wwPDB EM Validation Summary Report

Sep 17, 2023 – 01:07 PM JST

PDB ID	:	7YCX
EMDB ID	:	EMD-33741
Title	:	The structure of INTAC-PEC complex
Authors	:	Zheng, H.; Jin, Q.; Wang, X.; Qi, Y.; Liu, W.; Ren, Y.; Zhao, D.; Chen, F.X.; Cheng, J.; Chen, X.; Xu, Y.
Deposited on	:	2022-07-02
Resolution	:	4.18 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:

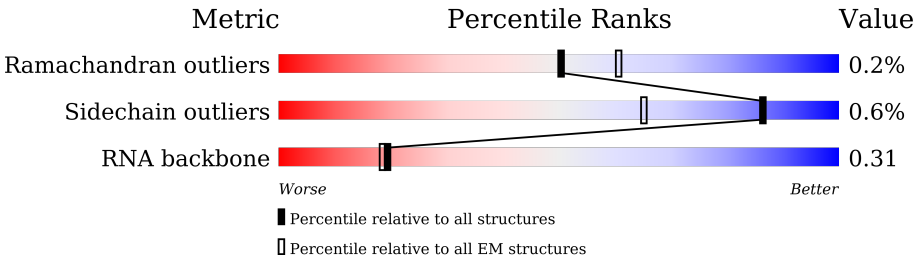
EMDB validation analysis	:	0.0.1.dev50
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.9
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35.1

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 4.18 Å.

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



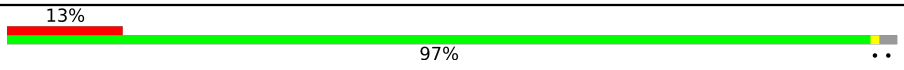
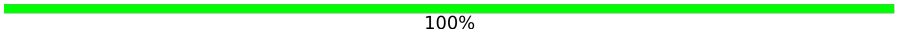
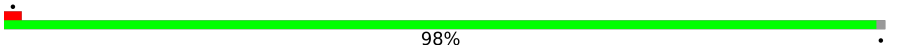
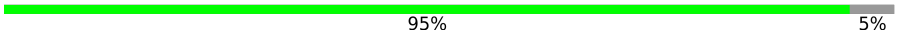
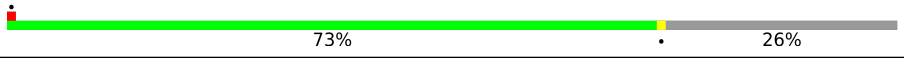
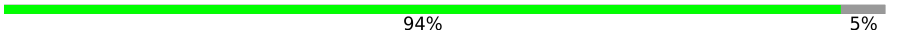
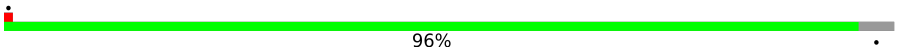
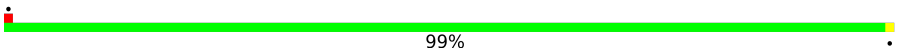
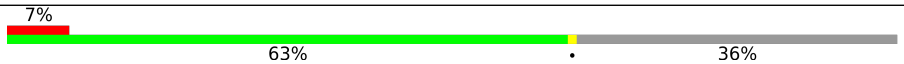
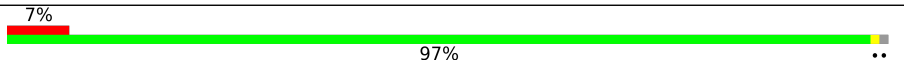
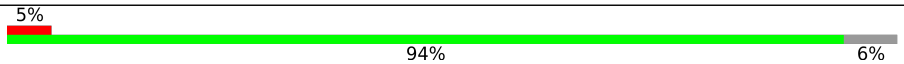
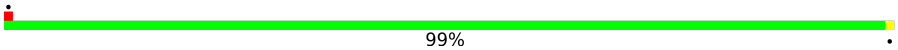
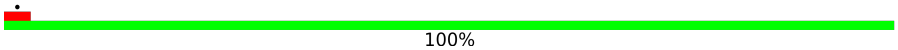
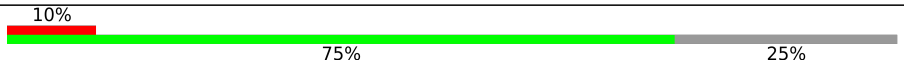
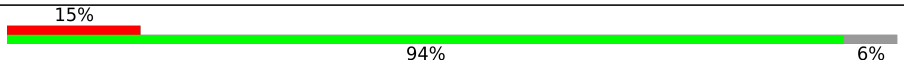
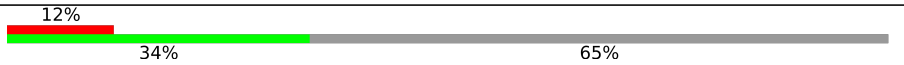
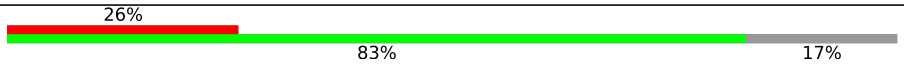
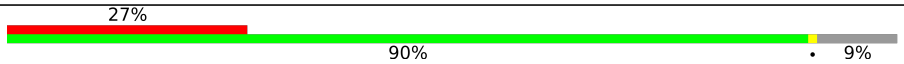
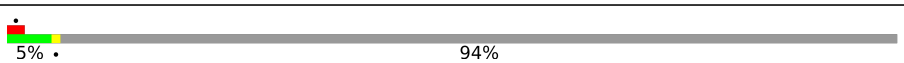
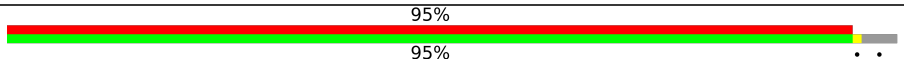
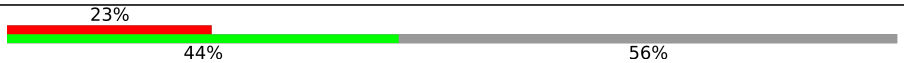
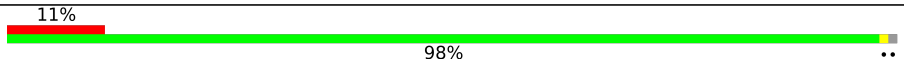
Metric	Whole archive (#Entries)	EM structures (#Entries)
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826
RNA backbone	4643	859

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion < 40%). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	2190	8% 81% 19%
2	B	1204	88% 12%
3	D	963	85% 14%
4	E	1019	11% 78% 22%
5	F	887	6% 63% 37%
6	G	962	94% 5%
7	H	995	93% 6%
8	I	658	6% 96%

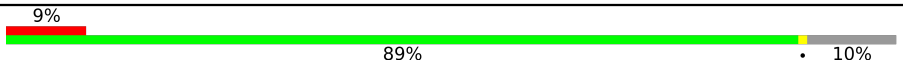
Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
9	K	600	
10	M	17	
11	P	589	
12	Q	309	
13	U	27	
14	1	1970	
15	2	1174	
16	3	271	
17	4	210	
18	5	127	
19	6	150	
20	7	125	
21	8	67	
22	9	117	
23	a	58	
24	b	48	
25	c	23	
26	d	48	
27	e	528	
28	f	580	
29	g	590	
30	h	380	
31	i	121	
32	j	1087	
33	k	172	

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
34	l	142	

2 Entry composition (i)

There are 37 unique types of molecules in this entry. The entry contains 113089 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 Integrator complex subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	1779	13054	8226	2322	2432	74	0	0

- Molecule 2 is a protein called Integrator complex subunit 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	1061	8328	5322	1412	1530	64	0	0

- Molecule 3 is a protein called Integrator complex subunit 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	D	828	6205	3931	1085	1158	31	0	0

- Molecule 4 is a protein called Integrator complex subunit 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	E	798	5244	3284	988	958	14	0	0

- Molecule 5 is a protein called Integrator complex subunit 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	F	560	4395	2809	750	813	23	0	0

- Molecule 6 is a protein called Integrator complex subunit 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	G	910	6928	4382	1212	1293	41	0	0

- Molecule 7 is a protein called Integrator complex subunit 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	H	937	Total	C	N	O	S	0	0
			7440	4761	1274	1361	44		

- Molecule 8 is a protein called Integrator complex subunit 9.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	I	633	Total	C	N	O	S	0	0
			4985	3210	815	926	34		

- Molecule 9 is a protein called Integrator complex subunit 11.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	K	590	Total	C	N	O	S	0	0
			4646	2964	806	841	35		

- Molecule 10 is a protein called Unknown2.

Mol	Chain	Residues	Atoms				AltConf	Trace
10	M	17	Total	C	N	O	0	0
			85	51	17	17		

- Molecule 11 is a protein called Serine/threonine-protein phosphatase 2A 65 kDa regulatory subunit A alpha isoform.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	P	581	Total	C	N	O	S	0	0
			4527	2877	763	860	27		

- Molecule 12 is a protein called Serine/threonine-protein phosphatase 2A catalytic subunit alpha isoform.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	Q	293	Total	C	N	O	S	0	0
			2366	1497	405	449	15		

- Molecule 13 is a protein called Unknown.

Mol	Chain	Residues	Atoms				AltConf	Trace
13	U	27	Total	C	N	O	0	0
			135	81	27	27		

- Molecule 14 is a protein called DNA-directed RNA polymerase II subunit RPB1,DNA-directed RNA polymerase II subunit RPB1, CTD1, CTD2, CTD3, CTD4.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	1	1451	Total	C	N	O	S	0	0
			11345	7135	2033	2109	68		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
15	2	1113	Total	C	N	O	S	0	0
			8649	5489	1515	1581	64		

- Molecule 16 is a protein called DNA-directed RNA polymerase II subunit RPB3.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	3	259	Total	C	N	O	S	0	0
			2048	1289	354	399	6		

- Molecule 17 is a protein called DNA-directed RNA polymerase II subunit E.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	4	209	Total	C	N	O	S	0	0
			1721	1089	300	324	8		

- Molecule 18 is a protein called DNA-directed RNA polymerase II subunit F.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	5	81	Total	C	N	O	S	0	0
			649	413	111	120	5		

- Molecule 19 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC3.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	6	148	Total	C	N	O	S	0	0
			1186	750	194	237	5		

- Molecule 20 is a protein called DNA-directed RNA polymerase II subunit RPB9.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	7	117	Total	C	N	O	S	0	0
			950	587	169	183	11		

- Molecule 21 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC5.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	8	67	Total	C	N	O	S	0	0
			533	345	90	92	6		

- Molecule 22 is a protein called RNA_pol_L_2 domain-containing protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	9	117	Total	C	N	O	S	0	0
			937	604	154	177	2		

- Molecule 23 is a protein called RPB12.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	a	46	Total	C	N	O	S	0	0
			389	241	75	67	6		

- Molecule 24 is a DNA chain called non-template DNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	b	36	Total	C	N	O	P	0	0
			752	351	153	212	36		

- Molecule 25 is a RNA chain called RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	c	23	Total	C	N	O	P	0	0
			406	179	56	148	23		

- Molecule 26 is a DNA chain called template DNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	d	45	Total	C	N	O	P	0	0
			909	431	157	276	45		

- Molecule 27 is a protein called Negative elongation factor A.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	e	183	Total	C	N	O	S	0	0
			1410	895	239	269	7		

- Molecule 28 is a protein called Negative elongation factor B.

Mol	Chain	Residues	Atoms				AltConf	Trace
28	f	480	Total	C	N	O	0	0
			1920	960	480	480		

- Molecule 29 is a protein called Negative elongation factor C/D.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	g	534	Total	C	N	O	S	0	0
			3764	2382	653	710	19		

- Molecule 30 is a protein called Negative elongation factor E.

Mol	Chain	Residues	Atoms				AltConf	Trace
30	h	22	Total	C	N	O	0	0
			109	65	22	22		

- Molecule 31 is a protein called Transcription elongation factor SPT4.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	i	116	Total	C	N	O	S	0	0
			911	570	159	173	9		

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
i	-3	GLY	-	expression tag	UNP P63272
i	-2	PRO	-	expression tag	UNP P63272
i	-1	GLY	-	expression tag	UNP P63272
i	0	SER	-	expression tag	UNP P63272

- Molecule 32 is a protein called Transcription elongation factor SPT5.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	j	482	Total	C	N	O	S	0	0
			3854	2448	681	708	17		

- Molecule 33 is a protein called DNA-directed RNA polymerase II subunit RPB7.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	k	171	Total	C	N	O	S	0	0
			1299	849	205	238	7		

- Molecule 34 is a protein called DNA-directed RNA polymerase II subunit RPB4.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	l	128	Total	C	N	O	S	0	0
			997	629	169	195	4		

- Molecule 35 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
35	K	2	Total	Zn	0
			2	2	
35	1	2	Total	Zn	0
			2	2	
35	2	1	Total	Zn	0
			1	1	
35	3	1	Total	Zn	0
			1	1	
35	7	2	Total	Zn	0
			2	2	
35	8	1	Total	Zn	0
			1	1	
35	a	1	Total	Zn	0
			1	1	

- Molecule 36 is MANGANESE (II) ION (three-letter code: MN) (formula: Mn).

