



Full wwPDB EM Validation Report ⓘ

Jul 14, 2026 – 03:36 pm BST

PDB ID : 9TI7 / pdb_00009ti7
EMDB ID : EMD-55946
Title : Staphylococcus aureus 70S ribosome with E-site tRNA and RRF oriented towards the LSU (postTC-RRF-LSU-2)
Authors : Gonzalez-Lopez, A.; Selmer, M.
Deposited on : 2025-12-05
Resolution : 2.76 Å (reported)
Based on initial models : 9GHG, .

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

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

A user guide is available at

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

The types of validation reports are described at

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

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

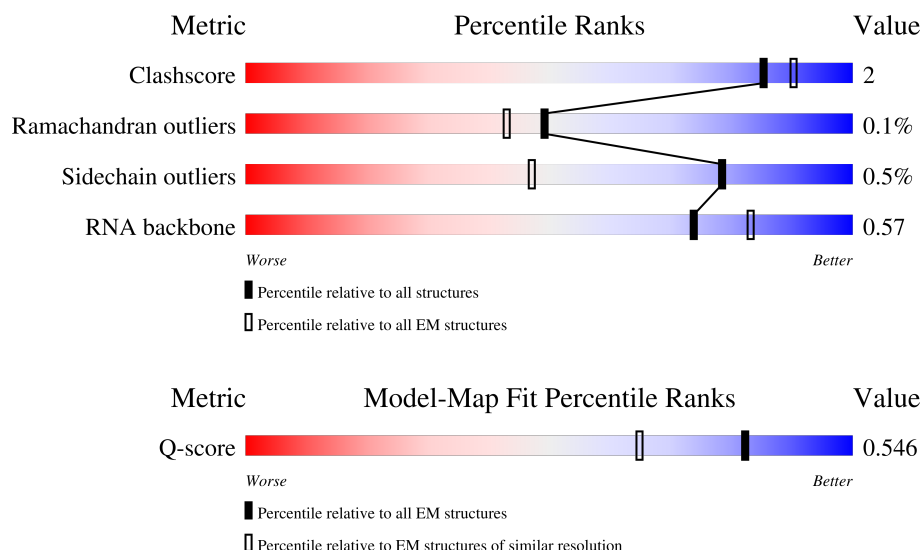
EMDB validation analysis : 0.0.1.dev133
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.50

1 Overall quality at a glance i

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

The reported resolution of this entry is 2.76 Å.

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



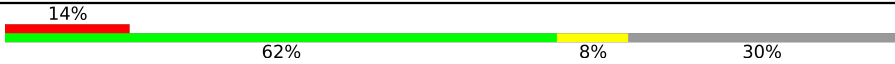
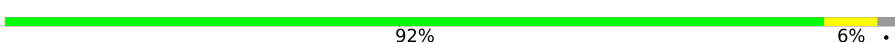
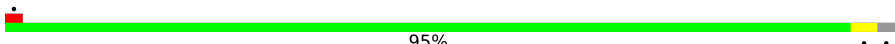
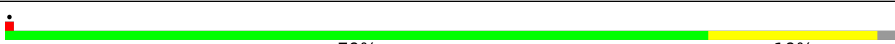
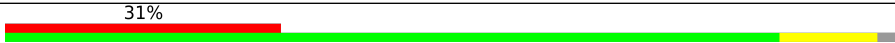
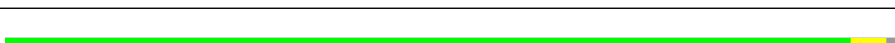
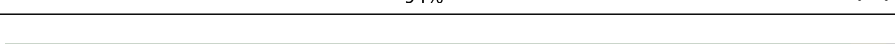
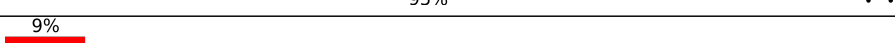
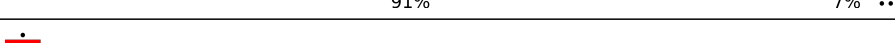
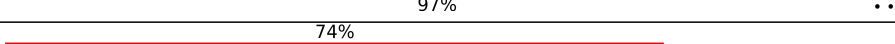
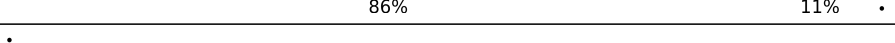
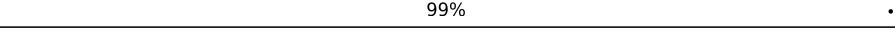
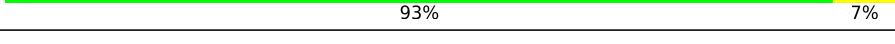
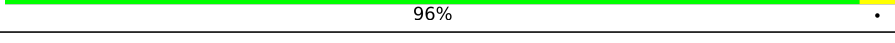
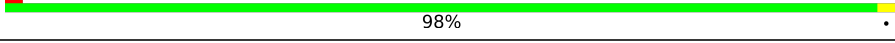
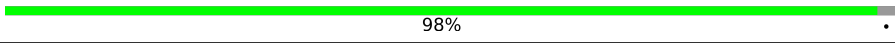
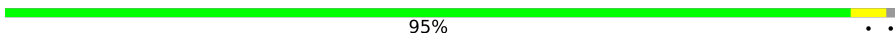
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	10642 (2.26 - 3.26)

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

Mol	Chain	Length	Quality of chain
1	1	62	5% 97% ..
2	2	69	90% 6% .
3	3	59	93% ..

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Mol	Chain	Length	Quality of chain
4	4	84	
5	5	57	
6	6	49	
7	7	45	
8	8	66	
9	9	37	
10	A	2923	
11	B	115	
12	C	186	
13	D	93	
14	G	277	
15	H	220	
16	I	207	
17	J	179	
18	K	178	
19	L	140	
20	M	145	
21	N	122	
22	O	146	
23	P	144	
24	Q	122	
25	R	119	
26	S	116	
27	T	118	
28	U	102	

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Mol	Chain	Length	Quality of chain
29	V	117	
30	W	91	
31	X	105	
32	Y	217	
33	Z	94	
34	a	1555	
35	b	24	
36	c	255	
37	d	217	
38	e	200	
39	f	166	
40	g	98	
41	h	156	
42	i	132	
43	j	132	
44	k	102	
45	l	129	
46	m	137	
47	n	121	
48	o	61	
49	p	89	
50	q	91	
51	r	87	
52	s	80	
53	t	92	

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Mol	Chain	Length	Quality of chain
54	u	83	95%

2 Entry composition

There are 56 unique types of molecules in this entry. The entry contains 142554 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 L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	1	61	Total	C	N	O	S	0	0
			482	298	104	79	1		

- Molecule 2 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	2	65	Total	C	N	O	S	0	0
			535	329	100	105	1		

- Molecule 3 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms				AltConf	Trace
3	3	57	Total	C	N	O	0	0
			446	277	84	85		

- Molecule 4 is a protein called 50S ribosomal protein L31 type B.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	4	59	Total	C	N	O	S	0	0
			485	310	76	96	3		

- Molecule 5 is a protein called Large ribosomal subunit protein bL32.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	5	53	Total	C	N	O	S	0	0
			422	256	86	75	5		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
5	?	-	ARG	deletion	UNP Q2FZF1

- Molecule 6 is a protein called Large ribosomal subunit protein bL33A.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	6	48	Total	C	N	O	S	0	0
			402	245	79	73	5		

- Molecule 7 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	7	44	Total	C	N	O	S	0	0
			373	228	90	54	1		

- Molecule 8 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	8	65	Total	C	N	O	S	0	0
			531	330	115	84	2		

- Molecule 9 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	9	37	Total	C	N	O	S	0	0
			297	186	60	46	5		

- Molecule 10 is a RNA chain called 23S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	A	2800	Total	C	N	O	P	0	0
			60048	26816	10994	19438	2800		

- Molecule 11 is a RNA chain called 5S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	B	113	Total	C	N	O	P	0	0
			2408	1076	431	788	113		

- Molecule 12 is a protein called Ribosome-recycling factor.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	C	183	Total	C	N	O	S	0	0
			1419	866	255	293	5		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	-2	GLY	-	expression tag	UNP Q2FZ21
C	-1	HIS	-	expression tag	UNP Q2FZ21

- Molecule 13 is a RNA chain called tRNA(Ser3).

Mol	Chain	Residues	Atoms						AltConf	Trace
13	D	93	Total	C	N	O	P	S	0	0
			2000	893	365	648	92	2		

- Molecule 14 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms						AltConf	Trace
14	G	273	Total	C	N	O	S		0	0
			2085	1297	413	370	5			

- Molecule 15 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms						AltConf	Trace
15	H	215	Total	C	N	O	S		0	0
			1628	1018	299	306	5			

- Molecule 16 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms						AltConf	Trace
16	I	205	Total	C	N	O	S		0	0
			1569	983	287	297	2			

- Molecule 17 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms						AltConf	Trace
17	J	177	Total	C	N	O	S		0	0
			1403	891	242	263	7			

- Molecule 18 is a protein called Large ribosomal subunit protein uL6.

Mol	Chain	Residues	Atoms						AltConf	Trace
18	K	177	Total	C	N	O	S		0	0
			1382	858	253	268	3			

- Molecule 19 is a protein called Large ribosomal subunit protein uL11.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	L	136	Total	C	N	O	S	0	0
			1010	635	175	195	5		

- Molecule 20 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	M	145	Total	C	N	O	S	0	0
			1151	717	211	220	3		

- Molecule 21 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	N	122	Total	C	N	O	S	0	0
			920	572	174	170	4		

- Molecule 22 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	O	146	Total	C	N	O	S	0	0
			1099	680	215	203	1		

- Molecule 23 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	P	136	Total	C	N	O	S	0	0
			1089	698	206	181	4		

- Molecule 24 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	Q	120	Total	C	N	O	S	0	0
			952	584	182	185	1		

- Molecule 25 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	R	119	Total	C	N	O	S	0	0
			922	574	174	173	1		

- Molecule 26 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms				AltConf	Trace
26	S	114	Total	C	N	O	0	0
			922	580	185	157		

- Molecule 27 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms				AltConf	Trace
27	T	117	Total	C	N	O	S	0
			953	599	191	159	4	0

- Molecule 28 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms				AltConf	Trace
28	U	102	Total	C	N	O	S	0
			799	506	142	150	1	0

- Molecule 29 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms				AltConf	Trace
29	V	111	Total	C	N	O	S	0
			853	532	163	155	3	0

- Molecule 30 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms				AltConf	Trace
30	W	90	Total	C	N	O	S	0
			734	461	132	137	4	0

- Molecule 31 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms				AltConf	Trace
31	X	102	Total	C	N	O	S	0
			787	497	144	144	2	0

- Molecule 32 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms				AltConf	Trace
32	Y	94	Total	C	N	O	S	0
			738	471	131	134	2	0

- Molecule 33 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms				AltConf	Trace
33	Z	76	Total	C	N	O	0	0
			585	361	114	110		

- Molecule 34 is a RNA chain called 16S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	a	1512	Total	C	N	O	P	0	0
			32401	14472	5916	10501	1512		

- Molecule 35 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	b	18	Total	C	N	O	P	0	0
			396	177	82	119	18		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
36	c	221	Total	C	N	O	S	0	0
			1781	1136	310	328	7		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
37	d	204	Total	C	N	O	S	0	0
			1609	1012	302	293	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
38	e	199	Total	C	N	O	S	0	0
			1617	1020	302	293	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
39	f	157	Total	C	N	O	S	0	0
			1169	735	214	218	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
40	g	94	Total	C	N	O	S	0	0
			781	494	137	147	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
41	h	146	Total	C	N	O	S	0	0
			1165	727	222	212	4		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
42	i	131	Total	C	N	O	S	0	0
			1032	652	183	193	4		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
43	j	128	Total	C	N	O	S	0	0
			1017	629	203	184	1		

- Molecule 44 is a protein called Small ribosomal subunit protein uS10.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	k	98	Total	C	N	O	S	0	0
			783	494	143	145	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
45	l	118	Total	C	N	O	S	0	0
			877	542	166	166	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
46	m	135	Total	C	N	O	S	0	0
			1058	658	214	184	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
47	n	114	Total	C	N	O	S	0	0
			909	559	180	169	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
48	o	60	Total	C	N	O	S	0	0
			502	317	100	80	5		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
49	p	86	Total	C	N	O	S	0	0
			721	445	148	127	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
50	q	90	Total	C	N	O	S	0	0
			712	448	132	131	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
51	r	81	Total	C	N	O	S	0	0
			671	424	121	125	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
52	s	64	Total	C	N	O	S	0	0
			525	335	97	90	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
53	t	83	Total	C	N	O	S	0	0
			672	432	122	116	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
54	u	81	Total	C	N	O	S	0	0
			611	370	120	119	2		

- Molecule 55 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
55	5	1	Total	Zn	0
			1	1	
55	9	1	Total	Zn	0
			1	1	
55	o	1	Total	Zn	0
			1	1	

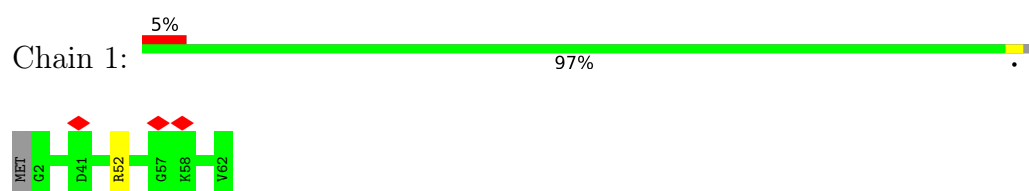
- Molecule 56 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
56	A	94	Total	Mg	0
			94	94	
56	G	1	Total	Mg	0
			1	1	
56	a	18	Total	Mg	0
			18	18	

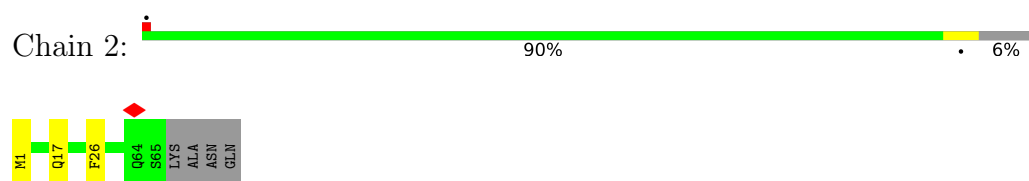
3 Residue-property plots [i](#)

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.

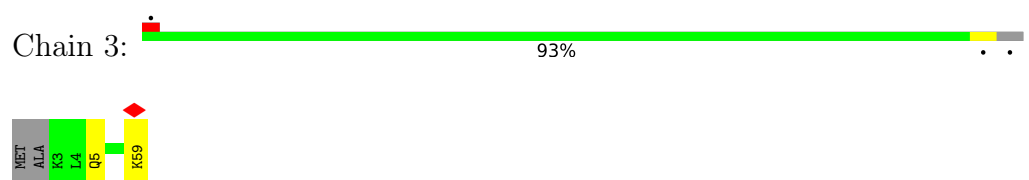
- Molecule 1: 50S ribosomal protein L28



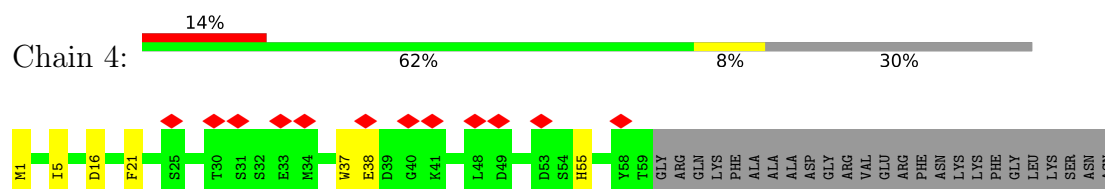
- Molecule 2: 50S ribosomal protein L29



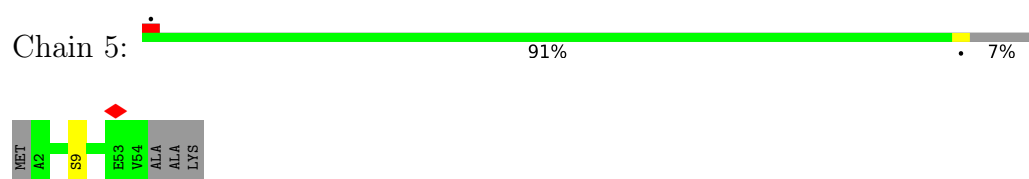
- Molecule 3: 50S ribosomal protein L30



- Molecule 4: 50S ribosomal protein L31 type B



- Molecule 5: Large ribosomal subunit protein bL32

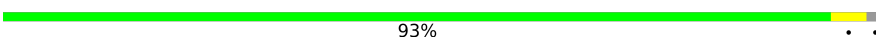


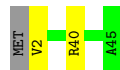
- Molecule 6: Large ribosomal subunit protein bL33A

Chain 6:  92% 6%

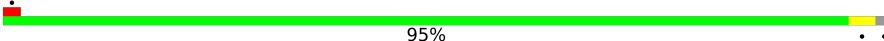


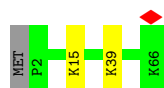
- Molecule 7: 50S ribosomal protein L34

Chain 7:  93%



- Molecule 8: 50S ribosomal protein L35

Chain 8:  95%



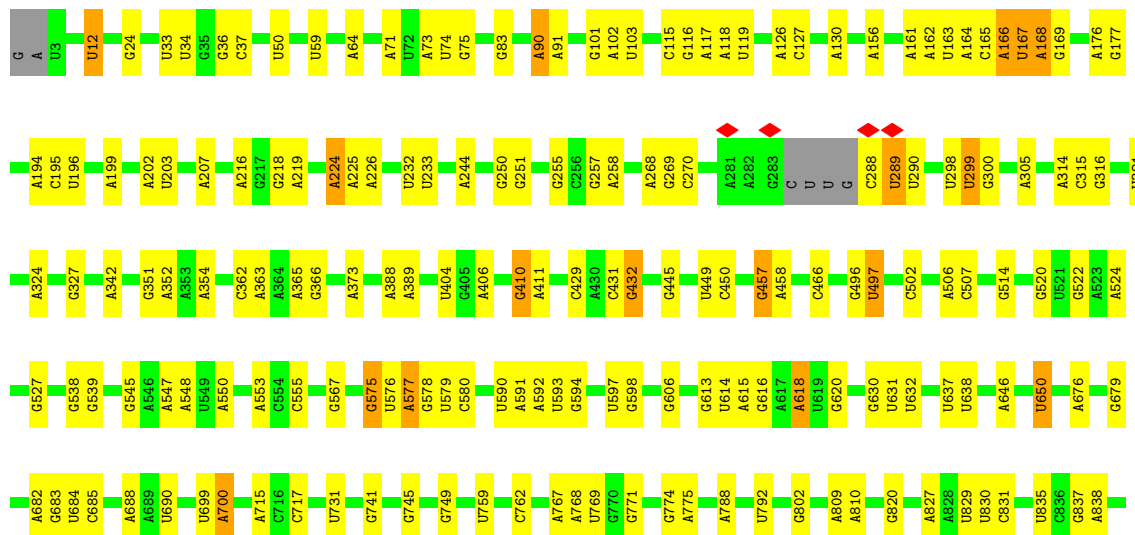
- Molecule 9: 50S ribosomal protein L36

Chain 9:  89% 11%

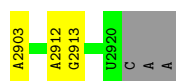


- Molecule 10: 23S rRNA

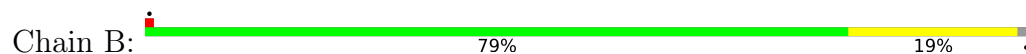
Chain A:  74% 19%



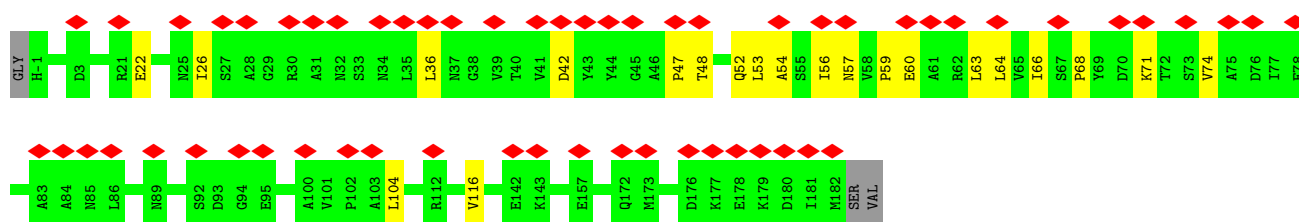
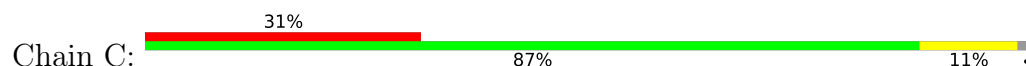
A2717	G2532	U2390	A2252	C2070	G1772	C1606	U1457	U1109	A946	A847
G2718	A2545	C2391	A2261	A2076	A1789	A1616	A1458	U1110	U947	G850
G2736	G2552	C2392	G2266	C2077	G1790	U1625	A1459	A1111	A955	C851
A2740	A2396	G2265	G2266	C2082	G1791	U1625	U1463	A1113	A956	G852
G2741	U2400	G2266	G2266	G2083	A1800	A1630	U1464	A1114	C960	U853
U2753	U2400	G2266	G2266	G2083	A1801	G1631	A1471	G1115	A963	G854
G2759	A2403	G2266	G2266	A2086	U1806	A1634	A1472	C1116	U856	U855
U2760	A2404	G2266	G2266	A2087	U1807	A1634	A1472	A1117	C957	C857
C2761	A2405	G2266	G2266	A2088	U1808	U1648	C1474	G1118	A969	C862
G2762	G2406	G2266	G2266	A2089	U1809	C1648	C1474	C1119	U970	G863
U2769	A2407	G2266	G2266	G2094	C1809	U1648	G1480	C1120	A985	U871
U2770	G2408	G2266	G2266	U2095	A1810	C1651	A1481	U1122	U872	U873
G2771	G2409	G2266	G2266	G2096	A1811	A1652	A1481	A1123	C988	U884
G2774	G2410	G2266	G2266	G2097	A1812	A1653	G1490	A1124	A991	G901
A2775	G2411	G2266	G2266	A2098	A1813	A1654	A1497	C1125	A992	A902
A2776	G2412	G2266	G2266	G2120	A1814	A1658	A1497	U1127	A1001	A911
A2777	G2419	G2266	G2266	U2125	C1817	A1658	C1511	A1128	G1005	A912
G2778	U2429	G2266	G2266	C	A1818	G1663	U1512	A1129	A1018	G913
G2779	C2430	G2266	G2266	G	C1827	G1675	A1514	A1130	A1018	G914
U2780	U2611	G2266	G2266	G	U1828	A1676	A1514	G1131	A1027	C921
U2781	U2612	G2266	G2266	G	A1829	G1676	G1526	A1132	A1027	G922
G2782	G2436	G2266	G2266	C	U1843	A1679	A1533	G1133	A1053	A920
U2783	G2436	G2266	G2266	A	G1844	A1690	C1536	A1134	U1056	G921
A2784	U2450	G2266	G2266	G	U1845	G1691	C1536	U1135	A1057	G924
G2791	U2451	G2266	G2266	G	A1856	G1693	A1540	G1135	U1060	G
A2792	G2452	G2266	G2266	U	A1874	U1703	U1546	A1155	U1066	G
G2793	U2453	G2266	G2266	U	A1875	A1708	C1547	G1156	G1066	G
U2805	G2454	G2266	G2266	G	A1880	A1712	U1552	A1171	A1070	C
U2806	G2455	G2266	G2266	G	U1881	G1718	A1553	A1172	A1071	C
G2807	G2456	G2266	G2266	A	U1887	C1730	A1560	A1173	A1072	U
C2816	U2461	G2266	G2266	G	G1898	G1731	G1569	U1174	U1077	C
G2824	C2468	G2266	G2266	G	U1899	A1734	G1572	G1175	A1077	C
U2825	G2472	G2266	G2266	A	C1909	C1735	A1578	A1176	A1077	C
U2826	A2475	G2266	G2266	G	A1916	G1740	C1579	A1177	U1077	C
G2827	U2476	G2266	G2266	G	A1927	G1741	A	C1178	U1077	C
U2828	C2479	G2266	G2266	G	G1932	A1742	U	C1179	U1077	C
G2851	A2480	G2266	G2266	A	G1933	U1756	U	U1185	G1083	C
U2852	U2361	G2266	G2266	G	U1937	U1757	G	A1186	G1083	C
G2872	A2495	G2266	G2266	G	G1937	U1758	U	C1197	A1090	G
C2873	A2496	G2266	G2266	C	U1938	G1759	G1585	U1186	G1091	G
G2887	U2518	G2266	G2266	U	A1939	A1764	G1593	U1186	A1101	U
A2888	G2526	G2266	G2266	U	A1940	A1765	G1596	U1215	U1101	U
G2892	G2529	G2266	G2266	G	U2061	C1766	U1601	U1216	U102	U
A2893	U2530	G2266	G2266	A	G1942	G1767	U1601	U1217	G107	U
C2894	U2531	G2266	G2266	A	U1944	A1943	U1601	A1258	C108	U
					A1945					



