



Full wwPDB EM Validation Report ⓘ

Mar 10, 2026 – 03:10 AM UTC

PDB ID : 6OIT / pdb_00006oit
EMDB ID : EMD-20081
Title : CryoEM structure of Arabidopsis DDR' complex (DRD1 peptide-DMS3-RDM1)
Authors : Wongpalee, S.P.; Liu, S.; Zhou, Z.H.; Jacobsen, S.E.
Deposited on : 2019-04-09
Resolution : 3.50 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:

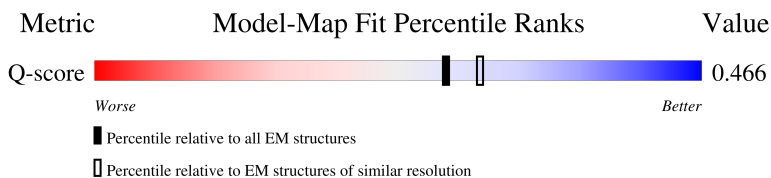
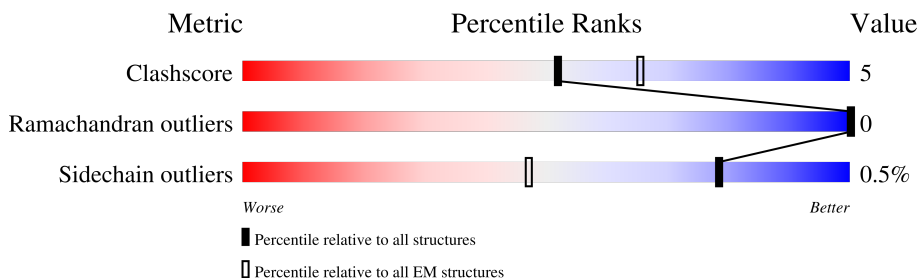
EMDB validation analysis : 0.0.1.dev132
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

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 3.50 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.



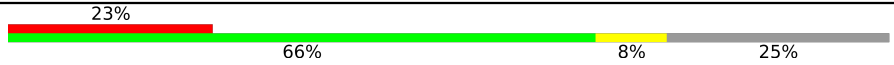
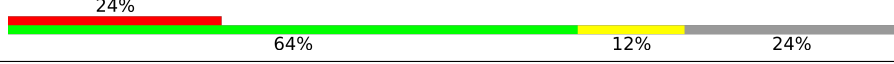

Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	13950 (3.00 - 4.00)

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	175	<p>7% (upper red), 61% (green), 9% (yellow), 30% (grey)</p>
1	B	175	<p>6% (upper red), 63% (green), 9% (yellow), 29% (grey)</p>
2	C	449	<p>36% (upper red), 63% (green), 11% (yellow), 26% (grey)</p>
2	D	449	<p>26% (upper red), 45% (green), 6% (yellow), 49% (grey)</p>

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Mol	Chain	Length	Quality of chain
2	E	449	
2	F	449	
3	G	71	

2 Entry composition i

There are 3 unique types of molecules in this entry. The entry contains 12085 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 Protein RDM1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	123	Total	C	N	O	S	0	0
			1010	650	172	183	5		
1	B	125	Total	C	N	O	S	0	0
			1034	664	178	187	5		

There are 28 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-11	MET	-	initiating methionine	UNP Q9LUJ3
A	-10	GLY	-	expression tag	UNP Q9LUJ3
A	-9	SER	-	expression tag	UNP Q9LUJ3
A	-8	SER	-	expression tag	UNP Q9LUJ3
A	-7	HIS	-	expression tag	UNP Q9LUJ3
A	-6	HIS	-	expression tag	UNP Q9LUJ3
A	-5	HIS	-	expression tag	UNP Q9LUJ3
A	-4	HIS	-	expression tag	UNP Q9LUJ3
A	-3	HIS	-	expression tag	UNP Q9LUJ3
A	-2	HIS	-	expression tag	UNP Q9LUJ3
A	-1	SER	-	expression tag	UNP Q9LUJ3
A	0	GLN	-	expression tag	UNP Q9LUJ3
A	1	ASP	-	expression tag	UNP Q9LUJ3
A	2	PRO	-	expression tag	UNP Q9LUJ3
B	-11	MET	-	initiating methionine	UNP Q9LUJ3
B	-10	GLY	-	expression tag	UNP Q9LUJ3
B	-9	SER	-	expression tag	UNP Q9LUJ3
B	-8	SER	-	expression tag	UNP Q9LUJ3
B	-7	HIS	-	expression tag	UNP Q9LUJ3
B	-6	HIS	-	expression tag	UNP Q9LUJ3
B	-5	HIS	-	expression tag	UNP Q9LUJ3
B	-4	HIS	-	expression tag	UNP Q9LUJ3
B	-3	HIS	-	expression tag	UNP Q9LUJ3
B	-2	HIS	-	expression tag	UNP Q9LUJ3
B	-1	SER	-	expression tag	UNP Q9LUJ3
B	0	GLN	-	expression tag	UNP Q9LUJ3

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Chain	Residue	Modelled	Actual	Comment	Reference
B	1	ASP	-	expression tag	UNP Q9LUJ3
B	2	PRO	-	expression tag	UNP Q9LUJ3

- Molecule 2 is a protein called Protein DEFECTIVE IN MERISTEM SILENCING 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	C	334	Total	C	N	O	S	0	0
			2619	1646	461	496	16		
2	D	227	Total	C	N	O	S	0	0
			1722	1084	301	328	9		
2	E	336	Total	C	N	O	S	0	0
			2634	1660	461	497	16		
2	F	342	Total	C	N	O	S	0	0
			2678	1687	468	506	17		

There are 120 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	-2	MET	-	initiating methionine	UNP Q94A79
C	-1	ALA	-	expression tag	UNP Q94A79
C	0	ASP	-	expression tag	UNP Q94A79
C	1	LEU	-	expression tag	UNP Q94A79
C	421	GLY	-	expression tag	UNP Q94A79
C	422	THR	-	expression tag	UNP Q94A79
C	423	LEU	-	expression tag	UNP Q94A79
C	424	GLU	-	expression tag	UNP Q94A79
C	425	SER	-	expression tag	UNP Q94A79
C	426	GLY	-	expression tag	UNP Q94A79
C	427	LYS	-	expression tag	UNP Q94A79
C	428	GLU	-	expression tag	UNP Q94A79
C	429	THR	-	expression tag	UNP Q94A79
C	430	ALA	-	expression tag	UNP Q94A79
C	431	ALA	-	expression tag	UNP Q94A79
C	432	ALA	-	expression tag	UNP Q94A79
C	433	LYS	-	expression tag	UNP Q94A79
C	434	PHE	-	expression tag	UNP Q94A79
C	435	GLU	-	expression tag	UNP Q94A79
C	436	ARG	-	expression tag	UNP Q94A79
C	437	GLN	-	expression tag	UNP Q94A79
C	438	HIS	-	expression tag	UNP Q94A79
C	439	MET	-	expression tag	UNP Q94A79
C	440	ASP	-	expression tag	UNP Q94A79

