



Full wwPDB EM Validation Report ⓘ

May 18, 2025 – 07:31 PM EDT

PDB ID : 8F4R / pdb_00008f4r
EMDB ID : EMD-28857
Title : Gentamicin bound aminoglycoside efflux pump AcrD
Authors : Zhang, Z.
Deposited on : 2022-11-11
Resolution : 3.06 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.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

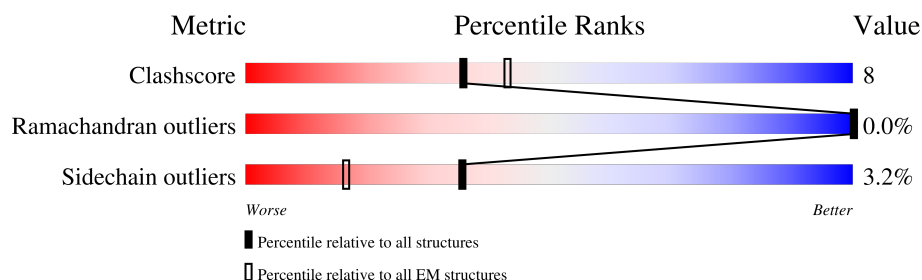
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.06 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	1037	 81% 18% ..
1	B	1037	 78% 20% .
1	C	1037	 78% 20% .

2 Entry composition [i](#)

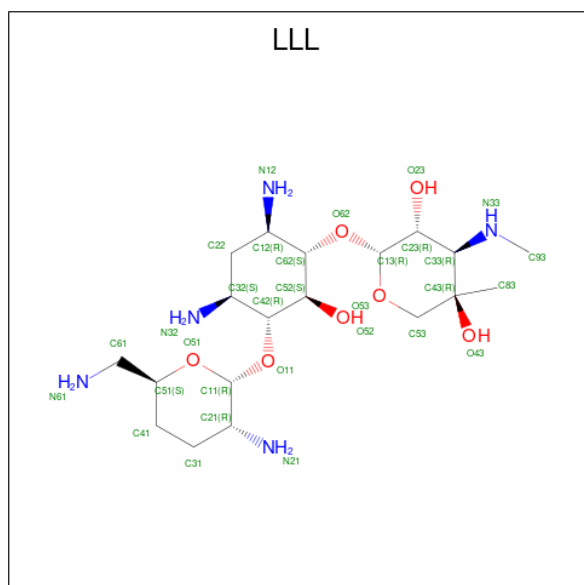
There are 2 unique types of molecules in this entry. The entry contains 23675 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Efflux pump membrane transporter.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	1031	Total	C	N	O	S	0	0
			7865	5023	1326	1472	44		
1	B	1033	Total	C	N	O	S	0	0
			7898	5046	1333	1475	44		
1	C	1033	Total	C	N	O	S	0	0
			7881	5034	1328	1475	44		

- Molecule 2 is (2R,3R,4R,5R)-2-((1S,2S,3R,4S,6R)-4,6-DIAMINO-3-((2R,3R,6S)-3-AMINO-6-(AMINOMETHYL)-TETRAHYDRO-2H-PYRAN-2-YLOXY)-2-HYDROXYCYCLOHEXYLOXY)-5-METHYL-4-(METHYLAMINO)-TETRAHYDRO-2H-PYRAN-3,5-DIOL (CCD ID: LLL) (formula: C₁₉H₃₉N₅O₇) (labeled as "Ligand of Interest" by depositor).

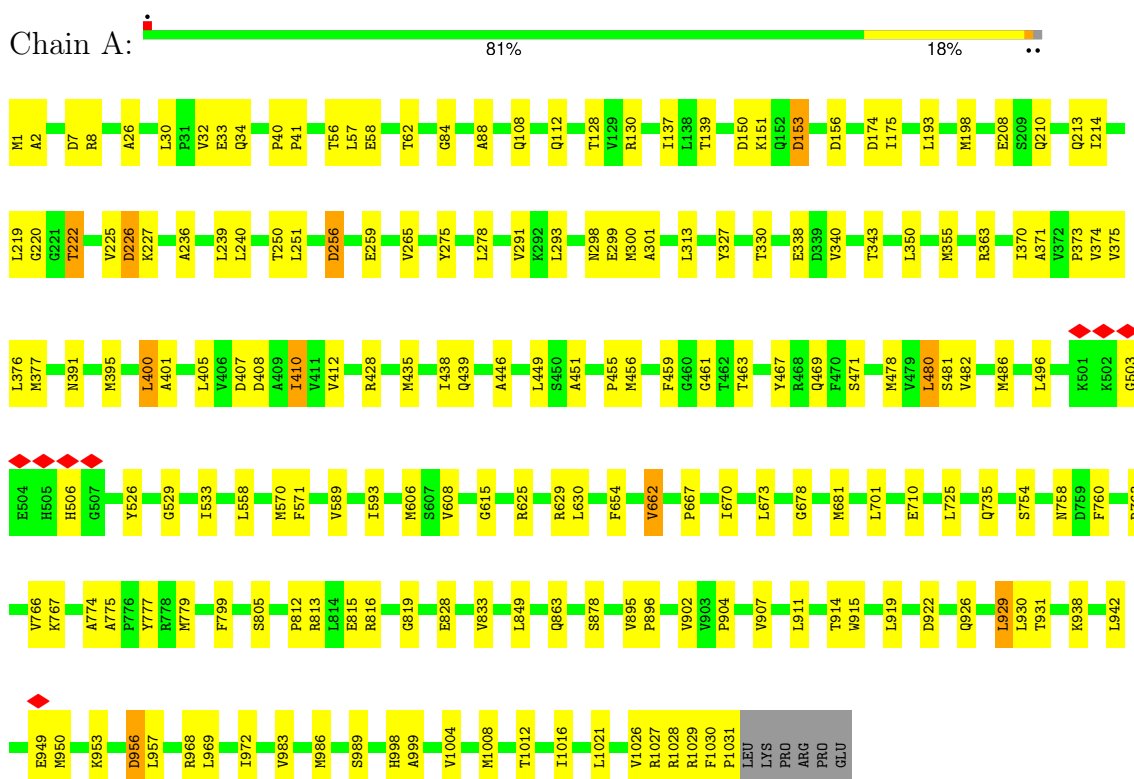


Mol	Chain	Residues	Atoms				AltConf
2	B	1	Total	C	N	O	0
			31	19	5	7	

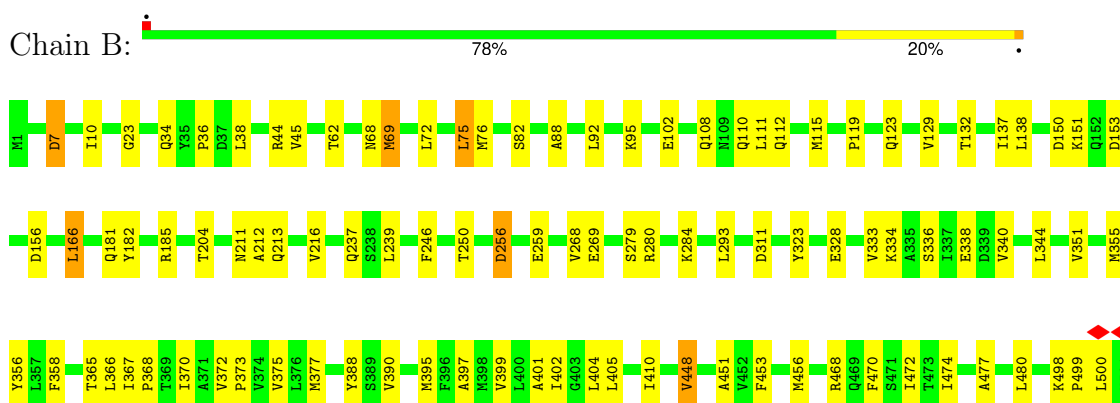
3 Residue-property plots

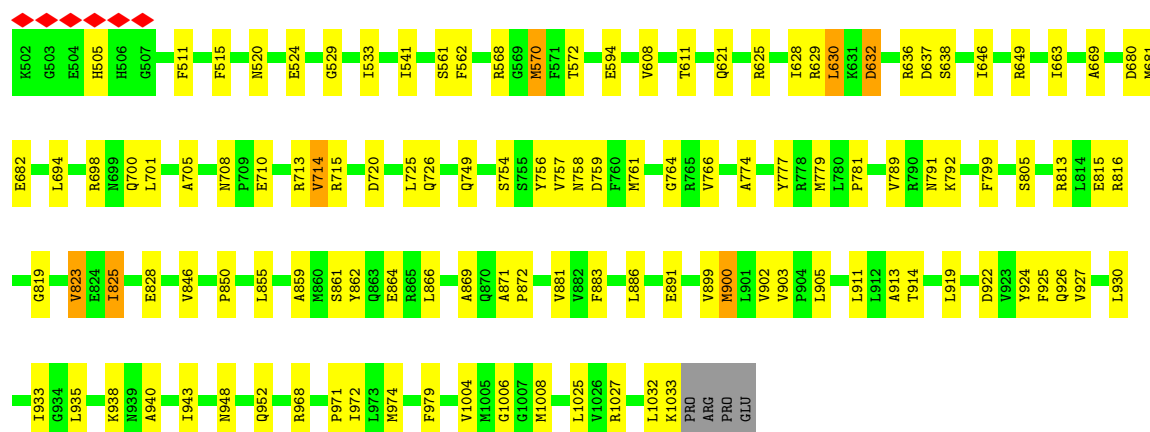
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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: Efflux pump membrane transporter

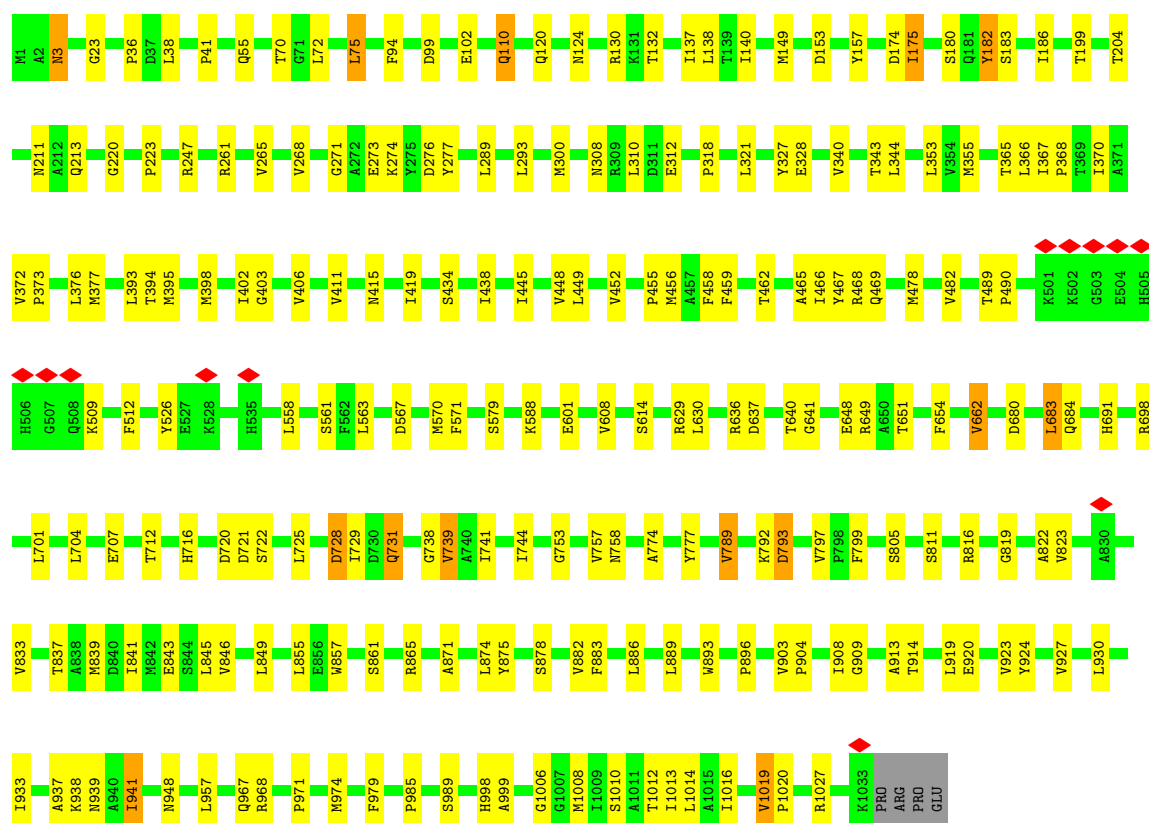
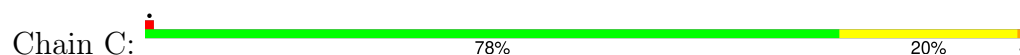


• Molecule 1: Efflux pump membrane transporter





● Molecule 1: Efflux pump membrane transporter



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	36919	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 ($e^-/\text{\AA}^2$)	35.9	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	1500	Depositor
Magnification	81000	Depositor
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	1.478	Depositor
Minimum map value	-0.647	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.047	Depositor
Recommended contour level	0.2	Depositor
Map size ($\text{\AA}$)	376.64, 376.64, 376.64	wwPDB
Map dimensions	352, 352, 352	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	1.07, 1.07, 1.07	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

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	0.18	0/8017	0.30	0/10895
1	B	0.21	0/8051	0.34	1/10938 (0.0%)
1	C	0.20	0/8033	0.34	0/10918
All	All	0.20	0/24101	0.33	1/32751 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	859	ALA	CB-CA-C	-5.64	110.06	116.54

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	7865	0	7890	110	0
1	B	7898	0	7945	134	0
1	C	7881	0	7907	128	0
2	B	31	0	39	3	0
All	All	23675	0	23781	361	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 8.

