



wwPDB EM Validation Summary Report ⓘ

Jul 9, 2025 – 12:29 AM JST

PDB ID : 9VMX / pdb_00009vmx
EMDB ID : EMD-65195
Title : Human PIEZO1-E756del-MDFIC
Authors : Zhang, M.F.; Pei, D.Q.
Deposited on : 2025-06-29
Resolution : 3.20 Å(reported)

This is a wwPDB EM Validation Summary Report for a publicly released PDB entry.

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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.dev118
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4-5-2 with Phenix2.0rc1
buster-report : 1.1.7 (2018)
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) : 2.44

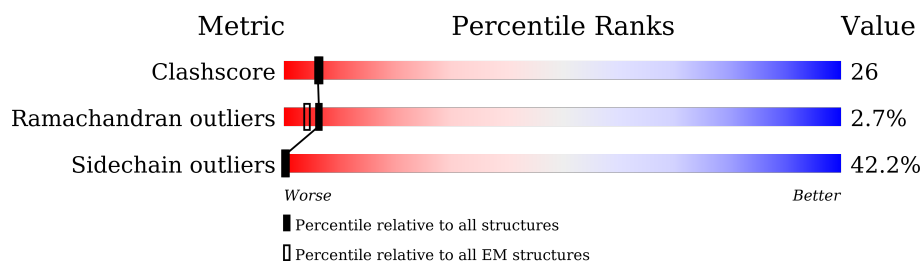
1 Overall quality at a glance

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	A	2521	 8% 22% 19% 9% 49%
1	B	2521	 8% 22% 20% 9% 49%
1	D	2521	 8% 22% 20% 9% 49%
2	C	246	 6% .. 91%
2	E	246	 6% .. 91%
2	F	246	 6% .. 91%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
3	D12	E	301	-	-	X	-

2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 32172 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.

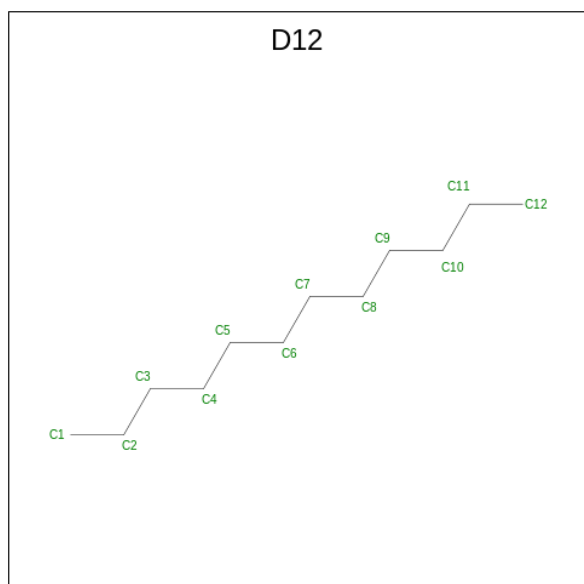
- Molecule 1 is a protein called Piezo-type mechanosensitive ion channel component 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	1280	Total 10463	C 6920	N 1743	O 1739	S 61	0	0
1	B	1280	Total 10463	C 6920	N 1743	O 1739	S 61	0	0
1	D	1280	Total 10463	C 6920	N 1743	O 1739	S 61	0	0

- Molecule 2 is a protein called MyoD family inhibitor domain-containing protein.

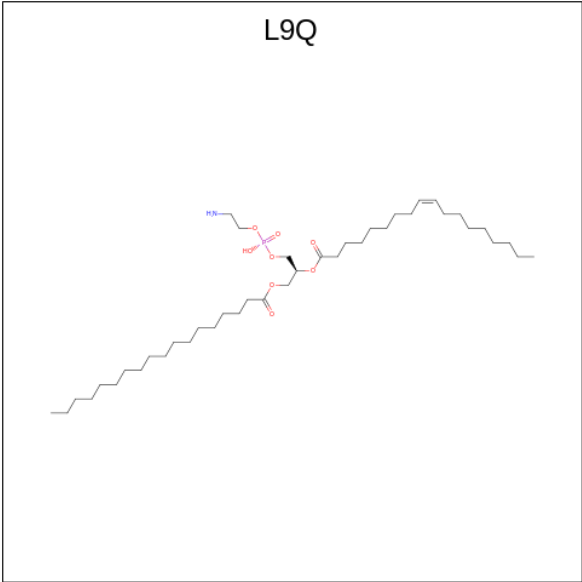
Mol	Chain	Residues	Atoms					AltConf	Trace
2	C	21	Total 150	C 88	N 21	O 33	S 8	0	0
2	E	21	Total 150	C 88	N 21	O 33	S 8	0	0
2	F	21	Total 150	C 88	N 21	O 33	S 8	0	0

- Molecule 3 is DODECANE (CCD ID: D12) (formula: C₁₂H₂₆).



Mol	Chain	Residues	Atoms	AltConf
3	A	1	Total C 12 12	0
3	A	1	Total C 12 12	0
3	B	1	Total C 12 12	0
3	B	1	Total C 12 12	0
3	D	1	Total C 12 12	0
3	D	1	Total C 12 12	0
3	C	1	Total C 12 12	0
3	C	1	Total C 12 12	0
3	C	1	Total C 12 12	0
3	E	1	Total C 12 12	0
3	E	1	Total C 12 12	0
3	E	1	Total C 12 12	0
3	F	1	Total C 12 12	0
3	F	1	Total C 12 12	0
3	F	1	Total C 12 12	0

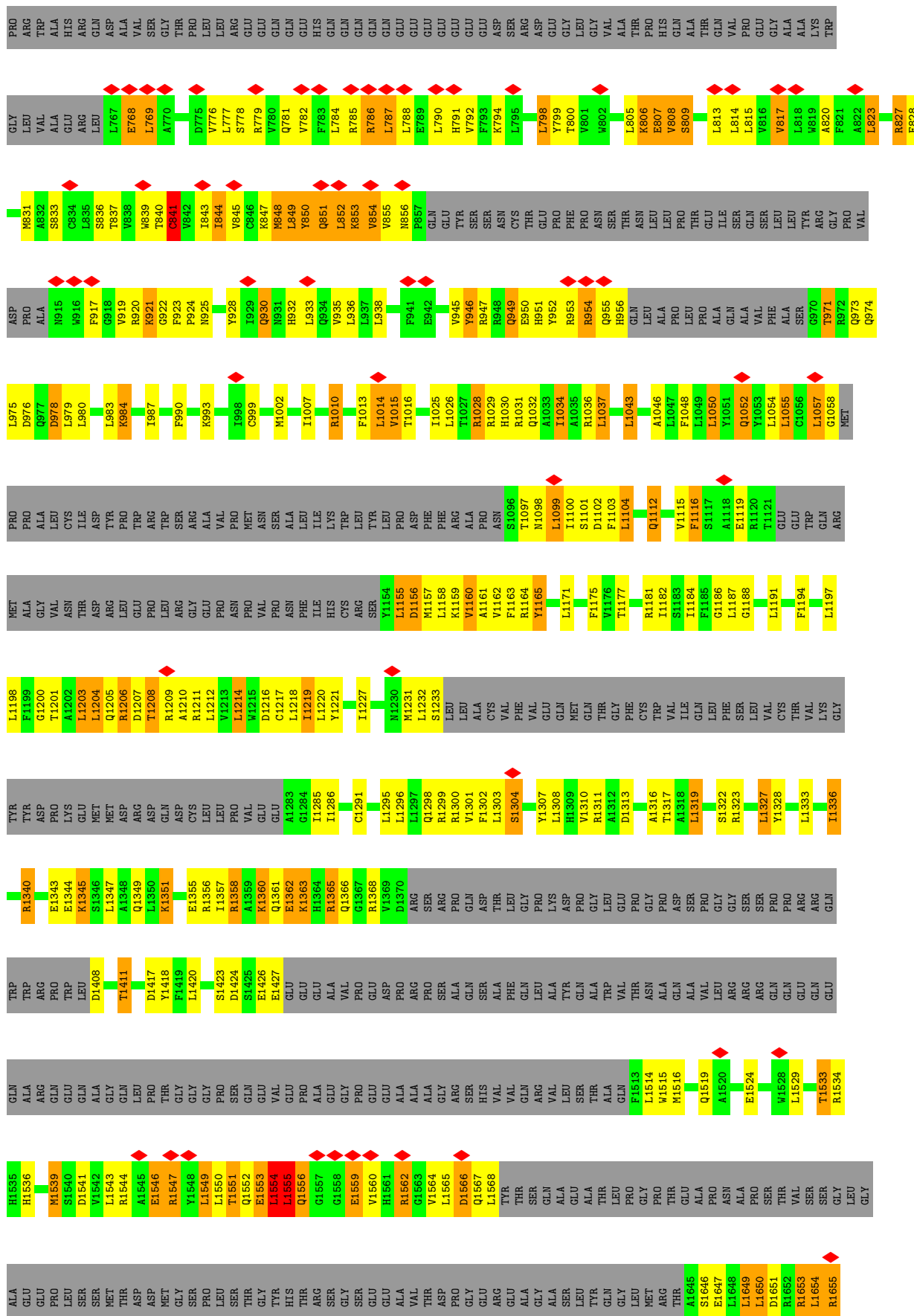
- Molecule 4 is (1S)-2-{[(S)-(2-aminoethoxy)(hydroxy)phosphoryl]oxy}-1-[(octadecanoyloxy)methyl]ethyl (9Z)-octadec-9-enoate (CCD ID: L9Q) (formula: C₄₁H₈₀NO₈P).

