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

Full wwPDB EM Validation Report ⓘ

May 2, 2023 – 10:19 AM EDT

PDB ID	:	8GH9
EMDB ID	:	EMD-40038
Title	:	Cryo-EM structure of hSlo1 in total membrane vesicles
Authors	:	Tao, X.; Zhao, C.; MacKinnon, R.
Deposited on	:	2023-03-09
Resolution	:	3.80 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

The following versions of software and data (see references ⓘ) were used in the production of this report:

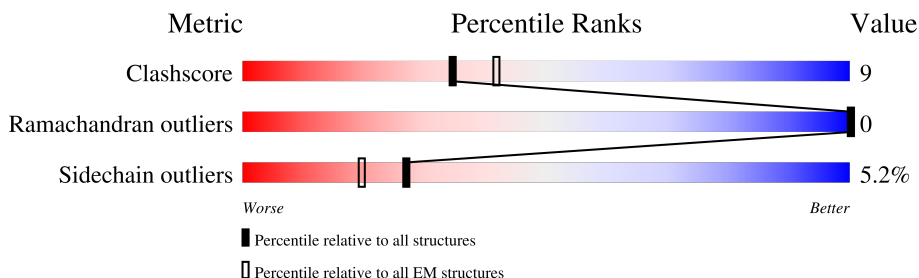|		
EMDB validation analysis	:	0.0.1.dev50
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.9
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.32.2

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	Percentile Ranks	Value
Clashscore		9
Ramachandran outliers		0
Sidechain outliers		5.2%

Worse   *Better*

▌ Percentile relative to all structures

▯ Percentile relative to all EM structures

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 <=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	1072	9% / 56% 20% • 23%
1	B	1072	9% / 58% 19% • 22%
1	C	1072	12% / 61% 18% • 19%
1	D	1072	11% / 62% 17% • 20%

2 Entry composition ⓘ

There is only 1 type of molecule in this entry. The entry contains 27066 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 Calcium-activated potassium channel subunit alpha-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	830	Total	C	N	O	S	1	0
			6644	4314	1077	1208	45		
1	C	866	Total	C	N	O	S	1	0
			6900	4477	1125	1254	44		
1	B	831	Total	C	N	O	S	1	0
			6651	4319	1078	1209	45		
1	D	862	Total	C	N	O	S	1	0
			6871	4459	1121	1247	44		

There are 68 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-15	MET	-	expression tag	UNP Q12791
A	-14	ALA	-	expression tag	UNP Q12791
A	-13	PRO	-	expression tag	UNP Q12791
A	-12	SER	-	expression tag	UNP Q12791
A	-11	ARG	-	expression tag	UNP Q12791
A	-10	LEU	-	expression tag	UNP Q12791
A	-9	GLU	-	expression tag	UNP Q12791
A	-8	GLU	-	expression tag	UNP Q12791
A	-7	GLU	-	expression tag	UNP Q12791
A	-6	LEU	-	expression tag	UNP Q12791
A	-5	ARG	-	expression tag	UNP Q12791
A	-4	ARG	-	expression tag	UNP Q12791
A	-3	ARG	-	expression tag	UNP Q12791
A	-2	LEU	-	expression tag	UNP Q12791
A	-1	THR	-	expression tag	UNP Q12791
A	0	GLU	-	expression tag	UNP Q12791
A	1	PRO	-	expression tag	UNP Q12791
C	-15	MET	-	expression tag	UNP Q12791
C	-14	ALA	-	expression tag	UNP Q12791
C	-13	PRO	-	expression tag	UNP Q12791
C	-12	SER	-	expression tag	UNP Q12791
C	-11	ARG	-	expression tag	UNP Q12791

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

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Chain	Residue	Modelled	Actual	Comment	Reference
C	-10	LEU	-	expression tag	UNP Q12791
C	-9	GLU	-	expression tag	UNP Q12791
C	-8	GLU	-	expression tag	UNP Q12791
C	-7	GLU	-	expression tag	UNP Q12791
C	-6	LEU	-	expression tag	UNP Q12791
C	-5	ARG	-	expression tag	UNP Q12791
C	-4	ARG	-	expression tag	UNP Q12791
C	-3	ARG	-	expression tag	UNP Q12791
C	-2	LEU	-	expression tag	UNP Q12791
C	-1	THR	-	expression tag	UNP Q12791
C	0	GLU	-	expression tag	UNP Q12791
C	1	PRO	-	expression tag	UNP Q12791
B	-15	MET	-	expression tag	UNP Q12791
B	-14	ALA	-	expression tag	UNP Q12791
B	-13	PRO	-	expression tag	UNP Q12791
B	-12	SER	-	expression tag	UNP Q12791
B	-11	ARG	-	expression tag	UNP Q12791
B	-10	LEU	-	expression tag	UNP Q12791
B	-9	GLU	-	expression tag	UNP Q12791
B	-8	GLU	-	expression tag	UNP Q12791
B	-7	GLU	-	expression tag	UNP Q12791
B	-6	LEU	-	expression tag	UNP Q12791
B	-5	ARG	-	expression tag	UNP Q12791
B	-4	ARG	-	expression tag	UNP Q12791
B	-3	ARG	-	expression tag	UNP Q12791
B	-2	LEU	-	expression tag	UNP Q12791
B	-1	THR	-	expression tag	UNP Q12791
B	0	GLU	-	expression tag	UNP Q12791
B	1	PRO	-	expression tag	UNP Q12791
D	-15	MET	-	expression tag	UNP Q12791
D	-14	ALA	-	expression tag	UNP Q12791
D	-13	PRO	-	expression tag	UNP Q12791
D	-12	SER	-	expression tag	UNP Q12791
D	-11	ARG	-	expression tag	UNP Q12791
D	-10	LEU	-	expression tag	UNP Q12791
D	-9	GLU	-	expression tag	UNP Q12791
D	-8	GLU	-	expression tag	UNP Q12791
D	-7	GLU	-	expression tag	UNP Q12791
D	-6	LEU	-	expression tag	UNP Q12791
D	-5	ARG	-	expression tag	UNP Q12791
D	-4	ARG	-	expression tag	UNP Q12791
D	-3	ARG	-	expression tag	UNP Q12791

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Chain	Residue	Modelled	Actual	Comment	Reference
D	-2	LEU	-	expression tag	UNP Q12791
D	-1	THR	-	expression tag	UNP Q12791
D	0	GLU	-	expression tag	UNP Q12791
D	1	PRO	-	expression tag	UNP Q12791

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: Calcium-activated potassium channel subunit alpha-1

• Molecule 1: Calcium-activated potassium channel subunit alpha-1

Chain C:

D833 ASP SER ILE GLY VAL LEU GLN ALA ASN SER GLN GLY PHE THR PRO PRO GLY MET ASP ARG SER SER PRO ASP ASN SER PRO VAL HIS GLY MET LEU ARG GLN GLN PRO ILE T871 T872 G873 I876 P877 V883 D892 Q893 D894 D885 D896 D897 D898 P899 D900 T901 L905

T906 Q907 P908 D921 S922 L923 T927 Y928 D931 I937 R938 T942 G962 R972 D973 R974 C975 R976 Q979 L980 A981 L982 L983 D984 D989 L990 G991 D992 C1001 M1009 L1010 C1011 Y1015 R1016 L1017 R1018 S1023 S1026 Q1027 C1028 I1034 F1041 V1044

P1045 T1046 I1049 F1050 C1051 L1052 M1053 D1056

• Molecule 1: Calcium-activated potassium channel subunit alpha-1

9%

Chain B: 58%   19%   •   22%

MET ALA PRO SER ARG LEU GLU GLU GLU GLU LEU ARG ARG ARG LEU THR GLU PRO ASP ALA LEU ILE ILE PRO VAL THR MET GLU VAL PRO CYS ASP SER ARG GLY Q19 R20 M21 W22 W23 A24 F25 L26 A27 S28 S29 M30 V31 T32 F33 PHE GLY LEU PHE ILE ILE LEU LEU TRP ARG

THR LEU LYS TYR LEU TRP THR VAL CYS CYS HIS CYS GLY GLY LYS THR LYS GLU ALA GLN LYS ILE ASN ASN GLY SER SER GLN GLN ALA ASP THR LEU LYS PRO VAL ASP GLU LYS GLU GLU ALA VAL ALA GLU VAL GLY W93 V97 K98 D99 W100 A101 G102 V103 M104 I105 S106

A107 Q108 T109 L110 R113 V114 L115 V116 V117 L118 V119 F120 A121 L122 S123 I124 L127 V128 I129 Y130 F131 I132 D133 N136 P137 I138 F144 Y145 K146 D147 Q151 I152 D153 M154 A155 F159 F160 L161 L162 Y163 F164 G165 L166 R167 F168 N172 D173 K174 L175 W176 F177 W178 L179

E180 V185 F188 T189 V190 P191 F194 V195 S196 V197 Y198 L199 N200 R201 L204 G205 L206 R207 F208 L209 R210 R213 L214 I215 Q216 F217 Q222 F223 L224 N225 K228 T229 S230 N231 L235 L238 I241 F242 T245 T248 V256 S259 G260 D261 F266

Q267 N268 N269 T273 E276 Y279 M285 S286 Y290 G291 D292 V293 Y294 A295 K296 T297 T298 L299 G300 R301 L302 F303 M304 F307 I308 G311 A316 V319 P320 E321 I322 L325 I326 R329 K330 R342 K343 V346 I351 T352 L353 E354 S355 V356 S357 N358

F359 L360 K361 D362 K366 D367 R368 D369 D370 V371 N372 L378 H379 N384 L385 E386 L387 E388 A389 L390 R393 H394 F395 V398 Q402 H409 D410 L411 A412 R413 V414 K415 I416 A426 C430 A431 D432 P433 D434 A435 N440 S446 H468 L469 L470 N471 W475

E488 L491 G492 F493 I494 A495 C498 L503 F511 E520 G547 L548 S549 F550 V553 C554 E555 Y570 LYS SER ALA ASN ARG GLU SER ARG ILE LEU ILE ASN PRO GLY ASN HIS LEU LYS ILE GLN E591 G592 T593 E604 V605 K606 R607 A608 F609 F610 Y611 C612

K613 ALA CYS HIS ASP ASP ILE THR ASP ASP PRO LYS ARG ILE LYS LYS CYS GLY CYS LYS ARG LEU GLU ASP GLU GLN GLN PRO SER THR LEU SER PRO LYS LYS LYS GLN ARG ASN GLY GLY MET ARG ASN SER PRO ASN THR SER PRO LYS LEU MET ARG HIS ASP PRO LEU LEU ILE PRO GLY

ASN ASP GLN ILE ASP ASN MET ASP SER ASN V683 D687 H693 I732 G733 L734 R735 N736 L737 R742 A743 S744 N745 F746 L751 V755 I760 E761 Y762 L763 K764 T769 K775 V776 S777 R786 L789 R790 N795 L796 C797 D798 M799 C800 Q807 N808 N809

I810 D811 D812 T813 S814 D817 S829 D833 ASP SER ILE GLY VAL LEU GLN ALA ASN SER GLN GLY PHE THR PRO PRO GLY MET ASP ARG SER SER PRO ASP ASN SER PRO VAL HIS GLY MET LEU ARG GLN GLN PRO ILE T871 I876 I879 T880 E881 L882 V883 N884 D885

• Molecule 1: Calcium-activated potassium channel subunit alpha-1

11%

Chain D: 62% 17% • 20%

Q1054 F1055 D1056

4 Experimental information ⓘ

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C2	Depositor
Number of particles used	85135	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 $(e^-/\text{Å}^2)$	51.4	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	1.660	Depositor
Minimum map value	-1.035	Depositor
Average map value	0.009	Depositor
Map value standard deviation	0.063	Depositor
Recommended contour level	0.25	Depositor
Map size (Å)	276.48, 276.48, 276.48	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.08, 1.08, 1.08	Depositor

5   Model quality (i)

5.1   Standard geometry (i)

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	0/6796	0.54	1/9219 (0.0%)
1	B	0.28	0/6803	0.52	0/9229
1	C	0.28	0/7058	0.54	5/9575 (0.1%)
1	D	0.28	0/7027	0.54	3/9532 (0.0%)
All	All	0.28	0/27684	0.53	9/37555 (0.0%)

There are no bond length outliers.

