



Full wwPDB EM Validation Report ⓘ

Mar 6, 2026 – 09:45 PM UTC

PDB ID : 5Z10 / pdb_00005z10
EMDB ID : EMD-6865
Title : Structure of the mechanosensitive Piezo1 channel
Authors : Zhao, Q.; Zhou, H.; Chi, S.; Wang, Y.; Wang, J.; Geng, J.; Wu, K.; Liu, W.;
Zhang, T.; Dong, M.-Q.; Wang, J.; Li, X.; Xiao, B.
Deposited on : 2017-12-22
Resolution : 3.97 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:

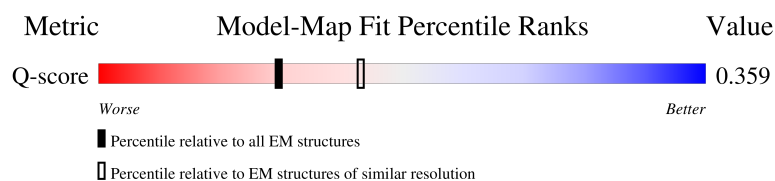
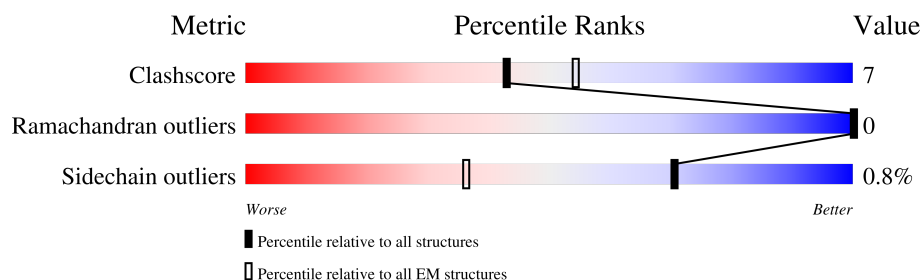
EMDB validation analysis : 0.0.1.dev132
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh &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

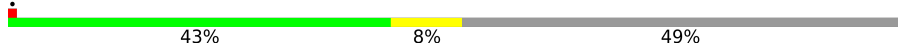
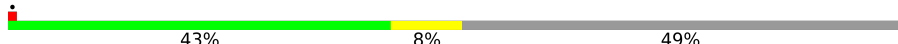
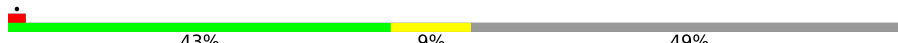
The reported resolution of this entry is 3.97 Å.

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	7578 (3.47 - 4.47)

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	2547	 43% 8% 49%
1	B	2547	 43% 8% 49%
1	C	2547	 43% 9% 49%

2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 29142 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.

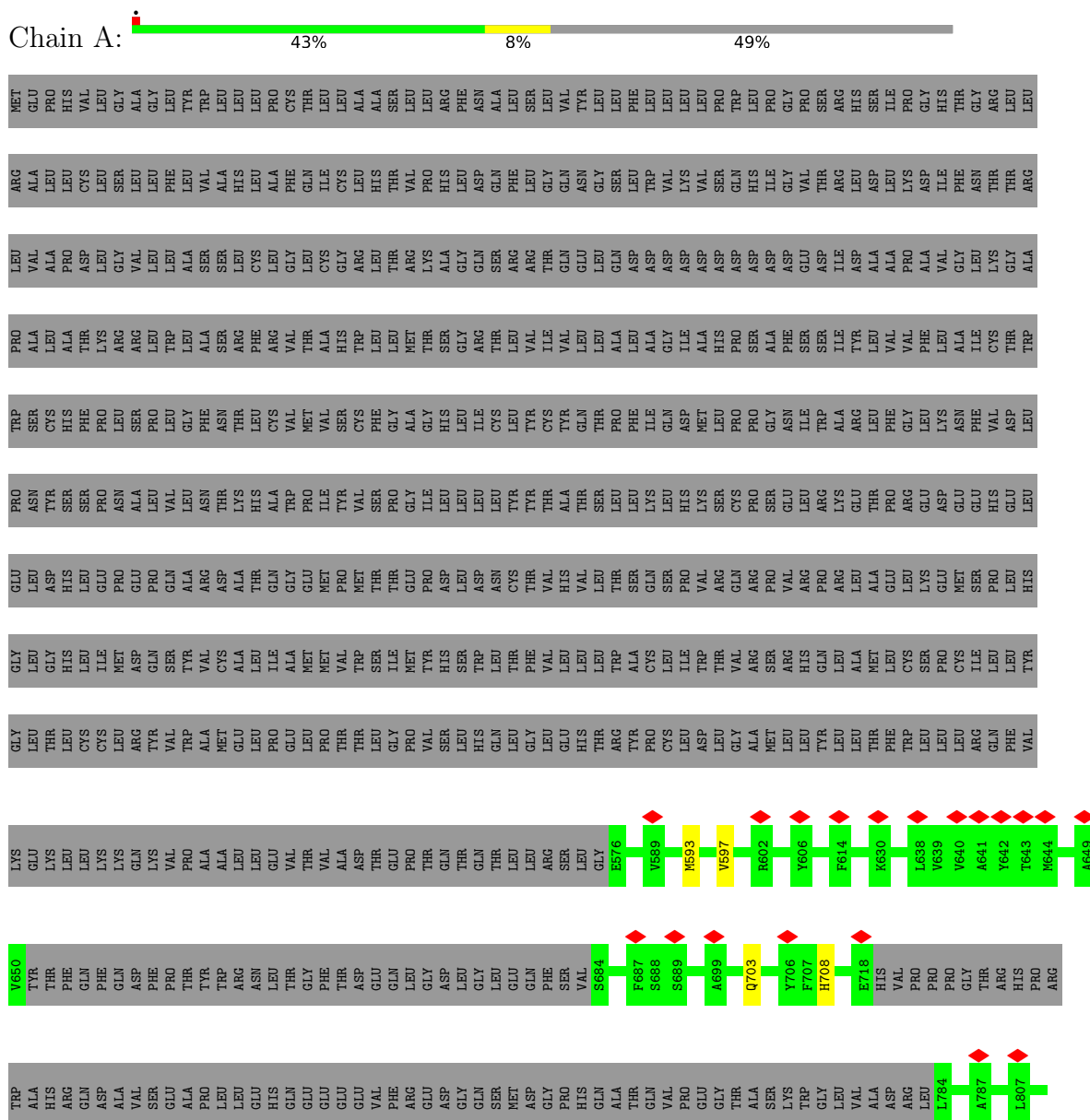
- Molecule 1 is a protein called Piezo-type mechanosensitive ion channel component 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	1304	Total	C	N	O	S	0	0
			9714	6308	1666	1701	39		
1	B	1304	Total	C	N	O	S	0	0
			9714	6308	1666	1701	39		
1	C	1304	Total	C	N	O	S	0	0
			9714	6308	1666	1701	39		

3 Residue-property plots

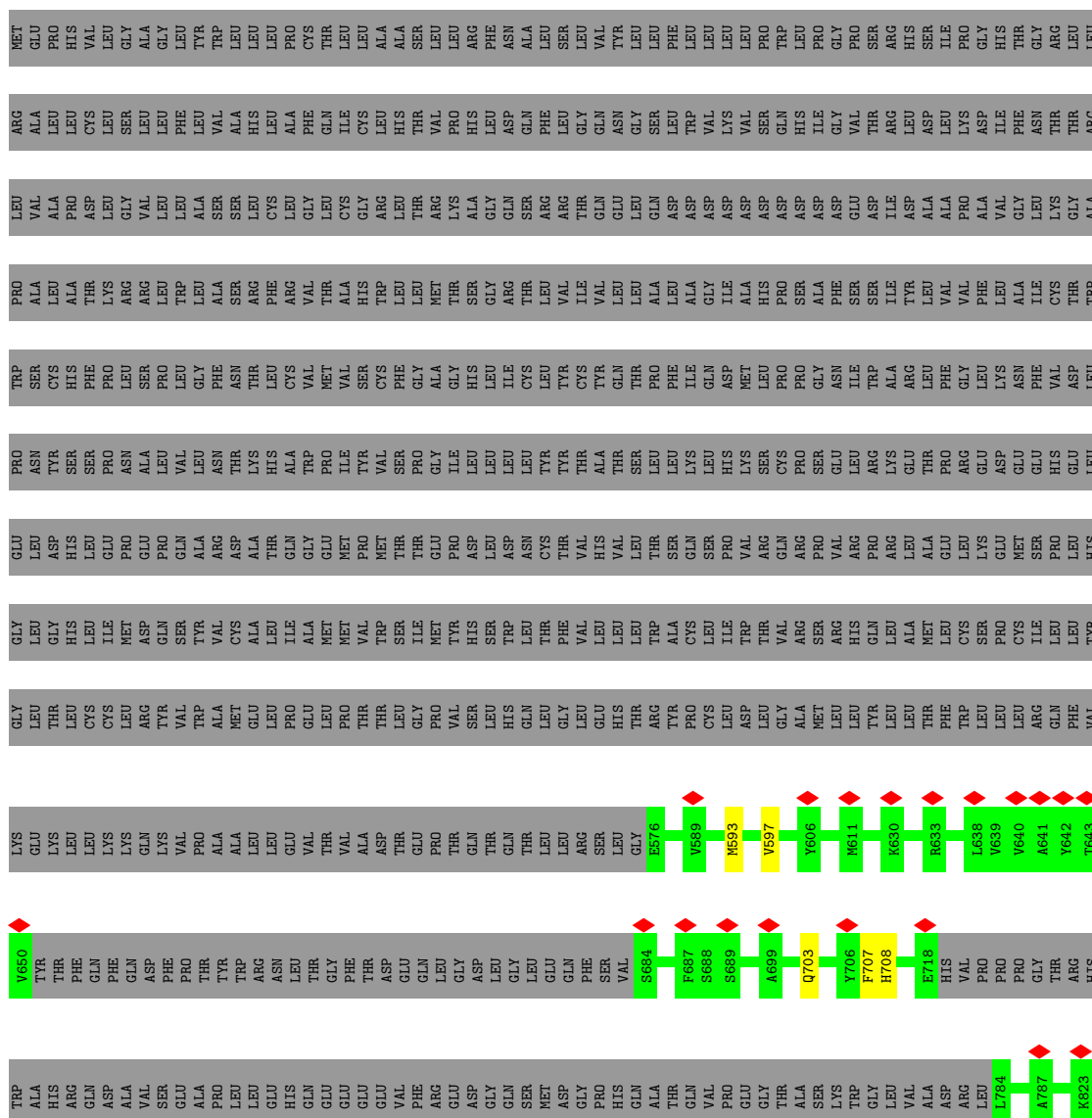
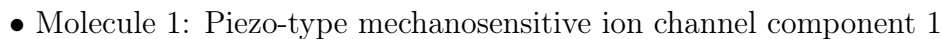
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

