WORLDWIDE

wwPDB

PROTEIN DATA BANK

wwPDB EM Validation Summary Report (i)

Nov 25, 2025 – 04:04 PM EST

PDB ID	:	9E7Y / pdb_00009e7y
EMDB ID	:	EMD-47695
Title	:	De Novo Mycobacterium tuberculosis transcription initiation promoter complex with 7-mer RNA and disordered Beta' Lid element (RNA Polymerase with Sigma-A, CarD, and RbpA)
Authors	:	Brewer, J.J.; Campbell, E.A.; Darst, S.A.
Deposited on	:	2024-11-04
Resolution	:	4.20 Å(reported)

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

|		
EMDB validation analysis	:	0.0.1.dev129
Mogul	:	2022.3.0, CSD as543be (2022)
MolProbity	:	4-5-2 with Phenix2.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.46

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 4.20 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	Percentile Ranks	Value
Clashscore		9
Ramachandran outliers		0.1%
Sidechain outliers		0.5%
RNA backbone		0.76

Worse   *Better*

▮ Percentile relative to all structures
▯ Percentile relative to all EM structures

Metric	Model-Map Fit Percentile Ranks	Value
Q-score		0.243

Worse   *Better*

▮ Percentile relative to all EM structures
▯ Percentile relative to EM structures of similar resolution

Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
RNA backbone	6643	2191	-
Q-score	-	25397	5410 (3.70 - 4.70)

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	347	5% / 53% / 12% / 35%
1	B	347	5% / 53% / 13% / 34%
2	C	1177	8% / 73% / 21% / 5%

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Mol	Chain	Length	Quality of chain
3	D	1333	10% / 73% / 21% / 6%
4	E	110	13% / 65% / 9% / · / 25%
5	F	550	28% / 45% / 12% / 43%
6	J	111	41% / 64% / 18% / ·· / 16%
7	M	285	37% / 40% / 16% / 44%
8	N	127	13% / 38% / 7% / 55%
9	R	21	10% / 24% / 67%
10	T	127	17% / 33% / 13% / 54%
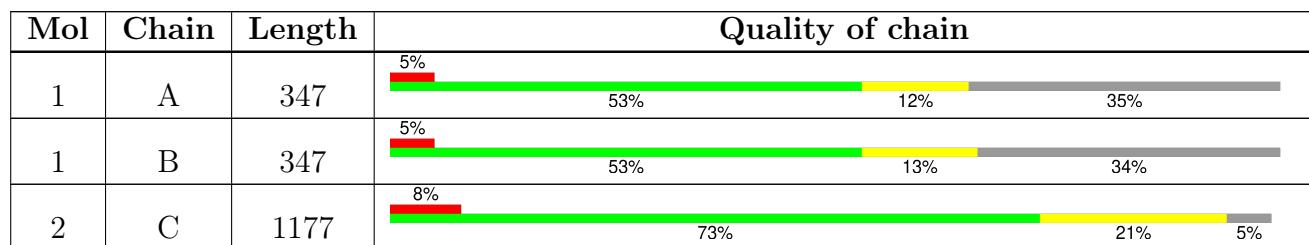
2 Entry composition ⓘ

There are 13 unique types of molecules in this entry. The entry contains 29409 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 subunit alpha.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	225	Total 1716	C 1080	N 296	O 338	S 2	0	0
1	B	228	Total 1706	C 1078	N 292	O 334	S 2	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
2	C	1113	Total 8620	C 5398	N 1512	O 1671	S 39	0	0

- Molecule 3 is a protein called DNA-directed RNA polymerase subunit beta'.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	D	1254	Total 9777	C 6126	N 1770	O 1841	S 40	0	0

There are 17 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
D	-8	LEU	-	expression tag	UNP P0A675
D	-7	ALA	-	expression tag	UNP P0A675
D	-6	ARG	-	expression tag	UNP P0A675
D	-5	HIS	-	expression tag	UNP P0A675
D	-4	GLY	-	expression tag	UNP P0A675
D	-3	GLY	-	expression tag	UNP P0A675
D	-2	SER	-	expression tag	UNP P0A675
D	-1	GLY	-	expression tag	UNP P0A675
D	0	ALA	-	expression tag	UNP P0A675
D	1317	HIS	-	expression tag	UNP P0A675
D	1318	HIS	-	expression tag	UNP P0A675
D	1319	HIS	-	expression tag	UNP P0A675
D	1320	HIS	-	expression tag	UNP P0A675

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Chain	Residue	Modelled	Actual	Comment	Reference
D	1321	HIS	-	expression tag	UNP P0A675
D	1322	HIS	-	expression tag	UNP P0A675
D	1323	HIS	-	expression tag	UNP P0A675
D	1324	HIS	-	expression tag	UNP P0A675

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

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
4	E	82	645	412	107	126	0	0

- Molecule 5 is a protein called RNA polymerase sigma factor SigA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	F	311	2422	1518	434	462	8	0	0

There are 22 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
F	-21	HIS	-	expression tag	UNP P0A603
F	-20	HIS	-	expression tag	UNP P0A603
F	-19	HIS	-	expression tag	UNP P0A603
F	-18	HIS	-	expression tag	UNP P0A603
F	-17	HIS	-	expression tag	UNP P0A603
F	-16	HIS	-	expression tag	UNP P0A603
F	-15	HIS	-	expression tag	UNP P0A603
F	-14	HIS	-	expression tag	UNP P0A603
F	-13	HIS	-	expression tag	UNP P0A603
F	-12	HIS	-	expression tag	UNP P0A603
F	-11	SER	-	expression tag	UNP P0A603
F	-10	SER	-	expression tag	UNP P0A603
F	-9	GLY	-	expression tag	UNP P0A603
F	-8	LEU	-	expression tag	UNP P0A603
F	-7	GLU	-	expression tag	UNP P0A603
F	-6	VAL	-	expression tag	UNP P0A603
F	-5	LEU	-	expression tag	UNP P0A603
F	-4	PHE	-	expression tag	UNP P0A603
F	-3	GLN	-	expression tag	UNP P0A603
F	-2	GLY	-	expression tag	UNP P0A603
F	-1	PRO	-	expression tag	UNP P0A603
F	0	HIS	-	expression tag	UNP P0A603

- Molecule 6 is a protein called RNA polymerase-binding protein RbpA.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	J	93	Total 765	C 472	N 144	O 146	S 3	0	0

- Molecule 7 is a protein called Ubiquitin-like protein SMT3,RNA polymerase-binding transcription factor CarD.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	M	159	Total 1241	C 777	N 224	O 239	S 1	0	0

There are 25 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
M	-122	MET	-	expression tag	UNP Q12306
M	-121	GLY	-	expression tag	UNP Q12306
M	-120	HIS	-	expression tag	UNP Q12306
M	-119	HIS	-	expression tag	UNP Q12306
M	-118	HIS	-	expression tag	UNP Q12306
M	-117	HIS	-	expression tag	UNP Q12306
M	-116	HIS	-	expression tag	UNP Q12306
M	-115	HIS	-	expression tag	UNP Q12306
M	-114	HIS	-	expression tag	UNP Q12306
M	-113	HIS	-	expression tag	UNP Q12306
M	-112	HIS	-	expression tag	UNP Q12306
M	-111	HIS	-	expression tag	UNP Q12306
M	-110	SER	-	expression tag	UNP Q12306
M	-109	SER	-	expression tag	UNP Q12306
M	-108	GLY	-	expression tag	UNP Q12306
M	-107	HIS	-	expression tag	UNP Q12306
M	-106	ILE	-	expression tag	UNP Q12306
M	-105	GLU	-	expression tag	UNP Q12306
M	-104	GLY	-	expression tag	UNP Q12306
M	-103	ARG	-	expression tag	UNP Q12306
M	-102	HIS	-	expression tag	UNP Q12306
M	-101	MET	-	expression tag	UNP Q12306
M	-100	ALA	-	expression tag	UNP Q12306
M	-99	SER	-	expression tag	UNP Q12306
M	0	SER	-	linker	UNP Q12306

- Molecule 8 is a DNA chain called DNA (57-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
8	N	57	Total	C	N	O	P	0	0
			1174	559	224	334	57		

- Molecule 9 is a RNA chain called RNA (5'-R(P*AP*GP*AP*GP*GP*UP*A)-3').

Mol	Chain	Residues	Atoms					AltConf	Trace
9	R	7	Total	C	N	O	P	0	0
			155	69	33	46	7		

- Molecule 10 is a DNA chain called DNA (58-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
10	T	58	Total	C	N	O	P	0	0
			1176	564	195	359	58		

- Molecule 11 is PYROPHOSPHATE 2- (CCD ID: POP) (formula: $H_2O_7P_2$).
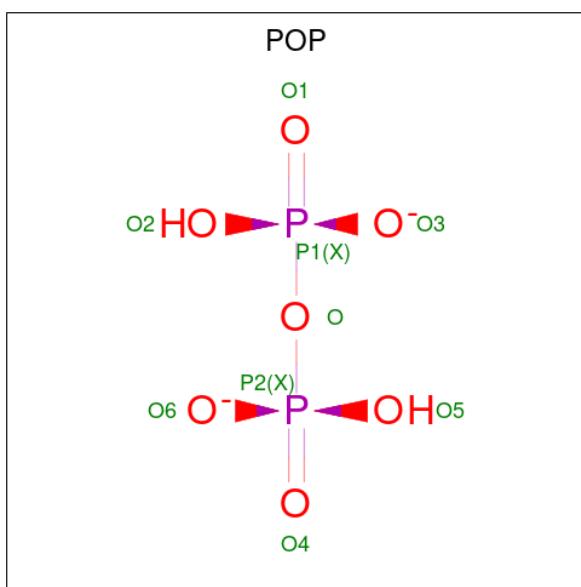
Mol	Chain	Residues	Atoms			AltConf
11	C	1	Total	O	P	0
			9	7	2	

- Molecule 12 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
12	D	2	Total	Zn	0
			2	2	

• Molecule 13 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
13	D	1	Total Mg 1 1		0

