



wwPDB EM Validation Summary Report ⓘ

Nov 19, 2022 – 09:22 pm GMT

PDB ID : 6EU0
EMDB ID : EMD-3955
Title : RNA Polymerase III open pre-initiation complex (OC-PIC)
Authors : Abascal-Palacios, G.; Ramsay, E.P.; Beuron, F.; Morris, E.; Vannini, A.
Deposited on : 2017-10-27
Resolution : 4.00 Å (reported)

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

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

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.dev43
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.2

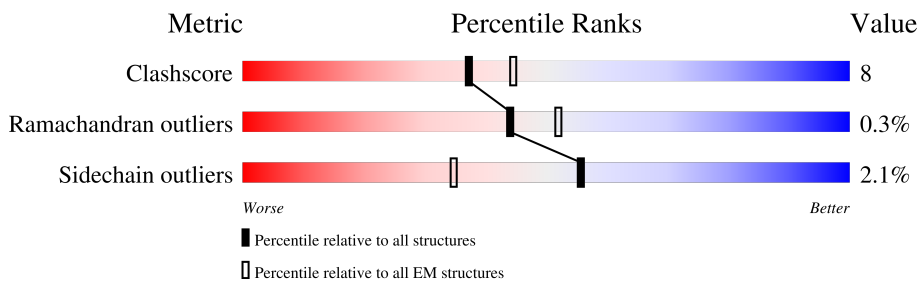
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 4.00 Å.

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




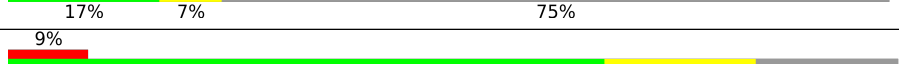
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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	1460	
2	B	1149	
3	C	335	
4	D	161	
5	E	215	
6	F	155	
7	G	212	
8	H	146	

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Mol	Chain	Length	Quality of chain
9	I	110	
10	J	70	
11	K	142	
12	L	70	
13	M	282	
14	N	422	
15	O	654	
16	P	317	
17	Q	251	
18	R	70	
19	S	70	
20	V	594	
21	Y	240	
22	Z	596	

2 Entry composition

There are 24 unique types of molecules in this entry. The entry contains 48918 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 DNA-directed RNA polymerase III subunit RPC1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	1421	11119	7007	1964	2088	60	0	0

- Molecule 2 is a protein called DNA-directed RNA polymerase III subunit RPC2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	1112	8771	5549	1514	1648	60	0	0

- Molecule 3 is a protein called DNA-directed RNA polymerases I and III subunit RPAC1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	335	2655	1681	454	511	9	0	0

- Molecule 4 is a protein called DNA-directed RNA polymerase III subunit RPC9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	D	140	1137	723	193	215	6	0	0

- Molecule 5 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	E	215	1759	1116	310	321	12	0	0

- Molecule 6 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	F	83	671	429	114	125	3	0	0

- Molecule 7 is a protein called DNA-directed RNA polymerase III subunit RPC8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	G	212	1698	1098	276	317	7	0	0

- Molecule 8 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	H	146	1161	726	195	235	5	0	0

- Molecule 9 is a protein called DNA-directed RNA polymerase III subunit RPC10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	I	41	313	200	46	61	6	0	0

- Molecule 10 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	J	67	549	350	95	98	6	0	0

- Molecule 11 is a protein called DNA-directed RNA polymerases I and III subunit RPAC2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	K	102	801	501	131	164	5	0	0

- Molecule 12 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	L	45	358	221	71	62	4	0	0

- Molecule 13 is a protein called DNA-directed RNA polymerase III subunit RPC5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	M	197	1589	1003	277	307	2	0	0

- Molecule 14 is a protein called DNA-directed RNA polymerase III subunit RPC4.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	N	105	Total	C	N	O	S	0	0
			802	508	144	147	3		

- Molecule 15 is a protein called DNA-directed RNA polymerase III subunit RPC3.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	O	550	Total	C	N	O	S	0	0
			4421	2812	759	831	19		

- Molecule 16 is a protein called DNA-directed RNA polymerase III subunit RPC6.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	P	298	Total	C	N	O	S	0	0
			2355	1506	388	450	11		

- Molecule 17 is a protein called DNA-directed RNA polymerase III subunit RPC7.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	Q	88	Total	C	N	O	S	0	0
			589	364	108	116	1		

- Molecule 18 is a DNA chain called Non-Template.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	R	51	Total	C	N	O	P	0	0
			1038	500	175	312	51		

- Molecule 19 is a DNA chain called Template.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	S	57	Total	C	N	O	P	0	0
			1174	560	223	334	57		

- Molecule 20 is a protein called Transcription factor TFIIB component B”.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	V	273	Total	C	N	O	S	0	0
			1829	1101	354	368	6		

- Molecule 21 is a protein called TATA-box-binding protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
21	Y	180	1416	921	242	247	6	0	0

- Molecule 22 is a protein called Transcription factor IIIB 70 kDa subunit.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
22	Z	339	2705	1694	492	505	14	0	0

- Molecule 23 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
23	A	2	Total	Zn	0
			2	2	
23	B	1	Total	Zn	0
			1	1	
23	I	1	Total	Zn	0
			1	1	
23	J	1	Total	Zn	0
			1	1	
23	L	1	Total	Zn	0
			1	1	
23	Z	1	Total	Zn	0
			1	1	

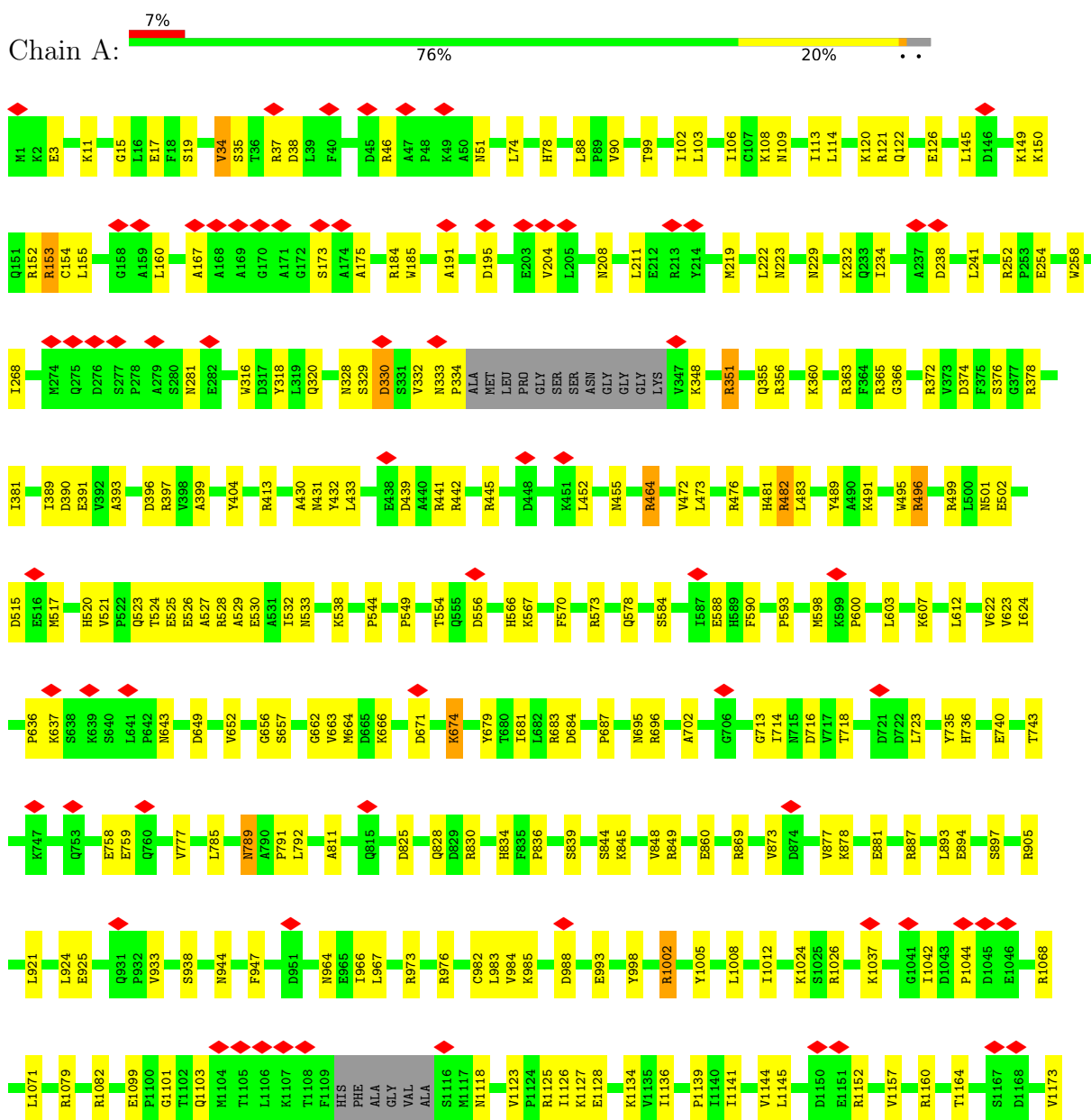
- Molecule 24 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

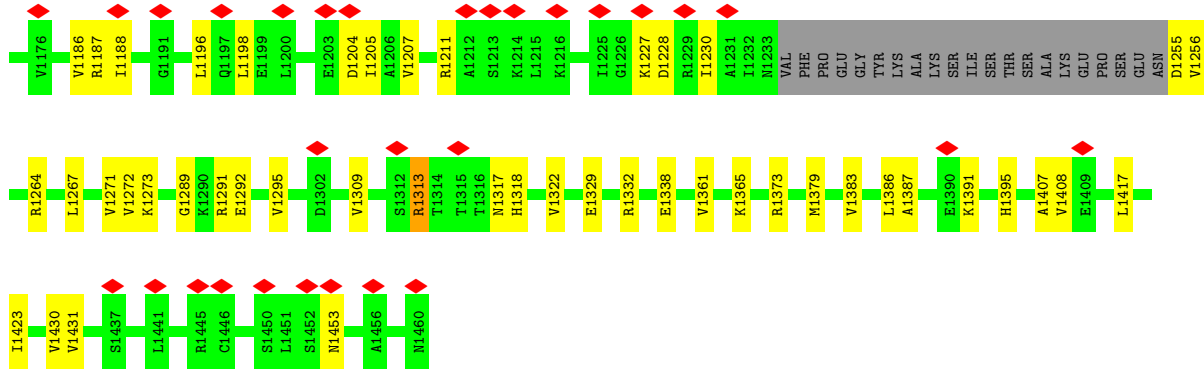
Mol	Chain	Residues	Atoms		AltConf
24	A	1	Total	Mg	0
			1	1	

