Full wwPDB EM Validation Report ⓘ

Nov 20, 2022 – 08:42 am GMT

PDB ID	:	6HQA
EMDB ID	:	EMD-0251
Title	:	Molecular structure of promoter-bound yeast TFIID
Authors	:	Kolesnikova, O.; Ben-Shem, A.; Luo, J.; Ranish, J.; Schultz, P.; Papai, G.
Deposited on	:	2018-09-24
Resolution	:	7.10 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

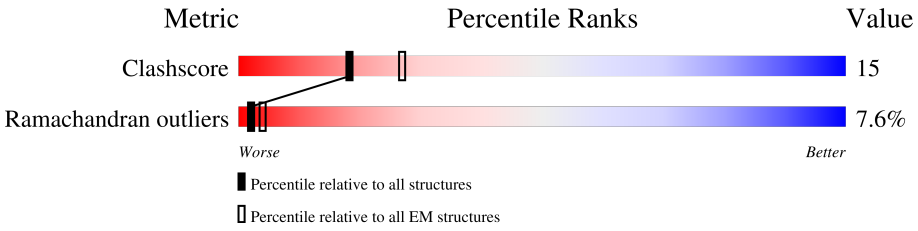
EMDB validation analysis	:	0.0.1.dev43
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.9
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.31.2

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 7.10 Å.

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



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

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	1756	13% 41% 9% 49%
2	B	722	42% 49% 20% • 28%
2	C	722	11% 16% • 81%
3	D	485	8% 43% 8% • 48%
3	E	485	9% 56% 9% 34%
4	F	153	28% 52% 15% 33%
5	G	75	• 95% 5%
6	I	64	52% 89% 11%
7	H	68	41% 88% 12%

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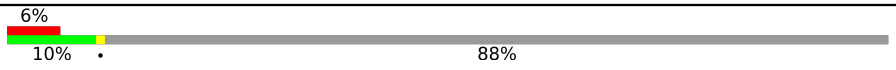
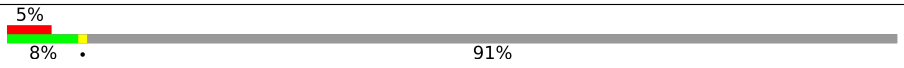
Mol	Chain	Length	Quality of chain
8	K	609	
9	J	553	

2 Entry composition

There are 9 unique types of molecules in this entry. The entry contains 12700 atoms, of which 63 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 Taf2.

Mol	Chain	Residues	Atoms				AltConf	Trace
1	A	887	Total 4396	C 2622	N 887	O 887	0	0

- Molecule 2 is a protein called Subunit (90 kDa) of TFIID and SAGA complexes.

Mol	Chain	Residues	Atoms				AltConf	Trace
2	B	522	Total 2578	C 1534	N 522	O 522	0	0
2	C	136	Total 672	C 400	N 136	O 136	0	0

- Molecule 3 is a protein called Subunit (60 kDa) of TFIID and SAGA complexes.

Mol	Chain	Residues	Atoms				AltConf	Trace
3	D	254	Total 1257	C 749	N 254	O 254	0	0
3	E	320	Total 1585	C 945	N 320	O 320	0	0

- Molecule 4 is a protein called Subunit (17 kDa) of TFIID and SAGA complexes, involved in RNA polymerase II transcription initiation.

Mol	Chain	Residues	Atoms				AltConf	Trace
4	F	103	Total 511	C 305	N 103	O 103	0	0

- Molecule 5 is a protein called Taf8.

Mol	Chain	Residues	Atoms				AltConf	Trace
5	G	75	Total 375	C 225	N 75	O 75	0	0

- Molecule 6 is a protein called Histone-fold.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	I	64	Total	C	H	N	O	0	0
			383	192	63	64	64		

- Molecule 7 is a protein called Histone-fold.

Mol	Chain	Residues	Atoms				AltConf	Trace
7	H	68	Total	C	N	O	0	0
			340	204	68	68		

- Molecule 8 is a protein called Subunit (61/68 kDa) of TFIID and SAGA complexes.

Mol	Chain	Residues	Atoms				AltConf	Trace
8	K	71	Total	C	N	O	0	0
			351	209	71	71		

- Molecule 9 is a protein called TFIID subunit (48 kDa).

Mol	Chain	Residues	Atoms				AltConf	Trace
9	J	51	Total	C	N	O	0	0
			252	150	51	51		

There are 142 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
J	-141	MET	-	initiating methionine	UNP C4R420
J	-140	SER	-	expression tag	UNP C4R420
J	-139	ARG	-	expression tag	UNP C4R420
J	-138	LYS	-	expression tag	UNP C4R420
J	-137	PRO	-	expression tag	UNP C4R420
J	-136	GLU	-	expression tag	UNP C4R420
J	-135	ARG	-	expression tag	UNP C4R420
J	-134	ARG	-	expression tag	UNP C4R420
J	-133	ARG	-	expression tag	UNP C4R420
J	-132	GLN	-	expression tag	UNP C4R420
J	-131	PRO	-	expression tag	UNP C4R420
J	-130	ARG	-	expression tag	UNP C4R420
J	-129	LEU	-	expression tag	UNP C4R420
J	-128	PHE	-	expression tag	UNP C4R420
J	-127	SER	-	expression tag	UNP C4R420
J	-126	ASN	-	expression tag	UNP C4R420
J	-125	ASP	-	expression tag	UNP C4R420
J	-124	MET	-	expression tag	UNP C4R420
J	-123	ARG	-	expression tag	UNP C4R420

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Chain	Residue	Modelled	Actual	Comment	Reference
J	-122	THR	-	expression tag	UNP C4R420
J	-121	LEU	-	expression tag	UNP C4R420
J	-120	LEU	-	expression tag	UNP C4R420
J	-119	PHE	-	expression tag	UNP C4R420
J	-118	ALA	-	expression tag	UNP C4R420
J	-117	TYR	-	expression tag	UNP C4R420
J	-116	GLY	-	expression tag	UNP C4R420
J	-115	ASP	-	expression tag	UNP C4R420
J	-114	VAL	-	expression tag	UNP C4R420
J	-113	GLN	-	expression tag	UNP C4R420
J	-112	GLN	-	expression tag	UNP C4R420
J	-111	PRO	-	expression tag	UNP C4R420
J	-110	GLN	-	expression tag	UNP C4R420
J	-109	LEU	-	expression tag	UNP C4R420
J	-108	GLU	-	expression tag	UNP C4R420
J	-107	THR	-	expression tag	UNP C4R420
J	-106	ILE	-	expression tag	UNP C4R420
J	-105	GLN	-	expression tag	UNP C4R420
J	-104	ALA	-	expression tag	UNP C4R420
J	-103	LEU	-	expression tag	UNP C4R420
J	-102	GLU	-	expression tag	UNP C4R420
J	-101	ASP	-	expression tag	UNP C4R420
J	-100	VAL	-	expression tag	UNP C4R420
J	-99	MET	-	expression tag	UNP C4R420
J	-98	ILE	-	expression tag	UNP C4R420
J	-97	VAL	-	expression tag	UNP C4R420
J	-96	PHE	-	expression tag	UNP C4R420
J	-95	MET	-	expression tag	UNP C4R420
J	-94	THR	-	expression tag	UNP C4R420
J	-93	ASP	-	expression tag	UNP C4R420
J	-92	LEU	-	expression tag	UNP C4R420
J	-91	CYS	-	expression tag	UNP C4R420
J	-90	HIS	-	expression tag	UNP C4R420
J	-89	GLU	-	expression tag	UNP C4R420
J	-88	ALA	-	expression tag	UNP C4R420
J	-87	MET	-	expression tag	UNP C4R420
J	-86	THR	-	expression tag	UNP C4R420
J	-85	TYR	-	expression tag	UNP C4R420
J	-84	ALA	-	expression tag	UNP C4R420
J	-83	THR	-	expression tag	UNP C4R420
J	-82	TYR	-	expression tag	UNP C4R420
J	-81	GLN	-	expression tag	UNP C4R420

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Chain	Residue	Modelled	Actual	Comment	Reference
J	-80	GLY	-	expression tag	UNP C4R420
J	-79	ARG	-	expression tag	UNP C4R420
J	-78	LYS	-	expression tag	UNP C4R420
J	-77	HIS	-	expression tag	UNP C4R420
J	-76	LYS	-	expression tag	UNP C4R420
J	-75	LEU	-	expression tag	UNP C4R420
J	-74	LYS	-	expression tag	UNP C4R420
J	-73	MET	-	expression tag	UNP C4R420
J	-72	GLU	-	expression tag	UNP C4R420
J	-71	ASP	-	expression tag	UNP C4R420
J	-70	PHE	-	expression tag	UNP C4R420
J	-69	LYS	-	expression tag	UNP C4R420
J	-68	PHE	-	expression tag	UNP C4R420
J	-67	ALA	-	expression tag	UNP C4R420
J	-66	LEU	-	expression tag	UNP C4R420
J	-65	ARG	-	expression tag	UNP C4R420
J	-64	LYS	-	expression tag	UNP C4R420
J	-63	ASP	-	expression tag	UNP C4R420
J	-62	ARG	-	expression tag	UNP C4R420
J	-61	LEU	-	expression tag	UNP C4R420
J	-60	LYS	-	expression tag	UNP C4R420
J	-59	LEU	-	expression tag	UNP C4R420
J	-58	GLY	-	expression tag	UNP C4R420
J	-57	ARG	-	expression tag	UNP C4R420
J	-56	VAL	-	expression tag	UNP C4R420
J	-55	GLU	-	expression tag	UNP C4R420
J	-54	GLU	-	expression tag	UNP C4R420
J	-53	LEU	-	expression tag	UNP C4R420
J	-52	MET	-	expression tag	UNP C4R420
J	-51	ASN	-	expression tag	UNP C4R420
J	-50	LYS	-	expression tag	UNP C4R420
J	-49	GLN	-	expression tag	UNP C4R420
J	-48	LYS	-	expression tag	UNP C4R420
J	-47	GLU	-	expression tag	UNP C4R420
J	-46	ILE	-	expression tag	UNP C4R420
J	-45	GLN	-	expression tag	UNP C4R420
J	-44	GLU	-	expression tag	UNP C4R420
J	-43	ALA	-	expression tag	UNP C4R420
J	-42	ARG	-	expression tag	UNP C4R420
J	-41	LYS	-	expression tag	UNP C4R420
J	-40	LEU	-	expression tag	UNP C4R420
J	-39	PHE	-	expression tag	UNP C4R420

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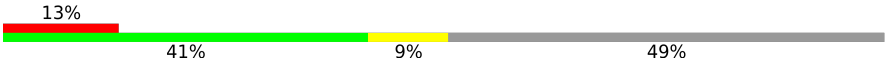
Chain	Residue	Modelled	Actual	Comment	Reference
J	-38	ASP	-	expression tag	UNP C4R420
J	-37	SER	-	expression tag	UNP C4R420
J	-36	ASN	-	expression tag	UNP C4R420
J	-35	GLU	-	expression tag	UNP C4R420
J	-34	LYS	-	expression tag	UNP C4R420
J	-33	GLU	-	expression tag	UNP C4R420
J	-32	THR	-	expression tag	UNP C4R420
J	-31	LYS	-	expression tag	UNP C4R420
J	-30	ASP	-	expression tag	UNP C4R420
J	-29	ASP	-	expression tag	UNP C4R420
J	-28	ASP	-	expression tag	UNP C4R420
J	-27	ILE	-	expression tag	UNP C4R420
J	-26	GLU	-	expression tag	UNP C4R420
J	-25	LYS	-	expression tag	UNP C4R420
J	-24	LYS	-	expression tag	UNP C4R420
J	-23	ARG	-	expression tag	UNP C4R420
J	-22	ARG	-	expression tag	UNP C4R420
J	-21	LYS	-	expression tag	UNP C4R420
J	-20	GLU	-	expression tag	UNP C4R420
J	-19	ALA	-	expression tag	UNP C4R420
J	-18	LYS	-	expression tag	UNP C4R420
J	-17	ARG	-	expression tag	UNP C4R420
J	-16	ALA	-	expression tag	UNP C4R420
J	-15	ILE	-	expression tag	UNP C4R420
J	-14	LYS	-	expression tag	UNP C4R420
J	-13	GLU	-	expression tag	UNP C4R420
J	-12	ALA	-	expression tag	UNP C4R420
J	-11	LYS	-	expression tag	UNP C4R420
J	-10	LYS	-	expression tag	UNP C4R420
J	-9	LEU	-	expression tag	UNP C4R420
J	-8	LYS	-	expression tag	UNP C4R420
J	-7	LEU	-	expression tag	UNP C4R420
J	-6	SER	-	expression tag	UNP C4R420
J	-5	LYS	-	expression tag	UNP C4R420
J	-4	GLY	-	expression tag	UNP C4R420
J	-3	ASP	-	expression tag	UNP C4R420
J	-2	THR	-	expression tag	UNP C4R420
J	-1	ALA	-	expression tag	UNP C4R420
J	0	PHE	-	expression tag	UNP C4R420

