



Full wwPDB EM Validation Report ⓘ

Jun 19, 2026 – 02:38 am BST

PDB ID : 7ACR / pdb_00007acr
EMDB ID : EMD-11718
Title : Structure of post-translocated trans-translation complex on E. coli stalled ribosome.
Authors : Guyomar, C.; D'Urso, G.; Chat, S.; Giudice, E.; Gillet, R.
Deposited on : 2020-09-11
Resolution : 3.44 Å(reported)
Based on initial model : 4YBB

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:

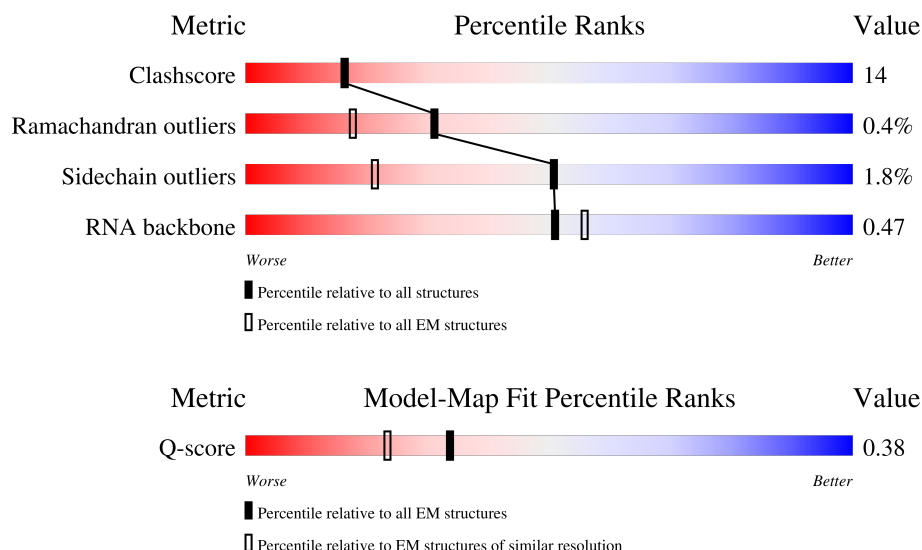
EMDB validation analysis : 0.0.1.dev132
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

1 Overall quality at a glance

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

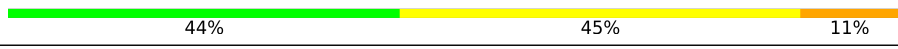
The reported resolution of this entry is 3.44 Å.

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.



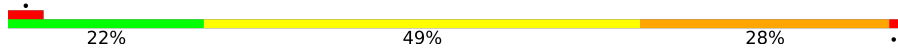
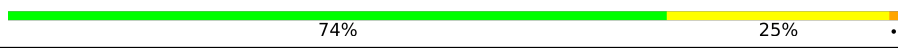
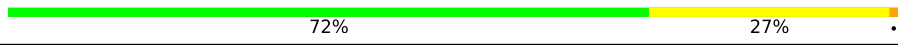
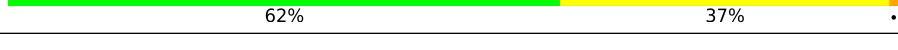
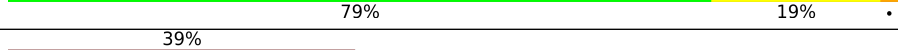
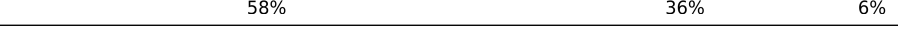
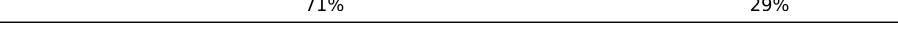
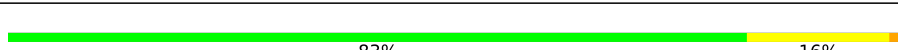
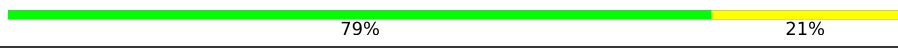
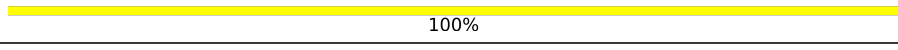
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	13877 (2.94 - 3.94)

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	
2	2	1534	
3	3	120	

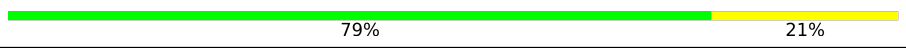
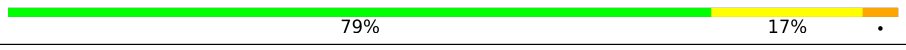
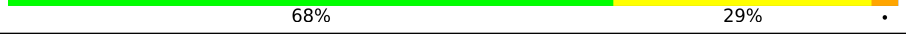
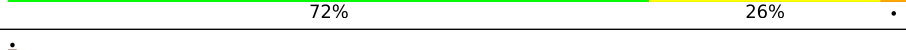
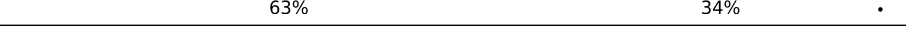
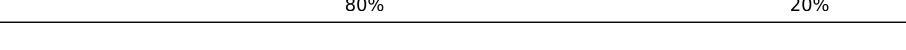
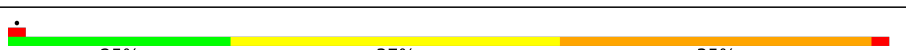
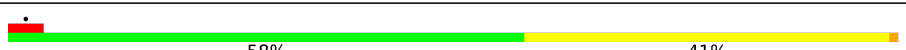
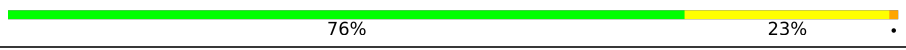
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Mol	Chain	Length	Quality of chain
4	4	363	
5	5	150	
6	A	76	
7	B	271	
8	C	209	
9	D	201	
10	E	177	
11	F	175	
12	G	149	
13	J	142	
14	K	123	
15	L	144	
16	M	136	
17	N	119	
18	O	116	
19	P	114	
20	Q	117	
21	R	103	
22	S	110	
23	T	94	
24	U	103	
25	V	94	
26	W	2	
27	X	77	
28	Y	62	

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Mol	Chain	Length	Quality of chain
29	Z	58	
30	a	65	
31	b	56	
32	c	52	
33	d	46	
34	e	64	
35	f	38	
36	g	225	
37	h	212	
38	i	205	
39	j	156	
40	k	104	
41	l	151	
42	m	129	
43	n	127	
44	o	99	
45	p	117	
46	q	122	
47	r	112	
48	s	100	
49	t	88	
50	u	82	
51	v	80	
52	w	67	
53	x	83	

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Mol	Chain	Length	Quality of chain
54	y	86	85% 15%
55	z	70	80% 19%

2 Entry composition

There are 57 unique types of molecules in this entry. The entry contains 151668 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
			62335	27816	11470	20147	2902		

- 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
			32927	14693	6041	10660	1533		

- 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 RNA chain called transfer-messenger RNA (tmRNA).

Mol	Chain	Residues	Atoms					AltConf	Trace
4	4	363	Total	C	N	O	P	0	0
			7755	3466	1410	2518	361		

- Molecule 5 is a protein called SsrA-binding protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	5	150	Total	C	N	O	S	0	0
			1209	763	226	216	4		

- Molecule 6 is a protein called 50S ribosomal protein L27.

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

- Molecule 7 is a protein called 50S ribosomal protein L2.

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

- Molecule 8 is a protein called 50S ribosomal protein L3.

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

- Molecule 9 is a protein called 50S ribosomal protein L4.

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

- Molecule 10 is a protein called 50S ribosomal protein L5.

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

- Molecule 11 is a protein called 50S ribosomal protein L6.

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

- Molecule 12 is a protein called 50S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	G	149	Total	C	N	O	S	0	0
			1110	699	197	213	1		

- Molecule 13 is a protein called 50S ribosomal protein L13.

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

- Molecule 14 is a protein called 50S ribosomal protein L14.

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

- Molecule 15 is a protein called 50S ribosomal protein L15.

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

- Molecule 16 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	M	136	Total	C	N	O	S	0	0
			1075	686	205	178	6		

- Molecule 17 is a protein called 50S ribosomal protein L17.

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

- Molecule 18 is a protein called 50S ribosomal protein L18.

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

- Molecule 19 is a protein called 50S ribosomal protein L19.

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

- Molecule 20 is a protein called 50S ribosomal protein L20.

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

- Molecule 21 is a protein called 50S ribosomal protein L21.

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

- Molecule 22 is a protein called 50S ribosomal protein L22.

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

- Molecule 23 is a protein called 50S ribosomal protein L23.

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

- Molecule 24 is a protein called 50S ribosomal protein L24.

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

- Molecule 25 is a protein called 50S ribosomal protein L25.

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

- Molecule 26 is a protein called Nascent peptide.

Mol	Chain	Residues	Atoms				AltConf	Trace
26	W	2	Total	C	N	O	0	0
			16	12	2	2		

- Molecule 27 is a protein called 50S ribosomal protein L28.

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

- Molecule 28 is a protein called 50S ribosomal protein L29.

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

- Molecule 29 is a protein called 50S ribosomal protein L30.

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

- Molecule 30 is a protein called 50S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	a	65	Total	C	N	O	S	0	0
			514	317	98	93	6		

- Molecule 31 is a protein called 50S ribosomal protein L32.

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

- Molecule 32 is a protein called 50S ribosomal protein L33.

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

- Molecule 33 is a protein called 50S ribosomal protein L34.

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

- Molecule 34 is a protein called 50S ribosomal protein L35.

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

- Molecule 35 is a protein called 50S ribosomal protein L36.

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

- Molecule 36 is a protein called 30S ribosomal protein S2.

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

- Molecule 37 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	h	212	Total	C	N	O	S	0	0
			1658	1049	311	294	4		

- Molecule 38 is a protein called 30S ribosomal protein S4.

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

- Molecule 39 is a protein called 30S ribosomal protein S5.

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

- Molecule 40 is a protein called 30S ribosomal protein S6.

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

- Molecule 41 is a protein called 30S ribosomal protein S7.

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

- Molecule 42 is a protein called 30S ribosomal protein S8.

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

- Molecule 43 is a protein called 30S ribosomal protein S9.

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

- Molecule 44 is a protein called 30S ribosomal protein S10.

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

- Molecule 45 is a protein called 30S ribosomal protein S11.

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

- Molecule 46 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	q	122	Total	C	N	O	S	0	0
			951	588	195	163	5		

- Molecule 47 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	r	112	Total	C	N	O	S	0	0
			867	535	175	154	3		

- Molecule 48 is a protein called 30S ribosomal protein S14.

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

- Molecule 49 is a protein called 30S ribosomal protein S15.

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

- Molecule 50 is a protein called 30S ribosomal protein S16.

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

- Molecule 51 is a protein called 30S ribosomal protein S17.

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

- Molecule 52 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	w	67	Total	C	N	O	S	0	0
			553	350	104	98	1		

- Molecule 53 is a protein called 30S ribosomal protein S19.

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

- Molecule 54 is a protein called 30S ribosomal protein S20.

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

- Molecule 55 is a protein called 30S ribosomal protein S21.

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

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

Mol	Chain	Residues	Atoms		AltConf
56	1	172	Total 172	Mg 172	0
56	2	31	Total 31	Mg 31	0
56	3	3	Total 3	Mg 3	0
56	C	1	Total 1	Mg 1	0
56	O	1	Total 1	Mg 1	0
56	Q	1	Total 1	Mg 1	0
56	b	1	Total 1	Mg 1	0
56	d	1	Total 1	Mg 1	0
56	h	1	Total 1	Mg 1	0

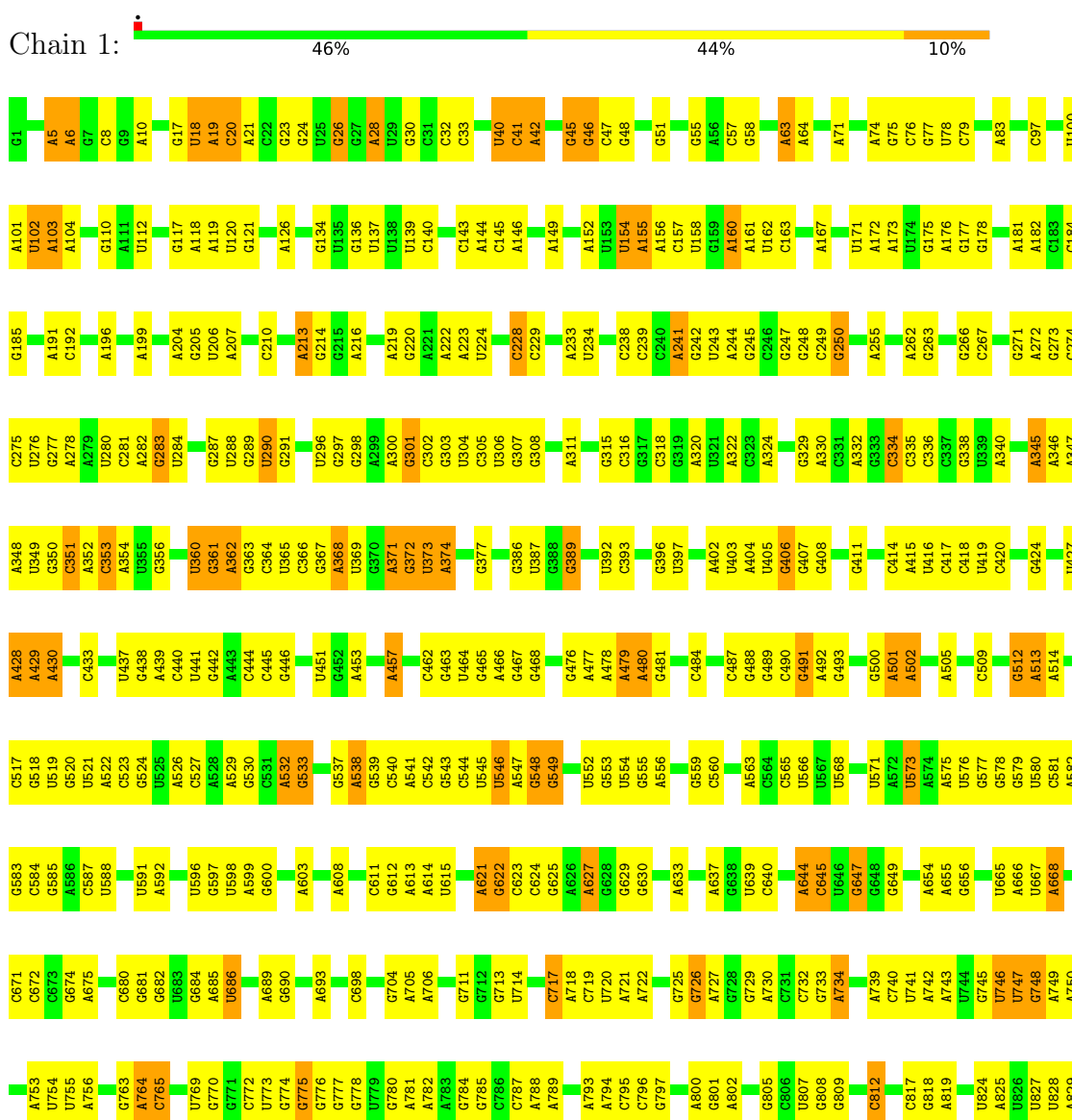
- Molecule 57 is ZINC ION (CCD ID: ZN) (formula: Zn).

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

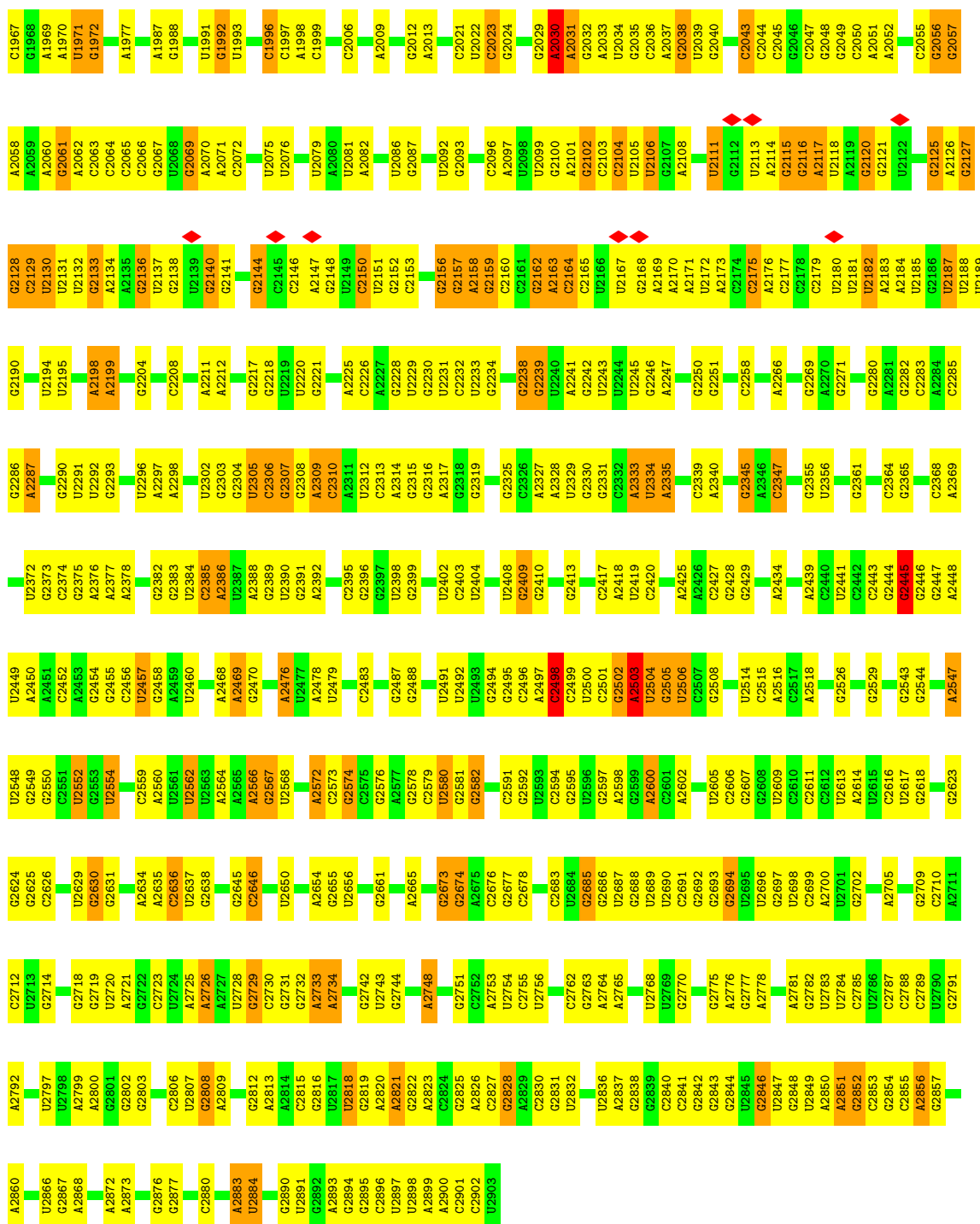
3 Residue-property plots

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

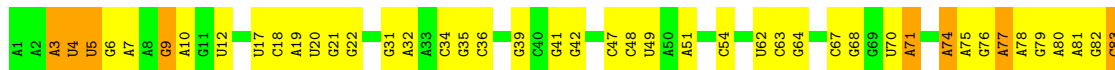


C1881	A1802	G1721	C1550	G1448	A1365	A1286	G1212	U1132	G1062	A996	G907	G830
U1882	A1805	A1722	A1551	U1458	A1366	A1287	A1213	A1133	G1063	G997	A910	G831
G1884	C1806	G1723	C1558	U1459	A1367	C1288	G1215	A1134	C1064	C998	A911	G832
	A1808	G1726	U1559	C1462	G1368	C1290	G1218	G1136	U1065	U999	C912	G834
G1888	G1807	C1725	C1463	C1463	A1378	C1291		G1137	A1067	A1000		
	A1809	G1727	G1464	G1464	U1379	G1292			G1068	G1002	A918	G843
A1899	A1810	C1728	G1465	U1466	G1380	C1295	U1222	U1141	A1069	U1003	U919	A844
A1900	G1811	U1729	U1562	U1467		C1296	G1223	G1142	A1070	G1004	A920	A845
U1901	U1812	C1730	C1565	U1468	A1384	C1297	U1224	A1143	G1071	C1005	G926	U846
C1902	G1813	G1731	A1469	A1469	A1385	C1298	G1225		C1072	C1006	A927	U847
					A1386	C1299	A1226	A1147	A1075	C1007		C848
G1906	C1816	U1736	C1567	C1472	A1387	G1300	G1227	U1148	G1074	A1008	A849	U850
G1907	G1817	G1737	G1568	C1473	A1387	A1301	G1228	G1149	C1075	A1009	U931	U851
	U1818	G1739	A1569	U1473		A1302	U1229	C1150	U1078	A1010	U932	C951
U1911	G1824	A1746	A1570	U1474	U1391	G1302	C1230	G1151	C1079	A1011	A933	U852
A1912	U1825	U1747	U1474	U1475	A1392	G1303	A1231	C1152	C1079	G1012	U934	C953
A1913	G1826		A1571	U1476	A1393	A1304	U1230	C1153	A1080	C1013	C935	
A1914	U1827	U1751	G1567	A1477	U1394	C1305	G1232	G1154	U1081	A1014	A936	G856
3TD1915	G1828	C1752	A1668	G1482	A1395	C1306	U1233	G1155	U1082	U1015	C937	G857
A1916	A1829	G1753	A1669	C1493		A1307	U1234	A1156	U1083	G1016	G938	G858
U1917	C1830	A1754	C1670	C1493	U1400	C1314	G1235	G1157	A1084	U1019	A941	G859
A1918	G1831	G1755	U1671	C1493	U1401	U1316	A1237	C1161	A1085	A1020	C946	U860
A1919	C1832	U1756	U1672	G1500	A1402	G1317	G1238	G1162	A1086	A1021	A947	A861
C1920	C1833	A1757	G1673	G1508	A1403		U1242		G1087	G1022	C948	G864
G1921	U1834	U1758	G1674	A1508		C1320	C1243	C1167	A1088	U1023	G949	U868
U1922	G1835	U1759	U1584	G1510	G1407	A1321	A1244	G1168	A1089	G1024	G952	G869
U1923	C1836	C1760	C1585	G1511	U1408				G1091	G1025	G953	U870
C1924	G1837	C1761	A1586	C1512	U1409	U1325	U1249	G1171	U1094	A1028	G954	C873
	C1838	G1762	G1587	C1519	U1411	U1326	G1250	C1172	A1095	A1029	U955	G874
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A1928	C1843	G1764	U1589	A1515	U1413	U1329	A1254	U1176	U1097	A1034	C957	C876
A1929	G1844	U1771	C1592	G1516	A1414	U1330	U1255	G1177	A1098	U1035	U958	A877
G1930	G1845	G1772	U1594	C1517	G1416	G1334	G1256	C1178	U1099	U1036	A959	A878
A1936		A1773	C1595	G1519	G1417	G1335	G1259	G1179	C1100	G1036	A960	G879
A1937	A1848	C1774	U1598	U1522	A1418	C1336	A1260	G1182	U1101	A1040	G966	G880
U1938	A1854	U1775	A1599	U1523	A1419	A1337	U1263		U1105	G1041	G971	G881
U1940		U1779	A1598	A1528	A1420	G1337	U1263	G1187	G1106	G1042	A972	G882
C1941	G1857	U1780	C1604	G1529	A1427	U1340	G1266	U1188	C1109	C1043	A973	U884
C1942	A1858	U1781	C1533	G1530	C1428	G1341	U1267	A1189	G1110		G974	C885
U1943	U1859	U1782	U1534	C1536	G1429	C1345	A1268	G1190	A1111	A1046	A975	A886
U1944	G1860	A1783	A1535	C1536	A1430	G1346	A1269	G1191	G1112	G1047		A887
G1945	G1861	A1784	C1536	C1540	A1432	A1347	C1270		U1113	A1048	A980	C888
U1946	G1862	G1788	A1608	G1541	A1434	U1352	G1271	C1196	G1115	A1050		C889
C1947	U1864	A1789	U1609	C1542	A1435	A1353	A1272	G1197	U1119	G1051	A983	C890
G1948	U1865	C1790	A1610	U1545	G1436	A1354	A1275	U1198	G1120	C1052	A984	G891
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A1952	G1867	G1709	A1618	G1547	A1438	G1358	G1279	G1202	G1122	A1054	C986	C893
A1953	U1868	U1711	G1622	A1548	A1439			U1203		G1055	C987	U894
G1954	C1869	A1712	A1635	A1549	U1443	G1361	G1280	A1204	G1125	A1057	A988	U895
U1955	G1869	U1713	U1636	A1548	G1444	C1362	G1281	A1205	A1126	U1060	C993	A896
U1956	C1870	A1713	A1637	A1548	C1447	C1363	U1282	C1207	G1128	U1061	C994	C989
	A1871	G1797									C995	U906
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U1963	G1873	A1717										
	C1874	U1720										
A1966	G1875											

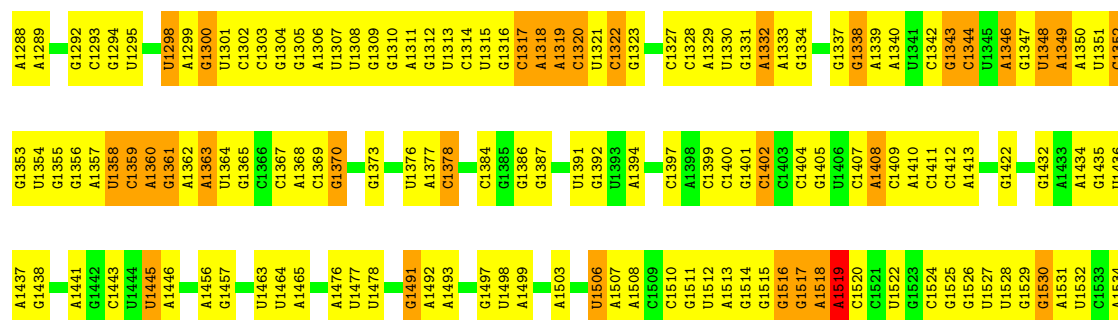


• Molecule 2: 16S ribosomal RNA

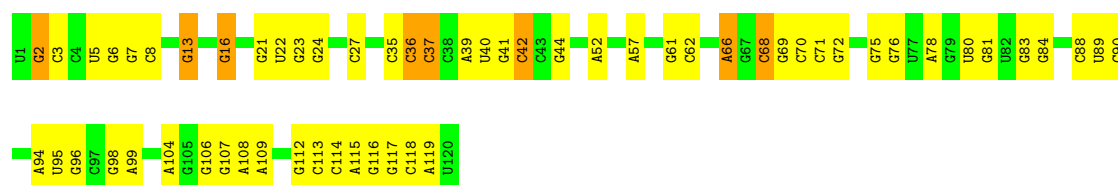
Chain 2: 44% 45% 11%



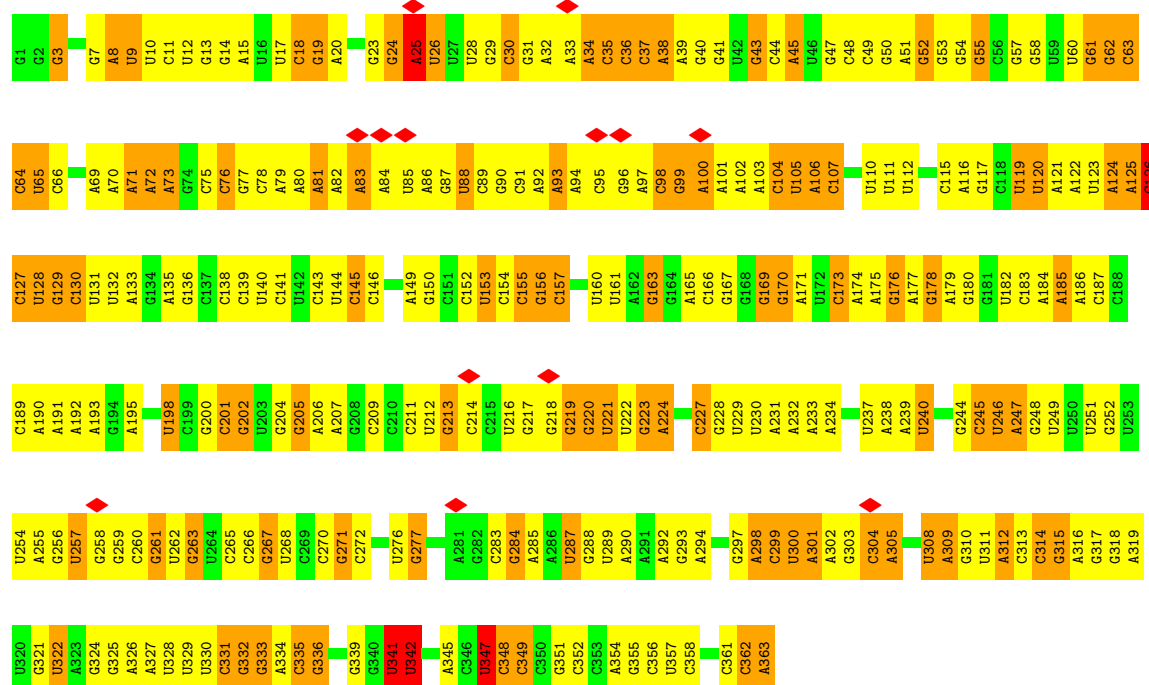
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A1150	G1084	G1013	U950	G851	A747	G682	C491	C492	U420	G351	A262	C183	G86
G1221	U1085	A1014	G951	G852	A748	G683	U565	A493	U421	G352	A263	G184	C87
C1222	U1086	G1015	G952	G853	A749	G684	G570	A496	U422	C353	A264	U88	U88
G1153	A1152	A1016	G953	A860	C750	U684	U571	A497	C423	A354	G265	C194	U91
U1224	G1088	U1017	G954	G861	U751	G685	A572	G497	G424	C355	G266	U92	U92
A1155	U1089	G1018	U955	A865	G752	U686	A573	C501	G425	A356	U268	G94	U93
G1156	A1019	A1019	U956	G866	G755	G687	A574	C502	G428	C357	G269	G95	G95
A1227	U1091	G1020	A957	C867	C756	C689	G575	C503	U429	U358	G270	G200	
C1228	A1158	A1021	G958	C868	U757	G690	G576		A430	C359	C271	G202	
U1229	A1093	A1022	A959	C869	G758	U692	G577		G437	G360	C272	G203	
G1230	G1094	U1023	U960	G899		G693	C578	A509	U437	G361	U273	G204	
C1231	U1095	G1024	U961	A873	G763	G694	A579	C510	U433			G100	
U1232	C1096	U1025	G966	G874	A695	A696	A580	C511	U434	G278	G102	G102	
G1233	A1162	G1026	A967	G875	A696	U697	C582		A435	U365	G103	U103	
U1234	C1098	C1027	C968	A878	G765			C514	A366	U367	G104	U208	
U1235	G1099	G1028	A969	C879	A777	G766	U590	G515	U436		G105	U209	
A1236	C1100	U1029	C880	C879	G778	G767	G591	U516	U437		G106	C210	
C1237	A1101	U1030	G881	C880	G779	U701	G592	C517	C440	C370	C285	G211	
U1238	C1102	G1031	G882	C881	C779	A702	G600	C518	A441	A371	C286	G212	
A1239	C1103	G1032	G883	C882	A780		A601	C519	C442	A372	G287	G107	
U1240		G1033	U884	C883	A781		G602	C520	G447	A373	G288	G108	
G1241	C1107	G1034	G885	C884	G785	G705	A602	C521	A448	U374	U284	A120	
A1171	C1108	A1035	A889	C885	G786	U707			G449	U375	C285	U121	
G1242	C1109		G890	C886	A787	G708	U605	C524	A450	G376	C286	G126	
C1243	A1110	U1039	G891	C887	A788	U709	G606	C525	A451		U296	U218	
G1244	C1114	G1040	G892	C888	A789	U710	A607	C526	A452	C379	G297	U219	
U1245	U1115	G1041	G893	C889	A790	G711	U610	C527	A453	C380	A298	G220	
A1246	U1116	A1042	G894	C890	A791	U712	A621	C528	G453	C381	G299	A131	
U1247	C1117	G1043	U891	C891	A792	A713	A622	C529	U458	C382	A300	C136	
A1248	U1118	A1044	G892	C892	A793	G714	A623	C530	A459	A383	A306	U137	
C1249	C1119	G1045	G893	C893	A794	U715	U625	A532	A460	C384	C307	G138	
U1250	C1120	A1046	G894	C894	A795	A716	G626	A533	A461	C385	C308	U229	
A1251	U1121		U895	C895	C806	G717	U627	A534	A462	U387	A309	G230	
G1255	U1122	G1050	G987	C896	A807	U718	G627	C535	U463	G388	U317	U231	
U1256	C1123	C1051	G988	C897	G812	C719	G633	C536	U464	A389	G318	G232	
A1257	U1124	U1052	G989	C898	A815	G720	G634	C537	A465	U390	G319	C233	
G1258	G1125	G1053	C990	C899	A816	G721	A635	C538	A466	G391	G324	G146	
U1259		C1054	U991	C900	C817	G722	G635	C539	U467	C392	C235	G147	
G1260	C1128	A1055	U992	C901	C818	U723	G639	C540	U468	A393	A321	G148	
A1261	U1129	U1056	G993	C902	C819	G724	G640	C541	C469	A394	C322	A149	
U1197	C1130	G1057	A994	C903	C823		A641	C542	C470	G394	U323	U150	
G1198	U1133	U1060	C995	C904	G824	A728	U641	A546	U471	U398	G324	A151	
U1199	G1134	G1061	A996	C905	A825	G731	U653	A547	G474	G399	A325	A152	
A1201	U1135	U1062	U997	C906	C826	C732	G656	C548	C475	C400	G326	U244	
U1204	C1136	G1063	C998	C907	U827	G733	U657	C549	U476	C401	A327	U245	
U1205	U1137	U1064	A999	C908	U828	G734	G662	C550	C477	G402	C328	A246	
G1206	G1138	U1065	A999	C909	G836	G735	U663	C551	C478	C403	A329	G247	
C1207	U1139	G1068	C999	C910	U837	C736	U664	C552	U405	U405	G332	G251	
G1208	C1140	C1071	G999	C911	G838	C737	A665	C553	G406	G406	U333	U252	
A1209	U1141	G1072	G999	C912	C841	C738	A666	C554	U407	A482	C334	A253	
C1210	G1142	U1073	G999	C913	U842	C739	A667	C555	A408	C453	C335	G254	
U1211	U1143	G1074	U999	C914	U843	G740	U672	C556	U409	A484	A336	G255	
G1212	G1144		G999	C915	C844	G741	A673	C557	G410	U485	G337	U256	
U1213	A1145	G1077	U999	C916	G845	G742	G674	C558	A411	U486	A338	U173	
C1214	U1146	U1077	U999	C917	G846	A743	A675	C559	A412	U487	G257	A174	
G1215	C1147	A1080	U1010	G999		C744	A676	C560	C488		C345	G258	



• Molecule 3: 5S ribosomal RNA

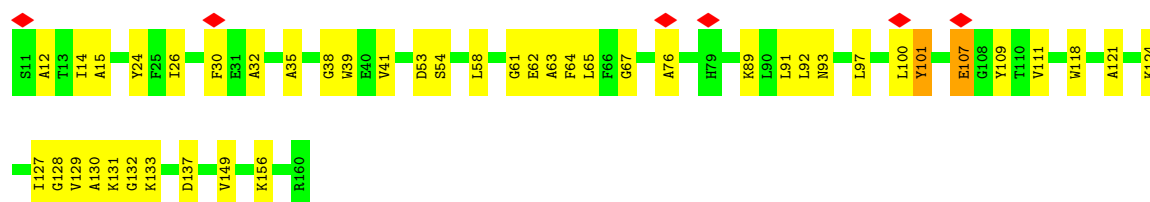


• Molecule 4: transfer-messenger RNA (tmRNA)



• Molecule 5: SsrA-binding protein





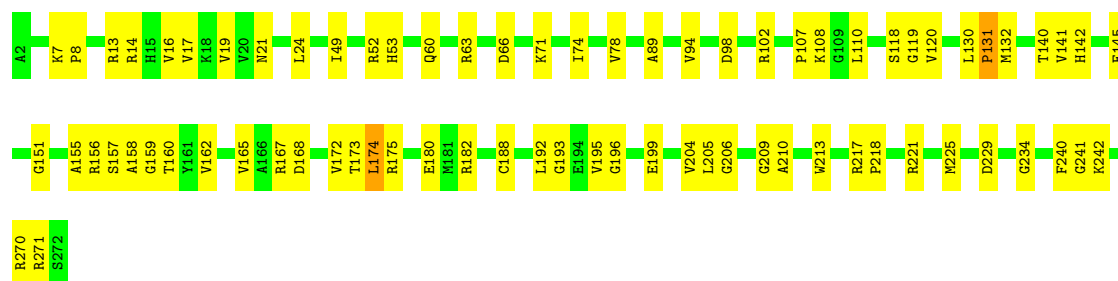
• Molecule 6: 50S ribosomal protein L27

Chain A: 74% 25%



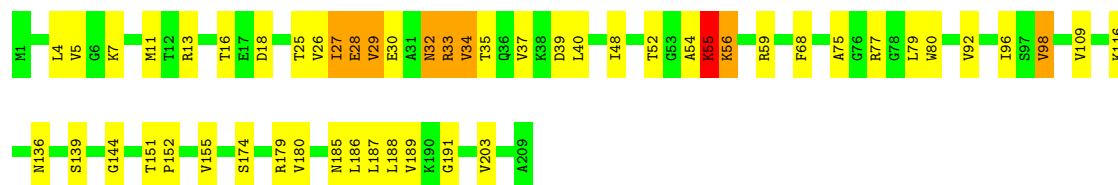
• Molecule 7: 50S ribosomal protein L2

Chain B: 72% 27%



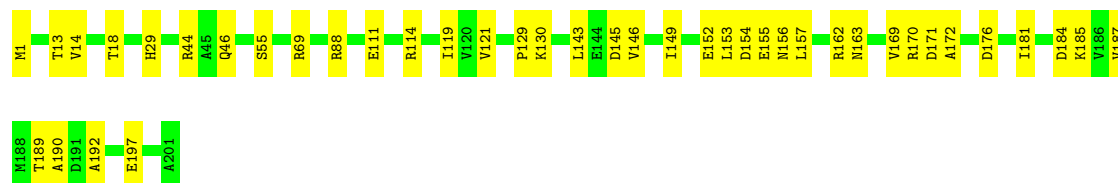
• Molecule 8: 50S ribosomal protein L3

Chain C: 75% 21%



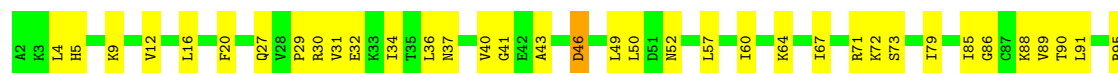
• Molecule 9: 50S ribosomal protein L4

Chain D: 80% 20%

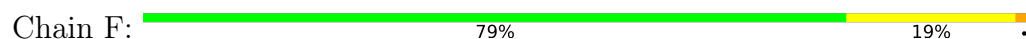


• Molecule 10: 50S ribosomal protein L5

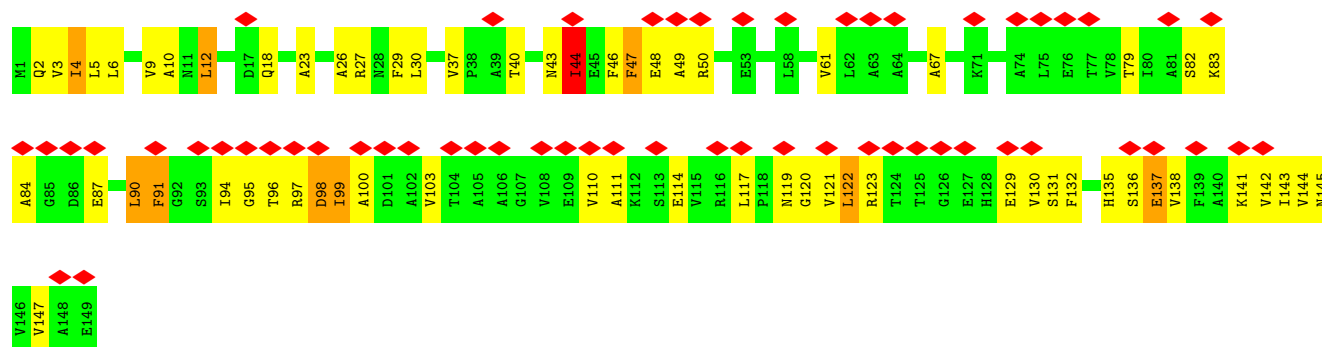
Chain E: 62% 37%



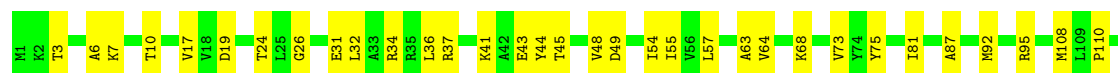
• Molecule 11: 50S ribosomal protein L6



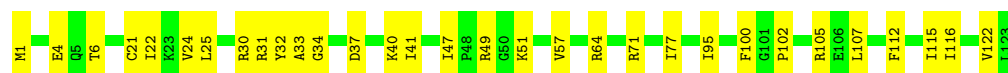
• Molecule 12: 50S ribosomal protein L9



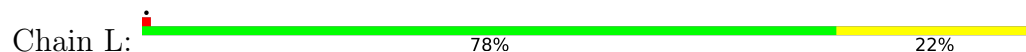
• Molecule 13: 50S ribosomal protein L13

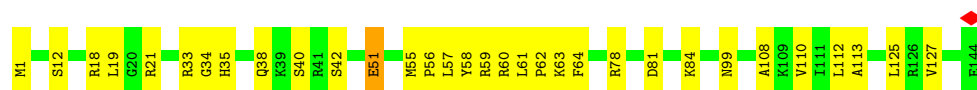


• Molecule 14: 50S ribosomal protein L14



• Molecule 15: 50S ribosomal protein L15





- Molecule 16: 50S ribosomal protein L16



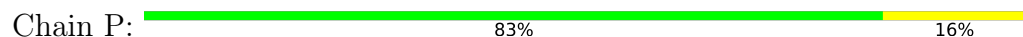
- Molecule 17: 50S ribosomal protein L17



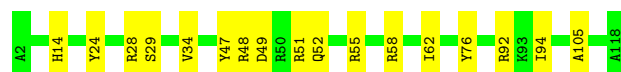
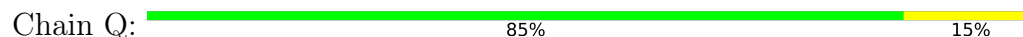
- Molecule 18: 50S ribosomal protein L18



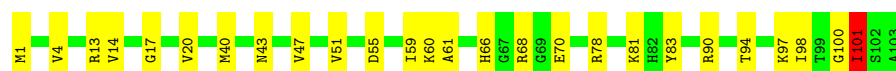
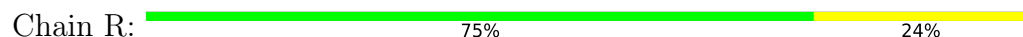
- Molecule 19: 50S ribosomal protein L19



- Molecule 20: 50S ribosomal protein L20

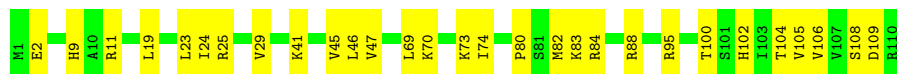


- Molecule 21: 50S ribosomal protein L21



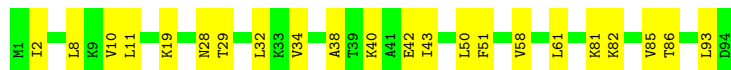
- Molecule 22: 50S ribosomal protein L22

Chain S:  74% 26%



- Molecule 23: 50S ribosomal protein L23

Chain T:  77% 23%



- Molecule 24: 50S ribosomal protein L24

Chain U:  81% 17% .

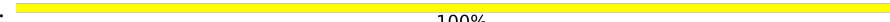


- Molecule 25: 50S ribosomal protein L25

Chain V:  79% 21%



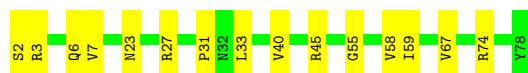
- Molecule 26: Nascent peptide

Chain W:  100%



- Molecule 27: 50S ribosomal protein L28

Chain X:  81% 19%



- Molecule 28: 50S ribosomal protein L29

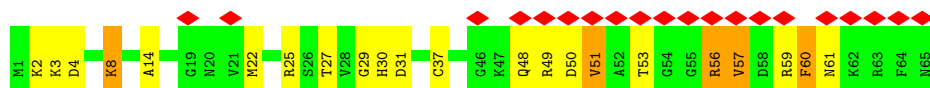
Chain Y:  68% 32%



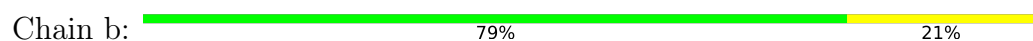
- Molecule 29: 50S ribosomal protein L30



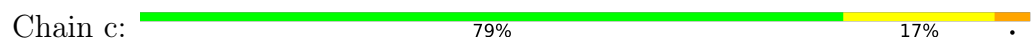
- Molecule 30: 50S ribosomal protein L31



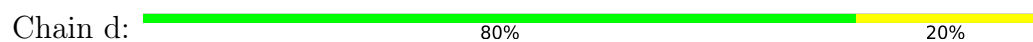
- Molecule 31: 50S ribosomal protein L32



- Molecule 32: 50S ribosomal protein L33



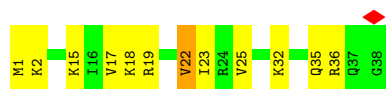
- Molecule 33: 50S ribosomal protein L34



- Molecule 34: 50S ribosomal protein L35

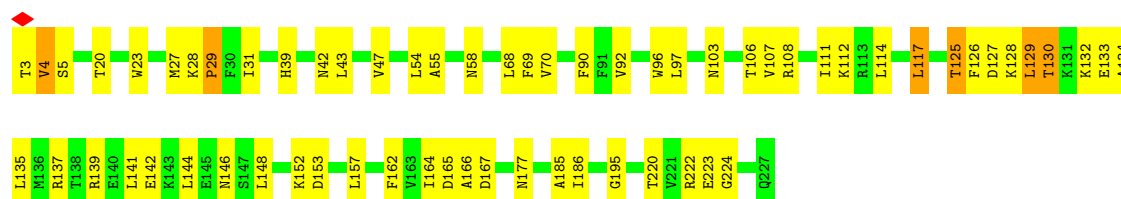


- Molecule 35: 50S ribosomal protein L36



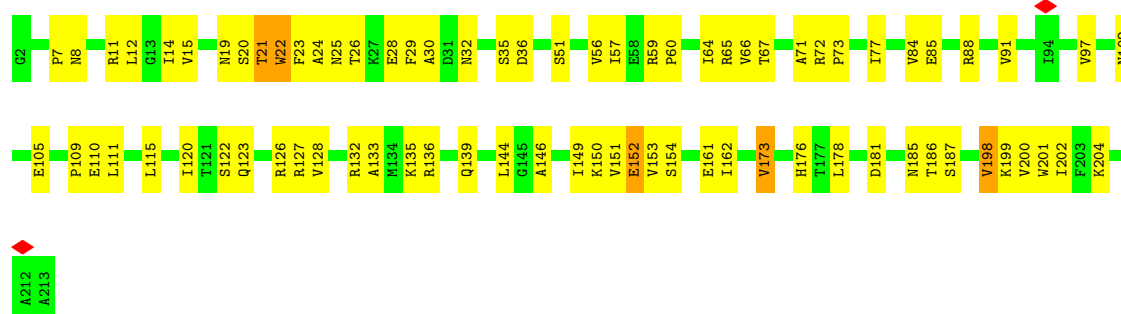
- Molecule 36: 30S ribosomal protein S2

Chain g:  72% 26% .



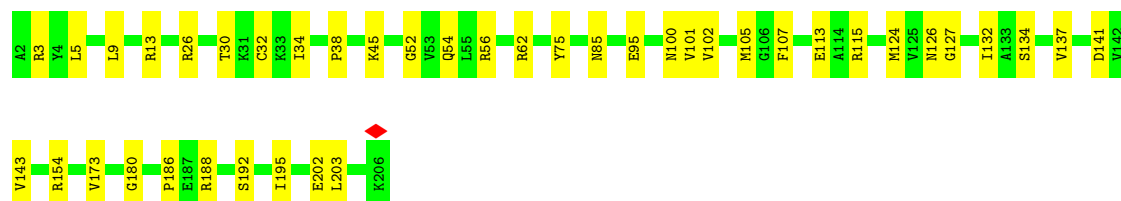
- Molecule 37: 30S ribosomal protein S3

Chain h:  63% 34% .



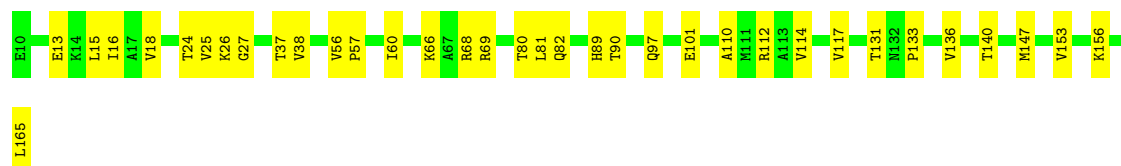
- Molecule 38: 30S ribosomal protein S4

Chain i:  80% 20% .



- Molecule 39: 30S ribosomal protein S5

Chain j:  78% 22% .

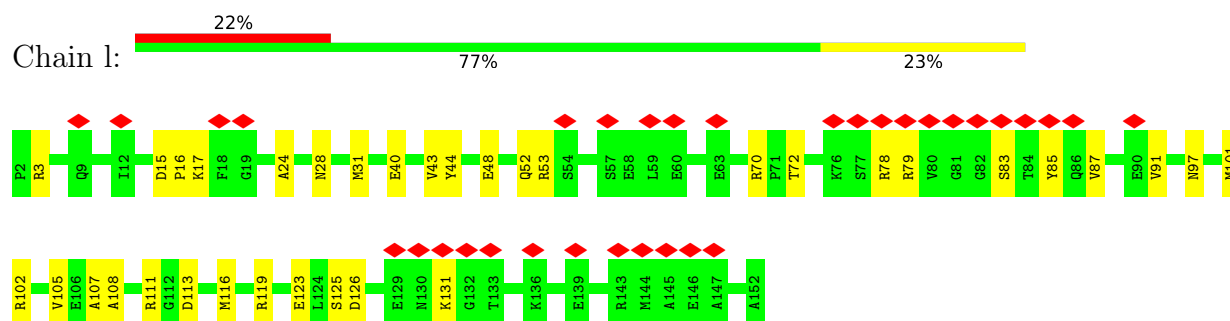


- Molecule 40: 30S ribosomal protein S6

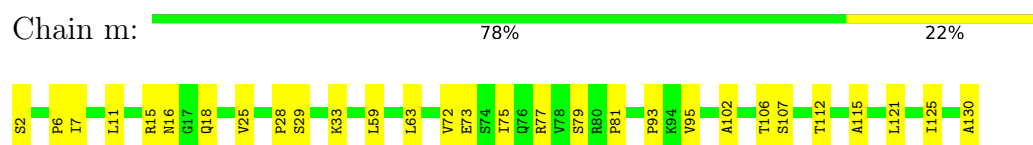
Chain k:  75% 24% .



