Full wwPDB EM Validation Report

Dec 2, 2024 – 11:15 PM JST

PDB ID	:	8Z70
EMDB ID	:	EMD-38656
Title	:	State 1 (S1) of yeast 80S ribosome bound to 2 tRNAs during mRNA decoding
Authors	:	Cheng, J.; Wu, C.L.; Li, J.X.; Zhang, X.Z.
Deposited on	:	2024-04-19
Resolution	:	3.20 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

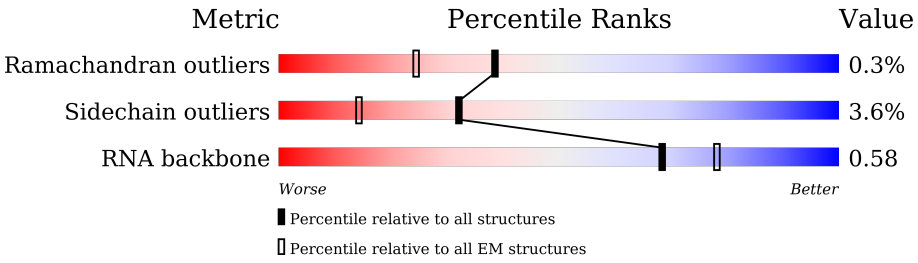
EMDB validation analysis	:	0.0.1.dev113
MolProbity	:	4.02b-467
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.40

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 3.20 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)
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415
RNA backbone	6643	2191

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=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	2	1799	9% 75% 23%
2	SA	222	15% 97%
3	SB	206	7% 94%
4	SC	92	18% 95% 5%
5	SD	121	79% 96%
6	SE	117	24% 97%
7	SF	141	11% 94% 6%
8	SG	121	17% 97%

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Mol	Chain	Length	Quality of chain
9	SH	145	14% 94% 6%
10	SI	143	10% 95% 5%
11	SJ	100	18% 93% 7%
12	SK	108	23% 71% 5% 24%
13	SL	63	14% 98%
14	SM	53	89% 11%
15	SN	73	68% 92% 8%
16	SO	312	44% 94% 6%
17	SP	206	98%
18	SQ	232	9% 94%
19	SR	216	96%
20	SS	258	6% 98%
21	ST	228	20% 97%
22	SU	184	17% 98%
23	SV	200	91% 6%
24	SW	184	8% 98%
25	SX	142	6% 97%
26	SY	150	97%
27	SZ	127	94% 6%
28	Sa	87	5% 97%
29	Sb	129	99%
30	Sc	144	95% 5%
31	Sd	134	15% 97%
32	Se	94	5% 95% 5%
33	Sf	81	14% 96%

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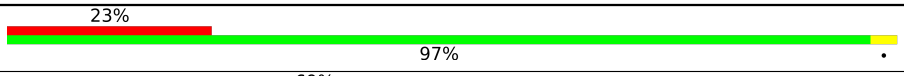
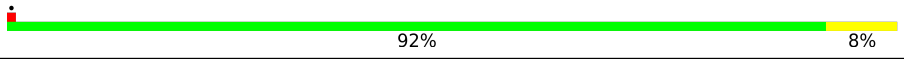
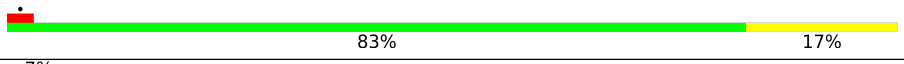
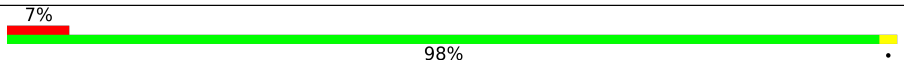
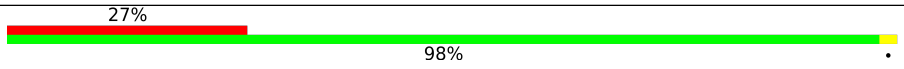
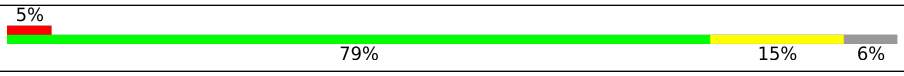
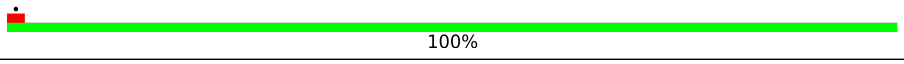
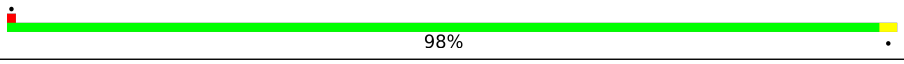
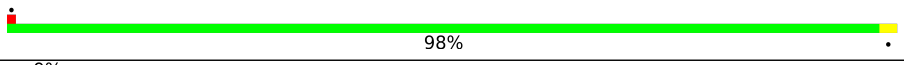
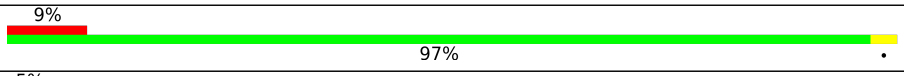
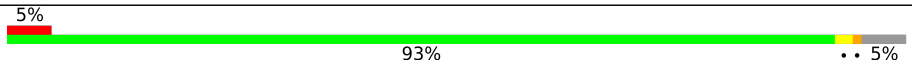
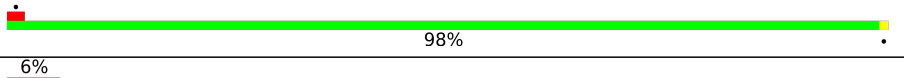
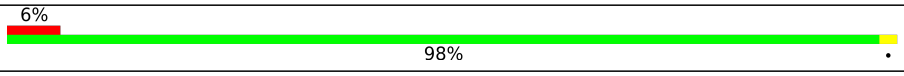
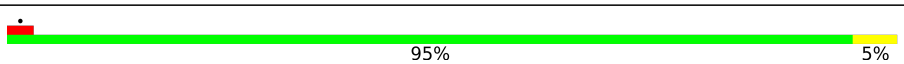
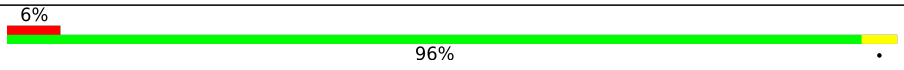
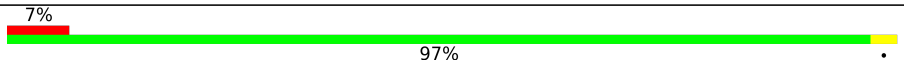
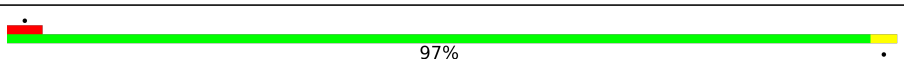
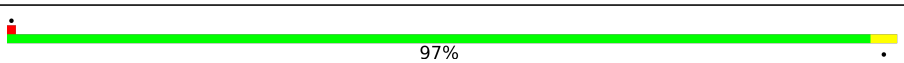
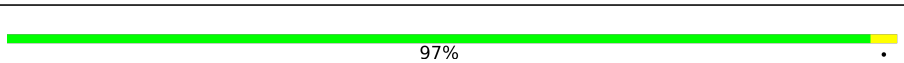
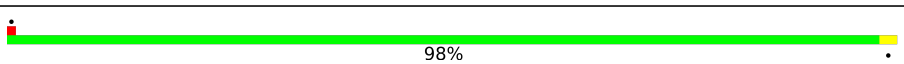
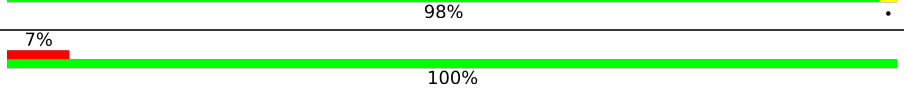
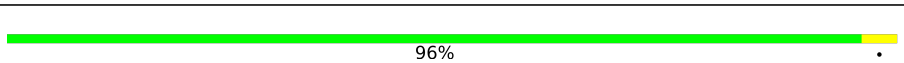
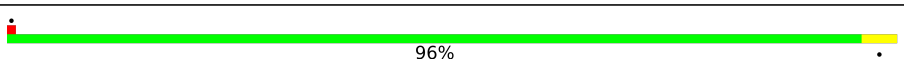
Mol	Chain	Length	Quality of chain
34	Sg	60	
35	s	77	
36	t	75	
37	B	121	
38	C	158	
39	T	188	
40	Y	126	
41	A	3394	
42	D	251	
43	E	386	
44	F	361	
45	G	294	
46	H	175	
47	I	223	
48	J	233	
49	K	191	
50	L	218	
51	M	169	
52	N	193	
53	O	136	
54	P	203	
55	Q	197	
56	R	183	
57	S	185	
58	U	171	

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Mol	Chain	Length	Quality of chain
59	V	159	94% 6%
60	W	100	8% 98%
61	X	136	99%
62	Z	121	100%
63	a	125	98%
64	b	135	94% 6%
65	c	148	97%
66	d	58	7% 100%
67	e	96	99%
68	f	109	11% 97%
69	g	127	98%
70	h	106	98%
71	i	112	93% 7%
72	j	119	96%
73	k	99	95% 5%
74	l	81	98%
75	m	77	96%
76	n	50	100%
77	o	52	94% 6%
78	p	25	96%
79	q	103	98%
80	r	91	95% 5%
81	x	462	89% 91% 5%

2 Entry composition

There are 81 unique types of molecules in this entry. The entry contains 206049 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 18S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	2	1771	37739	16872	6683	12413	1771	0	0

- Molecule 2 is a protein called Small ribosomal subunit protein uS3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	SA	222	1729	1098	312	313	6	0	0

- Molecule 3 is a protein called Small ribosomal subunit protein uS7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	SB	206	1605	1005	299	298	3	0	0

- Molecule 4 is a protein called Small ribosomal subunit protein eS10A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	SC	92	752	487	122	141	2	0	0

- Molecule 5 is a protein called Small ribosomal subunit protein eS12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	SD	121	875	551	153	169	2	0	0

- Molecule 6 is a protein called Small ribosomal subunit protein uS19.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	SE	117	916	583	171	155	7	0	0

- Molecule 7 is a protein called Small ribosomal subunit protein uS9A.

Mol	Chain	Residues	Atoms				AltConf	Trace
7	SF	141	Total	C	N	O	0	0
			1105	708	203	194		

- Molecule 8 is a protein called Small ribosomal subunit protein eS17A.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	SG	121	Total	C	N	O	S	0	0
			961	599	182	178	2		

- Molecule 9 is a protein called Small ribosomal subunit protein uS13A.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	SH	145	Total	C	N	O	S	0	0
			1188	741	237	208	2		

- Molecule 10 is a protein called Small ribosomal subunit protein eS19A.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	SI	143	Total	C	N	O	S	0	0
			1112	694	208	208	2		

- Molecule 11 is a protein called Small ribosomal subunit protein uS10.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	SJ	100	Total	C	N	O	S	0	0
			797	506	144	146	1		

- Molecule 12 is a protein called Small ribosomal subunit protein eS25A.

Mol	Chain	Residues	Atoms				AltConf	Trace
12	SK	82	Total	C	N	O	0	0
			651	416	123	112		

- Molecule 13 is a protein called Small ribosomal subunit protein eS28A.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	SL	63	Total	C	N	O	S	0	0
			491	303	96	91	1		

- Molecule 14 is a protein called Small ribosomal subunit protein uS14A.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	SM	53	Total	C	N	O	S	0	0
			442	274	92	72	4		

- Molecule 15 is a protein called Small ribosomal subunit protein eS31.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	SN	73	Total	C	N	O	S	0	0
			556	352	105	95	4		

- Molecule 16 is a protein called Small ribosomal subunit protein RACK1.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	SO	312	Total	C	N	O	S	0	0
			2383	1514	409	452	8		

- Molecule 17 is a protein called Small ribosomal subunit protein uS2A.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	SP	206	Total	C	N	O	S	0	0
			1603	1030	284	287	2		

- Molecule 18 is a protein called Small ribosomal subunit protein eS1A.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	SQ	226	Total	C	N	O	S	0	0
			1798	1139	330	325	4		

- Molecule 19 is a protein called Small ribosomal subunit protein uS5.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	SR	216	Total	C	N	O	S	0	0
			1626	1042	287	295	2		

- Molecule 20 is a protein called Small ribosomal subunit protein eS4A.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	SS	258	Total	C	N	O	S	0	0
			2056	1308	387	358	3		

- Molecule 21 is a protein called Small ribosomal subunit protein eS6A.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	ST	228	Total	C	N	O	S	0	0
			1815	1138	351	323	3		

- Molecule 22 is a protein called Small ribosomal subunit protein eS7A.

Mol	Chain	Residues	Atoms				AltConf	Trace
22	SU	184	Total	C	N	O	0	0
			1473	946	263	264		

- Molecule 23 is a protein called Small ribosomal subunit protein eS8A.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	SV	187	Total	C	N	O	S	0	0
			1476	916	295	263	2		

- Molecule 24 is a protein called Small ribosomal subunit protein uS4A.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	SW	184	Total	C	N	O	S	0	0
			1479	935	285	258	1		

- Molecule 25 is a protein called Small ribosomal subunit protein uS17A.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	SX	142	Total	C	N	O	S	0	0
			1142	733	217	189	3		

- Molecule 26 is a protein called Small ribosomal subunit protein uS15.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	SY	150	Total	C	N	O	S	0	0
			1192	759	224	207	2		

- Molecule 27 is a protein called Small ribosomal subunit protein uS11B.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	SZ	127	Total	C	N	O	S	0	0
			891	545	182	163	1		

- Molecule 28 is a protein called Small ribosomal subunit protein eS21A.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	Sa	87	Total	C	N	O	S	0	0
			673	415	125	131	2		

- Molecule 29 is a protein called Small ribosomal subunit protein uS8A.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	Sb	129	Total	C	N	O	S	0	0
			1021	650	188	180	3		

- Molecule 30 is a protein called Small ribosomal subunit protein uS12A.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	Sc	144	Total	C	N	O	S	0	0
			1121	708	220	191	2		

- Molecule 31 is a protein called Small ribosomal subunit protein eS24A.

Mol	Chain	Residues	Atoms				AltConf	Trace
31	Sd	134	Total	C	N	O	0	0
			1073	676	208	189		

- Molecule 32 is a protein called Small ribosomal subunit protein eS26A.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	Se	94	Total	C	N	O	S	0	0
			750	462	157	126	5		

- Molecule 33 is a protein called Small ribosomal subunit protein eS27A.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	Sf	81	Total	C	N	O	S	0	0
			610	382	110	113	5		

- Molecule 34 is a protein called Small ribosomal subunit protein eS30A.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	Sg	60	Total	C	N	O	S	0	0
			472	298	97	76	1		

- Molecule 35 is a RNA chain called tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	s	76	Total	C	N	O	P	0	0
			1616	723	291	527	75		

- Molecule 36 is a RNA chain called tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	t	75	Total	C	N	O	P	0	0
			1606	716	297	518	75		

- Molecule 37 is a RNA chain called 5S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	B	121	Total	C	N	O	P	0	0
			2579	1152	461	845	121		

- Molecule 38 is a RNA chain called 5.8S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	C	158	Total	C	N	O	P	0	0
			3353	1500	586	1109	158		

- Molecule 39 is a protein called Large ribosomal subunit protein eL19A.

Mol	Chain	Residues	Atoms				AltConf	Trace
39	T	188	Total	C	N	O	0	0
			1515	932	323	260		

- Molecule 40 is a protein called Large ribosomal subunit protein eL24A.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	Y	126	Total	C	N	O	S	0	0
			836	525	165	145	1		

- Molecule 41 is a RNA chain called 25S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	A	3187	Total	C	N	O	P	0	0
			68170	30449	12289	22245	3187		

- Molecule 42 is a protein called Large ribosomal subunit protein uL2A.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	D	251	Total	C	N	O	S	0	0
			1899	1182	385	331	1		

- Molecule 43 is a protein called Large ribosomal subunit protein uL3.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	E	386	Total	C	N	O	S	0	0
			3075	1950	584	533	8		

- Molecule 44 is a protein called Large ribosomal subunit protein uL4A.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	F	361	Total	C	N	O	S	0	0
			2748	1729	522	494	3		

- Molecule 45 is a protein called Large ribosomal subunit protein uL18.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	G	294	Total	C	N	O	S	0	0
			2351	1484	410	455	2		

- Molecule 46 is a protein called Large ribosomal subunit protein eL6B.

Mol	Chain	Residues	Atoms				AltConf	Trace
46	H	167	Total	C	N	O	0	0
			1307	843	234	230		

- Molecule 47 is a protein called Large ribosomal subunit protein uL30A.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	I	222	Total	C	N	O	S	0	0
			1784	1151	324	308	1		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
I	22	ILE	THR	conflict	UNP P05737

- Molecule 48 is a protein called Large ribosomal subunit protein eL8A.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	J	233	Total	C	N	O	S	0	0
			1804	1151	323	327	3		

- Molecule 49 is a protein called Large ribosomal subunit protein uL6A.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	K	191	Total	C	N	O	S	0	0
			1508	957	274	273	4		

- Molecule 50 is a protein called Large ribosomal subunit protein uL16.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	L	218	Total	C	N	O	S	0	0
			1764	1117	334	306	7		

- Molecule 51 is a protein called Large ribosomal subunit protein uL5B.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	M	169	Total	C	N	O	S	0	0
			1346	843	252	247	4		

- Molecule 52 is a protein called Large ribosomal subunit protein eL13A.

Mol	Chain	Residues	Atoms				AltConf	Trace
52	N	193	Total	C	N	O	0	0
			1543	962	315	266		

- Molecule 53 is a protein called Large ribosomal subunit protein eL14A.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	O	136	Total	C	N	O	S	0	0
			1053	675	199	177	2		

- Molecule 54 is a protein called Large ribosomal subunit protein eL15A.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	P	203	Total	C	N	O	S	0	0
			1720	1077	361	281	1		

- Molecule 55 is a protein called Large ribosomal subunit protein uL13A.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	Q	197	Total	C	N	O	S	197	0
			1555	1003	289	262	1		

- Molecule 56 is a protein called Large ribosomal subunit protein uL22A.

Mol	Chain	Residues	Atoms				AltConf	Trace
56	R	183	Total	C	N	O	0	0
			1416	879	284	253		

- Molecule 57 is a protein called Large ribosomal subunit protein eL18A.

Mol	Chain	Residues	Atoms					AltConf	Trace
57	S	185	Total	C	N	O	S	0	0
			1441	908	290	241	2		

- Molecule 58 is a protein called Large ribosomal subunit protein eL20A.

Mol	Chain	Residues	Atoms					AltConf	Trace
58	U	171	Total	C	N	O	S	0	0
			1437	925	266	243	3		

- Molecule 59 is a protein called Large ribosomal subunit protein eL21A.

Mol	Chain	Residues	Atoms					AltConf	Trace
59	V	159	Total	C	N	O	S	0	0
			1272	802	245	221	4		

- Molecule 60 is a protein called Large ribosomal subunit protein eL22A.

Mol	Chain	Residues	Atoms				AltConf	Trace
60	W	100	Total	C	N	O	0	0
			796	516	131	149		

- Molecule 61 is a protein called Large ribosomal subunit protein uL14A.

Mol	Chain	Residues	Atoms					AltConf	Trace
61	X	136	Total	C	N	O	S	0	0
			1003	628	189	179	7		

- Molecule 62 is a protein called Large ribosomal subunit protein uL23.

Mol	Chain	Residues	Atoms					AltConf	Trace
62	Z	121	Total	C	N	O	S	0	0
			964	620	169	173	2		

- Molecule 63 is a protein called Large ribosomal subunit protein uL24A.

Mol	Chain	Residues	Atoms				AltConf	Trace
63	a	125	Total	C	N	O	0	0
			984	620	191	173		

- Molecule 64 is a protein called Large ribosomal subunit protein eL27A.

Mol	Chain	Residues	Atoms				AltConf	Trace
64	b	135	Total	C	N	O	0	0
			1080	701	199	180		

- Molecule 65 is a protein called Large ribosomal subunit protein uL15.

Mol	Chain	Residues	Atoms					AltConf	Trace
65	c	148	Total	C	N	O	S	0	0
			1169	747	231	188	3		

- Molecule 66 is a protein called Large ribosomal subunit protein eL29.

Mol	Chain	Residues	Atoms				AltConf	Trace
66	d	58	Total	C	N	O	0	0
			462	289	100	73		

- Molecule 67 is a protein called Large ribosomal subunit protein eL30.

Mol	Chain	Residues	Atoms					AltConf	Trace
67	e	96	Total	C	N	O	S	0	0
			737	476	123	137	1		

- Molecule 68 is a protein called Large ribosomal subunit protein eL31A.

Mol	Chain	Residues	Atoms					AltConf	Trace
68	f	109	Total	C	N	O	S	0	0
			876	556	167	152	1		

- Molecule 69 is a protein called Large ribosomal subunit protein eL32.

Mol	Chain	Residues	Atoms					AltConf	Trace
69	g	127	Total	C	N	O	S	0	0
			1013	642	205	165	1		

- Molecule 70 is a protein called Large ribosomal subunit protein eL33A.

Mol	Chain	Residues	Atoms					AltConf	Trace
70	h	106	Total	C	N	O	S	0	0
			850	540	165	144	1		

- Molecule 71 is a protein called Large ribosomal subunit protein eL34A.

Mol	Chain	Residues	Atoms					AltConf	Trace
71	i	112	Total	C	N	O	S	0	0
			880	545	179	152	4		

- Molecule 72 is a protein called Large ribosomal subunit protein uL29A.

Mol	Chain	Residues	Atoms					AltConf	Trace
72	j	119	Total	C	N	O	S	0	0
			969	615	186	167	1		

- Molecule 73 is a protein called Large ribosomal subunit protein eL36A.

Mol	Chain	Residues	Atoms					AltConf	Trace
73	k	99	Total	C	N	O	S	0	0
			766	478	154	132	2		

- Molecule 74 is a protein called Large ribosomal subunit protein eL37A.