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 subunit alpha
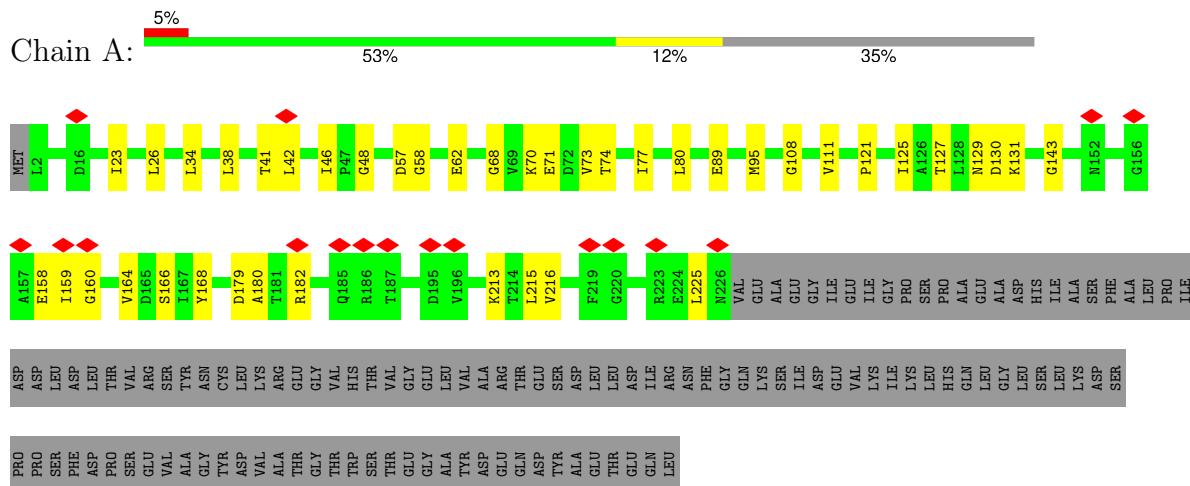
- Molecule 1: DNA-directed RNA polymerase subunit alpha
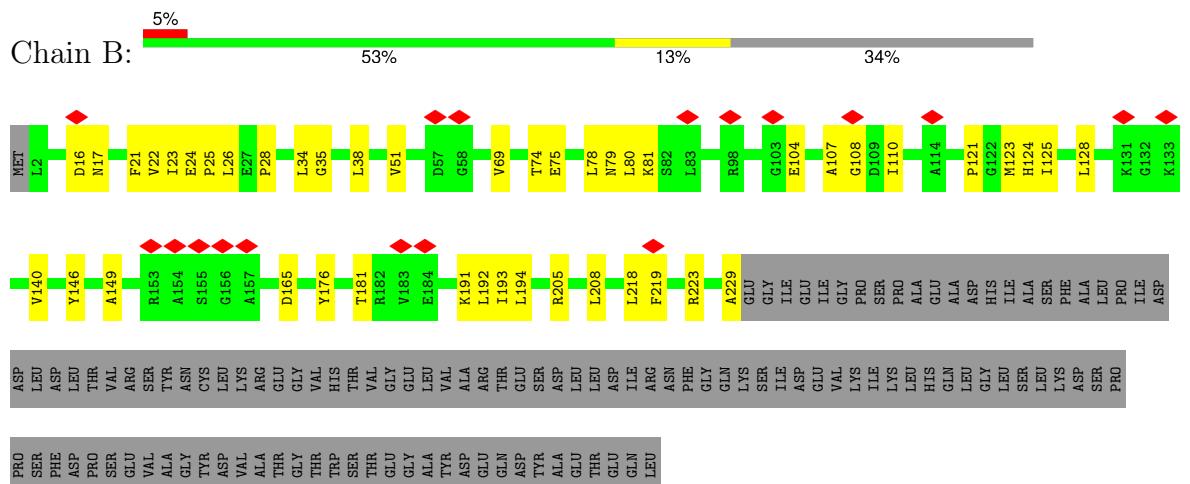
- Molecule 2: DNA-directed RNA polymerase subunit beta
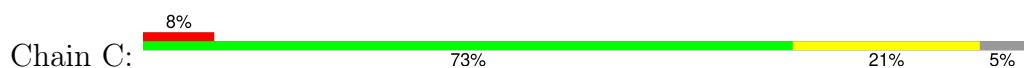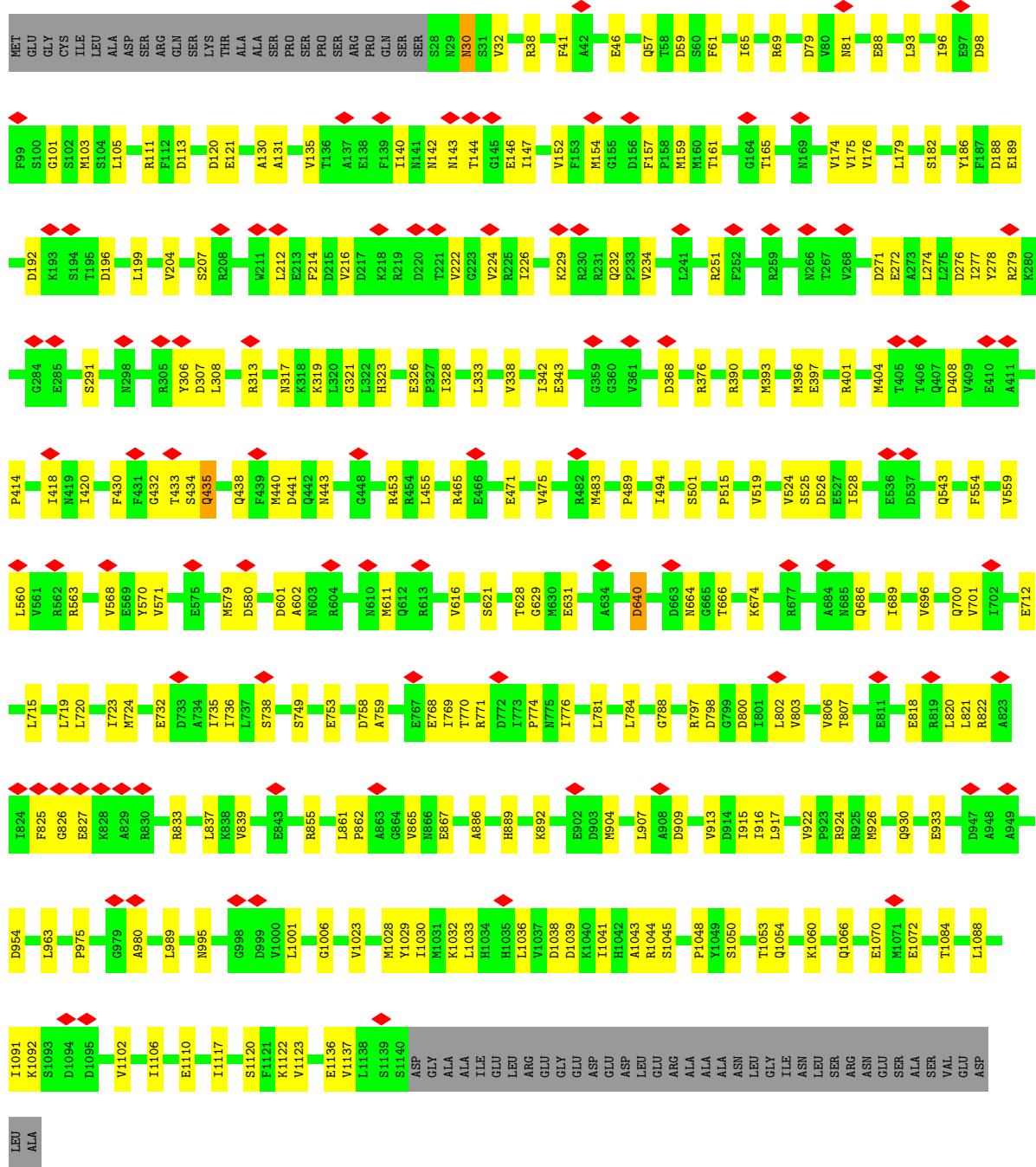
• Molecule 3: DNA-directed RNA polymerase subunit beta'

