



Full wwPDB EM Validation Report ⓘ

Mar 8, 2026 – 03:31 AM UTC

PDB ID : 6OIS / pdb_00006ois
EMDB ID : EMD-20080
Title : CryoEM structure of Arabidopsis DR complex (DMS3-RDM1)
Authors : Wongpalee, S.P.; Liu, S.; Zhou, Z.H.; Jacobsen, S.E.
Deposited on : 2019-04-09
Resolution : 3.60 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:

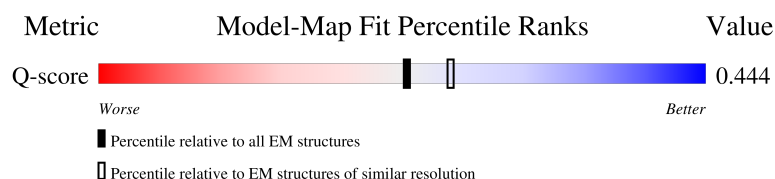
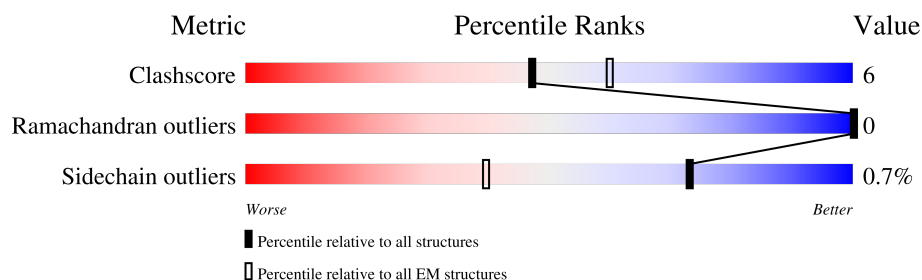
EMDB validation analysis : 0.0.1.dev132
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & 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 3.60 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	12797 (3.10 - 4.10)

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	
1	B	175	
2	C	449	
2	D	449	

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Mol	Chain	Length	Quality of chain
2	E	449	26% 63% 10% 27%
2	F	449	16% 42% 9% 49%

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 10732 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
1	A	123	Total	C	N	O	S	0	0
			1016	653	175	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	330	Total	C	N	O	S	0	0
			2591	1629	456	490	16		
2	D	229	Total	C	N	O	S	0	0
			1754	1107	306	331	10		
2	E	329	Total	C	N	O	S	0	0
			2583	1625	454	488	16		
2	F	229	Total	C	N	O	S	0	0
			1754	1107	306	331	10		

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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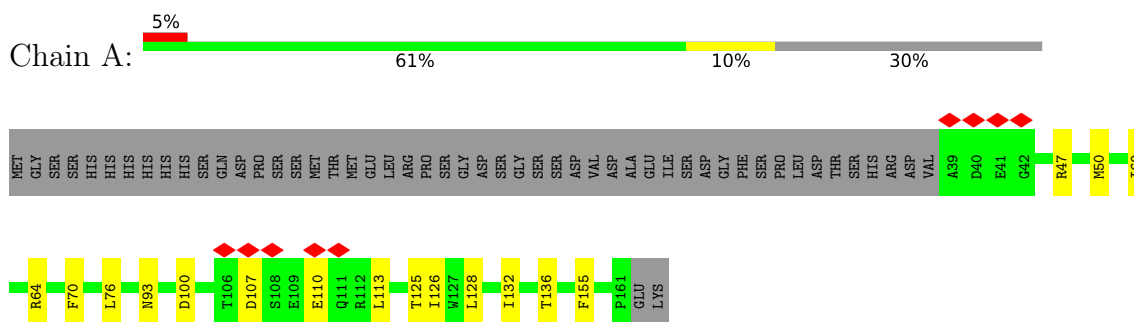
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Chain	Residue	Modelled	Actual	Comment	Reference
F	435	GLU	-	expression tag	UNP Q94A79
F	436	ARG	-	expression tag	UNP Q94A79
F	437	GLN	-	expression tag	UNP Q94A79
F	438	HIS	-	expression tag	UNP Q94A79
F	439	MET	-	expression tag	UNP Q94A79
F	440	ASP	-	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

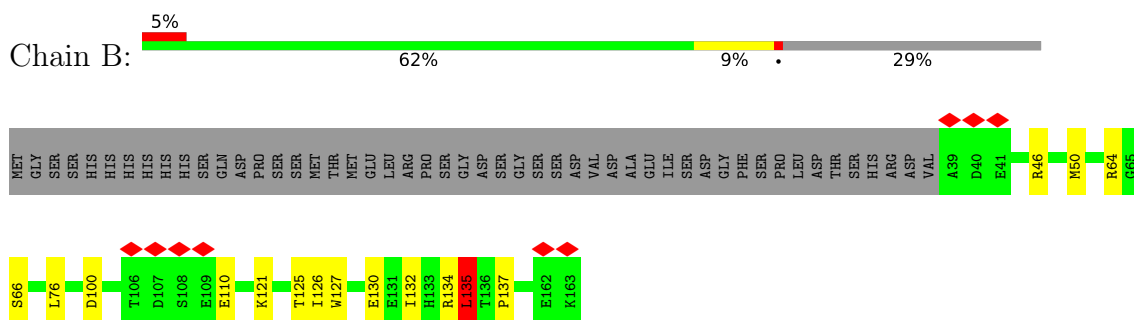
3 Residue-property plots

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.

