



Full wwPDB EM Validation Report ⓘ

Jun 29, 2025 – 04:40 am BST

PDB ID : 7ASM / pdb_00007asm
EMDB ID : EMD-11900
Title : Staphylococcus aureus 50S after 30 minutes incubation at 37C
Authors : Camicata, G.; Bashan, A.; Yonath, A.
Deposited on : 2020-10-27
Resolution : 2.48 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
Mogul : 1.8.4, CSD as541be (2020)
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) : 2.44

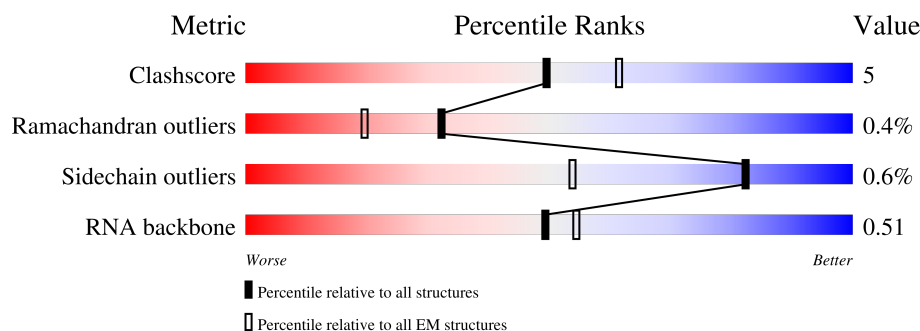
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 2.48 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.




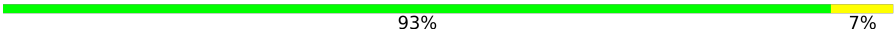






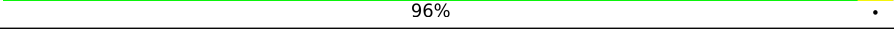
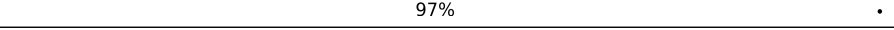

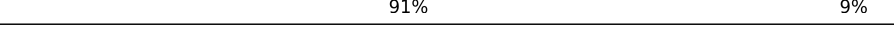
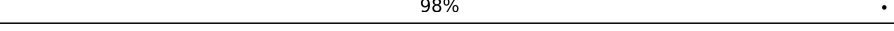


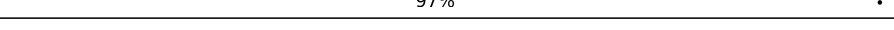



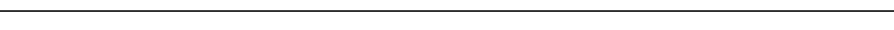

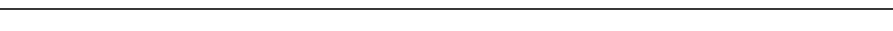
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415
RNA backbone	6643	2191

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	N	114	91% 9%
2	E	206	90% 10%
3	A	2923	67% 25% 5% .
4	B	115	57% 39% .
5	C	274	93% 7%
6	G	175	78% 22%
7	H	145	80% 19% ..

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
8	J	146	 88% 12%
9	K	137	 93% 7%
10	M	119	 81% 18% .
11	O	116	 89% 10% .
12	P	102	 87% 13%
13	R	89	 90% 10%
14	S	104	 79% 17% .
15	T	94	 84% 16%
16	U	79	 96% .
17	W	67	 97% .
18	3	64	 89% 11%
19	1	47	 91% 9% .
20	2	43	 98% .
21	4	37	 78% 19% .
22	D	215	 80% 19% .
23	F	158	 13% 97% .
24	I	122	 82% 18%
25	Q	112	 90% 10%
26	V	49	 82% 18%
27	X	58	 90% 10%
28	Z	48	 98% .
29	L	120	 86% 12% .

2 Entry composition

There are 30 unique types of molecules in this entry. The entry contains 86149 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 L19.

Mol	Chain	Residues	Atoms				AltConf	Trace
1	N	114	Total	C	N	O	0	0
			889	563	175	151		

- Molecule 2 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	E	206	Total	C	N	O	S	0	0
			1572	986	288	296	2		

- Molecule 3 is a RNA chain called 23S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	A	2834	Total	C	N	O	P	0	0
			60769	27128	11118	19689	2834		

- Molecule 4 is a RNA chain called 5S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	B	115	Total	C	N	O	P	0	0
			2448	1094	436	803	115		

- Molecule 5 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	C	274	Total	C	N	O	S	0	0
			2094	1303	415	371	5		

- Molecule 6 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	G	175	Total	C	N	O	S	0	0
			1263	791	240	229	3		

- Molecule 7 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	H	145	Total	C	N	O	S	0	0
			1149	717	211	218	3		

- Molecule 8 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	J	146	Total	C	N	O	S	0	0
			1086	674	214	197	1		

- Molecule 9 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	K	137	Total	C	N	O	S	0	0
			1071	689	203	175	4		

- Molecule 10 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms				AltConf	Trace
10	M	119	Total	C	N	O	0	0
			882	549	174	159		

- Molecule 11 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	O	116	Total	C	N	O	S	0	0
			942	593	189	156	4		

- Molecule 12 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	P	102	Total	C	N	O	S	0	0
			790	503	142	144	1		

- Molecule 13 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	R	89	Total	C	N	O	S	0	0
			715	453	127	131	4		

- Molecule 14 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	S	100	Total	C	N	O	S	0	0
			755	477	139	138	1		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
S	49	GLN	ARG	conflict	UNP A0A6K7SSC4

- Molecule 15 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	T	94	Total	C	N	O		0	0
			722	463	130	129			

- Molecule 16 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	U	79	Total	C	N	O		0	0
			597	369	117	111			

- Molecule 17 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	W	67	Total	C	N	O		0	0
			541	333	102	106			

- Molecule 18 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	3	64	Total	C	N	O	S	0	0
			521	324	113	82	2		

- Molecule 19 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	1	47	Total	C	N	O	S	0	0
			390	238	78	70	4		

- Molecule 20 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	2	43	Total	C	N	O	S	0	0
			367	225	89	52	1		

- Molecule 21 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	4	37	Total	C	N	O	S	0	0
			295	186	60	44	5		

- Molecule 22 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	D	215	Total	C	N	O	S	0	0
			1627	1018	299	305	5		

- Molecule 23 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	F	158	Total	C	N	O	S	0	0
			778	462	158	158			

- Molecule 24 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	I	122	Total	C	N	O	S	0	0
			918	572	174	168	4		

- Molecule 25 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	Q	112	Total	C	N	O	S	0	0
			854	534	164	153	3		

- Molecule 26 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	V	49	Total	C	N	O	S	0	0
			379	234	82	63			

- Molecule 27 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms				AltConf	Trace
27	X	58	Total	C	N	O	0	0
			449	280	85	84		

- Molecule 28 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	Z	48	Total	C	N	O	S	0	0
			360	222	77	59	2		

- Molecule 29 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	L	120	Total	C	N	O	S	0	0
			925	573	181	170	1		

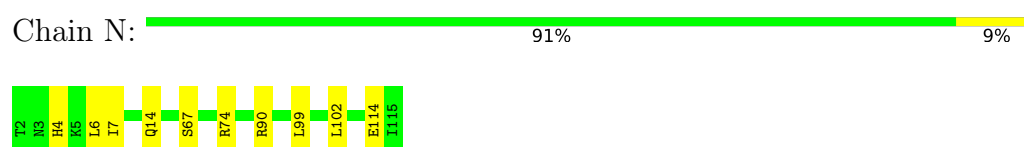
- Molecule 30 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
30	A	1	Total	Mg	0
			1	1	

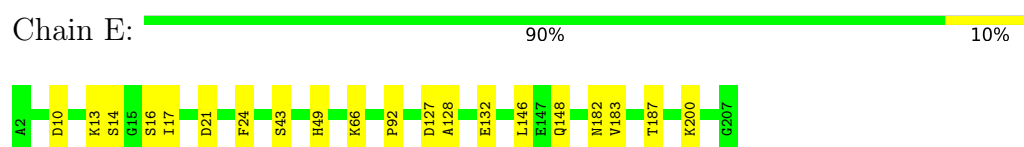
3 Residue-property plots

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

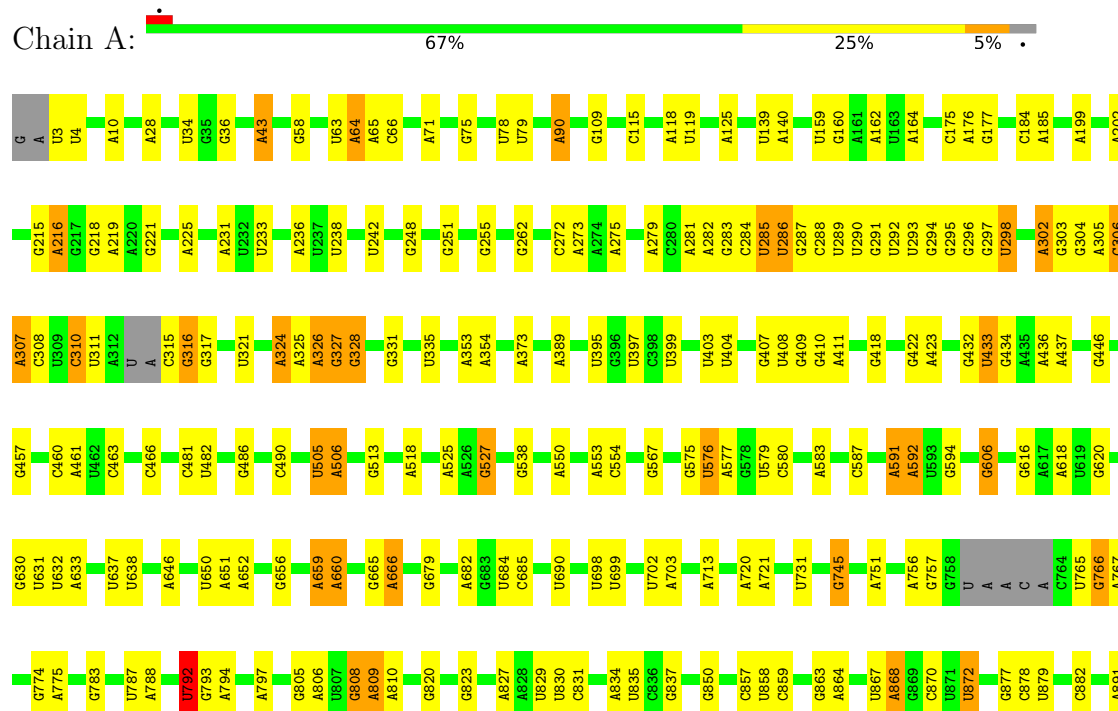
- Molecule 1: 50S ribosomal protein L19



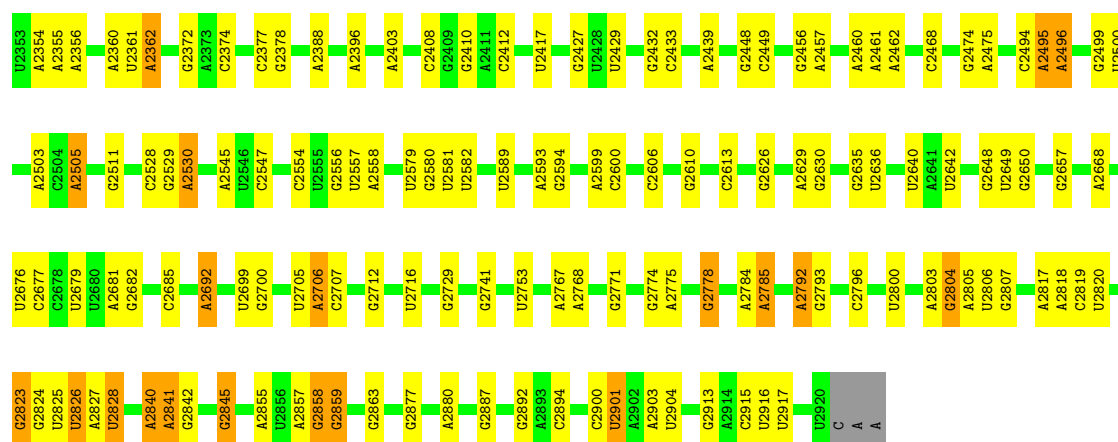
- Molecule 2: 50S ribosomal protein L4



- Molecule 3: 23S rRNA

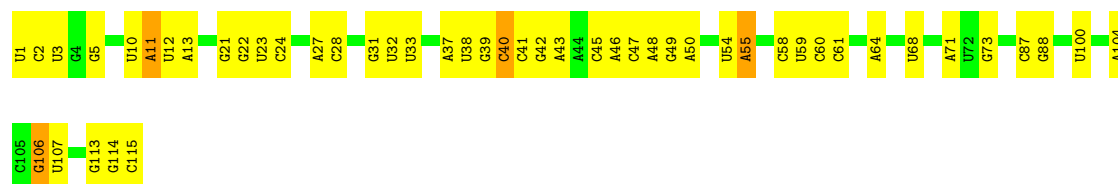


G2244	G2247	G2248	G2249	G2250	G2251	A2252	C2259	G2265	G2266	A2273	A2274	A2295	A2300	A2301	G2306	G2310	A2313	A2314	U2318	U2319	C2320	C2321	A2325	G2326	A2327	G2331	U2332	U2333	G2334	G2335	A2336	A2337	U2338	C2339	C2340	U2342	U2343	C2344	A2345	U2346	A2347	G2348	A2349	G2352												
G2169	C2170	G2171	C2172	C2173	A2174	G2175	C2176	U2177	U2178	A2179	C2180	G2181	U2182	G2183	C2184	A2185	G2186	G2187	G2188	G2189	C2190	U2191	G2192	G2193	U2194	G2195	G2196	G2197	A2198	U2199	A2200	C2201	U2202	A2203	G2204	C2205	C2206	U	A2208	G2209	C2210	G2211	G2212	G2213	A2214	U2215	U2216	G2217	G2218	C2219	U2220	A2225	G2230	C2231	U2238	A2239
A2087	G2088	A2089	C2090	C2091	C2092	U2095	G2096	G2107	G2120	U2124	U2125	C2126	G2127	C2128	C2129	A2130	C2131	A	G2133	C2134	U2135	U2136	G2137	U2138	A2139	C2140	A2141	C2142	G2143	A2144	U2145	A2146	G2147	G2148	U2149	A2150	G2151	G2152	A2153	G2154	C2155	C2156	U2157	U2158	U2159	G2160	A2161	A2162	A2163	C2164	G2165	U2166	G2167	A2168		
C1860	U1861	G1862	G1873	A1874	A1875	G1876	G1877	G1882	A1883	G1884	G1885	U1888	G1889	U1892	A1893	C1894	C1895	U1896	U1897	C1898	U1899	U2003	G2014	U2018	G2019	U2020	G2037	A2045	G2048	U2049	A2050	U2053	G2054	A2058	G2059	A2060	A2064	G2065	C1832	U1938	A1939	A	C	U	A	U1944	A1945	A1946	C1947	G1948						
G1731	G1740	U1756	U1757	A1758	G1759	G1760	U1761	U1762	U1763	A1764	A1765	C1766	G1767	C1768	C1769	G1770	A1771	G1772	G1790	G1791	G1797	A1800	G1803	U1804	U1805	U1806	C1809	A1810	A1811	A1814	C1815	A1816	C1817	U1821	C1822	U1823	C1824	U1825	C1827	U1828	A1829	A1830	U1843	U1847	A1856											
G1593	U1594	C1595	G1596	U1597	U1598	U1599	A1600	U1601	A1605	C1606	G1613	A1616	A1617	A1618	U1625	A1626	G1627	A1628	U1629	A1630	G1631	A1632	A1633	A1634	G1635	U1636	C1637	A1638	G1639	A1647	C1651	A1652	A1653	U1655	G1566	G1569	G1570	G1571	G1572	A1573	G1577	A1578	C1579	A1580	U1581	U1582	G1583	U1584	G1585	U1586	C1587	U1588	U1589	G1590	G1591	A1592
U1456	U1457	A1458	A1459	A1463	U1464	U1465	G1466	C1472	G1473	G1474	A1475	G1476	A1478	U1482	G1484	G1487	A1488	A1489	G1490	G1492	U1493	G1494	G1495	G1496	G1501	A1502	U1503	U1504	G1505	C1506	A1507	C1508	G1509	U1510	C1511	U1512	A1513	U1514	G1515	G1518	U1519	A1520	A1521	G1522	U1525	G1526	A1527	G1528	U1529							
A1311	A1312	G1320	A1321	C1326	A1337	U1338	U1339	U1343	A1344	U1350	G1357	A1358	U1366	U1378	C1382	C1387	C1388	U1389	G1395	A1396	A1397	A1402	G1405	G1406	C1407	G1408	U1409	A1410	U1416	G1417	G1418	A1421	A1422	C1423	U1446	A1449	U1450	U1451	C1452	G1453	U1454	U1455														
G1166	A1172	G1173	U1174	G1175	U1176	A1177	C1179	G1182	U1185	A1186	A1187	A1188	C1189	A1190	U1191	A1192	U1193	U1194	A1195	C1196	U1205	U1212	C1213	U1216	U1217	G1218	G1219	A1220	U1227	A1228	U1238	A1241	A1242	A1258	G1288	A1291	A1292	U1293	G1294	G1300	U1301	G1302	G1309	A1310												
U	G	C	U	U	A	G	A	G	C	A	G	A	A	A	A	A	G	U	A	A	A	G	U	A	A	A	A	A	A	A	A	A	A	G1151	U1152	C1153	G1154	A1155	G1156	U1157	G1158	A1159	U1160	A1161	C1162	U1163										
U1013	U1014	A1017	A1018	A1019	A1027	G1028	C1036	A1037	C1038	C1039	A1040	G1049	C1050	C1051	A1052	A1053	U1056	A1057	U1058	A1059	U1060	G1061	A1070	A1071	A1072	A1073	U1077	G1078	U1079	C1082	U1083	U1085	C1088	C1089	A1090	G1091	A1094	A1095	C1096	U	A	G	G	A	U	U	G1005									



