



Full wwPDB EM Validation Report ⓘ

Jan 13, 2025 – 10:24 AM EST

PDB ID : 9CD9
EMDB ID : EMD-45464
Title : Structure of type II-2 alpha-synuclein filament from multiple system atrophy
Authors : Yan, N.L.; Candido, F.; Tse, E.; Melo, A.A.; Southworth, D.R.; Merz, G.E.
Deposited on : 2024-06-24
Resolution : 3.20 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.dev113
MolProbity : 4.02b-467
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.40

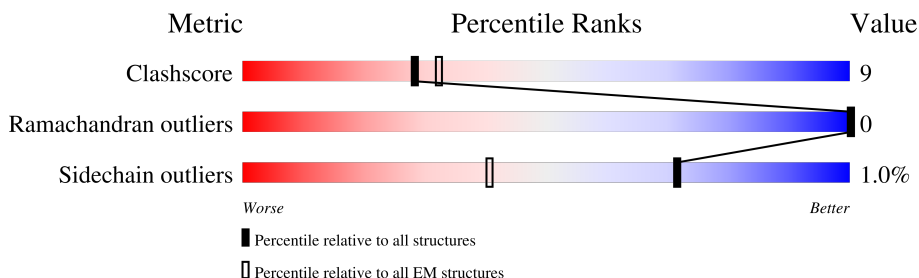
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.20 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.






Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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	E	140	
1	F	140	
1	G	140	
1	H	140	
1	I	140	
1	J	140	
1	K	140	
1	L	140	

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Mol	Chain	Length	Quality of chain
1	M	140	
1	N	140	
1	O	140	
1	P	140	
1	Q	140	
1	R	140	
1	S	140	
1	T	140	
1	U	140	
1	V	140	
1	W	140	
1	X	140	
1	Y	140	
1	Z	140	

2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 10989 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 Alpha-synuclein.

Mol	Chain	Residues	Atoms				AltConf	Trace
1	E	81	Total	C	N	O	0	0
			549	341	96	112		
1	F	65	Total	C	N	O	0	0
			450	282	78	90		
1	G	81	Total	C	N	O	0	0
			549	341	96	112		
1	H	65	Total	C	N	O	0	0
			450	282	78	90		
1	I	81	Total	C	N	O	0	0
			549	341	96	112		
1	J	65	Total	C	N	O	0	0
			450	282	78	90		
1	U	81	Total	C	N	O	0	0
			549	341	96	112		
1	V	65	Total	C	N	O	0	0
			450	282	78	90		
1	W	81	Total	C	N	O	0	0
			549	341	96	112		
1	X	65	Total	C	N	O	0	0
			450	282	78	90		
1	Y	81	Total	C	N	O	0	0
			549	341	96	112		
1	Z	65	Total	C	N	O	0	0
			450	282	78	90		
1	K	81	Total	C	N	O	0	0
			549	341	96	112		
1	L	65	Total	C	N	O	0	0
			450	282	78	90		
1	M	81	Total	C	N	O	0	0
			549	341	96	112		
1	N	65	Total	C	N	O	0	0
			450	282	78	90		
1	O	81	Total	C	N	O	0	0
			549	341	96	112		

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Mol	Chain	Residues	Atoms				AltConf	Trace
1	P	65	Total	C	N	O	0	0
			450	282	78	90		
1	Q	81	Total	C	N	O	0	0
			549	341	96	112		
1	R	65	Total	C	N	O	0	0
			450	282	78	90		
1	S	81	Total	C	N	O	0	0
			549	341	96	112		
1	T	65	Total	C	N	O	0	0
			450	282	78	90		

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.

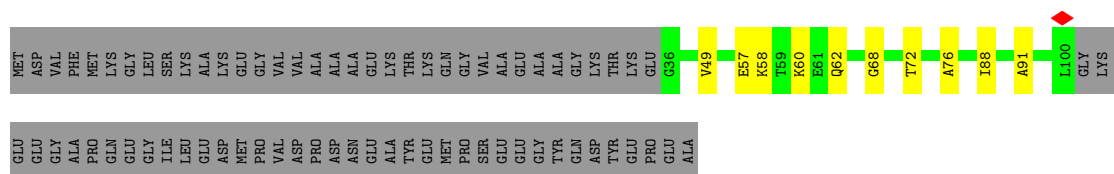
• Molecule 1: Alpha-synuclein

Chain E: 



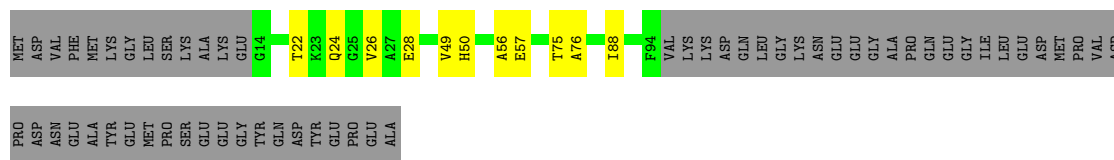
• Molecule 1: Alpha-synuclein

Chain F: 




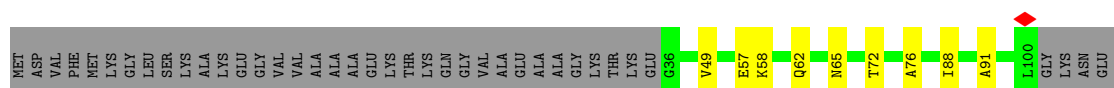
• Molecule 1: Alpha-synuclein

Chain G: 



• Molecule 1: Alpha-synuclein

Chain H: 



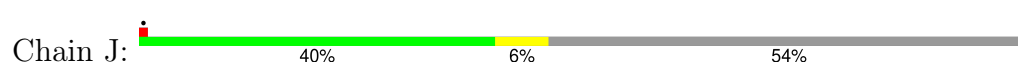
GLY
ALA
ASP
PRO
GLN
GLU
GLY
ILE
LEU
GLU
ASP
MET
PRO
VAL
ASP
PRO
ASP
ASN
GLU
ALA
TYR
GLU
MET
PRO
SER
GLU
GLY
TYR
GLN
ASP
TYR
GLU
PRO
GLU
ALA

• Molecule 1: Alpha-synuclein



MET
ASP
VAL
PHE
MET
MET
LYS
GLY
LEU
SER
LYS
ALA
LYS
GLU
GLY
G14
T22
K23
Q24
K34
V49
H50
A56
E57
K58
E61
N65
V66
G67
T75
A76
V82
E83
I88
F94
VAL
LYS
LYS
ASP
GLN
LEU
GLY
LYS
ASN
GLU
GLY
GLY
ALA
PRO
GLN
GLU
GLY

• Molecule 1: Alpha-synuclein



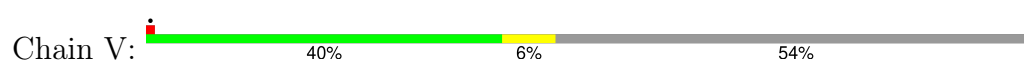
ILE
LEU
GLU
ASP
PRO
VAL
MET
LYS
GLY
LEU
SER
LYS
ALA
LYS
GLU
GLY
G36
V49
E57
K58
T59
K60
E61
Q62
T72
A76
I88
A91
L100
GLY
LYS
LYS
ASN
GLU
GLU
GLU

• Molecule 1: Alpha-synuclein



MET
ASP
VAL
PHE
MET
MET
LYS
GLY
LEU
SER
LYS
ALA
LYS
GLU
GLY
G14
T22
K23
Q24
G25
V26
K32
T33
K34
V49
H50
A56
E57
K58
T75
A76
I88
F94
VAL
LYS
LYS
ASP
GLN
LEU
GLY
LYS
ASN
GLU
GLU
GLY
ALA
PRO
GLN
GLU
GLY
TLE
LEU
GLU
ASP
MET

• Molecule 1: Alpha-synuclein



MET
ASP
VAL
PHE
MET
MET
LYS
GLY
LEU
SER
LYS
ALA
LYS
GLU
GLY
G36
V49
E57
K58
T59
K60
G68
T72
A76
I88
A91
L100
GLY
LYS
LYS
ASN
GLU
GLU
GLY
TLE
LEU
GLU
ASP
MET


• Molecule 1: Alpha-synuclein



MET
ASP
VAL
PHE
MET
LYS
GLY
LEU
SER
LYS
ALA
LYS
GLU
GLY
G14
T22
K23
Q24
G25
V26
A27
E28
K34
V49
H50
A56
E57
K58
T75
A76
I88
F94
VAL
LYS
LYS
ASP
GLN
LEU
GLY
LYS
ASN
GLU
GLU
GLY
ALA
PRO
GLN
GLU
GLY
TLE
LEU
GLU
ASP
MET

PRO VAL ASP
GLY PHE PRO
ASP MET ASN
GLU ALA TYR
MET MET MET
SER SER GLU
GLU GLY TYR
GLN ASP GLU
PRO GLU PRO
GLU ALA

• Molecule 1: Alpha-synuclein

Chain X:  41% 6% 54%

MET VAL ASP
PHE MET LYS
GLY LEU ASP
SER MET LYS
LYS VAL ALA
GLY VAL ALA
ALA TYR GLU
ASP MET GLU
LYS THR LYS
GLN GLY VAL
GLY TYR GLN
ALA ASP GLU
ALA TYR ALA
GLY ALA LYS
THR LYS GLU
G36 V49 E57
K58 N65 T72
A76 I88 A91
L100 GLY LYS
ASN GLU GLY
ALA

PRO GLN
GLU GLY
ILE LEU
ASP MET
SER MET
VAL VAL
ASP PRO
ASP PRO
ASP ASP
ASN GLU
TYR TYR
GLU TYR
GLN TYR
GLY TYR
ALA GLU


• Molecule 1: Alpha-synuclein

Chain Y:  49% 9% 42%

MET ASP
VAL VAL
PHE MET
ASP MET
LYS LYS
GLY LEU
SER SER
LYS LYS
ALA ALA
GLY GLU
G14 T22
K23 Q24
Q25 V26
K32 T33
K34 V49
H50 A56
E57 K58
T75 A76
I88 F94
VAL LYS
LYS ASP
GLN LEU
GLY LYS
ASN GLU
GLY GLY
ALA PRO
GLN GLU
GLY ILE
LEU GLU
ASP MET

PRO VAL
ASP PRO
GLY PHE
ASP MET
ASN ASP
GLU ALA
TYR MET
GLU MET
SER PRO
SER GLU
GLU GLU
GLY TYR
GLN TYR
ALA

• Molecule 1: Alpha-synuclein

Chain Z:  40% 6% 54%

MET ASP
VAL VAL
PHE MET
LYS LYS
GLY LEU
SER SER
LYS LYS
ALA ALA
GLY GLU
G36 V49
E57 K58
Q62 N65
T72 A76
I88 A91
L100 GLY
LYS ASN
GLU GLU

