.51
1:0:332:C:H2'	1:0:333:A:H5'	1.93	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:476:G:H21	1:0:696:U:H1'	1.75	0.51
1:0:1860:A:H2'	1:0:1861:G:O4'	2.11	0.51
1:0:2177:U:H2'	1:0:2178:U:C6	2.45	0.51
1:0:941:U:H4'	1:0:941:U:OP1	2.10	0.51
1:0:1198:C:C5'	1:0:1199:U:H5''	2.41	0.51
1:0:1018:C:H2'	1:0:1019:U:C5	2.45	0.51
1:0:878:C:N4	1:0:921:A:H62	2.06	0.51
1:0:18:U:H2'	1:0:19:C:C6	2.44	0.51
1:0:170:U:H2'	1:0:171:G:H8	1.75	0.51
1:0:2213:G:H2'	1:0:2214:G:C8	2.46	0.51
1:0:590:C:H2'	1:0:591:G:C8	2.45	0.51
1:0:1661:C:O2'	1:0:1662:G:H5'	2.10	0.51
1:0:1092:U:H2'	1:0:1093:U:C6	2.45	0.51
1:0:991:A:H61	1:0:2020:G:H21	1.58	0.51
1:0:868:U:H2'	1:0:869:C:C6	2.45	0.51
1:0:630:G:H2'	1:0:631:G:H5'	1.93	0.51
1:0:1865:C:H2'	1:0:1866:G:O4'	2.10	0.51
1:0:1068:A:H2'	1:0:1069:G:C8	2.45	0.51
1:0:451:A:H2'	1:0:452:G:C8	2.46	0.51
1:0:1819:U:H5''	1:0:1954:A:O3'	2.11	0.51
1:0:1895:A:H2'	1:0:1896:A:O4'	2.11	0.51
1:0:1576:G:H2'	1:0:1577:G:O4'	2.11	0.51
1:0:223:C:H4'	1:0:398:C:H1'	1.92	0.51
1:0:619:A:H2'	1:0:620:G:C8	2.45	0.51
1:0:2660:C:O2'	1:0:2661:G:H5'	2.11	0.51
1:0:457:C:H2'	1:0:458:G:O4'	2.10	0.51
1:0:1912:G:H2'	1:0:1912:G:N3	2.25	0.51
1:0:2426:G:H5'	1:0:2480:C:N4	2.19	0.51
1:0:2429:A:H5''	1:0:2476:A:C6	2.46	0.51
1:0:583:C:O2'	1:0:584:A:OP2	2.28	0.51
1:0:1979:C:H42	1:0:2706:U:H6	1.59	0.51
1:0:1067:G:H2'	1:0:1114:A:H61	1.76	0.51
1:0:2023:C:H2'	1:0:2024:U:C6	2.46	0.51
1:0:1611:U:H2'	1:0:1612:U:O4'	2.11	0.51
1:0:1727:C:H4'	1:0:2833:C:O2	2.10	0.51
1:0:1881:U:H2'	1:0:1882:G:H5'	1.93	0.51
1:0:879:A:O2'	1:0:880:C:H5'	2.10	0.51
1:0:114:C:H2'	1:0:115:G:O4'	2.11	0.51
1:0:964:A:H2'	1:0:965:G:C8	2.46	0.51
1:0:1424:U:H2'	1:0:1425:G:C8	2.46	0.51
1:0:1038:U:O2	1:0:2466:G:H4'	2.10	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2238:G:H2'	1:0:2239:C:H6	1.76	0.50
1:0:1938:U:C2'	1:0:1939:U:H5'	2.40	0.50
1:0:1683:G:C2'	1:0:1684:G:H5'	2.41	0.50
1:0:959:C:H5''	1:0:972:C:O2'	2.11	0.50
1:0:1007:A:H2'	1:0:1008:G:C8	2.46	0.50
1:0:1052:C:H2'	1:0:1053:G:C8	2.45	0.50
1:0:422:C:H2'	1:0:423:G:H8	1.77	0.50
1:0:2397:A:H2'	1:0:2398:U:O4'	2.11	0.50
1:0:173:A:H61	1:0:844:G:H21	1.57	0.50
1:0:1626:A:OP2	1:0:1627:C:H5	1.95	0.50
1:0:534:U:H4'	1:0:564:U:O2'	2.12	0.50
1:0:841:G:N1	1:0:2226:A:H4'	2.26	0.50
1:0:2756:A:H4'	1:0:2758:A:OP1	2.11	0.50
1:0:2725:C:H2'	1:0:2726:U:C6	2.47	0.50
1:0:788:G:H5'	1:0:790:A:N3	2.26	0.50
1:0:1218:C:H2'	1:0:1219:C:C6	2.46	0.50
1:0:579:G:H2'	1:0:2013:A:N6	2.26	0.50
1:0:1667:A:H2'	1:0:1668:G:H8	1.76	0.50
1:0:2010:G:H2'	1:0:2011:U:O4'	2.12	0.50
1:0:35:G:C1'	1:0:466:A:H1'	2.41	0.50
1:0:2727:G:C2'	1:0:2728:A:H5''	2.41	0.50
1:0:1861:G:O2'	1:0:1862:C:H5'	2.11	0.50
1:0:626:A:O2'	1:0:627:A:H5'	2.11	0.50
1:0:991:A:N6	1:0:2020:G:H21	2.10	0.50
1:0:2229:G:H2'	1:0:2475:C:OP1	2.11	0.50
1:0:872:G:H2'	1:0:928:G:N1	2.27	0.50
1:0:225:G:H21	1:0:2410:U:H1'	1.76	0.50
1:0:1857:G:H2'	1:0:1859:A:OP2	2.12	0.50
1:0:2178:U:H2'	1:0:2179:C:C6	2.47	0.50
1:0:1127:C:H2'	1:0:1128:G:H8	1.77	0.50
1:0:1057:A:H3'	1:0:1058:G:C5'	2.41	0.50
1:0:2426:G:N2	1:0:2430:A:H62	2.09	0.50
1:0:55:A:H2'	1:0:56:C:H6	1.77	0.50
1:0:1312:G:H2'	1:0:1643:A:N6	2.26	0.50
1:0:1194:U:O2'	1:0:1195:U:P	2.70	0.50
1:0:316:C:H2'	1:0:317:U:C6	2.47	0.50
1:0:236:C:O2	1:0:632:A:H1'	2.12	0.50
1:0:2446:C:H2'	1:0:2447:G:C8	2.47	0.50
1:0:1073:G:H2'	1:0:1074:G:C4'	2.29	0.50
1:0:1747:G:C4'	1:0:1749:G:H1'	2.31	0.50
1:0:2079:A:H2'	1:0:2080:U:C6	2.47	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2082:C:H2'	1:0:2083:G:O4'	2.11	0.50
1:0:215:G:H4'	1:0:617:U:O2'	2.12	0.50
1:0:2754:C:H2'	1:0:2755:A:O4'	2.12	0.50
1:0:1686:A:O2'	1:0:2528:G:H5'	2.12	0.50
1:0:2313:G:H2'	1:0:2314:A:H5'	1.93	0.50
1:0:792:U:H2'	1:0:793:G:O4'	2.11	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
1:0:338:G:O2'	1:0:339:U:H5'	2.12	0.50
1:0:831:G:C2'	1:0:832:A:H5''	2.41	0.50
1:0:2485:U:O2'	1:0:2486:C:H5'	2.11	0.50
1:0:742:G:H2'	1:0:1766:U:H1'	1.94	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
1:0:1055:A:N6	1:0:1122:A:H4'	2.27	0.50
1:0:2435:C:H2'	1:0:2436:U:C6	2.47	0.50
1:0:1029:C:OP1	1:0:1047:G:H4'	2.11	0.50
1:0:2726:U:H2'	1:0:2727:G:O4'	2.12	0.50
1:0:2821:G:H2'	1:0:2822:U:C6	2.47	0.50
1:0:2561:G:O2'	1:0:2562:G:H5'	2.11	0.50
1:0:689:A:N6	1:0:815:A:H61	2.06	0.49
1:0:1495:G:HO2'	1:0:1496:G:P	2.35	0.49
1:0:1195:U:H2'	1:0:1196:G:H8	1.73	0.49
1:0:459:A:H62	1:0:484:G:H1'	1.77	0.49
1:0:1259:A:H2'	1:0:1260:A:C8	2.47	0.49
1:0:597:U:N3	1:0:683:A:H2'	2.27	0.49
1:0:1055:A:O2'	1:0:1058:G:H1'	2.12	0.49
1:0:460:U:N3	1:0:592:G:H1'	2.22	0.49
1:0:1164:C:H2'	1:0:1165:G:O4'	2.11	0.49
1:0:645:G:H2'	1:0:646:C:C6	2.47	0.49
1:0:2181:A:H2'	1:0:2182:A:H5'	1.93	0.49
1:0:703:A:H2'	1:0:704:G:H8	1.77	0.49
1:0:431:G:H2'	1:0:432:C:C6	2.47	0.49
1:0:1820:G:O2'	1:0:1821:A:P	2.70	0.49
1:0:2805:G:O2'	1:0:2806:G:H5'	2.12	0.49
1:0:1029:C:C3'	1:0:1030:U:H5''	2.43	0.49
1:0:45:C:H2'	1:0:46:C:C6	2.46	0.49
1:0:1259:A:H2'	1:0:1260:A:O4'	2.12	0.49
1:0:1310:C:OP1	1:0:2689:C:H4'	2.12	0.49
1:0:165:G:H2'	1:0:166:G:O4'	2.12	0.49
1:0:2794:G:H3'	1:0:2796:A:N6	2.20	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:181:A:H4'	1:0:182:G:O5'	2.11	0.49
1:0:780:U:H2'	1:0:781:G:C8	2.48	0.49
1:0:1785:A:H2'	1:0:1786:C:C6	2.46	0.49
1:0:1435:G:H21	1:0:1511:A:N6	2.11	0.49
1:0:1492:A:H2	1:0:1531:C:H41	1.58	0.49
1:0:1016:C:H2'	1:0:1017:C:C6	2.47	0.49
1:0:1791:C:H2'	1:0:1792:C:H5''	1.95	0.49
1:0:1685:A:H1'	1:0:1686:A:N7	2.28	0.49
1:0:83:A:C6	1:0:98:U:H1'	2.46	0.49
1:0:216:U:H5''	1:0:601:A:N6	2.28	0.49
1:0:860:U:H2'	1:0:861:G:H5'	1.95	0.49
1:0:213:C:H42	1:0:238:G:H22	1.59	0.49
1:0:594:G:H21	1:0:1267:A:H62	1.61	0.49
1:0:810:U:H2'	1:0:811:G:C8	2.48	0.49
1:0:689:A:C2'	1:0:690:A:H5'	2.43	0.49
1:0:203:G:O2'	1:0:204:A:H5'	2.13	0.49
1:0:190:A:H2'	1:0:191:G:C8	2.47	0.49
1:0:1354:A:H3'	1:0:1410:U:O2	2.12	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
1:0:2161:C:O2'	1:0:2162:C:P	2.71	0.49
1:0:1445:A:H2'	1:0:1446:U:O4'	2.13	0.49
1:0:1099:A:H5''	1:0:1100:G:N7	2.27	0.49
1:0:1038:U:H2'	1:0:1039:A:C8	2.48	0.49
1:0:1141:U:O2'	1:0:1142:G:OP1	2.26	0.49
1:0:930:A:H5'	1:0:931:G:C8	2.47	0.49
1:0:2404:A:H5''	1:0:2405:A:H3'	1.94	0.49
1:0:441:A:H2'	1:0:442:A:O4'	2.12	0.49
1:0:2560:G:H4'	1:0:2561:G:C8	2.47	0.49
1:0:211:U:O2'	1:0:212:U:H5'	2.13	0.49
1:0:693:A:H2'	1:0:694:G:C8	2.47	0.49
1:0:2799:C:H2'	1:0:2800:C:O4'	2.12	0.49
1:0:2533:U:H2'	1:0:2534:U:C6	2.47	0.49
1:0:2093:G:H2'	1:0:2094:C:C6	2.47	0.49
1:0:951:G:C3'	1:0:952:A:H5''	2.43	0.49
1:0:109:A:H3'	1:0:110:U:C5'	2.39	0.49
1:0:204:A:H4'	1:0:205:A:N7	2.28	0.49
1:0:338:G:H1	1:0:346:C:H42	1.61	0.49
1:0:820:U:H1'	1:0:2424:G:OP1	2.12	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