• Molecule 4: 5S rRNA

Chain B: 57% 39%



• Molecule 5: 50S ribosomal protein L2

Chain C: 93% 7%



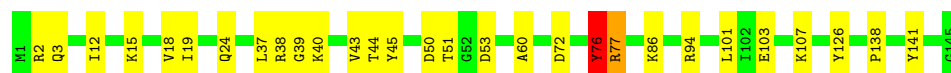
• Molecule 6: 50S ribosomal protein L6

Chain G: 78% 22%




• Molecule 7: 50S ribosomal protein L13

Chain H: 80% 19%



• Molecule 8: 50S ribosomal protein L15

Chain J:  88% 12%




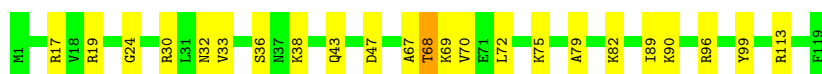
- Molecule 9: 50S ribosomal protein L16

Chain K:  93% 7%




- Molecule 10: 50S ribosomal protein L18

Chain M:  81% 18%




- Molecule 11: 50S ribosomal protein L20

Chain O:  89% 10%



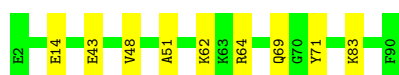
- Molecule 12: 50S ribosomal protein L21

Chain P:  87% 13%




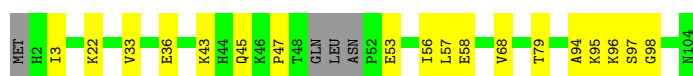
- Molecule 13: 50S ribosomal protein L23

Chain R:  90% 10%




- Molecule 14: 50S ribosomal protein L24

Chain S:  79% 17%



- Molecule 15: 50S ribosomal protein L25

Chain T:  84% 16%



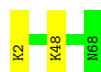
- Molecule 16: 50S ribosomal protein L27

Chain U:  96% .




- Molecule 17: 50S ribosomal protein L29

Chain W:  97% .




- Molecule 18: 50S ribosomal protein L35

Chain 3:  89% 11%



- Molecule 19: 50S ribosomal protein L33

Chain 1:  91% 9%




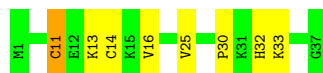
- Molecule 20: 50S ribosomal protein L34

Chain 2:  98% .




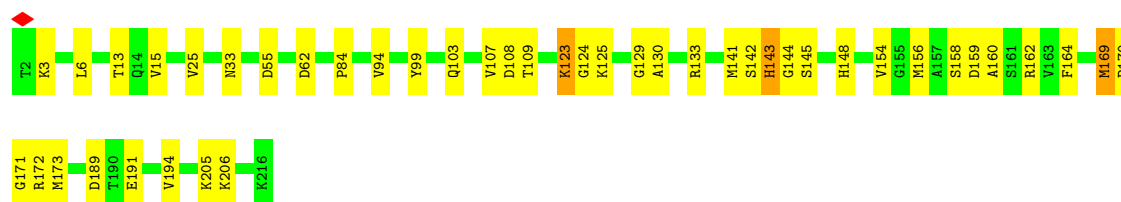
- Molecule 21: 50S ribosomal protein L36

Chain 4:  78% 19%



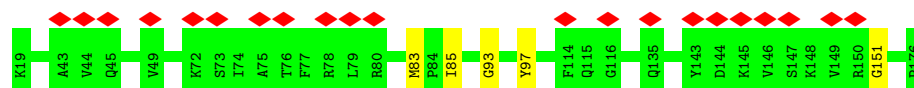
- Molecule 22: 50S ribosomal protein L3

Chain D:  80% 19% .




- Molecule 23: 50S ribosomal protein L5

Chain F:  13% 97% .




- Molecule 24: 50S ribosomal protein L14

Chain I:  82% 18%




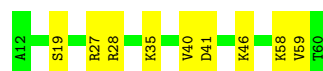
- Molecule 25: 50S ribosomal protein L22

Chain Q:  90% 10%




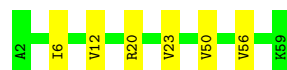
- Molecule 26: 50S ribosomal protein L28

Chain V:  82% 18%



- Molecule 27: 50S ribosomal protein L30

Chain X:  90% 10%

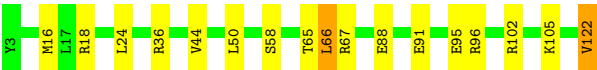
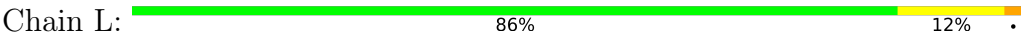


- Molecule 28: 50S ribosomal protein L32

Chain Z:  98%



- Molecule 29: 50S ribosomal protein L17



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	198422	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	47	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.085	Depositor
Minimum map value	-0.030	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.003	Depositor
Recommended contour level	0.0037	Depositor
Map size (\AA)	308.88, 308.88, 308.88	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	0.85800004, 0.85800004, 0.85800004	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: MG, 2MA, 5MU

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	N	0.46	0/901	0.55	0/1209
2	E	0.49	0/1595	0.54	0/2154
3	A	0.54	0/67978	0.41	0/106007
4	B	0.33	0/2736	0.30	0/4261
5	C	0.47	0/2129	0.52	0/2858
6	G	0.25	0/1281	0.50	0/1735
7	H	0.58	1/1171 (0.1%)	0.72	2/1577 (0.1%)
8	J	0.49	0/1100	0.57	0/1467
9	K	0.46	0/1095	0.49	0/1472
10	M	0.32	0/891	0.51	0/1194
11	O	0.56	0/954	0.58	0/1264
12	P	0.57	0/800	0.64	0/1070
13	R	0.46	0/723	0.53	0/966
14	S	0.39	0/763	0.57	0/1018
15	T	0.34	0/730	0.49	0/981
16	U	0.52	0/603	0.55	0/802
17	W	0.43	0/542	0.52	0/722
18	3	0.47	0/526	0.57	0/690
19	1	0.21	0/395	0.43	0/530
20	2	0.58	0/371	0.70	0/484
21	4	0.34	0/298	0.52	0/392
22	D	0.62	0/1651	0.86	1/2215 (0.0%)
23	F	0.17	0/777	0.43	0/1079
24	I	0.48	0/925	0.68	0/1242
25	Q	0.52	0/862	0.56	0/1161
26	V	0.41	0/384	0.58	0/515
27	X	0.48	0/451	0.53	0/606
28	Z	0.48	0/366	0.59	0/489
29	L	0.53	0/929	0.71	0/1244
All	All	0.52	1/93927 (0.0%)	0.45	3/141404 (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
5	C	0	1
7	H	0	1
10	M	0	1
12	P	0	1
21	4	0	1
22	D	0	3
29	L	0	1
All	All	0	9

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	H	45	TYR	C-N	-6.11	1.25	1.33

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	H	76	TYR	N-CA-C	7.55	126.88	110.80
22	D	109	THR	N-CA-C	-6.77	104.28	112.54
7	H	77	ARG	N-CA-C	5.36	122.22	110.80

There are no chirality outliers.

All (9) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
21	4	11	CYS	Peptide
5	C	233	GLY	Peptide
22	D	123	LYS	Peptide
22	D	142	SER	Peptide
22	D	144	GLY	Peptide
7	H	76	TYR	Peptide
29	L	66	LEU	Peptide
10	M	68	THR	Peptide
12	P	50	ALA	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	N	889	0	937	7	0
2	E	1572	0	1619	16	0
3	A	60769	0	30546	503	0
4	B	2448	0	1239	34	0
5	C	2094	0	2205	14	0
6	G	1263	0	1232	26	0
7	H	1149	0	1145	17	0
8	J	1086	0	1125	10	0
9	K	1071	0	1123	7	0
10	M	882	0	900	18	0
11	O	942	0	1014	10	0
12	P	790	0	830	10	0
13	R	715	0	748	6	0
14	S	755	0	803	11	0
15	T	722	0	766	9	0
16	U	597	0	604	2	0
17	W	541	0	563	2	0
18	3	521	0	586	5	0
19	1	390	0	394	3	0
20	2	367	0	415	1	0
21	4	295	0	339	7	0
22	D	1627	0	1667	22	0
23	F	778	0	348	3	0
24	I	918	0	981	13	0
25	Q	854	0	914	8	0
26	V	379	0	400	7	0
27	X	449	0	491	4	0
28	Z	360	0	358	1	0
29	L	925	0	975	11	0
30	A	1	0	0	0	0
All	All	86149	0	55267	732	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 (732) 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)
3:A:1521:A:N6	3:A:1559:G:H1	1.50	1.10
3:A:1514:A:N1	3:A:1566:G:N2	2.08	1.01
3:A:2128:G:H1	3:A:2215:U:H3	1.00	0.95
3:A:2127:G:H1	3:A:2216:U:H3	1.13	0.94
3:A:1578:A:N6	3:A:1591:G:N7	2.15	0.93
3:A:1521:A:N1	3:A:1559:G:N2	2.17	0.92
3:A:1484:G:H1	3:A:1599:G:H22	1.08	0.92
3:A:1514:A:H61	3:A:1566:G:H1	1.17	0.92
3:A:1450:A:N6	3:A:1634:A:N1	2.19	0.91
3:A:1489:A:O2'	3:A:1490:G:N7	2.01	0.90
3:A:316:G:H1	3:A:403:U:H3	0.98	0.90
3:A:2858:G:O2'	3:A:2859:G:N7	2.05	0.89
3:A:1515:G:H22	3:A:1565:U:H3	1.17	0.87
3:A:2863:G:H1	3:A:2894:C:H5	1.20	0.86
3:A:656:G:H21	3:A:660:A:H2	1.19	0.85
3:A:115:C:HO2'	3:A:125:A:H8	1.25	0.85
3:A:922:G:H1	3:A:945:A:H61	1.23	0.85
3:A:2432:G:H21	3:A:2439:A:H62	1.23	0.84
3:A:1387:C:H5	3:A:1418:G:H1	1.25	0.84
3:A:1484:G:H1	3:A:1599:G:N2	1.76	0.83
3:A:1862:G:H1	3:A:1932:C:H5	1.27	0.82
3:A:1522:G:H1	3:A:1558:U:H3	1.27	0.81
3:A:882:C:H5	3:A:986:G:H1	1.26	0.80
3:A:2125:U:O2	3:A:2218:G:N1	2.15	0.80
3:A:2649:U:O2'	3:A:2845:G:N2	2.15	0.80
3:A:1094:A:N6	3:A:1153:C:O2	2.14	0.80
2:E:182:ASN:HB3	3:A:660:A:H8	1.46	0.80
3:A:922:G:H1	3:A:945:A:N6	1.78	0.80
3:A:1757:U:O2	3:A:1772:G:N1	2.16	0.79
3:A:1767:G:OP1	3:A:1769:C:N4	2.15	0.79
3:A:275:A:H62	3:A:296:G:H21	1.30	0.79
3:A:1884:G:H21	3:A:1912:A:H62	1.32	0.78
3:A:2140:C:N4	3:A:2196:G:N7	2.33	0.77
3:A:2857:A:H3'	3:A:2858:G:H8	1.49	0.77
26:V:58:LYS:NZ	26:V:59:VAL:O	2.18	0.76
3:A:1189:C:O2'	3:A:1190:A:O5'	2.02	0.76
3:A:1579:C:H3'	3:A:1581:U:H3	1.50	0.75
3:A:2857:A:H3'	3:A:2858:G:C8	2.22	0.75
22:D:3:LYS:HB3	22:D:94:VAL:HG12	1.70	0.74
14:S:3:ILE:HD11	14:S:33:VAL:HG11	1.67	0.74
3:A:606:G:OP2	12:P:78:ARG:NH2	2.20	0.74
3:A:1493:U:O2	3:A:1505:G:N2	2.20	0.74

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:2127:G:N2	3:A:2216:U:O2	2.20	0.73
3:A:1521:A:H61	3:A:1559:G:H1	0.77	0.73
3:A:275:A:H62	3:A:296:G:N2	1.86	0.72
1:N:74:ARG:HD3	24:I:77:ILE:HD13	1.71	0.72
3:A:162:A:H8	3:A:2244:G:H21	1.37	0.72
3:A:1770:C:N4	3:A:1771:A:N3	2.37	0.72
18:3:54:ASP:OD1	18:3:57:ARG:NH1	2.23	0.72
9:K:30:GLY:O	9:K:134:ARG:NH1	2.23	0.72
19:1:19:THR:HG22	19:1:20:THR:H	1.55	0.72
3:A:1902:G:H21	3:A:1903:A:H1'	1.52	0.71
3:A:1487:G:H22	3:A:1596:G:N2	1.87	0.71
3:A:1757:U:O4	3:A:1771:A:N6	2.24	0.71
3:A:326:A:H1'	3:A:327:G:H5'	1.73	0.71
3:A:1487:G:H22	3:A:1596:G:H22	1.37	0.71
3:A:2432:G:N2	3:A:2439:A:H62	1.87	0.71
3:A:1218:G:H2'	3:A:1219:G:C8	2.26	0.70
3:A:1493:U:H3	3:A:1505:G:H1	1.37	0.70
3:A:2136:U:O2'	3:A:2169:G:O2'	2.09	0.70
3:A:1049:C:H5	3:A:1182:G:H1	1.39	0.70
29:L:24:LEU:HD23	29:L:44:VAL:HG21	1.72	0.70
3:A:1487:G:H1	3:A:1596:G:H1	1.38	0.69
3:A:315:C:O2'	3:A:316:G:N7	2.21	0.69
3:A:2606:C:O2'	22:D:145:SER:O	2.10	0.69
3:A:591:A:H4'	3:A:592:A:H5'	1.73	0.69
3:A:2195:G:N2	3:A:2197:G:O6	2.26	0.69
3:A:721:A:H8	3:A:2096:G:H21	1.41	0.69
10:M:96:ARG:NH2	10:M:99:TYR:O	2.27	0.68
3:A:1458:A:N1	3:A:1459:A:N6	2.42	0.67
3:A:2162:A:H62	3:A:2183:G:H21	1.40	0.67
3:A:923:A:H2	3:A:944:G:H22	1.41	0.67
3:A:1760:G:H1	3:A:1768:C:H42	1.42	0.67
21:4:11:CYS:HB2	21:4:14:CYS:H	1.60	0.67
3:A:1463:A:N7	3:A:1625:U:O2	2.28	0.67
7:H:39:GLY:HA3	7:H:51:THR:HG23	1.77	0.67
21:4:11:CYS:SG	21:4:32:HIS:ND1	2.60	0.67
3:A:2901:U:OP1	29:L:96:ARG:NH2	2.27	0.66
3:A:1036:C:H2'	3:A:1037:A:H5''	1.77	0.66
3:A:1633:A:H2'	3:A:1634:A:C8	2.31	0.66
3:A:1219:G:H2'	3:A:1220:A:C8	2.30	0.66
3:A:1552:U:O2'	3:A:1553:A:O4'	2.14	0.66
3:A:1947:C:H2'	3:A:1948:G:H8	1.60	0.66

