



Full wwPDB EM Validation Report ⓘ

Jun 27, 2026 – 12:59 PM EDT

PDB ID : 6OST / pdb_00006ost
EMDB ID : EMD-20188
Title : RF2 pre-accommodated state bound Release complex 70S at 24ms
Authors : Fu, Z.; Indrisiunaite, G.; Kaledhonkar, S.; Shah, B.; Sun, M.; Chen, B.; Grassucci, R.A.; Ehrenberg, M.; Frank, J.
Deposited on : 2019-05-02
Resolution : 4.20 Å(reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

EMDB validation analysis : 0.0.1.dev133
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.50

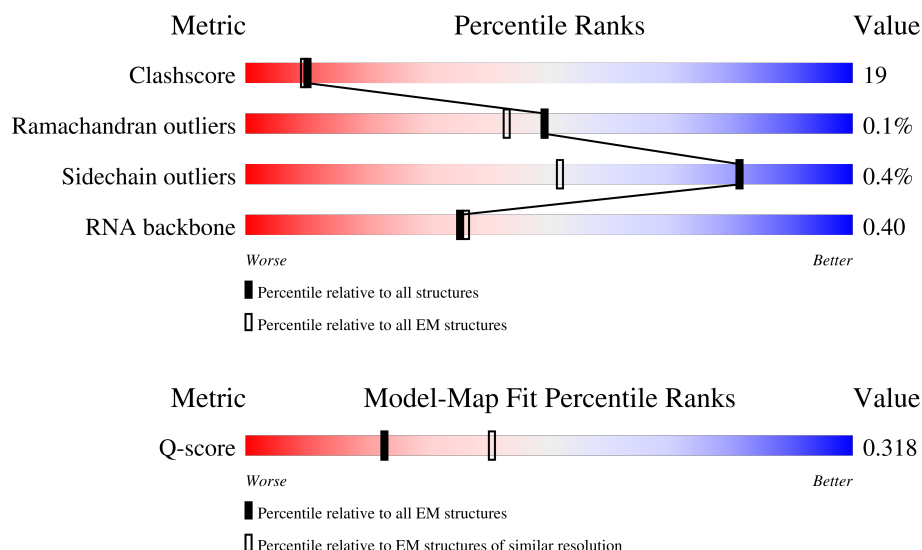
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 4.20 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.



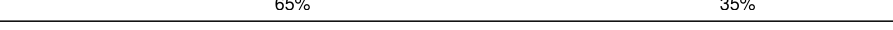
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	5410 (3.70 - 4.70)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	1	2903	42% 44% 14%
2	2	1534	40% 46% 13%
3	3	120	42% 49% 9%

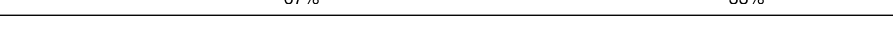
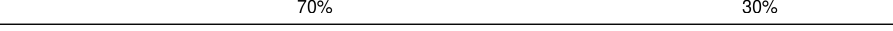
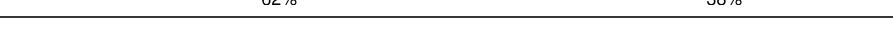
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Mol	Chain	Length	Quality of chain
4	B	271	
5	C	209	
6	D	201	
7	E	177	
8	F	175	
9	G	149	
10	J	142	
11	K	123	
12	L	144	
13	M	136	
14	N	119	
15	O	116	
16	P	114	
17	Q	117	
18	R	103	
19	S	110	
20	T	94	
21	U	103	
22	V	94	
23	W	76	
24	X	77	
25	Y	62	
26	Z	58	
27	b	56	
28	c	52	

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Mol	Chain	Length	Quality of chain
29	d	46	
30	e	64	
31	f	38	
32	g	225	
33	h	208	
34	i	205	
35	j	156	
36	k	104	
37	l	151	
38	m	129	
39	n	127	
40	o	99	
41	p	117	
42	q	123	
43	r	116	
44	s	100	
45	t	88	
46	u	82	
47	v	80	
48	w	66	
49	x	83	
50	y	86	
51	z	70	
52	4	9	
53	7	362	

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Mol	Chain	Length	Quality of chain
54	5	76	41% 38% 18%
55	6	3	33% 67%

2 Entry composition

There are 57 unique types of molecules in this entry. The entry contains 146620 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, 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					AltConf	Trace
1	1	2903	Total	C	N	O	P	0	0
			62336	27816	11470	20147	2903		

- Molecule 2 is a RNA chain called 16S Ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	2	1534	Total	C	N	O	P	0	0
			32929	14693	6041	10661	1534		

- Molecule 3 is a RNA chain called 5S Ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	3	120	Total	C	N	O	P	0	0
			2569	1144	468	837	120		

- Molecule 4 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	B	271	Total	C	N	O	S	0	0
			2082	1288	423	364	7		

- Molecule 5 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	C	209	Total	C	N	O	S	0	0
			1565	979	288	294	4		

- Molecule 6 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	D	201	Total	C	N	O	S	0	0
			1552	974	283	290	5		

- Molecule 7 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	E	177	Total	C	N	O	S	0	0
			1410	899	249	256	6		

- Molecule 8 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	F	175	Total	C	N	O	S	0	0
			1313	826	241	244	2		

- Molecule 9 is a protein called 50S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	G	149	Total	C	N	O	S	0	0
			1111	699	197	214	1		

- Molecule 10 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	J	142	Total	C	N	O	S	0	0
			1129	714	212	199	4		

- Molecule 11 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	K	123	Total	C	N	O	S	0	0
			946	593	181	166	6		

- Molecule 12 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	L	144	Total	C	N	O	S	0	0
			1053	654	207	190	2		

- Molecule 13 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	M	136	Total	C	N	O	S	0	0
			1074	686	205	177	6		

- Molecule 14 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	N	119	Total	C	N	O	S	0	0
			951	588	195	163	5		

- Molecule 15 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	O	116	Total	C	N	O	S	0	0
			892	552	178	162			

- Molecule 16 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	P	114	Total	C	N	O	S	0	0
			917	574	179	163	1		

- Molecule 17 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	Q	117	Total	C	N	O	S	0	0
			947	604	192	151			

- Molecule 18 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	R	103	Total	C	N	O	S	0	0
			816	516	153	145	2		

- Molecule 19 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	S	110	Total	C	N	O	S	0	0
			857	532	166	156	3		

- Molecule 20 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	T	94	Total	C	N	O	S	0	0
			746	470	140	134	2		

- Molecule 21 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms				AltConf	Trace
21	U	103	Total	C	N	O		
			788	498	148	142	0	0

- Molecule 22 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms				AltConf	Trace
22	V	94	Total	C	N	O	S	
			753	479	137	134	3	0

- Molecule 23 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms				AltConf	Trace
23	W	76	Total	C	N	O	S	
			582	360	117	104	1	0

- Molecule 24 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms				AltConf	Trace
24	X	77	Total	C	N	O	S	
			625	388	129	106	2	0

- Molecule 25 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms				AltConf	Trace
25	Y	62	Total	C	N	O	S	
			501	308	98	94	1	0

- Molecule 26 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms				AltConf	Trace
26	Z	58	Total	C	N	O	S	
			448	281	87	78	2	0

- Molecule 27 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms				AltConf	Trace
27	b	56	Total	C	N	O	S	
			444	269	94	80	1	0

- Molecule 28 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms				AltConf	Trace
28	c	52	Total	C	N	O	0	0
			426	275	78	73		

- Molecule 29 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	d	46	Total	C	N	O	S	0	0
			377	228	90	57	2		

- Molecule 30 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	e	64	Total	C	N	O	S	0	0
			504	323	105	74	2		

- Molecule 31 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	f	38	Total	C	N	O	S	0	0
			302	185	65	48	4		

- Molecule 32 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	g	225	Total	C	N	O	S	0	0
			1760	1113	316	323	8		

- Molecule 33 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	h	208	Total	C	N	O	S	0	0
			1636	1036	307	290	3		

- Molecule 34 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	i	205	Total	C	N	O	S	0	0
			1643	1026	315	298	4		

- Molecule 35 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	j	156	Total	C	N	O	S	0	0
			1152	717	217	212	6		

- Molecule 36 is a protein called 30S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	k	104	Total	C	N	O	S	0	0
			848	536	153	152	7		

- Molecule 37 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	l	151	Total	C	N	O	S	0	0
			1181	735	227	215	4		

- Molecule 38 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	m	129	Total	C	N	O	S	0	0
			979	616	173	184	6		

- Molecule 39 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	n	127	Total	C	N	O	S	0	0
			1022	634	206	179	3		

- Molecule 40 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	o	99	Total	C	N	O	S	0	0
			790	495	151	143	1		

- Molecule 41 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	p	117	Total	C	N	O	S	0	0
			877	540	174	160	3		

- Molecule 42 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	q	123	Total	C	N	O	S	0	0
			957	591	196	165	5		

- Molecule 43 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	r	116	Total	C	N	O	S	0	0
			900	558	181	158	3		

- Molecule 44 is a protein called 30S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	s	100	Total	C	N	O	S	0	0
			805	499	164	139	3		

- Molecule 45 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	t	88	Total	C	N	O	S	0	0
			714	439	144	130	1		

- Molecule 46 is a protein called 30S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	u	82	Total	C	N	O	S	0	0
			649	406	128	114	1		

- Molecule 47 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	v	80	Total	C	N	O	S	0	0
			648	411	121	113	3		

- Molecule 48 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	w	66	Total	C	N	O	S	0	0
			544	344	102	97	1		

- Molecule 49 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	x	83	Total	C	N	O	S	0	0
			663	424	126	111	2		

- Molecule 50 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	y	86	Total	C	N	O	S	0	0
			669	414	138	114	3		

- Molecule 51 is a protein called 30S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	z	70	Total	C	N	O	S	0	0
			589	366	125	97	1		

- Molecule 52 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	4	9	Total	C	N	O	P	0	0
			184	83	26	66	9		

- Molecule 53 is a protein called Peptide chain release factor 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	7	352	Total	C	N	O	S	0	0
			2793	1722	484	577	10		

- Molecule 54 is a RNA chain called P-tRNA.

Mol	Chain	Residues	Atoms						AltConf	Trace
54	5	76	Total	C	N	O	P	S	0	0
			1627	727	296	527	76	1		

- Molecule 55 is a protein called FME-PHE-PHE.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	6	3	Total	C	N	O	S	0	0
			32	24	3	4	1		

- Molecule 56 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
56	1	1	Total 1	Mg 1	0
56	2	1	Total 1	Mg 1	0
56	3	8	Total 8	Mg 8	0
56	b	1	Total 1	Mg 1	0
56	i	1	Total 1	Mg 1	0

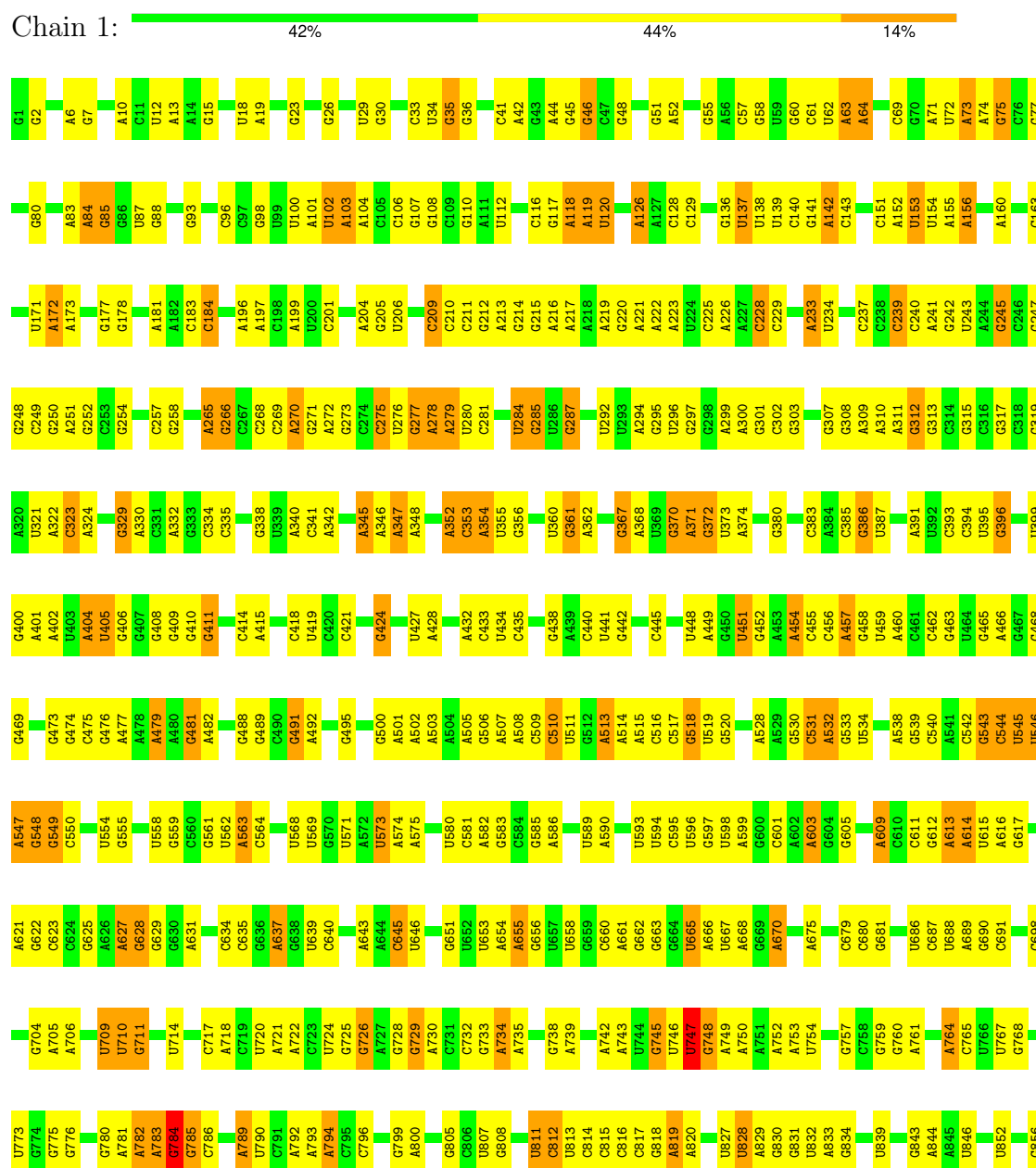
- Molecule 57 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
57	f	1	Total 1	Zn 1	0

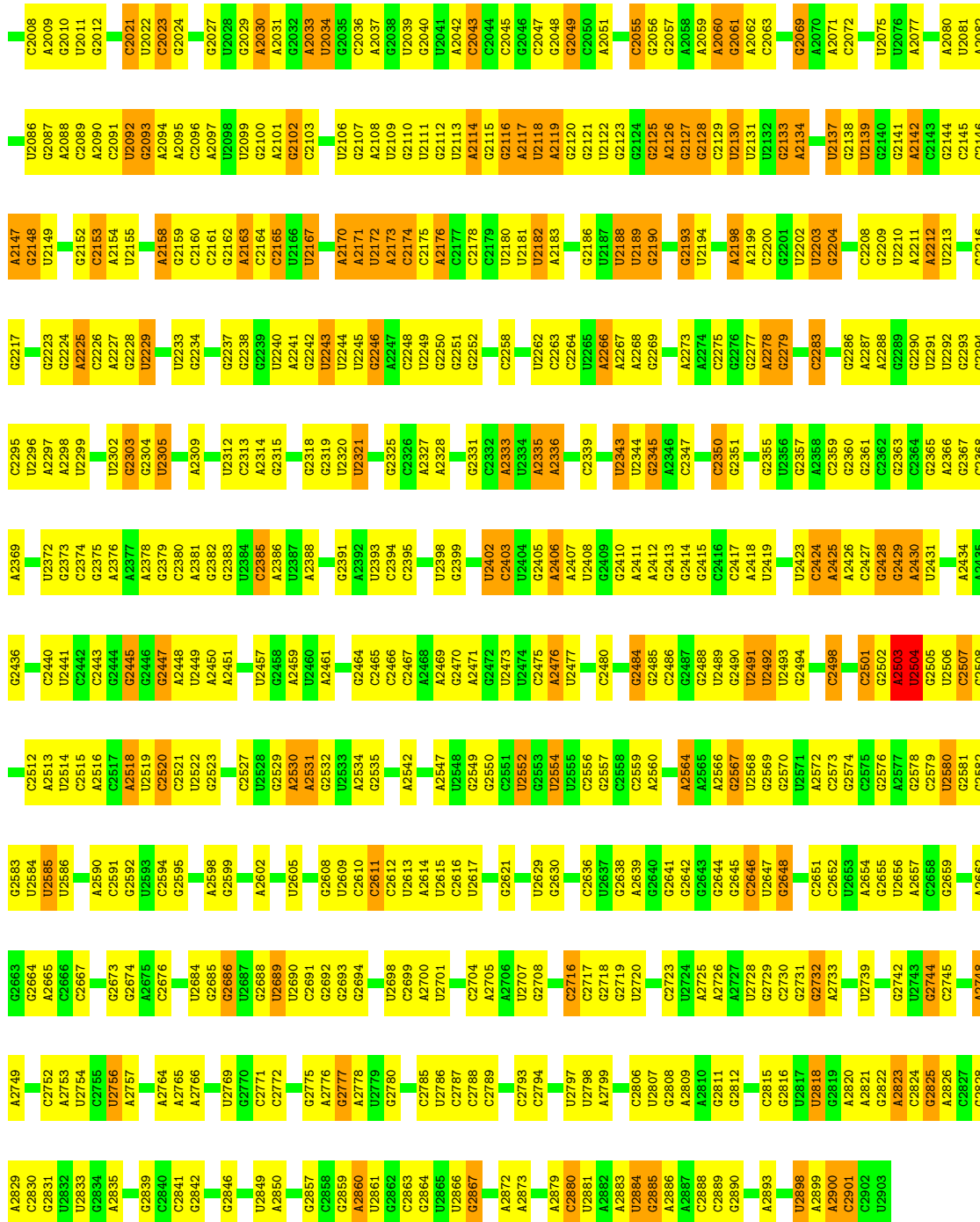
3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

• Molecule 1: 23S Ribosomal RNA

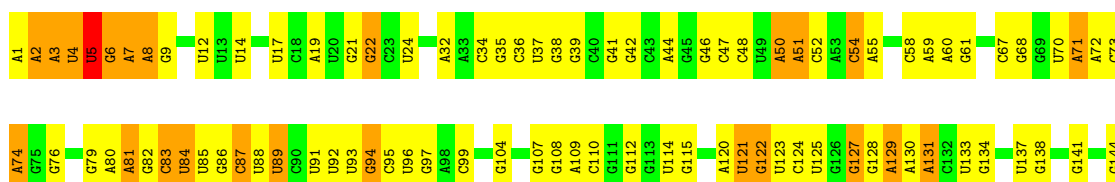


U1931	A1858	A1791	U1716	G1633	U1542	G1465	A1392	A1307	U1231	A1156	A1085	U1012	G957
C1934	U1869	G1792	A1717	A1634	G1543	U1466	A1395	A1308	G1252	G1157	A1086	C1013	G857
G1935	G1860		G1718	U1635	A1544	U1467	U1394	G1309	U1282	C1158	G1087	A1014	G858
A1936	G1861	C1795	G1719	U1636		U1468	A1396	G1310	G1235	A1161	A1088	U1019	U860
A1937	G1862	G1796	U1720	A1637	A1548	A1469	U1396	G1311	G1236	C1164	A1089	A1020	A861
U1938	G1863	G1797	G1721	G1638	A1549	A1470	U1397	U1312	A1237	G1165	G1093	A1021	G865
U1939	U1864	G1798	A1722	C1639	C1550		C1398	U1313	G1238	A1166	G1094	G1022	G866
	A1866	G1799	G1723	A1640		G1475	C1399	G1314		G1167	G1094	G1023	G867
G1945		C1800	G1724	A1641	U1554	U1476		A1403	A1241	A1168	G1094	G1024	U868
U1946	G1869	A1801	G1725	G1642		U1477	G1404	U1315	A1246	C1167	A1095	G1025	G869
G1947	A1870	A1802	C1726	G1643	G1558	G1478	G1405	U1316	A1247	G1168	A1096	G1026	U870
U1948	A1871	A1803	G1727	G1644	U1559	G1479	U1406	U1317	A1248	A1169	U1097	A1027	
	A1872	C1804	C1728	G1645	G1560		U1407	A1321	U1249	C1170	G1098	A1028	G874
U1951		A1805	U1729	C1646		G1482	G1407		U1250	G1171	G1099		G875
A1952	G1873	C1806	G1730	U1647	C1565	U1483	U1408	U1326	G1251	C1172	G1100	U1033	G876
A1953	G1874	G1807	G1731	U1648	A1566	U1484	A1409	A1327	C1251	U1173	U1101	G1034	A877
G1954	A1875	A1808	G1732	G1649	G1567	U1485	U1410	A1328	U1252	U1174	C1102	U1035	A878
U1955	A1876	A1809	G1733		G1568		U1411	U1329	A1253	A1175	A1103	G1036	A879
U1956		A1810	G1734	A1652	A1569	C1488	U1412		U1254	U1176	C1104		G880
C1957	U1880	G1811	U1735	G1653	A1570	C1489	A1413	G1332	U1255	G1177	U1105	A1040	G881
	C1881		U1736	U1654	A1571	C1490	C1414		G1256	C1178	G1106	G1041	G882
C1962	G1884	G1814	U1737	A1655	A1572	G1491	G1415	G1340	G1259	G1179	U1107	G1042	G883
U1963	A1885	C1816	A1739	C1656	A1572	G1492	G1416	G1341	A1260	U1180	U1108	G1043	U884
G1964	U1886	G1817	G1740	U1657	U1579	C1493	G1417	A1342		U1181	C1109	C1044	C885
C1965	C1887	U1818	C1741	G1660	A1580	U1497	A1418	U1344	U1263	G1182	G1110	C1045	A886
A1966		A1919	U1742		A1581	C1498	A1419		A1264	G1186	A1111	A1046	A887
C1967	U1888	G1820	G1743	A1665	C1582	C1499	G1420		A1265	G1187	U1113	G1047	C888
G1968	A1889	A1821	A1744	G1666	A1583	G1500	G1421	C1351	G1266	U1188	C1114	A1048	C889
A1969		C1822	A1745	G1667	U1584	G1501	G1426	A1352	U1267	A1189	G1115	C1049	C890
U1970	C1894	G1823		A1668	C1585	A1502	A1427	A1354	A1268	G1190	G1116	A1050	G891
G1971	A1899	C1824	G1760	A1669	A1586	A1503	C1428	G1355	A1269	G1191	C1117	G1051	A892
G1972	A1900	U1825	G1753	C1670	A1587	A1504	G1429		G1270	G1192	C1118		C893
C1973	G1903	G1826	U1754	U1671	U1588	C1507	G1430	G1360	G1271	G1193	U1119	G1055	U894
G1974	G1904	U1827	A1754	G1674	A1589	A1508	A1431	G1361	A1272	G1197	G1124	A1057	A896
G1975	C1905	A1829	G1755	A1509	A1590	C1362	G1432	C1363	U1273	U1198	G1125	U1058	C897
U1976	G1906	C1830	A1767	U1510		G1364	A1433	A1365	A1274		A1126	G1059	C898
A1977					A1597		A1434		A1275	U1201		U1060	A899
A1978	G1907		U1758		A1598			A1366	A1276	G1202	A1129	U1061	
U1979	C1908	C1833	A1759	U1688		G1514	C1437	A1367	G1277	U1203	U1130	G1062	C903
G1980	G1909	U1834	C1760	A1689	U1602	A1515	U1438	A1368	C1278	A1204	G1131	U1065	G904
A1981	G1910	G1835	A1766	A1690	A1603	A1522	A1439	G1369	G1279	A1205	U1132	U1066	G907
U1982	U1911	C1836	C1764	C1691	C1606	U1523	G1447	C1370	G1283		U1135	U1067	
	A1912	C1837		U1692	C1607	G1524	G1448	U1371		U1209	G1136	A1069	A910
C1986	A1913	C1838	A1772	U1693	A1608		G1449	A1372	A1286	G1212	G1139	A1070	A911
A1987	C1914		C1773	C1694	A1609	G1527	G1450	A1373	A1287	A1213	G1140	G1071	C912
G1988	3TD1915	U1841	A1774	G1695	A1610	A1528	C1451	G1374	G1288	U1219	U1141	C1072	U913
	A1916		U1775	G1696	C1611	A1529	G1452			G1220	A1142	A1073	C914
U1991	U1917	C1844	G1776	G1697	C1612	G1530	A1453	U1378	U1294	G1221	U1143	G1074	C915
G1992	A1918	G1845		A1698	G1613	G1531	C1454	U1379		G1222	A1144	C1075	G916
U1993	A1919	G1846	U1779	G1699	A1614	A1532	G1455	G1380	C1297	U1223	G1145	U1077	A917
C1994		A1847	A1780	A1701				G1381	C1298	G1224	A1146	C1076	U999
U1995	U1923	A1848	U1781	A1535	A1618	A1536	U1458	G1382	G1299	A1226	A1151	U1078	C922
C1996	C1924	G1849	U1782	C1537	G1619	G1537	G1469	A1383	G1298	G1227	C1152	C1078	G923
C1997	G1925	G1850	A1784	G1538		U1539	U1460	A1384	A1301	G1228	G1153	A1000	
A1998	U1926		A1785	G1539	G1622	G1541	C1461	A1385	A1302	C1229	C1154	U1079	
C1999	A1927	A1853		U1539	A1626		C1462	A1387	G1303	A1230	A1155	U1083	U931
C2000	U1928	A1854	C1788	U1539			C1463					A1084	U932
G2001	G1929		A1789	G1540			G1464						
G2002	G1930	G1857	C1790	G1715									

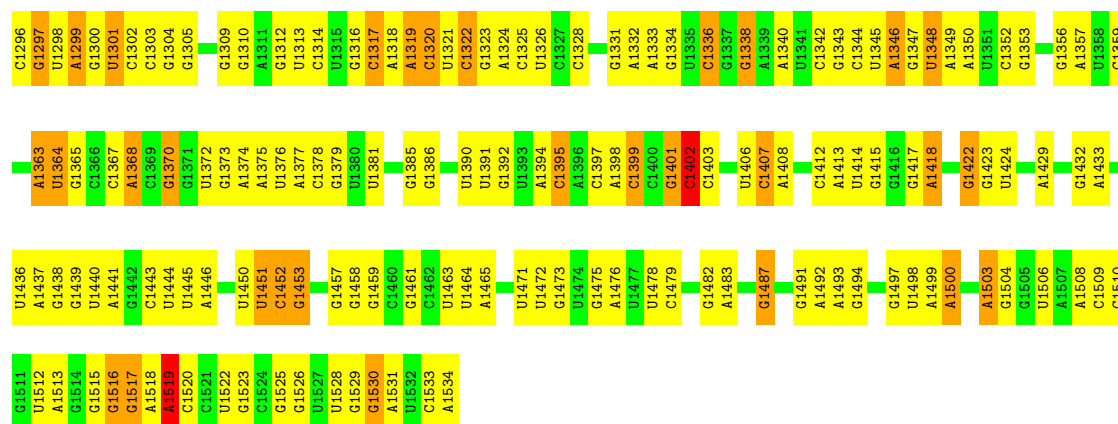


• Molecule 2: 16S Ribosomal RNA

Chain 2: 40% 46% 13%

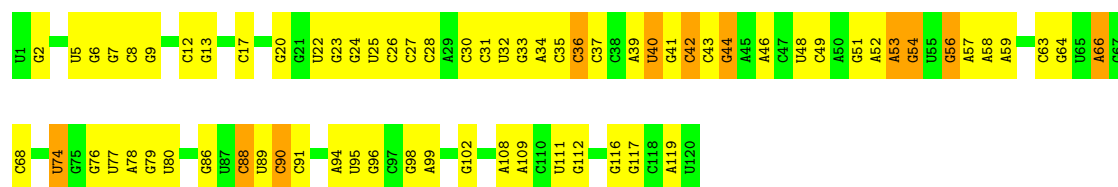


U1211	C1140	G1072	G1002	C924	U850	C770	A694	A607	G530	U458	C379	C307	G213	G145
U1212	C1141	U1073	G1003	G925	G851	A780	A695	U610	U531	U464	G380	C308	C214	G146
C1214	G1142	G1074	A1004	G926	U855		A696		A532	A465	C381	C309	C215	A149
	G1143		A1005	G927	C856		U697		A533	A466	C382	G310	U216	A150
	G1144	G1077	U1006	G928	C857	C783	G698	C613	U534	A467	C383	C311	U219	A151
C1218	A1145	U1078	U1008		C858	C784	C699	C614	A535	A468	G384	A313	G220	U154
A1219	C1146	G1079	U1009	C932	C859	G785	G700	G615	C536	C469	U387	A314	G221	U155
G1220	A1147	A1080	U1010	G933	A860	G786	U701	G616	G537	C470	G388	A315	C222	A156
C1222	U1148	A1081	C1011	G934	G861	A787	A702	G617	A539	U471	C389	C316	U224	U157
C1223	C1149		A1012	A935	C862	U788	G703	C618	A539	U472	U390		A223	C156
U1224	A1150		G1013		U863	U789	G704	U619		U473	G391	G319	U225	G158
C1225	U1151	U1086	G1014	G939	A864	A792	G705	C620	G542		C392	A320	G226	G159
C1226	A1152	G1087	A1014		A865	U793	A706	A621	U543	U476	A393	A321		A160
A1227	G1153	G1088	G1015		C866	A794			G544	C477	G394	C322	G232	A161
C1228		U1089	U1016	G945	C867		G711	U625	C545	A478	C395			A162
	G1156	U1090	U1017	A946	C868	C797	G712	G626	A546	U479	G396	A325	G235	G163
G1233	A1157	U1091	G1018	G947	C869	U798	G713	G627	A547	U480	A397	A326	A236	G164
C1234	U1158	A1092	A1019	C948	C870	G799	G714	G628	A553	G481	C401	A327	G240	C169
U1235	U1159	A1093	G1020	A949	U870	G800	A715	A629	A554	A482	G402	C328		U170
A1236	G1160	G1094	A1021	U950	U871	U801	A716	G633	U555	G483	G403	A329	U244	A171
C1237	C1161	U1095	A1022	G951	A872	A802	U717			U484	G404	C330	U245	A172
A1238	G1162	C1096	U1023		A873		A718			U485	U405	G332	A246	U173
U1239			G1024	A958	C876	C805	G721	A640	A560	C489	G406		G247	
U1240	A1167	A1101	U1025	A959	C879	C806	G722	A641	U561	C490		C335		C176
G1241	U1168	A1102	C1026	U960	C882	A807	U723	A642	U562	G410	U409	A336	G251	C177
G1242	A1169	C1103	C1027	G963	C883		G724		U563	G411	G410	A337	U252	C178
	A1170		U1028		U884	C810	G725	A648	A564	A493	G412	A338	U253	C179
A1250	A1171	G1107	U1030	G966	U885	C811	G726	C650	C564	A494	A412	A339	G254	U180
G1255	A1176	C1108	C1031	C967	C886	C812	G727	G651	U565	A495	G413		G255	A181
A1256	G1177	G1109	G1032	A968	C887	A813	A728	U652	C567	A496	A414		U256	A182
C1258	A1178	A1110	G1033	C969	U888	A814		U653	G568	A497	A415	C345	G257	C183
G1260	A1179	A1111	G1034	G970	C889	A815	G731		G569	A498	G416	G346	G258	U185
A1261	G1180		A1035	C971	C890	C816	G734	C658	A572	A499	G417	G347		U186
	G1181	C1114			U891	C817	G735		A573	C501	C418		A262	C186
G1266	U1182	U1115	U1040	A974	A892	A818	C736		A574	A502	C419	G351	A263	G187
C1267	U1183	U1116	G1041	A975		A819		U682	G575		U420	C352	C264	
G1268	G1184	A1117	A1042	G976	C899	U820	U740	A663	C576	A509	U421	A353	G265	A190
A1269	G1185	U1118	G1043	A977	A900	U821	G741	G664	G577	A510	C422	G354	G266	G191
G1270	G1186	C1119	A1044	A978	A901	C823	G742	A665	C578	A511	G423	C355	G267	A192
	G1187	C1120	C1045	C979	A902	C824	A743	G666	C579	C511	G424	A356	U268	
	A1191	U1121	A1046	C980	G903	A825	G744		C580	C512	G425	G357	C269	A195
C1273	C1192	U1122	G1047	U981	U904	C826	G745	A673	C581	C513			A270	A196
A1274	G1193	G1124	G1048	U982	U905	U827	A746	G674	C582	C514	G428	G360		A197
C1275		U1125	U1049	C983	A906	U828	A747	A675	A583	G515	U429	G361	G278	G198
G1276	A1196	U1126	G1050	C984	A907	G829	G748	U677	G584	U516	U430	G362	A279	A199
C1277	U1197		C985	C985	A908				G585	C517	A431	A363	G280	G200
G1278	G1198	C1128	U1054	U989	A909	G833	C750	C680	G587	C518	U437	U364	G281	G201
A1280	U1199	A1130	A1055		A909		U751	A681		C519	U438	A366	A282	G202
C1281	C1200	G1131	C1059	U992	U911	U837	G752		U591	A520	U439	U367	G289	G203
C1282	A1201	C1132	U1060	G993	A912	G838	G753	G685	G592	G521	U439	U368	G294	G204
U1283	U1202	G1133	A913	A994	A913	U842	G754	U686	A522	A523	G450	A372	A298	A205
	C1203	G1134	A914	C995	A914	U843	G755	A687	G524	G524	A451	C373	G299	C206
		U1065		A996		G756	U757	G688	C525	C525	G454	A374	A300	C207
	G1207	C1136	G1066		A918	A845	C758	C689	A596	C526	G454	A375	G299	U208
A1287	C1208	A1067	A1067	C999	G922	G846		G690	G601	G527	G455	U376	A300	U209
A1288	C1210	G1138	A1000	C1001	A923	A768	G769	G691	C528	C528	A456	G375	G211	C210
		G1139									G457		A306	G212



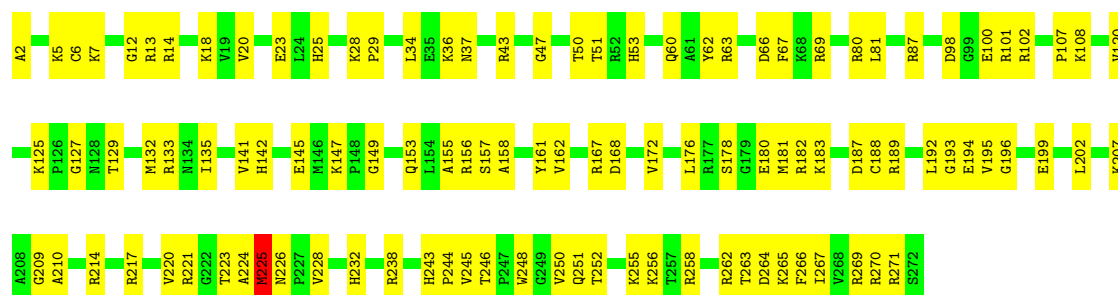
• Molecule 3: 5S Ribosomal RNA

Chain 3: 42% 49% 9%



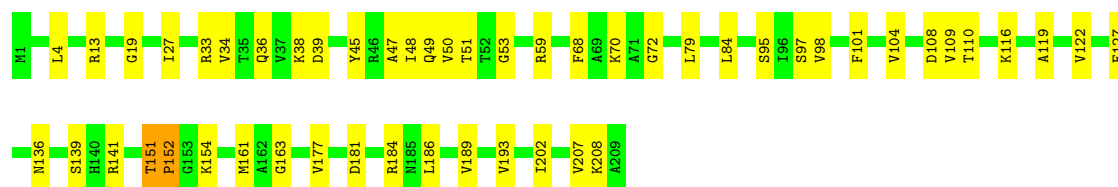
• Molecule 4: 50S ribosomal protein L2

Chain B: 60% 39%



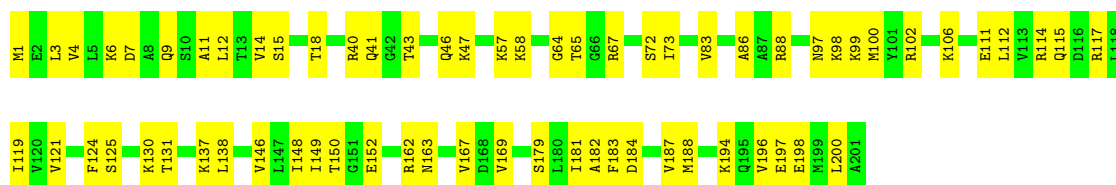
• Molecule 5: 50S ribosomal protein L3

Chain C: 76% 23%



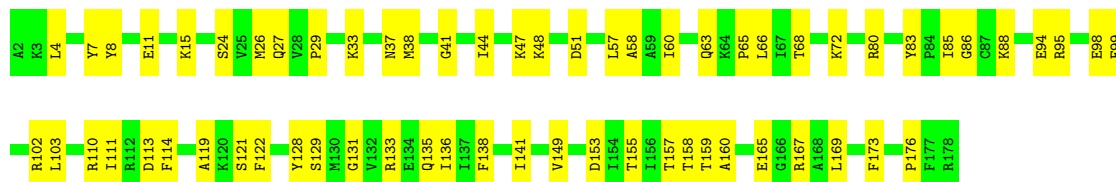
• Molecule 6: 50S ribosomal protein L4

Chain D: 67% 33%



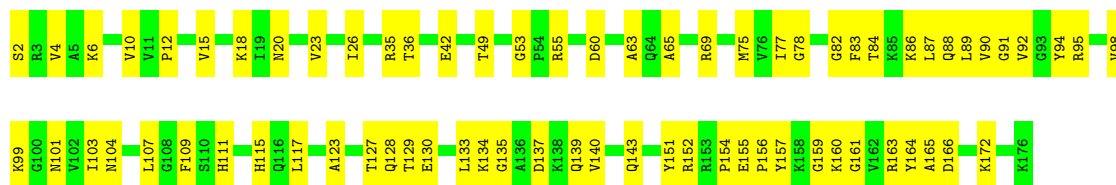
• Molecule 7: 50S ribosomal protein L5

Chain E: 64% 36%



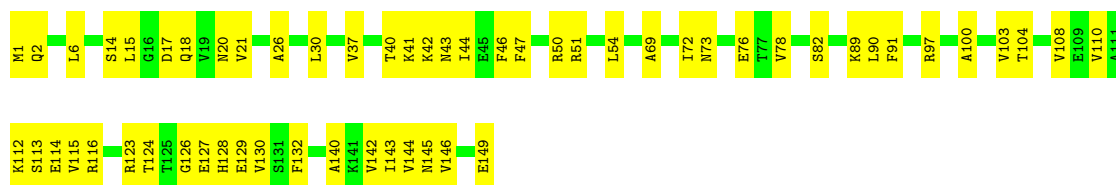
• Molecule 8: 50S ribosomal protein L6

Chain F: 59% 41%



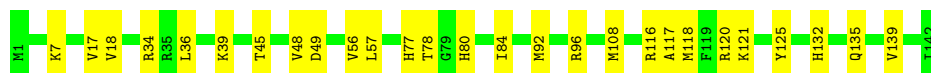
• Molecule 9: 50S ribosomal protein L9

Chain G: 62% 38%



• Molecule 10: 50S ribosomal protein L13

Chain J: 81% 19%



• Molecule 11: 50S ribosomal protein L14

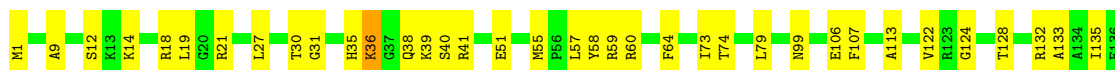
Chain K: 66% 34%





- Molecule 12: 50S ribosomal protein L15

Chain L: 73% 26%



- Molecule 13: 50S ribosomal protein L16

Chain M: 67% 33%



- Molecule 14: 50S ribosomal protein L17

Chain N: 74% 26%



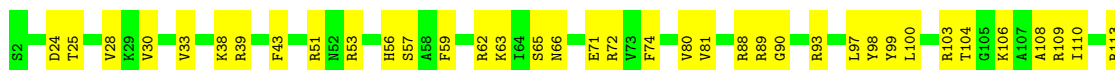
- Molecule 15: 50S ribosomal protein L18

Chain O: 72% 28%



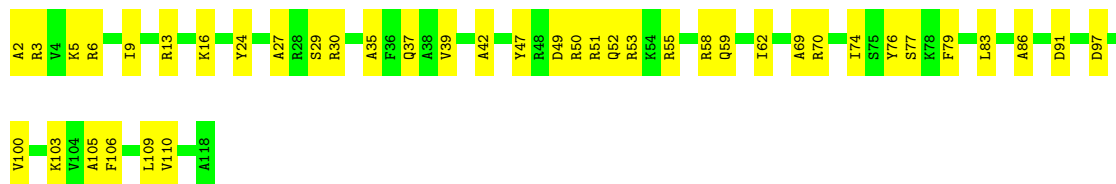
- Molecule 16: 50S ribosomal protein L19

Chain P: 67% 33%



- Molecule 17: 50S ribosomal protein L20

Chain Q:  65% 35%



- Molecule 18: 50S ribosomal protein L21

Chain R:  64% 34% .



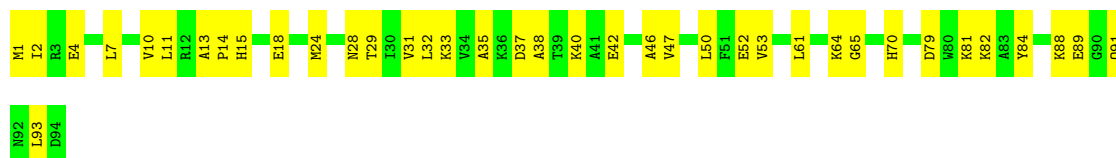
- Molecule 19: 50S ribosomal protein L22

Chain S:  72% 28%



- Molecule 20: 50S ribosomal protein L23

Chain T:  60% 40%



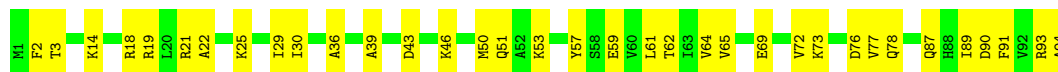
- Molecule 21: 50S ribosomal protein L24

Chain U:  66% 34%



- Molecule 22: 50S ribosomal protein L25

Chain V:  63% 37%

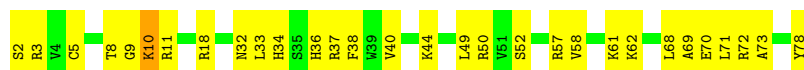


- Molecule 23: 50S ribosomal protein L27

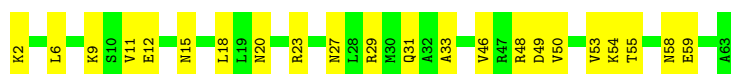
Chain W:  66% 34%



- Molecule 24: 50S ribosomal protein L28



- Molecule 25: 50S ribosomal protein L29



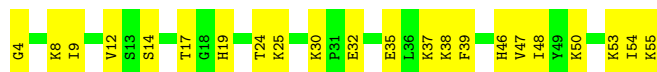
- Molecule 26: 50S ribosomal protein L30



- Molecule 27: 50S ribosomal protein L32



- Molecule 28: 50S ribosomal protein L33

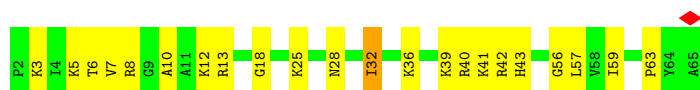


- Molecule 29: 50S ribosomal protein L34



- Molecule 30: 50S ribosomal protein L35

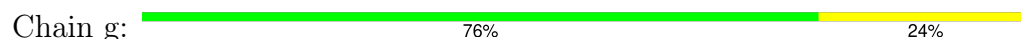




- Molecule 31: 50S ribosomal protein L36



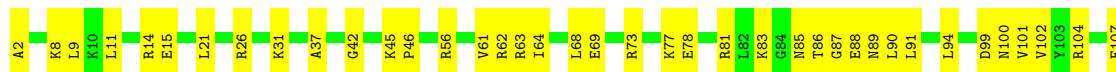
- Molecule 32: 30S ribosomal protein S2



- Molecule 33: 30S ribosomal protein S3



- Molecule 34: 30S ribosomal protein S4

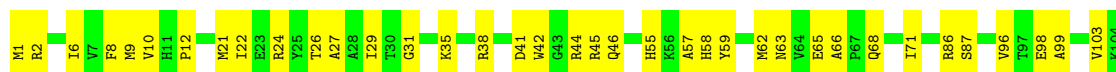


- Molecule 35: 30S ribosomal protein S5





- Molecule 36: 30S ribosomal protein S6



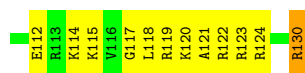
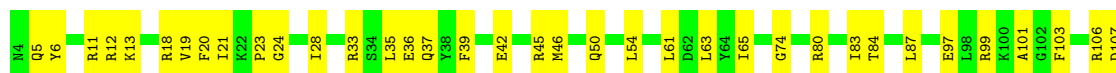
- Molecule 37: 30S ribosomal protein S7



- Molecule 38: 30S ribosomal protein S8



- Molecule 39: 30S ribosomal protein S9

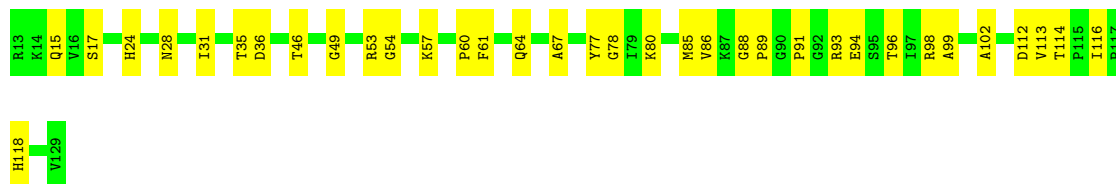


- Molecule 40: 30S ribosomal protein S10



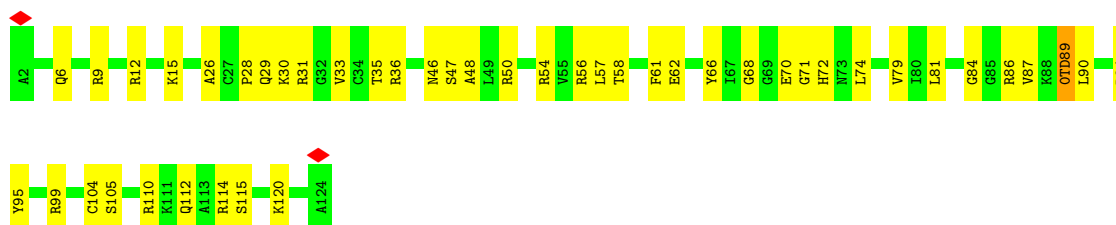
- Molecule 41: 30S ribosomal protein S11

Chain p:  70% 30%



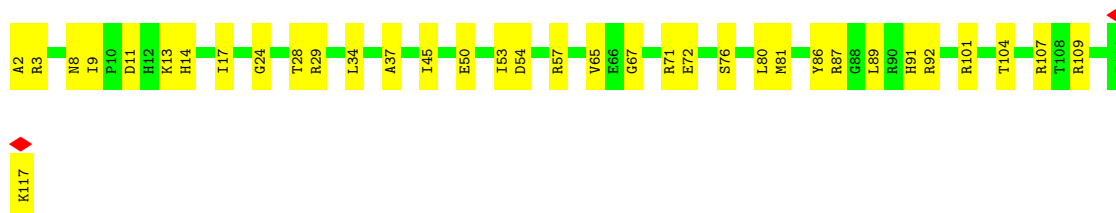
- Molecule 42: 30S ribosomal protein S12

Chain q:  63% 36%



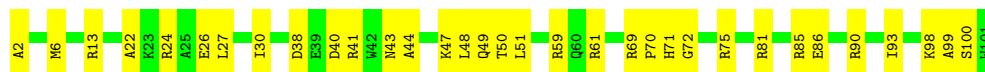
- Molecule 43: 30S ribosomal protein S13

Chain r:  70% 30%



- Molecule 44: 30S ribosomal protein S14

Chain s:  67% 33%



- Molecule 45: 30S ribosomal protein S15

Chain t:  84% 16%



- Molecule 46: 30S ribosomal protein S16

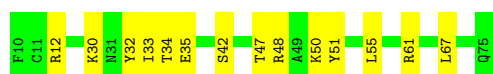
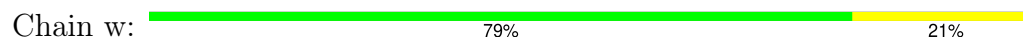
Chain u:  72% 28%



- Molecule 47: 30S ribosomal protein S17



- Molecule 48: 30S ribosomal protein S18



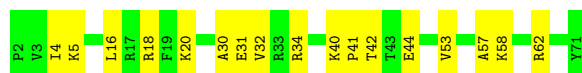
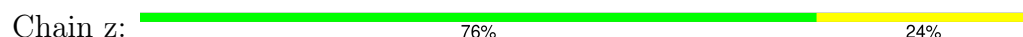
- Molecule 49: 30S ribosomal protein S19



- Molecule 50: 30S ribosomal protein S20



- Molecule 51: 30S ribosomal protein S21

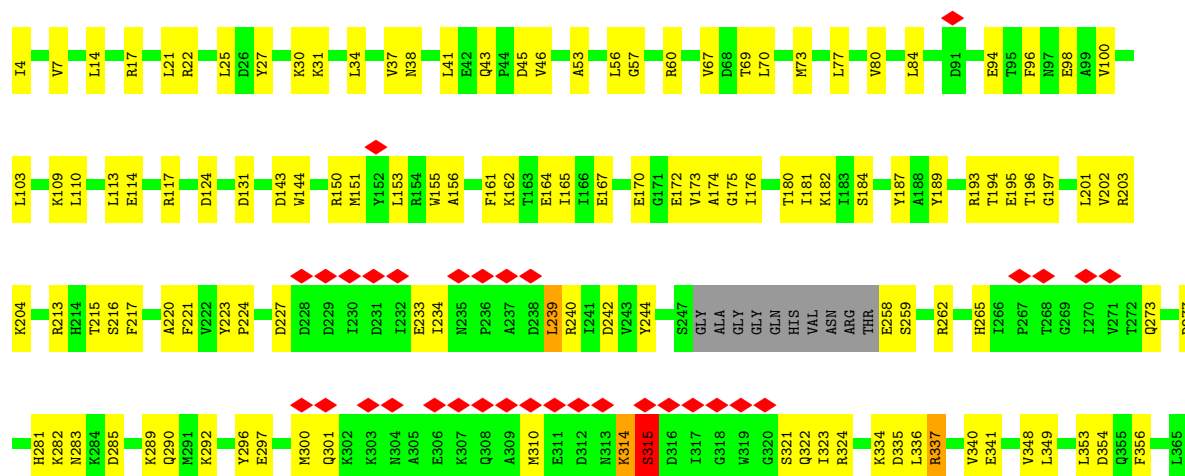


- Molecule 52: mRNA

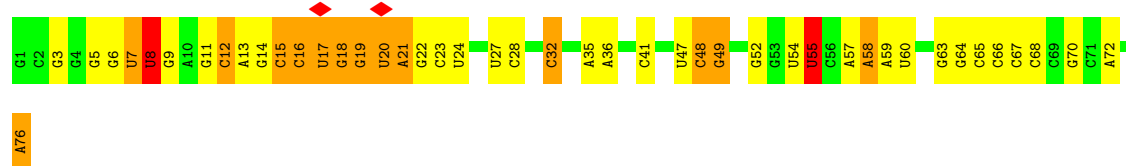


- Molecule 53: Peptide chain release factor 2





• Molecule 54: P-tRNA



• Molecule 55: FME-PHE-PHE



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	51221	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI POLARA 300	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	41.6	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.059	Depositor
Minimum map value	-0.027	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.005	Depositor
Recommended contour level	0.007	Depositor
Map size (Å)	421.12, 421.12, 421.12	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.645, 1.645, 1.645	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: 1MG, OMC, FME, 3TD, PSU, 0TD, ZN, 4SU, 6MZ, UR3, 2MG, MA6, H2U, 5MU, OMU, 4OC, OMG, MG, 5MC, 2MA, G7M

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	1	0.51	0/69286	0.48	1/108087 (0.0%)
2	2	0.46	0/36590	0.45	1/57074 (0.0%)
3	3	0.47	0/2872	0.47	0/4478
4	B	0.49	1/2121 (0.0%)	0.68	1/2852 (0.0%)
5	C	0.46	0/1586	0.67	0/2134
6	D	0.44	0/1571	0.62	0/2113
7	E	0.43	0/1434	0.67	0/1926
8	F	0.43	0/1333	0.58	0/1805
9	G	0.38	0/1122	0.66	0/1515
10	J	0.48	0/1152	0.64	0/1551
11	K	0.43	0/955	0.66	0/1279
12	L	0.43	0/1062	0.64	0/1413
13	M	0.43	0/1093	0.63	0/1460
14	N	0.45	0/964	0.70	0/1289
15	O	0.40	0/902	0.60	0/1209
16	P	0.46	0/929	0.68	0/1242
17	Q	0.48	0/960	0.62	0/1278
18	R	0.48	0/829	0.69	0/1107
19	S	0.47	0/864	0.63	0/1156
20	T	0.44	0/752	0.63	0/1005
21	U	0.46	0/796	0.71	0/1062
22	V	0.46	0/766	0.61	0/1025
23	W	0.46	0/589	0.62	0/779
24	X	0.51	0/635	0.66	0/848
25	Y	0.47	0/502	0.62	0/667
26	Z	0.42	0/452	0.65	0/605
27	b	0.47	0/450	0.70	0/599
28	c	0.44	0/433	0.62	0/576
29	d	0.51	0/380	0.72	0/498
30	e	0.51	0/513	0.69	0/676
31	f	0.44	0/303	0.68	0/397

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
32	g	0.41	0/1791	0.66	0/2413
33	h	0.41	0/1663	0.61	0/2241
34	i	0.40	0/1665	0.63	1/2227 (0.0%)
35	j	0.43	0/1165	0.68	2/1568 (0.1%)
36	k	0.42	0/867	0.66	0/1171
37	l	0.38	0/1195	0.62	0/1602
38	m	0.41	0/989	0.60	0/1326
39	n	0.41	0/1034	0.66	0/1375
40	o	0.40	0/800	0.65	0/1082
41	p	0.38	0/893	0.59	0/1205
42	q	0.42	0/960	0.67	0/1286
43	r	0.40	0/909	0.65	0/1215
44	s	0.39	0/817	0.61	0/1088
45	t	0.41	0/722	0.60	0/964
46	u	0.37	0/659	0.57	0/884
47	v	0.40	0/657	0.71	0/881
48	w	0.41	0/553	0.57	0/743
49	x	0.34	0/680	0.55	0/915
50	y	0.43	0/675	0.61	0/895
51	z	0.38	0/597	0.61	0/792
52	4	0.34	0/203	0.49	0/312
53	7	0.37	0/2831	0.74	6/3815 (0.2%)
54	5	0.30	0/1704	0.39	0/2654
55	6	0.52	0/23	0.44	0/29
All	All	0.47	1/158248 (0.0%)	0.52	12/236388 (0.0%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	B	223	THR	CA-C	-5.05	1.45	1.52

All (12) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	1	784	G	C4'-C3'-O3'	7.01	119.92	109.40
53	7	265	HIS	CA-C-N	6.06	125.18	120.33
53	7	265	HIS	C-N-CA	6.06	125.18	120.33
53	7	322	GLN	CA-C-N	5.55	131.97	121.97
53	7	322	GLN	C-N-CA	5.55	131.97	121.97
4	B	12	GLY	N-CA-C	-5.39	107.58	114.37
35	j	15	LEU	CA-C-N	-5.25	117.82	122.97
35	j	15	LEU	C-N-CA	-5.25	117.82	122.97

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
53	7	315	SER	CA-C-N	-5.09	114.32	122.62
53	7	315	SER	C-N-CA	-5.09	114.32	122.62
34	i	148	LYS	N-CA-C	-5.05	105.87	112.23
2	2	5	U	C4'-C3'-O3'	5.01	116.92	109.40

There are no chirality outliers.