Chain D:
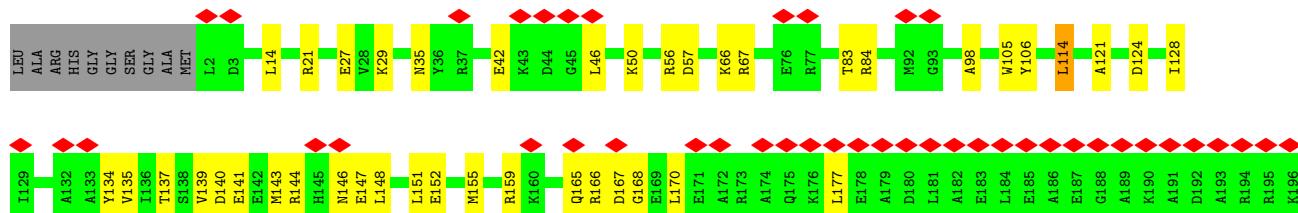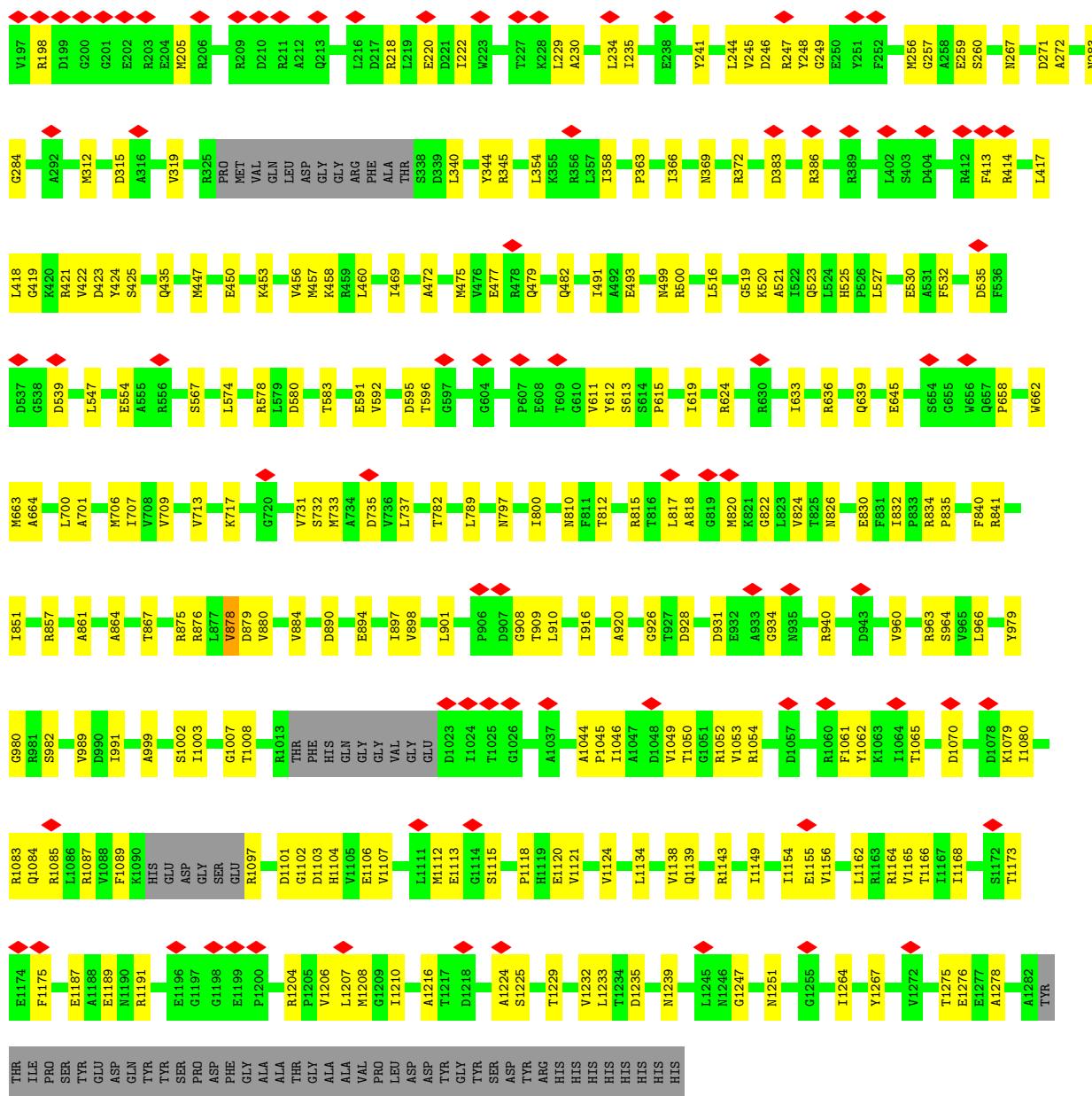
• Molecule 4: DNA-directed RNA polymerase subunit omega
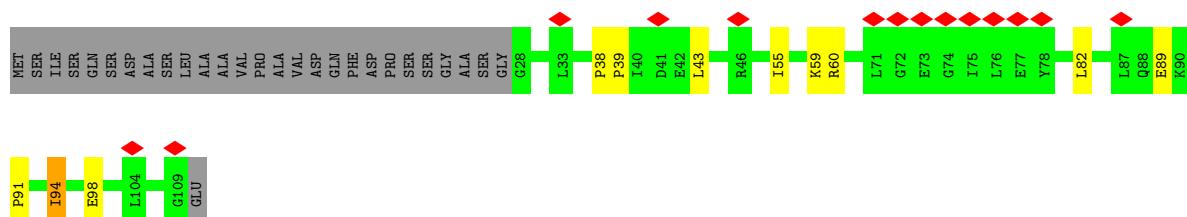
• Molecule 5: RNA polymerase sigma factor SigA
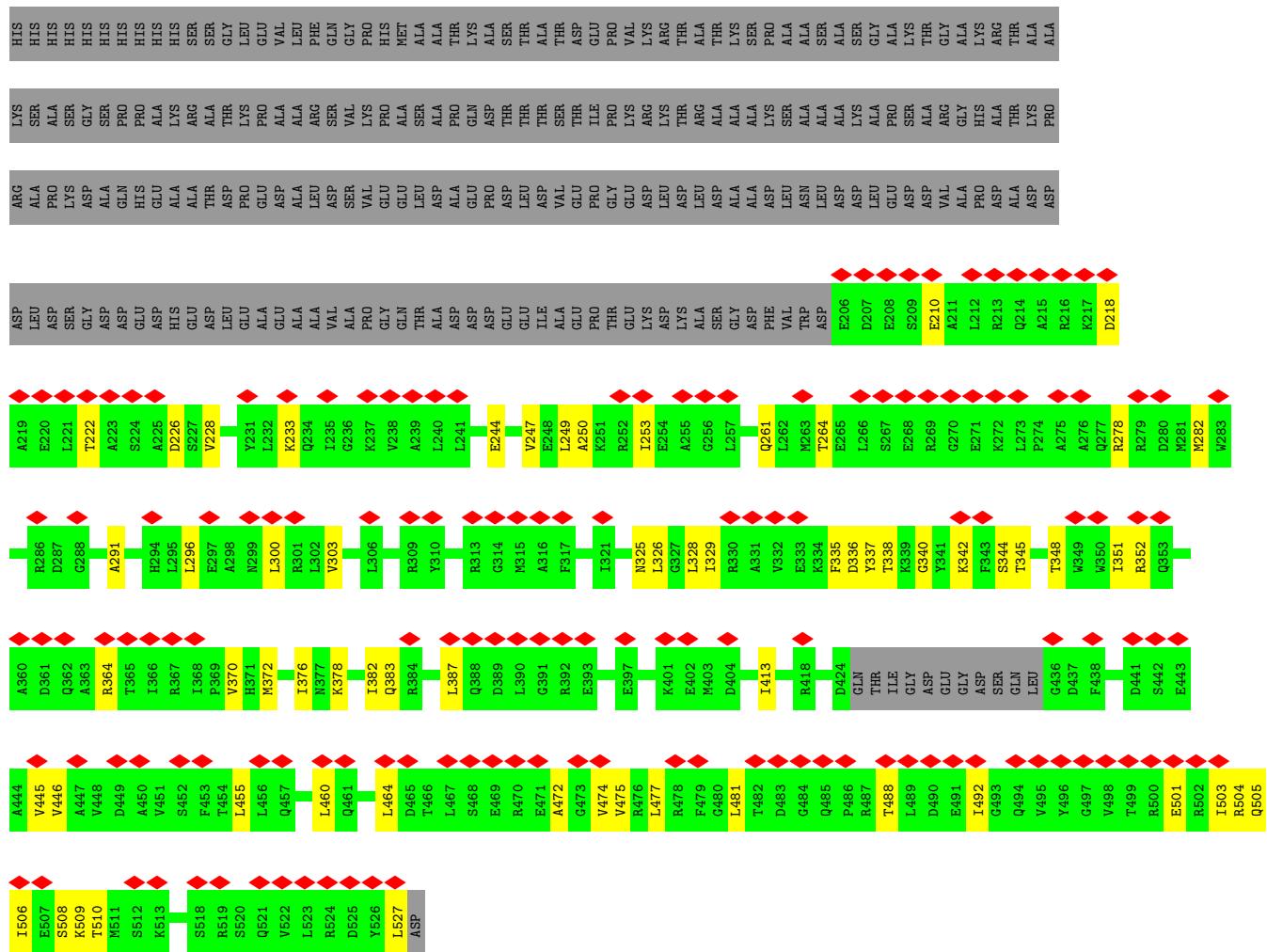
• Molecule 6: RNA polymerase-binding protein RbpA

Chain J:

41%

64%   18%   ••   16%
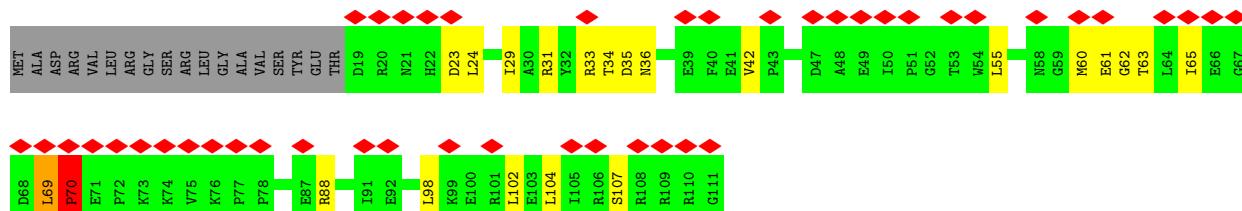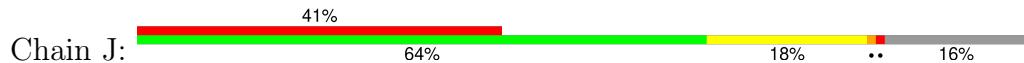
• Molecule 7: Ubiquitin-like protein SMT3,RNA polymerase-binding transcription factor CarD

Chain M:

37%

40%   16%   44%

GLY GLY SER MET I2 F3 K4 V5 T8 V9 V10 Y11 H14 G15 A16 V19 E20 A21 I22 E23 T24 R25 T26 I27 K28 G29 E30 Q31 K32 E33 Y34 L35 V36 V39 A40 Q41 G42 D43 R47 V48 P49 A50 A53 E54 Y55 V56 D60 V61 V62 G63 Q64 E65 G66

L67 D68 K69 V70 F71 Q72 V73 L74 R75 A76 P77 H78 T79 E80 E81 P82 T83 R87 R88 A91 N92 L93 E94 K95 L96 A97 S98 C99 D100 V101 N102 K103 V104 A105 E106 V107 V108 R109 D110 L111 W112 R113 R114 D115 Q116 E117 R118 G119 L120 S121 A122 G123 E124 K125 R126 M127 L128 A129

