



wwPDB EM Validation Summary Report ⓘ

Aug 4, 2025 – 09:52 PM JST

PDB ID : 8Y5P / pdb_00008y5p
EMDB ID : EMD-38945
Title : E.coli transcription translation coupling complex in TTC-B state 4 (subclass 1) containing mRNA with 24-mer spacer, NusG, NusA, fMet-tRNA(iMet), Phe-tRNA(Phe), and viomycin
Authors : Zhang, J.; Lu, G.; Wang, C.; Lin, J.
Deposited on : 2024-01-31
Resolution : 6.50 Å(reported)

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

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

A user guide is available at

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

The types of validation reports are described at

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

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

EMDB validation analysis : 0.0.1.dev126
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4-5-2 with Phenix2.0rc1
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.45.1

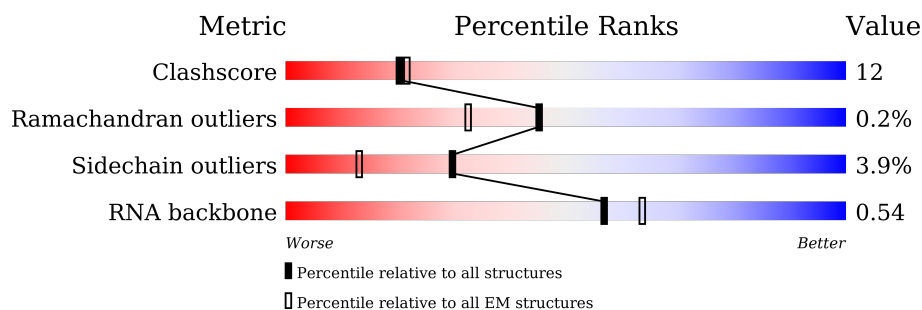
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 6.50 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)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415
RNA backbone	6643	2191

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. 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	A	70	
2	B	57	
3	C	55	
4	D	46	
5	E	65	
6	F	38	
7	G	241	

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Mol	Chain	Length	Quality of chain
8	H	233	
9	I	206	
10	J	167	
11	K	135	
12	L	179	
13	M	130	
14	N	130	
15	O	103	
16	P	129	
17	Q	124	
18	R	118	
19	S	101	
20	T	89	
21	U	82	
22	V	84	
23	W	75	
24	X	92	
25	Y	87	
26	Z	71	
27	b	273	
28	c	209	
29	d	201	
30	e	179	
31	f	177	
32	g	149	

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Mol	Chain	Length	Quality of chain
33	i	142	
34	j	142	
35	k	123	
36	l	144	
37	m	136	
38	n	127	
39	o	117	
40	p	115	
41	q	118	
42	r	103	
43	s	110	
44	t	100	
45	u	104	
46	v	94	
47	w	85	
48	x	78	
49	y	63	
50	z	59	
51	1	2904	
52	2	120	
53	3	1542	
54	4	41	
55	8	37	
56	9	37	
57	A1	329	

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Mol	Chain	Length	Quality of chain
57	A2	329	
58	B1	1407	
59	B2	1342	
60	W0	91	
61	NA	495	
62	NG	181	
63	6	77	
64	a	234	
65	0	716	
66	h	6	

2 Entry composition

There are 69 unique types of molecules in this entry. The entry contains 181755 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 L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	46	Total	C	N	O	S	0	0
			355	221	62	66	6		

- Molecule 2 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	56	Total	C	N	O	S	0	0
			444	269	94	80	1		

- Molecule 3 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms				AltConf	Trace
3	C	50	Total	C	N	O	0	0
			409	263	75	71		

- Molecule 4 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	D	46	Total	C	N	O	S	0	0
			377	228	90	57	2		

- Molecule 5 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	E	64	Total	C	N	O	S	0	0
			504	323	105	74	2		

- Molecule 6 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	F	38	Total	C	N	O	S	0	0
			302	185	65	48	4		

- Molecule 7 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	G	218	Total	C	N	O	S	0	0
			1704	1081	305	311	7		

- Molecule 8 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	H	206	Total	C	N	O	S	0	0
			1624	1028	305	288	3		

- Molecule 9 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	I	205	Total	C	N	O	S	0	0
			1643	1026	315	298	4		

- Molecule 10 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	J	157	Total	C	N	O	S	0	0
			1156	719	218	213	6		

- Molecule 11 is a protein called 30S ribosomal protein S6, fully modified isoform.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	K	100	Total	C	N	O	S	0	0
			817	515	148	148	6		

- Molecule 12 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	L	151	Total	C	N	O	S	0	0
			1181	735	227	215	4		

- Molecule 13 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	M	129	Total	C	N	O	S	0	0
			979	616	173	184	6		

- Molecule 14 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	N	127	Total	C	N	O	S	0	0
			1022	634	206	179	3		

- Molecule 15 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	O	98	Total	C	N	O	S	0	0
			786	493	150	142	1		

- Molecule 16 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	P	116	Total	C	N	O	S	0	0
			869	535	173	158	3		

- Molecule 17 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	Q	123	Total	C	N	O	S	0	0
			955	590	196	165	4		

- Molecule 18 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	R	114	Total	C	N	O	S	0	0
			883	546	178	156	3		

- Molecule 19 is a protein called 30S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	S	100	Total	C	N	O	S	0	0
			805	499	164	139	3		

- Molecule 20 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	T	88	Total	C	N	O	S	0	0
			714	439	144	130	1		

- Molecule 21 is a protein called 30S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	U	82	Total	C	N	O	S	0	0
			649	406	128	114	1		

- Molecule 22 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	V	80	Total	C	N	O	S	0	0
			648	411	121	113	3		

- Molecule 23 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	W	65	Total	C	N	O	S	0	0
			535	339	100	95	1		

- Molecule 24 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	X	79	Total	C	N	O	S	0	0
			637	408	120	107	2		

- Molecule 25 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	Y	85	Total	C	N	O	S	0	0
			665	411	137	114	3		

- Molecule 26 is a protein called 30S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	Z	65	Total	C	N	O	S	0	0
			544	335	117	91	1		

- Molecule 27 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	b	271	Total	C	N	O	S	0	0
			2082	1288	423	364	7		

- Molecule 28 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	c	209	Total	C	N	O	S	0	0
			1565	979	288	294	4		

- Molecule 29 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	d	201	Total	C	N	O	S	0	0
			1552	974	283	290	5		

- Molecule 30 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	e	177	Total	C	N	O	S	0	0
			1410	899	249	256	6		

- Molecule 31 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	f	176	Total	C	N	O	S	0	0
			1323	832	243	246	2		

- Molecule 32 is a protein called 50S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	g	149	Total	C	N	O	S	0	0
			1111	699	197	214	1		

- Molecule 33 is a protein called 50S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	i	141	Total	C	N	O	S	0	0
			1032	651	179	196	6		

- Molecule 34 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	j	142	Total	C	N	O	S	0	0
			1129	714	212	199	4		

- Molecule 35 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	k	122	Total	C	N	O	S	0	0
			938	587	180	165	6		

- Molecule 36 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	l	143	Total	C	N	O	S	0	0
			1045	649	206	189	1		

- Molecule 37 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	m	136	Total	C	N	O	S	0	0
			1074	686	205	177	6		

- Molecule 38 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	n	120	Total	C	N	O	S	0	0
			960	593	196	166	5		

- Molecule 39 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms				AltConf	Trace
39	o	116	Total	C	N	O	0	0
			892	552	178	162		

- Molecule 40 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	p	114	Total	C	N	O	S	0	0
			917	574	179	163	1		

- Molecule 41 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms				AltConf	Trace
41	q	117	Total	C	N	O	0	0
			947	604	192	151		

- Molecule 42 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	r	103	Total	C	N	O	S	0	0
			816	516	153	145	2		

- Molecule 43 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	s	110	Total	C	N	O	S	0	0
			857	532	166	156	3		

- Molecule 44 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	t	93	Total	C	N	O	S	0	0
			738	466	139	131	2		

- Molecule 45 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	u	102	Total	C	N	O		0	0
			779	492	146	141			

- Molecule 46 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	v	94	Total	C	N	O	S	0	0
			753	479	137	134	3		

- Molecule 47 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	w	75	Total	C	N	O	S	0	0
			575	356	116	102	1		

- Molecule 48 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	x	77	Total	C	N	O	S	0	0
			625	388	129	106	2		

- Molecule 49 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	y	63	Total	C	N	O	S	0	0
			509	313	99	95	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
50	z	58	Total	C	N	O	S	0	0
			449	281	87	79	2		

- Molecule 51 is a RNA chain called 23S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	1	2903	Total	C	N	O	P	0	0
			62317	27801	11468	20146	2902		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
1	747	C	U	conflict	GB 1929590828

- Molecule 52 is a RNA chain called 5S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	2	120	Total	C	N	O	P	0	0
			2568	1145	471	833	119		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
2	120	A	U	conflict	GB NR_103249

- Molecule 53 is a RNA chain called 16S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	3	1539	Total	C	N	O	P	0	0
			33012	14725	6052	10697	1538		

- Molecule 54 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	4	30	Total	C	N	O	P	0	0
			627	280	92	225	30		

- Molecule 55 is a DNA chain called templete DNA strand.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	8	27	Total	C	N	O	P	0	0
			539	257	88	167	27		

- Molecule 56 is a DNA chain called non-templete DNA strand.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	9	20	Total	C	N	O	P	0	0
			417	195	84	118	20		

- Molecule 57 is a protein called DNA-directed RNA polymerase subunit alpha.

Mol	Chain	Residues	Atoms					AltConf	Trace
57	A1	301	Total	C	N	O	S	0	0
			2088	1293	380	409	6		
57	A2	288	Total	C	N	O	S	0	0
			2029	1257	366	400	6		

- Molecule 58 is a protein called DNA-directed RNA polymerase subunit beta'.

Mol	Chain	Residues	Atoms					AltConf	Trace
58	B1	1335	Total	C	N	O	S	0	0
			10353	6509	1842	1955	47		

- Molecule 59 is a protein called DNA-directed RNA polymerase subunit beta.

Mol	Chain	Residues	Atoms					AltConf	Trace
59	B2	1340	Total	C	N	O	S	0	0
			10546	6616	1839	2048	43		

- Molecule 60 is a protein called DNA-directed RNA polymerase subunit omega.

Mol	Chain	Residues	Atoms					AltConf	Trace
60	W0	82	Total	C	N	O	S	0	0
			650	396	122	131	1		

- Molecule 61 is a protein called Transcription termination/antitermination protein NusA.

Mol	Chain	Residues	Atoms				AltConf	Trace
61	NA	492	Total	C	N	O	0	0
			2432	1448	492	492		

- Molecule 62 is a protein called Transcription termination/antitermination protein NusG.

Mol	Chain	Residues	Atoms				AltConf	Trace
62	NG	154	Total	C	N	O	0	0
			758	450	154	154		

- Molecule 63 is a RNA chain called tRNA(fMet).

Mol	Chain	Residues	Atoms					AltConf	Trace
63	6	77	Total	C	N	O	P	0	0
			1640	732	297	535	76		

- Molecule 64 is a protein called Large ribosomal subunit protein uL1.

Mol	Chain	Residues	Atoms					AltConf	Trace
64	a	132	Total	C	N	O	S	0	0
			1013	638	183	190	2		

- Molecule 65 is a protein called Elongation factor G.

Mol	Chain	Residues	Atoms					AltConf	Trace
65	0	697	Total	C	N	O	S	0	0
			5399	3403	929	1042	25		

There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
0	705	GLY	-	expression tag	UNP P0A6M8
0	706	SER	-	expression tag	UNP P0A6M8
0	707	SER	-	expression tag	UNP P0A6M8
0	708	GLY	-	expression tag	UNP P0A6M8
0	709	HIS	-	expression tag	UNP P0A6M8
0	710	HIS	-	expression tag	UNP P0A6M8
0	711	HIS	-	expression tag	UNP P0A6M8
0	712	HIS	-	expression tag	UNP P0A6M8
0	713	HIS	-	expression tag	UNP P0A6M8
0	714	HIS	-	expression tag	UNP P0A6M8
0	715	HIS	-	expression tag	UNP P0A6M8
0	716	HIS	-	expression tag	UNP P0A6M8

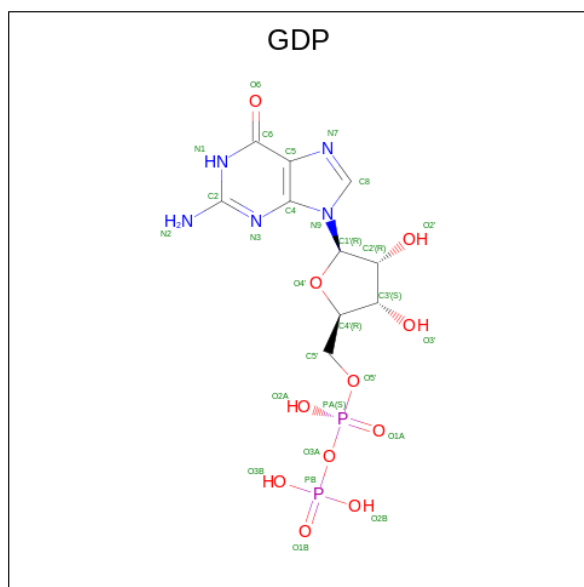
- Molecule 66 is a protein (with D amino acids) called Viomycin.

Mol	Chain	Residues	Atoms				AltConf	Trace
66	h	6	Total	C	N	O	0	0
			48	25	13	10		

- Molecule 67 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

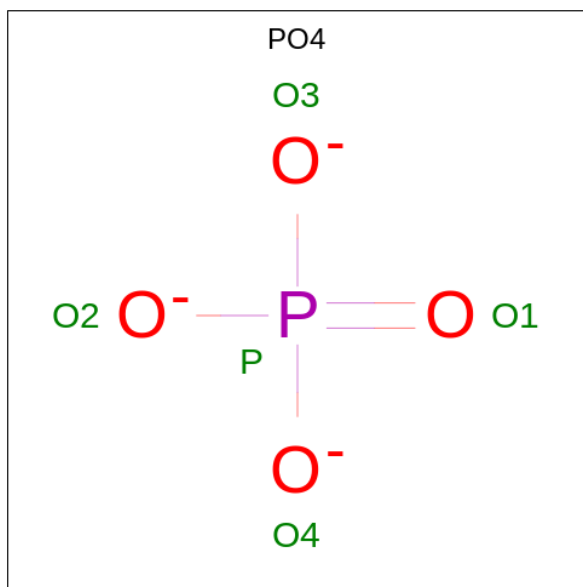
Mol	Chain	Residues	Atoms		AltConf
67	B1	1	Total	Mg	0
			1	1	

- Molecule 68 is GUANOSINE-5'-DIPHOSPHATE (CCD ID: GDP) (formula: C₁₀H₁₅N₅O₁₁P₂).



Mol	Chain	Residues	Atoms					AltConf
68	0	1	Total	C	N	O	P	0
			28	10	5	11	2	

- Molecule 69 is PHOSPHATE ION (CCD ID: PO4) (formula: O₄P).

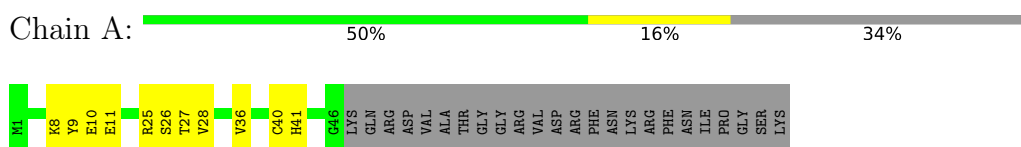


Mol	Chain	Residues	Atoms			AltConf
			Total	O	P	
69	0	1	5	4	1	0

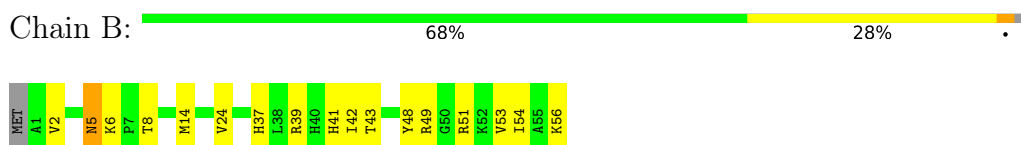
3 Residue-property plots [i](#)

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.