Mol	Chain	Residues	Atoms		AltConf
36	Q	2	Total	Mn	0
			2	2	

- Molecule 37 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

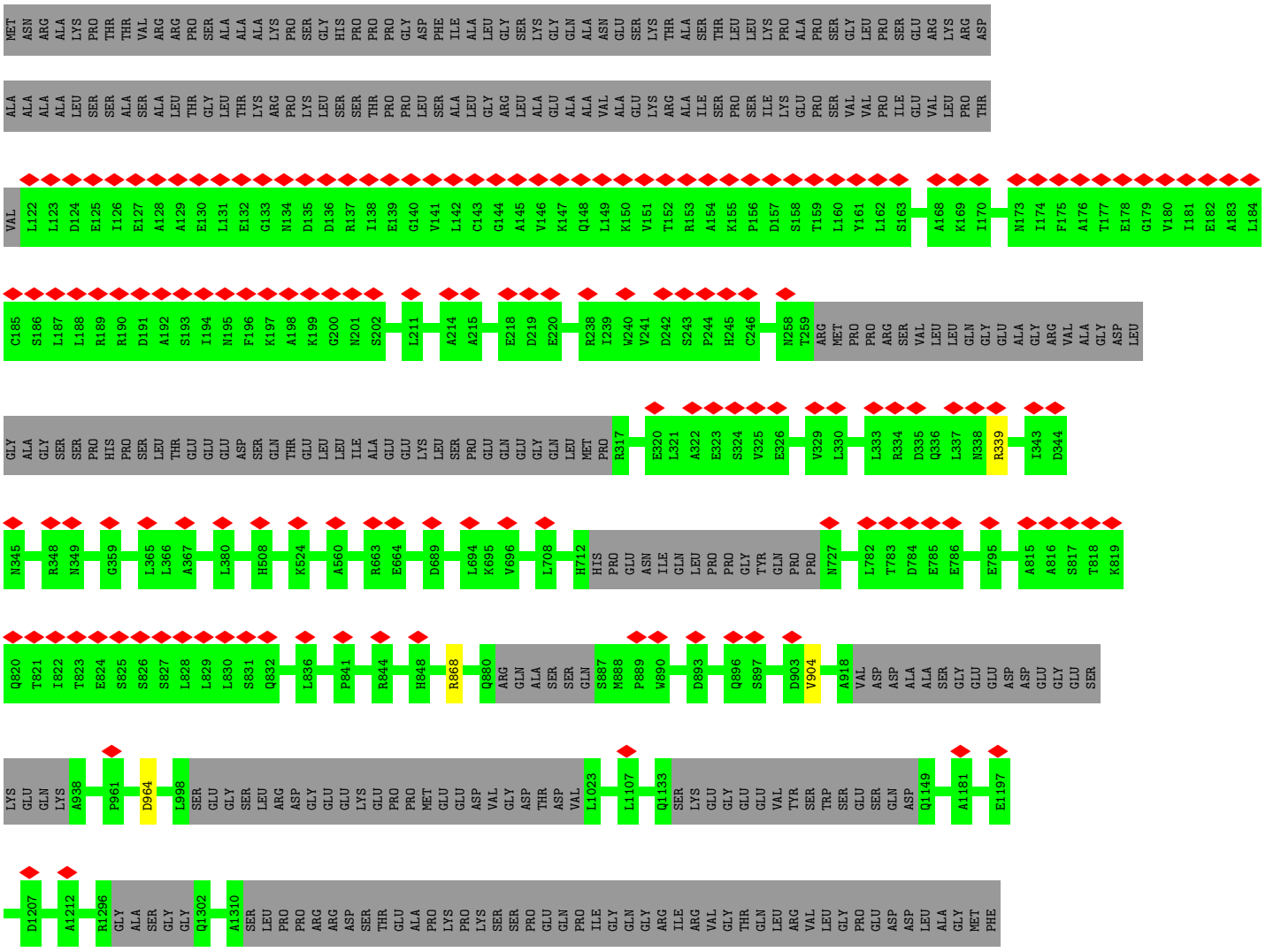
Mol	Chain	Residues	Atoms		AltConf
37	1	1	Total	Mg	0
			1	1	

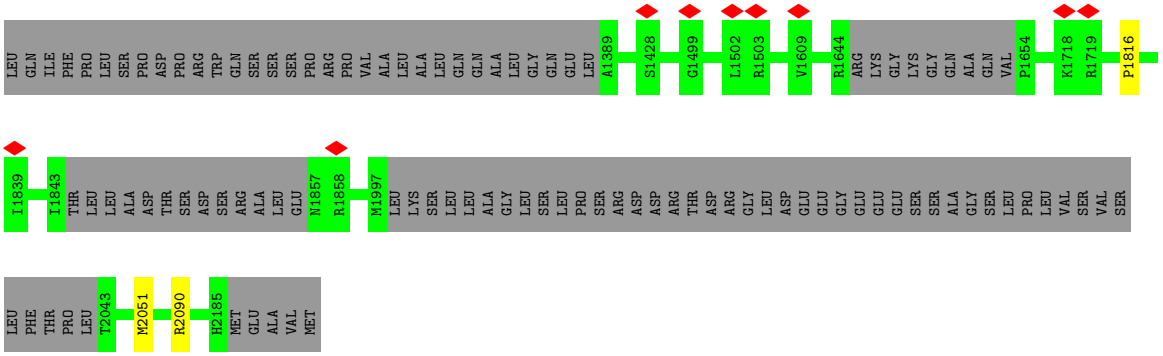
3 Residue-property plots (i)

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: Integrator complex subunit 1

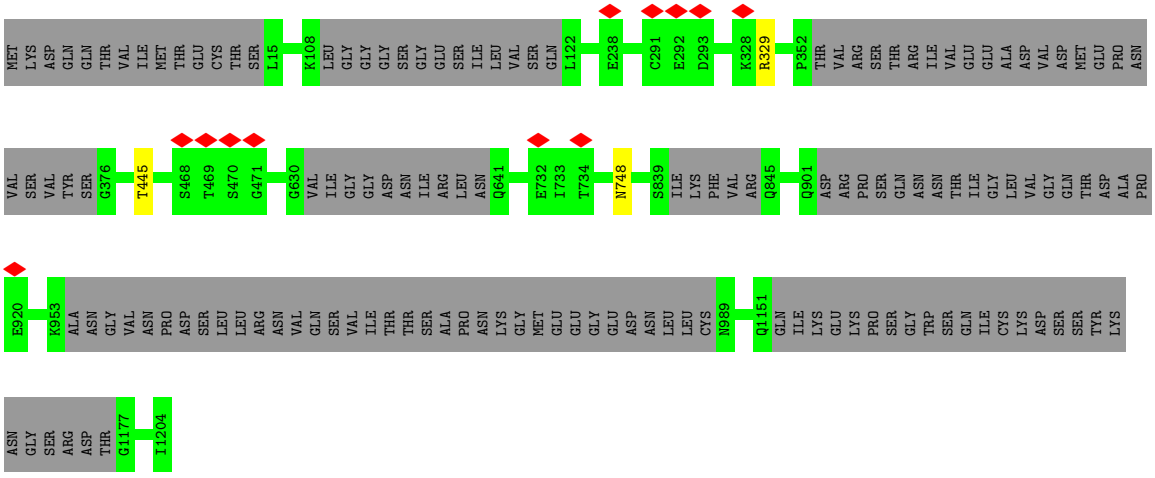
Chain A:





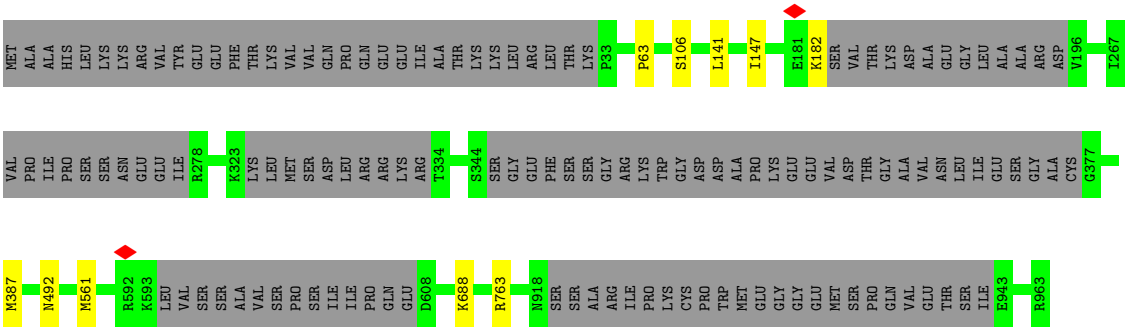
• Molecule 2: Integrator complex subunit 2

Chain B:



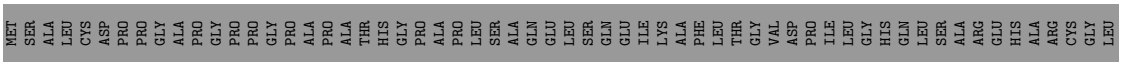
• Molecule 3: Integrator complex subunit 4

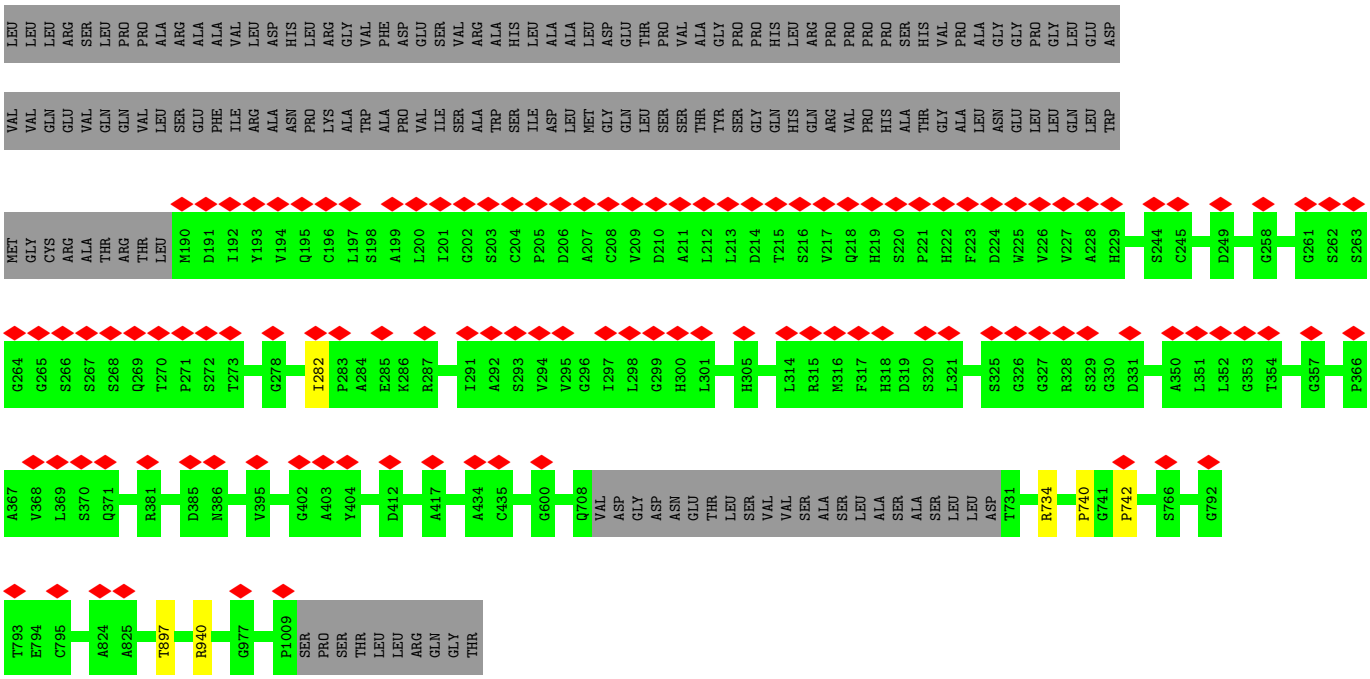
Chain D:



• Molecule 4: Integrator complex subunit 5

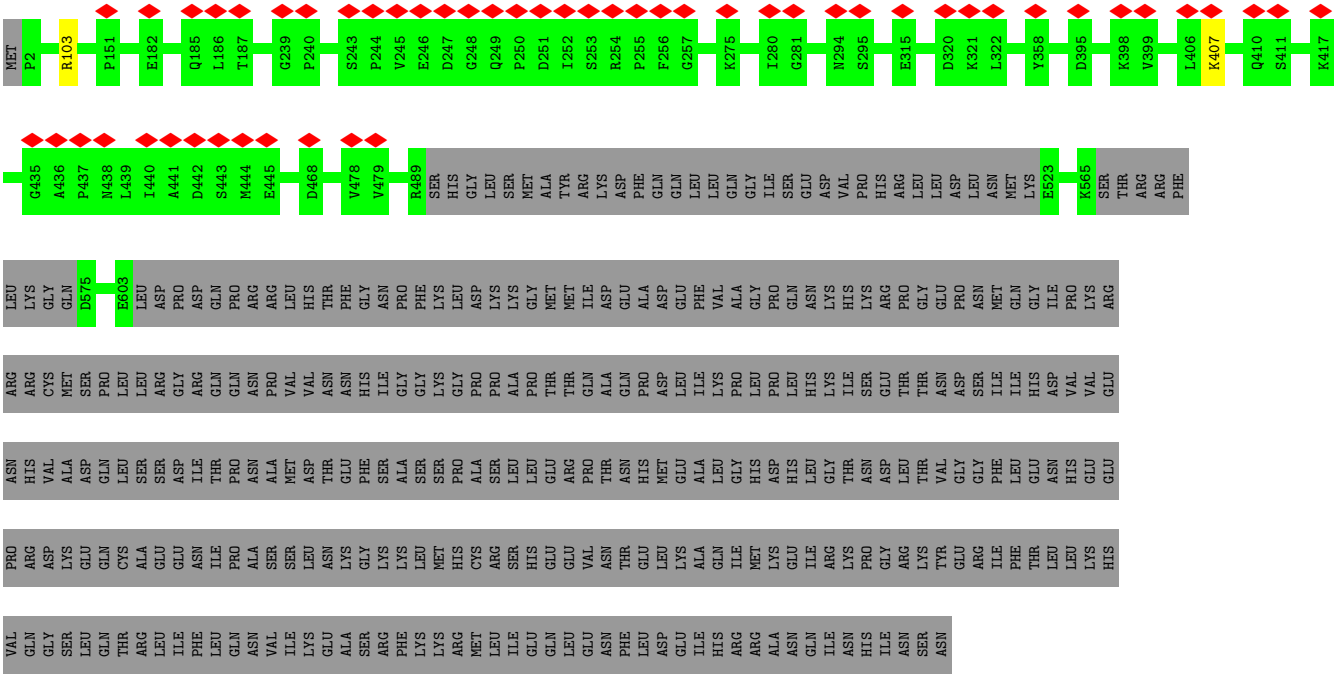
Chain E:





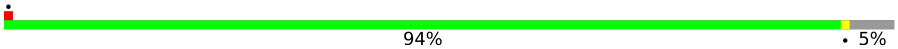
• Molecule 5: Integrator complex subunit 6

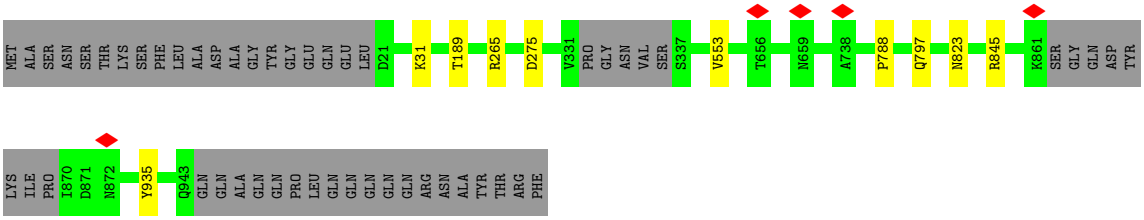
Chain F:



• Molecule 6: Integrator complex subunit 7

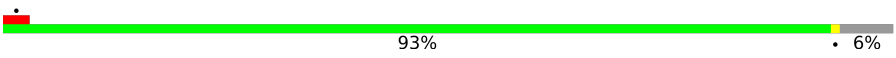
Chain G:

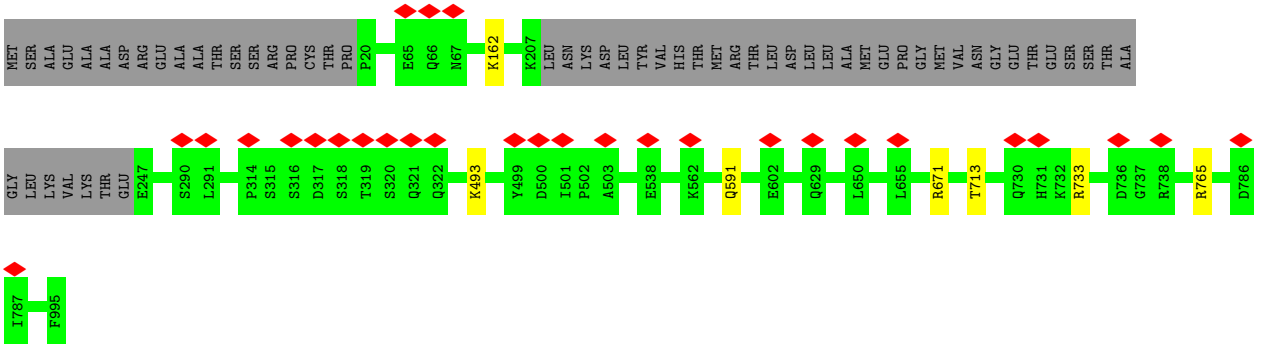




• Molecule 7: Integrator complex subunit 8

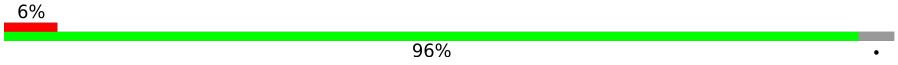
Chain H:

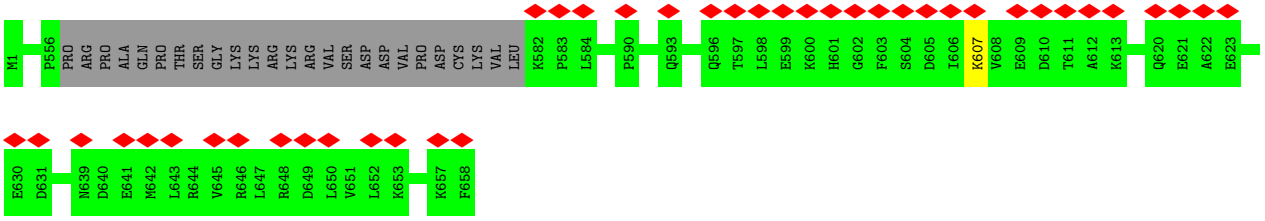




• Molecule 8: Integrator complex subunit 9

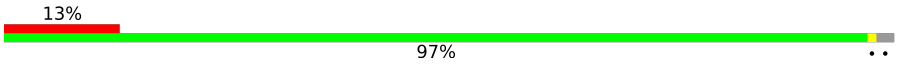
Chain I:

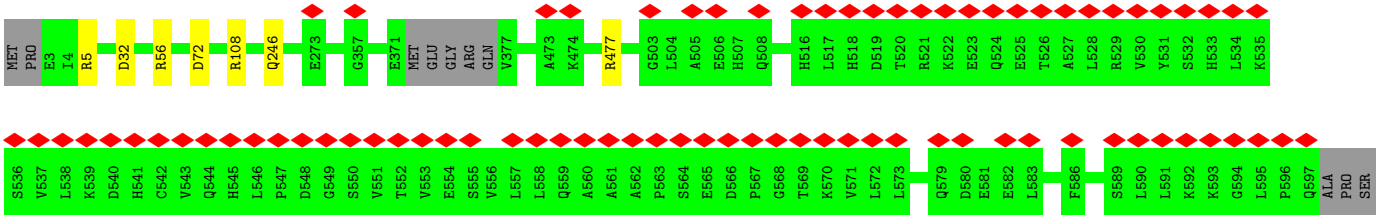




• Molecule 9: Integrator complex subunit 11

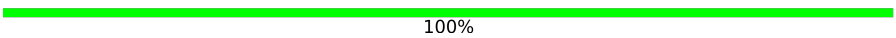
Chain K:





• Molecule 10: Unknown2

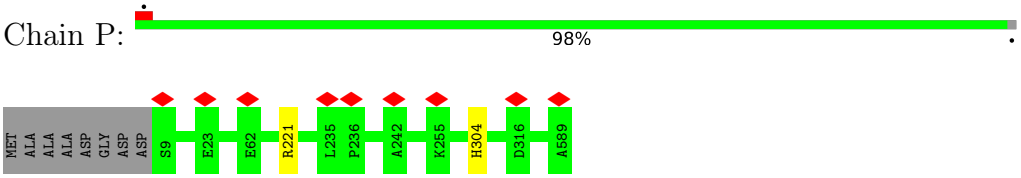
Chain M:



There are no outlier residues recorded for this chain.

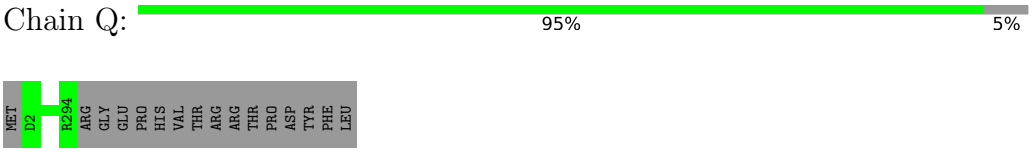
• Molecule 11: Serine/threonine-protein phosphatase 2A 65 kDa regulatory subunit A alpha isoform

Chain P:



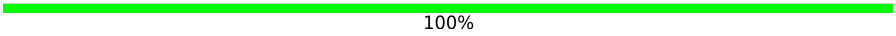
• Molecule 12: Serine/threonine-protein phosphatase 2A catalytic subunit alpha isoform

Chain Q:



• Molecule 13: Unknown

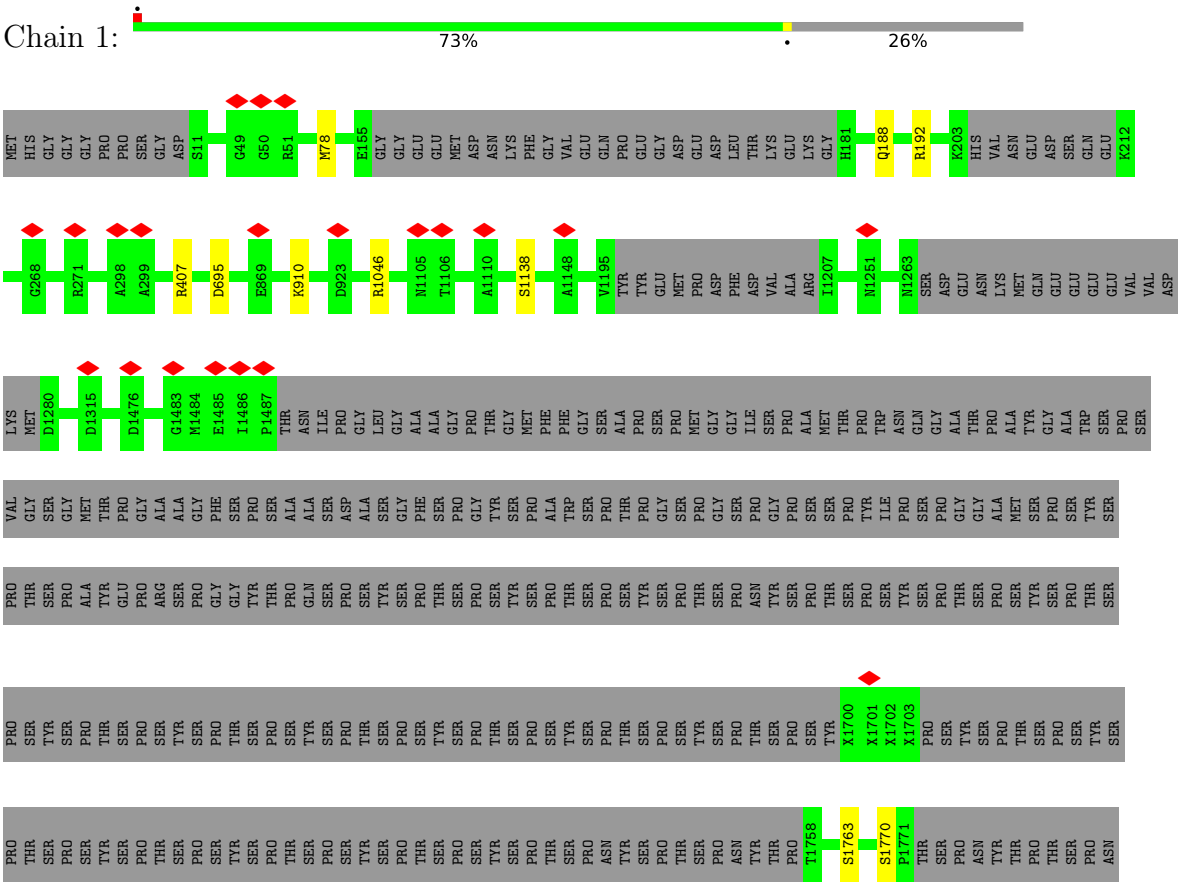
Chain U:

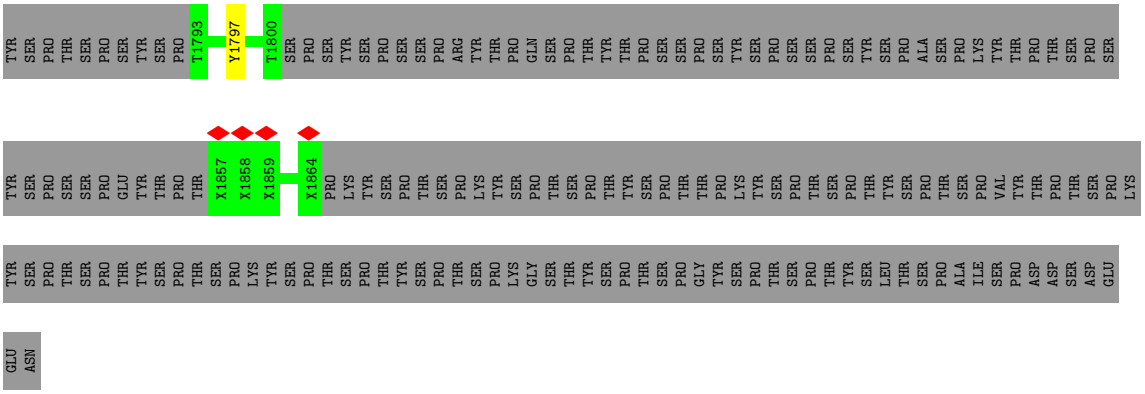


There are no outlier residues recorded for this chain.

• Molecule 14: DNA-directed RNA polymerase II subunit RPB1,DNA-directed RNA polymerase II subunit RPB1, CTD1, CTD2, CTD3, CTD4

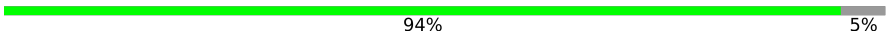
Chain 1:

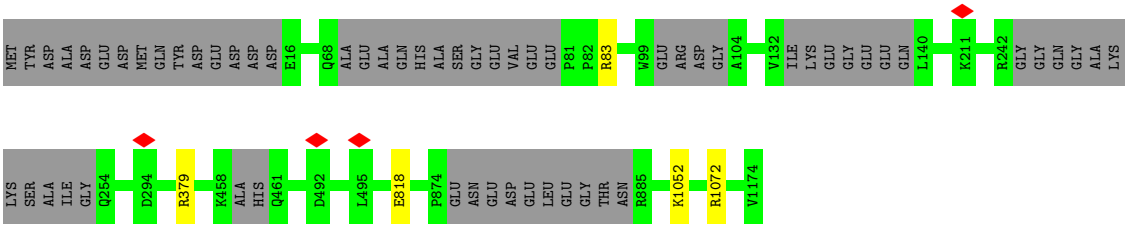




• Molecule 15: DNA-directed RNA polymerase subunit beta

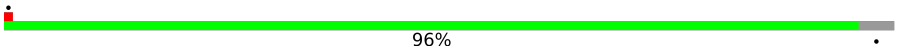
Chain 2:

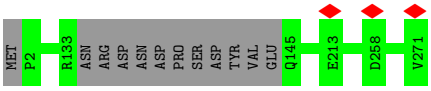




• Molecule 16: DNA-directed RNA polymerase II subunit RPB3

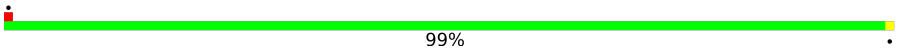
Chain 3:

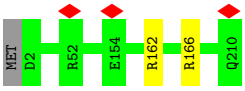




• Molecule 17: DNA-directed RNA polymerase II subunit E

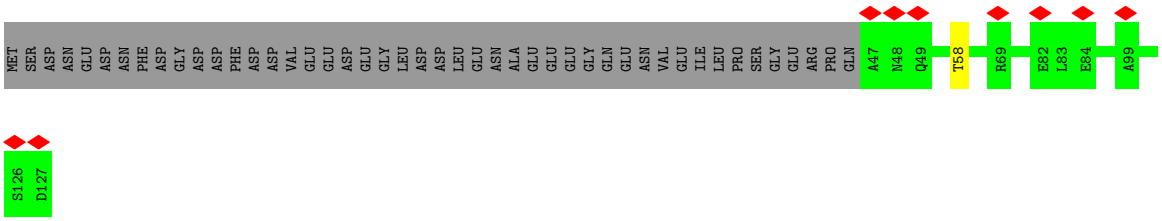
Chain 4:





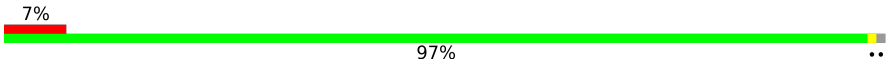
• Molecule 18: DNA-directed RNA polymerase II subunit F

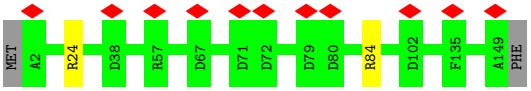
Chain 5:



• Molecule 19: DNA-directed RNA polymerases I, II, and III subunit RPABC3

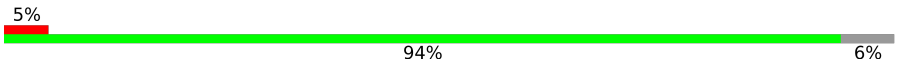
Chain 6:

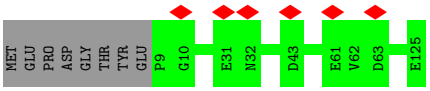




• Molecule 20: DNA-directed RNA polymerase II subunit RPB9

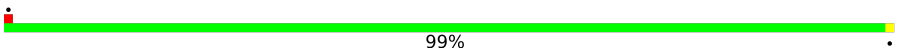
Chain 7:

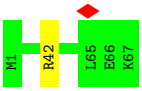




• Molecule 21: DNA-directed RNA polymerases I, II, and III subunit RPABC5

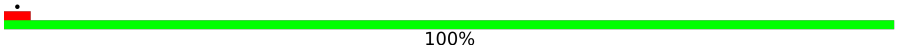
Chain 8:

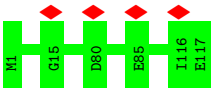




• Molecule 22: RNA_pol_L_2 domain-containing protein

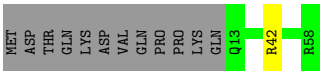
Chain 9:





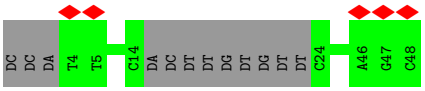
• Molecule 23: RPB12

Chain a:



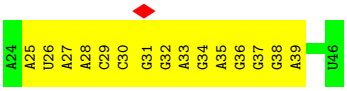
• Molecule 24: non-template DNA

Chain b:



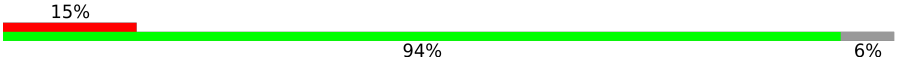
• Molecule 25: RNA

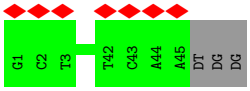
Chain c:



• Molecule 26: template DNA

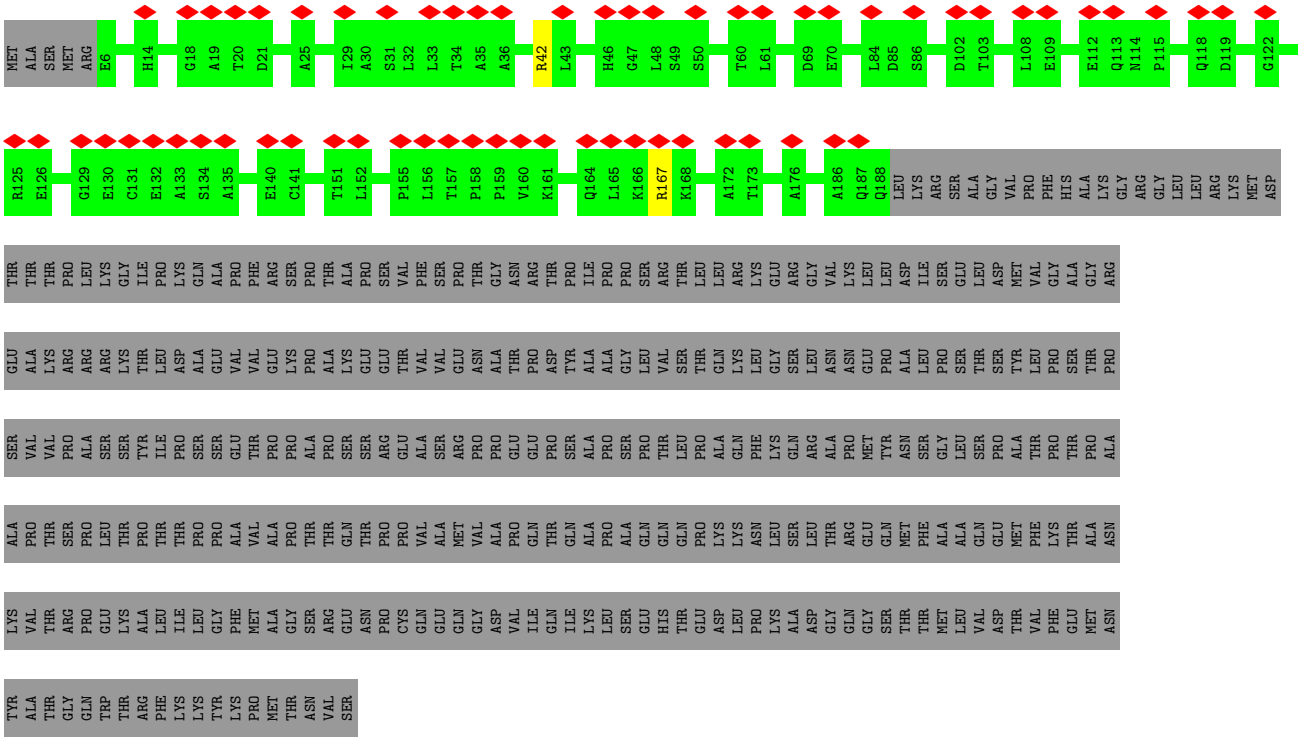
Chain d:





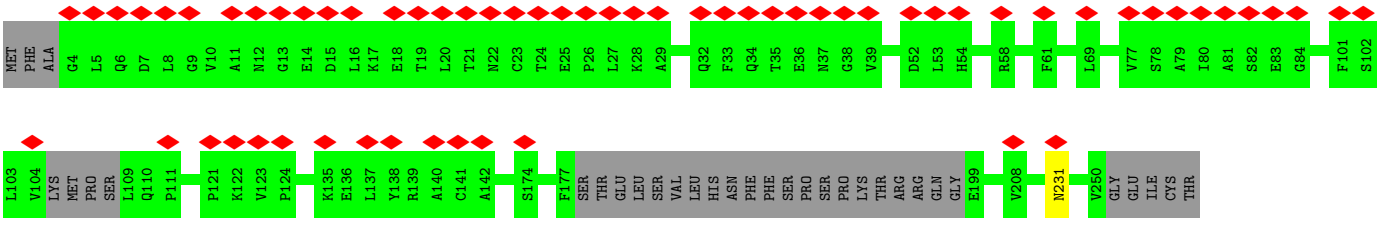
• Molecule 27: Negative elongation factor A

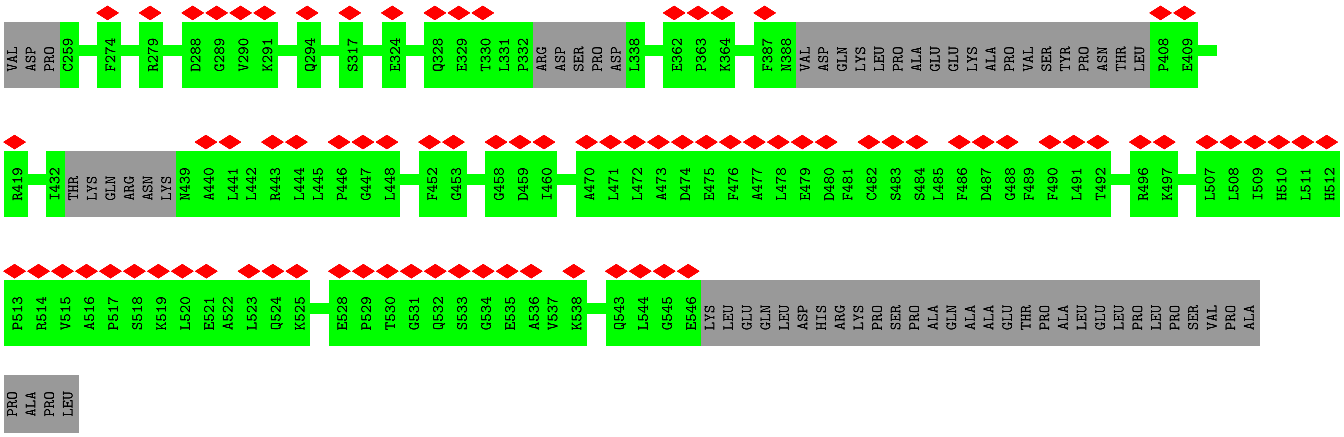
Chain e:



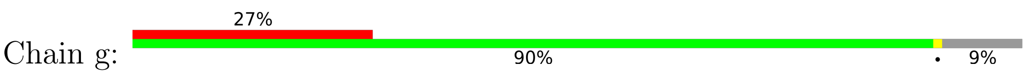
• Molecule 28: Negative elongation factor B

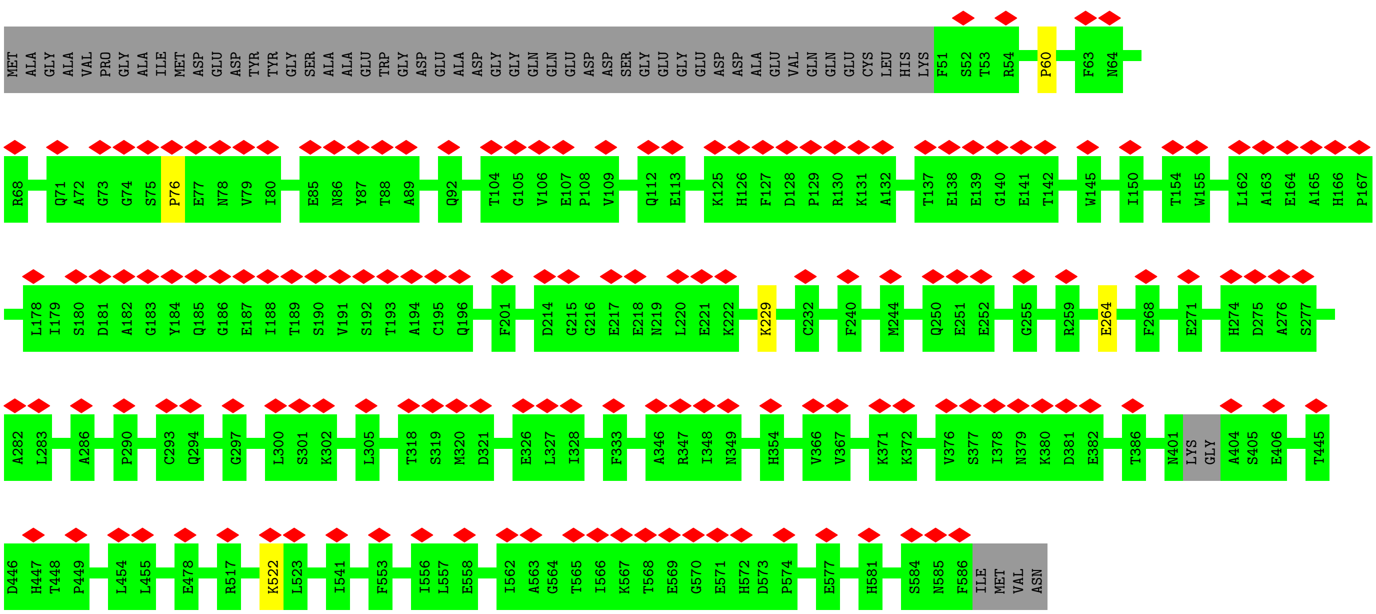
Chain f:



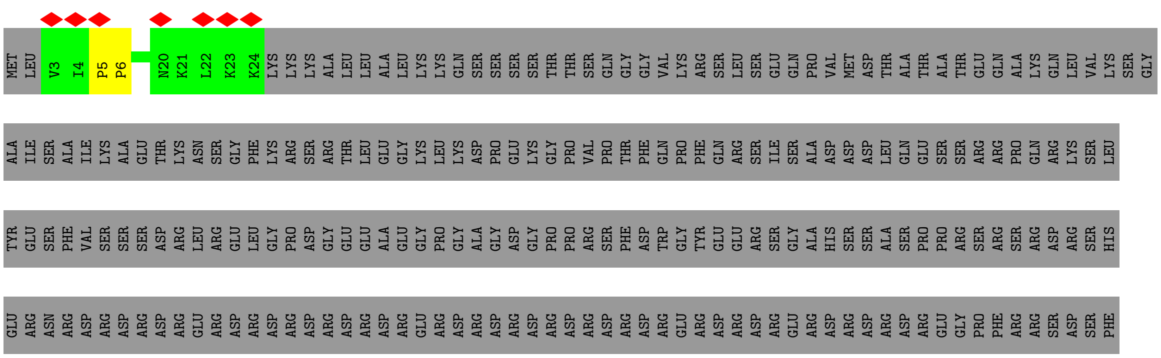


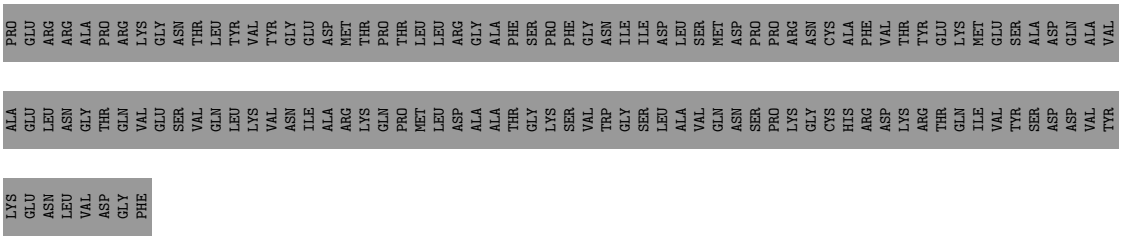
- Molecule 29: Negative elongation factor C/D





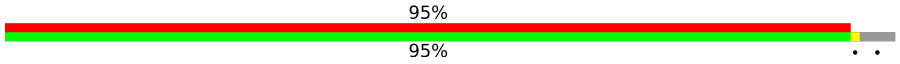
- Molecule 30: Negative elongation factor E