K130 A131 R132 Q133 I134 L135 V136 G137 E138 L139 A140 L141 A142 E143 S144 T145 D146 D147 A148 K149 A150 E151 T152 I153 L154 D155 E156 V157 L158 A159 A160 ALA SER

- Molecule 8: DNA (57-MER)

Chain N:

13%

38%   7%   55%

DC DT DA DA DA DA DG DA DT DT DA DT DT DT DA DA DT DT DT DA DC DA DA A23 A24 A25 G26 A27 G28 T29 A30 T31 T32 G33 A34 A45 T51 T56 A57 C58 T59 T60 A61 C62 DA DG DC DC DA DG DG DG

DA DG DA DG G75 G76 A77 C78 A79 C90 C91 DA DT DC DC DC DA DA DT DC DG DA DC DA DC DG DG DG DT DG DG DG DA DT DC DG DG

- Molecule 9: RNA (5'-R(P*AP*GP*AP*GP*GP*UP*A)-3')

Chain R:

10%   24%   67%

A1 G2 C3 G4 A5 G6 A7 G G G A C A C G G C G A A U

- Molecule 10: DNA (58-MER)

Chain T:

17%

33%   13%   54%

DC DC DA DG DA DT DC DC DC DG DA DC DC DC DC DG DG DT DG DT DG DA DT DG DG DA DT G1 G2 C3 T4 A5 T6 T7 G12 T13 G14 T15 C16 C17 C18 T19 C20 T21 C22 G23 G26 DG DC DT DG DT DA DA DG

DT DA DT C38 T47 A56 G57 T58 C59 A60 A61 T62 A63 C64 T65 C66 T57 T68 T69 DT DT DG DA DT DA DA DT DT DT DT DA DA DT DT DA DT DC DT DT DT DA DA DG
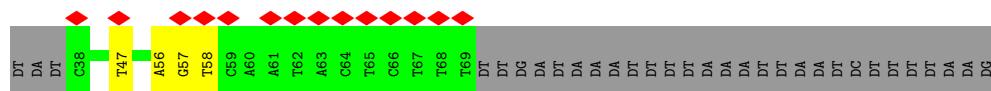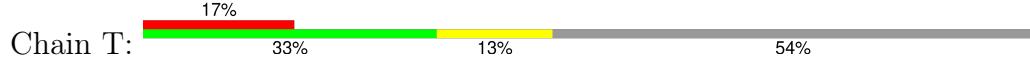
4   Experimental information ⓘ

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	8792	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose $(e^-/\text{Å}^2)$	51.83	Depositor
Minimum defocus (nm)	400	Depositor
Maximum defocus (nm)	2200	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	1.750	Depositor
Minimum map value	-0.773	Depositor
Average map value	0.004	Depositor
Map value standard deviation	0.038	Depositor
Recommended contour level	0.188	Depositor
Map size (Å)	275.456, 275.456, 275.456	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.076, 1.076, 1.076	Depositor

5   Model quality ⓘ

5.1   Standard geometry ⓘ

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

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	0.22	0/1742	0.42	0/2370
1	B	0.26	0/1732	0.51	2/2361 (0.1%)
2	C	0.26	0/8779	0.49	0/11905
3	D	0.26	0/9938	0.48	1/13438 (0.0%)
4	E	0.26	0/658	0.54	0/896
5	F	0.25	0/2452	0.48	0/3314
6	J	0.88	3/780 (0.4%)	0.89	6/1053 (0.6%)
7	M	0.25	0/1257	0.56	0/1700
8	N	0.35	0/1319	0.54	0/2031
9	R	0.77	1/174 (0.6%)	0.52	0/270
10	T	0.37	0/1311	0.65	2/2017 (0.1%)
All	All	0.30	4/30142 (0.0%)	0.51	11/41355 (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
3	D	0	1
6	J	0	1
All	All	0	2

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	J	70	PRO	CB-CG	17.45	2.36	1.49
6	J	70	PRO	CG-CD	-13.26	1.05	1.50
9	R	6	G	C1'-N9	-8.37	1.35	1.48
6	J	70	PRO	N-CD	7.35	1.58	1.47

The worst 5 of 11 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
6	J	70	PRO	CB-CG-CD	-15.36	56.95	106.10
6	J	70	PRO	N-CD-CG	-9.59	88.82	103.20
10	T	17	DC	OP2-P-O3'	-8.91	81.28	108.00
6	J	70	PRO	N-CA-CB	-8.15	94.70	103.25
6	J	70	PRO	CA-N-CD	-7.63	101.32	112.00

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
3	D	1070	ASP	Peptide
6	J	69	LEU	Peptide

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1716	0	1756	30	0
1	B	1706	0	1734	36	0
2	C	8620	0	8550	182	0
3	D	9777	0	9826	208	0
4	E	645	0	642	8	0
5	F	2422	0	2413	55	0
6	J	765	0	739	16	0
7	M	1241	0	1259	32	0
8	N	1174	0	642	10	0
9	R	155	0	77	5	0
10	T	1176	0	661	22	0
11	C	9	0	0	1	0
12	D	2	0	0	0	0
13	D	1	0	0	0	0
All	All	29409	0	28299	546	0

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

The worst 5 of 546 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)
2:C:719:LEU:HD12	2:C:1030:ILE:HD11	1.46	0.96
5:F:492:ILE:HG21	5:F:503:ILE:HG21	1.49	0.93
5:F:505:GLN:NE2	8:N:31:DT:OP2	2.06	0.87
3:D:1162:LEU:HD21	3:D:1207:LEU:HD12	1.60	0.83
2:C:430:PHE:O	2:C:434:SER:OG	1.95	0.83

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	223/347 (64%)	210 (94%)	12 (5%)	1 (0%)	30	67
1	B	226/347 (65%)	209 (92%)	17 (8%)	0	100	100
2	C	1111/1177 (94%)	1037 (93%)	71 (6%)	3 (0%)	37	71
3	D	1246/1333 (94%)	1170 (94%)	76 (6%)	0	100	100
4	E	80/110 (73%)	76 (95%)	4 (5%)	0	100	100
5	F	307/550 (56%)	293 (95%)	14 (5%)	0	100	100
6	J	91/111 (82%)	84 (92%)	6 (7%)	1 (1%)	12	46
7	M	157/285 (55%)	144 (92%)	13 (8%)	0	100	100
All	All	3441/4260 (81%)	3223 (94%)	213 (6%)	5 (0%)	50	82

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
6	J	70	PRO
2	C	30	ASN
2	C	79	ASP
2	C	621	SER

Continued on next page...

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Mol	Chain	Res	Type
1	A	159	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	194/297 (65%)	194 (100%)	0	100	100
1	B	189/297 (64%)	189 (100%)	0	100	100
2	C	940/997 (94%)	934 (99%)	6 (1%)	84	88
3	D	1033/1107 (93%)	1027 (99%)	6 (1%)	84	88
4	E	69/90 (77%)	68 (99%)	1 (1%)	62	75
5	F	248/447 (56%)	248 (100%)	0	100	100
6	J	81/97 (84%)	81 (100%)	0	100	100
7	M	129/240 (54%)	128 (99%)	1 (1%)	79	84
All	All	2883/3572 (81%)	2869 (100%)	14 (0%)	85	90

5 of 14 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	D	737	LEU
3	D	878	VAL
7	M	30	GLU
3	D	1275	THR
4	E	94	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 19 such sidechains are listed below:

Mol	Chain	Res	Type
3	D	1133	HIS
5	F	388	GLN
7	M	116	GLN
3	D	1251	ASN

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Mol	Chain	Res	Type
3	D	525	HIS

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
9	R	6/21 (28%)	0	0

There are no RNA backbone outliers to report.

There are no RNA pucker outliers to report.

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 4 ligands modelled in this entry, 3 are monoatomic - leaving 1 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	$\#|Z| > 2$
11	POP	C	2000	-	6,8,8	0.76	0	12,13,13	0.88	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.

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
11	POP	C	2000	-	-	0/6/6/6	-

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.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
11	C	2000	POP	1	0

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 ⓘ

This section contains visualisations of the EMDB entry EMD-47695. 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 ⓘ
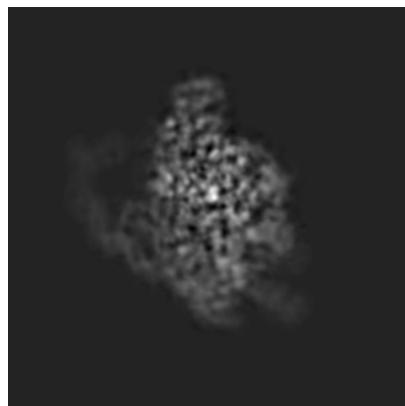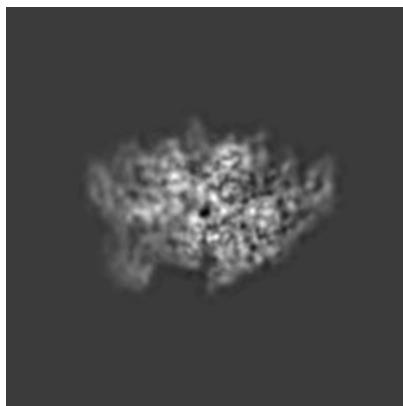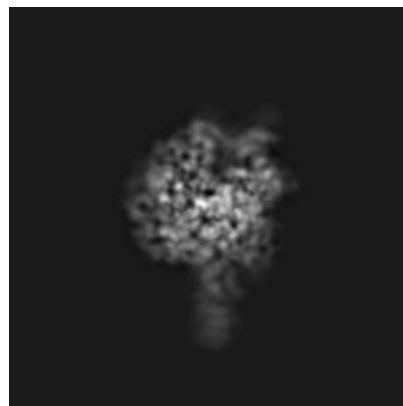
6.1.1   Primary map

