Full wwPDB EM Validation Report ⓘ

Jun 29, 2026 – 12:19 PM EDT

PDB ID	:	10FI / pdb_000010fi
EMDB ID	:	EMD-75131
Title	:	apo CCAN purified from budding yeast
Authors	:	Mengqiu, J.; Sue, B.
Deposited on	:	2026-01-16
Resolution	:	3.30 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:

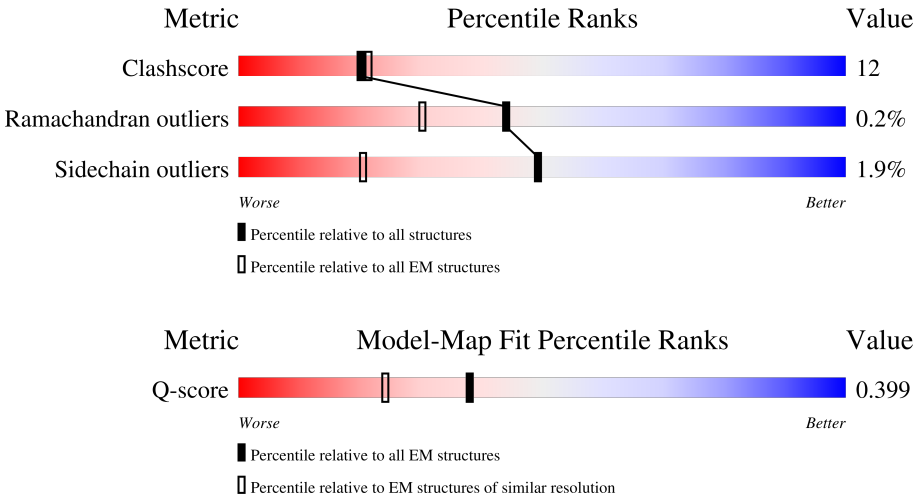
EMDB validation analysis	:	0.0.1.dev133
MolProbity	:	4-5-2 with Phenix2.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & 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 3.30 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	15087 (2.80 - 3.80)

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	H	181	34% 42% 29% • 27%
2	I	733	22% 39% 17% 44%
3	K	239	15% 32% 15% 52%
4	L	245	12% 67% 31% ••

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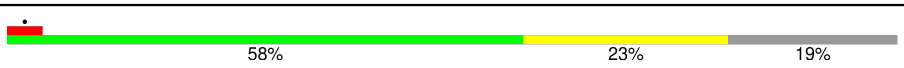
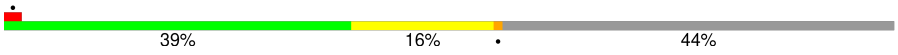
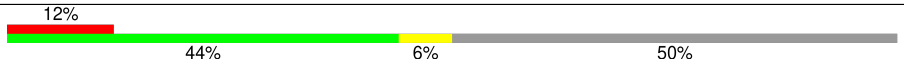
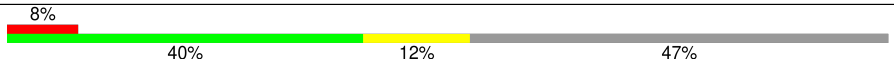
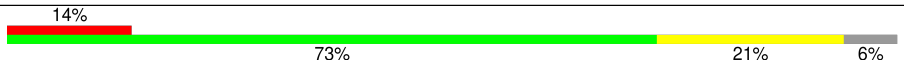
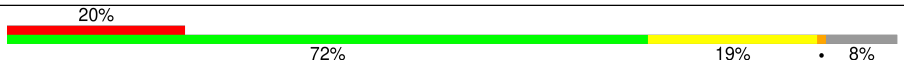
Mol	Chain	Length	Quality of chain
5	N	458	
6	O	368	
7	P	369	
8	Q	406	
9	U	324	
10	Y	238	
11	Z	153	

2 Entry composition (i)

There are 11 unique types of molecules in this entry. The entry contains 18830 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 Inner kinetochore subunit MCM16.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	H	133	Total	C	N	O	S	0	0
			1037	664	193	179	1		

- Molecule 2 is a protein called Inner kinetochore subunit CTF3.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	I	414	Total	C	N	O	S	0	0
			3364	2175	559	610	20		

- Molecule 3 is a protein called Inner kinetochore subunit MCM22.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	K	114	Total	C	N	O	S	1	0
			854	544	150	156	4		

- Molecule 4 is a protein called Inner kinetochore subunit IML3.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	L	241	Total	C	N	O	S	0	0
			1937	1242	320	364	11		

- Molecule 5 is a protein called Inner kinetochore subunit CHL4.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	N	371	Total	C	N	O	S	0	0
			2929	1906	507	504	12		

- Molecule 6 is a protein called Inner kinetochore subunit MCM21.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	O	205	Total	C	N	O	S	0	0
			1658	1078	271	305	4		

- Molecule 7 is a protein called Inner kinetochore subunit CTF19.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	P	242	Total	C	N	O	S	0	0
			1865	1208	323	322	12		

- Molecule 8 is a protein called Inner kinetochore subunit OKP1.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	Q	204	Total	C	N	O	S	0	0
			1421	885	261	270	5		

- Molecule 9 is a protein called K7_Ame1p.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	U	171	Total	C	N	O	S	0	0
			1229	768	227	231	3		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
U	269	GLU	GLY	conflict	UNP G2W9L4

- Molecule 10 is a protein called Inner kinetochore subunit NKP1.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	Y	223	Total	C	N	O	S	0	0
			1541	965	275	296	5		

- Molecule 11 is a protein called Inner kinetochore subunit NKP2.

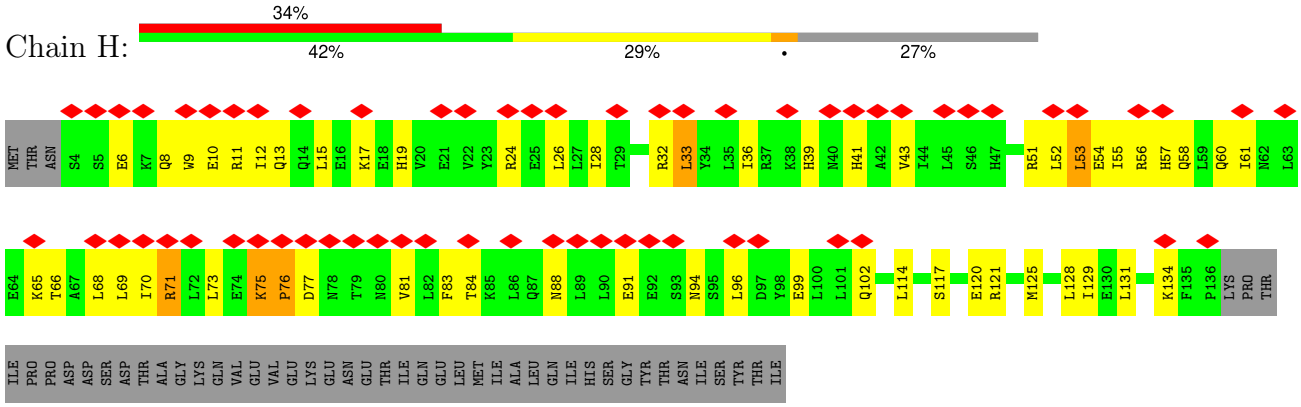
Mol	Chain	Residues	Atoms					AltConf	Trace
11	Z	140	Total	C	N	O	S	0	0
			995	632	181	181	1		

3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

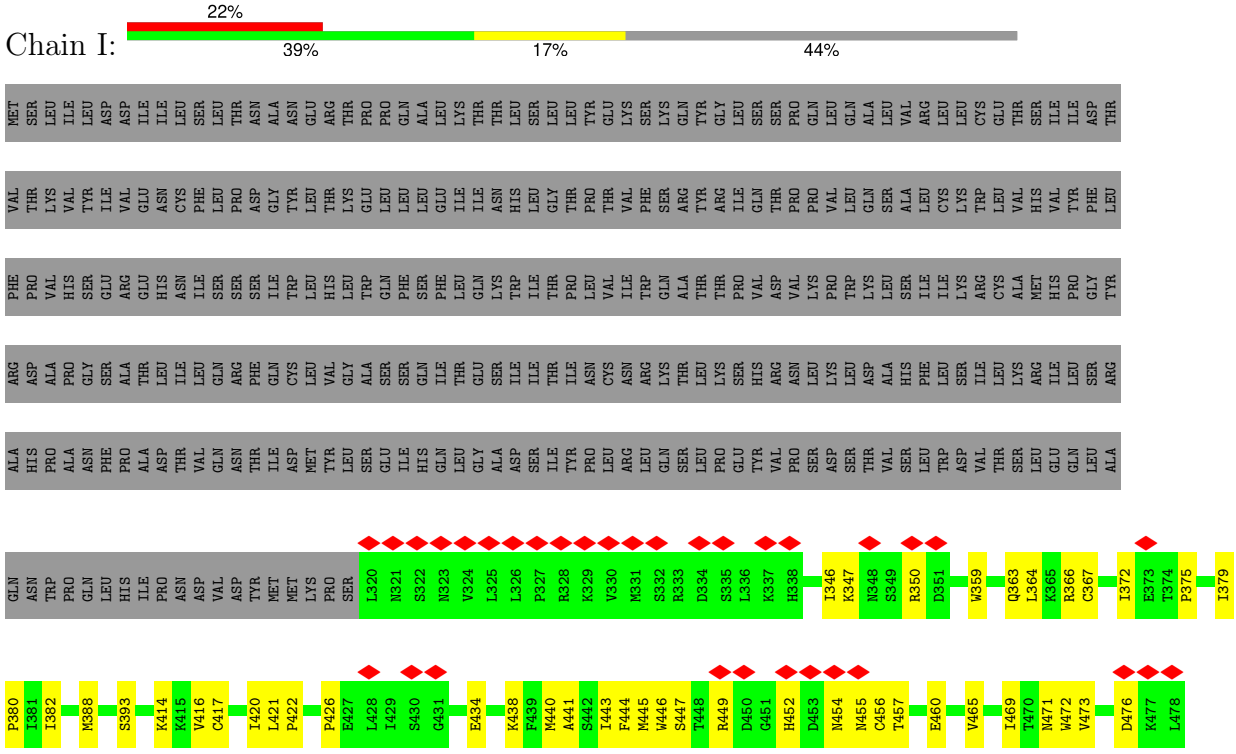
• Molecule 1: Inner kinetochore subunit MCM16

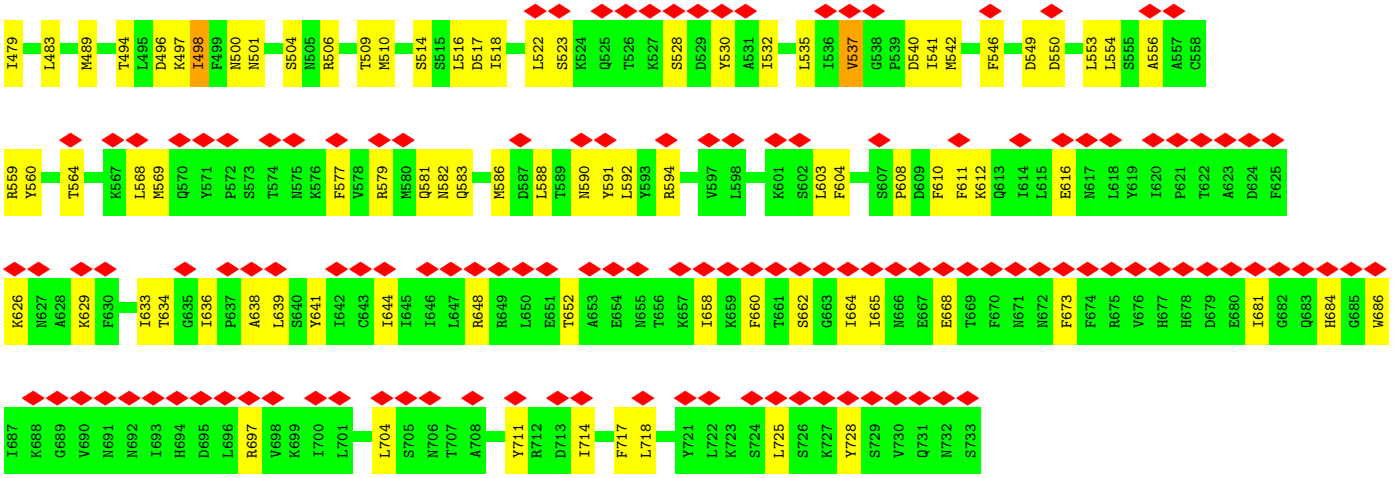
Chain H:



• Molecule 2: Inner kinetochore subunit CTF3

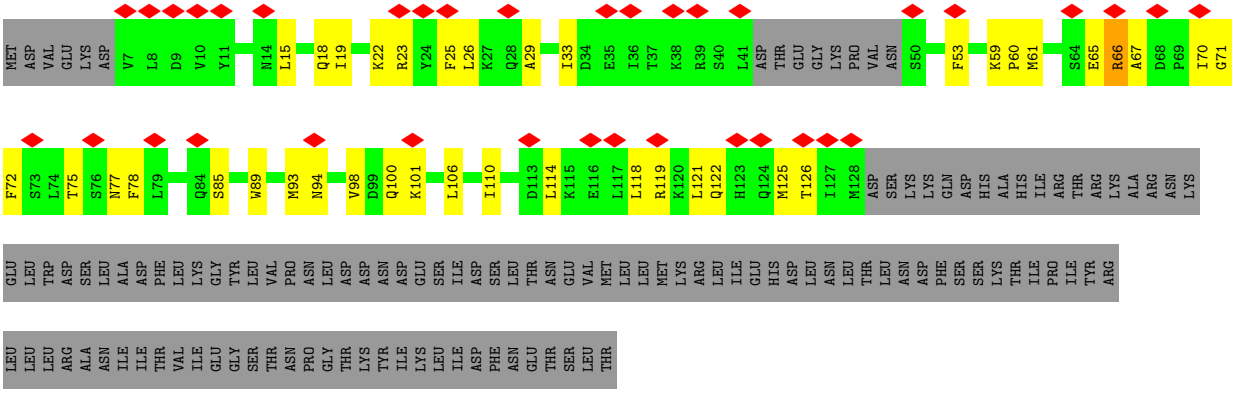
Chain I:





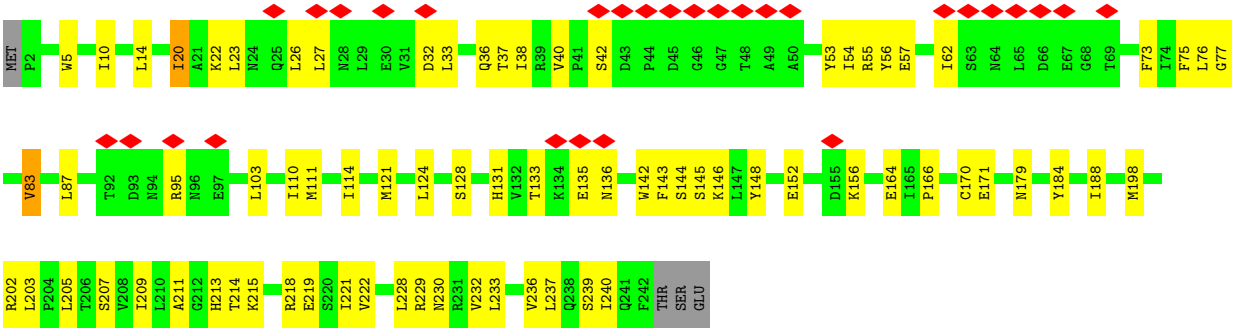
• Molecule 3: Inner kinetochore subunit MCM22

Chain K:



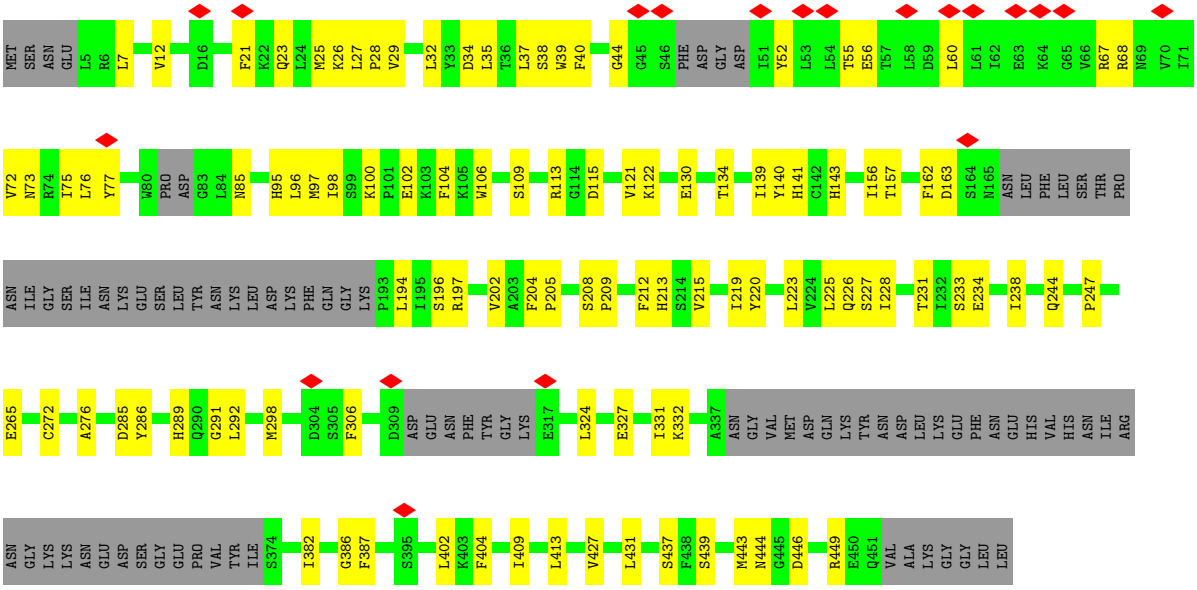
• Molecule 4: Inner kinetochore subunit IML3

Chain L:



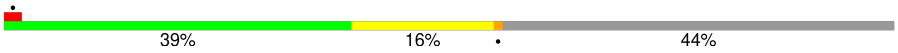
• Molecule 5: Inner kinetochore subunit CHL4

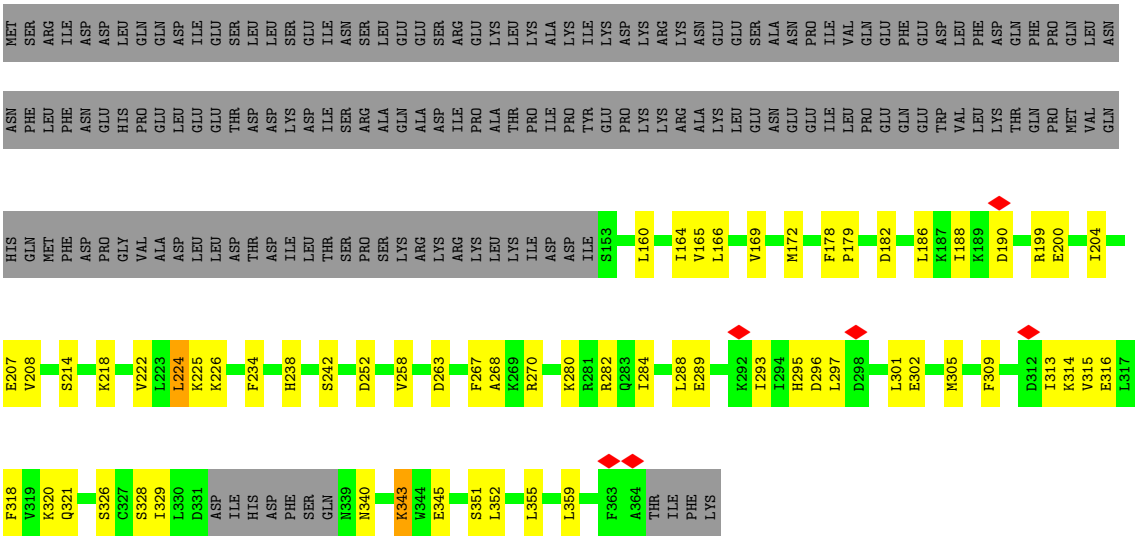
Chain N:



• Molecule 6: Inner kinetochore subunit MCM21

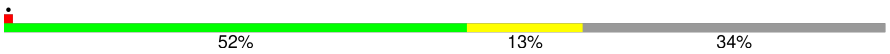
Chain O:

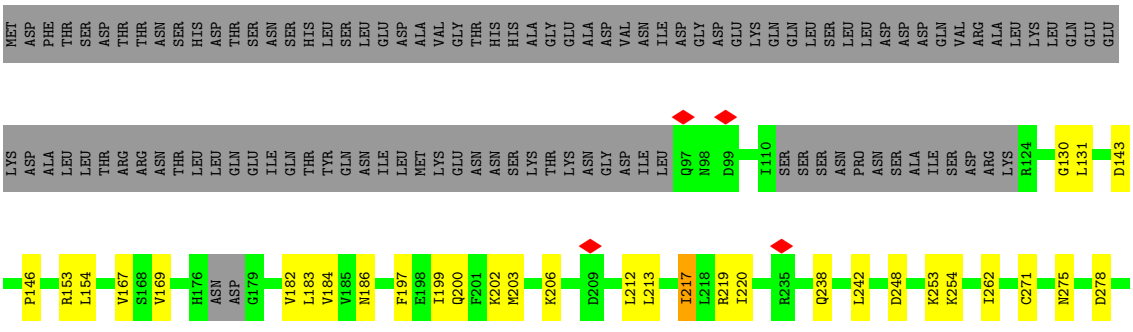


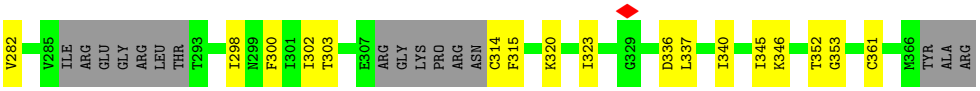


• Molecule 7: Inner kinetochore subunit CTF19

Chain P:

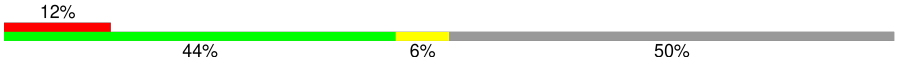


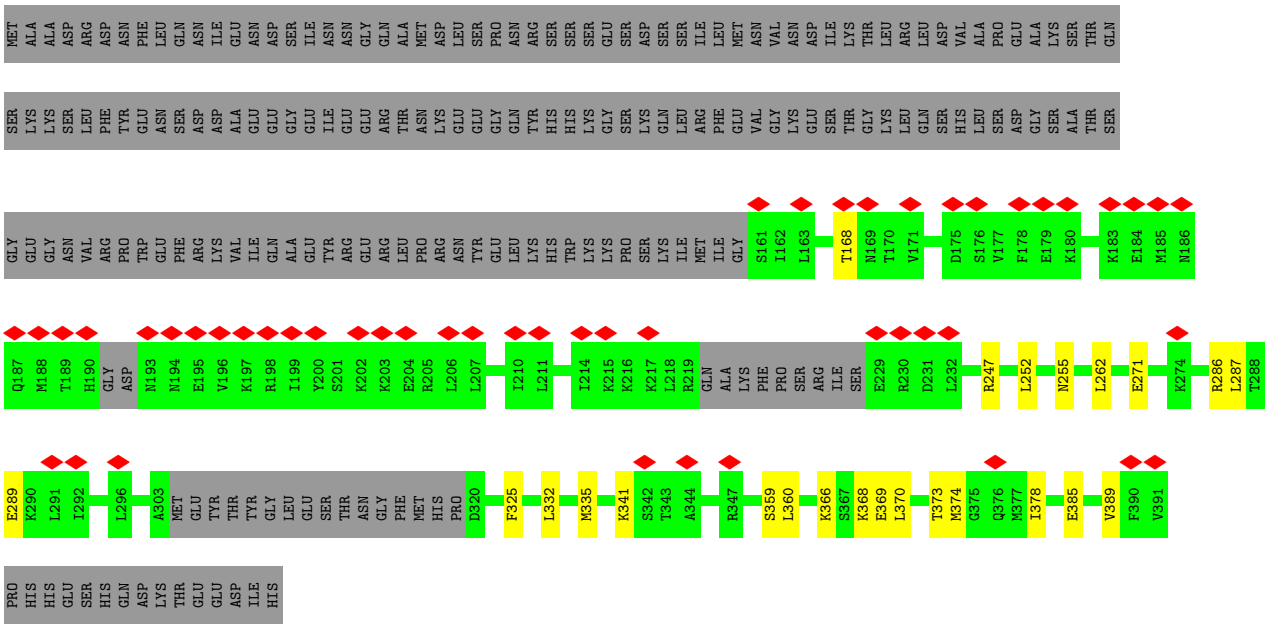




• Molecule 8: Inner kinetochore subunit OKP1

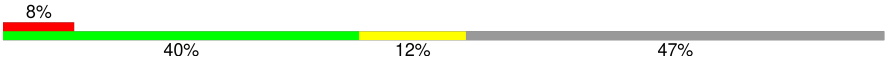
Chain Q:

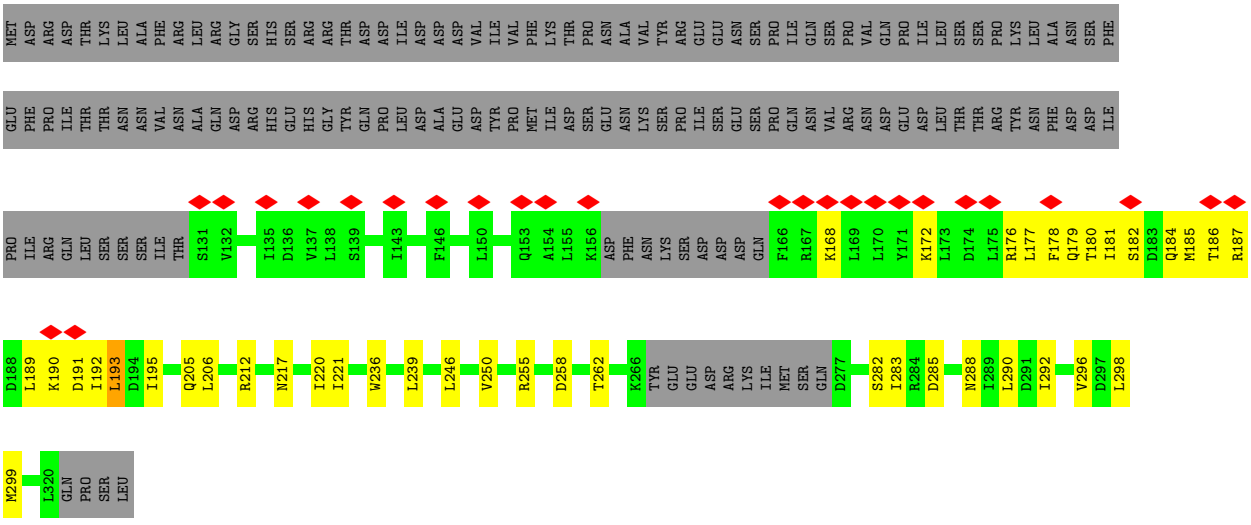




• Molecule 9: K7_Ame1p

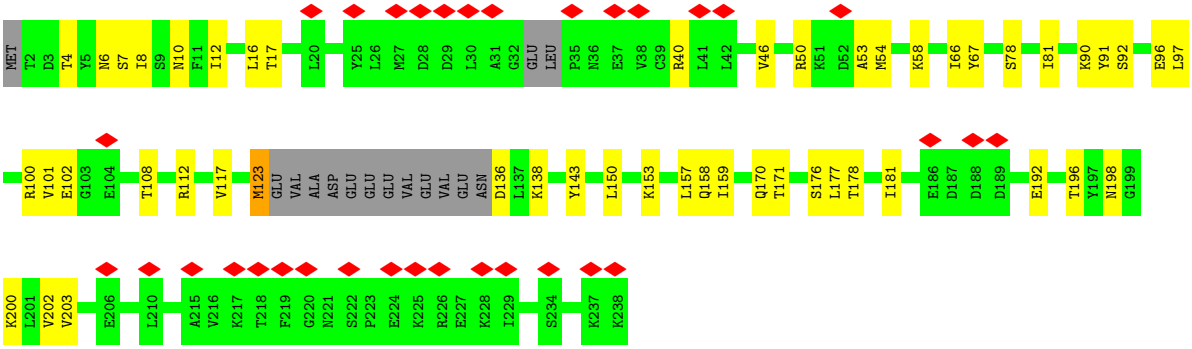
Chain U:





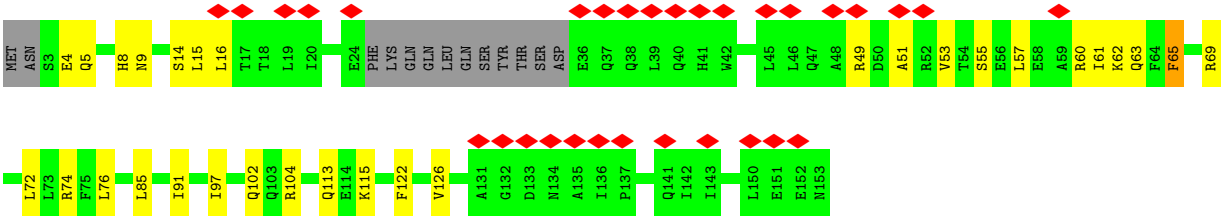
• Molecule 10: Inner kinetochore subunit NKP1

Chain Y:



• Molecule 11: Inner kinetochore subunit NKP2

Chain Z:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	48570	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 ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	1.450	Depositor
Minimum map value	-0.892	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.027	Depositor
Recommended contour level	0.243	Depositor
Map size (Å)	428.00003, 428.00003, 428.00003	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.07, 1.07, 1.07	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	H	0.19	0/1050	0.51	0/1419
2	I	0.13	0/3438	0.34	0/4650
3	K	0.23	0/864	0.57	0/1169
4	L	0.19	0/1977	0.42	0/2679
5	N	0.17	0/2994	0.36	0/4046
6	O	0.17	0/1689	0.34	0/2275
7	P	0.16	0/1891	0.33	0/2552
8	Q	0.12	0/1430	0.30	0/1938
9	U	0.15	0/1236	0.39	0/1676
10	Y	0.15	0/1550	0.41	0/2102
11	Z	0.19	0/1005	0.44	0/1367
All	All	0.16	0/19124	0.39	0/25873

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	H	0	1
3	K	0	1
4	L	0	1
All	All	0	3

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	H	75	LYS	Peptide

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Mol	Chain	Res	Type	Group
3	K	59	LYS	Peptide
4	L	40	VAL	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	H	1037	0	1055	59	0
2	I	3364	0	3423	99	0
3	K	854	0	816	43	0
4	L	1937	0	1942	55	0
5	N	2929	0	2964	77	0
6	O	1658	0	1665	46	0
7	P	1865	0	1855	32	0
8	Q	1421	0	1237	27	0
9	U	1229	0	1117	36	0
10	Y	1541	0	1425	42	0
11	Z	995	0	911	23	0
All	All	18830	0	18410	458	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 12.