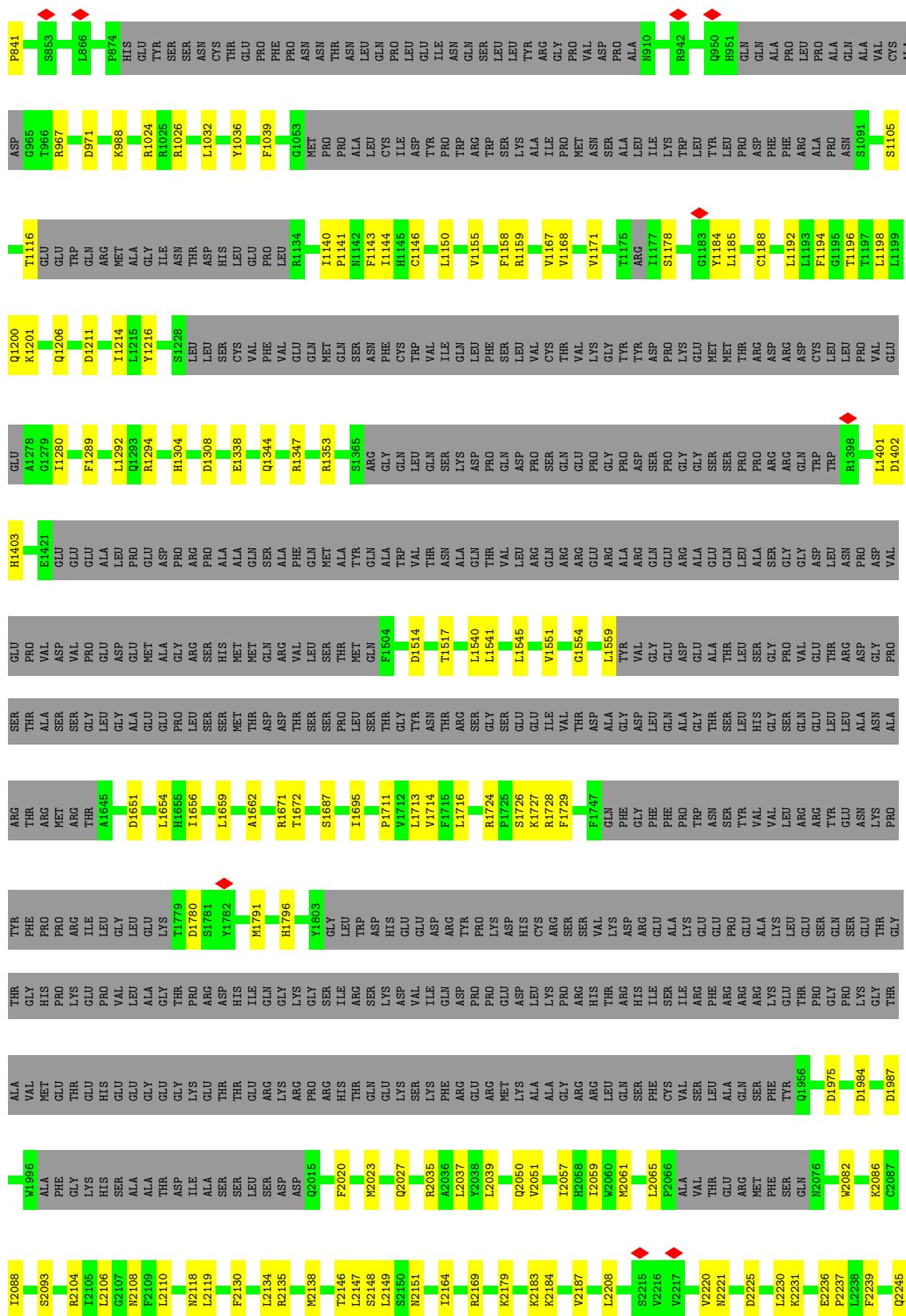
- Molecule 1: Piezo-type mechanosensitive ion channel component 1

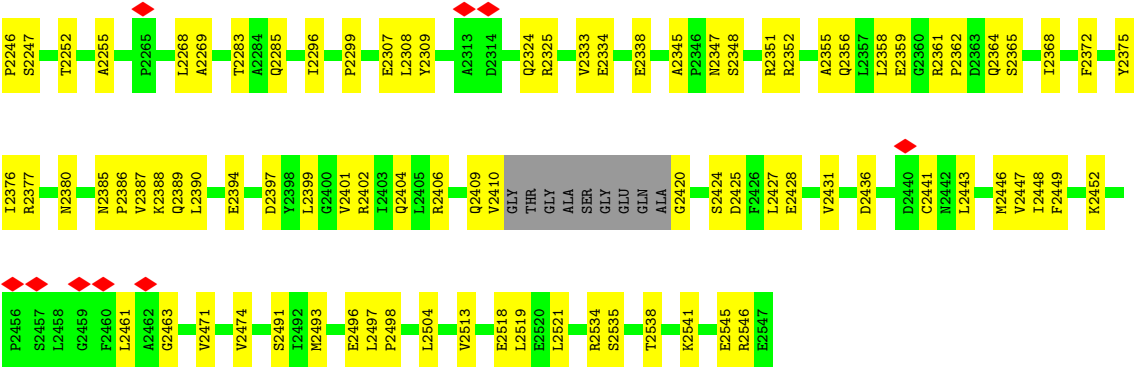


F2109	L2110	N2118	L2119	L2131	L2134	R2135	M2138	T2146	L2147	S2148	L2149	S2150	N2151	L2164	R2169	K2179	K2183	K2184	V2187	L2208	V2217	V2220	N2221	D2225	T2229	L2230	K2231	E2236	P2237	L2238	F2239	Q2245	P2246	T2252	A2255	P2265	L2268	A2269																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
PHE	GLY	LYS	HIS	ALA	ALA	THR	ASP	SER	LEU	SER	ASP	Q2015	SER	Q2027	R2035	A2036	L2037	Y2038	L2039	Q2050	V2051	L2057	M2061	L2065	P2066	ALA	VAL	THR	GLU	ARG	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY









4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C3	Depositor
Number of particles used	238529	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 ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	3000	Depositor
Maximum defocus (nm)	Not provided	
Magnification	22500	Depositor
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.300	Depositor
Minimum map value	-0.193	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.006	Depositor
Recommended contour level	0.027	Depositor
Map size (Å)	369.6, 369.6, 369.6	wwPDB
Map dimensions	280, 280, 280	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.32, 1.32, 1.32	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	0.30	0/9920	0.62	2/13499 (0.0%)
1	B	0.30	0/9920	0.62	2/13499 (0.0%)
1	C	0.30	0/9920	0.62	2/13499 (0.0%)
All	All	0.30	0/29760	0.62	6/40497 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	2
1	B	0	2
1	C	0	2
All	All	0	6

There are no bond length outliers.

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	2106	LEU	CA-C-N	5.77	132.72	121.41
1	B	2106	LEU	C-N-CA	5.77	132.72	121.41
1	A	2106	LEU	CA-C-N	5.77	132.72	121.41
1	A	2106	LEU	C-N-CA	5.77	132.72	121.41
1	C	2106	LEU	CA-C-N	5.76	132.70	121.41
1	C	2106	LEU	C-N-CA	5.76	132.70	121.41

There are no chirality outliers.

All (6) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	1724	ARG	Peptide

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Mol	Chain	Res	Type	Group
1	A	1975	ASP	Peptide
1	B	1724	ARG	Peptide
1	B	1975	ASP	Peptide
1	C	1724	ARG	Peptide
1	C	1975	ASP	Peptide

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	9714	0	8963	128	0
1	B	9714	0	8963	126	0
1	C	9714	0	8963	135	0
All	All	29142	0	26889	371	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 7.