Mol	Chain	Residues	Atoms					AltConf	Trace
74	l	81	Total	C	N	O	S	0	0
			645	393	141	106	5		

- Molecule 75 is a protein called Large ribosomal subunit protein eL38.

Mol	Chain	Residues	Atoms				AltConf	Trace
75	m	77	Total	C	N	O	0	0
			612	391	115	106		

- Molecule 76 is a protein called Large ribosomal subunit protein eL39.

Mol	Chain	Residues	Atoms					AltConf	Trace
76	n	50	Total	C	N	O	S	0	0
			436	272	97	65	2		

- Molecule 77 is a protein called Large ribosomal subunit protein eL40A.

Mol	Chain	Residues	Atoms					AltConf	Trace
77	o	52	Total	C	N	O	S	0	0
			410	254	86	65	5		

- Molecule 78 is a protein called Large ribosomal subunit protein eL41A.

Mol	Chain	Residues	Atoms					AltConf	Trace
78	p	25	Total	C	N	O	S	0	0
			229	139	62	27	1		

- Molecule 79 is a protein called Large ribosomal subunit protein eL42A.

Mol	Chain	Residues	Atoms					AltConf	Trace
79	q	103	Total	C	N	O	S	0	0
			824	517	167	135	5		

- Molecule 80 is a protein called Large ribosomal subunit protein eL43A.

Mol	Chain	Residues	Atoms					AltConf	Trace
80	r	91	Total	C	N	O	S	0	0
			694	429	138	121	6		

- Molecule 81 is a protein called Elongation factor 1-alpha 1.

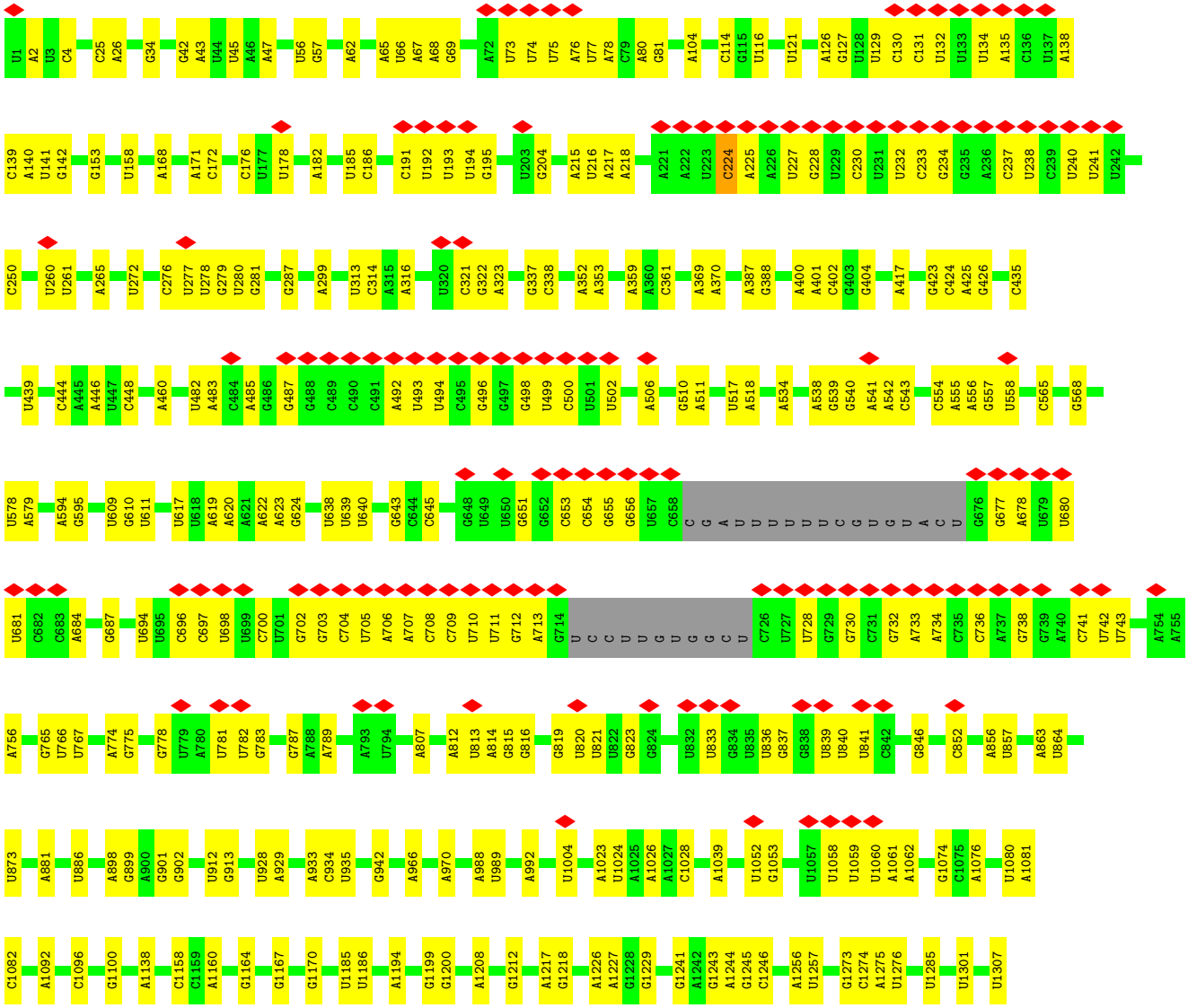
Mol	Chain	Residues	Atoms					AltConf	Trace
81	x	441	Total	C	N	O	S	0	0
			3379	2148	581	633	17		

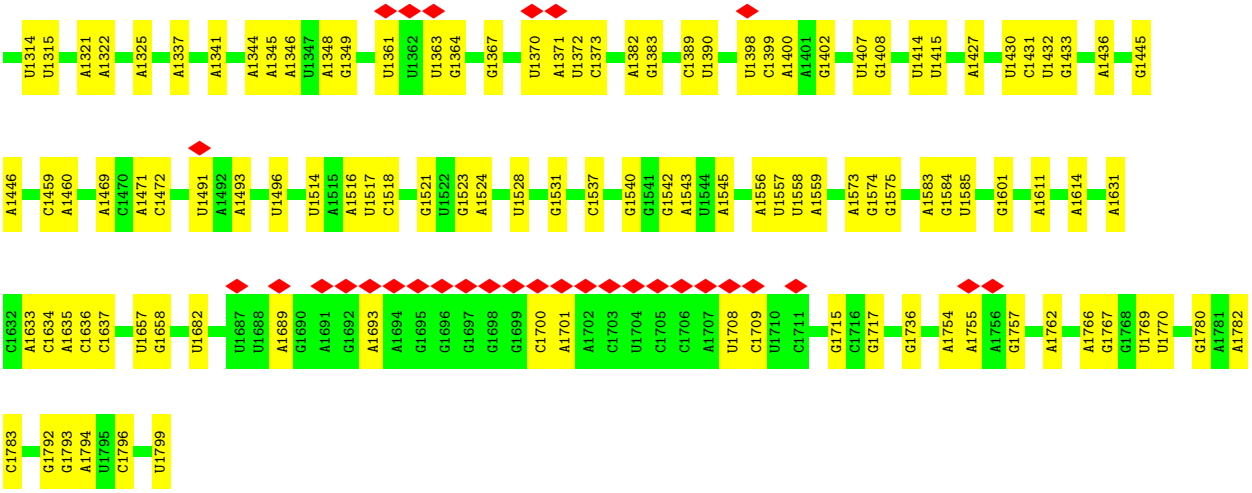
3 Residue-property plots (i)

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: 18S rRNA

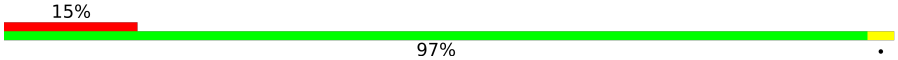
Chain 2:





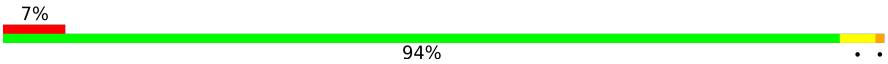
• Molecule 2: Small ribosomal subunit protein uS3

Chain SA:



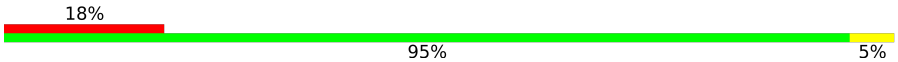
• Molecule 3: Small ribosomal subunit protein uS7

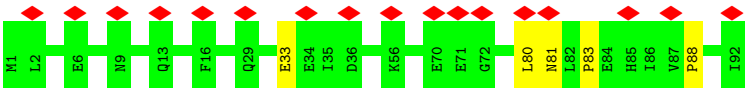
Chain SB:



• Molecule 4: Small ribosomal subunit protein eS10A

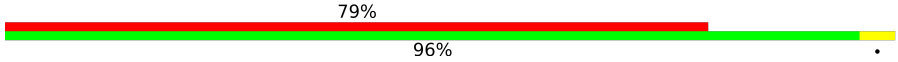
Chain SC:

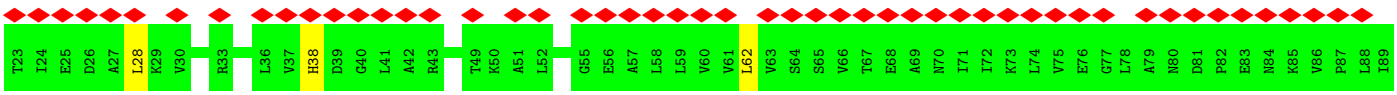


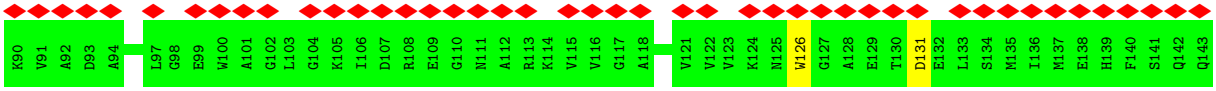


• Molecule 5: Small ribosomal subunit protein eS12

Chain SD:

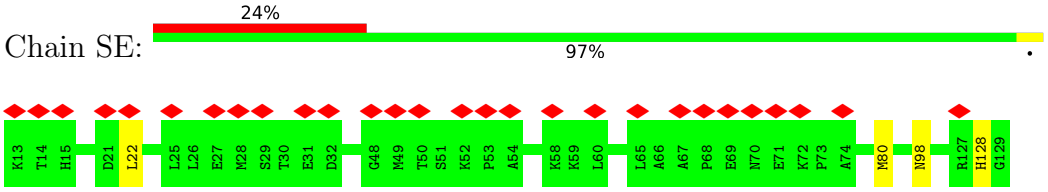






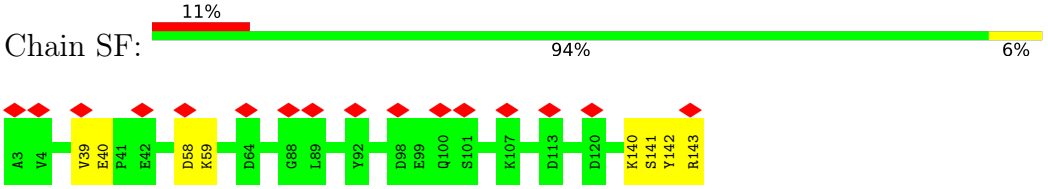
• Molecule 6: Small ribosomal subunit protein uS19

Chain SE:



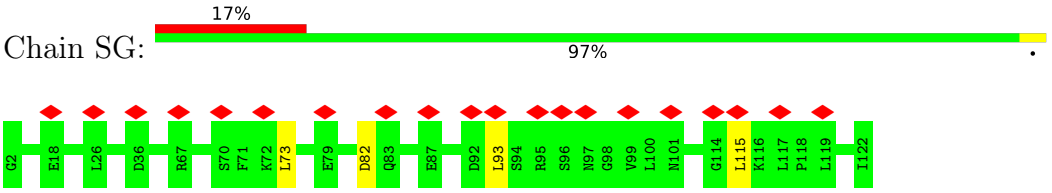
• Molecule 7: Small ribosomal subunit protein uS9A

Chain SF:



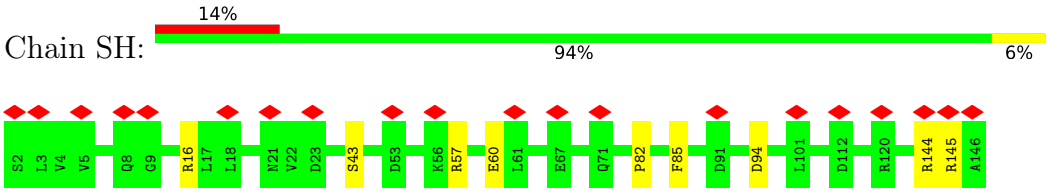
• Molecule 8: Small ribosomal subunit protein eS17A

Chain SG:



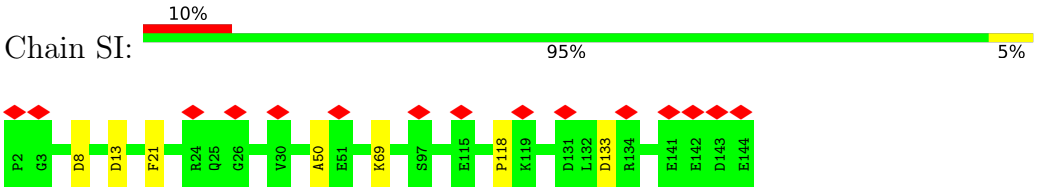
• Molecule 9: Small ribosomal subunit protein uS13A

Chain SH:



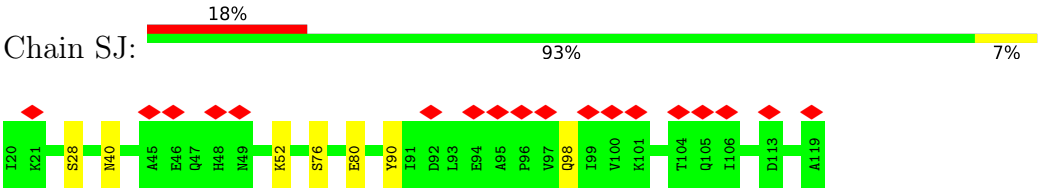
• Molecule 10: Small ribosomal subunit protein eS19A

Chain SI:



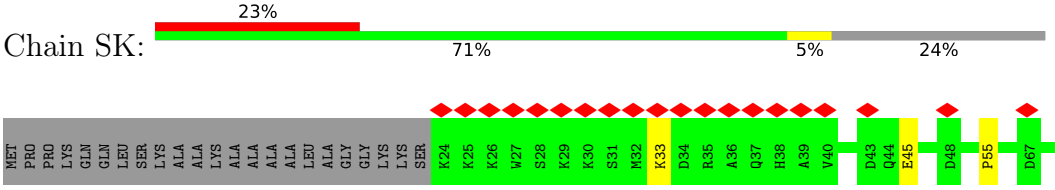
• Molecule 11: Small ribosomal subunit protein uS10

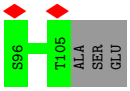
Chain SJ:



• Molecule 12: Small ribosomal subunit protein eS25A

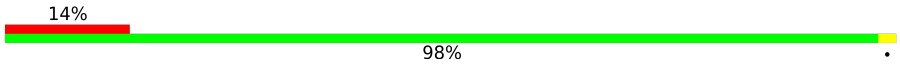
Chain SK:

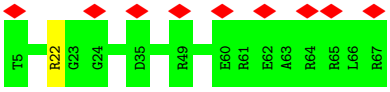




• Molecule 13: Small ribosomal subunit protein eS28A

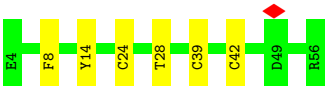
Chain SL:





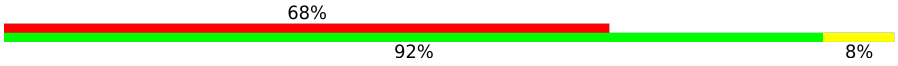
• Molecule 14: Small ribosomal subunit protein uS14A

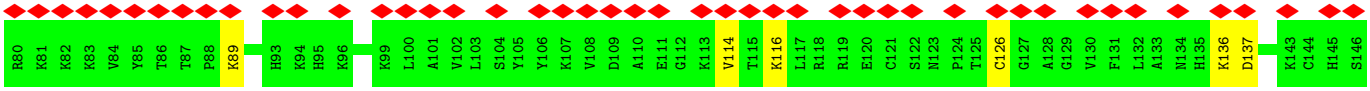
Chain SM:

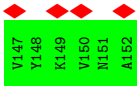


• Molecule 15: Small ribosomal subunit protein eS31

Chain SN:

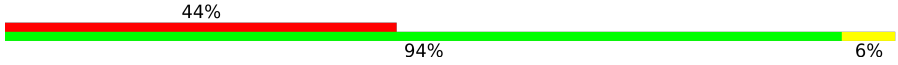


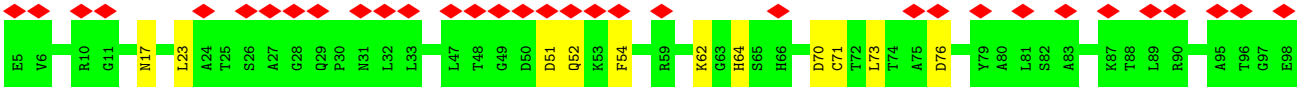


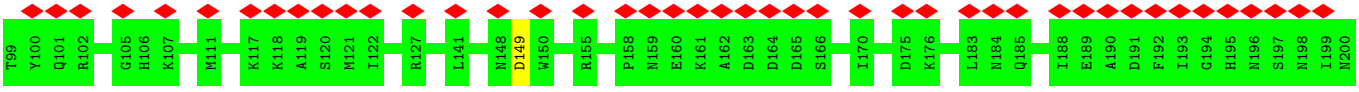


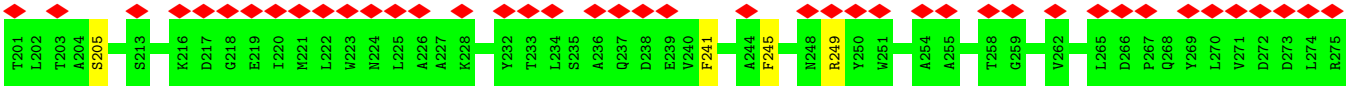
• Molecule 16: Small ribosomal subunit protein RACK1

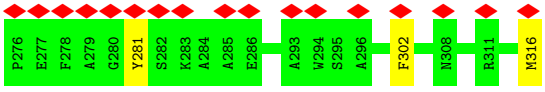
Chain SO:





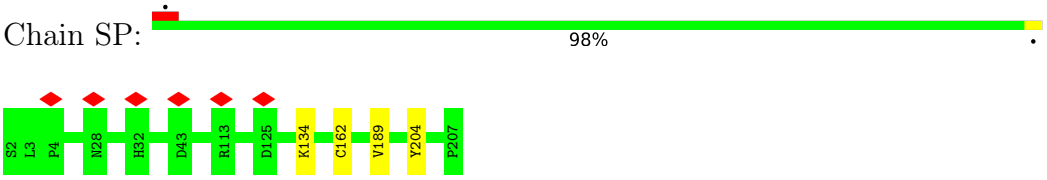






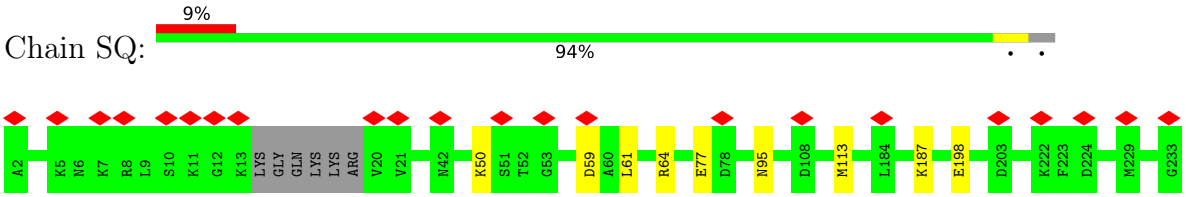
• Molecule 17: Small ribosomal subunit protein uS2A

Chain SP:



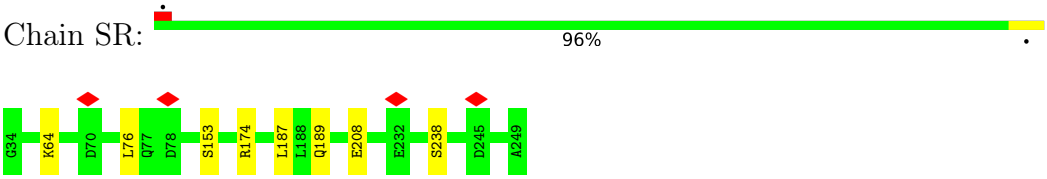
• Molecule 18: Small ribosomal subunit protein eS1A

Chain SQ:



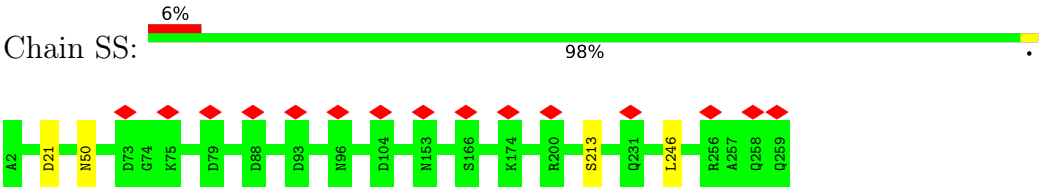
• Molecule 19: Small ribosomal subunit protein uS5

Chain SR:



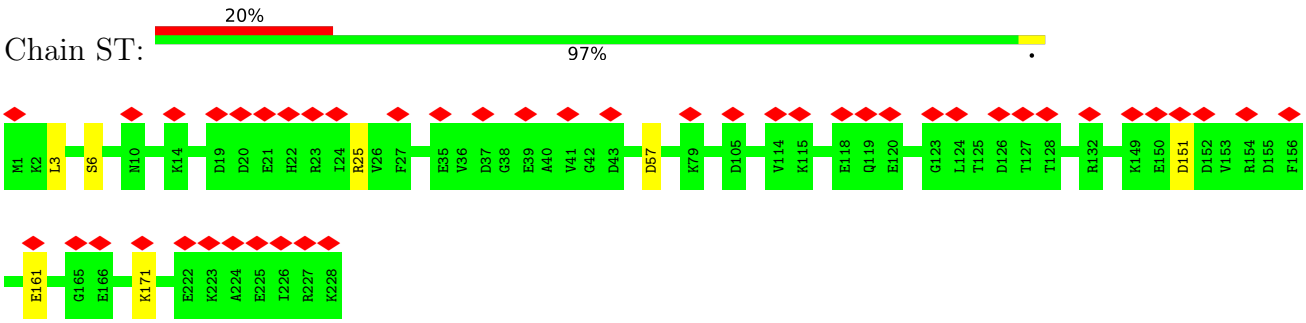
• Molecule 20: Small ribosomal subunit protein eS4A

Chain SS:



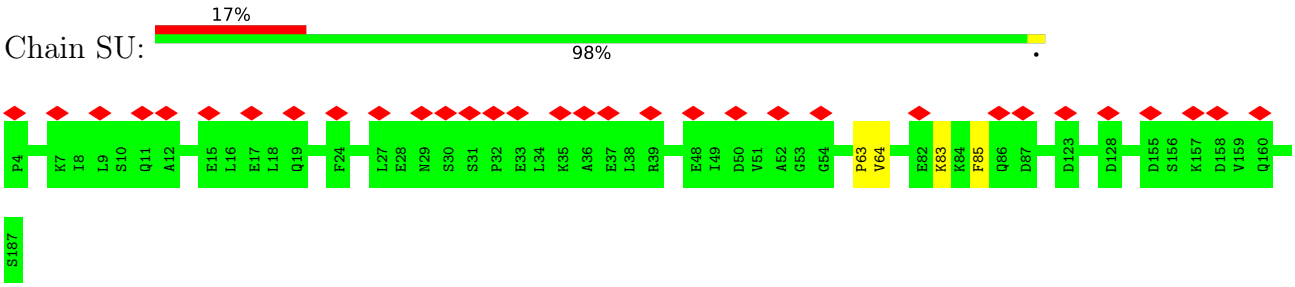
• Molecule 21: Small ribosomal subunit protein eS6A

Chain ST:



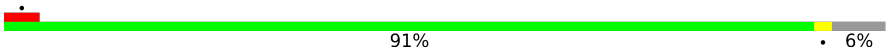
• Molecule 22: Small ribosomal subunit protein eS7A

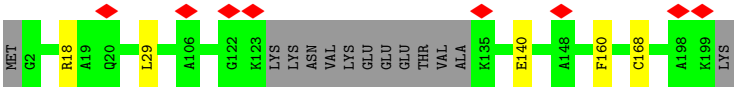
Chain SU:



• Molecule 23: Small ribosomal subunit protein eS8A

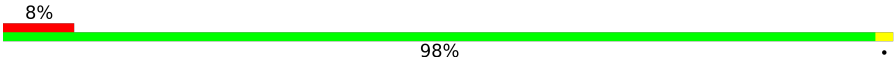
Chain SV:

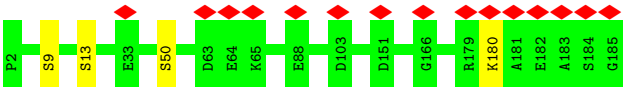




• Molecule 24: Small ribosomal subunit protein uS4A

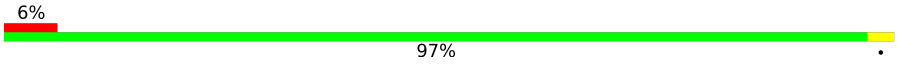
Chain SW:

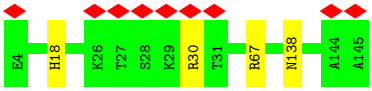




• Molecule 25: Small ribosomal subunit protein uS17A

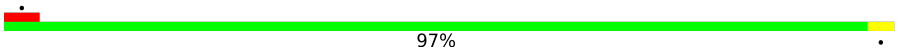
Chain SX:

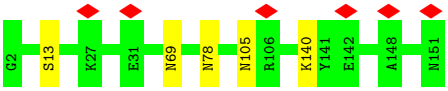




• Molecule 26: Small ribosomal subunit protein uS15

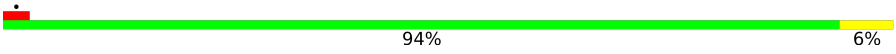
Chain SY:

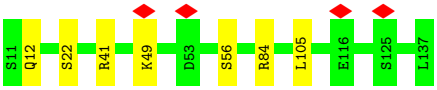




• Molecule 27: Small ribosomal subunit protein uS11B

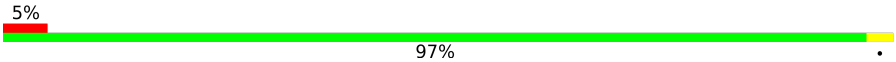
Chain SZ:

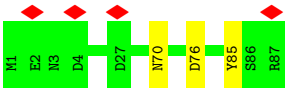




• Molecule 28: Small ribosomal subunit protein eS21A

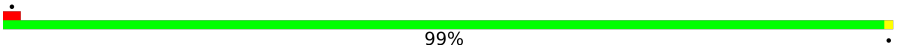
Chain Sa:

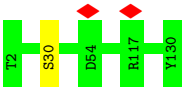




• Molecule 29: Small ribosomal subunit protein uS8A

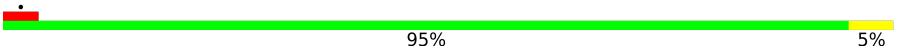
Chain Sb:

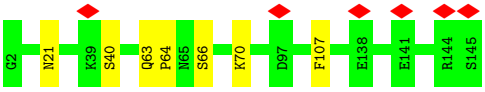




• Molecule 30: Small ribosomal subunit protein uS12A

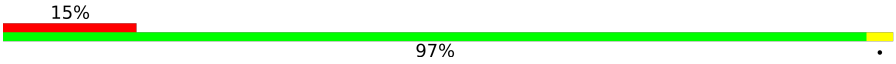
Chain Sc:

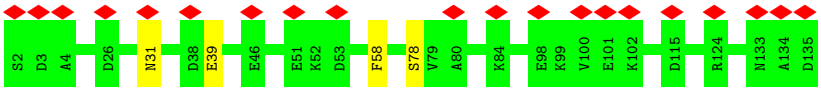




• Molecule 31: Small ribosomal subunit protein eS24A

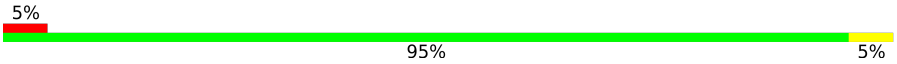
Chain Sd:

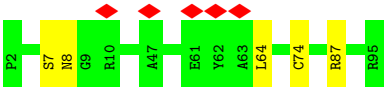




• Molecule 32: Small ribosomal subunit protein eS26A

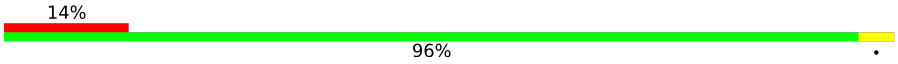
Chain Se:

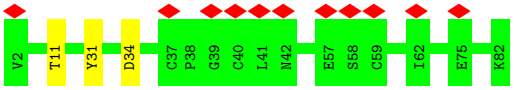




• Molecule 33: Small ribosomal subunit protein eS27A

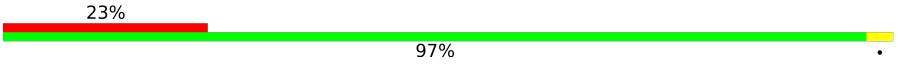
Chain Sf:

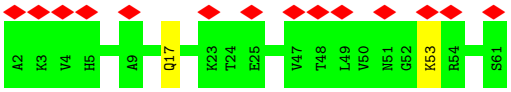




• Molecule 34: Small ribosomal subunit protein eS30A

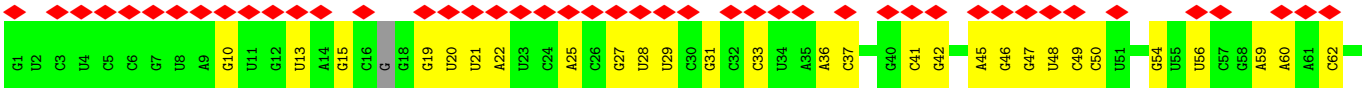
Chain Sg:

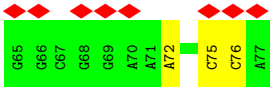




• Molecule 35: tRNA

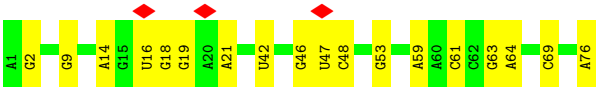
Chain s:





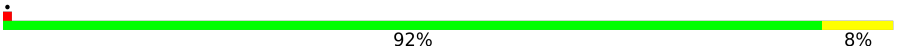
• Molecule 36: tRNA

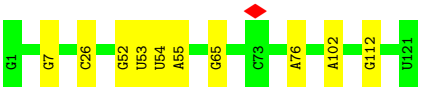
Chain t:



• Molecule 37: 5S rRNA

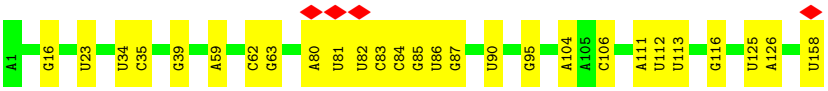
Chain B:





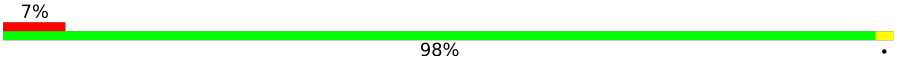
• Molecule 38: 5.8S rRNA

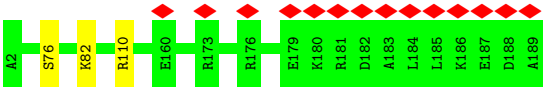
Chain C:



• Molecule 39: Large ribosomal subunit protein eL19A

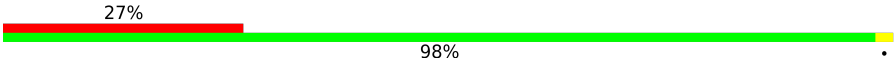
Chain T:

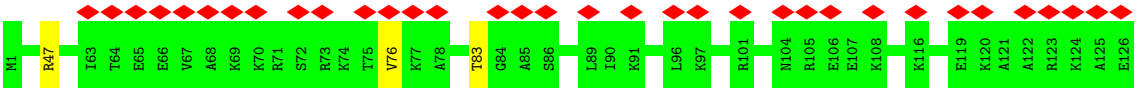




• Molecule 40: Large ribosomal subunit protein eL24A

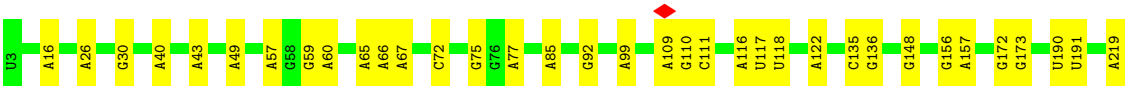
Chain Y:

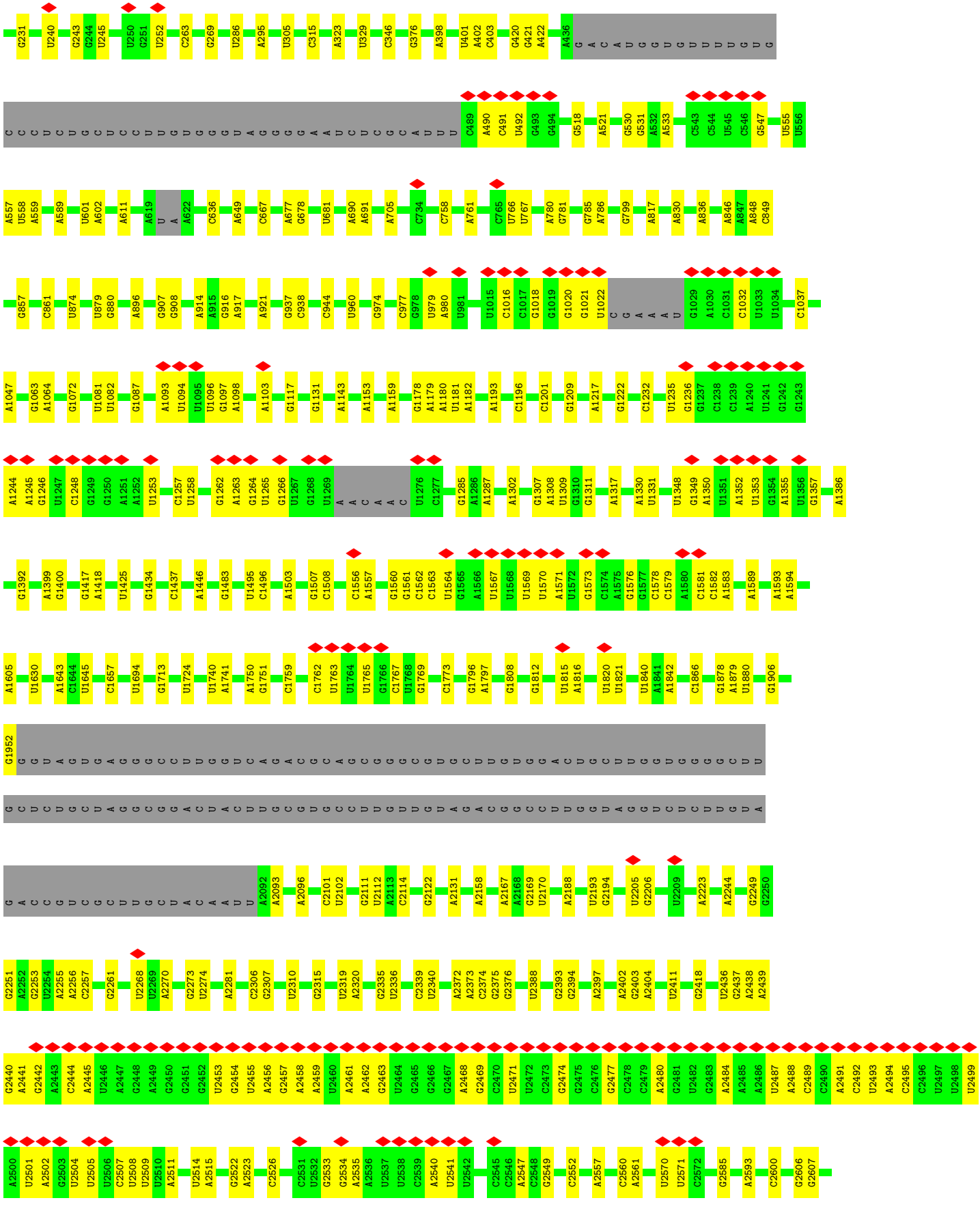


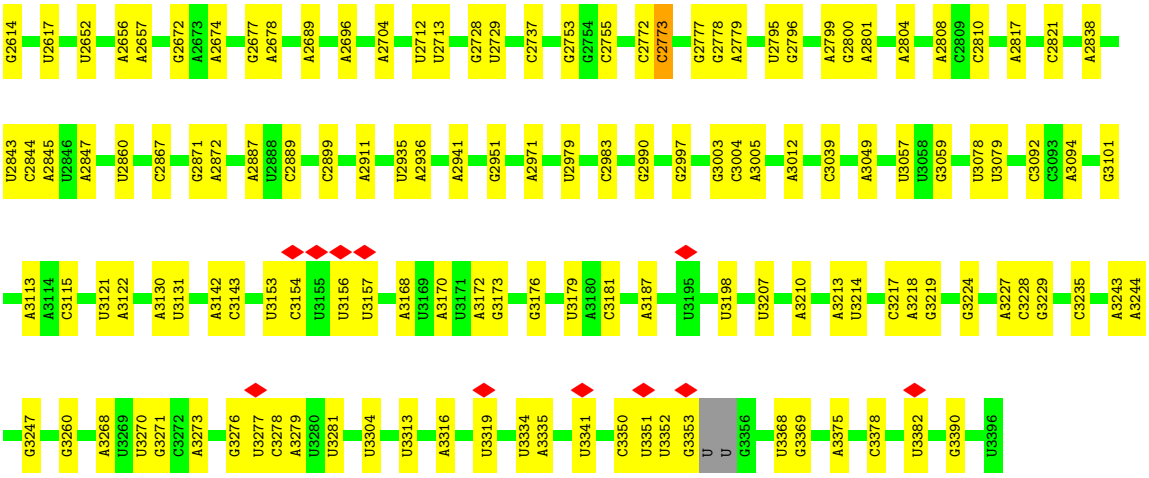


• Molecule 41: 25S rRNA

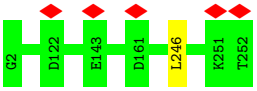
Chain A:



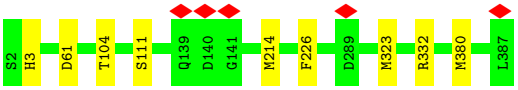

G231 U240 G243 G244 U245 U250 G251 U252 C263 G269 U286 A295 U305 C315 A323 U329 C346 G376 A398 U401 A402 C403 G420 G421 A422 A436
C489 A490 C491 U492 G493 G494 G518 A521 G530 G531 A532 A533 C543 C544 U545 C546 G547 U555 U556
A557 U558 A559 A589 U601 A602 A611 A619 A622 C636 A649 C667 A677 G678 U681 A690 A691 A705 C734 C758 A761 C765 U766 U767 A780 G781 G785 A786 G799 A817 A830 A836 A846 A847 A848 C849
G857 C861 U874 U879 C880 A896 G907 G908 A914 A915 G916 A917 A921 G937 C938 C944 U960 G974 C977 G978 U979 A980 U981 U1015 C1016 C1017 G1018 G1019 G1020 G1021 U1022 G1029 A1030 C1031 C1032 U1033 U1034 C1037
A1047 G1063 A1064 G1072 U1081 U1082 G1087 A1093 U1094 U1095 U1096 G1097 A1098 A1103 G1117 G1131 A1143 A1153 A1159 G1178 A1179 A1180 U1181 A1182 A1193 C1196 C1201 G1209 A1217 G1222 C1232 U1235 G1236 G1237 C1238 C1239 A1240 U1241 G1242 G1243
A1244 A1245 G1246 U1247 C1248 G1249 G1250 A1251 A1252 U1253 C1257 U1258 G1262 A1263 G1264 U1265 G1266 U1267 G1268 U1269 U1276 C1277 G1285 A1286 A1287 A1302 G1307 A1308 U1309 G1310 G1311 A1317 A1330 U1331 U1348 G1349 A1350 U1351 A1352 U1353 G1354 A1355 U1356 G1357 A1386
G1392 A1399 G1400 G1417 A1418 U1425 G1434 C1437 A1446 G1483 U1495 C1496 A1503 G1507 C1508 C1556 A1557 G1560 G1561 C1562 C1563 U1564 G1565 A1566 U1567 U1568 U1569 U1570 A1571 U1572 G1573 C1574 A1575 G1576 G1577 C1578 C1579 A1580 C1581 C1582 A1583 A1589 A1593 A1594
A1605 U1630 A1643 C1644 U1645 C1657 U1694 G1713 U1724 U1740 A1741 A1750 G1751 C1759 C1762 U1763 U1764 U1765 G1766 C1767 U1768 G1769 C1773 G1796 A1797 G1808 G1812 U1815 A1816 U1820 U1821 U1840 A1841 A1842 C1866 G1878 A1879 U1880 G1906
G1952
A2092 A2093 A2096 C2101 U2102 G2111 U2112 A2113 C2114 G2122 A2131 A2158 A2167 A2168 G2169 U2170 A2188 U2193 G2194 U2205 G2206 U2209 A2223 A2244 G2249 G2250
G2251 A2252 G2253 U2254 A2255 A2256 C2257 G2261 U2268 U2269 A2270 G2273 U2274 A2281 C2306 G2307 U2310 G2315 U2319 A2320 G2335 U2336 C2339 U2340 A2372 A2373 C2374 G2375 G2376 U2388 G2393 G2394 A2397 A2402 G2403 A2404 U2411 G2418 U2436 G2437 A2438 A2439
G2440 A2441 G2442 A2443 C2444 A2445 U2446 A2447 G2448 A2449 G2450 G2451 G2452 U2453 G2454 U2455 A2456 G2457 A2458 A2459 U2460 A2461 A2462 G2463 U2464 G2465 G2466 G2467 A2468 G2469 C2470 U2471 U2472 C2473 G2474 G2475 C2476 G2477 C2478 C2479 A2480 G2481 U2482 G2483 A2484 A2485 A2486 U2487 A2488 C2489 C2490 A2491 C2492 U2493 A2494 C2495 C2496 U2497 U2498 U2499
A2500 U2501 A2502 C2503 U2504 U2505 U2506 C2507 U2508 U2509 U2510 A2511 U2514 A2515 G2522 A2523 C2526 C2531 U2532 G2533 G2534 A2535 A2536 U2537 U2538 C2539 A2540 U2541 U2542 C2545 C2546 A2547 C2548 G2549 C2552 A2557 C2560 A2561 U2570 U2571 C2572 G2585 A2593 C2600 G2606 G2607



• Molecule 42: Large ribosomal subunit protein uL2A

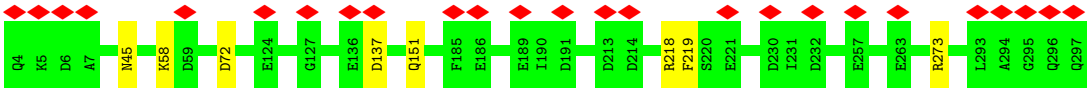


• Molecule 43: Large ribosomal subunit protein uL3

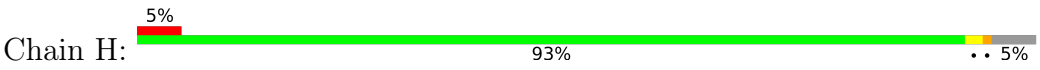


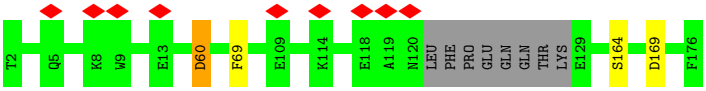
• Molecule 44: Large ribosomal subunit protein uL4A