X   Y   Z

6.1.2   Raw map

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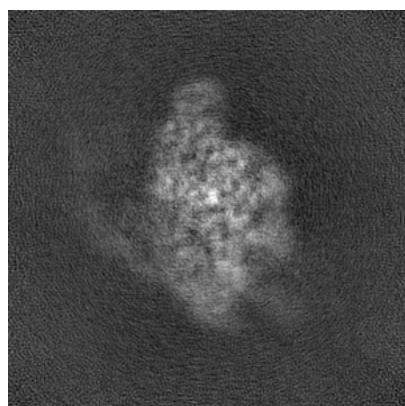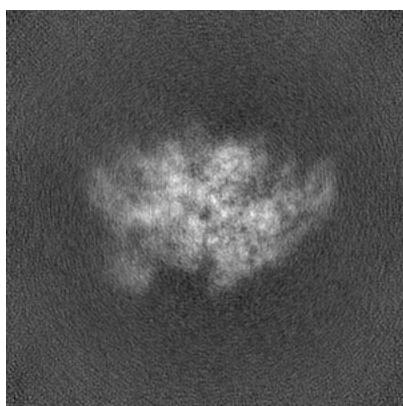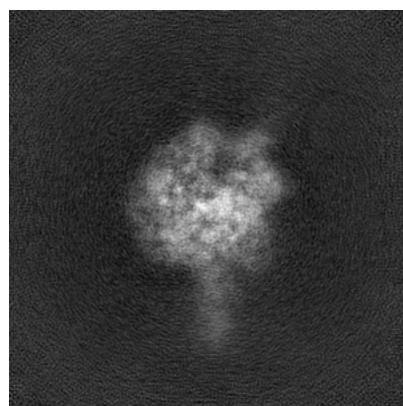
The images above show the map projected in three orthogonal directions.

6.2   Central slices ⓘ
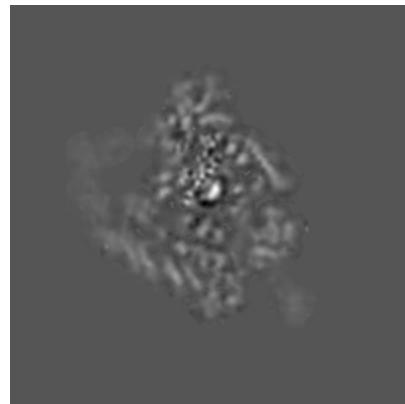
6.2.1   Primary map
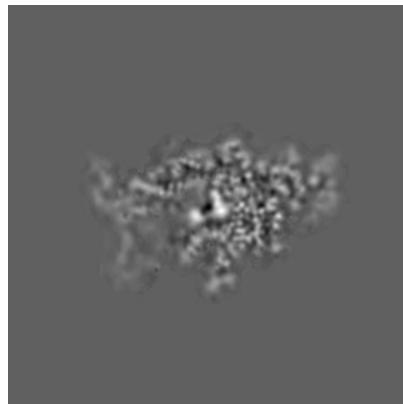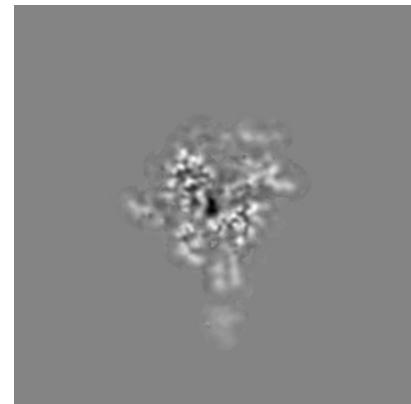
X Index: 128   Y Index: 128   Z Index: 128

6.2.2   Raw map
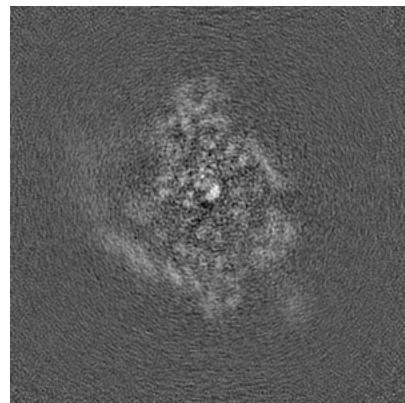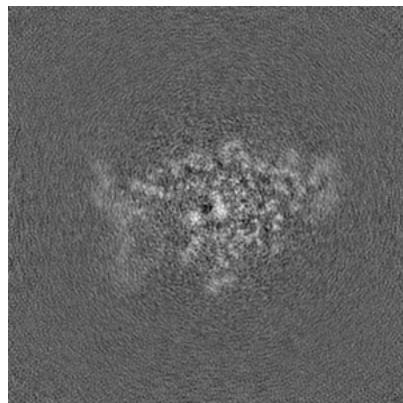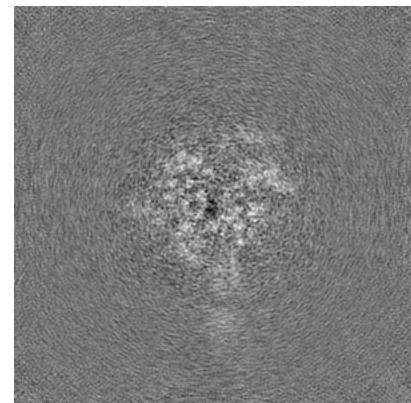
X Index: 128   Y Index: 128   Z Index: 128

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

6.3   Largest variance slices ⓘ

6.3.1   Primary map
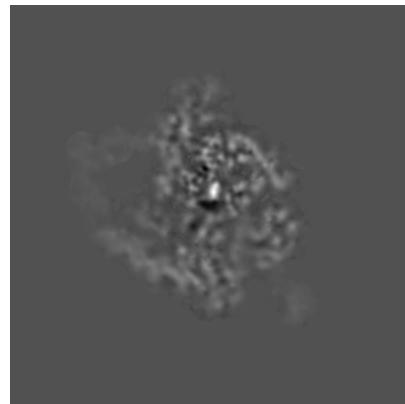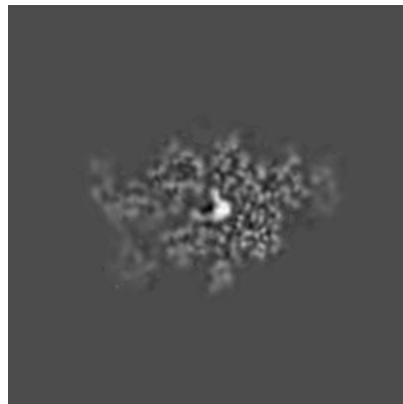
X Index: 125   Y Index: 131   Z Index: 134
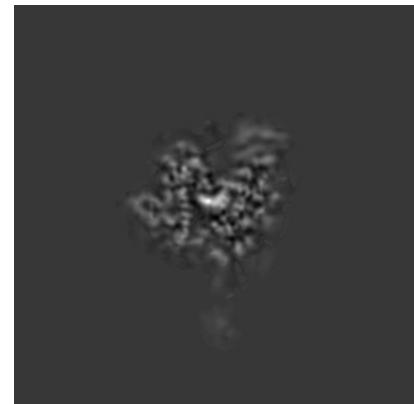
6.3.2   Raw map
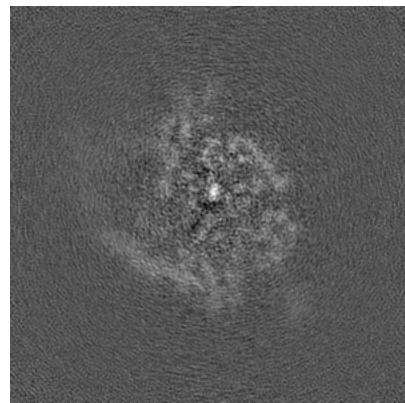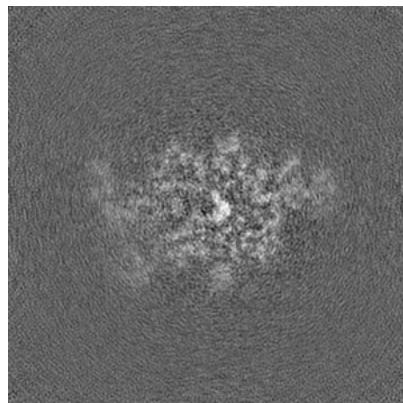
X Index: 125   Y Index: 132   Z Index: 140
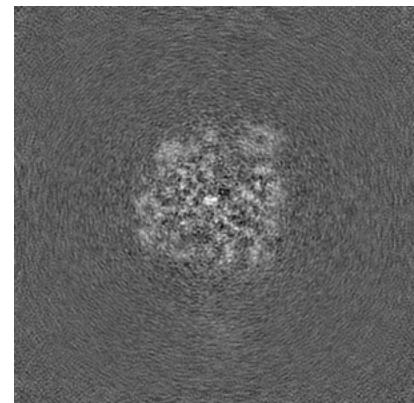
The images above show the largest variance slices of the map in three orthogonal directions.