All (371) 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:2406:ARG:O	1:A:2428:GLU:HA	1.74	0.88
1:B:2406:ARG:O	1:B:2428:GLU:HA	1.74	0.87
1:C:2406:ARG:O	1:C:2428:GLU:HA	1.74	0.86
1:A:2035:ARG:HH21	1:A:2039:LEU:HD11	1.52	0.74
1:B:2035:ARG:HH21	1:B:2039:LEU:HD11	1.52	0.73
1:C:2035:ARG:HH21	1:C:2039:LEU:HD11	1.52	0.72
1:A:1695:ILE:HG21	1:A:1714:VAL:HG21	1.75	0.68
1:B:1695:ILE:HG21	1:B:1714:VAL:HG21	1.75	0.67
1:C:1695:ILE:HG21	1:C:1714:VAL:HG21	1.75	0.67
1:C:1140:ILE:HA	1:C:1143:PHE:HB2	1.78	0.66
1:B:1140:ILE:HA	1:B:1143:PHE:HB2	1.78	0.65
1:C:2376:ILE:HA	1:C:2386:PRO:HA	1.80	0.64
1:A:2376:ILE:HA	1:A:2386:PRO:HA	1.80	0.64
1:A:1140:ILE:HA	1:A:1143:PHE:HB2	1.78	0.64
1:B:1338:GLU:O	1:B:2104:ARG:NH1	2.31	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:1338:GLU:O	1:C:2104:ARG:NH1	2.31	0.64
1:B:2376:ILE:HA	1:B:2386:PRO:HA	1.80	0.63
1:A:2376:ILE:HB	1:A:2448:ILE:HG22	1.81	0.63
1:A:1338:GLU:O	1:A:2104:ARG:NH1	2.31	0.63
1:C:2404:GLN:HB2	1:C:2431:VAL:HB	1.82	0.62
1:B:2376:ILE:HB	1:B:2448:ILE:HG22	1.80	0.62
1:B:2404:GLN:HB2	1:B:2431:VAL:HB	1.81	0.61
1:C:2376:ILE:HB	1:C:2448:ILE:HG22	1.80	0.61
1:C:1987:ASP:OD1	1:C:2082:TRP:NE1	2.33	0.61
1:A:2404:GLN:HB2	1:A:2431:VAL:HB	1.81	0.61
1:B:2380:ASN:ND2	1:B:2452:LYS:O	2.34	0.61
1:A:1987:ASP:OD1	1:A:2082:TRP:NE1	2.33	0.60
1:B:1987:ASP:OD1	1:B:2082:TRP:NE1	2.33	0.60
1:C:1984:ASP:OD1	1:C:2027:GLN:NE2	2.34	0.60
1:A:1984:ASP:OD1	1:A:2027:GLN:NE2	2.34	0.60
1:B:1984:ASP:OD1	1:B:2027:GLN:NE2	2.34	0.60
1:A:2380:ASN:ND2	1:A:2452:LYS:O	2.34	0.60
1:A:1155:VAL:HA	1:A:1158:PHE:HB2	1.84	0.59
1:C:2380:ASN:ND2	1:C:2452:LYS:O	2.34	0.59
1:A:2387:VAL:HG12	1:A:2389:GLN:H	1.68	0.59
1:C:2387:VAL:HG12	1:C:2389:GLN:H	1.67	0.59
1:B:1155:VAL:HA	1:B:1158:PHE:HB2	1.84	0.59
1:C:1155:VAL:HA	1:C:1158:PHE:HB2	1.84	0.59
1:B:1024:ARG:HH12	1:B:1294:ARG:HE	1.52	0.58
1:A:1146:CYS:HB2	1:A:1662:ALA:HB2	1.86	0.58
1:B:2387:VAL:HG12	1:B:2389:GLN:H	1.67	0.58
1:A:1024:ARG:HH12	1:A:1294:ARG:HE	1.52	0.58
1:B:2169:ARG:NH2	1:B:2497:LEU:O	2.35	0.58
1:C:1024:ARG:HH12	1:C:1294:ARG:HE	1.52	0.58
1:A:2169:ARG:NH2	1:A:2497:LEU:O	2.35	0.57
1:C:2169:ARG:NH2	1:C:2497:LEU:O	2.35	0.57
1:A:2108:ASN:OD1	1:A:2135:ARG:NH2	2.38	0.57
1:C:1146:CYS:HB2	1:C:1662:ALA:HB2	1.86	0.57
1:B:2108:ASN:OD1	1:B:2135:ARG:NH2	2.38	0.57
1:A:2375:TYR:HA	1:A:2447:VAL:O	2.05	0.56
1:B:1146:CYS:HB2	1:B:1662:ALA:HB2	1.86	0.56
1:C:2108:ASN:OD1	1:C:2135:ARG:NH2	2.38	0.56
1:A:1188:CYS:O	1:A:1192:LEU:HB2	2.06	0.56
1:A:1344:GLN:OE1	1:A:1347:ARG:NH1	2.39	0.56
1:A:1559:LEU:HA	1:A:1654:LEU:HD13	1.88	0.56
1:A:1687:SER:O	1:A:1796:HIS:ND1	2.38	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:2347:ASN:OD1	1:B:2352:ARG:NH2	2.39	0.56
1:B:2535:SER:OG	1:B:2538:THR:OG1	2.23	0.56
1:C:2375:TYR:HA	1:C:2447:VAL:O	2.05	0.56
1:B:1559:LEU:HA	1:B:1654:LEU:HD13	1.88	0.56
1:B:1194:PHE:HB3	1:B:1198:LEU:HD23	1.88	0.56
1:C:2347:ASN:OD1	1:C:2352:ARG:NH2	2.39	0.55
1:B:2375:TYR:HA	1:B:2447:VAL:O	2.05	0.55
1:A:1194:PHE:HB3	1:A:1198:LEU:HD23	1.88	0.55
1:A:1711:PRO:HA	1:A:1714:VAL:HB	1.89	0.55
1:C:1194:PHE:HB3	1:C:1198:LEU:HD23	1.88	0.55
1:C:2245:GLN:HG2	1:C:2246:PRO:HD3	1.88	0.55
1:A:2245:GLN:HG2	1:A:2246:PRO:HD3	1.88	0.55
1:C:1188:CYS:O	1:C:1192:LEU:HB2	2.06	0.55
1:C:1201:LYS:O	1:C:1206:GLN:NE2	2.40	0.55
1:A:2347:ASN:OD1	1:A:2352:ARG:NH2	2.39	0.55
1:B:1188:CYS:O	1:B:1192:LEU:HB2	2.06	0.55
1:B:1344:GLN:OE1	1:B:1347:ARG:NH1	2.39	0.55
1:C:1344:GLN:OE1	1:C:1347:ARG:NH1	2.39	0.55
1:A:1201:LYS:O	1:A:1206:GLN:NE2	2.40	0.55
1:B:1711:PRO:HA	1:B:1714:VAL:HB	1.89	0.55
1:B:1201:LYS:O	1:B:1206:GLN:NE2	2.40	0.54
1:C:1711:PRO:HA	1:C:1714:VAL:HB	1.89	0.54
1:A:2377:ARG:HA	1:A:2449:PHE:HB2	1.90	0.54
1:B:2245:GLN:HG2	1:B:2246:PRO:HD3	1.88	0.54
1:C:2377:ARG:HA	1:C:2449:PHE:HB2	1.90	0.54
1:B:703:GLN:O	1:B:708:HIS:N	2.40	0.54
1:A:2535:SER:OG	1:A:2538:THR:OG1	2.23	0.54
1:A:703:GLN:O	1:A:708:HIS:N	2.40	0.54
1:C:1559:LEU:HA	1:C:1654:LEU:HD13	1.88	0.54
1:A:1726:SER:HG	1:A:1729:PHE:H	1.54	0.54
1:A:2283:THR:HG23	1:A:2447:VAL:HG22	1.90	0.54
1:C:1687:SER:O	1:C:1796:HIS:ND1	2.38	0.54
1:C:2148:SER:OG	1:C:2149:LEU:N	2.41	0.54
1:A:1168:VAL:HA	1:A:1171:VAL:HG12	1.90	0.54
1:A:2148:SER:OG	1:A:2149:LEU:N	2.41	0.54
1:C:703:GLN:O	1:C:708:HIS:N	2.40	0.53
1:B:2377:ARG:HA	1:B:2449:PHE:HB2	1.90	0.53
1:B:2365:SER:HB3	1:B:2402:ARG:HD3	1.90	0.53
1:C:1168:VAL:HA	1:C:1171:VAL:HG12	1.90	0.53
1:A:2496:GLU:O	1:B:2534:ARG:NH1	2.42	0.53
1:B:1687:SER:O	1:B:1796:HIS:ND1	2.38	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:2496:GLU:O	1:C:2534:ARG:NH1	2.42	0.53
1:B:2545:GLU:O	1:B:2546:ARG:NH2	2.42	0.53
1:C:2365:SER:HB3	1:C:2402:ARG:HD3	1.90	0.53
1:B:1716:LEU:HD11	1:B:2051:VAL:HG12	1.91	0.53
1:A:2534:ARG:NH1	1:C:2496:GLU:O	2.41	0.52
1:B:2148:SER:OG	1:B:2149:LEU:N	2.41	0.52
1:A:2356:GLN:HG3	1:A:2364:GLN:HG2	1.92	0.52
1:A:2545:GLU:O	1:A:2546:ARG:NH2	2.42	0.52
1:B:2283:THR:HG23	1:B:2447:VAL:HG22	1.90	0.52
1:B:2356:GLN:HG3	1:B:2364:GLN:HG2	1.92	0.52
1:C:2252:THR:HG23	1:C:2255:ALA:H	1.75	0.52
1:A:2365:SER:HB3	1:A:2402:ARG:HD3	1.90	0.52
1:C:2283:THR:HG23	1:C:2447:VAL:HG22	1.90	0.52
1:A:1403:HIS:O	1:A:1403:HIS:ND1	2.43	0.52
1:B:1403:HIS:O	1:B:1403:HIS:ND1	2.43	0.52
1:B:2252:THR:HG23	1:B:2255:ALA:H	1.75	0.52
1:C:2535:SER:OG	1:C:2538:THR:OG1	2.23	0.52
1:B:1168:VAL:HA	1:B:1171:VAL:HG12	1.90	0.52
1:C:1403:HIS:O	1:C:1403:HIS:ND1	2.43	0.52
1:C:2545:GLU:O	1:C:2546:ARG:NH2	2.42	0.52
1:A:2110:LEU:O	1:A:2118:ASN:ND2	2.42	0.52
1:B:2409:GLN:NE2	1:B:2425:ASP:OD2	2.43	0.51
1:C:1716:LEU:HD11	1:C:2051:VAL:HG12	1.91	0.51
1:A:2409:GLN:NE2	1:A:2425:ASP:OD2	2.43	0.51
1:C:2356:GLN:HG3	1:C:2364:GLN:HG2	1.91	0.51
1:A:1184:TYR:OH	1:A:1216:TYR:O	2.27	0.51
1:C:2409:GLN:NE2	1:C:2425:ASP:OD2	2.43	0.51
1:A:2252:THR:HG23	1:A:2255:ALA:H	1.75	0.51
1:B:2220:VAL:HA	1:B:2452:LYS:HG3	1.93	0.50
1:A:1716:LEU:HD11	1:A:2051:VAL:HG12	1.91	0.50
1:A:2519:LEU:HD13	1:C:2183:LYS:HD3	1.93	0.50
1:C:2220:VAL:HA	1:C:2452:LYS:HG3	1.93	0.50
1:C:2513:VAL:HG11	1:C:2521:LEU:HB3	1.94	0.50
1:A:2471:VAL:HA	1:A:2474:VAL:HG12	1.93	0.50
1:B:2183:LYS:HD3	1:C:2519:LEU:HD13	1.94	0.50
1:B:2368:ILE:HG13	1:B:2401:VAL:HB	1.94	0.50
1:B:988:LYS:HD3	1:B:1026:ARG:HH12	1.77	0.50
1:C:1196:THR:O	1:C:1200:GLN:NE2	2.45	0.50
1:C:2372:PHE:O	1:C:2399:LEU:N	2.45	0.50
1:C:2471:VAL:HA	1:C:2474:VAL:HG12	1.93	0.50
1:A:2231:LYS:HA	1:A:2237:PRO:HA	1.94	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:2134:LEU:HD22	1:B:2138:MET:HE2	1.93	0.50
1:B:2345:ALA:HB3	1:B:2348:SER:HB3	1.94	0.49
1:C:1167:VAL:HG22	1:C:1791:MET:HE3	1.94	0.49
1:A:988:LYS:HD3	1:A:1026:ARG:HH12	1.77	0.49
1:A:1167:VAL:HG22	1:A:1791:MET:HE3	1.94	0.49
1:B:2513:VAL:HG11	1:B:2521:LEU:HB3	1.94	0.49
1:A:1159:ARG:NH2	1:A:1308:ASP:OD2	2.46	0.49
1:A:1196:THR:O	1:A:1200:GLN:NE2	2.45	0.49
1:A:2134:LEU:HD22	1:A:2138:MET:HE2	1.93	0.49
1:C:988:LYS:HD3	1:C:1026:ARG:HH12	1.77	0.49
1:C:1159:ARG:NH2	1:C:1308:ASP:OD2	2.46	0.49
1:C:1184:TYR:OH	1:C:1216:TYR:O	2.27	0.49
1:A:2372:PHE:O	1:A:2399:LEU:N	2.45	0.49
1:A:2513:VAL:HG11	1:A:2521:LEU:HB3	1.94	0.49
1:A:2534:ARG:HH12	1:C:2498:PRO:HD3	1.78	0.49
1:B:1159:ARG:NH2	1:B:1308:ASP:OD2	2.46	0.49
1:B:1196:THR:O	1:B:1200:GLN:NE2	2.45	0.49
1:B:2110:LEU:O	1:B:2118:ASN:ND2	2.42	0.49
1:B:1167:VAL:HG22	1:B:1791:MET:HE3	1.94	0.49
1:A:2220:VAL:HA	1:A:2452:LYS:HG3	1.93	0.49
1:B:2221:ASN:HD21	1:B:2325:ARG:HB2	1.78	0.49
1:C:2368:ILE:HG13	1:C:2401:VAL:HB	1.94	0.49
1:A:2268:LEU:HB3	1:A:2389:GLN:HG3	1.95	0.49
1:A:2368:ILE:HG13	1:A:2401:VAL:HB	1.94	0.49
1:B:2231:LYS:HA	1:B:2237:PRO:HA	1.94	0.48
1:B:2268:LEU:HB3	1:B:2389:GLN:HG3	1.95	0.48
1:A:2338:GLU:OE1	1:A:2385:ASN:ND2	2.46	0.48
1:B:2372:PHE:O	1:B:2399:LEU:N	2.45	0.48
1:C:1726:SER:HG	1:C:1729:PHE:H	1.58	0.48
1:B:2471:VAL:HA	1:B:2474:VAL:HG12	1.93	0.48
1:C:2345:ALA:HB3	1:C:2348:SER:HB3	1.94	0.48
1:C:2134:LEU:HD22	1:C:2138:MET:HE2	1.93	0.48
1:C:2221:ASN:HD21	1:C:2325:ARG:HB2	1.78	0.48
1:A:2221:ASN:HD21	1:A:2325:ARG:HB2	1.78	0.48
1:C:2231:LYS:HA	1:C:2237:PRO:HA	1.94	0.48
1:A:1403:HIS:NE2	1:A:2146:THR:O	2.40	0.48
1:A:2345:ALA:HB3	1:A:2348:SER:HB3	1.94	0.48
1:B:2338:GLU:OE1	1:B:2385:ASN:ND2	2.46	0.48
1:A:2183:LYS:HD3	1:B:2519:LEU:HD13	1.94	0.48
1:B:2498:PRO:HD3	1:C:2534:ARG:HH12	1.78	0.48
1:A:2057:ILE:HG12	1:A:2086:LYS:HD2	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:2225:ASP:HB2	1:B:2324:GLN:O	2.14	0.47
1:C:1651:ASP:N	1:C:1651:ASP:OD1	2.47	0.47
1:C:2057:ILE:HG12	1:C:2086:LYS:HD2	1.96	0.47
1:B:2057:ILE:HG12	1:B:2086:LYS:HD2	1.96	0.47
1:C:2110:LEU:O	1:C:2118:ASN:ND2	2.42	0.47
1:C:2338:GLU:OE1	1:C:2385:ASN:ND2	2.46	0.47
1:A:2147:LEU:HD23	1:A:2151:ASN:HB3	1.97	0.47
1:C:2147:LEU:HD23	1:C:2151:ASN:HB3	1.97	0.47
1:A:1032:LEU:O	1:A:1036:TYR:N	2.48	0.47
1:A:1651:ASP:OD1	1:A:1651:ASP:N	2.47	0.47