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	161	LEU	CA-CB-CG	7.18	131.83	115.30
1	C	206	LEU	CA-CB-CG	7.13	131.70	115.30
1	D	235	LEU	CA-CB-CG	6.50	130.24	115.30
1	D	209	LEU	CA-CB-CG	6.32	129.83	115.30
1	D	726	ASP	CB-CG-OD2	5.86	123.57	118.30
1	C	302	LEU	CA-CB-CG	5.65	128.30	115.30
1	C	115	LEU	CA-CB-CG	5.56	128.09	115.30
1	C	726	ASP	CB-CG-OD2	5.46	123.21	118.30
1	A	214	LEU	CA-CB-CG	5.34	127.57	115.30

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	6644	0	6608	138	0
1	B	6651	0	6617	115	0
1	C	6900	0	6872	124	0
1	D	6871	0	6853	112	0
All	All	27066	0	26950	475	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 9.

All (475) 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:491:LEU:HD12	1:A:737:LEU:HB2	1.58	0.83
1:B:411:LEU:HD12	1:B:416:ILE:HD13	1.67	0.77
1:A:827:ILE:HD13	1:A:878:ILE:HD11	1.67	0.76
1:B:164:PHE:HA	1:B:167:ARG:HE	1.51	0.76
1:D:538:THR:HG23	1:D:930:ASN:HD21	1.50	0.75
1:C:161:LEU:HA	1:C:164:PHE:HB3	1.69	0.73
1:A:500:ALA:HA	1:A:1050:PHE:HD2	1.53	0.72
1:B:488:GLU:HA	1:B:736:ASN:HD22	1.57	0.69
1:B:807:GLN:NE2	1:B:808:ASN:OD1	2.27	0.68
1:D:119:VAL:HB	1:D:213:ARG:HD2	1.76	0.68
1:B:971:ASN:H	1:B:1056:ASP:HB2	1.59	0.67
1:A:305:VAL:HG23	1:C:282:MET:HG2	1.74	0.67
1:A:241:ILE:HD11	1:A:318:TYR:HE2	1.60	0.66
1:C:330:LYS:HZ3	1:C:331:LYS:H	1.41	0.66
1:A:512:SER:OG	1:A:514:ARG:NH2	2.29	0.65
1:A:484:ILE:HG22	1:A:934:LEU:HD11	1.77	0.65
1:B:755:VAL:HG12	1:B:777:SER:HB2	1.77	0.65
1:A:273:THR:HG23	1:A:275:TRP:H	1.60	0.65
1:C:295:ALA:O	1:C:301:ARG:NH2	2.30	0.64
1:A:742:ARG:NH2	1:A:774:PRO:O	2.31	0.64
1:D:727:VAL:O	1:D:765:ARG:NH1	2.29	0.64
1:A:378:LEU:HD11	1:A:414:VAL:HG21	1.79	0.63
1:A:471:ASN:ND2	1:C:826[B]:ASN:OD1	2.31	0.63
1:C:799:MET:SD	1:C:800:CYS:N	2.71	0.63
1:D:541:LEU:HD12	1:D:545:PHE:HD2	1.63	0.63
1:C:284:THR:OG1	1:B:290:TYR:OH	2.17	0.62
1:A:339:VAL:HB	1:A:342:ARG:HH21	1.64	0.62
1:A:1017:LEU:HB3	1:A:1031:ARG:HD3	1.80	0.62
1:B:471:ASN:ND2	1:D:826[B]:ASN:OD1	2.33	0.62
1:D:402:GLN:O	1:D:413:ARG:NH2	2.32	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:742:ARG:HD3	1:B:751:LEU:HD11	1.82	0.61
1:A:892:ASP:OD2	1:A:1030:LYS:NZ	2.34	0.61
1:C:471:ASN:OD1	1:B:786:ARG:NH2	2.34	0.61
1:C:1018:ARG:NH1	1:C:1028:CYS:SG	2.74	0.60
1:C:1044:VAL:HG12	1:C:1046:THR:H	1.65	0.60
1:C:222:GLN:NE2	1:C:227:LEU:O	2.33	0.60
1:A:528:TYR:HE2	1:A:905:LEU:HA	1.67	0.60
1:C:1010:LEU:HD23	1:C:1052:LEU:HD12	1.82	0.60
1:C:410:ASP:OD1	1:C:413:ARG:NH2	2.31	0.60
1:A:756:PHE:HB2	1:A:778:ILE:HD13	1.83	0.59
1:C:367:ASP:OD1	1:C:367:ASP:N	2.35	0.59
1:B:189:THR:HG23	1:B:190:VAL:HG23	1.82	0.59
1:C:976:ARG:NH2	1:C:1053:MET:SD	2.75	0.59
1:C:123:SER:HA	1:C:127:LEU:HD23	1.83	0.59
1:C:365:HIS:ND1	1:C:367:ASP:OD1	2.36	0.59
1:D:565:MET:HE2	1:D:597:PHE:HE1	1.66	0.59
1:A:190:VAL:HG23	1:A:191:PRO:HD3	1.85	0.59
1:A:560:LYS:HD3	1:A:1000:PHE:HE2	1.67	0.59
1:C:118:LEU:HB2	1:C:159:PHE:HD2	1.65	0.59
1:D:159:PHE:HA	1:D:162:LEU:HD12	1.85	0.59
1:D:582:ASN:HD22	1:D:1010:LEU:HD22	1.68	0.58
1:D:1010:LEU:HD23	1:D:1052:LEU:HD12	1.85	0.58
1:D:482:ASP:HB3	1:D:934:LEU:HD23	1.83	0.58
1:D:214:LEU:HA	1:D:217:PHE:HB2	1.84	0.58
1:A:689:THR:HG21	1:A:949:LEU:HD21	1.84	0.58
1:C:157:ASN:O	1:C:161:LEU:HD12	2.04	0.58
1:A:735:ARG:NH1	1:A:769:THR:OG1	2.36	0.58
1:B:351:ILE:HD11	1:B:379:HIS:HB2	1.86	0.58
1:D:992:ASP:OD1	1:D:992:ASP:N	2.35	0.58
1:C:335:SER:OG	1:C:336:TYR:N	2.37	0.58
1:A:488:GLU:OE2	1:A:938:ARG:NH1	2.37	0.57
1:C:606:LYS:NZ	1:C:606:LYS:O	2.37	0.57
1:C:529:LEU:HA	1:C:532:VAL:HG12	1.86	0.57
1:D:161:LEU:HA	1:D:164:PHE:HB3	1.86	0.57
1:D:611:TYR:O	1:D:613:LYS:NZ	2.37	0.57
1:A:351:ILE:HD11	1:A:379:HIS:HB2	1.85	0.57
1:B:471:ASN:ND2	1:D:826[A]:ASN:OD1	2.36	0.57
1:C:527:TYR:HB3	1:C:1034:ILE:HD11	1.86	0.57
1:C:876:ILE:HD12	1:C:876:ILE:H	1.69	0.57
1:D:606:LYS:O	1:D:606:LYS:NZ	2.36	0.57
1:D:261:ASP:HB3	1:D:264:GLU:HB2	1.86	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:254:HIS:O	1:A:258:ASN:ND2	2.38	0.57
1:C:989:ASP:OD1	1:C:989:ASP:N	2.36	0.57
1:B:547:GLY:HA2	1:B:553:VAL:HG11	1.87	0.57
1:C:567:ALA:HB2	1:C:581:ILE:HD13	1.86	0.57
1:C:33:PHE:HB2	1:C:187:PHE:HZ	1.69	0.56
1:D:140:SER:O	1:D:142:GLN:NE2	2.38	0.56
1:B:892:ASP:OD2	1:B:1030:LYS:NZ	2.36	0.56
1:A:113:ARG:NH2	1:A:223:PHE:O	2.38	0.56
1:A:149:THR:HG22	1:A:151:GLN:H	1.69	0.56
1:A:871:THR:OG1	1:A:872:THR:N	2.36	0.56
1:C:370:ASP:N	1:C:370:ASP:OD1	2.39	0.56
1:C:445:ILE:HD13	1:C:472:ILE:HD12	1.86	0.56
1:C:541:LEU:HD12	1:C:545:PHE:HD2	1.71	0.56
1:B:390:LEU:HA	1:B:393:ARG:NH1	2.21	0.56
1:D:166:LEU:HA	1:D:169:ILE:HG22	1.87	0.56
1:A:342:ARG:NH1	1:A:343:LYS:O	2.38	0.56
1:C:563:LEU:HD21	1:C:605:VAL:HA	1.87	0.56
1:D:164:PHE:HA	1:D:167:ARG:HB2	1.88	0.56
1:D:426:ALA:HB2	1:D:440:ASN:HD21	1.70	0.56
1:A:833:ASP:N	1:A:833:ASP:OD1	2.36	0.56
1:B:261:ASP:OD2	1:B:268:ASN:ND2	2.40	0.55
1:D:942:THR:HG22	1:D:944:GLY:H	1.71	0.55
1:D:410:ASP:OD1	1:D:413:ARG:NH2	2.32	0.55
1:A:786:ARG:NH2	1:D:471:ASN:OD1	2.38	0.55
1:C:814:SER:OG	1:C:815:LEU:N	2.40	0.55
1:B:99:ASP:O	1:B:103:VAL:HG13	2.06	0.55
1:B:1015:TYR:HB3	1:B:1048:LEU:HB2	1.89	0.55
1:D:104:MET:HA	1:D:109:THR:HG21	1.88	0.55
1:A:139:GLU:OE1	1:A:204:LEU:N	2.40	0.55
1:D:106:SER:OG	1:D:108:GLN:NE2	2.40	0.55
1:C:191:PRO:HA	1:C:194:PHE:HB2	1.88	0.55
1:D:233:ILE:O	1:D:237:ASN:ND2	2.40	0.55
1:B:469:LEU:HD21	1:B:475:TRP:CZ2	2.42	0.55
1:B:997:GLY:HA3	1:B:1039:TYR:CZ	2.41	0.55
1:C:407:ASN:OD1	1:C:410:ASP:N	2.33	0.54
1:C:561:LEU:HD12	1:C:607:ARG:HB2	1.88	0.54
1:C:402:GLN:O	1:C:413:ARG:NH2	2.40	0.54
1:A:140:SER:OG	1:A:141:CYS:N	2.41	0.54
1:A:147:ASP:OD1	1:A:147:ASP:N	2.40	0.54
1:A:287:THR:OG1	1:C:287:THR:O	2.26	0.54
1:D:210:ARG:HA	1:D:213:ARG:HH21	1.72	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:797:CYS:SG	1:B:798:ASP:N	2.81	0.54
1:B:292:ASP:OD1	1:B:292:ASP:N	2.40	0.54
1:C:364:LEU:HD11	1:C:397:GLN:HE21	1.72	0.54
1:B:378:LEU:HD21	1:B:414:VAL:HG21	1.88	0.54
1:A:175:LEU:HA	1:A:178:TRP:HD1	1.73	0.54
1:A:455:ARG:NH2	1:A:931:ASP:OD1	2.41	0.54
1:A:471:ASN:ND2	1:C:826[A]:ASN:OD1	2.41	0.54
1:A:707:ARG:NH2	1:A:788:ASP:OD1	2.40	0.54
1:C:283:VAL:HG23	1:C:288:VAL:HG23	1.89	0.54
1:A:292:ASP:OD1	1:A:292:ASP:N	2.39	0.54
1:D:976:ARG:NH2	1:D:1053:MET:SD	2.81	0.53
1:A:186:ASP:HA	1:A:189:THR:HG22	1.89	0.53
1:B:342:ARG:NH1	1:B:343:LYS:O	2.41	0.53
1:D:527:TYR:HB3	1:D:1034:ILE:HD11	1.89	0.53
1:C:186:ASP:HA	1:C:189:THR:HG22	1.91	0.53
1:C:217:PHE:HA	1:C:220:ILE:HD12	1.90	0.53
1:B:742:ARG:NH2	1:B:775:LYS:O	2.40	0.53
1:A:315:PHE:O	1:A:319:VAL:HG23	2.08	0.53
1:B:491:LEU:HD12	1:B:737:LEU:HB2	1.90	0.53
1:D:417:GLU:OE2	1:D:450:TYR:OH	2.26	0.53
1:C:143:ASN:HD22	1:C:146:LYS:HG2	1.74	0.53
1:D:686:TYR:OH	1:D:972:ARG:NH2	2.42	0.53
1:A:367:ASP:OD1	1:A:367:ASP:N	2.42	0.52
1:B:745:ASN:HD22	1:B:1053:MET:HB3	1.73	0.52
1:B:494:ILE:HG23	1:B:879:ILE:HD11	1.91	0.52
1:D:511:PHE:HE2	1:D:933:ILE:HG23	1.73	0.52
1:C:466:LYS:HE2	1:C:483:ALA:HB3	1.92	0.52
1:C:257:GLU:OE1	1:C:297:THR:OG1	2.27	0.52
1:B:28:SER:HB2	1:B:191:PRO:HB2	1.91	0.52
1:B:570:TYR:HA	1:B:593:THR:HG22	1.92	0.52
1:D:561:LEU:HD23	1:D:607:ARG:HB3	1.92	0.52
1:A:795:ASN:OD1	1:A:795:ASN:N	2.43	0.52
1:C:261:ASP:HB3	1:C:264:GLU:HB2	1.92	0.52
1:D:536:MET:HB2	1:D:598:ILE:HG12	1.92	0.51
1:A:286:SER:O	1:A:286:SER:OG	2.25	0.51
1:B:736:ASN:OD1	1:B:736:ASN:N	2.33	0.51
1:A:799:MET:SD	1:A:801:VAL:HG23	2.50	0.51
1:B:503:LEU:HD21	1:B:1052:LEU:HD11	1.92	0.51
1:D:989:ASP:OD1	1:D:989:ASP:N	2.44	0.51