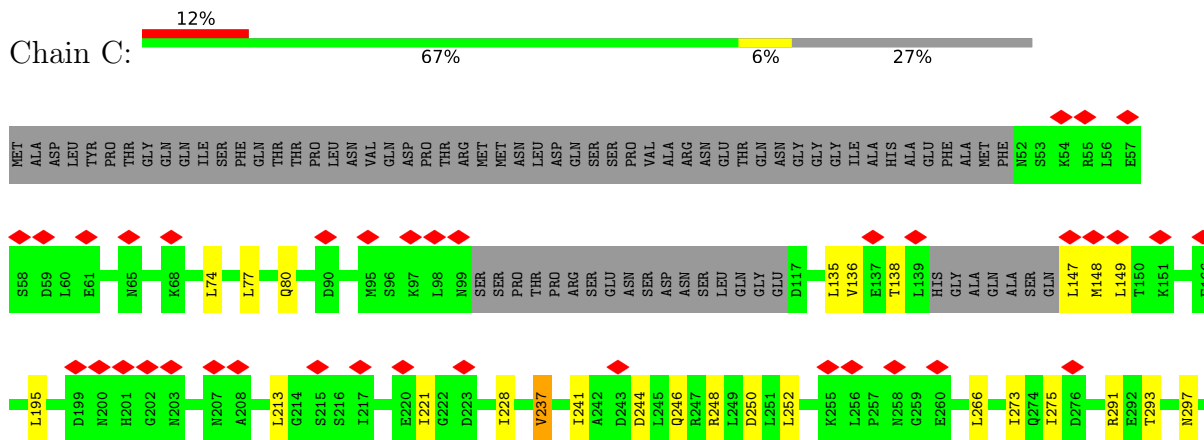
- Molecule 1: Protein RDM1

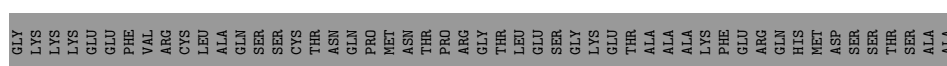


- Molecule 1: Protein RDM1

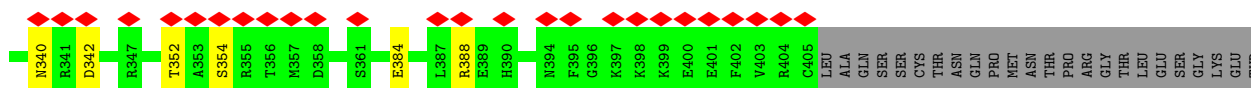


- Molecule 2: Protein DEFECTIVE IN MERISTEM SILENCING 3





- Molecule 2: Protein DEFECTIVE IN MERISTEM SILENCING 3



ALA
ALA
ALA
LYS
PHE
GLU
ARG
GLN
HIS
MET
ASP
SER
SER
THR
SER
ALA
ALA

● Molecule 2: Protein DEFECTIVE IN MERISTEM SILENCING 3



MET
ALA
ASP
LEU
GLU
TYR
ALA
PRO
THR
THR
GLY
GLN
HIS
ILE
GLN
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D117

I118
N119
A120
L123
R124
H125
E126
N127
S128
A129
A130
L133
S134
L135
V136
E137
T138
L139
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ALA
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K151
K159
K162
V163
N164
D165
E166
Q170
N174
Y175
L182
R187
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L195
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H201
G202

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H211
C212
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G214
S215
S216
I217
G218
R219
E220
L221
G222
D223
S224
F225
D226
A227
L228
E231
R234
P235
Y236
Y237
H240
D243
D244
L245
L249
D250
P257
N258
G259
E260
I273
D276
C282
G287
R291
E292
T293

Y296
N297
R301
R308
I329
I330
F336
K337
L338
G339
N340
R341
D342
E343
V346
A349
K350
P351
T352
ALA
SER
ARG
THR
MET
ASP
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ALA

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	314414	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 ($e^-/\text{\AA}^2$)	52.4	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	0.227	Depositor
Minimum map value	-0.140	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.007	Depositor
Recommended contour level	0.05	Depositor
Map size (Å)	273.92, 273.92, 273.92	wwPDB
Map dimensions	256, 256, 256	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	0.46	0/1047	0.63	1/1425 (0.1%)
1	B	0.48	0/1065	0.66	2/1448 (0.1%)
2	C	0.36	0/2626	0.59	0/3529
2	D	0.36	0/1780	0.59	0/2410
2	E	0.37	0/2618	0.59	0/3518
2	F	0.35	0/1780	0.60	2/2410 (0.1%)
All	All	0.38	0/10916	0.60	5/14740 (0.0%)

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	137	PRO	N-CA-C	8.21	124.44	111.38
1	A	136	THR	N-CA-C	5.87	120.21	112.35
1	B	135	LEU	N-CA-C	5.12	116.67	111.14
2	F	237	VAL	CA-C-N	5.11	126.61	121.35
2	F	237	VAL	C-N-CA	5.11	126.61	121.35

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	1016	0	995	18	0
1	B	1034	0	1014	13	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	C	2591	0	2625	28	0
2	D	1754	0	1771	29	0
2	E	2583	0	2619	37	0
2	F	1754	0	1771	31	0
All	All	10732	0	10795	129	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 6.

