W O R L D W I D E

wwPDB

P R O T E I N   D A T A   B A N K

wwPDB EM Validation Summary Report (i)

Sep 15, 2025 – 02:05 PM EDT

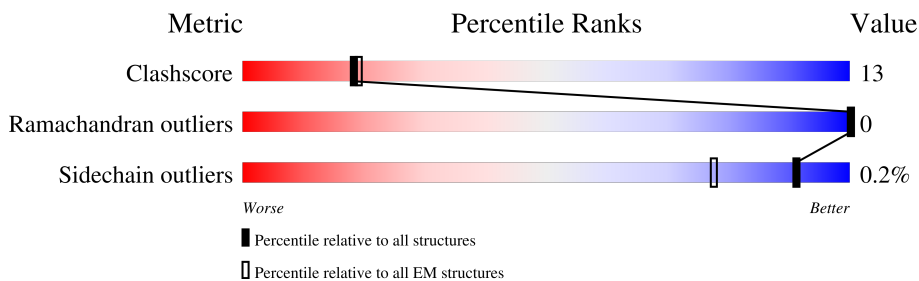|		
PDB ID	:	9C7E / pdb_00009c7e
EMDB ID	:	EMD-45279
Title	:	Diheteromeric GluN1/GluN2A (delM653) in nanodisc complex with glycine, glutamate, and GNE-4123, open conformation, C2 symmetry
Authors	:	Jalali-Yazdi, F.; Kim, J.; Gouaux, E.
Deposited on	:	2024-06-10
Resolution	:	3.22 Å(reported)

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 3.22 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	Percentile Ranks	Value
Clashscore		13
Ramachandran outliers		0
Sidechain outliers		0.2%

Worse   *Better*

▮ Percentile relative to all structures
▯ Percentile relative to all EM structures

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 <=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	1108	26% / 52% / 20% / 28%
1	C	1108	19% / 53% / 19% / 28%
2	B	1126	20% / 50% / 20% / 30%
2	D	1126	13% / 51% / 19% / 30%

2 Entry composition ⓘ

There are 5 unique types of molecules in this entry. The entry contains 25434 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 Glutamate receptor ionotropic, NMDA 1,Green fluorescent protein chimera.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	802	Total 6336	C 4033	N 1100	O 1167	S 36	0	0
1	C	802	Total 6336	C 4033	N 1100	O 1167	S 36	0	0

There are 62 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	848	LEU	-	linker	UNP P35439
A	849	VAL	-	linker	UNP P35439
A	850	PRO	-	linker	UNP P35439
A	851	ARG	-	linker	UNP P35439
A	852	GLY	-	linker	UNP P35439
A	853	SER	-	linker	UNP P35439
A	854	ALA	-	linker	UNP P35439
A	855	ALA	-	linker	UNP P35439
A	856	ALA	-	linker	UNP P35439
A	857	ALA	-	linker	UNP P35439
A	858	VAL	-	linker	UNP P35439
A	859	SER	-	linker	UNP P35439
A	860	LYS	-	linker	UNP P35439
A	861	GLY	-	linker	UNP P35439
A	921	LEU	PHE	conflict	UNP P42212
A	922	THR	SER	conflict	UNP P42212
A	1063	LYS	ALA	conflict	UNP P42212
A	1088	LEU	HIS	conflict	UNP P42212
A	1096	SER	-	expression tag	UNP P42212
A	1097	GLY	-	expression tag	UNP P42212
A	1098	LEU	-	expression tag	UNP P42212
A	1099	ARG	-	expression tag	UNP P42212
A	1100	SER	-	expression tag	UNP P42212
A	1101	HIS	-	expression tag	UNP P42212
A	1102	HIS	-	expression tag	UNP P42212

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
A	1103	HIS	-	expression tag	UNP P42212
A	1104	HIS	-	expression tag	UNP P42212
A	1105	HIS	-	expression tag	UNP P42212
A	1106	HIS	-	expression tag	UNP P42212
A	1107	HIS	-	expression tag	UNP P42212
A	1108	HIS	-	expression tag	UNP P42212
C	848	LEU	-	linker	UNP P35439
C	849	VAL	-	linker	UNP P35439
C	850	PRO	-	linker	UNP P35439
C	851	ARG	-	linker	UNP P35439
C	852	GLY	-	linker	UNP P35439
C	853	SER	-	linker	UNP P35439
C	854	ALA	-	linker	UNP P35439
C	855	ALA	-	linker	UNP P35439
C	856	ALA	-	linker	UNP P35439
C	857	ALA	-	linker	UNP P35439
C	858	VAL	-	linker	UNP P35439
C	859	SER	-	linker	UNP P35439
C	860	LYS	-	linker	UNP P35439
C	861	GLY	-	linker	UNP P35439
C	921	LEU	PHE	conflict	UNP P42212
C	922	THR	SER	conflict	UNP P42212
C	1063	LYS	ALA	conflict	UNP P42212
C	1088	LEU	HIS	conflict	UNP P42212
C	1096	SER	-	expression tag	UNP P42212
C	1097	GLY	-	expression tag	UNP P42212
C	1098	LEU	-	expression tag	UNP P42212
C	1099	ARG	-	expression tag	UNP P42212
C	1100	SER	-	expression tag	UNP P42212
C	1101	HIS	-	expression tag	UNP P42212
C	1102	HIS	-	expression tag	UNP P42212
C	1103	HIS	-	expression tag	UNP P42212
C	1104	HIS	-	expression tag	UNP P42212
C	1105	HIS	-	expression tag	UNP P42212
C	1106	HIS	-	expression tag	UNP P42212
C	1107	HIS	-	expression tag	UNP P42212
C	1108	HIS	-	expression tag	UNP P42212

- Molecule 2 is a protein called Glutamate receptor ionotropic, NMDA 2A,Green fluorescent protein chimera.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	787	Total 6234	C 4024	N 1017	O 1158	S 35	0	0
2	D	787	Total 6234	C 4024	N 1017	O 1158	S 35	0	0

There are 60 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	?	-	MET	deletion	UNP Q00959
B	757	THR	SER	conflict	UNP Q00959
B	866	LEU	-	linker	UNP Q00959
B	867	VAL	-	linker	UNP Q00959
B	868	PRO	-	linker	UNP Q00959
B	869	ARG	-	linker	UNP Q00959
B	870	GLY	-	linker	UNP Q00959
B	871	SER	-	linker	UNP Q00959
B	872	ALA	-	linker	UNP Q00959
B	873	ALA	-	linker	UNP Q00959
B	874	ALA	-	linker	UNP Q00959
B	875	ALA	-	linker	UNP Q00959
B	876	VAL	-	linker	UNP Q00959
B	939	LEU	PHE	conflict	UNP P42212
B	940	THR	SER	conflict	UNP P42212
B	1081	LYS	ALA	conflict	UNP P42212
B	1106	LEU	HIS	conflict	UNP P42212
B	1114	SER	-	expression tag	UNP P42212
B	1115	GLY	-	expression tag	UNP P42212
B	1116	LEU	-	expression tag	UNP P42212
B	1117	ARG	-	expression tag	UNP P42212
B	1118	SER	-	expression tag	UNP P42212
B	1119	TRP	-	expression tag	UNP P42212
B	1120	SER	-	expression tag	UNP P42212
B	1121	HIS	-	expression tag	UNP P42212
B	1122	PRO	-	expression tag	UNP P42212
B	1123	GLN	-	expression tag	UNP P42212
B	1124	PHE	-	expression tag	UNP P42212
B	1125	GLU	-	expression tag	UNP P42212
B	1126	LYS	-	expression tag	UNP P42212
D	?	-	MET	deletion	UNP Q00959
D	757	THR	SER	conflict	UNP Q00959
D	866	LEU	-	linker	UNP Q00959
D	867	VAL	-	linker	UNP Q00959
D	868	PRO	-	linker	UNP Q00959

Continued on next page...