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:2216:U:H2'	3:A:2217:G:C8	2.31	0.66
14:S:79:THR:OG1	14:S:94:ALA:O	2.12	0.66
22:D:6:LEU:H	22:D:33:ASN:HD21	1.42	0.66
3:A:1760:G:H3'	3:A:1761:G:H4'	1.77	0.66
3:A:1488:A:H3'	3:A:1489:A:H8	1.60	0.65
3:A:1915:G:N2	3:A:1915:G:OP2	2.28	0.65
14:S:97:SER:OG	14:S:98:GLY:N	2.28	0.65
3:A:1218:G:H2'	3:A:1219:G:H8	1.62	0.65
3:A:1631:G:N2	3:A:1631:G:OP1	2.28	0.65
3:A:2840:A:O2'	3:A:2841:A:OP1	2.14	0.65
5:C:10:THR:HG22	5:C:12:GLY:H	1.59	0.65
3:A:1579:C:H5	3:A:1586:U:H3	1.44	0.65
3:A:1628:A:H2'	3:A:1629:U:C6	2.31	0.65
3:A:1598:U:H2'	3:A:1599:G:C8	2.32	0.65
3:A:2208:A:N6	3:A:2209:G:O6	2.30	0.64
3:A:1884:G:N2	3:A:1912:A:H62	1.94	0.64
3:A:2554:C:H5''	21:4:30:PRO:HB2	1.78	0.64
3:A:139:U:O2	3:A:1446:U:O2'	2.13	0.64
3:A:284:C:O2'	3:A:287:G:N1	2.23	0.64
27:X:12:VAL:HG22	27:X:20:ARG:HG2	1.80	0.64
3:A:1893:A:H62	3:A:1903:A:H62	1.46	0.64
3:A:2778:G:OP1	6:G:3:ARG:NH2	2.31	0.63
3:A:927:G:OP2	3:A:927:G:N2	2.32	0.63
3:A:1512:U:H2'	3:A:1513:A:C8	2.33	0.63
1:N:67:SER:OG	24:I:120:GLU:OE2	2.17	0.63
3:A:921:C:H42	3:A:946:A:H61	1.46	0.63
3:A:1769:C:N3	3:A:1770:C:N4	2.47	0.62
3:A:1946:A:H2'	3:A:1947:C:C6	2.34	0.62
3:A:1487:G:N2	3:A:1596:G:H22	1.97	0.62
6:G:164:TYR:HB2	6:G:167:GLU:HB2	1.81	0.62
3:A:870:C:O2'	8:J:54:GLN:NE2	2.26	0.62
3:A:1478:A:H61	3:A:1605:A:N6	1.97	0.62
3:A:288:C:H2'	3:A:289:U:C6	2.35	0.62
3:A:1555:G:O2'	3:A:1556:G:N7	2.29	0.62
25:Q:25:ARG:NH1	25:Q:74:ALA:O	2.32	0.62
21:4:11:CYS:HB2	21:4:14:CYS:N	2.15	0.61
14:S:47:PRO:HB3	14:S:53:GLU:HA	1.81	0.61
3:A:1763:U:O2'	3:A:1767:G:O6	2.16	0.61
3:A:1057:A:HO2'	3:A:1058:U:H6	1.48	0.61
3:A:288:C:H2'	3:A:289:U:H6	1.65	0.61
3:A:2146:A:H2'	3:A:2147:G:H5''	1.83	0.61

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:1453:G:H4'	3:A:1631:G:H22	1.66	0.61
3:A:2178:U:H2'	3:A:2179:A:C8	2.36	0.61
3:A:2340:C:H2'	3:A:2341:A:H8	1.66	0.61
3:A:943:C:H2'	3:A:944:G:C8	2.35	0.60
3:A:1582:U:O2	3:A:1586:U:O2'	2.16	0.60
3:A:1343:U:H5	3:A:1666:A:N1	1.99	0.60
3:A:1804:U:H5	3:A:1814:A:N1	1.98	0.60
3:A:1582:U:O4	3:A:1587:C:O2'	2.19	0.60
3:A:1569:G:N2	3:A:1569:G:OP1	2.34	0.60
3:A:2135:U:OP2	3:A:2205:C:N4	2.34	0.60
3:A:2150:A:N6	3:A:2199:U:OP1	2.34	0.60
3:A:1767:G:P	3:A:1768:C:H41	2.24	0.60
3:A:1759:G:H2'	3:A:1760:G:H8	1.65	0.60
4:B:38:U:O2'	4:B:43:A:N6	2.34	0.60
21:4:16:VAL:HG22	21:4:25:VAL:HG12	1.84	0.60
3:A:2138:U:O2'	3:A:2172:C:N4	2.35	0.60
13:R:51:ALA:HB2	13:R:83:LYS:HG3	1.83	0.60
3:A:867:U:H2'	3:A:868:A:H5''	1.83	0.60
3:A:922:G:N2	3:A:945:A:N1	2.44	0.60
3:A:928:C:N4	3:A:938:G:OP2	2.35	0.59
3:A:316:G:N2	3:A:403:U:O2	2.30	0.59
3:A:353:A:O2'	3:A:354:A:O5'	2.19	0.59
3:A:1595:C:H2'	3:A:1596:G:C8	2.37	0.59
6:G:59:LYS:HA	6:G:62:ARG:HG2	1.84	0.59
3:A:281:A:H2'	3:A:282:A:C8	2.38	0.59
3:A:2331:G:H22	3:A:2339:U:H3	1.50	0.59
3:A:175:C:H2'	3:A:176:A:O4'	2.03	0.58
3:A:1663:G:HO2'	20:2:2:VAL:N	1.99	0.58
3:A:1847:U:H5	5:C:177:ARG:HH21	1.50	0.58
8:J:19:VAL:HG23	8:J:27:ASN:HB3	1.84	0.58
3:A:1185:U:H4'	3:A:1186:A:O4'	2.02	0.58
3:A:1759:G:H2'	3:A:1760:G:C8	2.39	0.58
4:B:27:A:H2'	4:B:28:C:C6	2.39	0.58
3:A:788:A:O2'	3:A:1703:U:OP1	2.21	0.58
7:H:18:VAL:HG23	7:H:138:PRO:HB2	1.86	0.58
3:A:1630:A:H3'	3:A:1631:G:H5''	1.84	0.58
3:A:410:G:H4'	3:A:411:A:H5'	1.86	0.58
3:A:1449:A:H62	3:A:1634:A:H62	1.52	0.58
3:A:1897:U:H4'	3:A:1898:C:H5''	1.85	0.58
3:A:2432:G:H21	3:A:2439:A:N6	2.00	0.58
3:A:1453:G:H4'	3:A:1455:U:H3	1.66	0.57

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:1758:A:H1'	3:A:1772:G:C6	2.39	0.57
3:A:2216:U:H2'	3:A:2217:G:H8	1.69	0.57
3:A:1823:U:H2'	3:A:1824:C:C6	2.39	0.57
3:A:2355:A:H2'	3:A:2356:A:C8	2.39	0.57
3:A:684:U:H2'	3:A:685:C:C6	2.39	0.57
3:A:765:U:O2'	3:A:766:G:H8	1.87	0.57
2:E:127:ASP:OD1	2:E:128:ALA:N	2.37	0.57
3:A:1893:A:N6	3:A:1903:A:H62	2.02	0.57
3:A:2186:G:H2'	3:A:2187:G:C8	2.40	0.57
3:A:115:C:O2'	3:A:125:A:H8	1.84	0.57
3:A:1586:U:H2'	3:A:1587:C:O4'	2.04	0.57
22:D:141:MET:HE1	22:D:148:HIS:HB3	1.86	0.57
22:D:189:ASP:HB3	22:D:194:VAL:HG22	1.87	0.57
24:I:6:THR:O	24:I:21:THR:HG22	2.04	0.57
29:L:95:GLU:N	29:L:95:GLU:OE1	2.38	0.57
3:A:579:U:H5'	11:O:42:SER:HB2	1.85	0.57
3:A:1756:U:H2'	3:A:1757:U:O4'	2.05	0.57
3:A:2149:U:H2'	3:A:2150:A:C8	2.39	0.57
3:A:2360:A:H5'	3:A:2362:A:H1'	1.86	0.57
6:G:87:LEU:HD21	6:G:148:ILE:HD11	1.86	0.57
3:A:1151:G:H2'	3:A:1152:U:C6	2.40	0.57
3:A:1627:G:H2'	3:A:1628:A:C8	2.40	0.56
3:A:2511:G:OP1	9:K:45:ARG:NH2	2.38	0.56
4:B:54:U:H4'	4:B:55:A:H5'	1.87	0.56
2:E:43:SER:HG	3:A:659:A:HO2'	1.52	0.56
3:A:302:A:H2'	3:A:303:G:C8	2.39	0.56
3:A:1806:U:H5	3:A:1811:A:N7	2.02	0.56
8:J:79:LEU:HB2	8:J:113:GLY:HA2	1.88	0.56
26:V:27:ARG:NH1	26:V:28:ARG:O	2.38	0.56
3:A:1160:C:H2'	3:A:1161:A:H8	1.70	0.56
3:A:221:G:H22	3:A:238:U:H4'	1.70	0.56
3:A:1489:A:H2	3:A:1508:C:N4	2.04	0.56
3:A:1829:A:H2'	3:A:1830:A:C8	2.41	0.56
3:A:2845:G:O5'	3:A:2845:G:H8	1.88	0.56
3:A:1494:G:H1	3:A:1504:U:H3	1.52	0.56
3:A:2125:U:H2'	3:A:2126:C:C6	2.41	0.56
2:E:132:GLU:OE1	2:E:132:GLU:N	2.33	0.56
3:A:1456:U:H2'	3:A:1457:U:O4'	2.05	0.56
6:G:72:LEU:HA	6:G:75:MET:HG2	1.87	0.55
3:A:1917:A:H3'	3:A:1918:G:H8	1.70	0.55
29:L:65:THR:HG22	29:L:66:LEU:H	1.71	0.55

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:2128:G:N2	3:A:2215:U:O2	2.32	0.55
3:A:2219:C:H2'	3:A:2220:U:C6	2.41	0.55
6:G:15:VAL:HG22	6:G:28:GLY:HA3	1.89	0.55
3:A:159:U:H2'	3:A:160:G:C8	2.42	0.55
3:A:2313:A:H4'	3:A:2314:A:O4'	2.06	0.55
22:D:143:HIS:H	22:D:143:HIS:CD2	2.25	0.55
1:N:14:GLN:HE22	22:D:15:VAL:HG13	1.72	0.55
2:E:182:ASN:HB3	3:A:660:A:C8	2.35	0.55
3:A:302:A:H2'	3:A:303:G:H8	1.71	0.55
3:A:2079:G:H4'	22:D:156:MET:O	2.07	0.55
7:H:43:VAL:O	7:H:44:THR:OG1	2.17	0.55
12:P:56:ALA:HA	12:P:101:ASN:O	2.07	0.55
3:A:631:U:H2'	3:A:632:U:C6	2.42	0.54
4:B:32:U:O2'	4:B:42:G:N7	2.31	0.54
3:A:1450:A:H5''	3:A:1451:U:H5	1.73	0.54
15:T:72:VAL:HG21	15:T:91:PHE:HB3	1.88	0.54
3:A:316:G:O6	3:A:403:U:O4	2.26	0.54
12:P:1:MET:SD	12:P:1:MET:N	2.78	0.54
3:A:1631:G:H1'	3:A:1632:A:C8	2.42	0.54
3:A:2558:A:N7	6:G:176:THR:HA	2.22	0.54
3:A:1085:U:H3	3:A:1158:G:H1	1.55	0.54
3:A:2343:U:H2'	3:A:2344:C:C6	2.43	0.54
6:G:41:MET:HE1	6:G:65:HIS:N	2.23	0.54
3:A:651:A:H2'	3:A:652:A:C8	2.43	0.54
3:A:1487:G:H1	3:A:1596:G:H22	1.55	0.54
14:S:22:LYS:H	14:S:36:GLU:HG2	1.73	0.54
3:A:1959:A:H2'	3:A:1960:G:O4'	2.08	0.54
3:A:2685:C:OP1	6:G:158:LYS:NZ	2.39	0.54
3:A:2347:A:HO2'	3:A:2349:A:H62	1.53	0.53
22:D:62:ASP:OD1	22:D:62:ASP:N	2.41	0.53
3:A:2318:U:H2'	3:A:2319:U:C6	2.43	0.53
7:H:72:ASP:OD1	7:H:72:ASP:N	2.35	0.53
3:A:1520:A:C6	3:A:1561:G:C4	2.97	0.53
3:A:1635:A:H2'	3:A:1636:U:C6	2.44	0.53
5:C:121:GLU:OE1	5:C:121:GLU:N	2.37	0.53
3:A:2682:G:N2	3:A:2692:A:OP2	2.37	0.53
24:I:19:VAL:HG22	24:I:41:CYS:HB2	1.90	0.53
4:B:113:G:H2'	4:B:114:G:O4'	2.09	0.53
6:G:129:THR:HG23	6:G:130:VAL:HG23	1.91	0.53
3:A:407:G:H2'	3:A:408:U:C6	2.44	0.53
3:A:1463:A:N7	3:A:1625:U:C2	2.77	0.53

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:1482:U:H3	3:A:1601:U:H5	1.56	0.53
3:A:2325:A:N6	3:A:2345:A:O2'	2.42	0.53
3:A:1053:A:OP1	7:H:40:LYS:NZ	2.41	0.53
3:A:1423:C:O2'	3:A:1512:U:O2	2.19	0.53
10:M:69:LYS:HA	10:M:72:LEU:HD12	1.91	0.53
3:A:2824:G:H2'	3:A:2825:U:C6	2.43	0.52
3:A:1490:G:O2'	3:A:1491:C:O2	2.24	0.52
3:A:2448:G:N7	18:3:31:HIS:NE2	2.57	0.52
15:T:71:LYS:HB3	15:T:94:ILE:HD11	1.91	0.52
3:A:579:U:H2'	3:A:580:C:C6	2.44	0.52
3:A:2124:U:H2'	3:A:2125:U:O4'	2.10	0.52
25:Q:11:ARG:O	25:Q:11:ARG:HG3	2.08	0.52
3:A:327:G:O2'	3:A:328:G:H5''	2.09	0.52
3:A:1757:U:H3'	3:A:1758:A:H8	1.75	0.52
14:S:45:GLN:HE22	14:S:57:LEU:HB2	1.73	0.52
3:A:289:U:H2'	3:A:290:U:C6	2.45	0.52
3:A:1510:U:H3	3:A:1571:G:H1	1.58	0.52
4:B:11:A:O2'	4:B:13:A:OP2	2.24	0.52
10:M:24:GLY:N	10:M:47:ASP:OD2	2.27	0.52
13:R:64:ARG:HE	13:R:69:GLN:HA	1.74	0.52
3:A:1501:G:H22	3:A:2729:G:H22	1.58	0.52
4:B:21:G:H2'	4:B:22:G:C8	2.45	0.52
2:E:16:SER:OG	2:E:17:ILE:N	2.42	0.52
3:A:316:G:H2'	3:A:317:G:C8	2.44	0.52
3:A:858:U:H2'	3:A:859:C:C6	2.45	0.52
3:A:290:U:H2'	3:A:291:G:H8	1.73	0.52
3:A:1219:G:H2'	3:A:1220:A:H8	1.72	0.52
3:A:285:U:O2'	3:A:286:U:H5''	2.09	0.52
3:A:632:U:H2'	3:A:633:A:C8	2.46	0.52
3:A:2140:C:N3	3:A:2195:G:O2'	2.34	0.52
3:A:864:A:N7	3:A:1227:U:H5	2.08	0.51
29:L:102:ARG:HH21	29:L:122:VAL:HB	1.75	0.51
3:A:2347:A:O2'	3:A:2349:A:N6	2.36	0.51
3:A:2668:A:N1	3:A:2800:U:H5	2.07	0.51
3:A:433:U:H5'	3:A:434:G:C2	2.45	0.51
3:A:1051:C:OP1	7:H:38:ARG:NH1	2.43	0.51
3:A:1507:A:H2'	3:A:1508:C:C6	2.45	0.51
3:A:1907:U:H2'	3:A:1908:A:C8	2.45	0.51
3:A:921:C:H42	3:A:946:A:N6	2.07	0.51
3:A:2037:G:H5''	25:Q:42:ALA:HB2	1.92	0.51
22:D:205:LYS:O	22:D:206:LYS:HG2	2.10	0.51