• Molecule 45: Large ribosomal subunit protein uL18

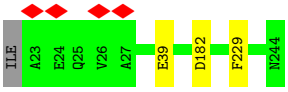


• Molecule 46: Large ribosomal subunit protein eL6B



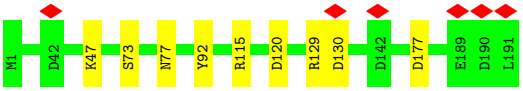


• Molecule 47: Large ribosomal subunit protein uL30A

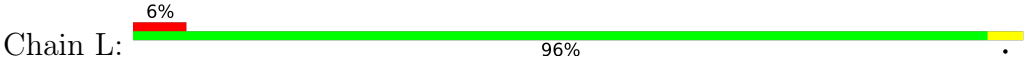


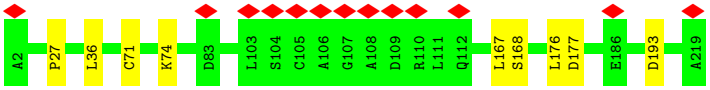
• Molecule 48: Large ribosomal subunit protein eL8A

• Molecule 49: Large ribosomal subunit protein uL6A

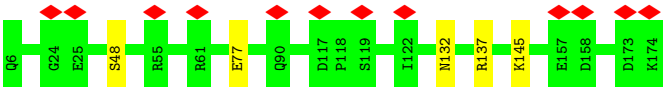


• Molecule 50: Large ribosomal subunit protein uL16

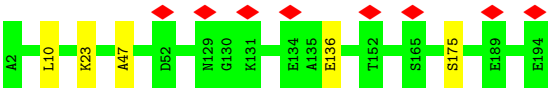




• Molecule 51: Large ribosomal subunit protein uL5B

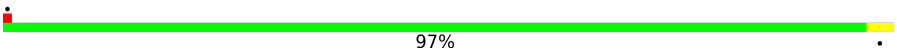


• Molecule 52: Large ribosomal subunit protein eL13A



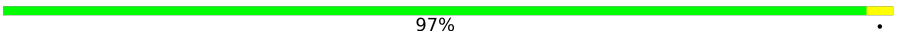
• Molecule 53: Large ribosomal subunit protein eL14A

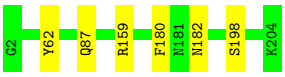
Chain O:



• Molecule 54: Large ribosomal subunit protein eL15A

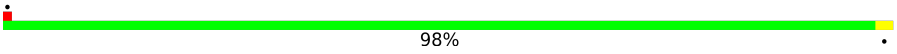
Chain P:

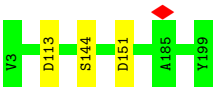




• Molecule 55: Large ribosomal subunit protein uL13A

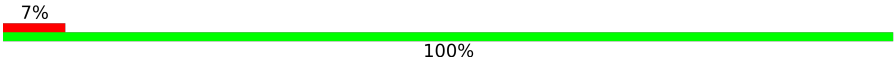
Chain Q:

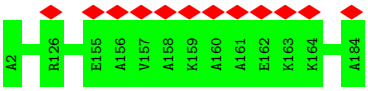




• Molecule 56: Large ribosomal subunit protein uL22A

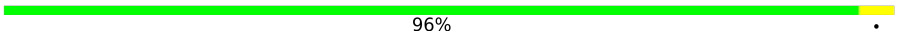
Chain R:





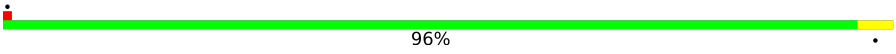
• Molecule 57: Large ribosomal subunit protein eL18A

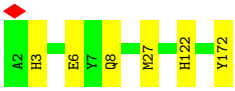
Chain S:



• Molecule 58: Large ribosomal subunit protein eL20A

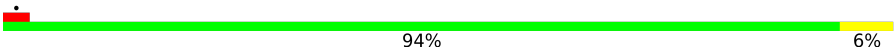
Chain U:

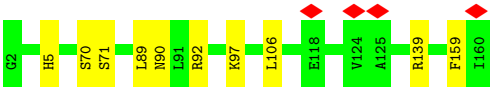




• Molecule 59: Large ribosomal subunit protein eL21A

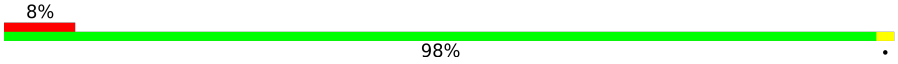
Chain V:

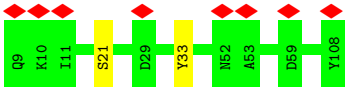




• Molecule 60: Large ribosomal subunit protein eL22A

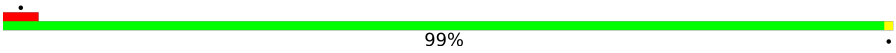
Chain W:

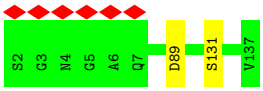




• Molecule 61: Large ribosomal subunit protein uL14A

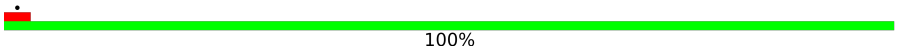
Chain X:

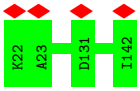




• Molecule 62: Large ribosomal subunit protein uL23

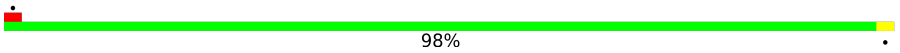
Chain Z:

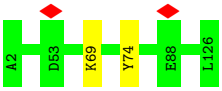




• Molecule 63: Large ribosomal subunit protein uL24A

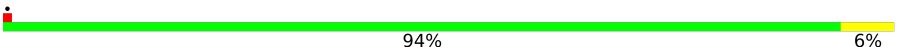
Chain a:

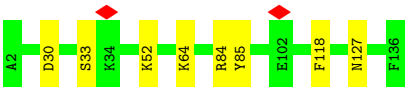




• Molecule 64: Large ribosomal subunit protein eL27A

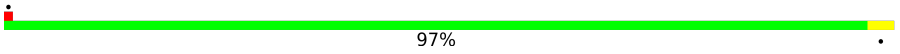
Chain b:

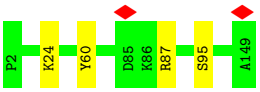




• Molecule 65: Large ribosomal subunit protein uL15

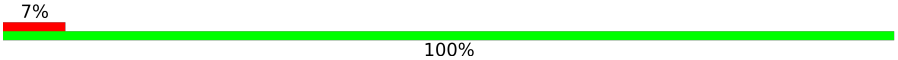
Chain c:

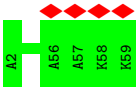




• Molecule 66: Large ribosomal subunit protein eL29

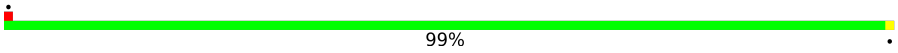
Chain d:

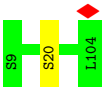




• Molecule 67: Large ribosomal subunit protein eL30

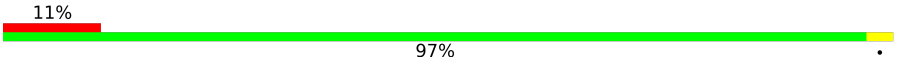
Chain e:

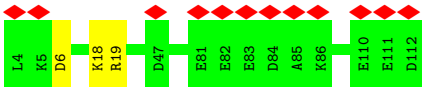




• Molecule 68: Large ribosomal subunit protein eL31A

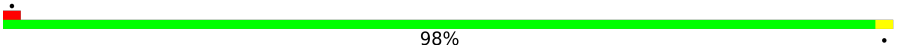
Chain f:

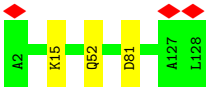




• Molecule 69: Large ribosomal subunit protein eL32

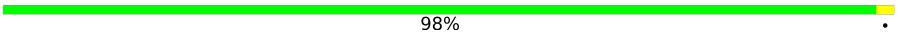
Chain g:





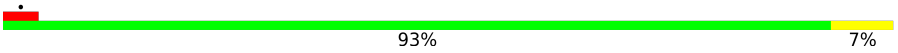
• Molecule 70: Large ribosomal subunit protein eL33A

Chain h:



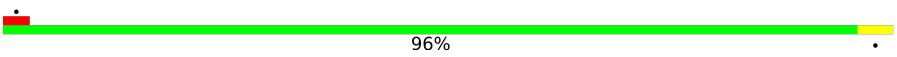
• Molecule 71: Large ribosomal subunit protein eL34A

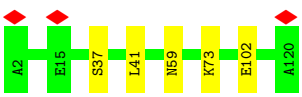
Chain i:



• Molecule 72: Large ribosomal subunit protein uL29A

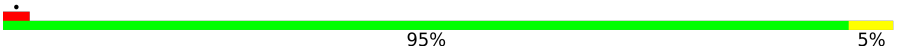
Chain j:

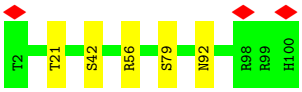




• Molecule 73: Large ribosomal subunit protein eL36A

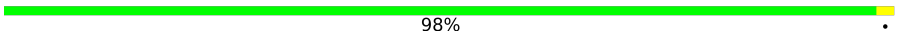
Chain k:

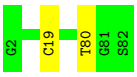




• Molecule 74: Large ribosomal subunit protein eL37A

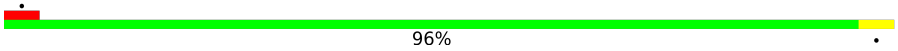
Chain l:

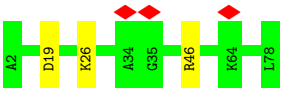




• Molecule 75: Large ribosomal subunit protein eL38

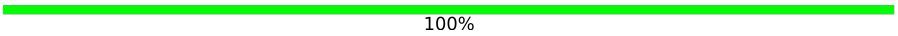
Chain m:





• Molecule 76: Large ribosomal subunit protein eL39

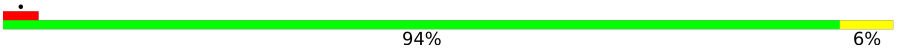
Chain n:



There are no outlier residues recorded for this chain.

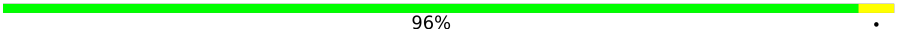
• Molecule 77: Large ribosomal subunit protein eL40A

Chain o:



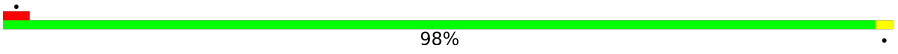
• Molecule 78: Large ribosomal subunit protein eL41A

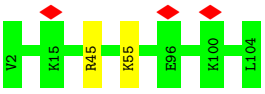
Chain p:



• Molecule 79: Large ribosomal subunit protein eL42A

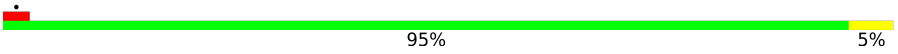
Chain q:

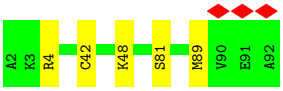




• Molecule 80: Large ribosomal subunit protein eL43A

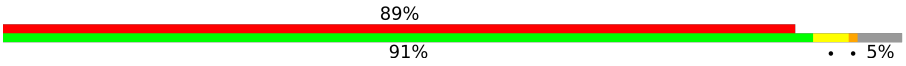
Chain r:

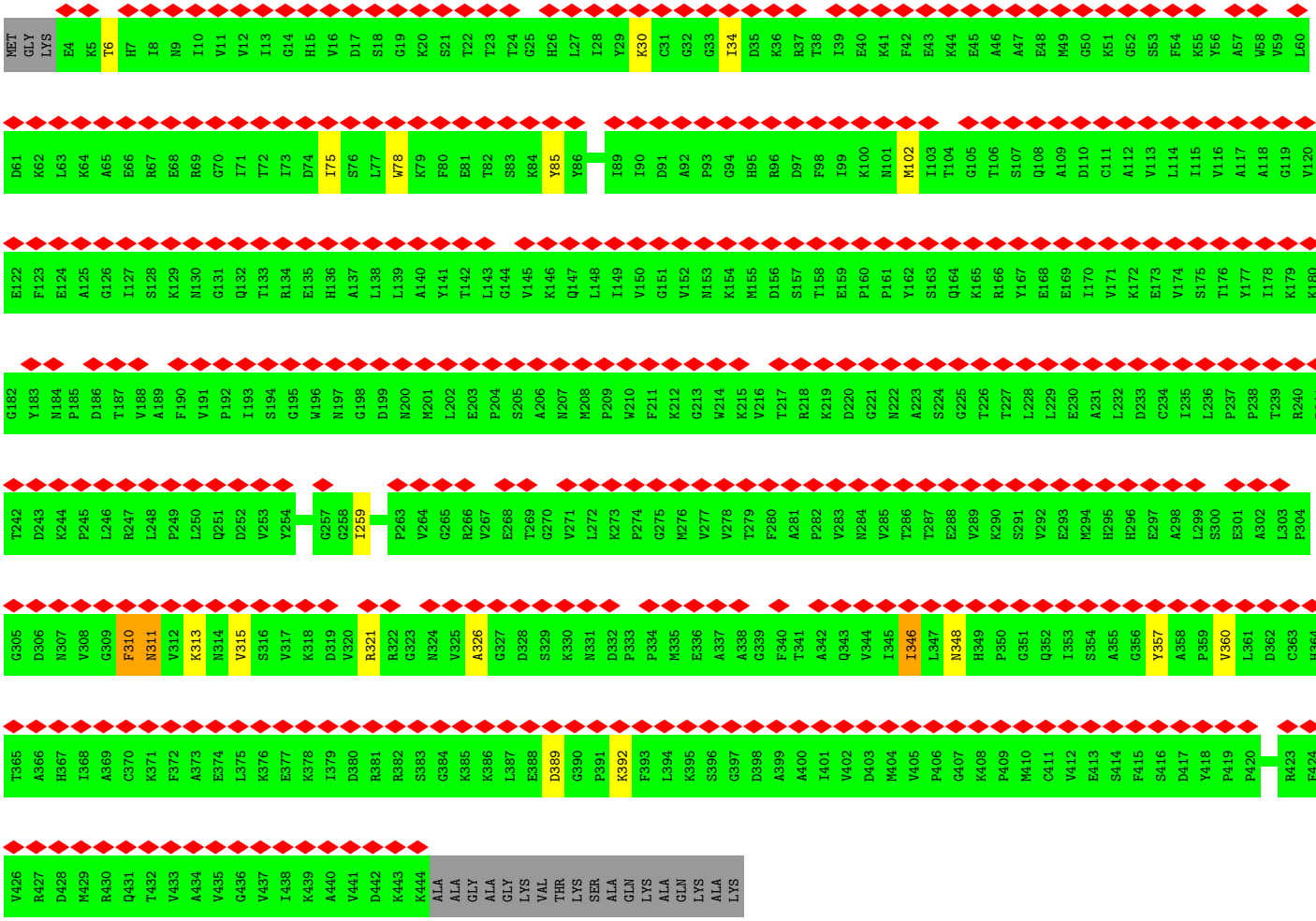




• Molecule 81: Elongation factor 1-alpha 1

Chain x:





4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	150024	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	Not provided	
Image detector	GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	1.974	Depositor
Minimum map value	-1.157	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.073	Depositor
Recommended contour level	0.23	Depositor
Map size (Å)	528.0, 528.0, 528.0	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.32, 1.32, 1.32	Depositor

5 Model quality

5.1 Standard geometry

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|>5$	RMSZ	#$\|Z\|>5$
1	2	0.13	0/42211	0.68	1/65773 (0.0%)
2	SA	0.26	0/1754	0.57	0/2361
3	SB	0.26	0/1625	0.54	0/2197
4	SC	0.25	0/769	0.49	1/1039 (0.1%)
5	SD	0.24	0/883	0.54	0/1199
6	SE	0.25	0/936	0.56	0/1259
7	SF	0.28	0/1125	0.57	0/1510
8	SG	0.25	0/971	0.62	1/1303 (0.1%)
9	SH	0.25	0/1207	0.58	1/1623 (0.1%)
10	SI	0.24	0/1130	0.51	0/1517
11	SJ	0.26	0/807	0.62	0/1091
12	SK	0.27	0/661	0.61	0/888
13	SL	0.23	0/493	0.60	0/663
14	SM	0.26	0/452	0.57	0/600
15	SN	0.26	0/567	0.57	0/764
16	SO	0.26	0/2436	0.59	0/3318
17	SP	0.24	0/1644	0.50	0/2249
18	SQ	0.25	0/1823	0.55	0/2447
19	SR	0.24	0/1656	0.50	0/2251
20	SS	0.25	0/2097	0.54	0/2823
21	ST	0.25	0/1839	0.54	0/2460
22	SU	0.27	0/1498	0.55	1/2019 (0.0%)
23	SV	0.27	0/1501	0.56	0/2006
24	SW	0.24	0/1504	0.52	0/2016
25	SX	0.24	0/1168	0.53	0/1575
26	SY	0.24	0/1215	0.49	0/1638
27	SZ	0.24	0/901	0.61	0/1217
28	Sa	0.27	0/682	0.61	0/921
29	Sb	0.24	0/1038	0.48	0/1395
30	Sc	0.26	0/1139	0.53	0/1518
31	Sd	0.26	0/1087	0.55	0/1449
32	Se	0.23	0/761	0.61	1/1016 (0.1%)
33	Sf	0.23	0/620	0.49	0/838
34	Sg	0.23	0/480	0.51	0/639

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
35	s	0.18	0/1805	0.72	0/2809
36	t	0.11	0/1796	0.66	0/2799
37	B	0.11	0/2883	0.65	0/4491
38	C	0.11	0/3746	0.66	0/5832
39	T	0.24	0/1532	0.54	0/2043
40	Y	0.25	0/850	0.47	0/1152
41	A	0.15	0/76303	0.73	2/118956 (0.0%)
42	D	0.24	0/1933	0.54	0/2598
43	E	0.24	0/3146	0.51	0/4228
44	F	0.24	0/2800	0.49	0/3790
45	G	0.25	0/2400	0.51	0/3239
46	H	0.26	0/1329	0.54	1/1794 (0.1%)
47	I	0.26	0/1821	0.48	0/2451
48	J	0.26	0/1836	0.48	0/2481
49	K	0.25	0/1529	0.52	1/2060 (0.0%)
50	L	0.25	0/1801	0.53	0/2416
51	M	0.25	0/1367	0.56	0/1834
52	N	0.25	0/1568	0.56	0/2106
53	O	0.24	0/1068	0.49	0/1438
54	P	0.23	0/1757	0.56	0/2354
55	Q	0.26	0/1585	0.47	0/2128
56	R	0.26	0/1439	0.53	0/1938
57	S	0.24	0/1465	0.53	0/1965
58	U	0.24	0/1473	0.51	0/1980
59	V	0.25	0/1296	0.54	1/1739 (0.1%)
60	W	0.26	0/812	0.52	0/1099
61	X	0.26	0/1018	0.53	0/1369
62	Z	0.24	0/979	0.51	0/1321
63	a	0.24	0/995	0.52	0/1329
64	b	0.26	0/1106	0.50	0/1485
65	c	0.23	0/1200	0.50	0/1607
66	d	0.24	0/473	0.46	0/629
67	e	0.25	0/745	0.48	0/1001
68	f	0.24	0/890	0.52	0/1196
69	g	0.23	0/1034	0.49	0/1385
70	h	0.27	0/868	0.54	0/1168
71	i	0.24	0/890	0.55	0/1189
72	j	0.26	0/978	0.51	0/1301
73	k	0.24	0/772	0.53	0/1026
74	l	0.32	0/660	0.59	0/875
75	m	0.26	0/618	0.56	0/826
76	n	0.23	0/443	0.56	0/588
77	o	0.25	0/416	0.57	0/553

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
78	p	0.24	0/230	0.72	0/296
79	q	0.25	0/836	0.50	0/1104
80	r	0.24	0/701	0.55	0/934
81	x	0.35	0/3449	0.54	1/4667 (0.0%)
All	All	0.20	0/221321	0.65	12/325151 (0.0%)

There are no bond length outliers.

All (12) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
8	SG	73	LEU	CA-CB-CG	6.00	129.09	115.30
59	V	106	LEU	CA-CB-CG	5.92	128.91	115.30
32	Se	64	LEU	CA-CB-CG	5.75	128.52	115.30
9	SH	82	PRO	CA-N-CD	-5.64	103.61	111.50
81	x	311	ASN	C-N-CA	-5.62	107.66	121.70
22	SU	63	PRO	CA-N-CD	-5.58	103.68	111.50
41	A	2773	C	N1-C2-O2	5.56	122.23	118.90
46	H	60	ASP	CB-CG-OD1	5.45	123.21	118.30
4	SC	80	LEU	CA-CB-CG	5.37	127.64	115.30
41	A	1311	G	C5-C6-O6	5.25	131.75	128.60
49	K	120	ASP	CB-CG-OD1	5.09	122.88	118.30
1	2	224	C	P-O3'-C3'	5.02	125.72	119.70

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

Due to software issues we are unable to calculate clashes - this section is therefore empty.

