



Full wwPDB EM Validation Report ⓘ

Oct 19, 2026 – 04:18 PM JST

PDB ID : 27ZR / pdb_000027zr
EMDB ID : EMD-81568
Title : Atomic structure of the ASFV virus early transcription factor in DR state
Authors : Yang, Y.G.; Xin, Y.H.
Deposited on : 2026-06-18
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.dev133
MolProbity : 4-5-2 with Phenix2.2
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) : 2.51

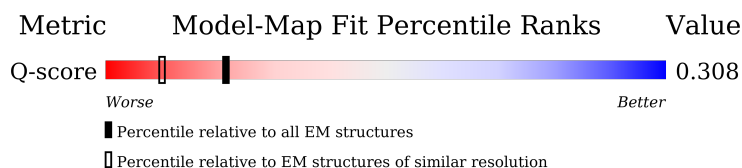
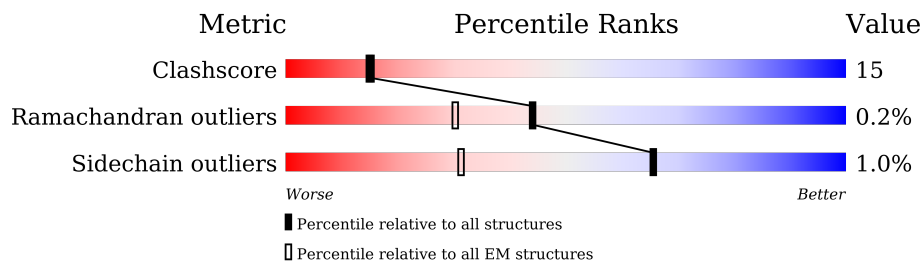
1 Overall quality at a glance

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	1377	29% 52% 25% 23%
2	B	1141	50% 24% 25%

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 15583 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 Early transcription factor large subunit homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	1067	Total	C	N	O	S	0	0
			8723	5681	1416	1600	26		

There are 45 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-28	MET	-	initiating methionine	UNP Q65177
A	-27	TRP	-	expression tag	UNP Q65177
A	-26	SER	-	expression tag	UNP Q65177
A	-25	HIS	-	expression tag	UNP Q65177
A	-24	PRO	-	expression tag	UNP Q65177
A	-23	GLN	-	expression tag	UNP Q65177
A	-22	PHE	-	expression tag	UNP Q65177
A	-21	GLU	-	expression tag	UNP Q65177
A	-20	LYS	-	expression tag	UNP Q65177
A	-19	GLY	-	expression tag	UNP Q65177
A	-18	GLY	-	expression tag	UNP Q65177
A	-17	GLY	-	expression tag	UNP Q65177
A	-16	SER	-	expression tag	UNP Q65177
A	-15	GLY	-	expression tag	UNP Q65177
A	-14	GLY	-	expression tag	UNP Q65177
A	-13	GLY	-	expression tag	UNP Q65177
A	-12	SER	-	expression tag	UNP Q65177
A	-11	GLY	-	expression tag	UNP Q65177
A	-10	GLY	-	expression tag	UNP Q65177
A	-9	SER	-	expression tag	UNP Q65177
A	-8	ALA	-	expression tag	UNP Q65177
A	-7	TRP	-	expression tag	UNP Q65177
A	-6	SER	-	expression tag	UNP Q65177
A	-5	HIS	-	expression tag	UNP Q65177
A	-4	PRO	-	expression tag	UNP Q65177
A	-3	GLN	-	expression tag	UNP Q65177
A	-2	PHE	-	expression tag	UNP Q65177
A	-1	GLU	-	expression tag	UNP Q65177

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Chain	Residue	Modelled	Actual	Comment	Reference
A	0	LYS	-	expression tag	UNP Q65177
A	20	VAL	ALA	conflict	UNP Q65177
A	62	GLU	LYS	conflict	UNP Q65177
A	91	ARG	SER	conflict	UNP Q65177
A	175	VAL	LEU	conflict	UNP Q65177
A	225	ILE	MET	conflict	UNP Q65177
A	552	THR	ALA	conflict	UNP Q65177
A	906	GLY	GLU	conflict	UNP Q65177
A	965	ILE	VAL	conflict	UNP Q65177
A	1341	HIS	-	expression tag	UNP Q65177
A	1342	HIS	-	expression tag	UNP Q65177
A	1343	HIS	-	expression tag	UNP Q65177
A	1344	HIS	-	expression tag	UNP Q65177
A	1345	HIS	-	expression tag	UNP Q65177
A	1346	HIS	-	expression tag	UNP Q65177
A	1347	HIS	-	expression tag	UNP Q65177
A	1348	HIS	-	expression tag	UNP Q65177

- Molecule 2 is a protein called Early transcription factor large subunit homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	857	Total	C	N	O	S	0	0
			6860	4404	1181	1247	28		

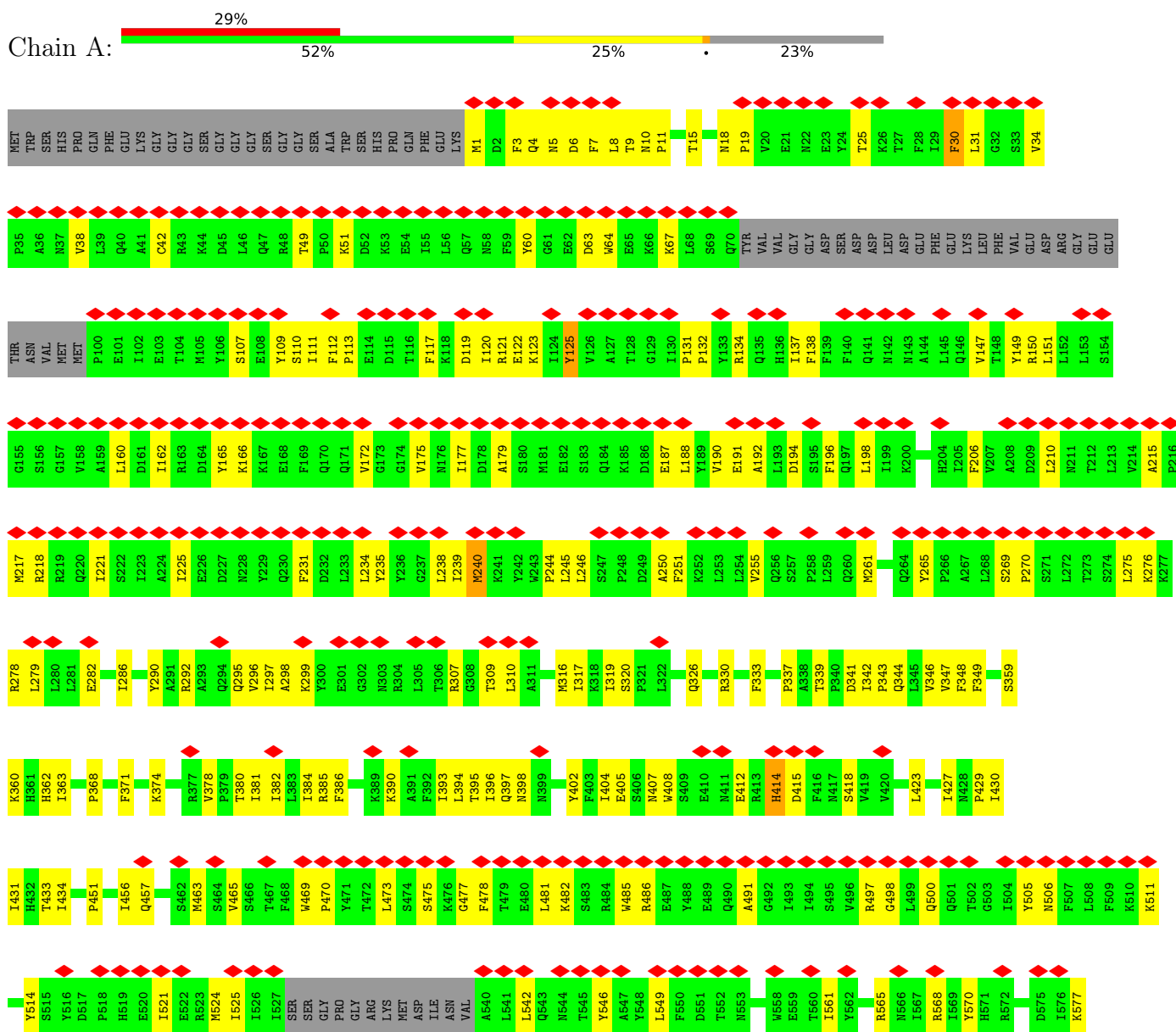
There are 9 discrepancies between the modelled and reference sequences:

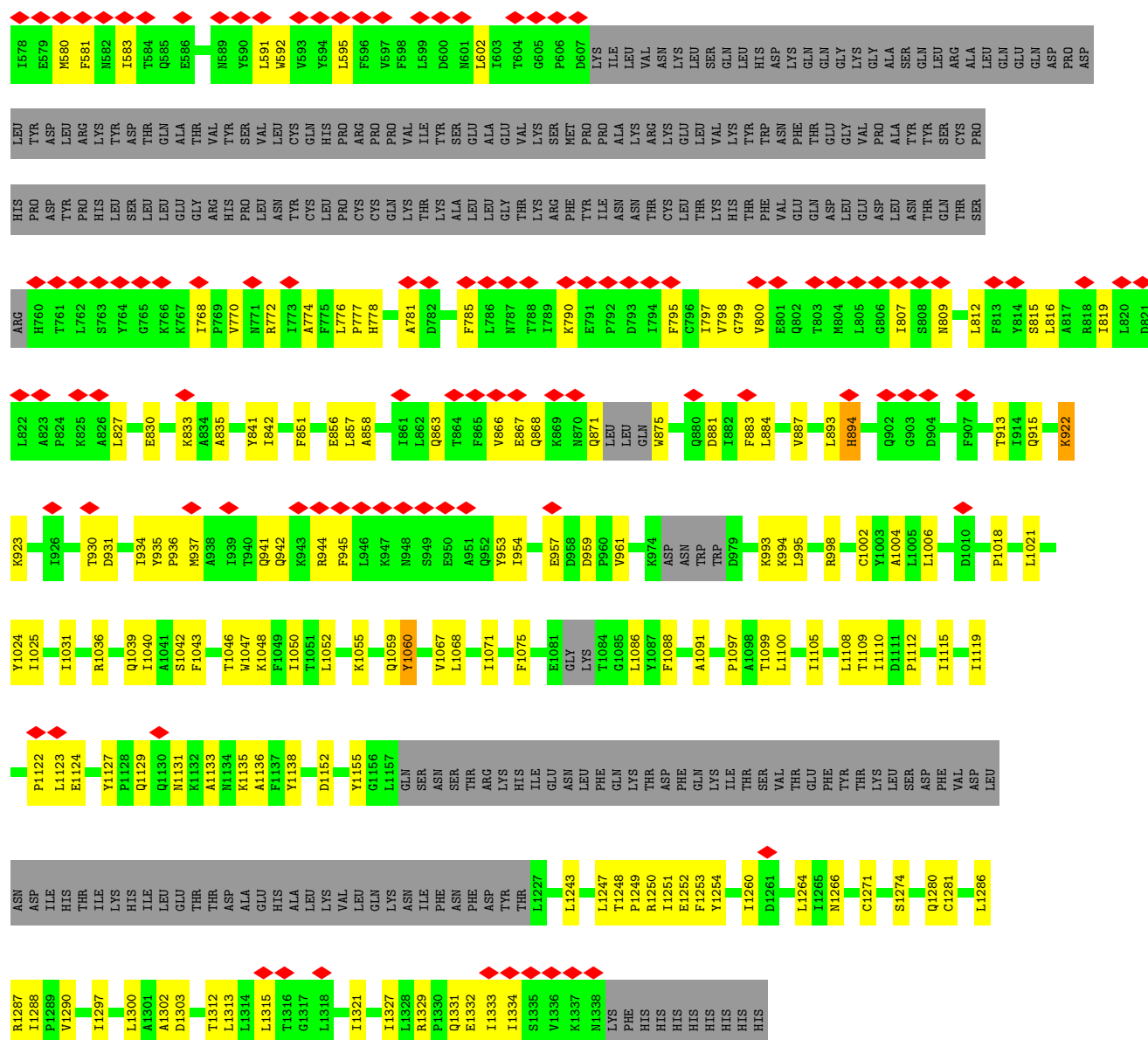
Chain	Residue	Modelled	Actual	Comment	Reference
B	879	PRO	LEU	conflict	UNP Q89525
B	1134	HIS	-	expression tag	UNP Q89525
B	1135	HIS	-	expression tag	UNP Q89525
B	1136	HIS	-	expression tag	UNP Q89525
B	1137	HIS	-	expression tag	UNP Q89525
B	1138	HIS	-	expression tag	UNP Q89525
B	1139	HIS	-	expression tag	UNP Q89525
B	1140	HIS	-	expression tag	UNP Q89525
B	1141	HIS	-	expression tag	UNP Q89525