There are no planarity outliers.

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	1	62336	0	31371	1302	0
2	2	32929	0	16587	623	0
3	3	2569	0	1301	50	0
4	B	2082	0	2154	105	0
5	C	1565	0	1616	39	0
6	D	1552	0	1619	52	0
7	E	1410	0	1444	54	0
8	F	1313	0	1358	47	0
9	G	1111	0	1148	40	0
10	J	1129	0	1162	23	0
11	K	946	0	1023	31	0
12	L	1053	0	1129	30	0
13	M	1074	0	1157	38	0
14	N	951	0	994	31	0
15	O	892	0	923	25	0
16	P	917	0	962	29	0
17	Q	947	0	1019	33	0
18	R	816	0	839	29	0
19	S	857	0	922	23	0
20	T	746	0	811	26	0
21	U	788	0	844	24	0
22	V	753	0	780	25	0
23	W	582	0	599	19	0
24	X	625	0	652	31	0
25	Y	501	0	531	17	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
26	Z	448	0	488	18	0
27	b	444	0	458	20	0
28	c	426	0	464	13	0
29	d	377	0	418	12	0
30	e	504	0	572	22	0
31	f	302	0	340	11	0
32	g	1760	0	1787	35	0
33	h	1636	0	1710	49	0
34	i	1643	0	1707	52	0
35	j	1152	0	1196	41	0
36	k	848	0	846	25	0
37	l	1181	0	1238	37	0
38	m	979	0	1031	31	0
39	n	1022	0	1070	44	0
40	o	790	0	831	44	0
41	p	877	0	887	22	0
42	q	957	0	1017	40	0
43	r	900	0	965	31	0
44	s	805	0	844	31	0
45	t	714	0	734	9	0
46	u	649	0	666	16	0
47	v	648	0	691	25	0
48	w	544	0	560	8	0
49	x	663	0	688	25	0
50	y	669	0	719	26	0
51	z	589	0	629	11	0
52	4	184	0	95	3	0
53	7	2793	0	2693	88	0
54	5	1627	0	831	32	0
55	6	32	0	28	9	0
56	1	1	0	0	0	0
56	2	1	0	0	0	0
56	3	8	0	0	0	0
56	b	1	0	0	0	0
56	i	1	0	0	0	0
57	f	1	0	0	0	0
All	All	146620	0	99148	3086	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 (3086) 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)
1:1:782:A:N3	4:B:225:MET:HG2	1.59	1.18
2:2:1146:A:O2'	2:2:1147:C:H6	1.28	1.16
2:2:1146:A:O2'	2:2:1147:C:C6	1.98	1.15
2:2:4:U:H3'	2:2:5:U:H5''	1.30	1.11
1:1:780:G:H2'	1:1:782:A:N7	1.67	1.08
1:1:404:A:O2'	1:1:405:U:P	2.14	1.05
40:o:9:ARG:HG2	40:o:73:LEU:HD23	1.42	1.01
1:1:2095:A:C6	1:1:2096:C:N4	2.29	1.00
1:1:2093:G:N7	1:1:2225:A:H2'	1.80	0.96
1:1:2506:U:C5	55:6:78:PHE:HB2	2.00	0.96
1:1:2128:G:O2'	1:1:2174:C:H1'	1.65	0.95
1:1:1079:C:H41	1:1:1088:A:H5'	1.29	0.94
24:X:5:CYS:HB3	24:X:10:LYS:HB2	1.50	0.93
2:2:984:C:H2'	2:2:985:C:C6	2.01	0.93
1:1:2226:C:N4	1:1:2227:A:C2	2.36	0.93
1:1:404:A:C2	1:1:406:G:C6	2.57	0.92
40:o:9:ARG:CG	40:o:73:LEU:HD23	1.98	0.92
1:1:2127:G:O2'	1:1:2128:G:H5''	1.69	0.92
1:1:404:A:N3	1:1:406:G:C6	2.38	0.92
1:1:404:A:H1'	1:1:406:G:C8	2.06	0.90
1:1:2095:A:C4	1:1:2096:C:C5	2.59	0.90
1:1:2506:U:H5	55:6:78:PHE:HB2	1.37	0.90
1:1:782:A:C2	4:B:225:MET:HG2	2.07	0.89
1:1:2095:A:C6	1:1:2096:C:C4	2.61	0.88
1:1:2286:G:C8	1:1:2286:G:H5'	2.07	0.88
1:1:1637:A:H5'	1:1:1760:C:O2'	1.74	0.87
2:2:1135:U:O2'	2:2:1136:C:H5''	1.74	0.86
2:2:1136:C:H5'	2:2:1137:C:O4'	1.75	0.86
1:1:2584:U:H2'	1:1:2585:U:C6	2.12	0.85
1:1:228:C:N4	1:1:2407:A:N3	2.25	0.85
1:1:1635:A:C8	1:1:1636:U:C5	2.64	0.85
2:2:1126:U:O4	40:o:9:ARG:HD2	1.77	0.84
1:1:2063:C:H1'	55:6:79:PHE:HB2	1.59	0.84
4:B:220:VAL:HG11	4:B:225:MET:HE3	1.59	0.83
1:1:2127:G:N2	1:1:2160:C:H41	1.76	0.83
1:1:2093:G:C6	1:1:2225:A:C8	2.66	0.83
1:1:2095:A:H2'	1:1:2096:C:C6	2.13	0.83
1:1:2188:U:H5''	1:1:2189:U:H5	1.41	0.82
1:1:2226:C:C4	1:1:2227:A:C5	2.67	0.81
1:1:2095:A:C5	1:1:2096:C:N4	2.49	0.81
1:1:729:G:N3	1:1:729:G:H2'	1.96	0.80
2:2:1146:A:O2'	2:2:1147:C:C5	2.34	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1438:G:H1	2:2:1463:U:H3	1.27	0.79
1:1:784:G:N7	4:B:228:VAL:HG11	1.96	0.79
24:X:5:CYS:CB	24:X:10:LYS:HB2	2.12	0.79
1:1:1076:C:H2'	1:1:1077:A:C8	2.18	0.78
1:1:1061:U:O3'	1:1:1070:A:H4'	1.84	0.78
1:1:1635:A:N7	1:1:1636:U:C5	2.52	0.78
1:1:2226:C:N4	1:1:2227:A:N1	2.32	0.78
1:1:404:A:HO2'	1:1:405:U:P	2.03	0.78
1:1:1079:C:N4	1:1:1088:A:H5'	1.99	0.77
1:1:784:G:O6	4:B:228:VAL:CG1	2.33	0.77
1:1:404:A:C2	1:1:406:G:O6	2.37	0.76
1:1:780:G:C2'	1:1:782:A:N7	2.48	0.76
1:1:2160:C:H5	1:1:2161:C:C4	2.04	0.76
1:1:782:A:N3	4:B:225:MET:CG	2.45	0.76
1:1:2584:U:O2'	1:1:2585:U:C5	2.39	0.75
4:B:220:VAL:CG1	4:B:225:MET:HE3	2.15	0.75
31:f:25:VAL:HB	31:f:35:GLN:HB2	1.67	0.75
1:1:2127:G:O2'	1:1:2128:G:C5'	2.33	0.75
1:1:784:G:C6	4:B:228:VAL:HG11	2.21	0.75
1:1:2160:C:C5	1:1:2161:C:C4	2.74	0.75
1:1:2095:A:C5	1:1:2096:C:C4	2.74	0.75
1:1:717:C:H3'	1:1:718:A:H8	1.52	0.75
2:2:181:A:H2'	2:2:181:A:OP2	1.85	0.75
2:2:4:U:H3'	2:2:5:U:C5'	2.12	0.75
1:1:711:G:C6	1:1:721:A:N6	2.55	0.74
1:1:784:G:O6	4:B:228:VAL:HG11	1.85	0.74
1:1:1923:U:O2'	1:1:1924:C:O5'	2.06	0.74
2:2:1:A:OP1	2:2:3:A:N6	2.21	0.74
1:1:720:U:H2'	1:1:721:A:C8	2.23	0.74
1:1:784:G:C5	4:B:228:VAL:HG11	2.23	0.74
1:1:2127:G:H1'	1:1:2128:G:C8	2.23	0.74
1:1:2425:A:H5''	1:1:2427:C:O4'	1.86	0.73
1:1:1759:A:H3'	1:1:1760:C:C6	2.22	0.73
1:1:2091:C:N3	1:1:2092:U:C4	2.56	0.73
2:2:3:A:C2	2:2:629:A:H1'	2.23	0.73
2:2:4:U:C3'	2:2:5:U:H5''	2.13	0.73
2:2:984:C:H2'	2:2:985:C:H6	1.54	0.73
34:i:187:GLU:H	34:i:190:ASP:HB2	1.54	0.73
2:2:1363:A:O2'	2:2:1364:U:H5'	1.88	0.73
1:1:1759:A:C2	1:1:1760:C:H1'	2.23	0.73
1:1:116:C:O2'	1:1:126:A:N3	2.22	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:2188:U:H5''	1:1:2189:U:C5	2.24	0.72
1:1:1817:G:H3'	4:B:156:ARG:HH21	1.55	0.72
1:1:2226:C:C5	1:1:2227:A:C5	2.77	0.72
1:1:1071:G:H1'	1:1:1089:A:H2'	1.71	0.72
1:1:1666:G:H1	1:1:1994:C:H42	1.37	0.72
2:2:1395:C:H5'	2:2:1401:G:H21	1.53	0.72
1:1:2093:G:C5	1:1:2225:A:C8	2.78	0.71
8:F:155:GLU:HG2	8:F:157:TYR:H	1.55	0.71
1:1:780:G:H2'	1:1:782:A:C5	2.25	0.71
2:2:81:A:H62	2:2:86:G:H21	1.38	0.71
8:F:95:ARG:HB2	8:F:128:GLN:HB3	1.72	0.71
26:Z:31:ARG:HD2	26:Z:34:HIS:HB2	1.71	0.71
29:d:24:THR:HG23	29:d:27:GLY:H	1.55	0.71
1:1:711:G:N1	1:1:721:A:C6	2.59	0.71
2:2:1081:A:N7	35:j:52:LYS:NZ	2.39	0.71
18:R:6:GLN:HG2	18:R:11:GLN:HG2	1.72	0.71
1:1:400:G:N7	24:X:57:ARG:NH1	2.39	0.71
43:r:117:LYS:O	54:5:28:C:H4'	1.90	0.70
53:7:27:TYR:HB2	53:7:67:VAL:HG22	1.74	0.70
1:1:245:G:N7	30:e:8:ARG:NH2	2.40	0.70
1:1:1062:G:O6	1:1:1076:C:C6	2.44	0.70
1:1:2226:C:C4	1:1:2227:A:C4	2.79	0.70
1:1:468:G:N7	29:d:39:ARG:NH2	2.35	0.70
1:1:1528:A:N6	1:1:1543:G:O2'	2.25	0.70
2:2:108:G:H5'	2:2:109:A:H5''	1.72	0.70
2:2:362:G:H5''	42:q:58:THR:HG21	1.72	0.70
34:i:85:ASN:HA	35:j:102:GLY:HA3	1.74	0.70
53:7:155:TRP:HE1	53:7:354:ASP:HB2	1.56	0.70
1:1:2128:G:C8	1:1:2173:A:C2	2.80	0.70
26:Z:6:LYS:HB2	26:Z:58:GLU:HB3	1.74	0.70
1:1:748:G:OP2	19:S:88:ARG:NE	2.21	0.69
2:2:1126:U:O4	40:o:9:ARG:CD	2.40	0.69
9:G:76:GLU:HA	9:G:142:VAL:HG13	1.74	0.69
1:1:1635:A:N7	1:1:1636:U:C4	2.60	0.69
1:1:2857:G:N2	1:1:2860:A:OP2	2.25	0.69
2:2:3:A:N3	2:2:629:A:H1'	2.05	0.69
2:2:210:C:H4'	2:2:211:G:H5''	1.72	0.69
1:1:85:G:OP2	21:U:7:ARG:HB2	1.92	0.69
1:1:784:G:N7	4:B:228:VAL:CG1	2.55	0.69
46:u:28:ARG:HH11	46:u:29:ASN:HD21	1.40	0.69
2:2:1167:A:O2'	2:2:1169:A:N7	2.26	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1069:A:H4'	1:1:1070:A:OP1	1.92	0.69
1:1:1246:A:H4'	6:D:40:ARG:HH12	1.57	0.69
1:1:2226:C:N4	1:1:2227:A:C6	2.60	0.69
2:2:563:A:H3'	42:q:12:ARG:HH12	1.57	0.69
46:u:45:GLU:HG2	46:u:46:LYS:HG2	1.74	0.69
1:1:711:G:C2	1:1:721:A:C5	2.81	0.69
1:1:1041:G:N2	1:1:1114:C:N3	2.40	0.69
1:1:1485:U:H3	1:1:1504:A:H2	1.40	0.69
1:1:1754:A:N6	1:1:2694:G:H1'	2.08	0.69
1:1:2095:A:H2'	1:1:2096:C:H6	1.57	0.69
1:1:1580:A:H5'	1:1:1581:G:OP2	1.92	0.69
2:2:107:G:N7	50:y:10:ARG:NH2	2.41	0.69
2:2:891:U:H2'	2:2:892:A:H8	1.58	0.69
22:V:72:VAL:HG12	22:V:93:ARG:HA	1.75	0.69
53:7:131:ASP:HB3	53:7:221:PHE:HB3	1.75	0.69
1:1:2091:C:C4	1:1:2092:U:C4	2.81	0.68
36:k:35:LYS:HB2	36:k:65:GLU:HB3	1.75	0.68
1:1:784:G:N2	1:1:786:C:H41	1.91	0.68
1:1:1789:A:OP2	4:B:221:ARG:NH1	2.26	0.68
7:E:48:LYS:HA	7:E:51:ASP:HB3	1.75	0.68
1:1:668:A:H2'	1:1:670:A:H62	1.58	0.68
1:1:784:G:O6	4:B:228:VAL:CG2	2.42	0.68
1:1:2160:C:C5	1:1:2161:C:C2	2.82	0.68
1:1:275:C:O2'	1:1:362:A:N6	2.27	0.68
1:1:882:G:H1	1:1:895:U:H4'	1.58	0.68
1:1:981:A:OP2	1:1:982:C:N4	2.26	0.68
1:1:2659:G:N2	1:1:2662:A:OP2	2.27	0.68
1:1:720:U:O2	1:1:721:A:N7	2.26	0.68
2:2:933:G:O6	37:l:3:ARG:NH2	2.26	0.68
22:V:72:VAL:HA	22:V:94:ALA:H	1.58	0.68
5:C:136:ASN:HD21	5:C:139:SER:HB2	1.59	0.68
8:F:98:VAL:HG22	8:F:103:ILE:HG12	1.75	0.68
53:7:162:LYS:HB3	53:7:184:SER:HB2	1.75	0.68
1:1:1114:C:O2'	1:1:1115:G:H5'	1.94	0.67
1:1:1788:C:OP1	4:B:221:ARG:NH2	2.28	0.67
40:o:7:ARG:HB2	40:o:101:SER:HB2	1.77	0.67
1:1:2521:C:O2'	1:1:2564:A:N3	2.26	0.67
1:1:220:G:O2'	1:1:233:A:N3	2.26	0.67
1:1:279:A:OP2	1:1:361:G:N2	2.28	0.67
1:1:2128:G:H1'	1:1:2173:A:C2	2.29	0.67
1:1:1079:C:H41	1:1:1088:A:C5'	2.07	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1255:G:O2'	2:2:1258:G:N3	2.28	0.67
37:l:5:ARG:NH1	37:l:6:VAL:O	2.28	0.66
1:1:6:A:N3	10:J:135:GLN:NE2	2.41	0.66
2:2:246:A:N1	2:2:278:G:O2'	2.28	0.66
2:2:823:C:HO2'	38:m:2:SER:N	1.93	0.66
1:1:812:C:H5''	1:1:1250:G:O2'	1.95	0.66
1:1:1528:A:OP2	1:1:1543:G:N2	2.27	0.66
1:1:1728:C:O2'	1:1:1731:G:N2	2.28	0.66
2:2:107:G:H3'	2:2:108:G:H21	1.61	0.66
27:b:39:LEU:HB2	27:b:42:HIS:HB2	1.77	0.66
33:h:183:ASP:HB3	33:h:202:ILE:HB	1.78	0.66
2:2:1414:U:H2'	2:2:1415:G:H8	1.59	0.66
2:2:1338:G:N2	54:5:41:C:O2'	2.29	0.66
1:1:1693:U:O2	4:B:14:ARG:NH1	2.28	0.66
53:7:297:GLU:HA	53:7:300:MET:HG2	1.78	0.66
1:1:784:G:O6	4:B:228:VAL:HG21	1.96	0.66
1:1:1069:A:H4'	1:1:1070:A:C8	2.31	0.66
1:1:383:C:H2'	1:1:385:C:H41	1.61	0.65
1:1:404:A:O2'	1:1:405:U:OP1	2.09	0.65
1:1:2584:U:HO2'	1:1:2585:U:H5	1.44	0.65
1:1:1041:G:N2	1:1:1042:G:O6	2.28	0.65
1:1:2128:G:C1'	1:1:2173:A:C2	2.79	0.65
1:1:2831:G:OP2	5:C:59:ARG:NH1	2.30	0.65
3:3:80:U:O4	22:V:14:LYS:NZ	2.29	0.65
1:1:308:G:H2'	1:1:309:A:C8	2.32	0.65
39:n:24:GLY:H	39:n:61:LEU:HA	1.60	0.65
1:1:1102:C:H2'	1:1:1103:A:C8	2.32	0.65
1:1:2530:A:N7	8:F:172:LYS:NZ	2.43	0.65
28:c:17:THR:HG22	28:c:19:HIS:H	1.62	0.65
1:1:532:A:OP1	1:1:561:G:N2	2.30	0.65
2:2:842:U:C2	2:2:844:G:H5'	2.32	0.65
2:2:1073:U:O2	32:g:103:ASN:ND2	2.30	0.65
1:1:2093:G:H2'	1:1:2094:A:H8	1.61	0.65
1:1:2160:C:C4	1:1:2161:C:C2	2.84	0.65
2:2:1143:G:C2'	2:2:1144:G:H5'	2.26	0.65
2:2:212:G:N2	2:2:213:G:O6	2.30	0.65
2:2:859:G:OP2	2:2:869:G:N1	2.28	0.65
43:r:117:LYS:NZ	54:5:27:U:O2'	2.30	0.65
2:2:222:C:H2'	2:2:223:A:H8	1.61	0.65
5:C:181:ASP:HB3	5:C:186:LEU:HB2	1.79	0.64
1:1:2585:U:O2	55:6:79:PHE:HE1	1.80	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:3:A:C2	2:2:629:A:C1'	2.80	0.64
2:2:1055:A:N3	33:h:156:ARG:NH2	2.44	0.64
36:k:46:GLN:HE22	36:k:55:HIS:HB3	1.60	0.64
47:v:61:ILE:HA	47:v:75:LEU:HA	1.80	0.64
1:1:717:C:H3'	1:1:718:A:C8	2.32	0.64
11:K:64:ARG:HB2	11:K:83:ALA:HB3	1.79	0.64
1:1:1124:G:N3	31:f:37:GLN:NE2	2.45	0.64
1:1:1636:U:H2'	1:1:1637:A:H8	1.63	0.64
6:D:97:ASN:ND2	6:D:100:MET:SD	2.70	0.64
1:1:1568:G:N7	4:B:28:LYS:NZ	2.43	0.64
1:1:2451:A:C2	55:6:78:PHE:CE1	2.85	0.64
2:2:181:A:N6	2:2:195:A:OP2	2.31	0.64
2:2:1417:G:O2'	2:2:1483:A:N6	2.30	0.64
1:1:538:A:H5''	10:J:7:LYS:HE2	1.79	0.64
1:1:1889:A:N3	1:1:2086:U:O2'	2.28	0.64
2:2:979:C:O2	44:s:59:ARG:NH1	2.31	0.64
1:1:711:G:C6	1:1:721:A:C6	2.85	0.64
1:1:720:U:C2	1:1:721:A:N7	2.66	0.64
1:1:2226:C:H2'	1:1:2227:A:H5'	1.79	0.64
1:1:340:A:O2'	6:D:162:ARG:NH1	2.31	0.64
1:1:860:U:H2'	1:1:861:A:H8	1.63	0.64
18:R:74:ILE:HB	18:R:87:GLN:HB3	1.79	0.64
1:1:698:C:O2'	1:1:734:A:N6	2.31	0.64
1:1:2200:C:H42	1:1:2223:G:H1	1.43	0.64
2:2:933:G:N7	37:l:3:ARG:NE	2.46	0.64
2:2:1406:U:H5''	2:2:1407:5MC:HM52	1.79	0.64
53:7:124:ASP:OD1	53:7:193:ARG:NE	2.29	0.64
1:1:880:G:H22	1:1:898:C:H1'	1.62	0.64
1:1:2279:G:N7	23:W:14:ARG:NH2	2.46	0.64
1:1:2484:G:OP1	13:M:44:ARG:NH1	2.30	0.64
2:2:842:U:N1	2:2:844:G:H5'	2.13	0.64
8:F:115:HIS:HD1	8:F:151:TYR:HH	1.44	0.64
11:K:43:ILE:HD12	11:K:56:ASP:HB2	1.80	0.64
16:P:33:VAL:HG22	16:P:38:LYS:HG2	1.80	0.64
39:n:84:THR:HG21	39:n:103:PHE:HB3	1.80	0.64
1:1:309:A:N3	1:1:329:G:O2'	2.31	0.63
2:2:1318:A:N3	49:x:37:ARG:NH1	2.46	0.63
33:h:58:GLU:HG2	33:h:60:PRO:HD3	1.80	0.63
1:1:1426:G:O2'	1:1:1572:A:N6	2.31	0.63
1:1:2880:C:O2'	14:N:90:ARG:NH2	2.31	0.63
2:2:618:C:N4	2:2:621:A:OP2	2.31	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:E:80:ARG:NH2	54:5:19:G:C6	2.64	0.63
1:1:601:C:O2'	6:D:99:LYS:NZ	2.32	0.63
1:1:1635:A:H3'	1:1:1636:U:H6	1.62	0.63
1:1:2160:C:C5	1:1:2161:C:C5	2.86	0.63
3:3:63:C:H2'	3:3:64:G:H8	1.64	0.63
1:1:138:U:O2'	1:1:141:G:N1	2.31	0.63
17:Q:27:ALA:HA	17:Q:30:ARG:HB2	1.79	0.63
40:o:10:LEU:HG	40:o:98:VAL:HG12	1.80	0.63
1:1:943:A:N7	12:L:39:LYS:NZ	2.47	0.63
1:1:2091:C:C4	1:1:2092:U:N3	2.66	0.63
1:1:2093:G:N7	1:1:2225:A:C2'	2.57	0.63
1:1:2127:G:HO2'	1:1:2128:G:H8	1.43	0.63
2:2:1095:U:OP1	2:2:1108:G:N1	2.32	0.63
12:L:74:THR:HG22	12:L:107:PHE:HB2	1.80	0.63
53:7:194:THR:O	53:7:337:ARG:NH1	2.31	0.63
1:1:404:A:C4	1:1:406:G:C6	2.86	0.63
1:1:1536:C:O2	1:1:1537:G:N2	2.30	0.63
1:1:1759:A:H3'	1:1:1760:C:C5	2.34	0.63
2:2:1261:A:N6	2:2:1274:A:O2'	2.31	0.63
37:l:27:VAL:HG12	37:l:43:VAL:HG21	1.80	0.63
41:p:24:HIS:HB3	41:p:31:ILE:HB	1.81	0.63
2:2:2:A:N3	2:2:613:C:O2'	2.30	0.63
2:2:1418:A:N6	2:2:1482:G:O2'	2.30	0.63
9:G:72:ILE:HD11	9:G:108:VAL:HG23	1.79	0.63
53:7:242:ASP:OD2	53:7:262:ARG:NH1	2.32	0.63
2:2:496:A:H2'	2:2:496:A:N3	2.12	0.63
2:2:1166:G:N2	2:2:1169:A:OP2	2.32	0.63
34:i:145:ILE:HG22	34:i:147:GLU:H	1.62	0.63
1:1:459:U:H2'	1:1:460:A:H8	1.63	0.63
2:2:254:G:N2	47:v:18:GLU:OE2	2.32	0.63
14:N:12:ARG:O	14:N:17:ARG:NH2	2.31	0.63
53:7:262:ARG:HA	53:7:273:GLN:HG2	1.80	0.63
1:1:714:U:OP2	45:t:88:ARG:NH1	2.31	0.62
1:1:1049:C:H2'	1:1:1050:A:H8	1.64	0.62
1:1:2233:U:H2'	1:1:2234:G:H8	1.64	0.62
6:D:150:THR:HG22	6:D:152:GLU:H	1.64	0.62
13:M:66:ARG:NH1	13:M:104:GLU:OE2	2.32	0.62
30:e:32:ILE:O	30:e:32:ILE:HG22	1.99	0.62
2:2:8:A:N6	34:i:202:GLU:O	2.32	0.62
2:2:192:A:N3	50:y:55:GLN:NE2	2.46	0.62
41:p:53:ARG:HH21	41:p:57:LYS:HE2	1.64	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:w:48:ARG:HH22	48:w:50:LYS:HD3	1.65	0.62
54:5:76:A:O2'	55:6:79:PHE:C	2.41	0.62
1:1:1248:G:N7	6:D:46:GLN:NE2	2.47	0.62
1:1:2114:A:N6	1:1:2167:U:O2'	2.32	0.62
1:1:2162:G:N3	1:1:2163:A:N6	2.48	0.62
39:n:130:ARG:NH1	54:5:32:4OC:OP2	2.32	0.62
1:1:819:A:OP2	1:1:1187:G:N2	2.32	0.62
2:2:375:U:O2	46:u:28:ARG:NH2	2.33	0.62
2:2:664:G:H22	2:2:741:G:H1	1.44	0.62
9:G:89:LYS:HD3	9:G:123:ARG:HH22	1.65	0.62
1:1:1028:A:OP2	1:1:1126:A:N6	2.29	0.62
1:1:2134:A:H1'	1:1:2159:G:H1'	1.81	0.62
1:1:2162:G:OP1	1:1:2171:A:N6	2.31	0.62
2:2:501:C:OP1	42:q:114:ARG:NH2	2.33	0.62
8:F:88:GLN:HA	8:F:130:GLU:HA	1.82	0.62
20:T:82:LYS:HE2	20:T:84:TYR:CZ	2.34	0.62
36:k:9:MET:HB2	36:k:86:ARG:H	1.64	0.62
1:1:792:A:N6	1:1:2440:C:O4'	2.33	0.62
2:2:958:A:N3	2:2:985:C:O2'	2.31	0.62
1:1:1866:A:N6	1:1:1875:G:O2'	2.32	0.62
1:1:2584:U:C2'	1:1:2585:U:C6	2.80	0.62
4:B:69:ARG:NH2	4:B:127:GLY:O	2.32	0.62
17:Q:100:VAL:O	17:Q:103:LYS:NZ	2.33	0.62
33:h:189:ALA:HB3	33:h:196:ILE:HB	1.82	0.62
1:1:2127:G:O2'	1:1:2128:G:C8	2.52	0.61
1:1:2788:C:O2'	1:1:2809:A:N3	2.33	0.61
2:2:159:G:N2	2:2:162:A:OP2	2.34	0.61
40:o:6:ILE:HB	40:o:76:ILE:HB	1.82	0.61
20:T:28:ASN:ND2	20:T:88:LYS:O	2.33	0.61
39:n:6:TYR:HB2	39:n:21:ILE:HB	1.82	0.61
1:1:404:A:H1'	1:1:406:G:N7	2.16	0.61
20:T:65:GLY:N	20:T:79:ASP:OD1	2.34	0.61
28:c:37:LYS:HA	28:c:48:ILE:HA	1.81	0.61
39:n:130:ARG:HD2	54:5:35:A:OP1	2.00	0.61
1:1:142:A:N3	20:T:1:MET:N	2.48	0.61
1:1:1469:A:OP2	1:1:1522:A:N6	2.32	0.61
2:2:437:U:HO2'	34:i:120:HIS:HD1	1.46	0.61
1:1:495:G:H21	19:S:61:ASN:HD21	1.48	0.61
53:7:80:VAL:HG11	53:7:103:LEU:HD13	1.83	0.61
1:1:1754:A:H2'	1:1:1755:A:C8	2.36	0.61
1:1:2226:C:C4	1:1:2227:A:C6	2.89	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:e:28:ASN:O	30:e:36:LYS:NZ	2.33	0.61
36:k:38:ARG:NH1	36:k:98:GLU:O	2.33	0.61
1:1:2123:G:N2	1:1:2176:A:O2'	2.34	0.61
1:1:2128:G:H2'	1:1:2128:G:N3	2.16	0.61
6:D:4:VAL:HA	6:D:11:ALA:HA	1.83	0.61
44:s:49:GLN:NE2	49:x:11:ILE:O	2.31	0.61
1:1:2351:G:O6	30:e:42:ARG:NH1	2.34	0.61
33:h:19:ASN:OD1	33:h:54:ARG:NH2	2.34	0.61
1:1:48:G:O2'	1:1:118:A:N1	2.32	0.61
1:1:1754:A:H8	1:1:1754:A:O5'	1.84	0.61
1:1:2043:C:C4	1:1:2777:G:C4	2.89	0.61
1:1:2491:U:H4'	1:1:2492:U:OP1	2.00	0.61
4:B:258:ARG:NH2	4:B:263:THR:OG1	2.34	0.61
1:1:2093:G:C6	1:1:2225:A:N7	2.68	0.60
1:1:2639:A:O3'	10:J:96:ARG:NH2	2.34	0.60
2:2:6:G:H3'	2:2:6:G:OP2	2.00	0.60
2:2:468:A:OP2	2:2:470:C:N4	2.32	0.60
1:1:465:G:O2'	29:d:21:ARG:NH1	2.34	0.60
1:1:1636:U:H2'	1:1:1637:A:C8	2.36	0.60
1:1:1759:A:H3'	1:1:1760:C:H6	1.65	0.60
5:C:33:ARG:NH1	5:C:53:GLY:O	2.34	0.60
20:T:2:ILE:HG12	20:T:42:GLU:HG2	1.81	0.60
1:1:2107:G:O6	1:1:2183:A:N6	2.33	0.60
2:2:770:C:O2'	2:2:899:C:N3	2.30	0.60
2:2:1376:U:O4	37:l:10:ARG:NH1	2.34	0.60
1:1:2293:G:H5''	15:O:94:ARG:HH22	1.65	0.60
2:2:666:G:H5'	2:2:726:C:H1'	1.82	0.60
53:7:14:LEU:HD22	53:7:77:LEU:HD21	1.84	0.60
1:1:2676:C:OP1	11:K:31:ARG:NH2	2.33	0.60
1:1:2127:G:N2	1:1:2160:C:N4	2.48	0.60
2:2:405:U:O4	34:i:2:ALA:N	2.35	0.60
1:1:1351:C:O2'	1:1:1571:A:N3	2.34	0.60
37:l:24:ALA:O	37:l:28:ASN:ND2	2.34	0.60
1:1:1935:G:H3'	1:1:1962:5MC:HN41	1.66	0.60
2:2:222:C:H2'	2:2:223:A:C8	2.37	0.60
2:2:810:C:O2	2:2:899:C:N4	2.32	0.60
2:2:1239:A:H62	2:2:1299:A:H62	1.50	0.60
37:l:118:LEU:O	37:l:122:ASN:ND2	2.34	0.60
41:p:28:ASN:O	41:p:57:LYS:NZ	2.34	0.60
1:1:119:A:H4'	1:1:120:U:H5'	1.82	0.60
1:1:2045:C:O2	27:b:19:HIS:NE2	2.34	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:B:25:HIS:HB2	4:B:80:ARG:HG3	1.84	0.60
1:1:781:A:OP1	4:B:217:ARG:NH2	2.35	0.60
1:1:2095:A:C2	1:1:2096:C:C4	2.90	0.60
1:1:2127:G:N2	1:1:2162:G:C6	2.70	0.60
1:1:2127:G:H4'	1:1:2127:G:OP1	2.01	0.60
2:2:201:G:H1	2:2:216:U:H3	1.50	0.60
2:2:531:U:OP2	53:7:213:ARG:NH2	2.35	0.60
2:2:1015:G:N2	2:2:1218:C:O2	2.35	0.60
3:3:7:G:O2'	15:O:38:GLN:NE2	2.34	0.60
3:3:77:U:OP1	22:V:21:ARG:NH1	2.33	0.59
40:o:8:ILE:HG12	40:o:100:ILE:HG22	1.83	0.59
1:1:814:C:O2'	1:1:815:C:H5'	2.02	0.59
1:1:870:U:OP1	13:M:6:ARG:NH1	2.35	0.59
1:1:1581:G:C8	1:1:1581:G:H5''	2.37	0.59
2:2:1321:U:O3'	49:x:78:ARG:NH2	2.35	0.59
7:E:4:LEU:HA	7:E:7:TYR:HB3	1.83	0.59
8:F:60:ASP:HB2	8:F:63:ALA:HB3	1.83	0.59
1:1:964:C:O2'	1:1:2273:A:N3	2.33	0.59
2:2:59:A:H5''	2:2:387:U:H5''	1.83	0.59
9:G:43:ASN:O	9:G:47:PHE:N	2.35	0.59
14:N:103:ARG:NH2	14:N:106:ASP:OD2	2.36	0.59
18:R:4:VAL:O	18:R:39:LEU:N	2.35	0.59
1:1:404:A:C4	1:1:406:G:C5	2.90	0.59
1:1:2885:G:N1	27:b:30:VAL:O	2.35	0.59
19:S:68:ASP:O	19:S:110:ARG:NH2	2.36	0.59
53:7:46:VAL:HG22	53:7:53:ALA:HA	1.83	0.59
1:1:711:G:N2	1:1:721:A:C8	2.70	0.59
1:1:2160:C:C6	1:1:2161:C:C6	2.90	0.59
1:1:2590:A:O3'	4:B:238:ARG:NH1	2.36	0.59
2:2:1130:A:H61	2:2:1144:G:H1'	1.67	0.59
18:R:61:ALA:HA	18:R:99:THR:H	1.68	0.59
35:j:87:GLY:O	35:j:94:VAL:N	2.32	0.59
36:k:99:ALA:HB1	36:k:103:VAL:HG21	1.84	0.59
1:1:881:G:N2	1:1:895:U:O2	2.34	0.59
2:2:984:C:C4	2:2:985:C:N4	2.70	0.59
4:B:142:HIS:ND1	4:B:193:GLY:O	2.33	0.59
7:E:4:LEU:O	7:E:8:TYR:N	2.35	0.59
43:r:53:ILE:O	43:r:57:ARG:N	2.34	0.59
1:1:1759:A:OP2	1:1:1760:C:N4	2.27	0.59
1:1:1798:U:OP2	4:B:271:ARG:NH2	2.36	0.59
1:1:2521:C:H2'	1:1:2522:U:O4'	2.02	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1279:G:O2'	2:2:1281:C:OP2	2.20	0.59
8:F:84:THR:OG1	8:F:134:LYS:NZ	2.35	0.59
1:1:309:A:P	1:1:309:A:H8	2.26	0.59
1:1:1447:C:O2'	1:1:1544:A:N3	2.31	0.59
1:1:1791:A:N6	1:1:1828:G:O2'	2.35	0.59
1:1:2095:A:N1	1:1:2096:C:C4	2.70	0.59
2:2:1222:G:OP2	2:2:1322:C:N4	2.34	0.59
9:G:47:PHE:O	9:G:51:ARG:N	2.35	0.59
12:L:58:TYR:O	30:e:13:ARG:NH2	2.35	0.59
38:m:78:VAL:HG12	38:m:85:ILE:HG13	1.85	0.59
53:7:277:ASP:O	53:7:283:ASN:ND2	2.33	0.59
1:1:956:G:O6	13:M:14:LYS:NZ	2.36	0.59
2:2:824:G:O2'	38:m:3:MET:SD	2.61	0.59
1:1:574:A:N6	1:1:2034:U:OP1	2.35	0.59
1:1:2128:G:C8	1:1:2173:A:H2	2.20	0.59
1:1:2160:C:H2'	1:1:2161:C:O4'	2.02	0.59
2:2:108:G:P	2:2:326:G:H22	2.26	0.59
17:Q:58:ARG:HE	17:Q:62:ILE:HD11	1.68	0.59
1:1:307:G:O2'	1:1:309:A:N6	2.30	0.58
1:1:477:A:N6	1:1:500:G:O3'	2.35	0.58
2:2:1328:C:O2'	43:r:29:ARG:NH1	2.30	0.58
28:c:8:LYS:HA	28:c:24:THR:HA	1.85	0.58
35:j:12:GLN:HG3	35:j:117:VAL:HG12	1.85	0.58
47:v:17:MET:HG3	47:v:20:SER:HB2	1.85	0.58
1:1:1070:A:N7	1:1:1096:A:O2'	2.34	0.58
1:1:1754:A:H62	1:1:2694:G:H1'	1.66	0.58
2:2:1130:A:O2'	39:n:5:GLN:NE2	2.36	0.58
19:S:59:GLU:HB2	19:S:66:ILE:HD11	1.85	0.58
1:1:1394:U:H4'	1:1:1603:A:H4'	1.84	0.58
2:2:322:C:O2	2:2:332:G:N2	2.36	0.58
40:o:42:LEU:HB2	40:o:71:LEU:HB3	1.85	0.58
47:v:76:VAL:HG23	47:v:77:ARG:HG2	1.85	0.58
50:y:74:ARG:O	50:y:78:ASN:ND2	2.36	0.58
1:1:372:G:N2	1:1:373:U:O4	2.36	0.58
1:1:1585:C:H3'	1:1:1586:A:H8	1.67	0.58
2:2:1100:C:OP2	32:g:95:ARG:HD3	2.03	0.58
2:2:1144:G:N2	2:2:1146:A:N7	2.47	0.58
4:B:2:ALA:N	4:B:20:VAL:O	2.37	0.58
27:b:9:THR:HG22	27:b:11:SER:H	1.68	0.58
47:v:20:SER:OG	47:v:71:LYS:NZ	2.35	0.58
49:x:36:ARG:NH2	49:x:75:ALA:O	2.36	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:7:204:LYS:HA	53:7:213:ARG:HA	1.86	0.58
1:1:544:C:H3'	1:1:545:U:O4'	2.02	0.58
1:1:1365:A:OP2	24:X:2:SER:OG	2.21	0.58
2:2:12:U:H4'	2:2:526:C:H4'	1.85	0.58
2:2:960:U:H2'	2:2:1225:A:H62	1.66	0.58
2:2:1008:U:H3	2:2:1021:A:H2	1.50	0.58
1:1:1263:U:OP1	27:b:13:ARG:NH1	2.37	0.58
2:2:1406:U:H3'	2:2:1407:5MC:H6	1.68	0.58
33:h:12:LEU:HA	33:h:16:LYS:HB2	1.84	0.58
47:v:24:ALA:HA	47:v:43:LYS:HA	1.84	0.58
1:1:880:G:N1	1:1:898:C:O2	2.36	0.58
1:1:1066:U:O2'	1:1:1069:A:N7	2.36	0.58
1:1:1722:A:OP2	1:1:1738:G:N2	2.35	0.58
1:1:2451:A:C2	55:6:78:PHE:HE1	2.21	0.58
1:1:2584:U:O2'	1:1:2585:U:H5	1.82	0.58
2:2:544:G:OP1	34:i:56:ARG:NH2	2.36	0.58
2:2:1060:U:OP1	44:s:85:ARG:NH1	2.34	0.58
2:2:1368:A:OP1	40:o:64:GLN:NE2	2.36	0.58
2:2:1516:2MG:N2	2:2:1519:MA6:OP2	2.36	0.58
6:D:121:VAL:HG21	6:D:124:PHE:HB2	1.86	0.58
21:U:29:LEU:HD12	21:U:33:LYS:HB2	1.85	0.58
1:1:990:A:O4'	1:1:1156:A:O2'	2.21	0.58
1:1:1744:A:H3'	1:1:1745:A:H8	1.69	0.58
1:1:2846:G:OP1	16:P:53:ARG:NH1	2.37	0.58
2:2:842:U:H2'	2:2:844:G:H21	1.66	0.58
53:7:201:LEU:HB3	53:7:216:SER:HB3	1.86	0.58
1:1:878:A:N6	1:1:899:A:O2'	2.37	0.58
1:1:1666:G:N2	1:1:1994:C:N3	2.41	0.58
33:h:16:LYS:NZ	33:h:181:ASP:OD1	2.36	0.58
50:y:54:MET:HE2	50:y:58:VAL:HG21	1.85	0.58
1:1:85:G:OP2	21:U:7:ARG:CB	2.52	0.58
1:1:329:G:H8	1:1:329:G:OP1	1.85	0.58
1:1:918:A:OP2	1:1:2268:A:N6	2.36	0.58
2:2:697:U:HO2'	2:2:785:G:HO2'	1.51	0.58
2:2:736:C:OP1	48:w:61:ARG:NH2	2.35	0.58
22:V:2:PHE:HZ	22:V:53:LYS:HD2	1.69	0.58
26:Z:42:PRO:HA	26:Z:45:ARG:HB2	1.86	0.58
35:j:76:LEU:O	35:j:82:GLN:NE2	2.37	0.58
53:7:323:ILE:HB	53:7:337:ARG:HD2	1.86	0.58
1:1:817:C:O2'	1:1:839:U:H5''	2.04	0.57
1:1:1800:C:OP2	4:B:182:ARG:NH1	2.37	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:2208:C:H2'	1:1:2209:G:C8	2.39	0.57
27:b:54:VAL:HG23	27:b:55:ILE:HG22	1.84	0.57
34:i:184:ARG:NH1	34:i:185:LYS:O	2.37	0.57
1:1:818:G:N1	1:1:1188:U:OP2	2.30	0.57
1:1:2684:U:OP2	16:P:51:ARG:NH1	2.38	0.57
2:2:178:C:OP1	50:y:60:ARG:NH1	2.37	0.57
2:2:1343:G:H5''	39:n:124:ARG:HD2	1.86	0.57
8:F:10:VAL:HA	8:F:49:THR:HA	1.86	0.57
21:U:4:LYS:O	21:U:94:ARG:NH2	2.34	0.57
1:1:861:A:N3	3:3:79:G:O2'	2.35	0.57
1:1:1482:G:O2'	1:1:1509:A:N1	2.32	0.57
1:1:2125:G:N3	1:1:2174:C:N4	2.53	0.57
1:1:2226:C:C5	1:1:2227:A:C6	2.92	0.57
1:1:2818:U:OP2	14:N:42:LYS:NZ	2.34	0.57
2:2:1044:A:C5	2:2:1045:C:H1'	2.39	0.57
22:V:25:LYS:HG2	22:V:43:ASP:HA	1.86	0.57
52:4:17:U:N3	54:5:36:A:C2	2.72	0.57
53:7:197:GLY:H	53:7:220:ALA:HB3	1.68	0.57
1:1:1635:A:H3'	1:1:1636:U:C6	2.39	0.57
1:1:2010:G:H5''	19:S:42:LYS:HB2	1.86	0.57
1:1:2639:A:O2'	10:J:96:ARG:NH1	2.29	0.57
2:2:107:G:OP1	2:2:325:A:N6	2.37	0.57
2:2:521:G:H4'	42:q:70:GLU:HG2	1.85	0.57
2:2:1280:A:P	40:o:9:ARG:HH12	2.28	0.57
1:1:2227:A:H2'	1:1:2228:G:O4'	2.04	0.57
2:2:1338:G:H21	54:5:41:C:C2'	2.17	0.57
3:3:28:C:H5''	15:O:31:THR:HG21	1.87	0.57
18:R:63:VAL:HA	18:R:96:VAL:HG12	1.86	0.57
25:Y:29:ARG:O	25:Y:33:ALA:N	2.38	0.57
1:1:247:G:N2	1:1:251:A:OP2	2.37	0.57
1:1:476:G:N1	1:1:479:A:OP2	2.36	0.57
1:1:796:C:OP1	6:D:57:LYS:NZ	2.33	0.57
1:1:1365:A:O2'	24:X:11:ARG:NH1	2.37	0.57
1:1:1727:C:H2'	1:1:1728:C:O4'	2.05	0.57
1:1:2471:A:N6	1:1:2476:A:O2'	2.36	0.57
6:D:86:ALA:O	6:D:88:ARG:NH1	2.38	0.57
9:G:113:SER:O	9:G:116:ARG:NH2	2.37	0.57
18:R:40:MET:HE2	18:R:42:ALA:HB2	1.86	0.57
28:c:39:PHE:HA	28:c:46:HIS:HA	1.86	0.57
1:1:226:A:N1	1:1:418:C:O2'	2.37	0.57
1:1:404:A:N3	1:1:406:G:C5	2.73	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:408:G:H1	1:1:419:U:H3	1.52	0.57
1:1:910:A:N3	1:1:2264:C:O2'	2.33	0.57
1:1:1585:C:H6	1:1:1585:C:H5''	1.69	0.57
2:2:1209:C:O2'	2:2:1214:C:N4	2.30	0.57
2:2:1275:A:H3'	2:2:1276:G:H8	1.70	0.57
9:G:127:GLU:HA	9:G:145:ASN:HA	1.87	0.57
12:L:40:SER:OG	12:L:41:ARG:NH2	2.37	0.57
33:h:11:ARG:NH2	33:h:177:THR:O	2.35	0.57
1:1:75:G:N2	1:1:112:U:O2	2.36	0.57
1:1:2508:G:HO2'	1:1:2554:U:HO2'	1.44	0.57
2:2:309:A:O2'	2:2:607:A:N1	2.37	0.57
2:2:373:A:O2'	2:2:451:A:N7	2.38	0.57
2:2:1304:G:H21	2:2:1333:A:H62	1.53	0.57
4:B:66:ASP:OD2	4:B:102:ARG:NH1	2.37	0.57
6:D:117:ARG:NH2	6:D:183:PHE:O	2.38	0.57
21:U:43:LYS:HA	21:U:60:GLU:HA	1.84	0.57
38:m:49:PHE:HB2	38:m:59:LEU:HD11	1.86	0.57
54:5:14:G:H22	54:5:48:C:H42	1.53	0.57
1:1:404:A:O2'	1:1:405:U:OP2	2.22	0.57
1:1:2830:C:OP2	5:C:59:ARG:NH2	2.38	0.57
2:2:133:U:O2'	2:2:134:G:N7	2.37	0.57
22:V:59:GLU:O	22:V:73:LYS:NZ	2.37	0.57
46:u:7:ALA:HB3	46:u:18:GLN:HB2	1.87	0.57
53:7:196:THR:HG23	53:7:221:PHE:HA	1.87	0.57
1:1:1854:A:OP2	1:1:1888:G:N2	2.38	0.57
1:1:2414:G:H2'	1:1:2415:G:H8	1.69	0.57
2:2:264:C:O3'	47:v:65:ARG:NH2	2.37	0.57
2:2:927:G:O2'	2:2:1503:A:N7	2.35	0.57
1:1:789:A:N6	1:1:1614:A:OP2	2.30	0.56
1:1:2753:A:O2'	31:f:15:LYS:NZ	2.34	0.56
6:D:117:ARG:HH21	6:D:184:ASP:HA	1.70	0.56
13:M:34:LYS:HA	13:M:101:VAL:HA	1.85	0.56
13:M:136:MET:HE3	22:V:57:TYR:HB3	1.86	0.56
16:P:25:THR:HB	16:P:88:ARG:HB3	1.85	0.56
39:n:42:GLU:OE2	39:n:45:ARG:NH1	2.38	0.56
53:7:46:VAL:HG21	53:7:56:LEU:HD22	1.87	0.56
53:7:194:THR:O	53:7:314:LYS:NZ	2.38	0.56
1:1:643:A:N1	1:1:2369:A:O2'	2.37	0.56
1:1:1652:A:N6	14:N:11:ASN:OD1	2.33	0.56
2:2:789:U:N3	2:2:792:A:OP2	2.33	0.56
6:D:148:ILE:HB	6:D:169:VAL:HG22	1.86	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
33:h:150:LYS:HB3	33:h:201:TRP:HB2	1.87	0.56
34:i:78:GLU:OE2	34:i:81:ARG:NH1	2.38	0.56
1:1:711:G:N1	1:1:721:A:C5	2.74	0.56
1:1:820:A:N3	1:1:943:A:O2'	2.36	0.56
1:1:956:G:N2	1:1:960:A:OP2	2.37	0.56
1:1:1023:U:OP2	1:1:1025:G:O2'	2.23	0.56
1:1:1614:A:H8	1:1:1614:A:O5'	1.87	0.56
1:1:1844:C:O3'	4:B:256:LYS:NZ	2.37	0.56
1:1:1951:U:O2'	1:1:1953:A:N7	2.38	0.56
1:1:2160:C:C5	1:1:2161:C:C6	2.93	0.56
2:2:537:G:H5''	42:q:110:ARG:HH12	1.70	0.56
3:3:98:G:H1	22:V:14:LYS:HB2	1.70	0.56
23:W:51:VAL:HA	23:W:61:ALA:HA	1.88	0.56
35:j:93:ARG:O	35:j:128:TYR:N	2.33	0.56
38:m:5:ASP:OD2	38:m:77:ARG:NH1	2.38	0.56
44:s:41:ARG:NH2	49:x:6:LYS:O	2.39	0.56
53:7:259:SER:O	53:7:283:ASN:ND2	2.38	0.56
53:7:301:GLN:NE2	53:7:310:MET:SD	2.78	0.56
1:1:539:G:H1	1:1:554:U:H3	1.53	0.56
1:1:2126:A:H4'	1:1:2127:G:OP1	2.05	0.56
7:E:131:GLY:HA2	7:E:153:ASP:HA	1.87	0.56
9:G:43:ASN:HA	9:G:46:PHE:HB3	1.88	0.56
13:M:17:ASN:O	13:M:38:ARG:NH1	2.39	0.56
19:S:88:ARG:HB2	19:S:92:ARG:HE	1.70	0.56
34:i:124:MET:HE3	34:i:146:ARG:HB2	1.87	0.56
37:l:26:PHE:HA	37:l:29:ILE:HD12	1.88	0.56
38:m:29:SER:HB3	38:m:57:PRO:HB2	1.87	0.56
40:o:9:ARG:O	40:o:99:GLN:HB3	2.06	0.56
53:7:227:ASP:HB3	53:7:289:LYS:HG3	1.87	0.56
1:1:72:U:OP2	25:Y:54:LYS:NZ	2.37	0.56
1:1:720:U:H2'	1:1:721:A:H8	1.71	0.56
1:1:2359:C:H2'	1:1:2360:G:C8	2.40	0.56
2:2:674:G:OP1	36:k:86:ARG:NH2	2.39	0.56
49:x:32:ARG:HA	49:x:50:ALA:HB3	1.85	0.56
1:1:205:G:N2	1:1:206:U:O4	2.34	0.56
1:1:782:A:O2'	4:B:224:ALA:O	2.22	0.56
1:1:807:U:H2'	1:1:808:G:H8	1.70	0.56
1:1:1945:G:N2	1:1:1963:U:O4	2.38	0.56
20:T:11:LEU:O	25:Y:29:ARG:NH1	2.36	0.56
35:j:165:LEU:HD12	38:m:114:ARG:HD2	1.87	0.56
53:7:216:SER:OG	53:7:217:PHE:N	2.38	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:603:A:O5'	1:1:655:A:N6	2.38	0.56
1:1:1013:C:H2'	1:1:1014:A:H8	1.70	0.56
1:1:1155:A:O3'	17:Q:55:ARG:NH2	2.38	0.56
2:2:208:U:H2'	2:2:210:C:C2	2.41	0.56
2:2:1346:A:H61	2:2:1374:A:H3'	1.69	0.56
2:2:1395:C:OP1	2:2:1402:4OC:HM21	2.06	0.56
5:C:177:VAL:HA	5:C:189:VAL:HG12	1.87	0.56
8:F:127:THR:HG22	8:F:129:THR:H	1.69	0.56
42:q:33:VAL:HG22	42:q:79:VAL:HG22	1.87	0.56
44:s:61:ARG:HE	44:s:70:PRO:HB2	1.71	0.56
53:7:195:GLU:OE2	53:7:337:ARG:NH2	2.29	0.56
1:1:249:C:O2	30:e:12:LYS:NZ	2.38	0.56
1:1:1428:C:N4	1:1:1570:A:OP2	2.36	0.56
1:1:2368:C:H2'	1:1:2369:A:H8	1.71	0.56
2:2:1125:U:OP2	2:2:1145:A:N6	2.36	0.56
2:2:1143:G:O2'	2:2:1144:G:H5'	2.06	0.56
35:j:55:GLU:HG3	35:j:57:PRO:HD2	1.86	0.56
36:k:1:MET:N	36:k:1:MET:SD	2.79	0.56
37:l:75:VAL:HA	37:l:88:PRO:HA	1.87	0.56
1:1:2047:C:H2'	1:1:2048:G:H8	1.71	0.56
24:X:5:CYS:O	24:X:9:GLY:N	2.37	0.56
45:t:25:THR:HG23	45:t:66:LEU:HD12	1.87	0.56
2:2:67:C:O2'	2:2:171:A:N3	2.38	0.56
2:2:1103:C:OP1	32:g:95:ARG:NH2	2.38	0.56
2:2:1375:A:O2'	37:l:102:ARG:NH2	2.39	0.56
30:e:6:THR:HG23	30:e:63:PRO:HD2	1.88	0.56
40:o:45:ARG:HB3	40:o:69:THR:HB	1.87	0.56
1:1:884:U:O4	1:1:893:C:O2'	2.24	0.55
1:1:1453:A:O2'	14:N:63:ARG:NH1	2.39	0.55
3:3:48:U:OP1	15:O:30:ARG:NH2	2.38	0.55
9:G:129:GLU:HA	9:G:143:ILE:HA	1.88	0.55
1:1:545:U:O2'	1:1:547:A:OP1	2.21	0.55
1:1:1041:G:O2'	1:1:1115:G:N2	2.39	0.55
1:1:2160:C:C5	1:1:2161:C:N3	2.74	0.55
2:2:54:C:H2'	2:2:352:C:H41	1.71	0.55
2:2:376:G:H1	2:2:387:U:H3	1.54	0.55
2:2:579:A:H4'	45:t:54:ARG:HH22	1.71	0.55
4:B:141:VAL:HG12	4:B:192:LEU:HA	1.88	0.55
12:L:36:LYS:HB3	12:L:41:ARG:HH12	1.71	0.55
51:z:58:LYS:O	51:z:62:ARG:N	2.39	0.55
1:1:404:A:C5	1:1:406:G:C2	2.95	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1096:C:O2	2:2:1170:A:O2'	2.24	0.55
16:P:90:GLY:O	16:P:113:ARG:NH1	2.39	0.55
32:g:132:LYS:HA	32:g:135:LEU:HB2	1.87	0.55
33:h:70:THR:HG21	33:h:76:VAL:HG21	1.89	0.55
46:u:74:LEU:O	46:u:78:VAL:N	2.36	0.55
1:1:452:G:N2	1:1:457:A:O2'	2.39	0.55
1:1:1364:G:N2	1:1:1367:A:OP2	2.38	0.55
1:1:1453:A:H3'	1:1:1454:C:H2'	1.89	0.55
1:1:2095:A:N6	1:1:2096:C:N4	2.52	0.55
1:1:2175:C:O5'	1:1:2175:C:H6	1.89	0.55
2:2:1029:U:O2'	2:2:1031:C:OP1	2.24	0.55
2:2:1106:G:H5''	33:h:172:ARG:HB3	1.88	0.55
2:2:1279:G:H3'	2:2:1279:G:OP2	2.07	0.55
2:2:1402:4OC:HM22	2:2:1403:C:H5'	1.88	0.55
2:2:1417:G:N2	2:2:1483:A:OP2	2.37	0.55
34:i:8:LYS:HD3	34:i:21:LEU:HB3	1.88	0.55
1:1:2519:U:O4'	1:1:2542:A:N6	2.40	0.55
1:1:2815:C:O2'	27:b:41:HIS:ND1	2.32	0.55
2:2:800:G:N2	2:2:801:U:O4	2.39	0.55
7:E:113:ASP:OD2	43:r:71:ARG:NH2	2.40	0.55
20:T:13:ALA:O	20:T:33:LYS:N	2.39	0.55
23:W:68:LYS:NZ	23:W:69:PHE:O	2.35	0.55
32:g:32:PHE:HB2	32:g:42:ASN:HA	1.89	0.55
41:p:94:GLU:OE2	41:p:98:ARG:NH2	2.39	0.55
52:4:17:U:C2	54:5:36:A:C2	2.95	0.55
1:1:26:G:N2	1:1:513:A:OP2	2.37	0.55
1:1:58:G:O2'	1:1:73:A:N1	2.36	0.55
1:1:1250:G:N7	12:L:18:ARG:NH2	2.48	0.55
1:1:2182:U:O2	1:1:2183:A:N6	2.30	0.55
2:2:890:G:O2'	2:2:906:A:N6	2.39	0.55
2:2:982:U:H5''	44:s:6:MET:HE2	1.87	0.55
2:2:1147:C:O2	39:n:18:ARG:NH2	2.39	0.55
25:Y:54:LYS:O	25:Y:58:ASN:ND2	2.40	0.55
37:l:146:GLU:HA	37:l:149:LYS:HB2	1.88	0.55
1:1:243:U:OP2	30:e:8:ARG:NH1	2.40	0.55
1:1:247:G:OP2	1:1:249:C:N4	2.30	0.55
1:1:1817:G:OP1	4:B:87:ARG:NH2	2.40	0.55
1:1:2095:A:C4	1:1:2096:C:C4	2.94	0.55
1:1:2096:C:H2'	1:1:2097:A:C8	2.42	0.55
1:1:2638:G:HO2'	1:1:2775:G:H22	1.50	0.55
2:2:980:C:O2'	44:s:13:ARG:NH1	2.40	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:F:107:LEU:HD13	8:F:152:ARG:HG2	1.88	0.55
22:V:36:ALA:O	22:V:93:ARG:NH2	2.38	0.55
1:1:340:A:HO2'	6:D:162:ARG:HH12	1.54	0.55
1:1:784:G:H21	1:1:786:C:H41	1.52	0.55
1:1:1264:A:OP1	27:b:16:ARG:NH1	2.37	0.55
1:1:1759:A:C3'	1:1:1760:C:H6	2.19	0.55
2:2:527:G7M:O2'	2:2:535:A:N1	2.40	0.55
2:2:855:U:OP2	2:2:871:U:N3	2.37	0.55
2:2:1187:G:OP1	39:n:115:LYS:NZ	2.40	0.55
2:2:1297:G:O2'	37:l:114:LYS:NZ	2.31	0.55
7:E:122:PHE:HA	7:E:128:TYR:HA	1.88	0.55
19:S:10:ALA:HB3	19:S:101:SER:HB2	1.89	0.55
32:g:47:VAL:O	32:g:51:ASN:ND2	2.40	0.55
1:1:72:U:O4	25:Y:58:ASN:ND2	2.40	0.55
1:1:154:U:H2'	1:1:155:A:H8	1.71	0.55
1:1:881:G:N2	1:1:882:G:O6	2.40	0.55
2:2:542:G:O3'	34:i:14:ARG:NH2	2.40	0.55
42:q:6:GLN:HG2	42:q:9:ARG:HH12	1.72	0.55
1:1:585:G:N7	17:Q:6:ARG:NH1	2.53	0.55
1:1:1076:C:C2'	1:1:1077:A:C8	2.90	0.55
1:1:1776:G:H5''	1:1:1776:G:C8	2.42	0.55
1:1:2043:C:C5	1:1:2777:G:H1'	2.42	0.55
1:1:2849:U:OP1	16:P:93:ARG:NH2	2.38	0.55
15:O:71:ALA:HB1	15:O:106:LEU:HB2	1.89	0.55
53:7:69:THR:HG23	53:7:109:LYS:HG3	1.88	0.55
53:7:143:ASP:HB2	53:7:174:ALA:HB1	1.88	0.55
1:1:563:A:OP2	18:R:79:ARG:NH2	2.37	0.54
1:1:711:G:O6	1:1:721:A:N6	2.40	0.54
1:1:2200:C:O2	1:1:2226:C:N4	2.40	0.54
1:1:2676:C:O2	1:1:2732:G:N2	2.40	0.54
1:1:2816:G:N3	1:1:2883:A:O2'	2.39	0.54
2:2:1004:A:N7	2:2:1024:G:O2'	2.36	0.54
1:1:687:C:H2'	1:1:688:U:O4'	2.07	0.54
1:1:1156:A:OP1	17:Q:55:ARG:NE	2.33	0.54
1:1:2615:U:O2'	1:1:2616:C:H5'	2.07	0.54
2:2:979:C:OP1	2:2:1223:C:N4	2.37	0.54
14:N:28:LEU:O	14:N:32:GLU:N	2.39	0.54
36:k:63:ASN:ND2	36:k:96:VAL:O	2.40	0.54
40:o:6:ILE:N	40:o:76:ILE:O	2.36	0.54
53:7:164:GLU:HB3	53:7:182:LYS:HB3	1.90	0.54
1:1:308:G:H3'	1:1:309:A:C8	2.42	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:705:A:OP2	1:1:725:G:N1	2.31	0.54
1:1:732:C:H2'	1:1:733:G:O4'	2.08	0.54
1:1:784:G:H5''	4:B:226:ASN:ND2	2.22	0.54
1:1:1508:A:H4'	1:1:1509:A:H5'	1.89	0.54
1:1:2093:G:O2'	1:1:2198:A:N1	2.35	0.54
1:1:2732:G:H5'	5:C:208:LYS:HZ3	1.71	0.54
2:2:1114:C:O2'	44:s:100:SER:O	2.23	0.54
4:B:157:SER:OG	4:B:158:ALA:N	2.37	0.54
13:M:47:GLU:OE2	13:M:51:ARG:NE	2.40	0.54
14:N:103:ARG:N	14:N:108:ALA:O	2.40	0.54
41:p:88:GLY:H	41:p:114:THR:HG22	1.71	0.54
53:7:7:VAL:HG21	53:7:100:VAL:HG22	1.89	0.54
1:1:278:A:N1	1:1:361:G:O2'	2.39	0.54
1:1:287:G:O6	1:1:352:A:N6	2.40	0.54
1:1:321:U:O3'	6:D:162:ARG:NH1	2.41	0.54
1:1:2082:A:N6	1:1:2237:G:O2'	2.40	0.54
2:2:561:U:O2	42:q:15:LYS:NZ	2.40	0.54
2:2:1115:U:OP1	40:o:68:ARG:NH1	2.40	0.54
14:N:87:PHE:HD1	14:N:90:ARG:HD3	1.72	0.54
26:Z:37:GLU:O	26:Z:38:ARG:NH1	2.41	0.54