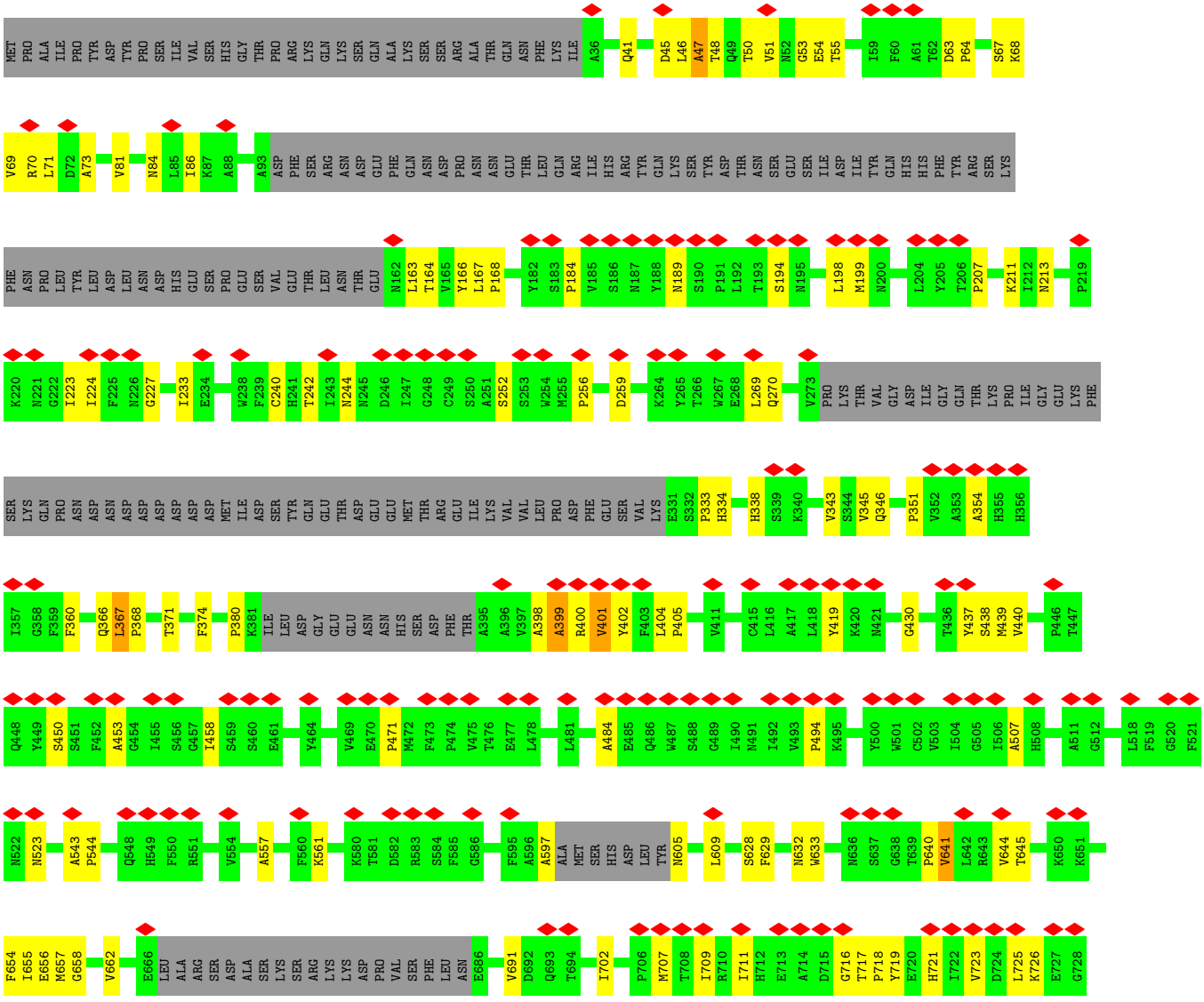
3 Residue-property plots (i)

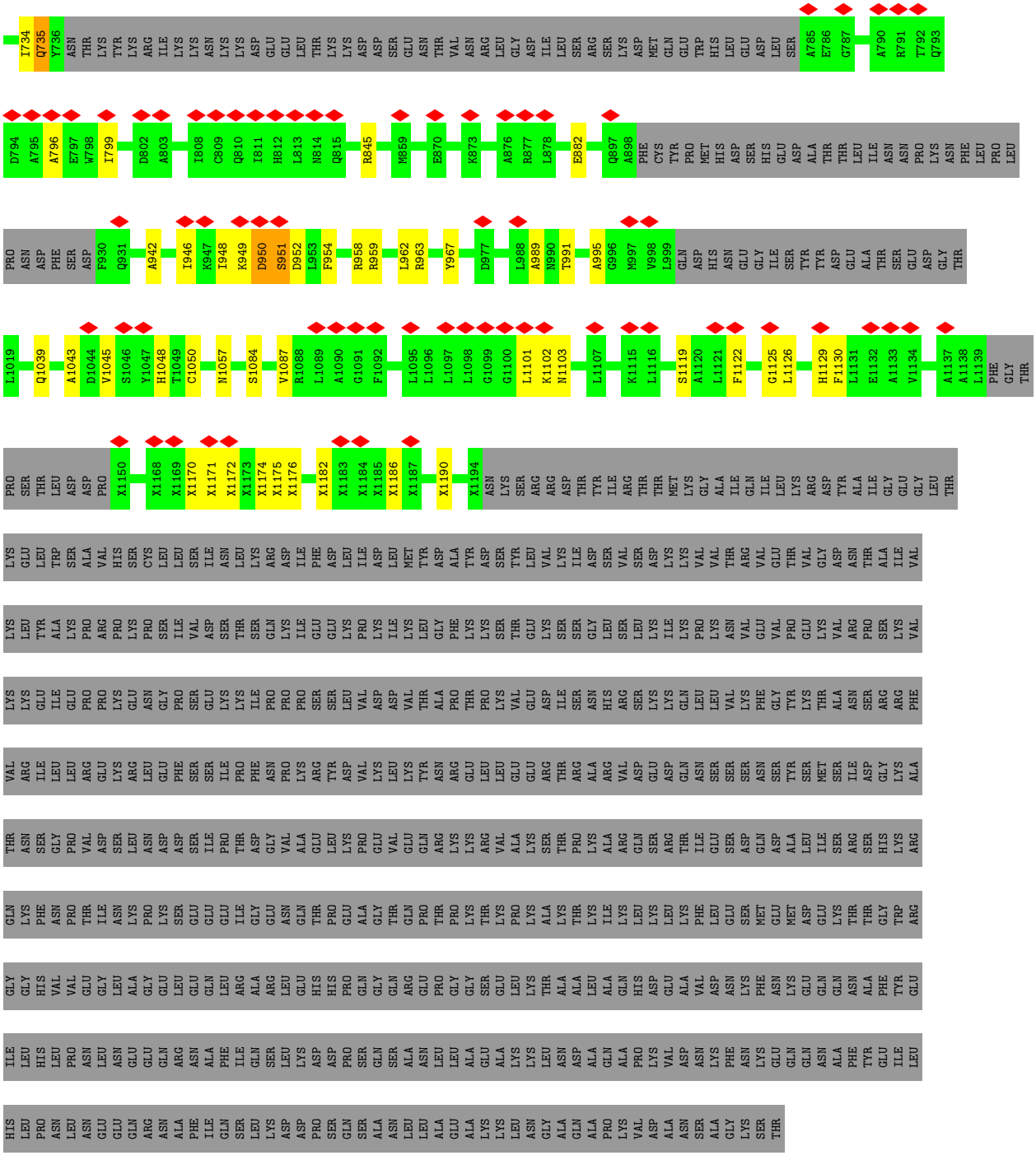
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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: Taf2

Chain A:

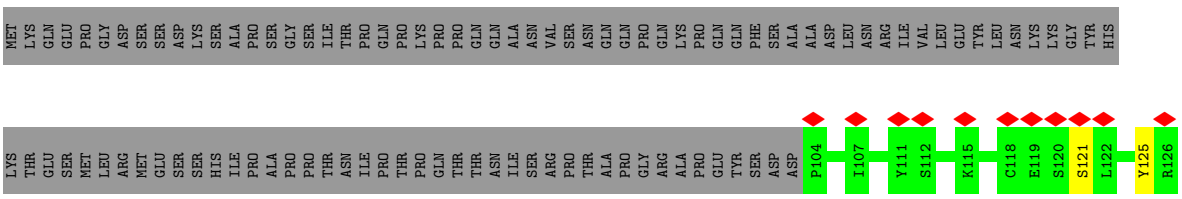


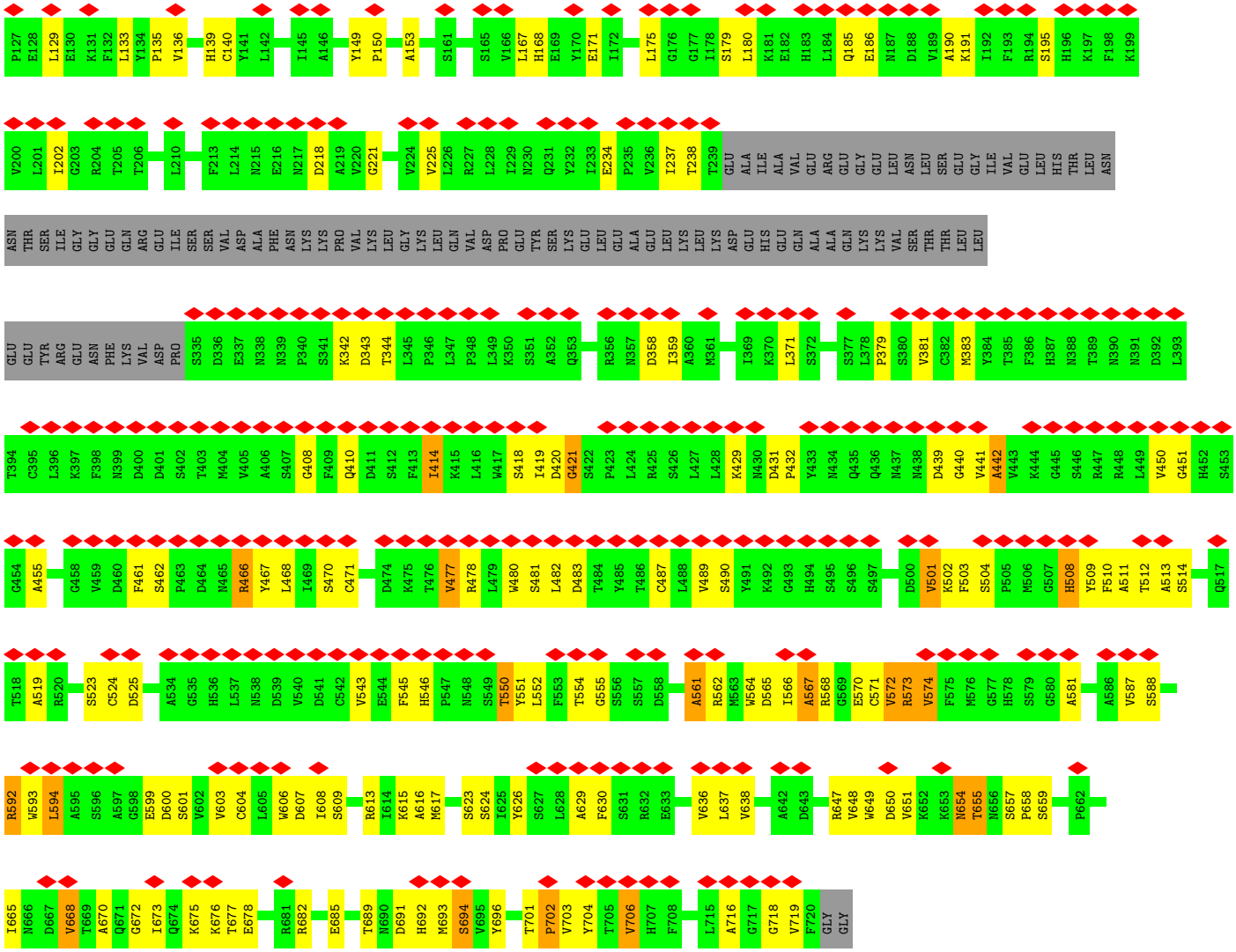




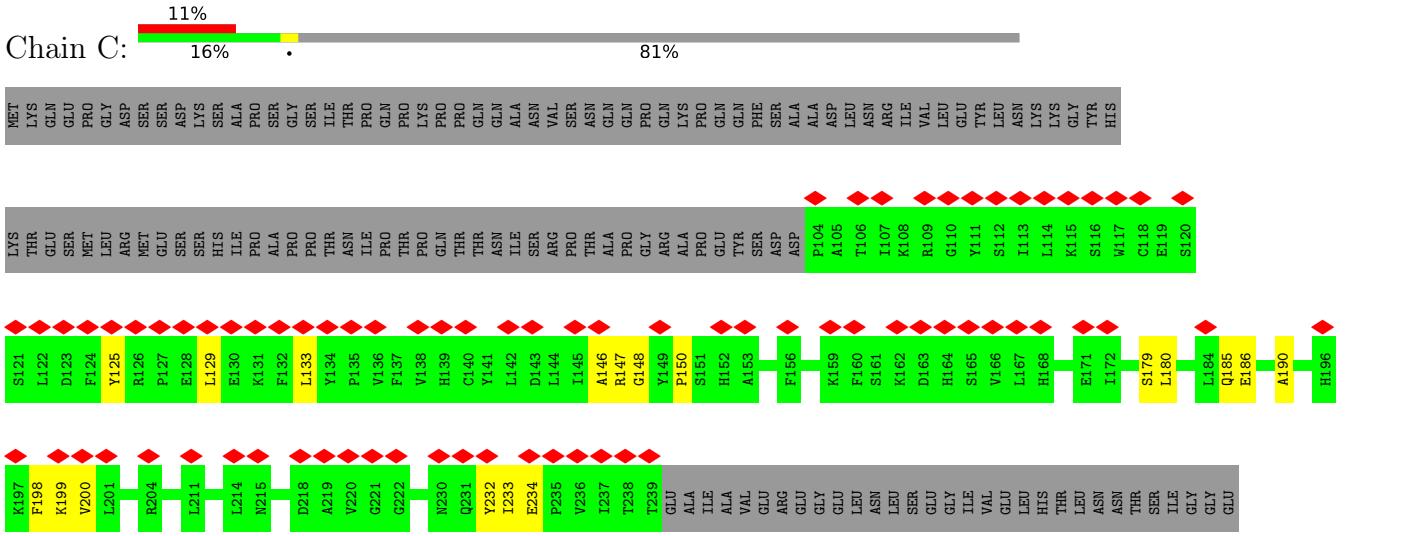
• Molecule 2: Subunit (90 kDa) of TFIID and SAGA complexes