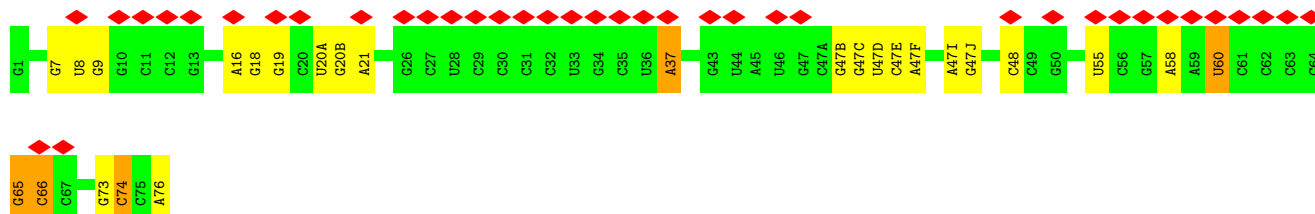
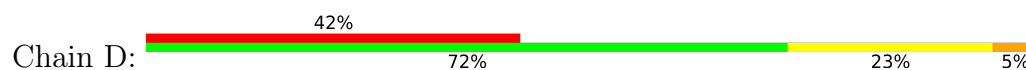
• Molecule 11: 5S rRNA



• Molecule 12: Ribosome-recycling factor



• Molecule 13: tRNA(Ser3)



• Molecule 14: 50S ribosomal protein L2



• Molecule 15: 50S ribosomal protein L3

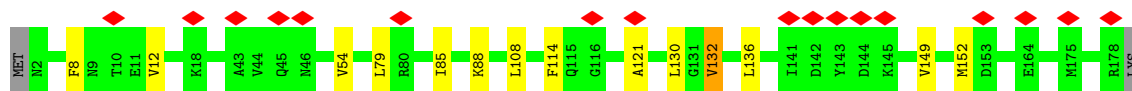
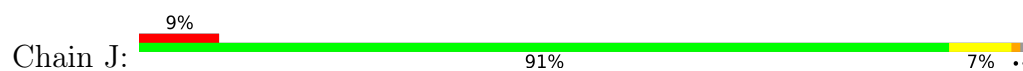


• Molecule 16: 50S ribosomal protein L4

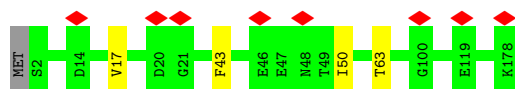




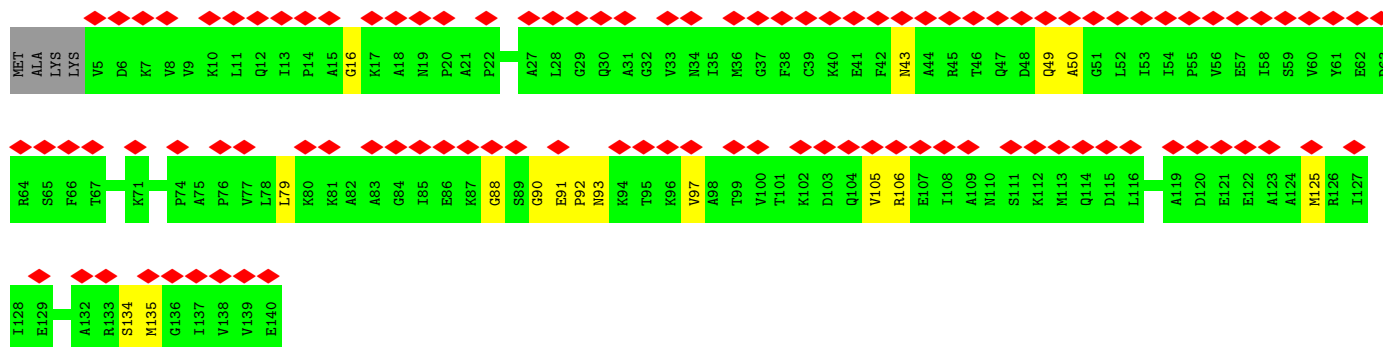
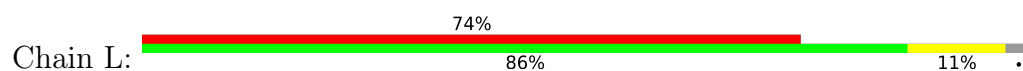
- Molecule 17: 50S ribosomal protein L5



- Molecule 18: Large ribosomal subunit protein uL6



- Molecule 19: Large ribosomal subunit protein uL11



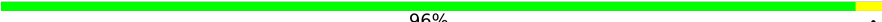
- Molecule 20: 50S ribosomal protein L13

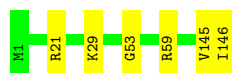


- Molecule 21: 50S ribosomal protein L14



- Molecule 22: 50S ribosomal protein L15

Chain O:  96% .



- Molecule 23: 50S ribosomal protein L16

Chain P:  89% 6% 6%



- Molecule 24: 50S ribosomal protein L17

Chain Q:  90% 8% .

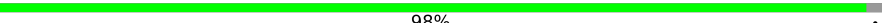


- Molecule 25: 50S ribosomal protein L18

Chain R:  98% .



- Molecule 26: 50S ribosomal protein L19

Chain S:  98% .

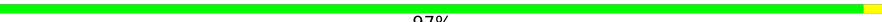


- Molecule 27: 50S ribosomal protein L20

Chain T:  95% . .



- Molecule 28: 50S ribosomal protein L21

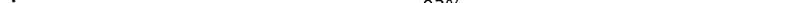
Chain U:  97% .



- Molecule 29: 50S ribosomal protein L22

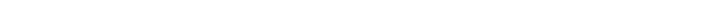
M1	R11	P14	A42	Y62 D63	E78	R88	R92	K111	GLU	GLU	ALA	LYS	GLU	ALA
----	-----	-----	-----	------------	-----	-----	-----	------	-----	-----	-----	-----	-----	-----

-

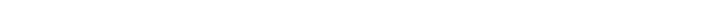
- Chain X:  5% 93% ..

- Chain Y: 40% 1% 57%

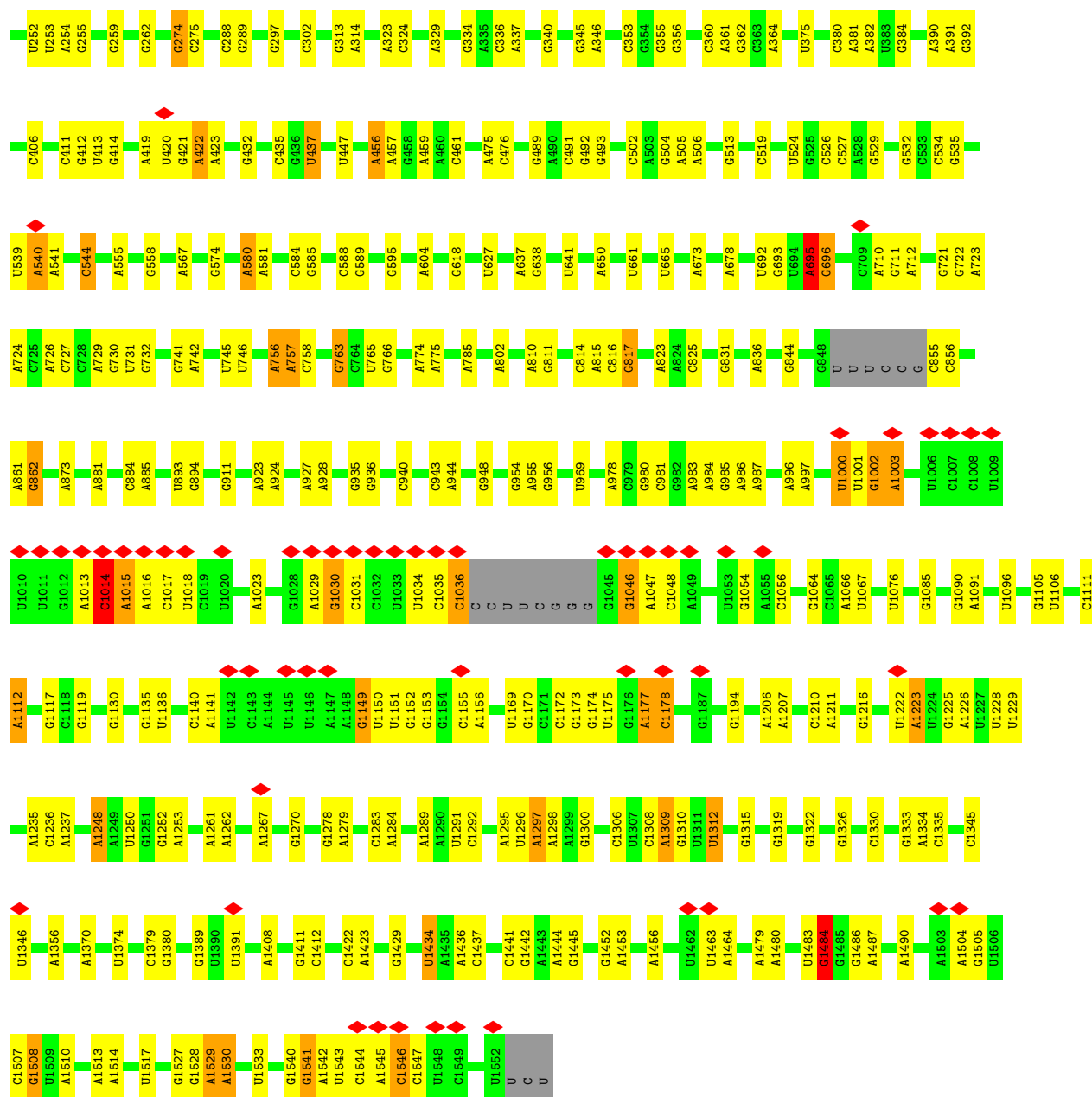
GLU	ASN	MET
GLN	PRO	ALA
GLN	GLU	S3
THR	ILE	I7
GLU	GLU	V43
PRO	VAL	V65
GLU	ASP	V73
VAL	ILE	V74
GLY	THR	A75
GLU	GLU	P81
SER	ASN	L92
LYS	ASN	A93
GLU	ILE	I94
GLU	ASP	H96
GLU	VAL	SER
	ASP	GLU
	VAL	GLU
	LYS	ARG
	VAL	THR
	THR	VAL
	GLY	GLU
	ASP	VAL
	PHE	PRO
	LYS	GLN
	ILE	VAL
	GLU	LEU
	ASN	VAL
	ASP	GLY
	SER	ALA
	GLU	GLY
	VAL	GLY
	VAL	VAL
	ALA	VAL
	PRO	VAL
	THR	GLU
	GLU	GLN
	PRO	PRO
	THR	LEU
	GLU	PHE
	GLU	ASN
	GLU	LEU
	GLU	VAL
	ILE	VAL
	GLU	THR
	ALA	THR
	ALA	THR
	GLU	PRO
	GLY	

- Chain Z:  74% 6% 19%

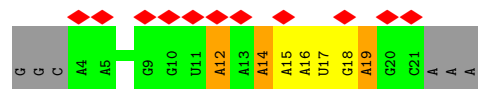
MET	LEU	LYS	LEU	ASN	LEU	GLN	PHE	PHE	ALA	SER	LYS	LYS	GLY	VAL	SER	SER	T18	R22	E25	S26	K27	R47	V92	A93	GLU
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

- Chain a:  72% 23%

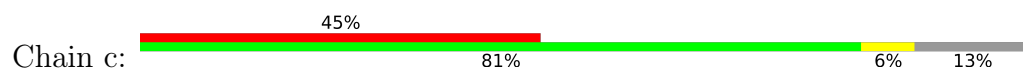
[illegible]

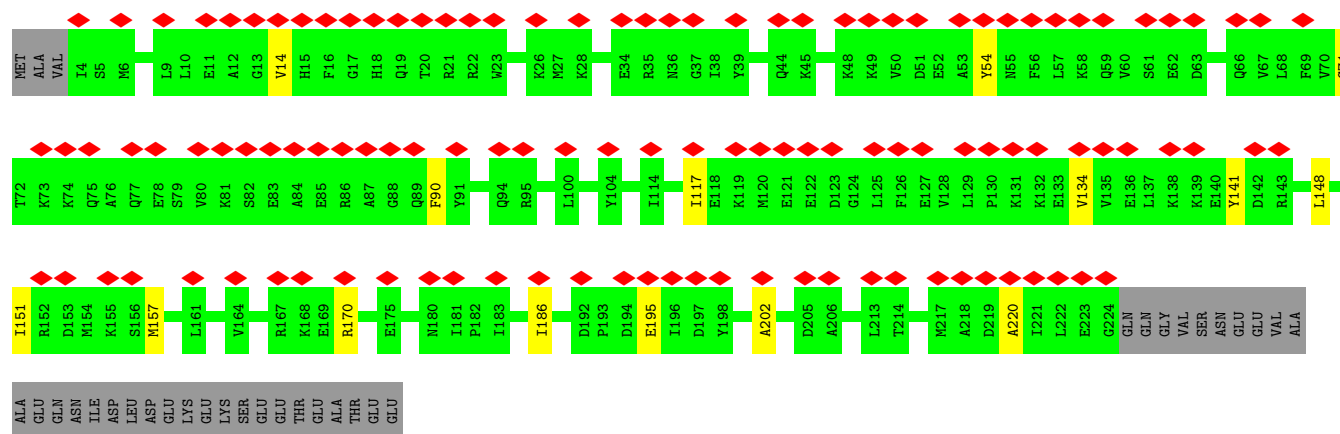


• Molecule 35: mRNA

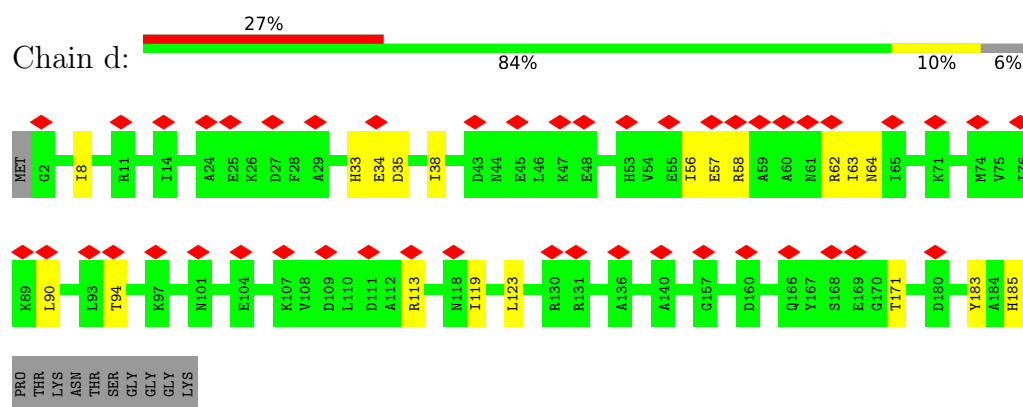


• Molecule 36: 30S ribosomal protein S2

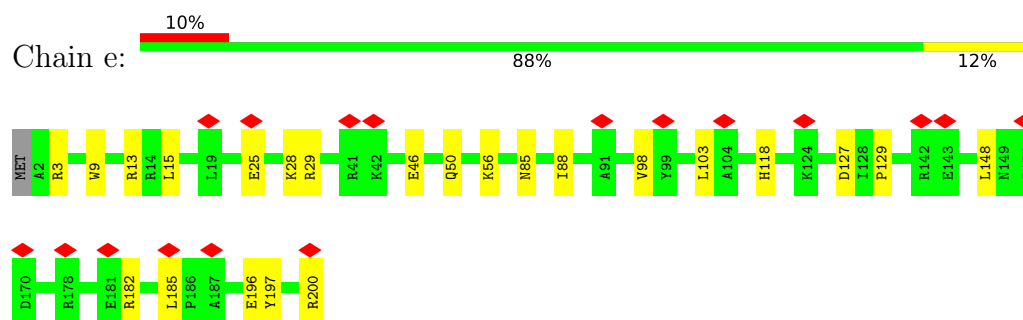




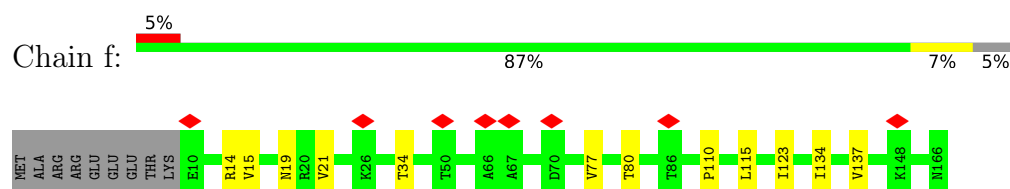
• Molecule 37: 30S ribosomal protein S3



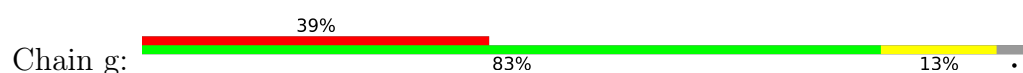
• Molecule 38: 30S ribosomal protein S4

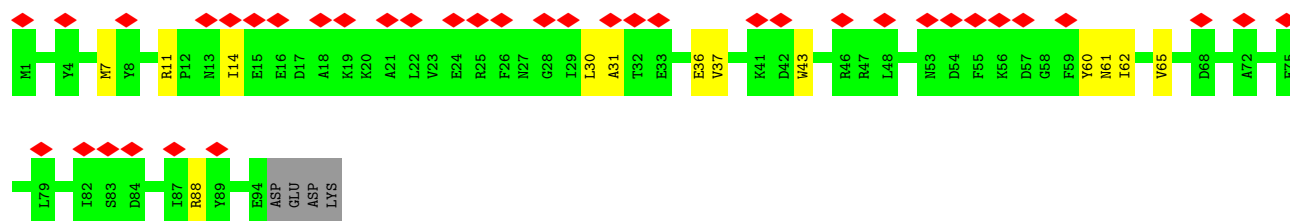


• Molecule 39: 30S ribosomal protein S5

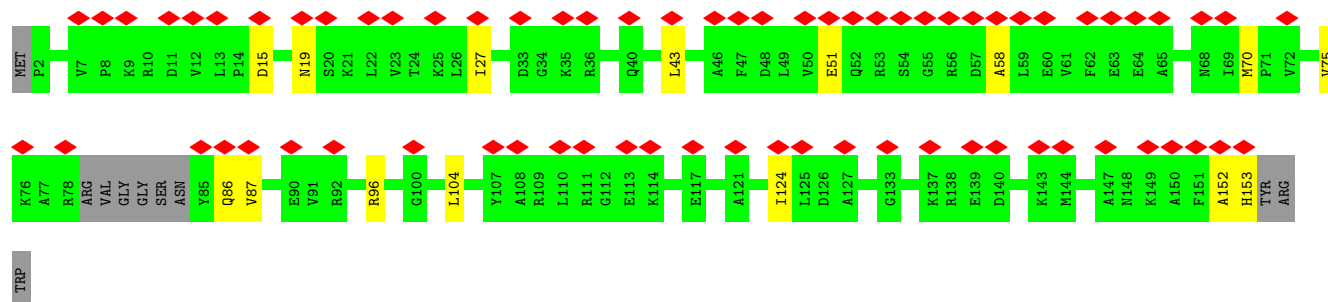
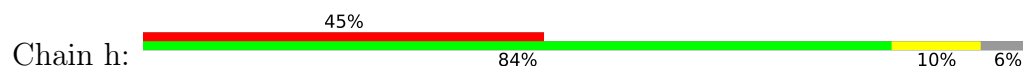


• Molecule 40: 30S ribosomal protein S6

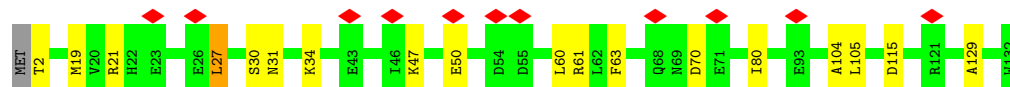
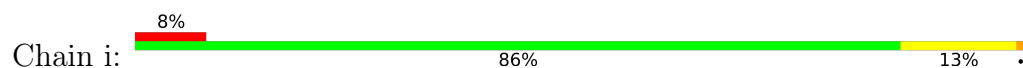




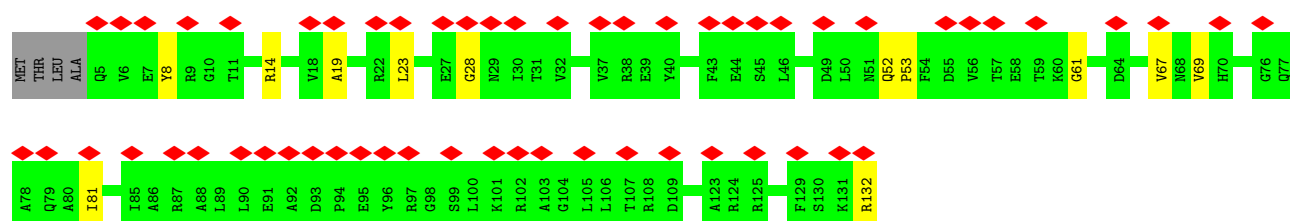
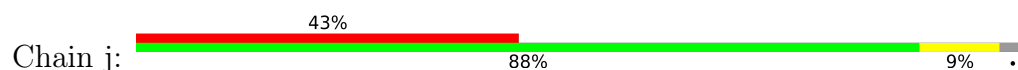
• Molecule 41: 30S ribosomal protein S7



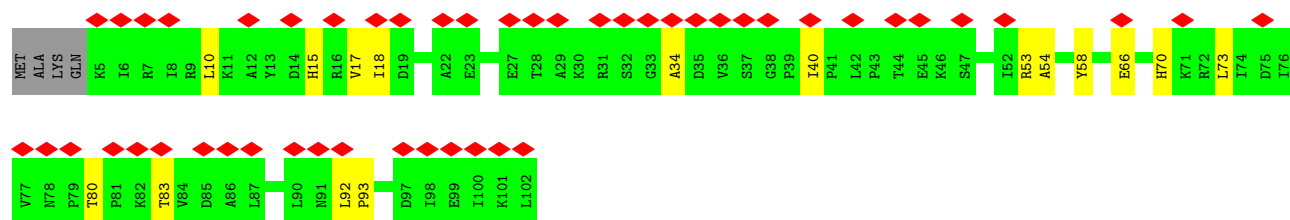
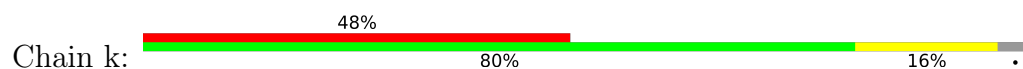
• Molecule 42: 30S ribosomal protein S8