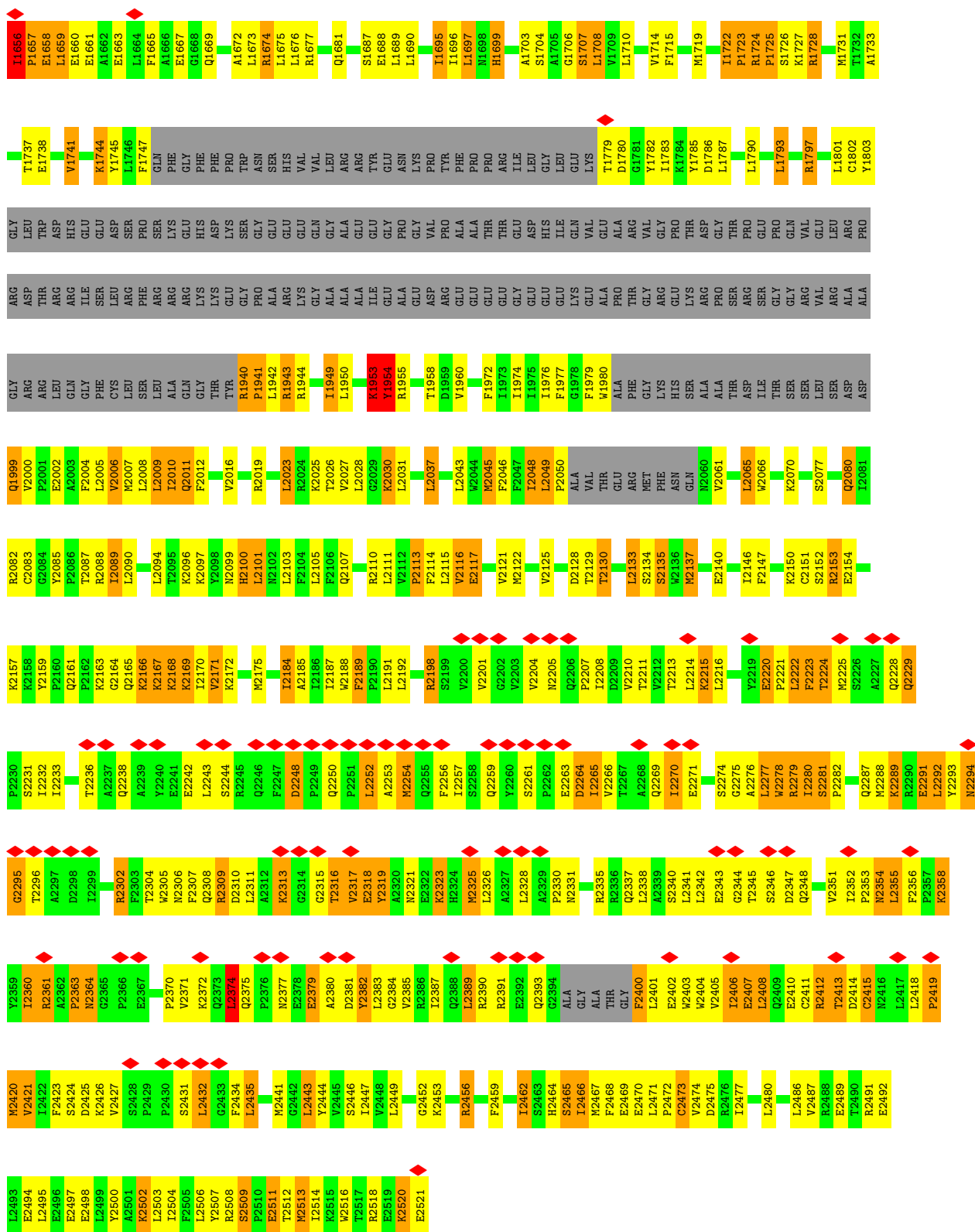


Mol	Chain	Residues	Atoms					AltConf
4	A	1	Total	C	N	O	P	0
			51	41	1	8	1	
4	B	1	Total	C	N	O	P	0
			51	41	1	8	1	
4	D	1	Total	C	N	O	P	0
			51	41	1	8	1	

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







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

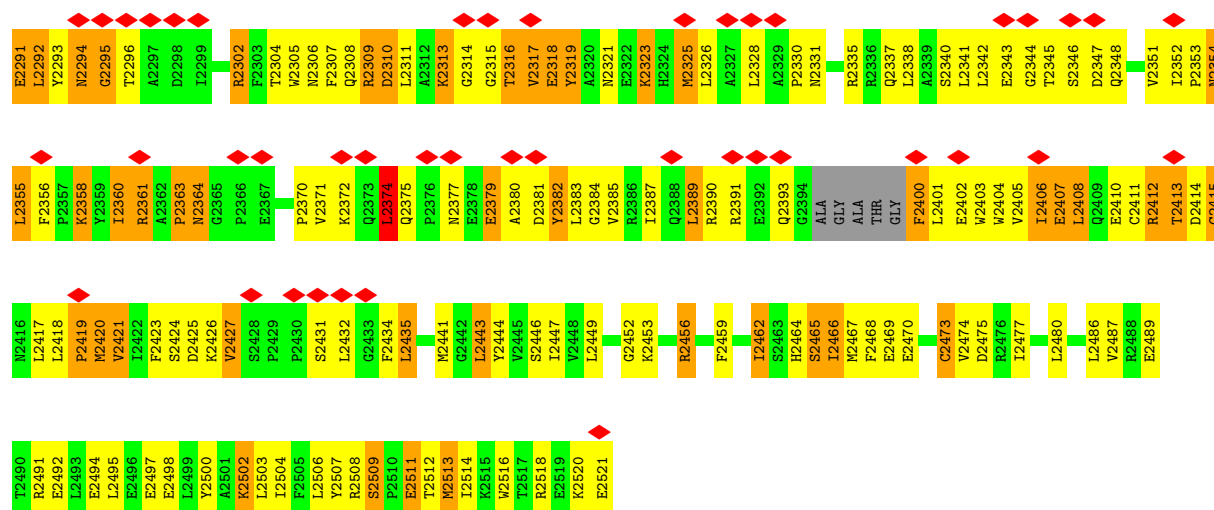






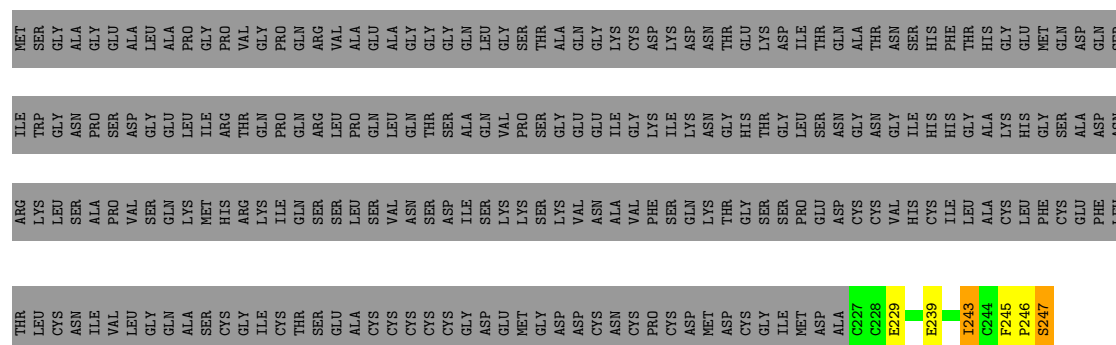






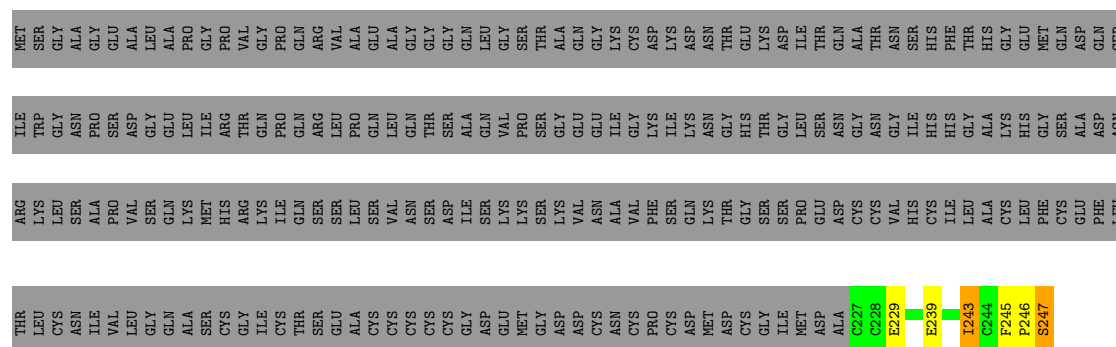
• Molecule 2: MyoD family inhibitor domain-containing protein

Chain C: 6% .. 91%



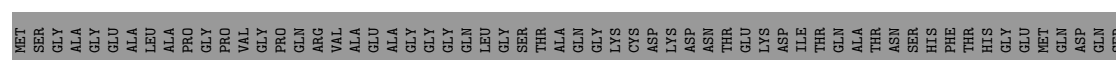
• Molecule 2: MyoD family inhibitor domain-containing protein

Chain E: 6% .. 91%



• Molecule 2: MyoD family inhibitor domain-containing protein

Chain F: 6% .. 91%



THR	ARG	ILE
LEU	LYS	TRP
CYS	LEU	GLY
ASN	SER	ASN
ILE	ALA	PRO
VAL	PRO	SER
LEU	VAL	ASP
GLY	SER	GLY
GLN	SER	GLN
ALA	LYS	LEU
ALA	MET	ILE
CYS	HIS	ARG
GLY	ARG	THR
ILE	LYS	GLN
CYS	ILE	PRO
THR	GLN	GLN
SER	SER	ARG
GLU	SER	LEU
ALA	LEU	PRO
CYS	SER	GLN
CYS	VAL	LEU
CYS	ASN	GLN
CYS	SER	THR
CYS	ASP	SER
GLY	ILE	ALA
ASP	SER	GLN
GLU	LYS	VAL
MET	LYS	GLY
ASN	ASN	GLU
CYS	ALA	GLU
CYS	VAL	ILE
PRO	PHE	LYS
CYS	SER	ILE
ASP	GLN	LYS
MET	LYS	ASN
ASP	THR	GLY
CYS	GLY	HIS
ILE	SER	THR
ILE	SER	GLY
MET	PRO	LEU
ASP	GLU	SER
ALA	ASP	ASN
C227	CYS	GLY
C228	CYS	ASN
E229	VAL	GLY
E239	HIS	ILE
E239	CYS	HIS
I243	ILE	HIS
C244	LEU	GLY
F245	ALA	ALA
P246	CYS	LYS
S247	LEU	HIS
	PHE	GLY
	CYS	SER
	GLU	ALA
	PHE	ASP
	LEU	ASN

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	40207	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	40	Depositor
Minimum defocus (nm)	900	Depositor
Maximum defocus (nm)	1300	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	0.596	Depositor
Minimum map value	-0.385	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.010	Depositor
Recommended contour level	0.035	Depositor
Map size (\AA)	456.0, 456.0, 456.0	wwPDB
Map dimensions	800, 800, 800	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	0.57, 0.57, 0.57	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: D12, L9Q

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	0.55	2/10719 (0.0%)	0.91	51/14526 (0.4%)
1	B	0.55	2/10719 (0.0%)	0.91	52/14526 (0.4%)
1	D	0.55	2/10719 (0.0%)	0.91	51/14526 (0.4%)
2	C	0.71	0/151	1.16	0/200
2	E	0.71	0/151	1.16	0/200
2	F	0.70	0/151	1.16	0/200
All	All	0.55	6/32610 (0.0%)	0.92	154/44178 (0.3%)

The worst 5 of 6 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	1160	VAL	CA-CB	6.03	1.62	1.54
1	A	1160	VAL	CA-CB	6.02	1.62	1.54
1	B	1160	VAL	CA-CB	6.00	1.62	1.54
1	D	2289	LYS	C-N	-5.10	1.27	1.33
1	B	2289	LYS	C-N	-5.09	1.27	1.33

The worst 5 of 154 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	930	GLN	N-CA-C	11.20	126.52	113.19
1	A	930	GLN	N-CA-C	11.19	126.51	113.19
1	D	930	GLN	N-CA-C	11.19	126.51	113.19
1	D	2374	LEU	N-CA-C	-10.05	100.31	111.07
1	B	2374	LEU	N-CA-C	-10.03	100.33	111.07

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	10463	0	10689	610	0
1	B	10463	0	10689	603	0
1	D	10463	0	10689	603	0
2	C	150	0	132	11	0
2	E	150	0	132	12	0
2	F	150	0	132	11	0
3	A	24	0	52	3	0
3	B	24	0	52	4	0
3	C	36	0	78	8	0
3	D	24	0	52	4	0
3	E	36	0	78	10	0
3	F	36	0	78	8	0
4	A	51	0	79	8	0
4	B	51	0	79	9	0
4	D	51	0	79	8	0
All	All	32172	0	33090	1679	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 26.

