



wwPDB EM Validation Summary Report ⓘ

Sep 22, 2026 – 12:33 PM EDT

PDB ID : 9PB7 / pdb_00009pb7
EMDB ID : EMD-71456
Title : TFIIF of PIC-Med-SWI/SNF
Authors : Yang, C.; Nagai, S.; Chen, D.-H.
Deposited on : 2025-06-26
Resolution : 4.40 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:

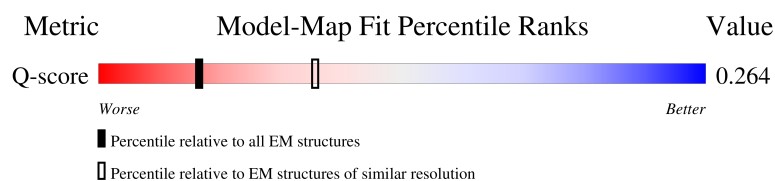
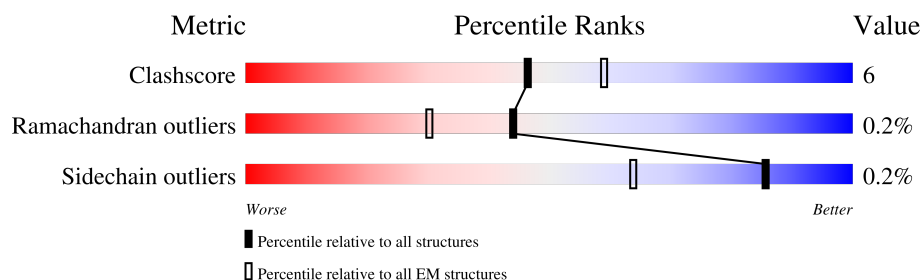
EMDB validation analysis	:	0.0.1.dev133
Mogul	:	2022.3.0, CSD as543be (2022)
MolProbity	:	4-5-2 with Phenix2.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.50

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 4.40 Å.

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



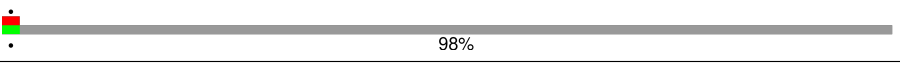
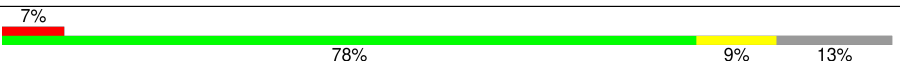
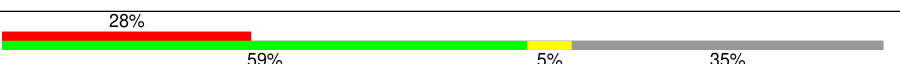
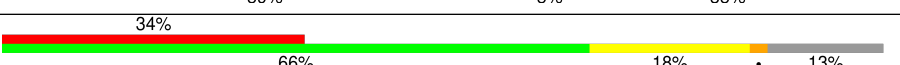
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	3132 (3.91 - 4.90)

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

Mol	Chain	Length	Quality of chain
1	5	72	
2	0	778	
3	3	321	
4	7	843	

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Mol	Chain	Length	Quality of chain
5	8	905	
6	9	244	
7	N	26	
8	T	26	
9	4	338	
10	6	461	
11	1	642	
12	2	513	

2 Entry composition

There are 14 unique types of molecules in this entry. The entry contains 26523 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 General transcription and DNA repair factor IIIH subunit TFB5.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	5	65	Total	C	N	O	S	0	0
			514	326	90	95	3		

- Molecule 2 is a protein called General transcription and DNA repair factor IIIH helicase subunit XPD/RAD3.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	0	752	Total	C	N	O	S	0	0
			6091	3882	1029	1142	38		

- Molecule 3 is a protein called RNA polymerase II transcription factor B subunit 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	3	131	Total	C	N	O	S	0	0
			1089	692	180	209	8		

- Molecule 4 is a protein called General transcription and DNA repair factor IIIH helicase subunit XPB.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	7	607	Total	C	N	O	S	0	0
			4881	3104	846	905	26		

- Molecule 5 is a protein called SWI/SNF chromatin-remodeling complex subunit SNF5.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	8	17	Total	C	N	O	S	0	0
			134	89	22	22	1		

- Molecule 6 is a protein called Transcription initiation factor TFIID subunit 14.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	9	68	Total	C	N	O	S	0	0
			542	345	82	113	2		

- Molecule 7 is a DNA chain called promoter DNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	N	26	Total	C	N	O	P	0	0
			534	257	91	160	26		

- Molecule 8 is a DNA chain called promoter DNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	T	26	Total	C	N	O	P	0	0
			532	255	99	152	26		

- Molecule 9 is a protein called General transcription and DNA repair factor IIIH subunit TFB4.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	4	293	Total	C	N	O	S	0	0
			2274	1454	377	429	14		

- Molecule 10 is a protein called General transcription and DNA repair factor IIIH subunit SSL1.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	6	374	Total	C	N	O	S	0	0
			2946	1870	507	541	28		

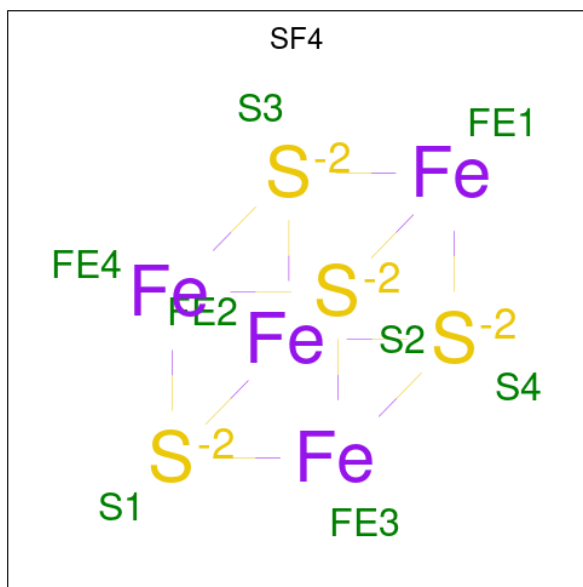
- Molecule 11 is a protein called General transcription and DNA repair factor IIIH subunit TFB1.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	1	416	Total	C	N	O	S	0	0
			3374	2133	586	639	16		

- Molecule 12 is a protein called General transcription and DNA repair factor IIIH subunit TFB2.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	2	445	Total	C	N	O	S	0	0
			3597	2327	591	663	16		

- Molecule 13 is IRON/SULFUR CLUSTER (CCD ID: SF4) (formula: Fe₄S₄).



Mol	Chain	Residues	Atoms			AltConf
13	0	1	Total	Fe	S	0
			8	4	4	

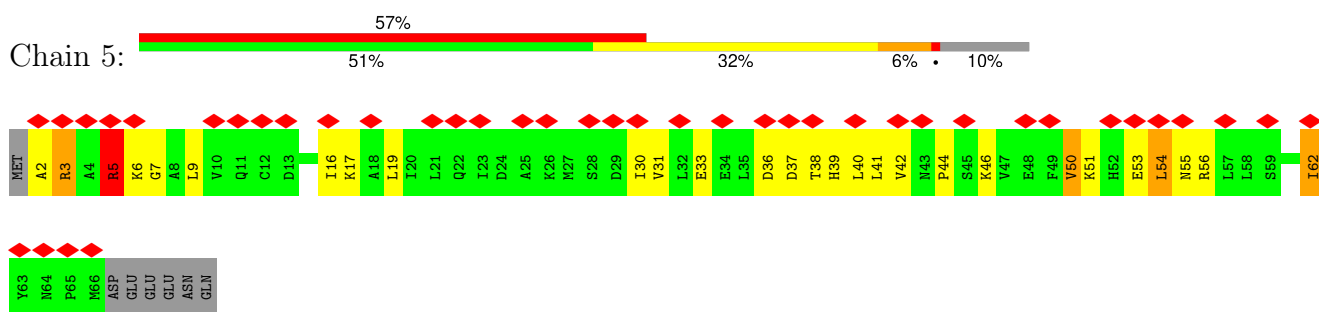
- Molecule 14 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
14	3	2	Total	Zn	0
			2	2	
14	4	1	Total	Zn	0
			1	1	
14	6	4	Total	Zn	0
			4	4	

