



wwPDB EM Validation Summary Report ⓘ

May 25, 2025 – 03:42 PM EDT

PDB ID : 8EKP / pdb_00008ekp
EMDB ID : EMD-28209
Title : Apo rat TRPV2 in nanodiscs, state 1
Authors : Pumroy, R.A.; Moiseenkova-Bell, V.Y.
Deposited on : 2022-09-21
Resolution : 2.75 Å(reported)

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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 : 2022.3.0, CSD as543be (2022)
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) : 2.43.1

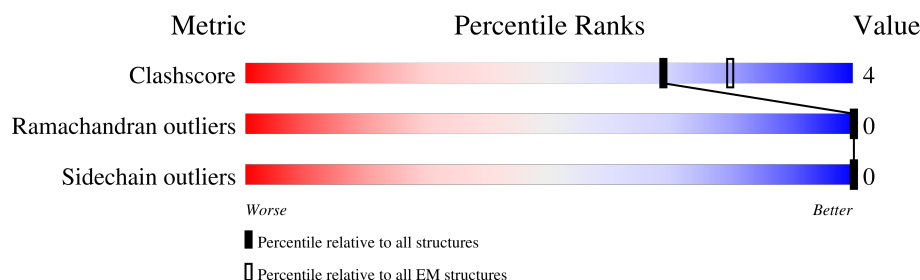
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY





The reported resolution of this entry is 2.75 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	761	
1	B	761	
1	C	761	
1	D	761	

2 Entry composition [i](#)

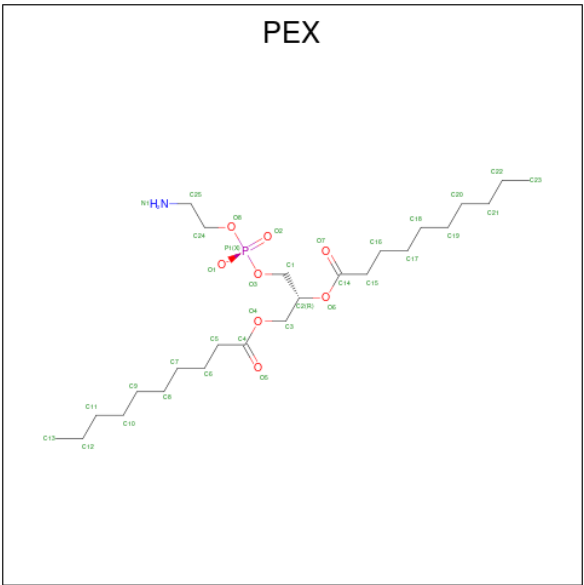
There are 2 unique types of molecules in this entry. The entry contains 20448 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Transient receptor potential cation channel subfamily V member 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	622	Total	C	N	O	S	0	0
			5042	3292	849	873	28		
1	B	622	Total	C	N	O	S	0	0
			5042	3292	849	873	28		
1	C	622	Total	C	N	O	S	0	0
			5042	3292	849	873	28		
1	D	622	Total	C	N	O	S	0	0
			5042	3292	849	873	28		

- Molecule 2 is 1,2-DIDECANOYL-SN-GLYCERO-3-PHOSPHOETHANOLAMINE (CCD ID: PEX) (formula: C₂₅H₄₉NO₈P).



Mol	Chain	Residues	Atoms					AltConf
2	A	1	Total	C	N	O	P	0
			35	25	1	8	1	
2	A	1	Total	C	N	O	P	0
			35	25	1	8	1	

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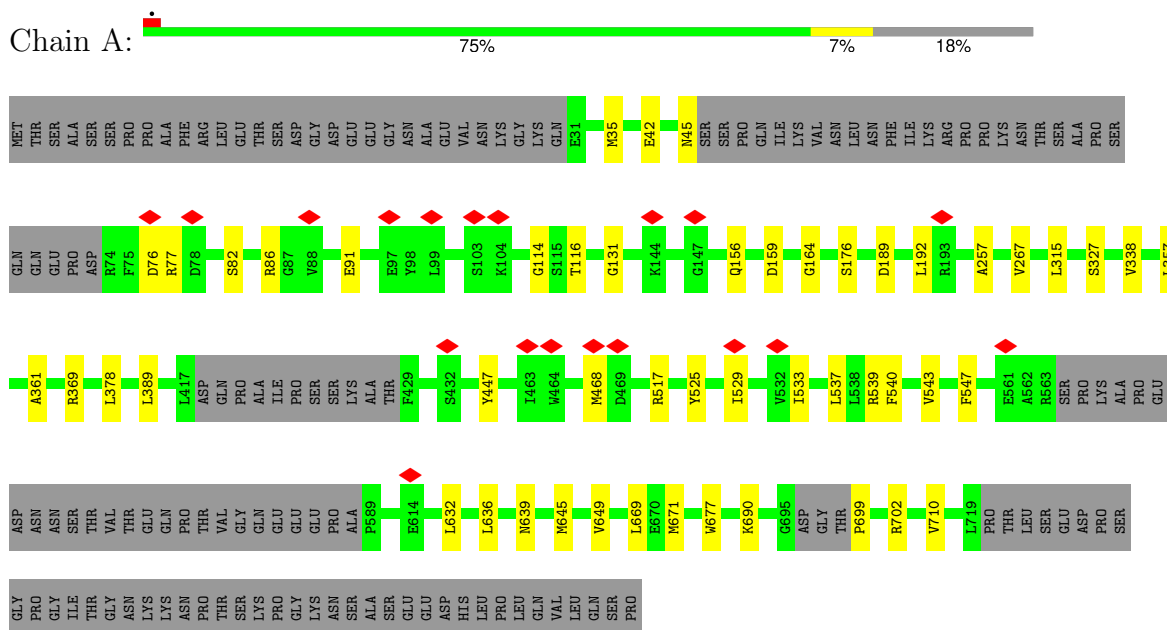
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Mol	Chain	Residues	Atoms					AltConf
2	B	1	Total	C	N	O	P	0
			35	25	1	8	1	
2	B	1	Total	C	N	O	P	0
			35	25	1	8	1	
2	C	1	Total	C	N	O	P	0
			35	25	1	8	1	
2	C	1	Total	C	N	O	P	0
			35	25	1	8	1	
2	D	1	Total	C	N	O	P	0
			35	25	1	8	1	
2	D	1	Total	C	N	O	P	0
			35	25	1	8	1	

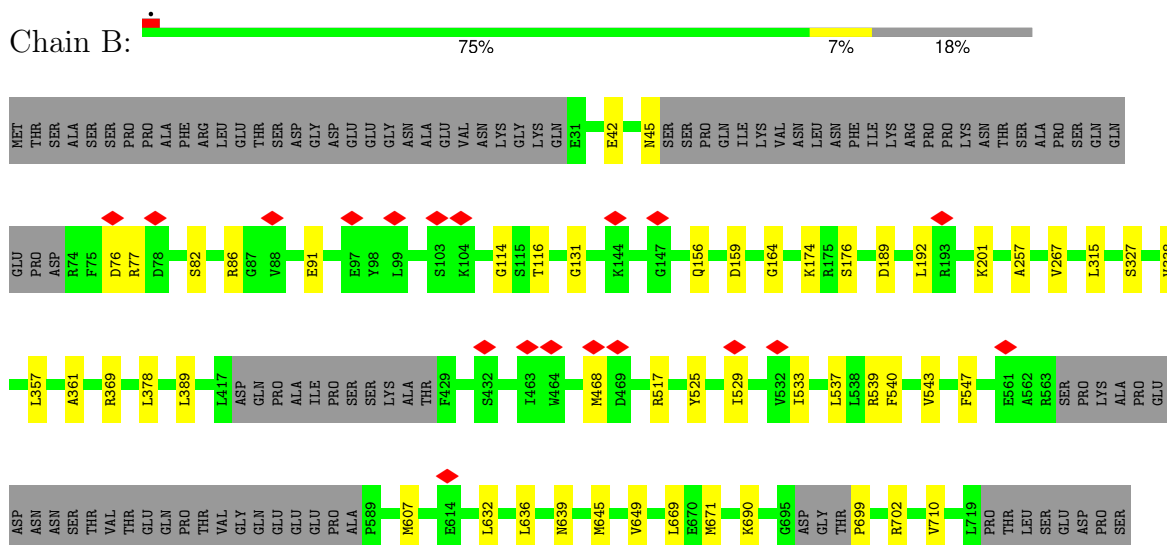
3 Residue-property plots

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: Transient receptor potential cation channel subfamily V member 2




- Molecule 1: Transient receptor potential cation channel subfamily V member 2



GLY PRO THR
GLY ILE
THR GLY
ASN LYS
LYS LYS
ASN PRO
THR THR
SER LYS
LYS LYS
PRO GLY
LYS LYS
ASN LYS
SER LYS
ALA LYS
SER LYS
GLU LYS
ASP LYS
HIS LYS
LEU LYS
PRO LYS
GLN LYS
VAL LYS
LEU LYS
GLN LYS
SER LYS
PRO LYS

