



Full wwPDB EM Validation Report ⓘ

May 6, 2025 – 07:03 AM EDT

PDB ID : 8T5H / pdb_00008t5h
EMDB ID : EMD-41050
Title : Cryo-EM studies of the interplay between uS2 ribosomal protein and leaderless mRNA during bacterial translation initiation
Authors : Bhattacharjee, S.; Gottesman, M.E.; Frank, J.
Deposited on : 2023-06-13
Resolution : 3.30 Å(reported)

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

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

A user guide is available at

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

The types of validation reports are described at

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

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

EMDB validation analysis : 0.0.1.dev118
MolProbity : 4-5-2 with Phenix2.0rc1
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.43.1

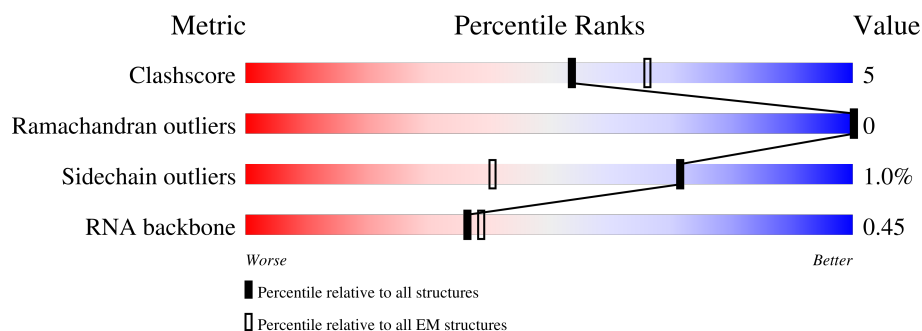
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.30 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)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415
RNA backbone	6643	2191

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	0	56	29% 84% 14% .
2	1	51	41% 86% 14%
3	2	46	11% 87% 13%
4	3	64	6% 91% 9%
5	4	38	32% 82% 16% .
6	A	117	28% 62% 34% .
7	B	2903	16% 66% 31% .

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Mol	Chain	Length	Quality of chain
8	C	272	
9	D	209	
10	E	201	
11	F	178	
12	G	176	
13	J	142	
14	K	122	
15	L	143	
16	M	136	
17	N	121	
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	79	
27	X	77	
28	Y	63	
29	Z	58	
30	b	206	
31	c	205	
32	d	150	

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Mol	Chain	Length	Quality of chain
33	e	100	
34	f	151	
35	g	129	
36	h	127	
37	i	98	
38	j	117	
39	k	123	
40	l	114	
41	m	100	
42	n	88	
43	o	82	
44	p	80	
45	q	55	
46	r	79	
47	s	85	
48	u	59	
49	v	1539	
50	x	12	
51	5	77	

2 Entry composition

There are 51 unique types of molecules in this entry. The entry contains 140621 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 protein called 50S ribosomal protein L32.

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

- Molecule 2 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms				AltConf	Trace
2	1	51	Total	C	N	O	0	1
			410	263	76	71		

- Molecule 3 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	2	46	Total	C	N	O	S	0	0
			377	228	90	57	2		

- Molecule 4 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	3	64	Total	C	N	O	S	0	0
			504	323	105	74	2		

- Molecule 5 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	4	38	Total	C	N	O	S	0	0
			302	185	65	48	4		

- Molecule 6 is a RNA chain called 5S.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	A	117	Total	C	N	O	P	0	0
			2504	1116	459	813	116		

- Molecule 7 is a RNA chain called 23S.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	B	2903	Total	C	N	O	P	0	0
			62317	27801	11467	20147	2902		

- Molecule 8 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	C	272	Total	C	N	O	S	0	1
			2083	1288	424	364	7		

- Molecule 9 is a protein called 50S ribosomal protein L3.

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

- Molecule 10 is a protein called 50S ribosomal protein L4.

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

- Molecule 11 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	F	178	Total	C	N	O	S	0	0
			1420	905	251	258	6		

- Molecule 12 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	G	176	Total	C	N	O	S	0	0
			1323	832	243	246	2		

- 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	122	Total	C	N	O	S	0	1
			931	582	180	164	5		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
15	L	143	Total	C	N	O	S	0	0
			1045	649	206	189	1		

- 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
			1074	686	205	177	6		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
17	N	121	Total	C	N	O	S	0	1
			961	593	197	166	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 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	1
			739	466	140	131	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	1
			780	492	147	141			

- 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 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	W	79	Total	C	N	O	S	0	0
			596	367	120	108	1		

- 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	63	Total	C	N	O	S	0	0
			509	313	99	95	2		

- 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
			449	281	87	79	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
30	b	206	Total	C	N	O	S	0	0
			1625	1028	305	289	3		

- Molecule 31 is a protein called 30S ribosomal protein S4.

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

- Molecule 32 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	d	150	Total	C	N	O	S	0	0
			1106	687	211	202	6		

- Molecule 33 is a protein called 30S ribosomal protein S6, non-modified isoform.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	e	100	Total	C	N	O	S	0	0
			818	515	148	149	6		

- Molecule 34 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	f	151	Total	C	N	O	S	0	0
			1182	735	227	216	4		

- Molecule 35 is a protein called 30S ribosomal protein S8.

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

- Molecule 36 is a protein called 30S ribosomal protein S9.

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

- Molecule 37 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	i	98	Total	C	N	O	S	0	0
			787	493	150	143	1		

- Molecule 38 is a protein called 30S ribosomal protein S11.

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

- Molecule 39 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	k	123	Total	C	N	O	S	0	0
			955	590	196	165	4		

- Molecule 40 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	l	114	Total	C	N	O	S	0	0
			884	546	178	157	3		

- Molecule 41 is a protein called 30S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	m	96	Total	C	N	O	S	0	0
			774	483	160	128	3		

- Molecule 42 is a protein called 30S ribosomal protein S15.

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

- Molecule 43 is a protein called 30S ribosomal protein S16.

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

- Molecule 44 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	p	80	Total	C	N	O	S	0	0
			649	411	121	114	3		

- Molecule 45 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms				AltConf	Trace
45	q	55	Total	C	N	O	0	0
			456	288	86	82		

- Molecule 46 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	r	79	Total	C	N	O	S	0	0
			638	408	120	108	2		

- Molecule 47 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	s	85	Total	C	N	O	S	0	0
			665	411	137	114	3		

- Molecule 48 is a protein called Transcription termination/antitermination protein NusG.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	u	59	Total	C	N	O	S	0	0
			468	297	78	92	1		

- Molecule 49 is a RNA chain called 16S.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	v	1539	Total	C	N	O	P	0	0
			33012	14725	6052	10697	1538		

- Molecule 50 is a RNA chain called lmRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	x	12	Total	C	N	O	P	0	0
			257	117	53	76	11		

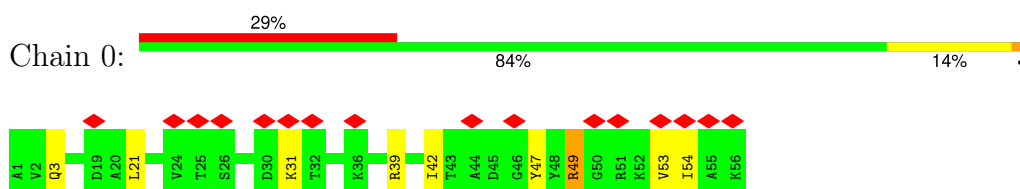
- Molecule 51 is a RNA chain called tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	5	77	Total	C	N	O	P	0	0
			1640	732	297	535	76		

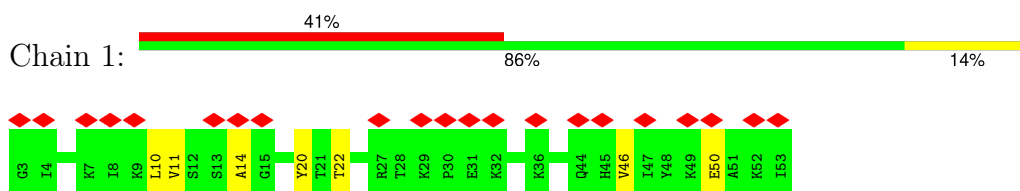
3 Residue-property plots [i](#)

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.

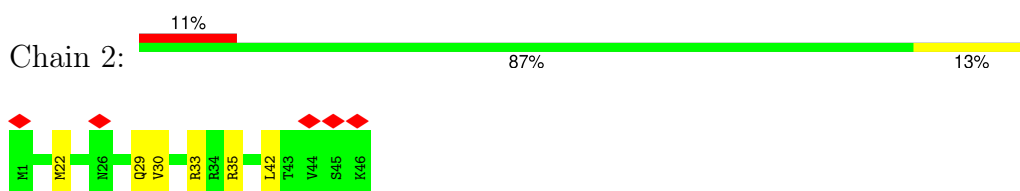
- Molecule 1: 50S ribosomal protein L32



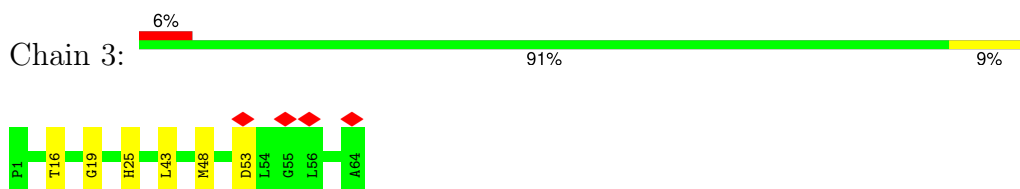
- Molecule 2: 50S ribosomal protein L33



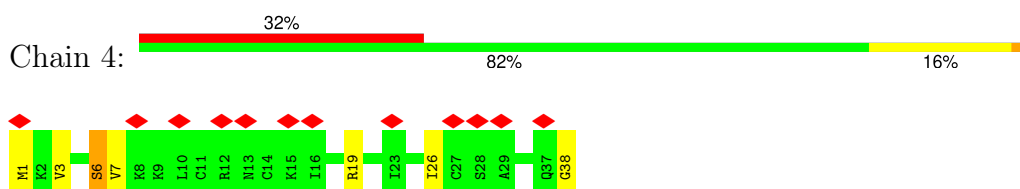
- Molecule 3: 50S ribosomal protein L34



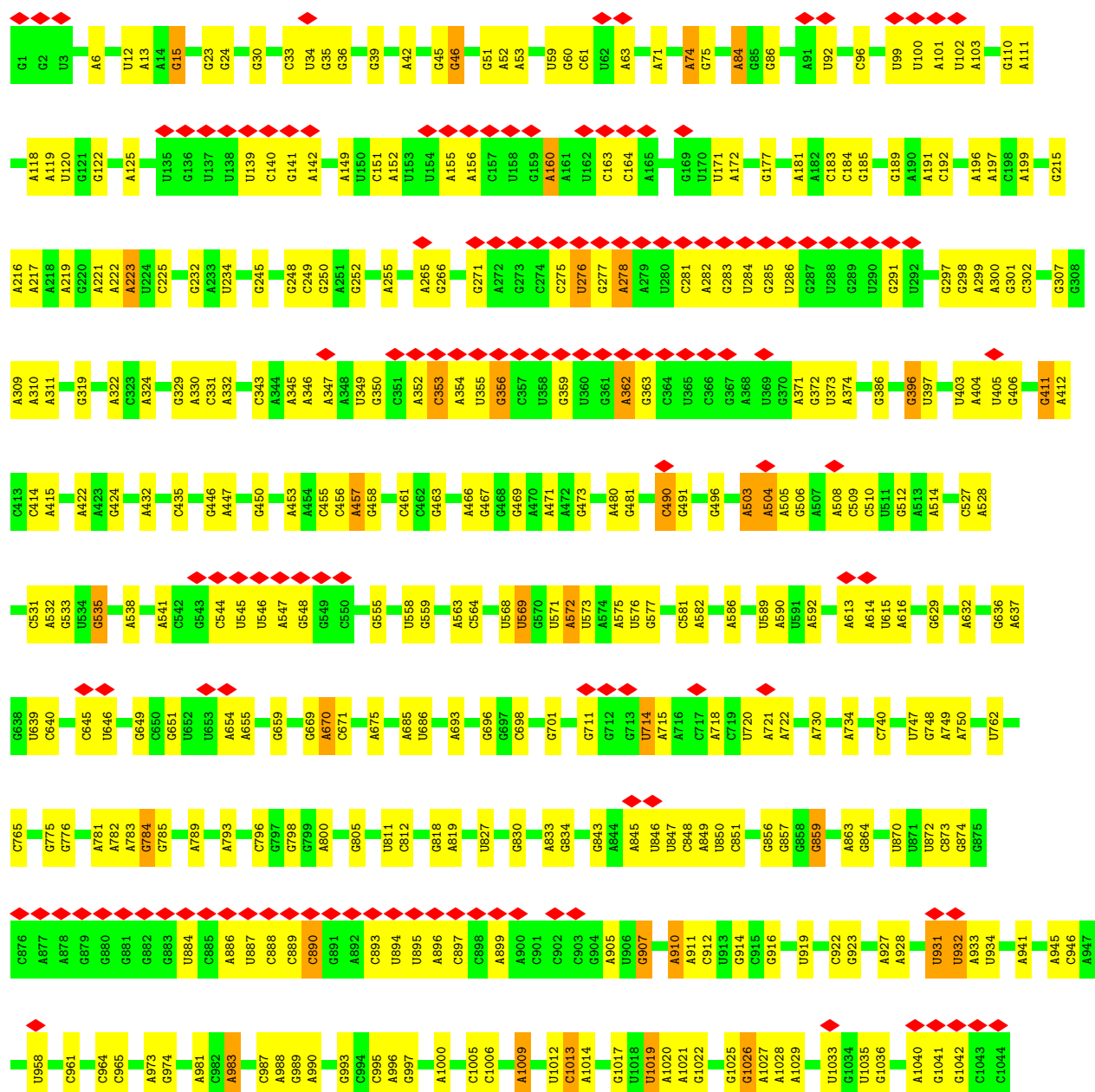
- Molecule 4: 50S ribosomal protein L35



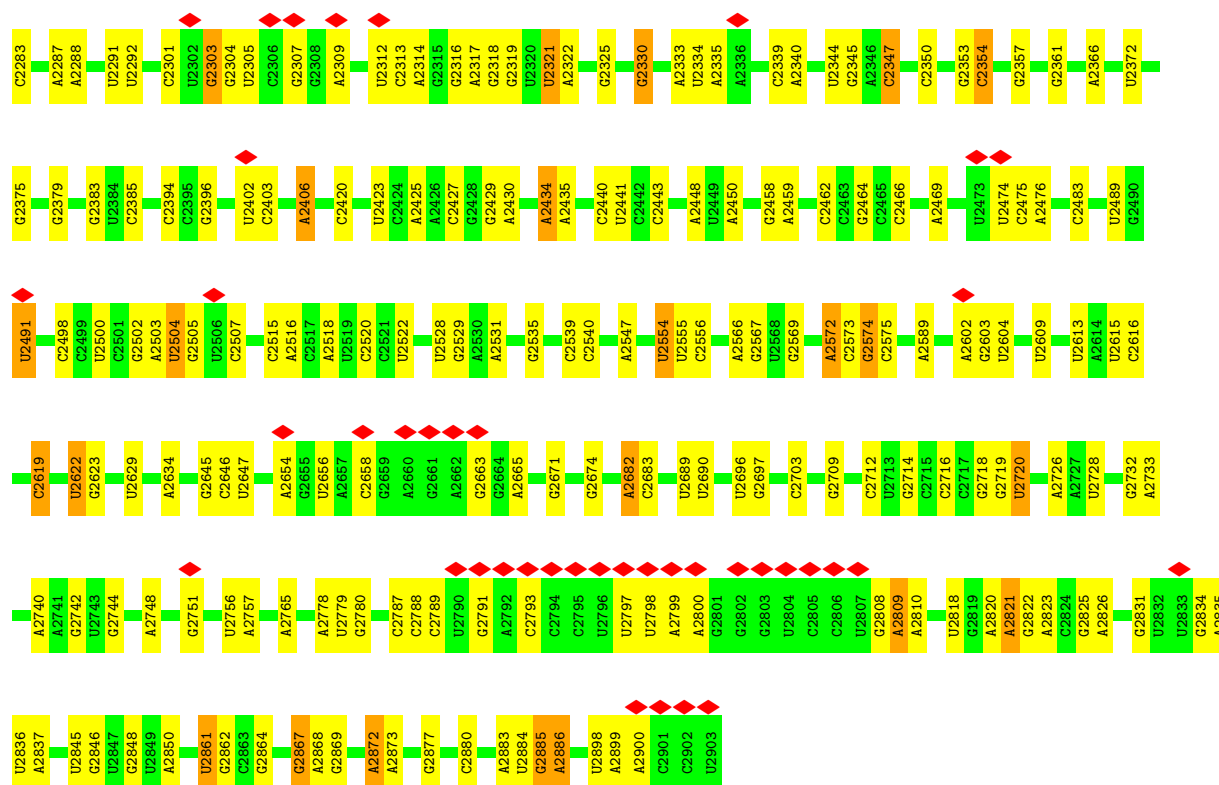
- Molecule 5: 50S ribosomal protein L36



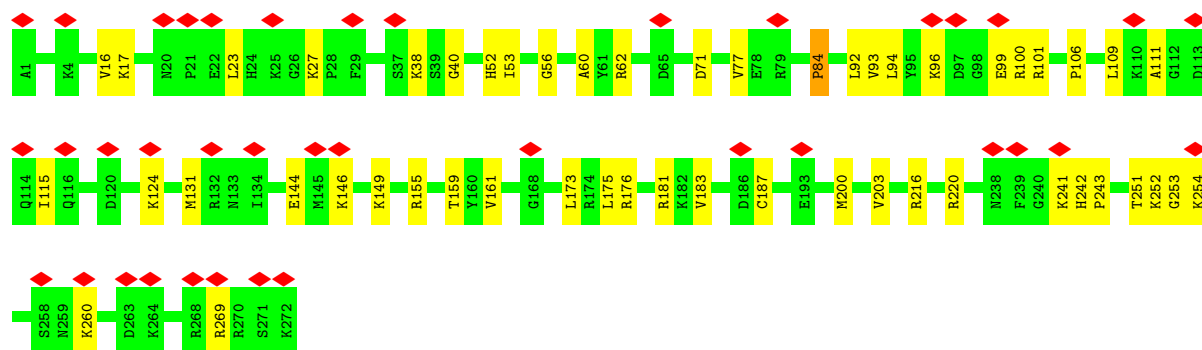
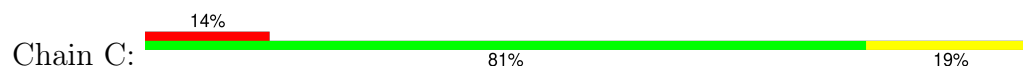
Chain A: 28% 62% 10%



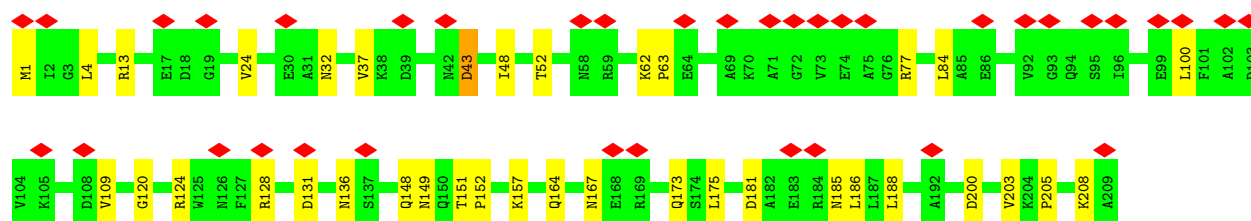
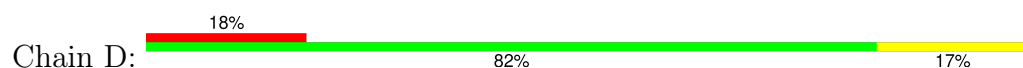
U185	G2125	U2034	C1914	G1799	G1721	U1594	U1506	G1317	A1213	U1105	C1045
G2186	A2126	C2043	U1915	C1800	A1722	A1603	C1507	A1419	A1214	G1106	A1046
U2187	G2127	A1801	A1916	A1802	G1723	C1604	A1508	G1421	U1219	G1107	G1047
U2188	G2128	G2049	U1917	G1807	G1724	C1607	A1509	A1427	G1220	U1108	A1048
U2189	U2129	A2082	A1918	A1808	U1725	A1608	G1510	C1428	G1225	C1109	U1049
A2191	U2130	C2085	A1919	A1809	G1726	A1609	U1511	G1432	G1226	G1110	A1050
U2192	U2132	G2056	U1923	A1810	C1727	A1610	A1514	A1433	G1227	A1111	G1051
G2193	A2133	A2060	A1927	G1811	G1728	G1613	A1515	A1432	U1231	G1112	C1052
U2194	G2134	A2061	A1928	A1812	U1729	A1614	G1522	G1437	G1232	U1113	C1053
U2198	A2135	A2062	G1929	G1813	C1730	A1615	U1523	U1438	G1236	C1114	A1054
A2199	G2136	G2069	G1930	G1814	G1731	A1616	G1524	A1439	G1237	G1115	G1055
U2202	U2137	A2070	A1936	C1816	C1732	G1627	U1527	G1441	G1238	G1116	G1056
U2203	G2138	A2071	A1937	A1819	G1733	A1635	A1528	C1447	U1241	C1117	U1057
G2204	U2139	U2203	A1938	U1820	G1734	A1636	G1529	G1452	U1242	A1126	U1058
C2208	G2140	U2075	U1939	U1827	A1735	C1639	G1530	A1453	G1243	A1127	G1059
G2209	A2141	A2077	G1945	G1828	U1736	G1645	G1531	C1454	U1244	G1128	U1060
U2210	C2142	U2081	U1955	A1829	G1737	U1648	A1532	U1459	A1247	A1129	U1061
A2211	G2143	A2082	C1958	C1837	G1738	G1651	A1533	U1460	G1248	U1130	G1063
U2212	C2144	U2086	A1965	A1847	C1741	A1652	C1534	C1461	U1249	A1133	C1064
U2213	G2145	U2088	A1966	A1848	U1742	G1653	U1535	U1467	G1250	C1135	U1065
G2216	C2146	G2093	C1967	A1853	G1743	U1667	G1536	U1477	G1251	G1139	U1066
U2220	A2147	A2094	A1970	A1857	C1748	A1665	G1537	U1476	A1253	C1140	A1067
A2225	U2148	A2095	A1971	A1858	G1753	G1666	U1538	G1478	A1254	U1141	G1068
C2226	C2150	C2096	G1972	G1859	G1756	G1667	G1539	U1481	U1255	G1169	A1069
A2227	U2151	U2098	A1980	G1860	A1757	A1676	U1540	U1482	G1257	C1170	U1070
U2233	G2152	G2100	U1982	G1861	U1758	A1677	G1541	G1483	A1262	C1171	G1071
G2234	C2153	A2101	U1991	G1867	G1763	U1680	A1552	U1484	A1265	U1173	C1072
U2238	U2155	G2102	C1992	C1868	C1764	U1683	A1553	U1486	G1266	G1168	A1073
G2239	G2156	C2103	U1993	G1869	G1765	U1684	U1554	U1487	G1271	A1189	G1074
U2243	C2157	C2104	C1996	A1870	A1773	U1688	U1559	U1488	G1272	G1170	C1075
G2246	U2159	G2107	A2009	A1871	G1776	G1694	G1568	U1489	A1275	C1172	A1077
A2247	C2160	C2108	U1882	A1872	U1779	A1700	A1569	U1490	G1288	U1174	C1079
U2249	G2161	U2109	U1883	G1884	U1780	G1710	U1576	G1493	U1294	A1175	A1080
G2250	A2162	G2110	G1885	G1884	U1781	A1711	C1577	U1487	G1295	U1176	U1081
C2251	C2163	U2111	G1886	G1884	U1782	G1712	U1578	C1488	G1296	G1177	U1082
U2258	G2164	G2112	G1887	G1884	U1783	U1713	U1579	U1489	G1300	C1178	U1083
G2262	U2165	U2113	U1888	G1884	A1784	U1714	A1580	A1490	A1301	U1180	A1084
A2266	C2167	A2114	A1889	G1884	U1785	U1715	G1581	C1493	C1306	U1181	A1085
U2270	G2168	G2115	A1890	G1884	A1786	U1716	C1582	A1494	G1311	G1187	A1086
A2273	A2169	G2116	A1901	G1884	U1787	G1717	U1584	A1495	G1315	U1188	G1087
G2279	C2170	A2117	C1902	G1884	G1790	A1717	U1584	A1496	G1316	A1189	A1088
U2282	U2171	U2118	G1903	G1884	A1791	G1718	C1585	U1497	U1316	G1190	A1089
U2283	A2172	A2119	G1906	G1884	C1794	G1718	U1586	G1501	A1205	A1205	A1090
C2284	C2173	G2120	A1912	G1884	C1795	G1718	G1587	A1502	G1206	G1211	G1091
U2288	G2174	U2121	A1913	G1884	U1796	G1718	U1588	A1503	C1207	G1212	C1092
U2289	C2175	U2122	G1913	G1884	U1797	G1718	G1589	A1504	G1211	U1101	U1093
U2290	A2176	G2123	G1913	G1884	U1798	G1718	A1590	A1505	G1211	U1094	U1094
U2291	C2177	G2124	G1913	G1884	U1798	G1718	A1591	A1505	G1211	A1095	A1095
U2292	G2178	G2124	G1913	G1884	U1798	G1718	A1592	A1505	G1211	A1096	A1096
U2293	U2180	G2124	G1913	G1884	U1798	G1718	A1593	A1505	G1211	A1097	A1097
U2294	A2181	G2124	G1913	G1884	U1798	G1718	A1594	A1505	G1211	A1098	A1098
U2295	U2182	G2124	G1913	G1884	U1798	G1718	A1595	A1505	G1211	A1099	A1099
U2296	A2183	G2124	G1913	G1884	U1798	G1718	A1596	A1505	G1211	A1100	G1099
U2297	G2184	G2124	G1913	G1884	U1798	G1718	A1597	A1505	G1211	U1101	C1100
U2298	U2184	G2124	G1913	G1884	U1798	G1718	A1598	A1505	G1211	U1102	U1101
U2299	A2184	G2124	G1913	G1884	U1798	G1718	A1599	A1505	G1211	U1103	A1103
U2300	G2184	G2124	G1913	G1884	U1798	G1718	A1600	A1505	G1211	U1104	C1104



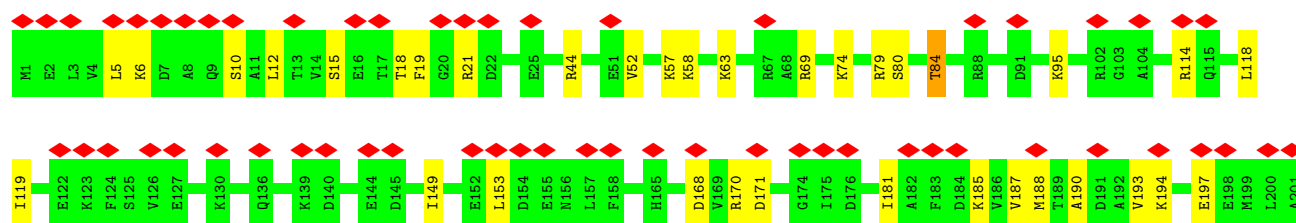
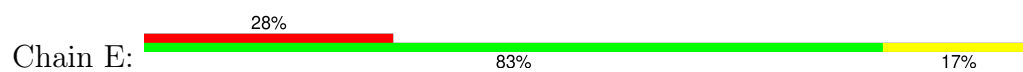
• Molecule 8: 50S ribosomal protein L2



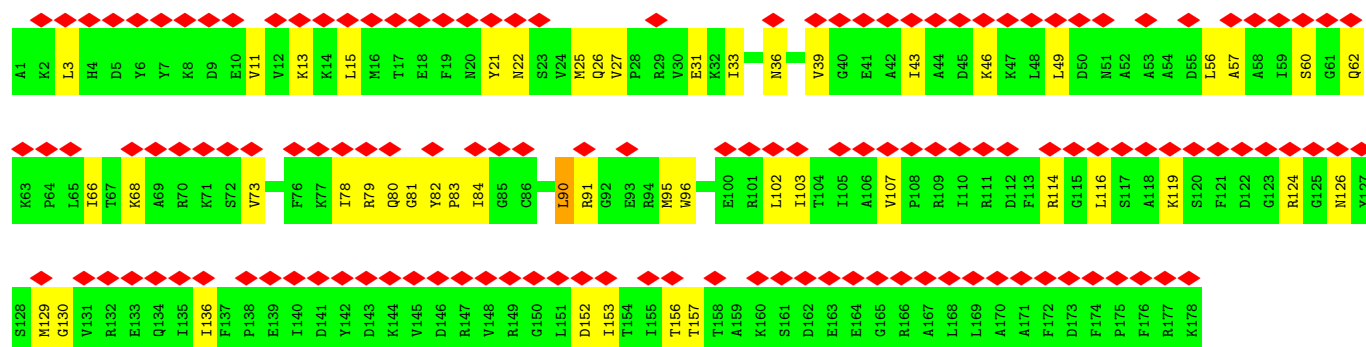
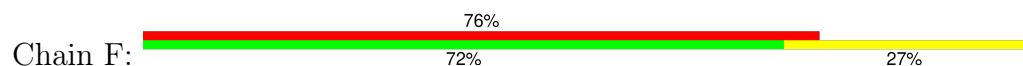
• Molecule 9: 50S ribosomal protein L3



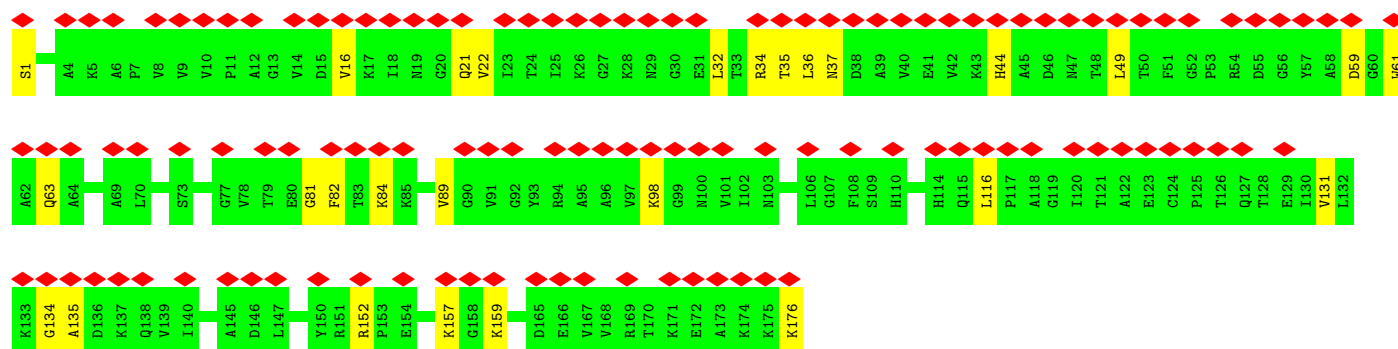
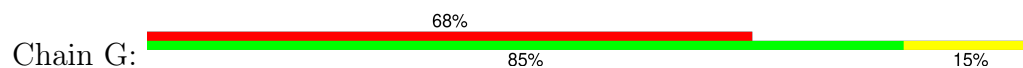
• Molecule 10: 50S ribosomal protein L4