3 Residue-property plots

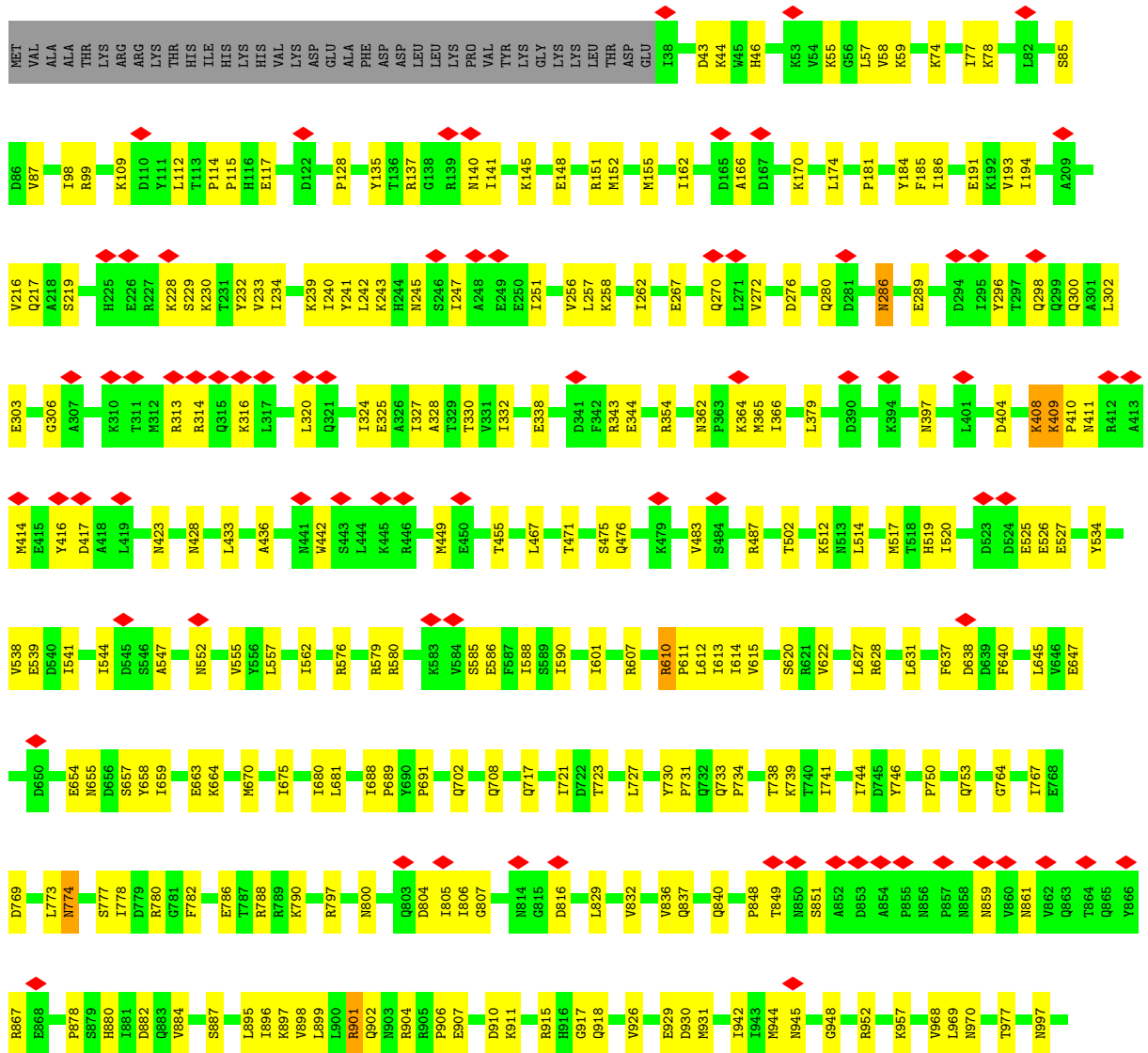
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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: DNA-directed RNA polymerase III subunit RPC1





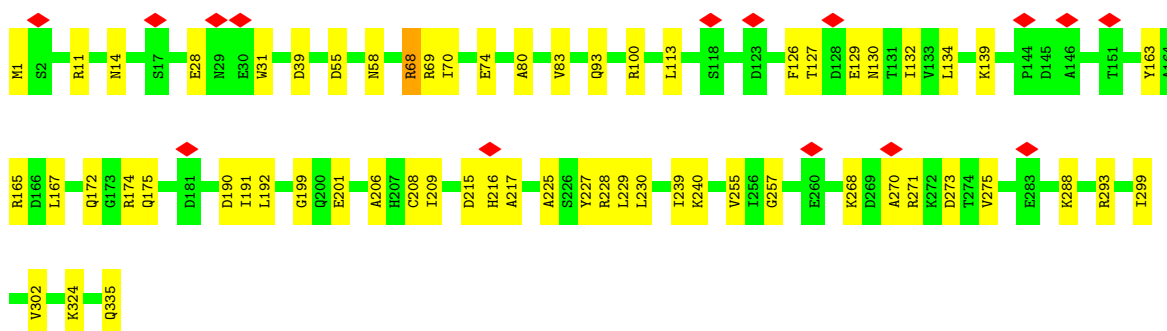
• Molecule 2: DNA-directed RNA polymerase III subunit RPC2





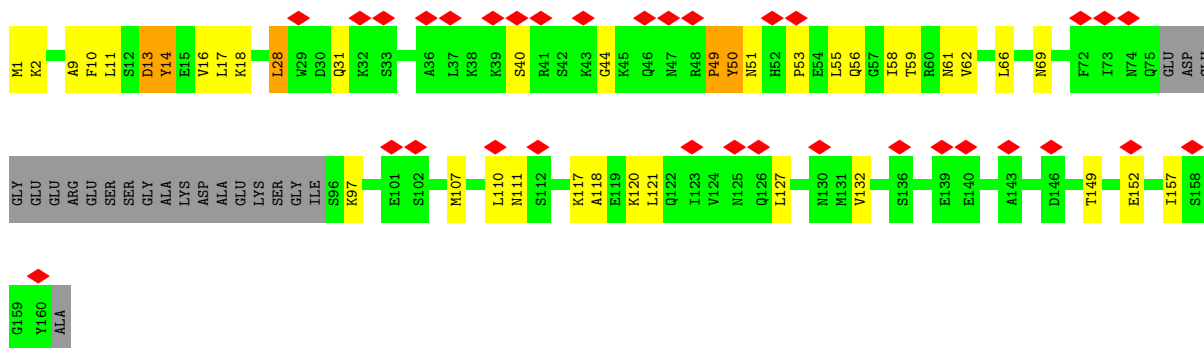
- Molecule 3: DNA-directed RNA polymerases I and III subunit RPAC1

Chain C:



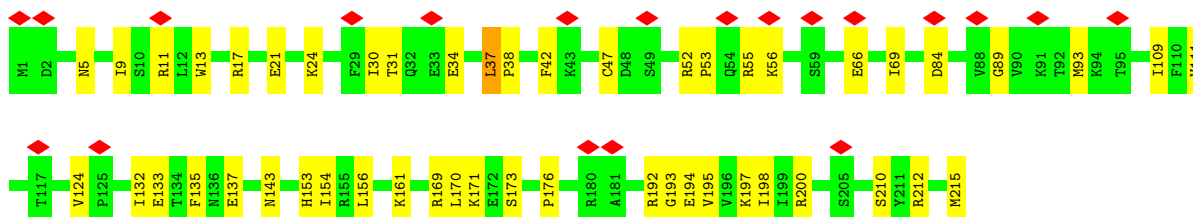
- Molecule 4: DNA-directed RNA polymerase III subunit RPC9

Chain D:



- Molecule 5: DNA-directed RNA polymerases I, II, and III subunit RPABC1

Chain E:




- Molecule 6: DNA-directed RNA polymerases I, II, and III subunit RPABC2

Chain F: 

MET SER GLN TTR ARG GLU ALA PHE ASN ASP GLY ASN GLU ASN PHE ASP PHE ASP VAL HIS PHE SER ASP GLU THR TYR GLU LYS PRO GLN PHE LYS ASP GLY THR THR ASP ALA ASN GLY LYS THR ILE VAL THR THR GLY ASN GLY PRO ASP PHE GLN


HIS GLU ILE ARG ARG LYS THR LYS E71 K72 A73 K76 T86 K87 Y88 E89 R90 L94 I101 N104 A105 P106 I120 L125 V133 D140 V153 ASP LEU

- Molecule 7: DNA-directed RNA polymerase III subunit RPC8

Chain G: 

M1 F2 I3 L4 S5 K6 V11 P14 P15 D16 H19 R20 Q29 K33 K37 I38 I39 V42 I46 Q68 L59 R73 K78 P79 F80 L81 G87 K91 C92 T93 G96 I97 K98 D107 I108 F109 I110 P111 Q112 N113 M114 L115 F116 Y120
 Y121 T122 P123 E124 E125 M132 D133 E134 E135 T136 K137 F140 D141 V142 N143 R147 I150 R152 E153 V158 K159 P160 E165 E170 R171 L174 E175 N176 E177 I178 E179 G180 K181 N182 E183 E184 T185 P186 Q187 N188 E189 A195 L196 L197 G198 Q201 G204
 V208 S209 E212

- Molecule 8: DNA-directed RNA polymerases I, II, and III subunit RPABC3

Chain H: 

M1 S2 L5 Q11 E14 E27 A28 A29 T32 Q33 D34 Q35 E45 L55 T58 N64 L65 E66 D67 T68 P69 A70 N71 D72 S73 S74 A75 R80 P81 G85 D86 R87 S88 Y93 M97 Y98 S108 K109 D110 L111 R124 R130 M133
 M134 L135 E138 M139 L142 L143 L144 R145 R146

