



Full wwPDB EM Validation Report ⓘ

Feb 27, 2024 – 07:52 AM EST

PDB ID : 6UZE
EMDB ID : EMD-20958
Title : Anthrax toxin protective antigen channels bound to edema factor
Authors : Hardenbrook, N.J.; Liu, S.; Zhou, K.; Zhou, Z.H.; Krantz, B.A.
Deposited on : 2019-11-15
Resolution : 3.40 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:

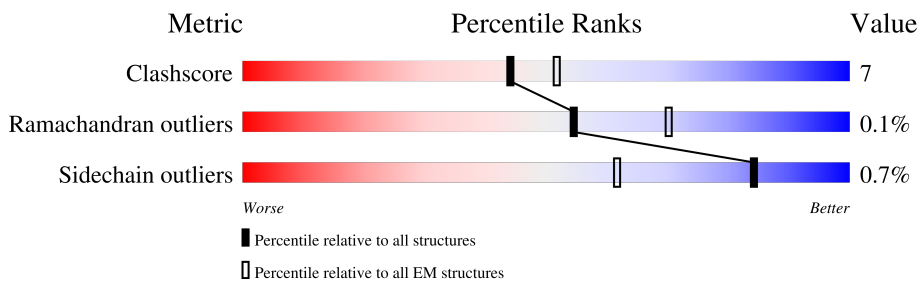
EMDB validation analysis : 0.0.1.dev70
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36

1 Overall quality at a glance

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 3.40 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	735	
1	B	735	
1	C	735	
1	D	735	
1	E	735	
1	F	735	
1	G	735	
2	H	767	

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Mol	Chain	Length	Quality of chain
2	I	767	 <p>A horizontal bar chart showing the quality distribution of the chain. The bar is divided into four segments: red (38%), green (72%), yellow (22%), and grey (6%). The percentages are labeled above or below the segments.</p>

2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 42822 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 Protective antigen.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	562	4438	2772	765	895	6	0	0
1	B	562	4438	2772	765	895	6	0	0
1	C	562	4438	2772	765	895	6	0	0
1	D	562	4438	2772	765	895	6	0	0
1	E	562	4438	2772	765	895	6	0	0
1	F	562	4438	2772	765	895	6	0	0
1	G	562	4438	2772	765	895	6	0	0

- Molecule 2 is a protein called Calmodulin-sensitive adenylate cyclase.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	H	720	5871	3749	975	1141	6	0	0
2	I	720	5871	3749	975	1141	6	0	0

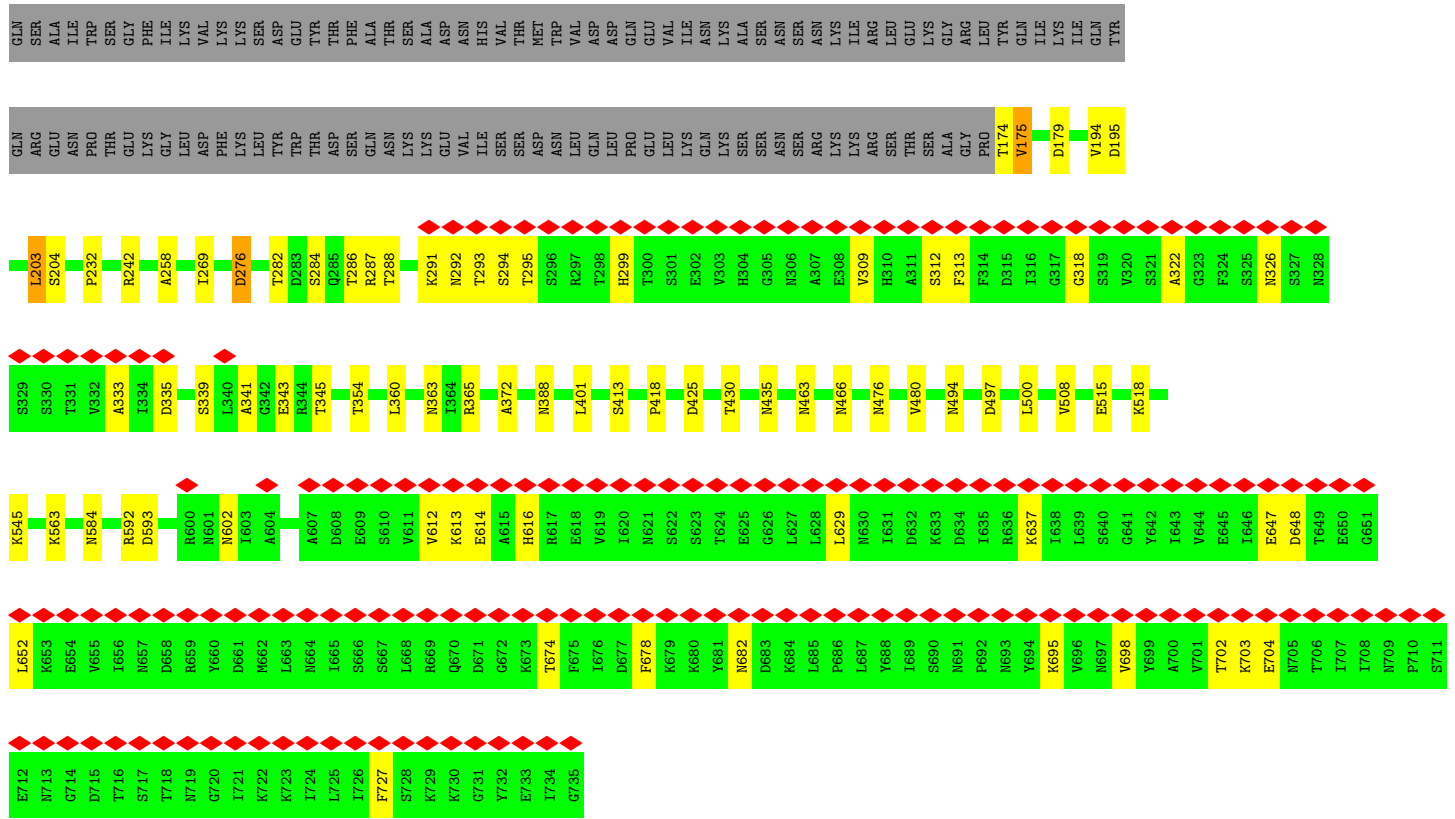
- Molecule 3 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		AltConf
3	A	2	Total 2	Ca 2	0
3	B	2	Total 2	Ca 2	0
3	C	2	Total 2	Ca 2	0
3	D	2	Total 2	Ca 2	0

