



## wwPDB EM Validation Summary Report ⓘ

Dec 15, 2022 – 05:44 pm GMT

PDB ID : 6XU8  
EMDB ID : EMD-10624  
Title : Drosophila melanogaster Ovary 80S ribosome  
Authors : Hopes, T.; Agapiou, M.; Norris, K.; McCarthy, C.G.P.; OConnell, M.J.;  
Fontana, J.; Aspden, J.L.  
Deposited on : 2020-01-17  
Resolution : 3.00 Å(reported)

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

We welcome your comments at [validation@mail.wwpdb.org](mailto: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>.

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

EMDB validation analysis : 0.0.1.dev43  
MolProbity : 4.02b-467  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : 1.9.9  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.31.3

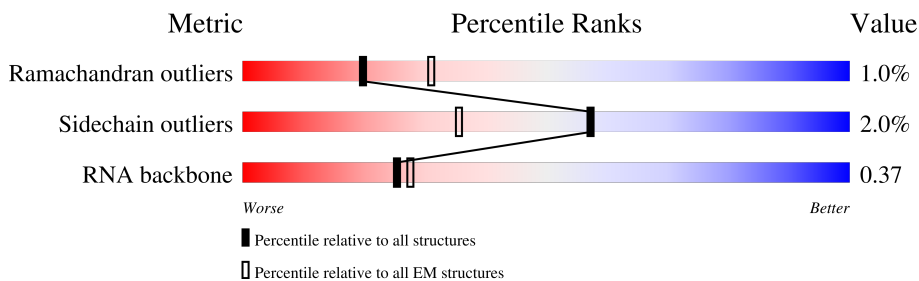
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 3.00 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	154571	4023
Sidechain outliers	154315	3826
RNA backbone	4643	859

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  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion  $< 40\%$ ). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	CO	205	
2	CL	210	
3	CV	134	
4	CM	159	
5	Ca	149	
6	CN	203	
7	CI	217	
8	CD	290	

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Mol	Chain	Length	Quality of chain
9	CQ	187	94% 5% ..
10	CR	203	12% 97% .
11	CA	253	96% .
12	CS	173	85% 14% .
13	CT	158	92% 7% .
14	CP	185	13% 94% 5% .
15	CX	120	95% 5%
16	CY	131	94% 5% .
17	CZ	134	99% .
18	Cr	134	7% 82% 17% .
19	Ch	123	94% 6%
20	Cb	75	88% 11% .
21	CB	414	91% 8%
22	CF	226	95% ..
23	Cc	100	99% .
24	Ce	132	95% ..
25	Cf	157	84% 15% .
26	Ci	113	90% 10%
27	Ck	70	94% ..
28	Cl	50	98% .
29	CC	392	91% 8% .
30	Cm	52	92% 6% .
31	Cn	25	96% .
32	Cp	91	95% 5%
33	Co	104	93% 7%

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Mol	Chain	Length	Quality of chain
34	CJ	182	5% 96% ..
35	CH	190	94% 6%
36	CE	228	9% 84% 14%
37	CG	241	10% 95% 5%
38	A9	30	53% 37% 10%
39	A7	120	51% 42% 8%
40	A8	123	31% 56% 13%
41	Ag	318	68% 97%
42	AU	102	43% 99%
43	AO	127	96%
44	AX	143	6% 97%
45	AM	119	63% 92% 7%
46	Ad	52	10% 98%
47	AN	150	99%
48	AL	155	17% 99%
49	AR	120	55% 98%
50	AP	124	22% 94% 6%
51	AB	220	10% 95% ..
52	AA	218	17% 97%
53	AV	82	23% 96%
54	AY	126	11% 94% 6%
55	AZ	74	54% 89% 11%
56	Aa	107	13% 94% 6%
57	Ab	84	7% 99%
58	AD	227	37% 95% 5%

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Mol	Chain	Length	Quality of chain
59	Ae	58	33% 95% 5%
60	Af	80	52% 85% 15%
61	AJ	181	8% 97% ..
62	AE	261	5% 97% .
63	AC	227	11% 97% .
64	AG	231	18% 97% .
65	AH	194	21% 95% 5%
66	AI	207	17% 96% .
67	AQ	148	42% 92% 8%
68	Cz	217	99% 95% 5%
69	A5	3703	6% 37% 46% 17%
70	B2	1936	11% 63% 34% .
71	AW	129	. 99% .
72	AT	126	18% 94% 6%
73	AK	90	7% 97% .
74	AF	189	53% 95% 5%
75	Ac	62	24% 92% 8%
76	CU	99	6% 96% .
77	Cj	87	99% .
78	CW	60	97% .
79	Cg	103	91% 8% .
80	Cd	107	93% 7%
81	AS	136	18% 97% .

## 2 Entry composition [i](#)

There are 81 unique types of molecules in this entry. The entry contains 216955 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called 60S ribosomal protein L13a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	CO	205	1668	1063	331	268	6	0	0

- Molecule 2 is a protein called 60S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	CL	210	1695	1066	342	284	3	0	0

- Molecule 3 is a protein called 60S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	CV	134	998	629	190	173	6	0	0

- Molecule 4 is a protein called 60S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	CM	159	1302	826	256	218	2	0	0

- Molecule 5 is a protein called 60S ribosomal protein L27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	Ca	149	1204	769	242	189	4	0	0

- Molecule 6 is a protein called 60S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	CN	203	1710	1072	362	271	5	0	0

- Molecule 7 is a protein called 60S ribosomal protein L10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	CI	217	1785	1125	343	304	13	0	0

- Molecule 8 is a protein called 60S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	CD	290	2334	1471	434	423	6	0	0

- Molecule 9 is a protein called 60S ribosomal protein L18.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	CQ	187	1518	957	306	251	4	0	0

- Molecule 10 is a protein called 60S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	CR	203	1683	1047	350	277	9	0	0

- Molecule 11 is a protein called 60S ribosomal protein L8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	CA	253	1935	1206	395	326	8	0	0

- Molecule 12 is a protein called 60S ribosomal protein L18a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	CS	173	1454	935	275	240	4	0	0

- Molecule 13 is a protein called RE62581p.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	CT	158	1297	829	253	212	3	0	0

- Molecule 14 is a protein called 60S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	CP	185	Total	C	N	O	S	0	0
			1505	928	305	263	9		

- Molecule 15 is a protein called IP17216p.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	CX	120	Total	C	N	O	S	0	0
			984	625	192	165	2		

- Molecule 16 is a protein called GEO07453p1.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	CY	131	Total	C	N	O	S	0	0
			1078	676	224	176	2		

- Molecule 17 is a protein called 60S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	CZ	134	Total	C	N	O	S	0	0
			1115	723	209	180	3		

- Molecule 18 is a protein called 60S ribosomal protein L28.

Mol	Chain	Residues	Atoms				AltConf	Trace
18	Cr	134	Total	C	N	O	0	0
			1051	670	205	176		

- Molecule 19 is a protein called FI02809p.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	Ch	123	Total	C	N	O	S	0	0
			1015	646	202	164	3		

- Molecule 20 is a protein called 60S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	Cb	75	Total	C	N	O	S	0	0
			619	378	133	107	1		

- Molecule 21 is a protein called 60S ribosomal protein L3.



Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
21	CB	414	3287	2083	621	565	18	0	0

- Molecule 22 is a protein called 60S ribosomal protein L7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
22	CF	226	1895	1216	368	308	3	0	0

- Molecule 23 is a protein called RE25263p.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
23	Cc	100	770	486	132	147	5	0	0

- Molecule 24 is a protein called 60S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
24	Ce	132	1110	698	230	177	5	0	0

- Molecule 25 is a protein called GEO07455p1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
25	Cf	157	1244	781	255	203	5	0	0

- Molecule 26 is a protein called 60S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
26	Ci	113	934	585	193	153	3	0	0

- Molecule 27 is a protein called 60S ribosomal protein L38.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
27	Ck	70	576	366	108	100	2	0	0

- Molecule 28 is a protein called 60S ribosomal protein L39.

Mol	Chain	Residues	Atoms				AltConf	Trace
28	Cl	50	Total	C	N	O	0	0
			437	276	98	63		

- Molecule 29 is a protein called 60S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	CC	392	Total	C	N	O	S	0	0
			3109	1959	622	522	6		

- Molecule 30 is a protein called Ubiquitin-60S ribosomal protein L40.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	Cm	52	Total	C	N	O	S	0	0
			429	267	89	67	6		

- Molecule 31 is a protein called 60S ribosomal protein L41.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	Cn	25	Total	C	N	O	S	0	0
			236	143	63	27	3		

- Molecule 32 is a protein called 60S ribosomal protein L37a.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	Cp	91	Total	C	N	O	S	0	0
			710	441	140	122	7		

- Molecule 33 is a protein called TA01007p.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	Co	104	Total	C	N	O	S	0	0
			874	548	180	138	8		

- Molecule 34 is a protein called 60S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	CJ	182	Total	C	N	O	S	0	0
			1468	926	278	258	6		

- Molecule 35 is a protein called 60S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	CH	190	Total	C	N	O	S	0	0
			1499	947	265	278	9		

- Molecule 36 is a protein called Ribosomal protein L6, isoform A.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	CE	228	Total	C	N	O	S	0	0
			1845	1185	351	305	4		

- Molecule 37 is a protein called 60S ribosomal protein L7a.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	CG	241	Total	C	N	O	S	0	0
			1936	1237	368	327	4		

- Molecule 38 is a RNA chain called 2S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	A9	30	Total	C	N	O	P	0	0
			639	286	111	213	29		

- Molecule 39 is a RNA chain called 5S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	A7	120	Total	C	N	O	P	0	0
			2554	1141	456	838	119		

- Molecule 40 is a RNA chain called 5.8S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	A8	123	Total	C	N	O	P	0	0
			2621	1173	474	852	122		

- Molecule 41 is a protein called Guanine nucleotide-binding protein subunit beta-like protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	Ag	318	Total	C	N	O	S	0	0
			2511	1577	444	480	10		

- Molecule 42 is a protein called 40S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
42	AU	102	815	505	161	145	4	0	0

- Molecule 43 is a protein called 40S ribosomal protein S14a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
43	AO	127	953	587	185	177	4	0	0

- Molecule 44 is a protein called 40S ribosomal protein S23.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
44	AX	143	1131	712	226	191	2	0	0

- Molecule 45 is a protein called 40S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
45	AM	119	924	582	165	171	6	0	0

- Molecule 46 is a protein called 40S ribosomal protein S29.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
46	Ad	52	433	269	87	72	5	0	0

- Molecule 47 is a protein called 40S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
47	AN	150	1202	767	229	203	3	0	0

- Molecule 48 is a protein called 40S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
48	AL	155	1274	803	254	211	6	0	0

- Molecule 49 is a protein called 40S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	AR	120	Total	C	N	O	S	0	0
			981	618	183	176	4		

- Molecule 50 is a protein called GEO07301p1.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	AP	124	Total	C	N	O	S	0	0
			1016	652	189	169	6		

- Molecule 51 is a protein called 40S ribosomal protein S3a.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	AB	220	Total	C	N	O	S	0	0
			1798	1138	328	324	8		

- Molecule 52 is a protein called 40S ribosomal protein SA.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	AA	218	Total	C	N	O	S	0	0
			1737	1113	298	321	5		

- Molecule 53 is a protein called 40S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	AV	82	Total	C	N	O	S	0	0
			617	373	114	125	5		

There are 13 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
AV	2	GLN	GLU	conflict	UNP O76927
AV	8	PHE	ASN	conflict	UNP O76927
AV	25	GLY	HIS	conflict	UNP O76927
AV	32	ILE	VAL	conflict	UNP O76927
AV	34	MET	LEU	conflict	UNP O76927
AV	35	ASN	SER	conflict	UNP O76927
AV	36	VAL	ILE	conflict	UNP O76927
AV	58	ALA	GLU	conflict	UNP O76927
AV	68	SER	CYS	conflict	UNP O76927
AV	70	LEU	VAL	conflict	UNP O76927
AV	75	ALA	LYS	conflict	UNP O76927
AV	79	VAL	ILE	conflict	UNP O76927

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Chain	Residue	Modelled	Actual	Comment	Reference
AV	80	SER	THR	conflict	UNP O76927

- Molecule 54 is a protein called 40S ribosomal protein S24.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
54	AY	126	1016	644	196	171	5	0	0

- Molecule 55 is a protein called 40S ribosomal protein S25.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
55	AZ	74	608	390	112	106	0	0

- Molecule 56 is a protein called 40S ribosomal protein S26.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
56	Aa	107	867	539	182	140	6	0	0

- Molecule 57 is a protein called 40S ribosomal protein S27.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
57	Ab	84	653	412	123	110	8	0	0

- Molecule 58 is a protein called 40S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
58	AD	227	1782	1127	319	326	10	0	0

- Molecule 59 is a protein called 40S ribosomal protein S30.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
59	Ae	58	469	289	105	75	0	0

- Molecule 60 is a protein called Ubiquitin-40S ribosomal protein S27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
60	Af	80	Total	C	N	O	S	0	0
			659	417	128	109	5		

- Molecule 61 is a protein called 40S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
61	AJ	181	Total	C	N	O	S	0	0
			1503	957	298	247	1		

- Molecule 62 is a protein called 40S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
62	AE	261	Total	C	N	O	S	0	0
			2054	1314	380	353	7		

- Molecule 63 is a protein called 40S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
63	AC	227	Total	C	N	O	S	0	0
			1746	1126	302	311	7		

- Molecule 64 is a protein called 40S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
64	AG	231	Total	C	N	O	S	0	0
			1866	1172	372	315	7		

- Molecule 65 is a protein called 40S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
65	AH	194	Total	C	N	O	S	0	0
			1566	1006	278	281	1		

- Molecule 66 is a protein called 40S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
66	AI	207	Total	C	N	O	S	0	0
			1665	1037	329	296	3		

- Molecule 67 is a protein called 40S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
67	AQ	148	1183	753	223	204	3	0	0

- Molecule 68 is a protein called 60S ribosomal protein L10a-2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
68	Cz	217	1702	1084	303	305	10	0	0

- Molecule 69 is a RNA chain called 28S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
69	A5	3703	77093	34436	13555	25401	3701	0	0

- Molecule 70 is a RNA chain called 18S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
70	B2	1936	39355	17526	6780	13114	1935	0	0

- Molecule 71 is a protein called 40S ribosomal protein S15Aa.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
71	AW	129	1028	656	189	176	7	0	0

- Molecule 72 is a protein called 40S ribosomal protein S19a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
72	AT	126	1000	635	192	170	3	0	0

There are 13 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
AT	?	-	GLU	deletion	UNP P39018
AT	?	-	HIS	deletion	UNP P39018
AT	?	-	ALA	deletion	UNP P39018
AT	?	-	ARG	deletion	UNP P39018
AT	?	-	LEU	deletion	UNP P39018
AT	?	-	VAL	deletion	UNP P39018

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Chain	Residue	Modelled	Actual	Comment	Reference
AT	?	-	GLU	deletion	UNP P39018
AT	?	-	LYS	deletion	UNP P39018
AT	?	-	HIS	deletion	UNP P39018
AT	?	-	PRO	deletion	UNP P39018
AT	?	-	ASP	deletion	UNP P39018
AT	?	-	GLY	deletion	UNP P39018
AT	?	-	GLY	deletion	UNP P39018

- Molecule 73 is a protein called 40S ribosomal protein S10b.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
73	AK	90	760	500	130	127	3	0	0

- Molecule 74 is a protein called 40S ribosomal protein S5b.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
74	AF	189	1481	925	283	266	7	0	0

- Molecule 75 is a protein called 40S ribosomal protein S28.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
75	Ac	62	498	307	100	89	2	0	0

- Molecule 76 is a protein called 60S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
76	CU	99	825	530	144	149	2	0	0

- Molecule 77 is a protein called Probable 60S ribosomal protein L37-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
77	Cj	87	704	430	154	115	5	0	0

- Molecule 78 is a protein called 60S ribosomal protein L24.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
78	CW	60	503	326	95	78	4	0	0

- Molecule 79 is a protein called 60S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
79	Cg	103	844	525	176	138	5	0	0

- Molecule 80 is a protein called 60S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
80	Cd	107	893	556	176	159	2	0	0

- Molecule 81 is a protein called 40S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
81	AS	136	1117	701	216	197	3	0	0

### 3 Residue-property plots [i](#)


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

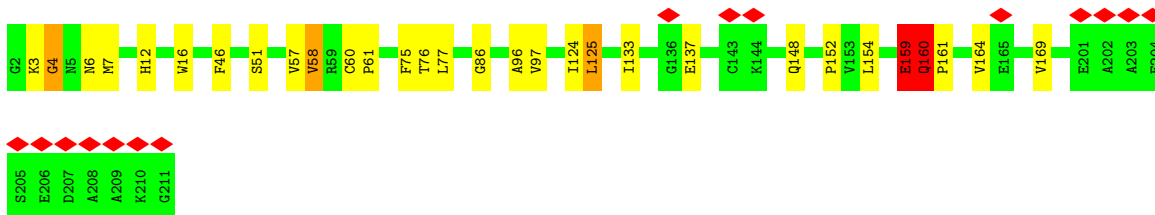
- Molecule 1: 60S ribosomal protein L13a

Chain CO:  94% 5%



- Molecule 2: 60S ribosomal protein L13

Chain CL:  7% 86% 12% ..