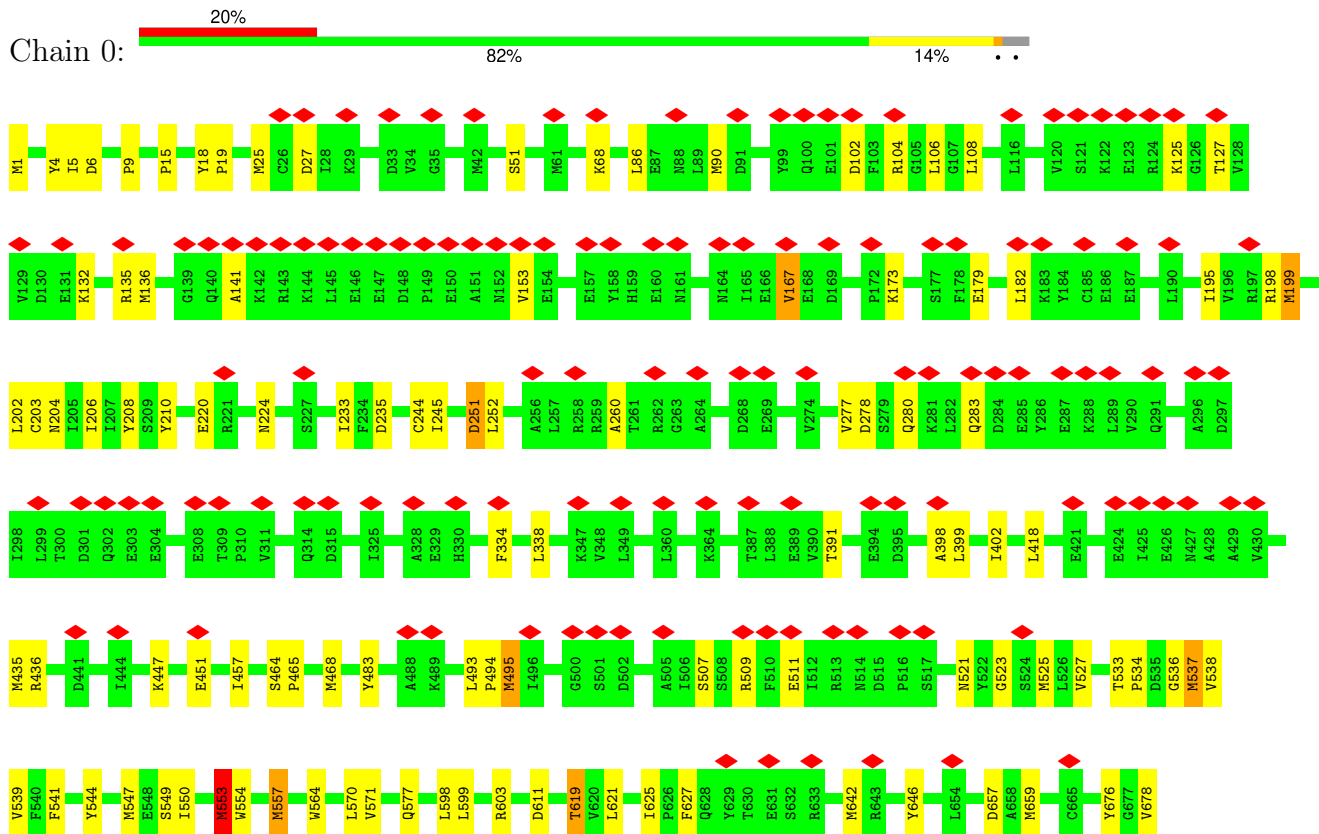
3 Residue-property plots

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.

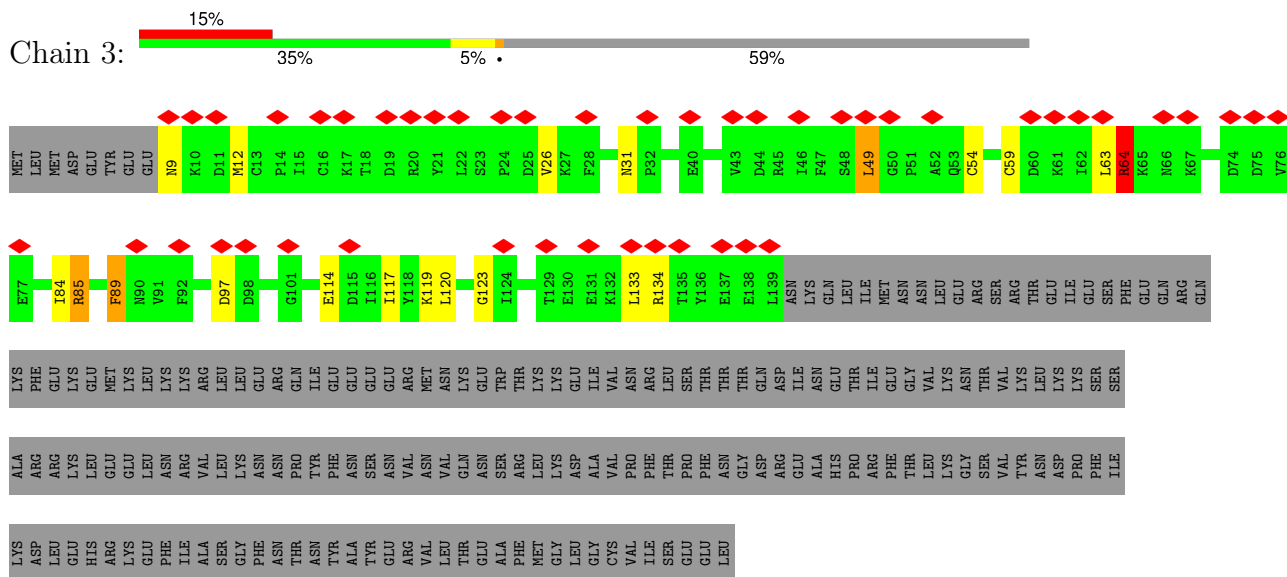
- Molecule 1: General transcription and DNA repair factor IIH subunit TFB5



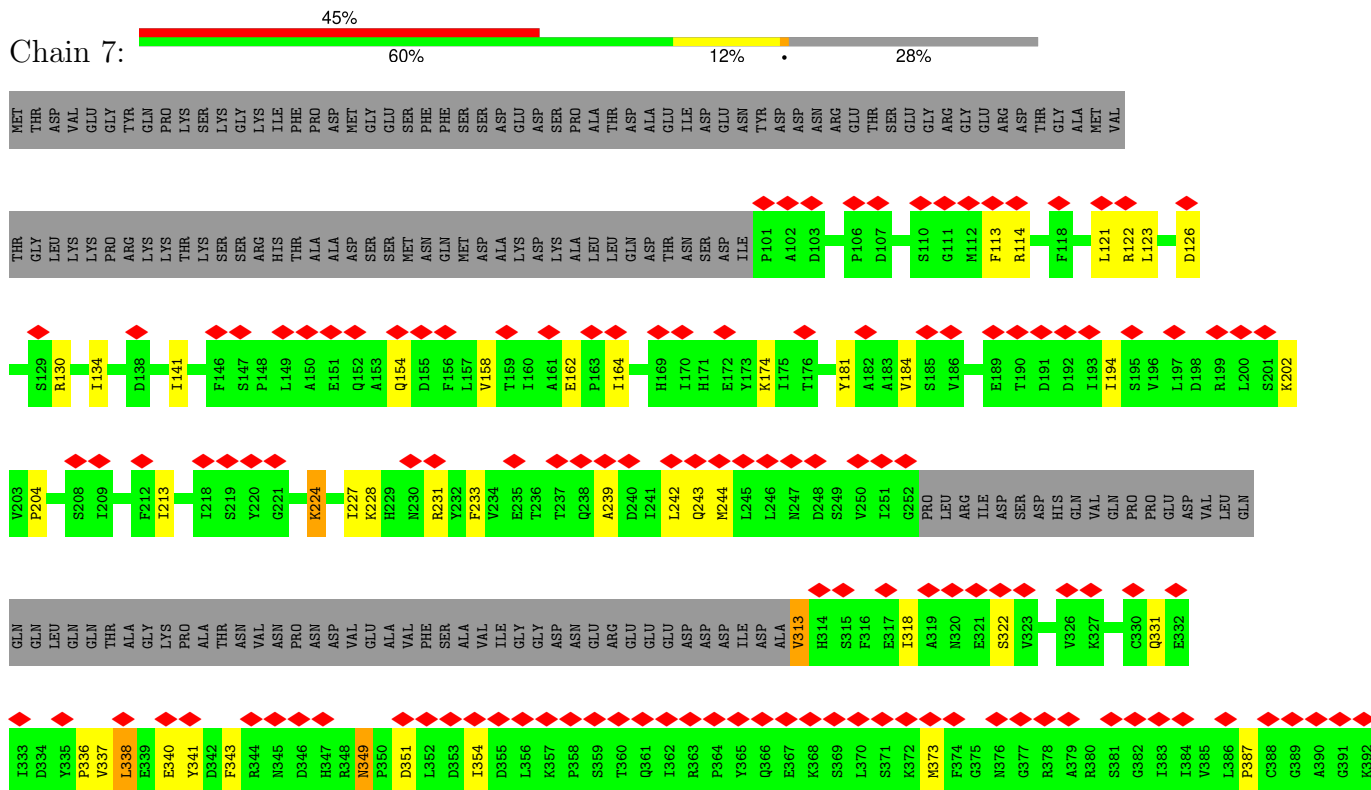
- Molecule 2: General transcription and DNA repair factor IIH helicase subunit XPD/RAD3