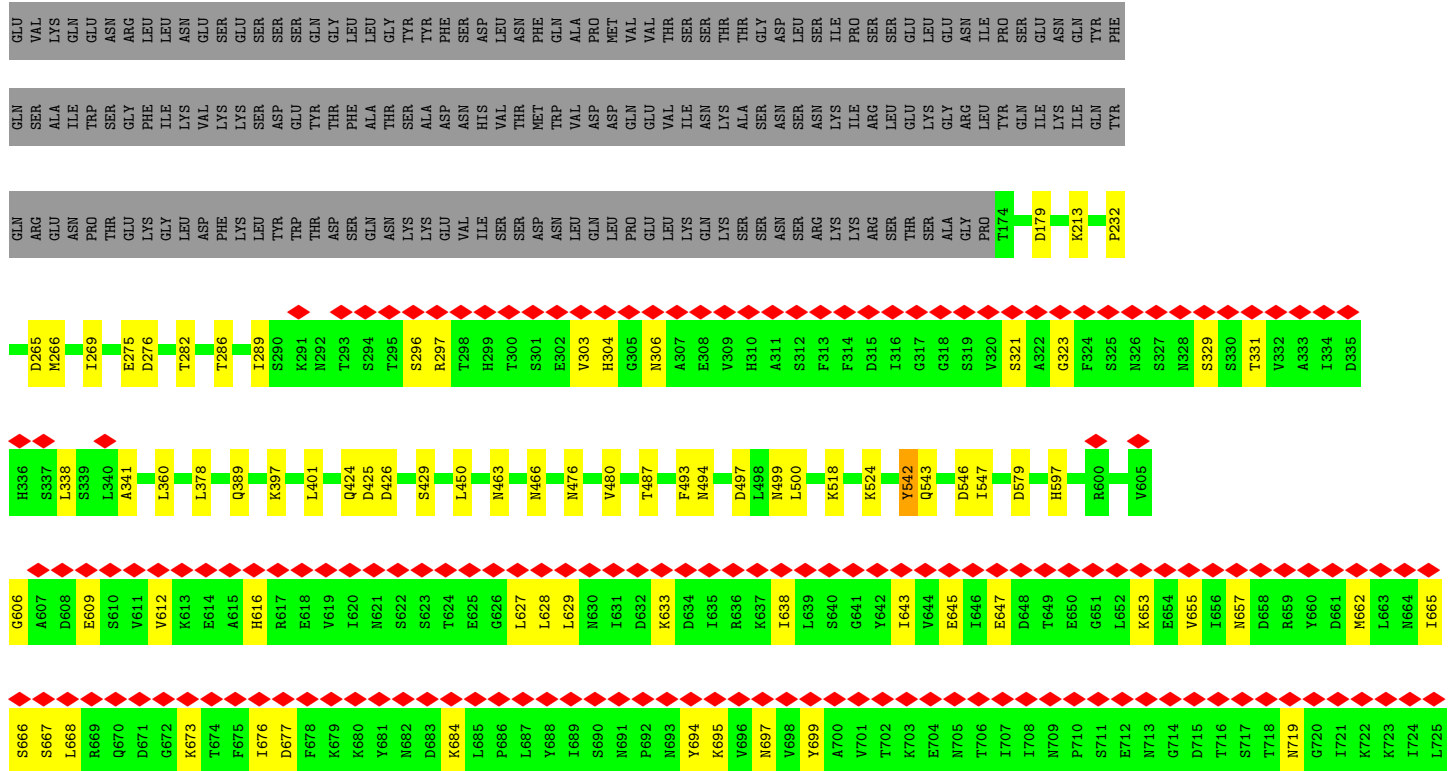
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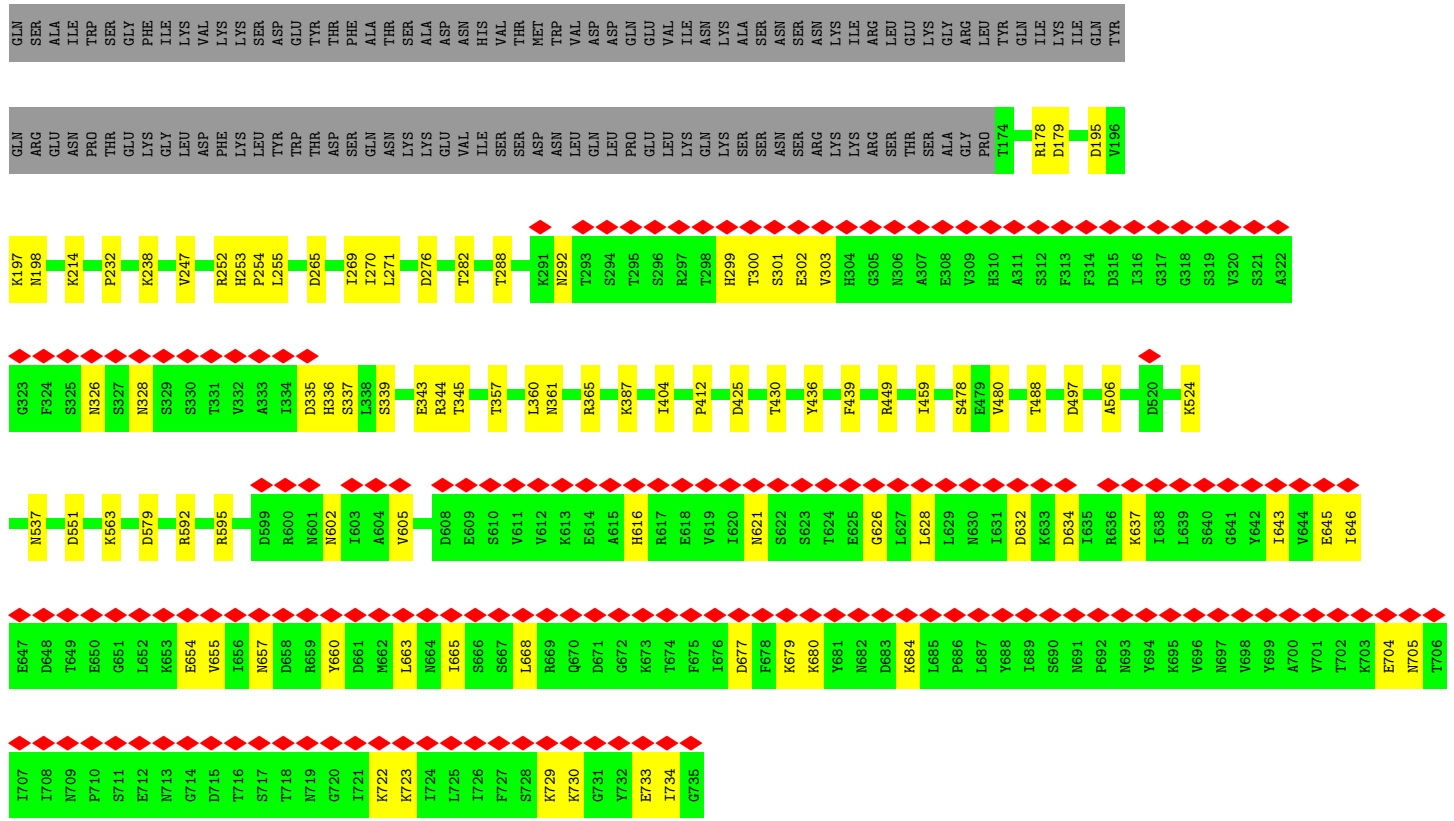
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Mol	Chain	Residues	Atoms		AltConf
3	E	2	Total 2	Ca 2	0
3	F	2	Total 2	Ca 2	0
3	G	2	Total 2	Ca 2	0

