



wwPDB EM Validation Summary Report

Nov 19, 2022 – 10:38 pm GMT

PDB ID : 6FAY
EMDB ID : EMD-4219
Title : Teneurin3 monomer
Authors : Janssen, B.J.C.; Meijer, D.H.M.; van Bezouwen, L.S.
Deposited on : 2017-12-18
Resolution : 3.80 Å (reported)
Based on initial model : 6FB3

This is a wwPDB EM Validation Summary 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.dev43
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.2

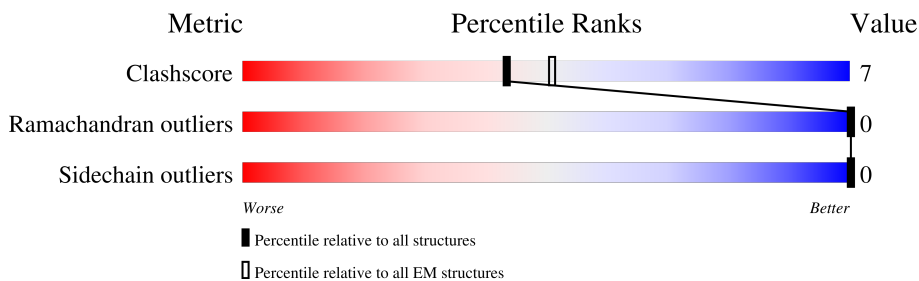
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.80 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	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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	1876	 65% 16% 19%

2 Entry composition [i](#)

There are 2 unique types of molecules in this entry. The entry contains 12130 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 Odz3 protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	1518	12060	7644	2057	2313	46	0	0

There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	844	GLY	-	expression tag	UNP B7ZNJ5
A	2716	ALA	-	expression tag	UNP B7ZNJ5
A	2717	SER	-	expression tag	UNP B7ZNJ5
A	2718	ALA	-	expression tag	UNP B7ZNJ5
A	2719	ALA	-	expression tag	UNP B7ZNJ5
A	2720	ALA	-	expression tag	UNP B7ZNJ5
A	2721	HIS	-	expression tag	UNP B7ZNJ5
A	2722	HIS	-	expression tag	UNP B7ZNJ5
A	2723	HIS	-	expression tag	UNP B7ZNJ5
A	2724	HIS	-	expression tag	UNP B7ZNJ5
A	2725	HIS	-	expression tag	UNP B7ZNJ5
A	2726	HIS	-	expression tag	UNP B7ZNJ5

- Molecule 2 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: $C_8H_{15}NO_6$).

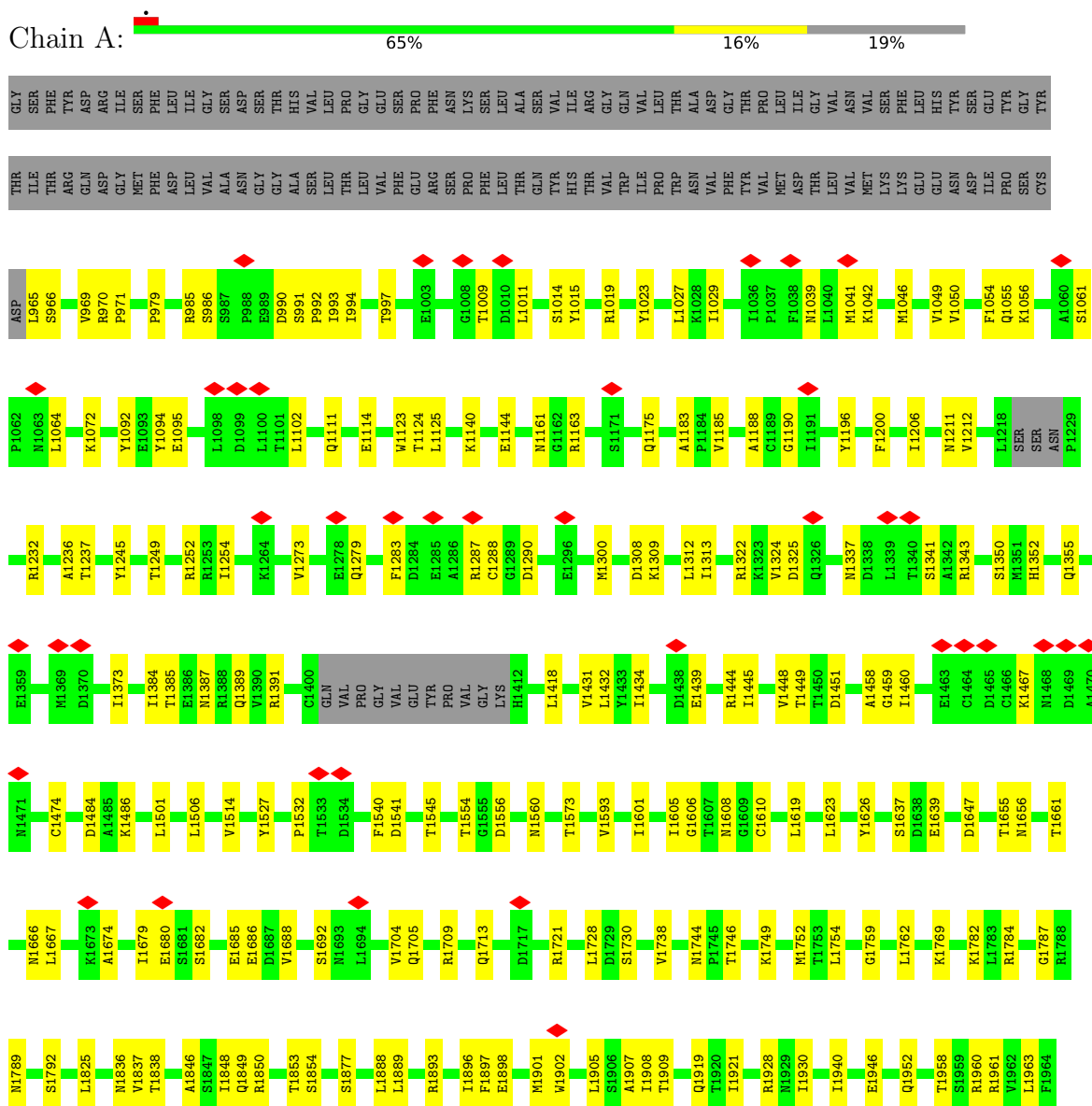


Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
2	A	1	Total	C	N	O	0
			70	40	5	25	
2	A	1	Total	C	N	O	0
			70	40	5	25	
2	A	1	Total	C	N	O	0
			70	40	5	25	
2	A	1	Total	C	N	O	0
			70	40	5	25	