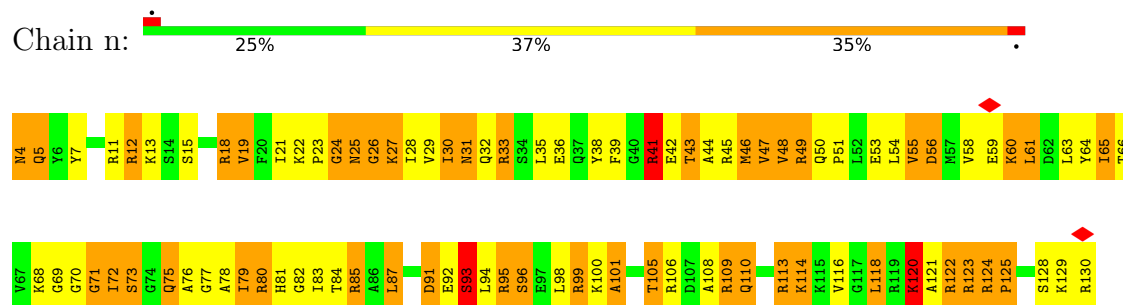
- Molecule 41: 30S ribosomal protein S7



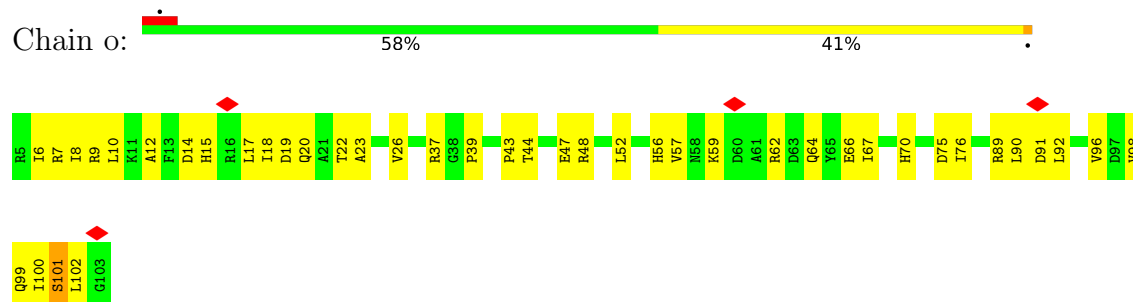
- Molecule 42: 30S ribosomal protein S8



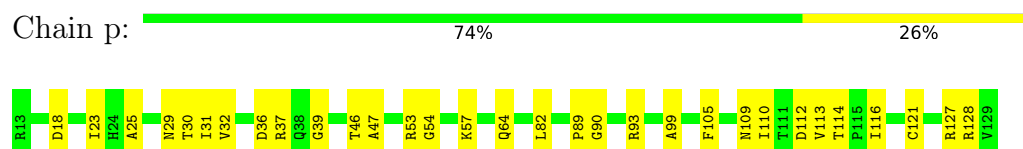
- Molecule 43: 30S ribosomal protein S9



- Molecule 44: 30S ribosomal protein S10

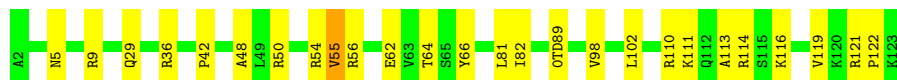


- Molecule 45: 30S ribosomal protein S11



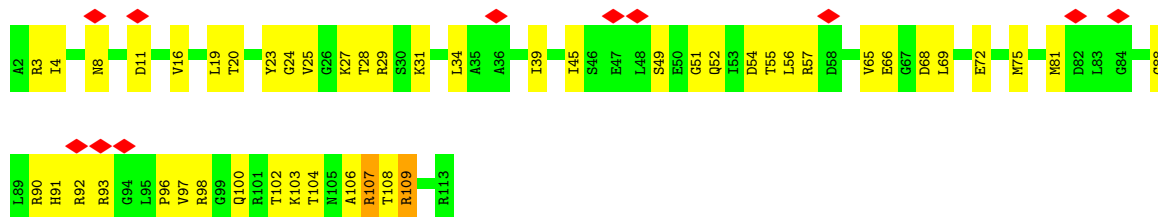
- Molecule 46: 30S ribosomal protein S12

Chain q:  79% 20%



- Molecule 47: 30S ribosomal protein S13

Chain r:  10% 58% 40%



- Molecule 48: 30S ribosomal protein S14

Chain s:  71% 24% 5%



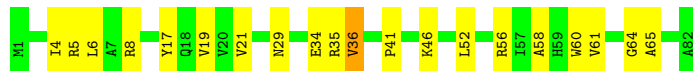
- Molecule 49: 30S ribosomal protein S15

Chain t:  83% 16%



- Molecule 50: 30S ribosomal protein S16

Chain u:  76% 23%



- Molecule 51: 30S ribosomal protein S17

Chain v:  70% 30%



- Molecule 52: 30S ribosomal protein S18

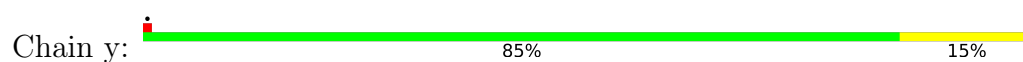
Chain w:  78% 22%



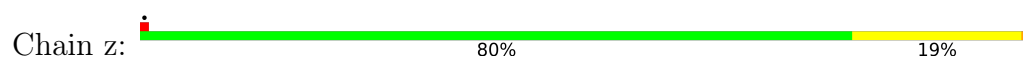
- Molecule 53: 30S ribosomal protein S19



- Molecule 54: 30S ribosomal protein S20



- Molecule 55: 30S ribosomal protein S21



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	11059	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	29	Depositor
Minimum defocus (nm)	-700	Depositor
Maximum defocus (nm)	-2000	Depositor
Magnification	130000	Depositor
Image detector	GATAN K2 BASE (4k x 4k)	Depositor
Maximum map value	21.822	Depositor
Minimum map value	-9.722	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	1.000	Depositor
Recommended contour level	2.5	Depositor
Map size ($\text{\AA}$)	499.19998, 499.19998, 499.19998	wwPDB
Map dimensions	480, 480, 480	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	1.04, 1.04, 1.04	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: PSU, OMC, 5MU, 0TD, 6MZ, MA6, 2MA, OMU, 4D4, ZN, OMG, 2MG, G7M, 1MG, 3TD, MG, 5MC, 4OC, UR3

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	0.08	0/69282	0.22	0/108079
2	2	0.14	1/36585 (0.0%)	0.27	5/57064 (0.0%)
3	3	0.07	0/2872	0.19	0/4478
4	4	0.19	0/8608	0.40	2/13418 (0.0%)
5	5	0.27	1/1231 (0.1%)	0.64	4/1655 (0.2%)
6	A	0.41	1/589 (0.2%)	0.67	2/779 (0.3%)
7	B	0.21	1/2121 (0.0%)	0.46	1/2852 (0.0%)
8	C	0.27	1/1586 (0.1%)	0.65	7/2134 (0.3%)
9	D	0.12	0/1571	0.45	3/2113 (0.1%)
10	E	0.17	0/1434	0.65	6/1926 (0.3%)
11	F	0.26	1/1333 (0.1%)	0.59	6/1805 (0.3%)
12	G	0.43	4/1121 (0.4%)	1.02	18/1515 (1.2%)
13	J	0.19	0/1152	0.50	0/1551
14	K	0.13	0/955	0.38	0/1279
15	L	0.14	0/1062	0.40	0/1413
16	M	0.22	0/1081	0.66	5/1443 (0.3%)
17	N	0.17	0/964	0.51	1/1289 (0.1%)
18	O	0.12	0/902	0.44	1/1209 (0.1%)
19	P	0.15	0/929	0.48	1/1242 (0.1%)
20	Q	0.12	0/960	0.37	0/1278
21	R	0.21	0/829	0.43	0/1107
22	S	0.22	1/864 (0.1%)	0.61	3/1156 (0.3%)
23	T	0.12	0/752	0.41	0/1005
24	U	0.21	0/796	0.56	3/1062 (0.3%)
25	V	0.12	0/766	0.43	1/1025 (0.1%)
26	W	0.06	0/16	0.04	0/20
27	X	0.13	0/635	0.38	0/848
28	Y	0.13	0/502	0.44	0/667
29	Z	0.33	1/452 (0.2%)	0.74	3/605 (0.5%)
30	a	0.48	0/523	0.81	3/698 (0.4%)
31	b	0.18	0/450	0.61	1/599 (0.2%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
32	c	0.12	0/433	0.54	2/576 (0.3%)
33	d	0.13	0/380	0.39	0/498
34	e	0.36	1/513 (0.2%)	0.90	5/676 (0.7%)
35	f	0.14	0/303	0.51	1/397 (0.3%)
36	g	0.47	1/1791 (0.1%)	0.79	12/2413 (0.5%)
37	h	0.20	0/1685	0.69	10/2270 (0.4%)
38	i	0.12	0/1665	0.35	0/2227
39	j	0.14	0/1165	0.46	0/1568
40	k	0.14	0/867	0.49	1/1171 (0.1%)
41	l	0.14	0/1195	0.48	0/1602
42	m	0.13	0/989	0.41	0/1326
43	n	0.92	0/1034	1.49	9/1375 (0.7%)
44	o	0.17	0/800	0.64	3/1082 (0.3%)
45	p	0.13	0/893	0.38	0/1205
46	q	0.14	0/954	0.41	0/1279
47	r	0.24	1/875 (0.1%)	0.59	4/1170 (0.3%)
48	s	0.40	0/817	0.76	5/1088 (0.5%)
49	t	0.16	0/722	0.58	3/964 (0.3%)
50	u	0.13	0/659	0.45	1/884 (0.1%)
51	v	0.14	0/657	0.47	1/881 (0.1%)
52	w	0.51	1/562 (0.2%)	0.55	2/754 (0.3%)
53	x	0.28	0/680	0.85	8/915 (0.9%)
54	y	0.14	0/675	0.44	0/895
55	z	0.23	0/597	0.70	4/792 (0.5%)
All	All	0.17	16/163834 (0.0%)	0.38	147/245322 (0.1%)

All (16) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
36	g	29	PRO	N-CD	16.34	1.70	1.47
52	w	41	PRO	N-CD	11.83	1.64	1.47
8	C	55	LYS	CA-C	8.02	1.63	1.52
11	F	47	ASP	CA-C	7.52	1.62	1.52
34	e	33	LEU	CA-C	7.24	1.62	1.52
12	G	12	LEU	CA-C	6.95	1.61	1.52
7	B	131	PRO	N-CD	-6.78	1.38	1.47
29	Z	10	THR	CA-C	6.32	1.60	1.52
5	5	107	GLU	CA-C	6.13	1.58	1.52
47	r	108	THR	CA-C	6.03	1.60	1.52
12	G	137	GLU	CA-C	5.60	1.59	1.52
12	G	91	PHE	CA-C	5.39	1.61	1.52
22	S	46	LEU	CA-C	5.36	1.59	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	A	14	ARG	CA-C	-5.19	1.46	1.52
12	G	98	ASP	CA-C	5.01	1.60	1.52
2	2	1498	UR3	O3'-P	5.01	1.61	1.56

All (147) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
53	x	14	HIS	N-CA-C	11.47	123.79	111.28
22	S	47	VAL	N-CA-C	11.36	122.21	110.62
12	G	12	LEU	N-CA-C	10.36	126.24	113.50
5	5	107	GLU	N-CA-C	9.31	125.32	112.93
12	G	137	GLU	N-CA-C	9.18	125.17	113.88
36	g	29	PRO	CA-N-CD	-8.93	99.49	112.00
5	5	100	LEU	N-CA-C	8.83	120.98	111.36
34	e	33	LEU	CA-C-O	8.80	128.82	119.14
47	r	109	ARG	N-CA-C	-8.77	102.38	113.43
16	M	118	LYS	N-CA-C	-8.72	101.46	110.97
12	G	99	ILE	N-CA-C	-8.71	99.84	112.04
37	h	198	VAL	N-CA-C	8.64	121.01	107.28
48	s	51	LEU	N-CA-C	-8.52	97.94	110.20
34	e	34	THR	N-CA-C	8.45	121.25	111.11
8	C	56	LYS	N-CA-CB	-8.40	98.50	111.35
8	C	27	ILE	N-CA-C	8.37	119.76	107.37
43	n	43	THR	CB-CA-C	-8.36	97.62	110.92
29	Z	10	THR	N-CA-C	8.21	124.40	113.72
36	g	224	GLY	N-CA-C	8.17	124.32	113.37
37	h	30	ALA	N-CA-C	-8.08	102.41	111.14
36	g	29	PRO	N-CA-CB	7.77	111.79	103.39
36	g	222	ARG	N-CA-C	-7.71	102.95	111.36
55	z	55	ARG	N-CA-C	7.59	120.43	111.71
48	s	49	GLN	N-CA-C	7.51	121.70	112.54
11	F	48	ASN	N-CA-CB	7.48	123.12	110.49
34	e	33	LEU	N-CA-C	7.46	122.68	113.50
8	C	29	VAL	N-CA-C	7.46	119.15	107.28
36	g	42	ASN	N-CA-C	7.46	120.42	108.41
12	G	12	LEU	CA-C-O	7.45	127.33	119.14
53	x	64	ASP	N-CA-C	-7.32	104.74	112.93
22	S	45	VAL	N-CA-C	-7.18	103.78	110.53
29	Z	10	THR	CA-C-O	7.18	126.94	119.05
12	G	48	GLU	N-CA-C	7.09	121.76	113.18
55	z	57	ALA	N-CA-C	-7.08	103.64	111.36
12	G	138	VAL	N-CA-C	7.07	119.25	108.71

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
37	h	28	GLU	N-CA-C	7.06	121.99	112.88
10	E	46	ASP	N-CA-C	7.04	120.85	107.75
47	r	107	ARG	N-CA-C	7.04	121.89	113.16
12	G	90	LEU	CB-CA-C	-6.97	101.36	112.09
22	S	46	LEU	N-CA-C	6.93	118.84	111.28
37	h	30	ALA	N-CA-CB	6.89	120.06	110.07
16	M	112	LEU	N-CA-C	6.85	118.74	111.28
36	g	134	ALA	N-CA-C	6.85	118.74	111.28
10	E	111	ILE	N-CA-C	6.82	117.32	110.23
47	r	108	THR	CA-C-O	6.82	127.69	119.78
29	Z	11	ARG	N-CA-CB	-6.79	100.32	111.66
16	M	116	ALA	N-CA-C	6.78	118.32	111.07
49	t	82	ILE	N-CA-C	6.65	116.81	110.42
36	g	29	PRO	N-CA-C	-6.64	104.68	113.65
53	x	12	ASP	N-CA-C	6.64	119.86	110.50
43	n	109	ARG	CB-CA-C	6.63	119.28	110.06
52	w	41	PRO	N-CA-CB	6.62	110.34	103.38
53	x	25	SER	N-CA-CB	6.61	120.12	110.47
24	U	14	LEU	N-CA-C	6.48	121.22	113.12
37	h	21	THR	CB-CA-C	-6.46	101.08	111.86
24	U	15	THR	N-CA-CB	-6.44	101.20	110.80
32	c	24	THR	N-CA-C	6.43	119.42	109.07
2	2	1183	U	C3'-C2'-O2'	-6.38	105.02	114.60
36	g	4	VAL	N-CA-C	6.34	118.25	112.29
55	z	57	ALA	N-CA-CB	6.32	119.52	110.16
36	g	112	LYS	N-CA-C	6.31	119.14	111.82
47	r	109	ARG	N-CA-CB	6.31	121.23	110.51
9	D	154	ASP	N-CA-C	6.24	119.71	108.17
12	G	91	PHE	CA-C-O	6.21	126.94	119.43
12	G	98	ASP	CB-CA-C	-6.20	99.33	110.37
11	F	46	ALA	N-CA-C	-6.19	104.30	112.72
9	D	155	GLU	N-CA-CB	6.17	118.95	110.01
52	w	41	PRO	CA-N-CD	-6.16	103.38	112.00
12	G	98	ASP	CA-C-O	6.12	126.84	119.43
16	M	6	ARG	N-CA-CB	-6.12	101.04	111.69
43	n	125	PRO	N-CA-CB	-6.12	96.83	103.25
11	F	47	ASP	CA-C-O	6.06	129.17	120.51
34	e	7	VAL	N-CA-C	6.04	117.11	107.98
43	n	75	GLN	N-CA-C	-6.02	104.72	111.28
51	v	72	SER	N-CA-C	-6.00	103.29	111.56
43	n	72	ILE	N-CA-C	-5.98	103.80	110.62
25	V	69	GLU	N-CA-C	5.98	119.27	109.76

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
12	G	48	GLU	N-CA-CB	-5.94	100.43	110.41
5	5	101	TYR	CA-C-O	5.93	126.70	119.11
8	C	55	LYS	CA-C-O	5.92	128.98	120.51
43	n	49	ARG	N-CA-C	-5.92	105.40	114.16
53	x	23	VAL	N-CA-C	5.91	120.31	112.04
12	G	4	ILE	N-CA-CB	-5.88	104.32	110.72
12	G	91	PHE	CB-CA-C	-5.87	99.92	110.37
44	o	101	SER	N-CA-CB	-5.86	101.51	110.65
50	u	36	VAL	N-CA-C	5.85	121.51	109.34
11	F	46	ALA	CB-CA-C	5.82	118.38	111.22
31	b	10	ARG	N-CA-C	-5.82	104.90	112.23
37	h	22	TRP	N-CA-C	-5.81	99.92	109.80
53	x	14	HIS	N-CA-CB	-5.80	101.59	110.12
10	E	105	THR	N-CA-C	5.80	117.60	111.28
7	B	174	LEU	N-CA-C	5.75	118.85	109.24
48	s	51	LEU	N-CA-CB	5.74	118.31	110.05
11	F	80	THR	N-CA-CB	5.73	118.84	110.47
48	s	50	THR	CB-CA-C	-5.69	100.24	110.37
10	E	107	ALA	N-CA-CB	5.69	119.31	110.44
43	n	125	PRO	CB-CA-C	-5.67	102.20	111.56
12	G	137	GLU	N-CA-CB	-5.66	103.06	110.59
2	2	1183	U	C2'-C3'-O3'	-5.58	101.13	109.50
37	h	28	GLU	CB-CA-C	-5.56	101.32	110.72
6	A	14	ARG	N-CA-CB	5.54	120.18	111.20
44	o	91	ASP	N-CA-CB	5.54	118.69	110.49
10	E	32	GLU	N-CA-CB	5.54	118.10	110.07
12	G	4	ILE	N-CA-C	5.54	116.55	108.58
49	t	84	ARG	N-CA-C	-5.53	105.33	111.36
24	U	15	THR	N-CA-C	5.53	121.90	113.61
37	h	152	GLU	N-CA-CB	-5.51	101.43	110.42
48	s	50	THR	CA-C-O	5.48	126.06	119.43
34	e	6	THR	N-CA-C	5.47	117.59	110.53
49	t	84	ARG	N-CA-CB	5.47	118.25	110.16
2	2	1175	G	N9-C1'-C2'	-5.46	105.80	114.00
53	x	24	GLU	CB-CA-C	-5.46	100.97	110.09
53	x	25	SER	N-CA-C	-5.45	106.76	113.41
11	F	78	GLY	N-CA-C	5.44	119.26	112.73
30	a	8	LYS	N-CA-C	5.39	117.68	110.35
18	O	116	GLN	N-CA-C	5.37	117.49	108.96
19	P	110	ILE	N-CA-C	5.34	117.33	108.99
4	4	126	C	C4'-C3'-O3'	5.34	117.41	109.40
37	h	23	PHE	N-CA-CB	-5.34	102.73	110.84

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
43	n	93	SER	N-CA-C	-5.31	106.63	113.01
35	f	22	VAL	N-CA-C	-5.30	104.28	110.05
37	h	153	VAL	N-CA-CB	5.30	118.14	111.46
30	a	51	VAL	N-CA-C	-5.30	107.66	112.96
12	G	122	LEU	N-CA-C	5.29	118.92	111.52
43	n	71	GLY	CA-C-O	-5.28	116.07	121.61
5	5	101	TYR	CB-CA-C	-5.27	99.47	109.95
17	N	107	ASN	N-CA-C	-5.26	104.18	111.28
36	g	4	VAL	CA-C-O	5.24	125.60	119.89
40	k	60	VAL	N-CA-C	5.24	115.52	107.77
8	C	33	ARG	N-CA-CB	5.22	119.32	110.49
4	4	25	A	O3'-P-O5'	-5.21	96.18	104.00
32	c	23	THR	N-CA-C	5.21	115.41	108.38
2	2	935	A	C2'-C3'-O3'	-5.19	105.91	113.70
36	g	5	SER	N-CA-C	5.17	117.66	109.96
36	g	43	LEU	N-CA-CB	5.16	117.80	110.16
10	E	107	ALA	N-CA-C	-5.14	106.85	113.23
55	z	56	HIS	CB-CA-C	-5.14	100.70	109.65
6	A	13	GLY	O-C-N	-5.12	116.04	122.70
16	M	118	LYS	N-CA-CB	5.09	117.34	109.91
12	G	47	PHE	N-CA-CB	5.09	119.09	110.49
8	C	28	GLU	N-CA-CB	5.09	117.94	109.60
2	2	1180	A	C4'-C3'-O3'	-5.08	105.38	113.00
12	G	137	GLU	CA-C-O	5.06	124.96	119.24
30	a	49	ARG	N-CA-C	-5.05	107.67	113.88
9	D	190	ALA	N-CA-C	5.03	116.45	111.07
8	C	56	LYS	N-CA-C	5.01	114.44	107.73
44	o	89	ARG	N-CA-C	-5.01	107.01	113.02

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	1	62335	0	31374	1060	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	2	32927	0	16589	665	0
3	3	2569	0	1301	42	0
4	4	7755	0	3924	155	0
5	5	1209	0	1228	59	0
6	A	582	0	599	20	0
7	B	2082	0	2154	100	0
8	C	1565	0	1616	70	0
9	D	1552	0	1619	34	0
10	E	1410	0	1444	89	0
11	F	1313	0	1358	38	0
12	G	1110	0	1148	128	0
13	J	1129	0	1162	33	0
14	K	946	0	1023	23	0
15	L	1053	0	1129	36	0
16	M	1075	0	1154	42	0
17	N	951	0	994	34	0
18	O	892	0	923	44	0
19	P	917	0	962	15	0
20	Q	947	0	1019	21	0
21	R	816	0	839	21	0
22	S	857	0	922	32	0
23	T	746	0	811	28	0
24	U	788	0	844	22	0
25	V	753	0	780	15	0
26	W	16	0	16	8	0
27	X	625	0	652	14	0
28	Y	501	0	531	20	0
29	Z	448	0	488	23	0
30	a	514	0	511	21	0
31	b	444	0	458	9	0
32	c	426	0	464	10	0
33	d	377	0	418	8	0
34	e	504	0	572	33	0
35	f	302	0	340	22	0
36	g	1760	0	1787	86	0
37	h	1658	0	1732	86	0
38	i	1643	0	1706	36	0
39	j	1152	0	1196	48	0
40	k	848	0	846	37	0
41	l	1181	0	1238	52	0
42	m	979	0	1031	26	0
43	n	1022	0	1067	105	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
44	o	790	0	831	91	0
45	p	877	0	887	42	0
46	q	951	0	1012	17	0
47	r	867	0	921	34	0
48	s	805	0	844	48	0
49	t	714	0	734	50	0
50	u	649	0	666	18	0
51	v	648	0	691	42	0
52	w	553	0	568	44	0
53	x	663	0	688	49	0
54	y	669	0	719	9	0
55	z	589	0	629	12	0
56	1	172	0	0	0	0
56	2	31	0	0	0	0
56	3	3	0	0	0	0
56	C	1	0	0	0	0
56	O	1	0	0	0	0
56	Q	1	0	0	0	0
56	b	1	0	0	0	0
56	d	1	0	0	0	0
56	h	1	0	0	0	0
57	a	1	0	0	0	0
57	f	1	0	0	0	0
All	All	151668	0	101159	3463	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 14.

All (3463) 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)
37:h:24:ALA:HB3	37:h:29:PHE:CE1	1.34	1.62
44:o:8:ILE:CG1	44:o:100:ILE:HD13	1.30	1.62
51:v:47:HIS:CD2	51:v:67:LEU:CD1	1.83	1.62
39:j:81:LEU:HD11	39:j:147:MET:SD	1.35	1.61
12:G:6:LEU:HD13	12:G:47:PHE:CE1	1.37	1.57
45:p:113:VAL:HG23	52:w:73:ARG:CD	1.22	1.57
39:j:81:LEU:HD11	39:j:147:MET:CE	1.17	1.56
44:o:8:ILE:HG13	44:o:100:ILE:CD1	1.30	1.56
39:j:81:LEU:CD1	39:j:147:MET:HE1	1.24	1.56
41:l:111:ARG:HD3	41:l:123:GLU:CG	1.30	1.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
22:S:2:GLU:HG3	22:S:108:SER:CB	1.19	1.54
51:v:47:HIS:CD2	51:v:67:LEU:HD12	1.37	1.53
7:B:120:VAL:HA	7:B:130:LEU:CD1	1.09	1.52
43:n:116:VAL:CG1	44:o:62:ARG:HD2	1.06	1.50
37:h:24:ALA:HB3	37:h:29:PHE:CZ	1.46	1.48
22:S:2:GLU:CG	22:S:108:SER:CB	1.75	1.45
22:S:2:GLU:CG	22:S:108:SER:HB2	0.98	1.45
23:T:29:THR:HG22	23:T:86:THR:CA	1.44	1.43
41:l:79:ARG:HD3	41:l:85:TYR:CB	1.44	1.43
49:t:82:ILE:CG1	49:t:87:LEU:HD21	0.99	1.42
7:B:240:PHE:CZ	7:B:242:LYS:O	1.71	1.42
36:g:29:PRO:CD	36:g:29:PRO:N	1.70	1.41
51:v:47:HIS:CE1	51:v:67:LEU:HD11	1.53	1.41
7:B:120:VAL:CA	7:B:130:LEU:CD1	1.99	1.40
49:t:82:ILE:HG12	49:t:87:LEU:CD2	0.94	1.40
23:T:29:THR:CG2	23:T:86:THR:HA	1.48	1.40
20:Q:48:ARG:NH2	20:Q:52:GLN:HE22	1.20	1.39
34:e:7:VAL:CG2	34:e:10:ALA:HB3	1.51	1.38
43:n:116:VAL:CG1	44:o:62:ARG:CD	1.99	1.37
51:v:47:HIS:NE2	51:v:67:LEU:CD1	1.82	1.36
18:O:88:LYS:C	18:O:116:GLN:HE22	1.34	1.36
18:O:88:LYS:C	18:O:116:GLN:NE2	1.81	1.36
10:E:106:ILE:HB	10:E:110:ARG:NH1	1.38	1.34
45:p:114:THR:O	52:w:73:ARG:NH2	1.59	1.33
12:G:6:LEU:HD13	12:G:47:PHE:CZ	1.60	1.33
41:l:111:ARG:HG2	41:l:123:GLU:OE2	1.22	1.33
23:T:29:THR:HG21	23:T:86:THR:CG2	1.58	1.33
43:n:116:VAL:CG2	44:o:64:GLN:HE21	1.42	1.32
44:o:6:ILE:CD1	44:o:76:ILE:HD11	1.58	1.32
29:Z:8:THR:CG2	29:Z:56:LYS:CG	2.06	1.32
37:h:24:ALA:CB	37:h:29:PHE:CZ	2.10	1.31
5:5:107:GLU:OE2	5:5:131:LYS:NZ	1.61	1.31
7:B:240:PHE:CE2	7:B:242:LYS:O	1.85	1.30
18:O:88:LYS:HG3	18:O:116:GLN:NE2	1.43	1.30
1:l:2419:U:OP2	34:e:33:LEU:CD1	1.76	1.30
12:G:9:VAL:CG1	12:G:12:LEU:HD21	1.61	1.29
12:G:6:LEU:CD1	12:G:47:PHE:CE1	2.15	1.29
39:j:81:LEU:CG	39:j:147:MET:HE1	1.61	1.28
24:U:11:VAL:HG13	24:U:71:ALA:O	1.15	1.28
7:B:119:GLY:O	7:B:130:LEU:HD13	1.30	1.28
51:v:47:HIS:NE2	51:v:67:LEU:HD11	0.96	1.28

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:B:120:VAL:CA	7:B:130:LEU:HD11	1.57	1.27
49:t:82:ILE:CB	49:t:87:LEU:HD21	1.62	1.27
37:h:24:ALA:C	37:h:29:PHE:CZ	2.12	1.27
39:j:81:LEU:CD1	39:j:147:MET:SD	2.18	1.27
45:p:113:VAL:CG2	52:w:73:ARG:CD	2.09	1.26
12:G:9:VAL:HG11	12:G:12:LEU:CD2	1.66	1.26
41:l:79:ARG:HG2	41:l:83:SER:O	1.22	1.26
41:l:79:ARG:CD	41:l:85:TYR:HB3	1.65	1.26
12:G:129:GLU:CD	12:G:141:LYS:HB2	1.61	1.26
10:E:106:ILE:O	10:E:110:ARG:CZ	1.83	1.25
49:t:82:ILE:CD1	49:t:87:LEU:HD11	1.66	1.24
49:t:82:ILE:HA	49:t:87:LEU:CD2	1.67	1.24
41:l:111:ARG:CD	41:l:123:GLU:CG	2.15	1.24
53:x:20:GLU:O	53:x:24:GLU:OE1	1.55	1.24
12:G:129:GLU:OE2	12:G:141:LYS:HB2	1.31	1.23
13:J:130:HIS:ND1	13:J:132:HIS:HB2	1.53	1.22
22:S:74:ILE:CD1	22:S:105:VAL:HG22	1.69	1.22
8:C:33:ARG:O	8:C:34:VAL:HG13	1.37	1.21
12:G:129:GLU:OE2	12:G:141:LYS:CB	1.88	1.21
12:G:95:GLY:H	12:G:122:LEU:CD2	1.53	1.21
39:j:81:LEU:CD1	39:j:147:MET:CE	1.87	1.21
44:o:6:ILE:CG2	44:o:102:LEU:HD22	1.71	1.21
49:t:79:THR:O	49:t:83:GLU:OE1	1.59	1.21
7:B:119:GLY:C	7:B:130:LEU:HD13	1.64	1.21
17:N:12:ARG:HD3	17:N:16:HIS:ND1	1.55	1.21
44:o:6:ILE:HD11	44:o:76:ILE:CD1	1.69	1.21
37:h:24:ALA:CB	37:h:29:PHE:CE1	2.23	1.20
36:g:70:VAL:HG22	36:g:92:VAL:CG2	1.72	1.20
20:Q:48:ARG:HH21	20:Q:52:GLN:NE2	1.38	1.19
2:2:735:C:C4'	52:w:61:ARG:HH22	1.43	1.19
2:2:1088:G:H21	2:2:1167:A:N6	1.39	1.18
37:h:24:ALA:CA	37:h:29:PHE:CZ	2.25	1.18
36:g:108:ARG:HA	36:g:111:ILE:HG12	1.22	1.18
1:1:2419:U:OP2	34:e:33:LEU:HD12	1.39	1.18
49:t:82:ILE:HD13	49:t:87:LEU:CD1	1.73	1.17
29:Z:8:THR:CG2	29:Z:56:LYS:HG3	1.68	1.17
30:a:8:LYS:HE2	30:a:29:GLY:CA	1.75	1.17
7:B:130:LEU:HD12	7:B:131:PRO:CD	1.76	1.16
44:o:6:ILE:CG2	44:o:102:LEU:CD2	2.23	1.16
12:G:117:LEU:HD11	12:G:120:GLY:HA2	1.26	1.16
2:2:1088:G:N2	2:2:1167:A:H61	1.42	1.16

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
29:Z:8:THR:CG2	29:Z:56:LYS:HG2	1.73	1.16
43:n:116:VAL:HG12	44:o:62:ARG:HD2	1.21	1.16
49:t:82:ILE:HG12	49:t:87:LEU:CG	1.75	1.16
1:l:587:C:C6	15:L:19:LEU:HD11	1.79	1.15
49:t:82:ILE:HG12	49:t:87:LEU:HD22	1.18	1.15
45:p:113:VAL:C	52:w:73:ARG:HH12	1.45	1.15
12:G:4:ILE:HD13	12:G:44:ILE:HD12	1.16	1.14
7:B:120:VAL:CA	7:B:130:LEU:HD13	1.70	1.14
34:e:7:VAL:HG23	34:e:10:ALA:HB3	1.18	1.14
10:E:60:ILE:HA	10:E:140:GLU:HG3	1.18	1.13
11:F:133:LEU:HD11	11:F:141:ILE:HG13	1.30	1.13
37:h:24:ALA:HB3	37:h:29:PHE:CD1	1.83	1.13
12:G:6:LEU:CD1	12:G:47:PHE:CZ	2.27	1.13
20:Q:48:ARG:NH2	20:Q:52:GLN:NE2	1.94	1.13
2:2:1349:A:OP1	43:n:121:ALA:O	1.64	1.12
36:g:108:ARG:CA	36:g:111:ILE:HG12	1.79	1.12
47:r:90:ARG:CB	47:r:97:VAL:HG12	1.78	1.12
36:g:108:ARG:HA	36:g:111:ILE:CG1	1.78	1.12
41:l:111:ARG:CG	41:l:123:GLU:OE2	1.98	1.12
8:C:55:LYS:HD3	8:C:77:ARG:HA	1.29	1.11
7:B:130:LEU:HD12	7:B:131:PRO:HD3	1.15	1.11
10:E:30:ARG:H	10:E:159:THR:CG2	1.62	1.11
47:r:90:ARG:HB2	47:r:97:VAL:HG12	1.18	1.11
8:C:27:ILE:HD11	8:C:187:LEU:HB3	1.29	1.11
43:n:116:VAL:CG2	44:o:64:GLN:NE2	2.14	1.11
7:B:120:VAL:CG2	12:G:91:PHE:HE1	1.64	1.10
43:n:116:VAL:HG11	44:o:62:ARG:CD	1.68	1.10
51:v:47:HIS:CG	51:v:67:LEU:CD1	2.34	1.10
17:N:12:ARG:HE	17:N:16:HIS:CE1	1.69	1.10
37:h:24:ALA:O	37:h:29:PHE:HZ	1.35	1.10
49:t:82:ILE:HG23	49:t:87:LEU:CD1	1.79	1.10
4:4:363:A:H3'	26:W:2:ALA:O	1.50	1.10
36:g:165:ASP:OD1	36:g:167:ASP:OD1	1.69	1.10
10:E:30:ARG:H	10:E:159:THR:HG22	1.11	1.10
12:G:95:GLY:H	12:G:122:LEU:HD23	1.09	1.10
7:B:120:VAL:HG23	12:G:91:PHE:HE1	0.97	1.09
29:Z:8:THR:HG22	29:Z:56:LYS:HG3	1.20	1.09
36:g:114:LEU:HD13	36:g:144:LEU:HD22	1.34	1.09
49:t:82:ILE:CA	49:t:87:LEU:CD2	2.30	1.09
42:m:106:THR:HG21	42:m:121:LEU:HD11	1.11	1.09
44:o:7:ARG:CG	44:o:101:SER:OG	2.01	1.09

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:735:C:HA'	52:w:61:ARG:NH2	1.49	1.09
1:1:1433:A:N6	1:1:1560:G:H1	1.49	1.08
24:U:6:ARG:HG2	24:U:94:ARG:NH2	1.68	1.08
40:k:88:MET:CE	52:w:64:TYR:CD2	2.36	1.08
45:p:113:VAL:C	52:w:73:ARG:NH1	2.00	1.08
49:t:82:ILE:CG2	49:t:87:LEU:HD11	1.81	1.08
45:p:114:THR:C	52:w:73:ARG:NH2	2.11	1.08
34:e:7:VAL:HG21	34:e:10:ALA:HB3	1.32	1.08
23:T:29:THR:CG2	23:T:86:THR:HG22	1.83	1.08
49:t:82:ILE:CG1	49:t:87:LEU:CD2	1.76	1.08
49:t:82:ILE:HG13	49:t:87:LEU:HD21	1.31	1.08
7:B:120:VAL:HG23	12:G:91:PHE:CE1	1.87	1.07
18:O:88:LYS:O	18:O:116:GLN:NE2	1.85	1.07
43:n:116:VAL:HG23	44:o:64:GLN:NE2	1.69	1.07
51:v:47:HIS:HB3	51:v:71:LYS:HD2	1.30	1.07
2:2:723:U:O4	55:z:56:HIS:NE2	1.85	1.07
30:a:8:LYS:CE	30:a:29:GLY:HA2	1.82	1.07
2:2:1368:A:OP2	43:n:114:LYS:HG3	1.52	1.07
8:C:54:ALA:O	8:C:55:LYS:HG2	1.53	1.07
12:G:95:GLY:N	12:G:122:LEU:CD2	2.17	1.07
12:G:95:GLY:N	12:G:122:LEU:HD23	1.68	1.07
45:p:113:VAL:HG23	52:w:73:ARG:HD3	1.17	1.07
16:M:105:MET:HE2	16:M:117:PHE:CZ	1.90	1.06
42:m:106:THR:HG21	42:m:121:LEU:CD1	1.83	1.06
12:G:129:GLU:OE2	12:G:141:LYS:CA	2.02	1.06
45:p:113:VAL:HG23	52:w:73:ARG:HD2	1.34	1.06
51:v:47:HIS:CD2	51:v:67:LEU:HD11	1.65	1.06
12:G:6:LEU:CD1	12:G:47:PHE:HE1	1.61	1.06
45:p:113:VAL:CG2	52:w:73:ARG:HD2	1.81	1.06
53:x:63:THR:HG23	53:x:65:GLU:H	1.16	1.06
44:o:7:ARG:HG3	44:o:101:SER:OG	1.56	1.06
37:h:24:ALA:O	37:h:29:PHE:CZ	2.08	1.05
44:o:6:ILE:HG21	44:o:102:LEU:HD22	1.32	1.05
49:t:82:ILE:HA	49:t:87:LEU:HD23	1.32	1.05
48:s:42:TRP:CH2	53:x:9:PRO:HG2	1.92	1.05
51:v:47:HIS:CE1	51:v:67:LEU:CD1	2.31	1.05
41:l:111:ARG:HD3	41:l:123:GLU:HG2	1.38	1.05
1:1:2419:U:OP2	34:e:33:LEU:HD13	1.49	1.05
43:n:113:ARG:NH1	48:s:101:TRP:HE1	1.53	1.05
11:F:133:LEU:CD1	11:F:141:ILE:HG13	1.87	1.04
44:o:6:ILE:CB	44:o:102:LEU:HD23	1.86	1.04

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1147:C:O2'	43:n:7:TYR:OH	1.74	1.04
9:D:145:ASP:OD2	9:D:184:ASP:HB2	1.56	1.04
7:B:158:ALA:O	7:B:195:VAL:HG23	1.57	1.04
28:Y:52:ARG:O	28:Y:55:THR:HG22	1.55	1.04
29:Z:8:THR:HG23	29:Z:56:LYS:HG2	1.33	1.04
37:h:24:ALA:C	37:h:29:PHE:CE2	2.36	1.04
24:U:11:VAL:CG1	24:U:71:ALA:O	2.05	1.04
1:l:937:C:OP1	34:e:52:LYS:HE2	1.58	1.03
36:g:108:ARG:HA	36:g:111:ILE:CD1	1.87	1.03
40:k:88:MET:HE1	52:w:64:TYR:CD2	1.93	1.03
44:o:6:ILE:HB	44:o:102:LEU:HD23	1.35	1.03
1:l:2683:C:C4'	8:C:13:ARG:NH1	2.21	1.03
41:l:111:ARG:CD	41:l:123:GLU:HG2	1.87	1.03
1:l:937:C:OP1	34:e:52:LYS:CD	2.06	1.03
12:G:99:ILE:HD11	12:G:130:VAL:HG11	1.40	1.03
37:h:187:SER:OG	37:h:198:VAL:CG2	2.07	1.03
49:t:82:ILE:HG23	49:t:87:LEU:CG	1.89	1.02
44:o:6:ILE:HB	44:o:102:LEU:CD2	1.89	1.02
7:B:130:LEU:HG	7:B:131:PRO:HD2	1.38	1.02
2:2:735:C:C4'	52:w:61:ARG:NH2	2.07	1.02
5:5:111:VAL:HG23	5:5:128:GLY:C	1.85	1.02
7:B:130:LEU:CD1	7:B:131:PRO:HD2	1.89	1.02
22:S:74:ILE:HD13	22:S:105:VAL:HG22	1.02	1.01
23:T:29:THR:CG2	23:T:86:THR:CB	2.38	1.01
7:B:119:GLY:O	7:B:130:LEU:CD1	2.09	1.01
36:g:114:LEU:HD22	36:g:144:LEU:HD23	1.38	1.01
49:t:82:ILE:HD13	49:t:87:LEU:HD11	1.01	1.01
7:B:130:LEU:CG	7:B:131:PRO:HD2	1.90	1.00
13:J:130:HIS:HD1	13:J:132:HIS:HB2	1.14	1.00
44:o:8:ILE:CD1	44:o:100:ILE:CD1	2.38	1.00
49:t:82:ILE:HG23	49:t:87:LEU:HG	1.42	1.00
7:B:130:LEU:CD1	7:B:131:PRO:CD	2.38	1.00
10:E:106:ILE:CB	10:E:110:ARG:NH1	2.25	1.00
35:f:18:LYS:HB2	35:f:23:ILE:HD13	1.44	1.00
2:2:1344:C:OP1	43:n:124:ARG:HD3	1.60	0.99
2:2:1368:A:OP2	43:n:114:LYS:CG	2.10	0.99
12:G:3:VAL:HG23	12:G:37:VAL:O	1.62	0.99
22:S:2:GLU:HG3	22:S:108:SER:OG	1.62	0.99
36:g:108:ARG:C	36:g:111:ILE:HG12	1.87	0.99
49:t:82:ILE:CG2	49:t:87:LEU:CD1	2.38	0.99
44:o:8:ILE:HG13	44:o:100:ILE:HD12	1.41	0.99

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:4:25:A:H3'	4:4:322:U:H5	1.23	0.99
41:l:79:ARG:CD	41:l:85:TYR:CB	2.30	0.99
8:C:180:VAL:HG12	8:C:187:LEU:CD1	1.91	0.99
18:O:88:LYS:HE2	18:O:116:GLN:OE1	1.62	0.99
41:l:79:ARG:CG	41:l:83:SER:O	2.11	0.98
44:o:8:ILE:CG1	44:o:100:ILE:CD1	2.07	0.98
5:5:107:GLU:CD	5:5:131:LYS:HZ2	1.70	0.98
40:k:8:PHE:CZ	40:k:60:VAL:HG21	1.97	0.98
7:B:132:MET:HE1	7:B:174:LEU:HD11	1.43	0.98
49:t:82:ILE:CD1	49:t:87:LEU:CD1	2.36	0.98
41:l:107:ALA:O	41:l:123:GLU:OE2	1.82	0.98
23:T:29:THR:HG21	23:T:86:THR:CB	1.94	0.98
40:k:8:PHE:CE2	40:k:60:VAL:HG21	1.98	0.97
1:1:937:C:OP1	34:e:52:LYS:CE	2.12	0.97
49:t:82:ILE:CA	49:t:87:LEU:HD21	1.91	0.97
14:K:107:LEU:O	14:K:107:LEU:HD12	1.64	0.97
22:S:74:ILE:HD13	22:S:105:VAL:CG2	1.94	0.97
29:Z:8:THR:HG21	29:Z:56:LYS:CG	1.94	0.97
49:t:82:ILE:CG1	49:t:87:LEU:HD11	1.94	0.97
43:n:116:VAL:HG13	44:o:62:ARG:HD2	1.44	0.97
12:G:117:LEU:HD11	12:G:120:GLY:CA	1.94	0.96
37:h:187:SER:OG	37:h:198:VAL:HG21	1.65	0.96
7:B:120:VAL:N	7:B:130:LEU:HD13	1.80	0.96
34:e:7:VAL:CG2	34:e:10:ALA:CB	2.42	0.96
45:p:114:THR:N	52:w:73:ARG:NH2	2.13	0.96
8:C:55:LYS:HD3	8:C:77:ARG:CA	1.94	0.96
10:E:36:LEU:HD11	10:E:57:LEU:HD11	1.47	0.96
17:N:12:ARG:NE	17:N:16:HIS:CE1	2.34	0.96
37:h:24:ALA:HB3	37:h:29:PHE:CE2	2.00	0.96
4:4:363:A:O3'	26:W:2:ALA:C	2.08	0.96
18:O:88:LYS:CG	18:O:116:GLN:NE2	2.28	0.96
49:t:82:ILE:CG1	49:t:87:LEU:CD1	2.43	0.96
12:G:95:GLY:CA	12:G:122:LEU:CD2	2.44	0.96
2:2:1527:U:OP2	55:z:42:THR:HG23	1.64	0.96
22:S:2:GLU:CG	22:S:108:SER:OG	2.12	0.96
17:N:12:ARG:HE	17:N:16:HIS:HE1	0.98	0.95
16:M:26:VAL:CG1	16:M:133:LYS:HA	1.95	0.95
22:S:2:GLU:HG2	22:S:108:SER:CB	1.68	0.95
51:v:67:LEU:CB	51:v:71:LYS:NZ	2.29	0.95
37:h:24:ALA:CB	37:h:29:PHE:CE2	2.49	0.95
12:G:4:ILE:CG2	12:G:37:VAL:HB	1.96	0.95

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
39:j:81:LEU:HG	39:j:147:MET:HE1	1.48	0.95
30:a:8:LYS:HE2	30:a:29:GLY:HA2	0.98	0.95
10:E:134:GLU:O	10:E:137:ILE:CD1	2.14	0.95
12:G:95:GLY:HA3	12:G:122:LEU:HD22	1.49	0.95
7:B:158:ALA:O	7:B:195:VAL:CG2	2.15	0.95
1:l:2683:C:H4'	8:C:13:ARG:HH12	1.31	0.95
2:2:1026:G:H1	2:2:1035:A:N6	1.64	0.95
22:S:74:ILE:CD1	22:S:105:VAL:CG2	2.44	0.94
41:l:79:ARG:HD3	41:l:85:TYR:HB3	0.97	0.94
4:4:363:A:C3'	26:W:2:ALA:O	2.13	0.94
8:C:33:ARG:O	8:C:34:VAL:CG1	2.14	0.94
13:J:130:HIS:CE1	13:J:132:HIS:HB2	2.01	0.94
18:O:88:LYS:HG3	18:O:116:GLN:CD	1.92	0.94
52:w:40:VAL:HG23	52:w:45:THR:CG2	1.97	0.94
37:h:21:THR:HA	48:s:94:PRO:HB3	1.50	0.94
44:o:8:ILE:CD1	44:o:100:ILE:HD13	1.98	0.94
51:v:67:LEU:HB2	51:v:71:LYS:HZ2	1.33	0.94
8:C:4:LEU:HD21	8:C:96:ILE:HG21	1.46	0.94
18:O:88:LYS:CG	18:O:116:GLN:HE22	1.81	0.94
34:e:7:VAL:HG21	34:e:10:ALA:CB	1.98	0.93
44:o:7:ARG:O	44:o:100:ILE:HD12	1.68	0.93
51:v:47:HIS:CG	51:v:67:LEU:HD12	2.00	0.93
2:2:1445:U:H3	2:2:1457:G:H1	0.93	0.93
43:n:113:ARG:CZ	48:s:101:TRP:CD1	2.51	0.93
51:v:67:LEU:HB2	51:v:71:LYS:NZ	1.84	0.93
9:D:145:ASP:OD1	9:D:184:ASP:HB3	1.69	0.93
12:G:95:GLY:CA	12:G:122:LEU:HD22	2.00	0.92
12:G:9:VAL:CG1	12:G:12:LEU:CD2	2.36	0.92
36:g:68:LEU:HD23	36:g:70:VAL:HG23	1.51	0.92
1:l:2683:C:H4'	8:C:13:ARG:NH1	1.82	0.92
41:l:111:ARG:HD3	41:l:123:GLU:HG3	0.94	0.91
41:l:111:ARG:CD	41:l:123:GLU:HG3	1.90	0.91
39:j:81:LEU:HD12	39:j:147:MET:HE1	1.49	0.91
10:E:30:ARG:N	10:E:159:THR:HG22	1.84	0.91
48:s:42:TRP:CZ3	53:x:9:PRO:CD	2.53	0.91
1:l:1434:A:H61	1:l:1558:C:H42	1.14	0.91
20:Q:48:ARG:HH22	20:Q:52:GLN:HE22	1.19	0.91
44:o:6:ILE:CB	44:o:102:LEU:CD2	2.43	0.91
12:G:99:ILE:CD1	12:G:130:VAL:HG11	1.99	0.90
40:k:88:MET:HE2	52:w:64:TYR:CD2	2.04	0.90
22:S:2:GLU:HG2	22:S:108:SER:HB2	0.91	0.90

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:T:29:THR:CG2	23:T:86:THR:CA	2.22	0.90
41:l:79:ARG:HD3	41:l:85:TYR:HB2	1.49	0.90
36:g:107:VAL:O	36:g:111:ILE:HG23	1.71	0.90
12:G:9:VAL:HG12	12:G:10:ALA:H	1.35	0.90
22:S:2:GLU:HG3	22:S:108:SER:CA	2.02	0.89
1:1:1800:C:H42	1:1:1817:G:H22	1.14	0.89
10:E:106:ILE:HB	10:E:110:ARG:HH11	0.89	0.89
12:G:121:VAL:O	12:G:123:ARG:NH1	2.04	0.89
23:T:29:THR:HG21	23:T:86:THR:HG22	0.91	0.89
43:n:113:ARG:HH12	48:s:101:TRP:HE1	1.17	0.89
1:1:290:U:H3	1:1:350:G:H1	1.11	0.89
17:N:12:ARG:CD	17:N:16:HIS:ND1	2.36	0.89
18:O:89:ASP:N	18:O:116:GLN:NE2	2.21	0.89
12:G:4:ILE:HD13	12:G:44:ILE:CD1	2.03	0.89
37:h:20:SER:HB3	37:h:22:TRP:CZ3	2.08	0.89
44:o:6:ILE:HG22	44:o:102:LEU:CD2	1.99	0.89
5:5:107:GLU:CD	5:5:131:LYS:NZ	2.30	0.88
12:G:9:VAL:HG12	12:G:10:ALA:N	1.86	0.88
22:S:2:GLU:CD	22:S:108:SER:OG	2.16	0.88
44:o:7:ARG:HG2	44:o:101:SER:OG	1.73	0.88
10:E:106:ILE:O	10:E:110:ARG:NE	2.05	0.88
17:N:12:ARG:NE	17:N:16:HIS:HE1	1.70	0.88
1:1:1215:G:H1	1:1:1234:U:H3	0.93	0.88
22:S:2:GLU:OE2	22:S:108:SER:OG	1.89	0.88
42:m:106:THR:CG2	42:m:121:LEU:HD11	2.03	0.88
11:F:133:LEU:HD11	11:F:141:ILE:CG1	2.03	0.88
29:Z:8:THR:HG22	29:Z:56:LYS:CG	1.88	0.87
2:2:1347:G:C8	43:n:109:ARG:HB3	2.09	0.87
36:g:135:LEU:HD13	36:g:139:ARG:HH22	1.39	0.87
1:1:539:G:H1	1:1:554:U:H3	1.21	0.86
36:g:70:VAL:HG22	36:g:92:VAL:HG22	1.56	0.86
12:G:6:LEU:CD1	12:G:47:PHE:HZ	1.88	0.86
2:2:765:G:H1	2:2:812:G:HO2'	0.90	0.86
40:k:88:MET:CE	52:w:64:TYR:HD2	1.83	0.86
43:n:113:ARG:NH1	48:s:101:TRP:NE1	2.23	0.86
45:p:114:THR:H	52:w:73:ARG:NH2	1.71	0.86
51:v:47:HIS:HE2	51:v:67:LEU:HD11	1.38	0.86
36:g:165:ASP:CG	36:g:167:ASP:OD1	2.18	0.86
48:s:42:TRP:CZ3	53:x:9:PRO:HD2	2.11	0.86
1:1:408:G:H1	1:1:419:U:H3	1.24	0.86
30:a:27:THR:O	30:a:27:THR:HG22	1.76	0.86

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
36:g:117:LEU:HB3	36:g:141:LEU:HD11	1.58	0.86
1:1:1902:C:H4'	7:B:240:PHE:HE2	1.41	0.86
1:1:2683:C:H5'	8:C:13:ARG:HH11	1.38	0.86
1:1:1270:C:H5''	1:1:1271:G:H5'	1.57	0.85
43:n:116:VAL:HG11	44:o:62:ARG:HD2	0.87	0.85
53:x:13:LEU:HD12	53:x:14:HIS:N	1.91	0.85
1:1:2306:C:H5'	1:1:2307:G:H5''	1.58	0.85
2:2:1115:U:H3	2:2:1185:G:H1	1.24	0.85
18:O:88:LYS:O	18:O:116:GLN:CD	2.18	0.84
36:g:108:ARG:O	36:g:111:ILE:CG1	2.24	0.84
36:g:68:LEU:CD2	36:g:70:VAL:HG23	2.06	0.84
2:2:735:C:H4'	52:w:61:ARG:HH21	1.41	0.84
12:G:129:GLU:OE2	12:G:141:LYS:HA	1.77	0.84
34:e:7:VAL:HG23	34:e:10:ALA:CB	2.06	0.84
36:g:108:ARG:O	36:g:111:ILE:HG12	1.77	0.84
12:G:5:LEU:HD13	12:G:12:LEU:CD1	2.05	0.84
23:T:29:THR:HG22	23:T:86:THR:CB	2.04	0.83
44:o:8:ILE:HG12	44:o:100:ILE:HD13	1.59	0.83
49:t:82:ILE:CB	49:t:87:LEU:CD2	2.37	0.83
7:B:120:VAL:CG2	12:G:91:PHE:CE1	2.55	0.83
39:j:15:LEU:HB3	39:j:37:THR:HG22	1.59	0.83
43:n:116:VAL:HG21	44:o:64:GLN:HE21	1.43	0.83
48:s:42:TRP:CZ3	53:x:9:PRO:HG2	2.12	0.83
48:s:50:THR:HG22	48:s:50:THR:O	1.77	0.83
18:O:88:LYS:CE	18:O:116:GLN:OE1	2.26	0.83
37:h:187:SER:O	37:h:198:VAL:HG22	1.79	0.83
44:o:6:ILE:CG2	44:o:102:LEU:HD23	2.02	0.83
8:C:54:ALA:O	8:C:55:LYS:CG	2.27	0.83
8:C:180:VAL:HG12	8:C:187:LEU:HD12	1.59	0.83
12:G:117:LEU:CD1	12:G:120:GLY:HA2	2.08	0.82
7:B:119:GLY:C	7:B:130:LEU:CD1	2.50	0.82
3:3:21:G:N2	3:3:62:C:O2	2.12	0.82
24:U:6:ARG:HG2	24:U:94:ARG:HH22	1.40	0.82
49:t:82:ILE:CG1	49:t:87:LEU:CG	2.44	0.82
18:O:88:LYS:CA	18:O:116:GLN:HE22	1.92	0.82
52:w:40:VAL:HG23	52:w:45:THR:HG21	1.62	0.82
53:x:63:THR:HG23	53:x:65:GLU:N	1.95	0.82
4:4:25:A:H3'	4:4:322:U:C5	2.13	0.82
5:5:61:GLY:HA2	5:5:101:TYR:OH	1.79	0.82
8:C:32:ASN:ND2	8:C:52:THR:HB	1.95	0.81
37:h:24:ALA:C	37:h:29:PHE:HZ	1.69	0.81