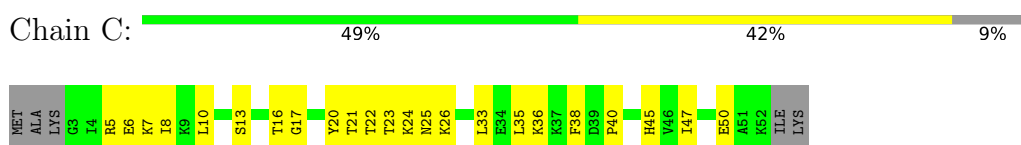
- Molecule 1: 50S ribosomal protein L31



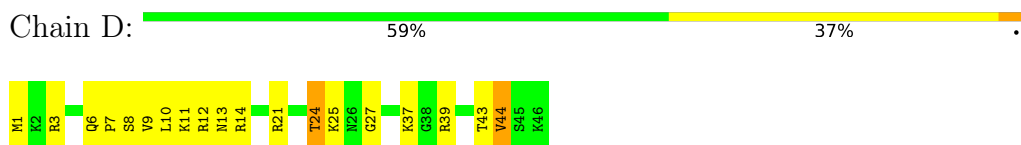
- Molecule 2: 50S ribosomal protein L32



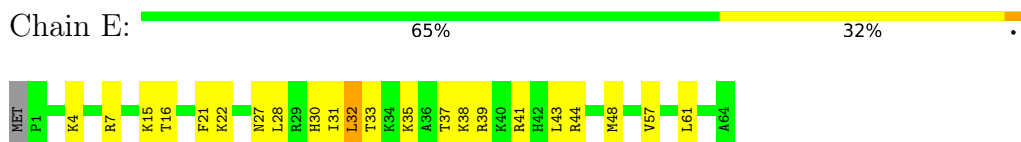
- Molecule 3: 50S ribosomal protein L33



- Molecule 4: 50S ribosomal protein L34

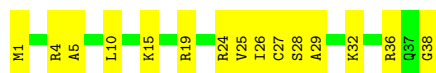


- Molecule 5: 50S ribosomal protein L35



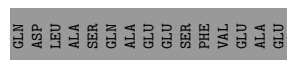
- Molecule 6: 50S ribosomal protein L36

Chain F:  61% 39%



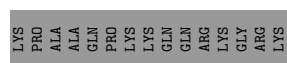
• Molecule 7: 30S ribosomal protein S2

Chain G:  64% 26% 10%



• Molecule 8: 30S ribosomal protein S3

Chain H:  61% 25% 12%



• Molecule 9: 30S ribosomal protein S4

Chain I:  71% 28%



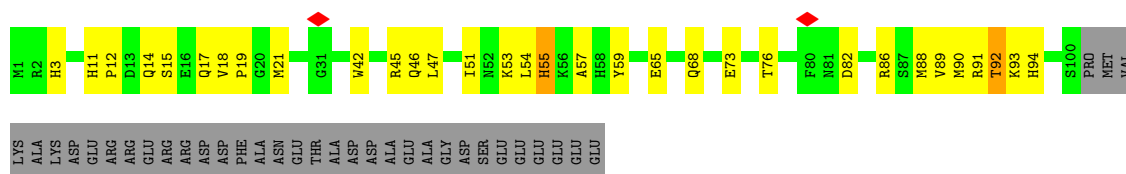
• Molecule 10: 30S ribosomal protein S5

Chain J:  66% 28% 6%

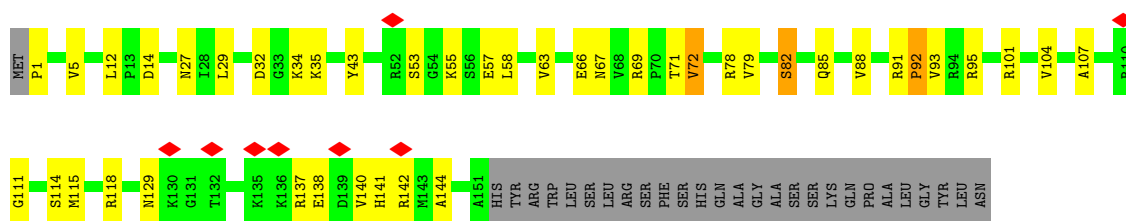




- Molecule 11: 30S ribosomal protein S6, fully modified isoform



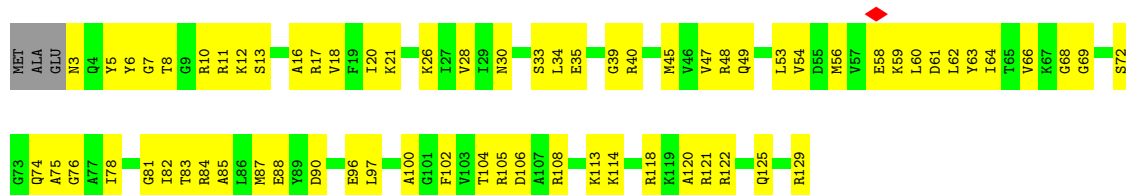
- Molecule 12: 30S ribosomal protein S7



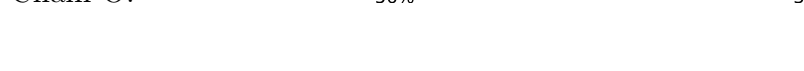
- Molecule 13: 30S ribosomal protein S8

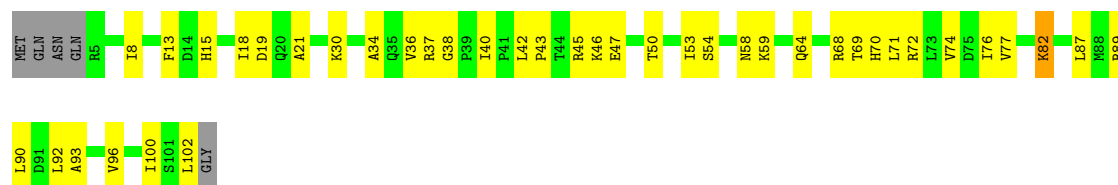


- Molecule 14: 30S ribosomal protein S9



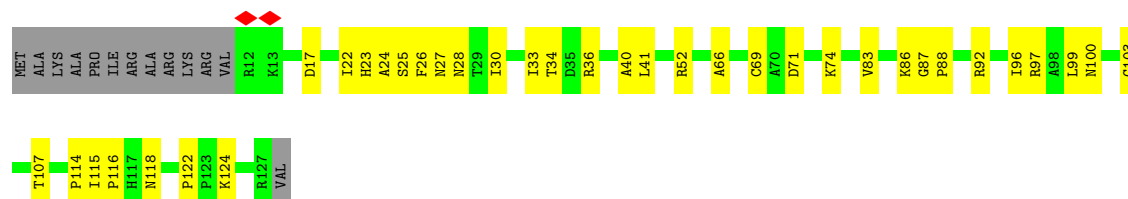
- Molecule 15: 30S ribosomal protein S10





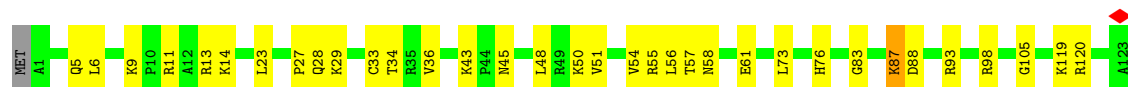
- Molecule 16: 30S ribosomal protein S11

Chain P: 62% 28% 10%



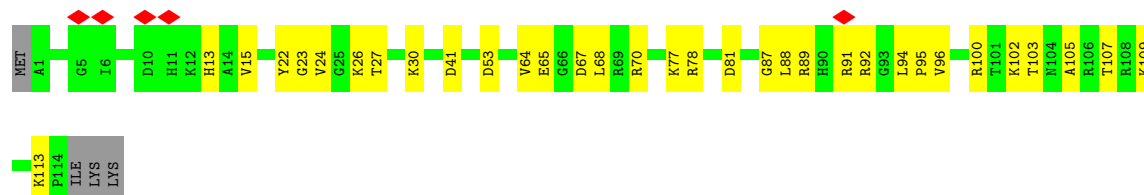
- Molecule 17: 30S ribosomal protein S12

Chain Q: 72% 27% ..



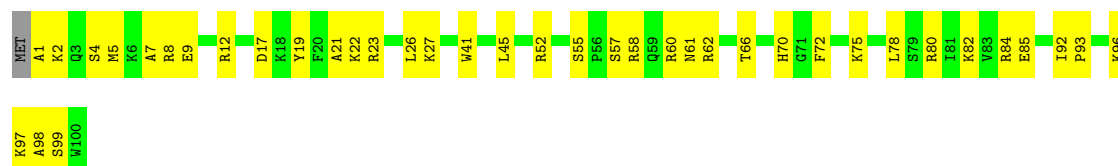
- Molecule 18: 30S ribosomal protein S13

Chain R: 69% 28% .



- Molecule 19: 30S ribosomal protein S14

Chain S: 60% 39% .



- Molecule 20: 30S ribosomal protein S15

Chain T: 78% 21% .



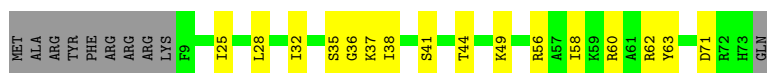
- Molecule 21: 30S ribosomal protein S16



- Molecule 22: 30S ribosomal protein S17



- Molecule 23: 30S ribosomal protein S18



- Molecule 24: 30S ribosomal protein S19



- Molecule 25: 30S ribosomal protein S20

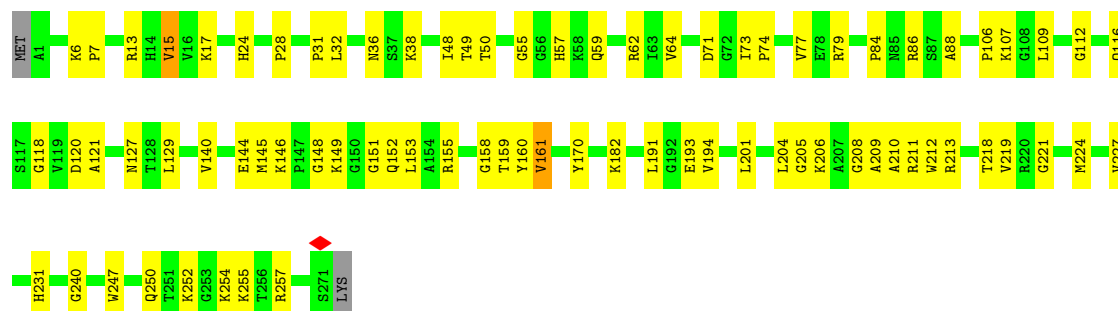


- Molecule 26: 30S ribosomal protein S21



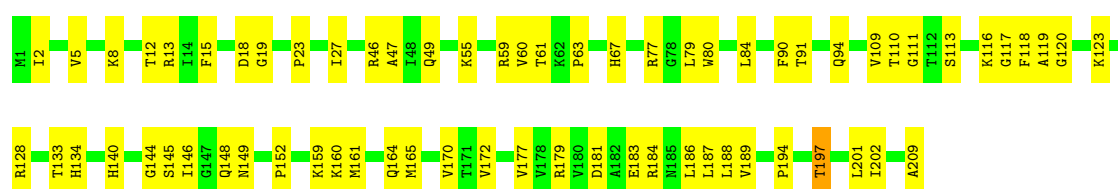
- Molecule 27: 50S ribosomal protein L2





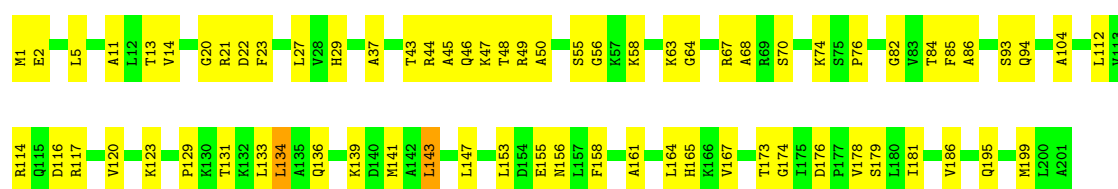
• Molecule 28: 50S ribosomal protein L3

Chain c: 68% 32%



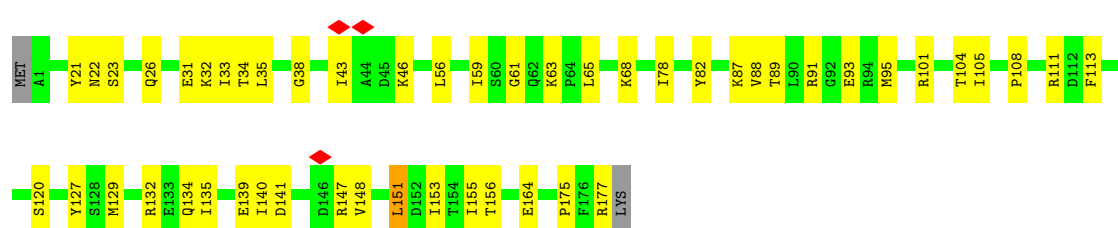
• Molecule 29: 50S ribosomal protein L4

Chain d: 65% 34%



• Molecule 30: 50S ribosomal protein L5

Chain e: 70% 28%



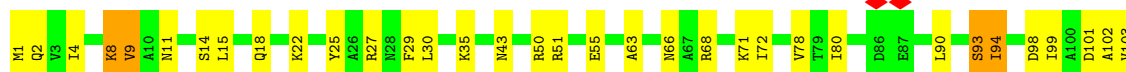
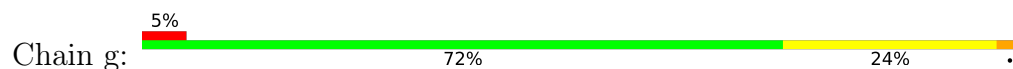
• Molecule 31: 50S ribosomal protein L6

Chain f: 78% 21%

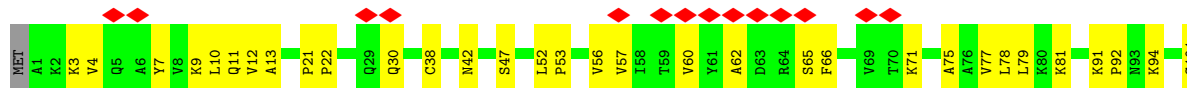




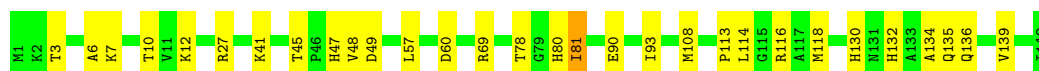
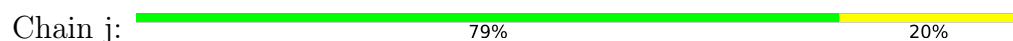
- Molecule 32: 50S ribosomal protein L9



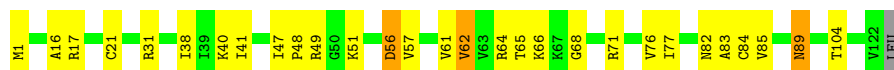
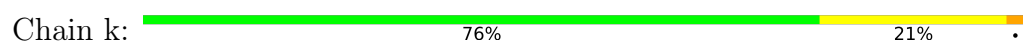
- Molecule 33: 50S ribosomal protein L11



- Molecule 34: 50S ribosomal protein L13



- Molecule 35: 50S ribosomal protein L14

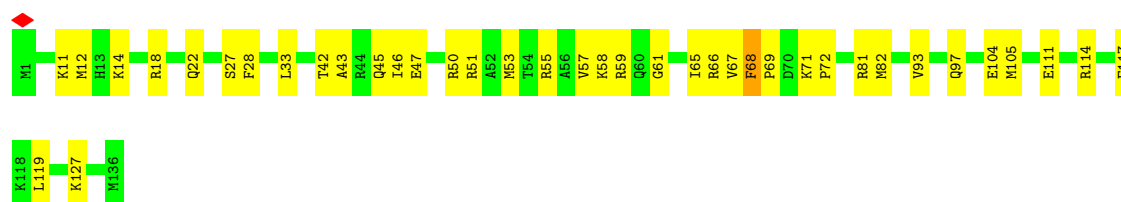


- Molecule 36: 50S ribosomal protein L15



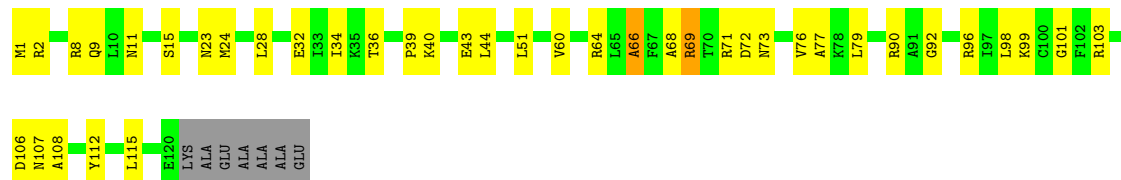
- Molecule 37: 50S ribosomal protein L16





- Molecule 38: 50S ribosomal protein L17

Chain n: 63% 30% 6%



- Molecule 39: 50S ribosomal protein L18

Chain o: 71% 28%



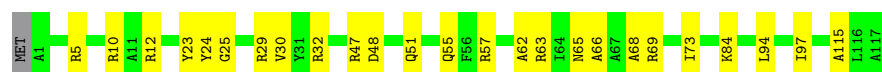
- Molecule 40: 50S ribosomal protein L19

Chain p: 76% 23%



- Molecule 41: 50S ribosomal protein L20

Chain q: 78% 21%



- Molecule 42: 50S ribosomal protein L21

Chain r: 71% 29%



- Molecule 43: 50S ribosomal protein L22

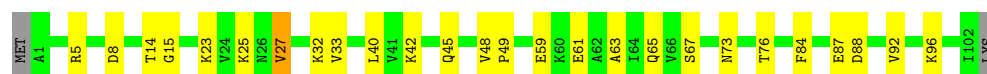
Chain s: 72% 28%



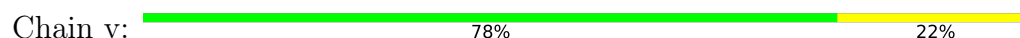
- Molecule 44: 50S ribosomal protein L23



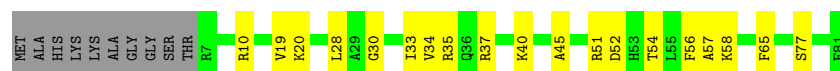
- Molecule 45: 50S ribosomal protein L24



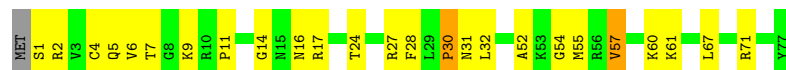
- Molecule 46: 50S ribosomal protein L25



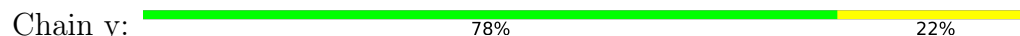
- Molecule 47: 50S ribosomal protein L27



- Molecule 48: 50S ribosomal protein L28



- Molecule 49: 50S ribosomal protein L29



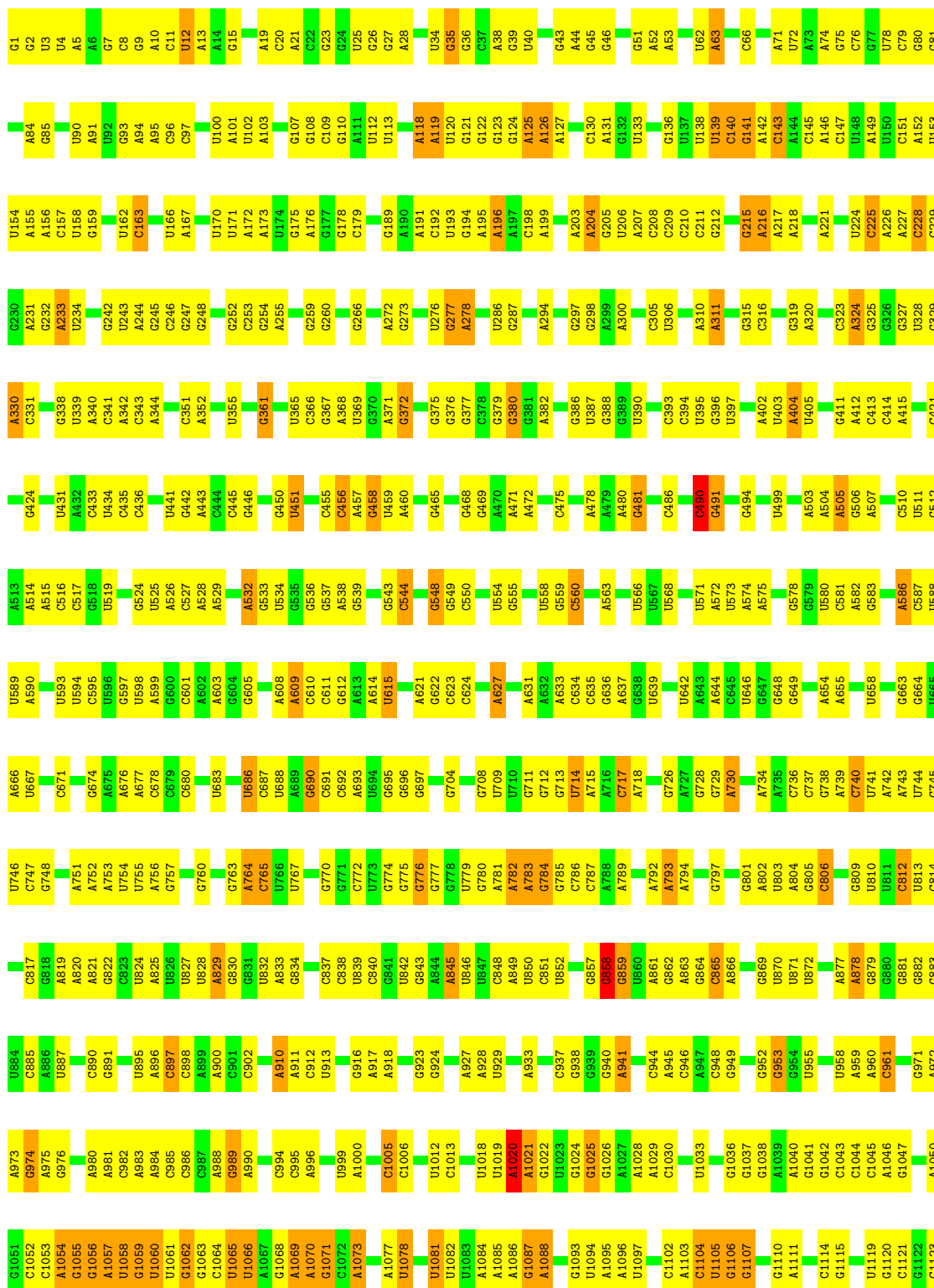
- Molecule 50: 50S ribosomal protein L30