3 Residue-property plots

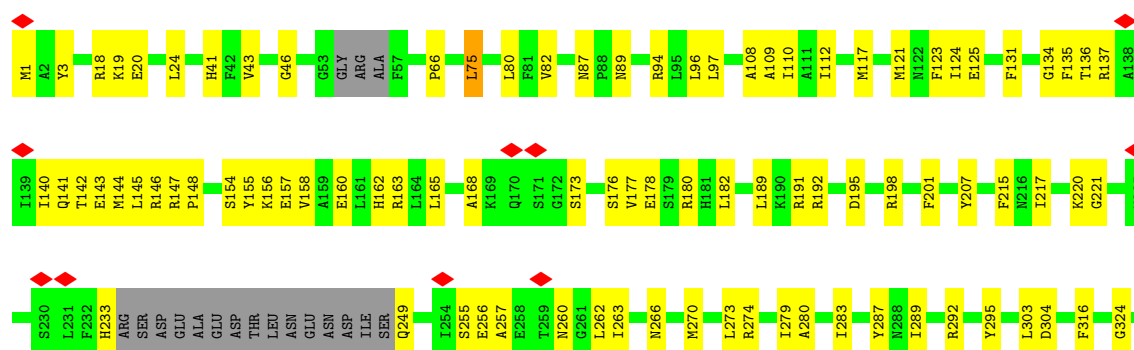
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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





• Molecule 2: Early transcription factor large subunit homolog



LEU	ARG	ASP	ASP	GLN	K829	R721	H626	Q523	I441	E328
LEU	PRO	ASP	ASN	VAL	K833	I725	L631	MS24	I441	Y329
GLN	ILE	THR	ILE	LEU	K833	I725	L631	MS25	M444	L335
GLN	VAL	VAL	GLN	THR	I837	F728	I632	MS26	V445	L336
LEU	GLY	VAL	VAL	TYR	I837	T729	G633	DS27	V446	V337
ALA	LEU	GLY	LEU	PRO	R840	N730	I637	I528	P447	P338
ARG	LYS	TYR	ALA	ALA	C842	Q731	I637	L529	M448	R339
ASN	ASN	THR	SER	SER	L841	I732	L641	SS30	P449	L348
GLN	GLU	GLU	GLU	THR	H862	K736	N642	I531	K450	Q349
ASN	ILE	ASP	THR	THR	K863	P737	F643	Q534	K453	Q352
PRO	THR	SER	SER	MET	V867	M738	V646	I539	Q454	D355
ASP	VAL	VAL	VAL	THR	L739	L739	V646	MS48	T455	D355
ILE	ARG	ARG	ARG	LEU	E740	S741	E649	SS49	G461	H359
GLN	ARG	LEU	LEU	ALA	L742	P743	M650	L552	F463	L462
ASP	MET	ILE	ILE	ALA	R875	P743	I651	I553	M464	K364
GLY	LEU	THR	THR	LEU	ASP	I748	M652	L554	S465	K365
ILE	ASN	SER	SER	ILE	PHE	I748	S853	Q554	E467	L374
ARG	ARG	ARG	ARG	ILE	GLN	T760	L654	L555	T466	G377
TRP	GLY	GLY	GLY	ASP	PRO	T760	P655	Q556	E467	R378
PHE	ALA	VAL	ALA	ASN	PRO	F761	L656	E557	T468	V379
VAL	VAL	VAL	VAL	PRO	ALA	E762	D657	L558	P469	S380
GLY	CYS	THR	THR	ALA	ALA	A763	I658	I563	M474	F381
PHE	GLY	TRP	GLY	GLY	MET	E770	P659	L564	T477	N386
ASN	THR	HIS	MET	MET	HIS	I774	R660	N565	D478	T387
ASP	ARG	GLY	GLY	GLY	SER	E770	L661	P570	W479	F389
LYS	ILE	ILE	ILE	ALA	ILE	I774	V668	T573	I488	Y390
MET	ARG	PRO	LEU	VAL	ARG	I774	V669	T574	R492	P391
GLU	GLU	PRO	LEU	VAL	ILE	I777	V669	R575	P495	M399
PRO	GLU	TYR	GLY	GLY	THR	I777	V669	T574	F496	L400
GLN	GLN	MET	VAL	VAL	LYS	I778	E676	R582	M497	S401
VAL	GLN	LEU	THR	THR	LYS	I779	E676	D584	V498	Y402
HIS	LYS	ASN	ASN	LYS	GLY	L781	Y687	T574	S499	K403
THR	ILE	ILE	ASN	LYS	LEU	S780	L688	R589	F502	T406
SER	ALA	ASN	ASN	PHE	HIS	F782	Y689	I594	S504	L407
ASP	VAL	VAL	VAL	ILE	SER	M783	V690	P595	L505	L410
GLN	GLN	LYS	LYS	ILE	GLN	W788	V690	T599	Q506	M417
LEU	LEU	ARG	ARG	ALA	THR	E792	T693	I600	P507	Q421
GLY	GLY	GLY	GLY	ALA	GLY	L793	P694	I600	H510	L422
ILE	ILE	ILE	ASN	LYS	LEU	M794	D695	Q592	G513	K426
ASN	ASN	ASN	ASN	LYS	LEU	K795	E699	F593	L514	Q427
LEU	ILE	ILE	ILE	VAL	PHE	K800	K702	I594	F516	L428
THR	THR	THR	THR	VAL	VAL	K801	Y703	P595	Y517	F433
ILE	ILE	TYR	TYR	GLY	GLY	P800	L707	T599	SS18	M437
SER	SER	PRO	PRO	GLY	GLY	K801	K708	I600	Y521	A438
ALA	ALA	PRO	PRO	LEU	LEU	I806	E709	E604	T522	
ILE	ILE	GLY	GLY	ASP	GLN	N810	Y710	I604		
LYS	LYS	LYS	LYS	PHE	LYS	D816	I711	E604		
LEU	LYS	GLY	GLY	ILE	ASP	N817	I711	V609		
LEU	ALA	TYR	TYR	ILE	PHE	F818	Q714	R612		
LEU	LEU	GLY	GLY	ILE	GLN	F818	E715	F617		
ILE	LEU	LEU	LEU	ILE	GLN	I823	G716	L623		
ILE	ILE	LEU	LEU	ILE	ASP	L825	D717			
ARG	ARG	PHE	PHE	VAL	GLY					
ASN	ASN	PRO	PRO	PRO	GLY					
ASN	ASN	ILE	ILE	GLY						

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	35920	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 ($e^-/\text{\AA}^2$)	60	Depositor
Minimum defocus (nm)	1500	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	1.325	Depositor
Minimum map value	-0.825	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.030	Depositor
Recommended contour level	0.105	Depositor
Map size (Å)	266.24, 266.24, 266.24	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.04, 1.04, 1.04	Depositor

5 Model quality

5.1 Standard geometry

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z > 5$	RMSZ	$\# Z > 5$
1	A	0.14	0/8937	0.35	0/12130
2	B	0.15	0/7022	0.35	0/9514
All	All	0.15	0/15959	0.35	0/21644

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	8723	0	8722	271	0
2	B	6860	0	6910	201	0
All	All	15583	0	15632	465	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 15.

All (465) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1251:ILE:HD11	1:A:1288:ILE:HG21	1.29	1.07
2:B:1:MET:HE3	2:B:3:TYR:H	1.23	1.04