- Molecule 9: DNA-directed RNA polymerase III subunit RPC10

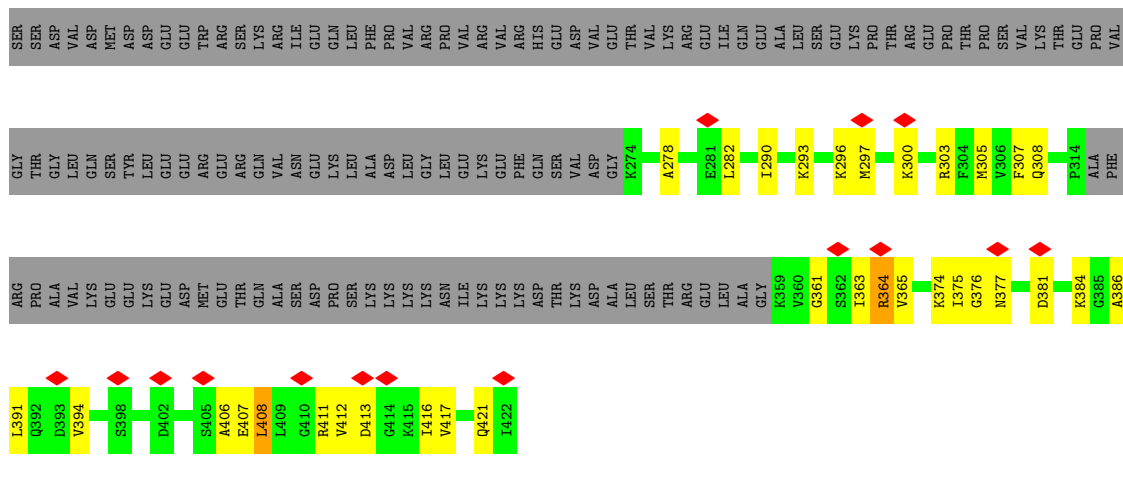
Chain I: 

M1 F4 S7 C8 N9 L12 S19 T23 L24 A25 C26 R27 S28 C29 E32 E39 I40 Y41 ASP ARG LYS LYS LEU PRO ARG LYS VAL VAL VAL LEU GLY GLY TRP ASP ASN VAL ASP GLN THR THR CYS PRO ASN TYR ASP THR CYS

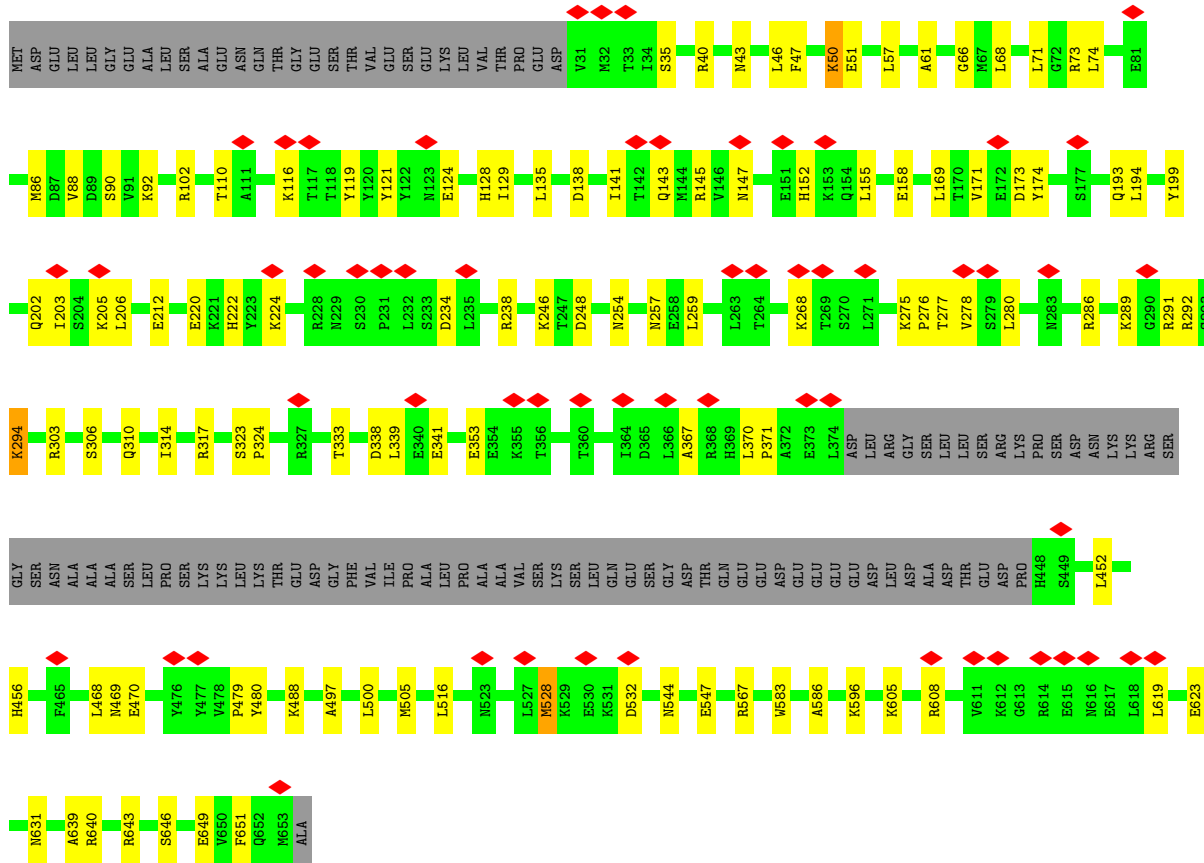
GLY GLU SER ALA PHE PHE GLN LEU ILE ARG SER ALA ASP GLU PRO MET THR THR PHE TYR LYS CYS VAL ASN CYS ASP HIS ARG TRP LYS GLU ASN

- Molecule 10: DNA-directed RNA polymerases I, II, and III subunit RPABC5

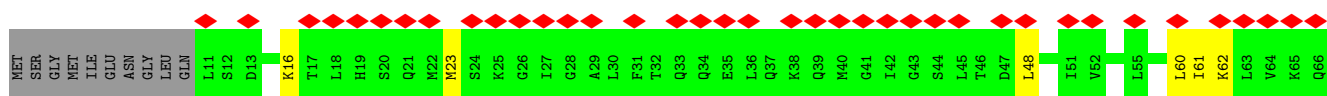
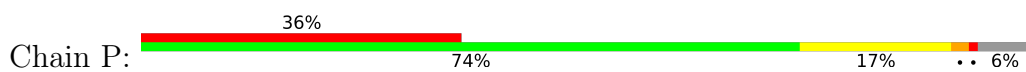
Chain J: 

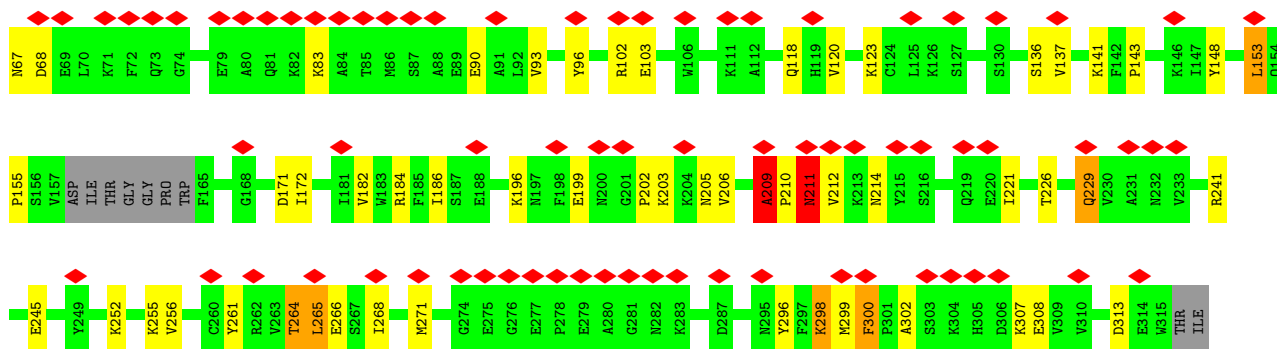


• Molecule 15: DNA-directed RNA polymerase III subunit RPC3

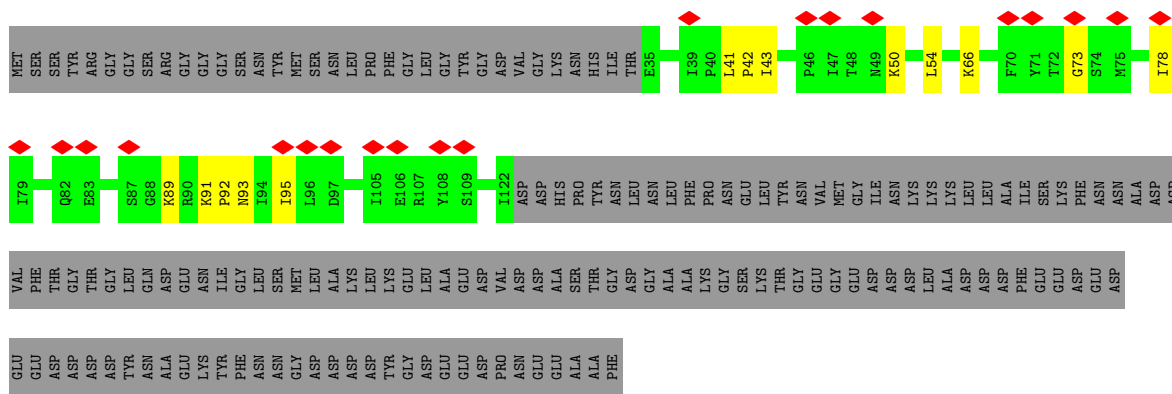


• Molecule 16: DNA-directed RNA polymerase III subunit RPC6

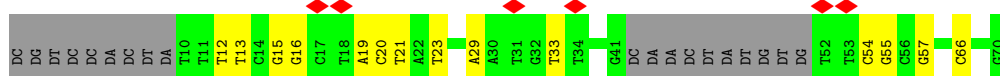




• Molecule 17: DNA-directed RNA polymerase III subunit RPC7



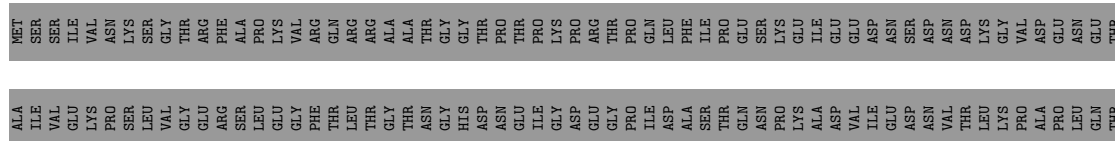
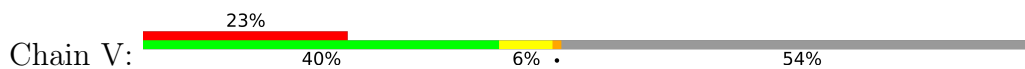
• Molecule 18: Non-Template