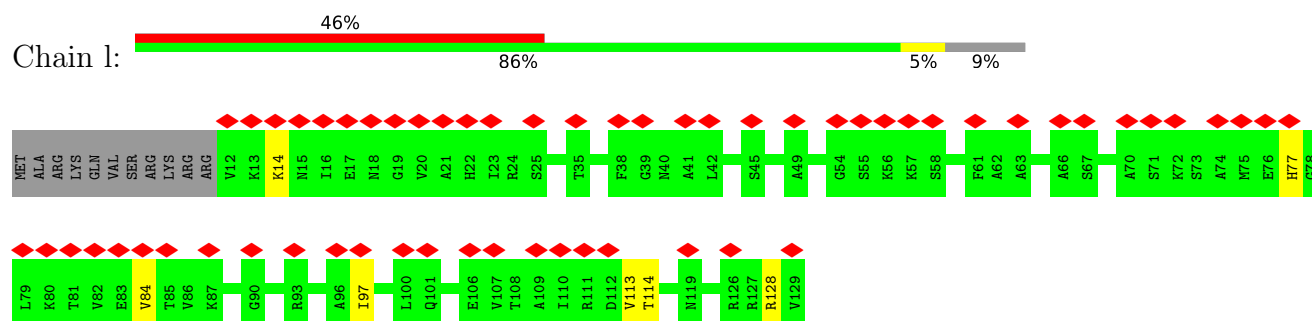
• Molecule 43: 30S ribosomal protein S9



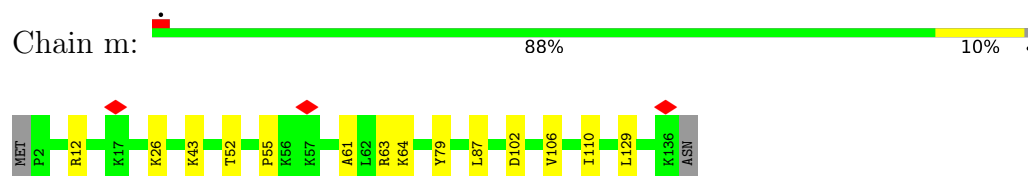
• Molecule 44: Small ribosomal subunit protein uS10



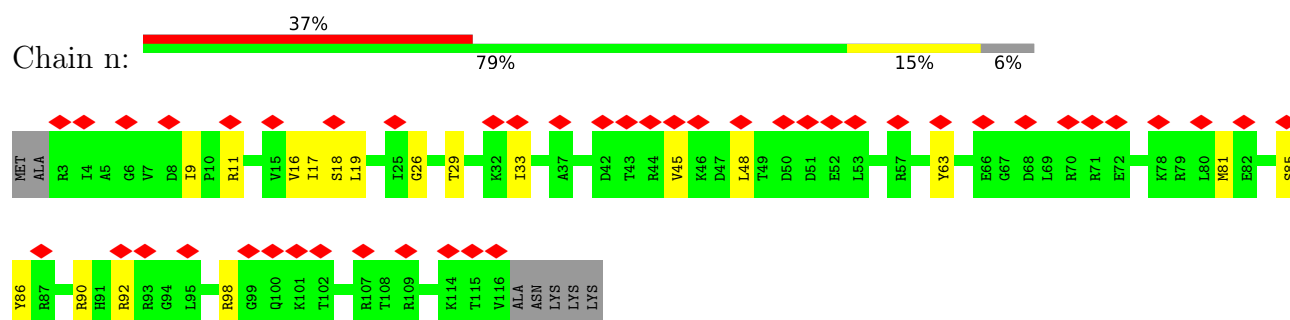
- Molecule 45: 30S ribosomal protein S11



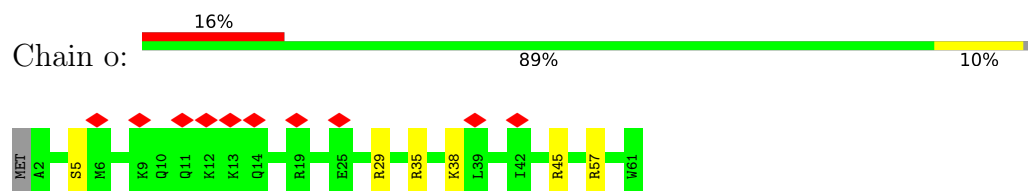
- Molecule 46: 30S ribosomal protein S12



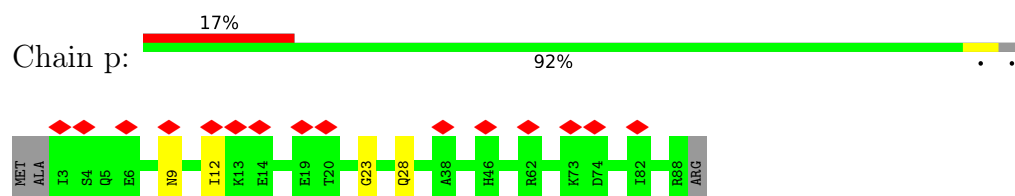
- Molecule 47: 30S ribosomal protein S13



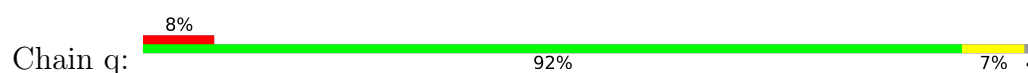
- Molecule 48: 30S ribosomal protein S14 type Z

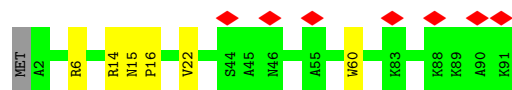


- Molecule 49: 30S ribosomal protein S15

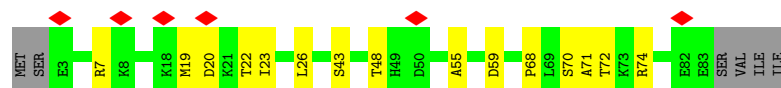
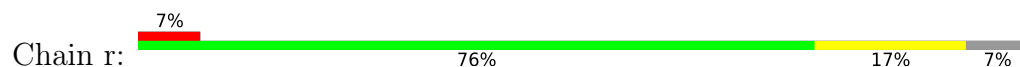


- Molecule 50: 30S ribosomal protein S16

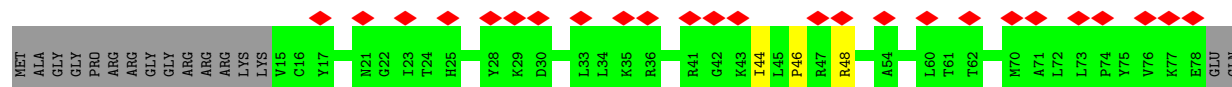
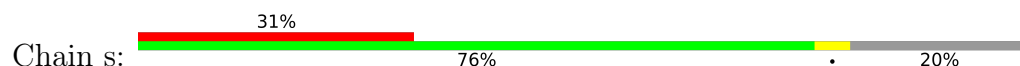




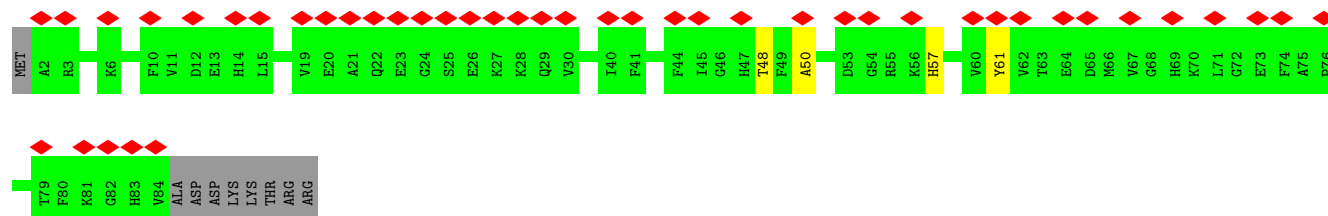
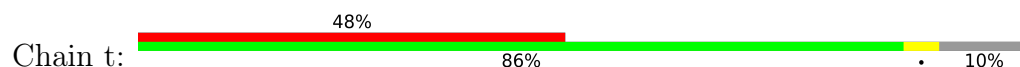
- Molecule 51: 30S ribosomal protein S17



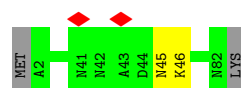
- Molecule 52: 30S ribosomal protein S18



- Molecule 53: 30S ribosomal protein S19



- Molecule 54: 30S ribosomal protein S20



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	24569	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	30	Depositor
Minimum defocus (nm)	700	Depositor
Maximum defocus (nm)	1000	Depositor
Magnification	165000	Depositor
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	31.280	Depositor
Minimum map value	-18.021	Depositor
Average map value	-0.001	Depositor
Map value standard deviation	0.974	Depositor
Recommended contour level	2.2	Depositor
Map size (Å)	403.19998, 403.19998, 403.19998	wwPDB
Map dimensions	600, 600, 600	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.672, 0.672, 0.672	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: PSU, T6A, 4OC, 2MA, 3TD, MG, G7M, H2U, 4SU, RSP, 2MG, MA6, 5MC, ZN, 5MU, UR3, OMG

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z > 5$	RMSZ	$\# Z > 5$
1	1	0.49	0/488	0.82	0/649
2	2	0.44	0/536	1.04	0/713
3	3	0.49	0/448	0.99	0/601
4	4	0.51	0/499	0.90	0/674
5	5	0.51	0/429	0.86	0/571
6	6	0.47	0/407	0.88	0/545
7	7	0.50	0/377	0.98	0/491
8	8	0.49	0/536	0.89	0/701
9	9	0.52	0/300	0.85	0/393
10	A	0.52	0/67024	0.82	30/104521 (0.0%)
11	B	0.55	0/2692	0.77	0/4193
12	C	0.48	0/1428	1.04	0/1922
13	D	0.59	2/2088 (0.1%)	0.77	0/3255
14	G	0.51	0/2120	0.88	0/2847
15	H	0.50	0/1652	0.88	0/2216
16	I	0.48	0/1592	0.92	0/2148
17	J	0.47	0/1421	0.96	0/1907
18	K	0.49	0/1400	0.92	0/1881
19	L	0.53	0/1024	1.01	0/1384
20	M	0.48	0/1173	0.86	0/1578
21	N	0.49	0/927	0.89	0/1243
22	O	0.50	0/1113	0.90	0/1482
23	P	0.49	0/1113	0.89	0/1493
24	Q	0.45	0/956	0.94	0/1277
25	R	0.48	0/931	0.95	0/1244
26	S	0.50	0/934	0.85	0/1249
27	T	0.47	0/965	0.99	0/1276
28	U	0.47	0/809	0.83	0/1080
29	V	0.50	0/861	0.89	0/1159
30	W	0.47	0/742	0.91	0/989
31	X	0.51	0/796	0.91	0/1063

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
32	Y	0.47	0/746	0.90	0/1000
33	Z	0.48	0/591	0.89	0/785
34	a	0.55	1/36095 (0.0%)	0.78	5/56278 (0.0%)
35	b	0.58	0/446	0.81	0/695
36	c	0.48	0/1808	1.02	0/2426
37	d	0.48	0/1631	0.94	0/2190
38	e	0.49	0/1647	0.96	0/2211
39	f	0.51	0/1183	0.92	0/1595
40	g	0.46	0/792	0.94	0/1062
41	h	0.49	0/1181	1.04	0/1587
42	i	0.49	0/1044	0.95	0/1401
43	j	0.50	0/1033	0.92	0/1386
44	k	0.51	0/795	0.96	0/1071
45	l	0.54	0/892	0.94	0/1203
46	m	0.52	0/1075	0.86	0/1439
47	n	0.49	0/916	1.07	0/1228
48	o	0.50	0/512	0.93	0/678
49	p	0.47	0/730	1.03	0/975
50	q	0.50	0/723	0.95	0/971
51	r	0.47	0/679	0.90	1/907 (0.1%)
52	s	0.49	0/534	1.01	0/716
53	t	0.50	0/690	0.96	0/926
54	u	0.46	0/611	1.07	0/817
All	All	0.52	3/154135 (0.0%)	0.84	36/230292 (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
14	G	0	1
29	V	0	1
37	d	0	1
39	f	0	1
40	g	0	1
43	j	0	2
46	m	0	1
51	r	0	1
All	All	0	9

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	a	535	G7M	O3'-P	5.14	1.61	1.56
13	D	37	T6A	O3'-P	5.03	1.61	1.56
13	D	8	4SU	O3'-P	5.02	1.61	1.56

All (36) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
34	a	1484	G	O3'-P-O5'	-7.74	92.38	104.00
10	A	2673	C	O3'-P-O5'	-7.50	92.75	104.00
10	A	299	U	O3'-P-O5'	-6.70	93.95	104.00
10	A	1962	G	O3'-P-O5'	-6.59	94.12	104.00
10	A	207	A	O3'-P-O5'	-6.33	94.50	104.00
10	A	1932	C	C2'-C3'-O3'	6.27	123.11	113.70
10	A	1845	U	O3'-P-O5'	-6.24	94.64	104.00
10	A	244	A	O3'-P-O5'	-6.20	94.71	104.00
10	A	1290	G	O3'-P-O5'	-5.89	95.17	104.00
10	A	1275	A	O3'-P-O5'	-5.83	95.25	104.00
10	A	257	G	O3'-P-O5'	-5.78	95.33	104.00
10	A	2332	U	O3'-P-O5'	-5.71	95.43	104.00
10	A	1812	A	O3'-P-O5'	-5.56	95.66	104.00
10	A	2851	G	O3'-P-O5'	-5.51	95.73	104.00
34	a	1486	G	C1'-O4'-C4'	-5.49	104.41	109.90
10	A	2077	C	O3'-P-O5'	-5.45	95.82	104.00
10	A	2330	G	C4'-C3'-C2'	-5.42	97.18	102.60
34	a	695	A	C2'-C3'-O3'	5.41	117.62	109.50
10	A	196	U	O3'-P-O5'	-5.39	95.91	104.00
10	A	2736	G	O3'-P-O5'	-5.39	95.92	104.00
10	A	2095	U	O3'-P-O5'	-5.38	95.93	104.00
10	A	2454	C	O3'-P-O5'	-5.34	95.98	104.00
34	a	1014	C	C2'-C3'-O3'	5.34	117.51	109.50
10	A	2461	A	O3'-P-O5'	-5.26	96.11	104.00
10	A	2791	A	O3'-P-O5'	-5.25	96.13	104.00
10	A	2076	A	O3'-P-O5'	-5.24	96.13	104.00
10	A	2476	H2U	O3'-P-O5'	-5.21	96.19	104.00
10	A	1186	A	O3'-P-O5'	-5.17	96.24	104.00
51	r	59	ASP	CA-CB-CG	5.14	117.74	112.60
10	A	431	C	O3'-P-O5'	-5.13	96.30	104.00
10	A	1173	A	O3'-P-O5'	-5.11	96.33	104.00
10	A	863	G	O3'-P-O5'	-5.11	96.34	104.00
10	A	591	A	O3'-P-O5'	-5.08	96.38	104.00
10	A	923	A	C4'-C3'-O3'	5.03	116.95	109.40
34	a	254	A	O3'-P-O5'	-5.01	96.48	104.00
10	A	2647	C	O3'-P-O5'	-5.00	96.49	104.00

There are no chirality outliers.

All (9) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
14	G	13	ARG	Sidechain
29	V	92	ARG	Sidechain
37	d	62	ARG	Sidechain
39	f	14	ARG	Sidechain
40	g	88	ARG	Sidechain
43	j	132	ARG	Sidechain
43	j	14	ARG	Sidechain
46	m	12	ARG	Sidechain
51	r	7	ARG	Sidechain

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	1	482	0	523	2	0
2	2	535	0	566	2	0
3	3	446	0	486	1	0
4	4	485	0	458	4	0
5	5	422	0	426	1	0
6	6	402	0	413	2	0
7	7	373	0	420	2	0
8	8	531	0	599	2	0
9	9	297	0	339	2	0
10	A	60048	0	30201	192	0
11	B	2408	0	1218	4	0
12	C	1419	0	1450	11	0
13	D	2000	0	1020	8	0
14	G	2085	0	2192	6	0
15	H	1628	0	1667	5	0
16	I	1569	0	1614	5	0
17	J	1403	0	1457	8	0
18	K	1382	0	1415	2	0
19	L	1010	0	1047	20	0
20	M	1151	0	1145	1	0
21	N	920	0	981	4	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
22	O	1099	0	1142	3	0
23	P	1089	0	1155	5	0
24	Q	952	0	999	7	0
25	R	922	0	968	1	0
26	S	922	0	994	0	0
27	T	953	0	1027	3	0
28	U	799	0	836	2	0
29	V	853	0	914	5	0
30	W	734	0	767	3	0
31	X	787	0	853	2	0
32	Y	738	0	787	6	0
33	Z	585	0	597	4	0
34	a	32401	0	16329	130	0
35	b	396	0	197	4	0
36	c	1781	0	1844	8	0
37	d	1609	0	1668	11	0
38	e	1617	0	1646	15	0
39	f	1169	0	1229	6	0
40	g	781	0	784	4	0
41	h	1165	0	1204	8	0
42	i	1032	0	1082	11	0
43	j	1017	0	1039	5	0
44	k	783	0	825	9	0
45	l	877	0	895	4	0
46	m	1058	0	1130	8	0
47	n	909	0	959	11	0
48	o	502	0	523	6	0
49	p	721	0	751	2	0
50	q	712	0	744	4	0
51	r	671	0	708	8	0
52	s	525	0	554	2	0
53	t	672	0	677	2	0
54	u	611	0	655	1	0
55	5	1	0	0	0	0
55	9	1	0	0	0	0
55	o	1	0	0	0	0
56	A	94	0	0	0	0
56	G	1	0	0	0	0
56	a	18	0	0	0	0
All	All	142554	0	96119	505	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 2.