All (129) 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:F:236:TYR:CE2	2:F:249:LEU:HD22	1.72	1.23
2:E:247:ARG:NE	2:E:281:LEU:HD21	1.80	0.97
2:F:236:TYR:HE2	2:F:249:LEU:HD22	1.13	0.93
2:F:236:TYR:CD2	2:F:249:LEU:HD22	2.08	0.88
1:A:100:ASP:CB	2:C:237:VAL:HG21	2.08	0.83
1:A:100:ASP:HB3	2:C:237:VAL:CG2	2.08	0.81
2:E:315:LEU:HD12	2:E:318:ILE:HD11	1.61	0.80
2:E:247:ARG:CZ	2:E:281:LEU:HD21	2.11	0.80
2:D:239:GLN:O	2:D:250:ASP:HB3	1.84	0.77
1:A:100:ASP:HB3	2:C:237:VAL:HG21	1.66	0.75
2:F:236:TYR:HE2	2:F:249:LEU:CD2	1.97	0.72
2:F:236:TYR:CE2	2:F:249:LEU:CD2	2.65	0.70
1:A:100:ASP:OD2	2:C:237:VAL:HG21	1.94	0.66
2:E:237:VAL:O	2:E:237:VAL:HG23	1.96	0.66
1:A:93:ASN:ND2	1:A:155:PHE:O	2.31	0.63
2:D:239:GLN:HA	2:D:239:GLN:OE1	2.00	0.62
1:A:100:ASP:HB3	2:C:237:VAL:HG22	1.80	0.62
2:F:237:VAL:O	2:F:237:VAL:HG12	2.02	0.60
1:A:128:LEU:HB3	1:B:125:THR:HG22	1.83	0.60
1:B:135:LEU:HD23	1:B:135:LEU:N	2.18	0.59
2:C:273:ILE:O	2:C:291:ARG:NH2	2.36	0.59
2:E:221:ILE:O	2:F:340:ASN:ND2	2.36	0.58
2:D:240:HIS:NE2	2:D:292:GLU:OE2	2.35	0.58
1:B:110:GLU:HB2	2:F:234:ARG:HH22	1.68	0.58
2:C:237:VAL:HG22	2:C:237:VAL:O	2.02	0.58
2:E:240:HIS:NE2	2:E:292:GLU:OE2	2.36	0.58
2:F:240:HIS:NE2	2:F:292:GLU:OE2	2.35	0.58
2:C:149:LEU:HD22	2:C:195:LEU:HD23	1.85	0.57
2:D:296:TYR:OH	2:D:301:ARG:NH1	2.38	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:296:TYR:OH	2:F:301:ARG:NH1	2.38	0.56
1:B:100:ASP:OD2	2:E:237:VAL:HG21	2.05	0.56
1:A:100:ASP:CG	2:C:237:VAL:HG21	2.31	0.56
2:E:136:VAL:HG21	2:E:213:LEU:HD21	1.88	0.56
2:F:273:ILE:O	2:F:291:ARG:NH1	2.39	0.56
1:B:46:ARG:NH1	2:E:73:ASN:OD1	2.39	0.55
2:E:340:ASN:HD22	2:F:222:GLY:HA2	1.71	0.55
2:E:247:ARG:CZ	2:E:281:LEU:CD2	2.82	0.55
2:D:273:ILE:O	2:D:291:ARG:NH1	2.39	0.55
1:A:100:ASP:CB	2:C:237:VAL:CG2	2.74	0.55
2:C:293:THR:O	2:C:297:ASN:ND2	2.40	0.55
2:F:164:ASN:O	2:F:350:LYS:NZ	2.36	0.55
2:C:136:VAL:HG21	2:C:213:LEU:HD21	1.88	0.54
1:A:60:ILE:HG12	1:A:64:ARG:HH21	1.73	0.53
1:B:50:MET:HE1	2:E:77:LEU:HD11	1.91	0.53
2:D:330:ILE:HG22	2:D:336:PHE:HA	1.90	0.53
1:B:66:SER:HB3	2:F:257:PRO:HA	1.91	0.53
1:A:50:MET:HE1	2:C:77:LEU:HD11	1.90	0.53
2:E:118:ILE:HD12	2:E:159:LYS:HG2	1.91	0.53
1:B:76:LEU:HD22	1:B:126:ILE:HD12	1.91	0.52
2:F:162:LYS:HD3	2:F:351:PRO:HA	1.91	0.52
2:F:330:ILE:HG22	2:F:336:PHE:HA	1.90	0.52
2:D:162:LYS:HD3	2:D:351:PRO:HA	1.91	0.52
2:E:247:ARG:CD	2:E:281:LEU:HD21	2.39	0.52
2:F:170:GLN:HE21	2:F:174:ASN:HD21	1.58	0.52
1:A:110:GLU:HB2	2:D:234:ARG:HH22	1.74	0.52
2:E:330:ILE:HG22	2:E:336:PHE:HA	1.91	0.51
2:E:293:THR:O	2:E:297:ASN:ND2	2.43	0.51
2:D:182:LEU:HD21	2:D:346:VAL:HG21	1.92	0.51
2:F:182:LEU:HD21	2:F:346:VAL:HG21	1.92	0.51
2:E:303:GLN:HE21	2:E:318:ILE:HG22	1.75	0.51
2:D:170:GLN:HE21	2:D:174:ASN:HD21	1.58	0.51
2:F:170:GLN:NE2	2:F:343:GLU:OE1	2.44	0.51
2:D:170:GLN:NE2	2:D:343:GLU:OE1	2.44	0.51
2:F:236:TYR:CD2	2:F:249:LEU:CD2	2.89	0.51
2:D:164:ASN:O	2:D:350:LYS:NZ	2.36	0.51
1:A:47:ARG:NH2	2:C:80:GLN:OE1	2.33	0.50
2:C:221:ILE:O	2:D:340:ASN:ND2	2.42	0.50
1:A:76:LEU:HD22	1:A:126:ILE:HD12	1.93	0.50
2:C:246:GLN:O	2:C:291:ARG:NH1	2.45	0.49
2:E:71:GLU:OE2	2:E:388:ARG:NH1	2.45	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:251:LEU:HD23	2:E:301:ARG:HD3	1.94	0.49
2:C:340:ASN:ND2	2:D:221:ILE:O	2.46	0.48
2:D:293:THR:O	2:D:297:ASN:ND2	2.45	0.48
2:F:293:THR:O	2:F:297:ASN:ND2	2.45	0.48
2:D:282:CYS:HA	2:D:287:GLY:HA2	1.96	0.48
2:D:239:GLN:O	2:D:250:ASP:CB	2.59	0.48
1:B:130:GLU:OE2	1:B:134:ARG:NH2	2.47	0.48
2:D:236:TYR:CE2	2:D:249:LEU:HD22	2.49	0.48
2:C:228:ILE:HG12	2:D:335:ILE:HG12	1.97	0.47
2:E:246:GLN:HE22	2:E:274:GLN:HG3	1.80	0.47
1:A:132:ILE:HD11	1:B:125:THR:HG21	1.96	0.47
2:C:250:ASP:OD1	2:C:250:ASP:N	2.46	0.46
2:E:282:CYS:HA	2:E:287:GLY:HA2	1.96	0.46
2:F:149:LEU:HD13	2:F:210:LEU:HD12	1.96	0.46
2:D:149:LEU:HD13	2:D:210:LEU:HD12	1.96	0.46
2:E:74:LEU:HD21	2:E:388:ARG:HG2	1.98	0.46
2:C:340:ASN:HD22	2:D:222:GLY:HA2	1.80	0.46
2:C:338:LEU:HB2	2:D:196:GLU:HG3	1.97	0.45
2:D:237:VAL:HG12	2:D:237:VAL:O	2.16	0.45
2:F:118:ILE:HD13	2:F:349:ALA:HB2	1.97	0.45
2:D:118:ILE:HD13	2:D:349:ALA:HB2	1.98	0.45
2:F:282:CYS:HA	2:F:287:GLY:HA2	1.98	0.45
2:C:241:ILE:HD12	2:C:248:ARG:HG3	1.98	0.45
2:D:258:ASN:OD1	2:D:259:GLY:N	2.50	0.44
2:D:236:TYR:O	2:D:236:TYR:CD2	2.70	0.44
2:F:258:ASN:OD1	2:F:259:GLY:N	2.51	0.44
2:E:243:ASP:OD1	2:E:243:ASP:N	2.51	0.44
2:E:280:LEU:O	2:E:281:LEU:HD23	2.17	0.44
2:F:236:TYR:CG	2:F:236:TYR:O	2.70	0.44
2:C:275:ILE:HG12	2:C:291:ARG:HH21	1.82	0.44
2:E:315:LEU:O	2:E:318:ILE:HG12	2.17	0.43
1:A:125:THR:HG21	1:B:132:ILE:HD11	2.00	0.43
2:C:135:LEU:O	2:C:138:THR:OG1	2.32	0.43
2:C:308:ARG:HE	2:C:312:ILE:HD11	1.84	0.43
2:E:342:ASP:OD1	2:E:342:ASP:N	2.50	0.43
2:E:170:GLN:HE21	2:E:174:ASN:ND2	2.18	0.42
2:C:252:LEU:HD23	2:C:252:LEU:HA	1.86	0.42
2:F:149:LEU:HD22	2:F:195:LEU:HD23	2.01	0.42
2:D:149:LEU:HD22	2:D:195:LEU:HD23	2.01	0.42
1:A:107:ASP:OD1	1:A:107:ASP:N	2.53	0.42
1:B:121:LYS:O	1:B:125:THR:HG23	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:64:ARG:HD2	1:B:127:TRP:CD1	2.55	0.41
2:C:147:LEU:HB3	2:C:148:MET:H	1.63	0.41
2:E:352:THR:HG22	2:E:354:SER:H	1.85	0.41
2:F:341:ARG:HA	2:F:341:ARG:HD2	1.81	0.41
2:F:175:TYR:HD1	2:F:329:ILE:HD12	1.84	0.41
2:E:315:LEU:CD1	2:E:318:ILE:HD11	2.41	0.41
2:E:74:LEU:HD22	2:E:384:GLU:HG3	2.03	0.41
2:D:175:TYR:HD1	2:D:329:ILE:HD12	1.85	0.41
2:E:256:LEU:HD23	2:E:317:CYS:SG	2.61	0.40
2:E:222:GLY:HA2	2:F:340:ASN:HD22	1.86	0.40
2:C:244:ASP:OD2	2:C:248:ARG:NH1	2.54	0.40
1:A:70:PHE:CE2	1:A:113:LEU:HD22	2.57	0.40
2:D:341:ARG:HA	2:D:341:ARG:HD2	1.81	0.40
2:E:135:LEU:O	2:E:138:THR:OG1	2.36	0.40
2:E:170:GLN:HE21	2:E:174:ASN:HD21	1.69	0.40
2:E:233:LEU:HB3	2:E:297:ASN:ND2	2.37	0.40
2:E:236:TYR:CZ	2:E:238:GLY:HA3	2.57	0.40
2:E:335:ILE:HG12	2:F:228:ILE:HG12	2.04	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	121/175 (69%)	117 (97%)	4 (3%)	0	100	100
1	B	123/175 (70%)	120 (98%)	3 (2%)	0	100	100
2	C	324/449 (72%)	308 (95%)	16 (5%)	0	100	100
2	D	225/449 (50%)	213 (95%)	12 (5%)	0	100	100
2	E	323/449 (72%)	314 (97%)	9 (3%)	0	100	100
2	F	225/449 (50%)	213 (95%)	12 (5%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
All	All	1341/2146 (62%)	1285 (96%)	56 (4%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	113/160 (71%)	113 (100%)	0	100	100
1	B	115/160 (72%)	114 (99%)	1 (1%)	70	76
2	C	285/384 (74%)	281 (99%)	4 (1%)	59	71
2	D	192/384 (50%)	191 (100%)	1 (0%)	81	80
2	E	284/384 (74%)	283 (100%)	1 (0%)	84	81
2	F	192/384 (50%)	191 (100%)	1 (0%)	81	80
All	All	1181/1856 (64%)	1173 (99%)	8 (1%)	73	78