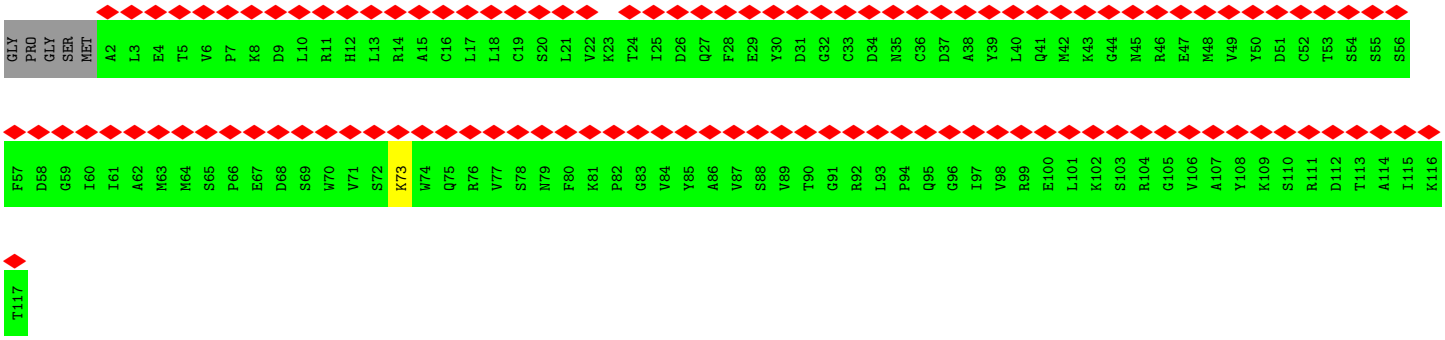




• Molecule 31: Transcription elongation factor SPT4

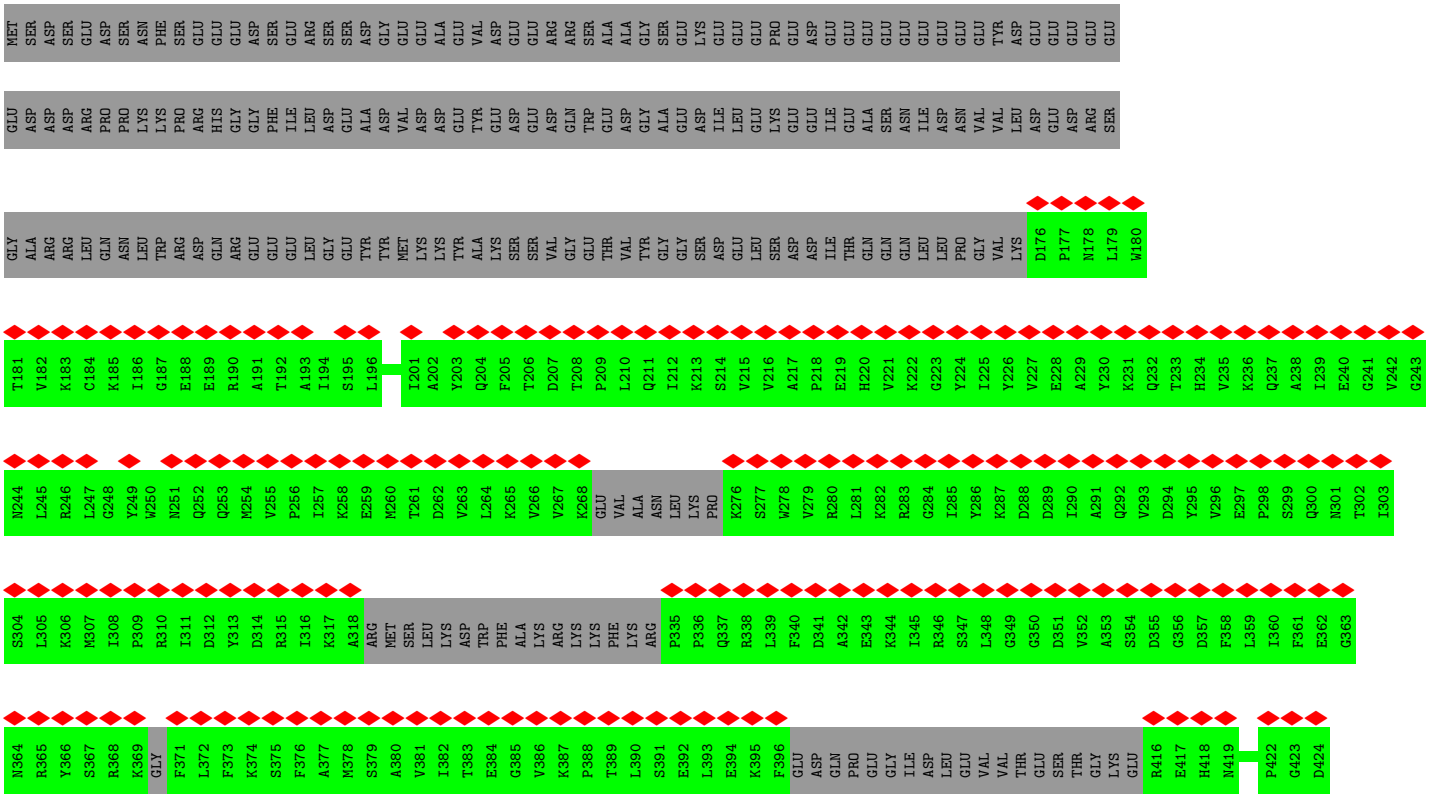
Chain i:

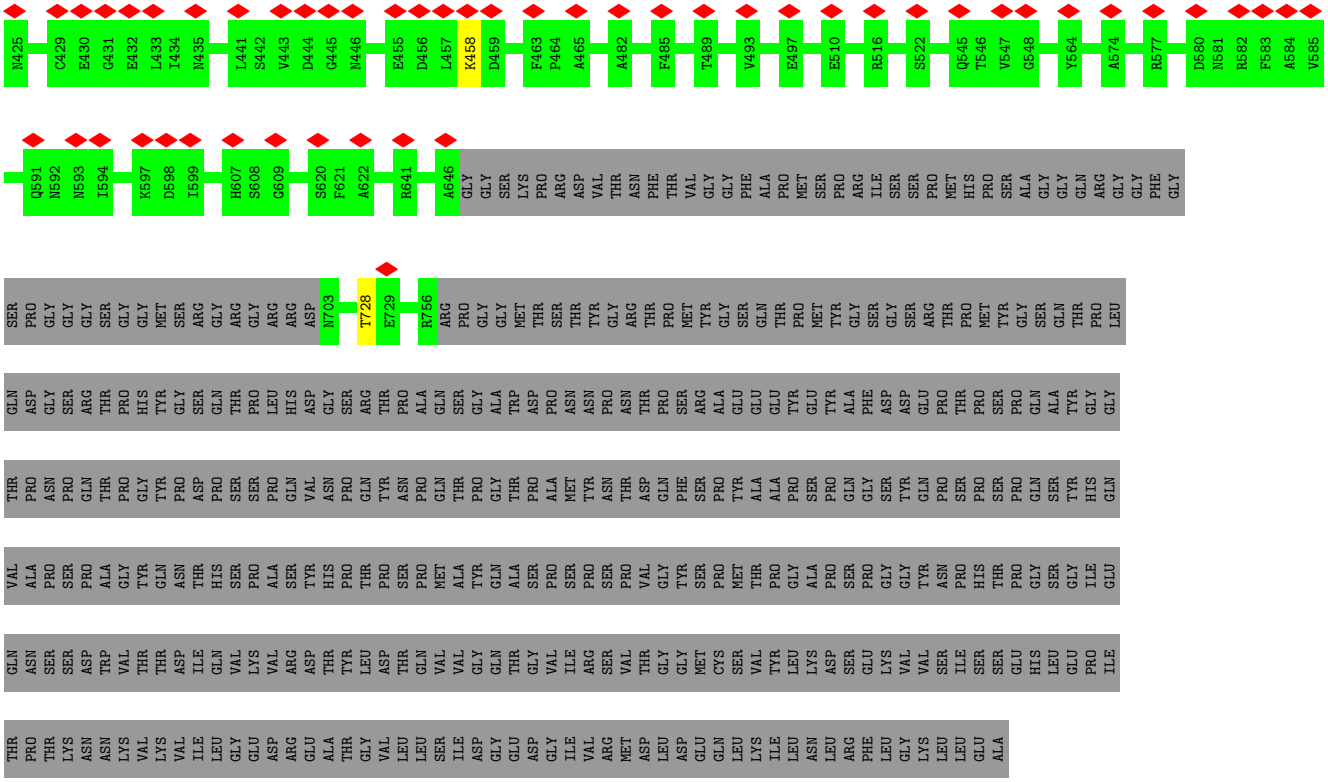




• Molecule 32: Transcription elongation factor SPT5

Chain j:





• Molecule 33: DNA-directed RNA polymerase II subunit RPB7

Chain k:

• Molecule 34: DNA-directed RNA polymerase II subunit RPB4

Chain l:

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	41201	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 ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	1500	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.124	Depositor
Minimum map value	-0.081	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.004	Depositor
Recommended contour level	0.015	Depositor
Map size (Å)	442.68002, 442.68002, 442.68002	wwPDB
Map dimensions	420, 420, 420	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.054, 1.054, 1.054	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: MN, ZN, MG

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	0.26	0/13264	0.46	0/18049
2	B	0.31	0/8474	0.48	0/11498
3	D	0.31	0/6315	0.49	0/8583
4	E	0.26	0/5344	0.47	0/7312
5	F	0.27	0/4508	0.49	0/6131
6	G	0.32	0/7038	0.49	0/9532
7	H	0.27	0/7583	0.46	0/10280
8	I	0.32	0/5110	0.49	0/6959
9	K	0.30	0/4747	0.50	0/6412
11	P	0.27	0/4601	0.47	0/6246
12	Q	0.29	0/2423	0.51	0/3285
14	1	0.31	0/11492	0.52	0/15525
15	2	0.32	0/8823	0.52	0/11947
16	3	0.31	0/2091	0.50	0/2843
17	4	0.26	0/1752	0.52	0/2366
18	5	0.33	0/659	0.54	0/889
19	6	0.30	0/1207	0.56	0/1628
20	7	0.27	0/973	0.50	0/1316
21	8	0.38	0/542	0.54	0/730
22	9	0.28	0/956	0.48	0/1294
23	a	0.31	0/395	0.63	0/524
24	b	0.31	0/846	0.68	0/1304
25	c	0.51	0/450	0.88	1/696 (0.1%)
26	d	0.37	0/1014	0.73	0/1560
27	e	0.24	0/1434	0.47	0/1948
28	f	0.22	0/1913	0.40	0/2379
29	g	0.25	0/3830	0.44	2/5236 (0.0%)
30	h	0.27	0/108	0.74	2/149 (1.3%)
31	i	0.28	0/927	0.55	0/1250
32	j	0.26	0/3920	0.51	0/5276
33	k	0.26	0/1330	0.46	0/1813
34	l	0.25	0/1011	0.46	0/1364

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\#\|Z\|>5$	RMSZ	$\#\|Z\|>5$
All	All	0.29	0/115080	0.50	5/156324 (0.0%)

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
25	c	38	G	C2'-C3'-O3'	5.75	122.90	113.70
29	g	60	PRO	N-CA-CB	5.70	110.14	103.30
30	h	5	PRO	N-CA-CB	5.62	110.05	103.30
30	h	6	PRO	N-CA-CB	5.59	110.01	103.30
29	g	76	PRO	N-CA-CB	5.02	109.33	103.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

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	1755/2190 (80%)	1671 (95%)	82 (5%)	2 (0%)	51 85
2	B	1045/1204 (87%)	998 (96%)	47 (4%)	0	100 100
3	D	814/963 (84%)	754 (93%)	54 (7%)	6 (1%)	22 62
4	E	794/1019 (78%)	734 (92%)	57 (7%)	3 (0%)	34 71
5	F	554/887 (62%)	541 (98%)	13 (2%)	0	100 100
6	G	904/962 (94%)	830 (92%)	70 (8%)	4 (0%)	34 71
7	H	933/995 (94%)	892 (96%)	41 (4%)	0	100 100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
8	I	629/658 (96%)	592 (94%)	37 (6%)	0	100 100
9	K	586/600 (98%)	551 (94%)	33 (6%)	2 (0%)	41 75
11	P	579/589 (98%)	559 (96%)	20 (4%)	0	100 100
12	Q	291/309 (94%)	267 (92%)	24 (8%)	0	100 100
14	1	1425/1970 (72%)	1335 (94%)	86 (6%)	4 (0%)	41 75
15	2	1099/1174 (94%)	995 (90%)	104 (10%)	0	100 100
16	3	255/271 (94%)	239 (94%)	16 (6%)	0	100 100
17	4	207/210 (99%)	201 (97%)	6 (3%)	0	100 100
18	5	79/127 (62%)	77 (98%)	2 (2%)	0	100 100
19	6	146/150 (97%)	135 (92%)	11 (8%)	0	100 100
20	7	115/125 (92%)	111 (96%)	4 (4%)	0	100 100
21	8	65/67 (97%)	61 (94%)	4 (6%)	0	100 100
22	9	115/117 (98%)	108 (94%)	7 (6%)	0	100 100
23	a	44/58 (76%)	40 (91%)	4 (9%)	0	100 100
27	e	181/528 (34%)	177 (98%)	4 (2%)	0	100 100
28	f	466/580 (80%)	451 (97%)	14 (3%)	1 (0%)	47 80
29	g	530/590 (90%)	501 (94%)	29 (6%)	0	100 100
30	h	20/380 (5%)	20 (100%)	0	0	100 100
31	i	114/121 (94%)	111 (97%)	3 (3%)	0	100 100
32	j	470/1087 (43%)	451 (96%)	19 (4%)	0	100 100
33	k	169/172 (98%)	162 (96%)	7 (4%)	0	100 100
34	l	126/142 (89%)	122 (97%)	4 (3%)	0	100 100
All	All	14510/18245 (80%)	13686 (94%)	802 (6%)	22 (0%)	50 80

5 of 22 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	1816	PRO
3	D	63	PRO
3	D	106	SER
3	D	561	MET
4	E	282	ILE

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	1253/1907 (66%)	1248 (100%)	5 (0%)	91	94
2	B	946/1072 (88%)	943 (100%)	3 (0%)	92	95
3	D	617/845 (73%)	613 (99%)	4 (1%)	86	92
4	E	395/812 (49%)	392 (99%)	3 (1%)	81	89
5	F	490/796 (62%)	488 (100%)	2 (0%)	91	94
6	G	744/840 (89%)	738 (99%)	6 (1%)	81	89
7	H	822/896 (92%)	815 (99%)	7 (1%)	78	87
8	I	575/600 (96%)	574 (100%)	1 (0%)	93	96
9	K	505/520 (97%)	500 (99%)	5 (1%)	76	86
11	P	508/512 (99%)	506 (100%)	2 (0%)	91	94
12	Q	259/274 (94%)	259 (100%)	0	100	100
14	1	1239/1736 (71%)	1232 (99%)	7 (1%)	86	92
15	2	908/1027 (88%)	903 (99%)	5 (1%)	86	92
16	3	227/248 (92%)	227 (100%)	0	100	100
17	4	191/192 (100%)	189 (99%)	2 (1%)	76	86
18	5	70/111 (63%)	69 (99%)	1 (1%)	67	80
19	6	129/131 (98%)	127 (98%)	2 (2%)	62	78
20	7	105/112 (94%)	105 (100%)	0	100	100
21	8	56/56 (100%)	55 (98%)	1 (2%)	59	76
22	9	106/106 (100%)	106 (100%)	0	100	100
23	a	43/55 (78%)	42 (98%)	1 (2%)	50	69
27	e	158/451 (35%)	156 (99%)	2 (1%)	69	82
29	g	339/513 (66%)	336 (99%)	3 (1%)	78	87
31	i	102/105 (97%)	101 (99%)	1 (1%)	76	86
32	j	425/940 (45%)	423 (100%)	2 (0%)	88	93
33	k	136/153 (89%)	134 (98%)	2 (2%)	65	79

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
34	l	104/126 (82%)	103 (99%)	1 (1%)	76 86
All	All	11452/15136 (76%)	11384 (99%)	68 (1%)	86 92

5 of 68 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
27	e	42	ARG
29	g	229	LYS
33	k	78	ARG
7	H	493	LYS
7	H	162	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 33 such sidechains are listed below:

Mol	Chain	Res	Type
15	2	1117	HIS
15	2	1129	ASN
34	l	47	GLN
5	F	462	GLN
5	F	225	GLN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
25	c	22/23 (95%)	14 (63%)	0

5 of 14 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
25	c	25	A
25	c	26	U
25	c	27	A
25	c	28	A
25	c	29	C

There are no RNA pucker outliers to report.

