



Full wwPDB EM Validation Report ⓘ

Nov 12, 2022 – 05:56 PM EST

PDB ID : 6VK3
EMDB ID : EMD-21224
Title : CryoEM structure of Hrd3/Yos9 complex
Authors : Wu, X.; Rapoport, T.A.
Deposited on : 2020-01-18
Resolution : 3.70 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

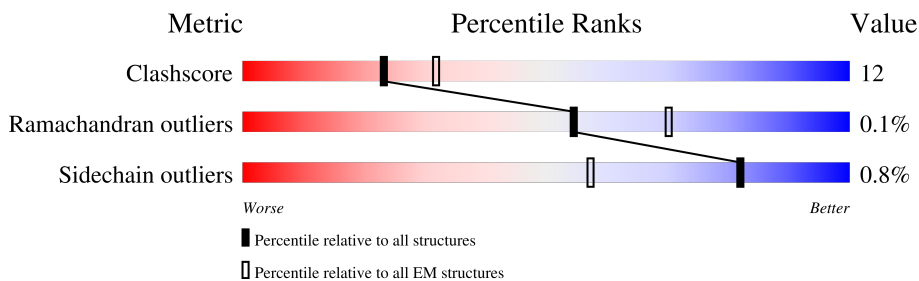
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.70 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
Sidechain outliers	154315	3826

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

Mol	Chain	Length	Quality of chain
1	A	732	
2	B	542	

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 7784 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 Hrd3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	611	4966	3177	844	924	21	0	0

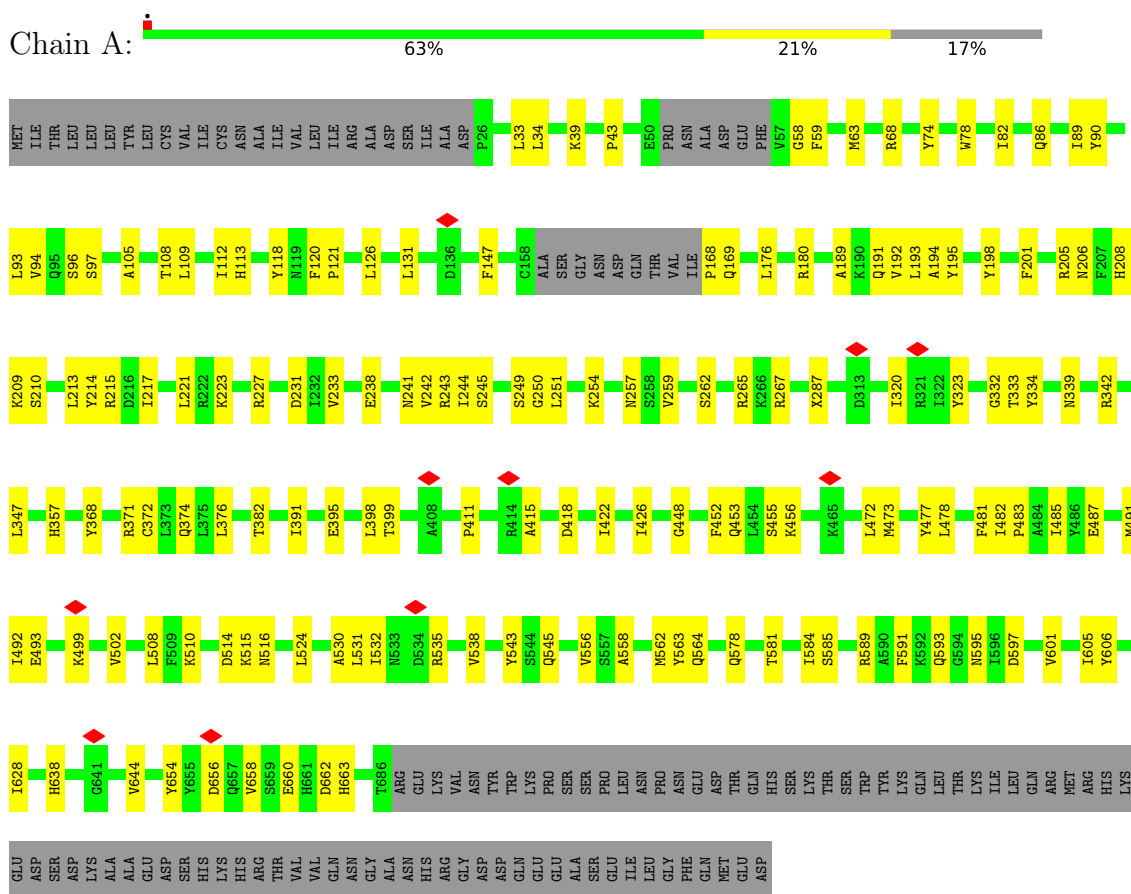
- Molecule 2 is a protein called Protein OS-9 homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	350	2818	1790	459	552	17	0	0