W O R L D W I D E
PDB
PROTEIN DATA BANK

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
D	869	ARG	-	linker	UNP Q00959
D	870	GLY	-	linker	UNP Q00959
D	871	SER	-	linker	UNP Q00959
D	872	ALA	-	linker	UNP Q00959
D	873	ALA	-	linker	UNP Q00959
D	874	ALA	-	linker	UNP Q00959
D	875	ALA	-	linker	UNP Q00959
D	876	VAL	-	linker	UNP Q00959
D	939	LEU	PHE	conflict	UNP P42212
D	940	THR	SER	conflict	UNP P42212
D	1081	LYS	ALA	conflict	UNP P42212
D	1106	LEU	HIS	conflict	UNP P42212
D	1114	SER	-	expression tag	UNP P42212
D	1115	GLY	-	expression tag	UNP P42212
D	1116	LEU	-	expression tag	UNP P42212
D	1117	ARG	-	expression tag	UNP P42212
D	1118	SER	-	expression tag	UNP P42212
D	1119	TRP	-	expression tag	UNP P42212
D	1120	SER	-	expression tag	UNP P42212
D	1121	HIS	-	expression tag	UNP P42212
D	1122	PRO	-	expression tag	UNP P42212
D	1123	GLN	-	expression tag	UNP P42212
D	1124	PHE	-	expression tag	UNP P42212
D	1125	GLU	-	expression tag	UNP P42212
D	1126	LYS	-	expression tag	UNP P42212

- Molecule 3 is 4-cyclohexyl-N-[(8R)-2-cyclopropyl-7-hydroxy-5-methyl[1,2,4]triazolo[1,5-a]pyrimidin-6-yl]benzene-1-sulfonamide (CCD ID: A1AUV) (formula: $C_{21}H_{25}N_5O_3S$) (labeled as "Ligand of Interest" by depositor).

A1AUV
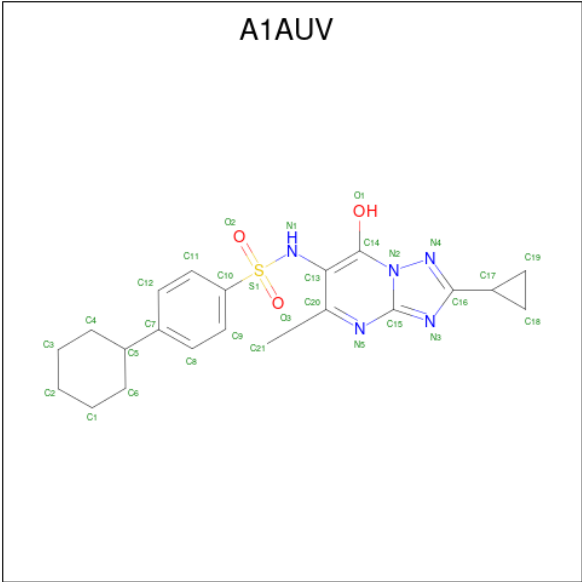
Mol	Chain	Residues	Atoms					AltConf
3	A	1	Total	C	N	O	S	0
			30	21	5	3	1	
3	C	1	Total	C	N	O	S	0
			30	21	5	3	1	

- Molecule 4 is CHOLESTEROL HEMISUCCINATE (CCD ID: Y01) (formula: $C_{31}H_{50}O_4$) (labeled as "Ligand of Interest" by depositor).
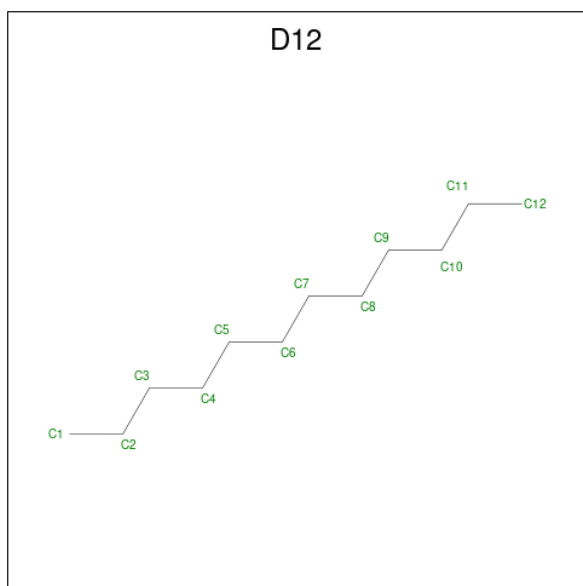

Y01
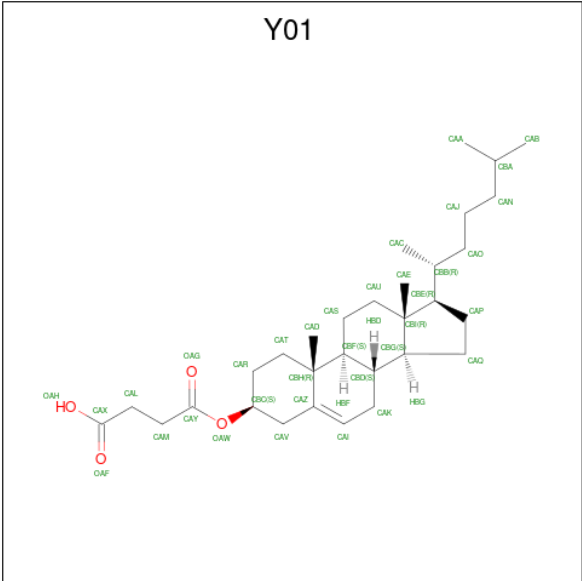
Mol	Chain	Residues	Atoms			AltConf
4	B	1	Total	C	O	0
			35	31	4	

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms			AltConf
4	B	1	Total 35	C 31	O 4	0
4	B	1	Total 35	C 31	O 4	0
4	D	1	Total 35	C 31	O 4	0
4	D	1	Total 35	C 31	O 4	0
4	D	1	Total 35	C 31	O 4	0

- Molecule 5 is DODECANE (CCD ID: D12) (formula: $C_{12}H_{26}$).

Mol	Chain	Residues	Atoms		AltConf
5	B	1	Total 12	C 12	0
5	D	1	Total 12	C 12	0

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: Glutamate receptor ionotropic, NMDA 1,Green fluorescent protein chimera

• Molecule 1: Glutamate receptor ionotropic, NMDA 1,Green fluorescent protein chimera

Chain C:

• Molecule 2: Glutamate receptor ionotropic, NMDA 2A,Green fluorescent protein chimera

Chain B:

20%

50% 20% 30%

• Molecule 2: Glutamate receptor ionotropic, NMDA 2A,Green fluorescent protein chimera

L550 F553 S556 V557 W558 V559 M560 V563 M564 L565 L566 I567 A570 I571 F579 SER PRO VAL GLY TYR ASN ARG ASN LEU ALA LYS GLY LYS ALA PRO HIS GLY PRO SER F599 K603 W606 W609 V612 F613 V617 P618 V619 Q620 T626 I629 M630

W634 F637 N648 L649 A650 E655 E656 F657 V658 D659 K667 Q670 R671 P672 H673 D674 Y675 S676 P677 F681 G682 T683 V684 P685 I693 Y699 Q702 Y703 M704 T705 R706 F707 N708 Q709 R710 D714 A715 S718 I728 Y729 D730 A731 Y736 R740

C744 K745 L746 I749 Y760 A763 W770 I774 F781 V782 G783 E786 M787 E788 E791 T792 L795 T796 G797 E802 LYS ASN GLU VAL MET S808 S809 Q810 L811 D814 A817 G818 V819 F820 Y821 M822 A825 A826 M827 A828 L829 I832 T833 W836 E837

H838 L839 F840 Y841 W842 LYS LEU ARG PHE CYS PHE THR GLY VAL CYS SER ASP ARG PRO GLY LEU LEU SER ILE SER ARG GLY LEU VAL PRO VAL PRO TRP PRO THR LEU VAL SER LYS GLY GLU LEU PHE THR GLY VAL VAL PRO ILE LEU VAL GLU LEU ASP GLY ASP VAL

ASN GLY HIS LYS PHE SER VAL SER GLY GLU GLY GLY GLY ASP ALA THR TYR GLY LYS LEU THR LEU LYS PHE ILE CYS THR THR GLY LYS LEU PRO VAL PRO TRP PRO THR LEU VAL THR THR LEU THR TYR GLY VAL GLN CYS PHE SER ARG TYR PRO ASP HIS MET LYS GLN HIS ASP

PHE PHE LYS SER ALA MET PRO GLU GLY TYR VAL GLN GLU ARG THR ILE PHE PHE LYS ASP ASP GLY ASN TYR LYS THR ARG ALA GLU VAL LYS PHE GLU GLY ASP THR LEU VAL ASN ARG ILE GLU LEU LYS GLY ILE ASP PHE LYS GLU ASP GLY ASN ILE LEU GLY HIS LYS LEU GLU

TYR ASN TYR ASN SER HIS ASN VAL TYR ILE MET ALA ASP LYS GLN LYS ASN GLY ILE LYS VAL ASN PHE LYS ILE ARG HIS ASN ILE GLU ASP GLY SER VAL GLN LEU ALA ASP HIS TYR GLN GLN ASN THR PRO ILE GLY ASP GLY PRO VAL LEU LEU PRO ASP ASN HIS TYR LEU SER