44:s:40:ASP:OD1	44:s:43:ASN:ND2	2.41	0.54
44:s:40:ASP:O	44:s:44:ALA:N	2.41	0.54
53:7:21:LEU:HD11	53:7:117:ARG:HG2	1.89	0.54
1:1:404:A:N6	1:1:421:C:O2'	2.40	0.54
36:k:27:ALA:O	36:k:31:GLY:N	2.40	0.54
1:1:954:G:O3'	13:M:13:HIS:ND1	2.37	0.54
1:1:2093:G:C4	1:1:2225:A:C5	2.95	0.54
2:2:215:C:O2'	2:2:465:A:N7	2.34	0.54
2:2:1129:C:O4'	2:2:1146:A:N6	2.21	0.54
9:G:97:ARG:HG3	9:G:112:LYS:HE2	1.90	0.54
30:e:56:GLY:HA2	30:e:59:ILE:HD12	1.89	0.54
39:n:130:ARG:CZ	39:n:130:ARG:HB2	2.36	0.54
40:o:64:GLN:O	44:s:99:ALA:N	2.41	0.54
42:q:50:ARG:NH1	42:q:89:OTD:OD1	2.40	0.54
53:7:281:HIS:O	53:7:285:ASP:N	2.39	0.54
1:1:510:C:H2'	1:1:511:U:O4'	2.07	0.54
1:1:2825:G:H3'	1:1:2826:A:H8	1.71	0.54
1:1:2898:U:H3'	1:1:2899:A:H8	1.73	0.54
4:B:6:CYS:SG	4:B:13:ARG:NH2	2.81	0.54
16:P:104:THR:HA	16:P:108:ALA:HB2	1.90	0.54
36:k:10:VAL:HB	36:k:58:HIS:HB3	1.89	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:l:68:ASN:O	37:l:138:ARG:NH1	2.41	0.54
39:n:28:ILE:HG21	39:n:35:LEU:HB2	1.89	0.54
54:5:8:4SU:HN3	54:5:23:C:H41	1.56	0.54
1:1:2095:A:C5	1:1:2096:C:C5	2.95	0.54
1:1:2788:C:H2'	1:1:2789:C:C6	2.42	0.54
2:2:993:G:H2'	2:2:995:C:H41	1.72	0.54
2:2:1146:A:OP2	2:2:1146:A:H2'	2.07	0.54
8:F:35:ARG:NH1	8:F:75:MET:SD	2.81	0.54
24:X:5:CYS:HB3	24:X:10:LYS:CB	2.32	0.54
34:i:15:GLU:OE2	34:i:56:ARG:NH1	2.41	0.54
39:n:83:ILE:O	39:n:87:LEU:N	2.39	0.54
1:1:1803:A:N6	1:1:1814:G:O2'	2.38	0.54
2:2:768:A:N3	2:2:1512:U:O2'	2.40	0.54
2:2:1395:C:H5'	2:2:1401:G:N2	2.22	0.54
3:3:90:C:H5'	13:M:18:ARG:HB3	1.88	0.54
3:3:116:G:H5'	15:O:55:GLU:HG2	1.88	0.54
4:B:220:VAL:HB	4:B:225:MET:HE1	1.88	0.54
16:P:88:ARG:NH2	16:P:110:ILE:O	2.41	0.54
34:i:94:LEU:O	34:i:100:ASN:ND2	2.38	0.54
43:r:86:TYR:HA	43:r:89:LEU:HD12	1.90	0.54
53:7:17:ARG:NH2	53:7:114:GLU:OE1	2.36	0.54
53:7:324:ARG:HG2	53:7:335:ASP:HA	1.90	0.54
1:1:1667:G:O2'	1:1:1991:U:O4	2.25	0.54
1:1:2102:G:O6	1:1:2186:G:N1	2.41	0.54
1:1:2485:G:OP1	13:M:45:GLN:NE2	2.35	0.54
2:2:3:A:C2	2:2:629:A:O4'	2.60	0.54
2:2:80:A:N6	2:2:87:C:N3	2.49	0.54
4:B:220:VAL:CG1	4:B:225:MET:CE	2.83	0.54
43:r:54:ASP:OD1	43:r:57:ARG:NH1	2.40	0.54
44:s:86:GLU:HB3	44:s:90:ARG:HH12	1.73	0.54
1:1:1223:G:OP1	18:R:68:ARG:NH2	2.41	0.53
1:1:1700:A:H3'	1:1:1701:A:H8	1.72	0.53
1:1:2447:G:N2	1:1:2450:A:OP2	2.37	0.53
2:2:948:C:H2'	2:2:949:A:H8	1.73	0.53
7:E:135:GLN:HE22	7:E:149:VAL:HA	1.73	0.53
11:K:71:ARG:NH2	11:K:123:LEU:O	2.41	0.53
22:V:61:LEU:N	22:V:72:VAL:O	2.35	0.53
26:Z:11:ARG:HB2	26:Z:54:MET:HB2	1.90	0.53
1:1:395:U:O2'	1:1:396:G:N7	2.39	0.53
1:1:1086:A:O2'	1:1:1103:A:N1	2.37	0.53
1:1:2110:G:O4'	1:1:2180:U:N3	2.41	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:B:262:ARG:O	4:B:265:LYS:NZ	2.40	0.53
13:M:14:LYS:O	13:M:71:LYS:NZ	2.39	0.53
16:P:63:LYS:HE2	16:P:65:SER:HB2	1.88	0.53
25:Y:18:LEU:HD21	25:Y:50:VAL:HG13	1.90	0.53
32:g:167:ASP:O	32:g:170:HIS:ND1	2.37	0.53
33:h:20:SER:OG	33:h:40:ARG:NH2	2.38	0.53
37:l:15:ASP:OD1	37:l:20:SER:N	2.38	0.53
51:z:41:PRO:HA	51:z:44:GLU:HB3	1.89	0.53
1:1:220:G:H22	1:1:427:U:H2'	1.73	0.53
1:1:371:A:N6	1:1:402:A:OP2	2.36	0.53
1:1:528:A:O5'	10:J:116:ARG:NH2	2.42	0.53
1:1:1028:A:N6	1:1:1126:A:OP1	2.36	0.53
1:1:1586:A:H3'	1:1:1587:G:H8	1.73	0.53
1:1:2655:G:N2	1:1:2656:U:O4	2.37	0.53
1:1:2701:U:H1'	14:N:71:ARG:HH21	1.74	0.53
2:2:1:A:H3'	2:2:2:A:C8	2.43	0.53
2:2:71:A:H61	2:2:99:C:H1'	1.72	0.53
2:2:575:G:O2'	2:2:821:G:OP2	2.25	0.53
2:2:1034:G:H2'	2:2:1035:A:H8	1.72	0.53
3:3:111:U:H2'	3:3:112:G:H8	1.72	0.53
8:F:87:LEU:HG	8:F:164:TYR:HA	1.89	0.53
29:d:23:ALA:O	29:d:28:ARG:NH1	2.42	0.53
31:f:16:ILE:HG12	31:f:25:VAL:HG22	1.91	0.53
1:1:1190:G:H2'	1:1:1191:G:H8	1.74	0.53
1:1:1363:C:O2'	1:1:1809:A:N3	2.35	0.53
1:1:2582:G:H2'	1:1:2583:G:H8	1.74	0.53
2:2:1367:C:OP1	39:n:117:GLY:N	2.41	0.53
3:3:76:G:O2'	22:V:78:GLN:OE1	2.22	0.53
4:B:161:TYR:HB3	4:B:194:GLU:HG2	1.90	0.53
11:K:88:ASN:HB3	11:K:92:GLU:H	1.72	0.53
19:S:37:THR:OG1	19:S:48:LYS:NZ	2.37	0.53
20:T:38:ALA:O	20:T:81:LYS:NZ	2.32	0.53
38:m:29:SER:OG	38:m:30:SER:N	2.40	0.53
43:r:2:ALA:O	43:r:9:ILE:N	2.41	0.53
50:y:47:ALA:HB1	50:y:83:ILE:HG12	1.91	0.53
1:1:2036:C:H2'	1:1:2037:A:H8	1.73	0.53
2:2:744:C:H2'	2:2:745:G:H8	1.74	0.53
4:B:23:GLU:HB3	4:B:81:LEU:HD12	1.90	0.53
6:D:18:THR:HG23	6:D:106:LYS:HE3	1.91	0.53
6:D:146:VAL:HG21	6:D:187:VAL:HG23	1.91	0.53
14:N:96:ARG:HH12	14:N:116:VAL:HG13	1.73	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:g:97:LEU:H	32:g:100:MET:HE3	1.72	0.53
38:m:25:VAL:HG23	38:m:63:LEU:HD11	1.90	0.53
1:1:662:G:H2'	1:1:663:G:H8	1.74	0.53
1:1:1078:U:O2	1:1:1088:A:O2'	2.25	0.53
1:1:1637:A:H2'	1:1:1638:C:C6	2.44	0.53
1:1:2130:U:H4'	1:1:2158:A:H61	1.74	0.53
1:1:2595:G:N2	1:1:2598:A:OP2	2.33	0.53
2:2:413:G:O3'	2:2:428:G:N2	2.41	0.53
6:D:6:LYS:O	6:D:9:GLN:NE2	2.42	0.53
11:K:102:PRO:HD3	16:P:66:ASN:HB2	1.89	0.53
17:Q:69:ALA:HB1	17:Q:74:ILE:HG23	1.91	0.53
24:X:8:THR:OG1	24:X:9:GLY:N	2.42	0.53
33:h:40:ARG:NH1	33:h:55:ILE:O	2.38	0.53
36:k:1:MET:SD	36:k:35:LYS:NZ	2.81	0.53
37:l:67:GLU:OE1	37:l:70:ARG:NH1	2.41	0.53
38:m:29:SER:N	38:m:57:PRO:O	2.42	0.53
1:1:1523:U:H3'	1:1:1524:G:H8	1.73	0.53
1:1:2139:U:N3	1:1:2141:G:O6	2.40	0.53
2:2:366:A:H1'	2:2:394:G:H22	1.73	0.53
2:2:562:U:H1'	42:q:12:ARG:HD2	1.89	0.53
7:E:80:ARG:NH2	54:5:19:G:N1	2.56	0.53
12:L:35:HIS:O	12:L:40:SER:CB	2.56	0.53
19:S:7:HIS:HB3	19:S:103:ILE:HB	1.91	0.53
33:h:36:ASP:OD1	33:h:59:ARG:NH2	2.41	0.53
35:j:38:VAL:HA	35:j:48:PHE:HA	1.91	0.53
39:n:80:ARG:HA	39:n:83:ILE:HD12	1.91	0.53
40:o:9:ARG:HG3	40:o:73:LEU:HD23	1.84	0.53
47:v:31:HIS:HB3	47:v:35:GLY:H	1.74	0.53
1:1:571:U:OP1	18:R:80:ARG:NH2	2.42	0.53
1:1:790:U:N3	1:1:794:A:O2'	2.41	0.53
1:1:1085:A:O2'	1:1:1104:C:O2'	2.21	0.53
1:1:1306:C:N4	1:1:1607:C:OP2	2.42	0.53
1:1:1475:G:O2'	1:1:1514:G:O6	2.27	0.53
1:1:1581:G:H5''	1:1:1581:G:H8	1.74	0.53
1:1:1844:C:H2'	1:1:1845:G:H8	1.73	0.53
2:2:450:G:H5''	2:2:451:A:H5''	1.91	0.53
2:2:951:G:OP2	43:r:101:ARG:NH2	2.42	0.53
2:2:1183:U:O2'	2:2:1185:G:OP2	2.25	0.53
51:z:31:GLU:OE2	51:z:34:ARG:NH2	2.39	0.53
1:1:1542:U:H2'	1:1:1543:G:O4'	2.09	0.53
1:1:2116:G:C4	1:1:2161:C:H5'	2.44	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:2229:U:H1'	24:X:34:HIS:HE1	1.74	0.53
2:2:454:G:N2	2:2:479:U:O2	2.42	0.53
8:F:92:VAL:O	8:F:160:LYS:NZ	2.41	0.53
17:Q:50:ARG:HG2	17:Q:53:ARG:HH12	1.74	0.53
21:U:40:ASN:ND2	21:U:64:ALA:O	2.42	0.53
23:W:54:GLY:N	23:W:58:THR:O	2.37	0.53
33:h:20:SER:HB3	33:h:22:TRP:HE1	1.73	0.53
34:i:69:GLU:O	34:i:73:ARG:N	2.38	0.53
1:1:1168:G:H5'	1:1:1169:A:OP2	2.09	0.53
1:1:1926:U:O2'	1:1:1928:A:N7	2.37	0.53
1:1:2394:C:H2'	1:1:2395:C:H6	1.73	0.53
25:Y:20:ASN:OD1	25:Y:23:ARG:NH1	2.42	0.53
41:p:15:GLN:HE21	41:p:78:GLY:HA3	1.74	0.53
54:5:7:U:H2'	54:5:12:C:H41	1.74	0.53
1:1:241:A:O2'	30:e:3:LYS:NZ	2.42	0.52
1:1:335:C:O2	21:U:68:SER:OG	2.25	0.52
1:1:2095:A:C2	1:1:2096:C:C2	2.97	0.52
1:1:2127:G:OP1	1:1:2127:G:O3'	2.27	0.52
1:1:2305:U:O2'	7:E:133:ARG:NE	2.42	0.52
1:1:2305:U:H5''	7:E:131:GLY:HA3	1.90	0.52
2:2:700:G:N2	2:2:701:U:O4	2.41	0.52
2:2:1088:G:H21	2:2:1167:A:H61	1.57	0.52
6:D:86:ALA:HB1	6:D:88:ARG:HH22	1.74	0.52
7:E:119:ALA:O	7:E:167:ARG:NH2	2.41	0.52
8:F:89:LEU:HB3	8:F:94:TYR:HB3	1.89	0.52
42:q:57:LEU:HD12	42:q:61:PHE:HB2	1.91	0.52
1:1:2506:U:OP2	1:1:2576:G:N1	2.41	0.52
2:2:338:A:H2	2:2:351:G:H22	1.55	0.52
2:2:974:A:OP1	44:s:69:ARG:NH1	2.42	0.52
2:2:999:C:H2'	2:2:1000:A:C8	2.44	0.52
3:3:41:G:OP1	3:3:43:C:N4	2.39	0.52
7:E:80:ARG:HB2	7:E:83:TYR:CZ	2.44	0.52
32:g:19:GLN:HB2	32:g:22:TYR:HD2	1.74	0.52
1:1:1364:G:OP1	24:X:50:ARG:NH1	2.39	0.52
1:1:1666:G:OP1	11:K:82:ASN:ND2	2.43	0.52
1:1:2333:A:H5'	1:1:2335:A:H1'	1.92	0.52
2:2:1005:A:H3'	2:2:1006:G:H8	1.73	0.52
4:B:258:ARG:NH1	4:B:264:ASP:OD1	2.42	0.52
5:C:181:ASP:OD2	5:C:184:ARG:NH2	2.43	0.52
8:F:65:ALA:O	8:F:69:ARG:N	2.40	0.52
34:i:188:ARG:NH1	34:i:192:SER:O	2.43	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:o:14:ASP:HB3	40:o:17:LEU:HB3	1.91	0.52
41:p:17:SER:O	41:p:80:LYS:N	2.42	0.52
43:r:11:ASP:HA	43:r:45:ILE:HB	1.90	0.52
1:1:35:G:H1'	1:1:454:A:C4	2.44	0.52
1:1:404:A:C1'	1:1:406:G:C8	2.89	0.52
1:1:710:U:H6	1:1:710:U:H5''	1.74	0.52
1:1:1000:A:OP2	1:1:1154:G:N1	2.35	0.52
1:1:1094:U:O4'	1:1:1098:A:N6	2.43	0.52
1:1:1602:U:OP2	20:T:64:LYS:NZ	2.43	0.52
1:1:1657:U:OP1	5:C:141:ARG:N	2.42	0.52
1:1:1798:U:OP1	4:B:258:ARG:N	2.40	0.52
1:1:1924:C:C5'	1:1:1924:C:H6	2.22	0.52
1:1:2091:C:C2	1:1:2092:U:C5	2.97	0.52
2:2:539:A:OP2	42:q:112:GLN:NE2	2.33	0.52
5:C:38:LYS:HD3	5:C:45:TYR:CZ	2.44	0.52
17:Q:47:TYR:HD1	17:Q:50:ARG:HH21	1.58	0.52
32:g:54:LEU:HD23	32:g:57:LEU:HD12	1.91	0.52
40:o:49:PHE:N	40:o:65:TYR:O	2.38	0.52
42:q:46:ASN:ND2	42:q:89:0TD:SB	2.78	0.52
51:z:53:VAL:O	51:z:57:ALA:N	2.42	0.52
1:1:628:G:HO2'	1:1:651:G:HO2'	1.58	0.52
1:1:767:U:H2'	1:1:768:G:H8	1.75	0.52
1:1:1482:G:H2'	1:1:1483:G:C8	2.44	0.52
1:1:2351:G:H2'	1:1:2365:G:H22	1.74	0.52
1:1:2449:U:O2'	1:1:2501:C:N4	2.42	0.52
1:1:2549:G:H2'	1:1:2550:G:H8	1.73	0.52
2:2:705:G:H3'	2:2:706:A:H8	1.75	0.52
2:2:843:U:H3'	2:2:844:G:N2	2.24	0.52
2:2:1146:A:HO2'	2:2:1147:C:H6	0.56	0.52
40:o:7:ARG:O	40:o:101:SER:N	2.39	0.52
44:s:22:ALA:O	44:s:26:GLU:N	2.39	0.52
1:1:528:A:H62	1:1:2042:A:H3'	1.74	0.52
1:1:621:A:OP2	12:L:99:ASN:ND2	2.42	0.52
1:1:931:U:OP1	26:Z:30:ARG:NH1	2.40	0.52
1:1:1340:U:OP1	20:T:84:TYR:OH	2.24	0.52
1:1:1753:G:N2	1:1:1756:G:O5'	2.42	0.52
1:1:2127:G:H1'	1:1:2128:G:N7	2.25	0.52
1:1:2489:U:O2'	1:1:2518:A:N6	2.43	0.52
2:2:373:A:H61	2:2:391:G:H1'	1.73	0.52
2:2:769:G:H4'	2:2:1513:A:H4'	1.91	0.52
2:2:1146:A:C2	2:2:1147:C:H1'	2.45	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:3:22:U:H2'	3:3:23:G:C8	2.45	0.52
12:L:64:PHE:HB3	30:e:25:LYS:HD2	1.91	0.52
20:T:53:VAL:HG11	20:T:93:LEU:HD12	1.91	0.52
23:W:46:HIS:N	23:W:78:LYS:O	2.42	0.52
27:b:45:ALA:O	27:b:57:LYS:NZ	2.40	0.52
33:h:70:THR:O	33:h:106:VAL:N	2.42	0.52
34:i:188:ARG:HH12	34:i:193:ALA:HA	1.75	0.52
41:p:93:ARG:NH1	41:p:112:ASP:OD2	2.42	0.52
53:7:37:VAL:HG13	53:7:56:LEU:HG	1.92	0.52
1:1:1176:U:OP1	1:1:1177:G:H4'	2.10	0.52
1:1:1386:C:H2'	1:1:1387:A:H8	1.75	0.52
1:1:2202:U:O2'	4:B:147:LYS:NZ	2.43	0.52
17:Q:24:TYR:H	17:Q:29:SER:HB3	1.75	0.52
18:R:60:LYS:N	18:R:100:GLY:O	2.42	0.52
50:y:48:GLN:HG3	50:y:52:ASN:HD21	1.75	0.52
53:7:223:TYR:OH	53:7:290:GLN:OE1	2.28	0.52
1:1:1463:C:H2'	1:1:1464:G:C8	2.45	0.52
1:1:1527:G:N2	1:1:1544:A:OP2	2.29	0.52
1:1:2278:A:OP2	23:W:12:ASN:ND2	2.35	0.52
2:2:1314:C:N4	49:x:2:PRO:O	2.38	0.52
5:C:110:THR:HB	5:C:202:ILE:HB	1.92	0.52
7:E:66:LEU:N	7:E:88:LYS:O	2.43	0.52
11:K:87:LEU:HA	11:K:94:PRO:HA	1.92	0.52
1:1:518:G:O5'	19:S:18:ARG:NH1	2.43	0.52
1:1:1315:C:O2'	1:1:1392:A:N3	2.36	0.52
1:1:1342:A:OP1	20:T:40:LYS:NZ	2.35	0.52
1:1:1827:U:H5'	1:1:1971:U:H4'	1.92	0.52
1:1:2039:U:H2'	1:1:2040:G:H8	1.73	0.52
1:1:2133:G:O3'	1:1:2158:A:N6	2.43	0.52
1:1:2363:G:OP1	30:e:40:ARG:NH2	2.42	0.52
2:2:254:G:O2'	47:v:18:GLU:O	2.25	0.52
2:2:418:C:H42	2:2:425:G:H1	1.57	0.52
2:2:888:G:H2'	2:2:908:A:H61	1.75	0.52
9:G:6:LEU:HD11	9:G:37:VAL:HG23	1.92	0.52
15:O:30:ARG:HD3	15:O:102:ARG:HH12	1.73	0.52
21:U:10:GLU:OE2	21:U:22:ARG:NH1	2.40	0.52
35:j:111:MET:HA	35:j:114:VAL:HG12	1.92	0.52
54:5:18:G:N2	54:5:58:A:OP2	2.42	0.52
1:1:160:A:N3	1:1:2208:C:O2'	2.37	0.52
1:1:277:G:H5''	1:1:278:A:C5	2.45	0.52
1:1:370:G:O2'	1:1:424:G:OP1	2.25	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:981:A:N1	1:1:2027:G:O2'	2.43	0.52
1:1:1022:G:N2	1:1:1142:A:N7	2.58	0.52
1:1:1028:A:N3	1:1:2486:C:O2'	2.35	0.52
1:1:1916:A:OP1	53:7:240:ARG:NH2	2.43	0.52
1:1:1923:U:HO2'	1:1:1924:C:P	2.31	0.52
1:1:2127:G:O2'	1:1:2128:G:H8	1.89	0.52
1:1:2809:A:OP2	1:1:2890:G:N1	2.36	0.52
2:2:411:A:OP1	34:i:26:ARG:NH1	2.42	0.52
2:2:816:A:OP1	2:2:1526:G:O2'	2.27	0.52
2:2:935:A:H61	37:l:3:ARG:HG3	1.74	0.52
6:D:98:LYS:HB3	6:D:102:ARG:HH22	1.75	0.52
23:W:52:GLY:N	23:W:60:PHE:O	2.42	0.52
35:j:81:LEU:HD21	35:j:96:MET:HG3	1.92	0.52
35:j:97:GLN:HB3	35:j:124:LEU:HB2	1.92	0.52
49:x:50:ALA:HA	49:x:59:PRO:HA	1.92	0.52
1:1:308:G:C3'	1:1:309:A:C8	2.93	0.51
1:1:1009:A:O4'	17:Q:59:GLN:NE2	2.43	0.51
2:2:162:A:C5	2:2:163:C:H1'	2.45	0.51
2:2:889:A:N6	2:2:908:A:OP2	2.40	0.51
2:2:1025:U:H4'	2:2:1026:G:H8	1.73	0.51
2:2:1089:G:N2	2:2:1170:A:O2'	2.44	0.51
4:B:244:PRO:O	4:B:251:GLN:NE2	2.43	0.51
1:1:242:G:OP2	30:e:3:LYS:NZ	2.43	0.51
1:1:476:G:O2'	1:1:502:A:N6	2.43	0.51
1:1:1035:U:H2'	1:1:1036:G:H8	1.74	0.51
1:1:1565:C:O2'	1:1:1567:G:N7	2.36	0.51
1:1:1914:C:H2'	1:1:1915:3TD:O4'	2.11	0.51
2:2:401:C:O2'	2:2:621:A:N3	2.40	0.51
2:2:584:G:H1	2:2:757:U:H3	1.58	0.51
2:2:675:A:O2'	41:p:116:ILE:O	2.25	0.51
8:F:18:LYS:HE2	8:F:20:ASN:HB2	1.93	0.51
17:Q:47:TYR:OH	17:Q:51:ARG:NH2	2.43	0.51
22:V:77:VAL:HG23	22:V:89:ILE:HG12	1.92	0.51
39:n:36:GLU:OE1	39:n:45:ARG:NH1	2.43	0.51
40:o:10:LEU:HD12	40:o:10:LEU:N	2.25	0.51
1:1:2299:U:OP1	7:E:72:LYS:NZ	2.41	0.51
2:2:299:G:N2	2:2:565:U:O2	2.43	0.51
2:2:981:U:O4	2:2:1223:C:N4	2.43	0.51
19:S:66:ILE:HA	19:S:69:LEU:HD13	1.91	0.51
32:g:33:GLY:H	32:g:40:ILE:HB	1.74	0.51
33:h:140:ASN:OD1	33:h:143:ARG:NH2	2.43	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
33:h:181:ASP:N	33:h:205:GLY:O	2.38	0.51
1:1:367:G:H3'	1:1:368:A:H8	1.73	0.51
1:1:721:A:H2'	1:1:722:A:C8	2.46	0.51
1:1:1012:U:OP2	17:Q:70:ARG:NH1	2.39	0.51
1:1:1057:A:OP2	1:1:1089:A:N6	2.41	0.51
2:2:309:A:H2'	2:2:310:G:H8	1.76	0.51
2:2:362:G:N2	2:2:365:U:OP2	2.32	0.51
3:3:30:C:H2'	3:3:31:C:H5'	1.93	0.51
21:U:46:GLN:NE2	21:U:54:GLN:OE1	2.43	0.51
23:W:38:VAL:HB	23:W:59:LEU:HD12	1.92	0.51
32:g:32:PHE:N	32:g:40:ILE:O	2.44	0.51
1:1:1057:A:N6	1:1:1087:G:OP1	2.42	0.51
1:1:1342:A:O2'	1:1:1344:U:OP1	2.23	0.51
1:1:2039:U:H2'	1:1:2040:G:C8	2.45	0.51
1:1:2043:C:N4	1:1:2777:G:C5	2.79	0.51
1:1:2080:A:H61	1:1:2240:U:H3	1.57	0.51
1:1:2137:U:N3	1:1:2155:U:O2	2.43	0.51
5:C:38:LYS:HD3	5:C:45:TYR:OH	2.11	0.51
32:g:111:ILE:HD12	32:g:152:LYS:HA	1.92	0.51
42:q:36:ARG:O	42:q:54:ARG:N	2.44	0.51
43:r:67:GLY:O	43:r:71:ARG:N	2.41	0.51
47:v:11:ARG:N	47:v:24:ALA:O	2.41	0.51
53:7:334:LYS:HG3	53:7:341:GLU:HG2	1.92	0.51
1:1:2291:U:OP1	1:1:2380:C:O2'	2.28	0.51
1:1:2754:U:H2'	1:1:2756:U:OP1	2.11	0.51
2:2:421:U:OP2	2:2:422:C:C5	2.64	0.51
2:2:1356:G:H2'	2:2:1357:A:C8	2.46	0.51
4:B:145:GLU:OE1	4:B:149:GLY:N	2.43	0.51
7:E:41:GLY:HA2	7:E:85:ILE:HD11	1.93	0.51
11:K:64:ARG:O	11:K:83:ALA:N	2.40	0.51
18:R:32:THR:HA	18:R:62:GLU:HA	1.91	0.51
44:s:27:LEU:HA	44:s:30:ILE:HD12	1.92	0.51
1:1:84:A:N1	1:1:98:G:O2'	2.35	0.51
1:1:568:U:H1'	1:1:2030:6MZ:H9C1	1.93	0.51
1:1:935:C:H2'	1:1:936:A:H8	1.76	0.51
1:1:954:G:H5''	13:M:13:HIS:HB3	1.92	0.51
1:1:1398:C:H2'	1:1:1399:C:C6	2.45	0.51
1:1:1412:U:H2'	1:1:1413:A:H8	1.75	0.51
1:1:1432:G:H2'	1:1:1433:A:C8	2.46	0.51
1:1:2129:C:O5'	1:1:2129:C:H6	1.92	0.51
2:2:518:C:H1'	42:q:47:SER:HB3	1.93	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1350:A:OP1	39:n:123:ARG:NH1	2.43	0.51
4:B:224:ALA:O	4:B:225:MET:HG3	2.11	0.51
9:G:69:ALA:O	9:G:73:ASN:ND2	2.37	0.51
13:M:26:VAL:HB	13:M:133:LYS:HA	1.92	0.51
27:b:31:ASP:OD2	27:b:34:SER:N	2.39	0.51
35:j:93:ARG:HB2	35:j:128:TYR:HB2	1.93	0.51
36:k:8:PHE:HA	36:k:87:SER:HA	1.91	0.51
53:7:162:LYS:NZ	53:7:164:GLU:OE1	2.32	0.51
1:1:2114:A:N1	1:1:2119:A:N6	2.59	0.51
1:1:2564:A:OP1	1:1:2648:G:O2'	2.29	0.51
3:3:8:C:O3'	15:O:25:ARG:NH1	2.44	0.51
9:G:76:GLU:HG3	9:G:142:VAL:HA	1.92	0.51
9:G:132:PHE:HD2	9:G:140:ALA:HB3	1.74	0.51
26:Z:9:GLN:HB2	26:Z:29:LEU:HD13	1.93	0.51
28:c:25:LYS:NZ	28:c:32:GLU:O	2.44	0.51
44:s:49:GLN:OE1	49:x:13:LEU:N	2.42	0.51
1:1:1050:A:H61	1:1:1109:C:H1'	1.76	0.51
1:1:2095:A:N1	1:1:2096:C:N3	2.59	0.51
1:1:2128:G:HO2'	1:1:2174:C:H1'	1.74	0.51
2:2:93:U:H5''	2:2:94:G:OP2	2.11	0.51
2:2:200:G:H2'	2:2:201:G:H8	1.76	0.51
2:2:642:A:C5	38:m:107:SER:HA	2.46	0.51
2:2:770:C:H1'	2:2:899:C:H42	1.76	0.51
1:1:918:A:N3	3:3:80:U:O2'	2.41	0.51
1:1:1266:G:OP2	27:b:17:ARG:NE	2.35	0.51
1:1:2093:G:C5	1:1:2225:A:C5	2.99	0.51
1:1:2093:G:C5	1:1:2225:A:N7	2.79	0.51
1:1:2467:C:O2	13:M:123:LYS:NZ	2.38	0.51
1:1:2532:G:O2'	1:1:2657:A:N1	2.44	0.51
1:1:2578:G:OP1	1:1:2614:A:N6	2.44	0.51
2:2:362:G:H5''	42:q:58:THR:CG2	2.39	0.51
2:2:901:A:C5	2:2:902:G:H1'	2.46	0.51
2:2:959:A:H1'	2:2:985:C:O4'	2.11	0.51
7:E:68:THR:N	7:E:86:GLY:O	2.39	0.51
12:L:124:GLY:H	12:L:144:GLU:HA	1.76	0.51
13:M:17:ASN:OD1	13:M:97:GLN:NE2	2.44	0.51
35:j:104:GLY:N	35:j:122:ASN:OD1	2.42	0.51
1:1:220:G:H1	1:1:427:U:H3'	1.76	0.50
1:1:1231:U:H2'	1:1:1232:G:H8	1.76	0.50
1:1:2161:C:O2'	1:1:2173:A:OP2	2.29	0.50
1:1:2173:A:OP2	1:1:2173:A:H4'	2.09	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:104:G:OP2	50:y:13:GLN:NE2	2.38	0.50
2:2:210:C:H5''	2:2:211:G:O4'	2.11	0.50
2:2:1241:G:H2'	2:2:1242:G:H8	1.76	0.50
4:B:132:MET:HG2	4:B:135:ILE:HD12	1.93	0.50
6:D:125:SER:O	6:D:137:LYS:NZ	2.44	0.50
19:S:25:ARG:NH2	19:S:74:ILE:O	2.43	0.50
33:h:131:ARG:NH2	33:h:168:TYR:OH	2.44	0.50
42:q:35:THR:HB	42:q:54:ARG:HG3	1.93	0.50
47:v:59:VAL:HG23	47:v:78:VAL:HG22	1.92	0.50
53:7:172:GLU:HG3	53:7:173:VAL:HG23	1.91	0.50
1:1:154:U:H2'	1:1:155:A:C8	2.45	0.50
1:1:943:A:OP2	12:L:39:LYS:NZ	2.36	0.50
1:1:1509:A:O2'	1:1:1510:G:OP2	2.21	0.50
1:1:1796:U:O2'	4:B:252:THR:O	2.30	0.50
1:1:2095:A:N3	1:1:2096:C:C5	2.79	0.50
2:2:412:A:H62	2:2:431:A:H61	1.59	0.50
2:2:517:G:N1	2:2:533:A:OP2	2.43	0.50
2:2:865:A:N3	2:2:918:A:O2'	2.39	0.50
2:2:1303:C:H3'	2:2:1304:G:C8	2.46	0.50
4:B:2:ALA:N	4:B:199:GLU:OE2	2.44	0.50
4:B:129:THR:O	4:B:189:ARG:NH2	2.44	0.50
5:C:108:ASP:OD2	5:C:207:VAL:N	2.44	0.50
16:P:97:LEU:HB3	16:P:100:LEU:HD12	1.93	0.50
18:R:69:GLY:O	18:R:90:ARG:NE	2.32	0.50
46:u:20:VAL:HG12	46:u:35:ARG:HA	1.92	0.50
49:x:48:THR:HA	49:x:61:PHE:HA	1.93	0.50
53:7:202:VAL:HG22	53:7:215:THR:HG23	1.93	0.50
1:1:616:A:H3'	1:1:617:G:H8	1.77	0.50
1:1:2125:G:N1	1:1:2170:A:O2'	2.43	0.50
2:2:1132:C:N4	2:2:1133:G:O6	2.45	0.50
2:2:1458:G:OP1	50:y:30:THR:OG1	2.28	0.50
15:O:111:ARG:NH2	15:O:117:PHE:OXT	2.44	0.50
35:j:12:GLN:HE21	35:j:117:VAL:HA	1.76	0.50
1:1:77:G:O2'	25:Y:59:GLU:OE2	2.25	0.50
1:1:355:U:H2'	1:1:356:G:C8	2.47	0.50
1:1:783:A:H2'	1:1:783:A:N3	2.27	0.50
1:1:1353:A:O3'	4:B:36:LYS:NZ	2.45	0.50
1:1:1947:C:O2'	2:2:1483:A:O2'	2.25	0.50
1:1:2127:G:H2'	1:1:2128:G:OP2	2.12	0.50
1:1:2233:U:H2'	1:1:2234:G:C8	2.43	0.50
2:2:266:G:H3'	47:v:69:LYS:HB2	1.92	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1181:G:H4'	2:2:1182:G:H5'	1.92	0.50
4:B:53:HIS:O	4:B:217:ARG:N	2.42	0.50
8:F:101:ASN:HB2	8:F:117:LEU:HB2	1.93	0.50
41:p:46:THR:OG1	41:p:49:GLY:N	2.43	0.50
43:r:117:LYS:NZ	54:5:28:C:O4'	2.37	0.50
1:1:372:G:O2'	1:1:400:G:O6	2.29	0.50
1:1:1045:C:H4'	1:1:1046:A:H5''	1.93	0.50
1:1:1095:A:O2'	1:1:1096:A:O4'	2.29	0.50
1:1:1759:A:H2'	1:1:1760:C:H6	1.75	0.50
1:1:2161:C:N4	1:1:2162:G:O6	2.42	0.50
1:1:2216:G:H2'	1:1:2217:G:C8	2.47	0.50
1:1:2290:G:N2	1:1:2343:U:O2	2.45	0.50
1:1:2749:A:H5''	8:F:2:SER:HA	1.93	0.50
2:2:501:C:H2'	2:2:502:A:C8	2.47	0.50
2:2:595:A:H4'	2:2:596:A:H5'	1.93	0.50
2:2:662:U:H2'	2:2:663:A:C8	2.47	0.50
2:2:1202:U:H2'	2:2:1203:C:O4'	2.11	0.50
2:2:1303:C:H2'	2:2:1304:G:O4'	2.11	0.50
7:E:95:ARG:HA	7:E:98:GLU:HB2	1.93	0.50
18:R:75:VAL:HG22	18:R:86:GLN:HE22	1.77	0.50
21:U:8:ASP:N	21:U:8:ASP:OD1	2.40	0.50
33:h:148:GLY:O	33:h:203:PHE:N	2.38	0.50
39:n:97:GLU:O	39:n:101:ALA:N	2.38	0.50
47:v:19:LYS:O	47:v:47:HIS:ND1	2.43	0.50
53:7:353:LEU:HA	53:7:356:PHE:HD2	1.77	0.50
1:1:26:G:H1'	1:1:515:A:H61	1.76	0.50
1:1:307:G:N1	1:1:310:A:OP2	2.35	0.50
1:1:546:U:H4'	1:1:547:A:OP2	2.09	0.50
1:1:780:G:C2	1:1:785:G:O6	2.65	0.50
1:1:1419:A:H5'	1:1:1579:A:H61	1.75	0.50
1:1:2241:A:H2'	1:1:2242:G:C8	2.47	0.50
1:1:2258:C:O2'	1:1:2427:C:OP2	2.28	0.50
2:2:951:G:O2'	2:2:970:C:O2'	2.30	0.50
2:2:1111:A:N6	33:h:176:HIS:O	2.43	0.50
5:C:122:VAL:HA	5:C:127:PHE:HB2	1.92	0.50
37:l:138:ARG:NE	37:l:139:GLU:OE2	2.44	0.50
48:w:42:SER:OG	48:w:47:THR:O	2.29	0.50
1:1:645:C:N4	1:1:2350:C:O2'	2.45	0.50
1:1:1709:U:O2'	1:1:2859:G:N3	2.44	0.50
1:1:2461:A:N6	1:1:2488:G:O6	2.44	0.50
1:1:2704:C:H2'	1:1:2705:A:O4'	2.11	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:685:G:N2	2:2:704:A:OP2	2.39	0.50
2:2:810:C:H2'	2:2:811:C:O4'	2.11	0.50
2:2:976:G:N1	2:2:1363:A:OP2	2.41	0.50
2:2:1077:G:N2	2:2:1080:A:OP2	2.28	0.50
2:2:1394:A:N6	2:2:1500:A:O2'	2.43	0.50
24:X:5:CYS:HB3	24:X:10:LYS:H	1.75	0.50
50:y:15:GLU:HG3	50:y:18:ARG:HH21	1.75	0.50
1:1:1278:C:H2'	1:1:1279:G:C8	2.47	0.50
1:1:1450:G:H1	1:1:1461:C:H42	1.60	0.50
1:1:1912:A:N1	2:2:1407:5MC:O2'	2.43	0.50
2:2:312:C:H3'	2:2:313:A:H8	1.76	0.50
2:2:1359:C:OP2	44:s:75:ARG:NE	2.45	0.50
7:E:158:THR:HG1	7:E:159:THR:H	1.60	0.50
25:Y:6:LEU:HA	25:Y:9:LYS:HD2	1.92	0.50
28:c:14:SER:HB3	28:c:50:LYS:HG3	1.93	0.50
53:7:335:ASP:HB3	53:7:340:VAL:H	1.76	0.50
1:1:546:U:OP1	1:1:549:G:C4	2.65	0.50
1:1:1788:C:H2'	1:1:1789:A:C8	2.46	0.50
1:1:2043:C:C6	1:1:2777:G:H1'	2.47	0.50
1:1:2828:G:H2'	1:1:2829:A:H8	1.77	0.50
2:2:857:C:H2'	2:2:858:G:O4'	2.12	0.50
2:2:868:C:H2'	2:2:869:G:O4'	2.12	0.50
2:2:1316:G:N1	2:2:1319:A:OP2	2.41	0.50
7:E:110:ARG:NH1	7:E:136:ILE:O	2.44	0.50
8:F:86:LYS:HB3	8:F:165:ALA:HB3	1.92	0.50
19:S:4:ILE:HG12	19:S:106:VAL:HG22	1.94	0.50
21:U:8:ASP:O	21:U:24:LYS:NZ	2.37	0.50
35:j:133:PRO:HA	35:j:136:VAL:HG12	1.93	0.50
39:n:35:LEU:HD11	39:n:45:ARG:HA	1.94	0.50
39:n:50:GLN:O	39:n:54:LEU:N	2.45	0.50
48:w:12:ARG:NH1	48:w:32:TYR:OH	2.45	0.50
48:w:34:THR:OG1	48:w:35:GLU:N	2.45	0.50
53:7:201:LEU:HD11	53:7:203:ARG:HD3	1.94	0.50
1:1:309:A:H4'	21:U:16:GLY:C	2.37	0.49
1:1:532:A:N7	1:1:2021:C:O2'	2.38	0.49
1:1:611:C:H2'	1:1:612:G:O4'	2.12	0.49
1:1:1466:U:H5''	1:1:1467:U:H5'	1.93	0.49
1:1:1954:G:O2'	1:1:1956:U:O4	2.27	0.49
1:1:2200:C:OP2	24:X:37:ARG:NH1	2.44	0.49
1:1:2901:C:H6	1:1:2901:C:H5''	1.77	0.49
2:2:418:C:N3	2:2:425:G:N2	2.55	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:826:C:O2	38:m:16:ASN:ND2	2.45	0.49
11:K:40:LYS:NZ	11:K:89:ASN:OD1	2.45	0.49
32:g:54:LEU:HA	32:g:57:LEU:HB2	1.94	0.49
35:j:160:SER:OG	35:j:163:GLU:N	2.42	0.49
1:1:639:U:H2'	1:1:640:C:C6	2.47	0.49
1:1:1158:C:H5''	26:Z:31:ARG:HG3	1.95	0.49
1:1:2881:U:O2'	14:N:95:THR:O	2.27	0.49
2:2:4:U:H2'	2:2:5:U:H2'	1.94	0.49
2:2:252:U:O4	2:2:253:A:N6	2.45	0.49
2:2:1273:C:H2'	2:2:1274:A:O4'	2.12	0.49
2:2:1412:C:H2'	2:2:1413:A:C8	2.47	0.49
26:Z:45:ARG:HD3	26:Z:48:ILE:HD12	1.92	0.49
38:m:27:MET:O	38:m:59:LEU:N	2.45	0.49
39:n:21:ILE:HD12	39:n:61:LEU:HD13	1.94	0.49
43:r:72:GLU:O	43:r:76:SER:N	2.38	0.49
49:x:25:SER:OG	49:x:27:ASP:OD1	2.27	0.49
53:7:144:TRP:CD2	53:7:201:LEU:HB2	2.48	0.49
1:1:265:A:O2'	1:1:428:A:N6	2.45	0.49
1:1:312:G:H2'	1:1:313:G:H8	1.77	0.49
1:1:1076:C:O2'	1:1:1077:A:O4'	2.26	0.49
1:1:1482:G:N2	1:1:1483:G:O6	2.45	0.49
1:1:1954:G:N1	1:1:1986:C:OP1	2.38	0.49
1:1:2245:U:H5''	1:1:2246:G:H5''	1.94	0.49
1:1:2391:G:O2'	1:1:2424:C:N4	2.30	0.49
2:2:41:G:H2'	2:2:42:G:C8	2.47	0.49
2:2:50:A:O2'	2:2:360:G:N2	2.45	0.49
2:2:224:U:OP1	50:y:69:LYS:NZ	2.40	0.49
2:2:757:U:O2'	2:2:879:C:O2	2.28	0.49
2:2:1443:C:H2'	2:2:1444:U:O4'	2.12	0.49
3:3:77:U:H2'	3:3:78:A:H8	1.76	0.49
38:m:2:SER:HB2	38:m:4:GLN:HE21	1.78	0.49
43:r:13:LYS:HD3	43:r:17:ILE:HG22	1.93	0.49
46:u:4:ILE:HG12	46:u:21:VAL:HG22	1.93	0.49
1:1:691:C:O2'	4:B:43:ARG:NH1	2.45	0.49
1:1:1085:A:HO2'	1:1:1104:C:HO2'	1.58	0.49
1:1:1153:C:H5'	17:Q:76:TYR:HE2	1.76	0.49
1:1:1580:A:H3'	1:1:1581:G:H8	1.77	0.49
2:2:688:G:N1	2:2:699:C:O2	2.33	0.49
2:2:1176:A:H2'	2:2:1177:G:C8	2.47	0.49
2:2:1288:A:N3	2:2:1352:C:O2'	2.39	0.49
30:e:39:LYS:O	30:e:43:HIS:ND1	2.33	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
33:h:11:ARG:HE	33:h:178:LEU:HA	1.77	0.49
38:m:28:PRO:HA	38:m:58:GLU:HA	1.94	0.49
1:1:729:G:N3	1:1:729:G:C2'	2.73	0.49
1:1:1072:C:N4	1:1:1098:A:OP2	2.46	0.49
1:1:1392:A:N6	20:T:18:GLU:OE1	2.46	0.49
2:2:151:A:OP2	2:2:169:C:N4	2.38	0.49
2:2:715:A:OP1	2:2:805:C:O2'	2.27	0.49
2:2:1013:G:O2'	2:2:1015:G:N7	2.36	0.49
2:2:1146:A:C2'	2:2:1147:C:C6	2.92	0.49
7:E:158:THR:HG23	7:E:160:ALA:H	1.77	0.49
12:L:79:LEU:N	12:L:113:ALA:O	2.40	0.49
27:b:49:TYR:HB3	27:b:54:VAL:HG11	1.94	0.49
42:q:68:GLY:O	42:q:99:ARG:NH1	2.42	0.49
1:1:399:U:H2'	1:1:400:G:C8	2.47	0.49
1:1:2024:G:O3'	5:C:154:LYS:NZ	2.41	0.49
2:2:563:A:O2'	2:2:566:G:O3'	2.30	0.49
2:2:1094:G:O2'	2:2:1108:G:N1	2.45	0.49
4:B:155:ALA:HB2	4:B:162:VAL:HG23	1.94	0.49
1:1:106:C:H2'	1:1:107:G:C8	2.47	0.49
1:1:458:G:O2'	1:1:469:G:O6	2.29	0.49
1:1:784:G:C5'	4:B:226:ASN:HD21	2.25	0.49
1:1:1477:A:N6	1:1:1514:G:O2'	2.45	0.49
1:1:1646:C:H5''	1:1:1647:U:H5''	1.94	0.49
1:1:1759:A:C2'	1:1:1760:C:H6	2.25	0.49
1:1:1779:U:OP2	1:1:1784:A:N6	2.45	0.49
1:1:1977:A:H2	4:B:14:ARG:HH22	1.61	0.49
1:1:2616:C:H2'	1:1:2617:U:H6	1.77	0.49
2:2:219:U:H2'	2:2:220:G:H8	1.76	0.49
2:2:543:U:OP1	34:i:14:ARG:NE	2.42	0.49
2:2:673:A:H5'	36:k:86:ARG:HH12	1.77	0.49
2:2:911:U:OP2	42:q:94:ARG:NH2	2.42	0.49
2:2:1356:G:H2'	2:2:1357:A:H8	1.77	0.49
2:2:1359:C:O5'	44:s:75:ARG:NH2	2.46	0.49
7:E:8:TYR:OH	7:E:29:PRO:O	2.25	0.49
8:F:159:GLY:O	8:F:163:ARG:NH1	2.44	0.49
53:7:244:TYR:O	53:7:258:GLU:N	2.45	0.49
1:1:26:G:O2'	1:1:514:A:N6	2.38	0.49
1:1:280:U:H2'	1:1:281:C:C6	2.47	0.49
1:1:573:U:O4	1:1:2029:G:O2'	2.30	0.49
1:1:954:G:OP1	13:M:15:GLY:N	2.41	0.49
1:1:1447:C:H2'	1:1:1448:G:C8	2.47	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1759:A:H2'	1:1:1760:C:C6	2.47	0.49
1:1:1919:A:O2'	2:2:1517:G:N3	2.44	0.49
1:1:2188:U:C5'	1:1:2188:U:H6	2.26	0.49
1:1:2216:G:H2'	1:1:2217:G:H8	1.77	0.49
2:2:1266:G:N2	2:2:1269:A:OP2	2.38	0.49
2:2:1526:G:H3'	51:z:42:THR:HG22	1.94	0.49
9:G:51:ARG:HA	9:G:54:LEU:HB3	1.94	0.49
9:G:103:VAL:HG21	9:G:132:PHE:HZ	1.78	0.49
12:L:128:THR:O	12:L:132:ARG:N	2.44	0.49
33:h:29:PHE:HZ	44:s:93:ILE:HG23	1.78	0.49
37:l:115:SER:OG	37:l:116:MET:N	2.45	0.49
1:1:785:G:N3	1:1:785:G:H2'	2.27	0.49
1:1:859:G:N2	1:1:860:U:O4	2.42	0.49
1:1:894:U:H1'	1:1:895:U:H5'	1.94	0.49
1:1:1089:A:H2	1:1:1090:A:H62	1.60	0.49
2:2:744:C:H2'	2:2:745:G:C8	2.47	0.49
2:2:1093:A:N3	2:2:1109:C:O2'	2.37	0.49
2:2:1472:U:H2'	2:2:1473:G:C8	2.47	0.49
3:3:5:U:H2'	3:3:6:G:H8	1.77	0.49
17:Q:3:ARG:HH22	17:Q:5:LYS:HE3	1.78	0.49
20:T:15:HIS:HB3	20:T:31:VAL:HG12	1.94	0.49
22:V:61:LEU:HD22	22:V:91:PHE:HE1	1.77	0.49
47:v:64:CYS:O	47:v:72:SER:OG	2.31	0.49
54:5:6:G:O2'	54:5:49:G:O4'	2.30	0.49
1:1:373:U:H2'	1:1:374:A:H8	1.77	0.49
1:1:910:A:N6	1:1:2277:G:O2'	2.41	0.49
1:1:1278:C:H2'	1:1:1279:G:H8	1.77	0.49
1:1:1303:G:O2'	1:1:1642:G:O2'	2.23	0.49
1:1:1537:G:H2'	1:1:1538:G:H4'	1.94	0.49
1:1:1967:C:H2'	1:1:1968:G:O4'	2.13	0.49
1:1:2372:U:H2'	1:1:2373:G:C8	2.48	0.49
2:2:154:U:H2'	2:2:155:A:C8	2.48	0.49
2:2:294:U:OP1	2:2:610:U:O2'	2.28	0.49
2:2:724:G:OP2	2:2:833:G:O2'	2.25	0.49
7:E:58:ALA:HB2	7:E:65:PRO:HD3	1.94	0.49
10:J:92:MET:O	10:J:96:ARG:N	2.36	0.49
12:L:35:HIS:O	12:L:40:SER:HB3	2.13	0.49
30:e:7:VAL:HG12	30:e:10:ALA:H	1.78	0.49
34:i:159:LEU:HD11	34:i:178:MET:HG2	1.94	0.49
39:n:33:ARG:HB3	39:n:37:GLN:HB2	1.94	0.49
43:r:50:GLU:O	43:r:54:ASP:N	2.39	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:627:A:N6	1:1:637:A:O5'	2.44	0.48
1:1:714:U:H1'	1:1:717:C:H5	1.78	0.48
1:1:780:G:N3	1:1:785:G:C6	2.81	0.48
1:1:897:C:O5'	1:1:897:C:H6	1.96	0.48
2:2:14:U:N3	2:2:17:U:OP2	2.42	0.48
2:2:1440:U:H3	2:2:1461:G:H1	1.60	0.48
5:C:49:GLN:HE21	5:C:79:LEU:HB3	1.78	0.48
25:Y:55:THR:O	25:Y:59:GLU:N	2.45	0.48
53:7:4:ILE:HD11	53:7:84:LEU:HD11	1.95	0.48
1:1:341:C:H2'	1:1:342:A:C8	2.48	0.48
1:1:711:G:N2	1:1:721:A:C5	2.81	0.48
1:1:1607:C:N4	1:1:1622:G:N7	2.61	0.48
1:1:2674:G:H4'	11:K:30:ARG:HD2	1.94	0.48
2:2:404:G:O2'	2:2:498:A:N1	2.44	0.48
2:2:479:U:H4'	2:2:479:U:OP1	2.13	0.48
2:2:818:G:O2'	2:2:820:U:OP2	2.29	0.48
2:2:1450:U:O2'	2:2:1453:G:O6	2.30	0.48
3:3:39:A:O2'	3:3:46:A:N1	2.42	0.48
6:D:1:MET:HB3	6:D:14:VAL:HG23	1.94	0.48
18:R:41:ILE:O	18:R:48:LYS:N	2.46	0.48
20:T:10:VAL:O	20:T:35:ALA:N	2.44	0.48
33:h:121:THR:HG23	33:h:189:ALA:HA	1.96	0.48
34:i:116:GLN:HE21	34:i:120:HIS:CE1	2.31	0.48
35:j:95:PHE:N	35:j:126:LYS:O	2.46	0.48
53:7:73:MET:HG3	53:7:110:LEU:HD12	1.95	0.48
53:7:165:ILE:HA	53:7:181:ILE:HG12	1.94	0.48
1:1:679:C:H2'	1:1:680:C:C6	2.48	0.48
1:1:987:C:O2'	1:1:1000:A:N3	2.46	0.48
1:1:1653:G:N1	14:N:11:ASN:OD1	2.46	0.48
1:1:1825:U:H4'	4:B:232:HIS:HE1	1.78	0.48
1:1:2170:A:O2'	1:1:2171:A:OP2	2.29	0.48
1:1:2530:A:O2'	1:1:2534:A:N6	2.46	0.48
1:1:2742:G:OP2	31:f:24:ARG:NH1	2.46	0.48
2:2:1100:C:O2'	2:2:1102:A:OP1	2.27	0.48
2:2:1147:C:H1'	39:n:18:ARG:HH21	1.77	0.48
3:3:95:U:H2'	3:3:96:G:H8	1.77	0.48
3:3:111:U:H2'	3:3:112:G:C8	2.49	0.48
5:C:48:ILE:HG23	5:C:84:LEU:HD11	1.95	0.48
7:E:57:LEU:HA	7:E:60:ILE:HD12	1.96	0.48
8:F:115:HIS:ND1	8:F:151:TYR:OH	2.38	0.48
8:F:137:ASP:HB3	8:F:140:VAL:HB	1.94	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:J:17:VAL:HB	10:J:139:VAL:HA	1.94	0.48
15:O:52:SER:OG	15:O:53:THR:N	2.47	0.48
1:1:839:U:H3	1:1:939:G:H1	1.60	0.48
1:1:1934:C:H2'	1:1:1935:G:H8	1.79	0.48
1:1:2295:C:OP1	15:O:10:ARG:NH1	2.43	0.48
1:1:2394:C:O2'	1:1:2395:C:H5'	2.12	0.48
2:2:1124:G:OP1	40:o:37:ARG:NE	2.43	0.48
2:2:1203:C:OP1	44:s:2:ALA:N	2.46	0.48
3:3:94:A:OP1	22:V:19:ARG:NH1	2.47	0.48
5:C:68:PHE:O	5:C:72:GLY:N	2.46	0.48
8:F:77:ILE:O	8:F:82:GLY:N	2.44	0.48
9:G:14:SER:OG	9:G:15:LEU:N	2.46	0.48
13:M:43:ALA:HA	13:M:46:ILE:HD12	1.94	0.48
35:j:159:LYS:HB3	35:j:163:GLU:HB2	1.94	0.48
44:s:38:ASP:OD1	44:s:41:ARG:NH1	2.42	0.48
44:s:69:ARG:HD3	44:s:71:HIS:H	1.77	0.48
1:1:1507:C:H2'	1:1:1508:A:O4'	2.14	0.48
1:1:1818:U:OP2	4:B:156:ARG:NE	2.33	0.48
1:1:2093:G:H2'	1:1:2094:A:C8	2.47	0.48
1:1:2394:C:H2'	1:1:2395:C:C6	2.48	0.48
1:1:2785:C:O3'	5:C:70:LYS:NZ	2.46	0.48
2:2:197:A:N1	2:2:220:G:O2'	2.41	0.48
2:2:413:G:H1'	2:2:428:G:H21	1.78	0.48
2:2:983:A:N1	2:2:1222:G:N2	2.62	0.48
5:C:38:LYS:N	5:C:47:ALA:O	2.42	0.48
7:E:33:LYS:HG2	7:E:157:THR:HB	1.95	0.48
53:7:324:ARG:HD3	53:7:356:PHE:CG	2.47	0.48
1:1:225:C:H2'	1:1:226:A:O4'	2.14	0.48
1:1:2312:U:H2'	7:E:37:ASN:HD21	1.78	0.48
1:1:2520:C:H2'	1:1:2521:C:H6	1.79	0.48
1:1:2523:G:O2'	1:1:2764:A:O2'	2.28	0.48
1:1:2850:A:OP2	1:1:2866:U:N3	2.38	0.48
2:2:265:G:H5'	47:v:65:ARG:HH22	1.78	0.48
2:2:363:A:H5'	42:q:31:ARG:HB2	1.96	0.48
2:2:412:A:H2'	2:2:414:A:H5''	1.95	0.48
2:2:711:G:H2'	2:2:712:A:H8	1.78	0.48
2:2:1152:A:O5'	40:o:72:ARG:NH2	2.46	0.48
16:P:99:TYR:HD2	16:P:103:ARG:HD2	1.78	0.48
24:X:69:ALA:O	24:X:73:ALA:N	2.41	0.48
35:j:16:ILE:HD12	35:j:36:LEU:HG	1.94	0.48
35:j:84:PRO:HG3	35:j:97:GLN:HG3	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
39:n:106:ARG:NH1	39:n:107:ASP:O	2.46	0.48
1:1:265:A:N1	1:1:427:U:O2'	2.45	0.48
1:1:738:G:H3'	1:1:739:A:C8	2.49	0.48
1:1:799:G:H3'	1:1:800:A:H2'	1.94	0.48
1:1:1838:C:N4	1:1:1899:A:O4'	2.46	0.48
1:1:2313:C:O4'	7:E:37:ASN:ND2	2.47	0.48
2:2:17:U:O2'	2:2:1079:G:N3	2.46	0.48
2:2:206:C:H6	2:2:206:C:O5'	1.96	0.48
2:2:454:G:H1	2:2:478:A:H61	1.61	0.48
2:2:1116:U:H2'	2:2:1117:A:H8	1.78	0.48
2:2:1124:G:N2	2:2:1125:U:O4	2.41	0.48
2:2:1345:U:H5''	39:n:122:ARG:HH11	1.79	0.48
2:2:1350:A:OP2	39:n:120:LYS:NZ	2.36	0.48
3:3:30:C:O2	3:3:54:G:N2	2.46	0.48
7:E:66:LEU:O	7:E:88:LYS:N	2.42	0.48
24:X:36:HIS:ND1	24:X:37:ARG:O	2.45	0.48
34:i:170:TRP:CD2	34:i:186:PRO:HB3	2.49	0.48
36:k:6:ILE:O	36:k:62:MET:N	2.44	0.48
46:u:54:LEU:HD23	46:u:57:ILE:HD12	1.95	0.48
1:1:102:U:O4	25:Y:2:LYS:N	2.47	0.48
1:1:613:A:C2	1:1:614:A:C5	3.01	0.48
1:1:675:A:N3	1:1:2443:C:O2'	2.45	0.48
1:1:992:C:H2'	1:1:993:G:C8	2.48	0.48
1:1:2165:C:H5	1:1:2170:A:H61	1.60	0.48
1:1:2229:U:C6	1:1:2229:U:H5''	2.49	0.48
2:2:409:U:H2'	2:2:410:G:O4'	2.13	0.48
2:2:1422:G:O2'	11:K:49:ARG:NH2	2.47	0.48
13:M:34:LYS:O	13:M:129:THR:N	2.40	0.48
26:Z:4:THR:HA	26:Z:39:GLU:HA	1.96	0.48
38:m:64:LYS:HG2	38:m:71:VAL:HG21	1.94	0.48
53:7:167:GLU:HB3	53:7:180:THR:HB	1.96	0.48
53:7:323:ILE:O	53:7:336:LEU:N	2.34	0.48
1:1:75:G:O5'	25:Y:48:ARG:NH2	2.47	0.48
1:1:177:G:H3'	1:1:178:G:H8	1.79	0.48
1:1:482:A:N6	1:1:506:G:O2'	2.47	0.48
1:1:1047:G:O2'	1:1:1110:G:N1	2.41	0.48
1:1:1398:C:H2'	1:1:1399:C:H6	1.79	0.48
1:1:1689:A:H61	1:1:1697:G:H2'	1.79	0.48
1:1:1760:C:O2	1:1:1760:C:H2'	2.13	0.48
2:2:530:G:N2	53:7:213:ARG:O	2.46	0.48
2:2:1191:A:H5''	33:h:4:LYS:HE3	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1347:G:O6	39:n:12:ARG:NH2	2.47	0.48
3:3:31:C:H1'	3:3:53:A:C6	2.48	0.48
3:3:51:G:H5''	15:O:64:TYR:CE1	2.49	0.48
4:B:246:THR:OG1	4:B:250:VAL:N	2.44	0.48
5:C:33:ARG:N	5:C:51:THR:O	2.42	0.48
9:G:78:VAL:HB	9:G:144:VAL:HG22	1.96	0.48
33:h:181:ASP:HB2	33:h:207:ILE:HG12	1.95	0.48
42:q:84:GLY:HA2	42:q:95:TYR:HD1	1.79	0.48
1:1:52:A:H61	1:1:118:A:H5'	1.79	0.48
1:1:183:C:O2'	1:1:432:A:N3	2.39	0.48
1:1:411:G:OP2	1:1:2406:A:O2'	2.26	0.48
1:1:500:G:N1	1:1:503:A:OP2	2.39	0.48
1:1:843:G:H2'	1:1:844:A:C8	2.49	0.48
1:1:1754:A:H5'	16:P:99:TYR:CZ	2.48	0.48
1:1:2095:A:C2	1:1:2096:C:N3	2.82	0.48
1:1:2119:A:N6	1:1:2167:U:O2'	2.46	0.48
1:1:2372:U:H2'	1:1:2373:G:H8	1.79	0.48
1:1:2515:C:H2'	1:1:2516:A:H8	1.77	0.48
2:2:127:G:O2'	47:v:6:ARG:NH1	2.47	0.48
2:2:677:U:H3	2:2:713:G:H1	1.61	0.48
2:2:1123:U:H4'	40:o:39:PRO:HD2	1.96	0.48
3:3:116:G:H2'	3:3:117:G:C8	2.49	0.48
4:B:199:GLU:HA	4:B:202:LEU:HD23	1.95	0.48
36:k:66:ALA:HB3	36:k:71:ILE:HD11	1.96	0.48
1:1:531:C:H4'	1:1:532:A:H5''	1.96	0.47
1:1:745:1MG:O2'	1:1:750:A:N6	2.47	0.47
1:1:834:G:H5'	30:e:57:LEU:HD11	1.96	0.47
1:1:1019:U:O2'	1:1:1021:A:N7	2.47	0.47
1:1:1131:G:H5'	10:J:84:ILE:HG21	1.96	0.47
1:1:1568:G:OP1	4:B:63:ARG:NH2	2.42	0.47
1:1:1606:C:H5''	1:1:1607:C:H5'	1.96	0.47
1:1:2368:C:H2'	1:1:2369:A:C8	2.49	0.47
2:2:625:U:H2'	2:2:626:G:H8	1.78	0.47
2:2:1223:C:H5''	2:2:1224:U:H5''	1.96	0.47
2:2:1310:G:OP2	43:r:87:ARG:NH1	2.40	0.47