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:221:ILE:HG21	1:A:255:VAL:HG21	1.47	0.94
2:B:656:LEU:O	2:B:657:ASP:OD1	1.86	0.93
1:A:6:ASP:HA	1:A:111:ILE:HA	1.53	0.90
1:A:1067:VAL:HB	1:A:1105:ILE:HG12	1.51	0.88
1:A:221:ILE:CG2	1:A:255:VAL:HG21	2.05	0.87
1:A:5:ASN:HB2	1:A:113:PRO:HA	1.57	0.83
1:A:225:ILE:HA	1:A:231:PHE:HB2	1.66	0.77
1:A:112:PHE:HE2	1:A:290:TYR:HB3	1.49	0.77
1:A:781:ALA:HA	1:A:785:PHE:HB3	1.66	0.76
2:B:444:MET:HG3	2:B:518:SER:HA	1.67	0.76
2:B:165:LEU:HA	2:B:182:LEU:HD11	1.66	0.76
2:B:377:GLY:HA2	2:B:725:ILE:HD13	1.67	0.76
2:B:829:LYS:HE3	2:B:829:LYS:HA	1.66	0.76
1:A:320:SER:HB2	1:A:457:GLN:HB3	1.68	0.75
2:B:521:TYR:HA	2:B:524:MET:HG2	1.69	0.75
2:B:504:SER:HB3	2:B:514:LEU:HD21	1.69	0.74
1:A:7:PHE:H	1:A:112:PHE:N	1.85	0.73
1:A:123:LYS:HA	1:A:279:LEU:HD11	1.70	0.72
1:A:19:PRO:HB3	1:A:162:ILE:HG21	1.72	0.71
2:B:655:PRO:HG2	2:B:661:LEU:HB2	1.72	0.71
1:A:770:VAL:HA	1:A:799:GLY:HA3	1.71	0.71
2:B:82:VAL:HG12	2:B:112:ILE:HD11	1.72	0.71
2:B:609:VAL:HG13	2:B:612:ARG:HH12	1.56	0.71
1:A:380:THR:HG22	1:A:397:GLN:HE21	1.55	0.69
1:A:30:PHE:HB3	1:A:107:SER:HB3	1.73	0.69
1:A:215:ALA:HA	1:A:218:ARG:HD3	1.73	0.69
1:A:347:VAL:HG22	1:A:381:ILE:HG13	1.75	0.68
1:A:393:ILE:HB	1:A:405:GLU:HB3	1.76	0.68
2:B:337:VAL:HG22	2:B:378:ARG:CD	2.24	0.67
1:A:188:LEU:HG	1:A:240:MET:HE2	1.76	0.67
2:B:381:PHE:CZ	2:B:721:ARG:HA	2.29	0.67
1:A:1136:ALA:HB2	2:B:816:ASP:HB3	1.77	0.67
1:A:1004:ALA:HA	1:A:1018:PRO:HA	1.77	0.66
2:B:136:THR:HA	2:B:140:ILE:HD12	1.77	0.66
1:A:1046:THR:O	1:A:1050:ILE:HG13	1.95	0.66
1:A:473:LEU:HG	1:A:477:GLY:HA3	1.77	0.65
2:B:524:MET:HE3	2:B:524:MET:HA	1.78	0.65
1:A:1260:ILE:HD13	1:A:1264:LEU:HD21	1.78	0.65
1:A:360:LYS:HD2	1:A:1332:GLU:HB3	1.77	0.65
1:A:7:PHE:H	1:A:112:PHE:H	1.43	0.65
1:A:922:LYS:HE2	1:A:957:GLU:HG3	1.78	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:4:GLN:HG2	1:A:113:PRO:HD3	1.80	0.64
2:B:154:SER:HB2	2:B:157:GLU:HB3	1.79	0.64
2:B:652:MET:HE3	2:B:652:MET:HA	1.79	0.64
1:A:342:ILE:HG13	1:A:385:ARG:HG3	1.79	0.64
1:A:776:LEU:HD12	1:A:777:PRO:HD2	1.79	0.64
2:B:513:GLY:HA3	2:B:516:PHE:HB3	1.80	0.64
2:B:407:LEU:HB3	2:B:707:LEU:HD12	1.78	0.63
1:A:177:ILE:HG22	1:A:179:ALA:H	1.63	0.63
1:A:1315:LEU:HD13	2:B:123:PHE:HD2	1.63	0.63
1:A:525:ILE:HG21	1:A:542:LEU:HD23	1.80	0.63
1:A:381:ILE:O	1:A:382:ILE:HD13	1.98	0.63
1:A:1112:PRO:HA	1:A:1115:ILE:HD12	1.80	0.63
2:B:738:MET:HE3	2:B:740:GLU:HB2	1.80	0.63
2:B:18:ARG:HG3	2:B:20:GLU:HG2	1.81	0.62
1:A:11:PRO:HG2	1:A:67:LYS:HD3	1.81	0.62
1:A:1254:TYR:HE2	1:A:1287:ARG:HB3	1.65	0.62
2:B:46:GLY:H	2:B:66:PRO:HA	1.65	0.62
1:A:34:VAL:HB	1:A:38:VAL:HB	1.80	0.62
2:B:142:THR:O	2:B:146:ARG:HB3	1.99	0.62
2:B:304:ASP:HB3	2:B:339:ARG:HH21	1.64	0.62
1:A:500:GLN:HE22	1:A:505:TYR:HA	1.64	0.62
1:A:1251:ILE:CD1	1:A:1288:ILE:HG21	2.19	0.62
2:B:399:MET:HE3	2:B:400:LEU:H	1.65	0.61
1:A:344:GLN:HE21	1:A:368:PRO:HD3	1.65	0.61
1:A:362:HIS:CD2	1:A:1331:GLN:HB3	2.35	0.61
1:A:363:ILE:HG12	1:A:1331:GLN:HG2	1.83	0.61
1:A:580:MET:SD	1:A:583:ILE:HG12	2.41	0.61
1:A:565:ARG:HD2	1:A:583:ILE:HG22	1.80	0.61
1:A:309:THR:HG23	1:A:310:LEU:HG	1.82	0.61
1:A:481:LEU:HD13	1:A:602:LEU:HD13	1.83	0.61
1:A:1312:THR:HA	1:A:1315:LEU:HB2	1.80	0.61
1:A:363:ILE:HG22	1:A:1333:ILE:HD11	1.83	0.61
1:A:396:ILE:HD13	1:A:402:TYR:HB3	1.83	0.61
1:A:778:HIS:HA	1:A:781:ALA:HB3	1.83	0.61
2:B:142:THR:HA	2:B:145:LEU:HG	1.83	0.61
1:A:150:ARG:HH21	1:A:191:GLU:HG2	1.63	0.61
1:A:819:ILE:HD12	1:A:953:TYR:HB3	1.82	0.60
1:A:218:ARG:HH12	1:A:255:VAL:HG22	1.66	0.60
1:A:346:VAL:HB	1:A:382:ILE:HB	1.83	0.60
1:A:995:LEU:HD11	1:A:1006:LEU:HG	1.83	0.60
2:B:215:PHE:HB3	2:B:263:ILE:HD11	1.84	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:868:GLN:HG3	1:A:868:GLN:O	2.01	0.60
1:A:485:TRP:CG	1:A:505:TYR:HH	2.19	0.60
2:B:774:ILE:O	2:B:778:ILE:HD12	2.01	0.60
2:B:777:ILE:HD11	2:B:806:ILE:HG21	1.84	0.60
2:B:220:LYS:HG3	2:B:262:LEU:HD23	1.82	0.60
1:A:368:PRO:HB2	1:A:371:PHE:HD2	1.67	0.59
1:A:187:GLU:HA	2:B:191:ARG:HH21	1.67	0.59
2:B:465:SER:HA	2:B:548:MET:HE3	1.84	0.59
1:A:172:VAL:HB	1:A:177:ILE:HD11	1.84	0.59
1:A:1110:ILE:HG23	1:A:1115:ILE:HD11	1.84	0.59
2:B:565:ASN:H	2:B:568:SER:HB2	1.68	0.59
2:B:690:VAL:HG23	2:B:699:GLU:HG2	1.83	0.59
1:A:125:TYR:HD2	1:A:132:PRO:HA	1.68	0.58
2:B:131:PHE:HZ	2:B:273:LEU:HD22	1.68	0.58
2:B:437:ASN:HB2	2:B:465:SER:H	1.69	0.58
2:B:445:VAL:HB	2:B:461:GLY:HA3	1.84	0.58
1:A:408:TRP:HB3	1:A:412:GLU:HG2	1.86	0.58
1:A:835:ALA:HB1	1:A:857:LEU:HD12	1.84	0.58
2:B:337:VAL:HG22	2:B:378:ARG:HD2	1.86	0.58
1:A:795:PHE:HB3	1:A:937:MET:HE2	1.85	0.57
2:B:134:GLY:HA2	2:B:207:TYR:CE2	2.39	0.57
2:B:141:GLN:HA	2:B:144:MET:SD	2.44	0.57
1:A:1036:ARG:HH11	1:A:1040:ILE:HD11	1.70	0.57
1:A:1068:LEU:HD23	1:A:1108:LEU:HD21	1.87	0.57
2:B:417:MET:HG3	2:B:422:LEU:HG	1.87	0.57
2:B:558:LEU:HD12	2:B:563:ILE:HD12	1.87	0.57
1:A:1254:TYR:CE2	1:A:1287:ARG:HB3	2.39	0.57
2:B:573:THR:HA	2:B:582:ILE:HD12	1.87	0.57
2:B:779:ILE:O	2:B:783:MET:HG2	2.05	0.56
1:A:1131:ASN:HD22	1:A:1135:LYS:HG2	1.70	0.56
1:A:772:ARG:HH21	1:A:774:ALA:HA	1.70	0.56
2:B:453:LYS:HG3	2:B:455:THR:H	1.70	0.56
2:B:599:THR:HG22	2:B:600:ILE:N	2.21	0.56
2:B:633:GLY:HA3	2:B:637:ILE:HD13	1.87	0.56
1:A:217:MET:CE	1:A:221:ILE:HD11	2.36	0.55
2:B:417:MET:SD	2:B:421:GLN:HB3	2.46	0.55
2:B:574:THR:HG21	2:B:595:PRO:HB3	1.87	0.55
2:B:108:ALA:O	2:B:112:ILE:HG12	2.07	0.55
1:A:307:ARG:HD2	1:A:415:ASP:HB2	1.88	0.55
1:A:1266:ASN:HA	1:A:1321:ILE:HB	1.88	0.55
1:A:812:LEU:O	1:A:816:LEU:HG	2.07	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1138:TYR:HD1	1:A:1264:LEU:HD11	1.72	0.55
2:B:154:SER:HB3	2:B:156:LYS:NZ	2.22	0.55
2:B:650:MET:HA	2:B:687:TYR:HB2	1.87	0.55
1:A:235:TYR:CE2	1:A:239:ILE:HG13	2.42	0.54
1:A:768:ILE:HG23	1:A:772:ARG:HD3	1.88	0.54
1:A:1327:ILE:HD11	1:A:1329:ARG:HH21	1.72	0.54
1:A:121:ARG:HB2	1:A:137:ILE:HD11	1.88	0.54
1:A:132:PRO:HD2	1:A:269:SER:HB3	1.89	0.54
1:A:221:ILE:HG22	1:A:255:VAL:HG11	1.90	0.54
1:A:292:ARG:O	1:A:295:GLN:HG3	2.07	0.54
1:A:1253:PHE:CE1	1:A:1290:VAL:HG22	2.43	0.53
2:B:495:PRO:HG3	2:B:604:GLU:HG2	1.89	0.53
2:B:502:PHE:HA	2:B:514:LEU:HA	1.89	0.53
1:A:429:PRO:O	1:A:433:THR:HG23	2.09	0.53
2:B:594:ILE:HG12	2:B:626:HIS:HB3	1.91	0.53
1:A:1249:PRO:HB2	1:A:1250:ARG:NH1	2.23	0.53
2:B:582:ILE:HG13	2:B:584:ASP:H	1.73	0.53
2:B:283:ILE:HD11	2:B:335:LEU:HD13	1.91	0.53
1:A:134:ARG:HE	1:A:210:LEU:HD22	1.74	0.53
1:A:807:ILE:HG22	1:A:809:ASN:H	1.73	0.53
1:A:1247:LEU:HD22	1:A:1297:ILE:HD11	1.91	0.53
2:B:730:ASN:HB2	2:B:732:ILE:HG12	1.91	0.53
2:B:355:ASP:HB3	2:B:364:LYS:HD3	1.90	0.53
1:A:1047:TRP:HE3	1:A:1050:ILE:HD12	1.74	0.52
1:A:1252:GLU:O	1:A:1288:ILE:HG22	2.09	0.52
1:A:319:ILE:CG2	1:A:402:TYR:OH	2.58	0.52
2:B:641:LEU:HB3	2:B:643:PHE:HE1	1.75	0.52
2:B:761:PHE:HZ	2:B:770:GLU:HG3	1.74	0.52
1:A:5:ASN:HD21	1:A:198:LEU:HD22	1.73	0.52
1:A:261:MET:HE2	1:A:265:TYR:HB2	1.92	0.52
2:B:158:VAL:HG13	2:B:162:HIS:CE1	2.44	0.52
1:A:245:LEU:HD23	1:A:245:LEU:H	1.75	0.52
2:B:249:GLN:HB3	2:B:256:GLU:HG2	1.91	0.52
1:A:959:ASP:HB3	1:A:961:VAL:HG22	1.90	0.52
2:B:96:LEU:HD23	2:B:379:VAL:HG23	1.90	0.52
1:A:1115:ILE:O	1:A:1119:ILE:HG12	2.09	0.52
1:A:270:PRO:HD2	1:A:275:LEU:HD13	1.92	0.51
2:B:531:ILE:HD11	2:B:539:ILE:HD11	1.92	0.51
2:B:110:ILE:HD11	2:B:144:MET:HG3	1.91	0.51
1:A:5:ASN:H	1:A:113:PRO:HB3	1.76	0.51
2:B:257:ALA:HA	2:B:260:ASN:HD21	1.76	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:390:LYS:HB3	1:A:407:ASN:OD1	2.10	0.51
2:B:499:SER:HA	2:B:556:GLU:HG3	1.93	0.51
2:B:124:ILE:HG12	2:B:201:PHE:HZ	1.76	0.51
2:B:402:TYR:CD1	2:B:403:LYS:HG2	2.45	0.51
2:B:410:LEU:HD12	2:B:707:LEU:HD11	1.92	0.51
1:A:30:PHE:CD2	1:A:109:TYR:HB2	2.45	0.51
1:A:151:LEU:HD13	1:A:190:VAL:HG22	1.92	0.51
1:A:915:GLN:HB2	1:A:1025:ILE:HD13	1.93	0.51
1:A:1021:LEU:HD23	1:A:1021:LEU:H	1.77	0.51
2:B:177:VAL:HA	2:B:180:ARG:HG2	1.92	0.51
2:B:505:LEU:O	2:B:507:PRO:HD3	2.11	0.50
2:B:656:LEU:H	2:B:660:ARG:NH2	2.09	0.50
1:A:250:ALA:HA	1:A:261:MET:SD	2.50	0.50
1:A:798:VAL:HB	1:A:936:PRO:HG2	1.94	0.50
1:A:1138:TYR:CD1	1:A:1264:LEU:HD11	2.45	0.50
2:B:527:ASP:HA	2:B:530:SER:HB3	1.93	0.50
1:A:506:ASN:HB3	1:A:568:ARG:HD2	1.93	0.50
2:B:160:GLU:O	2:B:163:ARG:HG3	2.12	0.50
2:B:554:LEU:HA	2:B:557:ILE:HG22	1.93	0.50
1:A:10:ASN:HB2	1:A:111:ILE:HD12	1.93	0.50
2:B:417:MET:HE2	2:B:417:MET:HA	1.94	0.50
1:A:330:ARG:HB2	1:A:349:PHE:CG	2.47	0.50
1:A:347:VAL:HG12	1:A:349:PHE:H	1.77	0.50
2:B:507:PRO:HA	2:B:514:LEU:HB3	1.93	0.50
2:B:189:LEU:HA	2:B:192:ARG:HD2	1.93	0.50
2:B:280:ALA:HB3	2:B:316:PHE:HD1	1.76	0.50
2:B:349:GLN:H	2:B:352:GLN:HG3	1.77	0.50
2:B:783:MET:HA	2:B:837:ILE:HG22	1.94	0.50
1:A:221:ILE:O	1:A:225:ILE:HG23	2.12	0.49
1:A:317:ILE:HG13	1:A:404:ILE:HB	1.94	0.49
1:A:319:ILE:HG22	1:A:402:TYR:OH	2.12	0.49
2:B:192:ARG:HA	2:B:198:ARG:HD2	1.94	0.49
1:A:884:LEU:HA	1:A:887:VAL:HG22	1.94	0.49
2:B:24:LEU:HD21	2:B:80:LEU:HB3	1.93	0.49
1:A:344:GLN:HB2	1:A:384:ILE:HG22	1.94	0.49
2:B:862:HIS:HB3	2:B:863:LYS:NZ	2.27	0.49
1:A:316:MET:HE2	1:A:316:MET:HA	1.94	0.49
1:A:362:HIS:HD2	1:A:1331:GLN:HB3	1.75	0.49
1:A:371:PHE:HA	1:A:374:LYS:HE2	1.95	0.49
1:A:774:ALA:HB2	1:A:797:ILE:HG23	1.95	0.49
2:B:337:VAL:HG13	2:B:338:PRO:HD2	1.93	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:421:GLN:HG3	2:B:445:VAL:HG13	1.95	0.49
2:B:448:ASN:HB3	2:B:450:LYS:HG2	1.94	0.49
2:B:654:LEU:HD11	2:B:702:LYS:HD3	1.93	0.49
1:A:221:ILE:HG22	1:A:255:VAL:HG21	1.91	0.49
1:A:414:HIS:CE1	1:A:418:SER:HB2	2.47	0.49
1:A:1315:LEU:HA	2:B:123:PHE:HE2	1.78	0.49
2:B:87:ASN:ND2	2:B:89:ASN:H	2.11	0.49
2:B:474:MET:HE2	2:B:474:MET:O	2.12	0.48
1:A:147:VAL:HG11	1:A:160:LEU:HD12	1.96	0.48
1:A:1281:CYS:HB3	1:A:1286:LEU:HA	1.96	0.48
2:B:524:MET:SD	2:B:652:MET:SD	3.11	0.48
1:A:1075:PHE:HE1	1:A:1105:ILE:HD13	1.78	0.48
1:A:1315:LEU:HA	2:B:123:PHE:CE2	2.48	0.48
2:B:75:LEU:HD12	2:B:75:LEU:H	1.78	0.48
2:B:477:THR:HA	2:B:480:LEU:HD12	1.95	0.48
1:A:15:THR:HB	1:A:206:PHE:HD1	1.78	0.48
1:A:1271:CYS:HA	1:A:1274:SER:HB3	1.96	0.48
2:B:207:TYR:HB3	2:B:295:TYR:CD2	2.49	0.48
2:B:387:THR:O	2:B:388:ASN:C	2.56	0.48
2:B:438:ALA:O	2:B:441:ILE:HG22	2.14	0.48
1:A:165:TYR:HE2	1:A:175:VAL:HG13	1.79	0.48
1:A:368:PRO:HB2	1:A:371:PHE:CD2	2.48	0.48
1:A:1281:CYS:HA	1:A:1287:ARG:HG3	1.96	0.48
2:B:417:MET:HB2	2:B:693:THR:HA	1.96	0.47
2:B:801:LYS:HB2	2:B:801:LYS:HE2	1.71	0.47
1:A:8:LEU:HB3	1:A:112:PHE:HB2	1.97	0.47
1:A:333:PHE:HB2	1:A:347:VAL:HG21	1.95	0.47
1:A:221:ILE:HG12	1:A:234:LEU:CD2	2.45	0.47