THR GLN SER LYS LEU SER LYS ASP PRO ASN GLU LYS ARG ASP HIS MET VAL LEU LEU GLU PHE VAL THR ALA ALA GLY ILE THR LEU GLY MET ASP GLU LEU TYR LYS SER GLY LEU ARG SER TRP SER HIS PRO GLN PHE GLU LYS

4 Experimental information ⓘ

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C2	Depositor
Number of particles used	179000	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{Å}^2$)	53	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	1.936	Depositor
Minimum map value	-1.007	Depositor
Average map value	0.009	Depositor
Map value standard deviation	0.081	Depositor
Recommended contour level	0.28	Depositor
Map size (Å)	247.79999, 247.79999, 247.79999	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.826, 0.826, 0.826	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: Y01, D12, A1AUV

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$|Z| > 5$	RMSZ	#$|Z| > 5$
1	A	0.14	0/6479	0.33	0/8779
1	C	0.13	0/6479	0.32	0/8779
2	B	0.13	0/6387	0.32	0/8678
2	D	0.13	0/6387	0.32	0/8678
All	All	0.13	0/25732	0.33	0/34914

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	6336	0	6310	171	0
1	C	6336	0	6310	162	0
2	B	6234	0	6146	171	0
2	D	6234	0	6146	161	0
3	A	30	0	0	0	0
3	C	30	0	0	0	0
4	B	105	0	101	26	0
4	D	105	0	102	32	0
5	B	12	0	26	1	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	D	12	0	26	2	0
All	All	25434	0	25167	653	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 13.

The worst 5 of 653 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)
4:D:1204:Y01:CBE	4:D:1204:Y01:CBB	1.75	1.55
4:B:1204:Y01:CBB	4:B:1204:Y01:CBE	1.75	1.54
4:B:1204:Y01:OAW	4:B:1204:Y01:CBC	1.74	1.35
4:B:1201:Y01:OAW	4:B:1201:Y01:CBC	1.75	1.35
4:B:1202:Y01:OAW	4:B:1202:Y01:CBC	1.74	1.35

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	798/1108 (72%)	775 (97%)	23 (3%)	0	100	100
1	C	798/1108 (72%)	771 (97%)	27 (3%)	0	100	100
2	B	781/1126 (69%)	754 (96%)	27 (4%)	0	100	100
2	D	781/1126 (69%)	754 (96%)	27 (4%)	0	100	100
All	All	3158/4468 (71%)	3054 (97%)	104 (3%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	691/956 (72%)	688 (100%)	3 (0%)	89	93
1	C	691/956 (72%)	690 (100%)	1 (0%)	92	97
2	B	689/977 (70%)	688 (100%)	1 (0%)	92	97
2	D	689/977 (70%)	688 (100%)	1 (0%)	92	97
All	All	2760/3866 (71%)	2754 (100%)	6 (0%)	91	96

5 of 6 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	B	702	GLN
1	C	41	MET
2	D	560	MET
1	A	698	GLU
1	A	576	MET

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 17 such sidechains are listed below:

Mol	Chain	Res	Type
1	C	705	HIS
2	D	696	ASN
2	B	387	HIS
2	B	696	ASN
2	B	838	HIS

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 ⓘ

10 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	#$|Z| > 2$
3	A1AUV	C	1201	-	26,34,34	6.02	11 (42%)	32,51,51	1.81	2 (6%)
4	Y01	B	1202	-	38,38,38	9.52	25 (65%)	57,57,57	2.41	17 (29%)
3	A1AUV	A	1201	-	26,34,34	6.03	11 (42%)	32,51,51	1.82	3 (9%)
4	Y01	B	1204	-	38,38,38	9.51	25 (65%)	57,57,57	2.61	17 (29%)
4	Y01	B	1201	-	38,38,38	9.51	25 (65%)	57,57,57	2.46	16 (28%)
5	D12	D	1203	-	11,11,11	0.21	0	10,10,10	0.58	0
4	Y01	D	1201	-	38,38,38	9.52	25 (65%)	57,57,57	2.46	16 (28%)
4	Y01	D	1204	-	38,38,38	9.54	25 (65%)	57,57,57	2.44	18 (31%)
4	Y01	D	1202	-	38,38,38	9.52	25 (65%)	57,57,57	2.40	17 (29%)
5	D12	B	1203	-	11,11,11	0.21	0	10,10,10	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
3	A1AUV	C	1201	-	-	2/15/29/29	0/5/5/5
4	Y01	B	1202	-	-	6/19/77/77	0/4/4/4
3	A1AUV	A	1201	-	-	3/15/29/29	0/5/5/5
4	Y01	B	1204	-	-	10/19/77/77	0/4/4/4
4	Y01	B	1201	-	-	11/19/77/77	0/4/4/4
5	D12	D	1203	-	-	0/9/9/9	-
4	Y01	D	1201	-	-	11/19/77/77	0/4/4/4

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	Y01	D	1204	-	-	8/19/77/77	0/4/4/4
4	Y01	D	1202	-	-	6/19/77/77	0/4/4/4
5	D12	B	1203	-	-	0/9/9/9	-

The worst 5 of 172 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	B	1204	Y01	CAT-CBH	-28.06	1.02	1.54
4	D	1202	Y01	CAT-CBH	-28.05	1.02	1.54
4	D	1204	Y01	CAT-CBH	-28.03	1.02	1.54
4	B	1202	Y01	CAT-CBH	-28.01	1.02	1.54
4	D	1201	Y01	CAT-CBH	-27.87	1.03	1.54

The worst 5 of 106 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	B	1204	Y01	CAV-CAZ-CAI	-8.56	108.96	120.57
4	D	1204	Y01	CAV-CAZ-CAI	-8.37	109.22	120.57
4	B	1201	Y01	CAV-CAZ-CAI	-8.35	109.26	120.57
4	D	1201	Y01	CAV-CAZ-CAI	-8.34	109.27	120.57
3	A	1201	A1AUV	O3-S1-O2	-8.31	109.42	119.52

There are no chirality outliers.

5 of 57 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	B	1202	Y01	OAG-CAY-OAW-CBC
4	B	1202	Y01	CAM-CAY-OAW-CBC
4	B	1204	Y01	CAO-CBB-CBE-CBI
4	D	1202	Y01	OAG-CAY-OAW-CBC
4	D	1202	Y01	CAM-CAY-OAW-CBC

There are no ring outliers.

8 monomers are involved in 61 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	B	1202	Y01	7	0
4	B	1204	Y01	12	0
4	B	1201	Y01	7	0
5	D	1203	D12	2	0

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	D	1201	Y01	7	0
4	D	1204	Y01	17	0
4	D	1202	Y01	8	0
5	B	1203	D12	1	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 then 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.

Ligand A1AUV C 1201

Bond lengths

Bond angles

Torsions

Rings

Ligand Y01 B 1202

Bond lengths

Bond angles

Torsions

Rings

Ligand A1AUV A 1201

Bond lengths

Bond angles

Torsions

Rings

Ligand Y01 B 1204

Bond lengths

Bond angles

Torsions

Rings

Ligand Y01 B 1201

Bond lengths

Bond angles

Torsions

Rings

Ligand Y01 D 1201

Bond lengths

Bond angles

Torsions

Rings

Ligand Y01 D 1204

Bond lengths

Bond angles

Torsions

Rings

Ligand Y01 D 1202

Bond lengths

Bond angles

Torsions

Rings

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Map visualisation ⓘ

This section contains visualisations of the EMDB entry EMD-45279. 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 ⓘ
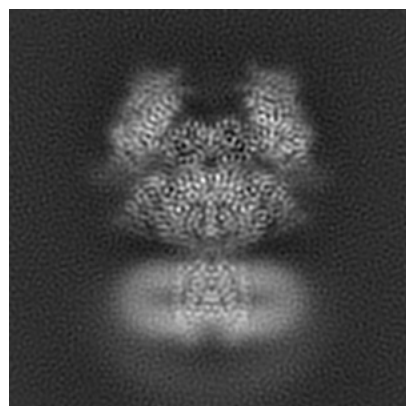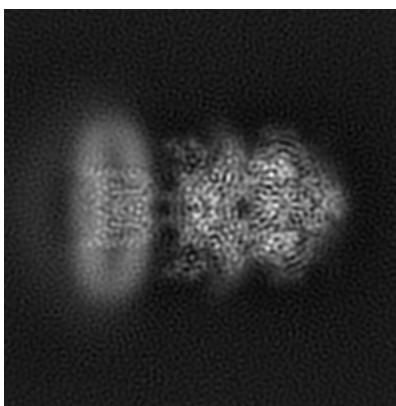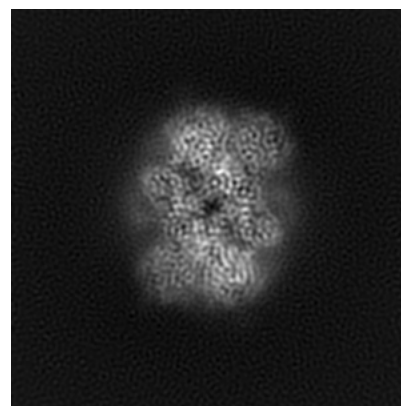
6.1.1 Primary map