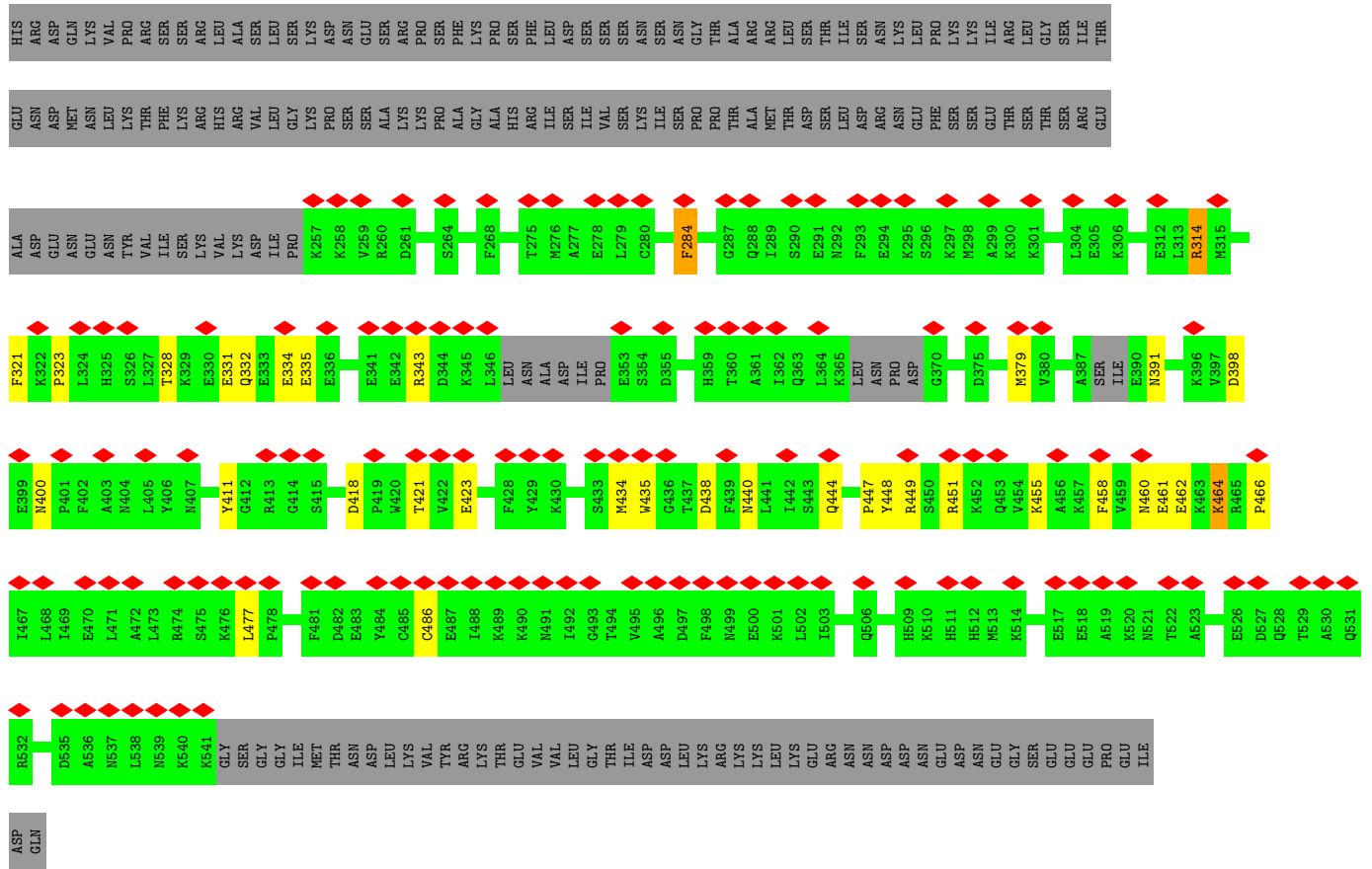


• Molecule 19: Template

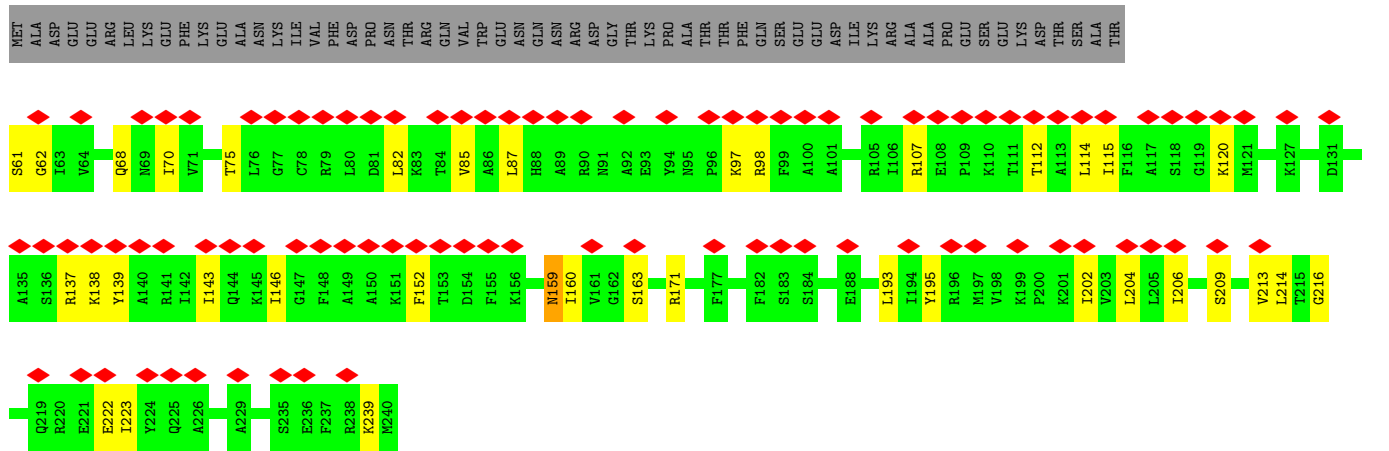


• Molecule 20: Transcription factor TFIIB component B''

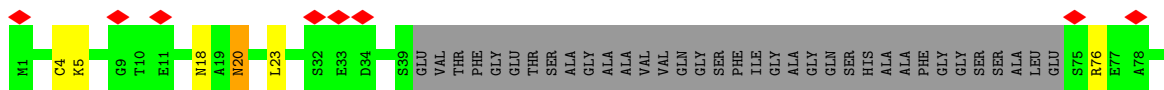


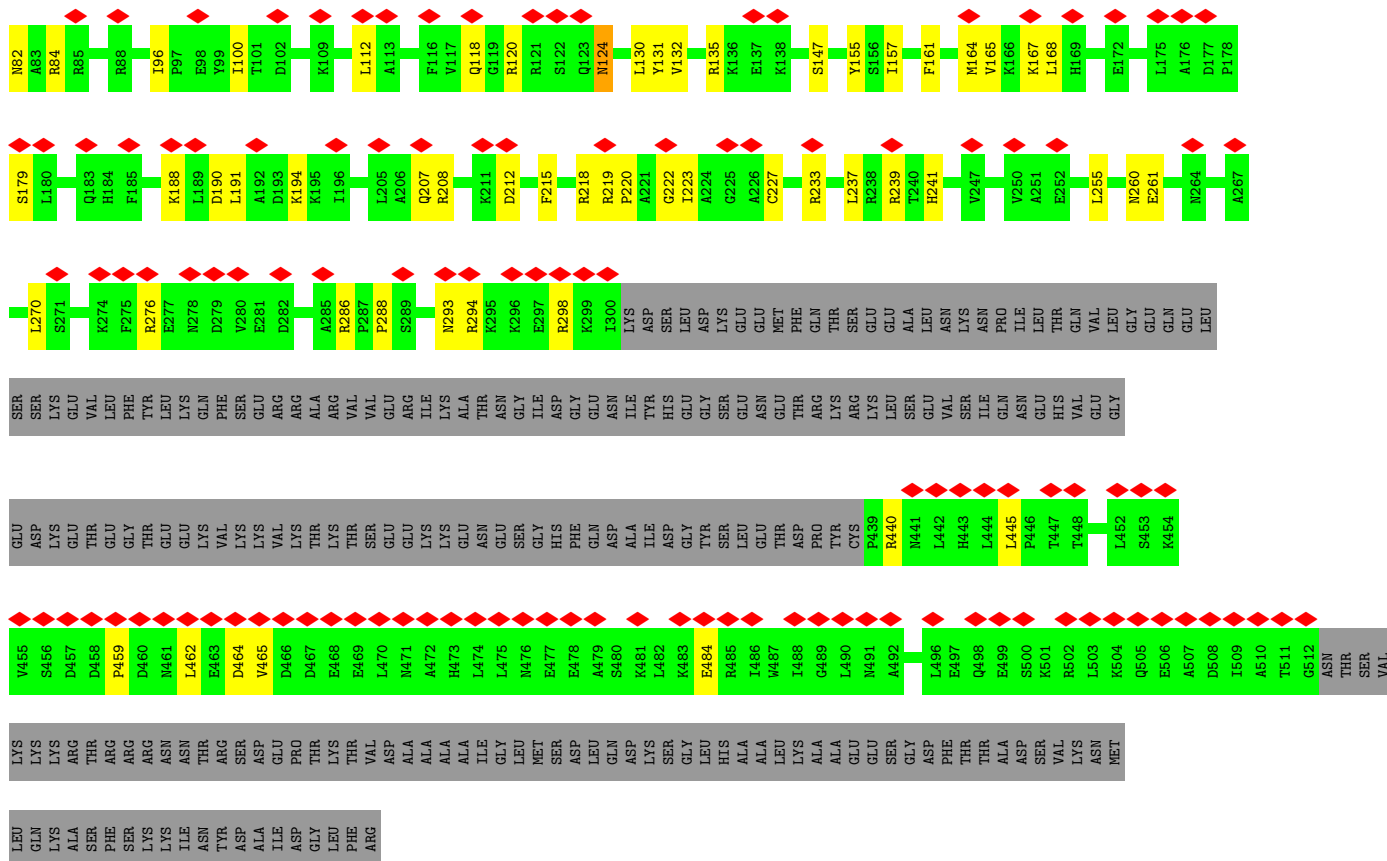


• Molecule 21: TATA-box-binding protein



• Molecule 22: Transcription factor IIIB 70 kDa subunit





4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	40847	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	39	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.128	Depositor
Minimum map value	-0.080	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.004	Depositor
Recommended contour level	0.02	Depositor
Map size (\AA)	328.59998, 328.59998, 328.59998	wwPDB
Map dimensions	310, 310, 310	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.06, 1.06, 1.06	Depositor