10:J:56:VAL:O	10:J:125:TYR:N	2.45	0.47
20:T:14:PRO:HA	20:T:32:LEU:HA	1.95	0.47
32:g:66:LYS:HD3	32:g:154:MET:HG3	1.96	0.47
34:i:90:LEU:O	34:i:94:LEU:N	2.43	0.47
49:x:21:LYS:O	49:x:25:SER:N	2.47	0.47
53:7:53:ALA:O	53:7:57:GLY:N	2.44	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:13:A:O2'	1:1:15:G:N7	2.46	0.47
1:1:564:C:O2'	1:1:1253:A:N1	2.47	0.47
1:1:820:A:OP2	1:1:973:A:N6	2.37	0.47
1:1:1386:C:H2'	1:1:1387:A:C8	2.49	0.47
1:1:1405:U:H2'	1:1:1406:U:C6	2.49	0.47
1:1:1754:A:H2	1:1:2716:C:O2'	1.97	0.47
1:1:2106:U:N3	1:1:2107:G:O6	2.47	0.47
1:1:2688:G:N1	1:1:2720:U:OP2	2.27	0.47
2:2:6:G:O2'	2:2:7:A:O5'	2.31	0.47
2:2:1522:U:H2'	2:2:1523:G:H8	1.79	0.47
9:G:2:GLN:HB3	9:G:18:GLN:HE21	1.80	0.47
23:W:37:ILE:HD11	23:W:61:ALA:HB2	1.96	0.47
24:X:5:CYS:CB	24:X:10:LYS:CB	2.88	0.47
35:j:96:MET:HA	35:j:125:ALA:HA	1.95	0.47
1:1:353:C:H3'	1:1:354:A:H8	1.80	0.47
1:1:482:A:OP2	1:1:507:A:N6	2.36	0.47
1:1:1259:G:H2'	1:1:1260:A:C8	2.49	0.47
1:1:1273:U:O2	1:1:2002:G:O2'	2.30	0.47
1:1:1652:A:OP1	14:N:8:ARG:NH2	2.47	0.47
1:1:1980:G:O2'	1:1:1982:U:OP2	2.31	0.47
1:1:2047:C:O2'	1:1:2823:A:N1	2.46	0.47
1:1:2141:G:H2'	1:1:2142:A:C8	2.49	0.47
1:1:2522:U:O2'	1:1:2647:U:OP1	2.32	0.47
2:2:332:G:O5'	50:y:2:ALA:N	2.47	0.47
2:2:1391:U:H2'	2:2:1392:G:C8	2.49	0.47
9:G:126:GLY:O	9:G:146:VAL:N	2.42	0.47
15:O:26:LEU:HB3	15:O:92:PHE:HA	1.96	0.47
28:c:12:VAL:N	28:c:50:LYS:O	2.46	0.47
32:g:81:LYS:HB2	32:g:93:ASN:HD22	1.79	0.47
34:i:125:VAL:N	34:i:128:ARG:O	2.47	0.47
39:n:23:PRO:HA	39:n:61:LEU:HA	1.96	0.47
1:1:371:A:H61	1:1:401:A:H3'	1.80	0.47
1:1:404:A:C2	1:1:406:G:N1	2.82	0.47
1:1:1024:G:O2'	1:1:1144:A:O2'	2.30	0.47
1:1:1341:G:OP2	1:1:1394:U:O2'	2.27	0.47
2:2:161:A:N1	2:2:347:G:O2'	2.44	0.47
3:3:23:G:H2'	3:3:24:G:C5	2.49	0.47
3:3:31:C:H2'	3:3:32:U:H6	1.79	0.47
6:D:3:LEU:O	6:D:12:LEU:N	2.48	0.47
20:T:24:MET:HA	20:T:29:THR:H	1.78	0.47
34:i:37:ALA:HB3	34:i:42:GLY:HA2	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:7:189:TYR:CG	53:7:224:PRO:HB3	2.50	0.47
1:1:138:U:O2'	1:1:141:G:C6	2.62	0.47
1:1:1204:A:H4'	1:1:1205:A:H5''	1.97	0.47
1:1:1550:C:OP1	1:1:1720:U:O2'	2.25	0.47
1:1:2419:U:OP1	30:e:41:LYS:NZ	2.31	0.47
2:2:526:C:C4	2:2:527:G7M:H1'	2.50	0.47
2:2:559:A:H4'	2:2:560:A:H3'	1.95	0.47
2:2:652:U:O4	2:2:752:G:O2'	2.26	0.47
2:2:1241:G:H2'	2:2:1242:G:C8	2.50	0.47
4:B:180:GLU:OE2	4:B:270:ARG:NH1	2.47	0.47
13:M:30:SER:H	13:M:106:ASP:HB3	1.80	0.47
24:X:33:LEU:HD23	24:X:50:ARG:HG2	1.96	0.47
25:Y:18:LEU:HB2	25:Y:53:VAL:HG11	1.95	0.47
33:h:113:ALA:HB1	33:h:200:VAL:HG13	1.96	0.47
35:j:156:LYS:HG2	38:m:71:VAL:HG13	1.94	0.47
53:7:31:LYS:HA	53:7:34:LEU:HB3	1.96	0.47
1:1:634:C:H2'	1:1:635:C:C6	2.50	0.47
1:1:1156:A:C8	17:Q:51:ARG:HG2	2.49	0.47
1:1:1313:U:O2	1:1:1313:U:H2'	2.14	0.47
1:1:1924:C:C5'	1:1:1924:C:C6	2.97	0.47
1:1:2047:C:H2'	1:1:2048:G:C8	2.49	0.47
1:1:2096:C:H2'	1:1:2097:A:H8	1.80	0.47
1:1:2128:G:C8	1:1:2173:A:N3	2.83	0.47
1:1:2161:C:O2'	1:1:2173:A:H4'	2.13	0.47
1:1:2655:G:O2'	1:1:2664:G:O6	2.30	0.47
2:2:83:C:H1'	2:2:86:G:H22	1.78	0.47
2:2:1299:A:O2'	2:2:1301:U:O4'	2.22	0.47
2:2:1359:C:H3'	44:s:75:ARG:HH22	1.79	0.47
2:2:1500:A:H5''	2:2:1508:A:H5''	1.96	0.47
4:B:50:THR:OG1	4:B:51:THR:N	2.48	0.47
7:E:47:LYS:O	7:E:51:ASP:N	2.38	0.47
11:K:7:MET:HB3	11:K:18:ARG:HD2	1.95	0.47
24:X:40:VAL:O	24:X:44:LYS:N	2.47	0.47
32:g:139:ARG:O	32:g:143:LYS:N	2.44	0.47
33:h:131:ARG:NH1	33:h:166:GLU:OE2	2.48	0.47
35:j:84:PRO:HG3	35:j:98:PRO:HD2	1.97	0.47
47:v:32:PRO:HB2	47:v:33:ILE:HD12	1.95	0.47
49:x:52:HIS:HA	49:x:57:HIS:HA	1.96	0.47
53:7:151:MET:HE3	53:7:348:VAL:HG12	1.95	0.47
53:7:323:ILE:HG22	53:7:337:ARG:HB3	1.96	0.47
1:1:463:G:N2	1:1:466:A:OP2	2.31	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:563:A:N3	17:Q:37:GLN:NE2	2.62	0.47
1:1:571:U:H2'	18:R:80:ARG:HH12	1.78	0.47
1:1:968:C:H2'	1:1:969:G:H8	1.79	0.47
1:1:1201:U:H2'	1:1:1202:G:H8	1.79	0.47
1:1:1276:A:O2'	14:N:16:HIS:NE2	2.38	0.47
1:1:1754:A:C2	1:1:2716:C:O2'	2.65	0.47
1:1:1936:A:N1	1:1:1963:U:N3	2.62	0.47
1:1:2160:C:H6	1:1:2160:C:O5'	1.97	0.47
1:1:2229:U:H5''	1:1:2229:U:H6	1.80	0.47
1:1:2366:A:H3'	1:1:2367:G:H8	1.80	0.47
1:1:2699:C:H2'	1:1:2700:A:C8	2.50	0.47
1:1:2708:G:H1'	14:N:71:ARG:NH1	2.29	0.47
2:2:55:A:N6	2:2:356:A:N1	2.63	0.47
2:2:190:A:H2'	2:2:191:G:O4'	2.14	0.47
2:2:215:C:H2'	2:2:216:U:O4'	2.14	0.47
2:2:691:G:N2	2:2:696:A:OP2	2.48	0.47
2:2:993:G:O2'	2:2:994:A:N7	2.45	0.47
2:2:1048:G:O2'	2:2:1050:G:OP1	2.33	0.47
2:2:1146:A:OP2	2:2:1146:A:H3'	2.14	0.47
2:2:1146:A:C4	2:2:1147:C:C6	3.02	0.47
2:2:1156:G:O2'	2:2:1179:A:N6	2.48	0.47
4:B:37:ASN:HB2	4:B:62:TYR:HB2	1.96	0.47
4:B:108:LYS:HA	4:B:196:GLY:HA2	1.97	0.47
5:C:116:LYS:HG3	14:N:1:MET:HE1	1.96	0.47
5:C:151:THR:HG22	5:C:152:PRO:HD3	1.95	0.47
7:E:80:ARG:NH2	54:5:19:G:C2	2.83	0.47
7:E:111:ILE:HB	7:E:114:PHE:HB2	1.96	0.47
10:J:45:THR:HB	10:J:48:VAL:HB	1.95	0.47
11:K:41:ILE:HD11	11:K:86:LEU:HD21	1.95	0.47
32:g:7:ARG:HA	32:g:10:LEU:HB3	1.96	0.47
35:j:149:SER:OG	35:j:152:MET:N	2.43	0.47
41:p:35:THR:OG1	41:p:36:ASP:N	2.48	0.47
42:q:104:CYS:SG	42:q:105:SER:N	2.87	0.47
46:u:11:ALA:HB3	46:u:14:ARG:HB2	1.95	0.47
53:7:34:LEU:O	53:7:38:ASN:N	2.38	0.47
1:1:935:C:H2'	1:1:936:A:C8	2.49	0.47
1:1:1213:A:OP2	1:1:1235:G:N2	2.44	0.47
1:1:1854:A:N6	1:1:1888:G:O2'	2.48	0.47
1:1:1857:G:N2	1:1:1884:G:O2'	2.42	0.47
1:1:2043:C:C5	1:1:2777:G:C4	3.03	0.47
1:1:2103:C:H1'	1:1:2186:G:H22	1.80	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:2667:C:O2'	8:F:111:HIS:NE2	2.46	0.47
1:1:2808:G:O2'	1:1:2890:G:O6	2.28	0.47
2:2:1:A:H3'	2:2:2:A:H8	1.78	0.47
2:2:107:G:C2	2:2:108:G:H1'	2.49	0.47
2:2:269:C:H2'	2:2:270:A:C8	2.50	0.47
2:2:501:C:H2'	2:2:502:A:H8	1.80	0.47
2:2:959:A:O2'	2:2:984:C:O2'	2.29	0.47
2:2:1072:G:O6	2:2:1102:A:N6	2.48	0.47
9:G:124:THR:O	9:G:128:HIS:NE2	2.41	0.47
20:T:46:ALA:O	20:T:50:LEU:N	2.42	0.47
31:f:30:GLU:HG3	31:f:33:HIS:H	1.80	0.47
32:g:66:LYS:NZ	32:g:154:MET:O	2.36	0.47
34:i:88:GLU:HG2	34:i:188:ARG:HB2	1.96	0.47
36:k:35:LYS:N	36:k:65:GLU:O	2.37	0.47
37:l:25:LYS:HA	37:l:28:ASN:HD22	1.79	0.47
37:l:79:ARG:HB2	37:l:84:THR:HA	1.95	0.47
1:1:44:A:H2	1:1:435:C:H41	1.63	0.47
1:1:296:U:O3'	21:U:92:LYS:NZ	2.41	0.47
1:1:1044:C:O2'	1:1:1111:A:N1	2.46	0.47
1:1:1203:U:O2	1:1:1241:A:N6	2.48	0.47
1:1:1862:G:H1	1:1:1880:U:H3	1.62	0.47
1:1:2527:C:H5'	31:f:34:LYS:HD3	1.97	0.47
2:2:51:A:H61	2:2:314:C:H1'	1.80	0.47
2:2:404:G:OP1	34:i:115:ARG:NE	2.45	0.47
2:2:984:C:C5	2:2:985:C:N4	2.83	0.47
2:2:1259:C:O2'	2:2:1283:U:O2	2.30	0.47
2:2:1377:A:OP1	37:l:92:ARG:NH1	2.48	0.47
34:i:26:ARG:HB3	34:i:31:LYS:HD2	1.96	0.47
35:j:94:VAL:HA	35:j:127:ALA:HA	1.95	0.47
49:x:33:THR:N	49:x:50:ALA:O	2.44	0.47
1:1:753:A:H2'	1:1:754:U:C6	2.50	0.47
1:1:784:G:C6	4:B:228:VAL:CG1	2.94	0.47
1:1:1069:A:H5'	1:1:1070:A:N7	2.30	0.47
1:1:1254:A:H5''	1:1:1255:U:H5''	1.97	0.47
2:2:742:G:H5''	45:t:58:ARG:HH11	1.80	0.47
2:2:1005:A:N6	2:2:1024:G:O2'	2.48	0.47
2:2:1151:A:O2'	40:o:72:ARG:NH2	2.46	0.47
5:C:13:ARG:HG2	16:P:56:HIS:CE1	2.49	0.47
7:E:94:GLU:HG2	7:E:98:GLU:HG3	1.95	0.47
9:G:90:LEU:HD22	9:G:123:ARG:HA	1.97	0.47
28:c:9:ILE:HA	28:c:54:ILE:HB	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:x:53:ASN:OD1	49:x:56:GLN:N	2.38	0.47
53:7:164:GLU:O	53:7:182:LYS:N	2.40	0.47
1:1:272:A:H2'	1:1:273:G:H8	1.78	0.46
1:1:1464:G:H2'	1:1:1465:G:H8	1.80	0.46
1:1:1924:C:C6	1:1:1924:C:H5''	2.51	0.46
1:1:2128:G:N2	1:1:2174:C:O5'	2.48	0.46
1:1:2275:C:HO2'	13:M:84:LYS:H	1.62	0.46
1:1:2888:C:H2'	1:1:2889:C:C6	2.50	0.46
2:2:332:G:OP2	50:y:3:ASN:N	2.47	0.46
2:2:1320:C:C2	49:x:72:GLY:HA3	2.50	0.46
12:L:9:ALA:HB3	12:L:12:SER:HB2	1.96	0.46
23:W:70:GLU:HG3	23:W:79:PHE:HB2	1.97	0.46
31:f:25:VAL:O	31:f:35:GLN:N	2.37	0.46
34:i:73:ARG:O	34:i:77:LYS:N	2.38	0.46
54:5:15:C:H5'	54:5:16:C:C6	2.49	0.46
1:1:598:U:H2'	1:1:599:A:C8	2.50	0.46
1:1:611:C:H2'	1:1:612:G:C8	2.50	0.46
1:1:878:A:H3'	1:1:879:G:C8	2.51	0.46
1:1:903:C:H2'	1:1:904:G:C8	2.50	0.46
1:1:1013:C:H2'	1:1:1014:A:C8	2.48	0.46
1:1:1438:U:H2'	1:1:1439:A:C8	2.50	0.46
1:1:1795:C:H2'	1:1:1796:U:O4'	2.13	0.46
1:1:2756:U:OP2	31:f:19:ARG:HG2	2.14	0.46
2:2:54:C:N4	2:2:353:A:OP2	2.43	0.46
2:2:1011:C:H2'	2:2:1012:A:H8	1.80	0.46
2:2:1266:G:H2'	2:2:1268:G:N7	2.30	0.46
7:E:47:LYS:HG2	7:E:51:ASP:HB2	1.95	0.46
16:P:106:LYS:HD3	16:P:109:ARG:HH22	1.80	0.46
22:V:76:ASP:O	22:V:90:ASP:N	2.39	0.46
33:h:156:ARG:NH1	33:h:193:TYR:O	2.49	0.46
35:j:22:SER:OG	35:j:23:LYS:N	2.49	0.46
38:m:43:GLU:HG2	38:m:101:ILE:HG12	1.97	0.46
40:o:26:VAL:HG13	40:o:36:VAL:HG11	1.98	0.46
1:1:711:G:N2	1:1:720:U:O2	2.45	0.46
1:1:1209:U:O2'	1:1:1237:A:N1	2.42	0.46
1:1:1251:C:H2'	17:Q:6:ARG:HH22	1.80	0.46
1:1:1464:G:H2'	1:1:1465:G:C8	2.49	0.46
1:1:1667:G:N1	1:1:1992:G:OP2	2.41	0.46
1:1:2091:C:N4	1:1:2092:U:N3	2.62	0.46
1:1:2402:U:O2'	1:1:2403:C:H3'	2.15	0.46
1:1:2745:C:O2'	8:F:139:GLN:O	2.34	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:235:C:H2'	2:2:236:A:C8	2.50	0.46
2:2:1006:G:H1	2:2:1023:U:H2'	1.80	0.46
13:M:47:GLU:OE2	13:M:50:ARG:NH1	2.47	0.46
19:S:23:LEU:HD21	27:b:22:LEU:HB2	1.98	0.46
27:b:30:VAL:HG22	27:b:37:LYS:HG2	1.97	0.46
50:y:22:ALA:HA	50:y:25:ARG:HB2	1.96	0.46
1:1:414:C:H2'	1:1:415:A:C8	2.51	0.46
1:1:451:U:H4'	6:D:47:LYS:HE3	1.96	0.46
1:1:581:C:H2'	1:1:582:A:C8	2.51	0.46
1:1:612:G:O2'	1:1:613:A:H5'	2.15	0.46
1:1:747:5MU:O2'	19:S:88:ARG:NH1	2.48	0.46
1:1:1255:U:N3	6:D:67:ARG:O	2.48	0.46
1:1:1799:G:N7	4:B:178:SER:OG	2.47	0.46
1:1:2060:A:OP1	6:D:64:GLY:N	2.48	0.46
2:2:666:G:N2	2:2:740:U:O2	2.44	0.46
2:2:926:G:N2	52:4:16:U:OP1	2.45	0.46
2:2:1074:G:O2'	32:g:102:THR:OG1	2.29	0.46
2:2:1390:U:H2'	2:2:1391:U:C6	2.51	0.46
2:2:1406:U:H3'	2:2:1407:5MC:C6	2.48	0.46
2:2:1457:G:H5''	50:y:30:THR:HG21	1.98	0.46
5:C:33:ARG:HA	5:C:95:SER:HA	1.97	0.46
6:D:181:ILE:HG23	12:L:1:MET:HG2	1.97	0.46
11:K:16:ALA:HA	11:K:46:ALA:HA	1.96	0.46
22:V:18:ARG:O	22:V:22:ALA:N	2.45	0.46
33:h:141:ALA:HA	33:h:144:LEU:HB2	1.97	0.46
40:o:9:ARG:O	40:o:99:GLN:CB	2.63	0.46
53:7:113:LEU:O	53:7:117:ARG:N	2.49	0.46
1:1:635:C:O2'	1:1:639:U:OP1	2.32	0.46
1:1:1754:A:O3'	16:P:103:ARG:NH2	2.47	0.46
2:2:519:C:N4	2:2:529:G:O2'	2.45	0.46
2:2:691:G:H22	2:2:695:A:H3'	1.81	0.46
2:2:1024:G:H2'	2:2:1025:U:C2	2.51	0.46
2:2:1119:C:OP2	39:n:11:ARG:NH1	2.40	0.46
2:2:1509:C:H2'	2:2:1510:C:C6	2.50	0.46
12:L:73:ILE:O	12:L:106:GLU:N	2.46	0.46
12:L:133:ALA:O	12:L:137:ALA:N	2.47	0.46
26:Z:14:ILE:O	26:Z:21:LYS:NZ	2.40	0.46
33:h:181:ASP:HB3	33:h:204:LYS:HB2	1.97	0.46
34:i:83:LYS:O	34:i:89:ASN:ND2	2.46	0.46
36:k:21:MET:HG2	36:k:24:ARG:HH21	1.80	0.46
37:l:136:LYS:O	37:l:140:ASP:N	2.46	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
39:n:19:VAL:HA	39:n:65:ILE:HG12	1.96	0.46
43:r:80:LEU:HD22	43:r:87:ARG:HB2	1.96	0.46
50:y:26:SER:O	50:y:30:THR:OG1	2.27	0.46
1:1:347:A:H2'	1:1:348:A:C8	2.50	0.46
1:1:409:G:H2'	1:1:410:G:C8	2.50	0.46
1:1:410:G:O2'	1:1:2407:A:OP2	2.28	0.46
1:1:473:G:H2'	1:1:474:G:H8	1.80	0.46
1:1:613:A:C2	1:1:614:A:C4	3.04	0.46
1:1:879:G:N2	1:1:899:A:O2'	2.49	0.46
1:1:1187:G:OP1	18:R:85:LYS:NZ	2.39	0.46
1:1:1999:C:H5''	1:1:2723:C:O2'	2.16	0.46
1:1:2093:G:C8	1:1:2225:A:C4	3.03	0.46
1:1:2252:G:O6	13:M:81:ARG:NH2	2.48	0.46
1:1:2515:C:H2'	1:1:2516:A:C8	2.51	0.46
2:2:1:A:H61	2:2:614:C:H1'	1.81	0.46
2:2:114:U:H2'	2:2:115:G:C8	2.51	0.46
2:2:1032:G:OP2	2:2:1033:G:O2'	2.31	0.46
2:2:1178:G:N2	2:2:1181:G:OP2	2.44	0.46
2:2:1236:A:H4'	2:2:1304:G:H4'	1.97	0.46
2:2:1319:A:OP1	49:x:3:ARG:HD2	2.14	0.46
2:2:1343:G:H4'	39:n:124:ARG:HB3	1.98	0.46
3:3:36:C:N4	3:3:49:C:O2	2.39	0.46
3:3:56:G:O2'	3:3:59:A:N6	2.48	0.46
5:C:152:PRO:O	5:C:154:LYS:N	2.48	0.46
7:E:158:THR:OG1	7:E:159:THR:N	2.47	0.46
34:i:101:VAL:HA	34:i:104:ARG:HB2	1.98	0.46
53:7:25:LEU:O	53:7:30:LYS:NZ	2.49	0.46
53:7:310:MET:HG3	53:7:315:SER:O	2.15	0.46
1:1:308:G:C2'	1:1:309:A:C8	2.98	0.46
1:1:468:G:O6	29:d:39:ARG:NH1	2.35	0.46
1:1:488:G:O2'	1:1:491:G:O6	2.32	0.46
1:1:724:U:H2'	1:1:725:G:O4'	2.15	0.46
1:1:975:A:H5'	18:R:78:ARG:HH22	1.81	0.46
1:1:1274:A:OP1	1:1:1646:C:N4	2.46	0.46
1:1:1772:A:H61	1:1:1979:U:H3	1.62	0.46
1:1:1869:G:O2'	1:1:1872:A:N6	2.49	0.46
1:1:1871:A:O2'	1:1:1872:A:N7	2.46	0.46
1:1:2224:G:H4'	1:1:2226:C:C2	2.51	0.46
2:2:35:G:N3	42:q:115:SER:OG	2.49	0.46
2:2:376:G:O3'	46:u:5:ARG:NH1	2.44	0.46
2:2:584:G:H2'	2:2:585:G:C8	2.50	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1328:C:H5''	43:r:28:THR:HG21	1.96	0.46
3:3:52:A:H2	3:3:53:A:H62	1.64	0.46
10:J:36:LEU:HD22	10:J:121:LYS:HE3	1.98	0.46
21:U:12:ILE:HA	21:U:22:ARG:HA	1.98	0.46
28:c:38:LYS:N	28:c:47:VAL:O	2.44	0.46
34:i:61:VAL:HA	34:i:64:ILE:HD12	1.98	0.46
38:m:10:MET:HE3	38:m:61:LEU:HD11	1.98	0.46
42:q:36:ARG:HB3	42:q:54:ARG:HB3	1.97	0.46
1:1:922:C:H2'	1:1:923:G:H8	1.81	0.46
1:1:974:G:O2'	1:1:989:G:N2	2.47	0.46
1:1:1372:U:H2'	1:1:1373:A:O4'	2.16	0.46
1:1:1729:U:OP2	1:1:1730:C:C5	2.69	0.46
1:1:1865:U:HO2'	1:1:1866:A:H8	1.62	0.46
1:1:2226:C:C2'	1:1:2227:A:H5'	2.45	0.46
1:1:2314:A:H1'	7:E:155:THR:HG21	1.98	0.46
1:1:2898:U:H5''	1:1:2898:U:H6	1.79	0.46
2:2:1071:C:H2'	2:2:1072:G:H8	1.79	0.46
2:2:1464:U:H2'	2:2:1465:A:H8	1.80	0.46
6:D:149:ILE:HD11	6:D:188:MET:HG2	1.98	0.46
15:O:51:ALA:HB3	15:O:78:VAL:HB	1.98	0.46
18:R:28:ALA:HB3	18:R:31:GLU:HG3	1.98	0.46
35:j:152:MET:O	35:j:156:LYS:N	2.43	0.46
1:1:277:G:H1'	1:1:361:G:C6	2.51	0.46
1:1:729:G:C6	4:B:207:LYS:HB2	2.51	0.46
1:1:1309:G:H21	1:1:1611:C:H5'	1.80	0.46
1:1:1482:G:H2'	1:1:1483:G:H8	1.81	0.46
1:1:2087:G:H2'	1:1:2088:A:H8	1.81	0.46
1:1:2100:G:H1'	1:1:2190:G:C2	2.51	0.46
1:1:2200:C:N3	1:1:2223:G:N2	2.52	0.46
1:1:2616:C:H2'	1:1:2617:U:C6	2.50	0.46
1:1:2716:C:C2'	1:1:2717:C:H5'	2.45	0.46
1:1:2822:G:O2'	1:1:2824:C:OP2	2.29	0.46
2:2:60:A:OP1	2:2:331:G:N1	2.36	0.46
2:2:382:A:H2'	2:2:383:A:C8	2.51	0.46
6:D:83:VAL:HB	6:D:86:ALA:HB2	1.97	0.46
9:G:115:VAL:HG22	9:G:132:PHE:HE1	1.81	0.46
9:G:130:VAL:N	9:G:142:VAL:O	2.48	0.46
10:J:77:HIS:HD2	10:J:84:ILE:HB	1.81	0.46
12:L:135:ILE:HB	12:L:142:ILE:HD11	1.98	0.46
19:S:82:MET:SD	19:S:84:ARG:NH1	2.88	0.46
26:Z:17:LEU:HB2	26:Z:20:HIS:HD2	1.81	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:g:175:GLU:HA	32:g:178:ASN:HD22	1.80	0.46
39:n:12:ARG:HG3	39:n:13:LYS:H	1.80	0.46
50:y:35:VAL:O	50:y:39:ILE:N	2.40	0.46
1:1:151:C:H2'	1:1:152:A:C8	2.51	0.46
1:1:404:A:H1'	1:1:406:G:C5	2.51	0.46
1:1:887:A:O5'	1:1:889:C:N4	2.36	0.46
1:1:1006:C:O2'	10:J:108:MET:O	2.32	0.46
2:2:374:A:N1	2:2:390:U:O2'	2.43	0.46
2:2:860:A:H3'	2:2:861:G:H8	1.81	0.46
2:2:867:G:O2'	2:2:873:A:N1	2.41	0.46
2:2:1136:C:O5'	2:2:1137:C:C6	2.69	0.46
2:2:1147:C:H2'	2:2:1148:U:H6	1.79	0.46
3:3:66:A:O5'	3:3:108:A:N6	2.49	0.46
4:B:168:ASP:N	4:B:168:ASP:OD1	2.48	0.46
7:E:121:SER:OG	7:E:129:SER:O	2.29	0.46
8:F:2:SER:OG	8:F:6:LYS:NZ	2.49	0.46
8:F:23:VAL:HA	8:F:36:THR:HA	1.97	0.46
17:Q:106:PHE:HA	17:Q:109:LEU:HD12	1.98	0.46
32:g:114:LEU:O	32:g:118:GLU:N	2.48	0.46
33:h:84:VAL:HA	33:h:87:LEU:HD12	1.98	0.46
43:r:24:GLY:HA3	43:r:65:VAL:HG12	1.96	0.46
49:x:3:ARG:NH1	49:x:9:PRO:O	2.48	0.46
54:5:11:G:N2	54:5:24:U:O2	2.49	0.46
1:1:69:C:O2	1:1:73:A:O2'	2.29	0.45
1:1:547:A:H3'	1:1:548:G:H5'	1.98	0.45
1:1:815:C:O2'	1:1:816:C:H5'	2.16	0.45
1:1:1310:G:O2'	1:1:1611:C:OP1	2.34	0.45
1:1:1801:A:C8	1:1:2203:U:H2'	2.52	0.45
1:1:2283:C:O3'	28:c:4:GLY:N	2.49	0.45
1:1:2556:C:H2'	1:1:2557:G:O4'	2.16	0.45
1:1:2579:C:H2'	1:1:2580:PSU:H6	1.81	0.45
1:1:2831:G:O2'	1:1:2884:U:OP1	2.25	0.45
2:2:922:G:H4'	35:j:25:VAL:HA	1.97	0.45
2:2:1071:C:OP1	35:j:54:ARG:NH2	2.40	0.45
2:2:1091:U:O2'	2:2:1093:A:N7	2.46	0.45
2:2:1103:C:H5''	32:g:97:LEU:HD22	1.98	0.45
4:B:210:ALA:HB1	4:B:214:ARG:HH12	1.82	0.45
5:C:34:VAL:HA	5:C:50:VAL:HG12	1.98	0.45
5:C:119:ALA:N	5:C:163:GLY:O	2.42	0.45
14:N:49:GLU:OE2	14:N:94:TYR:N	2.49	0.45
16:P:24:ASP:OD1	16:P:90:GLY:N	2.48	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:P:30:VAL:HG12	16:P:81:VAL:HG12	1.97	0.45
24:X:58:VAL:O	24:X:62:LYS:N	2.48	0.45
34:i:91:LEU:HD23	34:i:94:LEU:HD12	1.97	0.45
34:i:110:THR:H	34:i:113:GLU:HB3	1.81	0.45
37:l:74:GLU:HG3	37:l:89:VAL:HG13	1.96	0.45
38:m:28:PRO:O	38:m:33:LYS:NZ	2.39	0.45
53:7:94:GLU:O	53:7:98:GLU:N	2.45	0.45
1:1:1283:G:N2	1:1:1286:A:OP2	2.46	0.45
1:1:1438:U:H2'	1:1:1439:A:H8	1.82	0.45
1:1:1500:G:N2	4:B:98:ASP:O	2.38	0.45
1:1:2095:A:H2'	1:1:2096:C:C5	2.51	0.45
1:1:2375:G:N2	1:1:2378:A:OP2	2.40	0.45
2:2:314:C:H2'	2:2:315:A:C8	2.51	0.45
2:2:335:C:H2'	2:2:336:A:H8	1.80	0.45
2:2:564:C:H2'	2:2:565:U:O4'	2.16	0.45
2:2:1178:G:H3'	39:n:99:ARG:HH22	1.82	0.45
2:2:1373:G:H5''	37:l:36:LYS:HE3	1.98	0.45
19:S:77:ASP:O	19:S:102:HIS:N	2.49	0.45
48:w:30:LYS:HA	48:w:33:ILE:HG12	1.98	0.45
1:1:1139:G:O2'	1:1:1143:A:N1	2.45	0.45
1:1:1297:C:H2'	1:1:1298:C:C6	2.51	0.45
1:1:1721:G:H2'	1:1:1738:G:N2	2.32	0.45
1:1:1759:A:C3'	1:1:1760:C:C6	2.94	0.45
1:1:1845:G:H2'	1:1:1846:G:H8	1.82	0.45
1:1:2008:C:H2'	1:1:2009:A:H8	1.81	0.45
2:2:41:G:H2'	2:2:42:G:H8	1.80	0.45
2:2:247:G:O2'	2:2:282:A:N1	2.42	0.45
2:2:300:A:O2'	2:2:564:C:N3	2.38	0.45
9:G:78:VAL:O	9:G:145:ASN:N	2.45	0.45
11:K:21:CYS:HA	11:K:41:ILE:HG22	1.98	0.45
24:X:38:PHE:HE2	24:X:49:LEU:HB2	1.81	0.45
32:g:15:HIS:HA	32:g:41:ILE:HB	1.97	0.45
33:h:153:VAL:O	33:h:165:THR:OG1	2.29	0.45
35:j:88:VAL:HG12	35:j:93:ARG:HA	1.98	0.45
37:l:68:ASN:ND2	37:l:127:ALA:O	2.40	0.45
39:n:114:LYS:NZ	39:n:118:LEU:O	2.38	0.45
40:o:8:ILE:N	40:o:74:VAL:O	2.48	0.45
41:p:61:PHE:HA	41:p:64:GLN:HG2	1.98	0.45
50:y:45:ALA:O	50:y:49:LYS:N	2.50	0.45
1:1:103:A:H3'	1:1:104:A:H8	1.81	0.45
1:1:239:C:H2'	1:1:240:C:O4'	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:302:C:H2'	1:1:303:G:C8	2.52	0.45
1:1:2029:G:N1	1:1:2033:A:OP2	2.45	0.45
1:1:2081:U:H2'	1:1:2082:A:H8	1.81	0.45
1:1:2128:G:N9	1:1:2173:A:C2	2.85	0.45
1:1:2163:A:OP2	1:1:2171:A:N6	2.33	0.45
1:1:2243:U:H2'	1:1:2244:U:H6	1.80	0.45
1:1:2839:G:N2	14:N:91:ALA:O	2.36	0.45
2:2:392:C:O2'	2:2:483:C:O2'	2.22	0.45
9:G:82:SER:O	9:G:149:GLU:N	2.47	0.45
21:U:96:PHE:N	21:U:101:GLU:O	2.42	0.45
23:W:50:ASN:HD22	23:W:82:ILE:HB	1.80	0.45
40:o:12:ALA:O	40:o:70:HIS:N	2.48	0.45
41:p:54:GLY:H	41:p:57:LYS:HE3	1.80	0.45
43:r:101:ARG:HG3	43:r:104:THR:H	1.81	0.45
46:u:40:ASN:HB3	46:u:43:ALA:HB2	1.98	0.45
1:1:1069:A:C2	1:1:1096:A:H4'	2.51	0.45
1:1:1364:G:OP2	24:X:50:ARG:NH2	2.43	0.45
1:1:1365:A:H3'	1:1:1366:A:H8	1.81	0.45
1:1:1792:G:O2'	1:1:1830:C:OP1	2.25	0.45
1:1:1927:A:H2'	1:1:1928:A:C8	2.52	0.45
1:1:2127:G:C2'	1:1:2128:G:OP2	2.65	0.45
1:1:2744:G:N2	8:F:143:GLN:OE1	2.39	0.45
2:2:22:G:O2'	2:2:913:A:N1	2.44	0.45
2:2:112:G:O2'	2:2:354:G:O2'	2.32	0.45
2:2:1146:A:C2'	2:2:1147:C:C5	3.00	0.45
2:2:1152:A:OP1	40:o:70:HIS:ND1	2.49	0.45
2:2:1218:C:H2'	2:2:1219:A:C8	2.51	0.45
2:2:1268:G:N3	2:2:1326:U:O2'	2.49	0.45
2:2:1376:U:H2'	2:2:1377:A:H8	1.81	0.45
2:2:1406:U:H5''	2:2:1406:U:C6	2.52	0.45
11:K:121:GLU:OE1	16:P:65:SER:OG	2.34	0.45
13:M:11:LYS:HD3	13:M:86:LYS:HD3	1.99	0.45
40:o:11:LYS:N	40:o:97:ASP:O	2.37	0.45
1:1:593:U:H2'	1:1:594:U:C6	2.52	0.45
1:1:764:A:H5'	4:B:209:GLY:HA2	1.99	0.45
1:1:828:U:O2'	1:1:829:A:O4'	2.32	0.45
1:1:1167:C:H2'	1:1:1168:G:O4'	2.16	0.45
1:1:1288:G:H1	14:N:105:GLY:HA3	1.82	0.45
1:1:1597:A:H5''	1:1:1598:A:H5'	1.98	0.45
1:1:1848:A:H3'	1:1:1849:G:H8	1.82	0.45
2:2:429:U:H5'	34:i:9:LEU:HD12	1.97	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:B:5:LYS:NZ	4:B:14:ARG:O	2.34	0.45
8:F:88:GLN:HE21	8:F:163:ARG:HD2	1.81	0.45
40:o:51:VAL:HB	44:s:81:ARG:HB2	1.98	0.45
1:1:177:G:OP2	1:1:177:G:N2	2.34	0.45
1:1:885:C:H2'	1:1:886:A:C8	2.51	0.45
1:1:1691:C:H2'	1:1:1692:U:C6	2.52	0.45
1:1:1692:U:O2'	1:1:1695:G:O6	2.32	0.45
1:1:1791:A:H61	1:1:1828:G:HO2'	1.61	0.45
1:1:2095:A:N6	1:1:2096:C:H42	2.15	0.45
1:1:2313:C:H2'	1:1:2314:A:C8	2.51	0.45
1:1:2611:C:H2'	1:1:2612:C:O4'	2.17	0.45
1:1:2719:G:OP1	16:P:98:TYR:OH	2.31	0.45
1:1:2731:G:O3'	5:C:208:LYS:NZ	2.50	0.45
2:2:497:G:H2'	2:2:498:A:C8	2.51	0.45
2:2:545:C:H3'	2:2:546:A:H8	1.81	0.45
2:2:582:C:H41	2:2:758:C:H2'	1.81	0.45
2:2:1031:C:O2'	2:2:1032:G:N2	2.49	0.45
6:D:7:ASP:N	6:D:7:ASP:OD1	2.49	0.45
18:R:38:VAL:HG13	18:R:54:VAL:HB	1.99	0.45
34:i:145:ILE:HG23	34:i:149:ALA:HB3	1.99	0.45
37:l:24:ALA:HA	37:l:27:VAL:HG22	1.99	0.45
37:l:115:SER:H	37:l:118:LEU:HD12	1.82	0.45
1:1:143:C:H6	1:1:143:C:H5''	1.81	0.45
1:1:833:A:H2'	1:1:834:G:C8	2.51	0.45
1:1:903:C:H2'	1:1:904:G:H8	1.82	0.45
1:1:1326:U:H2'	1:1:1327:A:H8	1.82	0.45
1:1:2049:G:N2	5:C:161:MET:SD	2.90	0.45
1:1:2109:U:H2'	1:1:2180:U:C4	2.52	0.45
1:1:2708:G:H1'	14:N:71:ARG:HH11	1.82	0.45
2:2:34:C:H2'	2:2:35:G:C8	2.52	0.45
2:2:46:G:N1	2:2:395:C:O2	2.40	0.45
2:2:219:U:H2'	2:2:220:G:C8	2.52	0.45
2:2:413:G:N1	34:i:31:LYS:O	2.45	0.45
2:2:499:A:O4'	2:2:547:A:N6	2.50	0.45
2:2:750:C:H2'	2:2:751:U:C6	2.52	0.45
2:2:945:G:H21	2:2:1334:G:H4'	1.82	0.45
2:2:958:A:C4	49:x:55:ARG:HD3	2.51	0.45
2:2:1238:A:H5'	2:2:1336:C:H41	1.81	0.45
2:2:1530:G:H2'	2:2:1531:A:C8	2.51	0.45
25:Y:27:ASN:O	25:Y:31:GLN:N	2.43	0.45
1:1:300:A:H2'	1:1:334:C:H1'	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:992:C:H2'	1:1:993:G:H8	1.82	0.45
1:1:1193:G:OP1	12:L:14:LYS:NZ	2.39	0.45
1:1:1539:U:H2'	1:1:1540:G:C8	2.52	0.45
1:1:1580:A:H3'	1:1:1581:G:C8	2.52	0.45
1:1:2580:PSU:OP2	1:1:2581:G:N1	2.50	0.45
1:1:2642:G:H5'	10:J:80:HIS:CE1	2.52	0.45
2:2:121:U:H3'	2:2:122:G:H8	1.82	0.45
2:2:332:G:O3'	50:y:2:ALA:N	2.49	0.45
7:E:99:PHE:O	7:E:103:LEU:N	2.50	0.45
9:G:50:ARG:HB3	9:G:51:ARG:HH21	1.82	0.45
11:K:40:LYS:HZ3	11:K:59:LYS:HG3	1.82	0.45
14:N:36:THR:O	14:N:111:ALA:N	2.44	0.45
14:N:55:ALA:HA	14:N:80:PHE:CE1	2.52	0.45
36:k:2:ARG:HD3	36:k:68:GLN:HB3	1.99	0.45
47:v:57:ASP:OD1	47:v:58:VAL:N	2.50	0.45
1:1:29:U:H2'	1:1:30:G:H8	1.82	0.45
1:1:613:A:N3	1:1:614:A:C8	2.85	0.45
1:1:1094:U:H1'	1:1:1097:U:H5	1.80	0.45
1:1:1115:G:C4	1:1:1116:G:C8	3.05	0.45
1:1:1223:G:N2	1:1:1226:A:OP2	2.38	0.45
1:1:2023:C:H2'	1:1:2024:G:H8	1.82	0.45
1:1:2391:G:HO2'	1:1:2424:C:H41	1.59	0.45
2:2:67:C:O3'	2:2:171:A:O2'	2.33	0.45
9:G:1:MET:N	9:G:20:ASN:OD1	2.38	0.45
11:K:21:CYS:HB2	11:K:39:ILE:HD12	1.99	0.45
18:R:42:ALA:HA	18:R:47:VAL:HA	1.99	0.45
19:S:58:ALA:O	19:S:64:ALA:N	2.41	0.45
22:V:21:ARG:HE	22:V:87:GLN:HA	1.81	0.45
29:d:24:THR:OG1	29:d:25:LYS:N	2.50	0.45
33:h:91:VAL:HG21	33:h:101:ILE:HD11	1.99	0.45
34:i:188:ARG:HH22	34:i:193:ALA:HA	1.82	0.45
53:7:242:ASP:HB3	53:7:262:ARG:HB3	1.98	0.45
54:5:58:A:O2'	54:5:60:U:OP2	2.25	0.45
55:6:78:PHE:CD1	55:6:78:PHE:O	2.70	0.45
1:1:242:G:OP2	30:e:3:LYS:CE	2.65	0.44
1:1:675:A:OP1	6:D:58:LYS:NZ	2.42	0.44
1:1:748:G:C5'	1:1:749:A:OP2	2.65	0.44
1:1:885:C:H42	1:1:891:G:H21	1.63	0.44
1:1:1635:A:C5	1:1:1636:U:C5	3.04	0.44
1:1:1995:U:O2	11:K:32:TYR:OH	2.31	0.44
1:1:2127:G:HO2'	1:1:2128:G:H5''	1.77	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:2262:U:H2'	1:1:2263:C:H6	1.80	0.44
1:1:2412:A:H3'	1:1:2413:G:H8	1.81	0.44
1:1:2831:G:H1'	1:1:2883:A:H2'	1.98	0.44
2:2:256:U:OP1	47:v:19:LYS:NZ	2.44	0.44
3:3:42:C:O2'	7:E:63:GLN:OE1	2.27	0.44
21:U:81:ASP:HB2	21:U:96:PHE:HD1	1.82	0.44
35:j:161:VAL:O	35:j:165:LEU:N	2.50	0.44
1:1:440:C:H2'	1:1:441:U:H6	1.81	0.44
1:1:441:U:H2'	1:1:442:G:C8	2.52	0.44
1:1:660:C:H2'	1:1:661:A:C8	2.51	0.44
1:1:793:A:OP2	1:1:2071:A:O2'	2.27	0.44
1:1:1077:A:N6	1:1:1088:A:O2'	2.51	0.44
1:1:1123:C:H2'	1:1:1124:G:H8	1.81	0.44
1:1:1844:C:H2'	1:1:1845:G:C8	2.52	0.44
1:1:2262:U:H2'	1:1:2263:C:C6	2.53	0.44
1:1:2318:G:O2'	1:1:2321:U:O4	2.30	0.44
1:1:2881:U:H5'	14:N:90:ARG:NH2	2.32	0.44
2:2:711:G:H2'	2:2:712:A:C8	2.52	0.44
2:2:1040:U:H2'	2:2:1041:G:C8	2.52	0.44
2:2:1424:U:H3	2:2:1476:A:H61	1.63	0.44
3:3:77:U:H2'	3:3:78:A:C8	2.53	0.44
10:J:117:ALA:HA	10:J:120:ARG:HH21	1.82	0.44
16:P:59:PHE:O	16:P:74:PHE:N	2.49	0.44
24:X:33:LEU:HD12	24:X:52:SER:HB3	1.99	0.44
31:f:2:LYS:NZ	31:f:32:LYS:O	2.38	0.44
53:7:197:GLY:O	53:7:220:ALA:N	2.50	0.44
1:1:219:A:N3	1:1:234:U:O2'	2.40	0.44
1:1:596:U:H2'	1:1:597:G:C8	2.52	0.44
1:1:625:G:HO2'	1:1:656:G:HO2'	1.64	0.44
1:1:781:A:O2'	1:1:1788:C:O2	2.31	0.44
1:1:887:A:H4'	1:1:889:C:H5	1.82	0.44
1:1:1123:C:H2'	1:1:1124:G:C8	2.53	0.44
1:1:1385:A:O2'	1:1:1396:U:O2	2.35	0.44
1:1:1537:G:C6	1:1:1538:G:H1'	2.51	0.44
1:1:1586:A:H3'	1:1:1587:G:C8	2.51	0.44
2:2:178:C:H2'	2:2:179:A:H8	1.83	0.44
2:2:419:C:OP1	2:2:513:C:O2'	2.36	0.44
2:2:843:U:H3'	2:2:844:G:H21	1.82	0.44
2:2:1463:U:H2'	2:2:1464:U:C6	2.53	0.44
8:F:123:ALA:HA	8:F:133:LEU:HA	2.00	0.44
19:S:83:LYS:HB3	19:S:97:LEU:HD13	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:i:45:LYS:HA	34:i:46:PRO:HD3	1.83	0.44
51:z:30:ALA:O	51:z:34:ARG:N	2.47	0.44
53:7:151:MET:HG3	53:7:349:LEU:HA	2.00	0.44
1:1:687:C:H5''	29:d:2:LYS:HE2	2.00	0.44
1:1:1079:C:H5	1:1:1088:A:OP1	2.00	0.44
1:1:1100:C:H2'	1:1:1101:U:O4'	2.16	0.44
2:2:137:U:H2'	2:2:138:G:H8	1.81	0.44
2:2:522:C:OP2	42:q:66:TYR:OH	2.30	0.44
2:2:924:C:H2'	2:2:925:G:C8	2.53	0.44
2:2:1342:C:H2'	2:2:1343:G:C8	2.52	0.44
7:E:99:PHE:HA	7:E:102:ARG:HE	1.83	0.44
11:K:75:SER:OG	16:P:72:ARG:NH2	2.41	0.44
27:b:43:ILE:HG22	27:b:49:TYR:HB2	1.98	0.44
39:n:46:MET:HG2	39:n:50:GLN:HE21	1.81	0.44
49:x:4:SER:HB3	49:x:6:LYS:HG2	2.00	0.44
53:7:43:GLN:HE21	53:7:45:ASP:HB2	1.82	0.44
1:1:212:G:H2'	1:1:213:A:H8	1.82	0.44
1:1:247:G:O2'	1:1:386:G:N1	2.46	0.44
1:1:1076:C:C6	1:1:1076:C:OP2	2.70	0.44
1:1:1129:A:N1	1:1:2569:G:O2'	2.46	0.44
1:1:1269:A:H61	1:1:2011:U:H3	1.66	0.44
1:1:1582:C:O2'	1:1:1585:C:N3	2.42	0.44
1:1:1635:A:C8	1:1:1636:U:C6	3.05	0.44
1:1:2160:C:C6	1:1:2160:C:O5'	2.71	0.44
1:1:2262:U:O2'	1:1:2328:A:O2'	2.31	0.44
1:1:2291:U:H2'	1:1:2292:U:C6	2.53	0.44
2:2:2:A:N6	2:2:628:G:O2'	2.51	0.44
2:2:128:G:H2'	2:2:129:A:C8	2.53	0.44
2:2:451:A:H5'	46:u:70:ARG:HH22	1.83	0.44
2:2:1149:C:O2'	2:2:1280:A:N1	2.44	0.44
2:2:1152:A:H5'	40:o:15:HIS:HB2	2.00	0.44
2:2:1239:A:O2'	2:2:1298:U:O4	2.33	0.44
7:E:121:SER:OG	7:E:121:SER:O	2.35	0.44
11:K:60:ALA:HB2	11:K:86:LEU:HD23	1.99	0.44
14:N:95:THR:OG1	14:N:96:ARG:N	2.51	0.44
20:T:28:ASN:HD21	20:T:91:GLN:H	1.63	0.44
23:W:37:ILE:HG22	23:W:38:VAL:HG23	2.00	0.44
36:k:42:TRP:HB2	36:k:59:TYR:HB2	1.98	0.44
43:r:91:HIS:HA	43:r:109:ARG:HH12	1.81	0.44
44:s:47:LYS:O	44:s:50:THR:OG1	2.32	0.44
1:1:117:G:OP2	1:1:119:A:O2'	2.28	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:558:U:H2'	1:1:559:G:H8	1.83	0.44
1:1:1227:G:OP2	17:Q:16:LYS:NZ	2.44	0.44
1:1:1857:G:O2'	1:1:1884:G:N2	2.38	0.44
1:1:1965:C:H3'	1:1:1966:A:H2'	1.99	0.44
1:1:2402:U:H4'	1:1:2403:C:H5	1.83	0.44
2:2:415:A:H3'	2:2:416:G:H8	1.82	0.44
2:2:489:C:H2'	2:2:490:C:C6	2.52	0.44
13:M:7:THR:OG1	13:M:9:PHE:O	2.28	0.44
17:Q:83:LEU:HA	17:Q:86:ALA:HB3	1.99	0.44
21:U:40:ASN:O	21:U:63:ALA:N	2.51	0.44
22:V:64:VAL:HG22	22:V:69:GLU:HG3	2.00	0.44
26:Z:17:LEU:HB2	26:Z:20:HIS:CD2	2.53	0.44
32:g:13:GLY:HA2	32:g:15:HIS:CE1	2.53	0.44
53:7:25:LEU:HD13	53:7:70:LEU:HD21	1.99	0.44
1:1:711:G:N1	1:1:721:A:N6	2.65	0.44
1:1:1102:C:OP2	1:1:1102:C:C6	2.71	0.44
1:1:1299:G:N1	1:1:1640:A:OP2	2.41	0.44
1:1:1340:U:H3'	20:T:61:LEU:HD22	2.00	0.44
1:1:1567:G:OP1	4:B:60:GLN:NE2	2.51	0.44
1:1:1635:A:C5	1:1:1636:U:C4	3.05	0.44
1:1:1742:U:H2'	1:1:1743:G:C8	2.52	0.44
1:1:1789:A:H5''	4:B:220:VAL:HA	2.00	0.44
1:1:2089:C:H2'	1:1:2090:A:H8	1.83	0.44
1:1:2345:G:N3	1:1:2381:A:H2'	2.33	0.44
1:1:2881:U:H5'	14:N:90:ARG:HH22	1.82	0.44
2:2:335:C:H2'	2:2:336:A:C8	2.53	0.44
2:2:525:C:H2'	2:2:526:C:C6	2.52	0.44
2:2:837:U:H2'	2:2:838:G:H8	1.83	0.44
2:2:959:A:N3	2:2:985:C:H1'	2.32	0.44
2:2:1444:U:H1'	2:2:1459:G:N2	2.33	0.44
2:2:1530:G:H2'	2:2:1531:A:H8	1.83	0.44
10:J:34:ARG:HG3	10:J:39:LYS:HB2	2.00	0.44
12:L:122:VAL:HG21	12:L:135:ILE:HD13	1.98	0.44
32:g:15:HIS:HB3	32:g:43:LEU:HD11	1.99	0.44
51:z:4:ILE:HG23	51:z:18:ARG:HE	1.83	0.44
1:1:221:A:O2'	1:1:266:G:N7	2.50	0.44
1:1:321:U:H5''	6:D:131:THR:HG23	1.98	0.44
1:1:534:U:O2'	17:Q:49:ASP:OD2	2.29	0.44
1:1:890:C:C4	1:1:892:A:H5'	2.52	0.44
1:1:1197:G:H2'	1:1:1198:U:C6	2.52	0.44
1:1:2045:C:H1'	27:b:19:HIS:HE2	1.82	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:2667:C:H1'	8:F:109:PHE:HD1	1.83	0.44
2:2:110:C:O2'	46:u:25:ARG:O	2.30	0.44
2:2:1003:G:N2	2:2:1005:A:O5'	2.34	0.44
2:2:1304:G:N2	2:2:1332:A:OP2	2.35	0.44
2:2:1406:U:H2'	2:2:1407:5MC:O4'	2.18	0.44
5:C:184:ARG:HG3	5:C:186:LEU:HG	2.00	0.44
7:E:38:MET:HG3	7:E:57:LEU:HD12	1.98	0.44
8:F:88:GLN:HG3	8:F:90:VAL:HG23	1.99	0.44
21:U:34:VAL:O	21:U:65:ILE:N	2.49	0.44
39:n:120:LYS:HB2	39:n:123:ARG:HB3	1.99	0.44
1:1:64:A:H1'	20:T:70:HIS:CG	2.53	0.44
1:1:237:C:HO2'	1:1:609:A:HO2'	1.59	0.44
1:1:296:U:H2'	1:1:297:G:H8	1.82	0.44
1:1:811:U:H2'	12:L:21:ARG:HA	1.99	0.44
1:1:1760:C:C6	1:1:1760:C:O5'	2.71	0.44
2:2:438:U:O2'	2:2:439:U:OP2	2.35	0.44
2:2:564:C:OP2	42:q:12:ARG:NH2	2.51	0.44
3:3:86:G:H3'	3:3:88:C:H41	1.82	0.44
7:E:129:SER:HA	7:E:155:THR:HA	2.00	0.44
8:F:154:PRO:HA	8:F:161:GLY:HA3	1.99	0.44
9:G:40:THR:O	9:G:44:ILE:N	2.47	0.44
11:K:42:THR:HG21	11:K:44:LYS:HE2	1.99	0.44
11:K:86:LEU:HD23	11:K:86:LEU:HA	1.83	0.44
16:P:62:ARG:NH2	16:P:71:GLU:OE2	2.50	0.44
40:o:10:LEU:O	40:o:71:LEU:HD13	2.18	0.44
47:v:15:ASP:OD1	47:v:15:ASP:N	2.47	0.44
53:7:156:ALA:HB1	53:7:161:PHE:HB2	1.99	0.44
1:1:210:C:H2'	1:1:211:C:H6	1.83	0.43
1:1:247:G:H4'	1:1:386:G:C4	2.53	0.43
1:1:301:G:O4'	1:1:317:G:N2	2.51	0.43
1:1:518:G:H4'	19:S:18:ARG:CZ	2.48	0.43
1:1:832:U:H5'	12:L:38:GLN:HB3	2.00	0.43
1:1:894:U:C6	1:1:894:U:OP2	2.70	0.43
1:1:1169:A:H5''	1:1:1169:A:N3	2.33	0.43
1:1:1316:U:H2'	1:1:1317:G:H8	1.82	0.43
1:1:1364:G:OP1	24:X:3:ARG:NE	2.51	0.43
1:1:1649:G:O2'	14:N:106:ASP:OD2	2.34	0.43
1:1:1862:G:N2	1:1:1880:U:O2	2.41	0.43
1:1:2036:C:H2'	1:1:2037:A:C8	2.53	0.43
1:1:2863:C:H2'	1:1:2864:G:H8	1.83	0.43
2:2:55:A:H61	2:2:357:G:H1'	1.82	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:83:C:O2	2:2:86:G:N1	2.44	0.43
2:2:129:A:H2	2:2:232:G:H22	1.65	0.43
2:2:413:G:H21	2:2:428:G:H1'	1.83	0.43
2:2:537:G:H5''	42:q:110:ARG:NH1	2.32	0.43
13:M:33:LEU:HD13	13:M:117:PHE:HB3	1.99	0.43
35:j:79:GLY:O	35:j:121:HIS:N	2.38	0.43
38:m:75:ILE:HG13	38:m:129:VAL:HG22	1.98	0.43
39:n:39:PHE:O	39:n:45:ARG:NE	2.49	0.43
39:n:112:GLU:HB3	39:n:121:ALA:HB1	1.99	0.43
41:p:86:VAL:HB	41:p:112:ASP:HA	2.00	0.43
44:s:48:LEU:HD12	44:s:51:LEU:HD12	2.00	0.43
53:7:234:ILE:HG21	53:7:239:LEU:HD23	2.01	0.43
53:7:282:LYS:HA	53:7:285:ASP:HB3	1.99	0.43
1:1:665:U:H2'	1:1:666:A:C8	2.53	0.43
1:1:721:A:C2	1:1:722:A:C4	3.06	0.43
1:1:866:A:H61	1:1:913:U:H1'	1.84	0.43
1:1:955:PSU:P	13:M:13:HIS:HD1	2.41	0.43
1:1:1170:C:H2'	1:1:1171:G:H8	1.82	0.43
1:1:1332:G:N7	1:1:1609:A:O2'	2.44	0.43
1:1:1972:G:H2'	1:1:1973:G:H8	1.83	0.43
1:1:2202:U:O2'	1:1:2204:G:OP1	2.28	0.43
1:1:2339:C:H6	1:1:2339:C:H5''	1.82	0.43
1:1:2425:A:C5'	1:1:2427:C:O4'	2.61	0.43
1:1:2806:C:H2'	1:1:2807:U:O4'	2.18	0.43
2:2:437:U:O2'	34:i:120:HIS:ND1	2.37	0.43
2:2:568:G:N2	2:2:882:C:O2	2.38	0.43
2:2:675:A:H1'	41:p:118:HIS:CD2	2.54	0.43
2:2:687:A:N1	2:2:700:G:O2'	2.50	0.43
2:2:1060:U:O2'	40:o:58:ASN:OD1	2.29	0.43
2:2:1256:A:O2'	2:2:1278:G:O6	2.33	0.43
2:2:1525:G:H2'	2:2:1526:G:H8	1.83	0.43
4:B:251:GLN:HB3	4:B:255:LYS:HD2	1.99	0.43
9:G:40:THR:HG22	9:G:42:LYS:H	1.81	0.43
10:J:57:LEU:HA	10:J:125:TYR:HB2	2.00	0.43
14:N:102:PHE:HD1	14:N:109:PRO:HA	1.83	0.43
18:R:2:TYR:CZ	18:R:42:ALA:HB3	2.54	0.43
22:V:29:ILE:HA	22:V:39:ALA:HA	2.00	0.43
26:Z:45:ARG:NH1	26:Z:59:GLU:OE1	2.46	0.43
34:i:86:THR:O	34:i:90:LEU:N	2.45	0.43
42:q:50:ARG:HB3	42:q:90:LEU:HD11	2.00	0.43
44:s:38:ASP:HA	44:s:41:ARG:HB2	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:7:150:ARG:HA	53:7:153:LEU:HD12	2.00	0.43
1:1:711:G:N2	1:1:721:A:N7	2.67	0.43
1:1:785:G:C5'	1:1:786:C:OP2	2.66	0.43
1:1:1131:G:H1'	1:1:1132:U:H5	1.82	0.43
1:1:1570:A:H2'	1:1:1571:A:C8	2.53	0.43
1:1:1880:U:H2'	1:1:1881:C:C6	2.53	0.43
1:1:2089:C:H2'	1:1:2090:A:C8	2.54	0.43
1:1:2345:G:H1'	1:1:2382:G:H5'	2.00	0.43
1:1:2492:U:H2'	1:1:2493:U:C6	2.54	0.43
1:1:2615:U:C2	27:b:4:GLN:HA	2.53	0.43
2:2:108:G:OP1	2:2:326:G:N2	2.51	0.43
2:2:616:G:H2'	2:2:617:G:H8	1.83	0.43
4:B:67:PHE:CE1	4:B:156:ARG:HD2	2.54	0.43
4:B:133:ARG:NE	4:B:187:ASP:OD1	2.43	0.43
7:E:11:GLU:O	7:E:15:LYS:N	2.48	0.43
31:f:2:LYS:HB2	31:f:35:GLN:HG2	2.00	0.43
33:h:114:LYS:NZ	33:h:118:ASP:OD1	2.48	0.43
36:k:59:TYR:HE2	48:w:67:LEU:HD21	1.83	0.43
37:l:53:ARG:HH22	37:l:122:ASN:HA	1.83	0.43
38:m:29:SER:HB2	38:m:59:LEU:HB2	2.00	0.43
1:1:107:G:H2'	1:1:108:G:H8	1.82	0.43
1:1:414:C:H2'	1:1:415:A:H8	1.82	0.43
1:1:629:G:OP1	30:e:18:GLY:N	2.52	0.43
1:1:1073:A:C5	1:1:1074:G:H1'	2.53	0.43
1:1:1077:A:C2	1:1:1088:A:N3	2.87	0.43
1:1:1427:A:H4'	1:1:1428:C:O4'	2.18	0.43
1:1:2118:U:O2'	1:1:2172:U:O4	2.37	0.43
1:1:2393:U:H2'	1:1:2394:C:H6	1.83	0.43
1:1:2818:U:H3	1:1:2828:G:H1	1.66	0.43
2:2:124:C:H2'	2:2:125:U:C6	2.53	0.43
4:B:13:ARG:HH12	4:B:18:LYS:HE3	1.83	0.43
4:B:181:MET:HB2	4:B:269:ARG:H	1.83	0.43
9:G:100:ALA:O	9:G:104:THR:OG1	2.29	0.43
26:Z:18:PRO:HA	26:Z:21:LYS:HB2	2.00	0.43
33:h:191:THR:OG1	33:h:194:GLY:N	2.41	0.43
34:i:187:GLU:OE1	34:i:189:SER:OG	2.33	0.43
54:5:65:C:O2'	54:5:66:C:H5'	2.18	0.43
1:1:1370:C:H2'	1:1:1371:G:O4'	2.18	0.43
1:1:1805:A:H5''	4:B:248:TRP:CD2	2.53	0.43
1:1:2095:A:N3	1:1:2096:C:C6	2.86	0.43
1:1:2097:A:C2	1:1:2193:G:C2	3.06	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:2188:U:H4'	1:1:2188:U:OP1	2.19	0.43
1:1:2385:C:H2'	1:1:2386:A:C8	2.54	0.43
1:1:2748:A:H5'	8:F:4:VAL:HG21	1.99	0.43
2:2:21:G:H2'	2:2:22:G:C8	2.53	0.43
2:2:300:A:H2'	2:2:564:C:H42	1.83	0.43
2:2:578:C:O2'	2:2:728:A:N3	2.42	0.43
2:2:695:A:H61	2:2:797:C:H1'	1.82	0.43
3:3:5:U:H2'	3:3:6:G:C8	2.53	0.43
5:C:4:LEU:HB2	5:C:101:PHE:HE2	1.83	0.43
6:D:179:SER:HA	6:D:182:ALA:HB3	2.00	0.43
8:F:99:LYS:HG2	8:F:104:ASN:HD21	1.83	0.43