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Chain	Residue	Modelled	Actual	Comment	Reference
C	441	SER	-	expression tag	UNP Q94A79
C	442	SER	-	expression tag	UNP Q94A79
C	443	THR	-	expression tag	UNP Q94A79
C	444	SER	-	expression tag	UNP Q94A79
C	445	ALA	-	expression tag	UNP Q94A79
C	446	ALA	-	expression tag	UNP Q94A79
D	-2	MET	-	initiating methionine	UNP Q94A79
D	-1	ALA	-	expression tag	UNP Q94A79
D	0	ASP	-	expression tag	UNP Q94A79
D	1	LEU	-	expression tag	UNP Q94A79
D	421	GLY	-	expression tag	UNP Q94A79
D	422	THR	-	expression tag	UNP Q94A79
D	423	LEU	-	expression tag	UNP Q94A79
D	424	GLU	-	expression tag	UNP Q94A79
D	425	SER	-	expression tag	UNP Q94A79
D	426	GLY	-	expression tag	UNP Q94A79
D	427	LYS	-	expression tag	UNP Q94A79
D	428	GLU	-	expression tag	UNP Q94A79
D	429	THR	-	expression tag	UNP Q94A79
D	430	ALA	-	expression tag	UNP Q94A79
D	431	ALA	-	expression tag	UNP Q94A79
D	432	ALA	-	expression tag	UNP Q94A79
D	433	LYS	-	expression tag	UNP Q94A79
D	434	PHE	-	expression tag	UNP Q94A79
D	435	GLU	-	expression tag	UNP Q94A79
D	436	ARG	-	expression tag	UNP Q94A79
D	437	GLN	-	expression tag	UNP Q94A79
D	438	HIS	-	expression tag	UNP Q94A79
D	439	MET	-	expression tag	UNP Q94A79
D	440	ASP	-	expression tag	UNP Q94A79
D	441	SER	-	expression tag	UNP Q94A79
D	442	SER	-	expression tag	UNP Q94A79
D	443	THR	-	expression tag	UNP Q94A79
D	444	SER	-	expression tag	UNP Q94A79
D	445	ALA	-	expression tag	UNP Q94A79
D	446	ALA	-	expression tag	UNP Q94A79
E	-2	MET	-	initiating methionine	UNP Q94A79
E	-1	ALA	-	expression tag	UNP Q94A79
E	0	ASP	-	expression tag	UNP Q94A79
E	1	LEU	-	expression tag	UNP Q94A79
E	421	GLY	-	expression tag	UNP Q94A79
E	422	THR	-	expression tag	UNP Q94A79

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Chain	Residue	Modelled	Actual	Comment	Reference
E	423	LEU	-	expression tag	UNP Q94A79
E	424	GLU	-	expression tag	UNP Q94A79
E	425	SER	-	expression tag	UNP Q94A79
E	426	GLY	-	expression tag	UNP Q94A79
E	427	LYS	-	expression tag	UNP Q94A79
E	428	GLU	-	expression tag	UNP Q94A79
E	429	THR	-	expression tag	UNP Q94A79
E	430	ALA	-	expression tag	UNP Q94A79
E	431	ALA	-	expression tag	UNP Q94A79
E	432	ALA	-	expression tag	UNP Q94A79
E	433	LYS	-	expression tag	UNP Q94A79
E	434	PHE	-	expression tag	UNP Q94A79
E	435	GLU	-	expression tag	UNP Q94A79
E	436	ARG	-	expression tag	UNP Q94A79
E	437	GLN	-	expression tag	UNP Q94A79
E	438	HIS	-	expression tag	UNP Q94A79
E	439	MET	-	expression tag	UNP Q94A79
E	440	ASP	-	expression tag	UNP Q94A79
E	441	SER	-	expression tag	UNP Q94A79
E	442	SER	-	expression tag	UNP Q94A79
E	443	THR	-	expression tag	UNP Q94A79
E	444	SER	-	expression tag	UNP Q94A79
E	445	ALA	-	expression tag	UNP Q94A79
E	446	ALA	-	expression tag	UNP Q94A79
F	-2	MET	-	initiating methionine	UNP Q94A79
F	-1	ALA	-	expression tag	UNP Q94A79
F	0	ASP	-	expression tag	UNP Q94A79
F	1	LEU	-	expression tag	UNP Q94A79
F	421	GLY	-	expression tag	UNP Q94A79
F	422	THR	-	expression tag	UNP Q94A79
F	423	LEU	-	expression tag	UNP Q94A79
F	424	GLU	-	expression tag	UNP Q94A79
F	425	SER	-	expression tag	UNP Q94A79
F	426	GLY	-	expression tag	UNP Q94A79
F	427	LYS	-	expression tag	UNP Q94A79
F	428	GLU	-	expression tag	UNP Q94A79
F	429	THR	-	expression tag	UNP Q94A79
F	430	ALA	-	expression tag	UNP Q94A79
F	431	ALA	-	expression tag	UNP Q94A79
F	432	ALA	-	expression tag	UNP Q94A79
F	433	LYS	-	expression tag	UNP Q94A79
F	434	PHE	-	expression tag	UNP Q94A79

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Chain	Residue	Modelled	Actual	Comment	Reference
F	435	GLU	-	expression tag	UNP Q94A79
F	436	ARG	-	expression tag	UNP Q94A79
F	437	GLN	-	expression tag	UNP Q94A79
F	438	HIS	-	expression tag	UNP Q94A79
F	439	MET	-	expression tag	UNP Q94A79
F	440	ASP	-	expression tag	UNP Q94A79
F	441	SER	-	expression tag	UNP Q94A79
F	442	SER	-	expression tag	UNP Q94A79
F	443	THR	-	expression tag	UNP Q94A79
F	444	SER	-	expression tag	UNP Q94A79
F	445	ALA	-	expression tag	UNP Q94A79
F	446	ALA	-	expression tag	UNP Q94A79

- Molecule 3 is a protein called Protein CHROMATIN REMODELING 35.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	G	49	388	252	60	73	3	0	0

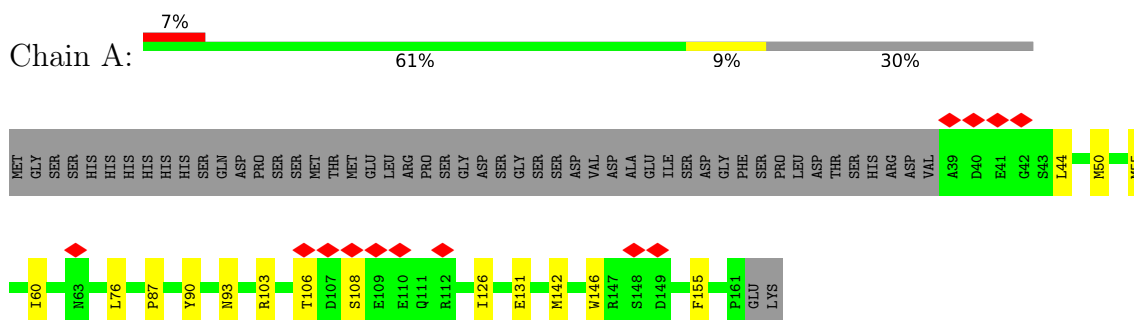
There are 16 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
G	42	GLY	-	expression tag	UNP Q9SIW2
G	43	GLU	-	expression tag	UNP Q9SIW2
G	44	PHE	-	expression tag	UNP Q9SIW2
G	100	GLY	-	expression tag	UNP Q9SIW2
G	101	GLY	-	expression tag	UNP Q9SIW2
G	102	GLY	-	expression tag	UNP Q9SIW2
G	103	GLY	-	expression tag	UNP Q9SIW2
G	104	SER	-	expression tag	UNP Q9SIW2
G	105	ASP	-	expression tag	UNP Q9SIW2
G	106	TYR	-	expression tag	UNP Q9SIW2
G	107	LYS	-	expression tag	UNP Q9SIW2
G	108	ASP	-	expression tag	UNP Q9SIW2
G	109	ASP	-	expression tag	UNP Q9SIW2
G	110	ASP	-	expression tag	UNP Q9SIW2
G	111	ASP	-	expression tag	UNP Q9SIW2
G	112	LYS	-	expression tag	UNP Q9SIW2

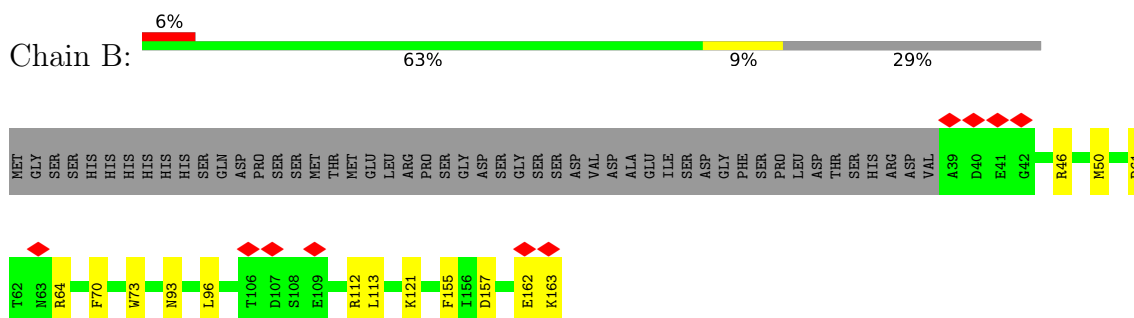
3 Residue-property plots [i](#)

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.