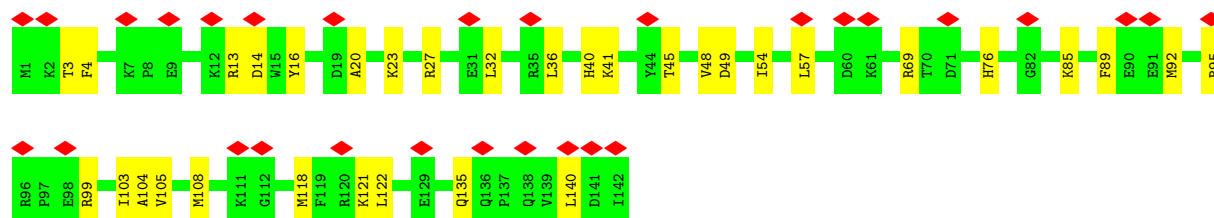
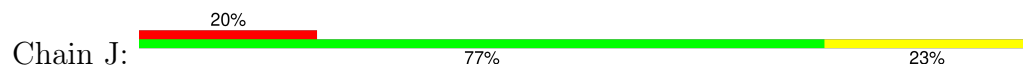
• Molecule 11: 50S ribosomal protein L5



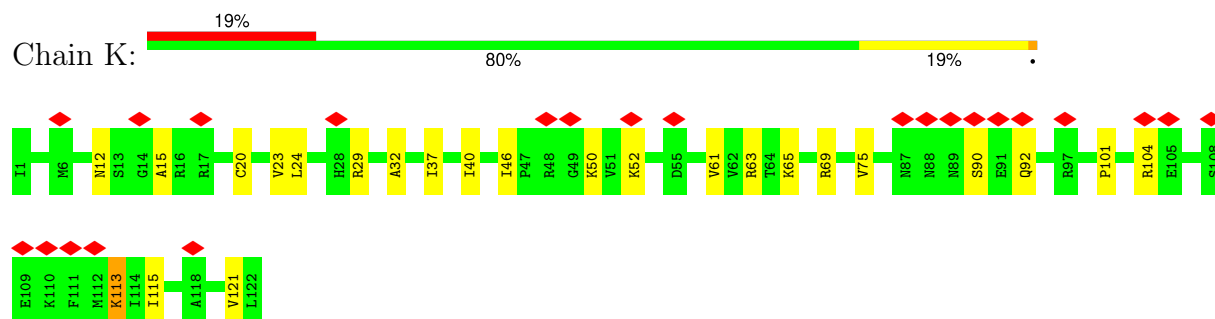
• Molecule 12: 50S ribosomal protein L6



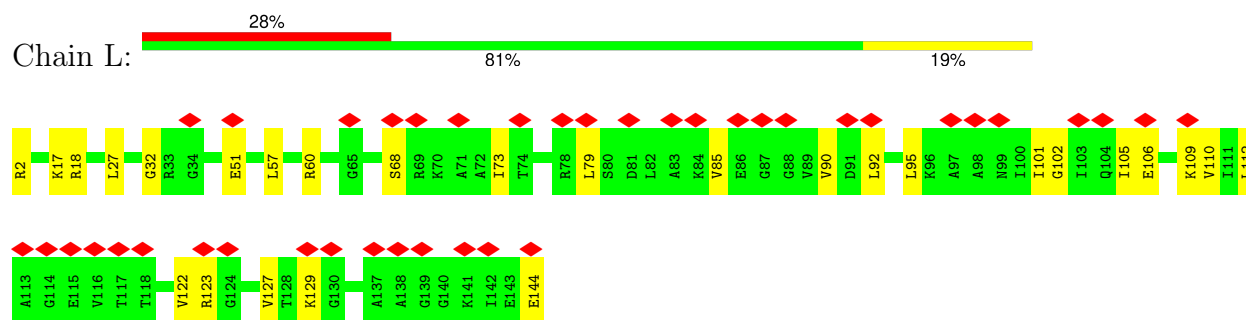
• Molecule 13: 50S ribosomal protein L13



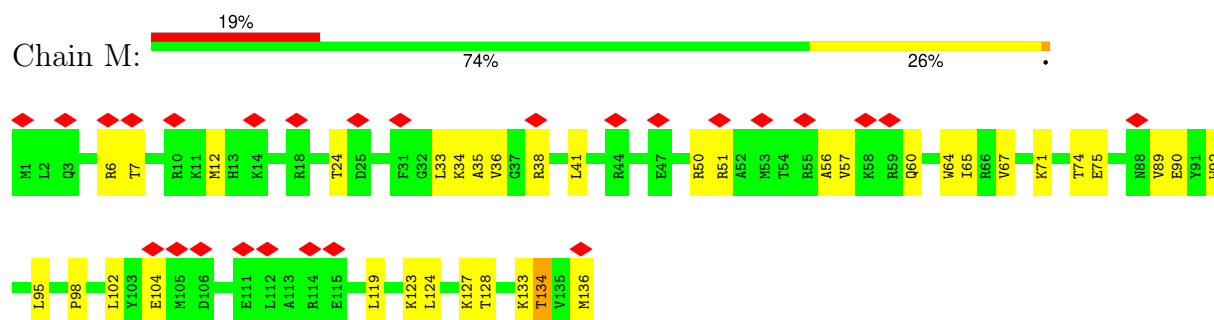
- Molecule 14: 50S ribosomal protein L14



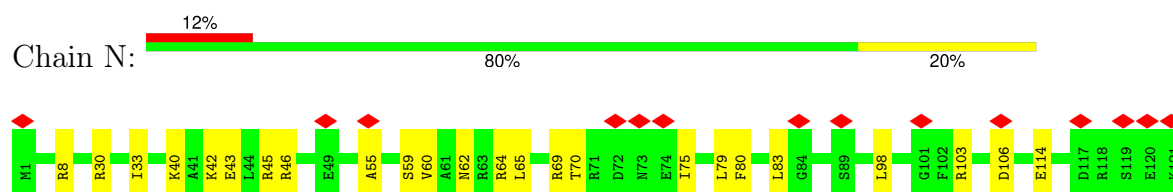
- Molecule 15: 50S ribosomal protein L15



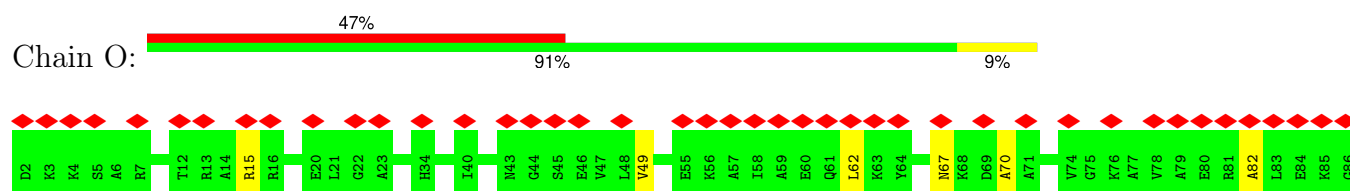
- Molecule 16: 50S ribosomal protein L16



- Molecule 17: 50S ribosomal protein L17

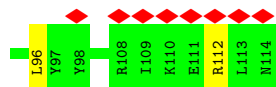
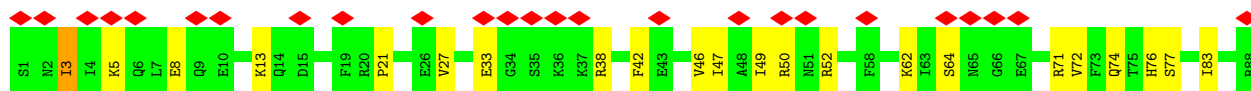
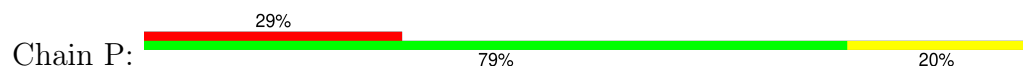


- Molecule 18: 50S ribosomal protein L18

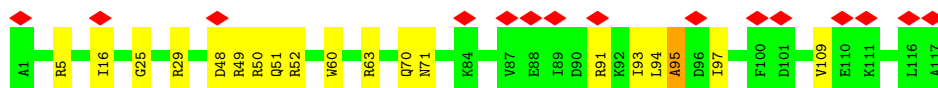
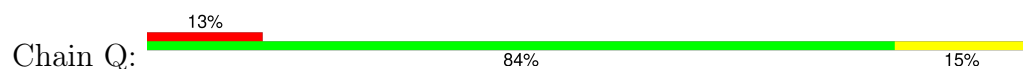




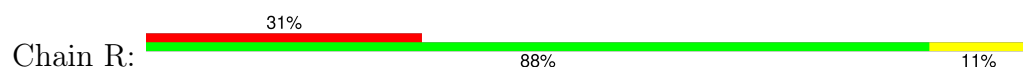
- Molecule 19: 50S ribosomal protein L19



- Molecule 20: 50S ribosomal protein L20



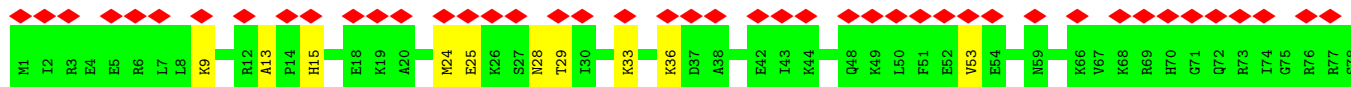
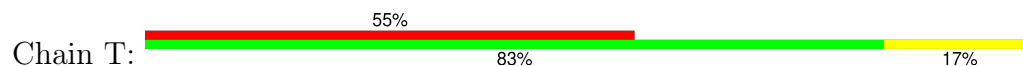
- Molecule 21: Ribosomal protein L21

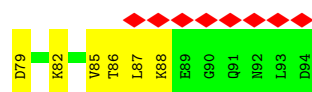


- Molecule 22: 50S ribosomal protein L22

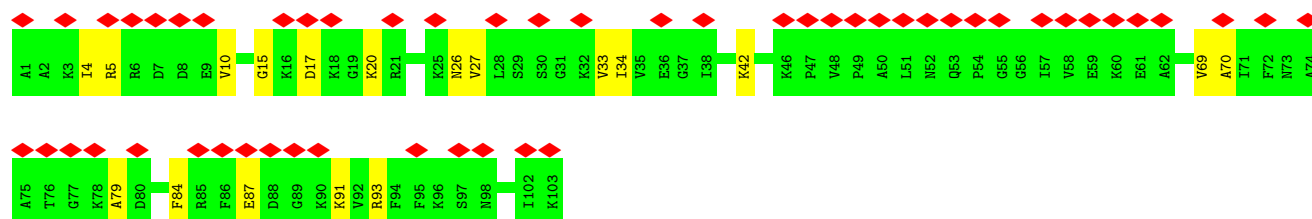
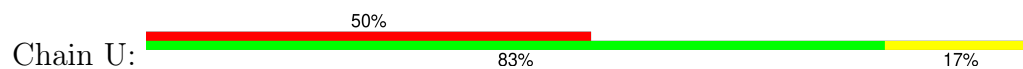


- Molecule 23: 50S ribosomal protein L23

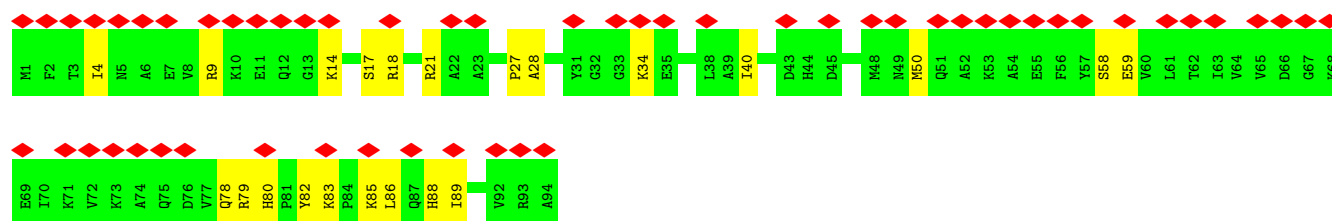
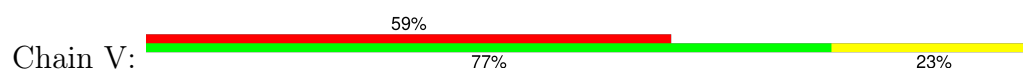




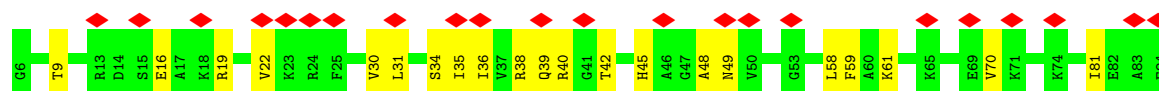
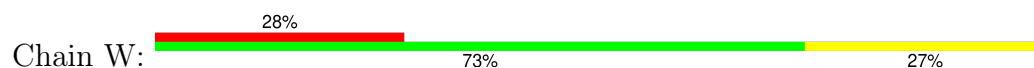
• Molecule 24: 50S ribosomal protein L24



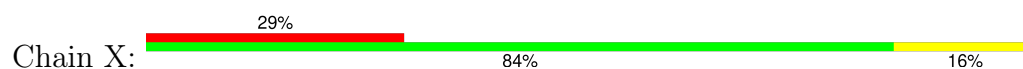
• Molecule 25: 50S ribosomal protein L25



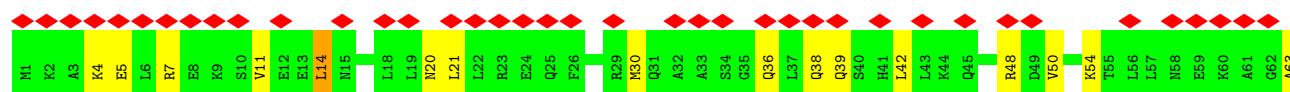
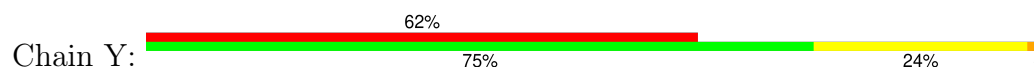
• Molecule 26: 50S ribosomal protein L27



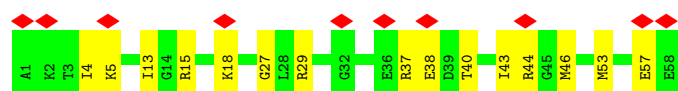
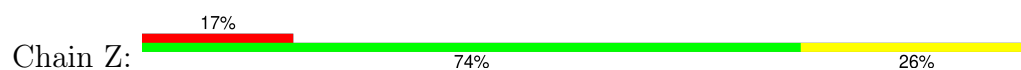
• Molecule 27: 50S ribosomal protein L28



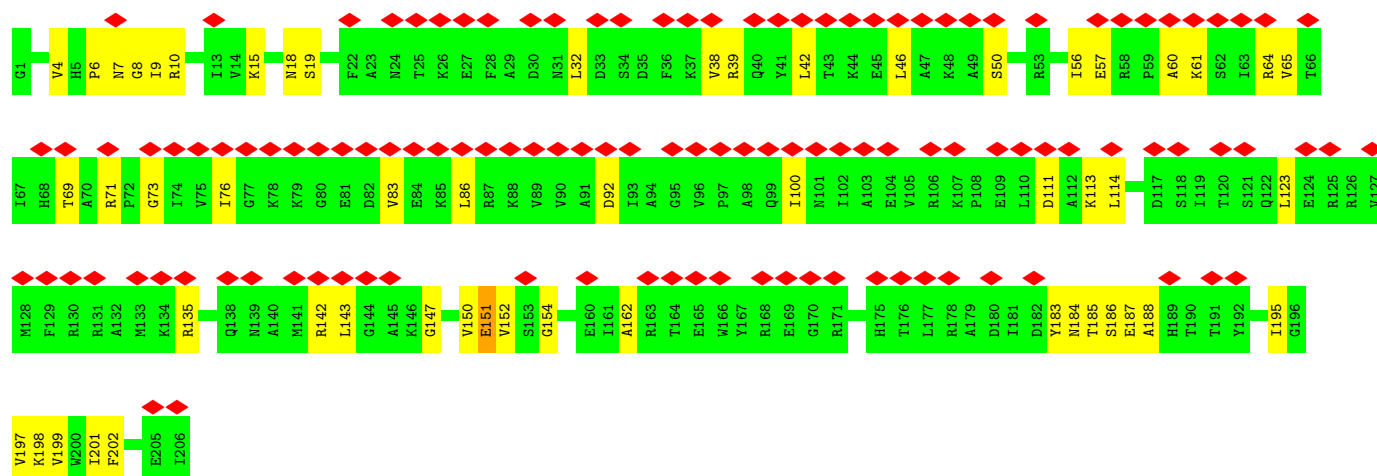
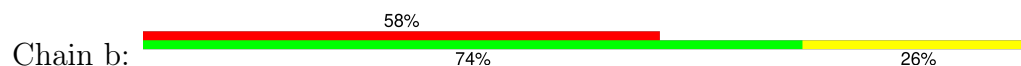
• Molecule 28: 50S ribosomal protein L29



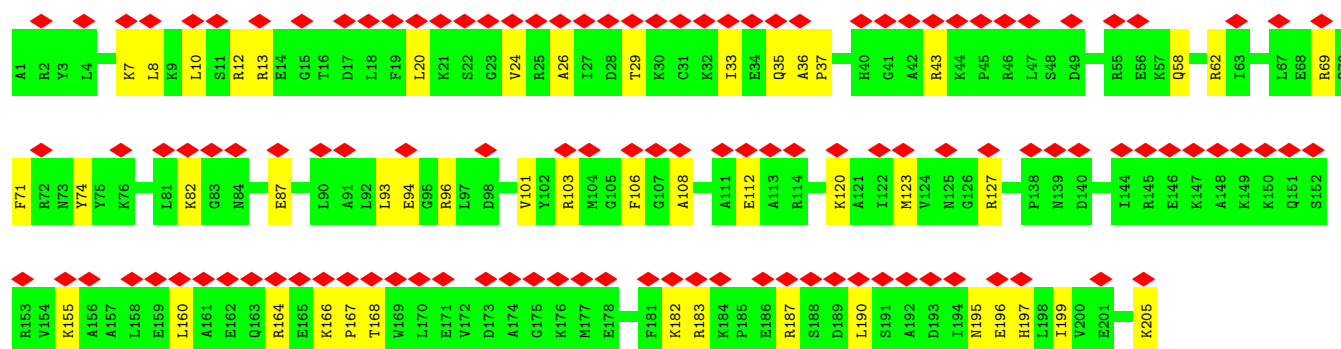
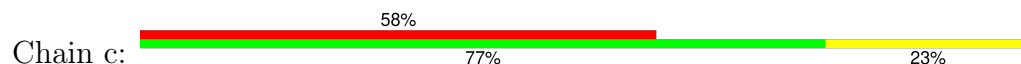
• Molecule 29: 50S ribosomal protein L30



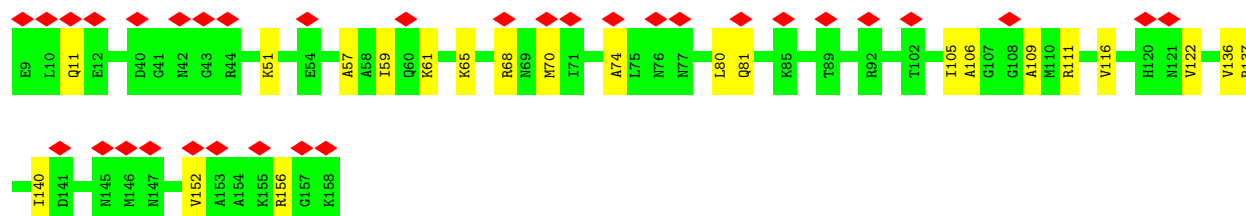
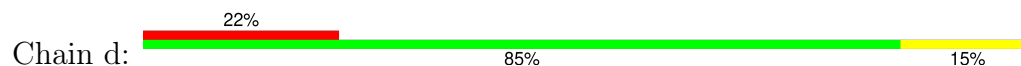
• Molecule 30: 30S ribosomal protein S3



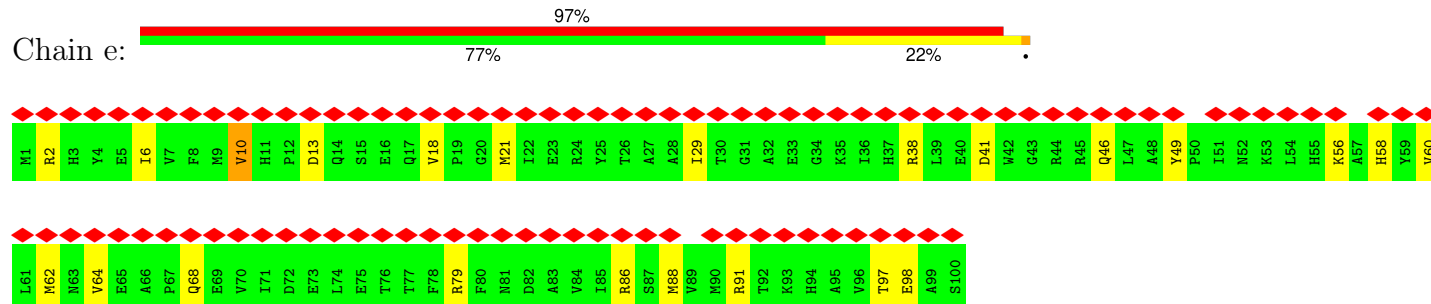
• Molecule 31: 30S ribosomal protein S4



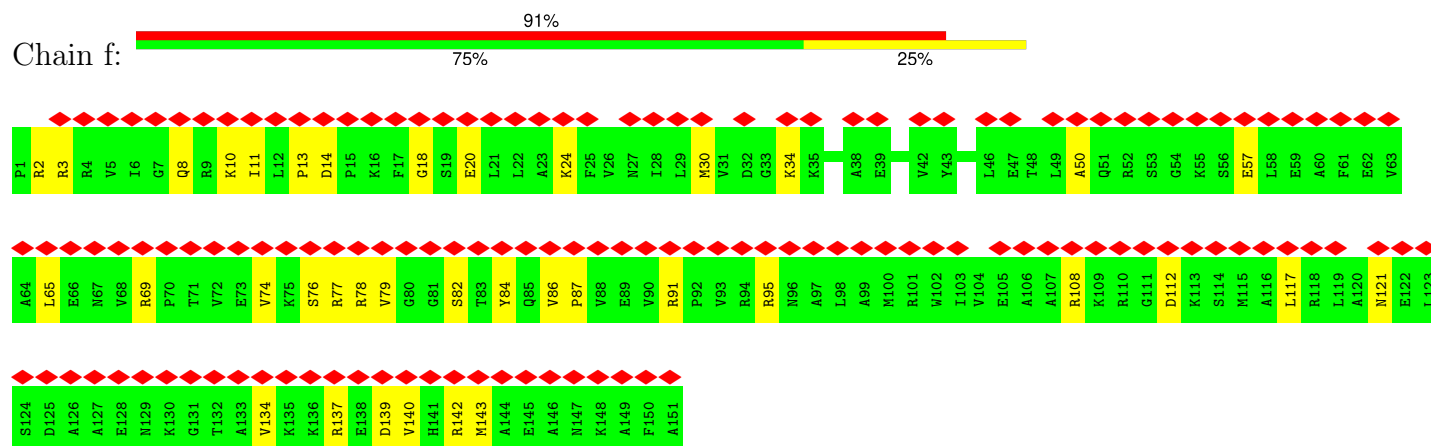
• Molecule 32: 30S ribosomal protein S5



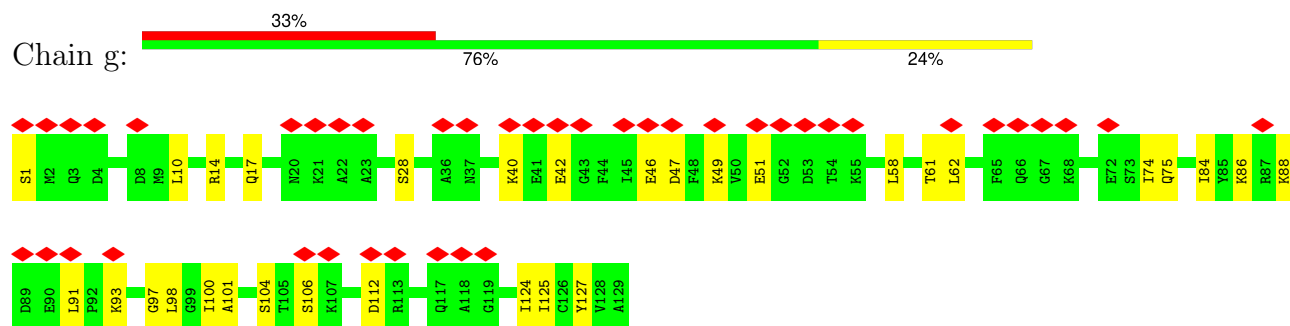
- Molecule 33: 30S ribosomal protein S6, non-modified isoform



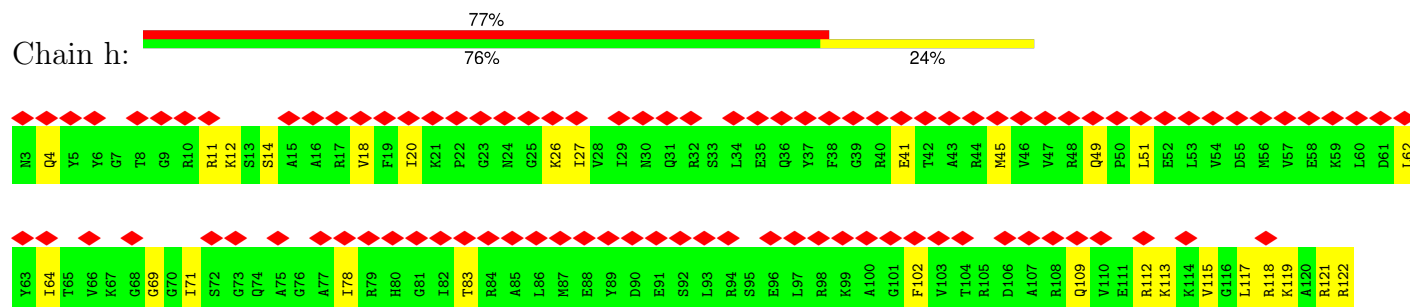
- Molecule 34: 30S ribosomal protein S7

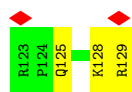


- Molecule 35: 30S ribosomal protein S8

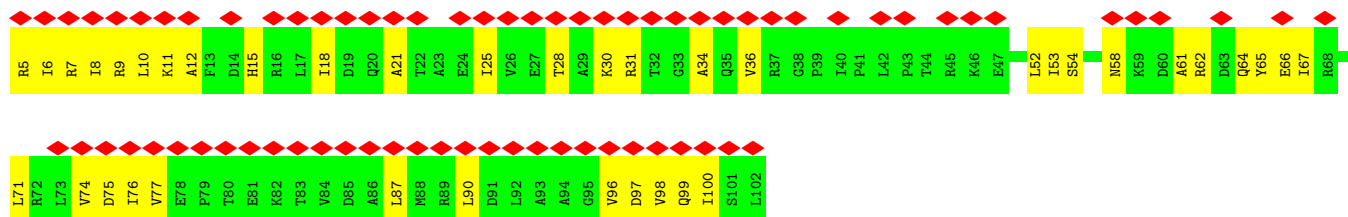
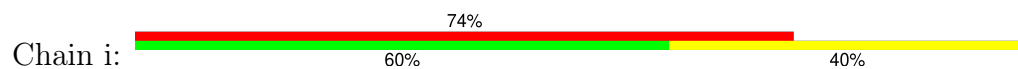


- Molecule 36: 30S ribosomal protein S9

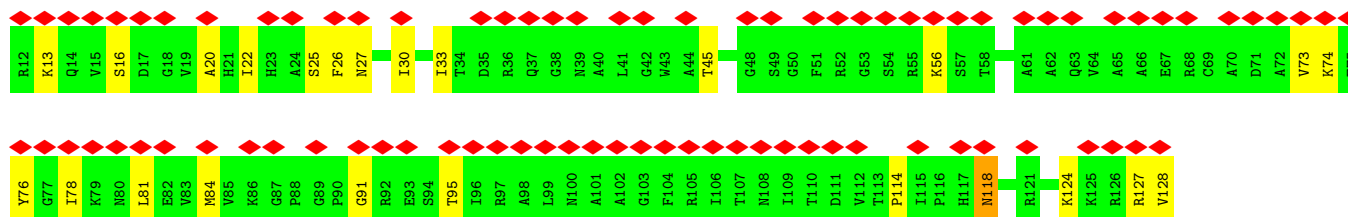
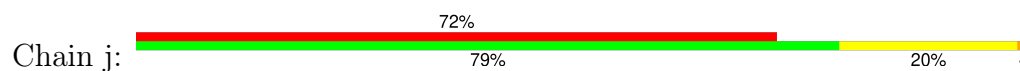




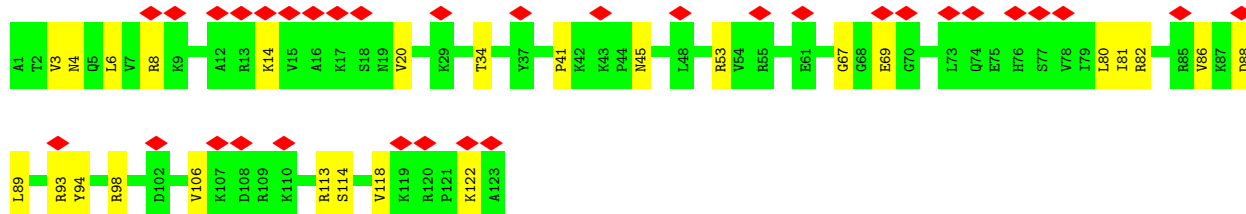
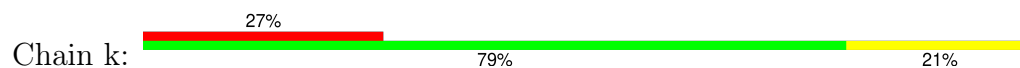
- Molecule 37: 30S ribosomal protein S10



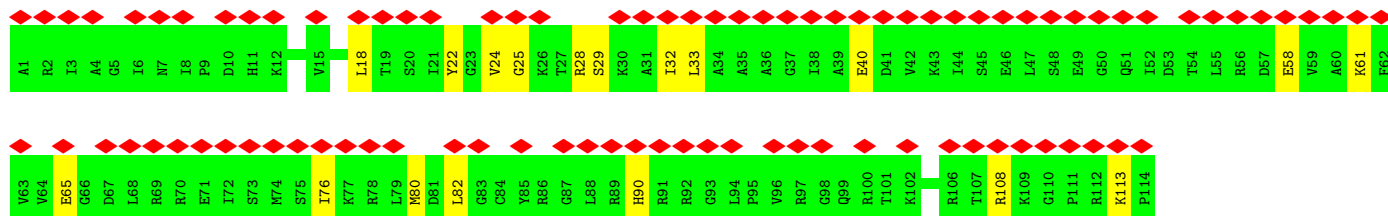
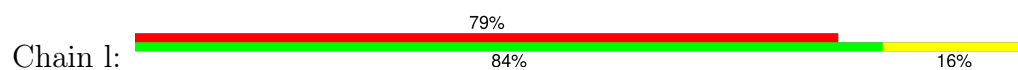
- Molecule 38: 30S ribosomal protein S11