5 Model quality i

5.1 Standard geometry i

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	A	0.29	1/11315 (0.0%)	0.62	3/15284 (0.0%)
2	B	0.29	0/8926	0.63	3/12045 (0.0%)
3	C	0.29	0/2711	0.58	0/3676
4	D	0.29	0/1154	0.63	1/1546 (0.1%)
5	E	0.27	0/1795	0.56	1/2416 (0.0%)
6	F	0.27	0/683	0.60	0/923
7	G	0.29	0/1740	0.62	0/2362
8	H	0.28	0/1181	0.62	0/1602
9	I	0.29	0/320	0.68	0/434
10	J	0.27	0/558	0.59	0/750
11	K	0.27	0/812	0.58	0/1096
12	L	0.28	0/360	0.69	0/478
13	M	0.32	0/1624	0.65	2/2199 (0.1%)
14	N	0.29	0/810	0.66	1/1088 (0.1%)
15	O	0.28	0/4488	0.63	3/6055 (0.0%)
16	P	0.30	0/2397	0.67	3/3233 (0.1%)
17	Q	0.29	0/599	0.62	0/797
18	R	0.57	0/1159	1.00	0/1783
19	S	0.60	0/1319	0.99	1/2031 (0.0%)
20	V	0.26	0/1854	0.51	0/2433
21	Y	0.27	0/1443	0.55	0/1942
22	Z	0.28	0/2747	0.57	1/3699 (0.0%)
All	All	0.31	1/49995 (0.0%)	0.64	19/67872 (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
1	A	0	7

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Mol	Chain	#Chirality outliers	#Planarity outliers
2	B	0	3
3	C	0	1
4	D	0	2
12	L	0	1
13	M	0	2
14	N	0	1
16	P	0	6
20	V	0	1
22	Z	0	1
All	All	0	25

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	1267	LEU	C-N	5.15	1.44	1.34

The worst 5 of 19 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
19	S	30	DC	O4'-C4'-C3'	-8.70	100.78	106.00
1	A	330	ASP	CB-CG-OD1	7.58	125.12	118.30
16	P	153	LEU	CA-CB-CG	7.16	131.78	115.30
16	P	265	LEU	CA-CB-CG	7.11	131.64	115.30
15	O	500	LEU	CA-CB-CG	6.04	129.20	115.30

There are no chirality outliers.

5 of 25 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	34	VAL	Peptide
1	A	348	LYS	Peptide
1	A	554	THR	Peptide
1	A	584	SER	Peptide
1	A	598	MET	Peptide

5.2 Too-close contacts

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	11119	0	11260	206	0
2	B	8771	0	8894	219	0
3	C	2655	0	2628	46	0
4	D	1137	0	1145	20	0
5	E	1759	0	1788	28	0
6	F	671	0	692	8	0
7	G	1698	0	1672	30	0
8	H	1161	0	1124	13	0
9	I	313	0	300	5	0
10	J	549	0	561	15	0
11	K	801	0	795	21	0
12	L	358	0	384	12	0
13	M	1589	0	1553	40	0
14	N	802	0	848	24	0
15	O	4421	0	4589	74	0
16	P	2355	0	2325	38	0
17	Q	589	0	535	10	0
18	R	1038	0	583	12	0
19	S	1174	0	643	28	0
20	V	1829	0	1506	25	0
21	Y	1416	0	1493	33	0
22	Z	2705	0	2739	42	0
23	A	2	0	0	0	0
23	B	1	0	0	0	0
23	I	1	0	0	0	0
23	J	1	0	0	0	0
23	L	1	0	0	0	0
23	Z	1	0	0	0	0
24	A	1	0	0	0	0
All	All	48918	0	48057	789	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 8.

The worst 5 of 789 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)
19:S:32:DA:H2	19:S:34:DA:N6	1.39	1.19
19:S:32:DA:C2	19:S:34:DA:N6	2.22	1.07
1:A:441:ARG:HH12	2:B:1040:ARG:NH1	1.60	0.99
1:A:1079:ARG:HH11	1:A:1082:ARG:HH12	1.10	0.93
1:A:441:ARG:NH1	2:B:1040:ARG:HH11	1.65	0.93

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	A	1413/1460 (97%)	1199 (85%)	211 (15%)	3 (0%)	47	79
2	B	1110/1149 (97%)	918 (83%)	191 (17%)	1 (0%)	51	84
3	C	333/335 (99%)	282 (85%)	51 (15%)	0	100	100
4	D	136/161 (84%)	105 (77%)	26 (19%)	5 (4%)	3	28
5	E	213/215 (99%)	195 (92%)	17 (8%)	1 (0%)	29	67
6	F	81/155 (52%)	74 (91%)	7 (9%)	0	100	100
7	G	210/212 (99%)	164 (78%)	45 (21%)	1 (0%)	29	67
8	H	144/146 (99%)	128 (89%)	16 (11%)	0	100	100
9	I	39/110 (36%)	32 (82%)	7 (18%)	0	100	100
10	J	65/70 (93%)	56 (86%)	9 (14%)	0	100	100
11	K	100/142 (70%)	90 (90%)	10 (10%)	0	100	100
12	L	43/70 (61%)	32 (74%)	11 (26%)	0	100	100
13	M	195/282 (69%)	148 (76%)	45 (23%)	2 (1%)	15	53
14	N	101/422 (24%)	81 (80%)	20 (20%)	0	100	100
15	O	546/654 (84%)	481 (88%)	65 (12%)	0	100	100
16	P	294/317 (93%)	213 (72%)	74 (25%)	7 (2%)	6	36
17	Q	86/251 (34%)	69 (80%)	17 (20%)	0	100	100
20	V	265/594 (45%)	230 (87%)	35 (13%)	0	100	100
21	Y	178/240 (74%)	163 (92%)	15 (8%)	0	100	100
22	Z	333/596 (56%)	300 (90%)	33 (10%)	0	100	100
All	All	5885/7581 (78%)	4960 (84%)	905 (15%)	20 (0%)	44	75

5 of 20 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
4	D	14	TYR
1	A	35	SER
1	A	496	ARG
2	B	586	GLU
4	D	13	ASP

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	A	1228/1257 (98%)	1204 (98%)	24 (2%)	55	73
2	B	973/1006 (97%)	948 (97%)	25 (3%)	46	67
3	C	296/296 (100%)	292 (99%)	4 (1%)	67	81
4	D	126/145 (87%)	120 (95%)	6 (5%)	25	53
5	E	197/197 (100%)	194 (98%)	3 (2%)	65	80
6	F	73/137 (53%)	71 (97%)	2 (3%)	44	66
7	G	185/190 (97%)	184 (100%)	1 (0%)	88	93
8	H	128/128 (100%)	123 (96%)	5 (4%)	32	58
9	I	37/98 (38%)	37 (100%)	0	100	100
10	J	62/65 (95%)	62 (100%)	0	100	100
11	K	92/130 (71%)	90 (98%)	2 (2%)	52	71
12	L	40/57 (70%)	40 (100%)	0	100	100
13	M	172/249 (69%)	167 (97%)	5 (3%)	42	65
14	N	88/360 (24%)	85 (97%)	3 (3%)	37	61
15	O	505/593 (85%)	498 (99%)	7 (1%)	67	81
16	P	257/285 (90%)	255 (99%)	2 (1%)	81	89
17	Q	56/212 (26%)	55 (98%)	1 (2%)	59	77
20	V	151/534 (28%)	145 (96%)	6 (4%)	31	57
21	Y	152/205 (74%)	151 (99%)	1 (1%)	84	90
22	Z	297/513 (58%)	288 (97%)	9 (3%)	41	64

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
All	All	5115/6657 (77%)	5009 (98%)	106 (2%)	56 72

5 of 106 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
4	D	97	LYS
11	K	140	LYS
22	Z	84	ARG
5	E	5	ASN
8	H	55	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 102 such sidechains are listed below:

Mol	Chain	Res	Type
5	E	5	ASN
13	M	155	ASN
22	Z	241	HIS
6	F	104	ASN
8	H	35	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 8 ligands modelled in this entry, 8 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

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

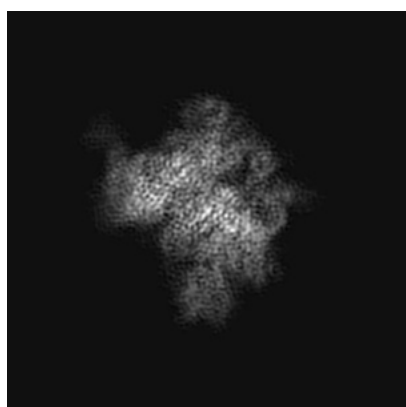
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-3955. These allow visual inspection of the internal detail of the map and identification of artifacts.

