



wwPDB EM Validation Summary Report ⓘ

Sep 23, 2025 – 05:18 pm BST

PDB ID : 8OVA / pdb_00008ova
EMDB ID : EMD-17208
Title : CRYO-EM STRUCTURE OF TRYPANOSOMA BRUCEI PROCYCLIC
FORM 80S RIBOSOME : PARENTAL STRAIN
Authors : Rajan, K.S.; Yonath, A.
Deposited on : 2023-04-25
Resolution : 2.47 Å(reported)

This is a wwPDB EM Validation Summary 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:

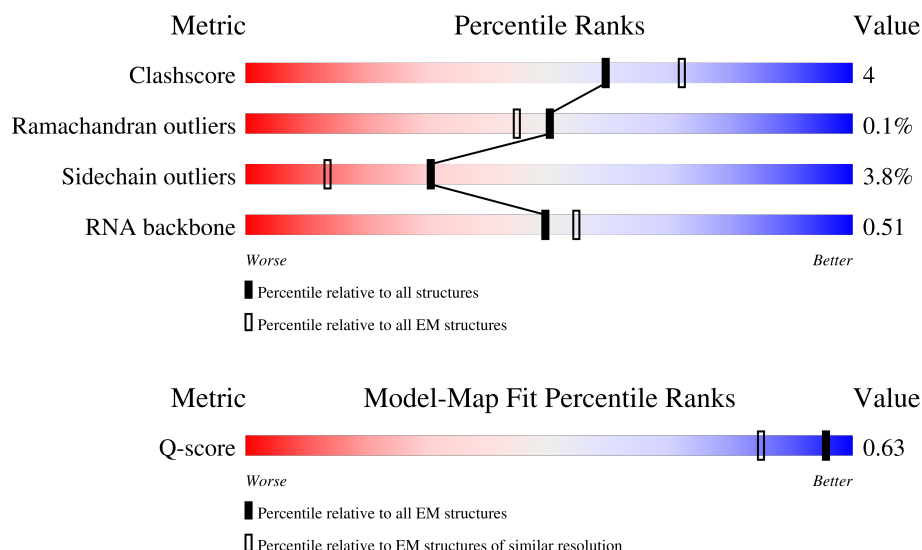
EMDB validation analysis : 0.0.1.dev129
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics : 202505.v01 (Using data in the EMDb archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.46

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 2.47 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	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
RNA backbone	6643	2191	-
Q-score	-	25397	6086 (1.98 - 2.97)

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	BA	1920	56% 23% • 16%
2	AA	2282	51% 25% 7% 16%
3	BB	1536	49% 20% 5% 27%

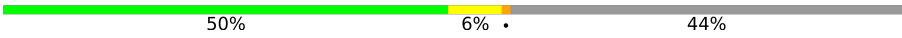
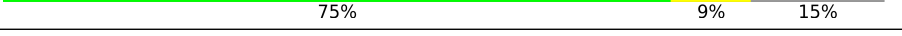
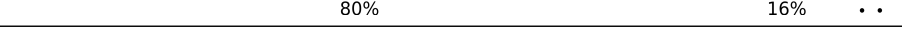
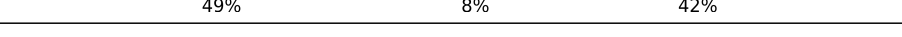
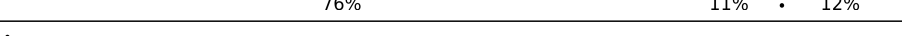
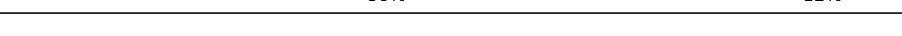
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Mol	Chain	Length	Quality of chain
4	BH	136	
5	BG	183	
6	BF	78	
7	BE	216	
8	BD	119	
9	BC	209	
10	AB	19	
11	AQ	117	
12	A8	57	
13	A9	153	
14	Az	279	
15	AH	144	
16	AI	152	
17	AJ	130	
18	AK	149	
19	AM	153	
20	AO	167	
21	AP	266	
22	AR	194	
23	AS	143	
24	AT	137	
25	AU	113	
26	AV	111	
27	AW	86	
28	AX	214	

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Mol	Chain	Length	Quality of chain
29	AY	66	
30	AZ	103	
31	AL	142	
32	A0	256	
33	A1	273	
34	A2	190	
35	A3	250	
36	A4	202	
37	A5	220	
38	A6	190	
39	A7	318	
40	AC	277	
41	AD	172	
42	AE	174	
43	AG	151	
44	Bh	188	
45	Ba	133	
46	Bb	145	
47	Bc	146	
48	Bd	71	
49	Be	260	
50	Bz	34	
51	Bg	105	
52	Bf	429	
53	BI	193	

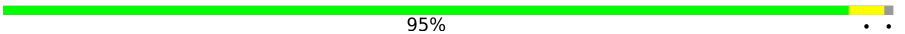
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Mol	Chain	Length	Quality of chain
54	Bj	170	
55	BK	213	
56	Bk	127	
57	BL	194	
58	Bl	149	
59	Bm	109	
60	BN	218	
61	Bn	84	
62	BO	222	
63	Bo	93	
64	Bp	82	
65	Bq	51	
66	BQ	221	
67	BR	166	
68	Br	374	
69	BS	179	
70	Bs	128	
71	BT	260	
72	Bt	106	
73	BU	159	
74	Bu	308	
75	BV	130	
76	Bv	192	
77	BW	139	
78	BX	164	

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Mol	Chain	Length	Quality of chain
79	Bw	257	
80	Bx	276	
81	BY	125	
82	By	189	
83	BZ	143	
84	Bi	132	
85	BP	189	
86	AF	144	

2 Entry composition

There are 91 unique types of molecules in this entry. The entry contains 209127 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a RNA chain called LSUa rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	BA	1604	Total	C	N	O	P	0	0
			34346	15345	6216	11181	1604		

- Molecule 2 is a RNA chain called SSU rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	AA	1919	Total	C	N	O	P	0	0
			40964	18316	7328	13401	1919		

- Molecule 3 is a RNA chain called LSUb rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	BB	1119	Total	C	N	O	P	0	0
			23918	10699	4282	7818	1119		

- Molecule 4 is a RNA chain called SrRNA-4.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	BH	119	Total	C	N	O	P	0	0
			2538	1131	451	837	119		

- Molecule 5 is a RNA chain called SrRNA-2.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	BG	183	Total	C	N	O	P	0	0
			3919	1746	708	1282	183		

- Molecule 6 is a RNA chain called SrRNA-6.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	BF	69	Total	C	N	O	P	0	0
			1444	646	239	490	69		

- Molecule 7 is a RNA chain called SrRNA-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	BE	188	Total	C	N	O	P	0	0
			3981	1780	692	1321	188		

- Molecule 8 is a RNA chain called 5S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	BD	119	Total	C	N	O	P	0	0
			2533	1131	449	835	118		

- Molecule 9 is a RNA chain called 5.8S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	BC	160	Total	C	N	O	P	0	0
			3411	1529	610	1113	159		

- Molecule 10 is a RNA chain called E-SITE TRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	AB	19	Total	C	N	O	P	0	0
			404	181	76	129	18		

- Molecule 11 is a protein called Ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	AQ	100	Total	C	N	O	S	0	0
			800	501	152	144	3		

- Molecule 12 is a protein called uS14.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	A8	56	Total	C	N	O	S	0	0
			461	284	97	75	5		

- Molecule 13 is a protein called Ubiquitin-60S ribosomal protein L40.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	A9	70	Total	C	N	O	S	0	1
			569	361	109	92	7		

- Molecule 14 is a protein called RNA-binding protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	Az	100	Total	C	N	O	S	0	0
			807	504	154	148	1		

- Molecule 15 is a protein called 40S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	AH	134	Total	C	N	O	S	0	0
			992	607	193	183	9		

- Molecule 16 is a protein called 40S ribosomal protein S15, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	AI	119	Total	C	N	O	S	0	0
			966	614	188	161	3		

- Molecule 17 is a protein called 40S ribosomal protein S15a, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	AJ	129	Total	C	N	O	S	0	0
			1018	645	191	174	8		

- Molecule 18 is a protein called 40S ribosomal protein S16, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	AK	142	Total	C	N	O	S	0	0
			1140	728	215	194	3		

- Molecule 19 is a protein called 40S ribosomal protein S18, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	AM	141	Total	C	N	O	S	0	0
			1143	713	227	198	5		

- Molecule 20 is a protein called Ribosomal protein S19, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	AO	154	Total	C	N	O	S	0	0
			1220	770	242	199	9		

- Molecule 21 is a protein called 40S ribosomal protein S2, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	AP	218	Total	C	N	O	S	0	0
			1688	1078	298	303	9		

- Molecule 22 is a protein called 40S ribosomal protein S21, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	AR	89	Total	C	N	O	S	0	0
			666	415	119	129	3		

- Molecule 23 is a protein called 40S ribosomal protein S23, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	AS	140	Total	C	N	O	S	0	0
			1096	696	213	185	2		

- Molecule 24 is a protein called 40S ribosomal protein S24.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	AT	129	Total	C	N	O	S	0	0
			1034	659	202	170	3		

- Molecule 25 is a protein called 40S ribosomal protein S25.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	AU	73	Total	C	N	O	S	0	0
			575	365	105	100	5		

- Molecule 26 is a protein called 40S ribosomal protein S26.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	AV	103	Total	C	N	O	S	0	0
			830	512	175	135	8		

- Molecule 27 is a protein called 40S ribosomal protein S27, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	AW	85	Total	C	N	O	S	0	0
			660	411	124	116	9		

- Molecule 28 is a protein called 40S ribosomal protein S3, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	AX	208	Total	C	N	O	S	0	0
			1652	1036	310	294	12		

- Molecule 29 is a protein called 40S ribosomal protein S30.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	AY	55	Total	C	N	O	S	0	0
			448	283	93	71	1		

- Molecule 30 is a protein called 40S ribosomal protein S33, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	AZ	58	Total	C	N	O	S	0	0
			449	271	94	80	4		

- Molecule 31 is a protein called 40S ribosomal protein S17, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	AL	122	Total	C	N	O	S	0	0
			945	600	184	156	5		

- Molecule 32 is a protein called 40S ribosomal protein S3a.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	A0	220	Total	C	N	O	S	0	0
			1789	1129	336	316	8		

- Molecule 33 is a protein called 40S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	A1	262	Total	C	N	O	S	0	0
			2062	1306	388	359	9		

- Molecule 34 is a protein called 40S ribosomal protein S5, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	A2	183	Total	C	N	O	S	0	0
			1464	915	282	262	5		

- Molecule 35 is a protein called 40S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	A3	238	Total	C	N	O	S	0	0
			1871	1161	383	323	4		

- Molecule 36 is a protein called 40S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	A4	198	Total	C	N	O	S	0	0
			1602	1023	308	266	5		

- Molecule 37 is a protein called 40S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	A5	187	Total	C	N	O	S	0	0
			1471	927	291	251	2		

- Molecule 38 is a protein called Probable 40S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	A6	179	Total	C	N	O	S	0	0
			1477	929	297	243	8		

- Molecule 39 is a protein called Guanine nucleotide-binding protein subunit beta-like protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	A7	309	Total	C	N	O	S	0	0
			2371	1483	418	458	12		

- Molecule 40 is a protein called 40S ribosomal protein SA.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	AC	208	Total	C	N	O	S	0	0
			1648	1049	297	291	11		

- Molecule 41 is a protein called 40S ribosomal protein S10, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	AD	99	Total	C	N	O	S	0	0
			814	531	140	139	4		

- Molecule 42 is a protein called 40S ribosomal proteins S11, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	AE	153	Total	C	N	O	S	0	0
			1249	782	253	209	5		

- Molecule 43 is a protein called 40S ribosomal protein S13, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	AG	150	Total	C	N	O	S	0	0
			1203	756	236	203	8		

- Molecule 44 is a protein called 60S ribosomal subunit protein L31, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	Bh	156	Total	C	N	O	S	0	0
			1249	785	253	207	4		

- Molecule 45 is a protein called 60S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	Ba	132	Total	C	N	O	S	0	0
			1085	688	219	175	3		

- Molecule 46 is a protein called 60S ribosomal protein L27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	Bb	144	Total	C	N	O	S	0	0
			1137	717	228	186	6		

- Molecule 47 is a protein called 60S ribosomal protein L28, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	Bc	144	Total	C	N	O	S	0	0
			1162	723	234	197	8		

- Molecule 48 is a protein called 60S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	Bd	67	Total	C	N	O	S	0	0
			547	335	123	88	1		

- Molecule 49 is a protein called 60S ribosomal protein L2, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	Be	254	Total	C	N	O	S	1	0
			1907	1189	394	312	12		

- Molecule 50 is a protein called Ribosomal protein L41.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	Bz	32	Total	C	N	O	S	0	0
			284	172	74	36	2		

- Molecule 51 is a protein called 60S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	Bg	92	Total	C	N	O	S	0	0
			708	441	128	134	5		

- Molecule 52 is a protein called Ribosomal protein L3, mitochondrial, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	Bf	396	Total	C	N	O	S	0	0
			3174	2001	626	534	13		

- Molecule 53 is a protein called 60S ribosomal protein L18.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	BI	191	Total	C	N	O	S	0	0
			1517	950	313	246	8		

- Molecule 54 is a protein called 60S ribosomal protein L34, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	Bj	116	Total	C	N	O	S	0	0
			959	593	214	148	4		

- Molecule 55 is a protein called 60S ribosomal protein L10, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	BK	194	Total	C	N	O	S	0	0
			1588	1002	314	260	12		

- Molecule 56 is a protein called 60S ribosomal protein L35, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	Bk	123	Total	C	N	O	S	0	0
			1010	634	217	156	3		

- Molecule 57 is a protein called 60S ribosomal protein L11, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
57	BL	166	Total	C	N	O	S	0	0
			1325	836	247	235	7		

- Molecule 58 is a protein called 60S ribosomal protein L35A, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
58	Bl	144	Total	C	N	O	S	0	0
			1163	728	239	193	3		

- Molecule 59 is a protein called Ribosomal protein L36, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
59	Bm	98	Total	C	N	O	S	0	0
			786	493	164	127	2		

- Molecule 60 is a protein called 60S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
60	BN	215	Total	C	N	O	S	0	0
			1762	1097	365	294	6		

- Molecule 61 is a protein called Ribosomal protein L37.

Mol	Chain	Residues	Atoms					AltConf	Trace
61	Bn	80	Total	C	N	O	S	0	0
			676	410	157	103	6		

- Molecule 62 is a protein called 60S ribosomal protein L13a, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
62	BO	221	Total	C	N	O	S	0	0
			1801	1141	364	289	7		

- Molecule 63 is a protein called 60S ribosomal protein L37a, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
63	Bo	89	Total	C	N	O	S	0	0
			699	434	144	115	6		

- Molecule 64 is a protein called 60S ribosomal protein L38, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
64	Bp	77	Total	C	N	O	S	0	0
			626	393	125	104	4		

- Molecule 65 is a protein called 60S ribosomal protein L39, putative.

Mol	Chain	Residues	Atoms				AltConf	Trace
65	Bq	50	Total	C	N	O	0	0
			457	297	98	62		

- Molecule 66 is a protein called Ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
66	BQ	203	Total	C	N	O	S	0	0
			1716	1077	370	264	5		

- Molecule 67 is a protein called 60S ribosomal protein L17, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
67	BR	151	Total	C	N	O	S	0	0
			1219	767	242	202	8		

- Molecule 68 is a protein called 60S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
68	Br	367	Total	C	N	O	S	0	0
			2882	1802	575	488	17		

- Molecule 69 is a protein called 60S ribosomal protein L18a.

Mol	Chain	Residues	Atoms					AltConf	Trace
69	BS	178	Total	C	N	O	S	0	0
			1465	926	289	243	7		

- Molecule 70 is a protein called Ubiquitin-60S ribosomal protein L40.

Mol	Chain	Residues	Atoms					AltConf	Trace
70	Bs	50	Total	C	N	O	S	0	0
			394	247	80	60	7		

- Molecule 71 is a protein called 60S ribosomal protein L19, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
71	BT	196	Total	C	N	O	S	0	0
			1590	974	349	259	8		

- Molecule 72 is a protein called 60S ribosomal protein L44.

Mol	Chain	Residues	Atoms					AltConf	Trace
72	Bt	97	Total	C	N	O	S	0	0
			801	507	159	130	5		

- Molecule 73 is a protein called 60S ribosomal protein L21E, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
73	BU	157	Total	C	N	O	S	0	0
			1247	793	245	203	6		

- Molecule 74 is a protein called 60S ribosomal protein L5, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
74	Bu	247	Total	C	N	O	S	0	0
			1964	1234	378	347	5		

- Molecule 75 is a protein called 60S ribosomal protein L22, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
75	BV	122	Total	C	N	O	S	0	0
			979	629	179	168	3		

- Molecule 76 is a protein called 60S ribosomal protein L6, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
76	Bv	143	Total	C	N	O	S	0	0
			1101	699	202	197	3		

- Molecule 77 is a protein called 60S ribosomal protein L23, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
77	BW	136	Total	C	N	O	S	0	0
			1029	651	195	178	5		

- Molecule 78 is a protein called 60S ribosomal protein L23a.

Mol	Chain	Residues	Atoms					AltConf	Trace
78	BX	120	Total	C	N	O	S	0	0
			982	624	185	171	2		

- Molecule 79 is a protein called 60S ribosomal protein L7, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
79	Bw	230	Total	C	N	O	S	0	0
			1872	1190	362	312	8		

- Molecule 80 is a protein called 60S ribosomal protein L7a.

Mol	Chain	Residues	Atoms					AltConf	Trace
80	Bx	235	Total	C	N	O	S	0	0
			1874	1178	369	321	6		

- Molecule 81 is a protein called 60S ribosomal protein L24, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
81	BY	64	Total	C	N	O	S	0	0
			550	358	108	79	5		

- Molecule 82 is a protein called 60S ribosomal protein L9, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
82	By	186	Total	C	N	O	S	0	0
			1515	961	281	269	4		

- Molecule 83 is a protein called 60S ribosomal protein L26, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
83	BZ	122	Total	C	N	O	S	0	0
			993	614	210	164	5		

- Molecule 84 is a protein called 60S ribosomal protein L32, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
84	Bi	131	Total	C	N	O	S	0	0
			1075	678	217	176	4		

- Molecule 85 is a protein called 40S ribosomal protein L14, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
85	BP	152	Total	C	N	O	S	0	0
			1237	784	240	209	4		

- Molecule 86 is a protein called 40S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
86	AF	115	Total	C	N	O	S	0	0
			868	531	156	173	8		

- Molecule 87 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
87	BA	67	Total	Mg	0
			67	67	
87	AA	88	Total	Mg	0
			88	88	
87	BB	61	Total	Mg	0
			61	61	
87	BG	5	Total	Mg	0
			5	5	
87	BE	1	Total	Mg	0
			1	1	
87	BD	1	Total	Mg	0
			1	1	
87	BC	1	Total	Mg	0
			1	1	
87	AH	1	Total	Mg	0
			1	1	
87	AO	2	Total	Mg	0
			2	2	
87	A0	1	Total	Mg	0
			1	1	
87	Be	2	Total	Mg	0
			2	2	
87	Bf	1	Total	Mg	0
			1	1	

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Mol	Chain	Residues	Atoms		AltConf
87	BN	1	Total 1	Mg 1	0
87	BR	1	Total 1	Mg 1	0
87	BW	1	Total 1	Mg 1	0

- Molecule 88 is POTASSIUM ION (CCD ID: K) (formula: K).