All (361) 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:C:456:MET:HG2	1:C:467:TYR:HB3	1.50	0.92
1:B:102:GLU:OE2	2:B:1101:LLL:H531	1.79	0.82
1:A:766:VAL:HG21	1:B:119:PRO:HG3	1.68	0.75
1:B:511:PHE:O	1:B:515:PHE:HB3	1.87	0.75
1:B:62:THR:HG21	1:B:82:SER:HB3	1.68	0.74
1:B:952:GLN:HG2	1:B:1032:LEU:HD21	1.70	0.73
1:B:405:LEU:HD21	1:B:477:ALA:HB1	1.70	0.73
1:A:214:ILE:HB	1:A:236:ALA:HB3	1.75	0.69
1:B:681:MET:HE1	1:B:701:LEU:HD21	1.73	0.69
1:C:393:LEU:HD13	1:C:466:ILE:HG23	1.73	0.69
1:A:8:ARG:NH1	1:B:891:GLU:OE2	2.28	0.67
1:C:579:SER:HB3	1:C:722:SER:HB2	1.77	0.66
1:B:871:ALA:HB3	1:B:872:PRO:HD3	1.76	0.66
1:B:68:ASN:ND2	1:B:110:GLN:O	2.29	0.65
1:C:175:ILE:HD11	1:C:289:LEU:HD13	1.79	0.64
1:A:151:LYS:HE2	1:A:278:LEU:HA	1.81	0.63
1:B:185:ARG:NH1	1:B:754:SER:OG	2.31	0.63
1:A:813:ARG:NH2	1:A:815:GLU:OE2	2.33	0.62
1:A:989:SER:O	1:A:998:HIS:NE2	2.33	0.62
1:B:725:LEU:HD11	1:B:805:SER:HB2	1.82	0.61
1:B:69:MET:HE3	1:B:92:LEU:HD11	1.80	0.61
1:B:340:VAL:HG11	1:B:395:MET:HB3	1.83	0.61
1:B:355:MET:HE2	1:B:368:PRO:HG2	1.82	0.61
1:C:403:GLY:HA3	1:C:979:PHE:HD2	1.65	0.61
1:A:405:LEU:HD22	1:A:481:SER:HB3	1.83	0.60
1:C:36:PRO:HG3	1:C:469:GLN:HG3	1.82	0.60
1:A:435:MET:HA	1:A:438:ILE:HG22	1.82	0.60
1:C:328:GLU:HG2	1:C:629:ARG:HH12	1.66	0.60
1:C:247:ARG:O	1:C:261:ARG:NH1	2.34	0.60
1:A:108:GLN:NE2	1:A:112:GLN:OE1	2.35	0.60
1:B:115:MET:O	1:B:123:GLN:NE2	2.35	0.60
1:B:816:ARG:NH2	1:B:819:GLY:O	2.35	0.60
1:B:404:LEU:HD11	1:B:935:LEU:HD21	1.85	0.59
1:B:72:LEU:HD21	1:B:110:GLN:HG3	1.84	0.59
1:A:256:ASP:OD1	1:A:256:ASP:N	2.35	0.59
1:C:466:ILE:HG21	1:C:923:VAL:HG11	1.84	0.59
1:B:375:VAL:HG11	1:B:405:LEU:HD22	1.85	0.58
1:C:180:SER:HB2	1:C:273:GLU:HG2	1.85	0.58

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:919:LEU:HD13	1:C:999:ALA:HA	1.85	0.58
1:C:478:MET:O	1:C:482:VAL:HG23	2.04	0.58
1:B:344:LEU:HG	1:B:399:VAL:HG22	1.86	0.58
1:A:907:VAL:HA	1:A:929:LEU:HD21	1.85	0.58
1:C:989:SER:O	1:C:998:HIS:NE2	2.34	0.58
1:B:911:LEU:HD12	1:B:925:PHE:HZ	1.69	0.58
1:B:256:ASP:OD1	1:B:256:ASP:N	2.36	0.57
1:C:340:VAL:HG11	1:C:395:MET:HB3	1.85	0.57
1:A:455:PRO:HG2	1:A:878:SER:HB2	1.86	0.57
1:A:193:LEU:HD12	1:A:265:VAL:HB	1.86	0.57
1:B:448:VAL:HG23	1:B:886:LEU:HD21	1.86	0.57
1:A:214:ILE:HG23	1:B:749:GLN:HE21	1.68	0.57
1:A:606:MET:SD	1:A:629:ARG:NH1	2.78	0.57
1:C:140:ILE:HD13	1:C:310:LEU:HD22	1.86	0.57
1:B:632:ASP:OD1	1:B:632:ASP:N	2.37	0.56
1:B:948:ASN:OD1	1:B:1027:ARG:NH2	2.39	0.56
1:B:250:THR:HG23	1:B:259:GLU:HG3	1.87	0.56
1:C:654:PHE:HB3	1:C:662:VAL:HG13	1.87	0.56
1:A:222:THR:OG1	1:B:621:GLN:NE2	2.38	0.56
1:A:956:ASP:OD1	1:A:956:ASP:N	2.35	0.56
1:A:654:PHE:HB3	1:A:662:VAL:HG13	1.88	0.56
1:B:280:ARG:NH1	1:B:594:GLU:OE1	2.38	0.56
1:C:903:VAL:HG13	1:C:933:ILE:HG12	1.88	0.56
1:B:76:MET:HE3	1:B:95:LYS:HA	1.89	0.55
1:C:38:LEU:HD22	1:C:462:THR:HG23	1.89	0.55
1:B:562:PHE:HB2	1:B:864:GLU:HB2	1.88	0.55
1:B:701:LEU:HD23	1:B:825:ILE:HD13	1.89	0.55
1:A:571:PHE:HA	1:A:667:PRO:HD3	1.89	0.55
1:C:839:MET:HE1	1:C:865:ARG:HB2	1.89	0.55
1:C:1013:ILE:HG13	1:C:1014:LEU:HD13	1.88	0.54
1:A:375:VAL:HG13	1:A:480:LEU:HB3	1.90	0.54
1:B:902:VAL:HG23	1:B:905:LEU:HD12	1.89	0.54
1:B:680:ASP:H	1:B:861:SER:HG	1.56	0.54
1:C:277:TYR:HE1	1:C:614:SER:HB2	1.73	0.54
1:A:760:PHE:CE1	1:A:767:LYS:HB2	2.43	0.53
1:C:1008:MET:O	1:C:1012:THR:HG23	2.08	0.53
1:B:108:GLN:O	1:B:112:GLN:NE2	2.41	0.53
1:B:401:ALA:O	1:B:405:LEU:N	2.36	0.53
1:C:680:ASP:N	1:C:861:SER:OG	2.31	0.53
1:B:137:ILE:HG22	1:B:138:LEU:HG	1.89	0.53
1:B:390:VAL:HG13	1:B:395:MET:HE3	1.90	0.53

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:150:ASP:OD1	1:B:151:LYS:N	2.42	0.53
1:A:130:ARG:NH1	1:A:174:ASP:OD2	2.42	0.53
1:C:70:THR:O	1:C:110:GLN:NE2	2.41	0.53
1:C:1019:VAL:HG12	1:C:1020:PRO:HD3	1.91	0.53
1:A:373:PRO:O	1:A:377:MET:HG2	2.09	0.53
1:C:130:ARG:HB2	1:C:132:THR:HG22	1.91	0.53
1:B:572:THR:HG21	1:B:625:ARG:HE	1.73	0.52
1:B:637:ASP:OD1	1:B:638:SER:N	2.42	0.52
1:A:526:TYR:OH	1:A:1016:ILE:O	2.22	0.52
1:C:725:LEU:HD11	1:C:805:SER:HB2	1.92	0.52
1:C:909:GLY:HA3	1:C:1010:SER:HB3	1.91	0.52
1:C:394:THR:O	1:C:398:MET:HG2	2.10	0.52
1:C:434:SER:O	1:C:438:ILE:HG12	2.10	0.52
1:C:455:PRO:HA	1:C:458:PHE:HD2	1.74	0.52
1:C:698:ARG:HH11	1:C:716:HIS:CD2	2.28	0.52
1:A:56:THR:HG23	1:C:213:GLN:HB3	1.92	0.52
1:B:791:ASN:OD1	1:B:792:LYS:N	2.43	0.52
1:A:26:ALA:O	1:A:30:LEU:HG	2.10	0.51
1:A:225:VAL:HG23	1:B:779:MET:HG3	1.92	0.51
1:A:153:ASP:OD1	1:A:153:ASP:N	2.43	0.51
1:B:72:LEU:HB2	1:B:75:LEU:HD12	1.92	0.51
1:A:34:GLN:N	1:A:299:GLU:OE2	2.44	0.51
1:B:153:ASP:OD1	1:B:182:TYR:OH	2.28	0.51
1:A:725:LEU:HD11	1:A:805:SER:HB2	1.93	0.51
1:B:468:ARG:O	1:B:472:ILE:HG12	2.11	0.51
1:C:72:LEU:HB2	1:C:75:LEU:HD12	1.92	0.51
1:B:137:ILE:HG12	1:B:293:LEU:HB2	1.91	0.51
1:B:511:PHE:O	1:B:515:PHE:CB	2.57	0.51
1:B:914:THR:HG23	1:B:919:LEU:HB2	1.93	0.50
1:A:300:MET:HG3	1:A:330:THR:HG23	1.94	0.50
1:B:44:ARG:HH21	1:B:132:THR:HG21	1.77	0.50
1:B:156:ASP:HA	1:B:181:GLN:HA	1.93	0.50
1:B:862:TYR:O	1:B:866:LEU:HD13	2.12	0.50
1:B:45:VAL:HG22	1:B:129:VAL:HG22	1.94	0.49
1:B:211:ASN:O	1:B:758:ASN:ND2	2.45	0.49
1:A:210:GLN:NE2	1:A:250:THR:O	2.45	0.49
1:B:372:VAL:HB	1:B:373:PRO:HD3	1.94	0.49
1:C:448:VAL:O	1:C:452:VAL:HG13	2.12	0.49
1:A:401:ALA:O	1:A:405:LEU:HG	2.12	0.49
1:B:720:ASP:OD1	1:B:720:ASP:N	2.43	0.49
1:B:211:ASN:HB3	1:B:758:ASN:HD21	1.77	0.49