X   Y   Z

6.1.2 Raw map

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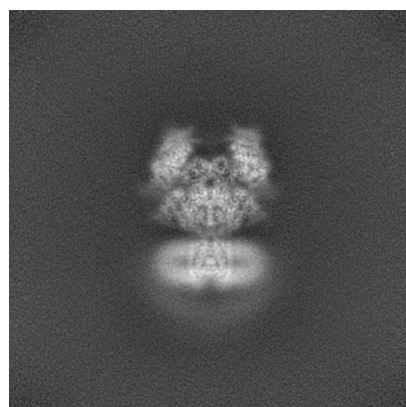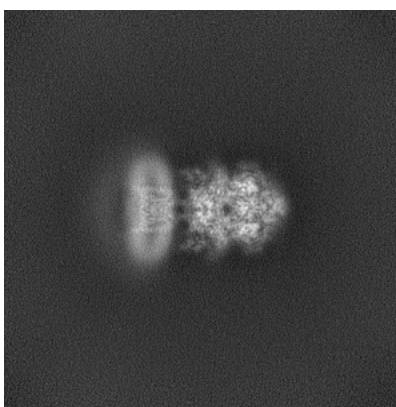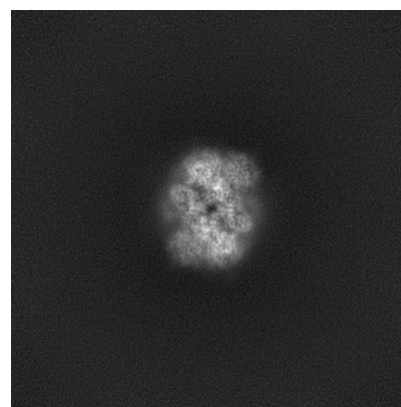
The images above show the map projected in three orthogonal directions.

6.2   Central slices ⓘ

6.2.1   Primary map

<div align="center">
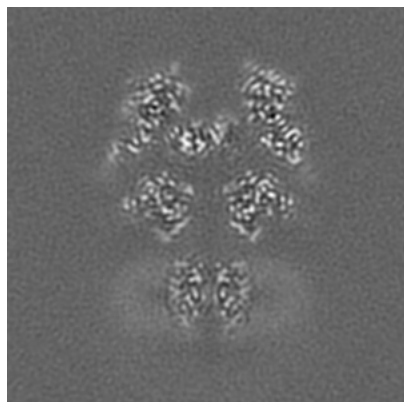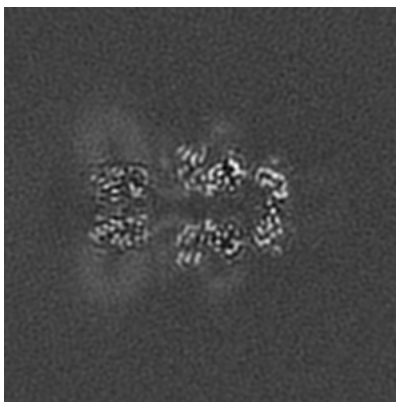
X Index: 150   Y Index: 150   Z Index: 150
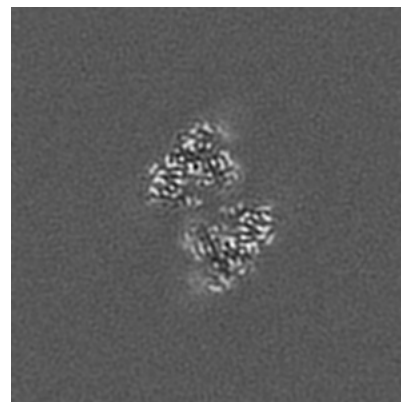
</div>

6.2.2   Raw map

<div align="center">
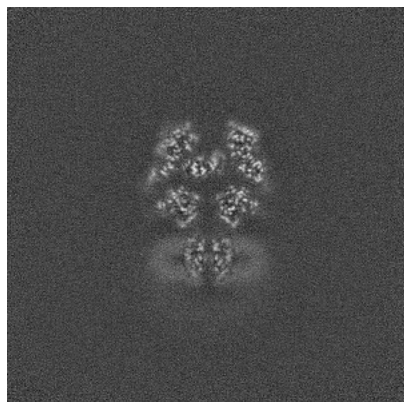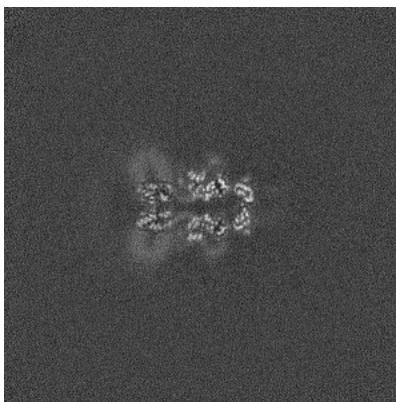
X Index: 256   Y Index: 256   Z Index: 256
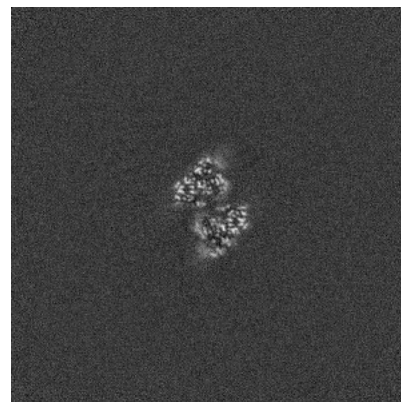
</div>

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

6.3   Largest variance slices   ⓘ
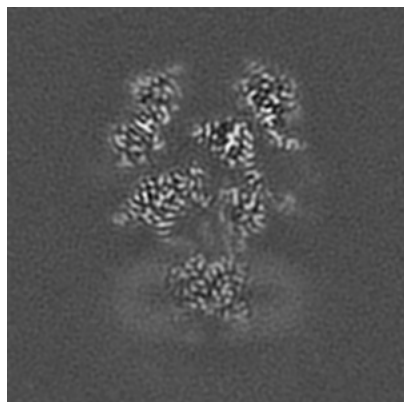
6.3.1   Primary map
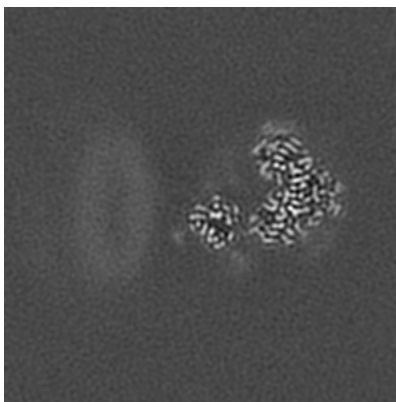
X Index: 158   Y Index: 197   Z Index: 200
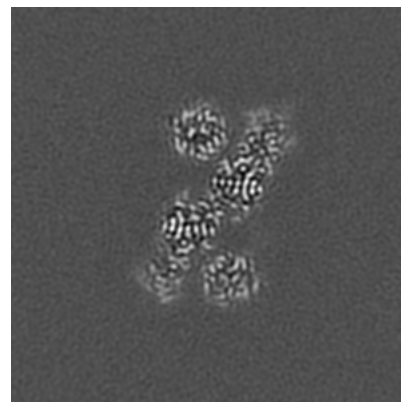
6.3.2   Raw map
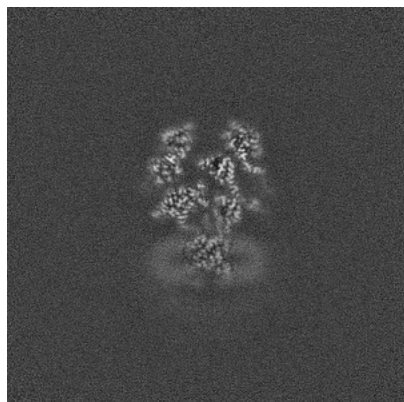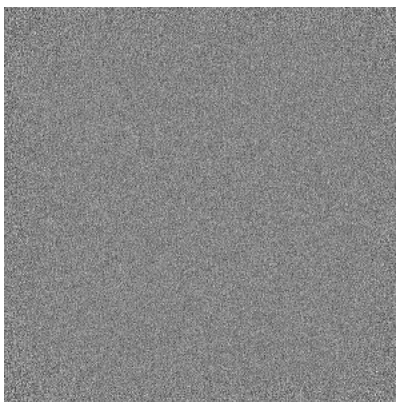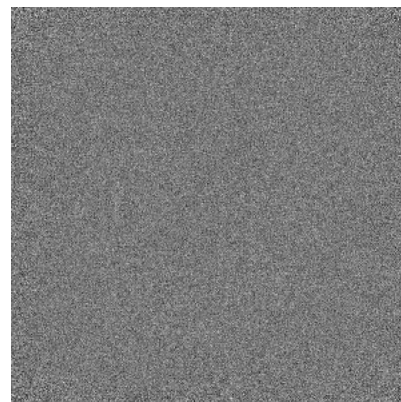
X Index: 264   Y Index: 0   Z Index: 0