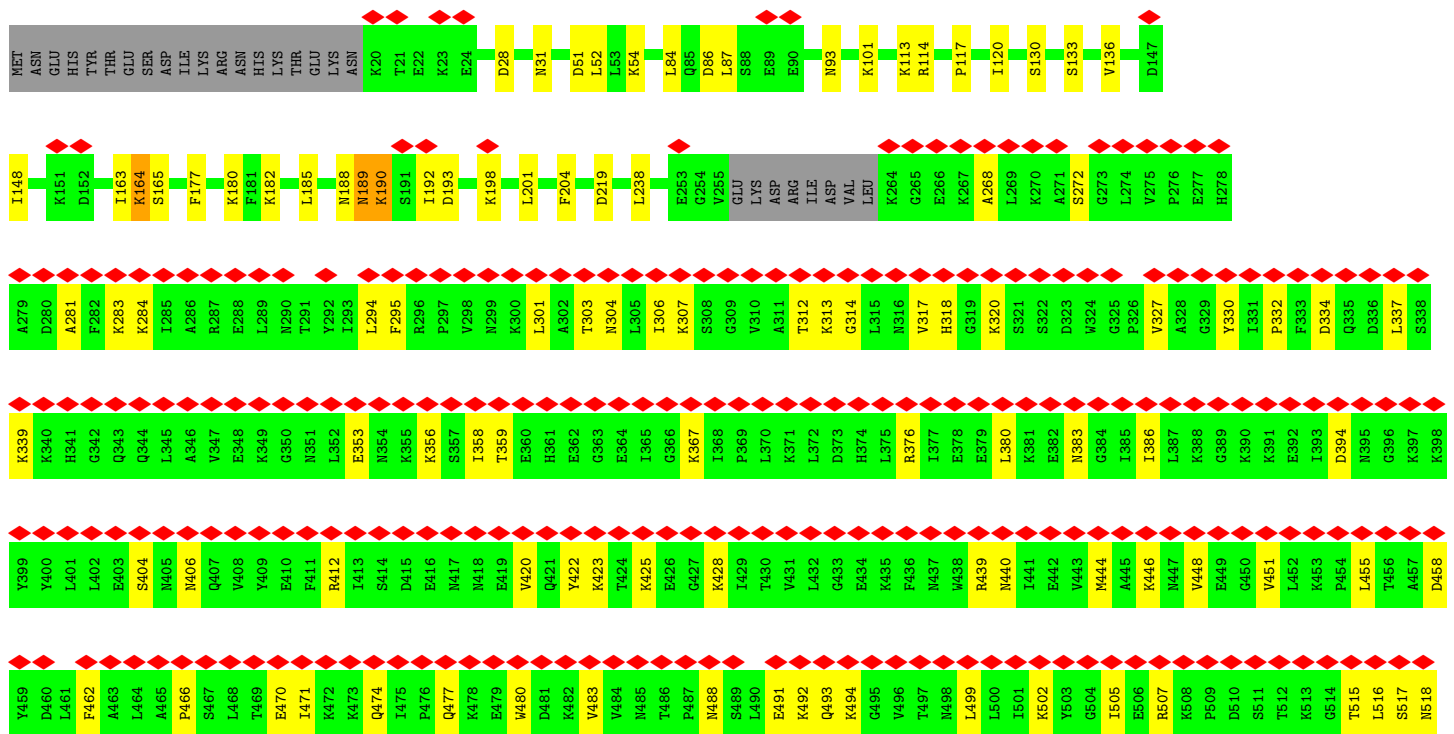
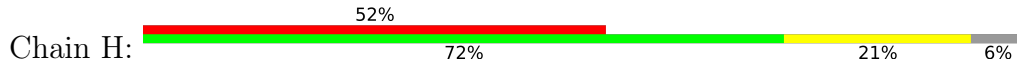