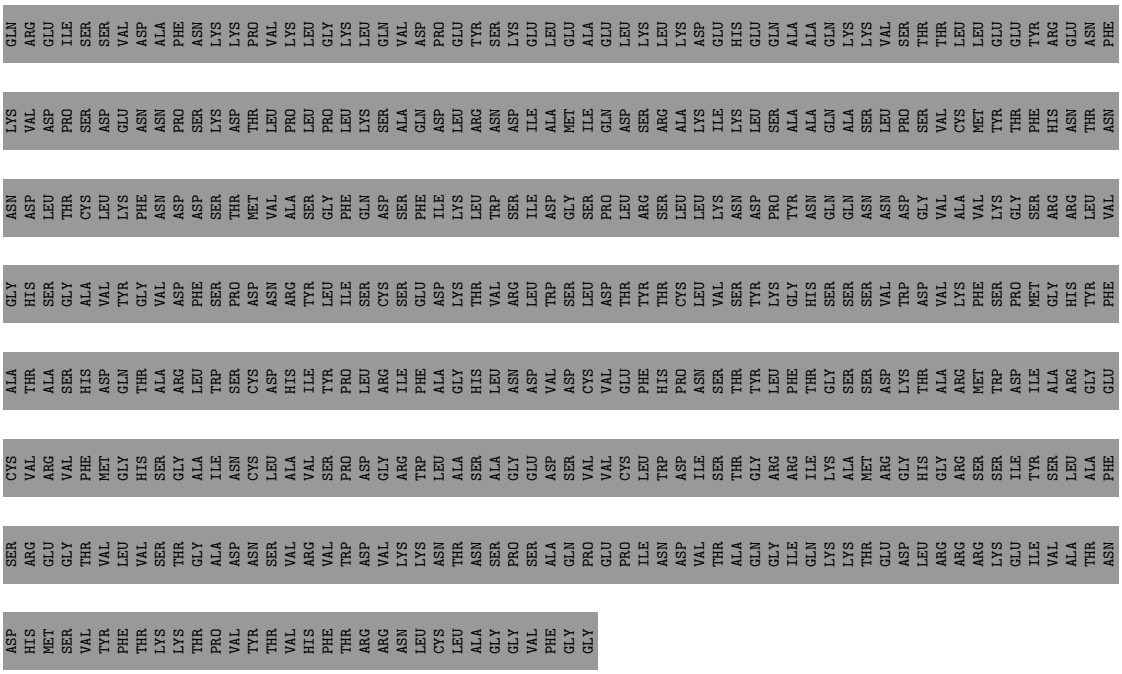
Chain B:





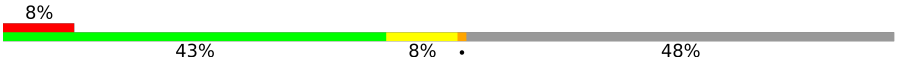
• Molecule 2: Subunit (90 kDa) of TFIID and SAGA complexes

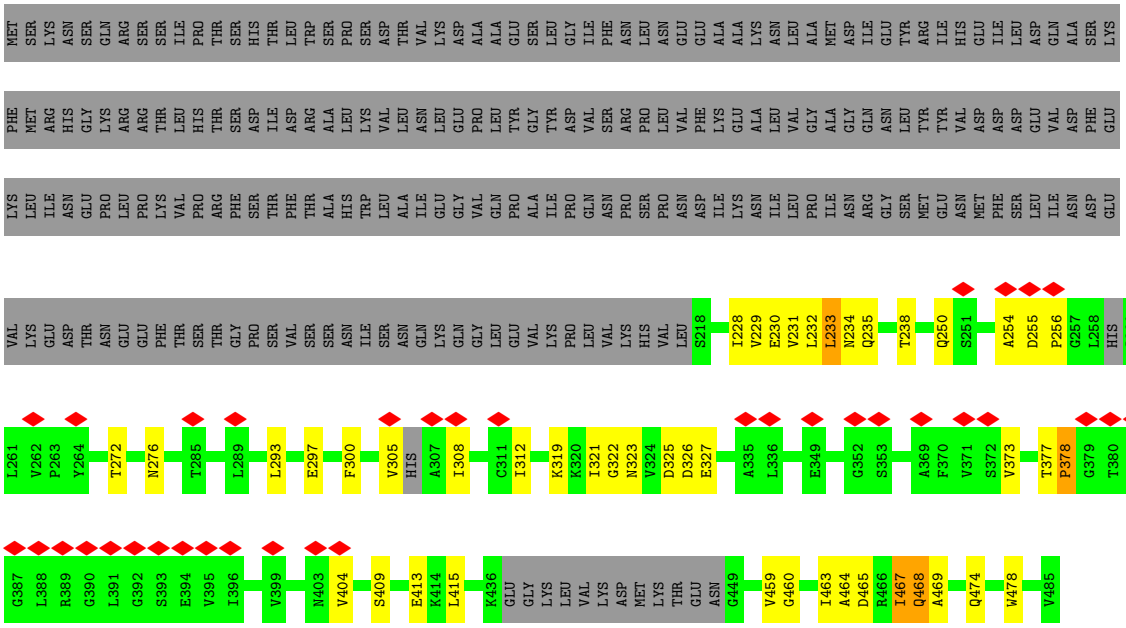




• Molecule 3: Subunit (60 kDa) of TFIID and SAGA complexes

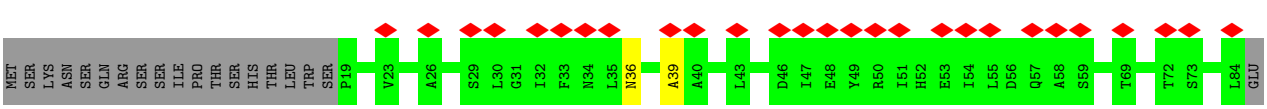
Chain D:

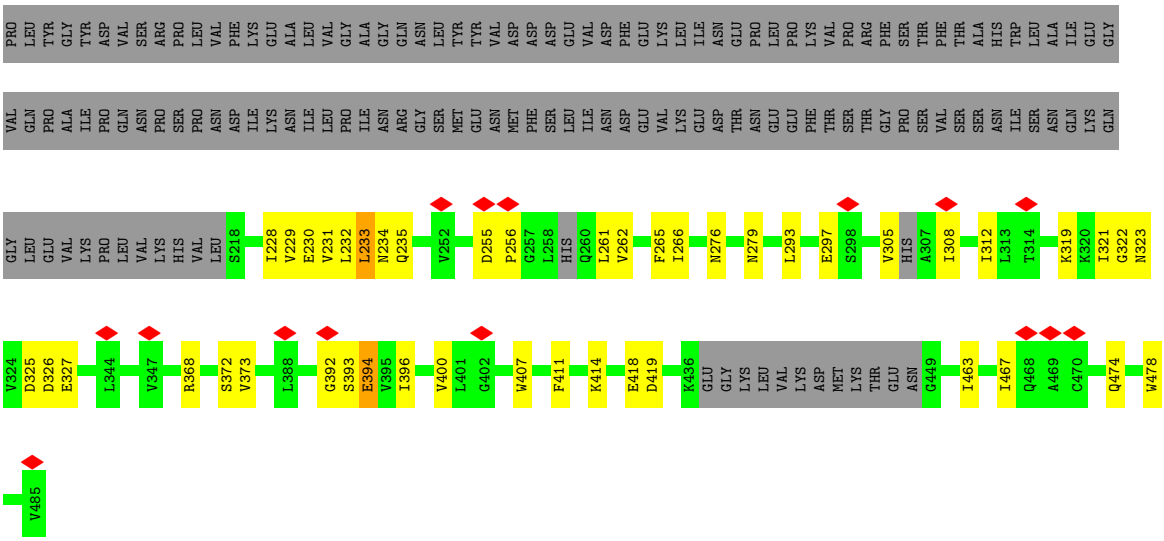




• Molecule 3: Subunit (60 kDa) of TFIID and SAGA complexes

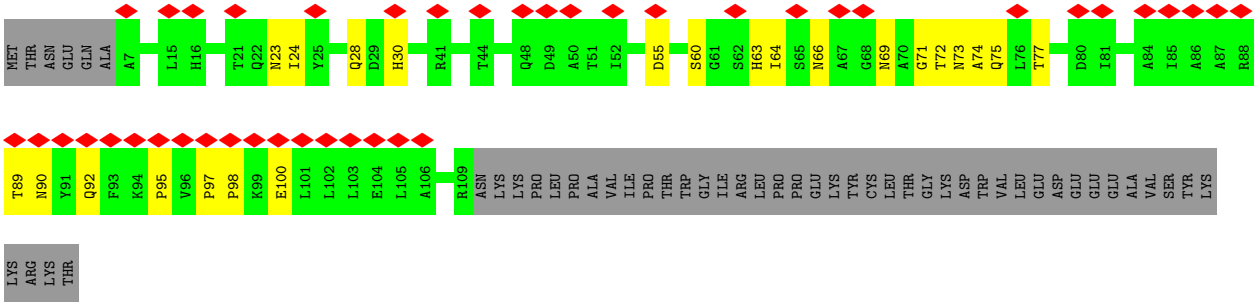
Chain E:





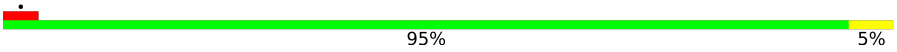
• Molecule 4: Subunit (17 kDa) of TFIID and SAGA complexes, involved in RNA polymerase II transcription initiation

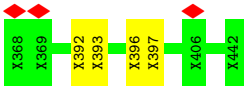
Chain F:



• Molecule 5: Taf8

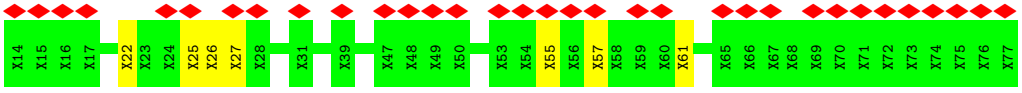
Chain G:





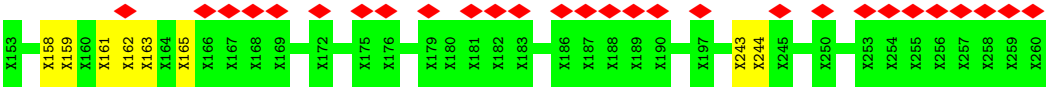
• Molecule 6: Histone-fold

Chain I:



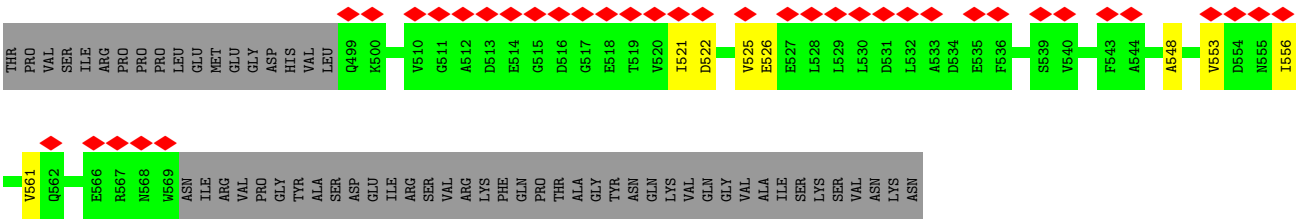
• Molecule 7: Histone-fold

Chain H:



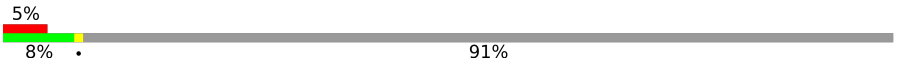
• Molecule 8: Subunit (61/68 kDa) of TFIID and SAGA complexes

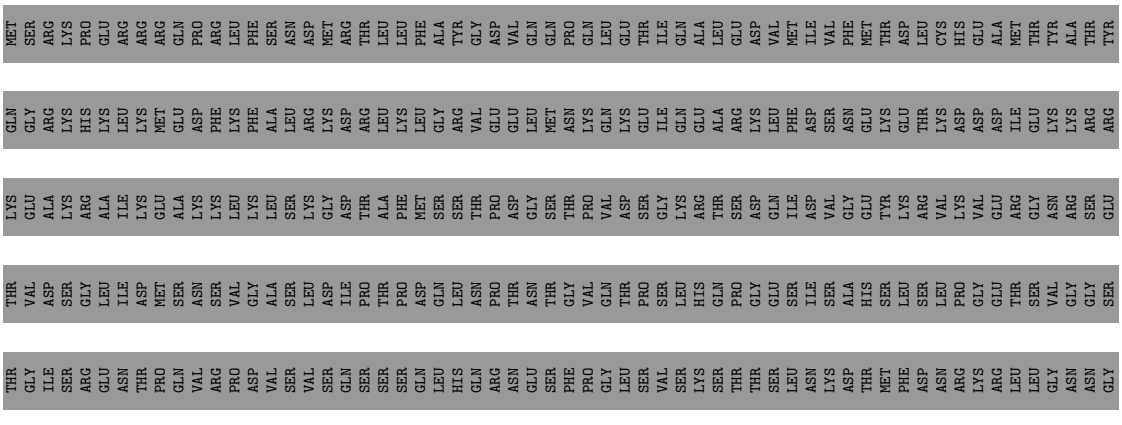
Chain K:

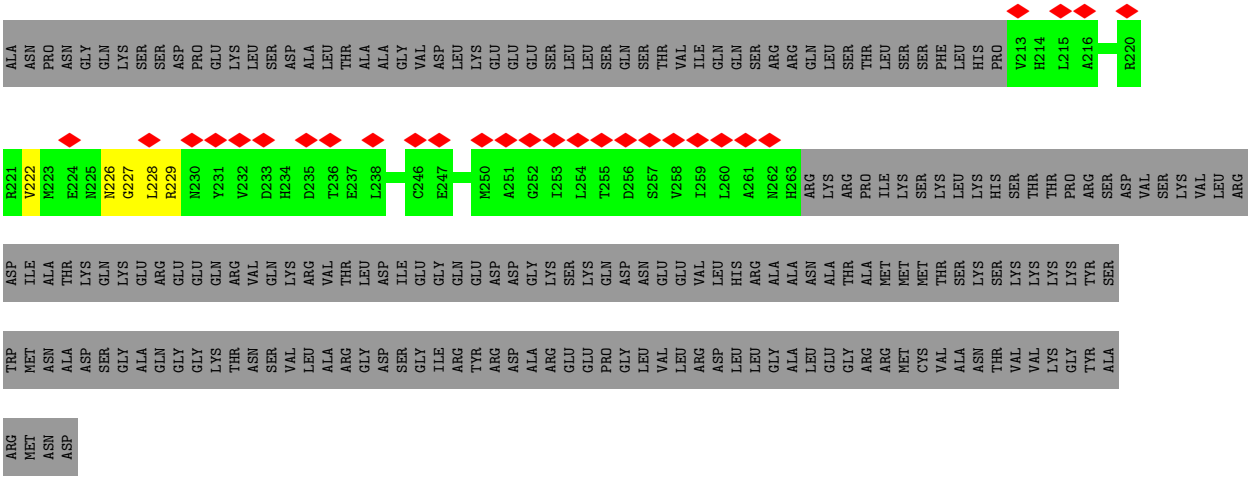


• Molecule 9: TFIID subunit (48 kDa)

Chain J:






ALA ASN PRO ASN GLY GLN LYS SER SER ASP PRO GLU LYS LEU SER ASP ALA LEU THR ALA ALA GLY VAL ASP LEU LYS GLU GLU GLU SER LEU LEU SER GLN SER THR VAL ILE GLN GLN SER ARG ARG GLN LEU SER THR LEU SER SER PHE LEU HIS PRO V213 H214 L215 A216 R220
R221 V222 M223 E224 N225 N226 G227 L228 R229 N230 Y231 V232 D233 H234 D235 T236 E237 L238 C246 E247 M250 A251 G252 I253 L254 T255 D256 S257 V258 I259 L260 A261 N262 H263 ARG LYS ARG PRO ILE LYS SER LYS LEU LYS HIS SER THR THR PRO ARG SER ASP VAL SER LYS VAL LEU ARG
ASP ILE ALA THR LYS GLN LYS GLU ARG GLU GLU GLN GLN ARG VAL GLN LYS ARG VAL THR LEU ASP ILE GLU GLY GLN GLU ASP ASP GLY LYS SER LYS GLN ASP ASN GLU GLU VAL LEU HIS ARG ALA ALA ASN ALA THR ALA MET MET MET THR SER LYS SER LYS LYS LYS LYS TYR SER
TRP MET ASN ALA ASP SER GLY ALA GLN GLY GLY GLY LYS THR ASN SER VAL LEU ALA ARG GLY ASP SER GLY ILE ARG TYR ARG ASP ALA ARG GLU GLU PRO GLY LEU VAL LEU ARG ASP LEU LEU GLY ALA LEU GLU GLY ARG ARG MET CYS VAL ALA ASN THR VAL VAL LYS GLY TYR ALA
ARG MET ASN ASP

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	180823	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 ($e^-/Å^2$)	52.8	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	4900	Depositor
Magnification	45454	Depositor
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.022	Depositor
Minimum map value	-0.014	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.001	Depositor
Recommended contour level	0.004	Depositor
Map size (Å)	352.0, 352.0, 352.0	wwPDB
Map dimensions	320, 320, 320	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.1, 1.1, 1.1	Depositor

5 Model quality

5.1 Standard geometry

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	0.23	0/4156	0.41	0/5771
2	B	0.23	0/2572	0.40	0/3572
2	C	0.23	0/671	0.40	0/933
3	D	0.23	0/1254	0.37	0/1743
3	E	0.22	0/1582	0.37	0/2201
4	F	0.23	0/510	0.40	0/710
8	K	0.23	0/349	0.37	0/483
9	J	0.23	0/251	0.35	0/348
All	All	0.23	0/11345	0.39	0/15761

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	4396	0	1883	79	0
2	B	2578	0	1144	102	0
2	C	672	0	290	4	0
3	D	1257	0	548	29	0
3	E	1585	0	703	29	0
4	F	511	0	246	9	0
5	G	375	0	84	2	0
6	I	320	63	67	4	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
7	H	340	0	72	4	0
8	K	351	0	156	3	0
9	J	252	0	116	2	0
All	All	12637	63	5309	263	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 15.

All (263) 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)
1:A:67:SER:HA	1:A:167:LEU:O	1.27	1.30
1:A:45:ASP:CA	1:A:50:THR:O	1.85	1.24
2:B:592:ARG:HA	2:B:608:ILE:O	1.32	1.23
2:B:550:THR:HA	2:B:566:ILE:O	1.29	1.23
2:B:466:ARG:HA	2:B:482:LEU:O	1.40	1.18
1:A:45:ASP:HA	1:A:50:THR:O	0.98	1.13
2:B:572:VAL:O	2:B:573:ARG:O	1.69	1.10
2:B:508:HIS:HA	2:B:524:CYS:O	1.47	1.09
2:B:480:TRP:HA	2:B:487:CYS:HA	1.39	1.04
2:B:545:PHE:HA	2:B:552:LEU:HA	1.42	1.01
1:A:400:ARG:O	1:A:438:SER:HA	1.59	1.00
2:B:461:PHE:HA	2:B:468:LEU:HA	1.45	0.98
2:B:550:THR:CA	2:B:566:ILE:O	2.10	0.98
1:A:399:ALA:HA	1:A:437:TYR:O	1.64	0.97
1:A:224:ILE:O	1:A:242:THR:HA	1.62	0.97
2:B:629:ALA:HB1	2:B:670:ALA:HB2	1.47	0.96
2:B:606:TRP:HA	2:B:613:ARG:HA	1.46	0.95
2:B:676:LYS:HA	2:B:682:ARG:HA	1.51	0.92
1:A:41:GLN:O	1:A:53:GLY:HA3	1.68	0.91
2:B:592:ARG:CA	2:B:608:ILE:O	2.18	0.89
3:E:36:ASN:HA	4:F:66:ASN:HA	1.54	0.89
2:B:564:TRP:HA	2:B:571:CYS:HA	1.55	0.89
4:F:63:HIS:HA	4:F:73:ASN:HA	1.55	0.89
2:B:604:CYS:HA	2:B:616:ALA:HA	1.54	0.88
3:E:229:VAL:O	3:E:232:LEU:O	1.90	0.88
1:A:270:GLN:HA	1:A:343:VAL:O	1.73	0.88
2:B:501:VAL:HA	2:B:512:THR:HA	1.54	0.88
3:D:229:VAL:O	3:D:232:LEU:O	1.91	0.88
3:D:464:ALA:O	3:D:467:ILE:O	1.92	0.88
2:B:470:SER:O	2:B:477:VAL:HA	1.75	0.86