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
41:l:111:ARG:HD3	41:l:123:GLU:CD	2.04	0.81
39:j:15:LEU:HD22	39:j:60:ILE:HG21	1.62	0.81
5:5:111:VAL:CG2	5:5:127:ILE:HG22	2.10	0.81
7:B:130:LEU:CG	7:B:131:PRO:CD	2.58	0.81
44:o:14:ASP:O	44:o:14:ASP:OD1	1.99	0.81
49:t:82:ILE:HG12	49:t:87:LEU:CD1	2.08	0.81
5:5:38:GLY:O	5:5:39:TRP:CD1	2.34	0.81
44:o:90:LEU:CD1	44:o:92:LEU:HB2	2.11	0.81
7:B:158:ALA:C	7:B:195:VAL:HG21	2.06	0.80
1:1:1434:A:H61	1:1:1558:C:N4	1.80	0.80
1:1:537:G:H21	1:1:556:A:H62	1.30	0.80
5:5:107:GLU:CG	5:5:131:LYS:HZ1	1.94	0.80
8:C:4:LEU:HD21	8:C:96:ILE:CG2	2.11	0.80
28:Y:52:ARG:C	28:Y:55:THR:HG22	2.07	0.80
38:i:85:ASN:HB2	39:j:101:GLU:CD	2.06	0.80
12:G:4:ILE:CD1	12:G:44:ILE:HD12	2.07	0.80
2:2:1160:G:OP1	36:g:139:ARG:NH1	2.14	0.80
8:C:27:ILE:HD12	8:C:27:ILE:O	1.80	0.80
36:g:114:LEU:HD22	36:g:144:LEU:CD2	2.11	0.80
45:p:114:THR:N	52:w:73:ARG:CZ	2.44	0.80
12:G:44:ILE:HA	12:G:47:PHE:HB3	1.63	0.80
7:B:162:VAL:HG11	7:B:174:LEU:HD23	1.62	0.79
12:G:44:ILE:HA	12:G:47:PHE:CB	2.12	0.79
16:M:105:MET:HE2	16:M:117:PHE:CE2	2.17	0.79
1:1:377:G:H1	1:1:397:U:H3	1.30	0.79
10:E:46:ASP:OD2	10:E:49:LEU:HD22	1.82	0.79
16:M:26:VAL:CG1	16:M:133:LYS:CA	2.60	0.79
12:G:3:VAL:HG23	12:G:37:VAL:C	2.08	0.79
36:g:68:LEU:CD2	36:g:70:VAL:CG2	2.60	0.79
44:o:14:ASP:OD2	44:o:17:LEU:HB3	1.83	0.79
51:v:67:LEU:CB	51:v:71:LYS:HZ2	1.90	0.79
38:i:85:ASN:CA	39:j:101:GLU:OE1	2.30	0.79
1:1:1171:G:N2	1:1:1178:C:O2	2.14	0.79
10:E:36:LEU:HD12	10:E:36:LEU:O	1.82	0.79
23:T:29:THR:CG2	23:T:86:THR:CG2	2.46	0.79
38:i:85:ASN:CB	39:j:101:GLU:OE1	2.30	0.79
1:1:587:C:C5	15:L:19:LEU:HD11	2.17	0.79
49:t:82:ILE:HG21	49:t:87:LEU:HD11	1.63	0.79
1:1:1434:A:N6	1:1:1558:C:H42	1.81	0.79
1:1:1867:G:H21	1:1:1874:C:H41	1.31	0.79
2:2:1231:G:O2'	43:n:128:SER:HB3	1.82	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:5:111:VAL:HG22	5:5:127:ILE:HG22	1.63	0.79
8:C:27:ILE:HD11	8:C:187:LEU:CB	2.12	0.79
1:1:2683:C:C4'	8:C:13:ARG:HH12	1.87	0.79
10:E:46:ASP:OD1	10:E:46:ASP:O	2.00	0.79
45:p:113:VAL:CG2	52:w:73:ARG:HD3	1.95	0.79
2:2:954:G:N1	2:2:1226:C:N3	2.28	0.78
44:o:14:ASP:CG	44:o:17:LEU:HB3	2.07	0.78
4:4:55:G:N2	4:4:78:C:O2	2.16	0.78
1:1:639:U:H3	1:1:649:G:H1	1.31	0.78
1:1:1417:C:O2	1:1:1581:G:N2	2.15	0.78
2:2:1119:C:OP1	43:n:85:ARG:NH2	2.16	0.78
2:2:1367:C:P	43:n:114:LYS:NZ	2.57	0.78
4:4:55:G:N1	4:4:78:C:N3	2.30	0.78
49:t:82:ILE:CG2	49:t:87:LEU:CG	2.58	0.78
4:4:263:G:C6	4:4:308:U:C2	2.72	0.78
4:4:363:A:C3'	26:W:2:ALA:C	2.56	0.78
28:Y:52:ARG:O	28:Y:55:THR:CG2	2.32	0.78
1:1:2683:C:C5'	8:C:13:ARG:HH11	1.96	0.78
4:4:17:U:H3'	4:4:18:C:H3'	1.64	0.78
43:n:113:ARG:NH2	48:s:101:TRP:CD1	2.51	0.78
48:s:42:TRP:HZ3	53:x:9:PRO:N	1.82	0.78
49:t:82:ILE:CB	49:t:87:LEU:CG	2.62	0.78
10:E:43:ALA:HA	10:E:46:ASP:OD1	1.84	0.77
5:5:61:GLY:CA	5:5:101:TYR:OH	2.31	0.77
8:C:27:ILE:HG13	8:C:187:LEU:O	1.85	0.77
41:l:111:ARG:HD2	41:l:123:GLU:HG2	1.66	0.77
45:p:113:VAL:HG21	52:w:73:ARG:HD2	1.65	0.77
48:s:42:TRP:CZ3	53:x:9:PRO:CG	2.67	0.77
8:C:55:LYS:CD	8:C:77:ARG:HA	2.12	0.77
12:G:9:VAL:CG1	12:G:10:ALA:H	1.96	0.77
39:j:81:LEU:HD12	39:j:147:MET:CE	2.10	0.77
5:5:111:VAL:HG22	5:5:127:ILE:CG2	2.14	0.77
12:G:95:GLY:H	12:G:122:LEU:HD21	1.49	0.77
36:g:3:THR:OG1	36:g:4:VAL:N	2.13	0.77
9:D:145:ASP:OD1	9:D:145:ASP:O	2.02	0.77
10:E:60:ILE:CA	10:E:140:GLU:HG3	2.07	0.77
18:O:88:LYS:CB	18:O:116:GLN:HE22	1.97	0.77
44:o:90:LEU:HD11	44:o:92:LEU:HB2	1.65	0.76
49:t:82:ILE:CG2	49:t:87:LEU:HG	2.13	0.76
36:g:70:VAL:HG22	36:g:92:VAL:HG21	1.65	0.76
45:p:114:THR:N	52:w:73:ARG:NH1	2.32	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1649:G:O2'	17:N:106:ASP:OD2	2.02	0.76
10:E:36:LEU:CD1	10:E:57:LEU:HD11	2.16	0.76
49:t:82:ILE:HA	49:t:87:LEU:CG	2.16	0.76
1:1:1800:C:H42	1:1:1817:G:N2	1.83	0.76
10:E:36:LEU:CD1	10:E:89:VAL:HG12	2.14	0.76
17:N:12:ARG:CD	17:N:16:HIS:CE1	2.68	0.76
41:l:111:ARG:CD	41:l:123:GLU:OE2	2.32	0.76
2:2:982:U:O4	2:2:1223:C:N3	2.19	0.76
2:2:1149:C:P	43:n:11:ARG:HH12	2.09	0.76
10:E:134:GLU:O	10:E:137:ILE:HD12	1.84	0.76
40:k:88:MET:HE2	52:w:64:TYR:HD2	1.41	0.76
44:o:8:ILE:CD1	44:o:100:ILE:HD11	2.15	0.76
7:B:240:PHE:HZ	7:B:242:LYS:O	1.63	0.76
2:2:545:C:OP1	38:i:62:ARG:NH1	2.18	0.76
8:C:27:ILE:CD1	8:C:187:LEU:HB3	2.14	0.76
36:g:114:LEU:HB2	36:g:144:LEU:CD2	2.15	0.76
9:D:145:ASP:OD2	9:D:184:ASP:CB	2.34	0.76
18:O:88:LYS:CD	18:O:116:GLN:OE1	2.34	0.76
1:1:1275:A:C4	17:N:16:HIS:HD2	2.04	0.75
47:r:90:ARG:HB2	47:r:97:VAL:CG1	2.09	0.75
12:G:3:VAL:CG2	12:G:37:VAL:O	2.32	0.75
2:2:201:G:H1	2:2:216:U:H3	1.34	0.75
2:2:1309:G:C6	2:2:1329:A:N1	2.54	0.75
12:G:5:LEU:HD13	12:G:12:LEU:HD12	1.68	0.75
1:1:538:A:H62	1:1:555:G:H21	1.32	0.75
2:2:1006:G:O6	2:2:1023:U:O2	2.05	0.75
2:2:1409:C:H2'	2:2:1410:A:H8	1.51	0.75
8:C:32:ASN:HD22	8:C:52:THR:HB	1.50	0.75
36:g:114:LEU:CD1	36:g:144:LEU:HD22	2.15	0.75
51:v:67:LEU:HB3	51:v:71:LYS:NZ	2.01	0.75
15:L:19:LEU:HD12	15:L:19:LEU:O	1.85	0.75
39:j:15:LEU:HD22	39:j:60:ILE:CG2	2.17	0.75
2:2:1288:A:H2'	2:2:1289:A:C8	2.22	0.75
1:1:2683:C:C4'	8:C:13:ARG:HH11	2.00	0.74
37:h:151:VAL:CG2	37:h:200:VAL:HG22	2.17	0.74
43:n:116:VAL:HG22	44:o:64:GLN:HE21	1.51	0.74
44:o:22:THR:HG21	44:o:39:PRO:HB3	1.69	0.74
2:2:1367:C:OP2	43:n:114:LYS:NZ	2.19	0.74
17:N:12:ARG:HD3	17:N:16:HIS:CE1	2.23	0.74
1:1:937:C:OP1	34:e:52:LYS:HD2	1.85	0.74
10:E:109:PRO:HG2	10:E:110:ARG:NH2	2.02	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:T:29:THR:CB	23:T:86:THR:HA	2.18	0.74
35:f:17:VAL:C	35:f:23:ILE:HD12	2.13	0.74
12:G:95:GLY:HA3	12:G:122:LEU:CD2	2.12	0.74
41:l:111:ARG:CD	41:l:123:GLU:CD	2.59	0.74
37:h:151:VAL:HG23	37:h:200:VAL:HG22	1.68	0.74
41:l:79:ARG:HD2	41:l:85:TYR:HB3	1.68	0.74
43:n:113:ARG:CZ	48:s:101:TRP:NE1	2.51	0.74
1:1:1800:C:N4	1:1:1817:G:H22	1.84	0.74
2:2:148:G:H1	2:2:174:A:H61	1.35	0.74
6:A:31:VAL:HG12	6:A:32:LEU:N	2.03	0.74
12:G:4:ILE:HG22	12:G:37:VAL:HB	1.66	0.74
51:v:67:LEU:HB3	51:v:71:LYS:HZ1	1.52	0.74
1:1:463:G:N2	1:1:466:A:OP2	2.21	0.73
2:2:1088:G:H2'	2:2:1089:G:H8	1.53	0.73
16:M:26:VAL:HG11	16:M:133:LYS:N	2.03	0.73
1:1:1287:A:C6	17:N:106:ASP:OD2	2.32	0.73
1:1:2404:U:H3	1:1:2413:G:H1	1.36	0.73
37:h:187:SER:OG	37:h:198:VAL:HG23	1.87	0.73
12:G:10:ALA:O	12:G:12:LEU:N	2.20	0.73
2:2:1005:A:OP2	2:2:1024:G:N2	2.20	0.73
4:4:19:G:H2'	5:5:91:LEU:HD21	1.69	0.73
1:1:134:G:N1	1:1:145:C:N3	2.32	0.73
2:2:1176:A:H2'	2:2:1177:G:C8	2.22	0.73
5:5:107:GLU:CG	5:5:131:LYS:NZ	2.52	0.73
52:w:40:VAL:CG2	52:w:45:THR:CG2	2.66	0.73
1:1:2645:G:OP2	1:1:2645:G:N2	2.19	0.73
2:2:1497:G:H1'	2:2:1518:MA6:H2	1.68	0.73
12:G:117:LEU:HD13	12:G:119:ASN:O	1.89	0.73
38:i:85:ASN:HB2	39:j:101:GLU:OE1	1.87	0.73
35:f:17:VAL:O	35:f:23:ILE:HD12	1.89	0.73
1:1:1791:A:N6	1:1:1828:G:O2'	2.22	0.72
2:2:235:C:H2'	2:2:236:A:H8	1.54	0.72
2:2:1072:G:H21	36:g:106:THR:HG21	1.53	0.72
2:2:1149:C:OP1	43:n:11:ARG:NH1	2.21	0.72
40:k:8:PHE:CD1	40:k:60:VAL:HG23	2.23	0.72
47:r:90:ARG:HB3	47:r:97:VAL:HG12	1.70	0.72
1:1:1275:A:C4	17:N:16:HIS:CD2	2.77	0.72
4:4:104:C:H2'	4:4:105:U:H4'	1.70	0.72
7:B:130:LEU:HG	7:B:131:PRO:CD	2.15	0.72
1:1:1902:C:H4'	7:B:240:PHE:CE2	2.25	0.72
4:4:254:U:O2	4:4:277:G:O6	2.06	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:735:C:C5'	52:w:61:ARG:HH22	2.01	0.72
2:2:1344:C:OP1	43:n:124:ARG:CD	2.37	0.72
2:2:1356:G:H2'	2:2:1357:A:H8	1.53	0.72
10:E:60:ILE:HG12	10:E:140:GLU:OE2	1.90	0.72
13:J:10:THR:HG23	13:J:10:THR:O	1.89	0.72
40:k:8:PHE:CZ	40:k:60:VAL:CG2	2.72	0.72
43:n:116:VAL:HG13	44:o:62:ARG:CD	2.05	0.72
12:G:6:LEU:HD11	12:G:47:PHE:CE1	2.22	0.72
51:v:47:HIS:HB3	51:v:71:LYS:CD	2.16	0.72
2:2:20:U:O2'	2:2:573:A:N6	2.23	0.71
1:1:878:A:N6	1:1:899:A:O2'	2.23	0.71
5:5:111:VAL:HG23	5:5:128:GLY:O	1.90	0.71
37:h:111:LEU:O	37:h:204:LYS:NZ	2.24	0.71
7:B:120:VAL:HA	7:B:130:LEU:HD11	0.71	0.71
36:g:117:LEU:O	36:g:141:LEU:HD21	1.89	0.71
38:i:85:ASN:CB	39:j:101:GLU:CD	2.56	0.71
1:1:1215:G:O6	1:1:1234:U:O4	2.09	0.71
2:2:1270:G:H2'	2:2:1271:A:H8	1.56	0.71
7:B:120:VAL:N	7:B:130:LEU:CD1	2.48	0.71
7:B:17:VAL:HG22	7:B:204:VAL:HG22	1.72	0.71
12:G:9:VAL:CG1	12:G:10:ALA:N	2.54	0.71
11:F:133:LEU:CD1	11:F:141:ILE:CG1	2.65	0.71
16:M:105:MET:CE	16:M:117:PHE:CZ	2.72	0.71
22:S:2:GLU:CB	22:S:108:SER:HB2	2.13	0.71
38:i:85:ASN:HA	39:j:101:GLU:OE1	1.90	0.71
1:1:134:G:N2	1:1:145:C:O2	2.17	0.71
1:1:1288:G:OP2	1:1:1288:G:N2	2.24	0.71
2:2:674:G:H2'	2:2:675:A:H8	1.56	0.71
11:F:105:LEU:HD13	11:F:107:LEU:HG	1.71	0.71
14:K:64:ARG:NH2	14:K:100:PHE:O	2.23	0.71
53:x:13:LEU:HD12	53:x:14:HIS:H	1.56	0.71
2:2:246:A:N6	2:2:281:G:C2	2.59	0.70
2:2:1409:C:H2'	2:2:1410:A:C8	2.25	0.70
1:1:2581:G:OP2	1:1:2581:G:N2	2.20	0.70
3:3:22:U:H3	3:3:61:G:H1	1.39	0.70
28:Y:11:VAL:HG22	28:Y:60:LYS:HD3	1.73	0.70
1:1:727:A:OP2	1:1:1431:A:O2'	2.10	0.70
2:2:108:G:H5'	2:2:109:A:H5''	1.72	0.70
42:m:106:THR:CG2	42:m:121:LEU:CD1	2.66	0.70
8:C:35:THR:HG21	8:C:79:LEU:HD22	1.72	0.70
29:Z:6:LYS:HG2	29:Z:37:GLU:HG2	1.74	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1221:G:H4'	53:x:77:THR:HG21	1.73	0.70
2:2:1367:C:P	43:n:114:LYS:HZ1	2.15	0.70
4:4:19:G:O2'	5:5:91:LEU:HG	1.90	0.70
51:v:67:LEU:CB	51:v:71:LYS:HZ1	1.99	0.70
1:1:698:C:O2'	1:1:734:A:N6	2.25	0.70
9:D:145:ASP:CG	9:D:184:ASP:CB	2.64	0.70
1:1:746:PSU:HO2'	1:1:2611:C:HO2'	1.36	0.70
4:4:41:G:N3	53:x:29:LYS:NZ	2.40	0.70
2:2:297:G:N2	2:2:300:A:OP2	2.25	0.70
42:m:106:THR:OG1	42:m:121:LEU:HD13	1.91	0.70
51:v:11:ARG:HG2	51:v:58:VAL:HG12	1.74	0.70
39:j:15:LEU:CB	39:j:37:THR:HG22	2.21	0.69
40:k:8:PHE:CE1	40:k:60:VAL:HG23	2.26	0.69
1:1:2304:G:H22	1:1:2312:U:H3	1.39	0.69
1:1:2500:U:O2	1:1:2504:PSU:N3	2.25	0.69
37:h:24:ALA:N	37:h:29:PHE:CZ	2.60	0.69
1:1:1417:C:N3	1:1:1581:G:N1	2.30	0.69
4:4:19:G:N3	5:5:93:ASN:ND2	2.39	0.69
8:C:29:VAL:HG13	8:C:29:VAL:O	1.91	0.69
44:o:6:ILE:CG1	44:o:76:ILE:HD11	2.21	0.69
5:5:38:GLY:O	5:5:39:TRP:CG	2.45	0.69
41:l:48:GLU:O	41:l:52:GLN:NE2	2.25	0.69
1:1:276:U:OP2	1:1:362:A:N6	2.25	0.69
2:2:823:C:HO2'	42:m:2:SER:N	1.90	0.69
21:R:60:LYS:H	21:R:100:GLY:HA3	1.57	0.69
36:g:114:LEU:HB2	36:g:144:LEU:HD21	1.74	0.69
1:1:587:C:C6	15:L:19:LEU:CD1	2.69	0.69
2:2:954:G:N2	2:2:1226:C:O2	2.19	0.69
36:g:108:ARG:CA	36:g:111:ILE:CG1	2.55	0.69
36:g:108:ARG:O	36:g:111:ILE:HG13	1.91	0.69
1:1:320:A:N3	9:D:163:ASN:ND2	2.40	0.69
10:E:134:GLU:O	10:E:137:ILE:HD13	1.91	0.69
1:1:1036:G:O6	1:1:1119:U:O2	2.11	0.69
9:D:145:ASP:CG	9:D:184:ASP:HB2	2.16	0.69
11:F:90:VAL:HG21	11:F:159:GLY:O	1.93	0.69
1:1:514:A:N3	1:1:581:C:O2'	2.26	0.68
2:2:1309:G:C6	2:2:1329:A:C2	2.81	0.68
41:l:79:ARG:HD3	41:l:85:TYR:CA	2.22	0.68
12:G:46:PHE:HA	12:G:49:ALA:HB3	1.73	0.68
14:K:21:CYS:HA	14:K:41:ILE:HG22	1.75	0.68
2:2:1309:G:O6	2:2:1329:A:N1	2.26	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
22:S:74:ILE:HD12	22:S:104:THR:O	1.93	0.68
27:X:59:ILE:HG12	27:X:67:VAL:HG21	1.76	0.68
29:Z:10:THR:OG1	29:Z:56:LYS:NZ	2.26	0.68
48:s:42:TRP:HZ3	53:x:9:PRO:CD	2.02	0.68
1:1:48:G:N2	1:1:177:G:OP2	2.24	0.68
13:J:19:ASP:HA	13:J:57:LEU:HB2	1.75	0.68
37:h:151:VAL:HG23	37:h:200:VAL:CG2	2.22	0.68
3:3:5:U:OP1	3:3:61:G:O2'	2.11	0.68
12:G:135:HIS:HD1	12:G:137:GLU:CD	2.01	0.68
37:h:187:SER:C	37:h:198:VAL:HG22	2.18	0.68
44:o:8:ILE:HD11	44:o:100:ILE:CD1	2.22	0.68
1:1:1992:G:N2	1:1:1996:C:O2'	2.26	0.68
12:G:46:PHE:CD1	12:G:50:ARG:NH1	2.61	0.68
21:R:68:ARG:HH11	21:R:90:ARG:HB2	1.59	0.68
2:2:1507:A:H2'	2:2:1508:A:C8	2.29	0.68
44:o:6:ILE:HG22	44:o:102:LEU:HD22	1.61	0.68
1:1:629:G:H1'	1:1:639:U:H1'	1.76	0.68
7:B:132:MET:CE	7:B:174:LEU:HD11	2.23	0.68
51:v:20:SER:HA	51:v:47:HIS:HA	1.76	0.68
1:1:465:G:H21	1:1:684:G:H1'	1.59	0.68
2:2:1349:A:H3'	2:2:1350:A:H8	1.59	0.68
44:o:6:ILE:HG22	44:o:102:LEU:HD23	1.72	0.68
49:t:82:ILE:CA	49:t:87:LEU:CG	2.72	0.68
1:1:1597:A:H5''	1:1:1598:A:H5'	1.76	0.67
4:4:341:5MU:HN3	4:4:345:A:H62	1.42	0.67
12:G:135:HIS:ND1	12:G:137:GLU:OE1	2.27	0.67
44:o:48:ARG:HG3	48:s:101:TRP:CH2	2.29	0.67
35:f:18:LYS:CA	35:f:23:ILE:HD12	2.24	0.67
44:o:8:ILE:HD11	44:o:100:ILE:HD11	1.76	0.67
1:1:1696:G:N2	1:1:1977:A:O2'	2.24	0.67
4:4:266:C:OP2	4:4:267:G:N1	2.27	0.67
49:t:87:LEU:HD12	49:t:87:LEU:O	1.93	0.67
51:v:47:HIS:ND1	51:v:67:LEU:CD1	2.58	0.67
1:1:537:G:N2	1:1:556:A:H62	1.92	0.67
37:h:24:ALA:HB3	37:h:29:PHE:CG	2.30	0.67
2:2:1026:G:N1	2:2:1035:A:N6	2.34	0.67
1:1:2683:C:C5'	8:C:13:ARG:NH1	2.56	0.67
28:Y:10:SER:HB3	28:Y:13:GLU:HG2	1.77	0.67
37:h:115:LEU:HD23	37:h:115:LEU:O	1.94	0.67
44:o:6:ILE:HG13	44:o:76:ILE:HG13	1.76	0.67
3:3:2:G:O6	3:3:119:A:N6	2.28	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:4:127:C:H2'	4:4:128:U:O4'	1.95	0.67
8:C:33:ARG:C	8:C:34:VAL:HG13	2.20	0.67
40:k:10:VAL:HG12	40:k:58:HIS:HB3	1.77	0.67
10:E:107:ALA:HA	10:E:110:ARG:HG3	1.76	0.67
49:t:82:ILE:CA	49:t:87:LEU:HG	2.25	0.67
1:1:1363:C:O2'	1:1:1809:A:N3	2.26	0.67
1:1:1826:G:O2'	1:1:1971:U:OP2	2.13	0.67
1:1:1830:C:H2'	1:1:1831:G:H8	1.58	0.67
2:2:993:G:O2'	2:2:994:A:N7	2.24	0.66
7:B:119:GLY:O	7:B:130:LEU:HB2	1.95	0.66
7:B:120:VAL:CB	7:B:130:LEU:HD11	2.24	0.66
35:f:18:LYS:CB	35:f:23:ILE:HD13	2.23	0.66
12:G:5:LEU:CD1	12:G:12:LEU:HD12	2.26	0.66
1:1:587:C:C5	15:L:19:LEU:CD1	2.78	0.66
10:E:16:LEU:HD23	10:E:29:PRO:HD2	1.76	0.66
5:5:12:ALA:HB1	5:5:118:TRP:HB2	1.78	0.66
1:1:587:C:N1	15:L:19:LEU:HD11	2.09	0.66
2:2:861:G:HO2'	2:2:874:G:HO2'	1.43	0.66
2:2:1367:C:O2'	44:o:48:ARG:NH1	2.28	0.66
23:T:29:THR:HG22	23:T:86:THR:HA	0.70	0.66
12:G:6:LEU:HD11	12:G:47:PHE:HE1	1.55	0.66
12:G:46:PHE:HD1	12:G:50:ARG:HH11	1.44	0.66
16:M:26:VAL:HG13	16:M:133:LYS:HA	1.78	0.66
16:M:105:MET:HE2	16:M:117:PHE:CE1	2.31	0.66
1:1:1791:A:H5''	7:B:205:LEU:HD12	1.78	0.66
15:L:58:TYR:O	34:e:13:ARG:NH2	2.28	0.66
35:f:18:LYS:HB2	35:f:23:ILE:CD1	2.24	0.66
36:g:117:LEU:HB3	36:g:141:LEU:CD1	2.26	0.66
37:h:198:VAL:HG23	37:h:198:VAL:O	1.94	0.66
1:1:297:G:OP1	24:U:92:LYS:NZ	2.28	0.66
1:1:538:A:H62	1:1:555:G:N2	1.94	0.66
1:1:883:G:H8	1:1:892:A:H62	1.43	0.66
7:B:130:LEU:CD1	7:B:131:PRO:HD3	2.04	0.66
1:1:468:G:H5''	9:D:55:SER:HB3	1.79	0.65
2:2:261:U:OP2	54:y:74:ARG:NH1	2.28	0.65
24:U:14:LEU:HD12	24:U:15:THR:HB	1.78	0.65
39:j:81:LEU:CG	39:j:147:MET:CE	2.50	0.65
1:1:2594:C:N4	1:1:2595:G:O6	2.29	0.65
2:2:971:G:O5'	2:2:1231:G:N2	2.29	0.65
1:1:1447:C:O2'	1:1:1544:A:N3	2.25	0.65
28:Y:52:ARG:HA	28:Y:55:THR:HG22	1.79	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
41:l:53:ARG:HE	41:l:125:SER:HB3	1.61	0.65
53:x:32:ARG:HD3	53:x:34:TRP:CH2	2.31	0.65
1:1:2099:U:O2	1:1:2190:G:O6	2.15	0.65
1:1:2751:G:OP1	1:1:2751:G:N2	2.29	0.65
40:k:8:PHE:CE1	40:k:60:VAL:CG2	2.79	0.65
40:k:88:MET:HB2	52:w:65:LEU:HD21	1.78	0.65
1:1:685:A:H5''	1:1:788:A:H62	1.62	0.65
2:2:70:U:O2'	2:2:71:A:N7	2.23	0.65
2:2:1143:G:H2'	2:2:1144:G:C8	2.31	0.65
2:2:1238:A:N7	2:2:1301:U:O2	2.29	0.65
10:E:31:VAL:HG13	10:E:96:MET:HE1	1.77	0.65
12:G:6:LEU:HD12	12:G:47:PHE:HZ	1.61	0.65
44:o:66:GLU:HG2	48:s:99:ALA:HB2	1.79	0.65
49:t:82:ILE:CB	49:t:87:LEU:HD11	2.26	0.65
2:2:7:A:N7	39:j:97:GLN:NE2	2.44	0.65
2:2:1369:C:H2'	2:2:1370:G:C8	2.32	0.65
7:B:158:ALA:C	7:B:195:VAL:CG2	2.68	0.65
1:1:371:A:N6	1:1:402:A:OP2	2.29	0.65
35:f:18:LYS:HA	35:f:23:ILE:HD12	1.78	0.65
1:1:1009:A:O2'	1:1:1010:A:O5'	2.14	0.65
1:1:2128:G:H2'	1:1:2129:C:H4'	1.77	0.65
44:o:64:GLN:HB3	48:s:101:TRP:HZ2	1.60	0.65
47:r:23:TYR:H	47:r:66:GLU:HG2	1.62	0.65
48:s:42:TRP:CZ3	53:x:9:PRO:O	2.50	0.65
53:x:32:ARG:CD	53:x:34:TRP:CH2	2.79	0.65
1:1:526:A:O2'	1:1:2043:C:O2	2.15	0.65
1:1:2683:C:O4'	8:C:13:ARG:NH1	2.30	0.65
2:2:898:G:N2	2:2:901:A:OP2	2.30	0.65
4:4:41:G:O6	4:4:314:C:N4	2.31	0.65
13:J:17:VAL:HG12	13:J:55:ILE:HB	1.78	0.65
1:1:1753:G:N2	1:1:1756:G:OP2	2.22	0.64
2:2:713:G:H2'	2:2:714:G:C8	2.32	0.64
35:f:25:VAL:HG12	35:f:35:GLN:HB2	1.79	0.64
37:h:24:ALA:CB	37:h:29:PHE:CD1	2.71	0.64
1:1:1871:A:O2'	1:1:1872:A:N3	2.25	0.64
13:J:130:HIS:CE1	13:J:132:HIS:CB	2.78	0.64
29:Z:8:THR:HG21	29:Z:56:LYS:CD	2.27	0.64
1:1:720:U:H2'	1:1:721:A:H8	1.63	0.64
2:2:3:A:H5'	2:2:4:U:H3'	1.80	0.64
2:2:1241:G:H2'	2:2:1242:G:C8	2.33	0.64
2:2:1347:G:N7	43:n:12:ARG:NH2	2.46	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:O:89:ASP:CA	18:O:116:GLN:HE21	2.11	0.64
37:h:51:SER:HB2	37:h:115:LEU:HD12	1.80	0.64
1:1:2030:6MZ:H2	1:1:2499:C:H4'	1.78	0.64
2:2:200:G:H2'	2:2:201:G:H8	1.62	0.64
2:2:591:U:H2'	2:2:592:G:H8	1.62	0.64
53:x:3:ARG:NH1	53:x:8:GLY:O	2.31	0.64
1:1:1432:G:H2'	1:1:1433:A:H8	1.62	0.64
1:1:1724:G:H1	1:1:1736:U:H3	1.43	0.64
7:B:78:VAL:HG12	7:B:94:VAL:HG22	1.79	0.64
16:M:117:PHE:HA	16:M:120:ALA:HB3	1.79	0.64
2:2:411:A:H62	2:2:413:G:H21	1.45	0.64
2:2:1108:G:OP1	37:h:176:HIS:ND1	2.29	0.64
12:G:5:LEU:CD1	12:G:12:LEU:CD1	2.73	0.64
1:1:291:G:O6	1:1:349:U:O2	2.16	0.64
1:1:1607:C:N4	1:1:1622:G:OP2	2.30	0.64
4:4:24:G:H2'	4:4:26:U:H5'	1.79	0.64
30:a:8:LYS:CE	30:a:29:GLY:CA	2.60	0.64
14:K:107:LEU:O	14:K:107:LEU:CD1	2.41	0.64
50:u:6:LEU:HB3	50:u:17:TYR:HB3	1.79	0.64
1:1:19:A:H2'	1:1:20:C:C2	2.33	0.64
1:1:1023:U:H1'	1:1:1122:G:H5''	1.79	0.64
2:2:1149:C:P	43:n:11:ARG:NH1	2.71	0.64
4:4:363:A:O3'	26:W:2:ALA:O	2.13	0.64
17:N:96:ARG:HH22	17:N:116:VAL:HG13	1.62	0.64
1:1:160:A:N3	1:1:2208:C:O2'	2.31	0.64
1:1:527:C:N4	1:1:2777:G:O2'	2.31	0.64
1:1:2443:C:H2'	1:1:2444:G:H8	1.64	0.64
2:2:712:A:O3'	7:B:175:ARG:NH2	2.31	0.64
5:5:54:SER:HB2	5:5:65:LEU:HD11	1.79	0.64
10:E:46:ASP:OD2	10:E:49:LEU:CD2	2.45	0.63
12:G:79:THR:OG1	12:G:145:ASN:N	2.31	0.63
1:1:2816:G:N3	1:1:2883:A:O2'	2.30	0.63
2:2:712:A:H2'	2:2:713:G:C8	2.32	0.63
2:2:1005:A:C5	2:2:1006:G:H1'	2.33	0.63
29:Z:8:THR:HG23	29:Z:8:THR:O	1.98	0.63
51:v:27:ARG:NH2	51:v:42:THR:OG1	2.31	0.63
1:1:6:A:N3	13:J:135:GLN:NE2	2.46	0.63
7:B:270:ARG:HE	7:B:271:ARG:H	1.45	0.63
44:o:8:ILE:HG13	44:o:100:ILE:HD13	0.75	0.63
1:1:1953:A:O2'	1:1:2559:C:O2	2.15	0.63
16:M:26:VAL:HG13	16:M:133:LYS:HB2	1.81	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
38:i:188:ARG:NH2	38:i:195:ILE:O	2.31	0.63
1:1:545:U:H3'	1:1:546:U:H4'	1.81	0.63
1:1:2104:C:N3	1:1:2185:U:O4	2.32	0.63
2:2:917:G:H2'	2:2:918:A:H8	1.63	0.63
4:4:7:G:H5'	4:4:8:A:H5''	1.79	0.63
4:4:119:U:O2'	4:4:121:A:OP2	2.15	0.63
12:G:2:GLN:HB3	12:G:18:GLN:HE21	1.64	0.63
36:g:135:LEU:CD1	36:g:139:ARG:HH22	2.10	0.63
1:1:1030:C:N3	1:1:1125:G:N2	2.46	0.63
1:1:2852:G:OP1	17:N:64:ARG:NH2	2.31	0.63
2:2:1368:A:OP2	43:n:114:LYS:HG2	1.97	0.63
4:4:17:U:O2'	5:5:124:LYS:NZ	2.31	0.63
4:4:41:G:H4'	53:x:27:ASP:HA	1.81	0.63
51:v:67:LEU:CD1	51:v:71:LYS:HZ2	2.12	0.63
1:1:2076:U:OP2	1:1:2238:G:N2	2.31	0.63
1:1:2508:G:H1	1:1:2580:PSU:HN3	1.45	0.63
1:1:2692:G:H1'	1:1:2847:U:H1'	1.79	0.63
2:2:1124:G:OP1	44:o:37:ARG:NH1	2.32	0.63
2:2:1166:G:H22	2:2:1169:A:H5''	1.63	0.63
10:E:91:LEU:HD23	10:E:95:ARG:HB3	1.81	0.63
16:M:26:VAL:HG11	16:M:133:LYS:CA	2.27	0.63
23:T:29:THR:CG2	23:T:86:THR:HB	2.28	0.63
30:a:14:ALA:HB3	30:a:22:MET:HB2	1.79	0.63
1:1:177:G:H5'	1:1:178:G:C8	2.33	0.63
1:1:2258:C:O2'	1:1:2427:C:OP2	2.15	0.63
12:G:117:LEU:CD1	12:G:119:ASN:C	2.71	0.63
20:Q:47:TYR:O	20:Q:51:ARG:NH1	2.32	0.63
2:2:501:C:OP1	46:q:114:ARG:NH2	2.29	0.63
2:2:1347:G:H8	43:n:109:ARG:HB3	1.61	0.63
45:p:93:ARG:NH1	45:p:112:ASP:OD2	2.32	0.63
48:s:38:ASP:OD1	48:s:41:ARG:NH2	2.31	0.63
1:1:1400:U:H2'	1:1:1401:G:C8	2.34	0.62
10:E:31:VAL:HG13	10:E:31:VAL:O	1.98	0.62
10:E:106:ILE:CB	10:E:110:ARG:HH11	1.85	0.62
14:K:102:PRO:HD3	19:P:66:ASN:HB2	1.80	0.62
42:m:25:VAL:HG13	42:m:63:LEU:HD21	1.81	0.62
1:1:1871:A:O2'	1:1:1872:A:O5'	2.17	0.62
1:1:2683:C:H5'	8:C:13:ARG:NH1	2.11	0.62
1:1:2857:G:N2	1:1:2860:A:OP2	2.31	0.62
2:2:674:G:H2'	2:2:675:A:C8	2.32	0.62
4:4:55:G:O6	4:4:78:C:N4	2.31	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
42:m:112:THR:HG23	42:m:115:ALA:H	1.65	0.62
45:p:114:THR:H	52:w:73:ARG:CZ	2.09	0.62
1:1:2692:G:N3	1:1:2847:U:O2'	2.32	0.62
37:h:77:ILE:HA	37:h:84:VAL:HG23	1.80	0.62
46:q:110:ARG:HH21	46:q:113:ALA:HB3	1.64	0.62
1:1:2250:G:O2'	1:1:2496:C:OP1	2.16	0.62
41:l:70:ARG:NH1	41:l:97:ASN:OD1	2.32	0.62
50:u:61:VAL:HA	50:u:65:ALA:HB3	1.79	0.62
1:1:2734:A:N6	1:1:2770:G:O2'	2.33	0.62
4:4:184:A:H2'	4:4:185:A:H8	1.64	0.62
10:E:30:ARG:N	10:E:159:THR:CG2	2.48	0.62
17:N:2:ARG:HG2	17:N:5:LYS:HB2	1.80	0.62
2:2:202:G:H21	2:2:466:A:H61	1.47	0.62
2:2:714:G:N2	45:p:121:CYS:SG	2.72	0.62
4:4:228:G:N2	4:4:232:A:N1	2.42	0.62
30:a:27:THR:O	30:a:27:THR:CG2	2.48	0.62
2:2:78:A:H2'	2:2:79:G:C8	2.34	0.62
2:2:335:C:H2'	2:2:336:A:C8	2.35	0.62
2:2:556:C:H2'	2:2:557:G:H8	1.65	0.62
2:2:1349:A:H3'	2:2:1350:A:C8	2.34	0.62
10:E:109:PRO:HG2	10:E:110:ARG:HH22	1.64	0.62
17:N:114:GLU:OE1	17:N:118:ARG:NH2	2.32	0.62
28:Y:8:GLU:HG2	28:Y:9:LYS:HG3	1.81	0.62
38:i:13:ARG:HG3	38:i:38:PRO:HD3	1.82	0.62
1:1:538:A:H4'	13:J:7:LYS:HG3	1.80	0.62
1:1:918:A:N3	3:3:80:U:O2'	2.33	0.62
1:1:2333:A:H4'	1:1:2334:U:H5''	1.81	0.62
4:4:263:G:N1	4:4:308:U:N3	2.47	0.62
9:D:146:VAL:HG22	9:D:185:LYS:HB2	1.81	0.62
1:1:571:U:O2'	1:1:573:U:OP2	2.16	0.62
2:2:10:A:OP2	39:j:131:THR:HG21	1.99	0.62
6:A:31:VAL:HG12	6:A:32:LEU:H	1.65	0.62
12:G:117:LEU:HD13	12:G:119:ASN:C	2.25	0.62
17:N:79:LEU:HD23	17:N:83:LEU:HD12	1.82	0.62
1:1:2106:U:N3	1:1:2182:U:O4	2.32	0.62
12:G:129:GLU:CD	12:G:141:LYS:CB	2.53	0.62
37:h:22:TRP:CZ2	37:h:32:ASN:HB3	2.35	0.62
39:j:133:PRO:HA	39:j:136:VAL:HG12	1.82	0.62
41:l:79:ARG:HE	41:l:83:SER:HB3	1.64	0.62
44:o:6:ILE:HD11	44:o:76:ILE:HD11	0.73	0.62
2:2:1088:G:H21	2:2:1167:A:H61	0.69	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
22:S:23:LEU:HD12	22:S:24:ILE:HG23	1.82	0.61
1:1:793:A:OP2	1:1:2071:A:O2'	2.18	0.61
1:1:1020:A:N1	1:1:1141:U:O2'	2.30	0.61
1:1:2099:U:O2	1:1:2190:G:C6	2.53	0.61
1:1:2384:U:OP2	6:A:55:ARG:NH1	2.32	0.61
2:2:21:G:H5'	2:2:573:A:H61	1.65	0.61
4:4:261:G:N7	4:4:270:C:N4	2.48	0.61
5:5:111:VAL:HA	5:5:128:GLY:O	2.01	0.61
10:E:106:ILE:CD1	10:E:137:ILE:HG22	2.30	0.61
20:Q:94:ILE:HG21	21:R:4:VAL:HG11	1.82	0.61
47:r:81:MET:HE2	47:r:92:ARG:HB3	1.81	0.61
1:1:2291:U:O2'	1:1:2374:C:O2	2.18	0.61
17:N:44:LEU:HD23	17:N:113:ILE:HD13	1.81	0.61
42:m:73:GLU:N	42:m:130:ALA:O	2.31	0.61
50:u:19:VAL:HB	50:u:36:VAL:O	2.00	0.61
1:1:850:U:OP1	29:Z:19:LYS:NZ	2.33	0.61
2:2:826:C:O2	42:m:16:ASN:ND2	2.33	0.61
2:2:1266:G:N2	2:2:1269:A:OP2	2.33	0.61
9:D:145:ASP:OD1	9:D:184:ASP:CB	2.46	0.61
14:K:51:LYS:NZ	14:K:95:ILE:O	2.31	0.61
17:N:1:MET:SD	17:N:3:HIS:CE1	2.93	0.61
19:P:106:LYS:O	19:P:109:ARG:NH2	2.33	0.61
1:1:2047:C:O2'	1:1:2823:A:N1	2.31	0.61
2:2:626:G:OP1	50:u:35:ARG:NH2	2.34	0.61
2:2:947:G:O2'	2:2:1306:A:O2'	2.19	0.61
44:o:44:THR:HG22	44:o:70:HIS:HA	1.82	0.61
1:1:621:A:OP2	15:L:99:ASN:ND2	2.33	0.61
2:2:263:A:OP1	54:y:74:ARG:NH2	2.33	0.61
2:2:376:G:H4'	50:u:5:ARG:HD2	1.83	0.61
7:B:120:VAL:HB	12:G:91:PHE:CD1	2.36	0.61
12:G:44:ILE:HA	12:G:47:PHE:HB2	1.83	0.61
29:Z:8:THR:HG21	29:Z:56:LYS:HG3	1.64	0.61
1:1:2723:C:H4'	17:N:1:MET:SD	2.41	0.61
2:2:1180:A:OP1	43:n:105:THR:HB	2.01	0.61
2:2:1250:A:H2'	2:2:1251:A:C8	2.36	0.61
15:L:108:ALA:HB3	15:L:125:LEU:HD22	1.81	0.61
19:P:23:GLY:O	19:P:110:ILE:CD1	2.48	0.61
22:S:74:ILE:HD11	22:S:105:VAL:CG2	2.29	0.61
1:1:1858:A:H2'	1:1:1859:U:O4'	2.01	0.61
4:4:37:C:H2'	4:4:318:G:H21	1.65	0.61
4:4:153:U:O2	4:4:192:A:N6	2.34	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:848:C:H2'	1:1:849:A:H8	1.66	0.61
1:1:1791:A:H4'	7:B:205:LEU:HB2	1.83	0.61
22:S:69:LEU:HA	22:S:109:ASP:HA	1.83	0.61
28:Y:52:ARG:CA	28:Y:55:THR:HG22	2.31	0.61
37:h:14:ILE:HG22	37:h:15:VAL:HG13	1.83	0.61
1:1:364:C:H2'	1:1:365:U:C6	2.35	0.61
1:1:1016:G:O6	1:1:1147:A:N6	2.34	0.61
1:1:2313:C:H4'	10:E:88:LYS:HG3	1.83	0.61
6:A:71:VAL:HG23	6:A:77:ARG:O	2.01	0.61
47:r:25:VAL:HG23	47:r:29:ARG:HB2	1.82	0.61
1:1:77:G:OP1	28:Y:52:ARG:NH2	2.33	0.60
1:1:477:A:N6	1:1:501:A:OP1	2.34	0.60
2:2:335:C:H2'	2:2:336:A:H8	1.65	0.60
5:5:14:ILE:HG22	5:5:15:ALA:H	1.66	0.60
36:g:70:VAL:CG2	36:g:92:VAL:CG2	2.66	0.60
45:p:89:PRO:HG3	55:z:32:VAL:HG11	1.83	0.60
10:E:73:SER:HA	10:E:79:ILE:HG13	1.83	0.60
1:1:1668:A:N3	1:1:1670:C:N4	2.49	0.60
2:2:486:U:H2'	2:2:487:A:H8	1.66	0.60
2:2:1151:A:HO2'	2:2:1152:A:H8	1.49	0.60
2:2:1270:G:H2'	2:2:1271:A:C8	2.37	0.60
4:4:19:G:C2'	5:5:91:LEU:CD2	2.76	0.60
37:h:24:ALA:HB3	37:h:29:PHE:CD2	2.35	0.60
1:1:2646:C:OP2	1:1:2732:G:O2'	2.19	0.60
2:2:1507:A:H2'	2:2:1508:A:H8	1.65	0.60
2:2:1515:G:H2'	2:2:1516:2MG:C8	2.37	0.60
1:1:568:U:H1'	1:1:2030:6MZ:H9C1	1.82	0.60
1:1:1469:A:OP2	1:1:1522:A:N6	2.34	0.60
2:2:464:U:N3	2:2:467:U:OP2	2.33	0.60
3:3:8:C:O2'	18:O:25:ARG:NH1	2.34	0.60
7:B:107:PRO:HD2	7:B:110:LEU:HD22	1.82	0.60
9:D:145:ASP:CG	9:D:184:ASP:HB3	2.27	0.60
1:1:1916:A:H61	2:2:1408:A:HO2'	1.47	0.60
3:3:57:A:H1'	10:E:27:GLN:HB3	1.82	0.60
11:F:105:LEU:CD1	11:F:107:LEU:HG	2.31	0.60
1:1:987:C:O2'	1:1:1000:A:N3	2.30	0.60
18:O:89:ASP:CA	18:O:116:GLN:NE2	2.65	0.60
1:1:30:G:O2'	1:1:1214:A:N3	2.30	0.60
2:2:181:A:H2'	2:2:182:A:C8	2.37	0.60
36:g:4:VAL:O	36:g:4:VAL:HG12	2.01	0.60
40:k:8:PHE:CE2	40:k:60:VAL:CG2	2.79	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1429:G:H2'	1:1:1430:G:H8	1.65	0.60
1:1:2788:C:O2'	1:1:2809:A:N3	2.33	0.60
2:2:693:G:H5''	5:5:156:LYS:HD3	1.83	0.60
37:h:35:SER:OG	37:h:59:ARG:NH2	2.35	0.60
37:h:51:SER:HB2	37:h:115:LEU:CD1	2.32	0.60
38:i:188:ARG:NH1	38:i:192:SER:O	2.33	0.60
1:1:1275:A:O2'	1:1:1645:G:N2	2.30	0.60
10:E:49:LEU:HG	10:E:150:ARG:HH22	1.67	0.60
1:1:1333:G:H3'	1:1:1334:G:H21	1.67	0.59
2:2:492:C:H2'	2:2:493:A:C4	2.37	0.59
2:2:958:A:N1	53:x:55:ARG:NH1	2.49	0.59
4:4:124:A:H2'	4:4:125:A:C8	2.36	0.59
4:4:169:G:H2'	4:4:170:G:C8	2.37	0.59
10:E:36:LEU:HD11	10:E:89:VAL:HG12	1.83	0.59
12:G:9:VAL:HG12	12:G:12:LEU:CD2	2.30	0.59
24:U:6:ARG:HG2	24:U:94:ARG:CZ	2.32	0.59
53:x:11:ILE:HD11	53:x:15:LEU:HD22	1.84	0.59
1:1:1462:C:O2'	1:1:2702:G:O2'	2.10	0.59
2:2:21:G:H2'	2:2:22:G:C8	2.36	0.59
2:2:1304:G:O2'	2:2:1333:A:N6	2.34	0.59
6:A:37:ILE:HG22	6:A:38:VAL:HG23	1.83	0.59
9:D:46:GLN:O	9:D:88:ARG:NH2	2.34	0.59
12:G:135:HIS:CE1	12:G:137:GLU:OE2	2.55	0.59
13:J:45:THR:HB	13:J:48:VAL:HG12	1.85	0.59
29:Z:8:THR:HG21	29:Z:56:LYS:HD2	1.84	0.59
39:j:153:VAL:HG23	39:j:156:LYS:HE2	1.84	0.59
1:1:1432:G:H2'	1:1:1433:A:C8	2.36	0.59
1:1:1969:A:H2'	1:1:1972:G:H21	1.67	0.59
1:1:2081:U:H2'	1:1:2082:A:H8	1.67	0.59
2:2:558:G:OP2	2:2:559:A:O2'	2.19	0.59
2:2:917:G:H2'	2:2:918:A:C8	2.36	0.59
4:4:263:G:O6	4:4:308:U:C2	2.55	0.59
36:g:117:LEU:CB	36:g:141:LEU:HD11	2.32	0.59
1:1:97:C:HO2'	1:1:103:A:HO2'	1.49	0.59
1:1:2291:U:H1'	1:1:2374:C:H1'	1.84	0.59
5:5:24:TYR:HB3	5:5:130:ALA:HB1	1.85	0.59
1:1:501:A:O2'	1:1:502:A:OP1	2.20	0.59
2:2:521:G:O2'	2:2:536:C:O2'	2.17	0.59
2:2:1088:G:H2'	2:2:1089:G:C8	2.36	0.59
2:2:1124:G:H1	2:2:1149:C:H42	1.51	0.59
44:o:6:ILE:CG1	44:o:76:ILE:CD1	2.80	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:796:C:H2'	1:1:797:G:H8	1.67	0.59
1:1:1054:A:H2'	1:1:1055:G:C8	2.37	0.59
1:1:1999:C:O2	1:1:2687:U:O2'	2.19	0.59
2:2:490:C:H2'	2:2:491:G:C8	2.38	0.59
3:3:36:C:O2'	3:3:37:C:OP1	2.21	0.59
12:G:40:THR:H	12:G:43:ASN:HB2	1.68	0.59
40:k:7:VAL:CG1	40:k:88:MET:HB3	2.33	0.59
41:l:79:ARG:CD	41:l:85:TYR:HB2	2.18	0.59
43:n:116:VAL:HG11	44:o:62:ARG:HB2	1.84	0.59
43:n:121:ALA:O	43:n:122:ARG:HB2	2.01	0.59
1:1:143:C:H2'	1:1:144:A:H8	1.68	0.59
2:2:63:C:H42	2:2:104:G:H1	1.50	0.59
10:E:36:LEU:HD11	10:E:89:VAL:CG1	2.32	0.59
18:O:88:LYS:HD2	18:O:116:GLN:OE1	2.02	0.59
22:S:2:GLU:CD	22:S:108:SER:CB	2.66	0.59
36:g:68:LEU:HD21	36:g:70:VAL:CG2	2.33	0.59
2:2:126:G:OP1	2:2:605:U:O2'	2.18	0.59
2:2:1287:A:H2	2:2:1353:G:H1'	1.68	0.59
2:2:1373:G:OP1	43:n:41:ARG:NH2	2.36	0.59
2:2:1515:G:H2'	2:2:1516:2MG:H8	1.67	0.59
1:1:1528:A:N7	1:1:1544:A:N6	2.50	0.59
1:1:1906:G:H2'	1:1:1907:G:C8	2.37	0.59
2:2:357:G:OP1	2:2:366:A:O2'	2.20	0.59
2:2:946:A:O2'	2:2:1333:A:N3	2.32	0.59
2:2:1445:U:O2	2:2:1457:G:N2	2.27	0.59
24:U:18:ASP:HB3	24:U:21:LYS:HE2	1.84	0.59
47:r:54:ASP:HB3	47:r:57:ARG:HH21	1.68	0.59
6:A:31:VAL:CG1	6:A:32:LEU:H	2.16	0.59
6:A:31:VAL:CG1	6:A:32:LEU:N	2.65	0.59
9:D:143:LEU:HB3	9:D:146:VAL:HG21	1.84	0.59
39:j:15:LEU:HA	39:j:37:THR:HA	1.84	0.59
55:z:4:ILE:HG13	55:z:19:PHE:HD1	1.67	0.59
1:1:2691:C:H2'	1:1:2692:G:H8	1.68	0.58
2:2:1347:G:H2'	43:n:110:GLN:O	2.03	0.58
11:F:79:VAL:HG22	11:F:79:VAL:O	2.02	0.58
12:G:122:LEU:HG	12:G:122:LEU:O	2.02	0.58
36:g:108:ARG:C	36:g:111:ILE:CG1	2.70	0.58
3:3:21:G:N1	3:3:62:C:N3	2.46	0.58
15:L:64:PHE:HB3	34:e:25:LYS:HD2	1.84	0.58
36:g:70:VAL:HG22	36:g:92:VAL:HG23	1.79	0.58
1:1:2355:G:O2'	6:A:24:LYS:NZ	2.36	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:978:A:N6	2:2:1318:A:N7	2.51	0.58
2:2:1464:U:H2'	2:2:1465:A:H8	1.68	0.58
4:4:263:G:N1	4:4:308:U:C4	2.72	0.58
8:C:54:ALA:C	8:C:55:LYS:HG2	2.25	0.58
12:G:99:ILE:HD11	12:G:130:VAL:CG1	2.27	0.58
2:2:662:U:H2'	2:2:663:A:C8	2.38	0.58
2:2:1001:C:H2'	2:2:1002:G:H8	1.68	0.58
29:Z:13:ALA:HA	29:Z:16:ARG:HD3	1.85	0.58
1:1:241:A:H61	1:1:255:A:H5''	1.68	0.58
1:1:993:G:OP2	20:Q:51:ARG:NH2	2.37	0.58
2:2:600:A:N6	2:2:639:G:O6	2.36	0.58
7:B:180:GLU:OE1	7:B:270:ARG:NH2	2.37	0.58
42:m:15:ARG:NH1	42:m:75:ILE:O	2.37	0.58
43:n:116:VAL:HG23	44:o:64:GLN:HE22	1.66	0.58
1:1:1528:A:OP2	1:1:1543:G:N2	2.37	0.58
1:1:2285:C:OP2	32:c:6:ARG:NH1	2.33	0.58
1:1:2377:A:O2'	18:O:117:PHE:O	2.21	0.58
2:2:398:U:H2'	2:2:399:G:H8	1.67	0.58
8:C:27:ILE:O	8:C:27:ILE:CD1	2.52	0.58
36:g:4:VAL:HG12	36:g:47:VAL:HG13	1.85	0.58
46:q:121:ARG:HD2	46:q:122:PRO:HD2	1.84	0.58
1:1:864:G:OP1	16:M:22:GLN:NE2	2.36	0.58
1:1:2855:C:H2'	1:1:2856:A:C8	2.39	0.58
2:2:1144:G:H21	2:2:1146:A:H61	1.51	0.58
3:3:72:G:H21	3:3:104:A:H62	1.52	0.58
5:5:133:LYS:HB3	5:5:137:ASP:HB2	1.85	0.58
1:1:587:C:OP2	15:L:21:ARG:NH2	2.33	0.58
1:1:627:A:N6	15:L:112:LEU:O	2.37	0.58
1:1:2719:G:H4'	1:1:2846:G:H4'	1.85	0.58
2:2:355:C:H1'	2:2:388:G:H1'	1.86	0.58
2:2:739:C:OP1	40:k:2:ARG:NH1	2.37	0.58
8:C:116:LYS:HD2	17:N:1:MET:HE1	1.85	0.58
47:r:54:ASP:HA	47:r:57:ARG:HE	1.69	0.58
1:1:693:A:O2'	1:1:1353:A:N3	2.32	0.58
1:1:1288:G:OP1	1:1:1289:C:N4	2.32	0.58
1:1:2637:U:H3	1:1:2776:A:H62	1.52	0.58
1:1:2898:U:H2'	1:1:2899:A:C8	2.39	0.58
2:2:923:A:O2'	2:2:1399:C:OP2	2.20	0.58
2:2:1150:A:H4'	44:o:43:PRO:HG3	1.86	0.58
2:2:1250:A:H61	2:2:1354:U:H1'	1.69	0.58
3:3:114:C:H2'	3:3:115:A:H8	1.68	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:4:263:G:C6	4:4:308:U:N3	2.72	0.58
7:B:53:HIS:HA	7:B:217:ARG:HB2	1.85	0.58
36:g:220:THR:HA	36:g:223:GLU:HB3	1.85	0.58
38:i:173:VAL:HA	38:i:180:GLY:HA2	1.86	0.58
40:k:86:ARG:NH1	52:w:64:TYR:O	2.37	0.58
53:x:62:VAL:HG13	53:x:66:MET:SD	2.44	0.58
1:1:1800:C:O2	1:1:1817:G:O6	2.22	0.58
2:2:1356:G:H2'	2:2:1357:A:C8	2.38	0.58
6:A:65:GLY:HA3	6:A:83:GLU:O	2.03	0.58
12:G:10:ALA:C	12:G:12:LEU:H	2.11	0.58
48:s:42:TRP:CE3	53:x:9:PRO:HD2	2.39	0.58
1:1:1779:U:OP2	1:1:1784:A:N6	2.37	0.57
1:1:2333:A:OP2	6:A:77:ARG:NH2	2.36	0.57
2:2:689:C:OP1	45:p:29:ASN:ND2	2.36	0.57
39:j:81:LEU:HD13	39:j:147:MET:SD	2.39	0.57
1:1:2339:C:H2'	1:1:2340:A:C8	2.38	0.57
1:1:2595:G:N2	1:1:2598:A:OP2	2.35	0.57
2:2:216:U:H4'	2:2:464:U:H4'	1.86	0.57
2:2:751:U:O2'	2:2:752:G:OP1	2.22	0.57
2:2:960:U:O2	2:2:1222:G:O2'	2.18	0.57
4:4:214:C:N3	4:4:245:C:O2'	2.35	0.57
7:B:49:ILE:HD11	7:B:52:ARG:HA	1.86	0.57
9:D:171:ASP:OD1	9:D:172:ALA:N	2.36	0.57
16:M:26:VAL:HG13	16:M:26:VAL:O	2.03	0.57
19:P:14:LYS:HE2	19:P:77:HIS:HA	1.86	0.57
36:g:108:ARG:CA	36:g:111:ILE:CD1	2.72	0.57
1:1:1681:G:N2	1:1:1763:G:OP2	2.33	0.57
4:4:163:G:H22	4:4:192:A:H62	1.51	0.57
34:e:7:VAL:HG23	34:e:7:VAL:O	2.05	0.57
36:g:55:ALA:HA	36:g:58:ASN:HD21	1.70	0.57
37:h:132:ARG:HA	37:h:135:LYS:HE2	1.85	0.57
1:1:974:G:OP1	1:1:1187:G:O2'	2.16	0.57
1:1:1378:A:O2'	1:1:1380:G:OP2	2.23	0.57
2:2:976:G:N2	2:2:1363:A:O5'	2.37	0.57
2:2:978:A:C6	2:2:1316:G:N2	2.72	0.57
2:2:1158:C:H5''	36:g:132:LYS:HD3	1.87	0.57
17:N:72:ASP:HB3	17:N:75:ILE:HB	1.86	0.57
24:U:9:ASP:OD2	24:U:94:ARG:NH1	2.34	0.57
1:1:372:G:H2'	27:X:58:VAL:HG12	1.86	0.57
1:1:1515:A:H3'	1:1:1516:G:H8	1.68	0.57
1:1:1752:C:H2'	1:1:1753:G:C8	2.39	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1952:A:N1	14:K:22:ILE:HB	2.20	0.57
2:2:712:A:H2'	2:2:713:G:H8	1.69	0.57
2:2:1240:U:H3'	2:2:1241:G:H8	1.70	0.57
2:2:1513:A:H2'	2:2:1514:G:H8	1.69	0.57
10:E:106:ILE:O	10:E:110:ARG:NH1	2.34	0.57
36:g:70:VAL:HA	36:g:92:VAL:HG23	1.86	0.57
44:o:76:ILE:HD12	44:o:76:ILE:O	2.05	0.57
47:r:103:LYS:HG2	47:r:104:THR:HG23	1.85	0.57
1:1:584:C:N4	1:1:585:G:O6	2.36	0.57
1:1:1864:U:OP1	1:1:2410:G:O2'	2.22	0.57
1:1:2280:G:O6	6:A:14:ARG:HD3	2.04	0.57
1:1:2898:U:H2'	1:1:2899:A:H8	1.69	0.57
3:3:116:G:H2'	3:3:117:G:C8	2.40	0.57
4:4:132:U:H2'	4:4:133:A:C8	2.39	0.57
7:B:120:VAL:HA	7:B:130:LEU:HD13	1.18	0.57
18:O:33:ARG:O	18:O:65:THR:OG1	2.22	0.57
40:k:38:ARG:NH1	40:k:98:GLU:O	2.37	0.57
1:1:353:C:H2'	1:1:354:A:C8	2.38	0.57
1:1:1303:G:O6	1:1:1304:A:N6	2.37	0.57
1:1:1790:C:OP2	1:1:1828:G:N1	2.38	0.57
1:1:2233:U:H2'	1:1:2234:G:H8	1.70	0.57
1:1:2821:A:OP2	17:N:3:HIS:NE2	2.37	0.57
2:2:867:G:O2'	2:2:873:A:N1	2.29	0.57
2:2:1318:A:N3	53:x:37:ARG:NH1	2.53	0.57
8:C:29:VAL:O	8:C:185:ASN:HB3	2.03	0.57
43:n:118:LEU:HD23	43:n:122:ARG:H	1.69	0.57
1:1:1136:G:H2'	1:1:1137:G:C8	2.40	0.57
1:1:1136:G:H2'	1:1:1137:G:H8	1.70	0.57
1:1:1807:G:N2	1:1:1810:A:OP2	2.25	0.57
1:1:2232:C:OP1	27:X:27:ARG:NH1	2.37	0.57
3:3:66:A:H2	3:3:68:C:H41	1.53	0.57
22:S:19:LEU:HB3	31:b:22:LEU:HD13	1.85	0.57
2:2:414:A:H8	2:2:430:A:H61	1.52	0.57
2:2:918:A:H2'	2:2:919:A:C8	2.39	0.57
12:G:9:VAL:HG11	12:G:12:LEU:HD21	0.74	0.57
13:J:37:ARG:NH1	13:J:44:TYR:OH	2.38	0.57
37:h:161:GLU:HG3	37:h:162:ILE:HD12	1.87	0.57
1:1:577:G:O2'	1:1:1254:A:OP1	2.23	0.57
2:2:1308:U:H5''	47:r:97:VAL:HG22	1.87	0.57
2:2:1309:G:N1	2:2:1329:A:C2	2.72	0.57
11:F:133:LEU:HD12	11:F:141:ILE:CD1	2.35	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:G:135:HIS:ND1	12:G:137:GLU:CD	2.62	0.57
16:M:11:LYS:HD3	16:M:86:LYS:HD3	1.87	0.57
36:g:28:LYS:HA	36:g:31:ILE:HG12	1.87	0.57
43:n:72:ILE:O	43:n:73:SER:C	2.48	0.57
1:1:1066:U:H2'	1:1:1067:A:H2'	1.87	0.56
1:1:1229:C:H2'	1:1:1230:A:C8	2.40	0.56
1:1:2116:G:O6	1:1:2164:C:N4	2.37	0.56
2:2:161:A:N6	2:2:347:G:O2'	2.38	0.56
10:E:36:LEU:HB3	10:E:154:ILE:HG23	1.86	0.56
37:h:126:ARG:HG3	37:h:128:VAL:HG23	1.87	0.56
44:o:14:ASP:OD2	44:o:17:LEU:CB	2.51	0.56
1:1:102:U:O4	28:Y:2:LYS:N	2.37	0.56
1:1:239:C:HO2'	1:1:622:G:HO2'	1.45	0.56
1:1:296:U:H2'	1:1:297:G:C8	2.40	0.56
1:1:1913:A:N6	2:2:1492:A:N7	2.53	0.56
1:1:2313:C:H2'	1:1:2314:A:C8	2.40	0.56
2:2:1176:A:H2'	2:2:1177:G:H8	1.66	0.56
2:2:1323:G:H1'	2:2:1361:G:N2	2.20	0.56
10:E:135:GLN:HG2	10:E:141:ILE:HG21	1.87	0.56
44:o:15:HIS:HA	44:o:18:ILE:HG22	1.86	0.56
1:1:1223:G:OP1	21:R:68:ARG:NH2	2.38	0.56
1:1:1295:C:H2'	1:1:1296:G:H8	1.71	0.56
1:1:1638:C:O2	1:1:2698:U:O2'	2.22	0.56
1:1:2032:G:OP2	1:1:2454:G:O2'	2.20	0.56
1:1:2693:G:H2'	1:1:2694:G:H8	1.70	0.56
2:2:1367:C:P	43:n:114:LYS:HZ3	2.24	0.56
5:5:35:ALA:HB3	5:5:89:LYS:HB3	1.86	0.56
12:G:129:GLU:HB2	12:G:143:ILE:HD13	1.86	0.56
13:J:73:VAL:HG11	13:J:75:TYR:CE2	2.40	0.56
21:R:14:VAL:HG12	21:R:20:VAL:HG11	1.87	0.56
39:j:15:LEU:CD2	39:j:60:ILE:HG21	2.32	0.56
44:o:90:LEU:HD12	44:o:90:LEU:O	2.06	0.56
1:1:437:U:H2'	1:1:438:G:H8	1.71	0.56
1:1:998:C:OP2	20:Q:58:ARG:NH2	2.38	0.56
2:2:1223:C:H5'	2:2:1224:U:H5''	1.85	0.56
4:4:18:C:O2'	4:4:19:G:O5'	2.17	0.56
5:5:61:GLY:HA3	5:5:101:TYR:OH	2.04	0.56
18:O:24:THR:HG22	18:O:42:PRO:HD3	1.87	0.56
32:c:34:LEU:H	32:c:51:GLU:HG2	1.71	0.56
36:g:117:LEU:HD12	36:g:141:LEU:HD11	1.88	0.56
38:i:132:ILE:HG22	38:i:134:SER:H	1.70	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:o:9:ARG:HB2	44:o:99:GLN:HB2	1.86	0.56
1:1:770:G:O3'	33:d:14:ARG:NH1	2.38	0.56
1:1:1857:G:N2	1:1:1884:G:O2'	2.37	0.56
1:1:2544:G:H1'	1:1:2646:C:H5'	1.87	0.56
2:2:21:G:H2'	2:2:22:G:H8	1.70	0.56
2:2:322:C:H2'	2:2:323:U:C6	2.41	0.56
2:2:514:C:H2'	2:2:515:G:H8	1.70	0.56
2:2:980:C:H1'	48:s:59:ARG:HG2	1.86	0.56
4:4:227:C:H2'	4:4:233:A:H62	1.70	0.56
7:B:71:LYS:O	7:B:118:SER:OG	2.24	0.56
24:U:14:LEU:HD12	24:U:15:THR:N	2.19	0.56
29:Z:13:ALA:HB2	29:Z:54:MET:HE1	1.87	0.56
45:p:114:THR:CA	52:w:73:ARG:NH2	2.68	0.56
1:1:1798:U:O2'	1:1:1802:A:N3	2.36	0.56
1:1:2385:C:H2'	1:1:2386:A:C8	2.41	0.56
2:2:1167:A:N7	2:2:1169:A:N6	2.54	0.56
2:2:1261:A:H4'	2:2:1283:U:H4'	1.87	0.56
10:E:31:VAL:HG13	10:E:96:MET:CE	2.35	0.56
18:O:89:ASP:N	18:O:116:GLN:HE21	1.98	0.56
44:o:90:LEU:HD12	44:o:90:LEU:C	2.31	0.56
51:v:67:LEU:CD1	51:v:71:LYS:NZ	2.69	0.56
1:1:1472:C:H2'	1:1:1473:G:H8	1.71	0.56
1:1:2673:G:H2'	1:1:2674:G:H8	1.70	0.56
2:2:714:G:H2'	2:2:715:A:C8	2.41	0.56
2:2:1268:G:H21	2:2:1327:C:H1'	1.71	0.56
4:4:341:5MU:H3'	4:4:342:PSU:H5'	1.88	0.56
7:B:162:VAL:CG1	7:B:174:LEU:HD23	2.35	0.56
10:E:106:ILE:CA	10:E:110:ARG:NH1	2.69	0.56
36:g:135:LEU:HD13	36:g:139:ARG:NH2	2.15	0.56
45:p:23:ILE:HG13	45:p:32:VAL:HG23	1.87	0.56
1:1:121:G:H4'	1:1:149:A:H5'	1.86	0.56
1:1:598:U:H2'	1:1:599:A:H8	1.71	0.56
1:1:705:A:H4'	7:B:7:LYS:HD2	1.88	0.56
2:2:294:U:OP1	2:2:610:U:O2'	2.22	0.56
2:2:718:A:O2'	55:z:35:ARG:NH2	2.39	0.56
2:2:880:C:OP1	46:q:5:ASN:ND2	2.39	0.56
2:2:918:A:H2'	2:2:919:A:H8	1.71	0.56
2:2:1031:C:H4'	2:2:1033:G:H5''	1.87	0.56
2:2:1077:G:N2	2:2:1080:A:OP2	2.31	0.56
2:2:1095:U:OP2	2:2:1108:G:N1	2.39	0.56
2:2:1305:G:N1	2:2:1331:G:O2'	2.32	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
28:Y:52:ARG:HA	28:Y:55:THR:CG2	2.35	0.56
36:g:129:LEU:HB2	36:g:133:GLU:HB2	1.87	0.56
43:n:116:VAL:HG11	44:o:62:ARG:CB	2.36	0.56
1:1:302:C:H2'	1:1:303:G:C8	2.41	0.56
2:2:1363:A:O2'	2:2:1365:G:N7	2.32	0.56
24:U:13:VAL:HG11	24:U:39:ILE:HG21	1.87	0.56
41:l:108:ALA:HA	41:l:123:GLU:OE1	2.06	0.56
1:1:320:A:OP1	9:D:130:LYS:NZ	2.35	0.56
1:1:1649:G:H2'	1:1:1650:A:H8	1.72	0.56
1:1:1800:C:OP2	7:B:182:ARG:NH1	2.38	0.56
1:1:1916:A:N6	2:2:1408:A:O2'	2.34	0.56
2:2:1006:G:C6	2:2:1023:U:O2	2.58	0.56
11:F:86:LYS:HB3	11:F:132:VAL:HG12	1.87	0.56
35:f:25:VAL:CG1	35:f:35:GLN:HB2	2.36	0.56
40:k:8:PHE:O	40:k:60:VAL:HG22	2.05	0.56
1:1:937:C:OP1	34:e:52:LYS:HD3	2.04	0.55
1:1:1529:G:H2'	1:1:1530:G:C8	2.41	0.55
2:2:539:A:H2'	2:2:540:G:H8	1.70	0.55
2:2:663:A:H61	2:2:742:G:H1	1.52	0.55
2:2:672:U:H2'	2:2:673:A:H8	1.71	0.55
2:2:1524:C:H2'	2:2:1525:G:H8	1.70	0.55
4:4:51:A:O2'	4:4:71:A:OP2	2.22	0.55
16:M:66:ARG:NH1	16:M:104:GLU:OE2	2.33	0.55
21:R:61:ALA:HB2	21:R:98:ILE:HD13	1.87	0.55
36:g:148:LEU:HD12	36:g:148:LEU:O	2.06	0.55
40:k:88:MET:CE	52:w:64:TYR:CE2	2.89	0.55
47:r:102:THR:HA	47:r:106:ALA:HB2	1.87	0.55
1:1:83:A:OP1	24:U:2:ALA:N	2.39	0.55
1:1:1152:C:H2'	1:1:1153:C:H6	1.71	0.55
1:1:1636:U:H2'	1:1:1637:A:H8	1.71	0.55
2:2:148:G:H1	2:2:174:A:N6	2.03	0.55
2:2:1073:U:O2	36:g:103:ASN:ND2	2.39	0.55
2:2:1404:C:H2'	2:2:1405:G:C8	2.41	0.55
4:4:17:U:N3	4:4:334:A:N1	2.54	0.55
4:4:202:G:H22	4:4:233:A:H61	1.52	0.55
10:E:46:ASP:CG	10:E:49:LEU:HD22	2.31	0.55
10:E:50:LEU:HD21	10:E:67:ILE:HG12	1.88	0.55
44:o:7:ARG:CG	44:o:101:SER:HG	2.14	0.55
45:p:29:ASN:OD1	45:p:30:THR:N	2.39	0.55
45:p:109:ASN:HA	55:z:5:LYS:HA	1.88	0.55
1:1:414:C:H2'	1:1:415:A:C8	2.40	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1204:A:N6	1:1:1242:U:O4	2.37	0.55
1:1:2246:G:H2'	1:1:2247:A:H8	1.72	0.55
1:1:2731:G:H2'	1:1:2732:G:C8	2.42	0.55
2:2:1095:U:OP1	2:2:1108:G:N2	2.39	0.55
37:h:120:ILE:HG13	37:h:133:ALA:HB1	1.88	0.55
43:n:69:GLY:H	43:n:75:GLN:HE21	1.53	0.55
44:o:67:ILE:HG12	48:s:96:LEU:HD13	1.88	0.55
1:1:1202:G:O6	1:1:1244:A:N6	2.39	0.55
1:1:1857:G:N2	1:1:1884:G:N3	2.54	0.55
1:1:2855:C:H2'	1:1:2856:A:H8	1.69	0.55
2:2:232:G:H21	2:2:263:A:H2	1.54	0.55
2:2:552:U:H2'	2:2:553:A:H8	1.71	0.55
47:r:98:ARG:HB3	47:r:100:GLN:HE22	1.72	0.55
55:z:7:ARG:NH1	55:z:10:GLU:OE2	2.37	0.55
1:1:597:G:N2	15:L:12:SER:O	2.34	0.55
1:1:672:C:OP2	15:L:42:SER:OG	2.19	0.55
1:1:686:U:H2'	1:1:788:A:N1	2.20	0.55
1:1:935:C:H2'	1:1:936:A:H8	1.70	0.55
1:1:1800:C:N3	1:1:1817:G:N1	2.48	0.55
1:1:2241:A:H2'	1:1:2242:G:C8	2.42	0.55
1:1:2345:G:H5'	1:1:2347:C:H5''	1.89	0.55
2:2:1006:G:O6	2:2:1023:U:C2	2.59	0.55
2:2:1011:C:H2'	2:2:1012:A:C8	2.41	0.55
2:2:1071:C:H2'	2:2:1072:G:H8	1.70	0.55
2:2:1287:A:H2'	2:2:1288:A:C8	2.42	0.55
8:C:34:VAL:HG21	8:C:92:VAL:O	2.06	0.55
44:o:64:GLN:HB3	48:s:101:TRP:CZ2	2.40	0.55
45:p:18:ASP:OD2	45:p:37:ARG:NE	2.39	0.55
1:1:665:U:H2'	1:1:666:A:H8	1.71	0.55
1:1:807:U:OP1	1:1:830:G:N2	2.30	0.55
2:2:1083:U:O2'	2:2:1102:A:OP2	2.25	0.55
2:2:1265:C:H2'	2:2:1266:G:C8	2.42	0.55
10:E:29:PRO:HA	10:E:159:THR:HG23	1.88	0.55
19:P:90:GLY:HA3	19:P:110:ILE:HD12	1.87	0.55
1:1:1071:G:H1'	1:1:1089:A:H2'	1.89	0.55
1:1:1091:G:O6	1:1:1101:U:O4	2.25	0.55
1:1:1568:G:OP2	7:B:63:ARG:NH1	2.39	0.55
1:1:2623:G:H2'	1:1:2624:G:H8	1.71	0.55
2:2:9:G:N7	2:2:558:G:O2'	2.39	0.55
2:2:150:U:H2'	2:2:151:A:H8	1.71	0.55
2:2:269:C:H2'	2:2:270:A:H8	1.71	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1088:G:N2	2:2:1167:A:N6	2.21	0.55
3:3:66:A:OP2	3:3:108:A:N6	2.40	0.55
4:4:254:U:O2	4:4:277:G:C6	2.60	0.55
10:E:52:ASN:ND2	10:E:147:ASP:OD2	2.40	0.55
1:1:184:C:H2'	1:1:185:G:H8	1.72	0.55
1:1:365:U:H2'	1:1:366:C:C6	2.42	0.55
1:1:1753:G:H5''	19:P:93:ARG:HG3	1.88	0.55
1:1:1954:G:O2'	1:1:1956:U:O4	2.19	0.55
1:1:1518:C:H2'	1:1:1519:G:C8	2.42	0.55
2:2:1422:G:H1	2:2:1478:U:H3	1.55	0.55
15:L:56:PRO:HG2	15:L:59:ARG:HB2	1.88	0.55
42:m:18:GLN:HE21	42:m:72:VAL:HG22	1.71	0.55
1:1:721:A:H2'	1:1:722:A:H8	1.72	0.55
1:1:729:G:O2'	1:1:763:G:H4'	2.07	0.55
1:1:1474:U:H3	1:1:1517:G:H1	1.55	0.55
1:1:2808:G:H4'	1:1:2809:A:H8	1.72	0.55
2:2:207:C:H42	2:2:212:G:H22	1.54	0.55
2:2:741:G:OP1	49:t:2:SER:N	2.40	0.55
2:2:1524:C:H2'	2:2:1525:G:C8	2.42	0.55
13:J:49:ASP:HA	13:J:118:MET:HE2	1.87	0.55
15:L:110:VAL:HB	15:L:127:VAL:HG12	1.89	0.55
51:v:47:HIS:CG	51:v:67:LEU:HD13	2.36	0.55
51:v:67:LEU:HD12	51:v:71:LYS:HZ2	1.72	0.55
1:1:1666:G:H4'	14:K:6:THR:HG23	1.89	0.54
1:1:1726:C:H2'	1:1:1727:C:C2	2.42	0.54
2:2:215:C:H2'	2:2:216:U:C6	2.42	0.54
10:E:16:LEU:HG	10:E:20:PHE:HE2	1.72	0.54
35:f:2:LYS:HB3	35:f:35:GLN:HG2	1.89	0.54
37:h:22:TRP:HZ3	37:h:57:ILE:CG2	2.21	0.54
1:1:145:C:H2'	1:1:146:A:H8	1.71	0.54
1:1:2233:U:H2'	1:1:2234:G:C8	2.42	0.54
1:1:2579:C:H2'	1:1:2580:PSU:H6	1.71	0.54
2:2:1086:U:H3	2:2:1099:G:H22	1.54	0.54
12:G:131:SER:HA	12:G:141:LYS:HA	1.89	0.54
32:c:6:ARG:NH2	32:c:24:THR:O	2.39	0.54
1:1:177:G:OP2	1:1:177:G:N2	2.25	0.54
1:1:1509:A:O2'	1:1:1510:G:O5'	2.26	0.54
2:2:54:C:OP1	2:2:351:G:N2	2.40	0.54
4:4:144:U:N3	4:4:175:A:N1	2.56	0.54
36:g:108:ARG:CB	36:g:111:ILE:HD11	2.37	0.54
1:1:832:U:H2'	1:1:833:A:C8	2.42	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:2339:C:H2'	1:1:2340:A:H8	1.70	0.54
1:1:2696:U:H2'	1:1:2697:G:H8	1.71	0.54
2:2:544:G:OP1	38:i:56:ARG:NH2	2.40	0.54
18:O:88:LYS:CG	18:O:116:GLN:CD	2.74	0.54
44:o:59:LYS:HE2	44:o:62:ARG:HH22	1.72	0.54
1:1:931:U:O2	1:1:1167:C:O2'	2.23	0.54
1:1:1035:U:H3	1:1:1120:G:H1	1.56	0.54
1:1:2037:A:H2'	1:1:2038:G:C8	2.42	0.54
1:1:2591:C:N4	1:1:2592:G:O6	2.40	0.54
2:2:555:U:H2'	2:2:556:C:C6	2.43	0.54
7:B:141:VAL:HG12	7:B:192:LEU:HD13	1.89	0.54
17:N:29:VAL:HG11	17:N:75:ILE:HG23	1.89	0.54
1:1:23:G:H2'	1:1:24:G:H8	1.72	0.54
1:1:932:U:O2'	1:1:934:U:O4	2.24	0.54
2:2:78:A:H2'	2:2:79:G:H8	1.71	0.54
2:2:656:G:N1	2:2:751:U:O4	2.40	0.54
2:2:1249:C:O2'	43:n:71:GLY:HA2	2.08	0.54
4:4:175:A:H2'	4:4:176:G:H8	1.72	0.54
13:J:87:ALA:HB3	13:J:92:MET:HE2	1.89	0.54
42:m:29:SER:HB3	42:m:59:LEU:HB2	1.90	0.54
43:n:116:VAL:HG12	44:o:62:ARG:CD	1.98	0.54
44:o:6:ILE:CD1	44:o:76:ILE:CD1	2.52	0.54
1:1:576:U:H2'	1:1:577:G:C8	2.43	0.54
1:1:958:U:OP2	16:M:14:LYS:NZ	2.41	0.54
1:1:2478:A:H5'	35:f:32:LYS:HE3	1.88	0.54
2:2:539:A:H2'	2:2:540:G:C8	2.42	0.54
2:2:1213:A:O2'	2:2:1215:G:N7	2.36	0.54
2:2:1349:A:OP1	43:n:120:LYS:O	2.24	0.54
7:B:140:THR:HG23	7:B:140:THR:O	2.07	0.54
7:B:145:GLU:HB2	7:B:188:CYS:HB3	1.90	0.54
9:D:170:ARG:NH2	9:D:176:ASP:OD1	2.41	0.54
16:M:26:VAL:HG13	16:M:133:LYS:CA	2.36	0.54
44:o:7:ARG:C	44:o:100:ILE:HD12	2.32	0.54
1:1:2314:A:H1'	10:E:155:THR:HG21	1.88	0.54
1:1:2458:G:O2'	1:1:2460:U:O4	2.26	0.54
4:4:19:G:H2'	5:5:91:LEU:CD2	2.34	0.54
5:5:32:ALA:HB2	5:5:92:LEU:HD13	1.90	0.54
1:1:2245:U:H5''	1:1:2246:G:H5'	1.90	0.54
1:1:2469:A:H4'	16:M:55:ARG:HD3	1.89	0.54
2:2:1317:C:H42	48:s:53:ARG:HH11	1.55	0.54
7:B:119:GLY:O	7:B:130:LEU:CB	2.56	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:k:88:MET:HE2	52:w:64:TYR:CE2	2.42	0.54
1:1:2057:G:H2'	1:1:2058:A:H8	1.73	0.54
2:2:407:U:H3	2:2:435:A:H61	1.55	0.54
19:P:75:GLN:HB2	19:P:78:SER:HB2	1.89	0.54
36:g:129:LEU:HB2	36:g:133:GLU:CB	2.38	0.54
38:i:95:GLU:HA	38:i:100:ASN:HD22	1.73	0.54
43:n:108:ALA:O	43:n:109:ARG:C	2.51	0.54
1:1:2070:A:H2'	1:1:2071:A:H8	1.73	0.53
1:1:2705:A:O2'	1:1:2852:G:OP2	2.26	0.53
2:2:1002:G:H2'	2:2:1003:G:H8	1.73	0.53
10:E:88:LYS:HZ3	10:E:90:THR:HG1	1.53	0.53
41:l:107:ALA:C	41:l:123:GLU:OE2	2.52	0.53
1:1:1391:U:C5	1:1:1393:A:H5''	2.43	0.53
1:1:1709:U:H2'	1:1:1710:G:C8	2.44	0.53
1:1:1987:A:H2'	1:1:1988:G:H8	1.74	0.53
2:2:83:C:N3	2:2:86:G:N2	2.56	0.53
2:2:104:G:H4'	2:2:174:A:H4'	1.90	0.53
2:2:409:U:H3	2:2:433:G:H1	1.54	0.53
4:4:173:C:O2	4:4:174:A:N6	2.41	0.53
19:P:62:ARG:NH2	19:P:71:GLU:OE2	2.39	0.53
30:a:8:LYS:NZ	30:a:29:GLY:H	2.05	0.53
31:b:9:THR:OG1	31:b:12:LYS:HG2	2.07	0.53
36:g:90:PHE:HE1	36:g:153:ASP:OD1	1.91	0.53
44:o:7:ARG:HG2	44:o:101:SER:HG	1.72	0.53
50:u:36:VAL:O	50:u:36:VAL:HG23	2.07	0.53
1:1:2742:G:H5''	35:f:1:MET:HG3	1.90	0.53
2:2:1003:G:N2	2:2:1005:A:O5'	2.42	0.53
2:2:1233:G:H2'	2:2:1234:C:C6	2.43	0.53
4:4:361:C:N3	4:4:362:C:N4	2.57	0.53
7:B:89:ALA:HB2	7:B:158:ALA:HA	1.90	0.53
7:B:108:LYS:HA	7:B:196:GLY:HA2	1.91	0.53
15:L:81:ASP:HA	15:L:84:LYS:HE2	1.89	0.53
45:p:114:THR:N	52:w:73:ARG:HH12	1.91	0.53
1:1:302:C:H2'	1:1:303:G:H8	1.73	0.53
1:1:1665:A:H2'	1:1:1666:G:H8	1.73	0.53
1:1:2039:U:H2'	1:1:2040:G:C8	2.43	0.53
1:1:2506:U:OP2	1:1:2576:G:N1	2.29	0.53
1:1:2578:G:H1'	8:C:144:GLY:HA2	1.90	0.53
2:2:477:C:H2'	2:2:478:A:H8	1.73	0.53
2:2:1179:A:H2'	2:2:1180:A:C8	2.43	0.53
43:n:4:ASN:O	43:n:5:GLN:C	2.52	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:576:U:H2'	1:1:577:G:H8	1.74	0.53
1:1:755:U:H2'	1:1:756:A:C8	2.43	0.53
2:2:317:U:H2'	2:2:318:G:H8	1.74	0.53
2:2:1041:G:H2'	2:2:1042:A:C8	2.44	0.53
2:2:1064:G:O3'	2:2:1190:G:N2	2.42	0.53
2:2:1368:A:OP2	43:n:114:LYS:HE2	2.09	0.53
2:2:1513:A:H2'	2:2:1514:G:C8	2.44	0.53
18:O:116:GLN:HG2	18:O:116:GLN:O	2.06	0.53
42:m:25:VAL:HG23	42:m:25:VAL:O	2.09	0.53
44:o:14:ASP:OD1	44:o:17:LEU:HB3	2.08	0.53
1:1:373:U:H2'	1:1:374:A:H8	1.74	0.53
1:1:415:A:H2'	1:1:416:U:H6	1.73	0.53
1:1:513:A:H2'	1:1:514:A:C8	2.44	0.53
1:1:954:G:OP2	16:M:16:ARG:NH1	2.42	0.53
1:1:1263:U:OP1	31:b:13:ARG:NH1	2.41	0.53
1:1:1788:C:H2'	1:1:1789:A:C8	2.43	0.53
1:1:1858:A:H61	1:1:1884:G:H1'	1.72	0.53
1:1:1869:G:H21	1:1:1872:A:H2	1.57	0.53
1:1:2398:U:H2'	1:1:2399:G:C8	2.43	0.53
1:1:2637:U:H3'	1:1:2638:G:H8	1.72	0.53
1:1:2687:U:H2'	1:1:2688:G:O4'	2.08	0.53
4:4:348:C:H2'	4:4:349:C:C6	2.43	0.53
5:5:61:GLY:HA2	5:5:101:TYR:CZ	2.44	0.53
35:f:18:LYS:CA	35:f:23:ILE:CD1	2.86	0.53
1:1:1091:G:N1	1:1:1101:U:N3	2.57	0.53
1:1:2419:U:P	34:e:33:LEU:HD12	2.45	0.53
1:1:2676:C:OP1	14:K:31:ARG:NH2	2.42	0.53
2:2:390:U:H2'	2:2:391:G:H8	1.72	0.53
2:2:861:G:H21	2:2:874:G:H5'	1.74	0.53
2:2:1060:U:H2'	2:2:1061:G:H8	1.74	0.53
4:4:116:A:H2'	4:4:117:G:H8	1.73	0.53
4:4:145:C:H2'	4:4:146:C:C6	2.43	0.53
7:B:120:VAL:O	12:G:91:PHE:CD1	2.62	0.53
11:F:90:VAL:HG23	11:F:160:LYS:HA	1.91	0.53
12:G:135:HIS:CE1	12:G:137:GLU:OE1	2.62	0.53
42:m:95:VAL:HG23	42:m:102:ALA:HB2	1.91	0.53
1:1:1365:A:OP1	27:X:3:ARG:NH2	2.41	0.53
1:1:2743:U:OP2	1:1:2755:C:N4	2.42	0.53
2:2:723:U:C4	55:z:56:HIS:NE2	2.72	0.53
9:D:18:THR:OG1	9:D:197:GLU:OE2	2.26	0.53
11:F:90:VAL:HG22	11:F:161:GLY:O	2.09	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
36:g:152:LYS:HG3	36:g:153:ASP:H	1.73	0.53
1:1:796:C:H2'	1:1:797:G:C8	2.42	0.53
1:1:2194:U:H2'	1:1:2195:U:H6	1.74	0.53
1:1:2298:A:OP1	10:E:71:ARG:NH1	2.30	0.53
2:2:450:G:H4'	50:u:41:PRO:HB2	1.90	0.53
4:4:163:G:N2	4:4:192:A:N7	2.56	0.53
36:g:108:ARG:HG2	36:g:111:ILE:HD11	1.90	0.53
37:h:24:ALA:CB	37:h:29:PHE:CD2	2.92	0.53
43:n:116:VAL:HG11	44:o:62:ARG:CG	2.35	0.53
1:1:415:A:H2'	1:1:416:U:C6	2.44	0.53
1:1:748:G:OP1	22:S:88:ARG:NH1	2.41	0.53
1:1:1291:C:H2'	1:1:1292:G:H8	1.74	0.53
2:2:437:U:O4'	38:i:154:ARG:NH1	2.41	0.53
2:2:750:C:O2'	49:t:21:ASP:O	2.24	0.53
2:2:1050:G:N1	2:2:1209:C:O2	2.42	0.53
9:D:121:VAL:O	9:D:189:THR:HA	2.09	0.53
15:L:63:LYS:O	34:e:30:ARG:NH1	2.42	0.53
48:s:50:THR:O	48:s:50:THR:CG2	2.52	0.53
1:1:41:C:H3'	1:1:42:A:H5''	1.91	0.52
1:1:541:A:N6	1:1:553:G:O6	2.42	0.52
1:1:591:U:O4	1:1:592:A:N6	2.42	0.52
1:1:1808:A:H3'	1:1:1809:A:C8	2.44	0.52
1:1:2140:G:H1	1:1:2152:G:HO2'	1.48	0.52
1:1:2623:G:OP1	1:1:2826:A:O2'	2.27	0.52
2:2:381:C:O2'	2:2:382:A:OP1	2.28	0.52
2:2:1175:G:O2'	2:2:1176:A:H8	1.90	0.52
2:2:1491:G:H2'	2:2:1492:A:C8	2.43	0.52
4:4:104:C:H1'	37:h:72:ARG:HH12	1.73	0.52
8:C:109:VAL:HG12	8:C:203:VAL:HG12	1.90	0.52
27:X:31:PRO:HG2	27:X:33:LEU:HD11	1.92	0.52
30:a:56:ARG:NH1	30:a:57:VAL:O	2.42	0.52
39:j:38:VAL:HG21	39:j:114:VAL:HG12	1.91	0.52
47:r:16:VAL:O	47:r:20:THR:OG1	2.24	0.52
54:y:2:ALA:O	54:y:8:LYS:NZ	2.34	0.52
1:1:143:C:H2'	1:1:144:A:C8	2.44	0.52
1:1:263:G:O2'	1:1:429:A:N3	2.41	0.52
1:1:1649:G:H2'	1:1:1650:A:C8	2.44	0.52
3:3:42:C:OP2	30:a:2:LYS:NZ	2.43	0.52
4:4:135:A:H2'	4:4:136:G:H8	1.74	0.52
10:E:60:ILE:HA	10:E:140:GLU:CG	2.13	0.52
18:O:89:ASP:HA	18:O:116:GLN:NE2	2.25	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:c:6:ARG:HH21	32:c:24:THR:C	2.17	0.52
37:h:25:ASN:N	37:h:29:PHE:CE2	2.77	0.52
41:l:113:ASP:H	41:l:119:ARG:HE	1.56	0.52
52:w:40:VAL:CG2	52:w:45:THR:HG22	2.38	0.52
53:x:32:ARG:HD2	53:x:34:TRP:CH2	2.45	0.52
1:1:2102:G:N1	1:1:2187:U:O2'	2.33	0.52
1:1:2618:G:H21	8:C:155:VAL:HG21	1.75	0.52
2:2:1318:A:H5'	53:x:3:ARG:HE	1.74	0.52
12:G:129:GLU:OE2	12:G:141:LYS:C	2.52	0.52
21:R:66:HIS:HA	21:R:94:THR:HA	1.91	0.52
1:1:824:U:O4	1:1:825:A:N6	2.43	0.52
1:1:1476:U:H2'	1:1:1477:A:H8	1.74	0.52
1:1:1548:A:H2'	1:1:1549:A:H8	1.75	0.52
2:2:79:G:H2'	2:2:80:A:O4'	2.09	0.52
2:2:1463:U:H5''	19:P:109:ARG:HH11	1.74	0.52
4:4:223:G:H5'	4:4:224:A:H5''	1.92	0.52
5:5:61:GLY:HA2	5:5:101:TYR:CE1	2.44	0.52
1:1:860:U:H2'	1:1:861:A:H8	1.73	0.52
2:2:323:U:O4	2:2:327:A:N7	2.43	0.52
2:2:634:C:H2'	2:2:635:A:C8	2.44	0.52
5:5:38:GLY:C	5:5:39:TRP:CD1	2.87	0.52
8:C:5:VAL:HG12	8:C:32:ASN:CG	2.34	0.52
15:L:19:LEU:HD12	15:L:19:LEU:C	2.34	0.52
31:b:54:VAL:HG23	31:b:55:ILE:HG13	1.90	0.52
35:f:18:LYS:N	35:f:23:ILE:HD12	2.23	0.52
36:g:125:THR:C	36:g:127:ASP:H	2.18	0.52
49:t:87:LEU:HD13	49:t:89:ARG:OXT	2.09	0.52
1:1:2638:G:O2'	1:1:2775:G:N2	2.42	0.52
2:2:246:A:C6	2:2:281:G:N2	2.78	0.52
2:2:337:G:H2'	2:2:338:A:C8	2.45	0.52
2:2:745:G:N2	2:2:746:A:N7	2.57	0.52
2:2:881:G:OP1	46:q:9:ARG:NH1	2.42	0.52
2:2:976:G:OP2	2:2:1358:U:O2'	2.28	0.52
2:2:1512:U:H2'	2:2:1513:A:C8	2.44	0.52
3:3:52:A:N7	18:O:64:TYR:OH	2.36	0.52
3:3:114:C:H2'	3:3:115:A:C8	2.44	0.52
10:E:36:LEU:HD12	10:E:89:VAL:HG12	1.91	0.52
16:M:26:VAL:HG13	16:M:133:LYS:CB	2.39	0.52
1:1:300:A:O2'	1:1:318:C:O2	2.25	0.52
1:1:1267:U:H2'	1:1:1268:A:H8	1.74	0.52
1:1:1794:A:HO2'	1:1:1900:A:HO2'	1.53	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:2419:U:OP1	34:e:41:LYS:NZ	2.33	0.52
2:2:182:A:N6	2:2:194:C:O2	2.42	0.52
4:4:34:A:O2'	4:4:35:C:OP2	2.22	0.52
37:h:22:TRP:CZ3	37:h:57:ILE:CG2	2.93	0.52
51:v:46:VAL:HG21	51:v:61:ILE:HG21	1.90	0.52
54:y:4:ILE:HG22	54:y:7:ALA:H	1.74	0.52
54:y:62:ALA:HA	54:y:67:ILE:HG13	1.91	0.52
1:1:5:A:H2'	1:1:6:A:C8	2.45	0.52
1:1:145:C:H2'	1:1:146:A:C8	2.45	0.52
1:1:340:A:O2'	9:D:162:ARG:NH2	2.42	0.52
1:1:445:C:H2'	1:1:446:G:C8	2.44	0.52
1:1:582:A:H2'	1:1:583:G:H8	1.75	0.52
2:2:1125:U:OP1	44:o:37:ARG:NH2	2.43	0.52
8:C:180:VAL:HG23	8:C:180:VAL:O	2.10	0.52
20:Q:24:TYR:HB2	20:Q:29:SER:HB3	1.91	0.52
28:Y:31:GLN:HG2	28:Y:37:LEU:HB2	1.91	0.52
32:c:23:THR:OG1	32:c:24:THR:N	2.42	0.52
43:n:113:ARG:NH2	48:s:101:TRP:NE1	2.55	0.52
1:1:441:U:H2'	1:1:442:G:C8	2.44	0.52
1:1:517:C:OP1	31:b:13:ARG:NH2	2.43	0.52
1:1:755:U:H2'	1:1:756:A:H8	1.73	0.52
1:1:1050:A:H3'	1:1:1051:G:H8	1.75	0.52
1:1:1547:C:H2'	1:1:1548:A:H8	1.75	0.52
1:1:1927:A:H2'	1:1:1928:A:C8	2.44	0.52
1:1:2047:C:H2'	1:1:2048:G:H8	1.75	0.52
1:1:2296:U:OP2	18:O:9:ARG:NH2	2.42	0.52
1:1:2443:C:H2'	1:1:2444:G:C8	2.44	0.52
1:1:2526:G:O2'	35:f:1:MET:N	2.40	0.52
2:2:1322:C:H4'	2:2:1323:G:H5'	1.92	0.52
7:B:199:GLU:OE1	7:B:199:GLU:N	2.42	0.52
8:C:56:LYS:HG2	8:C:59:ARG:HB2	1.92	0.52
11:F:12:PRO:HG2	11:F:80:THR:HG21	1.92	0.52
36:g:108:ARG:HA	36:g:111:ILE:HD13	1.85	0.52
40:k:8:PHE:CD2	40:k:60:VAL:CG2	2.93	0.52
41:l:79:ARG:HH11	41:l:83:SER:CB	2.23	0.52
42:m:28:PRO:O	42:m:33:LYS:NZ	2.36	0.52
1:1:667:U:H2'	1:1:668:A:O4'	2.10	0.52
1:1:1709:U:H2'	1:1:1710:G:H8	1.75	0.52
1:1:1716:U:H2'	1:1:1717:A:H8	1.74	0.52
2:2:323:U:H3	2:2:327:A:H62	1.57	0.52
2:2:401:C:H2'	2:2:402:G:H8	1.74	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1240:U:H3'	2:2:1241:G:C8	2.44	0.52
9:D:1:MET:HB3	9:D:14:VAL:HG23	1.91	0.52
10:E:106:ILE:HD12	10:E:137:ILE:HG22	1.92	0.52
36:g:114:LEU:HD13	36:g:144:LEU:CD2	2.23	0.52
37:h:152:GLU:OE2	37:h:154:SER:HB2	2.10	0.52
1:1:250:G:H4'	15:L:59:ARG:HD2	1.92	0.51
1:1:2036:C:H2'	1:1:2037:A:H8	1.75	0.51
1:1:2559:C:H2'	1:1:2560:A:H8	1.75	0.51
2:2:380:G:N2	2:2:383:A:OP2	2.29	0.51
2:2:697:U:O2	2:2:785:G:N2	2.30	0.51
4:4:175:A:H2'	4:4:176:G:C8	2.46	0.51
4:4:311:U:H2'	4:4:312:A:H8	1.75	0.51
54:y:16:LYS:HA	54:y:19:LYS:HZ2	1.75	0.51
1:1:1054:A:H2'	1:1:1055:G:H8	1.75	0.51
2:2:1130:A:OP1	43:n:18:ARG:NH2	2.42	0.51
2:2:1463:U:OP1	19:P:109:ARG:NE	2.37	0.51
4:4:246:U:OP1	4:4:247:A:N6	2.33	0.51
10:E:109:PRO:O	10:E:110:ARG:NH2	2.35	0.51
12:G:117:LEU:CD1	12:G:120:GLY:CA	2.76	0.51
49:t:82:ILE:CD1	49:t:87:LEU:HD13	2.35	0.51
1:1:720:U:H2'	1:1:721:A:C8	2.43	0.51
1:1:1275:A:N9	17:N:16:HIS:HD2	2.07	0.51
1:1:2377:A:H2'	1:1:2378:A:C8	2.46	0.51
1:1:2847:U:H2'	1:1:2848:G:O4'	2.10	0.51
2:2:484:G:H4'	2:2:485:U:H3'	1.91	0.51
2:2:1086:U:H2'	2:2:1087:G:H8	1.72	0.51
2:2:1328:C:H5''	47:r:28:THR:HG21	1.90	0.51
3:3:5:U:H2'	3:3:6:G:H8	1.75	0.51
7:B:142:HIS:ND1	7:B:193:GLY:O	2.41	0.51
11:F:45:HIS:ND1	11:F:49:THR:O	2.35	0.51
37:h:88:ARG:HA	37:h:91:VAL:HG22	1.91	0.51
40:k:6:ILE:HG23	40:k:89:VAL:HG22	1.90	0.51
41:l:126:ASP:HB3	41:l:131:LYS:HB3	1.93	0.51
1:1:2071:A:H2'	1:1:2072:C:C6	2.45	0.51
1:1:2439:A:O2'	1:1:2600:A:OP1	2.27	0.51
1:1:2637:U:O4	1:1:2776:A:N7	2.44	0.51
2:2:458:U:H3	2:2:474:G:H1	1.58	0.51
4:4:52:G:N1	4:4:61:G:O6	2.43	0.51
9:D:149:ILE:HG22	9:D:192:ALA:HB1	1.93	0.51
12:G:83:LYS:HB3	12:G:87:GLU:HA	1.91	0.51
24:U:10:GLU:O	24:U:11:VAL:HG23	2.10	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
39:j:81:LEU:HG	39:j:147:MET:CE	2.32	0.51
1:1:1883:U:H2'	1:1:1884:G:O4'	2.10	0.51
1:1:2246:G:H2'	1:1:2247:A:C8	2.46	0.51
7:B:66:ASP:OD2	7:B:102:ARG:NH1	2.43	0.51
7:B:205:LEU:HB3	7:B:210:ALA:HB3	1.93	0.51
10:E:40:VAL:HG12	10:E:86:GLY:HA2	1.92	0.51
49:t:33:THR:HG22	49:t:63:ARG:HH11	1.74	0.51
1:1:1153:C:OP1	20:Q:92:ARG:NH1	2.43	0.51
1:1:2331:G:HO2'	6:A:43:THR:HG1	1.59	0.51
1:1:2333:A:H5'	1:1:2335:A:H1'	1.91	0.51
4:4:106:A:H3'	4:4:107:C:H4'	1.92	0.51
1:1:971:G:N3	1:1:983:A:H2	2.08	0.51
2:2:234:C:H4'	51:v:66:PRO:HG3	1.92	0.51
5:5:111:VAL:CG2	5:5:127:ILE:CG2	2.80	0.51
15:L:62:PRO:HG2	34:e:25:LYS:HB3	1.93	0.51
1:1:489:G:H22	1:1:1320:C:H5''	1.76	0.51
1:1:2753:A:O2'	35:f:15:LYS:NZ	2.42	0.51
2:2:12:U:H4'	2:2:526:C:H4'	1.93	0.51
2:2:683:G:N2	45:p:39:GLY:O	2.42	0.51
2:2:845:A:O2'	2:2:846:G:OP1	2.25	0.51
10:E:31:VAL:HG11	10:E:97:TRP:CZ2	2.44	0.51
10:E:140:GLU:HG2	10:E:141:ILE:N	2.26	0.51
14:K:77:ILE:HG12	19:P:72:ARG:HG2	1.92	0.51
43:n:84:THR:HG23	43:n:98:LEU:HD23	1.91	0.51
44:o:23:ALA:HA	44:o:26:VAL:HG22	1.92	0.51
46:q:36:ARG:HB3	46:q:54:ARG:HB3	1.93	0.51
46:q:55:VAL:HG11	46:q:82:ILE:HD11	1.93	0.51
1:1:322:A:H5'	1:1:340:A:H1'	1.93	0.51
1:1:367:G:O2'	1:1:368:A:H8	1.94	0.51
2:2:405:U:OP2	38:i:3:ARG:NH1	2.44	0.51
2:2:556:C:H2'	2:2:557:G:C8	2.45	0.51
2:2:1320:C:H5''	2:2:1321:U:OP2	2.11	0.51
7:B:120:VAL:HB	12:G:91:PHE:HD1	1.73	0.51
11:F:17:VAL:HG22	11:F:26:ILE:HG12	1.93	0.51
12:G:83:LYS:H	12:G:87:GLU:HG2	1.76	0.51
20:Q:105:ALA:HB1	21:R:40:MET:HE1	1.93	0.51
21:R:1:MET:HE2	21:R:101:ILE:HG21	1.93	0.51
41:l:116:MET:HA	41:l:119:ARG:HD2	1.93	0.51
53:x:62:VAL:HG13	53:x:66:MET:HG3	1.92	0.51
1:1:171:U:H2'	1:1:172:A:H8	1.76	0.51
1:1:228:C:N3	1:1:417:C:O2'	2.40	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:843:G:H2'	1:1:844:A:C8	2.46	0.51
1:1:843:G:H2'	1:1:844:A:H8	1.75	0.51
1:1:2720:U:H2'	1:1:2721:A:H8	1.77	0.51
1:1:2822:G:O2'	1:1:2825:G:N1	2.43	0.51
2:2:634:C:H2'	2:2:635:A:H8	1.76	0.51
2:2:806:C:H2'	2:2:807:A:H8	1.75	0.51
2:2:1313:U:H2'	2:2:1314:C:C6	2.46	0.51
2:2:1344:C:OP1	43:n:124:ARG:HG3	2.11	0.51
8:C:7:LYS:NZ	8:C:30:GLU:OE2	2.44	0.51
12:G:40:THR:N	12:G:43:ASN:OD1	2.44	0.51
18:O:76:LYS:HG3	18:O:109:ALA:HB1	1.92	0.51
1:1:172:A:H2'	1:1:173:A:C8	2.46	0.50
1:1:537:G:OP1	1:1:995:C:N4	2.44	0.50
1:1:975:A:H5'	21:R:78:ARG:HH22	1.77	0.50
1:1:1340:U:OP1	23:T:19:LYS:NZ	2.39	0.50
1:1:2304:G:H4'	10:E:130:MET:HA	1.93	0.50
2:2:911:U:H2'	2:2:912:C:C6	2.45	0.50
2:2:1338:G:H2'	2:2:1339:A:C8	2.46	0.50
2:2:1348:U:H4'	43:n:122:ARG:HD2	1.92	0.50
2:2:1352:C:H2'	2:2:1353:G:C8	2.45	0.50
7:B:167:ARG:HA	7:B:172:VAL:HG12	1.92	0.50
10:E:46:ASP:CG	10:E:49:LEU:HD13	2.36	0.50
12:G:130:VAL:HG23	12:G:144:VAL:CG1	2.41	0.50
25:V:76:ASP:OD1	25:V:77:VAL:N	2.42	0.50
48:s:6:MET:HG2	48:s:9:ARG:HH12	1.75	0.50
1:1:184:C:N3	1:1:213:A:N6	2.59	0.50
1:1:1085:A:O4'	1:1:1105:U:O2'	2.23	0.50
1:1:1161:C:H2'	1:1:1162:G:H8	1.77	0.50
1:1:1399:C:H2'	1:1:1400:U:C6	2.47	0.50
1:1:1548:A:H2'	1:1:1549:A:C8	2.46	0.50
4:4:161:U:H1'	4:4:193:A:C4	2.47	0.50
4:4:177:A:H2'	4:4:178:G:H8	1.76	0.50
5:5:107:GLU:HG2	5:5:131:LYS:NZ	2.25	0.50
29:Z:37:GLU:O	29:Z:38:ARG:NH1	2.44	0.50
37:h:181:ASP:HB3	37:h:204:LYS:HB2	1.92	0.50
39:j:16:ILE:HD13	39:j:110:ALA:HB1	1.93	0.50
43:n:44:ALA:C	43:n:46:MET:H	2.19	0.50
46:q:50:ARG:HB3	46:q:66:TYR:HE1	1.76	0.50
49:t:87:LEU:HD12	49:t:87:LEU:C	2.36	0.50
1:1:1161:C:H2'	1:1:1162:G:C8	2.47	0.50
1:1:1433:A:H61	1:1:1560:G:H1	0.68	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1464:G:H2'	1:1:1465:G:C8	2.47	0.50
1:1:2515:C:H2'	1:1:2516:A:H8	1.77	0.50
1:1:2696:U:H2'	1:1:2697:G:C8	2.46	0.50
2:2:1133:G:H2'	2:2:1134:G:C8	2.46	0.50
16:M:33:LEU:HD21	16:M:121:ALA:HB2	1.92	0.50
18:O:7:ARG:HA	18:O:10:ARG:HG2	1.93	0.50
23:T:58:VAL:HG12	23:T:85:VAL:HA	1.93	0.50
1:1:753:A:H2'	1:1:754:U:H6	1.76	0.50
1:1:948:C:H2'	1:1:949:G:C8	2.47	0.50
1:1:1844:C:H2'	1:1:1845:G:H8	1.77	0.50
1:1:2567:G:H2'	1:1:2568:U:C6	2.46	0.50
1:1:2580:PSU:H3'	1:1:2581:G:C2	2.46	0.50
1:1:2827:C:H2'	1:1:2828:G:H5''	1.93	0.50
2:2:17:U:H2'	2:2:18:C:C6	2.46	0.50
4:4:51:A:H62	4:4:62:G:N2	2.09	0.50
10:E:100:PHE:HE1	10:E:156:ILE:HD13	1.76	0.50
11:F:133:LEU:CD1	11:F:141:ILE:CD1	2.89	0.50
12:G:9:VAL:CG1	12:G:12:LEU:CG	2.89	0.50
16:M:38:ARG:HG2	16:M:98:PRO:HD3	1.93	0.50
1:1:219:A:N3	1:1:234:U:O2'	2.39	0.50
1:1:580:U:H2'	1:1:581:C:C6	2.46	0.50
1:1:956:G:N2	1:1:960:A:OP2	2.39	0.50
2:2:309:A:O2'	2:2:607:A:N1	2.40	0.50
2:2:1308:U:H2'	2:2:1309:G:C8	2.47	0.50
4:4:116:A:H2	4:4:127:C:H42	1.59	0.50
27:X:40:VAL:HG23	27:X:40:VAL:O	2.12	0.50
38:i:202:GLU:OE1	39:j:112:ARG:NH2	2.37	0.50
39:j:38:VAL:HG22	39:j:117:VAL:HG21	1.93	0.50
41:l:15:ASP:HB2	41:l:24:ALA:HB2	1.93	0.50
43:n:39:PHE:CZ	43:n:76:ALA:HA	2.46	0.50
1:1:937:C:H2'	1:1:938:G:C8	2.47	0.50
1:1:1248:G:OP1	9:D:44:ARG:NH2	2.44	0.50
1:1:1779:U:O2	1:1:1783:A:N6	2.45	0.50
1:1:2618:G:O2'	8:C:155:VAL:N	2.44	0.50
2:2:1119:C:P	43:n:85:ARG:HH22	2.35	0.50
4:4:29:G:H1	4:4:324:G:H22	1.59	0.50
11:F:90:VAL:CG2	11:F:159:GLY:O	2.59	0.50
37:h:24:ALA:O	37:h:29:PHE:CE2	2.52	0.50
40:k:7:VAL:HG12	40:k:88:MET:HB3	1.93	0.50
41:l:108:ALA:N	41:l:123:GLU:OE1	2.45	0.50
46:q:54:ARG:HA	46:q:64:THR:HG22	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
47:r:3:ARG:HE	47:r:8:ASN:HB2	1.77	0.50
1:1:1281:G:H2'	1:1:1282:U:H6	1.76	0.50
1:1:1584:U:H4'	1:1:1585:C:C6	2.46	0.50
2:2:1256:A:N6	2:2:1278:G:OP2	2.44	0.50
4:4:220:G:H2'	4:4:221:U:C6	2.47	0.50
6:A:15:ASP:OD1	6:A:16:SER:N	2.43	0.50
7:B:16:VAL:HB	7:B:206:GLY:HA3	1.94	0.50
17:N:29:VAL:HG21	17:N:79:LEU:HG	1.92	0.50
18:O:7:ARG:NH2	18:O:95:SER:OG	2.45	0.50
20:Q:49:ASP:HA	20:Q:52:GLN:HB2	1.93	0.50
38:i:95:GLU:HG2	38:i:186:PRO:HG3	1.94	0.50
1:1:224:U:O4	1:1:419:U:O2'	2.29	0.50
1:1:2064:C:H2'	1:1:2065:C:H6	1.77	0.50
2:2:1040:U:H2'	2:2:1041:G:C8	2.46	0.50
2:2:1068:G:OP1	2:2:1387:G:O2'	2.29	0.50
2:2:1342:C:H2'	2:2:1343:G:C8	2.47	0.50
4:4:149:A:H4'	4:4:150:G:H5'	1.94	0.50
4:4:314:C:O2'	4:4:315:G:N3	2.39	0.50
4:4:335:C:H42	5:5:121:ALA:HB1	1.77	0.50
13:J:6:ALA:HB3	13:J:48:VAL:HG11	1.93	0.50
18:O:62:LEU:HD12	18:O:63:LYS:N	2.26	0.50
18:O:62:LEU:CD2	18:O:70:ALA:HA	2.42	0.50
31:b:38:HIS:HB3	31:b:44:THR:HG22	1.93	0.50
36:g:114:LEU:HB2	36:g:144:LEU:HD22	1.91	0.50
41:l:108:ALA:CA	41:l:123:GLU:OE1	2.60	0.50
1:1:414:C:H2'	1:1:415:A:H8	1.75	0.50
1:1:419:U:H2'	1:1:420:C:C6	2.47	0.50
1:1:521:U:H2'	1:1:522:A:C8	2.46	0.50
1:1:764:A:H5'	7:B:209:GLY:HA2	1.94	0.50
1:1:947:A:H2'	1:1:948:C:C6	2.47	0.50
2:2:424:G:H2'	2:2:425:G:C8	2.47	0.50
2:2:561:U:H4'	2:2:563:A:H62	1.77	0.50
2:2:711:G:H2'	2:2:712:A:H8	1.76	0.50
2:2:921:U:H2'	2:2:922:G:H8	1.76	0.50
2:2:980:C:H3'	2:2:981:U:O4'	2.12	0.50
8:C:55:LYS:HD3	8:C:77:ARG:N	2.04	0.50
12:G:4:ILE:HG22	12:G:37:VAL:O	2.12	0.50
12:G:4:ILE:HG23	12:G:4:ILE:O	2.11	0.50
12:G:129:GLU:HG2	12:G:142:VAL:C	2.37	0.50
20:Q:24:TYR:HB3	20:Q:28:ARG:HG3	1.93	0.50
30:a:8:LYS:CE	30:a:29:GLY:N	2.75	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:f:17:VAL:C	35:f:23:ILE:CD1	2.82	0.50
43:n:94:LEU:O	43:n:95:ARG:C	2.53	0.50
1:1:1013:C:H2'	1:1:1014:A:C8	2.47	0.49
1:1:2374:C:H2'	1:1:2375:G:C8	2.47	0.49
1:1:2685:G:H21	1:1:2726:A:N6	2.09	0.49
8:C:37:VAL:HG13	8:C:37:VAL:O	2.12	0.49
12:G:117:LEU:CD1	12:G:120:GLY:N	2.75	0.49
17:N:44:LEU:HA	17:N:47:VAL:HG12	1.94	0.49
18:O:89:ASP:HA	18:O:116:GLN:HE21	1.76	0.49
23:T:28:ASN:O	23:T:29:THR:HG23	2.12	0.49
24:U:10:GLU:C	24:U:11:VAL:HG23	2.37	0.49
25:V:30:ILE:HG12	25:V:91:PHE:HB2	1.94	0.49
27:X:6:GLN:O	27:X:74:ARG:NH1	2.45	0.49
40:k:8:PHE:CD1	40:k:60:VAL:CG2	2.93	0.49
43:n:25:ASN:O	43:n:26:GLY:C	2.55	0.49
50:u:56:ARG:HH12	50:u:60:TRP:HE1	1.60	0.49
1:1:582:A:H2'	1:1:583:G:C8	2.47	0.49
1:1:1178:C:H2'	1:1:1179:G:C8	2.46	0.49
1:1:1353:A:H2'	1:1:1354:A:H8	1.77	0.49
1:1:1830:C:H2'	1:1:1831:G:C8	2.43	0.49
1:1:2285:C:OP1	32:c:26:ASN:ND2	2.42	0.49
2:2:322:C:H2'	2:2:323:U:H6	1.77	0.49
2:2:337:G:H2'	2:2:338:A:H8	1.77	0.49
2:2:382:A:H2'	2:2:383:A:C8	2.47	0.49
2:2:1355:G:H2'	2:2:1356:G:H8	1.77	0.49
12:G:90:LEU:HD21	12:G:122:LEU:O	2.12	0.49
13:J:32:LEU:HD22	13:J:54:ILE:HG21	1.94	0.49
16:M:2:LEU:HD23	16:M:2:LEU:H	1.76	0.49
25:V:77:VAL:HG12	25:V:89:ILE:HG12	1.93	0.49
34:e:36:LYS:HA	34:e:40:ARG:HH21	1.76	0.49
44:o:6:ILE:HB	44:o:102:LEU:HD21	1.89	0.49
48:s:88:ALA:HB2	48:s:96:LEU:HD23	1.93	0.49
49:t:82:ILE:CB	49:t:87:LEU:HG	2.37	0.49
52:w:57:ARG:O	52:w:61:ARG:HG2	2.12	0.49
1:1:1054:A:N6	1:1:1106:G:O6	2.45	0.49
1:1:2816:G:H1	1:1:2830:C:H5	1.60	0.49
2:2:200:G:H2'	2:2:201:G:C8	2.47	0.49
4:4:81:A:H1'	4:4:83:A:H61	1.77	0.49
4:4:257:U:H1'	4:4:258:G:H21	1.76	0.49
15:L:78:ARG:HG3	15:L:113:ALA:HB3	1.92	0.49
1:1:76:C:O2'	28:Y:55:THR:HG21	2.12	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:858:G:N2	1:1:2269:G:OP2	2.40	0.49
1:1:946:C:H2'	1:1:947:A:C8	2.47	0.49
1:1:952:G:OP1	16:M:18:ARG:NH2	2.46	0.49
1:1:2023:C:H2'	1:1:2024:G:H8	1.76	0.49
1:1:2045:C:O2	31:b:19:HIS:NE2	2.46	0.49
1:1:2220:U:O3'	12:G:97:ARG:NH2	2.46	0.49
1:1:2312:U:O2	10:E:37:ASN:ND2	2.45	0.49
2:2:1323:G:H1'	2:2:1361:G:H21	1.78	0.49
5:5:14:ILE:HD11	5:5:118:TRP:CD1	2.47	0.49
12:G:44:ILE:CA	12:G:47:PHE:HB3	2.37	0.49
30:a:8:LYS:HB3	30:a:27:THR:HG23	1.94	0.49
37:h:11:ARG:HH12	37:h:178:LEU:HA	1.77	0.49
1:1:160:A:N6	1:1:167:A:H1'	2.28	0.49
1:1:492:A:H2'	1:1:493:G:O4'	2.12	0.49
1:1:1244:A:O2'	9:D:29:HIS:NE2	2.38	0.49
1:1:2198:A:C4	12:G:29:PHE:HB2	2.48	0.49
2:2:10:A:OP2	39:j:131:THR:CG2	2.60	0.49
2:2:424:G:H2'	2:2:425:G:H8	1.78	0.49
2:2:1031:C:OP2	2:2:1032:G:N2	2.46	0.49
2:2:1397:C:N4	4:4:93:A:H8	2.10	0.49
3:3:39:A:H2'	3:3:40:U:C6	2.47	0.49
3:3:83:G:O6	3:3:94:A:N6	2.46	0.49
7:B:173:THR:C	7:B:174:LEU:HD12	2.38	0.49
12:G:111:ALA:HB3	12:G:114:GLU:OE1	2.12	0.49
12:G:137:GLU:OE1	12:G:137:GLU:N	2.46	0.49
13:J:130:HIS:ND1	13:J:132:HIS:CB	2.48	0.49
16:M:105:MET:CE	16:M:117:PHE:CE1	2.94	0.49
25:V:48:MET:SD	25:V:51:GLN:NE2	2.75	0.49
53:x:32:ARG:HD2	53:x:34:TRP:HH2	1.75	0.49
1:1:290:U:O2	1:1:350:G:N2	2.37	0.49
1:1:971:G:H2'	1:1:972:A:O4'	2.12	0.49
1:1:1171:G:N1	1:1:1178:C:N3	2.40	0.49
1:1:1266:G:N2	1:1:2013:A:OP2	2.37	0.49
1:1:1417:C:HO2'	1:1:1587:G:HO2'	1.52	0.49
1:1:1431:A:H2'	1:1:1432:G:H8	1.77	0.49
1:1:2031:A:N3	1:1:2455:G:O2'	2.39	0.49
1:1:2144:G:H5'	1:1:2148:G:H22	1.77	0.49
1:1:2290:G:H2'	1:1:2291:U:C6	2.47	0.49
1:1:2543:G:H21	1:1:2646:C:H5''	1.76	0.49
1:1:2730:C:O3'	8:C:174:SER:OG	2.29	0.49
1:1:2895:G:H2'	1:1:2896:C:H6	1.77	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:501:C:H2'	2:2:502:A:C8	2.48	0.49
2:2:501:C:H2'	2:2:502:A:H8	1.77	0.49
2:2:1358:U:O2'	2:2:1359:C:OP1	2.30	0.49
10:E:4:LEU:HD13	10:E:101:GLU:HG2	1.95	0.49
12:G:98:ASP:C	12:G:98:ASP:OD1	2.55	0.49
19:P:22:PRO:HA	19:P:47:VAL:HG13	1.95	0.49
49:t:82:ILE:HG23	49:t:87:LEU:HD12	1.85	0.49
1:1:581:C:H2'	1:1:582:A:C8	2.47	0.49
1:1:831:G:O2'	15:L:38:GLN:OE1	2.27	0.49
1:1:1120:G:H2'	1:1:1121:C:C6	2.48	0.49
1:1:1327:A:H3'	1:1:1328:A:H8	1.77	0.49
1:1:1636:U:H2'	1:1:1637:A:C8	2.47	0.49
1:1:1920:C:H2'	1:1:1921:G:H8	1.77	0.49
1:1:2006:C:O2'	1:1:2823:A:N3	2.46	0.49
1:1:2699:C:H2'	1:1:2700:A:C8	2.48	0.49
1:1:2848:G:H1'	1:1:2868:A:H61	1.78	0.49
2:2:516:PSU:HN1	2:2:519:C:H42	1.61	0.49
2:2:1007:U:H2'	2:2:1008:U:C6	2.48	0.49
4:4:71:A:H2'	4:4:72:A:H4'	1.95	0.49
11:F:133:LEU:HD12	11:F:141:ILE:HD11	1.94	0.49
14:K:24:VAL:HG13	14:K:33:ALA:HB2	1.93	0.49
32:c:6:ARG:NH2	32:c:24:THR:OG1	2.45	0.49
43:n:65:ILE:HG22	43:n:66:THR:H	1.77	0.49
49:t:82:ILE:HA	49:t:87:LEU:HG	1.85	0.49
1:1:2309:A:C2	1:1:2310:C:H1'	2.48	0.49
2:2:74:A:H2'	2:2:75:A:C8	2.48	0.49
2:2:763:G:H2'	2:2:764:C:H6	1.78	0.49
2:2:917:G:O2'	2:2:918:A:OP1	2.31	0.49
13:J:73:VAL:CG1	13:J:75:TYR:CE2	2.95	0.49
45:p:64:GLN:HG3	45:p:99:ALA:HB2	1.95	0.49
50:u:52:LEU:HD12	50:u:52:LEU:O	2.13	0.49
55:z:53:VAL:HA	55:z:56:HIS:NE2	2.27	0.49
1:1:2086:U:H2'	1:1:2087:G:C8	2.48	0.49
1:1:2837:A:H2'	1:1:2838:G:H8	1.78	0.49
2:2:665:A:H1'	2:2:733:G:H5'	1.94	0.49
2:2:1001:C:H2'	2:2:1002:G:C8	2.47	0.49
2:2:1029:U:H2'	2:2:1030:U:H5''	1.94	0.49
2:2:1068:G:H1	2:2:1108:G:H1'	1.77	0.49
2:2:1328:C:O2'	47:r:29:ARG:NE	2.44	0.49
42:m:6:PRO:HB2	42:m:33:LYS:HE3	1.95	0.49
43:n:65:ILE:HG21	43:n:79:ILE:HG23	1.95	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
45:p:25:ALA:HB1	45:p:90:GLY:HA3	1.95	0.49