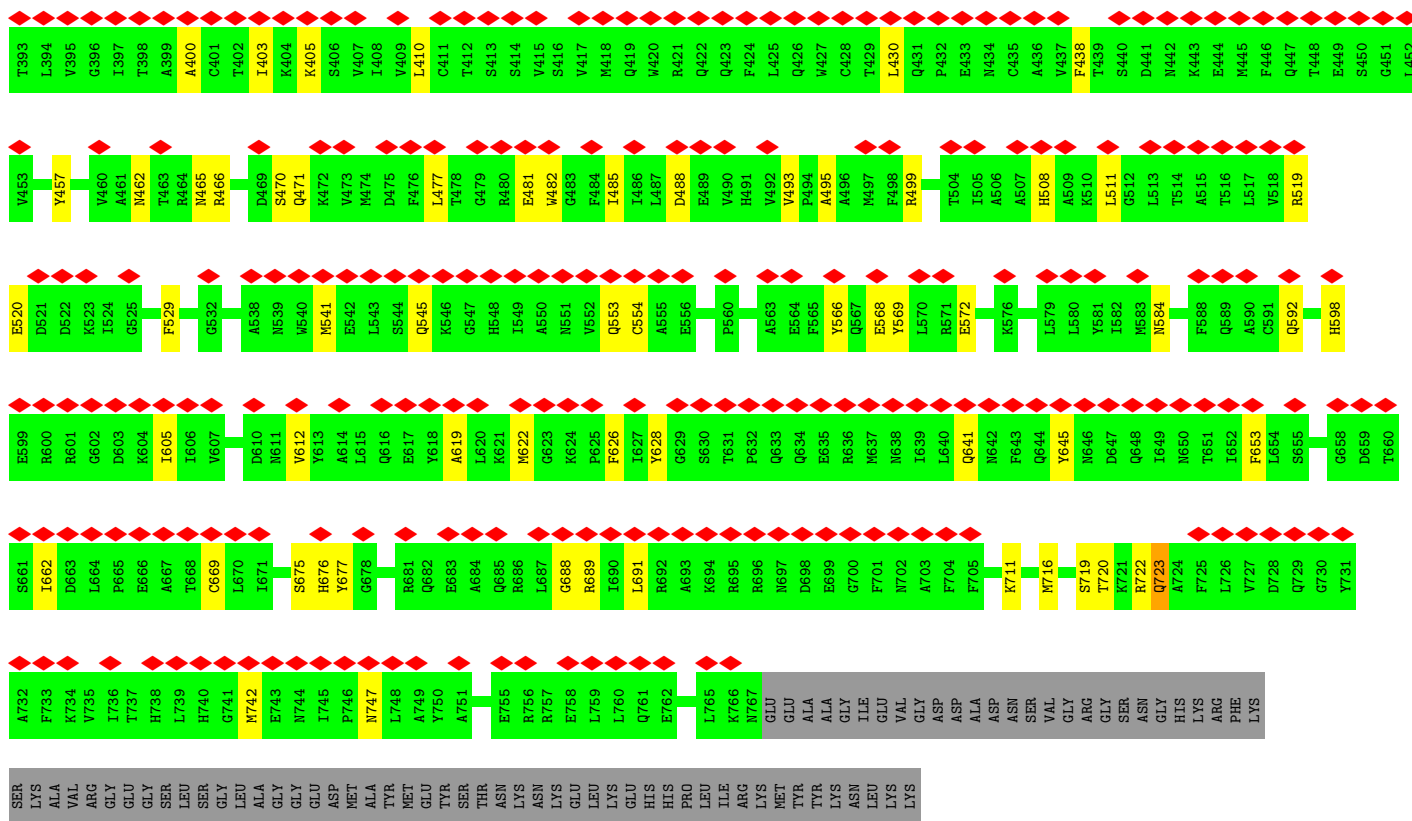


- Molecule 3: RNA polymerase II transcription factor B subunit 3

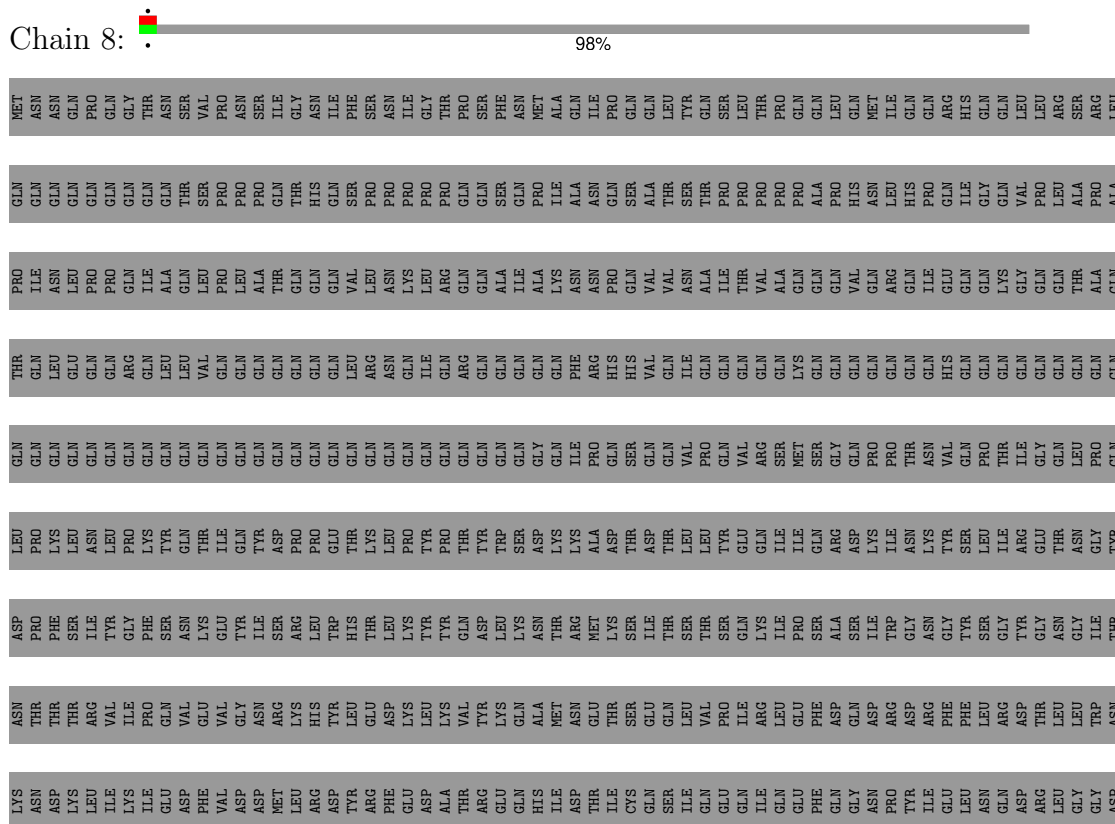


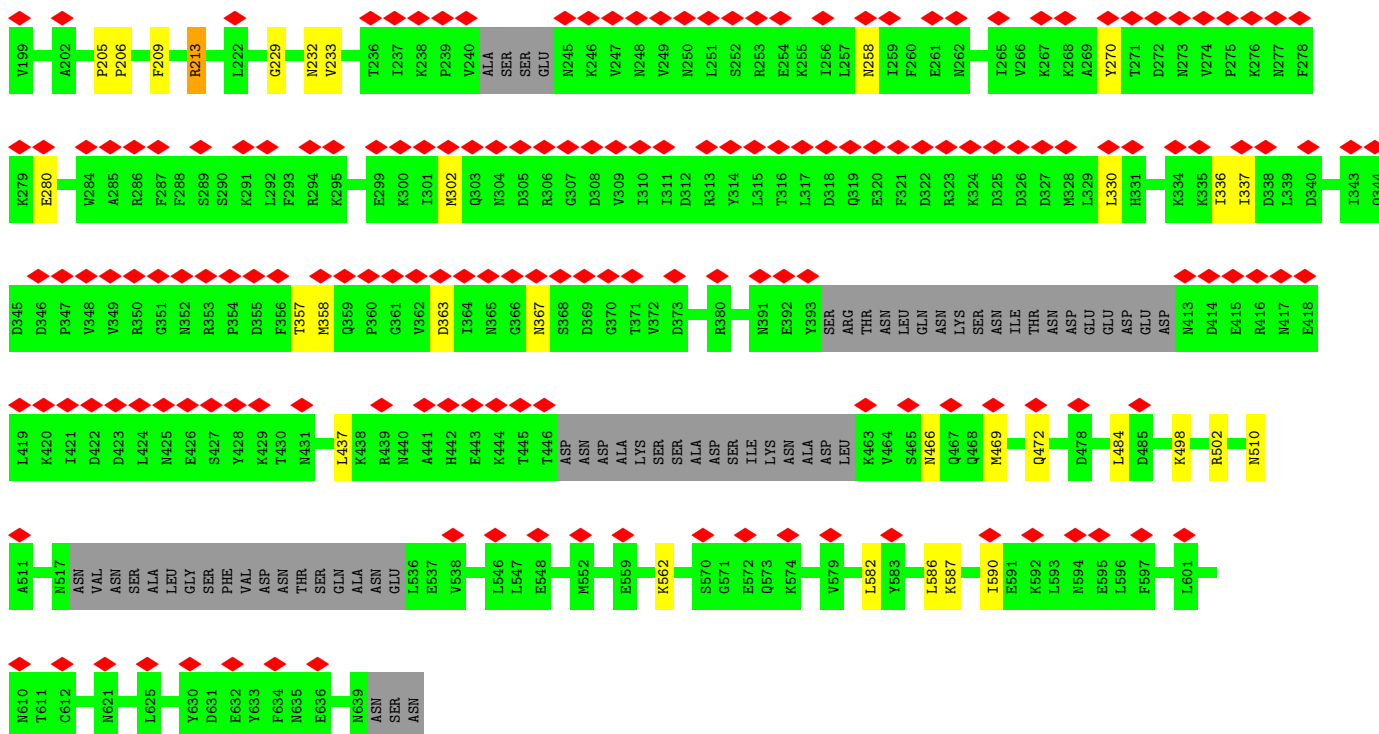
- Molecule 4: General transcription and DNA repair factor IIH helicase subunit XPB