All (8) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	135	LEU
2	C	74	LEU
2	C	237	VAL
2	C	266	LEU
2	C	338	LEU
2	D	338	LEU
2	E	312	ILE
2	F	338	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (23) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	133	HIS

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Mol	Chain	Res	Type
1	B	52	GLN
1	B	93	ASN
1	B	101	GLN
1	B	111	GLN
1	B	153	HIS
2	C	164	ASN
2	C	246	GLN
2	C	340	ASN
2	D	174	ASN
2	D	211	HIS
2	D	337	ASN
2	E	52	ASN
2	E	125	HIS
2	E	170	GLN
2	E	211	HIS
2	E	239	GLN
2	E	246	GLN
2	E	303	GLN
2	E	340	ASN
2	F	174	ASN
2	F	211	HIS
2	F	337	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.

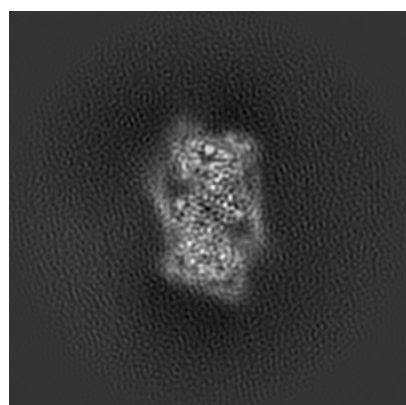
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-20080. These allow visual inspection of the internal detail of the map and identification of artifacts.

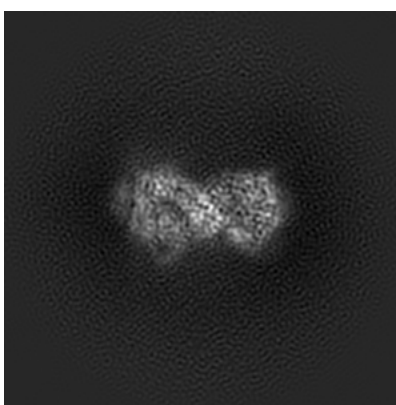
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

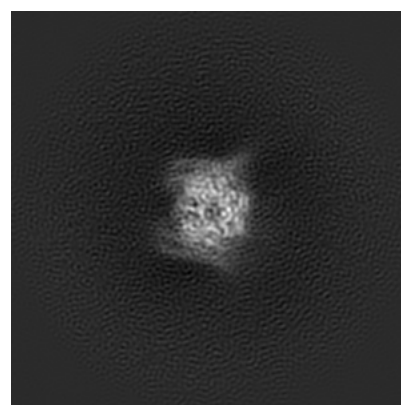
6.1.1 Primary map



X



Y

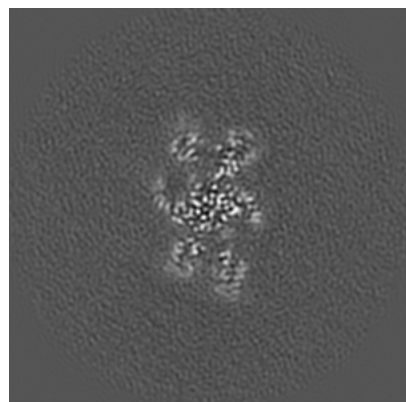


Z

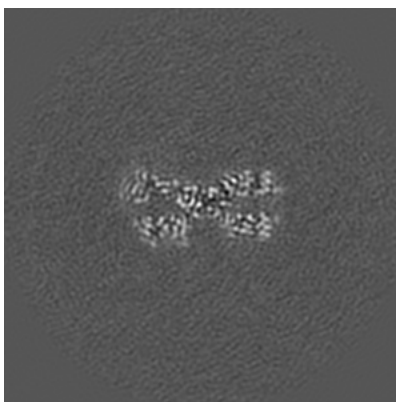
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