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:2705:U:O2'	3:A:2706:A:H8	1.92	0.51
4:B:5:G:H21	10:M:43:GLN:HE22	1.57	0.51
3:A:1456:U:OP2	3:A:1629:U:H5	1.93	0.51
3:A:2153:A:N7	3:A:2191:U:O2'	2.43	0.51
2:E:17:ILE:HD11	2:E:200:LYS:HD3	1.93	0.51
3:A:64:A:H61	3:A:90:A:H62	1.59	0.51
3:A:1160:C:H2'	3:A:1161:A:C8	2.46	0.50
3:A:1488:A:H3'	3:A:1489:A:C8	2.42	0.50
3:A:2313:A:H61	19:1:19:THR:HG21	1.74	0.50
3:A:115:C:O2'	3:A:125:A:C8	2.60	0.50
3:A:327:G:N2	3:A:399:U:O2	2.43	0.50
3:A:576:U:H2'	3:A:576:U:O2	2.09	0.50
23:F:83:MET:O	23:F:85:ILE:N	2.44	0.50
3:A:2676:U:H2'	3:A:2677:C:H6	1.76	0.50
3:A:2210:C:H2'	3:A:2211:U:C6	2.47	0.50
11:O:107:ALA:O	11:O:111:THR:HG23	2.12	0.50
3:A:921:C:N4	3:A:946:A:H61	2.07	0.50
10:M:30:ARG:NH1	10:M:32:ASN:HD22	2.10	0.50
3:A:2326:G:H2'	3:A:2327:A:H8	1.76	0.50
3:A:1456:U:H3'	3:A:1457:U:C6	2.47	0.50
3:A:1488:A:H61	3:A:1595:C:H42	1.59	0.50
3:A:2162:A:H62	3:A:2183:G:N2	2.09	0.50
3:A:2824:G:H2'	3:A:2825:U:H6	1.77	0.50
3:A:868:A:H62	3:A:879:U:H3	1.60	0.50
7:H:94:ARG:HB3	7:H:101:LEU:HD22	1.93	0.50
3:A:1089:C:H4'	3:A:1091:G:H1'	1.94	0.50
3:A:221:G:N2	3:A:238:U:H4'	2.26	0.49
3:A:407:G:H2'	3:A:408:U:H6	1.77	0.49
3:A:2179:A:H2'	3:A:2180:C:C6	2.46	0.49
3:A:2273:G:H2'	3:A:2274:A:C8	2.47	0.49
3:A:2494:C:H2'	3:A:2495:A:O4'	2.13	0.49
24:I:77:ILE:O	24:I:77:ILE:HG13	2.12	0.49
3:A:896:U:H2'	3:A:897:A:H8	1.77	0.49
3:A:2053:U:H5	3:A:2064:A:N1	2.10	0.49
3:A:2180:C:H2'	3:A:2181:G:H8	1.77	0.49
3:A:306:C:H2'	3:A:307:A:H8	1.77	0.49
3:A:863:G:H21	3:A:1228:A:H2	1.60	0.49
3:A:922:G:H2'	3:A:923:A:C8	2.47	0.49
3:A:2152:G:O2'	3:A:2200:A:N6	2.41	0.49
3:A:2189:G:H21	3:A:2190:C:H41	1.61	0.49
10:M:67:ALA:HB3	10:M:72:LEU:HG	1.94	0.49

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:1158:G:H2'	3:A:1159:A:C8	2.47	0.49
3:A:1635:A:H2'	3:A:1636:U:H6	1.76	0.49
3:A:2155:C:H2'	3:A:2156:C:C6	2.48	0.49
9:K:43:THR:HG22	9:K:46:GLN:HG3	1.93	0.49
24:I:70:ARG:HB2	24:I:76:TYR:CE2	2.47	0.49
3:A:262:G:H21	3:A:666:A:H8	1.60	0.49
3:A:2403:A:N3	10:M:113:ARG:NH2	2.59	0.49
10:M:30:ARG:HH12	10:M:32:ASN:HD22	1.60	0.49
22:D:129:GLY:HA3	22:D:170:PRO:HA	1.93	0.49
1:N:4:HIS:HD2	1:N:6:LEU:H	1.60	0.49
3:A:294:G:H2'	3:A:295:G:H8	1.78	0.49
3:A:353:A:O2'	3:A:354:A:H2'	2.13	0.49
3:A:2141:A:H2'	3:A:2141:A:N3	2.27	0.49
3:A:2372:G:N3	3:A:2408:C:H2'	2.27	0.49
6:G:80:SER:OG	6:G:81:GLN:N	2.45	0.49
3:A:926:G:H3'	3:A:927:G:H21	1.78	0.49
3:A:1449:A:N6	3:A:1634:A:H62	2.11	0.49
3:A:1484:G:H22	3:A:1599:G:N2	2.11	0.49
3:A:2091:C:H2'	3:A:2092:C:C6	2.48	0.49
3:A:2499:G:H21	3:A:2505:A:H62	1.60	0.49
25:Q:11:ARG:HH11	25:Q:98:LYS:HD2	1.78	0.49
3:A:43:A:H62	3:A:482:U:H3	1.61	0.49
3:A:903:G:OP2	16:U:85:LYS:NZ	2.43	0.49
3:A:941:A:H2'	3:A:942:C:O4'	2.12	0.49
3:A:1903:A:N7	3:A:1904:A:C8	2.81	0.49
3:A:1847:U:C2	5:C:201:GLU:HG2	2.48	0.48
3:A:316:G:H2'	3:A:317:G:H8	1.78	0.48
3:A:702:U:H2'	3:A:703:A:C8	2.48	0.48
3:A:1512:U:H2'	3:A:1513:A:H8	1.77	0.48
3:A:1526:G:H8	3:A:1526:G:P	2.37	0.48
3:A:2877:G:N2	3:A:2880:A:OP2	2.42	0.48
1:N:7:ILE:HG23	22:D:13:THR:HG21	1.95	0.48
3:A:2361:U:OP2	10:M:17:ARG:NE	2.43	0.48
3:A:2784:A:H2'	3:A:2785:A:H5''	1.96	0.48
22:D:154:VAL:HG23	22:D:154:VAL:O	2.14	0.48
29:L:16:MET:HE1	29:L:36:ARG:HD3	1.94	0.48
5:C:121:GLU:H	5:C:121:GLU:CD	2.22	0.48
3:A:303:G:H2'	3:A:304:G:H8	1.79	0.48
3:A:422:G:H2'	3:A:423:A:C8	2.48	0.48
3:A:1888:U:H2'	3:A:1889:G:C8	2.49	0.48
3:A:2792:A:H4'	3:A:2793:G:OP2	2.13	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:2171:G:N2	3:A:2173:U:O3'	2.47	0.48
3:A:1094:A:O2'	3:A:1095:A:O4'	2.31	0.48
3:A:1825:U:OP2	5:C:274:ARG:NH2	2.47	0.48
3:A:2819:C:H3'	3:A:2820:U:H6	1.79	0.48
12:P:36:ASP:OD1	12:P:36:ASP:N	2.43	0.48
14:S:45:GLN:NE2	14:S:57:LEU:HB2	2.29	0.48
3:A:2827:A:H2'	3:A:2828:U:O4'	2.14	0.48
9:K:54:MET:HB2	9:K:121:ALA:HB2	1.96	0.48
3:A:792:5MU:H4'	25:Q:92:ARG:HH22	1.79	0.47
3:A:2767:A:H2'	3:A:2768:A:C8	2.48	0.47
21:4:11:CYS:HB3	21:4:13:LYS:HG2	1.96	0.47
13:R:43:GLU:HG2	13:R:48:VAL:O	2.14	0.47
13:R:64:ARG:NE	13:R:69:GLN:HG2	2.29	0.47
16:U:19:LYS:O	16:U:22:ARG:NH1	2.47	0.47
18:3:58:VAL:HG23	18:3:58:VAL:O	2.14	0.47
3:A:1072:A:H2'	3:A:1073:A:C8	2.50	0.47
3:A:1823:U:H2'	3:A:1824:C:H6	1.77	0.47
3:A:2128:G:H2'	3:A:2129:C:C6	2.49	0.47
5:C:100:GLU:OE2	5:C:102:ARG:NH2	2.44	0.47
22:D:55:ASP:OD1	22:D:55:ASP:N	2.46	0.47
3:A:830:U:H2'	3:A:831:C:C6	2.49	0.47
3:A:1037:A:H62	3:A:1205:U:H3	1.62	0.47
3:A:1947:C:H2'	3:A:1948:G:C8	2.47	0.47
3:A:65:A:H2'	3:A:66:C:C6	2.49	0.47
3:A:293:U:C2	3:A:294:G:C8	3.01	0.47
3:A:1951:C:H2'	3:A:1952:C:C6	2.49	0.47
4:B:49:G:H2'	4:B:50:A:C8	2.50	0.47
15:T:46:VAL:O	15:T:50:LYS:HG2	2.15	0.47
3:A:287:G:H2'	3:A:288:C:O4'	2.14	0.47
3:A:939:U:P	3:A:940:U:H5	2.37	0.47
3:A:1395:G:H8	3:A:1410:A:H62	1.62	0.47
3:A:1570:G:H2'	3:A:1571:G:C8	2.50	0.47
3:A:2325:A:H3'	3:A:2326:G:H8	1.78	0.47
6:G:35:ARG:HE	6:G:71:LEU:HD13	1.80	0.47
14:S:43:LYS:O	14:S:56:ILE:HA	2.14	0.47
29:L:88:GLU:HA	29:L:91:GLU:HG3	1.95	0.47
3:A:290:U:C2	3:A:291:G:C8	3.03	0.47
3:A:1518:G:O2'	3:A:1519:U:H5'	2.14	0.47
3:A:2778:G:C5	6:G:3:ARG:HD3	2.49	0.47
25:Q:22:ASP:OD1	25:Q:25:ARG:NH2	2.48	0.47
3:A:787:U:H2'	3:A:788:A:C8	2.49	0.47

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:1241:A:H2'	3:A:1242:A:C8	2.50	0.47
3:A:1873:G:H2'	3:A:1874:A:C8	2.49	0.47
4:B:106:G:H2'	4:B:107:U:C6	2.49	0.47
10:M:72:LEU:HA	10:M:75:LYS:HG2	1.96	0.47
3:A:1757:U:H2'	3:A:1758:A:O4'	2.15	0.47
3:A:1884:G:H21	3:A:1912:A:N6	2.08	0.47
3:A:2858:G:N2	3:A:2859:G:O6	2.48	0.47
11:O:98:ILE:HG12	12:P:2:PHE:HZ	1.79	0.47
3:A:460:C:H2'	3:A:461:A:C8	2.50	0.46
3:A:1450:A:H2'	3:A:1451:U:C6	2.49	0.46
3:A:1491:C:O2'	3:A:1492:G:H8	1.98	0.46
8:J:78:ASN:H	8:J:81:GLN:NE2	2.13	0.46
24:I:4:GLN:HG2	24:I:5:GLU:HG2	1.96	0.46
6:G:163:ARG:HG2	6:G:164:TYR:O	2.15	0.46
8:J:90:GLU:HA	8:J:122:THR:HG23	1.97	0.46
29:L:50:LEU:HD12	29:L:58:SER:HB2	1.98	0.46
3:A:2155:C:H2'	3:A:2156:C:H6	1.79	0.46
3:A:2189:G:N2	3:A:2190:C:H41	2.13	0.46
3:A:2249:G:H2'	3:A:2250:A:O4'	2.15	0.46
24:I:115:VAL:HG13	24:I:121:VAL:HG21	1.98	0.46
3:A:460:C:H2'	3:A:461:A:H8	1.80	0.46
3:A:2676:U:H2'	3:A:2677:C:C6	2.51	0.46
3:A:1504:U:OP2	3:A:1504:U:H3'	2.16	0.46
4:B:42:G:N3	4:B:45:C:N4	2.55	0.46
1:N:90:ARG:HD3	1:N:114:GLU:OE2	2.14	0.46
3:A:1449:A:C8	3:A:1450:A:N6	2.83	0.46
3:A:943:C:H2'	3:A:944:G:H8	1.79	0.46
3:A:2784:A:N1	6:G:67:THR:HG21	2.31	0.46
3:A:275:A:N6	3:A:296:G:H21	2.07	0.46
4:B:106:G:H2'	4:B:107:U:H6	1.81	0.46
11:O:91:ASN:O	11:O:95:LEU:HB2	2.15	0.46
3:A:281:A:H2'	3:A:282:A:H8	1.79	0.46
3:A:878:C:H2'	3:A:879:U:C6	2.50	0.46
3:A:1238:U:H1'	11:O:4:VAL:HG22	1.98	0.46
3:A:1561:G:H8	3:A:1562:C:C6	2.34	0.46
3:A:1617:A:H2'	3:A:1618:A:C8	2.51	0.46
3:A:1902:G:N2	3:A:1903:A:H1'	2.28	0.46
3:A:2858:G:H5''	3:A:2859:G:OP1	2.15	0.46
4:B:31:G:H2'	4:B:32:U:C6	2.51	0.46
10:M:89:ILE:C	10:M:90:LYS:HD2	2.40	0.46
3:A:2177:U:H2'	3:A:2178:U:O4'	2.16	0.45