1:A:430:ILE:O	1:A:434:ILE:HG12	2.14	0.47
1:A:797:ILE:HB	1:A:935:TYR:HD2	1.79	0.47
2:B:524:MET:HE1	2:B:650:MET:HE2	1.96	0.47
2:B:788:TRP:HZ3	2:B:792:GLU:HG3	1.80	0.47
1:A:162:ILE:HG22	1:A:162:ILE:O	2.13	0.47
1:A:276:LYS:HE2	1:A:276:LYS:HA	1.96	0.47
2:B:154:SER:HB3	2:B:156:LYS:HZ2	1.79	0.47
2:B:249:GLN:HA	2:B:255:SER:HB3	1.97	0.47
2:B:386:ASN:HB2	2:B:389:PHE:CD2	2.49	0.47
1:A:138:PHE:CE2	1:A:206:PHE:HB2	2.50	0.47
2:B:287:TYR:HB3	2:B:328:GLU:HG3	1.97	0.47
2:B:552:LEU:HD23	2:B:553:ILE:H	1.80	0.47
2:B:659:PRO:HD3	2:B:710:TYR:CD1	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:381:ILE:CG2	1:A:396:ILE:HG22	2.44	0.47
1:A:1086:LEU:HB3	1:A:1088:PHE:HE1	1.80	0.47
1:A:1131:ASN:ND2	1:A:1135:LYS:HG2	2.30	0.47
1:A:1254:TYR:O	1:A:1290:VAL:HG23	2.14	0.47
2:B:117:MET:HG3	2:B:121:MET:HE3	1.97	0.47
1:A:431:ILE:HD12	1:A:451:PRO:HD3	1.97	0.47
1:A:871:GLN:HA	1:A:875:TRP:CE2	2.50	0.47
2:B:623:LEU:HD11	2:B:676:GLU:HB2	1.96	0.47
1:A:362:HIS:CD2	1:A:363:ILE:H	2.33	0.46
1:A:217:MET:HE3	1:A:221:ILE:HD11	1.96	0.46
2:B:121:MET:HE1	2:B:201:PHE:CE1	2.50	0.46
2:B:464:ASN:HB2	2:B:467:GLU:HB3	1.96	0.46
2:B:599:THR:HB	2:B:631:LEU:HD13	1.97	0.46
1:A:800:VAL:HG21	1:A:815:SER:HB2	1.98	0.46
2:B:146:ARG:HH21	2:B:147:ARG:HH21	1.62	0.46
2:B:148:PRO:HG3	2:B:158:VAL:HG21	1.97	0.46
2:B:447:PRO:HB3	2:B:454:GLN:HG3	1.97	0.46
1:A:893:LEU:HD21	1:A:954:ILE:HD13	1.97	0.46
1:A:125:TYR:HD1	1:A:125:TYR:HA	1.67	0.46
2:B:266:ASN:O	2:B:270:MET:HG2	2.14	0.46
1:A:341:ASP:HA	1:A:386:PHE:CE2	2.51	0.46
1:A:394:LEU:HD21	1:A:427:ILE:HG21	1.98	0.46
2:B:837:ILE:O	2:B:840:ARG:HG2	2.16	0.46
2:B:283:ILE:HG21	2:B:316:PHE:HB3	1.97	0.46
2:B:774:ILE:HG21	2:B:818:PHE:HA	1.97	0.46
1:A:1152:ASP:HA	1:A:1155:TYR:CD2	2.51	0.45
1:A:812:LEU:HA	1:A:815:SER:HB3	1.97	0.45
1:A:842:ILE:HG13	1:A:998:ARG:HH11	1.81	0.45
1:A:998:ARG:HA	1:A:998:ARG:HD3	1.64	0.45
2:B:717:ASP:O	2:B:721:ARG:HB2	2.17	0.45
2:B:760:THR:HA	2:B:763:ALA:HB3	1.98	0.45
1:A:165:TYR:CE2	1:A:175:VAL:HG13	2.51	0.45
1:A:217:MET:HE2	1:A:221:ILE:HD11	1.98	0.45
1:A:221:ILE:HG12	1:A:234:LEU:HD23	1.99	0.45
2:B:708:LYS:O	2:B:711:ILE:HG22	2.16	0.45
1:A:923:LYS:HB2	1:A:923:LYS:HE2	1.70	0.45
2:B:391:PRO:HG2	2:B:669:VAL:HG12	1.97	0.45
1:A:269:SER:HA	1:A:275:LEU:HD22	1.98	0.45
1:A:851:PHE:HB3	1:A:856:GLU:OE2	2.15	0.45
1:A:18:ASN:HB2	1:A:25:THR:HG23	1.99	0.45
1:A:109:TYR:CZ	1:A:123:LYS:HB3	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:166:LYS:HD2	1:A:166:LYS:HA	1.54	0.45
1:A:175:VAL:HG21	1:A:238:LEU:HD11	1.98	0.45
1:A:930:THR:CG2	1:A:931:ASP:H	2.30	0.45
2:B:168:ALA:HB2	2:B:178:GLU:HG3	1.99	0.45
1:A:881:ASP:O	1:A:884:LEU:HD12	2.17	0.45
1:A:1047:TRP:CZ2	1:A:1099:THR:HG21	2.51	0.45
1:A:570:TYR:HB3	1:A:577:LYS:HB2	1.98	0.45
2:B:364:LYS:HD2	2:B:364:LYS:HA	1.81	0.45
2:B:386:ASN:HB2	2:B:389:PHE:CE2	2.52	0.45
1:A:799:GLY:HA2	1:A:935:TYR:CZ	2.53	0.44
1:A:812:LEU:HD13	1:A:934:ILE:HD11	1.98	0.44
2:B:41:HIS:HB2	2:B:43:VAL:HG23	2.00	0.44
1:A:60:TYR:HB3	1:A:67:LYS:HZ3	1.82	0.44
1:A:120:ILE:HD12	1:A:120:ILE:HA	1.83	0.44
1:A:371:PHE:HA	1:A:374:LYS:HB3	1.99	0.44
1:A:591:LEU:HD13	1:A:595:LEU:HD23	1.98	0.44
2:B:303:LEU:HD23	2:B:303:LEU:HA	1.86	0.44
2:B:646:VAL:HG13	2:B:668:VAL:HG13	2.00	0.44
2:B:656:LEU:HD12	2:B:660:ARG:HH22	1.82	0.44
2:B:207:TYR:HB3	2:B:295:TYR:HD2	1.82	0.44
1:A:1131:ASN:C	1:A:1133:ALA:H	2.25	0.44
1:A:1327:ILE:HD11	1:A:1329:ARG:NH2	2.33	0.44
2:B:1:MET:HE3	2:B:3:TYR:N	2.08	0.44
2:B:403:LYS:HA	2:B:403:LYS:HD2	1.82	0.44
2:B:503:LEU:HD22	2:B:556:GLU:HB3	1.98	0.44
1:A:149:TYR:CD1	1:A:244:PRO:HG3	2.52	0.44
1:A:381:ILE:O	1:A:395:THR:HA	2.17	0.44
1:A:790:LYS:HE3	1:A:790:LYS:HB3	1.86	0.44
1:A:1042:SER:HA	1:A:1091:ALA:HB3	2.00	0.44
1:A:49:THR:HG22	1:A:51:LYS:H	1.82	0.44
1:A:119:ASP:O	1:A:122:GLU:HG3	2.18	0.44
1:A:320:SER:O	1:A:456:ILE:HA	2.18	0.44
2:B:553:ILE:HD12	2:B:553:ILE:HA	1.85	0.44
1:A:423:LEU:O	1:A:427:ILE:HD12	2.18	0.44
2:B:217:ILE:HD11	2:B:221:GLY:HA3	1.98	0.44
2:B:381:PHE:CE2	2:B:721:ARG:HG3	2.53	0.44
1:A:9:THR:C	1:A:110:SER:HB3	2.42	0.44
1:A:5:ASN:O	1:A:111:ILE:HG23	2.18	0.43
1:A:994:LYS:HG2	1:A:1002:CYS:SG	2.58	0.43
1:A:546:TYR:HE1	1:A:549:LEU:HD12	1.83	0.43
1:A:1052:LEU:O	1:A:1055:LYS:HG3	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:387:THR:O	2:B:390:TYR:N	2.51	0.43
1:A:5:ASN:HB2	1:A:113:PRO:CA	2.40	0.43
2:B:274:ARG:HH11	2:B:274:ARG:HB2	1.82	0.43
1:A:30:PHE:HB2	1:A:109:TYR:O	2.19	0.43
1:A:131:PRO:HA	1:A:132:PRO:HD3	1.92	0.43
1:A:239:ILE:HD11	1:A:251:PHE:CE1	2.54	0.43
1:A:1048:LYS:HE3	1:A:1048:LYS:HB3	1.92	0.43
2:B:575:ARG:HG2	2:B:582:ILE:HG22	2.01	0.43
1:A:278:ARG:HH21	1:A:491:ALA:HB1	1.84	0.43
1:A:830:GLU:O	1:A:833:LYS:HG3	2.19	0.43
1:A:930:THR:HG22	1:A:931:ASP:N	2.32	0.43
2:B:387:THR:C	2:B:389:PHE:N	2.76	0.43
1:A:581:PHE:O	1:A:583:ILE:HG23	2.19	0.43
2:B:289:ILE:HG23	2:B:324:GLY:HA2	1.99	0.43
2:B:555:GLN:HG3	2:B:600:ILE:HG21	2.01	0.43
2:B:736:LYS:C	2:B:743:PRO:HG3	2.43	0.43
1:A:8:LEU:H	1:A:111:ILE:C	2.26	0.43
1:A:592:TRP:O	1:A:595:LEU:HG	2.18	0.43
2:B:466:THR:C	2:B:469:PRO:HD2	2.44	0.43
2:B:575:ARG:HA	2:B:582:ILE:HA	2.01	0.43
1:A:799:GLY:HA2	1:A:935:TYR:CE2	2.54	0.43
2:B:97:LEU:HA	2:B:97:LEU:HD23	1.81	0.43
2:B:399:MET:HE1	2:B:407:LEU:O	2.18	0.43
2:B:449:PRO:HA	2:B:479:TRP:CE2	2.53	0.43
1:A:863:GLN:HA	1:A:866:VAL:HG12	2.01	0.43
1:A:894:HIS:CG	1:A:913:THR:HG21	2.53	0.43
2:B:123:PHE:HB3	2:B:125:GLU:OE1	2.18	0.43
2:B:652:MET:HE1	2:B:689:TYR:HD1	1.84	0.43
2:B:19:LYS:HG2	2:B:761:PHE:CG	2.54	0.43
2:B:649:GLU:OE2	2:B:651:ILE:HD11	2.19	0.43
2:B:800:PRO:HA	2:B:810:ASN:HD22	1.84	0.43
1:A:1039:GLN:C	1:A:1040:ILE:HG13	2.43	0.42
1:A:1313:LEU:HD23	1:A:1313:LEU:HA	1.64	0.42
2:B:531:ILE:HA	2:B:534:GLN:OE1	2.19	0.42
2:B:548:MET:HG3	2:B:549:SER:N	2.34	0.42
1:A:246:LEU:HD22	1:A:251:PHE:CE1	2.54	0.42
1:A:337:PRO:HA	1:A:1329:ARG:HH11	1.84	0.42
1:A:858:ALA:HB1	1:A:863:GLN:HG3	1.99	0.42
2:B:599:THR:CG2	2:B:600:ILE:N	2.82	0.42
1:A:235:TYR:CZ	1:A:239:ILE:HG13	2.54	0.42
1:A:296:VAL:O	1:A:299:LYS:HG3	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:417:MET:HG2	2:B:693:THR:HG22	2.01	0.42
1:A:1043:PHE:CE2	1:A:1097:PRO:HB3	2.54	0.42
1:A:866:VAL:HG13	1:A:867:GLU:N	2.34	0.42
2:B:399:MET:HE2	2:B:406:THR:HG23	2.00	0.42
1:A:282:GLU:O	1:A:286:ILE:HG12	2.19	0.42
1:A:339:THR:OG1	1:A:342:ILE:HD12	2.19	0.42
1:A:497:ARG:NE	1:A:498:GLY:H	2.17	0.42
1:A:524:MET:HE1	1:A:561:ILE:HD11	2.01	0.42
1:A:930:THR:HG22	1:A:931:ASP:H	1.85	0.42
1:A:1248:THR:OG1	1:A:1249:PRO:HD3	2.19	0.42
2:B:233:HIS:HA	2:B:292:ARG:HG2	2.01	0.42
2:B:389:PHE:CD1	2:B:675:MET:HE1	2.55	0.42
2:B:795:LYS:HE2	2:B:795:LYS:HB2	1.77	0.42
1:A:1115:ILE:HG21	2:B:873:TYR:HE2	1.85	0.42
2:B:488:ILE:HD12	2:B:497:ASN:HB2	2.02	0.42
2:B:781:LEU:HD12	2:B:788:TRP:CZ2	2.55	0.42
1:A:1:MET:HE1	1:A:3:PHE:HB2	2.02	0.42
1:A:18:ASN:HD22	1:A:25:THR:HG21	1.85	0.42
1:A:463:MET:SD	1:A:465:VAL:HB	2.60	0.42
2:B:94:ARG:HH11	2:B:303:LEU:HD13	1.85	0.42
2:B:374:LEU:HD12	2:B:374:LEU:HA	1.82	0.42
2:B:524:MET:O	2:B:528:ILE:HG12	2.20	0.42
2:B:564:LEU:HD21	2:B:570:PRO:HA	2.01	0.42
1:A:67:LYS:HB3	1:A:67:LYS:HE3	1.82	0.42
1:A:841:TYR:O	1:A:842:ILE:HD13	2.19	0.42
1:A:1024:TYR:OH	1:A:1031:ILE:HG21	2.20	0.42
1:A:1300:LEU:HD12	1:A:1300:LEU:HA	1.80	0.42
2:B:462:LEU:HD13	2:B:468:THR:HG23	2.01	0.42
2:B:863:LYS:HD3	2:B:863:LYS:N	2.35	0.42
1:A:1127:TYR:HB2	1:A:1129:GLN:NE2	2.35	0.42
2:B:289:ILE:H	2:B:289:ILE:HD12	1.85	0.42
1:A:64:TRP:HA	1:A:67:LYS:HG2	2.01	0.41
1:A:1071:ILE:HD11	1:A:1109:THR:O	2.20	0.41
2:B:728:PHE:HB3	2:B:748:ILE:HB	2.02	0.41
1:A:378:VAL:HG23	1:A:397:GLN:HG2	2.02	0.41
1:A:827:LEU:O	1:A:830:GLU:HG3	2.19	0.41
2:B:707:LEU:HD23	2:B:707:LEU:HA	1.75	0.41
1:A:326:GLN:HA	1:A:398:ASN:O	2.20	0.41
1:A:359:SER:O	1:A:1334:ILE:HD13	2.20	0.41
1:A:381:ILE:HG22	1:A:396:ILE:HG22	2.03	0.41
1:A:941:GLN:HB2	1:A:944:ARG:NE	2.36	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:365:LYS:HA	2:B:365:LYS:HD3	1.76	0.41
1:A:816:LEU:HA	1:A:819:ILE:HG22	2.02	0.41
1:A:341:ASP:O	1:A:343:PRO:HD3	2.20	0.41
1:A:469:TRP:HA	1:A:470:PRO:HD3	1.89	0.41
2:B:109:ALA:HB1	2:B:279:ILE:HG21	2.02	0.41
2:B:823:ILE:HD12	2:B:823:ILE:HA	1.88	0.41
1:A:192:ALA:HB2	1:A:546:TYR:CG	2.55	0.41
1:A:393:ILE:HG12	1:A:405:GLU:OE2	2.21	0.41
1:A:482:LYS:HE2	1:A:486:ARG:HG3	2.03	0.41
1:A:1243:LEU:HD23	1:A:1243:LEU:HA	1.89	0.41
2:B:433:LYS:HA	2:B:433:LYS:HD2	1.67	0.41
1:A:196:PHE:C	1:A:514:TYR:HB2	2.46	0.41
1:A:942:GLN:HA	1:A:945:PHE:HB3	2.02	0.41
1:A:1059:GLN:NE2	1:A:1060:TYR:HB2	2.36	0.41
1:A:1303:ASP:OD1	1:A:1303:ASP:C	2.64	0.41
2:B:527:ASP:O	2:B:531:ILE:HG23	2.21	0.41
1:A:297:ILE:HD12	1:A:298:ALA:N	2.36	0.41
1:A:396:ILE:HD12	1:A:397:GLN:H	1.86	0.41
1:A:511:LYS:HE2	1:A:511:LYS:HB2	1.93	0.41
1:A:1067:VAL:HG22	1:A:1100:LEU:HD13	2.01	0.41
2:B:348:LEU:HD23	2:B:348:LEU:HA	1.90	0.41
2:B:462:LEU:HD23	2:B:462:LEU:HA	1.91	0.41
2:B:794:TRP:HB2	2:B:818:PHE:CE2	2.55	0.41
2:B:833:LYS:HD2	2:B:833:LYS:HA	1.73	0.41
1:A:923:LYS:HG3	1:A:954:ILE:HD11	2.03	0.41
1:A:993:LYS:HB3	1:A:1006:LEU:HB2	2.02	0.41
1:A:1297:ILE:HD13	1:A:1297:ILE:HA	1.83	0.41
2:B:422:LEU:O	2:B:426:LYS:HG2	2.20	0.41
2:B:522:THR:HB	2:B:526:LYS:HZ3	1.85	0.41
2:B:873:TYR:HD1	2:B:874:ILE:HG13	1.86	0.41
1:A:348:PHE:O	1:A:348:PHE:CG	2.72	0.40
1:A:1050:ILE:HG13	1:A:1050:ILE:H	1.76	0.40
1:A:1302:ALA:CB	2:B:1:MET:HB2	2.51	0.40
2:B:195:ASP:OD1	2:B:198:ARG:HG2	2.20	0.40
2:B:329:TYR:CE2	2:B:716:GLY:HA3	2.56	0.40
1:A:218:ARG:HH12	1:A:255:VAL:HA	1.85	0.40
1:A:384:ILE:HA	1:A:393:ILE:HD13	2.03	0.40
1:A:63:ASP:C	1:A:67:LYS:HZ2	2.28	0.40
2:B:94:ARG:NH1	2:B:303:LEU:HD13	2.36	0.40
2:B:143:GLU:HA	2:B:146:ARG:HD3	2.03	0.40
2:B:714:GLN:HB3	2:B:742:LEU:HG	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:31:LEU:HD22	1:A:42:CYS:HB3	2.03	0.40
1:A:188:LEU:HD13	1:A:188:LEU:HA	1.94	0.40
1:A:475:SER:HA	1:A:478:PHE:CD2	2.56	0.40
1:A:1280:GLN:O	1:A:1287:ARG:HG3	2.22	0.40
2:B:135:PHE:HD1	2:B:137:ARG:HH12	1.69	0.40
2:B:173:SER:HB2	2:B:176:SER:HB3	2.04	0.40
2:B:837:ILE:HD11	2:B:842:CYS:SG	2.61	0.40
1:A:117:PHE:HB2	1:A:194:ASP:O	2.21	0.40
1:A:319:ILE:HB	1:A:402:TYR:CE2	2.57	0.40
1:A:521:ILE:HD12	1:A:521:ILE:HA	1.90	0.40
1:A:1251:ILE:HD11	1:A:1288:ILE:CG2	2.22	0.40
2:B:617:PHE:CE1	2:B:631:LEU:HB2	2.56	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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	1051/1377 (76%)	985 (94%)	64 (6%)	2 (0%)	43	74
2	B	851/1141 (75%)	806 (95%)	44 (5%)	1 (0%)	48	79
All	All	1902/2518 (76%)	1791 (94%)	108 (6%)	3 (0%)	44	74