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

6.4 Orthogonal standard-deviation projections (False-color) ⓘ

6.4.1 Primary map
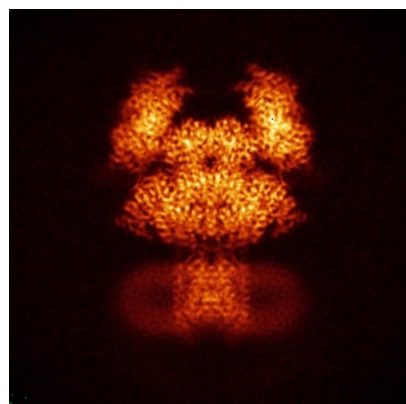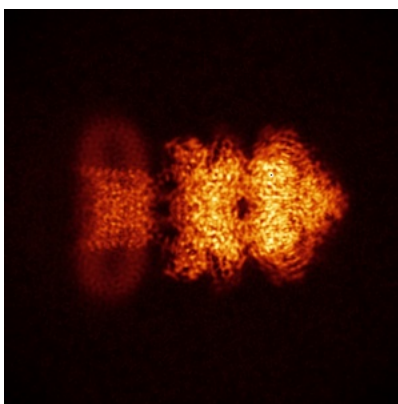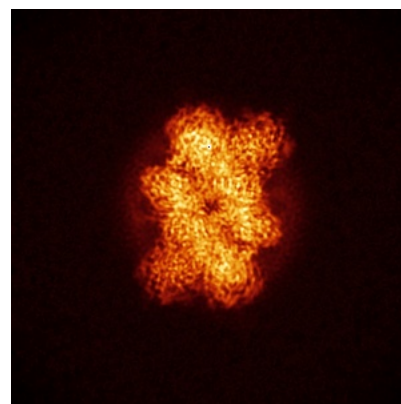
X Y Z

6.4.2 Raw map

X Y Z
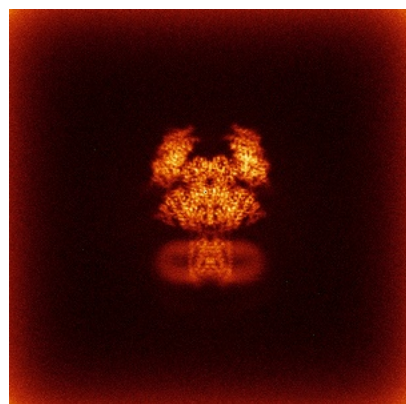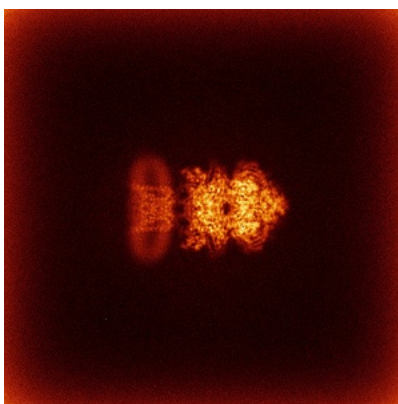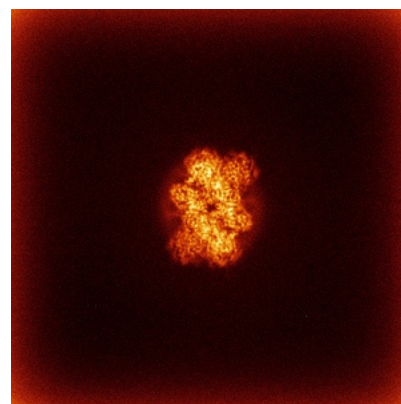
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views (i)

6.5.1 Primary map

X   Y   Z
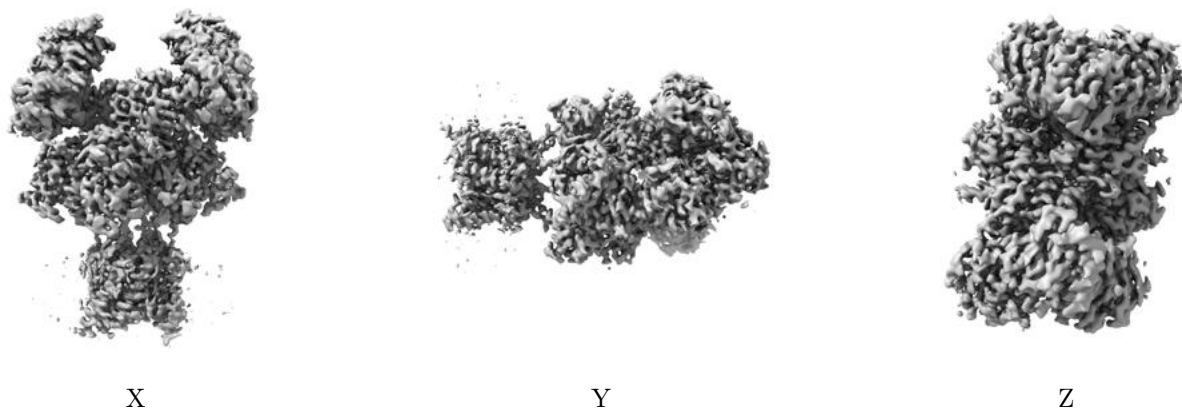
The images above show the 3D surface view of the map at the recommended contour level 0.28. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map

X   Y   Z
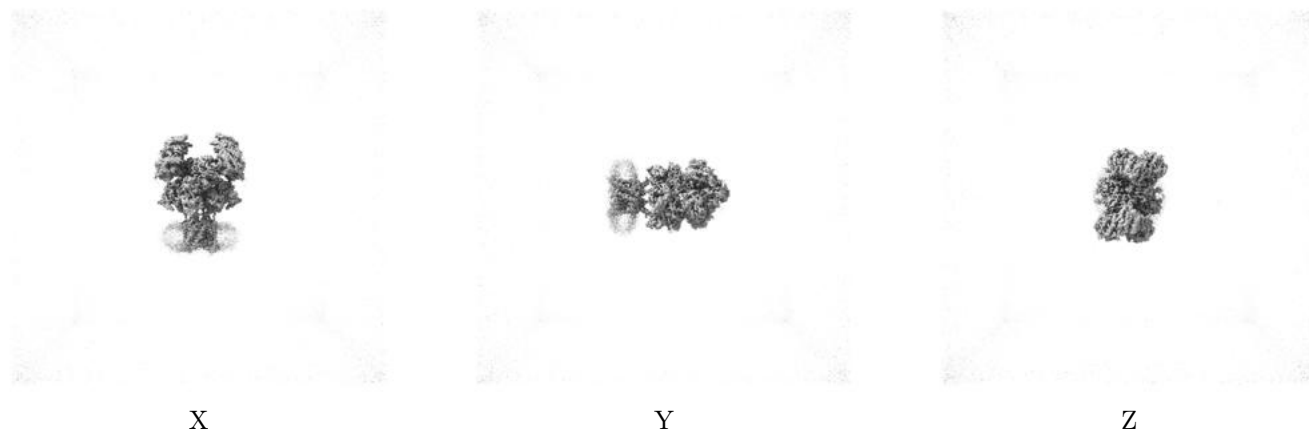
These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