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
2	SA	220/222 (99%)	208 (94%)	11 (5%)	1 (0%)	25 60
3	SB	204/206 (99%)	186 (91%)	13 (6%)	5 (2%)	4 28
4	SC	90/92 (98%)	76 (84%)	12 (13%)	2 (2%)	5 30
5	SD	119/121 (98%)	99 (83%)	20 (17%)	0	100 100
6	SE	115/117 (98%)	104 (90%)	11 (10%)	0	100 100
7	SF	139/141 (99%)	130 (94%)	7 (5%)	2 (1%)	9 40
8	SG	119/121 (98%)	108 (91%)	11 (9%)	0	100 100
9	SH	143/145 (99%)	137 (96%)	6 (4%)	0	100 100
10	SI	141/143 (99%)	132 (94%)	8 (6%)	1 (1%)	19 54
11	SJ	98/100 (98%)	87 (89%)	11 (11%)	0	100 100
12	SK	80/108 (74%)	64 (80%)	14 (18%)	2 (2%)	4 28
13	SL	61/63 (97%)	58 (95%)	3 (5%)	0	100 100
14	SM	51/53 (96%)	47 (92%)	4 (8%)	0	100 100
15	SN	71/73 (97%)	49 (69%)	21 (30%)	1 (1%)	9 40
16	SO	310/312 (99%)	285 (92%)	24 (8%)	1 (0%)	37 69
17	SP	204/206 (99%)	191 (94%)	12 (6%)	1 (0%)	25 60
18	SQ	222/232 (96%)	203 (91%)	19 (9%)	0	100 100
19	SR	214/216 (99%)	204 (95%)	10 (5%)	0	100 100
20	SS	256/258 (99%)	240 (94%)	16 (6%)	0	100 100
21	ST	226/228 (99%)	220 (97%)	5 (2%)	1 (0%)	30 64
22	SU	182/184 (99%)	170 (93%)	11 (6%)	1 (0%)	25 60
23	SV	183/200 (92%)	172 (94%)	11 (6%)	0	100 100
24	SW	182/184 (99%)	176 (97%)	6 (3%)	0	100 100
25	SX	140/142 (99%)	132 (94%)	7 (5%)	1 (1%)	19 54
26	SY	148/150 (99%)	142 (96%)	6 (4%)	0	100 100
27	SZ	125/127 (98%)	113 (90%)	12 (10%)	0	100 100
28	Sa	85/87 (98%)	77 (91%)	8 (9%)	0	100 100
29	Sb	127/129 (98%)	119 (94%)	7 (6%)	1 (1%)	16 51
30	Sc	142/144 (99%)	136 (96%)	4 (3%)	2 (1%)	9 40
31	Sd	132/134 (98%)	126 (96%)	6 (4%)	0	100 100
32	Se	92/94 (98%)	79 (86%)	13 (14%)	0	100 100
33	Sf	79/81 (98%)	76 (96%)	3 (4%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
34	Sg	58/60 (97%)	53 (91%)	5 (9%)	0	100	100
39	T	186/188 (99%)	184 (99%)	2 (1%)	0	100	100
40	Y	124/126 (98%)	111 (90%)	11 (9%)	2 (2%)	8	37
42	D	249/251 (99%)	239 (96%)	10 (4%)	0	100	100
43	E	384/386 (100%)	370 (96%)	14 (4%)	0	100	100
44	F	359/361 (99%)	348 (97%)	11 (3%)	0	100	100
45	G	292/294 (99%)	279 (96%)	13 (4%)	0	100	100
46	H	163/175 (93%)	151 (93%)	12 (7%)	0	100	100
47	I	220/223 (99%)	216 (98%)	4 (2%)	0	100	100
48	J	231/233 (99%)	217 (94%)	13 (6%)	1 (0%)	30	64
49	K	189/191 (99%)	181 (96%)	8 (4%)	0	100	100
50	L	216/218 (99%)	207 (96%)	9 (4%)	0	100	100
51	M	167/169 (99%)	157 (94%)	10 (6%)	0	100	100
52	N	191/193 (99%)	178 (93%)	11 (6%)	2 (1%)	13	47
53	O	134/136 (98%)	128 (96%)	6 (4%)	0	100	100
54	P	201/203 (99%)	196 (98%)	5 (2%)	0	100	100
55	Q	195/197 (99%)	189 (97%)	6 (3%)	0	100	100
56	R	181/183 (99%)	172 (95%)	9 (5%)	0	100	100
57	S	183/185 (99%)	175 (96%)	7 (4%)	1 (0%)	25	60
58	U	169/171 (99%)	161 (95%)	8 (5%)	0	100	100
59	V	157/159 (99%)	149 (95%)	8 (5%)	0	100	100
60	W	98/100 (98%)	89 (91%)	9 (9%)	0	100	100
61	X	134/136 (98%)	133 (99%)	1 (1%)	0	100	100
62	Z	119/121 (98%)	113 (95%)	6 (5%)	0	100	100
63	a	123/125 (98%)	120 (98%)	3 (2%)	0	100	100
64	b	133/135 (98%)	127 (96%)	6 (4%)	0	100	100
65	c	146/148 (99%)	138 (94%)	8 (6%)	0	100	100
66	d	56/58 (97%)	54 (96%)	2 (4%)	0	100	100
67	e	94/96 (98%)	92 (98%)	2 (2%)	0	100	100
68	f	107/109 (98%)	102 (95%)	5 (5%)	0	100	100
69	g	125/127 (98%)	124 (99%)	1 (1%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
70	h	104/106 (98%)	97 (93%)	7 (7%)	0	100	100
71	i	110/112 (98%)	104 (94%)	6 (6%)	0	100	100
72	j	117/119 (98%)	114 (97%)	3 (3%)	0	100	100
73	k	97/99 (98%)	93 (96%)	4 (4%)	0	100	100
74	l	79/81 (98%)	74 (94%)	5 (6%)	0	100	100
75	m	75/77 (97%)	69 (92%)	6 (8%)	0	100	100
76	n	48/50 (96%)	47 (98%)	1 (2%)	0	100	100
77	o	50/52 (96%)	48 (96%)	2 (4%)	0	100	100
78	p	23/25 (92%)	23 (100%)	0	0	100	100
79	q	101/103 (98%)	96 (95%)	5 (5%)	0	100	100
80	r	89/91 (98%)	84 (94%)	5 (6%)	0	100	100
81	x	439/462 (95%)	405 (92%)	28 (6%)	6 (1%)	9	40
All	All	11416/11647 (98%)	10753 (94%)	629 (6%)	34 (0%)	38	69

All (34) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
4	SC	83	PRO
4	SC	88	PRO
7	SF	39	VAL
7	SF	40	GLU
12	SK	33	LYS
12	SK	88	ILE
22	SU	64	VAL
25	SX	30	ARG
29	Sb	30	SER
30	Sc	64	PRO
48	J	158	ASP
10	SI	50	ALA
16	SO	51	ASP
30	Sc	63	GLN
81	x	346	ILE
81	x	348	ASN
17	SP	189	VAL
40	Y	76	VAL
40	Y	83	THR
2	SA	218	LEU
52	N	136	GLU

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Mol	Chain	Res	Type
81	x	259	ILE
81	x	315	VAL
3	SB	41	LYS
3	SB	156	ARG
21	ST	171	LYS
52	N	47	ALA
81	x	310	PHE
81	x	326	ALA
15	SN	114	VAL
3	SB	151	GLY
3	SB	153	GLY
3	SB	149	VAL
57	S	18	ALA

5.3.2 Protein sidechains (i)

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
2	SA	182/182 (100%)	176 (97%)	6 (3%)	33 64
3	SB	172/173 (99%)	162 (94%)	10 (6%)	17 49
4	SC	77/85 (91%)	75 (97%)	2 (3%)	41 70
5	SD	88/98 (90%)	83 (94%)	5 (6%)	17 50
6	SE	95/98 (97%)	91 (96%)	4 (4%)	25 58
7	SF	117/117 (100%)	111 (95%)	6 (5%)	20 53
8	SG	105/110 (96%)	102 (97%)	3 (3%)	37 67
9	SH	127/128 (99%)	119 (94%)	8 (6%)	15 46
10	SI	115/115 (100%)	109 (95%)	6 (5%)	19 52
11	SJ	93/93 (100%)	86 (92%)	7 (8%)	11 40
12	SK	67/89 (75%)	64 (96%)	3 (4%)	23 56
13	SL	55/56 (98%)	54 (98%)	1 (2%)	54 77
14	SM	47/47 (100%)	41 (87%)	6 (13%)	3 17
15	SN	56/64 (88%)	51 (91%)	5 (9%)	8 31

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
16	SO	250/257 (97%)	232 (93%)	18 (7%)	12 41
17	SP	170/173 (98%)	167 (98%)	3 (2%)	54 77
18	SQ	200/205 (98%)	191 (96%)	9 (4%)	23 56
19	SR	175/175 (100%)	167 (95%)	8 (5%)	23 56
20	SS	220/220 (100%)	216 (98%)	4 (2%)	54 77
21	ST	189/195 (97%)	183 (97%)	6 (3%)	34 65
22	SU	163/165 (99%)	161 (99%)	2 (1%)	67 85
23	SV	148/161 (92%)	143 (97%)	5 (3%)	32 63
24	SW	156/157 (99%)	152 (97%)	4 (3%)	41 70
25	SX	126/127 (99%)	123 (98%)	3 (2%)	44 71
26	SY	127/127 (100%)	122 (96%)	5 (4%)	27 60
27	SZ	81/96 (84%)	74 (91%)	7 (9%)	8 33
28	Sa	71/74 (96%)	68 (96%)	3 (4%)	25 58
29	Sb	110/110 (100%)	110 (100%)	0	100 100
30	Sc	119/119 (100%)	114 (96%)	5 (4%)	25 58
31	Sd	112/112 (100%)	108 (96%)	4 (4%)	30 62
32	Se	81/81 (100%)	77 (95%)	4 (5%)	21 54
33	Sf	70/70 (100%)	67 (96%)	3 (4%)	25 57
34	Sg	50/51 (98%)	48 (96%)	2 (4%)	27 59
39	T	152/153 (99%)	149 (98%)	3 (2%)	50 75
40	Y	56/108 (52%)	55 (98%)	1 (2%)	54 77
42	D	190/193 (98%)	189 (100%)	1 (0%)	86 93
43	E	319/322 (99%)	310 (97%)	9 (3%)	38 68
44	F	288/288 (100%)	282 (98%)	6 (2%)	48 74
45	G	241/243 (99%)	233 (97%)	8 (3%)	33 64
46	H	139/154 (90%)	135 (97%)	4 (3%)	37 67
47	I	186/187 (100%)	183 (98%)	3 (2%)	58 79
48	J	187/191 (98%)	184 (98%)	3 (2%)	58 79
49	K	168/171 (98%)	160 (95%)	8 (5%)	21 55
50	L	185/185 (100%)	176 (95%)	9 (5%)	21 54
51	M	145/147 (99%)	140 (97%)	5 (3%)	32 63

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
52	N	154/154 (100%)	151 (98%)	3 (2%)	52	76
53	O	107/107 (100%)	103 (96%)	4 (4%)	29	62
54	P	175/175 (100%)	169 (97%)	6 (3%)	32	63
55	Q	160/160 (100%)	157 (98%)	3 (2%)	52	76
56	R	138/145 (95%)	138 (100%)	0	100	100
57	S	150/150 (100%)	144 (96%)	6 (4%)	27	59
58	U	155/155 (100%)	149 (96%)	6 (4%)	27	60
59	V	135/136 (99%)	126 (93%)	9 (7%)	13	44
60	W	87/87 (100%)	85 (98%)	2 (2%)	45	72
61	X	104/104 (100%)	102 (98%)	2 (2%)	52	76
62	Z	104/105 (99%)	104 (100%)	0	100	100
63	a	108/108 (100%)	106 (98%)	2 (2%)	52	76
64	b	112/115 (97%)	104 (93%)	8 (7%)	12	42
65	c	117/118 (99%)	113 (97%)	4 (3%)	32	63
66	d	46/46 (100%)	46 (100%)	0	100	100
67	e	81/81 (100%)	80 (99%)	1 (1%)	67	85
68	f	92/96 (96%)	89 (97%)	3 (3%)	33	64
69	g	107/109 (98%)	104 (97%)	3 (3%)	38	68
70	h	90/90 (100%)	88 (98%)	2 (2%)	47	73
71	i	95/95 (100%)	87 (92%)	8 (8%)	9	34
72	j	104/104 (100%)	99 (95%)	5 (5%)	21	55
73	k	80/81 (99%)	75 (94%)	5 (6%)	15	46
74	l	67/67 (100%)	65 (97%)	2 (3%)	36	66
75	m	68/68 (100%)	65 (96%)	3 (4%)	24	57
76	n	45/45 (100%)	45 (100%)	0	100	100
77	o	45/47 (96%)	42 (93%)	3 (7%)	13	44
78	p	22/23 (96%)	21 (96%)	1 (4%)	23	56
79	q	87/88 (99%)	85 (98%)	2 (2%)	45	72
80	r	71/71 (100%)	66 (93%)	5 (7%)	12	42
81	x	366/379 (97%)	350 (96%)	16 (4%)	24	57
All	All	9542/9781 (98%)	9201 (96%)	341 (4%)	32	62

All (341) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	SA	94	ARG
2	SA	134	CYS
2	SA	160	SER
2	SA	165	ASN
2	SA	196	ARG
2	SA	213	GLU
3	SB	41	LYS
3	SB	47	SER
3	SB	86	GLN
3	SB	119	ASP
3	SB	122	ASN
3	SB	143	ARG
3	SB	149	VAL
3	SB	156	ARG
3	SB	184	PHE
3	SB	205	SER
4	SC	33	GLU
4	SC	81	ASN
5	SD	28	LEU
5	SD	38	HIS
5	SD	62	LEU
5	SD	126	TRP
5	SD	131	ASP
6	SE	22	LEU
6	SE	80	MET
6	SE	98	ASN
6	SE	128	HIS
7	SF	58	ASP
7	SF	59	LYS
7	SF	140	LYS
7	SF	141	SER
7	SF	142	TYR
7	SF	143	ARG
8	SG	82	ASP
8	SG	93	LEU
8	SG	115	LEU
9	SH	16	ARG
9	SH	43	SER
9	SH	57	ARG
9	SH	60	GLU
9	SH	85	PHE
9	SH	94	ASP

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Mol	Chain	Res	Type
9	SH	144	ARG
9	SH	145	ARG
10	SI	8	ASP
10	SI	13	ASP
10	SI	21	PHE
10	SI	69	LYS
10	SI	118	PRO
10	SI	133	ASP
11	SJ	28	SER
11	SJ	40	ASN
11	SJ	52	LYS
11	SJ	76	SER
11	SJ	80	GLU
11	SJ	90	TYR
11	SJ	98	GLN
12	SK	45	GLU
12	SK	55	PRO
12	SK	94	LYS
13	SL	22	ARG
14	SM	8	PHE
14	SM	14	TYR
14	SM	24	CYS
14	SM	28	THR
14	SM	39	CYS
14	SM	42	CYS
15	SN	89	LYS
15	SN	116	LYS
15	SN	126	CYS
15	SN	136	LYS
15	SN	137	ASP
16	SO	17	ASN
16	SO	23	LEU
16	SO	52	GLN
16	SO	54	PHE
16	SO	62	LYS
16	SO	64	HIS
16	SO	70	ASP
16	SO	71	CYS
16	SO	73	LEU
16	SO	76	ASP
16	SO	149	ASP
16	SO	205	SER

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Mol	Chain	Res	Type
16	SO	241	PHE
16	SO	245	PHE
16	SO	249	ARG
16	SO	281	TYR
16	SO	302	PHE
16	SO	316	MET
17	SP	134	LYS
17	SP	162	CYS
17	SP	204	TYR
18	SQ	50	LYS
18	SQ	59	ASP
18	SQ	61	LEU
18	SQ	64	ARG
18	SQ	77	GLU
18	SQ	95	ASN
18	SQ	113	MET
18	SQ	187	LYS
18	SQ	198	GLU
19	SR	64	LYS
19	SR	76	LEU
19	SR	153	SER
19	SR	174	ARG
19	SR	187	LEU
19	SR	189	GLN
19	SR	208	GLU
19	SR	238	SER
20	SS	21	ASP
20	SS	50	ASN
20	SS	213	SER
20	SS	246	LEU
21	ST	3	LEU
21	ST	6	SER
21	ST	25	ARG
21	ST	57	ASP
21	ST	151	ASP
21	ST	161	GLU
22	SU	83	LYS
22	SU	85	PHE
23	SV	18	ARG
23	SV	29	LEU
23	SV	140	GLU
23	SV	160	PHE

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Mol	Chain	Res	Type
23	SV	168	CYS
24	SW	9	SER
24	SW	13	SER
24	SW	50	SER
24	SW	180	LYS
25	SX	18	HIS
25	SX	67	ARG
25	SX	138	ASN
26	SY	13	SER
26	SY	69	ASN
26	SY	78	ASN
26	SY	105	ASN
26	SY	140	LYS
27	SZ	12	GLN
27	SZ	22	SER
27	SZ	41	ARG
27	SZ	49	LYS
27	SZ	56	SER
27	SZ	84	ARG
27	SZ	105	LEU
28	Sa	70	ASN
28	Sa	76	ASP
28	Sa	85	TYR
30	Sc	21	ASN
30	Sc	40	SER
30	Sc	66	SER
30	Sc	70	LYS
30	Sc	107	PHE
31	Sd	31	ASN
31	Sd	39	GLU
31	Sd	58	PHE
31	Sd	78	SER
32	Se	7	SER
32	Se	8	ASN
32	Se	74	CYS
32	Se	87	ARG
33	Sf	11	THR
33	Sf	31	TYR
33	Sf	34	ASP
34	Sg	17	GLN
34	Sg	53	LYS
39	T	76	SER

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Mol	Chain	Res	Type
39	T	82	LYS
39	T	110	ARG
40	Y	47	ARG
42	D	246	LEU
43	E	3	HIS
43	E	61	ASP
43	E	104	THR
43	E	111	SER
43	E	214	MET
43	E	226	PHE
43	E	323	MET
43	E	332	ARG
43	E	380	MET
44	F	59	GLN
44	F	255	PHE
44	F	259	ASP
44	F	271	LYS
44	F	292	SER
44	F	304	GLN
45	G	45	ASN
45	G	58	LYS
45	G	72	ASP
45	G	137	ASP
45	G	151	GLN
45	G	218	ARG
45	G	219	PHE
45	G	273	ARG
46	H	60	ASP
46	H	69	PHE
46	H	164	SER
46	H	169	ASP
47	I	39	GLU
47	I	182	ASP
47	I	229	PHE
48	J	177	TYR
48	J	207	ASP
48	J	251	LYS
49	K	47	LYS
49	K	73	SER
49	K	77	ASN
49	K	92	TYR
49	K	115	ARG

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Mol	Chain	Res	Type
49	K	129	ARG
49	K	130	ASP
49	K	177	ASP
50	L	27	PRO
50	L	36	LEU
50	L	71	CYS
50	L	74	LYS
50	L	167	LEU
50	L	168	SER
50	L	176	LEU
50	L	177	ASP
50	L	193	ASP
51	M	48	SER
51	M	77	GLU
51	M	132	ASN
51	M	137	ARG
51	M	145	LYS
52	N	10	LEU
52	N	23	LYS
52	N	175	SER
53	O	14	LEU
53	O	22	LEU
53	O	77	ARG
53	O	121	MET
54	P	62	TYR
54	P	87	GLN
54	P	159	ARG
54	P	180	PHE
54	P	182	ASN
54	P	198	SER
55	Q	113[A]	ASP
55	Q	144[A]	SER
55	Q	151[A]	ASP
57	S	41	ASP
57	S	136	ASN
57	S	146	SER
57	S	148	GLU
57	S	178	ARG
57	S	182	LYS
58	U	3	HIS
58	U	6	GLU
58	U	8	GLN

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Mol	Chain	Res	Type
58	U	27	MET
58	U	122	HIS
58	U	172	TYR
59	V	5	HIS
59	V	70	SER
59	V	71	SER
59	V	89	LEU
59	V	90	ASN
59	V	92	ARG
59	V	97	LYS
59	V	139	ARG
59	V	159	PHE
60	W	21	SER
60	W	33	TYR
61	X	89	ASP
61	X	131	SER
63	a	69	LYS
63	a	74	TYR
64	b	30	ASP
64	b	33	SER
64	b	52	LYS
64	b	64	LYS
64	b	84	ARG
64	b	85	TYR
64	b	118	PHE
64	b	127	ASN
65	c	24	LYS
65	c	60	TYR
65	c	87	ARG
65	c	95	SER
67	e	20	SER
68	f	6	ASP
68	f	18	LYS
68	f	19	ARG
69	g	15	LYS
69	g	52	GLN
69	g	81	ASP
70	h	15	SER
70	h	18	ARG
71	i	18	ASN
71	i	21	LYS
71	i	44	CYS

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Mol	Chain	Res	Type
71	i	46	ASP
71	i	62	TYR
71	i	76	TYR
71	i	106	LYS
71	i	110	GLU
72	j	37	SER
72	j	41	LEU
72	j	59	ASN
72	j	73	LYS
72	j	102	GLU
73	k	21	THR
73	k	42	SER
73	k	56	ARG
73	k	79	SER
73	k	92	ASN
74	l	19	CYS
74	l	80	THR
75	m	19	ASP
75	m	26	LYS
75	m	46	ARG
77	o	81	SER
77	o	93	LYS
77	o	114	LYS
78	p	24	SER
79	q	45	ARG
79	q	55	LYS
80	r	4	ARG
80	r	42	CYS
80	r	48	LYS
80	r	81	SER
80	r	89	MET
81	x	6	THR
81	x	30	LYS
81	x	34	ILE
81	x	75	ILE
81	x	78	TRP
81	x	85	TYR
81	x	102	MET
81	x	310	PHE
81	x	311	ASN
81	x	313	LYS
81	x	321	ARG

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Mol	Chain	Res	Type
81	x	346	ILE
81	x	357	TYR
81	x	360	VAL
81	x	389	ASP
81	x	392	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (13) such sidechains are listed below:

Mol	Chain	Res	Type
16	SO	153	GLN
16	SO	314	GLN
27	SZ	29	HIS
31	Sd	15	ASN
31	Sd	22	GLN
42	D	132	ASN
44	F	311	HIS
56	R	137	ASN
57	S	126	GLN
81	x	324	ASN
81	x	348	ASN
81	x	352	GLN
81	x	367	HIS

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	2	1768/1799 (98%)	408 (23%)	40 (2%)
35	s	74/77 (96%)	31 (41%)	0
36	t	74/75 (98%)	18 (24%)	0
37	B	120/121 (99%)	9 (7%)	1 (0%)
38	C	157/158 (99%)	26 (16%)	1 (0%)
41	A	3180/3394 (93%)	506 (15%)	9 (0%)
All	All	5373/5624 (95%)	998 (18%)	51 (0%)