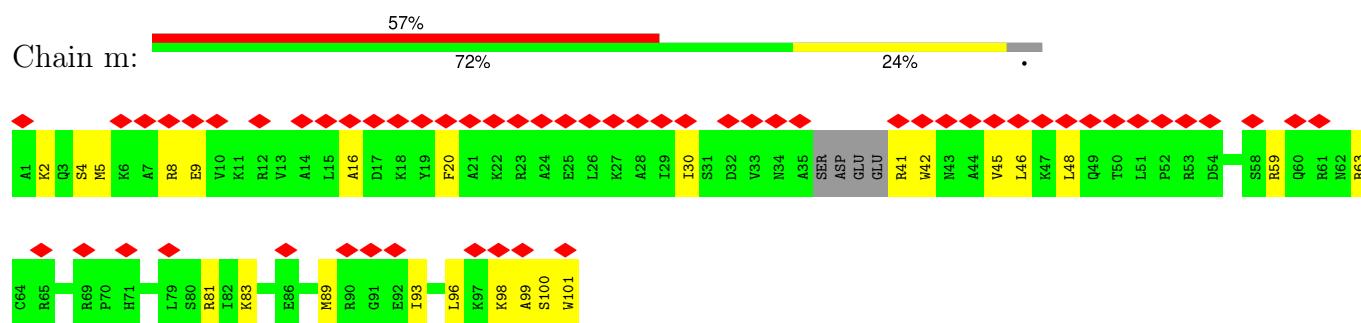


- Molecule 39: 30S ribosomal protein S12

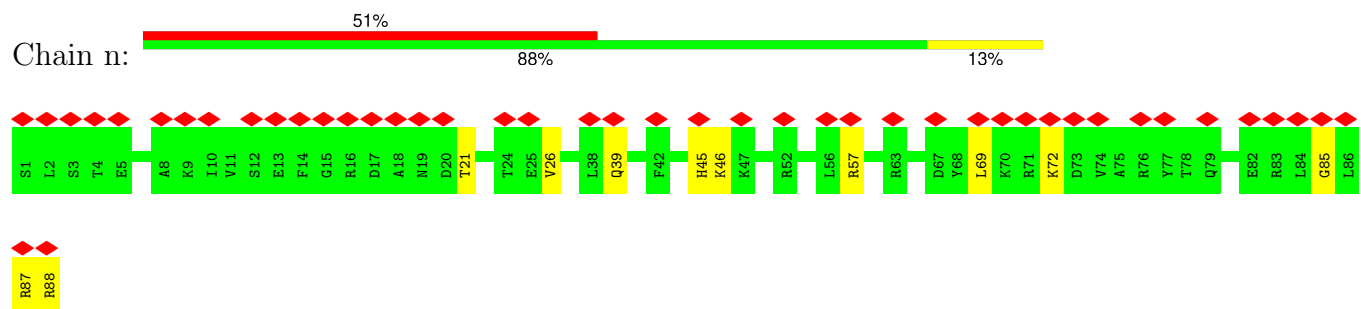


- Molecule 40: 30S ribosomal protein S13

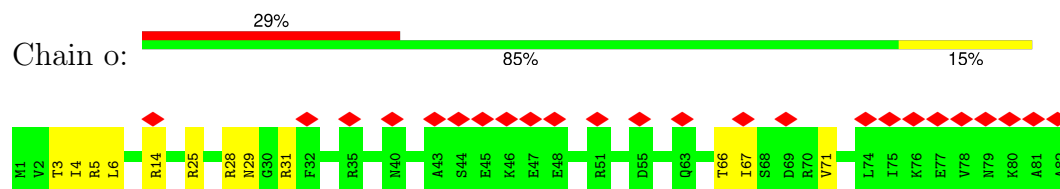




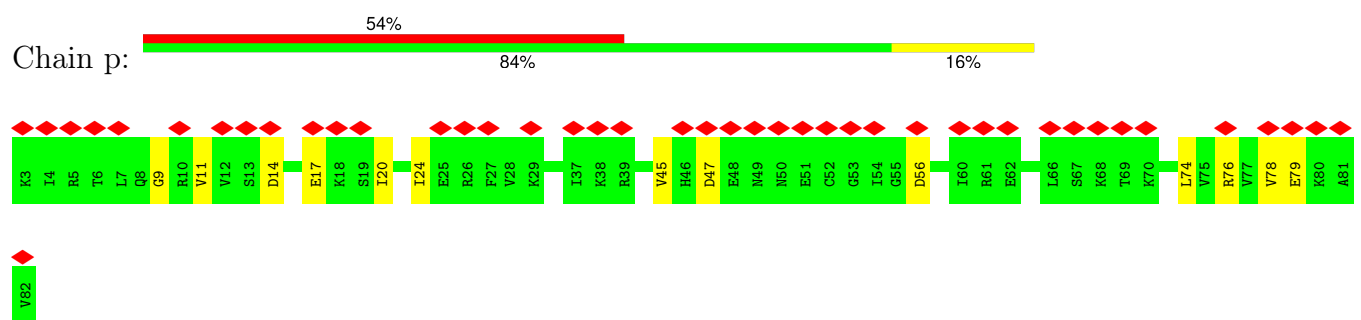
- Molecule 42: 30S ribosomal protein S15



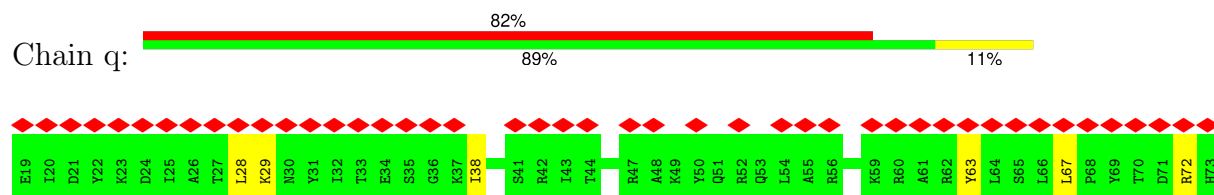
- Molecule 43: 30S ribosomal protein S16



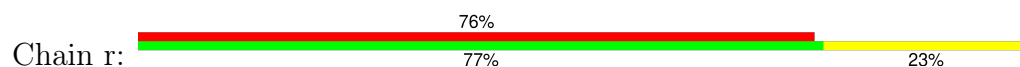
- Molecule 44: 30S ribosomal protein S17

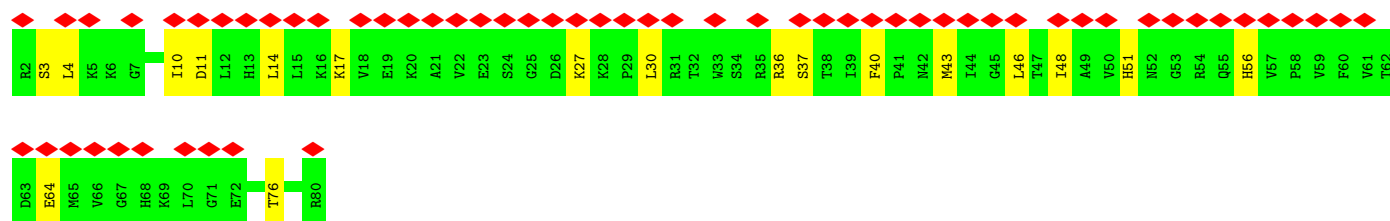


- Molecule 45: 30S ribosomal protein S18

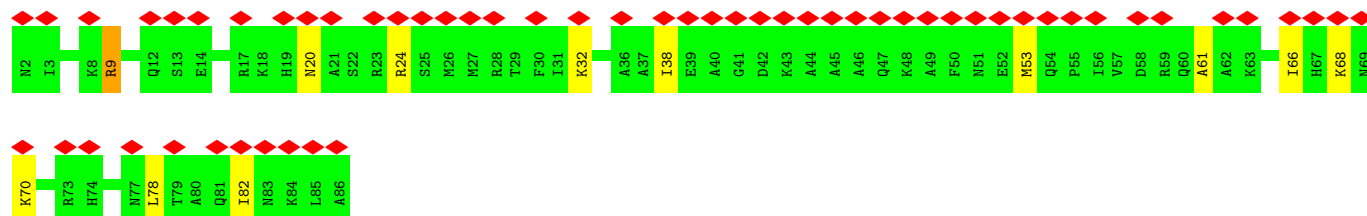
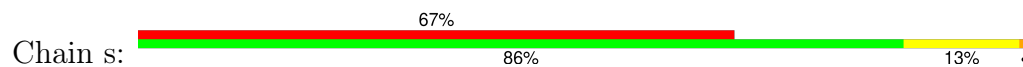


- Molecule 46: 30S ribosomal protein S19

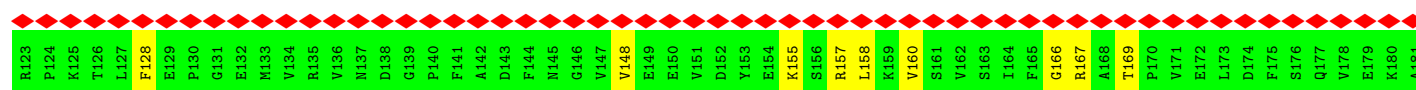
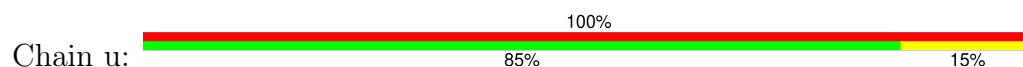




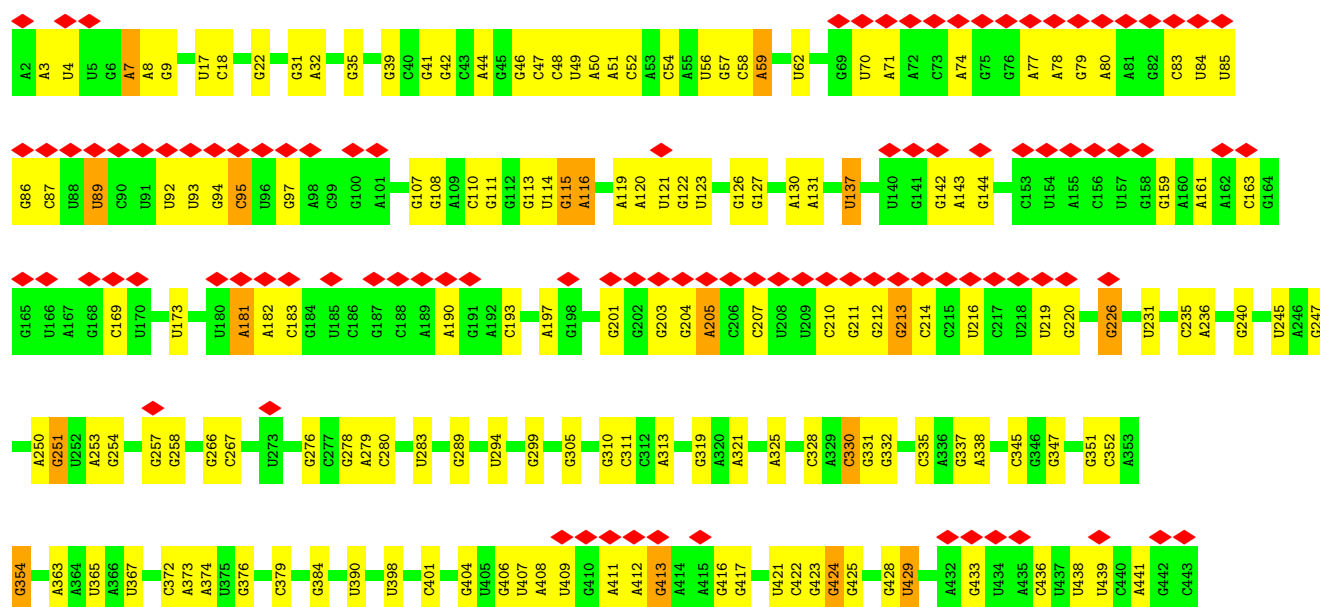
• Molecule 47: 30S ribosomal protein S20

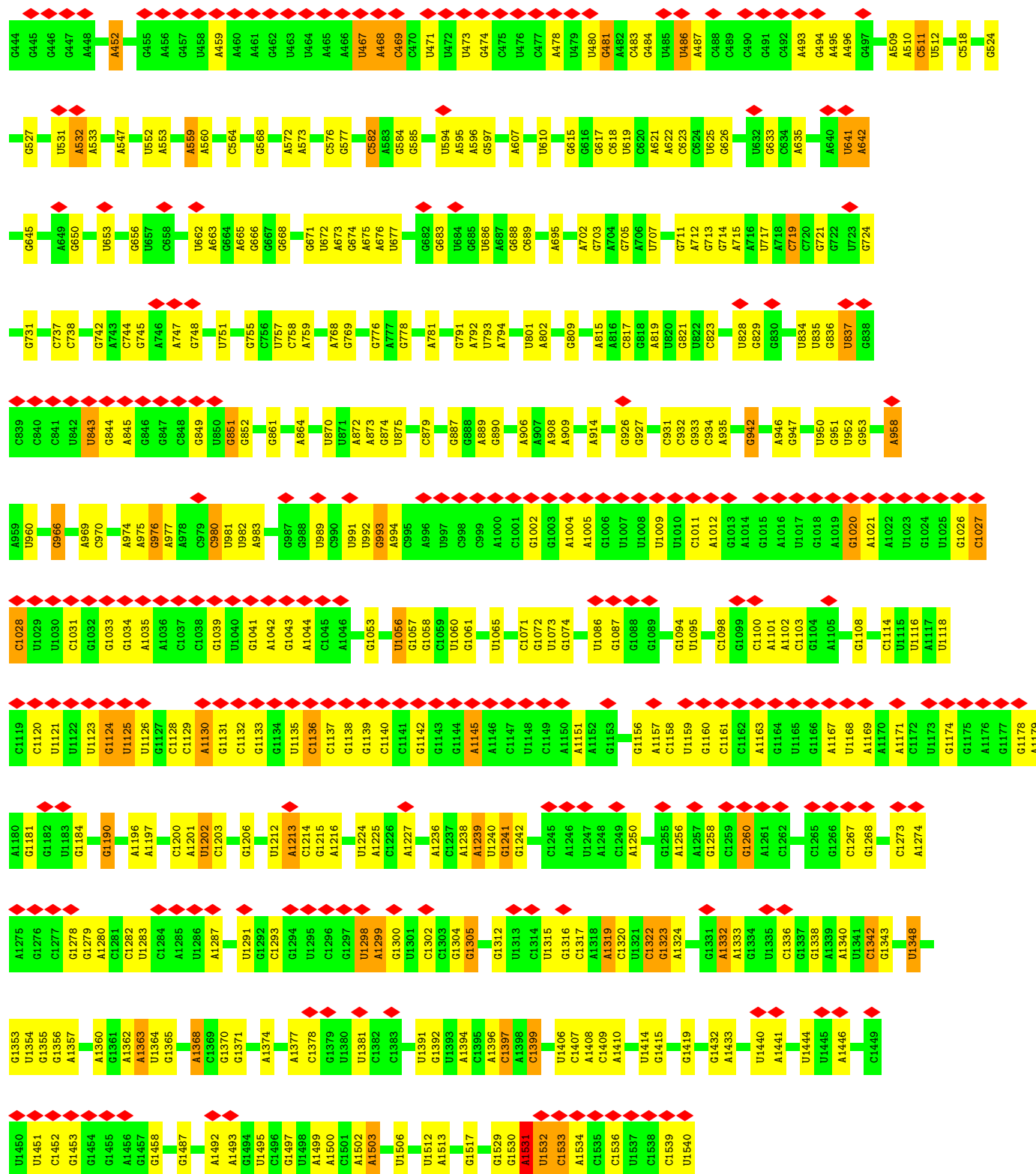


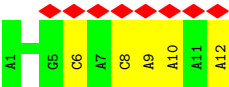
• Molecule 48: Transcription termination/antitermination protein NusG



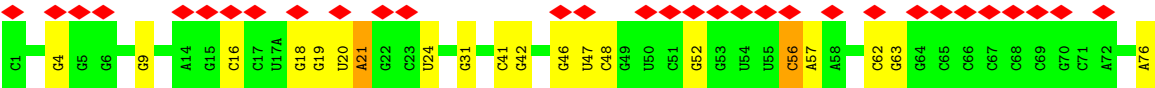
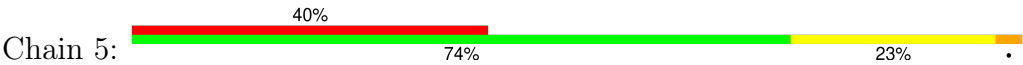
• Molecule 49: 16S







• Molecule 51: tRNA



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	96000	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	58	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	2.327	Depositor
Minimum map value	-0.018	Depositor
Average map value	0.007	Depositor
Map value standard deviation	0.059	Depositor
Recommended contour level	0.255	Depositor
Map size (Å)	332.0, 332.0, 332.0	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.83, 0.83, 0.83	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z > 5$	RMSZ	$\# Z > 5$
1	0	0.40	0/450	0.66	0/599
2	1	0.33	0/417	0.55	0/556
3	2	0.46	0/380	0.50	0/498
4	3	0.44	0/513	0.73	0/676
5	4	0.36	0/303	0.66	0/397
6	A	0.36	0/2800	0.41	0/4367
7	B	0.49	0/69796	0.44	3/108888 (0.0%)
8	C	0.71	4/2122 (0.2%)	1.05	5/2854 (0.2%)
9	D	0.45	0/1586	0.72	0/2134
10	E	0.38	0/1571	0.63	0/2113
11	F	0.31	0/1444	0.68	0/1937
12	G	0.27	0/1343	0.58	0/1816
13	J	0.40	0/1152	0.65	0/1551
14	K	0.43	0/940	0.70	0/1260
15	L	0.40	0/1054	0.62	0/1403
16	M	0.36	0/1093	0.58	0/1460
17	N	0.42	0/974	0.62	0/1303
18	O	0.30	0/902	0.54	0/1209
19	P	0.36	0/929	0.64	0/1242
20	Q	0.43	0/960	0.55	0/1278
21	R	0.37	0/829	0.60	0/1107
22	S	0.43	0/864	0.63	0/1156
23	T	0.29	0/745	0.64	0/996
24	U	0.32	0/788	0.68	0/1053
25	V	0.26	0/766	0.53	0/1025
26	W	0.40	0/603	0.80	0/797
27	X	0.33	0/635	0.55	0/848
28	Y	0.29	0/510	0.74	3/677 (0.4%)
29	Z	0.36	0/453	0.52	0/605
30	b	0.32	0/1652	0.63	0/2225
31	c	0.31	0/1665	0.64	0/2227
32	d	0.39	0/1119	0.71	1/1504 (0.1%)
33	e	0.21	0/836	0.56	0/1128
34	f	0.21	0/1196	0.55	0/1602

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
35	g	0.32	0/989	0.60	0/1326
36	h	0.27	0/1034	0.61	0/1375
37	i	0.29	0/797	0.61	0/1077
38	j	0.26	0/893	0.53	0/1205
39	k	0.39	0/969	0.65	0/1300
40	l	0.24	0/893	0.52	0/1193
41	m	0.32	0/785	0.56	0/1043
42	n	0.27	0/722	0.52	0/964
43	o	0.33	0/659	0.58	0/884
44	p	0.29	0/658	0.67	0/881
45	q	0.20	0/463	0.48	0/621
46	r	0.26	0/653	0.59	0/877
47	s	0.28	0/671	0.58	0/888
48	u	0.26	0/477	0.60	0/642
49	v	0.42	1/36963 (0.0%)	0.43	4/57662 (0.0%)
50	x	0.26	0/289	0.32	0/449
51	5	0.31	0/1832	0.36	0/2855
All	All	0.44	5/153137 (0.0%)	0.50	16/229733 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	0	0	2
8	C	0	1
11	F	0	2
17	N	0	1
20	Q	0	1
30	b	0	1
38	j	0	1
All	All	0	9

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	C	84	PRO	CG-CD	-21.37	0.78	1.50
49	v	1531	A	O3'-P	14.57	1.83	1.61
8	C	84	PRO	CA-CB	-8.08	1.42	1.53
8	C	84	PRO	CB-CG	7.77	1.88	1.49
8	C	84	PRO	N-CA	5.33	1.54	1.47

All (16) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	C	84	PRO	N-CD-CG	-30.08	58.09	103.20
8	C	84	PRO	CA-CB-CG	-21.38	63.88	104.50
8	C	84	PRO	N-CA-CB	-17.03	85.37	103.25
49	v	1531	A	O3'-P-O5'	-16.68	78.97	104.00
8	C	84	PRO	CA-N-CD	-10.96	96.65	112.00
49	v	1531	A	OP2-P-O3'	7.48	130.43	108.00
8	C	84	PRO	CB-CG-CD	-7.46	82.25	106.10
28	Y	30	MET	CB-CG-SD	6.07	130.92	112.70
49	v	1213	A	P-O3'-C3'	5.65	128.67	120.20
28	Y	11	VAL	CA-C-N	5.54	130.71	122.74
28	Y	11	VAL	C-N-CA	5.54	130.71	122.74
49	v	1531	A	P-O3'-C3'	-5.49	111.96	120.20
7	B	490	C	P-O3'-C3'	5.40	128.31	120.20
7	B	670	A	P-O3'-C3'	5.36	128.24	120.20
32	d	70	MET	CB-CG-SD	5.13	128.08	112.70
7	B	670	A	C2'-C3'-O3'	5.05	117.08	109.50

There are no chirality outliers.

All (9) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	0	47	TYR	Peptide
1	0	49	ARG	Sidechain
8	C	155	ARG	Sidechain
11	F	80	GLN	Peptide
11	F	90	LEU	Peptide
17	N	70	THR	Peptide
20	Q	95	ALA	Peptide
30	b	60	ALA	Peptide
38	j	118	ASN	Peptide

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	0	444	0	461	7	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	1	410	0	440	4	0
3	2	377	0	418	4	0
4	3	504	0	574	3	0
5	4	302	0	343	6	0
6	A	2504	0	1271	15	0
7	B	62317	0	31345	323	0
8	C	2083	0	2157	37	0
9	D	1565	0	1616	28	0
10	E	1552	0	1619	24	0
11	F	1420	0	1460	33	0
12	G	1323	0	1374	17	0
13	J	1129	0	1162	26	0
14	K	931	0	1003	15	0
15	L	1045	0	1117	19	0
16	M	1074	0	1157	23	0
17	N	961	0	1000	14	0
18	O	892	0	923	6	0
19	P	917	0	965	15	0
20	Q	947	0	1022	15	0
21	R	816	0	839	9	0
22	S	857	0	922	14	0
23	T	739	0	807	11	0
24	U	780	0	834	12	0
25	V	753	0	780	15	0
26	W	596	0	610	16	0
27	X	625	0	655	11	0
28	Y	509	0	543	11	0
29	Z	449	0	491	10	0
30	b	1625	0	1699	35	0
31	c	1643	0	1710	33	0
32	d	1106	0	1148	13	0
33	e	818	0	808	18	0
34	f	1182	0	1240	27	0
35	g	979	0	1034	23	0
36	h	1022	0	1070	22	0
37	i	787	0	828	33	0
38	j	877	0	887	15	0
39	k	955	0	1019	15	0
40	l	884	0	944	12	0
41	m	774	0	827	22	0
42	n	714	0	737	9	0
43	o	649	0	666	10	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
44	p	649	0	691	7	0
45	q	456	0	478	6	0
46	r	638	0	665	13	0
47	s	665	0	714	11	0
48	u	468	0	458	9	0
49	v	33012	0	16618	204	0
50	x	257	0	133	0	0
51	5	1640	0	837	7	0
All	All	140621	0	93119	1097	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 5.