15:O:35:ILE:HD13	15:O:71:ALA:HB2	2.00	0.43
22:V:30:ILE:HA	22:V:91:PHE:HB2	2.00	0.43
26:Z:24:LEU:HD23	26:Z:27:LEU:HD12	2.00	0.43
38:m:30:SER:H	38:m:33:LYS:HB2	1.83	0.43
42:q:72:HIS:HB2	42:q:74:LEU:HD23	2.00	0.43
47:v:23:VAL:O	47:v:44:LEU:N	2.41	0.43
47:v:29:VAL:O	47:v:38:ILE:N	2.38	0.43
49:x:33:THR:HG22	49:x:35:SER:H	1.83	0.43
1:1:323:C:OP1	1:1:324:A:H8	2.01	0.43
1:1:458:G:N2	1:1:459:U:O4	2.48	0.43
1:1:780:G:N2	1:1:785:G:N7	2.66	0.43
1:1:972:A:H3'	1:1:973:A:H2'	1.99	0.43
1:1:1266:G:N2	1:1:1267:U:O4	2.44	0.43
1:1:1721:G:H22	1:1:1738:G:H2'	1.84	0.43
1:1:2266:A:N6	1:1:2273:A:OP2	2.51	0.43
1:1:2692:G:H2'	1:1:2693:G:H8	1.83	0.43
2:2:321:A:N7	2:2:328:C:O2'	2.49	0.43
2:2:648:A:H2'	2:2:649:A:C8	2.54	0.43
2:2:783:C:OP1	2:2:1515:G:O2'	2.31	0.43
2:2:1002:G:H2'	2:2:1003:G:H8	1.83	0.43
2:2:1234:C:OP1	39:n:119:ARG:NH2	2.43	0.43
6:D:181:ILE:HG12	12:L:1:MET:HE3	2.00	0.43
16:P:53:ARG:N	16:P:57:SER:OG	2.51	0.43
20:T:4:GLU:HA	20:T:7:LEU:HD12	2.00	0.43
38:m:18:GLN:HE21	38:m:63:LEU:HD22	1.82	0.43
40:o:28:THR:O	40:o:32:THR:OG1	2.35	0.43
46:u:28:ARG:NE	46:u:29:ASN:OD1	2.46	0.43
53:7:41:LEU:HD22	53:7:60:ARG:NE	2.34	0.43
1:1:284:U:H3'	1:1:285:G:H8	1.84	0.43
1:1:481:G:O2'	1:1:507:A:N1	2.43	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:782:A:C2	4:B:225:MET:CG	2.93	0.43
1:1:782:A:O2'	4:B:225:MET:HG3	2.18	0.43
1:1:783:A:C5	1:1:785:G:H1'	2.54	0.43
1:1:956:G:H2'	1:1:957:C:H2'	2.00	0.43
1:1:1040:A:H2'	1:1:1041:G:O4'	2.17	0.43
1:1:1117:C:O2'	1:1:1118:C:H5'	2.19	0.43
1:1:1463:C:H2'	1:1:1464:G:H8	1.81	0.43
1:1:1633:G:C6	1:1:1635:A:C4	3.07	0.43
1:1:1739:A:H3'	1:1:1740:G:H8	1.84	0.43
1:1:1750:G:O2'	1:1:2860:A:N1	2.48	0.43
1:1:1788:C:H5''	4:B:224:ALA:HB1	2.01	0.43
1:1:1822:C:H2'	1:1:1823:G:H8	1.84	0.43
1:1:2100:G:H1'	1:1:2190:G:N2	2.34	0.43
1:1:2175:C:O5'	1:1:2175:C:C6	2.70	0.43
1:1:2405:G:O2'	1:1:2411:A:N6	2.51	0.43
2:2:176:C:H2'	2:2:177:G:N3	2.34	0.43
2:2:1257:A:H3'	2:2:1258:G:H8	1.83	0.43
6:D:138:LEU:HD13	6:D:167:VAL:HG21	2.00	0.43
6:D:194:LYS:O	6:D:198:GLU:N	2.41	0.43
12:L:30:THR:OG1	12:L:31:GLY:N	2.51	0.43
16:P:28:VAL:O	16:P:43:PHE:N	2.50	0.43
17:Q:105:ALA:HB1	18:R:40:MET:HE1	2.00	0.43
18:R:60:LYS:O	18:R:100:GLY:N	2.52	0.43
28:c:53:LYS:HG2	28:c:55:LYS:H	1.83	0.43
36:k:45:ARG:O	36:k:57:ALA:N	2.48	0.43
44:s:24:ARG:HG2	44:s:51:LEU:HD13	2.01	0.43
50:y:43:ASP:O	50:y:47:ALA:N	2.39	0.43
1:1:126:A:OP2	29:d:19:ARG:N	2.50	0.43
1:1:296:U:H2'	1:1:297:G:C8	2.54	0.43
1:1:782:A:H8	1:1:782:A:O5'	2.01	0.43
1:1:1316:U:H2'	1:1:1317:G:C8	2.53	0.43
1:1:2294:G:H5''	15:O:10:ARG:HD3	2.00	0.43
1:1:2641:G:H5''	10:J:78:THR:HB	1.99	0.43
1:1:2689:U:OP2	1:1:2691:C:N4	2.52	0.43
2:2:214:C:H2'	2:2:215:C:H6	1.83	0.43
2:2:345:C:H5''	16:P:39:ARG:HH21	1.83	0.43
2:2:410:G:H2'	2:2:429:U:C4	2.54	0.43
2:2:1010:U:H2'	2:2:1011:C:C2	2.54	0.43
2:2:1032:G:H3'	2:2:1033:G:H4'	2.00	0.43
2:2:1040:U:H2'	2:2:1041:G:H8	1.84	0.43
4:B:100:GLU:OE2	4:B:102:ARG:NE	2.51	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:D:119:ILE:O	6:D:188:MET:N	2.44	0.43
8:F:166:ASP:OD1	8:F:166:ASP:N	2.51	0.43
15:O:33:ARG:O	15:O:65:THR:OG1	2.27	0.43
32:g:20:THR:HA	32:g:39:HIS:HE1	1.84	0.43
33:h:10:ILE:HD13	44:s:98:LYS:HD3	2.00	0.43
41:p:15:GLN:HA	41:p:77:TYR:HA	2.00	0.43
41:p:67:ALA:HB2	41:p:96:THR:HG23	2.01	0.43
43:r:34:LEU:HA	43:r:37:ALA:HB3	2.01	0.43
49:x:39:THR:HA	49:x:70:LYS:HA	1.99	0.43
1:1:372:G:C8	24:X:61:LYS:HD2	2.54	0.43
1:1:1106:G:H2'	1:1:1107:G:H8	1.84	0.43
1:1:1548:A:H2'	1:1:1549:A:C8	2.54	0.43
1:1:1837:C:O2'	1:1:1927:A:N3	2.42	0.43
1:1:2584:U:C2'	1:1:2585:U:C5	3.01	0.43
2:2:84:U:O4	2:2:87:C:O2'	2.24	0.43
2:2:1046:A:H61	2:2:1213:A:H2	1.66	0.43
2:2:1270:G:O2'	2:2:1313:U:O3'	2.36	0.43
2:2:1395:C:OP1	2:2:1402:4OC:CM2	2.66	0.43
6:D:111:GLU:O	6:D:115:GLN:N	2.52	0.43
8:F:78:GLY:HA2	8:F:82:GLY:HA2	2.00	0.43
13:M:23:GLY:H	13:M:100:LYS:NZ	2.17	0.43
23:W:50:ASN:O	23:W:62:LYS:N	2.44	0.43
35:j:11:LEU:HA	35:j:41:ASP:HA	2.01	0.43
39:n:130:ARG:HH12	54:5:32:4OC:P	2.41	0.43
53:7:296:TYR:O	53:7:300:MET:N	2.50	0.43
1:1:625:G:O2'	1:1:656:G:O2'	2.34	0.43
1:1:914:G:H5'	1:1:915:C:OP2	2.19	0.43
1:1:1409:U:H6	1:1:1409:U:H5''	1.84	0.43
1:1:2060:A:HO2'	1:1:2061:G:P	2.42	0.43
1:1:2129:C:O5'	1:1:2129:C:C6	2.71	0.43
1:1:2417:C:H2'	1:1:2418:A:H8	1.83	0.43
1:1:2559:C:H2'	1:1:2560:A:H8	1.84	0.43
1:1:2591:C:H2'	1:1:2592:G:C8	2.53	0.43
1:1:2594:C:H2'	1:1:2595:G:C8	2.54	0.43
1:1:2667:C:H1'	8:F:109:PHE:CD1	2.54	0.43
2:2:58:C:H2'	2:2:59:A:H8	1.83	0.43
2:2:308:C:H2'	2:2:309:A:C8	2.53	0.43
2:2:1296:C:H5'	43:r:14:HIS:CE1	2.54	0.43
6:D:72:SER:OG	6:D:73:ILE:N	2.51	0.43
18:R:51:VAL:HG13	18:R:52:PRO:HD3	2.00	0.43
21:U:5:ILE:HD13	21:U:67:VAL:HG13	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:Y:12:GLU:HA	25:Y:15:ASN:HD22	1.84	0.43
29:d:3:ARG:O	29:d:6:GLN:NE2	2.49	0.43
51:z:5:LYS:O	51:z:18:ARG:NH2	2.52	0.43
1:1:294:A:N6	1:1:345:A:O4'	2.51	0.42
1:1:301:G:H5'	1:1:334:C:H2'	2.00	0.42
1:1:975:A:O4'	18:R:78:ARG:NH1	2.46	0.42
1:1:1297:C:O2'	1:1:1302:A:N1	2.48	0.42
1:1:1306:C:H2'	1:1:1307:A:C8	2.54	0.42
1:1:1380:G:H2'	1:1:1381:G:H8	1.84	0.42
1:1:1818:U:O2'	4:B:153:GLN:O	2.29	0.42
1:1:2009:A:H2'	1:1:2010:G:H8	1.83	0.42
1:1:2248:C:H3'	1:1:2249:U:H6	1.84	0.42
1:1:2298:A:H61	1:1:2318:G:H1'	1.84	0.42
2:2:187:G:N2	2:2:190:A:OP2	2.44	0.42
2:2:580:C:H2'	2:2:581:G:O4'	2.18	0.42
2:2:620:C:H2'	2:2:621:A:O4'	2.18	0.42
2:2:1149:C:H2'	2:2:1150:A:C8	2.55	0.42
8:F:83:PHE:N	8:F:135:GLY:O	2.38	0.42
10:J:118:MET:HA	10:J:121:LYS:HE2	2.00	0.42
17:Q:9:ILE:O	17:Q:13:ARG:N	2.49	0.42
32:g:126:PHE:HE2	32:g:133:GLU:HG3	1.83	0.42
33:h:172:ARG:HE	33:h:174:PRO:HD3	1.83	0.42
41:p:60:PRO:HD3	41:p:91:PRO:HB2	2.00	0.42
1:1:45:G:H5''	1:1:46:G:H5'	2.01	0.42
1:1:445:C:OP1	17:Q:2:ALA:N	2.52	0.42
1:1:582:A:H2'	1:1:583:G:C8	2.54	0.42
1:1:785:G:H5''	1:1:786:C:OP2	2.20	0.42
1:1:897:C:O5'	1:1:897:C:C6	2.72	0.42
1:1:1805:A:H5''	4:B:248:TRP:CE2	2.54	0.42
1:1:1859:U:H2'	1:1:1860:G:O4'	2.18	0.42
2:2:525:C:OP1	42:q:86:ARG:NH2	2.45	0.42
2:2:558:G:OP2	2:2:559:A:O2'	2.34	0.42
2:2:591:U:H2'	2:2:592:G:C8	2.54	0.42
2:2:601:G:H2'	2:2:602:A:C8	2.54	0.42
2:2:1025:U:O2'	2:2:1027:C:N4	2.52	0.42
2:2:1059:C:O2'	40:o:55:PRO:HD3	2.19	0.42
2:2:1451:U:OP2	2:2:1452:C:N4	2.53	0.42
4:B:107:PRO:HA	4:B:195:VAL:HA	2.01	0.42
6:D:98:LYS:O	6:D:102:ARG:NH2	2.52	0.42
9:G:26:ALA:HA	9:G:30:LEU:HD12	2.02	0.42
10:J:77:HIS:HA	10:J:84:ILE:HA	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:K:109:SER:OG	11:K:110:GLU:N	2.53	0.42
17:Q:91:ASP:H	18:R:11:GLN:CD	2.27	0.42
22:V:46:LYS:O	22:V:50:MET:N	2.45	0.42
28:c:35:GLU:HG2	28:c:50:LYS:HA	2.00	0.42
42:q:87:VAL:HB	42:q:90:LEU:HB2	2.01	0.42
45:t:78:TYR:OH	45:t:89:ARG:O	2.36	0.42
1:1:18:U:H2'	1:1:19:A:C8	2.54	0.42
1:1:63:A:H2'	1:1:64:A:H8	1.84	0.42
1:1:309:A:C8	1:1:309:A:OP2	2.73	0.42
1:1:347:A:H2'	1:1:348:A:H8	1.84	0.42
1:1:782:A:C2	4:B:225:MET:HE2	2.55	0.42
1:1:915:C:H3'	1:1:916:G:H8	1.85	0.42
1:1:2129:C:OP2	1:1:2130:U:C5	2.72	0.42
1:1:2173:A:N6	1:1:2174:C:N3	2.66	0.42
1:1:2685:G:H2'	1:1:2686:G:H8	1.85	0.42
2:2:199:A:H2'	2:2:200:G:H8	1.85	0.42
2:2:863:U:O2'	2:2:865:A:N7	2.46	0.42
2:2:1348:U:H2'	2:2:1349:A:H8	1.84	0.42
6:D:46:GLN:HB3	6:D:83:VAL:HG21	2.00	0.42
6:D:111:GLU:HA	6:D:114:ARG:HB2	2.02	0.42
34:i:11:LEU:HD22	34:i:63:ARG:HD3	2.00	0.42
36:k:12:PRO:O	36:k:44:ARG:NH1	2.45	0.42
45:t:64:ARG:NH2	45:t:68:ASP:OD1	2.52	0.42
49:x:51:VAL:O	49:x:58:VAL:N	2.50	0.42
51:z:16:LEU:HD23	51:z:20:LYS:HE2	2.01	0.42
1:1:12:U:O4	1:1:13:A:N6	2.52	0.42
1:1:172:A:H2'	1:1:173:A:C8	2.54	0.42
1:1:269:C:H2'	1:1:270:A:O4'	2.18	0.42
1:1:1114:C:C2'	1:1:1115:G:H5'	2.50	0.42
1:1:1188:U:H2'	1:1:1189:A:H8	1.85	0.42
1:1:1726:C:H2'	1:1:1727:C:H6	1.84	0.42
1:1:1869:G:O2'	1:1:1873:G:N2	2.53	0.42
1:1:2128:G:C2'	1:1:2174:C:H1'	2.45	0.42
2:2:36:C:H5''	42:q:120:LYS:HD3	2.00	0.42
2:2:131:A:O2'	2:2:262:A:N3	2.43	0.42
2:2:529:G:H22	42:q:48:ALA:HB2	1.84	0.42
2:2:664:G:H22	2:2:741:G:H22	1.68	0.42
2:2:680:C:H2'	2:2:681:A:C8	2.54	0.42
2:2:806:C:H2'	2:2:807:A:H8	1.83	0.42
2:2:924:C:H4'	2:2:1399:C:H2'	2.01	0.42
4:B:157:SER:HG	4:B:158:ALA:H	1.66	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:D:46:GLN:O	6:D:88:ARG:NH2	2.52	0.42
7:E:138:PHE:HB2	7:E:141:ILE:HG12	2.02	0.42
12:L:19:LEU:HA	12:L:27:LEU:HB3	2.02	0.42
24:X:68:LEU:HD23	24:X:71:LEU:HD12	2.01	0.42
40:o:12:ALA:HB3	40:o:18:ILE:HB	2.02	0.42
48:w:51:TYR:O	48:w:55:LEU:N	2.51	0.42
1:1:153:U:H2'	1:1:154:U:C6	2.54	0.42
1:1:155:A:H2'	1:1:156:A:C8	2.55	0.42
1:1:346:A:H3'	1:1:347:A:H8	1.85	0.42
1:1:1055:G:H3'	1:1:1056:G:H8	1.83	0.42
1:1:1736:U:H2'	1:1:1737:G:O4'	2.19	0.42
1:1:2385:C:H2'	1:1:2386:A:H8	1.85	0.42
1:1:2729:G:H5''	1:1:2729:G:H8	1.85	0.42
2:2:32:A:H2	42:q:28:PRO:HB3	1.85	0.42
2:2:309:A:H2'	2:2:310:G:C8	2.54	0.42
2:2:1152:A:H5'	40:o:15:HIS:CD2	2.55	0.42
2:2:1439:G:H2'	2:2:1440:U:O4'	2.19	0.42
13:M:21:ALA:HB1	13:M:100:LYS:HE2	2.01	0.42
34:i:116:GLN:HA	34:i:119:SER:HB3	2.02	0.42
36:k:22:ILE:O	36:k:26:THR:N	2.51	0.42
37:l:141:VAL:O	37:l:145:ALA:N	2.52	0.42
1:1:197:A:N6	1:1:2430:A:H2'	2.35	0.42
1:1:910:A:H62	13:M:12:MET:HA	1.85	0.42
1:1:987:C:H2'	1:1:988:A:O4'	2.20	0.42
1:1:1129:A:H2'	1:1:2570:G:H1'	2.01	0.42
1:1:1267:U:H2'	1:1:1268:A:C8	2.54	0.42
1:1:1488:C:O2'	1:1:1489:C:H5'	2.20	0.42
1:1:2355:G:H4'	23:W:24:LYS:HE3	2.02	0.42
1:1:2849:U:N3	1:1:2867:G:N3	2.68	0.42
2:2:37:U:H2'	2:2:38:G:H8	1.83	0.42
2:2:948:C:OP1	43:r:107:ARG:N	2.53	0.42
2:2:1234:C:H1'	2:2:1364:U:H6	1.84	0.42
2:2:1525:G:H2'	2:2:1526:G:C8	2.54	0.42
4:B:167:ARG:HA	4:B:172:VAL:HG12	2.02	0.42
4:B:245:VAL:HG12	4:B:251:GLN:HA	2.00	0.42
13:M:34:LYS:HD3	13:M:99:GLY:HA2	2.01	0.42
32:g:218:ALA:O	32:g:222:ARG:NE	2.36	0.42
34:i:85:ASN:HB3	34:i:88:GLU:HB2	2.02	0.42
1:1:242:G:OP2	30:e:3:LYS:HE2	2.20	0.42
1:1:780:G:C2	1:1:785:G:C6	3.08	0.42
1:1:813:U:H2'	1:1:814:C:C6	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1093:G:H1'	1:1:1099:G:C2	2.55	0.42
1:1:1362:C:HO2'	1:1:1810:A:HO2'	1.63	0.42
1:1:1909:C:H2'	1:1:1910:G:C8	2.55	0.42
1:1:1947:C:H2'	1:1:1948:G:H8	1.85	0.42
2:2:1060:U:H2'	2:2:1061:G:H8	1.85	0.42
2:2:1072:G:OP1	35:j:62:LYS:NZ	2.48	0.42
2:2:1120:C:H2'	2:2:1121:U:C6	2.55	0.42
2:2:1385:G:H2'	2:2:1386:G:C8	2.55	0.42
4:B:29:PRO:HG2	4:B:34:LEU:HD11	2.00	0.42
4:B:120:VAL:HB	9:G:91:PHE:CE1	2.55	0.42
11:K:105:ARG:O	11:K:108:ARG:HG2	2.20	0.42
12:L:55:MET:O	12:L:60:ARG:NH2	2.53	0.42
13:M:17:ASN:ND2	13:M:39:GLY:O	2.52	0.42
14:N:38:LEU:HD13	14:N:99:LYS:HG2	2.02	0.42
16:P:100:LEU:HD23	16:P:103:ARG:HB2	2.01	0.42
32:g:23:TRP:CZ3	32:g:25:PRO:HA	2.55	0.42
32:g:111:ILE:HD13	32:g:148:LEU:HD13	2.01	0.42
37:l:142:HIS:HA	37:l:145:ALA:HB3	2.01	0.42
38:m:74:SER:HB3	38:m:130:ALA:HB3	2.02	0.42
39:n:5:GLN:HG3	39:n:20:PHE:HD1	1.84	0.42
46:u:35:ARG:HD3	46:u:37:GLY:H	1.85	0.42
50:y:35:VAL:HG11	50:y:79:LEU:HD13	2.01	0.42
50:y:61:GLN:HA	50:y:64:LYS:HB2	2.01	0.42
54:5:63:G:H2'	54:5:64:G:H8	1.84	0.42
55:6:78:PHE:CD1	55:6:78:PHE:C	2.98	0.42
1:1:41:C:H2'	1:1:42:A:C8	2.55	0.42
1:1:268:C:O2'	1:1:269:C:H5'	2.20	0.42
1:1:665:U:H2'	1:1:666:A:H8	1.84	0.42
1:1:1117:C:H2'	1:1:1118:C:H6	1.84	0.42
1:1:1118:C:H2'	1:1:1119:U:O4'	2.19	0.42
1:1:1386:C:H1'	1:1:1470:A:H1'	2.02	0.42
1:1:1426:G:H3'	1:1:1427:A:H2'	2.02	0.42
1:1:2286:G:H3'	28:c:30:LYS:HE3	2.02	0.42
1:1:2428:G:H4'	1:1:2429:G:C4	2.55	0.42
2:2:19:A:O2'	2:2:572:A:N1	2.43	0.42
2:2:697:U:O2'	2:2:785:G:O2'	2.26	0.42
2:2:1078:U:O3'	35:j:138:ARG:NH2	2.53	0.42
2:2:1309:G:P	43:r:87:ARG:HH11	2.43	0.42
2:2:1325:C:O2'	2:2:1326:U:H5'	2.20	0.42
5:C:19:GLY:HA3	16:P:80:VAL:HB	2.00	0.42
6:D:65:THR:HG23	6:D:67:ARG:H	1.85	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:G:76:GLU:HG3	9:G:143:ILE:H	1.85	0.42
18:R:6:GLN:HG3	18:R:39:LEU:HD11	2.00	0.42
24:X:32:ASN:OD1	24:X:34:HIS:NE2	2.52	0.42
33:h:23:PHE:H	40:o:95:GLY:H	1.68	0.42
47:v:19:LYS:HB3	47:v:47:HIS:CE1	2.54	0.42
50:y:33:LYS:O	50:y:37:ALA:N	2.41	0.42
53:7:233:GLU:HA	53:7:292:LYS:HE2	2.01	0.42
53:7:337:ARG:NH2	53:7:356:PHE:O	2.43	0.42
1:1:128:C:H2'	1:1:129:C:C6	2.54	0.42
1:1:569:U:O2'	1:1:983:A:N1	2.44	0.42
1:1:1434:A:N1	1:1:1560:G:N2	2.68	0.42
1:1:1726:C:H2'	1:1:1727:C:C6	2.55	0.42
1:1:1753:G:N1	1:1:1756:G:OP2	2.42	0.42
1:1:2059:A:H2'	1:1:2503:2MA:HN1	1.84	0.42
1:1:2144:G:O2'	1:1:2147:A:N6	2.52	0.42
1:1:2581:G:N2	1:1:2581:G:OP2	2.53	0.42
1:1:2771:C:H2'	1:1:2772:C:C6	2.54	0.42
2:2:450:G:N1	2:2:484:G:O6	2.53	0.42
2:2:1152:A:H2'	2:2:1153:G:C8	2.55	0.42
2:2:1372:U:OP1	39:n:74:GLY:N	2.41	0.42
3:3:40:U:N3	3:3:44:G:OP2	2.35	0.42
4:B:182:ARG:HG3	4:B:267:ILE:HD13	2.01	0.42
7:E:44:ILE:H	7:E:44:ILE:HG13	1.65	0.42
8:F:12:PRO:HD2	8:F:15:VAL:HG21	2.01	0.42
15:O:25:ARG:HE	15:O:40:ILE:HB	1.85	0.42
17:Q:79:PHE:HE1	17:Q:110:VAL:HA	1.85	0.42
33:h:179:ARG:H	33:h:179:ARG:HD3	1.85	0.42
40:o:9:ARG:HG2	40:o:73:LEU:CD2	2.31	0.42
1:1:393:C:H2'	1:1:394:C:C6	2.55	0.42
1:1:462:C:H2'	1:1:463:G:C8	2.55	0.42
1:1:1069:A:C4'	1:1:1070:A:C8	3.02	0.42
1:1:1718:G:H1	1:1:1742:U:H3	1.66	0.42
1:1:1759:A:C2'	1:1:1760:C:C6	3.01	0.42
1:1:1853:A:N6	1:1:2087:G:O2'	2.52	0.42
1:1:1956:U:H2'	1:1:1957:C:O4'	2.19	0.42
1:1:2091:C:C2	1:1:2092:U:C4	3.07	0.42
1:1:2152:G:C6	1:1:2153:C:H1'	2.55	0.42
1:1:2336:A:H61	23:W:43:THR:HG21	1.84	0.42
1:1:2552:OMU:H2'	1:1:2554:U:OP2	2.19	0.42
1:1:2651:C:H2'	1:1:2652:C:C6	2.55	0.42
2:2:104:G:N7	50:y:9:LYS:NZ	2.51	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:3:51:G:OP1	15:O:63:LYS:NZ	2.42	0.42
8:F:156:PRO:O	8:F:172:LYS:N	2.51	0.42
11:K:2:ILE:O	11:K:33:ALA:N	2.53	0.42
12:L:59:ARG:HG2	30:e:13:ARG:HH22	1.83	0.42
15:O:67:ASN:OD1	15:O:70:ALA:N	2.52	0.42
15:O:68:LYS:HA	15:O:102:ARG:HG2	2.01	0.42
20:T:47:VAL:O	20:T:52:GLU:N	2.53	0.42
32:g:66:LYS:HB2	32:g:159:ASP:H	1.85	0.42
33:h:22:TRP:NE1	33:h:36:ASP:OD2	2.53	0.42
43:r:89:LEU:HD23	43:r:92:ARG:HE	1.85	0.42
53:7:131:ASP:O	53:7:221:PHE:N	2.53	0.42
1:1:221:A:H61	1:1:428:A:H62	1.68	0.41
1:1:517:C:OP1	27:b:13:ARG:NH2	2.50	0.41
1:1:1274:A:N1	1:1:1644:C:O2'	2.43	0.41
1:1:1372:U:O2'	1:1:2212:A:N3	2.44	0.41
1:1:1796:U:H2'	1:1:1797:G:C8	2.55	0.41
1:1:1817:G:O5'	4:B:156:ARG:NH2	2.52	0.41
2:2:689:C:H2'	2:2:690:G:O4'	2.20	0.41
2:2:911:U:H2'	2:2:912:C:C6	2.55	0.41
2:2:1407:5MC:H2'	2:2:1408:A:H8	1.85	0.41
3:3:31:C:H1'	3:3:53:A:N6	2.35	0.41
4:B:125:LYS:HE2	4:B:125:LYS:HB2	1.90	0.41
10:J:18:VAL:HB	10:J:56:VAL:HG22	2.02	0.41
11:K:61:VAL:HB	11:K:87:LEU:HD11	2.01	0.41
33:h:57:ILE:HG12	33:h:66:VAL:HG22	2.02	0.41
34:i:102:VAL:HG13	34:i:107:PHE:HB2	2.01	0.41
34:i:172:GLU:HB2	34:i:183:LYS:HD2	2.02	0.41
36:k:41:ASP:OD1	36:k:58:HIS:NE2	2.53	0.41
38:m:76:GLN:N	38:m:128:TYR:O	2.49	0.41
54:5:17:U:H4'	54:5:18:G:H5''	2.02	0.41
54:5:66:C:H2'	54:5:67:C:O4'	2.20	0.41
1:1:242:G:N2	1:1:243:U:O4	2.40	0.41
1:1:322:A:OP2	6:D:163:ASN:HB2	2.21	0.41
1:1:404:A:C4	1:1:406:G:C4	3.07	0.41
1:1:859:G:H1'	1:1:860:U:H5	1.85	0.41
1:1:865:C:O2	1:1:867:C:N4	2.35	0.41
1:1:1859:U:H6	1:1:1859:U:H5''	1.84	0.41
2:2:24:U:O3'	2:2:524:G:O2'	2.37	0.41
2:2:421:U:OP2	2:2:422:C:H5	2.01	0.41
2:2:587:G:N2	2:2:754:C:OP2	2.40	0.41
2:2:1146:A:O2'	2:2:1147:C:P	2.78	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1148:U:H2'	2:2:1149:C:O4'	2.20	0.41
2:2:1423:G:OP1	11:K:49:ARG:NH1	2.43	0.41
3:3:112:G:N2	15:O:45:SER:O	2.49	0.41
4:B:225:MET:HB3	4:B:226:ASN:H	1.64	0.41
4:B:243:HIS:HA	4:B:244:PRO:HD3	1.92	0.41
9:G:115:VAL:O	9:G:116:ARG:NH1	2.47	0.41
23:W:23:VAL:HG13	23:W:38:VAL:HG22	2.02	0.41
29:d:30:VAL:HG22	29:d:33:ARG:HH12	1.86	0.41
34:i:87:GLY:O	34:i:91:LEU:N	2.50	0.41
1:1:404:A:N9	1:1:406:G:C4	2.88	0.41
1:1:528:A:N6	1:1:2043:C:OP2	2.53	0.41
1:1:705:A:OP2	1:1:726:G:N2	2.53	0.41
1:1:1219:U:H2'	1:1:1220:G:C8	2.55	0.41
1:1:1251:C:OP2	17:Q:6:ARG:NH2	2.40	0.41
1:1:1409:U:H3'	1:1:1410:G:H8	1.84	0.41
1:1:2286:G:H5'	1:1:2286:G:N9	2.32	0.41
1:1:2841:C:H2'	1:1:2842:G:C8	2.55	0.41
2:2:379:C:H2'	2:2:380:G:C8	2.56	0.41
2:2:780:A:N6	2:2:801:U:OP2	2.51	0.41
2:2:1033:G:H2'	2:2:1034:G:C8	2.55	0.41
2:2:1209:C:H2'	2:2:1210:C:C6	2.56	0.41
2:2:1413:A:H2	2:2:1487:G:H22	1.68	0.41
2:2:1512:U:H2'	2:2:1513:A:C8	2.55	0.41
3:3:25:U:H2'	3:3:26:C:O4'	2.20	0.41
6:D:112:LEU:O	6:D:117:ARG:N	2.52	0.41
15:O:4:LYS:HD2	15:O:7:ARG:HH21	1.84	0.41
33:h:60:PRO:O	33:h:63:SER:OG	2.31	0.41
34:i:173:VAL:HA	34:i:180:GLY:HA2	2.02	0.41
41:p:61:PHE:HD1	41:p:64:GLN:HE21	1.68	0.41
44:s:72:GLY:O	44:s:81:ARG:N	2.54	0.41
53:7:124:ASP:HB3	53:7:187:TYR:HD1	1.84	0.41
1:1:137:U:C6	1:1:137:U:H5''	2.54	0.41
1:1:433:C:H2'	1:1:434:U:C6	2.55	0.41
1:1:542:C:H2'	1:1:543:G:C8	2.55	0.41
1:1:759:G:H2'	1:1:760:G:C8	2.55	0.41
1:1:783:A:N3	1:1:783:A:C2'	2.84	0.41
1:1:894:U:H4'	1:1:895:U:OP1	2.20	0.41
1:1:1190:G:H2'	1:1:1191:G:C8	2.53	0.41
1:1:1267:U:H2'	1:1:1268:A:H8	1.86	0.41
1:1:1447:C:H2'	1:1:1448:G:H8	1.85	0.41
1:1:1987:A:H2'	1:1:1988:G:H8	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:2507:C:H2'	1:1:2508:G:O4'	2.20	0.41
1:1:2785:C:H2'	1:1:2786:U:C6	2.55	0.41
2:2:154:U:H2'	2:2:155:A:H8	1.82	0.41
2:2:401:C:H2'	2:2:402:G:C8	2.55	0.41
2:2:658:C:H1'	45:t:22:THR:HG21	2.02	0.41
2:2:745:G:H2'	2:2:746:A:H8	1.85	0.41
2:2:962:C:H2'	2:2:963:G:C8	2.55	0.41
2:2:1131:G:H1	2:2:1143:G:H21	1.68	0.41
7:E:80:ARG:NH2	54:5:19:G:C5	2.88	0.41
7:E:114:PHE:CZ	7:E:176:PRO:HB2	2.55	0.41
7:E:114:PHE:HZ	7:E:176:PRO:HB2	1.85	0.41
9:G:110:VAL:HG22	9:G:114:GLU:HG3	2.01	0.41
15:O:48:LEU:HB3	15:O:85:LYS:HE3	2.03	0.41
19:S:72:THR:OG1	19:S:73:LYS:N	2.54	0.41
22:V:3:THR:HA	22:V:62:THR:HB	2.02	0.41
24:X:2:SER:OG	24:X:3:ARG:N	2.50	0.41
33:h:156:ARG:H	33:h:163:ALA:HA	1.86	0.41
35:j:157:ARG:O	38:m:64:LYS:NZ	2.50	0.41
41:p:89:PRO:HG3	51:z:32:VAL:HG11	2.03	0.41
53:7:22:ARG:HG2	53:7:70:LEU:HD23	2.02	0.41
53:7:170:GLU:HA	53:7:176:ILE:HA	2.02	0.41
1:1:209:C:H2'	1:1:210:C:C6	2.56	0.41
1:1:329:G:O4'	1:1:329:G:P	2.79	0.41
1:1:631:A:N3	1:1:2415:G:O2'	2.44	0.41
1:1:709:U:H5''	1:1:709:U:H6	1.85	0.41
1:1:710:U:H3'	1:1:711:G:H8	1.86	0.41
1:1:773:U:H5'	4:B:47:GLY:HA3	2.02	0.41
1:1:784:G:H5''	1:1:784:G:H8	1.86	0.41
1:1:915:C:H3'	1:1:916:G:C8	2.55	0.41
1:1:2373:G:H2'	1:1:2374:C:C6	2.56	0.41
1:1:2484:G:H1'	13:M:123:LYS:HG3	2.03	0.41
1:1:2716:C:O2'	1:1:2717:C:H5'	2.21	0.41
2:2:199:A:H2'	2:2:200:G:C8	2.56	0.41
2:2:337:G:H2'	2:2:338:A:C8	2.54	0.41
2:2:616:G:H2'	2:2:617:G:C8	2.56	0.41
2:2:939:G:P	37:l:95:ARG:HH22	2.43	0.41
2:2:950:U:H3'	43:r:101:ARG:HH22	1.85	0.41
2:2:985:C:C2	2:2:1221:G:N2	2.88	0.41
2:2:1086:U:H2'	2:2:1087:G:H8	1.86	0.41
2:2:1436:U:H2'	2:2:1437:A:C8	2.55	0.41
11:K:51:LYS:NZ	11:K:96:GLY:HA2	2.35	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
20:T:28:ASN:HD22	20:T:89:GLU:HA	1.85	0.41
21:U:11:VAL:HA	21:U:73:PHE:H	1.85	0.41
35:j:96:MET:HB3	35:j:111:MET:HE1	2.03	0.41
39:n:12:ARG:HD2	39:n:12:ARG:HA	1.96	0.41
50:y:22:ALA:HB2	50:y:25:ARG:HH21	1.86	0.41
53:7:321:SER:C	53:7:323:ILE:H	2.28	0.41
54:5:7:U:O2'	54:5:21:A:N1	2.44	0.41
1:1:270:A:H1'	1:1:370:G:N2	2.36	0.41
1:1:284:U:H5''	1:1:284:U:C6	2.55	0.41
1:1:589:U:H2'	1:1:590:A:H8	1.85	0.41
1:1:635:C:O2'	1:1:639:U:H5''	2.20	0.41
1:1:742:A:H2'	1:1:743:A:C8	2.56	0.41
1:1:857:G:H5'	23:W:69:PHE:CD2	2.55	0.41
1:1:874:G:H2'	1:1:875:G:H8	1.86	0.41
1:1:1266:G:N2	1:1:2012:G:H2'	2.34	0.41
1:1:2275:C:H1'	13:M:84:LYS:HA	2.02	0.41
1:1:2514:U:H2'	1:1:2515:C:C6	2.56	0.41
1:1:2698:U:H2'	1:1:2699:C:C6	2.55	0.41
1:1:2899:A:H2'	1:1:2900:A:C8	2.56	0.41
2:2:73:C:N3	2:2:74:A:N6	2.68	0.41
2:2:908:A:H2'	2:2:909:A:C8	2.55	0.41
2:2:1280:A:OP1	40:o:9:ARG:NH1	2.53	0.41
2:2:1317:C:OP1	44:s:24:ARG:NH2	2.43	0.41
2:2:1401:G:O6	2:2:1504:G:N2	2.53	0.41
3:3:95:U:H2'	3:3:96:G:C8	2.54	0.41
4:B:183:LYS:N	4:B:266:PHE:O	2.40	0.41
6:D:1:MET:N	6:D:14:VAL:O	2.46	0.41
13:M:49:ALA:HB1	13:M:120:ALA:HB1	2.02	0.41
23:W:45:PHE:HA	23:W:78:LYS:HB2	2.01	0.41
24:X:72:ARG:NH1	24:X:78:TYR:OH	2.47	0.41
25:Y:11:VAL:HG12	25:Y:15:ASN:HD21	1.86	0.41
34:i:62:ARG:HH21	34:i:68:LEU:HA	1.85	0.41
35:j:157:ARG:NH2	38:m:99:LEU:O	2.53	0.41
37:l:57:SER:O	37:l:61:ALA:N	2.47	0.41
46:u:21:VAL:HG12	46:u:33:ILE:HD12	2.03	0.41
53:7:201:LEU:HD21	53:7:203:ARG:HE	1.85	0.41
1:1:201:C:OP1	24:X:18:ARG:NH1	2.54	0.41
1:1:299:A:N3	1:1:319:G:O2'	2.46	0.41
1:1:404:A:H4'	1:1:405:U:H2'	2.03	0.41
1:1:680:C:H2'	1:1:681:G:C8	2.55	0.41
1:1:859:G:O2'	1:1:916:G:O6	2.30	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:881:G:H2'	1:1:882:G:C8	2.54	0.41
1:1:949:G:H2'	1:1:950:G:H8	1.85	0.41
1:1:1580:A:H5''	1:1:1580:A:C8	2.55	0.41
1:1:1584:U:H4'	1:1:1585:C:O5'	2.20	0.41
1:1:1704:C:H2'	1:1:1705:A:C8	2.55	0.41
1:1:1742:U:H2'	1:1:1743:G:O4'	2.20	0.41
1:1:1992:G:N2	1:1:1996:C:O2'	2.53	0.41
1:1:2303:G:H2'	1:1:2304:G:C8	2.56	0.41
2:2:537:G:H2'	2:2:538:G:H8	1.85	0.41
2:2:946:A:H2'	2:2:947:G:C8	2.56	0.41
2:2:1198:G:H2'	2:2:1199:U:C6	2.55	0.41
2:2:1279:G:O2'	2:2:1282:C:N4	2.54	0.41
2:2:1297:G:H21	37:l:114:LYS:HB3	1.86	0.41
2:2:1478:U:H2'	2:2:1479:C:C6	2.56	0.41
3:3:66:A:O4'	3:3:108:A:N6	2.53	0.41
7:E:24:SER:HB3	7:E:27:GLN:HB2	2.02	0.41
8:F:42:GLU:HA	8:F:55:ARG:NH2	2.36	0.41
10:J:125:TYR:OH	10:J:132:HIS:NE2	2.53	0.41
13:M:29:GLY:H	13:M:104:GLU:HB3	1.85	0.41
24:X:57:ARG:O	24:X:61:LYS:N	2.51	0.41
32:g:176:ALA:HB1	32:g:181:ILE:HB	2.03	0.41
34:i:170:TRP:CZ3	34:i:190:ASP:HB3	2.56	0.41
37:l:47:LEU:HD23	37:l:58:GLU:HB3	2.02	0.41
41:p:85:MET:HB3	41:p:113:VAL:HG21	2.02	0.41
42:q:29:GLN:HB3	42:q:81:LEU:HD11	2.03	0.41
51:z:40:LYS:HE2	51:z:40:LYS:HB3	1.90	0.41
1:1:6:A:H2'	1:1:7:G:C8	2.56	0.41
1:1:257:C:H2'	1:1:258:G:O4'	2.21	0.41
1:1:301:G:OP2	21:U:82:ARG:NH1	2.51	0.41
1:1:466:A:O3'	29:d:33:ARG:NH1	2.48	0.41
1:1:852:U:H5'	26:Z:46:GLY:HA3	2.03	0.41
1:1:968:C:H2'	1:1:969:G:C8	2.55	0.41
1:1:1057:A:C8	1:1:1086:A:H2'	2.56	0.41
1:1:1061:U:H1'	1:1:1070:A:O4'	2.21	0.41
1:1:1152:C:H4'	17:Q:77:SER:HA	2.03	0.41
1:1:2531:A:H5''	8:F:157:TYR:CZ	2.56	0.41
1:1:2646:C:OP2	1:1:2732:G:O2'	2.29	0.41
2:2:157:U:H2'	2:2:158:G:H8	1.86	0.41
2:2:224:U:H2'	2:2:225:C:C6	2.56	0.41
2:2:438:U:O2'	2:2:439:U:P	2.79	0.41
2:2:648:A:H2'	2:2:649:A:H8	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:928:G:H2'	2:2:929:G:H8	1.86	0.41
2:2:1438:G:H2'	2:2:1439:G:C8	2.56	0.41
4:B:176:LEU:HD23	4:B:176:LEU:HA	1.91	0.41
5:C:36:GLN:HB3	5:C:49:GLN:HB3	2.02	0.41
8:F:42:GLU:O	8:F:53:GLY:N	2.53	0.41
12:L:35:HIS:HB3	12:L:36:LYS:H	1.77	0.41
21:U:44:LYS:N	21:U:59:VAL:O	2.53	0.41
23:W:65:GLY:HA3	23:W:85:GLU:H	1.85	0.41
39:n:63:LEU:HD13	39:n:65:ILE:HD12	2.02	0.41
43:r:3:ARG:HA	43:r:8:ASN:HA	2.02	0.41
43:r:34:LEU:HA	43:r:34:LEU:HD23	1.92	0.41
43:r:81:MET:SD	43:r:92:ARG:HB3	2.60	0.41
54:5:55:PSU:HN3	54:5:57:A:H3'	1.85	0.41
1:1:57:C:H2'	1:1:58:G:O4'	2.20	0.41
1:1:329:G:H1'	1:1:477:A:H1'	2.02	0.41
1:1:594:U:H2'	1:1:595:C:C6	2.56	0.41
1:1:658:U:O2'	6:D:97:ASN:OD1	2.26	0.41
1:1:689:A:H2'	1:1:690:G:C8	2.56	0.41
1:1:1090:A:C4	1:1:1102:C:H1'	2.55	0.41
1:1:1131:G:N2	1:1:1132:U:O4	2.38	0.41
1:1:1164:C:H2'	1:1:1165:A:C8	2.56	0.41
1:1:1222:U:H2'	1:1:1223:G:H8	1.86	0.41
1:1:1306:C:H2'	1:1:1307:A:H8	1.85	0.41
1:1:1362:C:O2'	1:1:1810:A:O2'	2.35	0.41
1:1:1380:G:O2'	1:1:1569:A:N6	2.54	0.41
1:1:1688:U:O2'	1:1:1700:A:N7	2.40	0.41
1:1:2302:U:H2'	1:1:2303:G:C8	2.56	0.41
1:1:2374:C:N4	1:1:2375:G:O6	2.54	0.41
1:1:2647:U:H2'	1:1:2648:G:H8	1.86	0.41
1:1:2898:U:H5''	1:1:2898:U:C6	2.55	0.41
2:2:80:A:N7	2:2:87:C:N4	2.68	0.41
2:2:657:U:H2'	2:2:658:C:C6	2.55	0.41
2:2:1193:G:O6	33:h:3:GLN:NE2	2.54	0.41
2:2:1323:G:H2'	2:2:1324:A:C8	2.55	0.41
4:B:145:GLU:HB2	4:B:188:CYS:HB3	2.01	0.41
5:C:39:ASP:O	5:C:45:TYR:N	2.54	0.41
7:E:165:GLU:O	7:E:169:LEU:N	2.54	0.41
9:G:14:SER:N	9:G:17:ASP:OD2	2.54	0.41
9:G:51:ARG:HG3	9:G:54:LEU:HD23	2.03	0.41
10:J:49:ASP:OD1	10:J:121:LYS:NZ	2.44	0.41
17:Q:97:ASP:OD2	18:R:13:ARG:NH2	2.54	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
20:T:37:ASP:OD1	20:T:37:ASP:N	2.53	0.41
27:b:40:ARG:HG3	27:b:41:HIS:HD1	1.85	0.41
32:g:58:ASN:O	32:g:62:SER:N	2.50	0.41
33:h:111:LEU:O	33:h:204:LYS:NZ	2.50	0.41
37:l:91:VAL:HG13	37:l:96:ARG:HG2	2.03	0.41
42:q:56:ARG:NE	42:q:62:GLU:OE1	2.45	0.41
42:q:71:GLY:O	42:q:99:ARG:NH2	2.54	0.41
43:r:14:HIS:HB2	43:r:17:ILE:HD13	2.02	0.41
45:t:80:GLN:HE21	45:t:84:ARG:NH2	2.19	0.41
54:5:5:G:H2'	54:5:6:G:C8	2.55	0.41
54:5:13:A:H3'	54:5:14:G:H8	1.86	0.41
1:1:177:G:H3'	1:1:178:G:C8	2.55	0.41
1:1:308:G:C5	1:1:309:A:C6	3.09	0.41
1:1:517:C:O2'	19:S:18:ARG:NH2	2.35	0.41
1:1:666:A:H2'	1:1:667:U:C6	2.56	0.41
1:1:911:A:N6	13:M:11:LYS:O	2.47	0.41
1:1:979:A:H2'	1:1:982:C:H42	1.86	0.41
1:1:1076:C:H2'	1:1:1077:A:H8	1.74	0.41
1:1:1313:U:O2'	1:1:1610:A:C6	2.72	0.41
1:1:1429:G:H2'	1:1:1430:G:H8	1.86	0.41
1:1:2043:C:OP1	1:1:2777:G:O2'	2.39	0.41
1:1:2175:C:H2'	1:1:2176:A:O4'	2.21	0.41
1:1:2638:G:O2'	1:1:2775:G:N2	2.31	0.41
1:1:2730:C:H2'	1:1:2731:G:C8	2.56	0.41
2:2:34:C:H2'	2:2:35:G:H8	1.84	0.41
2:2:87:C:H2'	2:2:89:U:C4	2.56	0.41
2:2:112:G:H22	2:2:315:A:H2	1.69	0.41
2:2:196:A:N3	2:2:222:C:H1'	2.35	0.41
2:2:553:A:O2'	42:q:26:ALA:O	2.39	0.41
3:3:30:C:O2'	7:E:26:MET:HE2	2.21	0.41
8:F:91:GLY:HA3	8:F:160:LYS:HG3	2.03	0.41
13:M:44:ARG:O	13:M:48:ALA:N	2.49	0.41
20:T:11:LEU:HD22	20:T:32:LEU:HD13	2.03	0.41
25:Y:46:VAL:HA	25:Y:49:ASP:HB2	2.02	0.41
33:h:155:GLY:HA2	33:h:163:ALA:HB1	2.03	0.41
38:m:52:GLU:O	38:m:58:GLU:N	2.49	0.41
40:o:14:ASP:OD1	40:o:15:HIS:N	2.54	0.41
49:x:52:HIS:HB2	49:x:57:HIS:CE1	2.56	0.41
1:1:321:U:OP1	6:D:130:LYS:NZ	2.37	0.40
1:1:580:U:H2'	1:1:581:C:C6	2.56	0.40
1:1:596:U:H2'	1:1:597:G:H8	1.86	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:603:A:N1	1:1:625:G:O2'	2.50	0.40
1:1:729:G:C4	1:1:1775:U:C2	3.08	0.40
1:1:748:G:OP2	19:S:88:ARG:HB3	2.21	0.40
1:1:1069:A:C5'	1:1:1070:A:N7	2.84	0.40
1:1:1722:A:H62	1:1:1738:G:H1'	1.84	0.40
1:1:2000:C:O2'	1:1:2001:C:H5'	2.21	0.40
1:1:2559:C:H2'	1:1:2560:A:C8	2.56	0.40
1:1:2828:G:H2'	1:1:2829:A:C8	2.56	0.40
2:2:181:A:H1'	2:2:182:A:C8	2.56	0.40
2:2:694:A:N1	2:2:787:A:O2'	2.54	0.40
2:2:886:G:H1	2:2:911:U:H3	1.69	0.40
2:2:1004:A:O2'	2:2:1036:A:N1	2.39	0.40
3:3:74:U:O4	3:3:102:G:N2	2.49	0.40
5:C:97:SER:OG	5:C:98:VAL:N	2.53	0.40
5:C:104:VAL:HG23	5:C:177:VAL:HG11	2.02	0.40
5:C:109:VAL:HG11	5:C:193:VAL:HB	2.02	0.40
7:E:94:GLU:O	7:E:98:GLU:N	2.39	0.40
8:F:26:ILE:HD12	8:F:75:MET:HE2	2.02	0.40
14:N:96:ARG:HH22	14:N:116:VAL:HA	1.85	0.40
18:R:22:LEU:HD23	18:R:22:LEU:HA	1.92	0.40
33:h:79:LYS:HB2	33:h:82:GLU:HB3	2.02	0.40
35:j:15:LEU:HA	35:j:37:THR:HG22	2.02	0.40
38:m:87:LYS:HD2	38:m:91:GLU:HB3	2.03	0.40
47:v:25:ILE:N	47:v:42:THR:O	2.43	0.40
53:7:156:ALA:O	53:7:161:PHE:N	2.44	0.40
1:1:84:A:H5''	21:U:6:ARG:HG2	2.04	0.40
1:1:213:A:H2'	1:1:214:G:C8	2.57	0.40
1:1:254:G:OP2	30:e:5:LYS:NZ	2.54	0.40
1:1:323:C:OP1	1:1:324:A:C8	2.74	0.40
1:1:491:G:H3'	1:1:492:A:H8	1.86	0.40
1:1:513:A:H2'	1:1:514:A:C8	2.56	0.40
1:1:544:C:H6	1:1:544:C:H5''	1.86	0.40
1:1:706:A:OP1	4:B:7:LYS:NZ	2.43	0.40
1:1:890:C:N4	1:1:892:A:H5'	2.36	0.40
1:1:1501:G:P	4:B:101:ARG:HH22	2.44	0.40
1:1:1584:U:H4'	1:1:1585:C:H5''	2.02	0.40
1:1:1936:A:N6	1:1:1963:U:O2	2.54	0.40
1:1:2567:G:H2'	1:1:2568:U:C6	2.55	0.40
1:1:2591:C:H2'	1:1:2592:G:H8	1.85	0.40
2:2:481:G:O2'	2:2:483:C:N4	2.54	0.40
2:2:1025:U:H4'	2:2:1026:G:C8	2.53	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1275:A:H3'	2:2:1276:G:C8	2.52	0.40
2:2:1277:C:O2'	2:2:1279:G:H8	2.04	0.40
3:3:98:G:N1	22:V:14:LYS:HB2	2.34	0.40
17:Q:49:ASP:HA	17:Q:52:GLN:HB2	2.04	0.40
21:U:86:ARG:HG3	21:U:88:GLU:HG3	2.03	0.40
34:i:99:ASP:HA	34:i:102:VAL:HB	2.03	0.40
37:l:74:GLU:O	37:l:89:VAL:N	2.45	0.40
38:m:113:ASP:OD1	38:m:113:ASP:N	2.54	0.40
40:o:10:LEU:N	40:o:72:ARG:O	2.44	0.40
41:p:99:ALA:HA	41:p:102:ALA:HB3	2.02	0.40
42:q:30:LYS:HD2	42:q:30:LYS:HA	1.92	0.40
1:1:83:A:O2'	1:1:103:A:N6	2.55	0.40
1:1:302:C:H2'	1:1:303:G:H8	1.86	0.40
1:1:329:G:OP1	1:1:329:G:C8	2.70	0.40
1:1:367:G:H3'	1:1:368:A:C8	2.55	0.40
1:1:519:U:H2'	1:1:520:G:H8	1.85	0.40
1:1:1680:U:N3	1:1:1764:C:OP2	2.39	0.40
1:1:1805:A:H2'	1:1:1806:C:C6	2.56	0.40
1:1:1857:G:N2	1:1:1886:U:O4	2.54	0.40
1:1:2121:G:N7	1:1:2171:A:H4'	2.37	0.40
1:1:2209:G:H3'	1:1:2210:U:H2'	2.03	0.40
1:1:2656:U:N3	1:1:2665:A:N7	2.69	0.40
2:2:96:U:H2'	2:2:97:G:C8	2.57	0.40
2:2:107:G:H2'	2:2:108:G:O4'	2.20	0.40
2:2:257:G:H2'	2:2:258:G:C8	2.56	0.40
2:2:266:G:OP2	2:2:267:C:N4	2.42	0.40
2:2:715:A:H2'	2:2:716:A:C8	2.56	0.40
3:3:27:C:OP1	15:O:34:HIS:NE2	2.39	0.40
6:D:41:GLN:HG2	6:D:43:THR:HG23	2.03	0.40
11:K:94:PRO:HG3	11:K:115:ILE:HG12	2.04	0.40
16:P:89:ARG:NE	16:P:113:ARG:O	2.54	0.40
26:Z:45:ARG:HA	26:Z:48:ILE:HD12	2.02	0.40
35:j:141:ILE:HD13	35:j:141:ILE:HA	1.86	0.40
36:k:29:ILE:HD13	36:k:29:ILE:HA	1.93	0.40
1:1:184:C:O2'	1:1:217:A:N3	2.54	0.40
1:1:210:C:H2'	1:1:211:C:C6	2.56	0.40
1:1:517:C:H2'	1:1:518:G:O4'	2.22	0.40
1:1:538:A:H62	1:1:555:G:H21	1.70	0.40
1:1:735:A:N6	1:1:761:A:O2'	2.54	0.40
1:1:748:G:H3'	1:1:750:A:OP2	2.21	0.40
1:1:1047:G:O2'	1:1:1109:C:N4	2.55	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1229:C:H2'	1:1:1230:A:C8	2.57	0.40
1:1:1266:G:H22	1:1:2012:G:H2'	1.86	0.40
1:1:1365:A:P	24:X:3:ARG:HD3	2.61	0.40
1:1:1671:U:N3	1:1:1674:G:OP2	2.36	0.40
1:1:2117:A:H61	1:1:2170:A:H61	1.68	0.40
1:1:2465:C:O2'	1:1:2466:C:H5'	2.22	0.40
2:2:255:G:P	47:v:71:LYS:HZ1	2.45	0.40
2:2:298:A:H2'	2:2:299:G:O4'	2.21	0.40
2:2:331:G:H2'	50:y:4:ILE:HD11	2.04	0.40
2:2:520:A:H61	2:2:529:G:H1'	1.87	0.40
2:2:784:A:H2'	2:2:785:G:H8	1.85	0.40
2:2:1250:A:H2	2:2:1370:G:H1'	1.85	0.40
3:3:42:C:C4	7:E:66:LEU:HD22	2.56	0.40
6:D:196:VAL:HG13	6:D:200:LEU:HD13	2.03	0.40
9:G:46:PHE:O	9:G:50:ARG:HB2	2.22	0.40
12:L:51:GLU:OE2	12:L:57:LEU:N	2.54	0.40
24:X:70:GLU:HA	24:X:73:ALA:HB3	2.03	0.40
29:d:30:VAL:HG22	29:d:33:ARG:NH1	2.36	0.40
42:q:89:0TD:H8	42:q:89:0TD:H4	1.78	0.40
45:t:70:LEU:HA	45:t:73:LYS:HB3	2.04	0.40
1:1:534:U:H5'	17:Q:42:ALA:HB1	2.03	0.40
1:1:585:G:O2'	1:1:1254:A:N6	2.49	0.40
1:1:748:G:H5''	1:1:749:A:OP2	2.20	0.40
1:1:1848:A:H61	1:1:1894:C:H1'	1.86	0.40
1:1:2055:C:H2'	1:1:2504:PSU:H4'	2.04	0.40
1:1:2148:G:H2'	1:1:2149:U:C6	2.56	0.40
1:1:2398:U:H2'	1:1:2399:G:C8	2.57	0.40
1:1:2645:G:OP2	1:1:2645:G:N2	2.38	0.40
2:2:356:A:N3	2:2:368:U:O2'	2.47	0.40
2:2:451:A:C6	2:2:480:U:H2'	2.56	0.40
2:2:472:U:H2'	2:2:473:U:H6	1.87	0.40
2:2:792:A:O2'	2:2:794:A:N7	2.40	0.40
2:2:932:C:H5''	37:l:4:ARG:NE	2.36	0.40
2:2:1135:U:H2'	2:2:1137:C:C2	2.56	0.40
3:3:31:C:H1'	3:3:53:A:N1	2.36	0.40
5:C:27:ILE:HD11	5:C:193:VAL:HG11	2.03	0.40
6:D:15:SER:N	6:D:197:GLU:OE2	2.55	0.40
7:E:4:LEU:HB3	7:E:173:PHE:HE1	1.86	0.40
9:G:1:MET:N	9:G:21:VAL:O	2.43	0.40
14:N:38:LEU:HD11	14:N:42:LYS:HE3	2.04	0.40
17:Q:35:ALA:O	17:Q:39:VAL:N	2.53	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
22:V:51:GLN:OE1	22:V:57:TYR:OH	2.38	0.40
27:b:28:LEU:HB2	27:b:37:LYS:HD2	2.03	0.40
32:g:160:ALA:HA	32:g:182:PRO:HG2	2.03	0.40
33:h:88:ARG:HD2	33:h:100:GLN:HA	2.03	0.40
49:x:32:ARG:HB2	49:x:57:HIS:CG	2.57	0.40
53:7:4:ILE:HD12	53:7:96:PHE:HE1	1.87	0.40
53:7:73:MET:HG3	53:7:110:LEU:HB2	2.04	0.40
53:7:143:ASP:HA	53:7:175:GLY:HA3	2.03	0.40
53:7:314:LYS:HA	53:7:314:LYS:HD2	1.55	0.40
54:5:63:G:H2'	54:5:64:G:C8	2.56	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	B	269/271 (99%)	243 (90%)	25 (9%)	1 (0%)	30	66
5	C	207/209 (99%)	197 (95%)	9 (4%)	1 (0%)	24	62
6	D	199/201 (99%)	182 (92%)	17 (8%)	0	100	100
7	E	175/177 (99%)	157 (90%)	18 (10%)	0	100	100
8	F	173/175 (99%)	159 (92%)	14 (8%)	0	100	100
9	G	147/149 (99%)	130 (88%)	17 (12%)	0	100	100
10	J	140/142 (99%)	130 (93%)	10 (7%)	0	100	100
11	K	121/123 (98%)	112 (93%)	9 (7%)	0	100	100
12	L	142/144 (99%)	132 (93%)	10 (7%)	0	100	100
13	M	134/136 (98%)	124 (92%)	10 (8%)	0	100	100
14	N	117/119 (98%)	110 (94%)	7 (6%)	0	100	100
15	O	114/116 (98%)	108 (95%)	6 (5%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
16	P	112/114 (98%)	103 (92%)	9 (8%)	0	100	100
17	Q	115/117 (98%)	113 (98%)	2 (2%)	0	100	100
18	R	101/103 (98%)	92 (91%)	9 (9%)	0	100	100
19	S	108/110 (98%)	102 (94%)	6 (6%)	0	100	100
20	T	92/94 (98%)	87 (95%)	5 (5%)	0	100	100
21	U	101/103 (98%)	86 (85%)	15 (15%)	0	100	100
22	V	92/94 (98%)	84 (91%)	8 (9%)	0	100	100
23	W	74/76 (97%)	68 (92%)	6 (8%)	0	100	100
24	X	75/77 (97%)	69 (92%)	6 (8%)	0	100	100
25	Y	60/62 (97%)	57 (95%)	3 (5%)	0	100	100
26	Z	56/58 (97%)	54 (96%)	2 (4%)	0	100	100
27	b	54/56 (96%)	46 (85%)	8 (15%)	0	100	100
28	c	50/52 (96%)	48 (96%)	2 (4%)	0	100	100
29	d	44/46 (96%)	41 (93%)	3 (7%)	0	100	100
30	e	62/64 (97%)	56 (90%)	5 (8%)	1 (2%)	7	37
31	f	36/38 (95%)	35 (97%)	1 (3%)	0	100	100
32	g	223/225 (99%)	205 (92%)	18 (8%)	0	100	100
33	h	206/208 (99%)	194 (94%)	12 (6%)	0	100	100
34	i	203/205 (99%)	193 (95%)	10 (5%)	0	100	100
35	j	154/156 (99%)	138 (90%)	16 (10%)	0	100	100
36	k	102/104 (98%)	98 (96%)	4 (4%)	0	100	100
37	l	149/151 (99%)	145 (97%)	4 (3%)	0	100	100
38	m	127/129 (98%)	121 (95%)	6 (5%)	0	100	100
39	n	125/127 (98%)	113 (90%)	12 (10%)	0	100	100
40	o	97/99 (98%)	89 (92%)	8 (8%)	0	100	100
41	p	115/117 (98%)	109 (95%)	6 (5%)	0	100	100
42	q	120/123 (98%)	109 (91%)	11 (9%)	0	100	100
43	r	114/116 (98%)	108 (95%)	6 (5%)	0	100	100
44	s	98/100 (98%)	95 (97%)	3 (3%)	0	100	100
45	t	86/88 (98%)	82 (95%)	4 (5%)	0	100	100
46	u	80/82 (98%)	74 (92%)	6 (8%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
47	v	78/80 (98%)	69 (88%)	9 (12%)	0	100	100
48	w	64/66 (97%)	64 (100%)	0	0	100	100
49	x	81/83 (98%)	78 (96%)	3 (4%)	0	100	100
50	y	84/86 (98%)	82 (98%)	2 (2%)	0	100	100
51	z	68/70 (97%)	62 (91%)	6 (9%)	0	100	100
53	7	348/362 (96%)	326 (94%)	21 (6%)	1 (0%)	36	71
55	6	1/3 (33%)	1 (100%)	0	0	100	100
All	All	5893/6006 (98%)	5480 (93%)	409 (7%)	4 (0%)	49	82