- Molecule 1: Transient receptor potential cation channel subfamily V member 2

Chain C:  76% 6% 18%

MET THR SER
ALA VAL
SER SER
PRO PRO
ALA PHE
ARG ARG
LEU LEU
GLU THR
SER LYS
PRO LYS
GLY LYS
ASP LYS
SER LYS
ALA LYS
GLU LYS
ASP LYS
HIS LYS
LEU LYS
PRO LYS
GLN LYS
VAL LYS
ASN LYS
GLY LYS
LYS LYS
GLN LYS
E31
E42
M45
SER SER
PRO PRO
GLN LYS
ILE LYS
VAL LYS
VAL LYS
ASN LYS
LEU LYS
PHE LYS
ILE LYS
LYS LYS
ARG LYS
PRO LYS
PRO LYS
LYS LYS
ASN LYS
THR LYS
SER LYS
ALA LYS
PRO LYS
SER LYS
GLN LYS
GLN LYS


GLU PRO ASP
R74 R75
D76 D77
D78 D79
S82 S83
R86 R87
G87 G88
V88 V89
E91 E92
E97 E98
Y98 Y99
L99 L100
S103 S104
K104 K105
G114 G115
T116 T117
G131 G132
K144 K145
G147 G148
Q156 Q157
D159 D160
G164 G165
K174 K175
R175 R176
S176 S177
D189 D190
L192 L193
R193 R194
K201 K202
A257 A258
V267 V268
L315 L316
S327 S328
V338 V339

L357 L358
A361 A362
R369 R370
L378 L379
L389 L390
L417 L418
ASP L419
GLN L420
PRO L421
ALA L422
ILE L423
SER L424
SER L425
LYS L426
THR L427
F429 F430
S432 S433
T463 T464
W464 W465
M468 M469
D469 D470
R517 R518
Y525 Y526
I529 I530
V532 V533
L537 L538
R539 R540
F540 F541
F547 F548
E561 E562
A562 A563
R563 R564
SER L565
PRO L566
GLY L567
PRO L568
GLY L569
ILE L570
THR L571
GLY L572
ASN L573

ASN SER THR
LYS LYS
ASN LYS
PRO LYS
THR LYS
GLN LYS
PRO LYS
VAL LYS
GLY LYS
GLN LYS
ASN LYS
GLU LYS
GLU LYS
GLU LYS
PRO LYS
PRO LYS
ALA LYS
ILE LYS
ASP LYS
HIS LYS
LEU LYS
PRO LYS
LEU LYS
GLN LYS
VAL LYS
LEU LYS
SER LYS
PRO LYS

ASN LYS
LYS LYS
ASN LYS
PRO LYS
THR LYS
SER LYS
GLN LYS
PRO LYS
VAL LYS
GLY LYS
GLN LYS
ASN LYS
GLU LYS
GLU LYS
GLU LYS
PRO LYS
PRO LYS
ALA LYS
ILE LYS
ASP LYS
HIS LYS
LEU LYS
PRO LYS
LEU LYS
GLN LYS
VAL LYS
LEU LYS
SER LYS
PRO LYS

- Molecule 1: Transient receptor potential cation channel subfamily V member 2

Chain D:  75% 7% 18%

MET THR SER
ALA VAL
SER SER
PRO PRO
ALA PHE
ARG ARG
LEU LEU
GLU THR
SER LYS
PRO LYS
GLY LYS
ASP LYS
SER LYS
ALA LYS
GLU LYS
ASP LYS
HIS LYS
LEU LYS
PRO LYS
LEU LYS
GLN LYS
VAL LYS
ASN LYS
GLY LYS
LYS LYS
GLN LYS
E31
E32
M35
E42
M45
SER SER
PRO PRO
GLN LYS
ILE LYS
VAL LYS
VAL LYS
ASN LYS
ASN LYS
PHE LYS
ILE LYS
LYS LYS
ARG LYS
PRO LYS
PRO LYS
LYS LYS
ASN LYS
THR LYS
SER LYS
ALA LYS
PRO LYS
SER LYS

GLN GLN
GLU GLU
PRO PRO
ASP ASP
R74 R75
D76 D77
D78 D79
S82 S83
R86 R87
G87 G88
V88 V89
E91 E92
E97 E98
Y98 Y99
L99 L100
S103 S104
K104 K105
G114 G115
T116 T117
G131 G132
K144 K145
G147 G148
Q156 Q157
D159 D160
G164 G165
K174 K175
R175 R176
S176 S177
D189 D190
L192 L193
R193 R194
K201 K202
A257 A258
V267 V268
L315 L316
S327 S328

V338 V339
L357 L358
A361 A362
R369 R370
L378 L379
L389 L390
L417 L418
ASP L419
GLN L420
PRO L421
ALA L422
ILE L423
SER L424
SER L425
LYS L426
THR L427
F429 F430
S432 S433
T463 T464
W464 W465
M468 M469
D469 D470
R517 R518
Y525 Y526
I529 I530
V532 V533
L537 L538
R539 R540
F540 F541
F547 F548
E561 E562
A562 A563
R563 R564
SER L565
PRO L566
GLY L567
PRO L568
GLY L569
ILE L570
THR L571
GLY L572
ASN L573

LYS LYS
ALA LYS
PRO LYS
GLU LYS
ASP LYS
ASN LYS
ASN LYS
SER LYS
GLY LYS
VAL LYS
THR LYS
THR LYS
GLN LYS
GLN LYS
PRO LYS
THR LYS
VAL LYS
VAL LYS
ASN LYS
GLN LYS
GLU LYS
GLU LYS
GLU LYS
PRO LYS
PRO LYS
ALA LYS
LYS LYS
Y590 Y591
M607 M608
E614 E615
L632 L633
L636 L637
N639 N640
M645 M646
V649 V650
L669 L670
E670 E671
M671 M672
W677 W678
K690 K691
G695 G696
ASP L697
GLY L698
THR L699
P699 P700
R702 R703
V710 V711
L719 L720
PRO L721

THR LYS
LEU LYS
SER LYS
GLU LYS
ASP LYS
PRO LYS
PRO LYS
SER LYS
GLY LYS
ILE LYS
THR LYS
THR LYS
GLN LYS
ASN LYS
LYS LYS
LYS LYS
ASN LYS
ASN LYS
THR LYS
SER LYS
LYS LYS
PRO LYS
PRO LYS
GLY LYS
GLY LYS
LYS LYS
ASN LYS
SER LYS
ALA LYS
GLU LYS
GLU LYS
ASP LYS
HIS LYS
LEU LYS
PRO LYS
PRO LYS
GLN LYS
VAL LYS
LEU LYS
GLN LYS
SER LYS
PRO LYS

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C4	Depositor
Number of particles used	23986	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	6000	Depositor
Maximum defocus (nm)	14000	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	34.489	Depositor
Minimum map value	-16.294	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	1.000	Depositor
Recommended contour level	3.5	Depositor
Map size (Å)	303.68, 303.68, 303.68	wwPDB
Map dimensions	416, 416, 416	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.72999996, 0.72999996, 0.72999996	Depositor

5 Model quality

5.1 Standard geometry

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

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	0.17	0/5165	0.40	0/7000
1	B	0.17	0/5165	0.40	0/7000
1	C	0.17	0/5165	0.40	0/7000
1	D	0.17	0/5165	0.40	0/7000
All	All	0.17	0/20660	0.40	0/28000

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	5042	0	5080	41	0
1	B	5042	0	5080	43	0
1	C	5042	0	5080	40	0
1	D	5042	0	5080	44	0
2	A	70	0	98	3	0
2	B	70	0	98	4	0
2	C	70	0	98	4	0
2	D	70	0	98	4	0
All	All	20448	0	20712	145	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 4.

The worst 5 of 145 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:645:MET:CG	1:B:645:MET:HE1	1.99	0.92
1:B:645:MET:CG	1:C:645:MET:HE1	1.99	0.92
1:A:645:MET:HE1	1:D:645:MET:CG	1.99	0.91
1:C:645:MET:CG	1:D:645:MET:HE1	1.99	0.91
1:A:690:LYS:HE2	1:A:699:PRO:HB3	1.58	0.84

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	612/761 (80%)	604 (99%)	8 (1%)	0	100	100
1	B	612/761 (80%)	604 (99%)	8 (1%)	0	100	100
1	C	612/761 (80%)	604 (99%)	8 (1%)	0	100	100
1	D	612/761 (80%)	604 (99%)	8 (1%)	0	100	100
All	All	2448/3044 (80%)	2416 (99%)	32 (1%)	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	546/676 (81%)	546 (100%)	0	100	100
1	B	546/676 (81%)	546 (100%)	0	100	100
1	C	546/676 (81%)	546 (100%)	0	100	100
1	D	546/676 (81%)	546 (100%)	0	100	100
All	All	2184/2704 (81%)	2184 (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. 5 of 25 such sidechains are listed below:

Mol	Chain	Res	Type
1	C	363	HIS
1	C	639	ASN
1	D	639	ASN
1	C	487	GLN
1	D	102	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

8 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	PEX	A	802	-	34,34,34	1.05	4 (11%)	37,39,39	1.13	2 (5%)
2	PEX	C	802	-	34,34,34	1.05	4 (11%)	37,39,39	1.13	2 (5%)
2	PEX	D	801	-	34,34,34	1.05	4 (11%)	37,39,39	1.09	2 (5%)
2	PEX	A	801	-	34,34,34	1.05	4 (11%)	37,39,39	1.09	2 (5%)
2	PEX	B	802	-	34,34,34	1.05	4 (11%)	37,39,39	1.13	2 (5%)
2	PEX	B	801	-	34,34,34	1.05	4 (11%)	37,39,39	1.09	2 (5%)
2	PEX	D	802	-	34,34,34	1.05	4 (11%)	37,39,39	1.13	2 (5%)
2	PEX	C	801	-	34,34,34	1.05	4 (11%)	37,39,39	1.09	2 (5%)