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 13 ligands modelled in this entry, 13 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

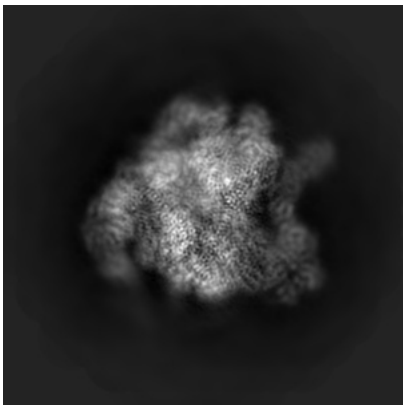
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-33741. These allow visual inspection of the internal detail of the map and identification of artifacts.

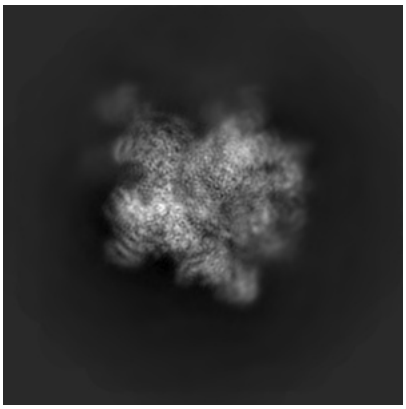
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

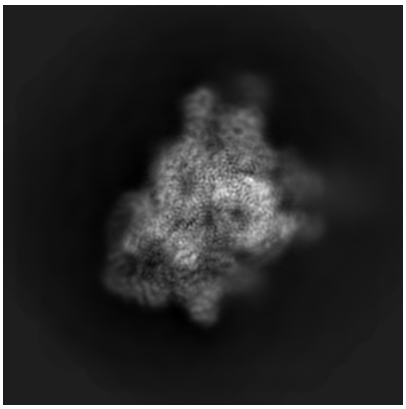
6.1.1 Primary map



X

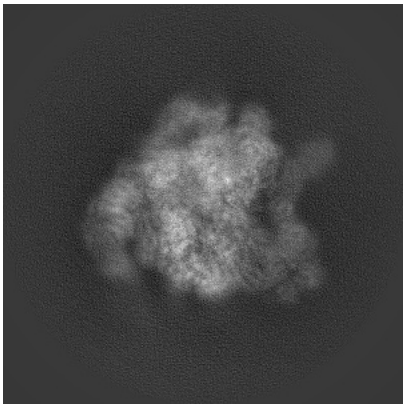


Y

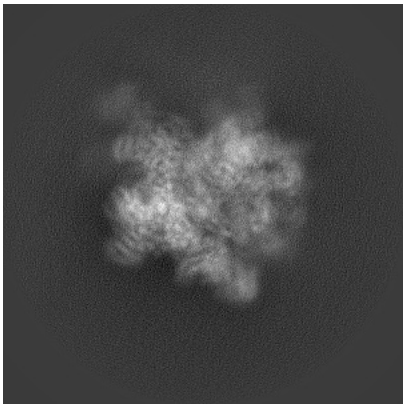


Z

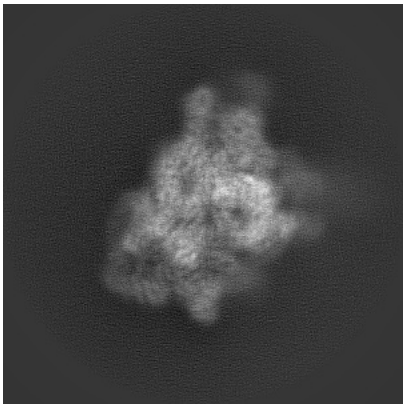
6.1.2 Raw map



X



Y

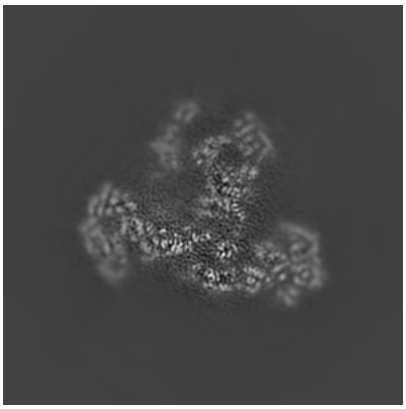


Z

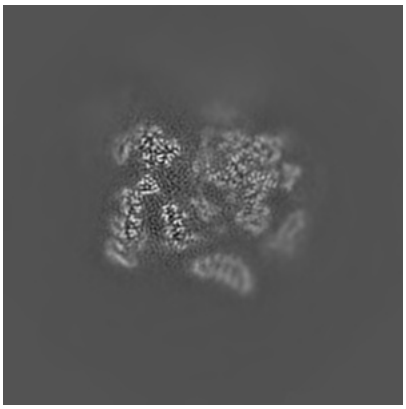
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

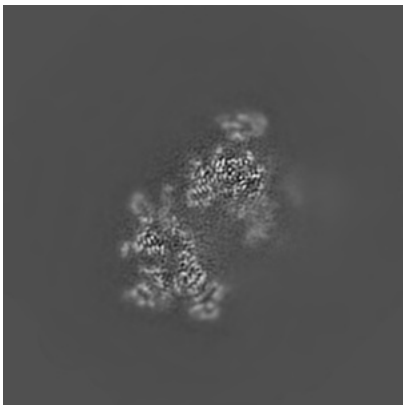
6.2.1 Primary map



X Index: 210

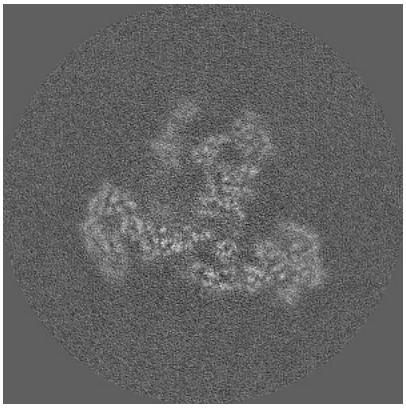


Y Index: 210

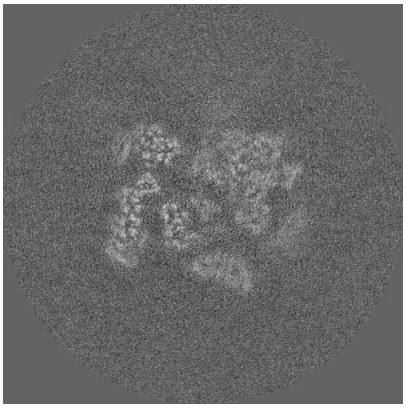


Z Index: 210

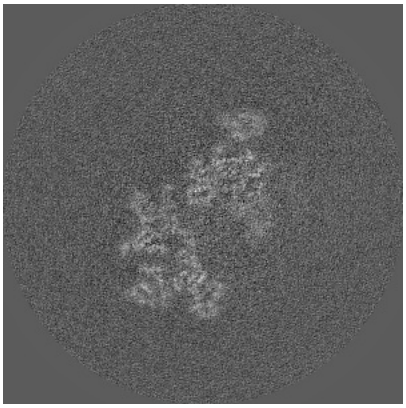
6.2.2 Raw map



X Index: 210



Y Index: 210

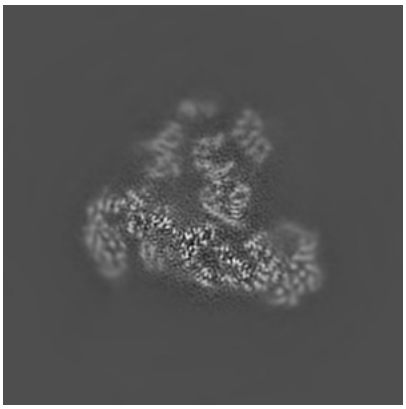


Z Index: 210

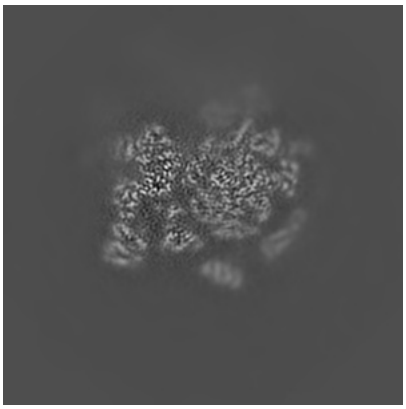
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

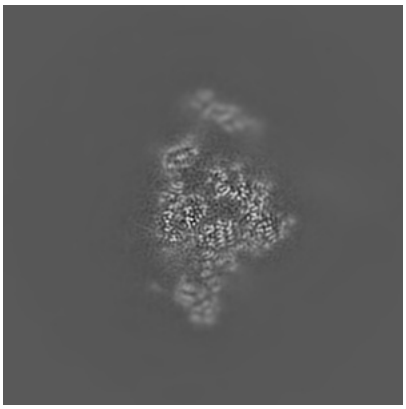
6.3.1 Primary map



X Index: 203

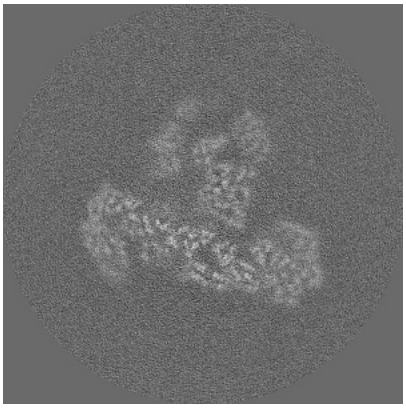


Y Index: 220

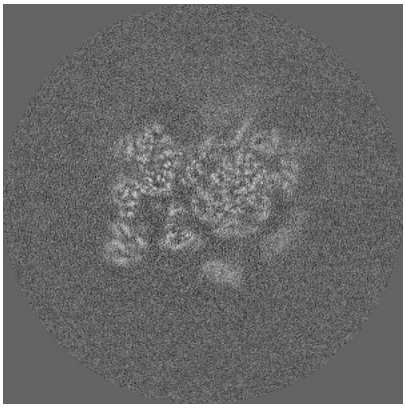


Z Index: 174

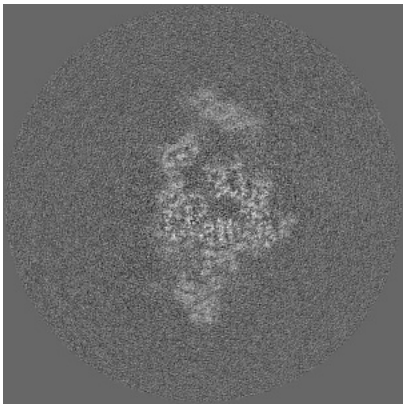
6.3.2 Raw map



X Index: 207



Y Index: 220

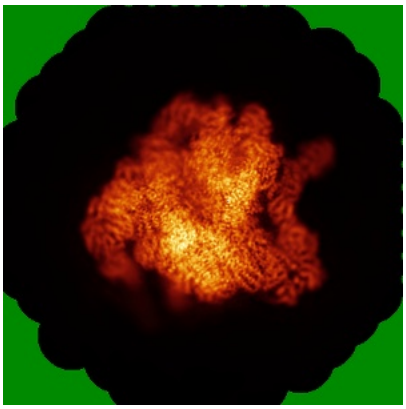


Z Index: 174

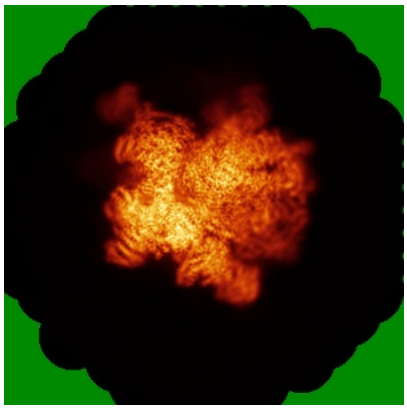
The images above show the largest variance slices of the map in three orthogonal directions.