1:1:21:A:N6	1:1:520:G:H1	2.11	0.49
1:1:57:C:H2'	1:1:58:G:H8	1.78	0.49
1:1:833:A:H2'	1:1:834:G:H8	1.78	0.49
1:1:1604:C:O2'	1:1:1610:A:N1	2.39	0.49
1:1:1728:C:O2	1:1:1731:G:N2	2.32	0.49
2:2:555:U:H2'	2:2:556:C:H6	1.77	0.49
10:E:106:ILE:O	10:E:110:ARG:NH2	2.39	0.49
12:G:26:ALA:HA	12:G:30:LEU:HB2	1.95	0.49
18:O:88:LYS:HE2	18:O:116:GLN:CD	2.35	0.49
23:T:40:LYS:HA	23:T:43:ILE:HG12	1.95	0.49
1:1:154:U:H2'	1:1:155:A:H8	1.78	0.48
1:1:463:G:O2'	1:1:465:G:O6	2.31	0.48
1:1:630:G:N2	1:1:633:A:OP2	2.30	0.48
1:1:833:A:H2'	1:1:834:G:C8	2.48	0.48
1:1:1281:G:H2'	1:1:1282:U:C6	2.48	0.48
1:1:2815:C:H2'	1:1:2816:G:H8	1.78	0.48
2:2:933:G:N7	41:l:3:ARG:NH1	2.61	0.48
2:2:1342:C:H2'	2:2:1343:G:H8	1.77	0.48
2:2:1386:G:H2'	2:2:1387:G:H8	1.78	0.48
12:G:129:GLU:OE2	12:G:142:VAL:N	2.46	0.48
14:K:22:ILE:HD11	14:K:40:LYS:HG3	1.95	0.48
37:h:24:ALA:HB1	37:h:29:PHE:CE2	2.43	0.48
1:1:182:A:O2'	1:1:433:C:O2'	2.29	0.48
1:1:297:G:H5''	24:U:85:PHE:HB2	1.95	0.48
1:1:1818:U:OP2	7:B:156:ARG:NH1	2.46	0.48
1:1:2111:U:O2'	1:1:2115:G:O6	2.31	0.48
2:2:1226:C:H4'	53:x:80:TYR:CZ	2.48	0.48
2:2:1516:2MG:H2'	2:2:1518:MA6:OP2	2.14	0.48
4:4:155:C:O2	4:4:195:A:N6	2.46	0.48
10:E:140:GLU:HG2	10:E:141:ILE:HG12	1.94	0.48
16:M:77:PRO:HG2	16:M:80:VAL:HG21	1.94	0.48
37:h:123:GLN:HB3	37:h:128:VAL:HB	1.96	0.48
1:1:1435:G:H2'	1:1:1436:G:C8	2.48	0.48
1:1:1843:C:H2'	1:1:1844:C:C6	2.47	0.48
1:1:2385:C:H2'	1:1:2386:A:H8	1.76	0.48
2:2:407:U:O2'	38:i:113:GLU:OE2	2.19	0.48
2:2:1090:U:H4'	2:2:1171:A:O2'	2.13	0.48
2:2:1303:C:H2'	2:2:1304:G:O4'	2.13	0.48
32:c:9:ILE:HD12	32:c:51:GLU:HB2	1.96	0.48
36:g:166:ALA:HB2	36:g:185:ALA:HB1	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:h:21:THR:O	37:h:21:THR:HG22	2.11	0.48
50:u:58:ALA:HA	50:u:61:VAL:HG12	1.96	0.48
1:1:548:G:H2'	1:1:548:G:N3	2.29	0.48
1:1:1171:G:H2'	1:1:1172:C:C6	2.48	0.48
1:1:1287:A:C5	17:N:106:ASP:OD2	2.67	0.48
1:1:1400:U:H2'	1:1:1401:G:H8	1.78	0.48
1:1:2728:U:O2'	1:1:2729:G:H8	1.94	0.48
1:1:2830:C:H5'	8:C:56:LYS:HE3	1.96	0.48
2:2:219:U:H2'	2:2:220:G:H8	1.78	0.48
2:2:1320:C:H1'	53:x:73:GLU:HG3	1.95	0.48
2:2:1360:A:C8	48:s:58:SER:HB3	2.49	0.48
4:4:202:G:N2	4:4:233:A:H61	2.10	0.48
8:C:34:VAL:CG2	8:C:92:VAL:O	2.61	0.48
18:O:7:ARG:NH2	18:O:95:SER:O	2.46	0.48
24:U:10:GLU:O	24:U:11:VAL:CG2	2.62	0.48
37:h:19:ASN:HA	37:h:56:VAL:HG13	1.95	0.48
38:i:126:ASN:ND2	38:i:141:ASP:OD1	2.46	0.48
49:t:82:ILE:HD13	49:t:87:LEU:HD13	1.83	0.48
1:1:1178:C:H2'	1:1:1179:G:H8	1.77	0.48
1:1:1438:U:H2'	1:1:1439:A:H8	1.78	0.48
1:1:1746:A:H2'	1:1:1747:U:C6	2.48	0.48
1:1:2006:C:H5''	1:1:2048:G:H5''	1.96	0.48
2:2:935:A:H1'	2:2:1384:C:N3	2.28	0.48
2:2:1349:A:P	43:n:121:ALA:O	2.68	0.48
3:3:78:A:H62	3:3:98:G:N2	2.11	0.48
4:4:284:G:N2	4:4:287:U:OP1	2.46	0.48
8:C:26:VAL:HG13	8:C:186:LEU:HD21	1.96	0.48
9:D:129:PRO:HB3	9:D:156:ASN:HA	1.95	0.48
10:E:31:VAL:CG1	10:E:97:TRP:CZ2	2.97	0.48
13:J:64:VAL:HG22	13:J:68:LYS:HB2	1.96	0.48
40:k:81:ASN:HB3	40:k:84:VAL:HG12	1.95	0.48
43:n:113:ARG:CZ	48:s:101:TRP:HD1	2.16	0.48
44:o:47:GLU:HG3	44:o:67:ILE:HB	1.96	0.48
46:q:102:LEU:HD22	46:q:102:LEU:H	1.79	0.48
1:1:351:C:H2'	1:1:352:A:H8	1.77	0.48
1:1:995:C:O2	13:J:3:THR:OG1	2.24	0.48
1:1:1789:A:H4'	7:B:218:PRO:HB2	1.94	0.48
1:1:1796:U:H2'	1:1:1797:G:C8	2.48	0.48
1:1:2070:A:H2'	1:1:2071:A:C8	2.48	0.48
2:2:1098:C:H2'	2:2:1099:G:C8	2.48	0.48
29:Z:48:ILE:O	29:Z:52:SER:HB3	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:h:24:ALA:C	37:h:29:PHE:HE2	2.14	0.48
38:i:26:ARG:NH2	38:i:30:THR:O	2.46	0.48
38:i:102:VAL:HG13	38:i:107:PHE:HB2	1.96	0.48
47:r:24:GLY:HA2	47:r:69:LEU:HD22	1.96	0.48
1:1:417:C:H2'	1:1:418:C:C6	2.48	0.48
1:1:828:U:O2'	1:1:831:G:O6	2.30	0.48
1:1:2445:2MG:OP1	9:D:69:ARG:NH2	2.47	0.48
1:1:2598:A:H5''	7:B:234:GLY:HA3	1.96	0.48
1:1:2818:U:H2'	1:1:2819:G:H8	1.79	0.48
2:2:246:A:N6	2:2:281:G:N2	2.60	0.48
2:2:320:A:H2'	2:2:321:A:C8	2.49	0.48
2:2:550:G:O2'	46:q:116:LYS:NZ	2.37	0.48
2:2:559:A:H4'	2:2:560:A:H3'	1.95	0.48
2:2:1219:A:OP1	48:s:59:ARG:NH1	2.47	0.48
4:4:57:G:H2'	4:4:58:G:H8	1.78	0.48
4:4:98:C:N4	38:i:45:LYS:O	2.46	0.48
4:4:329:U:H2'	4:4:330:U:C6	2.48	0.48
7:B:120:VAL:CB	12:G:91:PHE:CE1	2.96	0.48
10:E:9:LYS:HA	10:E:12:VAL:HG22	1.96	0.48
13:J:130:HIS:HB2	13:J:132:HIS:HD2	1.78	0.48
29:Z:16:ARG:HE	29:Z:53:PHE:HE2	1.61	0.48
36:g:70:VAL:HG13	36:g:92:VAL:HG23	1.96	0.48
40:k:47:LEU:HD13	40:k:51:ILE:HG12	1.94	0.48
53:x:50:ALA:HB1	53:x:57:HIS:HB3	1.95	0.48
1:1:1336:A:H2'	1:1:1337:G:C8	2.48	0.48
1:1:2408:U:H2'	1:1:2409:G:H8	1.78	0.48
1:1:2514:U:H2'	1:1:2515:C:C6	2.48	0.48
1:1:2718:G:O2'	1:1:2847:U:OP1	2.28	0.48
2:2:146:G:H2'	2:2:147:G:C8	2.48	0.48
2:2:684:U:H3'	2:2:685:G:H8	1.79	0.48
2:2:692:U:H5''	45:p:127:ARG:HH22	1.78	0.48
2:2:796:C:OP1	45:p:128:ARG:N	2.47	0.48
2:2:924:C:H2'	2:2:925:G:H8	1.79	0.48
2:2:1265:C:N3	2:2:1271:A:N6	2.61	0.48
2:2:1287:A:C2	2:2:1353:G:H1'	2.48	0.48
2:2:1332:A:H2'	2:2:1333:A:O4'	2.14	0.48
4:4:57:G:H2'	4:4:58:G:C8	2.49	0.48
4:4:261:G:H1	4:4:271:G:H1'	1.79	0.48
4:4:357:U:H2'	4:4:358:C:C6	2.48	0.48
16:M:19:GLY:O	16:M:38:ARG:NH2	2.41	0.48
48:s:56:SER:HB2	48:s:59:ARG:HB2	1.96	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:x:3:ARG:HD3	53:x:7:LYS:HB3	1.96	0.48
1:1:28:A:H62	1:1:512:G:H21	1.62	0.48
1:1:284:U:H3	1:1:356:G:H1	1.61	0.48
1:1:2184:A:H2'	1:1:2185:U:C6	2.48	0.48
1:1:2494:G:C2	1:1:2495:G:C8	3.02	0.48
2:2:34:C:H2'	2:2:35:G:H8	1.78	0.48
2:2:317:U:OP1	2:2:353:A:N6	2.43	0.48
2:2:1410:A:H2'	2:2:1411:C:C6	2.49	0.48
8:C:37:VAL:HG23	8:C:48:ILE:HG22	1.96	0.48
25:V:43:ASP:OD1	25:V:44:HIS:N	2.41	0.48
37:h:152:GLU:N	37:h:199:LYS:O	2.43	0.48
39:j:25:VAL:HG13	39:j:27:GLY:H	1.79	0.48
39:j:66:LYS:HA	39:j:69:ARG:HG2	1.96	0.48
40:k:10:VAL:HG23	40:k:84:VAL:HA	1.96	0.48
43:n:83:ILE:O	43:n:87:LEU:HB2	2.13	0.48
45:p:82:LEU:HD13	45:p:105:PHE:HB3	1.95	0.48
1:1:289:G:O6	1:1:352:A:N6	2.47	0.48
1:1:478:A:N6	1:1:500:G:O2'	2.44	0.48
1:1:1275:A:OP2	1:1:1646:C:N4	2.47	0.48
1:1:1540:G:H2'	1:1:1541:C:C6	2.49	0.48
1:1:1563:U:H2'	1:1:1564:C:C6	2.49	0.48
1:1:1837:C:H2'	1:1:1899:A:H61	1.79	0.48
1:1:1838:C:H4'	1:1:1839:G:H5'	1.95	0.48
1:1:2290:G:H2'	1:1:2291:U:H6	1.79	0.48
2:2:227:G:H2'	2:2:228:A:H8	1.78	0.48
2:2:406:G:H5'	38:i:5:LEU:HG	1.95	0.48
2:2:859:G:OP2	2:2:869:G:N1	2.43	0.48
3:3:5:U:O2'	3:3:27:C:O2	2.31	0.48
4:4:301:A:H2'	4:4:302:A:O4'	2.13	0.48
16:M:26:VAL:HG12	16:M:133:LYS:HA	1.90	0.48
18:O:62:LEU:HD12	18:O:62:LEU:C	2.38	0.48
25:V:30:ILE:HD11	25:V:63:ILE:HD12	1.95	0.48
39:j:18:VAL:HG21	39:j:56:VAL:HG12	1.96	0.48
1:1:750:A:OP1	1:1:1615:C:N4	2.40	0.47
1:1:1859:U:H2'	1:1:1860:G:H8	1.79	0.47
1:1:2302:U:H2'	1:1:2303:G:C8	2.49	0.47
1:1:2788:C:H2'	1:1:2789:C:C6	2.49	0.47
2:2:294:U:H2'	2:2:295:C:C6	2.49	0.47
2:2:317:U:H2'	2:2:318:G:C8	2.49	0.47
2:2:358:U:H2'	2:2:359:G:C8	2.49	0.47
2:2:815:A:O2'	2:2:1526:G:N2	2.31	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:954:G:O6	2:2:1226:C:N4	2.24	0.47
2:2:1256:A:H62	2:2:1278:G:H5''	1.77	0.47
37:h:150:LYS:HB2	37:h:173:VAL:HG11	1.96	0.47
39:j:13:GLU:OE1	39:j:68:ARG:NH1	2.46	0.47
1:1:26:G:H4'	1:1:1260:A:H4'	1.97	0.47
1:1:366:C:H3'	1:1:367:G:H21	1.78	0.47
1:1:937:C:H2'	1:1:938:G:H8	1.79	0.47
1:1:1152:C:H2'	1:1:1153:C:C6	2.48	0.47
1:1:2356:U:O2'	6:A:20:ARG:NH1	2.47	0.47
1:1:2799:A:O2'	1:1:2800:A:H5''	2.14	0.47
1:1:2841:C:H2'	1:1:2842:G:C8	2.49	0.47
2:2:5:U:O2'	2:2:6:G:N2	2.48	0.47
2:2:81:A:N6	2:2:88:U:O2	2.48	0.47
2:2:663:A:H2'	2:2:664:G:C8	2.49	0.47
2:2:988:G:N2	2:2:1016:A:H1'	2.29	0.47
2:2:1152:A:H2'	2:2:1153:G:C8	2.49	0.47
2:2:1510:C:H2'	2:2:1511:G:C8	2.49	0.47
3:3:117:G:H2'	3:3:118:C:C6	2.49	0.47
7:B:21:ASN:HB3	7:B:24:LEU:HG	1.96	0.47
14:K:1:MET:HA	14:K:32:TYR:HB3	1.96	0.47
15:L:55:MET:HE3	15:L:59:ARG:HB3	1.96	0.47
19:P:23:GLY:O	19:P:110:ILE:HD12	2.13	0.47
22:S:82:MET:SD	22:S:84:ARG:NH1	2.85	0.47
37:h:85:GLU:OE1	37:h:85:GLU:N	2.47	0.47
43:n:113:ARG:HH12	48:s:101:TRP:NE1	1.98	0.47
44:o:19:ASP:OD1	44:o:20:GLN:N	2.47	0.47
45:p:31:ILE:HG12	45:p:46:THR:HG22	1.95	0.47
1:1:161:A:OP2	1:1:162:U:O2'	2.21	0.47
1:1:488:G:H22	1:1:491:G:H5''	1.78	0.47
1:1:851:C:H2'	1:1:852:U:C6	2.49	0.47
1:1:1431:A:H2'	1:1:1432:G:C8	2.49	0.47
1:1:1684:G:O6	1:1:1705:A:N6	2.48	0.47
1:1:2854:G:H2'	1:1:2855:C:C6	2.49	0.47
2:2:515:G:OP2	2:2:532:A:N6	2.40	0.47
2:2:591:U:H2'	2:2:592:G:C8	2.45	0.47
4:4:311:U:H2'	4:4:312:A:C8	2.49	0.47
5:5:107:GLU:OE1	5:5:107:GLU:N	2.47	0.47
10:E:102:ARG:NH1	30:a:25:ARG:O	2.36	0.47
14:K:107:LEU:HD12	14:K:116:ILE:HD11	1.95	0.47
16:M:105:MET:HG2	16:M:117:PHE:HZ	1.79	0.47
22:S:9:HIS:H	22:S:102:HIS:CE1	2.32	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:a:8:LYS:HZ1	30:a:29:GLY:H	1.62	0.47
36:g:142:GLU:O	36:g:146:ASN:ND2	2.32	0.47
1:1:17:G:H2'	1:1:18:U:C6	2.49	0.47
1:1:28:A:H62	1:1:512:G:N2	2.12	0.47
1:1:624:C:H2'	1:1:625:G:C8	2.50	0.47
1:1:973:A:H5''	21:R:81:LYS:HD2	1.96	0.47
1:1:1704:C:H2'	1:1:1705:A:C8	2.49	0.47
2:2:407:U:H2'	2:2:408:A:C8	2.48	0.47
3:3:6:G:O6	3:3:115:A:N6	2.48	0.47
3:3:70:C:H2'	3:3:71:C:H6	1.80	0.47
12:G:44:ILE:O	12:G:47:PHE:HB3	2.13	0.47
43:n:116:VAL:HG12	44:o:62:ARG:NE	2.28	0.47
1:1:462:C:N4	1:1:463:G:O6	2.47	0.47
1:1:489:G:N2	1:1:1320:C:H5''	2.30	0.47
1:1:754:U:H2'	1:1:755:U:C6	2.50	0.47
1:1:1683:U:H2'	1:1:1684:G:C8	2.49	0.47
1:1:2452:C:C2	26:W:1:PHE:HE1	2.32	0.47
2:2:986:U:H2'	2:2:987:G:C8	2.49	0.47
4:4:156:G:H5''	4:4:157:C:H5''	1.96	0.47
16:M:80:VAL:HG12	16:M:81:4D4:N	2.30	0.47
21:R:59:ILE:HA	21:R:101:ILE:H	1.78	0.47
36:g:164:ILE:O	36:g:186:ILE:HB	2.14	0.47
37:h:60:PRO:HG3	37:h:65:ARG:HE	1.80	0.47
43:n:30:ILE:O	43:n:31:ASN:C	2.57	0.47
1:1:154:U:H2'	1:1:155:A:C8	2.50	0.47
1:1:870:U:H3	1:1:907:G:H1	1.63	0.47
1:1:1040:A:H61	1:1:1115:G:H1	1.62	0.47
1:1:1316:U:H2'	1:1:1317:G:C8	2.50	0.47
1:1:1571:A:H2'	1:1:1572:A:H8	1.79	0.47
1:1:2634:A:H2'	1:1:2635:A:C8	2.50	0.47
1:1:2691:C:H2'	1:1:2692:G:C8	2.48	0.47
2:2:404:G:OP2	38:i:115:ARG:NH2	2.47	0.47
2:2:662:U:H2'	2:2:663:A:H8	1.77	0.47
2:2:714:G:N2	2:2:777:A:N3	2.59	0.47
2:2:1344:C:OP1	43:n:124:ARG:CG	2.63	0.47
4:4:271:G:O2'	4:4:272:C:O4'	2.25	0.47
5:5:111:VAL:CG2	5:5:128:GLY:O	2.62	0.47
13:J:73:VAL:O	13:J:73:VAL:HG13	2.14	0.47
36:g:68:LEU:HD21	36:g:70:VAL:HG22	1.95	0.47
47:r:96:PRO:HD2	47:r:102:THR:HG22	1.95	0.47
1:1:315:G:H2'	1:1:316:C:C6	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:389:G:C8	1:1:2413:G:H4'	2.50	0.47
1:1:980:A:H3'	1:1:980:A:OP1	2.15	0.47
1:1:1279:G:H2'	1:1:1280:G:H8	1.79	0.47
1:1:1682:G:OP2	1:1:1699:G:N2	2.42	0.47
1:1:2156:G:N7	1:1:2157:G:O2'	2.46	0.47
1:1:2677:G:H2'	1:1:2678:C:C6	2.50	0.47
1:1:2748:A:H62	1:1:2754:U:H3	1.61	0.47
2:2:390:U:H2'	2:2:391:G:C8	2.49	0.47
2:2:570:G:H2'	2:2:571:U:C6	2.50	0.47
2:2:920:U:H2'	2:2:921:U:C6	2.50	0.47
2:2:999:C:H2'	2:2:1000:A:C8	2.49	0.47
2:2:1250:A:C2	2:2:1370:G:H1'	2.49	0.47
2:2:1309:G:OP1	47:r:91:HIS:NE2	2.47	0.47
2:2:1315:U:H2'	2:2:1316:G:C4	2.49	0.47
2:2:1436:U:O4	2:2:1437:A:N6	2.48	0.47
4:4:130:C:H2'	4:4:131:U:C5	2.50	0.47
7:B:159:GLY:HA2	7:B:195:VAL:CG2	2.44	0.47
8:C:29:VAL:O	8:C:29:VAL:CG1	2.60	0.47
10:E:31:VAL:CG1	10:E:96:MET:HE1	2.43	0.47
12:G:135:HIS:CE1	12:G:137:GLU:CD	2.93	0.47
38:i:9:LEU:HD13	38:i:32:CYS:HB3	1.97	0.47
38:i:13:ARG:HA	38:i:34:ILE:HG13	1.97	0.47
38:i:75:TYR:HH	38:i:134:SER:HG	1.61	0.47
1:1:581:C:H2'	1:1:582:A:H8	1.79	0.47
1:1:1724:G:O6	1:1:1737:G:N2	2.47	0.47
1:1:1937:A:O2'	1:1:1939:5MU:OP2	2.29	0.47
1:1:2502:G:O2'	1:1:2503:2MA:OP2	2.29	0.47
2:2:71:A:N6	2:2:100:G:N7	2.63	0.47
2:2:264:C:O2'	51:v:65:ARG:NH2	2.43	0.47
2:2:334:C:H2'	2:2:335:C:C6	2.50	0.47
2:2:600:A:H2'	2:2:601:G:H8	1.79	0.47
4:4:99:G:C5	37:h:132:ARG:HB3	2.49	0.47
45:p:18:ASP:HB2	45:p:37:ARG:HH11	1.79	0.47
47:r:90:ARG:HH22	47:r:93:ARG:HH11	1.62	0.47
1:1:223:A:O2'	1:1:420:C:O2	2.27	0.47
1:1:890:C:O2	4:4:60:U:O2'	2.33	0.47
1:1:1035:U:O4	1:1:1120:G:O6	2.33	0.47
1:1:1306:C:H2'	1:1:1307:A:H8	1.80	0.47
1:1:1636:U:O2'	1:1:1760:C:O2'	2.32	0.47
2:2:409:U:O4	2:2:433:G:O6	2.32	0.47
2:2:781:A:O2'	2:2:1522:U:O2	2.28	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1068:G:N1	2:2:1108:G:H1'	2.30	0.47
2:2:1517:G:H2'	2:2:1518:MA6:H8	1.97	0.47
4:4:116:A:H2'	4:4:117:G:C8	2.50	0.47
8:C:27:ILE:O	8:C:27:ILE:CG1	2.63	0.47
27:X:40:VAL:CG2	27:X:45:ARG:HG2	2.45	0.47
30:a:61:ASN:HD21	53:x:42:PRO:HB3	1.80	0.47
33:d:12:ARG:HE	33:d:44:VAL:HB	1.80	0.47
39:j:81:LEU:HG	39:j:82:GLN:N	2.30	0.47
39:j:153:VAL:HA	39:j:156:LYS:HG2	1.96	0.47
39:j:165:LEU:HD23	39:j:165:LEU:H	1.80	0.47
43:n:82:GLY:C	43:n:84:THR:N	2.72	0.47
47:r:19:LEU:HD12	47:r:34:LEU:HD11	1.95	0.47
47:r:88:GLY:O	47:r:92:ARG:HG2	2.15	0.47
1:1:32:C:H2'	1:1:33:C:C6	2.50	0.47
1:1:171:U:H2'	1:1:172:A:C8	2.49	0.47
1:1:1028:A:N6	1:1:1125:G:H2'	2.29	0.47
1:1:1710:G:H2'	1:1:1711:A:H8	1.81	0.47
1:1:2031:A:C6	1:1:2498:OMC:H1'	2.50	0.47
1:1:2698:U:H2'	1:1:2699:C:C6	2.50	0.47
2:2:255:G:OP1	51:v:71:LYS:CE	2.63	0.47
2:2:717:U:H5'	2:2:733:G:O2'	2.15	0.47
2:2:1012:A:H2'	2:2:1013:G:C8	2.50	0.47
2:2:1072:G:N2	36:g:106:THR:HG21	2.28	0.47
3:3:36:C:HO2'	3:3:37:C:P	2.38	0.47
4:4:61:G:N2	4:4:63:C:H41	2.12	0.47
36:g:108:ARG:CA	36:g:111:ILE:HD11	2.45	0.47
46:q:114:ARG:HB3	46:q:119:VAL:HB	1.97	0.47
1:1:560:C:O2'	20:Q:48:ARG:NH2	2.46	0.46
1:1:2389:G:H5''	1:1:2390:U:O4'	2.15	0.46
1:1:2572:A:H5'	1:1:2574:G:H5''	1.97	0.46
2:2:285:C:H2'	2:2:286:C:H6	1.80	0.46
2:2:414:A:OP2	2:2:428:G:N2	2.48	0.46
2:2:709:U:H2'	2:2:710:G:H8	1.79	0.46
2:2:1083:U:H3'	2:2:1084:G:C8	2.49	0.46
2:2:1250:A:H4'	43:n:70:GLY:H	1.80	0.46
2:2:1288:A:H2'	2:2:1289:A:H8	1.79	0.46
2:2:1346:A:H5'	43:n:122:ARG:NH1	2.29	0.46
2:2:1376:U:H2'	2:2:1377:A:C8	2.50	0.46
2:2:1410:A:H2'	2:2:1411:C:H6	1.79	0.46
2:2:1512:U:H2'	2:2:1513:A:H8	1.80	0.46
4:4:43:G:N2	4:4:300:U:H3	2.14	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:B:132:MET:HE1	7:B:174:LEU:CD1	2.29	0.46
1:1:1361:G:H2'	1:1:1362:C:C6	2.50	0.46
1:1:2130:U:H4'	1:1:2159:G:H22	1.81	0.46
1:1:2606:C:H2'	1:1:2607:G:C8	2.50	0.46
2:2:19:A:H2'	2:2:20:U:C6	2.50	0.46
2:2:1074:G:O2'	2:2:1101:A:N1	2.37	0.46
2:2:1246:A:N6	2:2:1292:G:C6	2.84	0.46
3:3:13:G:H21	3:3:16:G:H1'	1.79	0.46
4:4:198:U:H5	4:4:229:U:H2'	1.80	0.46
12:G:4:ILE:CD1	12:G:44:ILE:CD1	2.83	0.46
28:Y:2:LYS:HA	28:Y:5:GLU:HG2	1.97	0.46
53:x:36:ARG:HH21	53:x:51:VAL:HG22	1.80	0.46
1:1:1357:C:H2'	1:1:1358:G:O4'	2.16	0.46
1:1:1569:A:H2'	1:1:1570:A:C8	2.50	0.46
1:1:2417:C:H2'	1:1:2418:A:H8	1.80	0.46
2:2:409:U:H3'	2:2:410:G:H8	1.80	0.46
2:2:1060:U:H2'	2:2:1061:G:C8	2.50	0.46
2:2:1129:C:O2	2:2:1130:A:N1	2.48	0.46
4:4:36:C:H2'	4:4:318:G:H1	1.80	0.46
4:4:126:C:H4'	4:4:127:C:OP1	2.16	0.46
11:F:45:HIS:NE2	11:F:47:ASP:HA	2.30	0.46
43:n:51:PRO:C	43:n:53:GLU:H	2.23	0.46
43:n:80:ARG:O	43:n:81:HIS:C	2.58	0.46
1:1:453:A:N3	1:1:457:A:O2'	2.47	0.46
1:1:523:C:H5''	1:1:540:C:O2'	2.16	0.46
1:1:787:C:H5''	1:1:788:A:H5'	1.97	0.46
1:1:874:G:H2'	1:1:875:G:C8	2.50	0.46
1:1:948:C:H2'	1:1:949:G:H8	1.81	0.46
1:1:1250:G:N7	15:L:18:ARG:NH2	2.60	0.46
1:1:2093:G:O2'	1:1:2198:A:N1	2.45	0.46
1:1:2656:U:O2	1:1:2665:A:N7	2.48	0.46
1:1:2720:U:H5''	19:P:53:ARG:HH21	1.80	0.46
2:2:1211:U:H4'	2:2:1212:U:H5''	1.97	0.46
4:4:191:A:H2'	4:4:192:A:O4'	2.15	0.46
4:4:354:A:H2'	4:4:355:G:H8	1.79	0.46
18:O:25:ARG:HG3	18:O:40:ILE:HB	1.97	0.46
21:R:17:GLY:O	21:R:97:LYS:NZ	2.38	0.46
25:V:9:ARG:HD3	25:V:39:ALA:HB1	1.97	0.46
29:Z:8:THR:CG2	29:Z:8:THR:O	2.62	0.46
1:1:719:C:H2'	1:1:720:U:H6	1.80	0.46
1:1:753:A:H2'	1:1:754:U:C6	2.50	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:966:G:H4'	1:1:2271:G:H22	1.81	0.46
1:1:2827:C:N3	1:1:2828:G:N2	2.63	0.46
1:1:2895:G:H2'	1:1:2896:C:C6	2.50	0.46
2:2:1300:G:N2	2:2:1301:U:O4	2.47	0.46
2:2:1377:A:H4'	2:2:1378:C:H5	1.80	0.46
3:3:16:G:N2	3:3:69:G:H1'	2.30	0.46
4:4:308:U:H4'	4:4:309:A:O5'	2.14	0.46
5:5:111:VAL:HG21	5:5:127:ILE:HG22	1.95	0.46
16:M:63:ILE:HG22	16:M:105:MET:HB3	1.96	0.46
36:g:108:ARG:HG2	36:g:111:ILE:CD1	2.46	0.46
36:g:114:LEU:CD2	36:g:144:LEU:CD2	2.90	0.46
42:m:77:ARG:NH2	42:m:79:SER:O	2.48	0.46
1:1:476:G:N1	1:1:479:A:OP2	2.46	0.46
1:1:733:G:N2	1:1:734:A:N7	2.63	0.46
1:1:1286:A:H1'	1:1:1288:G:OP2	2.15	0.46
1:1:1447:C:H2'	1:1:1448:G:C8	2.51	0.46
1:1:1697:G:OP2	1:1:1698:A:O2'	2.30	0.46
4:4:76:C:H2'	4:4:77:G:C8	2.51	0.46
7:B:165:VAL:HG11	7:B:175:ARG:HE	1.80	0.46
9:D:143:LEU:HD22	9:D:185:LYS:HG3	1.97	0.46
11:F:45:HIS:C	11:F:47:ASP:H	2.22	0.46
25:V:90:ASP:OD1	25:V:90:ASP:N	2.49	0.46
30:a:3:LYS:HG3	30:a:4:ASP:H	1.79	0.46
37:h:67:THR:HG22	37:h:102:ASN:HB2	1.97	0.46
1:1:518:G:H2'	1:1:519:U:C6	2.50	0.46
1:1:598:U:H2'	1:1:599:A:C8	2.50	0.46
1:1:639:U:H2'	1:1:640:C:C6	2.50	0.46
1:1:721:A:H2'	1:1:722:A:C8	2.50	0.46
1:1:1196:C:H2'	1:1:1197:G:H8	1.81	0.46
1:1:1794:A:H2'	1:1:1795:C:C6	2.51	0.46
1:1:2543:G:H2'	1:1:2544:G:C8	2.51	0.46
1:1:2784:U:H2'	1:1:2785:C:H6	1.81	0.46
1:1:2901:C:H2'	1:1:2902:C:C6	2.51	0.46
2:2:958:A:C6	53:x:55:ARG:HD2	2.51	0.46
2:2:1154:G:H2'	2:2:1155:A:H8	1.81	0.46
2:2:1445:U:O4	2:2:1457:G:O6	2.33	0.46
3:3:42:C:H1'	10:E:64:LYS:O	2.16	0.46
10:E:106:ILE:C	10:E:110:ARG:CZ	2.79	0.46
15:L:33:ARG:HD3	15:L:40:SER:HA	1.98	0.46
23:T:32:LEU:CD1	23:T:34:VAL:HG13	2.46	0.46
47:r:51:GLY:O	47:r:55:THR:HG23	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:587:C:O2'	15:L:19:LEU:HG	2.16	0.46
1:1:1429:G:H2'	1:1:1430:G:C8	2.49	0.46
1:1:1544:A:H2'	1:1:1545:A:C8	2.51	0.46
1:1:1567:G:OP1	7:B:60:GLN:NE2	2.49	0.46
1:1:2141:G:O6	1:1:2150:C:N4	2.49	0.46
1:1:2328:A:H2'	1:1:2329:U:C6	2.51	0.46
1:1:2549:G:H2'	1:1:2550:G:H8	1.80	0.46
2:2:1033:G:HO2'	2:2:1034:G:H8	1.62	0.46
2:2:1129:C:H2'	2:2:1139:G:N7	2.31	0.46
2:2:1530:G:H2'	2:2:1531:A:C8	2.51	0.46
5:5:62:GLU:O	5:5:64:PHE:N	2.49	0.46
11:F:90:VAL:HG23	11:F:161:GLY:H	1.80	0.46
39:j:56:VAL:HG23	39:j:57:PRO:HD3	1.97	0.46
40:k:51:ILE:O	40:k:54:LEU:HG	2.16	0.46
46:q:42:PRO:HD2	46:q:48:ALA:H	1.80	0.46
1:1:184:C:H2'	1:1:185:G:C8	2.49	0.46
1:1:441:U:H2'	1:1:442:G:H8	1.81	0.46
1:1:705:A:H2'	1:1:706:A:C8	2.51	0.46
1:1:1094:U:H2'	1:1:1096:A:H5''	1.98	0.46
1:1:1668:A:O2'	1:1:1674:G:N7	2.40	0.46
1:1:1710:G:H2'	1:1:1711:A:C8	2.50	0.46
1:1:1796:U:H2'	1:1:1797:G:H8	1.81	0.46
2:2:265:G:O2'	51:v:68:SER:O	2.21	0.46
2:2:1477:U:H2'	2:2:1478:U:C6	2.50	0.46
4:4:185:A:N3	4:4:185:A:H2'	2.30	0.46
8:C:136:ASN:ND2	8:C:139:SER:O	2.49	0.46
10:E:36:LEU:HD12	10:E:36:LEU:C	2.38	0.46
18:O:35:ILE:HB	18:O:102:ARG:HH11	1.80	0.46
37:h:7:PRO:HG3	37:h:201:TRP:CD1	2.50	0.46
40:k:8:PHE:CG	40:k:60:VAL:CG2	2.99	0.46
41:l:72:THR:O	41:l:91:VAL:HG12	2.16	0.46
43:n:79:ILE:O	43:n:83:ILE:HG13	2.16	0.46
51:v:46:VAL:HG22	51:v:73:TRP:HB2	1.98	0.46
1:1:48:G:H22	1:1:177:G:P	2.38	0.46
1:1:1443:U:H2'	1:1:1444:G:H8	1.81	0.46
1:1:1482:G:O2'	1:1:1509:A:N1	2.34	0.46
1:1:1870:C:H2'	1:1:1871:A:H5'	1.98	0.46
1:1:2579:C:H2'	1:1:2580:PSU:C6	2.50	0.46
2:2:973:G:H1'	44:o:56:HIS:O	2.16	0.46
2:2:1097:C:H1'	2:2:1169:A:H2	1.81	0.46
4:4:37:C:H2'	4:4:318:G:N2	2.31	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:4:64:C:H2'	4:4:65:U:C6	2.51	0.46
4:4:345:A:H1'	4:4:347:PSU:HN1	1.80	0.46
7:B:120:VAL:O	7:B:130:LEU:HD21	2.16	0.46
12:G:103:VAL:HB	12:G:110:VAL:HG11	1.98	0.46
29:Z:40:ASP:OD1	29:Z:45:ARG:NH2	2.46	0.46
43:n:55:VAL:HB	43:n:56:ASP:H	1.60	0.46
45:p:53:ARG:HH11	45:p:54:GLY:H	1.64	0.46
1:1:417:C:H2'	1:1:418:C:H6	1.79	0.45
1:1:599:A:H2'	1:1:600:G:H8	1.80	0.45
1:1:1590:A:H2'	1:1:1591:A:C8	2.50	0.45
1:1:2064:C:H2'	1:1:2065:C:C6	2.51	0.45
2:2:259:G:OP2	54:y:78:ASN:ND2	2.44	0.45
2:2:374:A:H4'	2:2:451:A:H5''	1.96	0.45
2:2:718:A:H2'	2:2:718:A:N3	2.31	0.45
7:B:120:VAL:CG1	7:B:130:LEU:HD11	2.46	0.45
14:K:71:ARG:HH22	14:K:105:ARG:HG2	1.80	0.45
25:V:31:TYR:HE2	25:V:90:ASP:HB2	1.81	0.45
41:l:111:ARG:HH11	41:l:123:GLU:HG2	1.80	0.45
1:1:439:A:H2'	1:1:440:C:H6	1.82	0.45
1:1:1007:C:OP2	1:1:1008:A:O2'	2.33	0.45
1:1:1278:C:H2'	1:1:1279:G:C8	2.52	0.45
1:1:1361:G:H2'	1:1:1362:C:H6	1.82	0.45
1:1:2315:G:H2'	1:1:2316:G:H8	1.81	0.45
1:1:2625:G:H2'	1:1:2626:C:C6	2.51	0.45
2:2:219:U:H2'	2:2:220:G:C8	2.51	0.45
2:2:358:U:H2'	2:2:359:G:H8	1.79	0.45
2:2:763:G:H2'	2:2:764:C:C6	2.52	0.45
4:4:184:A:H2'	4:4:185:A:C8	2.49	0.45
1:1:296:U:H2'	1:1:297:G:H8	1.77	0.45
1:1:910:A:H2'	1:1:911:A:C8	2.52	0.45
2:2:981:U:H3	2:2:1223:C:H42	1.63	0.45
2:2:1013:G:O2'	2:2:1015:G:O6	2.34	0.45
9:D:181:ILE:HG13	15:L:1:MET:HG2	1.99	0.45
10:E:34:ILE:HD12	10:E:156:ILE:HA	1.99	0.45
17:N:27:SER:HA	17:N:30:ARG:HG2	1.99	0.45
20:Q:52:GLN:HA	20:Q:55:ARG:HG2	1.97	0.45
35:f:22:VAL:HG21	35:f:36:ARG:HH21	1.81	0.45
36:g:23:TRP:HZ3	36:g:28:LYS:HB2	1.81	0.45
1:1:665:U:H2'	1:1:666:A:C8	2.52	0.45
1:1:743:A:O2'	1:1:1659:G:OP1	2.31	0.45
1:1:772:C:H2'	1:1:773:U:C6	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:1720:U:H2'	1:1:1721:G:O4'	2.16	0.45
2:2:578:C:H2'	2:2:579:A:H8	1.81	0.45
2:2:947:G:OP1	47:r:107:ARG:HB3	2.16	0.45
2:2:1002:G:H2'	2:2:1003:G:C8	2.51	0.45
2:2:1040:U:H2'	2:2:1041:G:H8	1.81	0.45
2:2:1056:U:H2'	2:2:1057:G:H8	1.81	0.45
4:4:3:G:H1	4:4:357:U:H3	1.64	0.45
4:4:332:G:H5'	4:4:333:G:C5	2.51	0.45
11:F:28:GLY:HA3	11:F:79:VAL:HG22	1.97	0.45
35:f:18:LYS:CB	35:f:23:ILE:CD1	2.90	0.45
36:g:54:LEU:O	36:g:58:ASN:ND2	2.50	0.45
41:l:79:ARG:HD3	41:l:85:TYR:N	2.32	0.45
53:x:36:ARG:NH2	53:x:53:ASN:HB3	2.32	0.45
1:1:175:G:H2'	1:1:176:A:C8	2.52	0.45
1:1:935:C:H2'	1:1:936:A:C8	2.50	0.45
1:1:1084:A:H5'	1:1:1085:A:OP2	2.16	0.45
1:1:2035:G:H5''	1:1:2036:C:H5	1.81	0.45
2:2:687:A:N1	2:2:700:G:O2'	2.46	0.45
2:2:709:U:H2'	2:2:710:G:C8	2.52	0.45
2:2:878:A:H5''	42:m:81:PRO:O	2.17	0.45
2:2:980:C:C5	2:2:981:U:H1'	2.51	0.45
2:2:1510:C:H2'	2:2:1511:G:H8	1.82	0.45
4:4:115:C:O2	4:4:129:G:N1	2.49	0.45
4:4:257:U:O2	4:4:258:G:N2	2.49	0.45
10:E:106:ILE:C	10:E:110:ARG:NH1	2.74	0.45
11:F:52:PHE:CZ	11:F:69:ARG:HA	2.52	0.45
13:J:36:LEU:HD11	13:J:121:LYS:HB2	1.98	0.45
16:M:42:THR:HG22	16:M:93:VAL:HG12	1.99	0.45
17:N:50:PRO:HA	17:N:53:THR:HG22	1.97	0.45
41:l:78:ARG:HH11	41:l:87:VAL:HG21	1.80	0.45
51:v:36:LYS:NZ	51:v:37:PHE:O	2.50	0.45
1:1:23:G:H2'	1:1:24:G:C8	2.52	0.45
1:1:78:U:H2'	1:1:79:C:C6	2.51	0.45
1:1:250:G:OP2	34:e:13:ARG:NH1	2.41	0.45
1:1:389:G:N7	1:1:2413:G:H4'	2.32	0.45
1:1:1129:A:O2'	1:1:2515:C:O2	2.32	0.45
1:1:1232:G:C5	1:1:1233:C:C5	3.04	0.45
1:1:1346:G:N2	1:1:1347:A:H1'	2.31	0.45
1:1:1547:C:H2'	1:1:1548:A:C8	2.51	0.45
1:1:2133:G:H21	1:1:2158:A:H61	1.65	0.45
1:1:2447:G:N2	1:1:2450:A:OP2	2.39	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:152:A:N6	2:2:169:C:C2	2.84	0.45
2:2:1021:A:H2'	2:2:1022:A:C8	2.51	0.45
2:2:1109:C:C2	2:2:1110:A:C8	3.05	0.45
2:2:1233:G:H2'	2:2:1234:C:H6	1.82	0.45
4:4:219:G:H2'	4:4:238:A:C2	2.52	0.45
4:4:262:U:O2	4:4:293:G:N1	2.44	0.45
5:5:53:ASP:O	5:5:67:GLY:HA3	2.16	0.45
16:M:76:LYS:NZ	16:M:85:GLY:O	2.48	0.45
21:R:40:MET:HE3	21:R:47:VAL:HG13	1.98	0.45
36:g:177:ASN:ND2	36:g:195:GLY:O	2.48	0.45
41:l:28:ASN:HA	41:l:31:MET:HG2	1.99	0.45
48:s:6:MET:HB2	48:s:63:ARG:HH22	1.81	0.45
52:w:14:THR:HG21	52:w:48:ARG:HD3	1.98	0.45
1:1:45:G:H5'	1:1:46:G:H5'	1.99	0.45
1:1:1588:G:OP2	1:1:1588:G:N2	2.39	0.45
1:1:2021:C:OP1	31:b:9:THR:HG21	2.17	0.45
1:1:2079:U:O2'	27:X:23:ASN:OD1	2.26	0.45
1:1:2420:C:OP2	34:e:32:ILE:HA	2.16	0.45
1:1:2673:G:H2'	1:1:2674:G:C8	2.51	0.45
1:1:2896:C:H2'	1:1:2897:U:H6	1.82	0.45
5:5:58:LEU:HD12	5:5:63:ALA:CB	2.45	0.45
7:B:19:VAL:O	7:B:19:VAL:HG13	2.15	0.45
8:C:27:ILE:CG1	8:C:187:LEU:O	2.62	0.45
18:O:43:ASN:OD1	18:O:44:GLY:N	2.49	0.45
42:m:93:PRO:HG3	42:m:125:ILE:HG12	1.99	0.45
43:n:79:ILE:H	43:n:79:ILE:HG12	1.59	0.45
51:v:48:ASP:OD1	51:v:48:ASP:N	2.50	0.45
1:1:2217:G:H2'	1:1:2218:G:H8	1.82	0.45
2:2:1268:G:N2	2:2:1327:C:H1'	2.31	0.45
2:2:1350:A:OP1	43:n:123:ARG:CD	2.65	0.45
6:A:71:VAL:HA	6:A:77:ARG:O	2.17	0.45
7:B:145:GLU:HG2	7:B:151:GLY:O	2.17	0.45
16:M:36:VAL:HG12	16:M:36:VAL:O	2.17	0.45
40:k:9:MET:HA	40:k:58:HIS:O	2.17	0.45
43:n:92:GLU:OE2	43:n:95:ARG:HD2	2.17	0.45
45:p:47:ALA:HB1	45:p:57:LYS:HB2	1.98	0.45
52:w:33:ILE:HD13	52:w:68:LEU:HD13	1.98	0.45
1:1:926:G:H2'	1:1:927:A:C8	2.51	0.45
1:1:1472:C:H2'	1:1:1473:G:C8	2.49	0.45
1:1:2552:OMU:HM23	1:1:2552:OMU:H1'	1.69	0.45
1:1:2616:C:H2'	1:1:2617:U:C6	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:17:U:H2'	2:2:18:C:H6	1.82	0.45
2:2:229:U:H2'	2:2:230:G:C8	2.52	0.45
2:2:235:C:H2'	2:2:236:A:C8	2.44	0.45
2:2:824:G:O4'	42:m:2:SER:N	2.49	0.45
2:2:865:A:H2'	2:2:866:C:C6	2.51	0.45
2:2:1102:A:H2'	2:2:1103:C:C6	2.51	0.45
3:3:95:U:H2'	3:3:96:G:H8	1.81	0.45
10:E:36:LEU:CD1	10:E:89:VAL:CG1	2.87	0.45
10:E:122:PHE:HD1	10:E:126:GLY:HA2	1.81	0.45
12:G:130:VAL:CG2	12:G:144:VAL:HG11	2.46	0.45
24:U:14:LEU:HD12	24:U:15:THR:CB	2.46	0.45
36:g:55:ALA:HA	36:g:58:ASN:ND2	2.32	0.45
37:h:57:ILE:HD11	37:h:64:ILE:HD11	1.99	0.45
38:i:105:MET:HE1	38:i:143:VAL:HB	1.98	0.45
1:1:276:U:H4'	1:1:277:G:H5'	1.99	0.45
1:1:599:A:H2'	1:1:600:G:C8	2.52	0.45
1:1:733:G:H2'	1:1:734:A:H5''	1.99	0.45
1:1:832:U:H2'	1:1:833:A:H8	1.81	0.45
1:1:987:C:H2'	1:1:988:A:O4'	2.17	0.45
1:1:1007:C:H4'	13:J:110:PRO:HG3	1.98	0.45
1:1:1019:U:O2'	1:1:1021:A:N7	2.45	0.45
1:1:1196:C:C2	1:1:1197:G:C8	3.05	0.45
1:1:1212:G:N2	1:1:1236:G:O2'	2.50	0.45
1:1:2220:U:H2'	1:1:2221:G:H8	1.82	0.45
1:1:2291:U:H2'	1:1:2292:U:C6	2.52	0.45
1:1:2417:C:H2'	1:1:2418:A:C8	2.52	0.45
1:1:2562:U:H4'	14:K:25:LEU:HD22	1.99	0.45
2:2:360:G:H2'	2:2:361:G:C8	2.51	0.45
2:2:460:A:H2'	2:2:461:A:C8	2.52	0.45
2:2:1092:A:N1	2:2:1183:U:C2	2.85	0.45
4:4:177:A:H2'	4:4:178:G:C8	2.52	0.45
12:G:23:ALA:O	12:G:27:ARG:NE	2.50	0.45
12:G:82:SER:HB2	12:G:87:GLU:HG3	1.99	0.45
21:R:1:MET:HA	21:R:43:ASN:HB3	1.99	0.45
37:h:20:SER:HB3	37:h:22:TRP:HZ3	1.73	0.45
37:h:22:TRP:CH2	37:h:36:ASP:OD2	2.70	0.45
37:h:187:SER:H	37:h:198:VAL:HG23	1.81	0.45
40:k:42:TRP:HB2	40:k:59:TYR:HB2	2.00	0.45
1:1:1727:C:H2'	1:1:1728:C:C6	2.52	0.44
1:1:2036:C:H2'	1:1:2037:A:C8	2.52	0.44
2:2:1103:C:H4'	36:g:97:LEU:HB3	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1310:G:H2'	2:2:1311:A:H8	1.82	0.44
7:B:168:ASP:OD1	7:B:168:ASP:N	2.48	0.44
10:E:5:HIS:HB2	10:E:97:TRP:CG	2.52	0.44
36:g:130:THR:HG22	36:g:133:GLU:OE1	2.16	0.44
37:h:24:ALA:N	37:h:29:PHE:CE1	2.84	0.44
38:i:101:VAL:HG21	38:i:137:VAL:HG21	1.99	0.44
44:o:75:ASP:OD1	44:o:75:ASP:N	2.51	0.44
45:p:36:ASP:OD1	45:p:36:ASP:N	2.50	0.44
47:r:27:LYS:HG2	47:r:31:LYS:NZ	2.32	0.44
1:1:117:G:OP2	1:1:119:A:O2'	2.23	0.44
1:1:444:C:H4'	9:D:44:ARG:HD3	1.98	0.44
1:1:1203:U:H3'	1:1:1204:A:H5''	1.98	0.44
1:1:1278:C:H2'	1:1:1279:G:H8	1.82	0.44
1:1:1550:C:H2'	1:1:1551:A:C8	2.52	0.44
1:1:1737:G:H2'	1:1:1738:G:C4	2.52	0.44
1:1:1947:C:H2'	1:1:1948:G:H8	1.82	0.44
1:1:2032:G:N2	1:1:2572:A:OP2	2.50	0.44
1:1:2136:G:C6	1:1:2156:G:H1'	2.52	0.44
1:1:2159:G:O2'	1:1:2160:C:O4'	2.35	0.44
1:1:2229:U:H2'	1:1:2230:G:H8	1.82	0.44
2:2:146:G:H2'	2:2:147:G:H8	1.81	0.44
2:2:401:C:H2'	2:2:402:G:C8	2.53	0.44
8:C:16:THR:OG1	8:C:18:ASP:OD1	2.29	0.44
8:C:68:PHE:CD2	8:C:75:ALA:HA	2.52	0.44
43:n:47:VAL:HG12	43:n:80:ARG:HD3	1.98	0.44
45:p:54:GLY:O	45:p:57:LYS:HG2	2.18	0.44
49:t:36:ILE:O	49:t:40:GLN:HG2	2.17	0.44
1:1:63:A:H2'	1:1:64:A:C8	2.52	0.44
1:1:262:A:N3	1:1:430:A:H1'	2.31	0.44
1:1:533:G:H5'	20:Q:24:TYR:CD1	2.52	0.44
1:1:764:A:O2'	1:1:765:C:H5'	2.17	0.44
1:1:936:A:H2'	1:1:937:C:C6	2.52	0.44
1:1:1672:A:C2	1:1:2582:G:H5'	2.53	0.44
1:1:2075:U:H1'	1:1:2597:G:H21	1.82	0.44
1:1:2851:A:O2'	1:1:2852:G:OP1	2.31	0.44
1:1:2853:C:H2'	1:1:2854:G:C8	2.52	0.44
1:1:2899:A:H2'	1:1:2900:A:C8	2.52	0.44
3:3:76:G:OP1	25:V:9:ARG:NH2	2.39	0.44
4:4:126:C:H1'	4:4:127:C:O5'	2.16	0.44
5:5:26:ILE:HD13	5:5:130:ALA:HB2	1.99	0.44
11:F:26:ILE:HB	11:F:75:MET:HE2	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:T:61:LEU:HD11	23:T:82:LYS:HE2	2.00	0.44
27:X:40:VAL:CG2	27:X:45:ARG:CG	2.96	0.44
39:j:25:VAL:HG22	39:j:26:LYS:H	1.81	0.44
43:n:19:VAL:HG11	43:n:82:GLY:C	2.43	0.44
43:n:35:LEU:HD11	43:n:48:VAL:HG21	1.98	0.44
44:o:12:ALA:HB2	44:o:96:VAL:HG23	1.98	0.44
48:s:98:LYS:HB3	48:s:98:LYS:HE2	1.42	0.44
1:1:725:G:H2'	1:1:726:G:N3	2.32	0.44
1:1:1681:G:H21	1:1:1762:A:H3'	1.82	0.44
1:1:1751:U:H2'	1:1:1752:C:C6	2.52	0.44
1:1:1781:U:H5	33:d:1:MET:HE1	1.83	0.44
1:1:2220:U:H2'	1:1:2221:G:C8	2.52	0.44
1:1:2408:U:H2'	1:1:2409:G:C8	2.52	0.44
1:1:2552:OMU:HM22	1:1:2554:U:H5	1.83	0.44
1:1:2818:U:OP1	17:N:45:ARG:NH2	2.50	0.44
2:2:180:U:H2'	2:2:181:A:C8	2.53	0.44
2:2:285:C:H2'	2:2:286:C:C6	2.51	0.44
2:2:695:A:H2'	2:2:696:A:C8	2.52	0.44
2:2:696:A:H2'	2:2:697:U:C6	2.53	0.44
2:2:1116:U:H3	2:2:1184:G:H1	1.63	0.44
2:2:1402:4OC:O5'	2:2:1402:4OC:H6	2.18	0.44
11:F:45:HIS:CE1	11:F:48:ASN:N	2.85	0.44
12:G:117:LEU:HD11	12:G:120:GLY:N	2.30	0.44
16:M:105:MET:HG2	16:M:117:PHE:CZ	2.52	0.44
37:h:71:ALA:HB2	37:h:109:PRO:HG3	2.00	0.44
43:n:15:SER:OG	43:n:78:ALA:HB2	2.17	0.44
43:n:26:GLY:O	43:n:27:LYS:C	2.60	0.44
54:y:22:ALA:HA	54:y:25:ARG:HG2	1.99	0.44
1:1:305:C:H2'	1:1:306:U:C6	2.51	0.44
1:1:623:C:H2'	1:1:624:C:C6	2.52	0.44
1:1:1683:U:H2'	1:1:1684:G:H8	1.82	0.44
1:1:1998:A:H2'	1:1:1999:C:C6	2.53	0.44
1:1:2756:U:OP2	35:f:19:ARG:NE	2.49	0.44
2:2:743:A:H2'	2:2:744:C:H6	1.82	0.44
2:2:1118:U:H1'	2:2:1179:A:C8	2.53	0.44
2:2:1265:C:H2'	2:2:1266:G:H8	1.80	0.44
4:4:88:U:H5'	5:5:132:GLY:HA3	1.99	0.44
18:O:17:LYS:O	18:O:20:GLU:HG3	2.17	0.44
23:T:28:ASN:O	23:T:29:THR:CG2	2.65	0.44
1:1:18:U:O2'	1:1:554:U:OP1	2.34	0.44
1:1:182:A:HO2'	1:1:433:C:HO2'	1.64	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:523:C:H1'	1:1:554:U:H1'	1.98	0.44
1:1:579:G:H2'	1:1:580:U:C6	2.53	0.44
1:1:675:A:N3	1:1:2443:C:O2'	2.46	0.44
1:1:795:C:C2	1:1:796:C:C5	3.06	0.44
1:1:1562:U:H2'	1:1:1563:U:C6	2.53	0.44
1:1:1726:C:H2'	1:1:1727:C:C4	2.52	0.44
1:1:2836:U:H2'	1:1:2837:A:C8	2.53	0.44
2:2:582:C:H41	2:2:758:C:H2'	1.83	0.44
2:2:735:C:H5''	52:w:61:ARG:HH22	1.82	0.44
2:2:1206:G:C4	2:2:1207:2MG:C8	3.05	0.44
2:2:1437:A:H2'	2:2:1438:G:H8	1.81	0.44
10:E:46:ASP:OD2	10:E:49:LEU:HD13	2.18	0.44
11:F:159:GLY:O	11:F:163:ARG:NH1	2.50	0.44
25:V:51:GLN:HG2	25:V:86:LEU:HD11	2.00	0.44
25:V:75:GLN:HB2	25:V:92:VAL:HG23	1.98	0.44
37:h:126:ARG:O	37:h:127:ARG:HG2	2.18	0.44
44:o:6:ILE:HG13	44:o:76:ILE:CG1	2.47	0.44
1:1:596:U:H2'	1:1:597:G:C8	2.53	0.44
1:1:980:A:N1	1:1:1136:G:H4'	2.32	0.44
1:1:1153:C:H2'	1:1:1154:G:O4'	2.18	0.44
1:1:2039:U:H2'	1:1:2040:G:H8	1.81	0.44
1:1:2050:C:H2'	1:1:2051:A:O4'	2.18	0.44
1:1:2468:A:OP2	1:1:2476:A:N6	2.49	0.44
1:1:2854:G:H2'	1:1:2855:C:H6	1.81	0.44
2:2:514:C:H2'	2:2:515:G:C8	2.52	0.44
2:2:640:A:H1'	42:m:107:SER:HB3	1.98	0.44
2:2:977:A:H1'	2:2:982:U:O4	2.18	0.44
2:2:1123:U:O2'	44:o:39:PRO:O	2.25	0.44
2:2:1157:A:N7	2:2:1180:A:C6	2.86	0.44
2:2:1516:2MG:N2	2:2:1519:MA6:OP2	2.51	0.44
12:G:61:VAL:HG23	12:G:67:ALA:HB2	1.98	0.44
12:G:130:VAL:HG12	12:G:132:PHE:CE1	2.52	0.44
37:h:111:LEU:HD11	37:h:146:ALA:HB2	2.00	0.44
47:r:34:LEU:HG	47:r:39:ILE:HB	1.99	0.44
49:t:82:ILE:CA	49:t:87:LEU:HD23	2.16	0.44
1:1:366:C:H3'	1:1:367:G:N2	2.33	0.44
1:1:464:U:H4'	33:d:12:ARG:HH12	1.82	0.44
1:1:931:U:OP1	29:Z:30:ARG:NH1	2.39	0.44
1:1:1133:A:H4'	1:1:1134:A:H5''	2.00	0.44
1:1:1443:U:H2'	1:1:1444:G:C8	2.53	0.44
1:1:1584:U:H4'	1:1:1585:C:H6	1.83	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:2514:U:H2'	1:1:2515:C:H6	1.82	0.44
1:1:2597:G:H5'	7:B:241:GLY:HA3	1.99	0.44
2:2:268:U:H2'	2:2:269:C:C6	2.53	0.44
2:2:458:U:H2'	2:2:459:A:C8	2.53	0.44
2:2:945:G:H1'	2:2:1337:G:H1'	1.99	0.44
2:2:988:G:N2	2:2:1015:G:H21	2.16	0.44
3:3:83:G:H2'	3:3:84:G:H8	1.83	0.44
4:4:336:G:H21	5:5:76:ALA:HB1	1.82	0.44
11:F:29:LYS:NZ	11:F:80:THR:O	2.37	0.44
23:T:8:LEU:HD23	23:T:50:LEU:HD21	2.00	0.44
1:1:480:A:O2'	24:U:43:LYS:O	2.34	0.44
1:1:587:C:O2'	15:L:19:LEU:CD2	2.66	0.44
1:1:1065:U:OP1	1:1:1075:C:N4	2.49	0.44
1:1:1364:G:N7	27:X:2:SER:N	2.66	0.44
1:1:2843:G:H2'	1:1:2844:G:H8	1.83	0.44
2:2:327:A:O2'	2:2:328:C:O4'	2.35	0.44
2:2:440:C:H2'	2:2:441:A:H8	1.82	0.44
2:2:578:C:O2'	2:2:728:A:N3	2.48	0.44
2:2:640:A:H2'	2:2:641:U:C6	2.53	0.44
2:2:738:C:H2'	2:2:739:C:C6	2.53	0.44
4:4:220:G:C5	4:4:238:A:C6	3.06	0.44
4:4:309:A:H8	4:4:310:G:C2	2.36	0.44
11:F:172:LYS:HG2	11:F:173:GLU:H	1.83	0.44
18:O:62:LEU:HD22	18:O:70:ALA:HA	1.99	0.44
25:V:72:VAL:HB	25:V:91:PHE:HB3	1.99	0.44
28:Y:12:GLU:O	28:Y:16:THR:HG23	2.18	0.44
40:k:60:VAL:HG23	40:k:60:VAL:O	2.18	0.44
41:l:108:ALA:HA	41:l:123:GLU:CD	2.43	0.44
45:p:116:ILE:HD11	55:z:28:VAL:HG23	2.00	0.44
48:s:42:TRP:HZ3	53:x:9:PRO:O	2.01	0.44
51:v:47:HIS:CE1	51:v:67:LEU:HD13	2.42	0.44
53:x:60:VAL:HG12	53:x:62:VAL:HG23	1.99	0.44
1:1:739:A:H1'	1:1:740:C:H5	1.83	0.43
1:1:1366:A:OP1	27:X:2:SER:OG	2.35	0.43
1:1:1794:A:H2'	1:1:1795:C:H6	1.83	0.43
1:1:1843:C:H2'	1:1:1844:C:H6	1.83	0.43
1:1:2630:G:H2'	1:1:2631:G:H8	1.83	0.43
1:1:2840:C:H2'	1:1:2841:C:C6	2.52	0.43
2:2:62:U:H2'	2:2:63:C:C6	2.53	0.43
2:2:106:C:O2'	2:2:379:C:OP1	2.36	0.43
2:2:955:U:H2'	2:2:956:U:C6	2.51	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1204:A:H2'	2:2:1205:U:O4'	2.18	0.43
2:2:1251:A:C2	2:2:1369:C:H1'	2.53	0.43
2:2:1391:U:H2'	2:2:1392:G:C8	2.53	0.43
5:5:127:ILE:HG22	5:5:128:GLY:N	2.32	0.43
28:Y:26:PHE:HA	28:Y:29:ARG:HE	1.82	0.43
37:h:149:ILE:HG13	37:h:202:ILE:HG12	2.00	0.43
38:i:54:GLN:HB3	38:i:203:LEU:HB2	2.00	0.43
40:k:18:VAL:HA	40:k:21:MET:HG2	1.99	0.43
47:r:11:ASP:HA	47:r:45:ILE:HB	2.00	0.43
1:1:220:G:H1	1:1:427:U:H3'	1.83	0.43
1:1:247:G:OP2	1:1:249:C:N4	2.51	0.43
1:1:671:C:H2'	1:1:672:C:H6	1.83	0.43
1:1:714:U:OP2	49:t:88:ARG:NH1	2.38	0.43
1:1:1006:C:H1'	13:J:108:MET:HB3	1.99	0.43
1:1:1022:G:N2	1:1:1142:A:H62	2.16	0.43
1:1:1341:G:H5'	23:T:61:LEU:HB3	2.00	0.43
1:1:2616:C:H2'	1:1:2617:U:H6	1.83	0.43
2:2:429:U:H3'	38:i:9:LEU:HD12	2.00	0.43
12:G:46:PHE:O	12:G:47:PHE:C	2.61	0.43
12:G:79:THR:HA	12:G:144:VAL:CG2	2.48	0.43
16:M:105:MET:SD	16:M:117:PHE:CZ	3.11	0.43
18:O:4:LYS:HA	18:O:7:ARG:HG2	1.98	0.43
20:Q:62:ILE:HG23	20:Q:76:TYR:CZ	2.54	0.43
40:k:4:TYR:CE1	40:k:71:ILE:HG13	2.54	0.43
1:1:18:U:O2'	1:1:19:A:OP1	2.26	0.43
1:1:152:A:N6	1:1:175:G:O6	2.52	0.43
1:1:155:A:H2'	1:1:156:A:C8	2.53	0.43
1:1:858:G:H3'	1:1:859:G:C8	2.53	0.43
1:1:884:U:H3'	1:1:885:C:C6	2.54	0.43
1:1:1268:A:H1'	1:1:2013:A:H61	1.83	0.43
2:2:321:A:H4'	2:2:1436:U:H5'	2.00	0.43
2:2:334:C:H2'	2:2:335:C:H6	1.83	0.43
2:2:921:U:H2'	2:2:922:G:C8	2.53	0.43
2:2:1319:A:O2'	2:2:1323:G:OP2	2.36	0.43
4:4:53:G:H2'	4:4:73:A:H62	1.84	0.43
8:C:11:MET:HE2	8:C:11:MET:HB3	1.89	0.43
8:C:39:ASP:OD1	8:C:40:LEU:N	2.43	0.43
10:E:130:MET:HE3	10:E:130:MET:HB3	1.94	0.43
11:F:45:HIS:CE1	11:F:47:ASP:CA	3.01	0.43
17:N:103:ARG:HG2	17:N:105:GLY:H	1.84	0.43
37:h:64:ILE:HG22	37:h:97:VAL:HG23	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
38:i:113:GLU:OE1	38:i:154:ARG:NH2	2.39	0.43
39:j:114:VAL:HG21	39:j:140:THR:HG21	1.99	0.43
43:n:77:GLY:O	43:n:78:ALA:C	2.61	0.43
1:1:689:A:H2'	1:1:690:G:C8	2.54	0.43
1:1:1127:A:H62	1:1:2488:G:H1'	1.84	0.43
1:1:1188:U:C2	1:1:1189:A:C8	3.06	0.43
1:1:2762:C:H2'	1:1:2763:G:O4'	2.19	0.43
2:2:76:G:H4'	2:2:77:A:H5'	1.99	0.43
2:2:490:C:H2'	2:2:491:G:H8	1.82	0.43
2:2:694:A:N1	2:2:787:A:O2'	2.51	0.43
2:2:1114:C:H1'	48:s:100:SER:HB3	2.00	0.43
9:D:1:MET:O	9:D:13:THR:HA	2.19	0.43
10:E:123:ASP:OD2	10:E:127:ASN:HB2	2.18	0.43
12:G:94:ILE:HG13	12:G:122:LEU:HD21	2.01	0.43
16:M:35:ALA:HA	16:M:128:THR:HG22	2.00	0.43
22:S:29:VAL:HG13	22:S:70:LYS:HA	2.00	0.43
23:T:32:LEU:HD12	23:T:34:VAL:HG13	2.01	0.43
36:g:69:PHE:HD1	36:g:162:PHE:HB3	1.83	0.43
36:g:117:LEU:HD11	36:g:137:ARG:HD2	2.00	0.43
36:g:152:LYS:HG3	36:g:153:ASP:N	2.33	0.43
38:i:124:MET:HE2	38:i:127:GLY:HA2	1.99	0.43
42:m:106:THR:OG1	42:m:107:SER:N	2.51	0.43
43:n:51:PRO:C	43:n:53:GLU:N	2.76	0.43
1:1:418:C:H2'	1:1:419:U:C6	2.54	0.43
1:1:582:A:OP1	20:Q:14:HIS:ND1	2.44	0.43
1:1:711:G:H1	1:1:720:U:H3	1.65	0.43
1:1:812:C:H5''	1:1:1250:G:O2'	2.19	0.43
1:1:1198:U:H2'	1:1:1199:U:C6	2.53	0.43
1:1:2162:G:H4'	1:1:2163:A:H5'	2.00	0.43
1:1:2420:C:H41	34:e:31:HIS:HA	1.82	0.43
2:2:77:A:H2'	2:2:77:A:N3	2.32	0.43
2:2:625:U:H2'	2:2:626:G:H8	1.83	0.43
2:2:626:G:H2'	2:2:627:G:C8	2.54	0.43
2:2:952:U:H2'	2:2:953:G:C8	2.53	0.43
2:2:1238:A:H2'	2:2:1238:A:N3	2.34	0.43
4:4:308:U:H1'	4:4:309:A:OP2	2.18	0.43
10:E:109:PRO:HG3	30:a:37:CYS:HA	2.00	0.43
25:V:31:TYR:CE2	25:V:90:ASP:HB2	2.54	0.43
29:Z:8:THR:HG22	29:Z:56:LYS:O	2.19	0.43
37:h:22:TRP:CZ3	37:h:57:ILE:HG23	2.52	0.43
41:l:107:ALA:O	41:l:111:ARG:HG2	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:o:52:LEU:HB2	48:s:81:ARG:HD2	2.01	0.43
48:s:42:TRP:CH2	53:x:9:PRO:CG	2.81	0.43
52:w:40:VAL:HG21	52:w:45:THR:HG22	1.99	0.43
1:1:46:G:H2'	1:1:47:C:C6	2.53	0.43
1:1:552:U:H2'	1:1:553:G:H8	1.83	0.43
1:1:780:G:H1	7:B:229:ASP:CG	2.27	0.43
1:1:1028:A:H2'	1:1:1029:A:C8	2.53	0.43
1:1:1198:U:H2'	1:1:1199:U:H6	1.84	0.43
1:1:1681:G:OP2	1:1:1757:A:N6	2.51	0.43
2:2:102:G:H2'	2:2:103:U:C6	2.53	0.43
2:2:516:PSU:HN3	2:2:532:A:H2	1.67	0.43
2:2:578:C:H2'	2:2:579:A:C8	2.52	0.43
2:2:601:G:H2'	2:2:602:A:H8	1.81	0.43
2:2:693:G:C8	5:5:149:VAL:HG13	2.52	0.43
2:2:1146:A:H2'	2:2:1147:C:O4'	2.19	0.43
2:2:1238:A:N7	2:2:1301:U:C2	2.86	0.43
2:2:1506:U:O2'	2:2:1507:A:H5'	2.18	0.43
5:5:58:LEU:CD1	5:5:63:ALA:HB2	2.48	0.43
5:5:111:VAL:HG23	5:5:129:VAL:N	2.31	0.43
7:B:120:VAL:HB	12:G:91:PHE:CE1	2.54	0.43
11:F:69:ARG:NH1	11:F:73:ASN:OD1	2.52	0.43
13:J:81:ILE:HD12	13:J:81:ILE:HA	1.91	0.43
14:K:112:PHE:HD1	14:K:115:ILE:HD12	1.84	0.43
22:S:80:PRO:O	22:S:100:THR:OG1	2.25	0.43
30:a:60:PHE:HD2	53:x:67:VAL:HG22	1.84	0.43
1:1:210:C:OP1	33:d:29:GLN:NE2	2.51	0.43
1:1:373:U:H2'	1:1:374:A:C8	2.51	0.43
1:1:587:C:O2'	15:L:19:LEU:HD21	2.19	0.43
1:1:1190:G:H2'	1:1:1191:G:H8	1.83	0.43
1:1:1267:U:H2'	1:1:1268:A:C8	2.51	0.43
1:1:2505:G:O2'	1:1:2506:U:O5'	2.34	0.43
1:1:2733:A:HO2'	1:1:2734:A:C5'	2.32	0.43
1:1:2768:U:O2'	13:J:95:ARG:NH2	2.52	0.43
2:2:138:G:H2'	2:2:139:A:H8	1.84	0.43
2:2:318:G:O2'	2:2:319:G:OP1	2.35	0.43
2:2:336:A:N6	2:2:337:G:O6	2.51	0.43
2:2:381:C:HO2'	2:2:382:A:P	2.42	0.43
2:2:546:A:H4'	2:2:548:G:H4'	2.01	0.43
2:2:1228:C:H2'	2:2:1229:A:C8	2.53	0.43
3:3:78:A:H62	3:3:98:G:H21	1.66	0.43
3:3:112:G:H2'	3:3:113:C:C6	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:E:46:ASP:O	10:E:46:ASP:CG	2.61	0.43
22:S:83:LYS:HB3	22:S:95:ARG:HD2	2.01	0.43
24:U:4:LYS:NZ	24:U:83:VAL:O	2.43	0.43
24:U:38:GLY:H	24:U:62:GLU:HG2	1.82	0.43
28:Y:18:LEU:HB2	28:Y:53:VAL:HG11	2.01	0.43
34:e:6:THR:OG1	34:e:7:VAL:N	2.52	0.43
47:r:65:VAL:H	47:r:68:ASP:HB3	1.83	0.43
1:1:291:G:O6	1:1:349:U:C2	2.71	0.43
1:1:305:C:H2'	1:1:306:U:H6	1.84	0.43
1:1:512:G:H4'	1:1:513:A:O5'	2.19	0.43
1:1:645:C:H2'	1:1:647:G:N7	2.33	0.43
1:1:891:G:H2'	1:1:891:G:N3	2.34	0.43
1:1:899:A:H8	1:1:899:A:OP2	2.02	0.43
1:1:1009:A:O2'	1:1:1010:A:O4'	2.36	0.43
1:1:1072:C:H42	1:1:1097:U:H4'	1.82	0.43
1:1:1207:C:H2'	1:1:1208:C:C6	2.54	0.43
1:1:1833:C:H2'	1:1:1834:U:C6	2.54	0.43
1:1:2071:A:H2'	1:1:2072:C:H6	1.84	0.43
1:1:2368:C:H2'	1:1:2369:A:H8	1.84	0.43
1:1:2446:G:N2	1:1:2449:U:O2	2.46	0.43
1:1:2812:G:H2'	1:1:2813:A:H8	1.84	0.43
2:2:41:G:H2'	2:2:42:G:H8	1.84	0.43
2:2:143:A:H2	2:2:220:G:H1	1.66	0.43
2:2:227:G:H2'	2:2:228:A:C8	2.54	0.43
2:2:664:G:H22	2:2:741:G:H1	1.66	0.43
2:2:676:A:H2'	2:2:677:U:H6	1.82	0.43
2:2:713:G:P	7:B:175:ARG:HH22	2.41	0.43
2:2:824:G:H2'	2:2:825:A:H8	1.82	0.43
2:2:1305:G:H1	2:2:1331:G:HO2'	1.43	0.43
14:K:47:ILE:HG22	14:K:49:ARG:H	1.84	0.43
15:L:34:GLY:O	15:L:35:HIS:ND1	2.52	0.43
23:T:38:ALA:O	23:T:81:LYS:NZ	2.40	0.43
36:g:70:VAL:HG11	36:g:96:TRP:CE3	2.53	0.43
39:j:89:HIS:CG	39:j:90:THR:H	2.36	0.43
43:n:24:GLY:H	43:n:61:LEU:HA	1.84	0.43
48:s:93:ILE:O	48:s:95:GLY:N	2.52	0.43
1:1:244:A:H2'	1:1:245:G:O4'	2.18	0.43
1:1:272:A:H2'	1:1:273:G:H8	1.83	0.43
1:1:1065:U:HO2'	1:1:1066:U:P	2.41	0.43
1:1:1433:A:N6	1:1:1560:G:N1	2.30	0.43
1:1:2392:A:OP2	34:e:31:HIS:NE2	2.48	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:625:U:H2'	2:2:626:G:C8	2.54	0.43
2:2:1163:A:H2'	2:2:1164:G:H8	1.84	0.43
4:4:144:U:O4	4:4:175:A:N6	2.52	0.43
4:4:213:G:N1	4:4:245:C:H2'	2.34	0.43
8:C:179:ARG:HB3	8:C:188:LEU:HD12	2.00	0.43
11:F:86:LYS:HB3	11:F:86:LYS:HE2	1.91	0.43
13:J:17:VAL:HG23	13:J:139:VAL:HA	1.99	0.43
46:q:111:LYS:HD2	46:q:122:PRO:HG3	2.00	0.43
47:r:72:GLU:O	47:r:75:MET:HG3	2.19	0.43
50:u:46:LYS:HE3	50:u:46:LYS:HB3	1.87	0.43
1:1:680:C:H2'	1:1:681:G:C8	2.53	0.43
1:1:749:A:H5'	1:1:1271:G:H1'	2.01	0.43
1:1:808:G:H2'	1:1:809:G:H8	1.84	0.43
1:1:1000:A:H2'	1:1:1001:A:C8	2.54	0.43
1:1:1476:U:H2'	1:1:1477:A:C8	2.53	0.43
2:2:160:A:N6	2:2:346:G:O6	2.51	0.43
2:2:723:U:O4	55:z:56:HIS:CE1	2.66	0.43
2:2:792:A:O2'	2:2:794:A:N7	2.49	0.43
2:2:1527:U:H2'	2:2:1528:U:C6	2.53	0.43
5:5:62:GLU:HB3	5:5:64:PHE:CZ	2.54	0.43
5:5:107:GLU:HG2	5:5:131:LYS:HZ1	1.78	0.43
8:C:5:VAL:CG1	8:C:32:ASN:ND2	2.82	0.43
39:j:15:LEU:HD12	39:j:15:LEU:O	2.18	0.43
43:n:79:ILE:HG22	43:n:83:ILE:HD11	2.01	0.43
46:q:56:ARG:HA	46:q:62:GLU:HA	2.01	0.43
1:1:335:C:H2'	1:1:336:C:H6	1.84	0.42
1:1:532:A:H4'	1:1:533:G:C8	2.54	0.42
1:1:542:C:H2'	1:1:543:G:C8	2.54	0.42
1:1:554:U:H2'	1:1:555:G:O4'	2.19	0.42
1:1:565:C:H2'	1:1:566:U:C6	2.54	0.42
1:1:680:C:H2'	1:1:681:G:H8	1.84	0.42
1:1:1689:A:H2'	1:1:1690:A:C8	2.53	0.42
1:1:2061:G:H2'	1:1:2501:C:O2'	2.18	0.42
1:1:2333:A:P	6:A:77:ARG:HH22	2.42	0.42
1:1:2802:G:H2'	1:1:2803:G:H8	1.83	0.42
2:2:204:G:H1'	2:2:465:A:N1	2.34	0.42
2:2:509:A:H5'	38:i:52:GLY:HA2	2.00	0.42
2:2:562:U:H5'	2:2:563:A:C5	2.53	0.42
2:2:677:U:O2	2:2:777:A:O2'	2.36	0.42
2:2:806:C:H2'	2:2:807:A:C8	2.53	0.42
3:3:106:G:H2'	3:3:107:G:O4'	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:E:156:ILE:O	10:E:158:THR:HG23	2.19	0.42
11:F:33:LEU:HD12	11:F:75:MET:HG3	2.01	0.42
15:L:18:ARG:NH2	15:L:21:ARG:HG2	2.33	0.42
20:Q:28:ARG:HA	20:Q:34:VAL:HG23	2.01	0.42
36:g:220:THR:O	36:g:223:GLU:HB3	2.19	0.42
37:h:110:GLU:HB2	37:h:144:LEU:HD22	2.00	0.42
39:j:15:LEU:HD22	39:j:60:ILE:HG22	2.00	0.42
44:o:48:ARG:NE	48:s:101:TRP:CZ2	2.87	0.42
48:s:96:LEU:HD12	48:s:96:LEU:HA	1.73	0.42
50:u:19:VAL:O	50:u:36:VAL:N	2.50	0.42
1:1:57:C:H2'	1:1:58:G:C8	2.54	0.42
1:1:769:U:H2'	1:1:770:G:H8	1.83	0.42
1:1:1218:G:C2	1:1:1232:G:C5	3.08	0.42
1:1:1301:A:H62	1:1:1641:A:H61	1.66	0.42
1:1:1427:A:N6	1:1:1571:A:OP2	2.42	0.42
1:1:1576:U:H2'	1:1:1577:C:C6	2.54	0.42
1:1:2699:C:H2'	1:1:2700:A:H8	1.83	0.42
2:2:386:C:H2'	2:2:387:U:C6	2.54	0.42
2:2:750:C:H2'	2:2:751:U:C5	2.54	0.42
2:2:1098:C:H2'	2:2:1099:G:H8	1.83	0.42
2:2:1107:C:H3'	2:2:1108:G:H5''	2.01	0.42
4:4:45:A:H1'	4:4:312:A:N3	2.33	0.42
4:4:111:U:H2'	4:4:112:U:H6	1.84	0.42
4:4:263:G:N3	4:4:263:G:H2'	2.34	0.42
5:5:97:LEU:HD21	5:5:101:TYR:OH	2.20	0.42
6:A:31:VAL:CG1	6:A:35:SER:HB2	2.48	0.42
7:B:8:PRO:HB3	7:B:14:ARG:HG3	2.00	0.42
18:O:99:TYR:CZ	18:O:104:GLN:HG2	2.53	0.42
24:U:6:ARG:CG	24:U:94:ARG:CZ	2.96	0.42
28:Y:14:LEU:HD23	28:Y:14:LEU:HA	1.90	0.42
45:p:109:ASN:OD1	45:p:110:ILE:N	2.52	0.42
1:1:126:A:H61	33:d:42:LEU:HB3	1.84	0.42
1:1:206:U:H2'	1:1:207:A:H8	1.84	0.42
1:1:243:U:OP2	34:e:8:ARG:NH1	2.53	0.42
1:1:713:G:OP2	49:t:89:ARG:NH1	2.52	0.42
1:1:833:A:H1'	15:L:51:GLU:HB3	2.02	0.42
1:1:1386:C:O2'	1:1:1387:A:OP1	2.37	0.42
1:1:1474:U:H2'	1:1:1475:G:O4'	2.19	0.42
1:1:2056:G:H2'	1:1:2057:G:H8	1.84	0.42
1:1:2292:U:H2'	1:1:2293:G:C8	2.54	0.42
1:1:2292:U:H2'	1:1:2293:G:H8	1.84	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:2806:C:H2'	1:1:2807:U:O4'	2.19	0.42
2:2:697:U:O2'	2:2:785:G:O2'	2.33	0.42
2:2:736:C:H2'	2:2:737:C:C6	2.55	0.42
2:2:1039:G:H2'	2:2:1040:U:C6	2.54	0.42
2:2:1225:A:HO2'	2:2:1226:C:C5'	2.32	0.42
2:2:1259:C:O2'	2:2:1283:U:O2	2.30	0.42
4:4:29:G:C5	4:4:30:C:H1'	2.55	0.42
6:A:23:VAL:HG22	6:A:38:VAL:HG22	2.00	0.42
12:G:4:ILE:HG21	12:G:37:VAL:HB	1.90	0.42
15:L:60:ARG:HG3	15:L:61:LEU:HD13	2.00	0.42
17:N:29:VAL:HG13	17:N:75:ILE:HD12	2.01	0.42
23:T:10:VAL:HG11	23:T:43:ILE:HG22	2.00	0.42
30:a:56:ARG:CZ	30:a:57:VAL:O	2.67	0.42
31:b:31:ASP:HB3	31:b:34:SER:HB3	2.00	0.42
36:g:20:THR:HA	36:g:39:HIS:CD2	2.54	0.42
37:h:151:VAL:HA	37:h:199:LYS:O	2.19	0.42
40:k:9:MET:HE2	40:k:86:ARG:HB3	2.01	0.42
1:1:537:G:H21	1:1:556:A:N6	2.07	0.42
1:1:541:A:H2'	1:1:542:C:C6	2.55	0.42
1:1:1028:A:H61	1:1:1125:G:H2'	1.84	0.42
1:1:1052:C:H2'	1:1:1053:C:C6	2.53	0.42
1:1:2286:G:H21	1:1:2287:A:H61	1.65	0.42
1:1:2420:C:OP1	34:e:34:THR:OG1	2.30	0.42
1:1:2781:A:H5''	1:1:2782:G:H5'	2.00	0.42
1:1:2831:G:H1'	1:1:2883:A:H2'	2.02	0.42
1:1:2884:U:O2	1:1:2884:U:H2'	2.19	0.42
2:2:182:A:N1	2:2:223:A:O2'	2.52	0.42
2:2:516:PSU:H6	2:2:516:PSU:H2'	1.65	0.42
2:2:958:A:N3	2:2:985:C:O2'	2.45	0.42
2:2:1282:C:H2'	2:2:1283:U:C6	2.54	0.42
4:4:36:C:H2'	4:4:318:G:H22	1.85	0.42
4:4:219:G:C2	4:4:240:U:H5''	2.55	0.42
5:5:38:GLY:C	5:5:39:TRP:CG	2.98	0.42
5:5:107:GLU:HG3	5:5:131:LYS:HZ1	1.77	0.42
9:D:152:GLU:HG3	9:D:153:LEU:H	1.84	0.42
15:L:57:LEU:HA	15:L:60:ARG:HE	1.84	0.42
37:h:22:TRP:CD1	37:h:59:ARG:HD2	2.55	0.42
48:s:36:ALA:HB3	48:s:41:ARG:HD3	2.02	0.42
48:s:81:ARG:HA	48:s:84:VAL:HG12	2.01	0.42
49:t:53:ARG:HG2	49:t:57:LEU:HD23	2.01	0.42
51:v:45:HIS:O	51:v:71:LYS:HA	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:644:A:N6	1:1:2369:A:H1'	2.34	0.42
1:1:742:A:H2'	1:1:743:A:C8	2.54	0.42
1:1:754:U:H2'	1:1:755:U:H6	1.84	0.42
1:1:1022:G:O2'	1:1:1024:G:O6	2.27	0.42
1:1:1143:A:N6	13:J:26:GLY:O	2.53	0.42
1:1:1259:G:H2'	1:1:1260:A:C8	2.54	0.42
1:1:1298:C:H2'	1:1:1299:G:O4'	2.20	0.42
1:1:1676:A:H2'	1:1:1677:A:O4'	2.19	0.42
1:1:2066:C:N4	1:1:2067:G:O6	2.53	0.42
1:1:2506:U:C6	26:W:1:PHE:HB3	2.55	0.42
1:1:2856:A:H2'	1:1:2857:G:C8	2.55	0.42
1:1:2896:C:H2'	1:1:2897:U:C6	2.54	0.42
2:2:383:A:H3'	2:2:384:G:H8	1.85	0.42
2:2:469:C:H2'	2:2:470:C:H6	1.84	0.42
2:2:590:U:H2'	2:2:591:U:C6	2.53	0.42
2:2:1151:A:O2'	2:2:1152:A:H8	2.00	0.42
4:4:7:G:H2'	4:4:336:G:N7	2.34	0.42
6:A:27:GLY:HA2	6:A:67:VAL:HG23	2.02	0.42
7:B:240:PHE:CZ	7:B:242:LYS:C	2.78	0.42
12:G:121:VAL:HG12	12:G:123:ARG:HD3	2.01	0.42
14:K:40:LYS:HD2	14:K:57:VAL:HG12	2.02	0.42
17:N:35:LYS:HB2	17:N:112:TYR:CE1	2.55	0.42
35:f:18:LYS:N	35:f:23:ILE:CD1	2.83	0.42
37:h:187:SER:C	37:h:198:VAL:CG2	2.90	0.42
43:n:87:LEU:HD13	43:n:87:LEU:HA	1.85	0.42
1:1:851:C:H2'	1:1:852:U:H6	1.85	0.42
1:1:1447:C:N4	1:1:1448:G:O6	2.52	0.42
1:1:1862:G:C6	1:1:1881:C:C4	3.08	0.42
1:1:2231:U:H2'	1:1:2232:C:C6	2.54	0.42
1:1:2709:G:H2'	1:1:2710:C:C6	2.55	0.42
2:2:868:C:H2'	2:2:869:G:O4'	2.19	0.42
2:2:1350:A:OP1	43:n:123:ARG:HD2	2.20	0.42
2:2:1476:A:H2'	2:2:1477:U:C6	2.54	0.42
4:4:204:G:O2'	4:4:205:G:P	2.77	0.42
4:4:309:A:N3	4:4:309:A:H2'	2.35	0.42
12:G:46:PHE:CE1	12:G:50:ARG:NH1	2.88	0.42
12:G:83:LYS:HG3	12:G:84:ALA:H	1.84	0.42
14:K:22:ILE:HG12	14:K:40:LYS:O	2.19	0.42
34:e:41:LYS:HE3	34:e:41:LYS:HB2	1.86	0.42
43:n:82:GLY:O	43:n:83:ILE:C	2.61	0.42
43:n:91:ASP:C	43:n:93:SER:H	2.28	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
47:r:49:SER:HB3	47:r:52:GLN:HB2	2.01	0.42
50:u:19:VAL:HB	50:u:36:VAL:HG23	2.00	0.42
53:x:62:VAL:HG13	53:x:66:MET:CG	2.49	0.42
1:1:191:A:H2'	1:1:192:C:C6	2.55	0.42
1:1:213:A:H2'	1:1:214:G:C8	2.54	0.42
1:1:360:U:H2'	1:1:361:G:C8	2.54	0.42
1:1:717:C:H3'	1:1:718:A:H8	1.84	0.42
1:1:1057:A:N6	1:1:1086:A:O2'	2.52	0.42
1:1:1386:C:HO2'	1:1:1469:A:HO2'	1.65	0.42
1:1:1575:C:H2'	1:1:1576:U:C6	2.55	0.42
1:1:2009:A:OP1	22:S:41:LYS:NZ	2.31	0.42
2:2:299:G:N2	2:2:565:U:O2	2.53	0.42
2:2:1330:U:H3'	2:2:1331:G:H8	1.85	0.42
4:4:140:U:H2'	4:4:141:C:C6	2.54	0.42
4:4:304:C:H2'	4:4:305:A:H4'	2.02	0.42
13:J:31:GLU:HA	13:J:34:ARG:HG2	2.01	0.42
27:X:7:VAL:HG21	27:X:59:ILE:HD11	2.01	0.42
51:v:25:ILE:HD11	51:v:61:ILE:HD11	2.02	0.42
53:x:32:ARG:CD	53:x:34:TRP:HH2	2.27	0.42
1:1:76:C:H2'	1:1:77:G:H8	1.84	0.42
1:1:347:A:H2'	1:1:348:A:C8	2.55	0.42
1:1:674:G:H1'	9:D:69:ARG:HD3	2.01	0.42
1:1:1112:G:H2'	1:1:1113:U:C6	2.55	0.42
1:1:1151:A:HO2'	1:1:1152:C:H6	1.68	0.42
1:1:1222:U:P	21:R:90:ARG:HH12	2.43	0.42
1:1:1464:G:H2'	1:1:1465:G:H8	1.85	0.42
1:1:2063:C:H1'	26:W:2:ALA:HA	2.02	0.42
1:1:2092:U:OP1	1:1:2199:A:O2'	2.29	0.42
1:1:2152:G:H2'	1:1:2153:C:O4'	2.20	0.42
1:1:2364:C:H2'	1:1:2365:G:O4'	2.20	0.42
2:2:256:U:H2'	2:2:257:G:C8	2.54	0.42
2:2:308:C:H2'	2:2:309:A:C8	2.55	0.42
2:2:701:U:OP1	2:2:702:A:O2'	2.32	0.42
2:2:923:A:H2'	2:2:924:C:C6	2.54	0.42
2:2:1434:A:H2'	2:2:1435:G:O4'	2.20	0.42
3:3:118:C:H2'	3:3:119:A:H8	1.83	0.42
4:4:9:U:H5'	4:4:335:C:N4	2.34	0.42
7:B:221:ARG:O	7:B:225:MET:HG3	2.19	0.42
8:C:7:LYS:O	8:C:28:GLU:N	2.51	0.42
22:S:73:LYS:HB2	22:S:106:VAL:HB	2.02	0.42
24:U:6:ARG:CG	24:U:94:ARG:NH2	2.60	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:h:185:ASN:OD1	37:h:186:THR:N	2.46	0.42
1:1:306:U:H2'	1:1:307:G:O4'	2.19	0.42
1:1:335:C:H2'	1:1:336:C:C6	2.55	0.42
1:1:501:A:HO2'	1:1:502:A:P	2.40	0.42
1:1:714:U:H1'	1:1:717:C:H5	1.84	0.42
1:1:1664:A:H61	1:1:1996:C:H42	1.67	0.42
1:1:1940:U:H1'	1:1:1942:C:H41	1.85	0.42
1:1:1946:U:H2'	1:1:1947:C:C6	2.54	0.42
1:1:1947:C:H2'	1:1:1948:G:C8	2.55	0.42
2:2:370:C:H2'	2:2:371:A:C8	2.55	0.42
2:2:590:U:H2'	2:2:591:U:H6	1.85	0.42
2:2:663:A:N6	2:2:742:G:H1	2.18	0.42
4:4:38:A:N6	4:4:312:A:OP1	2.52	0.42
8:C:54:ALA:C	8:C:55:LYS:CG	2.91	0.42
11:F:105:LEU:HD13	11:F:107:LEU:CG	2.45	0.42
11:F:137:ASP:HB3	11:F:140:VAL:HB	2.02	0.42
14:K:24:VAL:HG12	14:K:30:ARG:HD3	2.00	0.42
21:R:55:ASP:OD1	21:R:55:ASP:N	2.47	0.42
35:f:25:VAL:O	35:f:25:VAL:HG13	2.19	0.42
41:l:111:ARG:CG	41:l:123:GLU:CD	2.81	0.42
1:1:428:A:O2'	1:1:429:A:OP1	2.28	0.42
1:1:906:U:HO2'	16:M:66:ARG:NE	2.18	0.42
1:1:1222:U:H2'	1:1:1223:G:C8	2.55	0.42
1:1:1675:C:H2'	1:1:1676:A:O4'	2.20	0.42
1:1:1916:A:N6	2:2:1408:A:HO2'	2.12	0.42
1:1:1953:A:H4'	1:1:2559:C:O2'	2.20	0.42
1:1:2081:U:H2'	1:1:2082:A:C8	2.51	0.42
1:1:2120:G:N2	1:1:2125:G:O2'	2.53	0.42
2:2:488:C:H2'	2:2:489:C:C6	2.55	0.42
2:2:600:A:H5'	42:m:121:LEU:HA	2.02	0.42
2:2:946:A:H2'	2:2:947:G:H21	1.85	0.42
2:2:1071:C:H2'	2:2:1072:G:C8	2.52	0.42
2:2:1092:A:N1	2:2:1183:U:N3	2.68	0.42
2:2:1250:A:H2'	2:2:1251:A:H8	1.80	0.42
4:4:23:G:N2	4:4:331:C:O2	2.53	0.42
7:B:155:ALA:HB2	7:B:162:VAL:HG23	2.02	0.42
11:F:133:LEU:HD12	11:F:133:LEU:O	2.20	0.42
12:G:95:GLY:C	12:G:122:LEU:HD22	2.42	0.42
22:S:74:ILE:CD1	22:S:105:VAL:HG23	2.44	0.42
23:T:2:ILE:HD12	23:T:42:GLU:HG2	2.02	0.42
28:Y:32:ALA:HB2	28:Y:37:LEU:HD23	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:e:33:LEU:HB3	34:e:41:LYS:HE2	2.01	0.42
50:u:19:VAL:CG1	50:u:36:VAL:HG23	2.50	0.42
1:1:289:G:H2'	1:1:290:U:O4'	2.20	0.41
1:1:363:G:C5	1:1:364:C:C4	3.08	0.41
1:1:732:C:H2'	1:1:733:G:O4'	2.20	0.41
1:1:1336:A:H2'	1:1:1337:G:H8	1.85	0.41
1:1:1353:A:H2'	1:1:1354:A:C8	2.55	0.41
1:1:1561:C:H2'	1:1:1562:U:C6	2.55	0.41
1:1:1593:A:H2'	1:1:1594:U:C6	2.55	0.41
1:1:1771:C:H2'	1:1:1772:A:C8	2.55	0.41
1:1:2128:G:N2	1:1:2175:C:OP1	2.53	0.41
1:1:2373:G:H2'	1:1:2374:C:C6	2.55	0.41
1:1:2637:U:H3'	1:1:2638:G:C8	2.54	0.41
1:1:2848:G:H1'	1:1:2868:A:N6	2.34	0.41
2:2:323:U:H2'	2:2:324:G:O4'	2.20	0.41
2:2:520:A:H61	2:2:529:G:H1'	1.85	0.41
2:2:1162:C:O2	2:2:1175:G:N2	2.52	0.41
14:K:34:GLY:N	14:K:37:ASP:OD2	2.52	0.41
16:M:61:GLY:HA3	16:M:106:ASP:O	2.19	0.41
36:g:108:ARG:CG	36:g:111:ILE:HD11	2.50	0.41
41:l:79:ARG:HH11	41:l:83:SER:HB3	1.83	0.41
42:m:7:ILE:O	42:m:11:LEU:HG	2.20	0.41
43:n:79:ILE:O	43:n:80:ARG:C	2.62	0.41
44:o:6:ILE:HA	44:o:101:SER:O	2.20	0.41
48:s:23:LYS:O	48:s:26:GLU:HG3	2.20	0.41
48:s:42:TRP:CZ3	53:x:9:PRO:N	2.70	0.41
1:1:523:C:H2'	1:1:524:G:C8	2.55	0.41
1:1:868:U:C2	1:1:869:G:C8	3.09	0.41
1:1:874:G:H2'	1:1:875:G:H8	1.83	0.41
1:1:1566:A:O4'	7:B:213:TRP:HB3	2.20	0.41
1:1:1585:C:H2'	1:1:1586:A:O4'	2.21	0.41
1:1:1665:A:H2'	1:1:1666:G:C8	2.53	0.41
1:1:2012:G:OP1	22:S:11:ARG:NH2	2.44	0.41
1:1:2230:G:H2'	1:1:2231:U:C6	2.55	0.41
1:1:2316:G:C2	1:1:2317:A:N7	2.88	0.41
1:1:2444:G:H2'	1:1:2445:2MG:O4'	2.21	0.41
1:1:2827:C:C4	1:1:2828:G:N2	2.89	0.41
1:1:2841:C:H2'	1:1:2842:G:H8	1.83	0.41
2:2:470:C:H2'	2:2:471:U:H6	1.85	0.41
2:2:705:G:H21	45:p:31:ILE:HG21	1.83	0.41
2:2:1237:C:H3'	2:2:1238:A:O4'	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:D:157:LEU:HG	9:D:169:VAL:HG21	2.01	0.41
10:E:72:LYS:HA	10:E:72:LYS:HD3	1.88	0.41
21:R:4:VAL:HG22	21:R:13:ARG:HB2	2.01	0.41
23:T:51:PHE:HB3	23:T:93:LEU:HD21	2.02	0.41
53:x:18:LYS:HB3	53:x:31:LEU:HD11	2.02	0.41
53:x:60:VAL:HG12	53:x:62:VAL:CG2	2.51	0.41
1:1:283:G:H2'	1:1:284:U:H6	1.85	0.41
1:1:666:A:H2'	1:1:667:U:C6	2.54	0.41
1:1:729:G:P	7:B:13:ARG:HG2	2.61	0.41
1:1:1218:G:N1	1:1:1232:G:N7	2.68	0.41
1:1:1564:C:H2'	1:1:1565:C:C6	2.55	0.41
1:1:1570:A:H2'	1:1:1571:A:C8	2.55	0.41
1:1:2127:G:H1'	1:1:2173:A:C2	2.56	0.41
2:2:393:A:C2	2:2:394:G:C8	3.08	0.41
2:2:1120:C:H2'	2:2:1121:U:C6	2.55	0.41
2:2:1163:A:H2'	2:2:1164:G:C8	2.54	0.41
2:2:1412:C:H2'	2:2:1413:A:C8	2.55	0.41
4:4:297:G:O6	4:4:308:U:O2'	2.35	0.41
4:4:334:A:C8	5:5:41:VAL:HG11	2.55	0.41
4:4:348:C:O2'	4:4:349:C:P	2.78	0.41
8:C:189:VAL:HG23	8:C:191:GLY:H	1.84	0.41
10:E:41:GLY:HA2	10:E:85:ILE:HG23	2.02	0.41
46:q:29:GLN:HB3	46:q:81:LEU:HG	2.02	0.41
1:1:287:G:H2'	1:1:288:U:C6	2.55	0.41
1:1:303:G:H2'	1:1:304:U:C6	2.55	0.41
1:1:418:C:H2'	1:1:419:U:H6	1.84	0.41
1:1:487:C:H2'	1:1:488:G:O4'	2.19	0.41
1:1:1419:A:O2'	1:1:1421:G:N7	2.52	0.41
1:1:1809:A:H2'	1:1:1810:A:C8	2.55	0.41
1:1:1923:U:HO2'	1:1:1924:C:H6	1.67	0.41
1:1:2391:G:C6	1:1:2427:C:H1'	2.55	0.41
1:1:2742:G:N2	1:1:2763:G:H1'	2.35	0.41
1:1:2840:C:H2'	1:1:2841:C:H6	1.85	0.41
2:2:67:C:H2'	2:2:68:G:C8	2.55	0.41
2:2:75:A:H3'	2:2:76:G:H5''	2.02	0.41
2:2:560:A:H4'	2:2:561:U:H5''	2.01	0.41
2:2:1456:A:H2'	2:2:1457:G:O4'	2.20	0.41
2:2:1525:G:C2	2:2:1526:G:C5	3.08	0.41
8:C:29:VAL:HG13	8:C:98:VAL:HG21	2.01	0.41
8:C:29:VAL:HG11	8:C:98:VAL:HG11	2.02	0.41
36:g:27:MET:O	36:g:27:MET:HG2	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
43:n:25:ASN:O	43:n:27:LYS:HB2	2.21	0.41
43:n:78:ALA:O	43:n:79:ILE:C	2.63	0.41
47:r:4:ILE:HD12	47:r:19:LEU:HD21	2.01	0.41
1:1:324:A:N6	1:1:338:G:O2'	2.53	0.41
1:1:775:G:C5	1:1:794:A:C8	3.09	0.41
1:1:817:C:H2'	1:1:818:G:O4'	2.20	0.41
1:1:1528:A:H3'	1:1:1529:G:C8	2.54	0.41
1:1:1812:U:H2'	1:1:1813:G:C8	2.56	0.41
2:2:482:A:H2'	2:2:483:C:O4'	2.20	0.41
4:4:120:U:H4'	36:g:157:LEU:HD23	2.01	0.41
4:4:336:G:N2	5:5:76:ALA:HB1	2.35	0.41
11:F:105:LEU:HD12	11:F:105:LEU:O	2.21	0.41
12:G:82:SER:OG	12:G:147:VAL:O	2.38	0.41
12:G:98:ASP:C	12:G:100:ALA:N	2.77	0.41
15:L:63:LYS:HB3	34:e:13:ARG:HE	1.85	0.41
32:c:40:ASP:O	32:c:44:ARG:N	2.51	0.41
37:h:151:VAL:HG23	37:h:200:VAL:HG23	2.00	0.41
54:y:54:MET:HE3	54:y:54:MET:HB3	1.87	0.41
1:1:304:U:H2'	1:1:305:C:C6	2.55	0.41
1:1:392:U:H2'	1:1:393:C:C6	2.56	0.41
1:1:573:U:O4	1:1:2029:G:O2'	2.27	0.41
1:1:2591:C:H2'	1:1:2592:G:C8	2.56	0.41
2:2:328:C:H4'	2:2:329:A:H5'	2.03	0.41
2:2:452:A:H2'	2:2:453:G:O4'	2.20	0.41
22:S:25:ARG:NH1	22:S:74:ILE:O	2.53	0.41
36:g:135:LEU:CD1	36:g:139:ARG:NH2	2.79	0.41
42:m:121:LEU:C	42:m:121:LEU:HD12	2.45	0.41
43:n:80:ARG:HE	43:n:80:ARG:HB3	1.65	0.41
44:o:10:LEU:HD23	44:o:98:VAL:HG12	2.01	0.41
1:1:5:A:O2'	1:1:6:A:OP1	2.32	0.41
1:1:238:C:H1'	1:1:608:A:H2	1.86	0.41
1:1:954:G:H5''	16:M:13:HIS:HB3	2.03	0.41
1:1:1082:U:H2'	1:1:1083:U:H4'	2.03	0.41
1:1:1669:A:O3'	1:1:2549:G:H5'	2.20	0.41
2:2:83:C:H1'	2:2:87:C:H42	1.86	0.41
2:2:945:G:N2	2:2:1334:G:O2'	2.53	0.41
2:2:1050:G:H2'	2:2:1051:C:C6	2.55	0.41
12:G:117:LEU:C	12:G:117:LEU:HD12	2.45	0.41
12:G:135:HIS:CG	12:G:136:SER:H	2.39	0.41
18:O:49:VAL:HG12	18:O:78:VAL:HG23	2.02	0.41
37:h:8:ASN:O	37:h:12:LEU:HG	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
41:l:17:LYS:HE3	41:l:44:TYR:CD2	2.56	0.41
43:n:33:ARG:HG3	43:n:38:TYR:HD1	1.85	0.41
47:r:19:LEU:HD11	47:r:56:LEU:HD13	2.03	0.41
50:u:34:GLU:OE1	50:u:56:ARG:NH1	2.47	0.41
53:x:32:ARG:HG3	53:x:34:TRP:CZ3	2.55	0.41
1:1:241:A:N6	1:1:255:A:H5''	2.35	0.41
1:1:682:G:H5'	33:d:26:ASN:CG	2.46	0.41
1:1:719:C:H2'	1:1:720:U:C6	2.56	0.41
1:1:873:C:H2'	1:1:874:G:C8	2.55	0.41
1:1:2305:U:H2'	1:1:2306:C:C6	2.56	0.41
1:1:2376:A:H2'	1:1:2377:A:O4'	2.21	0.41
1:1:2398:U:H2'	1:1:2399:G:H8	1.86	0.41
1:1:2504:PSU:H6	1:1:2504:PSU:H2'	1.63	0.41
2:2:217:C:H2'	2:2:218:U:C6	2.56	0.41
2:2:777:A:H2'	2:2:778:G:C8	2.55	0.41
2:2:836:G:H2'	2:2:837:U:C6	2.56	0.41
2:2:1016:A:H2'	2:2:1017:U:H5'	2.03	0.41
12:G:46:PHE:HA	12:G:49:ALA:CB	2.44	0.41
1:1:297:G:H2'	1:1:298:G:O4'	2.21	0.41
1:1:301:G:H5''	1:1:334:C:H2'	2.03	0.41
1:1:345:A:N3	1:1:347:A:N6	2.69	0.41
1:1:406:G:H2'	1:1:407:G:C8	2.56	0.41
1:1:419:U:H2'	1:1:420:C:H6	1.83	0.41
1:1:611:C:H2'	1:1:612:G:O4'	2.20	0.41
1:1:777:G:H2'	1:1:778:G:H8	1.85	0.41
1:1:781:A:O2'	1:1:1788:C:O2	2.35	0.41
1:1:828:U:H2'	1:1:829:A:C8	2.56	0.41
1:1:852:U:H2'	1:1:853:C:C6	2.56	0.41
1:1:986:C:H2'	1:1:987:C:C6	2.56	0.41
1:1:1187:G:H5'	21:R:83:TYR:CE1	2.56	0.41
1:1:1207:C:H2'	1:1:1208:C:H6	1.86	0.41
1:1:1435:G:H2'	1:1:1436:G:H8	1.84	0.41
1:1:1438:U:H2'	1:1:1439:A:C8	2.56	0.41
1:1:1571:A:H2'	1:1:1572:A:C8	2.56	0.41
1:1:1688:U:O2'	1:1:1700:A:N7	2.42	0.41
1:1:1761:C:H2'	1:1:1762:A:O4'	2.20	0.41
1:1:2102:G:C5	1:1:2103:C:H1'	2.56	0.41
1:1:2116:G:H3'	1:1:2117:A:H5''	2.03	0.41
1:1:2128:G:O6	1:1:2173:A:O2'	2.30	0.41
1:1:2228:G:H2'	1:1:2229:U:H6	1.85	0.41
1:1:2548:U:O2'	14:K:4:GLU:OE1	2.39	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:150:U:H3	2:2:171:A:H62	1.68	0.41
2:2:251:G:N2	2:2:253:A:N7	2.69	0.41
2:2:256:U:C2	2:2:257:G:C8	3.09	0.41
2:2:272:C:H2'	2:2:273:U:C6	2.56	0.41
2:2:448:A:H3'	2:2:449:G:C8	2.56	0.41
2:2:719:C:O2'	52:w:39:ILE:O	2.38	0.41
2:2:757:U:H2'	2:2:758:C:O4'	2.21	0.41
2:2:917:G:C2	2:2:918:A:C5	3.09	0.41
2:2:1011:C:H2'	2:2:1012:A:H8	1.86	0.41
2:2:1053:G:H4'	2:2:1054:C:H5'	2.03	0.41
2:2:1210:C:C5	2:2:1211:U:H5	2.39	0.41
2:2:1298:U:H4'	2:2:1299:A:C4	2.56	0.41
2:2:1307:U:O2'	47:r:109:ARG:NH2	2.54	0.41
2:2:1315:U:H2'	2:2:1316:G:C8	2.56	0.41
2:2:1527:U:P	55:z:45:ARG:HH12	2.44	0.41
3:3:5:U:H2'	3:3:6:G:C8	2.56	0.41
3:3:116:G:H2'	3:3:117:G:H8	1.84	0.41
4:4:34:A:O4'	4:4:322:U:O2'	2.39	0.41
4:4:192:A:H2'	4:4:192:A:N3	2.36	0.41
13:J:24:THR:HA	13:J:63:ALA:O	2.21	0.41
34:e:15:LYS:HD3	34:e:23:LYS:HE3	2.02	0.41
38:i:95:GLU:HA	38:i:100:ASN:ND2	2.35	0.41
43:n:81:HIS:O	43:n:84:THR:HB	2.20	0.41
1:1:40:U:H4'	1:1:41:C:OP1	2.21	0.41
1:1:906:U:O2'	16:M:66:ARG:NE	2.53	0.41
1:1:1069:A:O2'	1:1:1074:G:N2	2.53	0.41
1:1:2547:A:OP2	1:1:2566:A:O2'	2.31	0.41
1:1:2677:G:H2'	1:1:2678:C:H6	1.86	0.41
2:2:254:G:O2'	51:v:18:GLU:O	2.39	0.41
2:2:256:U:H2'	2:2:257:G:H8	1.86	0.41
2:2:308:C:H2'	2:2:309:A:H8	1.86	0.41
2:2:447:G:O2'	2:2:487:A:N6	2.53	0.41
2:2:681:A:H2'	2:2:682:G:C8	2.56	0.41
2:2:912:C:H2'	2:2:913:A:C8	2.55	0.41
2:2:958:A:N6	53:x:55:ARG:HD2	2.35	0.41
2:2:1130:A:H61	2:2:1143:G:N2	2.19	0.41
2:2:1318:A:H1'	53:x:37:ARG:HD2	2.02	0.41
2:2:1517:G:H2'	2:2:1518:MA6:C8	2.51	0.41
3:3:75:G:H21	25:V:88:HIS:CE1	2.38	0.41
4:4:185:A:N1	37:h:102:ASN:ND2	2.69	0.41
4:4:200:G:H3'	4:4:201:C:H6	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:D:111:GLU:OE1	9:D:114:ARG:NH1	2.54	0.41
12:G:96:THR:HA	12:G:117:LEU:HD21	2.03	0.41
13:J:41:LYS:O	13:J:43:GLU:N	2.54	0.41
16:M:74:THR:HG22	16:M:89:VAL:HG22	2.03	0.41
37:h:26:THR:H	37:h:29:PHE:HE2	1.69	0.41
37:h:122:SER:O	37:h:126:ARG:HG2	2.21	0.41
41:l:102:ARG:HA	41:l:105:VAL:HG22	2.03	0.41
51:v:64:CYS:SG	51:v:74:THR:HG23	2.60	0.41
1:1:136:G:H2'	1:1:137:U:H6	1.86	0.40
1:1:559:G:N2	20:Q:49:ASP:OD1	2.54	0.40
1:1:741:U:H2'	1:1:742:A:C8	2.56	0.40
1:1:808:G:H2'	1:1:809:G:C8	2.56	0.40
1:1:1511:G:H2'	1:1:1512:C:H6	1.86	0.40
1:1:1805:A:H2'	1:1:1806:C:C6	2.55	0.40
1:1:1920:C:H2'	1:1:1921:G:C8	2.54	0.40
1:1:2282:G:H21	1:1:2390:U:H3	1.67	0.40
1:1:2372:U:H2'	1:1:2373:G:H8	1.86	0.40
2:2:448:A:H3'	2:2:449:G:H8	1.86	0.40
2:2:470:C:H2'	2:2:471:U:C6	2.57	0.40
2:2:501:C:O2	2:2:549:C:O2'	2.35	0.40
2:2:537:G:H2'	2:2:538:G:H8	1.86	0.40
2:2:681:A:N6	2:2:710:G:O6	2.54	0.40
2:2:707:U:H2'	2:2:708:C:C6	2.56	0.40
2:2:946:A:N3	2:2:1333:A:H2	2.19	0.40
2:2:948:C:H2'	2:2:949:A:C8	2.55	0.40
33:d:17:GLY:O	33:d:21:ARG:HG2	2.21	0.40
41:l:40:GLU:HA	41:l:43:VAL:HG12	2.02	0.40
50:u:4:ILE:HG12	50:u:21:VAL:HG22	2.04	0.40
52:w:63:ARG:HB3	52:w:70:TYR:CZ	2.56	0.40
1:1:177:G:H5'	1:1:178:G:N7	2.36	0.40
1:1:281:C:H2'	1:1:282:A:C8	2.56	0.40
1:1:769:U:H2'	1:1:770:G:C8	2.56	0.40
1:1:818:G:N1	1:1:1188:U:OP2	2.36	0.40
1:1:1528:A:N3	1:1:1528:A:H2'	2.36	0.40
1:1:1808:A:H5'	1:1:1809:A:N7	2.36	0.40
1:1:1824:G:H5''	7:B:52:ARG:HH11	1.86	0.40
1:1:1862:G:O6	1:1:1881:C:N4	2.54	0.40
1:1:2047:C:H2'	1:1:2048:G:C8	2.56	0.40
1:1:2686:G:H2'	1:1:2687:U:C6	2.56	0.40
2:2:136:C:O2'	50:u:64:GLY:O	2.27	0.40
2:2:278:G:OP2	51:v:43:LYS:NZ	2.34	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:468:A:H5''	2:2:469:C:H5	1.86	0.40
2:2:469:C:H2'	2:2:470:C:C6	2.57	0.40
2:2:502:A:H2'	2:2:503:C:C6	2.56	0.40
2:2:745:G:OP1	2:2:851:G:O2'	2.34	0.40
2:2:921:U:O2'	39:j:24:THR:O	2.28	0.40
2:2:967:5MC:H5''	2:2:968:A:H2'	2.03	0.40
2:2:977:A:N6	2:2:1224:U:O4'	2.54	0.40
3:3:80:U:H2'	3:3:81:G:H8	1.86	0.40
4:4:98:C:H5''	4:4:100:A:C8	2.56	0.40
4:4:356:C:H2'	4:4:357:U:C6	2.55	0.40
7:B:120:VAL:HG12	7:B:130:LEU:HD11	2.04	0.40
10:E:91:LEU:HD22	10:E:99:PHE:HB2	2.03	0.40
10:E:129:SER:HA	10:E:155:THR:HA	2.03	0.40
11:F:105:LEU:HD12	11:F:105:LEU:C	2.47	0.40
12:G:95:GLY:O	12:G:122:LEU:HD22	2.21	0.40
21:R:1:MET:HE2	21:R:101:ILE:CG2	2.51	0.40
37:h:136:ARG:HA	37:h:139:GLN:HG2	2.03	0.40
41:l:16:PRO:HB3	43:n:50:GLN:HE21	1.87	0.40
41:l:126:ASP:O	41:l:131:LYS:N	2.51	0.40
1:1:548:G:O2'	1:1:549:G:O5'	2.37	0.40
1:1:578:G:OP1	1:1:1255:U:O2'	2.37	0.40
1:1:852:U:H2'	1:1:853:C:H6	1.86	0.40
1:1:911:A:H5''	1:1:912:C:H5''	2.02	0.40
1:1:1500:G:N2	7:B:98:ASP:O	2.50	0.40
1:1:1566:A:O2'	1:1:1568:G:N2	2.54	0.40
1:1:1775:U:O4	1:1:1789:A:H2	2.04	0.40
1:1:2314:A:H2'	1:1:2315:G:C8	2.56	0.40
1:1:2316:G:H4'	10:E:125:ARG:HE	1.86	0.40
1:1:2329:U:H2'	1:1:2330:G:C8	2.57	0.40
1:1:2456:C:N3	1:1:2457:PSU:N1	2.68	0.40
1:1:2636:C:H2'	1:1:2637:U:H6	1.86	0.40
2:2:35:G:H2'	2:2:36:C:C6	2.56	0.40
2:2:468:A:H5''	2:2:469:C:C5	2.56	0.40
2:2:516:PSU:HN1	2:2:519:C:N4	2.19	0.40
2:2:601:G:H2'	2:2:602:A:C8	2.56	0.40
2:2:884:U:H4'	2:2:885:G:H5''	2.03	0.40
4:4:298:A:H8	4:4:299:C:H4'	1.86	0.40
5:5:30:PHE:HE2	5:5:129:VAL:HG23	1.86	0.40
7:B:165:VAL:HG11	7:B:175:ARG:NE	2.37	0.40
11:F:44:LYS:HG3	11:F:51:THR:OG1	2.21	0.40
13:J:10:THR:O	13:J:10:THR:CG2	2.60	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:a:8:LYS:NZ	30:a:29:GLY:N	2.69	0.40
30:a:30:HIS:ND1	30:a:31:ASP:O	2.51	0.40
41:l:97:ASN:O	41:l:101:MET:HG2	2.21	0.40
43:n:50:GLN:O	43:n:53:GLU:HB2	2.22	0.40
43:n:99:ARG:C	43:n:101:ALA:H	2.29	0.40
45:p:113:VAL:HA	52:w:73:ARG:CZ	2.50	0.40
46:q:81:LEU:O	46:q:98:VAL:HG12	2.20	0.40
48:s:31:ILE:HG21	53:x:7:LYS:HG3	2.02	0.40
1:1:577:G:H2'	1:1:578:G:C8	2.57	0.40
1:1:883:G:N7	1:1:893:C:O2'	2.52	0.40
1:1:1153:C:H5''	20:Q:62:ILE:HD13	2.03	0.40
1:1:1229:C:H2'	1:1:1230:A:H8	1.84	0.40
1:1:1703:G:H2'	1:1:1704:C:C6	2.56	0.40
1:1:1754:A:O3'	19:P:103:ARG:NH2	2.55	0.40
1:1:1854:A:H61	1:1:1888:G:H1'	1.86	0.40
2:2:464:U:N3	2:2:466:A:H5''	2.37	0.40
2:2:722:G:H2'	2:2:722:G:N3	2.36	0.40
2:2:1097:C:H2'	2:2:1098:C:H6	1.86	0.40
5:5:109:TYR:CE1	5:5:131:LYS:HD2	2.56	0.40
8:C:25:THR:OG1	8:C:191:GLY:HA2	2.21	0.40
8:C:151:THR:HA	8:C:152:PRO:HA	1.94	0.40
8:C:180:VAL:HG12	8:C:187:LEU:HD13	1.93	0.40
21:R:70:GLU:H	21:R:70:GLU:HG3	1.76	0.40
23:T:11:LEU:HB2	28:Y:26:PHE:HE1	1.85	0.40
36:g:114:LEU:CB	36:g:144:LEU:CD2	2.93	0.40
39:j:80:THR:OG1	39:j:81:LEU:N	2.51	0.40
40:k:11:HIS:HA	40:k:85:ILE:HD11	2.03	0.40
1:1:754:U:C2	1:1:755:U:C5	3.09	0.40
1:1:1125:G:OP2	1:1:1126:A:O2'	2.37	0.40
1:1:1297:C:H2'	1:1:1298:C:H6	1.86	0.40
1:1:2081:U:H3	1:1:2239:G:H1	1.70	0.40
2:2:103:U:O2'	2:2:104:G:OP1	2.38	0.40
2:2:138:G:H2'	2:2:139:A:C8	2.56	0.40
2:2:243:A:H4'	2:2:244:U:H3'	2.02	0.40
2:2:779:C:H2'	2:2:780:A:O4'	2.22	0.40
2:2:1019:A:H5'	2:2:1020:G:OP2	2.22	0.40
3:3:6:G:H2'	3:3:7:G:H8	1.86	0.40
3:3:71:C:H2'	3:3:72:G:O4'	2.21	0.40
4:4:72:A:H2'	4:4:72:A:N3	2.37	0.40
4:4:117:G:H22	4:4:125:A:H61	1.69	0.40
6:A:71:VAL:CG2	6:A:77:ARG:O	2.68	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:B:157:SER:HB3	7:B:160:THR:OG1	2.21	0.40
8:C:5:VAL:HG11	8:C:80:TRP:CD1	2.56	0.40
9:D:119:ILE:HB	9:D:187:VAL:HG22	2.03	0.40
10:E:31:VAL:HG21	10:E:96:MET:SD	2.62	0.40
27:X:55:GLY:HA2	27:X:58:VAL:HG22	2.04	0.40
32:c:38:LYS:HB2	32:c:49:TYR:CD1	2.56	0.40
37:h:73:PRO:HG3	37:h:105:GLU:HG3	2.04	0.40
50:u:8:ARG:O	50:u:29:ASN:ND2	2.54	0.40
51:v:47:HIS:CE1	51:v:74:THR:HG22	2.57	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	
5	5	148/150 (99%)	131 (88%)	17 (12%)	0	100	100
6	A	74/76 (97%)	72 (97%)	2 (3%)	0	100	100
7	B	269/271 (99%)	261 (97%)	8 (3%)	0	100	100
8	C	207/209 (99%)	196 (95%)	8 (4%)	3 (1%)	9	35
9	D	199/201 (99%)	198 (100%)	1 (0%)	0	100	100
10	E	175/177 (99%)	158 (90%)	17 (10%)	0	100	100
11	F	173/175 (99%)	164 (95%)	9 (5%)	0	100	100
12	G	147/149 (99%)	121 (82%)	25 (17%)	1 (1%)	18	50
13	J	140/142 (99%)	125 (89%)	15 (11%)	0	100	100
14	K	121/123 (98%)	121 (100%)	0	0	100	100
15	L	142/144 (99%)	140 (99%)	2 (1%)	0	100	100
16	M	133/136 (98%)	130 (98%)	3 (2%)	0	100	100
17	N	117/119 (98%)	113 (97%)	4 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
18	O	114/116 (98%)	110 (96%)	4 (4%)	0	100	100
19	P	112/114 (98%)	107 (96%)	5 (4%)	0	100	100
20	Q	115/117 (98%)	112 (97%)	3 (3%)	0	100	100
21	R	101/103 (98%)	96 (95%)	4 (4%)	1 (1%)	12	42
22	S	108/110 (98%)	106 (98%)	2 (2%)	0	100	100
23	T	92/94 (98%)	90 (98%)	2 (2%)	0	100	100
24	U	101/103 (98%)	97 (96%)	4 (4%)	0	100	100
25	V	92/94 (98%)	91 (99%)	1 (1%)	0	100	100
27	X	75/77 (97%)	72 (96%)	3 (4%)	0	100	100
28	Y	60/62 (97%)	58 (97%)	2 (3%)	0	100	100
29	Z	56/58 (97%)	53 (95%)	3 (5%)	0	100	100
30	a	63/65 (97%)	49 (78%)	14 (22%)	0	100	100
31	b	54/56 (96%)	53 (98%)	1 (2%)	0	100	100
32	c	50/52 (96%)	50 (100%)	0	0	100	100
33	d	44/46 (96%)	44 (100%)	0	0	100	100
34	e	62/64 (97%)	59 (95%)	2 (3%)	1 (2%)	7	33
35	f	36/38 (95%)	35 (97%)	1 (3%)	0	100	100
36	g	223/225 (99%)	213 (96%)	10 (4%)	0	100	100
37	h	210/212 (99%)	202 (96%)	8 (4%)	0	100	100
38	i	203/205 (99%)	195 (96%)	8 (4%)	0	100	100
39	j	154/156 (99%)	149 (97%)	5 (3%)	0	100	100
40	k	102/104 (98%)	98 (96%)	4 (4%)	0	100	100
41	l	149/151 (99%)	141 (95%)	8 (5%)	0	100	100
42	m	127/129 (98%)	121 (95%)	6 (5%)	0	100	100
43	n	125/127 (98%)	73 (58%)	36 (29%)	16 (13%)	0	3
44	o	97/99 (98%)	87 (90%)	10 (10%)	0	100	100
45	p	115/117 (98%)	110 (96%)	5 (4%)	0	100	100
46	q	119/122 (98%)	112 (94%)	7 (6%)	0	100	100
47	r	110/112 (98%)	102 (93%)	8 (7%)	0	100	100
48	s	98/100 (98%)	95 (97%)	2 (2%)	1 (1%)	12	42
49	t	86/88 (98%)	76 (88%)	10 (12%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
50	u	80/82 (98%)	77 (96%)	3 (4%)	0	100	100
51	v	78/80 (98%)	72 (92%)	6 (8%)	0	100	100
52	w	65/67 (97%)	65 (100%)	0	0	100	100
53	x	81/83 (98%)	77 (95%)	4 (5%)	0	100	100
54	y	84/86 (98%)	81 (96%)	3 (4%)	0	100	100
55	z	68/70 (97%)	65 (96%)	3 (4%)	0	100	100
All	All	5754/5856 (98%)	5423 (94%)	308 (5%)	23 (0%)	31	61