All (1097) 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)
7:B:1724:G:H1	7:B:1736:U:H3	1.10	0.96
7:B:2114:A:N7	7:B:2167:U:O2	2.03	0.90
7:B:1311:G:H21	7:B:1603:A:H62	1.19	0.86
7:B:1311:G:N2	7:B:1603:A:H62	1.76	0.84
49:v:137:U:H3	49:v:226:G:H1	1.26	0.82
49:v:1009:U:H3	49:v:1020:G:H1	1.29	0.81
49:v:837:U:H3	49:v:849:G:H1	1.28	0.80
9:D:186:LEU:HD21	19:P:3:ILE:HD11	1.66	0.78
49:v:1531:A:C2'	49:v:1532:U:H5'	2.14	0.78
49:v:834:U:H3	49:v:852:G:H1	1.33	0.76
49:v:205:A:H61	49:v:213:G:H1	1.35	0.73
19:P:62:LYS:HE3	19:P:64:SER:HB3	1.70	0.73
7:B:1912:A:H8	49:v:1495:U:H1'	1.54	0.73
9:D:120:GLY:O	9:D:124:ARG:HB2	1.90	0.72
40:l:22:TYR:HB3	40:l:65:GLU:HB3	1.71	0.71
39:k:4:ASN:OD1	39:k:8:ARG:NH1	2.25	0.69
7:B:1912:A:N6	49:v:1407:C:O2'	2.26	0.68
47:s:66:ILE:HG22	47:s:68:LYS:H	1.57	0.68
31:c:24:VAL:HG21	49:v:409:U:H5''	1.76	0.68
26:W:45:HIS:HB2	26:W:58:LEU:HD23	1.75	0.67
49:v:1531:A:C3'	49:v:1532:U:H5'	2.11	0.67
7:B:1311:G:H21	7:B:1603:A:N6	1.92	0.67
16:M:38:ARG:HG3	16:M:98:PRO:HD3	1.77	0.67
33:e:2:ARG:NH1	49:v:738:C:OP1	2.28	0.67
49:v:1531:A:H2'	49:v:1532:U:O4'	1.93	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:53:VAL:HG23	1:0:54:ILE:HD12	1.77	0.67
21:R:1:MET:HG3	21:R:101:ILE:HD12	1.75	0.66
11:F:79:ARG:HH11	51:5:56:C:H4'	1.58	0.66
34:f:2:ARG:NH1	49:v:933:G:N7	2.44	0.66
7:B:981:A:H8	7:B:2027:G:H21	1.41	0.66
7:B:2117:A:H4'	7:B:2145:C:H4'	1.78	0.66
13:J:36:LEU:HD11	13:J:122:LEU:HB2	1.78	0.65
37:i:66:GLU:HB2	41:m:99:ALA:HB2	1.77	0.65
17:N:30:ARG:HH21	17:N:75:ILE:HD11	1.62	0.65
34:f:65:LEU:HB3	34:f:69:ARG:HH21	1.61	0.65
11:F:73:VAL:HB	11:F:79:ARG:HH21	1.62	0.65
49:v:1156:G:H21	49:v:1179:A:N6	1.93	0.65
7:B:845:A:N6	7:B:932:U:N3	2.45	0.65
7:B:2114:A:N6	7:B:2171:A:C6	2.65	0.65
11:F:103:ILE:O	11:F:107:VAL:HB	1.97	0.65
37:i:52:LEU:HB2	41:m:81:ARG:HE	1.61	0.65
40:l:25:GLY:O	40:l:29:SER:HB3	1.97	0.65
34:f:77:ARG:HB3	34:f:84:TYR:HB3	1.79	0.64
48:u:148:VAL:HG12	48:u:160:VAL:HG22	1.80	0.64
21:R:2:TYR:HB2	21:R:42:ALA:HB3	1.79	0.63
5:4:6:SER:HB3	7:B:2466:C:H5''	1.81	0.63
46:r:10:ILE:HD12	46:r:37:SER:HB2	1.79	0.63
34:f:139:ASP:HA	34:f:142:ARG:HE	1.64	0.63
7:B:1275:A:OP2	7:B:1646:C:N4	2.32	0.62
22:S:59:GLU:HA	22:S:64:ALA:HB2	1.82	0.62
7:B:796:C:OP1	10:E:57:LYS:NZ	2.33	0.62
49:v:409:U:H3	49:v:433:G:H1	1.47	0.62
49:v:596:A:N6	49:v:641:U:O4	2.32	0.62
8:C:16:VAL:HG22	8:C:203:VAL:HG22	1.80	0.62
37:i:6:ILE:HD12	37:i:8:ILE:HD11	1.80	0.62
30:b:113:LYS:NZ	30:b:185:THR:O	2.32	0.62
26:W:49:ASN:HB2	26:W:61:LYS:HE3	1.82	0.62
49:v:1156:G:H21	49:v:1179:A:H61	1.47	0.62
7:B:629:G:N3	7:B:639:U:O2'	2.33	0.62
20:Q:95:ALA:HA	20:Q:97:ILE:HG12	1.82	0.62
27:X:4:CYS:HA	27:X:32:LEU:HD21	1.82	0.62
14:K:92:GLN:OE1	14:K:113:LYS:NZ	2.33	0.61
34:f:50:ALA:HB2	34:f:57:GLU:HB3	1.81	0.61
7:B:2682:A:H61	7:B:2728:U:H1'	1.66	0.61
40:l:24:VAL:HG13	40:l:28:ARG:HG2	1.83	0.61
11:F:126:ASN:HA	11:F:156:THR:HG23	1.81	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:g:17:GLN:HG2	35:g:62:LEU:HD13	1.81	0.61
30:b:147:GLY:HA3	30:b:202:PHE:HB3	1.82	0.61
7:B:2885:G:O2'	7:B:2886:A:N3	2.34	0.60
37:i:58:ASN:ND2	37:i:61:ALA:O	2.34	0.60
7:B:219:A:N3	7:B:234:U:O2'	2.33	0.60
11:F:78:ILE:HB	11:F:81:GLY:HA2	1.82	0.60
15:L:92:LEU:HA	15:L:95:LEU:HD12	1.83	0.60
43:o:14:ARG:HH22	49:v:617:G:H21	1.46	0.60
49:v:205:A:N6	49:v:213:G:H1	1.98	0.60
7:B:586:A:H5'	10:E:84:THR:HG21	1.82	0.60
19:P:42:PHE:HE2	19:P:71:ARG:HB3	1.67	0.60
30:b:150:VAL:HG12	30:b:199:VAL:HG22	1.83	0.60
37:i:65:TYR:HB3	41:m:96:LEU:HD11	1.83	0.60
7:B:1501:G:H4'	8:C:94:LEU:HD11	1.83	0.60
7:B:1789:A:OP2	8:C:220:ARG:NH1	2.35	0.60
7:B:2831:G:N2	7:B:2884:U:OP2	2.35	0.60
17:N:59:SER:OG	17:N:62:ASN:ND2	2.35	0.60
29:Z:4:ILE:HG21	29:Z:44:ARG:HH22	1.65	0.60
7:B:471:A:OP1	10:E:79:ARG:NH2	2.36	0.59
13:J:92:MET:HE2	13:J:95:ARG:HH12	1.67	0.59
40:l:76:ILE:HG22	40:l:80:MET:HE2	1.83	0.59
9:D:37:VAL:HG22	9:D:48:ILE:HG22	1.84	0.59
16:M:36:VAL:HG12	25:V:82:TYR:HB2	1.84	0.59
22:S:47:VAL:HG12	22:S:103:ILE:HG21	1.84	0.59
33:e:2:ARG:HH12	49:v:738:C:H5''	1.67	0.59
7:B:2304:G:H1	7:B:2312:U:H3	1.48	0.59
35:g:28:SER:HB2	35:g:58:LEU:HB2	1.85	0.59
49:v:116:A:H61	49:v:313:A:H1'	1.68	0.58
49:v:768:A:N3	49:v:1512:U:O2'	2.36	0.58
41:m:42:TRP:HB3	41:m:45:VAL:HG22	1.85	0.58
49:v:1027:C:N4	49:v:1028:C:O2	2.36	0.58
16:M:75:GLU:HB2	16:M:90:GLU:HG3	1.85	0.58
7:B:1129:A:N6	7:B:2491:U:OP1	2.36	0.58
9:D:52:THR:HG22	9:D:77:ARG:HH21	1.67	0.58
35:g:49:LYS:HD3	35:g:51:GLU:HG2	1.84	0.58
7:B:286:U:O4	7:B:353:C:N4	2.37	0.58
7:B:559:G:N2	20:Q:48:ASP:OD1	2.37	0.58
13:J:14:ASP:OD1	13:J:14:ASP:N	2.36	0.58
36:h:18:VAL:HG22	36:h:64:ILE:HG23	1.86	0.58
48:u:148:VAL:HA	48:u:160:VAL:HA	1.84	0.58
49:v:1026:G:O6	49:v:1035:A:N6	2.36	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:P:27:VAL:HG22	19:P:83:ILE:HG23	1.86	0.58
11:F:46:LYS:HE3	11:F:66:ILE:HG21	1.85	0.58
13:J:13:ARG:NH2	13:J:49:ASP:O	2.37	0.58
28:Y:39:GLN:HA	28:Y:42:LEU:HB2	1.86	0.58
34:f:3:ARG:HE	49:v:932:C:H5''	1.69	0.58
7:B:1939:U:OP1	7:B:2604:U:O2'	2.22	0.58
30:b:113:LYS:NZ	30:b:186:SER:OG	2.37	0.58
32:d:109:ALA:HB1	32:d:136:VAL:HG23	1.85	0.58
7:B:84:A:OP1	24:U:5:ARG:NH1	2.37	0.57
13:J:118:MET:HA	13:J:121:LYS:HE2	1.85	0.57
34:f:112:ASP:OD2	34:f:121:ASN:ND2	2.37	0.57
35:g:14:ARG:NH1	49:v:875:U:O2'	2.35	0.57
1:0:21:LEU:HD21	22:S:41:LYS:HD2	1.86	0.57
2:1:11:VAL:H	2:1:50:GLU:HB2	1.69	0.57
33:e:10:VAL:HG23	33:e:58:HIS:HB3	1.86	0.57
41:m:2:LYS:NZ	49:v:1203:C:OP1	2.38	0.57
41:m:100:SER:HB2	49:v:1114:C:H1'	1.85	0.57
49:v:80:A:N6	49:v:89:U:O4	2.38	0.57
49:v:219:U:H2'	49:v:220:G:H8	1.68	0.57
7:B:1604:C:O2'	7:B:1610:A:N6	2.38	0.57
7:B:2303:G:H1'	11:F:126:ASN:HB3	1.85	0.57
46:r:76:THR:O	49:v:958:A:N6	2.38	0.57
7:B:13:A:O2'	7:B:15:G:N7	2.37	0.57
7:B:514:A:N3	7:B:581:C:O2'	2.34	0.57
22:S:24:ILE:HG13	22:S:32:ALA:HB1	1.86	0.57
51:5:21:A:H61	51:5:46:G:H2'	1.70	0.57
10:E:15:SER:HB2	10:E:18:THR:HG22	1.85	0.57
12:G:16:VAL:HG11	12:G:49:LEU:HD21	1.87	0.57
33:e:2:ARG:NH2	33:e:68:GLN:OE1	2.37	0.57
7:B:453:A:N3	7:B:457:A:O2'	2.37	0.57
7:B:1322:A:N1	7:B:1333:G:O2'	2.37	0.57
47:s:20:ASN:O	47:s:24:ARG:HB2	2.05	0.57
24:U:26:ASN:H	24:U:34:ILE:HG22	1.69	0.57
9:D:173:GLN:OE1	9:D:208:LYS:NZ	2.35	0.56
30:b:18:ASN:HB3	30:b:39:ARG:HH12	1.70	0.56
44:p:20:ILE:HG13	44:p:45:VAL:HG13	1.87	0.56
7:B:1724:G:O6	7:B:1736:U:O4	2.24	0.56
7:B:2032:G:N2	9:D:151:THR:OG1	2.39	0.56
7:B:636:G:N7	15:L:109:LYS:NZ	2.53	0.56
7:B:2168:G:H1	7:B:2171:A:H5'	1.70	0.56
7:B:2500:U:O2'	7:B:2504:U:OP1	2.23	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:F:68:LYS:HA	11:F:83:PRO:HA	1.87	0.56
30:b:188:ALA:HB3	30:b:195:ILE:HB	1.87	0.56
34:f:13:PRO:HG3	34:f:20:GLU:HG2	1.87	0.56
37:i:53:ILE:HG22	37:i:58:ASN:HD21	1.70	0.56
39:k:67:GLY:O	39:k:98:ARG:NH1	2.37	0.56
15:L:123:ARG:HB3	15:L:144:GLU:HG3	1.86	0.56
35:g:104:SER:OG	49:v:642:A:N3	2.39	0.56
49:v:861:G:HO2'	49:v:874:G:HO2'	1.53	0.56
7:B:1853:A:N3	7:B:2233:U:O2'	2.39	0.56
7:B:2202:U:O2'	7:B:2204:G:OP1	2.23	0.56
12:G:21:GLN:NE2	12:G:37:ASN:OD1	2.39	0.56
13:J:16:TYR:HB2	13:J:54:ILE:HG22	1.87	0.56
3:2:35:ARG:HG3	3:2:42:LEU:HD21	1.88	0.56
49:v:835:U:H3	49:v:851:G:H1	1.54	0.56
7:B:275:C:O2'	7:B:362:A:N6	2.39	0.56
7:B:750:A:OP1	7:B:1615:C:N4	2.37	0.56
7:B:2061:G:OP2	10:E:63:LYS:NZ	2.38	0.56
10:E:18:THR:HG23	10:E:19:PHE:HD1	1.70	0.56
18:O:88:LYS:HE3	18:O:116:GLN:HG3	1.87	0.56
9:D:181:ASP:N	9:D:181:ASP:OD1	2.37	0.56
12:G:82:PHE:O	12:G:84:LYS:NZ	2.39	0.56
13:J:4:PHE:O	20:Q:63:ARG:NH2	2.38	0.56
14:K:75:VAL:H	19:P:72:VAL:HG22	1.70	0.56
34:f:76:SER:HB3	34:f:78:ARG:HD3	1.88	0.56
46:r:51:HIS:HA	46:r:56:HIS:HA	1.88	0.56
16:M:71:LYS:HD2	16:M:95:LEU:HD11	1.88	0.56
27:X:4:CYS:HB2	27:X:9:LYS:HB2	1.88	0.56
30:b:10:ARG:HG3	30:b:15:LYS:HG2	1.88	0.55
31:c:8:LEU:O	31:c:12:ARG:HB2	2.06	0.55
7:B:1105:U:H2'	7:B:1106:G:H8	1.72	0.55
41:m:83:LYS:NZ	49:v:1202:U:O2	2.39	0.55
7:B:2848:G:O2'	7:B:2867:G:N2	2.37	0.55
22:S:52:GLU:HA	22:S:55:ILE:HD12	1.89	0.55
35:g:40:LYS:HD2	35:g:47:ASP:HA	1.89	0.55
43:o:28:ARG:NH1	43:o:29:ASN:OD1	2.39	0.55
7:B:993:G:OP2	20:Q:50:ARG:NH2	2.40	0.55
7:B:1365:A:OP1	27:X:27:ARG:NH1	2.40	0.55
7:B:1912:A:H2	7:B:1917:U:H3	1.53	0.55
25:V:4:ILE:HG12	25:V:50:MET:HE1	1.87	0.55
7:B:1799:G:OP2	8:C:269:ARG:NH2	2.40	0.55
28:Y:5:GLU:HA	28:Y:7:ARG:HH11	1.70	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:i:28:THR:HA	37:i:31:ARG:HD3	1.88	0.55
31:c:164:ARG:O	31:c:166:LYS:NZ	2.40	0.55
31:c:195:ASN:HD22	31:c:197:HIS:CE1	2.25	0.55
35:g:17:GLN:HE21	35:g:62:LEU:HB3	1.69	0.55
11:F:56:LEU:HD13	11:F:91:ARG:HH22	1.71	0.55
20:Q:25:GLY:O	20:Q:29:ARG:NH1	2.38	0.55
9:D:24:VAL:HG11	9:D:188:LEU:HD23	1.88	0.55
44:p:17:GLU:OE1	49:v:254:G:N2	2.40	0.54
46:r:3:SER:OG	46:r:4:LEU:N	2.41	0.54
49:v:1316:G:H22	49:v:1319:A:H5'	1.72	0.54
39:k:82:ARG:O	49:v:552:U:O2'	2.25	0.54
45:q:28:LEU:HB3	45:q:67:LEU:HD11	1.89	0.54
38:j:127:ARG:NH1	38:j:128:VAL:OXT	2.40	0.54
22:S:59:GLU:HG3	22:S:66:ILE:HD11	1.90	0.54
49:v:689:C:HO2'	49:v:705:G:HO2'	1.54	0.54
7:B:538:A:N6	7:B:555:G:O2'	2.39	0.54
15:L:90:VAL:HB	15:L:122:VAL:HG12	1.89	0.54
23:T:24:MET:O	23:T:29:THR:N	2.41	0.54
18:O:15:ARG:NH2	18:O:95:SER:OG	2.41	0.54
49:v:1071:C:H2'	49:v:1072:G:H8	1.71	0.54
7:B:1187:G:N2	7:B:1188:U:O4	2.40	0.54
8:C:60:ALA:O	8:C:62:ARG:NH1	2.40	0.54
14:K:90:SER:O	14:K:92:GLN:NE2	2.40	0.54
49:v:1533:C:H3'	49:v:1534:A:H8	1.72	0.54
7:B:1508:A:H4'	7:B:1509:A:H5'	1.90	0.54
8:C:161:VAL:HG12	8:C:175:LEU:HA	1.89	0.54
35:g:1:SER:N	49:v:823:C:O2'	2.41	0.54
41:m:5:MET:HA	41:m:8:ARG:HE	1.72	0.54
49:v:413:G:N2	49:v:428:G:O2'	2.41	0.54
49:v:1356:G:H2'	49:v:1357:A:H8	1.73	0.54
7:B:2528:U:O2	7:B:2535:G:O6	2.26	0.54
15:L:110:VAL:HB	15:L:127:VAL:HG12	1.90	0.54
26:W:30:VAL:HG13	26:W:59:PHE:HB2	1.89	0.54
35:g:46:GLU:HG3	35:g:61:THR:HG23	1.89	0.54
7:B:6:A:N3	13:J:135:GLN:NE2	2.55	0.54
7:B:96:C:OP1	28:Y:38:GLN:NE2	2.41	0.54
7:B:793:A:OP2	7:B:2071:A:O2'	2.25	0.54
7:B:2270:A:H4'	26:W:16:GLU:HG3	1.90	0.54
16:M:33:LEU:HD11	16:M:128:THR:HB	1.90	0.54
29:Z:5:LYS:HB2	29:Z:57:GLU:HG2	1.89	0.54
32:d:74:ALA:O	32:d:81:GLN:NE2	2.41	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:M:6:ARG:NH2	51:5:52:G:O2'	2.39	0.53
7:B:527:C:N4	7:B:2779:U:OP2	2.39	0.53
36:h:4:GLN:OE1	49:v:1130:A:O2'	2.25	0.53
7:B:2060:A:N7	10:E:69:ARG:NH1	2.57	0.53
19:P:33:GLU:OE2	19:P:38:ARG:NH1	2.42	0.53
32:d:137:ARG:HA	32:d:140:ILE:HB	1.90	0.53
36:h:109:GLN:NE2	49:v:1116:U:O2'	2.42	0.53
36:h:128:LYS:O	49:v:966:G:O2'	2.26	0.53
47:s:9:ARG:NH2	49:v:107:G:N7	2.55	0.53
49:v:1363:A:O2'	49:v:1365:G:N7	2.40	0.53
7:B:1076:C:H2'	7:B:1077:A:H8	1.73	0.53
15:L:73:ILE:HG23	15:L:106:GLU:H	1.73	0.53
20:Q:71:ASN:HB3	20:Q:109:VAL:HG11	1.90	0.53
21:R:59:ILE:HG12	21:R:101:ILE:HG23	1.91	0.53
37:i:10:LEU:HB3	37:i:18:ILE:HD11	1.91	0.53
49:v:946:A:H2'	49:v:947:G:C8	2.44	0.53
1:O:42:ILE:HD11	17:N:98:LEU:HB3	1.91	0.53
5:4:1:MET:HE1	7:B:2742:G:H5''	1.90	0.53
7:B:309:A:H4'	24:U:15:GLY:HA2	1.89	0.53
7:B:910:A:H62	16:M:12:MET:HA	1.74	0.53
7:B:1250:G:N7	15:L:18:ARG:NH2	2.53	0.53
39:k:69:GLU:HB2	39:k:106:VAL:HG23	1.90	0.53
7:B:2312:U:O2	11:F:36:ASN:ND2	2.41	0.53
7:B:2719:G:H21	7:B:2872:A:H61	1.57	0.53
31:c:33:ILE:HD11	31:c:36:ALA:HB3	1.90	0.53
49:v:1178:G:N2	49:v:1181:G:OP2	2.42	0.53
16:M:41:LEU:HD21	16:M:124:LEU:HD22	1.89	0.53
34:f:74:VAL:HA	34:f:87:PRO:HA	1.90	0.53
37:i:30:LYS:NZ	37:i:34:ALA:O	2.39	0.53
37:i:97:ASP:OD2	48:u:167:ARG:NE	2.41	0.53
49:v:993:G:O2'	49:v:994:A:N7	2.39	0.53
49:v:1136:C:O2'	49:v:1138:G:N7	2.42	0.53
10:E:52:VAL:O	10:E:74:LYS:NZ	2.36	0.53
23:T:15:HIS:NE2	23:T:25:GLU:OE2	2.41	0.53
49:v:673:A:H2'	49:v:674:G:C8	2.44	0.53
31:c:58:GLN:O	31:c:62:ARG:HG2	2.09	0.52
38:j:118:ASN:HD22	49:v:717:U:H4'	1.74	0.52
49:v:532:A:N6	49:v:1206:G:O2'	2.41	0.52
49:v:683:G:H1	49:v:707:U:H3	1.56	0.52
13:J:40:HIS:O	20:Q:70:GLN:NE2	2.41	0.52
37:i:25:ILE:HD13	37:i:90:LEU:HD13	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
38:j:13:LYS:HG2	38:j:16:SER:H	1.74	0.52
39:k:41:PRO:HB3	39:k:88:ASP:HB3	1.91	0.52
7:B:2821:A:H4'	9:D:167:ASN:HD21	1.74	0.52
16:M:134:THR:OG1	25:V:79:ARG:NH1	2.43	0.52
36:h:83:THR:HG21	36:h:102:PHE:HB3	1.90	0.52
49:v:890:G:O2'	49:v:906:A:N6	2.42	0.52
7:B:1651:G:OP1	17:N:40:LYS:NZ	2.42	0.52
7:B:2117:A:N7	7:B:2165:C:N3	2.58	0.52
39:k:20:VAL:HG21	49:v:553:A:H5''	1.92	0.52
49:v:401:C:O2'	49:v:621:A:N3	2.38	0.52
49:v:467:U:H3'	49:v:468:A:H4'	1.91	0.52
49:v:843:U:OP1	49:v:844:G:N2	2.42	0.52
36:h:112:ARG:NH2	49:v:1368:A:OP1	2.43	0.52
6:A:93:C:OP2	25:V:18:ARG:NH1	2.43	0.52
7:B:324:A:OP2	7:B:1205:A:N6	2.38	0.52
49:v:1009:U:O2	49:v:1020:G:N2	2.35	0.52
6:A:98:G:H1	25:V:14:LYS:HB3	1.75	0.52
49:v:625:U:H2'	49:v:626:G:H8	1.74	0.52
5:4:19:ARG:HH22	5:4:26:ILE:HD13	1.74	0.52
7:B:1819:A:H5''	8:C:159:THR:HG21	1.92	0.52
9:D:131:ASP:O	9:D:136:ASN:ND2	2.43	0.52
10:E:168:ASP:OD1	10:E:170:ARG:NH1	2.42	0.52
41:m:4:SER:HB3	49:v:1216:A:H5''	1.92	0.52
44:p:47:ASP:HB3	44:p:74:LEU:HD13	1.92	0.52
7:B:2009:A:OP1	22:S:41:LYS:NZ	2.43	0.51
7:B:2850:A:N7	7:B:2868:A:O2'	2.41	0.51
23:T:33:LYS:HA	23:T:82:LYS:HA	1.91	0.51
31:c:196:GLU:HA	31:c:199:ILE:HD12	1.92	0.51
35:g:42:GLU:HG3	35:g:100:ILE:HG21	1.91	0.51
7:B:1493:C:H42	7:B:2211:A:H1'	1.76	0.51
43:o:3:THR:HG22	43:o:66:THR:HB	1.92	0.51
47:s:66:ILE:HG23	47:s:70:LYS:HB3	1.93	0.51
49:v:1338:G:N3	51:5:41:C:O2'	2.44	0.51
7:B:1667:G:O2'	7:B:1991:U:O4	2.28	0.51
7:B:1923:U:OP1	51:5:24:U:O2'	2.28	0.51
16:M:35:ALA:HB2	16:M:102:LEU:HD11	1.91	0.51
8:C:144:GLU:HB2	8:C:187:CYS:HB2	1.91	0.51
10:E:153:LEU:HD22	10:E:171:ASP:HB2	1.92	0.51
12:G:1:SER:HA	12:G:61:TRP:HD1	1.76	0.51
13:J:45:THR:OG1	13:J:48:VAL:O	2.28	0.51
41:m:30:ILE:HB	41:m:48:LEU:HD21	1.91	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:V:83:LYS:HB3	25:V:85:LYS:HD2	1.93	0.51
33:e:13:ASP:N	33:e:13:ASP:OD1	2.43	0.51
35:g:86:LYS:HB2	35:g:124:ILE:HD11	1.93	0.51
49:v:59:A:H3'	49:v:331:G:H22	1.76	0.51
7:B:848:C:H2'	7:B:849:A:H8	1.76	0.51
30:b:152:VAL:HG22	30:b:197:VAL:HG12	1.92	0.51
49:v:714:G:H2'	49:v:715:A:C8	2.46	0.51
8:C:99:GLU:OE2	8:C:101:ARG:NH1	2.44	0.51
13:J:69:ARG:HA	13:J:89:PHE:HB3	1.92	0.51
17:N:33:ILE:HD13	17:N:114:GLU:HB3	1.92	0.51
22:S:35:ILE:O	22:S:39:THR:OG1	2.29	0.51
32:d:65:LYS:HG2	32:d:68:ARG:HH21	1.74	0.51
37:i:36:VAL:HG12	37:i:76:ILE:HG23	1.93	0.51
46:r:40:PHE:HB2	46:r:43:MET:HG3	1.93	0.51
7:B:1680:U:O2	7:B:1763:G:O2'	2.20	0.51
7:B:2787:C:H1'	9:D:63:PRO:HG3	1.93	0.51
8:C:251:THR:OG1	8:C:252:LYS:N	2.43	0.51
9:D:43:ASP:N	9:D:43:ASP:OD1	2.43	0.51
37:i:8:ILE:HG23	37:i:100:ILE:HG13	1.93	0.51
49:v:294:U:OP1	49:v:610:U:O2'	2.29	0.51
49:v:674:G:H2'	49:v:675:A:H8	1.74	0.51
7:B:693:A:O2'	7:B:1353:A:N3	2.40	0.51
7:B:714:U:H5''	42:n:87:ARG:HH22	1.74	0.51
7:B:1009:A:N3	7:B:1153:C:O2'	2.41	0.51
49:v:216:U:O2'	49:v:468:A:N1	2.44	0.51
49:v:1315:U:O2'	49:v:1360:A:N3	2.37	0.51
9:D:32:ASN:ND2	9:D:52:THR:OG1	2.44	0.50
31:c:7:LYS:HB3	31:c:20:LEU:HD11	1.93	0.50
37:i:87:LEU:HA	37:i:90:LEU:HD12	1.93	0.50
7:B:2316:G:H2'	7:B:2317:A:H8	1.76	0.50
7:B:2683:C:H4'	9:D:13:ARG:HH22	1.76	0.50
9:D:1:MET:HE1	9:D:100:LEU:HD13	1.93	0.50
31:c:26:ALA:HB3	31:c:29:THR:HB	1.92	0.50
7:B:298:G:O2'	7:B:322:A:N1	2.44	0.50
7:B:833:A:H2'	7:B:834:G:C8	2.46	0.50
17:N:42:LYS:HA	17:N:45:ARG:HD3	1.93	0.50
35:g:14:ARG:HH21	35:g:74:ILE:HG22	1.76	0.50
49:v:411:A:H5''	49:v:429:U:H5	1.77	0.50
7:B:411:G:OP2	7:B:2406:A:O2'	2.27	0.50
7:B:964:C:O2'	7:B:2273:A:N3	2.39	0.50
7:B:2572:A:OP1	7:B:2574:G:O2'	2.27	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:B:189:G:OP2	27:X:25:LYS:NZ	2.44	0.50
7:B:856:G:H21	26:W:19:ARG:HH22	1.57	0.50
12:G:59:ASP:OD2	12:G:63:GLN:NE2	2.45	0.50
12:G:84:LYS:HB3	12:G:131:VAL:HG23	1.92	0.50
26:W:35:ILE:HG23	26:W:36:ILE:HG12	1.92	0.50
34:f:117:LEU:O	34:f:121:ASN:ND2	2.44	0.50
49:v:1100:C:N4	49:v:1103:C:OP1	2.45	0.50
7:B:2139:U:H3	7:B:2152:G:H2'	1.77	0.50
36:h:64:ILE:HG21	36:h:78:ILE:HG12	1.93	0.50
7:B:859:G:O2'	7:B:916:G:O6	2.24	0.50
7:B:890:C:O2	11:F:119:LYS:NZ	2.44	0.50
7:B:2462:C:H1'	7:B:2491:U:H5	1.76	0.50
22:S:33:LEU:O	22:S:37:THR:OG1	2.30	0.50
30:b:65:VAL:HG22	30:b:100:ILE:HA	1.93	0.50
38:j:25:SER:OG	38:j:26:PHE:N	2.45	0.50
7:B:299:A:N3	7:B:319:G:O2'	2.42	0.50
30:b:32:LEU:HD21	41:m:93:ILE:HG12	1.94	0.50
32:d:105:ILE:HG21	49:v:7:A:H3'	1.93	0.50
40:l:90:HIS:HA	40:l:108:ARG:HH22	1.77	0.50
49:v:946:A:O2'	49:v:1333:A:N3	2.43	0.50
49:v:952:U:H2'	49:v:953:G:H8	1.77	0.50
7:B:2515:C:H2'	7:B:2516:A:H8	1.77	0.49
11:F:78:ILE:HD12	11:F:82:TYR:H	1.76	0.49
49:v:1124:G:H1'	49:v:1125:U:H5	1.77	0.49
9:D:148:GLN:HB2	9:D:152:PRO:HG2	1.93	0.49
12:G:34:ARG:HE	12:G:35:THR:HG1	1.57	0.49
40:l:58:GLU:HA	40:l:61:LYS:HE3	1.95	0.49
49:v:1011:C:H2'	49:v:1012:A:H8	1.77	0.49
49:v:1444:U:H3	49:v:1458:G:H1	1.58	0.49
6:A:76:G:OP1	25:V:9:ARG:NH1	2.41	0.49
7:B:414:C:H2'	7:B:415:A:C8	2.48	0.49
7:B:987:C:O2'	7:B:1000:A:N3	2.42	0.49
17:N:60:VAL:HG12	17:N:64:ARG:HD2	1.93	0.49
18:O:62:LEU:HD22	18:O:70:ALA:HA	1.93	0.49
34:f:8:GLN:O	34:f:10:LYS:NZ	2.43	0.49
49:v:582:C:O2	49:v:759:A:N6	2.45	0.49
7:B:1315:C:O2'	7:B:1392:A:N3	2.44	0.49
31:c:10:LEU:HD13	31:c:62:ARG:HB3	1.94	0.49
31:c:112:GLU:OE1	49:v:407:U:O2'	2.29	0.49
36:h:20:ILE:HG12	36:h:62:LEU:HG	1.94	0.49
37:i:99:GLN:HA	48:u:169:THR:HG23	1.95	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:v:1356:G:H2'	49:v:1357:A:C8	2.47	0.49
5:4:6:SER:O	5:4:6:SER:OG	2.31	0.49
5:4:7:VAL:HG22	5:4:38:GLY:HA3	1.93	0.49
7:B:639:U:H3	7:B:649:G:H1	1.60	0.49
7:B:2258:C:O2'	7:B:2427:C:OP2	2.24	0.49
7:B:284:U:O4	7:B:356:G:O6	2.31	0.49
10:E:15:SER:N	10:E:197:GLU:OE1	2.41	0.49
49:v:927:G:O2'	49:v:1503:A:N7	2.41	0.49
12:G:44:HIS:HB3	12:G:49:LEU:HD13	1.95	0.49
17:N:65:LEU:HD11	17:N:69:ARG:HH21	1.76	0.49
31:c:108:ALA:HB1	31:c:160:LEU:HD13	1.93	0.49
49:v:713:G:H2'	49:v:714:G:C8	2.48	0.49
7:B:2022:U:O2'	7:B:2616:C:O2'	2.27	0.49
14:K:104:ARG:HG2	14:K:121:VAL:HG12	1.94	0.49
7:B:922:C:H1'	26:W:22:VAL:HG11	1.95	0.49
10:E:5:LEU:HB2	10:E:10:SER:HB3	1.95	0.49
11:F:33:ILE:HG13	11:F:95:MET:HG3	1.95	0.49
30:b:76:ILE:HA	30:b:83:VAL:HG13	1.94	0.49
33:e:29:ILE:HG12	33:e:64:VAL:HG11	1.94	0.49
33:e:41:ASP:HA	33:e:60:VAL:HG23	1.95	0.49
33:e:79:ARG:NH1	49:v:671:G:O2'	2.45	0.49
38:j:16:SER:HA	38:j:78:ILE:HG22	1.95	0.49
7:B:659:G:O2'	10:E:95:LYS:O	2.30	0.48
10:E:12:LEU:HD21	10:E:193:VAL:HG11	1.95	0.48
14:K:15:ALA:HB1	14:K:46:ILE:H	1.78	0.48
7:B:284:U:H3	7:B:356:G:H1	1.59	0.48
8:C:93:VAL:HG11	8:C:115:ILE:HD11	1.96	0.48
24:U:27:VAL:HG13	24:U:33:VAL:HG12	1.95	0.48
29:Z:43:ILE:HA	29:Z:46:MET:HG3	1.95	0.48
31:c:87:GLU:HG2	31:c:187:ARG:HB2	1.94	0.48
26:W:39:GLN:NE2	26:W:42:THR:OG1	2.40	0.48
37:i:10:LEU:HD22	37:i:98:VAL:HG12	1.94	0.48
6:A:43:C:H4'	11:F:91:ARG:HE	1.78	0.48
7:B:396:G:OP2	27:X:9:LYS:NZ	2.47	0.48
7:B:818:G:N1	7:B:1188:U:OP2	2.33	0.48
36:h:45:MET:O	36:h:49:GLN:HB2	2.14	0.48
49:v:1224:U:O2'	49:v:1322:C:OP1	2.26	0.48
7:B:1447:C:O2'	7:B:1544:A:N3	2.42	0.48
33:e:49:TYR:OH	33:e:86:ARG:NH2	2.46	0.48
37:i:21:ALA:HB2	37:i:96:VAL:HG21	1.96	0.48
43:o:6:LEU:HD13	43:o:71:VAL:HG22	1.96	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:B:1889:A:N3	7:B:2086:U:O2'	2.42	0.48
24:U:10:VAL:HB	24:U:69:VAL:HB	1.94	0.48
48:u:155:LYS:HB3	48:u:157:ARG:HG2	1.96	0.48
49:v:335:C:O2'	49:v:1433:A:N3	2.42	0.48
49:v:486:U:H2'	49:v:487:A:H8	1.77	0.48
49:v:662:U:H2'	49:v:663:A:C8	2.49	0.48
7:B:675:A:N3	7:B:2443:C:O2'	2.41	0.48
7:B:845:A:N6	7:B:932:U:H3	2.12	0.48
11:F:130:GLY:HA2	11:F:152:ASP:HA	1.94	0.48
13:J:32:LEU:HD22	13:J:54:ILE:HD12	1.96	0.48
16:M:24:THR:O	16:M:34:LYS:NZ	2.37	0.48
7:B:1568:G:N7	8:C:27:LYS:NZ	2.57	0.48
19:P:47:ILE:HG23	19:P:96:LEU:H	1.79	0.48
49:v:744:C:H2'	49:v:745:G:H8	1.77	0.48
7:B:2780:G:O6	13:J:99:ARG:NH1	2.42	0.48
21:R:35:PHE:HB2	21:R:59:ILE:HB	1.96	0.48
49:v:1156:G:N2	49:v:1179:A:H61	2.09	0.48
49:v:1241:G:H2'	49:v:1242:G:H8	1.79	0.48
49:v:1533:C:H3'	49:v:1534:A:C8	2.49	0.48
7:B:1019:U:OP1	7:B:1035:U:O2'	2.25	0.48
7:B:1251:C:OP2	20:Q:5:ARG:NH1	2.47	0.48
7:B:2822:G:OP1	9:D:164:GLN:NE2	2.47	0.48
14:K:24:LEU:HD12	14:K:37:ILE:HG22	1.96	0.48
46:r:36:ARG:NH2	49:v:1317:C:O2	2.47	0.48
49:v:46:G:O2'	49:v:365:U:O2	2.31	0.48
7:B:1753:G:N2	7:B:1756:G:OP2	2.37	0.47
7:B:2117:A:N6	7:B:2166:U:O4	2.47	0.47
12:G:22:VAL:HA	12:G:36:LEU:HD22	1.97	0.47
33:e:46:GLN:HA	33:e:56:LYS:HB3	1.95	0.47
7:B:569:U:O2'	7:B:983:A:N1	2.47	0.47
8:C:131:MET:HE1	8:C:173:LEU:HD21	1.96	0.47
31:c:71:PHE:HE1	31:c:93:LEU:HD11	1.79	0.47
8:C:38:LYS:HE3	8:C:56:GLY:H	1.79	0.47
8:C:40:GLY:HA2	8:C:53:ILE:HG22	1.97	0.47
26:W:19:ARG:HA	26:W:34:SER:HA	1.96	0.47
36:h:115:VAL:HG11	37:i:62:ARG:HB2	1.95	0.47
39:k:34:THR:N	39:k:53:ARG:O	2.42	0.47
45:q:38:ILE:O	49:v:719:C:O2'	2.30	0.47
49:v:1414:U:H2'	49:v:1415:G:H8	1.80	0.47
7:B:249:C:OP2	7:B:2394:C:O2'	2.28	0.47
7:B:1266:G:O2'	7:B:2012:G:O6	2.26	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:B:1386:C:H2'	7:B:1387:A:H8	1.80	0.47
28:Y:36:GLN:HE21	28:Y:39:GLN:HB2	1.80	0.47
34:f:14:ASP:OD2	34:f:18:GLY:N	2.47	0.47
49:v:689:C:O2'	49:v:705:G:O2'	2.30	0.47
49:v:757:U:O2'	49:v:879:C:O2	2.32	0.47
6:A:89:U:O2	7:B:958:U:O2'	2.32	0.47
7:B:564:C:OP2	21:R:79:ARG:NH2	2.48	0.47
7:B:629:G:H1'	7:B:639:U:H1'	1.95	0.47
7:B:1248:G:OP1	10:E:44:ARG:NH2	2.47	0.47
7:B:2622:U:O2'	7:B:2825:G:N7	2.41	0.47
13:J:36:LEU:HG	13:J:54:ILE:HD11	1.97	0.47
16:M:64:TRP:HB2	16:M:104:GLU:HB2	1.95	0.47
29:Z:27:GLY:HA3	29:Z:37:ARG:HH21	1.80	0.47
30:b:61:LYS:N	48:u:166:GLY:O	2.47	0.47
37:i:25:ILE:HG21	37:i:74:VAL:HG11	1.95	0.47
38:j:30:ILE:HG23	38:j:45:THR:HG22	1.95	0.47
7:B:307:G:N1	7:B:310:A:OP2	2.45	0.47
7:B:577:G:O2'	7:B:1254:A:OP1	2.31	0.47
7:B:1026:G:H2'	7:B:1027:A:H8	1.79	0.47
7:B:1796:U:H2'	7:B:1797:G:C8	2.50	0.47
7:B:1853:A:N6	7:B:1888:G:O2'	2.46	0.47
18:O:49:VAL:HG21	18:O:82:ALA:HA	1.97	0.47
34:f:78:ARG:NE	34:f:82:SER:O	2.47	0.47
37:i:98:VAL:O	48:u:167:ARG:NH1	2.48	0.47
7:B:2656:U:N3	7:B:2665:A:N7	2.61	0.47
7:B:414:C:H2'	7:B:415:A:H8	1.78	0.47
7:B:535:G:O3'	20:Q:52:ARG:NH1	2.46	0.47
7:B:1901:A:OP2	8:C:252:LYS:NZ	2.44	0.47
7:B:1916:A:N6	49:v:1408:A:O2'	2.40	0.47
7:B:2353:G:H21	26:W:30:VAL:HG12	1.80	0.47
30:b:42:LEU:O	30:b:46:LEU:HB2	2.14	0.47
30:b:73:GLY:HA2	30:b:76:ILE:HG12	1.97	0.47
41:m:30:ILE:HG22	41:m:48:LEU:HD11	1.97	0.47
49:v:1391:U:H2'	49:v:1392:G:C8	2.50	0.47
7:B:184:C:H2'	7:B:185:G:H8	1.80	0.47
7:B:1796:U:H2'	7:B:1797:G:H8	1.79	0.47
8:C:159:THR:HG22	8:C:176:ARG:HG2	1.96	0.47
37:i:15:HIS:HA	37:i:18:ILE:HG22	1.97	0.47
6:A:34:A:H4'	6:A:35:C:H5	1.79	0.46
7:B:2683:C:O2	14:K:69:ARG:NH2	2.47	0.46
11:F:46:LYS:HD2	11:F:49:LEU:HD22	1.96	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:R:61:ALA:HB1	21:R:96:VAL:HG13	1.97	0.46
30:b:7:ASN:ND2	30:b:183:TYR:O	2.47	0.46
36:h:11:ARG:HH12	36:h:12:LYS:HD2	1.79	0.46
37:i:64:GLN:NE2	49:v:1368:A:OP1	2.48	0.46
7:B:1028:A:H2'	7:B:1029:A:C8	2.50	0.46
7:B:2619:C:OP1	9:D:157:LYS:NZ	2.41	0.46
11:F:39:VAL:HB	11:F:84:ILE:HA	1.96	0.46
43:o:28:ARG:HH21	49:v:390:U:H4'	1.79	0.46
49:v:946:A:H2'	49:v:947:G:H8	1.80	0.46
49:v:1239:A:O2'	49:v:1298:U:O4	2.30	0.46
49:v:1316:G:N1	49:v:1319:A:OP2	2.30	0.46
7:B:1386:C:H2'	7:B:1387:A:C8	2.51	0.46
11:F:13:LYS:HA	11:F:13:LYS:HD3	1.79	0.46
27:X:76:LYS:HA	27:X:76:LYS:HD3	1.79	0.46
33:e:6:ILE:HB	33:e:62:MET:HG3	1.97	0.46
7:B:1812:U:H2'	7:B:1813:G:H8	1.80	0.46
36:h:11:ARG:HH11	36:h:12:LYS:HB2	1.79	0.46
44:p:76:ARG:HE	44:p:78:VAL:HG22	1.80	0.46
49:v:62:U:O2'	49:v:379:C:O2	2.30	0.46
49:v:123:U:OP1	49:v:311:C:O2'	2.27	0.46
7:B:2483:C:N3	16:M:123:LYS:NZ	2.57	0.46
9:D:1:MET:HE3	9:D:205:PRO:HG2	1.97	0.46
12:G:32:LEU:HD22	12:G:135:ALA:HB1	1.98	0.46
7:B:2821:A:O2'	7:B:2826:A:N1	2.44	0.46
11:F:31:GLU:OE2	11:F:157:THR:OG1	2.34	0.46
36:h:26:LYS:NZ	36:h:27:ILE:O	2.47	0.46
38:j:27:ASN:O	38:j:56:LYS:NZ	2.48	0.46
49:v:235:C:H2'	49:v:236:A:C8	2.51	0.46
49:v:416:G:H2'	49:v:417:G:H8	1.79	0.46
49:v:769:G:H4'	49:v:1513:A:H4'	1.98	0.46
7:B:993:G:OP1	20:Q:49:ARG:NE	2.42	0.46
7:B:2075:U:H5''	8:C:241:LYS:HE3	1.96	0.46
43:o:31:ARG:HB3	49:v:310:G:H5''	1.98	0.46
47:s:53:MET:HE3	47:s:53:MET:HB3	1.81	0.46
49:v:107:G:OP1	49:v:325:A:N6	2.49	0.46
49:v:1323:G:H2'	49:v:1324:A:C8	2.51	0.46
7:B:184:C:H2'	7:B:185:G:C8	2.51	0.46
7:B:197:A:H2	7:B:2434:A:H62	1.64	0.46
7:B:639:U:O4	7:B:649:G:O6	2.32	0.46
7:B:2318:G:O2'	7:B:2321:U:O4	2.26	0.46
7:B:2898:U:H2'	7:B:2899:A:H8	1.81	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:D:175:LEU:HD23	9:D:175:LEU:HA	1.78	0.46
10:E:58:LYS:HE3	10:E:58:LYS:HB2	1.78	0.46
34:f:91:ARG:NH2	49:v:1377:A:OP1	2.48	0.46
38:j:91:GLY:O	38:j:95:THR:OG1	2.28	0.46
38:j:114:PRO:HB3	49:v:676:A:H5''	1.98	0.46
49:v:424:G:H2'	49:v:425:G:H8	1.81	0.46
7:B:1820:U:H5	8:C:176:ARG:HH21	1.64	0.46
30:b:61:LYS:HG2	48:u:166:GLY:HA2	1.96	0.46
46:r:30:LEU:HB2	46:r:48:ILE:HG22	1.98	0.46
49:v:41:G:H2'	49:v:42:G:H8	1.81	0.46
49:v:56:U:H2'	49:v:57:G:C8	2.51	0.46
49:v:552:U:H2'	49:v:553:A:H8	1.80	0.46
7:B:781:A:OP1	8:C:216:ARG:NH2	2.49	0.46
15:L:85:VAL:HG11	15:L:90:VAL:HG22	1.98	0.46
22:S:85:ILE:HG12	22:S:95:ARG:HH11	1.80	0.46
30:b:19:SER:OG	30:b:39:ARG:NH2	2.49	0.46