GLY ALA
PRO GLN
GLY GLY
ILE LEU
SER MET
LYS LYS
ASP MET
VAL VAL
ASP PRO
PRO ASP
GLN ALA
TYR TYR
GLU TYR
GLN MET
SER PRO
GLY GLU
VAL GLU
ALA


• Molecule 1: Alpha-synuclein

Chain K:  49% 9% 42%

MET ASP
VAL VAL
PHE MET
LYS LYS
GLY LEU
SER SER
LYS LYS
ALA ALA
GLY GLU
G14 T22
K23 Q24
Q25 V26
K32 T33
K34 V49
H50 A56
E57 K58
T75 A76
I88 F94
VAL LYS
LYS ASP
GLN LEU
GLY LYS
ASN GLU
GLY GLY
ALA PRO
GLN GLU
GLY ILE
LEU GLU
ASP MET

PRO VAL
ASP PRO
GLY PHE
ASP MET
ASN ASP
GLU ALA
TYR MET
GLU MET
SER PRO
SER GLU
GLU GLU
GLY TYR
GLN TYR
ALA

• Molecule 1: Alpha-synuclein

Chain L:  40% 6% 54%

MET ASP
VAL VAL
PHE MET
LYS LYS
GLY LEU
SER SER
LYS LYS
ALA ALA
GLY GLU
G36 V49
E57 K58
Q62 Q68
T72 A76
I88 A91
L100 GLY
LYS ASN
GLU GLU

GLY
ALA
PRO
GLN
GLU
MET
GLY
ILE
LEU
LEU
ASP
MET
LYS
ASP
PRO
VAL
ASP
PRO
ASP
ASN
GLU
GLU
ALA
TYR
GLU
MET
PRO
SER
GLU
GLU
GLY
TYR
GLN
ASP
TYR
GLU
PRO
GLU
ALA

• Molecule 1: Alpha-synuclein

Chain M: 49% 9% 42%

MET ASP VAL PHE MET LYS GLY LEU SER LYS ASP MET ALA LYS VAL ASP GLU G14 T22 K23 Q24 Q25 V26 K34 V49 H50 A56 E57 K58 T75 A76 I88 F94 VAL LYS LYS ASP GLN LEU GLY LYS ASN GLU GLU GLY GLY PRO GLN GLN ILE LEU LEU ASP MET VAL

ASP PRO ASP ASN GLU TYR MET PRO LYS GLU GLY TYR GLN ASP T22 K23 Q24 Q25 V26 K34 V49 H50 A56 E57 K58 T75 A76 I88 F94 VAL LYS LYS ASP GLN LEU GLY LYS ASN GLU GLU GLY GLY PRO GLN GLN ILE LEU LEU ASP MET VAL

• Molecule 1: Alpha-synuclein

Chain N: 40% 6% 54%

MET ASP VAL PHE MET LYS GLY LEU SER LYS ASP MET ALA LYS VAL ASP GLU G14 T22 K23 Q24 Q25 V26 K34 V49 H50 A56 E57 K58 T75 A76 I88 F94 VAL LYS LYS ASP GLN LEU GLY LYS ASN GLU GLU GLY GLY PRO GLN GLN ILE LEU LEU ASP MET VAL

GLY ALA PRO GLN GLU TYR MET PRO LYS GLU GLY TYR GLN ASP T22 K23 Q24 Q25 V26 K34 V49 H50 A56 E57 K58 T75 A76 I88 F94 VAL LYS LYS ASP GLN LEU GLY LYS ASN GLU GLU GLY GLY PRO GLN GLN ILE LEU LEU ASP MET VAL

• Molecule 1: Alpha-synuclein

Chain O: 49% 9% 42%

MET ASP VAL PHE MET LYS GLY LEU SER LYS ASP MET ALA LYS VAL ASP GLU G14 T22 K23 Q24 Q25 V26 K34 V49 H50 A56 E57 K58 T75 A76 I88 F94 VAL LYS LYS ASP GLN LEU GLY LYS ASN GLU GLU GLY GLY PRO GLN GLN ILE LEU LEU ASP MET VAL

ASP PRO ASP ASN GLU TYR MET PRO LYS GLU GLY TYR GLN ASP T22 K23 Q24 Q25 V26 K34 V49 H50 A56 E57 K58 T75 A76 I88 F94 VAL LYS LYS ASP GLN LEU GLY LYS ASN GLU GLU GLY GLY PRO GLN GLN ILE LEU LEU ASP MET VAL

• Molecule 1: Alpha-synuclein

Chain P: 40% 6% 54%

MET ASP VAL PHE MET LYS GLY LEU SER LYS ASP MET ALA LYS VAL ASP GLU G14 T22 K23 Q24 Q25 V26 K34 V49 H50 A56 E57 K58 T75 A76 I88 F94 VAL LYS LYS ASP GLN LEU GLY LYS ASN GLU GLU GLY GLY PRO GLN GLN ILE LEU LEU ASP MET VAL

GLY ALA PRO GLN GLU TYR MET PRO LYS GLU GLY TYR GLN ASP T22 K23 Q24 Q25 V26 K34 V49 H50 A56 E57 K58 T75 A76 I88 F94 VAL LYS LYS ASP GLN LEU GLY LYS ASN GLU GLU GLY GLY PRO GLN GLN ILE LEU LEU ASP MET VAL

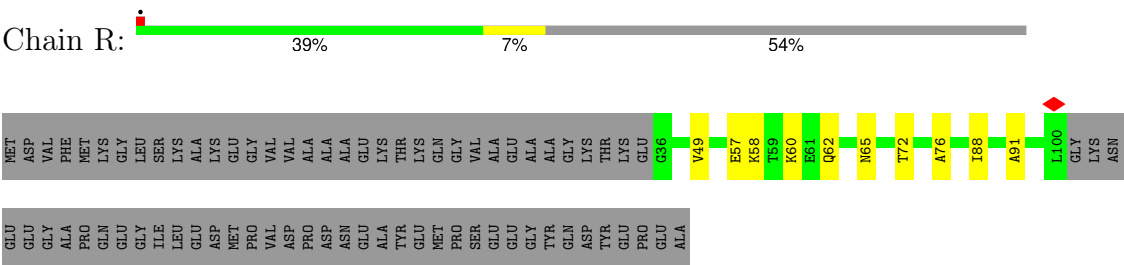
• Molecule 1: Alpha-synuclein

Chain Q: 50% 8% 42%

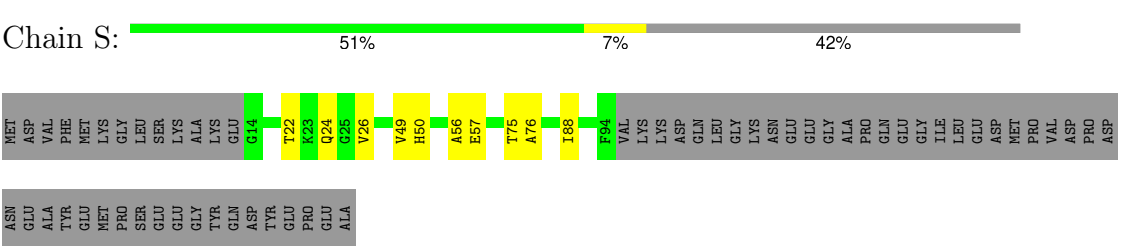
MET ASP VAL PHE MET LYS GLY LEU SER LYS ASP MET ALA LYS VAL ASP GLU G14 T22 K23 Q24 Q25 V26 K34 V49 H50 A56 E57 K58 T75 A76 I88 F94 VAL LYS LYS ASP GLN LEU GLY LYS ASN GLU GLU GLY GLY PRO GLN GLN ILE LEU LEU ASP MET VAL

ASP ASN GLU TYR MET PRO LYS GLU GLY TYR GLN ASP T22 K23 Q24 Q25 V26 K34 V49 H50 A56 E57 K58 T75 A76 I88 F94 VAL LYS LYS ASP GLN LEU GLY LYS ASN GLU GLU GLY GLY PRO GLN GLN ILE LEU LEU ASP MET VAL

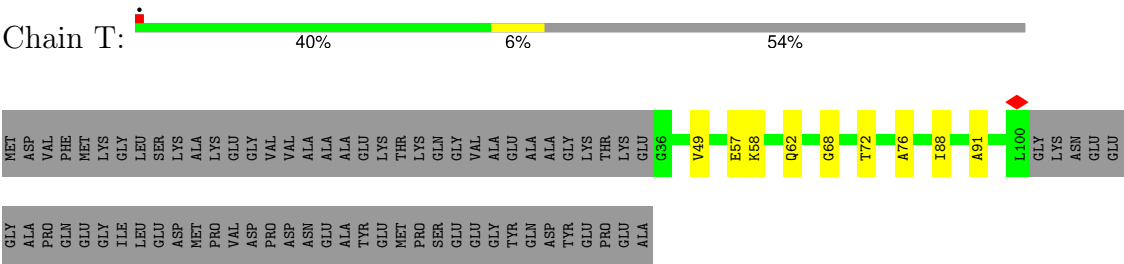
● Molecule 1: Alpha-synuclein



● Molecule 1: Alpha-synuclein



● Molecule 1: Alpha-synuclein



4 Experimental information

Property	Value	Source
EM reconstruction method	HELICAL	Depositor
Imposed symmetry	HELICAL, twist=-1.35°, rise=4.76 Å, axial sym=C1	Depositor
Number of segments used	31115	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 ($e^-/\text{Å}^2$)	46	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	1800	Depositor
Magnification	105000	Depositor
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.077	Depositor
Minimum map value	-0.044	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.002	Depositor
Recommended contour level	0.0152	Depositor
Map size (Å)	240.192, 240.192, 240.192	wwPDB
Map dimensions	288, 288, 288	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.834, 0.834, 0.834	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	E	0.35	0/551	0.49	0/744
1	F	0.37	0/452	0.49	0/611
1	G	0.35	0/551	0.49	0/744
1	H	0.37	0/452	0.49	0/611
1	I	0.35	0/551	0.49	0/744
1	J	0.37	0/452	0.49	0/611
1	K	0.35	0/551	0.49	0/744
1	L	0.37	0/452	0.49	0/611
1	M	0.35	0/551	0.49	0/744
1	N	0.37	0/452	0.49	0/611
1	O	0.35	0/551	0.49	0/744
1	P	0.37	0/452	0.49	0/611
1	Q	0.35	0/551	0.49	0/744
1	R	0.37	0/452	0.49	0/611
1	S	0.35	0/551	0.49	0/744
1	T	0.37	0/452	0.49	0/611
1	U	0.35	0/551	0.49	0/744
1	V	0.37	0/452	0.49	0/611
1	W	0.35	0/551	0.49	0/744
1	X	0.37	0/452	0.49	0/611
1	Y	0.35	0/551	0.49	0/744
1	Z	0.37	0/452	0.49	0/611
All	All	0.36	0/11033	0.49	0/14905

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	E	549	0	573	15	0
1	F	450	0	473	15	0
1	G	549	0	573	18	0
1	H	450	0	473	14	0
1	I	549	0	573	9	0
1	J	450	0	473	11	0
1	K	549	0	573	22	0
1	L	450	0	473	13	0
1	M	549	0	573	21	0
1	N	450	0	473	13	0
1	O	549	0	573	21	0
1	P	450	0	473	14	0
1	Q	549	0	573	20	0
1	R	450	0	473	15	0
1	S	549	0	573	18	0
1	T	450	0	473	14	0
1	U	549	0	573	21	0
1	V	450	0	473	9	0
1	W	549	0	573	16	0
1	X	450	0	473	6	0
1	Y	549	0	573	21	0
1	Z	450	0	473	13	0
All	All	10989	0	11506	210	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 9.