All (458) 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)
4:L:10:ILE:HD13	4:L:111:MET:HE1	1.57	0.84
5:N:109:SER:HG	5:N:213:HIS:HE2	1.24	0.83
6:O:320:LYS:HG3	6:O:321:GLN:H	1.43	0.82
4:L:56:TYR:HB2	4:L:75:PHE:HB2	1.66	0.78
1:H:24:ARG:HH22	2:I:500:ASN:HB2	1.49	0.78
10:Y:46:VAL:O	10:Y:50:ARG:HB2	1.84	0.77
1:H:51:ARG:O	1:H:55:ILE:HG12	1.84	0.77
1:H:84:THR:O	1:H:88:ASN:ND2	2.18	0.76
1:H:121:ARG:HH22	3:K:110:ILE:HG23	1.51	0.76
6:O:318:PHE:HB3	6:O:326:SER:HB3	1.67	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:422:PRO:O	2:I:471:ASN:ND2	2.19	0.75
2:I:379:ILE:HG13	2:I:380:PRO:HD3	1.67	0.75
4:L:209:ILE:HB	4:L:215:LYS:HD3	1.70	0.73
2:I:447:SER:O	2:I:455:ASN:ND2	2.22	0.73
4:L:53:TYR:HB3	4:L:76:LEU:HD11	1.74	0.70
1:H:11:ARG:O	1:H:11:ARG:NH1	2.25	0.70
10:Y:12:ILE:HG23	10:Y:16:LEU:HD12	1.74	0.70
2:I:347:LYS:O	2:I:350:ARG:NH1	2.25	0.70
4:L:215:LYS:HB3	4:L:222:VAL:HB	1.74	0.70
2:I:626:LYS:HB2	2:I:629:LYS:HE3	1.74	0.69
2:I:509:THR:HB	2:I:553:LEU:HD21	1.73	0.69
2:I:592:LEU:HD13	2:I:718:LEU:HD21	1.75	0.69
2:I:641:TYR:HA	2:I:644:ILE:HD12	1.75	0.68
5:N:102:GLU:N	5:N:102:GLU:OE1	2.25	0.68
5:N:244:GLN:NE2	5:N:437:SER:O	2.25	0.68
9:U:176:ARG:O	9:U:180:THR:OG1	2.10	0.68
6:O:289:GLU:HG3	6:O:297:LEU:HD22	1.75	0.67
1:H:88:ASN:HA	1:H:91:GLU:HG2	1.76	0.66
4:L:179:ASN:O	4:L:179:ASN:ND2	2.28	0.66
4:L:114:ILE:HD11	4:L:240:ILE:HD12	1.77	0.66
4:L:202:ARG:NH2	5:N:306:PHE:O	2.28	0.66
5:N:404:PHE:HB3	5:N:409:ILE:HD12	1.78	0.66
1:H:131:LEU:HD22	3:K:121:LEU:HD13	1.77	0.65
5:N:298:MET:HE2	5:N:324:LEU:HB3	1.79	0.65
5:N:292:LEU:HD12	6:O:160:LEU:HD23	1.79	0.65
10:Y:97:LEU:O	10:Y:101:VAL:HG23	1.96	0.65
8:Q:168:THR:HA	9:U:185:MET:HE1	1.79	0.64
2:I:590:ASN:HA	2:I:594:ARG:HB2	1.80	0.64
4:L:142:TRP:NE1	4:L:171:GLU:OE2	2.30	0.64
2:I:494:THR:HG21	2:I:541:ILE:HG23	1.78	0.64
10:Y:66:ILE:HD11	11:Z:65:PHE:HZ	1.62	0.64
2:I:440:MET:HE1	2:I:465:VAL:HG21	1.80	0.64
2:I:516:LEU:HD22	2:I:556:ALA:HB1	1.78	0.64
2:I:633:ILE:HG13	2:I:634:THR:HG23	1.80	0.63
2:I:440:MET:HA	2:I:443:ILE:HG22	1.81	0.63
4:L:152:GLU:OE2	4:L:152:GLU:N	2.32	0.63
9:U:296:VAL:HA	10:Y:177:LEU:HD22	1.79	0.63
4:L:146:LYS:HB2	4:L:164:GLU:HG2	1.81	0.63
4:L:20:ILE:HG21	4:L:33:LEU:HD21	1.80	0.62
5:N:115:ASP:OD1	5:N:115:ASP:N	2.32	0.62
3:K:94:ASN:O	3:K:98:VAL:HG23	1.99	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:Q:385:GLU:O	8:Q:389:VAL:HG23	2.00	0.62
3:K:122:GLN:HA	3:K:125:MET:HG3	1.82	0.61
5:N:97:MET:HE1	5:N:156:ILE:HG21	1.81	0.61
2:I:359:TRP:HD1	4:L:110:ILE:HG21	1.66	0.61
3:K:29:ALA:O	3:K:33:ILE:HG12	2.01	0.61
4:L:143:PHE:HB3	4:L:211:ALA:H	1.65	0.61
3:K:110:ILE:O	3:K:114:LEU:HG	2.01	0.60
9:U:283:ILE:HD11	10:Y:159:ILE:HG21	1.83	0.60
10:Y:198:ASN:O	10:Y:202:VAL:HG13	2.01	0.60
1:H:131:LEU:HG	1:H:134:LYS:HE3	1.83	0.60
1:H:52:LEU:HD23	3:K:53:PHE:CZ	2.37	0.59
6:O:166:LEU:HD23	7:P:154:LEU:HD11	1.82	0.59
10:Y:136:ASP:OD1	10:Y:138:LYS:NZ	2.32	0.59
2:I:528:SER:HB2	2:I:530:TYR:CE2	2.37	0.59
2:I:550:ASP:HB3	2:I:553:LEU:HG	1.84	0.59
2:I:717:PHE:CD2	2:I:718:LEU:HD23	2.37	0.59
3:K:72:PHE:HA	3:K:75:THR:HG22	1.84	0.59
5:N:7:LEU:HD11	5:N:143:HIS:HB2	1.85	0.59
5:N:25:MET:O	5:N:68:ARG:NH1	2.35	0.58
5:N:29:VAL:HG12	5:N:68:ARG:HG2	1.85	0.58
3:K:15:LEU:O	3:K:19:ILE:HG13	2.02	0.58
2:I:633:ILE:HD11	2:I:697:ARG:HG2	1.85	0.58
4:L:207:SER:HB3	4:L:215:LYS:HE3	1.84	0.58
2:I:517:ASP:OD1	2:I:559:ARG:NH1	2.36	0.58
4:L:76:LEU:HD12	4:L:77:GLY:H	1.68	0.58
5:N:27:LEU:O	5:N:68:ARG:NH1	2.36	0.58
10:Y:6:ASN:O	10:Y:10:ASN:ND2	2.37	0.58
4:L:133:THR:HG23	4:L:135:GLU:H	1.69	0.58
5:N:223:LEU:HB2	9:U:221:ILE:HD11	1.84	0.58
2:I:560:TYR:O	2:I:564:THR:HG23	2.04	0.58
4:L:76:LEU:HD12	4:L:77:GLY:N	2.19	0.58
2:I:506:ARG:HB3	2:I:510:MET:HE1	1.85	0.57
2:I:636:ILE:HD11	2:I:639:LEU:HD12	1.86	0.57
5:N:227:SER:O	5:N:231:THR:HG22	2.05	0.57
3:K:122:GLN:O	3:K:126:THR:HG23	2.04	0.57
5:N:332:LYS:HE2	5:N:427:VAL:HG23	1.86	0.57
9:U:184:GLN:HB3	9:U:187:ARG:HH21	1.69	0.57
5:N:97:MET:HG2	5:N:104:PHE:CE2	2.40	0.57
5:N:276:ALA:HB3	6:O:218:LYS:HE2	1.87	0.57
9:U:191:ASP:O	9:U:195:ILE:HG12	2.05	0.57
5:N:67:ARG:HH21	5:N:68:ARG:HG3	1.70	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:Y:101:VAL:HG11	11:Z:85:LEU:HD21	1.87	0.56
1:H:8:GLN:O	1:H:12:ILE:HG23	2.05	0.56
1:H:51:ARG:CZ	2:I:540:ASP:HB3	2.34	0.56
2:I:414:LYS:HD3	2:I:457:THR:HG22	1.87	0.56
3:K:25:PHE:HD2	3:K:26:LEU:HD12	1.71	0.56
11:Z:57:LEU:O	11:Z:61:ILE:HG22	2.06	0.56
1:H:66:THR:O	1:H:70:ILE:HG12	2.05	0.56
8:Q:370:LEU:HG	8:Q:374:MET:HE3	1.88	0.56
2:I:591:TYR:HE1	2:I:636:ILE:HG21	1.71	0.56
6:O:160:LEU:HD13	7:P:131:LEU:HD23	1.88	0.56
7:P:169:VAL:HG23	7:P:183:LEU:HD21	1.88	0.55
7:P:186:ASN:HB3	7:P:200:GLN:HE21	1.72	0.55
1:H:51:ARG:NH2	1:H:54:GLU:HG3	2.23	0.54
10:Y:100:ARG:HG3	11:Z:97:ILE:HD11	1.88	0.54
4:L:22:LYS:O	4:L:26:LEU:HG	2.07	0.54
1:H:24:ARG:NH1	2:I:496:ASP:OD1	2.40	0.54
1:H:94:ASN:OD1	1:H:94:ASN:N	2.39	0.54
6:O:288:LEU:HD23	6:O:293:ILE:HD12	1.90	0.54
5:N:443:MET:HE3	5:N:444:ASN:N	2.22	0.54
2:I:714:ILE:O	2:I:718:LEU:HG	2.06	0.54
4:L:38:ILE:HD12	4:L:230:ASN:HB2	1.88	0.54
1:H:65:LYS:NZ	2:I:549:ASP:OD2	2.39	0.54
1:H:125:MET:O	1:H:129:ILE:HG22	2.07	0.53
2:I:388:MET:HE2	2:I:388:MET:HA	1.88	0.53
5:N:109:SER:HG	5:N:213:HIS:CD2	2.25	0.53
9:U:178:PHE:O	9:U:181:ILE:HG13	2.08	0.53
2:I:591:TYR:HB2	2:I:603:LEU:HD11	1.89	0.53
2:I:704:LEU:HD11	2:I:711:TYR:HB2	1.90	0.53
11:Z:74:ARG:NH1	11:Z:74:ARG:HA	2.23	0.53
5:N:28:PRO:O	5:N:32:LEU:HD13	2.08	0.53
11:Z:74:ARG:HA	11:Z:74:ARG:CZ	2.38	0.53
4:L:198:MET:HB2	4:L:203:LEU:HD11	1.89	0.53
6:O:351:SER:OG	6:O:352:LEU:N	2.39	0.53
6:O:355:LEU:O	6:O:359:LEU:HG	2.09	0.53
9:U:246:LEU:O	9:U:250:VAL:HG13	2.07	0.53
7:P:253:LYS:HD2	8:Q:332:LEU:HD21	1.90	0.53
10:Y:8:ILE:O	10:Y:12:ILE:HG12	2.09	0.53
1:H:131:LEU:HA	1:H:134:LYS:HD3	1.90	0.53
3:K:101:LYS:HD2	3:K:101:LYS:O	2.09	0.53
5:N:130:GLU:O	5:N:134:THR:HG22	2.08	0.53
10:Y:78:SER:HA	10:Y:81:ILE:HG22	1.91	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:634:THR:HB	2:I:665:ILE:HB	1.91	0.53
6:O:204:ILE:HD13	6:O:268:ALA:HB2	1.90	0.53
6:O:252:ASP:OD2	6:O:270:ARG:NH1	2.37	0.53
2:I:648:ARG:O	2:I:652:THR:HG23	2.09	0.52
4:L:228:LEU:HD22	4:L:233:LEU:HG	1.91	0.52
5:N:204:PHE:CE2	5:N:228:ILE:HD11	2.45	0.52
6:O:309:PHE:CE2	6:O:314:LYS:HB2	2.43	0.52
7:P:199:ILE:HD11	7:P:217:ILE:HD11	1.92	0.52
3:K:23:ARG:HH22	3:K:26:LEU:HD22	1.74	0.52
2:I:483:LEU:HD21	2:I:522:LEU:HD11	1.90	0.52
5:N:113:ARG:HB3	5:N:238:ILE:HD13	1.92	0.52
7:P:219:ARG:C	7:P:220:ILE:HD13	2.34	0.52
6:O:165:VAL:O	6:O:169:VAL:HG13	2.09	0.52
2:I:579:ARG:O	2:I:583:GLN:HG2	2.10	0.52
5:N:446:ASP:OD1	6:O:199:ARG:NH2	2.35	0.52
10:Y:171:THR:HG21	11:Z:115:LYS:HE3	1.92	0.52
5:N:72:VAL:HA	5:N:75:ILE:HG22	1.92	0.51
8:Q:286:ARG:HG2	8:Q:286:ARG:HH11	1.75	0.51
2:I:537:VAL:HB	2:I:542:MET:HG2	1.91	0.51
4:L:42:SER:OG	4:L:136:ASN:OD1	2.25	0.51
4:L:232:VAL:O	4:L:236:VAL:HG23	2.09	0.51
5:N:202:VAL:HG22	5:N:213:HIS:HB3	1.91	0.51
2:I:523:SER:HB3	2:I:535:LEU:HD11	1.92	0.51
4:L:124:LEU:HD13	4:L:221:ILE:HD11	1.93	0.51
5:N:56:GLU:O	5:N:60:LEU:HG	2.11	0.51
9:U:176:ARG:HH21	9:U:179:GLN:HG3	1.76	0.51
10:Y:143:TYR:HB2	11:Z:91:ILE:HD11	1.92	0.51
11:Z:16:LEU:H	11:Z:16:LEU:HD23	1.76	0.51
1:H:54:GLU:O	1:H:58:GLN:HB3	2.11	0.51
2:I:350:ARG:H	2:I:350:ARG:HD3	1.75	0.51
5:N:37:LEU:HD12	5:N:38:SER:N	2.26	0.50
1:H:54:GLU:OE1	1:H:55:ILE:HG23	2.11	0.50
6:O:315:VAL:HG22	6:O:329:ILE:HG12	1.93	0.50
9:U:189:LEU:O	9:U:192:ILE:HG22	2.12	0.50
2:I:586:MET:SD	2:I:586:MET:N	2.84	0.50
5:N:141:HIS:HB2	5:N:162:PHE:HB2	1.93	0.50
5:N:163:ASP:OD2	5:N:197:ARG:NH2	2.44	0.50
5:N:23:GLN:HG3	5:N:96:LEU:HD13	1.94	0.50
8:Q:359:SER:HB3	11:Z:113:GLN:OE1	2.12	0.50
2:I:440:MET:HG2	2:I:489:MET:HE1	1.93	0.50
2:I:681:ILE:HG23	2:I:686:TRP:HB2	1.94	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:Q:370:LEU:HA	8:Q:373:THR:HG22	1.95	0.49
4:L:26:LEU:HD12	4:L:27:LEU:HG	1.93	0.49
8:Q:287:LEU:HD13	9:U:246:LEU:HD11	1.94	0.49
5:N:26:LYS:HB3	5:N:100:LYS:NZ	2.28	0.49
2:I:500:ASN:O	2:I:504:SER:OG	2.28	0.49
2:I:612:LYS:O	2:I:616:GLU:HG2	2.13	0.49
4:L:23:LEU:HD12	4:L:26:LEU:HD11	1.95	0.49
8:Q:247:ARG:HG3	9:U:206:LEU:HD11	1.93	0.49
2:I:496:ASP:O	2:I:500:ASN:ND2	2.44	0.49
7:P:345:ILE:HD13	7:P:353:GLY:HA3	1.95	0.49
5:N:205:PRO:HB2	5:N:208:SER:HB2	1.95	0.49
3:K:106:LEU:O	3:K:110:ILE:HG22	2.13	0.49
5:N:204:PHE:CZ	5:N:228:ILE:HD11	2.47	0.49
5:N:289:HIS:CD2	5:N:291:GLY:H	2.31	0.49
7:P:206:LYS:HD3	7:P:213:LEU:HD21	1.94	0.49
9:U:182:SER:O	9:U:186:THR:HG22	2.12	0.49
1:H:56:ARG:O	1:H:60:GLN:HG2	2.13	0.49
1:H:77:ASP:HA	1:H:83:PHE:CZ	2.47	0.49
5:N:121:VAL:HG23	5:N:122:LYS:H	1.78	0.49
2:I:452:HIS:HD2	2:I:454:ASN:H	1.61	0.48
11:Z:62:LYS:HE2	11:Z:62:LYS:HA	1.95	0.48
1:H:17:LYS:HE2	3:K:77:ASN:HD21	1.78	0.48
7:P:271:CYS:HB3	7:P:282:VAL:HG12	1.94	0.48
10:Y:4:THR:O	10:Y:8:ILE:HG12	2.13	0.48
1:H:134:LYS:NZ	3:K:125:MET:HE3	2.29	0.48
5:N:52:TYR:O	5:N:55:THR:OG1	2.24	0.48
2:I:528:SER:HB2	2:I:530:TYR:CZ	2.48	0.48
7:P:278:ASP:O	7:P:300:PHE:N	2.43	0.48
8:Q:341:LYS:HG2	10:Y:158:GLN:HE22	1.79	0.48
1:H:6:GLU:O	1:H:10:GLU:HG3	2.13	0.48
3:K:65:GLU:O	3:K:66:ARG:HG3	2.14	0.48
6:O:316:GLU:HB3	6:O:328:SER:HB2	1.94	0.48
2:I:514:SER:O	2:I:518:ILE:HG12	2.14	0.48
5:N:327:GLU:O	5:N:331:ILE:HG13	2.14	0.48
7:P:298:ILE:HG22	7:P:323:ILE:HD12	1.96	0.48
2:I:629:LYS:HE2	2:I:668:GLU:HB2	1.96	0.48
8:Q:271:GLU:OE2	10:Y:91:TYR:OH	2.26	0.48
2:I:568:LEU:HD13	2:I:581:GLN:HG2	1.96	0.47
3:K:89:TRP:CZ3	3:K:93:MET:HG3	2.49	0.47
4:L:5:TRP:CD1	4:L:228:LEU:HD12	2.48	0.47
7:P:217:ILE:HG12	7:P:220:ILE:HD11	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:Z:14:SER:O	11:Z:15:LEU:HD23	2.14	0.47
3:K:70:ILE:O	3:K:70:ILE:HG22	2.14	0.47
7:P:340:ILE:HG13	9:U:255:ARG:HG2	1.95	0.47
1:H:32:ARG:O	1:H:36:ILE:HG22	2.14	0.47
2:I:549:ASP:HA	2:I:638:ALA:HB2	1.97	0.47
4:L:36:GLN:OE1	4:L:55:ARG:NH1	2.36	0.47
2:I:608:PRO:HA	2:I:611:PHE:HD1	1.79	0.47
4:L:83:VAL:HG21	4:L:240:ILE:HG23	1.96	0.47
6:O:280:LYS:O	6:O:284:ILE:HG12	2.15	0.47
10:Y:66:ILE:HD11	11:Z:65:PHE:CZ	2.47	0.47
10:Y:78:SER:HB3	11:Z:76:LEU:HD21	1.95	0.47
2:I:434:GLU:O	2:I:438:LYS:HG2	2.14	0.47
10:Y:96:GLU:O	10:Y:100:ARG:HG2	2.13	0.47
2:I:446:TRP:HA	2:I:449:ARG:HD2	1.97	0.47
7:P:336:ASP:OD1	7:P:337:LEU:N	2.47	0.47
1:H:9:TRP:N	1:H:9:TRP:CD1	2.83	0.47
1:H:73:LEU:HA	1:H:83:PHE:CZ	2.50	0.47
5:N:40:PHE:HA	5:N:44:GLY:HA2	1.96	0.47
8:Q:341:LYS:HG2	10:Y:158:GLN:NE2	2.30	0.47
8:Q:378:ILE:HD13	9:U:298:LEU:HD23	1.96	0.47