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	PEX	A	802	-	-	12/38/38/38	-
2	PEX	C	802	-	-	12/38/38/38	-
2	PEX	D	801	-	-	15/38/38/38	-
2	PEX	A	801	-	-	15/38/38/38	-
2	PEX	B	802	-	-	12/38/38/38	-
2	PEX	B	801	-	-	15/38/38/38	-
2	PEX	D	802	-	-	12/38/38/38	-
2	PEX	C	801	-	-	15/38/38/38	-

The worst 5 of 32 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	801	PEX	O6-C2	-2.66	1.40	1.46
2	B	801	PEX	O6-C2	-2.66	1.40	1.46
2	C	801	PEX	O6-C2	-2.66	1.40	1.46
2	D	801	PEX	O6-C2	-2.66	1.40	1.46
2	A	802	PEX	O6-C2	-2.57	1.40	1.46

The worst 5 of 16 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	802	PEX	O6-C14-C15	3.88	119.88	111.48
2	B	802	PEX	O6-C14-C15	3.88	119.88	111.48
2	C	802	PEX	O6-C14-C15	3.88	119.88	111.48
2	D	802	PEX	O6-C14-C15	3.88	119.88	111.48
2	A	801	PEX	O6-C14-C15	3.57	119.20	111.48

There are no chirality outliers.

5 of 108 torsion outliers are listed below:

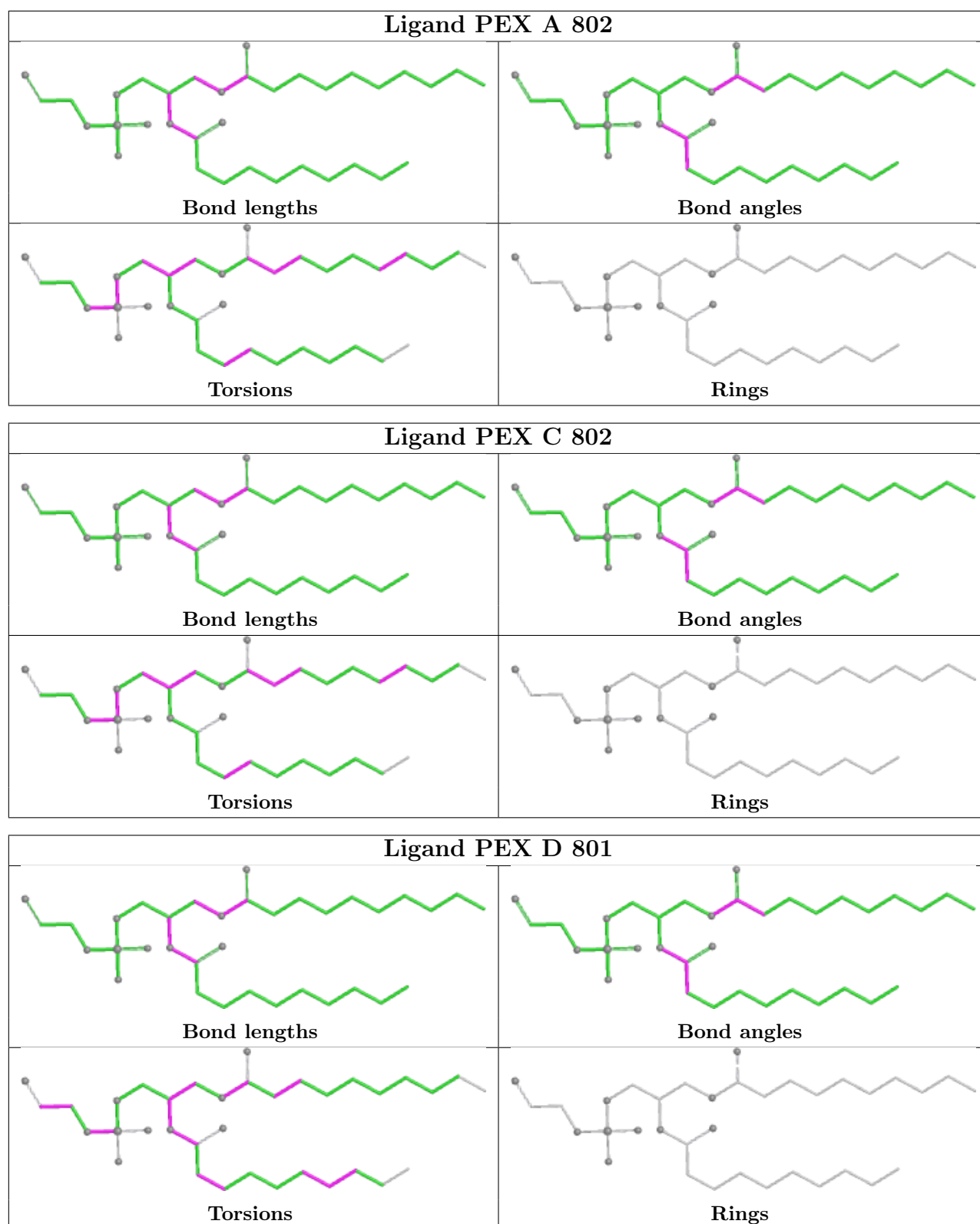
Mol	Chain	Res	Type	Atoms
2	A	801	PEX	C24-O8-P1-O1
2	A	801	PEX	C24-O8-P1-O2
2	A	801	PEX	C24-O8-P1-O3
2	A	801	PEX	O8-C24-C25-N1
2	A	802	PEX	C1-O3-P1-O8

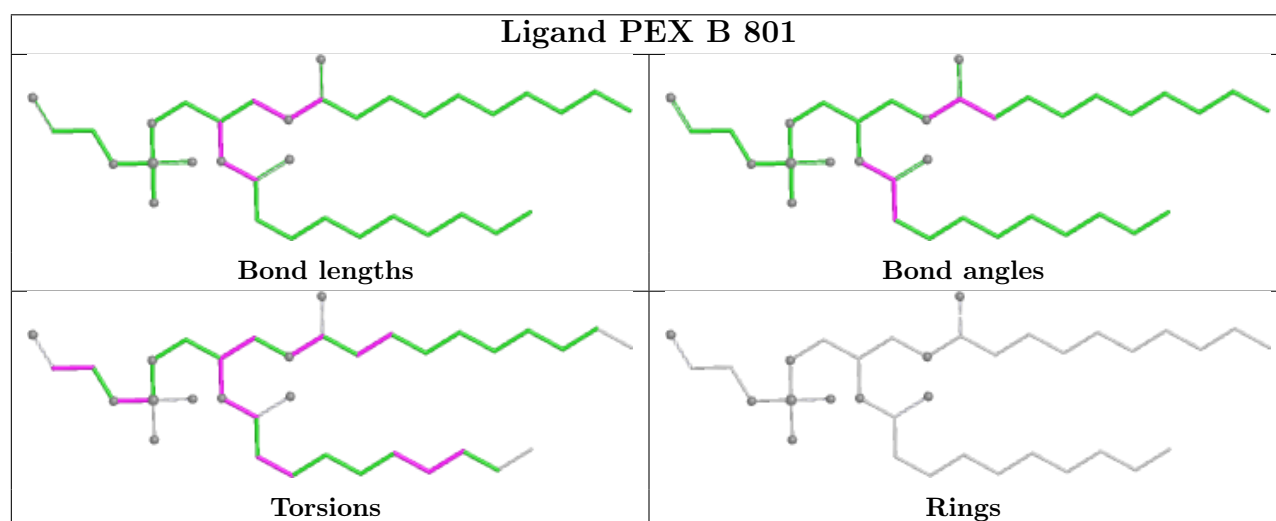
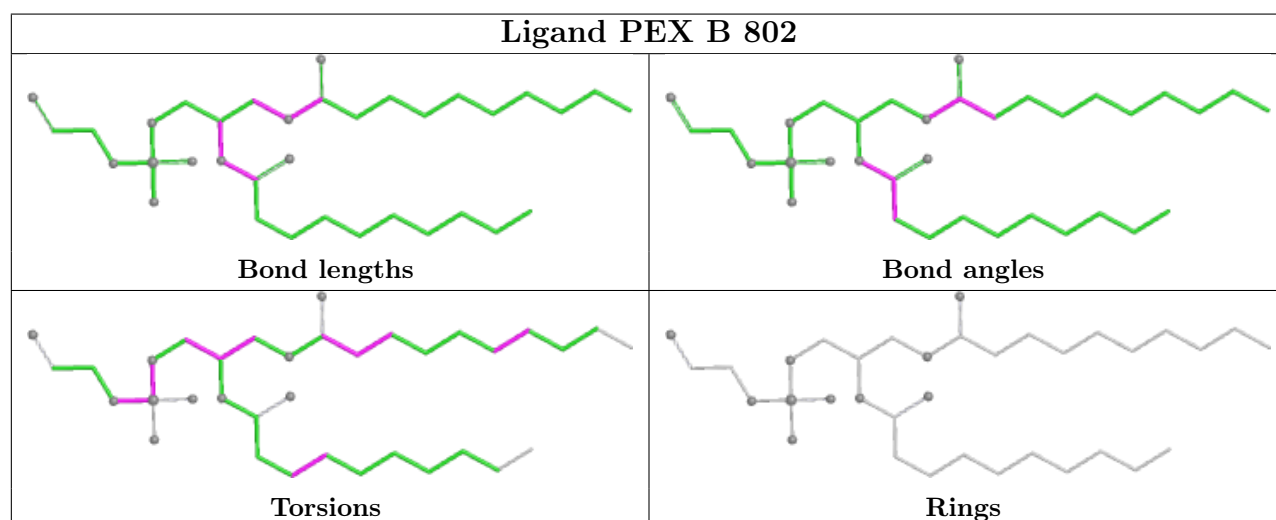
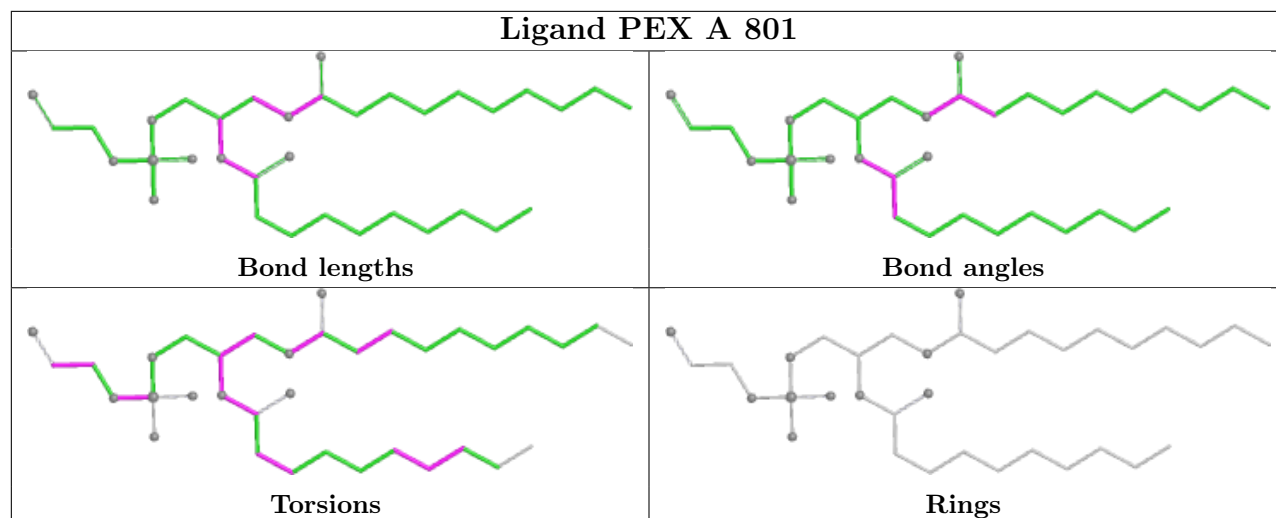
There are no ring outliers.