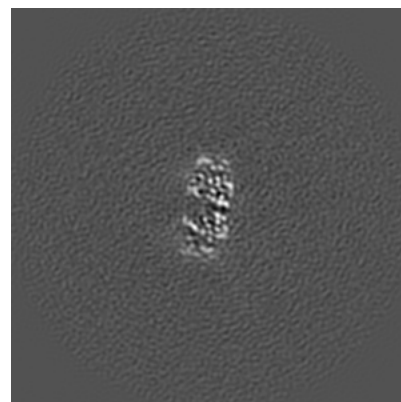
6.2.1 Primary map



X Index: 128



Y Index: 128

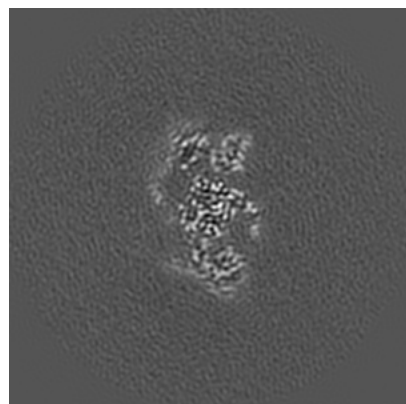


Z Index: 128

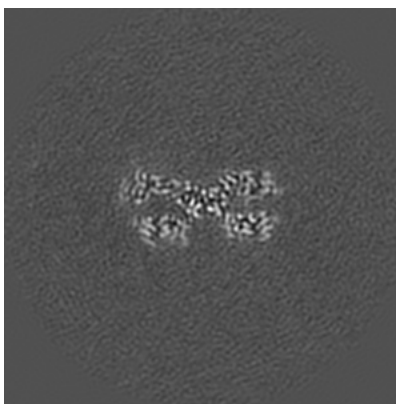
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

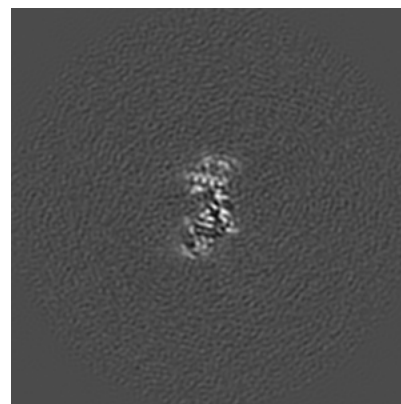
6.3.1 Primary map



X Index: 134



Y Index: 129

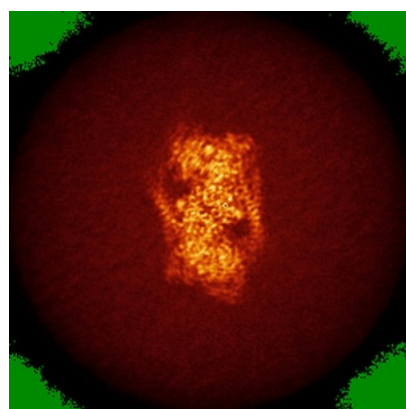


Z Index: 125

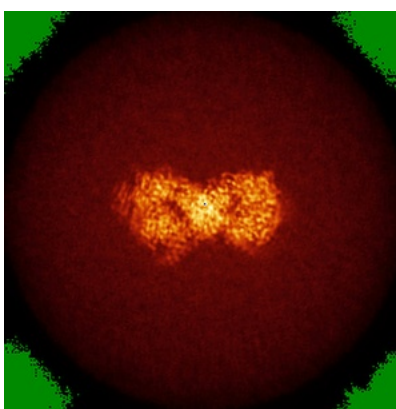
The images above show the largest variance slices of the map in three orthogonal directions.

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

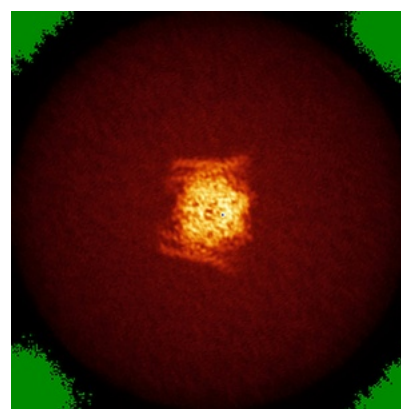
6.4.1 Primary map



X



Y

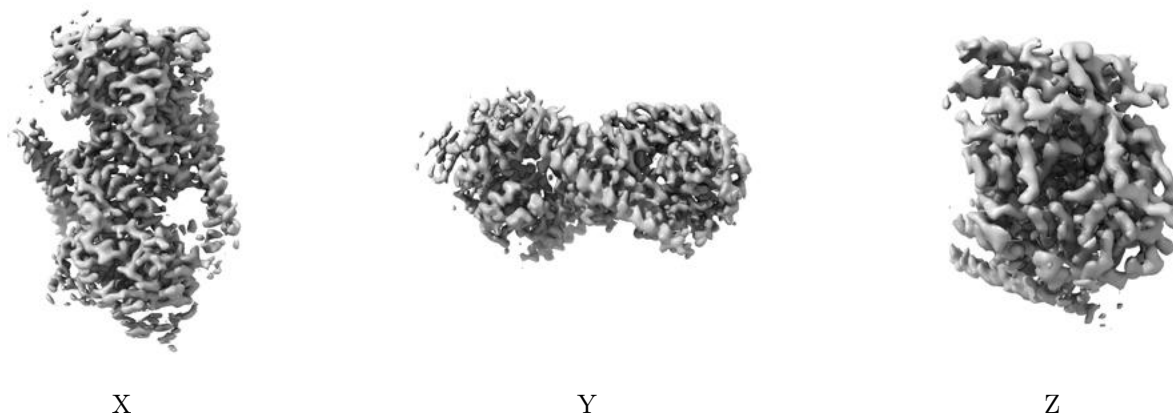


Z

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



The images above show the 3D surface view of the map at the recommended contour level 0.05. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