1:C:279:TYR:O	1:C:283:VAL:HG12	2.11	0.51
1:B:224:LEU:O	1:B:225:ASN:ND2	2.43	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:321:GLU:OE2	1:A:321:GLU:N	2.44	0.51
1:D:269:ASN:OD1	1:D:269:ASN:N	2.44	0.51
1:C:269:ASN:N	1:C:269:ASN:OD1	2.42	0.51
1:C:495:ALA:HB2	1:C:737:LEU:HD12	1.92	0.50
1:D:530:GLU:O	1:D:533:SER:OG	2.28	0.50
1:A:257:GLU:OE2	1:A:272:LEU:N	2.41	0.50
1:A:346:VAL:HG21	1:A:416:ILE:HG22	1.93	0.50
1:A:697:PRO:HB3	1:A:771:HIS:HD2	1.74	0.50
1:A:907:GLN:HE22	1:A:1018:ARG:HH21	1.58	0.50
1:C:744:SER:HB3	1:C:972:ARG:HG2	1.93	0.50
1:A:812:ASP:N	1:A:812:ASP:OD1	2.44	0.50
1:C:119:VAL:HG22	1:C:213:ARG:HD3	1.94	0.50
1:C:182:ASN:OD1	1:C:213:ARG:NH2	2.45	0.50
1:C:980:LEU:HD11	1:C:1009:MET:HE1	1.93	0.50
1:A:219:GLU:OE1	1:A:219:GLU:N	2.45	0.49
1:A:402:GLN:O	1:A:413:ARG:NH2	2.45	0.49
1:D:541:LEU:H	1:D:541:LEU:HD23	1.77	0.49
1:D:794:ILE:HG13	1:D:876:ILE:HD11	1.94	0.49
1:A:301:ARG:HG3	1:C:279:TYR:CD2	2.47	0.49
1:A:829:SER:HB2	1:D:473:PRO:HG3	1.93	0.49
1:A:319:VAL:HA	1:A:322:ILE:HG12	1.94	0.49
1:C:457:ILE:HD13	1:C:927:THR:HG23	1.94	0.49
1:A:520:GLU:OE1	1:A:520:GLU:N	2.45	0.49
1:A:564:LEU:HB3	1:A:598:ILE:HG23	1.94	0.49
1:A:601:ASP:OD1	1:A:602:ALA:N	2.44	0.49
1:B:604:GLU:HG2	1:B:607:ARG:HD2	1.95	0.49
1:B:273:THR:OG1	1:B:276:GLU:OE1	2.21	0.49
1:B:362:ASP:O	1:B:368:ARG:NH2	2.34	0.49
1:D:1026:SER:OG	1:D:1027:GLN:N	2.45	0.49
1:C:205:GLY:HA3	1:C:255:LEU:HD13	1.95	0.49
1:C:330:LYS:HZ3	1:C:331:LYS:N	2.09	0.49
1:B:894:ASP:OD1	1:B:894:ASP:N	2.46	0.49
1:A:95:THR:HG22	1:A:98:LYS:HE3	1.95	0.49
1:B:118:LEU:O	1:B:122:LEU:HG	2.13	0.49
1:A:560:LYS:HD3	1:A:1000:PHE:CE2	2.48	0.48
1:A:906:THR:HG22	1:A:908:PRO:HD2	1.94	0.48
1:C:251:GLY:HA2	1:C:274:TYR:HE1	1.78	0.48
1:D:407:ASN:OD1	1:D:410:ASP:N	2.34	0.48
1:C:238:LEU:HD13	1:C:322:ILE:HG12	1.94	0.48
1:B:130:TYR:CE2	1:B:207:ARG:HG2	2.48	0.48
1:D:799:MET:SD	1:D:800:CYS:N	2.86	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:956:GLU:OE2	1:D:960:ARG:NH1	2.43	0.48
1:A:392:LYS:HD2	1:A:392:LYS:HA	1.54	0.48
1:A:975:CYS:HB2	1:A:1052:LEU:HB2	1.95	0.48
1:A:534:ASN:HD21	1:A:1036:ASN:HD22	1.61	0.48
1:A:103:VAL:HG21	1:A:109:THR:H	1.78	0.48
1:A:115:LEU:HG	1:A:163:TYR:OH	2.13	0.48
1:B:735:ARG:NH1	1:B:769:THR:OG1	2.46	0.48
1:A:687:ASP:N	1:A:692:PHE:O	2.45	0.48
1:C:817:ASP:O	1:C:821:ILE:HD12	2.13	0.48
1:C:992:ASP:OD1	1:C:992:ASP:N	2.35	0.48
1:B:353:LEU:HD11	1:B:386:GLU:HB2	1.95	0.48
1:B:358:ASN:OD1	1:B:361:LYS:NZ	2.38	0.48
1:D:466:LYS:HE3	1:D:938:ARG:HH22	1.79	0.48
1:A:563:LEU:HD21	1:A:605:VAL:HA	1.95	0.48
1:A:996:TYR:CZ	1:A:1037:PRO:HG2	2.49	0.48
1:B:304:MET:O	1:B:308:ILE:HG22	2.14	0.48
1:B:319:VAL:HA	1:B:322:ILE:HG22	1.95	0.48
1:C:183:SER:O	1:C:187:PHE:HB3	2.14	0.47
1:C:222:GLN:O	1:C:228:LYS:NZ	2.47	0.47
1:B:196:SER:OG	1:B:201:ARG:O	2.32	0.47
1:B:235:LEU:HB2	1:B:325:LEU:HD12	1.97	0.47
1:D:611:TYR:HD2	1:D:613:LYS:HZ2	1.62	0.47
1:A:261:ASP:HB2	1:A:264:GLU:HB2	1.95	0.47
1:A:797:CYS:SG	1:A:798:ASP:N	2.88	0.47
1:A:924:MET:HA	1:A:927:THR:HG22	1.96	0.47
1:C:118:LEU:HD22	1:C:159:PHE:HB3	1.96	0.47
1:A:261:ASP:OD2	1:A:268:ASN:ND2	2.47	0.47
1:C:417:GLU:OE1	1:C:417:GLU:N	2.46	0.47
1:B:998:ASP:O	1:B:1002:LYS:HG2	2.14	0.47
1:A:880:THR:HG21	1:A:891:LEU:HD11	1.97	0.47
1:C:530:GLU:O	1:C:533:SER:OG	2.32	0.47
1:B:795:ASN:HA	1:B:876:ILE:HD11	1.95	0.47
1:B:176:TRP:HA	1:B:179:LEU:HB2	1.96	0.47
1:D:303:PHE:O	1:D:307:PHE:HD1	1.96	0.47
1:D:582:ASN:O	1:D:1054:GLN:NE2	2.48	0.47
1:C:215:ILE:HG12	1:C:241:ILE:HG22	1.96	0.47
1:C:385:LEU:H	1:C:385:LEU:HD23	1.79	0.47
1:C:455:ARG:HH22	1:C:928:TYR:HA	1.80	0.47
1:C:700:ILE:HD13	1:C:764:LYS:HE3	1.97	0.47
1:B:175:LEU:HA	1:B:178:TRP:CE2	2.49	0.47
1:B:330:LYS:HA	1:B:330:LYS:HD2	1.73	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:352:THR:O	1:B:356:VAL:HG22	2.14	0.47
1:A:555:GLU:HB3	1:A:1004:LEU:HD12	1.96	0.47
1:C:345:ILE:HD12	1:C:423:LEU:HD13	1.97	0.47
1:D:509:ASN:HB3	1:D:532:VAL:HG23	1.95	0.47
1:A:534:ASN:ND2	1:A:1036:ASN:HD22	2.13	0.47
1:C:330:LYS:HD2	1:C:330:LYS:HA	1.56	0.47
1:C:560:LYS:HD3	1:C:560:LYS:HA	1.69	0.47
1:B:127:LEU:HG	1:B:131:PHE:CZ	2.50	0.47
1:C:122:LEU:HA	1:C:156:PHE:HE1	1.79	0.47
1:D:330:LYS:HD2	1:D:333:GLY:HA3	1.97	0.46
1:A:503:LEU:HD21	1:A:1052:LEU:HD11	1.97	0.46
1:A:603:LYS:HE3	1:A:603:LYS:HB3	1.78	0.46
1:B:346:VAL:HG21	1:B:416:ILE:HG22	1.97	0.46
1:B:1008:ASN:OD1	1:B:1008:ASN:N	2.48	0.46
1:D:700:ILE:HG21	1:D:764:LYS:NZ	2.29	0.46
1:D:726:ASP:OD2	1:D:728:SER:N	2.47	0.46
1:A:410:ASP:OD2	1:A:413:ARG:NH2	2.46	0.46
1:C:1026:SER:OG	1:C:1027:GLN:N	2.48	0.46
1:D:283:VAL:HG11	1:D:290:TYR:HB2	1.98	0.46
1:A:335:SER:OG	1:A:336:TYR:N	2.48	0.46
1:A:1016:ARG:NH2	1:A:1047:ASP:OD2	2.44	0.46
1:C:157:ASN:HA	1:C:160:PHE:HD1	1.80	0.46
1:C:476:ASN:OD1	1:C:476:ASN:N	2.48	0.46
1:B:426:ALA:HB2	1:B:440:ASN:HD21	1.80	0.46
1:C:249:ALA:HB1	1:C:307:PHE:HE1	1.81	0.46
1:C:509:ASN:ND2	1:C:528:TYR:OH	2.43	0.46
1:D:584:GLY:HA3	1:D:1008:ASN:ND2	2.31	0.46
1:C:872:THR:OG1	1:C:873:GLY:N	2.49	0.46
1:B:493:PHE:HE2	1:B:920:LEU:HD21	1.80	0.46
1:C:111:THR:O	1:C:116:VAL:HB	2.16	0.46
1:B:390:LEU:HA	1:B:393:ARG:HH12	1.80	0.46
1:A:139:GLU:HB3	1:A:204:LEU:H	1.80	0.46
1:A:324:GLU:HG2	1:A:325:LEU:HD22	1.96	0.46
1:C:417:GLU:OE2	1:C:450:TYR:OH	2.25	0.46
1:B:402:GLN:O	1:B:413:ARG:NH2	2.48	0.46
1:C:20:ARG:HE	1:C:22:TRP:HB3	1.80	0.46
1:B:245:THR:HA	1:B:248:THR:HG22	1.97	0.46
1:B:606:LYS:HA	1:B:606:LYS:HD3	1.71	0.46
1:B:811:ASP:OD1	1:B:811:ASP:N	2.49	0.46
1:D:488:GLU:HA	1:D:736:ASN:HD21	1.80	0.46
1:C:473:PRO:HG3	1:B:829:SER:HB2	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1017:LEU:HA	1:B:1031:ARG:HG2	1.98	0.45
1:D:1016:ARG:NH2	1:D:1044:VAL:H	2.14	0.45
1:C:303:PHE:O	1:C:307:PHE:HD2	1.99	0.45
1:B:256:VAL:HG11	1:B:300:GLY:HA2	1.99	0.45
1:A:410:ASP:O	1:A:414:VAL:HG23	2.17	0.45
1:A:181:VAL:HA	1:A:184:VAL:HG22	1.98	0.45
1:A:731:LEU:HD23	1:A:731:LEU:H	1.81	0.45
1:C:298:THR:O	1:C:302:LEU:HG	2.17	0.45
1:C:122:LEU:HD22	1:C:210:ARG:HD2	1.99	0.45
1:C:1016:ARG:HH21	1:C:1044:VAL:H	1.63	0.45
1:A:360:LEU:HD13	1:A:364:LEU:HD23	1.99	0.45
1:A:747:HIS:CE1	1:A:971:ASN:HD21	2.33	0.45
1:A:823:ALA:O	1:A:827:ILE:HG22	2.17	0.45
1:C:441:ILE:HD12	1:C:441:ILE:HA	1.83	0.45
1:C:742:ARG:NH2	1:C:752:LYS:O	2.39	0.45
1:D:417:GLU:OE1	1:D:417:GLU:N	2.47	0.45
1:A:894:ASP:OD1	1:A:894:ASP:N	2.44	0.45
1:B:153:ASP:N	1:B:153:ASP:OD2	2.50	0.45
1:D:353:LEU:HD21	1:D:387:LEU:HB2	1.99	0.45
1:A:490:LYS:NZ	1:A:881:GLU:OE2	2.37	0.45
1:A:785:SER:HB3	1:A:788:ASP:HB2	1.99	0.45
1:B:224:LEU:HD23	1:B:224:LEU:HA	1.79	0.45
1:B:352:THR:HG22	1:B:353:LEU:H	1.82	0.45
1:C:233:ILE:HG13	1:C:234:LYS:N	2.31	0.44
1:C:318:TYR:O	1:C:321:GLU:HG2	2.17	0.44
1:B:298:THR:O	1:B:302:LEU:HG	2.17	0.44
1:D:799:MET:HE3	1:D:879:ILE:HG13	2.00	0.44
1:A:966:PRO:HG2	1:A:967:GLN:HE21	1.82	0.44
1:C:201:ARG:HD3	1:C:203:TRP:HB2	1.98	0.44
1:B:176:TRP:O	1:B:180:GLU:HG3	2.16	0.44
1:D:1007:TYR:HB2	1:D:1009:MET:HG2	1.99	0.44
1:A:795:ASN:HA	1:A:876:ILE:HD11	1.98	0.44
1:D:297:THR:HG23	1:D:300:GLY:H	1.81	0.44
1:D:345:ILE:HD12	1:D:423:LEU:HD13	1.98	0.44
1:D:378:LEU:HD23	1:D:378:LEU:HA	1.85	0.44
1:D:519:ILE:HB	1:D:526:LYS:HB3	2.00	0.44
1:D:742:ARG:NH2	1:D:752:LYS:O	2.38	0.44
1:C:238:LEU:HA	1:C:241:ILE:HG12	2.00	0.44
1:C:906:THR:HG22	1:C:908:PRO:HD2	1.98	0.44
1:B:261:ASP:H	1:B:266:PHE:HA	1.82	0.44
1:D:567:ALA:HB2	1:D:581:ILE:HD13	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:430:CYS:SG	1:B:431:ALA:N	2.91	0.44
1:C:898:ASP:O	1:C:901:THR:OG1	2.35	0.44