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	1122	PRO
1	A	1124	GLU
2	B	388	ASN

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	970/1252 (78%)	961 (99%)	9 (1%)	70	76
2	B	758/1016 (75%)	749 (99%)	9 (1%)	63	73
All	All	1728/2268 (76%)	1710 (99%)	18 (1%)	65	75

All (18) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	30	PHE
1	A	125	TYR
1	A	240	MET
1	A	414	HIS
1	A	883	PHE
1	A	894	HIS
1	A	922	LYS
1	A	1060	TYR
1	A	1123	LEU
2	B	75	LEU
2	B	155	TYR
2	B	386	ASN
2	B	428	LEU
2	B	554	LEU
2	B	688	LEU
2	B	703	TYR
2	B	825	LEU
2	B	867	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (27) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	141	GLN
1	A	146	GLN
1	A	256	GLN
1	A	373	ASN

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Mol	Chain	Res	Type
1	A	397	GLN
1	A	585	GLN
1	A	1056	GLN
1	A	1059	GLN
1	A	1131	ASN
1	A	1134	ASN
1	A	1140	ASN
1	A	1241	GLN
1	A	1325	GLN
1	A	1331	GLN
2	B	74	GLN
2	B	115	GLN
2	B	181	HIS
2	B	233	HIS
2	B	260	ASN
2	B	340	HIS
2	B	386	ASN
2	B	602	HIS
2	B	627	GLN
2	B	714	GLN
2	B	731	GLN
2	B	776	ASN
2	B	817	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

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

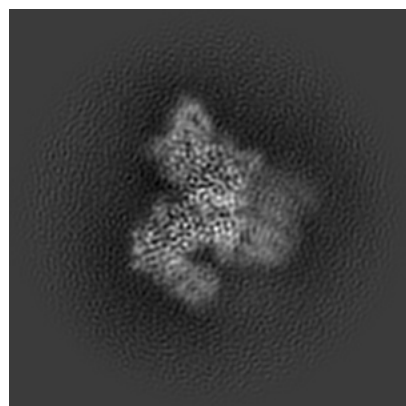
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-81568. These allow visual inspection of the internal detail of the map and identification of artifacts.

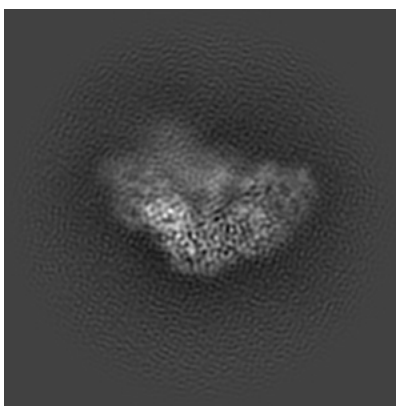
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

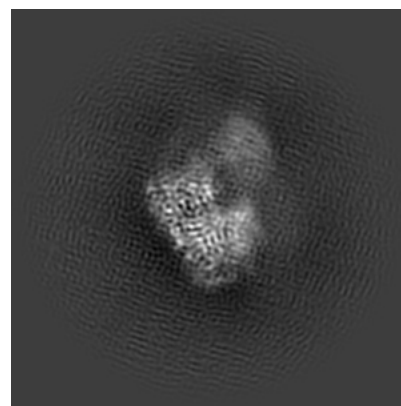
6.1.1 Primary map



X

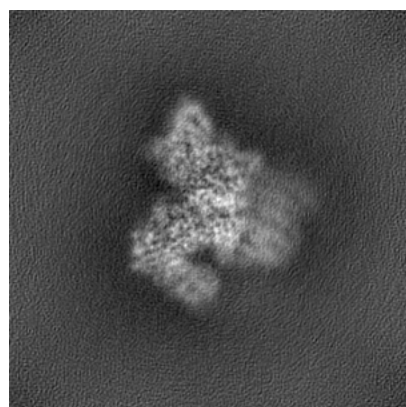


Y

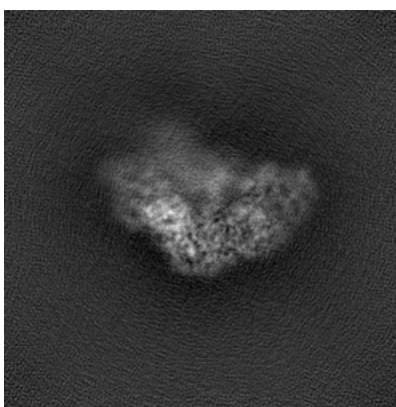


Z

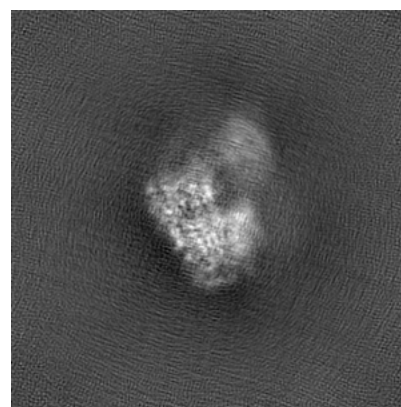
6.1.2 Raw map



X



Y

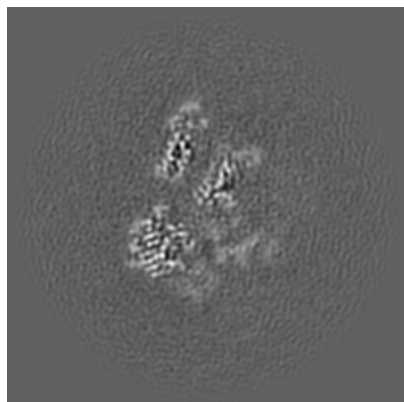


Z

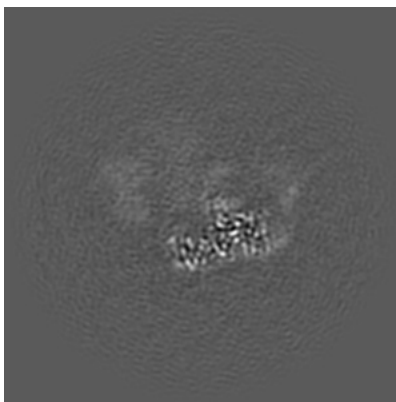
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