The worst 5 of 1679 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:2459:PHE:CD1	1:D:2137:MET:HE2	1.54	1.42
1:B:2137:MET:HE2	1:D:2459:PHE:CD1	1.54	1.39
1:D:1650:LEU:CD2	1:D:1654:LEU:HD12	1.53	1.39
1:A:2137:MET:HE2	1:B:2459:PHE:CD1	1.54	1.38
1:B:1650:LEU:CD2	1:B:1654:LEU:HD12	1.53	1.38

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	1248/2521 (50%)	1069 (86%)	145 (12%)	34 (3%)	4	26
1	B	1248/2521 (50%)	1069 (86%)	145 (12%)	34 (3%)	4	26
1	D	1248/2521 (50%)	1069 (86%)	145 (12%)	34 (3%)	4	26
2	C	19/246 (8%)	17 (90%)	2 (10%)	0	100	100
2	E	19/246 (8%)	17 (90%)	2 (10%)	0	100	100
2	F	19/246 (8%)	17 (90%)	2 (10%)	0	100	100
All	All	3801/8301 (46%)	3258 (86%)	441 (12%)	102 (3%)	6	26

5 of 102 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	1723	PRO
1	A	1725	PRO
1	A	1953	LYS
1	A	2316	THR
1	A	2379	GLU

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	1121/2172 (52%)	642 (57%)	479 (43%)	0	0
1	B	1121/2172 (52%)	642 (57%)	479 (43%)	0	0
1	D	1121/2172 (52%)	642 (57%)	479 (43%)	0	0

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	C	20/203 (10%)	17 (85%)	3 (15%)	2	12
2	E	20/203 (10%)	17 (85%)	3 (15%)	2	12
2	F	20/203 (10%)	17 (85%)	3 (15%)	2	12
All	All	3423/7125 (48%)	1977 (58%)	1446 (42%)	0	0

5 of 1446 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	2431	SER
1	D	1336	ILE
1	B	2512	THR
1	B	2427	VAL
1	D	856	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 65 such sidechains are listed below:

Mol	Chain	Res	Type
1	D	2080	GLN
1	D	2161	GLN
1	B	851	GLN
1	B	702	HIS
1	D	2229	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry

18 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
4	L9Q	B	2601	-	50,50,50	1.05	3 (6%)	53,55,55	1.07	3 (5%)
3	D12	B	2602	-	11,11,11	0.26	0	10,10,10	0.42	0
3	D12	D	2603	-	11,11,11	0.27	0	10,10,10	0.39	0
3	D12	A	2602	-	11,11,11	0.27	0	10,10,10	0.39	0
3	D12	C	303	-	11,11,11	0.29	0	10,10,10	0.36	0
3	D12	E	303	-	11,11,11	0.29	0	10,10,10	0.36	0
3	D12	A	2601	-	11,11,11	0.27	0	10,10,10	0.42	0
3	D12	C	302	-	11,11,11	0.26	0	10,10,10	0.46	0
3	D12	D	2602	-	11,11,11	0.26	0	10,10,10	0.42	0
3	D12	F	303	-	11,11,11	0.29	0	10,10,10	0.36	0
4	L9Q	A	2603	-	50,50,50	1.05	3 (6%)	53,55,55	1.07	3 (5%)
3	D12	B	2603	-	11,11,11	0.27	0	10,10,10	0.39	0
3	D12	E	301	-	11,11,11	0.29	0	10,10,10	0.40	0
3	D12	F	302	-	11,11,11	0.26	0	10,10,10	0.46	0
4	L9Q	D	2601	-	50,50,50	1.05	3 (6%)	53,55,55	1.07	3 (5%)
3	D12	F	301	-	11,11,11	0.29	0	10,10,10	0.39	0
3	D12	E	302	-	11,11,11	0.26	0	10,10,10	0.46	0
3	D12	C	301	-	11,11,11	0.29	0	10,10,10	0.40	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	L9Q	B	2601	-	-	31/54/54/54	-
3	D12	B	2602	-	-	7/9/9/9	-
3	D12	D	2603	-	-	6/9/9/9	-
3	D12	A	2602	-	-	6/9/9/9	-
3	D12	C	303	-	-	5/9/9/9	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	D12	E	303	-	-	5/9/9/9	-
3	D12	A	2601	-	-	7/9/9/9	-
3	D12	C	302	-	-	8/9/9/9	-
3	D12	D	2602	-	-	7/9/9/9	-
3	D12	F	303	-	-	5/9/9/9	-
4	L9Q	A	2603	-	-	31/54/54/54	-
3	D12	B	2603	-	-	6/9/9/9	-
3	D12	E	301	-	-	7/9/9/9	-
3	D12	F	302	-	-	8/9/9/9	-
4	L9Q	D	2601	-	-	31/54/54/54	-
3	D12	F	301	-	-	7/9/9/9	-
3	D12	E	302	-	-	8/9/9/9	-
3	D12	C	301	-	-	7/9/9/9	-

The worst 5 of 9 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	2603	L9Q	O3-C11	4.23	1.45	1.33
4	B	2601	L9Q	O3-C11	4.23	1.45	1.33
4	D	2601	L9Q	O3-C11	4.22	1.45	1.33
4	B	2601	L9Q	O2-C31	4.05	1.45	1.34
4	A	2603	L9Q	O2-C31	4.05	1.45	1.34

The worst 5 of 9 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	B	2601	L9Q	O2-C31-C32	3.86	119.82	111.50
4	D	2601	L9Q	O2-C31-C32	3.85	119.81	111.50
4	A	2603	L9Q	O2-C31-C32	3.85	119.80	111.50
4	D	2601	L9Q	O3-C11-C12	2.74	120.51	111.91
4	A	2603	L9Q	O3-C11-C12	2.74	120.50	111.91

There are no chirality outliers.

5 of 192 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	2603	L9Q	C1-O3P-P-O1P
4	A	2603	L9Q	C1-O3P-P-O2P