30:b:198:LYS:HZ1	49:v:1058:G:H5''	1.80	0.46
4:3:48:MET:HE3	4:3:48:MET:HB2	1.60	0.45
5:4:3:VAL:HG11	7:B:2539:C:H4'	1.96	0.45
7:B:397:U:H5''	27:X:31:ASN:HB2	1.98	0.45
7:B:458:G:O2'	7:B:469:G:O6	2.30	0.45
7:B:1796:U:H4'	8:C:253:GLY:H	1.81	0.45
7:B:2132:U:O4'	7:B:2157:G:N2	2.49	0.45
7:B:2864:G:OP1	19:P:112:ARG:NE	2.46	0.45
13:J:20:ALA:HA	13:J:23:LYS:HG3	1.98	0.45
29:Z:15:ARG:HH11	29:Z:53:MET:HE2	1.80	0.45
30:b:38:VAL:HG11	30:b:56:ILE:HD11	1.97	0.45
30:b:142:ARG:HH21	30:b:143:LEU:HB2	1.81	0.45
39:k:3:VAL:HA	39:k:6:LEU:HD12	1.98	0.45
49:v:481:G:O2'	49:v:483:C:N4	2.47	0.45
7:B:1420:A:H5''	7:B:2211:A:H62	1.80	0.45
8:C:181:ARG:HG2	8:C:183:VAL:HG23	1.98	0.45
18:O:67:ASN:H	18:O:70:ALA:HB3	1.81	0.45
28:Y:4:LYS:O	28:Y:7:ARG:NH1	2.49	0.45
40:l:33:LEU:HD13	40:l:40:GLU:HA	1.98	0.45
49:v:1128:C:H42	49:v:1145:A:H61	1.64	0.45
49:v:1138:G:C2	49:v:1140:C:C2	3.04	0.45
49:v:1370:G:H2'	49:v:1371:G:H8	1.81	0.45
37:i:5:ARG:HA	37:i:77:VAL:HA	1.98	0.45
46:r:11:ASP:HB2	46:r:14:LEU:HD23	1.98	0.45
46:r:43:MET:HE2	46:r:43:MET:HB3	1.77	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:B:1288:G:OP2	7:B:1288:G:N2	2.45	0.45
7:B:2167:U:H2'	7:B:2168:G:C8	2.52	0.45
12:G:89:VAL:HG13	12:G:159:LYS:HA	1.97	0.45
14:K:52:LYS:HA	14:K:52:LYS:HD3	1.74	0.45
33:e:38:ARG:HB2	33:e:98:GLU:HG2	1.98	0.45
43:o:5:ARG:HB2	49:v:376:G:H5''	1.99	0.45
47:s:66:ILE:HD13	47:s:66:ILE:HA	1.84	0.45
7:B:1013:C:H2'	7:B:1014:A:H8	1.81	0.45
7:B:1734:G:H2'	7:B:1735:A:H8	1.80	0.45
7:B:1857:G:H22	7:B:1884:G:H2'	1.81	0.45
13:J:40:HIS:HE1	13:J:41:LYS:HE3	1.82	0.45
33:e:88:MET:HE2	45:q:63:TYR:HD2	1.82	0.45
35:g:75:GLN:HG3	35:g:127:TYR:HB2	1.98	0.45
43:o:25:ARG:O	49:v:110:C:O2'	2.27	0.45
49:v:559:A:H4'	49:v:560:A:H3'	1.97	0.45
7:B:910:A:H2'	7:B:911:A:C8	2.52	0.45
7:B:1328:A:H61	7:B:1647:U:H5	1.64	0.45
7:B:2081:U:H2'	7:B:2082:A:H8	1.82	0.45
19:P:13:LYS:HD2	19:P:76:HIS:HA	1.97	0.45
23:T:53:VAL:HG21	23:T:87:LEU:HD13	1.98	0.45
25:V:28:ALA:HB3	25:V:40:ILE:HG13	1.97	0.45
36:h:119:LYS:HB2	36:h:122:ARG:HB3	1.99	0.45
39:k:114:SER:OG	49:v:35:G:N3	2.49	0.45
41:m:9:GLU:HG2	41:m:63:ARG:HD2	1.98	0.45
44:p:11:VAL:HG12	44:p:56:ASP:H	1.81	0.45
49:v:473:U:H2'	49:v:474:G:C8	2.51	0.45
2:1:20:TYR:HH	7:B:2347:C:HO2'	1.63	0.45
6:A:31:C:H5'	11:F:25:MET:HE1	1.98	0.45
12:G:81:GLY:HA3	12:G:134:GLY:H	1.81	0.45
13:J:16:TYR:HD2	13:J:140:LEU:HB2	1.81	0.45
7:B:988:A:C8	29:Z:13:ILE:HD12	2.52	0.45
7:B:1798:U:O2'	7:B:1802:A:N3	2.43	0.45
10:E:119:ILE:HB	10:E:187:VAL:HG22	1.99	0.45
26:W:9:THR:O	26:W:9:THR:OG1	2.34	0.45
27:X:40:GLU:OE1	27:X:40:GLU:N	2.49	0.45
27:X:67:LEU:HD22	27:X:77:TYR:HB2	1.99	0.45
31:c:127:ARG:HH21	49:v:619:U:H4'	1.82	0.45
49:v:1236:A:H4'	49:v:1304:G:H4'	1.99	0.45
49:v:1342:C:H2'	49:v:1343:G:C8	2.52	0.45
7:B:223:A:H5''	7:B:422:A:H5'	1.98	0.45
9:D:109:VAL:HG22	9:D:203:VAL:HG12	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:c:10:LEU:HB2	31:c:62:ARG:HH11	1.82	0.45
34:f:69:ARG:HB2	34:f:95:ARG:HG2	1.99	0.45
36:h:112:ARG:NH1	41:m:101:TRP:OXT	2.49	0.45
36:h:113:LYS:NZ	36:h:117:LEU:O	2.48	0.45
39:k:45:ASN:ND2	39:k:88:ASP:OD2	2.35	0.45
44:p:14:ASP:HA	44:p:20:ILE:HG22	1.98	0.45
49:v:1041:G:H2'	49:v:1042:A:C8	2.51	0.45
31:c:101:VAL:HG22	31:c:106:PHE:HB2	1.99	0.45
31:c:103:ARG:HA	31:c:103:ARG:HD3	1.79	0.45
36:h:125:GLN:OE1	49:v:942:G:N2	2.38	0.45
4:3:16:THR:OG1	4:3:19:GLY:O	2.35	0.44
7:B:1173:U:HO2'	7:B:1176:U:H3	1.64	0.44
7:B:1652:A:OP1	17:N:8:ARG:NH1	2.43	0.44
7:B:1733:G:H2'	7:B:1734:G:H8	1.82	0.44
8:C:17:LYS:HB3	8:C:17:LYS:HE2	1.85	0.44
8:C:27:LYS:HA	8:C:27:LYS:HD3	1.81	0.44
17:N:43:GLU:OE2	17:N:46:ARG:NH1	2.47	0.44
17:N:55:ALA:HA	17:N:80:PHE:CE1	2.52	0.44
31:c:182:LYS:HE2	31:c:182:LYS:HB3	1.84	0.44
7:B:1296:G:OP1	7:B:2709:G:O2'	2.31	0.44
7:B:1837:C:O2'	7:B:1927:A:N3	2.48	0.44
7:B:1936:A:C8	7:B:1945:G:O6	2.70	0.44
16:M:36:VAL:HG23	16:M:127:LYS:HB2	1.99	0.44
23:T:13:ALA:HB3	23:T:33:LYS:HG3	1.98	0.44
37:i:53:ILE:HG23	49:v:1060:U:H4'	1.99	0.44
7:B:184:C:O2'	7:B:217:A:N3	2.48	0.44
7:B:1316:U:H2'	7:B:1317:G:H8	1.82	0.44
8:C:77:VAL:HG12	8:C:111:ALA:HA	1.99	0.44
16:M:50:ARG:HG3	16:M:65:ILE:HD11	1.99	0.44
37:i:67:ILE:HG13	41:m:96:LEU:HD13	1.99	0.44
41:m:59:ARG:HE	49:v:980:C:H1'	1.82	0.44
2:1:14:ALA:HB2	2:1:46:VAL:HG11	1.99	0.44
7:B:1021:A:H62	7:B:1141:U:H3	1.66	0.44
7:B:1332:G:N7	7:B:1609:A:O2'	2.44	0.44
7:B:1616:A:N1	7:B:1647:U:C4	2.86	0.44
7:B:1645:G:H5''	7:B:1646:C:H5'	1.99	0.44
19:P:49:ILE:HD11	19:P:52:ARG:HH21	1.82	0.44
23:T:86:THR:HB	23:T:88:LYS:HE2	2.00	0.44
33:e:79:ARG:HH12	49:v:672:U:H5'	1.82	0.44
34:f:137:ARG:HA	34:f:140:VAL:HG22	1.98	0.44
39:k:86:VAL:HG21	39:k:89:LEU:HD12	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:v:17:U:H2'	49:v:18:C:C6	2.53	0.44
7:B:2227:A:H4'	8:C:260:LYS:HB2	1.99	0.44
22:S:9:HIS:H	22:S:102:HIS:CE1	2.35	0.44
25:V:86:LEU:HD22	25:V:89:ILE:HD11	1.99	0.44
35:g:10:LEU:HB3	35:g:74:ILE:HG21	2.00	0.44
7:B:715:A:N7	42:n:39:GLN:NE2	2.65	0.44
7:B:2330:G:N2	26:W:38:ARG:O	2.51	0.44
10:E:118:LEU:HD11	10:E:188:MET:HG3	2.00	0.44
16:M:127:LYS:HB3	16:M:127:LYS:HE2	1.80	0.44
16:M:136:MET:N	16:M:136:MET:SD	2.90	0.44
46:r:27:LYS:HD3	46:r:27:LYS:HA	1.89	0.44
49:v:56:U:H2'	49:v:57:G:H8	1.83	0.44
7:B:1056:G:H21	7:B:1103:A:H62	1.65	0.44
7:B:1432:G:H2'	7:B:1433:A:C8	2.52	0.44
7:B:2208:C:H2'	7:B:2209:G:C8	2.53	0.44
17:N:79:LEU:HA	17:N:83:LEU:HB2	2.00	0.44
30:b:4:VAL:N	49:v:1190:G:OP1	2.50	0.44
30:b:151:GLU:HB2	30:b:198:LYS:HB2	1.99	0.44
49:v:1260:G:HO2'	49:v:1283:U:HO2'	1.63	0.44
16:M:67:VAL:HG11	16:M:102:LEU:HD23	2.00	0.44
22:S:70:LYS:HB2	22:S:70:LYS:HE2	1.80	0.44
30:b:57:GLU:HB2	30:b:64:ARG:HH11	1.83	0.44
31:c:69:ARG:HD3	31:c:69:ARG:HA	1.71	0.44
33:e:91:ARG:N	49:v:737:C:OP1	2.48	0.44
47:s:9:ARG:HA	47:s:9:ARG:HD3	1.68	0.44
49:v:113:G:H1'	49:v:354:G:H5'	1.99	0.44
7:B:1105:U:H2'	7:B:1106:G:C8	2.53	0.44
7:B:1688:U:O2'	7:B:1700:A:N7	2.42	0.44
7:B:2117:A:N1	7:B:2172:U:C4	2.86	0.44
25:V:58:SER:OG	25:V:59:GLU:N	2.51	0.44
27:X:64:ASP:N	27:X:64:ASP:OD1	2.49	0.44
33:e:18:VAL:HA	33:e:21:MET:HG3	1.98	0.44
37:i:54:SER:O	41:m:81:ARG:NH2	2.50	0.44
7:B:1996:C:H5''	9:D:128:ARG:HH12	1.81	0.43
19:P:21:PRO:HA	19:P:46:VAL:HG13	2.00	0.43
28:Y:54:LYS:HB3	28:Y:54:LYS:HE3	1.84	0.43
29:Z:38:GLU:OE1	29:Z:40:THR:OG1	2.35	0.43
36:h:51:LEU:HD11	36:h:62:LEU:HD21	2.00	0.43
37:i:9:ARG:N	37:i:99:GLN:O	2.48	0.43
49:v:677:U:H3	49:v:713:G:H22	1.65	0.43
7:B:2540:C:O2'	7:B:2740:A:N3	2.45	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:B:2575:C:H5'	9:D:149:ASN:HB2	2.00	0.43
7:B:2658:C:H5''	12:G:157:LYS:HE2	2.00	0.43
11:F:57:ALA:HB1	11:F:60:SER:H	1.83	0.43
16:M:57:VAL:HG12	16:M:60:GLN:H	1.84	0.43
31:c:82:LYS:HD2	31:c:82:LYS:HA	1.78	0.43
39:k:14:LYS:H	39:k:14:LYS:HG2	1.65	0.43
40:l:32:ILE:HD12	40:l:58:GLU:HB3	2.01	0.43
49:v:976:G:O2'	49:v:1362:A:N1	2.46	0.43
7:B:160:A:N3	7:B:2208:C:O2'	2.44	0.43
7:B:2262:U:H5''	26:W:38:ARG:HH12	1.83	0.43
15:L:17:LYS:HE3	15:L:27:LEU:HD11	2.00	0.43
24:U:84:PHE:HB3	24:U:93:ARG:HA	1.99	0.43
26:W:48:ALA:HB2	26:W:81:ILE:HB	2.00	0.43
42:n:69:LEU:HA	42:n:72:LYS:HG2	2.00	0.43
49:v:791:G:O6	49:v:792:A:N6	2.52	0.43
49:v:1355:G:H2'	49:v:1356:G:H8	1.84	0.43
6:A:37:C:O2	18:O:100:HIS:NE2	2.46	0.43
7:B:589:U:H2'	7:B:590:A:C8	2.54	0.43
7:B:1454:C:O2	17:N:64:ARG:NH1	2.51	0.43
7:B:2148:G:H2'	7:B:2149:U:H4'	1.99	0.43
8:C:242:HIS:HA	8:C:243:PRO:HD3	1.89	0.43
30:b:111:ASP:OD1	30:b:114:LEU:HB2	2.18	0.43
30:b:123:LEU:HD13	30:b:195:ILE:HG21	2.00	0.43
36:h:41:GLU:HG3	36:h:71:ILE:HG12	2.00	0.43
49:v:776:G:N2	49:v:802:A:OP2	2.42	0.43
7:B:510:C:O2'	7:B:1236:G:OP1	2.36	0.43
7:B:1791:A:N6	7:B:1828:G:O2'	2.42	0.43
8:C:92:LEU:HD11	8:C:100:ARG:HB3	2.00	0.43
23:T:88:LYS:H	23:T:88:LYS:HG2	1.59	0.43
24:U:70:ALA:HB3	24:U:79:ALA:HB1	2.00	0.43
30:b:50:SER:OG	30:b:71:ARG:NH2	2.52	0.43
32:d:51:LYS:HB2	32:d:51:LYS:HE2	1.80	0.43
34:f:77:ARG:HG3	34:f:79:VAL:HG23	2.01	0.43
34:f:77:ARG:HB2	34:f:86:VAL:HG12	2.00	0.43
49:v:424:G:H2'	49:v:425:G:C8	2.54	0.43
7:B:1665:A:H5''	14:K:65:LYS:HB3	2.01	0.43
25:V:34:LYS:HE3	25:V:34:LYS:HB3	1.89	0.43
30:b:154:GLY:HA2	30:b:162:ALA:HB1	2.00	0.43
47:s:32:LYS:HE2	47:s:32:LYS:HB2	1.78	0.43
49:v:235:C:H2'	49:v:236:A:H8	1.82	0.43
7:B:33:C:N4	7:B:446:G:O2'	2.48	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:B:33:C:O2	7:B:447:A:N6	2.52	0.43
7:B:863:A:H2'	7:B:864:G:H8	1.82	0.43
15:L:79:LEU:HD11	15:L:112:LEU:HD12	2.00	0.43
24:U:17:ASP:HB2	24:U:20:LYS:HE3	2.00	0.43
35:g:88:LYS:HA	35:g:91:LEU:HD23	2.00	0.43
40:l:82:LEU:HD21	46:r:64:GLU:HB2	1.99	0.43
42:n:87:ARG:HD2	42:n:87:ARG:HA	1.78	0.43
49:v:1354:U:H2'	49:v:1355:G:C8	2.54	0.43
49:v:1531:A:C3'	49:v:1532:U:C5'	2.87	0.43
7:B:856:G:N2	26:W:19:ARG:HH22	2.17	0.43
7:B:1265:A:H61	7:B:2013:A:H5''	1.82	0.43
11:F:11:VAL:HG13	11:F:27:VAL:HG21	2.00	0.43
13:J:76:HIS:CE1	13:J:85:LYS:HB2	2.52	0.43
35:g:93:LYS:HD2	35:g:97:GLY:HA2	1.99	0.43
35:g:112:ASP:OD1	35:g:112:ASP:N	2.50	0.43
39:k:113:ARG:HG2	39:k:118:VAL:HB	2.01	0.43
7:B:151:C:H2'	7:B:152:A:H8	1.84	0.43
7:B:171:U:H2'	7:B:172:A:H8	1.84	0.43
7:B:1710:G:H2'	7:B:1711:A:C8	2.53	0.43
7:B:1812:U:H2'	7:B:1813:G:C8	2.54	0.43
16:M:74:THR:HG22	16:M:89:VAL:HG22	2.01	0.43
31:c:103:ARG:HB3	31:c:167:PRO:HG2	2.01	0.43
37:i:7:ARG:HA	37:i:75:ASP:HA	2.00	0.43
38:j:124:LYS:HD2	38:j:127:ARG:HG2	2.01	0.43
7:B:581:C:H2'	7:B:582:A:C8	2.54	0.43
7:B:2304:G:H22	7:B:2312:U:H3	1.67	0.43
7:B:2522:U:O2'	7:B:2647:U:OP1	2.25	0.43
10:E:190:ALA:O	10:E:194:LYS:HG3	2.19	0.43
19:P:5:LYS:HA	19:P:8:GLU:HB2	2.01	0.43
23:T:79:ASP:OD1	23:T:79:ASP:N	2.51	0.43
32:d:156:ARG:NH1	35:g:98:LEU:O	2.51	0.43
49:v:251:G:N2	49:v:253:A:N7	2.66	0.43
49:v:407:U:H2'	49:v:408:A:H8	1.82	0.43
49:v:584:G:H2'	49:v:585:G:H8	1.83	0.43
49:v:1011:C:H2'	49:v:1012:A:C8	2.54	0.43
49:v:1305:G:H21	49:v:1332:A:H2	1.66	0.43
2:1:10:LEU:HD11	2:1:22:THR:HG22	2.00	0.42
3:2:29:GLN:O	3:2:33:ARG:HG3	2.19	0.42
7:B:995:C:O2	13:J:3:THR:OG1	2.31	0.42
7:B:1779:U:H2'	7:B:1783:A:H62	1.84	0.42
7:B:2861:U:H2'	7:B:2862:G:H8	1.83	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:U:91:LYS:H	24:U:91:LYS:HG3	1.60	0.42
30:b:6:PRO:HA	30:b:9:ILE:HG22	2.01	0.42
35:g:84:ILE:HD13	35:g:84:ILE:HA	1.92	0.42
49:v:374:A:H5''	49:v:452:A:C2	2.55	0.42
7:B:848:C:H2'	7:B:849:A:C8	2.54	0.42
8:C:77:VAL:HG22	8:C:93:VAL:HG12	1.99	0.42
10:E:21:ARG:O	10:E:114:ARG:NH2	2.41	0.42
20:Q:91:ARG:HD3	20:Q:91:ARG:HA	1.88	0.42
23:T:33:LYS:HE2	23:T:33:LYS:HB2	1.87	0.42
25:V:78:GLN:HB2	25:V:88:HIS:HB3	2.01	0.42
28:Y:48:ARG:HD3	28:Y:48:ARG:HA	1.81	0.42
32:d:80:LEU:HD11	32:d:122:VAL:HG13	2.00	0.42
33:e:38:ARG:NH2	33:e:97:THR:O	2.51	0.42
49:v:407:U:H2'	49:v:408:A:C8	2.54	0.42
7:B:291:G:H1	7:B:349:U:H3	1.67	0.42
7:B:1820:U:C2	8:C:200:MET:HB3	2.54	0.42
8:C:16:VAL:HG22	8:C:203:VAL:H	1.84	0.42
10:E:149:ILE:HD12	10:E:188:MET:HE3	2.00	0.42
15:L:129:LYS:HB2	15:L:129:LYS:HE3	1.78	0.42
17:N:103:ARG:HG2	17:N:106:ASP:O	2.19	0.42
34:f:11:ILE:HD13	34:f:24:LYS:HD3	2.02	0.42
34:f:30:MET:HE1	49:v:1374:A:H1'	2.01	0.42
49:v:1239:A:H62	49:v:1299:A:N6	2.18	0.42
6:A:66:A:O5'	6:A:108:A:N6	2.52	0.42
7:B:1527:G:N1	7:B:1544:A:OP2	2.37	0.42
7:B:2720:U:H5''	19:P:52:ARG:HH12	1.83	0.42
7:B:2885:G:O2'	7:B:2886:A:O4'	2.32	0.42
13:J:104:ALA:O	13:J:108:MET:HG2	2.19	0.42
14:K:90:SER:HB2	14:K:92:GLN:HE21	1.84	0.42
15:L:17:LYS:HG2	15:L:27:LEU:HD21	2.00	0.42
30:b:135:ARG:HD2	30:b:135:ARG:HA	1.87	0.42
41:m:16:ALA:O	41:m:20:PHE:HB2	2.19	0.42
1:O:3:GLN:O	7:B:2016:U:O2'	2.36	0.42
1:O:49:ARG:HD3	7:B:2884:U:H1'	2.02	0.42
7:B:45:G:H5''	7:B:46:G:H5'	2.01	0.42
7:B:183:C:O2'	7:B:432:A:N3	2.39	0.42
7:B:276:U:O2'	7:B:278:A:N6	2.52	0.42
7:B:1168:G:H1	7:B:1181:U:H3	1.66	0.42
14:K:23:VAL:HG13	14:K:32:ALA:HB2	2.00	0.42
19:P:74:GLN:HB2	19:P:77:SER:HB2	2.00	0.42
29:Z:15:ARG:HA	29:Z:15:ARG:HD3	1.79	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:f:34:LYS:HB3	34:f:34:LYS:HE3	1.81	0.42
42:n:46:LYS:HE2	42:n:46:LYS:HB2	1.83	0.42
43:o:4:ILE:HG22	43:o:71:VAL:HG11	2.02	0.42
49:v:337:G:H2'	49:v:338:A:H8	1.84	0.42
7:B:572:A:H5'	21:R:79:ARG:NH2	2.35	0.42
7:B:1721:G:N2	7:B:1738:G:H1'	2.34	0.42
23:T:9:LYS:HB3	23:T:9:LYS:HE3	1.79	0.42
45:q:72:ARG:H	45:q:72:ARG:HG3	1.68	0.42
48:u:128:PHE:HB2	48:u:158:LEU:HD22	2.02	0.42
7:B:52:A:H2'	7:B:53:A:C8	2.55	0.42
7:B:2354:C:H4'	26:W:31:LEU:HD22	2.01	0.42
21:R:49:ILE:HG23	21:R:51:VAL:HB	2.02	0.42
38:j:20:ALA:O	38:j:84:MET:N	2.47	0.42
49:v:257:G:H2'	49:v:258:G:H8	1.85	0.42
7:B:282:A:H2'	7:B:283:G:H8	1.85	0.42
7:B:373:U:H2'	7:B:374:A:H8	1.85	0.42
7:B:1041:G:H2'	7:B:1042:G:H8	1.84	0.42
7:B:1683:U:H2'	7:B:1684:G:H8	1.85	0.42
7:B:1716:U:H2'	7:B:1717:A:H8	1.84	0.42
8:C:52:HIS:HA	8:C:216:ARG:HB2	2.00	0.42
10:E:181:ILE:HG23	15:L:2:ARG:HB3	2.00	0.42
11:F:15:LEU:HG	11:F:21:TYR:H	1.85	0.42
11:F:22:ASN:ND2	11:F:26:GLN:OE1	2.53	0.42
11:F:103:ILE:HD13	11:F:103:ILE:HA	1.90	0.42
20:Q:16:ILE:HD13	20:Q:16:ILE:HA	1.92	0.42
31:c:13:ARG:HB2	31:c:37:PRO:HG3	2.02	0.42
35:g:106:SER:HA	49:v:642:A:C8	2.54	0.42
37:i:7:ARG:HH22	49:v:1126:U:H5	1.66	0.42
42:n:21:THR:HA	42:n:26:VAL:HG11	2.02	0.42
49:v:253:A:H2'	49:v:254:G:H8	1.85	0.42
6:A:68:C:H2'	6:A:69:G:H8	1.84	0.42
7:B:1231:U:H2'	7:B:1232:G:H8	1.85	0.42
7:B:1992:G:N2	7:B:1996:C:O2'	2.53	0.42
7:B:2458:G:H8	7:B:2459:A:H62	1.66	0.42
13:J:108:MET:HG2	13:J:108:MET:H	1.78	0.42
24:U:87:GLU:H	24:U:87:GLU:HG3	1.66	0.42
28:Y:5:GLU:OE2	28:Y:7:ARG:NH1	2.48	0.42
34:f:108:ARG:HA	34:f:108:ARG:HD3	1.92	0.42
37:i:12:ALA:HB3	37:i:18:ILE:HB	2.00	0.42
40:l:113:LYS:HA	40:l:113:LYS:HD3	1.85	0.42
46:r:36:ARG:H	46:r:36:ARG:HG2	1.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:v:473:U:H2'	49:v:474:G:H8	1.84	0.42
49:v:801:U:H2'	49:v:802:A:C8	2.55	0.42
7:B:2861:U:H2'	7:B:2862:G:C8	2.54	0.42
8:C:146:LYS:HE2	8:C:146:LYS:HB3	1.85	0.42
9:D:48:ILE:HG12	9:D:84:LEU:HD23	2.02	0.42
14:K:20:CYS:HA	14:K:40:ILE:HA	2.01	0.42
23:T:36:LYS:HA	23:T:36:LYS:HD2	1.83	0.42
30:b:83:VAL:HA	30:b:86:LEU:HD12	2.01	0.42
31:c:35:GLN:HG3	31:c:36:ALA:H	1.84	0.42
32:d:152:VAL:HG21	35:g:98:LEU:HD13	2.02	0.42
43:o:67:ILE:HG23	43:o:71:VAL:HB	2.02	0.42
47:s:61:ALA:HB1	47:s:68:LYS:HB2	2.02	0.42
49:v:625:U:H2'	49:v:626:G:C8	2.54	0.42
49:v:1392:G:H5'	49:v:1531:A:H5'	2.01	0.42
3:2:30:VAL:HG22	3:2:33:ARG:HH21	1.85	0.41
7:B:24:G:O2'	22:S:78:GLU:O	2.37	0.41
7:B:558:U:H2'	7:B:559:G:C8	2.54	0.41
7:B:720:U:H2'	7:B:721:A:C8	2.55	0.41
7:B:833:A:H1'	15:L:51:GLU:HB3	2.01	0.41
15:L:57:LEU:HA	15:L:60:ARG:HG2	2.02	0.41
31:c:190:LEU:HD23	31:c:190:LEU:HA	1.85	0.41
33:e:86:ARG:NH2	45:q:63:TYR:O	2.48	0.41
38:j:74:LYS:HA	38:j:74:LYS:HD3	1.72	0.41
49:v:93:U:H2'	49:v:95:C:H5	1.84	0.41
49:v:1060:U:H2'	49:v:1061:G:H8	1.85	0.41
49:v:1399:C:O2	49:v:1502:A:N6	2.53	0.41
7:B:281:C:H2'	7:B:282:A:C8	2.55	0.41
7:B:845:A:N6	7:B:932:U:C2	2.87	0.41
7:B:1026:G:H2'	7:B:1027:A:C8	2.55	0.41
7:B:1794:A:H2'	7:B:1795:C:C6	2.54	0.41
7:B:1794:A:H2'	7:B:1795:C:H6	1.85	0.41
36:h:14:SER:HB3	36:h:69:GLY:HA3	2.02	0.41
38:j:78:ILE:HG13	38:j:81:LEU:HD11	2.02	0.41
6:A:43:C:OP1	11:F:62:GLN:NE2	2.53	0.41
7:B:698:C:O2'	7:B:734:A:N6	2.41	0.41
7:B:721:A:H2'	7:B:722:A:C8	2.55	0.41
7:B:927:A:H2'	7:B:928:A:C8	2.55	0.41
7:B:1083:U:N3	7:B:1086:A:OP2	2.42	0.41
7:B:1324:G:H1'	7:B:1616:A:N6	2.35	0.41
7:B:1710:G:H2'	7:B:1711:A:H8	1.85	0.41
7:B:1779:U:OP2	7:B:1784:A:N6	2.52	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:B:2696:U:H2'	7:B:2697:G:H8	1.85	0.41
8:C:254:LYS:HD2	8:C:254:LYS:HA	1.75	0.41
11:F:43:ILE:HD11	11:F:82:TYR:HB3	2.02	0.41
13:J:57:LEU:HD23	13:J:57:LEU:HA	1.84	0.41
13:J:99:ARG:HE	13:J:103:ILE:HG13	1.85	0.41
20:Q:48:ASP:HA	20:Q:51:GLN:HB2	2.02	0.41
20:Q:94:LEU:HD23	20:Q:94:LEU:HA	1.91	0.41
30:b:187:GLU:OE2	49:v:1057:G:O2'	2.34	0.41
37:i:65:TYR:HE1	41:m:98:LYS:HG2	1.85	0.41
46:r:17:LYS:HB2	46:r:17:LYS:HE3	1.87	0.41
49:v:950:U:H2'	49:v:951:G:C8	2.55	0.41
49:v:1355:G:H2'	49:v:1356:G:C8	2.55	0.41
49:v:1396:A:H4'	49:v:1397:C:H5''	2.01	0.41
7:B:503:A:H5''	7:B:504:A:H5'	2.01	0.41
7:B:576:U:H2'	7:B:577:G:C8	2.55	0.41
7:B:931:U:OP1	29:Z:29:ARG:NH2	2.53	0.41
7:B:1225:G:H2'	7:B:1226:A:C8	2.55	0.41
7:B:1441:G:H5'	7:B:1627:G:H4'	2.01	0.41
7:B:2204:G:H4'	8:C:149:LYS:HD3	2.02	0.41
9:D:186:LEU:HD23	9:D:186:LEU:HA	1.86	0.41
11:F:46:LYS:HD3	11:F:46:LYS:HA	1.87	0.41
12:G:22:VAL:HG22	12:G:36:LEU:HD13	2.02	0.41
14:K:12:ASN:OD1	14:K:12:ASN:N	2.48	0.41
25:V:80:HIS:CG	25:V:83:LYS:HB2	2.55	0.41
30:b:162:ALA:N	49:v:1056:U:OP1	2.53	0.41
34:f:74:VAL:HG11	34:f:143:MET:HG2	2.01	0.41
39:k:93:ARG:HG3	39:k:94:TYR:CE2	2.56	0.41
40:l:65:GLU:H	40:l:65:GLU:HG2	1.65	0.41
42:n:57:ARG:NH2	49:v:742:G:OP1	2.54	0.41
3:2:22:MET:HE3	3:2:22:MET:HB3	1.77	0.41
7:B:1167:C:H2'	7:B:1168:G:H8	1.86	0.41
7:B:1409:U:H2'	7:B:1410:G:H8	1.84	0.41
7:B:2531:A:H62	12:G:176:LYS:HE2	1.86	0.41
9:D:77:ARG:NH1	9:D:200:ASP:OD1	2.54	0.41
25:V:21:ARG:HH21	25:V:27:PRO:HD2	1.85	0.41
30:b:18:ASN:O	30:b:39:ARG:NH2	2.48	0.41
31:c:155:LYS:HD2	31:c:155:LYS:HA	1.87	0.41
31:c:166:LYS:HB2	31:c:166:LYS:HE2	1.77	0.41
31:c:205:LYS:HE3	31:c:205:LYS:HB3	1.81	0.41
35:g:104:SER:HB2	35:g:125:ILE:HD11	2.03	0.41
37:i:11:LYS:HB3	37:i:71:LEU:HD12	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:v:181:A:O2'	49:v:193:C:N4	2.54	0.41
49:v:622:A:H3'	49:v:623:C:H6	1.85	0.41
49:v:711:G:H2'	49:v:712:A:C8	2.56	0.41
51:5:62:C:H2'	51:5:63:G:C8	2.56	0.41
7:B:639:U:H2'	7:B:640:C:H6	1.86	0.41
7:B:783:A:H2'	7:B:784:G:H4'	2.02	0.41
7:B:1190:G:H5''	15:L:32:GLY:HA2	2.03	0.41
7:B:2339:C:H2'	7:B:2340:A:C8	2.55	0.41
7:B:2788:C:H2'	7:B:2789:C:C6	2.56	0.41
6:A:45:A:H3'	6:A:46:A:H8	1.86	0.41
6:A:95:U:H2'	6:A:96:G:C8	2.56	0.41
7:B:59:U:O2'	7:B:74:A:OP2	2.33	0.41
7:B:2809:A:H2'	7:B:2810:A:C8	2.56	0.41
24:U:4:ILE:HD13	24:U:4:ILE:HA	1.83	0.41
25:V:17:SER:O	25:V:21:ARG:HG2	2.21	0.41
29:Z:18:LYS:HA	29:Z:18:LYS:HD3	1.90	0.41
30:b:69:THR:HG22	30:b:71:ARG:H	1.86	0.41
31:c:168:THR:OG1	31:c:183:ARG:NH2	2.53	0.41
32:d:59:ILE:HD13	32:d:59:ILE:HA	1.85	0.41
49:v:41:G:H2'	49:v:42:G:C8	2.55	0.41
1:0:31:LYS:HD2	1:0:49:ARG:HB2	2.02	0.41
4:3:25:HIS:HB3	4:3:43:LEU:HD22	2.03	0.41
7:B:1139:G:O2'	7:B:1143:A:N1	2.45	0.41
7:B:1142:A:H4'	13:J:27:ARG:HH22	1.85	0.41
7:B:1254:A:H5''	7:B:1255:U:H5''	2.03	0.41
7:B:2246:G:H2'	7:B:2247:A:H8	1.85	0.41
7:B:2845:U:OP2	19:P:50:ARG:NH2	2.54	0.41
8:C:71:ASP:OD1	8:C:71:ASP:N	2.50	0.41
11:F:114:ARG:HD2	11:F:114:ARG:H	1.85	0.41
11:F:136:ILE:HD13	11:F:136:ILE:HA	1.95	0.41
12:G:152:ARG:HE	12:G:152:ARG:HB2	1.79	0.41
45:q:29:LYS:HA	45:q:29:LYS:HD2	1.87	0.41
47:s:78:LEU:HD23	47:s:78:LEU:HA	1.91	0.41
1:0:39:ARG:HG3	7:B:2884:U:H3	1.86	0.41
6:A:116:G:H2'	6:A:117:G:C8	2.54	0.41
7:B:36:G:N3	7:B:450:G:O2'	2.51	0.41
7:B:155:A:H2'	7:B:156:A:H8	1.86	0.41
7:B:1020:A:N1	7:B:1141:U:O2'	2.42	0.41
7:B:1058:U:H2'	7:B:1059:G:C8	2.56	0.41
7:B:1219:U:H2'	7:B:1220:G:H8	1.86	0.41
7:B:1438:U:H2'	7:B:1439:A:H8	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:B:1980:G:O2'	7:B:1982:U:OP2	2.28	0.41
7:B:2233:U:H2'	7:B:2234:G:C8	2.56	0.41
7:B:2291:U:H2'	7:B:2292:U:C6	2.56	0.41
7:B:2554:U:H2'	7:B:2555:U:H6	1.86	0.41
7:B:2674:G:H4'	14:K:29:ARG:HD2	2.03	0.41
9:D:62:LYS:HB3	9:D:62:LYS:HE3	1.84	0.41
10:E:6:LYS:HA	10:E:6:LYS:HD3	1.79	0.41
12:G:98:LYS:HE2	12:G:98:LYS:HB2	1.92	0.41
14:K:63:ARG:NH1	14:K:101:PRO:O	2.49	0.41
16:M:7:THR:HG21	16:M:92:TRP:HH2	1.84	0.41
16:M:133:LYS:HD2	16:M:133:LYS:HA	1.76	0.41
27:X:43:LYS:HA	27:X:43:LYS:HD2	1.85	0.41
28:Y:14:LEU:HB2	28:Y:63:ALA:HB1	2.03	0.41
30:b:8:GLY:HA3	41:m:89:MET:HE3	2.01	0.41
32:d:11:GLN:HG3	32:d:116:VAL:HG12	2.03	0.41
32:d:57:ALA:O	32:d:61:LYS:HG3	2.21	0.41
34:f:108:ARG:NH2	49:v:1240:U:O4	2.54	0.41
38:j:33:ILE:HB	38:j:73:VAL:HG21	2.03	0.41
39:k:122:LYS:HD2	39:k:122:LYS:HA	1.83	0.41
40:l:18:LEU:HB2	40:l:29:SER:HB2	2.02	0.41
49:v:62:U:H1'	49:v:379:C:H1'	2.02	0.41
49:v:111:G:O6	49:v:330:C:N4	2.38	0.41
49:v:952:U:H2'	49:v:953:G:C8	2.55	0.41
49:v:1120:C:H2'	49:v:1121:U:H6	1.85	0.41
49:v:1241:G:H2'	49:v:1242:G:C8	2.56	0.41
6:A:111:U:H2'	6:A:112:G:H8	1.86	0.41
7:B:177:G:OP2	7:B:177:G:N2	2.37	0.41
7:B:1068:G:H4'	7:B:1096:A:H1'	2.02	0.41
10:E:80:SER:O	10:E:80:SER:OG	2.32	0.41
20:Q:60:TRP:CH2	20:Q:93:ILE:HB	2.56	0.41
28:Y:20:ASN:HB3	28:Y:50:VAL:HG12	2.02	0.41
31:c:74:TYR:OH	31:c:96:ARG:NH1	2.54	0.41
38:j:22:ILE:HG12	38:j:95:THR:HG21	2.03	0.41
41:m:41:ARG:HB3	41:m:46:LEU:HD11	2.02	0.41
41:m:45:VAL:HA	41:m:48:LEU:HB2	2.03	0.41
47:s:38:ILE:HD11	47:s:82:ILE:HG13	2.02	0.41
49:v:908:A:H2'	49:v:909:A:C8	2.56	0.41
7:B:463:G:N2	7:B:466:A:OP2	2.43	0.40
7:B:873:C:H2'	7:B:874:G:C8	2.56	0.40
7:B:1715:G:O2'	7:B:1743:G:O6	2.35	0.40
7:B:2125:G:N2	7:B:2173:A:C5	2.89	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:B:2645:G:H4'	7:B:2732:G:H2'	2.03	0.40
31:c:43:ARG:HH22	49:v:511:C:H5'	1.85	0.40
31:c:94:GLU:OE1	31:c:103:ARG:NH1	2.54	0.40
37:i:30:LYS:HA	37:i:30:LYS:HD2	1.90	0.40
49:v:114:U:H2'	49:v:115:G:C8	2.56	0.40
49:v:1323:G:H2'	49:v:1324:A:H8	1.86	0.40
49:v:1332:A:H3'	49:v:1333:A:H8	1.86	0.40
51:5:62:C:H2'	51:5:63:G:H8	1.86	0.40
7:B:191:A:H2'	7:B:192:C:C6	2.56	0.40
7:B:480:A:O2'	24:U:42:LYS:O	2.38	0.40
7:B:1128:G:N7	7:B:2489:U:O2'	2.54	0.40
9:D:4:LEU:HD23	9:D:203:VAL:HG23	2.03	0.40
11:F:3:LEU:HB2	11:F:96:TRP:CD1	2.56	0.40
28:Y:21:LEU:HD23	28:Y:21:LEU:HA	1.97	0.40
34:f:134:VAL:HA	34:f:137:ARG:HG2	2.03	0.40
36:h:121:ARG:HG3	49:v:1348:U:H4'	2.03	0.40
36:h:129:ARG:OXT	49:v:970:C:N4	2.55	0.40
7:B:282:A:H2'	7:B:283:G:C8	2.56	0.40
7:B:2246:G:H2'	7:B:2247:A:C8	2.56	0.40
16:M:56:ALA:HB2	16:M:119:LEU:HD12	2.03	0.40
21:R:35:PHE:HD1	21:R:35:PHE:HA	1.78	0.40
32:d:106:ALA:HB3	32:d:111:ARG:HG3	2.03	0.40
44:p:9:GLY:HA3	44:p:24:ILE:HG22	2.04	0.40
7:B:30:G:O2'	7:B:1214:A:N3	2.48	0.40
7:B:1470:A:H3'	7:B:1471:G:H8	1.86	0.40
7:B:2099:U:H2'	7:B:2100:G:H8	1.86	0.40
7:B:2301:C:O2'	11:F:124:ARG:NH1	2.48	0.40
7:B:2696:U:H2'	7:B:2697:G:C8	2.56	0.40
8:C:106:PRO:HD2	8:C:109:LEU:HD22	2.04	0.40
13:J:27:ARG:H	13:J:27:ARG:HG2	1.54	0.40
13:J:105:VAL:HG11	13:J:122:LEU:HD22	2.02	0.40
15:L:101:ILE:HD13	15:L:101:ILE:HA	1.91	0.40
15:L:102:GLY:H	15:L:105:ILE:HD12	1.86	0.40
22:S:82:MET:HB2	22:S:98:LYS:HB2	2.04	0.40
34:f:91:ARG:O	34:f:95:ARG:HB2	2.21	0.40
42:n:85:GLY:HA2	42:n:88:ARG:HD2	2.03	0.40
49:v:201:G:N2	49:v:469:C:O2	2.40	0.40
49:v:747:A:H2'	49:v:748:G:C8	2.56	0.40
49:v:1128:C:N3	49:v:1145:A:N6	2.70	0.40
7:B:632:A:H4'	15:L:68:SER:HB3	2.02	0.40
7:B:850:U:H2'	7:B:851:C:C6	2.56	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:B:870:U:H3	7:B:907:G:H1	1.70	0.40
7:B:1859:U:H2'	7:B:1860:G:C8	2.56	0.40
11:F:102:LEU:HD21	11:F:153:ILE:HD13	2.04	0.40
31:c:120:LYS:NZ	49:v:439:U:O2'	2.54	0.40
35:g:101:ALA:HB3	35:g:112:ASP:HB3	2.03	0.40
42:n:45:HIS:CD2	49:v:668:G:H21	2.39	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	
1	0	54/56 (96%)	51 (94%)	3 (6%)	0	100	100
2	1	49/51 (96%)	49 (100%)	0	0	100	100
3	2	44/46 (96%)	44 (100%)	0	0	100	100
4	3	62/64 (97%)	57 (92%)	5 (8%)	0	100	100
5	4	36/38 (95%)	35 (97%)	1 (3%)	0	100	100
8	C	270/272 (99%)	261 (97%)	9 (3%)	0	100	100
9	D	207/209 (99%)	193 (93%)	14 (7%)	0	100	100
10	E	199/201 (99%)	190 (96%)	9 (4%)	0	100	100
11	F	176/178 (99%)	160 (91%)	16 (9%)	0	100	100
12	G	174/176 (99%)	171 (98%)	3 (2%)	0	100	100
13	J	140/142 (99%)	127 (91%)	13 (9%)	0	100	100
14	K	120/122 (98%)	112 (93%)	8 (7%)	0	100	100
15	L	141/143 (99%)	135 (96%)	6 (4%)	0	100	100
16	M	134/136 (98%)	131 (98%)	3 (2%)	0	100	100
17	N	119/121 (98%)	113 (95%)	6 (5%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
18	O	114/116 (98%)	113 (99%)	1 (1%)	0	100	100
19	P	112/114 (98%)	108 (96%)	4 (4%)	0	100	100
20	Q	115/117 (98%)	112 (97%)	3 (3%)	0	100	100
21	R	101/103 (98%)	94 (93%)	7 (7%)	0	100	100
22	S	108/110 (98%)	103 (95%)	5 (5%)	0	100	100
23	T	92/94 (98%)	85 (92%)	7 (8%)	0	100	100
24	U	101/103 (98%)	94 (93%)	7 (7%)	0	100	100
25	V	92/94 (98%)	89 (97%)	3 (3%)	0	100	100
26	W	77/79 (98%)	66 (86%)	11 (14%)	0	100	100
27	X	75/77 (97%)	74 (99%)	1 (1%)	0	100	100
28	Y	61/63 (97%)	55 (90%)	6 (10%)	0	100	100
29	Z	56/58 (97%)	55 (98%)	1 (2%)	0	100	100
30	b	204/206 (99%)	198 (97%)	6 (3%)	0	100	100
31	c	203/205 (99%)	197 (97%)	6 (3%)	0	100	100
32	d	148/150 (99%)	143 (97%)	5 (3%)	0	100	100
33	e	98/100 (98%)	95 (97%)	3 (3%)	0	100	100
34	f	149/151 (99%)	148 (99%)	1 (1%)	0	100	100
35	g	127/129 (98%)	126 (99%)	1 (1%)	0	100	100
36	h	125/127 (98%)	121 (97%)	4 (3%)	0	100	100
37	i	96/98 (98%)	91 (95%)	5 (5%)	0	100	100
38	j	115/117 (98%)	111 (96%)	4 (4%)	0	100	100
39	k	121/123 (98%)	112 (93%)	9 (7%)	0	100	100
40	l	112/114 (98%)	108 (96%)	4 (4%)	0	100	100
41	m	92/100 (92%)	91 (99%)	1 (1%)	0	100	100
42	n	86/88 (98%)	83 (96%)	3 (4%)	0	100	100
43	o	80/82 (98%)	77 (96%)	3 (4%)	0	100	100
44	p	78/80 (98%)	74 (95%)	4 (5%)	0	100	100
45	q	53/55 (96%)	53 (100%)	0	0	100	100
46	r	77/79 (98%)	75 (97%)	2 (3%)	0	100	100
47	s	83/85 (98%)	81 (98%)	2 (2%)	0	100	100
48	u	57/59 (97%)	55 (96%)	2 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
All	All	5133/5231 (98%)	4916 (96%)	217 (4%)	0	100	100