3 Residue-property plots i

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: Odz3 protein



HIS	THR	THR	K1965	L2114	I2275	D2421	ALA	VAL	GLU	HIS
HIS	L2114	I2275	R1968	H2281	D2426	ALA	ALA	GLY	GLY	HIS
HIS	I2120	H2281	S1973	L2426	L2426	VAL	VAL	ALA	ALA	HIS
HIS	R2131	L2286	E1974	F2431	F2431	ASN	ASN	ARG	LEU	HIS
	E2147	I2286	I1975	D2462	D2462	THR	THR	THR	TRP	
	T2156	Y2290	L1976	T2466	T2466	ARG	ARG	ARG	THR	
	F1984	D2292	F1985	L2466	L2466	PHE	PHE	PHE	GLY	
	T1985	H2296	T1985	F2467	F2467	TYR	TYR	TYR	GLU	
	A1990	H2296	A1990	G2468	G2468	LEU	LEU	LEU	LYS	
	K1994	A2299	K1994	Q2471	Q2471	HIS	HIS	HIS	GLN	
	T1995	I2302	T1995	S2482	S2482	PHE	PHE	PHE	LEU	
	V1996	S2303	V1996	L2483	L2483	THR	THR	THR	ALA	
	N1997	S2304	N1997	G2484	G2484	ILE	ILE	ILE	GLY	
	L1998	G2505	L1998	K2485	K2485	GLU	GLU	GLU	LYS	
	C2005	D2306	C2005	MET	MET	LYS	LYS	LYS	ALA	
	T2006	K2330	T2006	ALA	ALA	THR	THR	THR	THR	
	I2007	Q2331	I2007	THR	THR	HIS	HIS	HIS	VAL	
	R2010	I2332	R2010	VAL	VAL	TYR	TYR	TYR	ASP	
	Q2011	I2352	Q2011	VAL	VAL	GLY	GLY	GLY	GLY	
	I2016	T2363	I2016	VAL	VAL	ILE	ILE	ILE	ILE	
	D2017	SER	D2017	SER	SER	LYS	LYS	LYS	LYS	
	R2018	K2364	R2018	THR	THR	THR	THR	THR	THR	
	D2026	L2365	D2026	THR	THR	THR	THR	THR	THR	
	V2029	I2366	V2029	PRO	PRO	PRO	PRO	PRO	PRO	
	R2032	ALA	R2032	GLU	GLU	GLU	GLU	GLU	GLU	
	D2033	C2497	D2033	GLU	GLU	GLU	GLU	GLU	GLU	
	D2034	A2498	D2034	SER	SER	SER	SER	SER	SER	
	R2042	K2509	R2042	LYS	LYS	LYS	LYS	LYS	LYS	
	T2050	I2510	T2050	ALA	ALA	ALA	ALA	ALA	ALA	
	T2053	L2511	T2053	LEU	LEU	LEU	LEU	LEU	LEU	
	F2062	G2515	F2062	LEU	LEU	LEU	LEU	LEU	LEU	
	D2063	V2516	D2063	ARG	ARG	ARG	ARG	ARG	ARG	
	K2068	S2521	K2068	GLY	GLY	GLY	GLY	GLY	GLY	
	E2070	Q2522	E2070	LEU	LEU	LEU	LEU	LEU	LEU	
	Q2071	GLY	Q2071	ALA	ALA	ALA	ALA	ALA	ALA	
	G2076	VAL	G2076	LEU	LEU	LEU	LEU	LEU	LEU	
	P2098	VAL	P2098	ARG	ARG	ARG	ARG	ARG	ARG	
	R2102	TRP	R2102	ALA	ALA	ALA	ALA	ALA	ALA	
	E2109	ASN	E2109	LEU	LEU	LEU	LEU	LEU	LEU	
	L2175	ASN	L2175	LEU	LEU	LEU	LEU	LEU	LEU	
	H2176	THR	H2176	LEU	LEU	LEU	LEU	LEU	LEU	
	S2182	GLN	S2182	LEU	LEU	LEU	LEU	LEU	LEU	
	L2189	ASN	L2189	LEU	LEU	LEU	LEU	LEU	LEU	
	R2194	THR	R2194	LEU	LEU	LEU	LEU	LEU	LEU	
	T2198	ASN	T2198	LEU	LEU	LEU	LEU	LEU	LEU	
	D2202	LYS	D2202	LEU	LEU	LEU	LEU	LEU	LEU	
	Y2205	ALA	Y2205	LEU	LEU	LEU	LEU	LEU	LEU	
	E2209	LEU	E2209	LEU	LEU	LEU	LEU	LEU	LEU	
	R2216	GLY	R2216	LEU	LEU	LEU	LEU	LEU	LEU	
	G2217	GLN	G2217	LEU	LEU	LEU	LEU	LEU	LEU	
	T2218	THR	T2218	LEU	LEU	LEU	LEU	LEU	LEU	
	L2228	ASN	L2228	LEU	LEU	LEU	LEU	LEU	LEU	
	G2236	THR	G2236	LEU	LEU	LEU	LEU	LEU	LEU	
	V2241	ASN	V2241	LEU	LEU	LEU	LEU	LEU	LEU	
	Y2245	GLN	Y2245	LEU	LEU	LEU	LEU	LEU	LEU	
	R2250	THR	R2250	LEU	LEU	LEU	LEU	LEU	LEU	
	S2253	ASN	S2253	LEU	LEU	LEU	LEU	LEU	LEU	
	T2256	THR	T2256	LEU	LEU	LEU	LEU	LEU	LEU	
	H2261	ILE	H2261	LEU	LEU	LEU	LEU	LEU	LEU	
	L2262	ALA	L2262	LEU	LEU	LEU	LEU	LEU	LEU	
	Q2263	ASN	Q2263	LEU	LEU	LEU	LEU	LEU	LEU	
	L2263	GLU	L2263	LEU	LEU	LEU	LEU	LEU	LEU	
	Y2266	THR	Y2266	LEU	LEU	LEU	LEU	LEU	LEU	
	I2275	ASP	I2275	LEU	LEU	LEU	LEU	LEU	LEU	
	H2281	VAL	H2281	LEU	LEU	LEU	LEU	LEU	LEU	
	L2286	GLN	L2286	LEU	LEU	LEU	LEU	LEU	LEU	
	Y2290	THR	Y2290	LEU	LEU	LEU	LEU	LEU	LEU	
	D2292	ASN	D2292	LEU	LEU	LEU	LEU	LEU	LEU	
	H2296	VAL	H2296	LEU	LEU	LEU	LEU	LEU	LEU	
	A2299	MET	A2299	LEU	LEU	LEU	LEU	LEU	LEU	
	I2302	GLN	I2302	LEU	LEU	LEU	LEU	LEU	LEU	
	S2303	THR	S2303	LEU	LEU	LEU	LEU	LEU	LEU	
	S2304	ALA	S2304	LEU	LEU	LEU	LEU	LEU	LEU	
	G2505	GLY	G2505	LEU	LEU	LEU	LEU	LEU	LEU	
	D2306	LYS	D2306	LEU	LEU	LEU	LEU	LEU	LEU	
	K2330	ALA	K2330	LEU	LEU	LEU	LEU	LEU	LEU	
	Q2331	HIS	Q2331	LEU	LEU	LEU	LEU	LEU	LEU	
	I2332	TYR	I2332	LEU	LEU	LEU	LEU	LEU	LEU	
	I2352	ASP	I2352	LEU	LEU	LEU	LEU	LEU	LEU	
	T2363	GLY	T2363	LEU	LEU	LEU	LEU	LEU	LEU	
	K2364	TYR	K2364	LEU	LEU	LEU	LEU	LEU	LEU	
	L2365	GLY	L2365	LEU	LEU	LEU	LEU	LEU	LEU	
	I2366	TYR	I2366	LEU	LEU	LEU	LEU	LEU	LEU	
	Y2373	ILE	Y2373	LEU	LEU	LEU	LEU	LEU	LEU	
	D2374	GLY	D2374	LEU	LEU	LEU	LEU	LEU	LEU	
	I2375	VAL	I2375	LEU	LEU	LEU	LEU	LEU	LEU	
	R2379	THR	R2379	LEU	LEU	LEU	LEU	LEU	LEU	
	D2384	GLN	D2384	LEU	LEU	LEU	LEU	LEU	LEU	
	I2385	GLN	I2385	LEU	LEU	LEU	LEU	LEU	LEU	
	W2388	ASN	W2388	LEU	LEU	LEU	LEU	LEU	LEU	
	K2389	ASN	K2389	LEU	LEU	LEU	LEU	LEU	LEU	
	R2390	ALA	R2390	LEU	LEU	LEU	LEU	LEU	LEU	
	I2391	LEU	I2391	LEU	LEU	LEU	LEU	LEU	LEU	
	P2395	LEU	P2395	LEU	LEU	LEU	LEU	LEU	LEU	
	M2399	ARG	M2399	LEU	LEU	LEU	LEU	LEU	LEU	
	M2402	TRP	M2402	LEU	LEU	LEU	LEU	LEU	LEU	
	I2412	GLY	I2412	LEU	LEU	LEU	LEU	LEU	LEU	
	HIS	THR	HIS	LEU	LEU	LEU	LEU	LEU	LEU	
	ASP	THR	ASP	LEU	LEU	LEU	LEU	LEU	LEU	
	VAL	THR	VAL	LEU	LEU	LEU	LEU	LEU	LEU	
	LYS	THR	LYS	LEU	LEU	LEU	LEU	LEU	LEU	
	L2412	ASN	L2412	LEU	LEU	LEU	LEU	LEU	LEU	
	ASP	VAL	ASP	LEU	LEU	LEU	LEU	LEU	LEU	
	VAL	VAL	VAL	LEU	LEU	LEU	LEU	LEU	LEU	
	LYS	VAL	LYS	LEU	LEU	LEU	LEU	LEU	LEU	
	ASP	THR	ASP	LEU	LEU	LEU	LEU	LEU	LEU	
	TYR	THR	TYR	LEU	LEU	LEU	LEU	LEU	LEU	
	ILE	THR	ILE	LEU	LEU	LEU	LEU	LEU	LEU	
	CYS	THR	CYS	LEU	LEU	LEU	LEU	LEU	LEU	
	ILE	THR	ILE	LEU	LEU	LEU	LEU	LEU	LEU	
	LYS	THR	LYS	LEU	LEU	LEU	LEU	LEU	LEU	
	VAL	THR	VAL	LEU	LEU	LEU	LEU	LEU	LEU	