11:Z:5:GLN:HA	11:Z:8:HIS:ND1	2.30	0.47
4:L:37:THR:HG23	4:L:54:ILE:HG13	1.97	0.47
1:H:128:LEU:HD13	2:I:346:ILE:HD13	1.96	0.47
3:K:89:TRP:O	3:K:93:MET:HG2	2.15	0.47
1:H:65:LYS:HG2	3:K:75:THR:HB	1.97	0.47
6:O:186:LEU:HA	6:O:186:LEU:HD23	1.61	0.46
5:N:139:ILE:CG2	9:U:217:ASN:HD21	2.28	0.46
5:N:382:ILE:HD13	5:N:437:SER:H	1.80	0.46
2:I:610:PHE:CB	3:K:61:MET:HE1	2.45	0.46
11:Z:4:GLU:OE2	11:Z:69:ARG:NH2	2.42	0.46
4:L:237:LEU:O	4:L:240:ILE:HG22	2.15	0.46
1:H:66:THR:HA	1:H:69:LEU:HD12	1.98	0.46
1:H:134:LYS:HZ1	3:K:125:MET:HE3	1.80	0.46
1:H:73:LEU:HG	2:I:664:ILE:HG23	1.98	0.46
2:I:393:SER:OG	2:I:420:ILE:HD11	2.15	0.46
5:N:67:ARG:HE	5:N:68:ARG:H	1.63	0.46
2:I:582:ASN:O	2:I:586:MET:HG2	2.16	0.46
3:K:18:GLN:O	3:K:22:LYS:HG2	2.16	0.45
5:N:35:LEU:HB3	5:N:39:TRP:CH2	2.51	0.45
5:N:140:TYR:HE2	5:N:220:TYR:CD1	2.35	0.45
6:O:282:ARG:NH2	6:O:301:LEU:O	2.48	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:U:168:LYS:O	9:U:172:LYS:HG2	2.16	0.45
10:Y:8:ILE:HD12	10:Y:66:ILE:HG23	1.99	0.45
2:I:441:ALA:O	2:I:445:MET:HG2	2.16	0.45
4:L:32:ASP:C	4:L:33:LEU:HD12	2.42	0.45
11:Z:122:PHE:O	11:Z:126:VAL:HG22	2.15	0.45
5:N:109:SER:OG	5:N:213:HIS:NE2	2.25	0.45
5:N:289:HIS:HE1	6:O:164:ILE:HG12	1.81	0.45
10:Y:157:LEU:HD21	11:Z:104:ARG:HG2	1.99	0.45
2:I:444:PHE:CE1	2:I:498:ILE:HD11	2.51	0.45
2:I:476:ASP:HA	2:I:479:ILE:HD12	1.99	0.45
4:L:55:ARG:NH2	4:L:57:GLU:OE1	2.49	0.45
6:O:169:VAL:HA	6:O:172:MET:SD	2.57	0.45
2:I:375:PRO:O	2:I:379:ILE:HG12	2.17	0.45
5:N:233:SER:O	5:N:234:GLU:HG2	2.16	0.45
7:P:314:CYS:SG	7:P:315:PHE:N	2.90	0.45
4:L:219:GLU:OE2	4:L:219:GLU:HA	2.16	0.45
5:N:21:PHE:CE1	5:N:72:VAL:HG23	2.52	0.45
5:N:215:VAL:HG11	5:N:247:PRO:HG3	1.98	0.45
5:N:449:ARG:HD3	5:N:449:ARG:N	2.32	0.45
10:Y:192:GLU:O	10:Y:196:THR:HG22	2.17	0.45
1:H:9:TRP:CD1	1:H:9:TRP:H	2.35	0.45
5:N:163:ASP:O	5:N:194:LEU:HD12	2.17	0.45
7:P:143:ASP:OD1	7:P:143:ASP:N	2.44	0.45
3:K:19:ILE:O	3:K:23:ARG:HG2	2.17	0.45
5:N:12:VAL:HA	5:N:85:ASN:HA	1.99	0.45
6:O:295:HIS:HB2	6:O:309:PHE:HB2	1.97	0.45
9:U:282:SER:HB3	9:U:285:ASP:HB2	1.97	0.45
9:U:288:ASN:OD1	10:Y:170:GLN:NE2	2.45	0.45
2:I:379:ILE:HG13	2:I:380:PRO:CD	2.42	0.44
2:I:426:PRO:HD3	2:I:472:TRP:CE2	2.52	0.44
5:N:34:ASP:HA	5:N:37:LEU:HG	1.99	0.44
5:N:121:VAL:HG23	5:N:122:LYS:N	2.32	0.44
2:I:483:LEU:HD21	2:I:522:LEU:CD1	2.46	0.44
6:O:178:PHE:CD2	7:P:146:PRO:HB3	2.52	0.44
2:I:660:PHE:HA	2:I:673:PHE:CE2	2.53	0.44
10:Y:54:MET:HE3	10:Y:54:MET:HA	1.98	0.44
11:Z:5:GLN:O	11:Z:9:ASN:ND2	2.50	0.44
11:Z:85:LEU:HD12	11:Z:85:LEU:HA	1.82	0.44
1:H:58:GLN:OE1	2:I:501:ASN:ND2	2.50	0.44
6:O:222:VAL:HG11	6:O:267:PHE:HE2	1.82	0.44
2:I:554:LEU:HD23	2:I:639:LEU:HD11	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:N:95:HIS:HA	5:N:98:ILE:HG22	2.00	0.44
5:N:97:MET:HE1	5:N:156:ILE:HD13	1.99	0.44
5:N:219:ILE:HD12	5:N:219:ILE:HA	1.83	0.44
2:I:359:TRP:CD1	4:L:110:ILE:HG21	2.48	0.44
1:H:28:ILE:HD12	1:H:28:ILE:HA	1.78	0.44
2:I:469:ILE:O	2:I:473:VAL:HG23	2.17	0.44
11:Z:51:ALA:O	11:Z:55:SER:OG	2.25	0.44
6:O:204:ILE:HD11	6:O:224:LEU:HD11	1.99	0.44
10:Y:153:LYS:HB2	10:Y:153:LYS:HE2	1.67	0.44
4:L:114:ILE:CD1	4:L:240:ILE:HD12	2.44	0.44
5:N:196:SER:OG	5:N:197:ARG:N	2.51	0.44
6:O:326:SER:HB2	10:Y:112:ARG:HH22	1.82	0.44
1:H:11:ARG:NH2	1:H:15:LEU:HG	2.33	0.43
1:H:19:HIS:HD2	3:K:23:ARG:NH2	2.16	0.43
2:I:506:ARG:HB2	3:K:85:SER:OG	2.17	0.43
4:L:213:HIS:CD2	4:L:214:THR:HG23	2.53	0.43
5:N:285:ASP:OD1	5:N:286:TYR:N	2.51	0.43
7:P:183:LEU:O	7:P:202:LYS:HA	2.17	0.43
1:H:17:LYS:HA	3:K:77:ASN:ND2	2.32	0.43
4:L:131:HIS:HB2	4:L:229:ARG:NH2	2.32	0.43
10:Y:123:MET:SD	10:Y:123:MET:N	2.91	0.43
2:I:725:LEU:HA	2:I:728:TYR:HD2	1.83	0.43
4:L:76:LEU:HD22	4:L:233:LEU:HB3	2.00	0.43
4:L:144:SER:O	4:L:144:SER:OG	2.34	0.43
9:U:205:GLN:HA	9:U:205:GLN:OE1	2.19	0.43
10:Y:150:LEU:HD12	10:Y:150:LEU:HA	1.79	0.43
4:L:145:SER:HB3	4:L:184:TYR:HH	1.82	0.43
5:N:225:LEU:HA	5:N:228:ILE:HG22	2.01	0.43
5:N:226:GLN:HE22	9:U:221:ILE:HG23	1.83	0.43
8:Q:366:LYS:O	8:Q:369:GLU:HG2	2.18	0.43
4:L:121:MET:HE2	4:L:218:ARG:HD3	1.99	0.43
4:L:144:SER:HB2	4:L:166:PRO:HA	2.01	0.43
5:N:387:PHE:N	5:N:402:LEU:O	2.50	0.43
9:U:298:LEU:C	9:U:299:MET:HE2	2.44	0.43
6:O:207:GLU:O	7:P:238:GLN:NE2	2.49	0.43
8:Q:252:LEU:HD13	10:Y:67:TYR:CZ	2.54	0.43
1:H:33:LEU:HD13	3:K:33:ILE:HG22	2.01	0.43
1:H:36:ILE:HG12	1:H:36:ILE:O	2.19	0.43
1:H:39:HIS:HB3	1:H:41:HIS:CE1	2.54	0.43
2:I:440:MET:HE2	2:I:440:MET:HB2	1.85	0.43
2:I:483:LEU:HD23	2:I:483:LEU:HA	1.81	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:N:139:ILE:HG22	5:N:140:TYR:CD1	2.53	0.43
5:N:289:HIS:CE1	6:O:164:ILE:HG12	2.54	0.43
8:Q:374:MET:HE1	9:U:292:ILE:HD13	2.01	0.43
2:I:364:LEU:HG	2:I:382:ILE:HD13	2.00	0.43
4:L:148:TYR:HB2	4:L:207:SER:HB2	2.01	0.43
5:N:122:LYS:NZ	6:O:302:GLU:OE2	2.48	0.43
6:O:305:MET:HE3	6:O:305:MET:HB3	1.84	0.43
6:O:320:LYS:HB2	6:O:320:LYS:HE3	1.67	0.43
2:I:417:CYS:O	2:I:421:LEU:HB2	2.19	0.43
2:I:456:CYS:O	2:I:460:GLU:HG3	2.18	0.43
5:N:162:PHE:CD1	5:N:196:SER:HA	2.54	0.43
8:Q:286:ARG:HD2	9:U:250:VAL:HG11	2.00	0.43
9:U:177:LEU:O	9:U:181:ILE:HG12	2.18	0.43
1:H:65:LYS:O	1:H:69:LEU:HG	2.19	0.43
1:H:73:LEU:HA	1:H:83:PHE:HZ	1.84	0.43
2:I:497:LYS:H	2:I:497:LYS:HG2	1.67	0.43
2:I:549:ASP:HB2	3:K:78:PHE:HE2	1.84	0.43
5:N:21:PHE:HD1	5:N:76:LEU:HD22	1.84	0.43
6:O:340:ASN:HA	6:O:343:LYS:NZ	2.34	0.43
7:P:254:LYS:HD3	7:P:302:ILE:HD11	2.01	0.43
7:P:320:LYS:HG3	8:Q:335:MET:HG3	2.00	0.43
3:K:23:ARG:HA	3:K:23:ARG:CZ	2.49	0.42
5:N:413:LEU:HD21	5:N:431:LEU:HG	2.01	0.42
9:U:193:LEU:HD13	9:U:193:LEU:HA	1.88	0.42
1:H:28:ILE:HD11	1:H:53:LEU:HB2	2.00	0.42
2:I:479:ILE:HD13	2:I:530:TYR:CE1	2.55	0.42
4:L:145:SER:HB3	4:L:184:TYR:OH	2.19	0.42
6:O:172:MET:O	7:P:238:GLN:HG3	2.20	0.42
7:P:346:LYS:HG3	8:Q:325:PHE:CE2	2.54	0.42
10:Y:136:ASP:HA	10:Y:138:LYS:HZ2	1.84	0.42
1:H:99:GLU:O	1:H:102:GLN:NE2	2.51	0.42
2:I:717:PHE:HD2	2:I:718:LEU:HD23	1.82	0.42
4:L:62:ILE:HD13	4:L:95:ARG:HH22	1.84	0.42
8:Q:360:LEU:HD13	8:Q:360:LEU:HA	1.92	0.42
9:U:258:ASP:O	9:U:262:THR:HG23	2.19	0.42
10:Y:7:SER:HA	10:Y:10:ASN:HD21	1.84	0.42
11:Z:49:ARG:O	11:Z:53:VAL:HG12	2.19	0.42
1:H:19:HIS:NE2	3:K:70:ILE:HD11	2.35	0.42
2:I:542:MET:HE2	2:I:546:PHE:CZ	2.54	0.42
4:L:144:SER:H	4:L:211:ALA:HB2	1.83	0.42
10:Y:97:LEU:HD21	10:Y:117:VAL:HG12	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:Q:255:ASN:HD21	9:U:212:ARG:HB3	1.84	0.42
8:Q:262:LEU:HD13	9:U:220:ILE:HA	2.02	0.42
2:I:367:CYS:SG	2:I:372:ILE:HD12	2.59	0.42
3:K:70:ILE:HD13	3:K:70:ILE:HA	1.91	0.42
6:O:182:ASP:OD2	6:O:225:LYS:NZ	2.53	0.42
2:I:416:VAL:O	2:I:420:ILE:HG22	2.20	0.42
2:I:532:ILE:HG23	2:I:577:PHE:HD1	1.84	0.42
5:N:73:ASN:O	5:N:77:TYR:HB2	2.19	0.42
5:N:106:TRP:HB3	5:N:212:PHE:HB3	2.01	0.42
9:U:189:LEU:HD12	9:U:190:LYS:N	2.35	0.42
10:Y:178:THR:O	10:Y:181:ILE:HG22	2.20	0.42
7:P:183:LEU:HD23	7:P:184:VAL:N	2.34	0.41
7:P:242:LEU:HD23	7:P:242:LEU:HA	1.82	0.41
8:Q:286:ARG:HG2	8:Q:286:ARG:NH1	2.34	0.41
2:I:610:PHE:CG	3:K:61:MET:HE1	2.55	0.41
1:H:96:LEU:HD23	1:H:96:LEU:HA	1.81	0.41
2:I:542:MET:HE3	2:I:542:MET:HA	2.02	0.41
5:N:272:CYS:O	5:N:276:ALA:N	2.52	0.41
6:O:160:LEU:HD11	7:P:130:GLY:HA3	2.01	0.41
7:P:203:MET:HB3	7:P:212:LEU:HD11	2.02	0.41
9:U:236:TRP:HA	9:U:239:LEU:HD12	2.02	0.41
8:Q:370:LEU:CG	8:Q:374:MET:HE3	2.51	0.41
10:Y:200:LYS:HA	10:Y:203:VAL:HG12	2.01	0.41
2:I:366:ARG:NH2	2:I:372:ILE:HG12	2.36	0.41
3:K:61:MET:HE3	3:K:61:MET:HB3	1.76	0.41
10:Y:40:ARG:HA	10:Y:40:ARG:HH11	1.85	0.41
1:H:26:LEU:HD12	3:K:33:ILE:HD11	2.02	0.41
1:H:71:ARG:HD3	1:H:71:ARG:HA	1.72	0.41
6:O:301:LEU:HD23	6:O:301:LEU:HA	1.87	0.41
10:Y:90:LYS:C	10:Y:92:SER:H	2.29	0.41
1:H:19:HIS:HD2	3:K:23:ARG:HH22	1.68	0.41
1:H:117:SER:O	1:H:120:GLU:HG2	2.21	0.41
2:I:363:GLN:OE1	2:I:366:ARG:NH1	2.54	0.41
4:L:128:SER:OG	4:L:214:THR:HG21	2.20	0.41
5:N:331:ILE:HG21	7:P:143:ASP:HB3	2.03	0.41
6:O:225:LYS:HB3	6:O:234:PHE:CE1	2.56	0.41
7:P:323:ILE:HG22	7:P:337:LEU:HD21	2.01	0.41
8:Q:374:MET:HE1	9:U:292:ILE:CD1	2.51	0.41
1:H:15:LEU:HD13	3:K:19:ILE:HB	2.02	0.41
1:H:128:LEU:HG	3:K:118:LEU:HD13	2.02	0.41
2:I:658:ILE:HB	2:I:686:TRP:CD1	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:660:PHE:CE1	2:I:662:SER:HB3	2.56	0.41
3:K:121:LEU:HA	3:K:121:LEU:HD23	1.80	0.41
4:L:111:MET:HE2	4:L:111:MET:HA	2.01	0.41
4:L:156:LYS:HA	4:L:156:LYS:HE3	2.02	0.41
8:Q:368:LYS:HD2	8:Q:368:LYS:HA	1.94	0.41
9:U:176:ARG:NH2	9:U:179:GLN:HG3	2.35	0.41
10:Y:159:ILE:HD13	10:Y:159:ILE:HA	1.99	0.41
1:H:57:HIS:O	1:H:61:ILE:HG12	2.21	0.41
2:I:364:LEU:HD23	2:I:364:LEU:HA	1.95	0.41
2:I:660:PHE:HD2	2:I:686:TRP:HH2	1.67	0.41
5:N:265:GLU:HG3	6:O:238:HIS:NE2	2.36	0.41
9:U:290:LEU:HD23	9:U:290:LEU:HA	1.77	0.41
2:I:500:ASN:CG	2:I:504:SER:HB3	2.46	0.40
2:I:588:LEU:O	2:I:588:LEU:HD12	2.21	0.40
5:N:386:GLY:O	5:N:439:SER:HB2	2.21	0.40
6:O:188:ILE:HG12	6:O:190:ASP:H	1.86	0.40
6:O:258:VAL:HG23	6:O:263:ASP:CB	2.51	0.40
7:P:197:PHE:HZ	7:P:248:ASP:HB2	1.85	0.40
8:Q:286:ARG:O	8:Q:289:GLU:HG3	2.21	0.40
9:U:246:LEU:HD13	9:U:246:LEU:HA	1.90	0.40
11:Z:60:ARG:NH2	11:Z:63:GLN:HG3	2.36	0.40
1:H:75:LYS:HG2	1:H:76:PRO:CD	2.51	0.40
1:H:114:LEU:CD1	3:K:100:GLN:HE21	2.34	0.40
2:I:535:LEU:HD21	2:I:564:THR:HB	2.02	0.40
2:I:591:TYR:HD2	2:I:604:PHE:HZ	1.69	0.40
3:K:119:ARG:HA	3:K:122:GLN:OE1	2.22	0.40
4:L:103:LEU:HD12	4:L:103:LEU:HA	1.91	0.40
4:L:170:CYS:SG	4:L:188:ILE:HD11	2.61	0.40
6:O:214:SER:O	6:O:214:SER:OG	2.33	0.40
6:O:345:GLU:OE1	10:Y:108:THR:HG22	2.21	0.40
10:Y:53:ALA:HA	10:Y:58:LYS:HD3	2.04	0.40
1:H:53:LEU:O	1:H:57:HIS:HB2	2.21	0.40
1:H:68:LEU:HB2	3:K:71:GLY:HA3	2.03	0.40
4:L:73:PHE:HE2	4:L:87:LEU:HD13	1.87	0.40
4:L:83:VAL:CG2	4:L:240:ILE:HG23	2.51	0.40
5:N:209:PRO:HD2	6:O:242:SER:HB3	2.04	0.40
6:O:179:PRO:HD2	7:P:153:ARG:HG3	2.03	0.40
6:O:226:LYS:HB2	6:O:226:LYS:HE2	1.72	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	H	131/181 (72%)	119 (91%)	10 (8%)	2 (2%)	8 32
2	I	412/733 (56%)	405 (98%)	7 (2%)	0	100 100
3	K	111/239 (46%)	101 (91%)	7 (6%)	3 (3%)	4 22
4	L	239/245 (98%)	231 (97%)	8 (3%)	0	100 100
5	N	359/458 (78%)	342 (95%)	17 (5%)	0	100 100
6	O	201/368 (55%)	186 (92%)	15 (8%)	0	100 100
7	P	232/369 (63%)	222 (96%)	10 (4%)	0	100 100
8	Q	196/406 (48%)	191 (97%)	5 (3%)	0	100 100
9	U	165/324 (51%)	161 (98%)	4 (2%)	0	100 100
10	Y	217/238 (91%)	204 (94%)	13 (6%)	0	100 100
11	Z	136/153 (89%)	135 (99%)	1 (1%)	0	100 100
All	All	2399/3714 (65%)	2297 (96%)	97 (4%)	5 (0%)	44 71