1:C:691:MET:HG2	1:C:974:ARG:HH22	1.82	0.44
1:D:888:VAL:HG13	1:D:908:PRO:HG2	2.00	0.44
1:A:933:ILE:O	1:A:937:ILE:HG12	2.18	0.44
1:C:894:ASP:OD1	1:C:894:ASP:N	2.40	0.44
1:B:114:VAL:HA	1:B:117:VAL:HB	2.00	0.44
1:B:833:ASP:OD1	1:B:833:ASP:N	2.51	0.44
1:B:880:THR:HG21	1:B:891:LEU:HD11	1.99	0.44
1:D:392:LYS:O	1:D:392:LYS:NZ	2.43	0.44
1:D:488:GLU:HA	1:D:736:ASN:ND2	2.33	0.44
1:C:582:ASN:ND2	1:C:1010:LEU:HB2	2.33	0.43
1:B:241:ILE:HG13	1:B:242:PHE:N	2.33	0.43
1:B:938:ARG:HA	1:B:938:ARG:HD2	1.85	0.43
1:A:606:LYS:HD3	1:A:606:LYS:HA	1.79	0.43
1:A:880:THR:OG1	1:A:881:GLU:N	2.51	0.43
1:A:888:VAL:HG21	1:A:903:LEU:HD13	2.00	0.43
1:B:296:LYS:O	1:B:296:LYS:NZ	2.41	0.43
1:D:286:SER:OG	1:D:287:THR:N	2.51	0.43
1:C:122:LEU:HB3	1:C:210:ARG:HD2	2.00	0.43
1:B:789:LEU:HD23	1:B:789:LEU:HA	1.82	0.43
1:A:131:PHE:O	1:A:135:SER:N	2.39	0.43
1:A:253:ILE:HD11	1:A:303:PHE:CD2	2.52	0.43
1:C:478:LYS:H	1:C:478:LYS:HG2	1.65	0.43
1:D:476:ASN:OD1	1:D:476:ASN:N	2.49	0.43
1:D:489:LEU:HD11	1:D:937:ILE:HG21	2.01	0.43
1:D:601:ASP:O	1:D:605:VAL:HG23	2.18	0.43
1:A:354:GLU:HG2	1:A:355:SER:N	2.33	0.43
1:C:557:CYS:O	1:C:561:LEU:HD23	2.18	0.43
1:C:1051:CYS:SG	1:C:1052:LEU:N	2.92	0.43
1:B:760:ILE:HG13	1:B:764:LYS:HZ2	1.84	0.43
1:A:379:HIS:CE1	1:A:381:ILE:HG12	2.54	0.43
1:A:884:ASN:OD1	1:A:887:ASN:ND2	2.52	0.43
1:B:495:ALA:HB2	1:B:737:LEU:HD12	2.00	0.43
1:B:1049:ILE:HD12	1:B:1049:ILE:HA	1.85	0.43
1:D:131:PHE:O	1:D:134:SER:OG	2.26	0.43
1:C:938:ARG:O	1:C:942:THR:HB	2.18	0.43
1:A:297:THR:HG23	1:A:300:GLY:HA3	2.01	0.43
1:A:428:LYS:HA	1:A:461:LEU:HD21	2.00	0.43
1:B:269:ASN:OD1	1:B:269:ASN:N	2.52	0.43
1:B:807:GLN:HB2	1:B:883:VAL:HG11	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:169:ILE:HD12	1:D:169:ILE:HA	1.94	0.43
1:D:466:LYS:HE2	1:D:483:ALA:HB3	2.01	0.43
1:A:469:LEU:HD21	1:A:475:TRP:CZ2	2.54	0.43
1:C:144:PHE:CG	1:C:200:ASN:HB3	2.53	0.43
1:B:732:ILE:HG22	1:B:762:TYR:OH	2.17	0.43
1:D:1051:CYS:SG	1:D:1052:LEU:N	2.92	0.43
1:A:159:PHE:O	1:A:162:LEU:HG	2.19	0.43
1:C:120:PHE:HD1	1:C:216:GLN:HE22	1.67	0.43
1:B:360:LEU:HD11	1:B:398:VAL:HG11	1.99	0.43
1:B:940:LEU:HD12	1:B:940:LEU:HA	1.82	0.43
1:D:872:THR:HG23	1:D:874:VAL:HG22	2.00	0.43
1:A:243:ILE:HD13	1:A:243:ILE:HA	1.88	0.42
1:A:352:THR:O	1:A:356:VAL:HG22	2.18	0.42
1:A:453:LYS:HA	1:A:453:LYS:HD2	1.80	0.42
1:A:499:LEU:HD11	1:A:746:PHE:CZ	2.53	0.42
1:A:560:LYS:HA	1:A:563:LEU:O	2.19	0.42
1:B:146:LYS:HA	1:B:146:LYS:HD2	1.77	0.42
1:B:468:HIS:HE1	1:D:784:LEU:HD13	1.84	0.42
1:D:122:LEU:HD22	1:D:152:ILE:HG21	1.99	0.42
1:A:895:ASP:OD1	1:A:895:ASP:N	2.53	0.42
1:C:31:VAL:HA	1:C:34:PHE:CD2	2.54	0.42
1:B:446:SER:HB3	1:D:890:PHE:HE1	1.84	0.42
1:B:941:VAL:HG23	1:B:942:THR:HG22	2.00	0.42
1:A:195:VAL:HA	1:A:198:TYR:CD1	2.54	0.42
1:B:356:VAL:HG21	1:B:387:LEU:HD13	2.01	0.42
1:B:548:LEU:H	1:B:553:VAL:HG21	1.83	0.42
1:D:165:GLY:HA2	1:D:168:PHE:CE2	2.54	0.42
1:D:218:SER:OG	1:D:236:VAL:HG22	2.19	0.42
1:D:888:VAL:HG11	1:D:906:THR:HG21	2.01	0.42
1:C:606:LYS:HA	1:C:606:LYS:HD2	1.95	0.42
1:D:130:TYR:CD1	1:D:207:ARG:HB3	2.54	0.42
1:D:760:ILE:O	1:D:764:LYS:HG2	2.19	0.42
1:A:745:ASN:OD1	1:A:745:ASN:N	2.52	0.42
1:C:33:PHE:HB2	1:C:187:PHE:CZ	2.53	0.42
1:D:122:LEU:HD22	1:D:152:ILE:HG13	2.01	0.42
1:C:588:LYS:HA	1:C:588:LYS:HD3	1.81	0.42
1:D:500:ALA:HB1	1:D:979:GLN:HE21	1.85	0.42
1:B:1052:LEU:HA	1:B:1052:LEU:HD23	1.84	0.42
1:A:110:LEU:HD12	1:A:113:ARG:HB3	2.02	0.42
1:B:549:SER:OG	1:B:550:PHE:N	2.53	0.42
1:D:458:THR:OG1	1:D:459:GLN:N	2.53	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:195:VAL:HA	1:A:198:TYR:HD1	1.85	0.42
1:A:769:THR:OG1	1:A:769:THR:O	2.34	0.42
1:A:799:MET:HB2	1:A:877:PRO:HB2	2.01	0.42
1:B:693:HIS:CE1	1:B:744:SER:HA	2.55	0.42
1:A:1015:TYR:CD2	1:A:1031:ARG:HB2	2.55	0.42
1:B:104:MET:HE1	1:B:115:LEU:HD12	2.01	0.42
1:B:913:THR:O	1:B:913:THR:OG1	2.34	0.42
1:B:511:PHE:HZ	1:B:937:ILE:HD11	1.84	0.41
1:D:545:PHE:HA	1:D:548:LEU:HD23	2.00	0.41
1:A:191:PRO:HA	1:A:194:PHE:HB3	2.02	0.41
1:A:923:LEU:HD12	1:A:923:LEU:HA	1.87	0.41
1:C:118:LEU:O	1:C:122:LEU:HG	2.19	0.41
1:C:501:GLN:HE22	1:C:877:PRO:HB3	1.85	0.41
1:B:286:SER:O	1:B:286:SER:OG	2.35	0.41
1:D:322:ILE:H	1:D:322:ILE:HG13	1.69	0.41
1:A:493:PHE:HE2	1:A:920:LEU:HD21	1.85	0.41
1:A:562:LYS:HE2	1:A:562:LYS:HB2	1.67	0.41
1:C:241:ILE:HG13	1:C:242:PHE:N	2.35	0.41
1:C:283:VAL:HG21	1:C:290:TYR:H	1.84	0.41
1:D:509:ASN:ND2	1:D:528:TYR:OH	2.53	0.41
1:D:529:LEU:HA	1:D:532:VAL:HG12	2.02	0.41
1:A:804:SER:O	1:A:807:GLN:NE2	2.53	0.41
1:C:980:LEU:HB2	1:C:1049:ILE:HG23	2.03	0.41
1:B:21:MET:H	1:B:21:MET:HG2	1.61	0.41
1:D:365:HIS:O	1:D:366:LYS:HG2	2.20	0.41
1:C:150:LEU:HA	1:C:150:LEU:HD23	1.85	0.41
1:C:227:LEU:HD23	1:C:227:LEU:HA	1.87	0.41
1:C:923:LEU:HD23	1:C:923:LEU:HA	1.81	0.41
1:A:127:LEU:HD21	1:A:210:ARG:HB2	2.03	0.41
1:A:514:ARG:HD3	1:A:514:ARG:HA	1.70	0.41
1:B:384:ASN:O	1:B:388:GLU:HG2	2.20	0.41
1:D:365:HIS:CD2	1:D:513:MET:HG3	2.54	0.41
1:D:1012:PHE:HE1	1:D:1052:LEU:HD21	1.85	0.41
1:A:1017:LEU:HA	1:A:1031:ARG:HA	2.03	0.41
1:B:354:GLU:HG2	1:B:355:SER:N	2.36	0.41
1:A:369:ASP:N	1:A:369:ASP:OD1	2.54	0.41
1:A:495:ALA:O	1:A:498:CYS:HB3	2.21	0.41
1:A:812:ASP:O	1:A:816:GLN:HB2	2.21	0.41
1:C:107:ALA:HA	1:C:112:GLY:HA3	2.03	0.41
1:C:807:GLN:HB2	1:C:883:VAL:HG11	2.02	0.41
1:B:163:TYR:HD1	1:B:166:LEU:HD21	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:434:ASP:OD1	1:B:435:ALA:N	2.54	0.41
1:B:895:ASP:OD1	1:B:895:ASP:N	2.53	0.41
1:B:996:TYR:OH	1:B:1011:CYS:HB2	2.21	0.41
1:D:167:ARG:HH21	1:D:182:ASN:HB3	1.86	0.41
1:D:510:LEU:HD23	1:D:510:LEU:HA	1.90	0.41
1:D:580:LEU:HD13	1:D:580:LEU:HA	1.93	0.41
1:D:731:LEU:HD21	1:D:765:ARG:HE	1.86	0.41
1:A:241:ILE:HG13	1:A:242:PHE:N	2.35	0.41
1:C:937:ILE:HD13	1:C:937:ILE:HA	1.92	0.41
1:B:175:LEU:HD12	1:B:178:TRP:HE1	1.86	0.41
1:B:367:ASP:N	1:B:367:ASP:OD1	2.54	0.41
1:B:817:ASP:OD1	1:B:817:ASP:N	2.54	0.41
1:D:334:GLY:O	1:D:413:ARG:HD2	2.21	0.41
1:D:563:LEU:HD21	1:D:597:PHE:CD1	2.56	0.41
1:D:923:LEU:HD12	1:D:923:LEU:HA	1.79	0.41
1:A:205:GLY:O	1:A:207:ARG:HG3	2.21	0.40
1:A:322:ILE:O	1:A:326:ILE:HG12	2.21	0.40
1:A:390:LEU:HA	1:A:393:ARG:NE	2.36	0.40
1:B:103:VAL:O	1:B:107:ALA:N	2.51	0.40
1:D:511:PHE:CZ	1:D:937:ILE:HD11	2.56	0.40
1:A:127:LEU:HD23	1:A:127:LEU:HA	1.89	0.40
1:C:500:ALA:HB1	1:C:979:GLN:HE21	1.84	0.40
1:B:907:GLN:HE22	1:B:1018:ARG:HH11	1.68	0.40
1:D:537:TYR:HD2	1:D:605:VAL:HG21	1.85	0.40
1:B:185:VAL:O	1:B:189:THR:HG22	2.22	0.40
1:D:175:LEU:HD12	1:D:175:LEU:HA	1.91	0.40
1:D:470:LEU:HD13	1:D:954:ALA:HB2	2.02	0.40
1:D:878:ILE:HD12	1:D:878:ILE:HA	1.89	0.40
1:A:476:ASN:OD1	1:A:476:ASN:N	2.53	0.40
1:C:688:SER:HA	1:C:962:GLY:HA3	2.02	0.40
1:C:905:LEU:HD12	1:C:905:LEU:HA	1.88	0.40
1:B:885:ASP:HB3	1:B:903:LEU:HD22	2.03	0.40
1:A:1016:ARG:HG2	1:A:1032:TYR:CZ	2.57	0.40
1:D:118:LEU:HD12	1:D:118:LEU:HA	1.94	0.40
1:D:688:SER:HA	1:D:962:GLY:HA3	2.02	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	817/1072 (76%)	748 (92%)	69 (8%)	0	100	100
1	B	818/1072 (76%)	755 (92%)	63 (8%)	0	100	100
1	C	857/1072 (80%)	803 (94%)	54 (6%)	0	100	100
1	D	851/1072 (79%)	799 (94%)	52 (6%)	0	100	100
All	All	3343/4288 (78%)	3105 (93%)	238 (7%)	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	736/943 (78%)	693 (94%)	43 (6%)	20	51
1	B	737/943 (78%)	691 (94%)	46 (6%)	18	49
1	C	759/943 (80%)	727 (96%)	32 (4%)	30	58
1	D	758/943 (80%)	725 (96%)	33 (4%)	28	57
All	All	2990/3772 (79%)	2836 (95%)	154 (5%)	27	54