All (998) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	2	2	A
1	2	4	C
1	2	25	C

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Mol	Chain	Res	Type
1	2	26	A
1	2	34	G
1	2	42	G
1	2	43	A
1	2	45	U
1	2	47	A
1	2	56	U
1	2	57	G
1	2	62	A
1	2	65	A
1	2	66	U
1	2	67	A
1	2	68	A
1	2	69	G
1	2	73	U
1	2	74	U
1	2	75	U
1	2	76	A
1	2	77	U
1	2	78	A
1	2	80	A
1	2	81	G
1	2	104	A
1	2	114	C
1	2	116	U
1	2	121	U
1	2	126	A
1	2	127	G
1	2	129	U
1	2	130	C
1	2	131	C
1	2	132	U
1	2	134	U
1	2	135	A
1	2	138	A
1	2	140	A
1	2	141	U
1	2	142	G
1	2	153	G
1	2	158	U
1	2	168	A
1	2	171	A

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Mol	Chain	Res	Type
1	2	172	C
1	2	176	C
1	2	178	U
1	2	182	A
1	2	185	U
1	2	186	C
1	2	191	C
1	2	192	U
1	2	193	U
1	2	194	U
1	2	195	G
1	2	204	G
1	2	216	U
1	2	217	A
1	2	218	A
1	2	224	C
1	2	225	A
1	2	227	U
1	2	228	G
1	2	230	C
1	2	232	U
1	2	233	C
1	2	234	G
1	2	238	U
1	2	240	U
1	2	241	U
1	2	250	C
1	2	260	U
1	2	261	U
1	2	265	A
1	2	272	U
1	2	276	C
1	2	277	U
1	2	278	U
1	2	279	G
1	2	280	U
1	2	281	G
1	2	287	G
1	2	299	A
1	2	313	U
1	2	314	C
1	2	316	A

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Mol	Chain	Res	Type
1	2	321	C
1	2	322	G
1	2	323	A
1	2	337	G
1	2	338	C
1	2	352	A
1	2	353	A
1	2	359	A
1	2	361	C
1	2	369	A
1	2	370	A
1	2	388	G
1	2	400	A
1	2	401	A
1	2	402	C
1	2	404	G
1	2	417	A
1	2	423	G
1	2	424	C
1	2	425	A
1	2	426	G
1	2	435	C
1	2	439	U
1	2	444	C
1	2	446	A
1	2	448	C
1	2	460	A
1	2	482	U
1	2	483	A
1	2	485	A
1	2	487	G
1	2	492	A
1	2	493	U
1	2	494	U
1	2	496	G
1	2	498	G
1	2	499	U
1	2	500	C
1	2	502	U
1	2	506	A
1	2	510	G
1	2	511	A

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Mol	Chain	Res	Type
1	2	517	U
1	2	518	A
1	2	534	A
1	2	538	A
1	2	540	G
1	2	541	A
1	2	542	A
1	2	543	C
1	2	554	C
1	2	555	A
1	2	556	A
1	2	557	G
1	2	558	U
1	2	565	C
1	2	568	G
1	2	578	U
1	2	579	A
1	2	594	A
1	2	595	G
1	2	609	U
1	2	610	G
1	2	611	U
1	2	617	U
1	2	619	A
1	2	620	A
1	2	622	A
1	2	623	A
1	2	624	G
1	2	638	U
1	2	639	U
1	2	640	U
1	2	643	G
1	2	645	C
1	2	651	G
1	2	653	C
1	2	654	C
1	2	655	G
1	2	656	G
1	2	677	G
1	2	678	A
1	2	680	U
1	2	681	U

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Mol	Chain	Res	Type
1	2	684	A
1	2	687	G
1	2	694	U
1	2	696	C
1	2	697	C
1	2	698	U
1	2	700	C
1	2	702	G
1	2	703	G
1	2	704	C
1	2	705	U
1	2	706	A
1	2	707	A
1	2	708	C
1	2	709	C
1	2	710	U
1	2	711	U
1	2	712	G
1	2	713	A
1	2	728	U
1	2	730	G
1	2	732	G
1	2	733	A
1	2	734	A
1	2	736	C
1	2	738	G
1	2	741	C
1	2	742	U
1	2	743	U
1	2	756	A
1	2	765	G
1	2	766	U
1	2	767	U
1	2	774	A
1	2	775	G
1	2	778	G
1	2	781	U
1	2	782	U
1	2	783	G
1	2	787	G
1	2	789	A
1	2	807	A

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Mol	Chain	Res	Type
1	2	812	A
1	2	813	U
1	2	814	A
1	2	815	G
1	2	816	G
1	2	819	G
1	2	820	U
1	2	821	U
1	2	823	G
1	2	833	U
1	2	836	U
1	2	837	G
1	2	839	U
1	2	840	U
1	2	841	U
1	2	846	G
1	2	852	C
1	2	856	A
1	2	857	U
1	2	863	A
1	2	864	U
1	2	873	U
1	2	881	A
1	2	886	U
1	2	898	A
1	2	899	G
1	2	901	G
1	2	902	G
1	2	912	U
1	2	913	G
1	2	929	A
1	2	933	A
1	2	934	C
1	2	935	U
1	2	942	G
1	2	966	A
1	2	970	A
1	2	988	A
1	2	989	U
1	2	992	A
1	2	1004	U
1	2	1024	U

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Mol	Chain	Res	Type
1	2	1026	A
1	2	1028	C
1	2	1039	A
1	2	1052	U
1	2	1053	G
1	2	1058	U
1	2	1059	U
1	2	1060	U
1	2	1061	A
1	2	1062	A
1	2	1074	G
1	2	1076	A
1	2	1080	U
1	2	1081	A
1	2	1082	C
1	2	1092	A
1	2	1096	C
1	2	1100	G
1	2	1138	A
1	2	1158	C
1	2	1160	A
1	2	1164	G
1	2	1167	G
1	2	1170	G
1	2	1185	U
1	2	1186	U
1	2	1194	A
1	2	1199	G
1	2	1200	G
1	2	1208	A
1	2	1212	G
1	2	1217	A
1	2	1218	G
1	2	1227	A
1	2	1229	G
1	2	1241	G
1	2	1243	G
1	2	1244	A
1	2	1245	G
1	2	1246	C
1	2	1256	A
1	2	1257	U

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Mol	Chain	Res	Type
1	2	1274	C
1	2	1275	A
1	2	1276	U
1	2	1285	U
1	2	1301	U
1	2	1307	U
1	2	1314	U
1	2	1315	U
1	2	1321	A
1	2	1322	A
1	2	1325	A
1	2	1337	A
1	2	1341	A
1	2	1344	A
1	2	1345	A
1	2	1346	A
1	2	1348	A
1	2	1349	G
1	2	1361	U
1	2	1363	U
1	2	1364	G
1	2	1367	G
1	2	1370	U
1	2	1371	A
1	2	1372	U
1	2	1373	C
1	2	1382	A
1	2	1383	G
1	2	1389	C
1	2	1390	U
1	2	1398	U
1	2	1399	C
1	2	1400	A
1	2	1402	G
1	2	1407	U
1	2	1408	G
1	2	1414	U
1	2	1415	U
1	2	1427	A
1	2	1431	C
1	2	1432	U
1	2	1433	G

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Mol	Chain	Res	Type
1	2	1436	A
1	2	1445	G
1	2	1446	A
1	2	1459	C
1	2	1460	A
1	2	1469	A
1	2	1471	A
1	2	1472	C
1	2	1491	U
1	2	1493	A
1	2	1496	U
1	2	1514	U
1	2	1516	A
1	2	1517	U
1	2	1518	C
1	2	1521	G
1	2	1523	G
1	2	1524	A
1	2	1528	U
1	2	1531	G
1	2	1537	C
1	2	1540	G
1	2	1542	G
1	2	1543	A
1	2	1545	A
1	2	1556	A
1	2	1557	U
1	2	1558	U
1	2	1559	A
1	2	1573	A
1	2	1574	G
1	2	1575	G
1	2	1583	A
1	2	1585	U
1	2	1601	G
1	2	1611	A
1	2	1614	A
1	2	1631	A
1	2	1634	C
1	2	1635	A
1	2	1637	C
1	2	1657	U

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Mol	Chain	Res	Type
1	2	1658	G
1	2	1682	U
1	2	1689	A
1	2	1693	A
1	2	1700	C
1	2	1701	A
1	2	1708	U
1	2	1709	C
1	2	1715	G
1	2	1717	G
1	2	1736	G
1	2	1754	A
1	2	1755	A
1	2	1757	G
1	2	1762	A
1	2	1766	A
1	2	1767	G
1	2	1769	U
1	2	1770	U
1	2	1780	G
1	2	1782	A
1	2	1783	C
1	2	1792	G
1	2	1793	G
1	2	1794	A
1	2	1796	C
1	2	1799	U
35	s	10	G
35	s	13	U
35	s	15	G
35	s	19	G
35	s	20	U
35	s	21	U
35	s	22	A
35	s	25	A
35	s	27	G
35	s	28	U
35	s	29	U
35	s	31	G
35	s	33	C
35	s	36	A
35	s	37	C

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Mol	Chain	Res	Type
35	s	41	C
35	s	42	G
35	s	45	A
35	s	46	G
35	s	47	G
35	s	48	U
35	s	49	C
35	s	50	C
35	s	54	G
35	s	56	U
35	s	59	A
35	s	60	A
35	s	62	C
35	s	72	A
35	s	75	C
35	s	76	C
36	t	2	G
36	t	9	G
36	t	14	A
36	t	16	U
36	t	18	G
36	t	19	G
36	t	21	A
36	t	42	U
36	t	46	G
36	t	47	U
36	t	48	C
36	t	53	G
36	t	59	A
36	t	61	C
36	t	63	G
36	t	64	A
36	t	69	C
36	t	76	A
37	B	7	G
37	B	26	C
37	B	53	U
37	B	54	U
37	B	55	A
37	B	65	G
37	B	76	A
37	B	102	A

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Mol	Chain	Res	Type
37	B	112	G
38	C	16	G
38	C	23	U
38	C	34	U
38	C	35	C
38	C	39	G
38	C	59	A
38	C	62	C
38	C	63	G
38	C	80	A
38	C	81	U
38	C	82	U
38	C	83	C
38	C	84	C
38	C	86	U
38	C	87	G
38	C	90	U
38	C	95	G
38	C	104	A
38	C	106	C
38	C	111	A
38	C	112	U
38	C	113	U
38	C	116	G
38	C	125	U
38	C	126	A
38	C	158	U
41	A	16	A
41	A	26	A
41	A	30	G
41	A	40	A
41	A	43	A
41	A	49	A
41	A	57	A
41	A	59	G
41	A	60	A
41	A	65	A
41	A	66	A
41	A	67	A
41	A	72	C
41	A	75	G
41	A	77	A

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Mol	Chain	Res	Type
41	A	85	A
41	A	92	G
41	A	99	A
41	A	109	A
41	A	110	G
41	A	111	C
41	A	116	A
41	A	117	U
41	A	118	U
41	A	122	A
41	A	135	C
41	A	136	G
41	A	148	G
41	A	156	G
41	A	157	A
41	A	172	G
41	A	173	G
41	A	190	U
41	A	191	U
41	A	219	A
41	A	231	G
41	A	240	U
41	A	243	G
41	A	245	U
41	A	252	U
41	A	263	C
41	A	269	G
41	A	286	U
41	A	295	A
41	A	305	U
41	A	315	C
41	A	323	A
41	A	329	U
41	A	346	C
41	A	376	G
41	A	398	A
41	A	401	U
41	A	402	A
41	A	403	C
41	A	420	G
41	A	421	G
41	A	422	A

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Mol	Chain	Res	Type
41	A	490	A
41	A	491	C
41	A	492	U
41	A	518	G
41	A	521	A
41	A	530	G
41	A	531	G
41	A	533	A
41	A	547	G
41	A	555	U
41	A	557	A
41	A	558	U
41	A	559	A
41	A	589	A
41	A	601	U
41	A	602	A
41	A	611	A
41	A	636	C
41	A	649	A
41	A	667	C
41	A	677	A
41	A	678	G
41	A	681	U
41	A	690	A
41	A	691	A
41	A	705	A
41	A	758	C
41	A	761	A
41	A	766	U
41	A	767	U
41	A	780	A
41	A	781	G
41	A	785	G
41	A	786	A
41	A	799	G
41	A	817	A
41	A	830	A
41	A	836	A
41	A	846	A
41	A	848	A
41	A	849	C
41	A	857	G

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Mol	Chain	Res	Type
41	A	861	C
41	A	874	U
41	A	879	U
41	A	880	G
41	A	896	A
41	A	907	G
41	A	908	G
41	A	914	A
41	A	916	G
41	A	917	A
41	A	921	A
41	A	937	G
41	A	938	C
41	A	944	C
41	A	960	U
41	A	974	G
41	A	977	C
41	A	979	U
41	A	980	A
41	A	1016	C
41	A	1018	G
41	A	1020	G
41	A	1021	G
41	A	1022	U
41	A	1032	C
41	A	1037	C
41	A	1047	A
41	A	1063	G
41	A	1064	A
41	A	1072	G
41	A	1081	U
41	A	1082	U
41	A	1087	G
41	A	1093	A
41	A	1094	U
41	A	1096	U
41	A	1097	G
41	A	1098	A
41	A	1103	A
41	A	1117	G
41	A	1131	G
41	A	1143	A

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Mol	Chain	Res	Type
41	A	1153	A
41	A	1159	A
41	A	1178	G
41	A	1179	A
41	A	1180	A
41	A	1181	U
41	A	1182	A
41	A	1193	A
41	A	1196	C
41	A	1201	C
41	A	1209	G
41	A	1217	A
41	A	1222	G
41	A	1232	C
41	A	1235	U
41	A	1236	G
41	A	1244	A
41	A	1245	A
41	A	1246	G
41	A	1248	C
41	A	1253	U
41	A	1257	C
41	A	1258	U
41	A	1262	G
41	A	1263	A
41	A	1265	U
41	A	1266	G
41	A	1285	G
41	A	1287	A
41	A	1302	A
41	A	1307	G
41	A	1308	A
41	A	1309	U
41	A	1317	A
41	A	1330	A
41	A	1331	U
41	A	1348	U
41	A	1349	G
41	A	1350	A
41	A	1352	A
41	A	1353	U
41	A	1355	A

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Mol	Chain	Res	Type
41	A	1357	G
41	A	1386	A
41	A	1392	G
41	A	1399	A
41	A	1400	G
41	A	1417	G
41	A	1418	A
41	A	1425	U
41	A	1434	G
41	A	1437	C
41	A	1446	A
41	A	1483	G
41	A	1495	U
41	A	1496	C
41	A	1503	A
41	A	1507	G
41	A	1508	C
41	A	1556	C
41	A	1557	A
41	A	1560	G
41	A	1561	G
41	A	1562	C
41	A	1563	C
41	A	1564	U
41	A	1567	U
41	A	1569	U
41	A	1570	U
41	A	1571	A
41	A	1573	G
41	A	1576	G
41	A	1578	C
41	A	1579	C
41	A	1581	C
41	A	1582	C
41	A	1583	A
41	A	1589	A
41	A	1593	A
41	A	1594	A
41	A	1605	A
41	A	1630	U
41	A	1643	A
41	A	1645	U

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Mol	Chain	Res	Type
41	A	1657	C
41	A	1694	U
41	A	1713	G
41	A	1724	U
41	A	1740	U
41	A	1741	A
41	A	1750	A
41	A	1751	G
41	A	1759	C
41	A	1762	C
41	A	1763	U
41	A	1765	U
41	A	1767	C
41	A	1769	G
41	A	1773	C
41	A	1796	G
41	A	1797	A
41	A	1808	G
41	A	1812	G
41	A	1815	U
41	A	1816	A
41	A	1820	U
41	A	1821	U
41	A	1840	U
41	A	1842	A
41	A	1866	C
41	A	1878	G
41	A	1879	A
41	A	1880	U
41	A	1906	G
41	A	1952	G
41	A	2093	A
41	A	2096	A
41	A	2101	C
41	A	2102	U
41	A	2111	G
41	A	2112	U
41	A	2114	C
41	A	2122	G
41	A	2131	A
41	A	2158	A
41	A	2167	A

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Mol	Chain	Res	Type
41	A	2169	G
41	A	2170	U
41	A	2188	A
41	A	2194	G
41	A	2205	U
41	A	2206	G
41	A	2223	A
41	A	2244	A
41	A	2249	G
41	A	2251	G
41	A	2253	G
41	A	2256	A
41	A	2257	C
41	A	2261	G
41	A	2268	U
41	A	2270	A
41	A	2273	G
41	A	2274	U
41	A	2281	A
41	A	2306	C
41	A	2307	G
41	A	2310	U
41	A	2315	G
41	A	2319	U
41	A	2320	A
41	A	2335	G
41	A	2336	U
41	A	2339	C
41	A	2340	U
41	A	2372	A
41	A	2373	A
41	A	2374	C
41	A	2375	G
41	A	2376	G
41	A	2388	U
41	A	2393	G
41	A	2394	G
41	A	2397	A
41	A	2402	A
41	A	2403	G
41	A	2404	A
41	A	2411	U

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Mol	Chain	Res	Type
41	A	2418	G
41	A	2436	U
41	A	2437	G
41	A	2438	A
41	A	2439	A
41	A	2440	G
41	A	2441	A
41	A	2442	G
41	A	2444	C
41	A	2445	A
41	A	2453	U
41	A	2454	G
41	A	2455	U
41	A	2456	A
41	A	2457	G
41	A	2458	A
41	A	2459	A
41	A	2461	A
41	A	2462	A
41	A	2463	G
41	A	2468	A
41	A	2469	G
41	A	2471	U
41	A	2474	G
41	A	2477	G
41	A	2480	A
41	A	2484	A
41	A	2487	U
41	A	2488	A
41	A	2489	C
41	A	2491	A
41	A	2492	C
41	A	2493	U
41	A	2494	A
41	A	2495	C
41	A	2499	U
41	A	2501	U
41	A	2502	A
41	A	2504	U
41	A	2505	U
41	A	2507	C
41	A	2508	U

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Mol	Chain	Res	Type
41	A	2509	U
41	A	2511	A
41	A	2514	U
41	A	2515	A
41	A	2522	G
41	A	2523	A
41	A	2526	C
41	A	2533	G
41	A	2534	G
41	A	2535	A
41	A	2540	A
41	A	2541	U
41	A	2547	A
41	A	2549	G
41	A	2552	C
41	A	2557	A
41	A	2560	C
41	A	2561	A
41	A	2570	U
41	A	2571	U
41	A	2585	G
41	A	2593	A
41	A	2600	C
41	A	2606	G
41	A	2607	G
41	A	2614	G
41	A	2617	U
41	A	2652	U
41	A	2656	A
41	A	2657	A
41	A	2672	G
41	A	2674	A
41	A	2677	G
41	A	2678	A
41	A	2689	A
41	A	2696	A
41	A	2704	A
41	A	2712	U
41	A	2713	U
41	A	2728	G
41	A	2729	U
41	A	2737	C

Continued on next page...

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Mol	Chain	Res	Type
41	A	2753	G
41	A	2755	C
41	A	2772	C
41	A	2773	C
41	A	2777	G
41	A	2778	G
41	A	2779	A
41	A	2795	U
41	A	2796	G
41	A	2799	A
41	A	2800	G
41	A	2801	A
41	A	2804	A
41	A	2808	A
41	A	2810	C
41	A	2817	A
41	A	2821	C
41	A	2838	A
41	A	2843	U
41	A	2844	C
41	A	2845	A
41	A	2847	A
41	A	2860	U
41	A	2867	C
41	A	2871	G
41	A	2872	A
41	A	2887	A
41	A	2889	C
41	A	2899	C
41	A	2911	A
41	A	2935	U
41	A	2936	A
41	A	2941	A
41	A	2951	G
41	A	2971	A
41	A	2979	U
41	A	2983	C
41	A	2990	G
41	A	2997	G
41	A	3003	G
41	A	3005	A
41	A	3012	A

Continued on next page...

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Mol	Chain	Res	Type
41	A	3039	C
41	A	3049	A
41	A	3057	U
41	A	3059	G
41	A	3078	U
41	A	3079	U
41	A	3092	C
41	A	3094	A
41	A	3101	G
41	A	3113	A
41	A	3115	C
41	A	3122	A
41	A	3130	A
41	A	3131	U
41	A	3142	A
41	A	3143	C
41	A	3153	U
41	A	3154	C
41	A	3156	U
41	A	3157	U
41	A	3168	A
41	A	3170	A
41	A	3172	A
41	A	3173	G
41	A	3176	G
41	A	3179	U
41	A	3181	C
41	A	3187	A
41	A	3198	U
41	A	3207	U
41	A	3210	A
41	A	3213	A
41	A	3214	U
41	A	3217	C
41	A	3218	A
41	A	3219	G
41	A	3224	G
41	A	3227	A
41	A	3228	C
41	A	3229	G
41	A	3235	C
41	A	3243	A

Continued on next page...

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Mol	Chain	Res	Type
41	A	3244	A
41	A	3247	G
41	A	3260	G
41	A	3268	A
41	A	3270	U
41	A	3271	G
41	A	3273	A
41	A	3276	G
41	A	3277	U
41	A	3278	C
41	A	3279	A
41	A	3281	U
41	A	3304	U
41	A	3313	U
41	A	3316	A
41	A	3319	U
41	A	3334	U
41	A	3335	A
41	A	3341	U
41	A	3350	C
41	A	3351	U
41	A	3352	U
41	A	3353	G
41	A	3368	U
41	A	3369	G
41	A	3375	A
41	A	3378	C
41	A	3382	U
41	A	3390	G

All (51) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	2	68	A
1	2	77	U
1	2	139	C
1	2	141	U
1	2	215	A
1	2	224	C
1	2	237	C
1	2	278	U
1	2	313	U

Continued on next page...