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:E:232:LEU:O	3:E:234:ASN:N	2.09	0.86
3:D:467:ILE:O	3:D:469:ALA:N	2.09	0.85
3:D:232:LEU:O	3:D:234:ASN:N	2.09	0.85
2:B:562:ARG:HA	2:B:574:VAL:HA	1.59	0.85
1:A:402:TYR:O	1:A:440:VAL:HA	1.77	0.84
2:B:587:VAL:HA	2:B:594:LEU:HA	1.59	0.83
2:B:466:ARG:CA	2:B:482:LEU:O	2.24	0.83
2:B:508:HIS:HA	2:B:524:CYS:C	2.01	0.81
3:D:465:ASP:O	3:D:469:ALA:HB3	1.79	0.81
2:B:149:TYR:O	2:B:153:ALA:HB3	1.81	0.80
1:A:67:SER:CA	1:A:167:LEU:O	2.21	0.80
1:A:1170:UNK:HA	1:A:1172:UNK:N	1.97	0.80
1:A:1172:UNK:O	1:A:1176:UNK:CB	2.30	0.79
2:B:129:LEU:O	2:B:133:LEU:CB	2.33	0.77
1:A:68:LYS:HA	1:A:166:TYR:HA	1.65	0.77
1:A:1170:UNK:O	1:A:1174:UNK:CB	2.33	0.77
2:B:508:HIS:CA	2:B:524:CYS:O	2.32	0.76
3:E:231:VAL:O	3:E:235:GLN:CB	2.34	0.76
1:A:1171:UNK:O	1:A:1175:UNK:CB	2.33	0.76
2:B:650:ASP:H	2:B:654:ASN:HA	1.49	0.76
2:B:502:LYS:O	2:B:511:ALA:HB3	1.86	0.75
2:B:552:LEU:CB	2:B:564:TRP:O	2.34	0.75
2:B:555:GLY:HA2	2:B:561:ALA:HA	1.66	0.75
3:D:231:VAL:O	3:D:235:GLN:CB	2.35	0.75
3:E:321:ILE:O	3:E:325:ASP:CB	2.34	0.74
3:D:230:GLU:O	3:D:234:ASN:CB	2.35	0.74
1:A:711:ILE:HA	1:A:799:ILE:HA	1.69	0.74
2:B:603:VAL:CB	2:B:617:MET:O	2.36	0.74
1:A:399:ALA:CA	1:A:437:TYR:O	2.36	0.74
2:B:546:HIS:O	2:B:551:TYR:CB	2.36	0.74
3:E:230:GLU:O	3:E:234:ASN:CB	2.36	0.73
1:A:70:ARG:HA	1:A:163:LEU:O	1.88	0.73
7:H:161:UNK:O	7:H:165:UNK:CB	2.37	0.73
2:C:129:LEU:O	2:C:133:LEU:CB	2.37	0.73
1:A:401:VAL:HA	1:A:439:MET:H	1.53	0.72
1:A:1182:UNK:O	1:A:1186:UNK:CB	2.37	0.72
9:J:222:VAL:O	9:J:226:ASN:CB	2.38	0.72
3:D:321:ILE:O	3:D:325:ASP:CB	2.37	0.72
2:B:693:MET:O	2:B:694:SER:O	2.08	0.71
1:A:629:PHE:O	1:A:633:TRP:CB	2.39	0.71
2:B:685:GLU:HA	2:B:691:ASP:O	1.90	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:408:GLY:HA2	2:B:414:ILE:HA	1.74	0.70
7:H:159:UNK:O	7:H:163:UNK:CB	2.40	0.70
1:A:991:THR:O	1:A:995:ALA:HB3	1.91	0.70
2:B:191:LYS:O	2:B:195:SER:CB	2.39	0.70
1:A:401:VAL:HA	1:A:439:MET:N	2.07	0.70
2:B:149:TYR:O	2:B:153:ALA:CB	2.39	0.69
1:A:194:SER:O	1:A:198:LEU:CB	2.41	0.69
1:A:628:SER:O	1:A:632:ASN:CB	2.40	0.69
1:A:645:THR:O	1:A:657:MET:HA	1.94	0.68
2:B:186:GLU:N	2:B:190:ALA:HB2	2.09	0.68
3:E:261:LEU:O	3:E:265:PHE:CB	2.42	0.68
1:A:711:ILE:O	1:A:719:TYR:CB	2.42	0.67
2:B:638:VAL:HA	2:B:648:VAL:HA	1.76	0.67
5:G:393:UNK:O	5:G:397:UNK:CB	2.42	0.67
8:K:521:ILE:O	8:K:525:VAL:CB	2.43	0.67
1:A:1122:PHE:O	1:A:1126:LEU:CB	2.43	0.66
3:E:262:VAL:O	3:E:266:ILE:CB	2.42	0.66
2:B:592:ARG:HA	2:B:608:ILE:C	2.15	0.66
2:B:504:SER:O	2:B:509:TYR:CB	2.44	0.66
2:B:462:SER:O	2:B:467:TYR:CB	2.43	0.65
2:B:466:ARG:HA	2:B:482:LEU:C	2.16	0.65
2:B:466:ARG:O	2:B:481:SER:HA	1.96	0.65
3:E:308:ILE:O	3:E:312:ILE:CB	2.45	0.65
1:A:1186:UNK:O	1:A:1190:UNK:CB	2.43	0.65
5:G:392:UNK:O	5:G:396:UNK:CB	2.45	0.65
2:B:682:ARG:O	2:B:696:TYR:CB	2.45	0.64
1:A:654:PHE:HA	1:A:735:GLN:HA	1.79	0.64
4:F:89:THR:CB	4:F:90:ASN:HA	2.25	0.64
2:B:650:ASP:N	2:B:654:ASN:HA	2.13	0.64
1:A:484:ALA:HB1	1:A:507:ALA:HA	1.78	0.64
2:B:647:ARG:CB	2:B:657:SER:HA	2.28	0.63
1:A:71:LEU:O	1:A:163:LEU:CB	2.47	0.63
1:A:269:LEU:O	1:A:345:VAL:CB	2.47	0.63
1:A:1125:GLY:O	1:A:1129:HIS:CB	2.47	0.62
3:D:308:ILE:O	3:D:312:ILE:CB	2.47	0.62
3:E:463:ILE:O	3:E:467:ILE:CB	2.48	0.62
1:A:707:MET:O	1:A:723:VAL:CB	2.48	0.62
2:B:503:PHE:CB	2:B:510:PHE:HA	2.31	0.61
3:E:293:LEU:O	3:E:297:GLU:CB	2.49	0.61
2:B:125:TYR:O	2:B:129:LEU:CB	2.49	0.61
3:D:323:ASN:HA	3:D:327:GLU:HA	1.83	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:368:PRO:HA	1:A:399:ALA:O	2.02	0.60
3:D:229:VAL:O	3:D:232:LEU:C	2.40	0.60
1:A:41:GLN:O	1:A:53:GLY:CA	2.48	0.60
1:A:942:ALA:O	1:A:946:ILE:CB	2.49	0.60
2:B:592:ARG:C	2:B:608:ILE:H	2.05	0.59
1:A:644:VAL:HA	1:A:658:GLY:O	2.02	0.59
2:B:471:CYS:HA	2:B:477:VAL:HA	1.83	0.59
3:E:229:VAL:O	3:E:232:LEU:C	2.40	0.59
3:E:407:TRP:O	3:E:411:PHE:CB	2.50	0.59
4:F:66:ASN:H	4:F:71:GLY:HA2	1.67	0.59
2:B:564:TRP:HA	2:B:571:CYS:CA	2.30	0.59
2:B:550:THR:CB	2:B:566:ILE:O	2.51	0.59
3:D:463:ILE:O	3:D:467:ILE:CB	2.50	0.58
2:B:601:SER:H	2:B:624:SER:HA	1.68	0.58
2:B:581:ALA:O	2:B:599:GLU:N	2.29	0.58
3:D:464:ALA:O	3:D:468:GLN:CB	2.52	0.58
2:B:136:VAL:O	2:B:140:CYS:CB	2.51	0.58
2:B:466:ARG:C	2:B:482:LEU:H	2.07	0.58
3:E:396:ILE:O	3:E:400:VAL:CB	2.53	0.57
1:A:45:ASP:CB	1:A:50:THR:O	2.51	0.57
2:B:171:GLU:O	2:B:175:LEU:CB	2.53	0.57
2:B:550:THR:HA	2:B:566:ILE:C	2.20	0.57
3:E:323:ASN:HA	3:E:327:GLU:HA	1.86	0.57
1:A:270:GLN:CA	1:A:343:VAL:O	2.52	0.57
3:E:39:ALA:HB2	4:F:77:THR:H	1.68	0.56
1:A:55:THR:O	1:A:211:LYS:HA	2.04	0.56
2:B:508:HIS:O	2:B:523:SER:HA	2.05	0.56
2:B:587:VAL:CA	2:B:594:LEU:HA	2.33	0.56
3:D:464:ALA:O	3:D:467:ILE:C	2.43	0.56
2:B:592:ARG:O	2:B:607:ASP:HA	2.05	0.56
1:A:224:ILE:O	1:A:242:THR:CA	2.47	0.56
2:B:706:VAL:HA	2:B:716:ALA:O	2.06	0.56
2:C:125:TYR:O	2:C:129:LEU:CB	2.54	0.55
3:D:229:VAL:O	3:D:233:LEU:CB	2.55	0.55
7:H:158:UNK:O	7:H:162:UNK:CB	2.54	0.55
1:A:709:ILE:O	1:A:721:HIS:CB	2.55	0.55
2:B:508:HIS:C	2:B:524:CYS:H	2.09	0.55
3:D:293:LEU:O	3:D:297:GLU:CB	2.55	0.55
3:E:229:VAL:O	3:E:233:LEU:CB	2.55	0.55
1:A:45:ASP:HA	1:A:50:THR:C	2.08	0.54
1:A:655:ILE:H	1:A:735:GLN:HA	1.71	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:54:GLU:HA	1:A:213:ASN:HA	1.89	0.53
2:B:565:ASP:CB	2:B:570:GLU:O	2.56	0.53
2:B:221:GLY:O	2:B:225:VAL:CB	2.57	0.53
2:B:665:ILE:HA	2:B:677:THR:HA	1.90	0.53
2:B:650:ASP:O	2:B:654:ASN:HA	2.08	0.53
3:D:272:THR:O	3:D:276:ASN:CB	2.57	0.53
3:E:414:LYS:O	3:E:418:GLU:CB	2.56	0.53
2:B:470:SER:O	2:B:477:VAL:CA	2.52	0.53
2:B:186:GLU:H	2:B:190:ALA:HB2	1.75	0.52
1:A:959:ARG:O	1:A:963:ARG:CB	2.58	0.52
2:B:508:HIS:C	2:B:524:CYS:N	2.63	0.52
1:A:656:GLU:HA	1:A:734:ILE:H	1.73	0.52
1:A:47:ALA:O	1:A:227:GLY:HA3	2.11	0.51
1:A:1126:LEU:O	1:A:1130:PHE:CB	2.59	0.51
2:B:358:ASP:O	2:B:359:ILE:N	2.44	0.51
3:D:322:GLY:O	3:D:325:ASP:C	2.49	0.51
1:A:367:LEU:H	1:A:402:TYR:HA	1.76	0.50
2:B:410:GLN:O	2:B:455:ALA:HA	2.12	0.50
2:B:572:VAL:C	2:B:573:ARG:O	2.43	0.50
2:B:630:PHE:HA	2:B:637:LEU:CB	2.42	0.50
2:B:650:ASP:H	2:B:654:ASN:CA	2.19	0.50
2:B:554:THR:O	2:B:561:ALA:HA	2.11	0.50
3:E:323:ASN:HA	3:E:327:GLU:CB	2.42	0.50
2:B:508:HIS:HA	2:B:524:CYS:CA	2.42	0.49
3:D:322:GLY:O	3:D:325:ASP:O	2.30	0.49
1:A:399:ALA:C	1:A:437:TYR:O	2.51	0.49
2:B:562:ARG:CA	2:B:574:VAL:HA	2.37	0.49
3:D:323:ASN:HA	3:D:327:GLU:CB	2.42	0.49
3:E:322:GLY:O	3:E:325:ASP:C	2.50	0.49
6:I:57:UNK:O	6:I:61:UNK:CB	2.61	0.49
2:B:545:PHE:CA	2:B:552:LEU:HA	2.30	0.49
2:C:186:GLU:CB	2:C:190:ALA:HB2	2.43	0.49
2:B:649:TRP:HA	2:B:655:THR:CB	2.43	0.48
2:B:135:PRO:O	2:B:139:HIS:CB	2.61	0.48
2:B:606:TRP:CA	2:B:613:ARG:HA	2.33	0.48
1:A:958:ARG:O	1:A:962:LEU:CB	2.61	0.48
3:D:474:GLN:O	3:D:478:TRP:CB	2.62	0.47
1:A:557:ALA:O	1:A:561:LYS:CB	2.62	0.47
3:E:322:GLY:O	3:E:325:ASP:O	2.33	0.47
6:I:22:UNK:HA	6:I:26:UNK:CB	2.45	0.47
1:A:68:LYS:CA	1:A:166:TYR:HA	2.41	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:259:ASP:HA	1:A:354:ALA:HB1	1.96	0.47
1:A:641:VAL:CB	1:A:662:VAL:O	2.62	0.47
3:E:474:GLN:O	3:E:478:TRP:CB	2.63	0.47
3:D:323:ASN:HA	3:D:327:GLU:CA	2.43	0.46
8:K:522:ASP:O	8:K:526:GLU:CB	2.64	0.46
4:F:64:ILE:N	4:F:72:THR:O	2.41	0.46
1:A:1170:UNK:HA	1:A:1171:UNK:C	2.45	0.46
3:D:322:GLY:O	3:D:326:ASP:C	2.53	0.46
1:A:244:ASN:H	1:A:360:PHE:HA	1.81	0.46
2:B:421:GLY:HA2	2:B:442:ALA:O	2.16	0.46
2:B:704:TYR:N	2:B:718:GLY:O	2.42	0.46
1:A:1170:UNK:CA	1:A:1171:UNK:CB	2.94	0.45
3:E:322:GLY:O	3:E:326:ASP:C	2.54	0.45
3:E:323:ASN:HA	3:E:327:GLU:CA	2.45	0.45
1:A:1039:GLN:O	1:A:1043:ALA:CB	2.64	0.45
2:B:703:VAL:HA	2:B:719:VAL:HA	1.98	0.45
4:F:28:GLN:O	4:F:30:HIS:N	2.48	0.45
9:J:227:GLY:O	9:J:229:ARG:N	2.49	0.45
3:E:392:GLY:O	3:E:394:GLU:N	2.50	0.45
2:B:342:LYS:O	2:B:344:THR:N	2.49	0.45
2:B:588:SER:O	2:B:593:TRP:CB	2.65	0.45
1:A:366:GLN:HA	1:A:402:TYR:CB	2.47	0.44
2:B:587:VAL:CB	2:B:594:LEU:HA	2.48	0.44
3:D:250:GLN:O	3:D:254:ALA:CB	2.66	0.44
1:A:371:THR:HA	1:A:419:TYR:CB	2.47	0.44
4:F:55:ASP:HA	4:F:74:ALA:HB1	2.00	0.44
1:A:1101:LEU:O	1:A:1103:ASN:N	2.51	0.44
2:B:514:SER:H	2:B:519:ALA:HA	1.81	0.44
2:B:451:GLY:HA2	6:I:55:UNK:CB	2.48	0.43
2:B:550:THR:CB	2:B:567:ALA:HB2	2.48	0.43
2:B:594:LEU:O	2:B:606:TRP:CB	2.66	0.43
3:E:368:ARG:O	3:E:372:SER:CB	2.67	0.43
6:I:25:UNK:O	6:I:27:UNK:N	2.51	0.43
2:B:564:TRP:HA	2:B:571:CYS:CB	2.47	0.43
1:A:1039:GLN:O	1:A:1043:ALA:HB3	2.19	0.43
3:D:377:THR:HA	3:D:378:PRO:HA	1.73	0.43
1:A:989:ALA:HB2	1:A:1057:ASN:CB	2.49	0.43
1:A:46:LEU:O	1:A:48:THR:N	2.52	0.43
2:B:418:SER:O	2:B:420:ASP:N	2.52	0.43
2:B:668:VAL:HA	2:B:675:LYS:HA	2.00	0.43
1:A:227:GLY:HA2	1:A:240:CYS:CB	2.49	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:494:PRO:HA	1:A:609:LEU:CB	2.48	0.43
2:B:513:ALA:HB2	2:B:543:VAL:CB	2.49	0.43
2:B:600:ASP:HA	2:B:623:SER:O	2.18	0.43
1:A:963:ARG:O	1:A:967:TYR:CB	2.67	0.42
2:B:478:ARG:HA	2:B:490:SER:HA	2.00	0.42
1:A:73:ALA:HA	1:A:252:SER:O	2.19	0.42
3:D:228:ILE:O	3:D:232:LEU:CB	2.67	0.42
1:A:954:PHE:O	1:A:958:ARG:CB	2.67	0.42
3:E:39:ALA:HB2	4:F:77:THR:N	2.35	0.42
3:D:465:ASP:O	3:D:467:ILE:O	2.38	0.42
3:D:230:GLU:O	3:D:232:LEU:O	2.38	0.42
1:A:69:VAL:O	1:A:164:THR:HA	2.20	0.41
1:A:597:ALA:O	1:A:605:ASN:N	2.53	0.41
1:A:950:ASP:O	1:A:952:ASP:N	2.53	0.41
1:A:399:ALA:HA	1:A:437:TYR:C	2.38	0.41
2:B:185:GLN:HA	2:B:190:ALA:CB	2.50	0.41
3:E:228:ILE:O	3:E:232:LEU:CB	2.68	0.41
1:A:949:LYS:O	1:A:951:SER:N	2.54	0.41
2:B:685:GLU:CB	2:B:692:HIS:HA	2.50	0.41
3:D:409:SER:O	3:D:413:GLU:CB	2.68	0.41
1:A:654:PHE:HA	1:A:735:GLN:CA	2.49	0.41
2:B:678:GLU:O	2:B:702:PRO:HA	2.21	0.41
2:B:604:CYS:CA	2:B:616:ALA:HA	2.39	0.41
3:E:230:GLU:O	3:E:232:LEU:O	2.38	0.41
8:K:548:ALA:HB1	8:K:553:VAL:O	2.21	0.41
2:C:198:PHE:O	2:C:200:VAL:N	2.54	0.40
2:B:550:THR:O	2:B:565:ASP:HA	2.21	0.40
7:H:243:UNK:HA	7:H:244:UNK:HA	1.70	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	A	813/1756 (46%)	623 (77%)	131 (16%)	59 (7%)	1 14
2	B	511/722 (71%)	352 (69%)	99 (19%)	60 (12%)	0 6
2	C	134/722 (19%)	109 (81%)	14 (10%)	11 (8%)	1 12
3	D	248/485 (51%)	201 (81%)	32 (13%)	15 (6%)	1 17
3	E	314/485 (65%)	268 (85%)	35 (11%)	11 (4%)	3 25
4	F	101/153 (66%)	71 (70%)	20 (20%)	10 (10%)	0 9
8	K	67/609 (11%)	59 (88%)	6 (9%)	2 (3%)	4 28
9	J	49/553 (9%)	43 (88%)	5 (10%)	1 (2%)	7 38
All	All	2237/5485 (41%)	1726 (77%)	342 (15%)	169 (8%)	2 13

All (169) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	64	PRO
1	A	81	VAL
1	A	168	PRO
1	A	184	PRO
1	A	333	PRO
1	A	367	LEU
1	A	380	PRO
1	A	404	LEU
1	A	405	PRO
1	A	471	PRO
1	A	543	ALA
1	A	640	PRO
1	A	717	THR
1	A	718	PRO
1	A	845	ARG
1	A	1045	VAL
2	B	431	ASP
2	B	432	PRO
2	B	466	ARG
2	B	477	VAL
2	B	550	THR
2	B	567	ALA
2	B	568	ARG
2	B	573	ARG
2	B	615	LYS
2	B	636	VAL
2	B	654	ASN