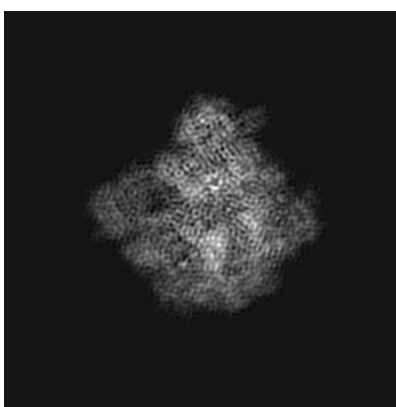
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

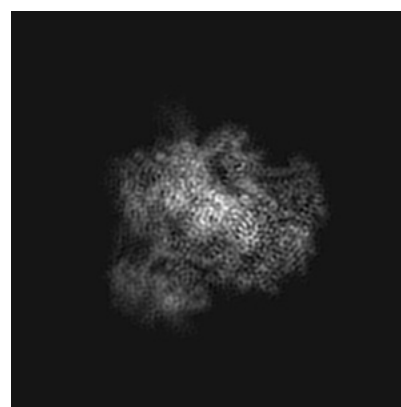
6.1.1 Primary map



X



Y

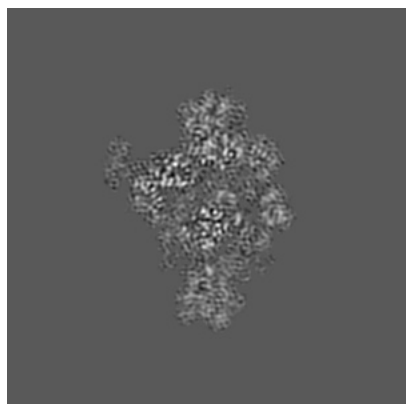


Z

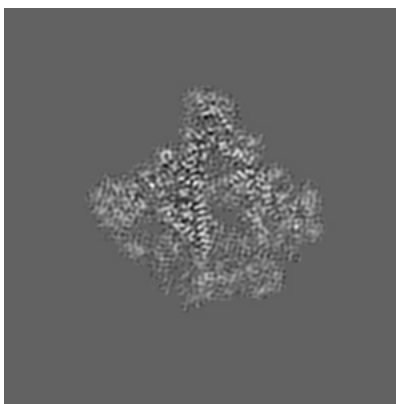
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

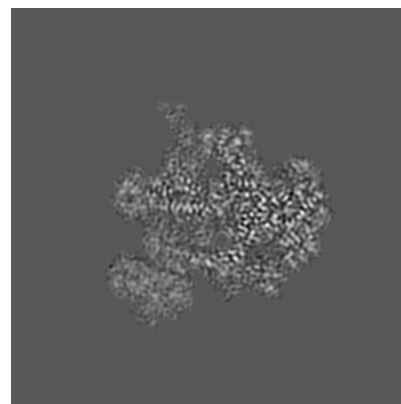
6.2.1 Primary map



X Index: 155



Y Index: 155

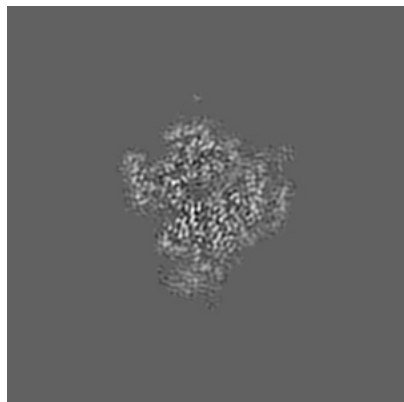


Z Index: 155

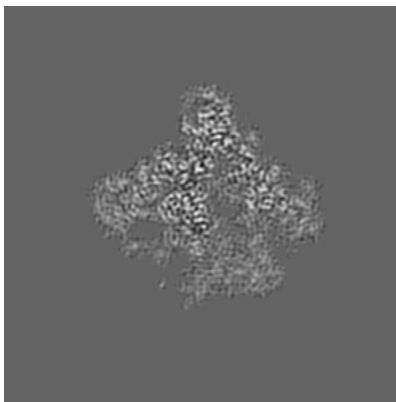
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

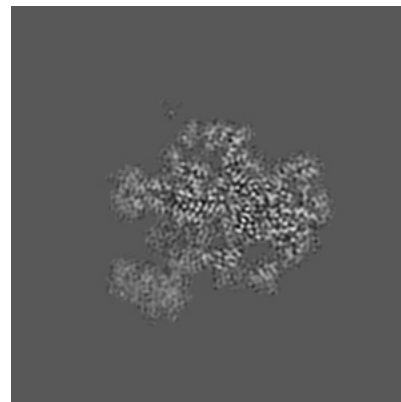
6.3.1 Primary map



X Index: 180



Y Index: 152



Z Index: 151

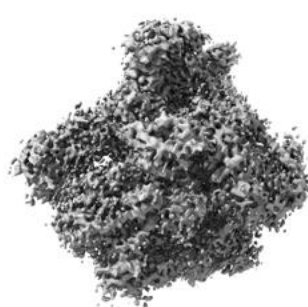
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal surface views [i](#)

6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.02. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