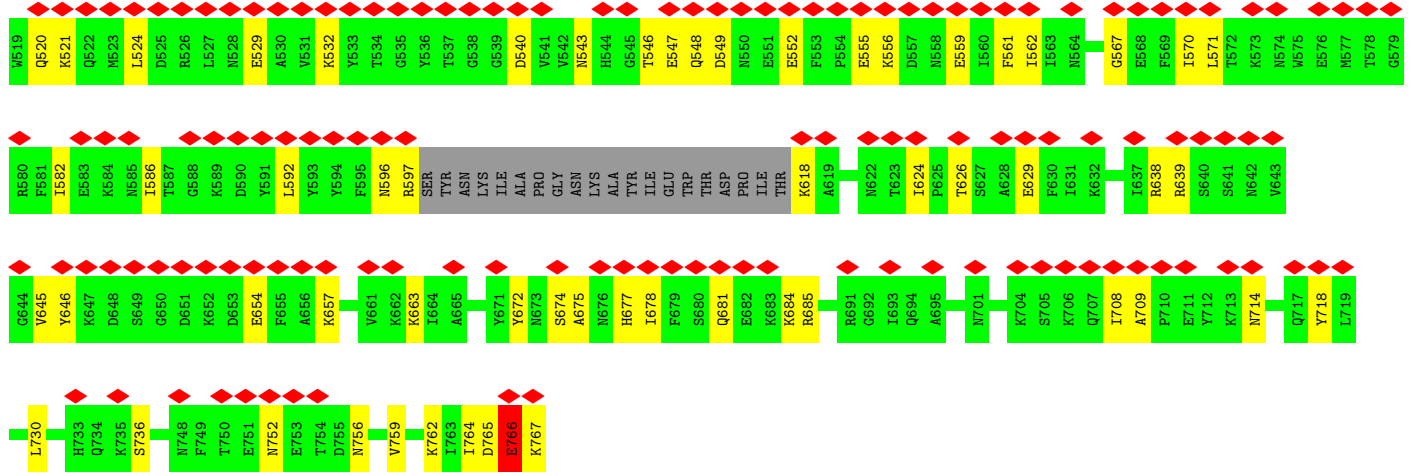
• Molecule 1: Protective antigen



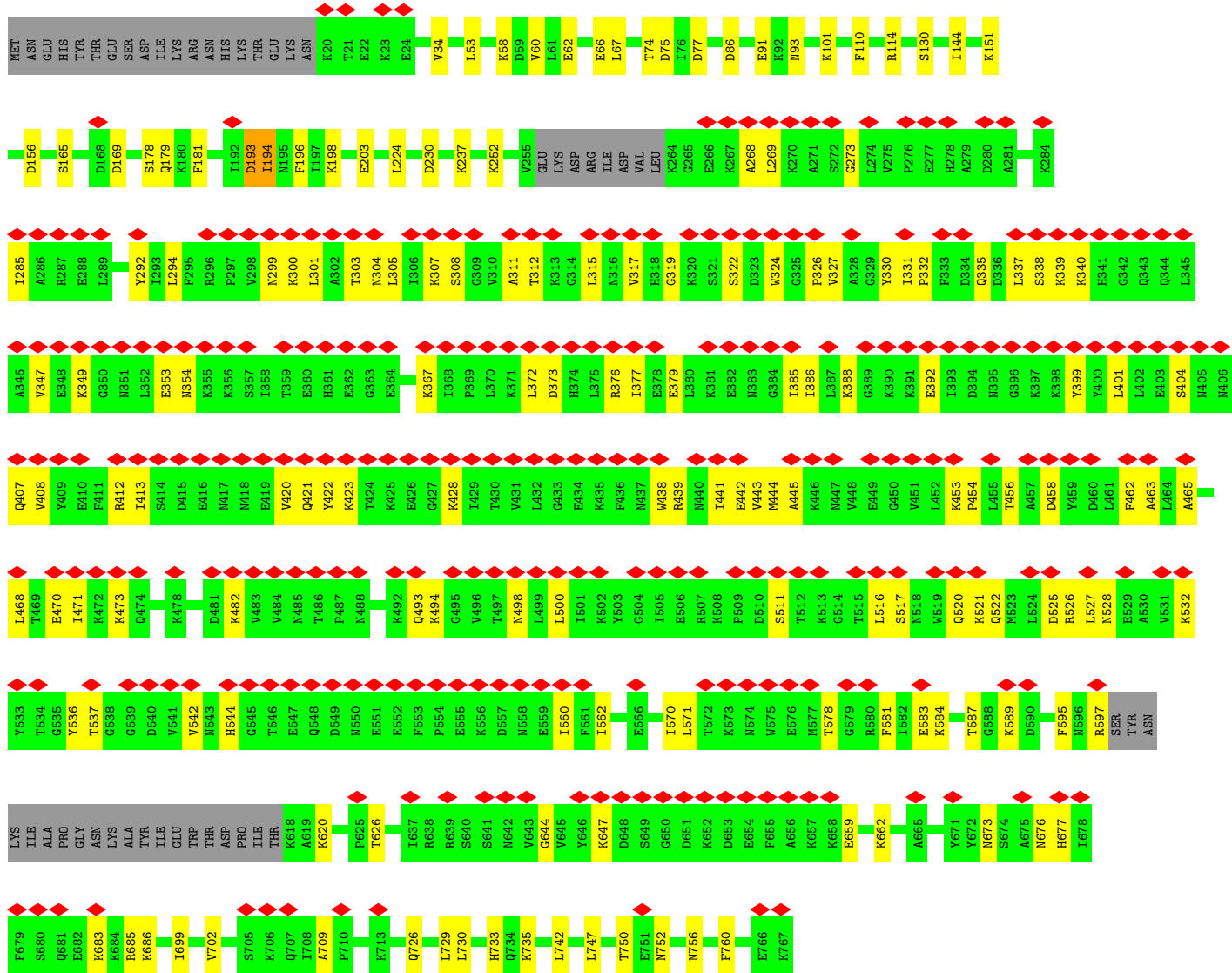


● Molecule 2: Calmodulin-sensitive adenylate cyclase





● Molecule 2: Calmodulin-sensitive adenylate cyclase



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	73784	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 ($e^-/\text{\AA}^2$)	62.9	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.206	Depositor
Minimum map value	-0.086	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.007	Depositor
Recommended contour level	0.03	Depositor
Map size (Å)	321.00003, 321.00003, 321.00003	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	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: CA

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	0.51	0/4515	0.59	0/6125
1	B	0.51	0/4515	0.58	0/6125
1	C	0.53	0/4515	0.59	0/6125
1	D	0.53	0/4515	0.57	0/6125
1	E	0.52	0/4515	0.59	0/6125
1	F	0.50	0/4515	0.58	0/6125
1	G	0.50	0/4515	0.58	0/6125
2	H	0.35	0/5976	0.56	0/8024
2	I	0.36	0/5976	0.55	0/8024
All	All	0.48	0/43557	0.57	0/58923

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	4438	0	4378	53	0
1	B	4438	0	4378	48	0
1	C	4438	0	4378	62	0
1	D	4438	0	4378	52	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	E	4438	0	4378	56	0
1	F	4438	0	4378	55	0
1	G	4438	0	4378	65	0
2	H	5871	0	5890	112	0
2	I	5871	0	5890	117	0
3	A	2	0	0	0	0
3	B	2	0	0	0	0
3	C	2	0	0	0	0
3	D	2	0	0	0	0
3	E	2	0	0	0	0
3	F	2	0	0	0	0
3	G	2	0	0	0	0
All	All	42822	0	42426	585	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 7.