All (23) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
43	n	56	ASP
43	n	122	ARG
43	n	5	GLN
43	n	18	ARG
43	n	26	GLY
43	n	41	ARG
43	n	55	VAL
43	n	64	TYR
43	n	73	SER
34	e	32	ILE
43	n	60	LYS
48	s	94	PRO
43	n	96	SER
43	n	120	LYS
8	C	32	ASN
8	C	55	LYS
43	n	101	ALA
43	n	48	VAL
21	R	101	ILE
43	n	23	PRO
43	n	24	GLY
8	C	34	VAL
12	G	44	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	
5	5	125/125 (100%)	125 (100%)	0	100	100
6	A	58/58 (100%)	58 (100%)	0	100	100
7	B	216/216 (100%)	215 (100%)	1 (0%)	81	81
8	C	164/164 (100%)	163 (99%)	1 (1%)	78	80
9	D	165/165 (100%)	165 (100%)	0	100	100
10	E	148/148 (100%)	148 (100%)	0	100	100
11	F	136/136 (100%)	135 (99%)	1 (1%)	76	78
12	G	114/114 (100%)	113 (99%)	1 (1%)	70	76
13	J	116/116 (100%)	114 (98%)	2 (2%)	53	69
14	K	104/104 (100%)	103 (99%)	1 (1%)	68	75
15	L	103/103 (100%)	102 (99%)	1 (1%)	68	75
16	M	108/108 (100%)	108 (100%)	0	100	100
17	N	99/99 (100%)	99 (100%)	0	100	100
18	O	86/86 (100%)	86 (100%)	0	100	100
19	P	99/99 (100%)	98 (99%)	1 (1%)	68	75
20	Q	89/89 (100%)	89 (100%)	0	100	100
21	R	84/84 (100%)	82 (98%)	2 (2%)	43	64
22	S	93/93 (100%)	93 (100%)	0	100	100
23	T	81/81 (100%)	81 (100%)	0	100	100
24	U	84/84 (100%)	84 (100%)	0	100	100
25	V	78/78 (100%)	78 (100%)	0	100	100
26	W	1/1 (100%)	1 (100%)	0	100	100
27	X	67/67 (100%)	67 (100%)	0	100	100
28	Y	54/54 (100%)	54 (100%)	0	100	100
29	Z	48/48 (100%)	48 (100%)	0	100	100
30	a	58/58 (100%)	50 (86%)	8 (14%)	3	17
31	b	47/47 (100%)	47 (100%)	0	100	100
32	c	47/47 (100%)	47 (100%)	0	100	100
33	d	38/38 (100%)	38 (100%)	0	100	100
34	e	51/51 (100%)	51 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
35	f	34/34 (100%)	34 (100%)	0	100	100
36	g	187/187 (100%)	181 (97%)	6 (3%)	34	59
37	h	172/172 (100%)	170 (99%)	2 (1%)	63	73
38	i	172/172 (100%)	172 (100%)	0	100	100
39	j	119/119 (100%)	119 (100%)	0	100	100
40	k	91/91 (100%)	91 (100%)	0	100	100
41	l	124/124 (100%)	124 (100%)	0	100	100
42	m	104/104 (100%)	104 (100%)	0	100	100
43	n	105/105 (100%)	53 (50%)	52 (50%)	0	0
44	o	86/86 (100%)	85 (99%)	1 (1%)	63	73
45	p	90/90 (100%)	90 (100%)	0	100	100
46	q	102/102 (100%)	101 (99%)	1 (1%)	68	75
47	r	90/90 (100%)	90 (100%)	0	100	100
48	s	83/83 (100%)	79 (95%)	4 (5%)	23	50
49	t	76/76 (100%)	76 (100%)	0	100	100
50	u	65/65 (100%)	65 (100%)	0	100	100
51	v	74/74 (100%)	74 (100%)	0	100	100
52	w	58/58 (100%)	58 (100%)	0	100	100
53	x	72/72 (100%)	72 (100%)	0	100	100
54	y	65/65 (100%)	65 (100%)	0	100	100
55	z	60/60 (100%)	60 (100%)	0	100	100
All	All	4790/4790 (100%)	4705 (98%)	85 (2%)	51	68