All (505) 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)
10:A:1120:C:O2'	19:L:91:GLU:HA	1.69	0.90
19:L:79:LEU:HD23	19:L:135:MET:SD	2.20	0.81
10:A:1120:C:O2'	19:L:92:PRO:HD2	1.81	0.81
47:n:11:ARG:HA	47:n:45:VAL:HB	1.63	0.80
44:k:34:ALA:HB2	44:k:83:THR:HG21	1.74	0.70
10:A:1132:A:N6	19:L:134:SER:HB3	2.07	0.69
34:a:411:C:H5''	38:e:129:PRO:HD2	1.77	0.66
41:h:70:MET:HB3	41:h:96:ARG:HG2	1.76	0.66
34:a:1117:G:H5''	37:d:171:THR:HG22	1.78	0.66
43:j:67:VAL:HG11	43:j:81:ILE:HG12	1.79	0.65
34:a:695:A:O2'	34:a:696:G:OP2	2.14	0.65
47:n:45:VAL:HA	47:n:48:LEU:HG	1.78	0.65
10:A:1155:A:H4'	10:A:1156:G:OP1	1.98	0.64
34:a:558:G:O2'	46:m:129:LEU:HD21	1.97	0.64
34:a:722:G:H2'	34:a:723:A:C8	2.31	0.64
2:2:1:MET:HE1	2:2:17:GLN:HG2	1.82	0.62
44:k:40:ILE:HB	44:k:73:LEU:HB3	1.80	0.62
10:A:2037:G:H5''	29:V:42:ALA:HB2	1.82	0.62
13:D:37:T6A:N11	13:D:37:T6A:N1	2.49	0.61
34:a:1014:C:O2'	34:a:1015:A:N3	2.34	0.60
10:A:1174:U:O2	10:A:2052:C:H5''	2.02	0.60
7:7:40:ARG:NH2	10:A:514:G:N7	2.47	0.59
10:A:1572:G:N2	10:A:1593:G:O6	2.36	0.59
44:k:10:LEU:HB3	44:k:18:ILE:HD11	1.85	0.59
34:a:1479:A:H2'	34:a:1480:A:O4'	2.02	0.58
46:m:79:TYR:HB2	46:m:106:VAL:HG11	1.85	0.58
10:A:1996:A:O2'	10:A:1999:G:N3	2.33	0.58
46:m:55:PRO:HB3	46:m:102:ASP:HB3	1.84	0.58
10:A:1120:C:H1'	19:L:90:GLY:O	2.03	0.58
10:A:944:G:H3'	10:A:945:A:H5''	1.86	0.57
34:a:997:A:H4'	34:a:1023:A:H61	1.69	0.57
10:A:2715:G:OP1	10:A:2740:A:N6	2.38	0.57
41:h:152:ALA:O	41:h:153:HIS:C	2.47	0.57
32:Y:7:ILE:HG22	32:Y:43:VAL:HB	1.86	0.56
34:a:1226:A:H5''	48:o:5:SER:HB3	1.87	0.56
10:A:1118:G:H2'	10:A:1119:C:C6	2.41	0.56
10:A:1120:C:O2'	19:L:92:PRO:CD	2.53	0.56
34:a:1306:C:H4'	34:a:1312:U:O4	2.06	0.56
10:A:788:A:OP1	15:H:144:GLY:HA2	2.05	0.56
43:j:28:GLY:HA3	43:j:61:GLY:HA2	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:t:50:ALA:HB1	53:t:57:HIS:HB3	1.88	0.55
41:h:15:ASP:O	41:h:19:ASN:N	2.38	0.55
34:a:384:G:H5'	50:q:6:ARG:HB2	1.87	0.55
34:a:491:C:O2'	50:q:14:ARG:NH2	2.40	0.55
10:A:1149:U:H2'	10:A:1150:A:C8	2.42	0.55
10:A:1942:3TD:O2'	10:A:1943:A:OP1	2.24	0.55
10:A:1120:C:H2'	10:A:1121:A:O4'	2.06	0.55
34:a:1140:C:H2'	34:a:1149:G:N7	2.21	0.55
10:A:83:G:H21	10:A:102:A:H2	1.52	0.55
34:a:68:C:H2'	34:a:69:G:C8	2.41	0.55
10:A:1132:A:N6	19:L:134:SER:CB	2.70	0.55
17:J:8:PHE:HA	17:J:12:VAL:HB	1.88	0.55
10:A:955:A:H2'	10:A:956:A:C8	2.42	0.55
34:a:119:A:O2'	34:a:121:A:OP1	2.22	0.55
10:A:688:A:N1	10:A:2396:A:O2'	2.39	0.54
34:a:112:G:N3	34:a:361:A:O2'	2.40	0.54
36:c:54:TYR:CD1	36:c:220:ALA:HB2	2.42	0.54
10:A:1764:A:H2'	10:A:1765:A:O4'	2.07	0.54
46:m:26:LYS:O	46:m:43:LYS:NZ	2.41	0.54
51:r:26:LEU:HD11	51:r:43:SER:HB3	1.89	0.54
36:c:157:MET:HE2	36:c:157:MET:HA	1.89	0.53
35:b:18:G:H4'	35:b:19:A:H8	1.73	0.53
10:A:1932:C:H2'	10:A:1957:G:C8	2.43	0.53
7:7:2:VAL:N	10:A:1663:G:HO2'	2.06	0.53
41:h:27:ILE:HG13	41:h:43:LEU:HD23	1.89	0.53
10:A:1693:G:O2'	24:Q:112:ASP:OD2	2.20	0.53
34:a:757:A:H2'	34:a:758:C:O4'	2.09	0.53
10:A:194:A:H2'	10:A:195:C:C6	2.43	0.52
10:A:788:A:O2'	10:A:1703:U:OP1	2.24	0.52
34:a:692:U:H2'	34:a:693:G:O4'	2.10	0.52
34:a:983:A:P	48:o:29:ARG:HH22	2.32	0.52
34:a:1544:C:H2'	34:a:1545:A:N3	2.24	0.52
10:A:12:U:H2'	10:A:12:U:O2	2.08	0.52
10:A:1127:U:O2	10:A:1129:A:H8	1.92	0.52
34:a:20:C:O2'	34:a:580:A:N1	2.41	0.52
34:a:1014:C:O2	34:a:1014:C:O4'	2.27	0.52
10:A:1111:A:H3'	10:A:1112:G:C8	2.44	0.52
10:A:1513:A:H2'	10:A:1514:A:C8	2.45	0.52
10:A:1809:C:H1'	10:A:2636:U:H5'	1.92	0.52
37:d:8:ILE:HD11	37:d:183:TYR:H	1.74	0.52
34:a:641:U:H2'	34:a:641:U:O2	2.10	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:A:1756:U:H2'	10:A:1757:U:O4'	2.10	0.51
10:A:1880:A:H2'	10:A:1881:A:C8	2.45	0.51
34:a:884:C:H4'	42:i:19:MET:HE1	1.92	0.51
34:a:151:A:H3'	34:a:152:A:H8	1.74	0.51
17:J:132:VAL:HG22	17:J:152:MET:HG2	1.93	0.51
37:d:33:HIS:CE1	48:o:38:LYS:HB2	2.45	0.51
34:a:13:U:H4'	34:a:534:C:H4'	1.93	0.51
40:g:30:LEU:HB3	40:g:65:VAL:HG11	1.93	0.51
32:Y:7:ILE:C	32:Y:7:ILE:HD12	2.36	0.51
27:T:48:ARG:NH1	27:T:49:ASP:OD1	2.44	0.51
34:a:774:A:H2'	34:a:775:A:O4'	2.11	0.51
10:A:631:U:H2'	10:A:632:U:C6	2.46	0.51
10:A:923:A:H1'	10:A:924:G:O5'	2.11	0.51
10:A:1108:C:H2'	10:A:1109:U:C6	2.45	0.51
17:J:136:LEU:HD13	17:J:149:VAL:HG12	1.93	0.51
32:Y:73:MET:HB2	32:Y:94:ILE:HD11	1.93	0.51
51:r:19:MET:HB2	51:r:22:THR:HB	1.93	0.51
10:A:102:A:H2'	10:A:103:U:O4'	2.11	0.50
10:A:1766:C:H2'	10:A:1767:G:O4'	2.11	0.50
34:a:1278:G:H2'	34:a:1279:A:C8	2.47	0.50
10:A:195:C:O2'	10:A:847:A:N3	2.41	0.50
34:a:381:A:O2'	34:a:459:A:N7	2.44	0.50
32:Y:7:ILE:HD11	32:Y:65:VAL:HA	1.93	0.50
10:A:2599:A:N7	15:H:158:SER:OG	2.41	0.50
34:a:765:U:H2'	34:a:766:G:O4'	2.11	0.50
40:g:11:ARG:HG3	40:g:14:ILE:HB	1.94	0.50
41:h:51:GLU:HB2	41:h:58:ALA:HB2	1.94	0.50
4:4:16:ASP:HB3	4:4:21:PHE:HB3	1.93	0.50
10:A:1675:G:H1'	10:A:1679:A:N6	2.26	0.50
34:a:1411:G:H2'	34:a:1412:4OC:O4'	2.11	0.50
39:f:115:LEU:HD13	39:f:123:ILE:HG21	1.94	0.50
34:a:1014:C:O2'	34:a:1015:A:O5'	2.30	0.50
10:A:1120:C:O2'	19:L:91:GLU:CA	2.53	0.50
13:D:47(D):U:H2'	13:D:47(E):C:O4'	2.11	0.50
32:Y:75:ALA:HB2	32:Y:92:LEU:HB2	1.93	0.49
10:A:522:G:H4'	10:A:547:A:N1	2.27	0.49
12:C:42:ASP:HA	12:C:47:PRO:HA	1.94	0.49
10:A:2370:U:HO2'	10:A:2400:U:HO2'	1.58	0.49
33:Z:25:GLU:O	33:Z:27:LYS:NZ	2.44	0.49
34:a:224:U:H2'	34:a:225:G:C8	2.47	0.49
34:a:1172:C:H2'	34:a:1173:G:H8	1.77	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
42:i:34:LYS:HG2	42:i:60:LEU:HD21	1.94	0.49
10:A:620:G:O2'	10:A:1292:A:OP1	2.30	0.49
10:A:1712:A:O2'	10:A:1718:G:N7	2.33	0.49
34:a:756:A:H1'	34:a:757:A:H2	1.78	0.49
34:a:955:A:H2'	34:a:956:G:C8	2.48	0.49
3:3:5:GLN:HB2	3:3:59:LYS:HD2	1.94	0.49
34:a:476:C:O4'	34:a:476:C:O2	2.30	0.49
10:A:597:U:H2'	10:A:598:G:O4'	2.12	0.49
38:e:15:LEU:HD13	38:e:56:LYS:HA	1.95	0.49
10:A:575:G:O2'	10:A:577:A:N7	2.41	0.49
10:A:2776:A:H1'	18:K:63:THR:HG22	1.94	0.49
34:a:1002:G:O2'	34:a:1003:A:N7	2.45	0.49
16:I:81:PRO:HB3	16:I:89:VAL:HG23	1.95	0.49
34:a:9:A:N6	38:e:196:GLU:O	2.45	0.49
37:d:57:GLU:HB2	37:d:64:ASN:HB2	1.95	0.49
12:C:36:LEU:HD12	12:C:56:ILE:HG12	1.94	0.49
47:n:33:ILE:HG22	47:n:63:TYR:CE2	2.47	0.49
12:C:68:PRO:HB2	12:C:74:VAL:HG22	1.95	0.48
34:a:413:U:H1'	34:a:506:A:H2'	1.95	0.48
37:d:63:ILE:HD12	37:d:94:THR:HG21	1.94	0.48
13:D:58:A:O2'	13:D:60:U:OP2	2.28	0.48
10:A:250:G:H4'	10:A:432:G:C5	2.48	0.48
10:A:2330:G:H2'	10:A:2331:G:O4'	2.13	0.48
10:A:2774:G:O6	10:A:2782:C:H5''	2.14	0.48
42:i:21:ARG:NH1	42:i:70:ASP:O	2.47	0.48
44:k:54:ALA:HB3	44:k:58:TYR:HB2	1.94	0.48
1:1:52:ARG:NH2	10:A:445:G:O6	2.45	0.48
46:m:63:ARG:HB3	46:m:79:TYR:HE1	1.77	0.48
47:n:81:MET:HE3	47:n:92:ARG:HG2	1.96	0.48
10:A:944:G:H3'	10:A:945:A:C5'	2.44	0.48
10:A:1306:A:H2'	10:A:1307:G:O4'	2.13	0.48
12:C:54:ALA:HB1	12:C:66:ILE:HG22	1.95	0.48
34:a:1527:G:H2'	34:a:1529:MA6:OP2	2.14	0.48
10:A:2372:G:N3	10:A:2408:C:H2'	2.28	0.48
34:a:665:U:H3	34:a:757:A:H62	1.62	0.48
50:q:22:VAL:HG21	50:q:60:TRP:CD1	2.49	0.48
10:A:717:C:C2	10:A:854:G:N2	2.82	0.48
34:a:18:U:H2'	34:a:19:C:C6	2.49	0.48
34:a:456:A:H2'	34:a:457:A:O4'	2.13	0.48
10:A:1357:G:C2	10:A:1366:U:H5''	2.49	0.47
15:H:15:VAL:HG21	15:H:186:VAL:HG11	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:A:1121:A:OP1	19:L:93:ASN:CG	2.56	0.47
10:A:1449:A:H8	10:A:1634:A:H62	1.61	0.47
11:B:112:A:H5'	25:R:55:GLN:HG3	1.96	0.47
34:a:588:C:H2'	34:a:589:G:O4'	2.14	0.47
47:n:86:TYR:CZ	47:n:90:ARG:HD2	2.50	0.47
24:Q:52:LYS:NZ	24:Q:96:ARG:O	2.48	0.47
10:A:2298:G:OP1	33:Z:26:SER:HB3	2.15	0.47
10:A:2403:A:H2'	10:A:2404:A:O4'	2.14	0.47
41:h:104:LEU:HD11	41:h:124:ILE:HG22	1.96	0.47
13:D:74:C:O4'	13:D:74:C:O2	2.31	0.47
34:a:1015:A:H8	34:a:1016:A:N7	2.12	0.47
10:A:830:U:H2'	10:A:831:C:C6	2.50	0.47
24:Q:93:TYR:HH	24:Q:121:LEU:HB3	1.80	0.47
47:n:9:ILE:HB	47:n:18:SER:HB3	1.97	0.47
10:A:12:U:O2	10:A:12:U:C2'	2.63	0.47
10:A:1107:G:H5''	19:L:135:MET:HG2	1.97	0.47
10:A:1107:G:O2'	19:L:88:GLY:HA3	2.15	0.47
24:Q:121:LEU:O	24:Q:122:VAL:HB	2.15	0.47
34:a:33:A:H2'	34:a:34:A:C8	2.50	0.47
10:A:457:G:OP2	10:A:2433:C:O2'	2.33	0.47
10:A:577:A:H2'	10:A:577:A:N3	2.28	0.47
10:A:2611:U:H2'	10:A:2612:U:H2'	1.97	0.47
34:a:1333:G:H2'	34:a:1334:A:C8	2.50	0.47
10:A:342:A:N3	10:A:362:C:O2'	2.46	0.46
10:A:2026:C:OP1	15:H:132:LYS:NZ	2.47	0.46
10:A:2335:G:N3	10:A:2335:G:H2'	2.29	0.46
34:a:108:A:C6	34:a:334:G:C6	3.03	0.46
8:8:15:LYS:HE3	10:A:676:A:H5''	1.97	0.46
10:A:538:G:H2'	10:A:539:G:O4'	2.15	0.46
34:a:721:G:H2'	34:a:722:G:C8	2.50	0.46
10:A:1070:A:OP2	10:A:1178:C:O2'	2.32	0.46
34:a:954:G:H2'	34:a:954:G:N3	2.29	0.46
10:A:1757:U:C2'	10:A:1758:A:H5''	2.45	0.46
12:C:57:ASN:C	12:C:59:PRO:HD3	2.40	0.46
34:a:274:G:H3'	51:r:71:ALA:HB2	1.98	0.46
34:a:637:A:H2'	34:a:638:G:O4'	2.15	0.46
34:a:727:C:O2	52:s:44:ILE:N	2.48	0.46
39:f:19:ASN:N	39:f:34:THR:O	2.46	0.46
43:j:52:GLN:N	43:j:53:PRO:HD2	2.31	0.46
10:A:1111:A:C8	12:C:52:GLN:HG2	2.51	0.46
10:A:1730:C:H2'	10:A:1731:G:O4'	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:540:A:N6	34:a:1216:G:O2'	2.48	0.46
34:a:1036:C:H3'	34:a:1046:G:C4	2.50	0.46
34:a:1533:U:OP1	45:l:128:ARG:NH1	2.48	0.46
6:6:1:MET:HG2	10:A:2312:C:C5	2.51	0.46
10:A:852:U:O2	16:I:74:ARG:NH2	2.49	0.46
10:A:901:G:H2'	10:A:902:A:C8	2.50	0.46
34:a:1541:G:H2'	34:a:1542:A:C8	2.50	0.46
37:d:56:ILE:HG23	37:d:63:ILE:HG23	1.98	0.46
10:A:1473:G:H2'	10:A:1474:C:C6	2.51	0.46
10:A:1959:A:H2'	10:A:1960:G:O4'	2.16	0.46
34:a:262:G:O2'	51:r:20:ASP:O	2.34	0.46
46:m:87:LEU:HD11	46:m:110:ILE:HG21	1.97	0.46
10:A:618:A:OP2	10:A:2526:C:O2'	2.34	0.46
10:A:699:U:O2'	10:A:700:A:OP2	2.30	0.46
24:Q:26:ILE:HD11	24:Q:69:VAL:HG21	1.97	0.46
30:W:13:THR:H	30:W:16:SER:HB3	1.81	0.46
34:a:22:G:H2'	34:a:23:G:C8	2.51	0.46
50:q:15:ASN:N	50:q:16:PRO:HD3	2.31	0.46
10:A:1053:A:N3	10:A:1197:C:O2'	2.47	0.46
34:a:861:A:H2'	34:a:862:G:O4'	2.16	0.46
34:a:1261:A:HO2'	34:a:1379:C:HO2'	1.64	0.46
38:e:28:LYS:HG2	38:e:29:ARG:HG3	1.97	0.46
10:A:2714:U:H2'	10:A:2715:G:O4'	2.16	0.46
34:a:1312:U:C5	47:n:17:ILE:HG13	2.50	0.46
47:n:26:GLY:H	47:n:29:THR:HG1	1.64	0.46
10:A:768:A:H2'	10:A:769:U:O4'	2.15	0.45
10:A:2716:U:H5''	10:A:2740:A:C2	2.51	0.45
10:A:1394:U:H2'	10:A:1395:G:O4'	2.16	0.45
23:P:39:THR:OG1	23:P:99:PRO:HD3	2.16	0.45
34:a:26:C:H5'	34:a:532:G:H1'	1.97	0.45
34:a:1370:A:OP2	48:o:35:ARG:NH2	2.50	0.45
10:A:90:A:H1'	10:A:91:A:C8	2.52	0.45
10:A:224:A:N1	10:A:268:A:O2'	2.49	0.45
10:A:2007:G:O2'	10:A:2009:U:OP2	2.33	0.45
10:A:2094:G:O2'	10:A:2096:G:H5''	2.16	0.45
10:A:2479:C:H2'	10:A:2480:A:C8	2.51	0.45
34:a:1085:G:O2'	34:a:1112:A:N1	2.46	0.45
34:a:1441:C:H2'	34:a:1442:G:O4'	2.16	0.45
10:A:165:C:H2'	10:A:166:A:H5'	1.98	0.45
10:A:1169:G:C6	10:A:1170:A:N6	2.84	0.45
21:N:24:VAL:HG13	21:N:33:ALA:HB2	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:A:36:G:N3	10:A:496:G:O2'	2.49	0.45
10:A:903:G:N3	10:A:2295:A:H2'	2.31	0.45
14:G:107:PRO:HD2	14:G:110:LEU:HD22	1.98	0.45
36:c:90:PHE:HB3	36:c:151:ILE:HG22	1.99	0.45
42:i:104:ALA:HB3	42:i:115:ASP:HB3	1.98	0.45
49:p:9:ASN:HA	49:p:12:ILE:HG12	1.99	0.45
10:A:1038:C:OP1	27:T:53:ARG:NH2	2.50	0.45
10:A:2496:A:H4'	23:P:56:ARG:CD	2.46	0.45
10:A:161:A:H2'	10:A:162:A:C8	2.51	0.45
12:C:60:GLU:HB2	12:C:63:LEU:HB3	1.97	0.45
34:a:9:A:C5	38:e:200:ARG:HB3	2.51	0.45
34:a:262:G:OP1	51:r:72:THR:HG22	2.16	0.45
34:a:816:C:H2'	34:a:817:G:O4'	2.17	0.45
10:A:37:C:H4'	10:A:497:U:OP1	2.16	0.45
17:J:79:LEU:HD13	17:J:85:ILE:HG21	1.98	0.45
24:Q:24:LEU:HD23	24:Q:44:VAL:HG21	1.98	0.45
31:X:1:MET:HE1	31:X:26:THR:HB	1.98	0.45
34:a:524:U:O2'	34:a:527:C:N3	2.49	0.45
34:a:1000:U:H1'	34:a:1002:G:H8	1.82	0.45
10:A:862:C:O2'	10:A:884:U:H5''	2.17	0.45
10:A:902:A:N6	10:A:903:G:C6	2.84	0.45
10:A:2053:U:H2'	10:A:2054:G:O4'	2.17	0.45
16:I:10:ASP:OD1	16:I:11:GLY:N	2.50	0.45
19:L:16:GLY:HA2	19:L:43:ASN:HA	1.99	0.45
49:p:23:GLY:O	49:p:28:GLN:NE2	2.50	0.45
10:A:2354:A:H2'	10:A:2355:A:C8	2.52	0.45
34:a:627:U:H5	38:e:127:ASP:HB3	1.82	0.45
34:a:52:A:N7	34:a:113:U:O2'	2.49	0.44
34:a:1422:C:H2'	34:a:1423:A:C8	2.52	0.44
42:i:105:LEU:HD12	42:i:129:ALA:HB3	2.00	0.44
47:n:19:LEU:HD13	47:n:33:ILE:HD11	1.99	0.44
10:A:774:G:C6	14:G:207:LYS:HB2	2.52	0.44
10:A:1072:A:N6	10:A:1169:G:H2'	2.32	0.44
10:A:2672:G:H4'	10:A:2759:G:O2'	2.18	0.44
4:4:1:MET:HG2	11:B:41:C:H5''	1.98	0.44
10:A:1424:A:C2	10:A:1438:G:C2	3.06	0.44
34:a:831:G:HO2'	42:i:2:THR:N	2.15	0.44
34:a:1090:G:H5'	39:f:134:ILE:HD13	1.99	0.44
36:c:117:ILE:HG21	36:c:141:TYR:HB2	1.97	0.44
10:A:1630:A:H1'	10:A:1631:G:H1'	2.00	0.44
34:a:595:G:N2	34:a:763:G:C4	2.85	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:a:723:A:H2'	34:a:724:A:C8	2.52	0.44
35:b:18:G:H4'	35:b:19:A:C8	2.53	0.44
38:e:85:ASN:O	38:e:88:ILE:HG12	2.18	0.44
10:A:1937:G:O2'	10:A:1938:U:O5'	2.36	0.44
10:A:2348:G:N2	10:A:2349:A:O4'	2.46	0.44
10:A:2872:G:H2'	10:A:2873:C:O4'	2.18	0.44
36:c:148:LEU:HD22	36:c:151:ILE:HD11	2.00	0.44
52:s:46:PRO:HB2	52:s:48:ARG:HG2	1.98	0.44
10:A:126:A:H5''	10:A:127:C:O4'	2.18	0.44
10:A:745:G:O2'	10:A:1676:A:N3	2.47	0.44
10:A:922:G:H22	10:A:944:G:P	2.41	0.44
10:A:1806:U:H5	10:A:1811:A:N7	2.16	0.44
14:G:29:PRO:HG2	14:G:34:LEU:HD11	2.00	0.44
42:i:50:GLU:HB2	42:i:61:ARG:HB3	2.00	0.44
10:A:774:G:C4	10:A:1802:U:O2	2.71	0.43
14:G:72:ASP:OD2	14:G:189:ARG:NH2	2.50	0.43
34:a:1150:U:H2'	34:a:1151:U:C6	2.53	0.43
34:a:1261:A:H2'	34:a:1262:A:C8	2.53	0.43
34:a:1319:G:N7	47:n:98:ARG:NH2	2.66	0.43
41:h:75:VAL:HA	41:h:87:VAL:O	2.17	0.43
45:l:84:VAL:HG11	45:l:97:ILE:HG12	1.99	0.43
46:m:52:THR:HG22	46:m:64:LYS:HD3	2.00	0.43
51:r:23:ILE:HG21	51:r:55:ALA:HB3	2.00	0.43
10:A:749:G:N3	10:A:771:G:C2	2.86	0.43
10:A:2806:U:H5''	10:A:2807:G:H2'	2.01	0.43
14:G:140:VAL:HG13	14:G:161:SER:HB2	1.99	0.43
27:T:58:ARG:HA	27:T:61:TRP:CE3	2.53	0.43
34:a:390:A:H2'	34:a:391:A:C8	2.53	0.43
53:t:48:THR:HA	53:t:61:TYR:HA	1.99	0.43
10:A:2285:C:O2'	10:A:2454:C:OP2	2.31	0.43
10:A:506:A:H2'	10:A:507:C:O4'	2.19	0.43
10:A:1107:G:O4'	19:L:135:MET:HA	2.18	0.43
34:a:99:U:H2'	34:a:100:A:C8	2.53	0.43
34:a:422:A:H2'	34:a:423:A:O4'	2.18	0.43
37:d:119:ILE:O	37:d:123:LEU:HG	2.18	0.43
44:k:53:ARG:O	48:o:45:ARG:NH1	2.51	0.43
46:m:55:PRO:HD3	46:m:61:ALA:O	2.17	0.43
23:P:78:PRO:HG2	23:P:81:VAL:HG11	2.00	0.43
34:a:810:A:H2'	34:a:811:G:O4'	2.18	0.43
6:6:2:ARG:HG2	6:6:22:ASN:HA	2.01	0.43
8:8:39:LYS:NZ	10:A:2392:G:N7	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:A:1933:G:H1	10:A:1950:U:H3	1.66	0.43
34:a:100:A:O5'	34:a:100:A:H8	2.00	0.43
34:a:171:A:H2'	34:a:172:A:O4'	2.19	0.43
34:a:745:U:H2'	34:a:746:U:C6	2.54	0.43
43:j:19:ALA:HB2	43:j:69:VAL:HG23	2.01	0.43
1:1:52:ARG:NH1	10:A:445:G:N7	2.65	0.43
10:A:1107:G:H4'	19:L:135:MET:HG2	2.00	0.43
10:A:1423:C:H2'	10:A:1424:A:C8	2.53	0.43
10:A:2331:G:OP1	17:J:121:ALA:HA	2.18	0.43
34:a:1483:U:H2'	34:a:1484:G:H5''	2.00	0.43
10:A:524:A:N1	10:A:545:G:H4'	2.34	0.43
10:A:1480:G:H2'	10:A:1481:A:O4'	2.18	0.43
12:C:71:LYS:HA	12:C:74:VAL:HG23	2.00	0.43
13:D:65:G:O2'	13:D:66:C:OP1	2.34	0.43
34:a:1222:U:H5'	34:a:1223:A:C8	2.54	0.43
34:a:1248:A:N7	34:a:1309:A:N6	2.66	0.43
10:A:650:U:OP1	16:I:102:PRO:HA	2.19	0.43
10:A:1121:A:OP1	19:L:93:ASN:ND2	2.51	0.43
20:M:65:PHE:HZ	20:M:101:LEU:HD21	1.84	0.43
34:a:695:A:HO2'	34:a:696:G:P	2.40	0.43
34:a:1252:G:H2'	34:a:1253:A:O4'	2.18	0.43
10:A:168:A:H3'	10:A:169:G:H8	1.84	0.43
10:A:1734:A:H2'	10:A:1735:C:O4'	2.19	0.43
10:A:2325:A:H2'	10:A:2326:G:O4'	2.19	0.43
10:A:991:A:H2'	10:A:992:A:C8	2.54	0.42
34:a:1434:U:H4'	34:a:1434:U:OP1	2.18	0.42
45:l:14:LYS:HB2	45:l:77:HIS:HB3	2.01	0.42
10:A:59:U:H1'	10:A:73:A:H2'	2.01	0.42
10:A:2472:2MG:HM21	10:A:2476:H2U:O4	2.19	0.42
13:D:73:G:H3'	13:D:74:C:H5''	2.01	0.42
34:a:1029:A:H2'	34:a:1030:G:H5'	2.00	0.42
38:e:118:HIS:CD2	38:e:148:LEU:HD11	2.54	0.42
40:g:7:MET:HE2	40:g:60:TYR:HD2	1.84	0.42
10:A:2559:G:O2'	10:A:2684:A:N1	2.50	0.42
34:a:412:G:N7	38:e:3:ARG:NH2	2.66	0.42
34:a:1228:U:H2'	34:a:1229:U:C6	2.54	0.42
37:d:35:ASP:OD1	37:d:58:ARG:NH2	2.52	0.42
44:k:15:HIS:HB3	44:k:70:HIS:CE1	2.55	0.42
10:A:2779:C:H2'	10:A:2780:A:O4'	2.20	0.42
21:N:115:VAL:HG13	21:N:121:VAL:HG21	2.01	0.42
29:V:62:TYR:O	29:V:63:ASP:C	2.63	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
42:i:80:ILE:HG12	42:i:129:ALA:HA	2.00	0.42
10:A:946:A:H2'	10:A:947:U:O4'	2.19	0.42
19:L:49:GLN:O	19:L:50:ALA:C	2.63	0.42
34:a:20:C:H4'	34:a:873:A:O4'	2.18	0.42
34:a:345:G:H2'	34:a:346:A:C8	2.55	0.42
34:a:437:U:H3'	38:e:9:TRP:CD2	2.54	0.42
34:a:489:G:O2'	34:a:491:C:N4	2.49	0.42
38:e:182:ARG:HA	38:e:185:LEU:HD12	2.01	0.42
47:n:85:SER:O	47:n:86:TYR:C	2.62	0.42
10:A:24:G:O2'	29:V:78:GLU:O	2.37	0.42
10:A:907:G:H2'	10:A:908:A:O4'	2.19	0.42
10:A:1648:C:O2'	10:A:1654:A:N1	2.39	0.42
12:C:26:ILE:HD13	12:C:116:VAL:HG22	2.02	0.42
2:2:26:PHE:CG	30:W:4:ARG:HD2	2.54	0.42
4:4:37:TRP:CG	4:4:38:GLU:H	2.38	0.42
10:A:167:U:H2'	10:A:168:A:O4'	2.19	0.42
10:A:1812:A:H2'	10:A:1814:A:N7	2.34	0.42
34:a:1152:G:H2'	34:a:1153:G:O4'	2.20	0.42
34:a:1379:C:H2'	34:a:1380:G:C8	2.54	0.42
37:d:188:ALA:HB3	37:d:195:LEU:HB2	2.00	0.42
39:f:77:VAL:O	39:f:80:THR:HG22	2.20	0.42
44:k:80:THR:HB	44:k:83:THR:HG23	2.01	0.42
5:5:9:SER:HB3	10:A:2047:A:H5'	2.01	0.42
10:A:963:A:H5''	11:B:94:C:O2'	2.20	0.42
10:A:2827:A:O2'	10:A:2828:U:O4'	2.35	0.42
15:H:159:ASP:HA	15:H:160:ALA:HA	1.85	0.42
34:a:1091:A:H5''	39:f:21:VAL:HG11	2.01	0.42
34:a:1334:A:H2'	34:a:1335:C:O4'	2.20	0.42
10:A:115:C:H2'	10:A:116:G:O4'	2.19	0.42
10:A:289:U:H2'	10:A:290:U:C6	2.55	0.42
10:A:1363:U:O2'	10:A:2037:G:O2'	2.35	0.42
10:A:2377:C:H2'	10:A:2378:G:O4'	2.20	0.42
10:A:2390:U:O2	33:Z:47:ARG:NH2	2.51	0.42
16:I:19:LEU:HD21	16:I:199:ALA:HB1	2.02	0.42
37:d:34:GLU:O	37:d:38:ILE:HG12	2.19	0.42
10:A:856:U:H2'	22:O:21:ARG:HA	2.00	0.42
10:A:1110:U:H2'	10:A:1112:G:OP2	2.20	0.42
34:a:160:A:H2'	34:a:161:A:O4'	2.19	0.42
34:a:1135:G:H1'	34:a:1136:U:H5	1.84	0.42
38:e:46:GLU:OE2	38:e:50:GLN:NE2	2.53	0.42
42:i:47:LYS:HB2	42:i:63:PHE:HB2	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:C:48:THR:HB	12:C:53:LEU:HD11	2.02	0.41
19:L:88:GLY:HA2	19:L:97:VAL:HG21	2.02	0.41
42:i:27:LEU:HD13	42:i:27:LEU:N	2.35	0.41
9:9:14:CYS:SG	9:9:32:HIS:HB3	2.60	0.41
10:A:83:G:N2	10:A:101:G:H1'	2.35	0.41
10:A:305:A:N6	10:A:410:G:H22	2.18	0.41
10:A:684:U:H2'	10:A:685:C:C6	2.55	0.41
10:A:2687:A:H2'	10:A:2688:G:O4'	2.19	0.41
10:A:2692:A:H2'	10:A:2693:C:O4'	2.20	0.41
18:K:17:VAL:HG21	18:K:50:ILE:HD11	2.01	0.41
21:N:43:VAL:HG21	21:N:52:VAL:HG12	2.03	0.41
44:k:66:GLU:N	48:o:57:ARG:O	2.50	0.41
44:k:92:LEU:HB3	44:k:93:PRO:HD2	2.02	0.41
51:r:70:SER:O	51:r:74:ARG:NH1	2.53	0.41
54:u:45:ASN:O	54:u:46:LYS:C	2.63	0.41
10:A:774:G:C5	14:G:207:LYS:HB2	2.55	0.41
34:a:435:C:OP1	38:e:13:ARG:NH2	2.53	0.41
34:a:855:C:H2'	34:a:856:C:C6	2.56	0.41
10:A:575:G:N3	10:A:575:G:H2'	2.36	0.41
10:A:613:G:H2'	10:A:2057:A:N7	2.36	0.41
22:O:145:VAL:HG12	22:O:146:ILE:HG13	2.02	0.41
23:P:54:MET:HE1	23:P:104:PHE:CG	2.55	0.41
34:a:302:C:OP1	34:a:618:G:O2'	2.30	0.41
39:f:110:PRO:HB3	39:f:137:VAL:HG23	2.01	0.41
45:l:113:VAL:O	45:l:114:THR:C	2.62	0.41
10:A:838:A:OP2	10:A:2098:A:O2'	2.35	0.41
10:A:1658:A:N6	29:V:88:ARG:O	2.53	0.41
21:N:35:ILE:HG21	21:N:103:ALA:HB3	2.03	0.41
23:P:35:GLN:HE22	32:Y:81:PRO:HB2	1.86	0.41
34:a:188:U:H2'	34:a:189:G:H8	1.85	0.41
34:a:1064:G:N7	34:a:1210:C:H5'	2.35	0.41
36:c:14:VAL:HG13	36:c:202:ALA:CB	2.50	0.41
42:i:30:SER:O	42:i:31:ASN:C	2.63	0.41
10:A:351:G:H2'	10:A:352:A:C8	2.55	0.41
10:A:2340:C:H5''	17:J:88:LYS:HD3	2.01	0.41
28:U:14:VAL:HG12	28:U:20:ILE:HG21	2.02	0.41
34:a:475:A:H2'	34:a:476:C:O4'	2.21	0.41
34:a:1283:C:H2'	34:a:1284:A:O4'	2.20	0.41
34:a:814:C:H2'	34:a:815:A:C8	2.56	0.41
34:a:1543:U:H2'	34:a:1544:C:C6	2.56	0.41
36:c:186:ILE:HG23	36:c:202:ALA:HB3	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:9:15:LYS:O	9:9:25:VAL:HA	2.21	0.41
10:A:871:U:O2'	22:O:53:GLY:HA3	2.20	0.41
10:A:1944:U:O5'	10:A:1944:U:H6	2.04	0.41
10:A:2347:A:H2'	10:A:2347:A:N3	2.36	0.41
34:a:927:A:H2'	34:a:928:A:O4'	2.21	0.41
34:a:1297:A:H2'	34:a:1298:A:C8	2.55	0.41
34:a:1507:C:H2'	34:a:1508:G:O4'	2.21	0.41
38:e:98:VAL:HG13	38:e:103:LEU:HB2	2.03	0.41
10:A:363:A:H4'	10:A:365:A:C8	2.55	0.41
10:A:579:U:H2'	10:A:580:C:C6	2.55	0.41
10:A:2552:G:O2'	10:A:2769:G:O2'	2.31	0.41
13:D:47(I):A:H2'	13:D:47(J):G:O4'	2.21	0.41
34:a:1177:A:H3'	34:a:1178:C:H5''	2.03	0.41
38:e:50:GLN:HB3	38:e:197:TYR:HB2	2.03	0.41
10:A:2086:A:H2'	10:A:2530:2MA:HM23	2.03	0.41
11:B:83:C:H2'	11:B:84:U:O4'	2.21	0.41
12:C:22:GLU:O	12:C:26:ILE:HG13	2.21	0.41
24:Q:93:TYR:OH	24:Q:121:LEU:HB3	2.21	0.41
29:V:14:PRO:HG2	29:V:78:GLU:HG2	2.03	0.41
34:a:541:A:C6	34:a:544:C:C2	3.09	0.41
34:a:987:A:H61	34:a:1326:G:H1'	1.86	0.41
34:a:1002:G:H2'	34:a:1002:G:N3	2.36	0.41
34:a:1444:A:H2'	34:a:1445:G:O4'	2.21	0.41
4:4:55:HIS:NE2	17:J:114:PHE:HB3	2.36	0.40
10:A:945:A:H2'	10:A:946:A:O4'	2.21	0.40
17:J:108:LEU:HD21	17:J:130:LEU:HD21	2.02	0.40
28:U:14:VAL:HB	28:U:97:ILE:HG13	2.02	0.40
34:a:381:A:C2	34:a:382:A:C8	3.08	0.40
10:A:226:A:O2'	10:A:466:C:O2	2.38	0.40
10:A:637:U:H2'	10:A:638:U:C6	2.56	0.40
13:D:9:G:O4'	13:D:21:A:N6	2.54	0.40
34:a:134:A:H2'	34:a:135:C:O4'	2.20	0.40
34:a:502:C:O2'	34:a:504:G:H1'	2.21	0.40
35:b:14:A:H2'	35:b:15:A:O4'	2.22	0.40
36:c:170:ARG:NH1	36:c:195:GLU:OE1	2.55	0.40
43:j:8:TYR:HB2	43:j:23:LEU:HB2	2.02	0.40
10:A:1817:C:H2'	10:A:1818:A:C5	2.56	0.40
31:X:70:LEU:HD11	31:X:92:ARG:NH2	2.36	0.40
34:a:196:A:N3	34:a:196:A:H5''	2.37	0.40
34:a:1545:A:H3'	34:a:1546:C:C5'	2.51	0.40
37:d:113:ARG:NH1	37:d:185:HIS:O	2.53	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:A:923:A:H2'	10:A:923:A:N3	2.36	0.40
10:A:1132:A:H61	19:L:134:SER:HB3	1.79	0.40
10:A:2306:G:N7	33:Z:22:ARG:NH2	2.68	0.40
10:A:2355:A:H2'	10:A:2356:A:C8	2.57	0.40
10:A:2793:G:H2'	10:A:2793:G:N3	2.37	0.40
30:W:19:ALA:HB1	30:W:24:LYS:HB2	2.02	0.40
35:b:12:A:H2'	35:b:12:A:N3	2.36	0.40
40:g:31:ALA:HB2	40:g:37:VAL:HG23	2.04	0.40
51:r:23:ILE:HG13	51:r:48:THR:HB	2.04	0.40
10:A:1120:C:HO2'	19:L:91:GLU:HA	1.78	0.40
10:A:1546:A:H2'	10:A:1547:C:O4'	2.21	0.40
10:A:1916:A:N1	10:A:2261:G:H1'	2.36	0.40
19:L:106:ARG:HA	19:L:125:MET:HG2	2.02	0.40
41:h:75:VAL:HB	41:h:86:GLN:HB3	2.02	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	1	59/62 (95%)	58 (98%)	1 (2%)	0	100	100
2	2	63/69 (91%)	63 (100%)	0	0	100	100
3	3	55/59 (93%)	54 (98%)	1 (2%)	0	100	100
4	4	57/84 (68%)	56 (98%)	1 (2%)	0	100	100
5	5	51/57 (90%)	49 (96%)	2 (4%)	0	100	100
6	6	46/49 (94%)	46 (100%)	0	0	100	100
7	7	42/45 (93%)	41 (98%)	1 (2%)	0	100	100
8	8	63/66 (96%)	62 (98%)	1 (2%)	0	100	100
9	9	35/37 (95%)	35 (100%)	0	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
12	C	181/186 (97%)	179 (99%)	2 (1%)	0	100	100
14	G	271/277 (98%)	265 (98%)	6 (2%)	0	100	100
15	H	213/220 (97%)	206 (97%)	7 (3%)	0	100	100
16	I	203/207 (98%)	200 (98%)	3 (2%)	0	100	100
17	J	175/179 (98%)	172 (98%)	3 (2%)	0	100	100
18	K	175/178 (98%)	169 (97%)	6 (3%)	0	100	100
19	L	134/140 (96%)	130 (97%)	4 (3%)	0	100	100
20	M	143/145 (99%)	140 (98%)	3 (2%)	0	100	100
21	N	120/122 (98%)	113 (94%)	7 (6%)	0	100	100
22	O	144/146 (99%)	138 (96%)	5 (4%)	1 (1%)	18	34
23	P	134/144 (93%)	132 (98%)	2 (2%)	0	100	100
24	Q	118/122 (97%)	114 (97%)	4 (3%)	0	100	100
25	R	117/119 (98%)	113 (97%)	4 (3%)	0	100	100
26	S	112/116 (97%)	111 (99%)	1 (1%)	0	100	100
27	T	115/118 (98%)	115 (100%)	0	0	100	100
28	U	100/102 (98%)	98 (98%)	2 (2%)	0	100	100
29	V	109/117 (93%)	108 (99%)	1 (1%)	0	100	100
30	W	88/91 (97%)	87 (99%)	1 (1%)	0	100	100
31	X	100/105 (95%)	95 (95%)	5 (5%)	0	100	100
32	Y	92/217 (42%)	88 (96%)	4 (4%)	0	100	100
33	Z	74/94 (79%)	70 (95%)	4 (5%)	0	100	100
36	c	219/255 (86%)	211 (96%)	7 (3%)	1 (0%)	24	43
37	d	202/217 (93%)	190 (94%)	12 (6%)	0	100	100
38	e	197/200 (98%)	194 (98%)	3 (2%)	0	100	100
39	f	155/166 (93%)	150 (97%)	5 (3%)	0	100	100
40	g	92/98 (94%)	90 (98%)	2 (2%)	0	100	100
41	h	142/156 (91%)	141 (99%)	1 (1%)	0	100	100
42	i	129/132 (98%)	124 (96%)	5 (4%)	0	100	100
43	j	126/132 (96%)	119 (94%)	7 (6%)	0	100	100
44	k	96/102 (94%)	94 (98%)	2 (2%)	0	100	100
45	l	116/129 (90%)	107 (92%)	9 (8%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
46	m	133/137 (97%)	130 (98%)	3 (2%)	0	100	100
47	n	112/121 (93%)	107 (96%)	5 (4%)	0	100	100
48	o	58/61 (95%)	58 (100%)	0	0	100	100
49	p	84/89 (94%)	82 (98%)	2 (2%)	0	100	100
50	q	88/91 (97%)	84 (96%)	4 (4%)	0	100	100
51	r	79/87 (91%)	75 (95%)	3 (4%)	1 (1%)	9	18
52	s	62/80 (78%)	61 (98%)	1 (2%)	0	100	100
53	t	81/92 (88%)	80 (99%)	1 (1%)	0	100	100
54	u	79/83 (95%)	78 (99%)	1 (1%)	0	100	100
All	All	5639/6101 (92%)	5482 (97%)	154 (3%)	3 (0%)	49	71

