



Full wwPDB EM Validation Report ⓘ

Apr 2, 2024 – 10:12 AM JST

PDB ID : 7WIU
EMDB ID : EMD-32536
Title : Cryo-EM structure of Mycobacterium tuberculosis irtAB in inward-facing state
Authors : Zhang, B.; Sun, S.; Yang, H.; Rao, Z.
Deposited on : 2022-01-05
Resolution : 3.48 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.dev70
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36

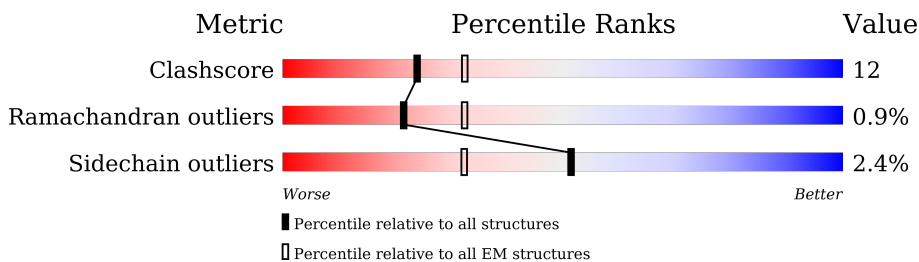
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.48 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	859	
2	B	579	

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 8615 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 Mycobactin import ATP-binding/permease protein IrtA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	571	4344	2785	783	771	5	0	0

- Molecule 2 is a protein called Mycobactin import ATP-binding/permease protein IrtB.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	576	4271	2716	764	782	9	0	0

S163	R282	V390	L528
L156	F287	L391	I531
G157	T288	I392	D548
L161	E292	D393	G549
V164	S299	T394	F564
P165	T303	D396	E579
R179	L304	L400	
T183	A318	D401	
D186	G321	A402	
K187	T322	R463	
E194	W323	A404	
I197	R324	V408	
R211	D325	H420	
V212	G326	L445	
E213	A327	A446	
P214	V328	R447	
A215	V329	V448	
R216	P330	L451	
A229	R331	V463	
T230	I332	G464	
M231	E333	L470	
R232	F334	E474	
L233	D335	R477	
L234	Y337	V478	
G235	A338	L484	
M236	F339	I485	
Q237	G340	K486	
A241	S345	A487	
L255	G346	A488	
T258	V348	P489	
T259	L349	V490	
A260	D350	E495	
A261	G351	D501	
T265	Q357	N504	
L268	P358	E505	
T269	T374	V509	
V270	L378	R517	
P271	G381	L382	
E272	L382	H383	
A275	H383	Q384	
L276	Q384	P385	
I277	T386	T386	
V278	R387	R387	
V279	G388	G388	
	R389	R389	

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	143181	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	60	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	1800	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	1.715	Depositor
Minimum map value	-0.559	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.031	Depositor
Recommended contour level	0.08	Depositor
Map size (Å)	314.88, 314.88, 314.88	wwPDB
Map dimensions	384, 384, 384	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.82, 0.82, 0.82	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	0.28	0/4429	0.49	0/6041
2	B	0.29	0/4349	0.50	0/5950
All	All	0.28	0/8778	0.49	0/11991

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	4344	0	4498	102	0
2	B	4271	0	4369	119	0
All	All	8615	0	8867	210	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 12.

All (210) 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:620:ARG:NH1	1:A:622:GLY:H	1.50	1.08
1:A:620:ARG:NH1	1:A:622:GLY:N	2.23	0.85

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:395:THR:OG1	2:B:396:ASP:N	2.07	0.84
2:B:334:PHE:HE1	2:B:390:VAL:HG13	1.44	0.81
2:B:334:PHE:CE1	2:B:390:VAL:HG13	2.16	0.81
2:B:387:ARG:HH11	2:B:387:ARG:HG3	1.44	0.81
2:B:39:VAL:HG22	2:B:279:VAL:HG21	1.68	0.76
2:B:382:LEU:N	2:B:382:LEU:HD23	2.00	0.74
1:A:620:ARG:O	1:A:620:ARG:NE	2.20	0.74
2:B:336:ASP:O	2:B:387:ARG:NH1	2.22	0.73
1:A:658:ARG:HH11	1:A:675:ARG:HA	1.55	0.72
1:A:842:ASP:C	1:A:844:GLY:H	1.93	0.72
2:B:326:GLY:O	2:B:327:ALA:HB3	1.91	0.71
2:B:389:ARG:HG2	2:B:389:ARG:HH11	1.57	0.69
1:A:625:VAL:HG13	1:A:626:ILE:HG12	1.75	0.69
2:B:321:GLY:H	2:B:401:ASP:HB2	1.56	0.69
1:A:484:ARG:NH1	2:B:98:PRO:O	2.25	0.68
1:A:621:PRO:O	1:A:623:VAL:N	2.27	0.68
2:B:323:TRP:CZ2	2:B:392:ILE:HD11	2.30	0.67
2:B:13:HIS:O	2:B:15:ALA:N	2.28	0.67
2:B:323:TRP:HZ2	2:B:392:ILE:HD11	1.63	0.63
1:A:437:LEU:HD12	1:A:531:ILE:HD11	1.83	0.61
2:B:528:LEU:HA	2:B:531:ILE:HG12	1.82	0.61
2:B:448:VAL:HG23	2:B:451:LEU:HD12	1.83	0.61
1:A:618:GLY:HA2	1:A:624:PRO:HA	1.83	0.60
1:A:620:ARG:HH12	1:A:622:GLY:H	1.47	0.60
2:B:42:MET:HB2	2:B:275:ALA:HB2	1.84	0.59
1:A:621:PRO:O	1:A:622:GLY:C	2.41	0.59
1:A:528:LEU:HD13	2:B:282:ARG:HH11	1.66	0.59
1:A:826:THR:OG1	1:A:829:GLU:OE1	2.21	0.59
1:A:691:GLN:NE2	1:A:772:ALA:O	2.35	0.59
1:A:779:GLU:HA	1:A:779:GLU:OE1	2.01	0.59
1:A:756:ILE:O	1:A:760:ILE:HG13	2.04	0.58
2:B:389:ARG:HH11	2:B:389:ARG:CG	2.15	0.58
2:B:382:LEU:HD23	2:B:382:LEU:H	1.69	0.58
2:B:486:LYS:HE2	2:B:488:ALA:HB2	1.87	0.57
2:B:194:GLU:HA	2:B:197:ILE:HD12	1.87	0.56
1:A:393:LEU:HD12	1:A:582:HIS:HE1	1.70	0.56
1:A:673:ASP:OD1	1:A:673:ASP:N	2.38	0.56
1:A:842:ASP:C	1:A:844:GLY:N	2.58	0.56
1:A:299:LEU:HD11	1:A:347:LEU:HD22	1.86	0.56
2:B:321:GLY:HA3	2:B:401:ASP:H	1.69	0.56
2:B:548:ASP:OD2	2:B:549:GLY:N	2.39	0.56