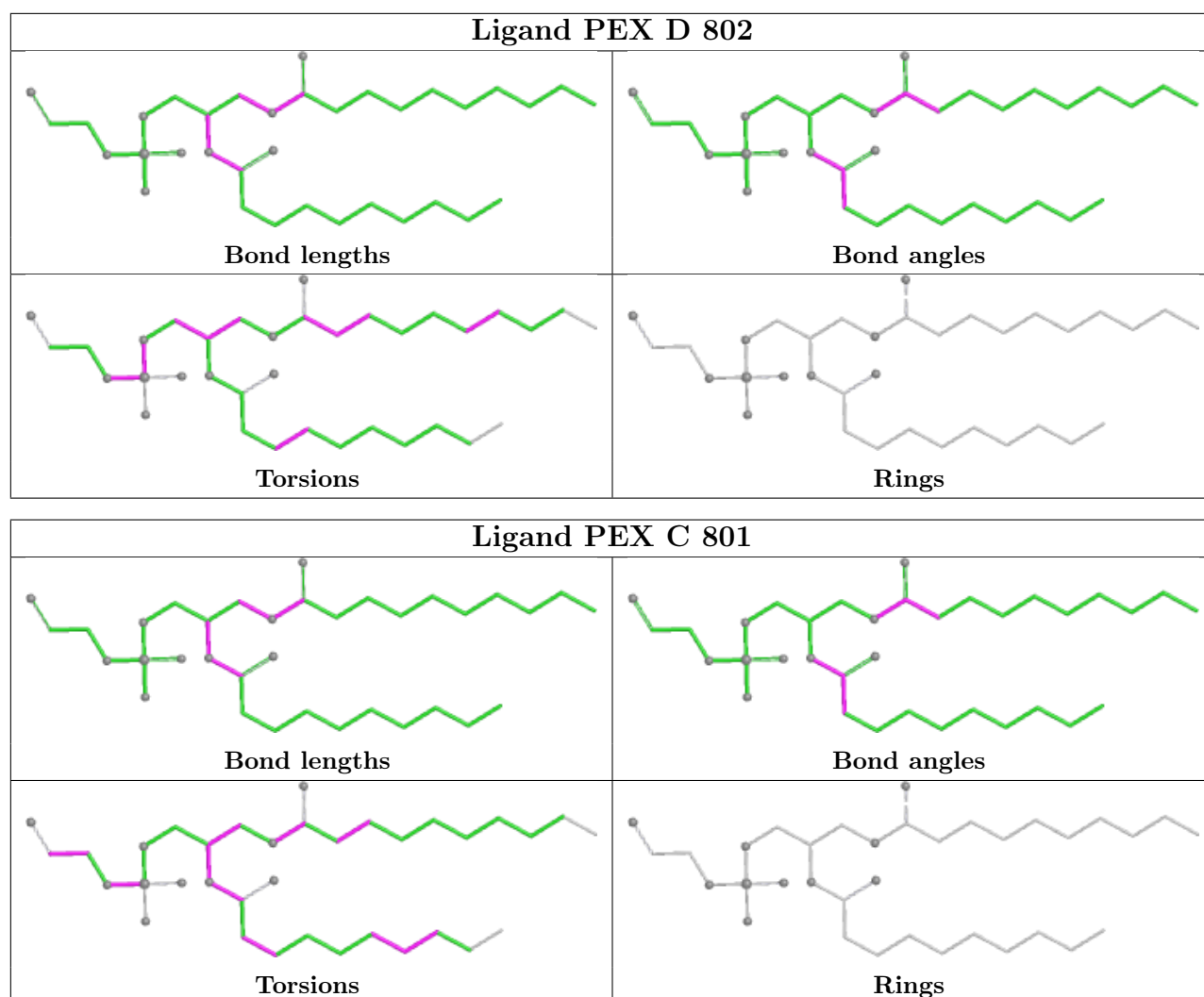
7 monomers are involved in 15 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	C	802	PEX	1	0
2	D	801	PEX	3	0
2	A	801	PEX	3	0
2	B	802	PEX	1	0
2	B	801	PEX	3	0
2	D	802	PEX	1	0
2	C	801	PEX	3	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.

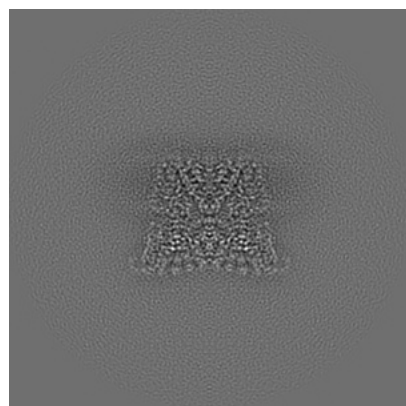
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-28209. These allow visual inspection of the internal detail of the map and identification of artifacts.

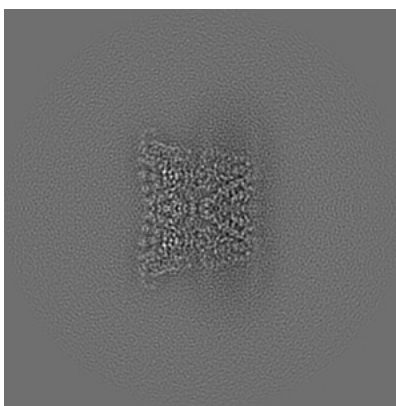
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