All (154) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	21	MET
1	A	22	TRP

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Mol	Chain	Res	Type
1	A	100	TRP
1	A	128	VAL
1	A	154	MET
1	A	178	TRP
1	A	187	PHE
1	A	194	PHE
1	A	198	TYR
1	A	201	ARG
1	A	217	PHE
1	A	242	PHE
1	A	252	PHE
1	A	279	TYR
1	A	285	MET
1	A	286	SER
1	A	290	TYR
1	A	294	TYR
1	A	306	PHE
1	A	307	PHE
1	A	315	PHE
1	A	348	CYS
1	A	362	ASP
1	A	384	ASN
1	A	498	CYS
1	A	512	SER
1	A	514	ARG
1	A	548	LEU
1	A	550	PHE
1	A	558	PHE
1	A	562	LYS
1	A	565	MET
1	A	731	LEU
1	A	745	ASN
1	A	746	PHE
1	A	881	GLU
1	A	886	THR
1	A	892	ASP
1	A	904	TYR
1	A	936	LEU
1	A	1000	PHE
1	A	1041	PHE
1	A	1055	PHE
1	C	130	TYR

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Mol	Chain	Res	Type
1	C	148	PHE
1	C	161	LEU
1	C	187	PHE
1	C	188	PHE
1	C	194	PHE
1	C	198	TYR
1	C	201	ARG
1	C	216	GLN
1	C	242	PHE
1	C	282	MET
1	C	303	PHE
1	C	329	ARG
1	C	335	SER
1	C	404	SER
1	C	463	TYR
1	C	504	SER
1	C	514	ARG
1	C	545	PHE
1	C	565	MET
1	C	594	LEU
1	C	779	LEU
1	C	797	CYS
1	C	892	ASP
1	C	921	ASP
1	C	931	ASP
1	C	982	LEU
1	C	990	LEU
1	C	1001	CYS
1	C	1011	CYS
1	C	1015	TYR
1	C	1041	PHE
1	B	22	TRP
1	B	33	PHE
1	B	130	TYR
1	B	133	ASP
1	B	159	PHE
1	B	167	ARG
1	B	168	PHE
1	B	188	PHE
1	B	206	LEU
1	B	210	ARG
1	B	213	ARG

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Mol	Chain	Res	Type
1	B	231	ASN
1	B	279	TYR
1	B	290	TYR
1	B	294	TYR
1	B	329	ARG
1	B	330	LYS
1	B	362	ASP
1	B	366	LYS
1	B	369	ASP
1	B	395	PHE
1	B	402	GLN
1	B	498	CYS
1	B	550	PHE
1	B	555	GLU
1	B	609	PHE
1	B	611	TYR
1	B	687	ASP
1	B	734	LEU
1	B	746	PHE
1	B	790	ARG
1	B	800	CYS
1	B	881	GLU
1	B	889	GLN
1	B	892	ASP
1	B	904	TYR
1	B	922	SER
1	B	924	MET
1	B	1000	PHE
1	B	1001	CYS
1	B	1009	MET
1	B	1011	CYS
1	B	1015	TYR
1	B	1051	CYS
1	B	1052	LEU
1	B	1056	ASP
1	D	108	GLN
1	D	120	PHE
1	D	130	TYR
1	D	131	PHE
1	D	146	LYS
1	D	156	PHE
1	D	160	PHE

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Mol	Chain	Res	Type
1	D	194	PHE
1	D	217	PHE
1	D	242	PHE
1	D	252	PHE
1	D	275	TRP
1	D	282	MET
1	D	303	PHE
1	D	318	TYR
1	D	361	LYS
1	D	366	LYS
1	D	404	SER
1	D	537	TYR
1	D	545	PHE
1	D	549	SER
1	D	609	PHE
1	D	707	ARG
1	D	726	ASP
1	D	735	ARG
1	D	889	GLN
1	D	897	ASP
1	D	904	TYR
1	D	921	ASP
1	D	990	LEU
1	D	1001	CYS
1	D	1015	TYR
1	D	1041	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (43) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	108	GLN
1	A	200	ASN
1	A	222	GLN
1	A	258	ASN
1	A	384	ASN
1	A	440	ASN
1	A	462	GLN
1	A	534	ASN
1	A	749	HIS
1	A	887	ASN
1	A	907	GLN
1	A	967	GLN

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Mol	Chain	Res	Type
1	C	143	ASN
1	C	397	GLN
1	C	449	ASN
1	C	462	GLN
1	C	464	HIS
1	C	534	ASN
1	C	1036	ASN
1	B	225	ASN
1	B	440	ASN
1	B	464	HIS
1	B	465	ASN
1	B	468	HIS
1	B	496	GLN
1	B	509	ASN
1	B	534	ASN
1	B	745	ASN
1	B	807	GLN
1	D	108	GLN
1	D	225	ASN
1	D	365	HIS
1	D	397	GLN
1	D	402	GLN
1	D	440	ASN
1	D	449	ASN
1	D	462	GLN
1	D	534	ASN
1	D	582	ASN
1	D	736	ASN
1	D	979	GLN
1	D	1021	HIS
1	D	1054	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5　Carbohydrates (i)

There are no monosaccharides in this entry.

5.6　Ligand geometry (i)

There are no ligands in this entry.

5.7　Other polymers (i)

There are no such residues in this entry.

5.8　Polymer linkage issues (i)

There are no chain breaks in this entry.

6   Map visualisation   ⓘ

This section contains visualisations of the EMDB entry EMD-40038. 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
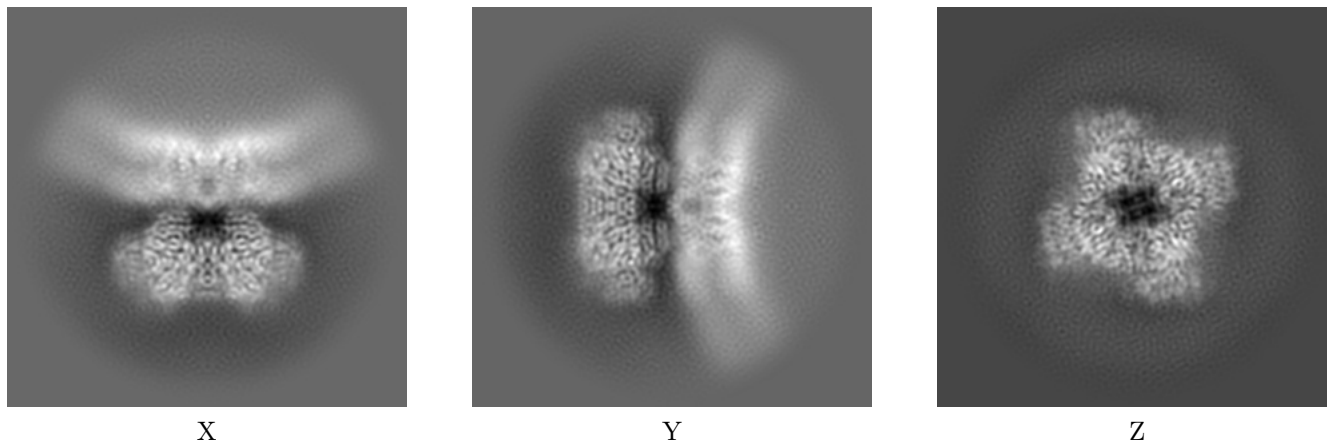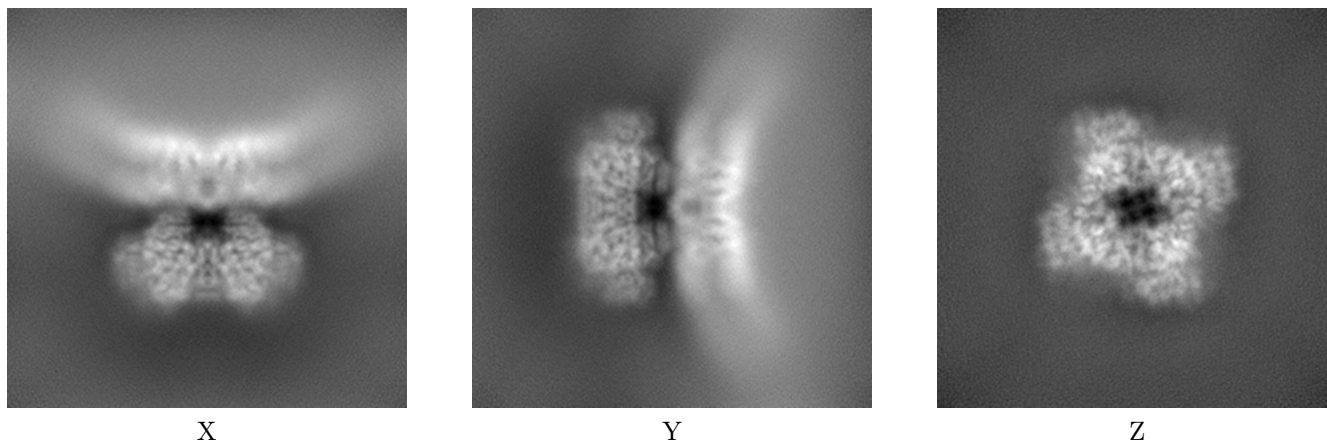
The images above show the map projected in three orthogonal directions.