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	287402	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/\text{\AA}^2$)	56	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	130000	Depositor
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	2.191	Depositor
Minimum map value	-0.814	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.037	Depositor
Recommended contour level	0.4	Depositor
Map size (\AA)	389.34, 389.34, 389.34	wwPDB
Map dimensions	378, 378, 378	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.03, 1.03, 1.03	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: NAG

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	0.29	0/12329	0.56	0/16738

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 [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	12060	0	11795	167	0
2	A	70	0	65	0	0
All	All	12130	0	11860	167	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.

The worst 5 of 167 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:1287:ARG:HB2	1:A:1290:ASP:H	1.53	0.72
1:A:1046:MET:HG2	1:A:1055:GLN:HG2	1.76	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2176:HIS:HA	1:A:2189:LEU:HB2	1.80	0.63
1:A:2426:LEU:HB3	1:A:2431:PHE:HB2	1.80	0.62
1:A:1623:LEU:HB3	1:A:1637:SER:HB2	1.82	0.62

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	1508/1876 (80%)	1369 (91%)	139 (9%)	0	100 100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains [i](#)

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	1329/1632 (81%)	1329 (100%)	0	100 100

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	1279	GLN

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Mol	Chain	Res	Type
1	A	1952	GLN

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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

5 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
2	NAG	A	2804	1	14,14,15	0.38	0	17,19,21	0.72	1 (5%)
2	NAG	A	2801	1	14,14,15	0.56	0	17,19,21	0.97	1 (5%)
2	NAG	A	2803	1	14,14,15	0.29	0	17,19,21	0.53	0
2	NAG	A	2802	1	14,14,15	0.31	0	17,19,21	0.58	1 (5%)
2	NAG	A	2805	1	14,14,15	0.37	0	17,19,21	0.57	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
2	NAG	A	2804	1	-	2/6/23/26	0/1/1/1
2	NAG	A	2801	1	-	3/6/23/26	0/1/1/1
2	NAG	A	2803	1	-	2/6/23/26	0/1/1/1
2	NAG	A	2802	1	-	2/6/23/26	0/1/1/1
2	NAG	A	2805	1	-	2/6/23/26	0/1/1/1

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	2801	NAG	C2-N2-C7	3.04	127.22	122.90
2	A	2804	NAG	C1-O5-C5	2.59	115.70	112.19
2	A	2802	NAG	C1-O5-C5	2.02	114.93	112.19

There are no chirality outliers.

5 of 11 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	2803	NAG	O5-C5-C6-O6
2	A	2804	NAG	O5-C5-C6-O6
2	A	2805	NAG	O5-C5-C6-O6
2	A	2803	NAG	C4-C5-C6-O6
2	A	2801	NAG	O5-C5-C6-O6

There are no ring outliers.

No monomer is involved in short contacts.

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.

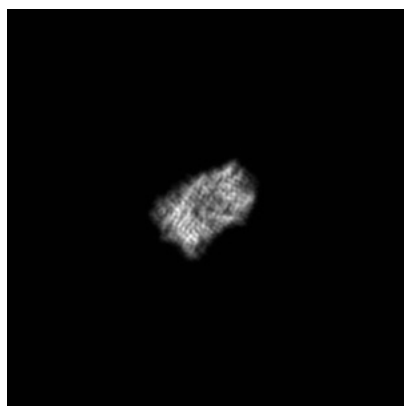
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-4219. These allow visual inspection of the internal detail of the map and identification of artifacts.

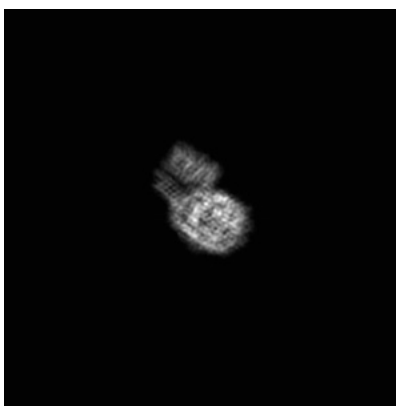
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