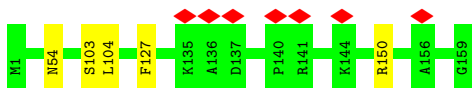
- Molecule 3: 60S ribosomal protein L23

Chain CV:  98% .



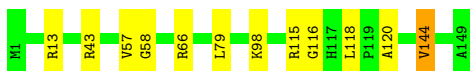
- Molecule 4: 60S ribosomal protein L14

Chain CM:  97% .



- Molecule 5: 60S ribosomal protein L27a

Chain Ca:  92% 7% .



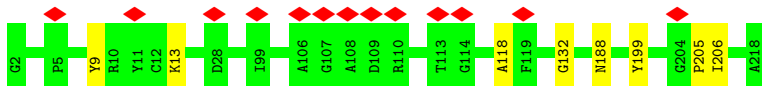
- Molecule 6: 60S ribosomal protein L15

Chain CN: 91% 8%



- Molecule 7: 60S ribosomal protein L10

Chain CI: 6% 96%



- Molecule 8: 60S ribosomal protein L5

Chain CD: 96%



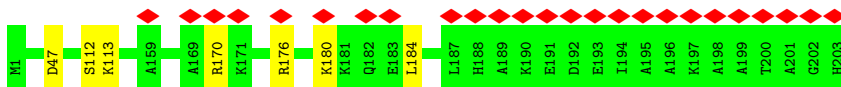
- Molecule 9: 60S ribosomal protein L18

Chain CQ: 94% 5%



- Molecule 10: 60S ribosomal protein L19

Chain CR: 12% 97%




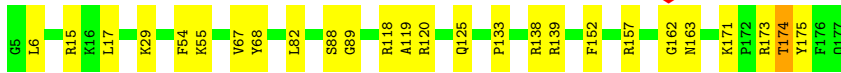
- Molecule 11: 60S ribosomal protein L8

Chain CA: 96%



- Molecule 12: 60S ribosomal protein L18a

Chain CS:  85% 14%



• Molecule 13: RE62581p

Chain CT:  92% 7%



• Molecule 14: 60S ribosomal protein L17

Chain CP:  13% 94% 5%



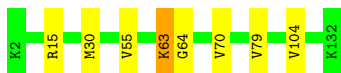
• Molecule 15: IP17216p

Chain CX:  95% 5%



• Molecule 16: GEO07453p1

Chain CY:  94% 5%




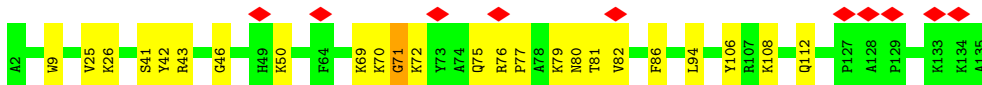
• Molecule 17: 60S ribosomal protein L27

Chain CZ:  99%

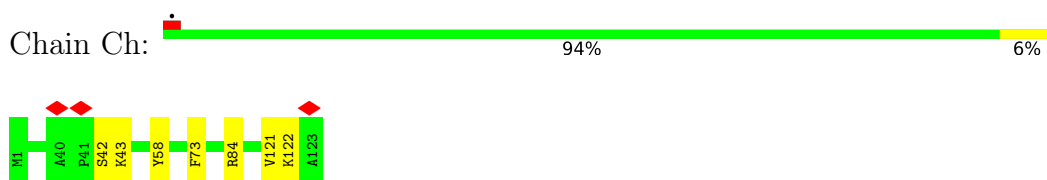


• Molecule 18: 60S ribosomal protein L28

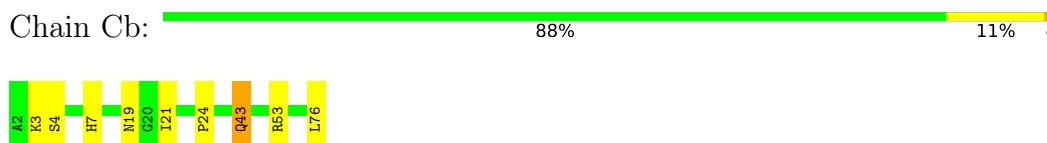
Chain Cr:  7% 82% 17%



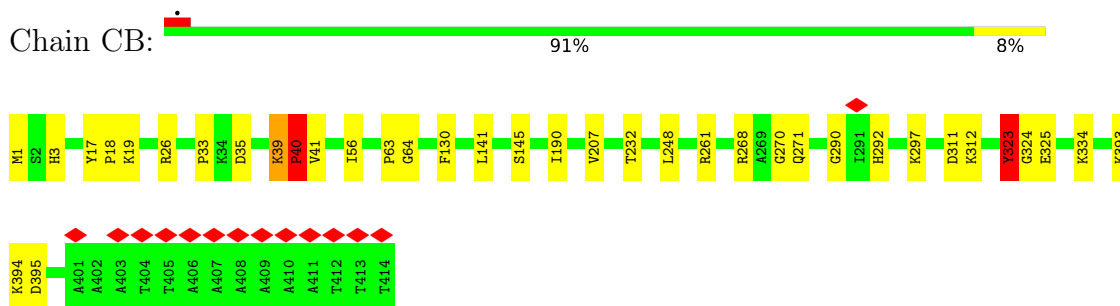
- Molecule 19: FI02809p



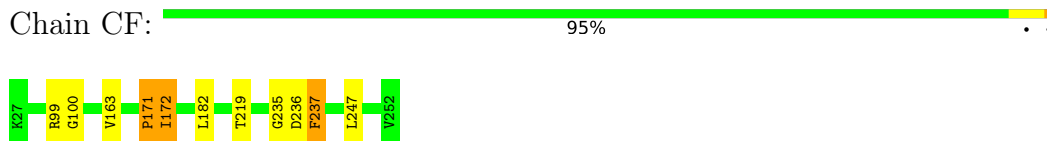
- Molecule 20: 60S ribosomal protein L29



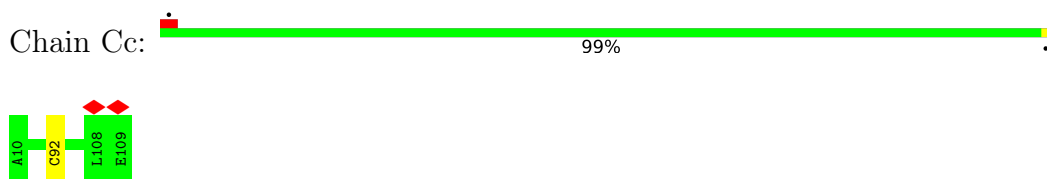
- Molecule 21: 60S ribosomal protein L3



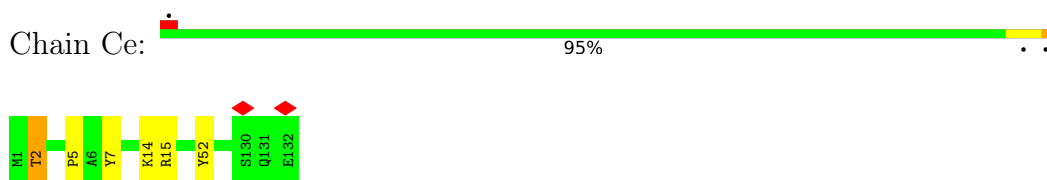
- Molecule 22: 60S ribosomal protein L7




- Molecule 23: RE25263p



- Molecule 24: 60S ribosomal protein L32




- Molecule 25: GEO07455p1

Chain Cf:  84% 15%



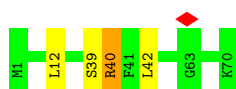
- Molecule 26: 60S ribosomal protein L36

Chain Ci:  90% 10%



- Molecule 27: 60S ribosomal protein L38

Chain Ck:  94%



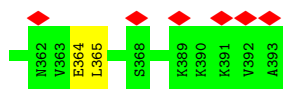
- Molecule 28: 60S ribosomal protein L39

Chain Cl:  98%



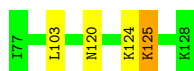
- Molecule 29: 60S ribosomal protein L4

Chain CC:  91% 8%



- Molecule 30: Ubiquitin-60S ribosomal protein L40

Chain Cm:  92% 6%



- Molecule 31: 60S ribosomal protein L41

Chain Cn:  96%



- Molecule 32: 60S ribosomal protein L37a



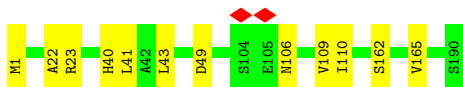
- Molecule 33: TA01007p



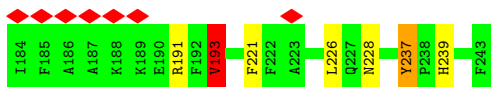
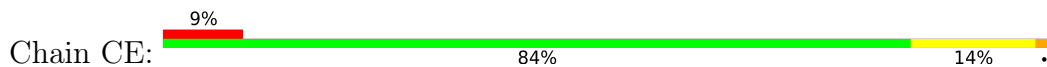
- Molecule 34: 60S ribosomal protein L11



- Molecule 35: 60S ribosomal protein L9



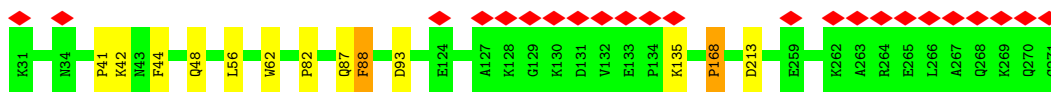
- Molecule 36: Ribosomal protein L6, isoform A



- Molecule 37: 60S ribosomal protein L7a



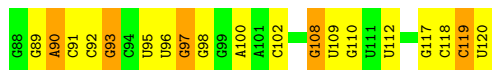
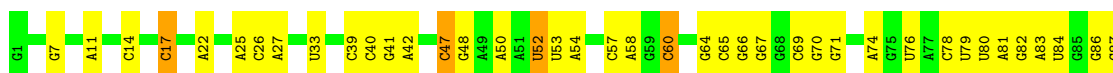




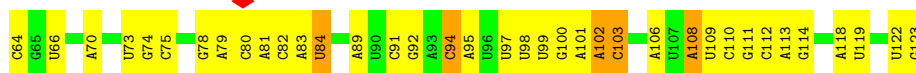
• Molecule 38: 2S ribosomal RNA



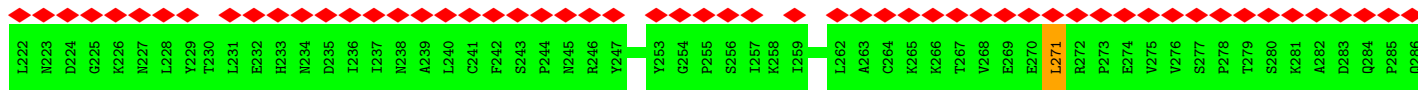
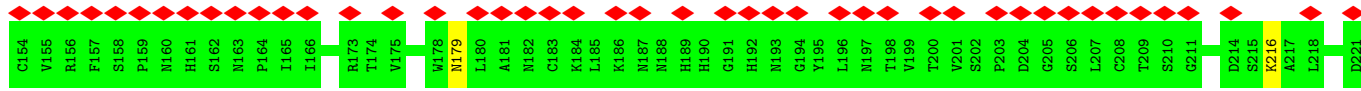
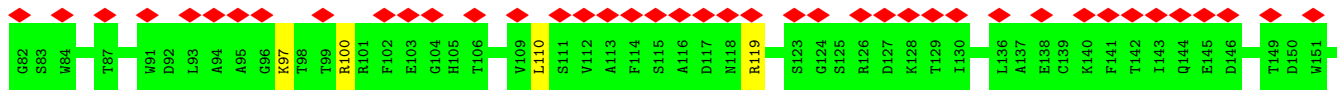
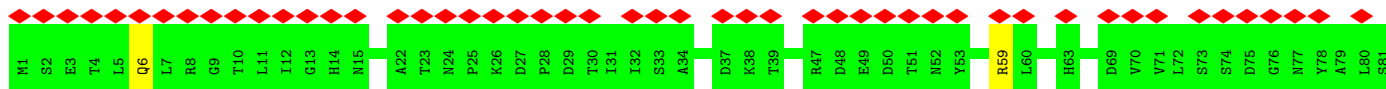
• Molecule 39: 5S ribosomal RNA

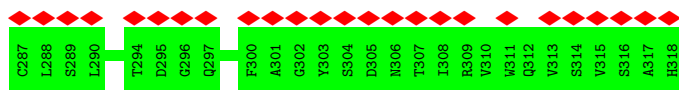


• Molecule 40: 5.8S ribosomal RNA

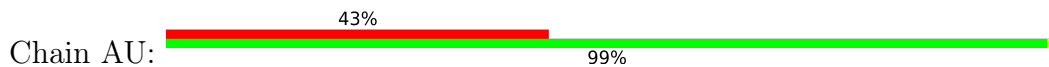


• Molecule 41: Guanine nucleotide-binding protein subunit beta-like protein

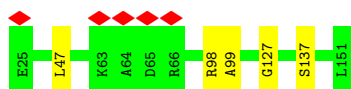




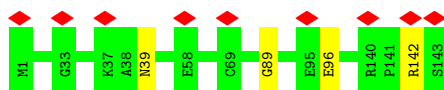
- Molecule 42: 40S ribosomal protein S20



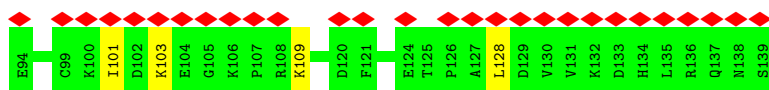
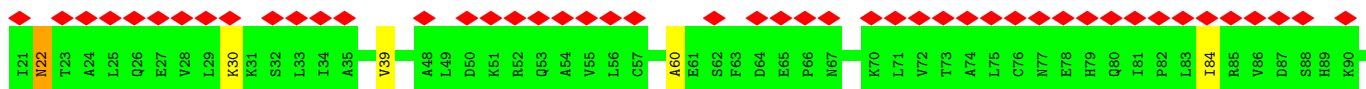
- Molecule 43: 40S ribosomal protein S14a



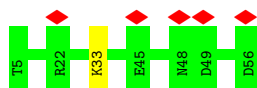
- Molecule 44: 40S ribosomal protein S23