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1685:A:C6	1:0:1691:G:H1'	2.48	0.49
1:0:2235:G:H2'	1:0:2236:U:C6	2.48	0.49
1:0:1678:G:H2'	1:0:1679:U:C6	2.47	0.49
1:0:1949:A:O2'	1:0:2572:U:H5'	2.13	0.49
1:0:1380:C:N4	1:0:1799:A:N1	2.61	0.49
1:0:1729:C:H2'	1:0:1730:G:C8	2.48	0.49
1:0:2417:U:H4'	1:0:2419:C:OP1	2.13	0.49
1:0:2721:A:N6	1:0:2743:G:H21	2.09	0.49
1:0:1679:U:H2'	1:0:1680:U:H5''	1.94	0.49
1:0:1665:C:N4	1:0:1993:G:H1	2.11	0.49
1:0:84:G:H2'	1:0:85:C:C6	2.48	0.49
1:0:2570:C:H2'	1:0:2571:G:C8	2.48	0.49
1:0:210:A:N6	1:0:442:A:H61	2.10	0.49
1:0:756:C:H2'	1:0:757:U:C6	2.48	0.49
1:0:864:C:H2'	1:0:865:A:C8	2.46	0.49
1:0:2299:A:H2'	1:0:2299:A:N3	2.27	0.49
1:0:830:C:O2	1:0:852:U:H4'	2.13	0.48
1:0:1046:U:H2'	1:0:1047:G:C8	2.48	0.48
1:0:1682:A:H2'	1:0:1683:G:C8	2.47	0.48
1:0:1279:G:H1'	1:0:1280:U:H5	1.77	0.48
1:0:763:A:C2	1:0:765:C:H1'	2.48	0.48
1:0:790:A:H2'	1:0:791:G:C8	2.48	0.48
1:0:2301:A:H2'	1:0:2302:G:O4'	2.13	0.48
1:0:1349:A:H2'	1:0:1350:G:C8	2.48	0.48
1:0:2852:G:H2'	1:0:2853:U:O4'	2.13	0.48
1:0:1040:A:H2'	1:0:1041:G:H5'	1.93	0.48
1:0:2421:C:O2'	1:0:2422:C:H5'	2.12	0.48
1:0:1182:U:C3'	1:0:1183:C:H5''	2.43	0.48
1:0:1715:A:H1'	1:0:1717:A:C1'	2.42	0.48
1:0:1871:G:C2'	1:0:1871:G:N3	2.76	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
1:0:116:A:N3	1:0:155:G:H1'	2.28	0.48
1:0:2026:C:H2'	1:0:2027:C:C6	2.48	0.48
1:0:942:U:C2'	1:0:943:U:H5'	2.43	0.48
1:0:2424:G:H2'	1:0:2425:G:O4'	2.13	0.48
1:0:521:U:H2'	1:0:522:G:H5'	1.95	0.48
1:0:2308:A:H2'	1:0:2309:G:C8	2.47	0.48
1:0:568:G:H5''	1:0:1019:U:H5'	1.95	0.48
1:0:2025:A:H2'	1:0:2026:C:H5''	1.94	0.48
1:0:2343:C:H2'	1:0:2344:G:O4'	2.14	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1629:G:N1	1:0:1633:C:N4	2.62	0.48
1:0:548:G:H2'	1:0:549:G:C8	2.48	0.48
1:0:2872:U:H2'	1:0:2873:G:C8	2.49	0.48
1:0:367:G:C3'	1:0:368:A:H5''	2.43	0.48
1:0:108:G:H2'	1:0:109:A:C8	2.49	0.48
1:0:109:A:C2'	1:0:110:U:H5''	2.44	0.48
1:0:173:A:N6	1:0:844:G:H21	2.12	0.48
1:0:1686:A:H2'	1:0:1687:C:H5'	1.94	0.48
1:0:477:A:H2'	1:0:478:G:O4'	2.14	0.48
1:0:427:C:H2'	1:0:428:A:C8	2.49	0.48
1:0:42:G:H2'	1:0:43:A:O4'	2.13	0.48
1:0:941:U:H2'	1:0:942:U:C6	2.48	0.48
1:0:2559:U:C2'	1:0:2560:G:H5'	2.43	0.48
1:0:569:C:H2'	1:0:570:G:C8	2.48	0.48
1:0:583:C:O2'	1:0:584:A:P	2.71	0.48
1:0:172:A:H4'	1:0:228:A:H4'	1.95	0.48
1:0:2220:A:H2'	1:0:2221:G:C8	2.48	0.48
1:0:2503:G:H2'	1:0:2504:G:H5''	1.96	0.48
1:0:1429:A:H1'	1:0:1603:A:C6	2.49	0.48
1:0:2784:A:H3'	1:0:2785:A:C8	2.46	0.48
1:0:161:U:H2'	1:0:162:C:C6	2.48	0.48
1:0:1825:C:O2'	1:0:1826:U:H5'	2.14	0.48
1:0:478:G:O2'	1:0:479:G:H5'	2.14	0.48
1:0:429:C:H2'	1:0:430:C:O4'	2.13	0.48
1:0:845:U:H2'	1:0:846:A:C8	2.49	0.48
1:0:1141:U:O2'	1:0:1142:G:P	2.72	0.48
1:0:2428:U:O2'	1:0:2429:A:H5'	2.13	0.48
1:0:742:G:N3	1:0:742:G:C2'	2.77	0.48
1:0:632:A:C2'	1:0:633:G:H5'	2.44	0.48
1:0:1742:G:H2'	1:0:1743:C:C6	2.48	0.48
1:0:2085:G:H2'	1:0:2086:U:C6	2.49	0.48
1:0:323:G:H2'	1:0:324:C:C6	2.48	0.48
1:0:1033:G:H22	1:0:1150:C:C2'	2.26	0.48
1:0:979:A:H2'	1:0:980:G:C8	2.49	0.48
1:0:2212:U:H2'	1:0:2213:G:C8	2.49	0.48
1:0:1821:A:H5''	1:0:1822:C:H5	1.79	0.48
1:0:2278:A:H2'	1:0:2279:G:C8	2.48	0.48
1:0:2015:G:OP2	1:0:2434:G:H5'	2.14	0.48
1:0:2468:G:H2'	1:0:2469:G:O4'	2.14	0.48
1:0:1436:G:H2'	1:0:1437:A:C8	2.49	0.48
1:0:1809:G:O2'	1:0:1810:U:H5'	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:5:30:C:O2'	2:5:31:C:H5'	2.14	0.48
1:0:2377:U:O2'	1:0:2378:G:P	2.72	0.48
1:0:1391:A:H2'	1:0:1392:U:C5	2.49	0.48
1:0:2815:C:H2'	1:0:2816:C:C6	2.49	0.48
1:0:70:A:P	1:0:111:G:H4'	2.54	0.48
1:0:1436:G:H1'	1:0:1508:G:N2	2.18	0.48
1:0:1458:A:H3'	1:0:1459:U:H5'	1.96	0.48
1:0:1793:A:H2'	1:0:1794:A:H8	1.79	0.48
1:0:1712:G:N3	1:0:1712:G:H3'	2.29	0.48
1:0:565:A:H2'	1:0:566:U:C6	2.49	0.48
1:0:2559:U:H2'	1:0:2560:G:H5'	1.95	0.48
1:0:864:C:H2'	1:0:865:A:H8	1.79	0.48
1:0:2708:U:H2'	1:0:2709:C:C6	2.49	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
1:0:2048:C:H2'	1:0:2049:C:H6	1.79	0.47
1:0:1436:G:C1'	1:0:1508:G:H21	2.21	0.47
1:0:1925:C:H4'	2:5:30:C:O2'	2.13	0.47
1:0:239:A:H4'	1:0:620:G:H5'	1.95	0.47
1:0:1354:A:N6	1:0:1407:G:H22	2.10	0.47
1:0:84:G:O2'	1:0:85:C:H5'	2.14	0.47
1:0:780:U:H2'	1:0:781:G:H8	1.79	0.47
1:0:2523:G:O2'	1:0:2524:G:H5'	2.14	0.47
1:0:1036:G:H1'	1:0:1145:C:C4'	2.44	0.47
1:0:974:U:H2'	1:0:975:C:C6	2.49	0.47
1:0:1774:A:H1'	1:0:2586:G:N2	2.28	0.47
1:0:108:G:H2'	1:0:109:A:H8	1.79	0.47
1:0:2204:A:O2'	1:0:2205:C:OP2	2.32	0.47
1:0:1316:G:H2'	1:0:1317:G:C8	2.49	0.47
1:0:2009:U:H2'	1:0:2010:G:C8	2.49	0.47
1:0:2426:G:HO2'	1:0:2427:A:P	2.37	0.47
1:0:2434:G:H2'	1:0:2435:C:C6	2.50	0.47
1:0:1571:G:H2'	1:0:1572:C:C6	2.49	0.47
1:0:2757:G:H5'	1:0:2761:A:H1'	1.96	0.47
1:0:1821:A:H3'	1:0:1822:C:H6	1.79	0.47
1:0:2579:A:O2'	1:0:2580:C:H5'	2.14	0.47
1:0:2137:G:H2'	1:0:2138:U:C6	2.49	0.47
1:0:1226:A:C6	1:0:1250:A:H1'	2.49	0.47
1:0:1679:U:C2'	1:0:1680:U:H5''	2.44	0.47
1:0:670:U:H2'	1:0:671:A:C8	2.49	0.47
1:0:1069:G:O2'	1:0:1070:G:H5'	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2448:A:H2'	1:0:2449:G:O4'	2.14	0.47
1:0:1031:C:H1'	1:0:1151:U:O2	2.15	0.47
1:0:2651:U:H2'	1:0:2652:G:C8	2.49	0.47
1:0:1028:G:H2'	1:0:1029:C:C6	2.50	0.47
1:0:2057:U:H2'	1:0:2058:U:C6	2.50	0.47
1:0:1344:C:H2'	1:0:1346:C:OP1	2.14	0.47
1:0:2372:A:H2'	1:0:2373:C:H6	1.78	0.47
1:0:452:G:H2'	1:0:453:U:O4'	2.15	0.47
1:0:2526:U:H2'	1:0:2527:G:C8	2.50	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:C8	2.48	0.47
1:0:1496:G:H5'	1:0:1575:C:N4	2.29	0.47
1:0:1326:U:H1'	1:0:1626:A:N3	2.30	0.47
1:0:2378:G:H2'	1:0:2379:G:H8	1.80	0.47
1:0:1016:C:H5''	1:0:1023:U:OP2	2.14	0.47
1:0:664:C:H2'	1:0:665:A:C8	2.50	0.47
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
1:0:2316:G:H2'	1:0:2317:G:H8	1.78	0.47
1:0:1039:A:H2'	1:0:1040:A:H8	1.79	0.47
1:0:2494:C:H2'	1:0:2495:G:H8	1.80	0.47
1:0:701:U:H1'	1:0:800:U:H5'	1.97	0.47
1:0:926:C:H2'	1:0:927:C:H5'	1.95	0.47
1:0:2403:C:H2'	1:0:2408:G:O2'	2.15	0.47