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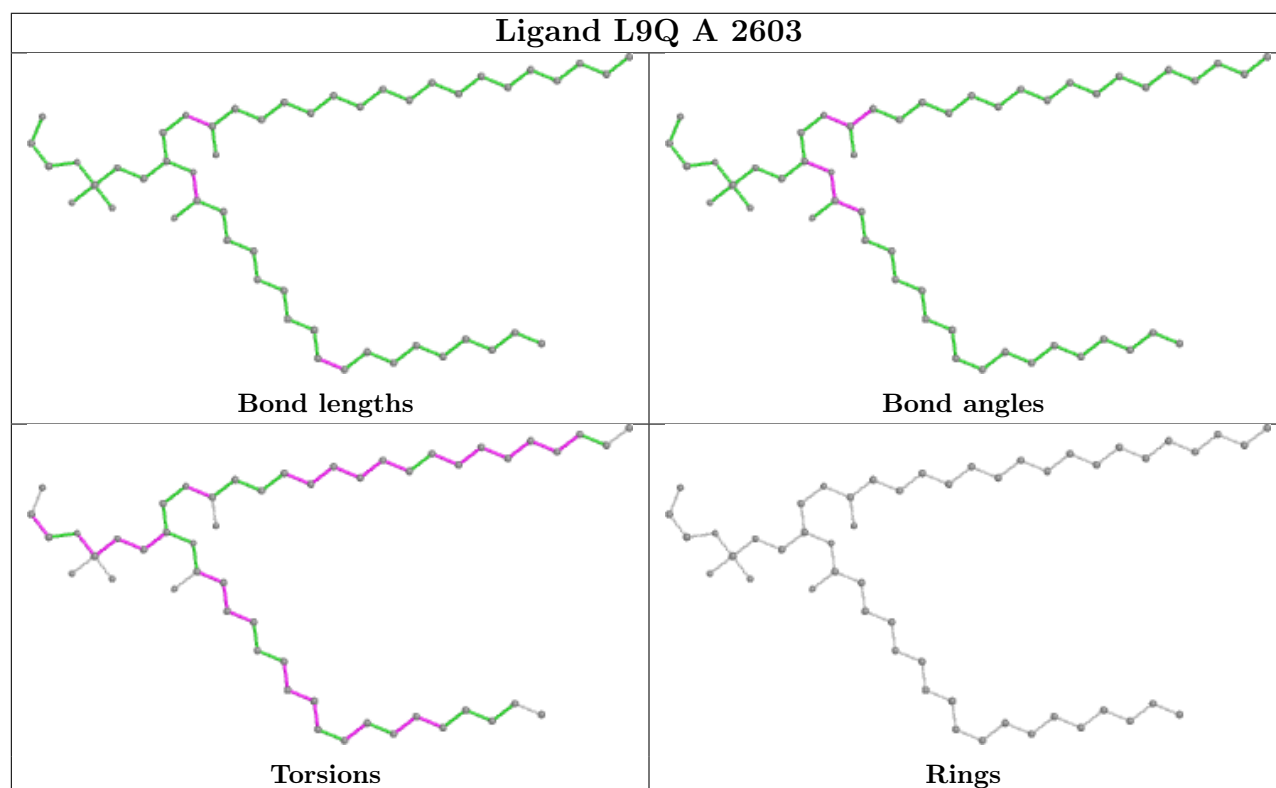
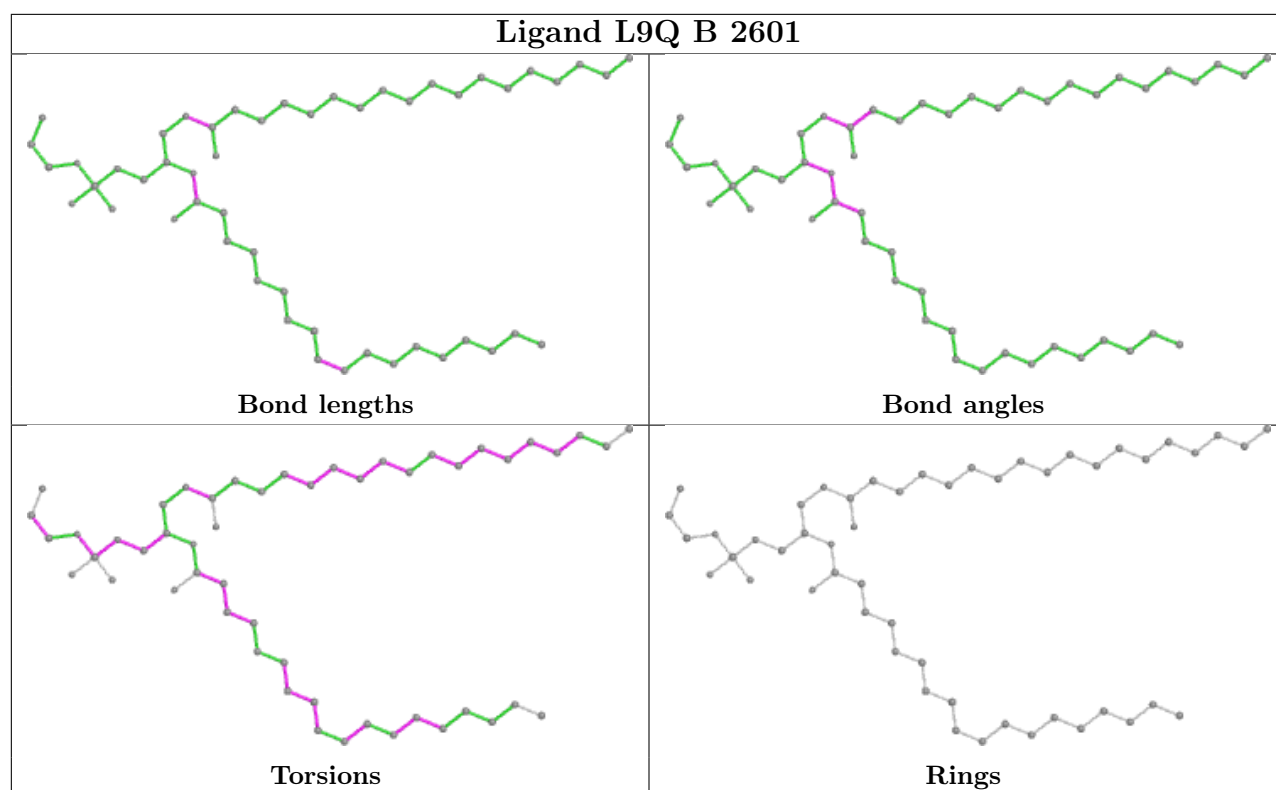
Mol	Chain	Res	Type	Atoms
4	A	2603	L9Q	O4P-C4-C5-N
4	B	2601	L9Q	C1-O3P-P-O1P
4	B	2601	L9Q	C1-O3P-P-O2P

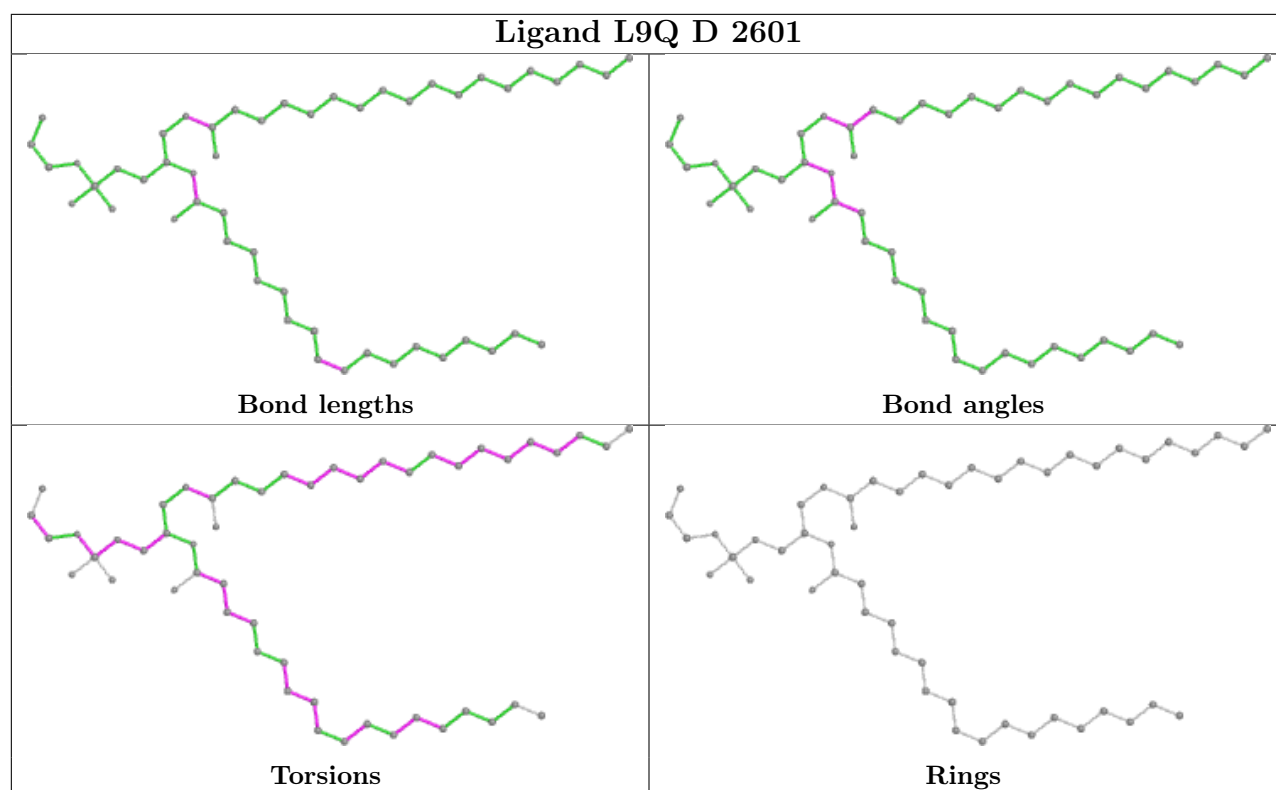
There are no ring outliers.

18 monomers are involved in 53 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	B	2601	L9Q	9	0
3	B	2602	D12	2	0
3	D	2603	D12	2	0
3	A	2602	D12	2	0
3	C	303	D12	3	0
3	E	303	D12	3	0
3	A	2601	D12	1	0
3	C	302	D12	2	0
3	D	2602	D12	2	0
3	F	303	D12	3	0
4	A	2603	L9Q	8	0
3	B	2603	D12	2	0
3	E	301	D12	7	0
3	F	302	D12	2	0
4	D	2601	L9Q	8	0
3	F	301	D12	5	0
3	E	302	D12	2	0
3	C	301	D12	5	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.





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.

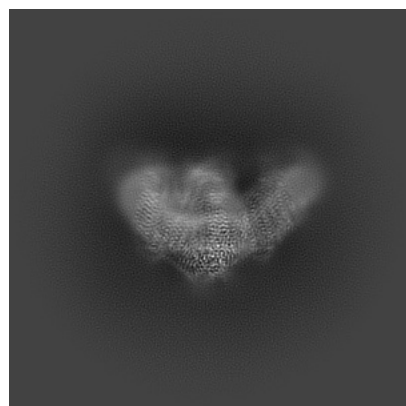
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-65195. These allow visual inspection of the internal detail of the map and identification of artifacts.

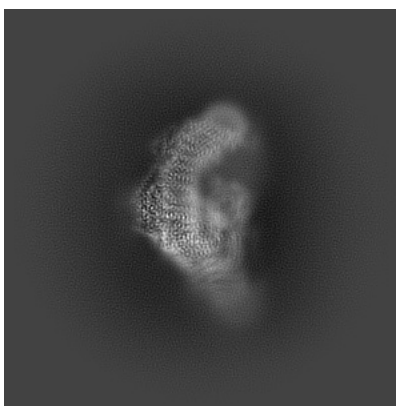
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

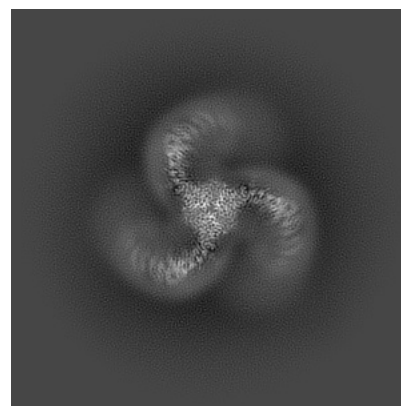
6.1.1 Primary map



X

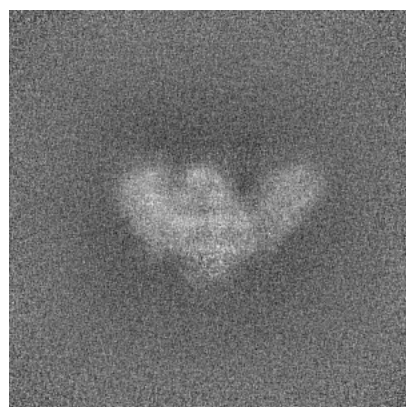


Y

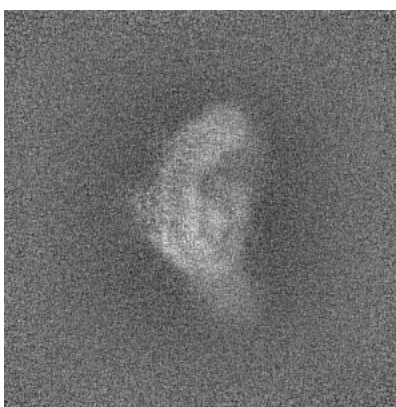


Z

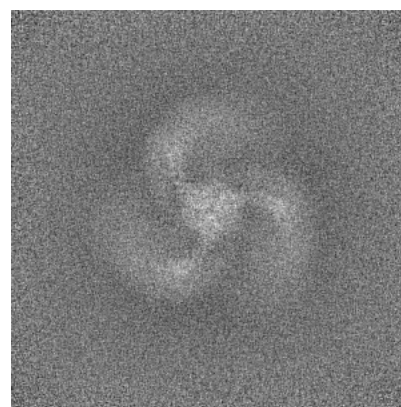
6.1.2 Raw map



X



Y



Z

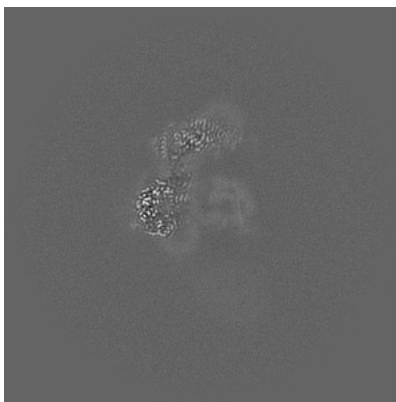
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