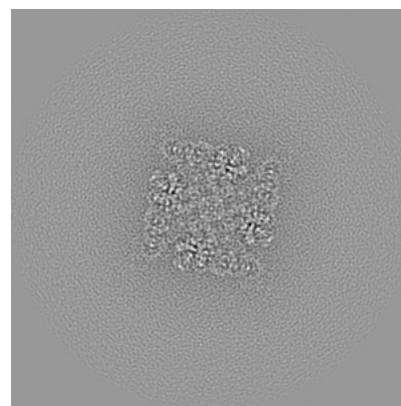
6.1.1 Primary map



X

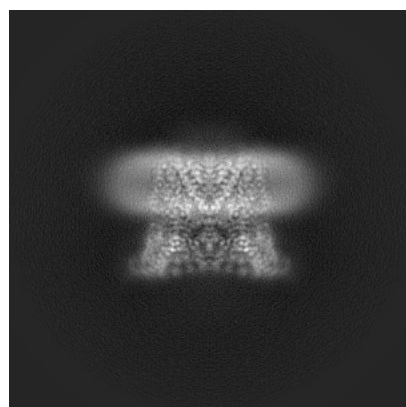


Y

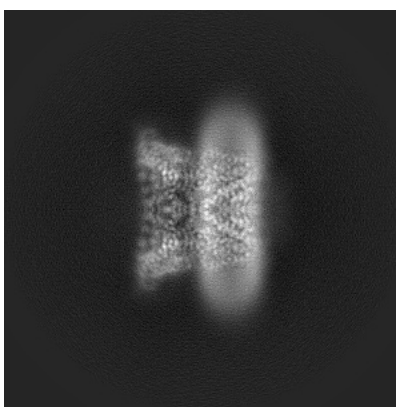


Z

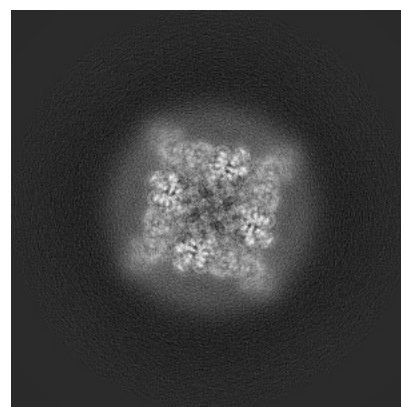
6.1.2 Raw map



X



Y

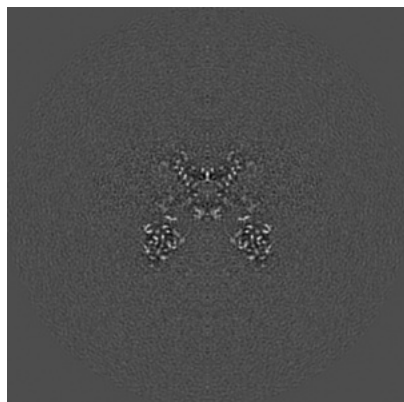


Z

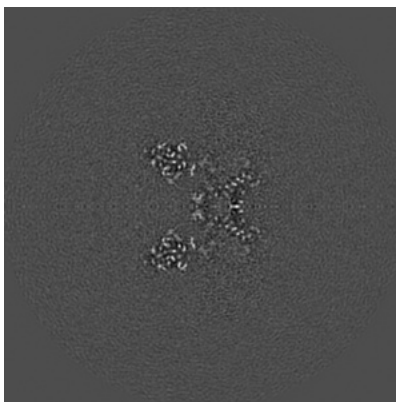
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

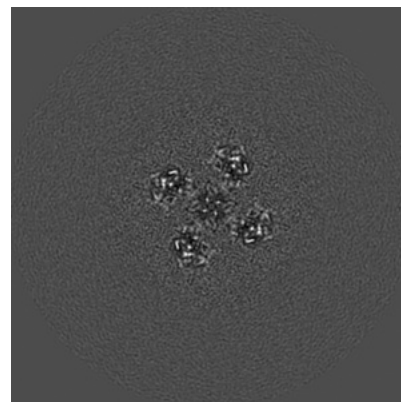
6.2.1 Primary map



X Index: 208

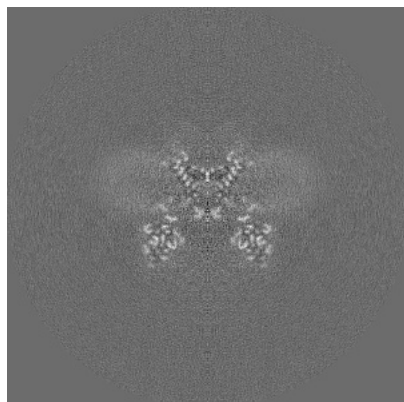


Y Index: 208

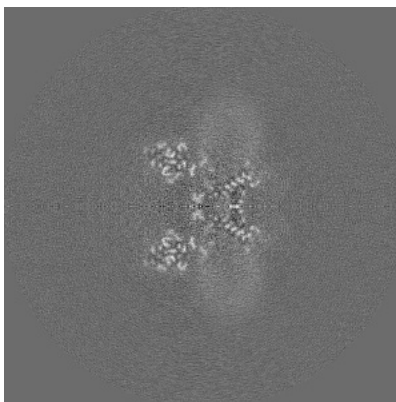


Z Index: 208

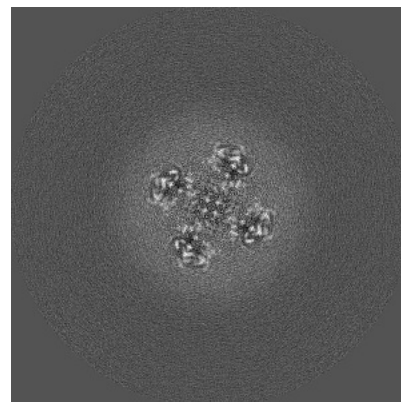
6.2.2 Raw map



X Index: 208



Y Index: 208

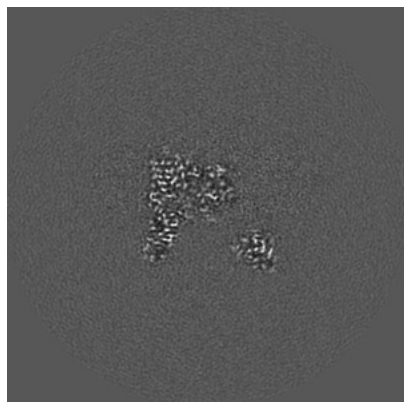


Z Index: 208

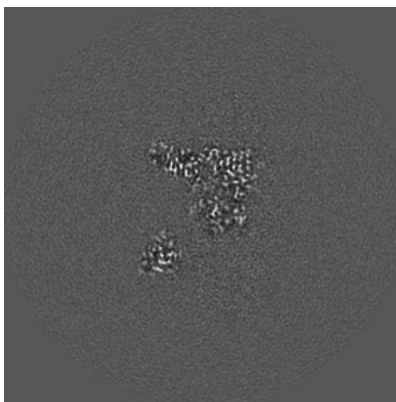
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

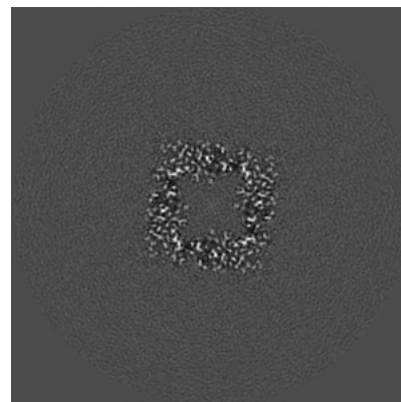
6.3.1 Primary map



X Index: 195

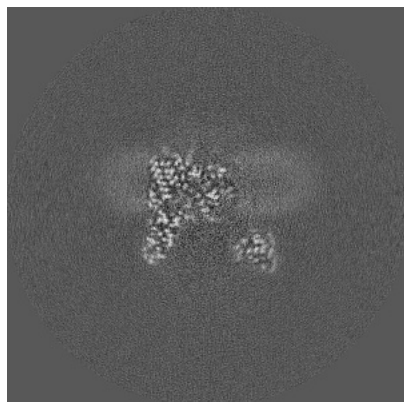


Y Index: 195

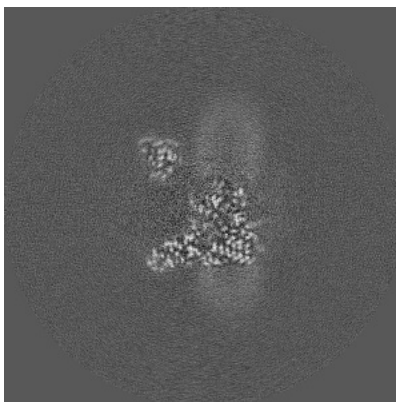


Z Index: 173

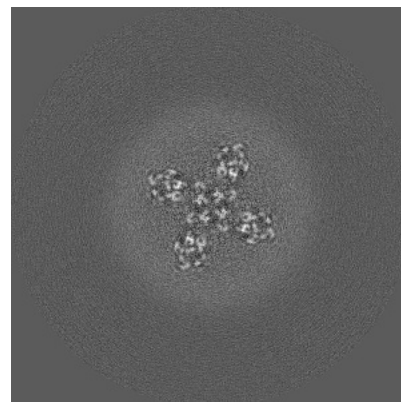
6.3.2 Raw map



X Index: 196



Y Index: 220

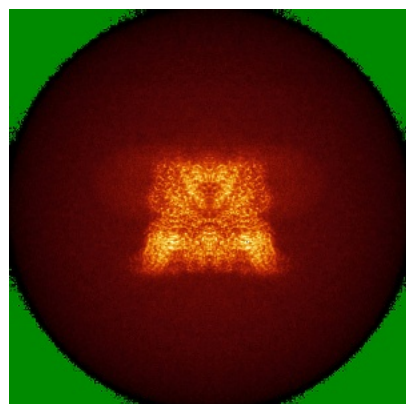


Z Index: 218

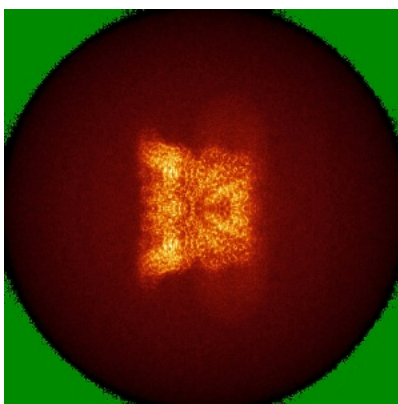
The images above show the largest variance slices of the map in three orthogonal directions.