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:899:VAL:HG13	1:B:940:ALA:HB3	1.93	0.49
1:C:526:TYR:OH	1:C:1016:ILE:O	2.23	0.49
1:C:186:ILE:HG12	1:C:268:VAL:HG22	1.94	0.49
1:C:355:MET:HA	1:C:974:MET:HE3	1.95	0.49
1:C:683:LEU:HB3	1:C:823:VAL:HG23	1.95	0.48
1:C:744:ILE:HG22	1:C:789:VAL:HG21	1.94	0.48
1:C:308:ASN:O	1:C:312:GLU:HG3	2.14	0.48
1:C:979:PHE:CD1	1:C:1008:MET:HG3	2.48	0.48
1:B:36:PRO:O	1:B:38:LEU:N	2.45	0.48
1:C:273:GLU:HG3	1:C:274:LYS:HG3	1.95	0.48
1:B:561:SER:O	1:B:922:ASP:HA	2.14	0.48
1:C:793:ASP:OD1	1:C:793:ASP:N	2.44	0.48
1:C:343:THR:OG1	1:C:985:PRO:HB2	2.13	0.48
1:A:461:GLY:HA3	1:A:863:GLN:NE2	2.29	0.48
1:A:503:GLY:HA2	1:A:506:HIS:NE2	2.29	0.48
1:C:704:LEU:HB3	1:C:845:LEU:HD22	1.93	0.48
1:A:968:ARG:O	1:A:972:ILE:HG12	2.14	0.48
1:A:343:THR:HG21	1:A:986:MET:HE2	1.96	0.47
1:B:7:ASP:OD1	1:B:7:ASP:N	2.46	0.47
1:B:922:ASP:O	1:B:926:GLN:HG3	2.14	0.47
1:C:99:ASP:OD2	1:C:102:GLU:HG2	2.13	0.47
1:A:33:GLU:O	1:A:391:ASN:HA	2.14	0.47
1:A:340:VAL:HG21	1:A:395:MET:HB3	1.95	0.47
1:B:813:ARG:NH2	1:B:815:GLU:OE1	2.48	0.47
1:C:701:LEU:HD12	1:C:849:LEU:HD11	1.97	0.47
1:C:774:ALA:HB3	1:C:777:TYR:HD2	1.78	0.47
1:A:213:GLN:HG3	1:A:239:LEU:HG	1.95	0.47
1:C:403:GLY:HA3	1:C:979:PHE:CD2	2.48	0.47
1:C:720:ASP:OD1	1:C:721:ASP:N	2.47	0.47
1:A:57:LEU:HG	1:A:88:ALA:HB2	1.95	0.47
1:B:62:THR:HG22	1:B:88:ALA:HB1	1.96	0.47
1:B:756:TYR:OH	1:B:759:ASP:OD1	2.22	0.47
1:C:3:ASN:OD1	1:C:3:ASN:N	2.46	0.47
1:C:120:GLN:NE2	1:C:124:ASN:OD1	2.46	0.47
1:C:913:ALA:HB2	1:C:1006:GLY:HA3	1.97	0.47
1:A:408:ASP:O	1:A:412:VAL:HG12	2.14	0.47
1:B:761:MET:HE3	1:B:764:GLY:HA2	1.96	0.47
1:B:924:TYR:O	1:B:927:VAL:HG22	2.15	0.47
1:B:663:ILE:HD12	1:B:715:ARG:HD3	1.97	0.47
1:C:937:ALA:O	1:C:941:ILE:HG12	2.14	0.47
1:C:41:PRO:HG2	1:C:94:PHE:HB2	1.95	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:277:TYR:CE1	1:C:614:SER:HB2	2.51	0.46
1:C:846:VAL:HG11	1:C:855:LEU:HD22	1.96	0.46
1:A:220:GLY:HA2	1:B:779:MET:SD	2.55	0.46
1:A:375:VAL:HG11	1:A:405:LEU:HD22	1.97	0.46
1:C:691:HIS:CE1	1:C:811:SER:HB2	2.50	0.46
1:C:640:THR:O	1:C:649:ARG:NH1	2.48	0.46
1:A:219:LEU:HD11	1:B:781:PRO:HG3	1.97	0.46
1:C:340:VAL:HA	1:C:343:THR:HG22	1.97	0.46
1:C:452:VAL:HG12	1:C:882:VAL:HG21	1.97	0.46
1:B:358:PHE:CG	1:B:974:MET:HG2	2.51	0.46
1:C:924:TYR:O	1:C:927:VAL:HG22	2.16	0.46
1:A:456:MET:HG2	1:A:471:SER:HB3	1.97	0.46
1:A:571:PHE:HE1	1:A:630:LEU:HD21	1.79	0.46
1:B:356:TYR:HA	1:B:365:THR:HG21	1.97	0.46
1:B:568:ARG:NH2	1:B:669:ALA:O	2.49	0.46
1:C:411:VAL:HG12	1:C:438:ILE:HD12	1.97	0.46
1:C:372:VAL:HB	1:C:373:PRO:HD3	1.98	0.46
1:C:601:GLU:HG2	1:C:649:ARG:HH21	1.81	0.46
1:B:630:LEU:HB3	1:B:636:ARG:HD3	1.96	0.46
1:B:883:PHE:HB2	1:B:900:MET:SD	2.56	0.46
1:C:204:THR:HG23	1:C:757:VAL:HG22	1.98	0.45
1:A:1030:PHE:N	1:A:1031:PRO:HD3	2.30	0.45
1:B:216:VAL:O	1:C:753:GLY:N	2.49	0.45
1:A:400:LEU:HB3	1:A:931:THR:HG21	1.98	0.45
1:C:157:TYR:CZ	1:C:318:PRO:HD3	2.51	0.45
1:B:903:VAL:HG13	1:B:933:ILE:HG12	1.98	0.45
1:C:138:LEU:HA	1:C:327:TYR:O	2.16	0.45
1:A:1008:MET:O	1:A:1012:THR:HG22	2.17	0.45
1:B:44:ARG:HE	1:B:132:THR:HG21	1.81	0.45
1:B:713:ARG:O	1:B:715:ARG:NH1	2.49	0.45
1:A:895:VAL:N	1:A:896:PRO:HD2	2.32	0.45
1:A:1027:ARG:HD3	1:A:1027:ARG:HA	1.67	0.45
1:B:846:VAL:HG11	1:B:855:LEU:HD22	1.99	0.45
1:A:208:GLU:HA	1:A:758:ASN:OD1	2.17	0.45
1:A:298:ASN:HB2	1:A:301:ALA:HB3	1.98	0.44
1:B:395:MET:O	1:B:399:VAL:HG23	2.17	0.44
1:C:365:THR:O	1:C:368:PRO:HD2	2.17	0.44
1:C:968:ARG:C	1:C:971:PRO:HD2	2.43	0.44
1:B:375:VAL:HB	1:B:405:LEU:HD13	2.00	0.44
1:C:561:SER:OG	1:C:920:GLU:OE2	2.32	0.44
1:C:938:LYS:NZ	1:C:939:ASN:OD1	2.39	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:174:ASP:OD1	1:A:175:ILE:N	2.51	0.44
1:A:1:MET:HE2	1:A:486:MET:HE2	2.00	0.44
1:A:2:ALA:H	1:A:439:GLN:HE22	1.65	0.44
1:A:250:THR:OG1	1:A:259:GLU:OE2	2.33	0.44
1:B:869:ALA:O	1:B:872:PRO:HD2	2.18	0.44
1:C:445:ILE:HD13	1:C:938:LYS:HG3	1.99	0.44
1:B:102:GLU:OE2	2:B:1101:LLL:C53	2.59	0.44
1:B:500:LEU:HD21	1:B:505:HIS:CG	2.52	0.44
2:B:1101:LLL:H932	2:B:1101:LLL:H23	1.65	0.44
1:A:58:GLU:HA	1:A:62:THR:HB	1.98	0.44
1:A:240:LEU:O	1:A:760:PHE:HB2	2.18	0.44
1:A:139:THR:HB	1:A:327:TYR:HB3	1.99	0.44
1:C:137:ILE:HG21	1:C:293:LEU:HB2	1.98	0.44
1:C:276:ASP:OD1	1:C:276:ASP:N	2.48	0.44
1:B:34:GLN:HB2	1:B:333:VAL:HG22	2.00	0.44
1:B:212:ALA:H	1:B:237:GLN:NE2	2.16	0.44
1:B:23:GLY:HA3	1:B:377:MET:HB3	2.00	0.43
1:B:708:ASN:ND2	1:B:710:GLU:H	2.16	0.43
1:C:415:ASN:HD22	1:C:438:ILE:HD13	1.83	0.43
1:C:449:LEU:O	1:C:452:VAL:HG22	2.18	0.43
1:A:7:ASP:OD1	1:A:428:ARG:NH1	2.51	0.43
1:A:198:MET:HE2	1:A:251:LEU:HB3	1.99	0.43
1:A:1026:VAL:O	1:A:1031:PRO:HD3	2.19	0.43
1:C:211:ASN:O	1:C:758:ASN:ND2	2.50	0.43
1:C:731:GLN:HG3	1:C:741:ILE:HG12	2.01	0.43
1:C:738:GLY:HA2	1:C:792:LYS:HE3	2.00	0.43
1:A:225:VAL:HG12	1:A:226:ASP:H	1.83	0.43
1:A:449:LEU:HB3	1:A:478:MET:SD	2.59	0.43
1:A:919:LEU:HD13	1:A:999:ALA:HA	2.01	0.43
1:B:68:ASN:OD1	1:B:68:ASN:N	2.49	0.43
1:B:367:ILE:HB	1:B:368:PRO:HD3	2.00	0.43
1:A:779:MET:SD	1:C:220:GLY:HA2	2.59	0.43
1:A:904:PRO:HA	1:A:907:VAL:HG22	2.00	0.43
1:B:336:SER:O	1:B:340:VAL:HG23	2.19	0.43
1:B:498:LYS:HD3	1:B:499:PRO:HD2	2.00	0.43
1:B:700:GLN:HE22	1:B:850:PRO:HD3	1.82	0.43
1:B:451:ALA:HB1	1:B:881:VAL:HG12	1.99	0.43
1:B:774:ALA:HB3	1:B:777:TYR:HD2	1.84	0.43
1:C:376:LEU:HD22	1:C:398:MET:HE3	1.99	0.43
1:C:567:ASP:OD2	1:C:636:ARG:NH1	2.52	0.43
1:C:571:PHE:HE1	1:C:630:LEU:HD21	1.84	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:678:GLY:HA2	1:A:828:GLU:HA	2.00	0.43
1:A:681:MET:HE1	1:A:701:LEU:HD21	2.00	0.43
1:A:1029:ARG:CG	1:A:1031:PRO:HG3	2.49	0.43
1:B:370:ILE:O	1:B:373:PRO:HD2	2.19	0.43
1:B:529:GLY:O	1:B:533:ILE:HG23	2.19	0.43
1:C:648:GLU:O	1:C:651:THR:HG22	2.19	0.43
1:A:355:MET:SD	1:A:410:ILE:HD13	2.59	0.43
1:A:775:ALA:O	1:A:779:MET:HG2	2.18	0.43
1:B:541:ILE:HD11	1:B:1025:LEU:HD21	1.99	0.43
1:C:183:SER:N	1:C:271:GLY:O	2.51	0.43
1:C:837:THR:O	1:C:841:ILE:HG12	2.19	0.43
1:A:983:VAL:HG11	1:A:1004:VAL:HG11	2.01	0.43
1:B:646:ILE:HG22	1:B:649:ARG:NH2	2.33	0.43
1:C:149:MET:HE1	1:C:321:LEU:HD22	2.01	0.43
1:C:328:GLU:HG2	1:C:629:ARG:NH1	2.33	0.43
1:A:275:TYR:CD2	1:C:223:PRO:HD3	2.54	0.43
1:B:279:SER:HB3	1:B:611:THR:HG22	2.01	0.42
1:C:843:GLU:HA	1:C:846:VAL:HG12	2.00	0.42
1:A:32:VAL:H	1:A:298:ASN:HD22	1.65	0.42
1:A:363:ARG:NE	1:A:496:LEU:O	2.43	0.42
1:A:957:LEU:HD11	1:A:1028:ARG:HD2	2.02	0.42
1:B:334:LYS:O	1:B:338:GLU:HG2	2.19	0.42
1:C:393:LEU:CD1	1:C:466:ILE:HG23	2.44	0.42
1:C:684:GLN:HG2	1:C:822:ALA:HB2	2.01	0.42
1:C:816:ARG:NH2	1:C:819:GLY:O	2.53	0.42
1:C:914:THR:HG23	1:C:919:LEU:HB2	2.01	0.42
1:A:922:ASP:O	1:A:926:GLN:HG2	2.19	0.42
1:A:469:GLN:HE21	1:A:469:GLN:HB3	1.59	0.42
1:A:710:GLU:HB3	1:A:833:VAL:HG11	2.00	0.42
1:A:774:ALA:HB3	1:A:777:TYR:HD2	1.84	0.42
1:A:816:ARG:NH2	1:A:819:GLY:O	2.52	0.42
1:B:397:ALA:HB2	1:B:470:PHE:CD1	2.54	0.42
1:C:300:MET:HE2	1:C:300:MET:HB3	1.92	0.42
1:A:529:GLY:O	1:A:533:ILE:HG23	2.19	0.42
1:A:558:LEU:HD11	1:A:914:THR:HG23	2.00	0.42
1:B:166:LEU:HD13	1:B:166:LEU:HA	1.83	0.42
1:A:459:PHE:HD2	1:A:467:TYR:CD2	2.37	0.42
1:B:366:LEU:HD23	1:B:366:LEU:HA	1.83	0.42
1:B:900:MET:HE2	1:B:900:MET:HB3	1.96	0.42
1:A:150:ASP:OD1	1:A:151:LYS:N	2.50	0.42
1:B:375:VAL:HG13	1:B:480:LEU:HB2	2.01	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:913:ALA:HB2	1:B:1006:GLY:HA3	2.01	0.42
1:C:402:ILE:O	1:C:406:VAL:HG13	2.19	0.42
1:A:137:ILE:HD11	1:A:293:LEU:HB2	2.01	0.42
1:A:226:ASP:HB2	1:A:227:LYS:HD2	2.02	0.42
1:C:327:TYR:CE1	1:C:570:MET:HB3	2.55	0.42
1:C:367:ILE:HB	1:C:368:PRO:HD3	2.02	0.42
1:B:311:ASP:OD1	1:B:323:TYR:OH	2.32	0.42
1:B:520:ASN:O	1:B:524:GLU:HG2	2.20	0.42
1:C:153:ASP:OD1	1:C:182:TYR:OH	2.38	0.42
1:C:174:ASP:OD1	1:C:175:ILE:N	2.53	0.42
1:B:902:VAL:HG11	1:B:940:ALA:HB2	2.01	0.42
1:C:588:LYS:HE2	1:C:588:LYS:HB3	1.87	0.42
1:A:451:ALA:O	1:A:878:SER:OG	2.21	0.41
1:A:615:GLY:HA2	1:A:625:ARG:HB2	2.01	0.41
1:A:950:MET:HE2	1:A:950:MET:HB3	1.94	0.41
1:B:204:THR:HG23	1:B:757:VAL:HG22	2.02	0.41
1:B:388:TYR:CZ	1:B:472:ILE:HG13	2.55	0.41
1:B:404:LEU:HD22	1:B:474:ILE:HD11	2.02	0.41
1:C:459:PHE:CE1	1:C:874:LEU:HD13	2.55	0.41
1:C:509:LYS:HB2	1:C:512:PHE:HB2	2.02	0.41
1:C:739:VAL:HG21	1:C:797:VAL:HG21	2.02	0.41
1:C:886:LEU:HD22	1:C:941:ILE:HD11	2.02	0.41
1:A:930:LEU:HD23	1:A:930:LEU:HA	1.92	0.41
1:C:948:ASN:OD1	1:C:1027:ARG:NH2	2.53	0.41
1:A:446:ALA:HB2	1:A:482:VAL:HG21	2.01	0.41
1:A:589:VAL:O	1:A:593:ILE:HG12	2.20	0.41
1:A:701:LEU:HB2	1:A:849:LEU:HD11	2.03	0.41
1:A:400:LEU:HD13	1:A:400:LEU:HA	1.77	0.41
1:A:911:LEU:HD12	1:A:911:LEU:HA	1.92	0.41
1:B:351:VAL:O	1:B:355:MET:HG2	2.20	0.41
1:B:938:LYS:HE3	1:B:938:LYS:HB3	1.86	0.41
1:A:407:ASP:OD2	1:A:938:LYS:HD2	2.21	0.41
1:A:478:MET:HE2	1:A:478:MET:HB3	1.99	0.41
1:A:670:ILE:HB	1:A:673:LEU:HD23	2.02	0.41
1:C:871:ALA:HB1	1:C:875:TYR:HE2	1.86	0.41
1:A:40:PRO:HA	1:A:41:PRO:HD3	1.98	0.41
1:A:1029:ARG:HG3	1:A:1031:PRO:HG3	2.02	0.41
1:C:182:TYR:HD1	1:C:182:TYR:HA	1.76	0.41
1:A:340:VAL:HG11	1:A:395:MET:HB3	2.03	0.41
1:A:949:GLU:O	1:A:953:LYS:HG2	2.20	0.41
1:B:328:GLU:OE1	1:B:629:ARG:NH2	2.54	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:570:MET:HE2	1:B:570:MET:HB2	1.86	0.41
1:B:968:ARG:HA	1:B:971:PRO:HD2	2.02	0.41
1:C:455:PRO:HA	1:C:458:PHE:CD2	2.53	0.41
1:C:489:THR:OG1	1:C:490:PRO:HD3	2.20	0.41
1:A:558:LEU:HD21	1:A:915:TRP:HB2	2.03	0.41
1:B:10:ILE:HD12	1:C:893:TRP:NE1	2.36	0.41
1:B:284:LYS:HE3	1:B:284:LYS:HB2	1.79	0.41
1:B:355:MET:SD	1:B:410:ILE:HG12	2.61	0.41
1:B:373:PRO:O	1:B:377:MET:HG2	2.21	0.41
1:B:979:PHE:HD2	1:B:1008:MET:HG2	1.86	0.41
1:C:637:ASP:HB3	1:C:641:GLY:H	1.86	0.41
1:C:728:ASP:OD1	1:C:728:ASP:N	2.52	0.41
1:A:371:ALA:O	1:A:374:VAL:HG22	2.21	0.41
1:C:465:ALA:HA	1:C:468:ARG:NH1	2.36	0.41
1:C:729:ILE:HD13	1:C:744:ILE:HD12	2.02	0.41
1:C:878:SER:O	1:C:882:VAL:HG23	2.21	0.41
1:B:246:PHE:HB2	1:B:268:VAL:HG11	2.04	0.40
1:B:943:ILE:HG13	1:B:972:ILE:HD11	2.03	0.40
1:C:344:LEU:HG	1:C:402:ILE:HD11	2.02	0.40
1:C:372:VAL:HG22	1:C:406:VAL:HG12	2.03	0.40
1:C:941:ILE:HD13	1:C:941:ILE:HA	1.82	0.40
1:B:212:ALA:H	1:B:237:GLN:HE21	1.69	0.40
1:B:213:GLN:HE21	1:B:239:LEU:HG	1.85	0.40
1:B:705:ALA:HB1	1:B:714:VAL:HG11	2.03	0.40
1:B:713:ARG:HH21	1:B:828:GLU:CD	2.29	0.40
1:C:883:PHE:CE1	1:C:896:PRO:HB2	2.56	0.40
1:A:84:GLY:N	1:A:812:PRO:O	2.53	0.40
1:B:608:VAL:HG12	1:B:628:ILE:HG23	2.03	0.40
1:B:698:ARG:HG3	1:B:823:VAL:HG11	2.02	0.40
1:C:370:ILE:O	1:C:373:PRO:HD2	2.21	0.40
1:B:453:PHE:O	1:B:456:MET:HG2	2.21	0.40
1:C:839:MET:HE3	1:C:857:TRP:CD2	2.56	0.40
1:C:904:PRO:O	1:C:908:ILE:HG22	2.22	0.40
1:C:930:LEU:HD23	1:C:930:LEU:HA	1.84	0.40
1:A:156:ASP:OD2	1:A:763:ARG:NH2	2.54	0.40
1:C:23:GLY:HA3	1:C:377:MET:HB3	2.02	0.40