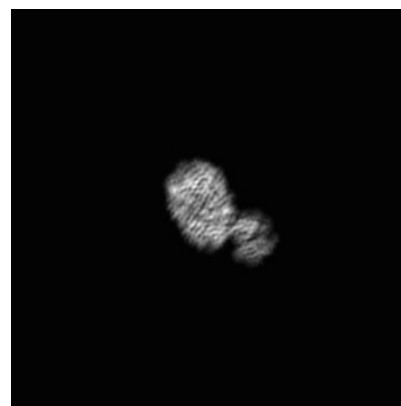
6.1.1 Primary map



X

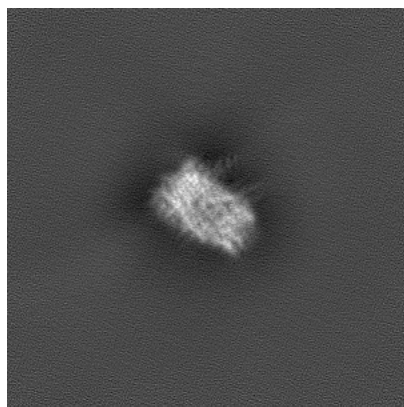


Y

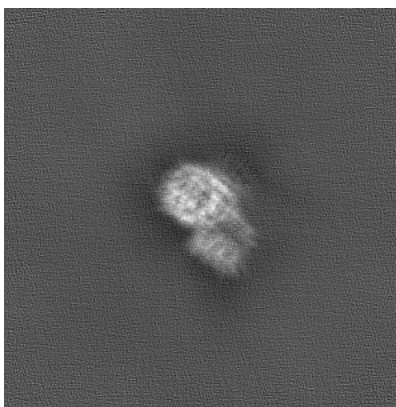


Z

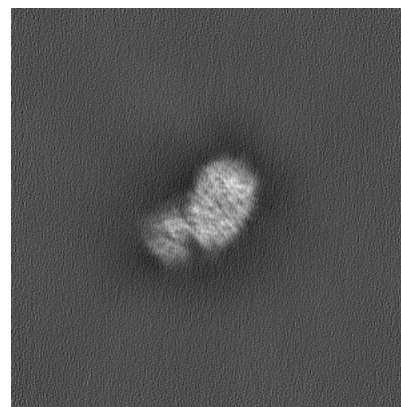
6.1.2 Raw map



X



Y

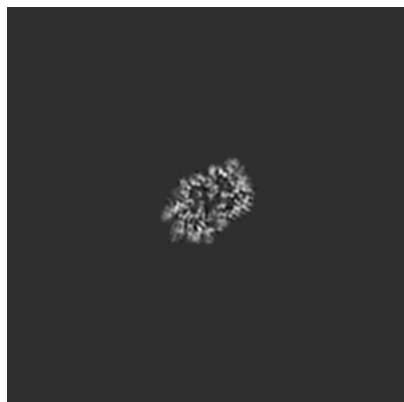


Z

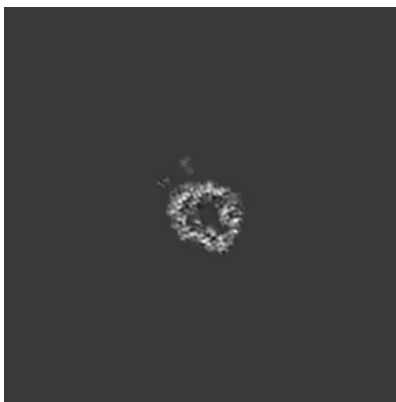
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

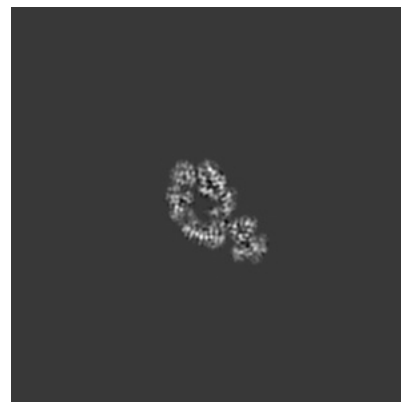
6.2.1 Primary map



X Index: 189

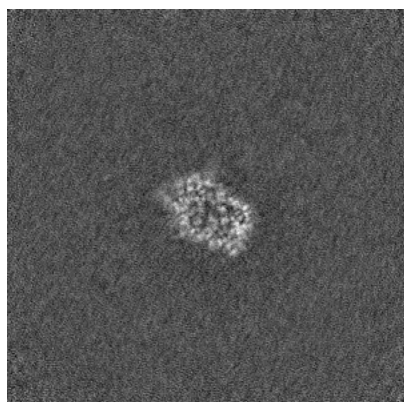


Y Index: 189

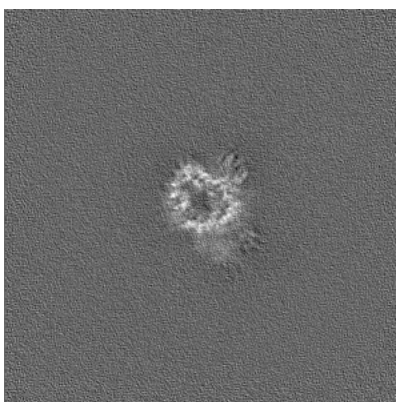


Z Index: 189

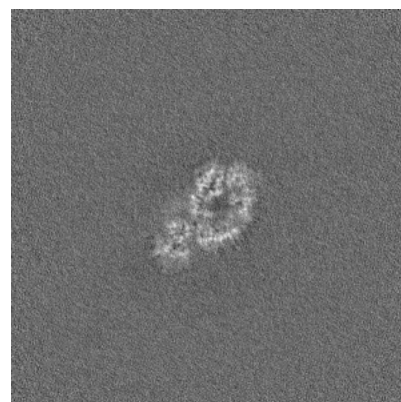
6.2.2 Raw map



X Index: 192



Y Index: 192

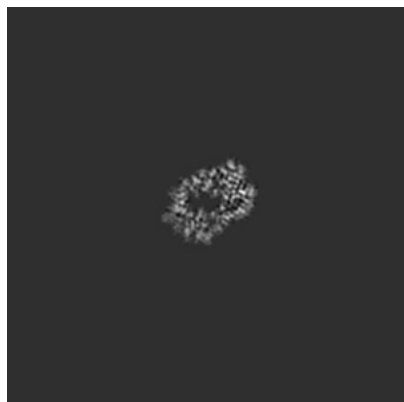


Z Index: 192

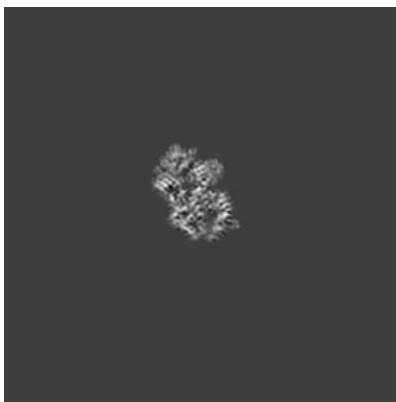
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