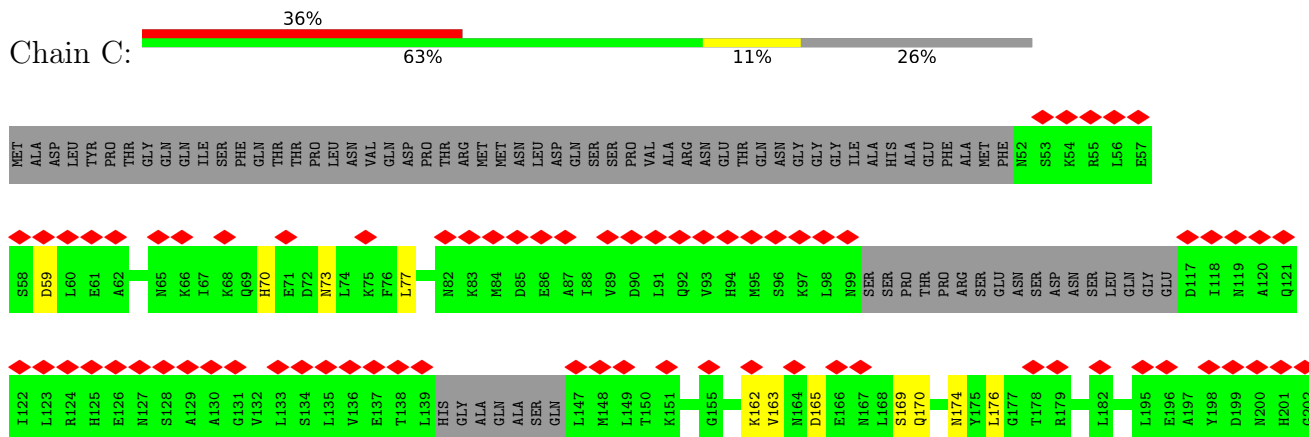
- Molecule 1: Protein RDM1



- Molecule 1: Protein RDM1



- Molecule 2: Protein DEFECTIVE IN MERISTEM SILENCING 3



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	620248	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 ($e^-/\text{\AA}^2$)	47.2	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.319	Depositor
Minimum map value	-0.200	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.007	Depositor
Recommended contour level	0.055	Depositor
Map size (Å)	256.80002, 256.80002, 256.80002	wwPDB
Map dimensions	240, 240, 240	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.07, 1.07, 1.07	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	0.31	0/1041	0.58	0/1418
1	B	0.30	0/1065	0.57	0/1448
2	C	0.31	0/2654	0.59	0/3567
2	D	0.28	0/1747	0.60	0/2367
2	E	0.30	0/2671	0.57	0/3590
2	F	0.32	0/2715	0.59	2/3649 (0.1%)
3	G	0.21	0/395	0.56	0/531
All	All	0.30	0/12288	0.58	2/16570 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed($^{\circ}$)	Ideal($^{\circ}$)
2	F	252	LEU	CA-C-N	5.22	130.86	120.94
2	F	252	LEU	C-N-CA	5.22	130.86	120.94

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	1010	0	984	10	0
1	B	1034	0	1014	10	0
2	C	2619	0	2654	40	0
2	D	1722	0	1724	22	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	E	2634	0	2657	25	0
2	F	2678	0	2701	31	0
3	G	388	0	386	4	0
All	All	12085	0	12120	131	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 5.