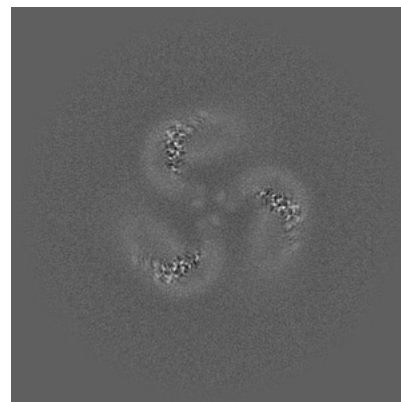
6.2.1 Primary map



X Index: 400

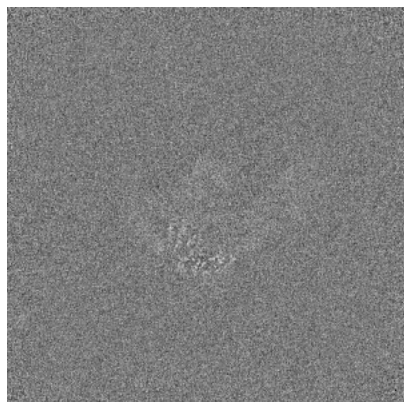


Y Index: 400

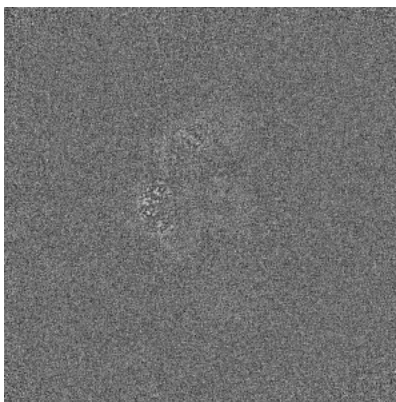


Z Index: 400

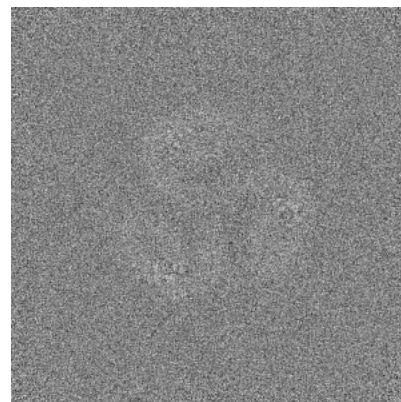
6.2.2 Raw map



X Index: 400



Y Index: 400

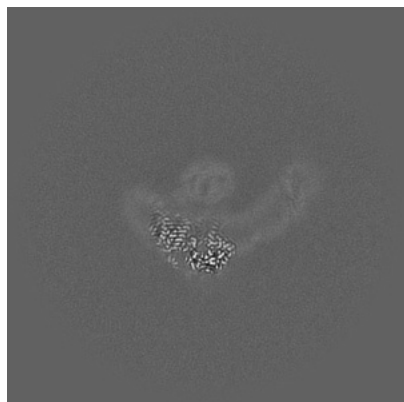


Z Index: 400

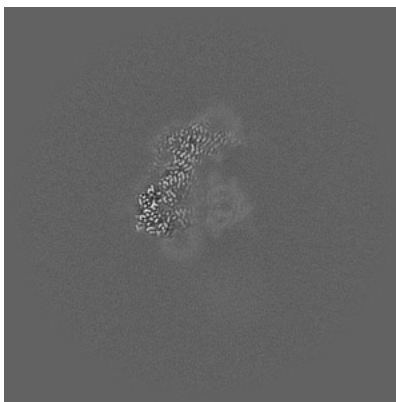
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

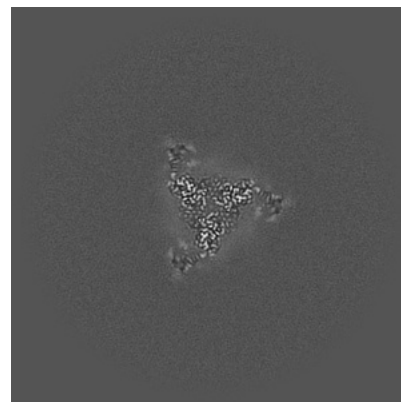
6.3.1 Primary map



X Index: 385

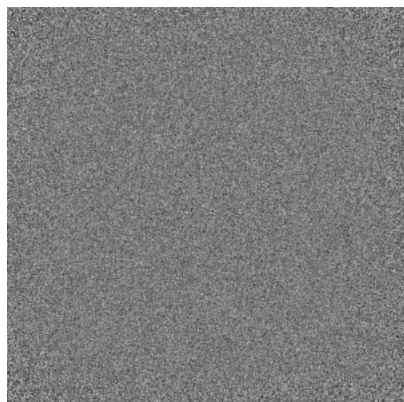


Y Index: 413

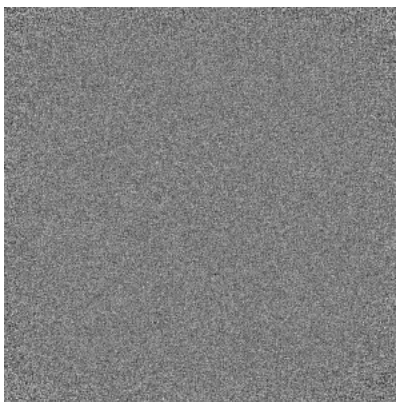


Z Index: 326

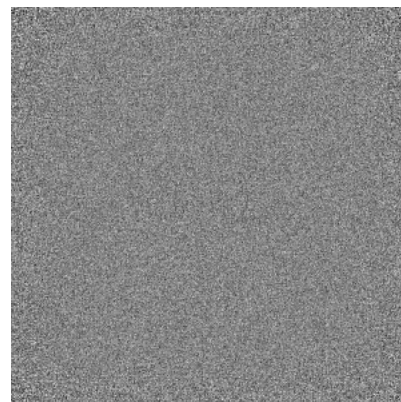
6.3.2 Raw map



X Index: 0



Y Index: 0

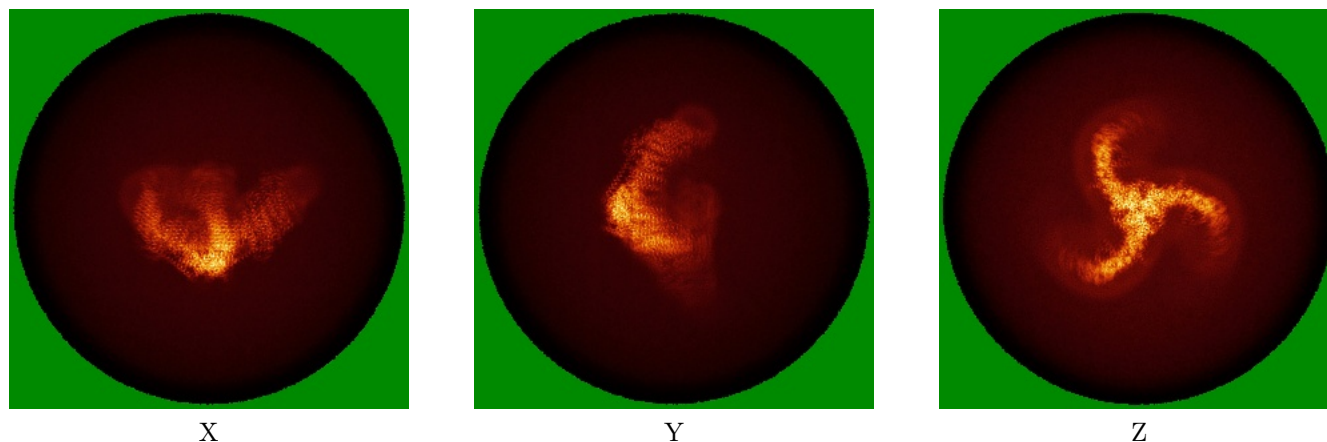


Z Index: 0

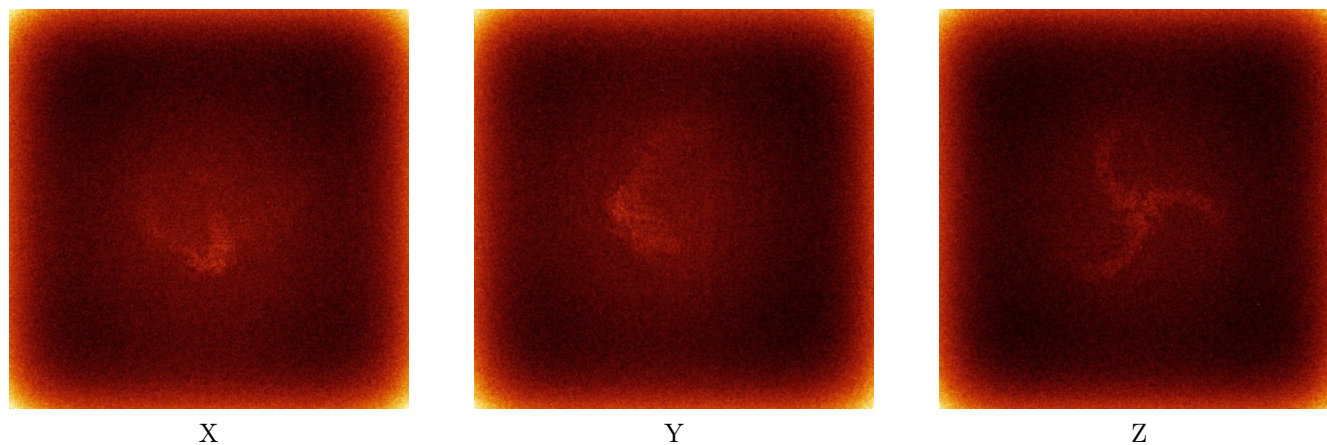
The images above show the largest variance slices of the map in three orthogonal directions.