All (585) 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:493:PHE:CE2	1:C:542:TYR:HE2	1.63	1.17
1:C:493:PHE:HZ	1:C:542:TYR:CD2	1.64	1.14
1:C:493:PHE:CZ	1:C:542:TYR:CD2	2.40	1.08
1:C:493:PHE:CE2	1:C:542:TYR:CE2	2.45	1.03
1:C:493:PHE:HZ	1:C:542:TYR:HD2	1.09	0.98
2:H:762:LYS:HA	2:H:765:ASP:OD1	1.67	0.95
1:C:493:PHE:CZ	1:C:542:TYR:CE2	2.56	0.94
1:C:493:PHE:CZ	1:C:542:TYR:HD2	1.80	0.94
1:C:493:PHE:HE2	1:C:542:TYR:HE2	0.97	0.93
2:I:194:ILE:HG13	2:I:198:LYS:HE3	1.57	0.87
2:H:190:LYS:HG3	2:H:192:ILE:HD11	1.58	0.86
2:I:194:ILE:HD12	2:I:194:ILE:O	1.79	0.83
1:G:252:ARG:HG3	1:G:252:ARG:HH11	1.46	0.81
2:I:194:ILE:CD1	2:I:198:LYS:HG3	2.11	0.80
1:C:493:PHE:HE2	1:C:542:TYR:CE2	1.90	0.78
2:H:190:LYS:HB3	2:H:192:ILE:CD1	2.13	0.78
2:I:644:GLY:HA2	2:I:709:ALA:H	1.53	0.74
2:H:268:ALA:O	2:H:272:SER:HB2	1.88	0.73
2:H:190:LYS:HB3	2:H:192:ILE:HG13	1.71	0.72
1:B:702:THR:HG23	1:B:704:GLU:H	1.58	0.69
2:H:294:LEU:HB3	2:H:462:PHE:HB3	1.75	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:311:ALA:H	2:I:453:LYS:HB3	1.60	0.67
1:B:286:THR:HB	1:B:341:ALA:HB3	1.77	0.66
2:I:194:ILE:HD12	2:I:198:LYS:HG3	1.76	0.66
2:H:190:LYS:HB3	2:H:192:ILE:CG1	2.25	0.66
1:F:482:PRO:HG2	1:G:404:ILE:HD13	1.78	0.65
1:B:194:VAL:HG22	1:B:203:LEU:HD13	1.81	0.63
2:I:194:ILE:HD11	2:I:198:LYS:HG3	1.79	0.63
1:F:300:THR:HB	1:F:327:SER:HB2	1.79	0.63
2:H:380:LEU:HA	2:H:383:ASN:HD22	1.64	0.63
1:C:232:PRO:HD3	1:C:480:VAL:HG11	1.81	0.63
1:E:678:PHE:HB3	1:E:687:LEU:HD21	1.81	0.63
2:I:193:ASP:OD2	2:I:193:ASP:N	2.24	0.63
1:D:621:ASN:HD22	1:D:628:LEU:HG	1.64	0.62
1:F:298:THR:HB	1:F:329:SER:HB3	1.80	0.62
2:I:583:GLU:HA	2:I:587:THR:HB	1.81	0.62
1:A:643:ILE:HA	1:A:657:ASN:HD21	1.65	0.62
2:H:488:ASN:HB3	2:H:491:GLU:HB2	1.82	0.62
1:D:288:THR:HB	1:D:339:SER:HB2	1.82	0.61
2:I:367:LYS:HD2	2:I:442:GLU:HB3	1.82	0.61
1:D:667:SER:HB3	1:D:675:PHE:HB3	1.82	0.61
1:B:284:SER:HB3	1:B:343:GLU:HB3	1.81	0.61
1:D:269:ILE:HD11	1:D:360:LEU:HD22	1.82	0.61
1:G:252:ARG:HH11	1:G:252:ARG:CG	2.12	0.61
1:G:679:LYS:HB3	1:G:684:LYS:HA	1.82	0.61
1:G:276:ASP:OD1	1:G:276:ASP:N	2.34	0.61
2:I:62:GLU:O	2:I:66:GLU:HB2	2.00	0.61
1:C:306:ASN:HB3	1:C:321:SER:HB2	1.83	0.61
1:E:232:PRO:HD3	1:E:480:VAL:HG11	1.83	0.61
1:G:524:LYS:HD3	1:G:579:ASP:HB3	1.82	0.60
1:B:179:ASP:N	1:B:179:ASP:OD1	2.34	0.60
2:I:335:GLN:HB2	2:I:347:VAL:HG23	1.84	0.60
1:F:642:TYR:HA	1:F:700:ALA:HA	1.83	0.60
1:A:179:ASP:OD1	1:A:179:ASP:N	2.33	0.60
1:E:276:ASP:OD1	1:E:276:ASP:N	2.32	0.60
1:D:232:PRO:HD3	1:D:480:VAL:HG11	1.82	0.60
1:D:627:LEU:HB2	1:D:676:ILE:HB	1.84	0.60
2:H:483:VAL:HG21	2:H:499:LEU:HD22	1.83	0.60
2:H:638:ARG:HE	2:H:639:ARG:HH12	1.50	0.60
1:B:629:LEU:HB2	1:B:674:THR:HB	1.83	0.59
1:D:482:PRO:HG2	1:E:404:ILE:HD13	1.82	0.59
2:I:752:ASN:O	2:I:756:ASN:ND2	2.35	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:562:ILE:HG23	2:I:570:ILE:HB	1.84	0.59
1:C:524:LYS:HE2	1:C:579:ASP:HB3	1.84	0.59
1:D:494:ASN:HB3	1:D:500:LEU:HD23	1.85	0.59
1:G:660:TYR:HA	1:G:663:LEU:HD23	1.84	0.59
1:E:621:ASN:H	1:E:628:LEU:HB3	1.66	0.59
2:H:190:LYS:HB3	2:H:192:ILE:HD12	1.84	0.59
2:I:373:ASP:HB2	2:I:376:ARG:HB2	1.84	0.59
1:G:269:ILE:HD11	1:G:360:LEU:HD22	1.83	0.59
1:G:497:ASP:O	1:G:637:LYS:NZ	2.36	0.59
2:I:332:PRO:O	2:I:335:GLN:NE2	2.35	0.59
2:I:292:TYR:HB2	2:I:465:ALA:HB3	1.85	0.59
1:F:282:THR:HB	1:F:345:THR:HB	1.84	0.58
1:B:515:GLU:HG3	1:B:518:LYS:HE2	1.84	0.58
1:B:508:VAL:O	1:B:584:ASN:ND2	2.36	0.58
1:D:292:ASN:HB3	1:D:335:ASP:HB3	1.85	0.58