All (85) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
7	B	74	ILE
8	C	98	VAL
11	F	162	VAL
12	G	44	ILE
13	J	141	ASP
13	J	142	ILE
14	K	122	VAL
15	L	51	GLU
19	P	33	VAL

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Mol	Chain	Res	Type
21	R	51	VAL
21	R	101	ILE
30	a	48	GLN
30	a	50	ASP
30	a	51	VAL
30	a	53	THR
30	a	56	ARG
30	a	57	VAL
30	a	59	ARG
30	a	60	PHE
36	g	117	LEU
36	g	125	THR
36	g	126	PHE
36	g	128	LYS
36	g	129	LEU
36	g	130	THR
37	h	66	VAL
37	h	173	VAL
43	n	4	ASN
43	n	12	ARG
43	n	13	LYS
43	n	19	VAL
43	n	21	ILE
43	n	22	LYS
43	n	25	ASN
43	n	27	LYS
43	n	28	ILE
43	n	29	VAL
43	n	30	ILE
43	n	31	ASN
43	n	32	GLN
43	n	33	ARG
43	n	36	GLU
43	n	41	ARG
43	n	42	GLU
43	n	43	THR
43	n	45	ARG
43	n	46	MET
43	n	47	VAL
43	n	49	ARG
43	n	54	LEU
43	n	58	VAL