6.2 Central slices ⓘ
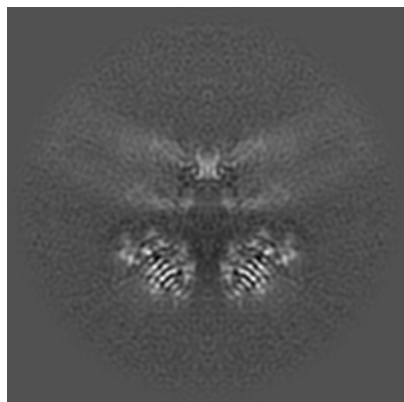
6.2.1 Primary map
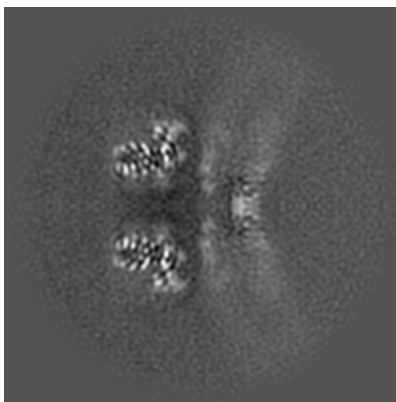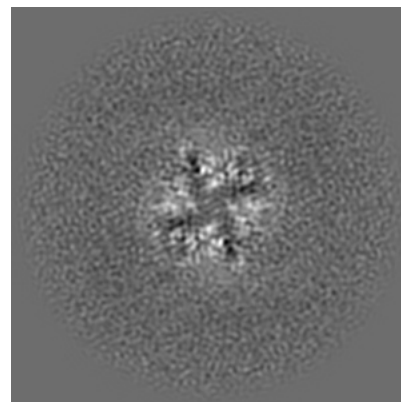
X Index: 128   Y Index: 128   Z Index: 128

6.2.2 Raw map
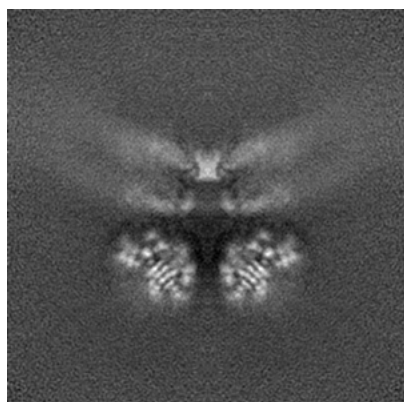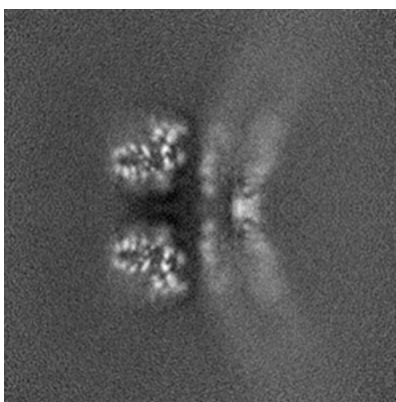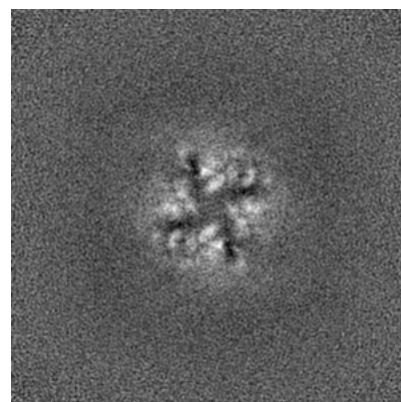
X Index: 128   Y Index: 128   Z Index: 128

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

6.3   Largest variance slices (i)

6.3.1   Primary map
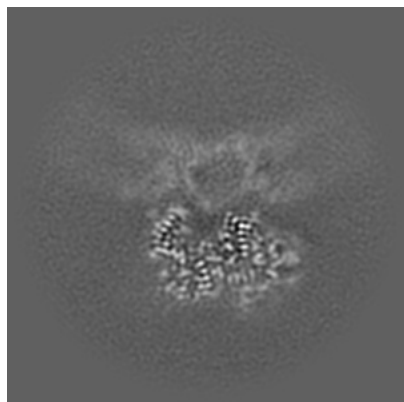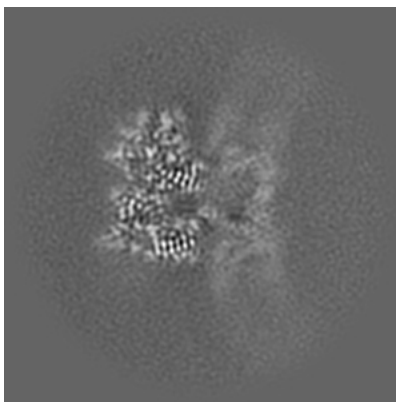
| X Index: 103 | Y Index: 151 | Z Index: 102 |
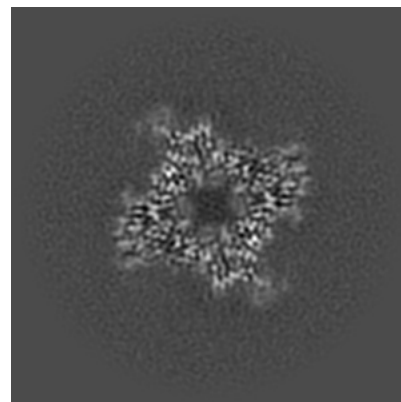
6.3.2   Raw map
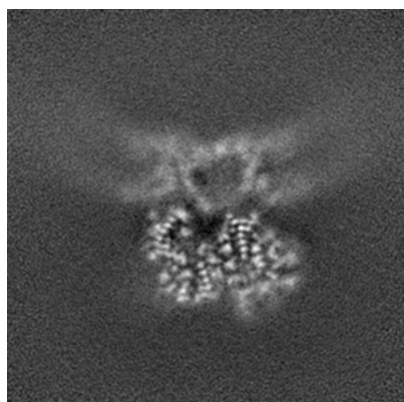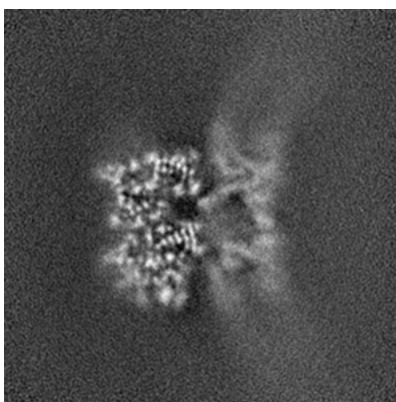
| X Index: 104 | Y Index: 104 | Z Index: 102 |
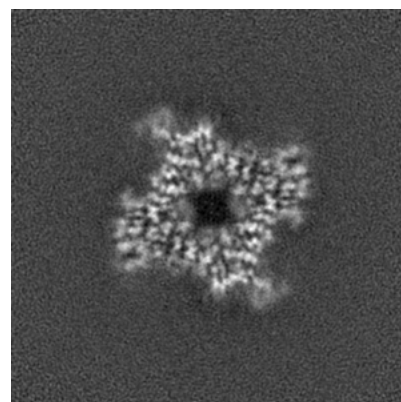
The images above show the largest variance slices of the map in three orthogonal directions.

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

6.4.1 Primary map
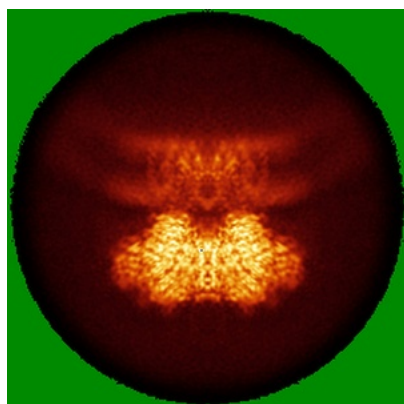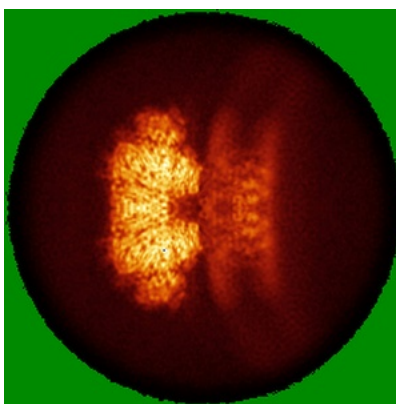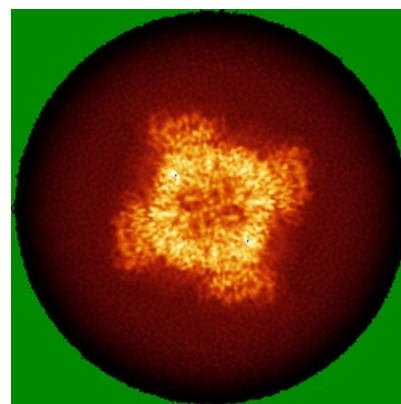
| X | Y | Z |

6.4.2 Raw map

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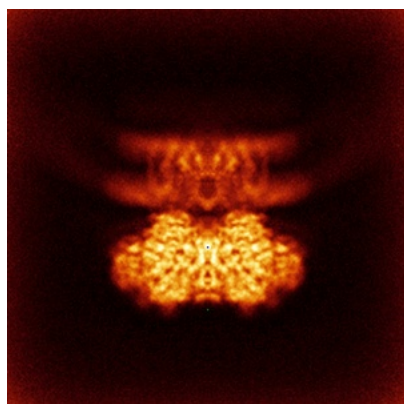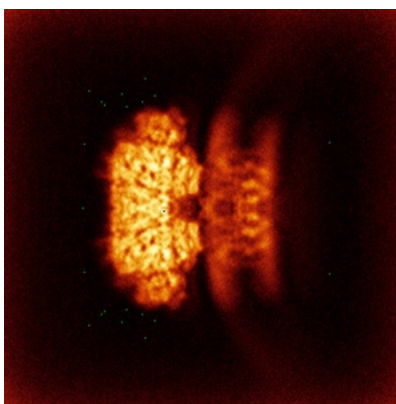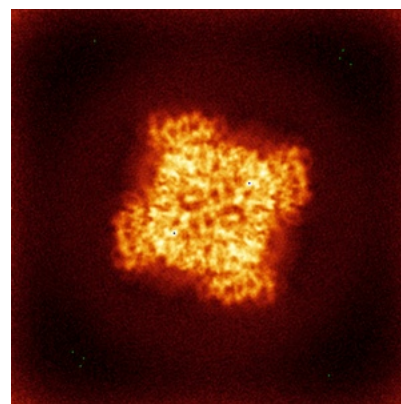
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5　Orthogonal surface views ⓘ

6.5.1　Primary map

| X | Y | Z |
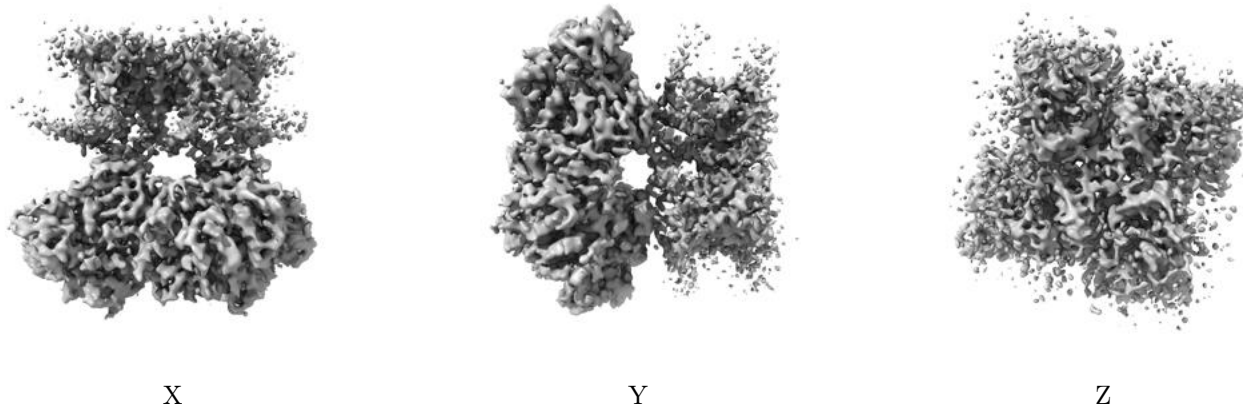
The images above show the 3D surface view of the map at the recommended contour level 0.25. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