Mol	Chain	Residues	Atoms		AltConf
88	BA	8	Total 8	K 8	0
88	AA	25	Total 25	K 25	0
88	BB	12	Total 12	K 12	0
88	AH	1	Total 1	K 1	0
88	BZ	1	Total 1	K 1	0

- Molecule 89 is SODIUM ION (CCD ID: NA) (formula: Na).

Mol	Chain	Residues	Atoms		AltConf
89	BA	10	Total 10	Na 10	0
89	AA	14	Total 14	Na 14	0
89	BB	14	Total 14	Na 14	0
89	A3	1	Total 1	Na 1	0
89	BK	1	Total 1	Na 1	0

- Molecule 90 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
90	A9	1	Total 1	Zn 1	0
90	Bn	1	Total 1	Zn 1	0

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Mol	Chain	Residues	Atoms		AltConf
90	Bo	1	Total 1	Zn 1	0
90	Bs	1	Total 1	Zn 1	0

- Molecule 91 is water.

Mol	Chain	Residues	Atoms		AltConf
91	BA	53	Total 53	O 53	0
91	AA	40	Total 40	O 40	0
91	BB	61	Total 61	O 61	0
91	BH	2	Total 2	O 2	0
91	BG	4	Total 4	O 4	0
91	BE	1	Total 1	O 1	0
91	BC	1	Total 1	O 1	0
91	A8	1	Total 1	O 1	0
91	AH	1	Total 1	O 1	0
91	AK	1	Total 1	O 1	0
91	AV	3	Total 3	O 3	0
91	A2	1	Total 1	O 1	0
91	AG	1	Total 1	O 1	0
91	Bb	3	Total 3	O 3	0
91	Bd	1	Total 1	O 1	0
91	Be	7	Total 7	O 7	0
91	Bj	1	Total 1	O 1	0

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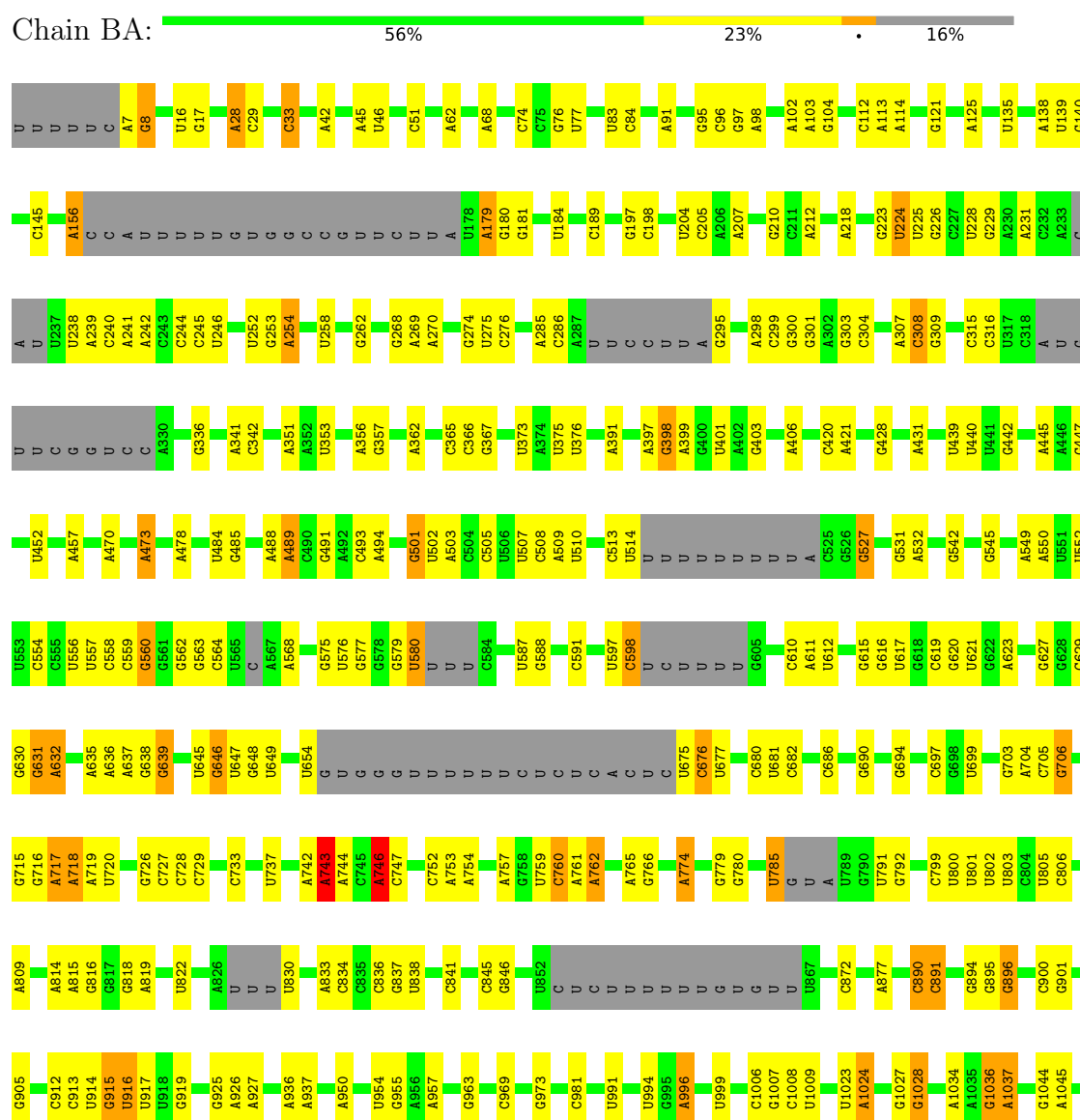
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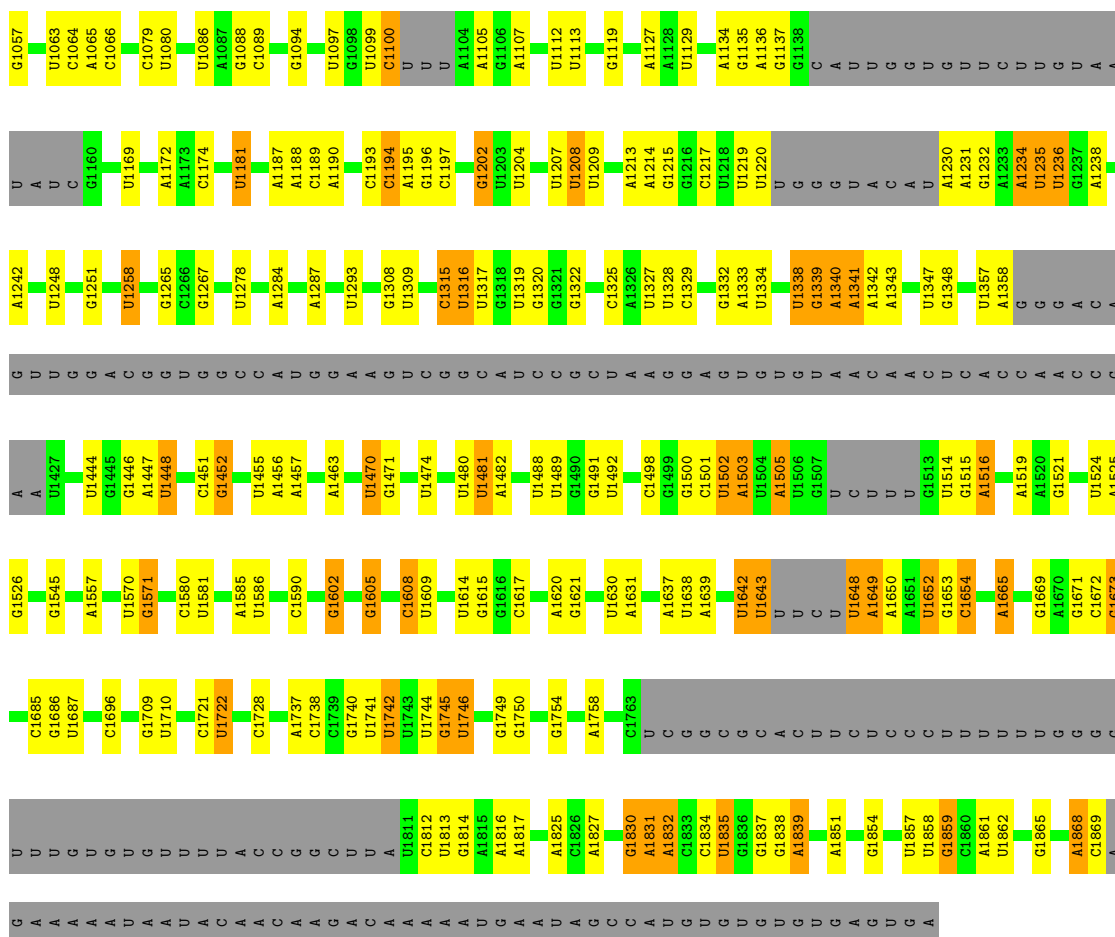
Mol	Chain	Residues	Atoms		AltConf
91	BK	1	Total 1	O 1	0
91	BN	1	Total 1	O 1	0
91	Bn	1	Total 1	O 1	0
91	BQ	2	Total 2	O 2	0
91	Br	1	Total 1	O 1	0
91	Bi	1	Total 1	O 1	0

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.

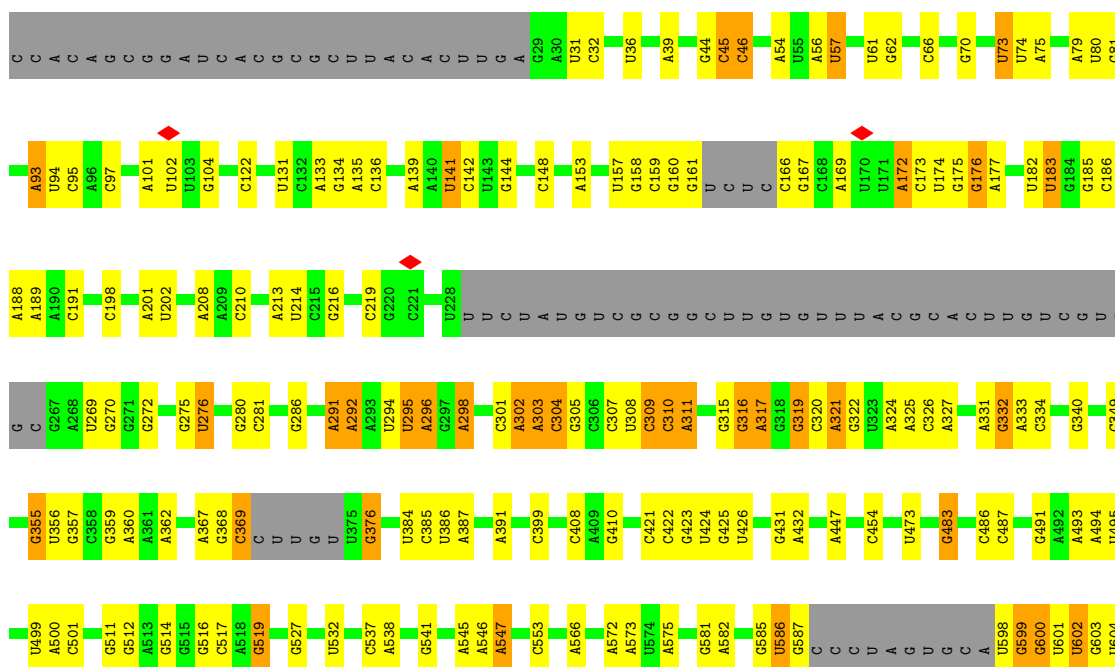
• Molecule 1: LSUa rRNA



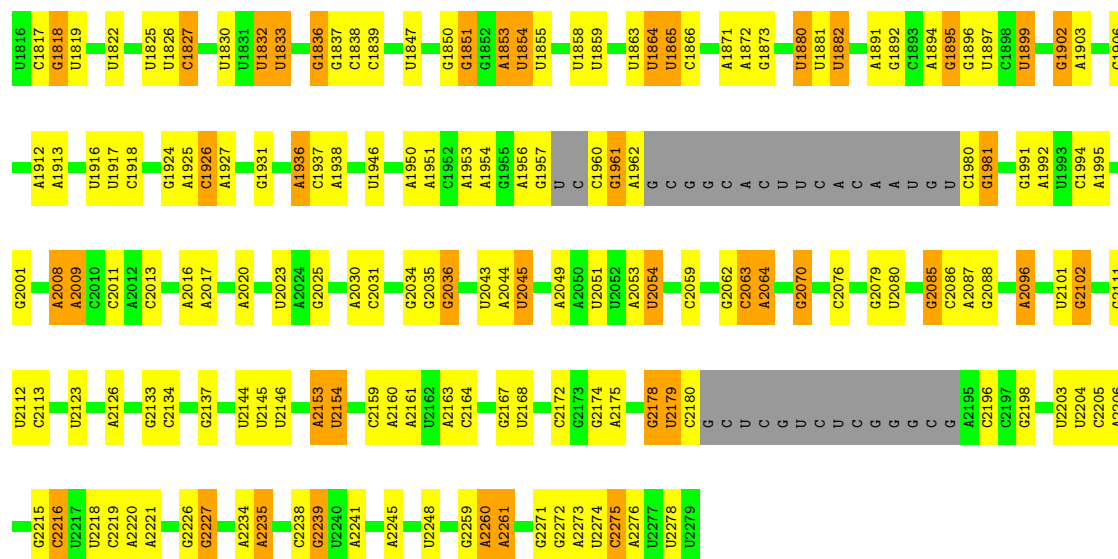


• Molecule 2: SSU rRNA

Chain AA: 51% 25% 7% 16%

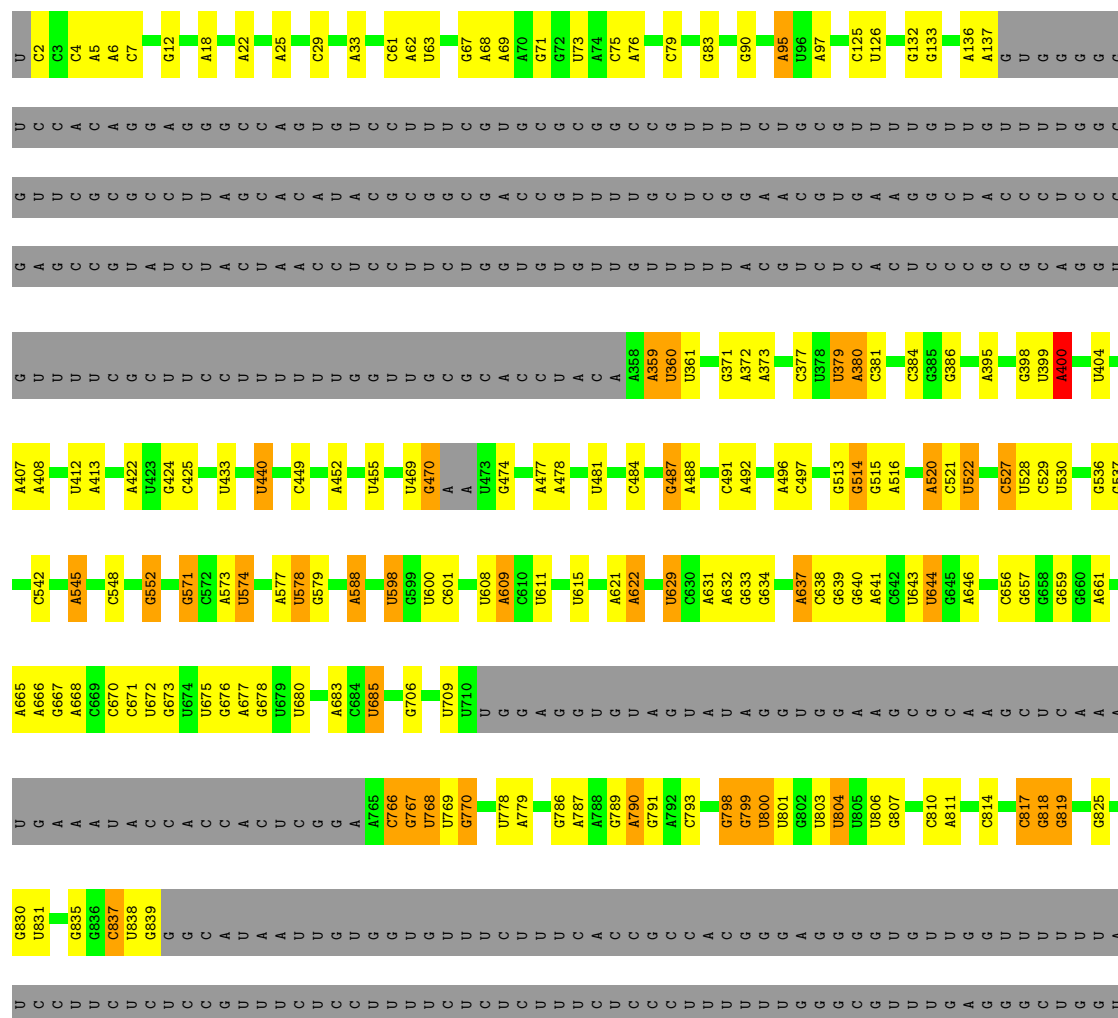


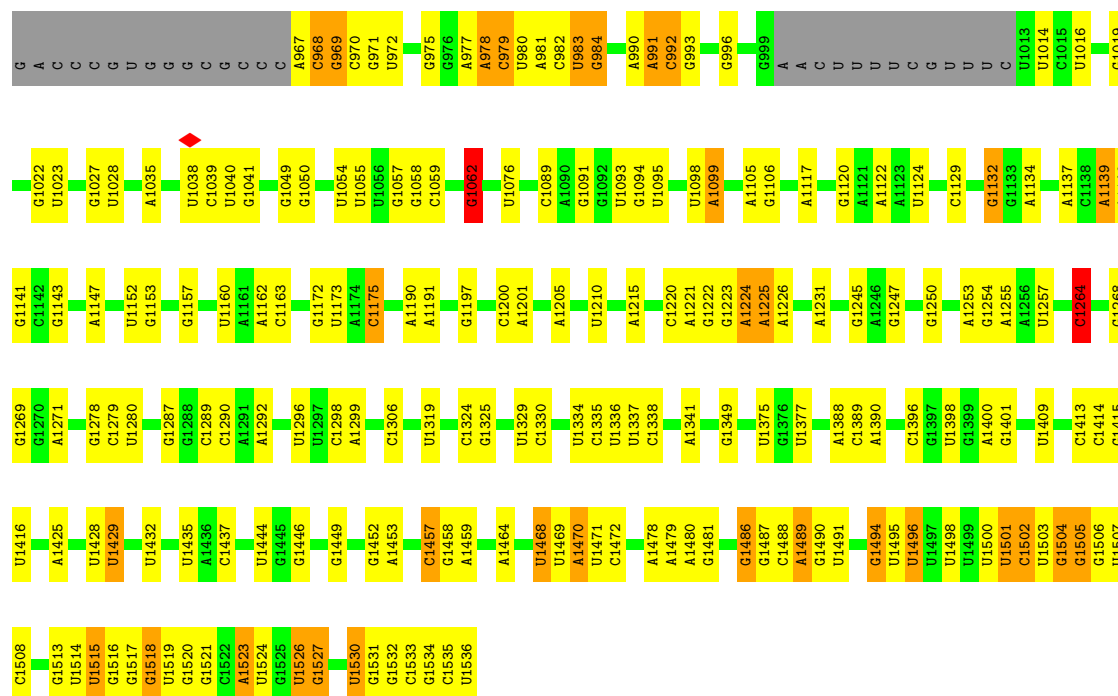




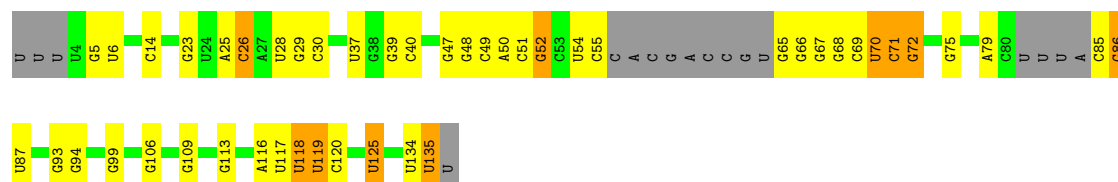
● Molecule 3: LSub rRNA

Chain BB: 49% 20% 5% 27%

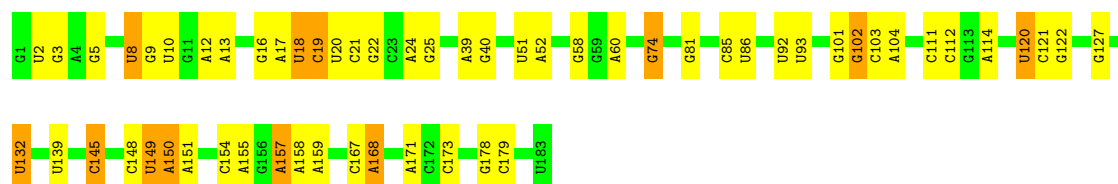




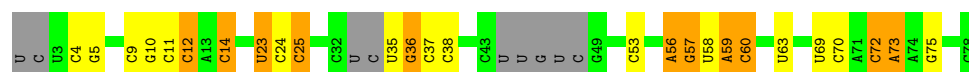
• Molecule 4: SrRNA-4



• Molecule 5: SrRNA-2



• Molecule 6: SrRNA-6



• Molecule 7: SrRNA-1

[illegible]