1:0:2727:G:N1	1:0:2735:C:H5''	2.28	0.47
1:0:2564:U:H4'	1:0:2565:C:OP1	2.14	0.47
1:0:2565:C:O2'	1:0:2566:A:H5'	2.15	0.47
1:0:2558:C:O2'	1:0:2559:U:H5'	2.15	0.47
1:0:2329:C:N4	1:0:2361:G:H22	2.13	0.47
1:0:643:A:H2'	1:0:644:A:C8	2.49	0.47
1:0:1316:G:H2'	1:0:1317:G:H8	1.79	0.47
1:0:760:U:O2	1:0:1997:A:H1'	2.15	0.47
1:0:2062:U:H4'	1:0:2412:A:H2	1.79	0.47
1:0:1386:A:H2'	1:0:1387:G:O4'	2.15	0.47
1:0:1184:G:H2'	1:0:1185:C:H5'	1.97	0.47
1:0:2017:U:O2'	1:0:2018:G:H5'	2.14	0.47
1:0:2014:A:H62	1:0:2477:C:H1'	1.79	0.47
1:0:2499:C:N4	1:0:2521:A:H2	2.10	0.47
1:0:192:G:C4'	1:0:193:A:H4'	2.45	0.47
1:0:1981:A:H2'	1:0:1982:C:C6	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:776:G:N3	1:0:776:G:C2'	2.78	0.47
1:0:2168:A:C2'	1:0:2169:A:H5'	2.45	0.47
1:0:2021:G:H2'	1:0:2022:C:C6	2.50	0.47
1:0:432:C:H2'	1:0:433:G:H8	1.80	0.47
1:0:873:U:O2	1:0:2246:A:H5''	2.15	0.47
1:0:1480:G:H2'	1:0:1481:U:H5'	1.97	0.47
1:0:1290:A:H2'	1:0:1291:G:C8	2.50	0.47
1:0:1263:G:O2'	1:0:1264:C:P	2.73	0.47
1:0:1685:A:N6	1:0:1691:G:H1'	2.30	0.47
1:0:1684:G:H2'	1:0:1974:U:O4	2.15	0.47
1:0:1993:G:H2'	1:0:1994:U:C6	2.50	0.47
1:0:703:A:H2'	1:0:704:G:C8	2.50	0.47
1:0:635:C:H3'	1:0:636:G:H5''	1.97	0.47
1:0:556:A:H2'	1:0:557:U:H5'	1.97	0.47
1:0:2437:G:H4'	1:0:2438:A:N7	2.30	0.47
1:0:819:C:H2'	1:0:820:U:C6	2.50	0.47
1:0:2199:C:H2'	1:0:2200:G:C8	2.49	0.47
1:0:2564:U:HO2'	1:0:2565:C:P	2.37	0.47
1:0:1578:U:H2'	1:0:1579:G:C8	2.51	0.47
1:0:241:C:C2'	1:0:242:A:H5''	2.44	0.47
1:0:2276:C:O2	1:0:2301:A:H1'	2.15	0.47
1:0:2658:A:H2'	1:0:2659:C:C6	2.50	0.47
1:0:198:A:O2'	1:0:199:A:P	2.73	0.47
1:0:2771:C:H2'	1:0:2772:U:C6	2.49	0.47
1:0:2642:G:H2'	1:0:2643:G:O4'	2.15	0.46
1:0:2307:A:H2'	1:0:2308:A:C8	2.51	0.46
1:0:2809:A:H2'	1:0:2810:A:H5'	1.97	0.46
1:0:546:A:H2'	1:0:547:U:C6	2.50	0.46
1:0:1418:C:H2'	1:0:1419:G:H8	1.80	0.46
1:0:152:G:O2'	1:0:153:A:H5'	2.15	0.46
1:0:2393:G:H2'	1:0:2394:G:H8	1.80	0.46
1:0:2493:U:H2'	1:0:2494:C:C6	2.50	0.46
1:0:2504:G:H2'	1:0:2505:G:H8	1.79	0.46
1:0:1301:U:H2'	1:0:1664:G:N2	2.29	0.46
1:0:2204:A:H1'	1:0:2205:C:C5	2.50	0.46
1:0:1829:C:C2'	1:0:1830:C:H5'	2.45	0.46
1:0:771:C:H2'	1:0:772:G:H8	1.80	0.46
1:0:697:G:C2'	1:0:698:A:H5'	2.45	0.46
1:0:1937:G:N3	1:0:2530:C:H5'	2.29	0.46
1:0:971:A:H2	1:0:2475:C:H1'	1.80	0.46
1:0:1495:G:H2'	1:0:1496:G:C8	2.51	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:869:C:O2'	1:0:870:C:H5'	2.15	0.46
1:0:2574:G:H2'	1:0:2574:G:N3	2.31	0.46
1:0:1888:C:H5''	1:0:1889:G:C5'	2.45	0.46
1:0:1518:C:C2'	1:0:1519:G:O5'	2.64	0.46
1:0:758:G:N2	1:0:763:A:N1	2.62	0.46
1:0:337:G:H2'	1:0:338:G:C8	2.51	0.46
1:0:1760:G:H2'	1:0:1761:G:C8	2.50	0.46
1:0:1471:G:H1	1:0:2682:C:H42	1.63	0.46
1:0:986:A:H2'	1:0:987:G:H5'	1.97	0.46
1:0:1452:U:H5'	1:0:1532:A:O2'	2.14	0.46
1:0:689:A:C8	1:0:2422:C:H1'	2.50	0.46
1:0:932:G:H2'	1:0:933:G:C8	2.50	0.46
1:0:2324:G:C4'	1:0:2326:C:H5''	2.43	0.46
1:0:85:C:O2'	1:0:86:U:H5'	2.16	0.46
1:0:2278:A:H2'	1:0:2279:G:H8	1.81	0.46
1:0:2444:C:O2'	1:0:2445:C:H5'	2.16	0.46
1:0:54:G:H2'	1:0:55:A:C8	2.50	0.46
1:0:1572:C:C3'	1:0:1573:G:H5''	2.45	0.46
1:0:738:G:H2'	1:0:739:G:O4'	2.14	0.46
1:0:199:A:H61	1:0:209:G:H1'	1.81	0.46
1:0:1777:A:H5'	1:0:1963:G:H21	1.81	0.46
1:0:387:A:H2'	1:0:388:G:O4'	2.16	0.46
1:0:1279:G:H2'	1:0:1280:U:OP2	2.16	0.46
1:0:758:G:H2'	1:0:759:C:H5'	1.97	0.46
1:0:1962:C:O2'	1:0:1963:G:H5'	2.16	0.46
1:0:207:U:H2'	1:0:208:C:C6	2.51	0.46
1:0:675:C:H2'	1:0:676:G:C8	2.51	0.46
1:0:2555:G:N3	1:0:2555:G:H3'	2.31	0.46
1:0:582:G:H2'	1:0:583:C:H3'	1.98	0.46
1:0:1223:G:O2'	1:0:1224:A:P	2.74	0.46
1:0:27:G:N2	1:0:522:G:HO2'	2.14	0.46
1:0:1029:C:H3'	1:0:1030:U:H5''	1.96	0.46
1:0:567:G:H2'	1:0:568:G:C8	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
1:0:1579:G:H2'	1:0:1580:C:C6	2.51	0.46
1:0:2825:A:H2'	1:0:2826:C:C6	2.51	0.46
1:0:2800:C:H2'	1:0:2801:A:O4'	2.15	0.46
1:0:1836:C:H2'	1:0:1837:G:C8	2.50	0.46
1:0:2717:G:H2'	1:0:2718:A:C8	2.51	0.46
1:0:1014:G:O2'	1:0:1015:U:H5'	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:130:C:H2'	1:0:131:C:C6	2.51	0.46
1:0:35:G:H1'	1:0:466:A:H1'	1.98	0.46
1:0:878:C:O2'	1:0:879:A:P	2.73	0.46
1:0:1486:A:H2'	1:0:1487:C:C6	2.50	0.46
1:0:1068:A:H2'	1:0:1069:G:H8	1.81	0.46
1:0:636:G:H2'	1:0:637:G:H5'	1.97	0.46
1:0:2333:A:H2'	1:0:2334:C:C6	2.51	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
1:0:9:U:H2'	1:0:10:A:C8	2.51	0.46
1:0:2807:U:C5	1:0:2859:U:H4'	2.51	0.46
1:0:1619:A:H3'	1:0:1619:A:N3	2.31	0.46
1:0:1427:G:C2'	1:0:1428:G:H5'	2.44	0.46
1:0:2572:U:C4	1:0:2573:C:N4	2.84	0.46
1:0:2824:C:H1'	1:0:2843:A:C2	2.50	0.46
1:0:1120:C:H2'	1:0:2731:G:N2	2.31	0.46
1:0:64:C:H2'	1:0:65:C:C6	2.50	0.46
1:0:1225:G:H2'	1:0:1249:G:H1	1.81	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
1:0:2633:A:N6	1:0:2646:C:N4	2.63	0.46
1:0:322:A:H1'	1:0:343:A:N7	2.31	0.46
1:0:313:U:H2'	1:0:314:G:C8	2.50	0.46
1:0:1975:G:H4'	1:0:1976:U:H5	1.81	0.46
1:0:1278:A:H4'	1:0:1279:G:O5'	2.16	0.46
1:0:694:G:H2'	1:0:695:G:H8	1.81	0.46
1:0:1835:C:H2'	1:0:1836:C:C6	2.51	0.46
1:0:1495:G:O2'	1:0:1496:G:P	2.74	0.45
1:0:798:G:H2'	1:0:799:C:H5'	1.98	0.45
1:0:931:G:O2'	1:0:932:G:H5'	2.16	0.45
1:0:2858:A:H3'	1:0:2859:U:C5'	2.44	0.45
1:0:918:A:H2'	1:0:919:U:C5'	2.42	0.45
1:0:1331:G:H2'	1:0:1332:G:C8	2.51	0.45
1:0:2035:G:H2'	1:0:2036:G:C8	2.47	0.45
1:0:19:C:H2'	1:0:20:C:C6	2.50	0.45
1:0:2093:G:H2'	1:0:2094:C:C5	2.51	0.45
1:0:2093:G:O2'	1:0:2094:C:OP1	2.33	0.45
1:0:845:U:H2'	1:0:846:A:H8	1.80	0.45
1:0:246:C:N3	1:0:247:A:N6	2.64	0.45
1:0:1703:C:H2'	1:0:1704:G:O4'	2.16	0.45
1:0:2196:U:H2'	1:0:2197:U:C6	2.51	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:872:G:O2'	1:0:2247:A:N3	2.48	0.45
1:0:8:A:H2'	1:0:9:U:C6	2.51	0.45
1:0:2059:U:H5	1:0:2575:U:N3	2.05	0.45
1:0:489:A:N6	1:0:491:A:H62	2.14	0.45
1:0:595:A:H2	1:0:822:G:N3	2.15	0.45
1:0:1888:C:C4'	1:0:1889:G:H5''	2.47	0.45
1:0:1677:C:H2'	1:0:1678:G:H8	1.81	0.45
1:0:635:C:C3'	1:0:636:G:H5''	2.46	0.45
1:0:2628:C:H2'	1:0:2629:U:C6	2.52	0.45