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Mol	Chain	Res	Type
2	B	655	THR
2	B	658	PRO
2	B	673	ILE
2	B	694	SER
2	B	701	THR
3	D	233	LEU
3	D	255	ASP
3	D	256	PRO
3	D	373	VAL
3	D	378	PRO
3	D	468	GLN
3	E	233	LEU
3	E	255	ASP
3	E	256	PRO
4	F	95	PRO
4	F	97	PRO
4	F	98	PRO
1	A	63	ASP
1	A	86	ILE
1	A	256	PRO
1	A	346	GLN
1	A	702	ILE
1	A	882	GLU
1	A	948	ILE
1	A	1087	VAL
1	A	1119	SER
2	B	121	SER
2	B	179	SER
2	B	202	ILE
2	B	234	GLU
2	B	237	ILE
2	B	238	THR
2	B	414	ILE
2	B	421	GLY
2	B	429	LYS
2	B	441	VAL
2	B	483	ASP
2	B	508	HIS
2	B	525	ASP
2	B	592	ARG
2	B	609	SER
2	B	668	VAL

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Mol	Chain	Res	Type
2	B	672	GLY
2	B	706	VAL
2	C	179	SER
2	C	233	ILE
3	D	404	VAL
3	E	373	VAL
3	E	393	SER
3	E	419	ASP
4	F	92	GLN
1	A	47	ALA
1	A	84	ASN
1	A	207	PRO
1	A	334	HIS
1	A	351	PRO
1	A	374	PHE
1	A	430	GLY
1	A	453	ALA
1	A	544	PRO
1	A	725	LEU
1	A	726	LYS
1	A	735	GLN
1	A	950	ASP
2	B	150	PRO
2	B	167	LEU
2	B	180	LEU
2	B	371	LEU
2	B	379	PRO
2	B	439	ASP
2	B	594	LEU
2	B	626	TYR
2	C	146	ALA
2	C	199	LYS
3	D	238	THR
3	D	415	LEU
3	E	394	GLU
4	F	69	ASN
4	F	75	GLN
4	F	100	GLU
1	A	199	MET
1	A	233	ILE
1	A	399	ALA
1	A	450	SER

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Mol	Chain	Res	Type
1	A	458	ILE
1	A	523	ASN
1	A	796	ALA
1	A	951	SER
1	A	1048	HIS
2	B	218	ASP
2	B	383	MET
2	B	501	VAL
2	B	659	SER
2	C	185	GLN
3	D	300	PHE
3	D	460	GLY
3	E	276	ASN
3	E	279	ASN
3	E	319	LYS
4	F	60	SER
8	K	556	ILE
8	K	561	VAL
1	A	189	ASN
1	A	398	ALA
1	A	1050	CYS
1	A	1102	LYS
2	B	343	ASP
2	B	442	ALA
2	B	702	PRO
2	C	147	ARG
3	D	319	LYS
1	A	338	HIS
1	A	691	VAL
1	A	1084	SER
2	B	168	HIS
2	B	440	GLY
2	B	450	VAL
2	B	489	VAL
2	B	561	ALA
2	B	651	VAL
2	B	689	THR
2	C	180	LEU
2	C	232	TYR
3	D	305	VAL
3	D	467	ILE
3	E	305	VAL

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Mol	Chain	Res	Type
4	F	23	ASN
4	F	24	ILE
9	J	228	LEU
1	A	223	ILE
1	A	401	VAL
1	A	51	VAL
1	A	716	GLY
2	B	419	ILE
2	C	148	GLY
2	B	381	VAL
1	A	641	VAL
2	B	572	VAL
2	C	234	GLU
3	D	459	VAL
2	B	574	VAL
2	C	150	PRO

5.3.2 Protein sidechains (i)

There are no protein residues with a non-rotameric sidechain to report in this entry.

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

There are no ligands in this entry.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	A	6
2	B	4
3	D	1
5	G	1
8	K	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	B	357:ASN	C	358:ASP	N	14.12
1	B	372:SER	C	373:ALA	N	6.29
1	D	394:GLU	C	395:VAL	N	5.84
1	A	930:PHE	C	931:GLN	N	5.73
1	A	802:ASP	C	803:ALA	N	5.20
1	A	60:PHE	C	61:ALA	N	5.02
1	A	808:ILE	C	809:CYS	N	4.88
1	G	403:UNK	C	404:UNK	N	4.69
1	A	551:ARG	C	552:PHE	N	4.42
1	K	513:ASP	C	514:GLU	N	4.39
1	B	369:ILE	C	370:LYS	N	3.92
1	A	549:HIS	C	550:PHE	N	3.66
1	B	358:ASP	C	359:ILE	N	3.63

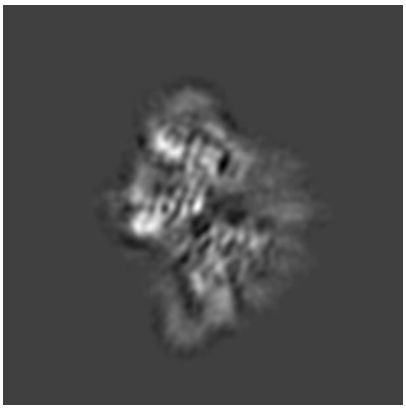
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-0251. These allow visual inspection of the internal detail of the map and identification of artifacts.

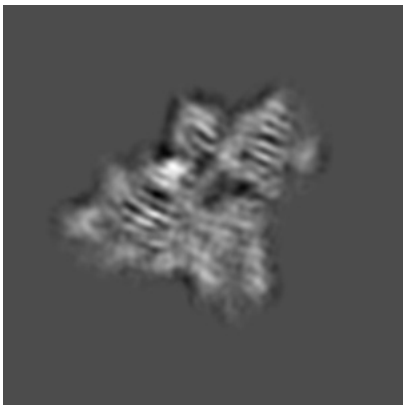
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

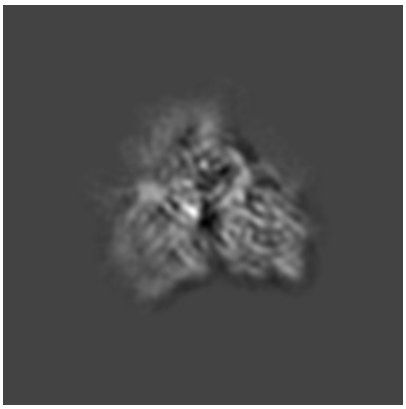
6.1.1 Primary map



X

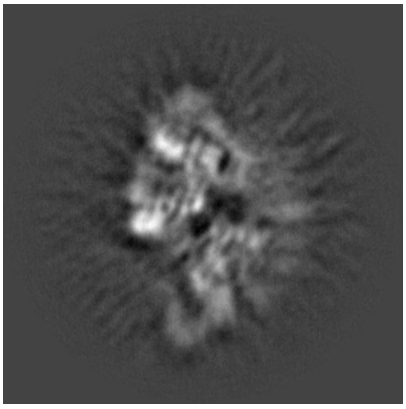


Y

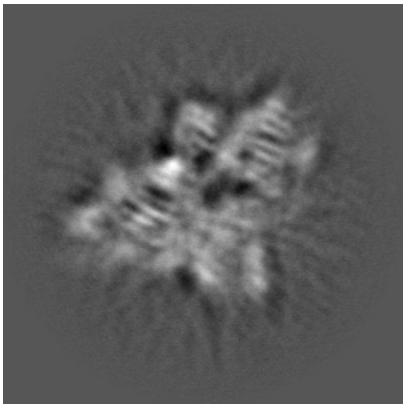


Z

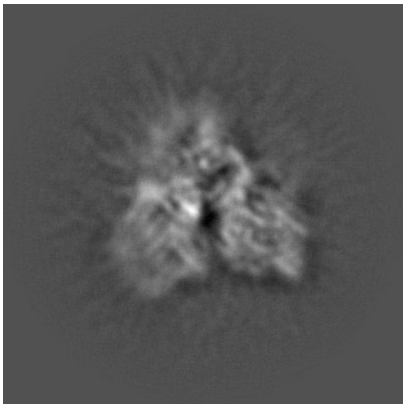
6.1.2 Raw map



X



Y

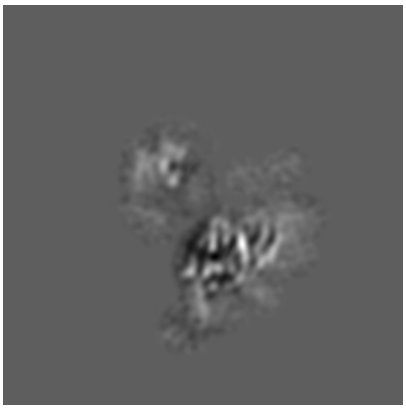


Z

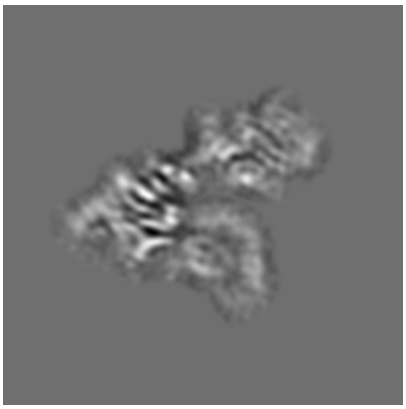
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

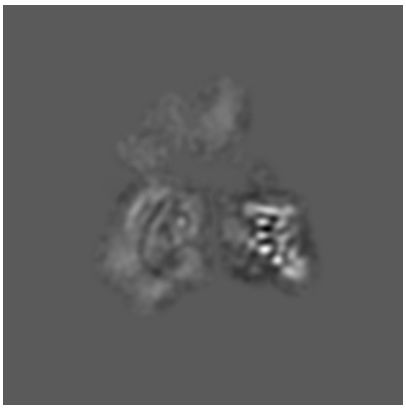
6.2.1 Primary map



X Index: 160

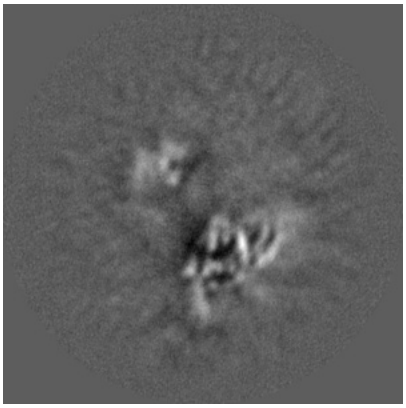


Y Index: 160

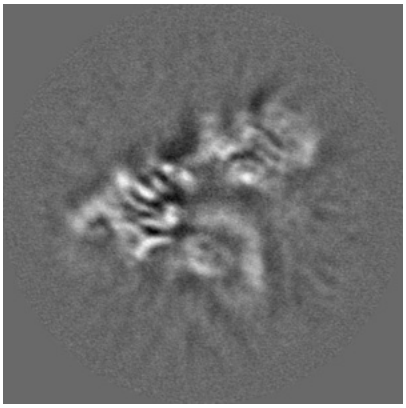


Z Index: 160

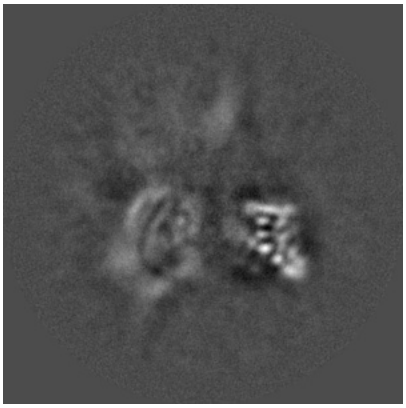
6.2.2 Raw map



X Index: 160



Y Index: 160



Z Index: 160

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

6.3 Largest variance slices (i)

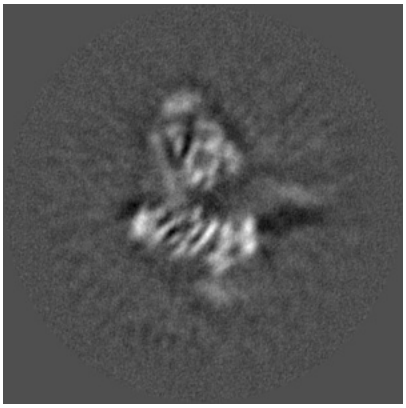
6.3.1 Primary map

X Index: 183

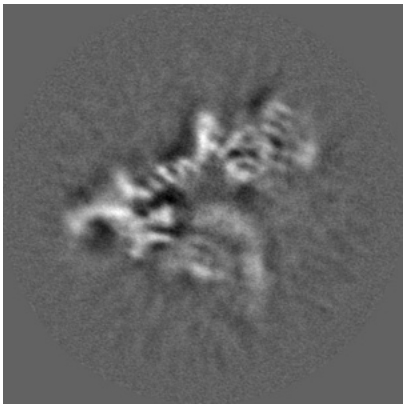
Y Index: 156

Z Index: 137

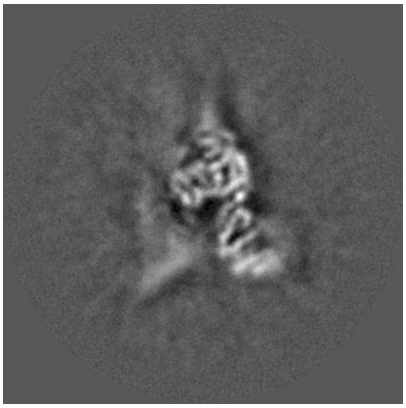
6.3.2 Raw map



X Index: 188



Y Index: 156

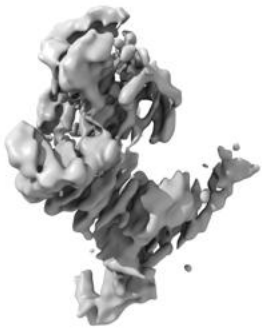


Z Index: 138

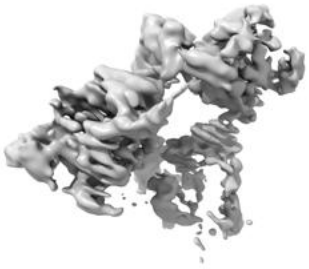
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal surface views (i)

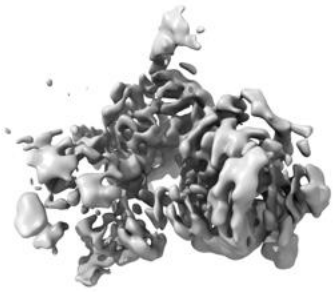
6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.004. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.4.2 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.