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
4	B	225	MET
53	7	315	SER
5	C	152	PRO
30	e	32	ILE

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
4	B	216/216 (100%)	215 (100%)	1 (0%)	81	81
5	C	164/164 (100%)	163 (99%)	1 (1%)	78	80
6	D	165/165 (100%)	165 (100%)	0	100	100
7	E	148/148 (100%)	148 (100%)	0	100	100
8	F	136/136 (100%)	136 (100%)	0	100	100
9	G	114/114 (100%)	113 (99%)	1 (1%)	70	75
10	J	116/116 (100%)	116 (100%)	0	100	100
11	K	104/104 (100%)	104 (100%)	0	100	100
12	L	103/103 (100%)	102 (99%)	1 (1%)	68	75

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
13	M	109/109 (100%)	109 (100%)	0	100	100
14	N	99/99 (100%)	99 (100%)	0	100	100
15	O	86/86 (100%)	86 (100%)	0	100	100
16	P	99/99 (100%)	98 (99%)	1 (1%)	68	75
17	Q	89/89 (100%)	89 (100%)	0	100	100
18	R	84/84 (100%)	82 (98%)	2 (2%)	43	63
19	S	93/93 (100%)	93 (100%)	0	100	100
20	T	81/81 (100%)	81 (100%)	0	100	100
21	U	84/84 (100%)	84 (100%)	0	100	100
22	V	78/78 (100%)	77 (99%)	1 (1%)	61	71
23	W	58/58 (100%)	58 (100%)	0	100	100
24	X	67/67 (100%)	66 (98%)	1 (2%)	57	70
25	Y	54/54 (100%)	54 (100%)	0	100	100
26	Z	48/48 (100%)	48 (100%)	0	100	100
27	b	47/47 (100%)	47 (100%)	0	100	100
28	c	47/47 (100%)	47 (100%)	0	100	100
29	d	38/38 (100%)	38 (100%)	0	100	100
30	e	51/51 (100%)	51 (100%)	0	100	100
31	f	34/34 (100%)	34 (100%)	0	100	100
32	g	187/187 (100%)	187 (100%)	0	100	100
33	h	171/171 (100%)	170 (99%)	1 (1%)	78	80
34	i	172/172 (100%)	172 (100%)	0	100	100
35	j	119/119 (100%)	119 (100%)	0	100	100
36	k	91/91 (100%)	91 (100%)	0	100	100
37	l	124/124 (100%)	123 (99%)	1 (1%)	73	77
38	m	104/104 (100%)	104 (100%)	0	100	100
39	n	105/105 (100%)	104 (99%)	1 (1%)	68	75
40	o	86/86 (100%)	85 (99%)	1 (1%)	63	73
41	p	90/90 (100%)	90 (100%)	0	100	100
42	q	102/102 (100%)	102 (100%)	0	100	100
43	r	94/94 (100%)	94 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
44	s	83/83 (100%)	83 (100%)	0	100	100
45	t	76/76 (100%)	76 (100%)	0	100	100
46	u	65/65 (100%)	65 (100%)	0	100	100
47	v	74/74 (100%)	74 (100%)	0	100	100
48	w	57/57 (100%)	57 (100%)	0	100	100
49	x	72/72 (100%)	72 (100%)	0	100	100
50	y	65/65 (100%)	65 (100%)	0	100	100
51	z	60/60 (100%)	60 (100%)	0	100	100
53	7	301/308 (98%)	298 (99%)	3 (1%)	68	75
55	6	2/2 (100%)	0	2 (100%)	0	0
All	All	4912/4919 (100%)	4894 (100%)	18 (0%)	81	82

All (18) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
4	B	225	MET
5	C	151	THR
9	G	41	LYS
12	L	36	LYS
16	P	114	LEU
18	R	38	VAL
18	R	51	VAL
22	V	65	VAL
24	X	10	LYS
33	h	200	VAL
37	l	50	LEU
39	n	130	ARG
40	o	9	ARG
53	7	239	LEU
53	7	314	LYS
53	7	337	ARG
55	6	78	PHE
55	6	79	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (71) such sidechains are listed below:

Mol	Chain	Res	Type
4	B	53	HIS
4	B	70	ASN
4	B	86	ASN
4	B	197	ASN
4	B	251	GLN
4	B	260	ASN
5	C	136	ASN
6	D	30	GLN
6	D	136	GLN
6	D	163	ASN
6	D	195	GLN
7	E	37	ASN
8	F	88	GLN
8	F	104	ASN
8	F	116	GLN
9	G	18	GLN
13	M	60	GLN
14	N	31	HIS
14	N	73	ASN
15	O	29	HIS
15	O	38	GLN
15	O	98	GLN
15	O	100	HIS
16	P	56	HIS
17	Q	81	ASN
18	R	6	GLN
19	S	7	HIS
19	S	61	ASN
20	T	28	ASN
21	U	46	GLN
21	U	54	GLN
21	U	66	GLN
22	V	24	ASN
22	V	75	GLN
23	W	50	ASN
24	X	6	GLN
25	Y	15	ASN
25	Y	20	ASN
25	Y	27	ASN
28	c	26	ASN
32	g	89	GLN
32	g	122	GLN
32	g	177	ASN