1:E:595:ARG:NH2	1:E:634:ASP:OD2	2.37	0.58
2:I:294:LEU:HB3	2:I:462:PHE:HB3	1.84	0.58
1:E:669:ARG:HG3	1:E:671:ASP:H	1.68	0.58
2:I:597:ARG:HG3	2:I:626:THR:HG21	1.86	0.58
1:C:666:SER:HA	1:C:676:ILE:HA	1.86	0.58
1:E:301:SER:HA	1:E:326:ASN:HA	1.86	0.58
1:A:627:LEU:HD22	1:A:676:ILE:HD12	1.84	0.58
1:F:327:SER:HA	1:G:302:GLU:HA	1.86	0.58
2:I:285:ILE:HD13	2:I:527:LEU:HG	1.86	0.58
1:D:633:LYS:HA	1:D:636:ARG:HG2	1.86	0.57
2:H:304:ASN:HA	2:H:307:LYS:HE3	1.85	0.57
1:B:292:ASN:HB3	1:B:335:ASP:HB2	1.86	0.57
2:I:517:SER:O	2:I:521:LYS:N	2.37	0.57
1:B:545:LYS:NZ	1:B:593:ASP:OD2	2.36	0.57
1:D:301:SER:HA	1:D:326:ASN:HA	1.86	0.57
1:G:238:LYS:HB3	1:G:252:ARG:O	2.05	0.57
2:I:305:LEU:HG	2:I:376:ARG:HH22	1.69	0.57
2:H:318:HIS:HA	2:H:320:LYS:HZ3	1.70	0.57
2:H:766:GLU:O	2:H:766:GLU:HG3	2.05	0.57
1:G:292:ASN:HB3	1:G:335:ASP:HB2	1.85	0.57
1:F:463:ASN:ND2	1:F:466:ASN:OD1	2.38	0.57
1:G:197:LYS:HE3	1:G:198:ASN:HB2	1.86	0.57
2:I:584:LYS:O	2:I:589:LYS:NZ	2.37	0.57
2:I:423:LYS:HB3	2:I:438:TRP:HA	1.85	0.57
1:C:487:THR:OG1	1:C:518:LYS:NZ	2.37	0.57
2:H:192:ILE:O	2:H:192:ILE:HG22	2.03	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:439:ARG:NH1	2:H:440:ASN:O	2.37	0.57
2:I:673:ASN:O	2:I:676:ASN:ND2	2.38	0.57
2:H:759:VAL:HA	2:H:762:LYS:HG2	1.87	0.56
2:I:181:PHE:HB2	2:I:203:GLU:HG2	1.87	0.56
1:E:284:SER:HB2	1:E:343:GLU:HB3	1.87	0.56
2:I:299:ASN:ND2	2:I:322:SER:O	2.38	0.56
1:A:365:ARG:NH1	1:A:412:PRO:O	2.39	0.56
1:E:310:HIS:HB2	1:E:317:GLY:HA3	1.87	0.56
2:I:332:PRO:HG3	2:I:337:LEU:HB2	1.86	0.56
1:C:265:ASP:OD1	1:C:265:ASP:N	2.37	0.56
1:A:276:ASP:N	1:A:276:ASP:OD1	2.38	0.56
1:D:276:ASP:OD1	1:D:276:ASP:N	2.33	0.56
1:E:327:SER:HA	1:F:302:GLU:HA	1.86	0.56
2:I:595:PHE:O	2:I:597:ARG:NH1	2.37	0.56
2:H:548:GLN:NE2	2:H:629:GLU:OE2	2.38	0.56
1:A:666:SER:HA	1:A:676:ILE:HA	1.88	0.56
2:H:458:ASP:OD1	2:H:458:ASP:N	2.39	0.56
1:B:463:ASN:ND2	1:B:466:ASN:OD1	2.39	0.56
1:C:323:GLY:HA2	1:D:306:ASN:HA	1.88	0.56
2:I:312:THR:HG22	2:I:456:THR:HB	1.87	0.56
1:B:174:THR:OG1	1:B:175:VAL:N	2.39	0.55
1:B:195:ASP:OD1	1:B:195:ASP:N	2.39	0.55
1:B:294:SER:HB2	1:B:333:ALA:HB3	1.89	0.55
1:E:628:LEU:HD11	1:E:673:LYS:HB3	1.88	0.55
1:F:555:ASP:OD2	1:F:588:ASN:HB2	2.07	0.55
2:H:386:ILE:HA	2:H:404:SER:HA	1.87	0.55
2:H:624:ILE:O	2:H:672:TYR:OH	2.25	0.55
2:H:736:SER:OG	2:H:764:ILE:HD13	2.05	0.55
2:I:301:LEU:O	2:I:376:ARG:NH2	2.38	0.55
1:C:597:HIS:ND1	1:C:606:GLY:O	2.39	0.55
2:H:488:ASN:O	2:H:492:LYS:N	2.39	0.55
2:H:646:TYR:HB3	2:H:657:LYS:HE3	1.88	0.55
2:I:319:GLY:HA2	2:I:339:LYS:HE2	1.89	0.55
2:I:338:SER:OG	2:I:339:LYS:N	2.40	0.55
1:A:269:ILE:HG21	1:A:448:LEU:HD23	1.88	0.55
1:B:425:ASP:HB2	1:B:430:THR:HB	1.88	0.55
1:F:425:ASP:OD2	1:F:429:SER:OG	2.25	0.55
2:H:190:LYS:CB	2:H:192:ILE:CD1	2.83	0.55
2:H:394:ASP:OD2	2:H:412:ARG:NH1	2.39	0.55
2:I:332:PRO:HD2	2:I:338:SER:HB2	1.87	0.55
1:F:329:SER:HB2	1:G:300:THR:HG23	1.89	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:179:ASP:N	1:G:179:ASP:OD1	2.35	0.55
2:H:318:HIS:ND1	2:H:552:GLU:OE2	2.40	0.55
1:G:387:LYS:O	1:G:449:ARG:NH1	2.39	0.55
2:H:313:LYS:NZ	2:H:317:VAL:O	2.39	0.55
2:H:493:GLN:NE2	2:H:675:ALA:O	2.40	0.55
2:I:522:GLN:O	2:I:526:ARG:HB2	2.07	0.55
1:C:269:ILE:HD11	1:C:360:LEU:HD22	1.89	0.55
1:C:647:GLU:HB3	1:C:695:LYS:HB2	1.88	0.55
1:G:592:ARG:NH1	1:G:602:ASN:OD1	2.40	0.55
2:I:60:VAL:HG13	2:I:144:ILE:HD13	1.87	0.55
1:B:282:THR:HB	1:B:345:THR:HB	1.88	0.55
2:I:445:ALA:HA	2:I:454:PRO:HA	1.88	0.55