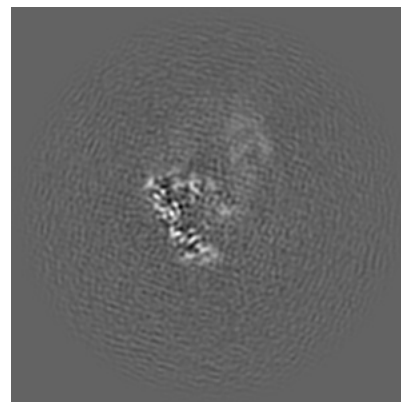
6.2.1 Primary map



X Index: 128

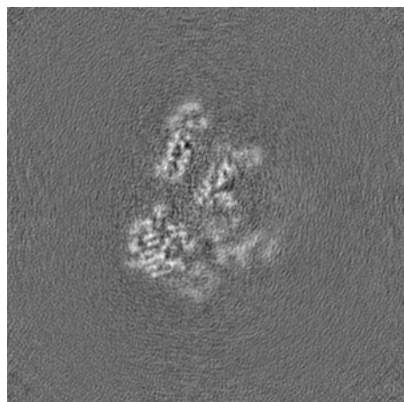


Y Index: 128

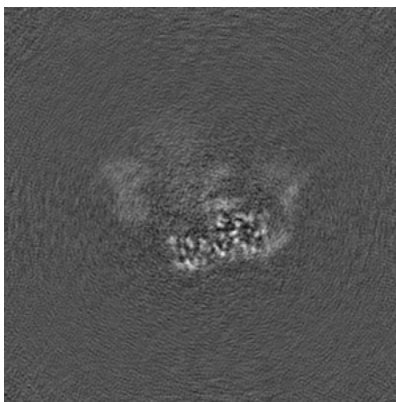


Z Index: 128

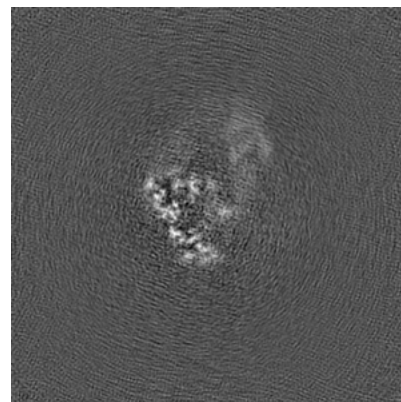
6.2.2 Raw map



X Index: 128



Y Index: 128

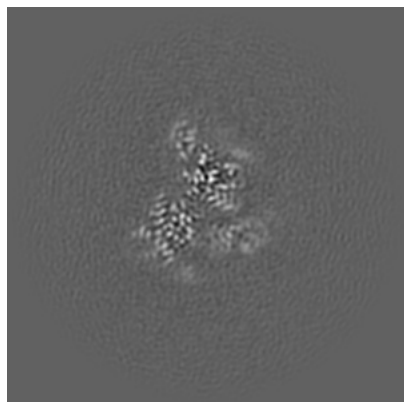


Z Index: 128

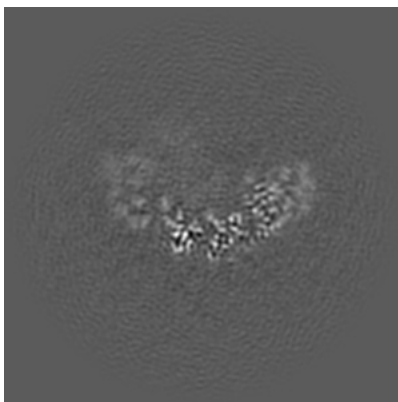
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

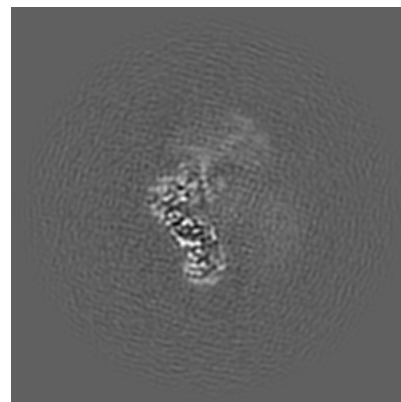
6.3.1 Primary map



X Index: 115

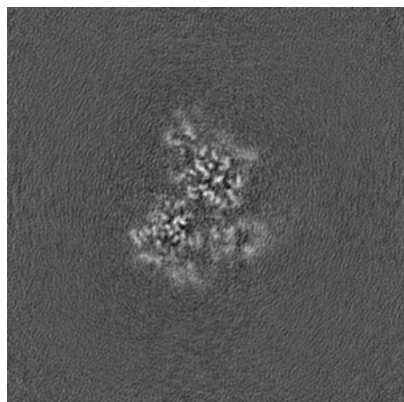


Y Index: 117

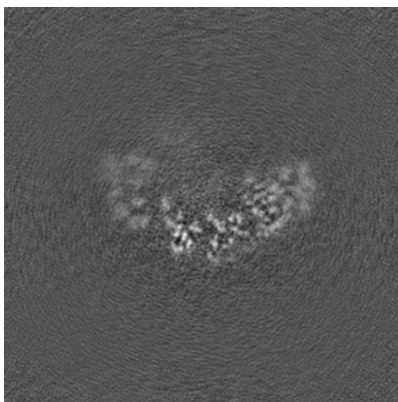


Z Index: 111

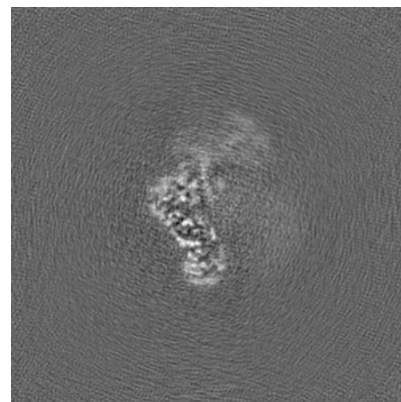
6.3.2 Raw map



X Index: 118



Y Index: 117

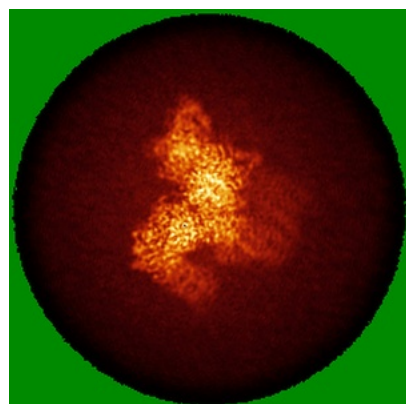


Z Index: 111

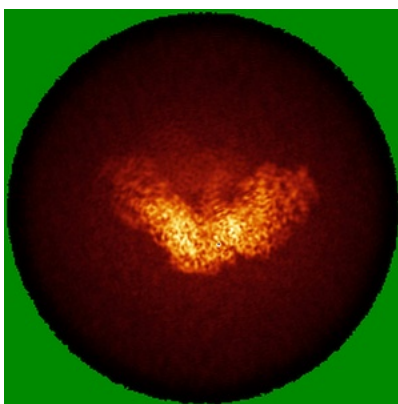
The images above show the largest variance slices of the map in three orthogonal directions.

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

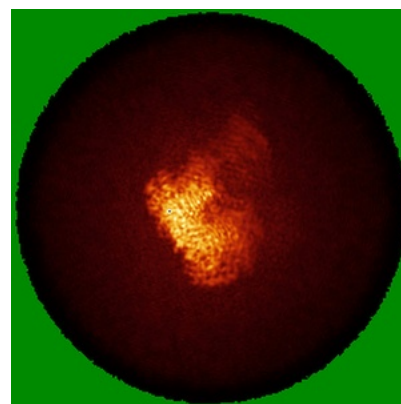
6.4.1 Primary map



X

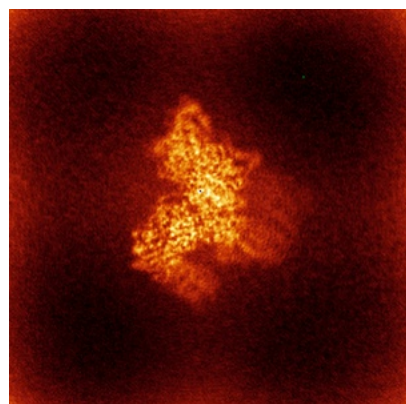


Y

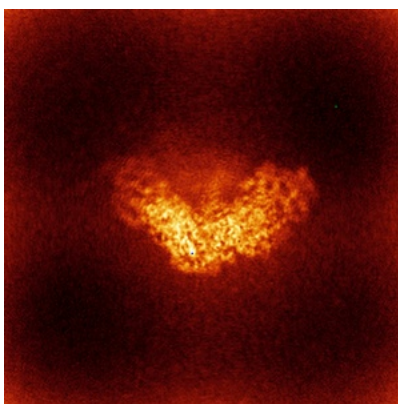


Z

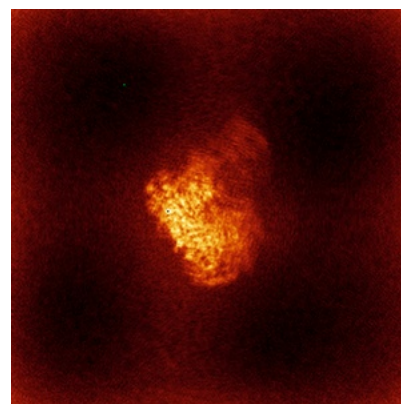
6.4.2 Raw map



X



Y

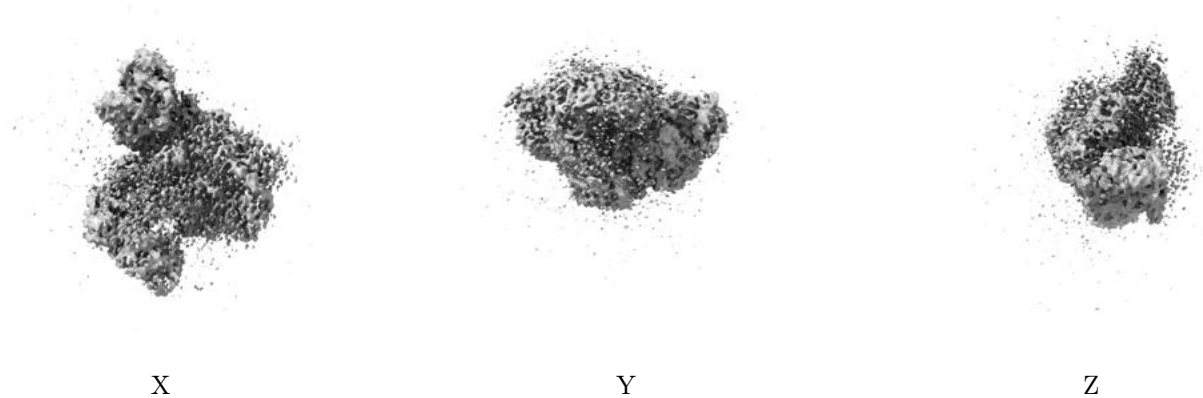


Z

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.

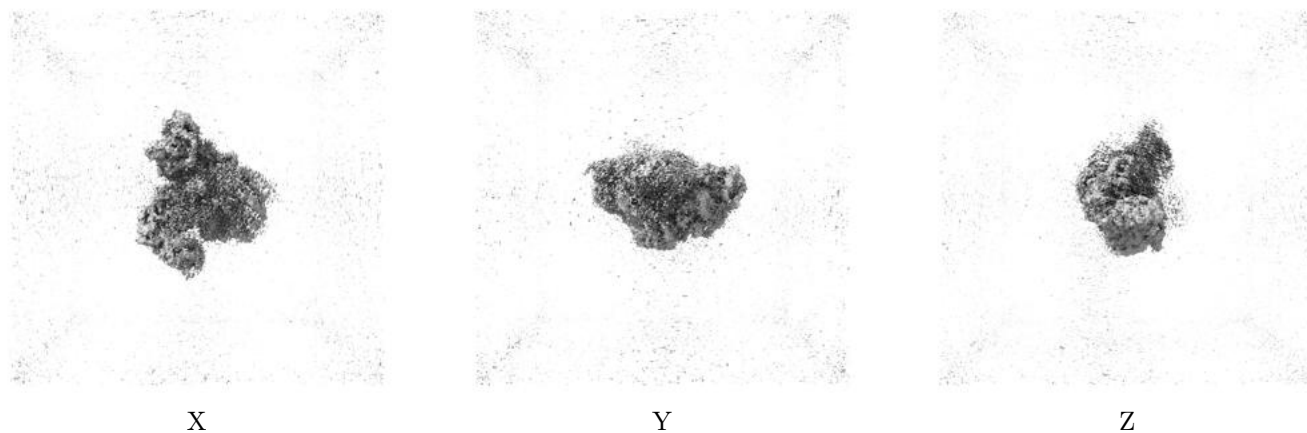
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.105. 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



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.