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
22	O	29	LYS
36	c	71	GLY
51	r	68	PRO

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	1	51/52 (98%)	51 (100%)	0	100	100
2	2	59/62 (95%)	59 (100%)	0	100	100
3	3	52/53 (98%)	52 (100%)	0	100	100
4	4	56/75 (75%)	55 (98%)	1 (2%)	51	71
5	5	48/50 (96%)	48 (100%)	0	100	100
6	6	46/47 (98%)	46 (100%)	0	100	100
7	7	39/40 (98%)	39 (100%)	0	100	100
8	8	56/57 (98%)	56 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
9	9	35/35 (100%)	35 (100%)	0	100	100
12	C	160/162 (99%)	158 (99%)	2 (1%)	61	76
14	G	220/224 (98%)	220 (100%)	0	100	100
15	H	173/177 (98%)	172 (99%)	1 (1%)	78	88
16	I	168/169 (99%)	167 (99%)	1 (1%)	78	88
17	J	156/158 (99%)	154 (99%)	2 (1%)	61	76
18	K	154/155 (99%)	153 (99%)	1 (1%)	78	88
19	L	108/111 (97%)	107 (99%)	1 (1%)	70	82
20	M	123/123 (100%)	123 (100%)	0	100	100
21	N	100/100 (100%)	100 (100%)	0	100	100
22	O	112/112 (100%)	111 (99%)	1 (1%)	70	82
23	P	113/119 (95%)	113 (100%)	0	100	100
24	Q	101/102 (99%)	101 (100%)	0	100	100
25	R	95/95 (100%)	94 (99%)	1 (1%)	65	79
26	S	100/102 (98%)	100 (100%)	0	100	100
27	T	97/98 (99%)	97 (100%)	0	100	100
28	U	86/86 (100%)	86 (100%)	0	100	100
29	V	90/94 (96%)	89 (99%)	1 (1%)	65	79
30	W	81/82 (99%)	81 (100%)	0	100	100
31	X	87/90 (97%)	87 (100%)	0	100	100
32	Y	83/190 (44%)	83 (100%)	0	100	100
33	Z	59/75 (79%)	58 (98%)	1 (2%)	53	71
36	c	192/221 (87%)	191 (100%)	1 (0%)	81	89
37	d	165/175 (94%)	164 (99%)	1 (1%)	78	88
38	e	174/175 (99%)	173 (99%)	1 (1%)	78	88
39	f	123/131 (94%)	122 (99%)	1 (1%)	73	84
40	g	82/86 (95%)	78 (95%)	4 (5%)	22	43
41	h	124/132 (94%)	124 (100%)	0	100	100
42	i	112/113 (99%)	111 (99%)	1 (1%)	70	82
43	j	106/109 (97%)	106 (100%)	0	100	100
44	k	88/91 (97%)	87 (99%)	1 (1%)	65	79

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
45	l	94/104 (90%)	94 (100%)	0	100	100
46	m	117/119 (98%)	117 (100%)	0	100	100
47	n	99/104 (95%)	98 (99%)	1 (1%)	68	81
48	o	52/53 (98%)	52 (100%)	0	100	100
49	p	79/81 (98%)	79 (100%)	0	100	100
50	q	76/77 (99%)	76 (100%)	0	100	100
51	r	76/82 (93%)	76 (100%)	0	100	100
52	s	57/68 (84%)	57 (100%)	0	100	100
53	t	72/80 (90%)	72 (100%)	0	100	100
54	u	67/69 (97%)	67 (100%)	0	100	100
All	All	4863/5165 (94%)	4839 (100%)	24 (0%)	78	89

All (24) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
4	4	5	ILE
12	C	64	LEU
12	C	104	LEU
15	H	200	ASN
16	I	49	HIS
17	J	54	VAL
17	J	132	VAL
18	K	43	PHE
19	L	105	VAL
22	O	59	ARG
25	R	25	THR
29	V	11	ARG
33	Z	92	VAL
36	c	134	VAL
37	d	90	LEU
38	e	25	GLU
39	f	15	VAL
40	g	36	GLU
40	g	43	TRP
40	g	61	ASN
40	g	62	ILE
42	i	27	LEU
44	k	17	VAL
47	n	16	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (47) such sidechains are listed below:

Mol	Chain	Res	Type
1	1	20	HIS
3	3	48	ASN
5	5	14	ASN
7	7	27	ASN
14	G	61	GLN
14	G	86	ASN
14	G	134	ASN
14	G	199	GLN
15	H	14	GLN
15	H	136	GLN
15	H	200	ASN
16	I	38	ASN
16	I	188	ASN
17	J	37	ASN
17	J	45	GLN
17	J	63	GLN
20	M	119	GLN
23	P	35	GLN
24	Q	61	ASN
24	Q	73	ASN
24	Q	79	GLN
24	Q	106	GLN
25	R	48	ASN
27	T	52	GLN
27	T	108	GLN
28	U	81	ASN
29	V	90	GLN
31	X	76	ASN
32	Y	38	ASN
36	c	93	ASN
38	e	115	ASN
38	e	118	HIS
38	e	149	ASN
39	f	145	GLN
39	f	146	ASN
40	g	77	GLN
41	h	86	GLN
41	h	153	HIS
42	i	18	ASN
45	l	15	ASN
45	l	77	HIS

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Mol	Chain	Res	Type
46	m	39	ASN
47	n	31	GLN
47	n	76	ASN
50	q	15	ASN
50	q	46	ASN
53	t	47	HIS

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
10	A	2796/2923 (95%)	384 (13%)	79 (2%)
11	B	112/115 (97%)	15 (13%)	5 (4%)
13	D	92/93 (98%)	13 (14%)	2 (2%)
34	a	1508/1555 (96%)	233 (15%)	0
35	b	17/24 (70%)	5 (29%)	0
All	All	4525/4710 (96%)	650 (14%)	86 (1%)

All (650) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
10	A	12	U
10	A	33	U
10	A	34	U
10	A	64	A
10	A	71	A
10	A	74	U
10	A	75	G
10	A	90	A
10	A	117	A
10	A	118	A
10	A	119	U
10	A	156	A
10	A	163	U
10	A	164	A
10	A	166	A
10	A	167	U
10	A	168	A
10	A	177	G
10	A	199	A
10	A	202	A
10	A	203	U

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Mol	Chain	Res	Type
10	A	216	A
10	A	218	G
10	A	219	A
10	A	224	A
10	A	225	A
10	A	232	U
10	A	233	U
10	A	251	G
10	A	255	G
10	A	269	G
10	A	270	C
10	A	289	U
10	A	298	U
10	A	299	U
10	A	300	G
10	A	314	A
10	A	315	C
10	A	316	G
10	A	321	U
10	A	324	A
10	A	327	G
10	A	354	A
10	A	373	A
10	A	388	A
10	A	389	A
10	A	404	U
10	A	406	A
10	A	410	G
10	A	411	A
10	A	429	C
10	A	432	G
10	A	449	U
10	A	450	C
10	A	457	G
10	A	458	A
10	A	497	U
10	A	502	C
10	A	527	G
10	A	550	A
10	A	553	A
10	A	555	C
10	A	567	G

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Mol	Chain	Res	Type
10	A	575	G
10	A	576	U
10	A	577	A
10	A	578	G
10	A	590	U
10	A	592	A
10	A	593	U
10	A	594	G
10	A	606	G
10	A	614	U
10	A	615	A
10	A	616	G
10	A	618	A
10	A	630	G
10	A	646	A
10	A	650	U
10	A	679	G
10	A	682	A
10	A	683	G
10	A	690	U
10	A	700	A
10	A	715	A
10	A	731	U
10	A	759	U
10	A	762	C
10	A	767	A
10	A	775	A
10	A	792	5MU
10	A	802	G
10	A	809	A
10	A	810	A
10	A	820	G
10	A	827	A
10	A	829	U
10	A	835	U
10	A	837	G
10	A	850	G
10	A	857	C
10	A	872	U
10	A	873	U
10	A	903	G
10	A	904	G

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Mol	Chain	Res	Type
10	A	911	A
10	A	912	C
10	A	914	G
10	A	920	A
10	A	923	A
10	A	924	G
10	A	943	C
10	A	944	G
10	A	945	A
10	A	955	A
10	A	960	C
10	A	969	A
10	A	970	U
10	A	985	A
10	A	988	C
10	A	989	A
10	A	990	G
10	A	1001	A
10	A	1005	G
10	A	1018	A
10	A	1027	A
10	A	1028	G
10	A	1029	C
10	A	1040	A
10	A	1056	U
10	A	1057	A
10	A	1066	G
10	A	1070	A
10	A	1077	U
10	A	1083	G
10	A	1090	A
10	A	1091	G
10	A	1101	A
10	A	1102	U
10	A	1107	G
10	A	1110	U
10	A	1111	A
10	A	1112	G
10	A	1113	A
10	A	1114	A
10	A	1116	C
10	A	1117	A