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Mol	Chain	Res	Type
32	g	178	ASN
34	i	116	GLN
35	j	12	GLN
35	j	89	HIS
35	j	97	GLN
35	j	132	ASN
36	k	46	GLN
36	k	63	ASN
36	k	94	HIS
37	l	28	ASN
37	l	130	ASN
41	p	15	GLN
41	p	40	ASN
41	p	119	ASN
42	q	5	ASN
43	r	8	ASN
43	r	14	HIS
44	s	43	ASN
45	t	20	ASN
45	t	80	GLN
48	w	31	ASN
48	w	74	HIS
49	x	52	HIS
50	y	48	GLN
50	y	52	ASN
53	7	38	ASN
53	7	199	HIS
53	7	273	GLN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	1	2902/2903 (99%)	773 (26%)	14 (0%)
2	2	1532/1534 (99%)	394 (25%)	6 (0%)
3	3	119/120 (99%)	29 (24%)	0
52	4	8/9 (88%)	2 (25%)	0
54	5	75/76 (98%)	24 (32%)	1 (1%)
All	All	4636/4642 (99%)	1222 (26%)	21 (0%)

All (1222) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	1	2	G
1	1	10	A
1	1	23	G
1	1	33	C
1	1	34	U
1	1	35	G
1	1	36	G
1	1	46	G
1	1	51	G
1	1	55	G
1	1	60	G
1	1	61	C
1	1	62	U
1	1	63	A
1	1	64	A
1	1	71	A
1	1	73	A
1	1	74	A
1	1	75	G
1	1	80	G
1	1	84	A
1	1	85	G
1	1	87	U
1	1	88	G
1	1	93	G
1	1	96	C
1	1	100	U
1	1	101	A
1	1	102	U
1	1	103	A
1	1	110	G
1	1	118	A
1	1	119	A
1	1	120	U
1	1	126	A
1	1	136	G
1	1	137	U
1	1	139	U
1	1	140	C
1	1	142	A
1	1	153	U
1	1	156	A
1	1	163	C

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Mol	Chain	Res	Type
1	1	171	U
1	1	172	A
1	1	181	A
1	1	184	C
1	1	196	A
1	1	199	A
1	1	204	A
1	1	209	C
1	1	215	G
1	1	216	A
1	1	222	A
1	1	223	A
1	1	228	C
1	1	229	C
1	1	233	A
1	1	239	C
1	1	245	G
1	1	248	G
1	1	250	G
1	1	252	G
1	1	265	A
1	1	266	G
1	1	270	A
1	1	271	G
1	1	275	C
1	1	276	U
1	1	277	G
1	1	278	A
1	1	279	A
1	1	284	U
1	1	285	G
1	1	287	G
1	1	292	U
1	1	295	G
1	1	311	A
1	1	312	G
1	1	315	G
1	1	323	C
1	1	329	G
1	1	330	A
1	1	332	A
1	1	338	G

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Mol	Chain	Res	Type
1	1	345	A
1	1	347	A
1	1	352	A
1	1	353	C
1	1	354	A
1	1	360	U
1	1	361	G
1	1	367	G
1	1	370	G
1	1	371	A
1	1	372	G
1	1	380	G
1	1	386	G
1	1	387	U
1	1	391	A
1	1	396	G
1	1	405	U
1	1	411	G
1	1	424	G
1	1	438	G
1	1	448	U
1	1	449	A
1	1	451	U
1	1	454	A
1	1	455	C
1	1	456	C
1	1	457	A
1	1	475	C
1	1	479	A
1	1	481	G
1	1	489	G
1	1	491	G
1	1	501	A
1	1	505	A
1	1	508	A
1	1	509	C
1	1	510	C
1	1	513	A
1	1	516	C
1	1	518	G
1	1	530	G
1	1	531	C

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Mol	Chain	Res	Type
1	1	532	A
1	1	533	G
1	1	540	C
1	1	543	G
1	1	544	C
1	1	545	U
1	1	546	U
1	1	547	A
1	1	548	G
1	1	549	G
1	1	550	C
1	1	562	U
1	1	563	A
1	1	573	U
1	1	575	A
1	1	586	A
1	1	603	A
1	1	605	G
1	1	609	A
1	1	613	A
1	1	614	A
1	1	615	U
1	1	622	G
1	1	623	C
1	1	627	A
1	1	628	G
1	1	637	A
1	1	645	C
1	1	646	U
1	1	653	U
1	1	654	A
1	1	655	A
1	1	665	U
1	1	670	A
1	1	686	U
1	1	704	G
1	1	709	U
1	1	710	U
1	1	711	G
1	1	726	G
1	1	728	G
1	1	729	G

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Mol	Chain	Res	Type
1	1	730	A
1	1	734	A
1	1	747	5MU
1	1	748	G
1	1	752	A
1	1	757	G
1	1	764	A
1	1	765	C
1	1	775	G
1	1	776	G
1	1	782	A
1	1	783	A
1	1	784	G
1	1	785	G
1	1	789	A
1	1	794	A
1	1	805	G
1	1	811	U
1	1	812	C
1	1	819	A
1	1	827	U
1	1	828	U
1	1	830	G
1	1	831	G
1	1	846	U
1	1	856	G
1	1	858	G
1	1	859	G
1	1	860	U
1	1	866	A
1	1	869	G
1	1	877	A
1	1	878	A
1	1	880	G
1	1	882	G
1	1	883	G
1	1	884	U
1	1	885	C
1	1	888	C
1	1	890	C
1	1	891	G
1	1	893	C

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Mol	Chain	Res	Type
1	1	894	U
1	1	895	U
1	1	896	A
1	1	897	C
1	1	898	C
1	1	899	A
1	1	907	G
1	1	910	A
1	1	914	G
1	1	915	C
1	1	918	A
1	1	932	U
1	1	934	U
1	1	941	A
1	1	946	C
1	1	957	C
1	1	959	A
1	1	961	C
1	1	962	G
1	1	973	A
1	1	974	G
1	1	980	A
1	1	983	A
1	1	989	G
1	1	990	A
1	1	995	C
1	1	996	A
1	1	999	U
1	1	1012	U
1	1	1013	C
1	1	1020	A
1	1	1024	G
1	1	1025	G
1	1	1026	G
1	1	1033	U
1	1	1042	G
1	1	1046	A
1	1	1047	G
1	1	1049	C
1	1	1051	G
1	1	1057	A
1	1	1059	G

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Mol	Chain	Res	Type
1	1	1060	U
1	1	1061	U
1	1	1065	U
1	1	1066	U
1	1	1067	A
1	1	1068	G
1	1	1069	A
1	1	1070	A
1	1	1071	G
1	1	1072	C
1	1	1074	G
1	1	1075	C
1	1	1076	C
1	1	1078	U
1	1	1083	U
1	1	1084	A
1	1	1085	A
1	1	1087	G
1	1	1088	A
1	1	1089	A
1	1	1090	A
1	1	1095	A
1	1	1096	A
1	1	1097	U
1	1	1102	C
1	1	1110	G
1	1	1111	A
1	1	1112	G
1	1	1113	U
1	1	1115	G
1	1	1117	C
1	1	1119	U
1	1	1130	U
1	1	1131	G
1	1	1132	U
1	1	1135	C
1	1	1136	G
1	1	1141	U
1	1	1142	A
1	1	1151	A
1	1	1156	A
1	1	1157	G

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Mol	Chain	Res	Type
1	1	1158	C
1	1	1161	C
1	1	1168	G
1	1	1169	A
1	1	1170	C
1	1	1171	G
1	1	1173	U
1	1	1174	U
1	1	1175	A
1	1	1176	U
1	1	1177	G
1	1	1178	C
1	1	1179	G
1	1	1180	U
1	1	1182	G
1	1	1186	G
1	1	1205	A
1	1	1212	G
1	1	1227	G
1	1	1236	G
1	1	1238	G
1	1	1247	A
1	1	1253	A
1	1	1256	G
1	1	1266	G
1	1	1271	G
1	1	1272	A
1	1	1273	U
1	1	1294	U
1	1	1300	G
1	1	1301	A
1	1	1302	A
1	1	1306	C
1	1	1312	U
1	1	1321	A
1	1	1326	U
1	1	1329	U
1	1	1332	G
1	1	1341	G
1	1	1342	A
1	1	1352	U
1	1	1355	G

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Mol	Chain	Res	Type
1	1	1360	G
1	1	1365	A
1	1	1368	G
1	1	1374	G
1	1	1378	A
1	1	1379	U
1	1	1380	G
1	1	1383	A
1	1	1395	A
1	1	1396	U
1	1	1397	U
1	1	1403	A
1	1	1407	G
1	1	1408	G
1	1	1409	U
1	1	1410	G
1	1	1411	U
1	1	1415	U
1	1	1417	C
1	1	1419	A
1	1	1420	A
1	1	1421	G
1	1	1427	A
1	1	1428	C
1	1	1437	C
1	1	1451	C
1	1	1452	G
1	1	1455	G
1	1	1458	U
1	1	1460	U
1	1	1461	C
1	1	1475	G
1	1	1476	U
1	1	1479	G
1	1	1482	G
1	1	1483	G
1	1	1490	A
1	1	1491	G
1	1	1493	C
1	1	1497	U
1	1	1498	C
1	1	1502	A

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Mol	Chain	Res	Type
1	1	1508	A
1	1	1509	A
1	1	1510	G
1	1	1515	A
1	1	1523	U
1	1	1524	G
1	1	1528	A
1	1	1529	G
1	1	1530	G
1	1	1532	A
1	1	1535	A
1	1	1536	C
1	1	1538	G
1	1	1544	A
1	1	1554	U
1	1	1558	C
1	1	1560	G
1	1	1565	C
1	1	1566	A
1	1	1569	A
1	1	1570	A
1	1	1578	U
1	1	1580	A
1	1	1581	G
1	1	1582	C
1	1	1583	A
1	1	1584	U
1	1	1585	C
1	1	1586	A
1	1	1587	G
1	1	1588	G
1	1	1589	U
1	1	1590	A
1	1	1603	A
1	1	1607	C
1	1	1610	A
1	1	1613	G
1	1	1619	G
1	1	1622	G
1	1	1626	A
1	1	1634	A
1	1	1635	A

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Mol	Chain	Res	Type
1	1	1636	U
1	1	1637	A
1	1	1639	C
1	1	1646	C
1	1	1647	U
1	1	1648	U
1	1	1649	G
1	1	1655	A
1	1	1660	G
1	1	1665	A
1	1	1667	G
1	1	1669	A
1	1	1674	G
1	1	1680	U
1	1	1693	U
1	1	1695	G
1	1	1698	A
1	1	1700	A
1	1	1709	U
1	1	1715	G
1	1	1716	U
1	1	1724	G
1	1	1725	U
1	1	1729	U
1	1	1730	C
1	1	1731	G
1	1	1732	C
1	1	1733	G
1	1	1735	A
1	1	1738	G
1	1	1742	U
1	1	1754	A
1	1	1755	A
1	1	1756	G
1	1	1758	U
1	1	1760	C
1	1	1764	C
1	1	1773	A
1	1	1781	U
1	1	1782	U
1	1	1791	A
1	1	1792	G

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Mol	Chain	Res	Type
1	1	1797	G
1	1	1800	C
1	1	1801	A
1	1	1802	A
1	1	1807	G
1	1	1808	A
1	1	1809	A
1	1	1811	G
1	1	1816	C
1	1	1820	U
1	1	1829	A
1	1	1833	C
1	1	1835	2MG
1	1	1841	U
1	1	1847	A
1	1	1848	A
1	1	1849	G
1	1	1850	G
1	1	1857	G
1	1	1858	A
1	1	1859	U
1	1	1864	U
1	1	1865	U
1	1	1866	A
1	1	1869	G
1	1	1870	C
1	1	1871	A
1	1	1873	G
1	1	1876	A
1	1	1884	G
1	1	1885	A
1	1	1888	G
1	1	1900	A
1	1	1903	G
1	1	1905	C
1	1	1906	G
1	1	1907	G
1	1	1913	A
1	1	1914	C
1	1	1923	U
1	1	1924	C
1	1	1926	U

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Mol	Chain	Res	Type
1	1	1927	A
1	1	1929	G
1	1	1930	G
1	1	1931	U
1	1	1936	A
1	1	1937	A
1	1	1955	U
1	1	1964	G
1	1	1967	C
1	1	1970	A
1	1	1971	U
1	1	1972	G
1	1	1975	G
1	1	1982	U
1	1	1991	U
1	1	1992	G
1	1	1993	U
1	1	1996	C
1	1	1997	C
1	1	2002	G
1	1	2021	C
1	1	2022	U
1	1	2023	C
1	1	2031	A
1	1	2033	A
1	1	2034	U
1	1	2043	C
1	1	2049	G
1	1	2051	A
1	1	2055	C
1	1	2056	G
1	1	2057	G
1	1	2060	A
1	1	2061	G
1	1	2062	A
1	1	2069	G7M
1	1	2072	C
1	1	2075	U
1	1	2077	A
1	1	2092	U
1	1	2093	G
1	1	2099	U

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Mol	Chain	Res	Type
1	1	2101	A
1	1	2102	G
1	1	2108	A
1	1	2111	U
1	1	2112	G
1	1	2113	U
1	1	2114	A
1	1	2115	G
1	1	2116	G
1	1	2117	A
1	1	2118	U
1	1	2119	A
1	1	2120	G
1	1	2122	U
1	1	2125	G
1	1	2126	A
1	1	2127	G
1	1	2128	G
1	1	2130	U
1	1	2131	U
1	1	2133	G
1	1	2134	A
1	1	2137	U
1	1	2138	G
1	1	2139	U
1	1	2142	A
1	1	2145	C
1	1	2146	C
1	1	2147	A
1	1	2148	G
1	1	2153	C
1	1	2154	A
1	1	2158	A
1	1	2163	A
1	1	2164	C
1	1	2165	C
1	1	2167	U
1	1	2170	A
1	1	2171	A
1	1	2172	U
1	1	2173	A
1	1	2174	C

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Mol	Chain	Res	Type
1	1	2176	A
1	1	2178	C
1	1	2181	U
1	1	2182	U
1	1	2188	U
1	1	2189	U
1	1	2190	G
1	1	2193	G
1	1	2194	U
1	1	2198	A
1	1	2199	A
1	1	2203	U
1	1	2204	G
1	1	2211	A
1	1	2212	A
1	1	2213	U
1	1	2225	A
1	1	2229	U
1	1	2238	G
1	1	2243	U
1	1	2246	G
1	1	2250	G
1	1	2266	A
1	1	2267	A
1	1	2269	G
1	1	2278	A
1	1	2279	G
1	1	2283	C
1	1	2287	A
1	1	2288	A
1	1	2296	U
1	1	2297	A
1	1	2303	G
1	1	2305	U
1	1	2309	A
1	1	2315	G
1	1	2319	G
1	1	2320	U
1	1	2321	U
1	1	2325	G
1	1	2327	A
1	1	2331	G

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Mol	Chain	Res	Type
1	1	2333	A
1	1	2335	A
1	1	2336	A
1	1	2343	U
1	1	2344	U
1	1	2345	G
1	1	2347	C
1	1	2350	C
1	1	2357	G
1	1	2361	G
1	1	2376	A
1	1	2379	G
1	1	2383	G
1	1	2385	C
1	1	2388	A
1	1	2402	U
1	1	2403	C
1	1	2406	A
1	1	2408	U
1	1	2410	G
1	1	2423	U
1	1	2424	C
1	1	2425	A
1	1	2426	A
1	1	2428	G
1	1	2429	G
1	1	2430	A
1	1	2431	U
1	1	2434	A
1	1	2436	G
1	1	2441	U
1	1	2445	2MG
1	1	2447	G
1	1	2448	A
1	1	2459	A
1	1	2464	G
1	1	2469	A
1	1	2470	G
1	1	2473	U
1	1	2475	C
1	1	2476	A
1	1	2477	U

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Mol	Chain	Res	Type
1	1	2480	C
1	1	2484	G
1	1	2490	G
1	1	2491	U
1	1	2492	U
1	1	2494	G
1	1	2498	OMC
1	1	2501	C
1	1	2502	G
1	1	2503	2MA
1	1	2504	PSU
1	1	2505	G
1	1	2507	C
1	1	2512	C
1	1	2513	A
1	1	2518	A
1	1	2520	C
1	1	2529	G
1	1	2530	A
1	1	2531	A
1	1	2535	G
1	1	2547	A
1	1	2554	U
1	1	2564	A
1	1	2566	A
1	1	2567	G
1	1	2572	A
1	1	2573	C
1	1	2574	G
1	1	2585	U
1	1	2586	U
1	1	2599	G
1	1	2602	A
1	1	2608	G
1	1	2609	U
1	1	2610	C
1	1	2611	C
1	1	2613	U
1	1	2621	G
1	1	2629	U
1	1	2630	G
1	1	2636	C

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Mol	Chain	Res	Type
1	1	2644	G
1	1	2646	C
1	1	2648	G
1	1	2654	A
1	1	2673	G
1	1	2686	G
1	1	2689	U
1	1	2690	U
1	1	2707	U
1	1	2716	C
1	1	2718	G
1	1	2725	A
1	1	2726	A
1	1	2728	U
1	1	2732	G
1	1	2733	A
1	1	2739	U
1	1	2744	G
1	1	2748	A
1	1	2752	C
1	1	2756	U
1	1	2757	A
1	1	2765	A
1	1	2766	A
1	1	2769	U
1	1	2776	A
1	1	2777	G
1	1	2778	A
1	1	2780	G
1	1	2787	C
1	1	2793	C
1	1	2794	C
1	1	2797	U
1	1	2798	U
1	1	2799	A
1	1	2811	G
1	1	2812	G
1	1	2818	U
1	1	2820	A
1	1	2821	A
1	1	2823	A
1	1	2825	G

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Mol	Chain	Res	Type
1	1	2833	U
1	1	2835	A
1	1	2860	A
1	1	2861	U
1	1	2867	G
1	1	2872	A
1	1	2873	A
1	1	2879	A
1	1	2880	C
1	1	2884	U
1	1	2885	G
1	1	2886	A
1	1	2893	A
1	1	2898	U
1	1	2900	A
1	1	2901	C
2	2	2	A
2	2	3	A
2	2	4	U
2	2	5	U
2	2	6	G
2	2	7	A
2	2	8	A
2	2	9	G
2	2	22	G
2	2	39	G
2	2	44	A
2	2	47	C
2	2	48	C
2	2	50	A
2	2	51	A
2	2	52	C
2	2	54	C
2	2	61	G
2	2	68	G
2	2	70	U
2	2	71	A
2	2	72	A
2	2	74	A
2	2	76	G
2	2	79	G
2	2	81	A

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Mol	Chain	Res	Type
2	2	82	G
2	2	83	C
2	2	84	U
2	2	85	U
2	2	87	C
2	2	88	U
2	2	89	U
2	2	91	U
2	2	92	U
2	2	94	G
2	2	95	C
2	2	120	A
2	2	121	U
2	2	122	G
2	2	123	U
2	2	127	G
2	2	129	A
2	2	130	A
2	2	131	A
2	2	141	G
2	2	144	G
2	2	146	G
2	2	149	A
2	2	154	U
2	2	163	C
2	2	164	G
2	2	169	C
2	2	173	U
2	2	177	G
2	2	180	U
2	2	181	A
2	2	182	A
2	2	183	C
2	2	185	U
2	2	192	A
2	2	195	A
2	2	197	A
2	2	202	G
2	2	203	G
2	2	204	G
2	2	209	U
2	2	210	C

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Mol	Chain	Res	Type
2	2	211	G
2	2	212	G
2	2	213	G
2	2	214	C
2	2	223	A
2	2	226	G
2	2	240	G
2	2	244	U
2	2	245	U
2	2	247	G
2	2	251	G
2	2	266	G
2	2	267	C
2	2	279	A
2	2	281	G
2	2	289	G
2	2	306	A
2	2	316	C
2	2	319	G
2	2	320	A
2	2	328	C
2	2	329	A
2	2	330	C
2	2	332	G
2	2	339	C
2	2	347	G
2	2	348	G
2	2	351	G
2	2	352	C
2	2	353	A
2	2	354	G
2	2	356	A
2	2	365	U
2	2	366	A
2	2	367	U
2	2	372	C
2	2	384	G
2	2	388	G
2	2	390	U
2	2	397	A
2	2	406	G
2	2	411	A

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Mol	Chain	Res	Type
2	2	412	A
2	2	413	G
2	2	414	A
2	2	421	U
2	2	422	C
2	2	424	G
2	2	428	G
2	2	429	U
2	2	450	G
2	2	456	A
2	2	457	G
2	2	458	U
2	2	464	U
2	2	467	U
2	2	468	A
2	2	469	C
2	2	473	U
2	2	476	U
2	2	477	C
2	2	478	A
2	2	479	U
2	2	481	G
2	2	486	U
2	2	493	A
2	2	495	A
2	2	496	A
2	2	497	G
2	2	509	A
2	2	510	A
2	2	511	C
2	2	515	G
2	2	517	G
2	2	518	C
2	2	519	C
2	2	521	G
2	2	526	C
2	2	527	G7M
2	2	531	U
2	2	532	A
2	2	533	A
2	2	547	A
2	2	555	U

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Mol	Chain	Res	Type
2	2	560	A
2	2	562	U
2	2	564	C
2	2	572	A
2	2	573	A
2	2	576	C
2	2	577	G
2	2	596	A
2	2	607	A
2	2	614	C
2	2	616	G
2	2	618	C
2	2	619	U
2	2	633	G
2	2	640	A
2	2	641	U
2	2	650	G
2	2	653	U
2	2	661	G
2	2	665	A
2	2	673	A
2	2	674	G
2	2	686	U
2	2	695	A
2	2	700	G
2	2	701	U
2	2	703	G
2	2	718	A
2	2	721	G
2	2	723	U
2	2	731	G
2	2	734	G
2	2	747	A
2	2	748	G
2	2	752	G
2	2	753	A
2	2	755	G
2	2	788	U
2	2	793	U
2	2	794	A
2	2	799	G
2	2	802	A

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Mol	Chain	Res	Type
2	2	812	G
2	2	814	A
2	2	815	A
2	2	816	A
2	2	817	C
2	2	818	G
2	2	819	A
2	2	820	U
2	2	821	G
2	2	828	U
2	2	829	G
2	2	842	U
2	2	843	U
2	2	844	G
2	2	845	A
2	2	846	G
2	2	849	G
2	2	851	G
2	2	864	A
2	2	871	U
2	2	876	C
2	2	884	U
2	2	900	A
2	2	902	G
2	2	904	U
2	2	914	A
2	2	934	C
2	2	935	A
2	2	939	G
2	2	958	A
2	2	960	U
2	2	966	2MG
2	2	969	A
2	2	971	G
2	2	974	A
2	2	975	A
2	2	976	G
2	2	977	A
2	2	982	U
2	2	989	U
2	2	992	U
2	2	993	G

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Mol	Chain	Res	Type
2	2	994	A
2	2	996	A
2	2	999	C
2	2	1003	G
2	2	1004	A
2	2	1008	U
2	2	1009	U
2	2	1010	U
2	2	1012	A
2	2	1017	U
2	2	1018	G
2	2	1019	A
2	2	1020	G
2	2	1022	A
2	2	1026	G
2	2	1027	C
2	2	1028	C
2	2	1029	U
2	2	1031	C
2	2	1032	G
2	2	1033	G
2	2	1034	G
2	2	1036	A
2	2	1043	G
2	2	1044	A
2	2	1045	C
2	2	1046	A
2	2	1050	G
2	2	1054	C
2	2	1055	A
2	2	1065	U
2	2	1067	A
2	2	1080	A
2	2	1085	U
2	2	1086	U
2	2	1087	G
2	2	1092	A
2	2	1094	G
2	2	1095	U
2	2	1101	A
2	2	1102	A
2	2	1108	G

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Mol	Chain	Res	Type
2	2	1118	U
2	2	1124	G
2	2	1125	U
2	2	1130	A
2	2	1132	C
2	2	1133	G
2	2	1135	U
2	2	1136	C
2	2	1137	C
2	2	1139	G
2	2	1140	C
2	2	1141	C
2	2	1144	G
2	2	1145	A
2	2	1146	A
2	2	1147	C
2	2	1151	A
2	2	1152	A
2	2	1158	C
2	2	1159	U
2	2	1160	G
2	2	1162	C
2	2	1167	A
2	2	1168	U
2	2	1169	A
2	2	1171	A
2	2	1176	A
2	2	1177	G
2	2	1184	G
2	2	1193	G
2	2	1196	A
2	2	1197	A
2	2	1200	C
2	2	1201	A
2	2	1211	U
2	2	1212	U
2	2	1213	A
2	2	1214	C
2	2	1227	A
2	2	1228	C
2	2	1233	G
2	2	1238	A

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Mol	Chain	Res	Type
2	2	1241	G
2	2	1257	A
2	2	1258	G
2	2	1260	G
2	2	1261	A
2	2	1275	A
2	2	1279	G
2	2	1280	A
2	2	1286	U
2	2	1287	A
2	2	1297	G
2	2	1299	A
2	2	1300	G
2	2	1301	U
2	2	1302	C
2	2	1305	G
2	2	1312	G
2	2	1317	C
2	2	1319	A
2	2	1320	C
2	2	1322	C
2	2	1331	G
2	2	1336	C
2	2	1338	G
2	2	1340	A
2	2	1344	C
2	2	1346	A
2	2	1348	U
2	2	1353	G
2	2	1363	A
2	2	1364	U
2	2	1365	G
2	2	1368	A
2	2	1370	G
2	2	1378	C
2	2	1379	G
2	2	1381	U
2	2	1395	C
2	2	1397	C
2	2	1398	A
2	2	1399	C
2	2	1401	G

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Mol	Chain	Res	Type
2	2	1402	4OC
2	2	1418	A
2	2	1422	G
2	2	1429	A
2	2	1432	G
2	2	1433	A
2	2	1441	A
2	2	1445	U
2	2	1446	A
2	2	1451	U
2	2	1452	C
2	2	1453	G
2	2	1471	U
2	2	1475	G
2	2	1487	G
2	2	1491	G
2	2	1492	A
2	2	1493	A
2	2	1494	G
2	2	1497	G
2	2	1499	A
2	2	1500	A
2	2	1503	A
2	2	1506	U
2	2	1517	G
2	2	1519	MA6
2	2	1520	C
2	2	1528	U
2	2	1529	G
2	2	1530	G
2	2	1533	C
2	2	1534	A
3	3	2	G
3	3	9	G
3	3	12	C
3	3	13	G
3	3	17	C
3	3	20	G
3	3	33	G
3	3	34	A
3	3	35	C
3	3	36	C

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Mol	Chain	Res	Type
3	3	37	C
3	3	40	U
3	3	42	C
3	3	44	G
3	3	53	A
3	3	54	G
3	3	56	G
3	3	57	A
3	3	58	A
3	3	66	A
3	3	68	C
3	3	74	U
3	3	88	C
3	3	89	U
3	3	90	C
3	3	91	C
3	3	99	A
3	3	109	A
3	3	119	A
52	4	19	U
52	4	21	A
54	5	3	G
54	5	7	U
54	5	8	4SU
54	5	9	G
54	5	12	C
54	5	15	C
54	5	16	C
54	5	17	U
54	5	18	G
54	5	19	G
54	5	20	H2U
54	5	21	A
54	5	22	G
54	5	47	U
54	5	48	C
54	5	49	G
54	5	52	G
54	5	55	PSU
54	5	58	A
54	5	59	A
54	5	68	C

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Mol	Chain	Res	Type
54	5	70	G
54	5	72	A
54	5	76	A

All (21) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	1	140	C
1	1	323	C
1	1	329	G
1	1	404	A
1	1	546	U
1	1	613	A
1	1	784	G
1	1	894	U
1	1	1069	A
1	1	1379	U
1	1	1636	U
1	1	2146	C
1	1	2425	A
1	1	2756	U
2	2	210	C
2	2	428	G
2	2	496	A
2	2	516	PSU
2	2	1109	C
2	2	1145	A
54	5	17	U

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

40 non-standard protein/DNA/RNA residues are 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	MA6	2	1519	2	23,26,27	1.56	4 (17%)	33,38,41	2.86	12 (36%)
1	PSU	1	2580	1	18,21,22	1.13	3 (16%)	21,30,33	2.34	6 (28%)
54	H2U	5	20	54	18,21,22	3.31	5 (27%)	19,30,33	1.36	3 (15%)
54	4OC	5	32	54	20,23,24	3.02	8 (40%)	25,32,35	1.00	2 (8%)
1	PSU	1	2605	1	18,21,22	1.11	2 (11%)	21,30,33	2.16	5 (23%)
1	OMG	1	2251	54,1	23,26,27	2.37	7 (30%)	32,38,41	1.88	7 (21%)
1	PSU	1	2457	1	18,21,22	1.19	3 (16%)	21,30,33	2.05	6 (28%)
1	6MZ	1	2030	1	22,25,26	2.88	6 (27%)	29,36,39	4.69	14 (48%)
2	5MC	2	1407	2	19,22,23	3.69	8 (42%)	26,32,35	1.12	2 (7%)
1	PSU	1	746	1	18,21,22	1.11	2 (11%)	21,30,33	1.85	5 (23%)
1	PSU	1	1917	1	18,21,22	1.09	1 (5%)	21,30,33	2.08	4 (19%)
1	PSU	1	1911	1	18,21,22	1.06	1 (5%)	21,30,33	2.19	4 (19%)
2	4OC	2	1402	2	20,23,24	2.92	8 (40%)	25,32,35	1.31	3 (12%)
1	5MU	1	747	1	19,22,23	4.70	7 (36%)	27,32,35	4.06	10 (37%)
1	2MA	1	2503	1	22,25,26	3.63	9 (40%)	32,37,40	2.27	8 (25%)
2	2MG	2	966	2	23,26,27	2.97	7 (30%)	33,38,41	2.44	8 (24%)
1	2MG	1	1835	1	23,26,27	2.86	8 (34%)	33,38,41	2.16	10 (30%)
1	1MG	1	745	1	23,26,27	2.76	6 (26%)	33,39,42	2.12	9 (27%)
2	5MC	2	967	2	19,22,23	3.72	8 (42%)	26,32,35	1.25	2 (7%)
54	5MU	5	54	54	19,22,23	4.82	7 (36%)	27,32,35	3.43	9 (33%)
2	MA6	2	1518	2	23,26,27	1.61	5 (21%)	33,38,41	2.65	12 (36%)
1	6MZ	1	1618	1	22,25,26	2.84	6 (27%)	29,36,39	4.37	11 (37%)
2	2MG	2	1207	2	23,26,27	2.79	8 (34%)	33,38,41	2.61	13 (39%)
1	5MC	1	1962	1	19,22,23	3.56	8 (42%)	26,32,35	1.24	3 (11%)
1	PSU	1	2504	1	18,21,22	1.11	1 (5%)	21,30,33	1.97	4 (19%)
54	4SU	5	8	54	18,21,22	3.68	7 (38%)	25,30,33	2.20	5 (20%)
1	3TD	1	1915	1	19,22,23	4.31	5 (26%)	23,32,35	1.98	4 (17%)
1	G7M	1	2069	1	23,26,27	2.56	6 (26%)	34,39,42	2.52	12 (35%)
2	UR3	2	1498	2	19,22,23	2.39	6 (31%)	26,32,35	1.53	3 (11%)
2	G7M	2	527	2	23,26,27	3.54	10 (43%)	34,39,42	1.57	7 (20%)
42	0TD	q	89	42	8,9,10	1.47	0	6,11,13	3.05	3 (50%)
1	2MG	1	2445	1	23,26,27	2.89	6 (26%)	33,38,41	2.38	7 (21%)
1	OMC	1	2498	1	19,22,23	2.85	7 (36%)	25,31,34	0.89	0
54	PSU	5	55	54	18,21,22	1.18	1 (5%)	21,30,33	1.64	4 (19%)
1	5MU	1	1939	1	19,22,23	4.66	7 (36%)	27,32,35	3.98	10 (37%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	2MG	2	1516	2	23,26,27	2.98	7 (30%)	33,38,41	2.30	10 (30%)
2	PSU	2	516	2	18,21,22	1.04	2 (11%)	21,30,33	2.03	4 (19%)
1	PSU	1	955	1	18,21,22	1.00	1 (5%)	21,30,33	1.85	4 (19%)
1	OMU	1	2552	1	19,22,23	2.81	8 (42%)	25,31,34	2.10	5 (20%)
55	FME	6	77	55	8,9,10	0.70	0	8,9,11	1.27	1 (12%)

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	MA6	2	1519	2	-	3/11/29/30	0/3/3/3
1	PSU	1	2580	1	-	0/7/25/26	0/2/2/2
54	H2U	5	20	54	-	4/7/38/39	0/2/2/2
54	4OC	5	32	54	-	0/9/29/30	0/2/2/2
1	PSU	1	2605	1	-	0/7/25/26	0/2/2/2
1	OMG	1	2251	54,1	-	2/9/27/28	0/3/3/3
1	PSU	1	2457	1	-	0/7/25/26	0/2/2/2
1	6MZ	1	2030	1	-	3/9/27/28	0/3/3/3
2	5MC	2	1407	2	-	0/7/25/26	0/2/2/2
1	PSU	1	746	1	-	0/7/25/26	0/2/2/2
1	PSU	1	1917	1	-	0/7/25/26	0/2/2/2
1	PSU	1	1911	1	-	1/7/25/26	0/2/2/2
2	4OC	2	1402	2	-	4/9/29/30	0/2/2/2
1	5MU	1	747	1	-	0/7/25/26	0/2/2/2
1	2MA	1	2503	1	-	3/7/25/26	0/3/3/3
2	2MG	2	966	2	-	3/9/27/28	0/3/3/3
1	2MG	1	1835	1	-	2/9/27/28	0/3/3/3
1	1MG	1	745	1	-	0/7/25/26	0/3/3/3
2	5MC	2	967	2	-	0/7/25/26	0/2/2/2
54	5MU	5	54	54	-	0/7/25/26	0/2/2/2
2	MA6	2	1518	2	-	1/11/29/30	0/3/3/3
1	6MZ	1	1618	1	-	2/9/27/28	0/3/3/3
2	2MG	2	1207	2	-	0/9/27/28	0/3/3/3
1	5MC	1	1962	1	-	2/7/25/26	0/2/2/2
1	PSU	1	2504	1	-	2/7/25/26	0/2/2/2
54	4SU	5	8	54	-	4/7/25/26	0/2/2/2
1	3TD	1	1915	1	-	4/7/25/26	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	G7M	1	2069	1	-	0/7/25/26	0/3/3/3
2	UR3	2	1498	2	-	0/7/25/26	0/2/2/2
2	G7M	2	527	2	-	2/7/25/26	0/3/3/3
42	0TD	q	89	42	-	3/7/12/14	-
1	2MG	1	2445	1	-	2/9/27/28	0/3/3/3
1	OMC	1	2498	1	-	1/9/27/28	0/2/2/2
54	PSU	5	55	54	-	2/7/25/26	0/2/2/2
1	5MU	1	1939	1	-	0/7/25/26	0/2/2/2
2	2MG	2	1516	2	-	0/9/27/28	0/3/3/3
2	PSU	2	516	2	-	2/7/25/26	0/2/2/2
1	PSU	1	955	1	-	0/7/25/26	0/2/2/2
1	OMU	1	2552	1	-	1/9/27/28	0/2/2/2
55	FME	6	77	55	-	2/7/9/11	-

All (211) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	1	1915	3TD	C6-C5	13.54	1.50	1.35
54	5	54	5MU	C2-N1	11.31	1.56	1.38
1	1	1618	6MZ	C6-N6	10.94	1.46	1.34
1	1	2030	6MZ	C6-N6	10.82	1.46	1.34
1	1	2503	2MA	C4-N3	10.80	1.48	1.34
2	2	527	G7M	C8-N7	10.76	1.51	1.33
54	5	20	H2U	C2-N1	10.61	1.50	1.35
1	1	747	5MU	C2-N1	10.48	1.54	1.38
54	5	54	5MU	C6-N1	10.46	1.55	1.38
1	1	1939	5MU	C2-N1	10.10	1.54	1.38
1	1	747	5MU	C4-C5	9.92	1.61	1.44
54	5	54	5MU	C4-C5	9.81	1.60	1.44
1	1	747	5MU	C6-N1	9.78	1.54	1.38
1	1	1939	5MU	C6-N1	9.73	1.54	1.38
1	1	1939	5MU	C4-C5	9.64	1.60	1.44
1	1	1915	3TD	C2-N1	9.62	1.49	1.37
2	2	967	5MC	C6-C5	9.08	1.49	1.34
2	2	1407	5MC	C6-C5	8.75	1.48	1.34
1	1	1939	5MU	C4-N3	-8.33	1.23	1.38
1	1	1962	5MC	C6-C5	8.29	1.48	1.34
1	1	747	5MU	C4-N3	-8.20	1.23	1.38
54	5	8	4SU	C2-N1	7.88	1.50	1.38
54	5	8	4SU	C4-N3	7.87	1.45	1.37
54	5	54	5MU	C4-N3	-7.86	1.24	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	2	1516	2MG	C2-N3	7.37	1.46	1.32
1	1	745	1MG	C2-N2	7.36	1.47	1.34
2	2	966	2MG	C2-N3	7.36	1.46	1.32
1	1	2445	2MG	C2-N3	7.18	1.45	1.32
1	1	1835	2MG	C2-N3	7.01	1.45	1.32
1	1	1962	5MC	C4-N3	7.00	1.45	1.34
54	5	32	4OC	C4-N3	6.94	1.44	1.32
2	2	967	5MC	C4-N3	6.83	1.45	1.34
1	1	2503	2MA	C2-N3	6.82	1.45	1.34
2	2	1516	2MG	C2-N2	6.77	1.47	1.33
1	1	2069	G7M	C4-N3	6.73	1.49	1.34
2	2	966	2MG	C4-N3	6.73	1.49	1.34
2	2	1402	4OC	C4-N3	6.72	1.44	1.32
54	5	20	H2U	C2-N3	6.71	1.49	1.38
2	2	1207	2MG	C2-N3	6.63	1.44	1.32
2	2	966	2MG	C2-N2	6.58	1.47	1.33
1	1	2445	2MG	C4-N3	6.50	1.49	1.34
2	2	1516	2MG	C4-N3	6.48	1.49	1.34
2	2	1407	5MC	C4-N3	6.47	1.44	1.34
1	1	1835	2MG	C4-N3	6.40	1.48	1.34
1	1	745	1MG	C4-N3	6.32	1.48	1.34
1	1	1835	2MG	C2-N2	6.28	1.46	1.33
1	1	2445	2MG	C2-N2	6.27	1.46	1.33
1	1	745	1MG	C2-N3	6.25	1.43	1.33
1	1	2552	OMU	C2-N3	6.21	1.48	1.38
1	1	2498	OMC	C6-C5	6.20	1.49	1.35
1	1	2251	OMG	C4-N3	6.11	1.48	1.34
1	1	2552	OMU	C2-N1	6.06	1.48	1.38
54	5	32	4OC	C6-C5	6.05	1.49	1.35
2	2	1207	2MG	C2-N2	6.02	1.46	1.33
2	2	1207	2MG	C4-N3	5.98	1.47	1.34
1	1	2498	OMC	C2-N3	5.95	1.48	1.36
2	2	967	5MC	C2-N3	5.95	1.48	1.36
2	2	1402	4OC	C2-N3	5.87	1.48	1.36
54	5	8	4SU	C6-C5	5.85	1.48	1.35
54	5	32	4OC	C2-N3	5.81	1.47	1.36
1	1	1962	5MC	C2-N3	5.81	1.47	1.36
1	1	1939	5MU	C6-C5	5.79	1.44	1.34
1	1	2503	2MA	C2-N1	5.78	1.44	1.34
1	1	1915	3TD	C6-N1	5.77	1.45	1.36
2	2	1407	5MC	C5-C4	5.76	1.48	1.44
2	2	1407	5MC	C2-N3	5.74	1.47	1.36

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
54	5	8	4SU	C2-N3	5.65	1.47	1.38
54	5	8	4SU	C4-S4	-5.63	1.58	1.68
2	2	1498	UR3	C2-N1	5.62	1.46	1.38
54	5	54	5MU	C6-C5	5.51	1.43	1.34
2	2	1498	UR3	C6-C5	5.50	1.47	1.35
1	1	2498	OMC	C4-N3	5.48	1.45	1.34
1	1	2503	2MA	C6-N1	5.46	1.42	1.35
2	2	1402	4OC	C6-C5	5.44	1.47	1.35
2	2	527	G7M	C2-N3	5.38	1.46	1.33
1	1	2552	OMU	C6-C5	5.38	1.47	1.35
1	1	747	5MU	C6-C5	5.37	1.43	1.34
2	2	527	G7M	C8-N9	5.35	1.50	1.35
2	2	527	G7M	C4-N3	5.13	1.46	1.34
2	2	967	5MC	C5-C4	5.08	1.48	1.44
1	1	2069	G7M	C5-N7	-5.06	1.33	1.39
54	5	20	H2U	C4-N3	5.04	1.46	1.37
1	1	2069	G7M	C2-N3	5.02	1.45	1.33
1	1	2251	OMG	C2-N3	4.99	1.45	1.33
1	1	1962	5MC	C5-C4	4.86	1.47	1.44
1	1	1915	3TD	C2-N3	4.84	1.48	1.38
2	2	527	G7M	C2-N2	4.74	1.45	1.34
2	2	967	5MC	C4-N4	4.71	1.46	1.34
1	1	1962	5MC	C4-N4	4.70	1.46	1.34
2	2	1407	5MC	C4-N4	4.69	1.46	1.34
1	1	2251	OMG	C2-N2	4.54	1.44	1.34
2	2	1402	4OC	C2-N1	4.45	1.49	1.40
2	2	1498	UR3	C2-N3	4.40	1.47	1.39
2	2	967	5MC	C2-N1	4.35	1.49	1.40
2	2	967	5MC	C6-N1	4.35	1.45	1.38
2	2	527	G7M	C5-N7	4.32	1.44	1.39
2	2	1407	5MC	C6-N1	4.29	1.45	1.38
2	2	1407	5MC	C2-N1	4.24	1.49	1.40
1	1	2069	G7M	C2-N2	4.23	1.44	1.34
54	5	32	4OC	C2-N1	4.16	1.48	1.40
2	2	1516	2MG	C2-N1	4.15	1.43	1.36
54	5	55	PSU	C6-C5	4.11	1.39	1.35
1	1	2030	6MZ	C5-C4	-4.09	1.31	1.39
1	1	2503	2MA	C5-C6	4.07	1.52	1.41
2	2	966	2MG	C2-N1	4.03	1.43	1.36
1	1	1962	5MC	C6-N1	4.03	1.44	1.38
54	5	32	4OC	C4-N4	3.98	1.44	1.36
2	2	1207	2MG	C2-N1	3.90	1.42	1.36

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	1	1835	2MG	C2-N1	3.83	1.42	1.36
1	1	2445	2MG	C5-N7	-3.83	1.31	1.39
1	1	2445	2MG	O6-C6	-3.82	1.16	1.23
2	2	1402	4OC	C4-N4	3.74	1.43	1.36
2	2	1518	MA6	C8-N9	-3.71	1.31	1.37
1	1	2030	6MZ	C8-N9	-3.70	1.31	1.37
2	2	966	2MG	O6-C6	-3.68	1.16	1.23
1	1	1835	2MG	C5-N7	-3.63	1.31	1.39
2	2	1516	2MG	O6-C6	-3.63	1.16	1.23
1	1	1962	5MC	C2-N1	3.62	1.47	1.40
2	2	1519	MA6	C6-N6	3.62	1.46	1.36
1	1	2069	G7M	C5-C6	3.61	1.53	1.43
2	2	1207	2MG	O6-C6	-3.60	1.16	1.23
1	1	2503	2MA	C6-N6	-3.58	1.25	1.34
2	2	966	2MG	C5-N7	-3.57	1.31	1.39
54	5	32	4OC	C5-C4	3.57	1.48	1.41
1	1	2552	OMU	C4-N3	3.56	1.44	1.38
1	1	2251	OMG	C5-N7	-3.55	1.31	1.39
1	1	2504	PSU	C6-C5	3.53	1.39	1.35
1	1	2445	2MG	C2-N1	3.52	1.42	1.36
1	1	1618	6MZ	C5-C4	-3.51	1.32	1.39
2	2	1518	MA6	C6-N6	3.51	1.46	1.36
2	2	1516	2MG	C5-N7	-3.51	1.32	1.39
1	1	2503	2MA	C5-N7	-3.49	1.32	1.39
1	1	1835	2MG	O6-C6	-3.48	1.17	1.23
1	1	2498	OMC	O2-C2	-3.47	1.17	1.23
1	1	2498	OMC	C4-N4	3.45	1.42	1.33
1	1	2030	6MZ	C4-N9	-3.43	1.30	1.37
2	2	527	G7M	C2-N1	3.43	1.46	1.37
1	1	1618	6MZ	C8-N9	-3.41	1.31	1.37
1	1	2498	OMC	C6-N1	3.40	1.46	1.38
2	2	1407	5MC	O2-C2	-3.39	1.17	1.23
1	1	2498	OMC	C2-N1	3.36	1.47	1.40
1	1	1962	5MC	O2-C2	-3.36	1.17	1.23
2	2	1207	2MG	C5-N7	-3.36	1.32	1.39
1	1	2552	OMU	O4-C4	-3.30	1.18	1.24
54	5	8	4SU	C5-C4	3.30	1.46	1.42
1	1	746	PSU	C6-C5	3.29	1.38	1.35
1	1	745	1MG	C5-N7	-3.27	1.32	1.39
2	2	1518	MA6	C5-N7	-3.27	1.33	1.39
2	2	527	G7M	C5-C6	3.20	1.52	1.43
2	2	1519	MA6	C8-N9	-3.19	1.32	1.37

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	1	1915	3TD	C4-N3	3.17	1.47	1.40
2	2	1518	MA6	C5-C4	-3.15	1.33	1.39
2	2	967	5MC	O2-C2	-3.15	1.17	1.23
2	2	1519	MA6	C5-N7	-3.15	1.33	1.39
1	1	2552	OMU	O2-C2	-3.14	1.17	1.23
1	1	2457	PSU	C6-C5	3.10	1.38	1.35
1	1	2069	G7M	O6-C6	-3.10	1.17	1.23
1	1	1911	PSU	C6-C5	3.08	1.38	1.35
1	1	2605	PSU	C6-C5	3.05	1.38	1.35
2	2	1402	4OC	C5-C4	3.03	1.47	1.41
54	5	32	4OC	C6-N1	3.02	1.45	1.38
2	2	1519	MA6	C5-C4	-2.99	1.33	1.39
1	1	1939	5MU	O2-C2	-2.96	1.17	1.23
1	1	747	5MU	O2-C2	-2.93	1.17	1.23
1	1	1917	PSU	C6-C5	2.92	1.38	1.35
1	1	747	5MU	O4-C4	-2.92	1.18	1.23
1	1	1939	5MU	O4-C4	-2.89	1.18	1.23
2	2	1402	4OC	C6-N1	2.89	1.45	1.38
1	1	745	1MG	C2-N1	2.88	1.42	1.37
1	1	2251	OMG	O6-C6	-2.88	1.18	1.23
1	1	955	PSU	C6-C5	2.83	1.38	1.35
2	2	527	G7M	O6-C6	-2.83	1.18	1.23
1	1	1618	6MZ	C4-N9	-2.81	1.31	1.37
1	1	2580	PSU	C6-C5	2.79	1.38	1.35
54	5	32	4OC	O2-C2	-2.77	1.18	1.23
1	1	1618	6MZ	C6-N1	-2.75	1.30	1.35
1	1	2503	2MA	C4-N9	-2.71	1.32	1.37
2	2	1402	4OC	O2-C2	-2.69	1.18	1.23
54	5	54	5MU	O4-C4	-2.68	1.18	1.23
2	2	527	G7M	C6-N1	2.67	1.43	1.38
1	1	1618	6MZ	C5-C6	-2.60	1.35	1.41
2	2	1498	UR3	O4-C4	-2.58	1.18	1.23
2	2	1498	UR3	O2-C2	-2.56	1.17	1.22
2	2	516	PSU	C6-C5	2.54	1.38	1.35
54	5	8	4SU	O2-C2	-2.49	1.18	1.23
1	1	2030	6MZ	C6-N1	-2.45	1.31	1.35
1	1	745	1MG	C4-N9	-2.44	1.31	1.38
1	1	2251	OMG	C2-N1	2.43	1.43	1.37
54	5	54	5MU	O2-C2	-2.42	1.18	1.23
2	2	1207	2MG	C5-C6	2.40	1.53	1.44
2	2	1207	2MG	C4-N9	-2.40	1.32	1.38
1	1	2251	OMG	C4-N9	-2.38	1.32	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
54	5	20	H2U	O4-C4	-2.34	1.18	1.23
1	1	2030	6MZ	C5-C6	-2.32	1.36	1.41
1	1	2580	PSU	O4'-C1'	-2.31	1.40	1.43
54	5	20	H2U	O2-C2	-2.26	1.19	1.23
1	1	2552	OMU	C6-N1	2.21	1.43	1.38
1	1	2457	PSU	C4-C5	-2.20	1.38	1.44
1	1	2457	PSU	O4'-C1'	-2.19	1.40	1.43
1	1	746	PSU	C4-C5	-2.17	1.38	1.44
1	1	2552	OMU	C5-C4	2.17	1.48	1.43
2	2	1518	MA6	C5-C6	-2.15	1.36	1.41
2	2	966	2MG	C5-C6	2.14	1.52	1.44
2	2	516	PSU	C4-C5	-2.13	1.38	1.44
1	1	1835	2MG	C4-N9	-2.11	1.32	1.38
2	2	1498	UR3	C6-N1	2.10	1.43	1.38
1	1	1835	2MG	C5-C6	2.09	1.52	1.44
2	2	1516	2MG	C5-C6	2.08	1.52	1.44
1	1	2503	2MA	C8-N9	-2.07	1.34	1.37
1	1	2580	PSU	C4-C5	-2.03	1.38	1.44
1	1	2605	PSU	C4-C5	-2.00	1.38	1.44

All (251) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	1	2030	6MZ	C4-N9-C8	15.00	121.48	105.74
1	1	1618	6MZ	C4-N9-C8	13.24	119.64	105.74
1	1	747	5MU	C5-C4-N3	12.81	126.46	115.32
1	1	1939	5MU	C5-C4-N3	12.31	126.02	115.32
54	5	54	5MU	C5-C4-N3	11.65	125.44	115.32
1	1	747	5MU	C5-C6-N1	-11.40	110.92	123.31
1	1	1939	5MU	C5-C6-N1	-11.26	111.08	123.31
1	1	2030	6MZ	N9-C8-N7	-10.99	98.34	113.94
1	1	1618	6MZ	N9-C8-N7	-9.69	100.19	113.94
1	1	2030	6MZ	C5-C6-N1	9.09	127.90	118.15
2	2	1519	MA6	N1-C6-N6	-9.09	105.79	116.86
1	1	1618	6MZ	C5-C6-N1	8.63	127.42	118.15
54	5	54	5MU	C5-C6-N1	-8.11	114.51	123.31
2	2	1518	MA6	N1-C6-N6	-7.78	107.38	116.86
2	2	966	2MG	C2-N3-C4	7.32	121.16	112.00
54	5	8	4SU	C4-N3-C2	-7.22	120.39	127.31
1	1	1618	6MZ	N3-C4-N9	7.06	139.18	127.17
1	1	2445	2MG	C2-N3-C4	6.93	120.67	112.00
1	1	2552	OMU	C4-N3-C2	-6.87	118.08	126.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	2	1516	2MG	C2-N3-C4	6.80	120.51	112.00
2	2	1207	2MG	C2-N3-C4	6.65	120.32	112.00
2	2	966	2MG	C5-C4-N3	-6.55	117.96	128.39
1	1	2503	2MA	C5-C4-N3	-6.55	120.28	127.18
2	2	1519	MA6	N1-C2-N3	-6.53	118.70	128.58
1	1	2445	2MG	C5-C4-N3	-6.41	118.19	128.39
1	1	2069	G7M	CN7-N7-C5	6.08	134.38	126.80
1	1	2580	PSU	N1-C2-N3	6.01	121.51	115.17
2	2	1519	MA6	C5-C6-N6	6.00	134.83	125.33
1	1	1835	2MG	C2-N3-C4	6.00	119.51	112.00
1	1	2030	6MZ	N3-C4-N9	5.97	137.32	127.17
1	1	1939	5MU	C4-N3-C2	-5.92	119.58	127.34
2	2	1518	MA6	N1-C2-N3	-5.87	119.69	128.58
1	1	2030	6MZ	N1-C2-N3	-5.84	119.74	128.58
1	1	745	1MG	C1'-N9-C4	-5.80	109.36	126.49
1	1	747	5MU	C4-N3-C2	-5.77	119.78	127.34
1	1	1911	PSU	N1-C2-N3	5.76	121.24	115.17
1	1	1915	3TD	C1'-C5-C4	5.66	126.20	117.61
42	q	89	0TD	OD2-CG-CB	5.66	125.36	113.15
1	1	2605	PSU	N1-C2-N3	5.60	121.07	115.17
2	2	1516	2MG	C5-C4-N3	-5.58	119.52	128.39
1	1	1618	6MZ	C5-C4-N9	-5.57	99.74	105.81
1	1	2069	G7M	C2-N3-C4	5.54	121.83	112.30
1	1	1917	PSU	N1-C2-N3	5.47	120.94	115.17
1	1	1618	6MZ	N1-C2-N3	-5.45	120.33	128.58
2	2	1207	2MG	C2-N1-C6	-5.44	117.98	124.55
1	1	2030	6MZ	C5-C4-N9	-5.42	99.91	105.81
1	1	2457	PSU	N1-C2-N3	5.40	120.86	115.17
1	1	1939	5MU	O4-C4-C5	-5.36	118.79	124.92
1	1	1911	PSU	C4-N3-C2	-5.30	119.07	126.37
1	1	1835	2MG	C5-C4-N3	-5.30	119.96	128.39
1	1	2503	2MA	N9-C8-N7	-5.29	106.43	113.94
2	2	1207	2MG	C5-C4-N3	-5.29	119.97	128.39
2	2	1207	2MG	N1-C2-N2	5.28	121.95	116.56
1	1	747	5MU	O4-C4-C5	-5.25	118.91	124.92
1	1	1939	5MU	N3-C2-N1	5.25	121.72	114.89
54	5	8	4SU	C5-C4-N3	5.24	119.62	114.75
1	1	2251	OMG	C5-C4-N3	-5.23	120.07	128.39
1	1	2605	PSU	C4-N3-C2	-5.22	119.18	126.37
2	2	966	2MG	C2-N1-C6	-5.18	118.28	124.55
1	1	2445	2MG	C2-N1-C6	-5.18	118.29	124.55
54	5	54	5MU	O4-C4-C5	-5.18	119.00	124.92