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 ⓘ

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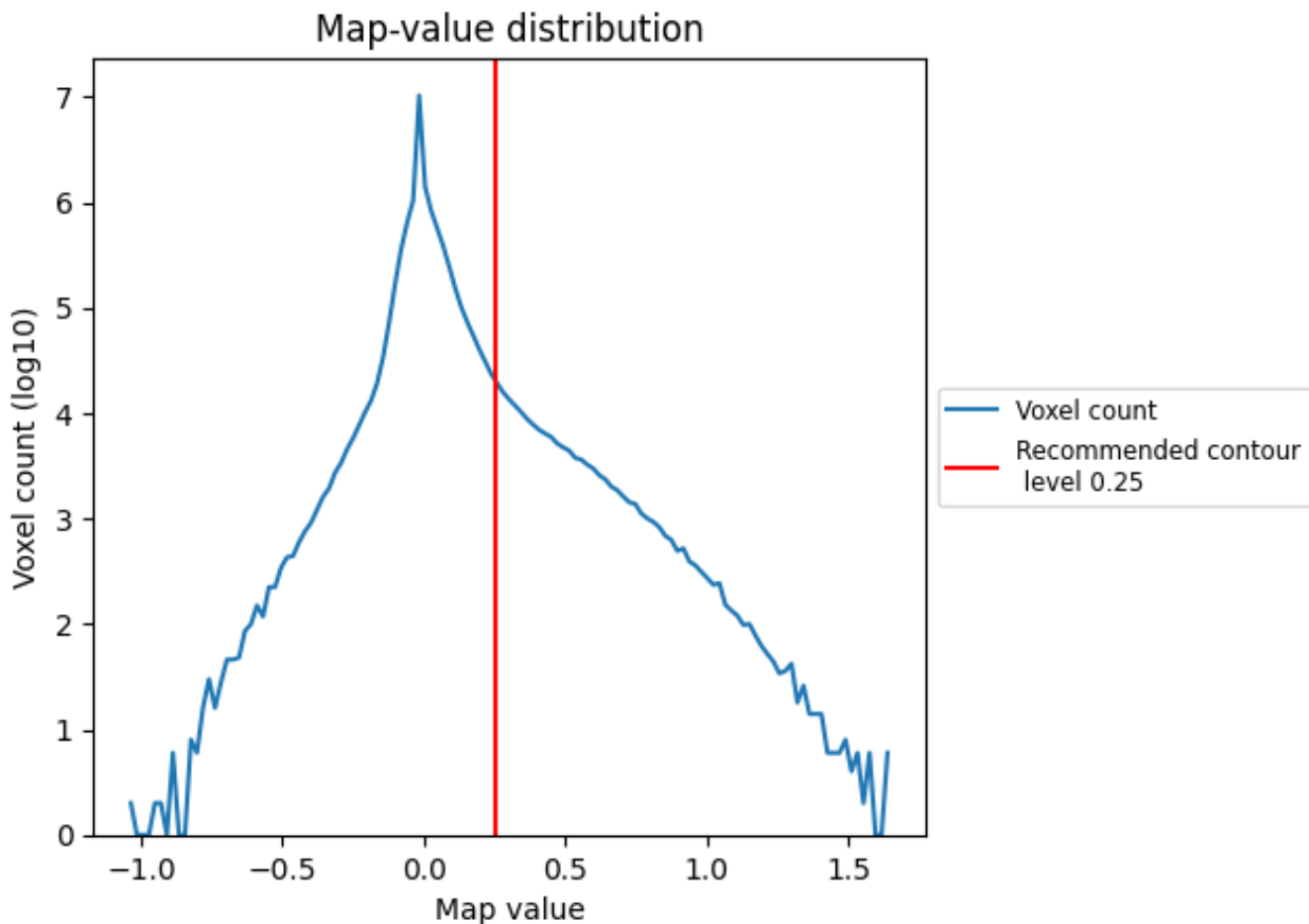
The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

7.2 Volume estimate ⓘ
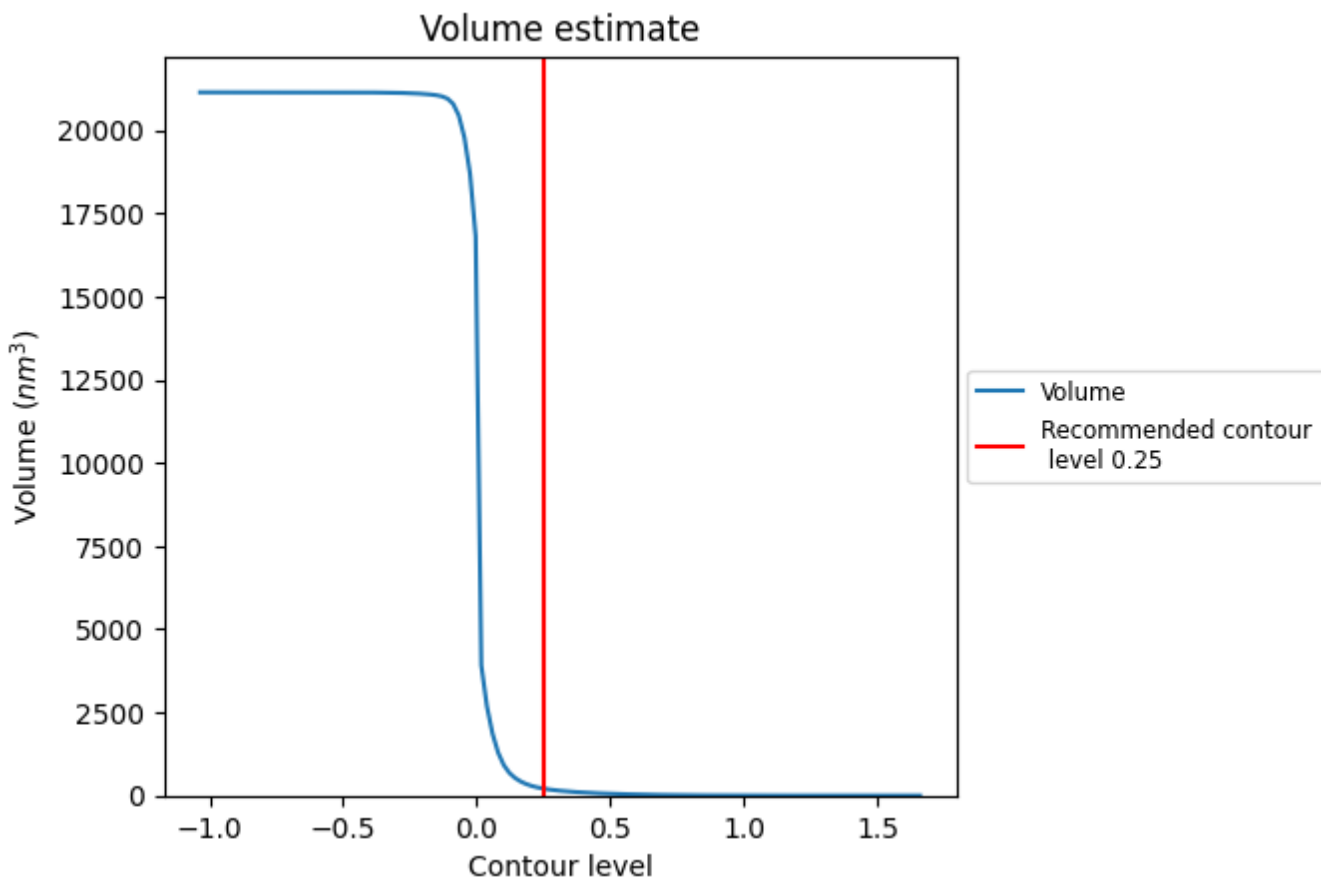
The volume at the recommended contour level is 209 nm^3; this corresponds to an approximate mass of 189 kDa.

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)

Rotationally averaged power spectrum
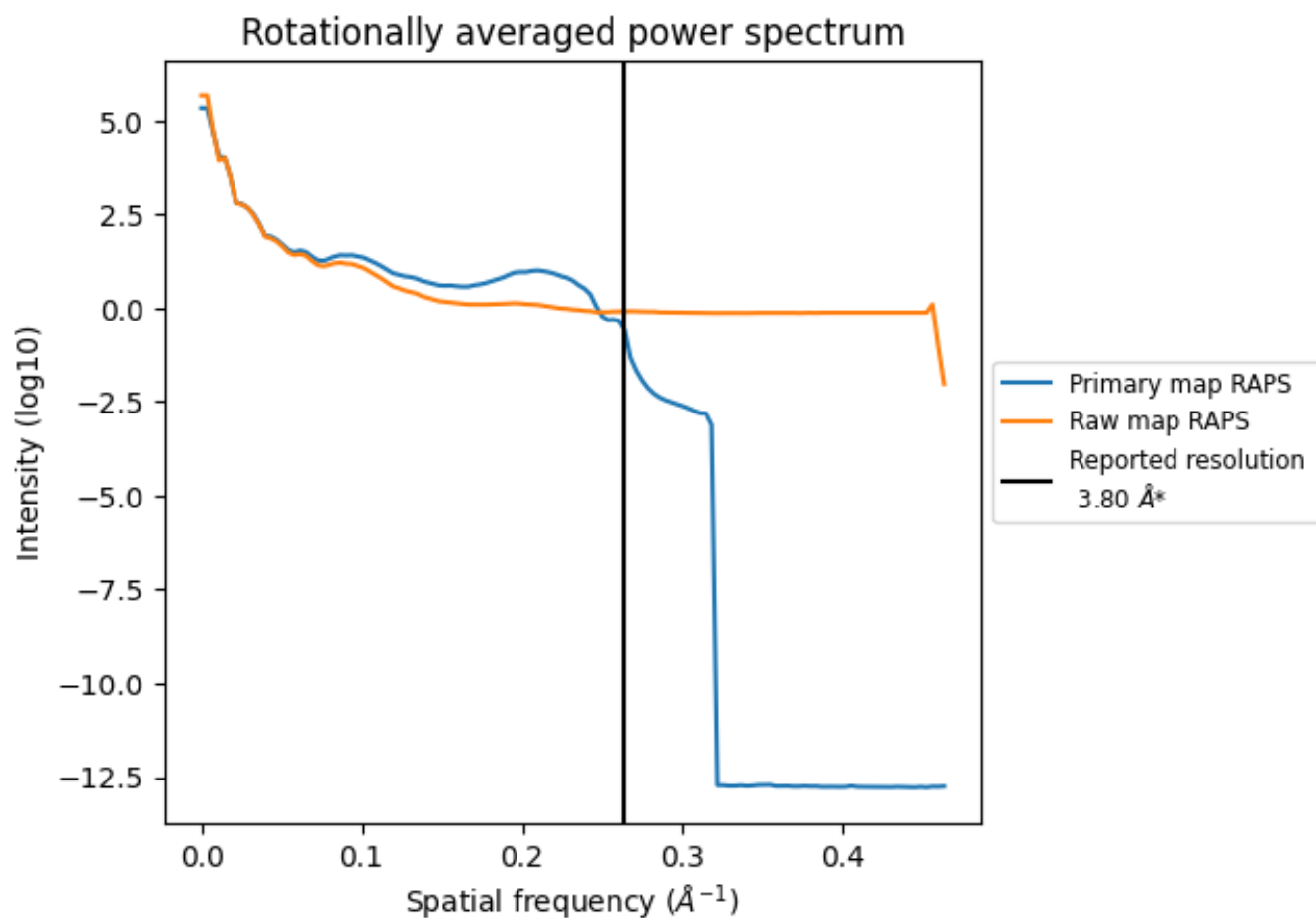
*Reported resolution corresponds to spatial frequency of 0.263 Å^{-1}