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Mol	Chain	Res	Type
10	A	1118	G
10	A	1119	C
10	A	1121	A
10	A	1122	U
10	A	1123	C
10	A	1124	A
10	A	1127	U
10	A	1128	A
10	A	1129	A
10	A	1131	G
10	A	1132	A
10	A	1134	U
10	A	1139	A
10	A	1140	A
10	A	1152	U
10	A	1155	A
10	A	1156	G
10	A	1172	A
10	A	1174	U
10	A	1176	U
10	A	1177	A
10	A	1178	C
10	A	1179	C
10	A	1186	A
10	A	1215	U
10	A	1216	U
10	A	1217	U
10	A	1258	A
10	A	1276	G
10	A	1291	A
10	A	1292	A
10	A	1294	G
10	A	1309	G
10	A	1310	A
10	A	1337	A
10	A	1357	G
10	A	1358	A
10	A	1381	U
10	A	1382	C
10	A	1389	U
10	A	1402	A
10	A	1405	G

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Mol	Chain	Res	Type
10	A	1415	A
10	A	1416	U
10	A	1421	A
10	A	1423	C
10	A	1433	U
10	A	1434	U
10	A	1449	A
10	A	1451	U
10	A	1455	U
10	A	1456	U
10	A	1457	U
10	A	1458	A
10	A	1459	A
10	A	1463	A
10	A	1464	U
10	A	1471	A
10	A	1472	C
10	A	1481	A
10	A	1490	G
10	A	1497	A
10	A	1511	C
10	A	1526	G
10	A	1533	A
10	A	1536	C
10	A	1537	A
10	A	1552	U
10	A	1553	A
10	A	1560	A
10	A	1569	G
10	A	1578	A
10	A	1596	G
10	A	1606	C
10	A	1616	A
10	A	1625	U
10	A	1631	G
10	A	1651	C
10	A	1652	A
10	A	1690	A
10	A	1691	G
10	A	1692	C
10	A	1708	A
10	A	1718	G

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Mol	Chain	Res	Type
10	A	1740	G
10	A	1742	A
10	A	1758	A
10	A	1759	G
10	A	1772	G
10	A	1789	A
10	A	1790	G
10	A	1791	G
10	A	1800	A
10	A	1809	C
10	A	1818	A
10	A	1827	C
10	A	1828	U
10	A	1829	A
10	A	1843	U
10	A	1856	A
10	A	1874	A
10	A	1875	A
10	A	1899	U
10	A	1909	C
10	A	1933	G
10	A	1938	U
10	A	1939	A
10	A	1941	C
10	A	1942	3TD
10	A	1943	A
10	A	1946	A
10	A	1947	C
10	A	1952	C
10	A	1953	U
10	A	1956	G
10	A	1957	G
10	A	1958	U
10	A	1963	A
10	A	1965	A
10	A	1982	U
10	A	1990	C
10	A	1994	C
10	A	1997	A
10	A	1998	A
10	A	1999	G
10	A	2009	U

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Mol	Chain	Res	Type
10	A	2018	U
10	A	2020	U
10	A	2040	A
10	A	2050	A
10	A	2058	A
10	A	2059	G
10	A	2060	A
10	A	2062	G
10	A	2063	C
10	A	2070	C
10	A	2076	A
10	A	2082	C
10	A	2083	G
10	A	2087	A
10	A	2088	G
10	A	2089	A
10	A	2096	G
10	A	2120	G
10	A	2230	G
10	A	2238	U
10	A	2239	A
10	A	2252	A
10	A	2265	G
10	A	2266	G
10	A	2295	A
10	A	2305	A
10	A	2306	G
10	A	2310	C
10	A	2313	A
10	A	2314	A
10	A	2316	G
10	A	2330	G
10	A	2331	G
10	A	2332	U
10	A	2333	U
10	A	2334	G
10	A	2335	G
10	A	2338	A
10	A	2339	U
10	A	2347	A
10	A	2348	G
10	A	2349	A

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Mol	Chain	Res	Type
10	A	2361	U
10	A	2362	A
10	A	2374	C
10	A	2377	C
10	A	2406	G
10	A	2410	G
10	A	2412	C
10	A	2418	G
10	A	2429	U
10	A	2430	C
10	A	2433	C
10	A	2436	G
10	A	2452	A
10	A	2456	G
10	A	2457	A
10	A	2468	C
10	A	2475	A
10	A	2495	A
10	A	2496	A
10	A	2518	U
10	A	2529	G
10	A	2532	G
10	A	2545	A
10	A	2556	G
10	A	2557	U
10	A	2561	C
10	A	2581	U
10	A	2593	A
10	A	2594	G
10	A	2600	C
10	A	2601	G7M
10	A	2605	G
10	A	2612	U
10	A	2629	A
10	A	2636	U
10	A	2637	C
10	A	2640	U
10	A	2642	U
10	A	2663	U
10	A	2666	A
10	A	2690	G
10	A	2692	A

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Mol	Chain	Res	Type
10	A	2716	U
10	A	2718	C
10	A	2741	G
10	A	2753	U
10	A	2760	A
10	A	2762	G
10	A	2769	G
10	A	2771	G
10	A	2778	G
10	A	2784	A
10	A	2791	A
10	A	2792	A
10	A	2805	A
10	A	2806	U
10	A	2807	G
10	A	2824	G
10	A	2825	U
10	A	2827	A
10	A	2828	U
10	A	2852	U
10	A	2887	G
10	A	2888	A
10	A	2892	G
10	A	2894	C
10	A	2903	A
10	A	2912	A
10	A	2913	G
11	B	10	U
11	B	23	U
11	B	32	U
11	B	33	U
11	B	42	G
11	B	43	A
11	B	49	G
11	B	51	A
11	B	54	U
11	B	55	A
11	B	64	A
11	B	65	G
11	B	87	C
11	B	88	G
11	B	106	G

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Mol	Chain	Res	Type
13	D	7	G
13	D	16	A
13	D	18	G
13	D	19	G
13	D	20(B)	G
13	D	47(B)	G
13	D	47(C)	G
13	D	47(F)	A
13	D	48	C
13	D	65	G
13	D	66	C
13	D	74	C
13	D	76	A
34	a	7	G
34	a	8	G
34	a	9	A
34	a	10	G
34	a	32	G
34	a	33	A
34	a	40	G
34	a	48	C
34	a	49	C
34	a	51	A
34	a	52	A
34	a	97	G
34	a	120	C
34	a	131	C
34	a	152	A
34	a	159	G
34	a	163	C
34	a	173	U
34	a	183	U
34	a	190	A
34	a	198	G
34	a	205	A
34	a	212	A
34	a	213	G
34	a	219	C
34	a	220	U
34	a	221	U
34	a	222	G
34	a	223	C

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Mol	Chain	Res	Type
34	a	234	A
34	a	248	U
34	a	249	G
34	a	252	U
34	a	253	U
34	a	255	G
34	a	259	G
34	a	274	G
34	a	275	C
34	a	288	C
34	a	289	G
34	a	297	G
34	a	313	G
34	a	314	A
34	a	323	A
34	a	324	C
34	a	329	A
34	a	336	C
34	a	337	A
34	a	340	G
34	a	353	C
34	a	355	G
34	a	356	G
34	a	360	C
34	a	362	G
34	a	364	A
34	a	375	U
34	a	380	C
34	a	392	G
34	a	406	C
34	a	414	G
34	a	419	A
34	a	420	U
34	a	421	G
34	a	422	A
34	a	432	G
34	a	437	U
34	a	447	U
34	a	456	A
34	a	461	C
34	a	492	G
34	a	493	G

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Mol	Chain	Res	Type
34	a	505	A
34	a	513	G
34	a	519	C
34	a	526	C
34	a	529	G
34	a	539	U
34	a	540	A
34	a	544	C
34	a	555	A
34	a	567	A
34	a	574	G
34	a	580	A
34	a	581	A
34	a	584	C
34	a	585	G
34	a	604	A
34	a	650	A
34	a	661	U
34	a	673	A
34	a	678	A
34	a	695	A
34	a	696	G
34	a	710	A
34	a	711	G
34	a	712	A
34	a	726	A
34	a	729	A
34	a	730	G
34	a	731	U
34	a	732	G
34	a	741	G
34	a	742	A
34	a	756	A
34	a	757	A
34	a	763	G
34	a	785	A
34	a	802	A
34	a	817	G
34	a	823	A
34	a	825	C
34	a	836	A
34	a	844	G

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Mol	Chain	Res	Type
34	a	862	G
34	a	881	A
34	a	885	A
34	a	893	U
34	a	894	G
34	a	911	G
34	a	923	A
34	a	924	A
34	a	935	G
34	a	936	G
34	a	940	C
34	a	943	C
34	a	944	A
34	a	948	G
34	a	969	U
34	a	978	A
34	a	980	G
34	a	981	C
34	a	984	A
34	a	985	G
34	a	986	A
34	a	996	A
34	a	1000	U
34	a	1001	U
34	a	1002	G
34	a	1003	A
34	a	1013	A
34	a	1014	C
34	a	1015	A
34	a	1017	C
34	a	1018	U
34	a	1030	G
34	a	1031	C
34	a	1034	U
34	a	1035	C
34	a	1036	C
34	a	1046	G
34	a	1047	A
34	a	1048	C
34	a	1054	G
34	a	1056	C
34	a	1066	A

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Mol	Chain	Res	Type
34	a	1067	U
34	a	1076	U
34	a	1096	U
34	a	1105	G
34	a	1106	U
34	a	1111	C
34	a	1112	A
34	a	1119	G
34	a	1130	G
34	a	1141	A
34	a	1149	G
34	a	1155	C
34	a	1156	A
34	a	1169	U
34	a	1170	G
34	a	1174	G
34	a	1175	U
34	a	1177	A
34	a	1178	C
34	a	1194	G
34	a	1206	A
34	a	1207	A
34	a	1211	A
34	a	1223	A
34	a	1225	G
34	a	1235	A
34	a	1236	C
34	a	1237	A
34	a	1248	A
34	a	1250	U
34	a	1267	A
34	a	1270	G
34	a	1289	A
34	a	1291	U
34	a	1292	C
34	a	1295	A
34	a	1296	U
34	a	1297	A
34	a	1300	G
34	a	1308	C
34	a	1309	A
34	a	1310	G

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Mol	Chain	Res	Type
34	a	1312	U
34	a	1315	G
34	a	1322	G
34	a	1330	C
34	a	1345	C
34	a	1346	U
34	a	1356	A
34	a	1374	U
34	a	1389	G
34	a	1391	U
34	a	1408	A
34	a	1429	G
34	a	1434	U
34	a	1436	A
34	a	1437	C
34	a	1452	G
34	a	1453	A
34	a	1456	A
34	a	1463	U
34	a	1464	A
34	a	1484	G
34	a	1487	A
34	a	1490	A
34	a	1504	A
34	a	1505	G
34	a	1508	G
34	a	1510	A
34	a	1513	A
34	a	1514	A
34	a	1517	U
34	a	1528	G
34	a	1530	MA6
34	a	1540	G
34	a	1541	G
34	a	1546	C
34	a	1547	C
35	b	12	A
35	b	14	A
35	b	16	A
35	b	17	U
35	b	19	A

All (86) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
10	A	33	U
10	A	50	U
10	A	130	A
10	A	176	A
10	A	202	A
10	A	232	U
10	A	258	A
10	A	288	C
10	A	298	U
10	A	314	A
10	A	366	G
10	A	388	A
10	A	449	U
10	A	520	G
10	A	548	A
10	A	614	U
10	A	690	U
10	A	700	A
10	A	741	G
10	A	809	A
10	A	903	G
10	A	910	C
10	A	911	A
10	A	923	A
10	A	969	A
10	A	988	C
10	A	1028	G
10	A	1060	U
10	A	1111	A
10	A	1113	A
10	A	1114	A
10	A	1128	A
10	A	1131	G
10	A	1135	G
10	A	1139	A
10	A	1155	A
10	A	1176	U
10	A	1177	A
10	A	1185	U
10	A	1291	A
10	A	1308	C
10	A	1323	A
10	A	1338	U

Continued on next page...

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Mol	Chain	Res	Type
10	A	1339	U
10	A	1357	G
10	A	1381	U
10	A	1433	U
10	A	1434	U
10	A	1463	A
10	A	1540	U
10	A	1601	U
10	A	1651	C
10	A	1691	G
10	A	1789	A
10	A	1874	A
10	A	1927	A
10	A	1932	C
10	A	1945	A
10	A	2062	G
10	A	2094	G
10	A	2313	A
10	A	2330	G
10	A	2334	G
10	A	2338	A
10	A	2347	A
10	A	2409	G
10	A	2429	U
10	A	2450	U
10	A	2457	A
10	A	2495	A
10	A	2681	A
10	A	2777	A
10	A	2783	U
10	A	2805	A
10	A	2807	G
10	A	2816	C
10	A	2887	G
10	A	2893	A
10	A	2912	A
11	B	32	U
11	B	42	G
11	B	63	U
11	B	64	A
11	B	105	C
13	D	60	U

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Mol	Chain	Res	Type
13	D	65	G

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

22 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
10	H2U	A	2476	10	18,21,22	0.62	0	21,30,33	0.74	1 (4%)
10	3TD	A	1942	10	18,22,23	0.97	1 (5%)	22,32,35	0.92	0
34	5MC	a	976	34	18,22,23	0.33	0	26,32,35	0.51	0
34	MA6	a	1530	34	23,26,27	0.28	0	34,38,41	0.65	1 (2%)
13	5MU	D	54	13	19,22,23	0.27	0	28,32,35	0.27	0
34	G7M	a	535	34	23,26,27	0.71	1 (4%)	35,39,42	0.57	0
34	UR3	a	1509	34	19,22,23	0.31	0	26,32,35	0.67	0
10	2MG	A	2472	10	23,26,27	0.37	0	32,38,41	0.35	0
34	2MG	a	975	34	23,26,27	0.39	0	32,38,41	0.36	0
13	T6A	D	37	35,13	31,34,35	0.48	0	44,49,52	0.65	1 (2%)
34	4OC	a	1412	34	20,23,24	0.38	0	26,32,35	0.49	0
10	5MU	A	792	10	19,22,23	0.25	0	28,32,35	0.39	0
10	2MA	A	2530	10,56	22,25,26	0.24	0	33,37,40	0.71	1 (3%)
10	OMG	A	2580	10	23,26,27	0.33	0	33,38,41	0.38	0
10	G7M	A	2601	10,56	23,26,27	0.70	1 (4%)	35,39,42	0.54	0
13	4SU	D	8	13	18,21,22	0.40	0	26,30,33	1.13	3 (11%)
10	5MU	A	1966	10	19,22,23	0.32	0	28,32,35	0.37	0
13	RSP	D	32	13	17,21,22	0.39	0	22,30,33	0.61	0
13	PSU	D	55	13	18,21,22	0.92	1 (5%)	22,30,33	0.56	0
13	H2U	D	20(A)	13	18,21,22	0.64	0	21,30,33	0.90	1 (4%)
10	OMG	A	2278	10	23,26,27	0.33	0	33,38,41	0.52	1 (3%)
34	MA6	a	1529	34	23,26,27	0.25	0	34,38,41	0.67	1 (2%)

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
10	H2U	A	2476	10	-	0/7/38/39	0/2/2/2
10	3TD	A	1942	10	-	0/7/25/26	0/2/2/2
34	5MC	a	976	34	-	0/7/25/26	0/2/2/2
34	MA6	a	1530	34	-	3/11/29/30	0/3/3/3
13	5MU	D	54	13	-	0/7/25/26	0/2/2/2
34	G7M	a	535	34	-	2/7/25/26	0/3/3/3
34	UR3	a	1509	34	-	2/7/25/26	0/2/2/2
10	2MG	A	2472	10	-	0/9/27/28	0/3/3/3
34	2MG	a	975	34	-	0/9/27/28	0/3/3/3
13	T6A	D	37	35,13	-	0/23/41/42	0/3/3/3
34	4OC	a	1412	34	-	0/9/29/30	0/2/2/2
10	5MU	A	792	10	-	0/7/25/26	0/2/2/2
10	2MA	A	2530	10,56	-	2/7/25/26	0/3/3/3
10	OMG	A	2580	10	-	0/9/27/28	0/3/3/3
10	G7M	A	2601	10,56	-	0/7/25/26	0/3/3/3
13	4SU	D	8	13	-	0/7/25/26	0/2/2/2
10	5MU	A	1966	10	-	0/7/25/26	0/2/2/2
13	RSP	D	32	13	-	0/7/25/26	0/2/2/2
13	PSU	D	55	13	-	0/7/25/26	0/2/2/2
13	H2U	D	20(A)	13	-	5/7/38/39	0/2/2/2
10	OMG	A	2278	10	-	1/9/27/28	0/3/3/3
34	MA6	a	1529	34	-	0/11/29/30	0/3/3/3

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
10	A	1942	3TD	C6-C5	3.66	1.39	1.35
13	D	55	PSU	C6-C5	3.60	1.39	1.35
34	a	535	G7M	C8-N7	2.48	1.37	1.33
10	A	2601	G7M	C8-N7	2.38	1.37	1.33

All (10) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
13	D	8	4SU	C4-N3-C2	-4.04	123.41	127.34
34	a	1529	MA6	C2-N1-C6	2.88	118.56	111.75
34	a	1530	MA6	C2-N1-C6	2.86	118.51	111.75
13	D	8	4SU	C5-C4-N3	2.57	117.08	114.69

Continued on next page...

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	A	2278	OMG	O2'-C2'-C1'	2.39	113.73	109.08
13	D	37	T6A	C5-C6-N6	2.37	124.97	118.71
10	A	2530	2MA	C5-C4-N3	-2.31	124.59	127.19
13	D	20(A)	H2U	O4'-C1'-N1	-2.21	106.29	109.30
13	D	8	4SU	N3-C2-N1	2.17	117.77	114.89
10	A	2476	H2U	O2-C2-N1	-2.06	120.51	123.11

There are no chirality outliers.

All (15) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
34	a	1530	MA6	O4'-C4'-C5'-O5'
34	a	1530	MA6	C3'-C4'-C5'-O5'
10	A	2278	OMG	C1'-C2'-O2'-CM2
34	a	535	G7M	C3'-C4'-C5'-O5'
13	D	20(A)	H2U	C3'-C4'-C5'-O5'
13	D	20(A)	H2U	O4'-C4'-C5'-O5'
13	D	20(A)	H2U	C2'-C1'-N1-C6
34	a	535	G7M	O4'-C4'-C5'-O5'
34	a	1530	MA6	C4'-C5'-O5'-P
13	D	20(A)	H2U	C2'-C1'-N1-C2
13	D	20(A)	H2U	O4'-C1'-N1-C2
10	A	2530	2MA	O4'-C4'-C5'-O5'
34	a	1509	UR3	O4'-C4'-C5'-O5'
34	a	1509	UR3	C3'-C4'-C5'-O5'
10	A	2530	2MA	C4'-C5'-O5'-P

There are no ring outliers.

7 monomers are involved in 6 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
10	A	2476	H2U	1	0
10	A	1942	3TD	1	0
10	A	2472	2MG	1	0
13	D	37	T6A	1	0
34	a	1412	4OC	1	0
10	A	2530	2MA	1	0
34	a	1529	MA6	1	0

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 116 ligands modelled in this entry, 116 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

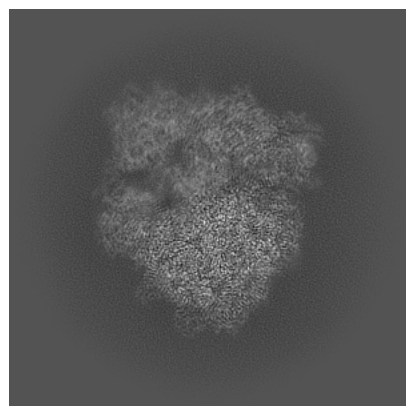
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-55946. These allow visual inspection of the internal detail of the map and identification of artifacts.

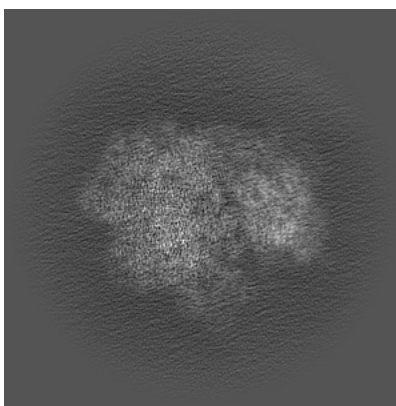
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

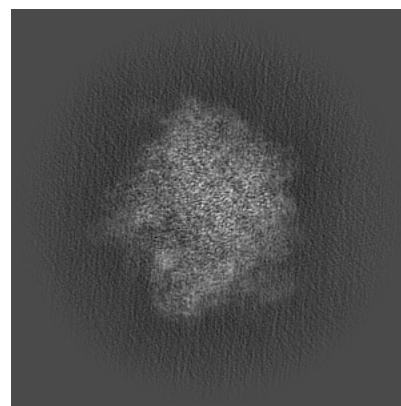
6.1.1 Primary map



X

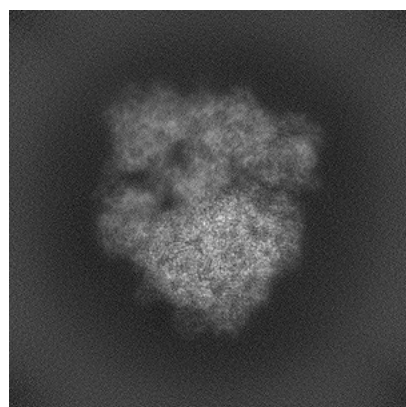


Y

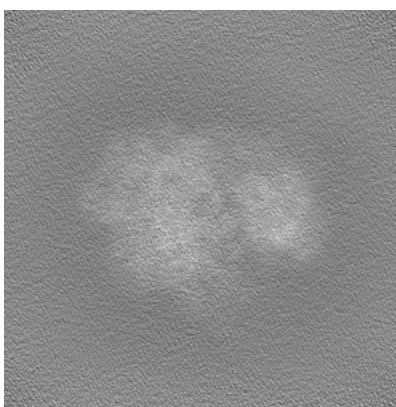


Z

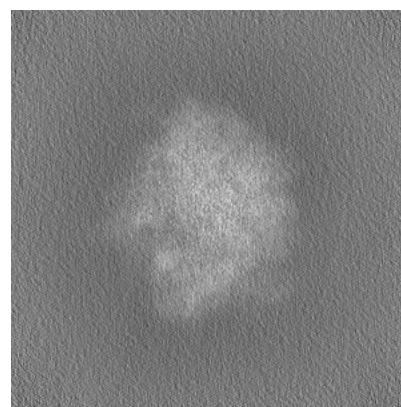
6.1.2 Raw map



X



Y

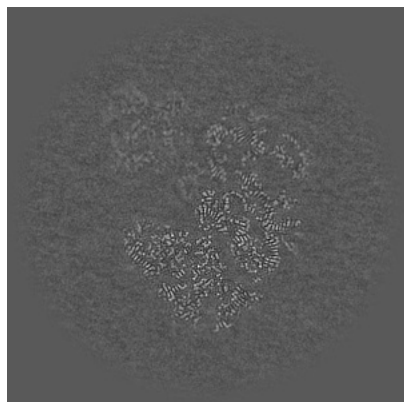


Z

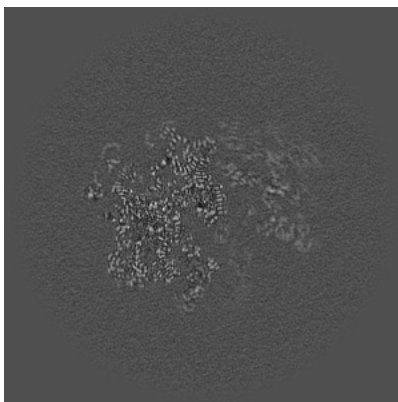
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