1:0:2106:G:H2'	1:0:2107:G:C8	2.51	0.45
1:0:2429:A:O2'	1:0:2430:A:H5'	2.16	0.45
1:0:2668:U:O2'	1:0:2669:C:P	2.75	0.45
1:0:1313:U:O2'	1:0:1314:A:O5'	2.32	0.45
1:0:365:U:H2'	1:0:366:U:C6	2.52	0.45
1:0:575:U:H4'	1:0:822:G:OP2	2.16	0.45
1:0:2809:A:N6	1:0:2854:G:H2'	2.31	0.45
1:0:192:G:H4'	1:0:193:A:O5'	2.15	0.45
1:0:13:A:H1'	1:0:536:A:H62	1.81	0.45
1:0:1429:A:O2'	1:0:1430:G:H4'	2.16	0.45
1:0:628:A:H2'	1:0:629:C:H6	1.81	0.45
1:0:2161:C:H2'	1:0:2162:C:C6	2.51	0.45
1:0:331:U:H2'	1:0:332:C:H5''	1.97	0.45
1:0:421:G:H2'	1:0:422:C:C6	2.51	0.45
1:0:1147:G:H2'	1:0:1148:G:C8	2.52	0.45
1:0:560:G:H2'	1:0:561:U:C6	2.51	0.45
1:0:2193:C:H2'	1:0:2194:A:O4'	2.16	0.45
1:0:187:U:H2'	1:0:188:G:C8	2.52	0.45
1:0:1286:U:H4'	1:0:1288:A:OP1	2.16	0.45
1:0:595:A:H62	1:0:1264:C:N4	2.14	0.45
1:0:2055:G:H2'	1:0:2056:C:C6	2.52	0.45
1:0:306:G:H2'	1:0:307:C:C6	2.52	0.45
1:0:1380:C:C2'	1:0:1381:G:H5'	2.45	0.45
1:0:2709:C:H2'	1:0:2710:C:C6	2.51	0.45
1:0:529:U:H2'	1:0:530:G:C8	2.51	0.45
1:0:40:U:H2'	1:0:41:G:C8	2.51	0.45
1:0:2474:G:O2'	1:0:2475:C:H5'	2.16	0.45
1:0:1163:C:O2'	1:0:1164:C:H5'	2.15	0.45
1:0:1886:G:H2'	1:0:1887:G:C8	2.52	0.45
1:0:777:A:H62	1:0:1766:U:H3	1.60	0.45
1:0:81:C:H4'	1:0:307:C:H5'	1.98	0.45
1:0:601:A:H3'	1:0:602:C:C5'	2.46	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2600:A:H2'	1:0:2601:C:C6	2.52	0.45
1:0:1659:G:H2'	1:0:1660:G:C8	2.51	0.45
1:0:297:A:H2'	1:0:298:C:C6	2.50	0.45
1:0:462:G:H2'	1:0:463:C:H5'	1.99	0.45
1:0:2475:C:C2'	1:0:2476:A:H5'	2.47	0.45
1:0:541:C:O2	1:0:2002:A:N1	2.50	0.45
1:0:2668:U:HO2'	1:0:2669:C:P	2.40	0.45
1:0:837:U:H2'	1:0:838:A:C8	2.52	0.45
1:0:653:G:H21	1:0:655:A:H1'	1.81	0.45
1:0:1888:C:C5'	1:0:1889:G:H5''	2.44	0.45
1:0:1278:A:HO2'	1:0:1279:G:P	2.37	0.45
1:0:307:C:H2'	1:0:308:C:C6	2.52	0.45
1:0:2570:C:H2'	1:0:2571:G:H8	1.82	0.45
1:0:2277:A:H2'	1:0:2278:A:O4'	2.16	0.45
1:0:1628:C:H2'	1:0:1629:G:C8	2.51	0.45
1:0:916:U:H2'	1:0:917:U:C6	2.51	0.45
1:0:2259:G:H2'	1:0:2260:C:C6	2.52	0.45
1:0:2376:G:H2'	1:0:2377:U:C6	2.52	0.45
1:0:2204:A:O2'	1:0:2205:C:C6	2.69	0.45
1:0:2205:C:H2'	1:0:2206:C:H6	1.80	0.45
1:0:2459:C:C2'	1:0:2460:G:H5'	2.46	0.45
1:0:1855:G:H4'	1:0:2390:A:H4'	1.98	0.45
1:0:1747:G:H1'	1:0:1749:G:C2	2.51	0.45
1:0:1886:G:H2'	1:0:1887:G:H8	1.82	0.45
1:0:2235:G:H2'	1:0:2236:U:H6	1.81	0.45
1:0:2694:G:H2'	1:0:2695:C:C6	2.52	0.45
1:0:697:G:O2'	1:0:698:A:H5'	2.17	0.45
1:0:1452:U:H5''	1:0:1533:G:H5'	1.99	0.45
1:0:2862:G:O2'	1:0:2863:U:H5'	2.17	0.45
1:0:2619:G:H2'	1:0:2620:G:C8	2.52	0.45
1:0:1608:U:H2'	1:0:1609:G:C8	2.52	0.45
1:0:2120:C:H2'	1:0:2121:U:O4'	2.17	0.45
1:0:935:C:H2'	1:0:936:A:C8	2.52	0.45
1:0:2475:C:H2'	1:0:2476:A:H5'	1.98	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
1:0:340:G:H1'	1:0:488:A:C4	2.52	0.45
1:0:32:C:H2'	1:0:33:C:C6	2.52	0.45
1:0:2159:A:H2'	1:0:2160:C:C6	2.52	0.45
1:0:1586:A:H2'	1:0:1587:A:C8	2.52	0.45
1:0:211:U:C2'	1:0:212:U:H5'	2.46	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
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
1:0:967:G:H1'	1:0:970:A:N7	2.32	0.45
1:0:245:C:H5'	1:0:372:U:O2'	2.17	0.45
1:0:709:A:H2'	1:0:710:C:C6	2.52	0.45
1:0:1906:U:H2'	1:0:1907:C:C6	2.52	0.45
1:0:831:G:H5'	1:0:852:U:OP1	2.17	0.45
1:0:2712:G:H5'	1:0:2713:A:C8	2.52	0.45
1:0:2377:U:O2'	1:0:2378:G:OP1	2.33	0.45
1:0:1346:C:H2'	1:0:1347:C:C6	2.52	0.45
1:0:2321:C:C2'	1:0:2322:U:H5'	2.46	0.45
1:0:1912:G:C2'	1:0:1912:G:N3	2.79	0.45
1:0:811:G:O2'	1:0:812:G:H5'	2.17	0.45
1:0:2094:C:C4	1:0:2103:G:H1'	2.52	0.45
1:0:2136:G:H2'	1:0:2137:G:C8	2.51	0.45
1:0:91:A:H2'	1:0:92:U:C6	2.52	0.45
1:0:1918:G:H4'	1:0:1920:A:C2	2.52	0.44
1:0:2757:G:H5'	1:0:2761:A:C1'	2.47	0.44
1:0:215:G:H1'	1:0:617:U:O2	2.17	0.44
1:0:878:C:HO2'	1:0:879:A:P	2.40	0.44
1:0:317:U:H3'	1:0:318:G:H5''	1.98	0.44
1:0:1712:G:C2'	1:0:1713:G:H5'	2.46	0.44
1:0:210:A:N6	1:0:442:A:N6	2.66	0.44
1:0:1821:A:H5''	1:0:1822:C:C5	2.52	0.44
1:0:2524:G:H2'	1:0:2525:U:O4'	2.17	0.44
1:0:1367:A:H2'	1:0:1368:G:O4'	2.17	0.44
1:0:1251:G:H2'	1:0:1252:C:H6	1.80	0.44
1:0:1204:G:H2'	1:0:1205:G:C8	2.52	0.44
1:0:1130:U:H2'	1:0:1131:G:C8	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
1:0:1319:C:H2'	1:0:1320:A:H8	1.82	0.44
1:0:699:G:H3'	1:0:699:G:N3	2.33	0.44
1:0:2018:G:H3'	1:0:2019:C:H5'	2.00	0.44
1:0:1227:A:H62	1:0:1248:G:H21	1.64	0.44
1:0:2239:C:O2'	1:0:2240:C:H5'	2.17	0.44
1:0:1257:U:H2'	1:0:1258:G:C8	2.52	0.44
1:0:604:U:H2'	1:0:605:G:H8	1.82	0.44
1:0:2393:G:H2'	1:0:2394:G:C8	2.53	0.44
1:0:968:C:H2'	1:0:970:A:OP1	2.18	0.44
1:0:2512:A:H2'	1:0:2513:A:O4'	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2635:U:H2'	1:0:2636:A:C8	2.52	0.44
1:0:2668:U:C2'	1:0:2669:C:OP2	2.66	0.44
1:0:2227:C:C2'	1:0:2228:U:H5'	2.41	0.44
1:0:192:G:O2'	1:0:193:A:C5'	2.66	0.44
1:0:1665:C:H2'	1:0:1666:G:C8	2.52	0.44
1:0:1614:C:H2'	1:0:1615:C:C6	2.52	0.44
1:0:788:G:C5'	1:0:790:A:H1'	2.47	0.44
1:0:644:A:H2'	1:0:645:G:H5'	1.99	0.44
1:0:1859:A:H2'	1:0:1860:A:C8	2.53	0.44
1:0:2620:G:H2'	1:0:2621:G:H8	1.83	0.44
1:0:1140:A:N6	1:0:2469:G:H5''	2.33	0.44
1:0:2492:G:H2'	1:0:2493:U:C6	2.53	0.44
1:0:520:C:O2'	1:0:1249:G:H5''	2.18	0.44
1:0:2244:C:H1'	1:0:2255:G:N1	2.33	0.44
1:0:1917:C:H2'	1:0:1918:G:H5'	2.00	0.44
1:0:616:U:C3'	1:0:617:U:H5''	2.48	0.44
1:0:1291:G:H2'	1:0:1292:A:C8	2.53	0.44
1:0:514:G:C2'	1:0:514:G:N3	2.79	0.44
1:0:2356:A:H2'	1:0:2357:A:C8	2.53	0.44
1:0:532:A:H2'	1:0:533:C:C6	2.53	0.44
1:0:117:A:H4'	1:0:118:U:C6	2.53	0.44
1:0:2022:C:H2'	1:0:2023:C:C6	2.52	0.44
1:0:2455:A:O2'	1:0:2456:U:H5'	2.18	0.44
1:0:1002:C:H2'	1:0:1003:C:C6	2.53	0.44
1:0:953:G:H4'	1:0:1203:A:O2'	2.17	0.44
1:0:403:A:H4'	1:0:425:A:C5'	2.39	0.44
1:0:1278:A:O2'	1:0:1279:G:O5'	2.36	0.44
1:0:539:A:N6	1:0:2024:U:H3	2.15	0.44
1:0:147:G:C2	1:0:148:C:H1'	2.53	0.44
1:0:1312:G:H5''	1:0:1313:U:C5'	2.36	0.44
1:0:2824:C:H2'	1:0:2825:A:OP2	2.17	0.44
1:0:2458:U:OP1	1:0:2516:U:H1'	2.18	0.44
1:0:1008:G:H2'	1:0:1009:C:C6	2.52	0.44
1:0:2292:C:H2'	1:0:2293:G:C8	2.53	0.44