1:E:592:ARG:NH2	1:E:602:ASN:OD1	2.33	0.54
2:I:458:ASP:N	2:I:458:ASP:OD1	2.41	0.54
2:I:525:ASP:HA	2:I:528:ASN:HB2	1.89	0.54
1:C:497:ASP:OD1	1:C:499:ASN:HB2	2.07	0.54
2:H:334:ASP:OD2	2:H:439:ARG:NH2	2.41	0.54
2:I:729:LEU:O	2:I:733:HIS:HB2	2.07	0.54
1:G:646:ILE:HB	1:G:654:GLU:HB3	1.88	0.54
1:C:645:GLU:HB2	1:C:697:ASN:HB2	1.88	0.54
1:F:592:ARG:NH1	1:F:602:ASN:OD1	2.39	0.54
2:I:77:ASP:N	2:I:77:ASP:OD1	2.41	0.54
1:D:365:ARG:NH1	1:D:412:PRO:O	2.41	0.54
1:D:647:GLU:HB3	1:D:695:LYS:HB2	1.89	0.54
1:E:611:VAL:HA	1:E:614:GLU:HB2	1.89	0.53
2:H:327:VAL:HG11	2:H:420:VAL:HG21	1.90	0.53
2:I:620:LYS:O	2:I:726:GLN:NE2	2.39	0.53
1:B:309:VAL:HA	1:B:318:GLY:HA2	1.91	0.53
1:F:494:ASN:HB3	1:F:500:LEU:HD23	1.91	0.53
1:C:424:GLN:HE22	1:D:422:ASN:HD21	1.56	0.53
2:I:331:ILE:O	2:I:354:ASN:ND2	2.41	0.53
1:D:327:SER:HB2	1:E:302:GLU:HG3	1.91	0.53
2:H:84:LEU:HD11	2:H:120:ILE:HD13	1.89	0.53
2:H:546:THR:OG1	2:H:547:GLU:N	2.41	0.53
1:G:729:LYS:HE2	1:G:734:ILE:HB	1.91	0.53
2:H:87:LEU:HA	2:H:114:ARG:HH12	1.74	0.53
1:A:463:ASN:ND2	1:A:466:ASN:OD1	2.42	0.53
2:H:444:MET:N	2:H:444:MET:SD	2.81	0.53
2:I:560:ILE:HD13	2:I:578:THR:HG21	1.91	0.53
2:I:230:ASP:OD1	2:I:230:ASP:N	2.38	0.53
1:F:595:ARG:HD3	1:F:611:VAL:HG21	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:163:ILE:HG21	2:H:204:PHE:HE1	1.74	0.52
1:E:406:ALA:HB3	1:E:409:ASN:HD22	1.74	0.52
1:E:634:ASP:OD1	1:E:634:ASP:N	2.42	0.52
1:F:597:HIS:ND1	1:F:606:GLY:O	2.40	0.52
1:A:476:ASN:OD1	1:A:476:ASN:N	2.38	0.52
1:G:705:ASN:HB3	1:G:722:LYS:HB2	1.90	0.52
2:H:562:ILE:HG23	2:H:570:ILE:HB	1.91	0.52
2:H:674:SER:O	2:H:677:HIS:NE2	2.42	0.52
1:E:699:TYR:HE1	1:E:727:PHE:H	1.56	0.52
2:H:312:THR:O	2:H:446:LYS:NZ	2.42	0.52
1:D:619:VAL:HG22	1:D:629:LEU:HG	1.92	0.52
1:G:705:ASN:HB3	1:G:722:LYS:HD3	1.92	0.52
2:I:444:MET:SD	2:I:444:MET:N	2.80	0.52
2:H:547:GLU:HB3	2:H:555:GLU:HB2	1.92	0.52
2:H:582:ILE:HA	2:H:586:ILE:HB	1.92	0.52
1:C:296:SER:HB3	1:C:331:THR:HB	1.92	0.52
2:I:327:VAL:HA	2:I:330:TYR:HD2	1.74	0.52
1:D:241:GLY:O	1:D:245:LYS:NZ	2.43	0.52
1:C:266:MET:HB2	1:C:450:LEU:HD22	1.92	0.51
1:C:616:HIS:HB3	1:C:629:LEU:HD21	1.92	0.51
1:F:305:GLY:HA2	1:F:322:ALA:HA	1.92	0.51
2:I:86:ASP:O	2:I:114:ARG:NH2	2.44	0.51
1:A:301:SER:HB3	1:G:328:ASN:HB2	1.93	0.51
1:B:592:ARG:NH1	1:B:602:ASN:OD1	2.43	0.51
1:D:184:PRO:HD2	1:D:187:LEU:HD22	1.93	0.51
1:D:379:PRO:HB3	1:D:455:VAL:HG22	1.93	0.51
1:A:330:SER:OG	1:B:299:HIS:O	2.29	0.51
1:A:625:GLU:HG3	1:A:686:PRO:HB3	1.93	0.51
1:B:365:ARG:NH1	1:B:413:SER:O	2.43	0.51
1:E:329:SER:HA	1:F:300:THR:HA	1.93	0.51
2:H:188:ASN:C	2:H:190:LYS:H	2.14	0.51
2:I:470:GLU:HA	2:I:473:LYS:HB2	1.92	0.51
2:H:529:GLU:HG3	2:H:532:LYS:HE2	1.93	0.51
2:I:315:LEU:HG	2:I:544:HIS:HB2	1.93	0.51
1:G:488:THR:HG22	1:G:506:ALA:HA	1.93	0.51
1:D:325:SER:OG	1:E:302:GLU:OE1	2.29	0.51
1:F:269:ILE:HD11	1:F:360:LEU:HD22	1.93	0.51
2:H:295:PHE:HB2	2:H:561:PHE:HB3	1.92	0.51
2:H:301:LEU:HA	2:H:376:ARG:HH22	1.76	0.50
2:I:404:SER:H	2:I:407:GLN:HE22	1.58	0.50
2:I:493:GLN:NE2	2:I:676:ASN:OD1	2.44	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:306:ASN:HB2	1:D:321:SER:HB2	1.93	0.50
1:B:288:THR:HB	1:B:339:SER:HB2	1.93	0.50
1:C:389:GLN:HE21	1:D:270:ILE:HD13	1.77	0.50
1:D:236:PHE:O	1:D:240:THR:OG1	2.25	0.50
1:G:282:THR:HB	1:G:345:THR:HB	1.92	0.50
2:H:283:LYS:HG2	2:H:567:GLY:HA3	1.92	0.50
2:H:477:GLN:HB2	2:H:480:TRP:HB2	1.93	0.50
2:I:86:ASP:OD1	2:I:86:ASP:N	2.45	0.50