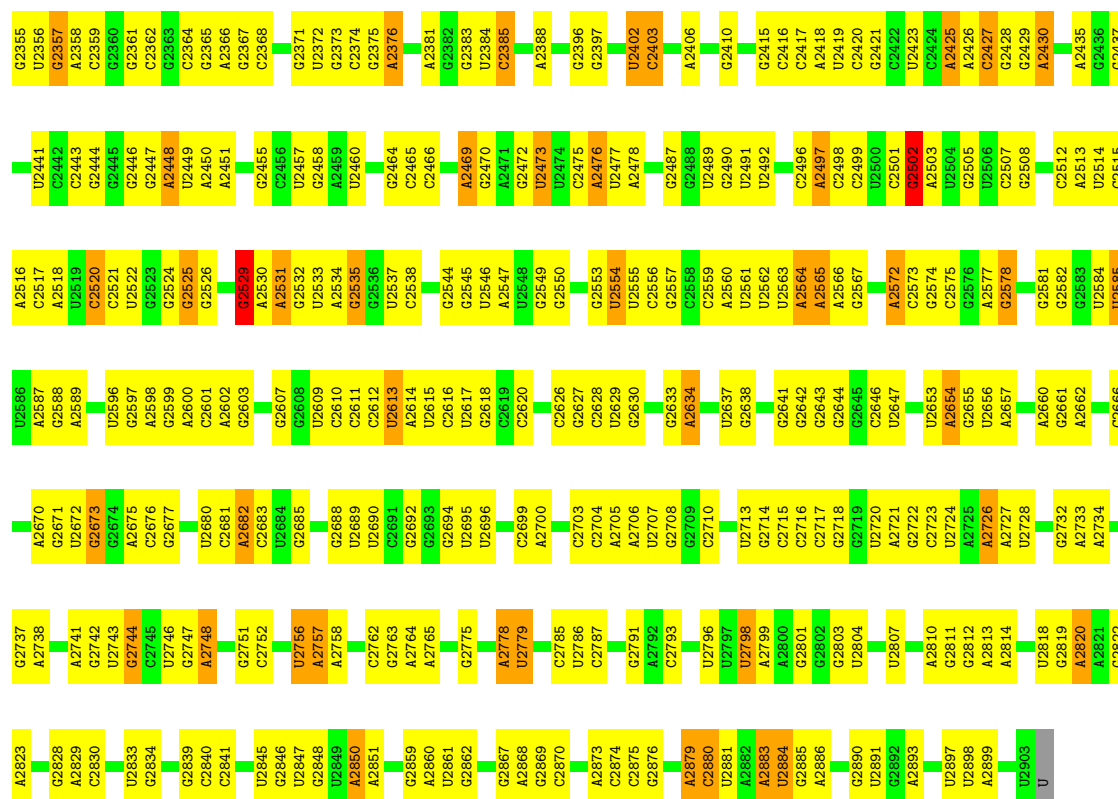


• Molecule 51: 23S rRNA

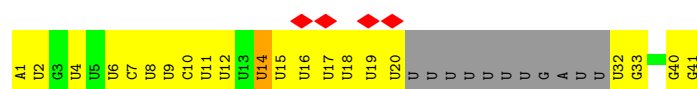
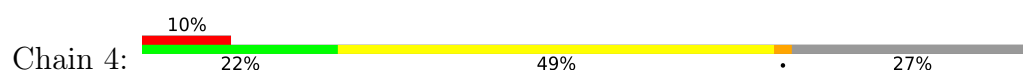
Chain 1: 44% 48% 8%



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A2198	A2126	C2050	G1973	G1884	G1797	G1718	C1635	C1461	G1369	C1289	G1197	G1125
A2199	G2127	A2051	C1974	G1975	U1798	G1719	C1638	C1462	G1370	U1294	U1198	A1126
C2285	G2128	A2052	G1975	G1976	C1800	C1730	G1555	G1463	G1371	U1297	U1203	A1127
G2286	U2132	C2055	A1977	A1889	A1801	C1730	G1558	G1464	A1373	G1300	A1204	G1128
A2287	G2133	G2056	A1978	A1890	A1802	U1736	C1559	U1468	G1374	G1301	A1205	U1300
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G2289	A2135	A2059	G1980	C1894	C1804	G1738	G1642	A1470	A1378	A1301	U1209	U1320
A2297	G2136	A2060	A1981	A1900	C1806	A1739	G1644	G1470	G1379	G1303	U1210	A1133
A2298	G2137	G2061	G1982	A1901	C1807	G1740	G1645	G1471	G1380	A1304	G1210	A1134
G2299	G2138	A2062	G1983	A1902	A1808	C1741	C1646	U1474	A1383	C1305	G1211	C1135
C2300	U2139	C2063	G1984	G1903	A1809	U1742	G1647	G1475	U1474	C1306	G1136	G1137
C2301	G2140	G2064	C1985	G1904	A1810	G1743	G1648	G1475	A1387	G1307	U1216	U1307
A2211	A2141	C2065	C1986	C1905	A1811	A1744	G1649	G1478	G1388	A1308	G1138	G1139
A2212	G2142	C2066	G1990	A1912	A1815	A1745	G1651	G1478	G1389	A1309	U1219	U1140
G2213	C2143	G2067	U1991	A1913	A1816	U1746	A1572	U1481	U1390	G1310	U1220	C1141
G2214	G2144	U2068	G1992	A1913	G1817	U1747	A1573	G1482	U1391	U1311	A1142	A1143
G2215	C2145	G2069	U1993	C1914	G1818	C1748	C1574	G1483	U1394	U1312	G1225	A1144
G2216	C2146	A2070	C1994	C1914	U1818	C1752	C1582	U1484	A1395	U1313	A1226	C1145
G2221	U2151	C2072	U1995	A1917	A1819	G1753	G1580	U1485	U1396	C1319	C1229	C1146
C2222	G2152	C2073	C1996	A1918	U1820	A1754	G1581	U1486	U1397	C1320	A1230	A1147
A2225	C2153	U2074	C1997	U1923	A1821	G1755	G1582	U1486	A1403	A1321	G1236	U1148
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A2227	U2155	U2081	C2000	C1925	U1824	U1758	G1588	A1504	U1409	U1325	A1246	G1154
G2234	G2156	A2082	U1999	G1930	U1825	A1759	C1591	A1506	U1410	U1326	A1247	A1155
A2317	C2157	G2083	C2007	U1931	G1826	C1760	C1592	G1507	U1411	A1327	G1248	A1156
G2236	A2158	G2084	C2008	A1932	U1827	C1761	A1593	A1508	U1412	U1328	U1249	G1157
U2237	G2162	U2086	A2009	G1933	A1828	C1764	U1594	A1509	U1413	C1330	G1250	C1158
G2238	C2165	U2092	A2010	C1934	C1829	C1764	C1595	G1510	A1413	G1331	C1251	C1161
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U2262	U2181	G2111	A2033	U1955	U1856	A1784	A1616	U1535	A1434	G1356	A1269	U1181
C2263	A2182	G2112	U2034	U1956	G1857	A1785	C1617	C1536	U1439	C1357	C1270	G1182
G2267	A2184	U2113	G2035	C1962	A1858	U1786	A1618	G1536	A1439	U1271	G1271	U1183
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G2269	G2188	G2115	A2037	G1964	C1863	U1788	U1620	U1541	G1361	A1275	G1185	G1186
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A2273	C2121	G2121	C2043	G1968	C1868	G1792	A1711	C1547	G1446	G1365	C1278	G1193
G2276	U2194	U2122	C2047	A1969	G1869	C1793	G1715	U1548	U1447	A1366	G1279	G1194
G2353	U2195	G2123	A2048	A1970	C1870	U1795	U1716	U1548	G1448	A1367	A1287	G1195
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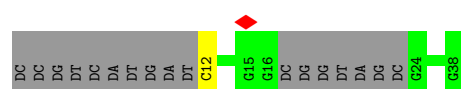
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A1492	C1400	C1326	A1251	C1172	C1096	U1017	G946	C859	U684	U598	C514	U426	G354
A1493	C1401	C1327	A1252	U1173	C1097	U1018	A946	A860	G685	C599	G515	U427	C355
C1496	C1402	C1328	G1253	G1174	G1098	A1019	G947	C861	G686	A600	U516	G428	A356
G1497	C1403	C1329	A1254	A1179	C1100	A1022	U950	U863	G690	A602	C517	U429	G357
G1498	C1404	U1330	G1255	A1180	A1101	U1023	U951	A864	G691	A431	C518	U430	U358
A1502	G1405	A1256	A1256	G1181	A1102	G1024	U952	A865	U701	A432	A520	A432	G359
A1503	C1406	A1332	A1257	U1182	C1103	U1025	G953	C866	U702	A608	C528	G362	G362
G1504	C1407	A1333	A1257	U1183	G1104	G1026	G954	C867	A702	A608	G529	U434	A363
G1505	C1412	A1339	G1260	G1184	A1105	C1027	U955	A872	G703	C613	G530	U437	A366
A1413	A1261	A1261	A1261	G1187	C1107	U1029	U957	A873	A706	C620	U531	U438	U867
U1414	C1282	C1282	C1282	A1188	G1108	U1030	A958	G874	U707	A621	A532	U439	U867
G1415	U1284	U1284	U1284	C1192	C1109	U1031	A959	U875	U708	A622	A533	C440	G369
U1420	C1267	C1267	C1267	G1193	A1110	G1032	U960	C876	G710	C623	U534	G445	C372
A1421	G1268	G1268	G1268	U1194	A1111	G1033	U961	G877	G713	U625	A535	A448	G376
G1422	A1271	A1271	A1271	C1195	A1117	A1035	G962	A878	A715	G626	A539	G377	G377
G1423	A1274	A1274	A1274	G1196	U1118	A1042	A964	G881	A718	G627	G540	G452	G378
A1424	A1275	A1275	A1275	U1197	C1119	G1043	U965	C882	C719	G628	G541	G453	C379
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G1435	G1279	G1279	G1279	C1200	U1122	G1048	A969	C885	G722	G633	A547	U458	C385
U1436	U1279	U1279	U1279	C1210	G1124	U1050	C970	A889	U723	C634	U552	U459	C386
A1437	C1281	C1281	C1281	U1211	U1125	G1051	A977	A901	G724	U636	A553	A460	U387
A1441	C1282	C1282	C1282	U1212	U1126	G1052	C972	G902	G725	U637	A554	G388	U388
G1446	U1283	U1283	U1283	C1213	C1127	G1053	G973	G903	A478	U638	U555	A461	G389
A1447	C1284	C1284	C1284	G1214	U1128	C1054	A974	U904	G734	C639	C556	G462	U390
C1448	A1285	A1285	A1285	G1215	C1129	G1057	A975	U905	A728	U640	G557	U467	G391
C1452	U1286	U1286	U1286	U1216	U1134	G1058	C976	A901	G731	U641	G558	A468	C392
C1453	C1287	C1287	C1287	C1217	C1136	U1059	A977	G902	G732	A642	A560	U479	A393
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A1465	G1290	G1290	G1290	G1220	U1139	U1062	U981	U905	C735	G650	C562	C483	C401
C1466	U1291	U1291	U1291	G1221	G1139	C1063	U986	A906	G736	C651	C563	G484	G402
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U1470	C1293	C1293	C1293	C1223	U1147	U1065	C987	A908	C738	U653	G566	U486	G406
U1471	A1225	A1225	A1225	A1226	U1148	C1069	C990	C910	G742	U657	C569	C492	U406
U1474	C1300	C1300	C1300	C1227	C1149	U1070	U991	A913	A743	C658	G570	A493	A408
G1475	C1302	C1302	C1302	A1229	A1150	C1071	U992	G917	A747	U659	A572	G494	U409
A1476	G1303	G1303	G1303	C1230	A1151	G1072	G993	C924	G748	C660	A573	G497	G410
U1477	C1304	C1304	C1304	G1231	A1152	U1073	A994	G925	C750	C661	A574	A498	G413
U1478	G1305	G1305	G1305	U1232	G1153	U1074	A1000	G926	A665	G666	A575	A499	A414
U1479	C1306	C1306	C1306	G1233	G1154	G1075	C1001	G927	A666	C667	C578	A502	A415
U1485	U1307	U1307	U1307	C1234	A1155	G1077	A1004	G928	A667	C668	C579	G505	G416
G1486	U1308	U1308	U1308	U1235	A1156	U1078	A1005	G929	A668	C669	A580	G506	G417
G1487	G1309	G1309	G1309	C1236	A1157	G1079	A1006	G934	G755	G669	C581	G507	C418
A1488	G1312	G1312	G1312	U1237	U1158	U1080	A1007	C934	C756	G670	G582	G508	C419
G1489	C1313	C1313	C1313	A1238	U1159	G1084	U1008	G935	U757	A673	C583	G509	U420
G1490	U1314	U1314	U1314	U1239	G1160	G1088	U1009	C936	C758	A674	U593	A510	C422
G1491	C1315	C1315	C1315	U1240	C1161	U1091	A1012	A937	U762	A675	U594	C423	G423
G1492	U1316	U1316	U1316	G1241	C1162	A1092	A1014	G939	U763	C676	U595	C424	G424
G1493	C1317	C1317	C1317	C1242	U1168	A1093	A1015	G940	U764	C677	U596	C425	G425
G1494	G1318	G1318	G1318	G1243	U1169	A1094	A1016	G941	U765	C678	U597	C426	G426
G1495	C1319	C1319	C1319	C1244	U1170	A1095	A1017	G942	U766	C679	U598	C427	G427
G1496	U1320	U1320	U1320	G1245	U1171	A1096	A1018	G943	U767	C680	U599	C428	G428
G1497	C1321	C1321	C1321	C1246	U1172	A1097	A1019	G944	U768	C681	U600	C429	G429
G1498	G1322	G1322	G1322	U1247	C1173	U1098	A1020	G945	U769	C682	G601	G430	G430
G1499	U1323	U1323	U1323	G1248	U1174	U1099	A1021	G946	U770	C683	A602	A431	U358
G1500	C1324	C1324	C1324	C1249	U1175	U1100	A1022	G947	U771	C684	A603	A432	G359
G1501	U1325	U1325	U1325	U1249	C1176	U1101	A1023	G948	U772	C685	A604	A433	U359
G1502	C1326	C1326	C1326	G1250	U1176	U1102	A1024	G949	U773	C686	A605	A434	G360
G1503	U1327	U1327	U1327	U1251	C1177	U1103	A1025	G950	U774	C687	A606	U435	U360
G1504	C1328	C1328	C1328	G1252	U1178	U1104	A1026	G951	U775	C688	A607	U436	U361
G1505	U1329	U1329	U1329	U1253	C1179	U1105	A1027	G952	U776	C689	A608	U437	U362
G1506	C1330	C1330	C1330	G1254	U1180	U1106	A1028	G953	U777	C690	A609	U438	U363
G1507	U1331	U1331	U1331	U1255	C1181	U1107	A1029	G954	U778	C691	A610	U439	U364
G1508	C1332	C1332	C1332	G1256	U1182	U1108	A1030	G955	U779	C692	A611	U440	U365
G1509	U1333	U1333	U1333	U1257	C1183	U1109	A1031	G956	U780	C693	A612	U441	U366
G1510	C1334	C1334	C1334	G1258	U1184	U1110	A1032	G957	U781	C694	A613	U442	U367
G1511	U1335	U1335	U1335	U1259	C1185	U1111	A1033	G958	U782	C695	A614	U443	U368
G1512	C1336	C1336	C1336	G1260	U1186	U1112	A1034	G959	U783	C696	A615	U444	U369
G1513	U1337	U1337	U1337	U1261	C1187	U1113	A1035	G960	U784	C697	A616	U445	U370
G1514	C1338	C1338	C1338	G1262	U1188	U1114	A1036	G961	U785	C698	A617	U446	U371
G1515	U1339	U1339	U1339	U1263	C1189	U1115	A1037	G962	U786	C699	A618	U447	U372
G1516	C1340	C1340	C1340	G1264	U1190	U1116	A1038	G963	U787	C700	A619	U448	U373
G1517	U1341	U1341	U1341	U1265	C1191	U1117	A1039	G964	U788	C701	A620	U449	U374
G1518	C1342	C1342	C1342	G1266	U1192	U1118	A1040	G965	U789	C702	A621	U450	U375
G1519	U1343	U1343	U1343	U1267	C1193	U1119	A1041	G966	U790	C703	A622	U451	U376
G1520	C1344	C1344	C1344	G1268	U1194	U1120	A1042	G967	U791	C704	A623	U452	U377
G1521	U1345	U1345	U1345	U1269	C1195	U1121	A1043	G968	U792	C705	A624	U453	U378
G1522	C1346	C1346	C1346	G1270	U1196	U1122	A1044	G969	U793	C706	A625	U454	U379
G1523	U1347	U1347	U1347	U1271	C1197	U1123	A1045	G970	U794	C707	A626	U455	U380
G1524	C1348	C1348	C1348	G1272	U1198	U1124	A1046	G971	U795	C708	A627	U456	U381
G1525	U1349	U1349	U1349	U1273	C1199	U1125	A1047	G972	U796	C709	A628	U457	U382
G1526	C1350	C1350	C1350	G1274	U1200	U1126	A1048	G973	U797	C710	A629	U458	U383
G1527	U1351	U1351	U1351	U1275	C1201	U1127	A1049	G974	U798	C711	A630	U459	U384
G1528	C1352	C1352	C1352	G1276	U1202	U1128	A1050	G975	U799	C712	A631	U460	U385
G1529	U1353	U1353	U1353	U1277	C1203	U1129	A1051	G976	U800	C713	A632	U461	U386
G1530	C1354	C1354	C1354	G1278	U1204	U1130	A1052	G977	U801	C714	A633	U462	U387
G1531	U1355	U1355	U1355	U1279	C1205	U1131	A1053	G978	U802	C715	A634	U463	U388
G1532	C1356	C1356	C1356	G1280	U1205	U1132	A1054	G979	U803	C716	A635	U464	U389
G1533	U1357	U1357	U1357	U1281	C1206	U1133	A1055	G980	U804	C717	A636	U465	U390
G1534	C1358	C1358	C1358	G1282	U1207	U1134	A1056	G981	U805	C718	A637	U466	U391
G1535	U1359	U1359	U1359	U1283	C1208	U1135	A1057	G982	U806	C719	A638	U467	U392
G1536													