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	1	1915	3TD	N1-C2-N3	5.17	119.89	116.13
1	1	1618	6MZ	C1'-N9-C8	-5.15	115.66	127.09
2	2	516	PSU	C4-N3-C2	-5.14	119.28	126.37
1	1	1917	PSU	C4-N3-C2	-5.08	119.38	126.37
1	1	2030	6MZ	C9-N6-C6	-5.08	118.14	122.85
2	2	516	PSU	N1-C2-N3	5.08	120.52	115.17
2	2	1518	MA6	C5-C6-N6	5.07	133.35	125.33
1	1	746	PSU	C4-N3-C2	-5.02	119.46	126.37
1	1	2504	PSU	C4-N3-C2	-5.01	119.47	126.37
1	1	2580	PSU	C4-N3-C2	-5.01	119.47	126.37
1	1	955	PSU	C4-N3-C2	-5.00	119.48	126.37
1	1	2069	G7M	CN7-N7-C8	-4.96	117.28	124.79
1	1	2503	2MA	N3-C4-N9	4.96	133.28	126.99
1	1	2069	G7M	C5-C4-N3	-4.96	118.78	128.15
1	1	2504	PSU	N1-C2-N3	4.95	120.39	115.17
2	2	1498	UR3	C4-N3-C2	-4.88	120.65	124.58
2	2	966	2MG	N9-C4-N3	4.79	135.53	125.95
1	1	745	1MG	C1'-N9-C8	4.78	140.31	126.73
54	5	54	5MU	C5M-C5-C4	4.69	123.79	118.78
1	1	1618	6MZ	C9-N6-C6	-4.68	118.51	122.85
1	1	2457	PSU	C4-N3-C2	-4.68	119.93	126.37
1	1	955	PSU	N1-C2-N3	4.64	120.06	115.17
1	1	747	5MU	C5M-C5-C6	-4.64	116.58	122.85
2	2	1516	2MG	C2-N1-C6	-4.63	118.95	124.55
1	1	746	PSU	N1-C2-N3	4.58	120.00	115.17
1	1	2552	OMU	N3-C2-N1	4.56	120.82	114.89
1	1	2445	2MG	N9-C4-N3	4.54	135.02	125.95
1	1	747	5MU	N3-C2-N1	4.47	120.71	114.89
1	1	745	1MG	C5-C4-N3	-4.45	121.31	128.39
1	1	2069	G7M	C5-C6-N1	4.41	120.96	111.84
2	2	1518	MA6	N9-C8-N7	-4.37	107.73	113.94
1	1	1939	5MU	O2-C2-N1	-4.35	117.14	122.80
1	1	2503	2MA	C4-N9-C8	4.32	110.27	105.74
1	1	2251	OMG	C2-N3-C4	4.26	119.64	112.30
2	2	1519	MA6	C5-C4-N3	-4.23	120.89	126.72
2	2	1519	MA6	N9-C8-N7	-4.22	107.95	113.94
1	1	2552	OMU	C5-C4-N3	4.21	120.70	114.80
2	2	1518	MA6	C5-C4-N3	-4.20	120.94	126.72
1	1	1835	2MG	C2-N1-C6	-4.20	119.48	124.55
2	2	527	G7M	C2-N3-C4	4.17	119.48	112.30
1	1	747	5MU	C5M-C5-C4	4.17	123.23	118.78
54	5	55	PSU	N1-C2-N3	4.16	119.56	115.17

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	1	2030	6MZ	C5-N7-C8	4.16	109.98	103.45
1	1	2069	G7M	N9-C4-N3	4.10	134.15	125.95
54	5	55	PSU	C4-N3-C2	-4.10	120.73	126.37
1	1	1618	6MZ	C5-C4-N3	-4.09	121.08	126.72
1	1	1911	PSU	O2-C2-N1	-4.08	118.58	122.79
2	2	1519	MA6	C2-N1-C6	4.00	121.59	111.83
2	2	967	5MC	C5-C6-N1	-3.99	118.98	123.31
1	1	2069	G7M	C1'-N9-C4	-3.92	114.91	126.49
2	2	1516	2MG	N9-C4-N3	3.91	133.78	125.95
1	1	745	1MG	N9-C8-N7	-3.84	106.28	113.40
2	2	1402	4OC	O2-C2-N3	-3.83	116.29	122.33
54	5	54	5MU	N3-C2-N1	3.80	119.83	114.89
54	5	54	5MU	C4-N3-C2	-3.76	122.41	127.34
1	1	2580	PSU	O2-C2-N1	-3.75	118.92	122.79
54	5	54	5MU	C5M-C5-C6	-3.73	117.81	122.85
1	1	1835	2MG	N9-C4-N3	3.71	133.37	125.95
2	2	1518	MA6	C2-N1-C6	3.70	120.88	111.83
2	2	1518	MA6	C4-C5-C6	3.67	119.71	115.91
2	2	527	G7M	C5-C6-N1	3.67	119.44	111.84
1	1	1618	6MZ	C5-N7-C8	3.65	109.19	103.45
2	2	1207	2MG	C1'-N9-C4	-3.61	115.81	126.49
1	1	2580	PSU	C6-N1-C2	-3.61	119.34	122.69
2	2	527	G7M	C5-C4-N3	-3.60	121.35	128.15
2	2	1519	MA6	C2-N3-C4	3.52	120.44	111.83
42	q	89	0TD	OD1-CG-CB	-3.52	115.07	122.44
2	2	1498	UR3	C5-C4-N3	3.51	119.67	115.04
1	1	1618	6MZ	C2-N3-C4	3.49	120.36	111.83
54	5	8	4SU	N3-C2-N1	3.48	119.42	114.89
1	1	1915	3TD	C4-N3-C2	-3.45	120.96	124.61
1	1	2251	OMG	N9-C4-N3	3.44	132.83	125.95
1	1	2030	6MZ	C1'-N9-C8	-3.43	119.48	127.09
1	1	745	1MG	C2-N3-C4	3.40	119.63	111.98
1	1	2030	6MZ	C4-C5-C6	-3.40	113.95	116.78
1	1	2030	6MZ	C2-N3-C4	3.34	120.00	111.83
1	1	1939	5MU	C5M-C5-C6	-3.31	118.37	122.85
1	1	1917	PSU	O2-C2-N1	-3.30	119.39	122.79
54	5	20	H2U	C5-C6-N1	3.27	121.42	111.52
2	2	1207	2MG	N9-C8-N7	-3.27	107.34	113.40
1	1	1962	5MC	C5-C6-N1	-3.26	119.77	123.31
1	1	2251	OMG	C2-N1-C6	-3.26	119.20	125.11
1	1	2030	6MZ	C4-N9-C1'	-3.25	119.04	126.63
1	1	1917	PSU	C6-N1-C2	-3.20	119.72	122.69

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
54	5	8	4SU	C5-C4-S4	-3.19	120.66	124.31
2	2	1207	2MG	C1'-N9-C8	3.18	135.77	126.73
2	2	1207	2MG	CM2-N2-C2	-3.18	116.82	123.65
1	1	2580	PSU	C6-C5-C4	3.17	120.31	118.17
1	1	745	1MG	N9-C4-N3	3.17	132.29	125.95
2	2	1518	MA6	C2-N3-C4	3.15	119.51	111.83
1	1	1835	2MG	N9-C8-N7	-3.12	107.62	113.40
1	1	2503	2MA	C5-N7-C8	3.11	108.34	103.45
1	1	2457	PSU	C6-N1-C2	-3.10	119.81	122.69
1	1	2069	G7M	O6-C6-C5	-3.10	121.08	128.01
54	5	20	H2U	N3-C2-N1	3.10	119.77	116.65
2	2	966	2MG	C5-C6-N1	3.09	121.12	113.25
1	1	2030	6MZ	C6-C5-N7	3.06	135.76	132.43
1	1	1939	5MU	C6-C5-C4	3.05	120.54	118.02
1	1	2445	2MG	C5-C6-N1	3.04	121.00	113.25
2	2	1207	2MG	C5-C6-N1	3.01	120.92	113.25
54	5	8	4SU	C1'-N1-C2	3.01	123.00	117.59
1	1	2504	PSU	C6-N1-C2	-3.01	119.90	122.69
2	2	1519	MA6	C5-N7-C8	3.00	108.17	103.45
1	1	2445	2MG	O6-C6-C5	-3.00	118.62	126.53
2	2	1518	MA6	C4-N9-C8	2.98	108.87	105.74
2	2	1519	MA6	C4-C5-C6	2.98	118.99	115.91
2	2	1516	2MG	C5-C6-N1	2.98	120.83	113.25
1	1	2251	OMG	N9-C8-N7	-2.98	107.88	113.40
1	1	2605	PSU	C6-C5-C4	2.98	120.18	118.17
1	1	2069	G7M	C2-N1-C6	-2.97	119.73	125.11
2	2	1516	2MG	N9-C8-N7	-2.96	107.91	113.40
1	1	2504	PSU	O2-C2-N1	-2.95	119.75	122.79
1	1	1911	PSU	C6-N1-C2	-2.93	119.97	122.69
1	1	2552	OMU	O4-C4-C5	-2.93	120.12	125.16
1	1	747	5MU	O4-C4-N3	-2.92	114.63	120.11
2	2	1516	2MG	O6-C6-C5	-2.92	118.84	126.53
2	2	1518	MA6	C5-N7-C8	2.88	107.98	103.45
1	1	2030	6MZ	C5-C4-N3	-2.87	122.77	126.72
2	2	1207	2MG	N9-C4-N3	2.84	131.64	125.95
2	2	1519	MA6	C4-C5-N7	-2.82	107.36	110.58
1	1	2069	G7M	C1'-N9-C8	2.81	136.22	126.74
1	1	745	1MG	C5-C6-N1	2.81	120.21	115.02
2	2	527	G7M	N9-C8-N7	-2.80	105.67	112.48
2	2	966	2MG	N9-C8-N7	-2.80	108.20	113.40
2	2	1207	2MG	N2-C2-N3	-2.80	116.95	120.51
1	1	2503	2MA	N3-C2-N1	-2.78	120.86	125.77

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	2	1498	UR3	C1'-N1-C2	2.77	121.58	117.04
1	1	2445	2MG	N9-C8-N7	-2.76	108.28	113.40
1	1	1962	5MC	C1'-N1-C6	-2.74	116.63	121.15
2	2	966	2MG	O6-C6-C5	-2.74	119.30	126.53
1	1	2457	PSU	C6-C5-C4	2.74	120.02	118.17
2	2	1516	2MG	N1-C2-N2	2.71	119.33	116.56
2	2	1407	5MC	O2-C2-N3	-2.71	118.06	122.33
2	2	1518	MA6	N3-C4-N9	2.69	131.74	127.17
2	2	527	G7M	C2-N1-C6	-2.68	120.26	125.11
54	5	20	H2U	C5-C4-N3	2.65	119.51	116.69
1	1	2251	OMG	C5-C6-N1	2.65	120.00	113.25
1	1	1835	2MG	C1'-N9-C4	-2.64	118.70	126.49
1	1	747	5MU	C6-C5-C4	2.64	120.19	118.02
1	1	1939	5MU	O4-C4-N3	-2.62	115.19	120.11
1	1	1835	2MG	C5-C6-N1	2.61	119.89	113.25
1	1	747	5MU	O2-C2-N1	-2.60	119.42	122.80
1	1	2503	2MA	N6-C6-N1	2.59	120.52	117.03
54	5	54	5MU	C1'-N1-C2	2.59	122.24	117.59
54	5	55	PSU	C6-N1-C2	-2.59	120.29	122.69
1	1	2605	PSU	C6-N1-C2	-2.58	120.30	122.69
1	1	955	PSU	O2-C2-N1	-2.58	120.13	122.79
2	2	1519	MA6	C5-C4-N9	2.56	108.60	105.81
1	1	2552	OMU	O2-C2-N1	-2.54	119.49	122.80
2	2	967	5MC	O2-C2-N3	-2.54	118.33	122.33
2	2	1407	5MC	C5-C6-N1	-2.54	120.56	123.31
2	2	516	PSU	C6-N1-C2	-2.53	120.34	122.69
1	1	2251	OMG	O6-C6-C5	-2.50	119.93	126.53
2	2	1402	4OC	O2-C2-N1	2.47	123.74	118.90
1	1	2503	2MA	C6-C5-C4	2.47	120.54	117.18
2	2	966	2MG	N1-C2-N2	2.44	119.05	116.56
54	5	54	5MU	O4-C4-N3	-2.42	115.56	120.11
1	1	1835	2MG	O6-C6-C5	-2.41	120.17	126.53
1	1	2580	PSU	O4'-C1'-C2'	2.40	108.48	105.15
1	1	1835	2MG	N1-C2-N2	2.38	119.00	116.56
2	2	527	G7M	C5-C4-N9	2.38	110.97	105.88
2	2	527	G7M	O6-C6-C5	-2.38	122.70	128.01
2	2	1402	4OC	C1'-N1-C2	2.37	123.67	118.44
1	1	2069	G7M	N1-C2-N3	-2.35	119.02	123.32
1	1	2605	PSU	O2-C2-N1	-2.35	120.37	122.79
2	2	1207	2MG	O6-C6-C5	-2.34	120.37	126.53
1	1	1835	2MG	CM2-N2-C2	-2.33	118.64	123.65
2	2	516	PSU	O3'-C3'-C4'	2.33	117.76	111.08

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	1	745	1MG	C8-N9-C4	2.29	110.32	106.03
54	5	32	4OC	O2-C2-N3	-2.28	118.73	122.33
54	5	32	4OC	C6-C5-C4	2.27	119.74	117.00
2	2	1516	2MG	C1'-N9-C4	-2.25	119.84	126.49
2	2	1516	2MG	N1-C2-N3	-2.24	119.91	123.68
54	5	55	PSU	O2-C2-N1	-2.22	120.50	122.79
2	2	1518	MA6	C4-C5-N7	-2.21	108.06	110.58
2	2	1207	2MG	C8-N7-C5	2.20	108.18	104.26
1	1	2457	PSU	O2-C2-N1	-2.18	120.53	122.79
1	1	1939	5MU	C5M-C5-C4	2.16	121.09	118.78
1	1	2457	PSU	O4'-C1'-C2'	2.14	108.11	105.15
1	1	955	PSU	C6-N1-C2	-2.12	120.73	122.69
1	1	1962	5MC	C5-C4-N4	-2.08	118.46	121.39
1	1	746	PSU	O2-C2-N1	-2.08	120.64	122.79
2	2	1519	MA6	C4-N9-C8	2.08	107.92	105.74
55	6	77	FME	O1-CN-N	-2.07	119.96	125.32
1	1	745	1MG	C8-N7-C5	2.06	107.93	104.26
1	1	2069	G7M	N9-C8-N7	-2.05	107.50	112.48
1	1	746	PSU	C6-N1-C2	-2.04	120.80	122.69
1	1	1915	3TD	O4-C4-N3	-2.03	116.64	120.36
42	q	89	0TD	CSB-SB-CB	2.03	106.01	102.36
1	1	746	PSU	O4-C4-C5	-2.03	118.97	124.01

There are no chirality outliers.

All (55) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
42	q	89	0TD	CA-CB-SB-CSB
1	1	1618	6MZ	C5-C6-N6-C9
1	1	1618	6MZ	N1-C6-N6-C9
1	1	1915	3TD	O4'-C1'-C5-C4
1	1	1915	3TD	O4'-C1'-C5-C6
2	2	516	PSU	O4'-C1'-C5-C4
2	2	516	PSU	O4'-C1'-C5-C6
2	2	527	G7M	C3'-C4'-C5'-O5'
2	2	966	2MG	O4'-C4'-C5'-O5'
2	2	1402	4OC	O4'-C4'-C5'-O5'
2	2	1519	MA6	O4'-C4'-C5'-O5'
2	2	1519	MA6	C3'-C4'-C5'-O5'
54	5	20	H2U	O4'-C1'-N1-C2
54	5	20	H2U	O4'-C1'-N1-C6
55	6	77	FME	O1-CN-N-CA

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Mol	Chain	Res	Type	Atoms
1	1	1915	3TD	O4'-C4'-C5'-O5'
1	1	2445	2MG	C3'-C4'-C5'-O5'
1	1	2504	PSU	O4'-C4'-C5'-O5'
2	2	966	2MG	C3'-C4'-C5'-O5'
2	2	1402	4OC	C3'-C4'-C5'-O5'
54	5	8	4SU	O4'-C1'-N1-C2
1	1	1835	2MG	O4'-C4'-C5'-O5'
1	1	1835	2MG	C3'-C4'-C5'-O5'
1	1	2503	2MA	O4'-C4'-C5'-O5'
2	2	527	G7M	O4'-C4'-C5'-O5'
54	5	8	4SU	C3'-C4'-C5'-O5'
54	5	20	H2U	O4'-C4'-C5'-O5'
54	5	20	H2U	C3'-C4'-C5'-O5'
1	1	2030	6MZ	C3'-C4'-C5'-O5'
1	1	2504	PSU	C3'-C4'-C5'-O5'
54	5	55	PSU	C3'-C4'-C5'-O5'
55	6	77	FME	CA-CB-CG-SD
1	1	1915	3TD	C3'-C4'-C5'-O5'
1	1	2030	6MZ	O4'-C4'-C5'-O5'
1	1	2445	2MG	O4'-C4'-C5'-O5'
54	5	8	4SU	O4'-C1'-N1-C6
1	1	2503	2MA	C3'-C4'-C5'-O5'
2	2	1518	MA6	C5-C6-N6-C10
1	1	2251	OMG	O4'-C4'-C5'-O5'
54	5	55	PSU	O4'-C4'-C5'-O5'
42	q	89	0TD	CG-CB-SB-CSB
1	1	1911	PSU	O4'-C4'-C5'-O5'
54	5	8	4SU	O4'-C4'-C5'-O5'
2	2	966	2MG	C4'-C5'-O5'-P
2	2	1519	MA6	C4'-C5'-O5'-P
1	1	2552	OMU	C4'-C5'-O5'-P
1	1	2251	OMG	C4'-C5'-O5'-P
1	1	1962	5MC	C2'-C1'-N1-C6
42	q	89	0TD	SB-CB-CG-OD2
1	1	2498	OMC	O4'-C4'-C5'-O5'
2	2	1402	4OC	C3'-C2'-O2'-CM2
1	1	2503	2MA	O4'-C1'-N9-C8
1	1	1962	5MC	O4'-C1'-N1-C6
1	1	2030	6MZ	C5-C6-N6-C9
2	2	1402	4OC	C2'-C1'-N1-C2

There are no ring outliers.

19 monomers are involved in 30 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	2	1519	MA6	1	0
1	1	2580	PSU	2	0
54	5	32	4OC	2	0
1	1	2030	6MZ	1	0
2	2	1407	5MC	6	0
2	2	1402	4OC	3	0
1	1	747	5MU	1	0
1	1	2503	2MA	1	0
1	1	745	1MG	1	0
1	1	1962	5MC	1	0
1	1	2504	PSU	1	0
54	5	8	4SU	1	0
1	1	1915	3TD	1	0
2	2	527	G7M	2	0
42	q	89	0TD	3	0
54	5	55	PSU	1	0
2	2	1516	2MG	1	0
1	1	955	PSU	1	0
1	1	2552	OMU	1	0

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 13 ligands modelled in this entry, 13 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

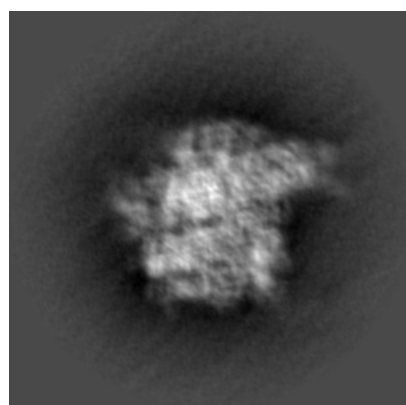
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-20188. These allow visual inspection of the internal detail of the map and identification of artifacts.

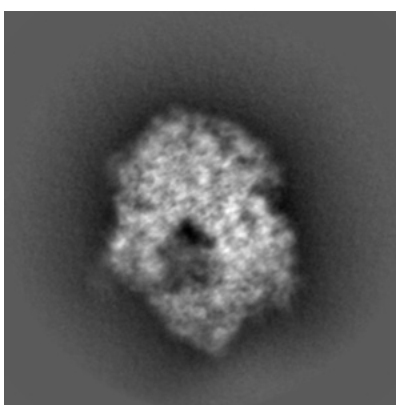
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

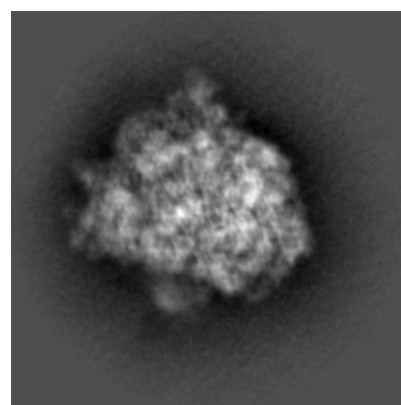
6.1.1 Primary map



X



Y

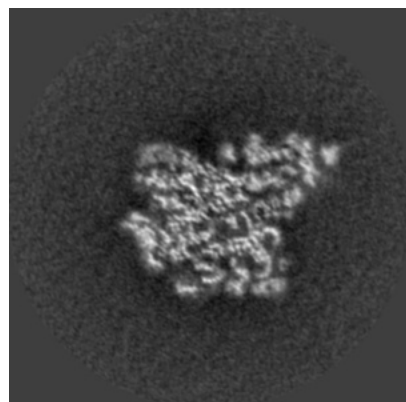


Z

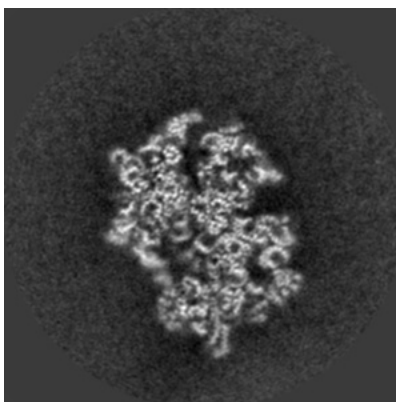
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

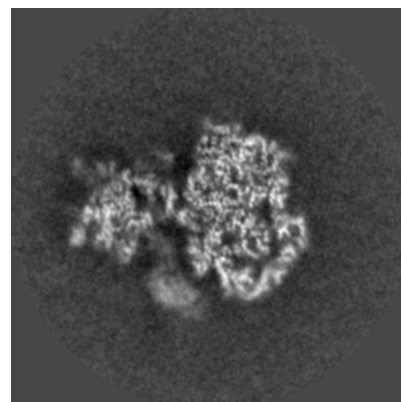
6.2.1 Primary map



X Index: 128



Y Index: 128

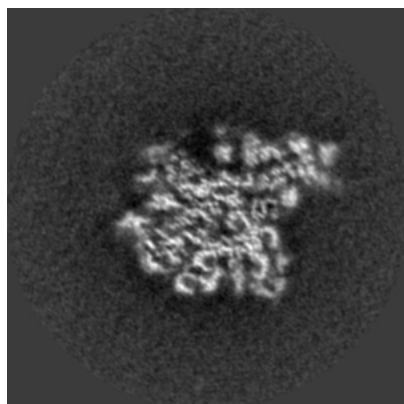


Z Index: 128

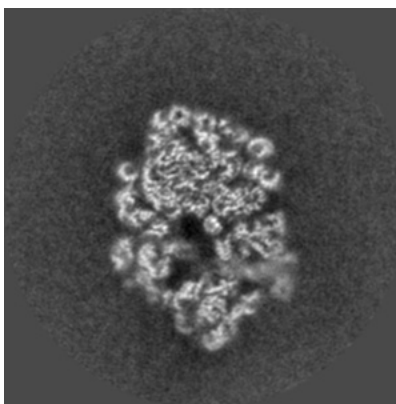
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

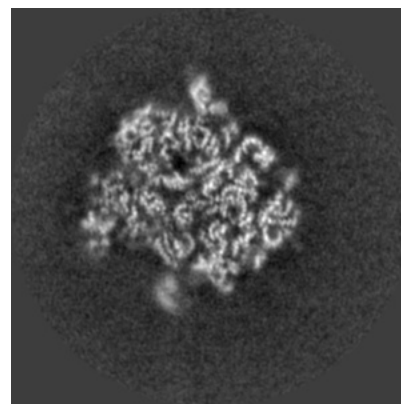
6.3.1 Primary map



X Index: 126



Y Index: 114

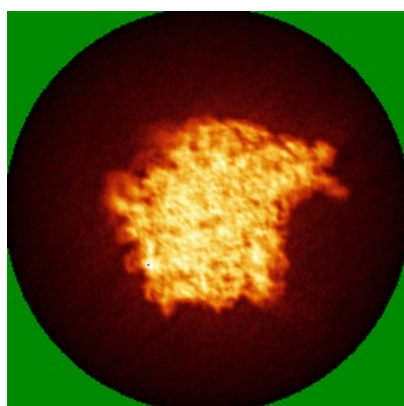


Z Index: 146

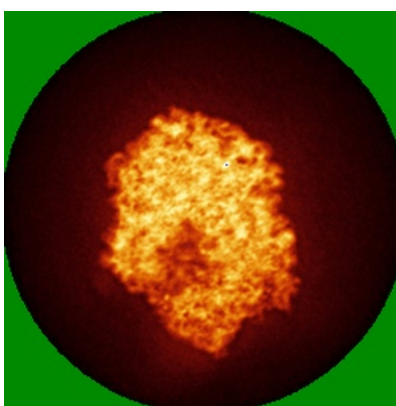
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

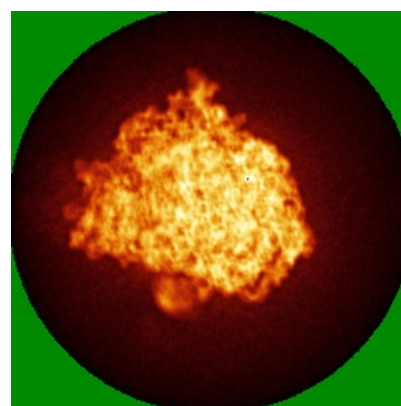
6.4.1 Primary map



X



Y

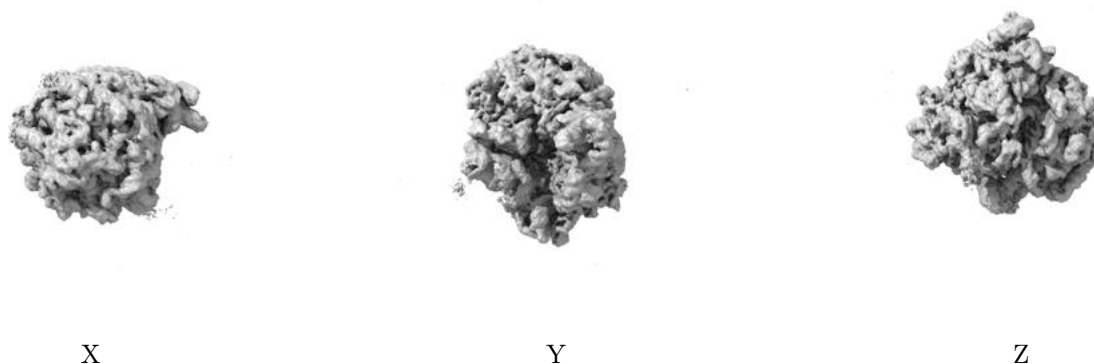


Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.007. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

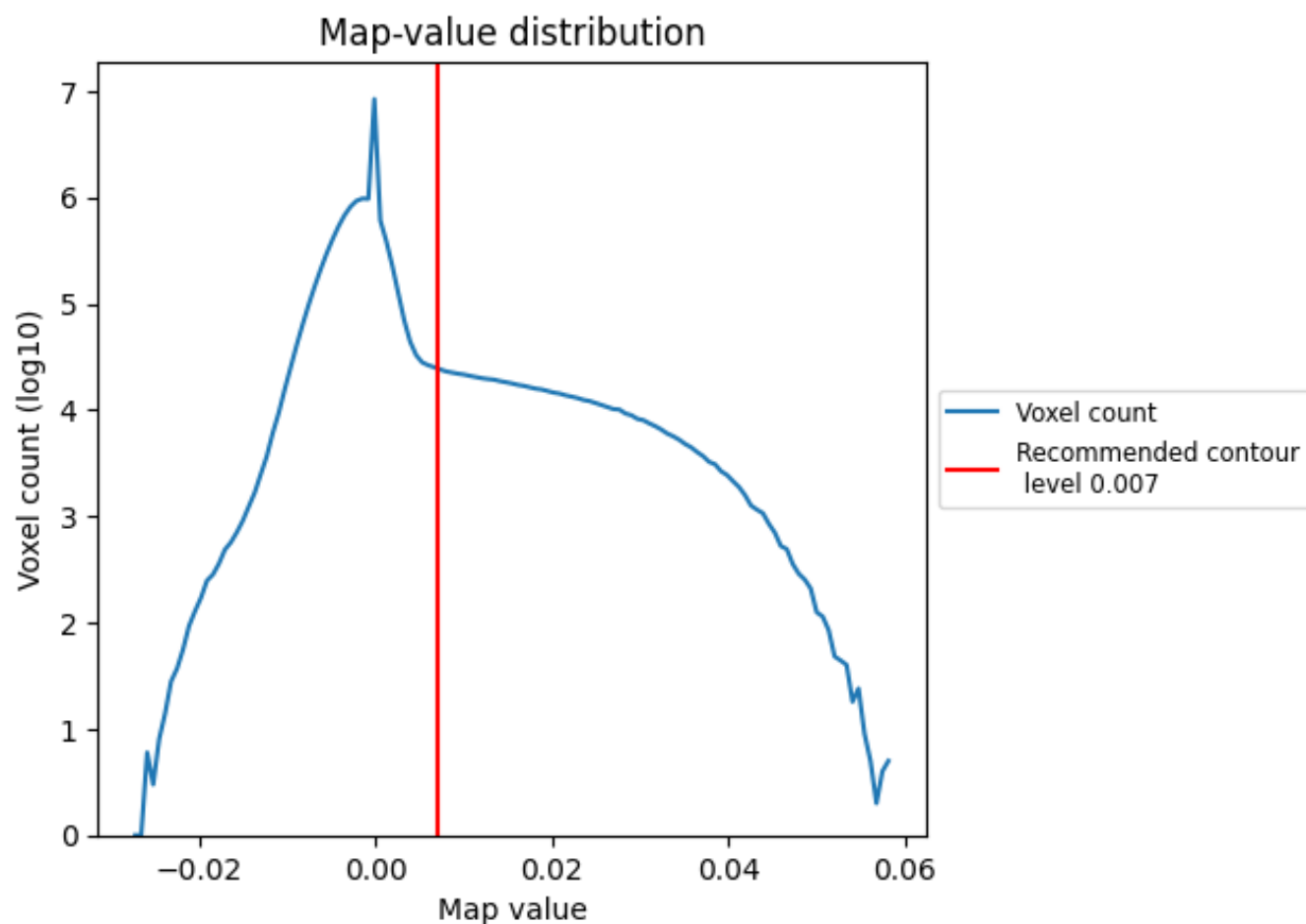
6.6 Mask visualisation [i](#)

This section was not generated. No masks/segmentation were deposited.

7 Map analysis [i](#)

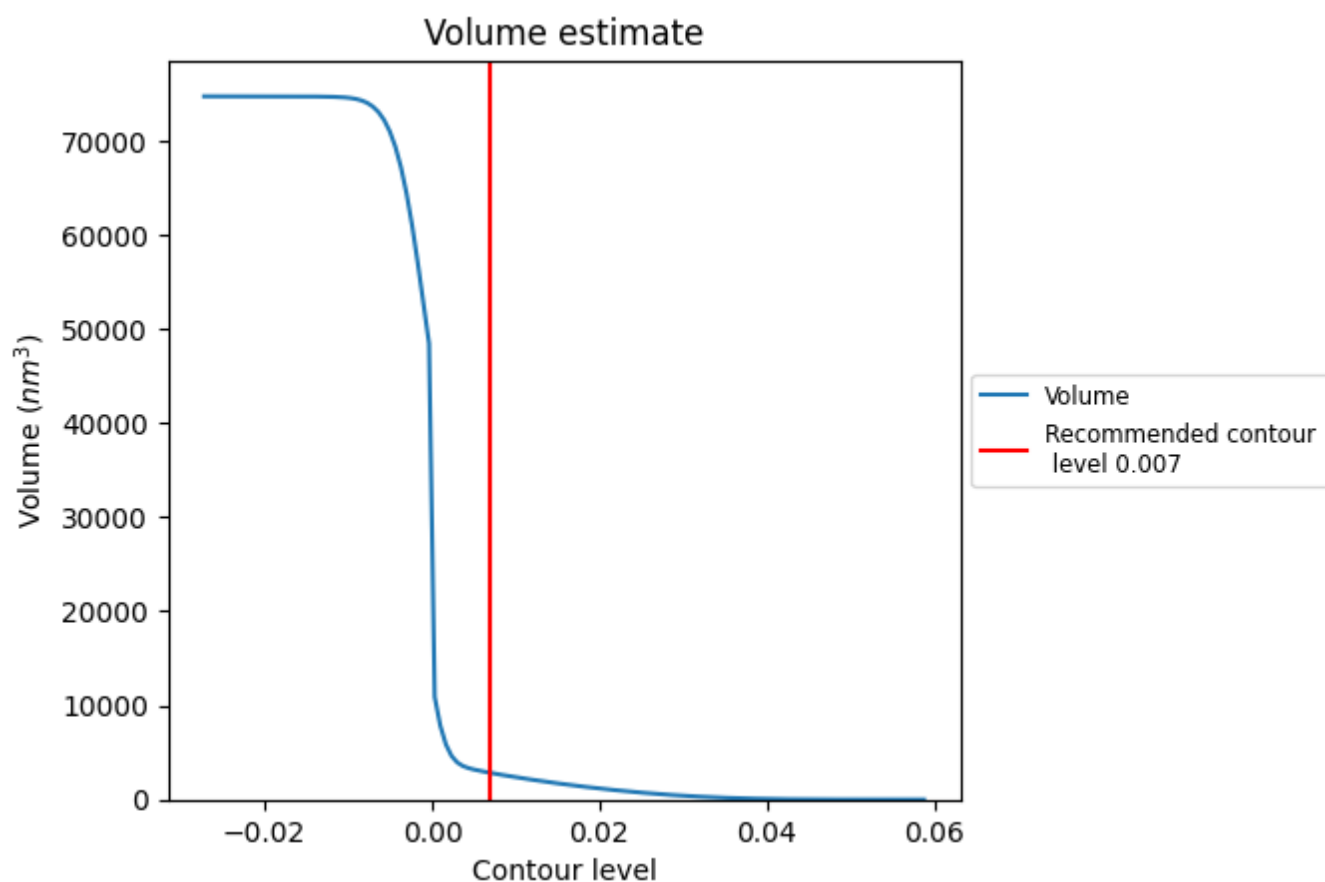
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

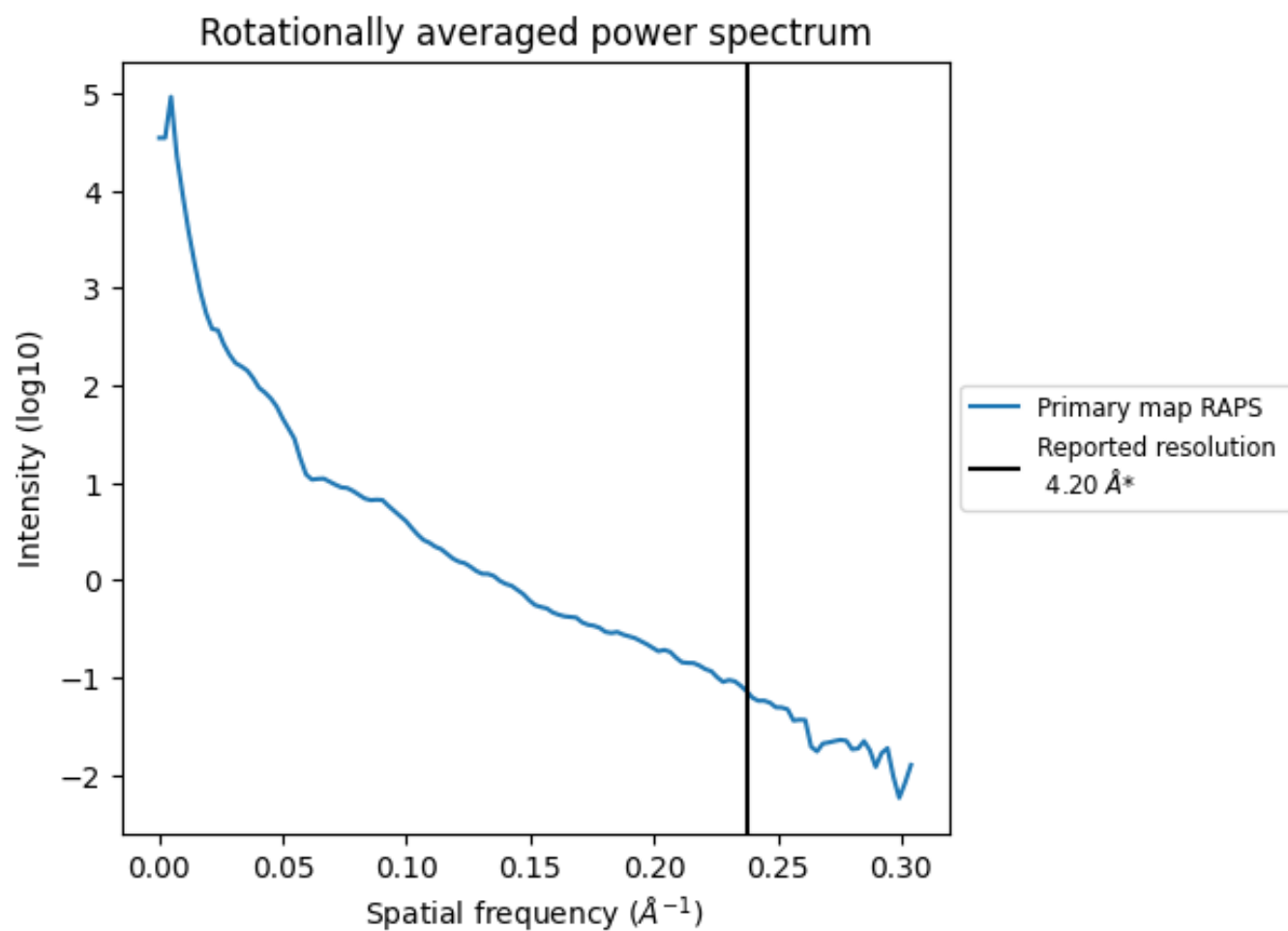
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 2833 nm³; this corresponds to an approximate mass of 2559 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum ⓘ



*Reported resolution corresponds to spatial frequency of 0.238 Å⁻¹

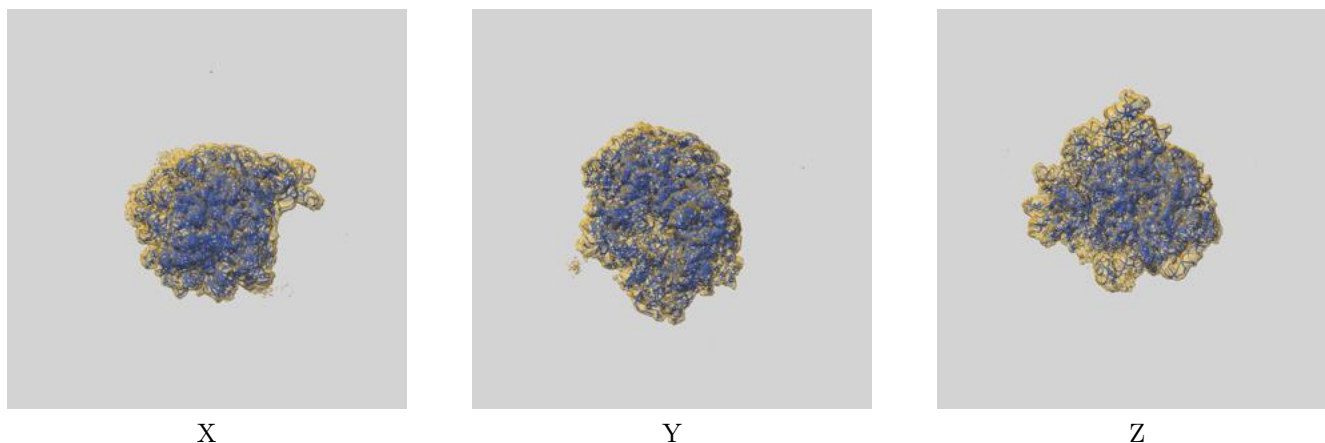
8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

9 Map-model fit [i](#)

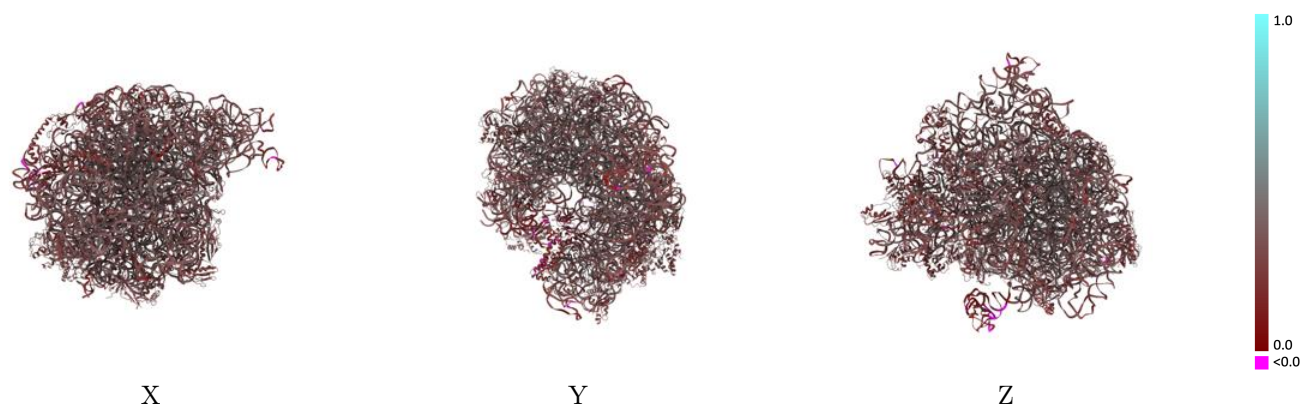
This section contains information regarding the fit between EMDB map EMD-20188 and PDB model 6OST. Per-residue inclusion information can be found in section [3](#) on page [15](#).

9.1 Map-model overlay [i](#)



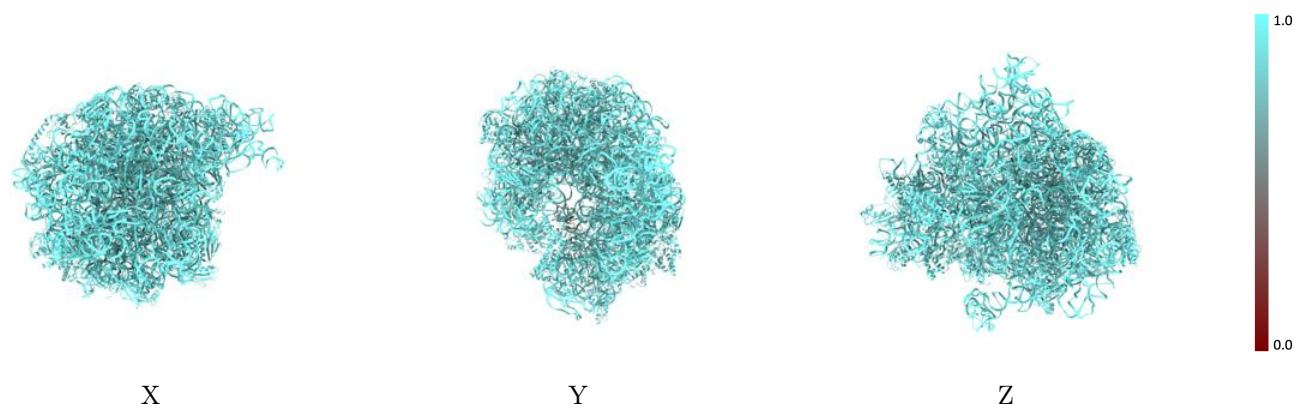
The images above show the 3D surface view of the map at the recommended contour level 0.007 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model [i](#)



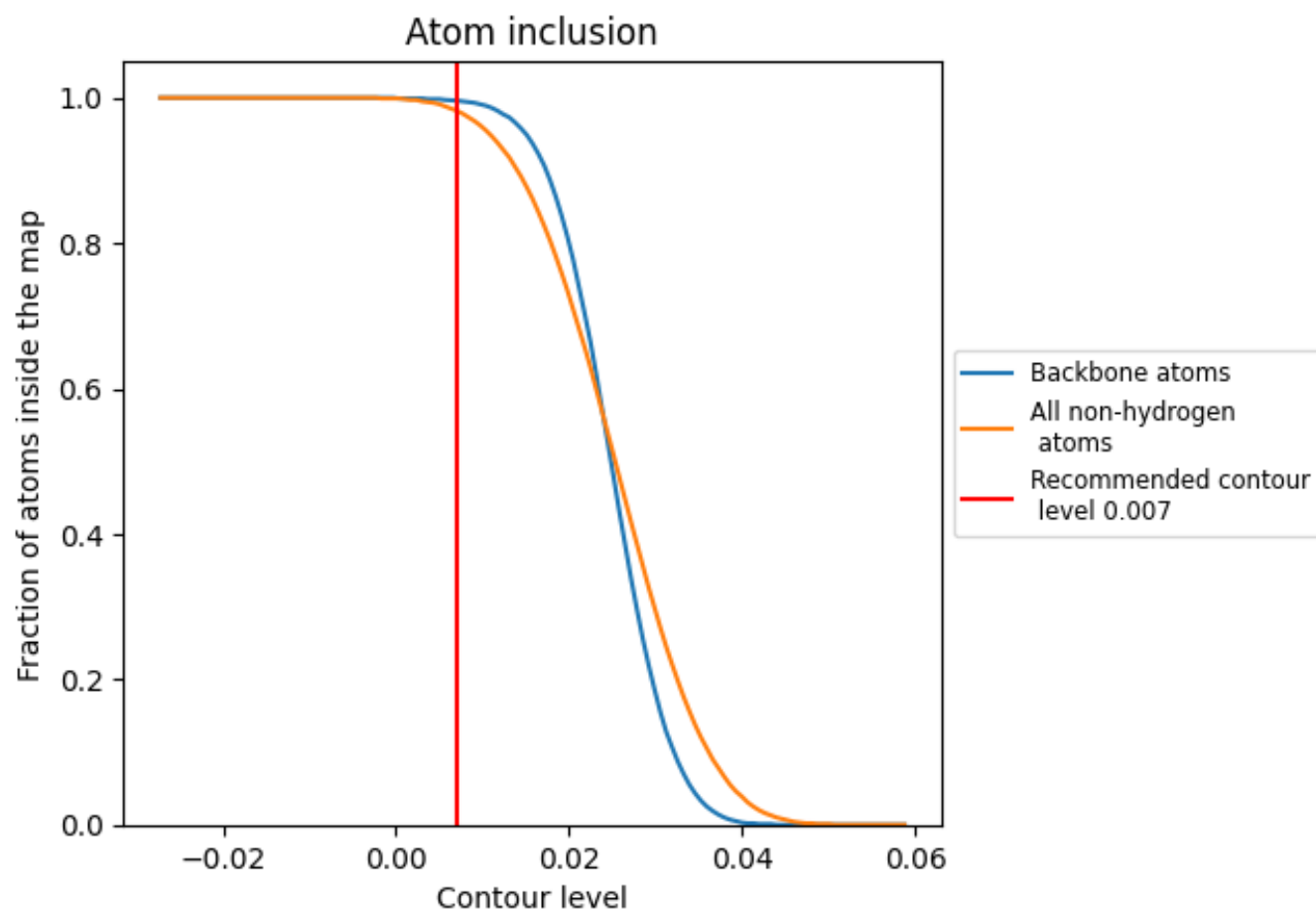
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.007).

9.4 Atom inclusion [i](#)



At the recommended contour level, 100% of all backbone atoms, 98% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.007) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9820	 0.3180
1	 0.9990	 0.3350
2	 0.9990	 0.3270
3	 1.0000	 0.3160
4	 0.9950	 0.3570
5	 0.9370	 0.2620
6	 0.7190	 0.1580
7	 0.8320	 0.1740
B	 0.9410	 0.3420
C	 0.9580	 0.3320
D	 0.9670	 0.3170
E	 0.9590	 0.2570
F	 0.9750	 0.2860
G	 0.9280	 0.2500
J	 0.9580	 0.3140
K	 0.9350	 0.3410
L	 0.9820	 0.3300
M	 0.9660	 0.3260
N	 0.9870	 0.3080
O	 0.9800	 0.2910
P	 0.9640	 0.3360
Q	 0.9650	 0.2790
R	 0.9670	 0.3250
S	 0.9450	 0.3330
T	 0.9510	 0.3130
U	 0.9870	 0.2940
V	 0.9850	 0.3050
W	 0.9630	 0.3140
X	 0.9480	 0.2990
Y	 0.9780	 0.2440
Z	 0.9630	 0.3160
b	 0.9720	 0.3160
c	 0.9640	 0.3100
d	 0.9520	 0.3280
e	 0.9310	 0.3200



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Chain	Atom inclusion	Q-score
f	 0.9760	 0.3020
g	 0.9350	 0.2730
h	 0.9250	 0.2980
i	 0.9690	 0.2670
j	 0.9510	 0.3080
k	 0.9300	 0.2770
l	 0.9440	 0.2730
m	 0.9570	 0.3140
n	 0.9770	 0.2750
o	 0.9390	 0.2790
p	 0.9310	 0.3070
q	 0.8960	 0.3160
r	 0.9370	 0.2600
s	 0.9630	 0.2830
t	 0.9520	 0.2850
u	 0.9840	 0.3230
v	 0.9640	 0.2900
w	 0.9500	 0.2820
x	 0.9610	 0.2750
y	 0.9600	 0.2660
z	 0.8770	 0.2590