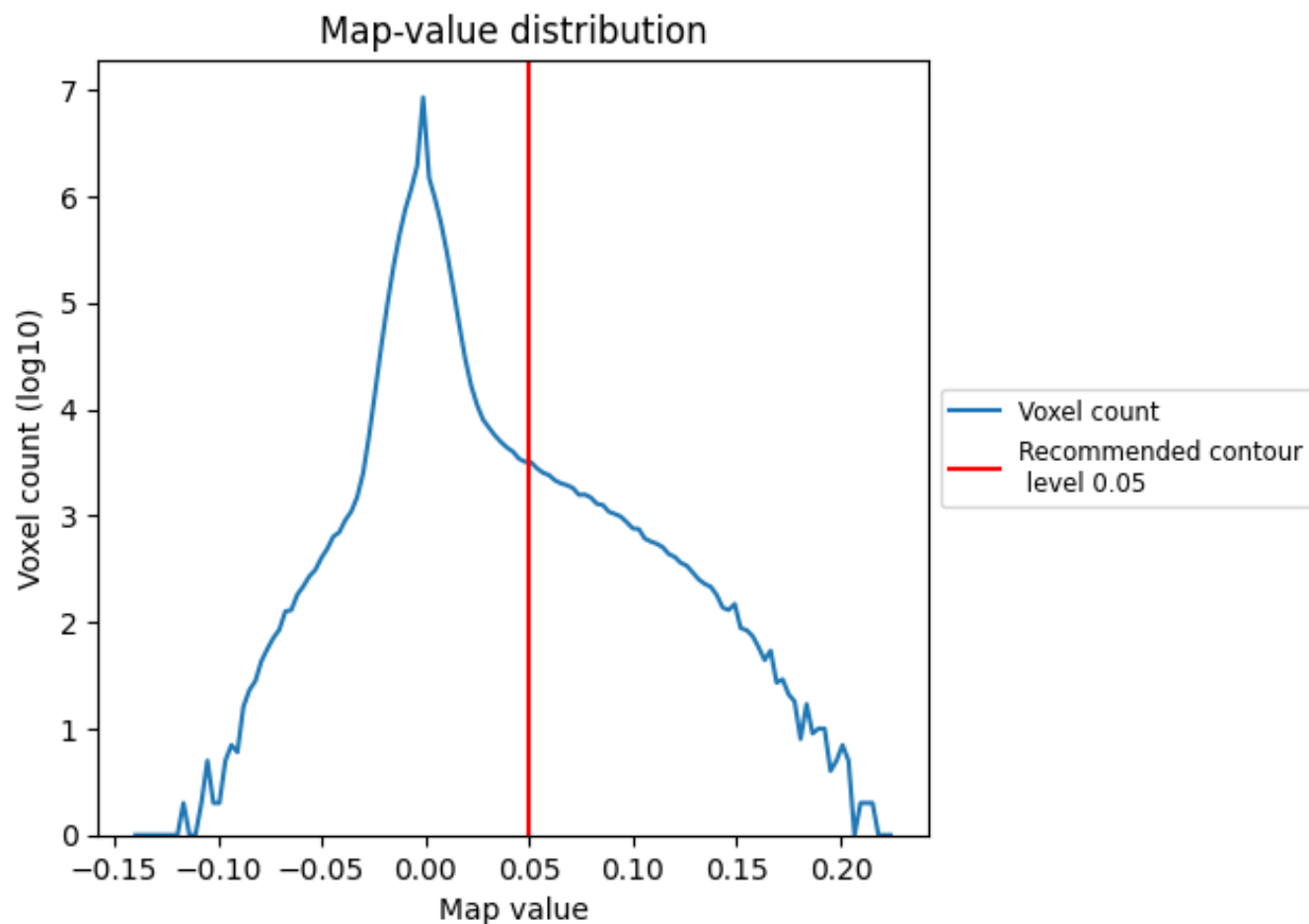
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

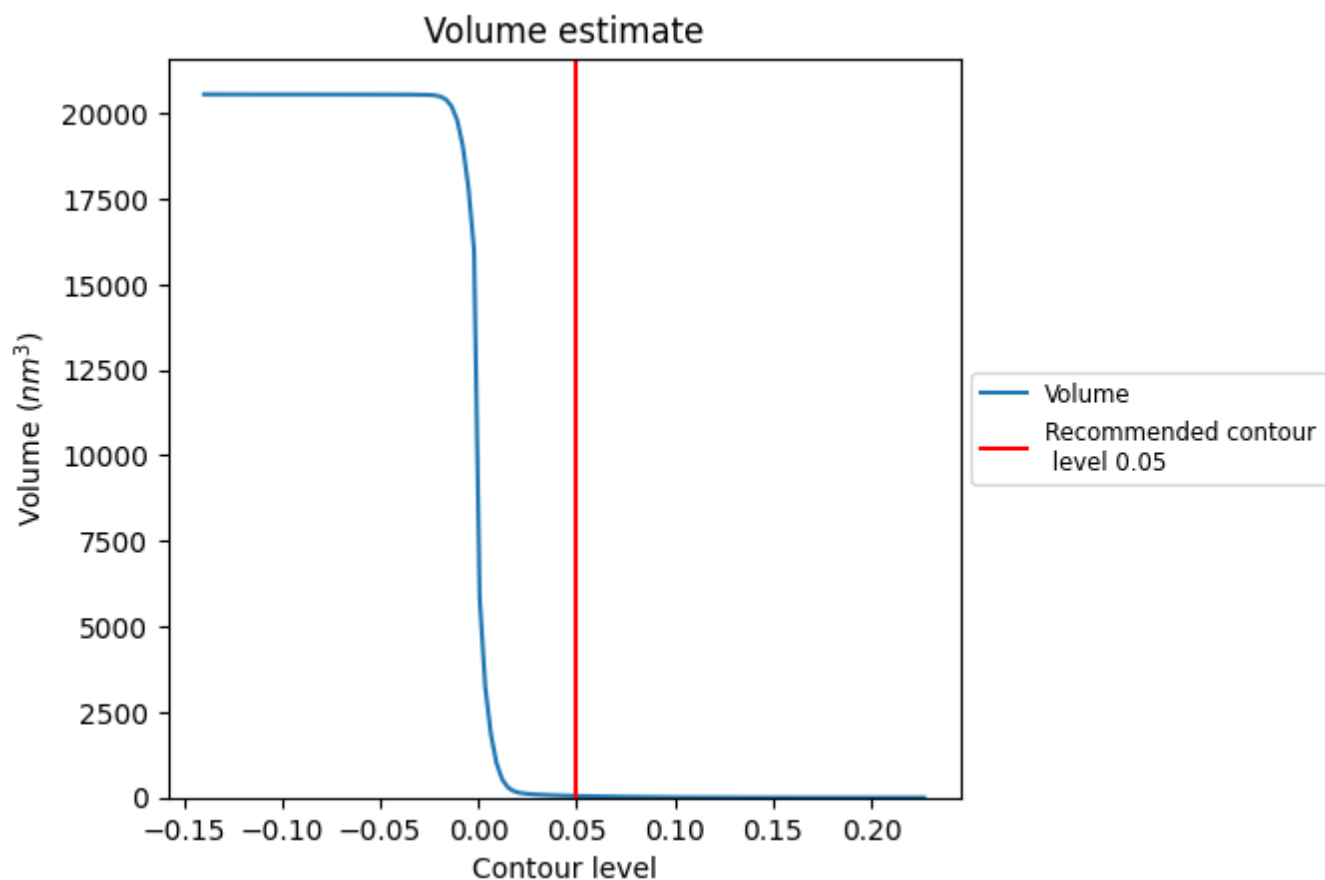
This section contains the results of statistical analysis of the map.