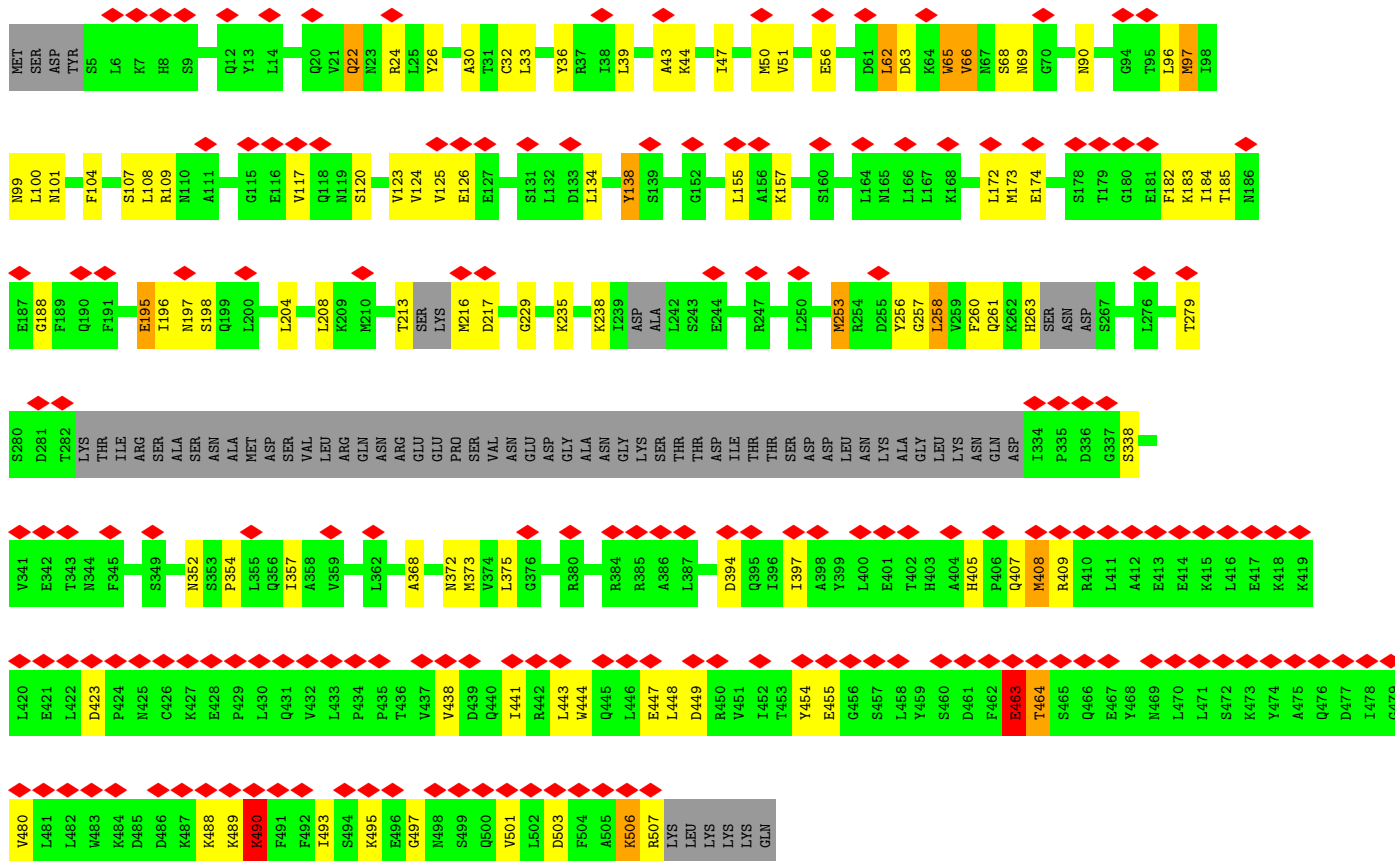


• Molecule 5: SWI/SNF chromatin-remodeling complex subunit SNF5





• Molecule 12: General transcription and DNA repair factor IIH subunit TFB2



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	433107	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 ($e^-/\text{\AA}^2$)	40.8	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.186	Depositor
Minimum map value	-0.113	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.003	Depositor
Recommended contour level	0.03	Depositor
Map size (Å)	537.6, 537.6, 537.6	wwPDB
Map dimensions	384, 384, 384	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.4, 1.4, 1.4	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: SF4, ZN

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z > 5$	RMSZ	$\# Z > 5$
1	5	1.29	10/520 (1.9%)	2.37	15/701 (2.1%)
2	0	0.52	10/6209 (0.2%)	0.63	6/8384 (0.1%)
3	3	0.86	6/1109 (0.5%)	1.30	13/1492 (0.9%)
4	7	0.43	5/4985 (0.1%)	0.67	1/6745 (0.0%)
5	8	0.72	0/137	1.19	0/185
6	9	1.65	8/549 (1.5%)	2.59	23/743 (3.1%)
7	N	0.61	1/597 (0.2%)	0.92	4/920 (0.4%)
8	T	0.64	2/597 (0.3%)	0.98	5/918 (0.5%)
9	4	0.31	1/2312 (0.0%)	0.58	0/3127
10	6	0.43	4/3007 (0.1%)	0.60	0/4066
11	1	0.35	2/3426 (0.1%)	0.63	5/4613 (0.1%)
12	2	0.76	20/3664 (0.5%)	1.51	37/4952 (0.7%)
All	All	0.60	69/27112 (0.3%)	0.98	109/36846 (0.3%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	5	0	2
2	0	0	1
3	3	0	2
4	7	0	4
5	8	0	1
6	9	1	2
9	4	0	1
11	1	0	1
12	2	0	5
All	All	1	19

The worst 5 of 69 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	3	64	ARG	CG-CD	-16.11	1.04	1.52
2	0	553	MET	SD-CE	-16.02	1.39	1.79
6	9	199	GLN	CA-CB	-15.09	1.27	1.53
2	0	557	MET	CG-SD	-15.03	1.43	1.80
6	9	217	GLU	CD-OE2	14.69	1.53	1.25

The worst 5 of 109 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
12	2	69	ASN	CA-CB-CG	54.91	167.51	112.60
6	9	199	GLN	CA-CB-CG	32.93	179.97	114.10
12	2	69	ASN	CB-CG-ND2	-32.14	68.19	116.40
3	3	64	ARG	CB-CG-CD	26.43	172.08	111.30
1	5	3	ARG	CA-CB-CG	25.28	164.66	114.10

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
6	9	199	GLN	CA

5 of 19 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	0	553	MET	Mainchain
3	3	64	ARG	Sidechain
3	3	89	PHE	Sidechain
1	5	3	ARG	Sidechain
1	5	5	ARG	Sidechain

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	5	514	0	541	20	0
2	0	6091	0	6155	78	0
3	3	1089	0	1069	10	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	7	4881	0	4868	63	0
5	8	134	0	141	2	0
6	9	542	0	537	6	0
7	N	534	0	298	11	0
8	T	532	0	294	10	0
9	4	2274	0	2332	20	0
10	6	2946	0	2958	30	0
11	1	3374	0	3425	25	0
12	2	3597	0	3687	67	0
13	0	8	0	0	0	0
14	3	2	0	0	0	0
14	4	1	0	0	0	0
14	6	4	0	0	0	0
All	All	26523	0	26305	321	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 6.

The worst 5 of 321 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:2:506:LYS:NZ	12:2:506:LYS:CE	1.68	1.57
1:5:7:GLY:HA3	1:5:41:LEU:HD11	1.42	1.02
12:2:506:LYS:NZ	12:2:506:LYS:CD	2.24	0.98
2:0:544:TYR:H	11:1:358:MET:HE1	1.32	0.92
7:N:-62:DG:N2	8:T:62:DC:O2	2.06	0.87

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	5	63/72 (88%)	62 (98%)	1 (2%)	0	100	100
2	0	750/778 (96%)	731 (98%)	19 (2%)	0	100	100
3	3	129/321 (40%)	126 (98%)	3 (2%)	0	100	100
4	7	605/843 (72%)	572 (94%)	32 (5%)	1 (0%)	43	77
5	8	15/905 (2%)	12 (80%)	3 (20%)	0	100	100
6	9	66/244 (27%)	65 (98%)	1 (2%)	0	100	100
9	4	287/338 (85%)	281 (98%)	6 (2%)	0	100	100
10	6	368/461 (80%)	354 (96%)	14 (4%)	0	100	100
11	1	406/642 (63%)	389 (96%)	17 (4%)	0	100	100
12	2	435/513 (85%)	418 (96%)	13 (3%)	4 (1%)	14	49
All	All	3124/5117 (61%)	3010 (96%)	109 (4%)	5 (0%)	44	77

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
4	7	313	VAL
12	2	68	SER
12	2	173	MET
12	2	463	GLU
12	2	235	LYS

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	5	59/66 (89%)	59 (100%)	0	100	100
2	0	684/707 (97%)	684 (100%)	0	100	100
3	3	125/303 (41%)	123 (98%)	2 (2%)	55	69
4	7	539/737 (73%)	539 (100%)	0	100	100
5	8	16/823 (2%)	16 (100%)	0	100	100
6	9	63/219 (29%)	62 (98%)	1 (2%)	55	69

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
9	4	260/300 (87%)	260 (100%)	0	100	100
10	6	338/418 (81%)	338 (100%)	0	100	100
11	1	388/589 (66%)	388 (100%)	0	100	100
12	2	408/468 (87%)	406 (100%)	2 (0%)	81	81
All	All	2880/4630 (62%)	2875 (100%)	5 (0%)	85	85

All (5) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	3	49	LEU
3	3	64	ARG
6	9	199	GLN
12	2	464	THR
12	2	490	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 44 such sidechains are listed below:

Mol	Chain	Res	Type
11	1	273	ASN
11	1	621	ASN
11	1	277	ASN
11	1	500	ASN
12	2	8	HIS

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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 8 ligands modelled in this entry, 7 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	$\# Z > 2$
13	SF4	0	801	2	0,12,12	-	-	-		

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
13	SF4	0	801	2	-	-	0/6/5/5

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

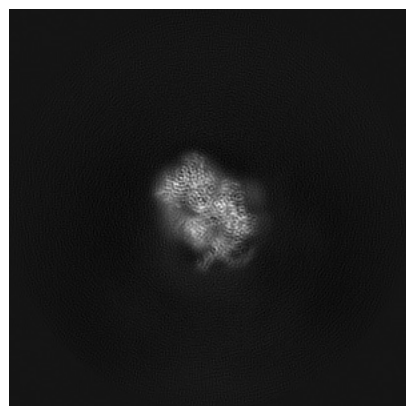
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-71456. These allow visual inspection of the internal detail of the map and identification of artifacts.