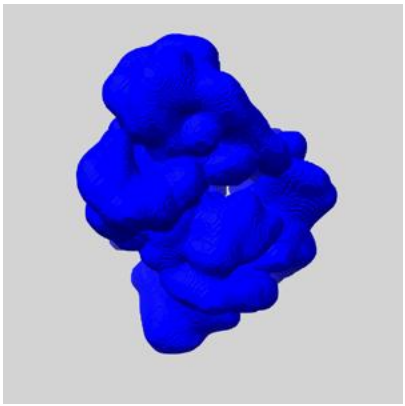
6.5 Mask visualisation (i)

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

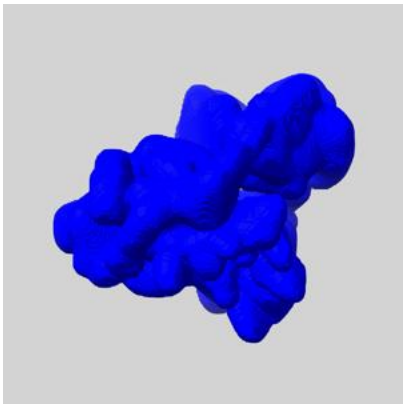
A mask typically either:

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

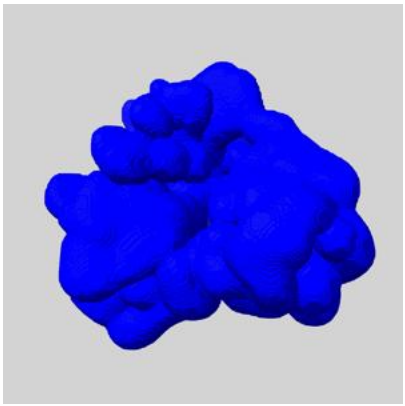
6.5.1 emd_0251_msk_1.map (i)



X



Y

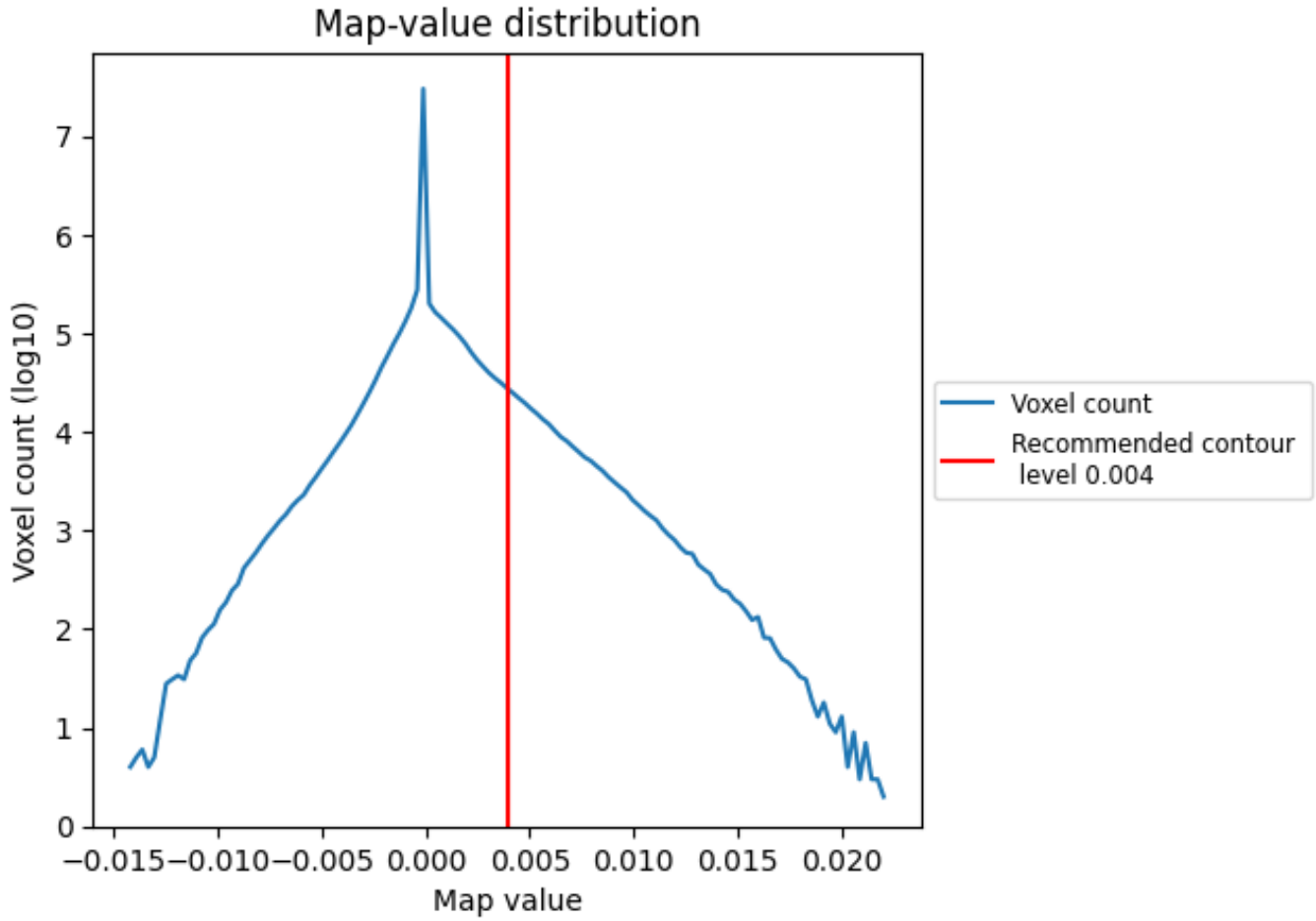


Z

7 Map analysis

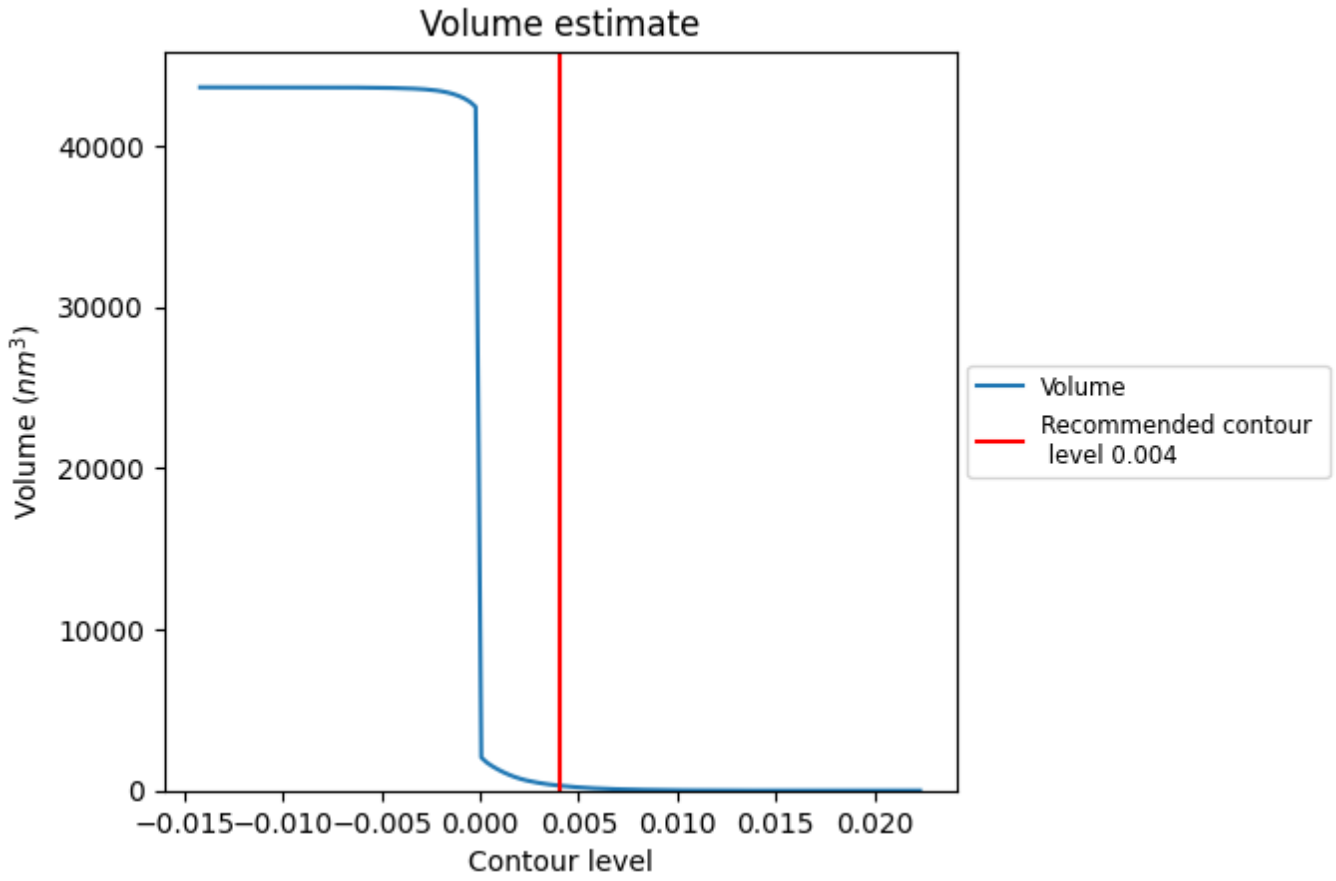
This section contains the results of statistical analysis of the map.

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.

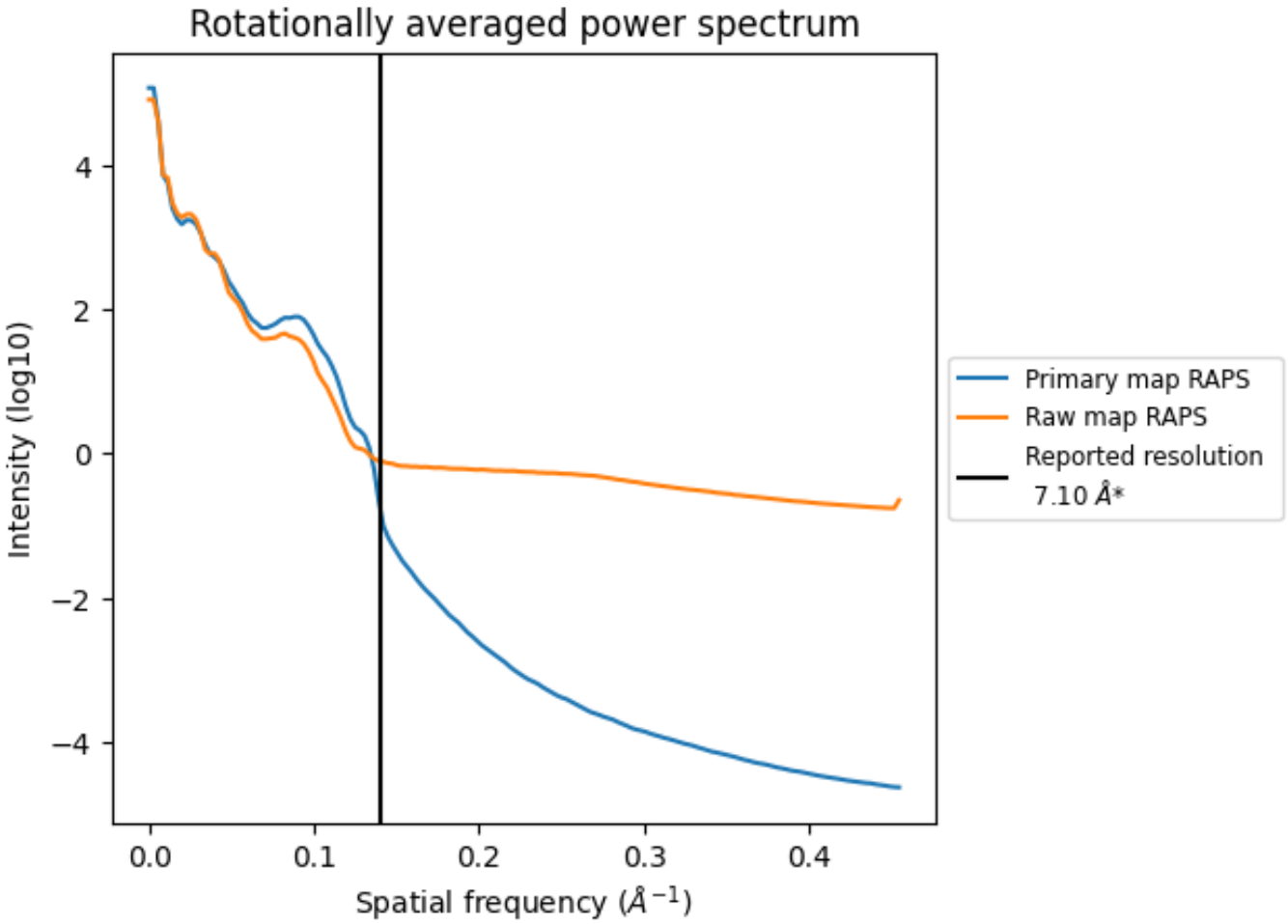
7.2 Volume estimate



The volume at the recommended contour level is 308 nm^3; this corresponds to an approximate mass of 278 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)