All (210) 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:V:72:THR:HG22	1:X:72:THR:OG1	1.72	0.90
1:Z:72:THR:OG1	1:L:72:THR:HG22	1.72	0.90
1:N:72:THR:OG1	1:P:72:THR:HG22	1.72	0.90
1:R:72:THR:OG1	1:T:72:THR:HG22	1.72	0.89
1:F:72:THR:HG22	1:H:72:THR:OG1	1.72	0.89

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:V:72:THR:OG1	1:Z:72:THR:HG22	1.74	0.88
1:L:72:THR:OG1	1:N:72:THR:HG22	1.74	0.88
1:P:72:THR:OG1	1:R:72:THR:HG22	1.74	0.88
1:H:72:THR:HG22	1:T:72:THR:OG1	1.74	0.87
1:F:72:THR:OG1	1:J:72:THR:HG22	1.74	0.87
1:W:26:VAL:HG23	1:Z:62:GLN:HE22	1.47	0.80
1:U:26:VAL:HG23	1:L:62:GLN:HE22	1.47	0.79
1:Y:26:VAL:HG23	1:N:62:GLN:HE22	1.47	0.79
1:F:62:GLN:NE2	1:S:26:VAL:CG2	2.46	0.79
1:O:26:VAL:CG2	1:T:62:GLN:NE2	2.46	0.79
1:H:62:GLN:NE2	1:Q:26:VAL:CG2	2.46	0.78
1:W:26:VAL:CG2	1:Z:62:GLN:NE2	2.46	0.78
1:G:26:VAL:CG2	1:J:62:GLN:NE2	2.46	0.78
1:K:26:VAL:HG23	1:P:62:GLN:HE22	1.47	0.78
1:U:26:VAL:CG2	1:L:62:GLN:NE2	2.46	0.78
1:M:26:VAL:CG2	1:R:62:GLN:NE2	2.46	0.78
1:F:62:GLN:HE22	1:S:26:VAL:HG23	1.47	0.78
1:M:26:VAL:HG23	1:R:62:GLN:HE22	1.47	0.78
1:H:62:GLN:HE22	1:Q:26:VAL:HG23	1.47	0.78
1:G:26:VAL:HG23	1:J:62:GLN:HE22	1.47	0.78
1:K:26:VAL:CG2	1:P:62:GLN:NE2	2.46	0.77
1:Y:26:VAL:CG2	1:N:62:GLN:NE2	2.46	0.77
1:O:26:VAL:HG23	1:T:62:GLN:HE22	1.47	0.77
1:K:26:VAL:CG2	1:P:62:GLN:HE22	2.04	0.70
1:Y:26:VAL:CG2	1:N:62:GLN:HE22	2.04	0.70
1:O:26:VAL:CG2	1:T:62:GLN:HE22	2.04	0.70
1:U:26:VAL:CG2	1:L:62:GLN:HE22	2.04	0.70
1:M:26:VAL:CG2	1:R:62:GLN:HE22	2.04	0.70
1:W:26:VAL:CG2	1:Z:62:GLN:HE22	2.04	0.70
1:F:62:GLN:HE22	1:S:26:VAL:CG2	2.04	0.70
1:H:62:GLN:HE22	1:Q:26:VAL:CG2	2.04	0.70
1:G:26:VAL:CG2	1:J:62:GLN:HE22	2.04	0.69
1:F:62:GLN:NE2	1:S:26:VAL:HG23	2.08	0.69
1:G:26:VAL:HG23	1:J:62:GLN:NE2	2.08	0.69
1:H:62:GLN:NE2	1:Q:26:VAL:HG23	2.08	0.69
1:M:26:VAL:HG23	1:R:62:GLN:NE2	2.08	0.68
1:O:26:VAL:HG23	1:T:62:GLN:NE2	2.08	0.68
1:K:26:VAL:HG23	1:P:62:GLN:NE2	2.08	0.68
1:Y:26:VAL:HG23	1:N:62:GLN:NE2	2.08	0.68
1:E:56:ALA:HA	1:G:56:ALA:O	1.94	0.67
1:U:26:VAL:HG23	1:L:62:GLN:NE2	2.08	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:Q:56:ALA:O	1:S:56:ALA:HA	1.94	0.67
1:F:72:THR:HG1	1:J:72:THR:HG22	1.57	0.67
1:W:26:VAL:HG23	1:Z:62:GLN:NE2	2.08	0.67
1:M:56:ALA:O	1:O:56:ALA:HA	1.94	0.67
1:E:56:ALA:O	1:I:56:ALA:HA	1.95	0.66
1:G:56:ALA:HA	1:S:56:ALA:O	1.95	0.66
1:Y:56:ALA:O	1:K:56:ALA:HA	1.94	0.66
1:U:56:ALA:HA	1:W:56:ALA:O	1.94	0.66
1:O:56:ALA:O	1:Q:56:ALA:HA	1.95	0.66
1:K:56:ALA:O	1:M:56:ALA:HA	1.95	0.66
1:U:56:ALA:O	1:Y:56:ALA:HA	1.95	0.65
1:R:72:THR:HG1	1:T:72:THR:HG22	1.66	0.58
1:F:72:THR:HG22	1:H:72:THR:HG1	1.68	0.58
1:N:72:THR:HG1	1:P:72:THR:HG22	1.68	0.58
1:O:22:THR:O	1:Q:22:THR:HA	2.04	0.58
1:K:22:THR:O	1:M:22:THR:HA	2.04	0.58
1:G:22:THR:HA	1:S:22:THR:O	2.04	0.58
1:E:22:THR:O	1:I:22:THR:HA	2.04	0.58
1:U:22:THR:O	1:Y:22:THR:HA	2.04	0.58
1:H:72:THR:HG22	1:T:72:THR:HG1	1.68	0.57
1:M:22:THR:O	1:O:22:THR:HA	2.06	0.56
1:Q:22:THR:O	1:S:22:THR:HA	2.06	0.56
1:Y:22:THR:O	1:K:22:THR:HA	2.06	0.56
1:E:22:THR:HA	1:G:22:THR:O	2.06	0.55
1:U:22:THR:HA	1:W:22:THR:O	2.06	0.55
1:P:72:THR:HG1	1:R:72:THR:HG22	1.69	0.55
1:Z:57:GLU:HG2	1:Z:58:LYS:HG3	1.90	0.54
1:L:57:GLU:HG2	1:L:58:LYS:HG3	1.90	0.54
1:H:57:GLU:HG2	1:H:58:LYS:HG3	1.90	0.54
1:N:57:GLU:HG2	1:N:58:LYS:HG3	1.90	0.54
1:R:57:GLU:HG2	1:R:58:LYS:HG3	1.90	0.54
1:V:57:GLU:HG2	1:V:58:LYS:HG3	1.90	0.54
1:T:57:GLU:HG2	1:T:58:LYS:HG3	1.90	0.54
1:F:57:GLU:HG2	1:F:58:LYS:HG3	1.90	0.54
1:X:57:GLU:HG2	1:X:58:LYS:HG3	1.90	0.54
1:P:57:GLU:HG2	1:P:58:LYS:HG3	1.90	0.54
1:J:57:GLU:HG2	1:J:58:LYS:HG3	1.90	0.54
1:V:72:THR:HG1	1:Z:72:THR:HG22	1.70	0.53
1:V:72:THR:HG22	1:X:72:THR:HG1	1.74	0.53
1:Z:72:THR:HG1	1:L:72:THR:HG22	1.69	0.52
1:O:26:VAL:HG22	1:T:62:GLN:NE2	2.26	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:62:GLN:NE2	1:Q:26:VAL:HG22	2.26	0.51
1:M:26:VAL:HG22	1:R:62:GLN:NE2	2.26	0.51
1:F:62:GLN:NE2	1:S:26:VAL:HG22	2.26	0.51
1:K:26:VAL:HG22	1:P:62:GLN:NE2	2.26	0.51
1:Q:22:THR:HG22	1:Q:24:GLN:H	1.76	0.51
1:W:26:VAL:HG22	1:Z:62:GLN:NE2	2.26	0.50
1:O:28:GLU:OE1	1:R:60:LYS:NZ	2.30	0.50
1:O:22:THR:HG22	1:O:24:GLN:H	1.76	0.50
1:Q:49:VAL:HG23	1:Q:76:ALA:HB2	1.93	0.50
1:Y:22:THR:HG22	1:Y:24:GLN:H	1.76	0.50
1:M:49:VAL:HG23	1:M:76:ALA:HB2	1.93	0.50
1:S:22:THR:HG22	1:S:24:GLN:H	1.76	0.50
1:K:22:THR:HG22	1:K:24:GLN:H	1.76	0.50
1:K:49:VAL:HG23	1:K:76:ALA:HB2	1.93	0.50
1:O:49:VAL:HG23	1:O:76:ALA:HB2	1.93	0.50
1:U:22:THR:HG22	1:U:24:GLN:H	1.76	0.50
1:M:22:THR:HG22	1:M:24:GLN:H	1.76	0.50
1:S:49:VAL:HG23	1:S:76:ALA:HB2	1.93	0.50
1:G:22:THR:HG22	1:G:24:GLN:H	1.76	0.50
1:G:49:VAL:HG23	1:G:76:ALA:HB2	1.93	0.50
1:Y:49:VAL:HG23	1:Y:76:ALA:HB2	1.93	0.50
1:G:26:VAL:HG22	1:J:62:GLN:NE2	2.26	0.50
1:W:22:THR:HG22	1:W:24:GLN:H	1.76	0.50
1:Y:26:VAL:HG22	1:N:62:GLN:NE2	2.26	0.50
1:U:26:VAL:HG22	1:L:62:GLN:NE2	2.26	0.50
1:U:49:VAL:HG23	1:U:76:ALA:HB2	1.93	0.50
1:E:49:VAL:HG23	1:E:76:ALA:HB2	1.93	0.50
1:L:72:THR:HG1	1:N:72:THR:HG22	1.72	0.49
1:E:22:THR:HG22	1:E:24:GLN:H	1.76	0.49
1:I:49:VAL:HG23	1:I:76:ALA:HB2	1.93	0.49
1:W:49:VAL:HG23	1:W:76:ALA:HB2	1.93	0.49
1:I:22:THR:HG22	1:I:24:GLN:H	1.76	0.49
1:U:57:GLU:O	1:Y:57:GLU:HB3	2.14	0.48
1:K:57:GLU:O	1:M:57:GLU:HB3	2.14	0.47
1:M:58:LYS:HE2	1:M:58:LYS:HB3	1.72	0.47
1:E:57:GLU:O	1:I:57:GLU:HB3	2.14	0.47
1:V:49:VAL:HG11	1:V:76:ALA:HB1	1.96	0.47
1:X:49:VAL:HG11	1:X:76:ALA:HB1	1.95	0.47
1:Z:49:VAL:HG11	1:Z:76:ALA:HB1	1.96	0.47
1:L:49:VAL:HG11	1:L:76:ALA:HB1	1.95	0.47
1:N:49:VAL:HG11	1:N:76:ALA:HB1	1.95	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:O:57:GLU:O	1:Q:57:GLU:HB3	2.14	0.47
1:P:49:VAL:HG11	1:P:76:ALA:HB1	1.95	0.47
1:R:49:VAL:HG11	1:R:76:ALA:HB1	1.95	0.47
1:F:49:VAL:HG11	1:F:76:ALA:HB1	1.95	0.47
1:X:88:ILE:HG21	1:X:91:ALA:HB2	1.97	0.47