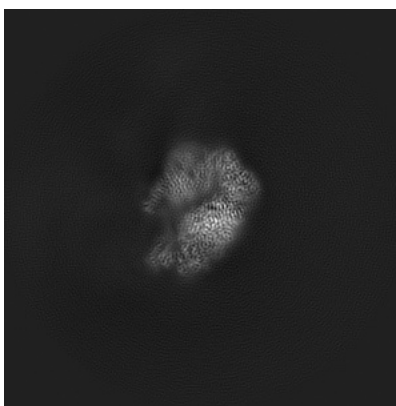
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

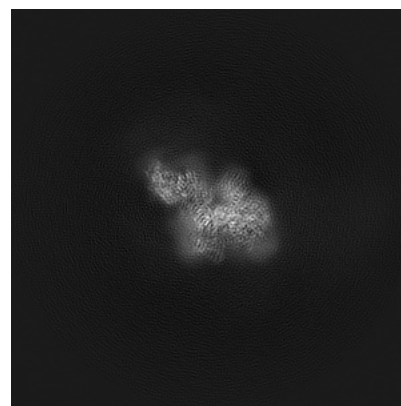
6.1.1 Primary map



X

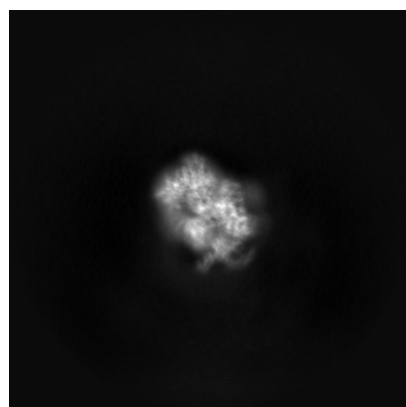


Y

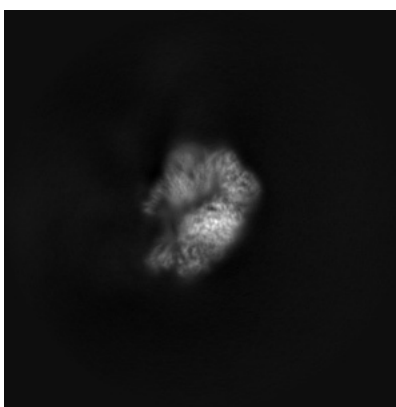


Z

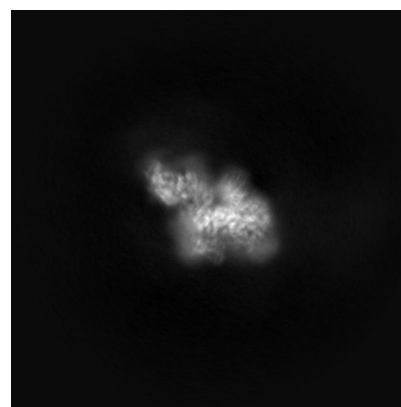
6.1.2 Raw map



X



Y

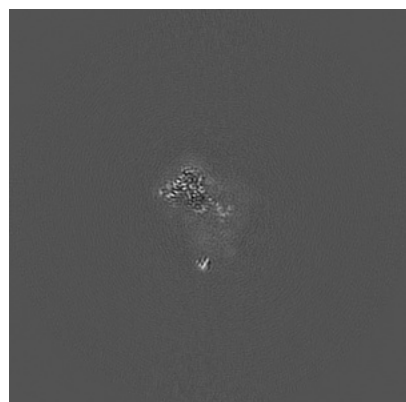


Z

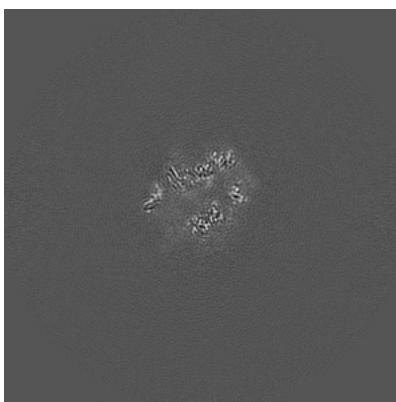
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

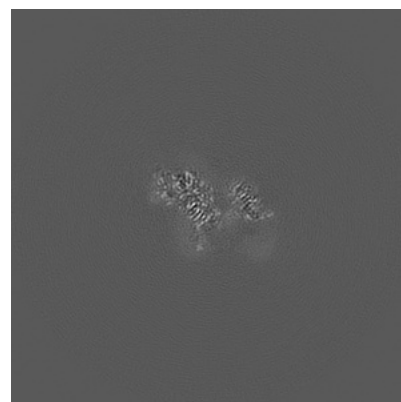
6.2.1 Primary map



X Index: 192

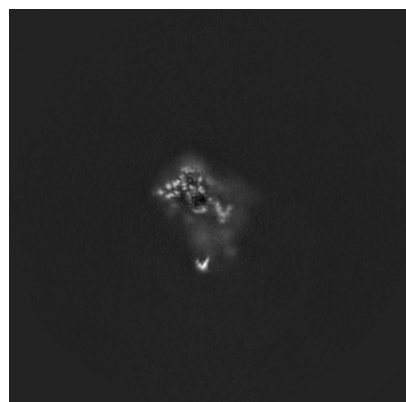


Y Index: 192

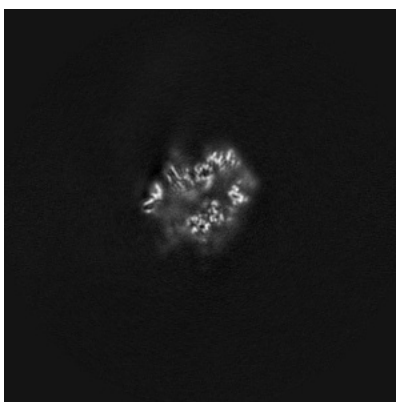


Z Index: 192

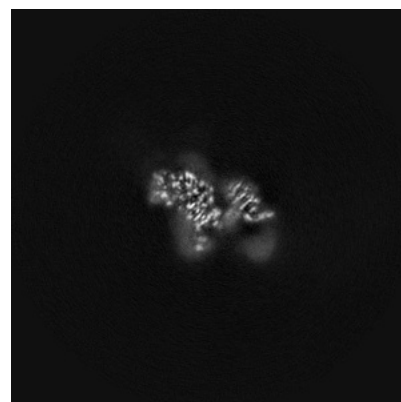
6.2.2 Raw map



X Index: 192



Y Index: 192

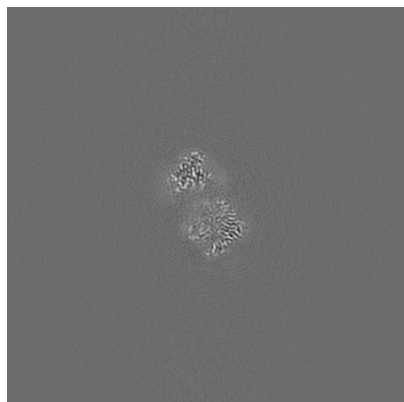


Z Index: 192

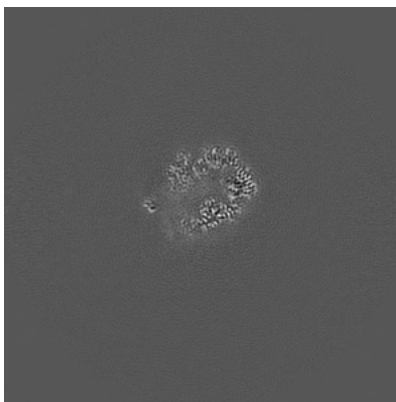
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

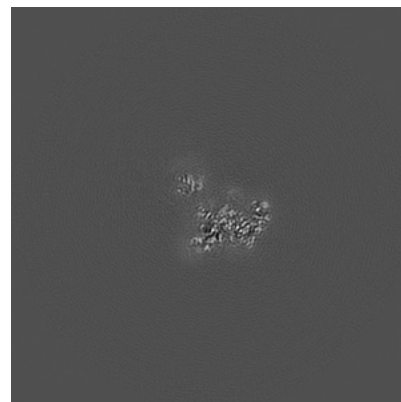
6.3.1 Primary map



X Index: 214

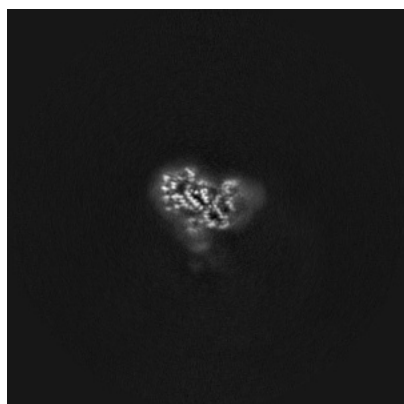


Y Index: 184

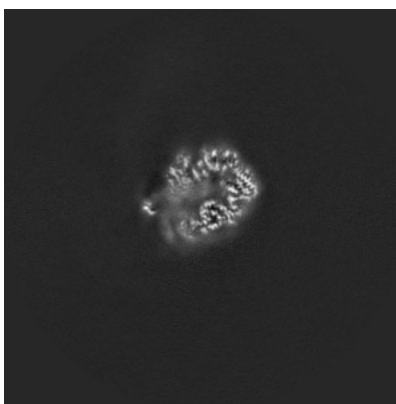


Z Index: 216

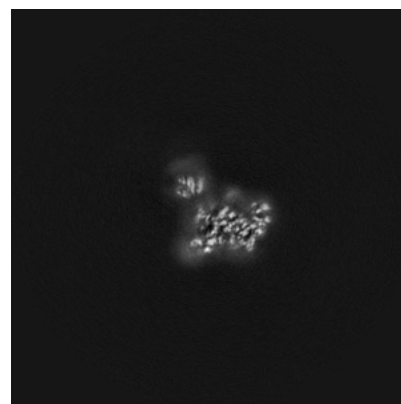
6.3.2 Raw map



X Index: 181



Y Index: 184

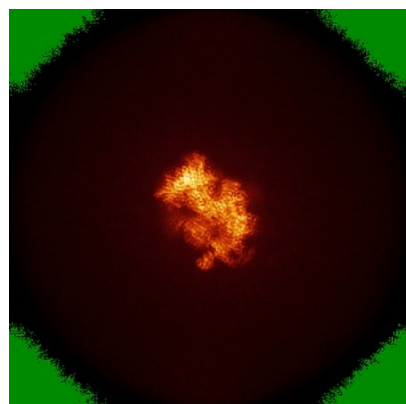


Z Index: 216

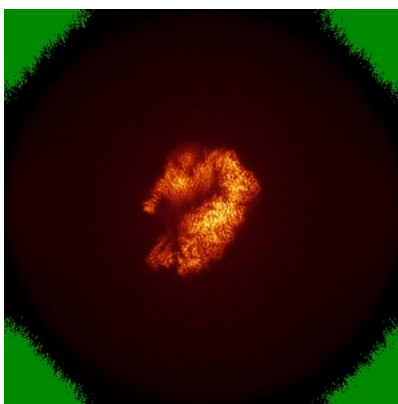
The images above show the largest variance slices of the map in three orthogonal directions.