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

6.4.1 Primary map



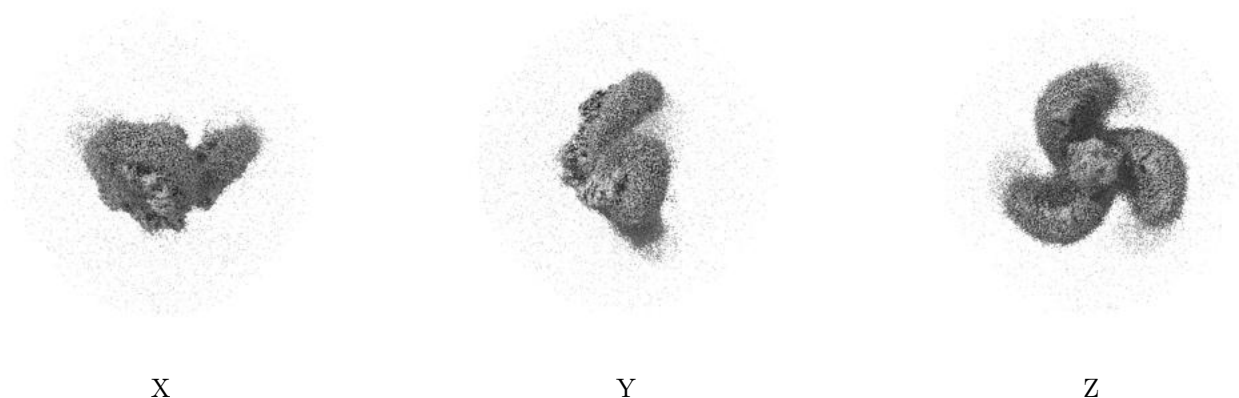
6.4.2 Raw map



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.

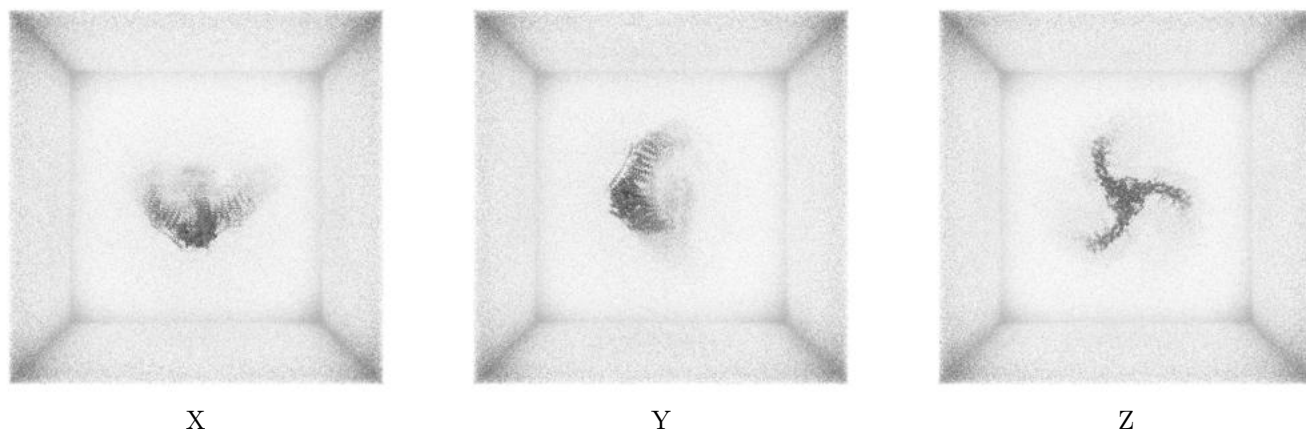
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.035. 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.

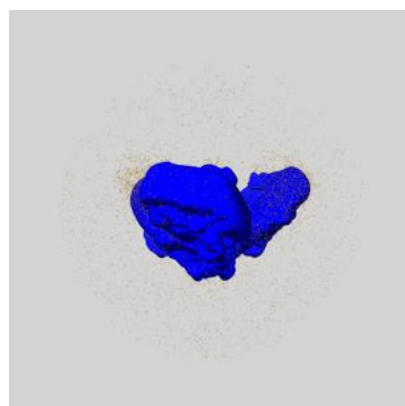
6.6 Mask visualisation [i](#)

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

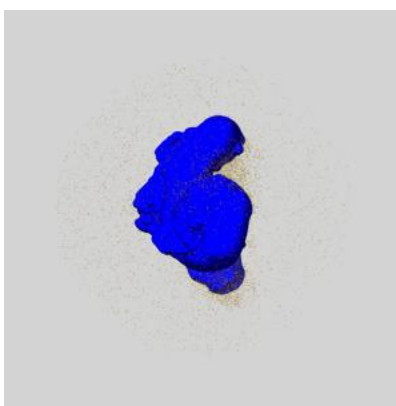
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

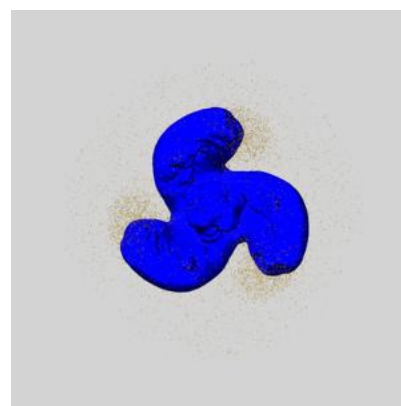
6.6.1 emd_65195_msk_1.map [i](#)