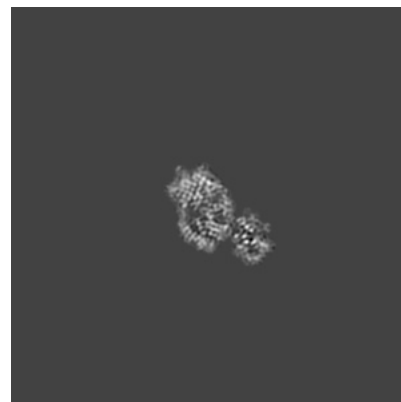
6.3.1 Primary map



X Index: 185

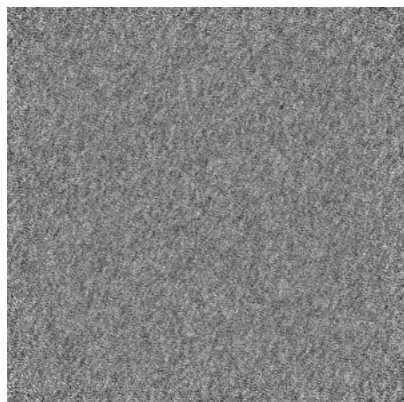


Y Index: 171

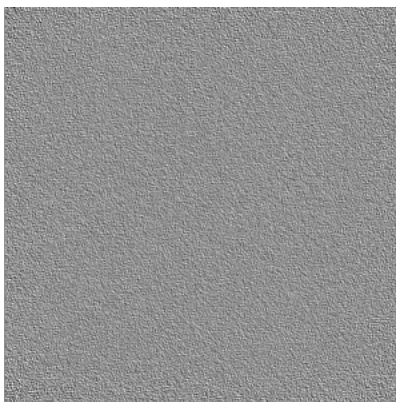


Z Index: 180

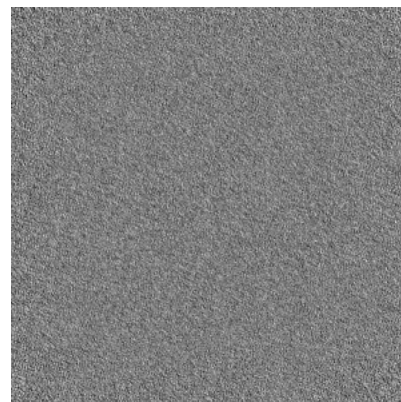
6.3.2 Raw map



X Index: 0



Y Index: 0

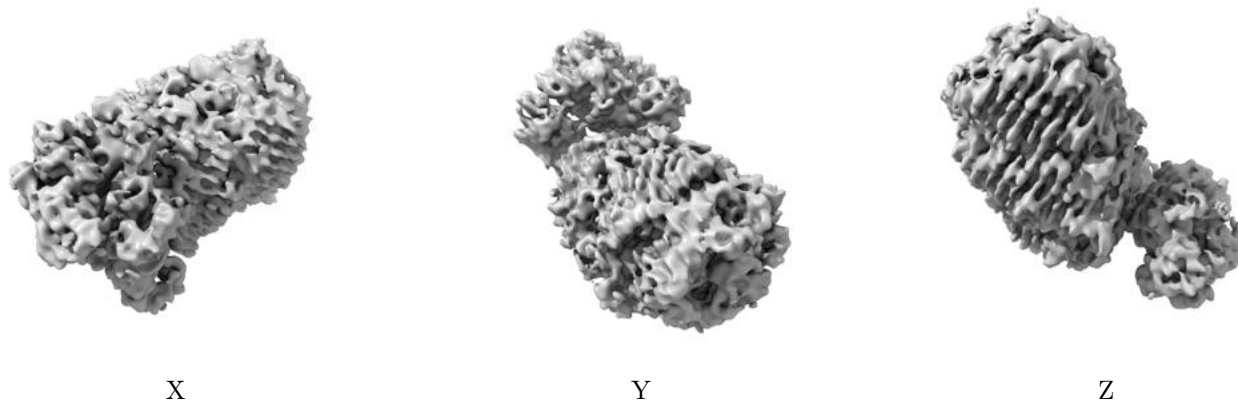


Z Index: 383

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

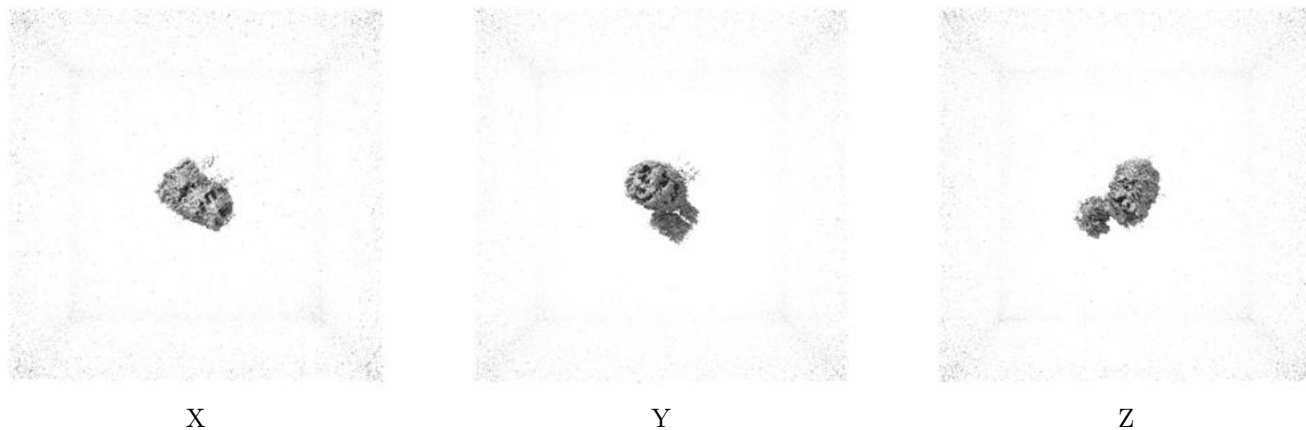
6.4 Orthogonal surface views [i](#)

6.4.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.4. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.4.2 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.

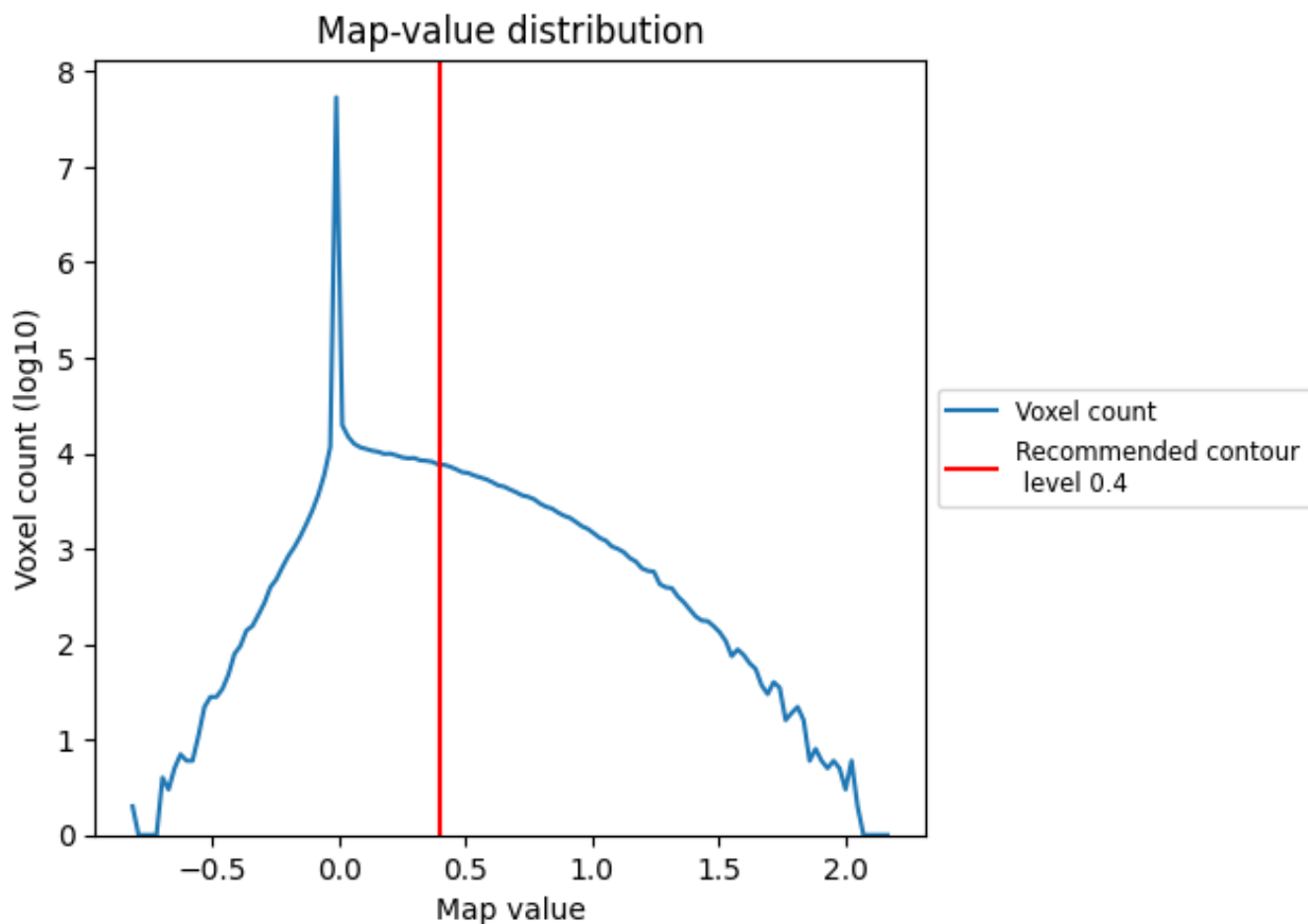
6.5 Mask visualisation [i](#)