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

6.4.1 Primary map
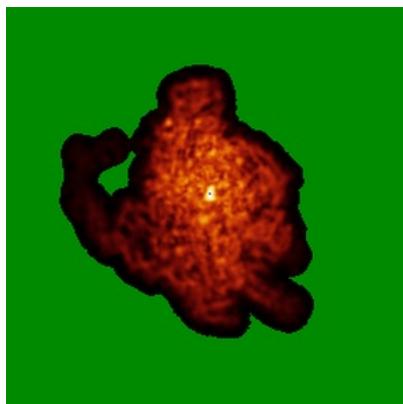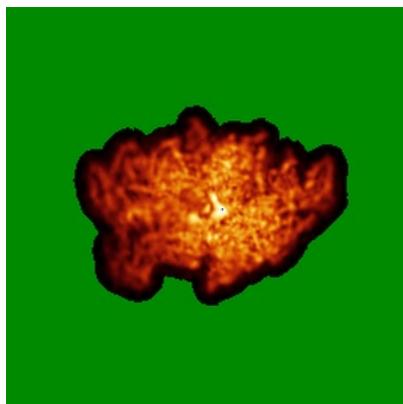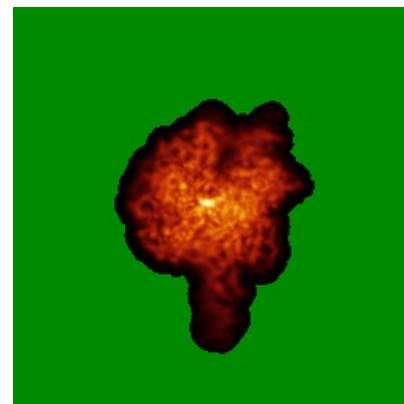
| X | Y | Z |

6.4.2 Raw map

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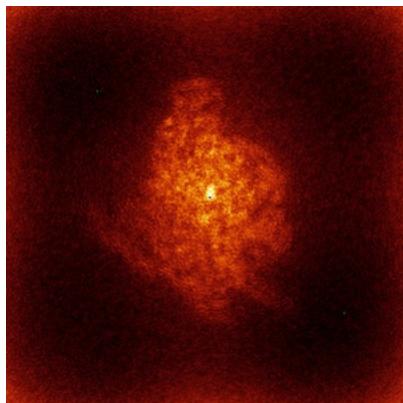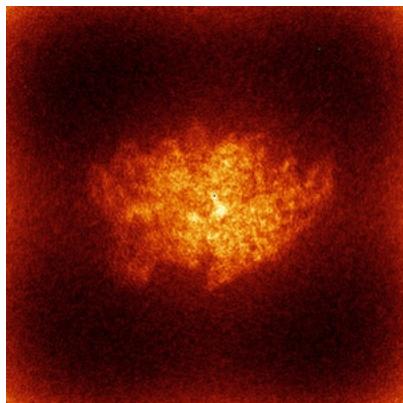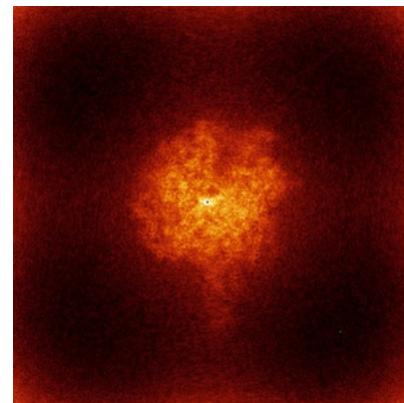
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views ⓘ

6.5.1 Primary map

X   Y   Z
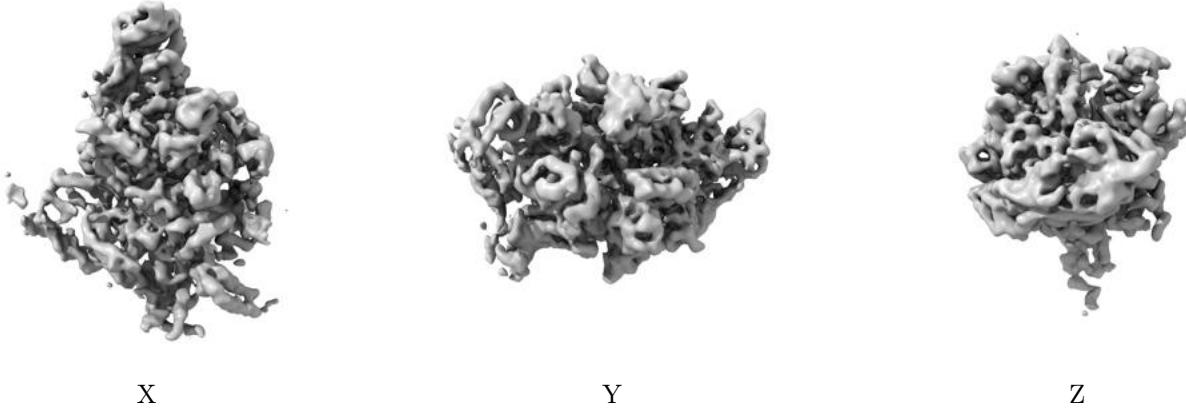
The images above show the 3D surface view of the map at the recommended contour level 0.188. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map

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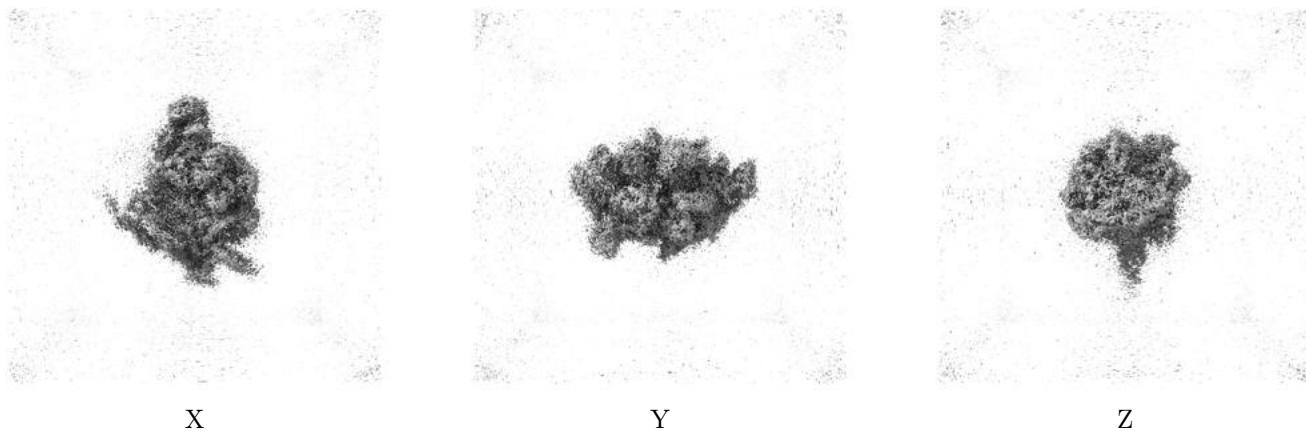
These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

6.6   Mask visualisation ⓘ

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_47695_msk_1.map ⓘ

X

Y

Z
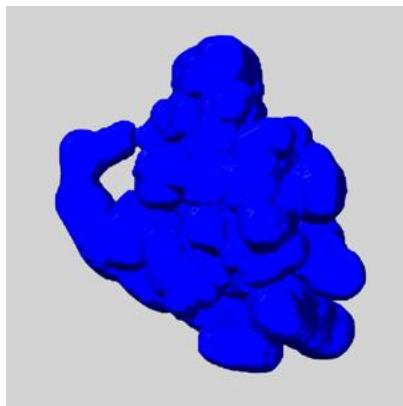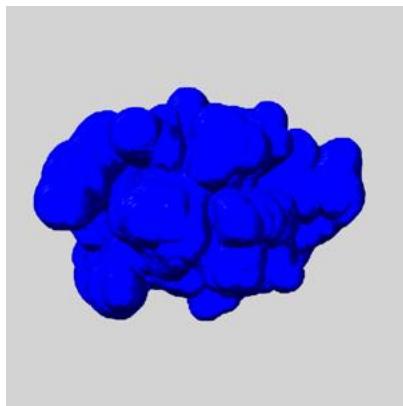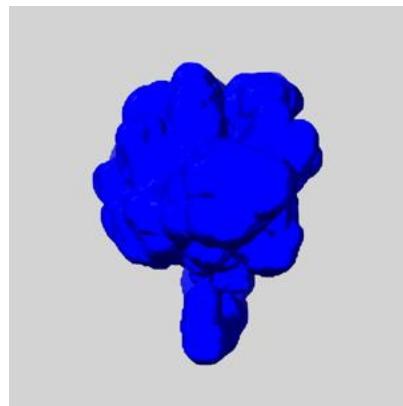
7 Map analysis ⓘ

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 ⓘ
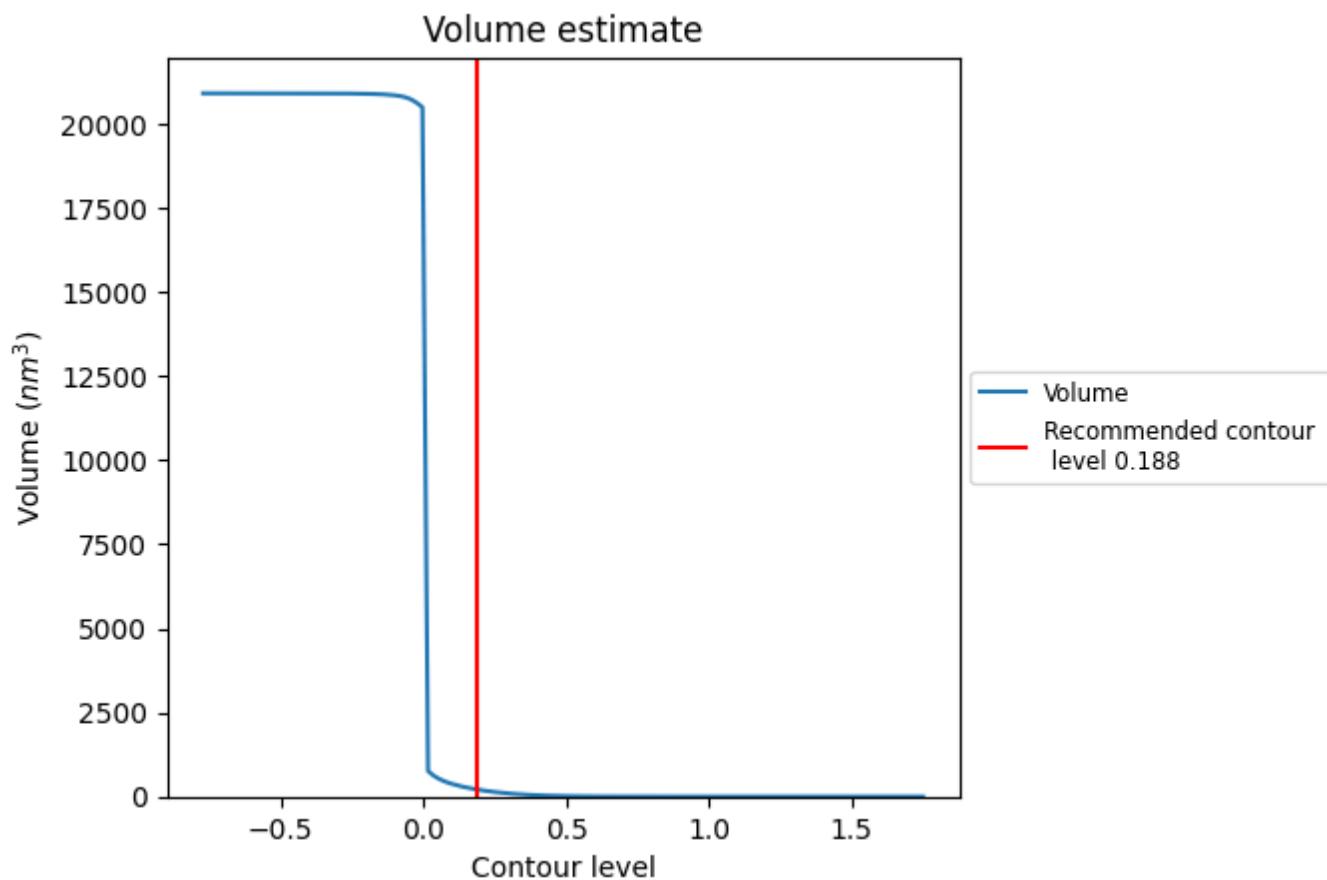
The volume at the recommended contour level is 209 nm^3; this corresponds to an approximate mass of 189 kDa.