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:348:VAL:O	2:B:349:LEU:HB2	2.04	0.56
2:B:495:GLU:HG3	2:B:525:ALA:HA	1.88	0.56
1:A:620:ARG:HH11	1:A:622:GLY:N	2.04	0.55
1:A:656:LEU:HD23	1:A:768:ILE:HD11	1.87	0.55
2:B:9:VAL:HB	2:B:85:VAL:HG23	1.88	0.55
1:A:328:HIS:O	1:A:332:THR:HG23	2.06	0.55
2:B:392:ILE:HD13	2:B:392:ILE:O	2.07	0.55
1:A:601:PRO:HB3	1:A:672:GLN:HG3	1.89	0.55
2:B:328:VAL:HG23	2:B:329:VAL:H	1.72	0.54
1:A:806:THR:HG23	1:A:807:ILE:HG23	1.90	0.54
2:B:326:GLY:O	2:B:327:ALA:CB	2.56	0.54
2:B:387:ARG:HH11	2:B:387:ARG:CG	2.14	0.54
2:B:389:ARG:CZ	2:B:389:ARG:CB	2.85	0.54
1:A:373:LYS:NZ	1:A:591:GLU:OE2	2.39	0.53
1:A:635:PRO:O	1:A:796:THR:OG1	2.26	0.53
1:A:777:ASP:OD1	1:A:780:SER:OG	2.23	0.53
1:A:309:ALA:HB3	1:A:340:LEU:HD21	1.90	0.53
2:B:487:ALA:O	2:B:517:ARG:NH2	2.39	0.53
2:B:463:VAL:HG13	2:B:464:GLY:H	1.74	0.53
2:B:447:ARG:O	2:B:477:ARG:NE	2.39	0.52
1:A:372:SER:O	1:A:376:ARG:NE	2.42	0.52
2:B:268:LEU:HB2	2:B:272:GLU:OE2	2.10	0.52
2:B:164:VAL:HG23	2:B:287:PHE:HZ	1.75	0.52
2:B:186:ASP:OD1	2:B:187:LYS:N	2.43	0.51
2:B:387:ARG:HG3	2:B:387:ARG:NH1	2.19	0.51
2:B:213:GLU:HB3	2:B:214:PRO:HD3	1.92	0.51
2:B:348:VAL:CG1	2:B:349:LEU:N	2.73	0.51
2:B:179:ARG:O	2:B:183:THR:HG23	2.11	0.51
1:A:638:VAL:HB	1:A:810:ALA:HB1	1.93	0.50
2:B:505:GLU:O	2:B:509:VAL:HG23	2.12	0.50
1:A:523:ARG:HH11	2:B:31:ARG:HH11	1.59	0.50
2:B:334:PHE:HE1	2:B:390:VAL:CG1	2.22	0.49
1:A:626:ILE:HG22	1:A:627:GLN:H	1.76	0.49
2:B:323:TRP:HD1	2:B:404:ALA:HB1	1.77	0.49
2:B:378:LEU:HD23	2:B:383:HIS:HB2	1.94	0.49
1:A:619:TYR:C	1:A:619:TYR:CD1	2.85	0.49
2:B:339:PHE:N	2:B:348:VAL:O	2.46	0.49
2:B:150:LEU:HD23	2:B:157:GLY:HA3	1.95	0.49
2:B:37:LEU:HD21	2:B:59:TRP:HB3	1.95	0.49
2:B:347:PRO:O	2:B:349:LEU:N	2.46	0.49
2:B:357:GLN:HB3	2:B:358:PRO:HD2	1.94	0.49

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:592:LEU:HD12	1:A:658:ARG:HH21	1.77	0.48
2:B:385:PRO:O	2:B:385:PRO:HG2	2.13	0.48
1:A:647:SER:HB2	1:A:818:HIS:H	1.79	0.48
2:B:347:PRO:HG2	2:B:374:THR:HG21	1.95	0.48
2:B:389:ARG:CG	2:B:389:ARG:NH1	2.72	0.48
2:B:86:LEU:HA	2:B:124:LEU:HD22	1.96	0.48
1:A:300:ALA:HA	1:A:303:VAL:HG12	1.96	0.47
1:A:373:LYS:NZ	1:A:589:GLU:O	2.40	0.47
1:A:447:ILE:HG22	1:A:518:MET:HE2	1.95	0.47
1:A:612:PHE:O	1:A:613:ASP:HB2	2.12	0.47
2:B:288:THR:O	2:B:292:GLU:HG2	2.14	0.47
2:B:401:ASP:OD2	2:B:402:ALA:N	2.48	0.47
1:A:371:LEU:HD21	2:B:216:ARG:HG3	1.95	0.47
1:A:715:GLN:HA	1:A:718:VAL:HG12	1.97	0.47
1:A:419:PRO:HA	1:A:422:VAL:HG12	1.96	0.47
2:B:338:ALA:HB3	2:B:387:ARG:HG3	1.96	0.47
1:A:749:GLY:O	1:A:753:ARG:NH1	2.47	0.47
2:B:85:VAL:O	2:B:89:THR:HG22	2.14	0.47
1:A:817:ASP:N	1:A:817:ASP:OD1	2.48	0.47
2:B:420:HIS:HA	2:B:464:GLY:HA2	1.96	0.47
1:A:610:VAL:HG22	1:A:669:VAL:HG13	1.97	0.47
2:B:387:ARG:NH1	2:B:387:ARG:CG	2.73	0.47
2:B:445:LEU:HD23	2:B:484:LEU:HD11	1.96	0.47
1:A:293:LEU:HD23	1:A:293:LEU:HA	1.78	0.47
2:B:474:GLU:O	2:B:478:VAL:HG23	2.15	0.47
1:A:777:ASP:O	1:A:779:GLU:N	2.48	0.46
2:B:37:LEU:O	2:B:40:PRO:HD2	2.15	0.46
1:A:464:ARG:O	1:A:467:GLU:HG3	2.15	0.46
2:B:501:ASP:HB3	2:B:504:ASN:HB2	1.98	0.46
2:B:139:ILE:O	2:B:142:PRO:HD2	2.16	0.46
1:A:749:GLY:O	1:A:753:ARG:HG3	2.15	0.46
2:B:270:VAL:N	2:B:271:PRO:HD2	2.31	0.46
2:B:348:VAL:HG12	2:B:349:LEU:H	1.81	0.46
2:B:269:THR:HB	2:B:271:PRO:HD2	1.98	0.45
2:B:470:LEU:HA	2:B:474:GLU:HB2	1.97	0.45
1:A:394:VAL:HG13	1:A:395:THR:N	2.32	0.45
1:A:700:ALA:O	1:A:704:ILE:HG13	2.16	0.45
1:A:437:LEU:O	1:A:440:PRO:HD2	2.17	0.45
1:A:780:SER:OG	1:A:780:SER:O	2.34	0.45
2:B:70:LEU:O	2:B:74:THR:HG23	2.16	0.45
1:A:606:ALA:HB1	1:A:607:PRO:HD2	1.99	0.45