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	1029/1037 (99%)	1018 (99%)	11 (1%)	0	100	100
1	B	1031/1037 (99%)	1017 (99%)	14 (1%)	0	100	100
1	C	1031/1037 (99%)	1017 (99%)	13 (1%)	1 (0%)	48	77
All	All	3091/3111 (99%)	3052 (99%)	38 (1%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	563	LEU

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	835/849 (98%)	808 (97%)	27 (3%)	34	60
1	B	841/849 (99%)	816 (97%)	25 (3%)	36	61
1	C	837/849 (99%)	808 (96%)	29 (4%)	31	58
All	All	2513/2547 (99%)	2432 (97%)	81 (3%)	36	60

All (81) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	128	THR
1	A	153	ASP

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	222	THR
1	A	226	ASP
1	A	256	ASP
1	A	291	VAL
1	A	313	LEU
1	A	338	GLU
1	A	350	LEU
1	A	370	ILE
1	A	376	LEU
1	A	400	LEU
1	A	410	ILE
1	A	463	THR
1	A	480	LEU
1	A	570	MET
1	A	608	VAL
1	A	662	VAL
1	A	735	GLN
1	A	754	SER
1	A	799	PHE
1	A	902	VAL
1	A	929	LEU
1	A	942	LEU
1	A	956	ASP
1	A	969	LEU
1	A	1021	LEU
1	B	7	ASP
1	B	69	MET
1	B	75	LEU
1	B	111	LEU
1	B	166	LEU
1	B	256	ASP
1	B	269	GLU
1	B	402	ILE
1	B	448	VAL
1	B	570	MET
1	B	630	LEU
1	B	632	ASP
1	B	682	GLU
1	B	694	LEU
1	B	714	VAL
1	B	726	GLN
1	B	766	VAL

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	789	VAL
1	B	799	PHE
1	B	823	VAL
1	B	825	ILE
1	B	900	MET
1	B	930	LEU
1	B	1004	VAL
1	B	1033	LYS
1	C	3	ASN
1	C	55	GLN
1	C	75	LEU
1	C	110	GLN
1	C	175	ILE
1	C	182	TYR
1	C	199	THR
1	C	265	VAL
1	C	353	LEU
1	C	366	LEU
1	C	419	ILE
1	C	558	LEU
1	C	608	VAL
1	C	662	VAL
1	C	683	LEU
1	C	707	GLU
1	C	712	THR
1	C	728	ASP
1	C	731	GLN
1	C	739	VAL
1	C	789	VAL
1	C	793	ASP
1	C	799	PHE
1	C	833	VAL
1	C	889	LEU
1	C	941	ILE
1	C	957	LEU
1	C	967	GLN
1	C	1019	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (78) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	55	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	81	GLN
1	A	87	GLN
1	A	105	GLN
1	A	108	GLN
1	A	112	GLN
1	A	124	ASN
1	A	136	ASN
1	A	152	GLN
1	A	163	GLN
1	A	213	GLN
1	A	237	GLN
1	A	298	ASN
1	A	469	GLN
1	A	583	GLN
1	A	585	GLN
1	A	592	GLN
1	A	619	ASN
1	A	621	GLN
1	A	686	HIS
1	A	708	ASN
1	A	758	ASN
1	A	848	GLN
1	A	863	GLN
1	A	870	GLN
1	A	926	GLN
1	B	55	GLN
1	B	81	GLN
1	B	87	GLN
1	B	105	GLN
1	B	109	ASN
1	B	112	GLN
1	B	152	GLN
1	B	163	GLN
1	B	170	ASN
1	B	213	GLN
1	B	255	GLN
1	B	315	GLN
1	B	361	ASN
1	B	592	GLN
1	B	621	GLN
1	B	656	GLN
1	B	684	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	700	GLN
1	B	708	ASN
1	B	724	GLN
1	B	749	GLN
1	B	758	ASN
1	B	818	ASN
1	B	870	GLN
1	B	926	GLN
1	B	951	ASN
1	C	42	ASN
1	C	55	GLN
1	C	87	GLN
1	C	120	GLN
1	C	123	GLN
1	C	124	ASN
1	C	213	GLN
1	C	241	GLN
1	C	254	ASN
1	C	255	GLN
1	C	315	GLN
1	C	576	GLN
1	C	584	GLN
1	C	585	GLN
1	C	655	ASN
1	C	684	GLN
1	C	686	HIS
1	C	700	GLN
1	C	708	ASN
1	C	716	HIS
1	C	745	ASN
1	C	749	GLN
1	C	848	GLN
1	C	863	GLN
1	C	926	GLN
1	C	967	GLN