1:B:2147:LEU:HD23	1:B:2151:ASN:HB3	1.97	0.47
1:A:2225:ASP:HB2	1:A:2324:GLN:O	2.14	0.47
1:A:1141:PRO:HD3	1:A:1304:HIS:CG	2.50	0.47
1:A:1514:ASP:HA	1:A:1517:THR:HG22	1.97	0.47
1:B:1141:PRO:HD3	1:B:1304:HIS:CG	2.50	0.47
1:B:1403:HIS:NE2	1:B:2146:THR:O	2.40	0.46
1:B:1032:LEU:O	1:B:1036:TYR:N	2.48	0.46
1:C:1403:HIS:NE2	1:C:2146:THR:O	2.40	0.46
1:C:2184:LYS:HB3	1:C:2187:VAL:HB	1.97	0.46
1:C:2268:LEU:HB3	1:C:2389:GLN:HG3	1.95	0.46
1:A:2436:ASP:N	1:A:2436:ASP:OD1	2.48	0.46
1:B:2324:GLN:HG3	1:B:2334:GLU:HG2	1.98	0.46
1:C:1141:PRO:HD3	1:C:1304:HIS:CG	2.50	0.46
1:A:2184:LYS:HB3	1:A:2187:VAL:HB	1.97	0.46
1:C:2225:ASP:HB2	1:C:2324:GLN:O	2.14	0.46
1:A:2269:ALA:HB1	1:A:2390:LEU:HD13	1.98	0.46
1:A:2498:PRO:HD3	1:B:2534:ARG:HH12	1.79	0.46
1:B:1144:ILE:HA	1:B:1155:VAL:HG11	1.98	0.46
1:B:2493:MET:HA	1:C:2534:ARG:HG3	1.97	0.46
1:A:2236:GLU:HB2	1:A:2296:ILE:HD13	1.98	0.46
1:B:2050:GLN:NE2	1:B:2093:SER:OG	2.47	0.46
1:C:1514:ASP:HA	1:C:1517:THR:HG22	1.97	0.46
1:B:2269:ALA:HB1	1:B:2390:LEU:HD13	1.98	0.46
1:A:2324:GLN:HG3	1:A:2334:GLU:HG2	1.98	0.46
1:A:2420:GLY:O	1:A:2424:SER:N	2.49	0.46
1:A:2493:MET:HA	1:B:2534:ARG:HG3	1.98	0.46
1:B:967:ARG:NH1	1:B:1116:THR:O	2.49	0.46
1:B:1514:ASP:HA	1:B:1517:THR:HG22	1.97	0.46
1:C:2269:ALA:HB1	1:C:2390:LEU:HD13	1.98	0.46
1:B:2236:GLU:HB2	1:B:2296:ILE:HD13	1.98	0.45
1:B:2436:ASP:OD1	1:B:2436:ASP:N	2.48	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:2420:GLY:O	1:B:2424:SER:N	2.49	0.45
1:C:2535:SER:HG	1:C:2538:THR:HG1	1.55	0.45
1:A:967:ARG:NH1	1:A:1116:THR:O	2.49	0.45
1:C:2420:GLY:O	1:C:2424:SER:N	2.49	0.45
1:C:967:ARG:NH1	1:C:1116:THR:O	2.49	0.45
1:C:1032:LEU:O	1:C:1036:TYR:N	2.47	0.45
1:B:1353:ARG:NE	1:B:2518:GLU:OE2	2.41	0.45
1:A:971:ASP:HA	1:A:1150:LEU:HD11	1.99	0.45
1:C:2221:ASN:OD1	1:C:2325:ARG:NE	2.43	0.45
1:C:2324:GLN:HG3	1:C:2334:GLU:HG2	1.98	0.45
1:A:1144:ILE:HA	1:A:1155:VAL:HG11	1.98	0.45
1:B:2184:LYS:HB3	1:B:2187:VAL:HB	1.97	0.45
1:C:2285:GLN:HB3	1:C:2443:LEU:HG	1.99	0.45
1:A:2534:ARG:HG3	1:C:2493:MET:HA	1.98	0.45
1:C:971:ASP:HA	1:C:1150:LEU:HD11	1.99	0.45
1:B:1780:ASP:OD1	1:B:1780:ASP:N	2.48	0.44
1:C:1727:LYS:HG3	1:C:1728:ARG:HG2	1.99	0.44
1:C:2309:TYR:OH	1:C:2359:GLU:OE2	2.35	0.44
1:C:2236:GLU:HB2	1:C:2296:ILE:HD13	1.98	0.44
1:B:1651:ASP:OD1	1:B:1651:ASP:N	2.47	0.44
1:C:1780:ASP:OD1	1:C:1780:ASP:N	2.48	0.44
1:C:2538:THR:HG22	1:C:2541:LYS:HE3	2.00	0.44
1:A:2406:ARG:HD3	1:A:2406:ARG:HA	1.83	0.44
1:B:1727:LYS:HG3	1:B:1728:ARG:HG2	1.99	0.44
1:C:2436:ASP:N	1:C:2436:ASP:OD1	2.48	0.44
1:A:1409:SER:O	1:A:1409:SER:OG	2.36	0.44
1:A:2285:GLN:HB3	1:A:2443:LEU:HG	1.99	0.44
1:B:2538:THR:HG22	1:B:2541:LYS:HE3	2.00	0.44
1:C:1144:ILE:HA	1:C:1155:VAL:HG11	1.98	0.44
1:C:1289:PHE:HD1	1:C:1292:LEU:HD12	1.83	0.44
1:A:2309:TYR:OH	1:A:2359:GLU:OE2	2.35	0.44
1:A:2397:ASP:OD1	1:A:2397:ASP:N	2.50	0.44
1:A:2538:THR:HG22	1:A:2541:LYS:HE3	2.00	0.44
1:C:2050:GLN:NE2	1:C:2093:SER:OG	2.47	0.44
1:B:593:MET:O	1:B:597:VAL:CB	2.66	0.44
1:A:1726:SER:OG	1:A:1728:ARG:N	2.52	0.43
1:B:2309:TYR:OH	1:B:2359:GLU:OE2	2.35	0.43
1:C:1726:SER:OG	1:C:1728:ARG:N	2.51	0.43
1:A:1289:PHE:HD1	1:A:1292:LEU:HD12	1.83	0.43
1:B:1671:ARG:HG2	1:B:1672:THR:HG23	2.00	0.43
1:A:1671:ARG:HG2	1:A:1672:THR:HG23	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:2388:LYS:HD2	1:C:2394:GLU:HG2	1.99	0.43
1:A:1211:ASP:HA	1:A:1214:ILE:HG12	2.00	0.43
1:B:1656:ILE:HB	1:B:1659:LEU:HD13	2.00	0.43
1:B:2285:GLN:HB3	1:B:2443:LEU:HG	1.99	0.43
1:C:2410:VAL:HG21	1:C:2427:LEU:HD12	2.01	0.43
1:C:2461:LEU:HD12	1:C:2463:GLY:H	1.83	0.43
1:A:593:MET:O	1:A:597:VAL:CB	2.66	0.43
1:A:2410:VAL:HG21	1:A:2427:LEU:HD12	2.01	0.43
1:B:1726:SER:OG	1:B:1728:ARG:N	2.52	0.43
1:B:2388:LYS:HD2	1:B:2394:GLU:HG2	1.99	0.43
1:C:841:PRO:HA	1:C:1105:SER:HB2	2.01	0.43
1:C:2037:LEU:HD13	1:C:2037:LEU:HA	1.83	0.43
1:A:841:PRO:HA	1:A:1105:SER:HB2	2.01	0.43
1:B:2295:ARG:H	1:B:2295:ARG:HG2	1.65	0.43
1:C:1353:ARG:NE	1:C:2518:GLU:OE2	2.41	0.43
1:B:2397:ASP:OD1	1:B:2397:ASP:N	2.50	0.43
1:C:2397:ASP:OD1	1:C:2397:ASP:N	2.50	0.43
1:A:2208:LEU:HD23	1:A:2208:LEU:HA	1.82	0.43
1:A:2388:LYS:HD2	1:A:2394:GLU:HG2	2.00	0.43
1:B:971:ASP:HA	1:B:1150:LEU:HD11	1.99	0.43
1:B:1211:ASP:HA	1:B:1214:ILE:HG12	2.00	0.43
1:B:2461:LEU:HD12	1:B:2463:GLY:H	1.83	0.43
1:A:1727:LYS:HG3	1:A:1728:ARG:HG2	1.99	0.43
1:A:2229:THR:OG1	1:A:2239:PHE:O	2.32	0.43
1:B:1140:ILE:O	1:B:1143:PHE:C	2.62	0.43
1:B:1349:MET:HE3	1:B:1349:MET:HB3	1.95	0.43
1:B:2410:VAL:HG21	1:B:2427:LEU:HD12	2.01	0.43
1:A:2461:LEU:HD12	1:A:2463:GLY:H	1.83	0.42
1:C:593:MET:O	1:C:597:VAL:CB	2.66	0.42
1:C:1140:ILE:O	1:C:1143:PHE:C	2.62	0.42
1:B:2372:PHE:HZ	1:B:2446:MET:HB3	1.84	0.42
1:C:2491:SER:O	1:C:2491:SER:OG	2.34	0.42
1:C:2521:LEU:HD12	1:C:2521:LEU:HA	1.90	0.42
1:A:1140:ILE:O	1:A:1143:PHE:C	2.62	0.42
1:A:2131:LEU:HD12	1:A:2131:LEU:HA	1.83	0.42
1:A:2372:PHE:HZ	1:A:2446:MET:HB3	1.84	0.42
1:B:1402:ASP:OD1	1:B:1402:ASP:N	2.52	0.42
1:A:2307:GLU:O	1:A:2351:ARG:NH2	2.53	0.42
1:A:2427:LEU:HD23	1:A:2427:LEU:HA	1.87	0.42
1:A:2521:LEU:HD12	1:A:2521:LEU:HA	1.90	0.42
1:C:2372:PHE:HZ	1:C:2446:MET:HB3	1.84	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1402:ASP:OD1	1:A:1402:ASP:N	2.52	0.42
1:A:2221:ASN:OD1	1:A:2325:ARG:NE	2.43	0.42
1:C:1211:ASP:HA	1:C:1214:ILE:HG12	2.00	0.42
1:C:1671:ARG:HG2	1:C:1672:THR:HG23	2.00	0.42
1:A:1401:LEU:HD12	1:C:2179:LYS:HE2	2.01	0.42
1:A:1656:ILE:HB	1:A:1659:LEU:HD13	2.00	0.42
1:B:1289:PHE:HD1	1:B:1292:LEU:HD12	1.83	0.42
1:B:1540:LEU:HD13	1:B:1559:LEU:HD13	2.02	0.42
1:B:2131:LEU:HD12	1:B:2131:LEU:HA	1.83	0.42
1:B:1727:LYS:H	1:B:1727:LYS:HG2	1.53	0.42
1:B:2307:GLU:O	1:B:2351:ARG:NH2	2.53	0.42
1:C:2065:LEU:HD12	1:C:2065:LEU:HA	1.92	0.42
1:C:2307:GLU:O	1:C:2351:ARG:NH2	2.52	0.42
1:C:1656:ILE:HB	1:C:1659:LEU:HD13	2.00	0.42
1:A:1036:TYR:HA	1:A:1039:PHE:CE1	2.55	0.41
1:A:2308:LEU:HD22	1:A:2358:LEU:HD21	2.02	0.41
1:B:841:PRO:HA	1:B:1105:SER:HB2	2.01	0.41
1:B:1541:LEU:O	1:B:1545:LEU:N	2.52	0.41
1:A:2065:LEU:HD12	1:A:2065:LEU:HA	1.92	0.41
1:A:2088:ILE:H	1:A:2088:ILE:HG13	1.69	0.41
1:B:1036:TYR:HA	1:B:1039:PHE:CE1	2.55	0.41
1:B:2230:LEU:HB3	1:B:2239:PHE:HB3	2.03	0.41
1:C:2119:LEU:HD11	1:C:2164:ILE:HG23	2.03	0.41
1:B:703:GLN:O	1:B:707:PHE:N	2.53	0.41
1:B:2088:ILE:H	1:B:2088:ILE:HG13	1.69	0.41
1:C:703:GLN:O	1:C:707:PHE:N	2.53	0.41
1:C:1541:LEU:O	1:C:1545:LEU:N	2.52	0.41
1:A:1353:ARG:NE	1:A:2518:GLU:OE2	2.41	0.41
1:A:2061:MET:HE1	1:A:2082:TRP:HZ3	1.86	0.41
1:B:2491:SER:O	1:B:2491:SER:OG	2.34	0.41
1:A:2179:LYS:HE2	1:B:1401:LEU:HD12	2.01	0.41
1:C:1727:LYS:H	1:C:1727:LYS:HG2	1.53	0.41
1:A:2504:LEU:HD12	1:A:2504:LEU:HA	1.94	0.41
1:B:2179:LYS:HE2	1:C:1401:LEU:HD12	2.02	0.41
1:B:2378:ALA:HB3	1:B:2450:SER:HA	2.03	0.41
1:C:1540:LEU:HD13	1:C:1559:LEU:HD13	2.02	0.41
1:C:1551:VAL:HG22	1:C:1554:GLY:H	1.86	0.41
1:C:2061:MET:HE1	1:C:2082:TRP:HZ3	1.85	0.41
1:A:2037:LEU:HD13	1:A:2037:LEU:HA	1.83	0.41
1:B:2059:ILE:HD13	1:B:2059:ILE:HA	1.89	0.41
1:B:2352:ARG:HD3	1:B:2355:ALA:HB3	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:2308:LEU:HD22	1:C:2358:LEU:HD21	2.03	0.41
1:A:2119:LEU:HD11	1:A:2164:ILE:HG23	2.03	0.40
1:B:2119:LEU:HD11	1:B:2164:ILE:HG23	2.03	0.40
1:C:2208:LEU:HD23	1:C:2208:LEU:HA	1.82	0.40
1:C:2352:ARG:HD3	1:C:2355:ALA:HB3	2.03	0.40
1:C:2406:ARG:HA	1:C:2406:ARG:HD3	1.83	0.40
1:A:2352:ARG:HD3	1:A:2355:ALA:HB3	2.03	0.40
1:C:2504:LEU:HD12	1:C:2504:LEU:HA	1.94	0.40
1:A:1540:LEU:HD13	1:A:1559:LEU:HD13	2.02	0.40
1:B:2179:LYS:HD3	1:C:1401:LEU:HB2	2.04	0.40
1:A:1213:LEU:HD12	1:A:1213:LEU:HA	1.96	0.40
1:A:2230:LEU:HB3	1:A:2239:PHE:HB3	2.03	0.40
1:B:2289:SER:HA	1:B:2431:VAL:HG13	2.03	0.40
1:C:1036:TYR:HA	1:C:1039:PHE:CE1	2.55	0.40
1:C:1402:ASP:OD1	1:C:1402:ASP:N	2.52	0.40
1:C:2230:LEU:HB3	1:C:2239:PHE:HB3	2.03	0.40
1:C:2247:SER:O	1:C:2247:SER:OG	2.37	0.40
1:C:2361:ARG:HA	1:C:2362:PRO:HD3	1.99	0.40
1:A:1401:LEU:HB2	1:C:2179:LYS:HD3	2.04	0.40
1:A:1403:HIS:NE2	1:A:2523:GLU:OE2	2.55	0.40
1:A:2050:GLN:NE2	1:A:2093:SER:OG	2.47	0.40
1:B:1331:ILE:HD13	1:B:1331:ILE:HA	1.93	0.40
1:B:2308:LEU:HD22	1:B:2358:LEU:HD21	2.03	0.40
1:B:2321:TRP:HD1	1:B:2323:PHE:HE2	1.69	0.40
1:B:2477:VAL:HG13	1:C:2130:PHE:HZ	1.86	0.40
1:C:2020:PHE:HA	1:C:2023:MET:HE2	2.04	0.40
1:C:2059:ILE:HD13	1:C:2059:ILE:HA	1.89	0.40
1:C:2088:ILE:H	1:C:2088:ILE:HG13	1.68	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	1270/2547 (50%)	1168 (92%)	102 (8%)	0	100	100
1	B	1270/2547 (50%)	1168 (92%)	102 (8%)	0	100	100
1	C	1270/2547 (50%)	1168 (92%)	102 (8%)	0	100	100
All	All	3810/7641 (50%)	3504 (92%)	306 (8%)	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	883/2246 (39%)	876 (99%)	7 (1%)	73	77
1	B	883/2246 (39%)	876 (99%)	7 (1%)	73	77
1	C	883/2246 (39%)	876 (99%)	7 (1%)	73	77
All	All	2649/6738 (39%)	2628 (99%)	21 (1%)	70	77