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

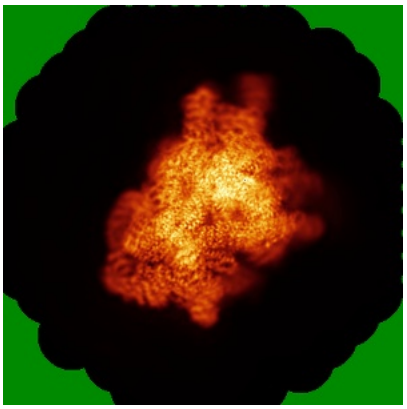
6.4.1 Primary map



X

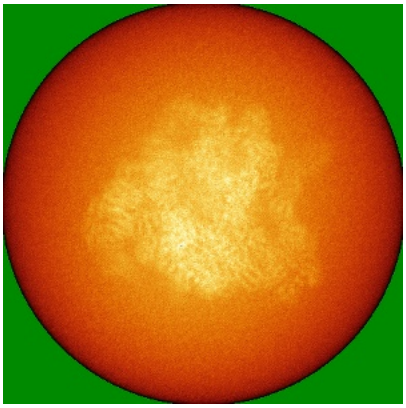


Y

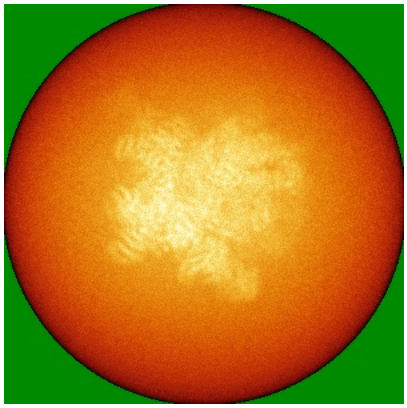


Z

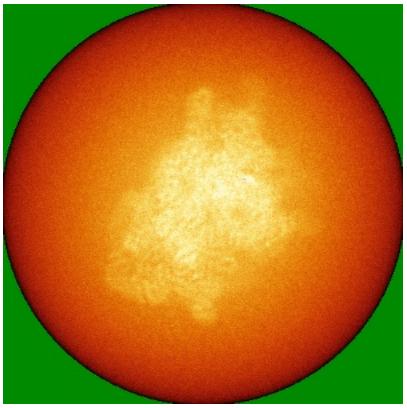
6.4.2 Raw map



X



Y

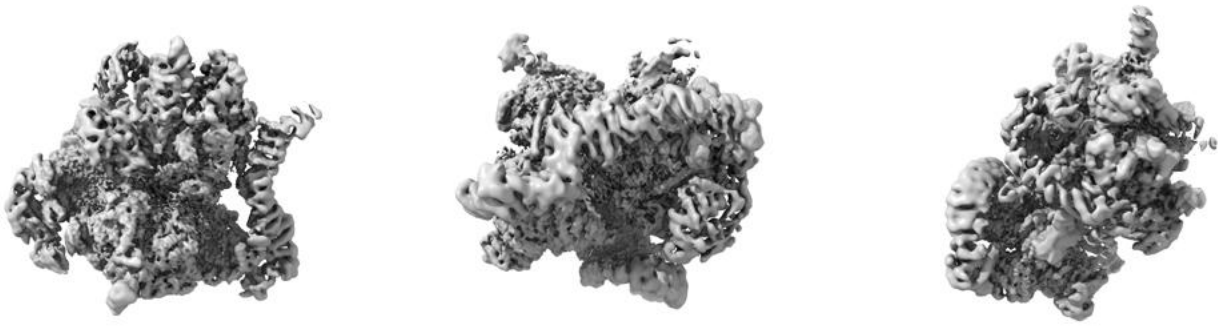


Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views (i)

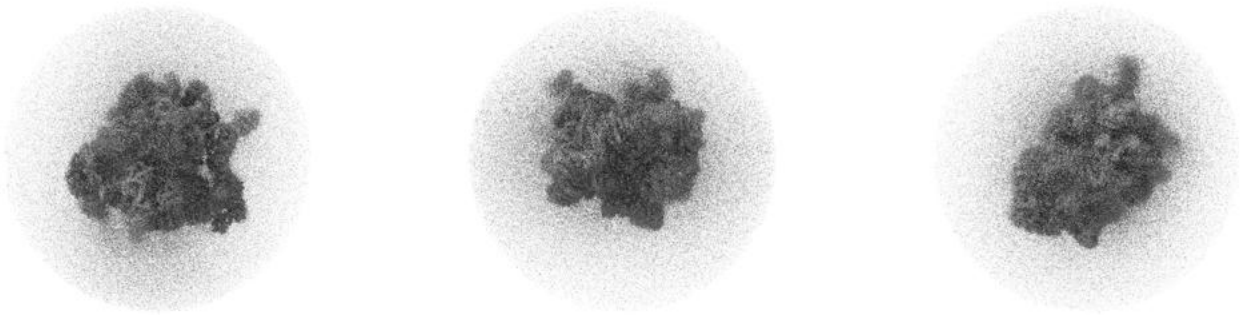
6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.015. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



X Y Z

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

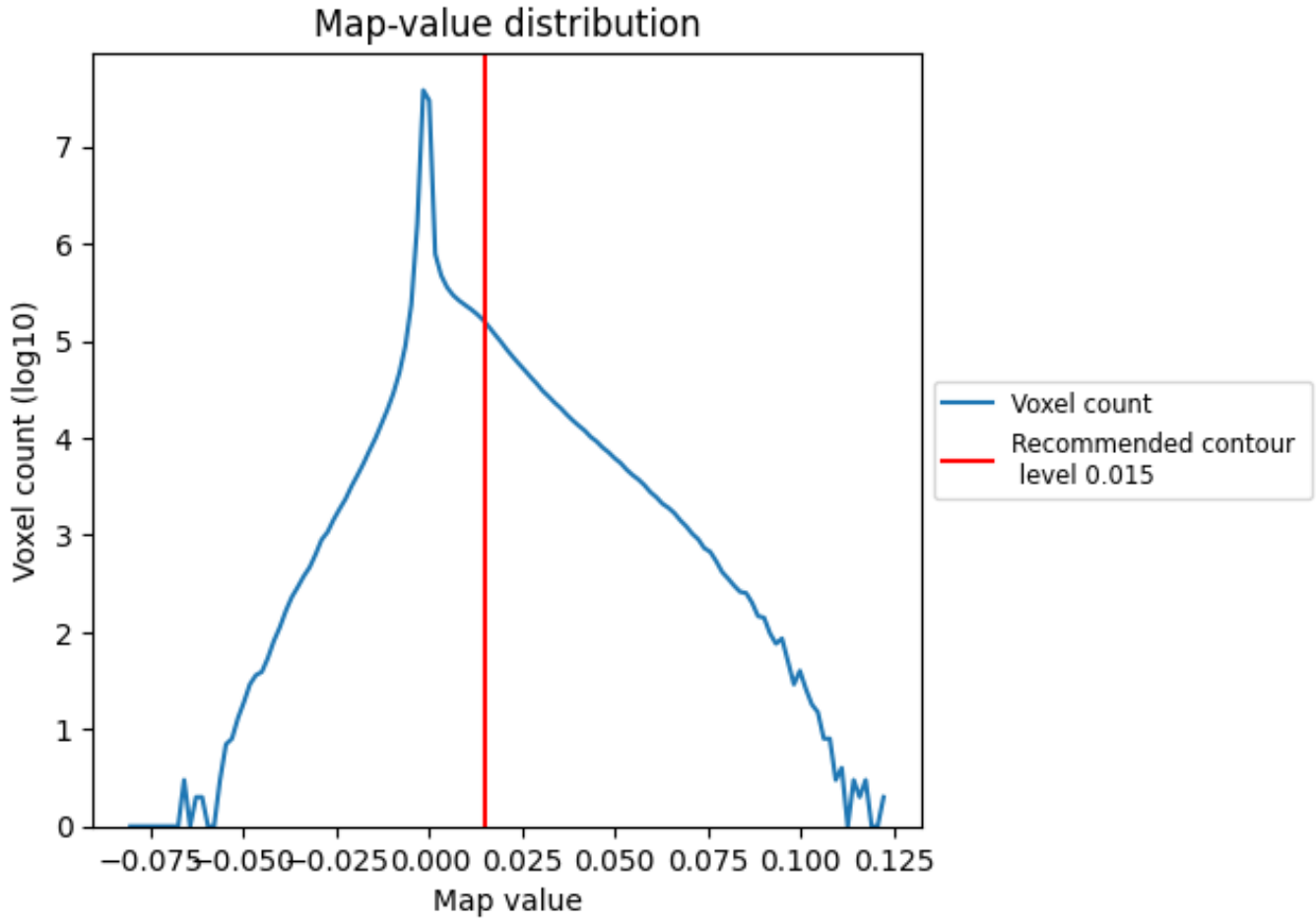
6.6 Mask visualisation (i)

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

7 Map analysis

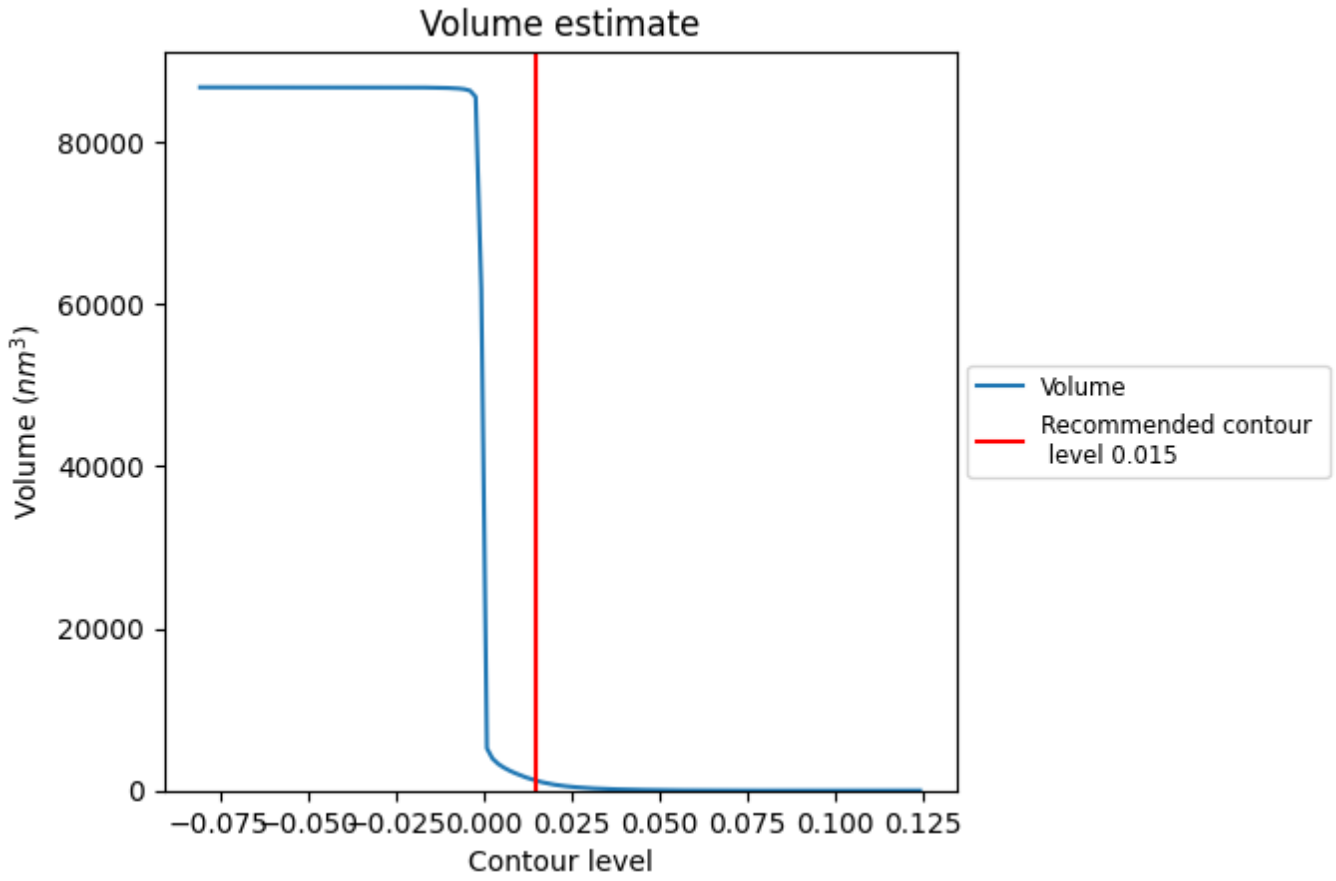
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

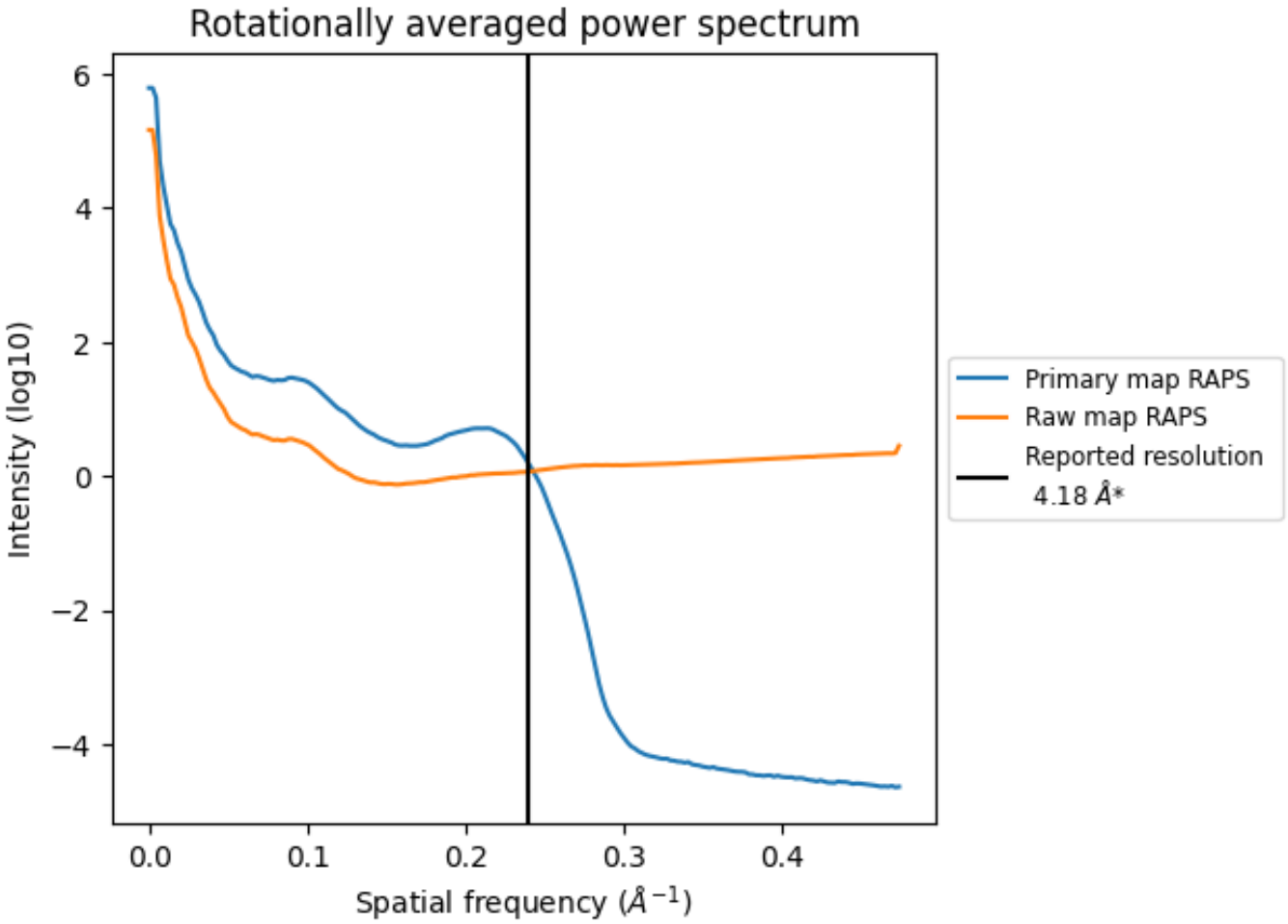
7.2 Volume estimate (i)