All (131) 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:D:175:TYR:CZ	2:D:302:LEU:CD1	2.51	0.94
2:C:269:ALA:CB	2:C:302:LEU:HD11	2.03	0.88
2:C:239:GLN:O	2:C:250:ASP:HB2	1.75	0.86
2:C:239:GLN:O	2:C:250:ASP:CB	2.25	0.85
2:C:299:PHE:HB2	2:C:302:LEU:HD23	1.60	0.81
2:F:160:LEU:HD13	2:F:290:LEU:HD21	1.63	0.79
2:C:269:ALA:HB3	2:C:302:LEU:HD11	1.65	0.77
2:C:269:ALA:HB2	2:C:302:LEU:HD11	1.70	0.72
2:F:273:ILE:O	2:F:291:ARG:NH2	2.23	0.70
2:D:175:TYR:CE2	2:D:302:LEU:HD13	2.26	0.70
2:E:222:GLY:HA2	2:F:340:ASN:HD22	1.57	0.69
2:D:175:TYR:CZ	2:D:302:LEU:HD13	2.28	0.67
2:E:303:GLN:HE22	2:E:319:SER:H	1.40	0.67
2:C:239:GLN:O	2:C:250:ASP:HB3	1.95	0.66
2:C:299:PHE:HB2	2:C:302:LEU:CD2	2.27	0.64
2:C:162:LYS:HD3	2:C:351:PRO:HA	1.80	0.64
2:E:136:VAL:HG21	2:E:213:LEU:HD23	1.80	0.64
2:F:241:ILE:HD12	2:F:248:ARG:HG3	1.82	0.60
2:F:185:VAL:HG23	2:F:228:ILE:HG23	1.85	0.59
2:F:212:CYS:SG	2:F:213:LEU:N	2.76	0.59
2:D:175:TYR:OH	2:D:302:LEU:HD12	2.04	0.58
2:D:233:LEU:O	2:D:235:PRO:HD3	2.04	0.58
2:C:270:VAL:O	2:C:291:ARG:NH2	2.37	0.57
1:A:44:LEU:HD21	1:A:146:TRP:HB2	1.87	0.57
2:C:222:GLY:O	2:D:340:ASN:ND2	2.36	0.57
2:E:269:ALA:HB3	2:E:302:LEU:HD21	1.86	0.57
2:C:240:HIS:NE2	2:C:292:GLU:OE2	2.38	0.56
2:D:162:LYS:HG2	2:D:349:ALA:HB3	1.86	0.56
1:A:131:GLU:OE1	1:B:121:LYS:NZ	2.38	0.56
1:B:93:ASN:ND2	1:B:155:PHE:O	2.39	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:303:GLN:HE21	2:F:318:ILE:HG22	1.71	0.56
2:D:175:TYR:CZ	2:D:302:LEU:HD11	2.38	0.55
2:E:299:PHE:HB2	2:E:302:LEU:HD22	1.89	0.55
2:E:196:GLU:HG3	2:F:338:LEU:HB3	1.87	0.55
2:D:233:LEU:HD23	2:D:297:ASN:HD22	1.71	0.54
2:C:247:ARG:NH1	2:C:280:LEU:O	2.40	0.54
1:B:112:ARG:NH2	2:F:319:SER:OG	2.40	0.54
2:D:273:ILE:O	2:D:291:ARG:NH2	2.41	0.53
2:F:69:GLN:OE1	2:F:73:ASN:ND2	2.41	0.53
2:F:67:ILE:HD11	2:F:388:ARG:HG2	1.90	0.53
2:E:236:TYR:CD2	2:E:249:LEU:HD22	2.44	0.53
1:A:93:ASN:ND2	1:A:155:PHE:O	2.42	0.53
2:C:334:GLY:HA3	2:D:233:LEU:HD12	1.90	0.52
2:D:175:TYR:OH	2:D:302:LEU:CD1	2.57	0.52
2:F:169:SER:HB2	2:F:348:PHE:HB2	1.89	0.52
2:F:125:HIS:HE2	2:F:345:ASN:HB2	1.74	0.52
2:D:240:HIS:O	2:D:241:ILE:C	2.52	0.52
2:F:236:TYR:HB3	2:F:292:GLU:HB2	1.90	0.52
1:B:73:TRP:HB3	1:B:96:LEU:HD22	1.91	0.52
1:A:60:ILE:HG13	1:A:131:GLU:HG2	1.90	0.51
1:B:50:MET:HE2	2:E:73:ASN:HB3	1.92	0.51
2:C:251:LEU:HD22	2:C:301:ARG:HG3	1.91	0.51
2:C:322:ALA:HB3	2:C:330:ILE:HB	1.92	0.51
2:F:296:TYR:OH	2:F:301:ARG:NH1	2.45	0.50
2:C:355:ARG:HG2	2:C:357:MET:HE3	1.94	0.49
2:E:237:VAL:O	2:E:237:VAL:HG13	2.11	0.49
2:E:329:ILE:HB	2:E:337:ASN:HD22	1.78	0.49
2:C:392:VAL:O	2:C:395:PHE:HB3	2.13	0.49
1:B:162:GLU:HG2	1:B:163:LYS:HG3	1.93	0.49
2:C:357:MET:O	2:C:360:TYR:HB3	2.14	0.48
2:F:50:MET:HE2	3:G:77:VAL:HG22	1.96	0.48
2:E:277:PRO:HG2	2:E:361:SER:HB3	1.96	0.48
2:C:241:ILE:HG22	2:C:244:ASP:HB2	1.96	0.47
2:E:236:TYR:CE2	2:E:249:LEU:HD22	2.49	0.47
2:D:229:CYS:SG	2:D:232:ASN:ND2	2.80	0.47
2:E:385:GLN:HA	2:E:388:ARG:HG2	1.96	0.47
3:G:88:ALA:HA	3:G:91:VAL:HG12	1.97	0.47
2:C:77:LEU:HB3	2:C:381:ILE:HG22	1.95	0.47
2:C:328:GLY:HA2	2:C:341:ARG:HH12	1.79	0.47
1:B:157:ASP:OD1	1:B:157:ASP:N	2.40	0.47
2:D:244:ASP:OD2	2:D:247:ARG:N	2.47	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:235:PRO:HB3	2:F:293:THR:HG22	1.97	0.47
2:F:248:ARG:HB3	2:F:291:ARG:NH1	2.30	0.47
2:E:226:ASP:OD1	2:E:226:ASP:N	2.46	0.46
2:E:173:SER:HA	2:E:181:MET:HE3	1.97	0.46
2:F:77:LEU:HB3	2:F:381:ILE:HG22	1.97	0.46
2:C:240:HIS:NE2	2:C:292:GLU:CG	2.79	0.46
1:A:103:ARG:NH1	1:A:108:SER:O	2.49	0.46
2:C:169:SER:HB2	2:C:348:PHE:HB3	1.97	0.46
2:E:162:LYS:NZ	2:E:276:ASP:OD1	2.39	0.45
1:A:76:LEU:HD22	1:A:126:ILE:HD12	1.97	0.45
2:C:240:HIS:O	2:C:241:ILE:C	2.60	0.45
2:F:237:VAL:O	2:F:237:VAL:HG12	2.15	0.45
2:D:247:ARG:NH1	2:D:280:LEU:O	2.50	0.45
2:E:273:ILE:O	2:E:291:ARG:NH2	2.34	0.45
2:C:302:LEU:C	2:C:302:LEU:HD12	2.42	0.44
2:E:330:ILE:HG22	2:E:336:PHE:HA	1.99	0.44
2:C:176:LEU:HD21	2:C:299:PHE:HD1	1.83	0.44
1:A:106:THR:HG23	1:A:108:SER:H	1.82	0.44
2:D:175:TYR:CE2	2:D:302:LEU:CD1	2.90	0.44
2:D:154:VAL:HB	2:D:185:VAL:HG13	2.00	0.43
2:F:52:ASN:ND2	2:F:405:CYS:SG	2.91	0.43
2:C:70:HIS:ND1	2:C:384:GLU:OE2	2.39	0.43
2:D:196:GLU:HA	2:D:208:ALA:HB1	1.98	0.43
2:F:342:ASP:N	2:F:342:ASP:OD1	2.52	0.43
2:C:163:VAL:HG12	2:C:165:ASP:H	1.83	0.43
2:D:331:ARG:NH1	2:D:337:ASN:HD21	2.16	0.43
2:F:265:PHE:HE1	2:F:303:GLN:HB2	1.83	0.43
2:F:380:ASP:OD1	2:F:383:ARG:NH2	2.52	0.43
2:C:380:ASP:OD1	2:C:383:ARG:NH1	2.51	0.43
2:F:332:LYS:HD3	2:F:335:ILE:HD12	2.01	0.42
1:B:70:PHE:HE2	1:B:113:LEU:HD22	1.84	0.42
2:C:226:ASP:OD1	2:C:226:ASP:N	2.51	0.42
2:C:341:ARG:HA	2:C:341:ARG:HD3	1.84	0.42
2:E:241:ILE:HD12	2:E:248:ARG:HB2	2.02	0.42
2:C:282:CYS:HA	2:C:287:GLY:HA2	2.01	0.42
2:F:402:PHE:HZ	3:G:69:ILE:HG12	1.84	0.42
2:E:85:ASP:HA	2:E:88:ILE:HG22	2.01	0.42
2:C:170:GLN:HE21	2:C:174:ASN:HD21	1.67	0.41
2:C:248:ARG:HD2	2:C:271:ASN:HB3	2.02	0.41
2:D:175:TYR:CE1	2:D:302:LEU:HD11	2.55	0.41
2:E:147:LEU:HD12	2:E:213:LEU:HD11	2.01	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:50:MET:HE2	2:C:73:ASN:HB3	2.01	0.41
1:B:46:ARG:HG2	1:B:50:MET:HE3	2.02	0.41
2:C:378:LEU:O	2:C:381:ILE:HG13	2.20	0.41
2:F:190:GLU:HA	2:F:193:THR:HG22	2.01	0.41
2:F:304:VAL:HA	2:F:323:VAL:O	2.20	0.41
2:C:59:ASP:OD2	2:C:398:LYS:NZ	2.54	0.41
2:E:282:CYS:HA	2:E:287:GLY:HA2	2.02	0.41
2:E:236:TYR:CZ	2:E:238:GLY:HA3	2.55	0.41
1:A:90:TYR:HB3	1:A:142:MET:HE1	2.02	0.41
2:F:277:PRO:HA	2:F:280:LEU:HG	2.02	0.41
2:E:240:HIS:O	2:E:241:ILE:C	2.63	0.41
1:A:55:MET:HE1	1:A:87:PRO:HG2	2.03	0.41
2:D:245:LEU:HD22	3:G:92:PHE:HB2	2.03	0.41
2:F:330:ILE:HG22	2:F:336:PHE:HA	2.02	0.41
2:C:245:LEU:H	2:C:245:LEU:HG	1.45	0.40
1:B:61:PRO:O	1:B:64:ARG:NH1	2.55	0.40
2:E:128:SER:OG	2:E:129:ALA:N	2.54	0.40
2:C:240:HIS:CE1	2:C:292:GLU:HG2	2.57	0.40
2:F:275:ILE:HD11	2:F:291:ARG:HB2	2.03	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	
2	F	199/449 (44%)	189 (95%)	10 (5%)	0	100	100
3	G	47/71 (66%)	45 (96%)	2 (4%)	0	100	100
All	All	246/520 (47%)	234 (95%)	12 (5%)	0	100	100

There are no Ramachandran outliers to report.