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

7 Map analysis [i](#)

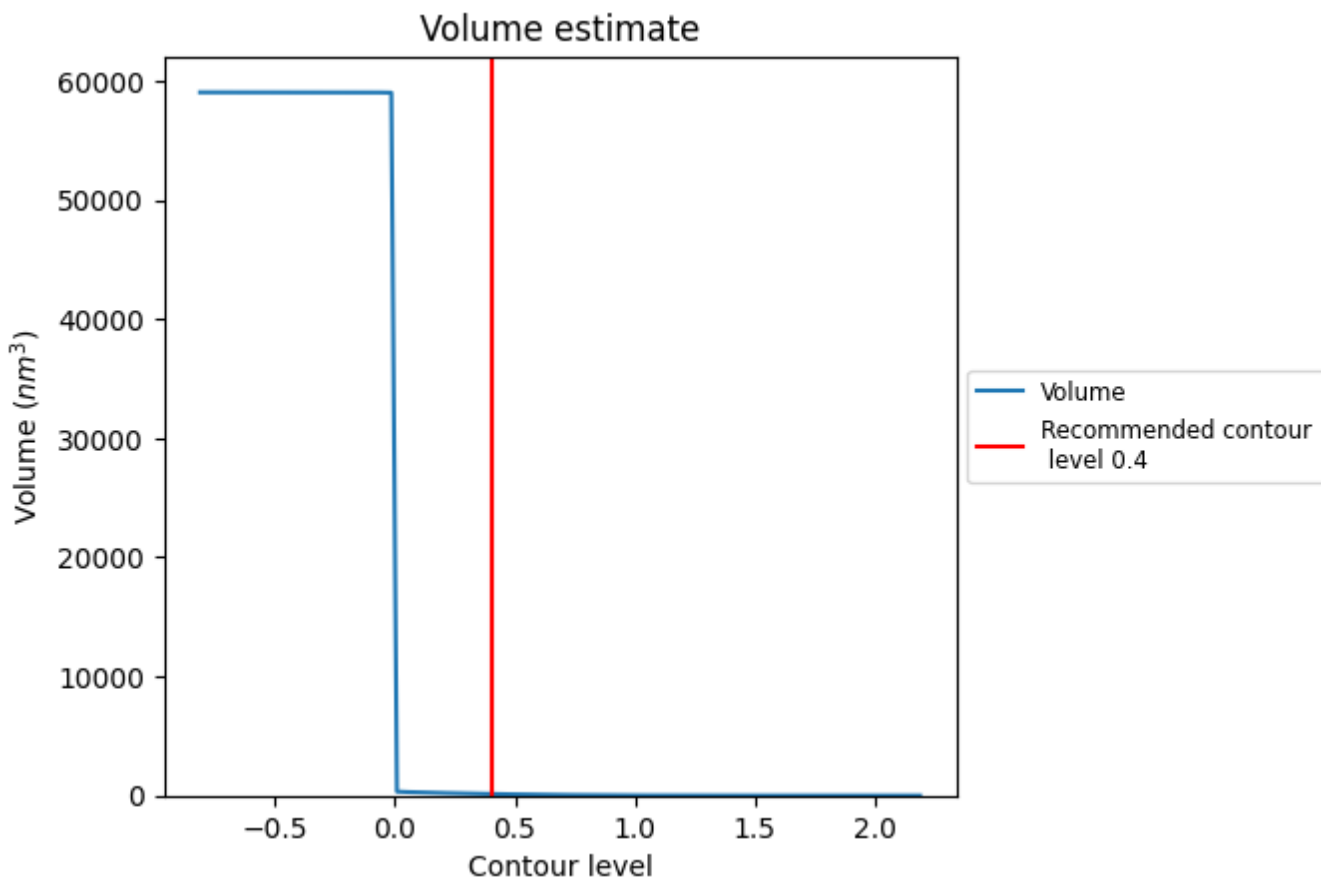
This section contains the results of statistical analysis of the map.

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.

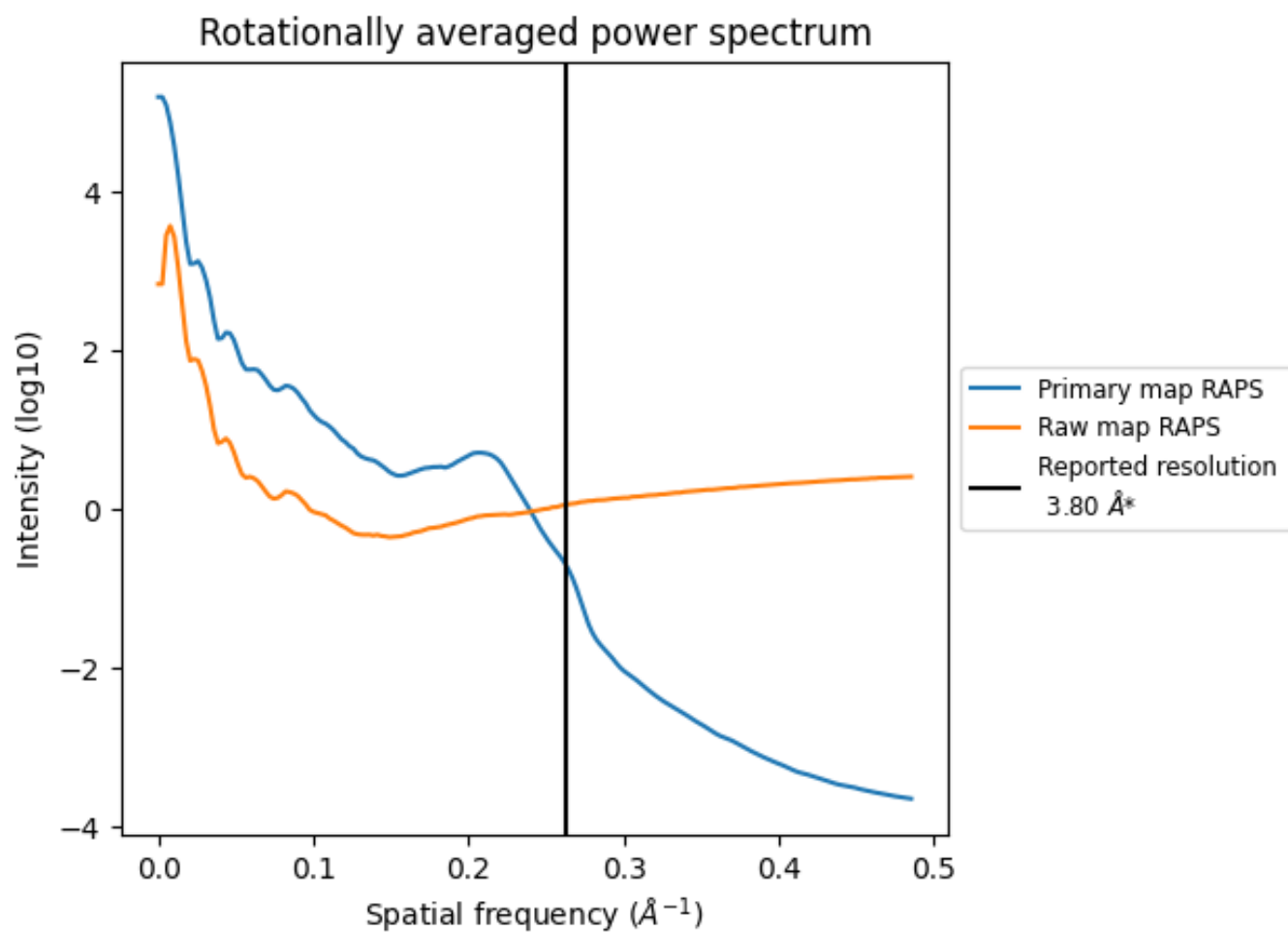
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 134 nm³; this corresponds to an approximate mass of 121 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 i