6.6 Mask visualisation (i)

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

7 Map analysis ⓘ

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

7.1 Map-value distribution ⓘ
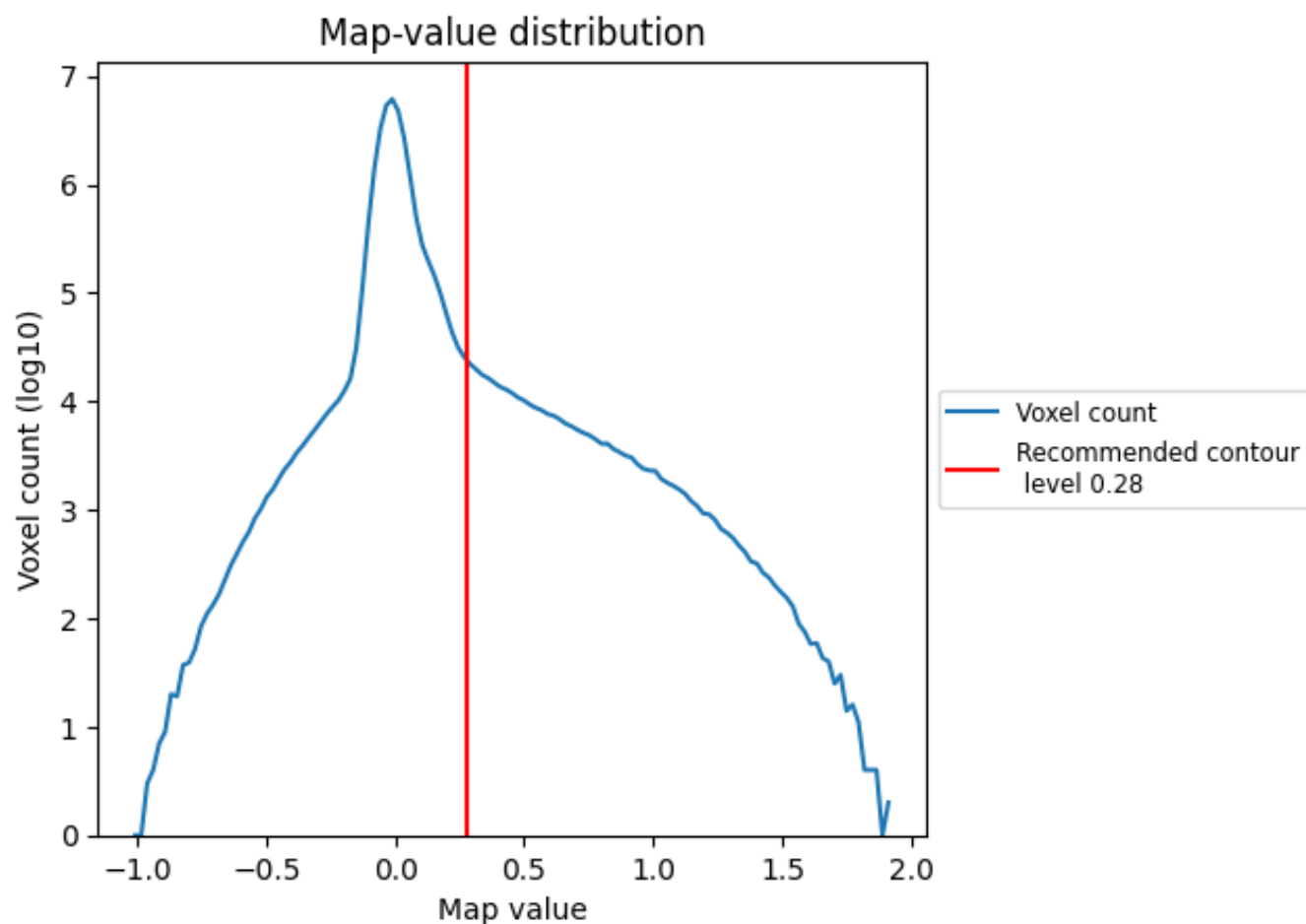
The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

7.2   Volume estimate ⓘ
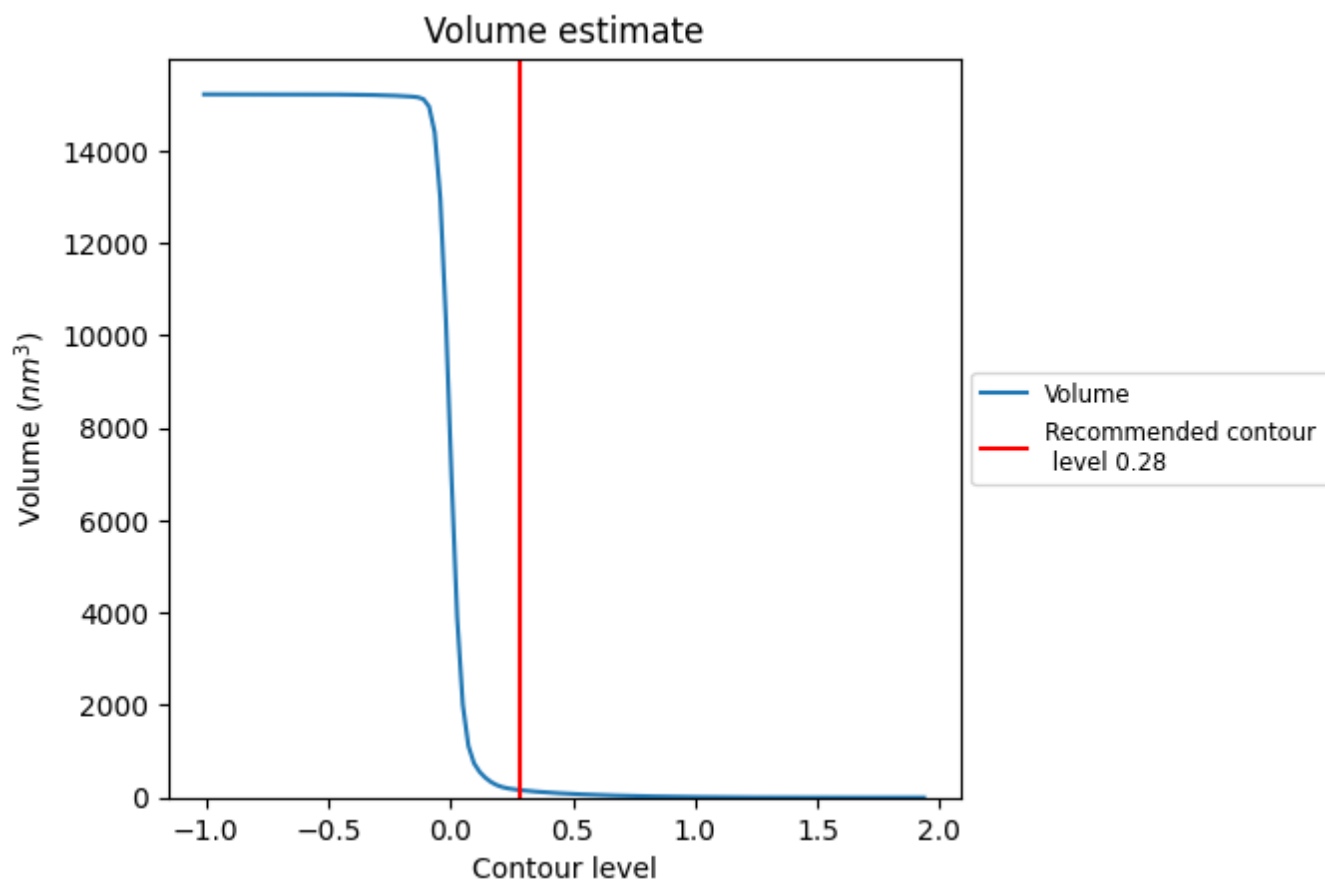
The volume at the recommended contour level is 164 nm^3; this corresponds to an approximate mass of 148 kDa.