5.3.3 RNA ⓘ

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](#)

1 ligand is 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	LLL	B	1101	-	31,33,33	1.39	5 (16%)	33,49,49	1.75	8 (24%)

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	LLL	B	1101	-	-	4/11/65/65	1/3/3/3

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	1101	LLL	C42-C32	3.03	1.59	1.53
2	B	1101	LLL	C52-C42	3.03	1.60	1.52
2	B	1101	LLL	C62-C12	2.67	1.58	1.53
2	B	1101	LLL	O53-C53	2.60	1.47	1.43
2	B	1101	LLL	C11-C21	2.30	1.56	1.52

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	1101	LLL	C53-O53-C13	4.20	118.00	111.53
2	B	1101	LLL	C13-O62-C62	-3.26	110.24	117.98
2	B	1101	LLL	C11-O11-C42	-2.94	111.02	117.98
2	B	1101	LLL	O11-C11-O51	-2.81	103.29	110.69
2	B	1101	LLL	O11-C42-C32	-2.73	102.67	109.18
2	B	1101	LLL	O62-C13-C23	2.41	114.02	108.09
2	B	1101	LLL	O11-C11-C21	2.07	111.41	108.10
2	B	1101	LLL	C13-C23-C33	2.02	112.59	109.31

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	1101	LLL	C21-C11-O11-C42
2	B	1101	LLL	C41-C51-C61-N61
2	B	1101	LLL	O51-C51-C61-N61
2	B	1101	LLL	C23-C33-N33-C93

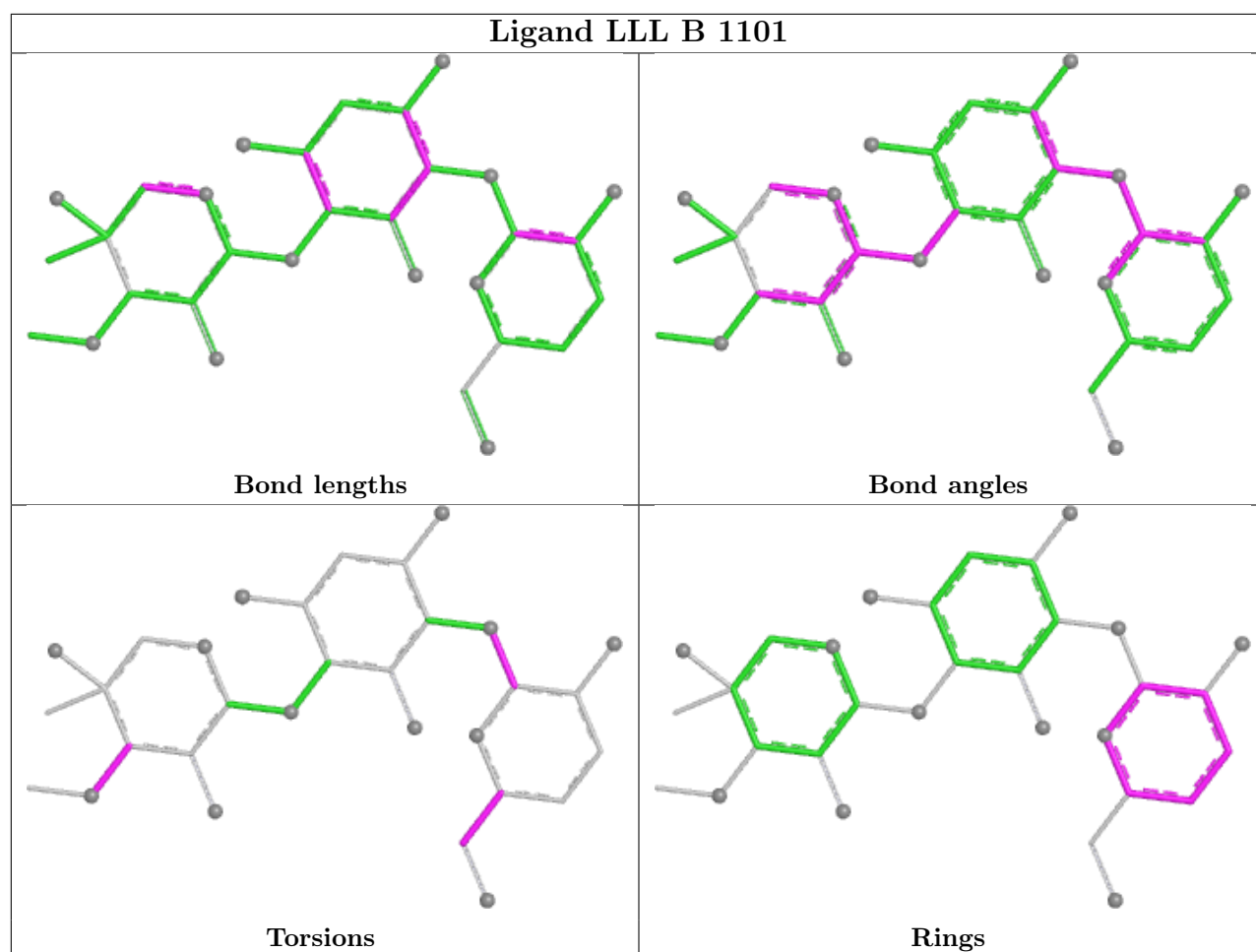
All (1) ring outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	1101	LLL	C11-C21-C31-C41-C51-O51

1 monomer is involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	1101	LLL	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.

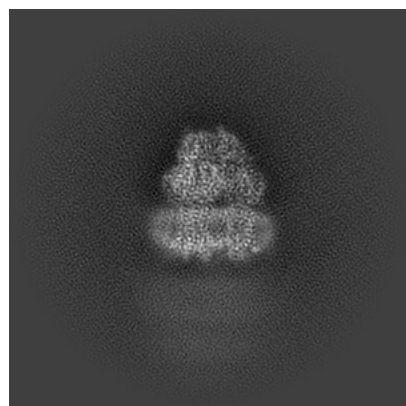
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-28857. These allow visual inspection of the internal detail of the map and identification of artifacts.

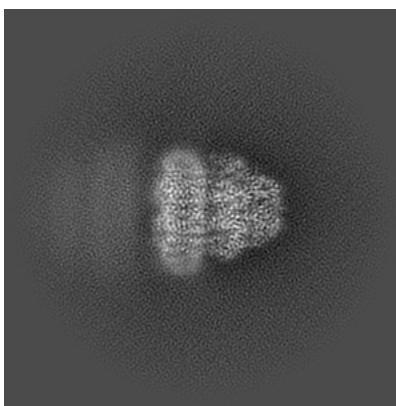
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

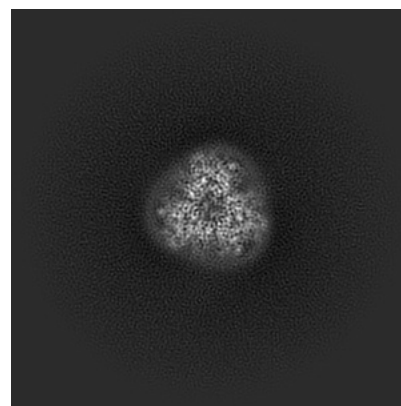
6.1.1 Primary map



X

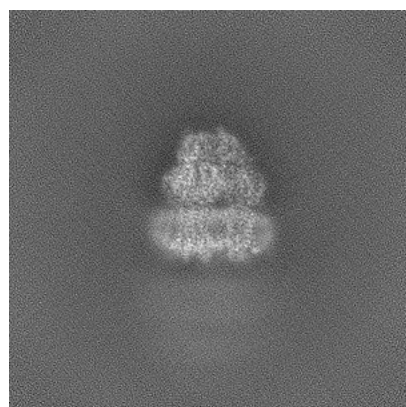


Y

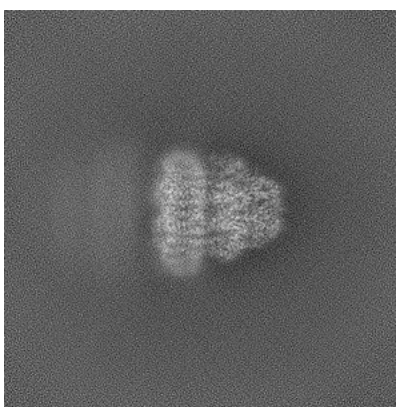


Z

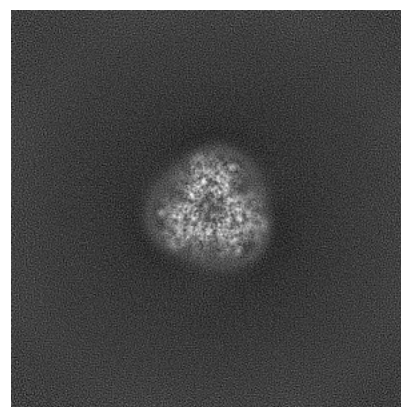
6.1.2 Raw map



X



Y

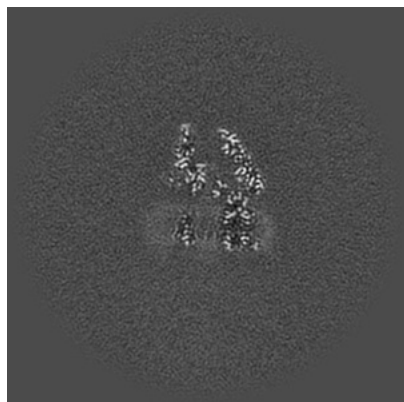


Z

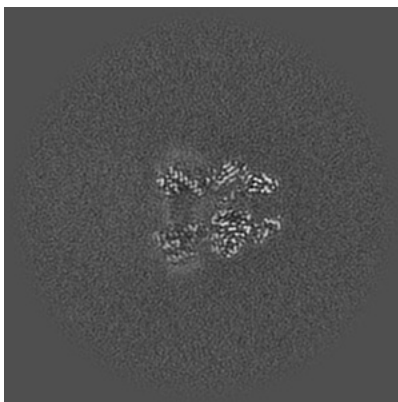
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