U	A122	A1
U	G123	G6
U	A124	U7
G	C129	A16
G	U	U17
U	C	G18
U	C	A19
G	G134	U22
G	A135	U26
U	G136	U27
U	C137	U32
C	C138	U33
	A139	
	C142	
	U146	A40
	A149	A41
	U150	G42
	G151	A43
	C152	A48
	U157	
	U158	A59
	U159	U60
	C162	A61
	A163	A62
	G169	G63
	A170	
U	A171	U67
A	A	A68
A	A	U74
A	A	G75
A	A	C76
A	A	A77
A	A	A80
A	A	U
A	A	C
A	A	A
A	A	U
C	A	U
	C	U
	C	U
	C	U
	C	C
	C	A88
	C	U89
	C	U90
	C	
	C	C94
	A	
	C	
	A	A103
	C	A104
	C	C105
	C	
	U	A110
	U	
	U	C121

G1
C2
C3
C4
G5
G6
A7
G65
U66
C67
G70
G71
C72
A73
A76

MET	ALA	TYR	VAL	LYS	ASP	GLN	ALA	PRO	ALA	LEU	GLU	MET	Q15	R16	V17	M21	V29	E30	R31	E38	R41	T42	E43	K44	V45	R48	T55	F77	D87	L94	V95	K96	S100	E104	V109	S110	P114	ASP
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	------	------	------	------	------	-----

Chain A8: 88% 11%

- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|
| Met | Ser | Gly | Glu | Lys | Thr | H7 | A21 | T22 | A23 | T28 | R36 | G39 | V40 | K53 | S67 | R68 | V75 | S78 | R88 | H103 | H104 | E105 | D113 | K114 | D119 | K146 | S147 | V148 |
|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|

- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|--|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| MET | | L3 | S7 | E6 | S9 | F10 | R15 | N20 | K26 | K35 | R40 | E54 | G58 | T59 | L60 | R87 | Q88 | R89 | K95 | T96 | M103 | R107 | D111 | T137 | C138 | T139 | R143 | GLY | LVS | THR | VAL | GLY | VAL | ARG | ARG | THR | LYS |
|-----|--|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

- [illegible]

- [illegible]

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|------|------|------|------|------|--|------|--|------|--|------|--|------|--|------|------|------|------|------|------|--|------|--|------|------|------|------|------|--|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|
| V114 | G115 | D116 | G117 | G118 | | S138 | | V147 | | V168 | | A176 | | V206 | V207 | T208 | S209 | S210 | C211 | | R229 | | E244 | V245 | S246 | R247 | D248 | | S254 | E255 | F256 | L257 | S258 | K259 | GLY | ARG | LYS | VAL | ALA | ALA |
|------|------|------|------|------|--|------|--|------|--|------|--|------|--|------|------|------|------|------|------|--|------|--|------|------|------|------|------|--|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|

- [illegible]

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|-----|
| PRO | THR | GLY | GLY | ARG | PRO | GLN | GLN | ALA | ALA | ARG | ARG | GLY | GLY | ARG | PRO | PRO | THR | GLU | GLU | GLY | ASN | ARG | GLN | ARG | GLN | LYS | PRO | PRO | GLN | GLN | GLN | GLN | GLN | GLN | GLN | GLN | GLN | GLN | ASP | GLY | GLY | ARG | ARG | ALA | PRO | GLN | GLN | GLN | SER | GLY | GLY | ARG | ARG |
|-----|

- | | | | |
|-----|-----|-----|-----|
| GLY | PRO | ARG | SER |
|-----|-----|-----|-----|

- 
- WORLDWIDE
PDB
PROTEIN DATA BANK

Chain AS:  85% 13% ..



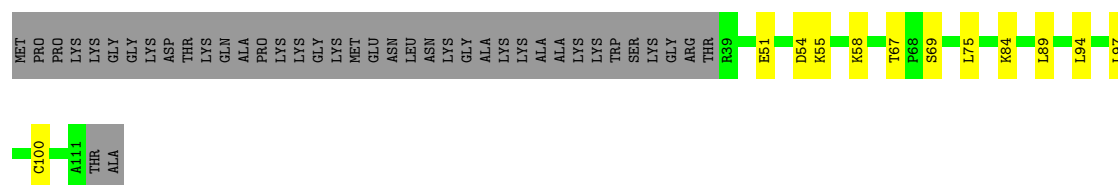
- Molecule 24: 40S ribosomal protein S24

Chain AT:  79% 15% 6%



- Molecule 25: 40S ribosomal protein S25

Chain AU:  54% 11% 35%



- Molecule 26: 40S ribosomal protein S26

Chain AV:  84% 9% 7%



- Molecule 27: 40S ribosomal protein S27, putative

Chain AW:  81% 17% .



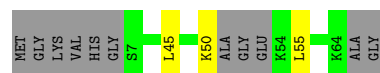
- Molecule 28: 40S ribosomal protein S3, putative

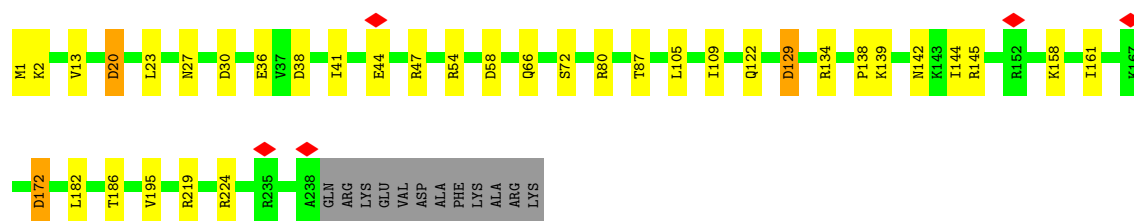
Chain AX:  86% 10% .



- Molecule 29: 40S ribosomal protein S30

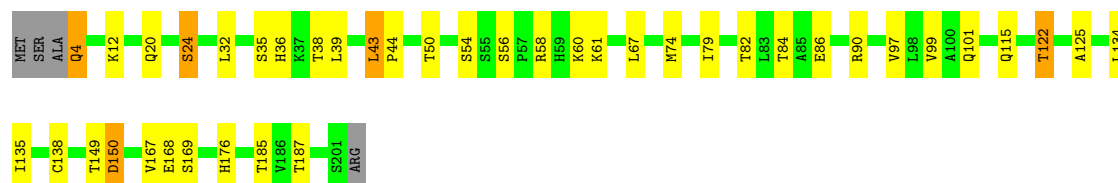
Chain AY:  79% 5% 17%





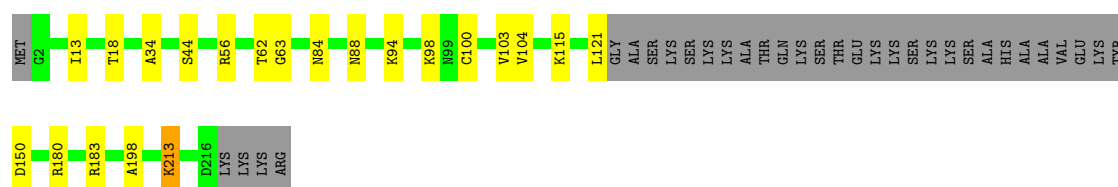
- Molecule 36: 40S ribosomal protein S7

Chain A4: 78% 18% ..



- Molecule 37: 40S ribosomal protein S8

Chain A5: 75% 9% 15%



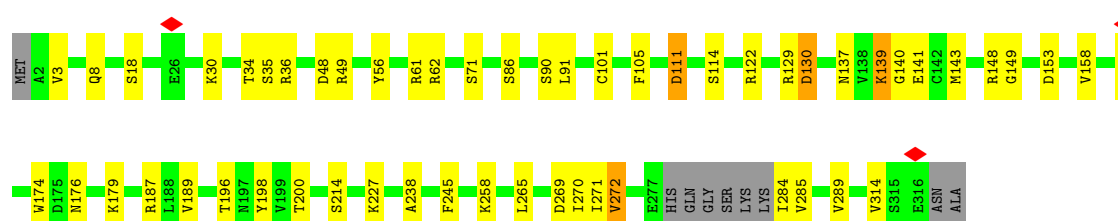
- Molecule 38: Probable 40S ribosomal protein S9

Chain A6: 87% 7% 6%



- Molecule 39: Guanine nucleotide-binding protein subunit beta-like protein

Chain A7: 80% 16% ..



- Molecule 40: 40S ribosomal protein SA

Chain AC: 64% 11% 25%



- Molecule 46: 60S ribosomal protein L27a

Chain Bb:  88% 10% ..



- Molecule 47: 60S ribosomal protein L28, putative

Chain Bc:  86% 12% .



- Molecule 48: 60S ribosomal protein L29

Chain Bd:  92% 6%



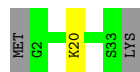
- Molecule 49: 60S ribosomal protein L2, putative

Chain Be:  90% 8% .



- Molecule 50: Ribosomal protein L41

Chain Bz:  91% 6%



- Molecule 51: 60S ribosomal protein L30

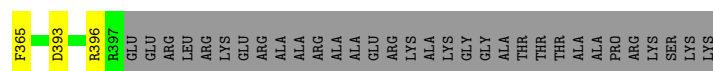
Chain Bg:  82% 6% 12%



- Molecule 52: Ribosomal protein L3, mitochondrial, putative

Chain Bf:  85% 7% 8%

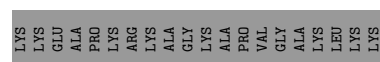




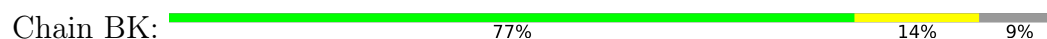
- Molecule 53: 60S ribosomal protein L18



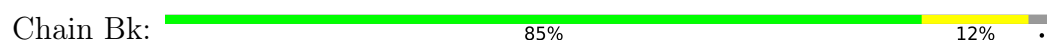
- Molecule 54: 60S ribosomal protein L34, putative



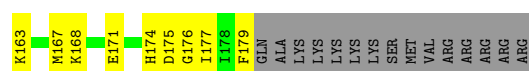
- Molecule 55: 60S ribosomal protein L10, putative



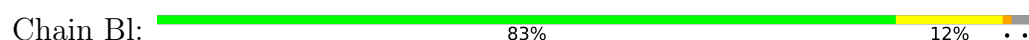
- Molecule 56: 60S ribosomal protein L35, putative

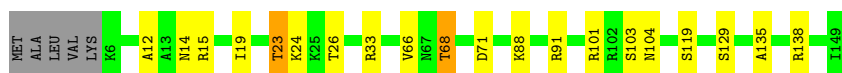


- Molecule 57: 60S ribosomal protein L11, putative

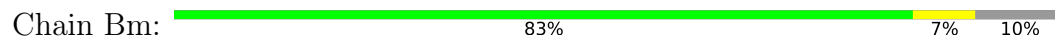


- Molecule 58: 60S ribosomal protein L35A, putative

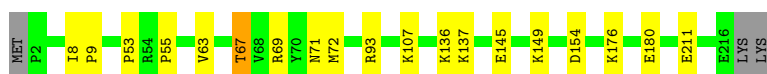




- Molecule 59: Ribosomal protein L36, putative



- Molecule 60: 60S ribosomal protein L13



- Molecule 61: Ribosomal protein L37



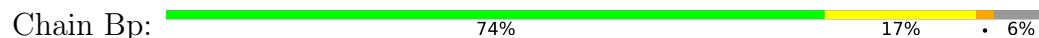
- Molecule 62: 60S ribosomal protein L13a, putative



- Molecule 63: 60S ribosomal protein L37a, putative



- Molecule 64: 60S ribosomal protein L38, putative



- Molecule 65: 60S ribosomal protein L39, putative





- Molecule 66: Ribosomal protein L15

Chain BQ: 86% 6% 8%



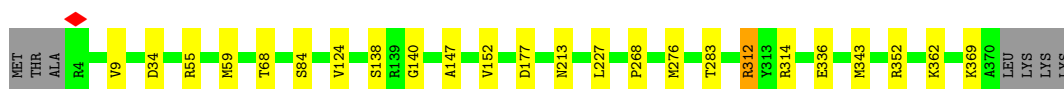
- Molecule 67: 60S ribosomal protein L17, putative

Chain BR: 87% 9%



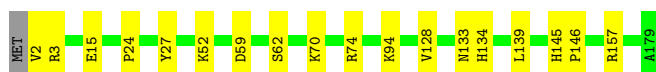
- Molecule 68: 60S ribosomal protein L4

Chain Br: 92% 6%



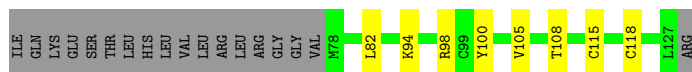
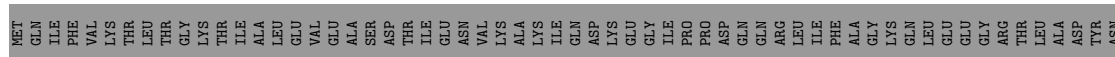
- Molecule 69: 60S ribosomal protein L18a

Chain BS: 89% 10%



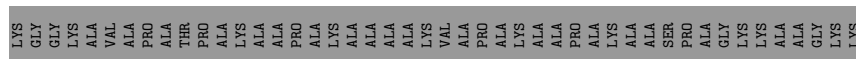
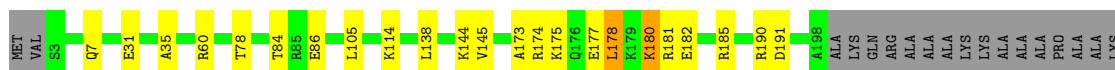
- Molecule 70: Ubiquitin-60S ribosomal protein L40

Chain Bs: 33% 6% 61%



- Molecule 71: 60S ribosomal protein L19, putative

Chain BT: 67% 8% 25%



- Molecule 72: 60S ribosomal protein L44

Chain Bt:  81% 8% 8%



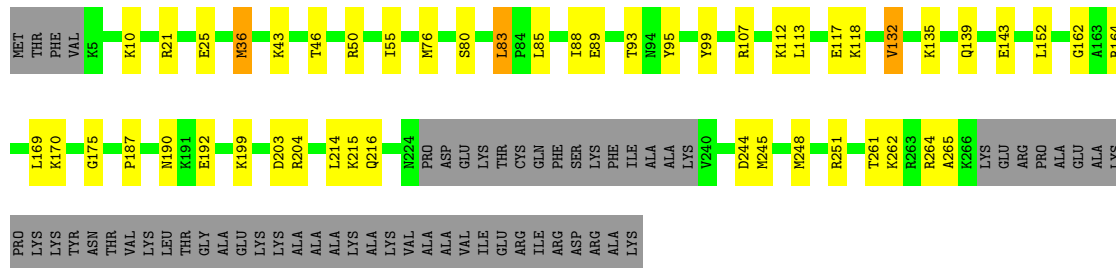
- Molecule 73: 60S ribosomal protein L21E, putative

Chain BU:  81% 16% ..



- Molecule 74: 60S ribosomal protein L5, putative

Chain Bu:  64% 15% 20%



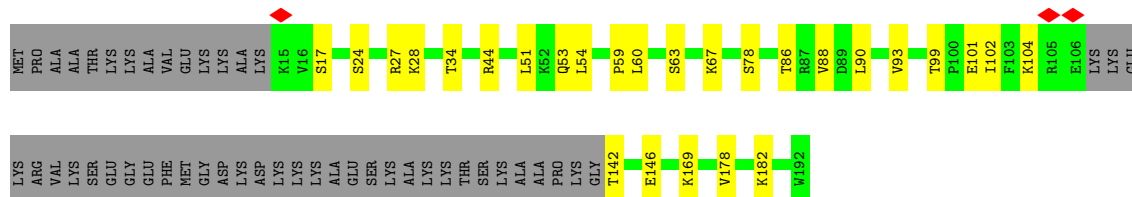
- Molecule 75: 60S ribosomal protein L22, putative

Chain BV:  71% 21% 6%



- Molecule 76: 60S ribosomal protein L6, putative

Chain Bv:  60% 14% 26%



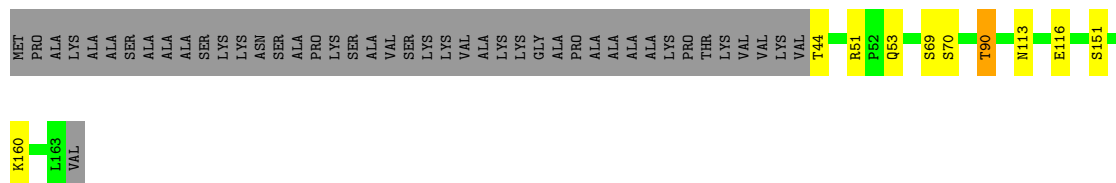
- Molecule 77: 60S ribosomal protein L23, putative

Chain BW:  83% 14%



- Molecule 78: 60S ribosomal protein L23a

Chain BX: 67% 5% 27%



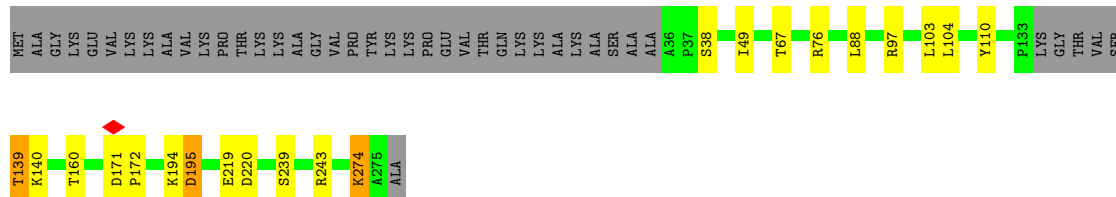
- Molecule 79: 60S ribosomal protein L7, putative

Chain Bw: 85% 5% 11%



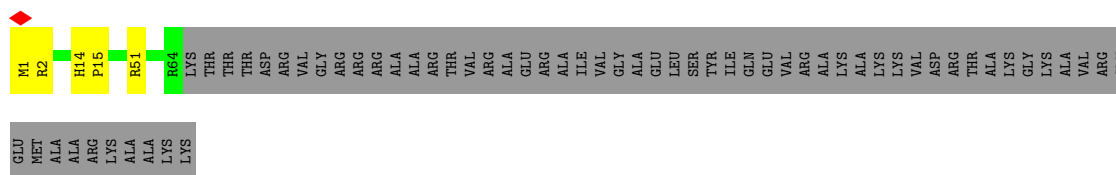
- Molecule 80: 60S ribosomal protein L7a