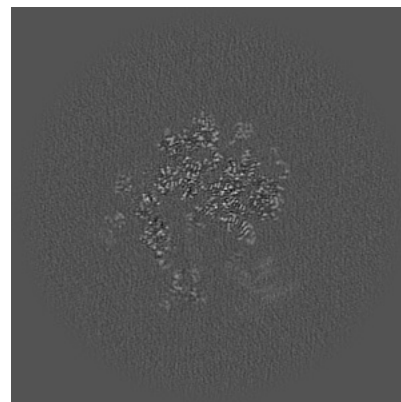
6.2.1 Primary map



X Index: 300

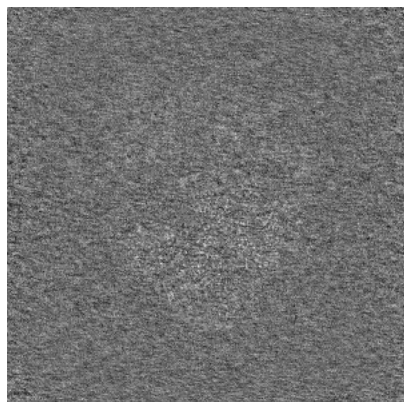


Y Index: 300

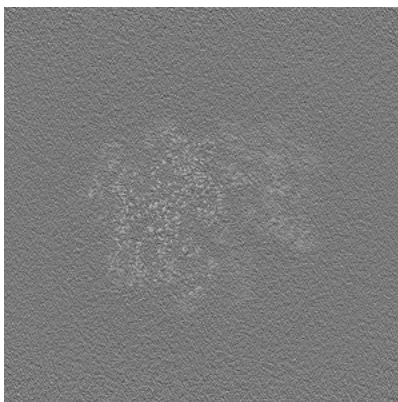


Z Index: 300

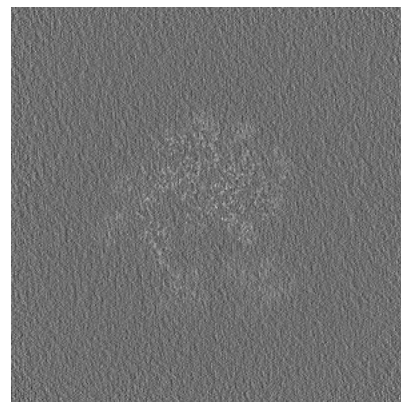
6.2.2 Raw map



X Index: 300



Y Index: 300

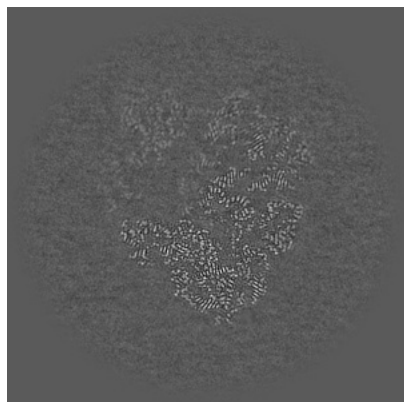


Z Index: 300

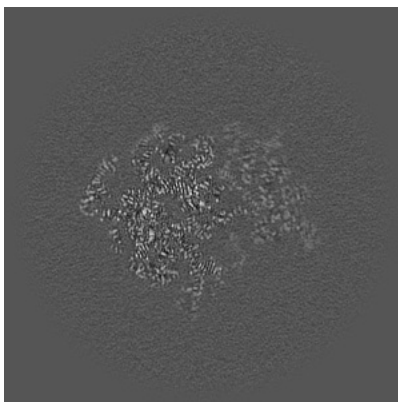
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

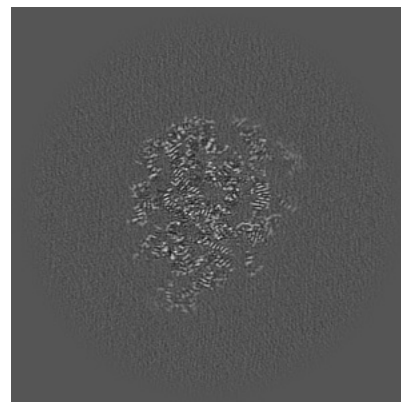
6.3.1 Primary map



X Index: 287

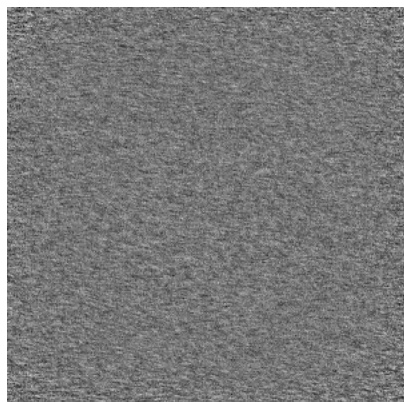


Y Index: 314

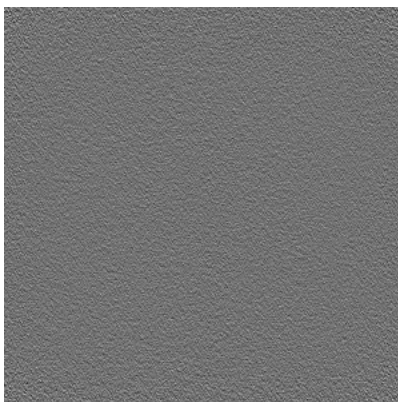


Z Index: 244

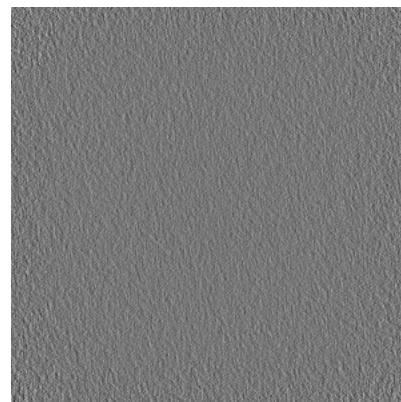
6.3.2 Raw map



X Index: 0



Y Index: 0

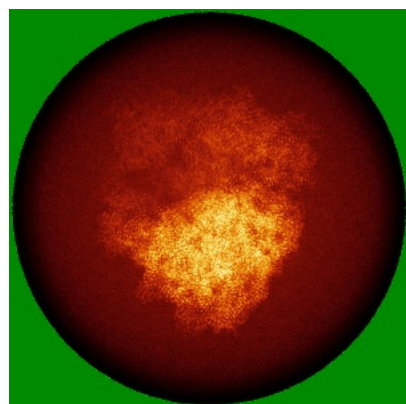


Z Index: 0

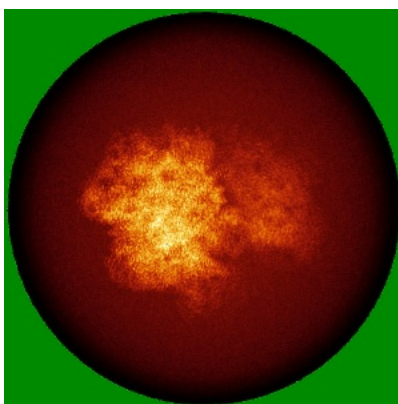
The images above show the largest variance slices of the map in three orthogonal directions.

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

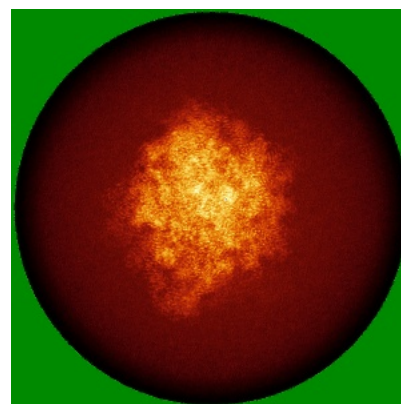
6.4.1 Primary map



X

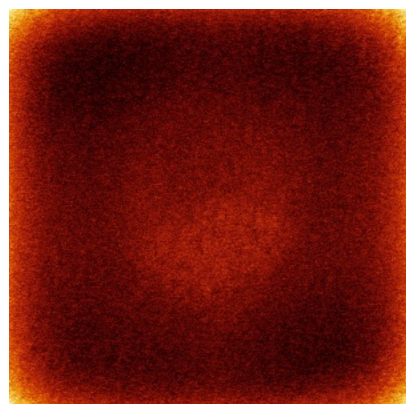


Y

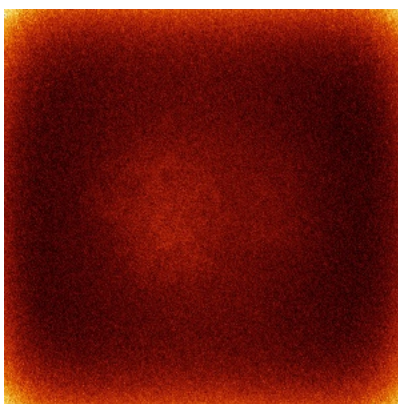


Z

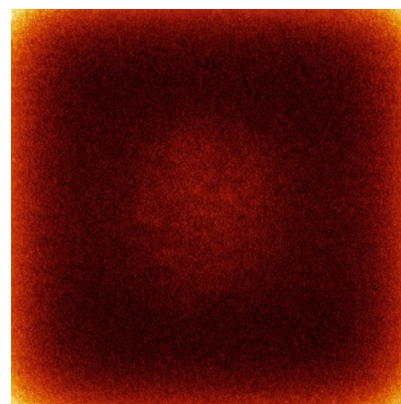
6.4.2 Raw map



X



Y

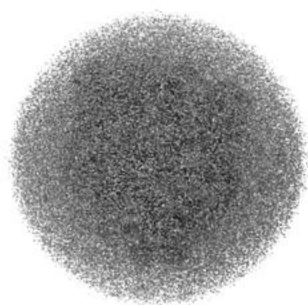


Z

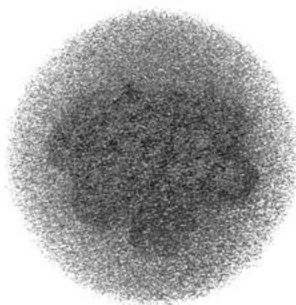
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views [i](#)

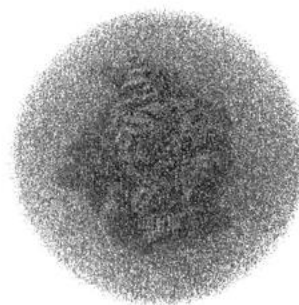
6.5.1 Primary map



X



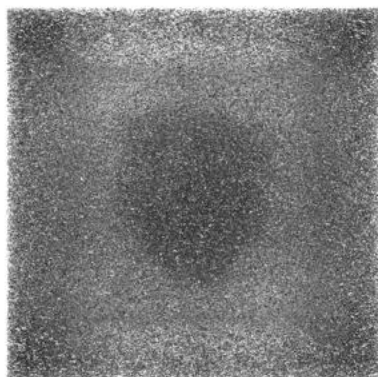
Y



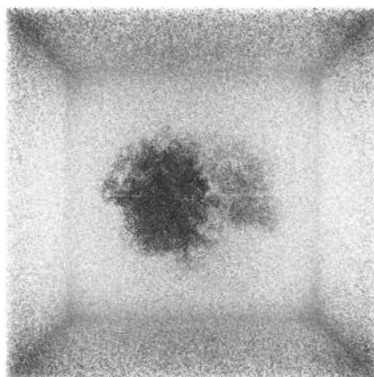
Z

The images above show the 3D surface view of the map at the recommended contour level 2.2. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

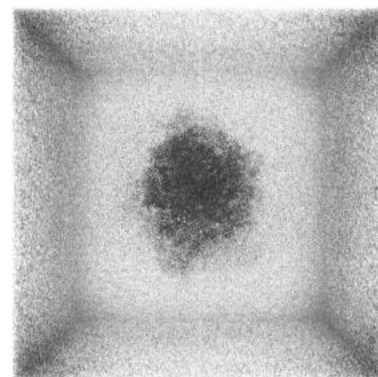
6.5.2 Raw map



X



Y



Z

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

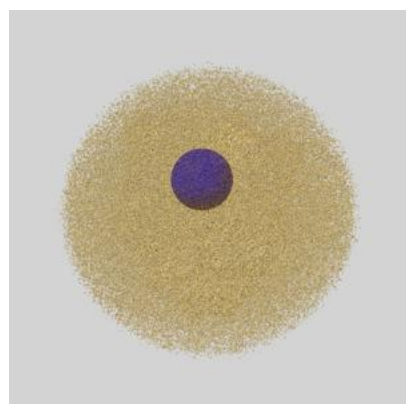
6.6 Mask visualisation [i](#)

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

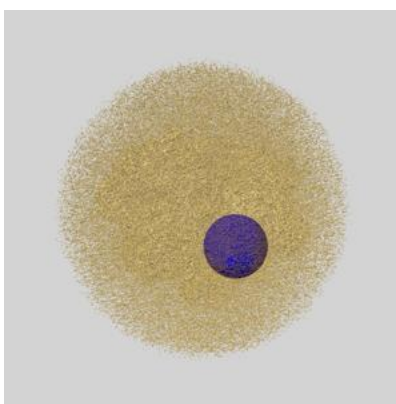
A mask typically either:

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

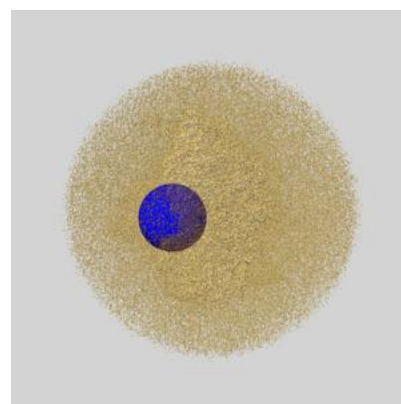
6.6.1 emd_55946_msk_1.map [i](#)



X

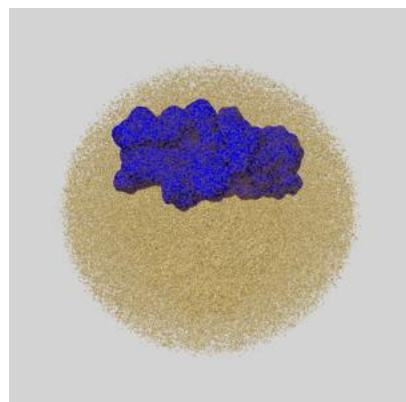


Y

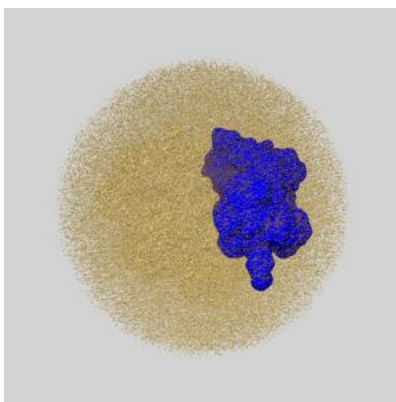


Z

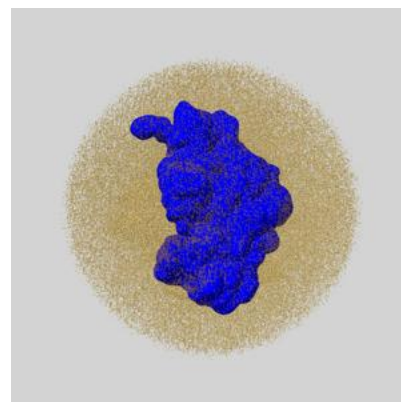
6.6.2 emd_55946_msk_2.map [i](#)



X

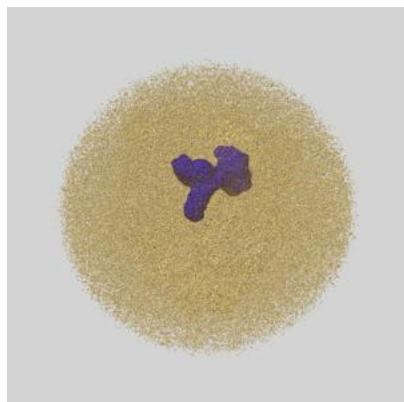


Y

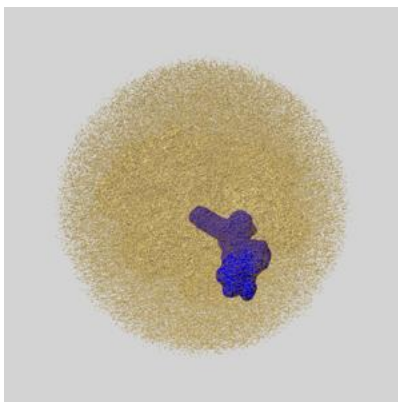


Z

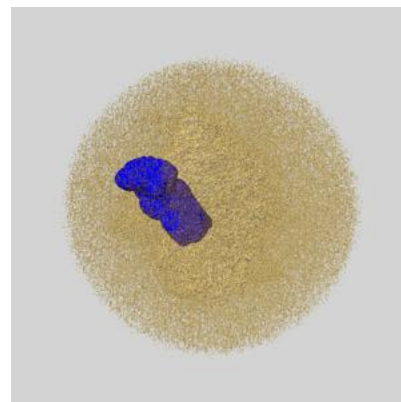
6.6.3 emd_55946_msk_3.map [i](#)



X

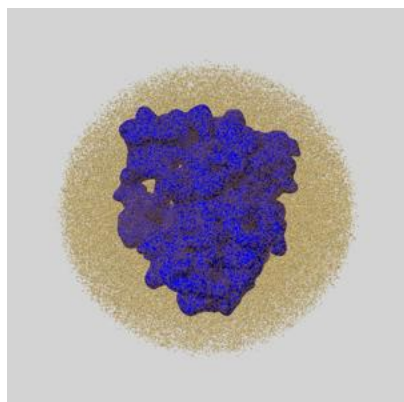


Y

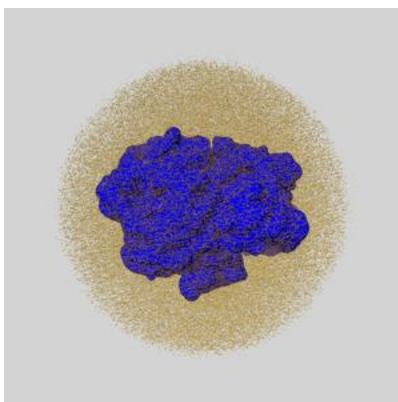


Z

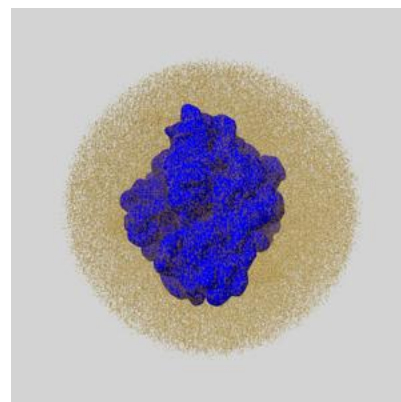
6.6.4 emd_55946_msk_4.map [i](#)



X

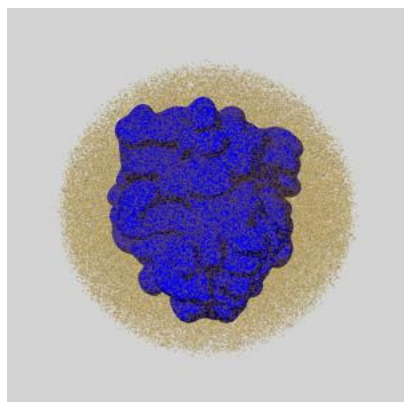


Y

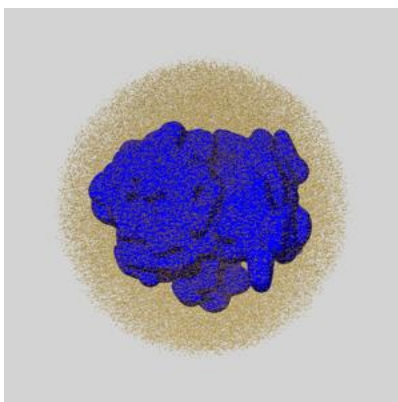


Z

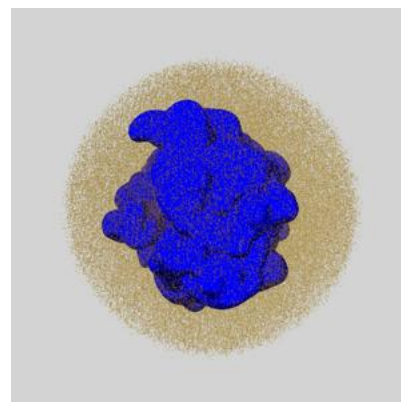
6.6.5 emd_55946_msk_5.map [i](#)