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:G:121:ILE:HD11	6:G:140:GLN:HG2	1.98	0.45
3:A:505:U:H2'	3:A:506:A:H5''	1.98	0.45
3:A:1457:U:O4	3:A:1458:A:N6	2.49	0.45
3:A:1491:C:O2'	3:A:1492:G:O5'	2.30	0.45
25:Q:28:ASN:HA	25:Q:70:VAL:HA	1.98	0.45
2:E:146:LEU:O	2:E:146:LEU:HD12	2.17	0.45
3:A:925:G:H2'	3:A:926:G:O4'	2.17	0.45
3:A:331:G:H1	3:A:395:U:H3	1.64	0.45
3:A:756:A:H2'	3:A:757:G:O4'	2.16	0.45
3:A:1395:G:C2	3:A:1408:G:N7	2.85	0.45
24:I:35:ILE:HD11	24:I:65:THR:H	1.82	0.45
3:A:289:U:H2'	3:A:290:U:H6	1.81	0.45
3:A:304:G:N7	3:A:410:G:N2	2.46	0.45
3:A:926:G:O6	3:A:938:G:H5''	2.16	0.45
3:A:1475:A:N6	3:A:1606:C:O2	2.50	0.45
3:A:2147:G:N3	3:A:2206:C:N4	2.60	0.45
3:A:2346:U:H5'	3:A:2348:G:O6	2.16	0.45
19:1:9:CYS:HB3	19:1:12:CYS:HB2	1.87	0.45
3:A:942:C:H2'	3:A:943:C:C6	2.52	0.45
3:A:1631:G:O3'	3:A:1632:A:H8	2.00	0.45
3:A:2858:G:O2'	3:A:2859:G:C8	2.62	0.45
29:L:96:ARG:HA	29:L:96:ARG:HD2	1.80	0.45
3:A:805:G:H2'	3:A:806:A:O4'	2.17	0.45
4:B:27:A:H2'	4:B:28:C:H6	1.80	0.45
4:B:58:C:C2	4:B:59:U:C5	3.05	0.45
2:E:49:HIS:ND1	2:E:92:PRO:HB2	2.32	0.45
2:E:146:LEU:O	2:E:148:GLN:HG2	2.17	0.45
3:A:2321:C:OP1	10:M:96:ARG:NH1	2.42	0.45
3:A:2354:A:H2'	3:A:2355:A:C8	2.52	0.45
4:B:49:G:C6	4:B:50:A:C6	3.04	0.45
11:O:105:ALA:HB1	12:P:40:PHE:HZ	1.80	0.45
3:A:2495:A:HO2'	3:A:2496:A:P	2.40	0.44
3:A:2581:U:H2'	3:A:2582:U:C6	2.52	0.44
4:B:71:A:N7	4:B:100:U:H5	2.15	0.44
6:G:67:THR:O	6:G:71:LEU:HG	2.17	0.44
7:H:76:TYR:HA	7:H:86:LYS:O	2.17	0.44
15:T:44:ASP:OD2	15:T:47:GLU:HG3	2.17	0.44
17:W:48:LYS:HD3	17:W:48:LYS:HA	1.70	0.44
27:X:12:VAL:CG2	27:X:20:ARG:HG2	2.47	0.44
29:L:18:ARG:HG2	29:L:65:THR:HG23	1.97	0.44
3:A:986:G:O2'	3:A:1228:A:H8	2.00	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:1455:U:H1'	3:A:1457:U:C4	2.53	0.44
3:A:2259:C:OP2	26:V:27:ARG:NH2	2.49	0.44
7:H:43:VAL:HG23	7:H:44:THR:HG23	1.98	0.44
3:A:637:U:H2'	3:A:638:U:C6	2.52	0.44
3:A:1455:U:H1'	3:A:1457:U:O4	2.17	0.44
3:A:1945:A:N3	3:A:1945:A:H2'	2.33	0.44
2:E:13:LYS:HG2	2:E:14:SER:O	2.17	0.44
3:A:282:A:H2'	3:A:283:G:C8	2.52	0.44
3:A:294:G:H2'	3:A:295:G:C8	2.52	0.44
3:A:2326:G:H2'	3:A:2327:A:C8	2.52	0.44
3:A:2331:G:N2	3:A:2334:G:H22	2.16	0.44
3:A:2580:G:C2	3:A:2610:G:H1'	2.52	0.44
5:C:69:ARG:O	5:C:189:ARG:NH1	2.50	0.44
3:A:215:G:H2'	3:A:216:A:O4'	2.18	0.44
3:A:307:A:H2'	3:A:308:C:C6	2.52	0.44
3:A:942:C:H2'	3:A:943:C:H6	1.83	0.44
3:A:2774:G:O2'	6:G:67:THR:HG22	2.17	0.44
4:B:73:G:O2'	15:T:88:HIS:HE1	2.00	0.44
9:K:43:THR:O	9:K:44:SER:HB3	2.16	0.44
3:A:901:G:H2'	3:A:902:A:C8	2.53	0.44
18:3:59:LYS:HB3	18:3:59:LYS:HE2	1.75	0.44
3:A:1057:A:O2'	3:A:1058:U:H6	2.00	0.44
3:A:1875:A:HO2'	3:A:1876:G:H8	1.65	0.44
3:A:1501:G:H2'	3:A:1502:A:C8	2.53	0.44
3:A:1758:A:H1'	3:A:1772:G:N1	2.33	0.44
3:A:2183:G:H2'	3:A:2184:G:O4'	2.18	0.44
3:A:2820:U:O2'	3:A:2823:G:O6	2.30	0.44
4:B:27:A:OP2	10:M:36:SER:OG	2.36	0.44
6:G:119:GLU:O	6:G:121:ILE:HG12	2.17	0.44
8:J:23:VAL:CG2	12:P:81:ASN:HB3	2.48	0.44
3:A:409:G:H2'	3:A:410:G:H5'	1.99	0.43
3:A:766:G:H2'	3:A:767:A:C8	2.53	0.43
3:A:809:A:H61	3:A:1816:A:H8	1.66	0.43
3:A:1526:G:H1'	3:A:1553:A:N1	2.33	0.43
3:A:2334:G:O2'	3:A:2337:A:OP2	2.26	0.43
2:E:66:LYS:HB2	2:E:66:LYS:HE3	1.69	0.43
3:A:877:G:H2'	3:A:878:C:C6	2.53	0.43
4:B:40:C:H2'	4:B:41:C:C6	2.53	0.43
15:T:12:LYS:HD2	15:T:12:LYS:HA	1.70	0.43
3:A:436:A:H1'	3:A:437:A:C8	2.54	0.43
3:A:1758:A:N1	3:A:1766:C:O2'	2.41	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:B:45:C:C2	4:B:46:A:C8	3.07	0.43
4:B:48:A:OP1	10:M:70:VAL:HG23	2.18	0.43
6:G:144:LEU:O	6:G:148:ILE:HG23	2.18	0.43
14:S:94:ALA:C	14:S:96:LYS:H	2.26	0.43
27:X:6:ILE:HD12	27:X:56:VAL:HG22	2.01	0.43
3:A:310:C:C4	3:A:311:U:C4	3.06	0.43
3:A:684:U:H2'	3:A:685:C:H6	1.81	0.43
3:A:1089:C:OP1	3:A:1091:G:O2'	2.35	0.43
3:A:1680:U:H2'	3:A:1681:U:C6	2.54	0.43
3:A:1816:A:H2'	3:A:1817:C:O4'	2.19	0.43
4:B:37:A:H2'	4:B:38:U:C6	2.54	0.43
6:G:12:PRO:HD3	6:G:49:THR:HA	2.00	0.43
6:G:26:VAL:O	6:G:32:GLU:N	2.51	0.43
23:F:93:GLY:O	23:F:97:TYR:N	2.43	0.43
3:A:273:A:OP2	3:A:297:G:N1	2.41	0.43
3:A:766:G:H2'	3:A:767:A:H8	1.84	0.43
24:I:7:ARG:HB3	24:I:18:GLU:OE2	2.18	0.43
3:A:774:G:H1'	3:A:809:A:OP1	2.19	0.43
3:A:1013:U:H2'	3:A:1014:U:C6	2.54	0.43
3:A:1496:G:N7	3:A:1502:A:N1	2.67	0.43
3:A:1588:U:H2'	3:A:1589:U:O4'	2.19	0.43
3:A:1625:U:H2'	3:A:1626:A:C8	2.53	0.43
3:A:2343:U:H2'	3:A:2344:C:H6	1.82	0.43
4:B:46:A:H2'	4:B:47:C:C6	2.54	0.43
5:C:77:LYS:HZ3	5:C:113:GLY:HA2	1.84	0.43
7:H:60:ALA:HB3	7:H:126:TYR:O	2.19	0.43
11:O:88:ILE:HG22	11:O:90:ILE:HG13	2.00	0.43
3:A:65:A:H2'	3:A:66:C:H6	1.84	0.43
3:A:287:G:O5'	3:A:287:G:H8	2.01	0.43
3:A:1091:G:O2'	3:A:1155:A:N6	2.51	0.43
11:O:58:ARG:HA	11:O:61:TRP:CE3	2.53	0.43
11:O:88:ILE:H	11:O:88:ILE:HG12	1.55	0.43
3:A:620:G:O2'	3:A:1292:A:OP1	2.37	0.43
3:A:297:G:H2'	3:A:298:U:C6	2.53	0.43
2:E:21:ASP:HA	2:E:24:PHE:O	2.18	0.43
3:A:904:G:O2'	3:A:961:G:O6	2.31	0.43
3:A:1578:A:HO2'	3:A:1579:C:C4'	2.32	0.43
3:A:1882:G:H2'	3:A:1883:A:H8	1.84	0.43
3:A:2048:G:H2'	3:A:2048:G:N3	2.34	0.43
3:A:2142:G:H2'	3:A:2143:G:H8	1.84	0.43
3:A:2332:U:C2	23:F:151:GLY:HA3	2.54	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:Q:2:GLU:HG2	25:Q:108:SER:HB3	2.01	0.43
3:A:1477:U:H2'	3:A:1478:A:C8	2.54	0.42
3:A:1911:A:C2	3:A:1912:A:C8	3.07	0.42
4:B:37:A:H2	4:B:42:G:C4	2.37	0.42
22:D:55:ASP:HA	22:D:84:PRO:O	2.19	0.42
28:Z:42:VAL:HG12	29:L:105:LYS:O	2.19	0.42
3:A:1017:A:H5''	12:P:80:LYS:HD2	2.01	0.42
3:A:1525:U:C2	3:A:1551:U:H5'	2.54	0.42
3:A:1637:A:H2'	3:A:1638:G:O4'	2.18	0.42
3:A:2448:G:H2'	3:A:2449:C:C6	2.54	0.42
4:B:2:C:H2'	4:B:3:U:C6	2.55	0.42
4:B:12:U:OP2	4:B:68:U:O2'	2.36	0.42
15:T:25:GLY:O	15:T:45:GLU:N	2.47	0.42
2:E:10:ASP:OD1	2:E:10:ASP:N	2.49	0.42
3:A:579:U:O2'	11:O:49:ASP:OD2	2.23	0.42
3:A:745:G:O2'	3:A:1676:A:N3	2.46	0.42
3:A:1089:C:N4	3:A:1155:A:O2'	2.51	0.42
3:A:2819:C:H3'	3:A:2820:U:C6	2.54	0.42
21:4:30:PRO:O	21:4:33:LYS:HG2	2.19	0.42
3:A:422:G:H2'	3:A:423:A:H8	1.84	0.42
3:A:808:G:H3'	3:A:808:G:C8	2.54	0.42
3:A:1577:G:H2'	3:A:1578:A:C2	2.55	0.42
4:B:2:C:N3	4:B:114:G:N2	2.68	0.42
8:J:23:VAL:HG21	12:P:81:ASN:HB3	2.02	0.42
22:D:169:MET:HE3	22:D:169:MET:HB3	1.67	0.42
24:I:98:ILE:HD12	24:I:117:LEU:HB2	2.01	0.42
3:A:525:A:N3	3:A:527:G:H5''	2.34	0.42
3:A:1562:C:H2'	3:A:1563:U:C6	2.54	0.42
3:A:2825:U:H2'	3:A:2826:U:O4'	2.19	0.42
4:B:59:U:H2'	4:B:60:C:H6	1.84	0.42
6:G:152:ARG:HA	6:G:152:ARG:HD3	1.83	0.42
3:A:986:G:HO2'	3:A:1228:A:H8	1.66	0.42
5:C:168:GLU:N	5:C:168:GLU:OE1	2.52	0.42
10:M:19:ARG:HE	10:M:30:ARG:CZ	2.32	0.42
2:E:183:VAL:O	2:E:187:THR:HG23	2.20	0.42
3:A:291:G:H2'	3:A:292:U:C6	2.55	0.42
3:A:1876:G:H2'	3:A:1877:G:O4'	2.20	0.42
5:C:4:LYS:HG2	5:C:18:SER:O	2.20	0.42
3:A:292:U:H2'	3:A:293:U:H6	1.83	0.42
3:A:946:A:H2'	3:A:947:U:C6	2.55	0.42
3:A:1194:U:O2'	3:A:1195:A:H5''	2.20	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:1550:G:H5'	3:A:1552:U:H5	1.85	0.42
3:A:2318:U:H2'	3:A:2319:U:H6	1.83	0.42
7:H:3:GLN:HE22	12:P:13:LYS:H	1.68	0.42
3:A:1487:G:H1	3:A:1596:G:N2	2.16	0.42
3:A:2626:G:OP2	5:C:235:GLY:HA2	2.20	0.42
3:A:2916:U:H2'	3:A:2917:U:C6	2.54	0.42
22:D:99:TYR:HA	22:D:103:GLN:OE1	2.20	0.42
26:V:40:VAL:HG12	26:V:41:ASP:OD1	2.20	0.42
3:A:3:U:H2'	3:A:4:U:C6	2.55	0.41
3:A:304:G:C4	3:A:305:A:C8	3.08	0.41
3:A:2342:U:H2'	3:A:2343:U:C6	2.55	0.41
4:B:47:C:H2'	4:B:48:A:H8	1.84	0.41
5:C:145:GLU:HG2	5:C:151:GLY:C	2.44	0.41
3:A:650:U:C5	3:A:665:G:C5	3.08	0.41
18:3:22:LEU:HD12	18:3:55:MET:SD	2.60	0.41
3:A:576:U:H5	3:A:2045:A:N1	2.19	0.41
3:A:940:U:C2	3:A:941:A:C8	3.07	0.41
3:A:2650:G:O5'	3:A:2845:G:N2	2.52	0.41
22:D:160:ALA:C	22:D:162:ARG:H	2.28	0.41
3:A:872:U:O2'	3:A:2095:U:C2	2.64	0.41
3:A:1301:U:C4	3:A:1302:G:C6	3.08	0.41
3:A:1457:U:H2'	3:A:1458:A:O4'	2.20	0.41
3:A:1909:C:H2'	3:A:1910:G:O4'	2.20	0.41
3:A:418:G:O2'	3:A:446:G:O6	2.31	0.41
3:A:1151:G:H2'	3:A:1152:U:H6	1.84	0.41
3:A:1465:G:C2	3:A:1466:G:C8	3.08	0.41
3:A:1504:U:O2'	3:A:1505:G:OP2	2.37	0.41
3:A:1579:C:H2'	3:A:1581:U:O2	2.20	0.41
3:A:2107:G:H5'	26:V:19:SER:HB2	2.02	0.41
3:A:2158:U:H5''	3:A:2160:G:N7	2.35	0.41
4:B:64:A:N6	4:B:104:A:H2'	2.35	0.41
13:R:14:GLU:H	13:R:14:GLU:HG2	1.65	0.41
24:I:65:THR:O	24:I:79:PHE:HB2	2.21	0.41
3:A:1490:G:O5'	3:A:1490:G:C8	2.73	0.41
3:A:1526:G:H2'	3:A:1527:A:C8	2.55	0.41
3:A:1904:A:C5	3:A:1905:G:C8	3.09	0.41
3:A:2300:A:H2'	3:A:2301:A:C8	2.55	0.41
3:A:2803:A:H4'	3:A:2804:G:H5''	2.03	0.41
4:B:47:C:H2'	4:B:48:A:C8	2.56	0.41
22:D:191:GLU:H	22:D:191:GLU:CD	2.27	0.41
3:A:1555:G:H2'	3:A:1557:C:H5	1.84	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:B:46:A:H2'	4:B:47:C:H6	1.85	0.41
3:A:1515:G:N2	3:A:1565:U:H3	1.98	0.41
3:A:2200:A:H3'	3:A:2201:C:C6	2.56	0.41
3:A:2499:G:N2	3:A:2505:A:H62	2.19	0.41
6:G:8:ILE:HA	6:G:69:ARG:HE	1.86	0.41
7:H:12:ILE:HD13	7:H:50:ASP:O	2.21	0.41
7:H:24:GLN:HE21	7:H:24:GLN:HB3	1.73	0.41
15:T:4:LEU:HD12	15:T:4:LEU:HA	1.82	0.41
3:A:1090:A:H5''	3:A:1091:G:C8	2.56	0.41
3:A:1212:U:H2'	3:A:1213:C:C6	2.56	0.41
3:A:1821:U:H2'	3:A:1822:C:C6	2.56	0.41
3:A:1912:A:H2'	3:A:1913:U:O4'	2.21	0.41
3:A:2334:G:H3'	3:A:2335:G:H4'	2.03	0.41
3:A:2335:G:H2'	3:A:2337:A:H62	1.86	0.41
3:A:2705:U:O2'	3:A:2706:A:C8	2.73	0.41
8:J:55:LEU:HD23	8:J:60:ARG:HB3	2.03	0.41
10:M:38:LYS:HA	10:M:38:LYS:HD2	1.94	0.41
13:R:62:LYS:HG2	13:R:71:TYR:CE2	2.56	0.41
17:W:2:LYS:HB3	17:W:2:LYS:HE3	1.78	0.41
22:D:108:ASP:OD1	22:D:108:ASP:N	2.48	0.41
24:I:111:PHE:O	24:I:115:VAL:HG23	2.21	0.41
27:X:23:VAL:HG23	27:X:50:VAL:HG21	2.03	0.41
2:E:132:GLU:H	2:E:132:GLU:CD	2.26	0.41
3:A:1569:G:H5''	3:A:1570:G:C8	2.56	0.41
3:A:1573:A:N6	3:A:1592:A:H62	2.18	0.41
3:A:1627:G:H2'	3:A:1628:A:H8	1.85	0.41
3:A:1876:G:H2'	3:A:1877:G:C8	2.55	0.41
3:A:2202:U:H2'	3:A:2203:A:H8	1.85	0.41
6:G:27:LYS:HE2	6:G:27:LYS:HB2	1.95	0.41
8:J:20:GLY:HA2	8:J:28:GLY:O	2.21	0.41
26:V:40:VAL:O	26:V:41:ASP:C	2.63	0.41
3:A:303:G:H2'	3:A:304:G:C8	2.56	0.40
3:A:1082:C:H42	3:A:1161:A:H61	1.69	0.40
3:A:1357:G:C2	3:A:1366:U:H5''	2.55	0.40
3:A:1950:U:H2'	3:A:1951:C:C6	2.56	0.40
3:A:2144:A:H2'	3:A:2176:C:H5'	2.03	0.40
7:H:19:ILE:HD13	7:H:141:TYR:HB3	2.03	0.40
15:T:49:ILE:HA	15:T:52:ILE:HG22	2.03	0.40
3:A:291:G:H2'	3:A:292:U:H6	1.87	0.40
3:A:922:G:C2	3:A:923:A:C5	3.08	0.40
3:A:1582:U:O2'	3:A:1585:G:O6	2.36	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:G:104:ILE:HA	6:G:113:VAL:O	2.21	0.40
7:H:15:LYS:O	7:H:53:ASP:HB3	2.21	0.40
8:J:93:PRO:HD3	8:J:124:LYS:O	2.21	0.40
9:K:44:SER:HB2	9:K:70:PRO:HG3	2.02	0.40
1:N:99:LEU:HB3	1:N:102:LEU:HD23	2.02	0.40
3:A:78:U:H2'	3:A:79:U:C6	2.56	0.40
3:A:992:A:H1'	3:A:1028:G:C8	2.56	0.40
3:A:1216:U:C2'	3:A:1217:U:H5'	2.51	0.40
3:A:1453:G:C4'	3:A:1631:G:H22	2.33	0.40
3:A:1478:A:H61	3:A:1605:A:H61	1.69	0.40
3:A:1759:G:N7	3:A:1761:G:N2	2.69	0.40
3:A:2078:A:H4'	22:D:154:VAL:HG22	2.03	0.40
3:A:2212:G:H2'	3:A:2213:U:C6	2.56	0.40
4:B:1:U:H3	4:B:114:G:H1	1.69	0.40
7:H:103:GLU:HG2	7:H:107:LYS:HE2	2.02	0.40
10:M:32:ASN:OD1	10:M:33:VAL:N	2.54	0.40
14:S:95:LYS:HA	14:S:95:LYS:HD2	1.91	0.40
3:A:410:G:O2'	3:A:411:A:N7	2.45	0.40
3:A:1350:U:H5	3:A:1647:A:N1	2.19	0.40
3:A:1452:C:H2'	3:A:1453:G:C2	2.56	0.40
3:A:2331:G:N2	3:A:2339:U:H3	2.17	0.40
9:K:67:LYS:HB3	9:K:67:LYS:HE2	1.78	0.40
10:M:79:ALA:O	10:M:82:LYS:HG2	2.22	0.40
14:S:57:LEU:HD12	14:S:58:GLU:H	1.87	0.40
26:V:35:LYS:HE3	26:V:46:LYS:HG2	2.04	0.40
3:A:324:A:H2'	3:A:325:A:O4'	2.22	0.40
3:A:1039:C:C5	7:H:2:ARG:HG2	2.56	0.40
3:A:1585:G:H5'	3:A:1586:U:C5	2.56	0.40
3:A:1882:G:H2'	3:A:1883:A:C8	2.57	0.40
3:A:1913:U:H2'	3:A:1914:C:C6	2.56	0.40
3:A:2128:G:O6	3:A:2215:U:O4	2.40	0.40
3:A:2146:A:H1'	3:A:2199:U:C2	2.57	0.40
3:A:2707:C:OP1	22:D:123:LYS:HG2	2.21	0.40
5:C:227:PRO:HA	5:C:233:GLY:HA3	2.04	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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	N	112/114 (98%)	106 (95%)	6 (5%)	0	100	100
2	E	204/206 (99%)	197 (97%)	7 (3%)	0	100	100
5	C	272/274 (99%)	259 (95%)	13 (5%)	0	100	100
6	G	173/175 (99%)	155 (90%)	18 (10%)	0	100	100
7	H	143/145 (99%)	124 (87%)	18 (13%)	1 (1%)	19	32
8	J	144/146 (99%)	135 (94%)	8 (6%)	1 (1%)	19	32
9	K	135/137 (98%)	126 (93%)	9 (7%)	0	100	100
10	M	117/119 (98%)	104 (89%)	12 (10%)	1 (1%)	14	26
11	O	114/116 (98%)	111 (97%)	3 (3%)	0	100	100
12	P	100/102 (98%)	92 (92%)	7 (7%)	1 (1%)	13	23
13	R	87/89 (98%)	80 (92%)	7 (8%)	0	100	100
14	S	96/104 (92%)	81 (84%)	15 (16%)	0	100	100
15	T	92/94 (98%)	87 (95%)	5 (5%)	0	100	100
16	U	77/79 (98%)	73 (95%)	4 (5%)	0	100	100
17	W	65/67 (97%)	61 (94%)	4 (6%)	0	100	100
18	3	62/64 (97%)	58 (94%)	4 (6%)	0	100	100
19	1	45/47 (96%)	44 (98%)	1 (2%)	0	100	100
20	2	41/43 (95%)	39 (95%)	2 (5%)	0	100	100
21	4	35/37 (95%)	35 (100%)	0	0	100	100
22	D	213/215 (99%)	179 (84%)	27 (13%)	7 (3%)	3	4
23	F	156/158 (99%)	141 (90%)	15 (10%)	0	100	100
24	I	120/122 (98%)	107 (89%)	13 (11%)	0	100	100
25	Q	110/112 (98%)	107 (97%)	3 (3%)	0	100	100
26	V	47/49 (96%)	45 (96%)	2 (4%)	0	100	100
27	X	56/58 (97%)	55 (98%)	1 (2%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
28	Z	46/48 (96%)	43 (94%)	3 (6%)	0	100	100
29	L	118/120 (98%)	106 (90%)	11 (9%)	1 (1%)	16	29
All	All	2980/3040 (98%)	2750 (92%)	218 (7%)	12 (0%)	32	47