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	
2	C	47/384 (12%)	47 (100%)	0	100	100
2	D	180/384 (47%)	178 (99%)	2 (1%)	65	74
2	E	257/384 (67%)	256 (100%)	1 (0%)	84	81
2	F	293/384 (76%)	292 (100%)	1 (0%)	86	83
3	G	42/59 (71%)	42 (100%)	0	100	100
All	All	819/1595 (51%)	815 (100%)	4 (0%)	78	80

All (4) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	D	213	LEU
2	D	338	LEU
2	E	237	VAL
2	F	312	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (18) such sidechains are listed below:

Mol	Chain	Res	Type
2	C	359	ASN
2	D	201	HIS
2	D	246	GLN
2	D	297	ASN
2	D	303	GLN
2	E	65	ASN
2	E	164	ASN
2	E	232	ASN
2	E	297	ASN
2	E	303	GLN
2	E	337	ASN
2	E	340	ASN
2	F	52	ASN
2	F	164	ASN

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Mol	Chain	Res	Type
2	F	174	ASN
2	F	297	ASN
2	F	303	GLN
2	F	340	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 oligosaccharides 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](#)

There are no chain breaks in this entry.

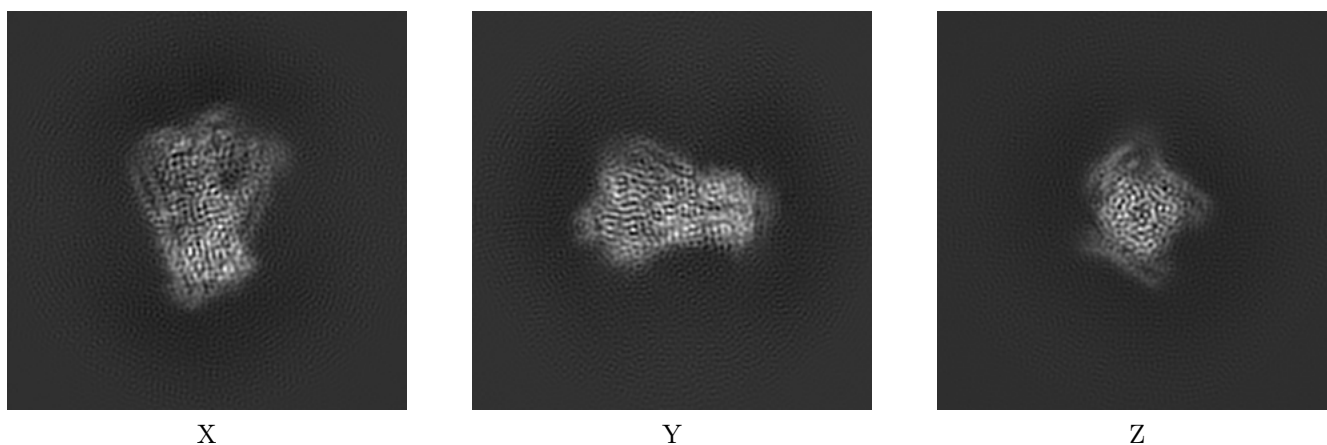
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-20081. 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](#)

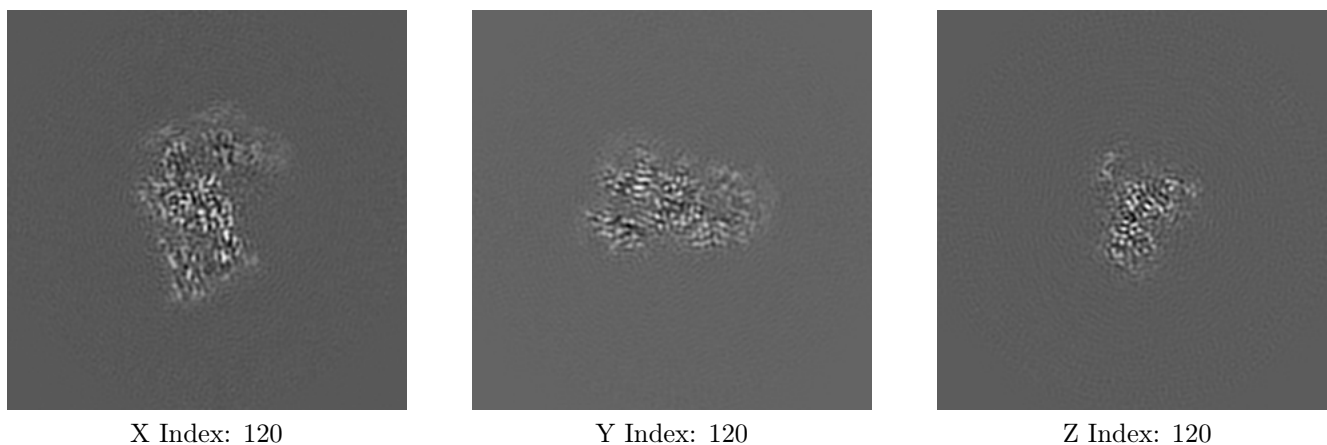
6.1.1 Primary map



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

6.2 Central slices [i](#)

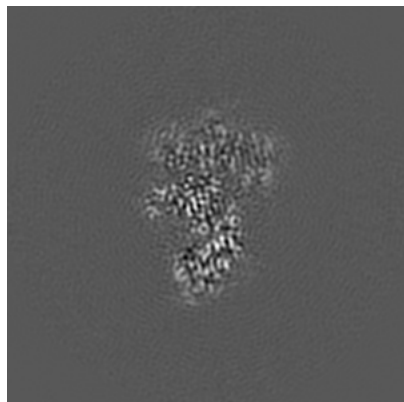
6.2.1 Primary map



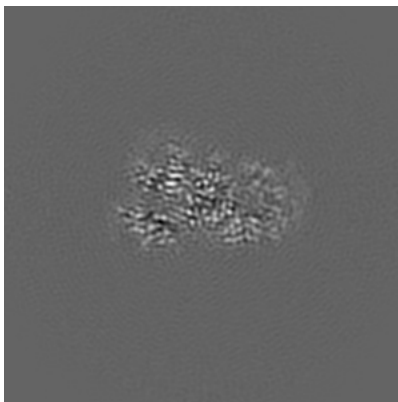
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

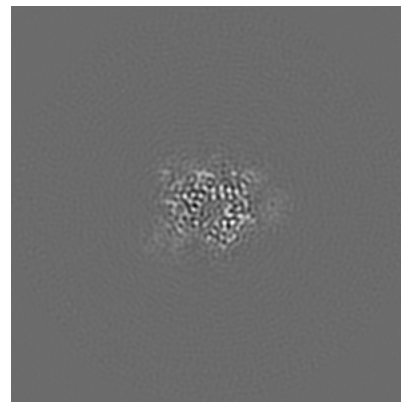
6.3.1 Primary map



X Index: 113



Y Index: 120

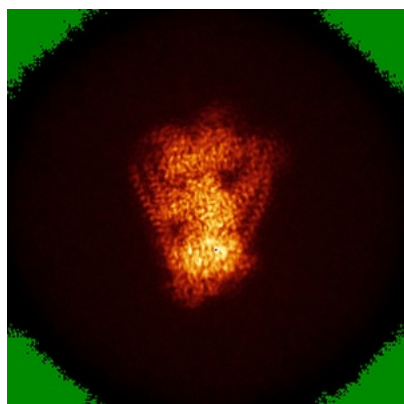


Z Index: 94

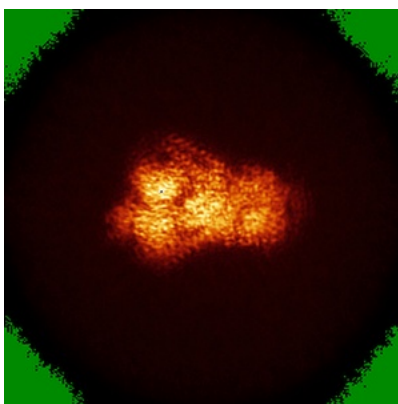
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