- Molecule 45: 40S ribosomal protein S12

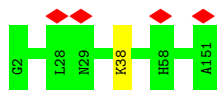


- Molecule 46: 40S ribosomal protein S29

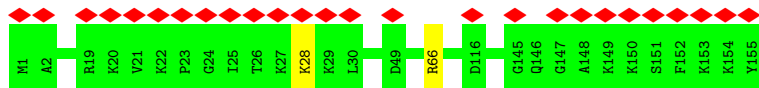


- Molecule 47: 40S ribosomal protein S13

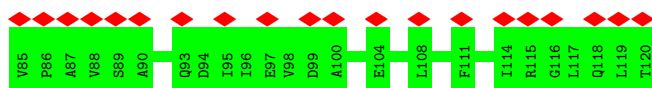
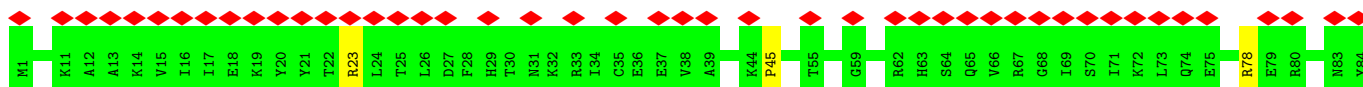




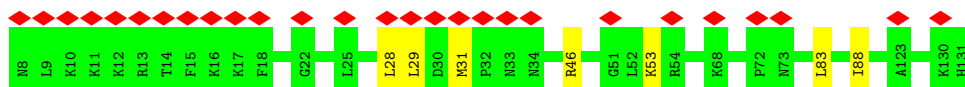
- Molecule 48: 40S ribosomal protein S11



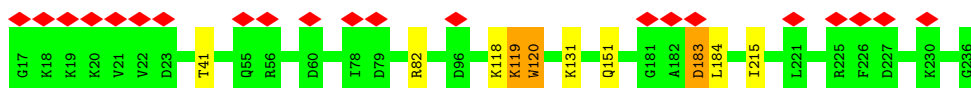
- Molecule 49: 40S ribosomal protein S17



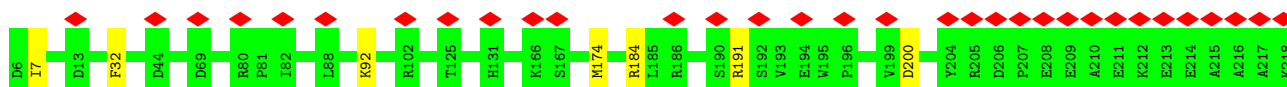
- Molecule 50: GEO07301p1



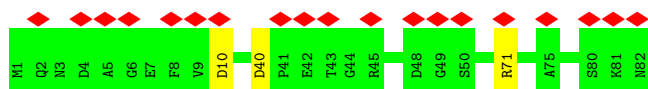
- Molecule 51: 40S ribosomal protein S3a



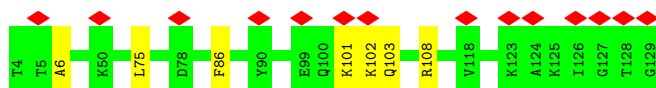
- Molecule 52: 40S ribosomal protein SA



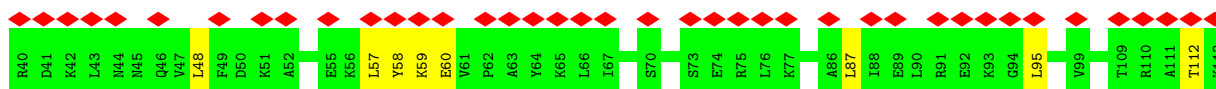
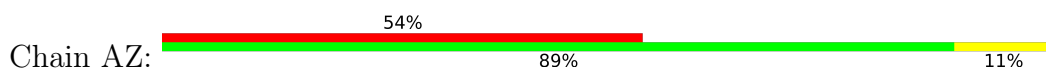
- Molecule 53: 40S ribosomal protein S21



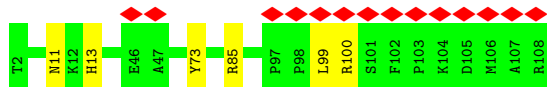
- Molecule 54: 40S ribosomal protein S24



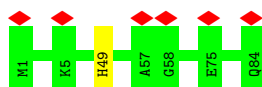
- Molecule 55: 40S ribosomal protein S25



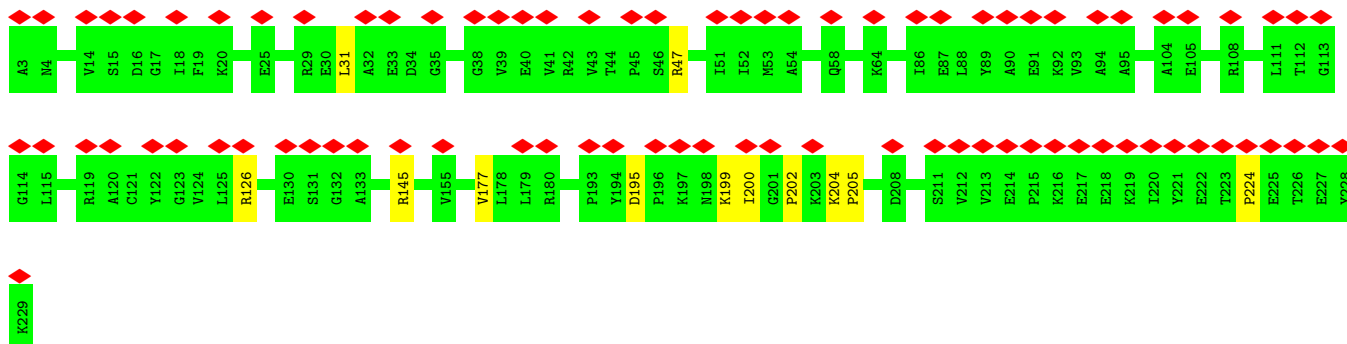
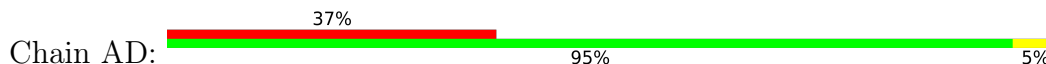
- Molecule 56: 40S ribosomal protein S26



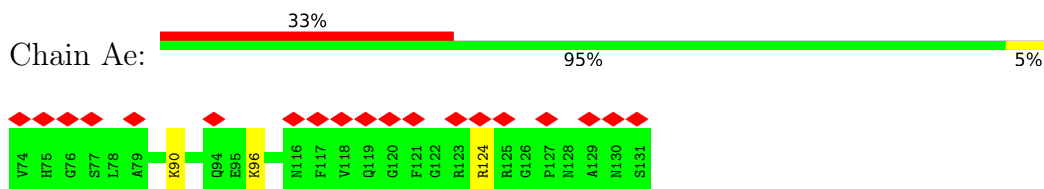
- Molecule 57: 40S ribosomal protein S27



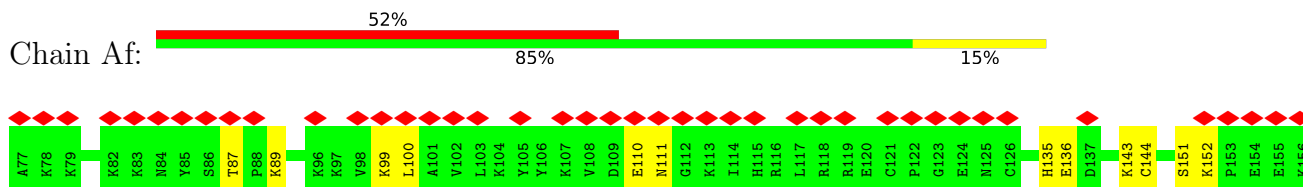
- Molecule 58: 40S ribosomal protein S3



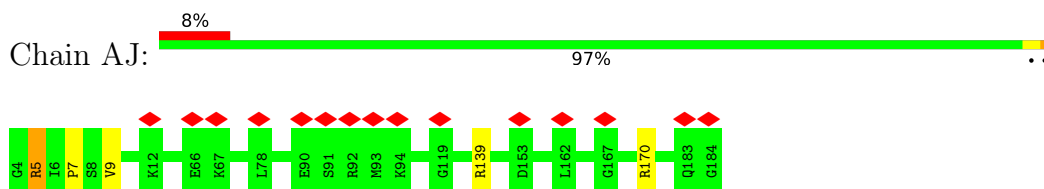
- Molecule 59: 40S ribosomal protein S30



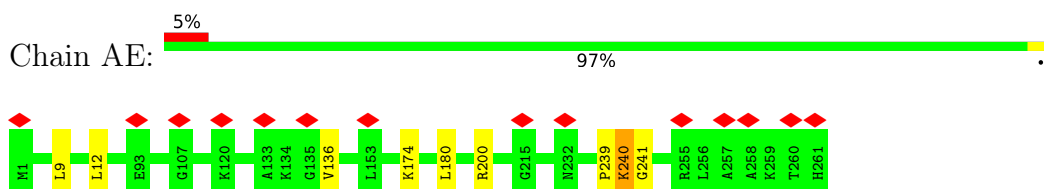
- Molecule 60: Ubiquitin-40S ribosomal protein S27a