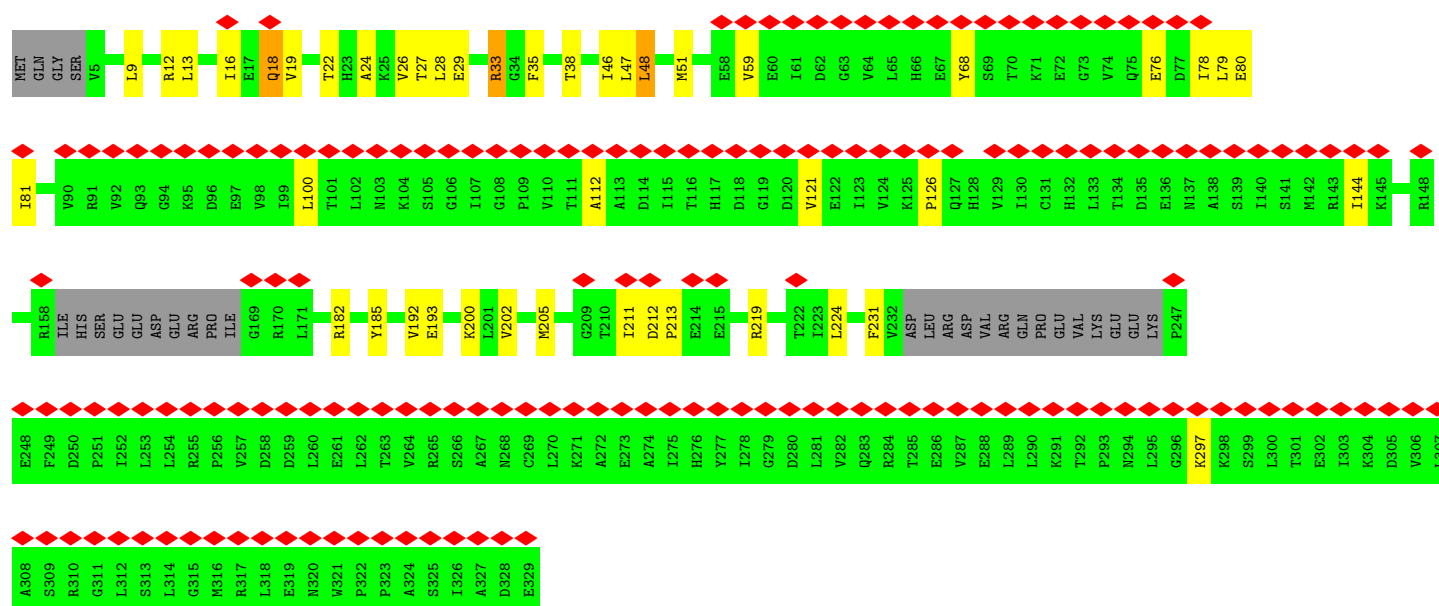
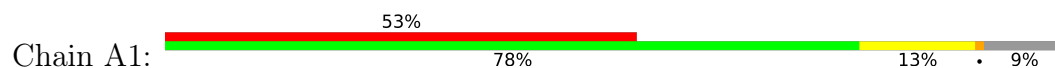
- Molecule 55: template DNA strand



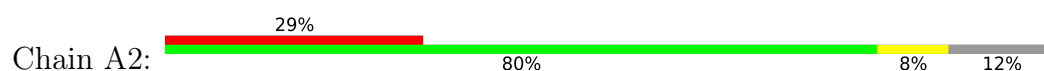
- Molecule 56: non-template DNA strand

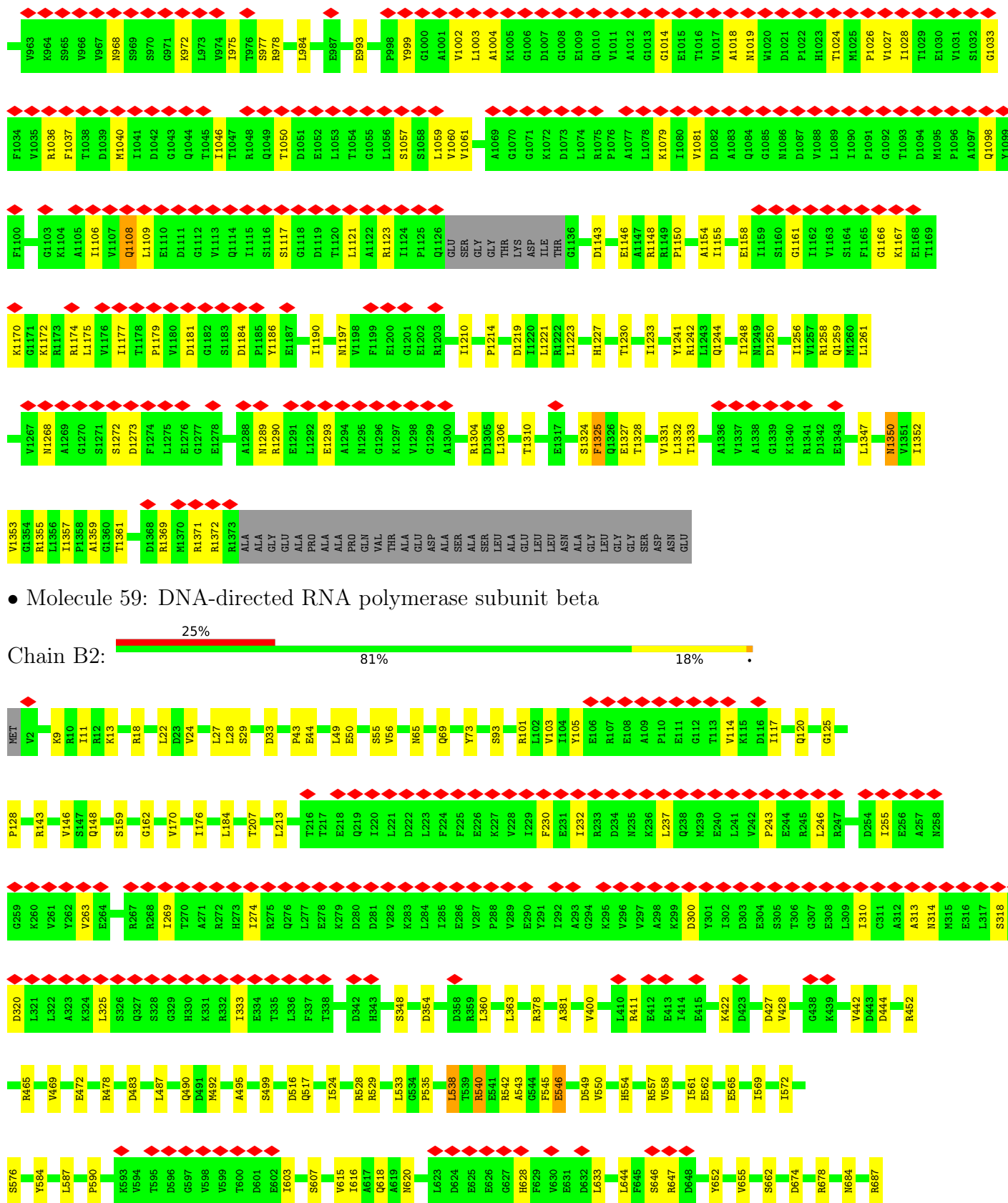


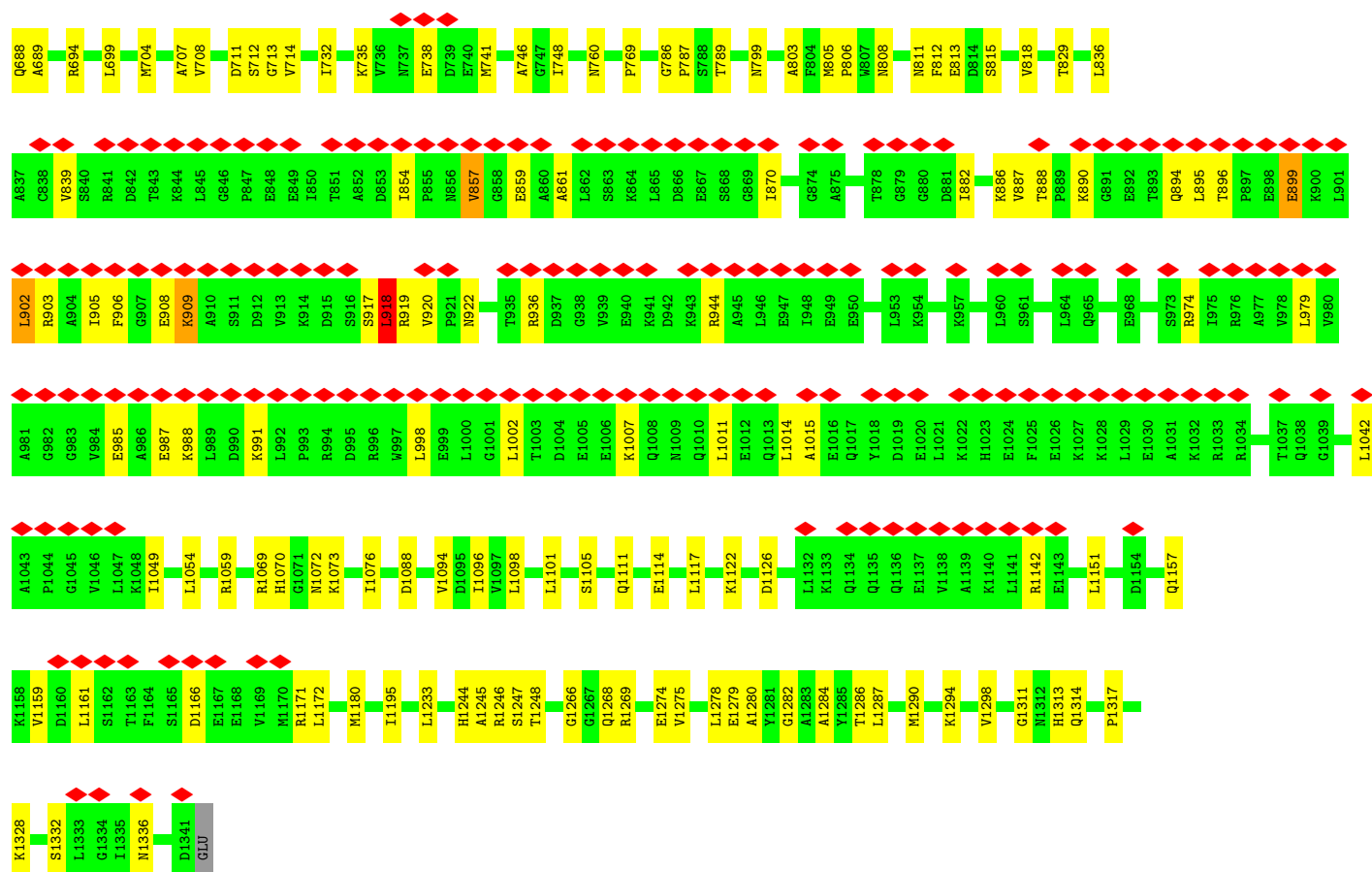
- Molecule 57: DNA-directed RNA polymerase subunit alpha



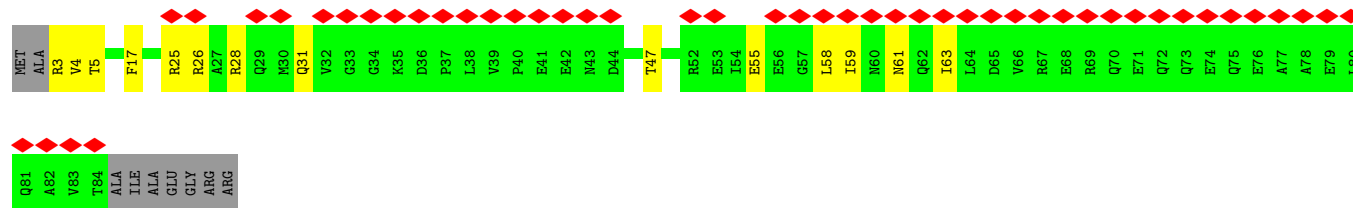
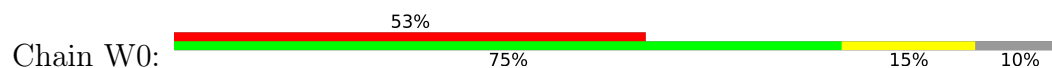
- Molecule 57: DNA-directed RNA polymerase subunit alpha



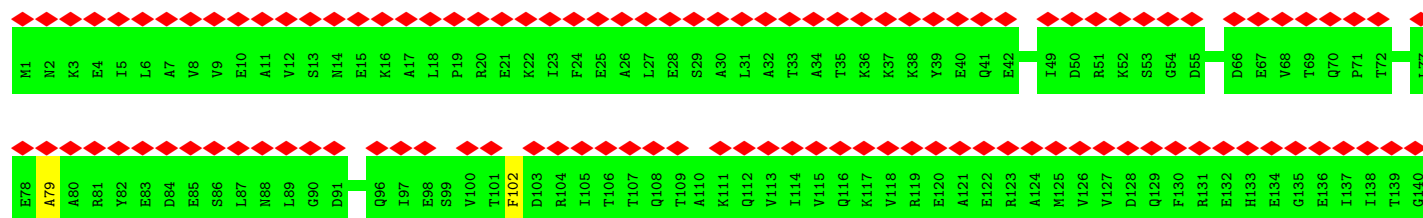
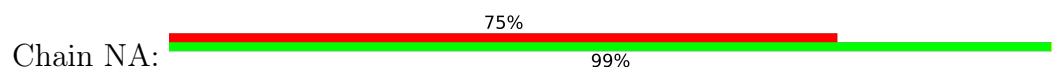


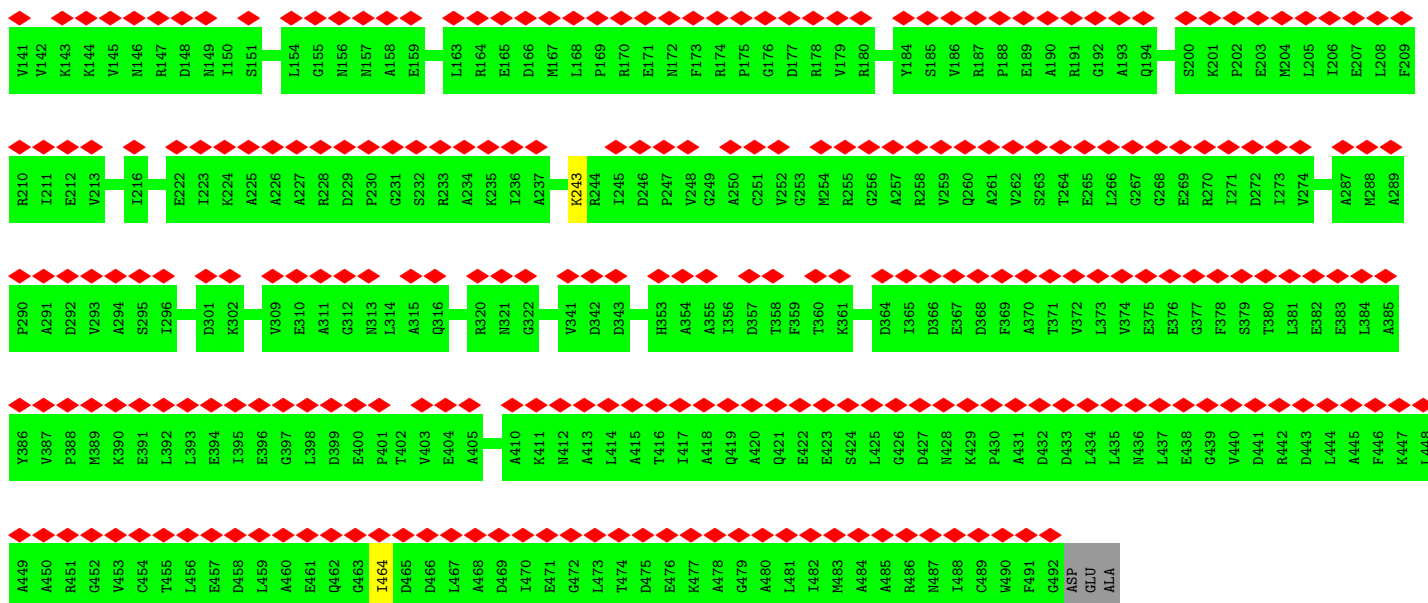


- Molecule 60: DNA-directed RNA polymerase subunit omega

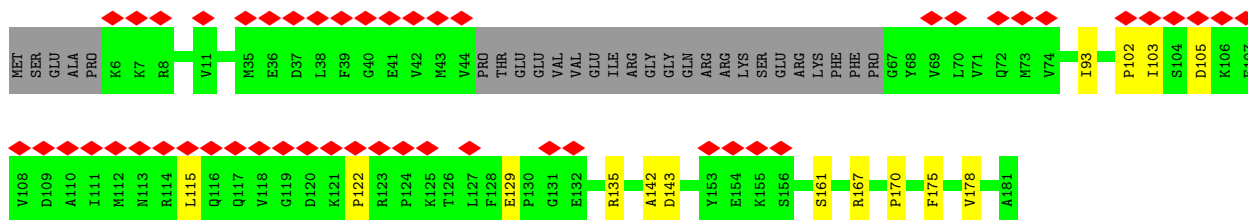
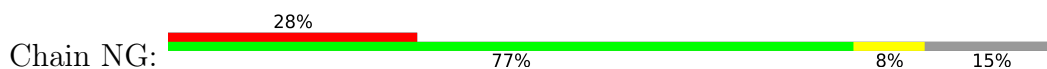