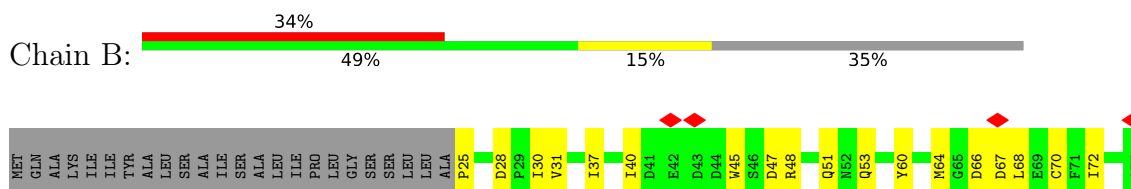
3 Residue-property plots

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

- Molecule 1: Hrd3



- Molecule 2: Protein OS-9 homolog



SER	THR	GLN	LEU	ASN	ASP	VAL	LEU	GLU	ASP	SER	ASN	GLU	HIS	SER	ASN	S92	E93	K94	T95	A96	L97	L98	T99	K100	T101	L102	N103	Q104	G105	V106	K107	T108	I109	F110	D111	K112	L113	N114	E115	R116	C117	I118	F119	Y120	Q121	A122	G123	F124	W125	I126	Y127	E128	Y129	C130	P131	G132	I133	E134	F135
V136	Q137	F138	H139	G140	R141	V142	N143	T144	K145	T146	G147	E148	I149	V150	N151	T95	R152	D153	E154	S155	L156	V157	Y158	R159	L160	G161	K162	P163	K164	A165	N166	V167	E168	E169	R170	E171	F172	E173	L174	L175	Y176	D177	D178	V179	G180	G181	Y182	I183	S184	A185	I186	I187	G188	S189	G190	D191	I192	D194	V195
T196	G197	A198	E199	R200	M201	V202	E203	I204	Q205	Y206	C208	G209	G210	S211	N212	S213	G214	P215	S216	T217	I218	Q219	W220	V221	R222	E223	T224	K225	I226	C227	V228	Y229	E230	A231	Q232	V233	T234	I235	P236	E237	L238	C239	N240	L241	E242	L243	L244	A245	K246	N247	E248	D249	Q250	K251	N252	I256	L257		
C258	P261	A262	K263	S264	K265	I266	C267	D272	T275	K276	Y277	E278	P279	P291	D298	K299	N309	W310	D311	E312	I313	T314	E315	I325	L333	V334	S335	N338	GLY	HIS	ILE	LEU	GLN	PRO	GLY	D346	S347	E353	V354	V355	D359	T363	L367	N368	I369														
S372	Q373	R374	K381	T382	F383	T384	F385	N386	E387	D388	N389	G390	L393	S394	L397	GLY	ASP	HIS	GLY	GLU	ARG	THR	GLN	LEU	ASN	GLN	ILE	THR	HIS	SER	LYS	ALA	ASP	ILE	ASN	LEU	ASN	ASP	ASP	GLU	TYR	VAL	LEU	ILE	ASN	THR	ASN	ASN	GLU	PHE	LEU	ARG							
ILE	SER	LYS	GLU	ASP	ASP	ILE	ALA	GLU	VAL	GLU	LYS	LEU	LEU	ASN	ASN	GLU	ILE	VAL	GLU	PRO	HIS	GLU	GLN	MET	THR	THR	VAL	ILE	PHE	GLU	ASN	ASN	ASP	ASP	ASP	GLU	TYR	VAL	VAL	LEU	ILE	GLN	THR	ASN	ASN	ALA													
ARG	MET	ASP	ASP	GLU	ASP	GLU	ALA	SER	THR	SER	HIS	THR	THR	ARG	ASP	GLN	ASN	THR	GLU	VAL	THR	ASN	VAL	ALA	ALA	ALA	GLY	PHE	ILE	GLU	HIS	ASP	ASP	LEU	LYS	VAL	VAL	GLU	ILE	GLN	ILE	ASN	ASN	ALA															

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	99298	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	44.9	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.213	Depositor
Minimum map value	-0.140	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.005	Depositor
Recommended contour level	0.026	Depositor
Map size (\AA)	233.19998, 233.19998, 233.19998	wwPDB
Map dimensions	220, 220, 220	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.06, 1.06, 1.06	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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	0.32	0/5055	0.43	0/6842
2	B	0.44	0/2871	0.71	0/3883
All	All	0.37	0/7926	0.55	0/10725

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 [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	4966	0	4805	107	0
2	B	2818	0	2747	89	0
All	All	7784	0	7552	185	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 (185) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:200:ARG:HG2	2:B:227:CYS:SG	1.75	1.24
2:B:188:GLY:HA2	2:B:201:MET:HG2	1.24	1.13