1:Y:58:LYS:HB3	1:Y:58:LYS:HE2	1.72	0.47
1:N:88:ILE:HG21	1:N:91:ALA:HB2	1.97	0.46
1:P:88:ILE:HG21	1:P:91:ALA:HB2	1.97	0.46
1:J:49:VAL:HG11	1:J:76:ALA:HB1	1.96	0.46
1:L:88:ILE:HG21	1:L:91:ALA:HB2	1.97	0.46
1:R:88:ILE:HG21	1:R:91:ALA:HB2	1.97	0.46
1:G:57:GLU:HB3	1:S:57:GLU:O	2.14	0.46
1:H:88:ILE:HG21	1:H:91:ALA:HB2	1.97	0.46
1:J:88:ILE:HG21	1:J:91:ALA:HB2	1.97	0.46
1:V:88:ILE:HG21	1:V:91:ALA:HB2	1.97	0.46
1:T:49:VAL:HG11	1:T:76:ALA:HB1	1.95	0.46
1:F:88:ILE:HG21	1:F:91:ALA:HB2	1.97	0.46
1:H:49:VAL:HG11	1:H:76:ALA:HB1	1.96	0.46
1:T:88:ILE:HG21	1:T:91:ALA:HB2	1.97	0.46
1:Z:88:ILE:HG21	1:Z:91:ALA:HB2	1.97	0.46
1:E:75:THR:O	1:G:75:THR:HA	2.16	0.46
1:I:34:LYS:HE2	1:I:34:LYS:HB3	1.78	0.46
1:Y:57:GLU:O	1:K:57:GLU:HB3	2.16	0.46
1:U:57:GLU:HB3	1:W:57:GLU:O	2.16	0.46
1:Q:75:THR:HA	1:S:75:THR:O	2.16	0.46
1:M:57:GLU:O	1:O:57:GLU:HB3	2.16	0.46
1:V:60:LYS:NZ	1:W:28:GLU:OE1	2.30	0.45
1:K:58:LYS:HE2	1:K:58:LYS:HB3	1.72	0.45
1:U:34:LYS:HE2	1:U:34:LYS:HB3	1.78	0.45
1:M:75:THR:HA	1:O:75:THR:O	2.16	0.45
1:Y:75:THR:HA	1:K:75:THR:O	2.16	0.45
1:Q:57:GLU:O	1:S:57:GLU:HB3	2.16	0.45
1:E:57:GLU:HB3	1:G:57:GLU:O	2.16	0.45
1:U:75:THR:O	1:W:75:THR:HA	2.16	0.45
1:I:58:LYS:HB3	1:I:58:LYS:HE2	1.72	0.45
1:K:26:VAL:CG2	1:P:62:GLN:HE21	2.30	0.45
1:U:58:LYS:HB3	1:U:58:LYS:HE2	1.72	0.44
1:E:75:THR:HA	1:I:75:THR:O	2.18	0.44
1:M:26:VAL:CG2	1:R:62:GLN:HE21	2.30	0.44
1:G:75:THR:O	1:S:75:THR:HA	2.18	0.44
1:O:75:THR:HA	1:Q:75:THR:O	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:75:THR:HA	1:M:75:THR:O	2.18	0.44
1:U:75:THR:HA	1:Y:75:THR:O	2.18	0.43
1:O:26:VAL:CG2	1:T:62:GLN:HE21	2.30	0.43
1:E:34:LYS:HE2	1:E:34:LYS:HB3	1.78	0.43
1:Y:34:LYS:HE2	1:Y:34:LYS:HB3	1.78	0.43
1:K:32:LYS:HE3	1:K:32:LYS:HB2	1.81	0.43
1:O:58:LYS:HB3	1:O:58:LYS:HE2	1.72	0.43
1:Y:32:LYS:HE3	1:Y:32:LYS:HB2	1.81	0.42
1:E:28:GLU:OE1	1:J:60:LYS:NZ	2.30	0.42
1:K:34:LYS:HE2	1:K:34:LYS:HB3	1.78	0.42
1:E:88:ILE:HB	1:G:88:ILE:O	2.20	0.42
1:W:58:LYS:HE2	1:W:58:LYS:HB3	1.72	0.42
1:H:62:GLN:HE21	1:Q:26:VAL:CG2	2.30	0.42
1:U:88:ILE:HB	1:W:88:ILE:O	2.20	0.42
1:Q:88:ILE:O	1:S:88:ILE:HB	2.20	0.42
1:W:34:LYS:HE2	1:W:34:LYS:HB3	1.78	0.42
1:Z:65:ASN:HD21	1:L:68:GLY:HA3	1.85	0.42
1:N:65:ASN:HD21	1:P:68:GLY:HA3	1.85	0.42
1:V:68:GLY:HA3	1:X:65:ASN:HD21	1.85	0.41
1:Y:88:ILE:O	1:K:88:ILE:HB	2.20	0.41
1:M:88:ILE:O	1:O:88:ILE:HB	2.20	0.41
1:R:65:ASN:HD21	1:T:68:GLY:HA3	1.85	0.41
1:E:88:ILE:O	1:I:88:ILE:HB	2.21	0.41
1:F:62:GLN:HE21	1:S:26:VAL:CG2	2.30	0.41
1:G:88:ILE:HB	1:S:88:ILE:O	2.21	0.41
1:Q:58:LYS:HB3	1:Q:58:LYS:HE2	1.72	0.41
1:O:88:ILE:O	1:Q:88:ILE:HB	2.21	0.41
1:K:22:THR:HG22	1:K:24:GLN:N	2.36	0.41
1:F:60:LYS:NZ	1:G:28:GLU:OE1	2.29	0.40
1:U:22:THR:HG22	1:U:24:GLN:N	2.36	0.40
1:Y:22:THR:HG22	1:Y:24:GLN:N	2.37	0.40
1:M:22:THR:HG22	1:M:24:GLN:N	2.37	0.40
1:K:88:ILE:O	1:M:88:ILE:HB	2.21	0.40
1:O:22:THR:HG22	1:O:24:GLN:N	2.36	0.40
1:F:68:GLY:HA3	1:H:65:ASN:HD21	1.85	0.40
1:U:32:LYS:HE3	1:U:32:LYS:HB2	1.81	0.40
1:W:22:THR:HG22	1:W:24:GLN:N	2.36	0.40
1:Q:22:THR:HG22	1:Q:24:GLN:N	2.36	0.40
1:E:32:LYS:HB2	1:E:32:LYS:HE3	1.81	0.40
1:U:88:ILE:O	1:Y:88:ILE:HB	2.21	0.40
1:M:34:LYS:HE2	1:M:34:LYS:HB3	1.78	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	E	79/140 (56%)	77 (98%)	2 (2%)	0	100	100
1	F	63/140 (45%)	63 (100%)	0	0	100	100
1	G	79/140 (56%)	77 (98%)	2 (2%)	0	100	100
1	H	63/140 (45%)	63 (100%)	0	0	100	100
1	I	79/140 (56%)	77 (98%)	2 (2%)	0	100	100
1	J	63/140 (45%)	63 (100%)	0	0	100	100
1	K	79/140 (56%)	77 (98%)	2 (2%)	0	100	100
1	L	63/140 (45%)	63 (100%)	0	0	100	100
1	M	79/140 (56%)	77 (98%)	2 (2%)	0	100	100
1	N	63/140 (45%)	63 (100%)	0	0	100	100
1	O	79/140 (56%)	77 (98%)	2 (2%)	0	100	100
1	P	63/140 (45%)	63 (100%)	0	0	100	100
1	Q	79/140 (56%)	77 (98%)	2 (2%)	0	100	100
1	R	63/140 (45%)	63 (100%)	0	0	100	100
1	S	79/140 (56%)	77 (98%)	2 (2%)	0	100	100
1	T	63/140 (45%)	63 (100%)	0	0	100	100
1	U	79/140 (56%)	77 (98%)	2 (2%)	0	100	100
1	V	63/140 (45%)	63 (100%)	0	0	100	100
1	W	79/140 (56%)	77 (98%)	2 (2%)	0	100	100
1	X	63/140 (45%)	63 (100%)	0	0	100	100
1	Y	79/140 (56%)	77 (98%)	2 (2%)	0	100	100
1	Z	63/140 (45%)	63 (100%)	0	0	100	100
All	All	1562/3080 (51%)	1540 (99%)	22 (1%)	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	E	53/103 (52%)	52 (98%)	1 (2%)	52	76
1	F	46/103 (45%)	46 (100%)	0	100	100
1	G	53/103 (52%)	52 (98%)	1 (2%)	52	76
1	H	46/103 (45%)	46 (100%)	0	100	100
1	I	53/103 (52%)	52 (98%)	1 (2%)	52	76
1	J	46/103 (45%)	46 (100%)	0	100	100
1	K	53/103 (52%)	52 (98%)	1 (2%)	52	76
1	L	46/103 (45%)	46 (100%)	0	100	100
1	M	53/103 (52%)	52 (98%)	1 (2%)	52	76
1	N	46/103 (45%)	46 (100%)	0	100	100
1	O	53/103 (52%)	52 (98%)	1 (2%)	52	76
1	P	46/103 (45%)	46 (100%)	0	100	100
1	Q	53/103 (52%)	52 (98%)	1 (2%)	52	76
1	R	46/103 (45%)	46 (100%)	0	100	100
1	S	53/103 (52%)	52 (98%)	1 (2%)	52	76
1	T	46/103 (45%)	46 (100%)	0	100	100
1	U	53/103 (52%)	52 (98%)	1 (2%)	52	76
1	V	46/103 (45%)	46 (100%)	0	100	100
1	W	53/103 (52%)	52 (98%)	1 (2%)	52	76
1	X	46/103 (45%)	46 (100%)	0	100	100
1	Y	53/103 (52%)	52 (98%)	1 (2%)	52	76
1	Z	46/103 (45%)	46 (100%)	0	100	100
All	All	1089/2266 (48%)	1078 (99%)	11 (1%)	71	87

All (11) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	E	50	HIS
1	G	50	HIS
1	I	50	HIS
1	U	50	HIS
1	W	50	HIS
1	Y	50	HIS
1	K	50	HIS
1	M	50	HIS
1	O	50	HIS
1	Q	50	HIS
1	S	50	HIS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (20) such sidechains are listed below:

Mol	Chain	Res	Type
1	E	65	ASN
1	F	62	GLN
1	G	65	ASN
1	H	62	GLN
1	I	65	ASN
1	J	62	GLN
1	U	65	ASN
1	W	65	ASN
1	Y	65	ASN
1	Z	62	GLN
1	K	65	ASN
1	L	62	GLN
1	M	65	ASN
1	N	62	GLN
1	O	65	ASN
1	P	62	GLN
1	Q	65	ASN
1	R	62	GLN
1	S	65	ASN
1	T	62	GLN

5.3.3 RNA ⓘ

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.