All (21) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	1178	SER
1	A	1185	LEU
1	A	1280	ILE
1	A	1713	LEU
1	A	2299	PRO
1	A	2333	VAL
1	A	2441	CYS
1	B	1178	SER
1	B	1185	LEU
1	B	1280	ILE
1	B	1713	LEU
1	B	2299	PRO
1	B	2333	VAL
1	B	2441	CYS
1	C	1178	SER

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Mol	Chain	Res	Type
1	C	1185	LEU
1	C	1280	ILE
1	C	1713	LEU
1	C	2299	PRO
1	C	2333	VAL
1	C	2441	CYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (58) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	968	GLN
1	A	1004	GLN
1	A	1106	GLN
1	A	1142	ASN
1	A	1200	GLN
1	A	1558	GLN
1	A	1668	GLN
1	A	1686	HIS
1	A	2018	GLN
1	A	2058	HIS
1	A	2115	ASN
1	A	2151	ASN
1	A	2262	GLN
1	A	2303	GLN
1	A	2306	GLN
1	A	2340	HIS
1	A	2380	ASN
1	A	2389	GLN
1	A	2442	ASN
1	B	1004	GLN
1	B	1106	GLN
1	B	1142	ASN
1	B	1510	GLN
1	B	1558	GLN
1	B	1668	GLN
1	B	1686	HIS
1	B	2018	GLN
1	B	2058	HIS
1	B	2115	ASN
1	B	2123	GLN
1	B	2151	ASN
1	B	2181	GLN

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Mol	Chain	Res	Type
1	B	2262	GLN
1	B	2303	GLN
1	B	2306	GLN
1	B	2340	HIS
1	B	2380	ASN
1	B	2389	GLN
1	B	2442	ASN
1	C	1004	GLN
1	C	1106	GLN
1	C	1142	ASN
1	C	1510	GLN
1	C	1558	GLN
1	C	1668	GLN
1	C	1686	HIS
1	C	1789	GLN
1	C	2058	HIS
1	C	2115	ASN
1	C	2123	GLN
1	C	2151	ASN
1	C	2181	GLN
1	C	2262	GLN
1	C	2303	GLN
1	C	2306	GLN
1	C	2380	ASN
1	C	2389	GLN
1	C	2442	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

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.