1:0:701:U:H2'	1:0:702:A:O4'	2.18	0.44
1:0:838:A:H4'	1:0:2407:G:C5	2.53	0.44
1:0:1353:A:H1'	1:0:1619:A:O4'	2.17	0.44
1:0:415:A:C2'	1:0:416:U:H5'	2.47	0.44
1:0:437:G:O2'	1:0:438:G:H5'	2.17	0.44
1:0:2782:G:H2'	1:0:2783:U:OP1	2.17	0.44
1:0:1926:U:H4'	1:0:1927:U:H5	1.82	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:475:U:H2'	1:0:476:G:O4'	2.17	0.44
1:0:715:U:H2'	1:0:716:U:C6	2.52	0.44
1:0:716:U:H2'	1:0:717:G:O4'	2.18	0.44
1:0:1840:A:H2'	1:0:1841:G:H5'	2.00	0.44
1:0:88:G:H3'	1:0:89:A:C5'	2.41	0.44
1:0:172:A:N3	1:0:227:G:N2	2.64	0.44
1:0:181:A:C4'	1:0:182:G:H4'	2.46	0.44
1:0:342:G:H2'	1:0:343:A:C5'	2.48	0.44
1:0:2574:G:N3	1:0:2574:G:C2'	2.81	0.44
1:0:1949:A:H1'	1:0:2572:U:H4'	2.00	0.44
1:0:2161:C:O2'	1:0:2162:C:OP1	2.34	0.44
1:0:1274:C:O2'	1:0:1275:A:H5'	2.17	0.44
1:0:1075:C:H2'	1:0:1076:U:C6	2.53	0.44
1:0:351:A:H2'	1:0:352:G:O4'	2.18	0.44
1:0:694:G:H2'	1:0:695:G:C8	2.53	0.44
1:0:1031:C:H4'	1:0:1032:A:C8	2.53	0.44
1:0:1605:A:H2'	1:0:1606:C:C6	2.53	0.44
1:0:2497:A:N3	1:0:2497:A:O5'	2.51	0.44
1:0:1142:G:OP1	1:0:2494:C:H4'	2.18	0.43
1:0:63:A:N6	1:0:89:A:N1	2.66	0.43
1:0:871:U:H1'	1:0:2248:A:C5'	2.47	0.43
1:0:173:A:N3	1:0:173:A:C2'	2.81	0.43
1:0:2240:C:H2'	1:0:2241:U:H5'	1.99	0.43
1:0:1480:G:C2'	1:0:1481:U:H5'	2.47	0.43
1:0:2783:U:H2'	1:0:2784:A:O4'	2.17	0.43
1:0:987:G:H2'	1:0:988:G:H8	1.82	0.43
1:0:1504:G:O2'	1:0:1505:U:H5'	2.18	0.43
1:0:1466:C:H2'	1:0:1467:U:O4'	2.17	0.43
1:0:2860:C:H2'	1:0:2861:A:O4'	2.18	0.43
1:0:55:A:N6	1:0:69:G:O6	2.51	0.43
1:0:2758:A:H5''	1:0:2759:U:C5	2.52	0.43
1:0:1750:A:H1'	1:0:2690:A:C2	2.52	0.43
1:0:1961:A:H2'	1:0:1962:C:O4'	2.18	0.43
1:0:984:A:H2'	1:0:1200:G:N2	2.31	0.43
1:0:1790:G:O3'	1:0:1791:C:H6	2.01	0.43
1:0:2564:U:H4'	1:0:2565:C:C5'	2.49	0.43
1:0:859:U:H4'	1:0:860:U:C5	2.54	0.43
1:0:114:C:H4'	1:0:124:A:O2'	2.17	0.43
1:0:959:C:H2'	1:0:960:U:C6	2.53	0.43
1:0:187:U:H2'	1:0:188:G:H8	1.82	0.43
1:0:2615:U:H3	1:0:2762:G:H1	1.65	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2265:A:H5''	1:0:2266:A:O4'	2.18	0.43
1:0:1155:G:H2'	1:0:1156:U:O4'	2.18	0.43
1:0:2436:U:H2'	1:0:2437:G:O4'	2.19	0.43
1:0:841:G:H4'	1:0:844:G:N1	2.33	0.43
1:0:1880:G:H2'	1:0:1881:U:C6	2.54	0.43
1:0:575:U:H2'	1:0:576:A:C8	2.53	0.43
1:0:192:G:H4'	1:0:193:A:H4'	2.00	0.43
1:0:168:A:H2'	1:0:169:C:H6	1.82	0.43
1:0:420:C:H2'	1:0:421:G:C8	2.53	0.43
1:0:547:U:H2'	1:0:548:G:C8	2.53	0.43
1:0:508:G:H2'	1:0:509:U:C6	2.52	0.43
1:0:2048:C:H1'	1:0:2428:U:O2	2.18	0.43
1:0:2310:G:H2'	1:0:2311:U:O4'	2.18	0.43
1:0:242:A:N6	1:0:441:A:N7	2.66	0.43
1:0:2561:G:N3	1:0:2561:G:H2'	2.32	0.43
1:0:758:G:N3	1:0:763:A:N6	2.64	0.43
1:0:457:C:O2'	1:0:458:G:H5'	2.18	0.43
1:0:2276:C:O2'	1:0:2277:A:H5'	2.19	0.43
1:0:2874:A:H2'	1:0:2875:C:C6	2.54	0.43
1:0:54:G:H2'	1:0:55:A:H8	1.83	0.43
1:0:1223:G:H4'	1:0:1224:A:O5'	2.19	0.43
1:0:925:U:H4'	1:0:926:C:C6	2.54	0.43
1:0:591:G:H2'	1:0:592:G:C8	2.54	0.43
1:0:1478:U:H2'	1:0:1479:G:C8	2.53	0.43
1:0:2680:U:H3'	1:0:2681:A:C5'	2.47	0.43
1:0:192:G:O2'	1:0:193:A:P	2.76	0.43
1:0:509:U:H2'	1:0:510:G:O4'	2.18	0.43
1:0:2033:C:H2'	1:0:2034:A:O4'	2.18	0.43
1:0:2510:A:N6	1:0:2641:A:H61	2.11	0.43
1:0:652:C:N4	1:0:657:A:H61	2.08	0.43
1:0:2369:U:H2'	1:0:2370:G:C8	2.54	0.43
1:0:1194:U:H2'	1:0:1195:U:H6	1.78	0.43
1:0:1326:U:H4'	1:0:1345:G:H4'	2.01	0.43
1:0:2786:G:H2'	1:0:2787:A:C8	2.53	0.43
1:0:2213:G:H2'	1:0:2214:G:H8	1.83	0.43
1:0:456:C:H2'	1:0:457:C:C6	2.54	0.43
1:0:2392:G:H2'	1:0:2393:G:C8	2.54	0.43
1:0:2034:A:N6	1:0:2593:A:N7	2.66	0.43
1:0:1561:A:H2'	1:0:1562:G:O4'	2.18	0.43
1:0:2795:A:N3	1:0:2795:A:H2'	2.32	0.43
1:0:2083:G:H22	1:0:2172:U:H3	1.66	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:840:U:H4'	1:0:841:G:C2	2.53	0.43
1:0:181:A:C5'	1:0:182:G:OP1	2.62	0.43
1:0:242:A:O2'	1:0:243:G:OP2	2.37	0.43
1:0:338:G:H2'	1:0:339:U:O4'	2.19	0.43
1:0:2002:A:H61	1:0:2018:G:H21	1.67	0.43
1:0:2261:G:H4'	1:0:2368:G:O2'	2.19	0.43
1:0:201:G:H2'	1:0:202:A:H8	1.84	0.43
1:0:2056:C:H2'	1:0:2057:U:H6	1.84	0.43
1:0:653:G:C2	1:0:655:A:H1'	2.54	0.43
1:0:2784:A:C8	1:0:2785:A:C8	3.06	0.43
1:0:1055:A:H2	1:0:1121:G:H2'	1.84	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
1:0:1604:A:H2'	1:0:1605:A:O4'	2.19	0.43
1:0:786:U:H2'	1:0:787:A:H5'	2.00	0.43
1:0:2633:A:H61	1:0:2646:C:N4	2.17	0.43
1:0:128:C:C3'	1:0:129:A:H5''	2.49	0.43
1:0:1046:U:H2'	1:0:1047:G:H8	1.84	0.43
1:0:319:G:H1'	1:0:511:A:H5'	2.00	0.43
1:0:1975:G:H1'	1:0:1977:C:N4	2.33	0.43
1:0:2483:U:H1'	1:0:2551:A:C2	2.54	0.43
1:0:211:U:H2'	1:0:212:U:O4'	2.19	0.43
1:0:594:G:N2	1:0:1267:A:H62	2.17	0.43
2:5:7:A:H2'	2:5:8:A:C8	2.54	0.43
1:0:814:G:H3'	1:0:815:A:C5'	2.49	0.42
1:0:2380:U:C2'	1:0:2381:A:H5'	2.44	0.42
1:0:1016:C:H2'	1:0:1017:C:H6	1.84	0.42
1:0:1341:G:N2	1:0:1664:G:H1	2.15	0.42
1:0:1455:C:HO2'	1:0:1644:G:H5''	1.84	0.42
1:0:2658:A:H2'	1:0:2659:C:H6	1.84	0.42
1:0:2473:G:O2'	1:0:2474:G:H5'	2.19	0.42
1:0:1770:U:H2'	1:0:1774:A:H62	1.83	0.42
1:0:109:A:H2'	1:0:110:U:H5''	2.01	0.42
1:0:2225:G:O2'	1:0:2226:A:H5'	2.19	0.42
1:0:322:A:H2	1:0:342:G:OP2	2.02	0.42
1:0:2500:C:H4'	1:0:2544:A:C4'	2.49	0.42
1:0:121:G:H2'	1:0:122:G:O4'	2.19	0.42
1:0:2785:A:O2'	1:0:2786:G:H5'	2.19	0.42
1:0:1634:A:O2'	1:0:1635:G:H5'	2.19	0.42
1:0:826:U:H2'	1:0:827:C:H6	1.84	0.42
1:0:37:C:H2'	1:0:38:G:C8	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1743:C:H2'	1:0:1744:G:C8	2.54	0.42
1:0:2772:U:H2'	1:0:2773:G:C8	2.54	0.42
1:0:1489:C:H3'	1:0:1490:U:H5'	2.00	0.42
1:0:1801:C:H3'	1:0:1802:A:H5'	2.01	0.42
1:0:722:C:H2'	1:0:723:C:C6	2.54	0.42
1:0:1141:U:HO2'	1:0:1142:G:P	2.41	0.42
1:0:820:U:H2'	1:0:821:A:C8	2.53	0.42
1:0:65:C:H2'	1:0:66:U:C5'	2.44	0.42
1:0:189:A:H2'	1:0:190:A:C8	2.54	0.42
1:0:2311:U:HO2'	1:0:2312:A:H8	1.63	0.42
1:0:752:G:H5'	1:0:1775:A:N6	2.35	0.42
1:0:474:G:N2	1:0:476:G:H3'	2.35	0.42
1:0:1451:C:H2'	1:0:1452:U:C6	2.54	0.42
1:0:944:A:H2'	1:0:945:G:O4'	2.19	0.42
1:0:1591:U:H2'	1:0:1592:U:O4'	2.18	0.42
1:0:1225:G:H2'	1:0:1249:G:N1	2.34	0.42