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

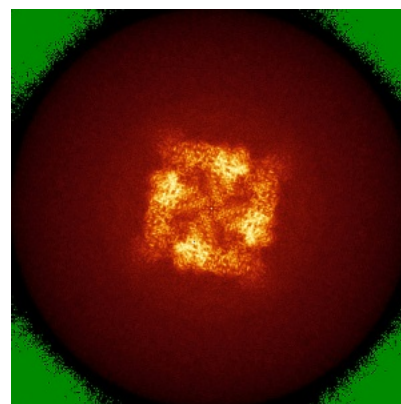
6.4.1 Primary map



X

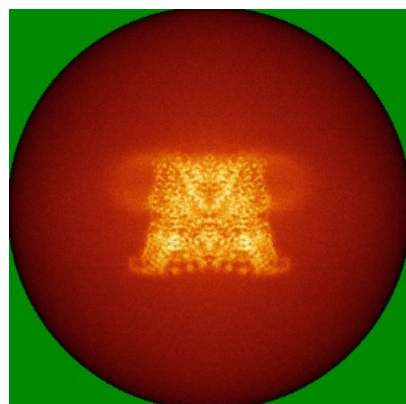


Y

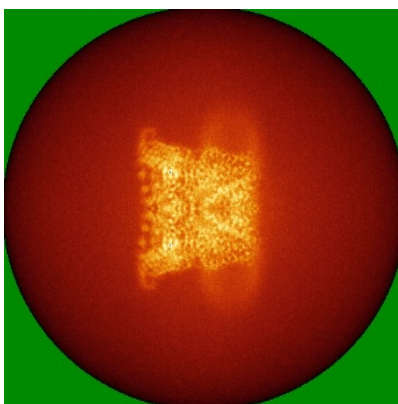


Z

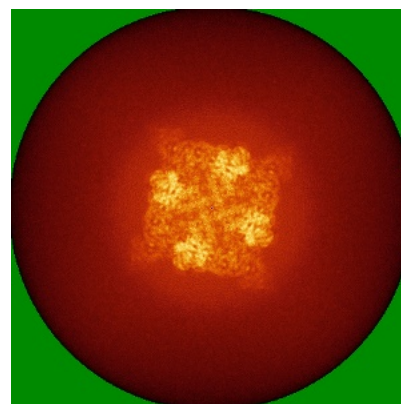
6.4.2 Raw map



X



Y



Z

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

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 3.5. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



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

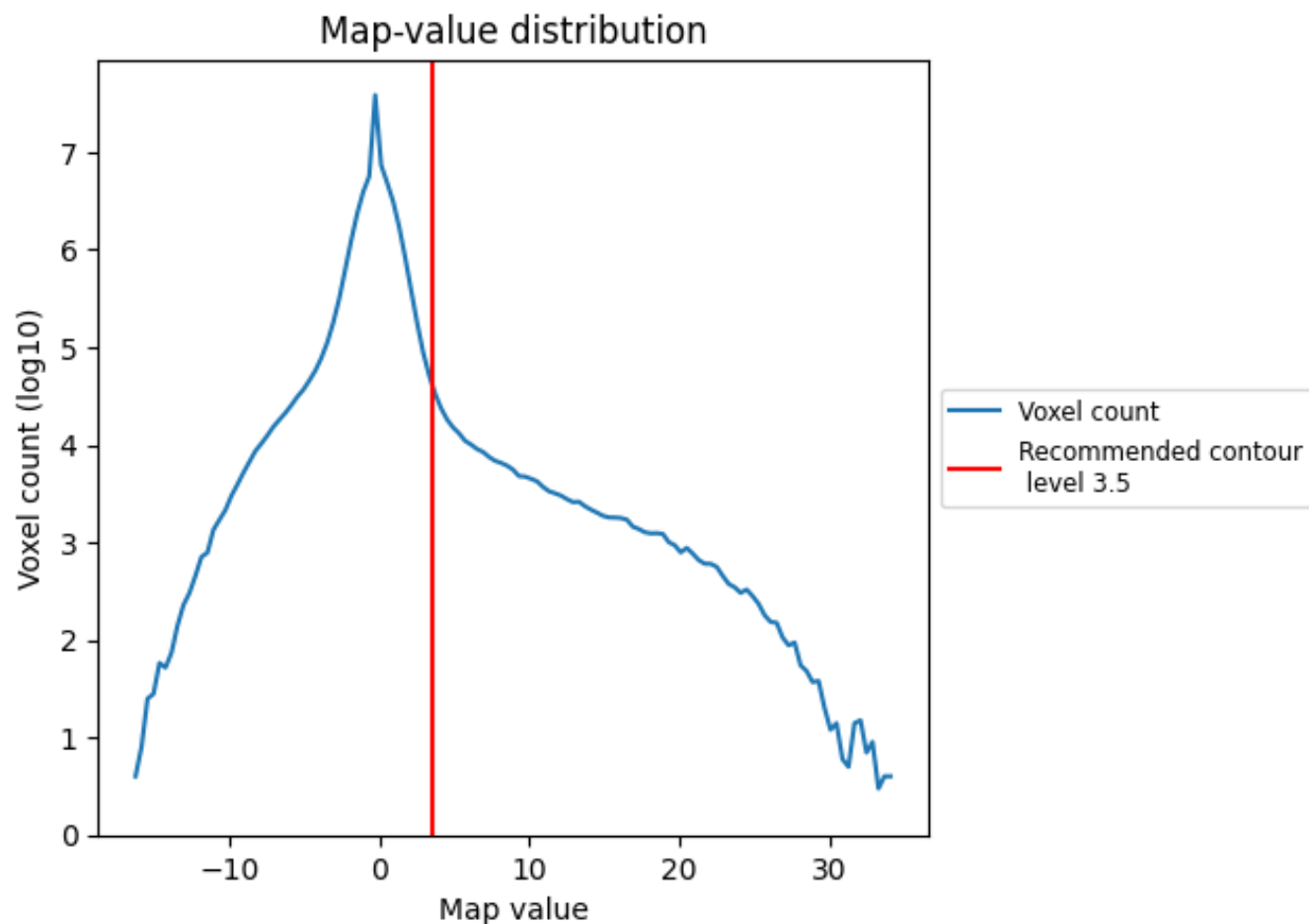
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

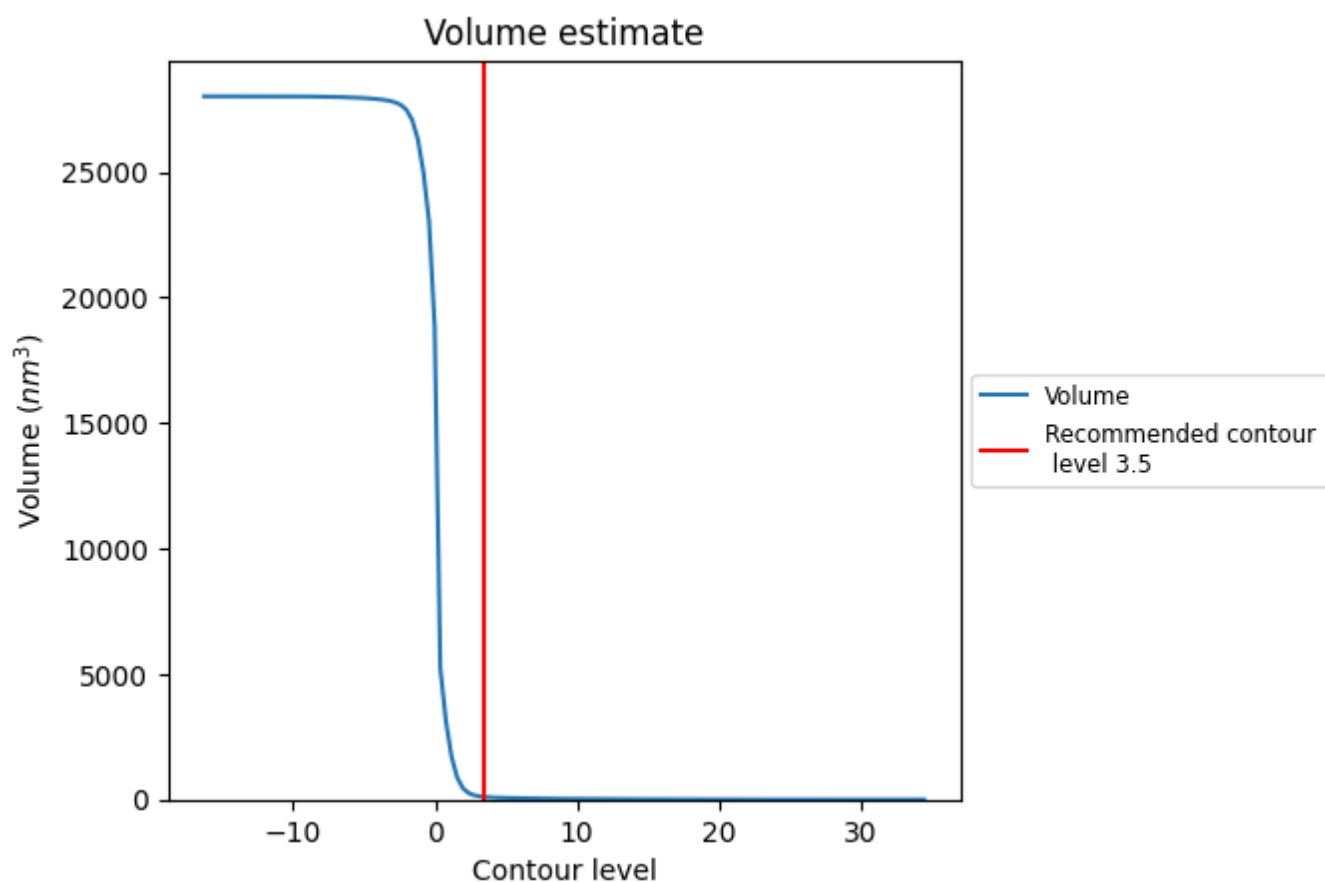
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