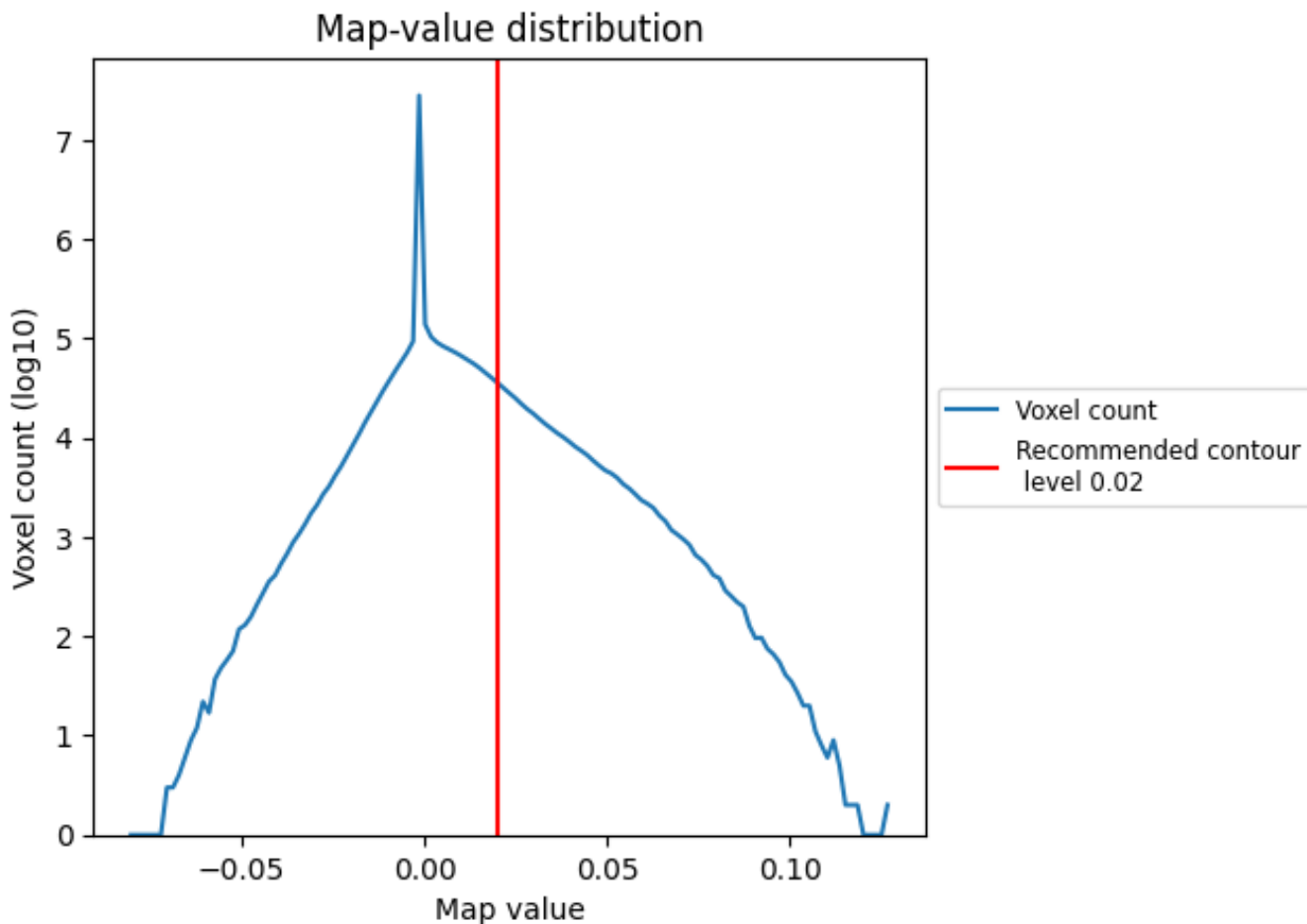
6.5 Mask visualisation

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

7 Map analysis [i](#)

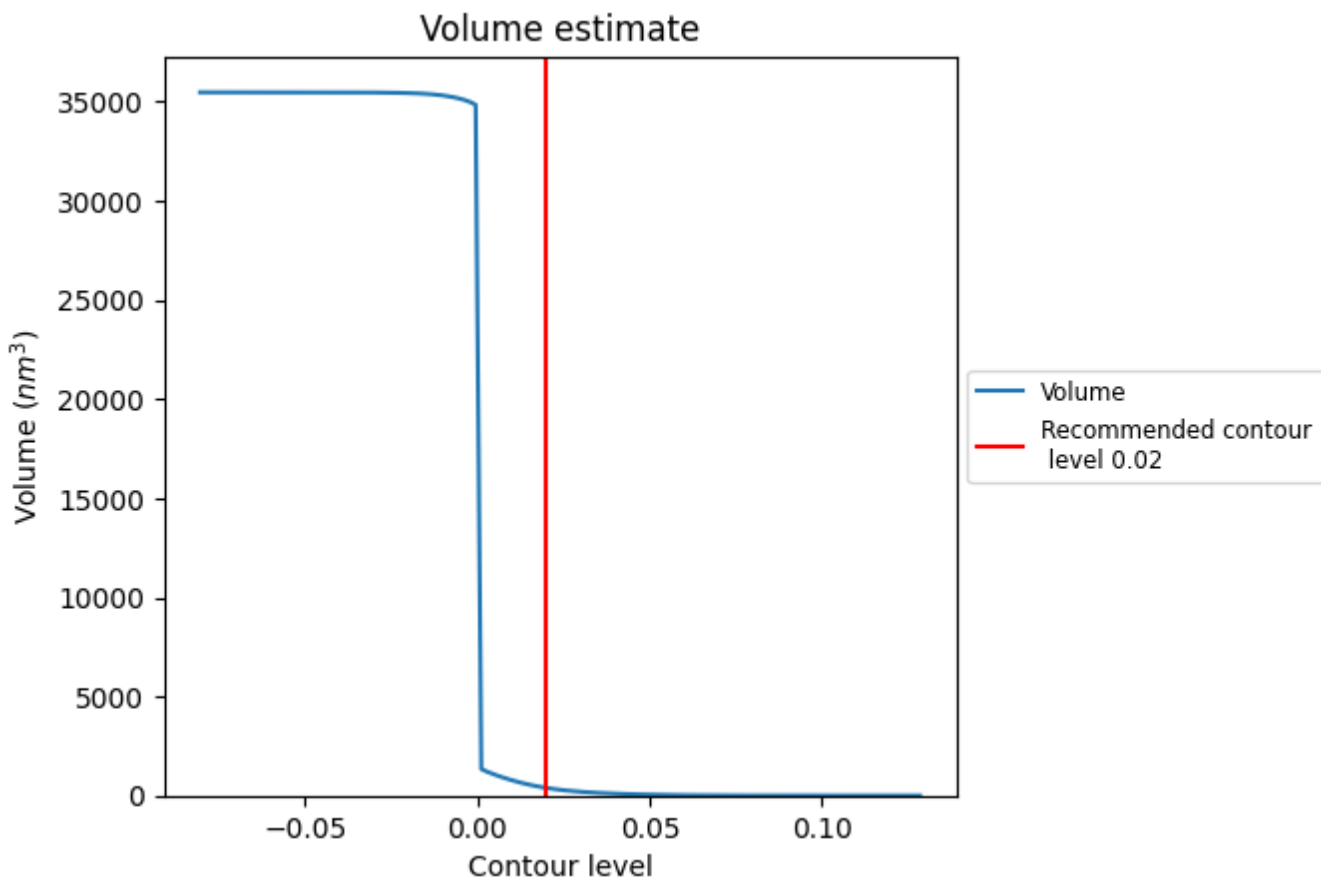
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

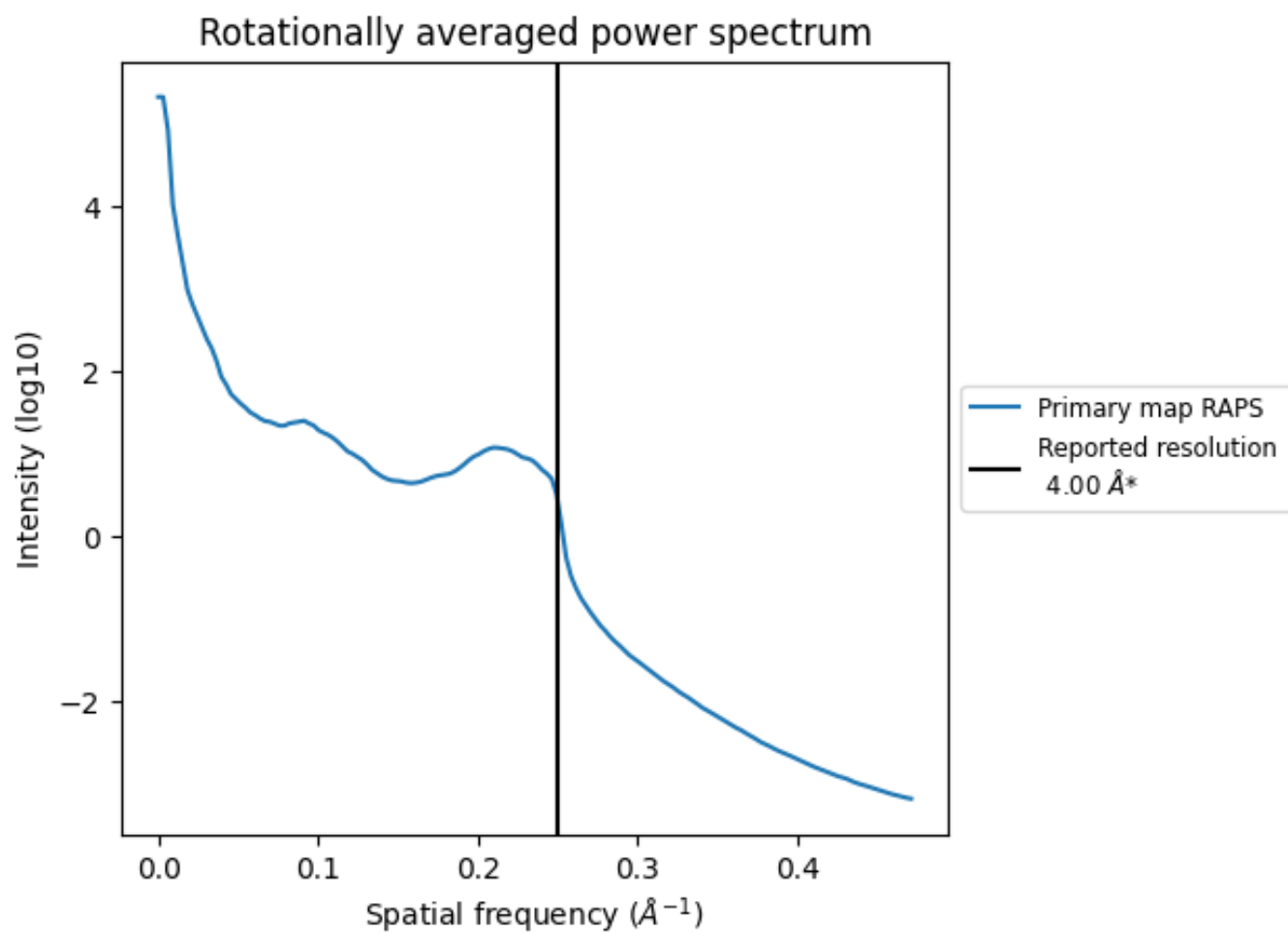
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 387 nm³; this corresponds to an approximate mass of 350 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](#)