1:0:1917:C:C2'	1:0:1918:G:H5'	2.49	0.42
1:0:523:A:H2	1:0:591:G:H4'	1.84	0.42
1:0:1292:A:H2'	1:0:1293:A:H8	1.85	0.42
1:0:1030:U:OP1	1:0:1046:U:H1'	2.19	0.42
1:0:1017:C:H2'	1:0:1018:C:O4'	2.19	0.42
1:0:2808:U:H3'	1:0:2809:A:C5'	2.47	0.42
1:0:14:A:H2	1:0:2604:G:O2'	2.02	0.42
1:0:158:A:H2'	1:0:159:A:H8	1.83	0.42
1:0:1532:A:H2'	1:0:1533:G:C8	2.53	0.42
1:0:2217:G:H5'	1:0:2219:U:O4	2.18	0.42
1:0:520:C:H2'	1:0:521:U:O4'	2.20	0.42
1:0:404:A:H1'	1:0:424:G:O2'	2.19	0.42
1:0:543:G:H2'	1:0:544:U:C6	2.55	0.42
1:0:1762:C:H2'	1:0:1763:G:C8	2.54	0.42
1:0:964:A:H2'	1:0:965:G:H8	1.83	0.42
1:0:2594:U:H2'	1:0:2595:C:C6	2.55	0.42
2:5:26:A:H2'	2:5:27:G:H5'	2.01	0.42
1:0:688:A:H1'	1:0:2422:C:O2'	2.19	0.42
1:0:178:C:H4'	1:0:399:G:C2	2.55	0.42
1:0:824:U:H1'	1:0:1264:C:C1'	2.49	0.42
1:0:1033:G:N2	1:0:1150:C:H2'	2.30	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	2.55	0.42
1:0:1836:C:H2'	1:0:1837:G:H8	1.84	0.42
1:0:764:A:H3'	1:0:764:A:N3	2.35	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1930:C:H2'	1:0:1931:G:C8	2.55	0.42
1:0:119:G:H1'	1:0:129:A:N1	2.35	0.42
1:0:2083:G:N2	1:0:2172:U:H3	2.17	0.42
1:0:2552:C:OP1	1:0:2553:G:H5''	2.18	0.42
1:0:879:A:C2'	1:0:880:C:H5'	2.49	0.42
1:0:1332:G:H2'	1:0:1333:G:O4'	2.20	0.42
1:0:860:U:O2	1:0:860:U:H2'	2.19	0.42
1:0:1259:A:H2'	1:0:1260:A:H8	1.84	0.42
1:0:629:C:C2'	1:0:630:G:H5'	2.49	0.42
1:0:48:A:O5'	1:0:50:G:H4'	2.20	0.42
1:0:2250:G:O2'	1:0:2251:U:H5'	2.20	0.42
1:0:430:C:H2'	1:0:431:G:C8	2.54	0.42
1:0:1489:C:H3'	1:0:1490:U:C5'	2.50	0.42
2:5:27:G:O2'	2:5:28:C:H5'	2.19	0.42
1:0:586:G:OP1	1:0:2481:G:H2'	2.19	0.42
1:0:1594:U:H2'	1:0:1595:A:C8	2.55	0.42
1:0:956:A:N3	1:0:956:A:H2'	2.34	0.42
1:0:65:C:C3'	1:0:66:U:H5'	2.49	0.42
1:0:2220:A:H2'	1:0:2221:G:H8	1.85	0.42
1:0:1029:C:C2'	1:0:1030:U:H5''	2.49	0.42
1:0:2057:U:H2'	1:0:2058:U:H6	1.85	0.42
1:0:81:C:O2'	1:0:82:G:H5'	2.20	0.42
1:0:644:A:H2'	1:0:645:G:O4'	2.20	0.42
1:0:827:C:H2'	1:0:828:C:C6	2.54	0.42
1:0:634:G:H2'	1:0:635:C:C6	2.54	0.42
1:0:987:G:H2'	1:0:988:G:C8	2.55	0.42
1:0:2217:G:C2'	1:0:2217:G:N3	2.83	0.42
1:0:3:U:H2'	1:0:4:C:C6	2.54	0.42
1:0:2470:U:H1'	1:0:2548:G:O3'	2.20	0.42
1:0:1957:C:O2'	1:0:1958:G:H5'	2.19	0.42
1:0:2586:G:H2'	1:0:2587:G:O4'	2.19	0.42
1:0:2633:A:H4'	1:0:2634:G:C4'	2.41	0.42
1:0:1807:A:O2'	1:0:1808:C:C4'	2.63	0.42
1:0:1193:G:O2'	1:0:1194:U:P	2.77	0.42
1:0:488:A:H2'	1:0:489:A:C8	2.54	0.42
1:0:1499:A:H2'	1:0:1500:U:C6	2.54	0.42
1:0:1341:G:N2	1:0:1343:C:H1'	2.35	0.42
1:0:1065:A:H2'	1:0:1066:G:C8	2.55	0.42
1:0:2161:C:H2'	1:0:2162:C:C5	2.55	0.42
1:0:1358:C:H2'	1:0:1359:G:H5'	2.02	0.42
1:0:2710:C:O2'	1:0:2711:G:H5'	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:198:A:O2'	1:0:199:A:OP2	2.30	0.42
1:0:1671:A:H2'	1:0:1672:A:H8	1.85	0.42
1:0:1708:C:H2'	1:0:1709:U:O4'	2.19	0.42
1:0:2133:G:H2'	1:0:2134:U:C6	2.55	0.42
1:0:2640:G:H2'	1:0:2641:A:O4'	2.19	0.42
1:0:871:U:O2	1:0:2247:A:H2'	2.19	0.42
1:0:833:A:H2'	1:0:834:A:C8	2.54	0.42
1:0:2633:A:H5''	1:0:2634:G:OP1	2.20	0.42
1:0:617:U:H2'	1:0:618:A:O4'	2.20	0.42
1:0:1479:G:H2'	1:0:1480:G:C8	2.54	0.42
1:0:1626:A:H5''	1:0:1627:C:OP2	2.20	0.42
1:0:192:G:O2'	1:0:193:A:H5''	2.19	0.42
1:0:1500:U:H2'	1:0:1501:C:C6	2.55	0.42
1:0:82:G:O2'	1:0:83:A:H5'	2.20	0.42
1:0:1221:C:H2'	1:0:1222:G:H8	1.84	0.42
1:0:649:G:H2'	1:0:650:U:C6	2.54	0.42
1:0:646:C:O2'	1:0:650:U:H5''	2.19	0.42
1:0:2027:C:H2'	1:0:2028:C:C6	2.55	0.42
1:0:562:G:H2'	1:0:563:U:O4'	2.20	0.42
1:0:831:G:H2'	1:0:832:A:H5''	2.02	0.41
1:0:239:A:H5'	1:0:619:A:O2'	2.19	0.41
1:0:1028:G:H2'	1:0:1029:C:H6	1.85	0.41
1:0:1888:C:H4'	1:0:1889:G:H5''	2.01	0.41
1:0:1343:C:H2'	1:0:1344:C:C6	2.55	0.41
1:0:2320:G:H2'	1:0:2321:C:C6	2.55	0.41
1:0:669:G:H2'	1:0:670:U:H6	1.84	0.41
1:0:1402:G:H2'	1:0:1403:U:O4'	2.20	0.41
1:0:1143:A:H2'	1:0:1144:U:C6	2.55	0.41
1:0:2836:U:H2'	1:0:2837:G:C8	2.55	0.41
1:0:1172:U:H2'	1:0:1173:G:C8	2.55	0.41
1:0:73:A:C3'	1:0:73:A:N3	2.82	0.41
1:0:2502:G:H2'	1:0:2503:G:H8	1.85	0.41
1:0:314:G:H2'	1:0:315:G:H8	1.85	0.41
1:0:1518:C:O2'	1:0:1519:G:P	2.78	0.41
1:0:1921:A:C3'	1:0:1922:U:H5''	2.50	0.41
1:0:1057:A:H3'	1:0:1058:G:H5'	2.01	0.41
1:0:2028:C:O2'	1:0:2029:G:H5'	2.20	0.41
1:0:2651:U:H2'	1:0:2652:G:H8	1.85	0.41
1:0:1594:U:H2'	1:0:1595:A:H8	1.85	0.41
1:0:354:C:H2'	1:0:355:G:O4'	2.20	0.41
1:0:1956:G:H2'	1:0:1957:C:O4'	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:315:G:H2'	1:0:316:C:C6	2.55	0.41
1:0:1354:A:C2	1:0:1411:C:H4'	2.55	0.41
1:0:1829:C:O2'	1:0:1910:A:H1'	2.20	0.41
1:0:762:A:H5'	1:0:1284:G:H1'	2.01	0.41
1:0:2348:A:H2'	1:0:2349:G:C8	2.55	0.41
1:0:2597:G:H2'	1:0:2598:C:C6	2.55	0.41
1:0:327:C:O2'	1:0:328:A:H5'	2.20	0.41
1:0:607:C:H2'	1:0:608:G:C8	2.55	0.41
1:0:540:G:O6	1:0:2006:G:OP1	2.38	0.41
1:0:2766:U:O2'	1:0:2767:C:H5'	2.20	0.41
1:0:2546:G:H2'	1:0:2547:C:C6	2.56	0.41
1:0:820:U:H5'	1:0:2424:G:H4'	2.02	0.41
1:0:1495:G:O2'	1:0:1496:G:OP1	2.35	0.41
1:0:1518:C:HO2'	1:0:1519:G:P	2.44	0.41
1:0:438:G:H2'	1:0:439:C:C6	2.55	0.41
1:0:853:C:H2'	1:0:854:G:C8	2.56	0.41
1:0:2463:G:O2'	1:0:2464:G:H5'	2.20	0.41
1:0:1177:U:H2'	1:0:1178:C:C6	2.55	0.41
1:0:1084:A:H4'	1:0:2454:C:OP1	2.20	0.41
1:0:1557:G:H2'	1:0:1558:C:C6	2.55	0.41
1:0:2011:U:H2'	1:0:2012:A:C8	2.56	0.41
1:0:690:A:O2'	1:0:691:C:H5'	2.21	0.41
1:0:930:A:H3'	1:0:931:G:H8	1.85	0.41
1:0:1656:U:O2'	1:0:2678:C:H4'	2.21	0.41
1:0:878:C:O2'	1:0:879:A:OP1	2.35	0.41
1:0:1887:G:O2'	1:0:1888:C:H5'	2.20	0.41
1:0:1281:A:N6	1:0:1995:G:O2'	2.53	0.41
1:0:579:G:H2'	1:0:2013:A:H62	1.86	0.41
1:0:1671:A:C1'	1:0:2798:A:H5'	2.50	0.41
1:0:328:A:O2'	1:0:329:C:H5'	2.20	0.41
1:0:2076:G:H2'	1:0:2077:G:C8	2.54	0.41
1:0:28:A:H2'	1:0:29:U:C6	2.55	0.41
1:0:2245:A:HO2'	1:0:2246:A:P	2.43	0.41
1:0:2200:G:H2'	1:0:2201:G:C8	2.56	0.41
1:0:1162:A:H2'	1:0:1163:C:H6	1.86	0.41
1:0:2486:C:H4'	2:5:34:C:O2'	2.21	0.41
1:0:314:G:H2'	1:0:315:G:C8	2.54	0.41
1:0:635:C:H2'	1:0:636:G:H5''	2.02	0.41
1:0:2392:G:H2'	1:0:2393:G:H8	1.85	0.41
1:0:2698:G:H2'	1:0:2699:G:O4'	2.20	0.41