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:617:PHE:CZ	1:A:660:HIS:HB3	2.52	0.45
1:A:437:LEU:HA	1:A:530:LEU:HD21	1.99	0.44
1:A:508:GLN:HB2	2:B:83:PHE:HZ	1.83	0.44
1:A:667:ILE:O	1:A:673:ASP:HA	2.17	0.44
2:B:325:ASP:HB3	2:B:327:ALA:H	1.83	0.44
1:A:507:TRP:O	1:A:510:PRO:HD2	2.18	0.44
1:A:804:LEU:HD12	1:A:837:TYR:HE1	1.82	0.44
1:A:277:TRP:HB3	1:A:278:ARG:H	1.67	0.44
1:A:356:HIS:HB3	2:B:234:LEU:HD22	2.00	0.44
1:A:358:ILE:HD12	1:A:358:ILE:HA	1.87	0.44
1:A:390:ILE:O	1:A:394:VAL:HG12	2.16	0.44
2:B:408:VAL:O	2:B:490:VAL:HG12	2.17	0.44
2:B:153:SER:OG	2:B:156:LEU:HB2	2.17	0.44
1:A:609:THR:HA	1:A:633:LEU:O	2.18	0.44
2:B:141:LEU:HB3	2:B:142:PRO:HD3	1.98	0.44
1:A:524:PRO:HB2	2:B:282:ARG:HH22	1.82	0.44
2:B:39:VAL:HB	2:B:40:PRO:HD3	2.00	0.44
1:A:303:VAL:O	1:A:307:GLN:HG2	2.18	0.43
1:A:685:ARG:O	1:A:766:VAL:HB	2.18	0.43
1:A:418:ALA:HB3	1:A:419:PRO:HD3	1.98	0.43
1:A:777:ASP:C	1:A:779:GLU:H	2.21	0.43
1:A:375:SER:HB3	2:B:216:ARG:HH11	1.82	0.43
2:B:340:GLY:HA2	2:B:348:VAL:H	1.83	0.43
1:A:376:ARG:HB3	1:A:591:GLU:HG2	2.00	0.43
2:B:128:VAL:O	2:B:133:THR:HG23	2.18	0.43
1:A:592:LEU:HD12	1:A:658:ARG:NH2	2.34	0.43
1:A:843:THR:O	1:A:843:THR:HG23	2.17	0.43
2:B:389:ARG:NH1	2:B:389:ARG:HB3	2.33	0.43
2:B:76:ARG:O	2:B:79:ILE:HG22	2.19	0.43
2:B:331:ARG:O	2:B:393:ASP:N	2.37	0.43
1:A:731:ARG:HD2	1:A:731:ARG:O	2.18	0.43
2:B:261:ALA:O	2:B:265:THR:HG23	2.19	0.43
1:A:459:ILE:HG13	1:A:460:VAL:N	2.34	0.43
2:B:523:ILE:HG12	2:B:525:ALA:HB2	2.01	0.43
2:B:7:ALA:HB2	2:B:304:LEU:HD11	2.01	0.42
2:B:161:LEU:HD12	2:B:161:LEU:HA	1.94	0.42
2:B:332:ILE:HG22	2:B:333:GLU:H	1.82	0.42
2:B:463:VAL:HG13	2:B:464:GLY:N	2.33	0.42
1:A:281:ALA:HA	1:A:284:ARG:HB3	2.01	0.42
1:A:450:SER:O	1:A:453:ILE:HG12	2.20	0.42
1:A:620:ARG:HA	1:A:620:ARG:HD2	1.79	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:348:VAL:HG12	2:B:349:LEU:N	2.35	0.42
1:A:401:LEU:HD23	1:A:401:LEU:HA	1.90	0.42
1:A:617:PHE:CZ	1:A:660:HIS:CB	3.03	0.42
1:A:754:LEU:HD12	1:A:754:LEU:HA	1.89	0.42
2:B:408:VAL:O	2:B:488:ALA:HB1	2.20	0.42
1:A:508:GLN:HB2	2:B:83:PHE:CZ	2.55	0.42
1:A:709:PRO:HG3	2:B:211:ARG:HD2	2.02	0.41
2:B:126:GLY:O	2:B:130:ASN:ND2	2.45	0.41
2:B:164:VAL:CG1	2:B:165:PRO:HD3	2.49	0.41
2:B:400:LEU:HD23	2:B:401:ASP:N	2.34	0.41
1:A:626:ILE:HG22	1:A:627:GLN:N	2.36	0.41
1:A:712:PRO:HD2	1:A:715:GLN:HG2	2.02	0.41
2:B:259:THR:HG21	2:B:277:ILE:HG13	2.03	0.41
1:A:725:ILE:HD12	1:A:725:ILE:HA	1.92	0.41
2:B:150:LEU:HD23	2:B:150:LEU:HA	1.88	0.41
1:A:394:VAL:HG13	1:A:395:THR:HG23	2.02	0.41
1:A:492:SER:O	1:A:496:ARG:HG2	2.21	0.41
2:B:229:ALA:O	2:B:231:MET:N	2.53	0.41
2:B:299:SER:O	2:B:303:THR:HG23	2.20	0.41
2:B:318:ALA:HB1	2:B:400:LEU:O	2.21	0.41
2:B:392:ILE:O	2:B:392:ILE:CG1	2.68	0.41
2:B:13:HIS:C	2:B:15:ALA:H	2.24	0.41
2:B:232:ARG:HD2	2:B:232:ARG:HA	1.68	0.41
2:B:328:VAL:HG23	2:B:329:VAL:N	2.36	0.41
1:A:314:LEU:HD23	1:A:314:LEU:HA	1.87	0.41
1:A:634:ARG:HB2	1:A:637:THR:OG1	2.20	0.41
1:A:538:LEU:HD23	1:A:538:LEU:HA	1.90	0.41
1:A:772:ALA:HA	1:A:775:PHE:CE1	2.56	0.41
1:A:845:GLN:OE1	1:A:845:GLN:CA	2.69	0.41
2:B:230:THR:O	2:B:234:LEU:HG	2.21	0.41
2:B:255:LEU:O	2:B:258:THR:HG22	2.20	0.41
2:B:336:ASP:OD1	2:B:351:GLY:HA2	2.21	0.41
2:B:445:LEU:HD12	2:B:445:LEU:HA	1.90	0.41
1:A:620:ARG:NE	1:A:620:ARG:C	2.75	0.41
1:A:779:GLU:OE2	2:B:564:PHE:HE1	2.04	0.41
1:A:845:GLN:CD	1:A:845:GLN:N	2.73	0.41
2:B:213:GLU:OE1	2:B:216:ARG:NH2	2.54	0.41
2:B:392:ILE:O	2:B:392:ILE:CD1	2.70	0.41
1:A:278:ARG:HG3	1:A:279:ALA:N	2.36	0.40
2:B:237:GLN:HE21	2:B:241:GLN:HG2	1.86	0.40
2:B:233:LEU:HA	2:B:236:MET:HG2	2.04	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:520:LEU:HD23	1:A:520:LEU:HA	1.94	0.40
1:A:627:GLN:O	1:A:629:VAL:HG13	2.21	0.40
2:B:7:ALA:O	2:B:9:VAL:HG13	2.22	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	569/859 (66%)	495 (87%)	67 (12%)	7 (1%)	13	47
2	B	574/579 (99%)	504 (88%)	67 (12%)	3 (0%)	29	66
All	All	1143/1438 (80%)	999 (87%)	134 (12%)	10 (1%)	21	54