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:200:ARG:CG	2:B:227:CYS:SG	2.47	1.02
2:B:25:PRO:HB3	2:B:176:TYR:OH	1.73	0.89
2:B:188:GLY:HA2	2:B:201:MET:CG	2.03	0.87
1:A:242:VAL:HG23	1:A:262:SER:O	1.77	0.85
2:B:250:GLN:HE21	2:B:252:ASN:ND2	1.73	0.85
2:B:250:GLN:NE2	2:B:252:ASN:ND2	2.25	0.84
1:A:221:LEU:HD13	1:A:516:ASN:HD21	1.41	0.84
2:B:200:ARG:HA	2:B:227:CYS:SG	2.17	0.84
2:B:70:CYS:HG	2:B:258:CYS:HG	1.00	0.83
1:A:238:GLU:HB3	1:A:265:ARG:HH22	1.47	0.80
2:B:159:ARG:H	2:B:200:ARG:NH2	1.81	0.79
1:A:242:VAL:HG11	1:A:334:TYR:CZ	2.17	0.78
2:B:25:PRO:CB	2:B:176:TYR:OH	2.31	0.78
2:B:309:ASN:O	2:B:309:ASN:OD1	2.01	0.77
2:B:235:ILE:HD11	2:B:238:LEU:HG	1.68	0.75
1:A:242:VAL:HG11	1:A:334:TYR:CE1	2.24	0.72
2:B:188:GLY:CA	2:B:201:MET:HG2	2.13	0.71
2:B:250:GLN:HG3	2:B:252:ASN:ND2	2.07	0.69
1:A:176:LEU:HD11	2:B:256:ILE:HG21	1.75	0.68
2:B:25:PRO:HB3	2:B:176:TYR:CZ	2.28	0.68
2:B:191:ASP:O	2:B:200:ARG:HG3	1.95	0.67
2:B:250:GLN:NE2	2:B:252:ASN:HD22	1.93	0.66
1:A:221:LEU:HD13	1:A:516:ASN:ND2	2.10	0.66
2:B:190:GLY:HA3	2:B:200:ARG:O	1.95	0.65
1:A:499:LYS:HG3	2:B:120:TYR:HE1	1.62	0.65
2:B:200:ARG:CA	2:B:227:CYS:SG	2.85	0.64
2:B:200:ARG:HA	2:B:227:CYS:HG	1.62	0.63
2:B:159:ARG:H	2:B:200:ARG:HH22	1.45	0.63
1:A:231:ASP:OD1	1:A:456:LYS:NZ	2.31	0.63
1:A:233:VAL:HG21	1:A:382:THR:HG23	1.82	0.62
1:A:455:SER:HB2	1:A:472:LEU:HB2	1.82	0.61
2:B:47:ASP:HA	2:B:51:GLN:HG2	1.83	0.61
1:A:191:GLN:NE2	1:A:514:ASP:OD1	2.33	0.61
2:B:193:CYS:SG	2:B:227:CYS:HB2	2.41	0.60
2:B:60:TYR:CZ	2:B:72:ILE:HD11	2.37	0.60
1:A:391:ILE:HG21	1:A:426:ILE:HG21	1.83	0.60
2:B:28:ASP:OD1	2:B:28:ASP:N	2.35	0.59
1:A:195:TYR:OH	1:A:593:GLN:NE2	2.36	0.58
1:A:628:ILE:HG23	1:A:658:VAL:HG23	1.84	0.58
2:B:159:ARG:NH2	2:B:191:ASP:OD2	2.37	0.58
2:B:208:CYS:O	2:B:246:LYS:NZ	2.37	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:205:ARG:NH1	2:B:178:ASP:HB3	2.18	0.57
2:B:309:ASN:ND2	2:B:312:GLU:OE2	2.38	0.56
2:B:179:VAL:CG1	2:B:246:LYS:HZ2	2.18	0.56
2:B:314:THR:HG22	2:B:315:GLU:H	1.71	0.55
1:A:448:GLY:HA3	1:A:481:PHE:HB2	1.88	0.55
1:A:242:VAL:CG1	1:A:334:TYR:CZ	2.90	0.55
1:A:113:HIS:ND1	1:A:126:LEU:HD22	2.21	0.55
2:B:193:CYS:SG	2:B:227:CYS:CB	2.95	0.54
2:B:325:ILE:HG21	2:B:367:LEU:HD11	1.88	0.54
1:A:499:LYS:HG3	2:B:120:TYR:CE1	2.40	0.54
1:A:591:PHE:HA	1:A:595:ASN:O	2.08	0.54
2:B:178:ASP:OD1	2:B:179:VAL:N	2.40	0.54
2:B:250:GLN:CG	2:B:252:ASN:ND2	2.71	0.54
1:A:244:ILE:HD12	1:A:531:LEU:HD21	1.90	0.53
1:A:94:VAL:HG22	1:A:109:LEU:HD21	1.90	0.53
1:A:656:ASP:O	1:A:660:GLU:HG2	2.08	0.53
2:B:353:GLU:HG3	2:B:385:PHE:HE2	1.73	0.53
1:A:563:TYR:CE1	1:A:605:ILE:HG12	2.44	0.53
1:A:418:ASP:O	1:A:422:ILE:HG13	2.09	0.52
1:A:242:VAL:CG1	1:A:334:TYR:CE1	2.92	0.52
1:A:257:ASN:HB2	1:A:597:ASP:OD2	2.10	0.52
1:A:398:LEU:HD22	1:A:415:ALA:HA	1.91	0.52
2:B:40:ILE:HD11	2:B:45:TRP:HD1	1.75	0.52
1:A:59:PHE:HB3	1:A:532:ILE:HA	1.92	0.51
1:A:638:HIS:CD2	1:A:644:VAL:HG21	2.45	0.51
1:A:244:ILE:HG12	1:A:245:SER:H	1.76	0.51
1:A:339:ASN:HD22	1:A:342:ARG:HE	1.59	0.50
1:A:112:ILE:HG22	1:A:113:HIS:HD2	1.77	0.50
1:A:59:PHE:HD2	1:A:532:ILE:HG22	1.77	0.50
1:A:39:LYS:HA	1:A:118:TYR:CE1	2.47	0.50
1:A:492:ILE:HG21	1:A:508:LEU:HD12	1.94	0.49
2:B:25:PRO:HB3	2:B:176:TYR:CE2	2.46	0.49
1:A:374:GLN:HG2	1:A:415:ALA:HB2	1.93	0.49
1:A:215:ARG:NH1	1:A:493:GLU:OE1	2.45	0.49
1:A:455:SER:OG	1:A:473:MET:HG2	2.13	0.49
1:A:558:ALA:O	1:A:562:MET:HG3	2.13	0.49
2:B:109:ILE:HG21	2:B:206:TYR:CE1	2.47	0.49
1:A:477:TYR:HD1	1:A:485:ILE:HG12	1.77	0.49
1:A:43:PRO:HG2	1:A:532:ILE:HD11	1.94	0.49
1:A:176:LEU:HD21	2:B:70:CYS:HB2	1.94	0.49
1:A:452:PHE:HE1	1:A:487:GLU:HG3	1.77	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:298:ASP:N	2:B:298:ASP:OD1	2.45	0.49
1:A:242:VAL:HB	1:A:334:TYR:OH	2.13	0.49
2:B:25:PRO:CA	2:B:176:TYR:OH	2.61	0.49
1:A:357:HIS:O	1:A:357:HIS:ND1	2.46	0.49
1:A:323:TYR:HB2	1:A:372:CYS:SG	2.53	0.48
1:A:208:HIS:HD2	1:A:502:VAL:HG21	1.78	0.48
1:A:499:LYS:HE3	2:B:120:TYR:CE1	2.49	0.48
1:A:374:GLN:NE2	1:A:411:PRO:O	2.44	0.48
2:B:372:SER:OG	2:B:373:GLN:N	2.46	0.48
1:A:241:ASN:HA	1:A:524:LEU:HD13	1.96	0.48
1:A:662:ASP:OD1	1:A:663:HIS:N	2.47	0.48