Chain Bx: 78% 7% 15%



- Molecule 81: 60S ribosomal protein L24, putative

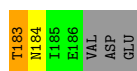
Chain BY: 47% 49%



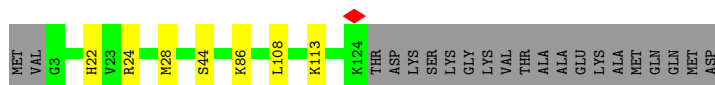
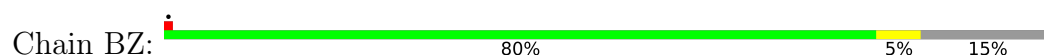
- Molecule 82: 60S ribosomal protein L9, putative

Chain By: 78% 19% 2%





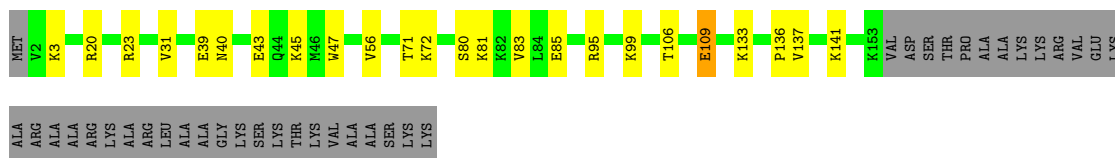
- Molecule 83: 60S ribosomal protein L26, putative



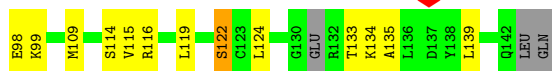
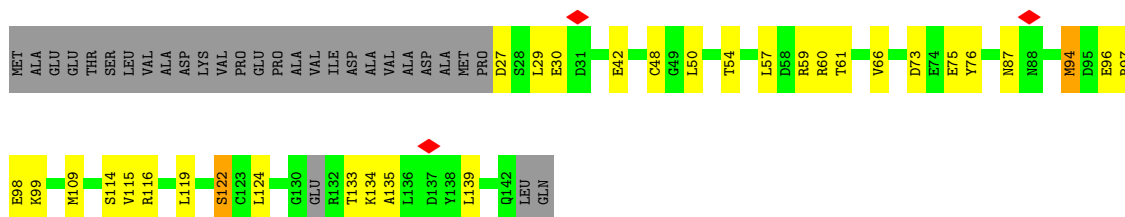
- Molecule 84: 60S ribosomal protein L32, putative



- Molecule 85: 40S ribosomal protein L14, putative



- Molecule 86: 40S ribosomal protein S12



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	459985	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	1.17	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	1500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.188	Depositor
Minimum map value	-0.056	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.005	Depositor
Recommended contour level	0.01	Depositor
Map size (Å)	408.0, 408.0, 408.0	wwPDB
Map dimensions	480, 480, 480	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.85, 0.85, 0.85	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: OMG, PSU, MG, NA, 1MA, OMC, ZN, MA6, OMU, A2M, 5MC, K, B8N, 7MG

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	BA	0.21	1/37519 (0.0%)	0.32	0/58462
2	AA	0.24	0/44961	0.35	8/70031 (0.0%)
3	BB	0.24	1/25592 (0.0%)	0.34	7/39885 (0.0%)
4	BH	0.18	0/2833	0.30	0/4410
5	BG	0.19	0/4383	0.30	0/6835
6	BF	0.17	0/1604	0.33	0/2487
7	BE	0.19	0/4442	0.33	0/6910
8	BD	0.16	0/2830	0.24	0/4410
9	BC	0.23	0/3662	0.26	0/5700
10	AB	0.20	0/450	0.35	0/698
11	AQ	0.17	0/809	0.36	0/1091
12	A8	0.17	0/468	0.29	0/619
13	A9	0.17	0/582	0.42	0/773
14	Az	0.17	0/820	0.48	0/1100
15	AH	0.18	0/1006	0.38	0/1349
16	AI	0.15	0/986	0.25	0/1321
17	AJ	0.18	0/1035	0.29	0/1386
18	AK	0.18	0/1161	0.34	0/1561
19	AM	0.15	0/1161	0.27	0/1554
20	AO	0.17	0/1245	0.30	0/1665
21	AP	0.20	0/1723	0.32	0/2328
22	AR	0.16	0/676	0.27	0/919
23	AS	0.19	0/1117	0.38	0/1495
24	AT	0.16	0/1050	0.31	0/1395
25	AU	0.16	0/581	0.29	0/776
26	AV	0.25	0/846	0.39	0/1132
27	AW	0.17	0/674	0.41	0/904
28	AX	0.15	0/1674	0.28	0/2236
29	AY	0.17	0/453	0.31	0/596
30	AZ	0.19	0/448	0.35	0/595
31	AL	0.15	0/957	0.27	0/1282
32	A0	0.17	0/1815	0.29	0/2440

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
33	A1	0.18	0/2096	0.34	0/2819
34	A2	0.16	0/1486	0.26	0/1997
35	A3	0.16	0/1893	0.32	0/2533
36	A4	0.16	0/1634	0.30	0/2208
37	A5	0.18	0/1494	0.32	0/2004
38	A6	0.17	0/1507	0.29	0/2023
39	A7	0.14	0/2428	0.31	0/3311
40	AC	0.20	0/1682	0.27	0/2275
41	AD	0.17	0/837	0.34	0/1129
42	AE	0.17	0/1274	0.28	0/1714
43	AG	0.18	0/1225	0.28	0/1642
44	Bh	0.15	0/1270	0.30	0/1696
45	Ba	0.17	0/1105	0.28	0/1472
46	Bb	0.16	0/1165	0.32	0/1554
47	Bc	0.13	0/1179	0.26	0/1573
48	Bd	0.15	0/558	0.27	0/747
49	Be	0.18	0/1948	0.31	0/2621
50	Bz	0.22	0/288	0.37	0/374
51	Bg	0.16	0/718	0.23	0/969
52	Bf	0.15	0/3244	0.27	0/4360
53	BI	0.15	0/1543	0.27	0/2059
54	Bj	0.16	0/977	0.31	0/1304
55	BK	0.15	0/1620	0.27	0/2171
56	Bk	0.15	0/1018	0.33	0/1346
57	BL	0.15	0/1346	0.29	0/1800
58	Bl	0.15	0/1187	0.33	0/1592
59	Bm	0.14	0/796	0.28	0/1057
60	BN	0.15	0/1793	0.30	0/2391
61	Bn	0.16	0/690	0.30	0/920
62	BO	0.14	0/1832	0.26	0/2446
63	Bo	0.20	0/711	0.30	0/946
64	Bp	0.16	0/635	0.40	0/844
65	Bq	0.14	0/471	0.24	0/626
66	BQ	0.16	0/1755	0.28	0/2346
67	BR	0.15	0/1244	0.29	0/1669
68	Br	0.13	0/2936	0.27	0/3941
69	BS	0.15	0/1500	0.29	0/2018
70	Bs	0.17	0/400	0.35	0/531
71	BT	0.16	0/1607	0.33	0/2130
72	Bt	0.17	0/815	0.36	0/1077
73	BU	0.15	0/1276	0.32	0/1716
74	Bu	0.15	0/1999	0.31	0/2684
75	BV	0.18	0/995	0.40	0/1329

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
76	Bv	0.14	0/1120	0.28	0/1511
77	BW	0.17	0/1046	0.34	0/1408
78	BX	0.14	0/999	0.29	0/1343
79	Bw	0.15	0/1907	0.26	0/2556
80	Bx	0.14	0/1901	0.27	0/2557
81	BY	0.17	0/570	0.34	0/766
82	By	0.15	0/1536	0.33	0/2065
83	BZ	0.14	0/1006	0.29	0/1340
84	Bi	0.14	0/1097	0.27	0/1468
85	BP	0.14	0/1256	0.28	0/1683
86	AF	0.15	0/870	0.36	0/1169
All	All	0.20	2/221048 (0.0%)	0.32	15/324175 (0.0%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	BB	545	A2M	O3'-P	5.02	1.61	1.56
1	BA	743	A2M	O3'-P	5.00	1.61	1.56

The worst 5 of 15 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	BB	515	G	P-O3'-C3'	-8.07	108.09	120.20
3	BB	528	U	P-O3'-C3'	-8.06	108.11	120.20
2	AA	878	U	P-O3'-C3'	-7.99	108.21	120.20
3	BB	514	G	P-O3'-C3'	-7.48	108.98	120.20
2	AA	874	U	P-O3'-C3'	-7.30	109.25	120.20

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	BA	34346	0	17349	210	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	AA	40964	0	20713	365	0
3	BB	23918	0	12111	169	0
4	BH	2538	0	1286	29	0
5	BG	3919	0	1975	34	0
6	BF	1444	0	744	20	0
7	BE	3981	0	2023	43	0
8	BD	2533	0	1283	22	0
9	BC	3411	0	1736	21	0
10	AB	404	0	211	6	0
11	AQ	800	0	856	12	0
12	A8	461	0	471	4	0
13	A9	569	0	582	1	0
14	Az	807	0	820	24	0
15	AH	992	0	1004	13	0
16	AI	966	0	999	11	0
17	AJ	1018	0	1050	7	0
18	AK	1140	0	1198	10	0
19	AM	1143	0	1192	14	0
20	AO	1220	0	1286	10	0
21	AP	1688	0	1734	13	0
22	AR	666	0	670	7	0
23	AS	1096	0	1151	10	0
24	AT	1034	0	1117	13	0
25	AU	575	0	622	7	0
26	AV	830	0	868	8	0
27	AW	660	0	666	9	0
28	AX	1652	0	1721	9	0
29	AY	448	0	502	1	0
30	AZ	449	0	483	6	0
31	AL	945	0	996	12	0
32	A0	1789	0	1859	12	0
33	A1	2062	0	2181	19	0
34	A2	1464	0	1524	10	0
35	A3	1871	0	1960	22	0
36	A4	1602	0	1664	25	0
37	A5	1471	0	1532	10	0
38	A6	1477	0	1536	8	0
39	A7	2371	0	2283	26	0
40	AC	1648	0	1687	19	0
41	AD	814	0	819	10	0
42	AE	1249	0	1296	11	0
43	AG	1203	0	1281	10	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
44	Bh	1249	0	1319	20	0
45	Ba	1085	0	1151	14	0
46	Bb	1137	0	1174	13	0
47	Bc	1162	0	1246	12	0
48	Bd	547	0	570	1	0
49	Be	1907	0	1967	13	0
50	Bz	284	0	323	1	0
51	Bg	708	0	726	3	0
52	Bf	3174	0	3300	20	0
53	BI	1517	0	1633	10	0
54	Bj	959	0	1026	11	0
55	BK	1588	0	1651	13	0
56	Bk	1010	0	1126	10	0
57	BL	1325	0	1355	19	0
58	Bl	1163	0	1221	14	0
59	Bm	786	0	865	6	0
60	BN	1762	0	1864	15	0
61	Bn	676	0	685	3	0
62	BO	1801	0	1952	6	0
63	Bo	699	0	726	8	0
64	Bp	626	0	685	10	0
65	Bq	457	0	495	3	0
66	BQ	1716	0	1796	5	0
67	BR	1219	0	1278	3	0
68	Br	2882	0	3011	14	0
69	BS	1465	0	1500	11	0
70	Bs	394	0	417	3	0
71	BT	1590	0	1662	16	0
72	Bt	801	0	865	5	0
73	BU	1247	0	1306	16	0
74	Bu	1964	0	2002	32	0
75	BV	979	0	1002	17	0
76	Bv	1101	0	1158	14	0
77	BW	1029	0	1090	12	0
78	BX	982	0	1050	6	0
79	Bw	1872	0	1966	7	0
80	Bx	1874	0	2008	11	0
81	BY	550	0	558	4	0
82	By	1515	0	1589	22	0
83	BZ	993	0	1071	4	0
84	Bi	1075	0	1135	4	0
85	BP	1237	0	1320	13	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
86	AF	868	0	879	23	0
87	A0	1	0	0	0	0
87	AA	88	0	0	0	0
87	AH	1	0	0	0	0
87	AO	2	0	0	0	0
87	BA	67	0	0	0	0
87	BB	61	0	0	0	0
87	BC	1	0	0	0	0
87	BD	1	0	0	0	0
87	BE	1	0	0	0	0
87	BG	5	0	0	0	0
87	BN	1	0	0	0	0
87	BR	1	0	0	0	0
87	BW	1	0	0	0	0
87	Be	2	0	0	0	0
87	Bf	1	0	0	0	0
88	AA	25	0	0	0	0
88	AH	1	0	0	0	0
88	BA	8	0	0	0	0
88	BB	12	0	0	0	0
88	BZ	1	0	0	0	0
89	A3	1	0	0	0	0
89	AA	14	0	0	0	0
89	BA	10	0	0	0	0
89	BB	14	0	0	0	0
89	BK	1	0	0	0	0
90	A9	1	0	0	0	0
90	Bn	1	0	0	0	0
90	Bo	1	0	0	0	0
90	Bs	1	0	0	0	0
91	A2	1	0	0	0	0
91	A8	1	0	0	0	0
91	AA	40	0	0	0	0
91	AG	1	0	0	0	0
91	AH	1	0	0	0	0
91	AK	1	0	0	1	0
91	AV	3	0	0	0	0
91	BA	53	0	0	0	0
91	BB	61	0	0	0	0
91	BC	1	0	0	0	0
91	BE	1	0	0	0	0
91	BG	4	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
91	BH	2	0	0	0	0
91	BK	1	0	0	0	0
91	BN	1	0	0	0	0
91	BQ	2	0	0	0	0
91	Bb	3	0	0	0	0
91	Bd	1	0	0	0	0
91	Be	7	0	0	0	0
91	Bi	1	0	0	0	0
91	Bj	1	0	0	0	0
91	Bn	1	0	0	0	0
91	Br	1	0	0	0	0
All	All	209127	0	154764	1580	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 4.

The worst 5 of 1580 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)
2:AA:770:U:H3	2:AA:780:C:N4	1.56	1.03
2:AA:758:G:H1	2:AA:791:U:H3	1.10	0.99
36:A4:4:GLN:N	36:A4:4:GLN:HE21	1.60	0.98
4:BH:79:A:H2	4:BH:86:G:H1	1.05	0.95
3:BB:996:G:H1	3:BB:1016:U:H3	1.12	0.95

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
11	AQ	98/117 (84%)	96 (98%)	2 (2%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
12	A8	54/57 (95%)	53 (98%)	1 (2%)	0	100	100
13	A9	66/153 (43%)	61 (92%)	5 (8%)	0	100	100
14	Az	98/279 (35%)	84 (86%)	13 (13%)	1 (1%)	13	23
15	AH	132/144 (92%)	118 (89%)	14 (11%)	0	100	100
16	AI	115/152 (76%)	112 (97%)	3 (3%)	0	100	100
17	AJ	127/130 (98%)	123 (97%)	4 (3%)	0	100	100
18	AK	140/149 (94%)	134 (96%)	6 (4%)	0	100	100
19	AM	139/153 (91%)	134 (96%)	5 (4%)	0	100	100
20	AO	152/167 (91%)	147 (97%)	5 (3%)	0	100	100
21	AP	216/266 (81%)	203 (94%)	12 (6%)	1 (0%)	25	41
22	AR	87/194 (45%)	85 (98%)	2 (2%)	0	100	100
23	AS	138/143 (96%)	128 (93%)	10 (7%)	0	100	100
24	AT	127/137 (93%)	118 (93%)	9 (7%)	0	100	100
25	AU	71/113 (63%)	67 (94%)	4 (6%)	0	100	100
26	AV	101/111 (91%)	94 (93%)	7 (7%)	0	100	100
27	AW	83/86 (96%)	80 (96%)	3 (4%)	0	100	100
28	AX	206/214 (96%)	196 (95%)	10 (5%)	0	100	100
29	AY	51/66 (77%)	50 (98%)	1 (2%)	0	100	100
30	AZ	54/103 (52%)	52 (96%)	2 (4%)	0	100	100
31	AL	120/142 (84%)	115 (96%)	5 (4%)	0	100	100
32	A0	216/256 (84%)	211 (98%)	5 (2%)	0	100	100
33	A1	260/273 (95%)	245 (94%)	15 (6%)	0	100	100
34	A2	179/190 (94%)	177 (99%)	2 (1%)	0	100	100
35	A3	236/250 (94%)	228 (97%)	8 (3%)	0	100	100
36	A4	196/202 (97%)	187 (95%)	9 (5%)	0	100	100
37	A5	183/220 (83%)	176 (96%)	7 (4%)	0	100	100
38	A6	177/190 (93%)	173 (98%)	4 (2%)	0	100	100
39	A7	305/318 (96%)	294 (96%)	11 (4%)	0	100	100
40	AC	206/277 (74%)	200 (97%)	6 (3%)	0	100	100
41	AD	97/172 (56%)	94 (97%)	3 (3%)	0	100	100
42	AE	151/174 (87%)	143 (95%)	8 (5%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
43	AG	148/151 (98%)	144 (97%)	4 (3%)	0	100	100
44	Bh	152/188 (81%)	142 (93%)	10 (7%)	0	100	100
45	Ba	130/133 (98%)	129 (99%)	1 (1%)	0	100	100
46	Bb	142/145 (98%)	136 (96%)	6 (4%)	0	100	100
47	Bc	142/146 (97%)	139 (98%)	3 (2%)	0	100	100
48	Bd	65/71 (92%)	63 (97%)	2 (3%)	0	100	100
49	Be	253/260 (97%)	247 (98%)	6 (2%)	0	100	100
50	Bz	30/34 (88%)	30 (100%)	0	0	100	100
51	Bg	90/105 (86%)	90 (100%)	0	0	100	100
52	Bf	394/429 (92%)	388 (98%)	6 (2%)	0	100	100
53	BI	189/193 (98%)	183 (97%)	6 (3%)	0	100	100
54	Bj	114/170 (67%)	111 (97%)	3 (3%)	0	100	100
55	BK	190/213 (89%)	182 (96%)	8 (4%)	0	100	100
56	Bk	121/127 (95%)	115 (95%)	5 (4%)	1 (1%)	16	29
57	BL	164/194 (84%)	155 (94%)	9 (6%)	0	100	100
58	Bl	142/149 (95%)	136 (96%)	6 (4%)	0	100	100
59	Bm	96/109 (88%)	95 (99%)	1 (1%)	0	100	100
60	BN	213/218 (98%)	202 (95%)	11 (5%)	0	100	100
61	Bn	78/84 (93%)	76 (97%)	2 (3%)	0	100	100
62	BO	219/222 (99%)	218 (100%)	1 (0%)	0	100	100
63	Bo	87/93 (94%)	83 (95%)	4 (5%)	0	100	100
64	Bp	75/82 (92%)	71 (95%)	4 (5%)	0	100	100
65	Bq	48/51 (94%)	47 (98%)	1 (2%)	0	100	100
66	BQ	201/221 (91%)	197 (98%)	4 (2%)	0	100	100
67	BR	149/166 (90%)	147 (99%)	2 (1%)	0	100	100
68	Br	365/374 (98%)	352 (96%)	13 (4%)	0	100	100
69	BS	176/179 (98%)	170 (97%)	6 (3%)	0	100	100
70	Bs	48/128 (38%)	46 (96%)	2 (4%)	0	100	100
71	BT	194/260 (75%)	186 (96%)	8 (4%)	0	100	100
72	Bt	95/106 (90%)	91 (96%)	4 (4%)	0	100	100
73	BU	155/159 (98%)	143 (92%)	11 (7%)	1 (1%)	22	36