- Molecule 61: Transcription termination/antitermination protein NusA





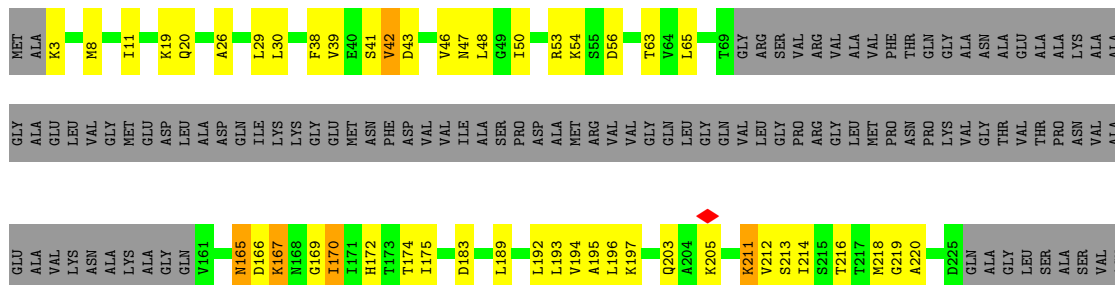
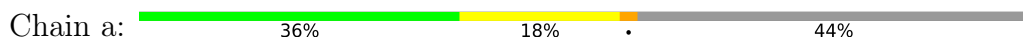
• Molecule 62: Transcription termination/antitermination protein NusG



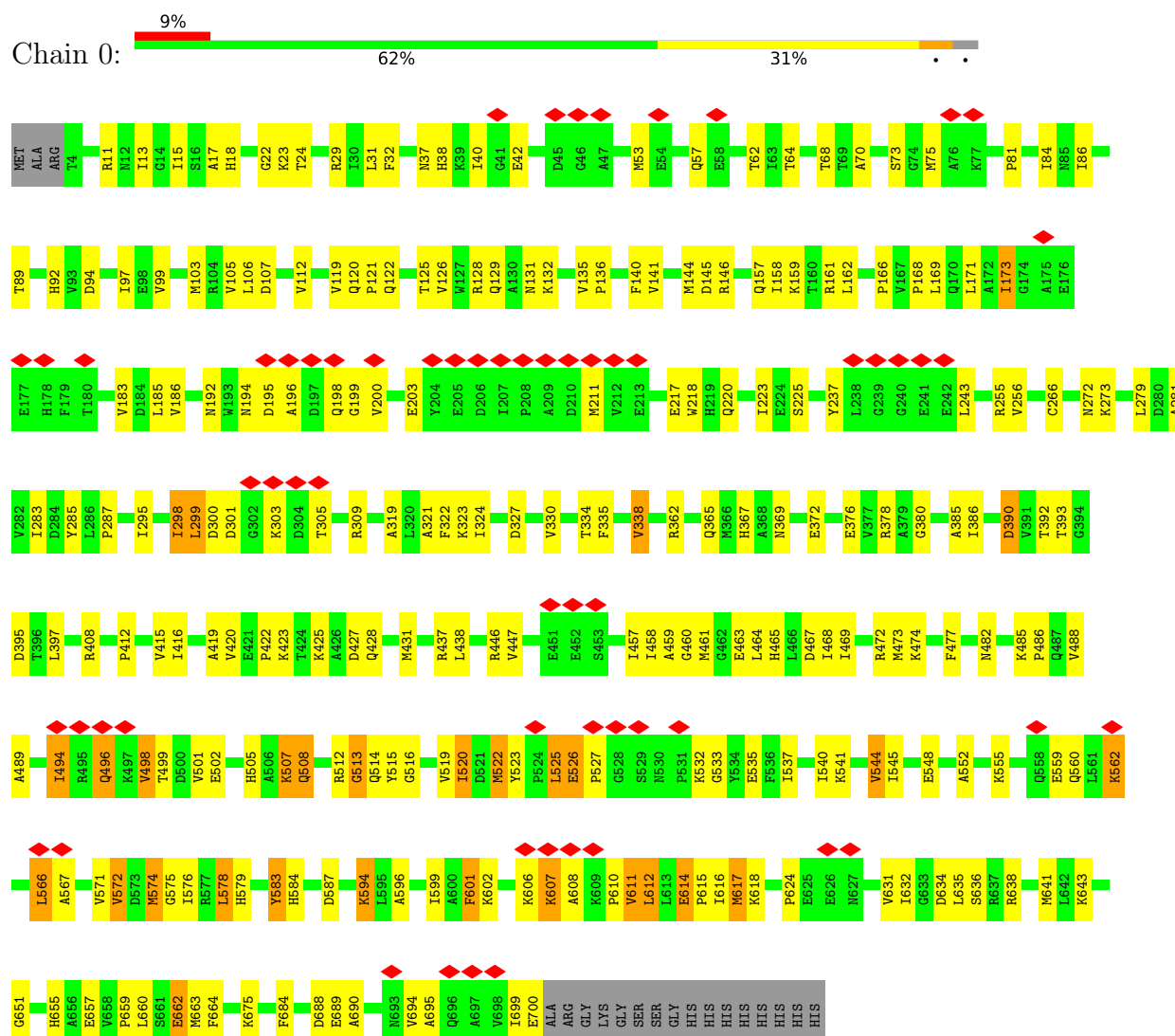
• Molecule 63: tRNA(fMet)



• Molecule 64: Large ribosomal subunit protein uL1



• Molecule 65: Elongation factor G



• Molecule 66: Viomycin



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	23500	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/\text{\AA}^2$)	47	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	1500	Depositor
Magnification	Not provided	
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	0.085	Depositor
Minimum map value	-0.027	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.004	Depositor
Recommended contour level	0.006	Depositor
Map size ($\text{\AA}$)	753.60004, 753.60004, 753.60004	wwPDB
Map dimensions	480, 480, 480	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	1.57, 1.57, 1.57	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: 5OH, DPP, GDP, UAL, MG, KBE, PO4

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	A	0.25	0/362	0.72	0/485
2	B	0.37	0/450	0.80	2/599 (0.3%)
3	C	0.32	0/416	0.61	0/554
4	D	0.48	0/380	0.95	0/498
5	E	0.46	0/513	0.80	0/676
6	F	0.40	0/303	0.79	0/397
7	G	0.39	0/1735	0.82	0/2338
8	H	0.42	0/1651	0.80	0/2225
9	I	0.28	0/1665	0.76	1/2227 (0.0%)
10	J	0.47	0/1169	0.81	0/1573
11	K	0.44	0/835	0.86	0/1128
12	L	0.41	0/1195	0.82	2/1602 (0.1%)
13	M	0.31	0/989	0.75	0/1326
14	N	0.29	0/1034	0.74	0/1375
15	O	0.56	0/796	0.81	0/1077
16	P	0.42	0/885	0.76	0/1195
17	Q	0.43	0/969	0.80	0/1300
18	R	0.29	0/892	0.68	0/1193
19	S	0.28	0/817	0.68	1/1088 (0.1%)
20	T	0.37	0/722	0.74	0/964
21	U	0.29	0/659	0.63	0/884
22	V	0.33	0/657	0.72	0/881
23	W	0.28	0/544	0.69	0/731
24	X	0.28	0/652	0.65	0/877
25	Y	0.26	0/671	0.64	2/888 (0.2%)
26	Z	0.56	0/550	1.09	1/728 (0.1%)
27	b	0.49	0/2121	0.82	0/2852
28	c	0.45	0/1586	0.77	0/2134
29	d	0.40	0/1571	0.80	3/2113 (0.1%)
30	e	0.30	0/1434	0.66	0/1926
31	f	0.29	0/1343	0.61	0/1816
32	g	0.34	0/1122	0.77	3/1515 (0.2%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
33	i	0.39	0/1046	0.80	1/1410 (0.1%)
34	j	0.46	0/1152	0.72	0/1551
35	k	0.42	0/947	0.91	1/1268 (0.1%)
36	l	0.41	1/1054 (0.1%)	0.81	4/1403 (0.3%)
37	m	0.40	0/1093	0.81	2/1460 (0.1%)
38	n	0.54	1/973 (0.1%)	0.87	0/1301
39	o	0.32	0/902	0.68	0/1209
40	p	0.39	0/929	0.72	0/1242
41	q	0.43	0/960	0.71	0/1278
42	r	0.38	0/829	0.78	1/1107 (0.1%)
43	s	0.52	0/864	0.83	0/1156
44	t	0.48	0/744	0.81	1/994 (0.1%)
45	u	0.33	0/787	0.74	2/1051 (0.2%)
46	v	0.36	0/766	0.66	0/1025
47	w	0.40	0/582	0.78	0/769
48	x	0.62	0/635	1.16	5/848 (0.6%)
49	y	0.28	0/510	0.71	0/677
50	z	0.36	0/453	0.76	1/605 (0.2%)
51	1	0.59	0/69796	0.60	16/108888 (0.0%)
52	2	0.60	0/2872	0.55	1/4479 (0.0%)
53	3	0.60	0/36963	0.57	5/57662 (0.0%)
54	4	0.64	0/695	0.79	0/1076
55	8	0.56	0/599	0.70	1/919 (0.1%)
56	9	0.49	0/468	0.53	0/719
57	A1	0.56	0/2106	0.82	0/2868
57	A2	0.49	0/2048	0.76	0/2786
58	B1	0.56	4/10510 (0.0%)	0.74	8/14196 (0.1%)
59	B2	0.46	1/10714 (0.0%)	0.67	0/14459
60	W0	0.30	0/652	0.61	0/879
61	NA	0.76	0/2431	1.22	0/3385
62	NG	1.16	0/756	1.04	0/1048
63	6	0.60	0/1832	0.59	0/2855
64	a	0.49	0/1020	0.80	0/1370
65	0	0.55	0/5501	0.82	3/7446 (0.0%)
66	h	3.22	2/11 (18.2%)	0.75	0/13
All	All	0.55	9/194888 (0.0%)	0.67	67/286567 (0.0%)

The worst 5 of 9 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
66	h	3	SER	CA-C	-6.75	1.38	1.52
66	h	4	SER	CA-C	-6.34	1.39	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
38	n	66	ALA	CA-C	-5.96	1.44	1.52
58	B1	1350	ASN	CG-ND2	-5.24	1.22	1.33
58	B1	1108	GLN	CD-OE1	5.15	1.33	1.23

The worst 5 of 67 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
12	L	92	PRO	N-CA-C	-10.51	98.44	113.47
51	1	1020	A	C2'-C3'-O3'	7.36	120.55	109.50
48	x	11	PRO	N-CA-C	-7.36	99.48	111.77
51	1	2425	A	O3'-P-O5'	-6.95	93.57	104.00
12	L	82	SER	N-CA-C	6.90	116.43	108.49

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	355	0	353	10	0
2	B	444	0	461	14	0
3	C	409	0	440	20	0
4	D	377	0	418	17	0
5	E	504	0	574	16	0
6	F	302	0	341	14	0
7	G	1704	0	1732	44	0
8	H	1624	0	1699	45	0
9	I	1643	0	1710	44	0
10	J	1156	0	1199	39	0
11	K	817	0	808	23	0
12	L	1181	0	1240	44	0
13	M	979	0	1034	31	0
14	N	1022	0	1070	55	0
15	O	786	0	828	32	0
16	P	869	0	878	27	0
17	Q	955	0	1019	32	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
18	R	883	0	944	25	0
19	S	805	0	847	35	0
20	T	714	0	737	17	0
21	U	649	0	666	21	0
22	V	648	0	691	18	0
23	W	535	0	552	16	0
24	X	637	0	665	17	0
25	Y	665	0	714	22	0
26	Z	544	0	579	15	0
27	b	2082	0	2157	70	0
28	c	1565	0	1616	57	0
29	d	1552	0	1619	51	0
30	e	1410	0	1447	43	0
31	f	1323	0	1374	31	0
32	g	1111	0	1148	31	0
33	i	1032	0	1088	35	0
34	j	1129	0	1162	31	0
35	k	938	0	1012	22	0
36	l	1045	0	1117	30	0
37	m	1074	0	1157	28	0
38	n	960	0	1000	34	0
39	o	892	0	923	20	0
40	p	917	0	965	24	0
41	q	947	0	1022	22	0
42	r	816	0	839	22	0
43	s	857	0	922	18	0
44	t	738	0	807	15	0
45	u	779	0	834	21	0
46	v	753	0	780	14	0
47	w	575	0	592	20	0
48	x	625	0	655	22	0
49	y	509	0	543	9	0
50	z	449	0	491	10	0
51	1	62317	0	31346	1373	0
52	2	2568	0	1303	58	0
53	3	33012	0	16618	724	0
54	4	627	0	313	8	0
55	8	539	0	305	27	0
56	9	417	0	224	1	0
57	A1	2088	0	1895	24	0
57	A2	2029	0	1864	18	0
58	B1	10353	0	10548	323	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
59	B2	10546	0	10550	171	0
60	W0	650	0	658	11	0
61	NA	2432	0	1171	5	0
62	NG	758	0	334	10	0
63	6	1640	0	837	27	0
64	a	1013	0	1081	41	0
65	0	5399	0	5363	140	0
66	h	48	0	40	6	0
67	B1	1	0	0	0	0
68	0	28	0	12	1	0
69	0	5	0	0	0	0
All	All	181755	0	131931	3749	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 12.

The worst 5 of 3749 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)
12:L:92:PRO:HA	12:L:95:ARG:HE	1.12	1.13
53:3:112:G:H21	53:3:354:G:H5'	1.16	1.10
51:1:1060:U:H4'	51:1:1061:U:H5'	1.32	1.10
51:1:2061:G:H2'	51:1:2501:C:O2'	1.52	1.09
50:z:37:ARG:HH12	51:1:929:U:H5'	1.12	1.06

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	A	44/70 (63%)	38 (86%)	6 (14%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	B	54/57 (95%)	48 (89%)	6 (11%)	0	100	100
3	C	48/55 (87%)	37 (77%)	11 (23%)	0	100	100
4	D	44/46 (96%)	35 (80%)	9 (20%)	0	100	100
5	E	62/65 (95%)	48 (77%)	13 (21%)	1 (2%)	8	38
6	F	36/38 (95%)	30 (83%)	6 (17%)	0	100	100
7	G	216/241 (90%)	182 (84%)	34 (16%)	0	100	100
8	H	204/233 (88%)	187 (92%)	17 (8%)	0	100	100
9	I	203/206 (98%)	171 (84%)	31 (15%)	1 (0%)	25	64
10	J	155/167 (93%)	129 (83%)	26 (17%)	0	100	100
11	K	98/135 (73%)	79 (81%)	19 (19%)	0	100	100
12	L	149/179 (83%)	129 (87%)	20 (13%)	0	100	100
13	M	127/130 (98%)	110 (87%)	17 (13%)	0	100	100
14	N	125/130 (96%)	110 (88%)	15 (12%)	0	100	100
15	O	96/103 (93%)	82 (85%)	14 (15%)	0	100	100
16	P	114/129 (88%)	104 (91%)	10 (9%)	0	100	100
17	Q	121/124 (98%)	97 (80%)	23 (19%)	1 (1%)	16	55
18	R	112/118 (95%)	99 (88%)	13 (12%)	0	100	100
19	S	98/101 (97%)	86 (88%)	12 (12%)	0	100	100
20	T	86/89 (97%)	80 (93%)	6 (7%)	0	100	100
21	U	80/82 (98%)	69 (86%)	11 (14%)	0	100	100
22	V	78/84 (93%)	69 (88%)	9 (12%)	0	100	100
23	W	63/75 (84%)	59 (94%)	4 (6%)	0	100	100
24	X	77/92 (84%)	69 (90%)	8 (10%)	0	100	100
25	Y	83/87 (95%)	77 (93%)	6 (7%)	0	100	100
26	Z	63/71 (89%)	47 (75%)	16 (25%)	0	100	100
27	b	269/273 (98%)	227 (84%)	42 (16%)	0	100	100
28	c	207/209 (99%)	177 (86%)	30 (14%)	0	100	100
29	d	199/201 (99%)	182 (92%)	17 (8%)	0	100	100
30	e	175/179 (98%)	165 (94%)	10 (6%)	0	100	100
31	f	174/177 (98%)	157 (90%)	17 (10%)	0	100	100
32	g	147/149 (99%)	124 (84%)	23 (16%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
33	i	139/142 (98%)	124 (89%)	15 (11%)	0	100	100
34	j	140/142 (99%)	120 (86%)	20 (14%)	0	100	100
35	k	120/123 (98%)	98 (82%)	22 (18%)	0	100	100
36	l	141/144 (98%)	117 (83%)	24 (17%)	0	100	100
37	m	134/136 (98%)	116 (87%)	18 (13%)	0	100	100
38	n	118/127 (93%)	104 (88%)	14 (12%)	0	100	100
39	o	114/117 (97%)	103 (90%)	11 (10%)	0	100	100
40	p	112/115 (97%)	105 (94%)	7 (6%)	0	100	100
41	q	115/118 (98%)	108 (94%)	7 (6%)	0	100	100
42	r	101/103 (98%)	88 (87%)	13 (13%)	0	100	100
43	s	108/110 (98%)	92 (85%)	16 (15%)	0	100	100
44	t	91/100 (91%)	77 (85%)	14 (15%)	0	100	100
45	u	100/104 (96%)	83 (83%)	17 (17%)	0	100	100
46	v	92/94 (98%)	79 (86%)	13 (14%)	0	100	100
47	w	73/85 (86%)	63 (86%)	10 (14%)	0	100	100
48	x	75/78 (96%)	66 (88%)	9 (12%)	0	100	100
49	y	61/63 (97%)	61 (100%)	0	0	100	100
50	z	56/59 (95%)	50 (89%)	6 (11%)	0	100	100
57	A1	295/329 (90%)	274 (93%)	21 (7%)	0	100	100
57	A2	282/329 (86%)	271 (96%)	11 (4%)	0	100	100
58	B1	1329/1407 (94%)	1206 (91%)	119 (9%)	4 (0%)	37	73
59	B2	1338/1342 (100%)	1208 (90%)	126 (9%)	4 (0%)	37	73
60	W0	80/91 (88%)	77 (96%)	3 (4%)	0	100	100
61	NA	490/495 (99%)	476 (97%)	14 (3%)	0	100	100
62	NG	150/181 (83%)	133 (89%)	12 (8%)	5 (3%)	3	21
64	a	128/234 (55%)	105 (82%)	23 (18%)	0	100	100
65	0	695/716 (97%)	598 (86%)	87 (12%)	10 (1%)	9	41
66	h	2/6 (33%)	1 (50%)	1 (50%)	0	100	100
All	All	10486/11185 (94%)	9306 (89%)	1154 (11%)	26 (0%)	45	78