All (10) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	611	VAL
1	A	614	HIS
1	A	621	PRO
1	A	622	GLY
2	B	14	ARG
1	A	843	THR
2	B	11	ASN
1	A	619	TYR
1	A	749	GLY
2	B	381	GLY

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	448/674 (66%)	438 (98%)	10 (2%)	52	77
2	B	432/435 (99%)	421 (98%)	11 (2%)	47	74
All	All	880/1109 (79%)	859 (98%)	21 (2%)	51	75

All (21) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	277	TRP
1	A	376	ARG
1	A	391	LYS
1	A	611	VAL
1	A	612	PHE
1	A	619	TYR
1	A	620	ARG
1	A	675	ARG
1	A	779	GLU
1	A	820	ARG
2	B	329	VAL
2	B	345	SER
2	B	348	VAL
2	B	386	THR
2	B	387	ARG
2	B	389	ARG
2	B	391	LEU
2	B	392	ILE
2	B	393	ASP
2	B	395	THR
2	B	521	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (15) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	548	ASN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	582	HIS
1	A	597	HIS
1	A	614	HIS
1	A	627	GLN
1	A	691	GLN
1	A	789	ASN
2	B	109	ASN
2	B	237	GLN
2	B	241	GLN
2	B	383	HIS
2	B	405	GLN
2	B	415	HIS
2	B	420	HIS
2	B	504	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no 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.

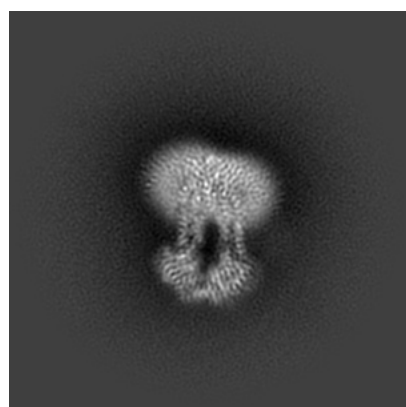
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-32536. These allow visual inspection of the internal detail of the map and identification of artifacts.

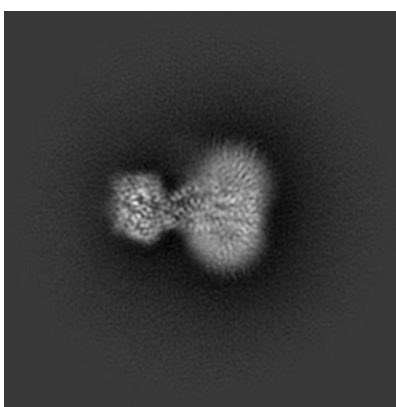
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

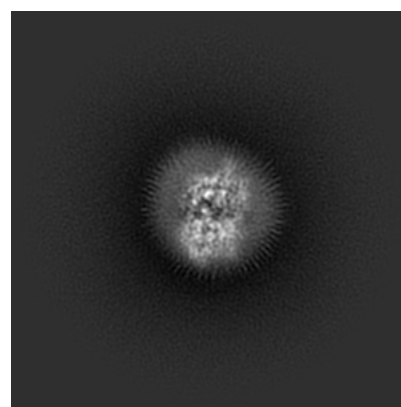
6.1.1 Primary map



X



Y

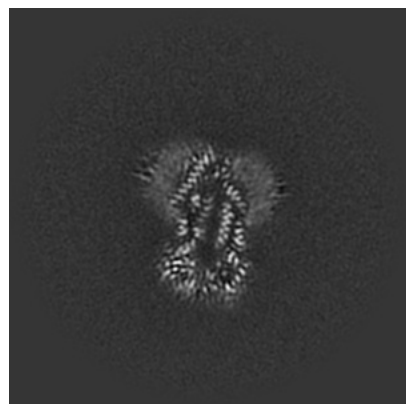


Z

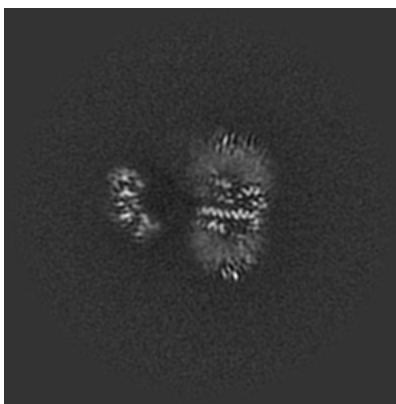
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