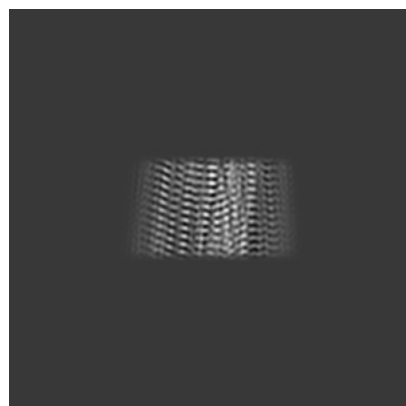
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-45464. These allow visual inspection of the internal detail of the map and identification of artifacts.

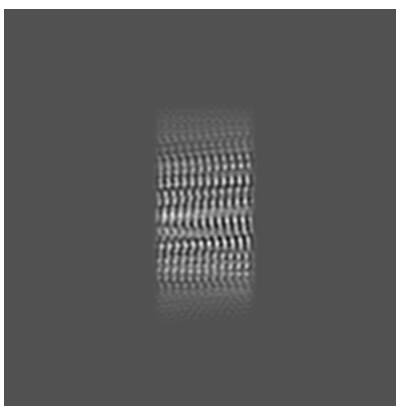
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

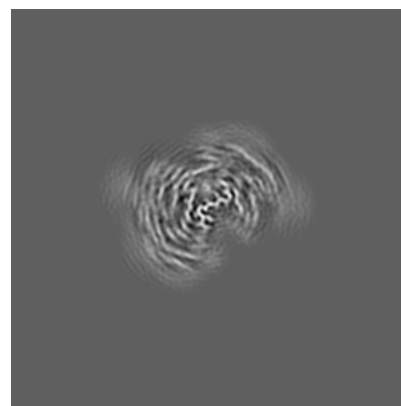
6.1.1 Primary map



X

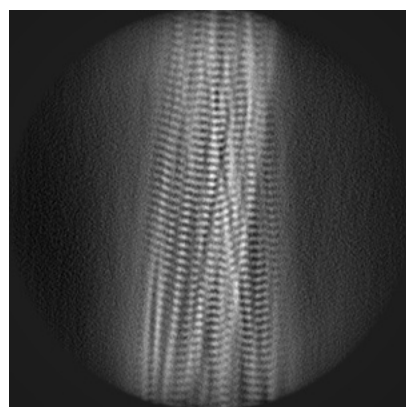


Y

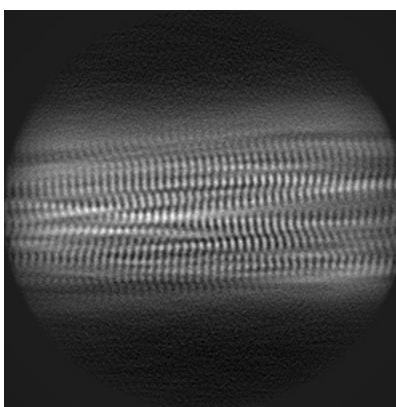


Z

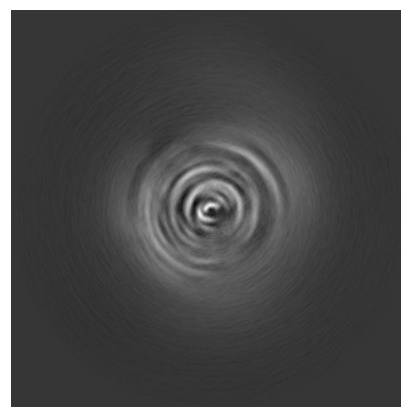
6.1.2 Raw map



X



Y

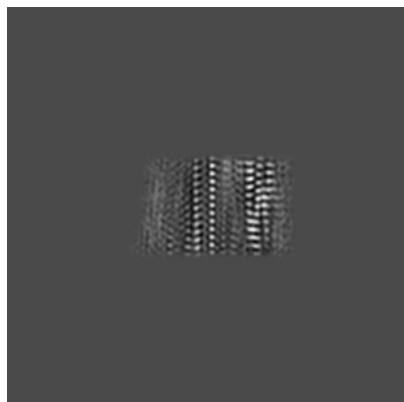


Z

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

6.2 Central slices [i](#)

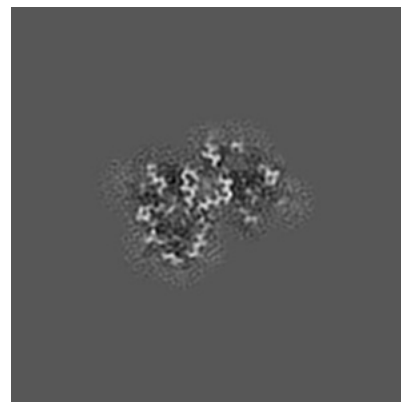
6.2.1 Primary map



X Index: 144

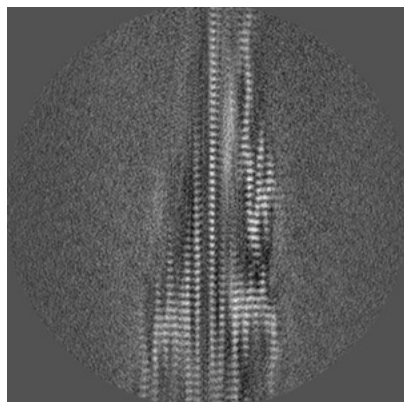


Y Index: 144

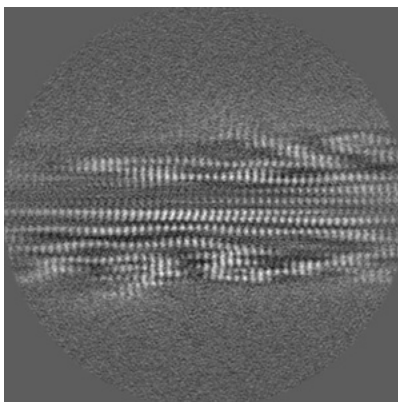


Z Index: 144

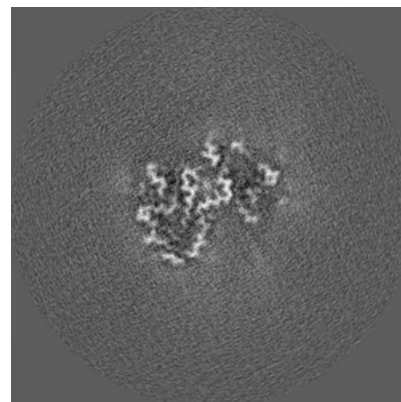
6.2.2 Raw map



X Index: 144



Y Index: 144

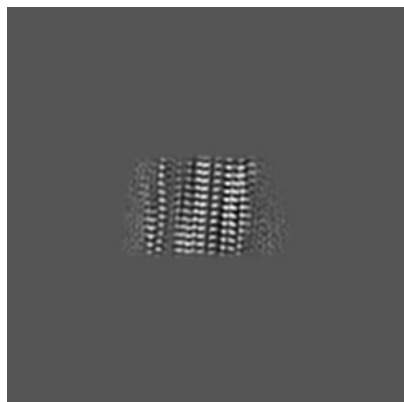


Z Index: 144

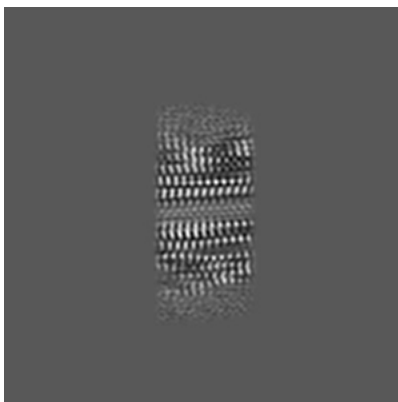
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