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)
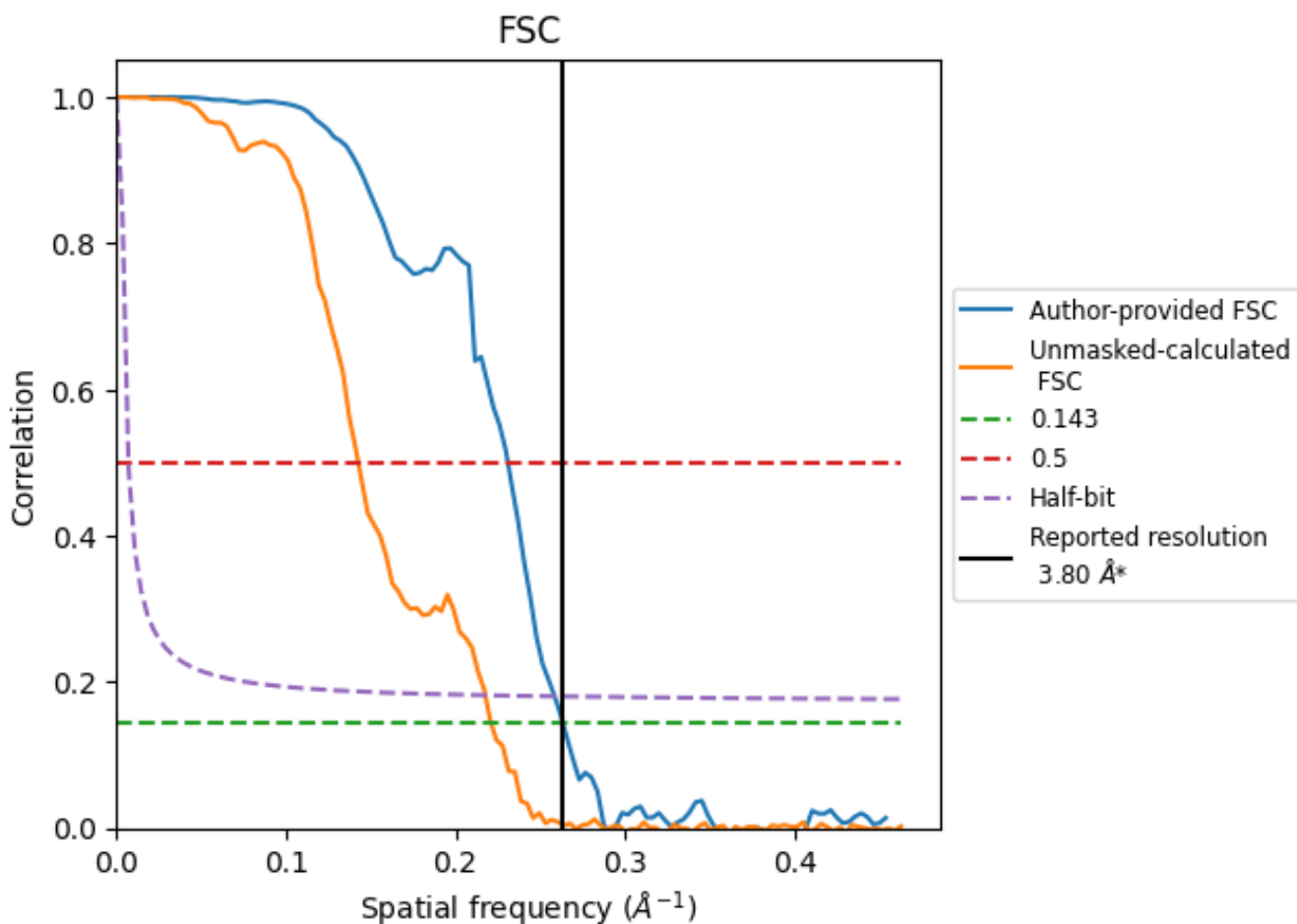
*Reported resolution corresponds to spatial frequency of 0.263 Å^{-1}

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	3.80	4.33	3.87
Unmasked-calculated*	4.52	7.01	4.59

*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 4.52 differs from the reported value 3.8 by more than 10 %

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9 Map-model fit ⓘ

This section contains information regarding the fit between EMDB map EMD-40038 and PDB model 8GH9. Per-residue inclusion information can be found in section 3 on page 6.

9.1 Map-model overlay ⓘ

| X | Y | Z |
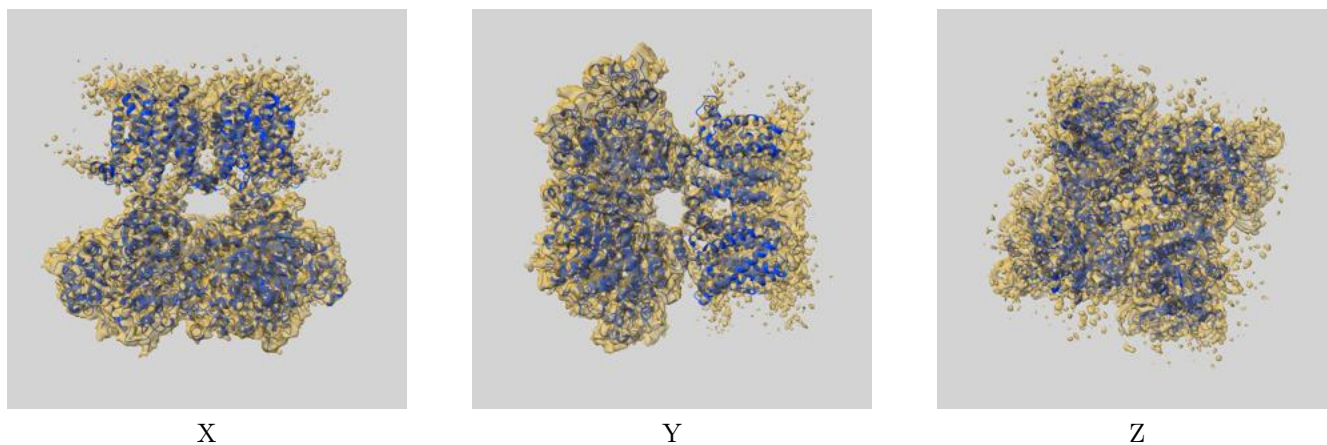
The images above show the 3D surface view of the map at the recommended contour level 0.25 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2   Q-score mapped to coordinate model ⓘ

| X | Y | Z |
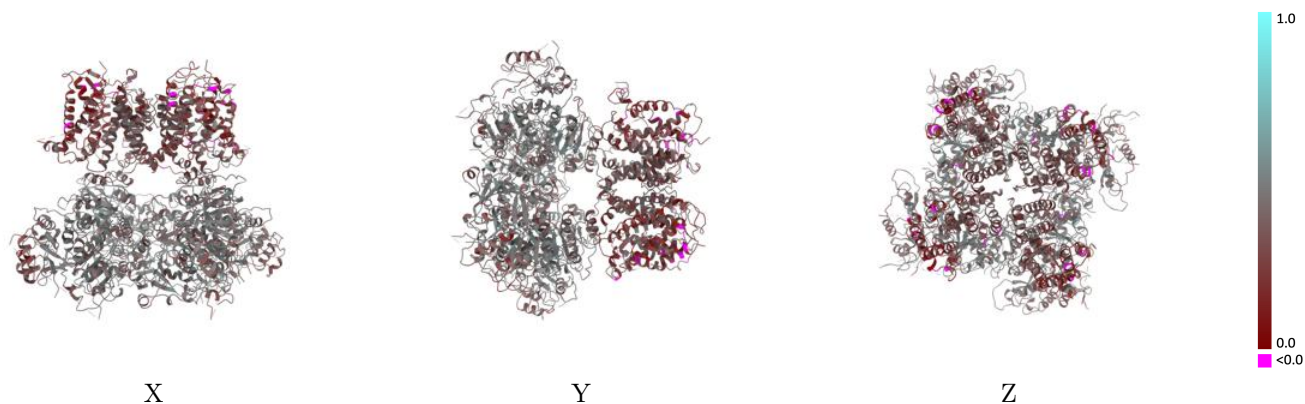
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 |
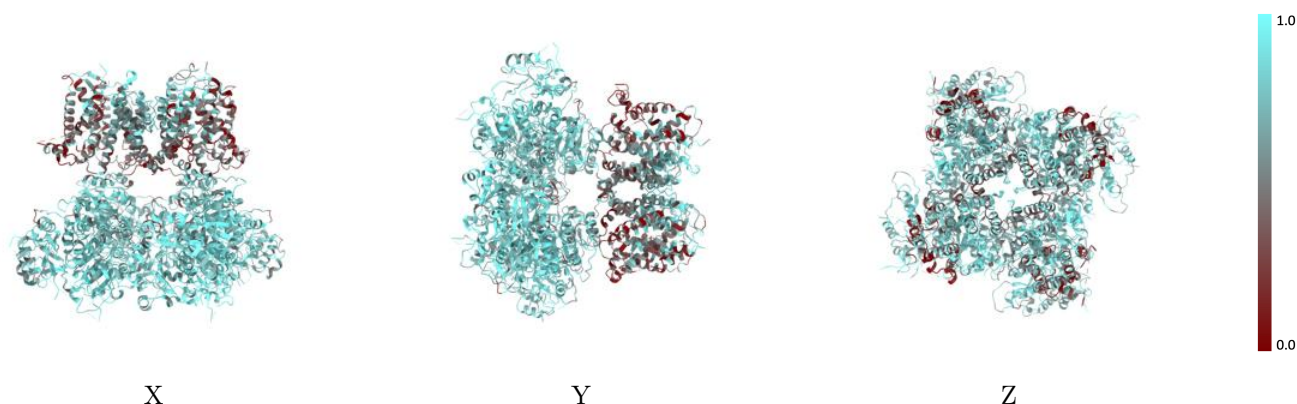
The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.25).

9.4   Atom inclusion ⓘ
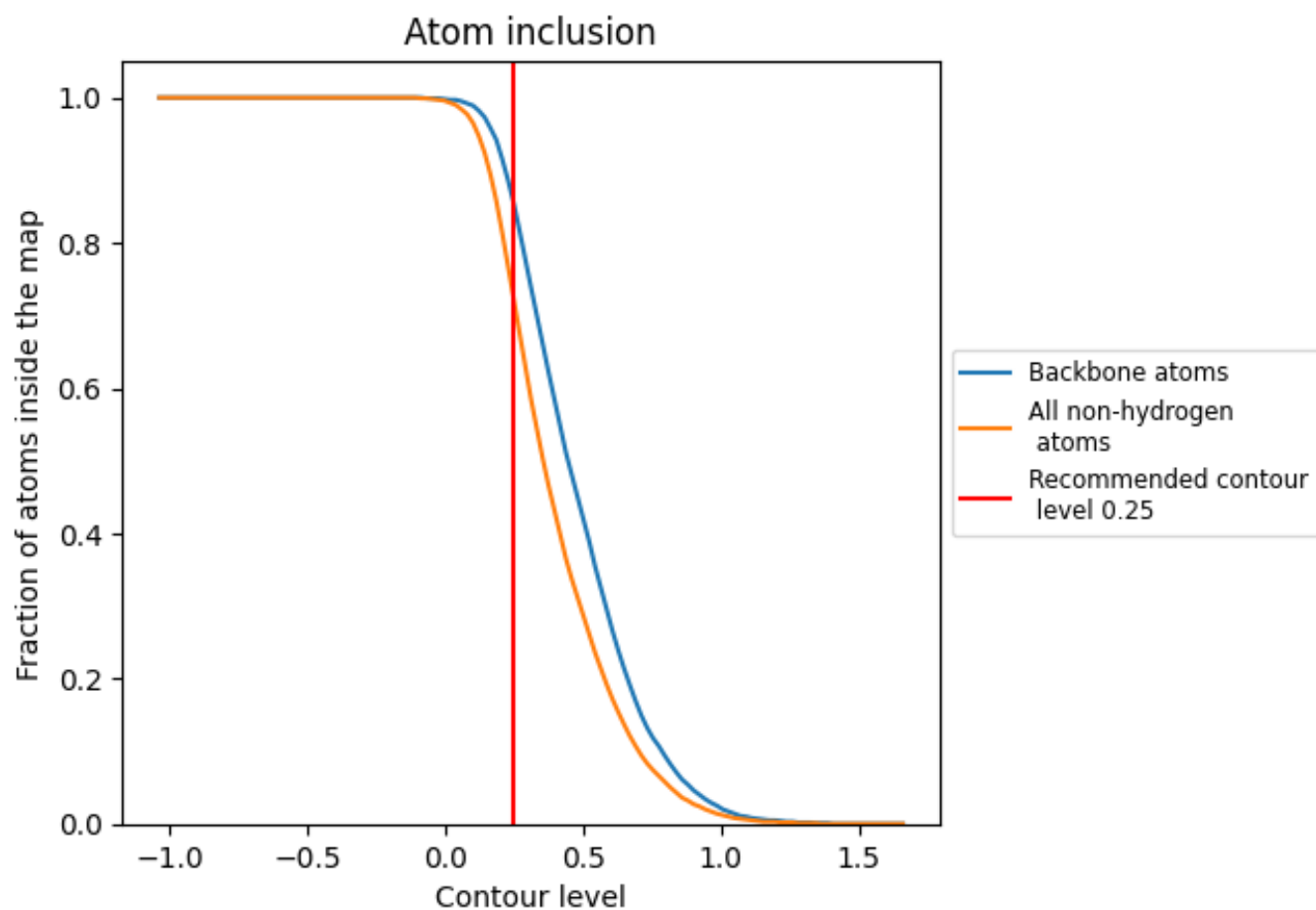
At the recommended contour level, 85% of all backbone atoms, 72% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.25) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7220	0.3970
A	0.7280	0.4000
B	0.7260	0.3970
C	0.7140	0.3910
D	0.7200	0.4000

1.0

0.0

<0.0