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	H	76	PRO
3	K	66	ARG
3	K	67	ALA
1	H	43	VAL
3	K	60	PRO

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	H	108/172 (63%)	103 (95%)	5 (5%)	24 53
2	I	386/683 (56%)	382 (99%)	4 (1%)	68 76
3	K	86/223 (39%)	86 (100%)	0	100 100
4	L	216/221 (98%)	211 (98%)	5 (2%)	44 66
5	N	316/416 (76%)	315 (100%)	1 (0%)	86 86
6	O	185/347 (53%)	179 (97%)	6 (3%)	34 60
7	P	193/344 (56%)	185 (96%)	8 (4%)	27 55
8	Q	120/378 (32%)	120 (100%)	0	100 100
9	U	111/309 (36%)	110 (99%)	1 (1%)	70 78
10	Y	140/219 (64%)	136 (97%)	4 (3%)	37 62
11	Z	87/143 (61%)	84 (97%)	3 (3%)	32 59
All	All	1948/3455 (56%)	1911 (98%)	37 (2%)	49 68

All (37) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	H	13	GLN
1	H	33	LEU
1	H	53	LEU
1	H	71	ARG
1	H	81	VAL
2	I	498	ILE
2	I	537	VAL
2	I	569	MET
2	I	684	HIS
4	L	14	LEU
4	L	20	ILE
4	L	83	VAL
4	L	205	LEU
4	L	239	SER
5	N	157	THR
6	O	200	GLU
6	O	208	VAL
6	O	224	LEU
6	O	296	ASP
6	O	313	ILE
6	O	343	LYS

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Mol	Chain	Res	Type
7	P	167	VAL
7	P	182	VAL
7	P	217	ILE
7	P	262	ILE
7	P	275	ASN
7	P	303	THR
7	P	352	THR
7	P	361	CYS
9	U	193	LEU
10	Y	17	THR
10	Y	102	GLU
10	Y	123	MET
10	Y	176	SER
11	Z	65	PHE
11	Z	72	LEU
11	Z	102	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (21) such sidechains are listed below:

Mol	Chain	Res	Type
1	H	19	HIS
1	H	41	HIS
1	H	78	ASN
2	I	370	HIS
2	I	490	GLN
2	I	691	ASN
3	K	77	ASN
4	L	64	ASN
4	L	238	GLN
5	N	10	ASN
5	N	69	ASN
5	N	244	GLN
5	N	289	HIS
5	N	414	HIS
6	O	220	HIS
7	P	164	HIS
7	P	200	GLN
7	P	297	GLN
8	Q	327	ASN
10	Y	10	ASN
10	Y	158	GLN

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

There are no ligands in this entry.

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.

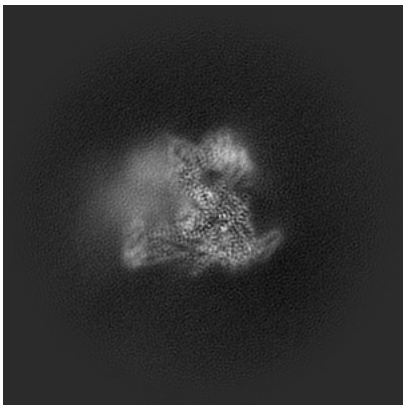
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-75131. These allow visual inspection of the internal detail of the map and identification of artifacts.

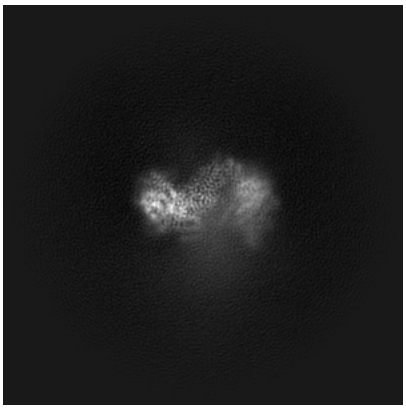
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

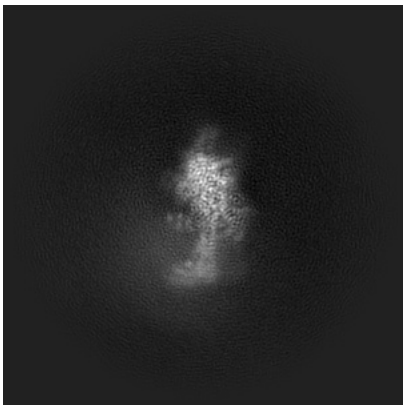
6.1.1 Primary map



X

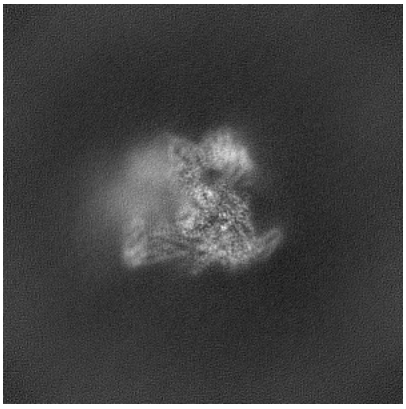


Y

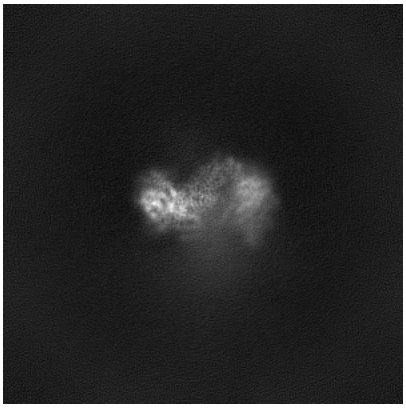


Z

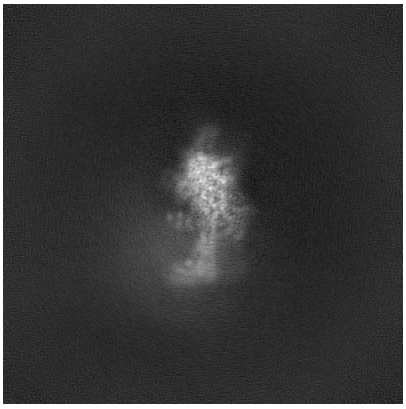
6.1.2 Raw map



X



Y

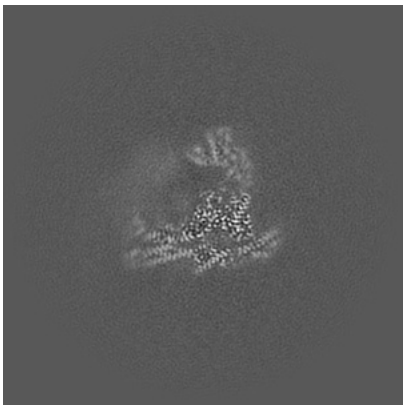


Z

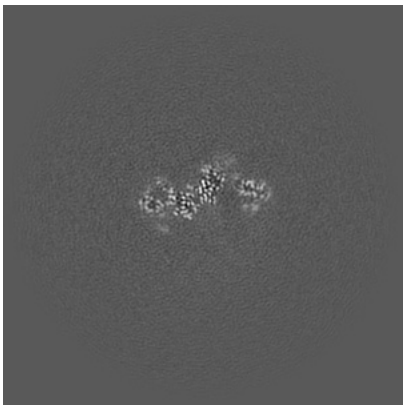
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

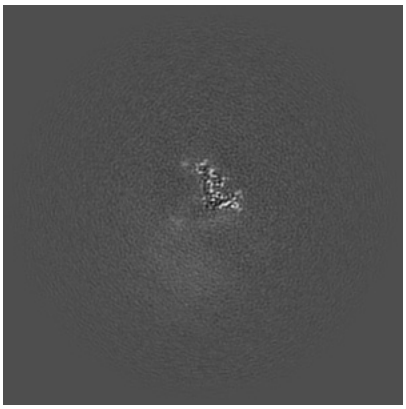
6.2.1 Primary map



X Index: 200

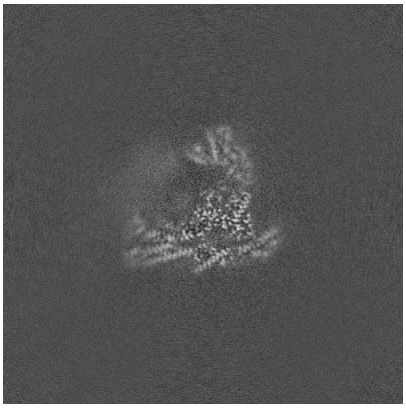


Y Index: 200

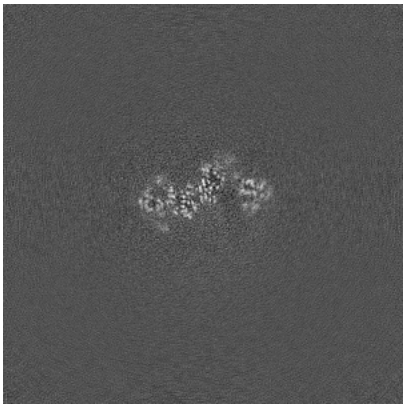


Z Index: 200

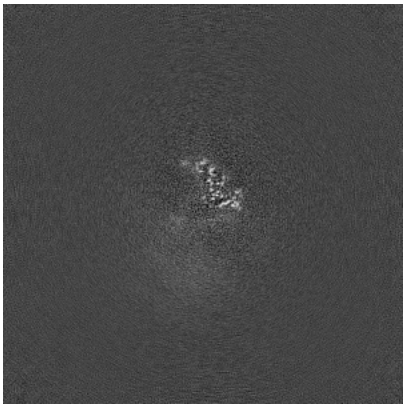
6.2.2 Raw map



X Index: 200



Y Index: 200

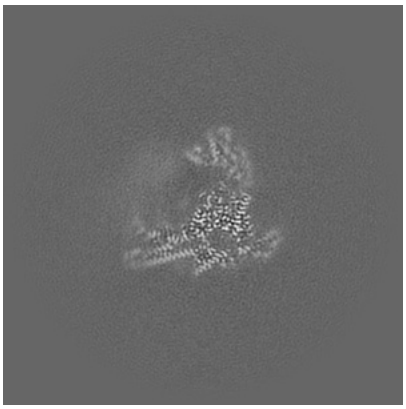


Z Index: 200

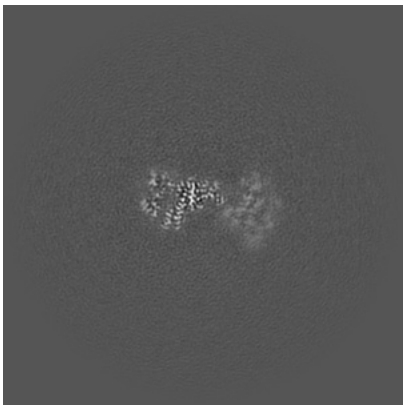
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

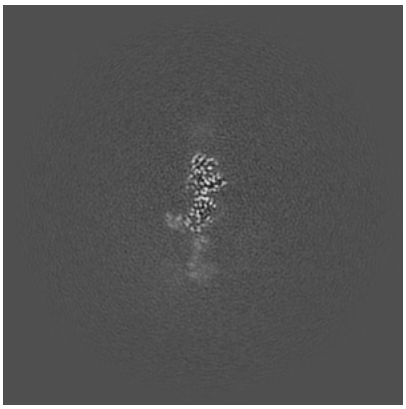
6.3.1 Primary map



X Index: 201

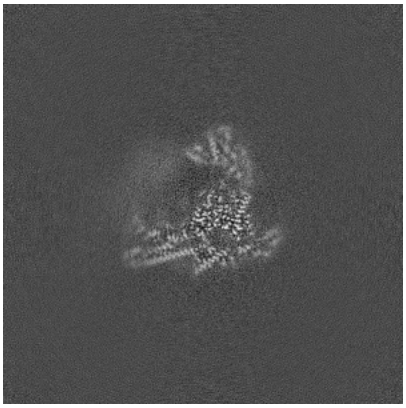


Y Index: 221



Z Index: 179

6.3.2 Raw map



X Index: 201

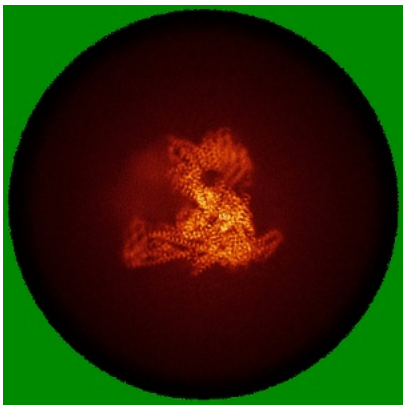
Y Index: 221

Z Index: 168

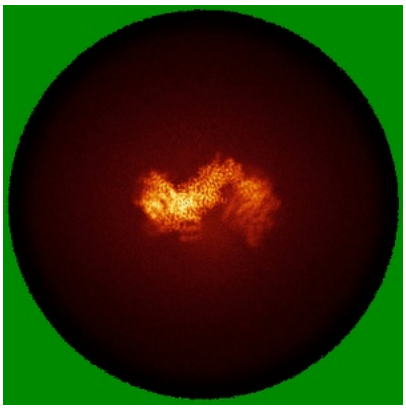
The images above show the largest variance slices of the map in three orthogonal directions.