X



Y

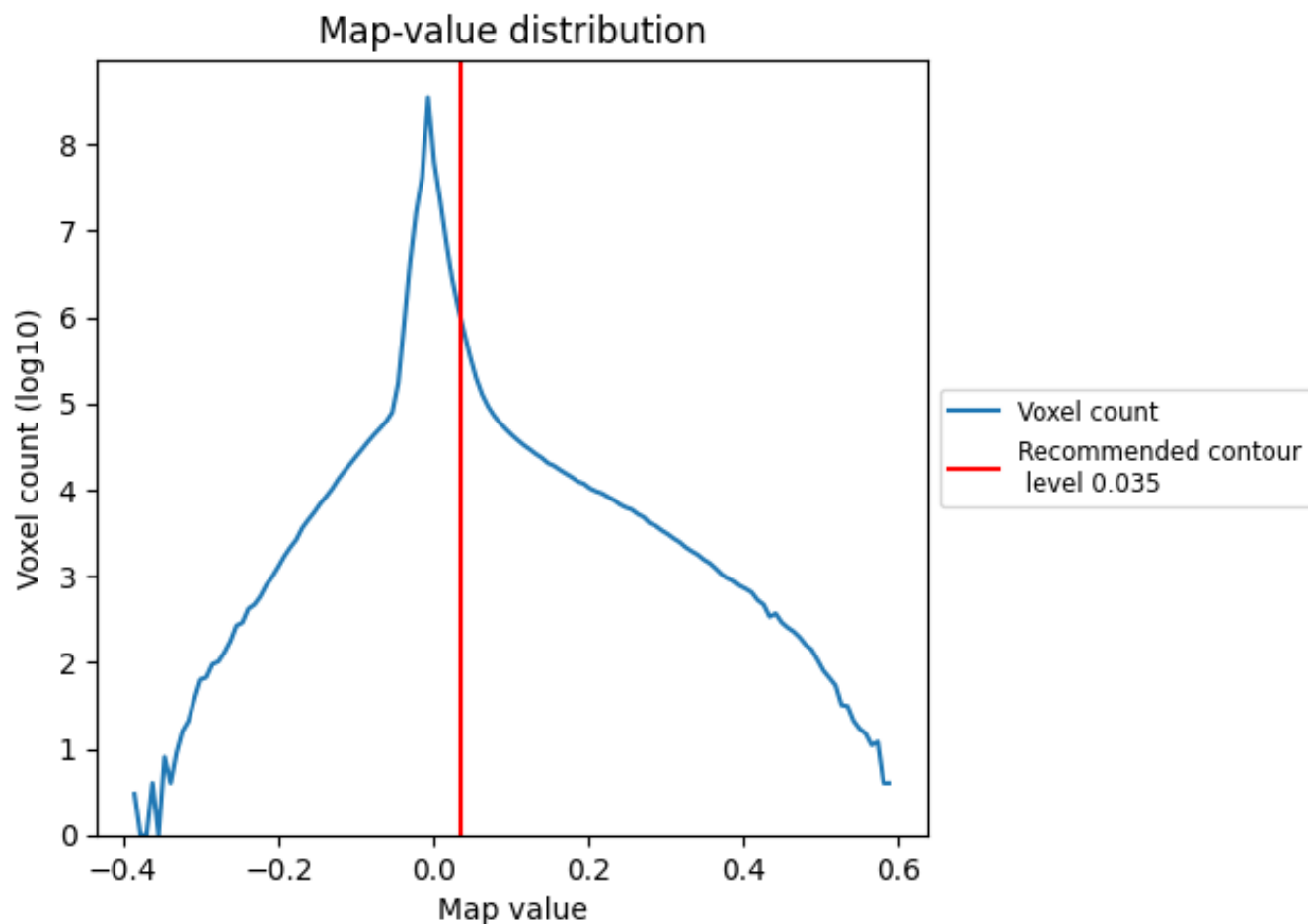


Z

7 Map analysis [i](#)

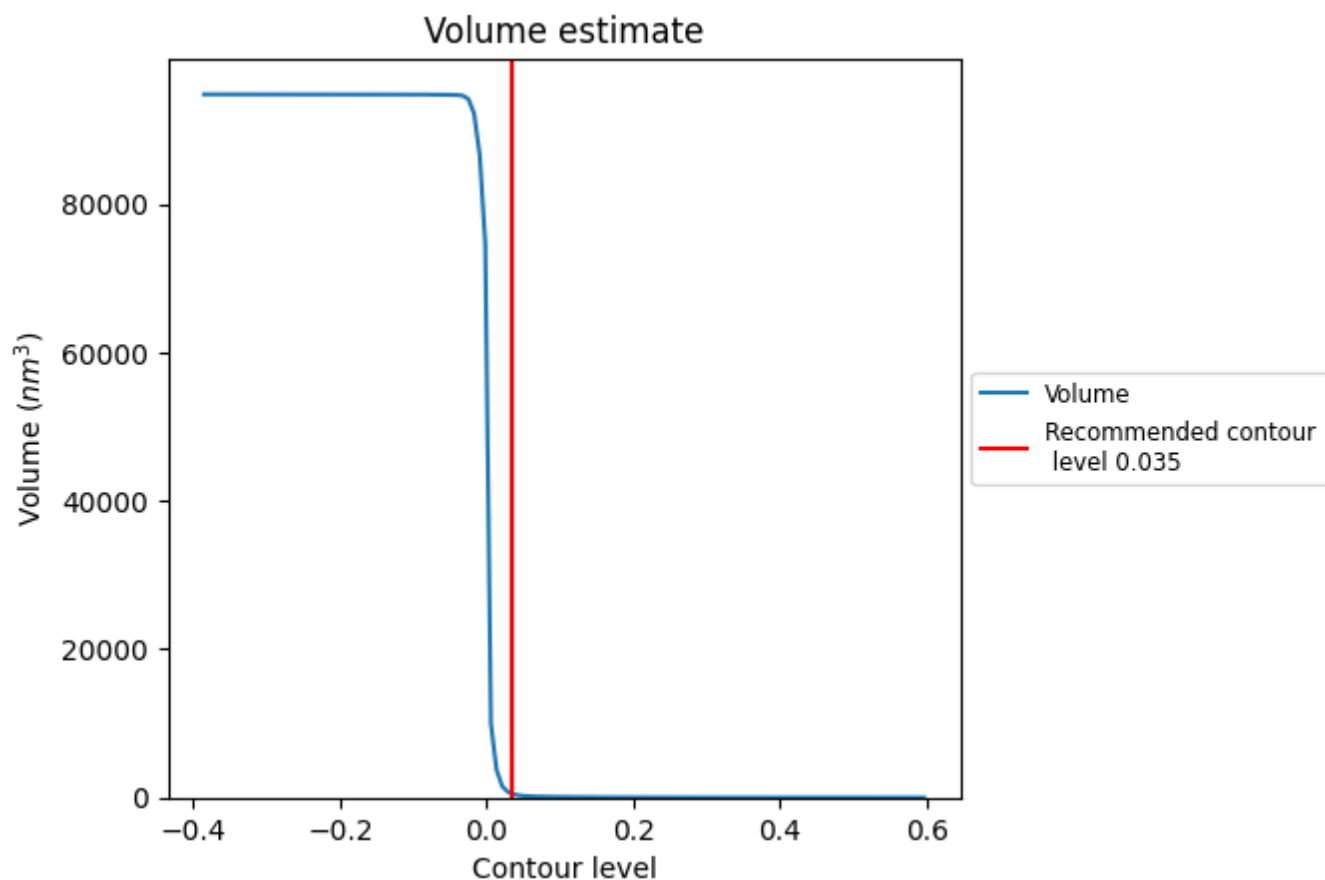
This section contains the results of statistical analysis of the map.

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.

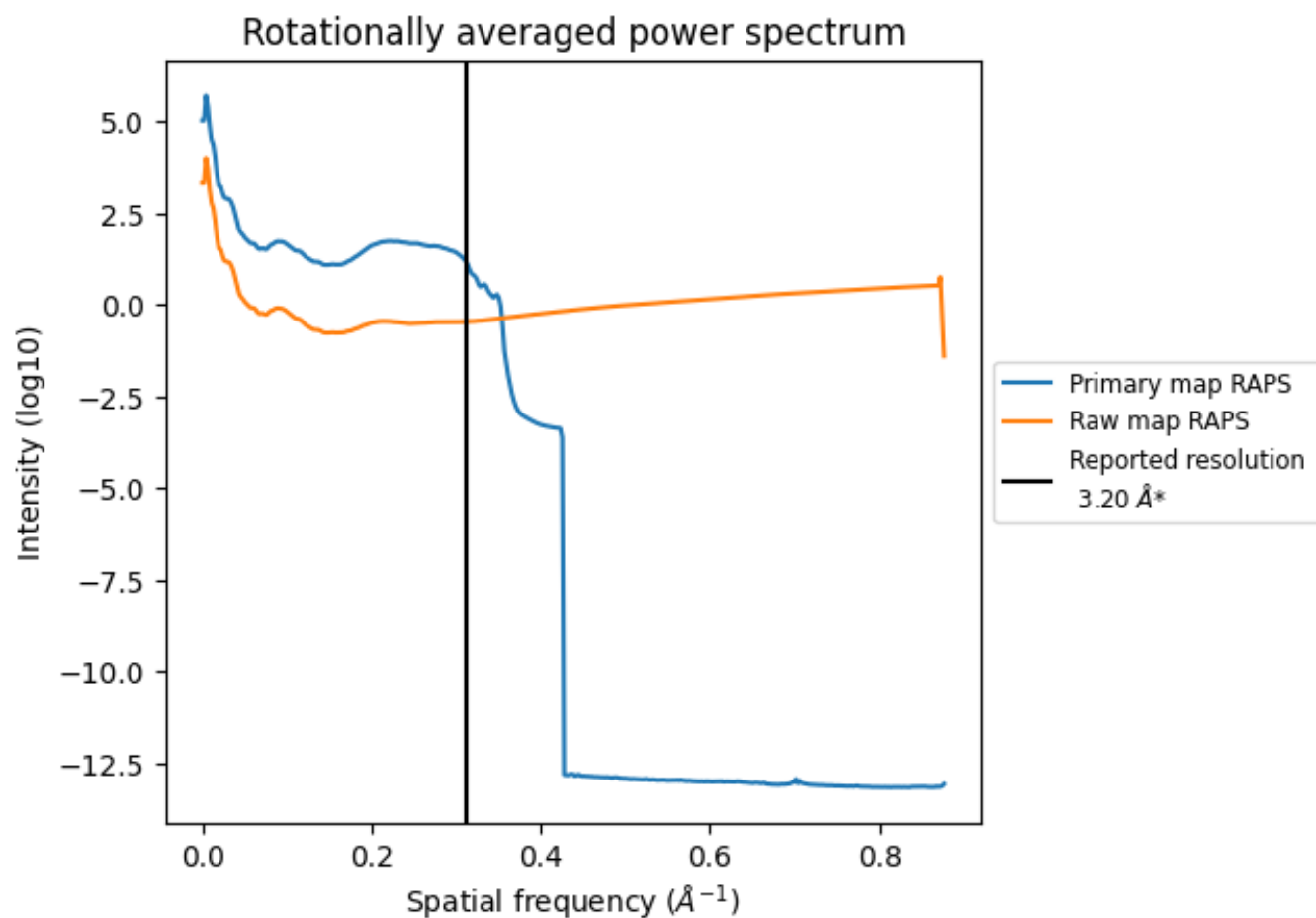
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 519 nm³; this corresponds to an approximate mass of 469 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 ⓘ

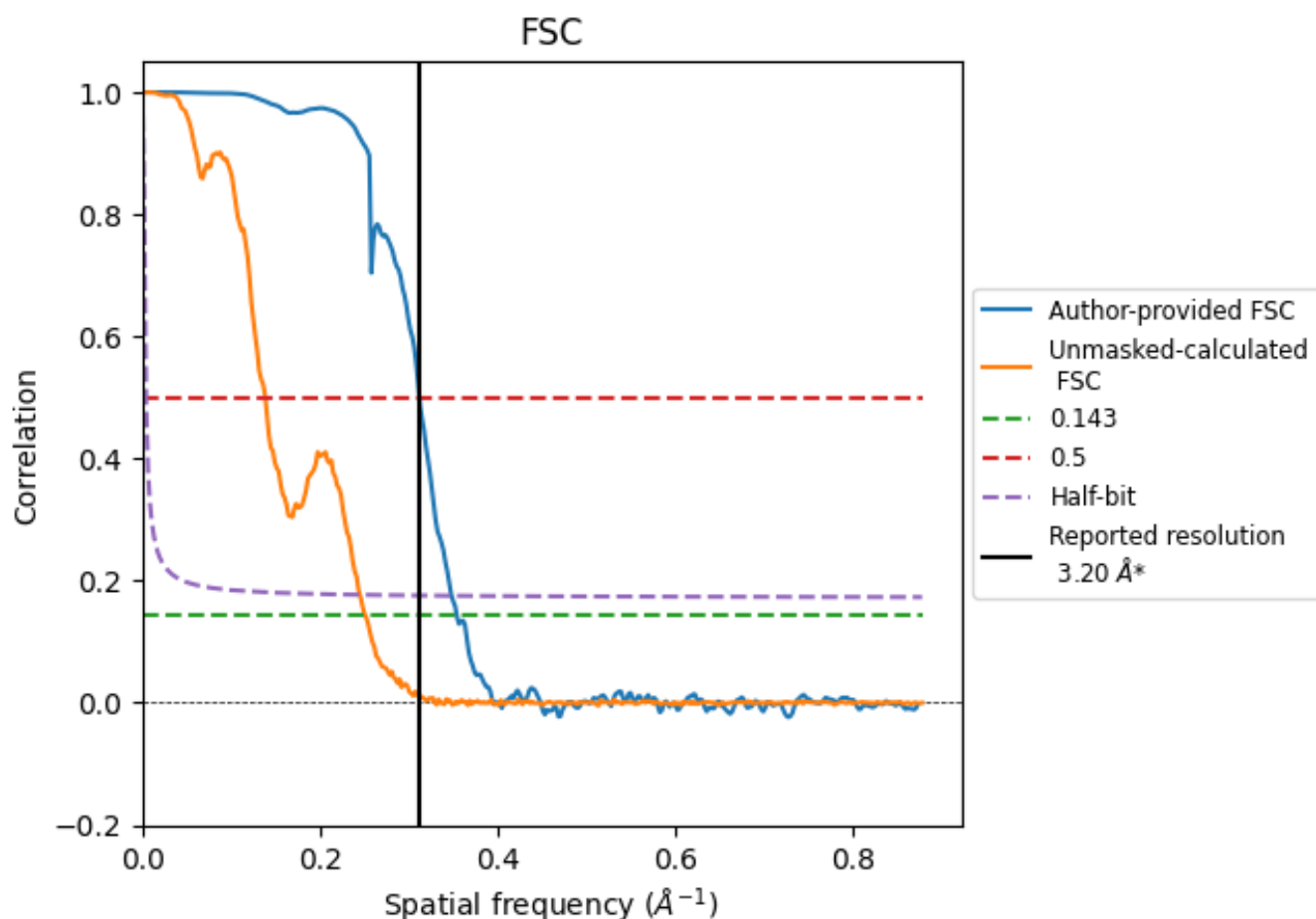


*Reported resolution corresponds to spatial frequency of 0.312 \AA^{-1}

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 0.312 \AA^{-1}

8.2 Resolution estimates [i](#)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.20	-	-
Author-provided FSC curve	2.83	3.21	2.87
Unmasked-calculated*	3.99	7.23	4.08