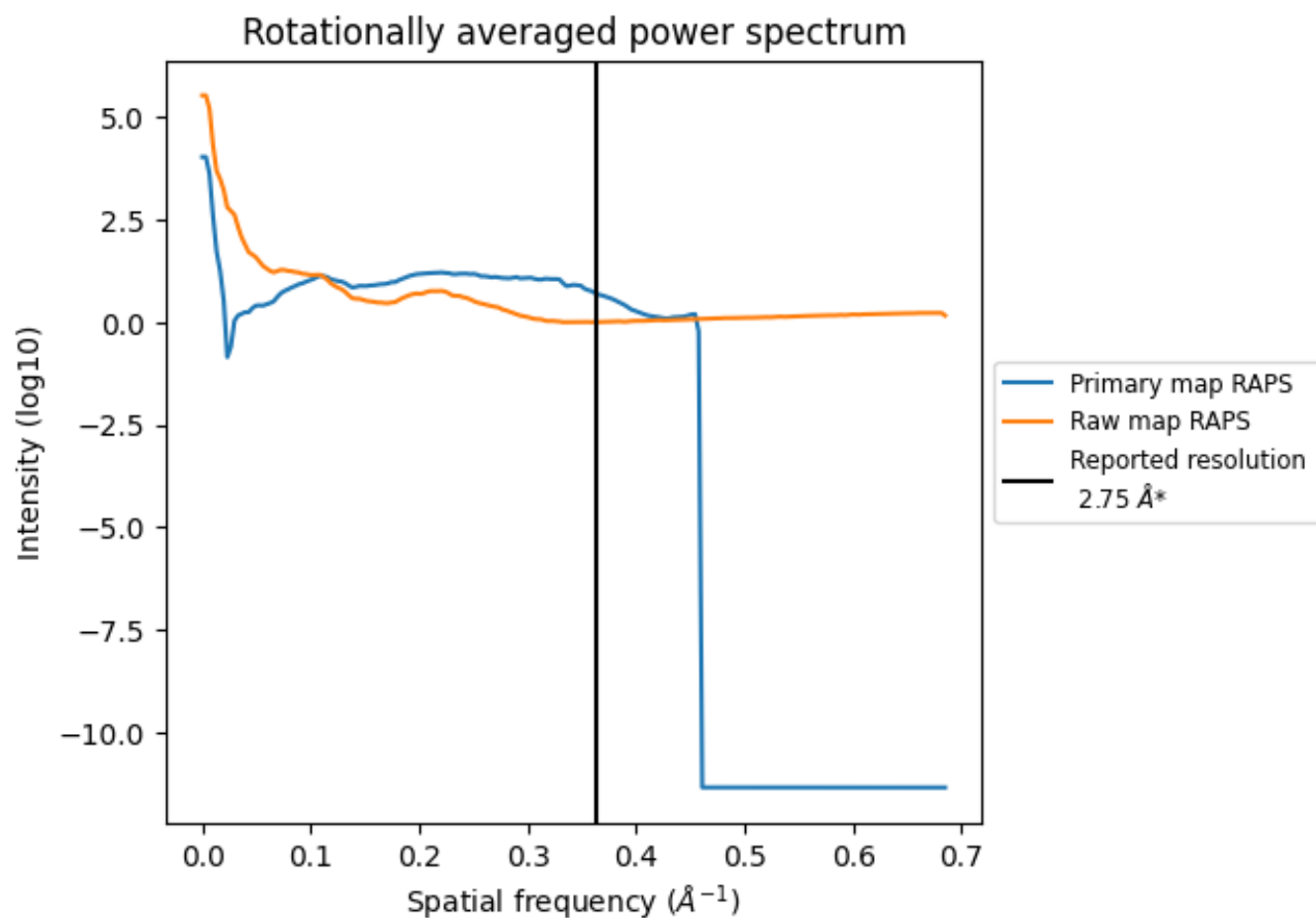
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 106 nm^3 ; this corresponds to an approximate mass of 95 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 ⓘ

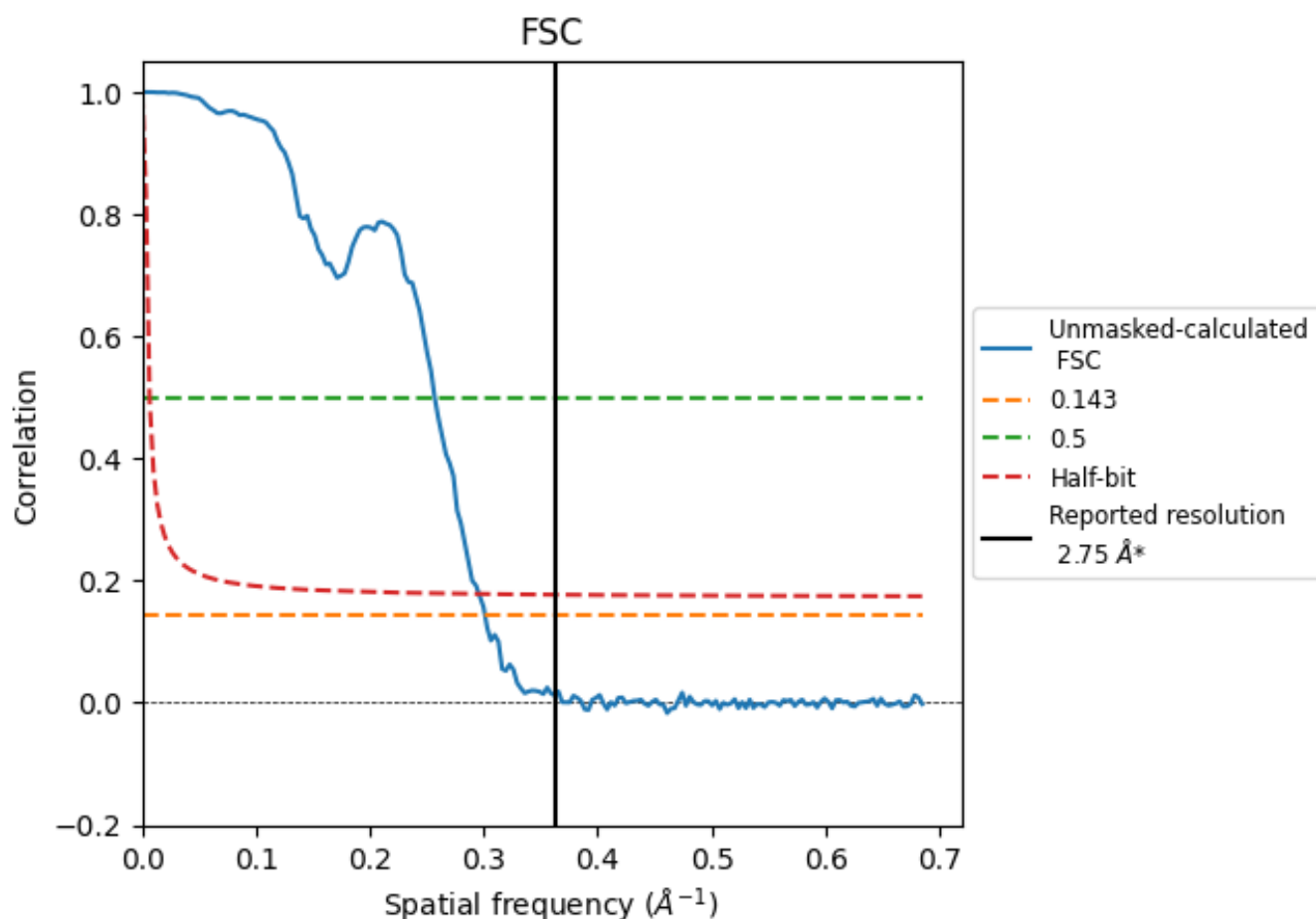


*Reported resolution corresponds to spatial frequency of 0.364 \AA^{-1}

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 0.364 \AA^{-1}

8.2 Resolution estimates [i](#)

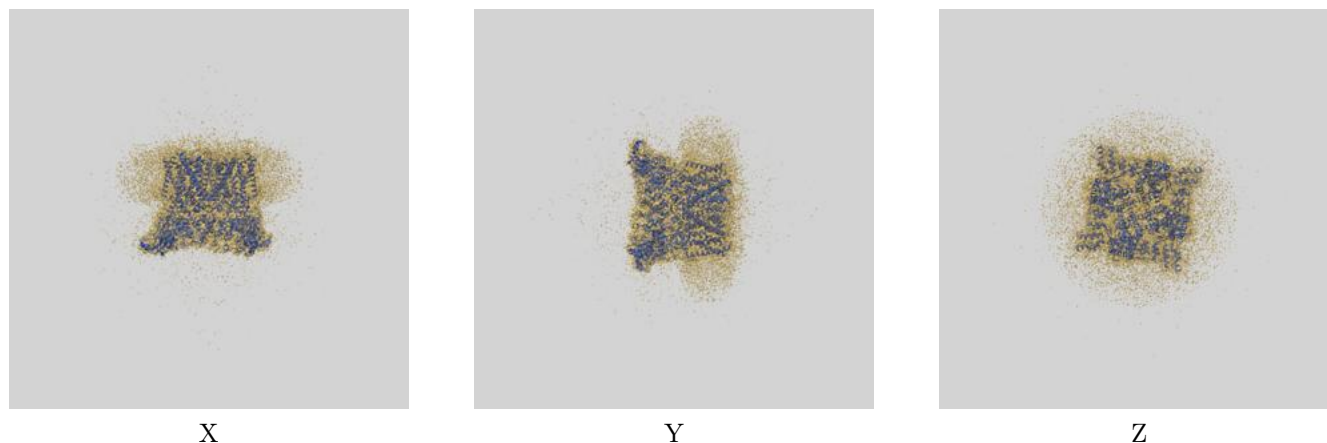
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.75	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.32	3.89	3.38