1:A:208:HIS:CD2	1:A:502:VAL:HG21	2.49	0.47
1:A:86:GLN:HB3	1:A:120:PHE:CE1	2.49	0.47
1:A:371:ARG:HE	1:A:411:PRO:HG2	1.79	0.47
1:A:251:LEU:HG	1:A:601:VAL:HG21	1.96	0.47
2:B:250:GLN:CD	2:B:252:ASN:HD22	2.18	0.47
2:B:68:LEU:O	2:B:68:LEU:HD23	2.14	0.47
1:A:347:LEU:HB3	1:A:376:LEU:HB2	1.96	0.47
2:B:272:ASP:HA	2:B:275:THR:HG22	1.97	0.47
1:A:209:LYS:HG2	2:B:279:PRO:HD2	1.96	0.46
2:B:70:CYS:CB	2:B:258:CYS:HG	2.27	0.46
1:A:147:PHE:HE2	1:A:545:GLN:HE21	1.64	0.46
1:A:180:ARG:NH1	2:B:66:ASP:OD2	2.48	0.46
1:A:169:GLN:HE21	2:B:30:ILE:HG12	1.80	0.46
1:A:189:ALA:HA	1:A:192:VAL:HG12	1.98	0.46
2:B:25:PRO:HA	2:B:176:TYR:OH	2.15	0.46
2:B:64:MET:HG3	2:B:68:LEU:HD22	1.98	0.46
1:A:320:ILE:H	1:A:320:ILE:HD12	1.81	0.45
1:A:74:TYR:CE1	1:A:121:PRO:HG2	2.51	0.45
1:A:201:PHE:HD1	2:B:31:VAL:HG11	1.82	0.45
1:A:223:LYS:HD3	1:A:223:LYS:HA	1.72	0.45
1:A:86:GLN:HB3	1:A:120:PHE:HE1	1.82	0.45
1:A:90:TYR:CE1	1:A:109:LEU:HD11	2.52	0.45
1:A:267:ARG:H	1:A:333:THR:HG21	1.82	0.45
1:A:259:VAL:HG12	1:A:597:ASP:OD2	2.17	0.45
1:A:638:HIS:CE1	1:A:654:TYR:HE2	2.35	0.45
1:A:33:LEU:HD12	1:A:89:ILE:HD11	1.98	0.45
2:B:127:TYR:CE2	2:B:137:GLN:HB3	2.52	0.45
1:A:585:SER:O	1:A:589:ARG:HG3	2.17	0.45
2:B:227:CYS:SG	2:B:227:CYS:O	2.75	0.44
1:A:249:SER:HB2	1:A:254:LYS:HB2	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:227:ARG:HG2	1:A:231:ASP:OD2	2.18	0.44
2:B:363:THR:HG22	2:B:381:LYS:HG2	1.99	0.44
2:B:37:ILE:HG23	2:B:258:CYS:SG	2.58	0.44
2:B:235:ILE:CD1	2:B:238:LEU:HG	2.40	0.44
1:A:58:GLY:HA3	1:A:287:UNK:O	2.17	0.44
2:B:169:GLU:HA	2:B:169:GLU:OE2	2.17	0.44
1:A:215:ARG:HA	1:A:215:ARG:HD2	1.83	0.43
1:A:231:ASP:O	1:A:453:GLN:NE2	2.51	0.43
2:B:354:VAL:HG23	2:B:363:THR:H	1.82	0.43
2:B:209:GLY:CA	2:B:234:THR:HB	2.49	0.43
1:A:68:ARG:HD3	1:A:68:ARG:HA	1.84	0.43
1:A:194:ALA:HB2	1:A:213:LEU:HB3	2.00	0.43
2:B:179:VAL:CG1	2:B:246:LYS:NZ	2.82	0.43
1:A:473:MET:HG3	1:A:491:MET:SD	2.58	0.43
2:B:299:LYS:HB3	2:B:353:GLU:OE1	2.18	0.43
1:A:193:LEU:HD23	1:A:193:LEU:HA	1.81	0.43
1:A:265:ARG:NH1	1:A:332:GLY:O	2.51	0.43
1:A:584:ILE:HG21	1:A:606:TYR:CZ	2.54	0.43
1:A:395:GLU:O	1:A:399:THR:HG22	2.18	0.43
2:B:67:ASP:O	2:B:261:PRO:HG3	2.19	0.43
1:A:530:ALA:HB1	1:A:538:VAL:HG13	2.00	0.42
2:B:67:ASP:O	2:B:261:PRO:CB	2.67	0.42
2:B:112:LYS:HE3	2:B:215:PRO:HA	2.01	0.42
2:B:72:ILE:HG22	2:B:256:ILE:HG23	2.02	0.42
2:B:333:LEU:HD23	2:B:333:LEU:HA	1.90	0.42
1:A:96:SER:OG	1:A:97:SER:N	2.53	0.42
2:B:170:ARG:NH2	2:B:186:ILE:O	2.52	0.42
2:B:355:VAL:HB	2:B:359:ASP:HA	2.02	0.42
2:B:250:GLN:HG3	2:B:252:ASN:HD21	1.82	0.42
1:A:78:TRP:HA	1:A:82:ILE:HD12	2.02	0.42
1:A:206:ASN:ND2	2:B:278:GLU:OE2	2.51	0.42
1:A:217:ILE:O	1:A:221:LEU:HG	2.19	0.41
1:A:482:ILE:HB	1:A:483:PRO:HD3	2.02	0.41
1:A:320:ILE:HG13	1:A:368:TYR:CD2	2.55	0.41
2:B:192:ILE:HA	2:B:199:GLU:HA	2.02	0.41
2:B:250:GLN:HG3	2:B:252:ASN:HD22	1.82	0.41
2:B:192:ILE:HG22	2:B:199:GLU:HG2	2.02	0.41
1:A:34:LEU:HD22	1:A:118:TYR:CD2	2.55	0.41
1:A:214:TYR:CE2	1:A:510:LYS:HB2	2.55	0.41
1:A:477:TYR:CD2	1:A:478:LEU:HD22	2.55	0.41
2:B:200:ARG:CB	2:B:227:CYS:SG	3.07	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:63:MET:HA	1:A:564:GLN:HE21	1.85	0.41
1:A:543:TYR:HB3	1:A:558:ALA:HB2	2.02	0.41
2:B:40:ILE:HD11	2:B:45:TRP:CD1	2.55	0.41
1:A:93:LEU:HD23	1:A:109:LEU:HD13	2.01	0.41
2:B:262:ALA:O	2:B:265:LYS:HG3	2.20	0.41
2:B:130:CYS:HB3	2:B:133:ILE:HD13	2.02	0.41
1:A:105:ALA:HA	1:A:108:THR:HG22	2.02	0.41
1:A:249:SER:OG	1:A:250:GLY:N	2.54	0.41
1:A:131:LEU:HA	1:A:131:LEU:HD23	1.84	0.41
1:A:243:ARG:HE	1:A:556:VAL:HG11	1.86	0.41
1:A:578:GLN:HA	1:A:581:THR:HG22	2.03	0.41
2:B:53:GLN:OE1	2:B:53:GLN:N	2.50	0.41
2:B:250:GLN:CD	2:B:252:ASN:ND2	2.74	0.41
2:B:277:TYR:HE1	2:B:291:PRO:HG3	1.84	0.41
1:A:515:LYS:HE2	1:A:515:LYS:HB2	1.92	0.41
1:A:198:TYR:HB2	1:A:210:SER:OG	2.22	0.40
2:B:70:CYS:HG	2:B:258:CYS:CB	2.32	0.40
2:B:53:GLN:H	2:B:53:GLN:CD	2.24	0.40
1:A:168:PRO:HB2	1:A:169:GLN:H	1.66	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	596/732 (81%)	562 (94%)	34 (6%)	0	100	100
2	B	344/542 (64%)	329 (96%)	14 (4%)	1 (0%)	41	74
All	All	940/1274 (74%)	891 (95%)	48 (5%)	1 (0%)	54	83