All (12) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
22	D	130	ALA
29	L	67	ARG
22	D	158	SER
22	D	164	PHE
8	J	36	LYS
22	D	143	HIS
7	H	77	ARG
10	M	68	THR
22	D	172	ARG
12	P	51	PRO
22	D	171	GLY
22	D	124	GLY

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	N	93/100 (93%)	93 (100%)	0	100	100
2	E	168/168 (100%)	168 (100%)	0	100	100
5	C	221/221 (100%)	221 (100%)	0	100	100
6	G	124/153 (81%)	123 (99%)	1 (1%)	79	90
7	H	123/123 (100%)	122 (99%)	1 (1%)	79	90
8	J	109/112 (97%)	109 (100%)	0	100	100
9	K	108/114 (95%)	108 (100%)	0	100	100
10	M	83/95 (87%)	83 (100%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
11	O	96/96 (100%)	95 (99%)	1 (1%)	73	87
12	P	84/86 (98%)	83 (99%)	1 (1%)	67	84
13	R	78/80 (98%)	78 (100%)	0	100	100
14	S	81/89 (91%)	80 (99%)	1 (1%)	67	84
15	T	78/82 (95%)	78 (100%)	0	100	100
16	U	59/62 (95%)	59 (100%)	0	100	100
17	W	58/60 (97%)	58 (100%)	0	100	100
18	3	55/55 (100%)	55 (100%)	0	100	100
19	1	44/45 (98%)	44 (100%)	0	100	100
20	2	39/39 (100%)	39 (100%)	0	100	100
21	4	35/35 (100%)	35 (100%)	0	100	100
22	D	173/173 (100%)	166 (96%)	7 (4%)	27	48
24	I	100/100 (100%)	98 (98%)	2 (2%)	50	73
25	Q	89/91 (98%)	89 (100%)	0	100	100
26	V	39/41 (95%)	39 (100%)	0	100	100
27	X	52/52 (100%)	52 (100%)	0	100	100
28	Z	35/44 (80%)	35 (100%)	0	100	100
29	L	94/101 (93%)	93 (99%)	1 (1%)	70	86
All	All	2318/2417 (96%)	2303 (99%)	15 (1%)	82	93

All (15) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
6	G	175	LYS
7	H	37	LEU
11	O	88	ILE
12	P	52	THR
14	S	68	VAL
22	D	25	VAL
22	D	107	VAL
22	D	125	LYS
22	D	133	ARG
22	D	159	ASP
22	D	169	MET
22	D	173	MET
24	I	2	ILE

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
24	I	122	LEU
29	L	122	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (41) such sidechains are listed below:

Mol	Chain	Res	Type
1	N	4	HIS
2	E	162	ASN
2	E	188	ASN
5	C	86	ASN
5	C	90	ASN
6	G	106	ASN
7	H	24	GLN
7	H	59	ASN
7	H	81	HIS
7	H	136	GLN
8	J	54	GLN
8	J	70	ASN
8	J	81	GLN
8	J	143	HIS
9	K	25	ASN
10	M	15	HIS
10	M	43	GLN
10	M	102	HIS
11	O	38	GLN
11	O	81	ASN
12	P	18	GLN
12	P	63	ASN
12	P	65	GLN
13	R	54	ASN
14	S	44	HIS
14	S	76	ASN
15	T	88	HIS
18	3	40	GLN
18	3	60	GLN
20	2	7	GLN
21	4	34	GLN
22	D	33	ASN
22	D	37	GLN
22	D	47	ASN
22	D	50	GLN
22	D	143	HIS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
24	I	110	ASN
25	Q	60	HIS
25	Q	97	ASN
26	V	16	ASN
28	Z	19	HIS

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
3	A	2823/2923 (96%)	445 (15%)	12 (0%)
4	B	114/115 (99%)	13 (11%)	0
All	All	2937/3038 (96%)	458 (15%)	12 (0%)

All (458) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
3	A	10	A
3	A	28	A
3	A	34	U
3	A	36	G
3	A	43	A
3	A	58	G
3	A	63	U
3	A	64	A
3	A	71	A
3	A	75	G
3	A	90	A
3	A	109	G
3	A	118	A
3	A	119	U
3	A	140	A
3	A	164	A
3	A	177	G
3	A	184	C
3	A	185	A
3	A	199	A
3	A	202	A
3	A	216	A
3	A	218	G
3	A	219	A
3	A	225	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
3	A	231	A
3	A	233	U
3	A	236	A
3	A	242	U
3	A	248	G
3	A	251	G
3	A	255	G
3	A	272	C
3	A	279	A
3	A	285	U
3	A	286	U
3	A	298	U
3	A	302	A
3	A	306	C
3	A	307	A
3	A	310	C
3	A	316	G
3	A	321	U
3	A	324	A
3	A	326	A
3	A	327	G
3	A	328	G
3	A	335	U
3	A	373	A
3	A	389	A
3	A	397	U
3	A	404	U
3	A	432	G
3	A	433	U
3	A	457	G
3	A	463	C
3	A	466	C
3	A	481	C
3	A	486	G
3	A	490	C
3	A	505	U
3	A	506	A
3	A	513	G
3	A	518	A
3	A	527	G
3	A	538	G
3	A	550	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
3	A	553	A
3	A	554	C
3	A	567	G
3	A	575	G
3	A	576	U
3	A	577	A
3	A	583	A
3	A	587	C
3	A	591	A
3	A	592	A
3	A	594	G
3	A	606	G
3	A	616	G
3	A	618	A
3	A	630	G
3	A	646	A
3	A	659	A
3	A	660	A
3	A	666	A
3	A	679	G
3	A	682	A
3	A	690	U
3	A	698	U
3	A	699	U
3	A	713	A
3	A	720	A
3	A	731	U
3	A	745	G
3	A	751	A
3	A	766	G
3	A	775	A
3	A	783	G
3	A	792	5MU
3	A	793	G
3	A	794	A
3	A	797	A
3	A	809	A
3	A	810	A
3	A	820	G
3	A	823	G
3	A	827	A
3	A	829	U

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
3	A	834	A
3	A	835	U
3	A	837	G
3	A	850	G
3	A	857	C
3	A	868	A
3	A	872	U
3	A	891	A
3	A	904	G
3	A	908	A
3	A	911	A
3	A	922	G
3	A	940	U
3	A	955	A
3	A	968	A
3	A	970	U
3	A	971	U
3	A	977	A
3	A	989	A
3	A	990	G
3	A	1005	G
3	A	1018	A
3	A	1019	A
3	A	1027	A
3	A	1037	A
3	A	1040	A
3	A	1053	A
3	A	1056	U
3	A	1057	A
3	A	1058	U
3	A	1059	A
3	A	1060	U
3	A	1061	G
3	A	1070	A
3	A	1077	U
3	A	1079	U
3	A	1083	G
3	A	1088	C
3	A	1089	C
3	A	1090	A
3	A	1091	G
3	A	1094	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
3	A	1095	A
3	A	1154	G
3	A	1155	A
3	A	1156	G
3	A	1163	U
3	A	1166	G
3	A	1172	A
3	A	1174	U
3	A	1176	U
3	A	1178	C
3	A	1179	C
3	A	1186	A
3	A	1187	A
3	A	1190	A
3	A	1191	U
3	A	1192	A
3	A	1193	U
3	A	1194	U
3	A	1196	C
3	A	1216	U
3	A	1217	U
3	A	1220	A
3	A	1258	A
3	A	1288	G
3	A	1291	A
3	A	1294	G
3	A	1300	G
3	A	1309	G
3	A	1310	A
3	A	1312	A
3	A	1320	G
3	A	1321	A
3	A	1326	C
3	A	1337	A
3	A	1338	U
3	A	1339	U
3	A	1344	A
3	A	1350	U
3	A	1358	A
3	A	1378	U
3	A	1382	C
3	A	1389	U

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
3	A	1397	G
3	A	1402	A
3	A	1405	G
3	A	1407	C
3	A	1416	U
3	A	1421	A
3	A	1449	A
3	A	1450	A
3	A	1451	U
3	A	1453	G
3	A	1454	U
3	A	1455	U
3	A	1459	A
3	A	1463	A
3	A	1464	U
3	A	1465	G
3	A	1472	C
3	A	1473	G
3	A	1490	G
3	A	1491	C
3	A	1492	G
3	A	1495	C
3	A	1496	G
3	A	1503	U
3	A	1504	U
3	A	1505	G
3	A	1507	A
3	A	1519	U
3	A	1520	A
3	A	1521	A
3	A	1525	U
3	A	1532	U
3	A	1552	U
3	A	1553	A
3	A	1555	G
3	A	1559	G
3	A	1561	G
3	A	1570	G
3	A	1578	A
3	A	1579	C
3	A	1581	U
3	A	1582	U

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
3	A	1583	G
3	A	1584	U
3	A	1586	U
3	A	1592	A
3	A	1594	U
3	A	1605	A
3	A	1606	C
3	A	1613	G
3	A	1616	A
3	A	1630	A
3	A	1631	G
3	A	1632	A
3	A	1639	G
3	A	1651	C
3	A	1653	A
3	A	1676	A
3	A	1690	A
3	A	1691	G
3	A	1692	C
3	A	1698	A
3	A	1718	G
3	A	1731	G
3	A	1740	G
3	A	1757	U
3	A	1761	G
3	A	1765	A
3	A	1768	C
3	A	1770	C
3	A	1771	A
3	A	1772	G
3	A	1790	G
3	A	1791	G
3	A	1797	G
3	A	1800	A
3	A	1803	G
3	A	1809	C
3	A	1826	G
3	A	1827	C
3	A	1828	U
3	A	1843	U
3	A	1856	A
3	A	1860	C

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
3	A	1893	A
3	A	1894	G
3	A	1898	C
3	A	1903	A
3	A	1904	A
3	A	1909	C
3	A	1918	G
3	A	1933	G
3	A	1938	U
3	A	1945	A
3	A	1946	A
3	A	1956	G
3	A	1957	G
3	A	1963	A
3	A	1965	A
3	A	1982	U
3	A	1992	C
3	A	1994	C
3	A	1996	A
3	A	1997	A
3	A	1998	A
3	A	1999	G
3	A	2003	U
3	A	2014	G
3	A	2018	U
3	A	2020	U
3	A	2050	A
3	A	2054	G
3	A	2058	A
3	A	2059	G
3	A	2060	A
3	A	2065	G
3	A	2070	C
3	A	2078	A
3	A	2082	C
3	A	2083	G
3	A	2087	A
3	A	2088	G
3	A	2089	A
3	A	2096	G
3	A	2107	G
3	A	2120	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
3	A	2138	U
3	A	2139	A
3	A	2143	G
3	A	2145	U
3	A	2146	A
3	A	2147	G
3	A	2153	A
3	A	2158	U
3	A	2160	G
3	A	2165	G
3	A	2172	C
3	A	2173	U
3	A	2185	A
3	A	2186	G
3	A	2190	C
3	A	2193	G
3	A	2194	U
3	A	2195	G
3	A	2196	G
3	A	2198	A
3	A	2210	C
3	A	2225	A
3	A	2230	G
3	A	2231	C
3	A	2238	U
3	A	2239	A
3	A	2247	G
3	A	2252	A
3	A	2265	G
3	A	2266	G
3	A	2295	A
3	A	2306	G
3	A	2310	C
3	A	2314	A
3	A	2321	C
3	A	2332	U
3	A	2334	G
3	A	2335	G
3	A	2346	U
3	A	2347	A
3	A	2352	G
3	A	2362	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
3	A	2374	C
3	A	2377	C
3	A	2378	G
3	A	2388	A
3	A	2396	A
3	A	2410	G
3	A	2412	C
3	A	2417	U
3	A	2427	G
3	A	2429	U
3	A	2433	C
3	A	2456	G
3	A	2457	A
3	A	2460	A
3	A	2461	A
3	A	2462	A
3	A	2468	C
3	A	2474	G
3	A	2475	A
3	A	2496	A
3	A	2500	U
3	A	2503	A
3	A	2505	A
3	A	2528	C
3	A	2529	G
3	A	2530	2MA
3	A	2545	A
3	A	2547	C
3	A	2556	G
3	A	2557	U
3	A	2579	U
3	A	2589	U
3	A	2593	A
3	A	2594	G
3	A	2599	A
3	A	2600	C
3	A	2613	C
3	A	2629	A
3	A	2630	G
3	A	2635	G
3	A	2636	U
3	A	2640	U

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
3	A	2642	U
3	A	2648	G
3	A	2657	G
3	A	2679	U
3	A	2681	A
3	A	2692	A
3	A	2699	U
3	A	2700	G
3	A	2706	A
3	A	2712	G
3	A	2716	U
3	A	2741	G
3	A	2753	U
3	A	2771	G
3	A	2775	A
3	A	2778	G
3	A	2785	A
3	A	2792	A
3	A	2796	C
3	A	2804	G
3	A	2805	A
3	A	2806	U
3	A	2807	G
3	A	2817	A
3	A	2818	A
3	A	2823	G
3	A	2826	U
3	A	2828	U
3	A	2841	A
3	A	2842	G
3	A	2845	G
3	A	2855	A
3	A	2858	G
3	A	2859	G
3	A	2887	G
3	A	2892	G
3	A	2900	C
3	A	2901	U
3	A	2903	A
3	A	2904	U
3	A	2913	G
3	A	2915	C

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
4	B	10	U
4	B	11	A
4	B	23	U
4	B	24	C
4	B	33	U
4	B	39	G
4	B	40	C
4	B	55	A
4	B	61	C
4	B	87	C
4	B	88	G
4	B	106	G
4	B	115	C

All (12) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
3	A	576	U
3	A	793	G
3	A	808	G
3	A	872	U
3	A	1452	C
3	A	2064	A
3	A	2495	A
3	A	2528	C
3	A	2629	A
3	A	2840	A
3	A	2858	G
3	A	2900	C

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

3 non-standard protein/DNA/RNA residues are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	5MU	A	792	3	19,22,23	4.74	7 (36%)	28,32,35	3.81	11 (39%)
3	5MU	A	1966	3	19,22,23	4.75	7 (36%)	28,32,35	3.72	9 (32%)
3	2MA	A	2530	3	19,25,26	3.03	7 (36%)	21,37,40	1.96	4 (19%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	5MU	A	792	3	-	2/7/25/26	0/2/2/2
3	5MU	A	1966	3	-	0/7/25/26	0/2/2/2
3	2MA	A	2530	3	-	2/3/25/26	0/3/3/3