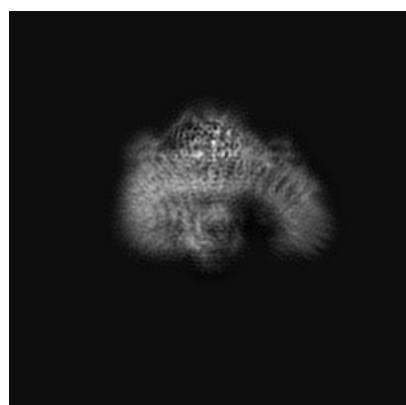
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-6865. These allow visual inspection of the internal detail of the map and identification of artifacts.

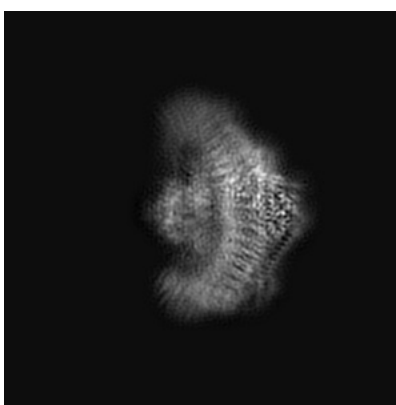
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

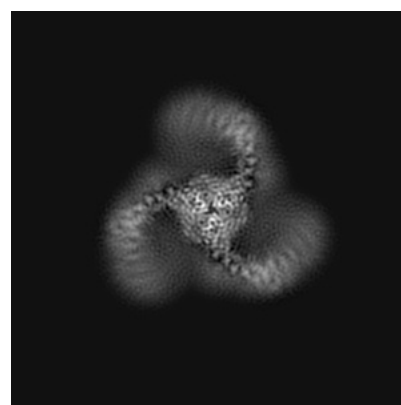
6.1.1 Primary map



X



Y

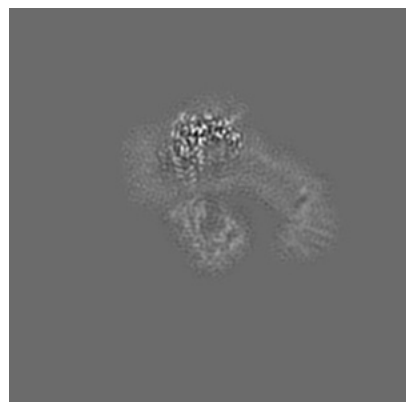


Z

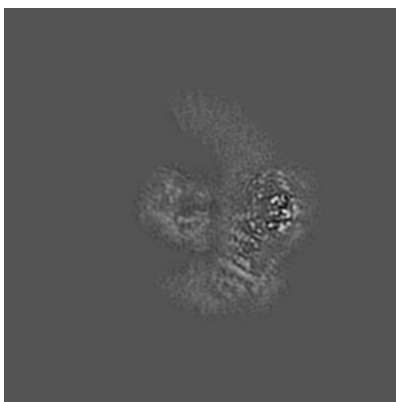
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

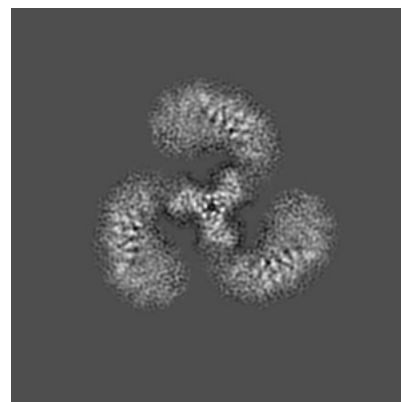
6.2.1 Primary map



X Index: 140



Y Index: 140

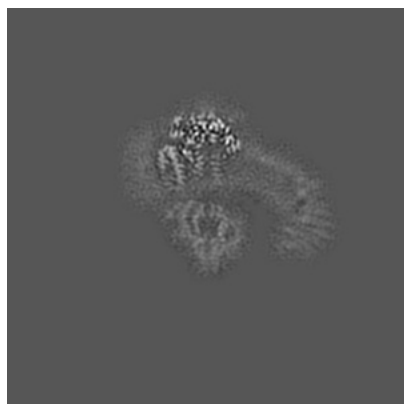


Z Index: 140

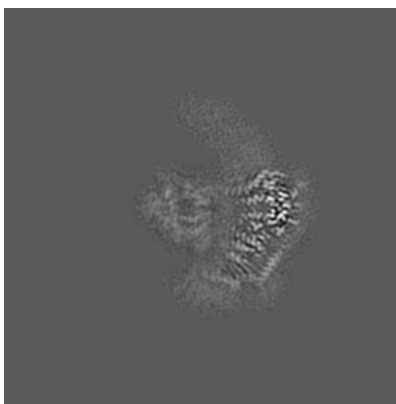
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

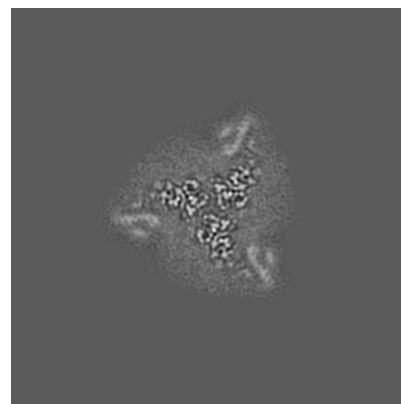
6.3.1 Primary map



X Index: 142



Y Index: 143

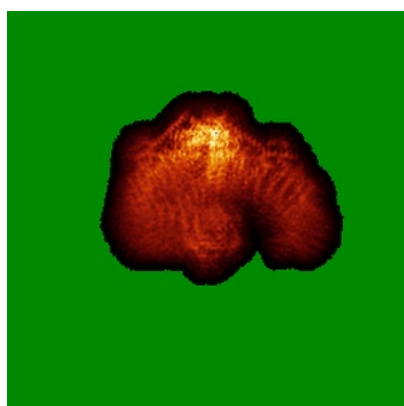


Z Index: 178

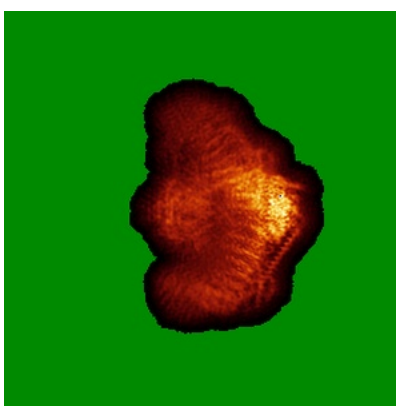
The images above show the largest variance slices of the map in three orthogonal directions.

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

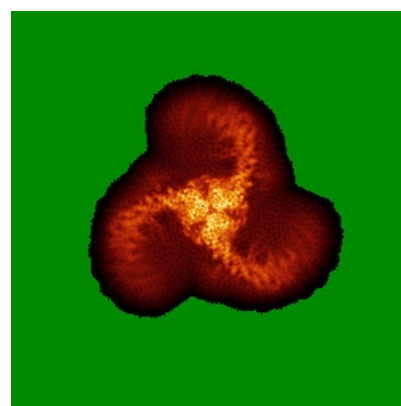
6.4.1 Primary map



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

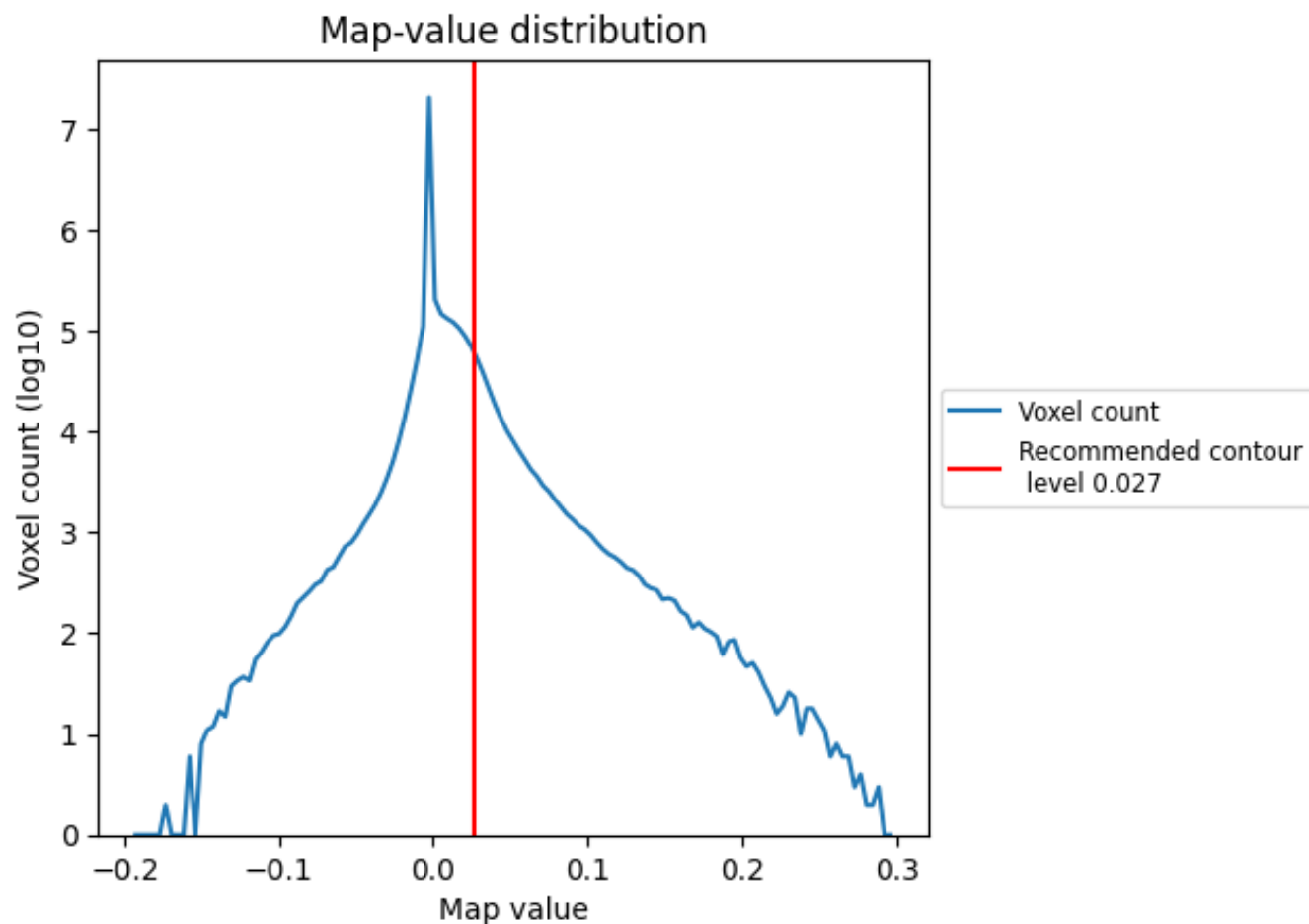
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