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	215	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	A	524/632 (83%)	523 (100%)	1 (0%)	93	97
2	B	317/486 (65%)	311 (98%)	6 (2%)	57	76
All	All	841/1118 (75%)	834 (99%)	7 (1%)	82	89

All (7) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	535	ARG
2	B	48	ARG
2	B	119	PHE
2	B	141	ARG
2	B	162	LYS
2	B	189	SER
2	B	222	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (13) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	101	ASN
1	A	123	ASN
1	A	183	GLN
1	A	208	HIS
1	A	339	ASN
1	A	429	ASN
1	A	564	GLN
1	A	593	GLN
1	A	611	ASN
1	A	638	HIS
1	A	649	HIS

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Mol	Chain	Res	Type
2	B	252	ASN
2	B	326	ASN

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	2

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	A	292:UNK	C	313:ASP	N	48.75
1	A	270:ARG	C	286:UNK	N	17.93

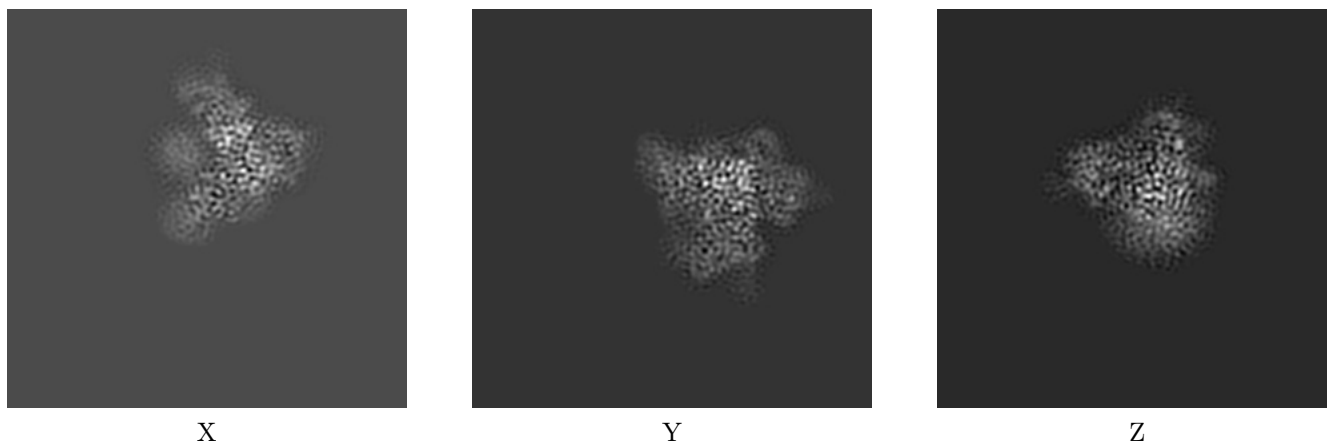
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-21224. These allow visual inspection of the internal detail of the map and identification of artifacts.

No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

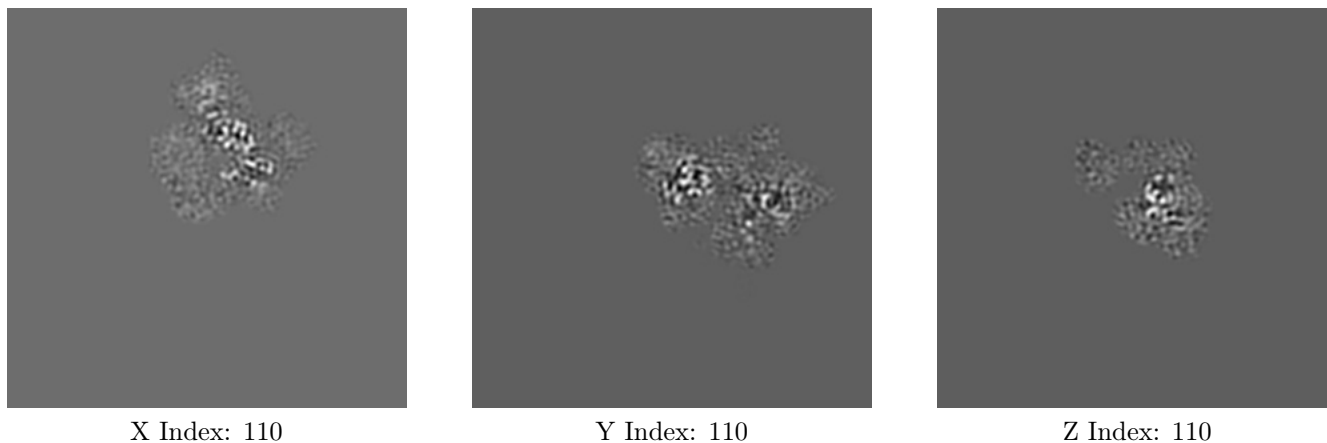
6.1.1 Primary map



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

6.2 Central slices [i](#)

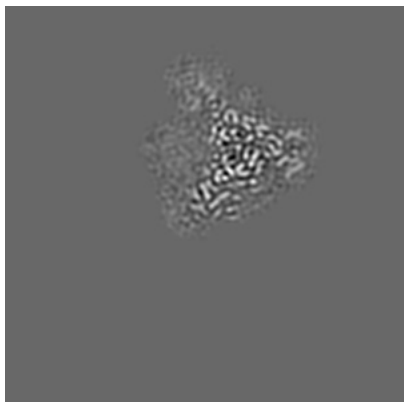
6.2.1 Primary map



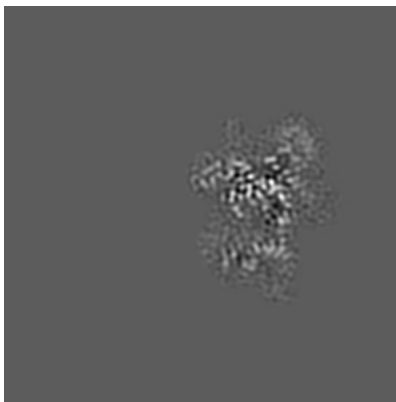
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

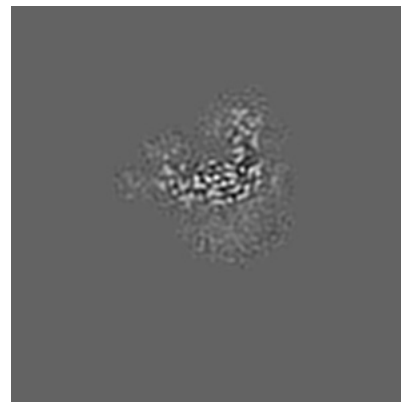
6.3.1 Primary map



X Index: 124



Y Index: 127

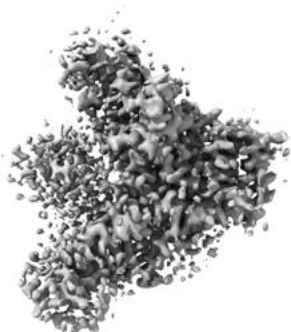


Z Index: 148

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 0.026. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