All (21) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	792	5MU	C2-N1	10.82	1.55	1.38
3	A	1966	5MU	C2-N1	10.55	1.55	1.38
3	A	1966	5MU	C6-N1	10.27	1.55	1.38
3	A	792	5MU	C6-N1	10.06	1.55	1.38
3	A	1966	5MU	C4-C5	9.58	1.60	1.44
3	A	792	5MU	C4-C5	9.07	1.59	1.44
3	A	792	5MU	C4-N3	-8.16	1.23	1.38
3	A	1966	5MU	C4-N3	-7.79	1.24	1.38
3	A	2530	2MA	C4-N3	7.72	1.47	1.35
3	A	1966	5MU	C6-C5	6.11	1.44	1.34
3	A	792	5MU	C6-C5	5.89	1.44	1.34
3	A	2530	2MA	C2-N3	5.63	1.44	1.34
3	A	2530	2MA	C2-N1	5.36	1.43	1.34
3	A	2530	2MA	C6-N1	5.23	1.43	1.33
3	A	792	5MU	O4-C4	-3.58	1.16	1.23
3	A	1966	5MU	O4-C4	-3.26	1.17	1.23
3	A	792	5MU	O2-C2	-3.05	1.17	1.23
3	A	1966	5MU	O2-C2	-2.98	1.17	1.23
3	A	2530	2MA	C6-N6	-2.54	1.24	1.34
3	A	2530	2MA	C5-C4	-2.53	1.34	1.40
3	A	2530	2MA	C6-C5	2.51	1.52	1.43

All (24) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	792	5MU	C5-C4-N3	12.67	126.12	115.31
3	A	1966	5MU	C5-C4-N3	12.42	125.91	115.31
3	A	792	5MU	C5-C6-N1	-10.70	112.34	123.34
3	A	1966	5MU	C5-C6-N1	-10.55	112.48	123.34
3	A	792	5MU	O4-C4-C5	-5.79	118.19	124.90
3	A	2530	2MA	C1'-N9-C4	5.45	136.21	126.64
3	A	792	5MU	C4-N3-C2	-5.39	120.37	127.35
3	A	1966	5MU	C4-N3-C2	-5.00	120.87	127.35
3	A	1966	5MU	O4-C4-C5	-4.84	119.29	124.90
3	A	792	5MU	N3-C2-N1	4.69	121.11	114.89
3	A	2530	2MA	C2-N3-C4	4.40	119.10	115.52
3	A	1966	5MU	N3-C2-N1	4.27	120.56	114.89
3	A	1966	5MU	C5M-C5-C6	-4.08	117.40	122.85
3	A	1966	5MU	C5M-C5-C4	3.94	123.10	118.77
3	A	2530	2MA	CM2-C2-N1	3.54	122.69	117.15
3	A	792	5MU	C5M-C5-C6	-3.38	118.34	122.85
3	A	2530	2MA	N3-C2-N1	-3.01	120.24	125.73
3	A	1966	5MU	O4-C4-N3	-2.77	114.80	120.12
3	A	792	5MU	C5M-C5-C4	2.67	121.71	118.77
3	A	1966	5MU	O2-C2-N1	-2.48	119.50	122.79
3	A	792	5MU	O2-C2-N1	-2.36	119.64	122.79
3	A	792	5MU	O4-C4-N3	-2.31	115.68	120.12
3	A	792	5MU	C6-C5-C4	2.30	119.95	118.03
3	A	792	5MU	C1'-N1-C2	2.11	121.40	117.57

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	792	5MU	C3'-C4'-C5'-O5'
3	A	792	5MU	O4'-C4'-C5'-O5'
3	A	2530	2MA	O4'-C4'-C5'-O5'
3	A	2530	2MA	C3'-C4'-C5'-O5'

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	792	5MU	1	0

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 1 ligands modelled in this entry, 1 is monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

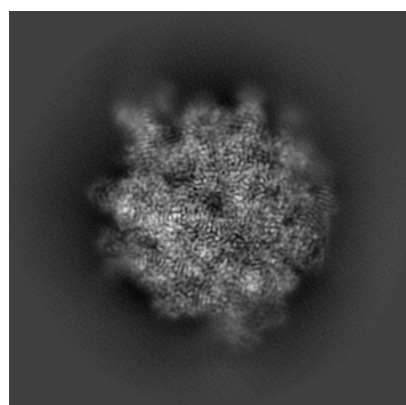
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-11900. These allow visual inspection of the internal detail of the map and identification of artifacts.

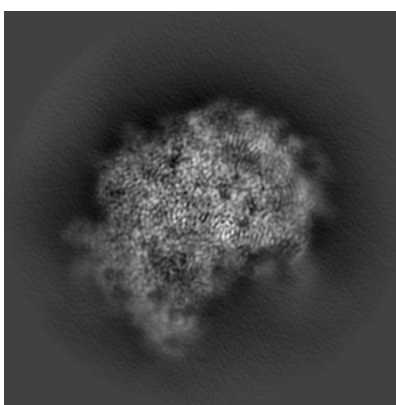
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

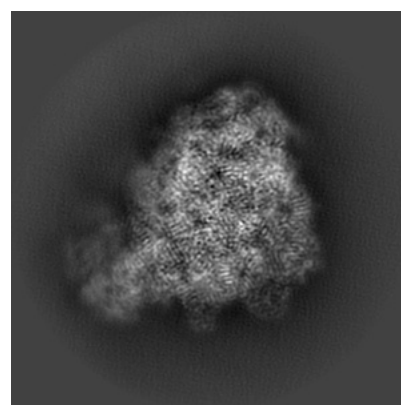
6.1.1 Primary map



X



Y

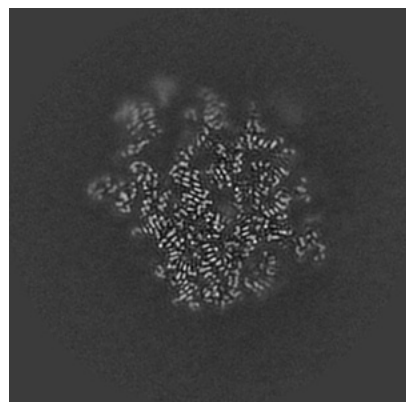


Z

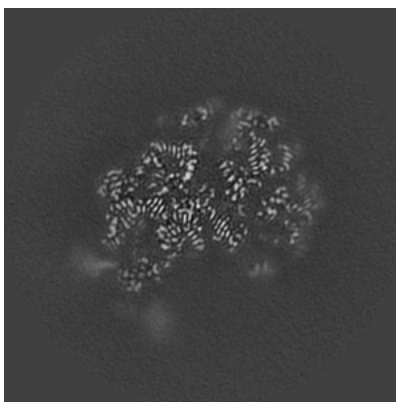
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

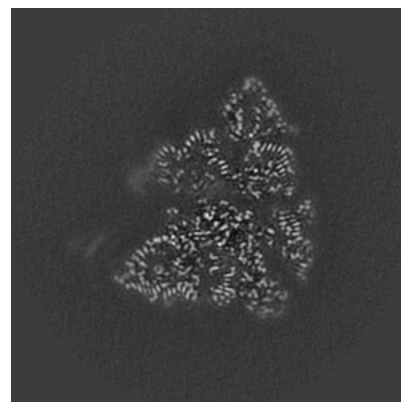
6.2.1 Primary map



X Index: 180



Y Index: 180

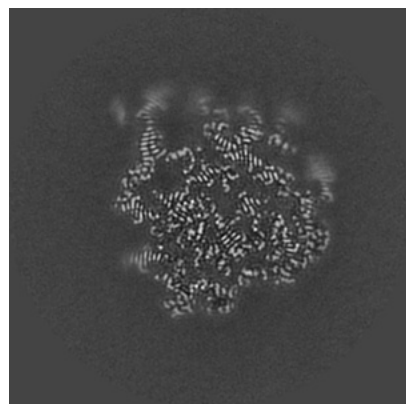


Z Index: 180

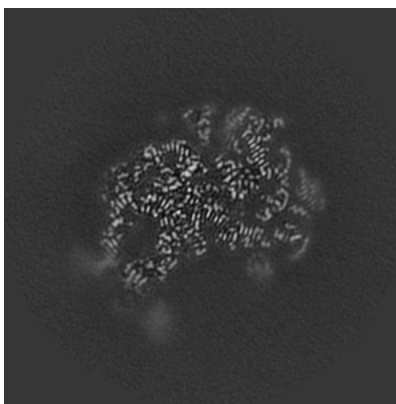
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

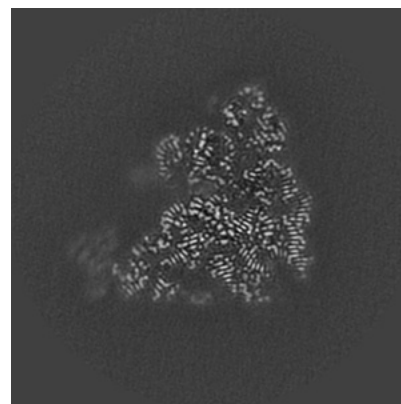
6.3.1 Primary map



X Index: 193



Y Index: 176

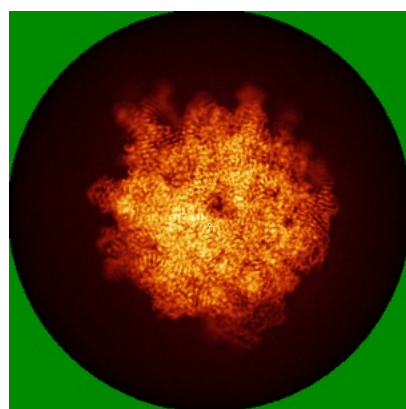


Z Index: 173

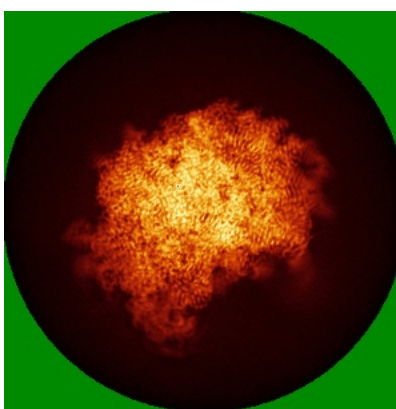
The images above show the largest variance slices of the map in three orthogonal directions.

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

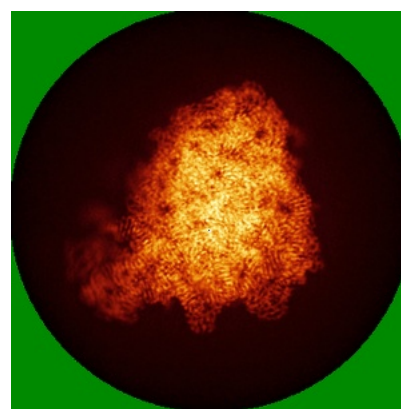
6.4.1 Primary map



X



Y

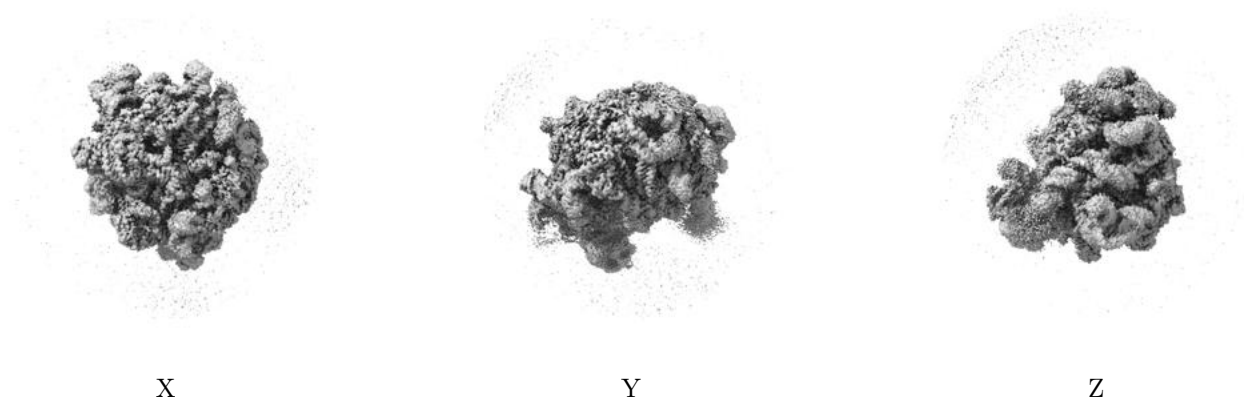


Z

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

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.0037. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

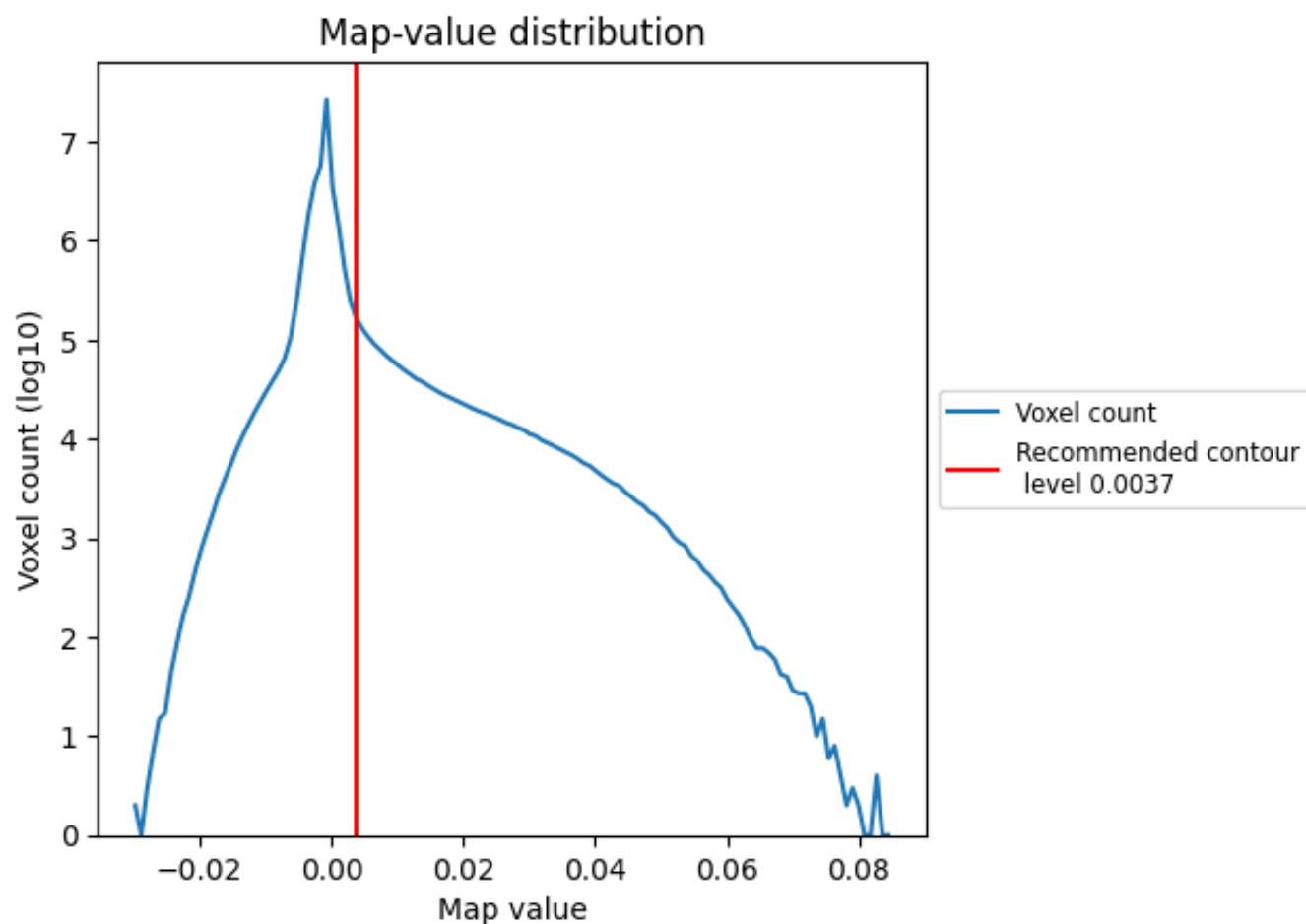
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