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
74	Bu	243/308 (79%)	234 (96%)	9 (4%)	0	100	100
75	BV	120/130 (92%)	111 (92%)	8 (7%)	1 (1%)	16	29
76	Bv	139/192 (72%)	134 (96%)	5 (4%)	0	100	100
77	BW	134/139 (96%)	132 (98%)	2 (2%)	0	100	100
78	BX	118/164 (72%)	114 (97%)	4 (3%)	0	100	100
79	Bw	228/257 (89%)	223 (98%)	5 (2%)	0	100	100
80	Bx	231/276 (84%)	220 (95%)	11 (5%)	0	100	100
81	BY	62/125 (50%)	60 (97%)	2 (3%)	0	100	100
82	By	184/189 (97%)	175 (95%)	9 (5%)	0	100	100
83	BZ	120/143 (84%)	118 (98%)	2 (2%)	0	100	100
84	Bi	129/132 (98%)	125 (97%)	4 (3%)	0	100	100
85	BP	150/189 (79%)	144 (96%)	6 (4%)	0	100	100
86	AF	111/144 (77%)	107 (96%)	3 (3%)	1 (1%)	14	26
All	All	11215/13146 (85%)	10789 (96%)	420 (4%)	6 (0%)	50	67

5 of 6 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
14	Az	169	THR
56	Bk	6	LYS
73	BU	33	ASN
75	BV	17	ARG
86	AF	122	SER

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	
11	AQ	90/104 (86%)	83 (92%)	7 (8%)	10	19
12	A8	49/50 (98%)	47 (96%)	2 (4%)	26	47
13	A9	62/126 (49%)	58 (94%)	4 (6%)	14	27

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
14	Az	86/216 (40%)	81 (94%)	5 (6%)	17	32
15	AH	101/112 (90%)	97 (96%)	4 (4%)	27	48
16	AI	100/128 (78%)	100 (100%)	0	100	100
17	AJ	108/109 (99%)	105 (97%)	3 (3%)	38	63
18	AK	117/124 (94%)	113 (97%)	4 (3%)	32	55
19	AM	123/133 (92%)	118 (96%)	5 (4%)	26	47
20	AO	127/137 (93%)	123 (97%)	4 (3%)	35	59
21	AP	181/204 (89%)	171 (94%)	10 (6%)	18	34
22	AR	73/150 (49%)	71 (97%)	2 (3%)	40	64
23	AS	115/118 (98%)	108 (94%)	7 (6%)	15	29
24	AT	108/116 (93%)	103 (95%)	5 (5%)	23	42
25	AU	64/94 (68%)	60 (94%)	4 (6%)	15	28
26	AV	90/97 (93%)	89 (99%)	1 (1%)	70	86
27	AW	74/75 (99%)	71 (96%)	3 (4%)	26	47
28	AX	176/180 (98%)	166 (94%)	10 (6%)	17	32
29	AY	47/53 (89%)	45 (96%)	2 (4%)	25	45
30	AZ	49/84 (58%)	47 (96%)	2 (4%)	26	47
31	AL	96/122 (79%)	92 (96%)	4 (4%)	25	46
32	A0	190/218 (87%)	187 (98%)	3 (2%)	58	79
33	A1	221/231 (96%)	212 (96%)	9 (4%)	26	47
34	A2	157/160 (98%)	154 (98%)	3 (2%)	52	74
35	A3	191/207 (92%)	180 (94%)	11 (6%)	17	32
36	A4	173/187 (92%)	157 (91%)	16 (9%)	7	14
37	A5	147/180 (82%)	136 (92%)	11 (8%)	11	21
38	A6	159/166 (96%)	154 (97%)	5 (3%)	35	59
39	A7	260/267 (97%)	241 (93%)	19 (7%)	11	22
40	AC	183/243 (75%)	177 (97%)	6 (3%)	33	56
41	AD	87/131 (66%)	85 (98%)	2 (2%)	45	69
42	AE	137/156 (88%)	133 (97%)	4 (3%)	37	61
43	AG	130/131 (99%)	126 (97%)	4 (3%)	35	59
44	Bh	133/162 (82%)	129 (97%)	4 (3%)	36	60

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
45	Ba	115/117 (98%)	107 (93%)	8 (7%)	12	23
46	Bb	115/116 (99%)	113 (98%)	2 (2%)	56	77
47	Bc	128/130 (98%)	126 (98%)	2 (2%)	58	79
48	Bd	56/59 (95%)	55 (98%)	1 (2%)	54	76
49	Be	191/204 (94%)	186 (97%)	5 (3%)	41	65
50	Bz	29/31 (94%)	29 (100%)	0	100	100
51	Bg	81/92 (88%)	79 (98%)	2 (2%)	42	67
52	Bf	337/360 (94%)	331 (98%)	6 (2%)	54	76
53	BI	163/165 (99%)	155 (95%)	8 (5%)	21	39
54	Bj	99/137 (72%)	98 (99%)	1 (1%)	73	87
55	BK	169/185 (91%)	161 (95%)	8 (5%)	22	41
56	Bk	104/114 (91%)	100 (96%)	4 (4%)	28	50
57	BL	142/167 (85%)	135 (95%)	7 (5%)	21	39
58	Bl	122/126 (97%)	118 (97%)	4 (3%)	33	56
59	Bm	81/90 (90%)	81 (100%)	0	100	100
60	BN	185/188 (98%)	184 (100%)	1 (0%)	86	94
61	Bn	68/71 (96%)	68 (100%)	0	100	100
62	BO	194/195 (100%)	193 (100%)	1 (0%)	86	94
63	Bo	72/76 (95%)	71 (99%)	1 (1%)	62	81
64	Bp	72/77 (94%)	66 (92%)	6 (8%)	9	17
65	Bq	46/47 (98%)	46 (100%)	0	100	100
66	BQ	176/193 (91%)	171 (97%)	5 (3%)	38	63
67	BR	129/144 (90%)	126 (98%)	3 (2%)	45	69
68	Br	304/310 (98%)	296 (97%)	8 (3%)	41	65
69	BS	159/160 (99%)	155 (98%)	4 (2%)	42	67
70	Bs	41/111 (37%)	38 (93%)	3 (7%)	11	22
71	BT	153/198 (77%)	149 (97%)	4 (3%)	41	65
72	Bt	87/95 (92%)	82 (94%)	5 (6%)	17	32
73	BU	132/134 (98%)	122 (92%)	10 (8%)	11	20
74	Bu	199/247 (81%)	190 (96%)	9 (4%)	23	43
75	BV	100/116 (86%)	89 (89%)	11 (11%)	5	9

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
76	Bv	119/160 (74%)	110 (92%)	9 (8%)	11	20
77	BW	106/108 (98%)	102 (96%)	4 (4%)	28	50
78	BX	107/136 (79%)	102 (95%)	5 (5%)	22	41
79	Bw	193/213 (91%)	190 (98%)	3 (2%)	58	79
80	Bx	199/229 (87%)	190 (96%)	9 (4%)	23	43
81	BY	57/102 (56%)	57 (100%)	0	100	100
82	By	169/172 (98%)	160 (95%)	9 (5%)	19	36
83	BZ	108/125 (86%)	107 (99%)	1 (1%)	75	89
84	Bi	116/117 (99%)	115 (99%)	1 (1%)	75	89
85	BP	132/158 (84%)	125 (95%)	7 (5%)	19	36
86	AF	93/120 (78%)	89 (96%)	4 (4%)	25	45
All	All	9652/11066 (87%)	9286 (96%)	366 (4%)	30	50

5 of 366 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
56	Bk	122	ILE
73	BU	60	ARG
57	BL	177	ILE
68	Br	68	THR
74	Bu	214	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 79 such sidechains are listed below:

Mol	Chain	Res	Type
69	BS	107	GLN
83	BZ	78	HIS
72	Bt	94	ASN
79	Bw	140	ASN
85	BP	34	ASN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	BA	1585/1920 (82%)	300 (18%)	9 (0%)
10	AB	17/19 (89%)	7 (41%)	1 (5%)

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Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
2	AA	1902/2282 (83%)	426 (22%)	13 (0%)
3	BB	1113/1536 (72%)	209 (18%)	5 (0%)
4	BH	116/136 (85%)	27 (23%)	0
5	BG	182/183 (99%)	30 (16%)	1 (0%)
6	BF	66/78 (84%)	17 (25%)	1 (1%)
7	BE	185/216 (85%)	47 (25%)	4 (2%)
8	BD	118/119 (99%)	15 (12%)	0
9	BC	157/209 (75%)	22 (14%)	0
All	All	5441/6698 (81%)	1100 (20%)	34 (0%)

5 of 1100 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	BA	8	G
1	BA	28	A
1	BA	33	C
1	BA	42	A
1	BA	45	A

5 of 34 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
6	BF	56	A
7	BE	123	U
7	BE	186	U
2	AA	324	A
2	AA	291	A