*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 3.32 differs from the reported value 2.75 by more than 10 %

9 Map-model fit [i](#)

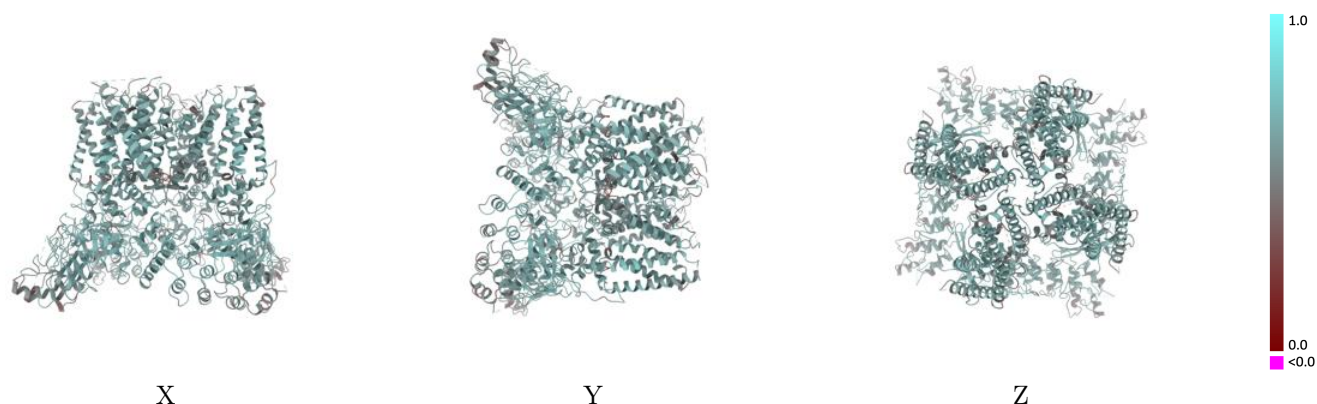
This section contains information regarding the fit between EMDB map EMD-28209 and PDB model 8EKP. Per-residue inclusion information can be found in section [3](#) on page [5](#).

9.1 Map-model overlay [i](#)



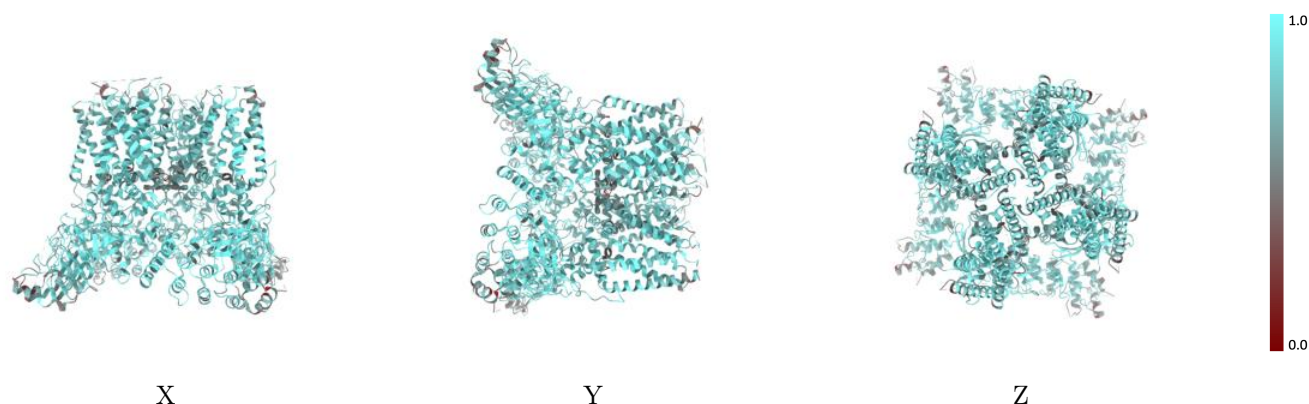
The images above show the 3D surface view of the map at the recommended contour level 3.5 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



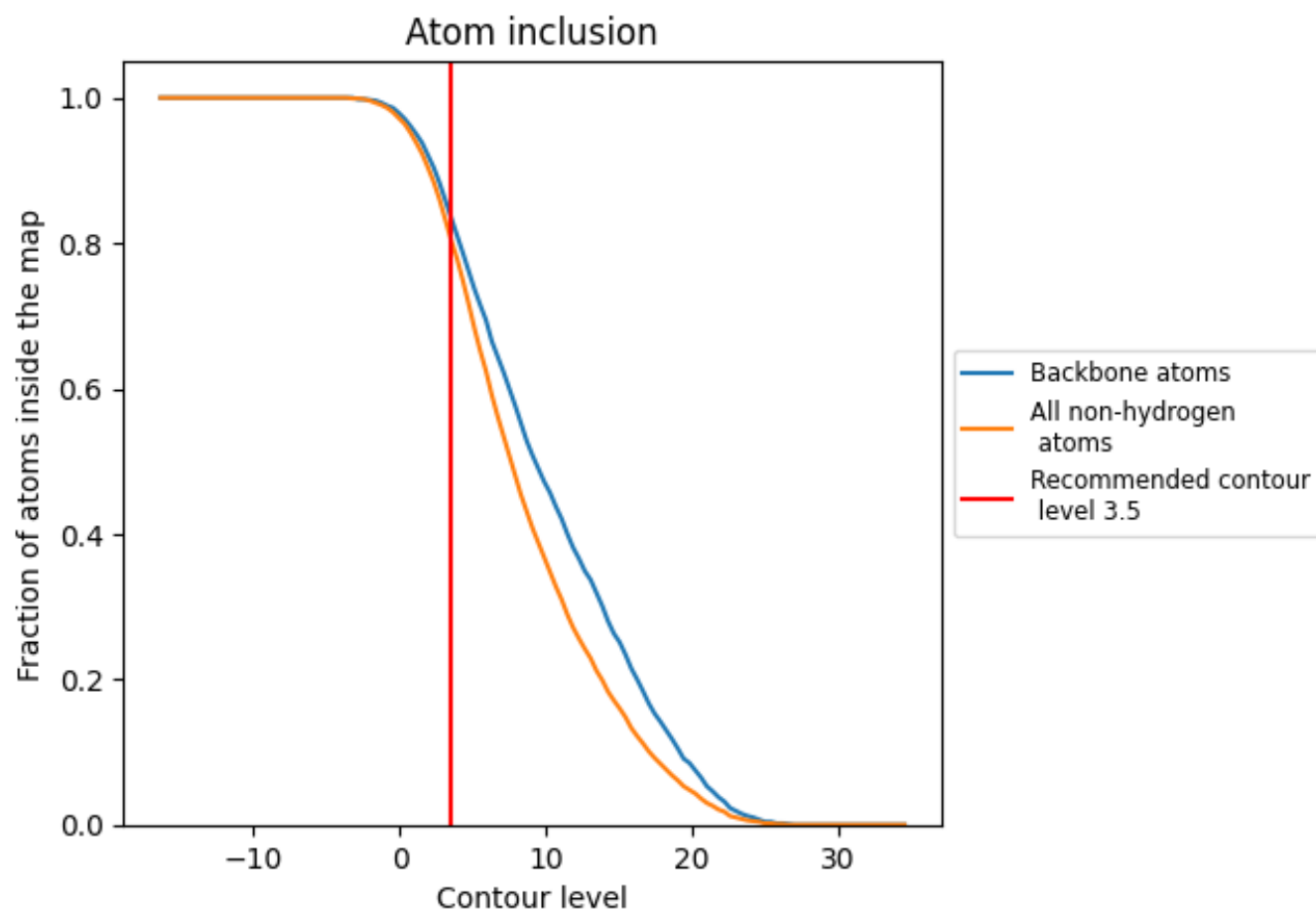
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (3.5).

9.4 Atom inclusion [i](#)



At the recommended contour level, 84% of all backbone atoms, 81% 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 (3.5) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	<div><div></div></div> 0.8070	<div><div></div></div> 0.5990
A	<div><div></div></div> 0.8070	<div><div></div></div> 0.5990
B	<div><div></div></div> 0.8070	<div><div></div></div> 0.5990
C	<div><div></div></div> 0.8070	<div><div></div></div> 0.5990
D	<div><div></div></div> 0.8070	<div><div></div></div> 0.5980

