wwPDB EM Validation Summary Report

Nov 11, 2026 – 10:44 AM JST

PDB ID	:	24NU / pdb_000024nu
EMDB ID	:	EMD-69707
Title	:	M. smegmatis 70S ribosome in complex with RRF.
Authors	:	Sengupta, J.; Dhur, A.; Baid, P.; Srinivasan, K.
Deposited on	:	2026-03-12
Resolution	:	3.70 Å(reported)
Based on initial model	:	5O61

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

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

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

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

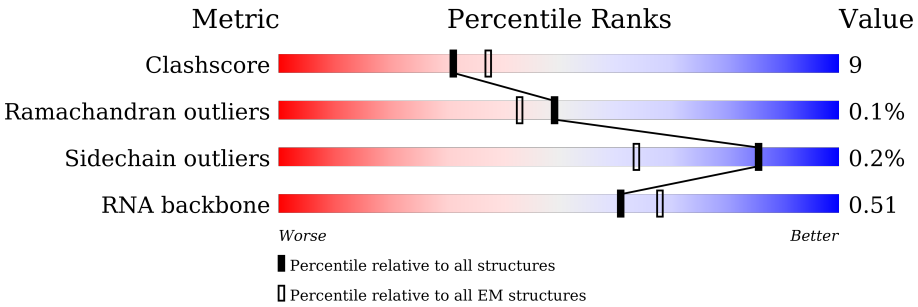
EMDB validation analysis	:	0.0.1.dev133
MolProbity	:	4-5-2 with Phenix2.2
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.51

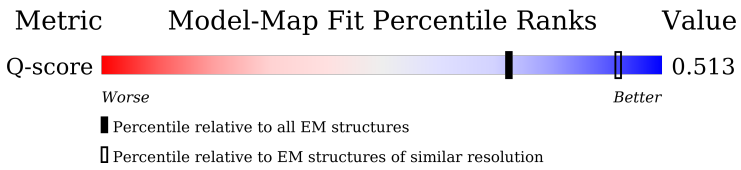
1 Overall quality at a glance

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

The reported resolution of this entry is 3.70 Å.

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





Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	11569 (3.20 - 4.20)

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	3	24	83% 12% ·
2	4	8	75% 62% 12% 25%
3	5	185	50% 59% 38% ·

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Mol	Chain	Length	Quality of chain
4	A	1528	50% 40% 9%
5	B	118	68% 27% 5%
6	C	275	52% 23% 24%
7	D	201	63% 36%
8	E	214	64% 21% 16%
9	F	96	63% 38%
10	G	156	77% 22%
11	H	132	81% 18%
12	I	150	55% 29% 16%
13	J	101	5% 69% 27%
14	K	138	63% 20% 17%
15	L	124	71% 27%
16	M	124	60% 31% 6%
17	N	61	79% 20%
18	O	89	72% 27%
19	P	156	47% 26% 28%
20	Q	98	57% 39%
21	R	84	65% 12% 23%
22	S	93	65% 24% 12%
23	T	86	65% 34%
24	U	100	78% 19%
25	V	277	71% 52% 30% 18%
26	W	215	73% 16% 11%
27	X	88	70% 19% 10%
28	Y	64	83% 16%

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Mol	Chain	Length	Quality of chain
29	Z	77	68% 16% 17%
30	a	61	82% 15%
31	b	57	82% 12% 5%
32	c	55	64% 25% 11%
33	d	47	81% 17%
34	e	64	81% 17%
35	f	37	76% 24%
36	g	75	43% 21% 36%
37	i	278	83% 16%
38	j	217	83% 16%
39	k	215	85% 13%
40	l	187	61% 36%
41	m	179	77% 21%
42	n	151	15% 75% 25%
43	o	142	69% 48% 45% 6%
44	p	175	67% 47% 25% 28%
45	q	147	85% 14%
46	r	122	83% 17%
47	s	147	82% 16%
48	t	138	76% 22%
49	u	199	46% 13% 41%
50	v	127	77% 22%
51	w	113	82% 18%
52	x	129	82% 14%
53	y	103	84% 13%

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Mol	Chain	Length	Quality of chain
54	z	153	
55	1	105	
56	h	3120	

2 Entry composition (i)

There are 58 unique types of molecules in this entry. The entry contains 149611 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called 50S ribosomal protein bL37.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
1	3	23	189	111	50	28	0	0

- Molecule 2 is a RNA chain called mRNA fragment.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	4	8	173	78	35	52	8	0	0

- Molecule 3 is a protein called Ribosome-recycling factor.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	5	185	1458	894	265	294	5	0	0

- Molecule 4 is a RNA chain called 16S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
4	A	1511	32439	14448	5930	10550	1511	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
5	B	118	2522	1126	468	810	118	0	0

- Molecule 6 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	C	208	1660	1036	322	298	4	0	0

- Molecule 7 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	D	200	Total	C	N	O	S	0	0
			1641	1028	316	295	2		

- Molecule 8 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	E	180	Total	C	N	O	S	0	0
			1296	812	245	235	4		

- Molecule 9 is a protein called Small ribosomal subunit protein bS6.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	F	96	Total	C	N	O	S	0	0
			771	486	138	145	2		

- Molecule 10 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	G	155	Total	C	N	O	S	0	0
			1232	768	241	221	2		

- Molecule 11 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	H	131	Total	C	N	O	S	0	0
			1010	633	189	187	1		

- Molecule 12 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms				AltConf	Trace
12	I	126	Total	C	N	O	0	0
			994	630	194	170		

- Molecule 13 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	J	99	Total	C	N	O	S	0	0
			788	495	146	144	3		

- Molecule 14 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	K	115	Total 855	C 528	N 170	O 156	S 1	0	0

- Molecule 15 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	L	122	Total 958	C 594	N 197	O 165	S 2	0	0

- Molecule 16 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	M	116	Total 935	C 572	N 191	O 169	S 3	0	0

- Molecule 17 is a protein called 30S ribosomal protein S14 type Z.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	N	60	Total 477	C 302	N 97	O 73	S 5	0	0

- Molecule 18 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms				AltConf	Trace
18	O	88	Total 720	C 449	N 147	O 124	0	0

- Molecule 19 is a protein called 30S ribosomal protein S16.

Mol	Chain	Residues	Atoms				AltConf	Trace
19	P	113	Total 891	C 570	N 162	O 159	0	0

- Molecule 20 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	Q	94	Total 748	C 469	N 142	O 135	S 2	0	0

- Molecule 21 is a protein called 30S ribosomal protein S18 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	R	65	Total	C	N	O	S	0	0
			513	318	102	90	3		

- Molecule 22 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	S	82	Total	C	N	O	S	0	0
			662	425	124	112	1		

- Molecule 23 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms				AltConf	Trace
23	T	85	Total	C	N	O	0	0
			660	402	139	119		

- Molecule 24 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms				AltConf	Trace
24	U	97	Total	C	N	O	0	0
			756	479	138	139		

- Molecule 25 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	V	228	Total	C	N	O	S	0	0
			1793	1132	322	330	9		

- Molecule 26 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms				AltConf	Trace
26	W	192	Total	C	N	O	0	0
			1428	881	255	292		

- Molecule 27 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms				AltConf	Trace
27	X	79	Total	C	N	O	0	0
			586	361	123	102		

- Molecule 28 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	Y	63	Total	C	N	O	S	0	0
			470	283	103	80	4		

- Molecule 29 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	Z	64	Total	C	N	O	S	0	0
			531	324	103	103	1		

- Molecule 30 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms				AltConf	Trace
30	a	59	Total	C	N	O	0	0
			474	292	95	87		

- Molecule 31 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	b	54	Total	C	N	O	S	0	0
			423	260	93	69	1		

- Molecule 32 is a protein called 50S ribosomal protein L33 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	c	49	Total	C	N	O	S	0	0
			405	248	82	71	4		

- Molecule 33 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	d	46	Total	C	N	O	S	0	0
			377	225	97	54	1		

- Molecule 34 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms				AltConf	Trace
34	e	63	Total	C	N	O	0	0
			502	302	115	85		

- Molecule 35 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	f	37	Total	C	N	O	S	0	0
			299	181	66	47	5		

- Molecule 36 is a protein called 50S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	g	48	Total	C	N	O	S	0	0
			364	225	63	71	5		

- Molecule 37 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	i	275	Total	C	N	O	S	0	0
			2110	1298	438	370	4		

- Molecule 38 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	j	214	Total	C	N	O	S	0	0
			1587	982	310	290	5		

- Molecule 39 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	k	209	Total	C	N	O	S	0	0
			1569	969	295	303	2		

- Molecule 40 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	l	182	Total	C	N	O	S	0	0
			1445	907	271	261	6		

- Molecule 41 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	m	176	Total	C	N	O	S	0	0
			1348	845	249	253	1		

- Molecule 42 is a protein called 50S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	n	151	Total	C	N	O	S	0	0
			1018	635	188	194	1		

- Molecule 43 is a protein called 50S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	o	133	Total	C	N	O	S	0	0
			990	625	175	187	3		

- Molecule 44 is a protein called 50S ribosomal protein L10.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	p	126	Total	C	N	O	S	0	0
			918	580	156	180	2		

- Molecule 45 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	q	146	Total	C	N	O	S	0	0
			1130	722	207	200	1		

- Molecule 46 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	r	122	Total	C	N	O	S	0	0
			938	586	179	170	3		

- Molecule 47 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	s	145	Total	C	N	O	S	0	0
			1078	676	205	194	3		

- Molecule 48 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	t	136	Total	C	N	O	S	0	0
			1092	690	213	187	2		

- Molecule 49 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	u	118	Total 928	C 583	N 180	O 163	S 2	0	0

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

Mol	Chain	Residues	Atoms				AltConf	Trace
50	v	126	Total 956	C 586	N 199	O 171	0	0

- Molecule 51 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	w	113	Total 907	C 570	N 171	O 165	S 1	0	0

- Molecule 52 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms				AltConf	Trace
52	x	124	Total 988	C 613	N 203	O 172	0	0

- Molecule 53 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms				AltConf	Trace
53	y	100	Total 754	C 478	N 137	O 139	0	0

- Molecule 54 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms				AltConf	Trace
54	z	114	Total 873	C 543	N 171	O 159	0	0

- Molecule 55 is a protein called Large ribosomal subunit protein uL24.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	1	97	Total 732	C 456	N 137	O 137	S 2	0	0

- Molecule 56 is a RNA chain called 23S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	h	3084	Total 66232	C 29522	N 12183	O 21443	P 3084	0	0

- Molecule 57 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
57	F	1	Total 1	Mg 1	0
57	R	1	Total 1	Mg 1	0
57	X	1	Total 1	Mg 1	0
57	i	3	Total 3	Mg 3	0
57	l	1	Total 1	Mg 1	0
57	t	1	Total 1	Mg 1	0
57	z	1	Total 1	Mg 1	0
57	h	3	Total 3	Mg 3	0

- Molecule 58 is ZINC ION (CCD ID: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
58	N	1	Total 1	Zn 1	0
58	R	1	Total 1	Zn 1	0
58	Y	1	Total 1	Zn 1	0
58	c	1	Total 1	Zn 1	0
58	f	1	Total 1	Zn 1	0
58	g	1	Total 1	Zn 1	0

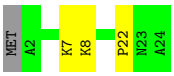
3 Residue-property plots (i)

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

• Molecule 1: 50S ribosomal protein bL37

Chain 3:

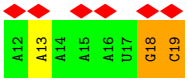




• Molecule 2: mRNA fragment

Chain 4:

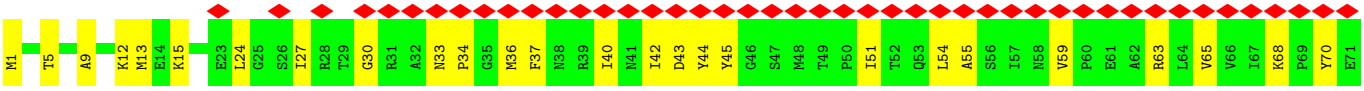


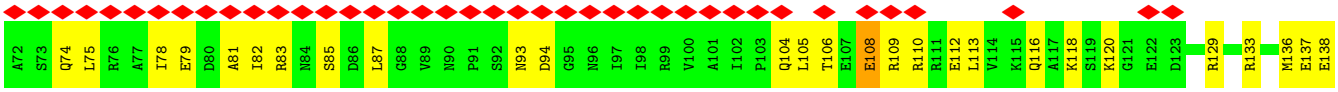


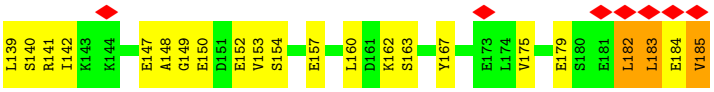
• Molecule 3: Ribosome-recycling factor

Chain 5:





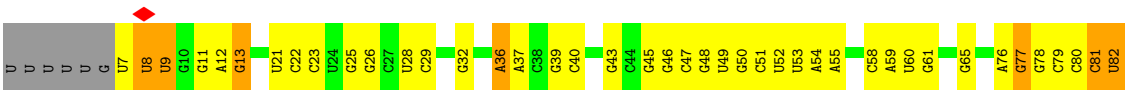


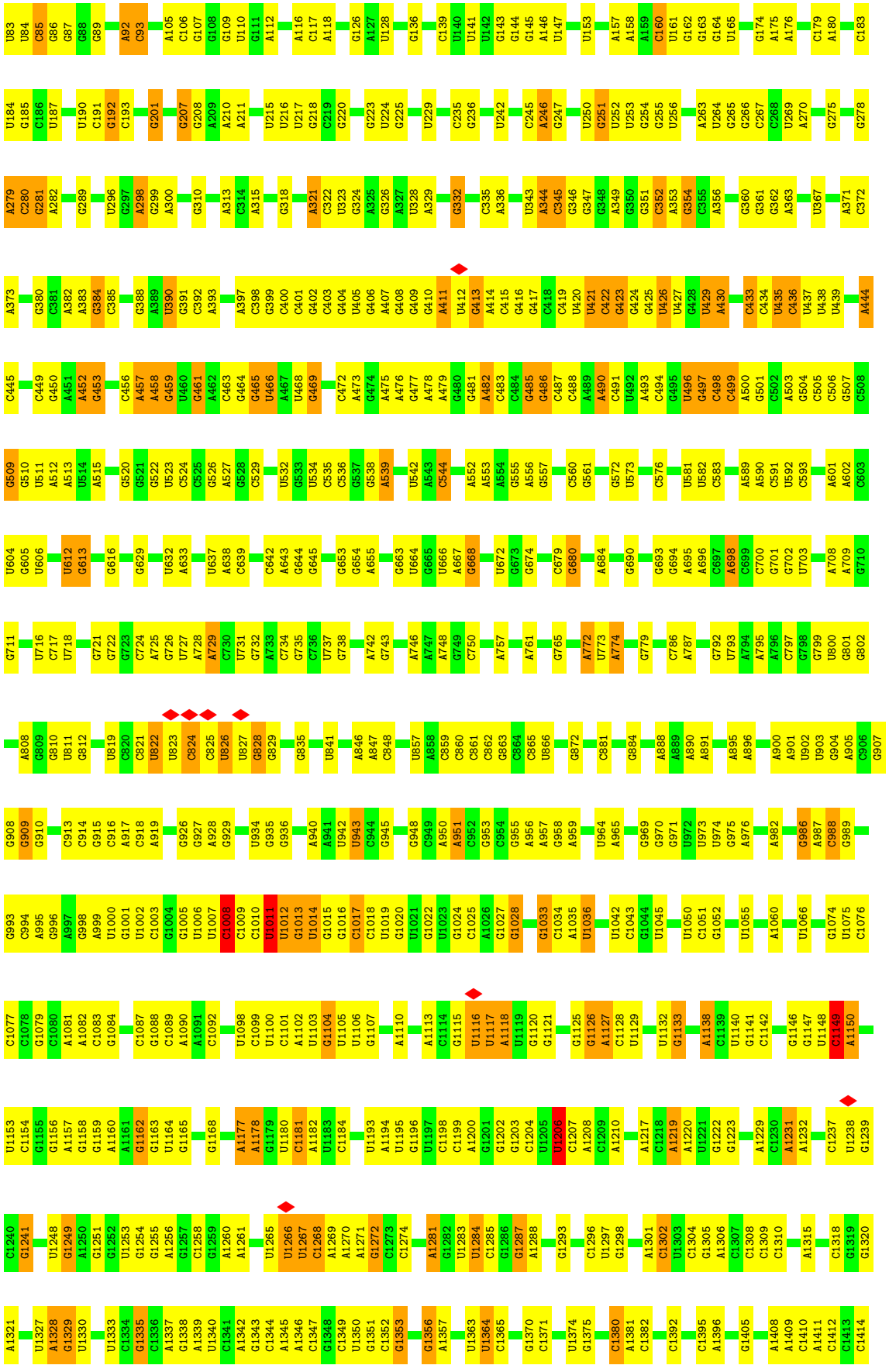


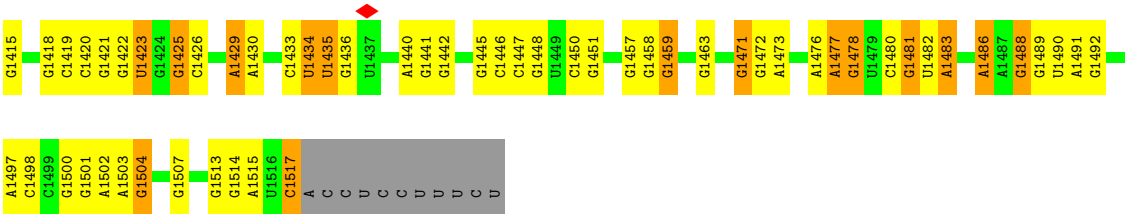
• Molecule 4: 16S ribosomal RNA

Chain A:



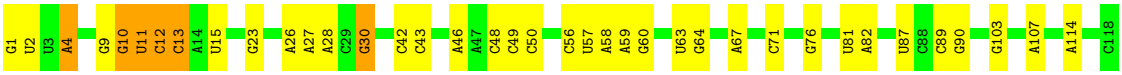






• Molecule 5: 5S ribosomal RNA

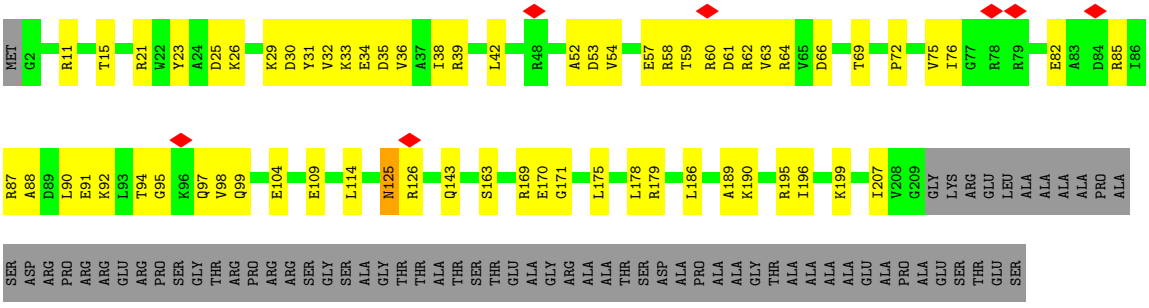
Chain B:



• Molecule 6: 30S ribosomal protein S3

Chain C:

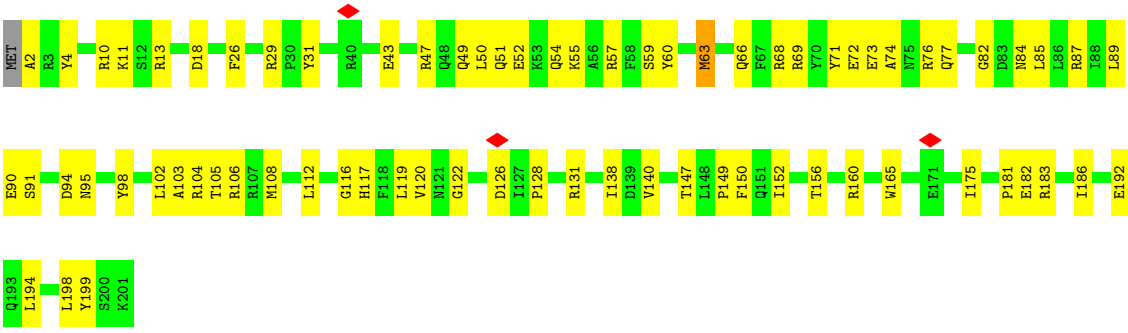




• Molecule 7: 30S ribosomal protein S4

Chain D:



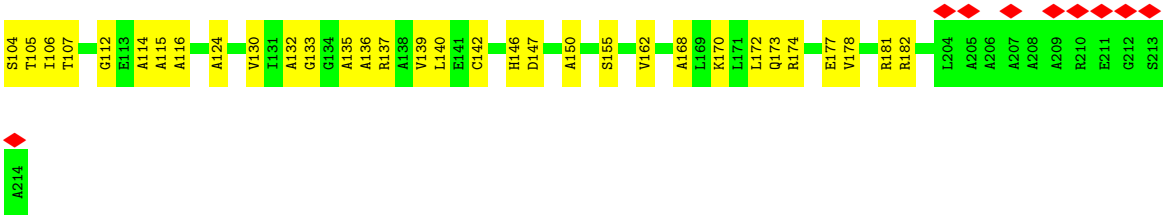


• Molecule 8: 30S ribosomal protein S5

Chain E:



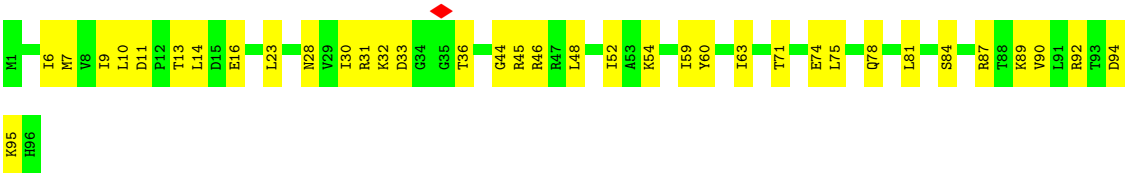




• Molecule 9: Small ribosomal subunit protein bS6

Chain F:

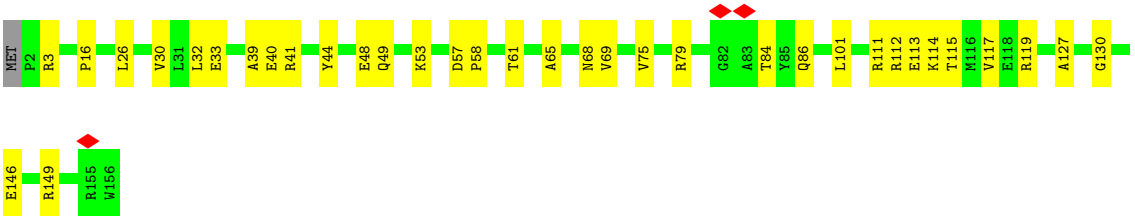




• Molecule 10: 30S ribosomal protein S7

Chain G:





• Molecule 11: 30S ribosomal protein S8

Chain H:

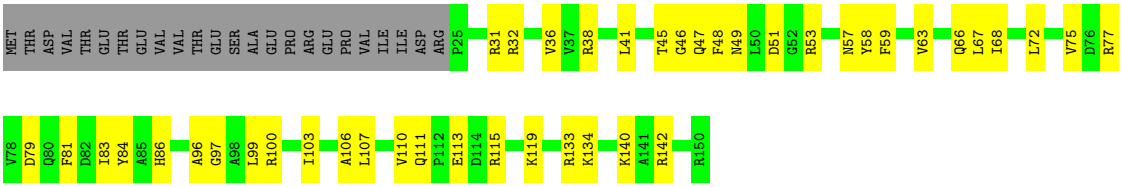




• Molecule 12: 30S ribosomal protein S9

Chain I:





• Molecule 13: 30S ribosomal protein S10

Chain J:

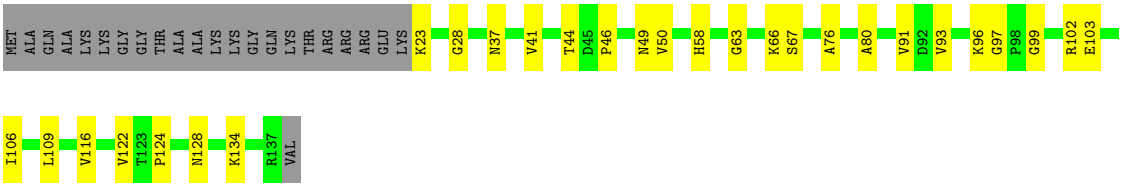




• Molecule 14: 30S ribosomal protein S11

Chain K:





• Molecule 15: 30S ribosomal protein S12

Chain L:

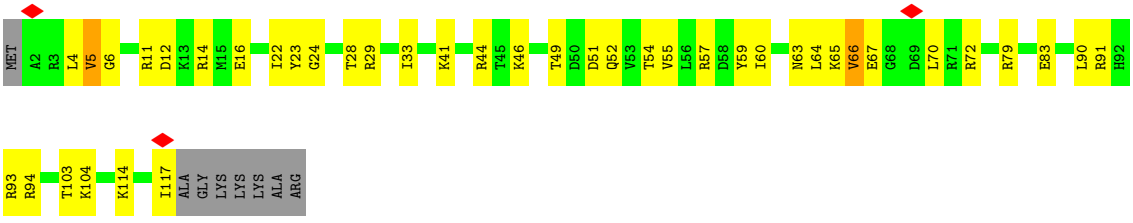




• Molecule 16: 30S ribosomal protein S13

Chain M:

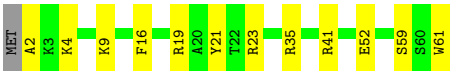




• Molecule 17: 30S ribosomal protein S14 type Z

Chain N:

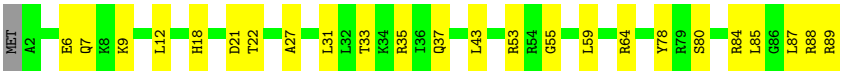




• Molecule 18: 30S ribosomal protein S15

Chain O:

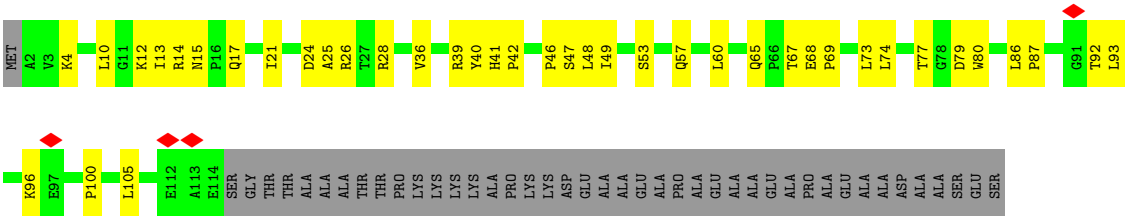




• Molecule 19: 30S ribosomal protein S16

Chain P:

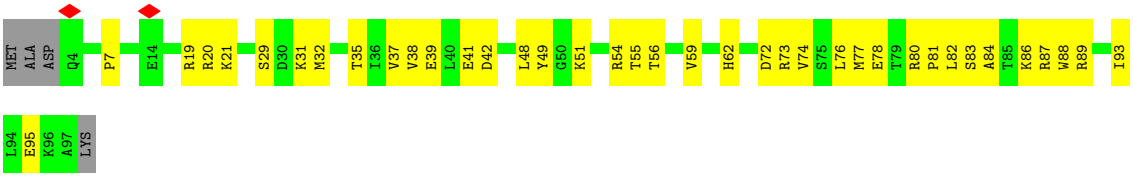




• Molecule 20: 30S ribosomal protein S17

Chain Q:





• Molecule 21: 30S ribosomal protein S18 2

Chain R:

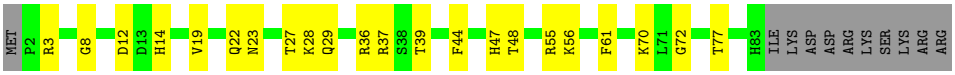




• Molecule 22: 30S ribosomal protein S19

Chain S:

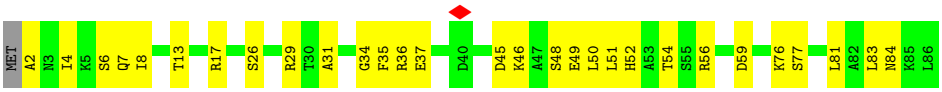




• Molecule 23: 30S ribosomal protein S20

Chain T:





• Molecule 24: 50S ribosomal protein L23

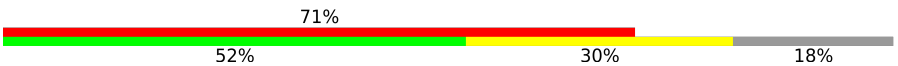
Chain U:

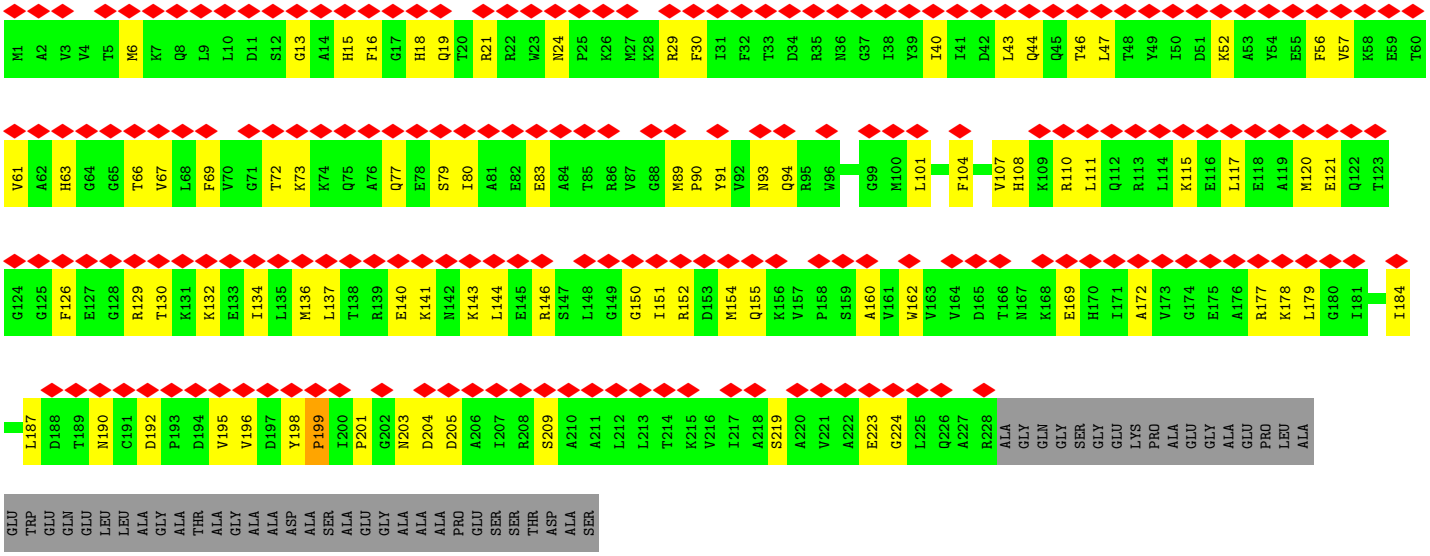




• Molecule 25: 30S ribosomal protein S2

Chain V:

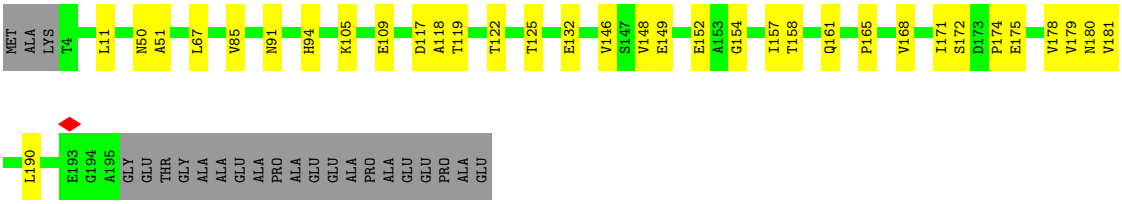




• Molecule 26: 50S ribosomal protein L25

Chain W:

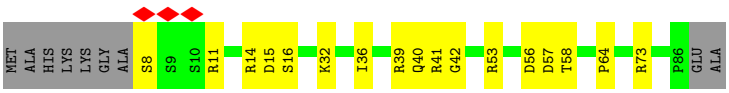




• Molecule 27: 50S ribosomal protein L27

Chain X:

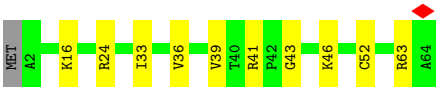




• Molecule 28: 50S ribosomal protein L28

Chain Y:

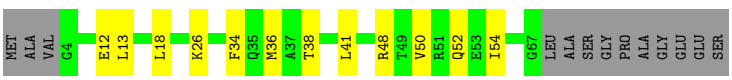




• Molecule 29: 50S ribosomal protein L29

Chain Z:

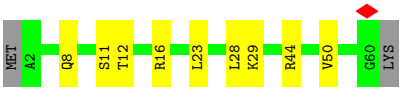




• Molecule 30: 50S ribosomal protein L30

Chain a:

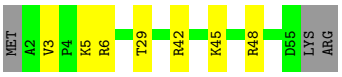




• Molecule 31: 50S ribosomal protein L32

Chain b:





• Molecule 32: 50S ribosomal protein L33 1

Chain c:





• Molecule 33: 50S ribosomal protein L34

Chain d:

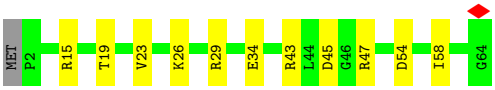




• Molecule 34: 50S ribosomal protein L35

Chain e:





• Molecule 35: 50S ribosomal protein L36

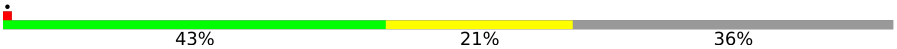
Chain f:

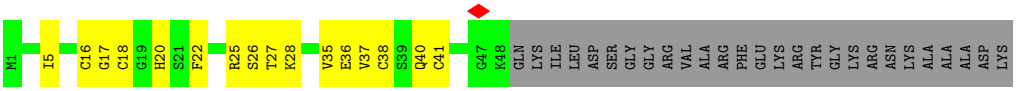




• Molecule 36: 50S ribosomal protein L31

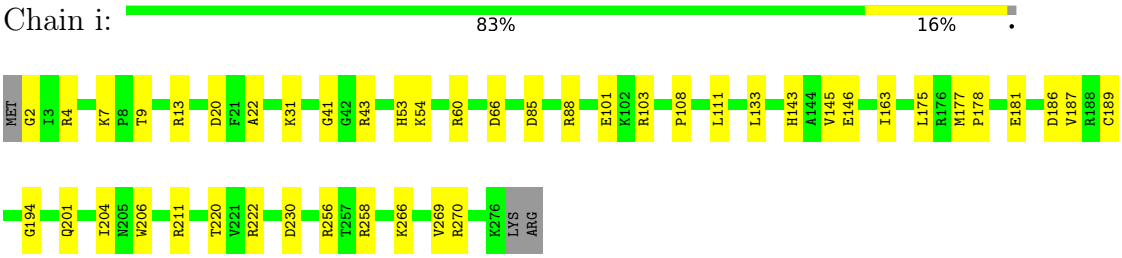
Chain g:





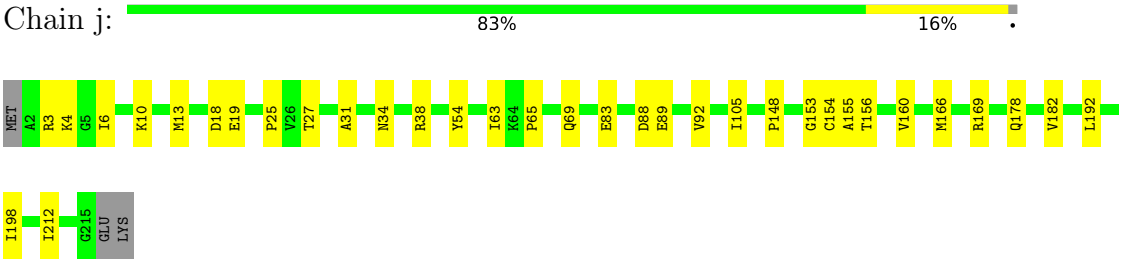
• Molecule 37: 50S ribosomal protein L2

Chain i:



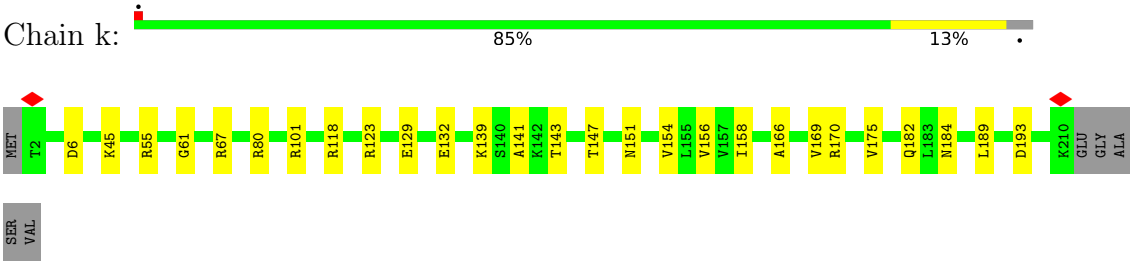
• Molecule 38: 50S ribosomal protein L3

Chain j:



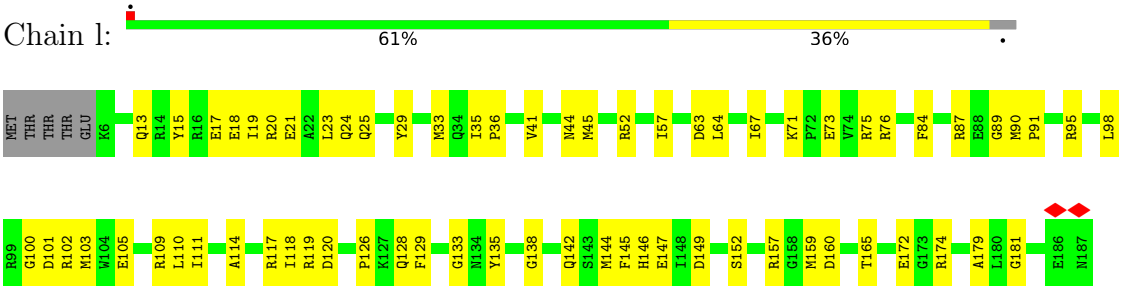
• Molecule 39: 50S ribosomal protein L4

Chain k:



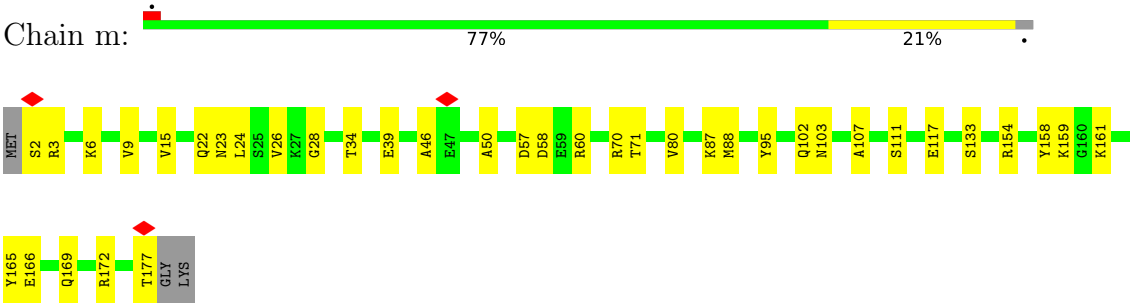
• Molecule 40: 50S ribosomal protein L5

Chain l:



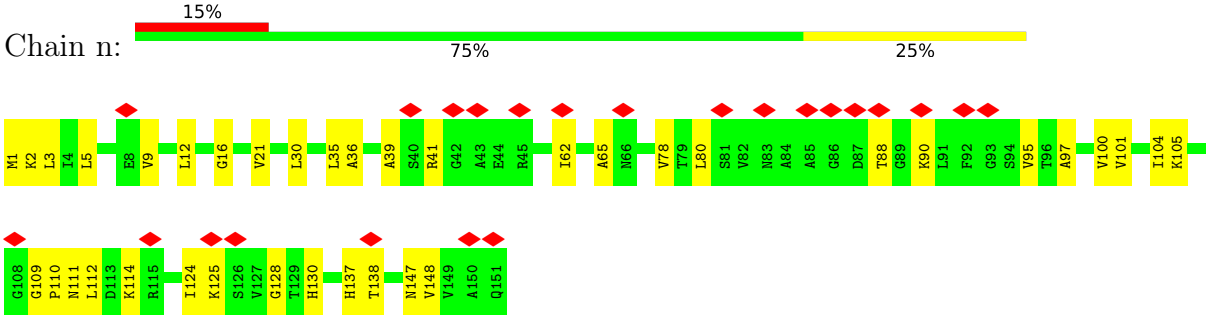
• Molecule 41: 50S ribosomal protein L6

Chain m:



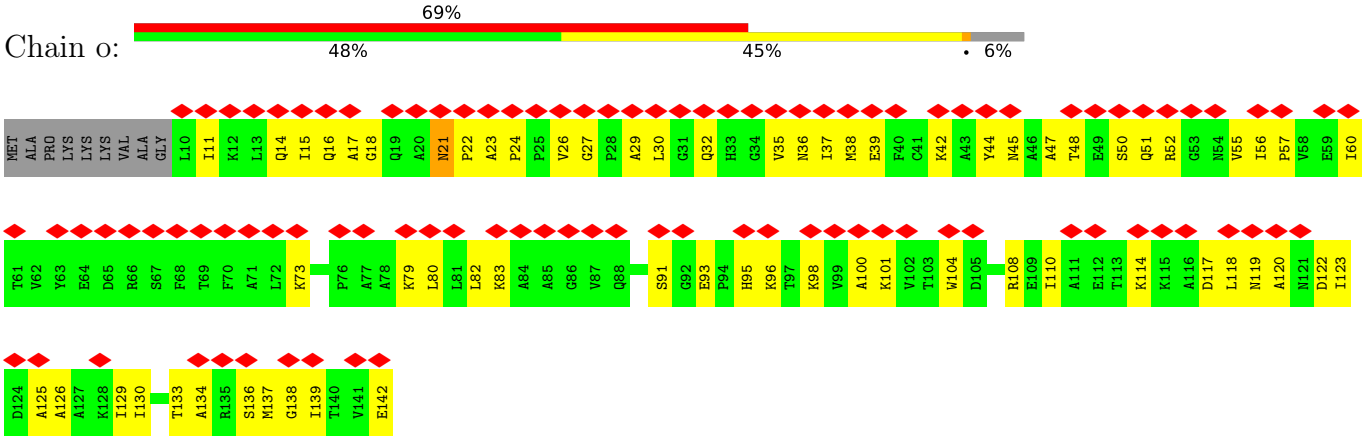
• Molecule 42: 50S ribosomal protein L9

Chain n:



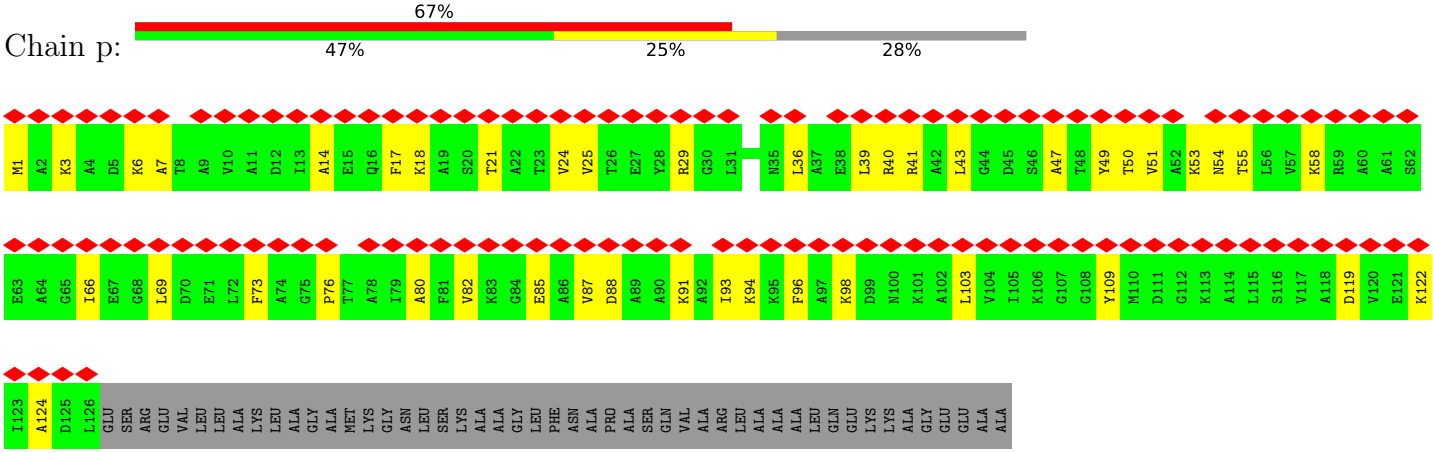
• Molecule 43: 50S ribosomal protein L11

Chain o:



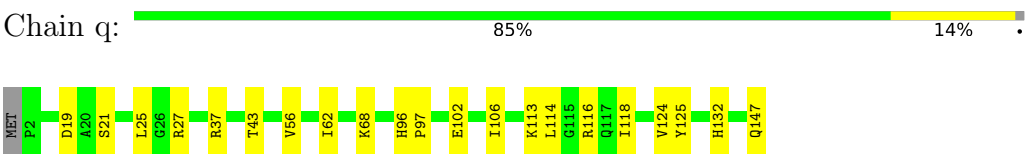
• Molecule 44: 50S ribosomal protein L10

Chain p:



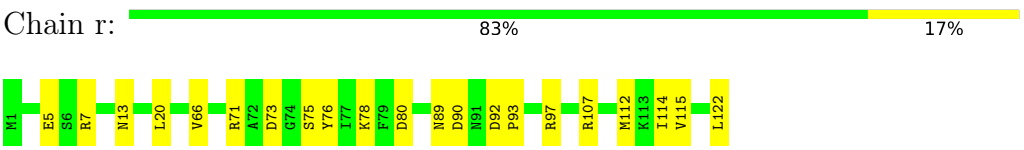
• Molecule 45: 50S ribosomal protein L13

Chain q:



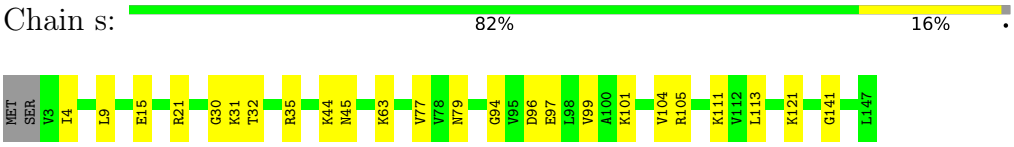
• Molecule 46: 50S ribosomal protein L14

Chain r:



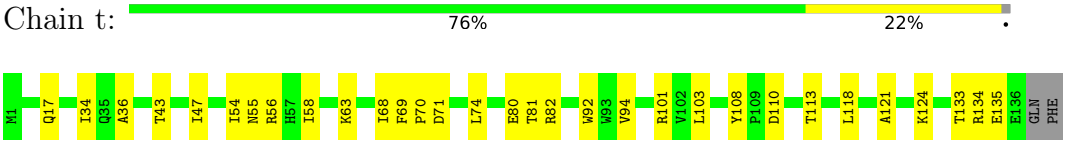
• Molecule 47: 50S ribosomal protein L15

Chain s:



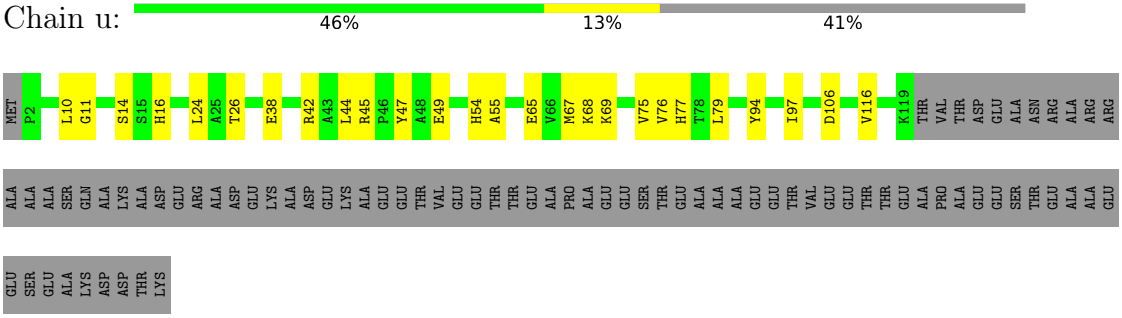
• Molecule 48: 50S ribosomal protein L16

Chain t:



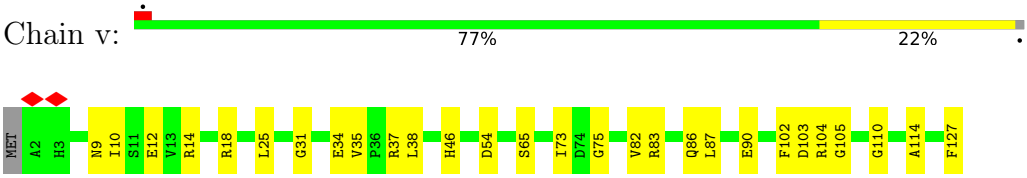
• Molecule 49: 50S ribosomal protein L17

Chain u:



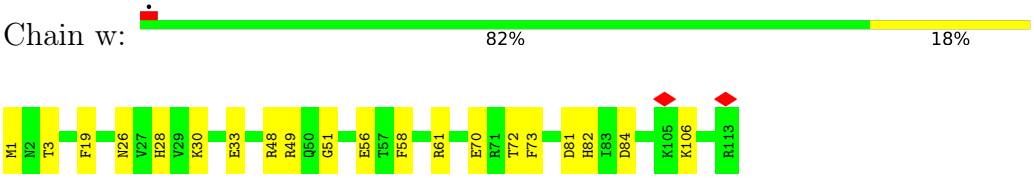
• Molecule 50: 50S ribosomal protein L18

Chain v:



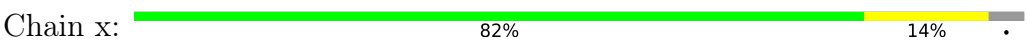
• Molecule 51: 50S ribosomal protein L19

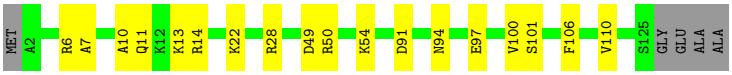
Chain w:



• Molecule 52: 50S ribosomal protein L20

Chain x:





• Molecule 53: 50S ribosomal protein L21

Chain y:

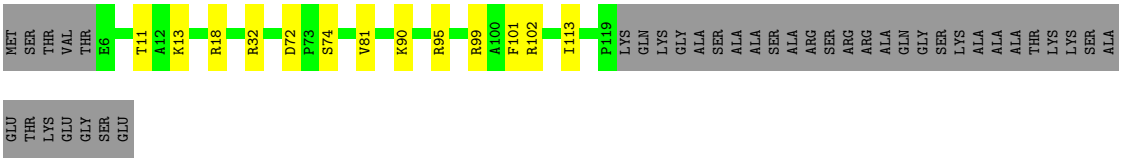




• Molecule 54: 50S ribosomal protein L22

Chain z:

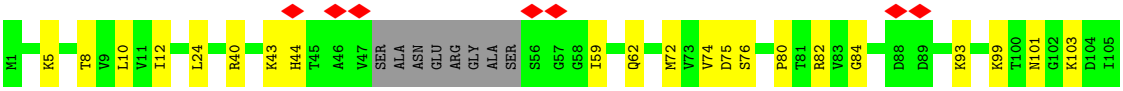




• Molecule 55: Large ribosomal subunit protein uL24

Chain 1:

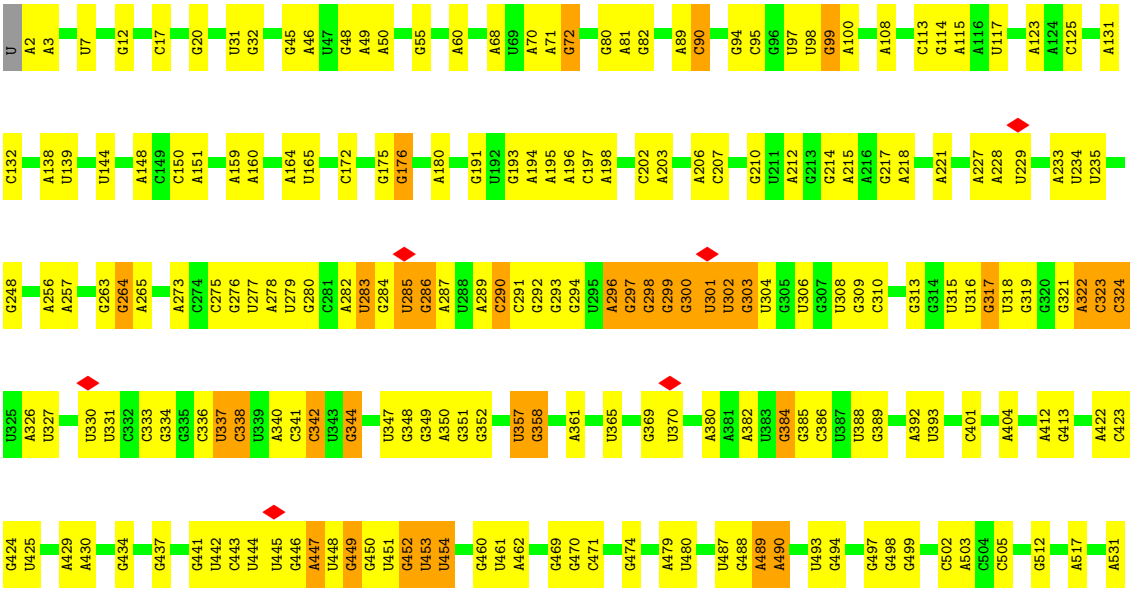


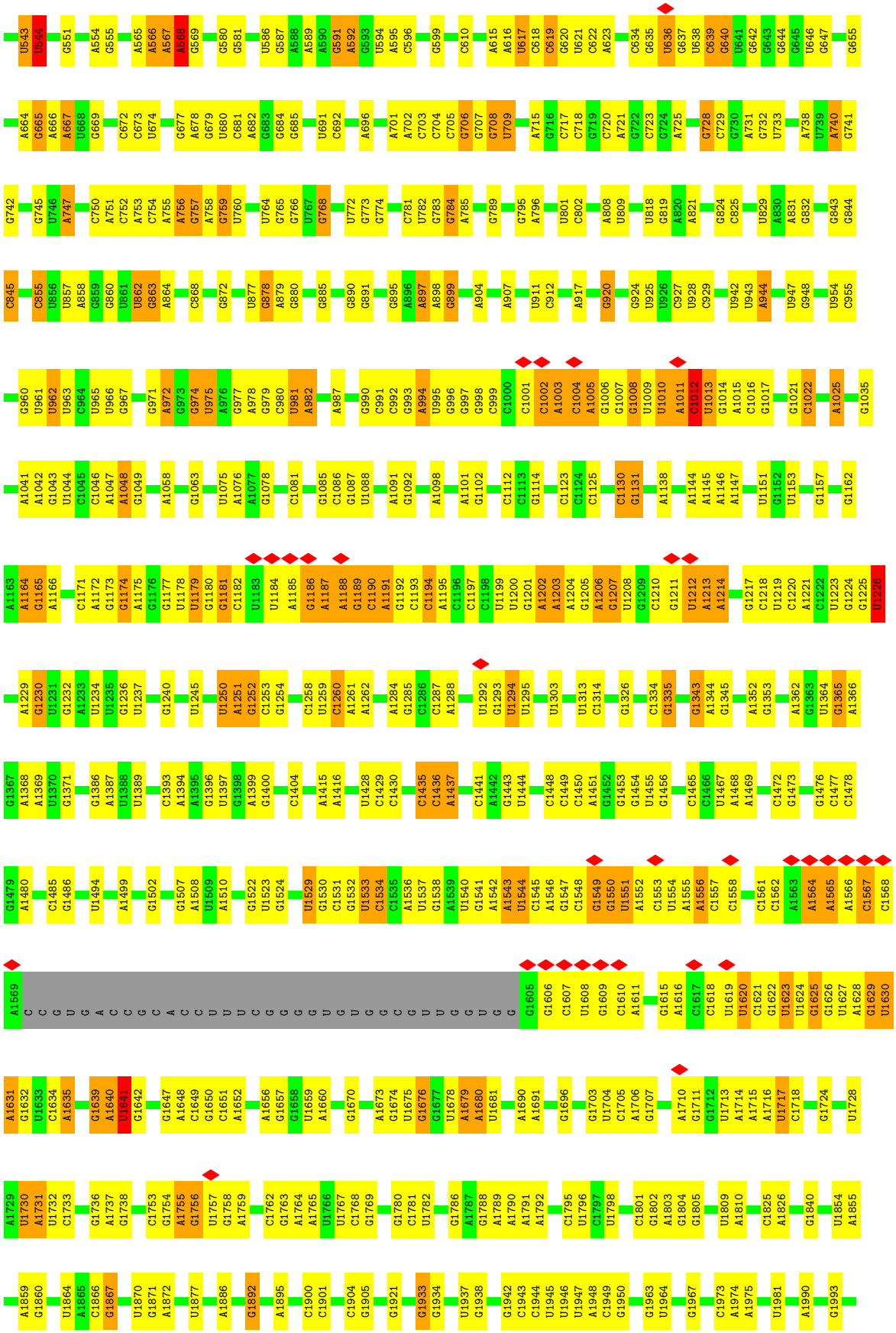


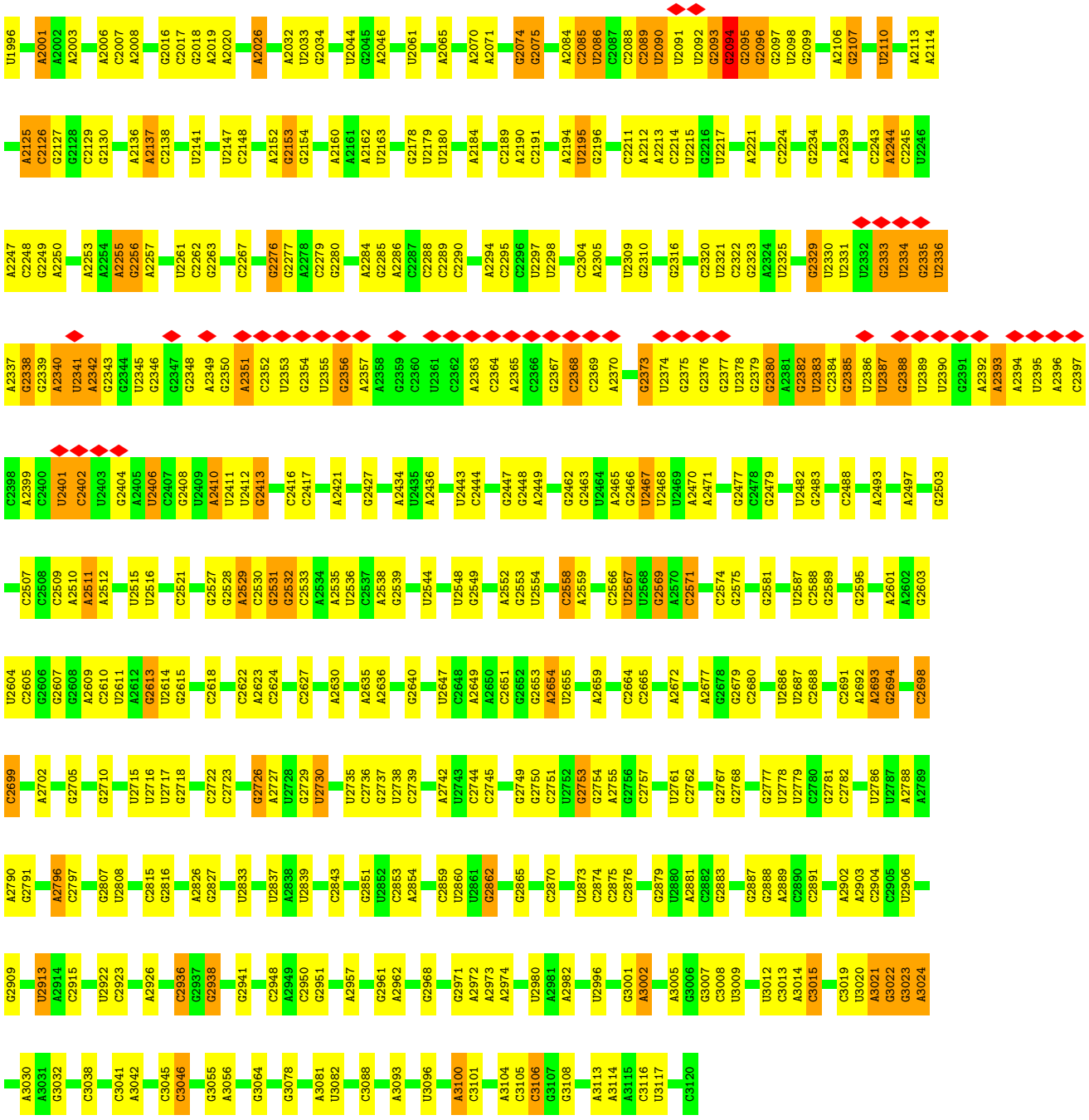
• Molecule 56: 23S ribosomal RNA

Chain h:








U1996 A2001 A2002 A2003 A2006 C2007 A2008 G2016 C2017 G2018 A2019 A2020 A2026 A2032 U2033 G2034 U2044 G2045 A2046 U2061 A2065 A2070 A2071 G2074 G2075 A2084 C2085 U2086 C2087 C2088 C2089 U2090 U2091 U2092 G2093 G2094 G2095 G2096 G2097 U2098 G2099 A2106 G2107 U2110 A2113 A2114
A2125 C2126 G2127 G2128 C2129 G2130 A2136 A2137 C2138 U2141 U2147 C2148 A2152 G2153 G2154 A2160 A2161 A2162 U2163 G2178 U2179 U2180 A2184 C2189 A2190 C2191 A2194 U2195 G2196 C2211 A2212 A2213 C2214 U2215 G2216 U2217 A2221 C2224 G2234 A2239 C2243 A2244 C2245 U2246
A2247 C2248 G2249 A2250 A2253 A2254 A2255 G2256 A2257 U2261 C2262 G2263 C2267 G2276 G2277 A2278 C2279 G2280 A2284 G2285 A2286 C2287 C2288 C2289 C2290 A2294 C2295 C2296 U2297 U2298 C2304 A2305 U2309 G2310 G2316 C2320 U2321 C2322 G2323 A2324 U2325 G2329 U2330 U2331 U2332 G2333 U2334 G2335 U2336
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C2398 A2399 C2400 U2401 C2402 U2403 G2404 A2405 U2406 C2407 G2408 U2409 A2410 U2411 U2412 G2413 C2416 C2417 A2421 G2427 A2434 U2435 A2436 U2443 C2444 G2447 G2448 A2449 G2462 G2463 U2464 A2465 G2466 U2467 U2468 U2469 A2470 A2471 C2477 C2478 G2479 U2482 G2483 C2488 A2493 A2497 G2503
C2507 C2508 C2509 A2510 A2511 A2512 U2515 U2516 C2521 G2527 G2528 A2529 C2530 G2531 G2532 C2533 A2534 A2535 U2536 C2537 A2538 G2539 U2544 U2548 G2549 A2552 G2553 U2554 C2558 A2559 C2566 U2567 U2568 G2569 A2570 C2571 C2574 G2575 G2581 U2587 C2588 G2589 G2595 A2601 A2602 G2603
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C2699 A2702 G2705 G2710 U2715 U2716 U2717 G2718 C2722 C2723 G2726 A2727 U2728 G2729 U2730 U2735 C2736 G2737 U2738 C2739 A2742 U2743 C2744 C2745 G2749 G2750 C2751 U2752 G2753 G2754 A2755 G2756 C2757 U2761 C2762 G2767 G2768 G2777 U2778 U2779 C2780 G2781 C2782 U2786 U2787 A2788 A2789
A2790 G2791 A2796 C2797 G2807 U2808 C2815 G2816 A2826 G2827 U2833 U2837 A2838 U2839 C2843 G2851 U2852 C2853 A2854 C2859 U2860 U2861 G2862 G2865 C2870 U2873 C2874 C2875 C2876 G2879 U2880 A2881 C2882 G2883 G2887 G2888 A2889 C2890 C2891 A2902 A2903 C2904 C2905 U2906
G2909 U2913 A2914 C2915 U2922 C2923 A2926 C2936 G2937 G2938 G2941 C2948 A2949 C2950 G2951 A2957 G2961 A2962 G2968 G2971 A2972 A2973 A2974 U2980 A2981 A2982 U2996 G3001 A3002 A3005 G3006 G3007 C3008 U3009 U3012 C3013 A3014 C3015 C3019 U3020 A3021 G3022 G3023 A3024
A3030 A3031 G3032 C3038 C3041 A3042 C3045 C3046 G3055 A3056 G3064 G3078 A3081 U3082 C3088 A3093 U3096 A3100 C3101 A3104 C3105 C3106 G3107 G3108 A3113 A3114 A3115 C3116 U3117 C3120

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	61327	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	20.82	Depositor
Minimum defocus (nm)	1800	Depositor
Maximum defocus (nm)	3300	Depositor
Magnification	Not provided	
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	0.287	Depositor
Minimum map value	-0.171	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.011	Depositor
Recommended contour level	0.0246	Depositor
Map size (Å)	449.40002, 449.40002, 449.40002	wwPDB
Map dimensions	420, 420, 420	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.07, 1.07, 1.07	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: MG, ZN

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	3	0.31	0/191	0.50	0/247
2	4	0.33	0/194	0.74	0/300
3	5	0.47	1/1471 (0.1%)	0.66	5/1976 (0.3%)
4	A	0.57	0/36309	0.78	13/56657 (0.0%)
5	B	0.61	0/2821	0.76	0/4396
6	C	0.24	0/1684	0.51	0/2261
7	D	0.27	0/1672	0.53	0/2251
8	E	0.28	0/1312	0.42	0/1772
9	F	0.27	0/782	0.41	0/1059
10	G	0.22	0/1252	0.43	0/1690
11	H	0.28	0/1025	0.44	0/1385
12	I	0.23	0/1012	0.48	0/1362
13	J	0.24	0/802	0.48	0/1086
14	K	0.27	0/873	0.46	0/1180
15	L	0.28	0/969	0.52	0/1294
16	M	0.26	0/942	0.63	2/1260 (0.2%)
17	N	0.26	0/488	0.46	0/650
18	O	0.28	0/729	0.45	0/977
19	P	0.28	0/908	0.53	0/1226
20	Q	0.26	0/759	0.50	0/1016
21	R	0.27	0/518	0.48	0/693
22	S	0.23	0/680	0.43	0/915
23	T	0.26	0/663	0.45	0/882
24	U	0.32	0/766	0.40	0/1030
25	V	0.29	1/1822 (0.1%)	0.60	3/2457 (0.1%)
26	W	0.24	0/1443	0.38	0/1970
27	X	0.36	0/595	0.49	0/798
28	Y	0.36	0/478	0.46	0/641
29	Z	0.28	0/534	0.42	0/713
30	a	0.33	0/477	0.46	0/640
31	b	0.36	0/427	0.48	0/572
32	c	0.25	0/413	0.42	0/553

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	d	0.37	0/380	0.51	0/500
34	e	0.32	0/507	0.50	0/672
35	f	0.32	0/303	0.40	0/401
36	g	0.24	0/372	0.37	0/503
37	i	0.37	0/2153	0.44	0/2895
38	j	0.35	0/1609	0.47	0/2165
39	k	0.33	0/1592	0.44	0/2153
40	l	0.29	0/1467	0.56	0/1973
41	m	0.25	0/1369	0.44	0/1848
42	n	0.21	0/1027	0.47	0/1398
43	o	0.43	0/1006	0.60	0/1364
44	p	0.15	0/925	0.37	0/1246
45	q	0.32	0/1157	0.42	0/1567
46	r	0.34	0/946	0.45	0/1268
47	s	0.33	0/1091	0.53	0/1457
48	t	0.32	0/1118	0.51	0/1506
49	u	0.34	0/945	0.50	0/1267
50	v	0.28	0/966	0.44	0/1298
51	w	0.31	0/921	0.43	0/1236
52	x	0.36	0/1000	0.44	0/1341
53	y	0.30	0/764	0.34	0/1030
54	z	0.33	0/887	0.41	0/1204
55	1	0.27	0/738	0.40	0/987
56	h	0.73	1/74164 (0.0%)	0.81	41/115718 (0.0%)
All	All	0.59	3/162418 (0.0%)	0.73	64/242906 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
7	D	0	1
13	J	0	1
All	All	0	2

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	5	108	GLU	C-N	-9.97	1.20	1.33
25	V	199	PRO	CG-CD	-7.43	1.25	1.50
56	h	1226	U	O3'-P	6.98	1.69	1.61

The worst 5 of 64 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
56	h	1194	C	C6-N1-C2	12.90	125.46	120.30
25	V	199	PRO	N-CD-CG	-11.45	86.02	103.20
56	h	338	C	N3-C2-O2	-9.64	115.15	121.90
25	V	199	PRO	CA-CB-CG	-8.54	88.28	104.50
56	h	2245	C	C2-N1-C1'	7.90	127.48	118.80

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
7	D	63	MET	Peptide
13	J	56	HIS	Peptide

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	3	189	0	205	3	0
2	4	173	0	88	1	0
3	5	1458	0	1478	86	0
4	A	32439	0	16321	489	0
5	B	2522	0	1285	21	0
6	C	1660	0	1707	47	0
7	D	1641	0	1668	67	0
8	E	1296	0	1360	29	0
9	F	771	0	797	25	0
10	G	1232	0	1282	26	0
11	H	1010	0	1046	19	0
12	I	994	0	1050	37	0
13	J	788	0	819	28	0
14	K	855	0	863	20	0
15	L	958	0	1045	30	0
16	M	935	0	986	34	0
17	N	477	0	499	11	0
18	O	720	0	760	17	0
19	P	891	0	935	34	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
20	Q	748	0	795	32	0
21	R	513	0	537	7	0
22	S	662	0	677	18	0
23	T	660	0	712	25	0
24	U	756	0	802	14	0
25	V	1793	0	1839	62	0
26	W	1428	0	1443	23	0
27	X	586	0	601	17	0
28	Y	470	0	480	8	0
29	Z	531	0	541	8	0
30	a	474	0	500	6	0
31	b	423	0	463	9	0
32	c	405	0	407	11	0
33	d	377	0	411	6	0
34	e	502	0	541	12	0
35	f	299	0	321	8	0
36	g	364	0	348	13	0
37	i	2110	0	2165	37	0
38	j	1587	0	1630	30	0
39	k	1569	0	1607	23	0
40	l	1445	0	1476	51	0
41	m	1348	0	1399	28	0
42	n	1018	0	988	30	0
43	o	990	0	1020	83	0
44	p	918	0	959	36	0
45	q	1130	0	1167	15	0
46	r	938	0	1000	15	0
47	s	1078	0	1151	17	0
48	t	1092	0	1128	22	0
49	u	928	0	972	18	0
50	v	956	0	991	21	0
51	w	907	0	938	14	0
52	x	988	0	1038	13	0
53	y	754	0	802	7	0
54	z	873	0	909	9	0
55	1	732	0	782	15	0
56	h	66232	0	33324	730	0
57	F	1	0	0	0	0
57	R	1	0	0	0	0
57	X	1	0	0	0	0
57	h	3	0	0	0	0
57	i	3	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
57	l	1	0	0	0	0
57	t	1	0	0	0	0
57	z	1	0	0	0	0
58	N	1	0	0	0	0
58	R	1	0	0	0	0
58	Y	1	0	0	0	0
58	c	1	0	0	0	0
58	f	1	0	0	0	0
58	g	1	0	0	0	0
All	All	149611	0	101058	2177	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 9.

The worst 5 of 2177 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:5:44:TYR:CD2	43:o:24:PRO:HG3	1.39	1.54
43:o:32:GLN:NE2	56:h:1214:A:H61	1.21	1.36
3:5:44:TYR:CE2	43:o:24:PRO:HG3	1.72	1.25
43:o:32:GLN:NE2	56:h:1214:A:N6	1.90	1.19
3:5:44:TYR:CD2	43:o:24:PRO:CG	2.31	1.12

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	3	21/24 (88%)	19 (90%)	2 (10%)	0	100	100
3	5	183/185 (99%)	176 (96%)	7 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
6	C	206/275 (75%)	192 (93%)	13 (6%)	1 (0%)	24	56
7	D	198/201 (98%)	185 (93%)	13 (7%)	0	100	100
8	E	178/214 (83%)	166 (93%)	12 (7%)	0	100	100
9	F	94/96 (98%)	91 (97%)	3 (3%)	0	100	100
10	G	153/156 (98%)	149 (97%)	4 (3%)	0	100	100
11	H	129/132 (98%)	126 (98%)	3 (2%)	0	100	100
12	I	124/150 (83%)	113 (91%)	11 (9%)	0	100	100
13	J	97/101 (96%)	90 (93%)	6 (6%)	1 (1%)	12	43
14	K	113/138 (82%)	107 (95%)	6 (5%)	0	100	100
15	L	120/124 (97%)	111 (92%)	9 (8%)	0	100	100
16	M	114/124 (92%)	106 (93%)	7 (6%)	1 (1%)	14	45
17	N	58/61 (95%)	50 (86%)	8 (14%)	0	100	100
18	O	86/89 (97%)	81 (94%)	5 (6%)	0	100	100
19	P	111/156 (71%)	101 (91%)	10 (9%)	0	100	100
20	Q	92/98 (94%)	89 (97%)	3 (3%)	0	100	100
21	R	63/84 (75%)	61 (97%)	2 (3%)	0	100	100
22	S	80/93 (86%)	77 (96%)	3 (4%)	0	100	100
23	T	83/86 (96%)	83 (100%)	0	0	100	100
24	U	95/100 (95%)	90 (95%)	5 (5%)	0	100	100
25	V	226/277 (82%)	213 (94%)	13 (6%)	0	100	100
26	W	190/215 (88%)	181 (95%)	9 (5%)	0	100	100
27	X	77/88 (88%)	73 (95%)	4 (5%)	0	100	100
28	Y	61/64 (95%)	60 (98%)	1 (2%)	0	100	100
29	Z	62/77 (80%)	61 (98%)	1 (2%)	0	100	100
30	a	57/61 (93%)	53 (93%)	4 (7%)	0	100	100
31	b	52/57 (91%)	50 (96%)	2 (4%)	0	100	100
32	c	47/55 (86%)	45 (96%)	2 (4%)	0	100	100
33	d	44/47 (94%)	44 (100%)	0	0	100	100
34	e	61/64 (95%)	60 (98%)	1 (2%)	0	100	100
35	f	35/37 (95%)	33 (94%)	2 (6%)	0	100	100
36	g	46/75 (61%)	42 (91%)	4 (9%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
37	i	273/278 (98%)	257 (94%)	16 (6%)	0	100	100
38	j	212/217 (98%)	199 (94%)	13 (6%)	0	100	100
39	k	207/215 (96%)	203 (98%)	4 (2%)	0	100	100
40	l	180/187 (96%)	172 (96%)	8 (4%)	0	100	100
41	m	174/179 (97%)	166 (95%)	8 (5%)	0	100	100
42	n	149/151 (99%)	136 (91%)	13 (9%)	0	100	100
43	o	131/142 (92%)	119 (91%)	11 (8%)	1 (1%)	16	48
44	p	124/175 (71%)	120 (97%)	4 (3%)	0	100	100
45	q	144/147 (98%)	138 (96%)	6 (4%)	0	100	100
46	r	120/122 (98%)	113 (94%)	7 (6%)	0	100	100
47	s	143/147 (97%)	129 (90%)	14 (10%)	0	100	100
48	t	134/138 (97%)	125 (93%)	9 (7%)	0	100	100
49	u	116/199 (58%)	109 (94%)	7 (6%)	0	100	100
50	v	124/127 (98%)	122 (98%)	2 (2%)	0	100	100
51	w	111/113 (98%)	105 (95%)	6 (5%)	0	100	100
52	x	122/129 (95%)	120 (98%)	2 (2%)	0	100	100
53	y	98/103 (95%)	95 (97%)	3 (3%)	0	100	100
54	z	112/153 (73%)	109 (97%)	3 (3%)	0	100	100
55	1	93/105 (89%)	90 (97%)	3 (3%)	0	100	100
All	All	6123/6831 (90%)	5805 (95%)	314 (5%)	4 (0%)	49	78