1:0:1231:A:H2'	1:0:1232:U:O4'	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2365:U:O2'	1:0:2366:U:H5'	2.21	0.41
1:0:1242:A:H2'	1:0:1243:G:C8	2.55	0.41
1:0:890:U:H2'	1:0:891:A:C8	2.56	0.41
1:0:691:C:H2'	1:0:692:C:C6	2.56	0.41
1:0:798:G:OP2	1:0:805:G:N7	2.53	0.41
1:0:868:U:H2'	1:0:869:C:H6	1.85	0.41
1:0:873:U:C2	1:0:2246:A:H5''	2.55	0.41
1:0:2226:A:H2'	1:0:2227:C:H6	1.86	0.41
1:0:2096:U:C2'	1:0:2097:A:H5''	2.44	0.41
1:0:1530:U:HO2'	1:0:1531:C:H6	1.65	0.41
1:0:2378:G:H2'	1:0:2379:G:C8	2.55	0.41
1:0:307:C:H2'	1:0:308:C:H6	1.86	0.41
1:0:2321:C:H2'	1:0:2322:U:H5'	2.02	0.41
1:0:1962:C:H2'	1:0:1963:G:H8	1.86	0.41
1:0:2390:A:H2'	1:0:2391:A:C8	2.56	0.41
1:0:2134:U:H2'	1:0:2135:C:C6	2.55	0.41
1:0:2740:C:O2'	1:0:2741:G:H5'	2.20	0.41
1:0:63:A:O2'	1:0:64:C:H5'	2.20	0.41
1:0:58:C:N4	1:0:73:A:C6	2.89	0.41
1:0:1189:G:O2'	1:0:1190:C:H5'	2.21	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
1:0:1193:G:O2'	1:0:1194:U:OP1	2.37	0.41
1:0:2500:C:H4'	1:0:2544:A:O4'	2.20	0.41
1:0:2785:A:H2'	1:0:2786:G:O4'	2.21	0.41
1:0:2515:G:H2'	1:0:2516:U:C6	2.55	0.41
1:0:1415:C:O2'	1:0:1416:A:H5'	2.21	0.41
1:0:2795:A:N3	1:0:2795:A:C2'	2.84	0.41
1:0:2217:G:H4'	1:0:2219:U:C5	2.56	0.41
1:0:139:A:H2'	1:0:140:G:C8	2.55	0.41
1:0:1168:G:H2'	1:0:1169:C:C6	2.55	0.41
1:0:1448:A:H2'	1:0:1449:C:C6	2.56	0.41
1:0:2038:C:H5'	1:0:2039:G:C5'	2.51	0.41
1:0:2467:A:H2'	1:0:2468:G:C8	2.56	0.41
1:0:584:A:H4'	1:0:2479:U:C5'	2.48	0.41
1:0:689:A:H8	1:0:2422:C:H1'	1.85	0.41
1:0:229:G:H2'	1:0:230:C:C6	2.56	0.41
1:0:1313:U:O2'	1:0:1314:A:OP2	2.39	0.41
1:0:2245:A:C2'	1:0:2246:A:OP2	2.68	0.41
1:0:874:A:H2'	1:0:875:G:H5'	2.03	0.41
1:0:1621:C:C4'	1:0:1626:A:H61	2.31	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2498:U:H1'	1:0:2500:C:H41	1.86	0.41
1:0:1686:A:C2'	1:0:1687:C:H5'	2.51	0.41
1:0:1938:U:H2'	1:0:1939:U:H5'	2.01	0.41
1:0:317:U:H3'	1:0:318:G:C5'	2.51	0.41
1:0:857:U:C2'	1:0:858:G:H5'	2.50	0.41
1:0:2824:C:HO2'	1:0:2825:A:P	2.43	0.41
1:0:1365:U:H5'	1:0:1587:A:H1'	2.03	0.41
1:0:639:G:O2'	1:0:640:C:H5'	2.21	0.41
1:0:40:U:H2'	1:0:41:G:H8	1.86	0.41
1:0:2032:G:O2'	1:0:2033:C:H5'	2.21	0.41
1:0:1671:A:H1'	1:0:2798:A:H5'	2.02	0.41
1:0:2539:C:H2'	1:0:2540:A:C8	2.56	0.41
1:0:2811:G:H2'	1:0:2812:A:C8	2.56	0.41
1:0:747:A:H2'	1:0:748:A:H8	1.85	0.41
1:0:24:G:H2'	1:0:25:U:C6	2.55	0.41
1:0:1722:G:H2'	1:0:1723:U:C6	2.55	0.41
1:0:1026:U:H2'	1:0:1027:C:C6	2.56	0.41
1:0:1329:U:H2'	1:0:1330:G:C8	2.56	0.41
1:0:69:G:O3'	1:0:111:G:H4'	2.20	0.41
1:0:808:C:H2'	1:0:809:C:C6	2.56	0.41
1:0:1187:A:HO2'	1:0:1188:A:P	2.43	0.41
1:0:1528:C:H3'	1:0:1529:C:H5''	2.03	0.41
1:0:1464:A:H4'	1:0:1545:G:C4'	2.51	0.41
1:0:2871:U:H2'	1:0:2872:U:H6	1.85	0.41
1:0:2137:G:H2'	1:0:2138:U:H6	1.86	0.41
1:0:2448:A:C2'	1:0:2449:G:H5'	2.50	0.41
1:0:2389:G:H2'	1:0:2390:A:O4'	2.21	0.41
1:0:854:G:H2'	1:0:855:G:C8	2.56	0.41
1:0:1696:C:H42	1:0:1755:G:H5''	1.86	0.41
1:0:713:G:H2'	1:0:714:G:C8	2.56	0.41
1:0:1443:G:N3	1:0:1584:G:N1	2.69	0.41
1:0:185:C:H2'	1:0:186:C:C6	2.56	0.41
1:0:6:A:H2'	1:0:7:G:C8	2.56	0.41
1:0:1253:C:H2'	1:0:1254:G:O4'	2.21	0.40
1:0:1747:G:N3	1:0:1749:G:N2	2.69	0.40
1:0:925:U:H5''	1:0:926:C:OP1	2.21	0.40
1:0:931:G:H2'	1:0:932:G:O4'	2.21	0.40
1:0:105:G:H21	1:0:357:A:N6	2.18	0.40
1:0:405:C:H2'	1:0:406:G:C8	2.56	0.40
1:0:2326:C:H2'	1:0:2327:U:C6	2.56	0.40
1:0:2312:A:H1'	1:0:2314:A:N9	2.35	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:729:A:O2'	1:0:730:C:H5'	2.21	0.40
1:0:305:A:H2'	1:0:306:G:O4'	2.21	0.40
1:0:1336:G:N2	1:0:1632:A:N6	2.69	0.40
1:0:2329:C:H41	1:0:2361:G:N2	2.18	0.40
1:0:1586:A:H2'	1:0:1587:A:H8	1.86	0.40
1:0:432:C:H2'	1:0:433:G:C8	2.57	0.40
1:0:769:C:H2'	1:0:770:U:O4'	2.20	0.40
1:0:344:G:O2'	1:0:345:U:H5'	2.21	0.40
1:0:1539:U:H2'	1:0:1540:C:C6	2.56	0.40
1:0:1850:G:H2'	1:0:1851:A:C8	2.55	0.40
1:0:838:A:H4'	1:0:2407:G:C6	2.57	0.40
1:0:1685:A:O2'	1:0:1686:A:O5'	2.39	0.40
1:0:1463:A:H2'	1:0:1464:A:H8	1.83	0.40
1:0:579:G:H2'	1:0:2013:A:C5	2.56	0.40
1:0:1098:G:H21	1:0:1100:G:H4'	1.86	0.40
1:0:1985:G:H2'	1:0:1986:G:C8	2.57	0.40
1:0:2383:C:C2'	1:0:2384:G:H5'	2.51	0.40
1:0:1736:C:H2'	1:0:1737:G:C8	2.57	0.40
1:0:2047:C:H2'	1:0:2048:C:C6	2.56	0.40
1:0:2548:G:H2'	1:0:2549:G:C5'	2.33	0.40
1:0:73:A:H2'	1:0:74:G:OP2	2.22	0.40
1:0:930:A:H5'	1:0:931:G:N7	2.37	0.40
1:0:1204:G:H2'	1:0:1205:G:H8	1.86	0.40
1:0:950:G:H2'	1:0:951:G:C8	2.56	0.40
1:0:2241:U:H4'	1:0:2307:A:C2	2.56	0.40
1:0:1787:U:H2'	1:0:1788:C:C6	2.57	0.40
1:0:2234:G:H2'	1:0:2235:G:O4'	2.22	0.40
1:0:2075:U:H1'	1:0:2204:A:C2	2.56	0.40
1:0:1653:C:H2'	1:0:1654:A:C8	2.56	0.40
1:0:2383:C:H2'	1:0:2384:G:O4'	2.20	0.40
1:0:550:C:H2'	1:0:551:A:H8	1.86	0.40
1:0:1398:G:H2'	1:0:1399:C:C6	2.56	0.40
1:0:67:G:C6	1:0:72:A:C2	3.10	0.40
1:0:2244:C:H1'	1:0:2255:G:H1	1.86	0.40
1:0:953:G:H2'	1:0:954:U:O4'	2.21	0.40
1:0:1915:A:H2'	1:0:1916:G:O4'	2.21	0.40
1:0:218:A:H1'	1:0:220:U:C4	2.57	0.40
1:0:2056:C:H2'	1:0:2057:U:C6	2.57	0.40
1:0:1888:C:H2'	1:0:1913:G:C6	2.57	0.40
1:0:1939:U:O2	1:0:1968:G:H4'	2.21	0.40
1:0:143:A:H2'	1:0:144:U:O4'	2.22	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:2824:C:C2'	1:0:2825:A:OP2	2.70	0.40
1:0:1532:A:H2'	1:0:1533:G:H8	1.86	0.40
1:0:2686:C:H2'	1:0:2687:G:H8	1.87	0.40
1:0:105:G:O2'	1:0:106:G:H5'	2.21	0.40
1:0:2378:G:O2'	1:0:2379:G:H5'	2.22	0.40
1:0:217:U:H5'	1:0:633:G:HO2'	1.87	0.40
1:0:856:A:H2'	1:0:857:U:O4'	2.20	0.40
1:0:1381:G:O2'	1:0:1382:G:H5'	2.21	0.40
1:0:1337:G:H1'	1:0:1632:A:C6	2.56	0.40
1:0:1625:A:C4	1:0:1632:A:H1'	2.57	0.40
1:0:758:G:H2'	1:0:761:G:N3	2.37	0.40
1:0:765:C:O2	1:0:765:C:H2'	2.21	0.40
1:0:1358:C:C2'	1:0:1359:G:H5''	2.52	0.40
1:0:978:U:H2'	1:0:979:A:C8	2.56	0.40
1:0:1821:A:H3'	1:0:1822:C:C6	2.56	0.40
1:0:529:U:H2'	1:0:530:G:H8	1.86	0.40
1:0:1466:C:O2'	1:0:1467:U:H5'	2.21	0.40
1:0:1542:G:H21	1:0:1561:A:H62	1.70	0.40
1:0:773:G:H4'	1:0:1767:G:OP1	2.22	0.40
1:0:596:C:H1'	1:0:684:C:O4'	2.22	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