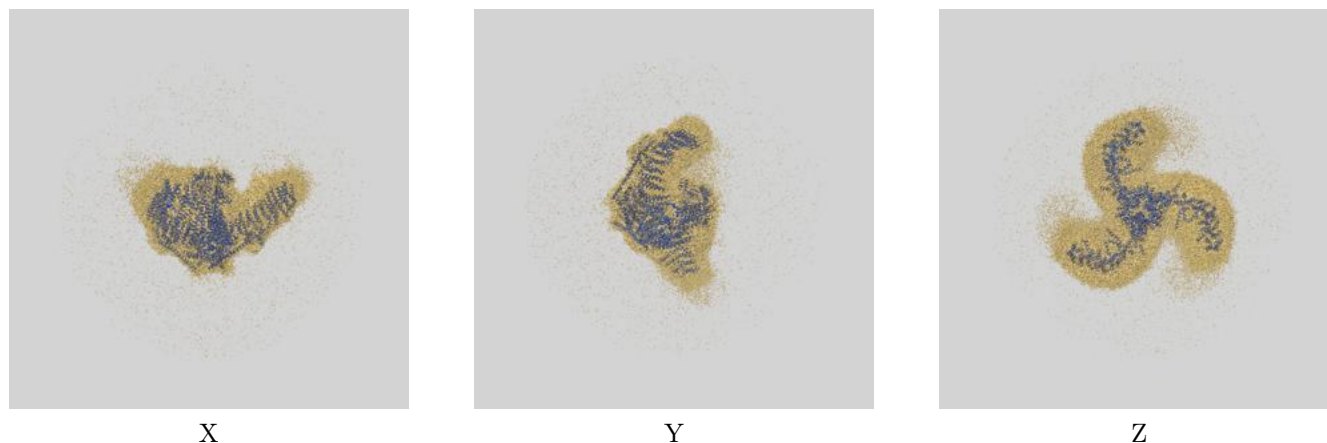
*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from author-provided FSC intersecting FSC 0.143 CUT-OFF 2.83 differs from the reported value 3.2 by more than 10 %

The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.99 differs from the reported value 3.2 by more than 10 %

9 Map-model fit [i](#)

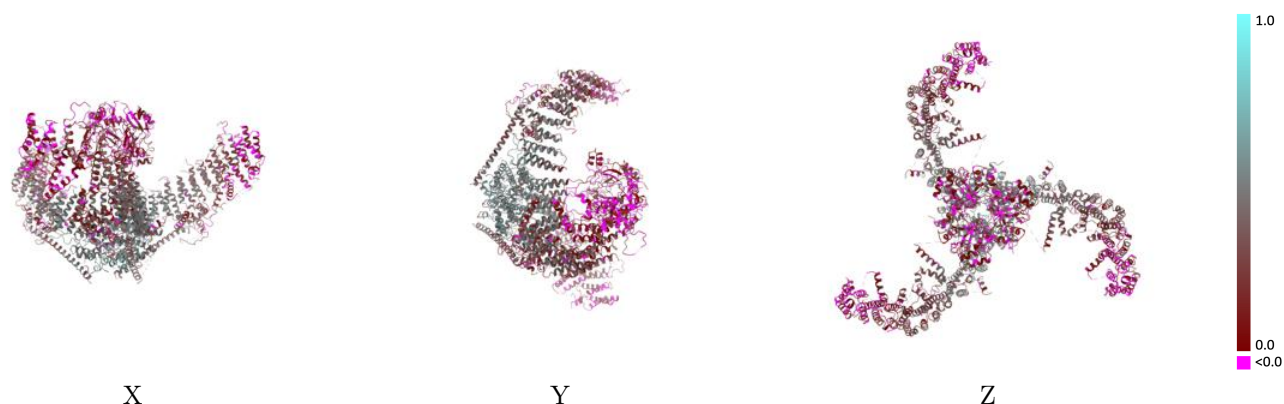
This section contains information regarding the fit between EMDB map EMD-65195 and PDB model 9VMX. Per-residue inclusion information can be found in [section 3](#) on [page 7](#).

9.1 Map-model overlay [i](#)



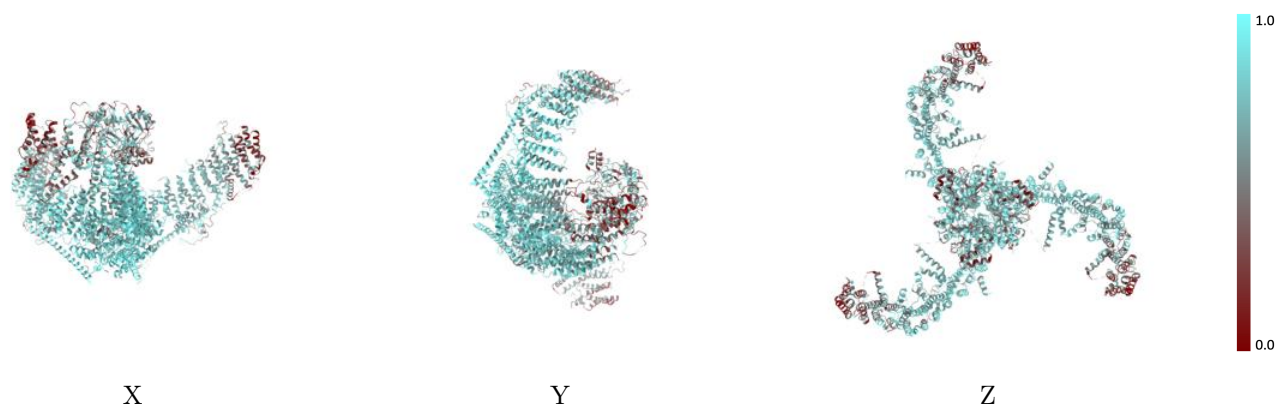
The images above show the 3D surface view of the map at the recommended contour level 0.035 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



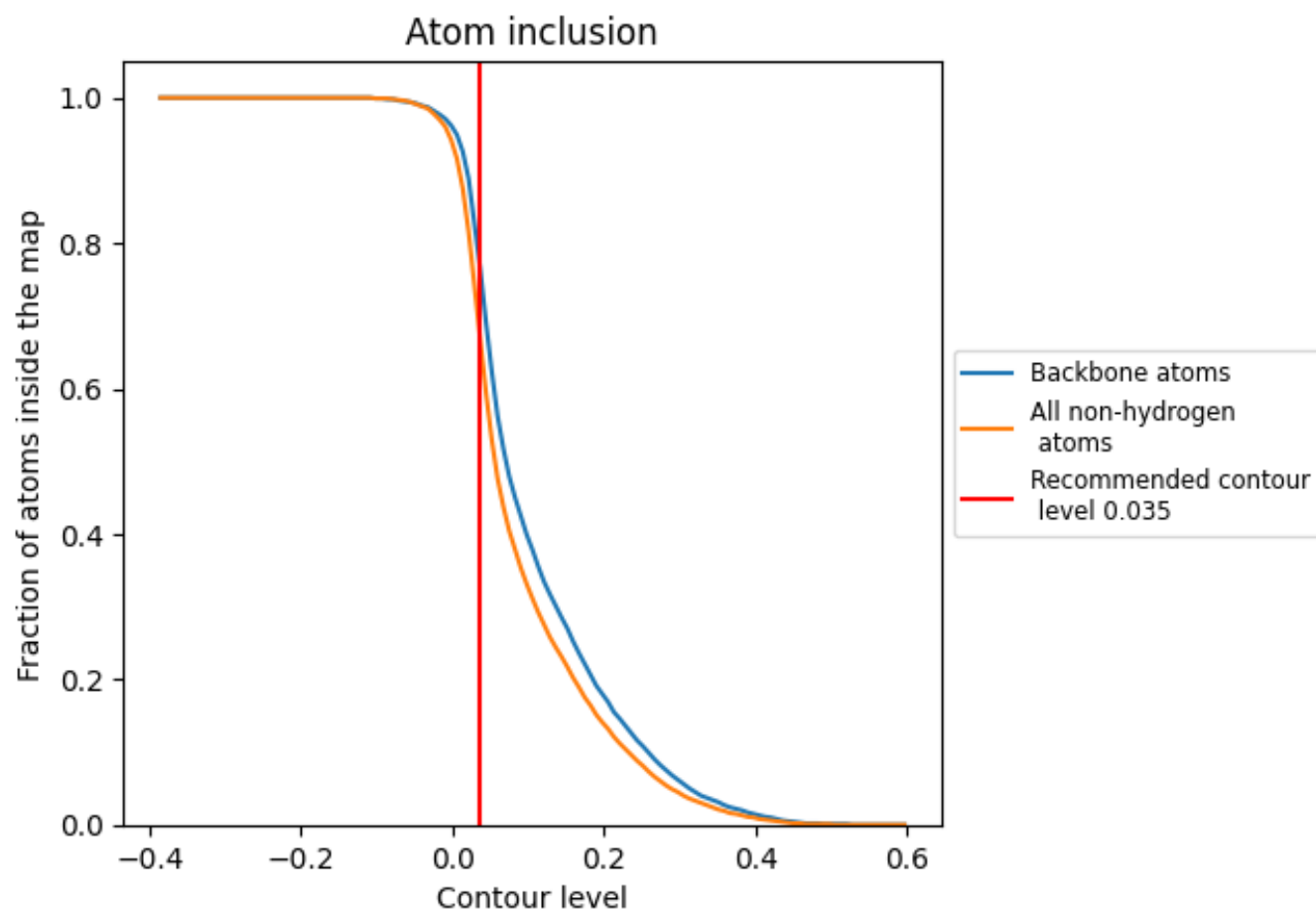
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.035).

9.4 Atom inclusion [i](#)



At the recommended contour level, 78% of all backbone atoms, 68% 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 (0.035) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	<div><div></div>0.6840</div>	<div><div></div>0.2640</div>
A	<div><div></div>0.6840</div>	<div><div></div>0.2630</div>
B	<div><div></div>0.6830</div>	<div><div></div>0.2620</div>
C	<div><div></div>0.7150</div>	<div><div></div>0.3540</div>
D	<div><div></div>0.6840</div>	<div><div></div>0.2630</div>
E	<div><div></div>0.7150</div>	<div><div></div>0.3580</div>
F	<div><div></div>0.7040</div>	<div><div></div>0.3580</div>

1.0

0.0

<0.0