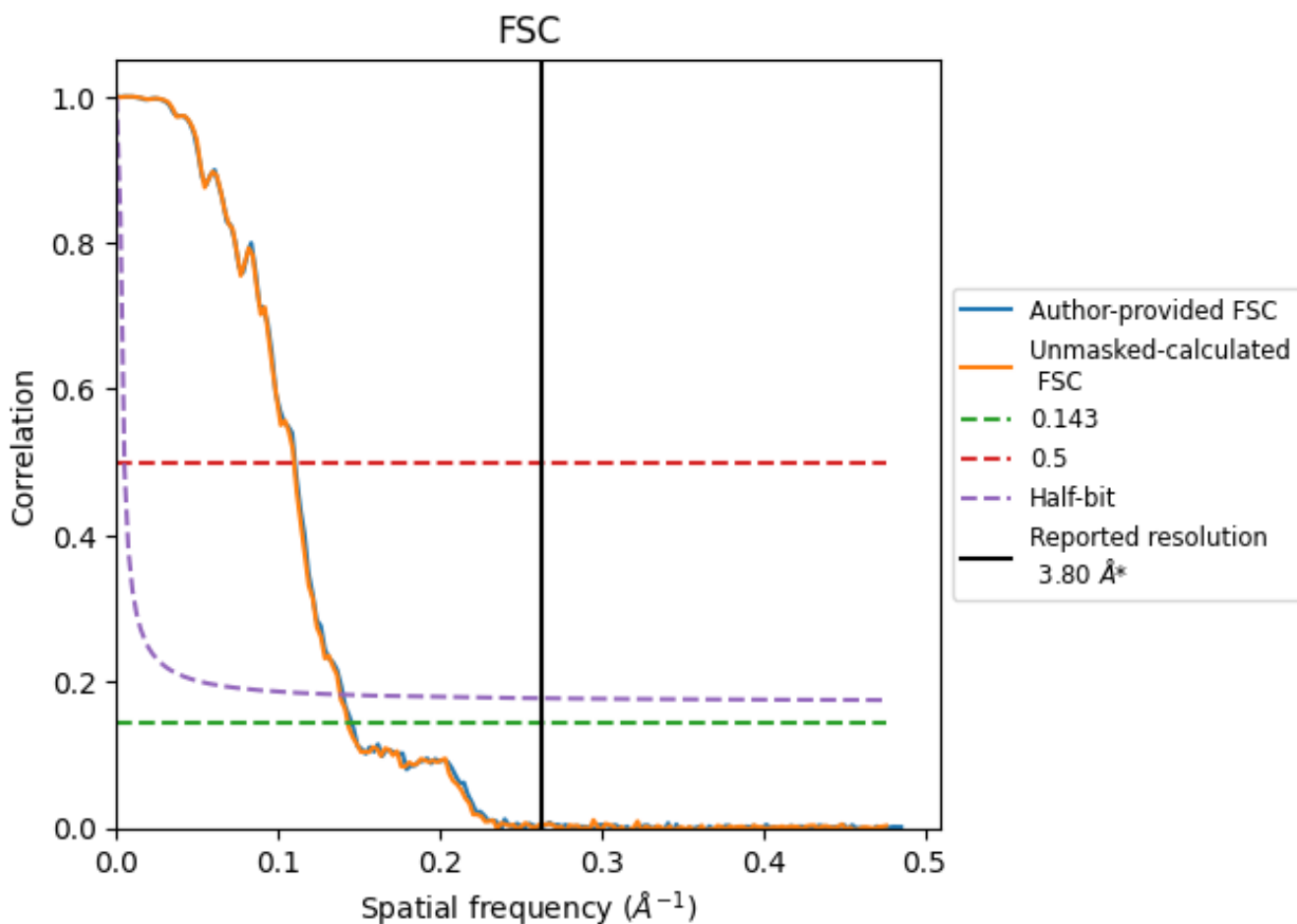


*Reported resolution corresponds to spatial frequency of 0.263 Å⁻¹

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 0.263 Å⁻¹

8.2 Resolution estimates [i](#)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.80	-	-
Author-provided FSC curve	6.87	9.05	7.14
Unmasked-calculated*	6.98	9.10	7.23

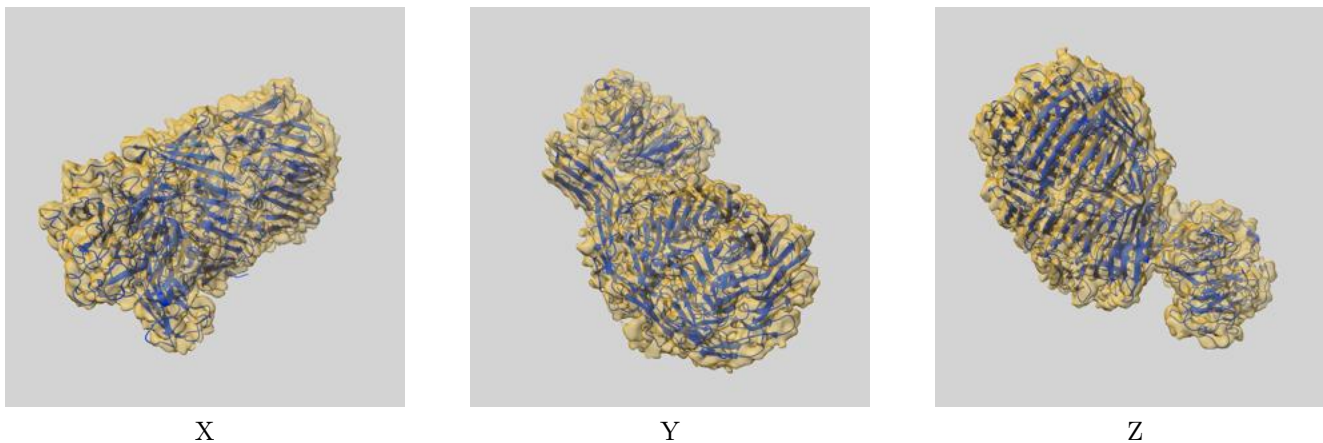
*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from author-provided FSC intersecting FSC 0.143 CUT-OFF 6.87 differs from the reported value 3.8 by more than 10 %

The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 6.98 differs from the reported value 3.8 by more than 10 %