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Mol	Chain	Res	Type
43	n	59	GLU
43	n	60	LYS
43	n	61	LEU
43	n	63	LEU
43	n	65	ILE
43	n	68	LYS
43	n	79	ILE
43	n	80	ARG
43	n	85	ARG
43	n	87	LEU
43	n	91	ASP
43	n	93	SER
43	n	95	ARG
43	n	96	SER
43	n	99	ARG
43	n	100	LYS
43	n	105	THR
43	n	106	ARG
43	n	110	GLN
43	n	113	ARG
43	n	114	LYS
43	n	118	LEU
43	n	120	LYS
43	n	123	ARG
43	n	124	ARG
43	n	125	PRO
43	n	129	LYS
43	n	130	ARG
44	o	57	VAL
46	q	55	VAL
48	s	96	LEU
48	s	97	LYS
48	s	98	LYS
48	s	101	TRP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (39) such sidechains are listed below:

Mol	Chain	Res	Type
7	B	37	ASN
7	B	70	ASN
7	B	90	ASN
8	C	32	ASN

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Mol	Chain	Res	Type
9	D	41	GLN
11	F	48	ASN
11	F	115	HIS
12	G	18	GLN
12	G	133	GLN
13	J	58	ASN
13	J	86	GLN
16	M	13	HIS
17	N	16	HIS
18	O	29	HIS
20	Q	37	GLN
20	Q	52	GLN
23	T	70	HIS
28	Y	27	ASN
28	Y	45	GLN
30	a	61	ASN
32	c	19	HIS
36	g	39	HIS
36	g	58	ASN
38	i	100	ASN
39	j	12	GLN
40	k	14	GLN
40	k	37	HIS
41	l	122	ASN
42	m	18	GLN
43	n	4	ASN
43	n	25	ASN
43	n	50	GLN
43	n	75	GLN
43	n	126	GLN
44	o	58	ASN
44	o	64	GLN
45	p	101	ASN
46	q	5	ASN
47	r	52	GLN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	1	2901/2903 (99%)	615 (21%)	24 (0%)
2	2	1531/1534 (99%)	320 (20%)	14 (0%)

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Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
3	3	119/120 (99%)	18 (15%)	1 (0%)
4	4	361/363 (99%)	212 (58%)	13 (3%)
All	All	4912/4920 (99%)	1165 (23%)	52 (1%)

All (1165) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	1	6	A
1	1	8	C
1	1	10	A
1	1	19	A
1	1	20	C
1	1	26	G
1	1	28	A
1	1	41	C
1	1	42	A
1	1	45	G
1	1	46	G
1	1	51	G
1	1	55	G
1	1	63	A
1	1	71	A
1	1	74	A
1	1	75	G
1	1	100	U
1	1	101	A
1	1	102	U
1	1	103	A
1	1	104	A
1	1	110	G
1	1	112	U
1	1	118	A
1	1	120	U
1	1	139	U
1	1	140	C
1	1	155	A
1	1	158	U
1	1	160	A
1	1	163	C
1	1	181	A
1	1	196	A
1	1	199	A

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Mol	Chain	Res	Type
1	1	204	A
1	1	205	G
1	1	213	A
1	1	216	A
1	1	222	A
1	1	228	C
1	1	229	C
1	1	233	A
1	1	241	A
1	1	242	G
1	1	248	G
1	1	250	G
1	1	266	G
1	1	267	C
1	1	271	G
1	1	275	C
1	1	278	A
1	1	280	U
1	1	283	G
1	1	290	U
1	1	301	G
1	1	308	G
1	1	311	A
1	1	329	G
1	1	330	A
1	1	332	A
1	1	334	C
1	1	345	A
1	1	346	A
1	1	351	C
1	1	353	C
1	1	360	U
1	1	361	G
1	1	362	A
1	1	368	A
1	1	369	U
1	1	371	A
1	1	372	G
1	1	373	U
1	1	374	A
1	1	386	G
1	1	387	U

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Mol	Chain	Res	Type
1	1	389	G
1	1	396	G
1	1	403	U
1	1	404	A
1	1	405	U
1	1	406	G
1	1	411	G
1	1	424	G
1	1	428	A
1	1	429	A
1	1	430	A
1	1	451	U
1	1	457	A
1	1	467	G
1	1	480	A
1	1	481	G
1	1	484	C
1	1	490	C
1	1	491	G
1	1	502	A
1	1	505	A
1	1	509	C
1	1	513	A
1	1	529	A
1	1	530	G
1	1	532	A
1	1	533	G
1	1	538	A
1	1	544	C
1	1	546	U
1	1	547	A
1	1	548	G
1	1	549	G
1	1	563	A
1	1	573	U
1	1	575	A
1	1	588	U
1	1	603	A
1	1	613	A
1	1	614	A
1	1	615	U
1	1	621	A

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Mol	Chain	Res	Type
1	1	622	G
1	1	627	A
1	1	637	A
1	1	644	A
1	1	645	C
1	1	647	G
1	1	654	A
1	1	655	A
1	1	656	G
1	1	668	A
1	1	686	U
1	1	704	G
1	1	717	C
1	1	726	G
1	1	730	A
1	1	734	A
1	1	747	5MU
1	1	748	G
1	1	764	A
1	1	765	C
1	1	774	G
1	1	775	G
1	1	776	G
1	1	782	A
1	1	784	G
1	1	785	G
1	1	789	A
1	1	801	G
1	1	802	A
1	1	805	G
1	1	812	C
1	1	819	A
1	1	827	U
1	1	845	A
1	1	846	U
1	1	856	G
1	1	857	G
1	1	877	A
1	1	878	A
1	1	880	G
1	1	881	G
1	1	882	G

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Mol	Chain	Res	Type
1	1	883	G
1	1	886	A
1	1	887	A
1	1	888	C
1	1	890	C
1	1	891	G
1	1	893	C
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	920	A
1	1	931	U
1	1	941	A
1	1	946	C
1	1	959	A
1	1	961	C
1	1	974	G
1	1	980	A
1	1	983	A
1	1	985	C
1	1	995	C
1	1	996	A
1	1	1003	G
1	1	1005	C
1	1	1009	A
1	1	1010	A
1	1	1011	G
1	1	1012	U
1	1	1016	G
1	1	1020	A
1	1	1022	G
1	1	1026	G
1	1	1033	U
1	1	1034	G
1	1	1035	U
1	1	1040	A
1	1	1041	G
1	1	1042	G

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Mol	Chain	Res	Type
1	1	1043	C
1	1	1046	A
1	1	1047	G
1	1	1049	C
1	1	1050	A
1	1	1051	G
1	1	1052	C
1	1	1057	A
1	1	1060	U
1	1	1061	U
1	1	1063	G
1	1	1064	C
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	1074	G
1	1	1075	C
1	1	1078	U
1	1	1080	A
1	1	1081	U
1	1	1082	U
1	1	1083	U
1	1	1085	A
1	1	1086	A
1	1	1088	A
1	1	1089	A
1	1	1091	G
1	1	1094	U
1	1	1095	A
1	1	1096	A
1	1	1098	A
1	1	1099	G
1	1	1106	G
1	1	1109	C
1	1	1111	A
1	1	1112	G
1	1	1115	G
1	1	1120	G
1	1	1132	U

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Mol	Chain	Res	Type
1	1	1135	C
1	1	1136	G
1	1	1137	G
1	1	1141	U
1	1	1142	A
1	1	1149	G
1	1	1150	C
1	1	1152	C
1	1	1156	A
1	1	1157	G
1	1	1168	G
1	1	1173	U
1	1	1174	U
1	1	1175	A
1	1	1176	U
1	1	1182	G
1	1	1204	A
1	1	1206	G
1	1	1212	G
1	1	1225	G
1	1	1226	A
1	1	1227	G
1	1	1236	G
1	1	1238	G
1	1	1250	G
1	1	1253	A
1	1	1256	G
1	1	1266	G
1	1	1272	A
1	1	1289	C
1	1	1300	G
1	1	1301	A
1	1	1302	A
1	1	1304	A
1	1	1314	C
1	1	1321	A
1	1	1325	U
1	1	1328	A
1	1	1329	U
1	1	1345	C
1	1	1352	U
1	1	1353	A

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Mol	Chain	Res	Type
1	1	1365	A
1	1	1368	G
1	1	1378	A
1	1	1379	U
1	1	1383	A
1	1	1384	A
1	1	1385	A
1	1	1387	A
1	1	1395	A
1	1	1402	U
1	1	1403	A
1	1	1407	G
1	1	1408	G
1	1	1410	G
1	1	1411	U
1	1	1413	A
1	1	1416	G
1	1	1417	C
1	1	1419	A
1	1	1420	A
1	1	1427	A
1	1	1428	C
1	1	1437	C
1	1	1458	U
1	1	1465	G
1	1	1467	U
1	1	1482	G
1	1	1493	C
1	1	1508	A
1	1	1509	A
1	1	1510	G
1	1	1515	A
1	1	1523	U
1	1	1528	A
1	1	1529	G
1	1	1530	G
1	1	1533	C
1	1	1534	U
1	1	1535	A
1	1	1536	C
1	1	1558	C
1	1	1560	G

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Mol	Chain	Res	Type
1	1	1566	A
1	1	1569	A
1	1	1580	A
1	1	1583	A
1	1	1584	U
1	1	1589	U
1	1	1590	A
1	1	1591	A
1	1	1596	A
1	1	1608	A
1	1	1609	A
1	1	1635	A
1	1	1646	C
1	1	1647	U
1	1	1648	U
1	1	1654	A
1	1	1656	C
1	1	1672	A
1	1	1674	G
1	1	1711	A
1	1	1713	A
1	1	1722	A
1	1	1724	G
1	1	1725	U
1	1	1726	C
1	1	1729	U
1	1	1730	C
1	1	1738	G
1	1	1756	G
1	1	1758	U
1	1	1764	C
1	1	1773	A
1	1	1779	U
1	1	1784	A
1	1	1791	A
1	1	1800	C
1	1	1801	A
1	1	1807	G
1	1	1808	A
1	1	1816	C
1	1	1835	2MG
1	1	1848	A

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Mol	Chain	Res	Type
1	1	1858	A
1	1	1866	A
1	1	1870	C
1	1	1871	A
1	1	1872	A
1	1	1874	C
1	1	1875	G
1	1	1906	G
1	1	1907	G
1	1	1912	A
1	1	1914	C
1	1	1919	A
1	1	1924	C
1	1	1927	A
1	1	1929	G
1	1	1930	G
1	1	1936	A
1	1	1937	A
1	1	1938	A
1	1	1939	5MU
1	1	1944	U
1	1	1955	U
1	1	1963	U
1	1	1966	A
1	1	1967	C
1	1	1970	A
1	1	1971	U
1	1	1972	G
1	1	1991	U
1	1	1992	G
1	1	1993	U
1	1	1996	C
1	1	1997	C
1	1	2022	U
1	1	2023	C
1	1	2030	6MZ
1	1	2031	A
1	1	2033	A
1	1	2034	U
1	1	2038	G
1	1	2043	C
1	1	2044	C

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Mol	Chain	Res	Type
1	1	2049	G
1	1	2052	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	2096	C
1	1	2097	A
1	1	2100	G
1	1	2101	A
1	1	2102	G
1	1	2104	C
1	1	2105	U
1	1	2106	U
1	1	2108	A
1	1	2111	U
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	2120	G
1	1	2121	G
1	1	2125	G
1	1	2126	A
1	1	2127	G
1	1	2128	G
1	1	2129	C
1	1	2130	U
1	1	2131	U
1	1	2132	U
1	1	2133	G
1	1	2134	A
1	1	2136	G
1	1	2137	U
1	1	2138	G
1	1	2140	G
1	1	2144	G

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Mol	Chain	Res	Type
1	1	2146	C
1	1	2147	A
1	1	2150	C
1	1	2151	U
1	1	2156	G
1	1	2157	G
1	1	2158	A
1	1	2159	G
1	1	2162	G
1	1	2163	A
1	1	2164	C
1	1	2165	C
1	1	2167	U
1	1	2168	G
1	1	2169	A
1	1	2170	A
1	1	2171	A
1	1	2172	U
1	1	2175	C
1	1	2176	A
1	1	2177	C
1	1	2179	C
1	1	2180	U
1	1	2181	U
1	1	2182	U
1	1	2183	A
1	1	2187	U
1	1	2188	U
1	1	2189	U
1	1	2198	A
1	1	2199	A
1	1	2204	G
1	1	2211	A
1	1	2212	A
1	1	2225	A
1	1	2226	C
1	1	2238	G
1	1	2239	G
1	1	2243	U
1	1	2266	A
1	1	2283	C
1	1	2287	A

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Mol	Chain	Res	Type
1	1	2297	A
1	1	2305	U
1	1	2306	C
1	1	2307	G
1	1	2309	A
1	1	2310	C
1	1	2319	G
1	1	2325	G
1	1	2327	A
1	1	2333	A
1	1	2334	U
1	1	2335	A
1	1	2345	G
1	1	2347	C
1	1	2361	G
1	1	2382	G
1	1	2383	G
1	1	2385	C
1	1	2386	A
1	1	2388	A
1	1	2395	C
1	1	2396	G
1	1	2402	U
1	1	2403	C
1	1	2409	G
1	1	2425	A
1	1	2428	G
1	1	2429	G
1	1	2434	A
1	1	2441	U
1	1	2445	2MG
1	1	2448	A
1	1	2469	A
1	1	2470	G
1	1	2476	A
1	1	2479	U
1	1	2483	C
1	1	2487	G
1	1	2491	U
1	1	2492	U
1	1	2497	A
1	1	2498	OMC

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Mol	Chain	Res	Type
1	1	2502	G
1	1	2503	2MA
1	1	2505	G
1	1	2506	U
1	1	2518	A
1	1	2529	G
1	1	2547	A
1	1	2554	U
1	1	2562	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	2582	G
1	1	2600	A
1	1	2602	A
1	1	2609	U
1	1	2613	U
1	1	2614	A
1	1	2629	U
1	1	2630	G
1	1	2636	C
1	1	2646	C
1	1	2650	U
1	1	2654	A
1	1	2655	G
1	1	2661	G
1	1	2673	G
1	1	2674	G
1	1	2685	G
1	1	2689	U
1	1	2690	U
1	1	2694	G
1	1	2712	C
1	1	2714	G
1	1	2725	A
1	1	2726	A
1	1	2729	G
1	1	2733	A
1	1	2734	A

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Mol	Chain	Res	Type
1	1	2744	G
1	1	2748	A
1	1	2764	A
1	1	2765	A
1	1	2778	A
1	1	2783	U
1	1	2787	C
1	1	2791	G
1	1	2792	A
1	1	2797	U
1	1	2808	G
1	1	2818	U
1	1	2820	A
1	1	2821	A
1	1	2828	G
1	1	2832	U
1	1	2846	G
1	1	2849	U
1	1	2850	A
1	1	2852	G
1	1	2856	A
1	1	2866	U
1	1	2867	G
1	1	2872	A
1	1	2873	A
1	1	2876	G
1	1	2877	G
1	1	2880	C
1	1	2883	A
1	1	2884	U
1	1	2890	G
1	1	2891	U
1	1	2893	A
1	1	2894	G
2	2	3	A
2	2	4	U
2	2	5	U
2	2	9	G
2	2	31	G
2	2	32	A
2	2	39	G
2	2	47	C

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Mol	Chain	Res	Type
2	2	48	C
2	2	49	U
2	2	51	A
2	2	64	G
2	2	71	A
2	2	74	A
2	2	77	A
2	2	82	G
2	2	83	C
2	2	84	U
2	2	86	G
2	2	88	U
2	2	91	U
2	2	93	U
2	2	94	G
2	2	95	C
2	2	104	G
2	2	120	A
2	2	121	U
2	2	131	A
2	2	144	G
2	2	155	A
2	2	162	A
2	2	169	C
2	2	171	A
2	2	173	U
2	2	174	A
2	2	182	A
2	2	183	C
2	2	184	G
2	2	197	A
2	2	202	G
2	2	204	G
2	2	208	U
2	2	210	C
2	2	211	G
2	2	212	G
2	2	214	C
2	2	218	U
2	2	238	A
2	2	247	G
2	2	251	G

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Mol	Chain	Res	Type
2	2	261	U
2	2	262	A
2	2	266	G
2	2	267	C
2	2	271	C
2	2	289	G
2	2	296	U
2	2	306	A
2	2	319	G
2	2	325	A
2	2	328	C
2	2	332	G
2	2	345	C
2	2	347	G
2	2	351	G
2	2	352	C
2	2	354	G
2	2	365	U
2	2	366	A
2	2	367	U
2	2	372	C
2	2	382	A
2	2	392	C
2	2	406	G
2	2	412	A
2	2	413	G
2	2	414	A
2	2	419	C
2	2	421	U
2	2	422	C
2	2	423	G
2	2	424	G
2	2	428	G
2	2	429	U
2	2	448	A
2	2	451	A
2	2	463	U
2	2	465	A
2	2	466	A
2	2	467	U
2	2	468	A
2	2	469	C

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Mol	Chain	Res	Type
2	2	474	G
2	2	476	U
2	2	481	G
2	2	484	G
2	2	485	U
2	2	493	A
2	2	496	A
2	2	497	G
2	2	509	A
2	2	510	A
2	2	511	C
2	2	516	PSU
2	2	518	C
2	2	521	G
2	2	524	G
2	2	527	G7M
2	2	532	A
2	2	533	A
2	2	547	A
2	2	559	A
2	2	560	A
2	2	564	C
2	2	572	A
2	2	573	A
2	2	574	A
2	2	575	G
2	2	576	C
2	2	577	G
2	2	621	A
2	2	633	G
2	2	653	U
2	2	665	A
2	2	686	U
2	2	687	A
2	2	695	A
2	2	718	A
2	2	721	G
2	2	722	G
2	2	724	G
2	2	728	A
2	2	731	G
2	2	748	G

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Mol	Chain	Res	Type
2	2	752	G
2	2	755	G
2	2	793	U
2	2	794	A
2	2	795	C
2	2	815	A
2	2	817	C
2	2	828	U
2	2	841	C
2	2	843	U
2	2	844	G
2	2	845	A
2	2	846	G
2	2	849	G
2	2	866	C
2	2	889	A
2	2	914	A
2	2	918	A
2	2	926	G
2	2	934	C
2	2	935	A
2	2	939	G
2	2	941	G
2	2	942	G
2	2	944	G
2	2	945	G
2	2	950	U
2	2	960	U
2	2	961	U
2	2	966	2MG
2	2	967	5MC
2	2	969	A
2	2	971	G
2	2	975	A
2	2	976	G
2	2	977	A
2	2	981	U
2	2	983	A
2	2	987	G
2	2	988	G
2	2	990	C
2	2	992	U

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Mol	Chain	Res	Type
2	2	993	G
2	2	996	A
2	2	997	U
2	2	1000	A
2	2	1001	C
2	2	1003	G
2	2	1004	A
2	2	1006	G
2	2	1007	U
2	2	1008	U
2	2	1009	U
2	2	1010	U
2	2	1012	A
2	2	1017	U
2	2	1019	A
2	2	1020	G
2	2	1021	A
2	2	1023	U
2	2	1025	U
2	2	1026	G
2	2	1028	C
2	2	1029	U
2	2	1030	U
2	2	1031	C
2	2	1032	G
2	2	1033	G
2	2	1034	G
2	2	1035	A
2	2	1039	G
2	2	1042	A
2	2	1043	G
2	2	1045	C
2	2	1046	A
2	2	1053	G
2	2	1054	C
2	2	1064	G
2	2	1065	U
2	2	1086	U
2	2	1088	G
2	2	1094	G
2	2	1095	U
2	2	1101	A

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Mol	Chain	Res	Type
2	2	1108	G
2	2	1128	C
2	2	1129	C
2	2	1136	C
2	2	1137	C
2	2	1140	C
2	2	1142	G
2	2	1145	A
2	2	1146	A
2	2	1148	U
2	2	1151	A
2	2	1152	A
2	2	1159	U
2	2	1160	G
2	2	1168	U
2	2	1169	A
2	2	1176	A
2	2	1179	A
2	2	1184	G
2	2	1188	A
2	2	1191	A
2	2	1196	A
2	2	1197	A
2	2	1198	G
2	2	1199	U
2	2	1201	A
2	2	1207	2MG
2	2	1208	C
2	2	1210	C
2	2	1213	A
2	2	1215	G
2	2	1219	A
2	2	1224	U
2	2	1225	A
2	2	1226	C
2	2	1236	A
2	2	1238	A
2	2	1241	G
2	2	1244	G
2	2	1245	C
2	2	1247	U
2	2	1250	A

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Mol	Chain	Res	Type
2	2	1256	A
2	2	1257	A
2	2	1260	G
2	2	1261	A
2	2	1265	C
2	2	1278	G
2	2	1279	G
2	2	1280	A
2	2	1286	U
2	2	1293	C
2	2	1294	G
2	2	1295	U
2	2	1298	U
2	2	1300	G
2	2	1302	C
2	2	1312	G
2	2	1317	C
2	2	1318	A
2	2	1319	A
2	2	1320	C
2	2	1322	C
2	2	1332	A
2	2	1338	G
2	2	1340	A
2	2	1343	G
2	2	1344	C
2	2	1346	A
2	2	1348	U
2	2	1349	A
2	2	1351	U
2	2	1352	C
2	2	1359	C
2	2	1360	A
2	2	1361	G
2	2	1362	A
2	2	1363	A
2	2	1364	U
2	2	1370	G
2	2	1378	C
2	2	1394	A
2	2	1400	C
2	2	1401	G

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Mol	Chain	Res	Type
2	2	1408	A
2	2	1432	G
2	2	1441	A
2	2	1443	C
2	2	1445	U
2	2	1446	A
2	2	1491	G
2	2	1493	A
2	2	1499	A
2	2	1503	A
2	2	1506	U
2	2	1517	G
2	2	1519	MA6
2	2	1520	C
2	2	1529	G
2	2	1530	G
2	2	1532	U
2	2	1534	A
3	3	2	G
3	3	3	C
3	3	13	G
3	3	16	G
3	3	23	G
3	3	24	G
3	3	35	C
3	3	37	C
3	3	41	G
3	3	42	C
3	3	44	G
3	3	66	A
3	3	68	C
3	3	88	C
3	3	89	U
3	3	90	C
3	3	99	A
3	3	109	A
4	4	3	G
4	4	8	A
4	4	9	U
4	4	10	U
4	4	11	C
4	4	12	U

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Mol	Chain	Res	Type
4	4	13	G
4	4	14	G
4	4	15	A
4	4	18	C
4	4	19	G
4	4	20	A
4	4	24	G
4	4	25	A
4	4	26	U
4	4	28	U
4	4	30	C
4	4	31	G
4	4	32	A
4	4	33	A
4	4	34	A
4	4	35	C
4	4	36	C
4	4	37	C
4	4	38	A
4	4	39	A
4	4	40	G
4	4	43	G
4	4	44	C
4	4	45	A
4	4	47	G
4	4	48	C
4	4	49	C
4	4	50	G
4	4	52	G
4	4	54	G
4	4	55	G
4	4	61	G
4	4	62	G
4	4	63	C
4	4	64	C
4	4	65	U
4	4	66	C
4	4	69	A
4	4	70	A
4	4	71	A
4	4	72	A
4	4	73	A

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Mol	Chain	Res	Type
4	4	75	C
4	4	76	C
4	4	79	A
4	4	80	A
4	4	81	A
4	4	82	A
4	4	83	A
4	4	84	A
4	4	85	U
4	4	86	A
4	4	87	G
4	4	88	U
4	4	89	C
4	4	90	G
4	4	91	C
4	4	92	A
4	4	93	A
4	4	94	A
4	4	95	C
4	4	96	G
4	4	97	A
4	4	98	C
4	4	99	G
4	4	100	A
4	4	101	A
4	4	102	A
4	4	103	A
4	4	104	C
4	4	105	U
4	4	106	A
4	4	107	C
4	4	110	U
4	4	119	U
4	4	120	U
4	4	122	A
4	4	123	U
4	4	124	A
4	4	125	A
4	4	126	C
4	4	127	C
4	4	128	U
4	4	129	G

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Mol	Chain	Res	Type
4	4	130	C
4	4	138	C
4	4	139	C
4	4	143	C
4	4	145	C
4	4	152	C
4	4	153	U
4	4	154	C
4	4	155	C
4	4	156	G
4	4	157	C
4	4	160	U
4	4	163	G
4	4	165	A
4	4	166	C
4	4	167	G
4	4	169	G
4	4	170	G
4	4	171	A
4	4	173	C
4	4	176	G
4	4	178	G
4	4	179	A
4	4	180	G
4	4	182	U
4	4	183	C
4	4	185	A
4	4	186	A
4	4	187	C
4	4	189	C
4	4	190	A
4	4	198	U
4	4	201	C
4	4	202	G
4	4	205	G
4	4	206	A
4	4	207	A
4	4	209	C
4	4	211	C
4	4	212	U
4	4	213	G
4	4	216	U

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Mol	Chain	Res	Type
4	4	217	G
4	4	218	G
4	4	219	G
4	4	220	G
4	4	221	U
4	4	222	U
4	4	223	G
4	4	224	A
4	4	227	C
4	4	230	U
4	4	231	A
4	4	234	A
4	4	237	U
4	4	239	A
4	4	240	U
4	4	244	G
4	4	245	C
4	4	246	U
4	4	247	A
4	4	248	G
4	4	249	U
4	4	251	U
4	4	252	G
4	4	255	A
4	4	256	G
4	4	257	U
4	4	259	G
4	4	260	C
4	4	261	G
4	4	263	G
4	4	265	C
4	4	267	G
4	4	268	U
4	4	271	G
4	4	276	U
4	4	277	G
4	4	283	C
4	4	284	G
4	4	285	A
4	4	287	U
4	4	288	G
4	4	289	U

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Mol	Chain	Res	Type
4	4	290	A
4	4	292	A
4	4	294	A
4	4	298	A
4	4	299	C
4	4	300	U
4	4	301	A
4	4	303	G
4	4	304	C
4	4	305	A
4	4	308	U
4	4	309	A
4	4	312	A
4	4	313	C
4	4	315	G
4	4	316	A
4	4	317	G
4	4	319	A
4	4	321	G
4	4	322	U
4	4	325	G
4	4	326	A
4	4	327	A
4	4	328	U
4	4	331	C
4	4	332	G
4	4	333	G
4	4	335	C
4	4	336	G
4	4	339	G
4	4	341	5MU
4	4	342	PSU
4	4	347	PSU
4	4	349	C
4	4	351	G
4	4	352	C
4	4	362	C
4	4	363	A

All (52) RNA pucker outliers are listed below:

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Mol	Chain	Res	Type
1	1	5	A
1	1	18	U
1	1	40	U
1	1	154	U
1	1	157	C
1	1	274	C
1	1	428	A
1	1	479	A
1	1	501	A
1	1	512	G
1	1	548	G
1	1	613	A
1	1	784	G
1	1	800	A
1	1	1009	A
1	1	1051	G
1	1	1069	A
1	1	1384	A
1	1	1386	C
1	1	2308	G
1	1	2402	U
1	1	2505	G
1	1	2851	A
1	1	2893	A
2	2	103	U
2	2	170	U
2	2	318	G
2	2	381	C
2	2	751	U
2	2	845	A
2	2	917	G
2	2	960	U
2	2	1042	A
2	2	1109	C
2	2	1207	2MG
2	2	1255	G
2	2	1358	U
2	2	1361	G
3	3	36	C
4	4	18	C
4	4	34	A

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Mol	Chain	Res	Type
4	4	43	G
4	4	44	C
4	4	81	A
4	4	87	G
4	4	126	C
4	4	152	C
4	4	221	U
4	4	308	U
4	4	314	C
4	4	348	C
4	4	351	G

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

38 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	$\# Z > 2$
1	PSU	1	955	1	18,21,22	1.09	1 (5%)	22,30,33	1.75	4 (18%)
1	PSU	1	1917	1	18,21,22	1.08	1 (5%)	22,30,33	1.74	4 (18%)
1	G7M	1	2069	1	23,26,27	2.66	8 (34%)	35,39,42	2.42	10 (28%)
2	2MG	2	1516	2	23,26,27	3.04	8 (34%)	32,38,41	2.71	12 (37%)
1	PSU	1	2605	1	18,21,22	1.11	1 (5%)	22,30,33	1.76	4 (18%)
2	UR3	2	1498	2	19,22,23	3.01	8 (42%)	26,32,35	1.29	1 (3%)
1	6MZ	1	1618	1	22,25,26	2.71	3 (13%)	30,36,39	2.36	10 (33%)
1	2MG	1	2445	1	23,26,27	3.03	8 (34%)	32,38,41	2.76	13 (40%)
4	PSU	4	347	4	18,21,22	1.10	1 (5%)	22,30,33	1.78	5 (22%)
1	6MZ	1	2030	1	22,25,26	2.70	3 (13%)	30,36,39	2.37	12 (40%)
2	PSU	2	516	2	18,21,22	1.09	1 (5%)	22,30,33	1.75	4 (18%)
1	OMG	1	2251	4,1	23,26,27	2.68	6 (26%)	33,38,41	3.35	10 (30%)
4	5MU	4	341	4	19,22,23	5.32	5 (26%)	28,32,35	3.52	10 (35%)
1	PSU	1	2580	1	18,21,22	1.10	2 (11%)	22,30,33	1.88	5 (22%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
1	1MG	1	745	1	22,26,27	2.66	5 (22%)	33,39,42	1.77	8 (24%)
1	PSU	1	2504	1	18,21,22	1.14	1 (5%)	22,30,33	1.68	4 (18%)
2	5MC	2	967	2	18,22,23	3.76	7 (38%)	26,32,35	1.01	2 (7%)
2	4OC	2	1402	2	20,23,24	3.22	8 (40%)	26,32,35	0.88	1 (3%)
1	5MU	1	747	1	19,22,23	5.25	5 (26%)	28,32,35	3.63	9 (32%)
1	5MU	1	1939	1	19,22,23	5.27	5 (26%)	28,32,35	3.60	9 (32%)
1	PSU	1	2457	1	18,21,22	1.03	1 (5%)	22,30,33	1.73	4 (18%)
1	OMC	1	2498	1	19,22,23	3.39	8 (42%)	26,31,34	0.69	0
1	2MA	1	2503	1	22,25,26	3.85	7 (31%)	33,37,40	3.59	11 (33%)
2	G7M	2	527	2	23,26,27	2.65	8 (34%)	35,39,42	2.40	10 (28%)
2	MA6	2	1518	2	23,26,27	1.76	4 (17%)	34,38,41	3.93	14 (41%)
1	OMU	1	2552	1	19,22,23	2.98	8 (42%)	26,31,34	1.69	5 (19%)
1	5MC	1	1962	1	18,22,23	3.73	7 (38%)	26,32,35	1.06	2 (7%)
4	PSU	4	342	4	18,21,22	1.12	1 (5%)	22,30,33	1.74	3 (13%)
1	2MG	1	1835	1	23,26,27	3.07	8 (34%)	32,38,41	2.83	12 (37%)
2	2MG	2	1207	2	23,26,27	3.07	8 (34%)	32,38,41	2.82	12 (37%)
2	5MC	2	1407	2	18,22,23	3.74	7 (38%)	26,32,35	1.00	2 (7%)
1	PSU	1	746	56,1	18,21,22	1.09	1 (5%)	22,30,33	1.75	5 (22%)
16	4D4	M	81	16	9,11,12	2.05	2 (22%)	8,13,15	1.85	3 (37%)
1	3TD	1	1915	1	18,22,23	4.20	6 (33%)	22,32,35	1.60	2 (9%)
1	PSU	1	1911	1	18,21,22	1.10	1 (5%)	22,30,33	1.77	4 (18%)
2	MA6	2	1519	2	23,26,27	1.77	4 (17%)	34,38,41	3.95	14 (41%)
46	0TD	q	89	46	7,9,10	1.47	0	6,11,13	2.26	2 (33%)
2	2MG	2	966	2	23,26,27	3.07	8 (34%)	32,38,41	2.83	12 (37%)

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
1	PSU	1	955	1	-	0/7/25/26	0/2/2/2
1	PSU	1	1917	1	-	0/7/25/26	0/2/2/2
1	G7M	1	2069	1	-	2/7/25/26	0/3/3/3
2	2MG	2	1516	2	-	0/9/27/28	0/3/3/3
1	PSU	1	2605	1	-	0/7/25/26	0/2/2/2
2	UR3	2	1498	2	-	2/7/25/26	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	6MZ	1	1618	1	-	2/9/27/28	0/3/3/3
1	2MG	1	2445	1	-	3/9/27/28	0/3/3/3
4	PSU	4	347	4	-	3/7/25/26	0/2/2/2
1	6MZ	1	2030	1	-	2/9/27/28	0/3/3/3
2	PSU	2	516	2	-	6/7/25/26	0/2/2/2
1	OMG	1	2251	4,1	-	2/9/27/28	0/3/3/3
4	5MU	4	341	4	-	5/7/25/26	0/2/2/2
1	PSU	1	2580	1	-	0/7/25/26	0/2/2/2
1	1MG	1	745	1	-	0/7/25/26	0/3/3/3
1	PSU	1	2504	1	-	4/7/25/26	0/2/2/2
2	5MC	2	967	2	-	1/7/25/26	0/2/2/2
2	4OC	2	1402	2	-	0/9/29/30	0/2/2/2
1	5MU	1	747	1	-	0/7/25/26	0/2/2/2
1	5MU	1	1939	1	-	2/7/25/26	0/2/2/2
1	PSU	1	2457	1	-	0/7/25/26	0/2/2/2
1	OMC	1	2498	1	-	2/9/27/28	0/2/2/2
1	2MA	1	2503	1	-	1/7/25/26	0/3/3/3
2	G7M	2	527	2	-	2/7/25/26	0/3/3/3
2	MA6	2	1518	2	-	1/11/29/30	0/3/3/3
1	OMU	1	2552	1	-	1/9/27/28	0/2/2/2
1	5MC	1	1962	1	-	4/7/25/26	0/2/2/2
4	PSU	4	342	4	-	3/7/25/26	0/2/2/2
1	2MG	1	1835	1	-	3/9/27/28	0/3/3/3
2	2MG	2	1207	2	-	4/9/27/28	0/3/3/3
2	5MC	2	1407	2	-	0/7/25/26	0/2/2/2
1	PSU	1	746	56,1	-	1/7/25/26	0/2/2/2
16	4D4	M	81	16	-	4/11/12/14	-
1	3TD	1	1915	1	-	3/7/25/26	0/2/2/2
1	PSU	1	1911	1	-	0/7/25/26	0/2/2/2
2	MA6	2	1519	2	-	2/11/29/30	0/3/3/3
46	0TD	q	89	46	-	1/7/12/14	-
2	2MG	2	966	2	-	2/9/27/28	0/3/3/3

All (176) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	4	341	5MU	C6-N1	12.80	1.59	1.38
1	1	1939	5MU	C6-N1	12.70	1.59	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	1	747	5MU	C6-N1	12.70	1.59	1.38
4	4	341	5MU	C2-N1	12.56	1.58	1.38
1	1	1915	3TD	C6-C5	12.41	1.49	1.35
1	1	1939	5MU	C4-C5	12.07	1.64	1.44
1	1	1939	5MU	C2-N1	12.05	1.57	1.38
1	1	747	5MU	C2-N1	12.00	1.57	1.38
1	1	747	5MU	C4-C5	12.00	1.64	1.44
4	4	341	5MU	C4-C5	11.91	1.64	1.44
1	1	2503	2MA	C4-N3	11.87	1.49	1.34
1	1	1618	6MZ	C6-N6	11.63	1.46	1.34
1	1	2030	6MZ	C6-N6	11.48	1.46	1.34
2	2	967	5MC	C6-C5	9.69	1.50	1.34
2	2	1407	5MC	C6-C5	9.57	1.50	1.34
1	1	1962	5MC	C6-C5	9.49	1.50	1.34
1	1	1915	3TD	C2-N1	9.25	1.49	1.37
2	2	1207	2MG	C2-N3	8.42	1.48	1.31
1	1	1835	2MG	C2-N3	8.42	1.48	1.31
2	2	966	2MG	C2-N3	8.42	1.48	1.31
2	2	1516	2MG	C2-N3	8.30	1.47	1.31
1	1	2445	2MG	C2-N3	8.30	1.47	1.31
2	2	1498	UR3	C2-N1	7.66	1.49	1.38
1	1	2503	2MA	C2-N3	7.65	1.47	1.34
1	1	745	1MG	C4-N3	7.40	1.51	1.34
2	2	1402	4OC	C4-N3	7.27	1.45	1.32
1	1	745	1MG	C2-N3	7.03	1.47	1.34
1	1	2251	OMG	C2-N2	6.75	1.50	1.34
1	1	2498	OMC	C2-N3	6.75	1.50	1.36
1	1	2251	OMG	C4-N3	6.75	1.50	1.34
1	1	2498	OMC	C6-C5	6.70	1.50	1.35
1	1	1962	5MC	C4-N3	6.69	1.45	1.34
1	1	2069	G7M	C4-N3	6.67	1.50	1.34
2	2	1407	5MC	C4-N3	6.66	1.45	1.34
2	2	967	5MC	C2-N3	6.62	1.49	1.36
1	1	1962	5MC	C2-N3	6.60	1.49	1.36
2	2	967	5MC	C4-N3	6.59	1.45	1.34
2	2	1407	5MC	C2-N3	6.58	1.49	1.36
2	2	527	G7M	C4-N3	6.51	1.49	1.34
1	1	2552	OMU	C2-N1	6.51	1.48	1.38
1	1	2498	OMC	C4-N4	6.39	1.49	1.33
1	1	2503	2MA	C2-N1	6.37	1.45	1.34
1	1	1835	2MG	C4-N3	6.35	1.49	1.34
2	2	1207	2MG	C4-N3	6.32	1.49	1.34

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	2	1402	4OC	C6-C5	6.31	1.49	1.35
1	1	2552	OMU	C2-N3	6.29	1.49	1.38
2	2	1402	4OC	C2-N3	6.29	1.49	1.36
2	2	966	2MG	C4-N3	6.28	1.49	1.34
4	4	341	5MU	C4-N3	-6.26	1.27	1.38
2	2	1516	2MG	C4-N3	6.25	1.49	1.34
1	1	747	5MU	C4-N3	-6.23	1.27	1.38
1	1	1939	5MU	C4-N3	-6.18	1.27	1.38
1	1	2445	2MG	C4-N3	6.18	1.48	1.34
2	2	1498	UR3	C6-C5	6.13	1.49	1.35
1	1	1835	2MG	C2-N1	6.06	1.46	1.36
2	2	1207	2MG	C2-N1	6.04	1.46	1.36
2	2	1516	2MG	C2-N1	6.03	1.46	1.36
2	2	966	2MG	C2-N1	6.03	1.46	1.36
1	1	2445	2MG	C2-N1	6.03	1.46	1.36
1	1	1835	2MG	C2-N2	5.99	1.46	1.33
2	2	1207	2MG	C2-N2	5.97	1.46	1.33
2	2	966	2MG	C2-N2	5.96	1.46	1.33
2	2	1516	2MG	C2-N2	5.92	1.46	1.33
1	1	2445	2MG	C2-N2	5.88	1.46	1.33
1	1	1915	3TD	C6-N1	5.86	1.46	1.36
2	2	1498	UR3	C2-N3	5.84	1.50	1.39
1	1	1939	5MU	C6-C5	5.71	1.44	1.34
1	1	747	5MU	C6-C5	5.67	1.43	1.34
1	1	2503	2MA	C6-N1	5.63	1.43	1.35
1	1	2069	G7M	C2-N3	5.62	1.46	1.33
4	4	341	5MU	C6-C5	5.61	1.43	1.34
1	1	2498	OMC	C4-N3	5.57	1.45	1.34
2	2	527	G7M	C2-N3	5.57	1.46	1.33
1	1	2503	2MA	C5-C6	5.41	1.56	1.41
16	M	81	4D4	CZ-NE	5.27	1.43	1.33
1	1	2251	OMG	C2-N3	5.22	1.45	1.33
2	2	1519	MA6	C6-N6	5.18	1.52	1.36
2	2	1518	MA6	C6-N6	5.16	1.52	1.36
1	1	2552	OMU	C6-C5	4.97	1.46	1.35
1	1	2498	OMC	C2-N1	4.97	1.50	1.40
2	2	967	5MC	C6-N1	4.97	1.46	1.38
2	2	1407	5MC	C6-N1	4.92	1.46	1.38
2	2	527	G7M	C2-N2	4.89	1.45	1.34
1	1	2069	G7M	C2-N2	4.86	1.45	1.34
1	1	1962	5MC	C6-N1	4.85	1.46	1.38
1	1	2069	G7M	C5-N7	-4.77	1.33	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	2	527	G7M	C5-N7	-4.73	1.33	1.39
2	2	1402	4OC	C4-N4	4.68	1.45	1.35
2	2	967	5MC	C4-N4	4.58	1.46	1.34
1	1	1915	3TD	C2-N3	4.57	1.48	1.38
2	2	1407	5MC	C4-N4	4.56	1.46	1.34
1	1	1962	5MC	C4-N4	4.56	1.46	1.34
1	1	2552	OMU	O2-C2	-4.44	1.14	1.23
2	2	1402	4OC	C2-N1	4.34	1.49	1.40
2	2	967	5MC	C2-N1	4.30	1.49	1.40
2	2	1407	5MC	C2-N1	4.29	1.49	1.40
2	2	1518	MA6	C9-N6	4.28	1.55	1.45
2	2	1519	MA6	C9-N6	4.27	1.55	1.45
1	1	745	1MG	C5-C6	4.26	1.56	1.45
1	1	1962	5MC	C2-N1	4.26	1.49	1.40
1	1	2251	OMG	C2-N1	4.20	1.48	1.37
2	2	1402	4OC	C5-C4	4.02	1.49	1.40
1	1	745	1MG	C2-N2	3.95	1.41	1.34
1	1	2069	G7M	C5-C6	3.86	1.54	1.43
1	1	2504	PSU	C6-C5	3.85	1.39	1.35
2	2	527	G7M	C5-C6	3.81	1.54	1.43
2	2	1498	UR3	C6-N1	3.78	1.47	1.38
4	4	342	PSU	C6-C5	3.71	1.39	1.35
1	1	2552	OMU	C4-N3	3.66	1.45	1.38
1	1	2605	PSU	C6-C5	3.63	1.39	1.35
1	1	1911	PSU	C6-C5	3.62	1.39	1.35
2	2	516	PSU	C6-C5	3.58	1.39	1.35
1	1	2498	OMC	C6-N1	3.56	1.46	1.38
4	4	347	PSU	C6-C5	3.56	1.39	1.35
1	1	955	PSU	C6-C5	3.56	1.39	1.35
1	1	746	PSU	C6-C5	3.52	1.39	1.35
1	1	1917	PSU	C6-C5	3.51	1.39	1.35
1	1	2552	OMU	O4-C4	-3.49	1.17	1.24
1	1	2580	PSU	C6-C5	3.38	1.39	1.35
1	1	2457	PSU	C6-C5	3.32	1.39	1.35
2	2	1516	2MG	C5-C6	3.23	1.56	1.44
1	1	2445	2MG	C5-C6	3.22	1.56	1.44
1	1	1835	2MG	C5-C6	3.21	1.56	1.44
2	2	966	2MG	C5-C6	3.21	1.56	1.44
2	2	1207	2MG	C5-C6	3.20	1.56	1.44
2	2	1402	4OC	C6-N1	3.20	1.45	1.38
2	2	1516	2MG	C5-N7	-3.00	1.33	1.39
2	2	1207	2MG	C5-N7	-2.99	1.33	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	1	2552	OMU	C6-N1	2.95	1.45	1.38
2	2	1498	UR3	C5-C4	2.93	1.51	1.43
1	1	2498	OMC	O2-C2	-2.93	1.18	1.23
2	2	966	2MG	C5-N7	-2.91	1.33	1.39
1	1	2445	2MG	C5-N7	-2.90	1.33	1.39
1	1	1915	3TD	C4-N3	2.87	1.46	1.40
1	1	1835	2MG	C5-N7	-2.86	1.33	1.39
1	1	2498	OMC	C5-C4	2.84	1.49	1.42
1	1	2251	OMG	C5-C6	2.84	1.54	1.44
1	1	2503	2MA	C8-N7	2.83	1.36	1.31
2	2	527	G7M	C2-N1	2.81	1.44	1.37
1	1	745	1MG	C5-N7	-2.71	1.33	1.39
1	1	2069	G7M	C2-N1	2.70	1.44	1.37
1	1	1962	5MC	O2-C2	-2.68	1.18	1.23
2	2	967	5MC	O2-C2	-2.66	1.18	1.23
2	2	1407	5MC	O2-C2	-2.66	1.18	1.23
1	1	2251	OMG	C5-N7	-2.65	1.33	1.39
2	2	1402	4OC	O2-C2	-2.61	1.18	1.23
2	2	527	G7M	C6-N1	2.55	1.43	1.38
1	1	2030	6MZ	C5-C4	-2.53	1.34	1.39
2	2	1519	MA6	C5-C4	-2.52	1.34	1.39
1	1	1915	3TD	O4-C4	-2.52	1.17	1.23
2	2	1518	MA6	C5-C4	-2.51	1.34	1.39
1	1	2503	2MA	C5-N7	-2.49	1.34	1.39
1	1	2069	G7M	O6-C6	-2.47	1.18	1.23
2	2	1498	UR3	O4-C4	-2.45	1.18	1.23
1	1	1618	6MZ	C5-C4	-2.43	1.34	1.39
16	M	81	4D4	CZ-NH1	2.42	1.44	1.34
1	1	2069	G7M	C6-N1	2.41	1.43	1.38
2	2	527	G7M	O6-C6	-2.40	1.19	1.23
2	2	1498	UR3	C4-N3	2.40	1.46	1.40
2	2	1498	UR3	O2-C2	-2.37	1.18	1.22
1	1	2552	OMU	C5-C4	2.31	1.48	1.43
2	2	1518	MA6	C5-N7	-2.25	1.34	1.39
1	1	2030	6MZ	C5-N7	-2.23	1.34	1.39
1	1	2445	2MG	C4-N9	-2.23	1.32	1.38
1	1	2445	2MG	C6-N1	2.22	1.42	1.38
2	2	1519	MA6	C5-N7	-2.20	1.34	1.39
1	1	1835	2MG	C4-N9	-2.19	1.32	1.38
2	2	966	2MG	C4-N9	-2.19	1.32	1.38
2	2	1516	2MG	C4-N9	-2.18	1.32	1.38
1	1	1618	6MZ	C5-N7	-2.16	1.34	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	2	1516	2MG	C6-N1	2.16	1.42	1.38
2	2	966	2MG	C6-N1	2.16	1.42	1.38
1	1	1835	2MG	C6-N1	2.16	1.42	1.38
2	2	1207	2MG	C6-N1	2.15	1.42	1.38
2	2	1207	2MG	C4-N9	-2.12	1.32	1.38
1	1	2580	PSU	O4'-C1'	-2.03	1.41	1.43

All (254) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	2	1518	MA6	N1-C6-N6	-15.06	100.62	117.08
2	2	1519	MA6	N1-C6-N6	-15.06	100.62	117.08
1	1	2503	2MA	C1'-N9-C8	-12.93	97.95	127.14
1	1	747	5MU	C5-C4-N3	11.95	125.52	115.31
1	1	1939	5MU	C5-C4-N3	11.93	125.49	115.31
1	1	2251	OMG	C1'-N9-C8	-11.84	93.00	126.70
4	4	341	5MU	C5-C4-N3	11.74	125.33	115.31
1	1	2251	OMG	C1'-N9-C4	11.09	159.45	126.50
1	1	2503	2MA	C4-N9-C1'	10.68	152.03	126.59
1	1	747	5MU	C5-C6-N1	-10.14	112.91	123.34
1	1	1939	5MU	C5-C6-N1	-10.01	113.04	123.34
4	4	341	5MU	C5-C6-N1	-9.20	113.87	123.34
2	2	1518	MA6	C5-C6-N6	8.30	139.77	125.30
2	2	1519	MA6	C5-C6-N6	8.29	139.74	125.30
2	2	966	2MG	C1'-N9-C8	-8.13	103.55	126.70
2	2	1207	2MG	C1'-N9-C8	-8.09	103.67	126.70
1	1	1835	2MG	C1'-N9-C8	-7.90	104.21	126.70
1	1	2445	2MG	C1'-N9-C8	-7.67	104.86	126.70
2	2	1516	2MG	C1'-N9-C8	-7.47	105.42	126.70
2	2	1518	MA6	C1'-N9-C8	-6.96	111.43	127.14
2	2	1519	MA6	C1'-N9-C8	-6.87	111.62	127.14
2	2	527	G7M	C1'-N9-C4	-6.75	106.45	126.50
1	1	1835	2MG	C2-N3-C4	6.39	119.96	112.04
1	1	2445	2MG	C2-N3-C4	6.26	119.80	112.04
2	2	966	2MG	C1'-N9-C4	6.24	145.04	126.50
2	2	1207	2MG	C2-N3-C4	6.24	119.78	112.04
2	2	966	2MG	C2-N3-C4	6.24	119.77	112.04
1	1	2069	G7M	C1'-N9-C4	-6.23	108.00	126.50
2	2	1207	2MG	C1'-N9-C4	6.22	144.97	126.50
2	2	1516	2MG	C2-N3-C4	6.17	119.69	112.04
1	1	1835	2MG	C1'-N9-C4	5.92	144.08	126.50
1	1	2445	2MG	C1'-N9-C4	5.90	144.01	126.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	2	1518	MA6	C4-N9-C1'	5.81	140.45	126.59
2	2	1516	2MG	C1'-N9-C4	5.81	143.76	126.50
2	2	1519	MA6	C4-N9-C1'	5.65	140.06	126.59
1	1	2503	2MA	N9-C8-N7	-5.62	106.23	113.91
1	1	2503	2MA	C5-C4-N3	-5.55	120.94	127.19
2	2	1519	MA6	N1-C2-N3	-5.55	119.93	128.60
1	1	1618	6MZ	N1-C2-N3	-5.44	120.09	128.60
1	1	1618	6MZ	C5-C4-N3	-5.38	119.73	126.75
2	2	1518	MA6	N1-C2-N3	-5.34	120.25	128.60
1	1	2030	6MZ	N1-C2-N3	-5.29	120.32	128.60
2	2	527	G7M	C1'-N9-C8	5.28	144.56	126.74
1	1	745	1MG	C5-C4-N3	-5.21	120.01	128.46
1	1	2552	OMU	C4-N3-C2	-5.14	119.81	126.58
1	1	2030	6MZ	C5-C4-N3	-5.13	120.06	126.75
2	2	1519	MA6	C5-C4-N3	-5.07	120.14	126.75
1	1	1915	3TD	N1-C2-N3	5.04	120.12	116.14
2	2	1518	MA6	C5-C4-N3	-5.03	120.18	126.75
1	1	2251	OMG	C5-C4-N3	-5.00	120.35	128.46
1	1	747	5MU	C4-N3-C2	-4.93	120.97	127.35
1	1	2069	G7M	C1'-N9-C8	4.88	143.20	126.74
1	1	1939	5MU	C4-N3-C2	-4.84	121.09	127.35
1	1	747	5MU	O4-C4-C5	-4.83	119.31	124.90
1	1	1939	5MU	O4-C4-C5	-4.80	119.34	124.90
2	2	1498	UR3	C4-N3-C2	-4.77	120.07	124.56
4	4	341	5MU	O4-C4-C5	-4.77	119.38	124.90
1	1	2069	G7M	C2-N3-C4	4.72	120.71	112.30
2	2	966	2MG	C5-C4-N3	-4.71	120.82	128.46
2	2	1207	2MG	C5-C4-N3	-4.69	120.86	128.46
1	1	2069	G7M	CN7-N7-C5	4.69	132.59	126.77
2	2	1516	2MG	C5-C4-N3	-4.62	120.97	128.46
1	1	2445	2MG	C5-C4-N3	-4.61	120.98	128.46
1	1	1835	2MG	C5-C4-N3	-4.60	121.00	128.46
4	4	342	PSU	C4-N3-C2	-4.59	119.72	126.34
1	1	746	PSU	C4-N3-C2	-4.58	119.75	126.34
4	4	347	PSU	C4-N3-C2	-4.57	119.76	126.34
1	1	1911	PSU	C4-N3-C2	-4.56	119.77	126.34
2	2	527	G7M	CN7-N7-C5	4.55	132.42	126.77
1	1	2605	PSU	C4-N3-C2	-4.54	119.80	126.34
1	1	2030	6MZ	N9-C8-N7	-4.54	107.71	113.91
1	1	2580	PSU	N1-C2-N3	4.53	120.27	115.13
1	1	2580	PSU	C4-N3-C2	-4.52	119.83	126.34
2	2	516	PSU	C4-N3-C2	-4.51	119.84	126.34

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	1	955	PSU	C4-N3-C2	-4.51	119.84	126.34
2	2	1519	MA6	N9-C8-N7	-4.50	107.76	113.91
1	1	747	5MU	N3-C2-N1	4.49	120.84	114.89
1	1	2069	G7M	C5-C4-N3	-4.48	119.55	128.15
1	1	2457	PSU	C4-N3-C2	-4.48	119.88	126.34
1	1	746	PSU	N1-C2-N3	4.47	120.19	115.13
1	1	1618	6MZ	N9-C8-N7	-4.46	107.82	113.91
2	2	516	PSU	N1-C2-N3	4.44	120.16	115.13
1	1	2605	PSU	N1-C2-N3	4.43	120.15	115.13
1	1	1911	PSU	N1-C2-N3	4.43	120.15	115.13
2	2	527	G7M	C2-N3-C4	4.42	120.17	112.30
1	1	1917	PSU	C4-N3-C2	-4.41	119.98	126.34
1	1	955	PSU	N1-C2-N3	4.41	120.12	115.13
4	4	347	PSU	N1-C2-N3	4.40	120.12	115.13
1	1	2251	OMG	C2-N3-C4	4.40	120.14	112.30
1	1	1917	PSU	N1-C2-N3	4.40	120.11	115.13
1	1	1939	5MU	N3-C2-N1	4.40	120.73	114.89
4	4	342	PSU	N1-C2-N3	4.38	120.09	115.13
4	4	341	5MU	C4-N3-C2	-4.37	121.69	127.35
1	1	1835	2MG	N9-C8-N7	-4.35	105.20	113.39
1	1	2504	PSU	N1-C2-N3	4.35	120.06	115.13
1	1	2457	PSU	N1-C2-N3	4.32	120.03	115.13
2	2	1518	MA6	N9-C8-N7	-4.29	108.04	113.91
1	1	2445	2MG	C2-N1-C6	-4.24	119.60	124.48
4	4	341	5MU	N3-C2-N1	4.23	120.51	114.89
1	1	2504	PSU	C4-N3-C2	-4.23	120.24	126.34
2	2	966	2MG	N9-C8-N7	-4.18	105.51	113.39
2	2	1207	2MG	N9-C8-N7	-4.15	105.58	113.39
46	q	89	0TD	OD2-CG-CB	4.13	122.08	113.15
1	1	2069	G7M	C5-C6-N1	4.12	120.39	111.79
1	1	2445	2MG	N9-C8-N7	-4.11	105.64	113.39
1	1	747	5MU	C5M-C5-C6	-4.10	117.37	122.85
2	2	966	2MG	C2-N1-C6	-4.10	119.76	124.48
2	2	1516	2MG	C2-N1-C6	-4.09	119.78	124.48
2	2	527	G7M	C5-C4-N3	-4.08	120.33	128.15
1	1	1939	5MU	C5M-C5-C6	-4.06	117.43	122.85
4	4	341	5MU	C5M-C5-C4	4.03	123.20	118.77
1	1	2030	6MZ	C9-N6-C6	-4.02	119.41	122.87
1	1	1835	2MG	C2-N1-C6	-4.01	119.87	124.48
1	1	1939	5MU	C5M-C5-C4	3.99	123.16	118.77
2	2	1516	2MG	N9-C8-N7	-3.98	105.89	113.39
2	2	1207	2MG	C2-N1-C6	-3.96	119.92	124.48