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   ⓘ
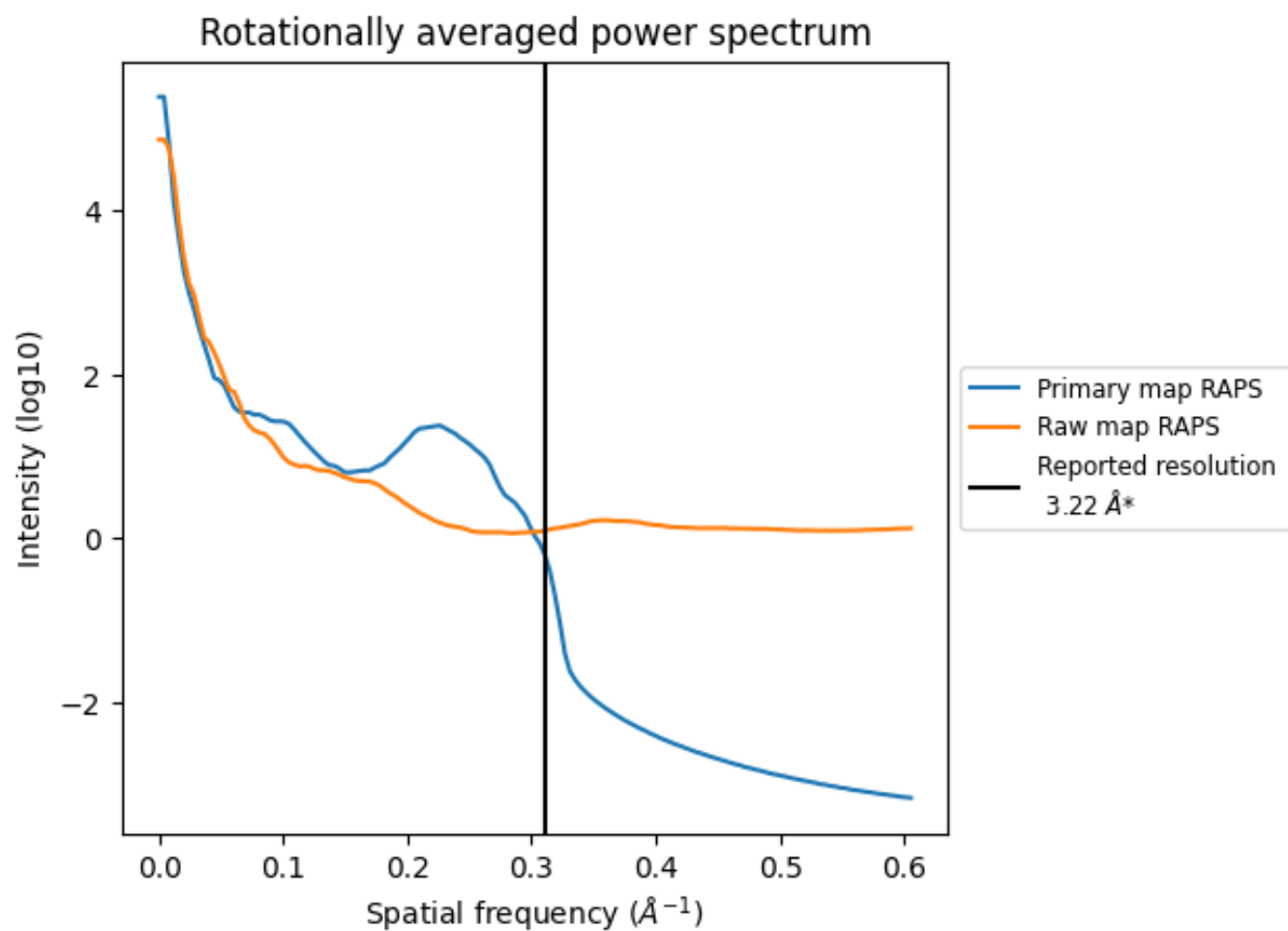
*Reported resolution corresponds to spatial frequency of 0.311 Å^{-1}

8 Fourier-Shell correlation ⓘ

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 ⓘ
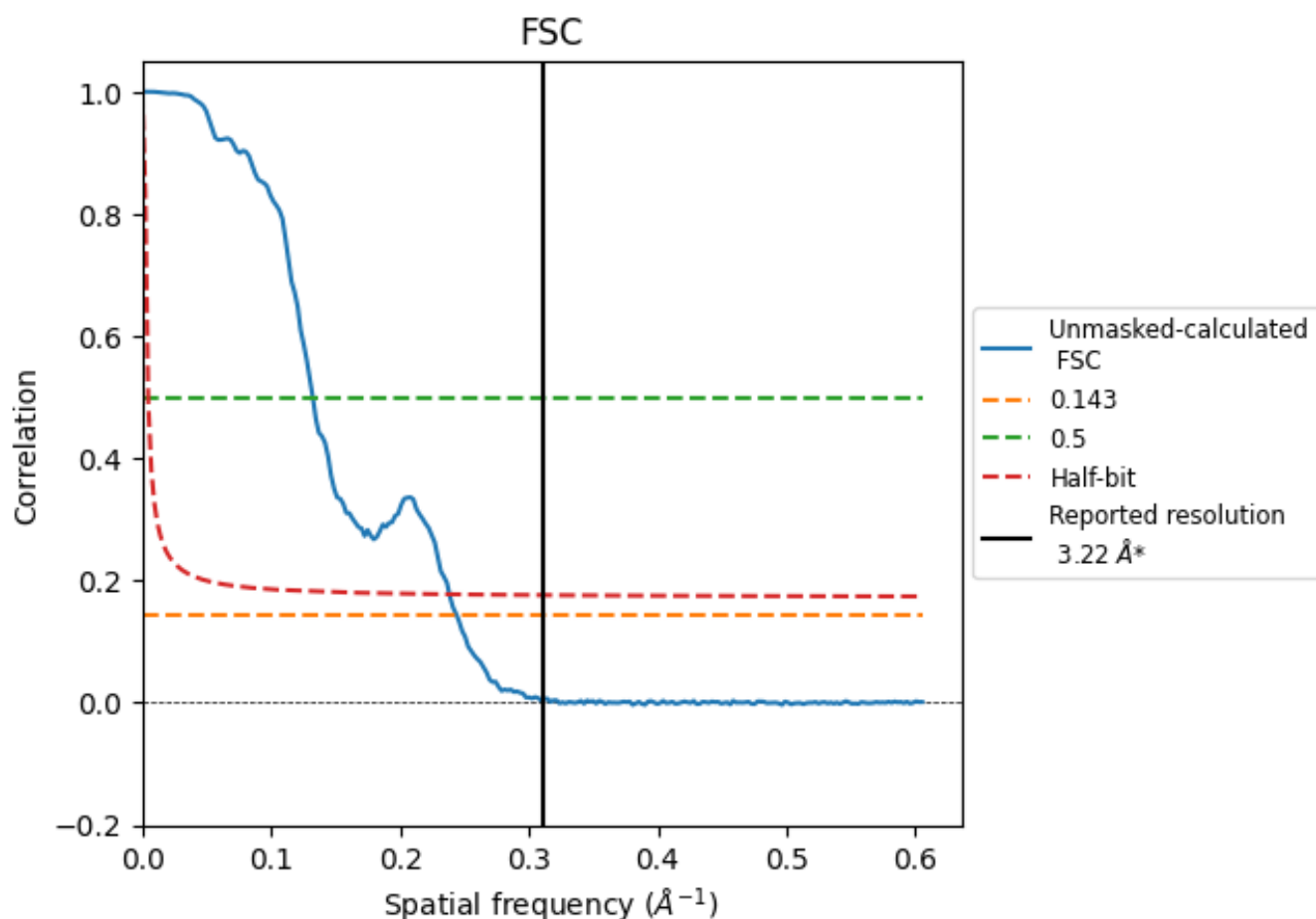
*Reported resolution corresponds to spatial frequency of 0.311 Å^{-1}

8.2 Resolution estimates ⓘ

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.22	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	4.10	7.55	4.19

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 4.10 differs from the reported value 3.22 by more than 10 %
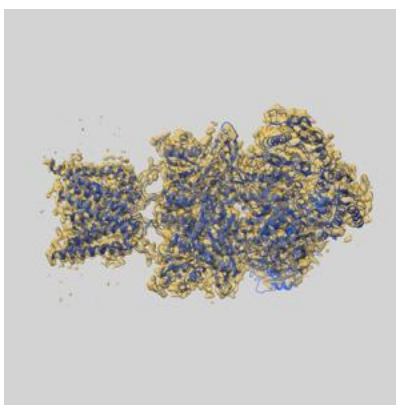
9 Map-model fit (i)