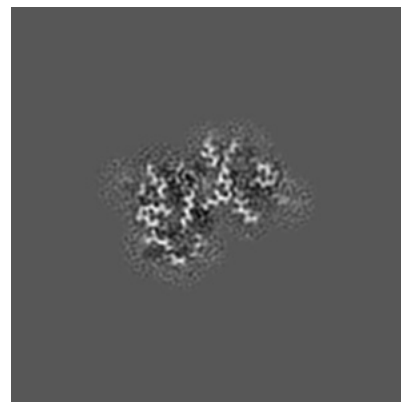
6.3.1 Primary map



X Index: 126

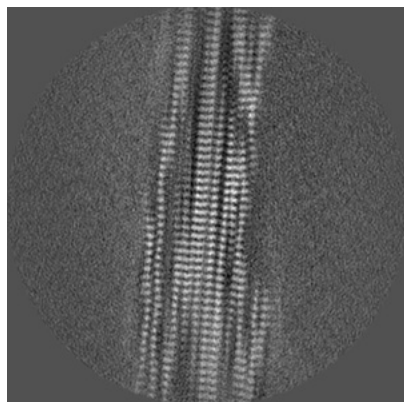


Y Index: 156

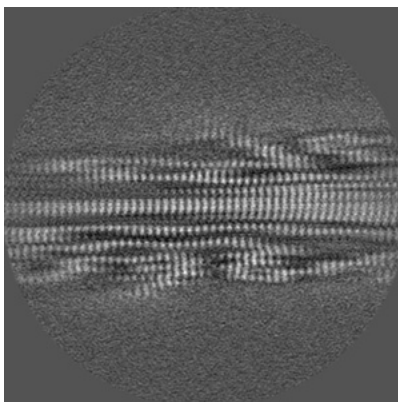


Z Index: 145

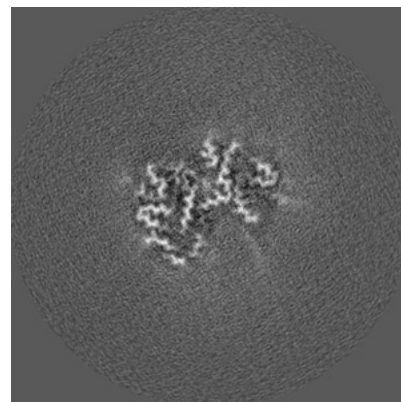
6.3.2 Raw map



X Index: 127



Y Index: 147

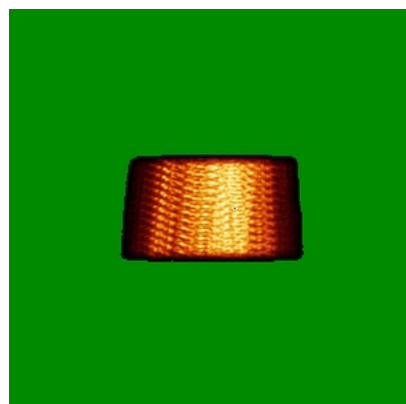


Z Index: 145

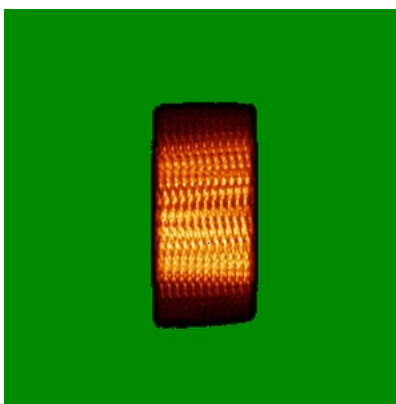
The images above show the largest variance slices of the map in three orthogonal directions.

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

6.4.1 Primary map



X

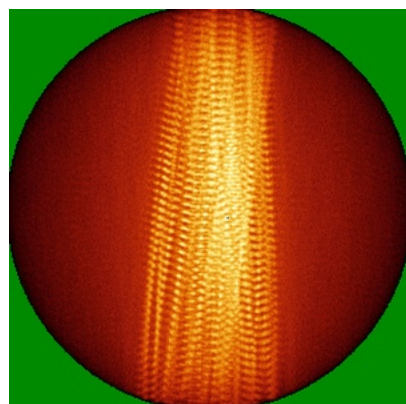


Y

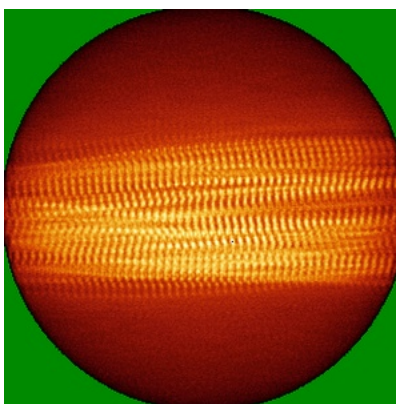


Z

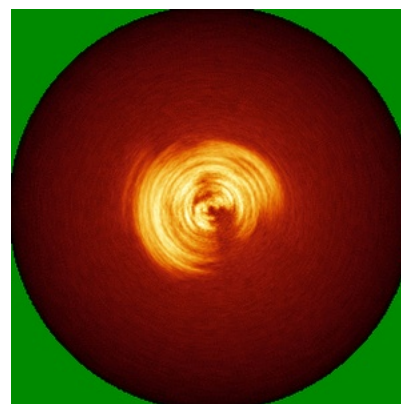
6.4.2 Raw map



X



Y

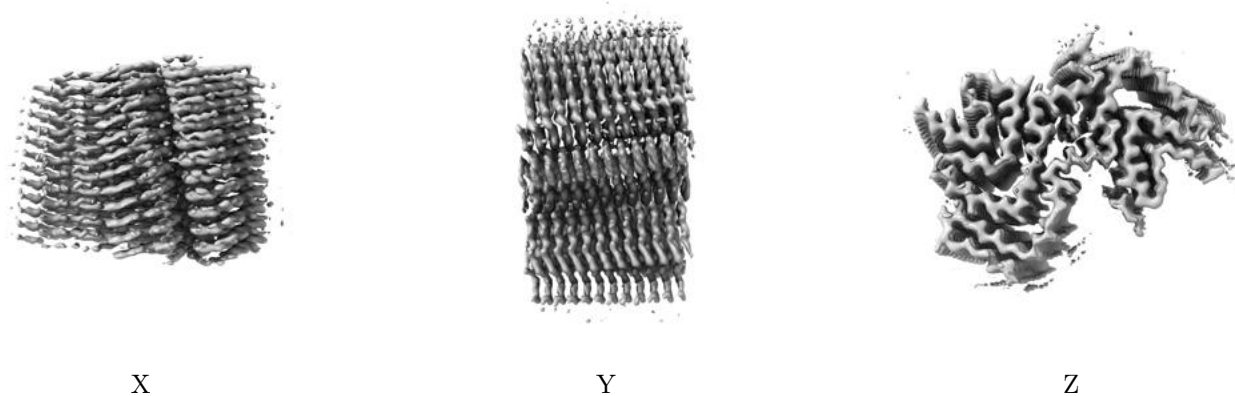


Z

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.

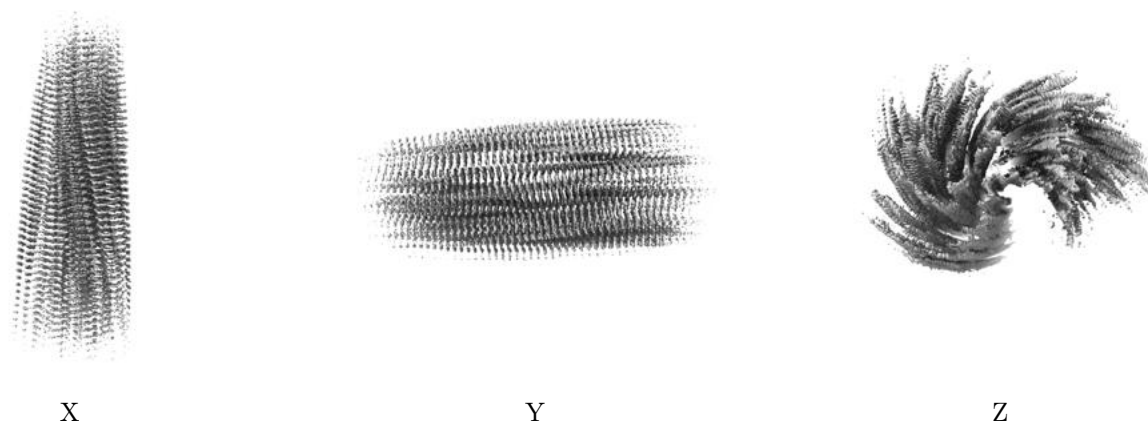
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.0152. 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.

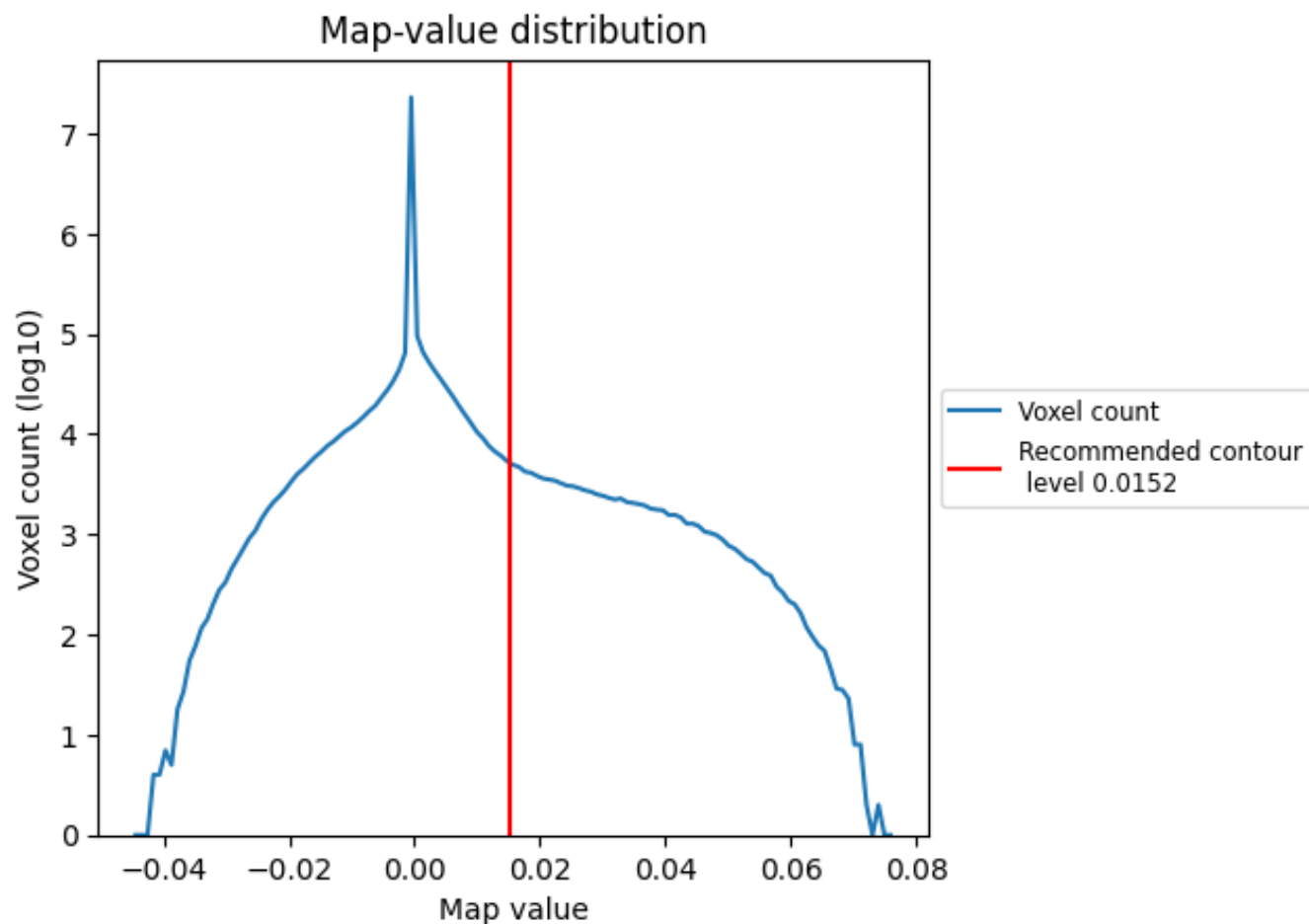
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