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
13	J	57	LYS
6	C	125	ASN
43	o	21	ASN
16	M	5	VAL

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	3	18/19 (95%)	18 (100%)	0	100 100
3	5	160/160 (100%)	156 (98%)	4 (2%)	42 61
6	C	170/212 (80%)	170 (100%)	0	100 100
7	D	175/176 (99%)	175 (100%)	0	100 100
8	E	127/147 (86%)	127 (100%)	0	100 100
9	F	85/85 (100%)	85 (100%)	0	100 100
10	G	131/132 (99%)	131 (100%)	0	100 100
11	H	107/108 (99%)	107 (100%)	0	100 100
12	I	102/125 (82%)	102 (100%)	0	100 100
13	J	89/90 (99%)	89 (100%)	0	100 100
14	K	89/105 (85%)	89 (100%)	0	100 100
15	L	103/105 (98%)	103 (100%)	0	100 100
16	M	99/104 (95%)	99 (100%)	0	100 100
17	N	49/50 (98%)	49 (100%)	0	100 100
18	O	76/77 (99%)	76 (100%)	0	100 100
19	P	92/118 (78%)	91 (99%)	1 (1%)	65 73
20	Q	80/83 (96%)	80 (100%)	0	100 100
21	R	55/72 (76%)	55 (100%)	0	100 100
22	S	73/84 (87%)	73 (100%)	0	100 100
23	T	69/70 (99%)	69 (100%)	0	100 100
24	U	83/85 (98%)	83 (100%)	0	100 100
25	V	191/218 (88%)	191 (100%)	0	100 100
26	W	155/168 (92%)	155 (100%)	0	100 100
27	X	58/63 (92%)	58 (100%)	0	100 100
28	Y	50/51 (98%)	50 (100%)	0	100 100
29	Z	58/66 (88%)	58 (100%)	0	100 100
30	a	52/54 (96%)	52 (100%)	0	100 100
31	b	43/46 (94%)	43 (100%)	0	100 100
32	c	47/52 (90%)	47 (100%)	0	100 100
33	d	35/36 (97%)	35 (100%)	0	100 100
34	e	53/54 (98%)	53 (100%)	0	100 100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
35	f	35/35 (100%)	35 (100%)	0	100	100
36	g	43/63 (68%)	43 (100%)	0	100	100
37	i	215/218 (99%)	215 (100%)	0	100	100
38	j	160/163 (98%)	160 (100%)	0	100	100
39	k	169/173 (98%)	169 (100%)	0	100	100
40	l	151/156 (97%)	151 (100%)	0	100	100
41	m	148/150 (99%)	148 (100%)	0	100	100
42	n	90/116 (78%)	90 (100%)	0	100	100
43	o	102/108 (94%)	99 (97%)	3 (3%)	37	57
44	p	89/120 (74%)	89 (100%)	0	100	100
45	q	119/120 (99%)	119 (100%)	0	100	100
46	r	100/100 (100%)	100 (100%)	0	100	100
47	s	112/114 (98%)	112 (100%)	0	100	100
48	t	114/116 (98%)	114 (100%)	0	100	100
49	u	97/158 (61%)	97 (100%)	0	100	100
50	v	93/94 (99%)	93 (100%)	0	100	100
51	w	100/100 (100%)	100 (100%)	0	100	100
52	x	97/99 (98%)	97 (100%)	0	100	100
53	y	81/83 (98%)	81 (100%)	0	100	100
54	z	90/117 (77%)	90 (100%)	0	100	100
55	1	81/86 (94%)	81 (100%)	0	100	100
All	All	5060/5504 (92%)	5052 (100%)	8 (0%)	85	86

5 of 8 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
43	o	55	VAL
43	o	37	ILE
19	P	65	GLN
3	5	185	VAL
43	o	35	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 50 such sidechains are listed below:

Mol	Chain	Res	Type
25	V	155	GLN
37	i	109	GLN
52	x	39	GLN
26	W	40	HIS
30	a	33	GLN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
2	4	7/8 (87%)	2 (28%)	1 (14%)
4	A	1510/1528 (98%)	300 (19%)	14 (0%)
5	B	117/118 (99%)	18 (15%)	1 (0%)
56	h	3082/3120 (98%)	584 (18%)	0
All	All	4716/4774 (98%)	904 (19%)	16 (0%)

5 of 904 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
2	4	13	A
2	4	19	C
4	A	8	U
4	A	9	U
4	A	11	G

5 of 16 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
4	A	1482	U
4	A	1477	A
4	A	1011	U
4	A	1435	U
4	A	1007	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)

Of 18 ligands modelled in this entry, 18 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

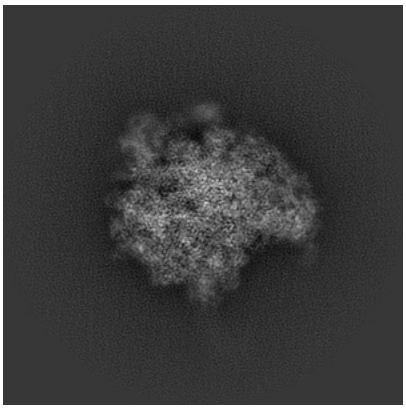
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-69707. These allow visual inspection of the internal detail of the map and identification of artifacts.

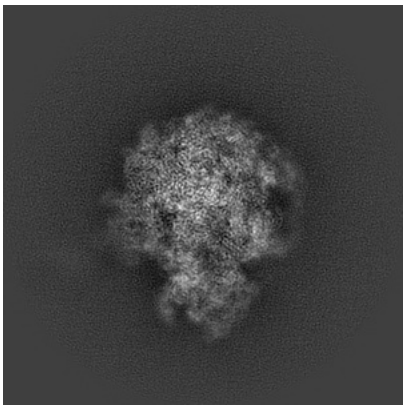
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

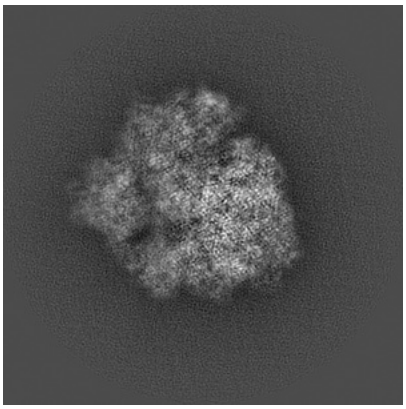
6.1.1 Primary map



X

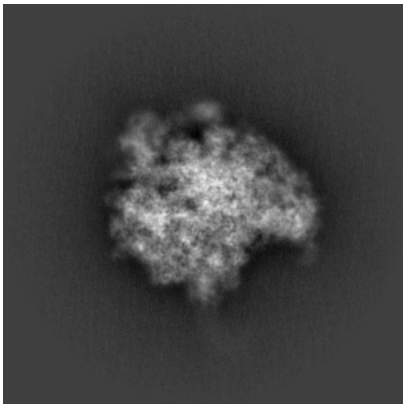


Y

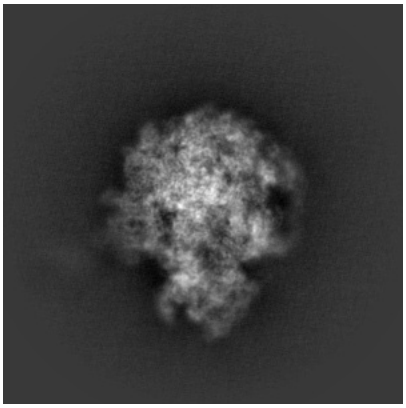


Z

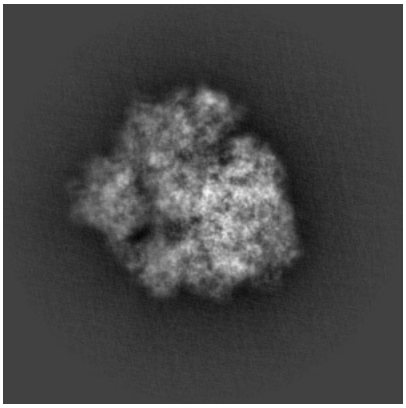
6.1.2 Raw map



X



Y

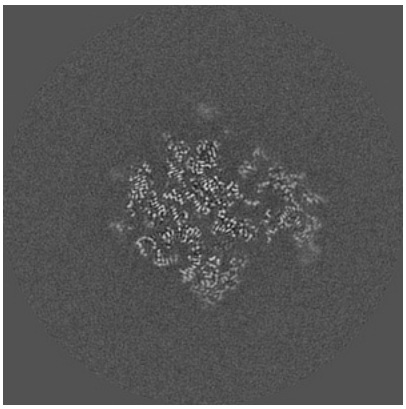


Z

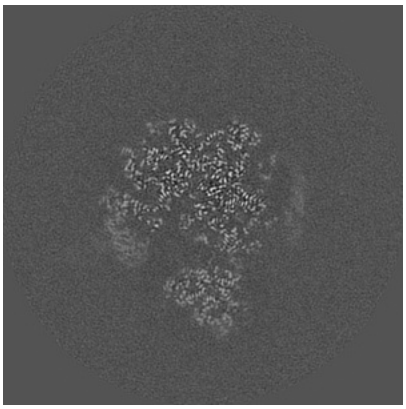
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

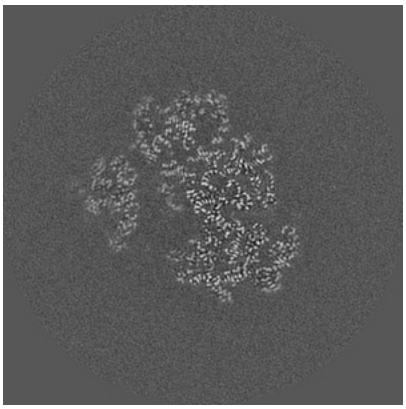
6.2.1 Primary map



X Index: 210

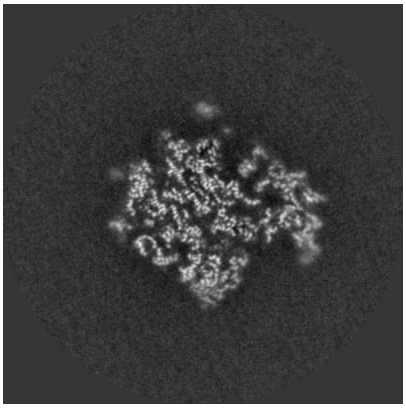


Y Index: 210

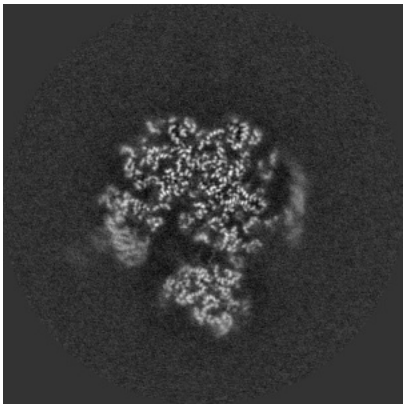


Z Index: 210

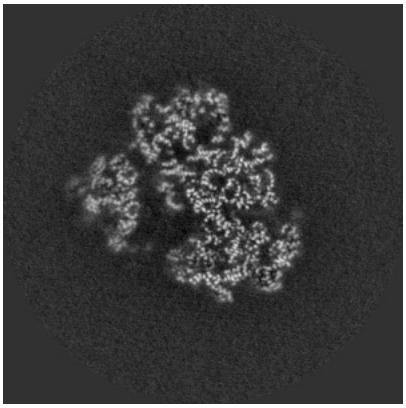
6.2.2 Raw map



X Index: 210



Y Index: 210

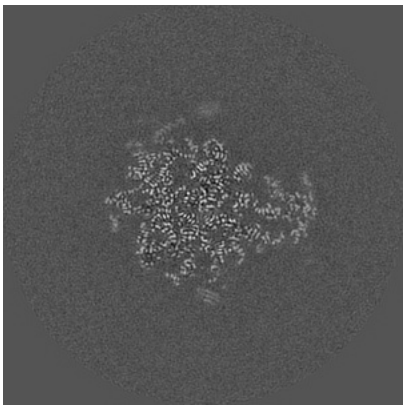


Z Index: 210

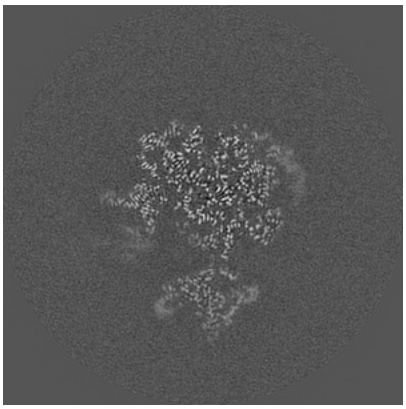
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

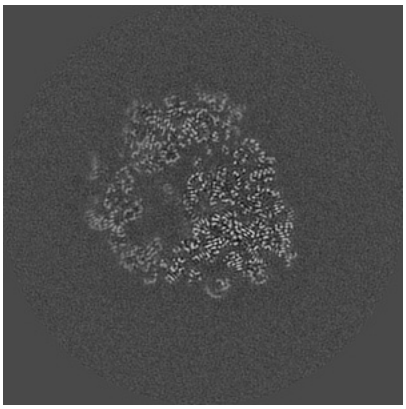
6.3.1 Primary map



X Index: 223

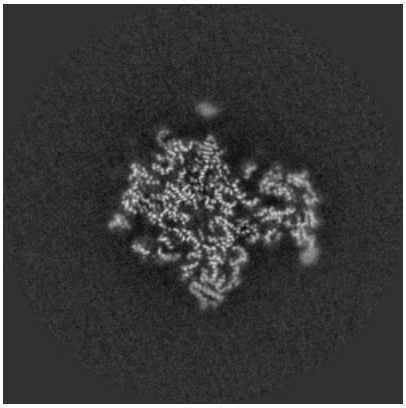


Y Index: 224

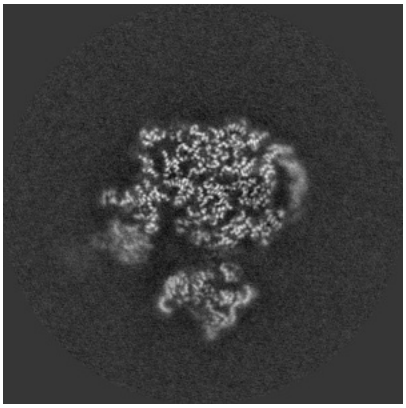


Z Index: 197

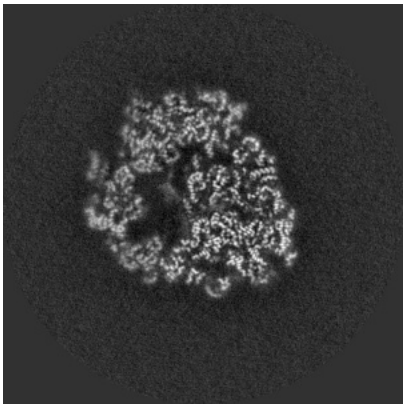
6.3.2 Raw map



X Index: 214



Y Index: 220

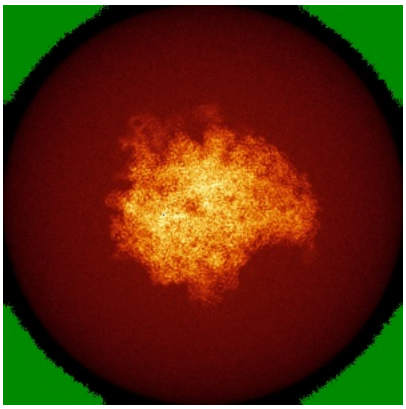


Z Index: 198

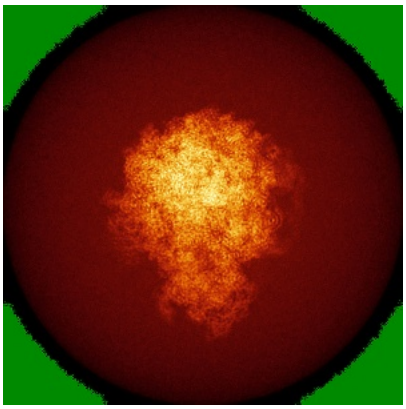
The images above show the largest variance slices of the map in three orthogonal directions.