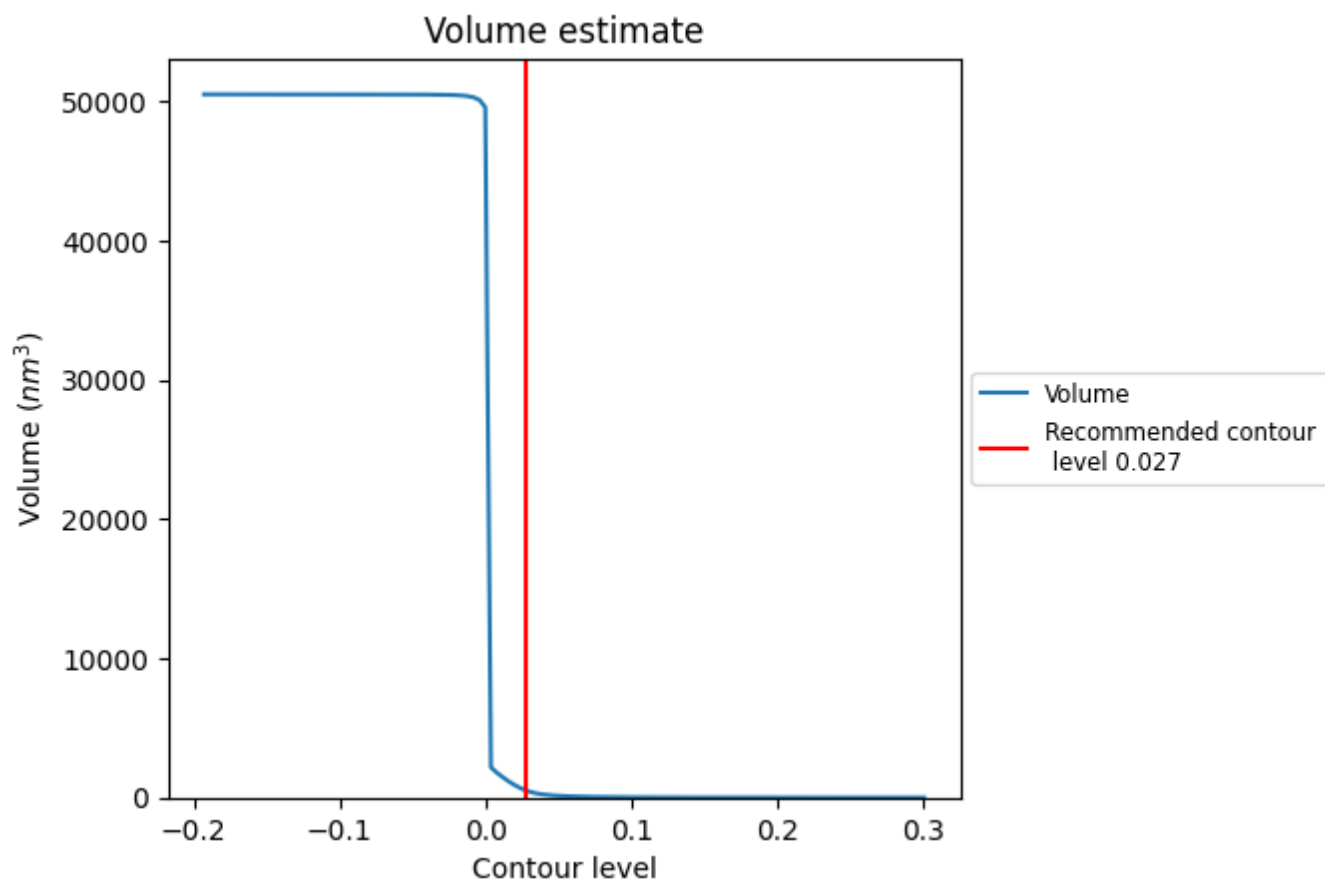
This section contains the results of statistical analysis of the map.

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.

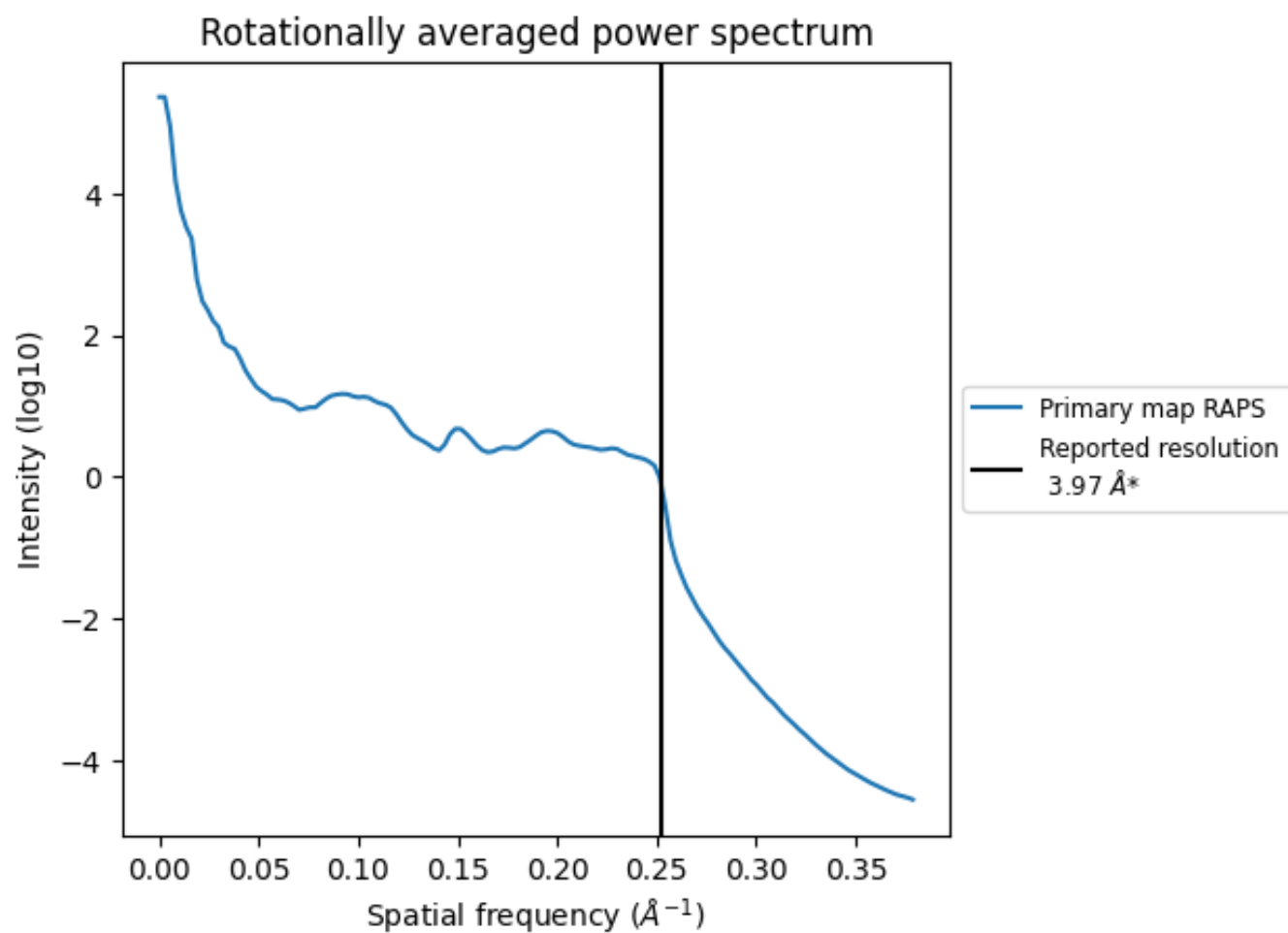
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 535 nm³; this corresponds to an approximate mass of 483 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 ⓘ