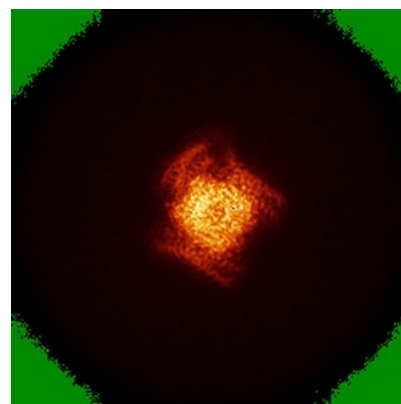
6.4.1 Primary map



X



Y



Z

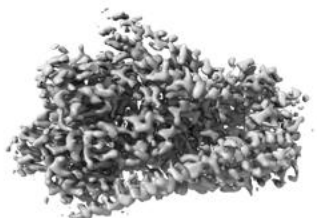
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

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

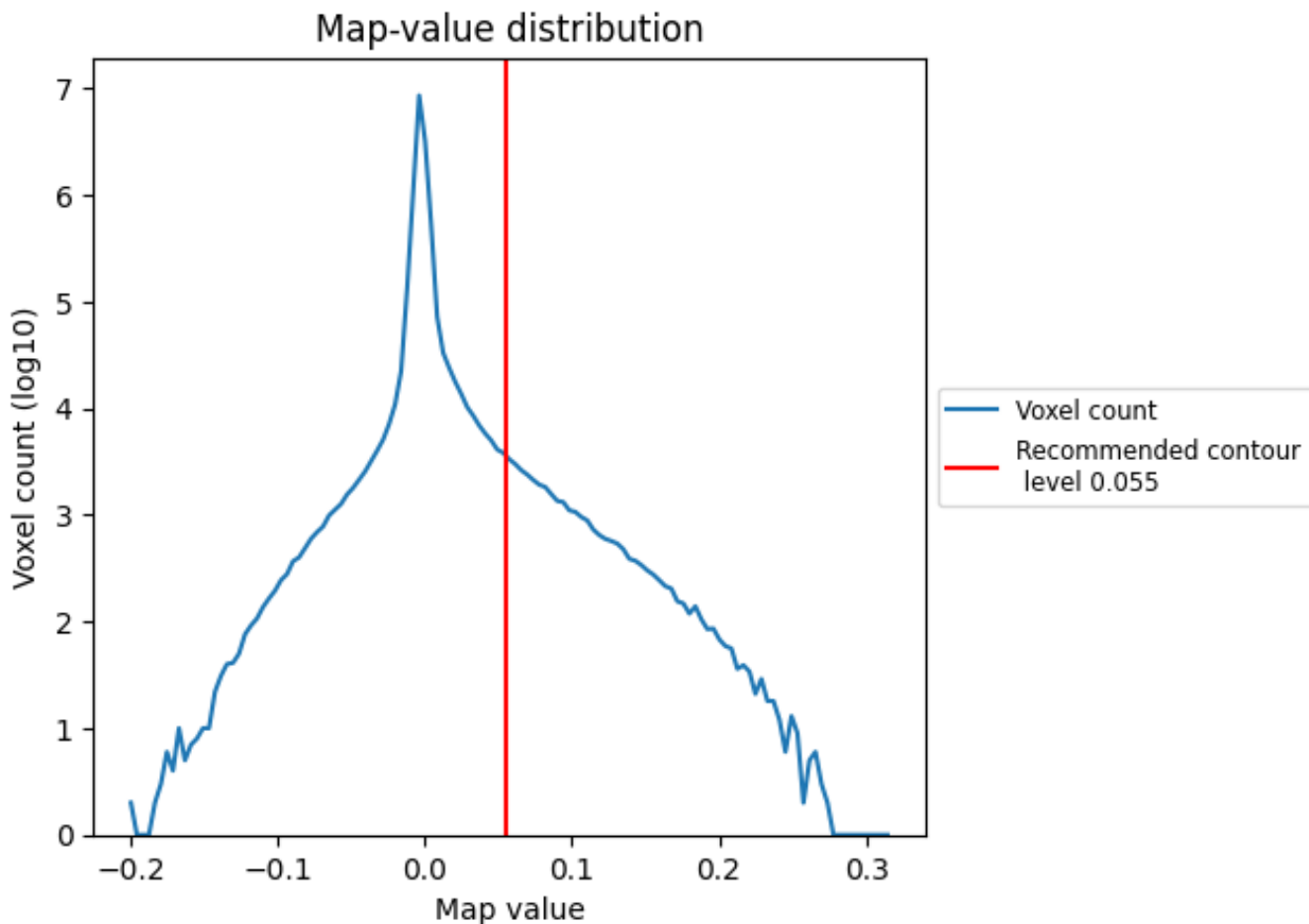
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

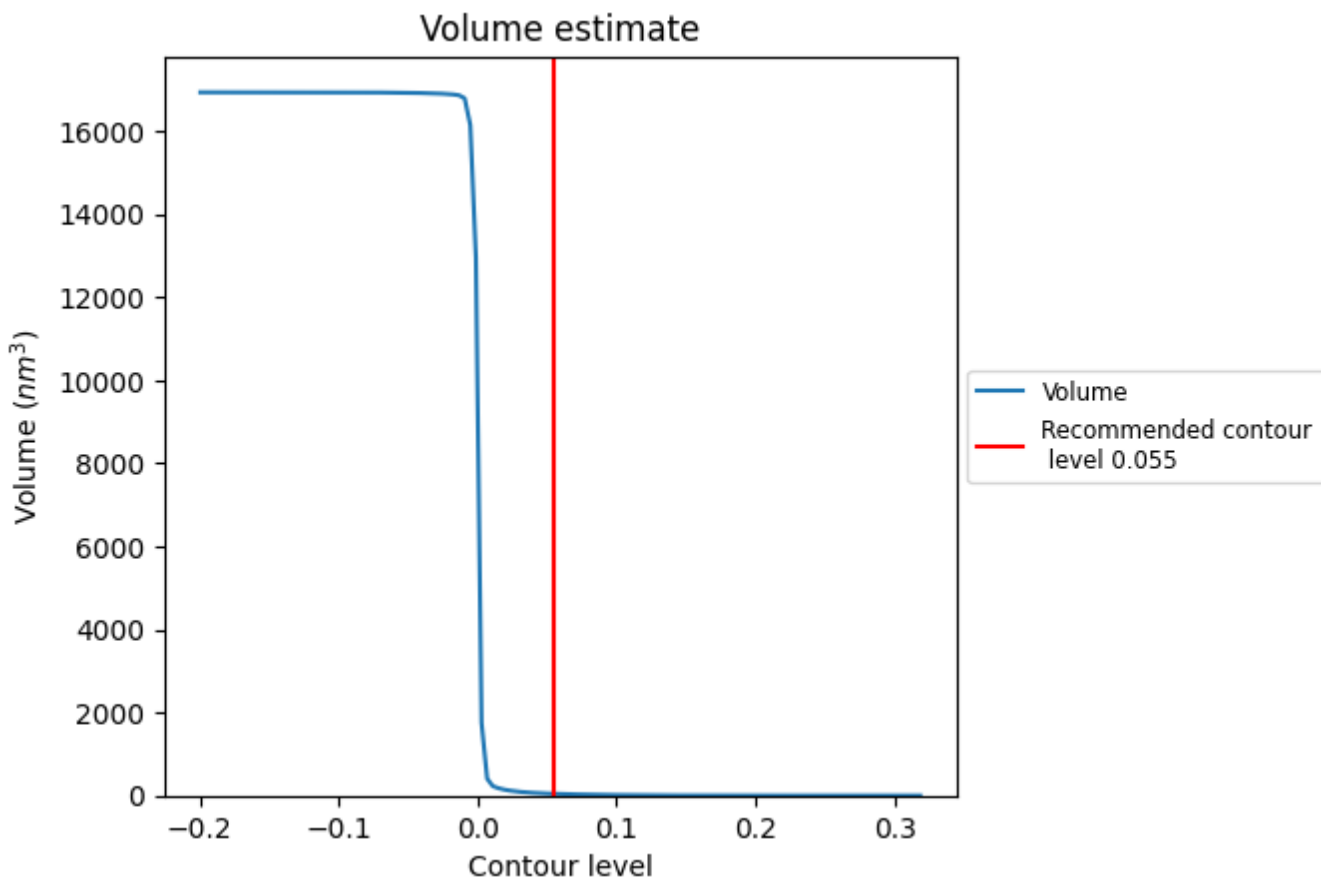
This section contains the results of statistical analysis of the map.