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

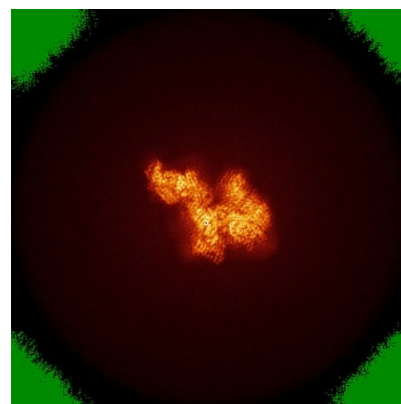
6.4.1 Primary map



X

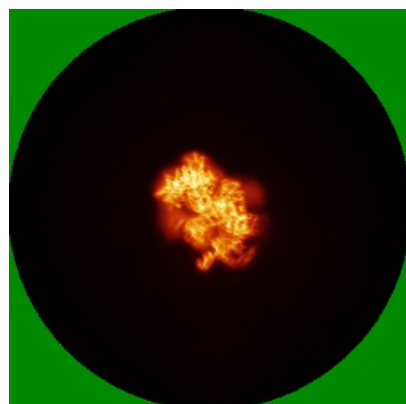


Y



Z

6.4.2 Raw map



X



Y

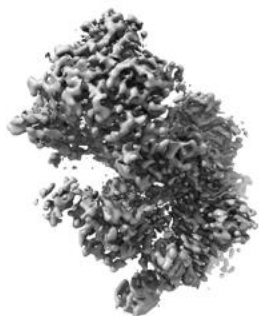


Z

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 [i](#)

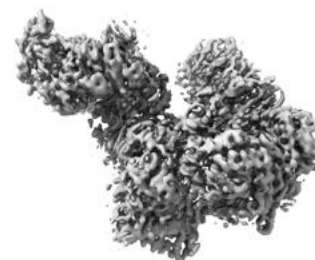
6.5.1 Primary map



X



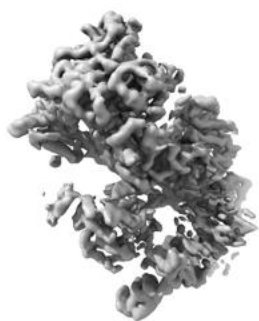
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.03. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

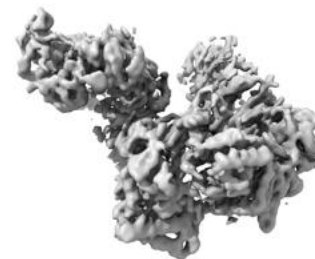
6.5.2 Raw map



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.

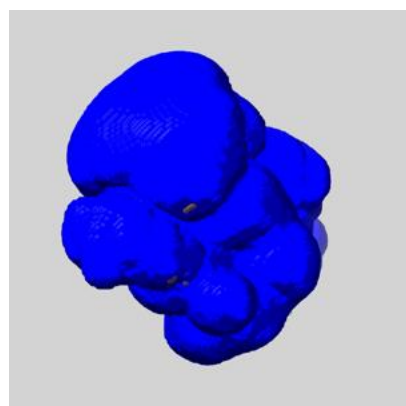
6.6 Mask visualisation [i](#)

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

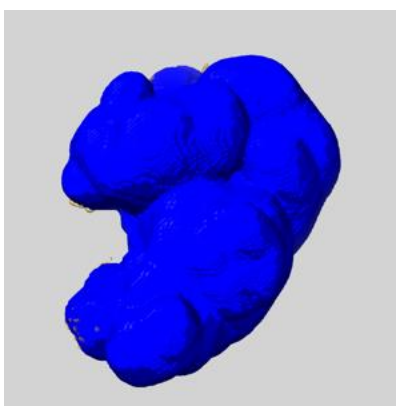
A mask typically either:

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

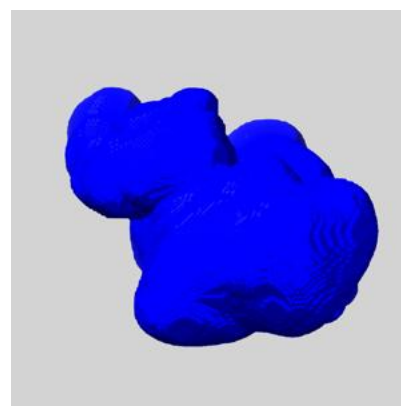
6.6.1 emd_71456_msk_1.map [i](#)