X



Y

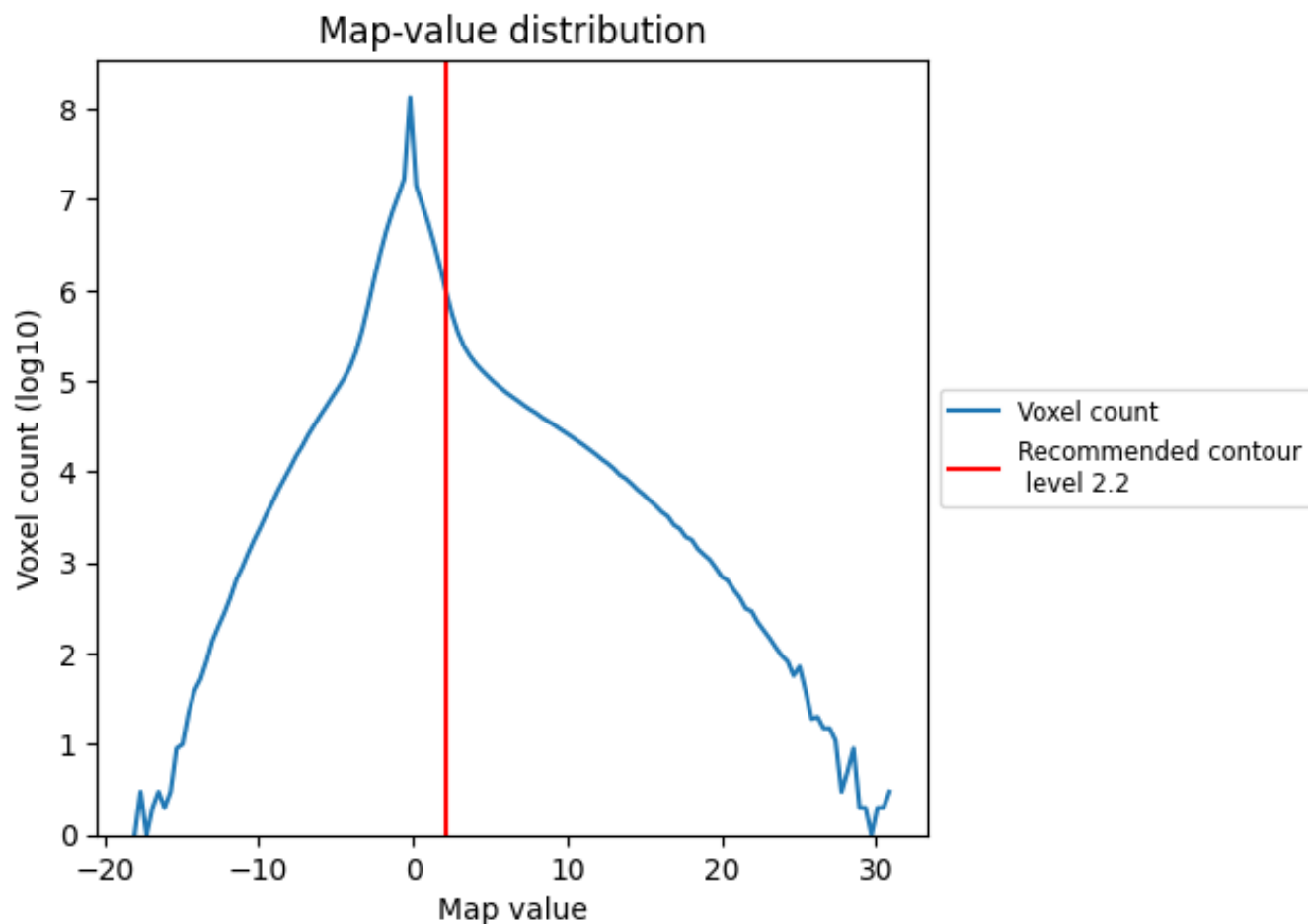


Z

7 Map analysis [i](#)

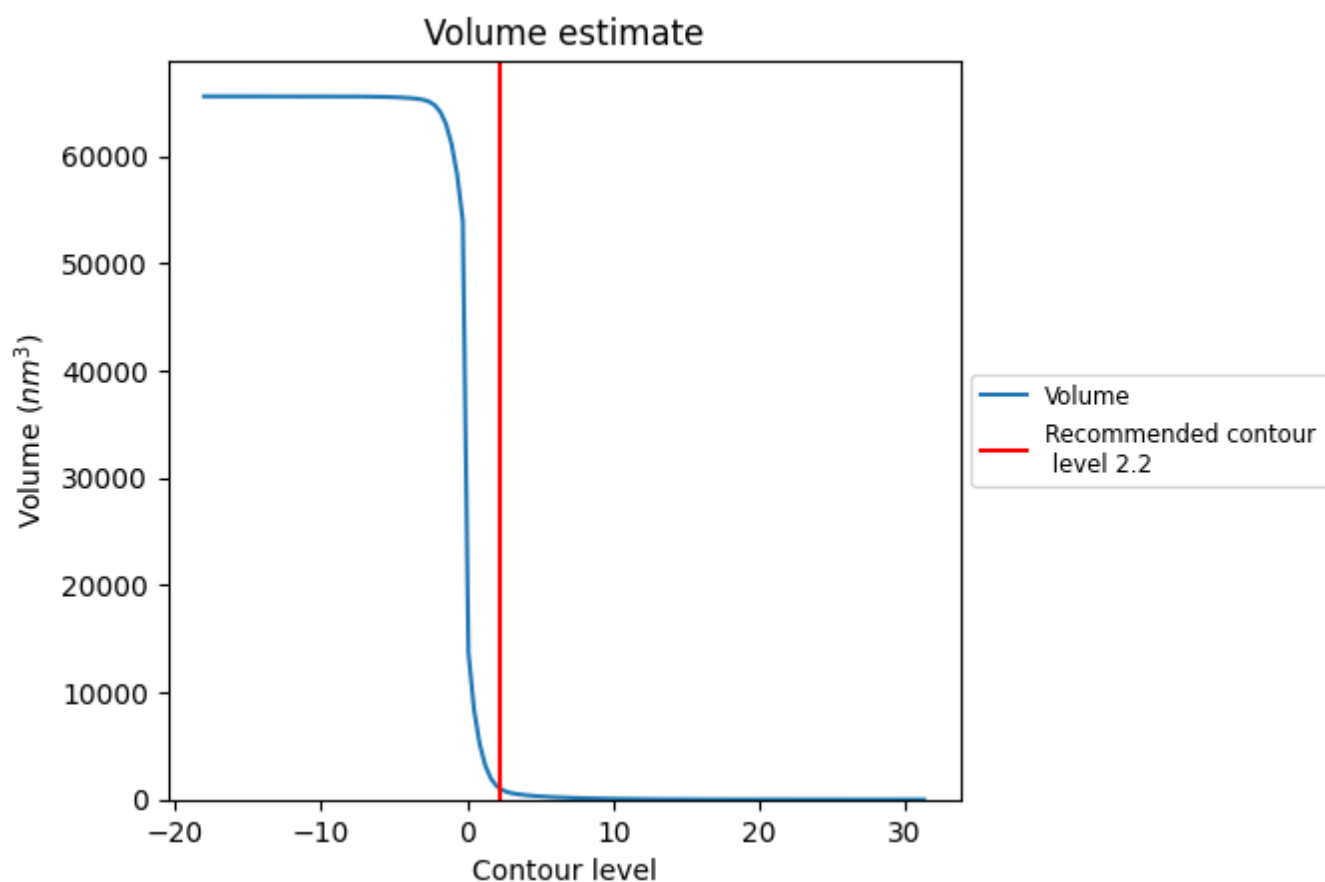
This section contains the results of statistical analysis of the map.

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.

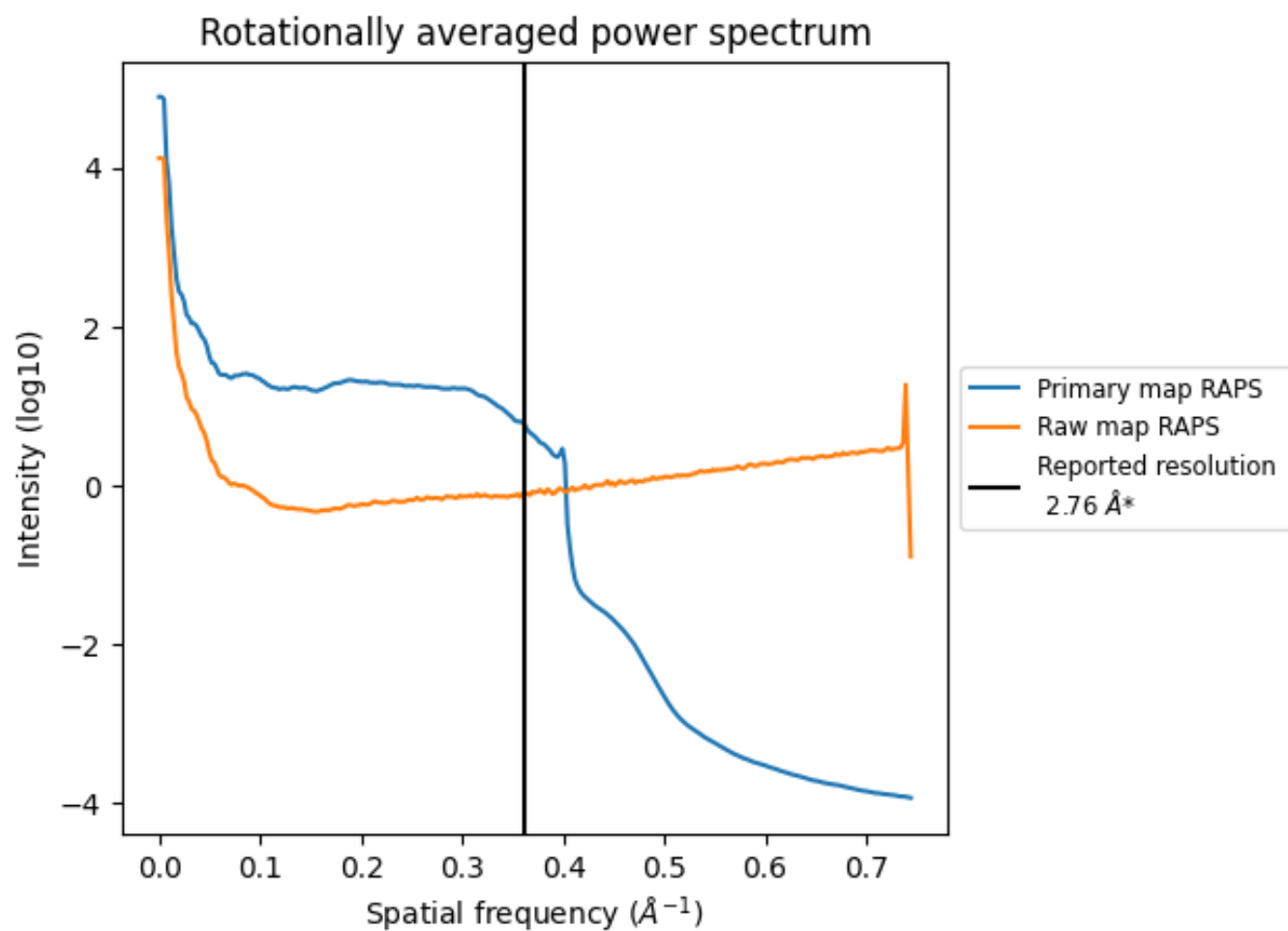
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1080 nm³; this corresponds to an approximate mass of 975 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 ⓘ

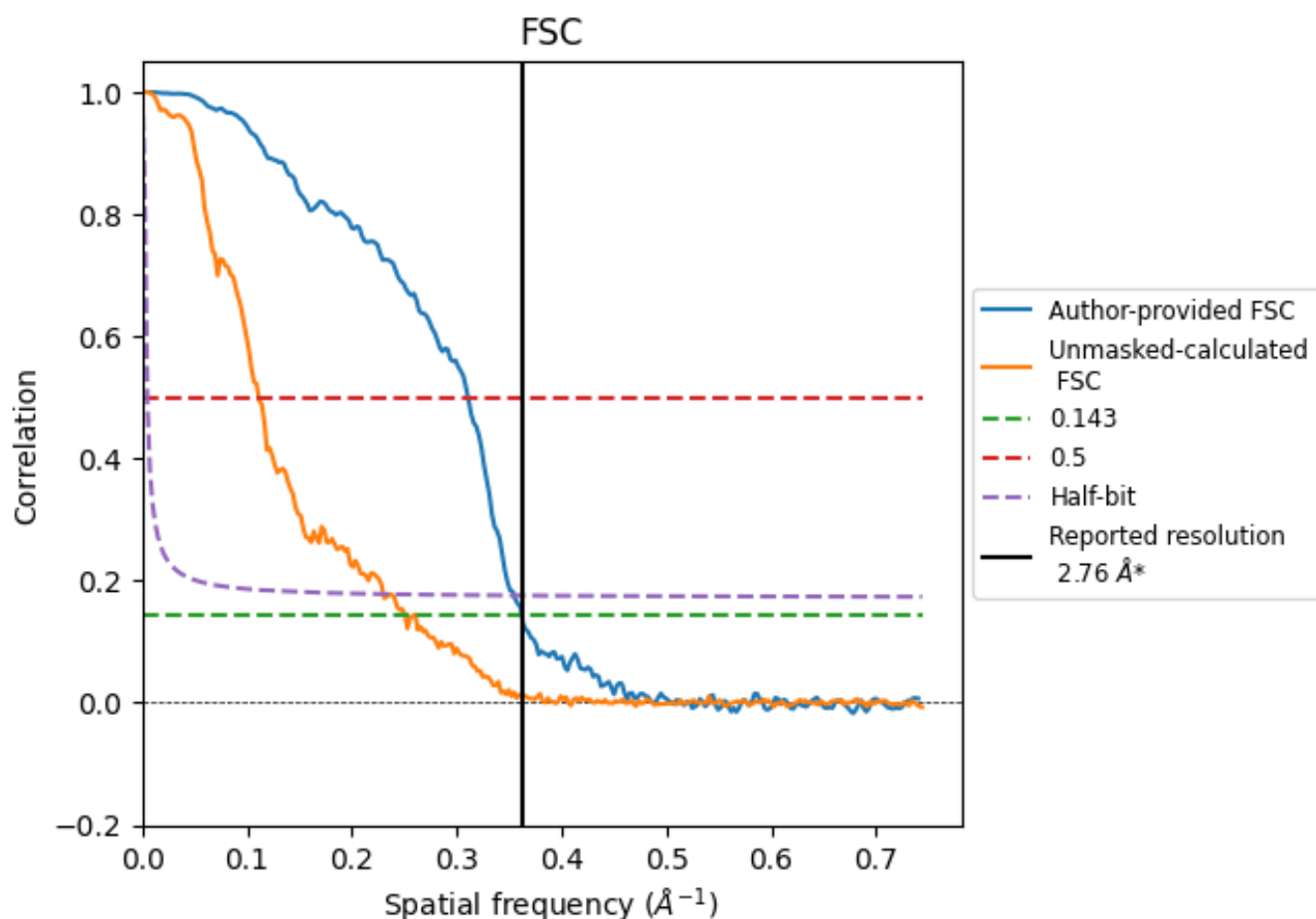


*Reported resolution corresponds to spatial frequency of 0.362 $\text{\AA}^{-1}$

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 0.362 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

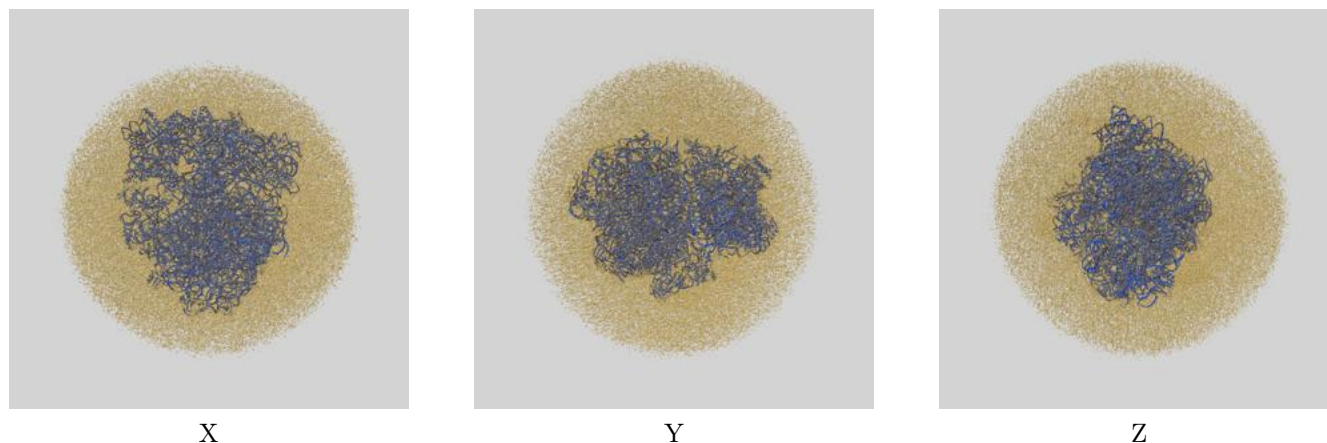
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.76	-	-
Author-provided FSC curve	2.76	3.22	2.82
Unmasked-calculated*	3.99	9.00	4.35

*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 3.99 differs from the reported value 2.76 by more than 10 %

9 Map-model fit [i](#)

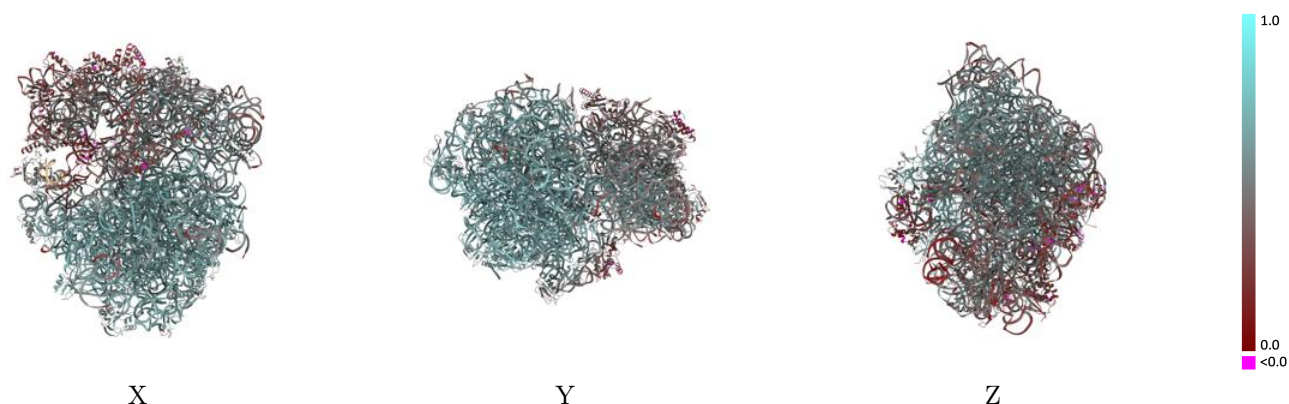
This section contains information regarding the fit between EMDB map EMD-55946 and PDB model 9TI7. Per-residue inclusion information can be found in section 3 on page 15.

9.1 Map-model overlay [i](#)



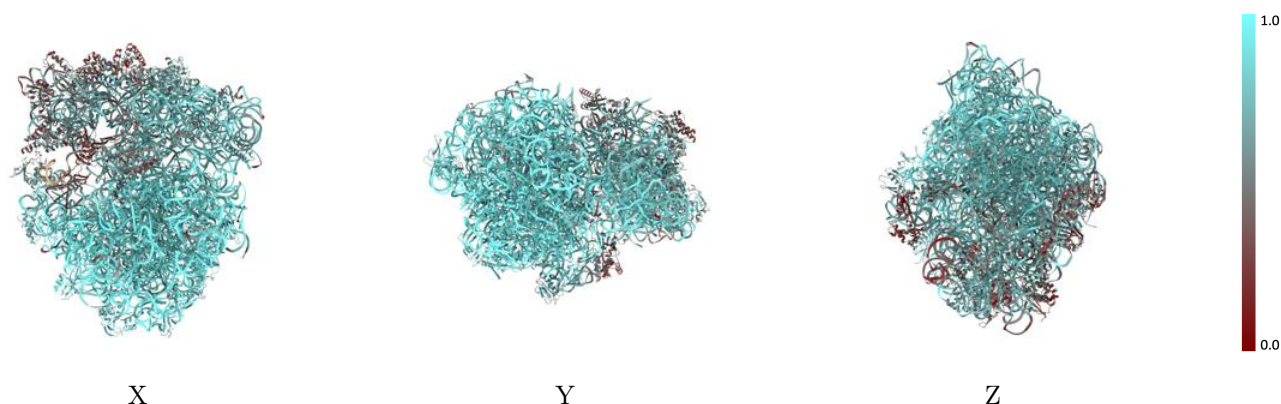
The images above show the 3D surface view of the map at the recommended contour level 2.2 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



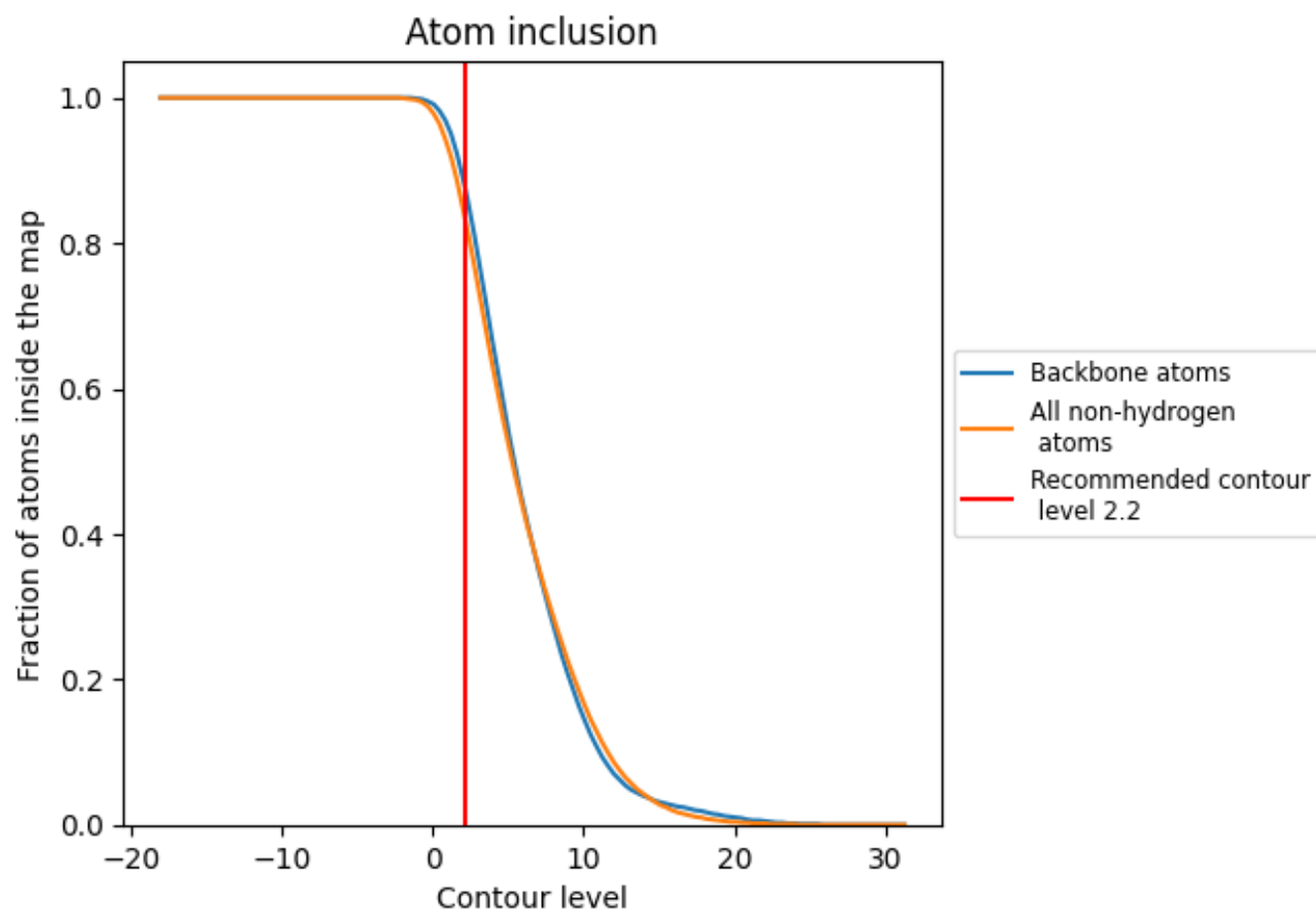
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (2.2).

9.4 Atom inclusion [i](#)



At the recommended contour level, 87% of all backbone atoms, 83% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (2.2) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8300	 0.5460
1	 0.8810	 0.6130
2	 0.8270	 0.5590
3	 0.9130	 0.6270
4	 0.5590	 0.3990
5	 0.9220	 0.6410
6	 0.8500	 0.5840
7	 0.9690	 0.6650
8	 0.9490	 0.6610
9	 0.9420	 0.6350
A	 0.9520	 0.6300
B	 0.9310	 0.5860
C	 0.5280	 0.3860
D	 0.3830	 0.2440
G	 0.9380	 0.6530
H	 0.9430	 0.6540
I	 0.9030	 0.6180
J	 0.6530	 0.4590
K	 0.7140	 0.5020
L	 0.2710	 0.1990
M	 0.9220	 0.6380
N	 0.9230	 0.6330
O	 0.9090	 0.6290
P	 0.9250	 0.6280
Q	 0.9290	 0.6320
R	 0.8060	 0.5450
S	 0.9120	 0.6180
T	 0.9360	 0.6570
U	 0.9220	 0.6310
V	 0.9340	 0.6380
W	 0.8780	 0.6040
X	 0.7820	 0.5430
Y	 0.7810	 0.5270
Z	 0.9290	 0.6370
a	 0.7860	 0.4770



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Chain	Atom inclusion	Q-score
b	 0.3690	 0.3170
c	 0.3910	 0.2750
d	 0.5140	 0.3720
e	 0.6460	 0.4310
f	 0.6690	 0.4670
g	 0.4430	 0.3060
h	 0.4380	 0.3000
i	 0.6680	 0.4550
j	 0.4270	 0.3120
k	 0.4490	 0.3280
l	 0.4230	 0.2890
m	 0.7540	 0.5300
n	 0.4590	 0.3380
o	 0.5830	 0.4230
p	 0.6210	 0.4090
q	 0.7090	 0.4900
r	 0.6700	 0.4700
s	 0.4540	 0.2990
t	 0.3990	 0.3290
u	 0.7730	 0.5300