There are no Ramachandran outliers to report.

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	
1	0	47/47 (100%)	47 (100%)	0	100	100
2	1	45/46 (98%)	45 (100%)	0	100	100
3	2	38/38 (100%)	38 (100%)	0	100	100
4	3	51/51 (100%)	50 (98%)	1 (2%)	50	71
5	4	34/34 (100%)	33 (97%)	1 (3%)	37	63
8	C	216/217 (100%)	212 (98%)	4 (2%)	52	72
9	D	164/164 (100%)	162 (99%)	2 (1%)	67	80
10	E	165/165 (100%)	163 (99%)	2 (1%)	67	80
11	F	149/149 (100%)	146 (98%)	3 (2%)	50	71
12	G	137/137 (100%)	136 (99%)	1 (1%)	81	88
13	J	116/116 (100%)	116 (100%)	0	100	100
14	K	102/103 (99%)	98 (96%)	4 (4%)	27	55
15	L	102/102 (100%)	102 (100%)	0	100	100
16	M	109/109 (100%)	107 (98%)	2 (2%)	54	74
17	N	100/101 (99%)	100 (100%)	0	100	100
18	O	86/86 (100%)	86 (100%)	0	100	100
19	P	99/99 (100%)	98 (99%)	1 (1%)	73	84
20	Q	89/89 (100%)	89 (100%)	0	100	100
21	R	84/84 (100%)	82 (98%)	2 (2%)	44	68
22	S	93/93 (100%)	93 (100%)	0	100	100
23	T	80/81 (99%)	78 (98%)	2 (2%)	42	67

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
24	U	83/84 (99%)	83 (100%)	0	100	100
25	V	78/78 (100%)	78 (100%)	0	100	100
26	W	59/59 (100%)	57 (97%)	2 (3%)	32	59
27	X	67/67 (100%)	67 (100%)	0	100	100
28	Y	55/55 (100%)	54 (98%)	1 (2%)	54	74
29	Z	48/48 (100%)	48 (100%)	0	100	100
30	b	170/170 (100%)	166 (98%)	4 (2%)	44	68
31	c	172/172 (100%)	171 (99%)	1 (1%)	84	90
32	d	113/113 (100%)	113 (100%)	0	100	100
33	e	87/87 (100%)	86 (99%)	1 (1%)	70	82
34	f	124/124 (100%)	124 (100%)	0	100	100
35	g	104/104 (100%)	104 (100%)	0	100	100
36	h	105/105 (100%)	104 (99%)	1 (1%)	73	84
37	i	86/86 (100%)	86 (100%)	0	100	100
38	j	90/90 (100%)	89 (99%)	1 (1%)	70	82
39	k	103/103 (100%)	101 (98%)	2 (2%)	52	72
40	l	92/92 (100%)	92 (100%)	0	100	100
41	m	79/83 (95%)	79 (100%)	0	100	100
42	n	76/76 (100%)	76 (100%)	0	100	100
43	o	65/65 (100%)	65 (100%)	0	100	100
44	p	74/74 (100%)	73 (99%)	1 (1%)	62	78
45	q	48/48 (100%)	48 (100%)	0	100	100
46	r	70/70 (100%)	69 (99%)	1 (1%)	62	78
47	s	65/65 (100%)	64 (98%)	1 (2%)	60	77
48	u	52/52 (100%)	52 (100%)	0	100	100
All	All	4271/4281 (100%)	4230 (99%)	41 (1%)	71	84

All (41) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
4	3	53	ASP
5	4	6	SER
8	C	23	LEU

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Mol	Chain	Res	Type
8	C	84	PRO
8	C	96	LYS
8	C	124	LYS
9	D	43	ASP
9	D	185	ASN
10	E	84	THR
10	E	185	LYS
11	F	90	LEU
11	F	116	LEU
11	F	129	MET
12	G	116	LEU
14	K	50	LYS
14	K	61	VAL
14	K	113	LYS
14	K	115	ILE
16	M	51	ARG
16	M	134	THR
19	P	3	ILE
21	R	86	GLN
21	R	96	VAL
23	T	28	ASN
23	T	85	VAL
26	W	40	ARG
26	W	70	VAL
28	Y	14	LEU
30	b	92	ASP
30	b	151	GLU
30	b	184	ASN
30	b	201	ILE
31	c	123	MET
33	e	10	VAL
36	h	118	ARG
38	j	76	TYR
39	k	80	LEU
39	k	81	ILE
44	p	79	GLU
46	r	46	LEU
47	s	9	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (44) such sidechains are listed below:

Mol	Chain	Res	Type
3	2	6	GLN
3	2	13	ASN
5	4	13	ASN
8	C	45	ASN
9	D	32	ASN
10	E	136	GLN
11	F	62	GLN
11	F	126	ASN
11	F	134	GLN
12	G	21	GLN
13	J	40	HIS
13	J	138	GLN
15	L	4	ASN
17	N	13	ASN
17	N	73	ASN
17	N	107	ASN
19	P	74	GLN
20	Q	43	GLN
21	R	6	GLN
22	S	9	HIS
24	U	39	ASN
24	U	52	ASN
26	W	75	ASN
28	Y	58	ASN
30	b	24	ASN
31	c	53	GLN
31	c	195	ASN
32	d	96	GLN
33	e	14	GLN
33	e	63	ASN
34	f	121	ASN
34	f	129	ASN
35	g	75	GLN
37	i	58	ASN
38	j	100	ASN
41	m	3	GLN
41	m	60	GLN
43	o	26	ASN
43	o	40	ASN
45	q	53	GLN
47	s	12	GLN
47	s	19	HIS
48	u	145	ASN

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Mol	Chain	Res	Type
48	u	177	GLN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
49	v	1538/1539 (99%)	356 (23%)	0
50	x	11/12 (91%)	5 (45%)	0
51	5	76/77 (98%)	14 (18%)	0
6	A	116/117 (99%)	26 (22%)	1 (0%)
7	B	2902/2903 (99%)	637 (21%)	8 (0%)
All	All	4643/4648 (99%)	1038 (22%)	9 (0%)

All (1038) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
6	A	13	G
6	A	14	U
6	A	16	G
6	A	21	G
6	A	25	U
6	A	26	C
6	A	29	A
6	A	30	C
6	A	35	C
6	A	36	C
6	A	42	C
6	A	45	A
6	A	51	G
6	A	52	A
6	A	56	G
6	A	57	A
6	A	64	G
6	A	67	G
6	A	87	U
6	A	88	C
6	A	89	U
6	A	90	C
6	A	99	A
6	A	102	G
6	A	105	G
6	A	109	A

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Mol	Chain	Res	Type
7	B	12	U
7	B	15	G
7	B	23	G
7	B	34	U
7	B	35	G
7	B	39	G
7	B	42	A
7	B	46	G
7	B	51	G
7	B	60	G
7	B	61	C
7	B	63	A
7	B	71	A
7	B	74	A
7	B	75	G
7	B	84	A
7	B	86	G
7	B	92	U
7	B	99	U
7	B	100	U
7	B	101	A
7	B	102	U
7	B	103	A
7	B	110	G
7	B	111	A
7	B	118	A
7	B	119	A
7	B	120	U
7	B	122	G
7	B	125	A
7	B	139	U
7	B	140	C
7	B	141	G
7	B	142	A
7	B	149	A
7	B	160	A
7	B	163	C
7	B	164	C
7	B	181	A
7	B	196	A
7	B	199	A
7	B	215	G

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Mol	Chain	Res	Type
7	B	216	A
7	B	221	A
7	B	222	A
7	B	223	A
7	B	225	C
7	B	232	G
7	B	245	G
7	B	248	G
7	B	250	G
7	B	252	G
7	B	255	A
7	B	265	A
7	B	266	G
7	B	271	G
7	B	276	U
7	B	277	G
7	B	278	A
7	B	285	G
7	B	297	G
7	B	300	A
7	B	301	G
7	B	302	C
7	B	311	A
7	B	329	G
7	B	330	A
7	B	331	C
7	B	332	A
7	B	343	C
7	B	345	A
7	B	346	A
7	B	347	A
7	B	350	G
7	B	352	A
7	B	353	C
7	B	354	A
7	B	355	U
7	B	356	G
7	B	359	G
7	B	362	A
7	B	363	G
7	B	371	A
7	B	372	G