5 of 26 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
58	B1	121	PRO
62	NG	103	ILE
62	NG	122	PRO
59	B2	43	PRO
59	B2	918	LEU

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	42/62 (68%)	42 (100%)	0	100	100
2	B	47/48 (98%)	47 (100%)	0	100	100
3	C	45/49 (92%)	44 (98%)	1 (2%)	47	65
4	D	38/38 (100%)	35 (92%)	3 (8%)	10	29
5	E	51/52 (98%)	46 (90%)	5 (10%)	6	21
6	F	34/34 (100%)	33 (97%)	1 (3%)	37	56
7	G	180/199 (90%)	172 (96%)	8 (4%)	24	45
8	H	170/190 (90%)	162 (95%)	8 (5%)	22	44
9	I	172/173 (99%)	170 (99%)	2 (1%)	67	79
10	J	119/126 (94%)	113 (95%)	6 (5%)	20	41
11	K	87/116 (75%)	83 (95%)	4 (5%)	23	44
12	L	124/147 (84%)	121 (98%)	3 (2%)	44	62
13	M	104/105 (99%)	102 (98%)	2 (2%)	52	69
14	N	105/107 (98%)	105 (100%)	0	100	100
15	O	86/90 (96%)	78 (91%)	8 (9%)	7	23
16	P	89/99 (90%)	88 (99%)	1 (1%)	70	80
17	Q	103/104 (99%)	101 (98%)	2 (2%)	52	69
18	R	92/96 (96%)	91 (99%)	1 (1%)	70	80
19	S	83/84 (99%)	82 (99%)	1 (1%)	67	79
20	T	76/77 (99%)	76 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
21	U	65/65 (100%)	65 (100%)	0	100	100
22	V	74/78 (95%)	74 (100%)	0	100	100
23	W	56/65 (86%)	56 (100%)	0	100	100
24	X	70/79 (89%)	70 (100%)	0	100	100
25	Y	65/66 (98%)	65 (100%)	0	100	100
26	Z	55/61 (90%)	46 (84%)	9 (16%)	2	10
27	b	216/218 (99%)	212 (98%)	4 (2%)	52	69
28	c	164/164 (100%)	163 (99%)	1 (1%)	84	88
29	d	165/165 (100%)	160 (97%)	5 (3%)	36	55
30	e	148/150 (99%)	146 (99%)	2 (1%)	62	75
31	f	137/138 (99%)	136 (99%)	1 (1%)	81	87
32	g	114/114 (100%)	111 (97%)	3 (3%)	41	59
33	i	109/110 (99%)	109 (100%)	0	100	100
34	j	116/116 (100%)	113 (97%)	3 (3%)	41	59
35	k	103/104 (99%)	100 (97%)	3 (3%)	37	56
36	l	102/103 (99%)	100 (98%)	2 (2%)	50	68
37	m	109/109 (100%)	108 (99%)	1 (1%)	75	83
38	n	100/103 (97%)	98 (98%)	2 (2%)	50	68
39	o	86/87 (99%)	86 (100%)	0	100	100
40	p	99/100 (99%)	99 (100%)	0	100	100
41	q	89/90 (99%)	89 (100%)	0	100	100
42	r	84/84 (100%)	84 (100%)	0	100	100
43	s	93/93 (100%)	86 (92%)	7 (8%)	11	31
44	t	80/84 (95%)	77 (96%)	3 (4%)	28	49
45	u	83/85 (98%)	82 (99%)	1 (1%)	67	79
46	v	78/78 (100%)	77 (99%)	1 (1%)	65	77
47	w	57/63 (90%)	57 (100%)	0	100	100
48	x	67/68 (98%)	65 (97%)	2 (3%)	36	55
49	y	55/55 (100%)	55 (100%)	0	100	100
50	z	48/49 (98%)	47 (98%)	1 (2%)	48	66
57	A1	185/286 (65%)	174 (94%)	11 (6%)	16	37

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
57	A2	186/286 (65%)	184 (99%)	2 (1%)	70	80
58	B1	1110/1168 (95%)	1021 (92%)	89 (8%)	10	29
59	B2	1150/1157 (99%)	1121 (98%)	29 (2%)	42	61
60	W0	70/75 (93%)	68 (97%)	2 (3%)	37	56
64	a	109/181 (60%)	98 (90%)	11 (10%)	6	20
65	0	574/588 (98%)	512 (89%)	62 (11%)	5	19
66	h	2/2 (100%)	2 (100%)	0	100	100
All	All	8120/8683 (94%)	7807 (96%)	313 (4%)	30	48

5 of 313 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
59	B2	908	GLU
65	0	562	LYS
60	W0	4	VAL
65	0	390	ASP
65	0	607	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 149 such sidechains are listed below:

Mol	Chain	Res	Type
58	B1	364	HIS
65	0	170	GLN
58	B1	865	HIS
59	B2	808	ASN
22	V	46	HIS

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
51	1	2902/2904 (99%)	439 (15%)	6 (0%)
52	2	119/120 (99%)	18 (15%)	0
53	3	1538/1542 (99%)	193 (12%)	1 (0%)
54	4	29/41 (70%)	15 (51%)	4 (13%)
63	6	76/77 (98%)	14 (18%)	0
All	All	4664/4684 (99%)	679 (14%)	11 (0%)

5 of 679 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
51	1	10	A
51	1	12	U
51	1	23	G
51	1	34	U
51	1	35	G

5 of 11 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
54	4	10	C
54	4	18	U
54	4	32	U
54	4	19	U
51	1	2326	C

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

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

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
66	5OH	h	6	66	8,12,13	0.83	0	3,16,18	1.49	1 (33%)
66	DPP	h	2	66	3,5,6	0.57	0	1,5,7	0.07	0
66	UAL	h	5	66	7,8,9	2.28	3 (42%)	5,9,11	2.92	2 (40%)
66	KBE	h	1	66	8,8,9	0.64	0	7,8,10	1.21	1 (14%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
66	5OH	h	6	66	-	0/2/18/20	0/1/1/1
66	DPP	h	2	66	-	0/2/4/6	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
66	UAL	h	5	66	-	0/3/7/9	-
66	KBE	h	1	66	-	0/7/7/8	-

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
66	h	5	UAL	C1-N1	-4.76	1.32	1.40
66	h	5	UAL	C-CA	-2.89	1.40	1.45
66	h	5	UAL	CA-N	2.07	1.40	1.35

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
66	h	5	UAL	CA-CB-N1	-5.32	115.57	125.60
66	h	5	UAL	O-C-CA	-3.24	121.26	125.39
66	h	6	5OH	CR-CB-CA	-2.34	110.09	112.61
66	h	1	KBE	CB-CA-C	-2.08	109.19	112.25

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

3 monomers are involved in 6 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
66	h	6	5OH	4	0
66	h	2	DPP	1	0
66	h	5	UAL	2	0

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 3 ligands modelled in this entry, 1 is monoatomic - leaving 2 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond

length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
68	GDP	0	801	-	24,30,30	0.94	1 (4%)	30,47,47	1.34	4 (13%)
69	PO4	0	802	-	4,4,4	0.96	0	6,6,6	0.47	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
68	GDP	0	801	-	-	2/12/32/32	0/3/3/3

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
68	0	801	GDP	C6-N1	-2.60	1.34	1.37

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
68	0	801	GDP	PA-O3A-PB	-3.55	120.64	132.83
68	0	801	GDP	C5-C6-N1	2.53	118.42	113.95
68	0	801	GDP	C3'-C2'-C1'	2.53	104.79	100.98
68	0	801	GDP	C8-N7-C5	2.52	107.79	102.99

There are no chirality outliers.

All (2) torsion outliers are listed below:

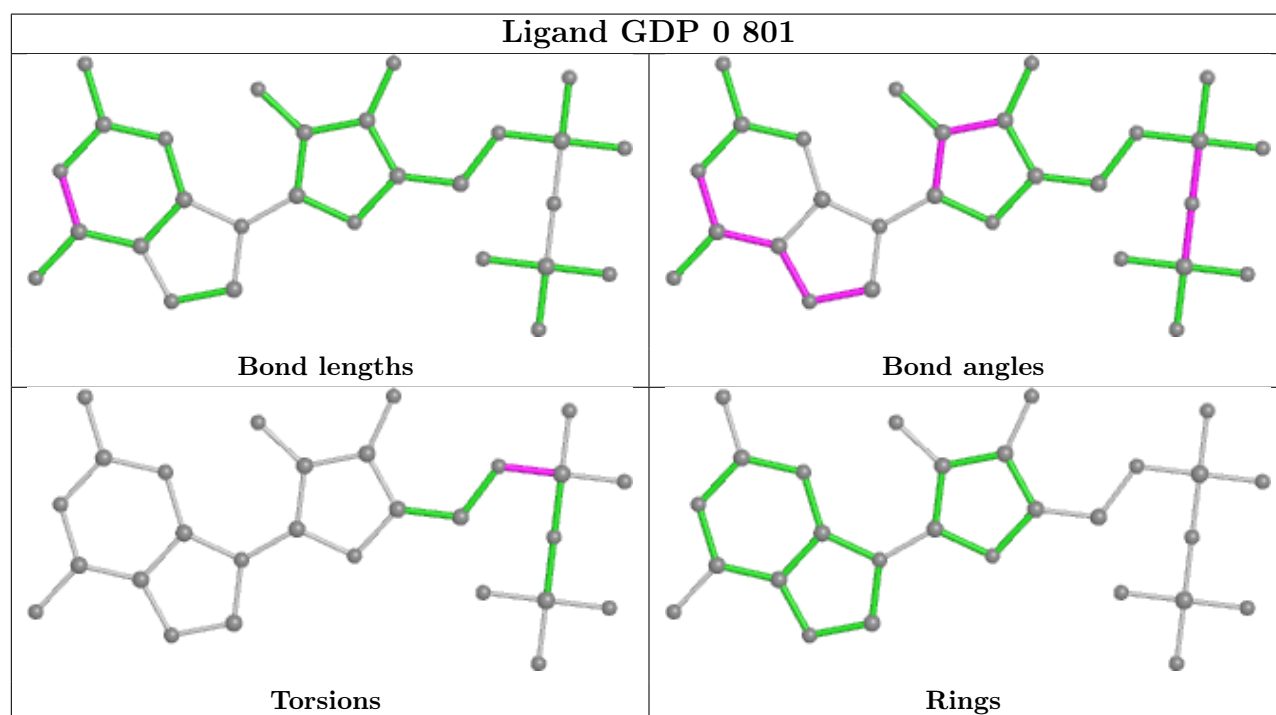
Mol	Chain	Res	Type	Atoms
68	0	801	GDP	C5'-O5'-PA-O3A
68	0	801	GDP	C5'-O5'-PA-O1A

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
68	0	801	GDP	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

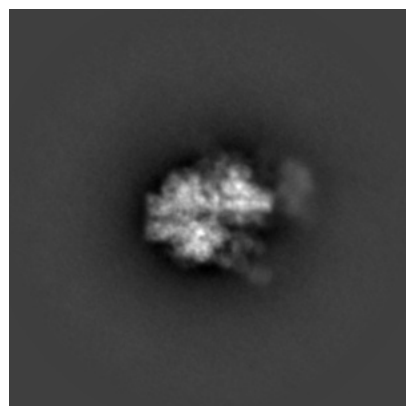
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-38945. These allow visual inspection of the internal detail of the map and identification of artifacts.

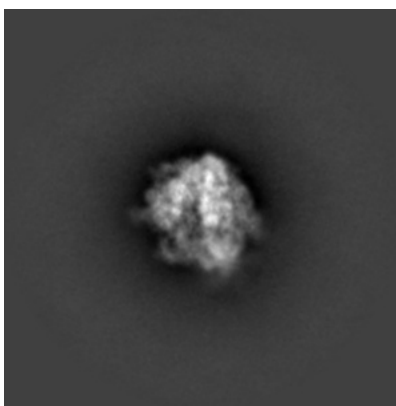
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

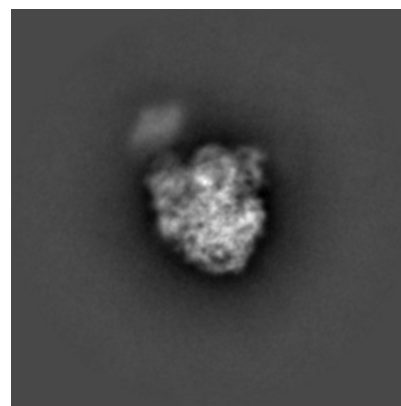
6.1.1 Primary map



X

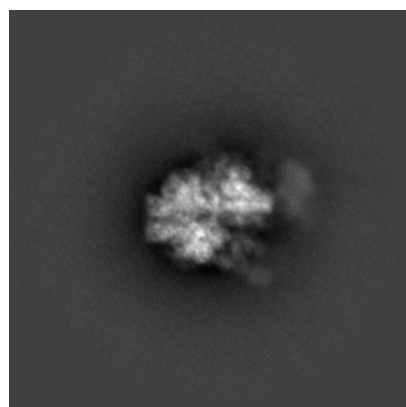


Y

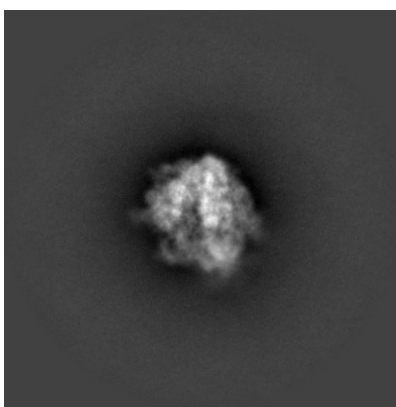


Z

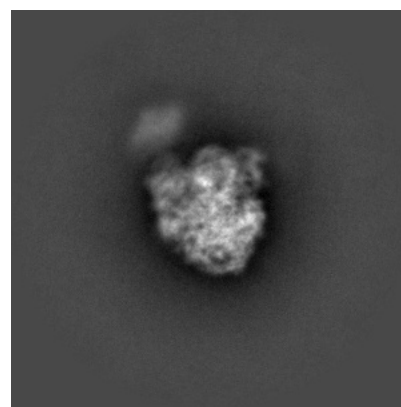
6.1.2 Raw map



X



Y

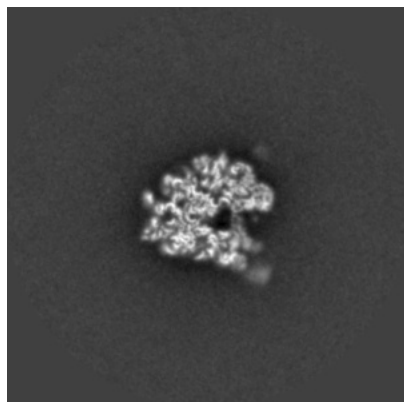


Z

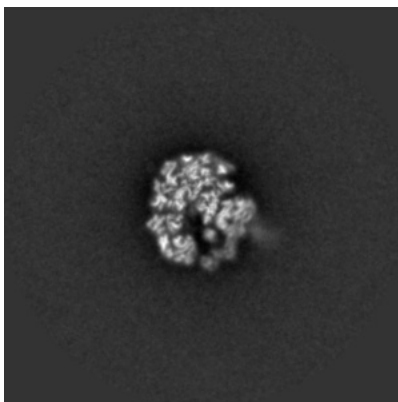
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

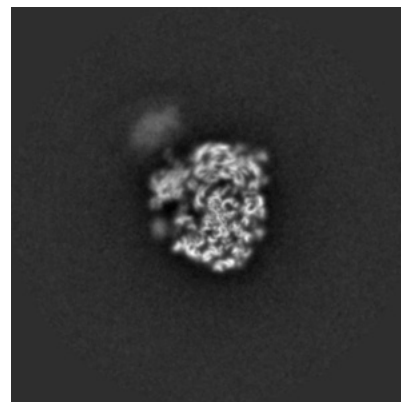
6.2.1 Primary map



X Index: 240

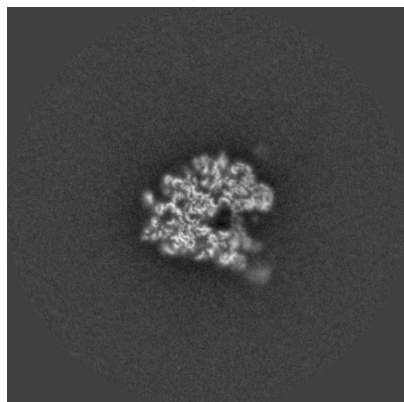


Y Index: 240

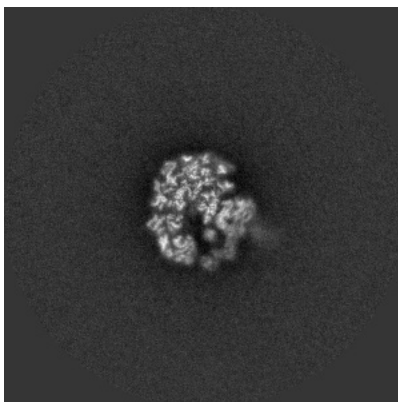


Z Index: 240

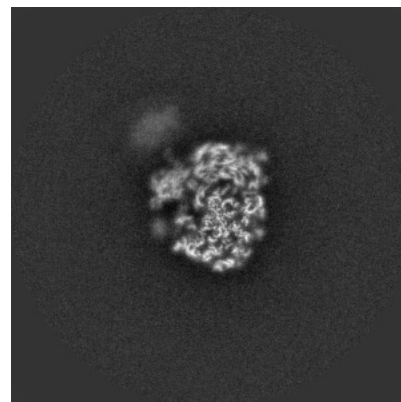
6.2.2 Raw map



X Index: 240



Y Index: 240

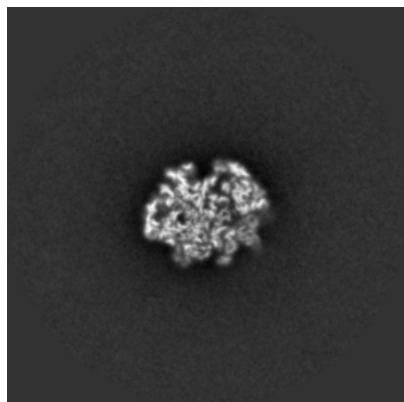


Z Index: 240

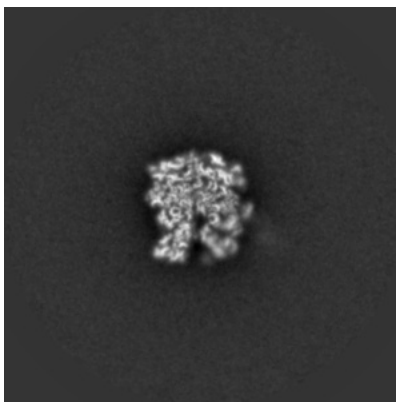
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