X



Y

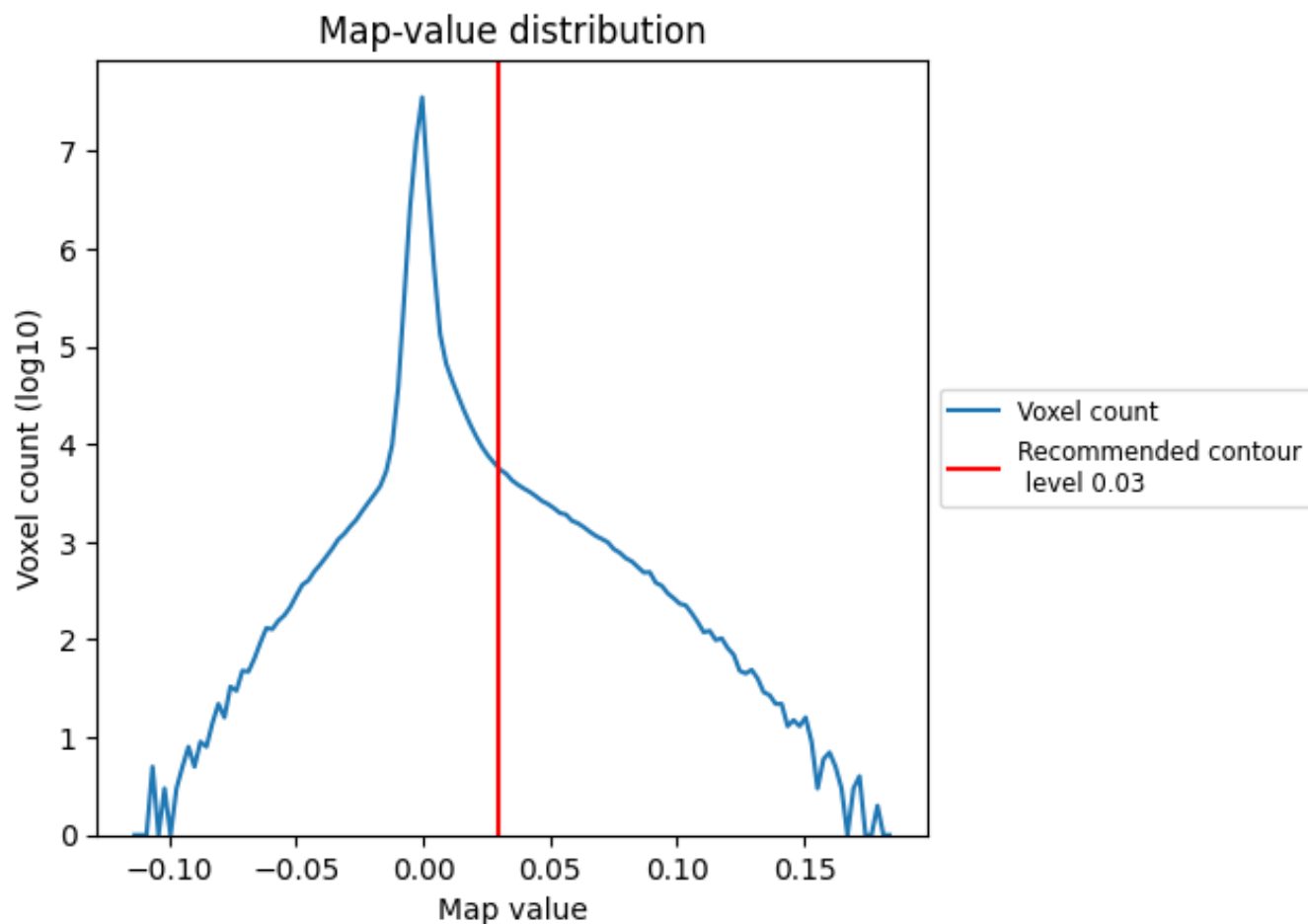


Z

7 Map analysis [i](#)

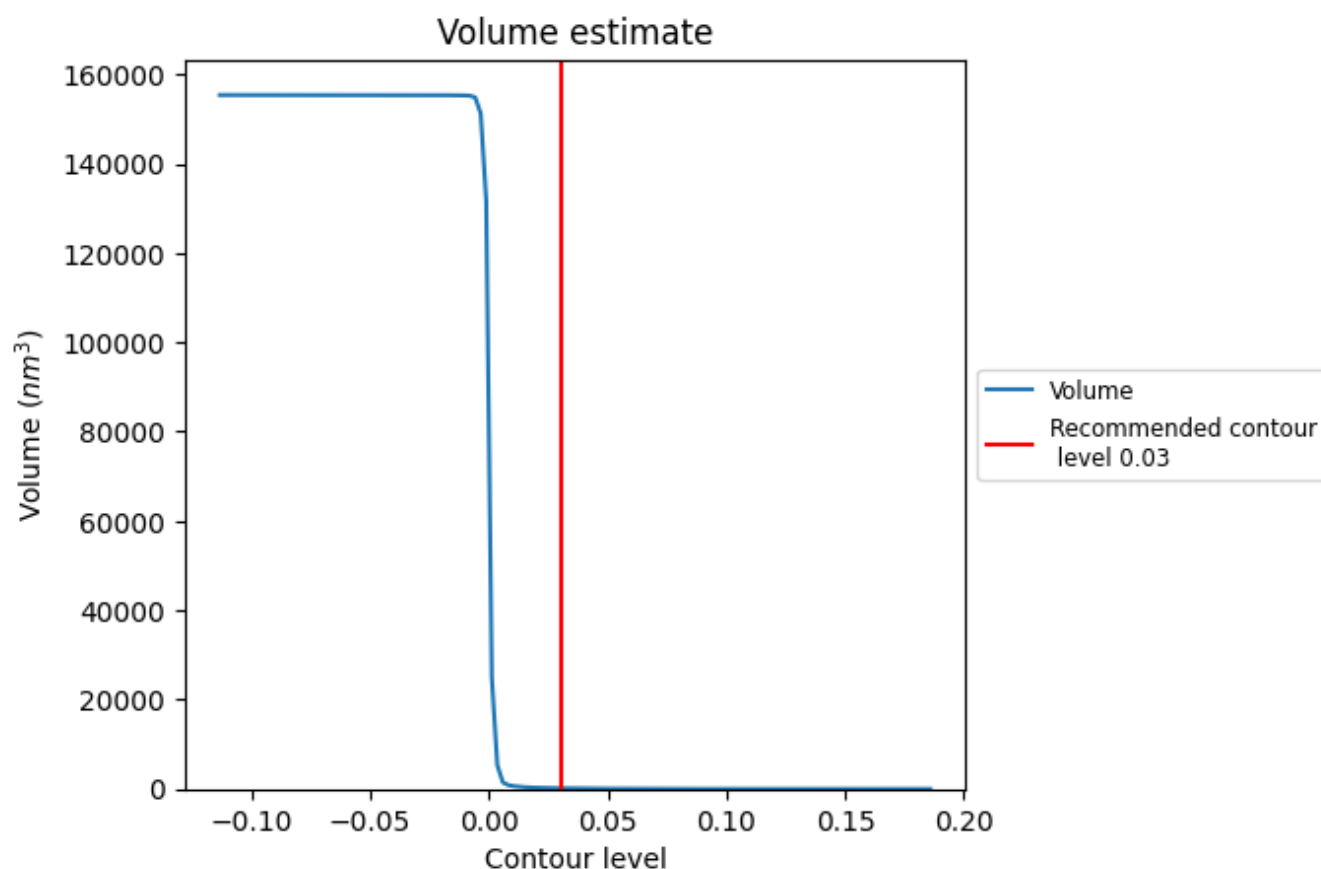
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

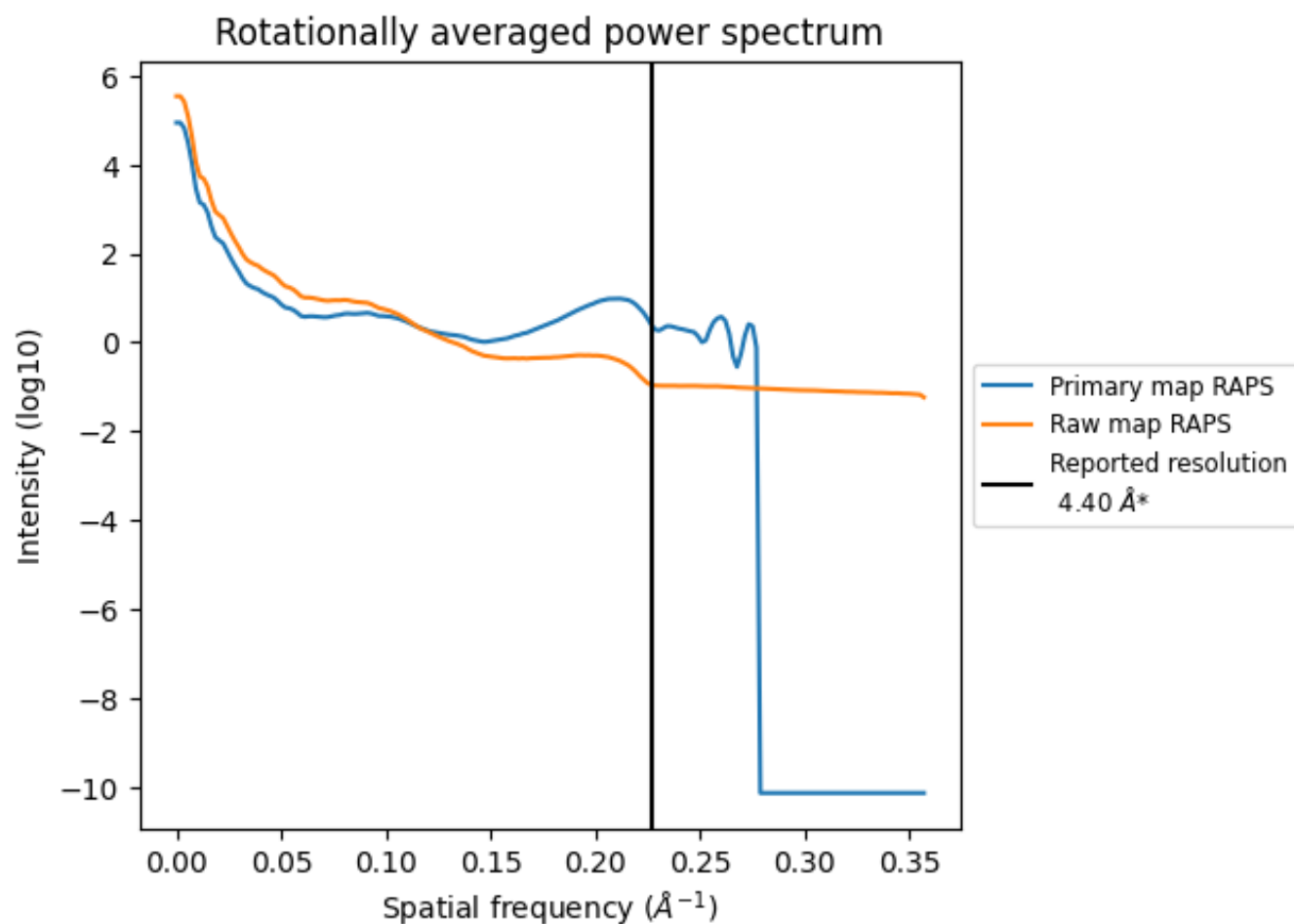
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 156 nm^3 ; this corresponds to an approximate mass of 141 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 ⓘ

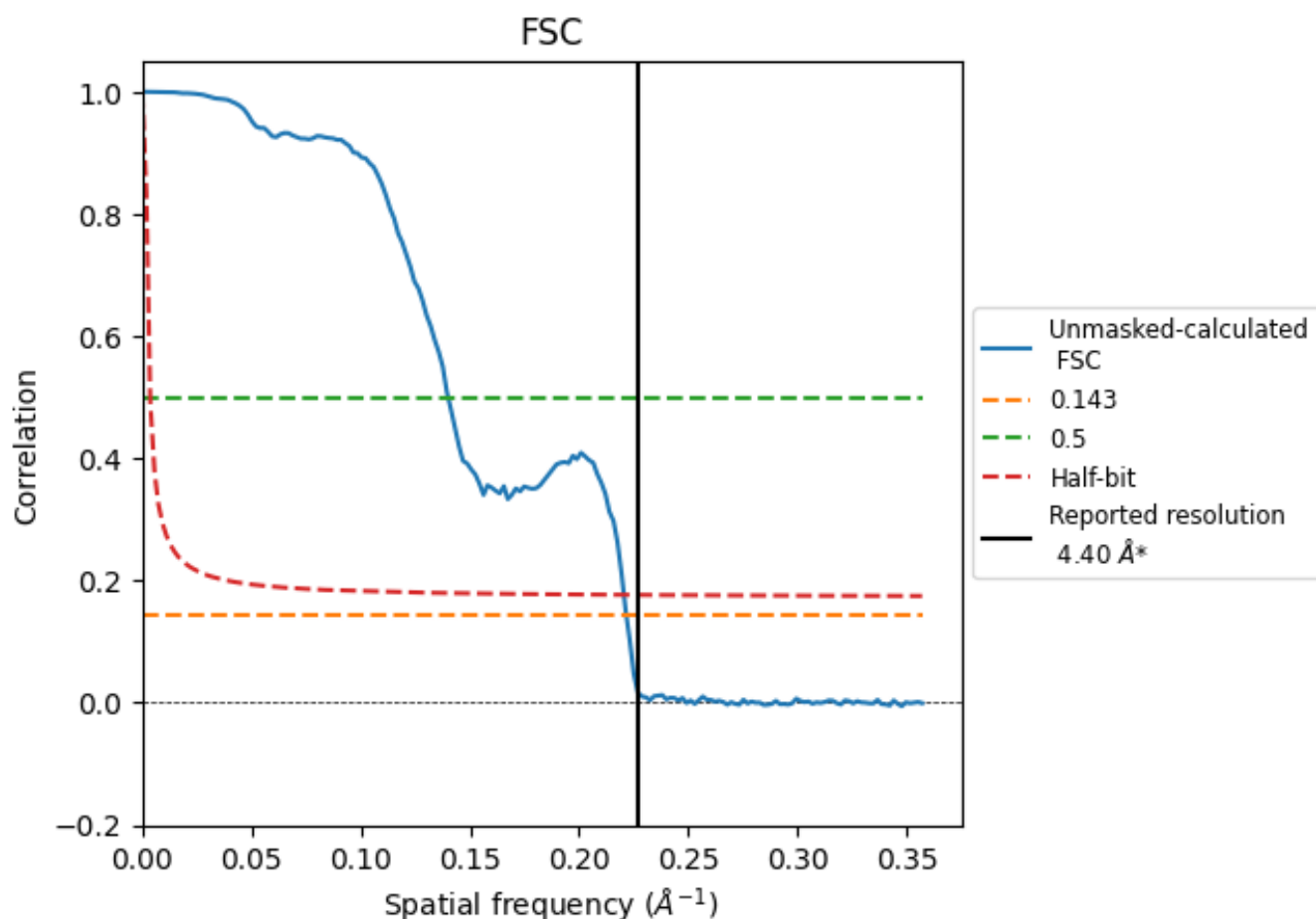


*Reported resolution corresponds to spatial frequency of 0.227 Å⁻¹

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.227 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

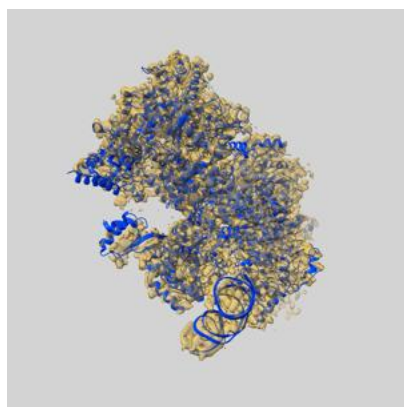
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.40	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	4.51	7.14	4.54

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

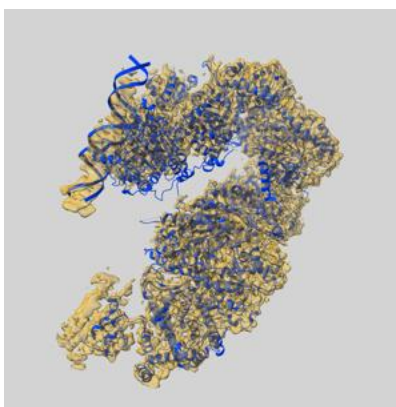
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-71456 and PDB model 9PB7. Per-residue inclusion information can be found in section [3](#) on page [7](#).