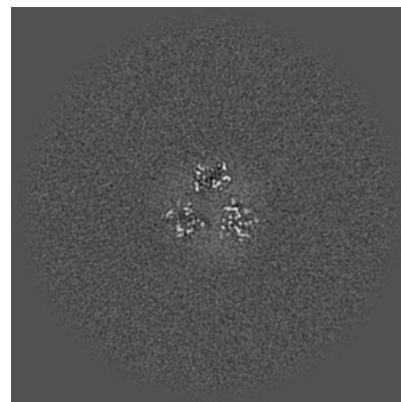
6.2.1 Primary map



X Index: 176

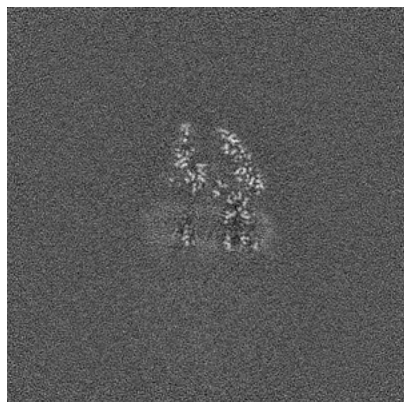


Y Index: 176

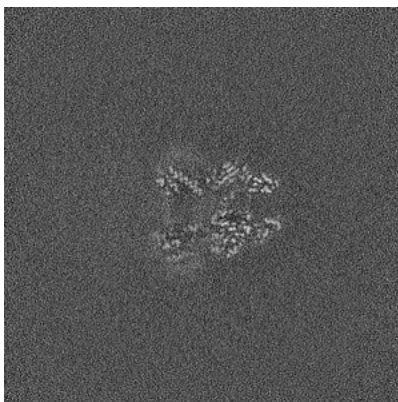


Z Index: 176

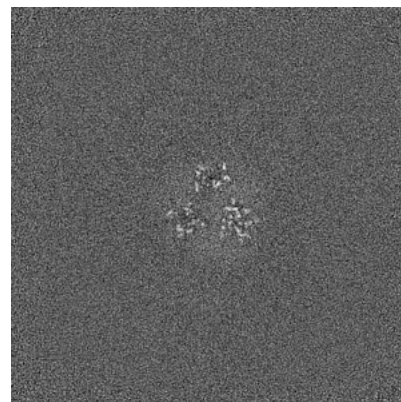
6.2.2 Raw map



X Index: 176



Y Index: 176

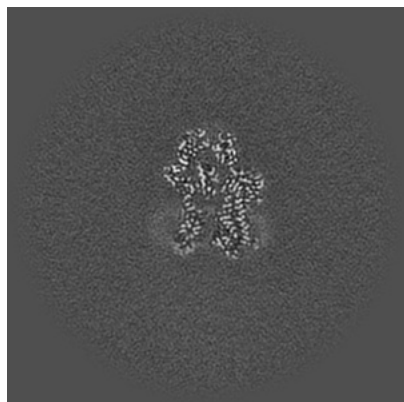


Z Index: 176

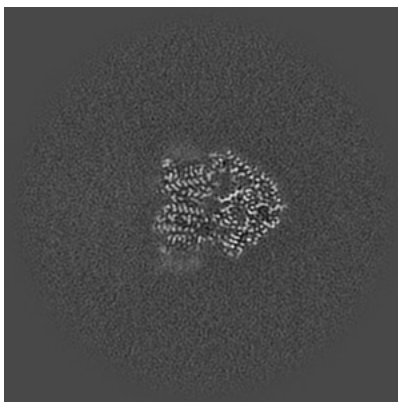
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

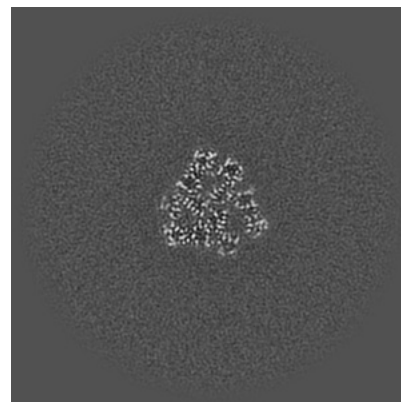
6.3.1 Primary map



X Index: 164

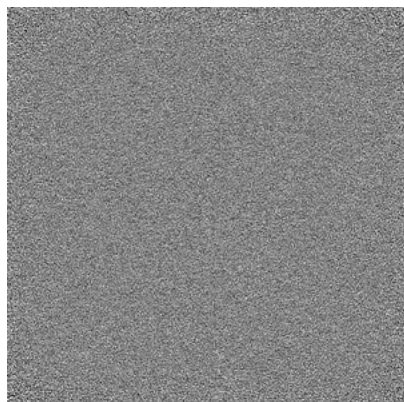


Y Index: 158

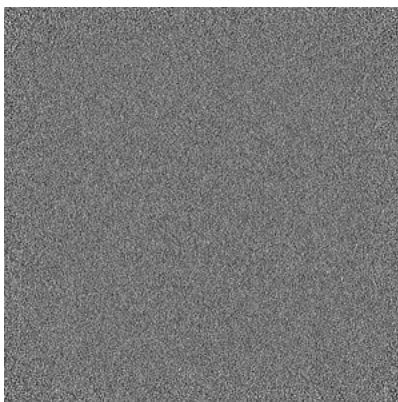


Z Index: 198

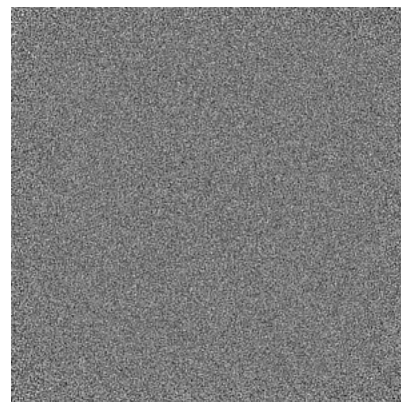
6.3.2 Raw map



X Index: 0



Y Index: 0

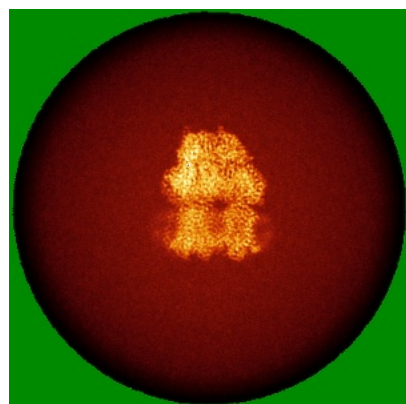


Z Index: 0

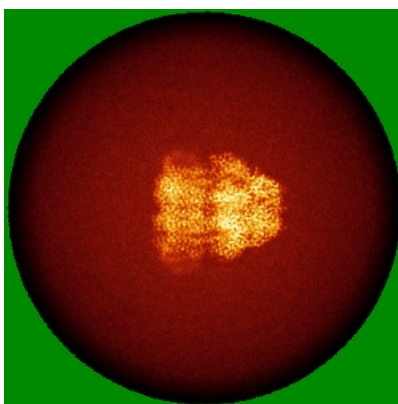
The images above show the largest variance slices of the map in three orthogonal directions.

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

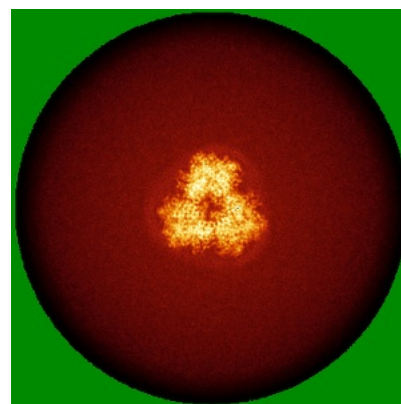
6.4.1 Primary map



X

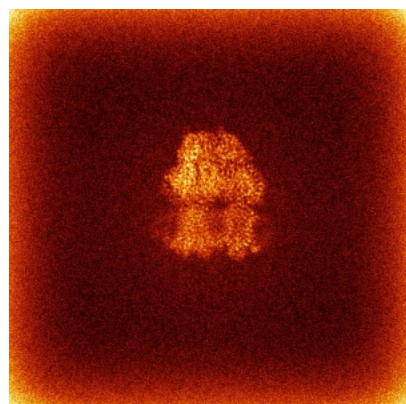


Y

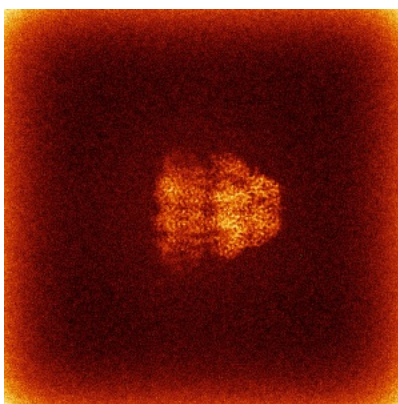


Z

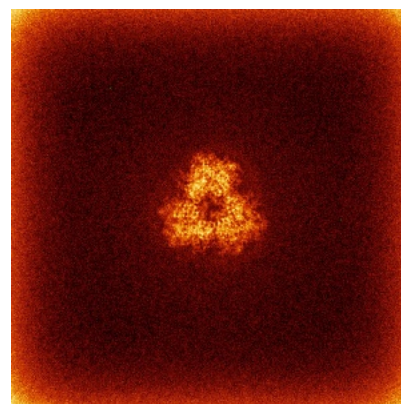
6.4.2 Raw map



X



Y

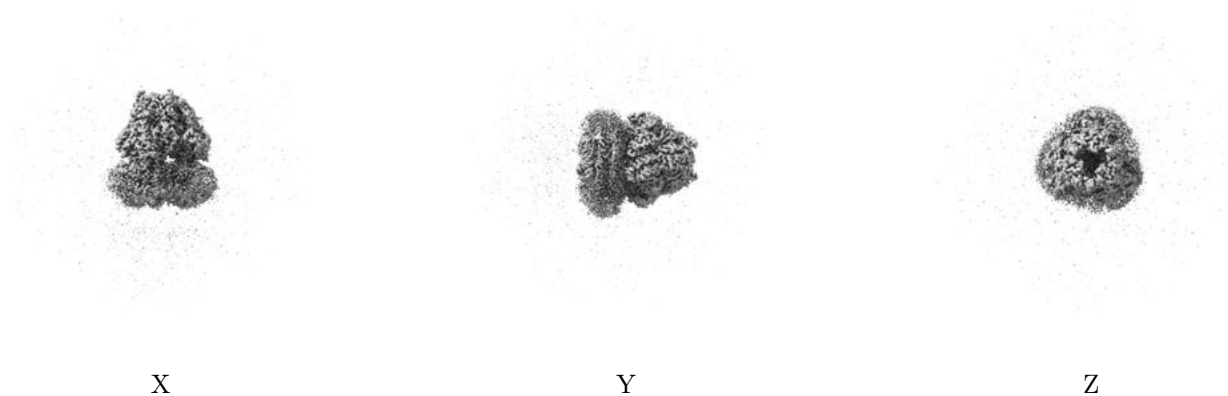


Z

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.

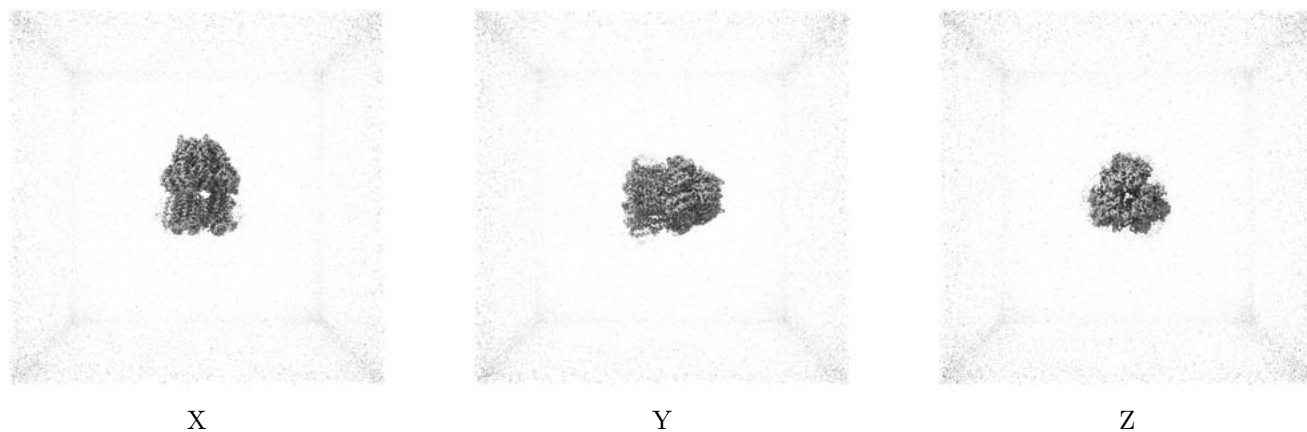
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.2. 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.