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

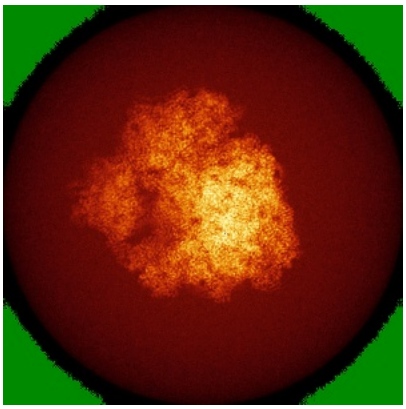
6.4.1 Primary map



X

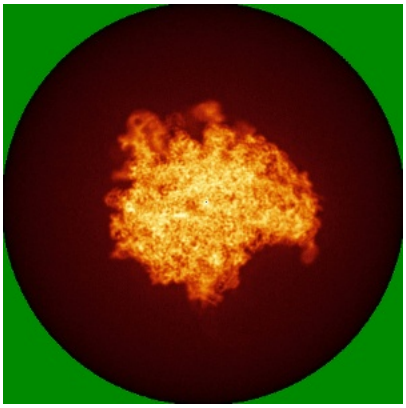


Y

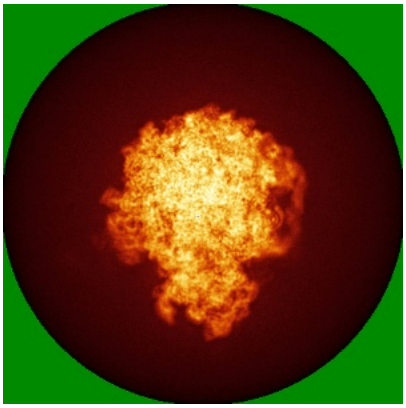


Z

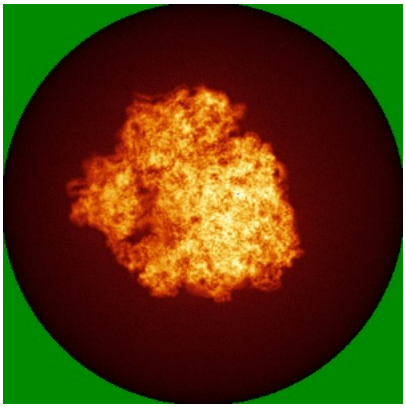
6.4.2 Raw map



X



Y

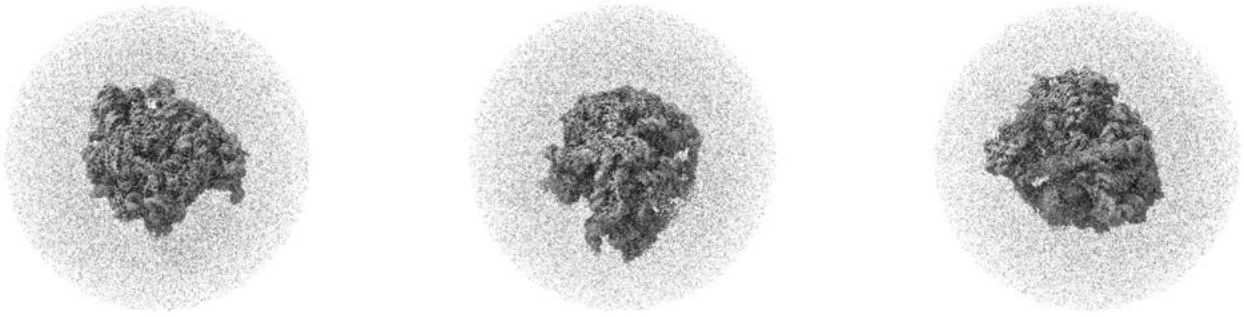


Z

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 0.0246. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



X Y Z

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

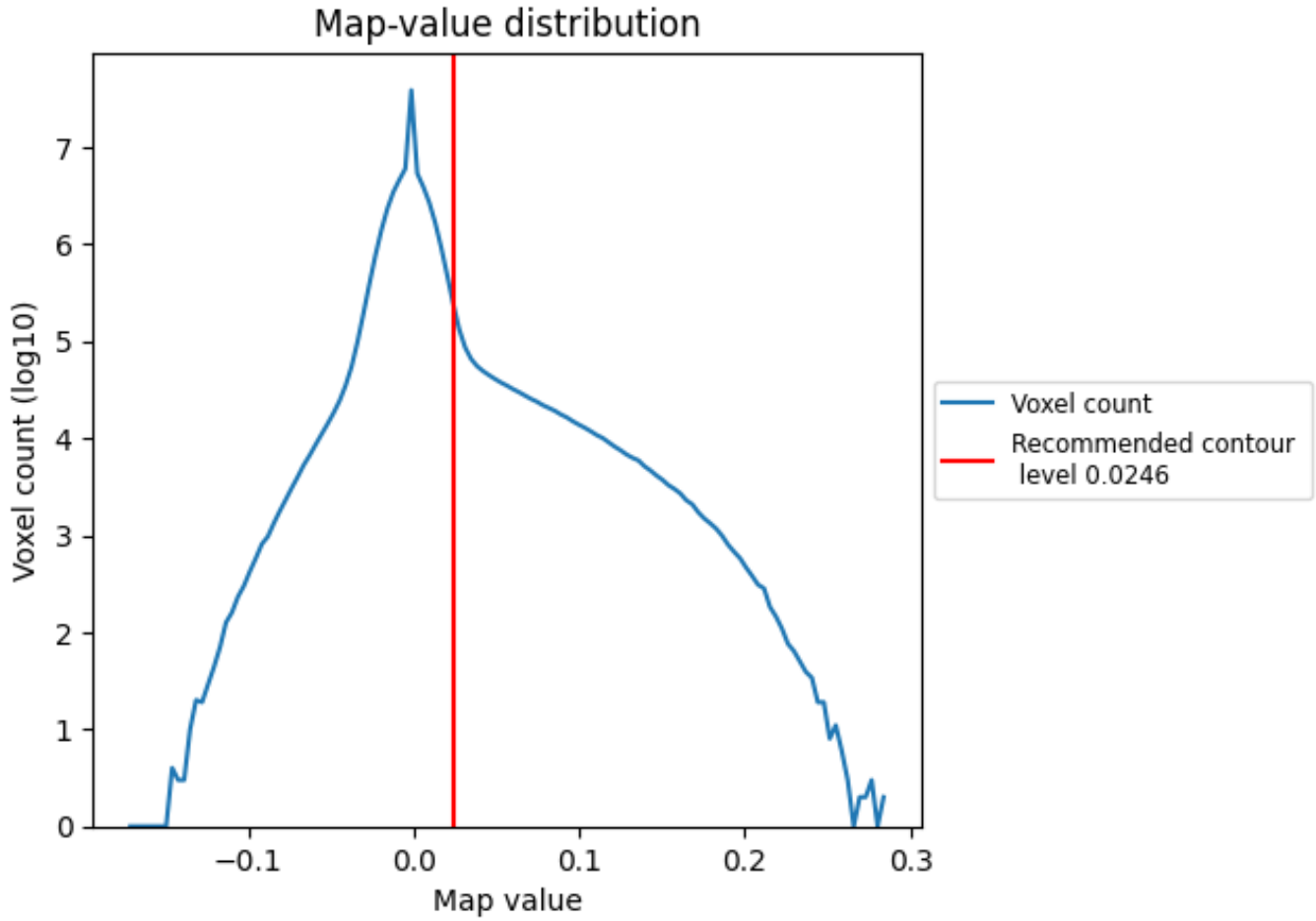
6.6 Mask visualisation (i)

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

7 Map analysis

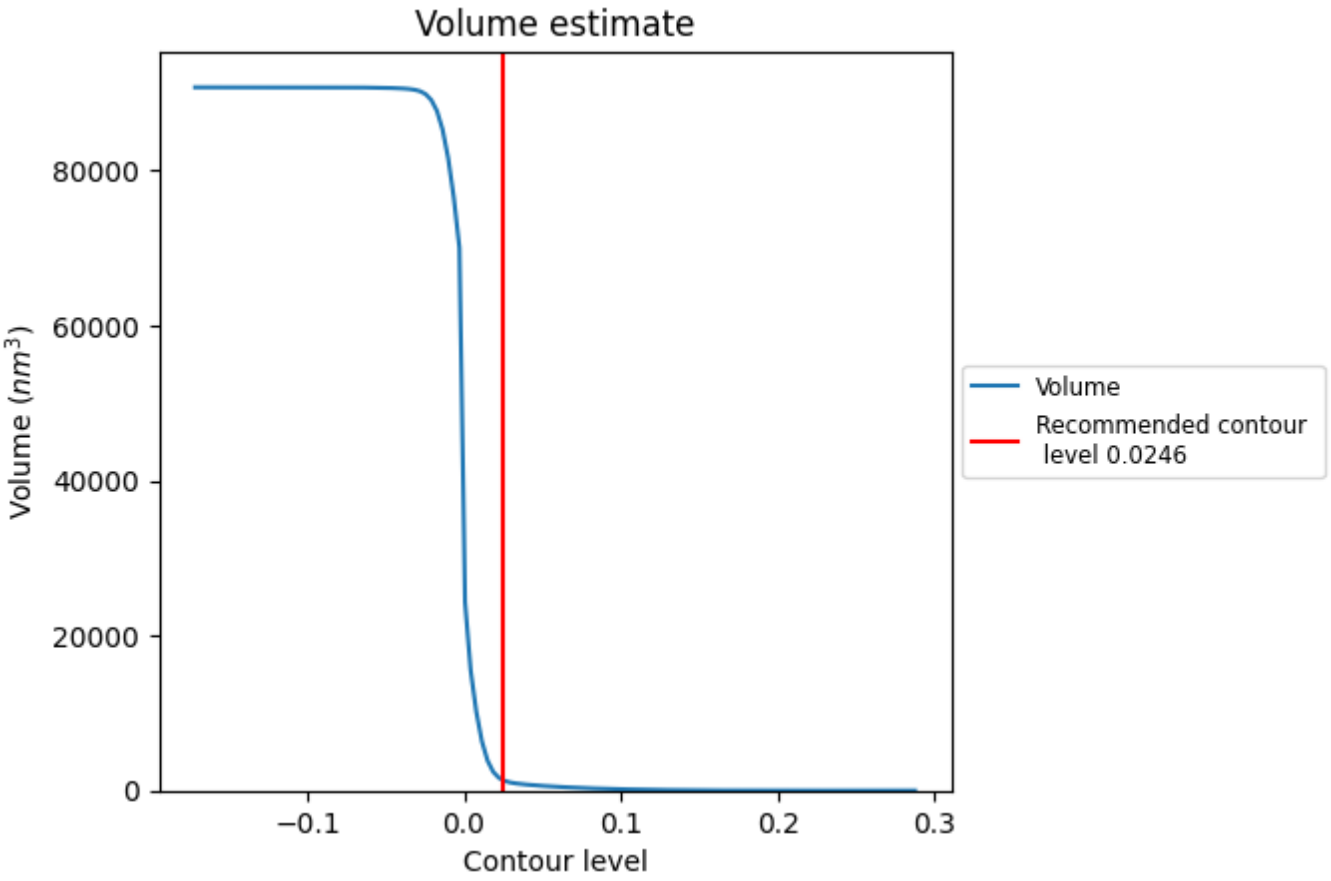
This section contains the results of statistical analysis of the map.

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.

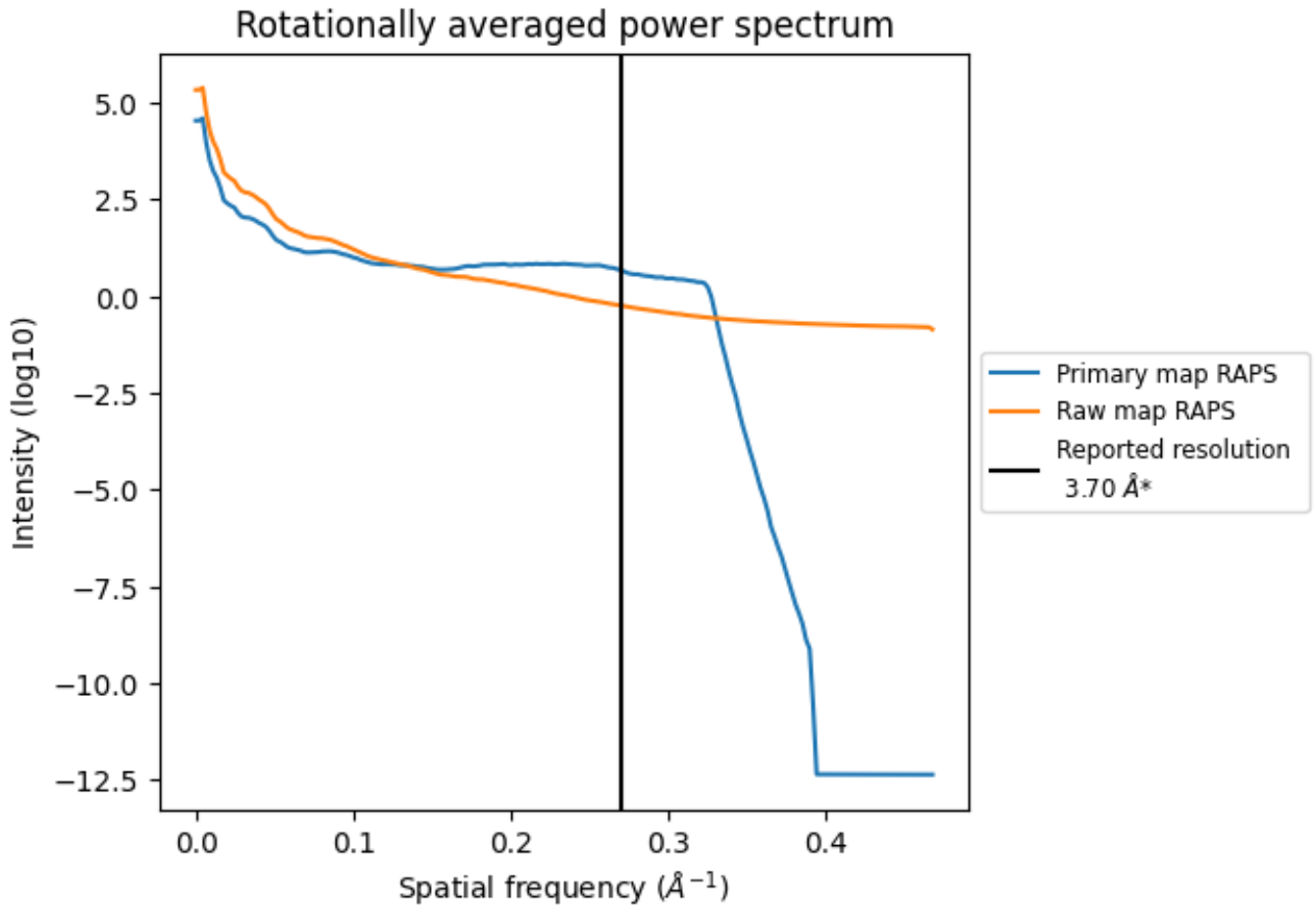
7.2 Volume estimate (i)