The volume at the recommended contour level is 1216 nm^3; this corresponds to an approximate mass of 1099 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)

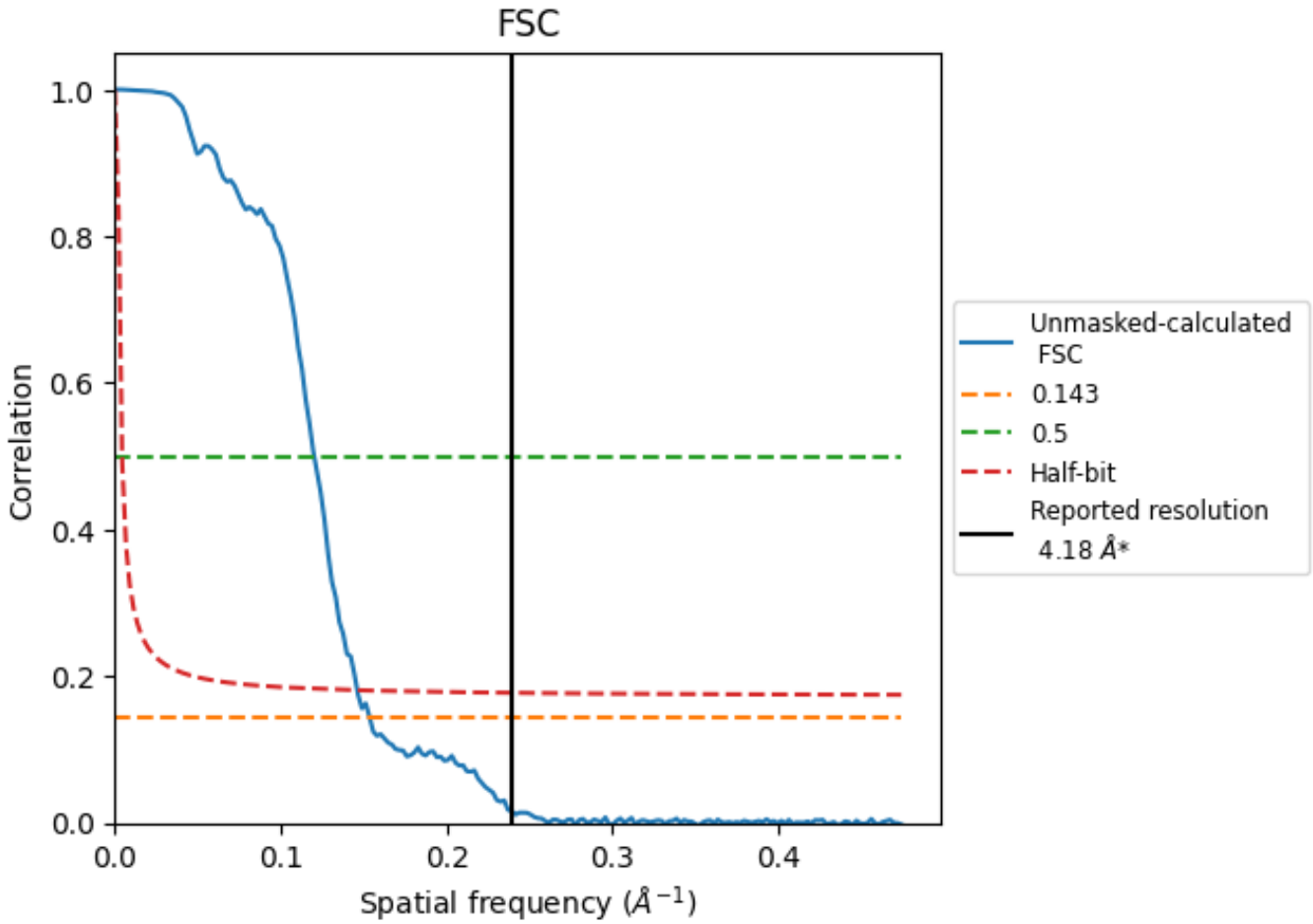


*Reported resolution corresponds to spatial frequency of 0.239 Å^{-1}

8 Fourier-Shell correlation

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

8.1 FSC



*Reported resolution corresponds to spatial frequency of 0.239 Å^{-1}

8.2 Resolution estimates (i)

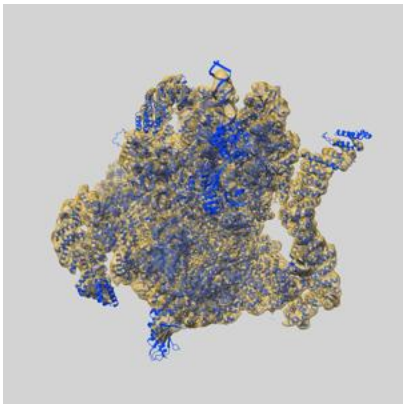
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.18	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	6.50	8.31	6.84

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 6.50 differs from the reported value 4.18 by more than 10 %

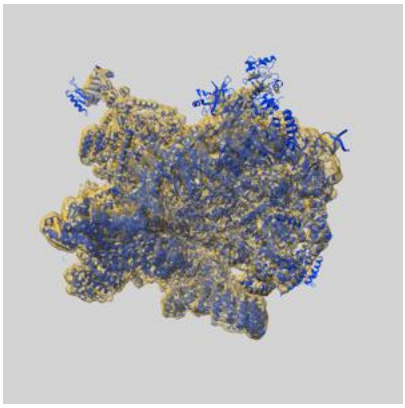
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-33741 and PDB model 7YCX. Per-residue inclusion information can be found in section 3 on page 11.

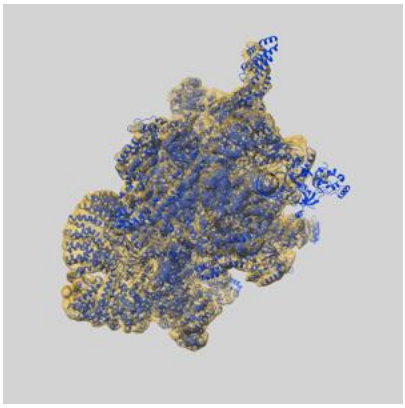
9.1 Map-model overlay



X



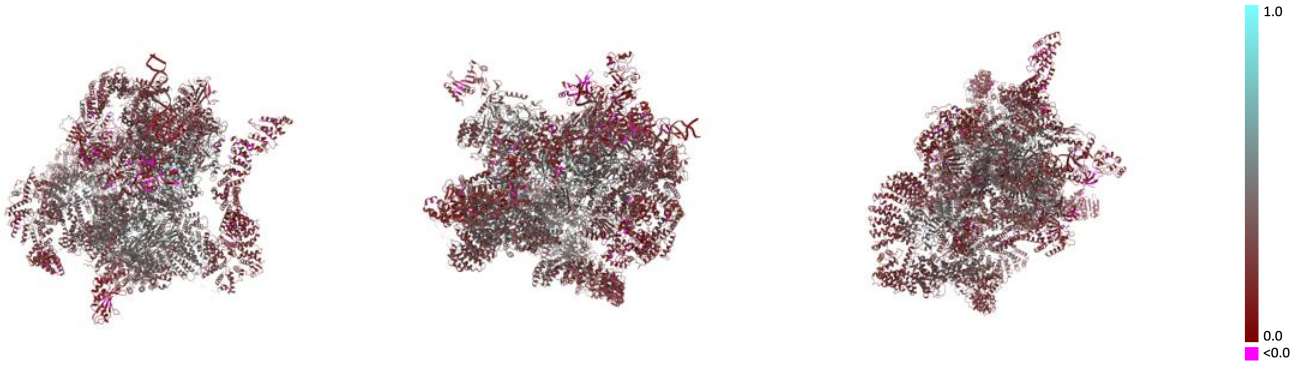
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.015 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

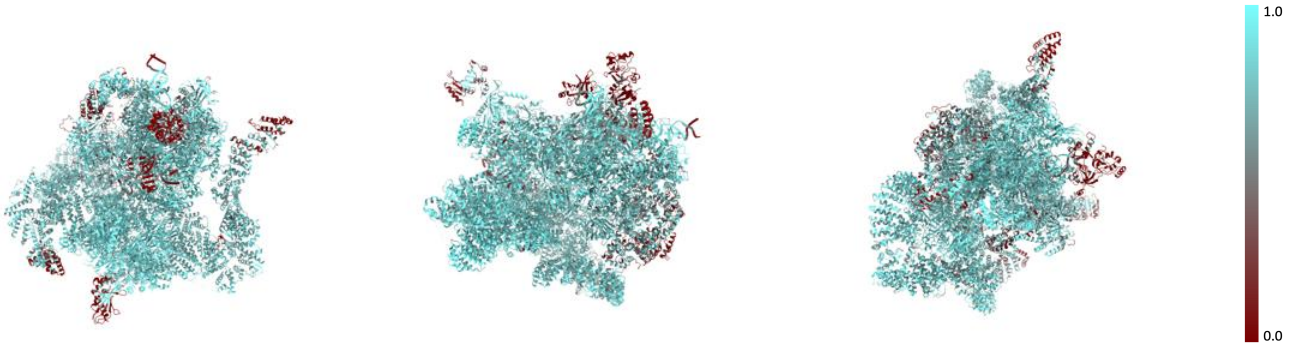
9.2 Q-score mapped to coordinate model (i)



X Y Z

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

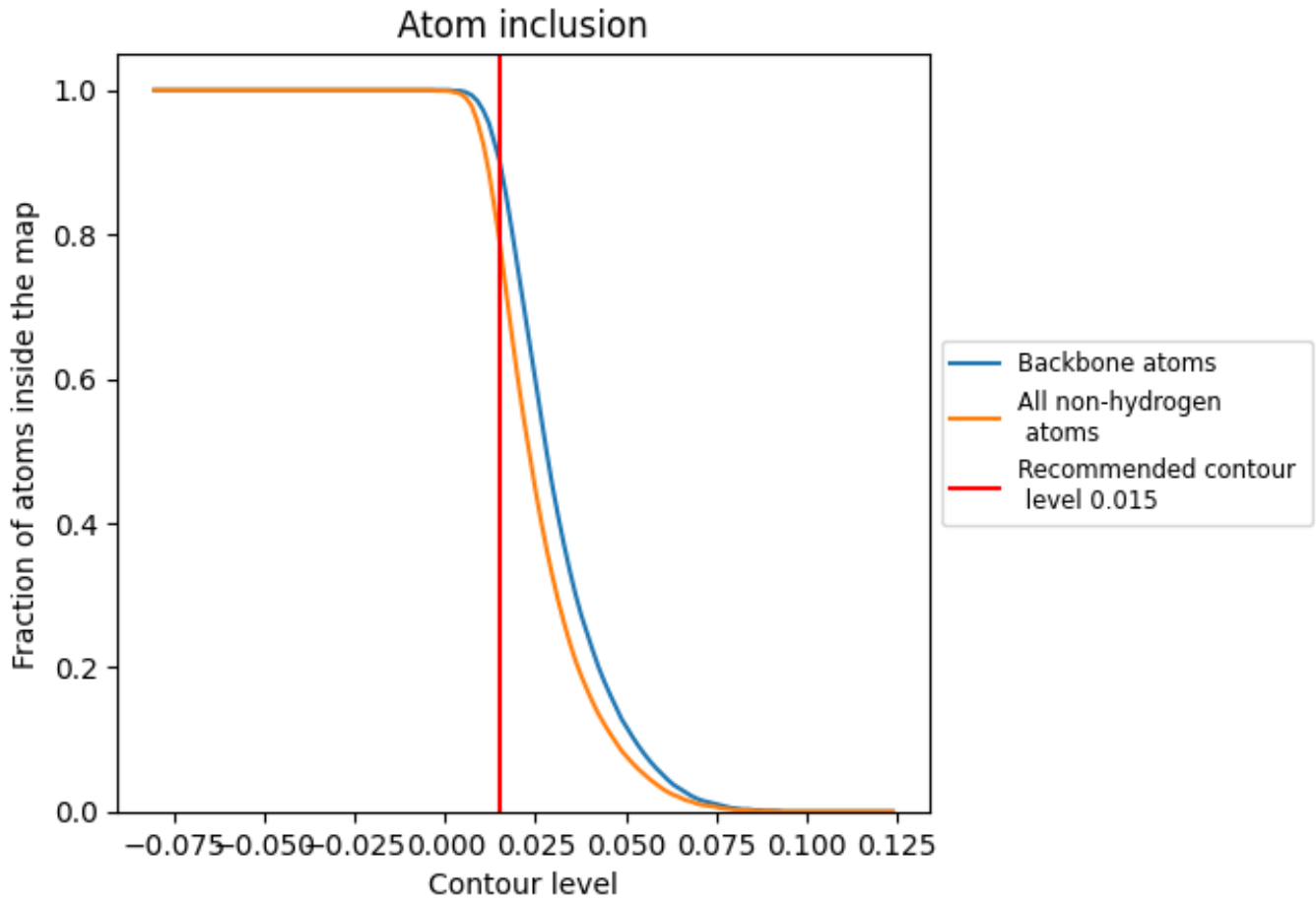
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.015).

9.4 Atom inclusion (i)



At the recommended contour level, 90% of all backbone atoms, 79% 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 (0.015) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7930	0.3110
1	0.8490	0.3500
2	0.8960	0.4060
3	0.8970	0.4240
4	0.8170	0.2900
5	0.7870	0.3040
6	0.7760	0.2510
7	0.8220	0.2580
8	0.9190	0.4570
9	0.8390	0.3640
A	0.7480	0.2340
B	0.8730	0.3770
D	0.9070	0.4000
E	0.7750	0.2950
F	0.7790	0.2680
G	0.9070	0.4090
H	0.8120	0.2520
I	0.8410	0.3820
K	0.7610	0.3240
M	0.9650	0.2830
P	0.8260	0.2400
Q	0.8950	0.3830
U	0.9410	0.4100
a	0.9140	0.4090
b	0.7000	0.1950
c	0.8100	0.2900
d	0.7810	0.2390
e	0.5240	0.1810
f	0.6490	0.2700
g	0.5480	0.2040
h	0.5780	0.2680
i	0.0210	0.1200
j	0.3860	0.1780
k	0.7400	0.2080
l	0.7450	0.1850