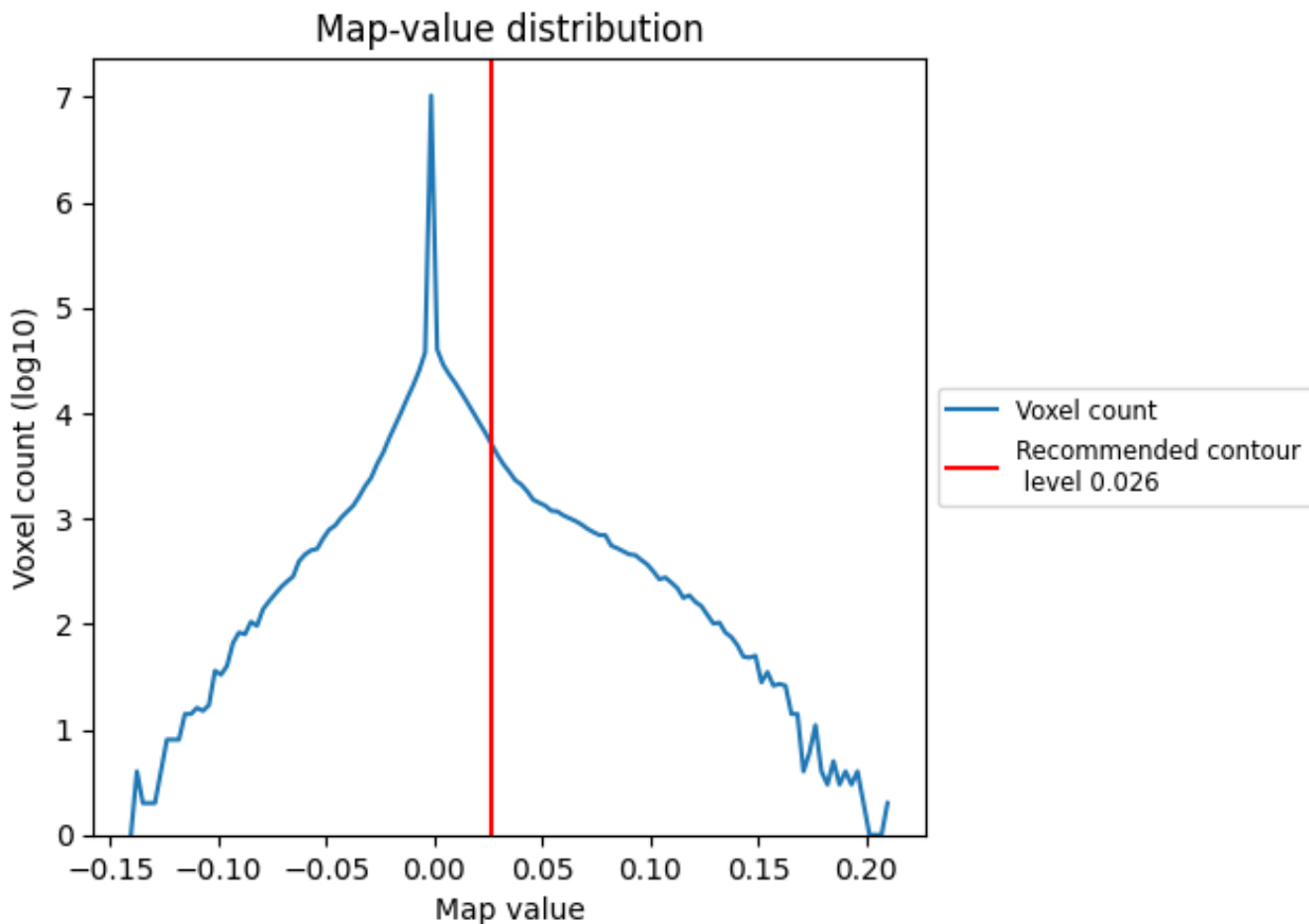
6.5 Mask visualisation

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

7 Map analysis [i](#)

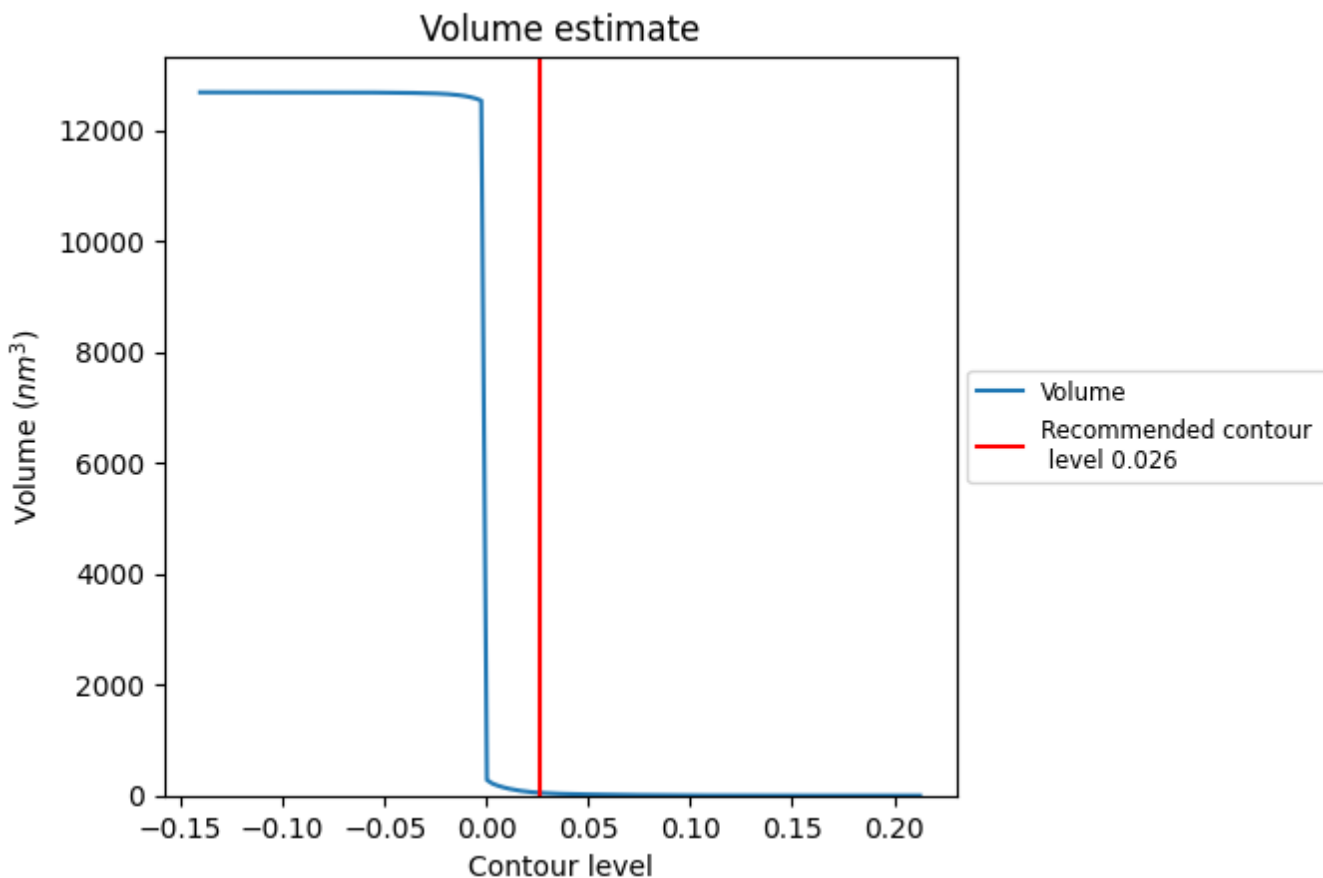
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