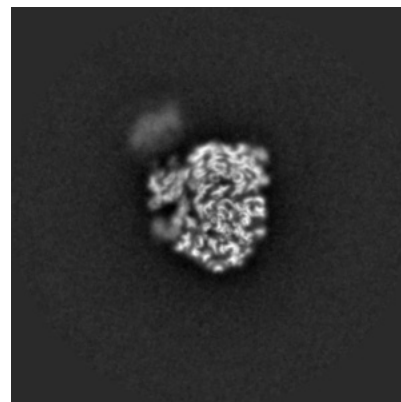
6.3.1 Primary map



X Index: 263

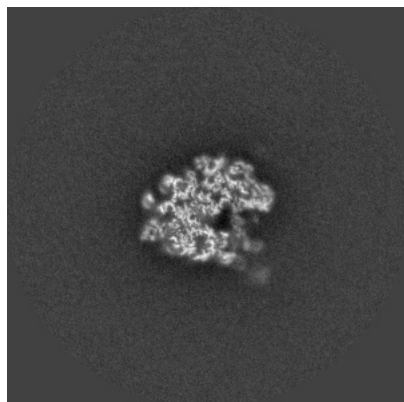


Y Index: 225

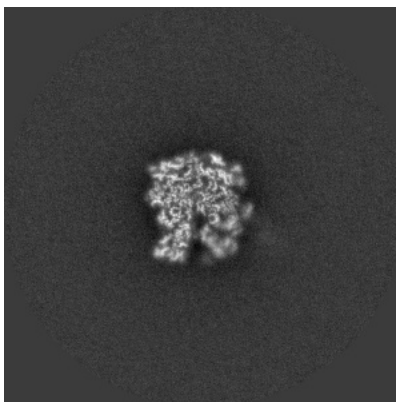


Z Index: 244

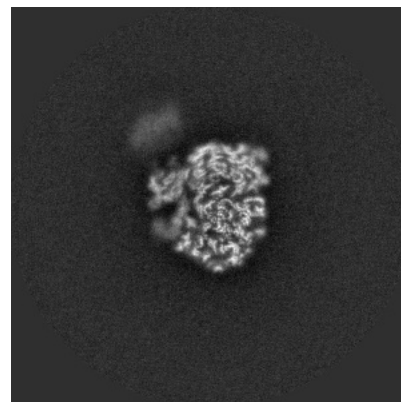
6.3.2 Raw map



X Index: 243



Y Index: 225

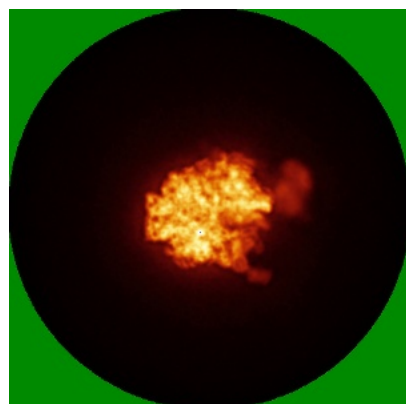


Z Index: 244

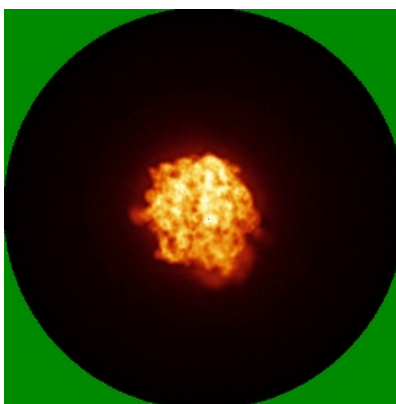
The images above show the largest variance slices of the map in three orthogonal directions.

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

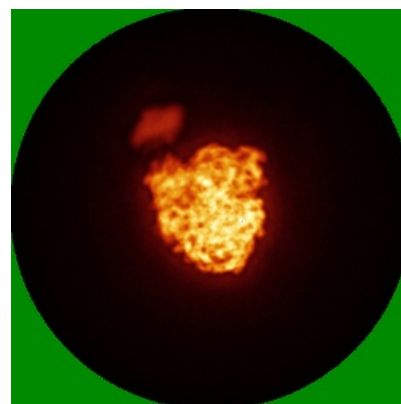
6.4.1 Primary map



X

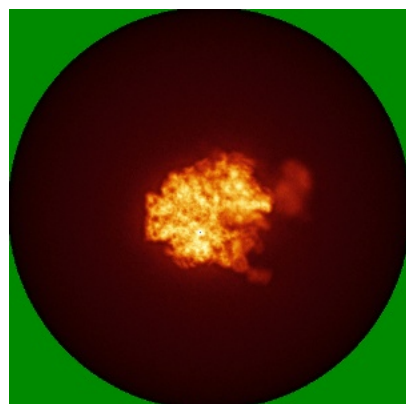


Y

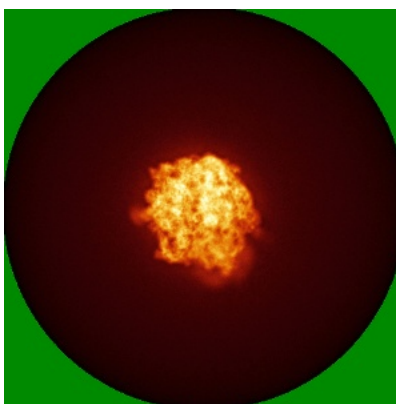


Z

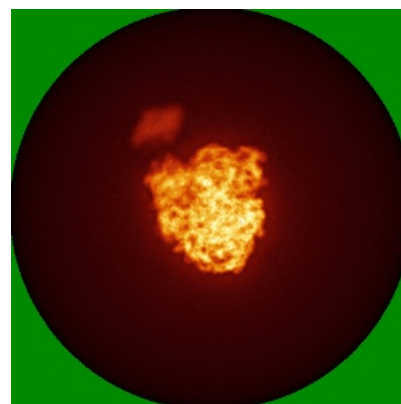
6.4.2 Raw map



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.

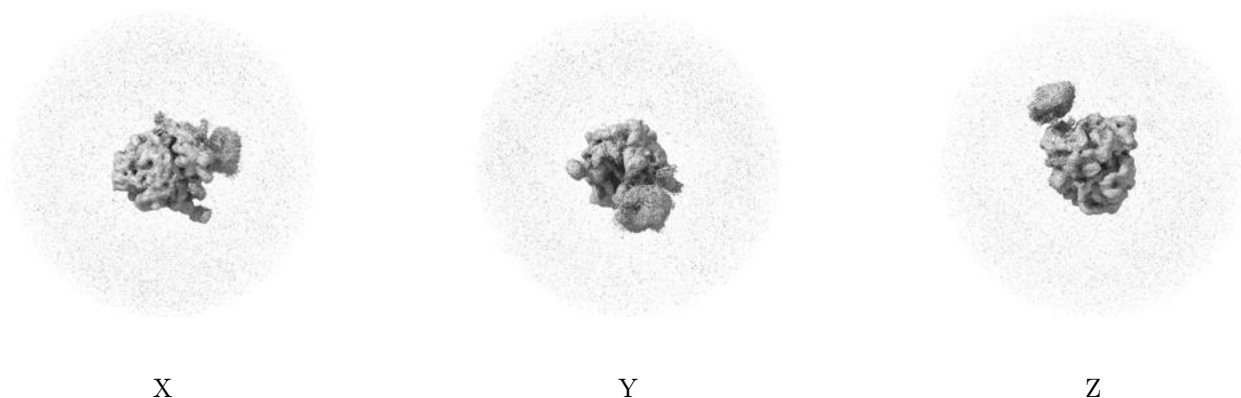
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.006. 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



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

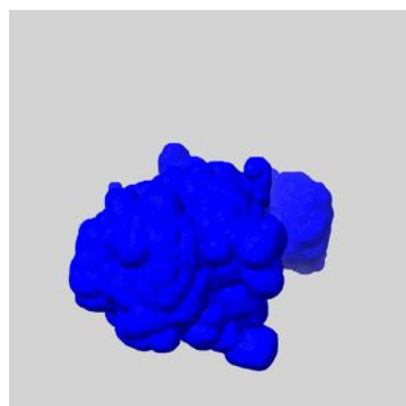
6.6 Mask visualisation [i](#)

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

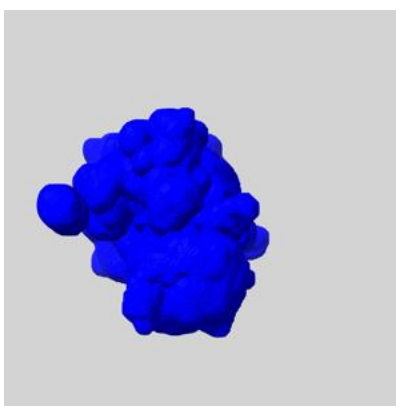
A mask typically either:

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

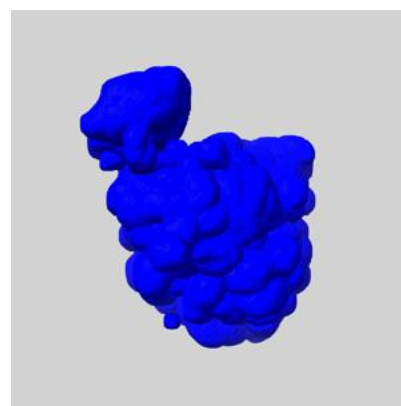
6.6.1 emd_38945_msk_1.map [i](#)



X



Y

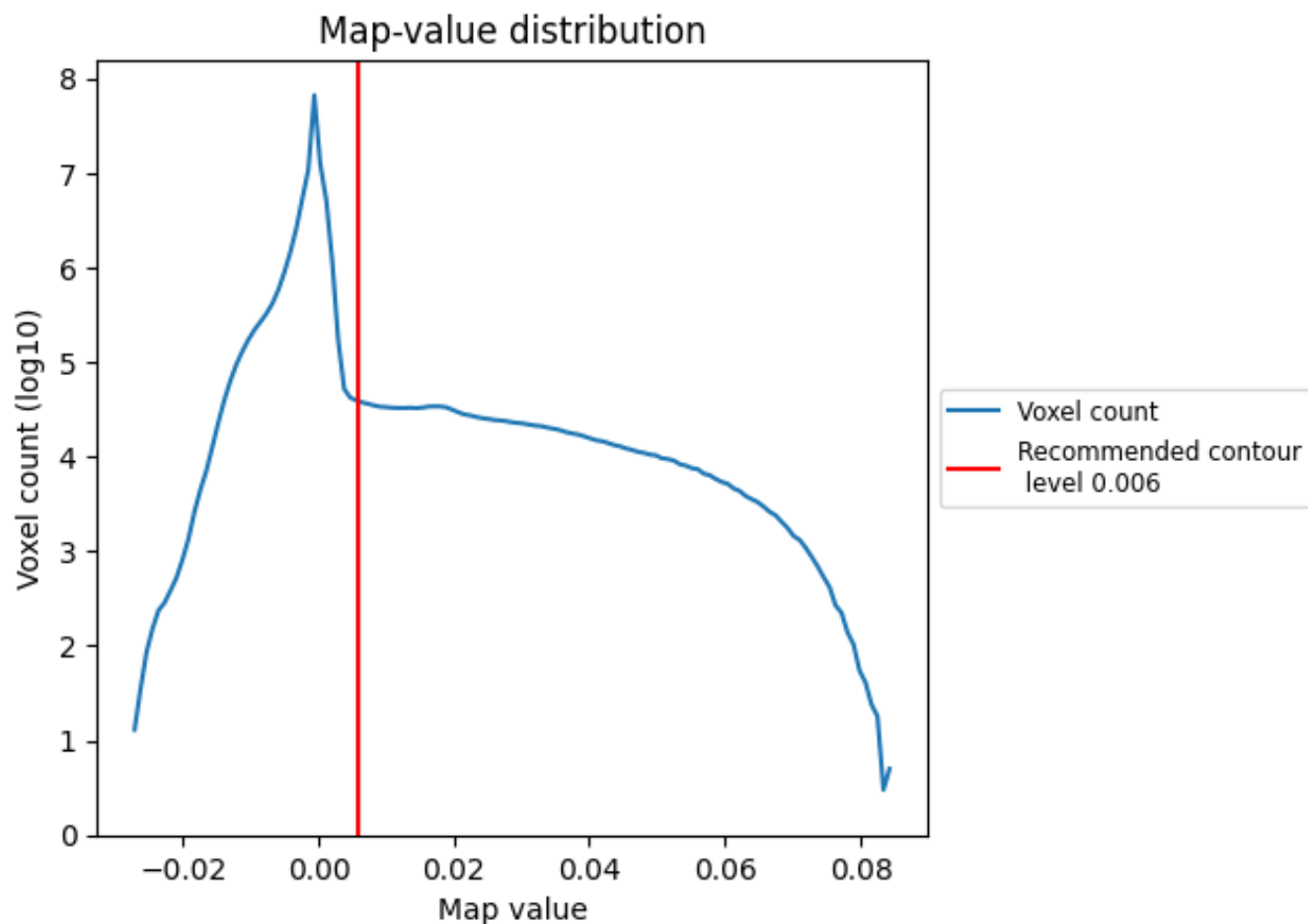


Z

7 Map analysis [i](#)

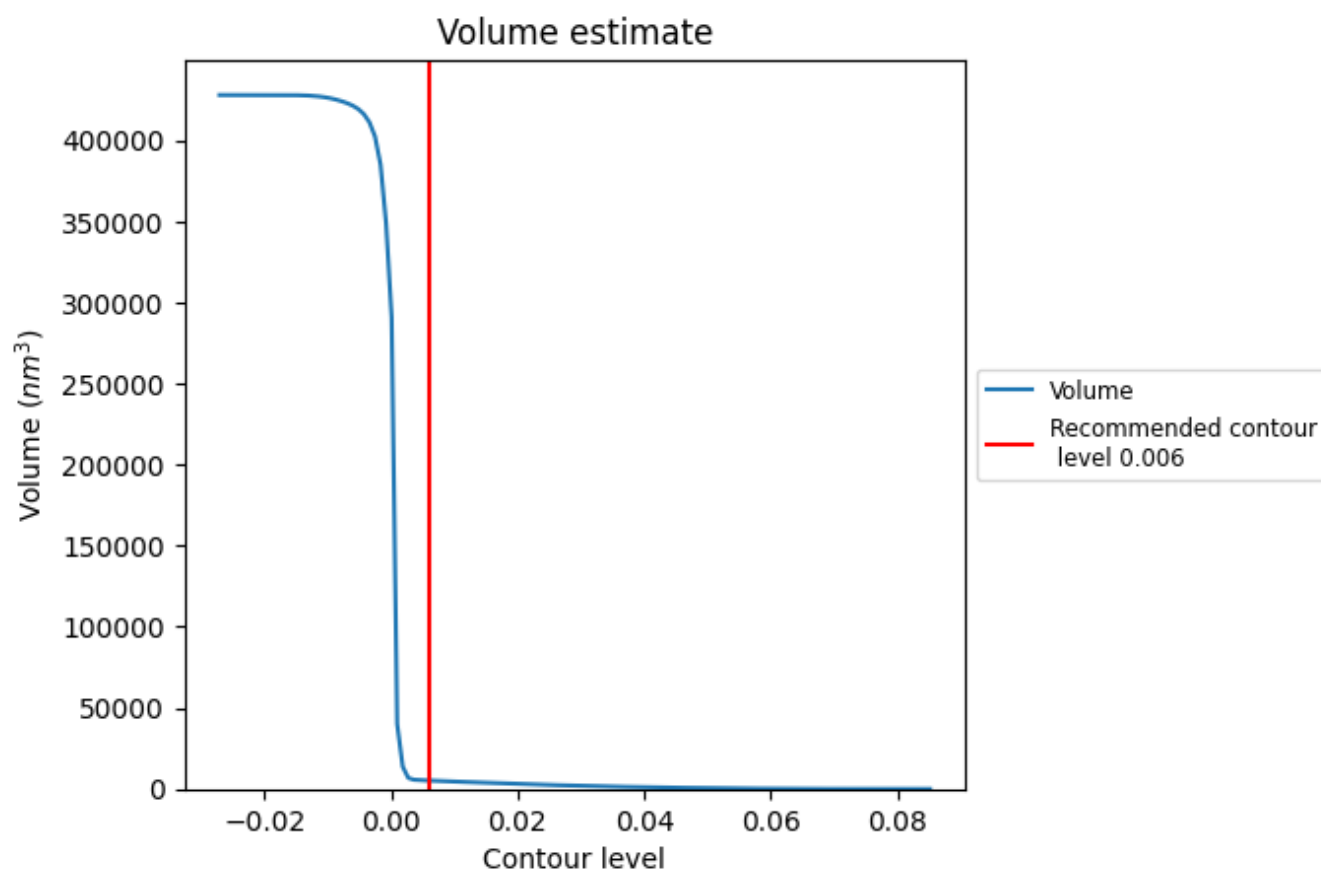
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