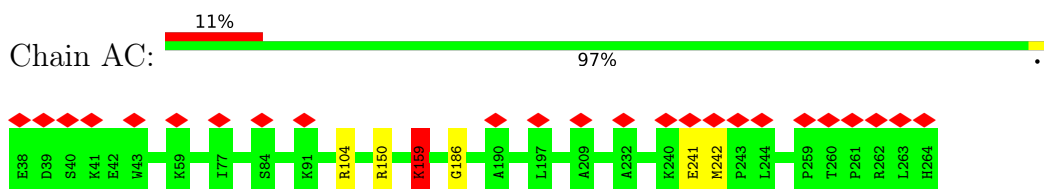
- Molecule 61: 40S ribosomal protein S9



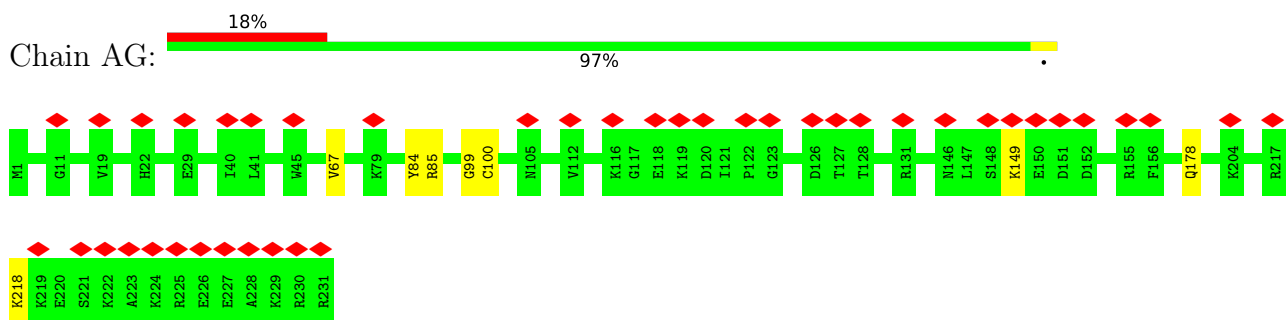
- Molecule 62: 40S ribosomal protein S4



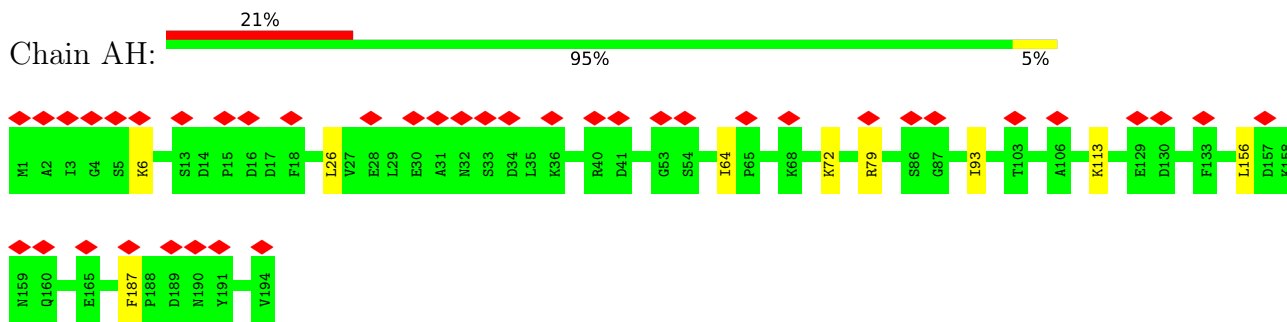
- Molecule 63: 40S ribosomal protein S2



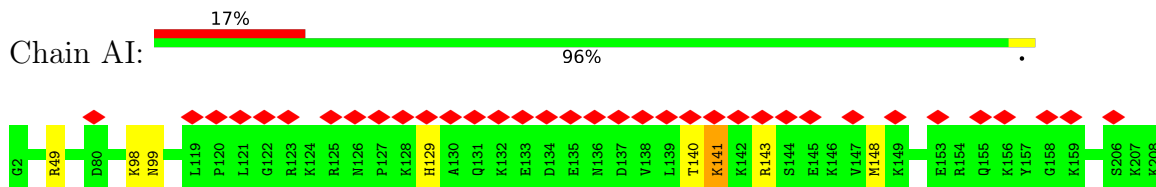
- Molecule 64: 40S ribosomal protein S6



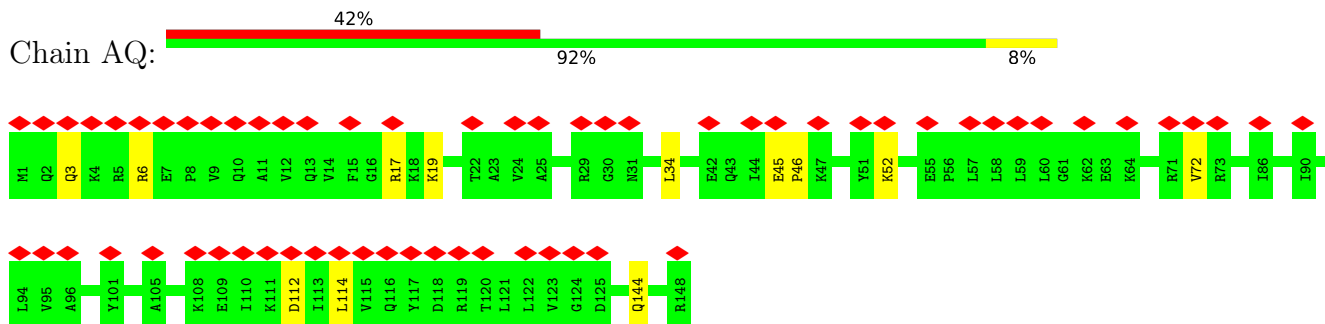
- Molecule 65: 40S ribosomal protein S7



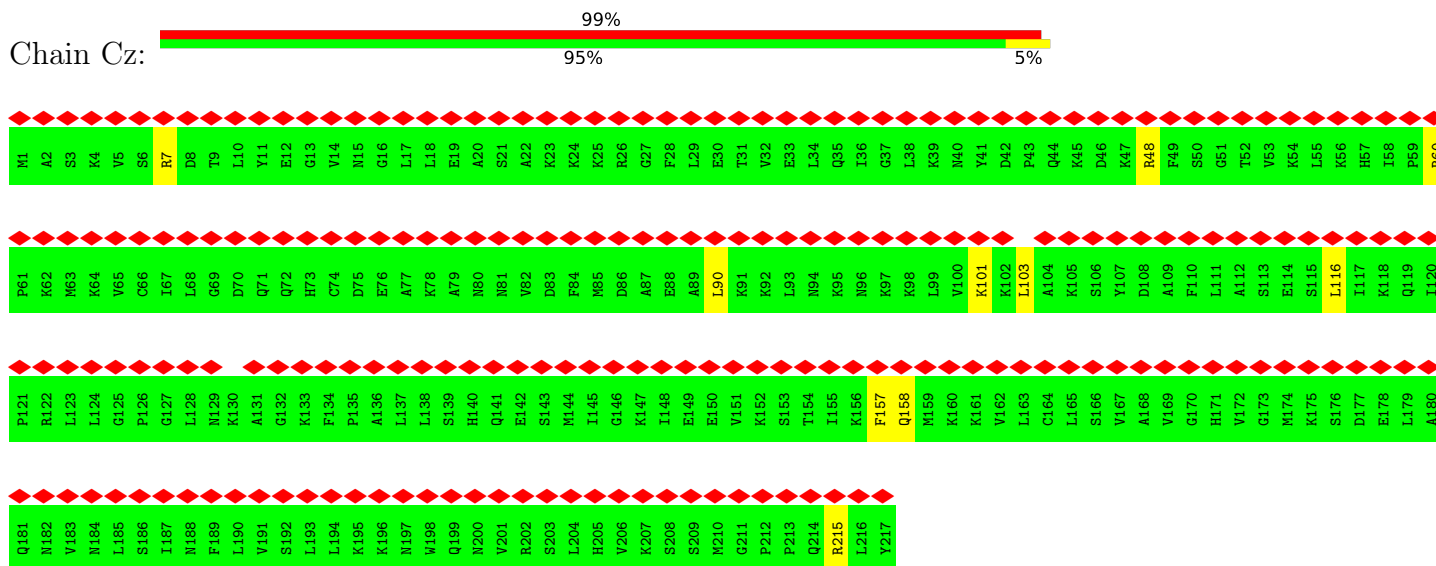
• Molecule 66: 40S ribosomal protein S8



• Molecule 67: 40S ribosomal protein S16

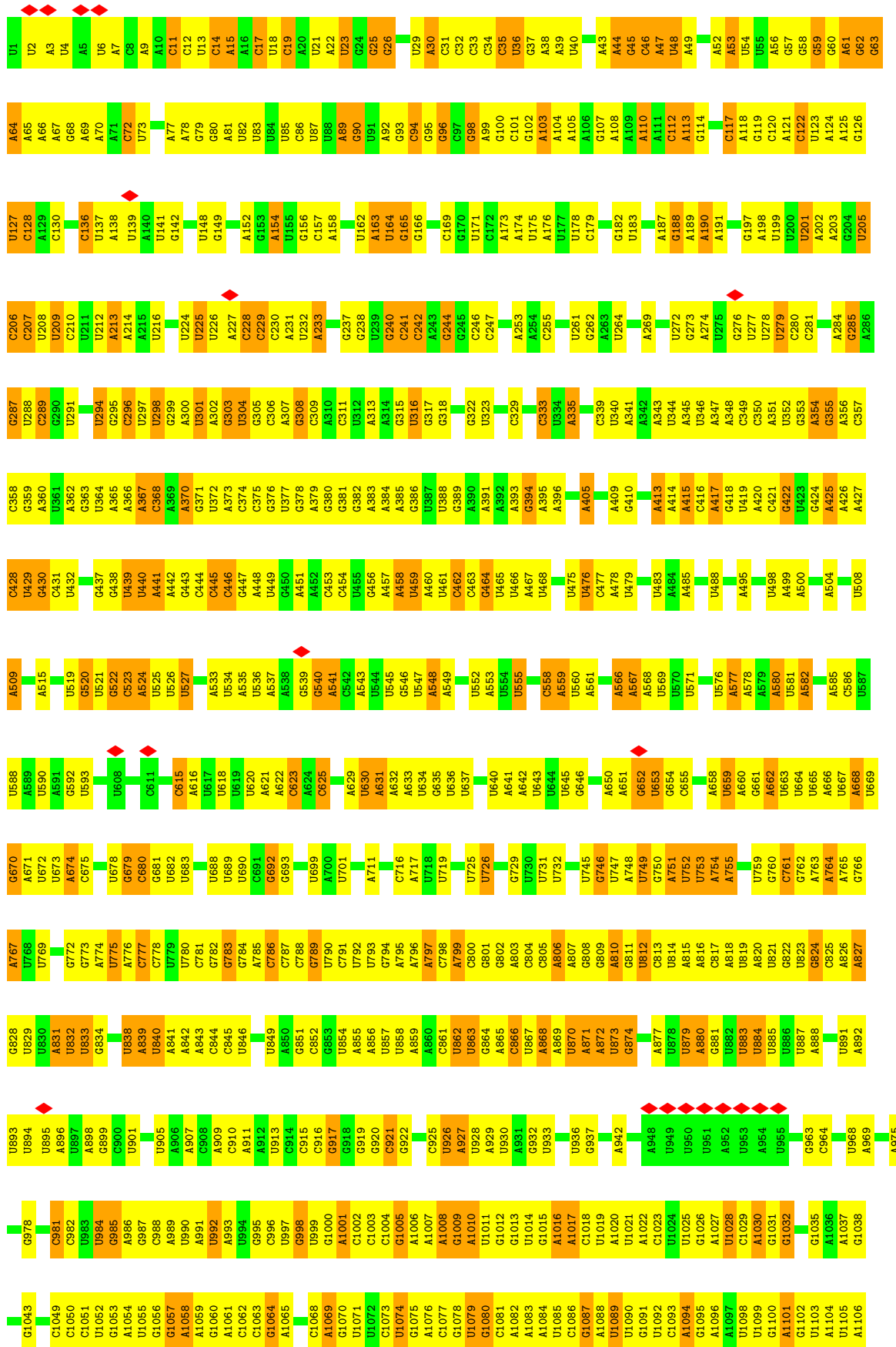


• Molecule 68: 60S ribosomal protein L10a-2



• Molecule 69: 28S ribosomal RNA

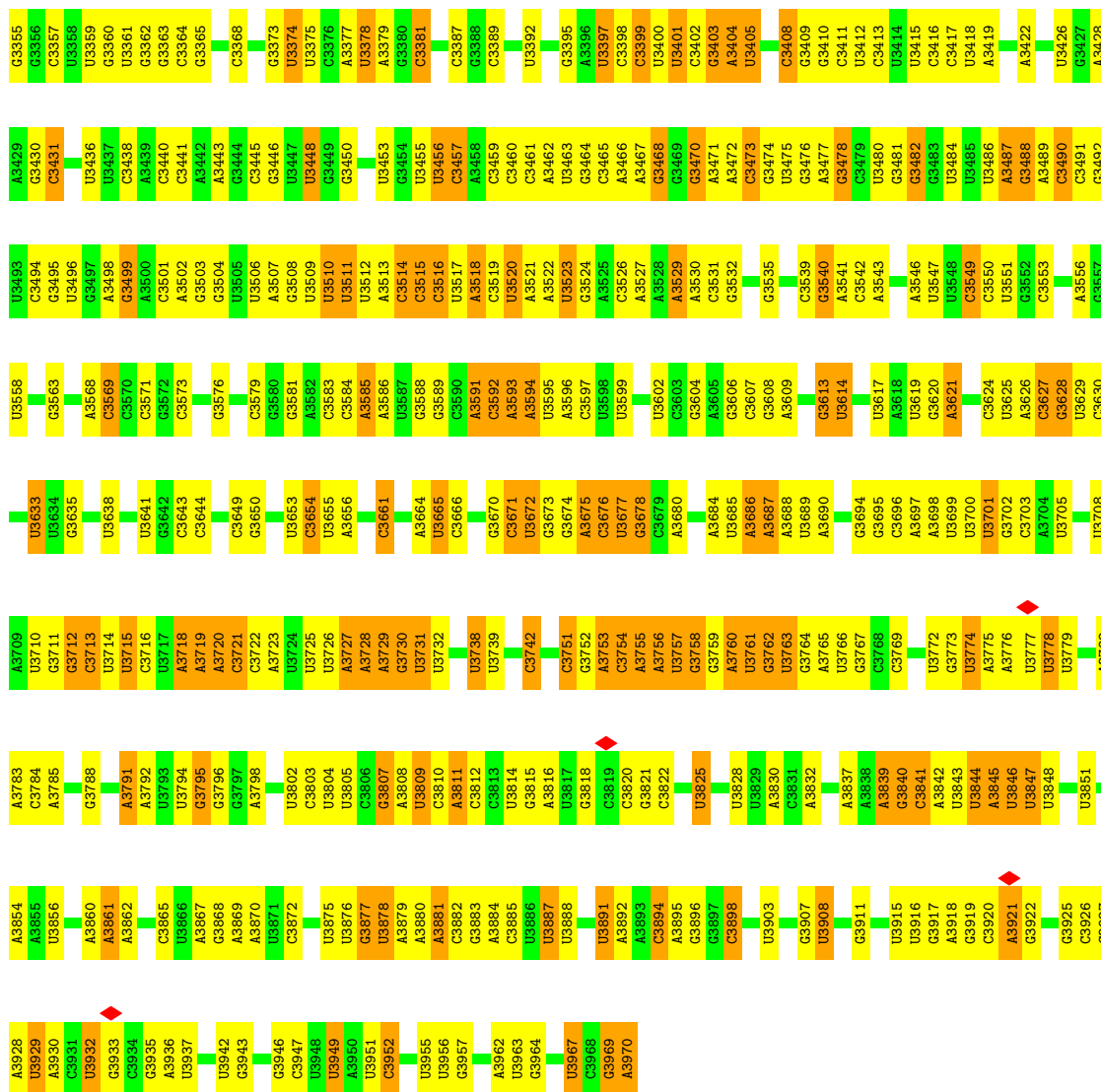




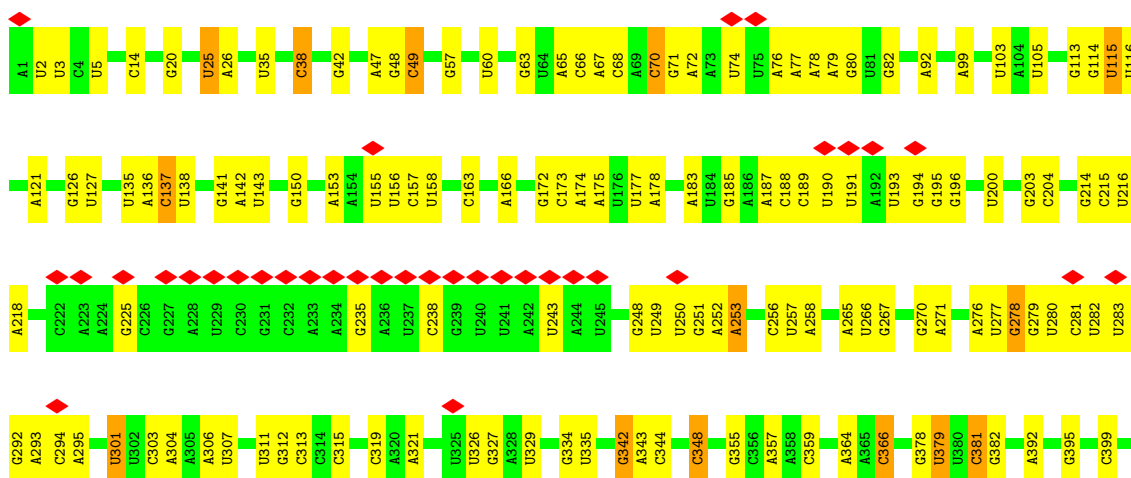
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C2078	C1892	G1720	G1653	A1589	U1520	G1450	U1379	A1316	G1251	U1170	G1110
U2079	C1893	A1721	A1654	A1590	G1521	G1451	G1380	A1317	A1253	G1171	C1111
U2082	C1898	A1722	U1655	U1591	G1522	A1452	U1381	A1318	U1954	G1172	G1112
G2083	C1899	G1723	G1657	U1592	G1523	U1453	U1382	A1319	U1255	U1173	A1113
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U2088	C1787	A1726	A1659	G1595	G1526	U1456	U1385	C1324	C1258	A1176	G1116
A2089	C1788	G1727	G1660	A1596	G1527	U1457	U1386	G1324	A1259	A1177	G1117
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A2091	A1791	U1729	U1662	A1598	G1528	A1459	C1388	A1326	A1261	A1182	C1119
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U2094	G1794	G1732	C1665	G1605	U1531	A1462	A1391	G1329	U1264	A1193	U1222
U2095	A1795	A1733	U1667	G1606	A1532	U1463	A1392	G1330	U1265	A1194	G1123
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U2099	A1799	U1737	U1671	A1610	G1536	A1466	A1396	C1334	G1271	U1198	C1127
U2100	U1800	U1738	A1672	G1611	U1537	A1467	A1399	C1335	G1272	U1199	C1128
U2101	U1801	U1739	C1673	A1612	U1538	U1468	A1402	U1202	G1273	A1200	A1129
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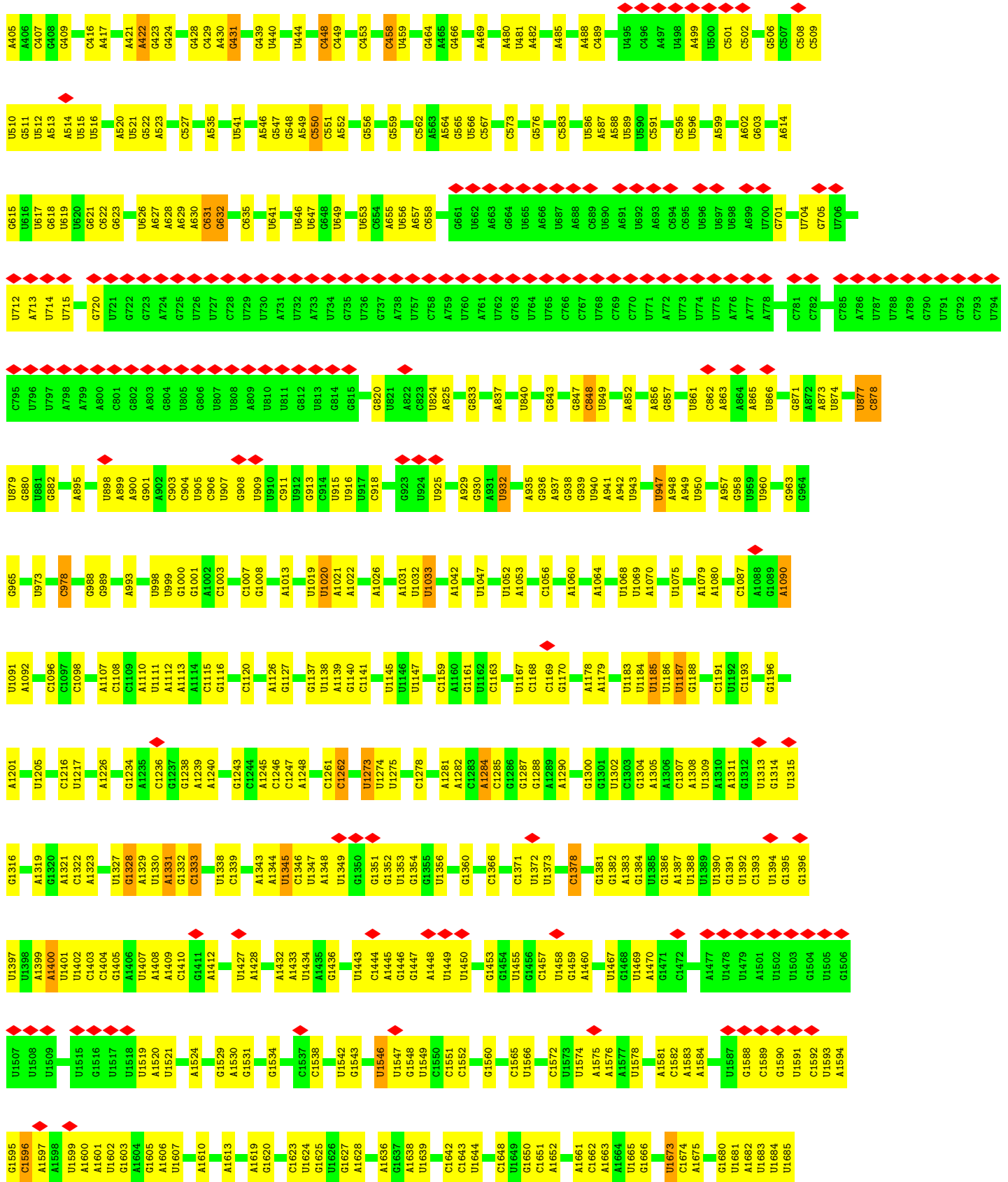