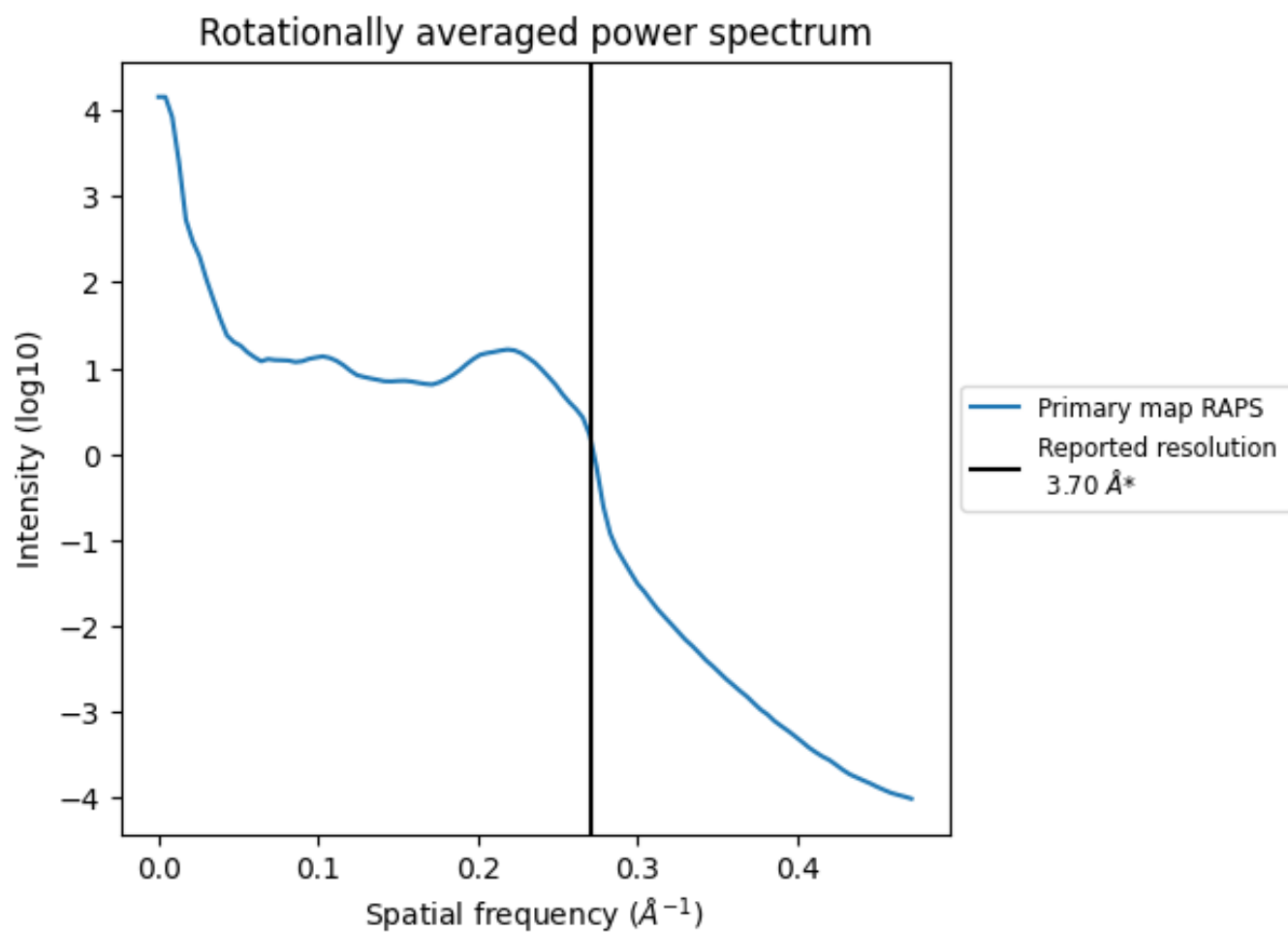
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 50 nm³; this corresponds to an approximate mass of 45 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 0.270\AA^{-1}

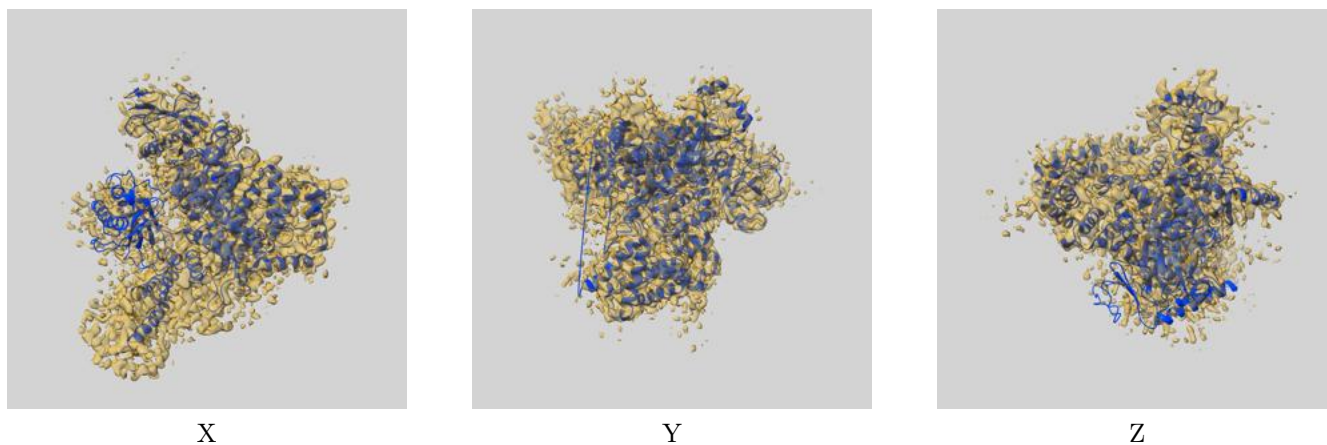
8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

9 Map-model fit [i](#)

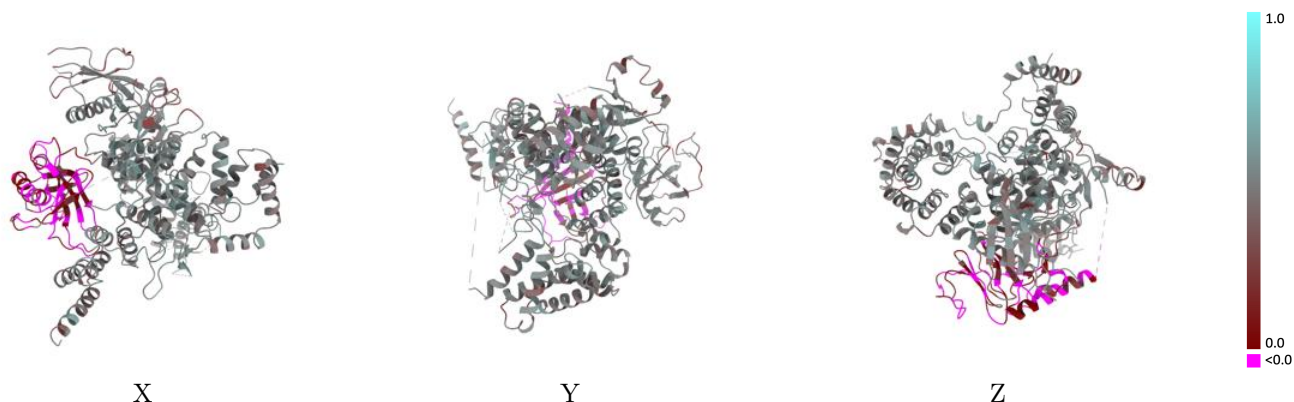
This section contains information regarding the fit between EMDB map EMD-21224 and PDB model 6VK3. Per-residue inclusion information can be found in section 3 on page 4.