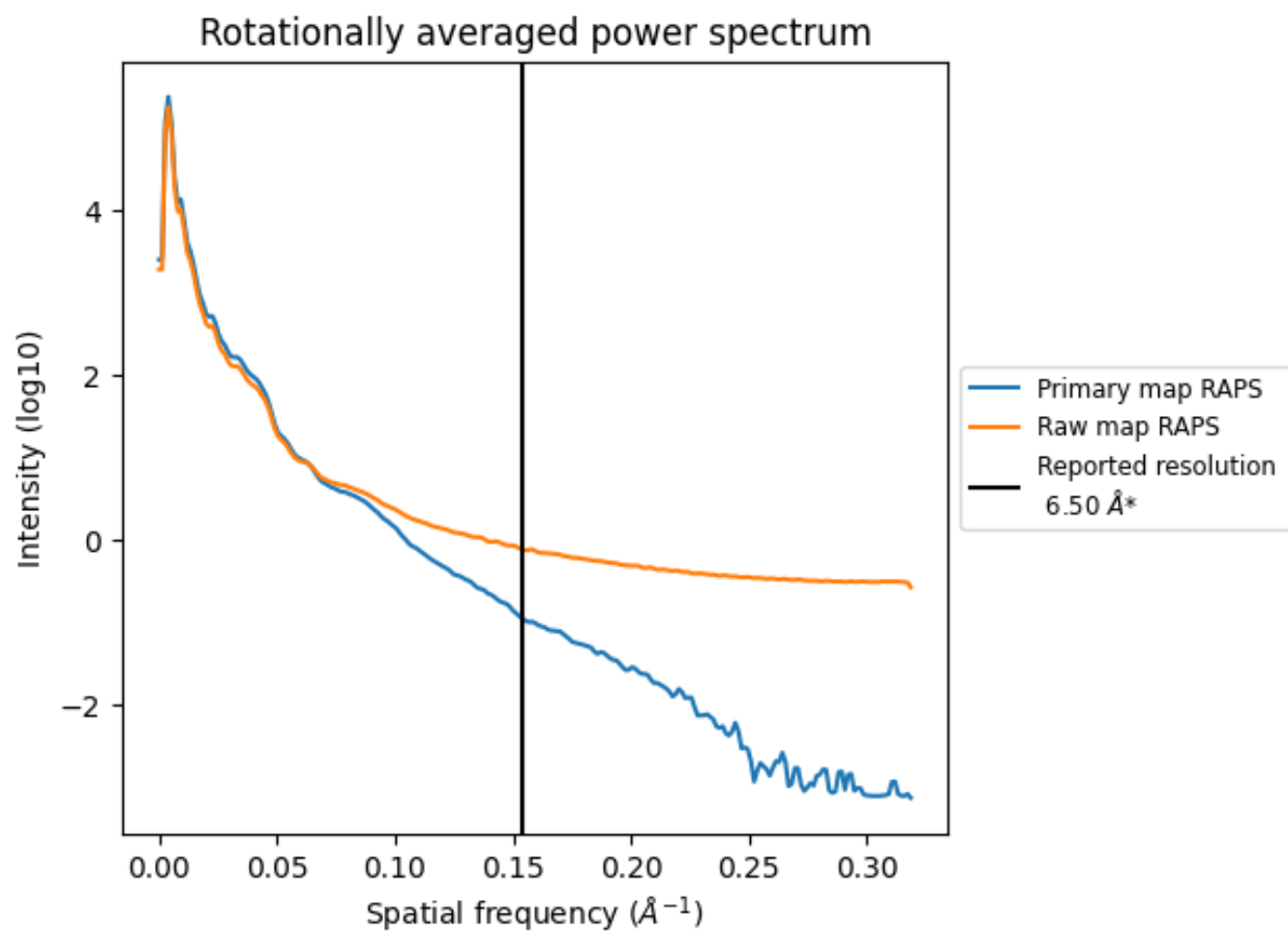
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 5183 nm^3 ; this corresponds to an approximate mass of 4682 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum ⓘ

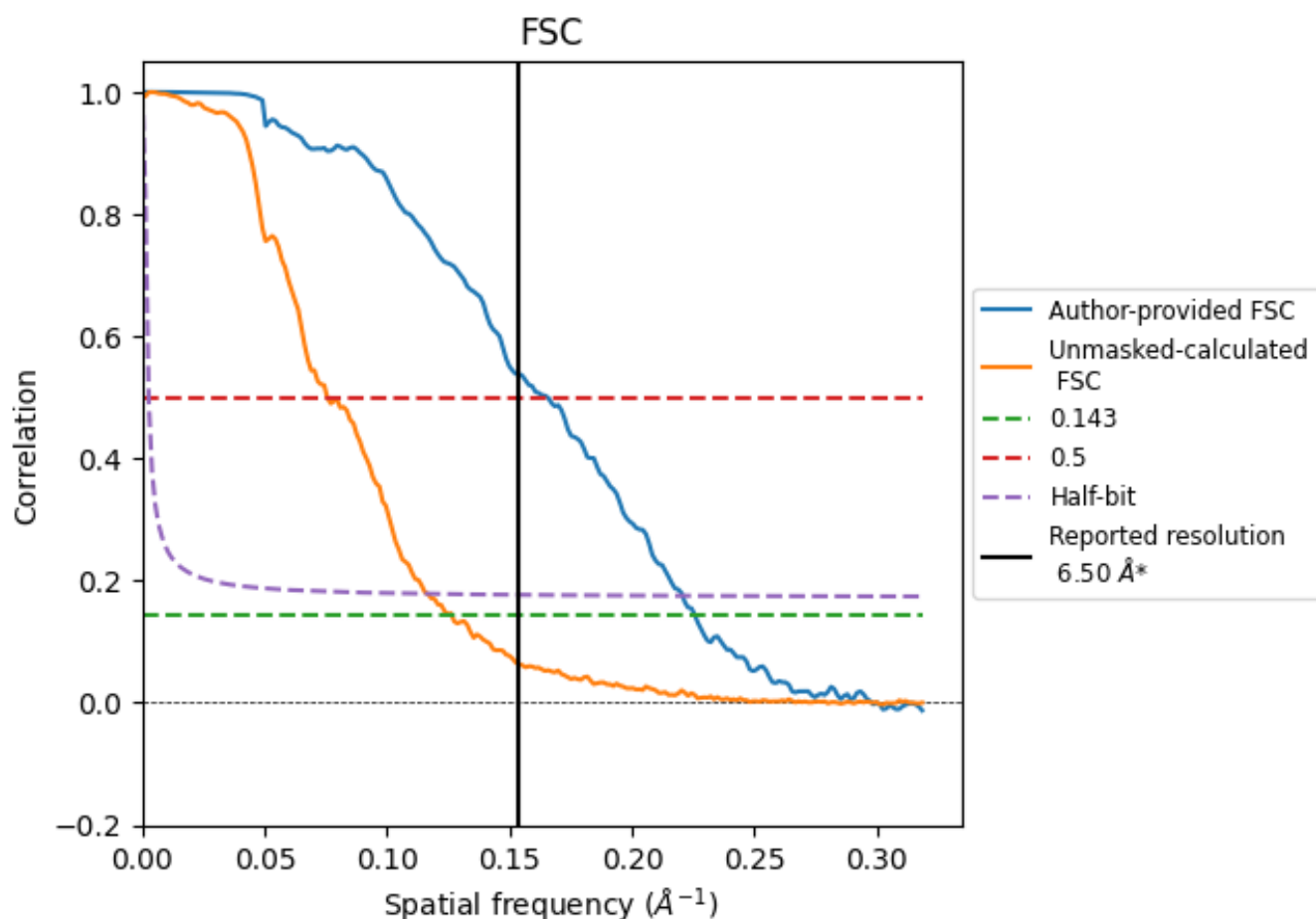


*Reported resolution corresponds to spatial frequency of 0.154 Å⁻¹

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 0.154 Å⁻¹

8.2 Resolution estimates [i](#)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	6.50	-	-
Author-provided FSC curve	4.43	6.04	4.53
Unmasked-calculated*	7.91	13.23	8.58

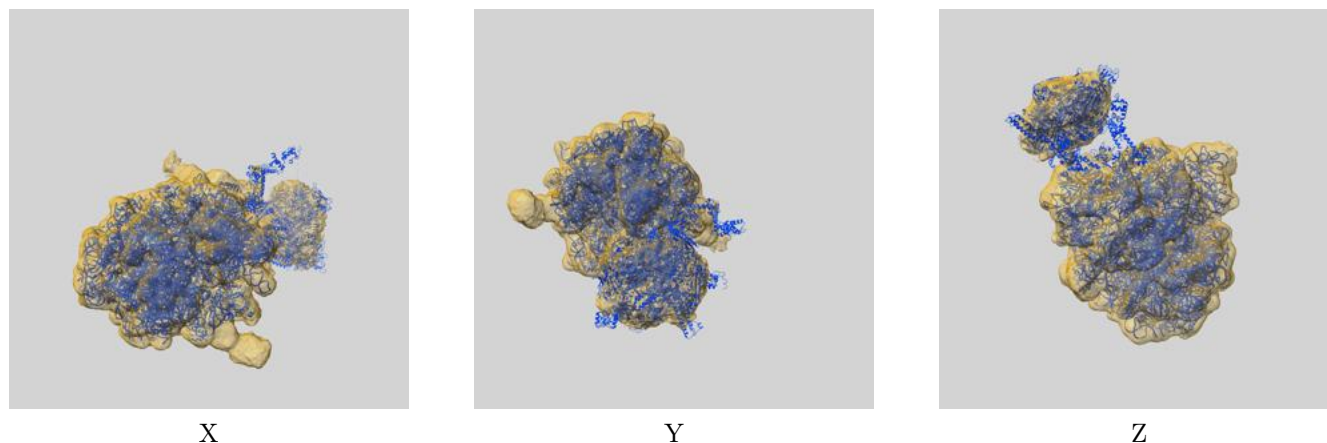
*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from author-provided FSC intersecting FSC 0.143 CUT-OFF 4.43 differs from the reported value 6.5 by more than 10 %

The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 7.91 differs from the reported value 6.5 by more than 10 %

9 Map-model fit [i](#)

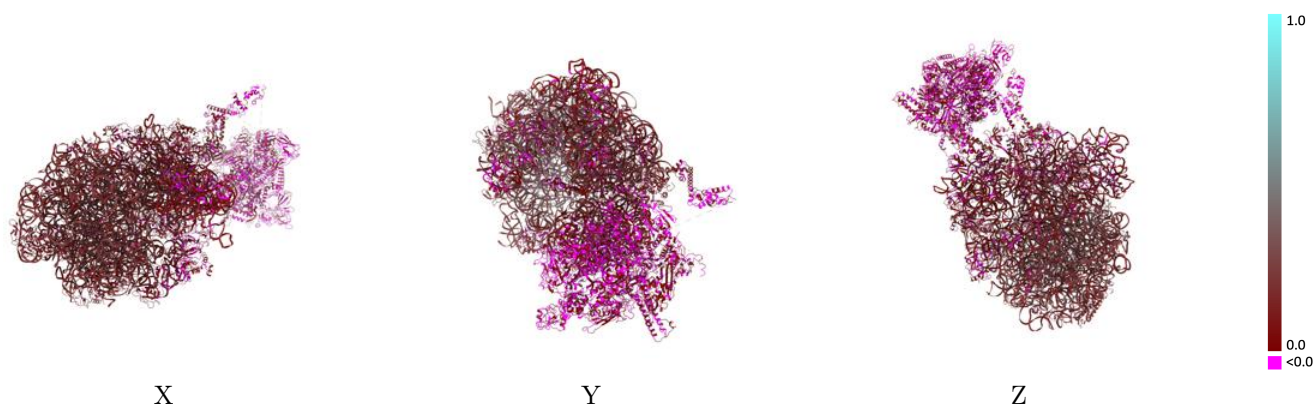
This section contains information regarding the fit between EMDB map EMD-38945 and PDB model 8Y5P. Per-residue inclusion information can be found in section [3](#) on page [18](#).

9.1 Map-model overlay [i](#)



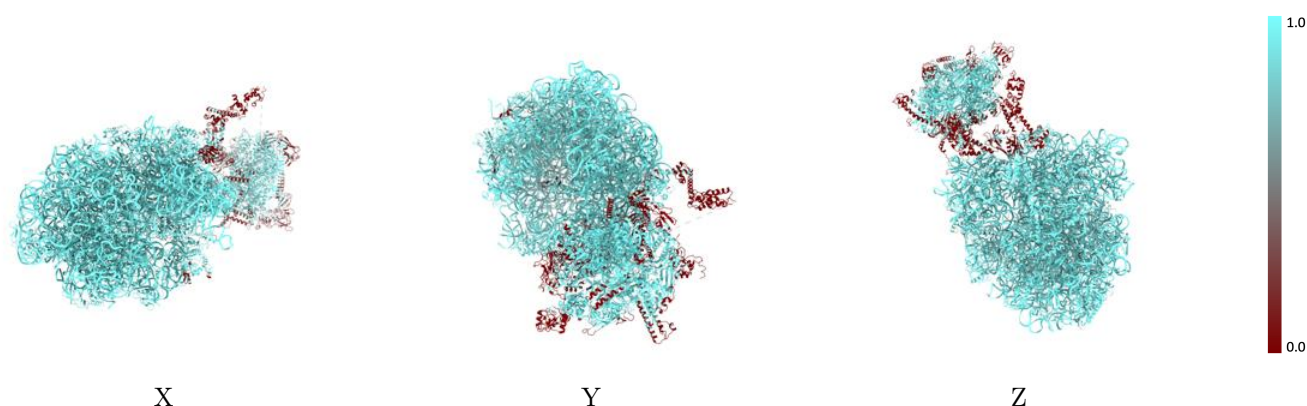
The images above show the 3D surface view of the map at the recommended contour level 0.006 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



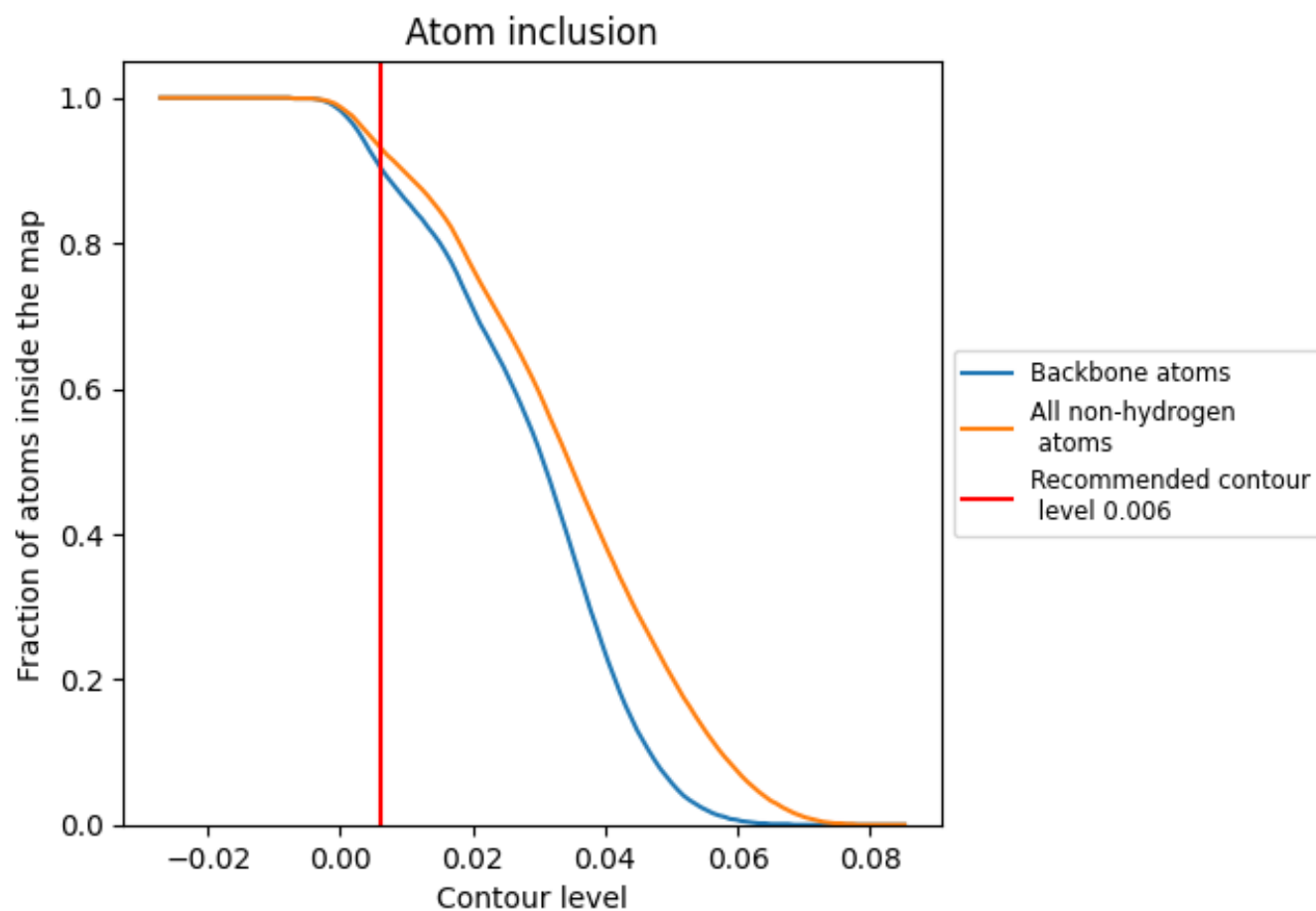
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.006).

9.4 Atom inclusion ⓘ



At the recommended contour level, 90% of all backbone atoms, 93% 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 (0.006) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9320	 0.1390
0	 0.8770	 0.0760
1	 0.9990	 0.2080
2	 1.0000	 0.1520
3	 0.9970	 0.1390
4	 0.8760	 0.0290
6	 0.9510	 0.1390
8	 0.9670	 0.0360
9	 0.9300	 0.0510
A	 1.0000	 0.0870
A1	 0.4560	 0.0160
A2	 0.7130	 0.0400
B	 1.0000	 0.1670
B1	 0.6540	 0.0120
B2	 0.7320	 0.0340
C	 0.9730	 0.1540
D	 0.9940	 0.1610
E	 1.0000	 0.1390
F	 1.0000	 0.1210
G	 0.9930	 0.1290
H	 0.9860	 0.1040
I	 0.9930	 0.0840
J	 0.9990	 0.1090
K	 0.9550	 0.1190
L	 0.9370	 0.0950
M	 0.9820	 0.1010
N	 0.9710	 0.0680
NA	 0.2450	 0.1180
NG	 0.6730	 0.0300
O	 0.9960	 0.0660
P	 0.9700	 0.0930
Q	 0.9650	 0.1240
R	 0.9360	 0.1010
S	 1.0000	 0.0860
T	 0.9970	 0.1080



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Chain	Atom inclusion	Q-score
U	 0.9950	 0.0520
V	 0.9980	 0.0940
W	 1.0000	 0.1040
W0	 0.4040	 -0.0020
X	 0.9860	 0.0820
Y	 0.9850	 0.1080
Z	 0.9630	 0.1060
a	 0.9890	 0.0730
b	 0.9940	 0.1870
c	 0.9970	 0.1620
d	 0.9960	 0.1610
e	 0.9570	 0.0890
f	 0.9850	 0.1310
g	 0.9140	 0.1290
h	 1.0000	 0.1790
i	 0.8740	 0.0240
j	 1.0000	 0.1700
k	 0.9840	 0.1860
l	 0.9990	 0.1430
m	 0.9780	 0.1480
n	 0.9970	 0.1640
o	 1.0000	 0.0910
p	 0.9960	 0.1660
q	 0.9990	 0.1430
r	 1.0000	 0.1600
s	 0.9980	 0.1810
t	 0.9990	 0.1660
u	 0.9950	 0.1500
v	 0.9990	 0.1440
w	 0.9980	 0.1150
x	 1.0000	 0.1710
y	 0.9980	 0.1460
z	 0.9930	 0.1560