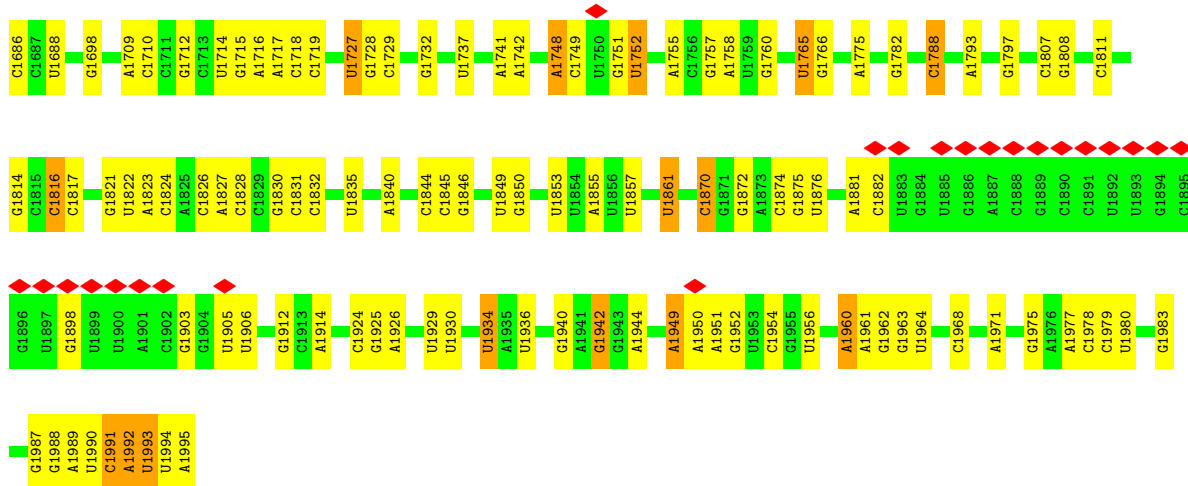
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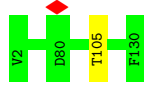
● Molecule 70: 18S ribosomal RNA



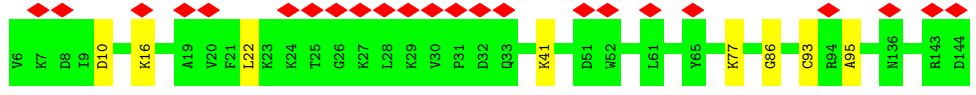
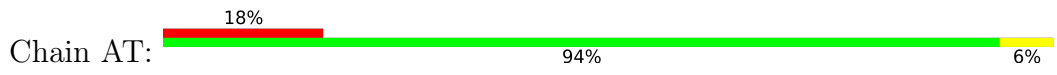




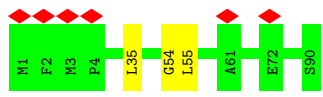
• Molecule 71: 40S ribosomal protein S15Aa



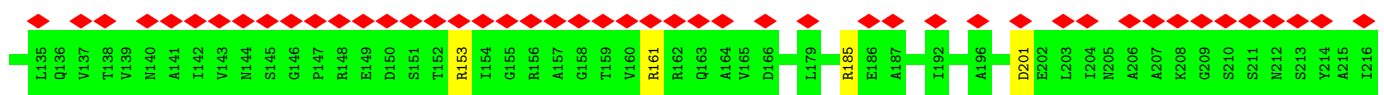
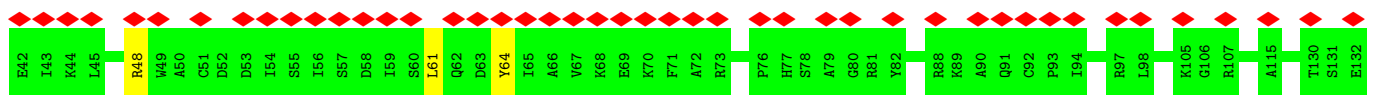
• Molecule 72: 40S ribosomal protein S19a

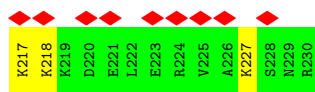


• Molecule 73: 40S ribosomal protein S10b

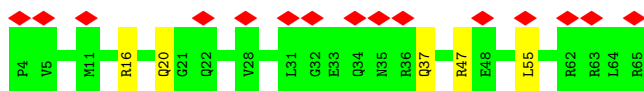


• Molecule 74: 40S ribosomal protein S5b

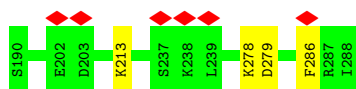




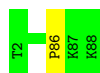
- Molecule 75: 40S ribosomal protein S28



- Molecule 76: 60S ribosomal protein L22



- Molecule 77: Probable 60S ribosomal protein L37-A



- Molecule 78: 60S ribosomal protein L24



- Molecule 79: 60S ribosomal protein L34

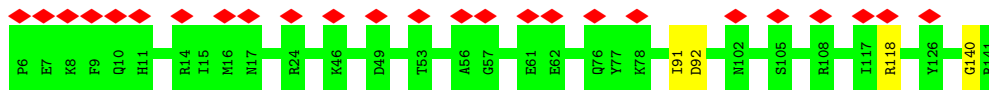


- Molecule 80: 60S ribosomal protein L31



- Molecule 81: 40S ribosomal protein S18





## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	185913	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING ONLY	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	80	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	FEI FALCON II (4k x 4k)	Depositor
Maximum map value	0.861	Depositor
Minimum map value	-0.593	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.023	Depositor
Recommended contour level	0.035	Depositor
Map size ( $\text{\AA}$ )	426.00003, 426.00003, 426.00003	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles ( $^\circ$ )	90.0, 90.0, 90.0	wwPDB
Pixel spacing ( $\text{\AA}$ )	1.065, 1.065, 1.065	Depositor

## 5 Model quality i

### 5.1 Standard geometry i

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	CO	0.89	0/1700	0.90	5/2277 (0.2%)
2	CL	0.74	1/1726 (0.1%)	1.02	5/2308 (0.2%)
3	CV	0.77	0/1014	0.79	1/1362 (0.1%)
4	CM	0.67	0/1326	0.77	0/1780
5	Ca	0.98	1/1235 (0.1%)	1.00	5/1640 (0.3%)
6	CN	1.02	4/1750 (0.2%)	0.99	2/2335 (0.1%)
7	CI	0.53	1/1827 (0.1%)	0.66	1/2447 (0.0%)
8	CD	0.61	0/2379	0.68	1/3196 (0.0%)
9	CQ	0.96	1/1544 (0.1%)	0.93	3/2069 (0.1%)
10	CR	0.61	0/1703	0.67	1/2255 (0.0%)
11	CA	0.84	1/1970 (0.1%)	0.83	3/2635 (0.1%)
12	CS	0.85	0/1491	1.00	4/1998 (0.2%)
13	CT	0.83	1/1326 (0.1%)	0.85	3/1773 (0.2%)
14	CP	0.92	2/1529 (0.1%)	0.87	2/2042 (0.1%)
15	CX	0.66	0/1001	0.84	3/1348 (0.2%)
16	CY	0.79	0/1094	0.81	2/1456 (0.1%)
17	CZ	0.51	0/1141	0.67	0/1517
18	Cr	0.88	2/1069 (0.2%)	1.13	3/1432 (0.2%)
19	Ch	0.65	0/1024	0.78	0/1353
20	Cb	0.62	0/628	0.95	1/832 (0.1%)
21	CB	0.79	1/3356 (0.0%)	0.91	8/4494 (0.2%)
22	CF	0.90	0/1931	0.84	4/2587 (0.2%)
23	Cc	0.55	0/779	0.64	0/1048
24	Ce	1.04	1/1132 (0.1%)	0.94	2/1508 (0.1%)
25	Cf	0.92	2/1270 (0.2%)	1.07	4/1696 (0.2%)
26	Ci	0.58	0/944	0.89	3/1250 (0.2%)
27	Ck	0.60	0/583	0.79	2/774 (0.3%)
28	Cl	0.89	0/445	0.89	1/589 (0.2%)
29	CC	0.91	1/3163 (0.0%)	0.95	8/4253 (0.2%)
30	Cm	0.57	0/435	0.78	0/575
31	Cn	0.57	0/237	0.74	1/300 (0.3%)
32	Cp	0.85	0/719	0.87	0/954
33	Co	0.76	0/887	0.88	1/1162 (0.1%)
34	CJ	0.42	0/1494	0.76	3/2001 (0.1%)



Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
35	CH	0.61	0/1519	0.80	3/2042 (0.1%)
36	CE	0.65	1/1883 (0.1%)	0.97	5/2514 (0.2%)
37	CG	0.58	1/1968 (0.1%)	0.77	0/2637
38	A9	1.48	2/714 (0.3%)	1.50	18/1112 (1.6%)
39	A7	1.53	15/2854 (0.5%)	1.51	59/4447 (1.3%)
40	A8	1.93	42/2932 (1.4%)	1.72	96/4568 (2.1%)
41	Ag	0.32	0/2574	0.70	3/3506 (0.1%)
42	AU	0.31	0/825	0.64	0/1111
43	AO	0.35	0/965	0.70	0/1295
44	AX	0.36	0/1152	0.69	0/1540
45	AM	0.34	0/937	0.79	2/1260 (0.2%)
46	Ad	0.33	0/443	0.64	0/589
47	AN	0.38	0/1225	0.63	0/1641
48	AL	0.45	0/1296	0.64	0/1725
49	AR	0.34	0/993	0.74	0/1333
50	AP	0.32	0/1036	0.76	3/1383 (0.2%)
51	AB	0.33	0/1825	0.69	1/2448 (0.0%)
52	AA	0.33	0/1777	0.64	0/2422
53	AV	0.34	0/622	0.64	0/835
54	AY	0.30	0/1032	0.69	1/1373 (0.1%)
55	AZ	0.33	0/616	0.85	3/826 (0.4%)
56	Aa	0.41	0/883	0.69	0/1184
57	Ab	0.30	0/668	0.65	0/898
58	AD	0.31	0/1808	0.71	1/2427 (0.0%)
59	Ae	0.31	0/475	0.65	0/625
60	Af	0.33	0/672	0.74	1/887 (0.1%)
61	AJ	0.32	0/1526	0.64	1/2037 (0.0%)
62	AE	0.34	0/2096	0.67	2/2819 (0.1%)
63	AC	0.37	0/1785	0.70	1/2415 (0.0%)
64	AG	0.32	0/1891	0.67	1/2519 (0.0%)
65	AH	0.32	0/1593	0.68	2/2145 (0.1%)
66	AI	0.41	0/1689	0.80	1/2250 (0.0%)
67	AQ	0.33	0/1202	0.79	3/1608 (0.2%)
68	Cz	0.33	0/1727	0.75	3/2308 (0.1%)
69	A5	1.84	1826/86147 (2.1%)	1.78	3112/134004 (2.3%)
70	B2	0.69	4/43887 (0.0%)	1.11	255/68161 (0.4%)
71	AW	0.37	0/1046	0.60	0/1402
72	AT	0.29	0/1019	0.66	0/1367
73	AK	0.33	0/786	0.78	3/1064 (0.3%)
74	AF	0.33	0/1501	0.70	1/2017 (0.0%)
75	Ac	0.36	0/502	0.75	1/670 (0.1%)
76	CU	0.45	0/838	0.79	1/1123 (0.1%)
77	Cj	1.06	0/717	0.85	0/950

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
78	CW	0.68	0/515	0.77	0/683
79	Cg	0.80	0/855	0.84	2/1142 (0.2%)
80	Cd	0.27	0/908	0.46	0/1221
81	AS	0.28	0/1135	0.67	2/1521 (0.1%)
All	All	1.26	1910/232911 (0.8%)	1.34	3669/341300 (1.1%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	CO	0	9
2	CL	0	14
4	CM	0	2
5	Ca	0	5
6	CN	0	7
7	CI	0	5
8	CD	0	5
9	CQ	0	5
10	CR	0	3
11	CA	0	4
12	CS	0	11
13	CT	0	8
14	CP	0	3
16	CY	0	2
18	Cr	0	15
19	Ch	0	5
20	Cb	0	4
21	CB	0	18
22	CF	0	4
24	Ce	0	3
25	Cf	0	11
26	Ci	0	7
27	Ck	0	2
29	CC	0	15
30	Cm	0	2
33	Co	0	3
34	CJ	0	4
35	CH	0	4
36	CE	0	25
37	CG	0	9

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Mol	Chain	#Chirality outliers	#Planarity outliers
43	AO	0	4
44	AX	0	1
45	AM	0	3
46	Ad	0	1
50	AP	0	3
51	AB	0	4
52	AA	0	2
53	AV	0	2
54	AY	0	1
55	AZ	0	4
56	Aa	0	2
57	Ab	0	1
58	AD	0	6
59	Ae	0	1
60	Af	0	10
61	AJ	0	4
62	AE	0	1
63	AC	0	2
64	AG	0	2
65	AH	0	3
66	AI	0	2
67	AQ	0	5
68	Cz	0	2
72	AT	0	3
74	AF	0	2
75	Ac	0	1
76	CU	0	1
78	CW	0	1
79	Cg	0	1
80	Cd	0	1
All	All	0	290

The worst 5 of 1910 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
69	A5	1313	A	N9-C4	-13.10	1.29	1.37
69	A5	1795	A	C5-C6	-12.81	1.29	1.41
69	A5	1689	G	N7-C5	-12.62	1.31	1.39
69	A5	1686	A	N9-C4	-11.02	1.31	1.37
69	A5	754	A	N9-C4	-10.88	1.31	1.37

The worst 5 of 3669 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
69	A5	1699	A	N1-C6-N6	-37.41	96.15	118.60
69	A5	3472	A	C8-N9-C4	-20.68	97.53	105.80
69	A5	1699	A	C5-C6-N6	20.58	140.17	123.70
69	A5	840	U	O5'-P-OP1	-19.48	87.32	110.70
69	A5	33	C	C6-N1-C2	-17.17	113.43	120.30

There are no chirality outliers.