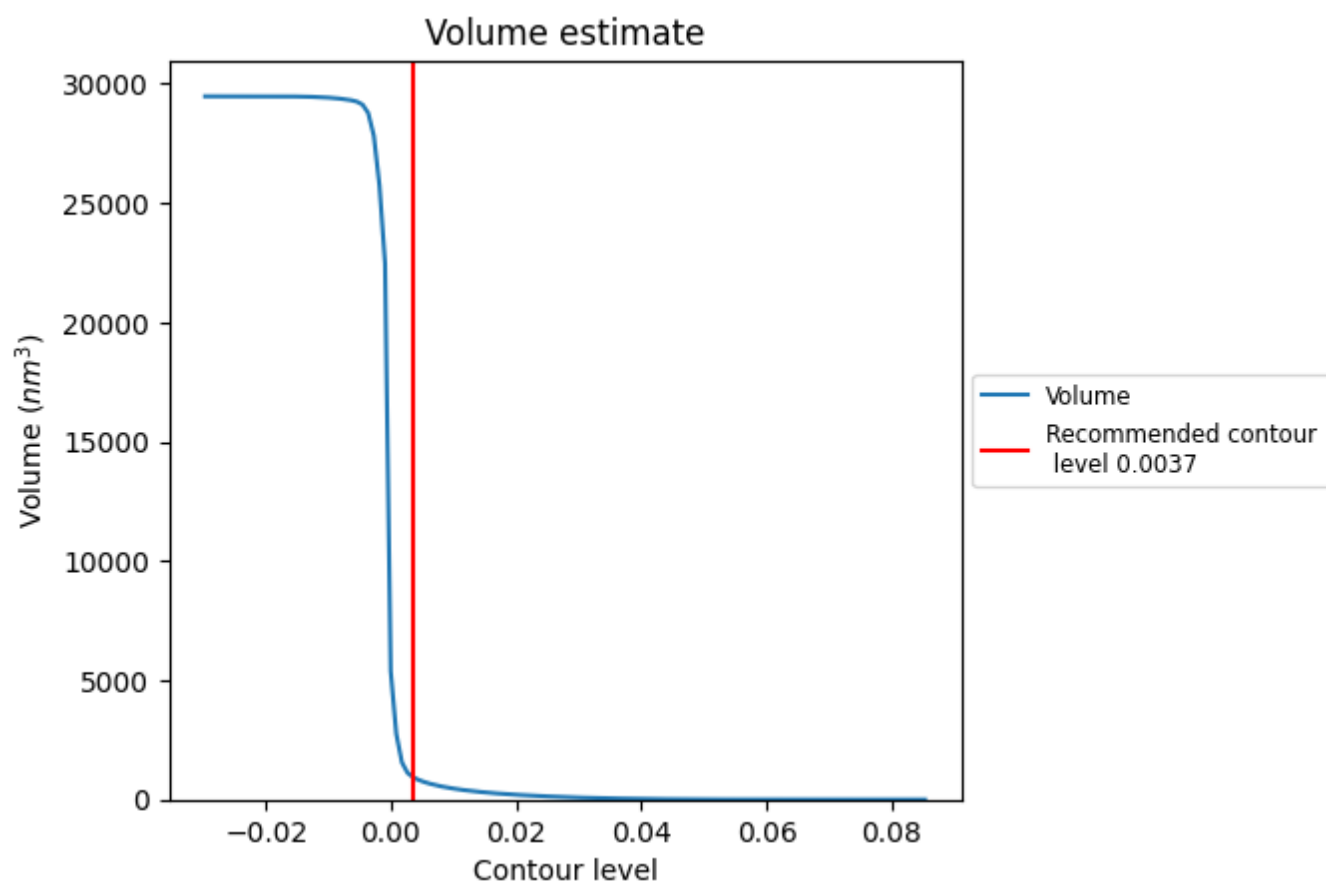
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

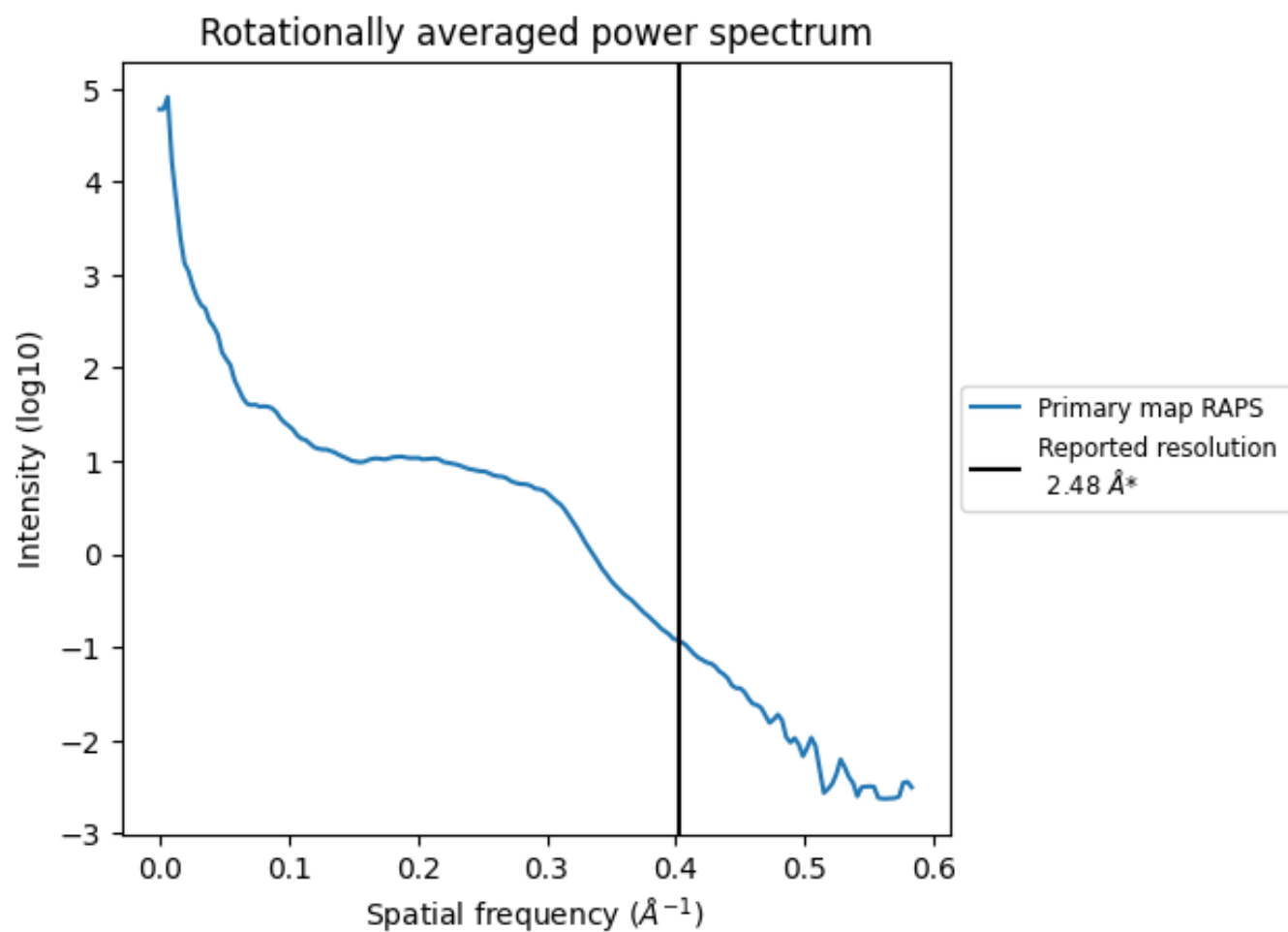
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 916 nm³; this corresponds to an approximate mass of 827 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 0.403 Å⁻¹

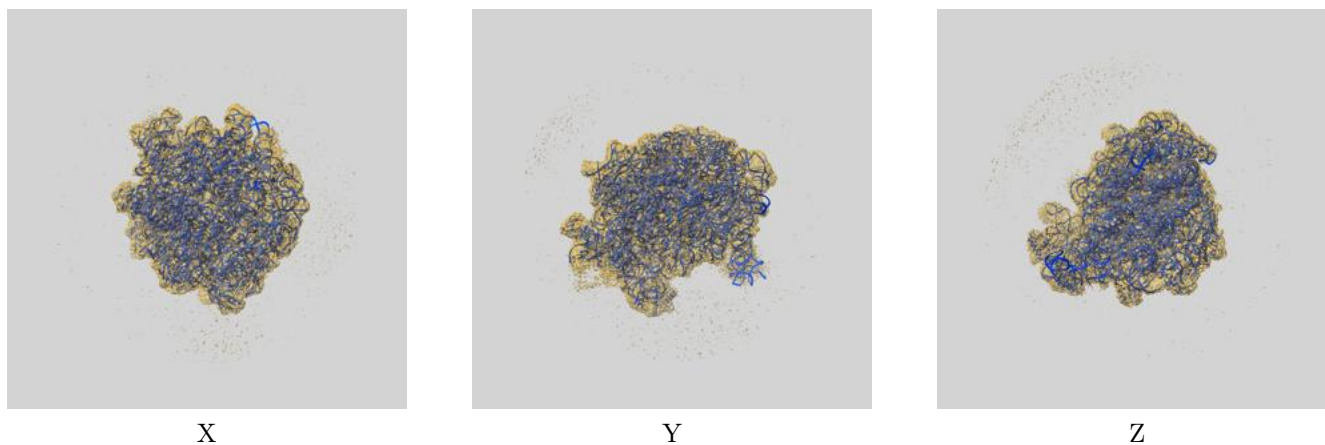
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

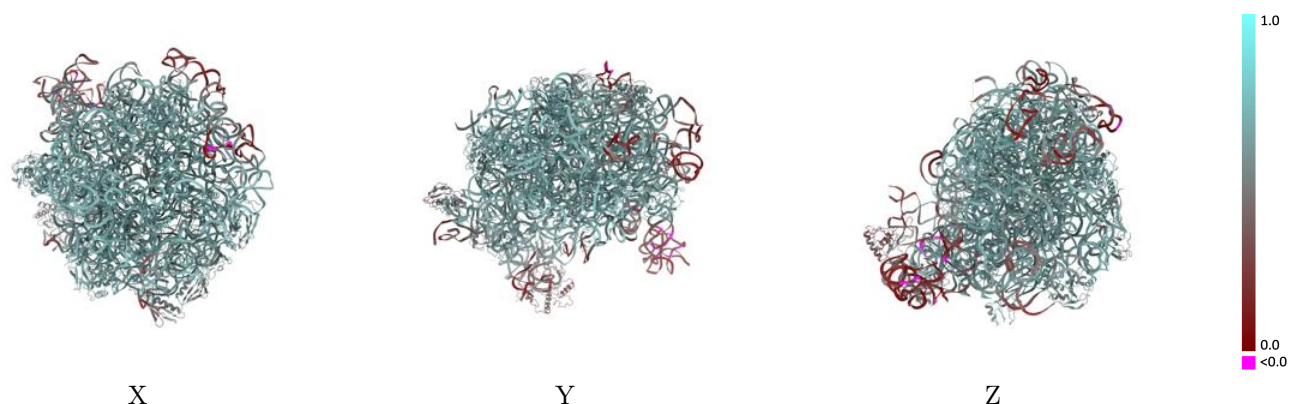
This section contains information regarding the fit between EMDB map EMD-11900 and PDB model 7ASM. Per-residue inclusion information can be found in section [3](#) on page [9](#).

9.1 Map-model overlay [i](#)



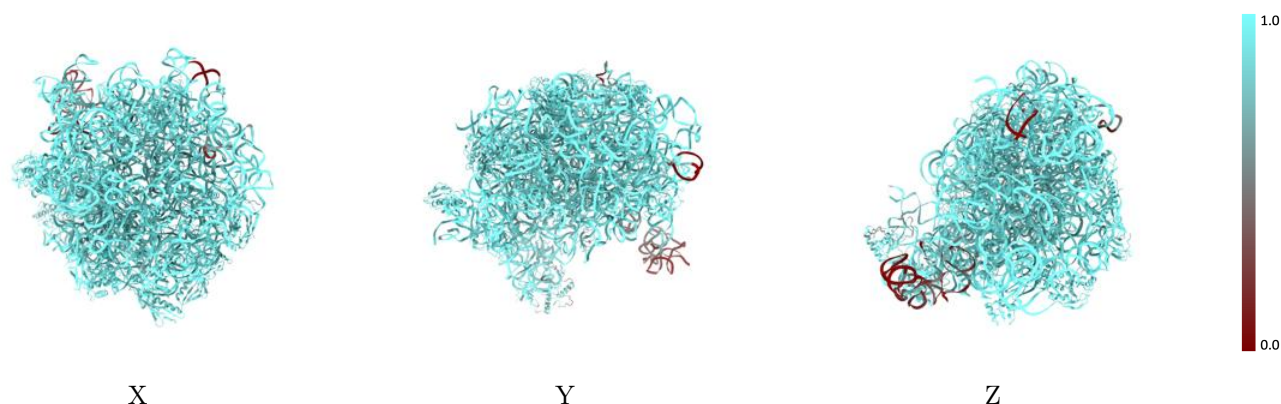
The images above show the 3D surface view of the map at the recommended contour level 0.0037 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



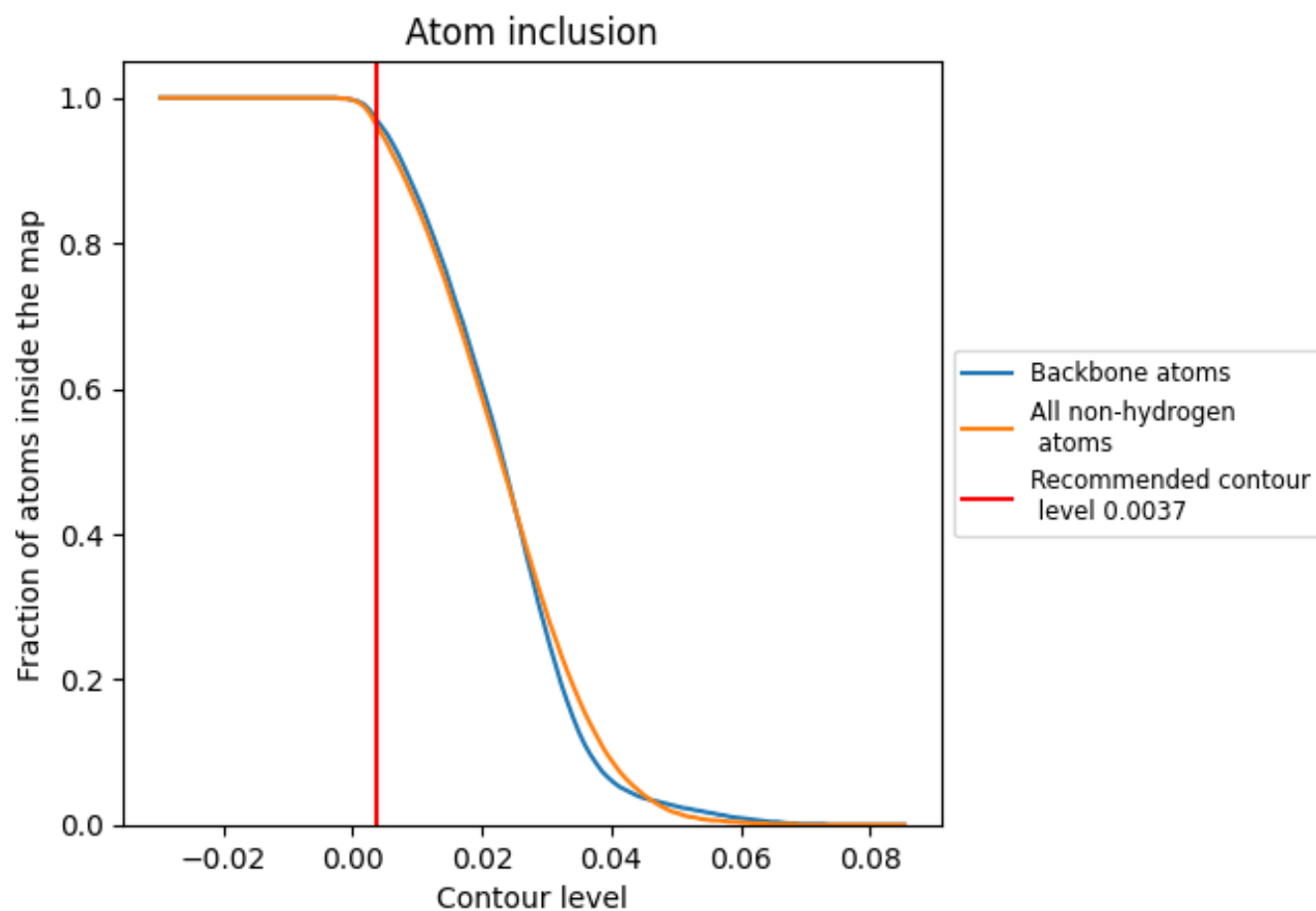
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.0037).





























































9.4 Atom inclusion [i](#)



At the recommended contour level, 97% of all backbone atoms, 96% 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 (0.0037) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9620	 0.6000
1	 0.7790	 0.5820
2	 0.9910	 0.6820
3	 0.9920	 0.6650
4	 0.9790	 0.6120
A	 0.9590	 0.5980
B	 0.9960	 0.5330
C	 0.9880	 0.6520
D	 0.9610	 0.6240
E	 0.9850	 0.6410
F	 0.8370	 0.3580
G	 0.9470	 0.5060
H	 0.9730	 0.6380
I	 0.9740	 0.6290
J	 0.9890	 0.6420
K	 0.9880	 0.6320
L	 0.9830	 0.6360
M	 0.9670	 0.5040
N	 0.9520	 0.6200
O	 0.9860	 0.6640
P	 0.9830	 0.6350
Q	 0.9820	 0.6610
R	 0.9760	 0.6230
S	 0.9760	 0.5770
T	 0.9660	 0.5790
U	 0.9810	 0.6460
V	 0.9780	 0.6060
W	 0.9640	 0.5910
X	 0.9770	 0.6380
Z	 0.9970	 0.6100