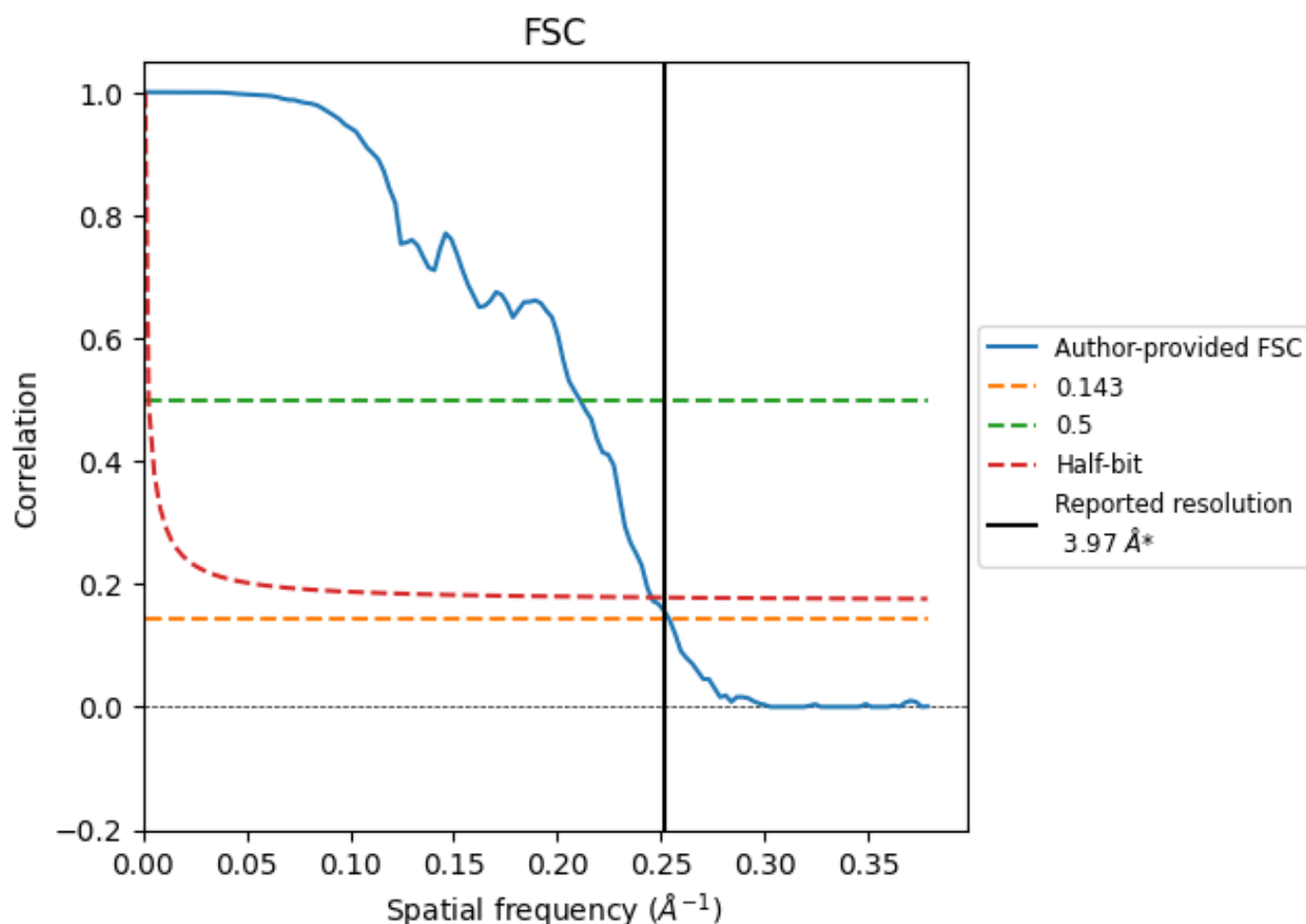


*Reported resolution corresponds to spatial frequency of 0.252 $\text{\AA}^{-1}$

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 0.252 Å⁻¹

8.2 Resolution estimates [i](#)

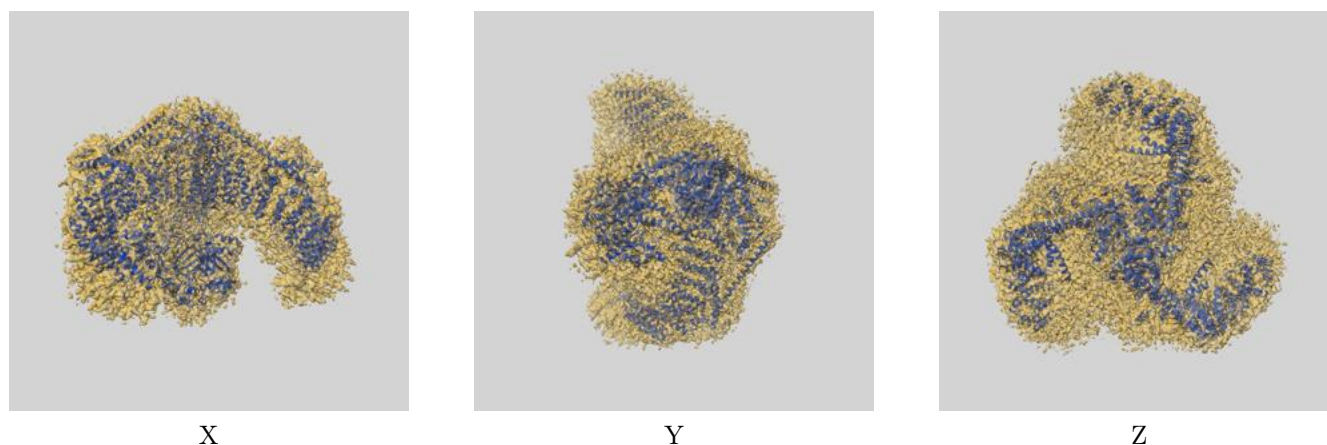
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.97	-	-
Author-provided FSC curve	3.94	4.74	4.07
Unmasked-calculated*	-	-	-

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

9 Map-model fit [i](#)

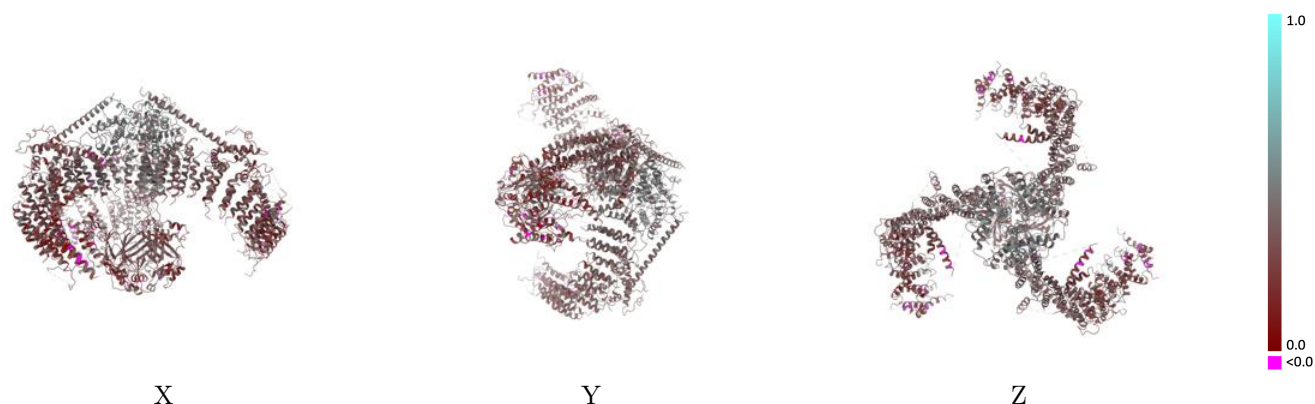
This section contains information regarding the fit between EMDB map EMD-6865 and PDB model 5Z10. Per-residue inclusion information can be found in [section 3](#) on [page 4](#).

9.1 Map-model overlay [i](#)



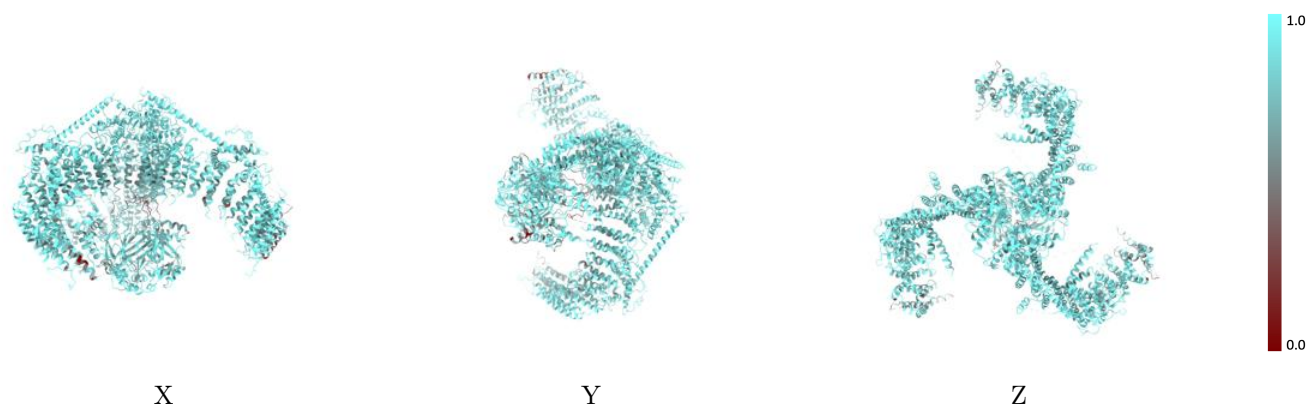
The images above show the 3D surface view of the map at the recommended contour level 0.027 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



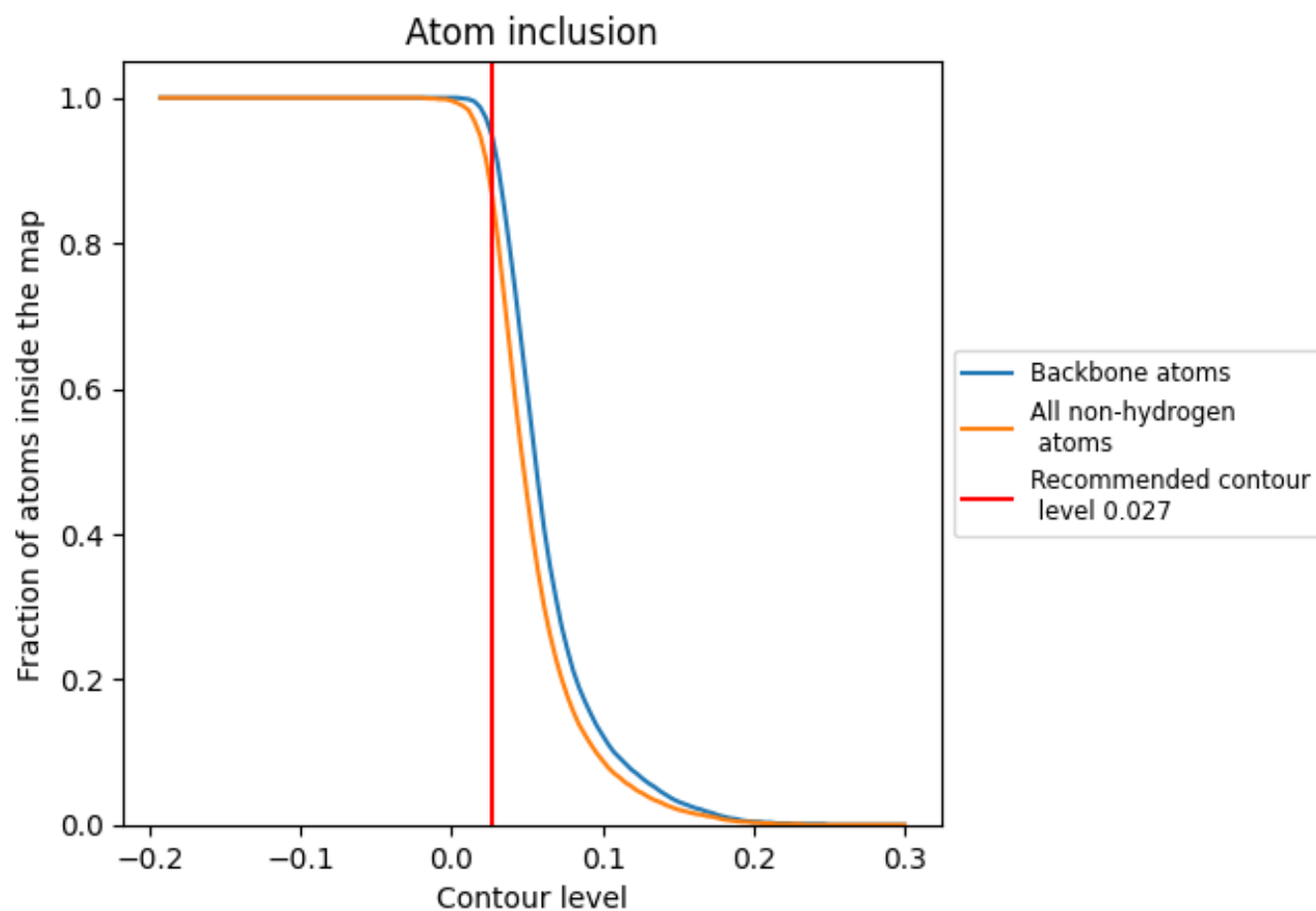
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.027).

9.4 Atom inclusion [i](#)



At the recommended contour level, 95% of all backbone atoms, 86% 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 (0.027) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8640	0.3590
A	0.8640	0.3580
B	0.8650	0.3600
C	0.8630	0.3600