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

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

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
1	A2M	BA	746	1	18,25,26	3.65	7 (38%)	18,36,39	3.74	4 (22%)
2	A2M	AA	56	89,2	18,25,26	3.63	7 (38%)	18,36,39	3.72	4 (22%)
3	A2M	BB	609	3	18,25,26	3.62	7 (38%)	18,36,39	3.67	4 (22%)
3	A2M	BB	545	87,3	18,25,26	3.69	8 (44%)	18,36,39	3.89	5 (27%)
1	PSU	BA	1169	1	18,21,22	4.43	7 (38%)	22,30,33	1.87	5 (22%)
2	OMC	AA	66	2	19,22,23	2.93	8 (42%)	26,31,34	0.77	0
3	A2M	BB	95	3	18,25,26	3.60	8 (44%)	18,36,39	3.72	4 (22%)
3	A2M	BB	1400	87,3	18,25,26	3.61	8 (44%)	18,36,39	3.76	4 (22%)
1	PSU	BA	1609	1	18,21,22	4.44	7 (38%)	22,30,33	1.84	5 (22%)
2	B8N	AA	1596	2	24,29,30	3.01	6 (25%)	29,42,45	1.72	5 (17%)
1	OMG	BA	1267	1	18,26,27	2.49	8 (44%)	19,38,41	1.63	5 (26%)
1	OMC	BA	760	1	19,22,23	2.91	8 (42%)	26,31,34	0.72	0
2	OMG	AA	1931	89,2	18,26,27	2.51	8 (44%)	19,38,41	1.62	5 (26%)
1	A2M	BA	762	1	18,25,26	3.60	7 (38%)	18,36,39	3.79	4 (22%)
2	PSU	AA	131	2	18,21,22	4.41	7 (38%)	22,30,33	1.74	3 (13%)
2	OMU	AA	1652	2	19,22,23	2.99	8 (42%)	26,31,34	1.72	5 (19%)
3	OMG	BB	1094	3	18,26,27	2.50	8 (44%)	19,38,41	1.64	4 (21%)
3	OMC	BB	1413	3	19,22,23	2.92	8 (42%)	26,31,34	0.76	0
1	OMU	BA	1181	1	19,22,23	2.97	8 (42%)	26,31,34	1.80	5 (19%)
3	OMG	BB	71	3	18,26,27	2.52	8 (44%)	19,38,41	1.58	4 (21%)
3	OMG	BB	673	3	18,26,27	2.52	8 (44%)	19,38,41	1.61	4 (21%)
3	PSU	BB	1160	3	18,21,22	4.46	7 (38%)	22,30,33	1.83	5 (22%)
3	OMG	BB	1269	3	18,26,27	2.48	8 (44%)	19,38,41	1.54	5 (26%)
2	A2M	AA	2153	2	18,25,26	3.64	9 (50%)	18,36,39	3.90	4 (22%)
3	OMU	BB	578	89,3	19,22,23	2.95	8 (42%)	26,31,34	1.73	4 (15%)
1	PSU	BA	1086	88,1,87	18,21,22	4.38	7 (38%)	22,30,33	1.83	5 (22%)
1	OMG	BA	1621	1,3	18,26,27	2.46	8 (44%)	19,38,41	1.52	5 (26%)
3	5MC	BB	1324	3	18,22,23	3.51	7 (38%)	26,32,35	1.10	1 (3%)
2	PSU	AA	2045	2	18,21,22	4.39	7 (38%)	22,30,33	1.81	5 (22%)
3	OMG	BB	1245	3	18,26,27	2.51	8 (44%)	19,38,41	1.54	4 (21%)
1	OMG	BA	1709	1	18,26,27	2.53	8 (44%)	19,38,41	1.56	4 (21%)
1	A2M	BA	996	89,1	18,25,26	3.62	7 (38%)	18,36,39	3.68	4 (22%)
1	PSU	BA	1009	1	18,21,22	4.39	7 (38%)	22,30,33	1.85	5 (22%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
9	A2M	BC	163	9,1	18,25,26	3.59	7 (38%)	18,36,39	3.79	4 (22%)
3	OMC	BB	377	3	19,22,23	2.98	8 (42%)	26,31,34	0.71	0
3	PSU	BB	455	88,87,3	18,21,22	4.41	7 (38%)	22,30,33	1.84	5 (22%)
3	A2M	BB	1201	3	18,25,26	3.61	8 (44%)	18,36,39	3.72	4 (22%)
2	OMG	AA	1700	2	18,26,27	2.43	8 (44%)	19,38,41	1.65	5 (26%)
3	OMU	BB	685	3	19,22,23	2.98	8 (42%)	26,31,34	1.73	5 (19%)
2	OMC	AA	46	2	19,22,23	2.86	8 (42%)	26,31,34	0.77	0
2	OMU	AA	2054	2	19,22,23	2.97	8 (42%)	26,31,34	1.73	4 (15%)
1	A2M	BA	1620	1,87,3	18,25,26	3.61	8 (44%)	18,36,39	3.75	4 (22%)
1	OMG	BA	925	1	18,26,27	2.50	8 (44%)	19,38,41	1.54	3 (15%)
1	OMG	BA	1605	1	18,26,27	2.52	8 (44%)	19,38,41	1.61	4 (21%)
3	OMG	BB	659	3	18,26,27	2.50	8 (44%)	19,38,41	1.61	5 (26%)
1	OMG	BA	1028	1	18,26,27	2.50	8 (44%)	19,38,41	1.52	4 (21%)
3	OMU	BB	73	3	19,22,23	2.96	8 (42%)	26,31,34	1.69	5 (19%)
9	PSU	BC	74	9	18,21,22	4.49	7 (38%)	22,30,33	1.88	5 (22%)
1	OMC	BA	1608	1	19,22,23	2.95	8 (42%)	26,31,34	0.96	2 (7%)
1	A2M	BA	1665	1,3	18,25,26	3.61	8 (44%)	18,36,39	3.70	4 (22%)
2	PSU	AA	1619	2	18,21,22	4.38	8 (44%)	22,30,33	1.64	4 (18%)
3	A2M	BB	588	1,3	18,25,26	3.63	8 (44%)	18,36,39	3.78	5 (27%)
3	OMC	BB	1264	3	19,22,23	2.95	8 (42%)	26,31,34	0.82	0
3	PSU	BB	1398	87,3	18,21,22	4.41	8 (44%)	22,30,33	1.86	6 (27%)
1	A2M	BA	254	1	18,25,26	3.61	8 (44%)	18,36,39	3.77	4 (22%)
2	OMU	AA	1899	2	19,22,23	3.00	8 (42%)	26,31,34	1.78	5 (19%)
3	OMG	BB	1062	3	18,26,27	2.51	8 (44%)	19,38,41	1.56	4 (21%)
3	PSU	BB	1076	3	18,21,22	4.41	7 (38%)	22,30,33	1.94	5 (22%)
3	OMU	BB	1375	3	19,22,23	2.96	8 (42%)	26,31,34	1.71	5 (19%)
2	MA6	AA	2260	2	18,26,27	1.14	1 (5%)	19,38,41	3.21	2 (10%)
9	A2M	BC	43	9	18,25,26	3.59	7 (38%)	18,36,39	3.72	4 (22%)
2	PSU	AA	1276	2	18,21,22	4.37	7 (38%)	22,30,33	1.87	5 (22%)
1	OMU	BA	1742	1	19,22,23	2.96	8 (42%)	26,31,34	1.71	4 (15%)
2	PSU	AA	942	2	18,21,22	4.41	7 (38%)	22,30,33	1.68	5 (22%)
3	PSU	BB	629	3	18,21,22	4.40	7 (38%)	22,30,33	1.79	5 (22%)
1	PSU	BA	1258	1	18,21,22	4.41	7 (38%)	22,30,33	1.84	5 (22%)
3	A2M	BB	1388	3	18,25,26	3.64	7 (38%)	18,36,39	3.88	4 (22%)
3	PSU	BB	680	87,3	18,21,22	4.39	7 (38%)	22,30,33	1.83	5 (22%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	PSU	BB	1210	3	18,21,22	4.45	7 (38%)	22,30,33	1.78	5 (22%)
1	PSU	BA	1129	1	18,21,22	4.43	7 (38%)	22,30,33	1.82	5 (22%)
1	OMU	BA	1448	1	19,22,23	2.97	8 (42%)	26,31,34	1.74	4 (15%)
3	PSU	BB	1280	3	18,21,22	4.41	7 (38%)	22,30,33	1.86	6 (27%)
1	OMC	BA	1006	1	19,22,23	2.91	8 (42%)	26,31,34	0.74	0
1	PSU	BA	1248	1	18,21,22	4.44	7 (38%)	22,30,33	1.84	6 (27%)
1	PSU	BA	452	1	18,21,22	4.46	7 (38%)	22,30,33	1.78	5 (22%)
2	OMG	AA	1676	88,2	18,26,27	2.51	8 (44%)	19,38,41	1.56	4 (21%)
9	OMG	BC	75	9	18,26,27	2.55	8 (44%)	19,38,41	1.56	4 (21%)
3	OMG	BB	1247	3	18,26,27	2.52	8 (44%)	19,38,41	1.52	4 (21%)
2	OMU	AA	57	2	19,22,23	2.96	8 (42%)	26,31,34	1.72	5 (19%)
3	A2M	BB	646	3	18,25,26	3.63	7 (38%)	18,36,39	3.76	4 (22%)
3	OMC	BB	1175	3	19,22,23	2.95	8 (42%)	26,31,34	0.78	0
1	PSU	BA	1614	1,3	18,21,22	4.43	7 (38%)	22,30,33	1.79	5 (22%)
2	PSU	AA	61	2	18,21,22	4.46	7 (38%)	22,30,33	1.87	5 (22%)
3	OMC	BB	601	3	19,22,23	2.91	8 (42%)	26,31,34	0.71	0
3	PSU	BB	522	3	18,21,22	4.42	7 (38%)	22,30,33	1.77	5 (22%)
3	OMU	BB	1093	3	19,22,23	3.01	8 (42%)	26,31,34	1.73	5 (19%)
2	OMU	AA	2123	2	19,22,23	2.87	7 (36%)	26,31,34	1.81	4 (15%)
2	PSU	AA	2146	2	18,21,22	4.39	7 (38%)	22,30,33	1.70	4 (18%)
1	OMU	BA	916	1	19,22,23	2.96	8 (42%)	26,31,34	1.77	5 (19%)
1	OMG	BA	915	1	18,26,27	2.51	8 (44%)	19,38,41	1.59	4 (21%)
3	OMG	BB	552	3	18,26,27	2.46	8 (44%)	19,38,41	1.50	4 (21%)
2	OMG	AA	1895	2,87	18,26,27	2.49	8 (44%)	19,38,41	1.55	4 (21%)
2	OMG	AA	1517	2	18,26,27	2.53	8 (44%)	19,38,41	1.57	4 (21%)
2	A2M	AA	721	2,87	18,25,26	3.64	8 (44%)	18,36,39	3.82	4 (22%)
3	OMU	BB	1435	3	19,22,23	2.98	8 (42%)	26,31,34	1.72	5 (19%)
3	PSU	BB	1319	3	18,21,22	4.46	8 (44%)	22,30,33	1.83	6 (27%)
1	OMC	BA	1329	1	19,22,23	3.03	8 (42%)	26,31,34	0.78	0
2	PSU	AA	1592	2	18,21,22	4.39	7 (38%)	22,30,33	1.85	5 (22%)
2	OMC	AA	2134	2	19,22,23	2.84	8 (42%)	26,31,34	0.72	0
1	PSU	BA	258	1	18,21,22	4.49	7 (38%)	22,30,33	1.78	5 (22%)
2	OMG	AA	2227	2	18,26,27	2.49	8 (44%)	19,38,41	1.56	4 (21%)
2	OMU	AA	714	2	19,22,23	2.94	8 (42%)	26,31,34	1.71	5 (19%)
2	MA6	AA	2261	2	18,26,27	1.17	1 (5%)	19,38,41	3.01	2 (10%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	PSU	BB	644	3	18,21,22	4.41	7 (38%)	22,30,33	1.82	5 (22%)
1	A2M	BA	743	1,3	18,25,26	3.62	8 (44%)	18,36,39	3.92	4 (22%)
1	1MA	BA	742	1,87	16,25,26	3.96	4 (25%)	18,37,40	1.75	3 (16%)
1	A2M	BA	1024	1	18,25,26	3.58	7 (38%)	18,36,39	3.70	4 (22%)
2	7MG	AA	2070	2	22,26,27	4.14	10 (45%)	29,39,42	2.05	9 (31%)
3	A2M	BB	622	1,3	18,25,26	3.59	7 (38%)	18,36,39	3.76	4 (22%)
3	A2M	BB	400	3	18,25,26	3.62	8 (44%)	18,36,39	3.71	4 (22%)
1	PSU	BA	737	1,87	18,21,22	4.39	7 (38%)	22,30,33	1.77	5 (22%)
2	OMG	AA	1531	2	18,26,27	2.42	8 (44%)	19,38,41	1.60	4 (21%)
3	PSU	BB	1334	3	18,21,22	4.38	7 (38%)	22,30,33	1.80	5 (22%)
2	OMU	AA	2154	2	19,22,23	2.98	8 (42%)	26,31,34	1.74	5 (19%)
3	5MC	BB	542	87,3	18,22,23	3.41	7 (38%)	26,32,35	1.08	2 (7%)
1	OMU	BA	46	1	19,22,23	2.96	8 (42%)	26,31,34	1.78	5 (19%)
3	PSU	BB	1429	3	18,21,22	4.37	7 (38%)	22,30,33	1.87	5 (22%)
9	OMU	BC	7	9,1	19,22,23	2.99	8 (42%)	26,31,34	1.72	5 (19%)
2	A2M	AA	2096	2	18,25,26	3.62	7 (38%)	18,36,39	3.87	5 (27%)
3	PSU	BB	611	3	18,21,22	4.37	8 (44%)	22,30,33	1.65	4 (18%)
9	A2M	BC	41	9	18,25,26	3.62	8 (44%)	18,36,39	3.77	4 (22%)
3	PSU	BB	615	3	18,21,22	4.42	7 (38%)	22,30,33	1.82	5 (22%)
2	OMU	AA	36	2	19,22,23	2.95	8 (42%)	26,31,34	1.86	5 (19%)
1	A2M	BA	927	1	18,25,26	3.62	7 (38%)	18,36,39	3.66	4 (22%)
3	PSU	BB	1409	3	18,21,22	4.47	7 (38%)	22,30,33	1.74	5 (22%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	A2M	BA	746	1	-	0/5/27/28	0/3/3/3
2	A2M	AA	56	89,2	-	1/5/27/28	0/3/3/3
3	A2M	BB	609	3	-	1/5/27/28	0/3/3/3
3	A2M	BB	545	87,3	-	2/5/27/28	0/3/3/3
1	PSU	BA	1169	1	-	0/7/25/26	0/2/2/2
2	OMC	AA	66	2	-	0/9/27/28	0/2/2/2
3	A2M	BB	95	3	-	1/5/27/28	0/3/3/3
3	A2M	BB	1400	87,3	-	0/5/27/28	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	PSU	BA	1609	1	-	0/7/25/26	0/2/2/2
2	B8N	AA	1596	2	-	5/16/34/35	0/2/2/2
1	OMG	BA	1267	1	-	0/5/27/28	0/3/3/3
1	OMC	BA	760	1	-	1/9/27/28	0/2/2/2
2	OMG	AA	1931	89,2	-	0/5/27/28	0/3/3/3
1	A2M	BA	762	1	-	1/5/27/28	0/3/3/3
2	PSU	AA	131	2	-	2/7/25/26	0/2/2/2
2	OMU	AA	1652	2	-	0/9/27/28	0/2/2/2
3	OMG	BB	1094	3	-	0/5/27/28	0/3/3/3
3	OMC	BB	1413	3	-	0/9/27/28	0/2/2/2
1	OMU	BA	1181	1	-	0/9/27/28	0/2/2/2
3	OMG	BB	71	3	-	0/5/27/28	0/3/3/3
3	OMG	BB	673	3	-	0/5/27/28	0/3/3/3
3	PSU	BB	1160	3	-	0/7/25/26	0/2/2/2
3	OMG	BB	1269	3	-	0/5/27/28	0/3/3/3
2	A2M	AA	2153	2	-	1/5/27/28	0/3/3/3
3	OMU	BB	578	89,3	-	5/9/27/28	0/2/2/2
1	PSU	BA	1086	88,1,87	-	0/7/25/26	0/2/2/2
1	OMG	BA	1621	1,3	-	0/5/27/28	0/3/3/3
3	5MC	BB	1324	3	-	4/7/25/26	0/2/2/2
2	PSU	AA	2045	2	-	0/7/25/26	0/2/2/2
3	OMG	BB	1245	3	-	0/5/27/28	0/3/3/3
1	OMG	BA	1709	1	-	0/5/27/28	0/3/3/3
1	A2M	BA	996	89,1	-	1/5/27/28	0/3/3/3
1	PSU	BA	1009	1	-	0/7/25/26	0/2/2/2
9	A2M	BC	163	9,1	-	1/5/27/28	0/3/3/3
3	OMC	BB	377	3	-	0/9/27/28	0/2/2/2
3	PSU	BB	455	88,87,3	-	0/7/25/26	0/2/2/2
3	A2M	BB	1201	3	-	3/5/27/28	0/3/3/3
2	OMG	AA	1700	2	-	0/5/27/28	0/3/3/3
3	OMU	BB	685	3	-	1/9/27/28	0/2/2/2
2	OMC	AA	46	2	-	0/9/27/28	0/2/2/2
2	OMU	AA	2054	2	-	2/9/27/28	0/2/2/2
1	A2M	BA	1620	1,87,3	-	0/5/27/28	0/3/3/3
1	OMG	BA	925	1	-	0/5/27/28	0/3/3/3
1	OMG	BA	1605	1	-	2/5/27/28	0/3/3/3
3	OMG	BB	659	3	-	0/5/27/28	0/3/3/3
1	OMG	BA	1028	1	-	2/5/27/28	0/3/3/3
3	OMU	BB	73	3	-	0/9/27/28	0/2/2/2
9	PSU	BC	74	9	-	0/7/25/26	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	OMC	BA	1608	1	-	3/9/27/28	0/2/2/2
1	A2M	BA	1665	1,3	-	3/5/27/28	0/3/3/3
2	PSU	AA	1619	2	-	2/7/25/26	0/2/2/2
3	A2M	BB	588	1,3	-	1/5/27/28	0/3/3/3
3	OMC	BB	1264	3	-	1/9/27/28	0/2/2/2
3	PSU	BB	1398	87,3	-	1/7/25/26	0/2/2/2
1	A2M	BA	254	1	-	0/5/27/28	0/3/3/3
2	OMU	AA	1899	2	-	4/9/27/28	0/2/2/2
3	OMG	BB	1062	3	-	3/5/27/28	0/3/3/3
3	PSU	BB	1076	3	-	0/7/25/26	0/2/2/2
3	OMU	BB	1375	3	-	1/9/27/28	0/2/2/2
2	MA6	AA	2260	2	-	0/7/29/30	0/3/3/3
9	A2M	BC	43	9	-	1/5/27/28	0/3/3/3
2	PSU	AA	1276	2	-	0/7/25/26	0/2/2/2
1	OMU	BA	1742	1	-	1/9/27/28	0/2/2/2
2	PSU	AA	942	2	-	4/7/25/26	0/2/2/2
3	PSU	BB	629	3	-	2/7/25/26	0/2/2/2
1	PSU	BA	1258	1	-	2/7/25/26	0/2/2/2
3	A2M	BB	1388	3	-	0/5/27/28	0/3/3/3
3	PSU	BB	680	87,3	-	0/7/25/26	0/2/2/2
3	PSU	BB	1210	3	-	0/7/25/26	0/2/2/2
1	PSU	BA	1129	1	-	0/7/25/26	0/2/2/2
1	OMU	BA	1448	1	-	2/9/27/28	0/2/2/2
3	PSU	BB	1280	3	-	0/7/25/26	0/2/2/2
1	OMC	BA	1006	1	-	0/9/27/28	0/2/2/2
1	PSU	BA	1248	1	-	0/7/25/26	0/2/2/2
1	PSU	BA	452	1	-	0/7/25/26	0/2/2/2
2	OMG	AA	1676	88,2	-	1/5/27/28	0/3/3/3
9	OMG	BC	75	9	-	1/5/27/28	0/3/3/3
3	OMG	BB	1247	3	-	0/5/27/28	0/3/3/3
2	OMU	AA	57	2	-	1/9/27/28	0/2/2/2
3	A2M	BB	646	3	-	0/5/27/28	0/3/3/3
3	OMC	BB	1175	3	-	0/9/27/28	0/2/2/2
1	PSU	BA	1614	1,3	-	2/7/25/26	0/2/2/2
2	PSU	AA	61	2	-	0/7/25/26	0/2/2/2
3	OMC	BB	601	3	-	0/9/27/28	0/2/2/2
3	PSU	BB	522	3	-	2/7/25/26	0/2/2/2
3	OMU	BB	1093	3	-	0/9/27/28	0/2/2/2
2	OMU	AA	2123	2	-	0/9/27/28	0/2/2/2
2	PSU	AA	2146	2	-	0/7/25/26	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	OMU	BA	916	1	-	0/9/27/28	0/2/2/2
1	OMG	BA	915	1	-	0/5/27/28	0/3/3/3
3	OMG	BB	552	3	-	2/5/27/28	0/3/3/3
2	OMG	AA	1895	2,87	-	1/5/27/28	0/3/3/3
2	OMG	AA	1517	2	-	1/5/27/28	0/3/3/3
2	A2M	AA	721	2,87	-	3/5/27/28	0/3/3/3
3	OMU	BB	1435	3	-	0/9/27/28	0/2/2/2
3	PSU	BB	1319	3	-	0/7/25/26	0/2/2/2
1	OMC	BA	1329	1	-	1/9/27/28	0/2/2/2
2	PSU	AA	1592	2	-	2/7/25/26	0/2/2/2
2	OMC	AA	2134	2	-	1/9/27/28	0/2/2/2
1	PSU	BA	258	1	-	0/7/25/26	0/2/2/2
2	OMG	AA	2227	2	-	0/5/27/28	0/3/3/3
2	OMU	AA	714	2	-	0/9/27/28	0/2/2/2
2	MA6	AA	2261	2	-	1/7/29/30	0/3/3/3
3	PSU	BB	644	3	-	0/7/25/26	0/2/2/2
1	A2M	BA	743	1,3	-	2/5/27/28	0/3/3/3
1	1MA	BA	742	1,87	-	0/3/25/26	0/3/3/3
1	A2M	BA	1024	1	-	1/5/27/28	0/3/3/3
2	7MG	AA	2070	2	-	1/7/37/38	0/3/3/3
3	A2M	BB	622	1,3	-	1/5/27/28	0/3/3/3
3	A2M	BB	400	3	-	2/5/27/28	0/3/3/3
1	PSU	BA	737	1,87	-	0/7/25/26	0/2/2/2
2	OMG	AA	1531	2	-	1/5/27/28	0/3/3/3
3	PSU	BB	1334	3	-	0/7/25/26	0/2/2/2
2	OMU	AA	2154	2	-	1/9/27/28	0/2/2/2
3	5MC	BB	542	87,3	-	1/7/25/26	0/2/2/2
1	OMU	BA	46	1	-	0/9/27/28	0/2/2/2
3	PSU	BB	1429	3	-	0/7/25/26	0/2/2/2
9	OMU	BC	7	9,1	-	1/9/27/28	0/2/2/2
2	A2M	AA	2096	2	-	2/5/27/28	0/3/3/3
3	PSU	BB	611	3	-	0/7/25/26	0/2/2/2
9	A2M	BC	41	9	-	0/5/27/28	0/3/3/3
3	PSU	BB	615	3	-	0/7/25/26	0/2/2/2
2	OMU	AA	36	2	-	6/9/27/28	0/2/2/2
1	A2M	BA	927	1	-	0/5/27/28	0/3/3/3
3	PSU	BB	1409	3	-	0/7/25/26	0/2/2/2

The worst 5 of 935 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	BA	742	1MA	C2-N3	14.22	1.46	1.29
1	BA	258	PSU	C6-C5	11.65	1.48	1.35
3	BB	1409	PSU	C6-C5	11.60	1.48	1.35
1	BA	452	PSU	C6-C5	11.60	1.48	1.35
9	BC	74	PSU	C6-C5	11.56	1.48	1.35

The worst 5 of 508 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	AA	2260	MA6	N1-C6-N6	-12.60	103.80	117.06
2	AA	2261	MA6	N1-C6-N6	-11.59	104.85	117.06
1	BA	762	A2M	C5-C6-N6	10.89	136.89	120.35
1	BA	743	A2M	C5-C6-N6	10.71	136.62	120.35
2	AA	2096	A2M	C5-C6-N6	10.70	136.61	120.35

There are no chirality outliers.

5 of 105 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
9	BC	7	OMU	C1'-C2'-O2'-CM2
9	BC	43	A2M	C1'-C2'-O2'-CM'
9	BC	163	A2M	C1'-C2'-O2'-CM'
1	BA	743	A2M	C1'-C2'-O2'-CM'
1	BA	760	OMC	C1'-C2'-O2'-CM2

There are no ring outliers.

38 monomers are involved in 50 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	BA	746	A2M	1	0
3	BB	609	A2M	3	0
3	BB	95	A2M	1	0
1	BA	760	OMC	2	0
1	BA	762	A2M	3	0
2	AA	1652	OMU	1	0
1	BA	1181	OMU	1	0
2	AA	2153	A2M	1	0
3	BB	578	OMU	1	0
2	AA	2045	PSU	2	0
1	BA	996	A2M	1	0
9	BC	163	A2M	2	0
3	BB	685	OMU	1	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	AA	46	OMC	1	0
1	BA	1665	A2M	1	0
3	BB	588	A2M	1	0
3	BB	1264	OMC	1	0
1	BA	254	A2M	1	0
3	BB	1062	OMG	1	0
2	AA	2260	MA6	2	0
9	BC	43	A2M	1	0
1	BA	1742	OMU	1	0
2	AA	1676	OMG	1	0
2	AA	57	OMU	1	0
3	BB	1175	OMC	1	0
1	BA	916	OMU	1	0
1	BA	915	OMG	1	0
2	AA	2227	OMG	1	0
3	BB	644	PSU	1	0
1	BA	743	A2M	2	0
1	BA	1024	A2M	2	0
3	BB	622	A2M	2	0
3	BB	400	A2M	2	0
2	AA	1531	OMG	1	0
2	AA	2154	OMU	1	0
3	BB	1429	PSU	1	0
9	BC	7	OMU	2	0
9	BC	41	A2M	1	0

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 325 ligands modelled in this entry, 325 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](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
10	AB	1
2	AA	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	AB	7:A	O3'	65:G	P	16.03
1	AA	1596:B8N	O3'	1597:C	P	4.10

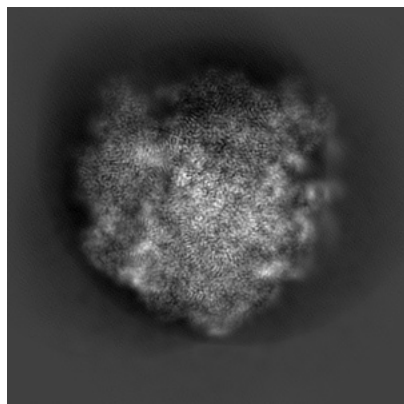
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-17208. These allow visual inspection of the internal detail of the map and identification of artifacts.

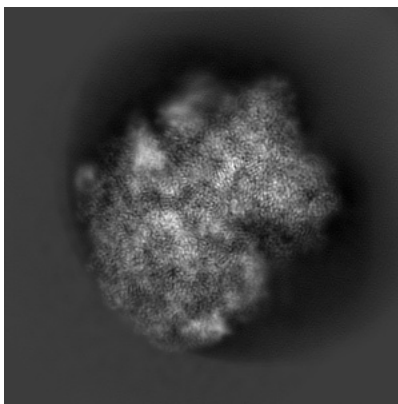
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

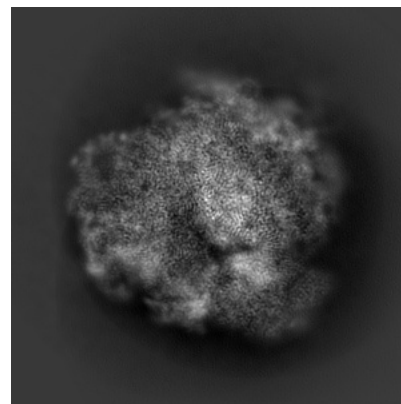
6.1.1 Primary map



X

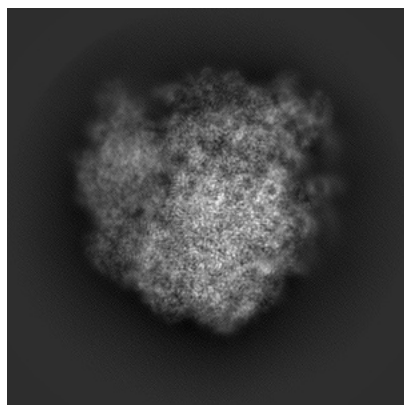


Y

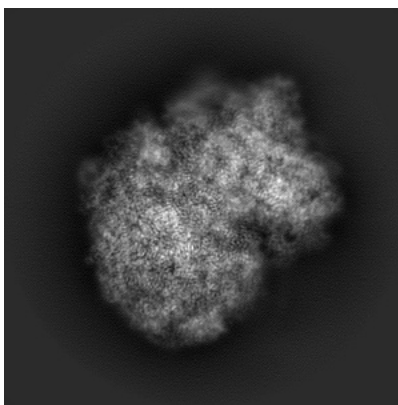


Z

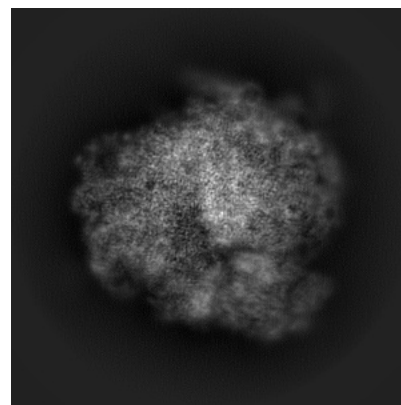
6.1.2 Raw map



X



Y

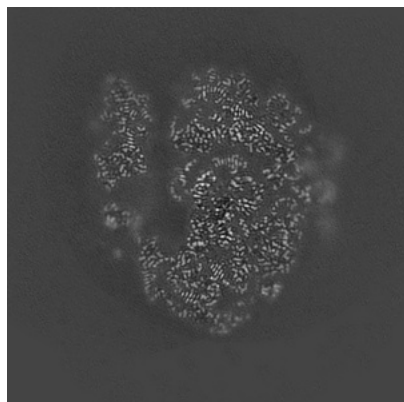


Z

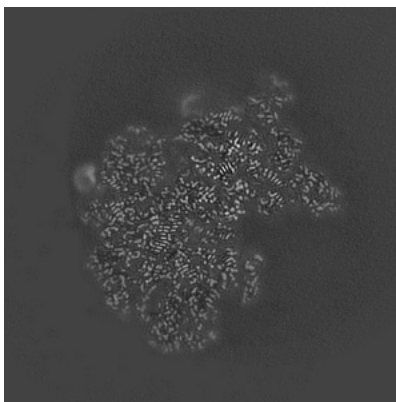
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