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Mol	Chain	Res	Type
7	B	386	G
7	B	396	G
7	B	403	U
7	B	404	A
7	B	405	U
7	B	406	G
7	B	411	G
7	B	412	A
7	B	424	G
7	B	435	C
7	B	455	C
7	B	456	C
7	B	457	A
7	B	461	C
7	B	467	G
7	B	473	G
7	B	481	G
7	B	490	C
7	B	491	G
7	B	496	G
7	B	504	A
7	B	505	A
7	B	506	G
7	B	508	A
7	B	509	C
7	B	512	G
7	B	528	A
7	B	531	C
7	B	532	A
7	B	533	G
7	B	535	G
7	B	541	A
7	B	544	C
7	B	545	U
7	B	546	U
7	B	547	A
7	B	548	G
7	B	563	A
7	B	568	U
7	B	569	U
7	B	571	U
7	B	572	A

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Mol	Chain	Res	Type
7	B	573	U
7	B	575	A
7	B	592	A
7	B	613	A
7	B	614	A
7	B	615	U
7	B	616	A
7	B	637	A
7	B	645	C
7	B	646	U
7	B	651	G
7	B	654	A
7	B	655	A
7	B	670	A
7	B	671	C
7	B	685	A
7	B	686	U
7	B	696	G
7	B	701	G
7	B	711	G
7	B	714	U
7	B	718	A
7	B	730	A
7	B	740	C
7	B	747	U
7	B	748	G
7	B	749	A
7	B	762	U
7	B	765	C
7	B	775	G
7	B	776	G
7	B	782	A
7	B	784	G
7	B	785	G
7	B	789	A
7	B	798	G
7	B	800	A
7	B	805	G
7	B	811	U
7	B	812	C
7	B	819	A
7	B	827	U

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Mol	Chain	Res	Type
7	B	830	G
7	B	843	G
7	B	846	U
7	B	847	U
7	B	857	G
7	B	859	G
7	B	872	U
7	B	884	U
7	B	886	A
7	B	887	U
7	B	888	C
7	B	889	C
7	B	890	C
7	B	893	C
7	B	894	U
7	B	895	U
7	B	896	A
7	B	897	C
7	B	899	A
7	B	905	A
7	B	907	G
7	B	910	A
7	B	912	C
7	B	914	G
7	B	919	U
7	B	923	G
7	B	931	U
7	B	932	U
7	B	933	A
7	B	934	U
7	B	941	A
7	B	945	A
7	B	946	C
7	B	948	C
7	B	961	C
7	B	965	C
7	B	973	A
7	B	974	G
7	B	983	A
7	B	989	G
7	B	990	A
7	B	996	A

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Mol	Chain	Res	Type
7	B	997	G
7	B	1005	C
7	B	1006	C
7	B	1009	A
7	B	1012	U
7	B	1013	C
7	B	1017	G
7	B	1019	U
7	B	1022	G
7	B	1025	G
7	B	1026	G
7	B	1033	U
7	B	1036	G
7	B	1040	A
7	B	1045	C
7	B	1046	A
7	B	1047	G
7	B	1054	A
7	B	1060	U
7	B	1061	U
7	B	1062	G
7	B	1065	U
7	B	1067	A
7	B	1068	G
7	B	1070	A
7	B	1071	G
7	B	1074	G
7	B	1075	C
7	B	1084	A
7	B	1087	G
7	B	1088	A
7	B	1089	A
7	B	1095	A
7	B	1096	A
7	B	1097	U
7	B	1098	A
7	B	1101	U
7	B	1103	A
7	B	1110	G
7	B	1111	A
7	B	1112	G
7	B	1126	A

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Mol	Chain	Res	Type
7	B	1132	U
7	B	1133	A
7	B	1134	A
7	B	1135	C
7	B	1139	G
7	B	1141	U
7	B	1173	U
7	B	1174	U
7	B	1175	A
7	B	1176	U
7	B	1206	G
7	B	1207	C
7	B	1211	C
7	B	1212	G
7	B	1227	G
7	B	1237	A
7	B	1238	G
7	B	1241	A
7	B	1242	U
7	B	1244	A
7	B	1247	A
7	B	1250	G
7	B	1253	A
7	B	1256	G
7	B	1257	C
7	B	1262	A
7	B	1266	G
7	B	1271	G
7	B	1272	A
7	B	1273	U
7	B	1275	A
7	B	1294	U
7	B	1300	G
7	B	1301	A
7	B	1306	C
7	B	1321	A
7	B	1324	G
7	B	1325	U
7	B	1329	U
7	B	1336	A
7	B	1337	G
7	B	1338	G

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Mol	Chain	Res	Type
7	B	1341	G
7	B	1346	G
7	B	1350	C
7	B	1352	U
7	B	1359	A
7	B	1365	A
7	B	1368	G
7	B	1374	G
7	B	1378	A
7	B	1379	U
7	B	1382	G
7	B	1383	A
7	B	1386	C
7	B	1396	U
7	B	1416	G
7	B	1420	A
7	B	1421	G
7	B	1427	A
7	B	1428	C
7	B	1437	C
7	B	1452	G
7	B	1458	U
7	B	1459	G
7	B	1460	U
7	B	1461	C
7	B	1467	U
7	B	1469	A
7	B	1476	U
7	B	1477	A
7	B	1478	G
7	B	1482	G
7	B	1497	U
7	B	1509	A
7	B	1510	G
7	B	1514	G
7	B	1515	A
7	B	1522	A
7	B	1524	G
7	B	1529	G
7	B	1535	A
7	B	1536	C
7	B	1538	G

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Mol	Chain	Res	Type
7	B	1552	A
7	B	1554	U
7	B	1569	A
7	B	1578	U
7	B	1581	G
7	B	1583	A
7	B	1585	C
7	B	1607	C
7	B	1608	A
7	B	1610	A
7	B	1613	G
7	B	1614	A
7	B	1635	A
7	B	1639	C
7	B	1647	U
7	B	1648	U
7	B	1653	G
7	B	1674	G
7	B	1676	A
7	B	1677	A
7	B	1694	C
7	B	1713	A
7	B	1722	A
7	B	1724	G
7	B	1729	U
7	B	1730	C
7	B	1731	G
7	B	1733	G
7	B	1748	C
7	B	1758	U
7	B	1762	A
7	B	1763	G
7	B	1764	C
7	B	1773	A
7	B	1776	G
7	B	1779	U
7	B	1780	A
7	B	1781	U
7	B	1782	U
7	B	1786	A
7	B	1787	A
7	B	1791	A

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Mol	Chain	Res	Type
7	B	1800	C
7	B	1801	A
7	B	1802	A
7	B	1807	G
7	B	1808	A
7	B	1809	A
7	B	1810	A
7	B	1811	G
7	B	1815	A
7	B	1816	C
7	B	1819	A
7	B	1827	U
7	B	1829	A
7	B	1848	A
7	B	1857	G
7	B	1870	C
7	B	1871	A
7	B	1873	G
7	B	1890	A
7	B	1903	G
7	B	1906	G
7	B	1912	A
7	B	1914	C
7	B	1915	U
7	B	1916	A
7	B	1919	A
7	B	1929	G
7	B	1930	G
7	B	1937	A
7	B	1940	U
7	B	1955	U
7	B	1958	C
7	B	1965	C
7	B	1967	C
7	B	1970	A
7	B	1971	U
7	B	1972	G
7	B	1991	U
7	B	1992	G
7	B	1993	U
7	B	1996	C
7	B	1997	C

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Mol	Chain	Res	Type
7	B	2023	C
7	B	2031	A
7	B	2033	A
7	B	2034	U
7	B	2043	C
7	B	2049	G
7	B	2052	A
7	B	2055	C
7	B	2056	G
7	B	2060	A
7	B	2061	G
7	B	2062	A
7	B	2069	G
7	B	2076	U
7	B	2077	A
7	B	2093	G
7	B	2095	A
7	B	2099	U
7	B	2101	A
7	B	2104	C
7	B	2107	G
7	B	2108	A
7	B	2109	U
7	B	2110	G
7	B	2111	U
7	B	2112	G
7	B	2115	G
7	B	2116	G
7	B	2117	A
7	B	2118	U
7	B	2120	G
7	B	2123	G
7	B	2124	G
7	B	2126	A
7	B	2127	G
7	B	2128	G
7	B	2129	C
7	B	2132	U
7	B	2133	G
7	B	2134	A
7	B	2135	A
7	B	2136	G

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Mol	Chain	Res	Type
7	B	2137	U
7	B	2139	U
7	B	2142	A
7	B	2144	G
7	B	2146	C
7	B	2147	A
7	B	2149	U
7	B	2150	C
7	B	2153	C
7	B	2155	U
7	B	2156	G
7	B	2157	G
7	B	2158	A
7	B	2159	G
7	B	2161	C
7	B	2162	G
7	B	2163	A
7	B	2164	C
7	B	2165	C
7	B	2166	U
7	B	2171	A
7	B	2172	U
7	B	2173	A
7	B	2179	C
7	B	2181	U
7	B	2182	U
7	B	2183	A
7	B	2184	A
7	B	2186	G
7	B	2187	U
7	B	2192	U
7	B	2198	A
7	B	2199	A
7	B	2203	U
7	B	2204	G
7	B	2211	A
7	B	2212	A
7	B	2216	G
7	B	2225	A
7	B	2238	G
7	B	2239	G
7	B	2243	U

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Mol	Chain	Res	Type
7	B	2249	U
7	B	2250	G
7	B	2251	G
7	B	2266	A
7	B	2279	G
7	B	2283	C
7	B	2287	A
7	B	2288	A
7	B	2303	G
7	B	2305	U
7	B	2307	G
7	B	2309	A
7	B	2313	C
7	B	2314	A
7	B	2319	G
7	B	2321	U
7	B	2322	A
7	B	2325	G
7	B	2330	G
7	B	2333	A
7	B	2334	U
7	B	2335	A
7	B	2344	U
7	B	2345	G
7	B	2347	C
7	B	2350	C
7	B	2354	C
7	B	2357	G
7	B	2361	G
7	B	2366	A
7	B	2372	U
7	B	2375	G
7	B	2379	G
7	B	2383	G
7	B	2385	C
7	B	2396	G
7	B	2402	U
7	B	2403	C
7	B	2406	A
7	B	2420	C
7	B	2423	U
7	B	2425	A

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Mol	Chain	Res	Type
7	B	2429	G
7	B	2430	A
7	B	2434	A
7	B	2435	A
7	B	2440	C
7	B	2441	U
7	B	2448	A
7	B	2450	A
7	B	2464	G
7	B	2469	A
7	B	2474	U
7	B	2475	C
7	B	2476	A
7	B	2491	U
7	B	2498	C
7	B	2502	G
7	B	2503	A
7	B	2504	U
7	B	2505	G
7	B	2507	C
7	B	2518	A
7	B	2520	C
7	B	2529	G
7	B	2547	A
7	B	2554	U
7	B	2556	C
7	B	2566	A
7	B	2567	G
7	B	2569	G
7	B	2572	A
7	B	2573	C
7	B	2574	G
7	B	2589	A
7	B	2602	A
7	B	2603	G
7	B	2609	U
7	B	2613	U
7	B	2615	U
7	B	2619	C
7	B	2622	U
7	B	2623	G
7	B	2629	U

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Mol	Chain	Res	Type
7	B	2634	A
7	B	2646	C
7	B	2654	A
7	B	2663	G
7	B	2671	G
7	B	2682	A
7	B	2689	U
7	B	2690	U
7	B	2703	C
7	B	2712	C
7	B	2714	G
7	B	2716	C
7	B	2718	G
7	B	2720	U
7	B	2726	A
7	B	2733	A
7	B	2744	G
7	B	2748	A
7	B	2751	G
7	B	2757	A
7	B	2765	A
7	B	2778	A
7	B	2791	G
7	B	2793	C
7	B	2797	U
7	B	2798	U
7	B	2799	A
7	B	2800	A
7	B	2809	A
7	B	2818	U
7	B	2820	A
7	B	2821	A
7	B	2823	A
7	B	2834	G
7	B	2835	A
7	B	2836	U
7	B	2837	A
7	B	2846	G
7	B	2861	U
7	B	2867	G
7	B	2869	G
7	B	2872	A

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Mol	Chain	Res	Type
7	B	2873	A
7	B	2877	G
7	B	2880	C
7	B	2883	A
7	B	2885	G
7	B	2886	A
7	B	2900	A
49	v	3	A
49	v	4	U
49	v	7	A
49	v	8	A
49	v	9	G
49	v	22	G
49	v	31	G
49	v	32	A
49	v	39	G
49	v	44	A
49	v	47	C
49	v	48	C
49	v	49	U
49	v	50	A
49	v	51	A
49	v	52	C
49	v	54	C
49	v	58	C
49	v	59	A
49	v	70	U
49	v	71	A
49	v	74	A
49	v	77	A
49	v	78	A
49	v	79	G
49	v	83	C
49	v	84	U
49	v	85	U
49	v	86	G
49	v	87	C
49	v	89	U
49	v	92	U
49	v	94	G
49	v	95	C
49	v	97	G

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Mol	Chain	Res	Type
49	v	108	G
49	v	115	G
49	v	116	A
49	v	119	A
49	v	120	A
49	v	121	U
49	v	122	G
49	v	126	G
49	v	127	G
49	v	130	A
49	v	131	A
49	v	137	U
49	v	142	G
49	v	143	A
49	v	144	G
49	v	159	G
49	v	161	A
49	v	163	C
49	v	169	C
49	v	173	U
49	v	181	A
49	v	182	A
49	v	183	C
49	v	190	A
49	v	197	A
49	v	203	G
49	v	204	G
49	v	205	A
49	v	207	C
49	v	210	C
49	v	211	G
49	v	212	G
49	v	213	G
49	v	214	C
49	v	226	G
49	v	231	U
49	v	240	G
49	v	245	U
49	v	247	G
49	v	250	A
49	v	251	G
49	v	266	G

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Mol	Chain	Res	Type
49	v	267	C
49	v	276	G
49	v	278	G
49	v	279	A
49	v	280	C
49	v	283	U
49	v	289	G
49	v	299	G
49	v	305	G
49	v	319	G
49	v	321	A
49	v	328	C
49	v	330	C
49	v	332	G
49	v	345	C
49	v	347	G
49	v	351	G
49	v	352	C
49	v	354	G
49	v	363	A
49	v	367	U
49	v	372	C
49	v	373	A
49	v	384	G
49	v	398	U
49	v	404	G
49	v	406	G
49	v	412	A
49	v	413	G
49	v	421	U
49	v	422	C
49	v	423	G
49	v	424	G
49	v	429	U
49	v	436	C
49	v	438	U
49	v	441	A
49	v	452	A
49	v	459	A
49	v	467	U
49	v	468	A
49	v	469	C

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Mol	Chain	Res	Type
49	v	471	U
49	v	478	A
49	v	480	U
49	v	481	G
49	v	484	G
49	v	486	U
49	v	493	A
49	v	494	G
49	v	495	A
49	v	496	A
49	v	509	A
49	v	510	A
49	v	511	C
49	v	512	U
49	v	518	C
49	v	524	G
49	v	527	G
49	v	531	U
49	v	532	A
49	v	533	A
49	v	547	A
49	v	559	A
49	v	564	C
49	v	568	G
49	v	572	A
49	v	573	A
49	v	576	C
49	v	577	G
49	v	582	C
49	v	594	U
49	v	595	A
49	v	597	G
49	v	607	A
49	v	615	G
49	v	618	C
49	v	633	G
49	v	635	A
49	v	641	U
49	v	642	A
49	v	645	G
49	v	650	G
49	v	653	U

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Mol	Chain	Res	Type
49	v	656	G
49	v	665	A
49	v	666	G
49	v	686	U
49	v	688	G
49	v	695	A
49	v	702	A
49	v	703	G
49	v	719	C
49	v	721	G
49	v	724	G
49	v	731	G
49	v	751	U
49	v	755	G
49	v	758	C
49	v	778	G
49	v	781	A
49	v	793	U
49	v	794	A
49	v	809	G
49	v	815	A
49	v	817	C
49	v	819	A
49	v	821	G
49	v	828	U
49	v	829	G
49	v	836	G
49	v	837	U
49	v	843	U
49	v	845	A
49	v	851	G
49	v	864	A
49	v	870	U
49	v	872	A
49	v	873	A
49	v	887	G
49	v	889	A
49	v	914	A
49	v	926	G
49	v	931	C
49	v	934	C
49	v	935	A

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Mol	Chain	Res	Type
49	v	942	G
49	v	958	A
49	v	960	U
49	v	966	G
49	v	969	A
49	v	974	A
49	v	975	A
49	v	976	G
49	v	977	A
49	v	980	C
49	v	981	U
49	v	982	U
49	v	983	A
49	v	989	U
49	v	991	U
49	v	992	U
49	v	993	G
49	v	1002	G
49	v	1004	A
49	v	1005	A
49	v	1020	G
49	v	1021	A
49	v	1027	C
49	v	1028	C
49	v	1031	C
49	v	1033	G
49	v	1034	G
49	v	1039	G
49	v	1043	G
49	v	1044	A
49	v	1053	G
49	v	1056	U
49	v	1065	U
49	v	1073	U
49	v	1074	G
49	v	1086	U
49	v	1087	G
49	v	1094	G
49	v	1095	U
49	v	1098	C
49	v	1101	A
49	v	1102	A

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Mol	Chain	Res	Type
49	v	1108	G
49	v	1118	U
49	v	1123	U
49	v	1124	G
49	v	1125	U
49	v	1129	C
49	v	1130	A
49	v	1131	G
49	v	1132	C
49	v	1133	G
49	v	1135	U
49	v	1136	C
49	v	1137	C
49	v	1139	G
49	v	1142	G
49	v	1145	A
49	v	1151	A
49	v	1157	A
49	v	1158	C
49	v	1159	U
49	v	1160	G
49	v	1161	C
49	v	1163	A
49	v	1167	A
49	v	1168	U
49	v	1169	A
49	v	1171	A
49	v	1174	G
49	v	1184	G
49	v	1190	G
49	v	1196	A
49	v	1197	A
49	v	1200	C
49	v	1201	A
49	v	1202	U
49	v	1212	U
49	v	1213	A
49	v	1214	C
49	v	1215	G
49	v	1225	A
49	v	1227	A
49	v	1238	A

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Mol	Chain	Res	Type
49	v	1239	A
49	v	1241	G
49	v	1250	A
49	v	1256	A
49	v	1258	G
49	v	1260	G
49	v	1267	C
49	v	1268	G
49	v	1273	C
49	v	1274	A
49	v	1278	G
49	v	1279	G
49	v	1280	A
49	v	1282	C
49	v	1287	A
49	v	1291	U
49	v	1293	C
49	v	1298	U
49	v	1299	A
49	v	1300	G
49	v	1302	C
49	v	1305	G
49	v	1312	G
49	v	1319	A
49	v	1320	C
49	v	1322	C
49	v	1323	G
49	v	1332	A
49	v	1336	C
49	v	1340	A
49	v	1342	C
49	v	1348	U
49	v	1353	G
49	v	1363	A
49	v	1364	U
49	v	1368	A
49	v	1378	C
49	v	1381	U
49	v	1394	A
49	v	1397	C
49	v	1399	C
49	v	1406	U

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Mol	Chain	Res	Type
49	v	1409	C
49	v	1410	A
49	v	1419	G
49	v	1432	G
49	v	1440	U
49	v	1441	A
49	v	1446	A
49	v	1451	U
49	v	1452	C
49	v	1453	G
49	v	1487	G
49	v	1492	A
49	v	1493	A
49	v	1497	G
49	v	1499	A
49	v	1500	A
49	v	1503	A
49	v	1506	U
49	v	1517	G
49	v	1529	G
49	v	1530	G
49	v	1531	A
49	v	1532	U
49	v	1533	C
49	v	1536	C
49	v	1539	C
49	v	1540	U
50	x	6	C
50	x	8	C
50	x	9	A
50	x	10	A
50	x	12	A
51	5	4	G
51	5	9	G
51	5	16	C
51	5	18	G
51	5	19	G
51	5	20	U
51	5	21	A
51	5	31	G
51	5	42	G
51	5	47	U

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Mol	Chain	Res	Type
51	5	48	C
51	5	56	C
51	5	57	A
51	5	76	A

All (9) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
6	A	66	A
7	B	490	C
7	B	503	A
7	B	669	G
7	B	670	A
7	B	827	U
7	B	1652	A
7	B	2756	U
7	B	2808	G

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

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
49	v	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	v	1531:A	O3'	1532:U	P	1.83

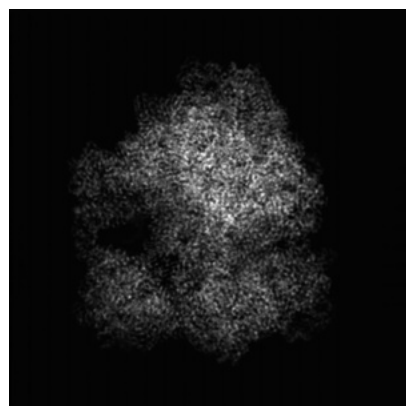
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-41050. These allow visual inspection of the internal detail of the map and identification of artifacts.

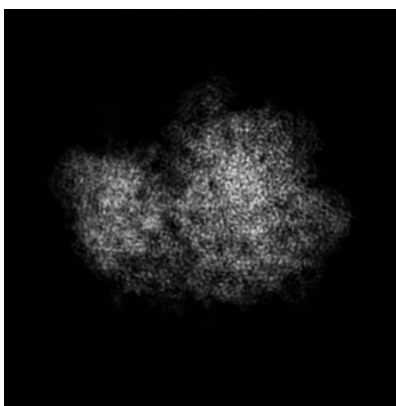
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

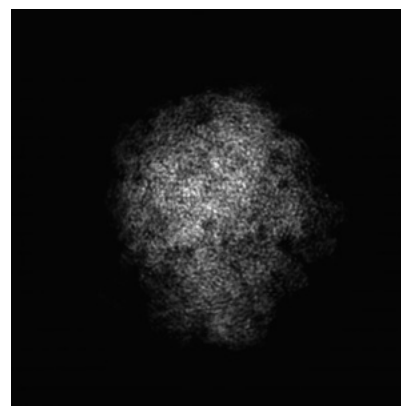
6.1.1 Primary map



X

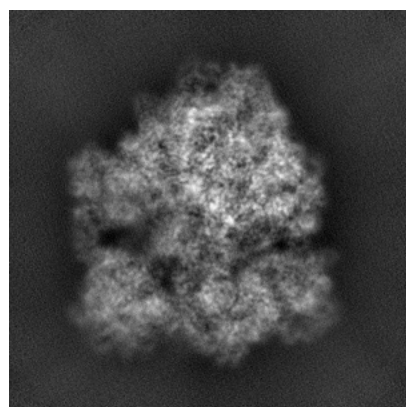


Y

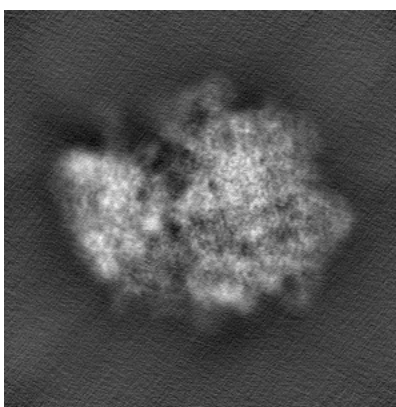


Z

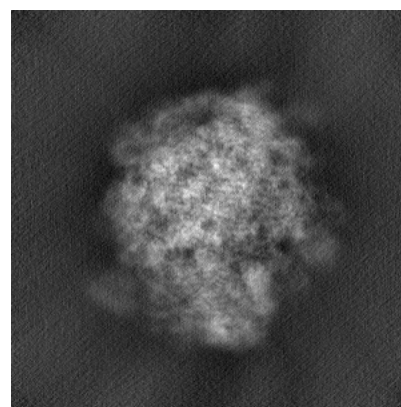
6.1.2 Raw map



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: 200

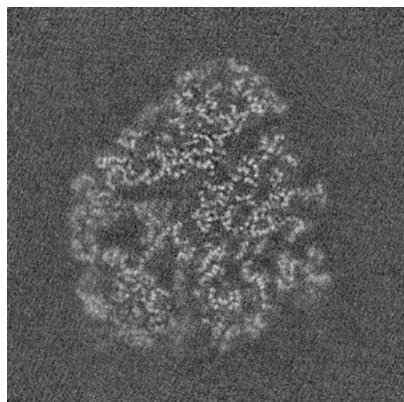


Y Index: 200

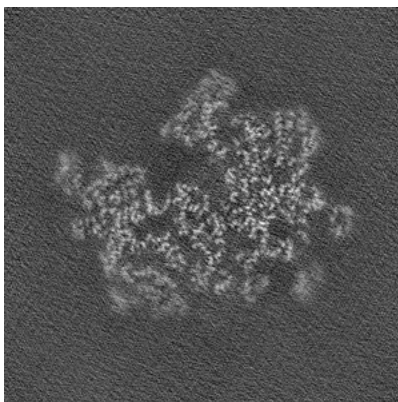


Z Index: 200

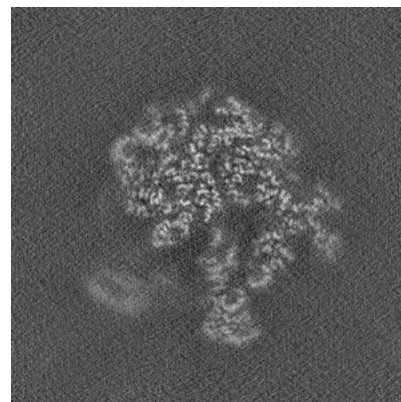
6.2.2 Raw map



X Index: 200



Y Index: 200



Z Index: 200

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: 204

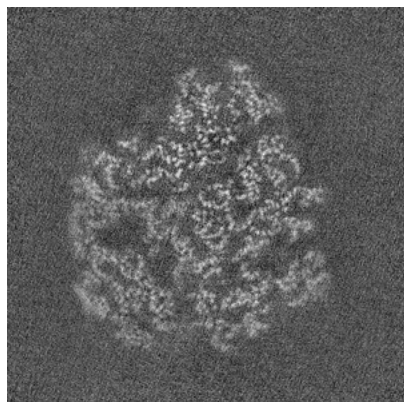


Y Index: 204

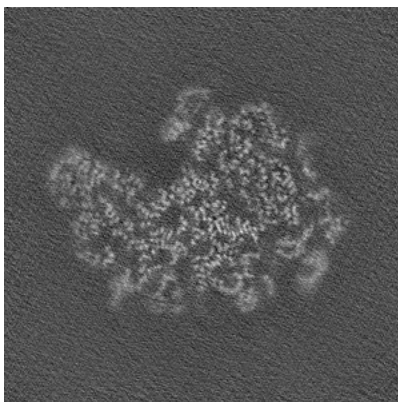


Z Index: 230

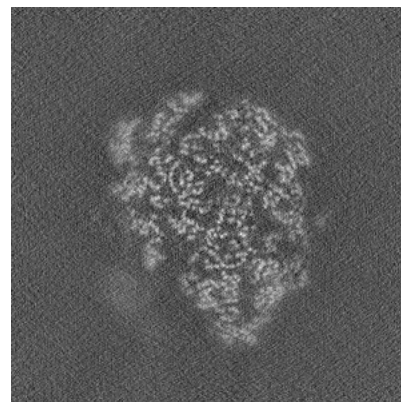
6.3.2 Raw map



X Index: 204



Y Index: 214

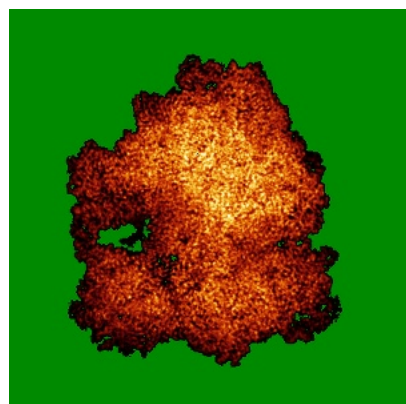


Z Index: 234

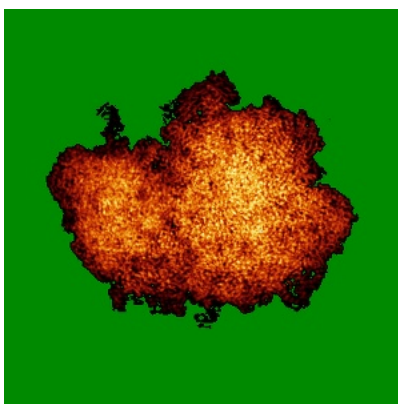
The images above show the largest variance slices of the map in three orthogonal directions.

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

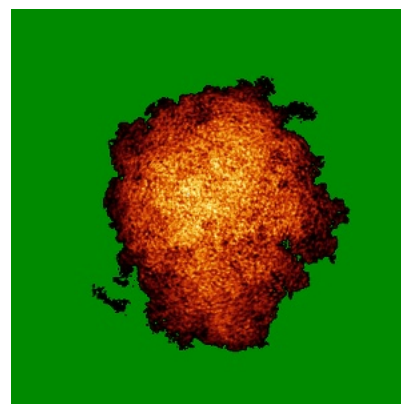
6.4.1 Primary map



X

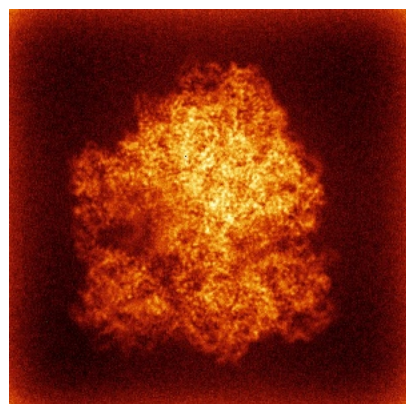


Y

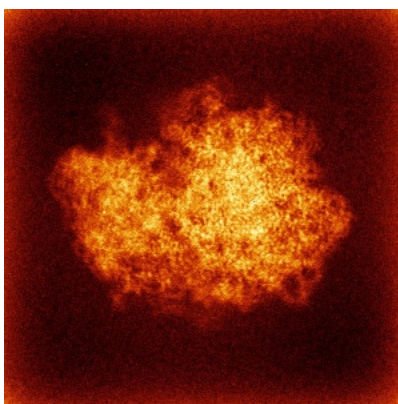


Z

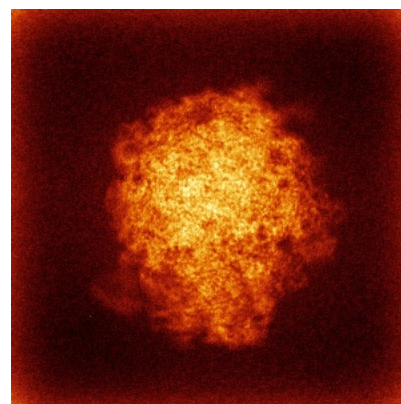
6.4.2 Raw map



X



Y

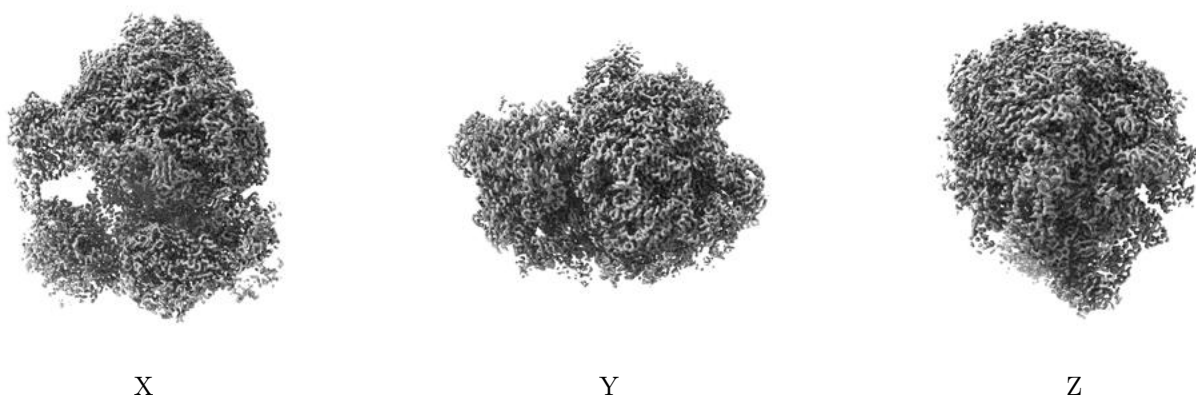


Z

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.