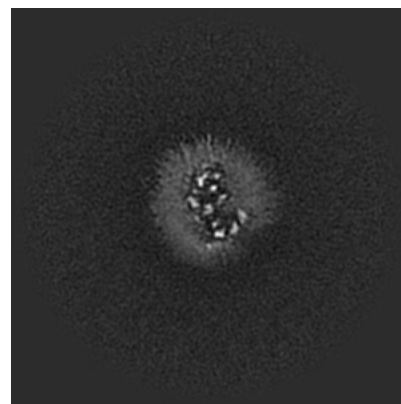
6.2.1 Primary map



X Index: 192



Y Index: 192

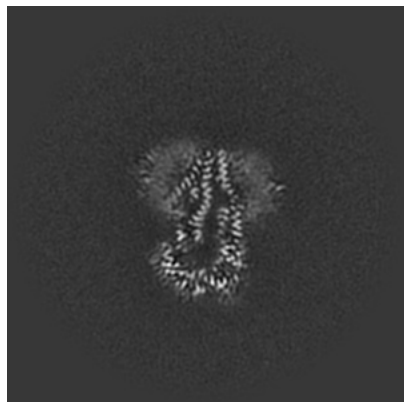


Z Index: 192

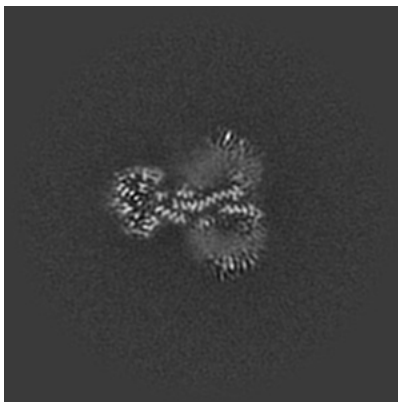
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [\(i\)](#)

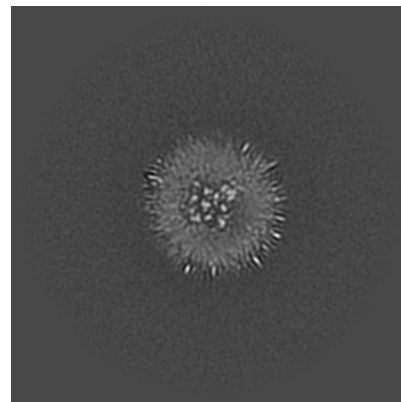
6.3.1 Primary map



X Index: 188



Y Index: 208

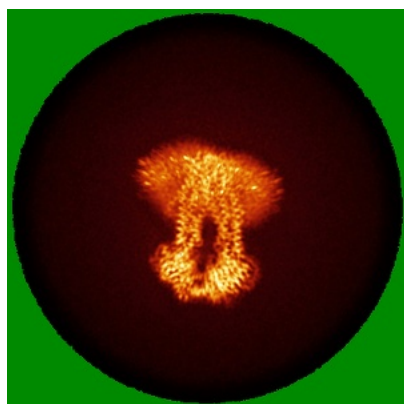


Z Index: 227

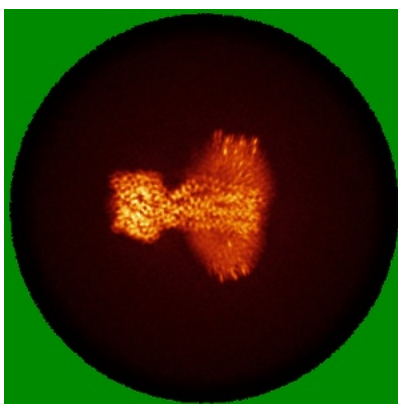
The images above show the largest variance slices of the map in three orthogonal directions.

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

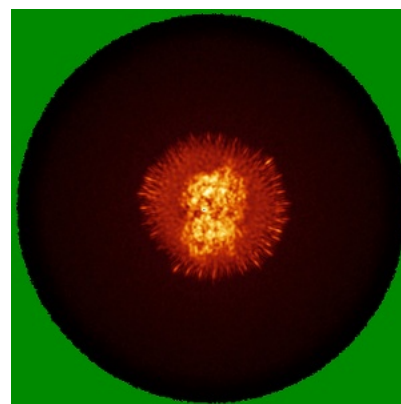
6.4.1 Primary map



X



Y



Z

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

6.5 Orthogonal surface views [i](#)

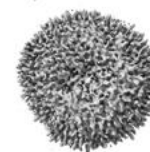
6.5.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.08. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

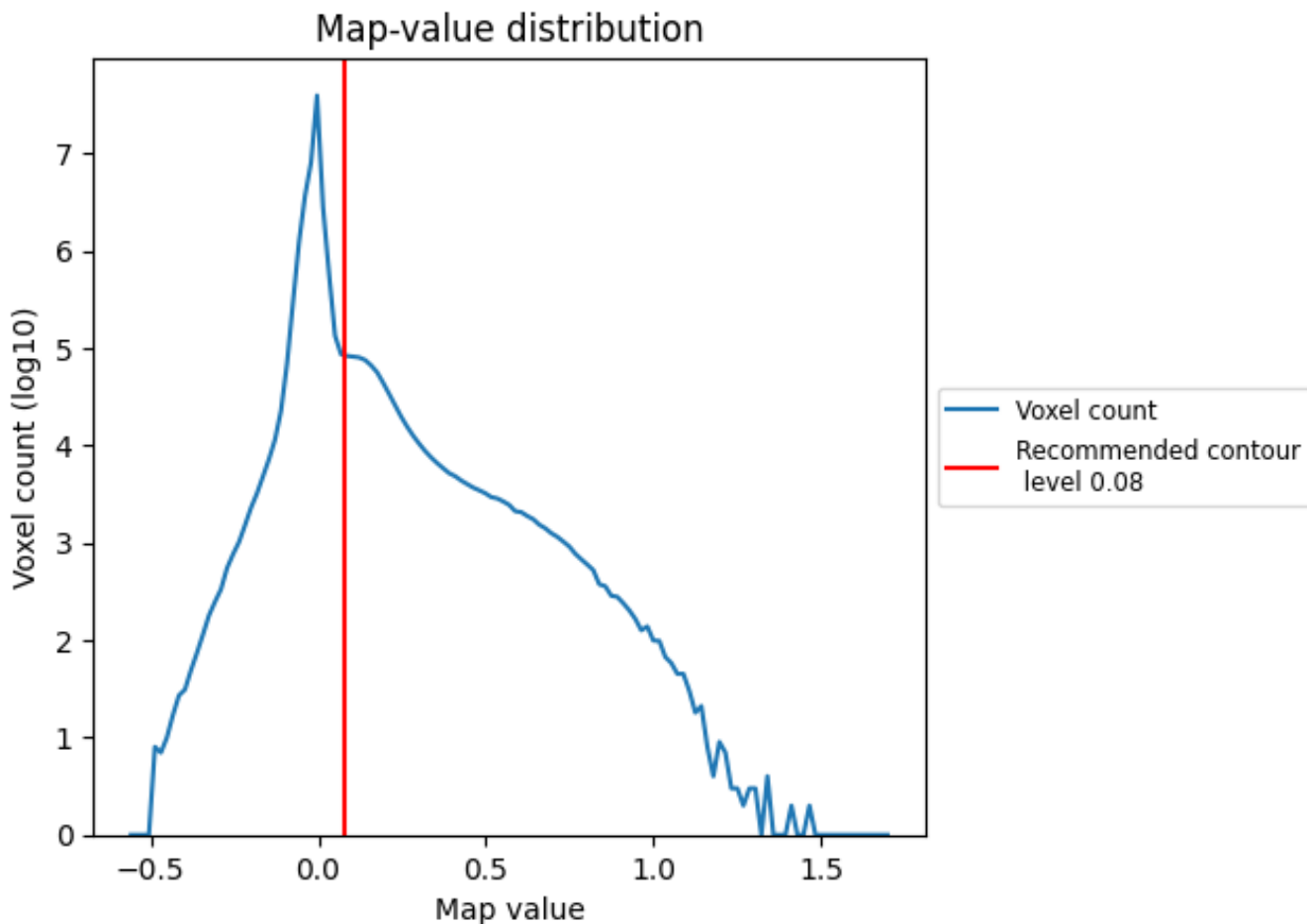
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