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Mol	Chain	Res	Type
1	2	322	G
1	2	352	A
1	2	387	A
1	2	400	A
1	2	539	G
1	2	541	A
1	2	554	C
1	2	555	A
1	2	609	U
1	2	639	U
1	2	677	G
1	2	705	U
1	2	711	U
1	2	819	G
1	2	912	U
1	2	928	U
1	2	1023	A
1	2	1226	A
1	2	1245	G
1	2	1256	A
1	2	1273	G
1	2	1274	C
1	2	1344	A
1	2	1382	A
1	2	1430	U
1	2	1471	A
1	2	1557	U
1	2	1573	A
1	2	1584	G
1	2	1633	A
1	2	1636	C
37	B	52	G
38	C	85	G
41	A	916	G
41	A	1264	G
41	A	1820	U
41	A	2193	U
41	A	2255	A
41	A	2339	C
41	A	2533	G
41	A	3004	C
41	A	3121	U

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

There are no ligands in this entry.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

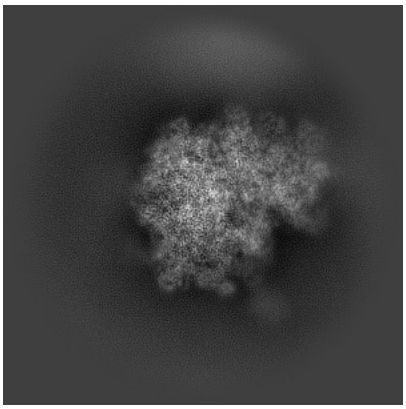
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-38656. These allow visual inspection of the internal detail of the map and identification of artifacts.

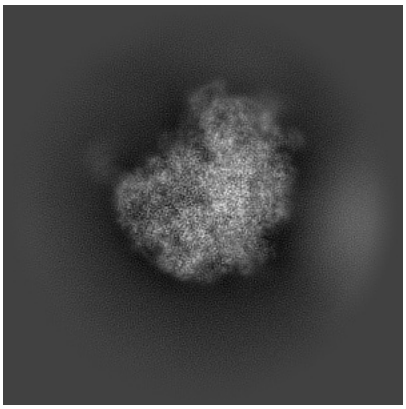
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

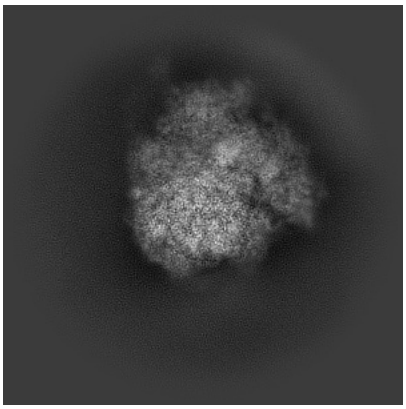
6.1.1 Primary map



X

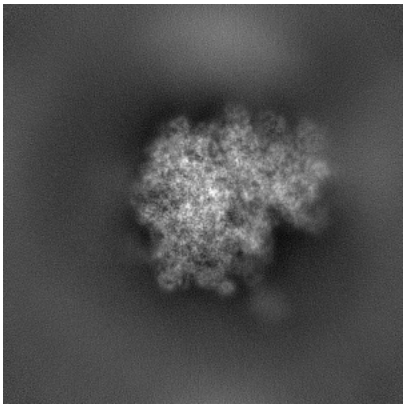


Y

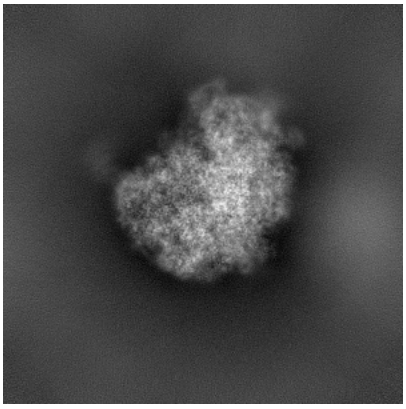


Z

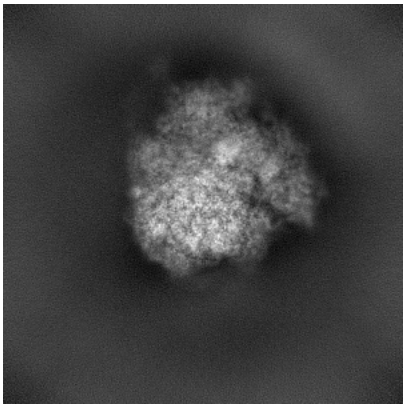
6.1.2 Raw map



X



Y

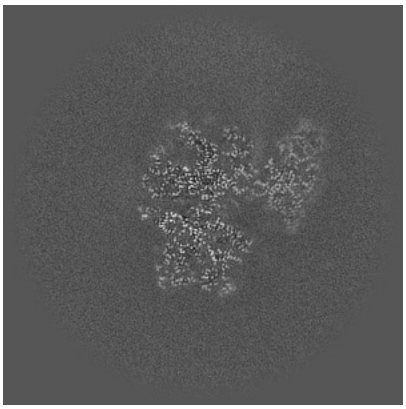


Z

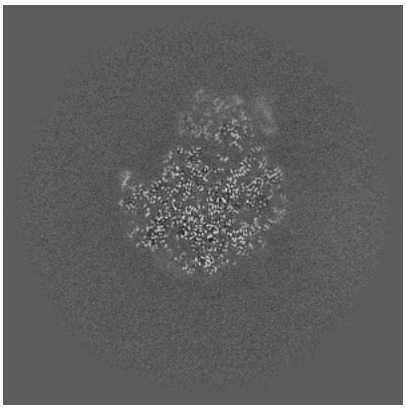
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

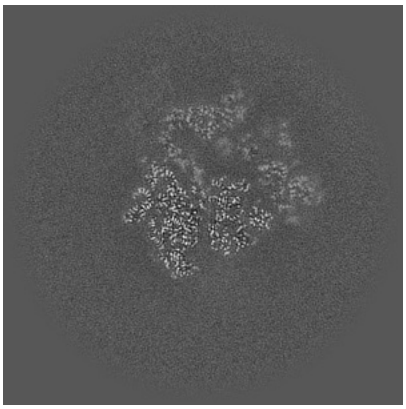
6.2.1 Primary map



X Index: 200

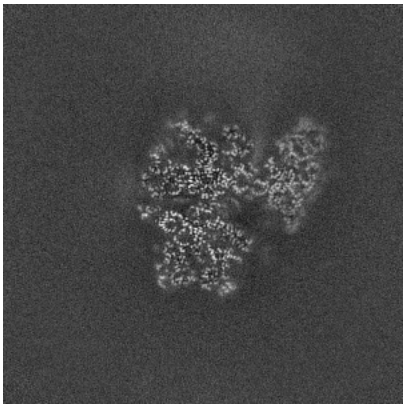


Y Index: 200

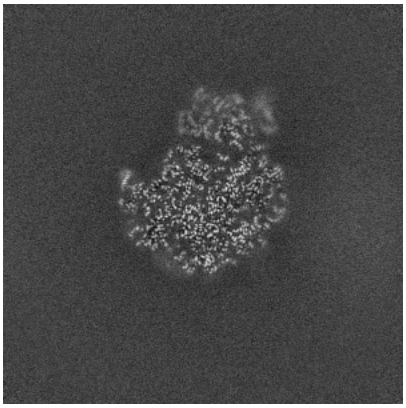


Z Index: 200

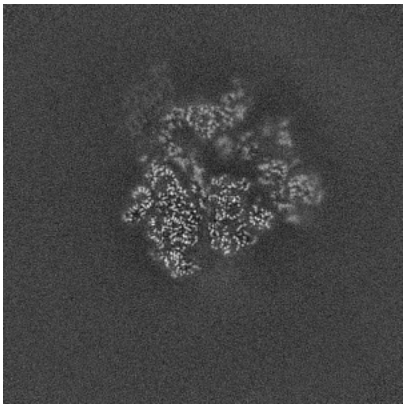
6.2.2 Raw map



X Index: 200



Y Index: 200

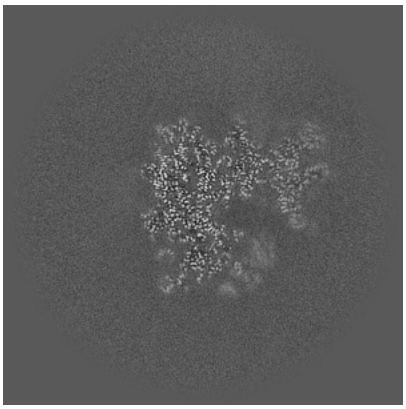


Z Index: 200

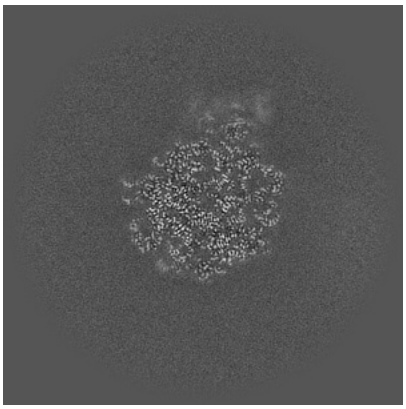
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

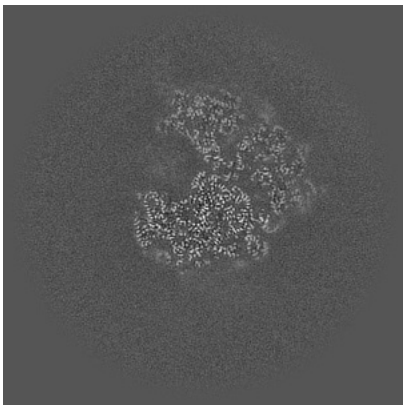
6.3.1 Primary map



X Index: 212

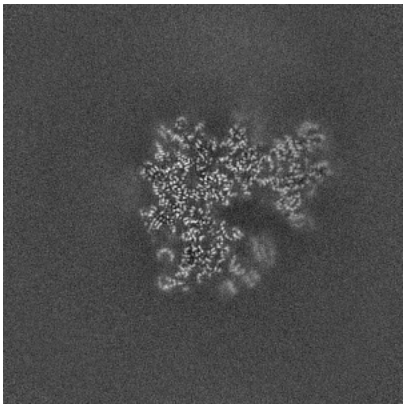


Y Index: 192

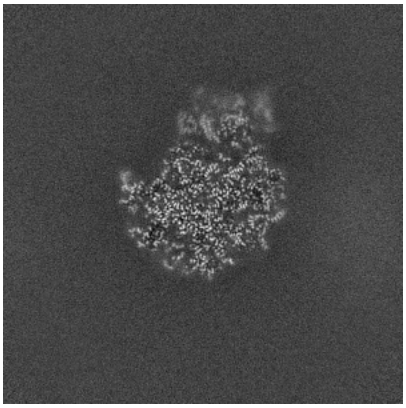


Z Index: 222

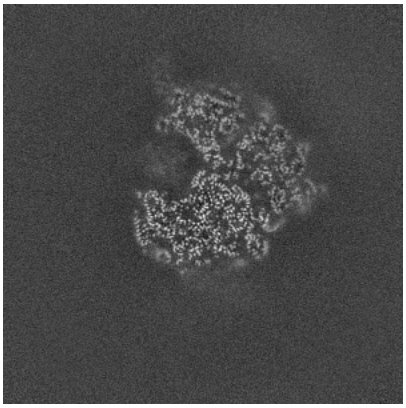
6.3.2 Raw map



X Index: 210



Y Index: 198

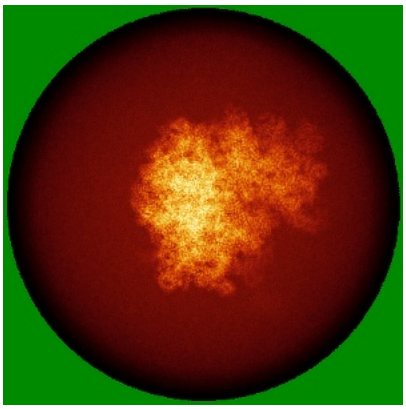


Z Index: 222

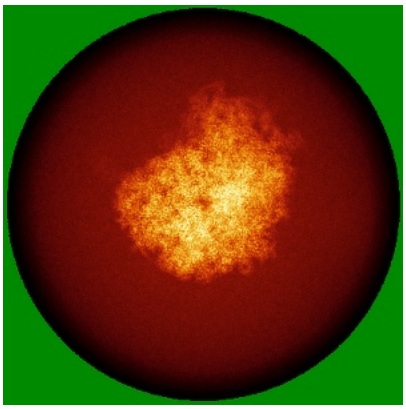
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) (i)

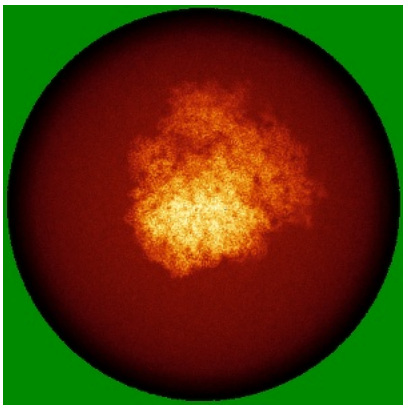
6.4.1 Primary map



X

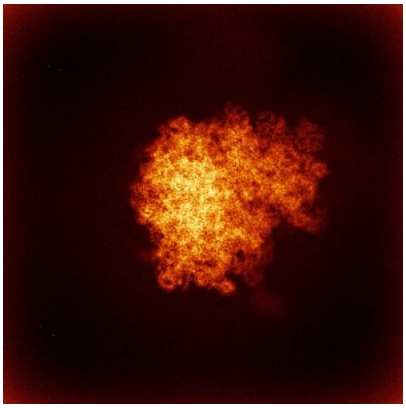


Y

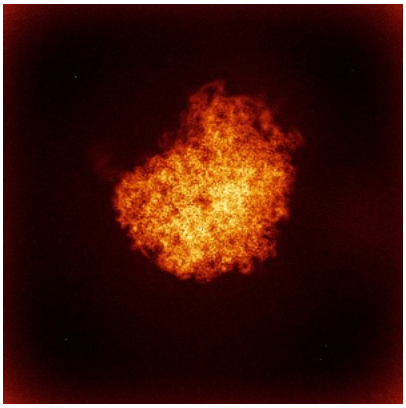


Z

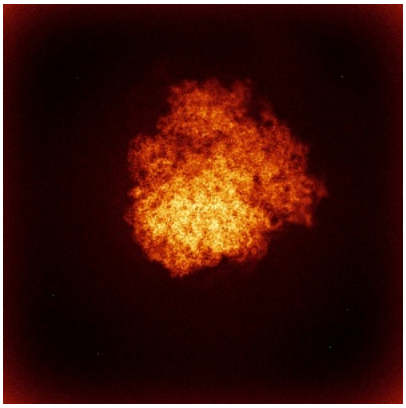
6.4.2 Raw map



X



Y

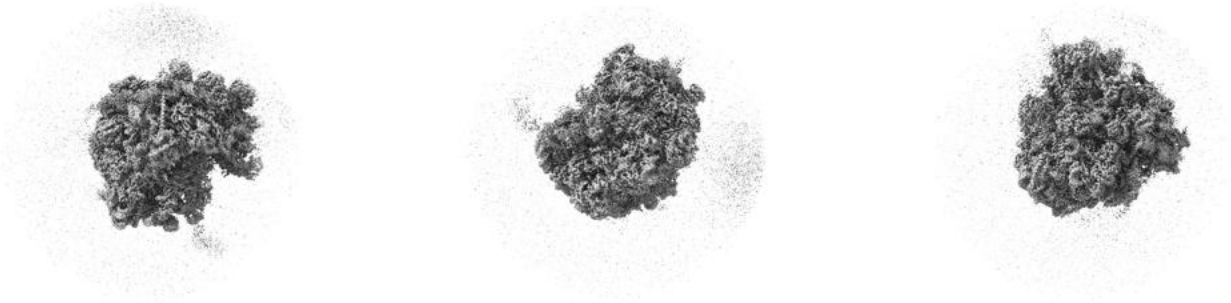


Z

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 0.23. 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.

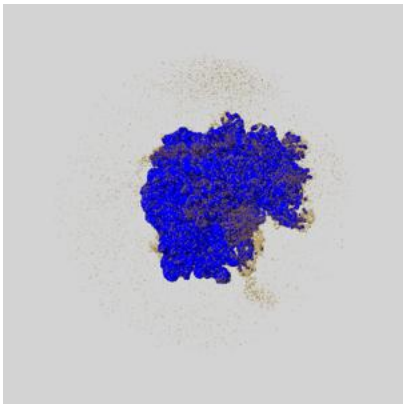
6.6 Mask visualisation

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

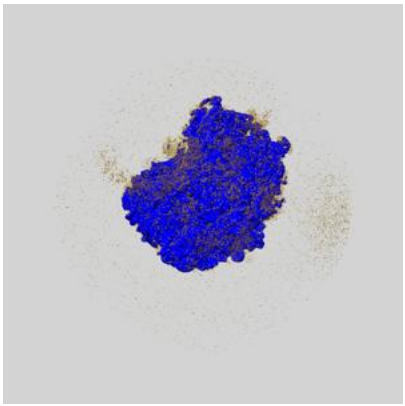
A mask typically either:

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

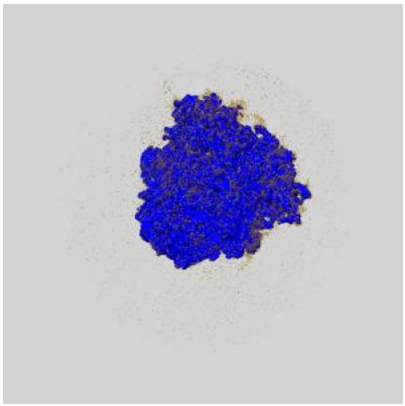
6.6.1 emd_38656_msk_1.map



X



Y

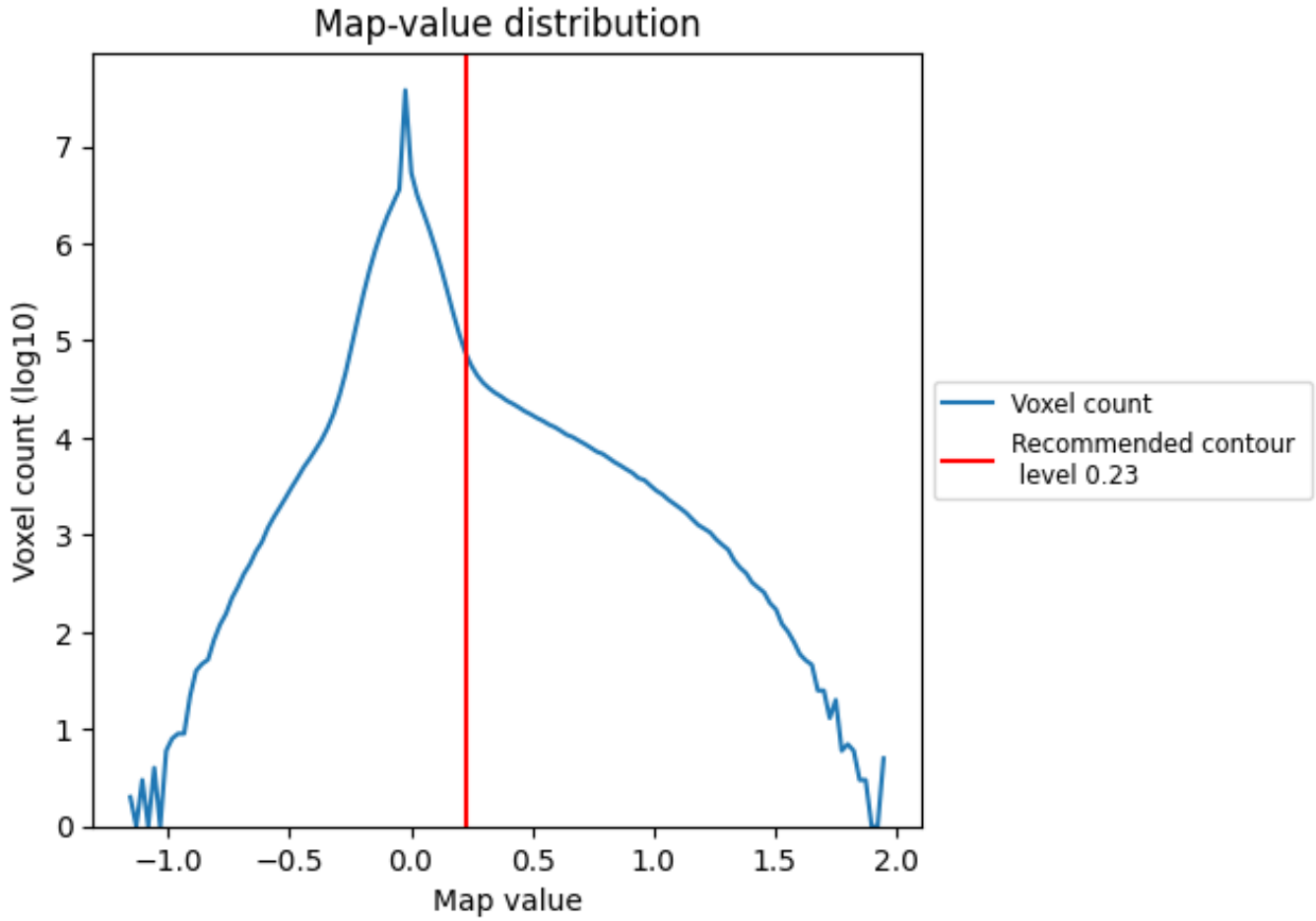


Z

7 Map analysis

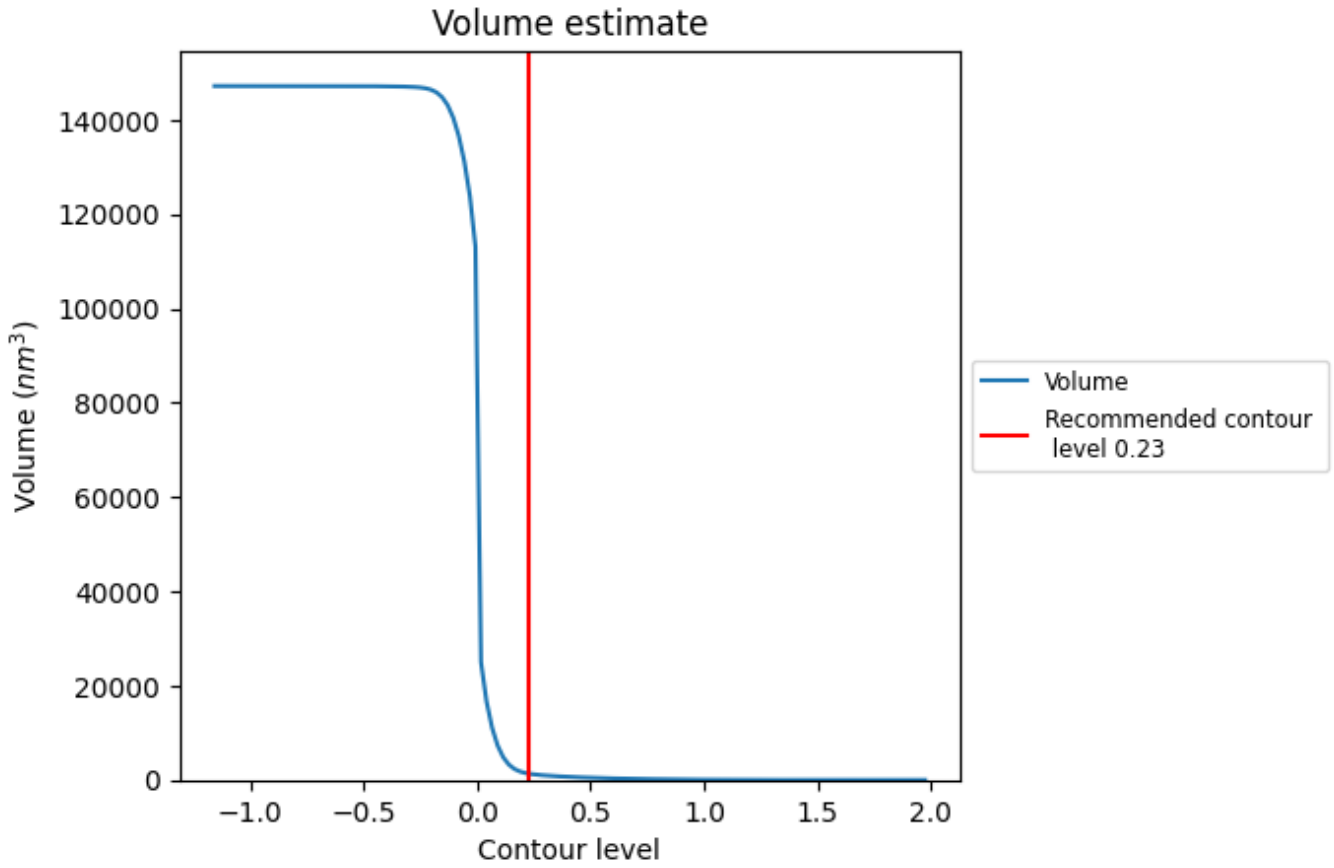
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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.