5 of 290 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	CO	109	GLY	Peptide
1	CO	111	PRO	Peptide
1	CO	112	SER	Peptide
1	CO	177	LYS	Peptide
1	CO	190	ALA	Peptide

## 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	
1	CO	203/205 (99%)	177 (87%)	24 (12%)	2 (1%)	15	53
2	CL	208/210 (99%)	154 (74%)	42 (20%)	12 (6%)	1	10
3	CV	132/134 (98%)	122 (92%)	10 (8%)	0	100	100
4	CM	157/159 (99%)	129 (82%)	27 (17%)	1 (1%)	25	64
5	Ca	147/149 (99%)	113 (77%)	33 (22%)	1 (1%)	22	60
6	CN	201/203 (99%)	166 (83%)	32 (16%)	3 (2%)	10	42
7	CI	215/217 (99%)	183 (85%)	30 (14%)	2 (1%)	17	55

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
8	CD	288/290 (99%)	247 (86%)	39 (14%)	2 (1%)	22	60
9	CQ	185/187 (99%)	160 (86%)	25 (14%)	0	100	100
10	CR	201/203 (99%)	183 (91%)	18 (9%)	0	100	100
11	CA	251/253 (99%)	211 (84%)	39 (16%)	1 (0%)	34	72
12	CS	171/173 (99%)	126 (74%)	37 (22%)	8 (5%)	2	14
13	CT	156/158 (99%)	130 (83%)	25 (16%)	1 (1%)	25	64
14	CP	183/185 (99%)	163 (89%)	19 (10%)	1 (0%)	29	68
15	CX	118/120 (98%)	98 (83%)	19 (16%)	1 (1%)	19	57
16	CY	129/131 (98%)	112 (87%)	16 (12%)	1 (1%)	19	57
17	CZ	132/134 (98%)	110 (83%)	21 (16%)	1 (1%)	19	57
18	Cr	132/134 (98%)	81 (61%)	47 (36%)	4 (3%)	4	24
19	Ch	121/123 (98%)	106 (88%)	15 (12%)	0	100	100
20	Cb	73/75 (97%)	59 (81%)	11 (15%)	3 (4%)	3	16
21	CB	412/414 (100%)	346 (84%)	56 (14%)	10 (2%)	6	29
22	CF	224/226 (99%)	199 (89%)	20 (9%)	5 (2%)	6	31
23	Cc	98/100 (98%)	94 (96%)	4 (4%)	0	100	100
24	Ce	130/132 (98%)	118 (91%)	11 (8%)	1 (1%)	19	57
25	Cf	155/157 (99%)	113 (73%)	36 (23%)	6 (4%)	3	17
26	Ci	111/113 (98%)	82 (74%)	28 (25%)	1 (1%)	17	55
27	Ck	68/70 (97%)	61 (90%)	7 (10%)	0	100	100
28	Cl	48/50 (96%)	45 (94%)	3 (6%)	0	100	100
29	CC	390/392 (100%)	318 (82%)	67 (17%)	5 (1%)	12	45
30	Cm	50/52 (96%)	43 (86%)	6 (12%)	1 (2%)	7	34
31	Cn	23/25 (92%)	21 (91%)	2 (9%)	0	100	100
32	Cp	89/91 (98%)	80 (90%)	9 (10%)	0	100	100
33	Co	102/104 (98%)	82 (80%)	18 (18%)	2 (2%)	7	34
34	CJ	180/182 (99%)	149 (83%)	30 (17%)	1 (1%)	25	64
35	CH	188/190 (99%)	164 (87%)	21 (11%)	3 (2%)	9	40
36	CE	226/228 (99%)	157 (70%)	62 (27%)	7 (3%)	4	23
37	CG	239/241 (99%)	194 (81%)	43 (18%)	2 (1%)	19	57
41	Ag	316/318 (99%)	265 (84%)	51 (16%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
42	AU	100/102 (98%)	89 (89%)	11 (11%)	0	100	100
43	AO	125/127 (98%)	100 (80%)	25 (20%)	0	100	100
44	AX	141/143 (99%)	120 (85%)	20 (14%)	1 (1%)	22	60
45	AM	117/119 (98%)	85 (73%)	32 (27%)	0	100	100
46	Ad	50/52 (96%)	33 (66%)	17 (34%)	0	100	100
47	AN	148/150 (99%)	137 (93%)	11 (7%)	0	100	100
48	AL	153/155 (99%)	133 (87%)	19 (12%)	1 (1%)	22	60
49	AR	118/120 (98%)	92 (78%)	25 (21%)	1 (1%)	19	57
50	AP	122/124 (98%)	96 (79%)	26 (21%)	0	100	100
51	AB	218/220 (99%)	176 (81%)	37 (17%)	5 (2%)	6	30
52	AA	216/218 (99%)	179 (83%)	36 (17%)	1 (0%)	29	68
53	AV	80/82 (98%)	67 (84%)	13 (16%)	0	100	100
54	AY	124/126 (98%)	101 (82%)	22 (18%)	1 (1%)	19	57
55	AZ	72/74 (97%)	56 (78%)	16 (22%)	0	100	100
56	Aa	105/107 (98%)	86 (82%)	18 (17%)	1 (1%)	15	53
57	Ab	82/84 (98%)	64 (78%)	18 (22%)	0	100	100
58	AD	225/227 (99%)	179 (80%)	44 (20%)	2 (1%)	17	55
59	Ae	56/58 (97%)	39 (70%)	17 (30%)	0	100	100
60	Af	78/80 (98%)	57 (73%)	21 (27%)	0	100	100
61	AJ	179/181 (99%)	152 (85%)	26 (14%)	1 (1%)	25	64
62	AE	259/261 (99%)	215 (83%)	42 (16%)	2 (1%)	19	57
63	AC	225/227 (99%)	188 (84%)	35 (16%)	2 (1%)	17	55
64	AG	229/231 (99%)	197 (86%)	30 (13%)	2 (1%)	17	55
65	AH	192/194 (99%)	161 (84%)	31 (16%)	0	100	100
66	AI	205/207 (99%)	161 (78%)	41 (20%)	3 (2%)	10	42
67	AQ	146/148 (99%)	116 (80%)	29 (20%)	1 (1%)	22	60
68	Cz	215/217 (99%)	175 (81%)	40 (19%)	0	100	100
71	AW	127/129 (98%)	117 (92%)	10 (8%)	0	100	100
72	AT	122/126 (97%)	92 (75%)	29 (24%)	1 (1%)	19	57
73	AK	88/90 (98%)	64 (73%)	24 (27%)	0	100	100
74	AF	187/189 (99%)	146 (78%)	41 (22%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
75	Ac	60/62 (97%)	49 (82%)	11 (18%)	0	100	100
76	CU	97/99 (98%)	73 (75%)	23 (24%)	1 (1%)	15	53
77	Cj	85/87 (98%)	74 (87%)	10 (12%)	1 (1%)	13	48
78	CW	58/60 (97%)	53 (91%)	5 (9%)	0	100	100
79	Cg	101/103 (98%)	90 (89%)	10 (10%)	1 (1%)	15	53
80	Cd	105/107 (98%)	97 (92%)	8 (8%)	0	100	100
81	AS	134/136 (98%)	117 (87%)	16 (12%)	1 (1%)	22	60
All	All	11596/11750 (99%)	9587 (83%)	1892 (16%)	117 (1%)	20	53

5 of 117 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	CO	112	SER
1	CO	113	PRO
2	CL	7	MET
2	CL	148	GLN
2	CL	160	GLN

### 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	
1	CO	175/175 (100%)	175 (100%)	0	100	100
2	CL	173/173 (100%)	168 (97%)	5 (3%)	42	76
3	CV	101/101 (100%)	99 (98%)	2 (2%)	55	83
4	CM	138/138 (100%)	136 (99%)	2 (1%)	67	88
5	Ca	122/122 (100%)	121 (99%)	1 (1%)	81	93
6	CN	174/174 (100%)	169 (97%)	5 (3%)	42	76
7	CI	187/187 (100%)	187 (100%)	0	100	100
8	CD	241/241 (100%)	238 (99%)	3 (1%)	71	90
9	CQ	164/164 (100%)	159 (97%)	5 (3%)	41	75

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
10	CR	176/176 (100%)	173 (98%)	3 (2%)	60	85
11	CA	195/195 (100%)	192 (98%)	3 (2%)	65	87
12	CS	156/156 (100%)	152 (97%)	4 (3%)	46	78
13	CT	137/137 (100%)	135 (98%)	2 (2%)	65	87
14	CP	160/160 (100%)	155 (97%)	5 (3%)	40	75
15	CX	106/106 (100%)	103 (97%)	3 (3%)	43	77
16	CY	116/116 (100%)	112 (97%)	4 (3%)	37	72
17	CZ	121/121 (100%)	121 (100%)	0	100	100
18	Cr	112/112 (100%)	110 (98%)	2 (2%)	59	85
19	Ch	112/112 (100%)	110 (98%)	2 (2%)	59	85
20	Cb	67/67 (100%)	65 (97%)	2 (3%)	41	75
21	CB	349/349 (100%)	342 (98%)	7 (2%)	55	83
22	CF	200/200 (100%)	198 (99%)	2 (1%)	76	91
23	Cc	84/84 (100%)	83 (99%)	1 (1%)	71	90
24	Ce	120/120 (100%)	119 (99%)	1 (1%)	81	93
25	Cf	123/123 (100%)	119 (97%)	4 (3%)	38	73
26	Ci	100/100 (100%)	100 (100%)	0	100	100
27	Ck	65/65 (100%)	64 (98%)	1 (2%)	65	87
28	Cl	45/45 (100%)	45 (100%)	0	100	100
29	CC	323/323 (100%)	311 (96%)	12 (4%)	34	70
30	Cm	48/48 (100%)	46 (96%)	2 (4%)	30	66
31	Cn	23/23 (100%)	23 (100%)	0	100	100
32	Cp	74/74 (100%)	69 (93%)	5 (7%)	16	48
33	Co	94/94 (100%)	93 (99%)	1 (1%)	73	90
34	CJ	155/155 (100%)	154 (99%)	1 (1%)	86	95
35	CH	169/169 (100%)	167 (99%)	2 (1%)	71	90
36	CE	197/197 (100%)	190 (96%)	7 (4%)	35	70
37	CG	210/210 (100%)	207 (99%)	3 (1%)	67	88
41	Ag	280/280 (100%)	272 (97%)	8 (3%)	42	76
42	AU	95/95 (100%)	94 (99%)	1 (1%)	73	90
43	AO	98/98 (100%)	97 (99%)	1 (1%)	76	91

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
44	AX	116/116 (100%)	114 (98%)	2 (2%)	60	85
45	AM	104/104 (100%)	99 (95%)	5 (5%)	25	62
46	Ad	45/45 (100%)	45 (100%)	0	100	100
47	AN	130/130 (100%)	129 (99%)	1 (1%)	81	93
48	AL	138/138 (100%)	137 (99%)	1 (1%)	84	94
49	AR	108/108 (100%)	106 (98%)	2 (2%)	57	84
50	AP	111/111 (100%)	110 (99%)	1 (1%)	78	92
51	AB	199/199 (100%)	196 (98%)	3 (2%)	65	87
52	AA	190/190 (100%)	186 (98%)	4 (2%)	53	82
53	AV	67/67 (100%)	66 (98%)	1 (2%)	65	87
54	AY	105/106 (99%)	101 (96%)	4 (4%)	33	69
55	AZ	67/67 (100%)	66 (98%)	1 (2%)	65	87
56	Aa	94/94 (100%)	91 (97%)	3 (3%)	39	74
57	Ab	72/72 (100%)	72 (100%)	0	100	100
58	AD	192/192 (100%)	189 (98%)	3 (2%)	62	86
59	Ae	47/47 (100%)	45 (96%)	2 (4%)	29	66
60	Af	70/70 (100%)	69 (99%)	1 (1%)	67	88
61	AJ	161/161 (100%)	161 (100%)	0	100	100
62	AE	220/220 (100%)	215 (98%)	5 (2%)	50	80
63	AC	188/188 (100%)	185 (98%)	3 (2%)	62	86
64	AG	200/200 (100%)	197 (98%)	3 (2%)	65	87
65	AH	175/175 (100%)	171 (98%)	4 (2%)	50	80
66	AI	175/175 (100%)	172 (98%)	3 (2%)	60	85
67	AQ	122/122 (100%)	119 (98%)	3 (2%)	47	79
68	Cz	190/190 (100%)	185 (97%)	5 (3%)	46	78
71	AW	113/113 (100%)	112 (99%)	1 (1%)	78	92
72	AT	104/104 (100%)	100 (96%)	4 (4%)	33	69
73	AK	81/81 (100%)	81 (100%)	0	100	100
74	AF	157/157 (100%)	150 (96%)	7 (4%)	27	64
75	Ac	54/54 (100%)	51 (94%)	3 (6%)	21	56
76	CU	92/92 (100%)	91 (99%)	1 (1%)	73	90

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
77	Cj	74/74 (100%)	74 (100%)	0	100	100
78	CW	54/54 (100%)	53 (98%)	1 (2%)	57	84
79	Cg	95/95 (100%)	88 (93%)	7 (7%)	13	44
80	Cd	99/99 (100%)	93 (94%)	6 (6%)	18	53
81	AS	122/122 (100%)	121 (99%)	1 (1%)	81	93
All	All	10116/10117 (100%)	9913 (98%)	203 (2%)	57	83

5 of 203 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
45	AM	30	LYS
59	Ae	90	LYS
80	Cd	83	VAL
47	AN	38	LYS
52	AA	191	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 10 such sidechains are listed below:

Mol	Chain	Res	Type
81	AS	73	ASN
81	AS	87	GLN
81	AS	135	HIS
55	AZ	46	GLN
66	AI	64	ASN

### 5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
38	A9	29/30 (96%)	8 (27%)	1 (3%)
39	A7	119/120 (99%)	30 (25%)	1 (0%)
40	A8	122/123 (99%)	45 (36%)	1 (0%)
69	A5	3561/3703 (96%)	1353 (37%)	81 (2%)
70	B2	1792/1936 (92%)	630 (35%)	32 (1%)
All	All	5623/5912 (95%)	2066 (36%)	116 (2%)

5 of 2066 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
38	A9	4	U
38	A9	9	C
38	A9	20	U
38	A9	21	G
38	A9	22	A

5 of 116 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
69	A5	2125	G
70	B2	1673	U
69	A5	3608	G
70	B2	1595	G
70	B2	1185	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 monosaccharides in this entry.

#### 5.6 Ligand geometry [i](#)

There are no ligands in this entry.

#### 5.7 Other polymers [i](#)

There are no such residues in this entry.

#### 5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
69	A5	7
70	B2	5
72	AT	1
7	CI	1

The worst 5 of 14 chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	AT	107:LEU	C	121:ARG	N	19.55
1	A5	2293:C	O3'	2390:U	P	18.82
1	A5	2941:G	O3'	2976:A	P	18.19
1	B2	738:A	O3'	757:U	P	14.79
1	A5	2406:A	O3'	2452:A	P	13.09

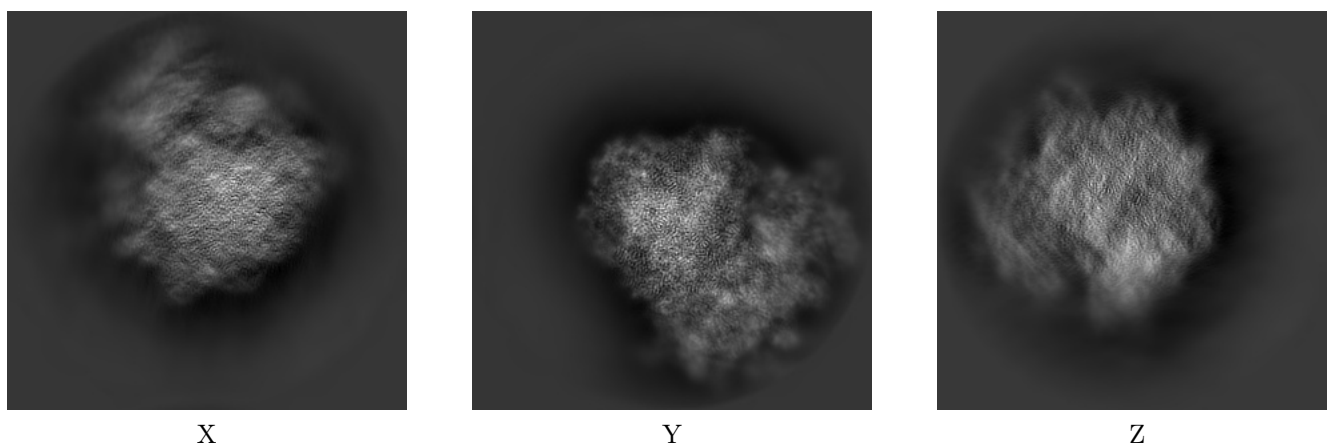
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-10624. These allow visual inspection of the internal detail of the map and identification of artifacts.