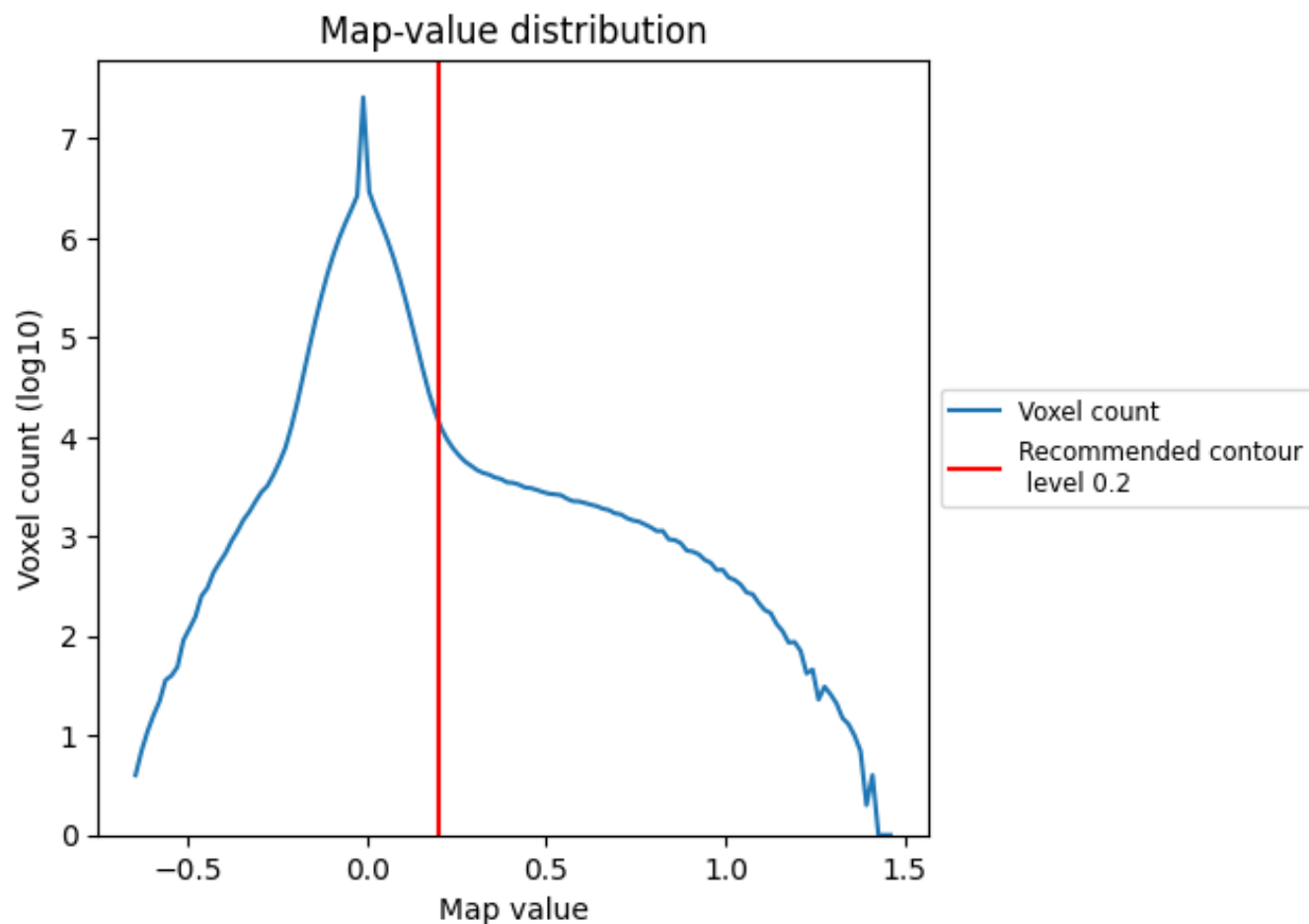
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

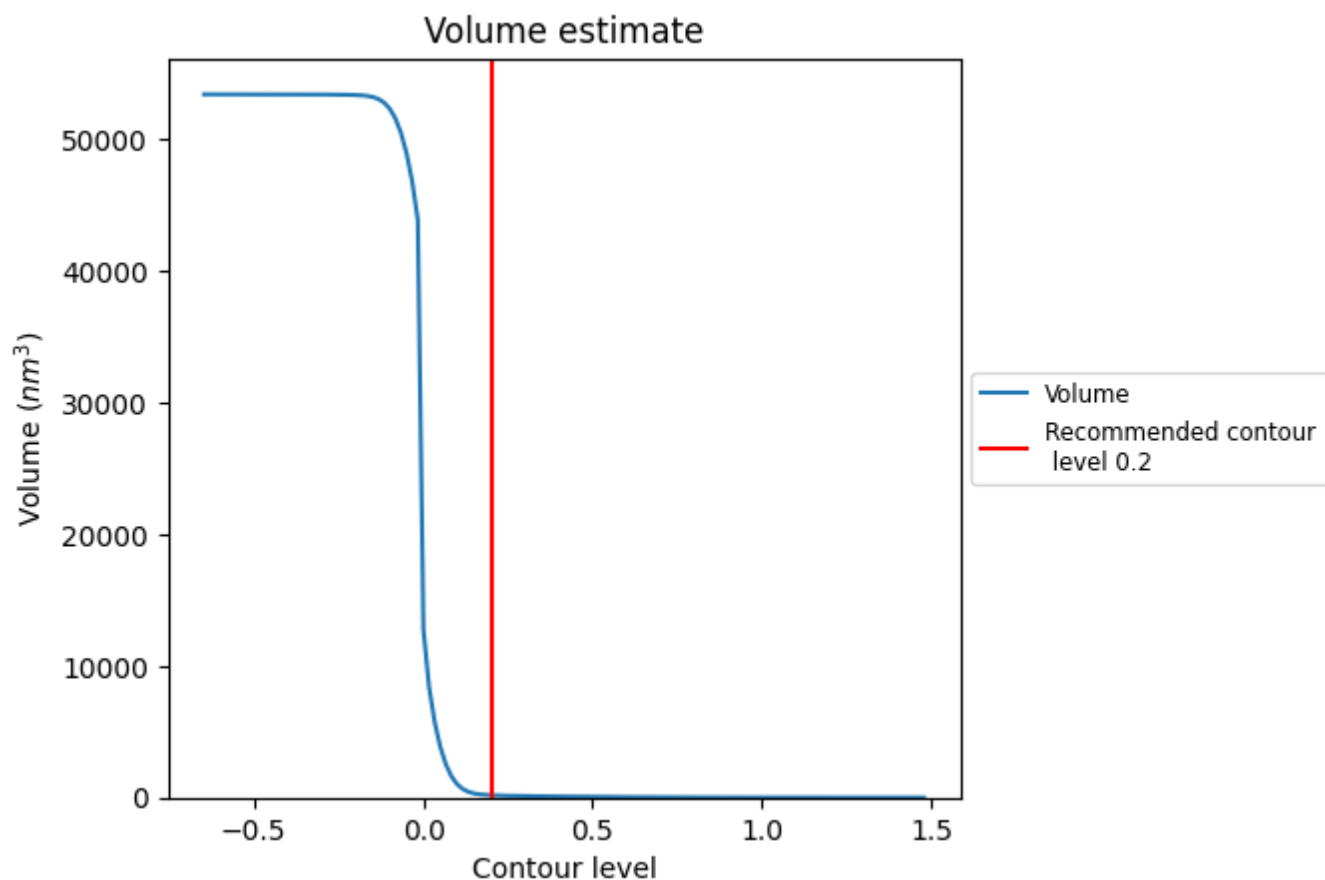
This section contains the results of statistical analysis of the map.

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.

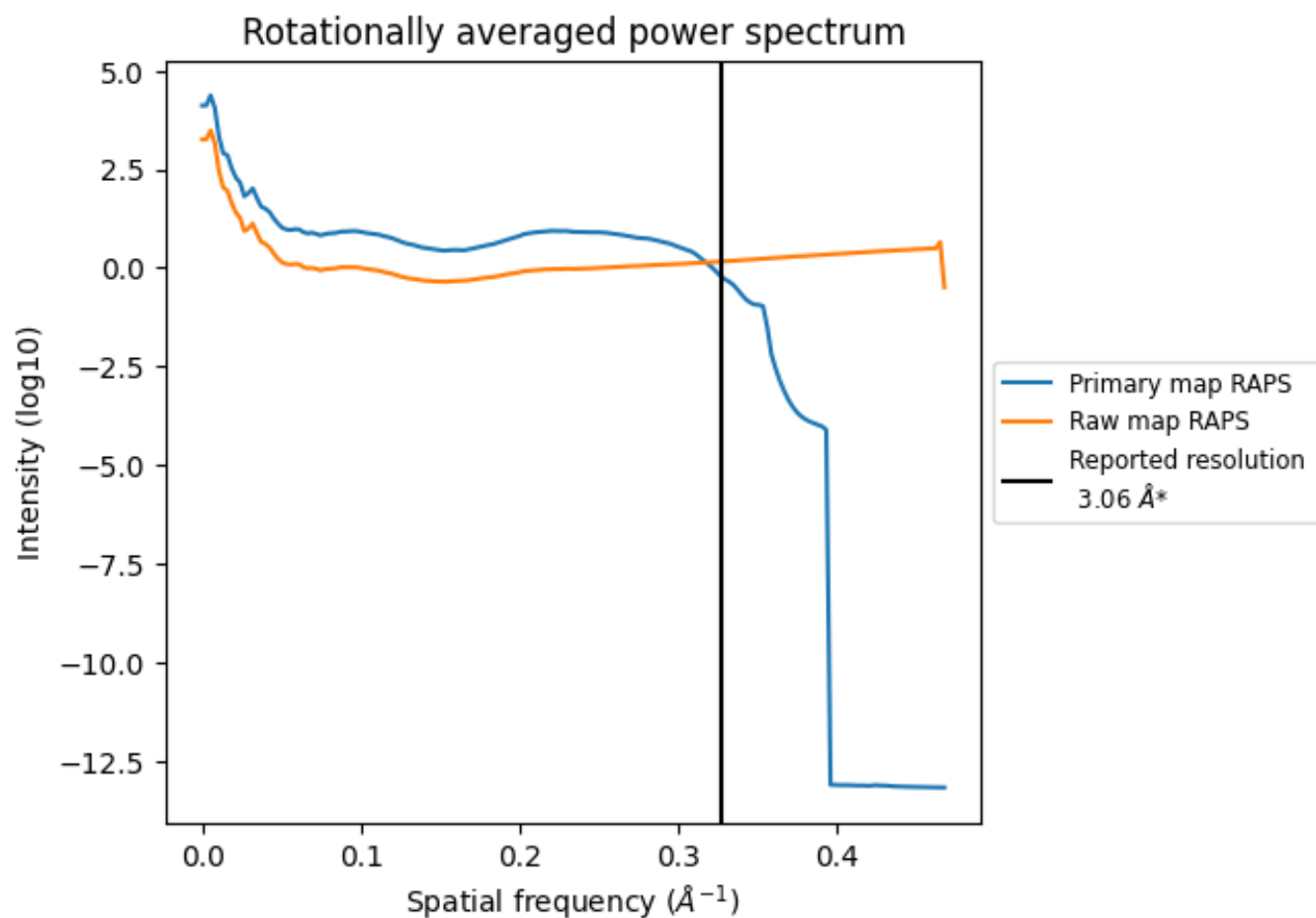
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 176 nm^3 ; this corresponds to an approximate mass of 159 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 ⓘ