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	1	2503	2MA	C4-N9-C8	3.96	110.02	105.73
1	1	747	5MU	C5M-C5-C4	3.93	123.09	118.77
2	2	527	G7M	C5-C6-N1	3.91	119.96	111.79
4	4	341	5MU	C5M-C5-C6	-3.88	117.67	122.85
1	1	1618	6MZ	C4-C5-C6	3.85	119.79	116.81
1	1	1915	3TD	C4-N3-C2	-3.83	120.46	124.61
2	2	1518	MA6	C4-C5-C6	3.82	120.15	115.88
1	1	2552	OMU	N3-C2-N1	3.80	119.93	114.89
2	2	1519	MA6	C4-C5-C6	3.80	120.13	115.88
1	1	2503	2MA	C5-N7-C8	3.74	108.82	103.51
1	1	2069	G7M	N9-C4-N3	3.70	133.37	125.94
1	1	2069	G7M	CN7-N7-C8	-3.66	119.20	124.84
2	2	1207	2MG	N9-C4-N3	3.64	133.26	125.94
2	2	966	2MG	N9-C4-N3	3.64	133.25	125.94
1	1	2503	2MA	N3-C4-N9	3.62	132.01	126.99
2	2	1519	MA6	C2-N1-C6	3.62	120.29	111.75
1	1	1618	6MZ	C2-N3-C4	3.61	120.28	111.75
2	2	527	G7M	CN7-N7-C8	-3.61	119.27	124.84
1	1	1835	2MG	N9-C4-N3	3.60	133.17	125.94
2	2	1518	MA6	C2-N1-C6	3.56	120.16	111.75
1	1	745	1MG	C2-N3-C4	3.56	119.97	111.98
1	1	1618	6MZ	C9-N6-C6	-3.53	119.83	122.87
1	1	2030	6MZ	C4-C5-C6	3.52	119.53	116.81
1	1	2030	6MZ	C2-N3-C4	3.46	119.93	111.75
16	M	81	4D4	NE-CZ-NH2	3.44	126.75	120.70
2	2	1519	MA6	C2-N3-C4	3.44	119.87	111.75
2	2	527	G7M	O6-C6-C5	-3.43	120.32	128.06
1	1	1962	5MC	C5-C6-N1	-3.42	119.82	123.34
1	1	2069	G7M	O6-C6-C5	-3.40	120.38	128.06
1	1	2445	2MG	N9-C4-N3	3.40	132.77	125.94
1	1	1618	6MZ	N3-C4-N9	3.40	132.68	127.08
2	2	1516	2MG	N9-C4-N3	3.35	132.67	125.94
2	2	1518	MA6	C2-N3-C4	3.34	119.64	111.75
1	1	2552	OMU	C5-C4-N3	3.30	119.77	114.84
2	2	1519	MA6	C5-N7-C8	3.29	108.19	103.51
2	2	967	5MC	C5-C6-N1	-3.29	119.96	123.34
2	2	1407	5MC	C5-C6-N1	-3.29	119.96	123.34
1	1	1618	6MZ	C5-N7-C8	3.27	108.16	103.51
1	1	2030	6MZ	C5-N7-C8	3.23	108.10	103.51
1	1	745	1MG	N9-C4-N3	3.15	132.26	125.94
2	2	1518	MA6	C5-N7-C8	3.15	107.98	103.51
2	2	527	G7M	N9-C4-N3	3.12	132.21	125.94

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	1	2503	2MA	N3-C2-N1	-3.12	119.98	125.72
1	1	2030	6MZ	N3-C4-N9	3.09	132.17	127.08
1	1	2580	PSU	O2-C2-N1	-3.09	119.39	122.79
2	2	1519	MA6	N3-C4-N9	3.07	132.15	127.08
1	1	2069	G7M	C2-N1-C6	-3.02	119.59	125.10
4	4	341	5MU	C1'-N1-C2	3.02	123.03	117.57
2	2	1518	MA6	N3-C4-N9	3.01	132.04	127.08
1	1	1835	2MG	C8-N9-C4	2.97	111.71	106.05
1	1	745	1MG	N9-C8-N7	-2.97	107.79	113.39
1	1	745	1MG	C1'-N9-C4	-2.97	117.68	126.50
1	1	2251	OMG	C2-N1-C6	-2.97	119.69	125.10
2	2	527	G7M	C2-N1-C6	-2.88	119.85	125.10
1	1	2552	OMU	O4-C4-C5	-2.84	120.17	125.16
2	2	966	2MG	C8-N9-C4	2.80	111.38	106.05
2	2	1207	2MG	C8-N9-C4	2.79	111.36	106.05
1	1	1835	2MG	N1-C2-N3	-2.72	119.74	123.95
1	1	1835	2MG	C5-C6-N1	2.71	120.07	113.19
1	1	2251	OMG	C5-C6-N1	2.70	120.05	113.19
1	1	2251	OMG	N9-C4-N3	2.70	131.35	125.94
1	1	745	1MG	C5-C6-N1	2.69	120.10	114.91
1	1	2251	OMG	N9-C8-N7	-2.68	108.34	113.39
1	1	2457	PSU	O2-C2-N1	-2.68	119.84	122.79
1	1	2445	2MG	C8-N9-C4	2.67	111.13	106.05
1	1	2445	2MG	C5-C6-N1	2.65	119.93	113.19
1	1	746	PSU	O2-C2-N1	-2.65	119.87	122.79
1	1	2580	PSU	O4'-C1'-C2'	2.63	108.86	105.14
1	1	1911	PSU	O2-C2-N1	-2.62	119.90	122.79
1	1	2605	PSU	O2-C2-N1	-2.62	119.90	122.79
1	1	1917	PSU	O2-C2-N1	-2.62	119.91	122.79
4	4	347	PSU	O2-C2-N1	-2.61	119.92	122.79
2	2	966	2MG	C5-C6-N1	2.61	119.81	113.19
46	q	89	0TD	OD1-CG-CB	-2.61	116.98	122.44
1	1	1835	2MG	C8-N7-C5	2.60	108.94	104.24
1	1	955	PSU	O2-C2-N1	-2.58	119.94	122.79
1	1	1939	5MU	O4-C4-N3	-2.58	115.17	120.12
2	2	1516	2MG	C5-C6-N1	2.58	119.74	113.19
1	1	747	5MU	O4-C4-N3	-2.58	115.18	120.12
2	2	1207	2MG	C5-C6-N1	2.58	119.73	113.19
2	2	1207	2MG	N1-C2-N3	-2.58	119.97	123.95
1	1	745	1MG	C1'-N9-C8	2.57	134.02	126.70
4	4	342	PSU	O2-C2-N1	-2.54	119.99	122.79
1	1	2504	PSU	O2-C2-N1	-2.54	120.00	122.79

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	2	1207	2MG	C8-N7-C5	2.53	108.81	104.24
2	2	966	2MG	C8-N7-C5	2.52	108.80	104.24
4	4	341	5MU	O4-C4-N3	-2.52	115.29	120.12
2	2	1516	2MG	C8-N9-C4	2.50	110.81	106.05
1	1	747	5MU	O2-C2-N1	-2.49	119.47	122.79
1	1	2445	2MG	C8-N7-C5	2.49	108.75	104.24
1	1	2251	OMG	O6-C6-C5	-2.49	120.00	126.60
2	2	966	2MG	N1-C2-N3	-2.49	120.11	123.95
1	1	1835	2MG	O6-C6-C5	-2.48	120.02	126.60
2	2	1516	2MG	C8-N7-C5	2.47	108.70	104.24
1	1	2504	PSU	C6-N1-C2	-2.46	120.17	122.68
1	1	2445	2MG	O6-C6-C5	-2.46	120.07	126.60
1	1	2445	2MG	N1-C2-N3	-2.45	120.17	123.95
1	1	1939	5MU	O2-C2-N1	-2.44	119.54	122.79
2	2	1516	2MG	N1-C2-N3	-2.44	120.18	123.95
1	1	1618	6MZ	C4-N9-C8	2.42	108.35	105.73
1	1	2030	6MZ	C4-N9-C8	2.42	108.35	105.73
2	2	516	PSU	O2-C2-N1	-2.42	120.13	122.79
2	2	966	2MG	O6-C6-C5	-2.41	120.21	126.60
1	1	2030	6MZ	C4-N9-C1'	-2.41	120.85	126.59
2	2	1516	2MG	O6-C6-C5	-2.40	120.22	126.60
2	2	1519	MA6	C4-N9-C8	2.39	108.32	105.73
1	1	2580	PSU	C6-N1-C2	-2.39	120.24	122.68
2	2	1207	2MG	O6-C6-C5	-2.38	120.28	126.60
16	M	81	4D4	CB-CA-C	-2.32	108.07	111.77
1	1	1962	5MC	CM5-C5-C6	-2.31	119.76	122.85
2	2	1402	4OC	C6-C5-C4	2.29	119.77	116.96
1	1	1917	PSU	C6-N1-C2	-2.25	120.38	122.68
1	1	2503	2MA	C4-C5-N7	-2.24	107.88	110.62
1	1	955	PSU	C6-N1-C2	-2.22	120.41	122.68
1	1	2445	2MG	CM2-N2-C2	-2.20	119.00	123.86
1	1	2503	2MA	CM2-C2-N1	2.20	120.59	117.15
1	1	2605	PSU	C6-N1-C2	-2.20	120.44	122.68
2	2	1518	MA6	C4-N9-C8	2.19	108.10	105.73
4	4	341	5MU	C1'-N1-C6	-2.19	117.48	121.12
2	2	516	PSU	C6-N1-C2	-2.19	120.44	122.68
16	M	81	4D4	O-C-CA	-2.19	119.04	124.78
1	1	746	PSU	C6-C5-C4	2.18	119.72	118.20
4	4	347	PSU	C6-C5-C4	2.17	119.71	118.20
1	1	746	PSU	C6-N1-C2	-2.16	120.47	122.68
1	1	745	1MG	C8-N7-C5	2.15	108.13	104.24
2	2	1519	MA6	C4-C5-N7	-2.14	108.01	110.62

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	1	1911	PSU	C6-N1-C2	-2.13	120.50	122.68
1	1	1618	6MZ	C4-C5-N7	-2.08	108.08	110.62
1	1	2030	6MZ	C4-C5-N7	-2.08	108.08	110.62
1	1	2251	OMG	C8-N7-C5	2.06	107.97	104.24
2	2	1518	MA6	C4-C5-N7	-2.06	108.11	110.62
1	1	2503	2MA	N6-C6-N1	2.05	119.94	117.03
1	1	2030	6MZ	C5-C6-N1	2.04	120.38	118.20
1	1	2457	PSU	C6-N1-C2	-2.03	120.61	122.68
2	2	1407	5MC	CM5-C5-C6	-2.02	120.14	122.85
4	4	347	PSU	C6-N1-C2	-2.02	120.62	122.68
1	1	2552	OMU	O2-C2-N1	-2.01	120.11	122.79
2	2	967	5MC	CM5-C5-C6	-2.01	120.17	122.85

There are no chirality outliers.

All (68) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
16	M	81	4D4	C-CA-CB-OB
16	M	81	4D4	C-CA-CB-CG
16	M	81	4D4	N-CA-CB-OB
16	M	81	4D4	N-CA-CB-CG
1	1	1618	6MZ	N1-C6-N6-C9
1	1	1915	3TD	O4'-C1'-C5-C4
1	1	1915	3TD	C2'-C1'-C5-C6
1	1	1915	3TD	O4'-C1'-C5-C6
1	1	1939	5MU	O4'-C4'-C5'-O5'
1	1	2504	PSU	C2'-C1'-C5-C4
1	1	2504	PSU	O4'-C1'-C5-C4
1	1	2504	PSU	C2'-C1'-C5-C6
1	1	2504	PSU	O4'-C1'-C5-C6
1	1	2552	OMU	C1'-C2'-O2'-CM2
2	2	516	PSU	C2'-C1'-C5-C6
2	2	516	PSU	O4'-C1'-C5-C6
2	2	516	PSU	C3'-C4'-C5'-O5'
2	2	516	PSU	O4'-C4'-C5'-O5'
2	2	527	G7M	O4'-C4'-C5'-O5'
2	2	527	G7M	C3'-C4'-C5'-O5'
2	2	966	2MG	O4'-C4'-C5'-O5'
2	2	966	2MG	C3'-C4'-C5'-O5'
2	2	1207	2MG	O4'-C4'-C5'-O5'
2	2	1207	2MG	C3'-C4'-C5'-O5'
2	2	1519	MA6	O4'-C4'-C5'-O5'

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Mol	Chain	Res	Type	Atoms
2	2	1519	MA6	C3'-C4'-C5'-O5'
4	4	341	5MU	O4'-C4'-C5'-O5'
4	4	342	PSU	C3'-C4'-C5'-O5'
4	4	342	PSU	C4'-C5'-O5'-P
4	4	347	PSU	C3'-C4'-C5'-O5'
4	4	347	PSU	O4'-C4'-C5'-O5'
1	1	1835	2MG	O4'-C4'-C5'-O5'
1	1	2069	G7M	O4'-C4'-C5'-O5'
1	1	2069	G7M	C3'-C4'-C5'-O5'
1	1	2445	2MG	C3'-C4'-C5'-O5'
1	1	2498	OMC	C3'-C4'-C5'-O5'
1	1	2498	OMC	O4'-C4'-C5'-O5'
4	4	341	5MU	C3'-C4'-C5'-O5'
1	1	1835	2MG	C3'-C4'-C5'-O5'
1	1	1939	5MU	C3'-C4'-C5'-O5'
4	4	342	PSU	O4'-C4'-C5'-O5'
1	1	1962	5MC	C2'-C1'-N1-C6
1	1	2251	OMG	O4'-C4'-C5'-O5'
1	1	2445	2MG	O4'-C4'-C5'-O5'
2	2	1498	UR3	O4'-C4'-C5'-O5'
2	2	1518	MA6	C5-C6-N6-C10
1	1	1962	5MC	C2'-C1'-N1-C2
1	1	1962	5MC	O4'-C1'-N1-C6
1	1	2030	6MZ	O4'-C4'-C5'-O5'
46	q	89	0TD	CG-CB-SB-CSB
2	2	1207	2MG	C4'-C5'-O5'-P
2	2	1498	UR3	C3'-C4'-C5'-O5'
2	2	516	PSU	C4'-C5'-O5'-P
1	1	2030	6MZ	C3'-C4'-C5'-O5'
1	1	1962	5MC	O4'-C1'-N1-C2
4	4	347	PSU	C4'-C5'-O5'-P
4	4	341	5MU	C2'-C1'-N1-C2
4	4	341	5MU	C2'-C1'-N1-C6
2	2	967	5MC	C4'-C5'-O5'-P
4	4	341	5MU	C4'-C5'-O5'-P
1	1	746	PSU	O4'-C1'-C5-C4
2	2	516	PSU	O4'-C1'-C5-C4
1	1	1618	6MZ	C5-C6-N6-C9
1	1	2251	OMG	C3'-C4'-C5'-O5'
1	1	2445	2MG	C4'-C5'-O5'-P
1	1	1835	2MG	C2'-C1'-N9-C4
1	1	2503	2MA	C4'-C5'-O5'-P

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Mol	Chain	Res	Type	Atoms
2	2	1207	2MG	C2'-C1'-N9-C8

There are no ring outliers.

21 monomers are involved in 35 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	2	1516	2MG	4	0
1	1	2445	2MG	2	0
4	4	347	PSU	1	0
1	1	2030	6MZ	2	0
2	2	516	PSU	4	0
4	4	341	5MU	2	0
1	1	2580	PSU	4	0
1	1	2504	PSU	2	0
2	2	967	5MC	1	0
2	2	1402	4OC	1	0
1	1	1939	5MU	1	0
1	1	2457	PSU	1	0
1	1	2498	OMC	1	0
1	1	2503	2MA	1	0
2	2	1518	MA6	4	0
1	1	2552	OMU	2	0
4	4	342	PSU	1	0
2	2	1207	2MG	1	0
1	1	746	PSU	1	0
16	M	81	4D4	1	0
2	2	1519	MA6	1	0

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 214 ligands modelled in this entry, 214 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

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

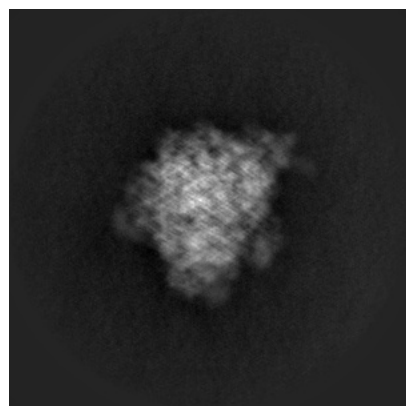
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-11718. These allow visual inspection of the internal detail of the map and identification of artifacts.

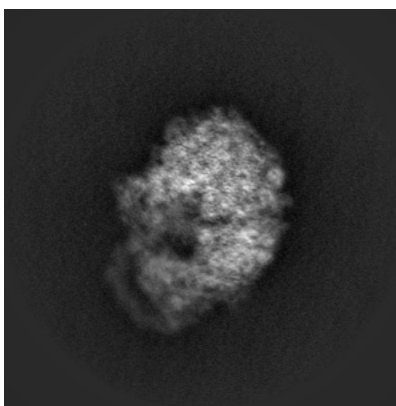
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

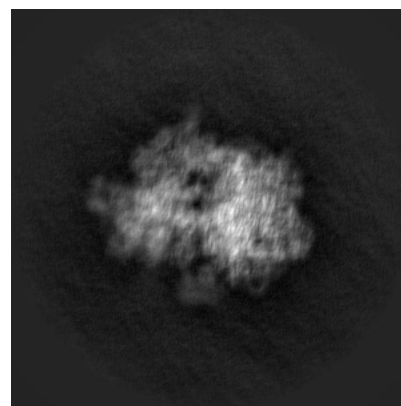
6.1.1 Primary map



X

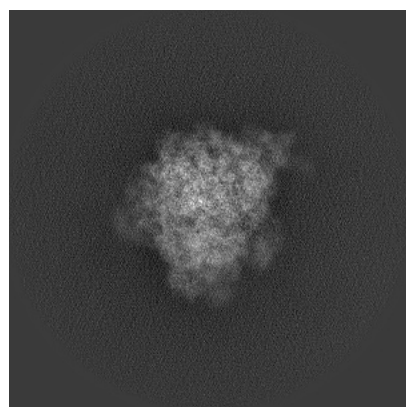


Y

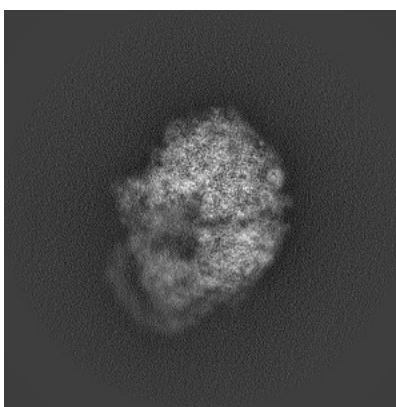


Z

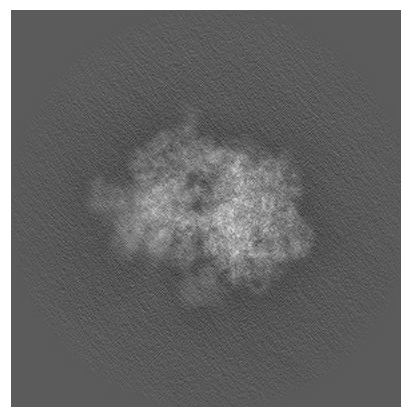
6.1.2 Raw map



X



Y

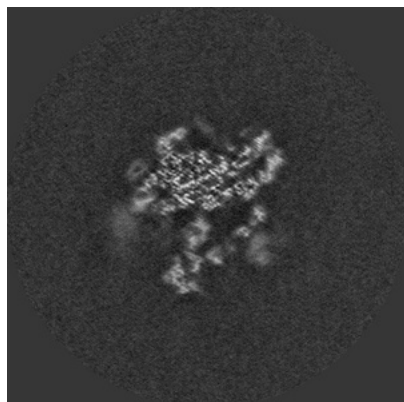


Z

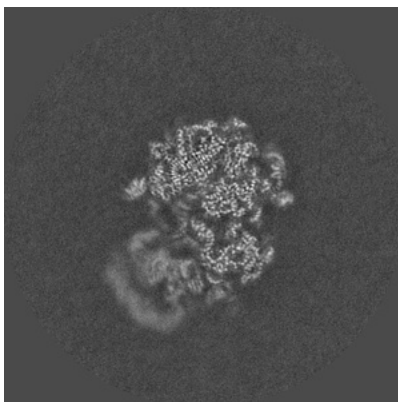
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

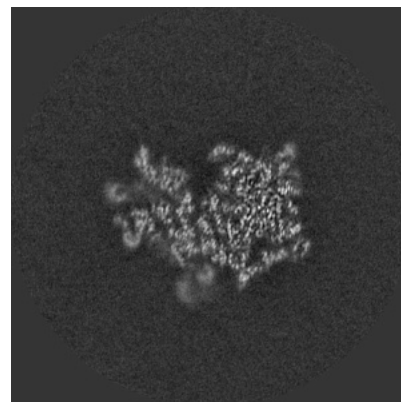
6.2.1 Primary map



X Index: 240

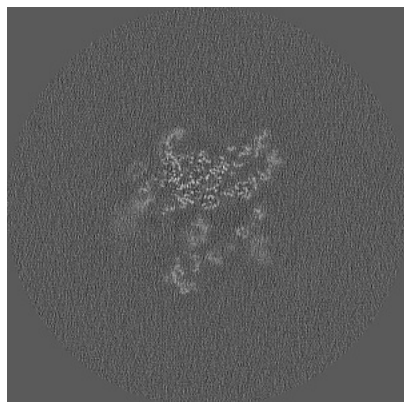


Y Index: 240

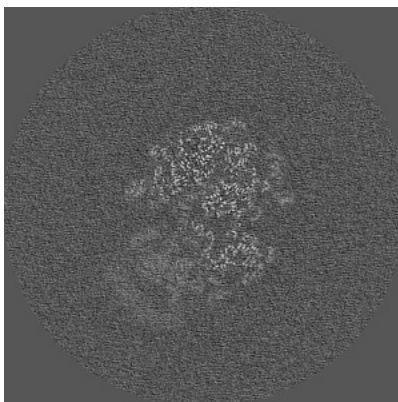


Z Index: 240

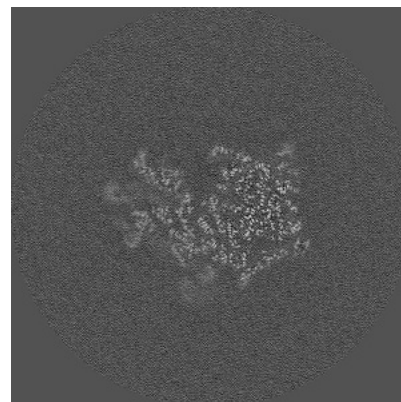
6.2.2 Raw map



X Index: 240



Y Index: 240

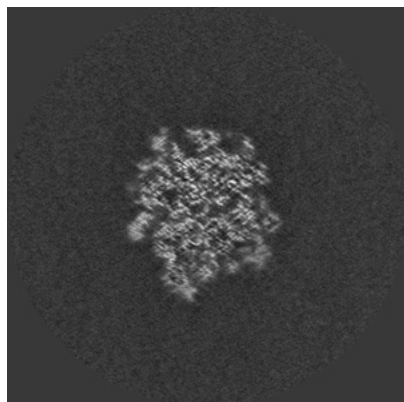


Z Index: 240

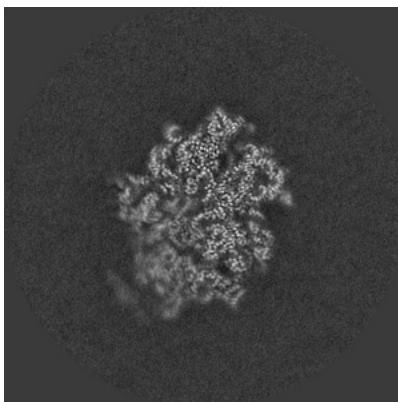
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

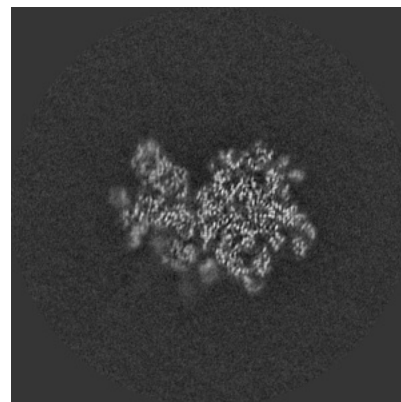
6.3.1 Primary map



X Index: 266

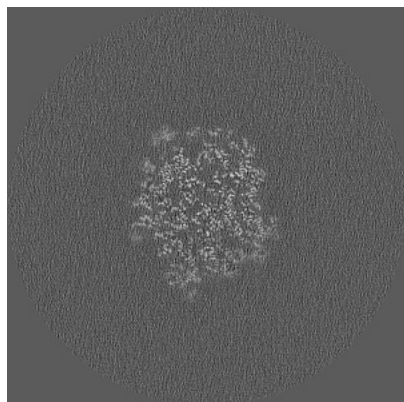


Y Index: 227

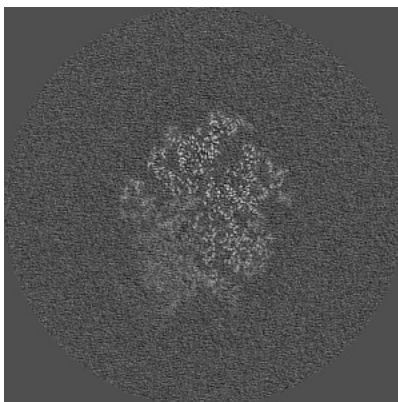


Z Index: 250

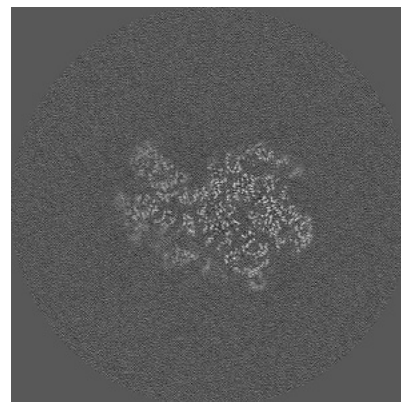
6.3.2 Raw map



X Index: 272



Y Index: 230

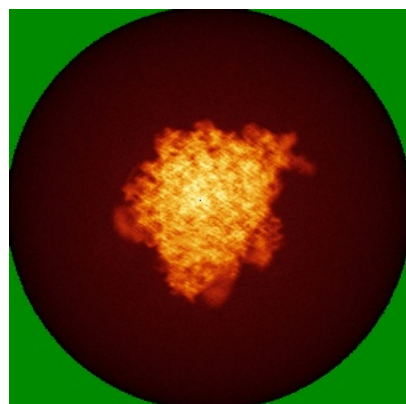


Z Index: 254

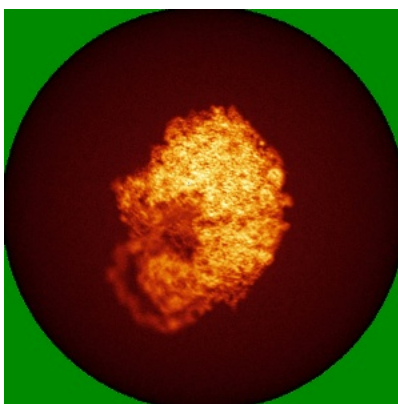
The images above show the largest variance slices of the map in three orthogonal directions.

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

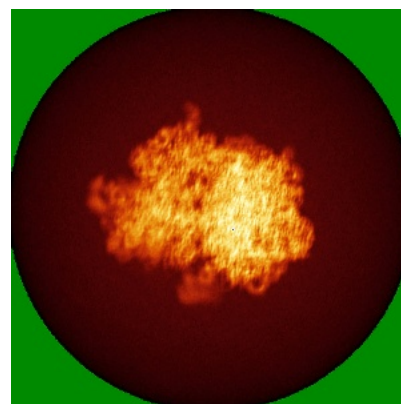
6.4.1 Primary map



X

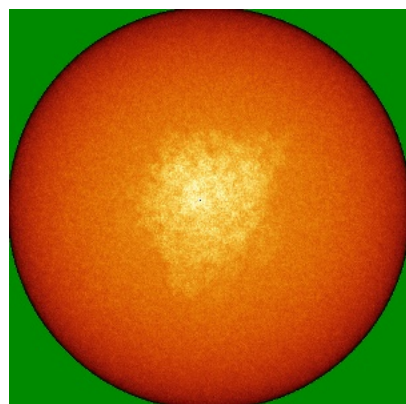


Y

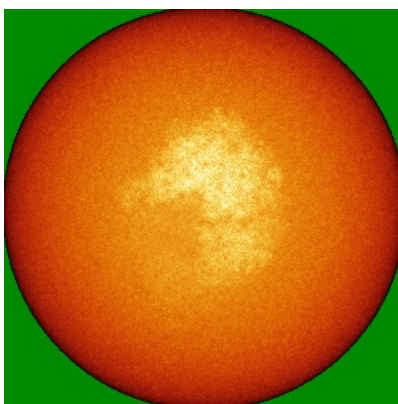


Z

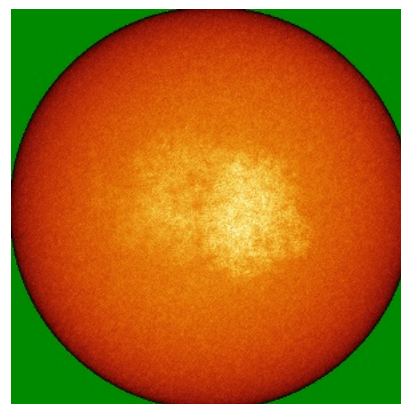
6.4.2 Raw map



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



X



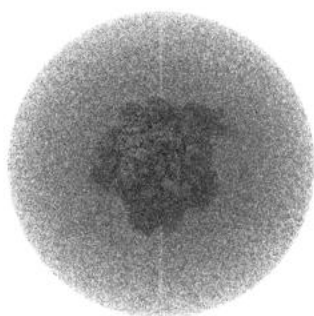
Y



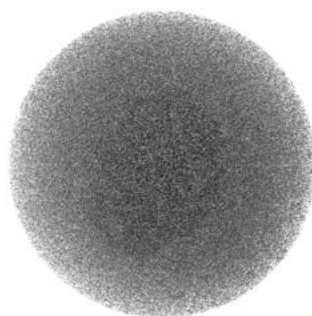
Z

The images above show the 3D surface view of the map at the recommended contour level 2.5. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

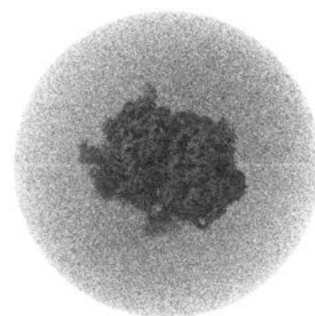
6.5.2 Raw map



X



Y



Z

These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

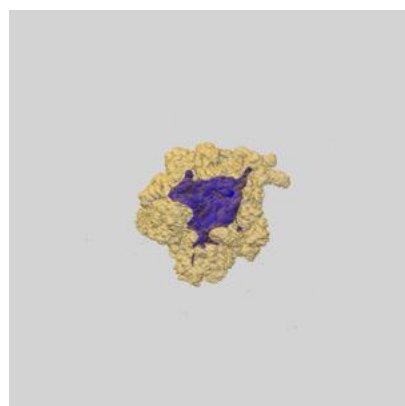
6.6 Mask visualisation [i](#)

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

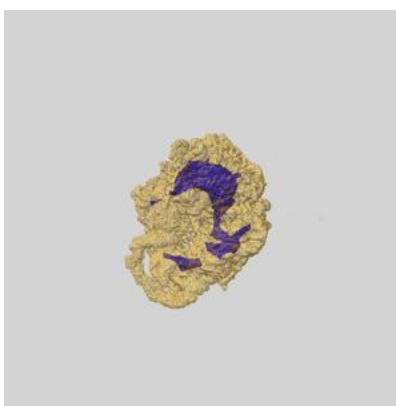
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

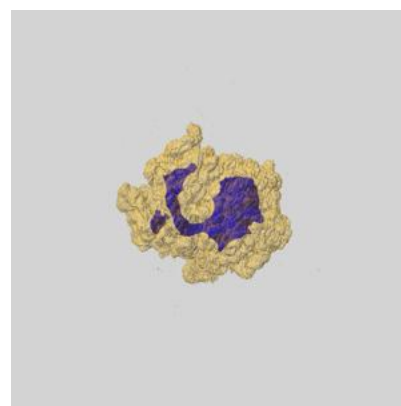
6.6.1 emd_11718_msk_1.map [i](#)



X



Y

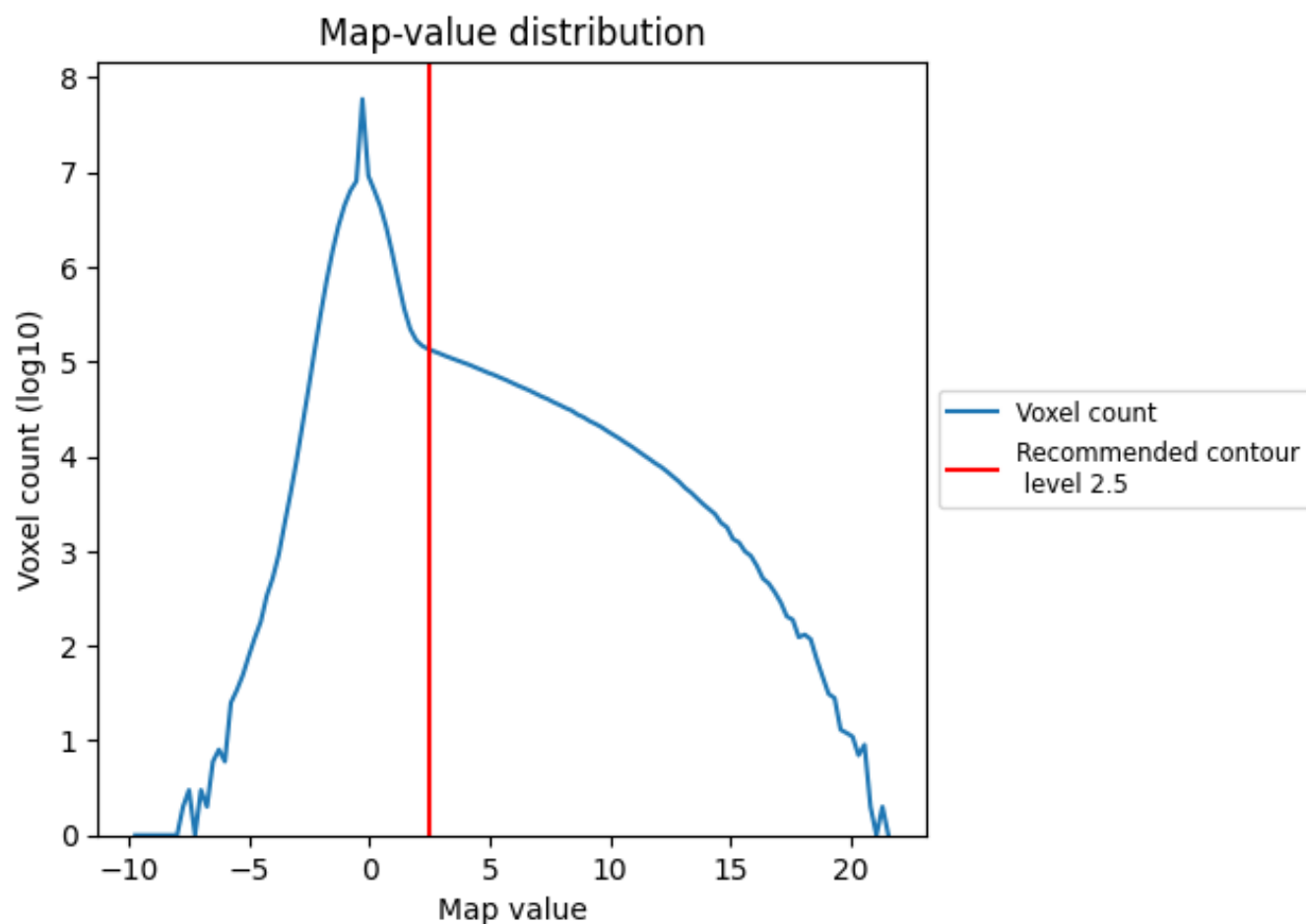


Z

7 Map analysis [i](#)

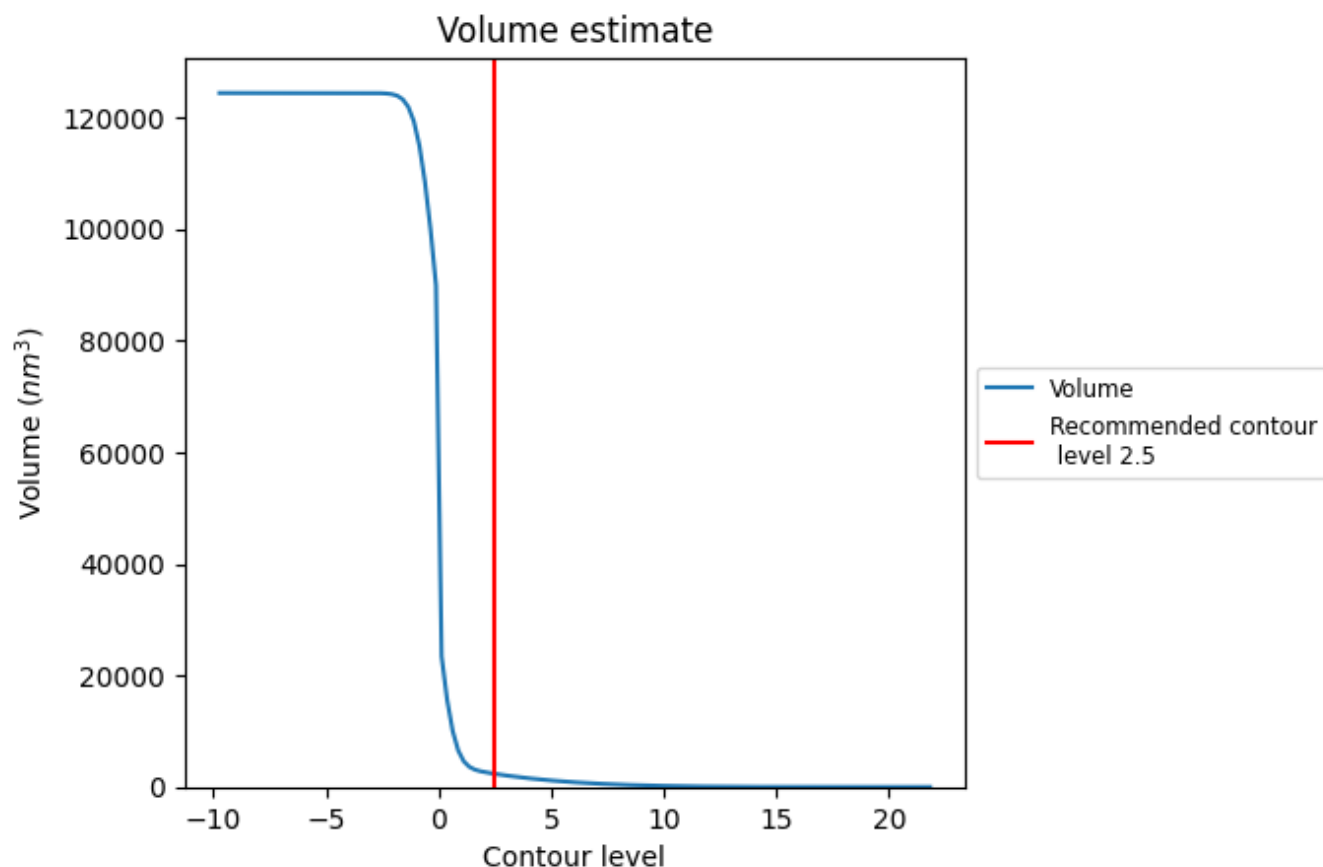
This section contains the results of statistical analysis of the map.

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.

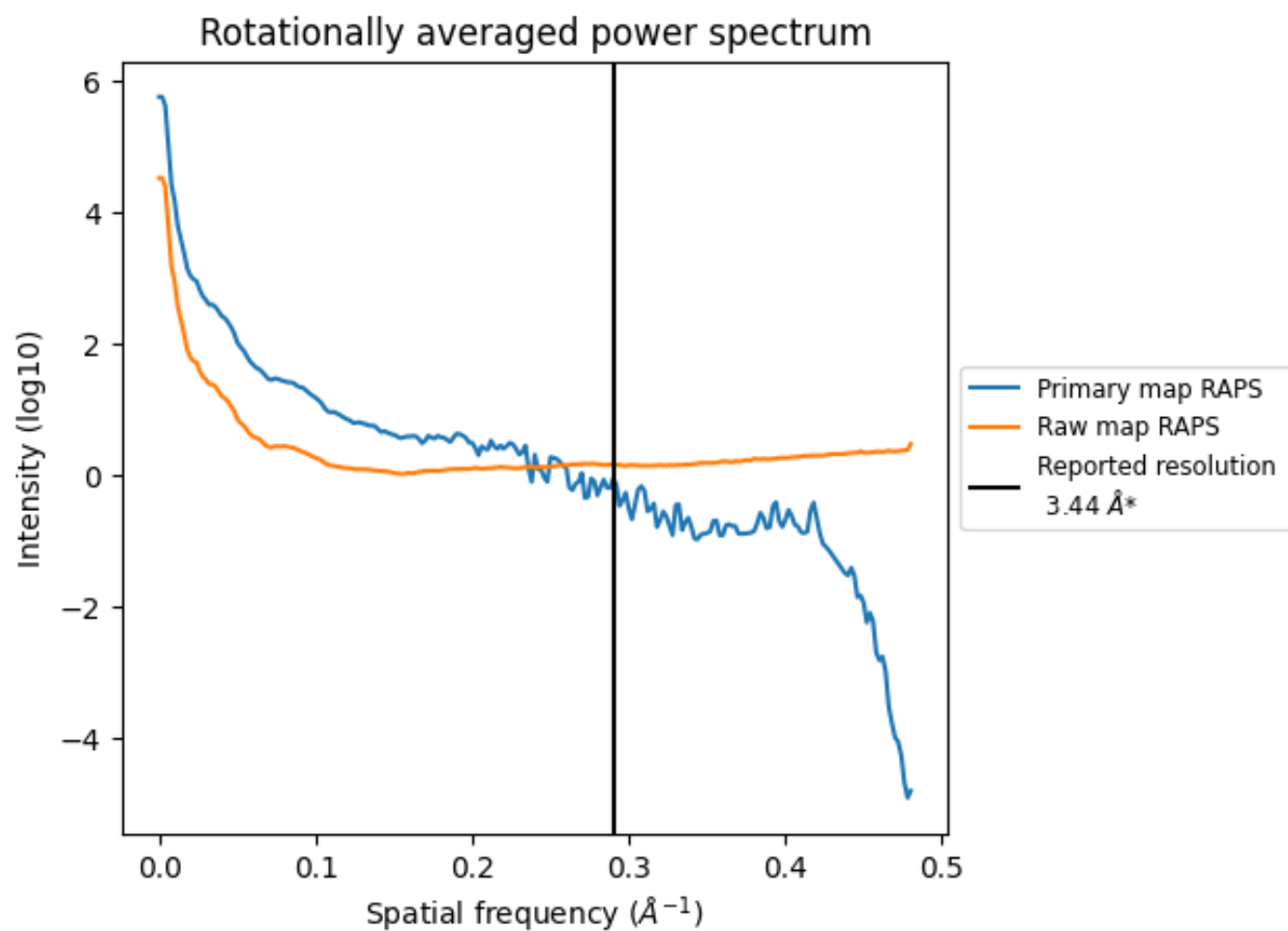
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 2351 nm³; this corresponds to an approximate mass of 2123 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 ⓘ

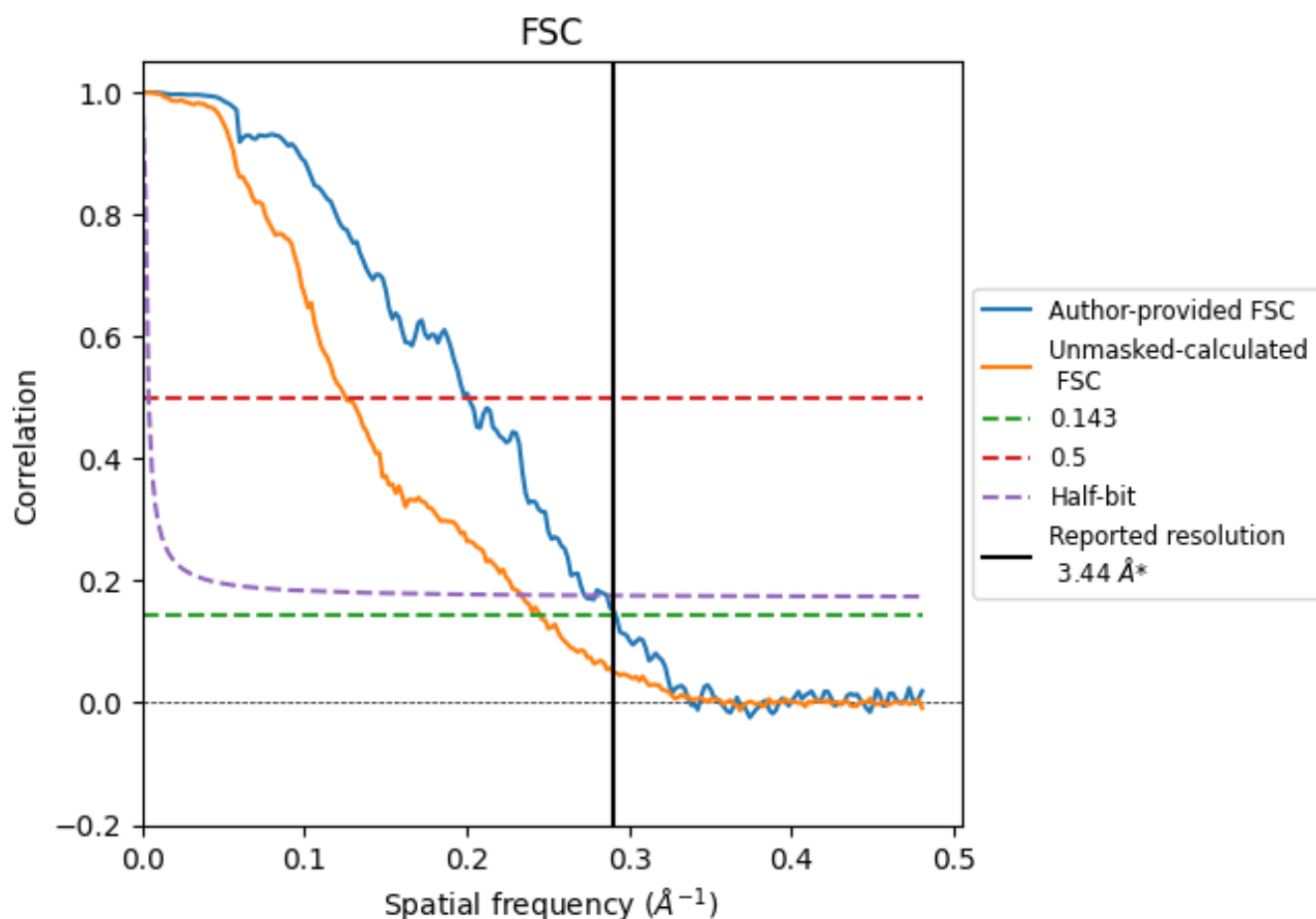


*Reported resolution corresponds to spatial frequency of 0.291 Å⁻¹

8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.291 Å⁻¹

8.2 Resolution estimates [i](#)

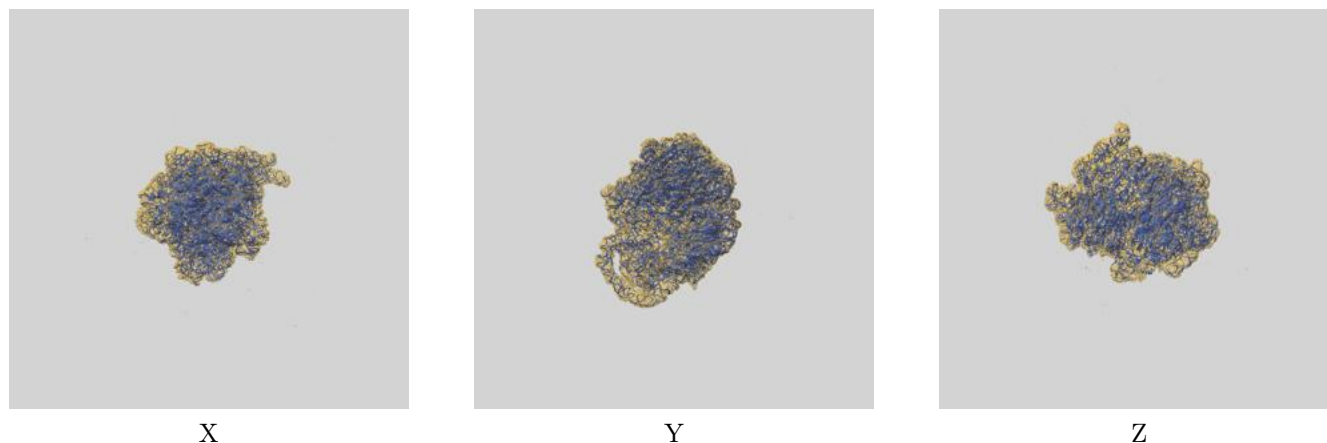
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.44	-	-
Author-provided FSC curve	3.43	4.97	3.67
Unmasked-calculated*	4.08	7.97	4.28

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 4.08 differs from the reported value 3.44 by more than 10 %

9 Map-model fit [i](#)

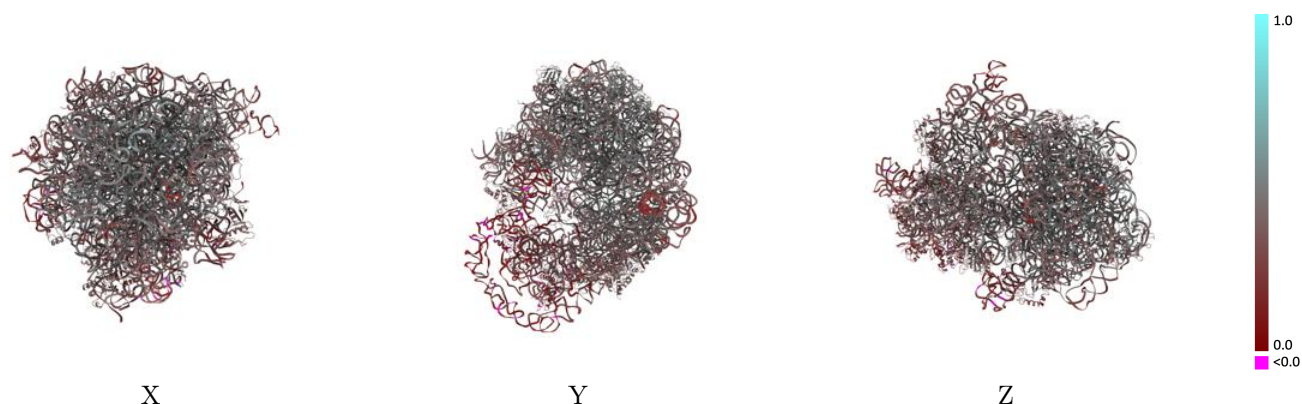
This section contains information regarding the fit between EMDB map EMD-11718 and PDB model 7ACR. Per-residue inclusion information can be found in section [3](#) on page [15](#).

9.1 Map-model overlay [i](#)



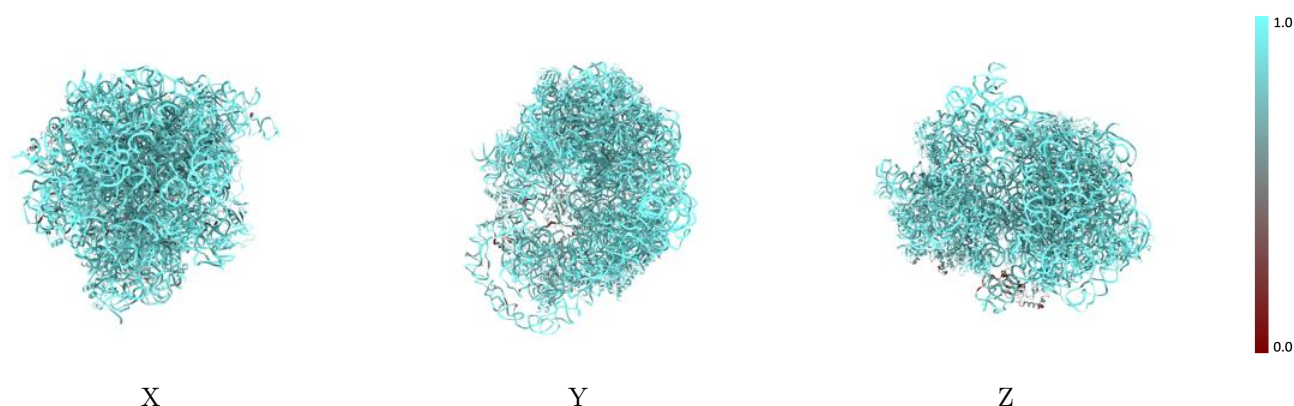
The images above show the 3D surface view of the map at the recommended contour level 2.5 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



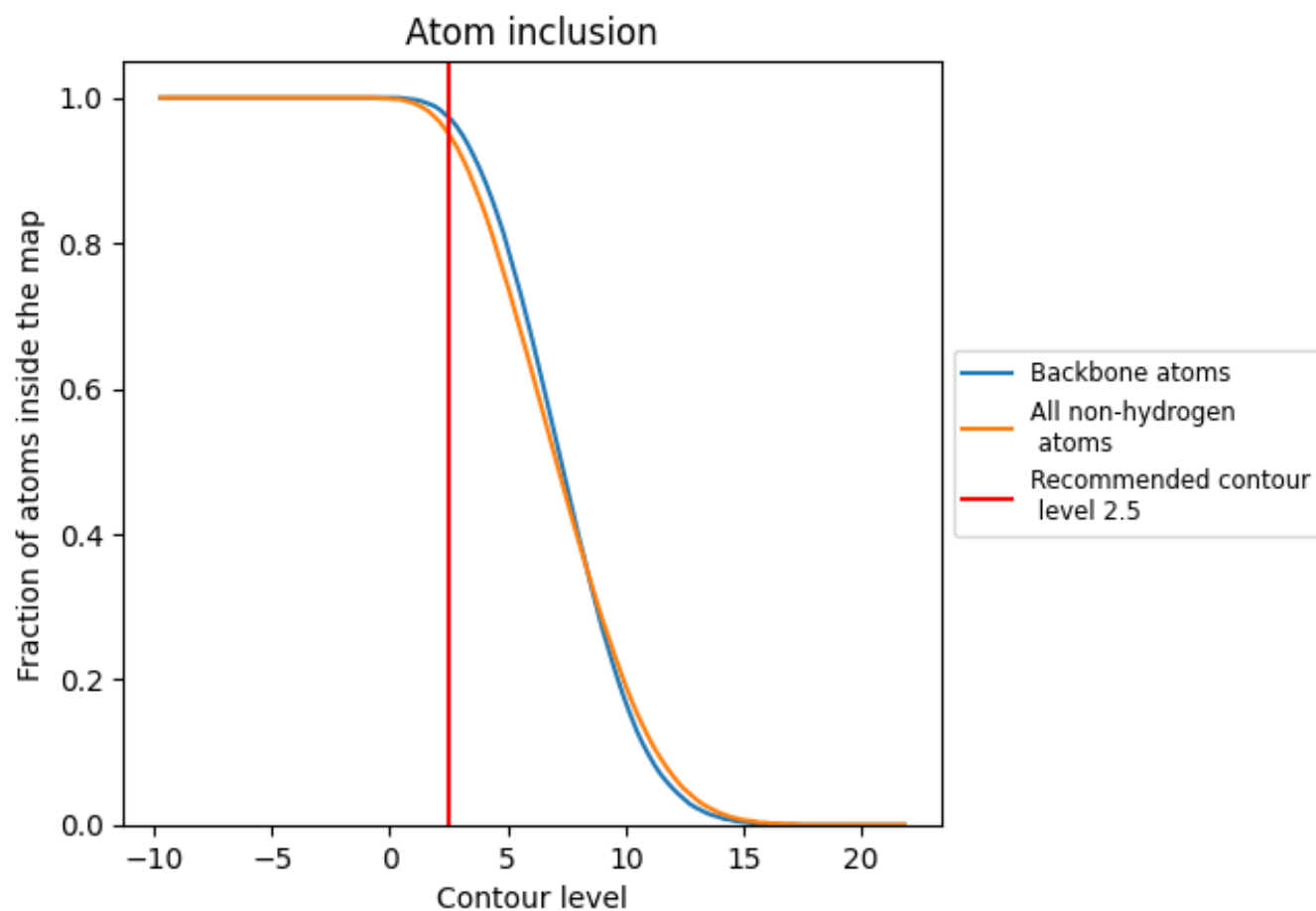
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (2.5).

9.4 Atom inclusion ⓘ



At the recommended contour level, 97% of all backbone atoms, 95% 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 (2.5) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9500	 0.3800
1	 0.9790	 0.4150
2	 0.9850	 0.3600
3	 0.9880	 0.3760
4	 0.8800	 0.1830
5	 0.8070	 0.3650
A	 0.9470	 0.4460
B	 0.9430	 0.4660
C	 0.9300	 0.4390
D	 0.9470	 0.4540
E	 0.9000	 0.2880
F	 0.9350	 0.3640
G	 0.5120	 0.2790
J	 0.9230	 0.4270
K	 0.9350	 0.4600
L	 0.9480	 0.4560
M	 0.9360	 0.4400
N	 0.9430	 0.4400
O	 0.9380	 0.3530
P	 0.9190	 0.4550
Q	 0.9420	 0.4370
R	 0.9330	 0.4470
S	 0.9410	 0.4720
T	 0.9300	 0.4350
U	 0.9370	 0.4320
V	 0.9290	 0.3950
W	 0.8120	 0.4160
X	 0.9200	 0.4520
Y	 0.9100	 0.3590
Z	 0.9220	 0.4370
a	 0.6250	 0.2430
b	 0.9420	 0.4540
c	 0.9090	 0.4230
d	 0.9520	 0.4900
e	 0.9330	 0.4590



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Chain	Atom inclusion	Q-score
f	 0.9040	 0.4320
g	 0.9060	 0.3620
h	 0.8710	 0.2500
i	 0.9080	 0.3680
j	 0.9190	 0.4330
k	 0.8970	 0.3710
l	 0.6660	 0.1960
m	 0.9240	 0.4320
n	 0.8860	 0.2290
o	 0.8810	 0.2470
p	 0.9330	 0.4010
q	 0.9170	 0.4100
r	 0.7990	 0.2210
s	 0.8970	 0.2530
t	 0.9440	 0.3980
u	 0.9230	 0.4060
v	 0.9350	 0.3890
w	 0.8980	 0.3850
x	 0.7480	 0.1520
y	 0.9130	 0.3680
z	 0.8250	 0.3290