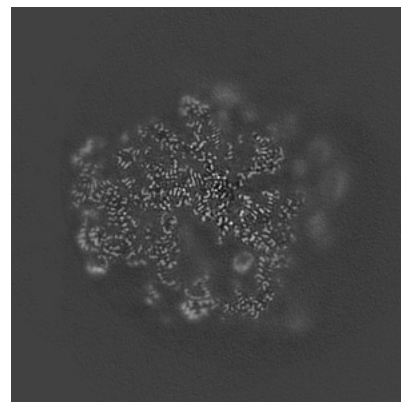
6.2.1 Primary map



X Index: 240

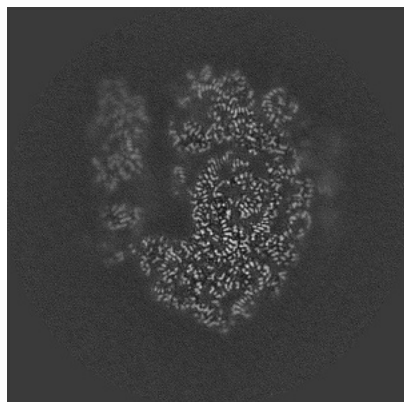


Y Index: 240

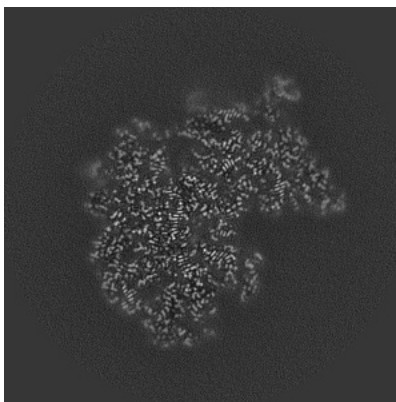


Z Index: 240

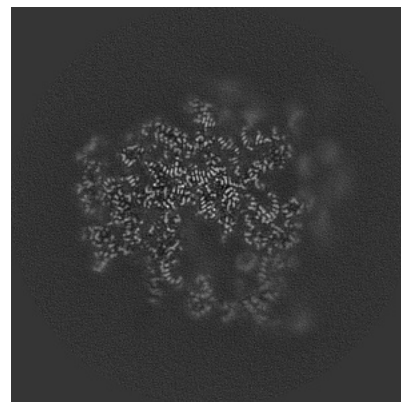
6.2.2 Raw map



X Index: 240



Y Index: 240

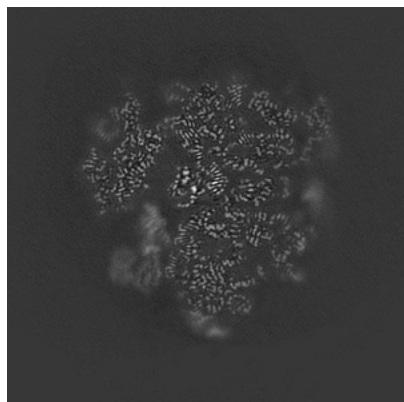


Z Index: 240

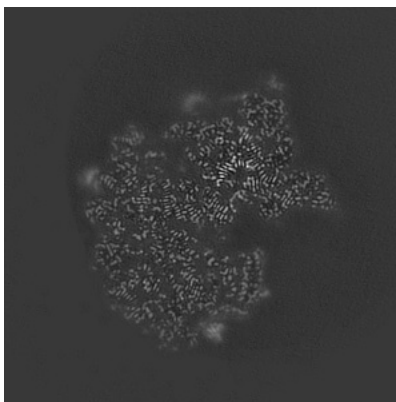
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

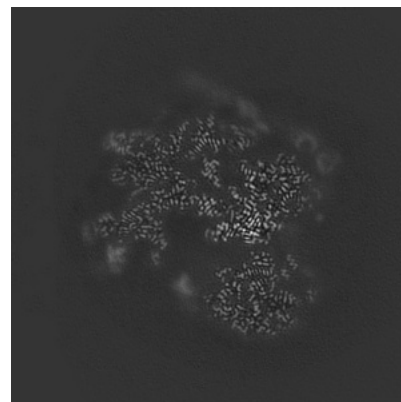
6.3.1 Primary map



X Index: 269

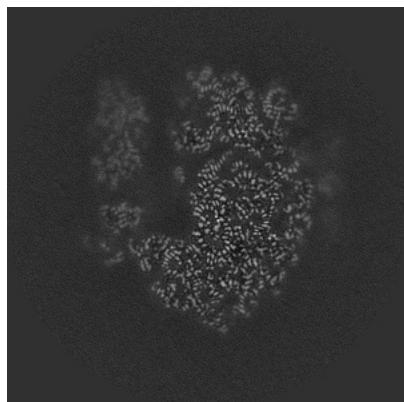


Y Index: 230

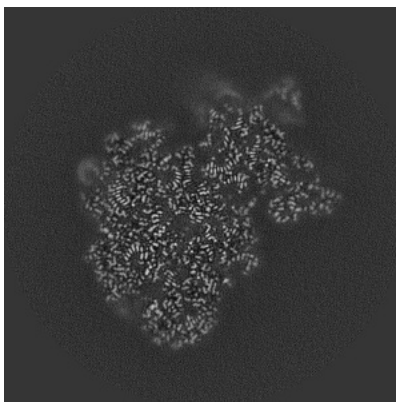


Z Index: 274

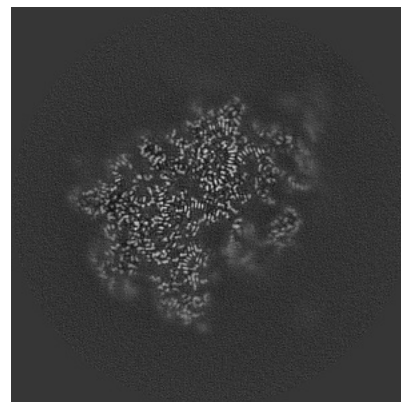
6.3.2 Raw map



X Index: 238



Y Index: 252

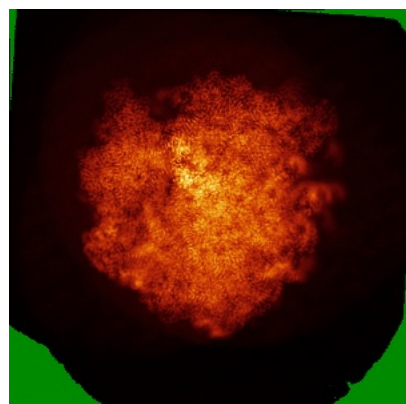


Z Index: 206

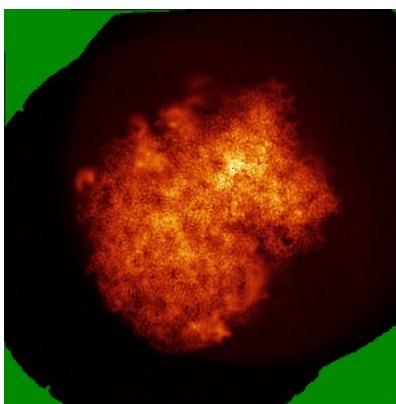
The images above show the largest variance slices of the map in three orthogonal directions.

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

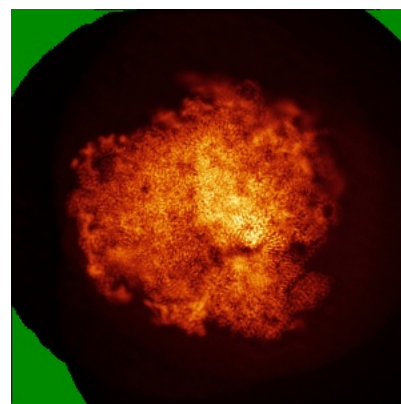
6.4.1 Primary map



X

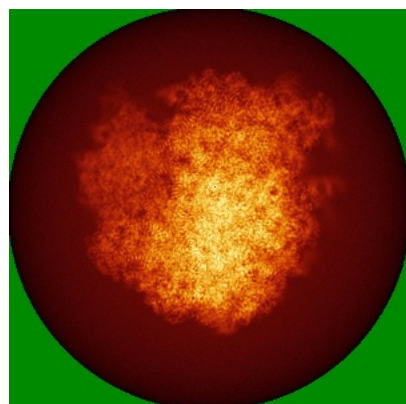


Y

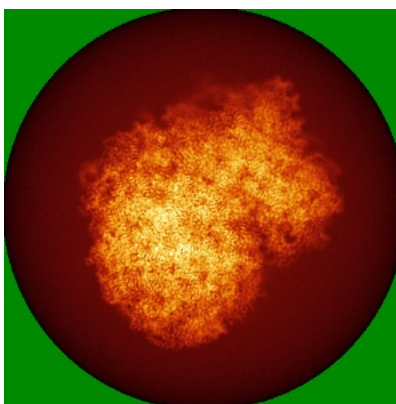


Z

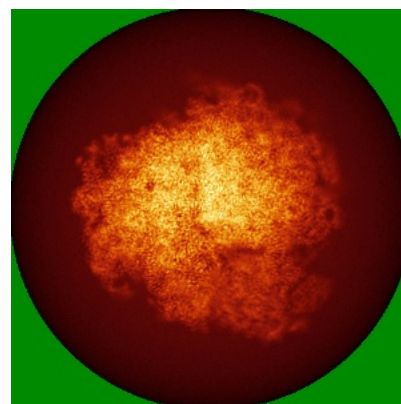
6.4.2 Raw map



X



Y

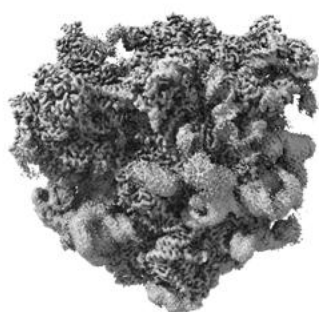


Z

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



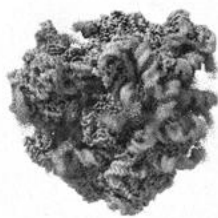
Y



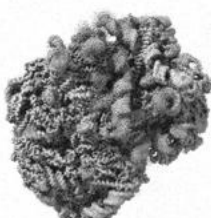
Z

The images above show the 3D surface view of the map at the recommended contour level 0.01. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

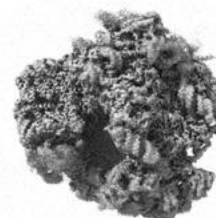
6.5.2 Raw map



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.

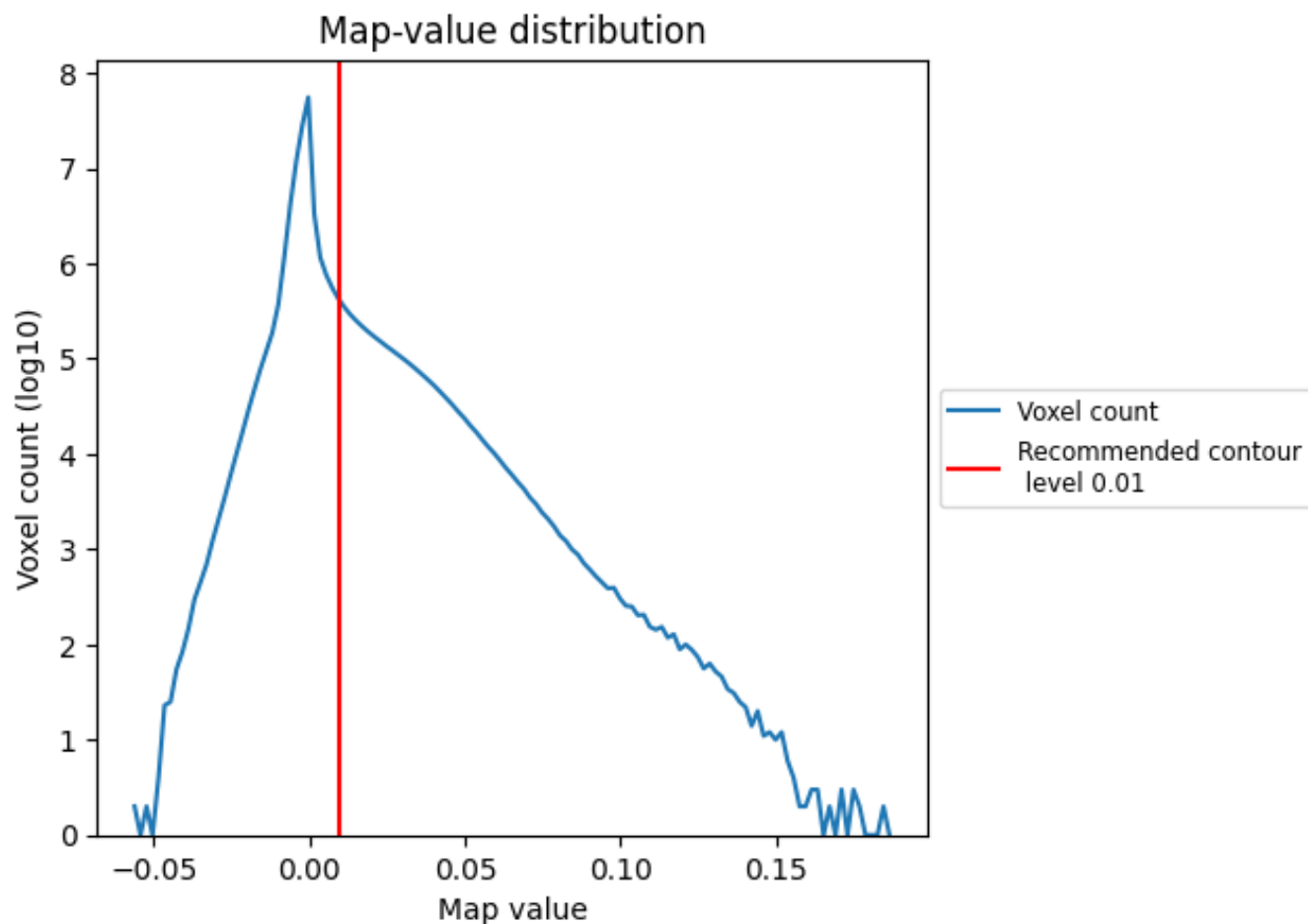
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

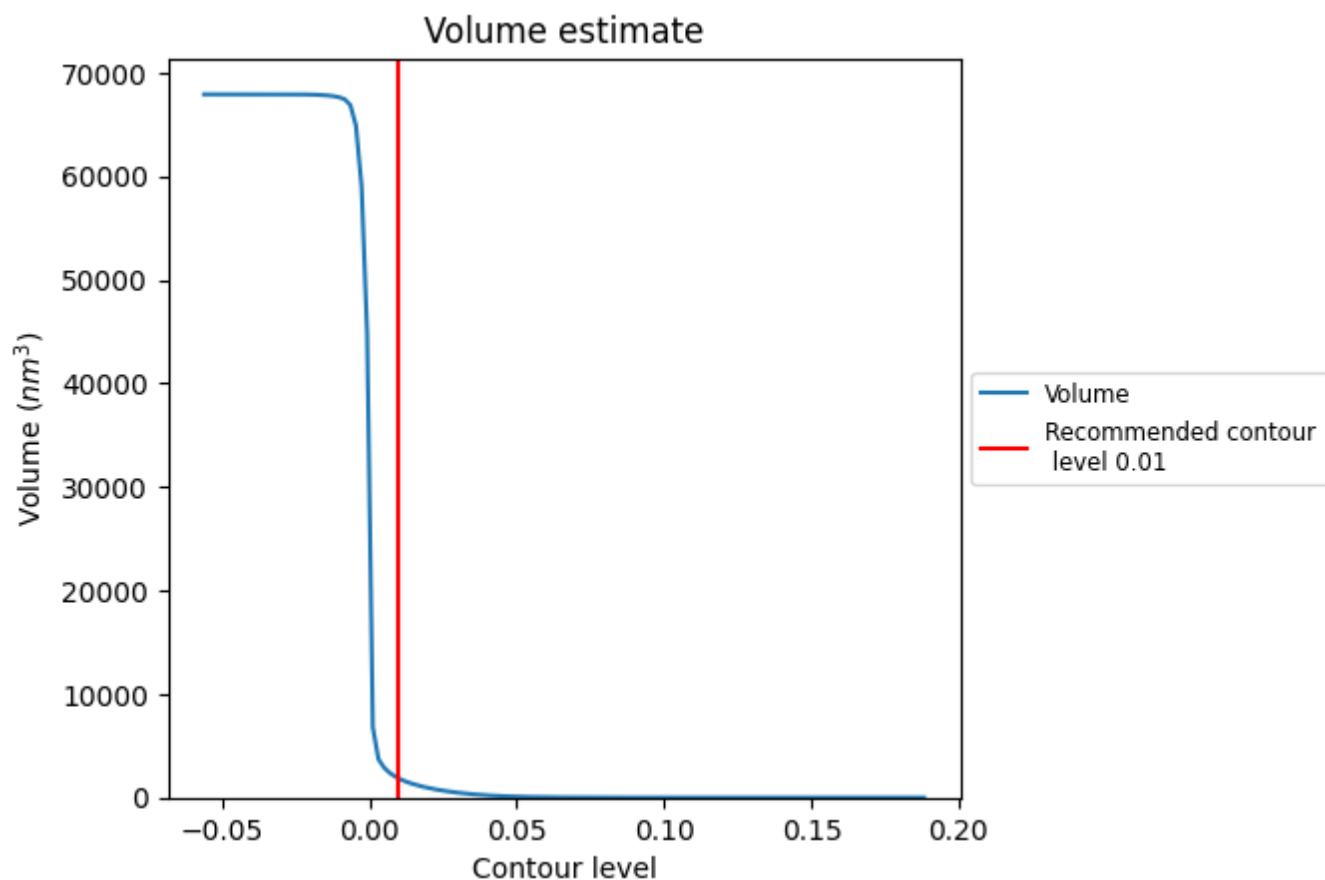
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