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

### 6.1 Orthogonal projections [i](#)

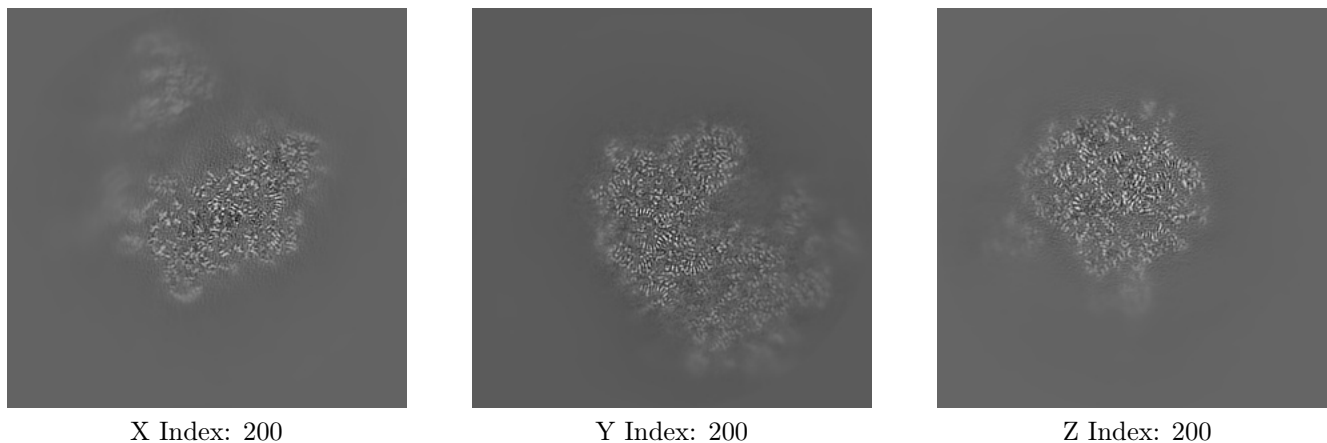
#### 6.1.1 Primary map



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

### 6.2 Central slices [i](#)

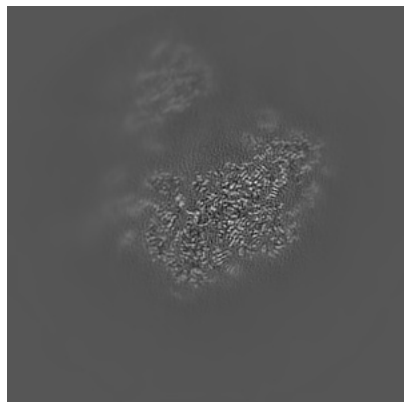
#### 6.2.1 Primary map



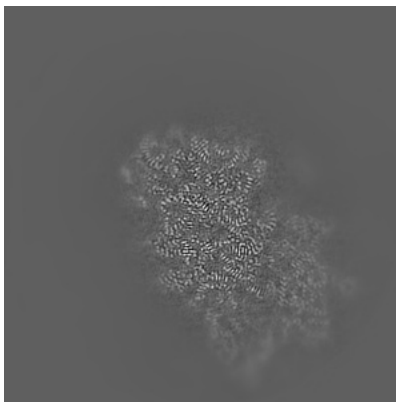
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [i](#)

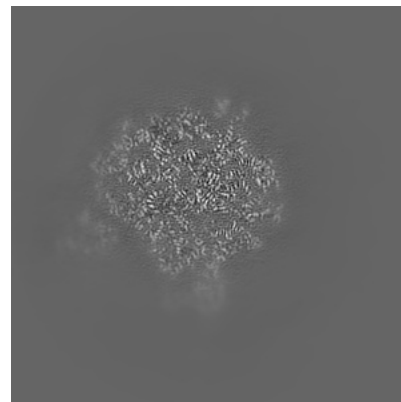
### 6.3.1 Primary map



X Index: 206



Y Index: 225



Z Index: 200

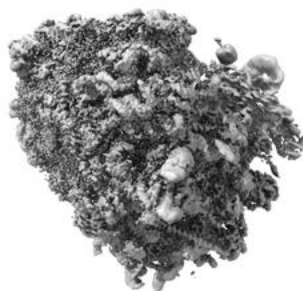
The images above show the largest variance slices of the map in three orthogonal directions.

## 6.4 Orthogonal surface views [i](#)

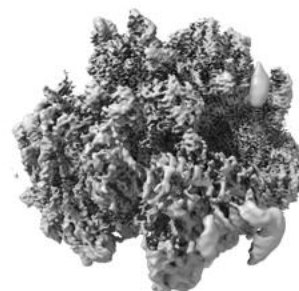
### 6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.035. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

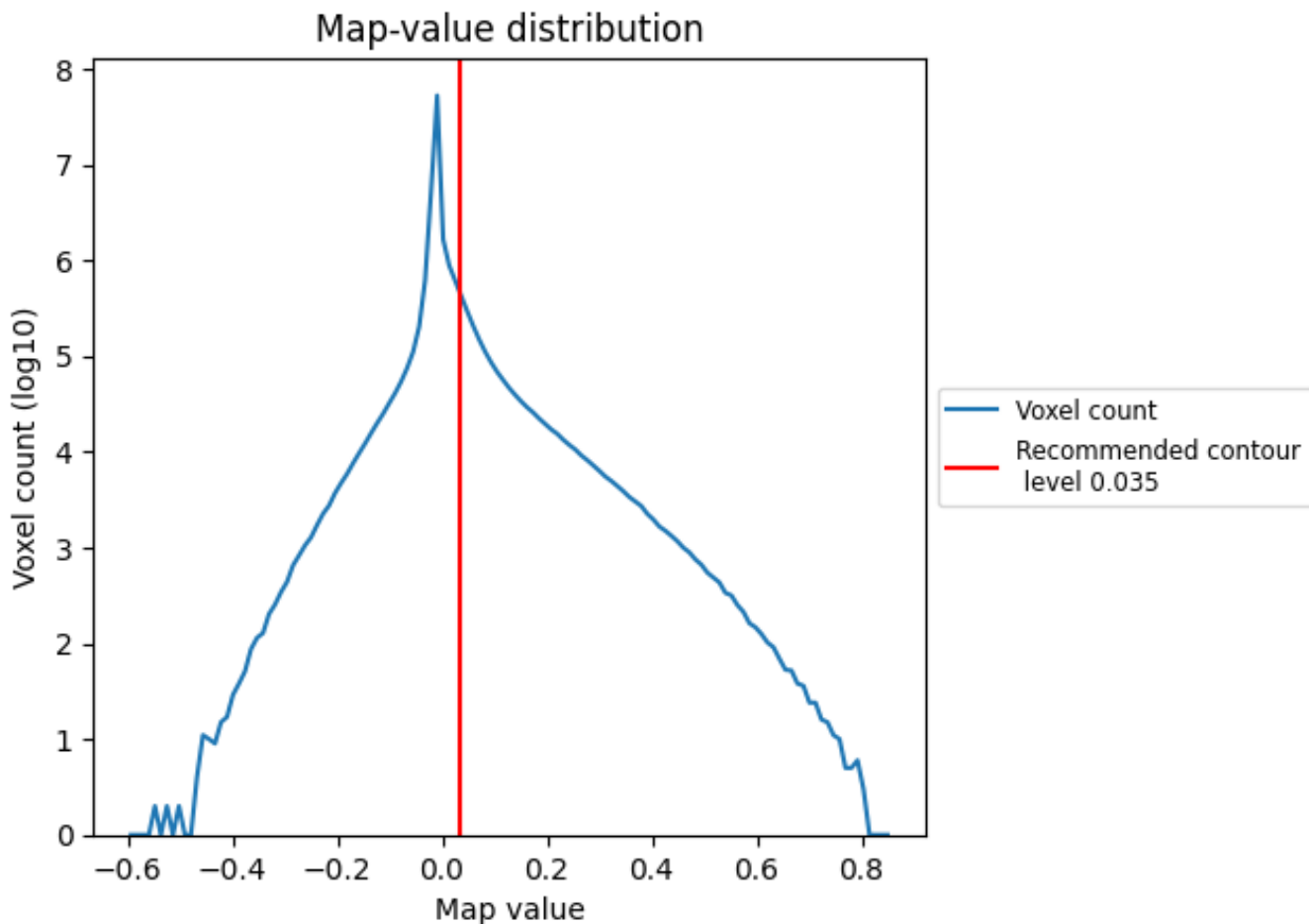
## 6.5 Mask visualisation

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

## 7 Map analysis [i](#)

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

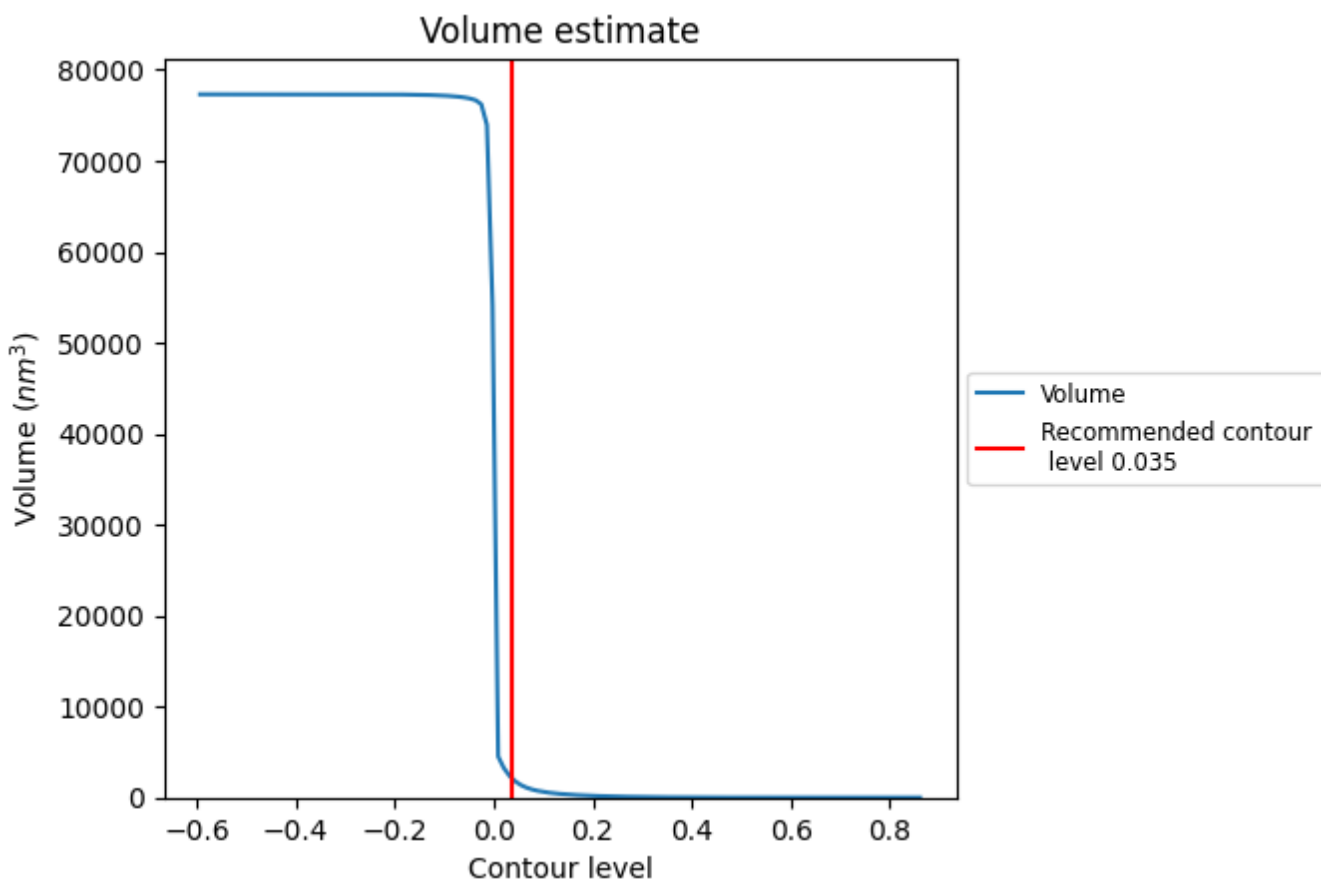
### 7.1 Map-value distribution [i](#)



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



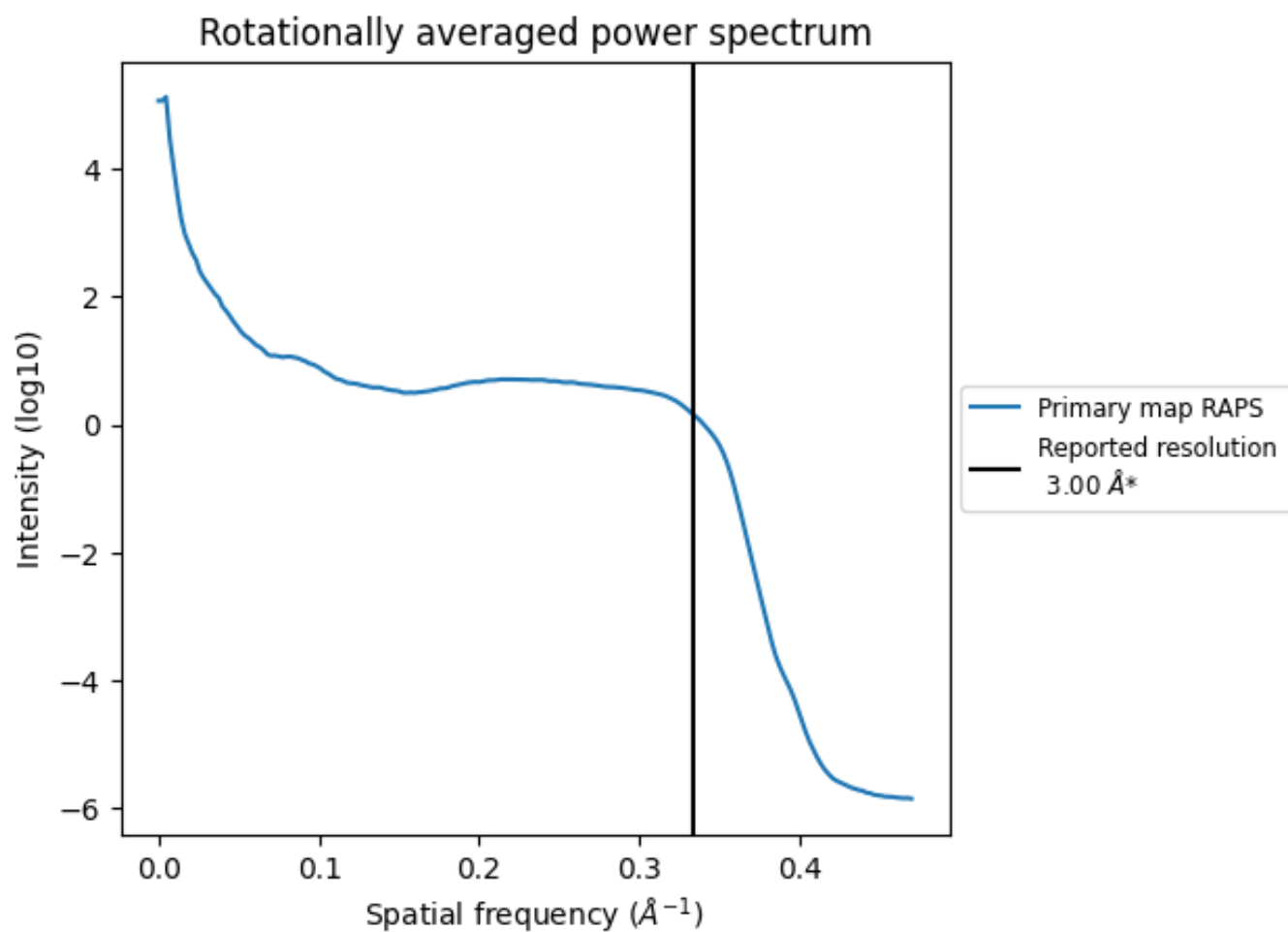
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 2221 nm<sup>3</sup>; this corresponds to an approximate mass of 2007 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](#)