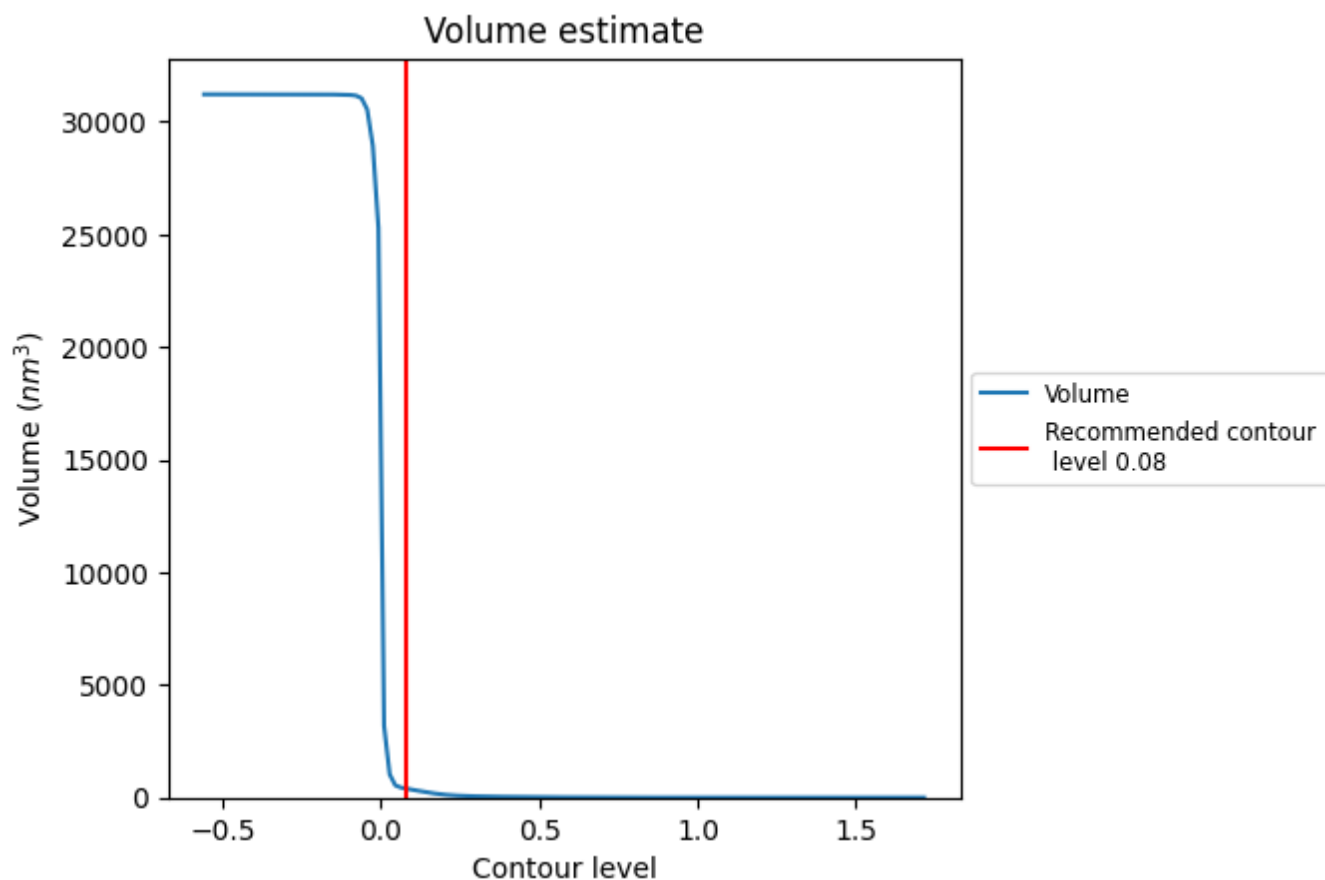
This section contains the results of statistical analysis of the map.

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.