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 ⓘ
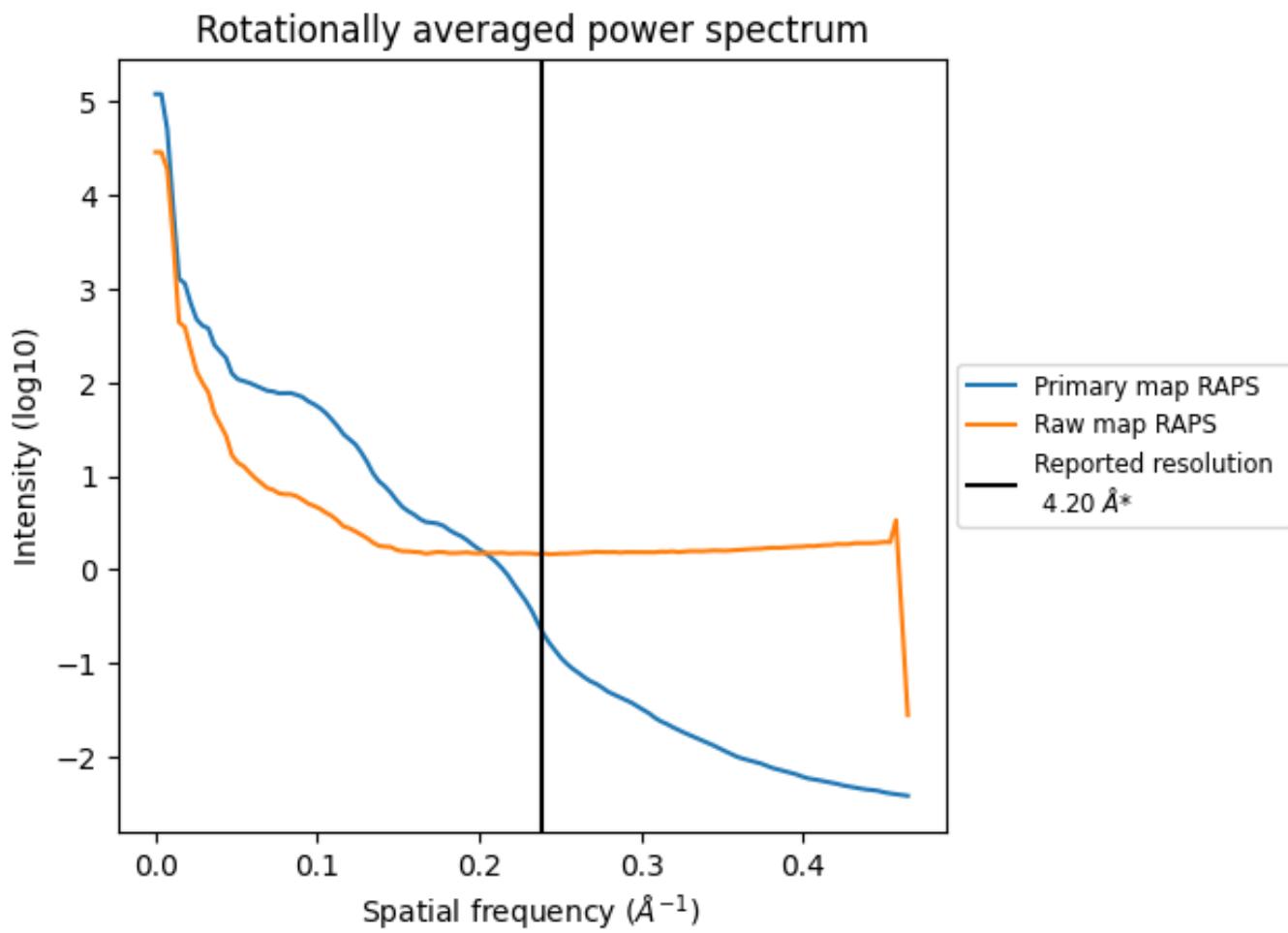
*Reported resolution corresponds to spatial frequency of 0.238 Å^{-1}

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 ⓘ
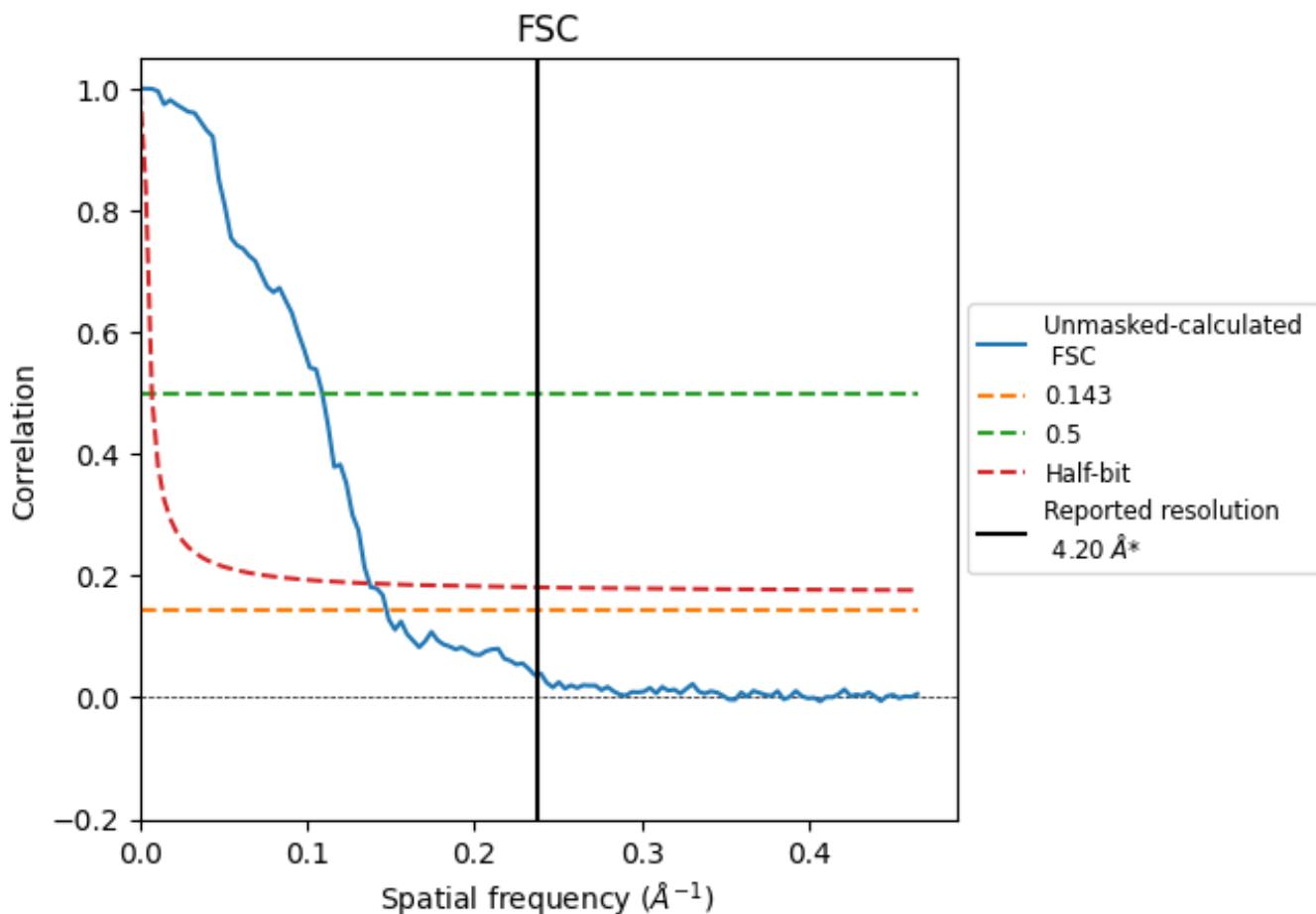
*Reported resolution corresponds to spatial frequency of 0.238 Å^{-1}

8.2   Resolution estimates ⓘ

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.20	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	6.78	9.17	7.28

*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 6.78 differs from the reported value 4.2 by more than 10 %

9 Map-model fit ⓘ

This section contains information regarding the fit between EMDB map EMD-47695 and PDB model 9E7Y. Per-residue inclusion information can be found in section 3 on page 9.