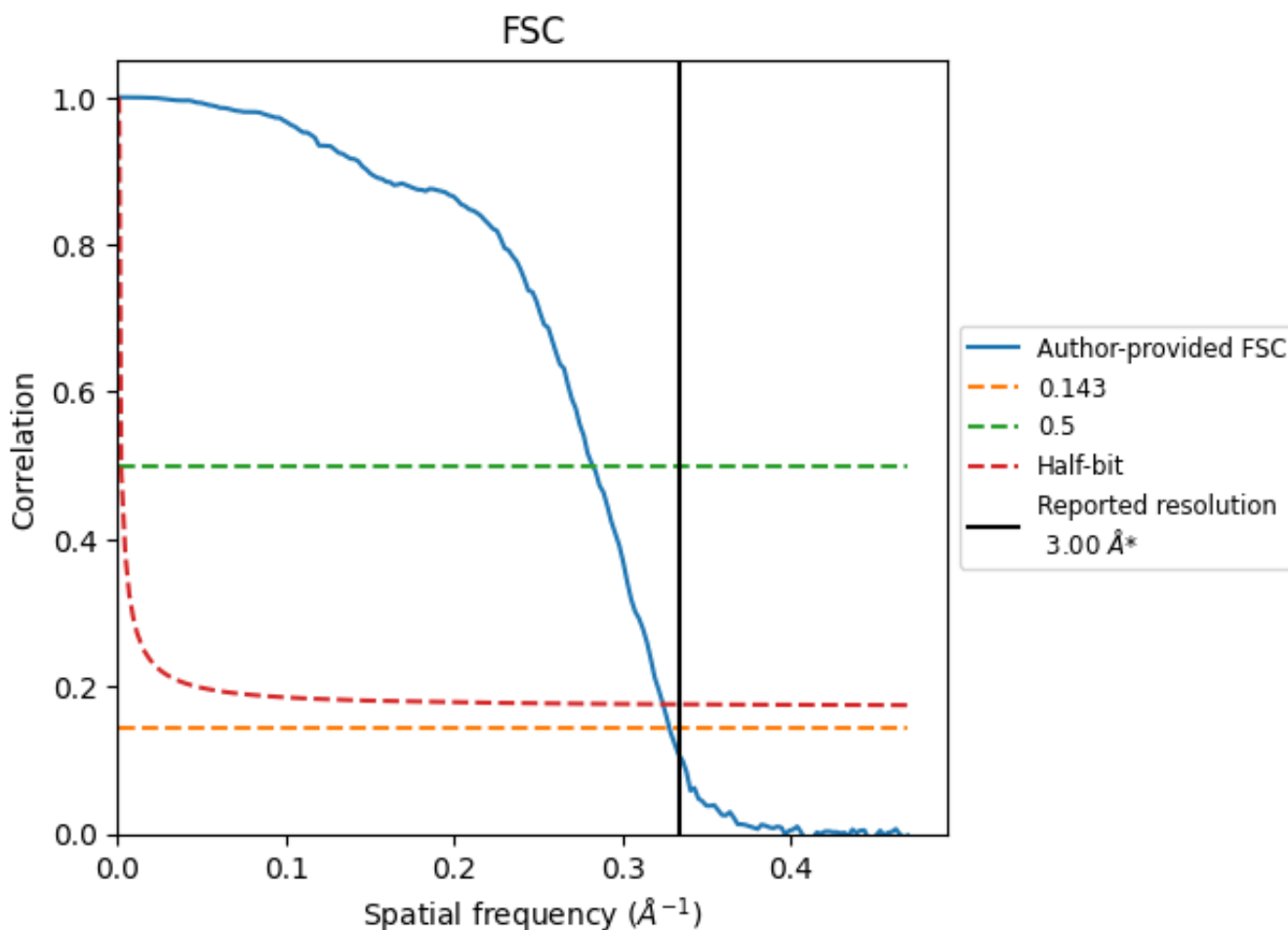


\*Reported resolution corresponds to spatial frequency of  $0.333 \text{ \AA}^{-1}$

## 8 Fourier-Shell correlation [\(i\)](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

### 8.1 FSC [\(i\)](#)



\*Reported resolution corresponds to spatial frequency of 0.333 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

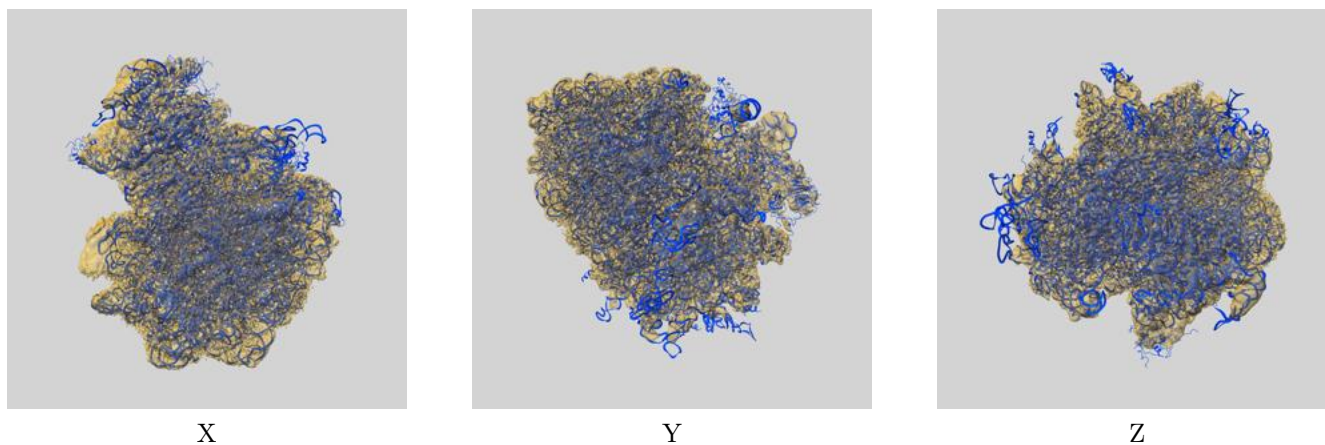
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.00	-	-
Author-provided FSC curve	3.05	3.54	3.09
Unmasked-calculated*	-	-	-

\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

## 9 Map-model fit [i](#)

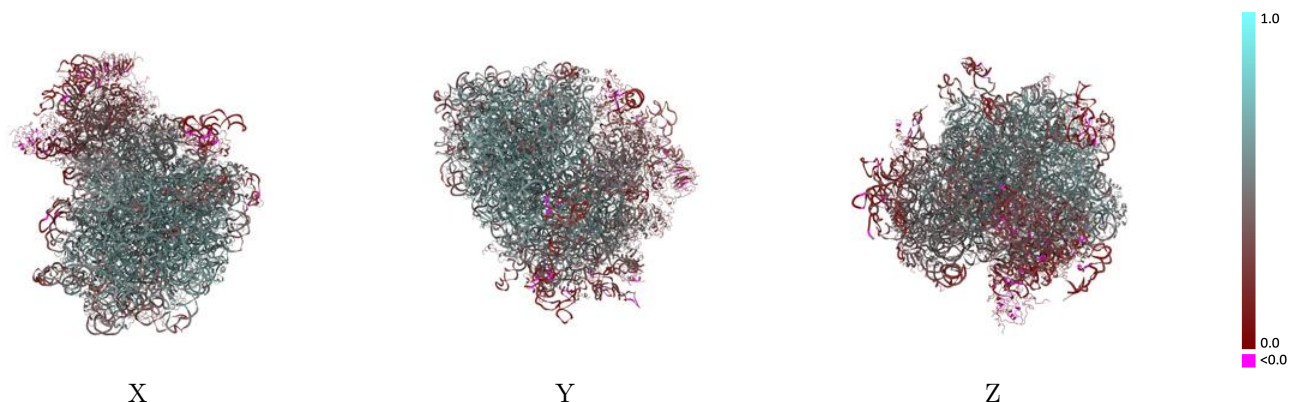
This section contains information regarding the fit between EMDB map EMD-10624 and PDB model 6XU8. Per-residue inclusion information can be found in section 3 on page 19.

### 9.1 Map-model overlay [i](#)



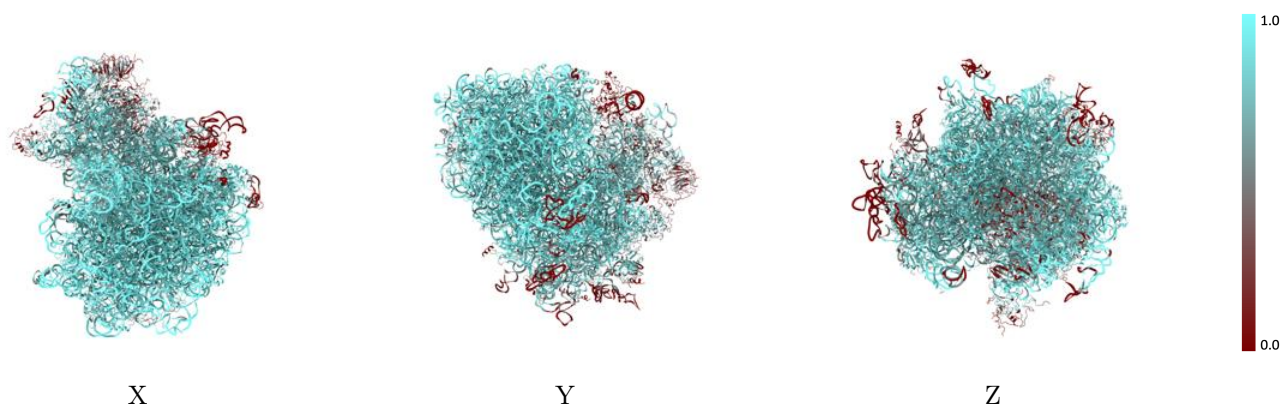
The images above show the 3D surface view of the map at the recommended contour level 0.035 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



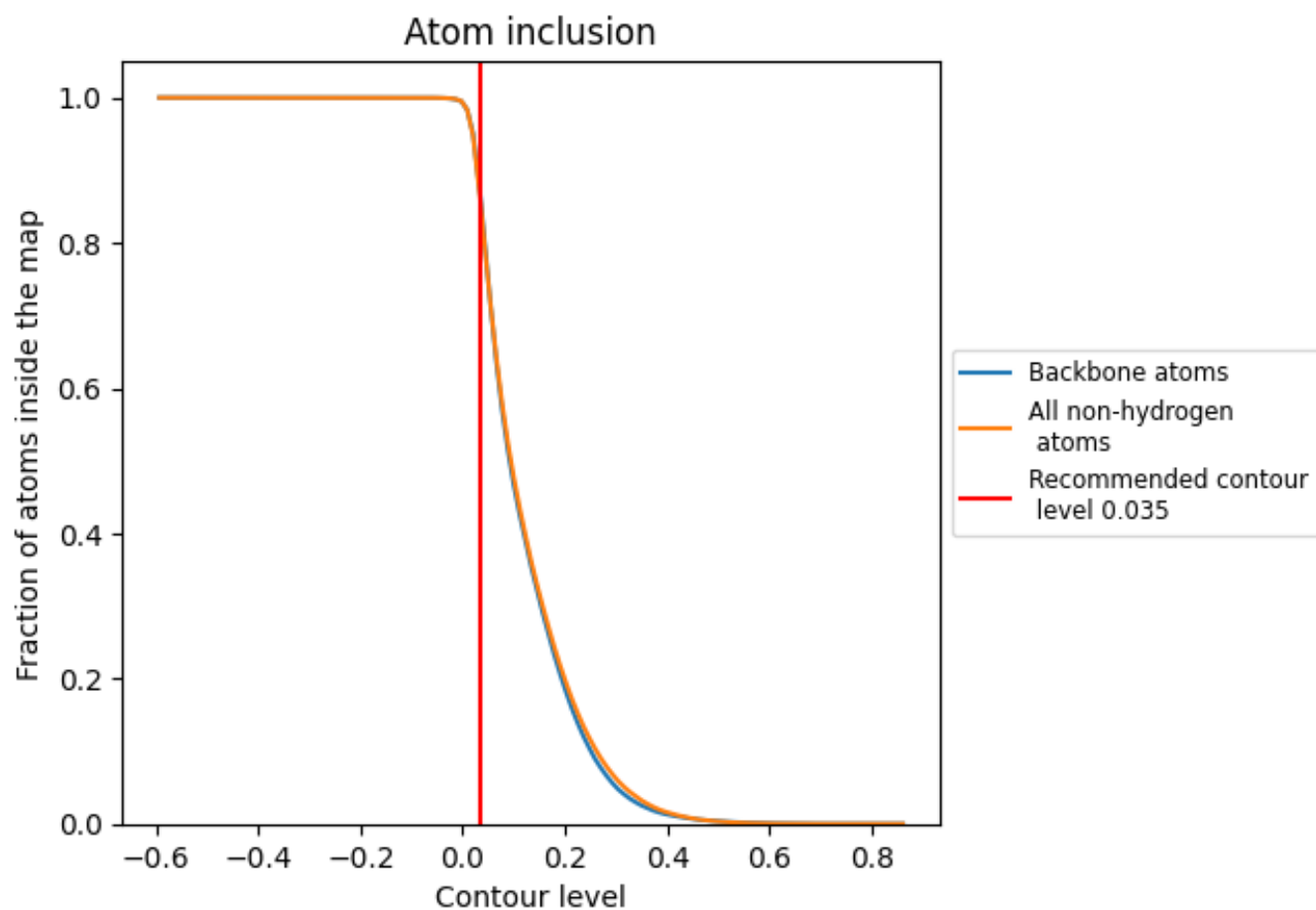
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.035).







































































## 9.4 Atom inclusion [i](#)



At the recommended contour level, 86% of all backbone atoms, 86% 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 (0.035) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8557	 0.4690
A5	 0.9303	 0.5240
A7	 0.9894	 0.5620
A8	 0.9786	 0.5900
A9	 0.9890	 0.5630
AA	 0.6439	 0.3570
AB	 0.7855	 0.4240
AC	 0.7076	 0.4180
AD	 0.4963	 0.2880
AE	 0.7815	 0.4400
AF	 0.4029	 0.2890
AG	 0.6767	 0.3620
AH	 0.6717	 0.3350
AI	 0.7137	 0.4450
AJ	 0.7858	 0.3840
AK	 0.8306	 0.1820
AL	 0.7307	 0.4760
AM	 0.3337	 0.0880
AN	 0.8366	 0.4940
AO	 0.8011	 0.4400
AP	 0.6411	 0.2030
AQ	 0.4760	 0.2430
AR	 0.3861	 0.2720
AS	 0.6636	 0.2790
AT	 0.6783	 0.2550
AU	 0.4620	 0.2850
AV	 0.6103	 0.3970
AW	 0.8338	 0.4890
AX	 0.7805	 0.4840
AY	 0.7452	 0.3580
AZ	 0.3970	 0.2280
Aa	 0.7762	 0.4720
Ab	 0.7903	 0.3890
Ac	 0.5365	 0.3050
Ad	 0.8285	 0.3120



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Chain	Atom inclusion	Q-score
Ae	0.6000	0.3500
Af	0.4230	0.0970
Ag	0.2735	0.1760
B2	0.8562	0.3880
CA	0.9589	0.5900
CB	0.9337	0.5680
CC	0.9431	0.5700
CD	0.8932	0.4970
CE	0.8359	0.4500
CF	0.9766	0.5970
CG	0.8212	0.4880
CH	0.9592	0.5270
CI	0.8556	0.4890
CJ	0.8406	0.4420
CL	0.8713	0.5180
CM	0.9020	0.4850
CN	0.9673	0.5880
CO	0.9583	0.5830
CP	0.8399	0.5490
CQ	0.9719	0.5970
CR	0.8274	0.4900
CS	0.9538	0.5590
CT	0.9515	0.5600
CU	0.8197	0.4670
CV	0.9579	0.5910
CW	0.9506	0.5770
CX	0.9116	0.5480
CY	0.9672	0.5800
CZ	0.9256	0.5180
Ca	0.9522	0.5710
Cb	0.9332	0.5120
Cc	0.9350	0.5380
Cd	0.9534	0.5620
Ce	0.9681	0.6060
Cf	0.9069	0.5050
Cg	0.9726	0.5870
Ch	0.9340	0.5600
Ci	0.8646	0.4810
Cj	0.9777	0.6210
Ck	0.8650	0.4890
Cl	0.9808	0.6090
Cm	0.9735	0.5340

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Chain	Atom inclusion	Q-score
Cn	 0.9349	 0.5760
Co	 0.9481	 0.5650
Cp	 0.9561	 0.5900
Cr	 0.8535	 0.5020
Cz	 0.0226	 0.1440