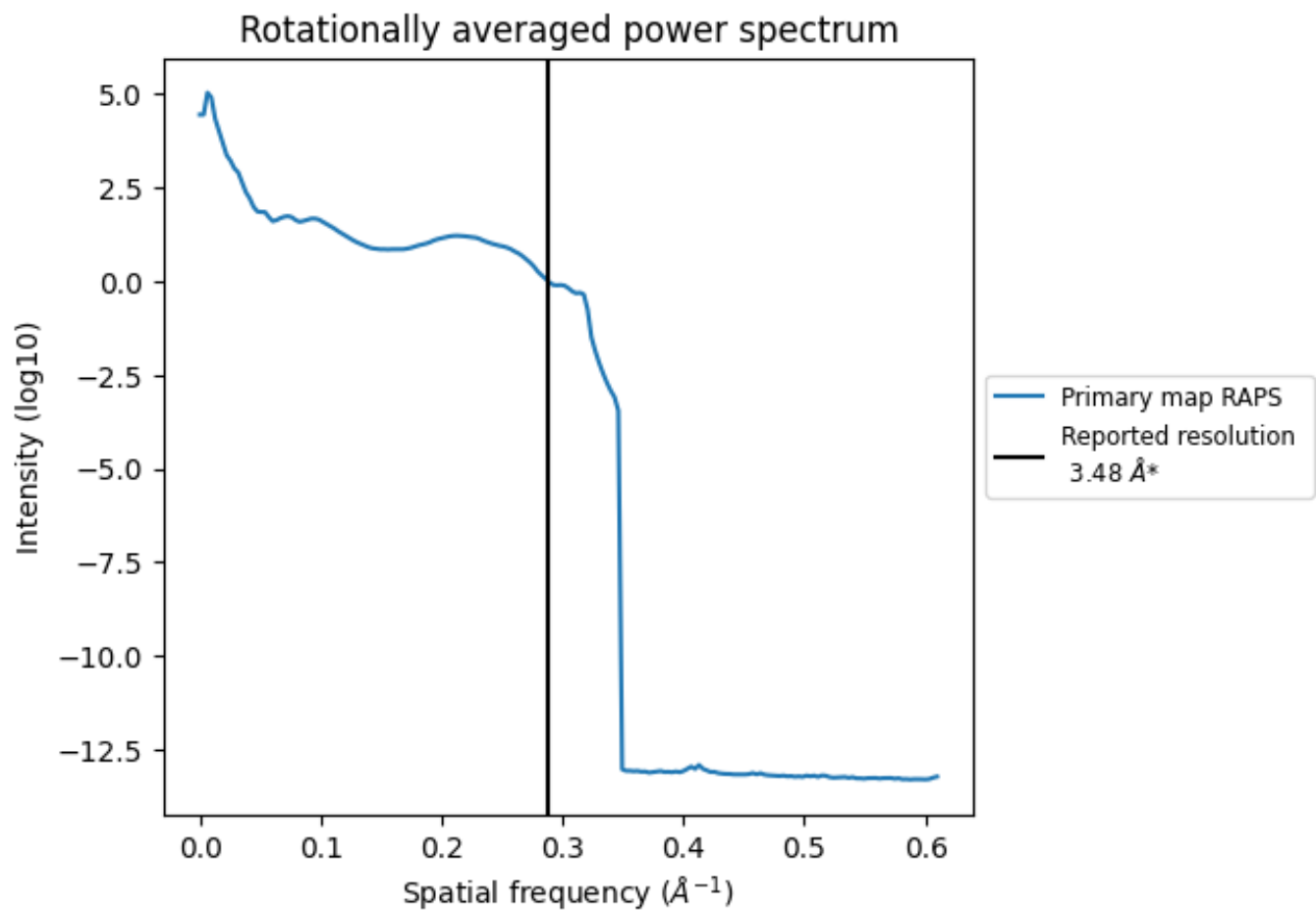
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 396 nm³; this corresponds to an approximate mass of 358 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum [\(i\)](#)



*Reported resolution corresponds to spatial frequency of 0.287 Å⁻¹

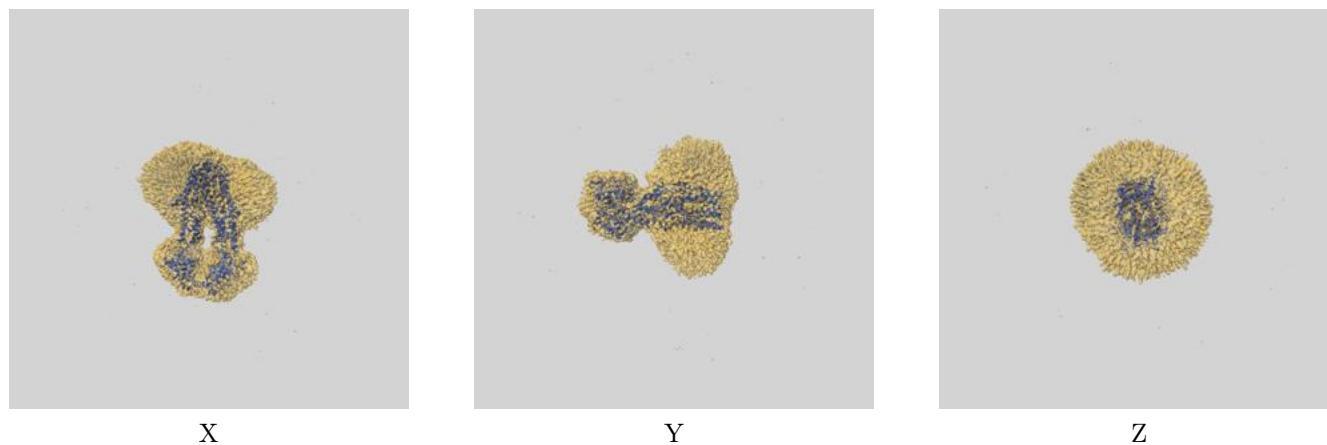
8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

9 Map-model fit [i](#)

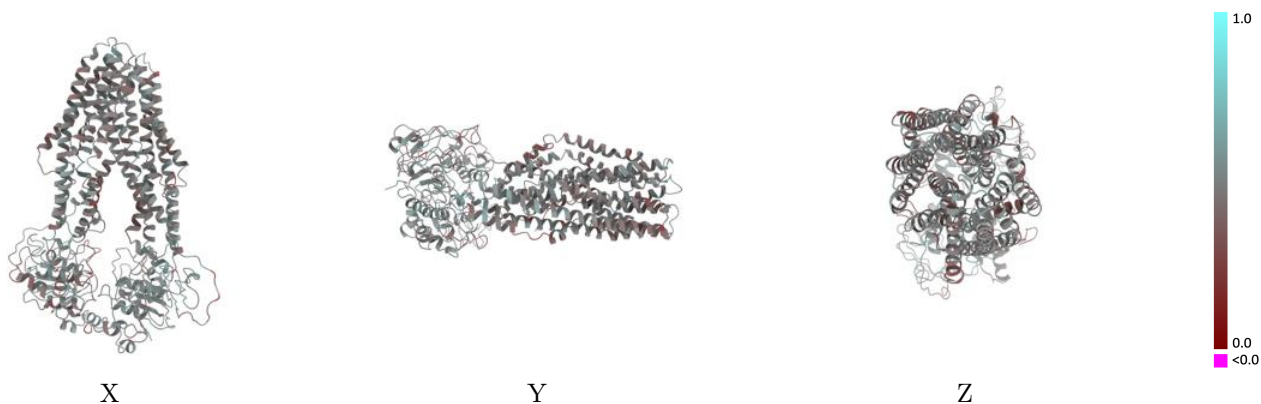
This section contains information regarding the fit between EMDB map EMD-32536 and PDB model 7WIU. Per-residue inclusion information can be found in section 3 on page 4.