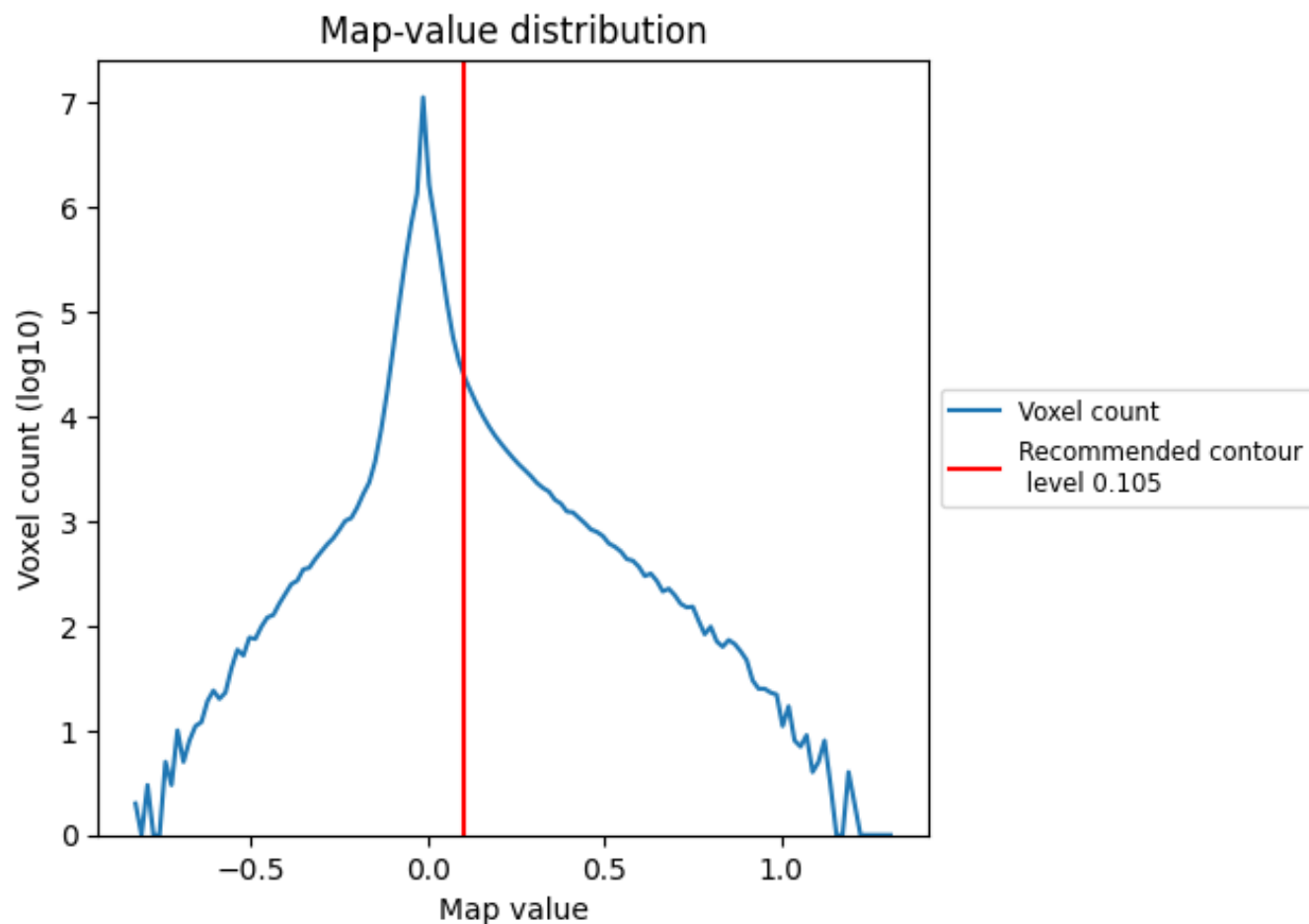
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

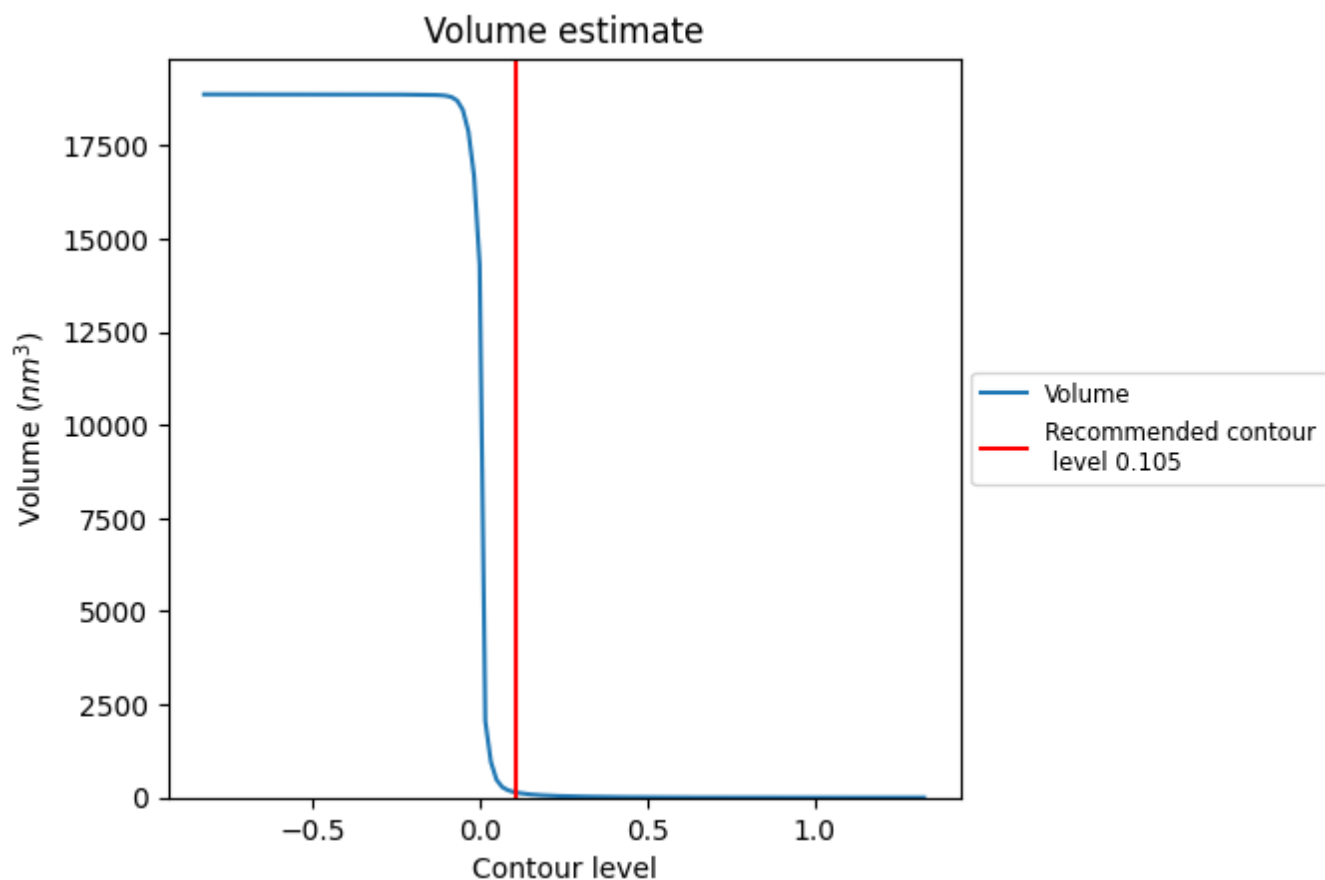
This section contains the results of statistical analysis of the map.

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.

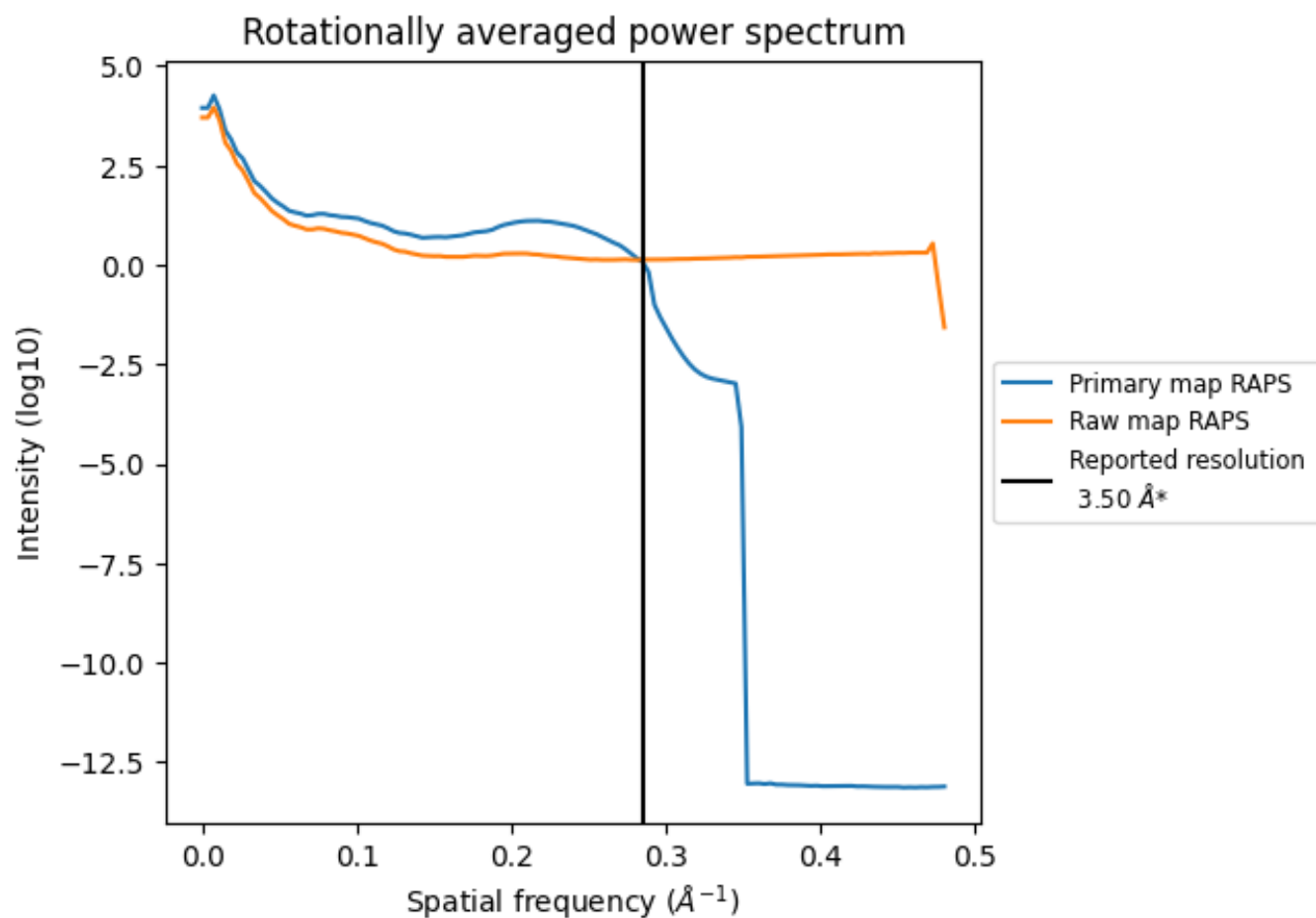
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 142 nm³; this corresponds to an approximate mass of 128 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 ⓘ