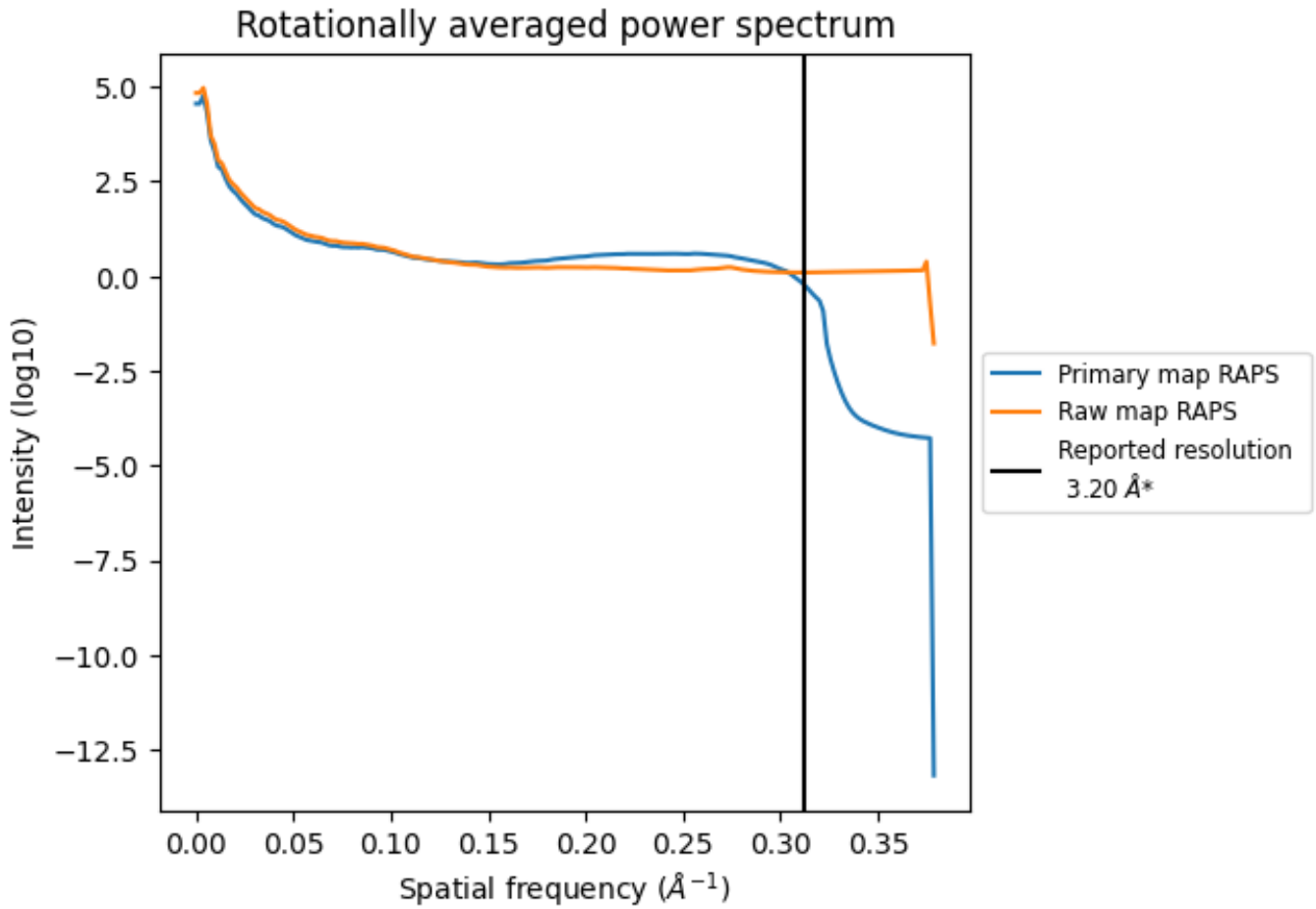
7.2 Volume estimate



The volume at the recommended contour level is 1324 nm^3; this corresponds to an approximate mass of 1196 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 (i)

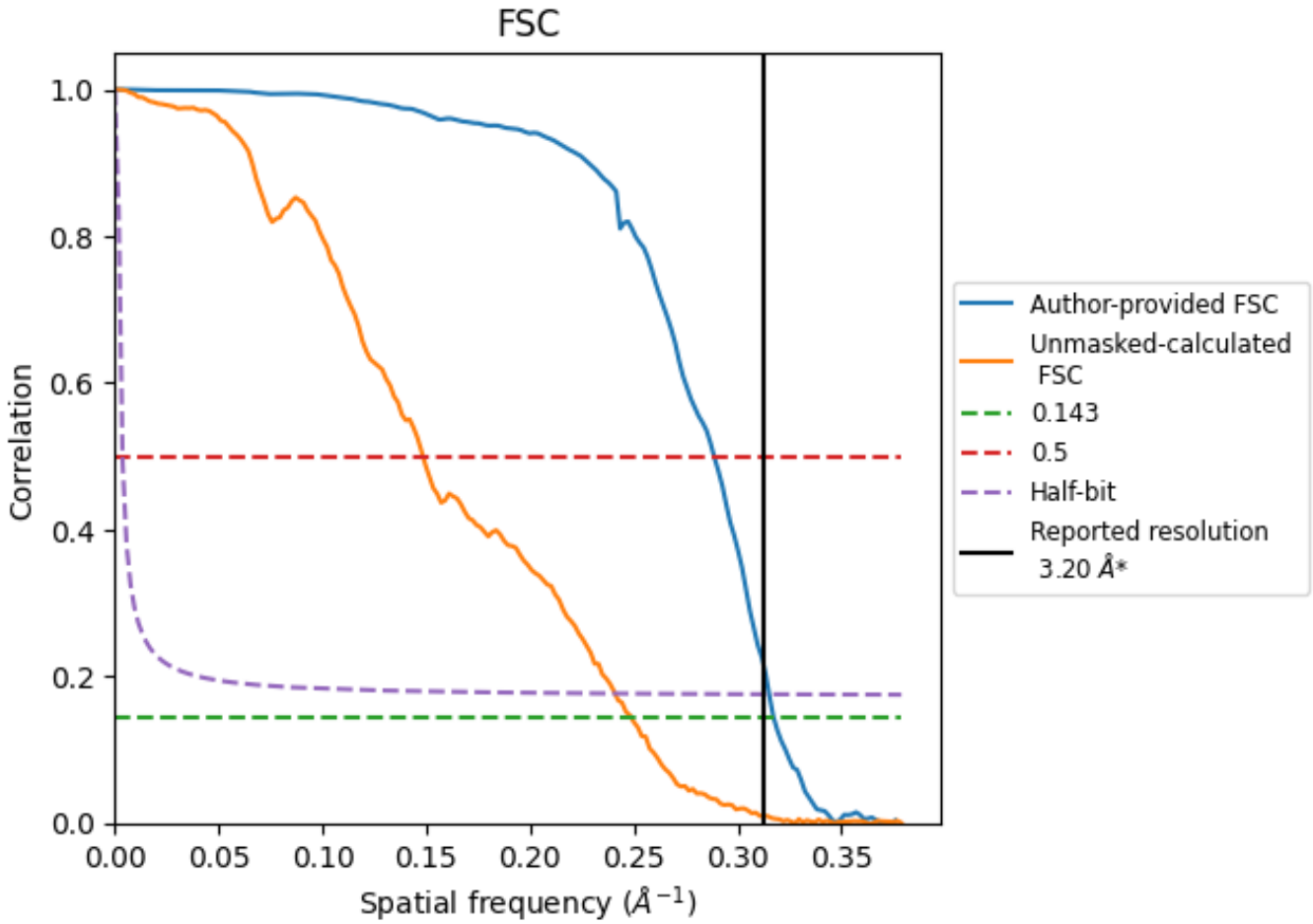


*Reported resolution corresponds to spatial frequency of 0.312 Å^{-1}

8 Fourier-Shell correlation

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



*Reported resolution corresponds to spatial frequency of 0.312 Å^{-1}

8.2 Resolution estimates (i)

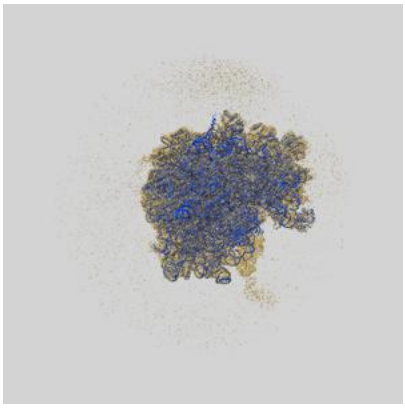
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.20	-	-
Author-provided FSC curve	3.15	3.47	3.17
Unmasked-calculated*	4.02	6.74	4.15

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 4.02 differs from the reported value 3.2 by more than 10 %

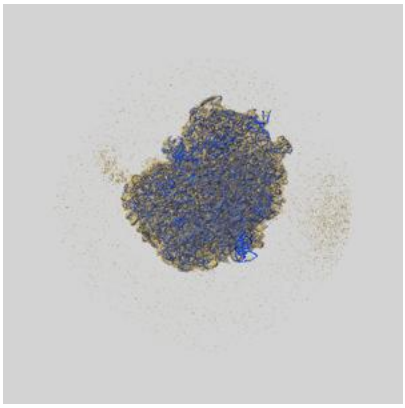
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-38656 and PDB model 8Z70. Per-residue inclusion information can be found in section 3 on page 18.

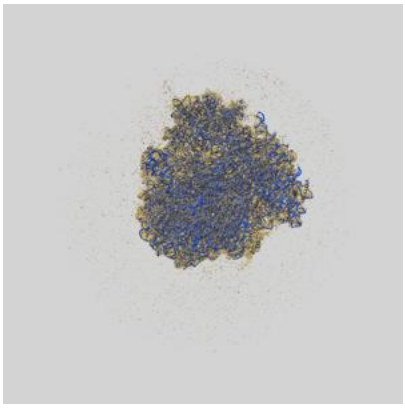
9.1 Map-model overlay



X



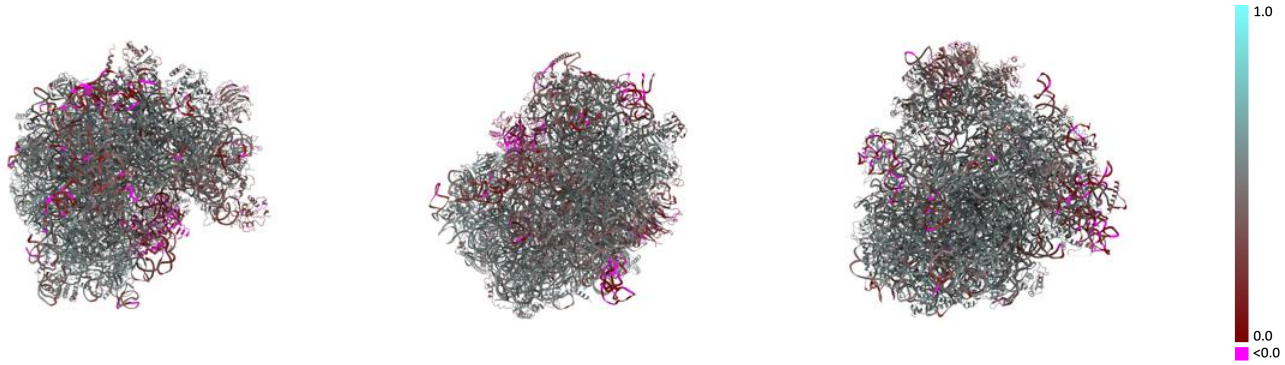
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.23 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.

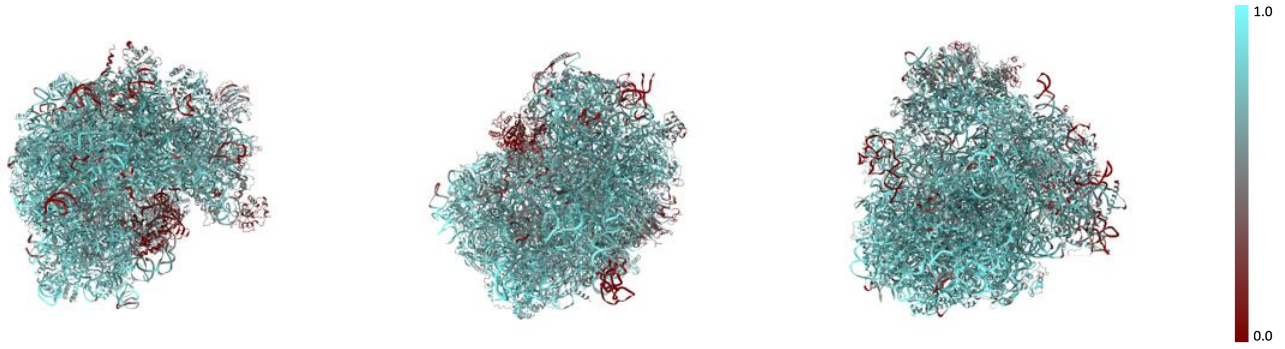
9.2 Q-score mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according 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.

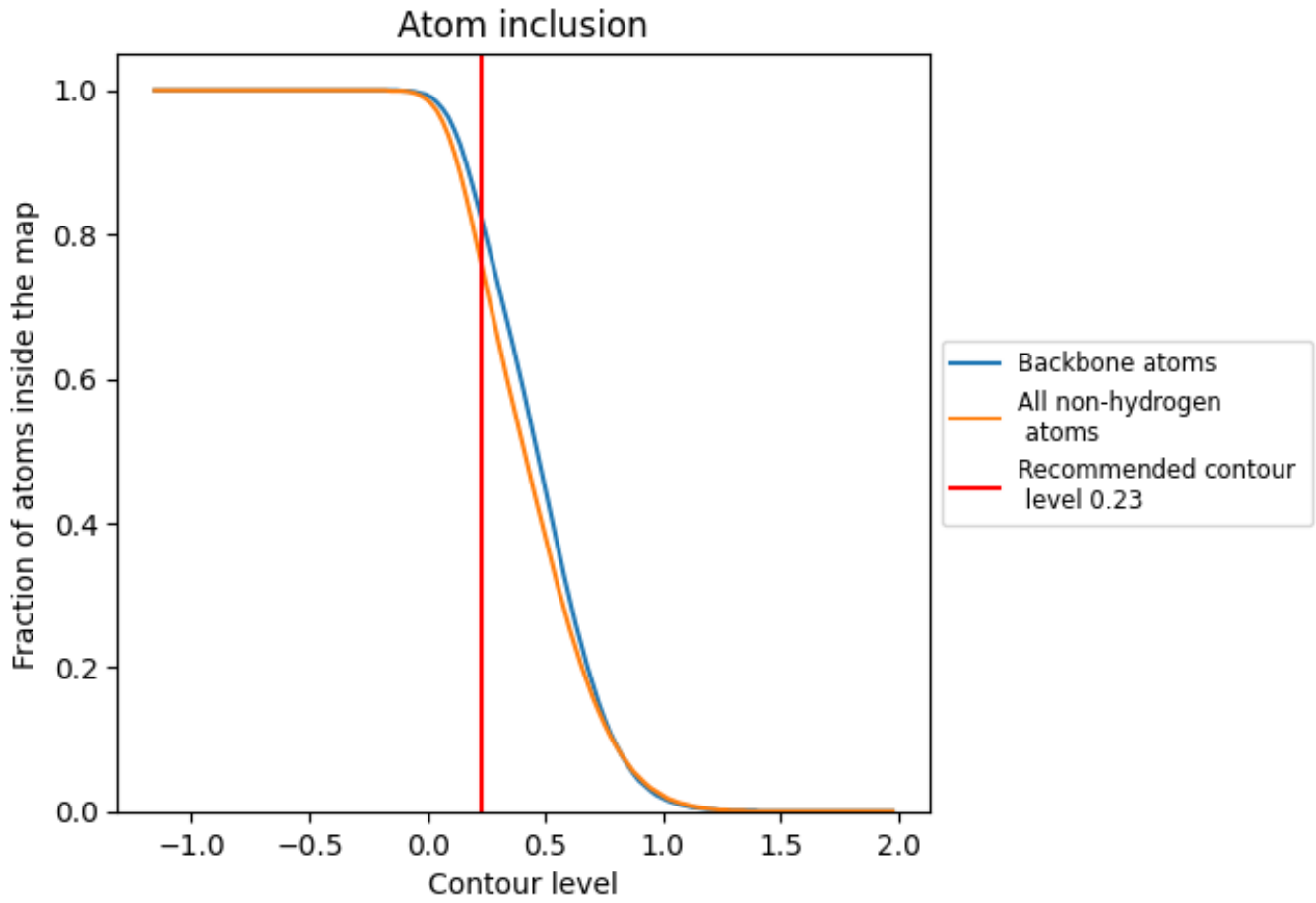
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

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 (0.23).

9.4 Atom inclusion (i)



At the recommended contour level, 82% of all backbone atoms, 76% 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 (0.23) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7570	0.4570
2	0.7740	0.4160
A	0.8320	0.4510
B	0.9270	0.5130
C	0.9060	0.5200
D	0.7950	0.5470
E	0.8110	0.5430
F	0.7970	0.5320
G	0.7380	0.4940
H	0.7340	0.4970
I	0.8050	0.5250
J	0.7440	0.4990
K	0.7590	0.5090
L	0.7350	0.5110
M	0.6970	0.4860
N	0.7930	0.5260
O	0.7840	0.5240
P	0.8390	0.5500
Q	0.8100	0.5270
R	0.7900	0.5350
S	0.8190	0.5440
SA	0.5930	0.4560
SB	0.6340	0.4680
SC	0.5790	0.4090
SD	0.2640	0.2440
SE	0.5580	0.4260
SF	0.6510	0.4540
SG	0.6200	0.4230
SH	0.6240	0.4660
SI	0.6490	0.4460
SJ	0.6060	0.4390
SK	0.4920	0.3650
SL	0.5980	0.4250
SM	0.7540	0.4940
SN	0.3430	0.2980

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Chain	Atom inclusion	Q-score
SO	0.4370	0.2820
SP	0.7180	0.5080
SQ	0.6620	0.4950
SR	0.7270	0.5130
SS	0.6750	0.5030
ST	0.5630	0.4330
SU	0.5800	0.4420
SV	0.7360	0.5090
SW	0.6650	0.4730
SX	0.7250	0.5240
SY	0.7270	0.5210
SZ	0.7480	0.4970
Sa	0.7240	0.5020
Sb	0.7560	0.5250
Sc	0.6940	0.5180
Sd	0.6170	0.4500
Se	0.7530	0.4730
Sf	0.6720	0.4930
Sg	0.5680	0.4580
T	0.7110	0.5150
U	0.7970	0.5410
V	0.7770	0.5300
W	0.6970	0.4600
X	0.7460	0.5340
Y	0.6690	0.4550
Z	0.7610	0.5240
a	0.7900	0.5320
b	0.8060	0.5220
c	0.8270	0.5400
d	0.7570	0.5210
e	0.7590	0.5290
f	0.7420	0.5200
g	0.8220	0.5560
h	0.8360	0.5510
i	0.7740	0.5240
j	0.7890	0.5270
k	0.7630	0.5060
l	0.8630	0.5530
m	0.7160	0.4990
n	0.7950	0.5510
o	0.7750	0.5240
p	0.8170	0.5380

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Chain	Atom inclusion	Q-score
q	0.7590	0.5330
r	0.7650	0.5350
s	0.3400	0.2330
t	0.7550	0.4120
x	0.1090	0.0790