9 Map-model fit [i](#)

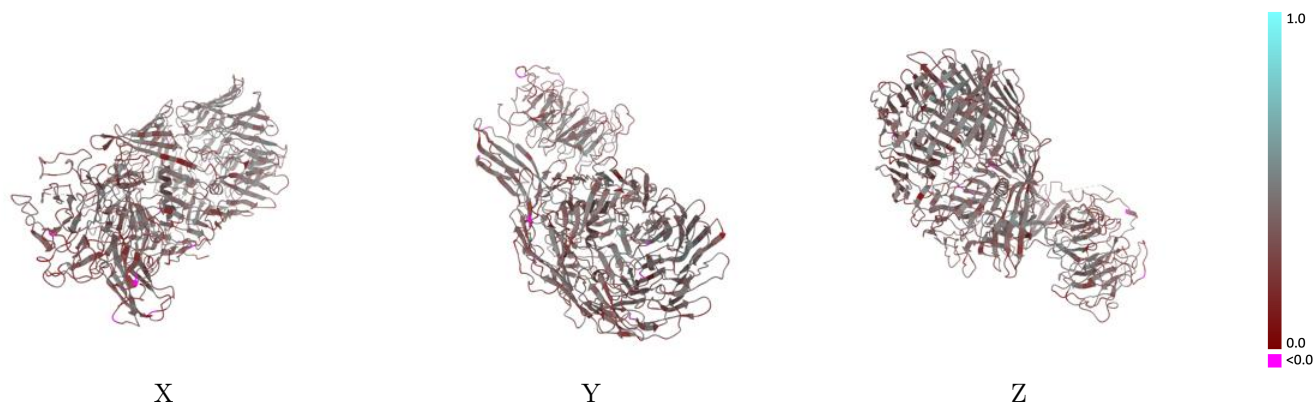
This section contains information regarding the fit between EMDB map EMD-4219 and PDB model 6FAY. Per-residue inclusion information can be found in section 3 on page 5.

9.1 Map-model overlay [i](#)



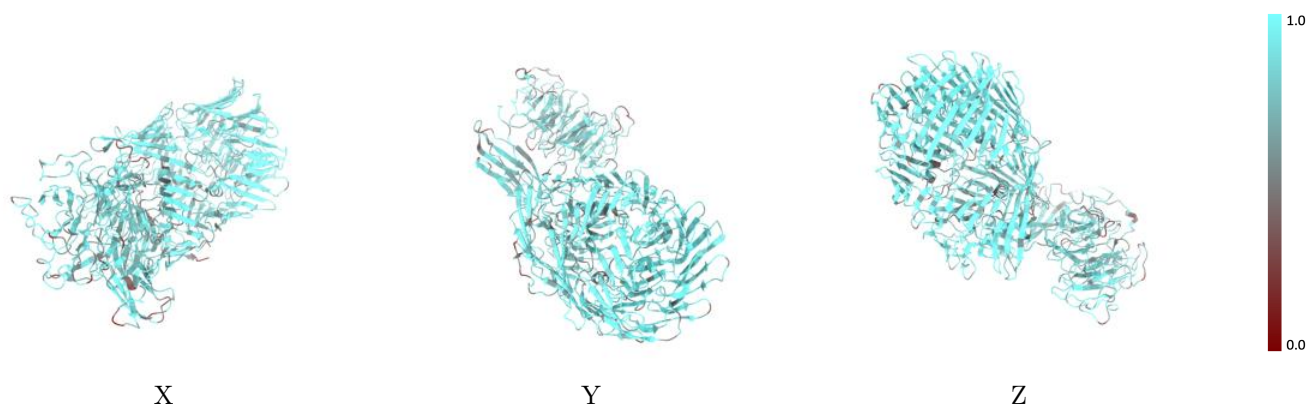
The images above show the 3D surface view of the map at the recommended contour level 0.4 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



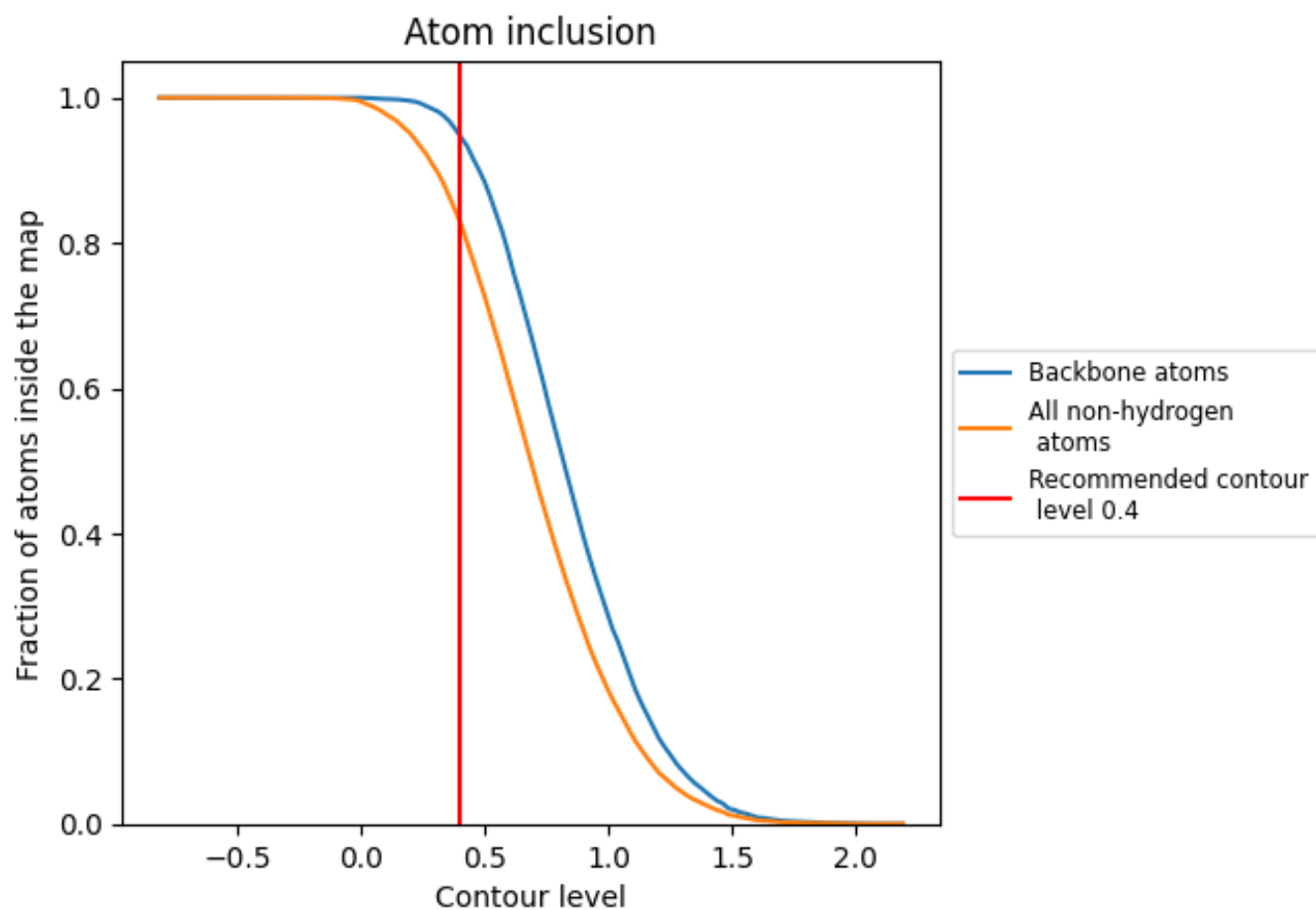
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.4).





9.4 Atom inclusion [i](#)



At the recommended contour level, 95% of all backbone atoms, 83% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary [i](#)

The table lists the average atom inclusion at the recommended contour level (0.4) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8300	 0.3540
A	 0.8300	 0.3540