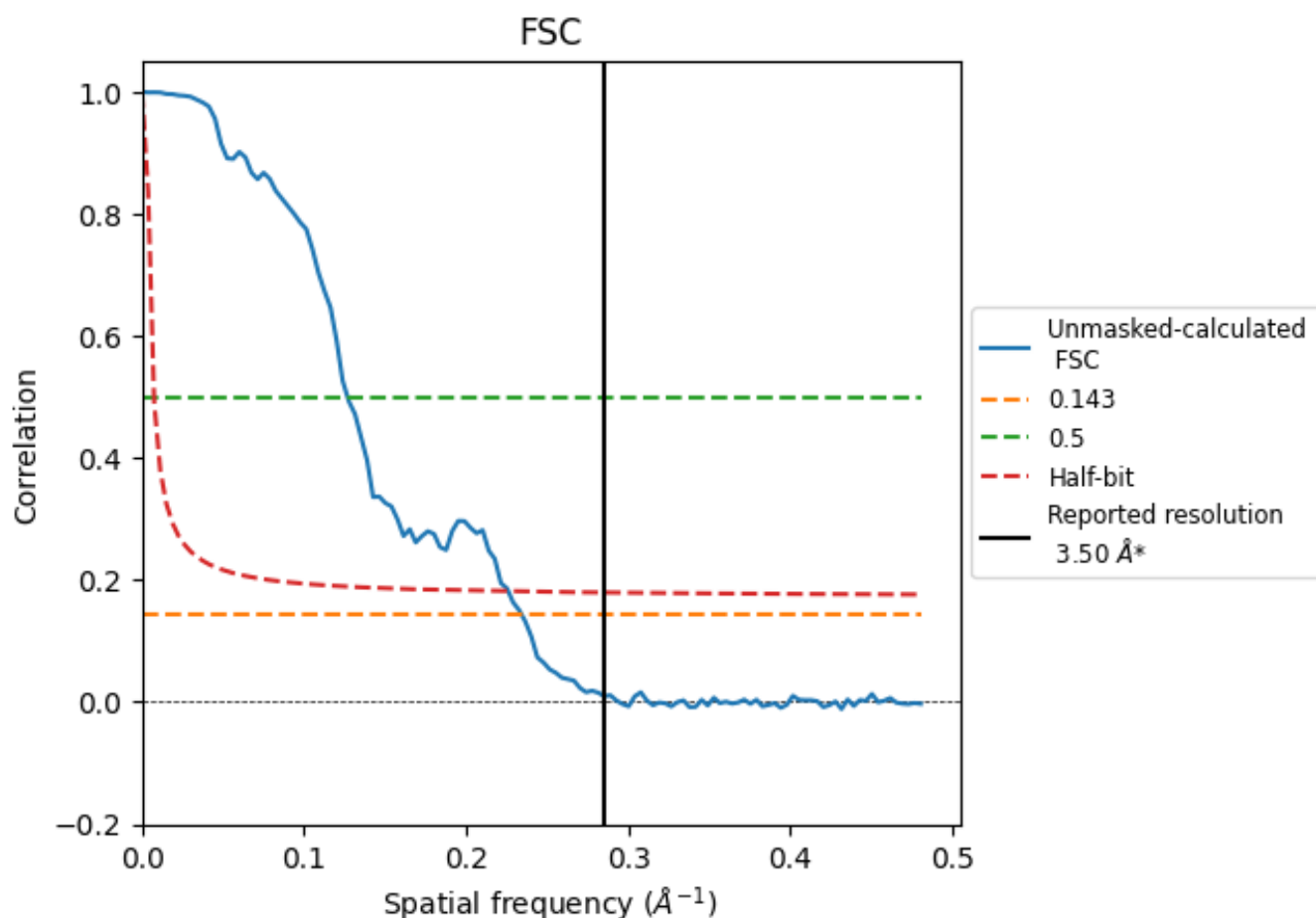


*Reported resolution corresponds to spatial frequency of 0.286 Å⁻¹

8 Fourier-Shell correlation [i](#)

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 [i](#)



*Reported resolution corresponds to spatial frequency of 0.286 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

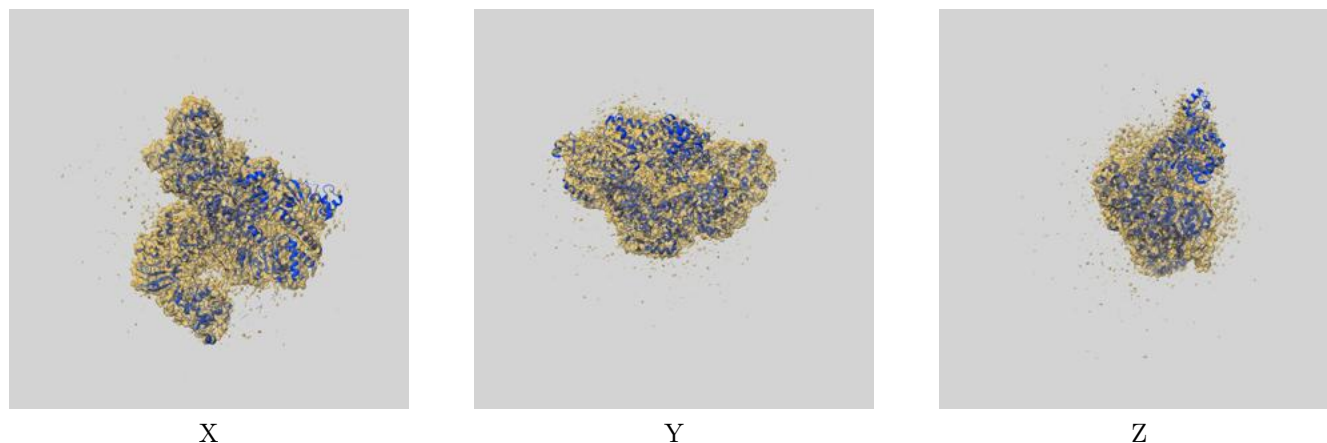
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.50	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	4.27	7.88	4.42

*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 4.27 differs from the reported value 3.5 by more than 10 %

9 Map-model fit [i](#)

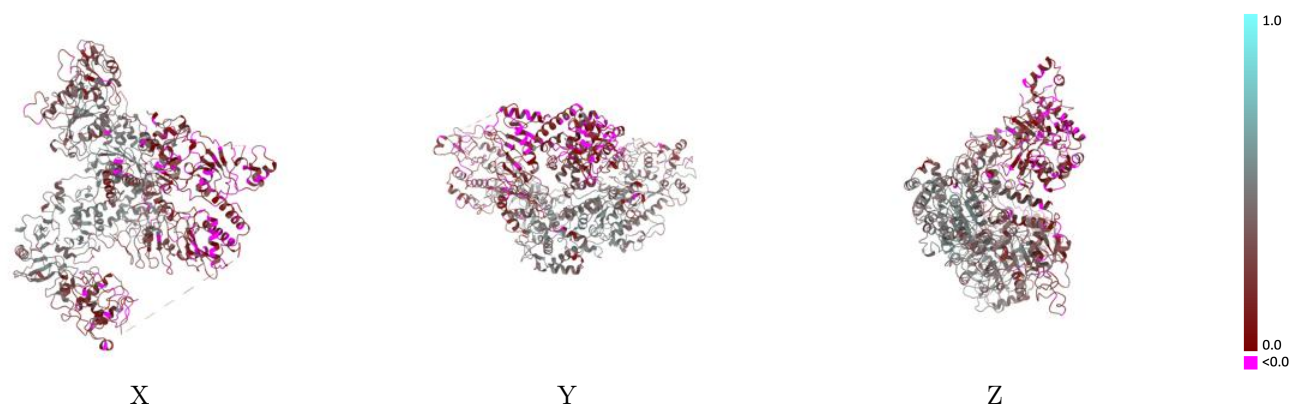
This section contains information regarding the fit between EMDB map EMD-81568 and PDB model 27ZR. Per-residue inclusion information can be found in section [3](#) on page [5](#).

9.1 Map-model overlay [i](#)



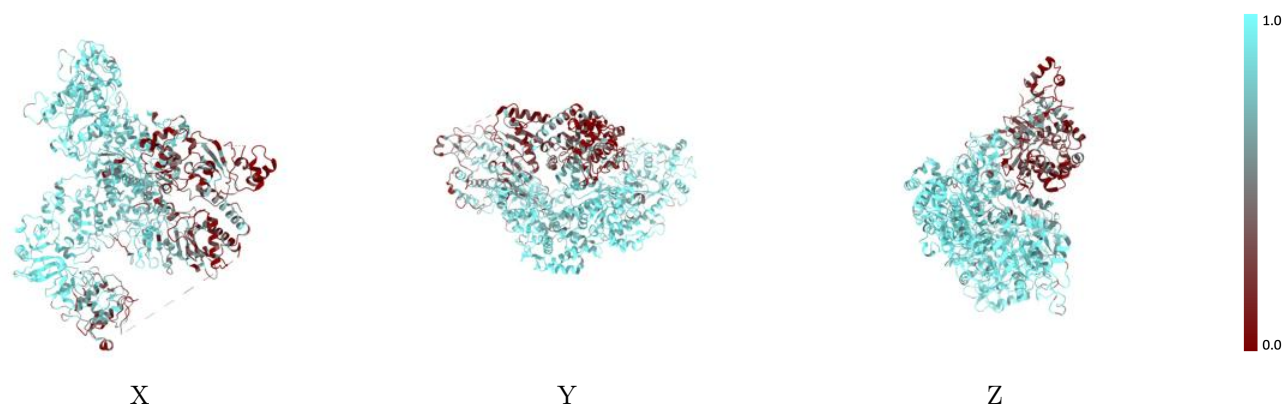
The images above show the 3D surface view of the map at the recommended contour level 0.105 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



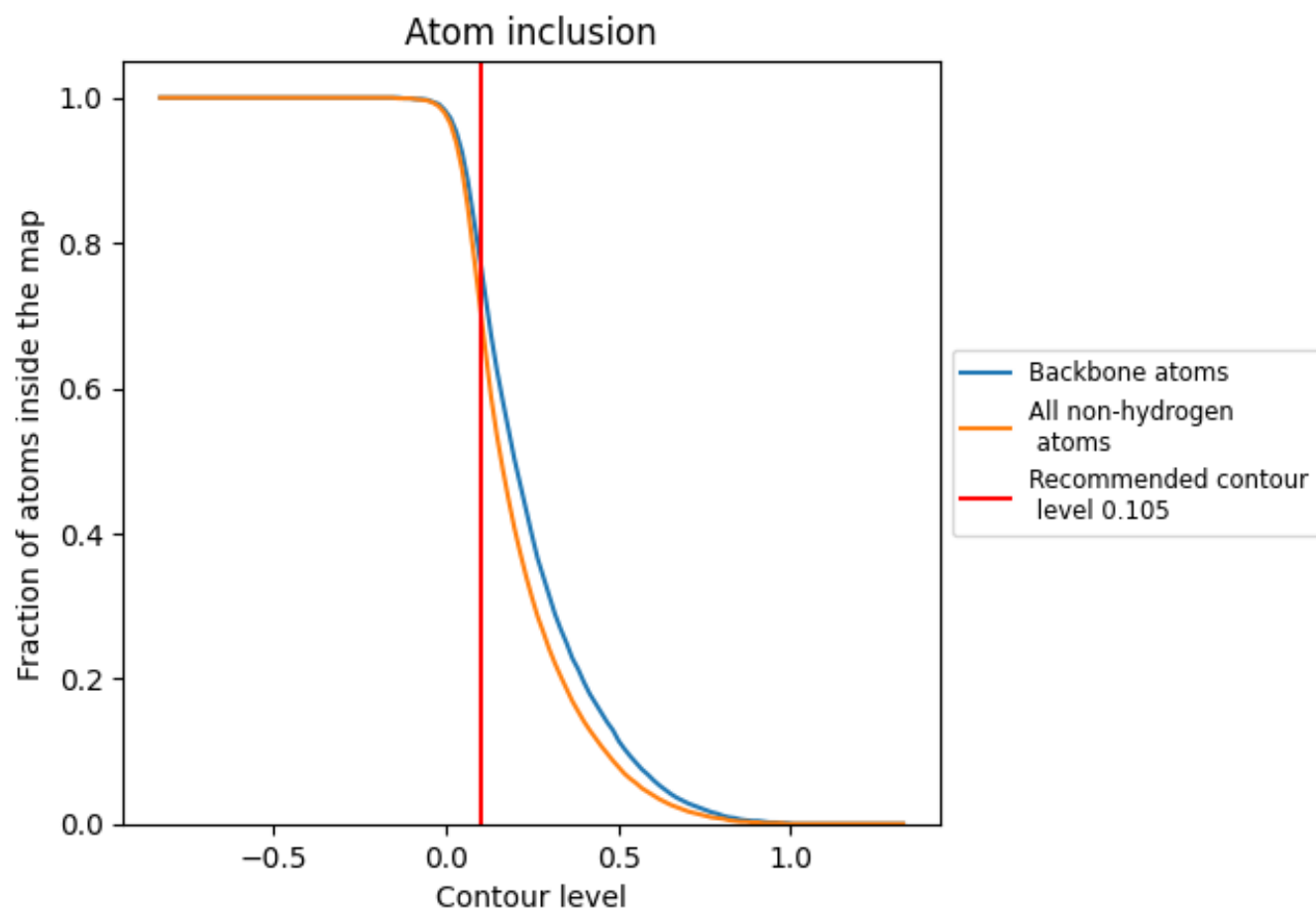
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.105).

9.4 Atom inclusion [i](#)



At the recommended contour level, 76% of all backbone atoms, 69% 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 (0.105) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.6940	0.3080
A	0.5500	0.2310
B	0.8780	0.4060