9.1 Map-model overlay [i](#)



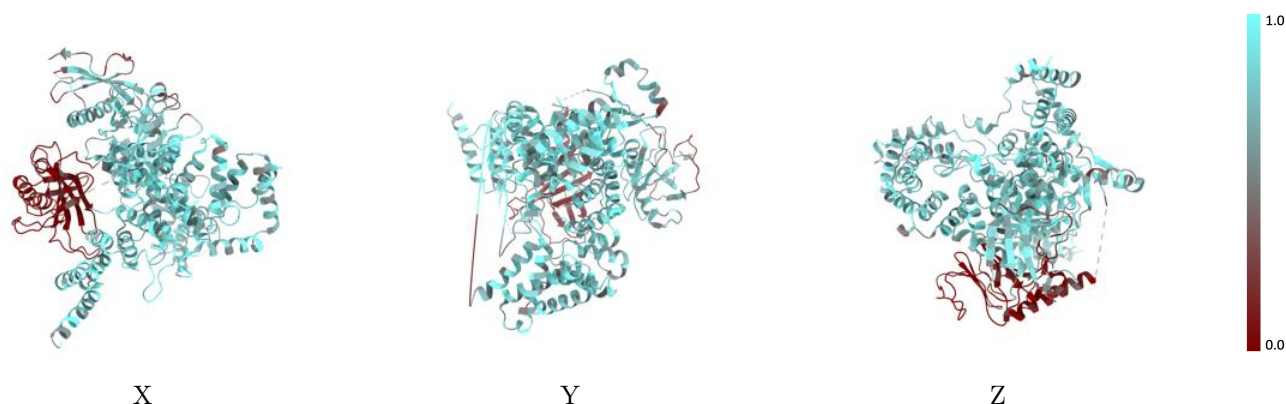
The images above show the 3D surface view of the map at the recommended contour level 0.026 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



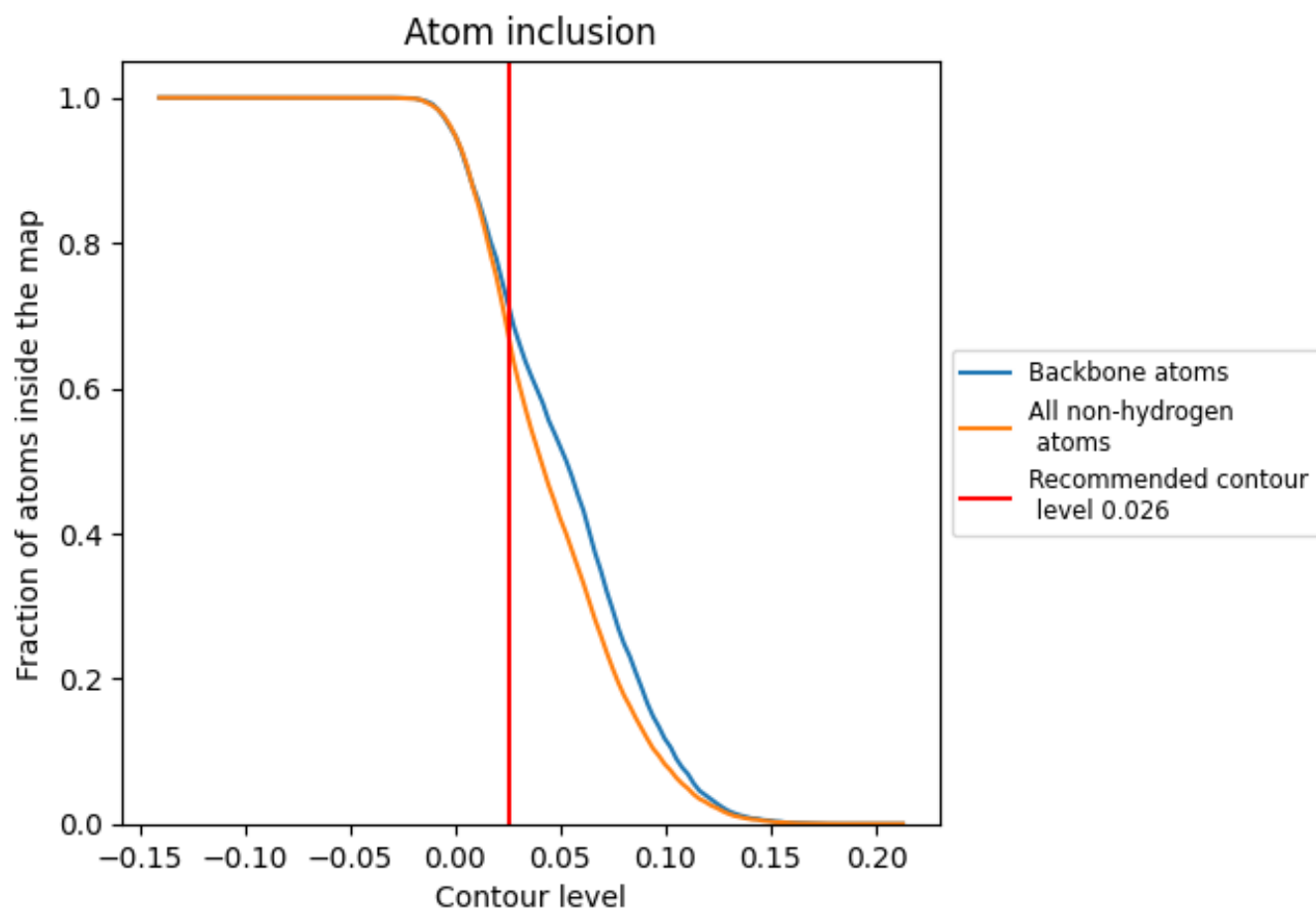
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.026).







9.4 Atom inclusion [i](#)



At the recommended contour level, 71% of all backbone atoms, 66% 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 (0.026) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.6622	 0.4050
A	 0.8126	 0.4930
B	 0.3985	 0.2510