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.

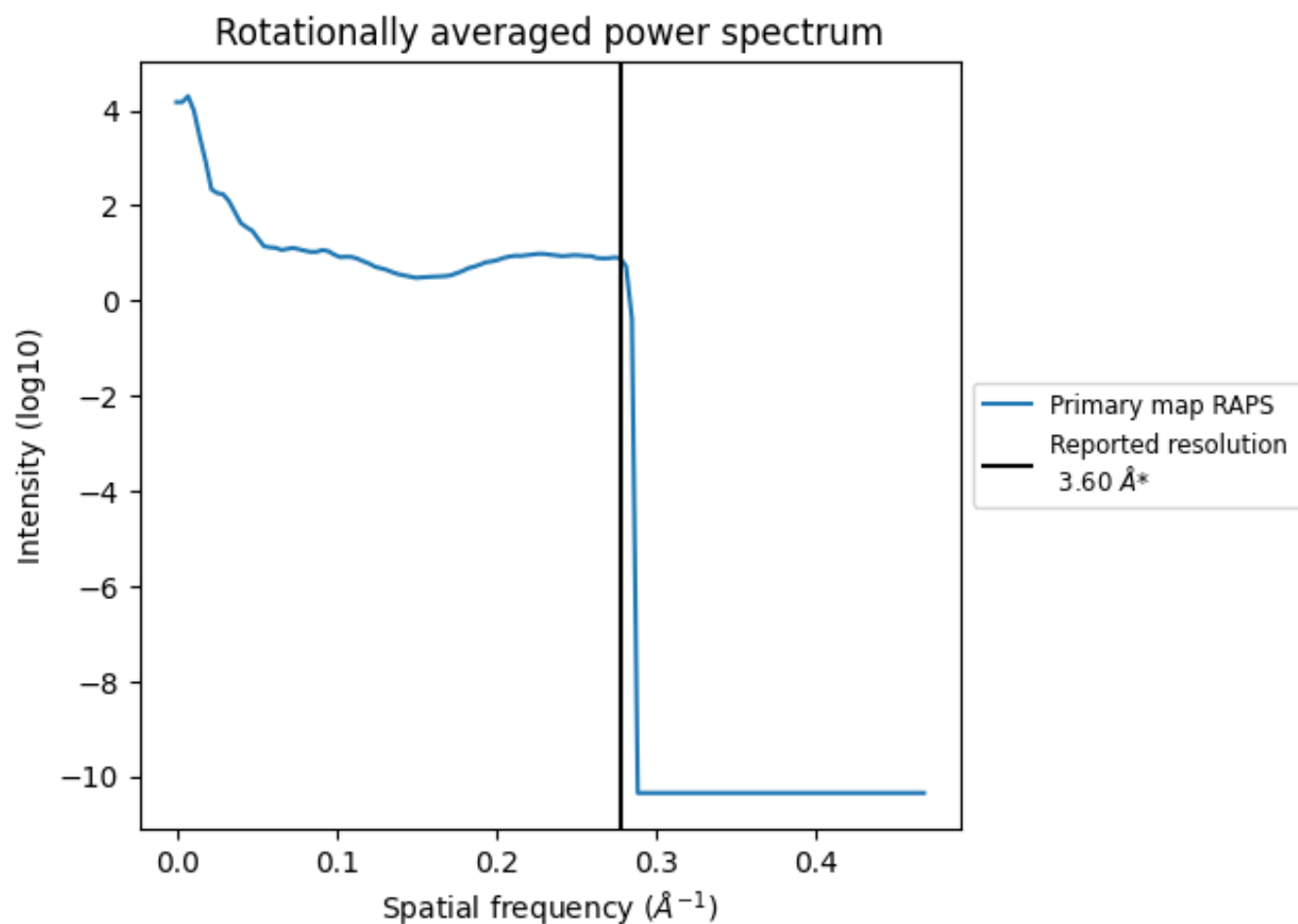
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 47 nm³; this corresponds to an approximate mass of 42 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum ⓘ



*Reported resolution corresponds to spatial frequency of 0.278 Å⁻¹

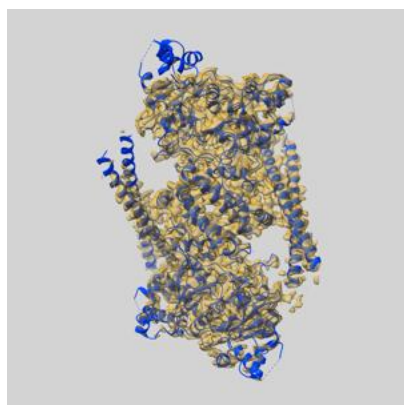
8 Fourier-Shell correlation

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

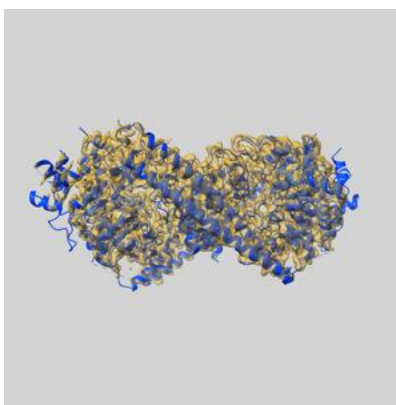
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-20080 and PDB model 6OIS. Per-residue inclusion information can be found in section [3](#) on page [9](#).