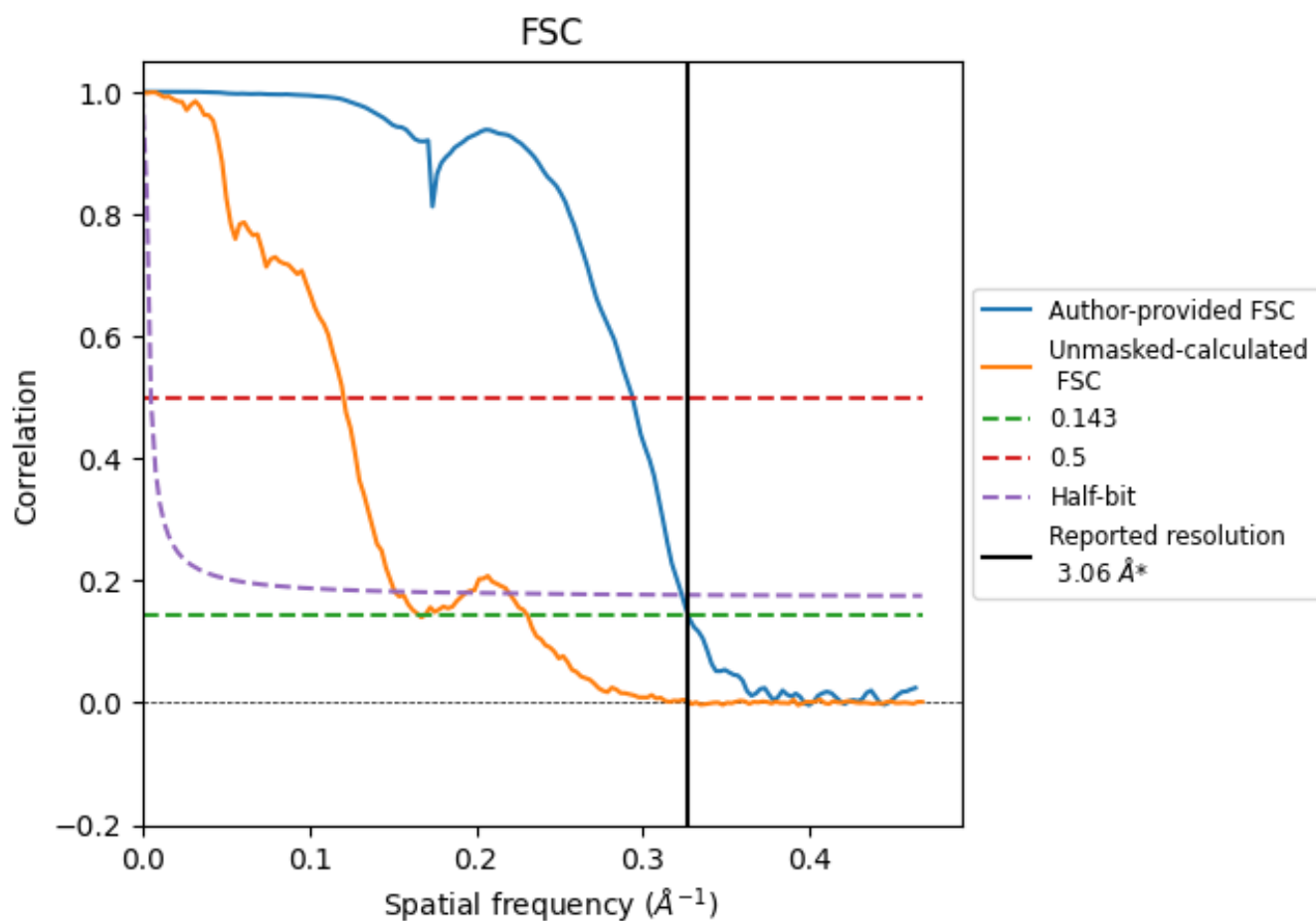


*Reported resolution corresponds to spatial frequency of 0.327 Å⁻¹

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 0.327 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

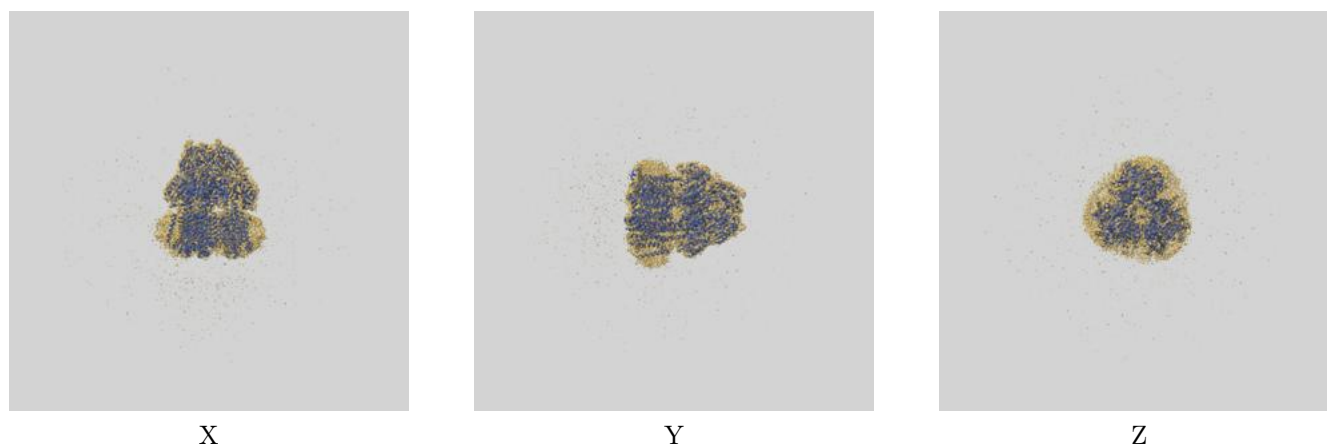
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.06	-	-
Author-provided FSC curve	3.06	3.40	3.09
Unmasked-calculated*	6.03	8.29	6.61

*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 6.03 differs from the reported value 3.06 by more than 10 %

9 Map-model fit [i](#)

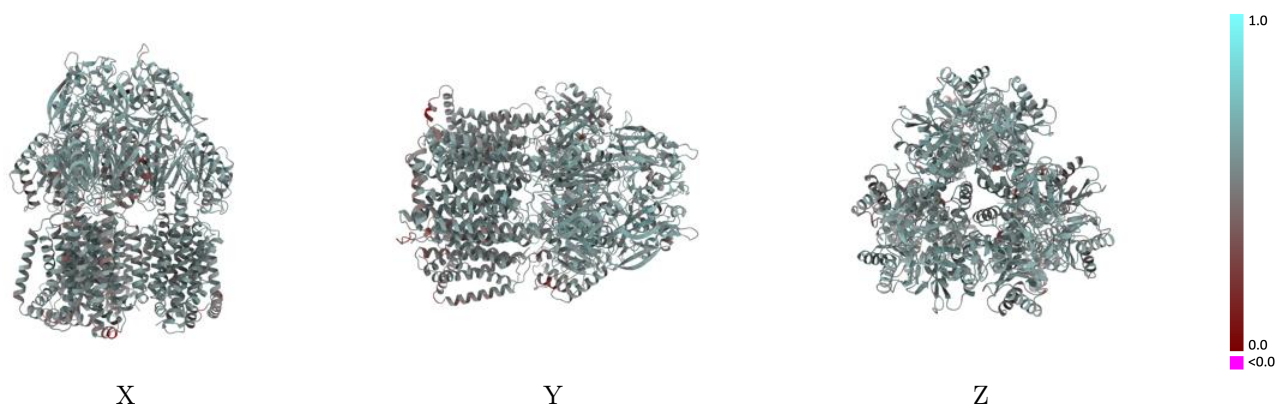
This section contains information regarding the fit between EMDB map EMD-28857 and PDB model 8F4R. Per-residue inclusion information can be found in section [3](#) on page [4](#).

9.1 Map-model overlay [i](#)



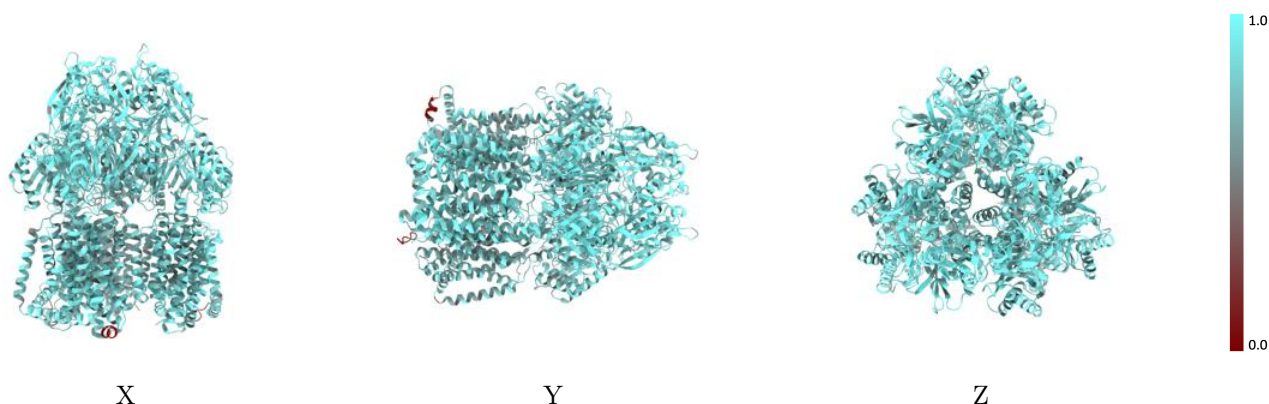
The images above show the 3D surface view of the map at the recommended contour level 0.2 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



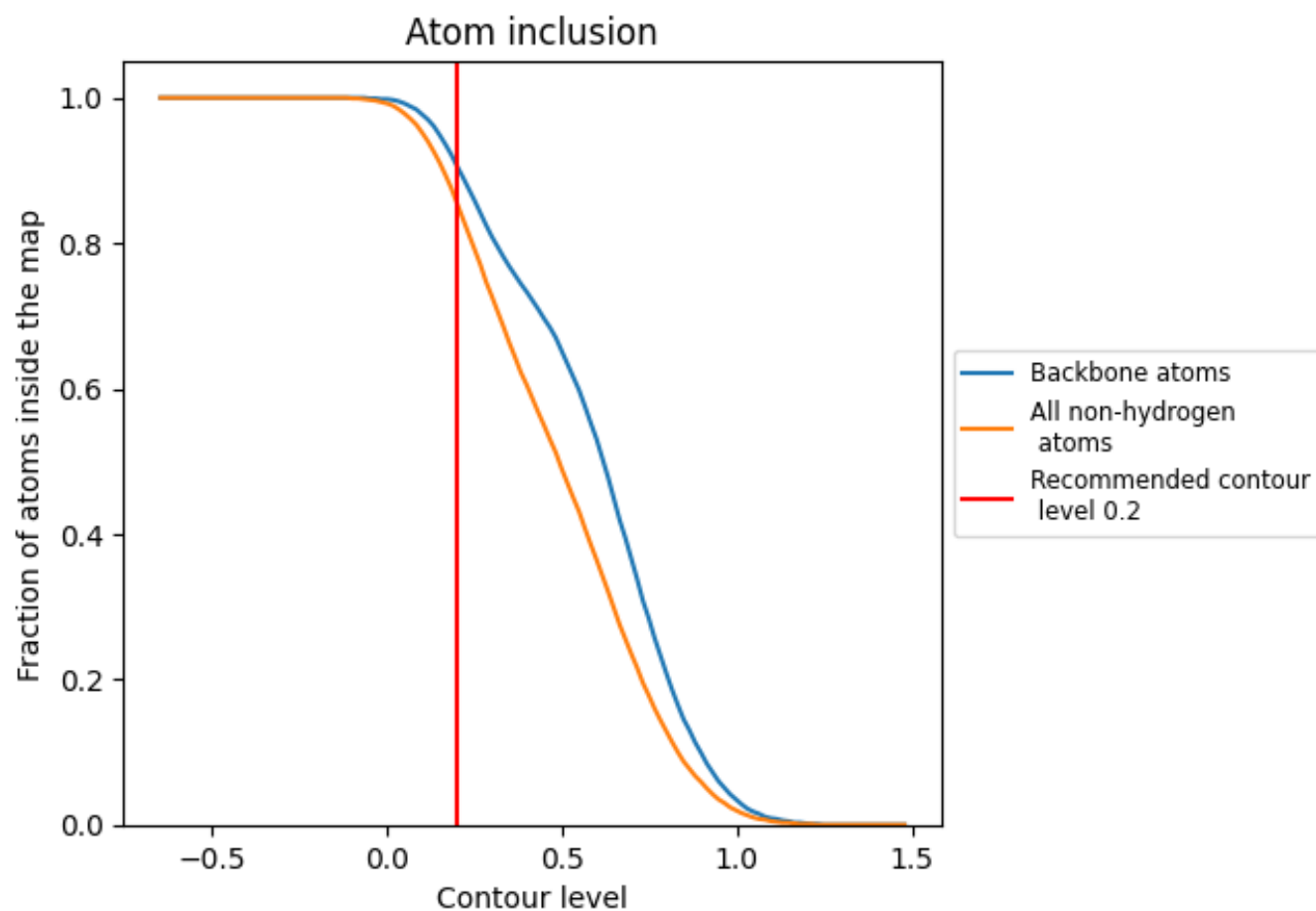
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.2).

9.4 Atom inclusion [i](#)



At the recommended contour level, 91% of all backbone atoms, 86% 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 (0.2) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8550	0.5350
A	0.8530	0.5330
B	0.8730	0.5480
C	0.8380	0.5240