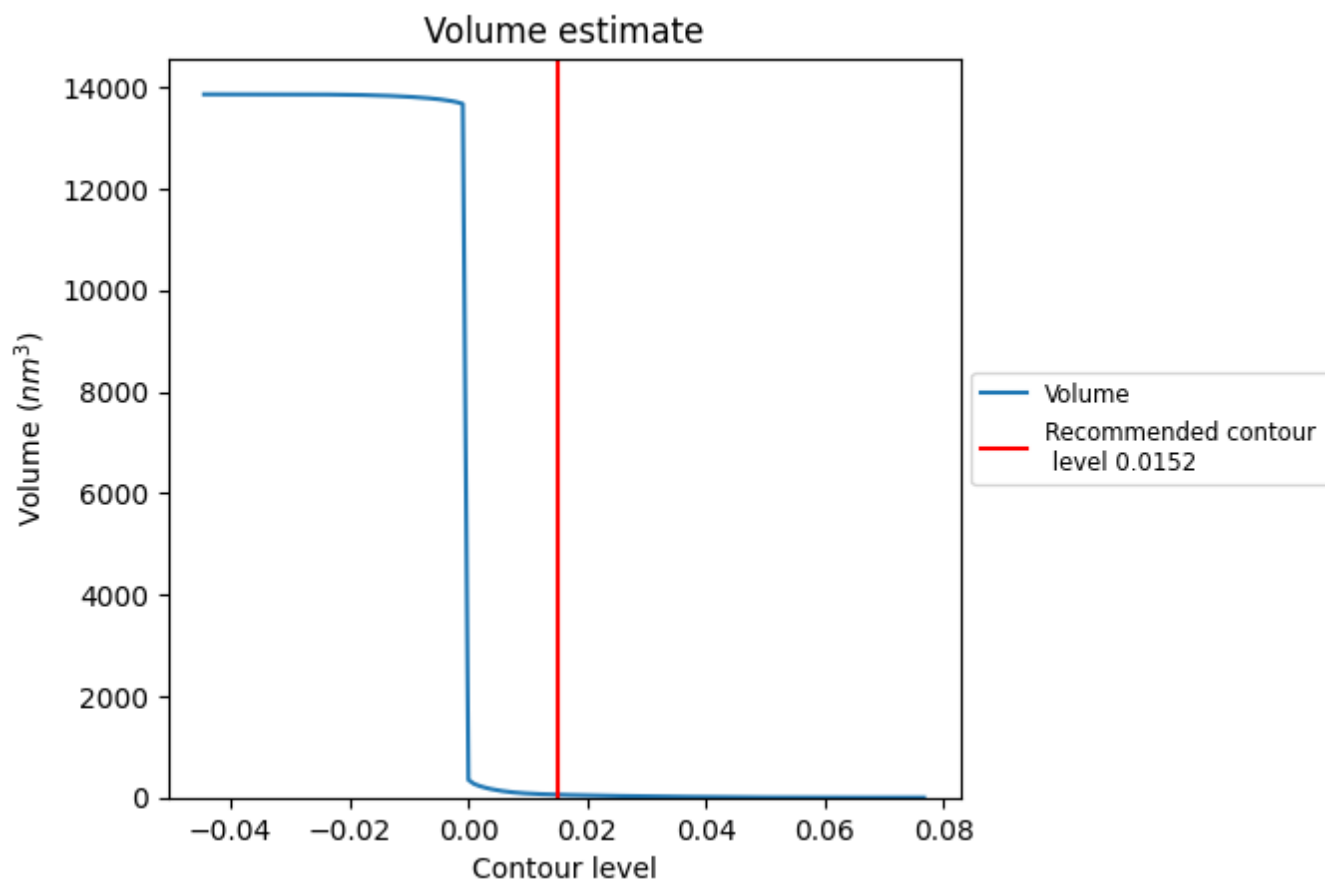
This section contains the results of statistical analysis of the map.

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.

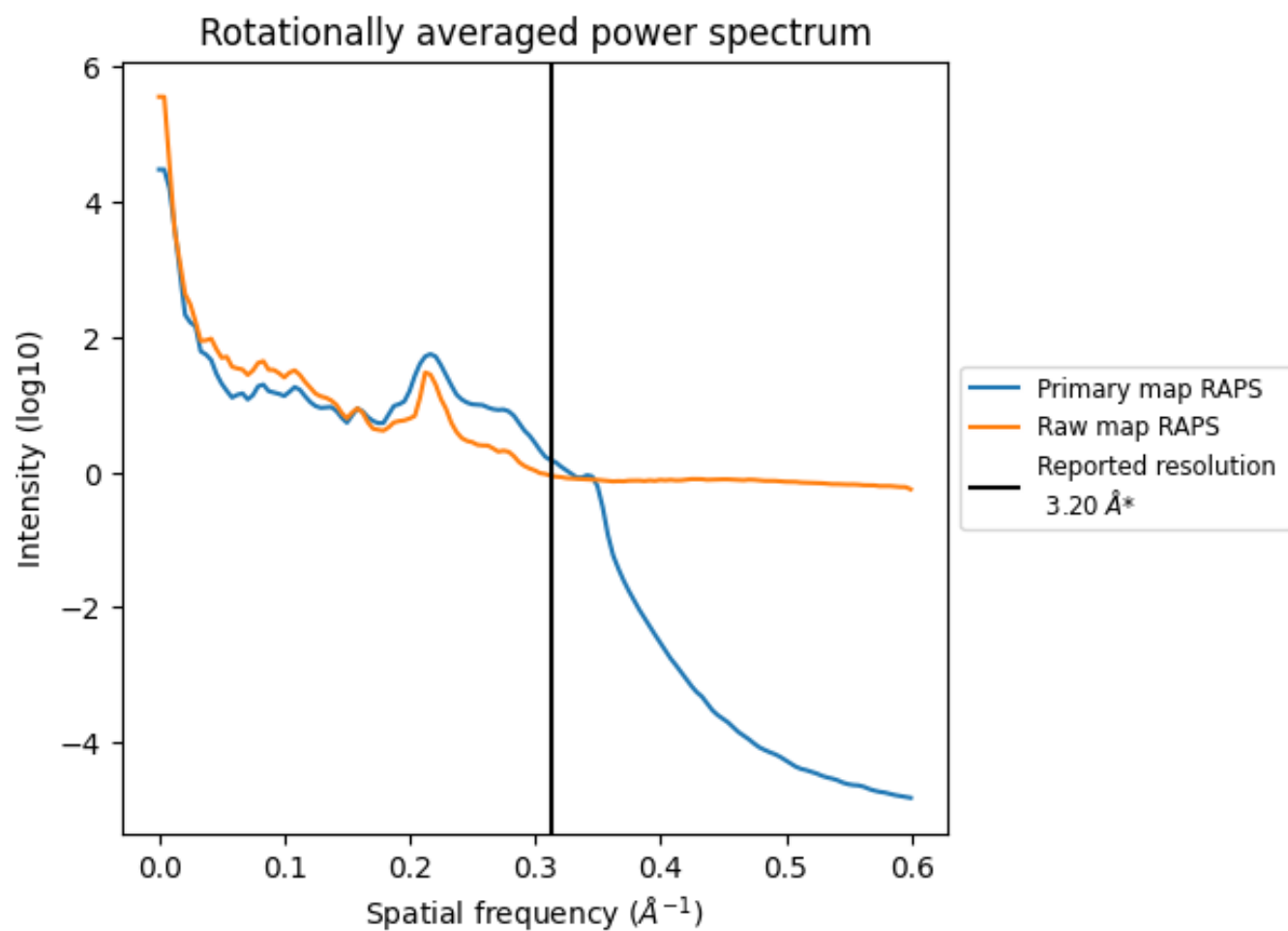
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 56 nm³; this corresponds to an approximate mass of 51 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 ⓘ

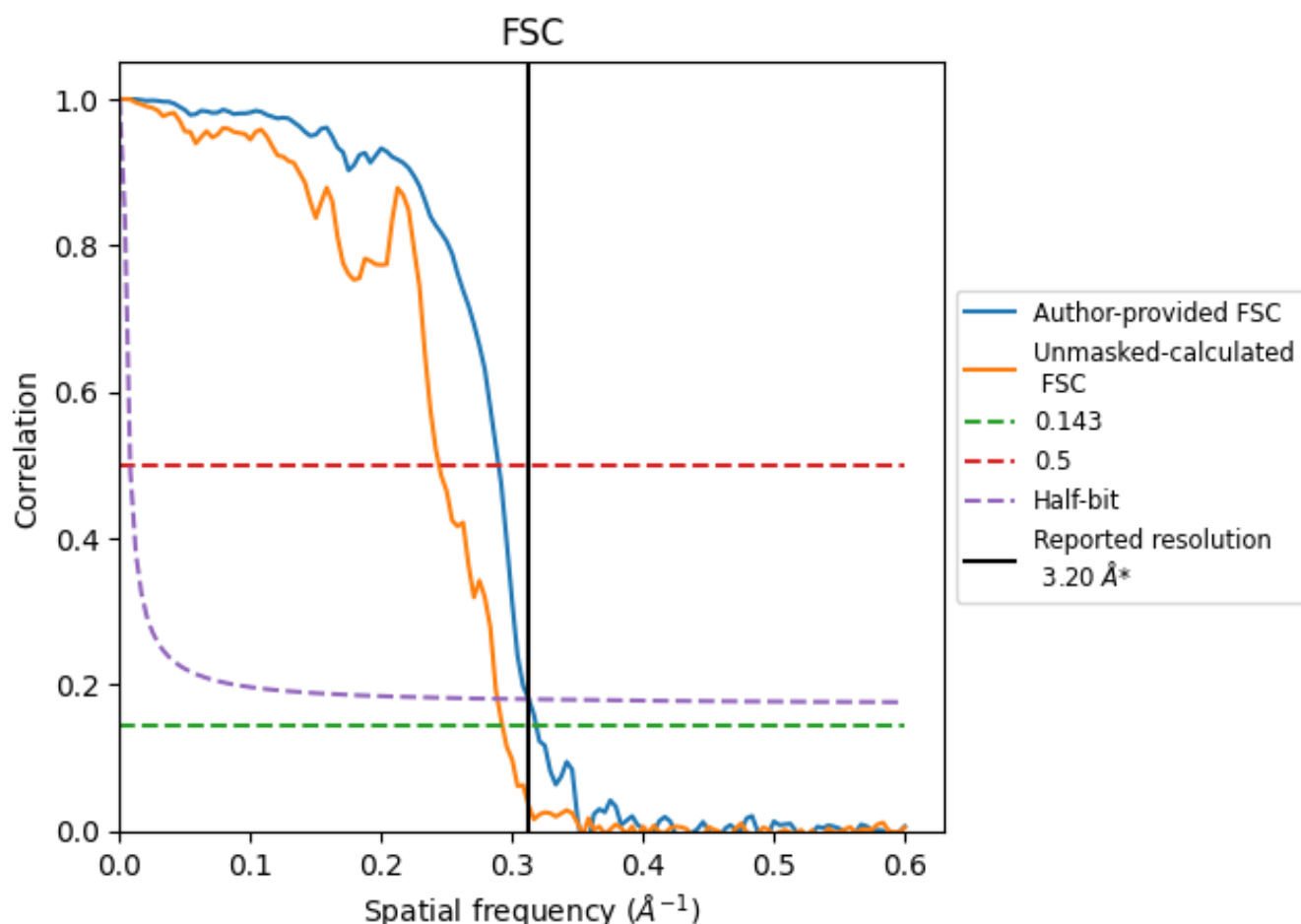


*Reported resolution corresponds to spatial frequency of 0.312 Å⁻¹

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 0.312 Å⁻¹

8.2 Resolution estimates [i](#)

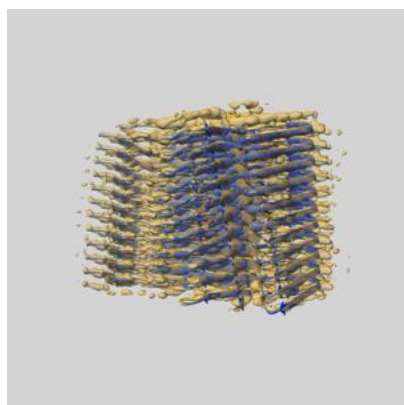
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.20	-	-
Author-provided FSC curve	3.14	3.46	3.20
Unmasked-calculated*	3.42	4.10	3.47