This section contains information regarding the fit between EMDB map EMD-45279 and PDB model 9C7E. Per-residue inclusion information can be found in section 3 on page 9.
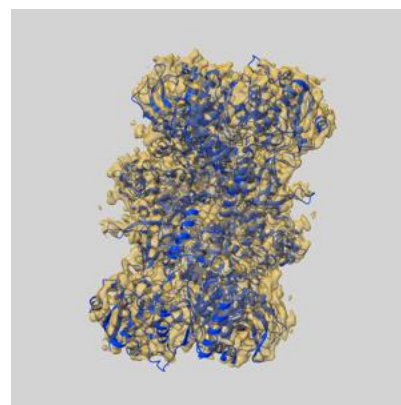
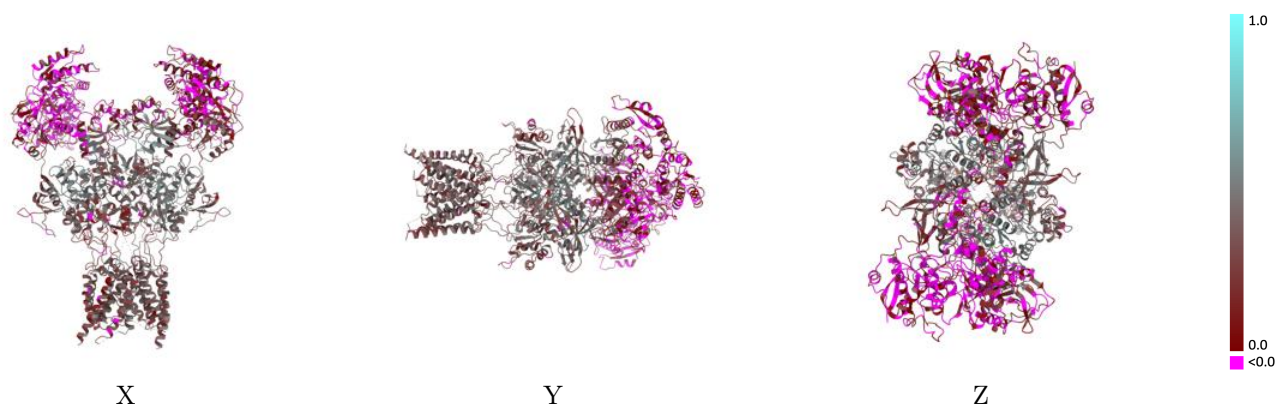## 9.1 Map-model overlay (i)
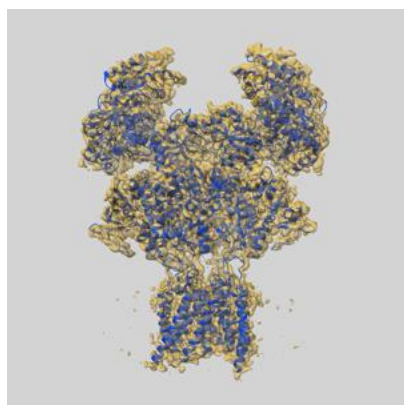
|		
X	Y	Z

The images above show the 3D surface view of the map at the recommended contour level 0.28 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 ⓘ

X   Y   Z

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 ⓘ

X   Y   Z
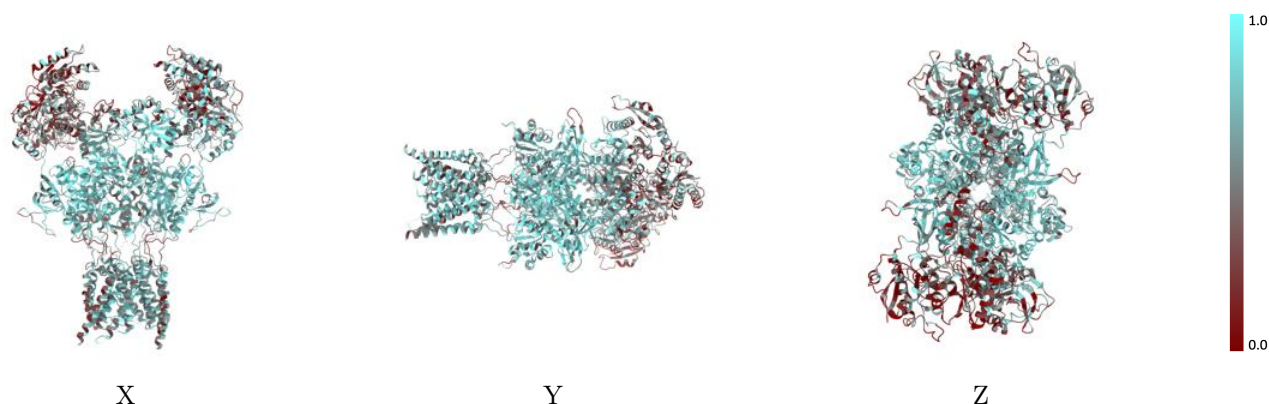
The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.28).

WORLDWIDE
wwPDB
PROTEIN DATA BANK
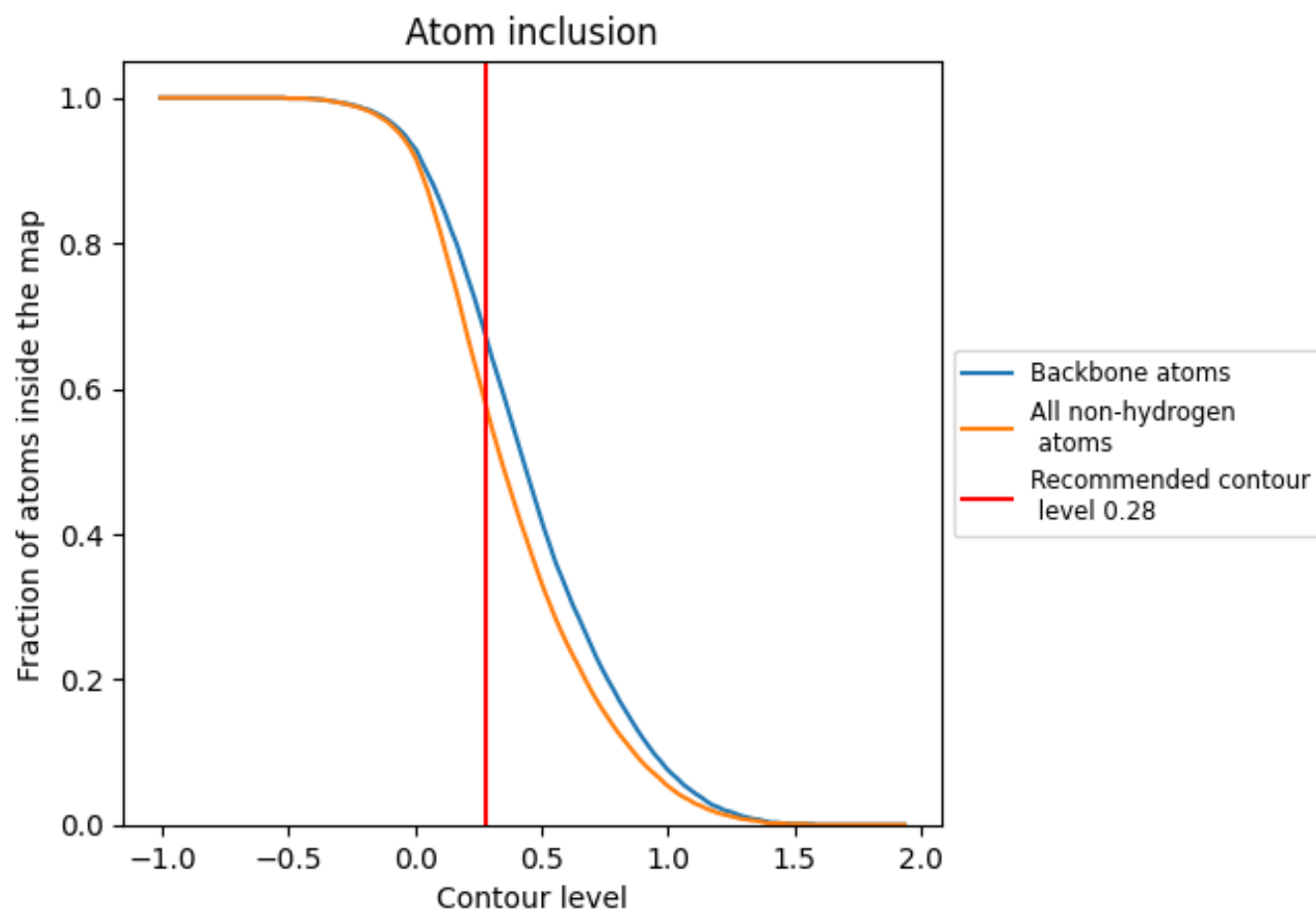
9.4   Atom inclusion ⓘ

At the recommended contour level, 67% of all backbone atoms, 58% 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 (0.28) and Q-score for the entire model and for each chain.

1.0

Chain	Atom inclusion	Q-score
All	▬ 0.5760	▬ 0.2440
A	▬ 0.5250	▬ 0.2090
B	▬ 0.5590	▬ 0.2270
C	▬ 0.5950	▬ 0.2520
D	▬ 0.6240	▬ 0.2890

0.0
<0.0