9.1 Map-model overlay [i](#)



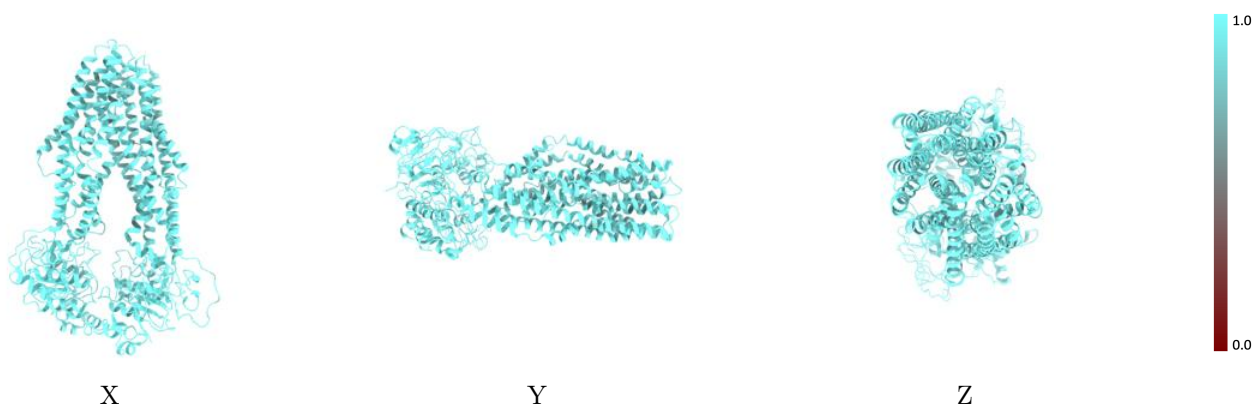
The images above show the 3D surface view of the map at the recommended contour level 0.08 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



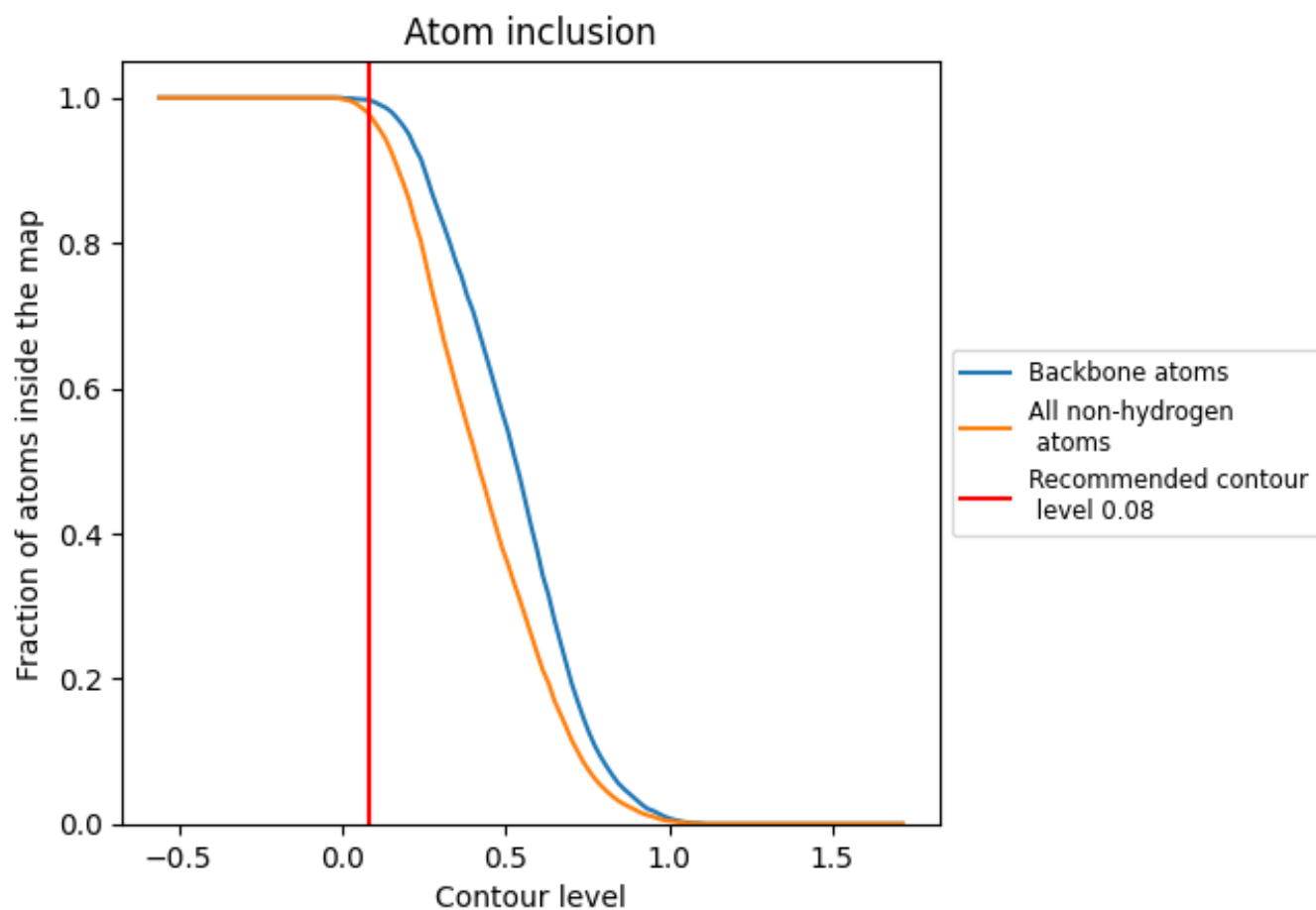
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.08).





9.4 Atom inclusion [i](#)



At the recommended contour level, 100% of all backbone atoms, 98% 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 (0.08) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9790	 0.4760
A	 0.9790	 0.4780
B	 0.9780	 0.4740