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

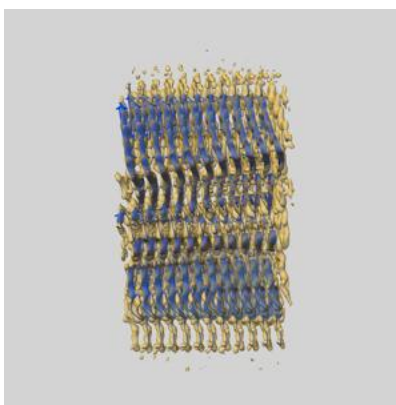
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-45464 and PDB model 9CD9. Per-residue inclusion information can be found in section [3](#) on page [6](#).

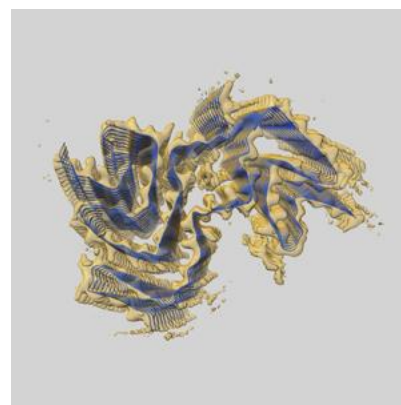
9.1 Map-model overlay [i](#)



X



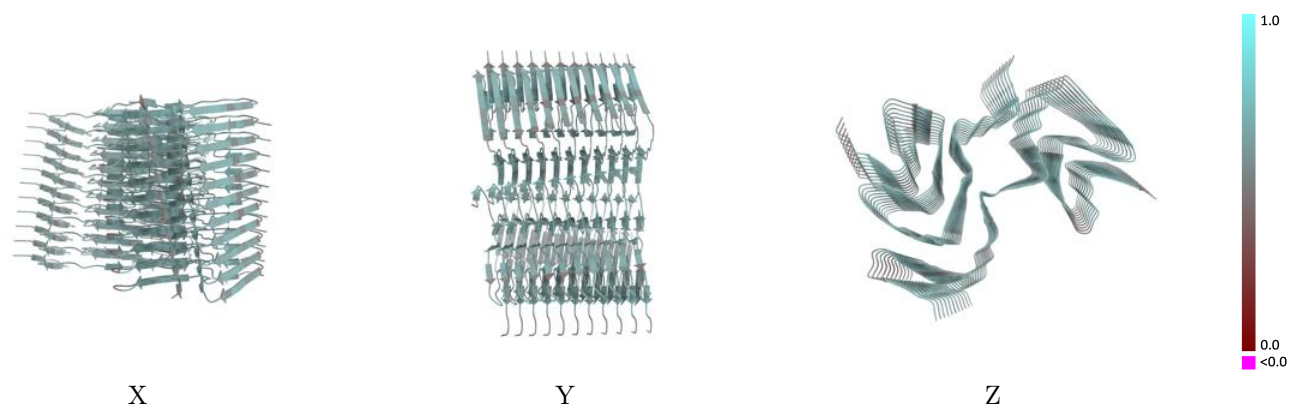
Y



Z

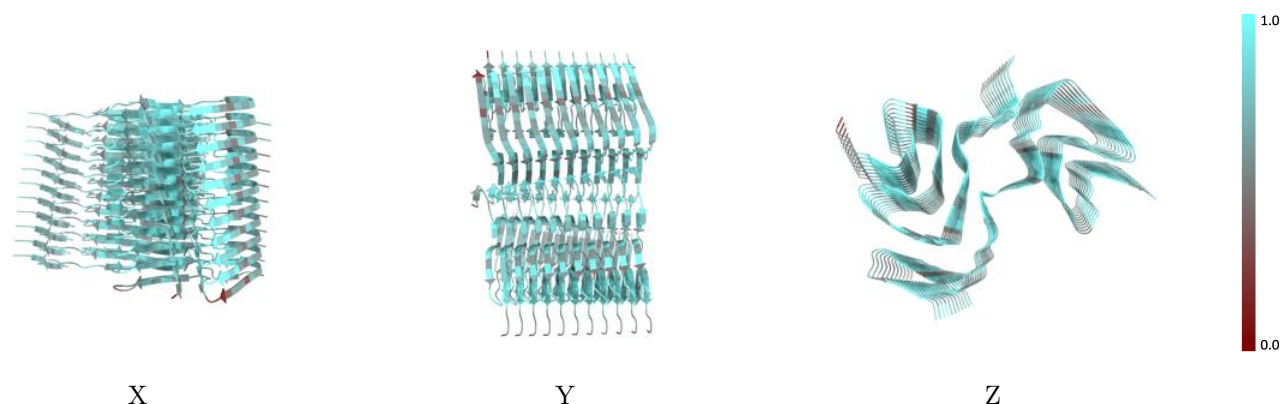
The images above show the 3D surface view of the map at the recommended contour level 0.0152 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



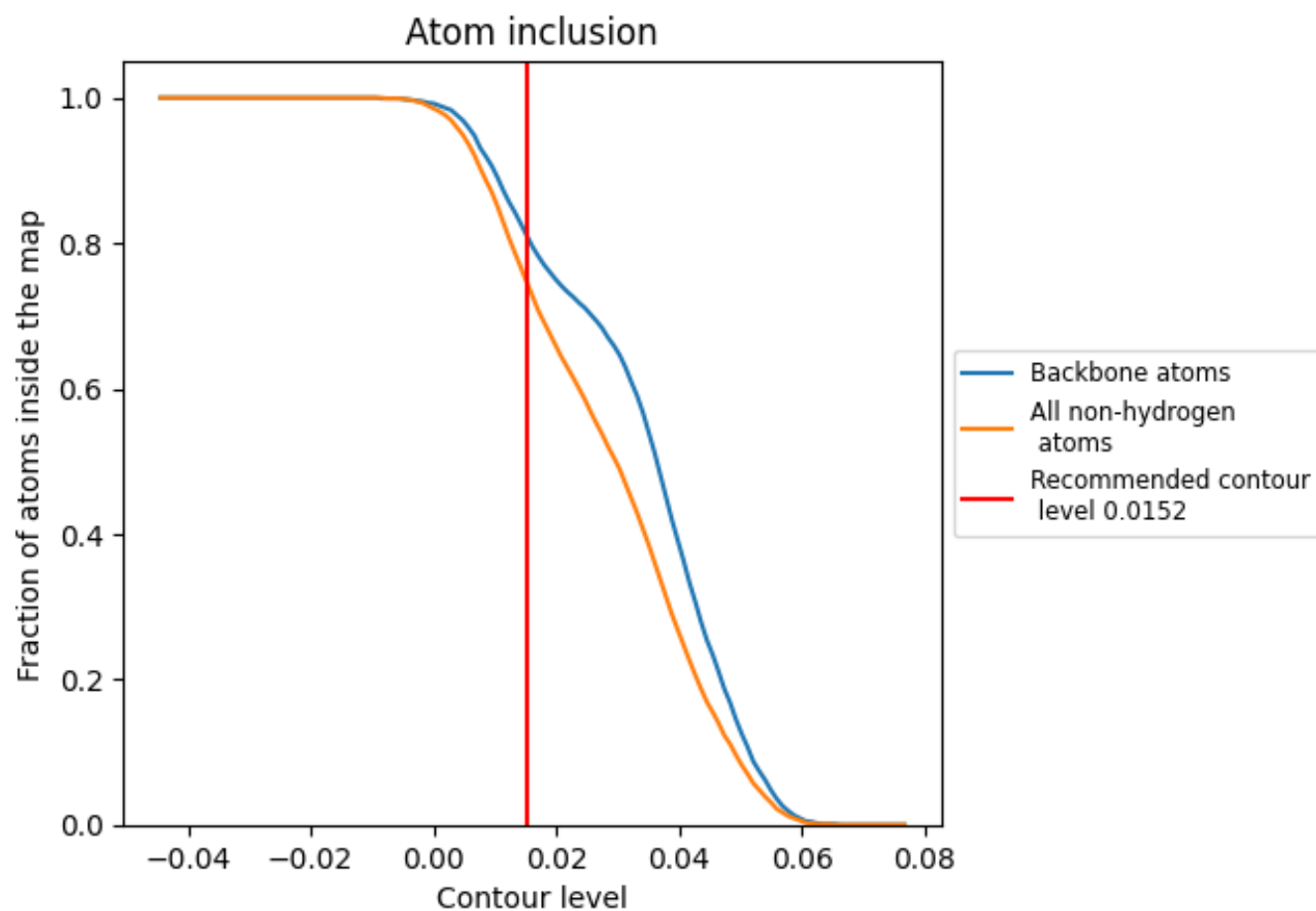
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.0152).















































9.4 Atom inclusion [i](#)



At the recommended contour level, 81% of all backbone atoms, 75% 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 (0.0152) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7470	 0.5780
E	 0.7300	 0.5700
F	 0.7730	 0.5770
G	 0.7260	 0.5640
H	 0.7750	 0.5820
I	 0.6460	 0.5640
J	 0.7480	 0.5690
K	 0.7350	 0.5770
L	 0.7840	 0.5940
M	 0.7370	 0.5730
N	 0.7860	 0.5900
O	 0.7320	 0.5710
P	 0.7770	 0.5850
Q	 0.7230	 0.5680
R	 0.7790	 0.5820
S	 0.7280	 0.5680
T	 0.7790	 0.5820
U	 0.7450	 0.5780
V	 0.7860	 0.5920
W	 0.7390	 0.5760
X	 0.7460	 0.5850
Y	 0.7370	 0.5790
Z	 0.7750	 0.5950