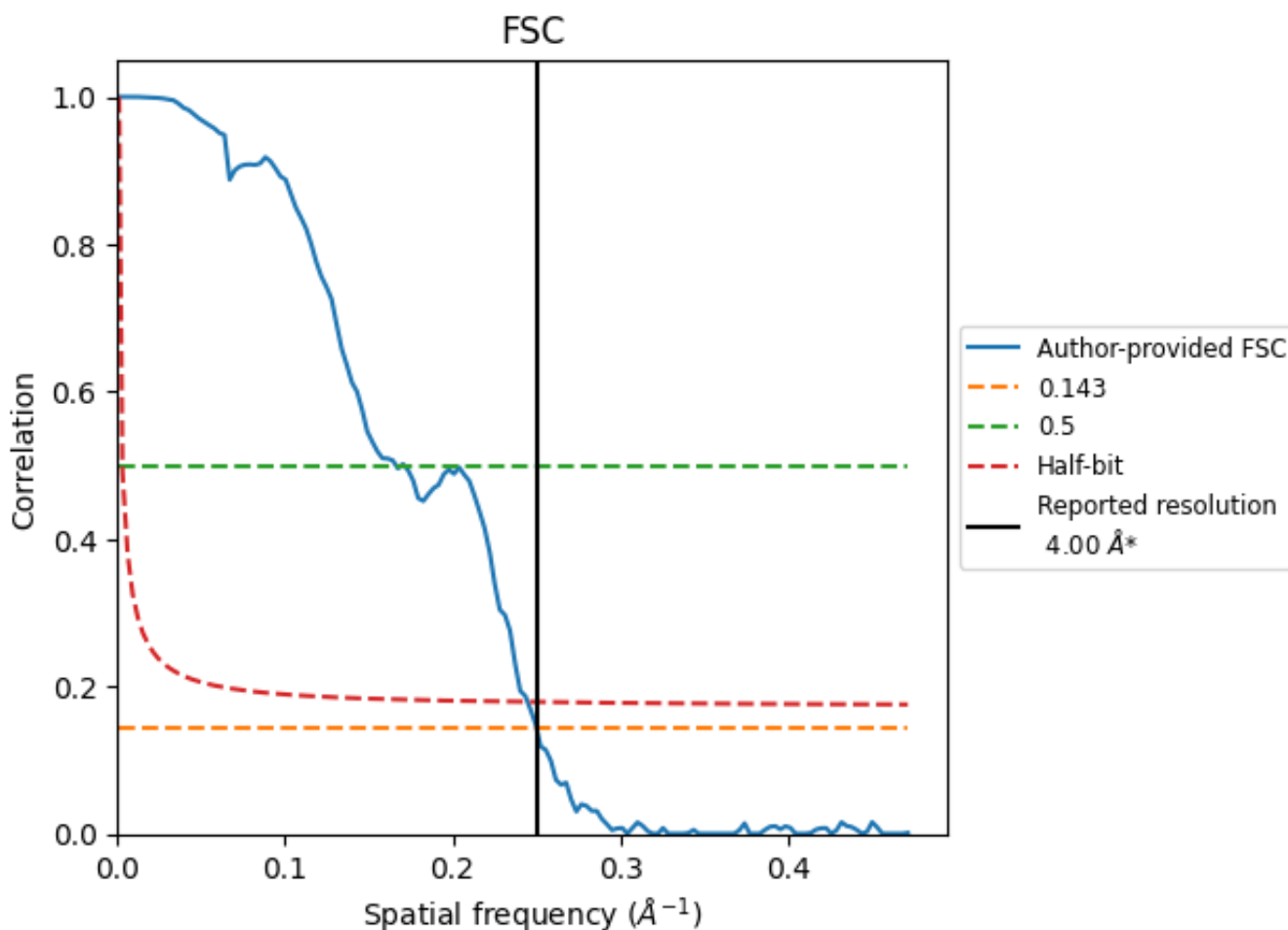


*Reported resolution corresponds to spatial frequency of 0.250\AA^{-1}

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.250 Å⁻¹

8.2 Resolution estimates [i](#)

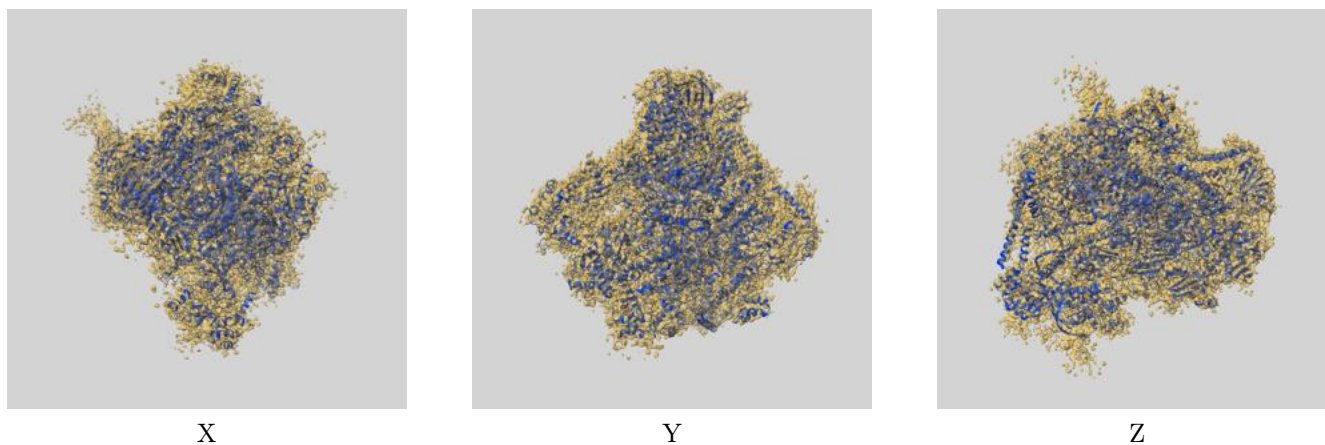
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.00	-	-
Author-provided FSC curve	4.00	6.02	4.08
Unmasked-calculated*	-	-	-

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

9 Map-model fit [i](#)

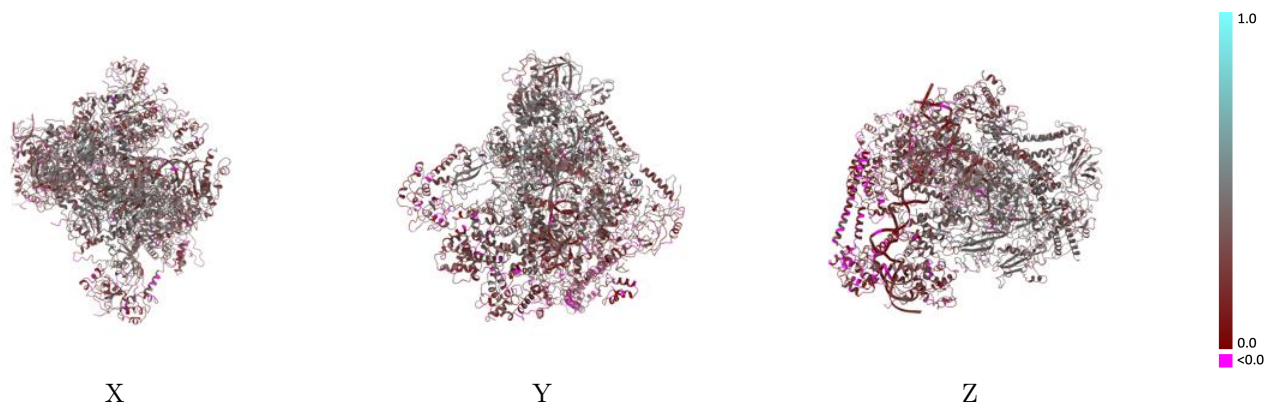
This section contains information regarding the fit between EMDB map EMD-3955 and PDB model 6EU0. Per-residue inclusion information can be found in section 3 on page 8.

9.1 Map-model overlay [i](#)



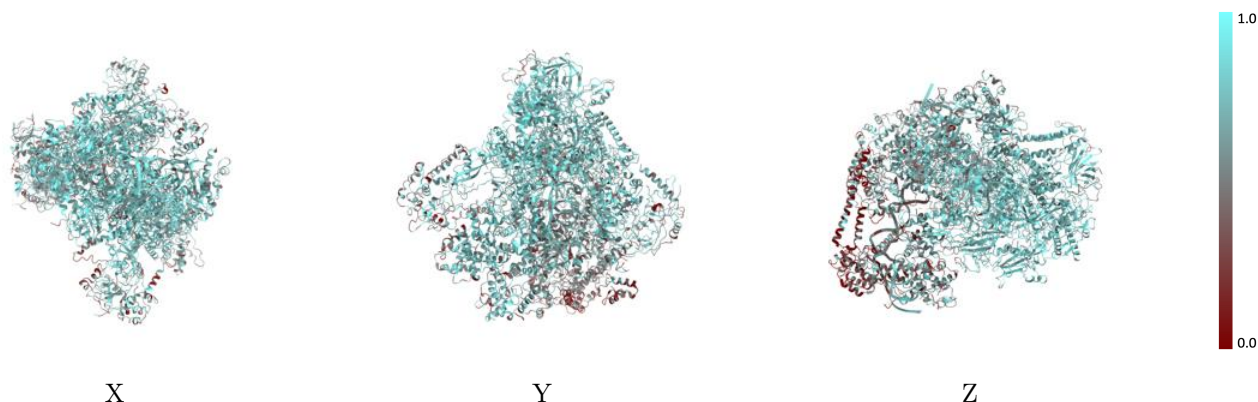
The images above show the 3D surface view of the map at the recommended contour level 0.02 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



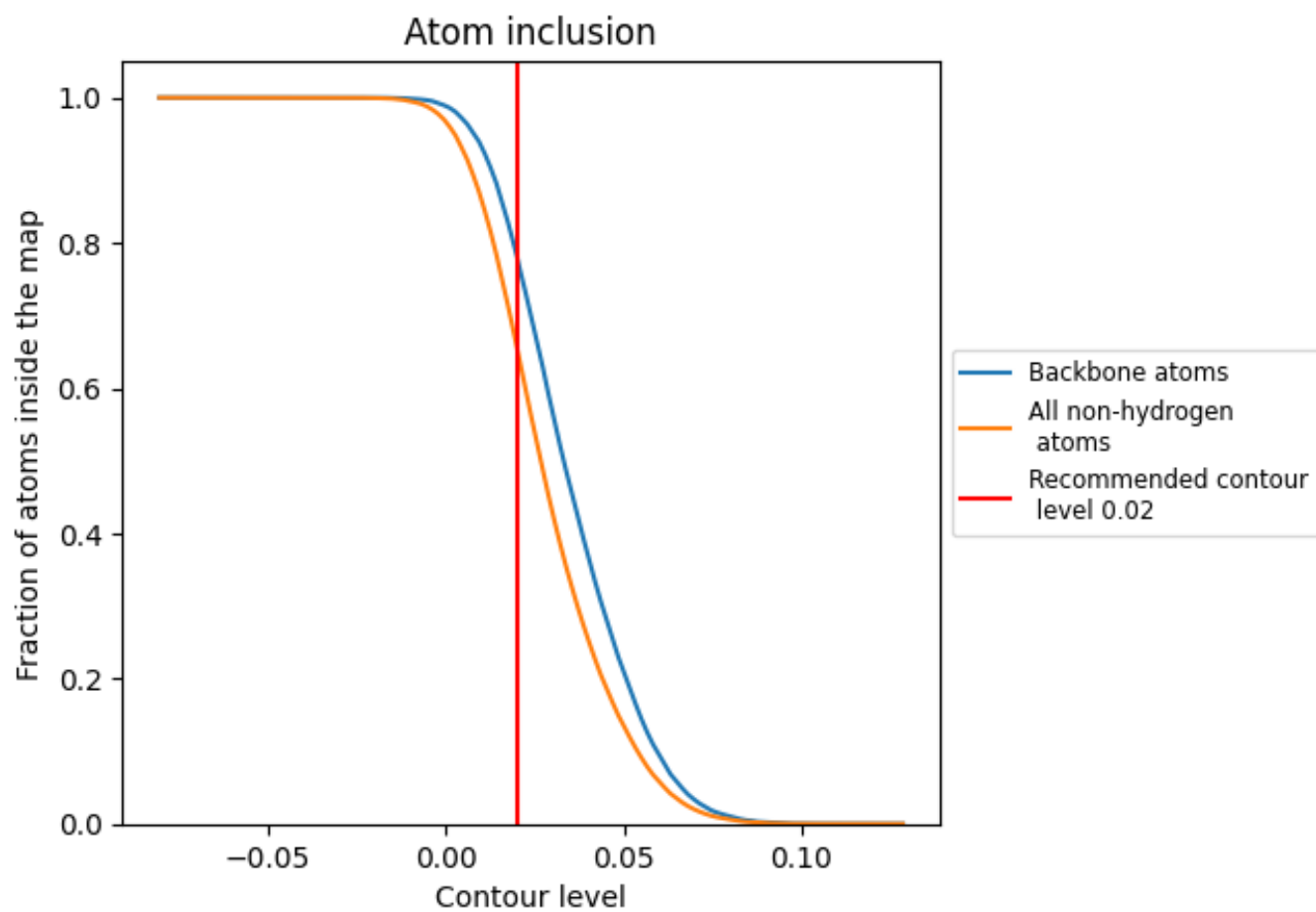
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.02).















































9.4 Atom inclusion [i](#)



At the recommended contour level, 78% of all backbone atoms, 66% 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 (0.02) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.6579	 0.3130
A	 0.7315	 0.3730
B	 0.7371	 0.3720
C	 0.7500	 0.3720
D	 0.5593	 0.2220
E	 0.7063	 0.3440
F	 0.7871	 0.3900
G	 0.6038	 0.2650
H	 0.6946	 0.3500
I	 0.5728	 0.2240
J	 0.7884	 0.4060
K	 0.7412	 0.3880
L	 0.7428	 0.3810
M	 0.5776	 0.2480
N	 0.6199	 0.2610
O	 0.6646	 0.2990
P	 0.4951	 0.1880
Q	 0.5969	 0.2230
R	 0.5925	 0.2040
S	 0.6210	 0.2080
V	 0.4102	 0.1800
Y	 0.4171	 0.1880
Z	 0.4908	 0.2350