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.

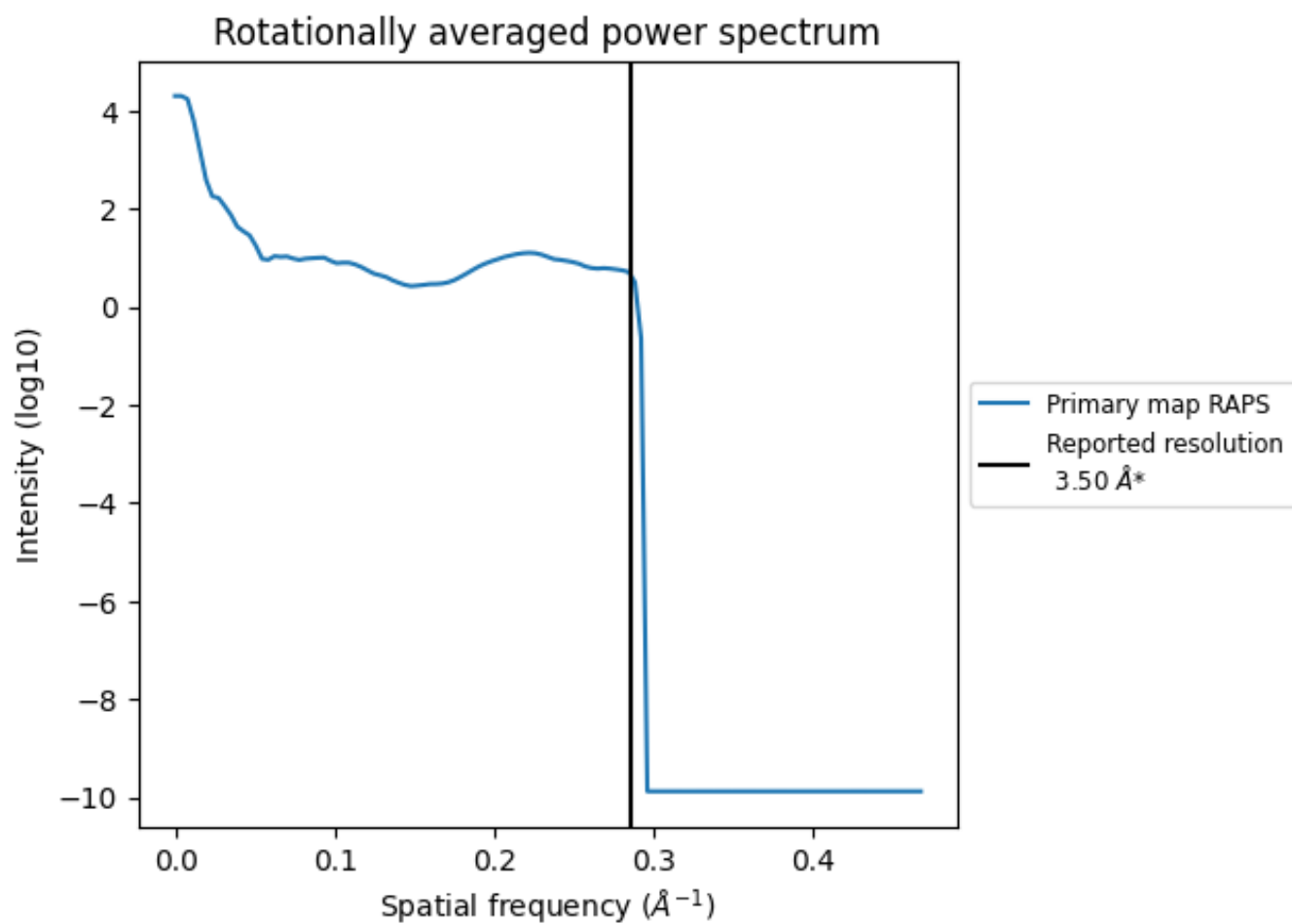
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 43 nm³; this corresponds to an approximate mass of 39 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 0.286 Å⁻¹

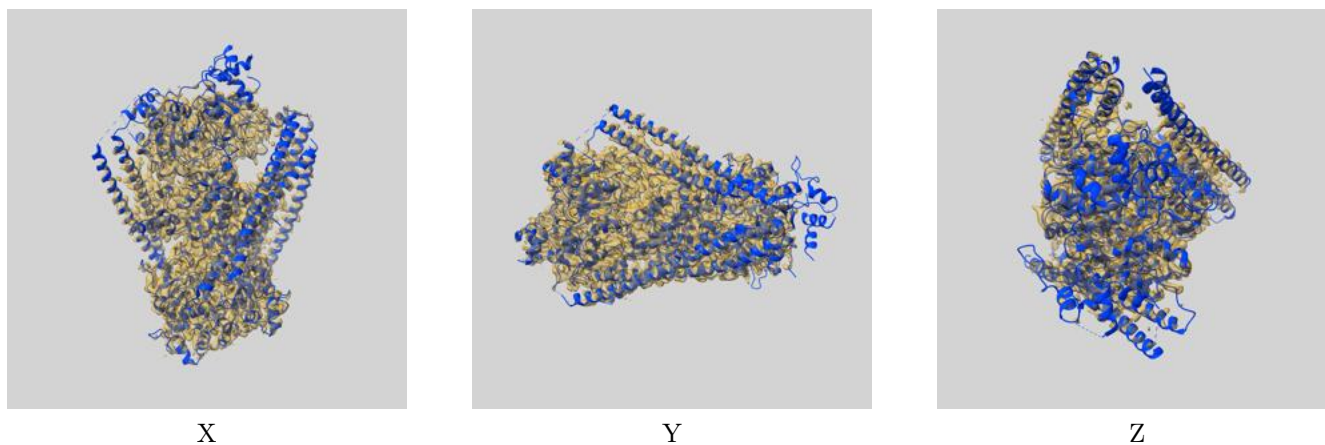
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