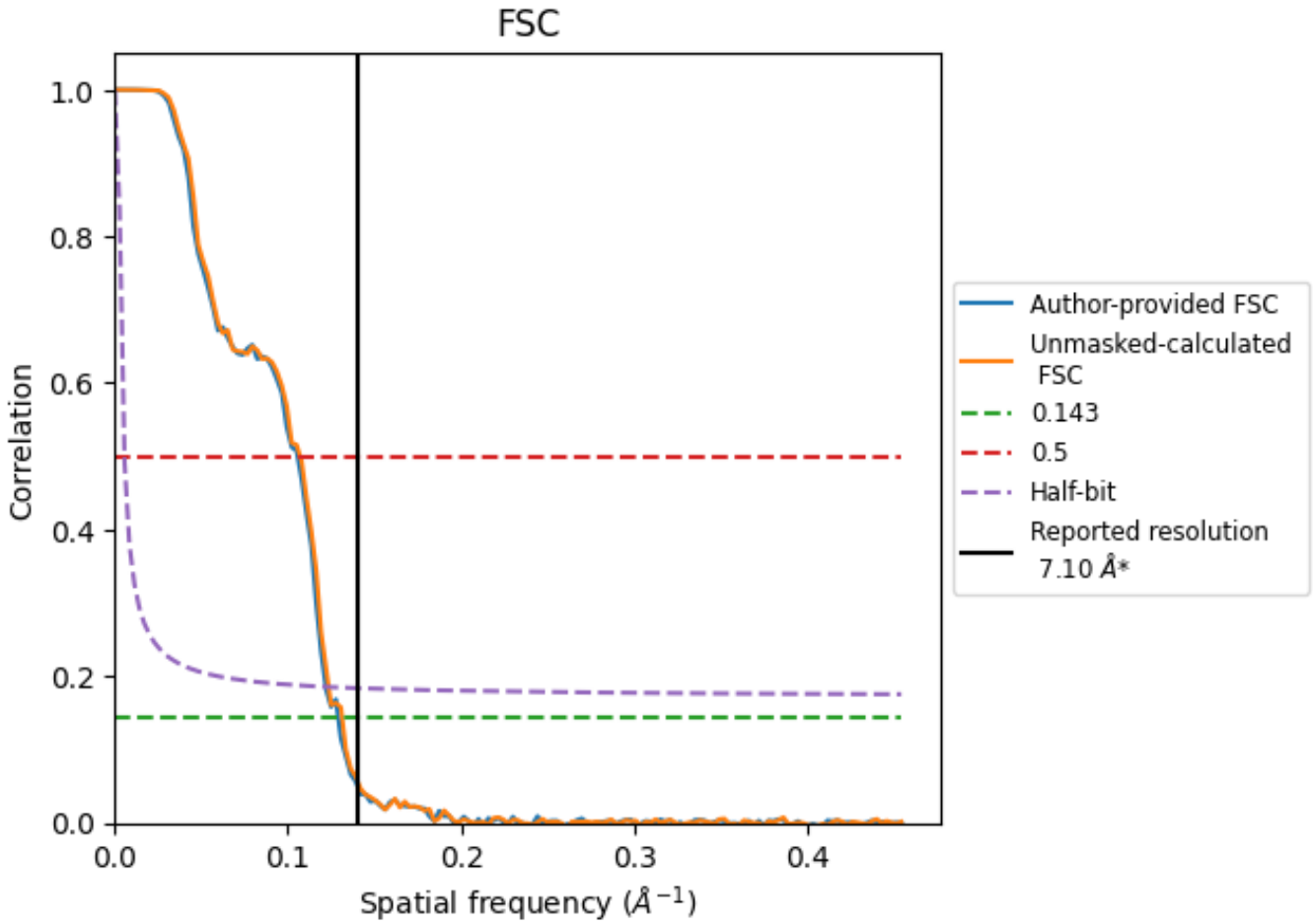


*Reported resolution corresponds to spatial frequency of 0.141 $Å^{-1}$

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 0.141 Å^{-1}

8.2 Resolution estimates (i)

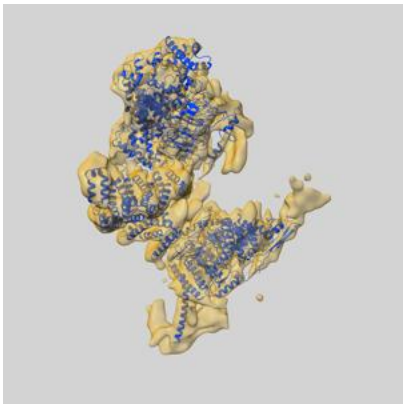
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	7.10	-	-
Author-provided FSC curve	7.74	9.46	8.20
Unmasked-calculated*	7.61	9.35	8.09

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

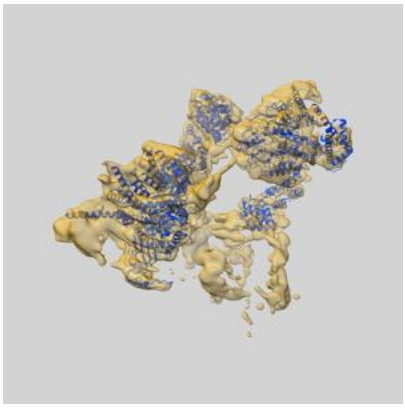
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-0251 and PDB model 6HQA. Per-residue inclusion information can be found in section 3 on page 9.

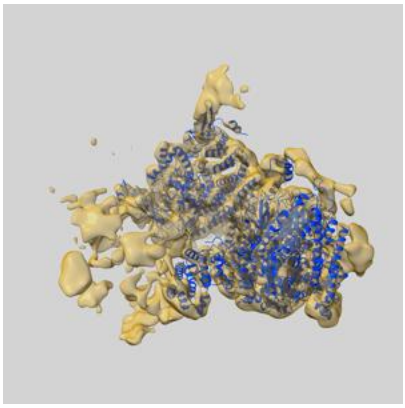
9.1 Map-model overlay



X



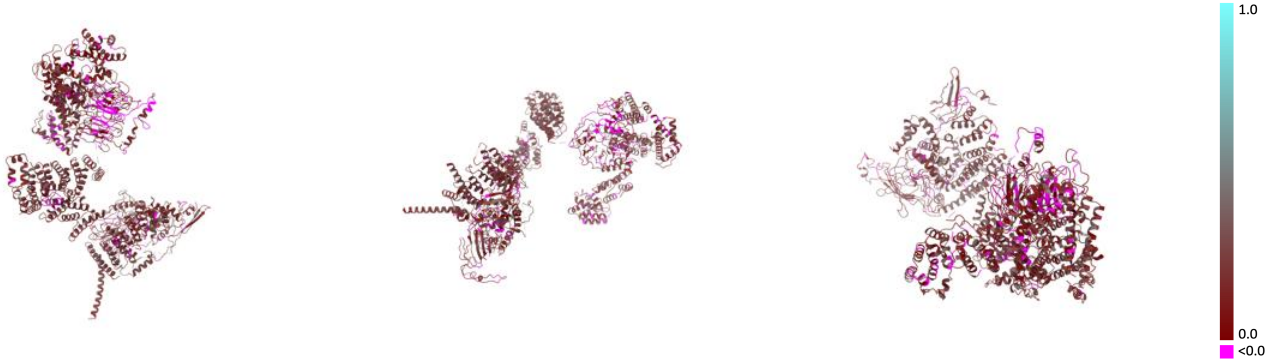
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.004 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.

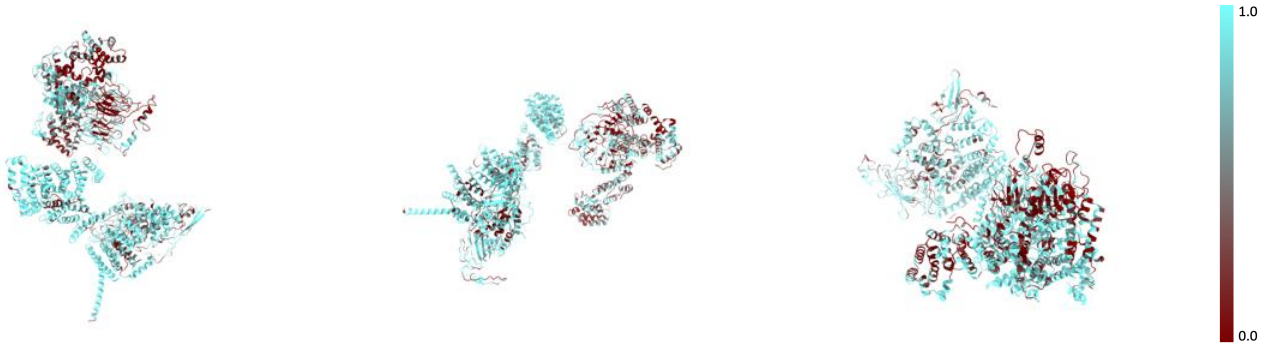
9.2 Q-score mapped to coordinate model



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.

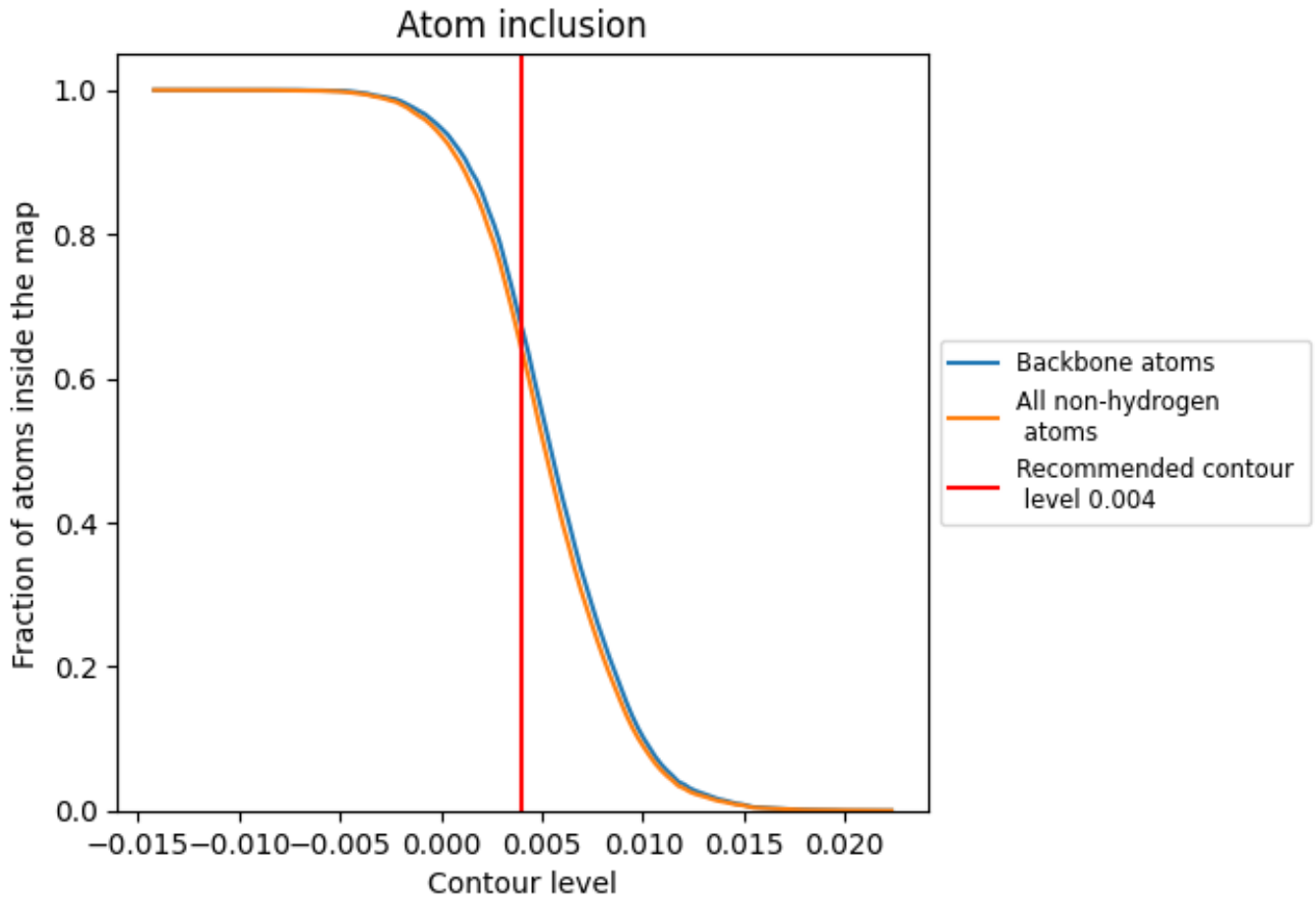
9.3 Atom inclusion mapped to coordinate model



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 (0.004).

9.4 Atom inclusion (i)



At the recommended contour level, 67% of all backbone atoms, 64% 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 (0.004) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.6390	0.1780
A	0.7006	0.1920
B	0.4279	0.0980
C	0.4717	0.1610
D	0.8091	0.2040
E	0.8290	0.2250
F	0.5460	0.2020
G	0.9520	0.2540
H	0.5529	0.2110
I	0.4875	0.2040
J	0.4444	0.1520
K	0.4160	0.1590