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

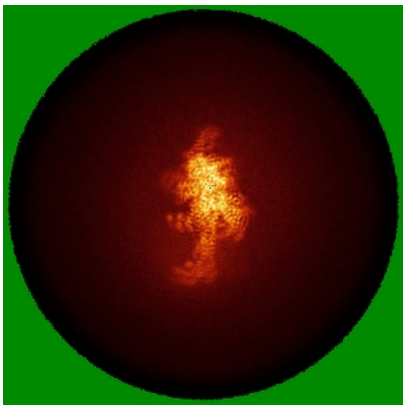
6.4.1 Primary map



X

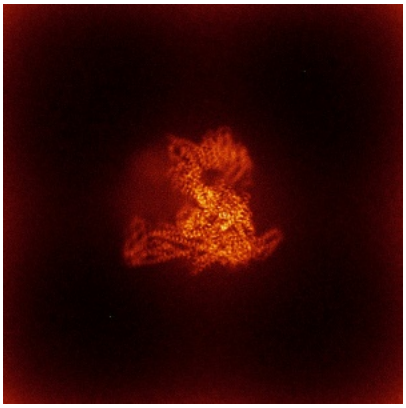


Y

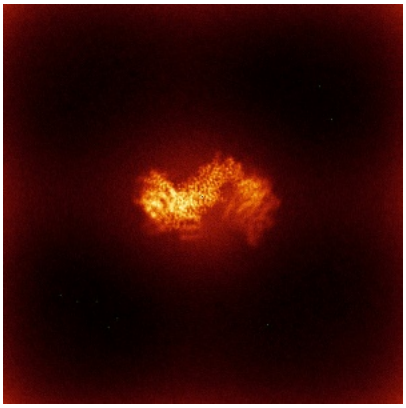


Z

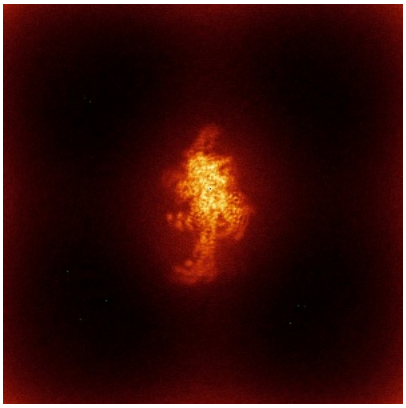
6.4.2 Raw map



X



Y

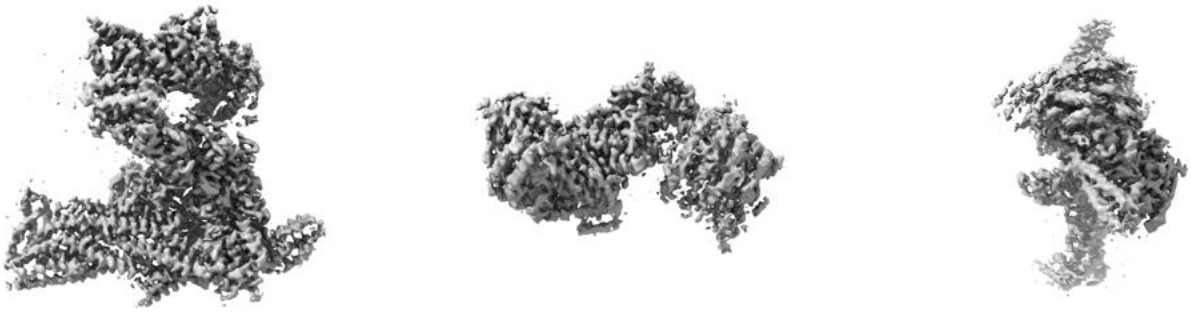


Z

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

6.5 Orthogonal surface views (i)

6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.243. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map

X Y Z

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

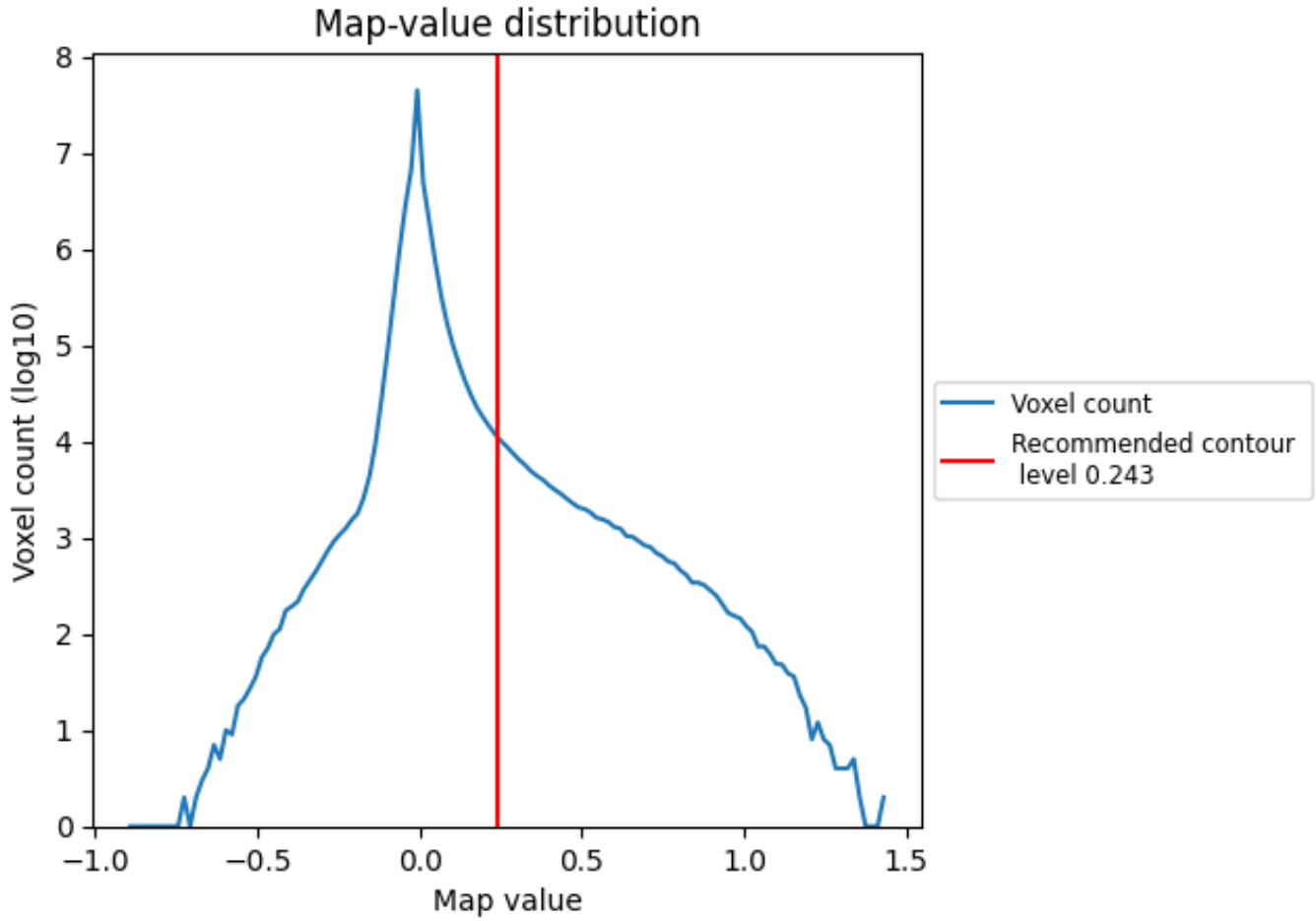
6.6 Mask visualisation (i)

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

7 Map analysis

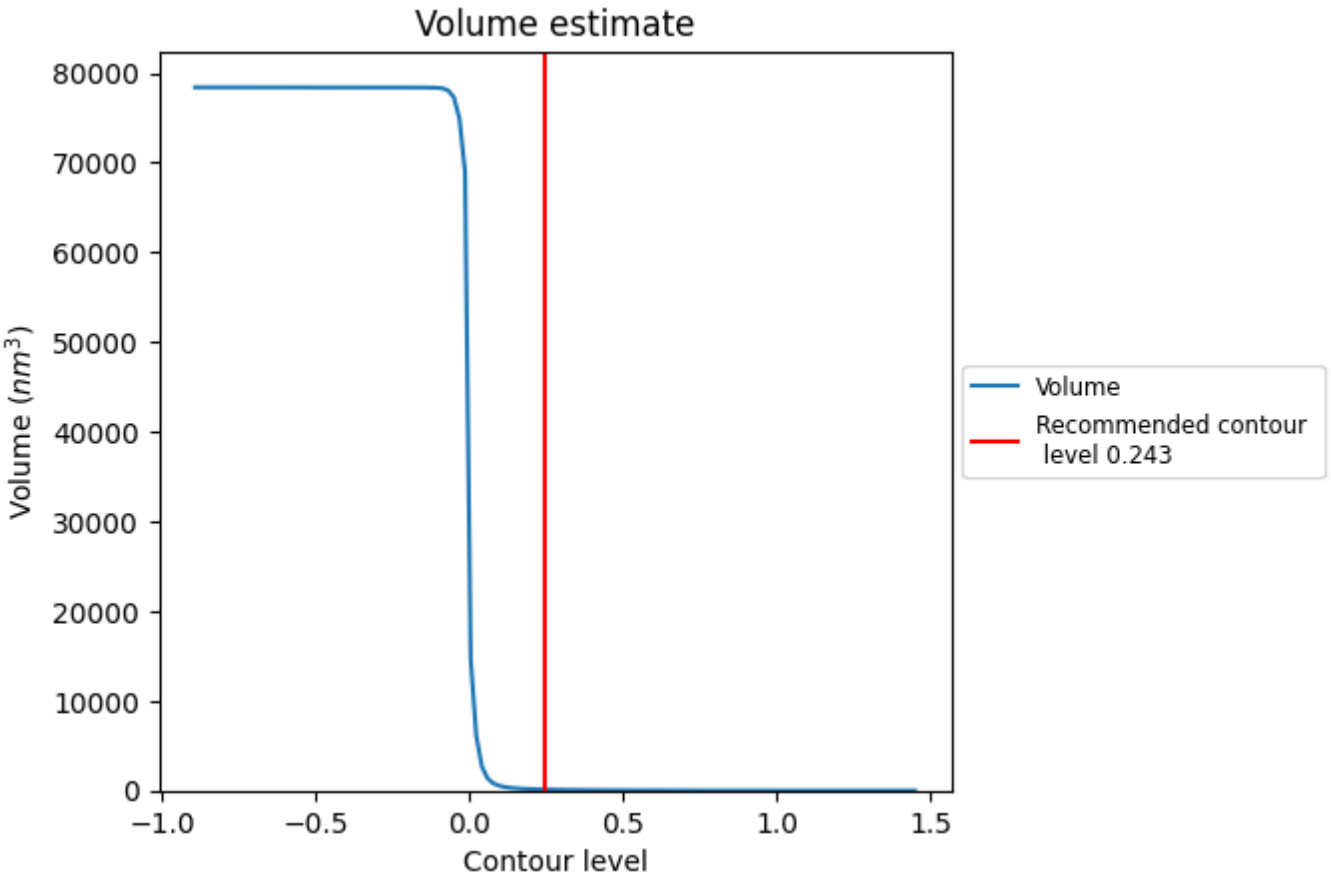
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

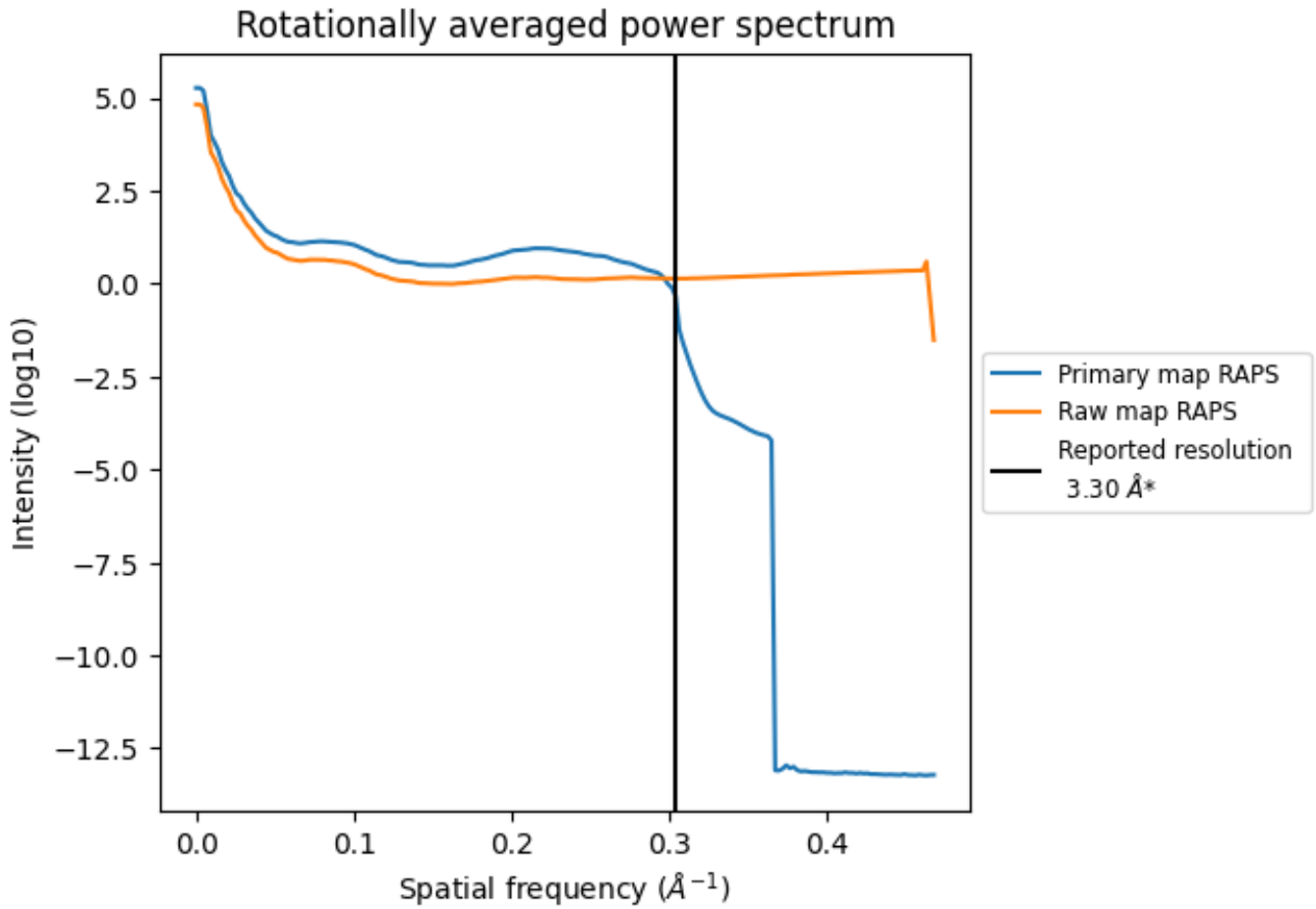
7.2 Volume estimate (i)