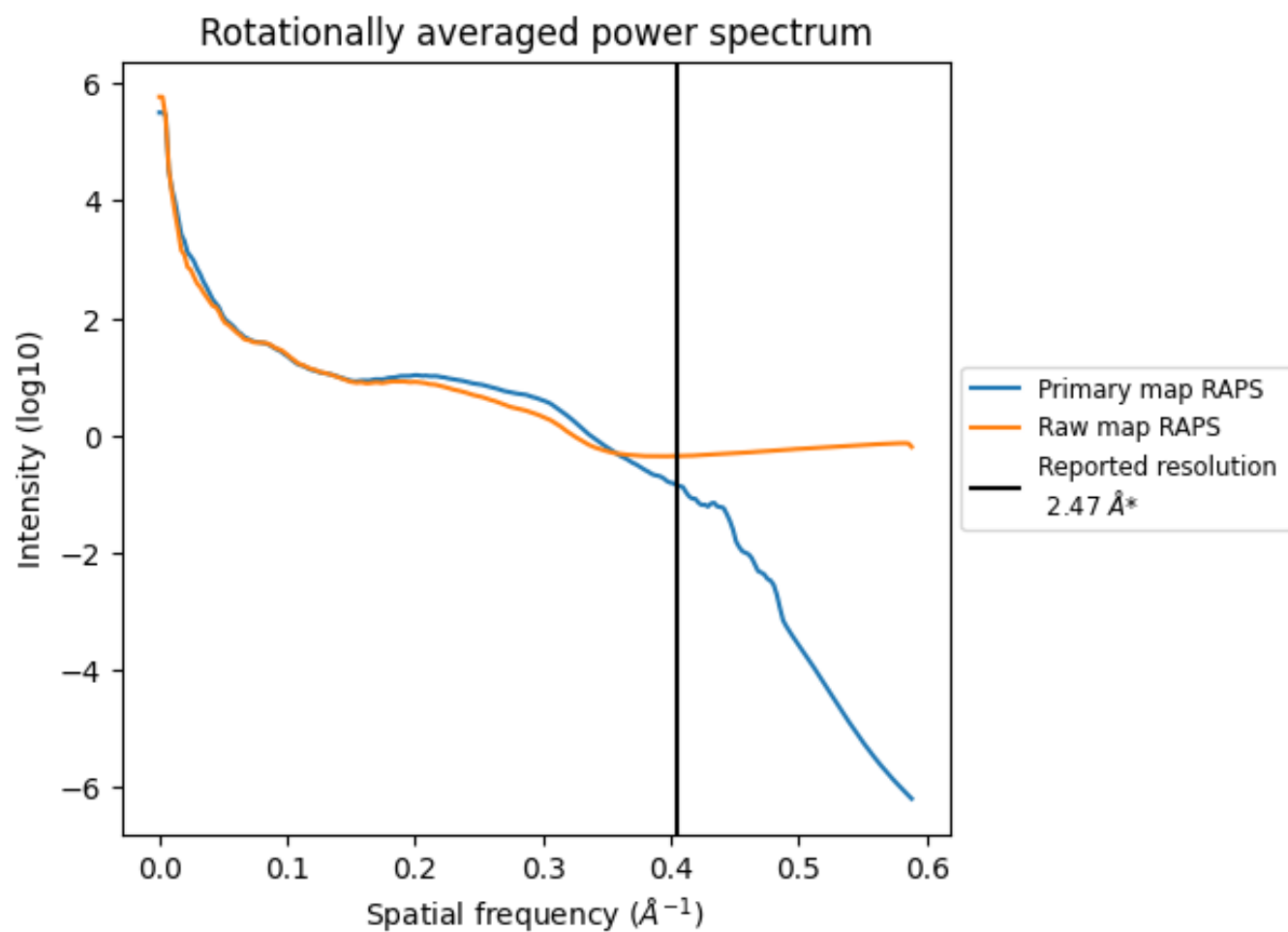
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1853 nm³; this corresponds to an approximate mass of 1674 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 ⓘ

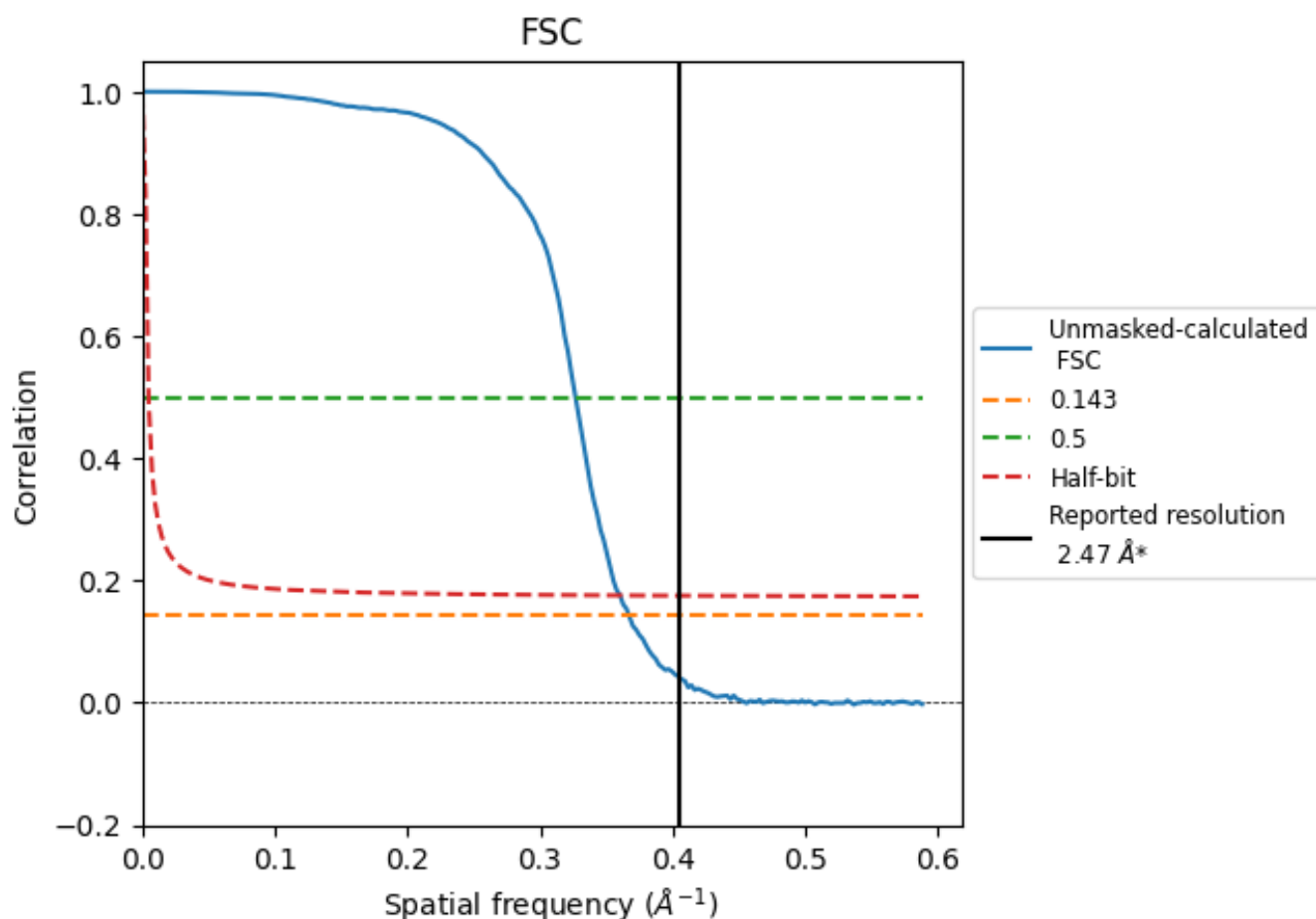


*Reported resolution corresponds to spatial frequency of $0.405 \text{ \AA}^{-1}$

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 0.405 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

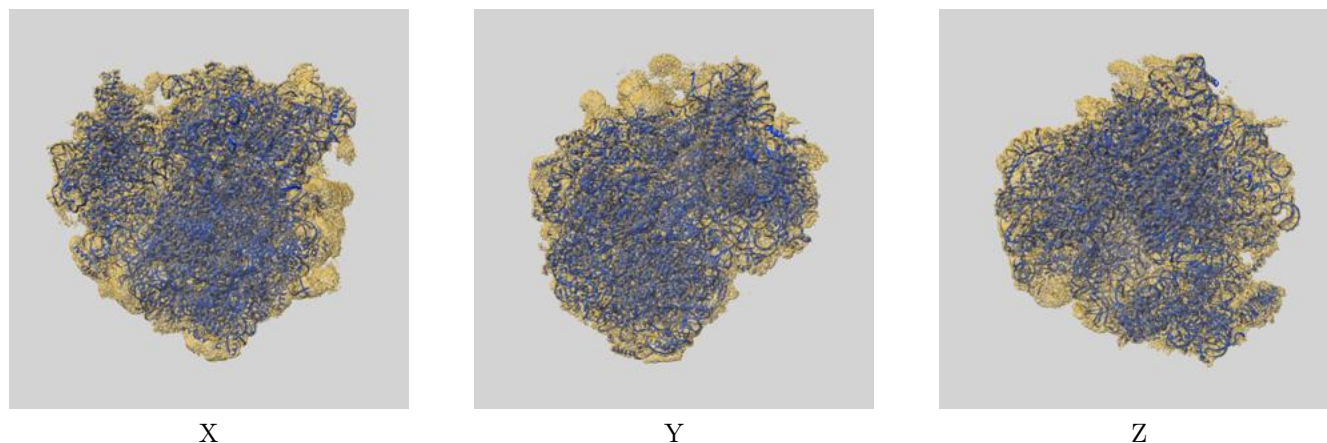
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.47	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	2.72	3.06	2.77

*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 2.72 differs from the reported value 2.47 by more than 10 %

9 Map-model fit [i](#)

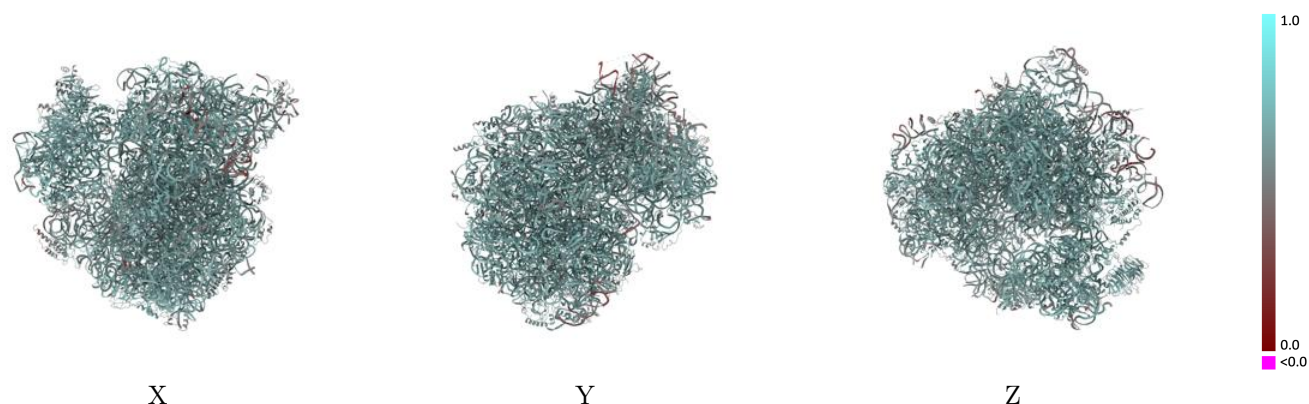
This section contains information regarding the fit between EMDB map EMD-17208 and PDB model 8OVA. Per-residue inclusion information can be found in section 3 on page 23.

9.1 Map-model overlay [i](#)



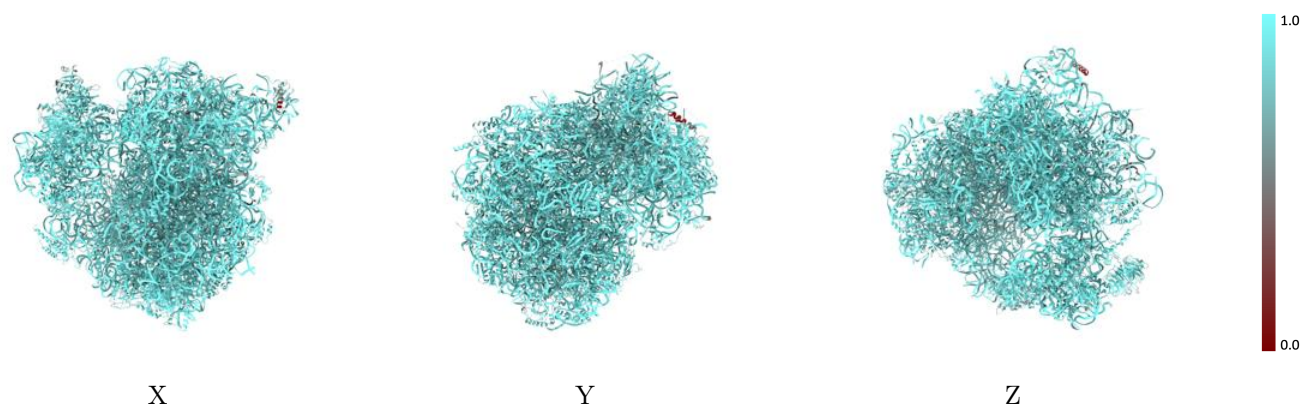
The images above show the 3D surface view of the map at the recommended contour level 0.01 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



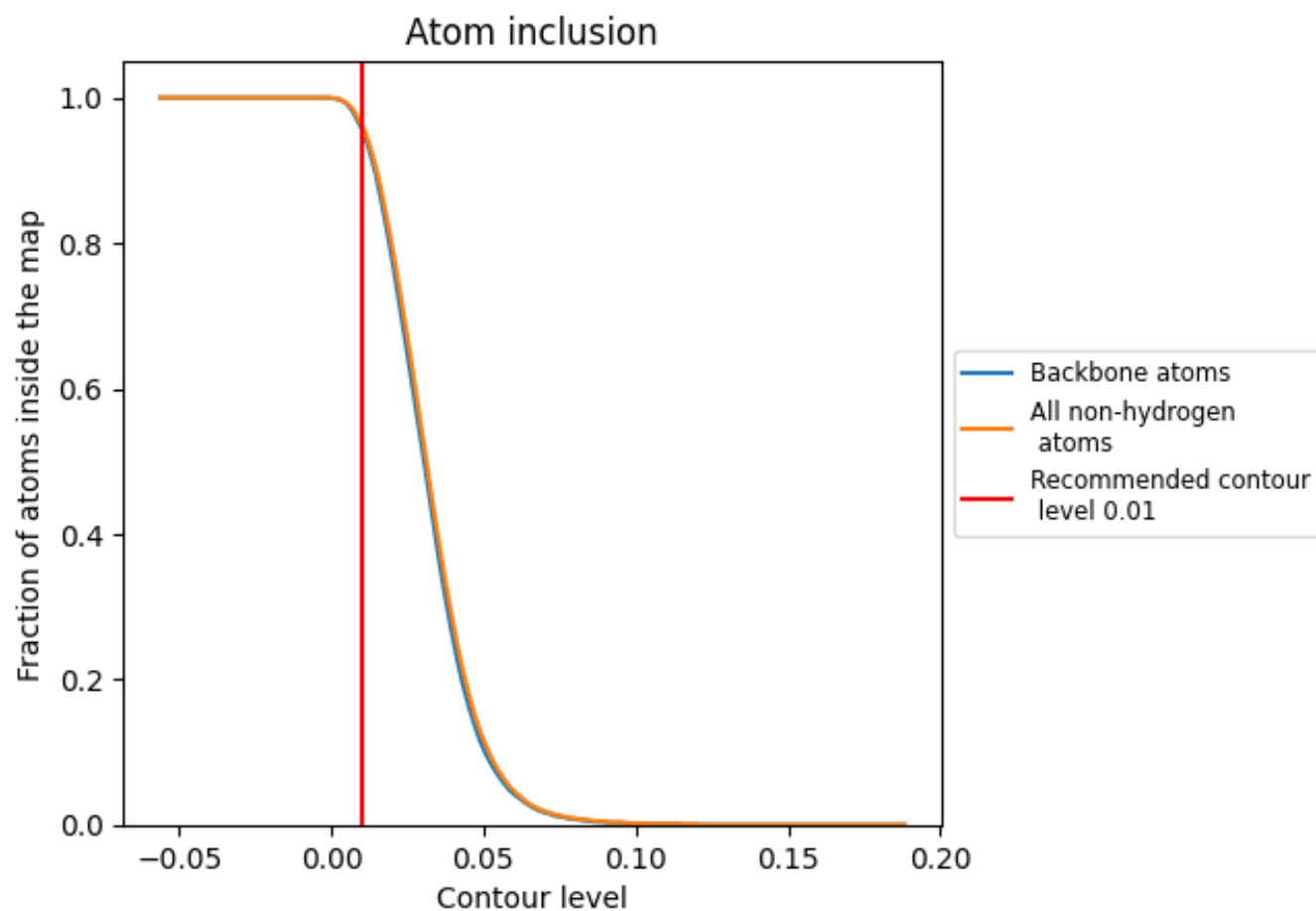
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.01).

9.4 Atom inclusion [i](#)



At the recommended contour level, 96% of all backbone atoms, 96% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.01) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9630	 0.6300
A0	 0.9530	 0.6360
A1	 0.9380	 0.6390
A2	 0.9490	 0.6370
A3	 0.8860	 0.5930
A4	 0.9350	 0.6190
A5	 0.9400	 0.6270
A6	 0.9510	 0.6410
A7	 0.9040	 0.6060
A8	 0.9780	 0.6660
A9	 0.8290	 0.5920
AA	 0.9700	 0.6190
AB	 0.9850	 0.5040
AC	 0.9780	 0.6320
AD	 0.9370	 0.6330
AE	 0.9410	 0.6400
AF	 0.7780	 0.5560
AG	 0.9420	 0.6350
AH	 0.9500	 0.6270
AI	 0.9170	 0.6370
AJ	 0.9720	 0.6620
AK	 0.9760	 0.6510
AL	 0.9550	 0.6070
AM	 0.9380	 0.6370
AO	 0.9760	 0.6570
AP	 0.9500	 0.6400
AQ	 0.9130	 0.6050
AR	 0.9620	 0.6350
AS	 0.9550	 0.6450
AT	 0.9200	 0.6320
AU	 0.9290	 0.6250
AV	 0.9670	 0.6390
AW	 0.9320	 0.6250
AX	 0.9150	 0.6210
AY	 0.9260	 0.6300



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Chain	Atom inclusion	Q-score
AZ	 0.9330	 0.6060
Az	 0.7110	 0.5290
BA	 0.9880	 0.6470
BB	 0.9900	 0.6330
BC	 0.9930	 0.6420
BD	 0.9990	 0.5970
BE	 0.9640	 0.6100
BF	 0.9800	 0.5970
BG	 0.9920	 0.6440
BH	 0.9820	 0.6030
BI	 0.9530	 0.6640
BK	 0.9420	 0.6330
BL	 0.9540	 0.5200
BN	 0.9370	 0.6370
BO	 0.9390	 0.6590
BP	 0.9490	 0.6080
BQ	 0.9850	 0.6790
BR	 0.9720	 0.6770
BS	 0.9390	 0.6500
BT	 0.9270	 0.6060
BU	 0.9370	 0.6250
BV	 0.9690	 0.5600
BW	 0.9470	 0.6400
BX	 0.9230	 0.6370
BY	 0.9700	 0.6290
BZ	 0.9240	 0.6390
Ba	 0.9650	 0.5990
Bb	 0.9590	 0.6620
Bc	 0.9410	 0.6400
Bd	 0.9620	 0.6640
Be	 0.9840	 0.6710
Bf	 0.9540	 0.6600
Bg	 0.9580	 0.6290
Bh	 0.9460	 0.6030
Bi	 0.9370	 0.6640
Bj	 0.9510	 0.6420
Bk	 0.9550	 0.5850
Bl	 0.9610	 0.6600
Bm	 0.9190	 0.6290
Bn	 0.9870	 0.6890
Bo	 0.9690	 0.6490
Bp	 0.9660	 0.5790

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Chain	Atom inclusion	Q-score
Bq	 0.9450	 0.6610
Br	 0.9400	 0.6560
Bs	 0.9870	 0.6110
Bt	 0.9480	 0.6500
Bu	 0.9700	 0.5640
Bv	 0.8800	 0.6030
Bw	 0.9530	 0.6580
Bx	 0.9360	 0.6210
By	 0.9470	 0.6100
Bz	 0.9730	 0.6500