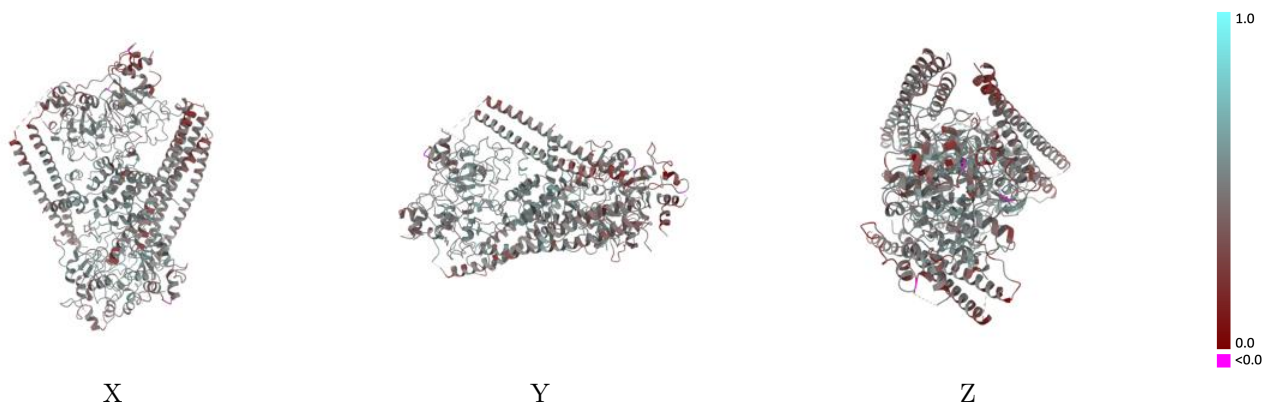
This section contains information regarding the fit between EMDB map EMD-20081 and PDB model 6OIT. Per-residue inclusion information can be found in section 3 on page 9.

9.1 Map-model overlay [i](#)



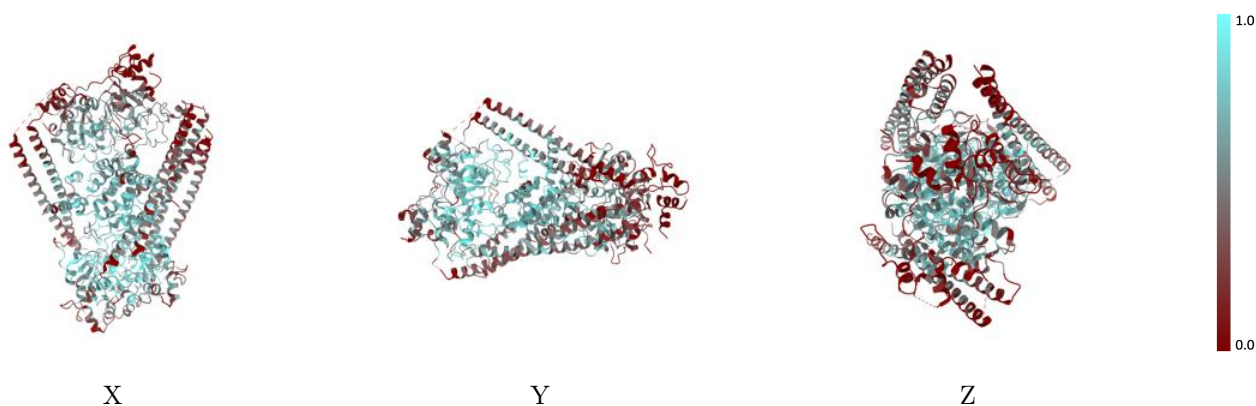
The images above show the 3D surface view of the map at the recommended contour level 0.055 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



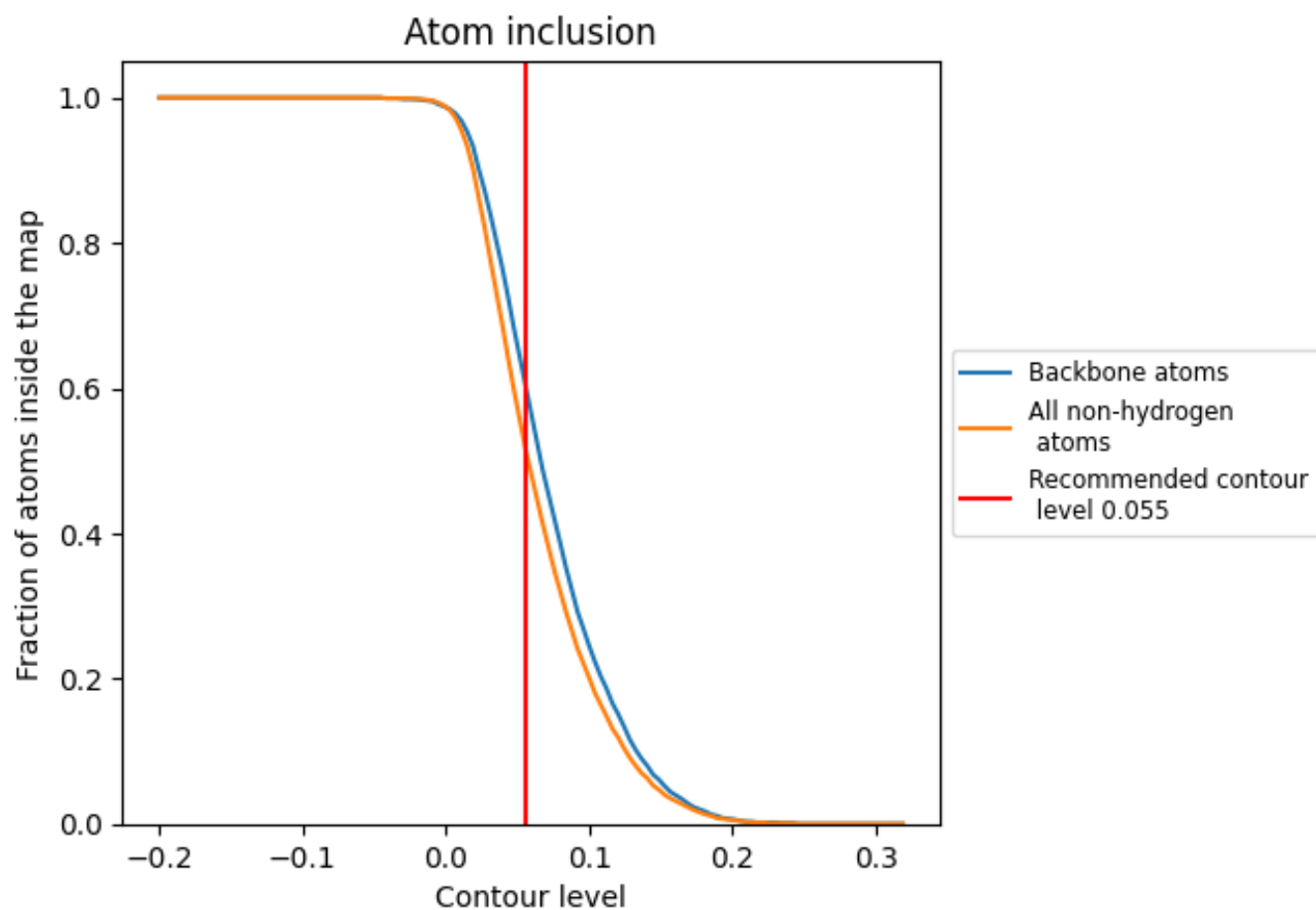
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.055).

















9.4 Atom inclusion [i](#)



At the recommended contour level, 61% of all backbone atoms, 52% 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 (0.055) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.5210	 0.4660
A	 0.6990	 0.5150
B	 0.7400	 0.5240
C	 0.4010	 0.4400
D	 0.3940	 0.4370
E	 0.5640	 0.4670
F	 0.5520	 0.4740
G	 0.3570	 0.4430