9.1 Map-model overlay ⓘ

| X | Y | Z |
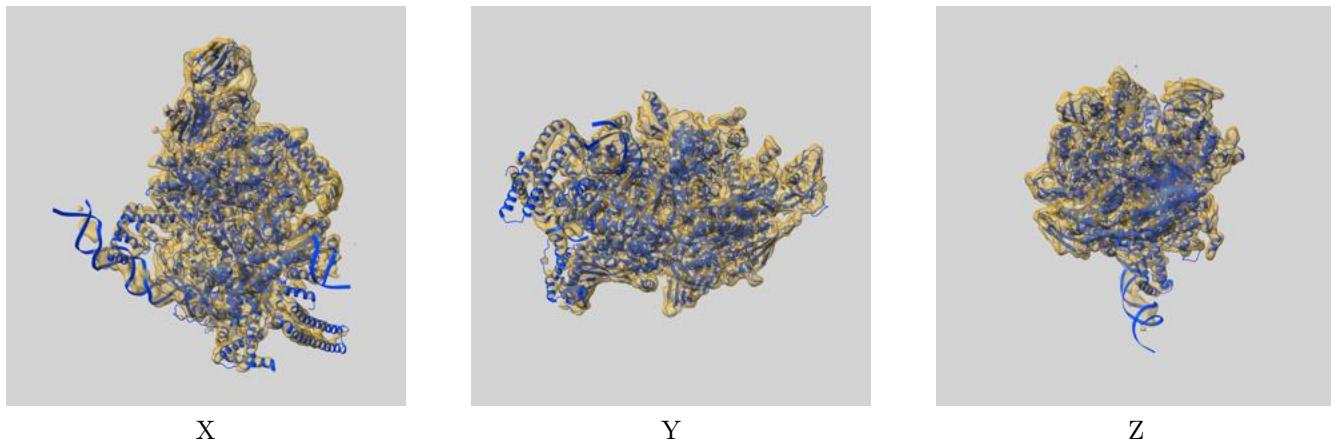
The images above show the 3D surface view of the map at the recommended contour level 0.188 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model ⓘ


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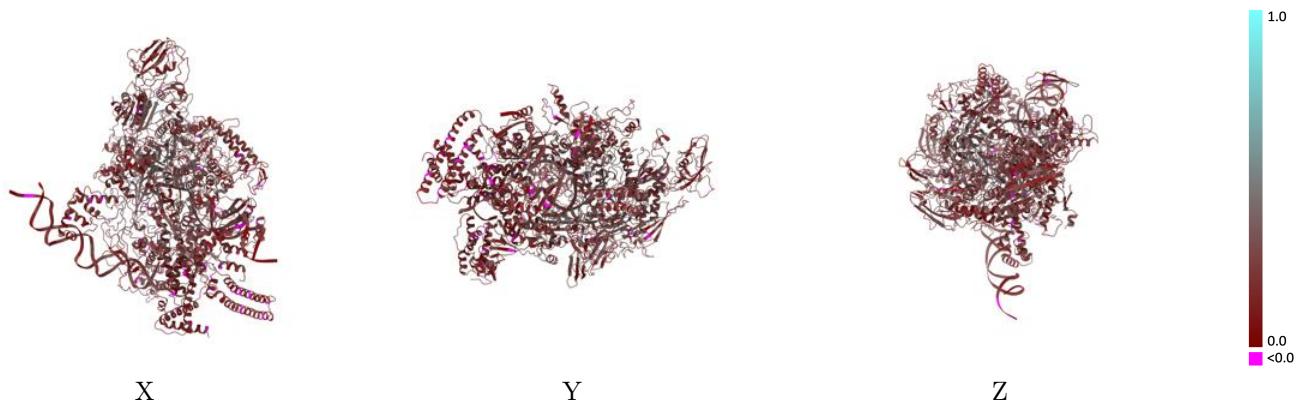
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

X   Y   Z
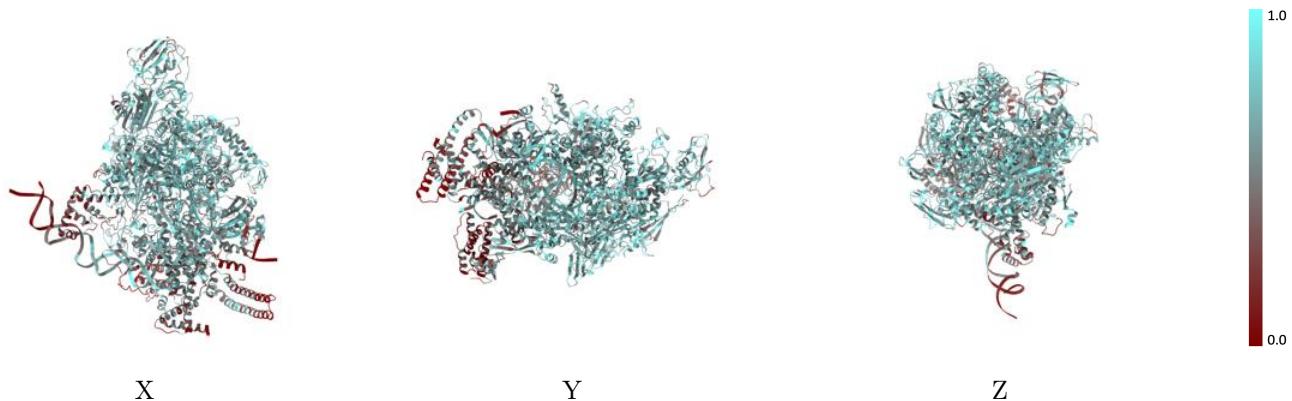
The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.188).

9.4　Atom inclusion ⓘ
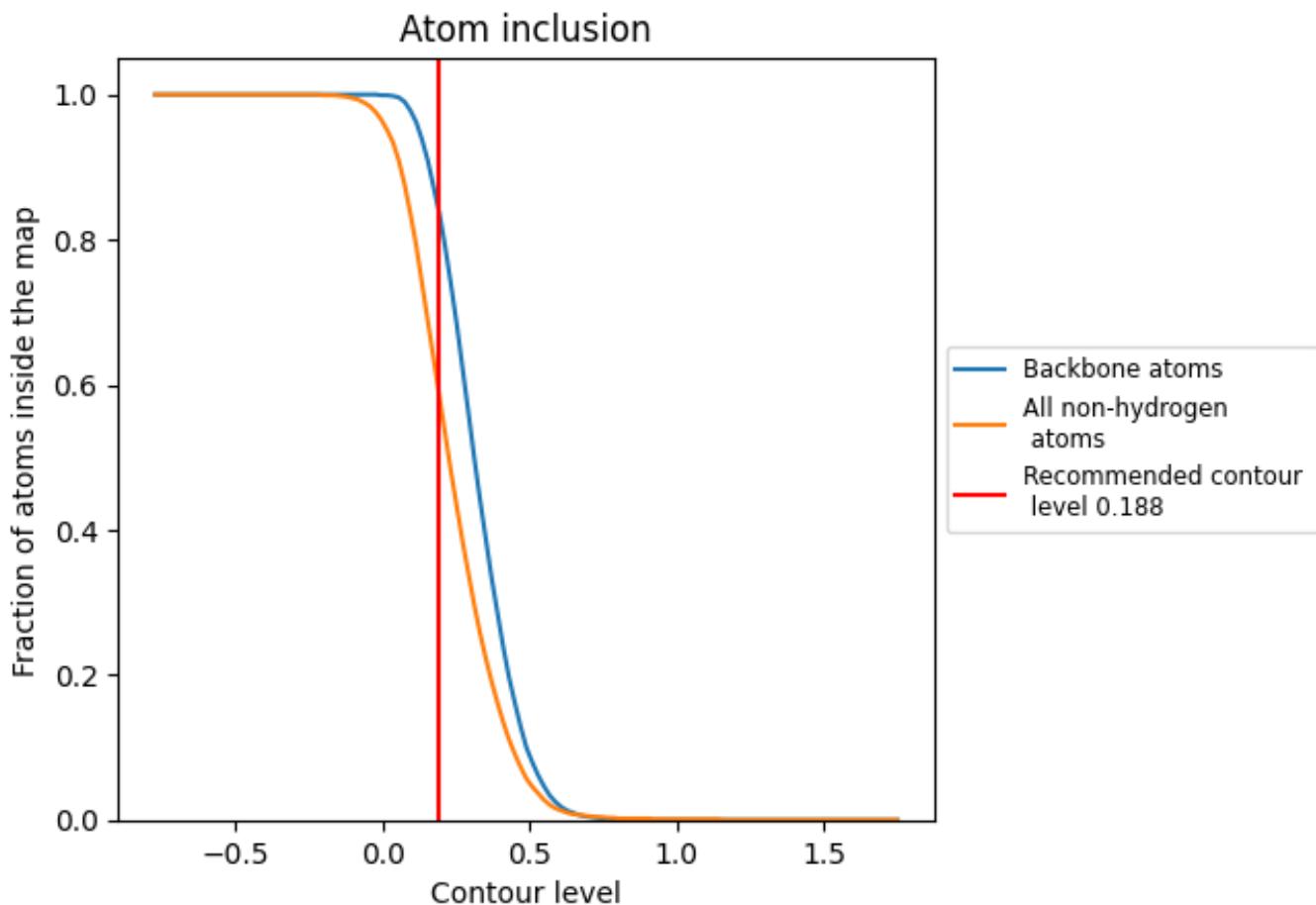
At the recommended contour level, 85% of all backbone atoms, 60% of all non-hydrogen atoms, are inside the map.

9.5   Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.188) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.5960	0.2430
A	0.6620	0.2600
B	0.6400	0.2310
C	0.6530	0.2740
D	0.6360	0.2480
E	0.5830	0.2480
F	0.4170	0.1800
J	0.4140	0.2020
M	0.2580	0.1820
N	0.5520	0.2150
R	0.8650	0.2680
T	0.5420	0.2200

1.0

0.0
<0.0