5.3.2 Protein sidechains [i](#)

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

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	0	2757/2880 (95%)	413 (14%)	44 (1%)
2	5	22/35 (62%)	2 (9%)	0
All	All	2779/2915 (95%)	415 (14%)	44 (1%)

All (415) 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	66	U
1	0	67	G
1	0	70	A
1	0	71	A
1	0	72	A
1	0	74	G
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

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Mol	Chain	Res	Type
1	0	226	C
1	0	227	G
1	0	229	G
1	0	242	A
1	0	243	G
1	0	245	C
1	0	305	A
1	0	318	G
1	0	333	A
1	0	334	G
1	0	335	A
1	0	340	G
1	0	342	G
1	0	343	A
1	0	358	C
1	0	363	G
1	0	368	A
1	0	373	A
1	0	399	G
1	0	401	G
1	0	408	U
1	0	414	A
1	0	418	C
1	0	424	G
1	0	443	A
1	0	455	A
1	0	456	C
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

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Mol	Chain	Res	Type
1	0	556	A
1	0	558	G
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

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Mol	Chain	Res	Type
1	0	841	G
1	0	844	G
1	0	860	U
1	0	873	U
1	0	879	A
1	0	919	U
1	0	922	A
1	0	926	C
1	0	930	A
1	0	931	G
1	0	941	U
1	0	944	A
1	0	952	A
1	0	957	G
1	0	969	U
1	0	970	A
1	0	972	C
1	0	973	U
1	0	984	A
1	0	994	A
1	0	996	C
1	0	1005	U
1	0	1006	C
1	0	1023	U
1	0	1024	G
1	0	1030	U
1	0	1032	A
1	0	1033	G
1	0	1036	G
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

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Mol	Chain	Res	Type
1	0	1122	A
1	0	1137	A
1	0	1138	A
1	0	1142	G
1	0	1145	C
1	0	1146	G
1	0	1155	G
1	0	1167	A
1	0	1182	U
1	0	1183	C
1	0	1185	C
1	0	1188	A
1	0	1194	U
1	0	1195	U
1	0	1199	U
1	0	1200	G
1	0	1224	A
1	0	1253	C
1	0	1262	U
1	0	1264	C
1	0	1266	G
1	0	1269	G
1	0	1278	A
1	0	1279	G
1	0	1280	U
1	0	1284	G
1	0	1285	A
1	0	1288	A
1	0	1314	A
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

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Mol	Chain	Res	Type
1	0	1441	A
1	0	1442	C
1	0	1443	G
1	0	1459	U
1	0	1465	G
1	0	1468	A
1	0	1469	U
1	0	1470	G
1	0	1475	U
1	0	1482	U
1	0	1490	U
1	0	1496	G
1	0	1505	U
1	0	1508	G
1	0	1509	A
1	0	1513	U
1	0	1519	G
1	0	1524	C
1	0	1529	C
1	0	1552	C
1	0	1571	G
1	0	1573	G
1	0	1574	A
1	0	1576	G
1	0	1582	A
1	0	1583	A
1	0	1585	A
1	0	1618	U
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

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Mol	Chain	Res	Type
1	0	1680	U
1	0	1685	A
1	0	1691	G
1	0	1692	C
1	0	1710	U
1	0	1712	G
1	0	1715	A
1	0	1717	A
1	0	1724	C
1	0	1733	U
1	0	1748	U
1	0	1749	G
1	0	1750	A
1	0	1754	G
1	0	1755	G
1	0	1764	A
1	0	1771	A
1	0	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	1927	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

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Mol	Chain	Res	Type
1	0	2006	G
1	0	2015	G
1	0	2016	A
1	0	2019	C
1	0	2038	C
1	0	2043	A
1	0	2051	U
1	0	2052	G
1	0	2060	A
1	0	2076	G
1	0	2082	C
1	0	2094	C
1	0	2096	U
1	0	2118	A
1	0	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

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Mol	Chain	Res	Type
1	0	2315	A
1	0	2316	G
1	0	2326	C
1	0	2362	G
1	0	2364	C
1	0	2378	G
1	0	2382	C
1	0	2385	U
1	0	2396	C
1	0	2403	C
1	0	2405	A
1	0	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	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	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

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Mol	Chain	Res	Type
1	0	2625	U
1	0	2633	A
1	0	2634	G
1	0	2661	G
1	0	2669	C
1	0	2670	C
1	0	2681	A
1	0	2691	C
1	0	2692	A
1	0	2712	G
1	0	2728	A
1	0	2730	A
1	0	2732	C
1	0	2737	A
1	0	2745	A
1	0	2756	A
1	0	2760	G
1	0	2761	A
1	0	2770	A
1	0	2771	C
1	0	2782	G
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	27	G
2	5	32	A

All (44) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	0	69	G

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Mol	Chain	Res	Type
1	0	71	A
1	0	73	A
1	0	173	A
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	2564	U
1	0	2668	U
1	0	2759	U

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Mol	Chain	Res	Type
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	2.74	6 (20%)	37,57,60	1.31	6 (16%)

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	-4.83	1.28	1.42
2	5	35	PPU	CD2-CG	2.60	1.44	1.38
2	5	35	PPU	CE2-CZ	2.70	1.44	1.38
2	5	35	PPU	C6-N1	3.46	1.38	1.34
2	5	35	PPU	CE1-CZ	3.66	1.46	1.38
2	5	35	PPU	C-N3'	11.85	1.61	1.34

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	5	35	PPU	C4'-C3'-N3'	-3.66	105.97	113.61
2	5	35	PPU	C1'-N9-C4	-2.17	123.67	126.94
2	5	35	PPU	C-CA-N	2.07	117.94	108.73

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Mol	Chain	Res	Type	Atoms	Z	Observed($^{\circ}$)	Ideal($^{\circ}$)
2	5	35	PPU	C9-N6-C6	2.23	126.49	119.48
2	5	35	PPU	CM-OC-CZ	2.66	123.75	117.51
2	5	35	PPU	C2-N1-C6	3.98	119.89	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 ⓘ

6.1 Protein, DNA and RNA chains ⓘ

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

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

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

6.3 Carbohydrates ⓘ

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

6.4 Ligands ⓘ

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

6.5 Other polymers ⓘ

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