The volume at the recommended contour level is 1389 nm^3; this corresponds to an approximate mass of 1255 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)

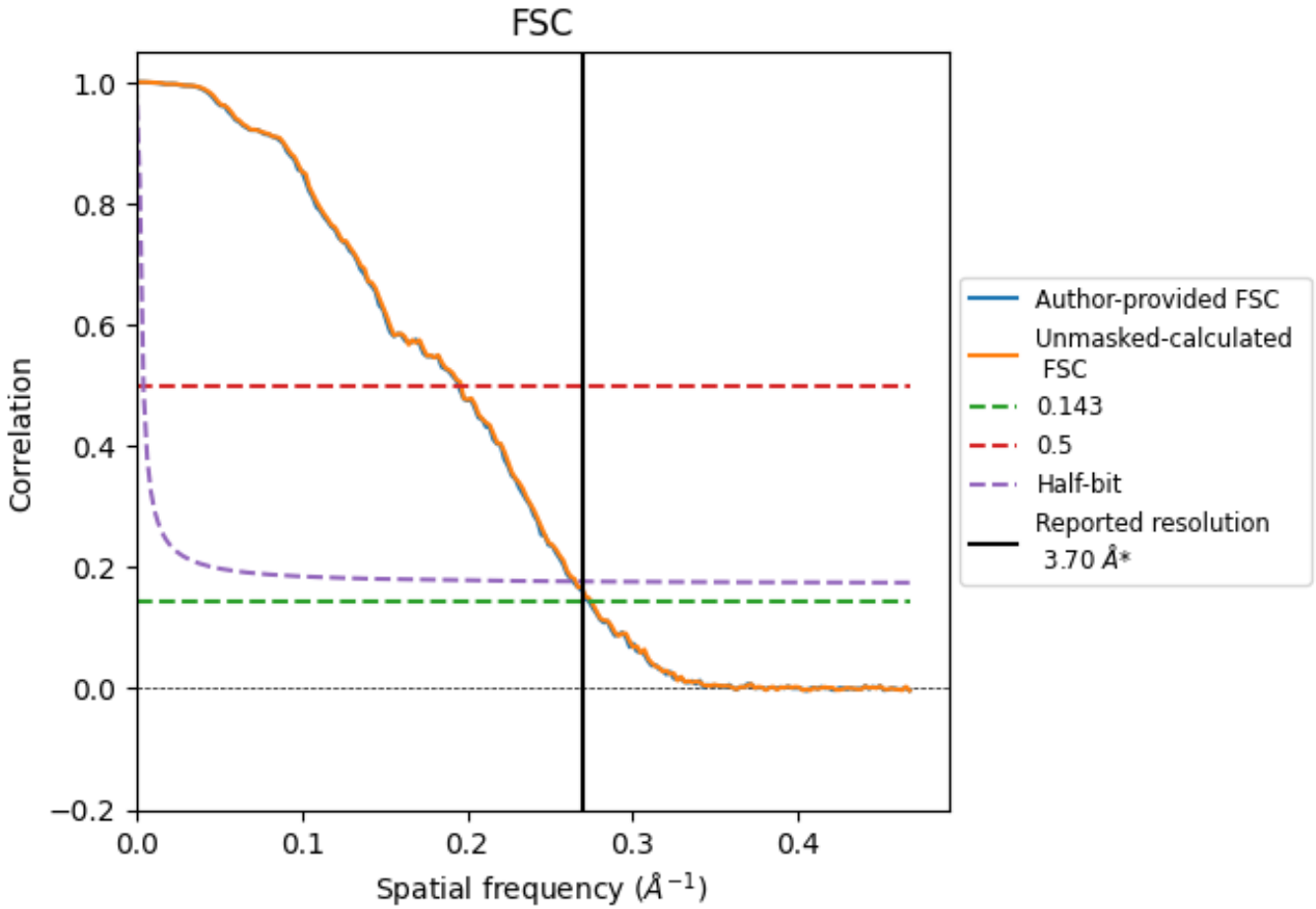


*Reported resolution corresponds to spatial frequency of 0.270 Å^{-1}

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 0.270 Å^{-1}

8.2 Resolution estimates (i)

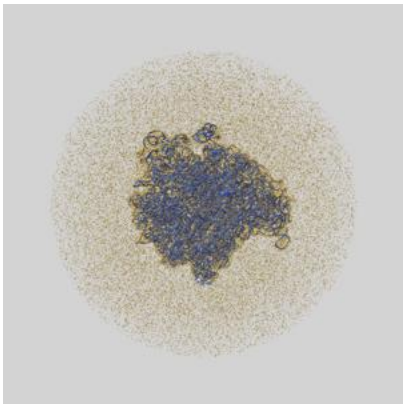
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.70	-	-
Author-provided FSC curve	3.65	5.14	3.79
Unmasked-calculated*	3.64	5.09	3.77

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

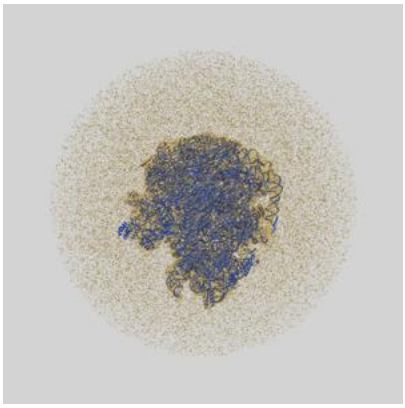
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-69707 and PDB model 24NU. Per-residue inclusion information can be found in section 3 on page 15.

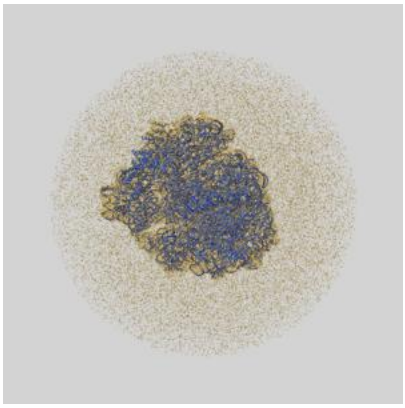
9.1 Map-model overlay



X



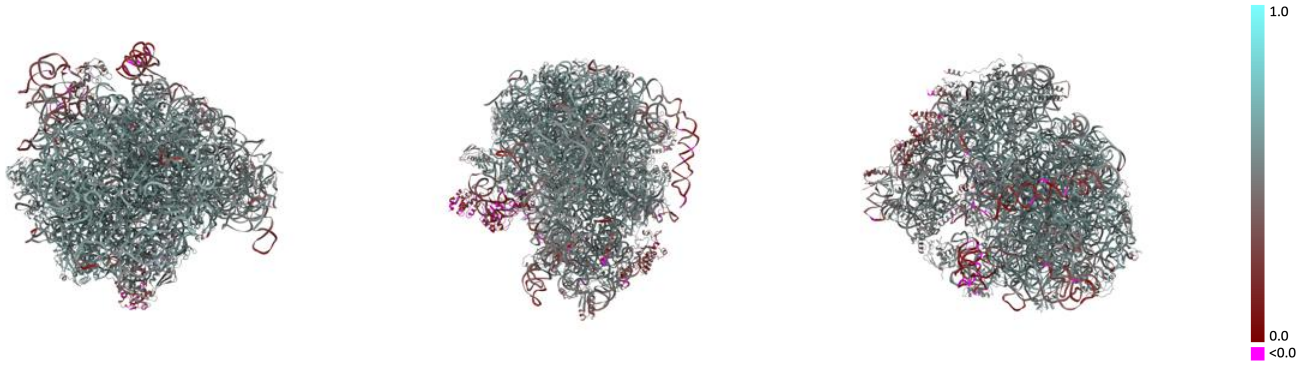
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0246 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.

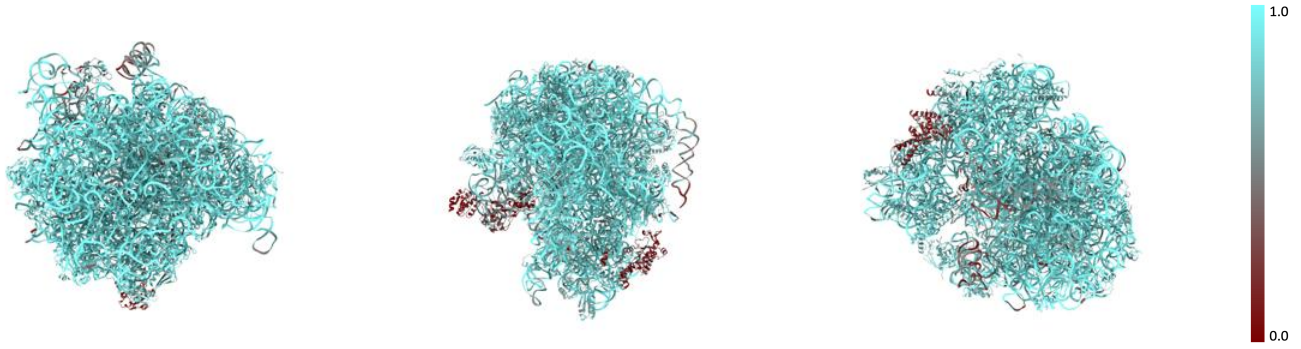
9.2 Q-score mapped to coordinate model (i)



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.

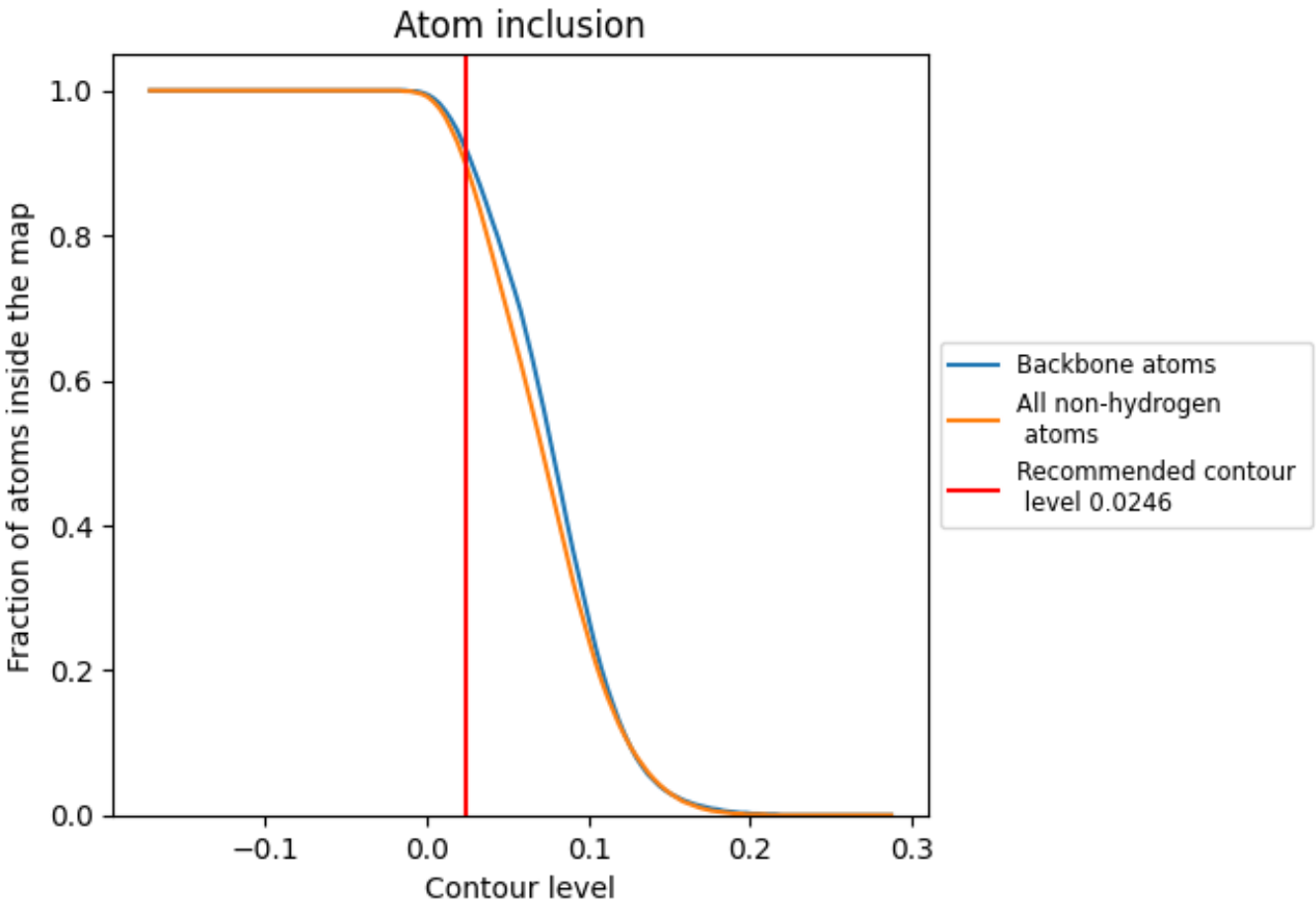
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.0246).

9.4 Atom inclusion (i)



At the recommended contour level, 92% of all backbone atoms, 90% 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 (0.0246) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8950	0.5130
1	0.8350	0.5120
3	0.8660	0.5690
4	0.2430	0.3390
5	0.3950	0.3100
A	0.9480	0.5190
B	0.9710	0.5370
C	0.7720	0.4610
D	0.7970	0.4610
E	0.8190	0.4970
F	0.8400	0.4960
G	0.8200	0.4840
H	0.9010	0.5380
I	0.8480	0.4930
J	0.7610	0.4420
K	0.8740	0.5160
L	0.8530	0.5310
M	0.8290	0.4850
N	0.8810	0.5270
O	0.8890	0.5310
P	0.8350	0.4740
Q	0.8390	0.4880
R	0.8410	0.5060
S	0.8450	0.4840
T	0.8500	0.4930
U	0.8810	0.5320
V	0.2070	0.3070
W	0.8190	0.5010
X	0.9140	0.5620
Y	0.9270	0.5710
Z	0.8900	0.5210
a	0.9220	0.5680
b	0.9200	0.5500
c	0.8560	0.5500
d	0.9510	0.5860



Continued on next page...

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Chain	Atom inclusion	Q-score
e	0.8630	0.5670
f	0.9030	0.5680
g	0.8810	0.4800
h	0.9350	0.5270
i	0.9190	0.5700
j	0.9240	0.5620
k	0.9100	0.5520
l	0.8550	0.4990
m	0.8490	0.4760
n	0.6680	0.4200
o	0.2950	0.1190
p	0.1040	0.0940
q	0.9180	0.5650
r	0.8960	0.5600
s	0.9150	0.5550
t	0.8820	0.5550
u	0.9190	0.5640
v	0.9010	0.5360
w	0.8580	0.5270
x	0.9230	0.5690
y	0.9410	0.5730
z	0.9170	0.5580