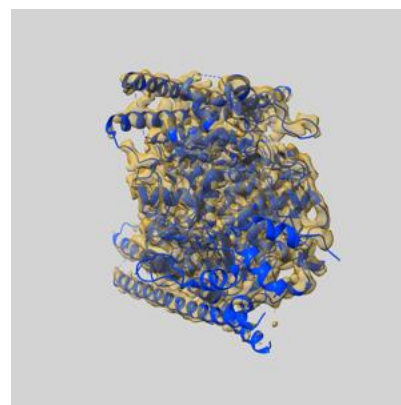
9.1 Map-model overlay [i](#)



X



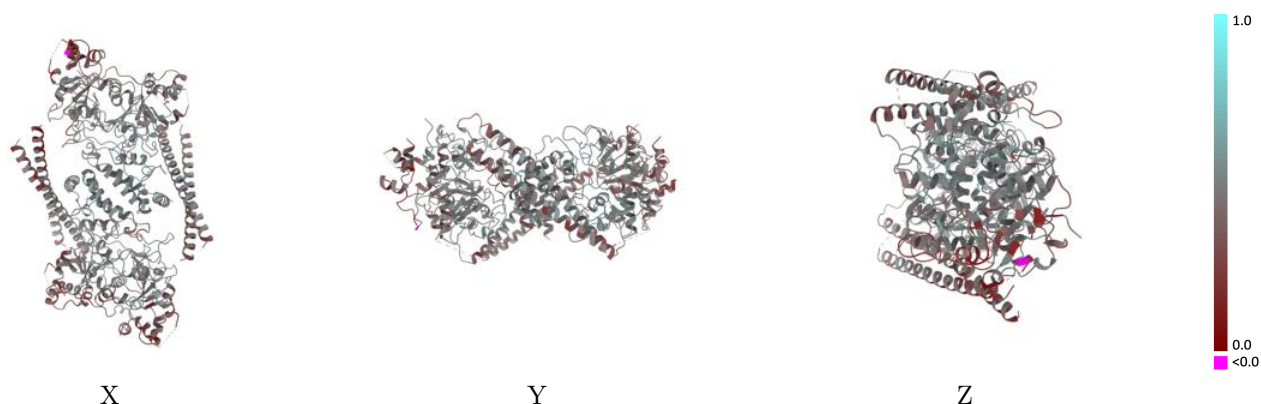
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.05 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](#)

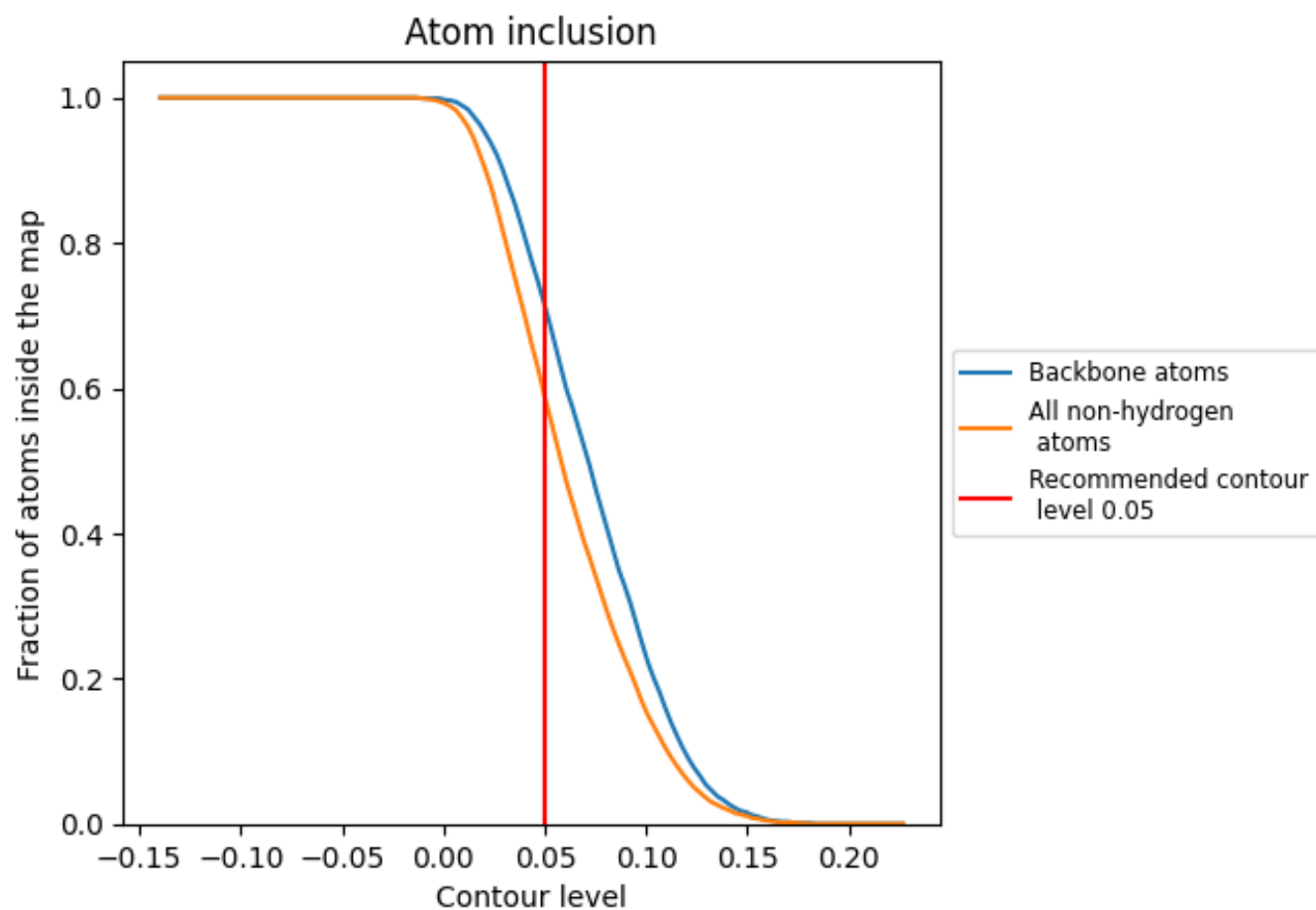


The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

This section was not generated.

9.4 Atom inclusion [i](#)



At the recommended contour level, 71% of all backbone atoms, 59% 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 (0.05) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.5880	0.4440
A	0.7710	0.5060
B	0.7190	0.4960
C	0.6320	0.4530
D	0.5110	0.4060
E	0.5000	0.4250
F	0.5490	0.4290

1.0

0.0

<0.0