The volume at the recommended contour level is 117 nm^3; this corresponds to an approximate mass of 105 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)

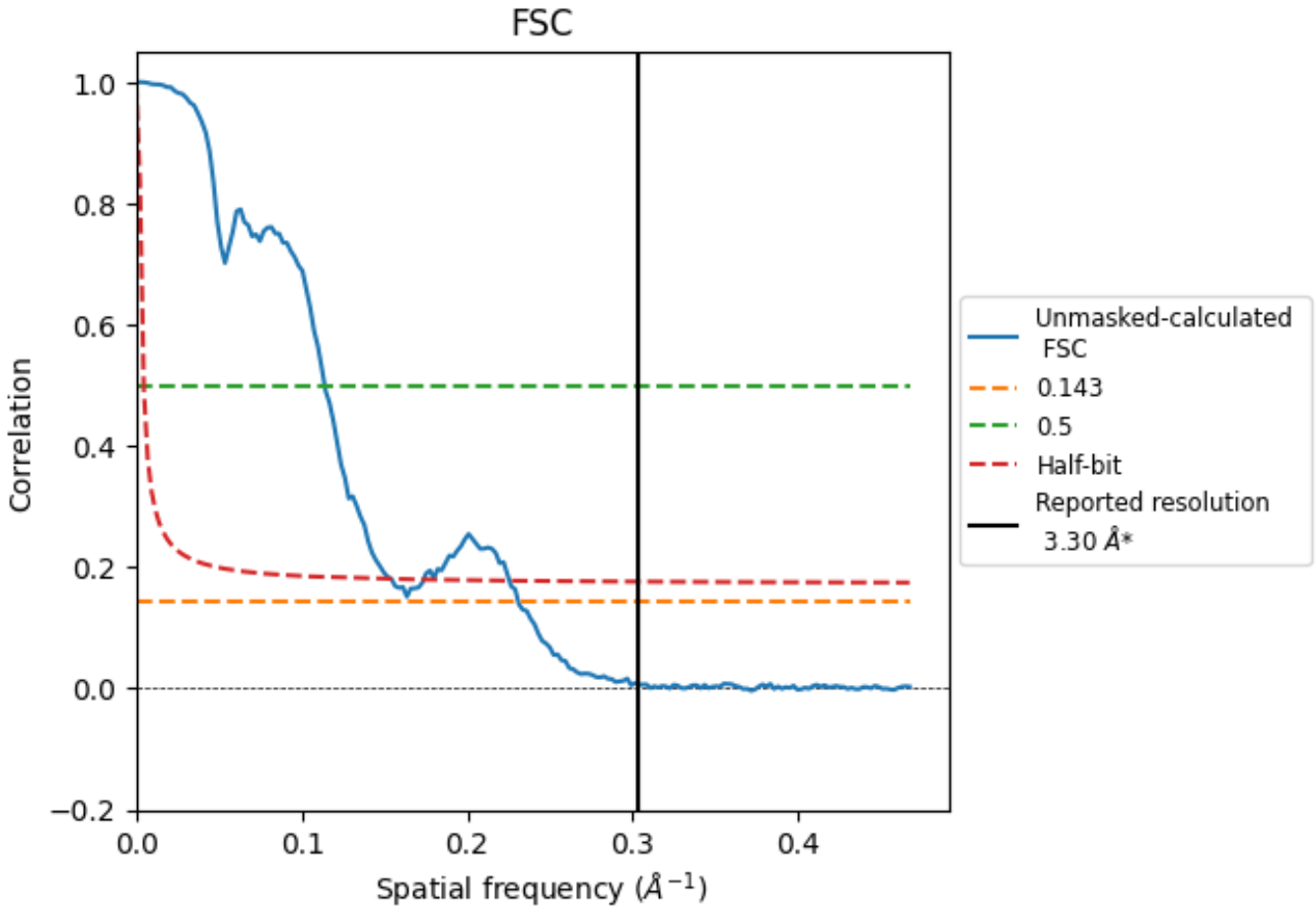


*Reported resolution corresponds to spatial frequency of 0.303 $Å^{-1}$

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 0.303 Å^{-1}

8.2 Resolution estimates (i)

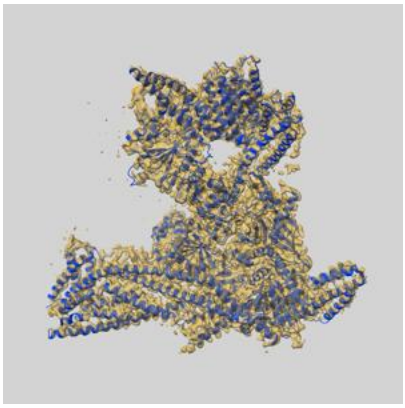
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.30	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	4.33	8.78	6.48

*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 4.33 differs from the reported value 3.3 by more than 10 %

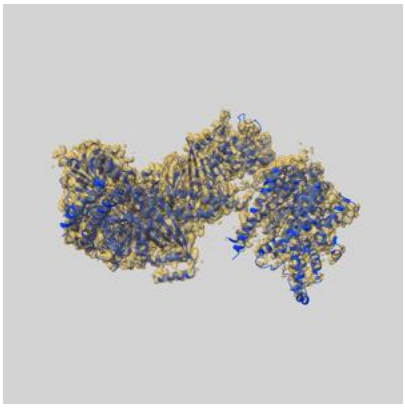
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-75131 and PDB model 10FI. Per-residue inclusion information can be found in section 3 on page 6.

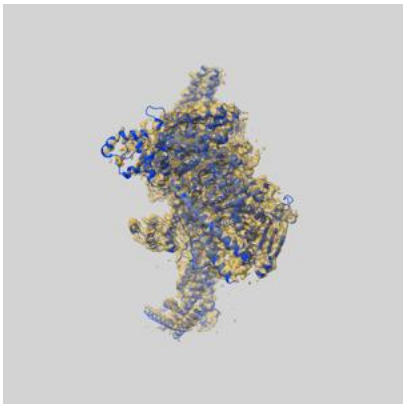
9.1 Map-model overlay



X



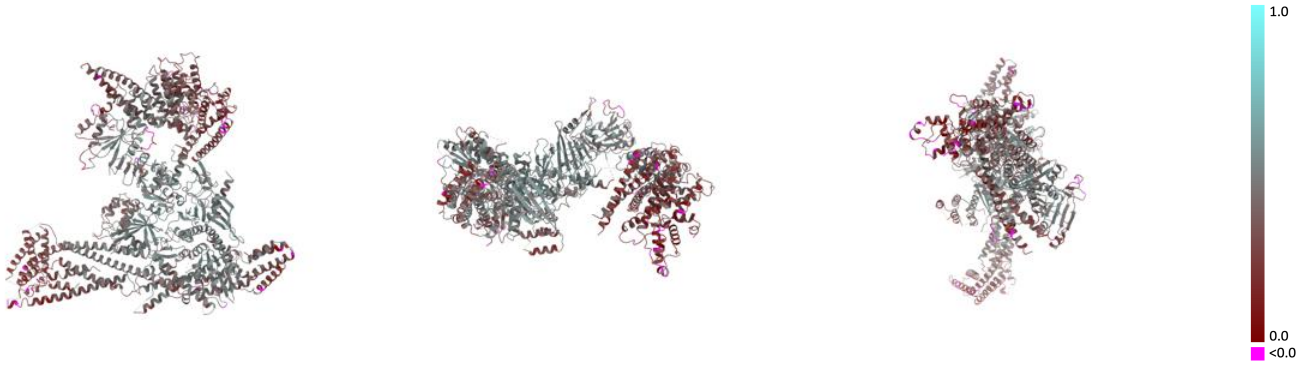
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.243 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

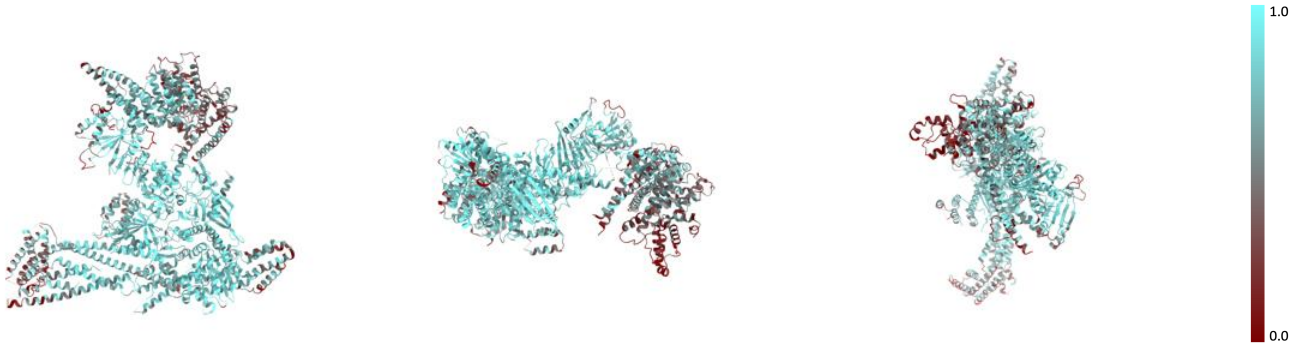
9.2 Q-score mapped to coordinate model (i)



X Y Z

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

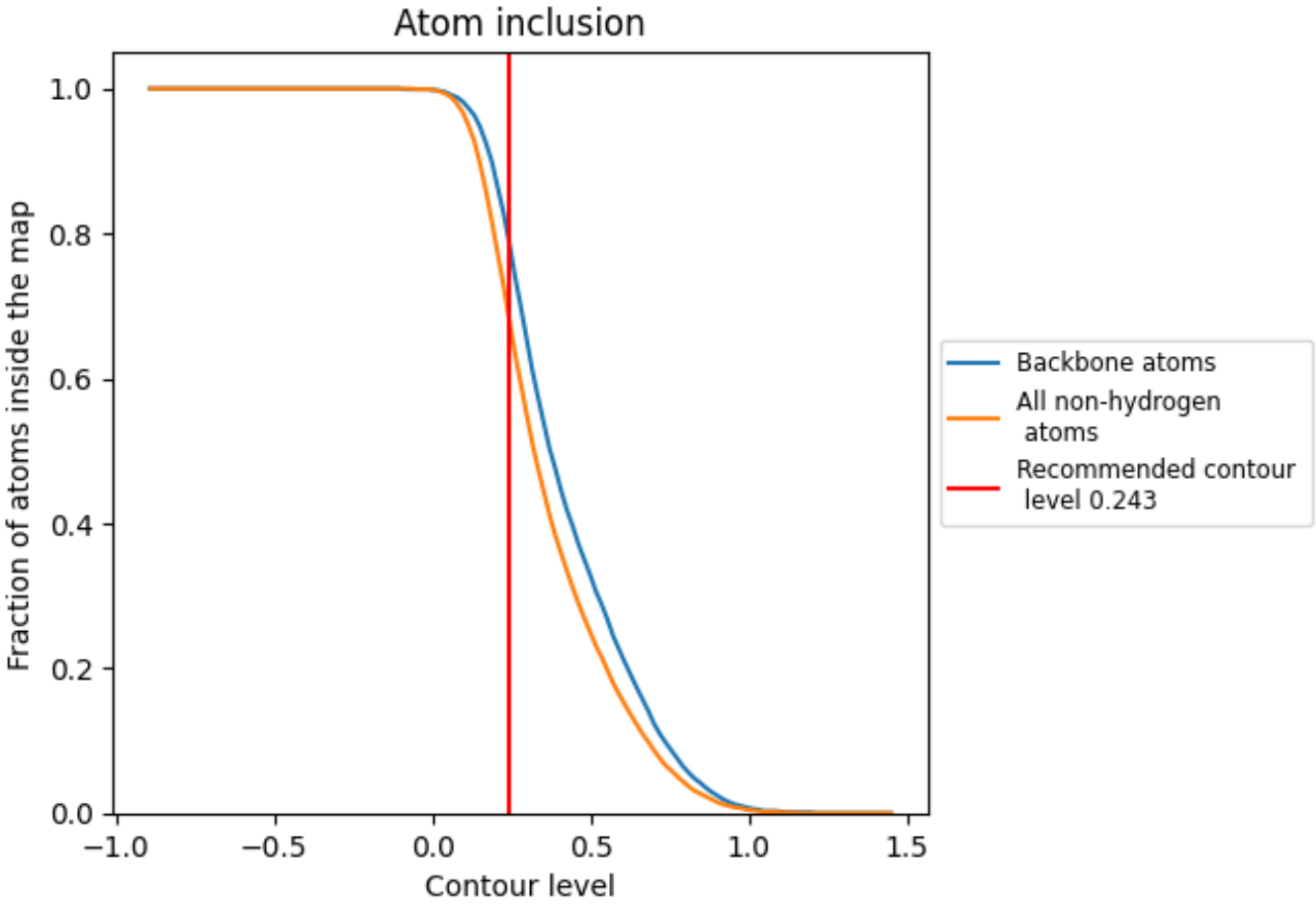
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.243).

9.4 Atom inclusion (i)



At the recommended contour level, 79% of all backbone atoms, 68% 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 (0.243) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.6800	0.3990
H	0.4490	0.2840
I	0.4780	0.2960
K	0.5130	0.2720
L	0.7370	0.4490
N	0.8050	0.4750
O	0.8190	0.5030
P	0.8430	0.4900
Q	0.6720	0.3890
U	0.7070	0.3970
Y	0.7130	0.3920
Z	0.6650	0.3440