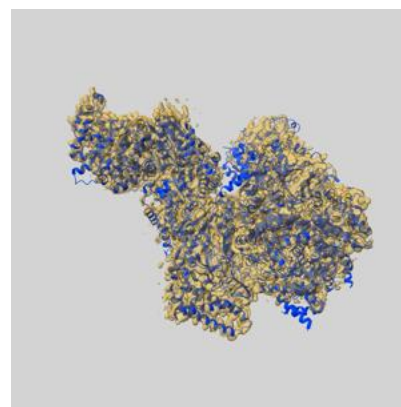
9.1 Map-model overlay [i](#)



X



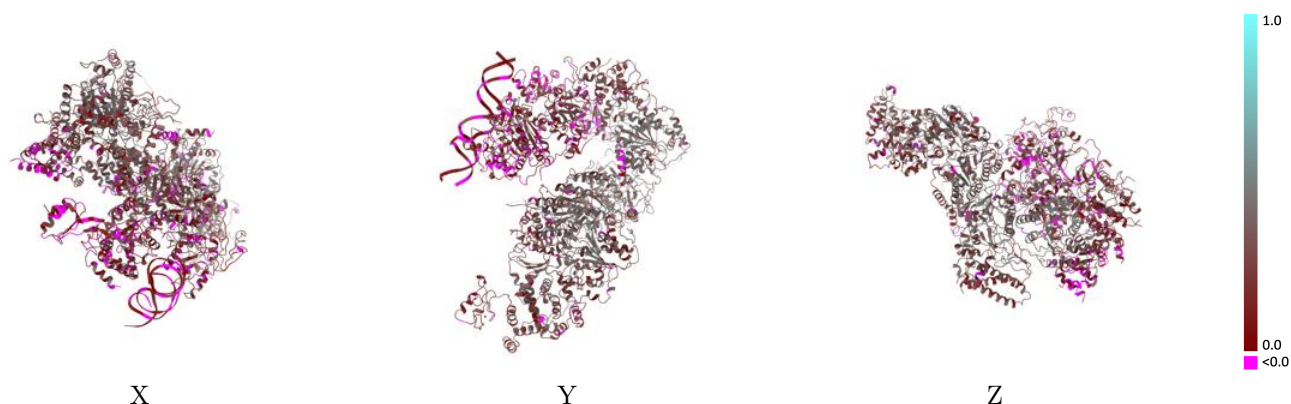
Y



Z

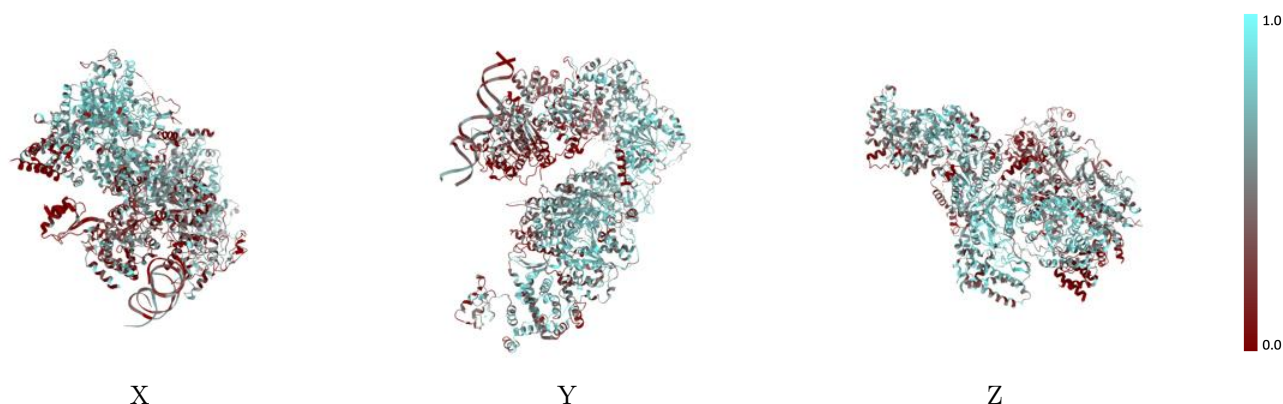
The images above show the 3D surface view of the map at the recommended contour level 0.03 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



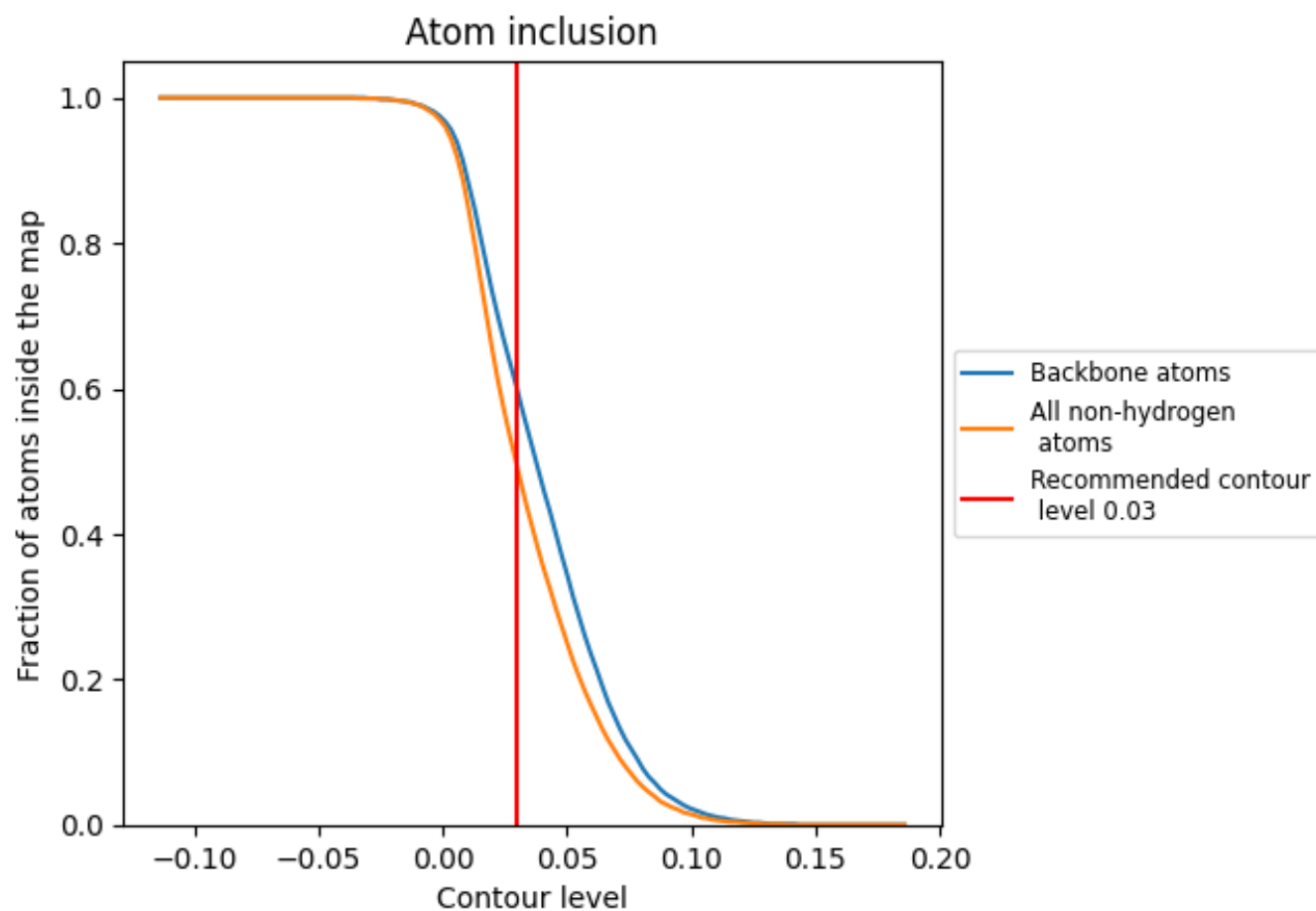
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.03).

9.4 Atom inclusion [i](#)



At the recommended contour level, 60% of all backbone atoms, 49% 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 (0.03) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.4930	0.2640
0	0.6030	0.3340
1	0.4450	0.2850
2	0.4720	0.2140
3	0.5050	0.2440
4	0.7280	0.3970
5	0.3310	0.0700
6	0.6500	0.3600
7	0.3140	0.1860
8	0.0150	0.0170
9	0.0060	-0.0200
N	0.3670	0.0760
T	0.3290	0.0640

1.0

0.0

<0.0