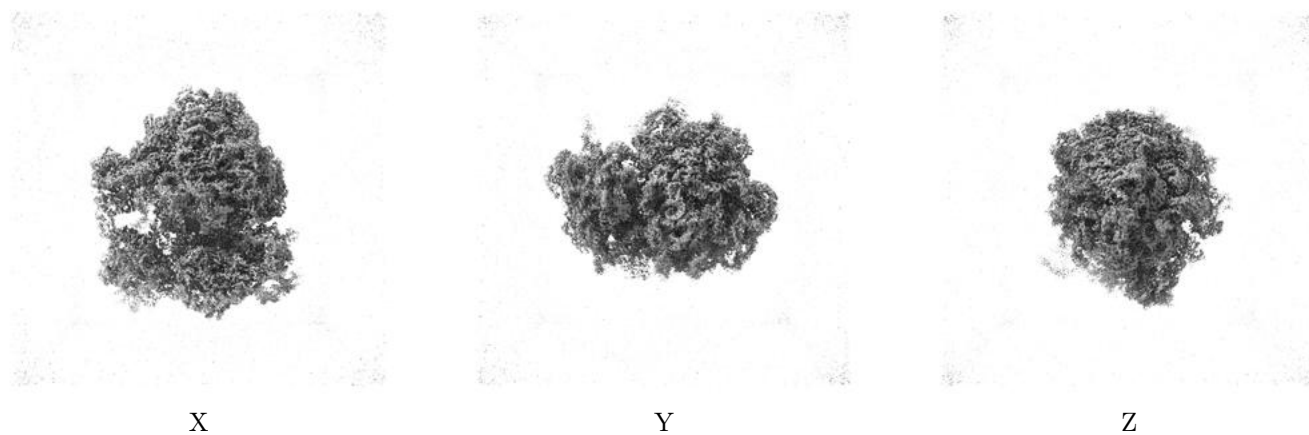
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.255. 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



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.

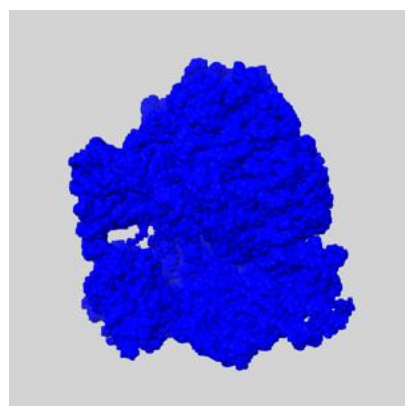
6.6 Mask visualisation [i](#)

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

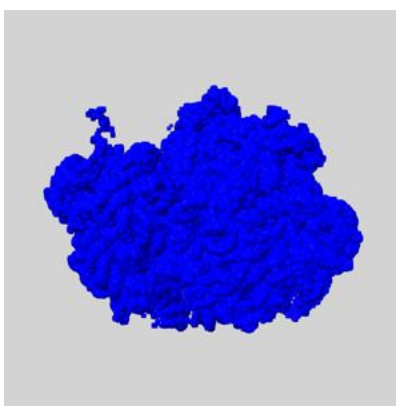
A mask typically either:

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

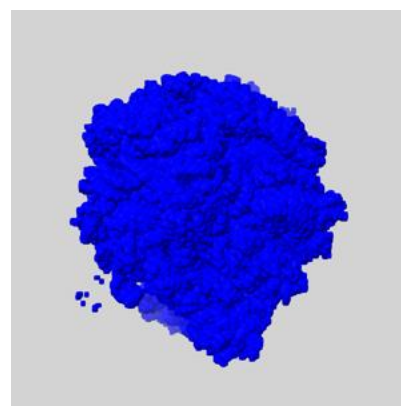
6.6.1 emd_41050_msk_1.map [i](#)



X



Y

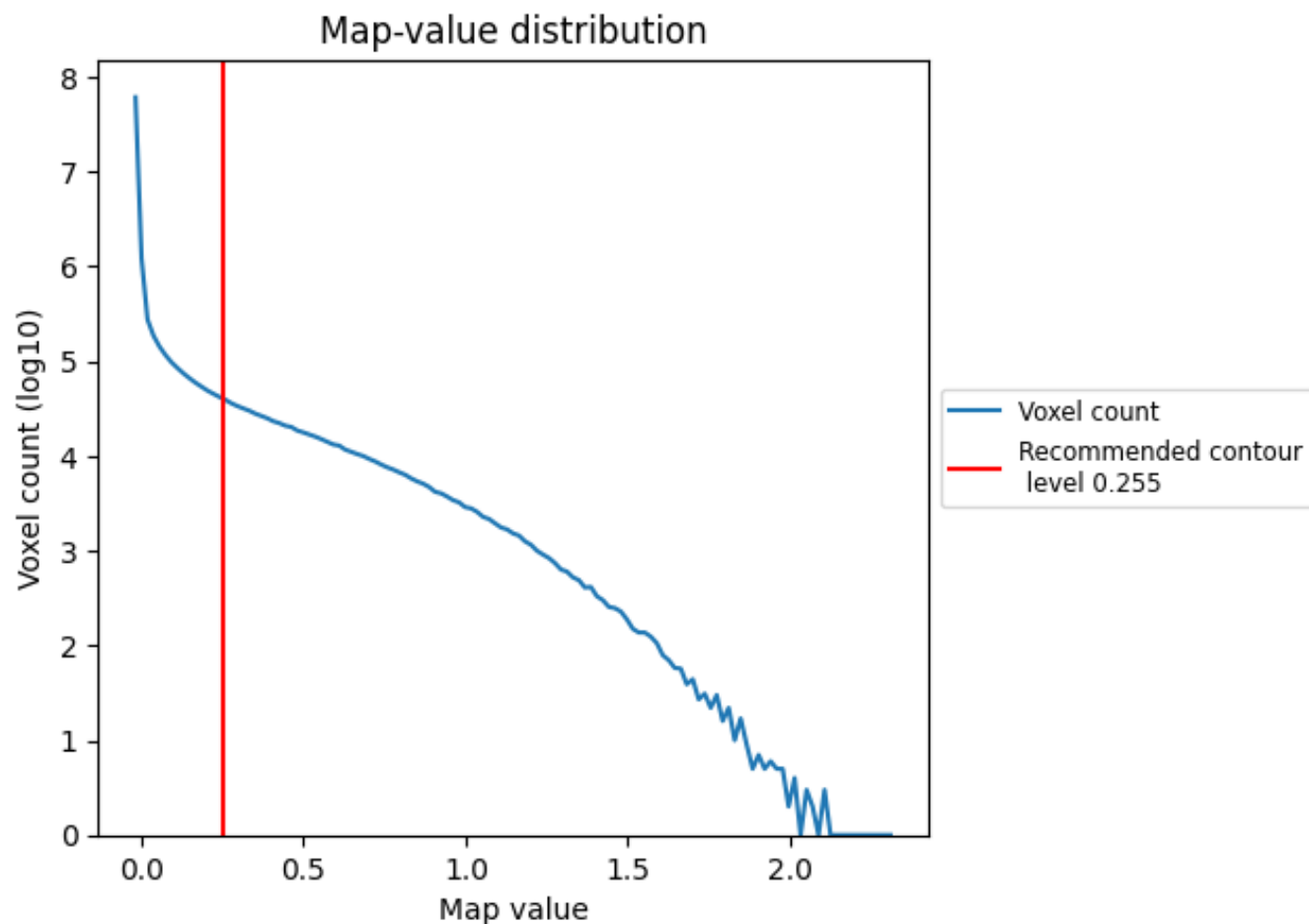


Z

7 Map analysis [i](#)

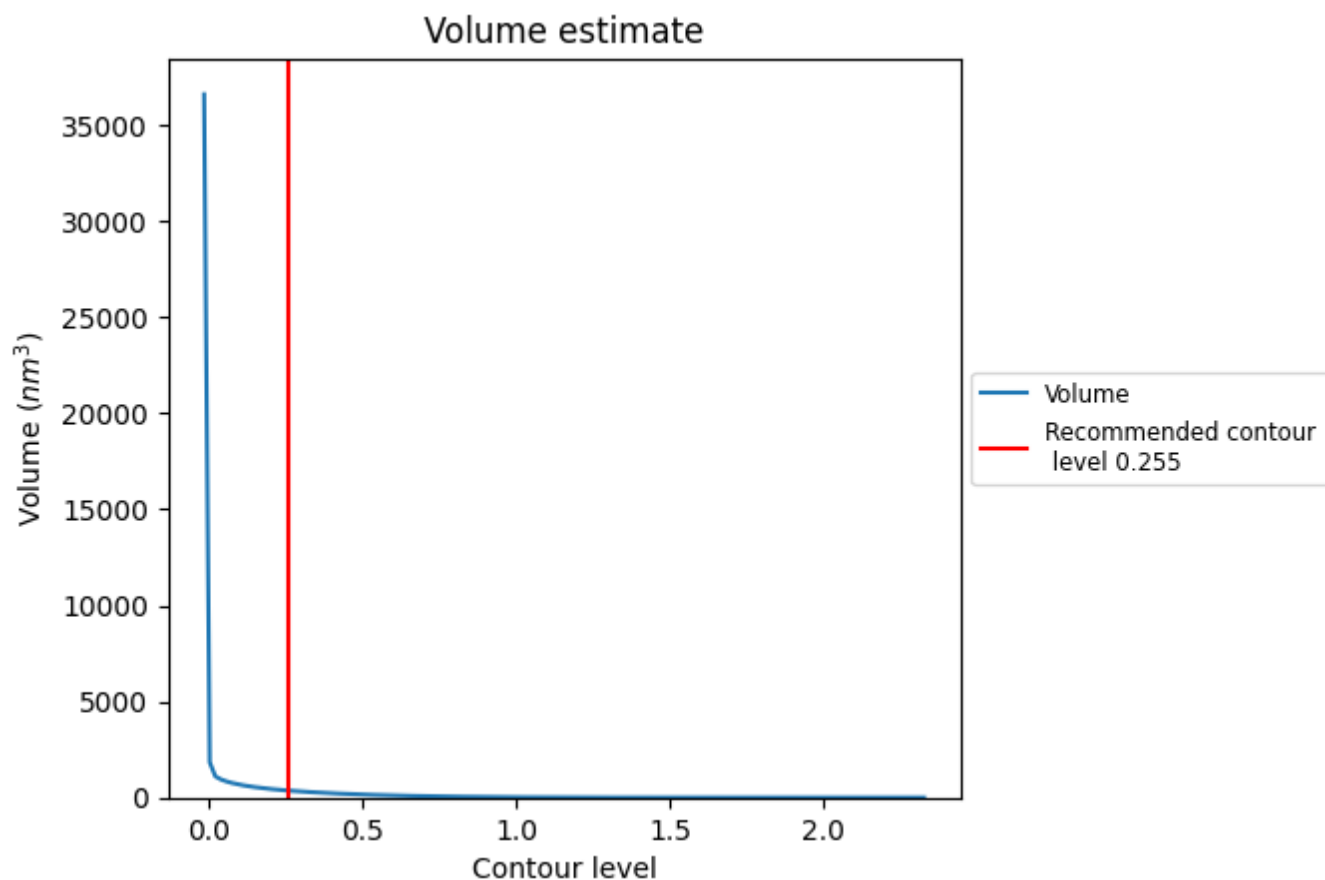
This section contains the results of statistical analysis of the map.

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.

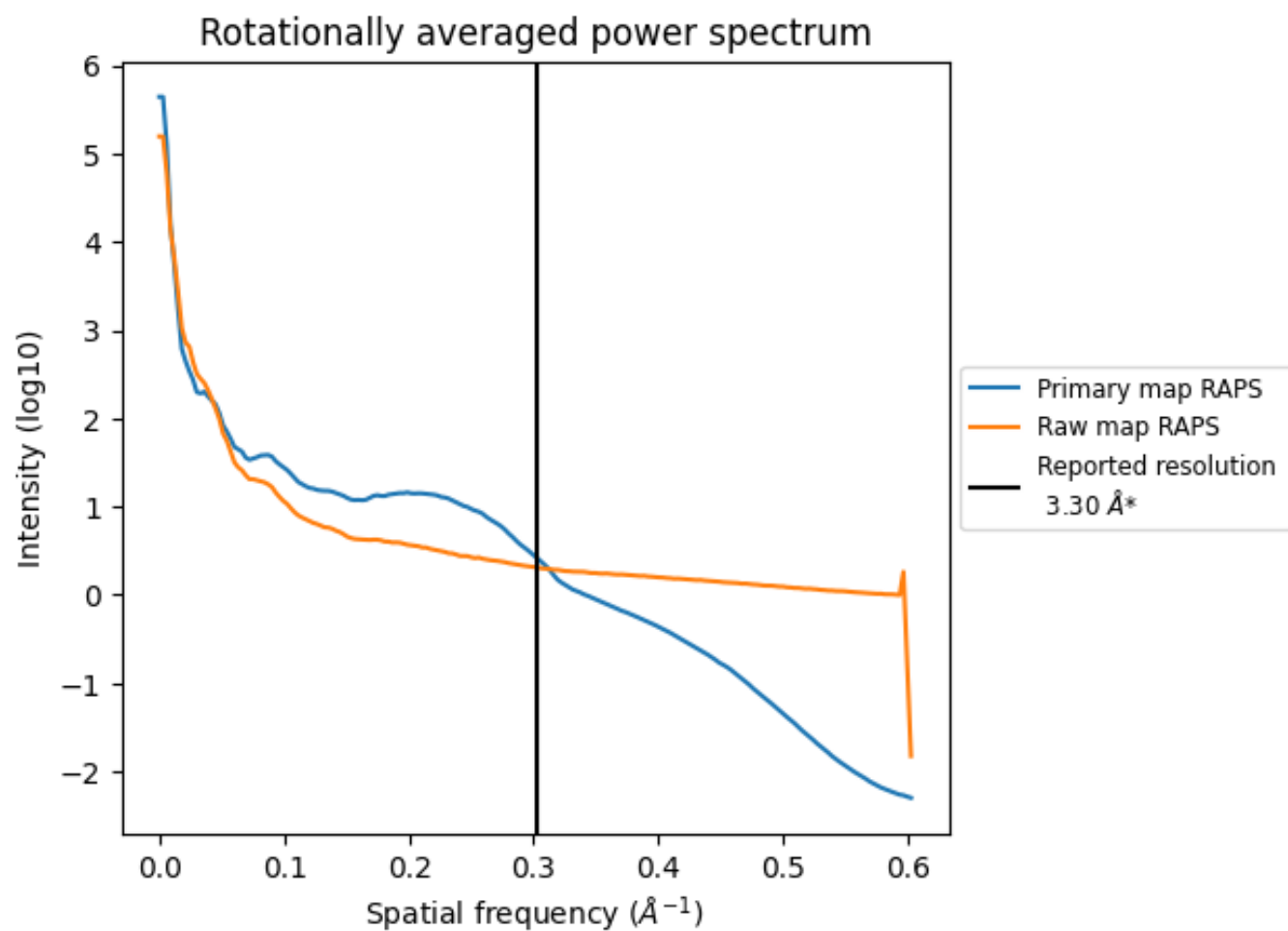
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 366 nm^3 ; this corresponds to an approximate mass of 330 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 ⓘ

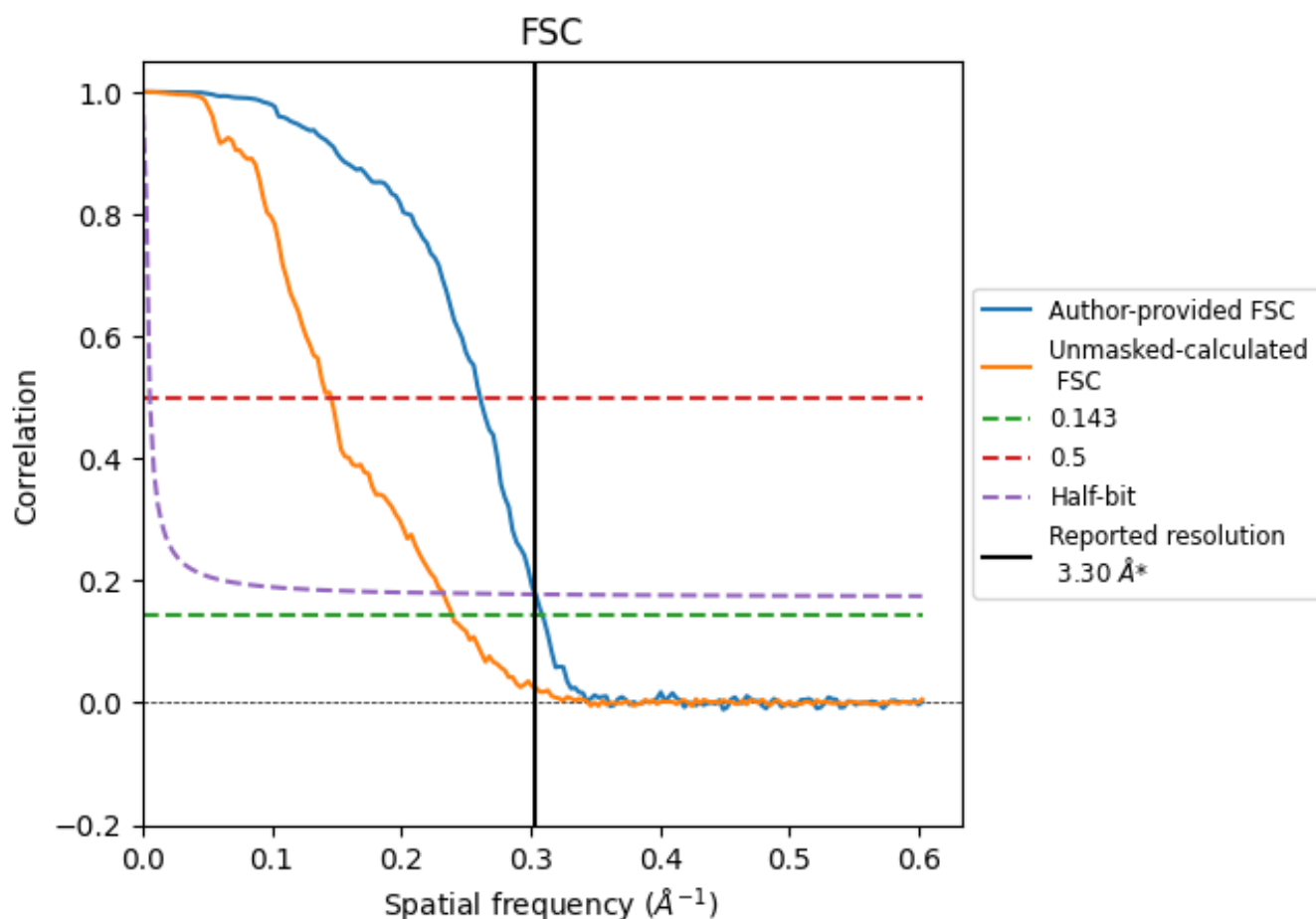


*Reported resolution corresponds to spatial frequency of 0.303 $\text{\AA}^{-1}$

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 0.303 Å⁻¹

8.2 Resolution estimates [i](#)

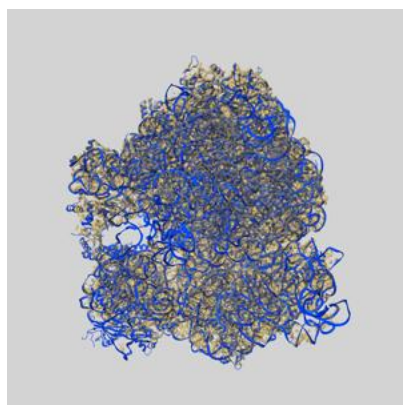
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.30	-	-
Author-provided FSC curve	3.23	3.83	3.29
Unmasked-calculated*	4.18	6.87	4.30

*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 4.18 differs from the reported value 3.3 by more than 10 %

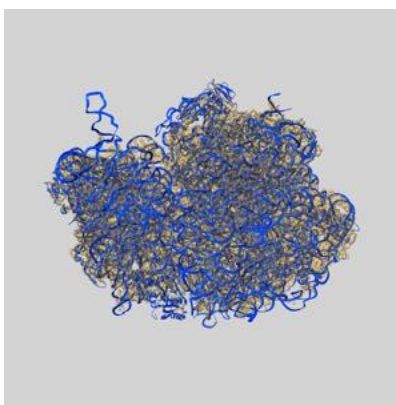
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-41050 and PDB model 8T5H. Per-residue inclusion information can be found in [section 3](#) on [page 13](#).

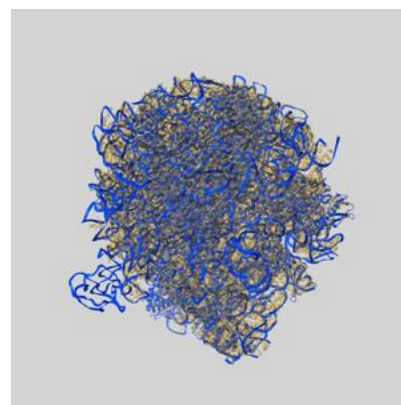
9.1 Map-model overlay [i](#)



X



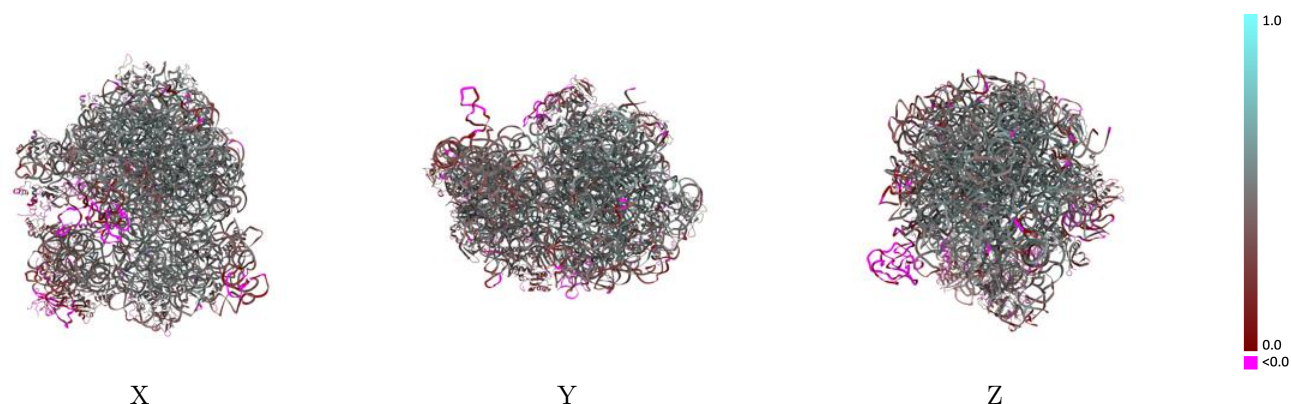
Y



Z

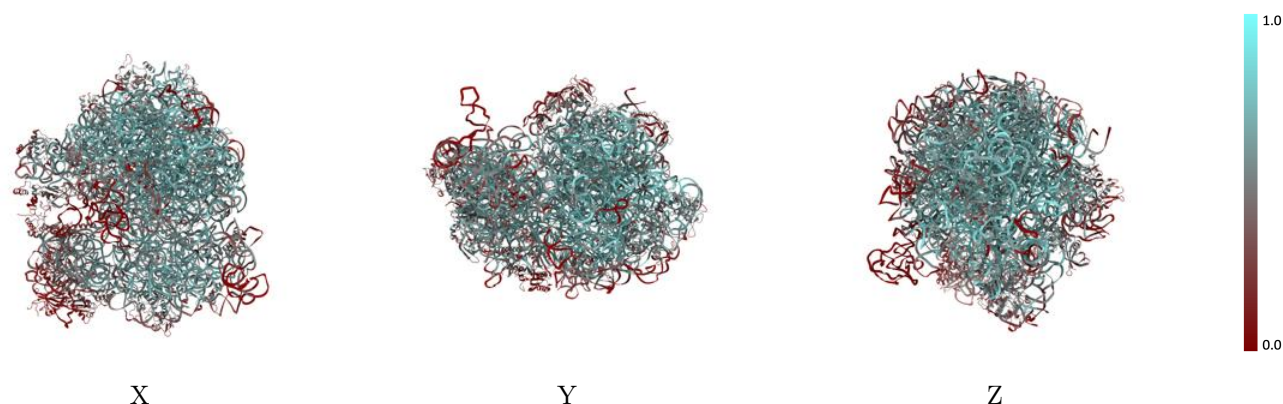
The images above show the 3D surface view of the map at the recommended contour level 0.255 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



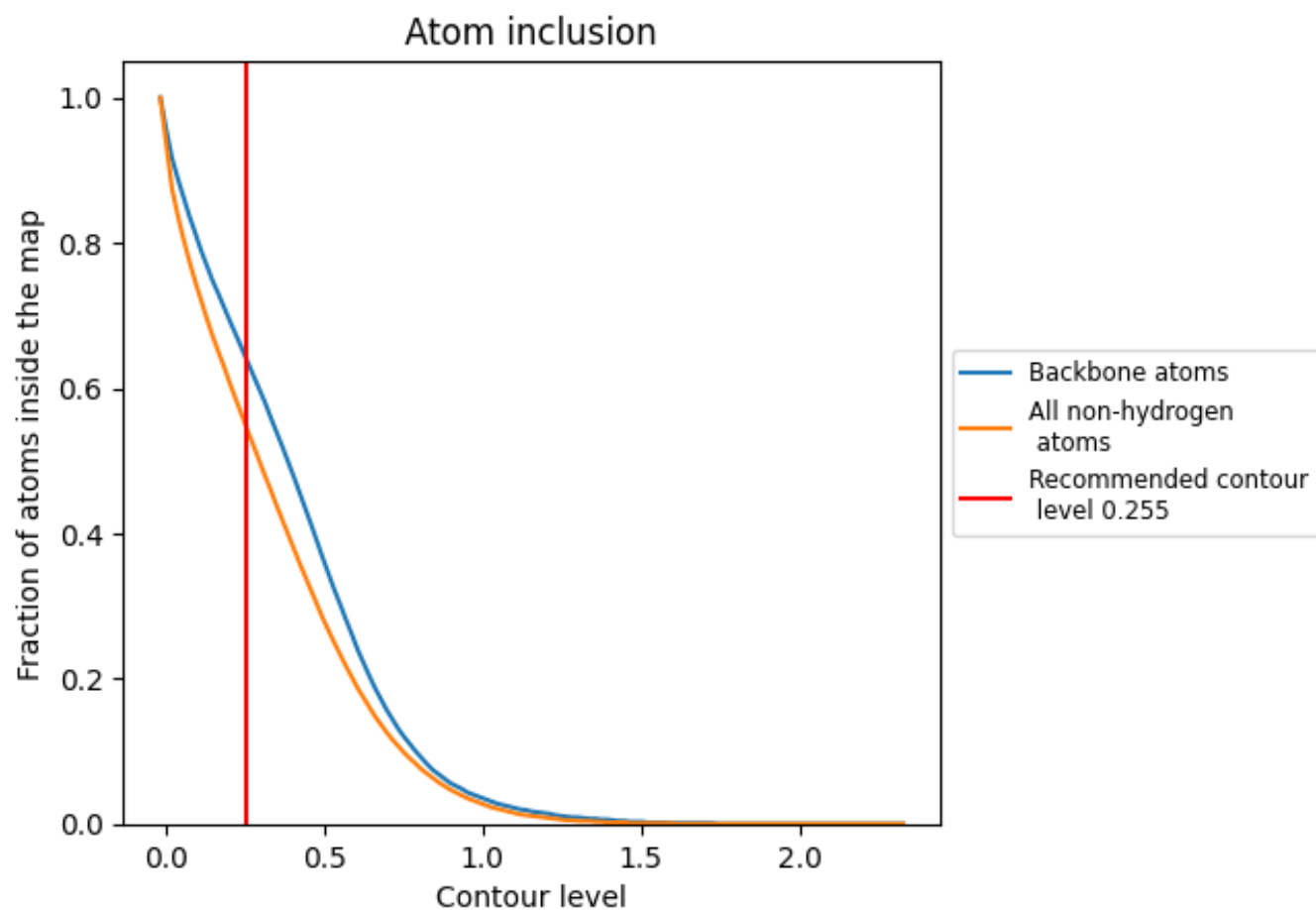
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.255).

9.4 Atom inclusion [i](#)



At the recommended contour level, 64% of all backbone atoms, 55% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.255) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.5450	 0.4210
0	 0.5490	 0.4460
1	 0.4530	 0.4160
2	 0.6680	 0.5230
3	 0.6760	 0.5420
4	 0.5100	 0.4750
5	 0.4330	 0.3960
A	 0.5090	 0.4060
B	 0.6250	 0.4520
C	 0.6160	 0.5100
D	 0.5770	 0.4730
E	 0.5140	 0.4590
F	 0.2420	 0.1860
G	 0.2910	 0.3170
J	 0.5610	 0.4630
K	 0.5730	 0.4670
L	 0.5410	 0.4730
M	 0.5560	 0.4820
N	 0.6230	 0.4930
O	 0.4240	 0.3970
P	 0.5270	 0.4340
Q	 0.6310	 0.4970
R	 0.5160	 0.4500
S	 0.5530	 0.4550
T	 0.3760	 0.3350
U	 0.4080	 0.3820
V	 0.3820	 0.3880
W	 0.5400	 0.3920
X	 0.4890	 0.4470
Y	 0.3400	 0.3110
Z	 0.5450	 0.4800
b	 0.3630	 0.3530
c	 0.3670	 0.3350
d	 0.5320	 0.4420
e	 0.0820	 0.1820



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Chain	Atom inclusion	Q-score
f	 0.1140	 0.1470
g	 0.4880	 0.4370
h	 0.2400	 0.2790
i	 0.2650	 0.2590
j	 0.2640	 0.3040
k	 0.5250	 0.4570
l	 0.2490	 0.3060
m	 0.3510	 0.3400
n	 0.4160	 0.3680
o	 0.4780	 0.4090
p	 0.3820	 0.3570
q	 0.2060	 0.2930
r	 0.2700	 0.3290
s	 0.3480	 0.3680
u	 0.0000	 -0.0060
v	 0.5410	 0.4110
x	 0.2610	 0.2120