2:I:311:ALA:HB2	2:I:453:LYS:HE3	1.94	0.50
1:F:551:ASP:OD1	1:F:551:ASP:N	2.45	0.50
2:H:681:GLN:HA	2:H:684:LYS:HG3	1.94	0.50
1:A:404:ILE:HD11	1:G:478:SER:HB2	1.94	0.50
1:E:280:GLN:HB3	1:E:347:ALA:HB3	1.94	0.49
1:E:512:ASP:OD1	1:F:252:ARG:NH1	2.46	0.49
2:H:714:ASN:O	2:H:718:TYR:HB2	2.12	0.49
1:C:645:GLU:HG2	1:C:655:VAL:HA	1.94	0.49
1:D:476:ASN:OD1	1:D:476:ASN:N	2.41	0.49
1:F:292:ASN:HB3	1:F:335:ASP:HB3	1.93	0.49
1:F:696:VAL:HG13	1:F:727:PHE:HE2	1.77	0.49
1:G:595:ARG:NH2	1:G:634:ASP:OD2	2.45	0.49
2:H:190:LYS:CG	2:H:192:ILE:HD11	2.38	0.49
2:H:303:THR:HA	2:H:306:ILE:HB	1.95	0.49
2:I:494:LYS:O	2:I:498:ASN:ND2	2.45	0.49
2:H:86:ASP:N	2:H:86:ASP:OD1	2.45	0.49
2:H:507:ARG:NH1	2:H:515:THR:O	2.45	0.49
2:I:468:LEU:HA	2:I:471:ILE:HB	1.94	0.49
1:B:269:ILE:HD11	1:B:360:LEU:HD22	1.95	0.49
2:I:699:ILE:HA	2:I:702:VAL:HG22	1.95	0.49
2:I:747:LEU:HD11	2:I:760:PHE:HD1	1.77	0.49
2:I:178:SER:OG	2:I:179:GLN:N	2.45	0.49
2:I:312:THR:HA	2:I:456:THR:H	1.78	0.49
1:D:195:ASP:OD2	1:D:214:LYS:NZ	2.45	0.49
1:A:287:ARG:HH22	1:G:344:ARG:HH12	1.60	0.49
1:A:666:SER:OG	1:A:674:THR:OG1	2.29	0.49
1:C:276:ASP:OD1	1:C:276:ASP:N	2.36	0.49
2:H:268:ALA:O	2:H:272:SER:CB	2.61	0.49
2:H:646:TYR:HA	2:H:654:GLU:HG2	1.94	0.49
1:B:678:PHE:O	1:B:682:ASN:ND2	2.46	0.49
1:C:378:LEU:HD21	1:C:401:LEU:HD12	1.94	0.49
2:I:404:SER:O	2:I:407:GLN:NE2	2.46	0.49
1:A:240:THR:HG21	1:A:242:ARG:HE	1.77	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:51:ASP:HA	2:H:54:LYS:HG2	1.95	0.49
1:A:667:SER:OG	1:A:675:PHE:O	2.29	0.48
2:I:349:LYS:O	2:I:353:GLU:HB2	2.13	0.48
1:A:284:SER:HB3	1:A:343:GLU:HB3	1.95	0.48
1:E:282:THR:HB	1:E:345:THR:HB	1.94	0.48
1:G:253:HIS:ND1	1:G:254:PRO:HD2	2.28	0.48
1:G:730:LYS:HB2	1:G:733:GLU:HG3	1.94	0.48
2:I:304:ASN:ND2	2:I:379:GLU:OE2	2.45	0.48
1:D:554:PHE:HB3	1:D:558:THR:HB	1.94	0.48
2:H:219:ASP:OD1	2:H:219:ASP:N	2.44	0.48
2:I:386:ILE:HA	2:I:404:SER:HA	1.95	0.48
1:B:637:LYS:O	1:B:703:LYS:NZ	2.46	0.48
1:G:288:THR:HB	1:G:339:SER:HB2	1.95	0.48
1:A:659:ARG:HB3	1:A:662:MET:HB3	1.96	0.48
1:F:326:ASN:HB2	1:G:303:VAL:HG13	1.96	0.48
2:H:540:ASP:N	2:H:540:ASP:OD1	2.45	0.48
1:A:232:PRO:HG3	1:A:459:ILE:HD13	1.95	0.48
1:C:643:ILE:HG23	1:C:657:ASN:HB2	1.95	0.48
2:I:516:LEU:O	2:I:521:LYS:NZ	2.40	0.48
1:B:312:SER:OG	1:B:313:PHE:N	2.47	0.48
1:C:546:ASP:OD1	1:C:547:ILE:N	2.47	0.48
1:G:605:VAL:HG23	1:G:704:GLU:HG3	1.96	0.48
1:E:484:ILE:O	1:E:488:THR:OG1	2.30	0.48
1:F:705:ASN:HD22	1:F:722:LYS:HB3	1.78	0.48
1:C:684:LYS:HA	1:C:684:LYS:HD3	1.72	0.48
1:E:463:ASN:ND2	1:E:466:ASN:OD1	2.46	0.47
1:F:328:ASN:N	1:G:301:SER:O	2.43	0.47
1:G:232:PRO:HD3	1:G:480:VAL:HG11	1.96	0.47
1:G:665:ILE:HA	1:G:680:LYS:HD2	1.95	0.47
1:D:406:ALA:HB3	1:D:409:ASN:HD22	1.79	0.47
1:D:551:ASP:OD1	1:D:551:ASP:N	2.46	0.47
1:F:358:ALA:HB3	1:F:434:MET:HE3	1.96	0.47
2:H:332:PRO:HB3	2:H:337:LEU:HB3	1.97	0.47
1:B:276:ASP:OD1	1:B:276:ASP:N	2.35	0.47
1:C:627:LEU:HD11	1:C:629:LEU:HB2	1.97	0.47
2:I:91:GLU:HG2	2:I:110:PHE:HZ	1.79	0.47
2:I:752:ASN:OD1	2:I:752:ASN:N	2.43	0.47
1:D:179:ASP:OD1	1:D:179:ASP:N	2.41	0.47
2:H:192:ILE:O	2:H:192:ILE:CG2	2.61	0.47
2:H:766:GLU:HG2	2:H:767:LYS:NZ	2.30	0.47
1:A:200:ARG:HD3	1:G:178:ARG:HH21	1.78	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:487:THR:OG1	1:C:487:THR:O	2.29	0.47
2:H:425:LYS:HB2	2:H:428:LYS:HG2	1.96	0.47
1:B:326:ASN:HB2	1:C:303:VAL:HG22	1.96	0.47
1:D:323:GLY:HA3	1:E:306:ASN:HD22	1.80	0.47
1:E:203:LEU:HD22	2:I:34:VAL:HG12	1.97	0.47
1:E:269:ILE:HD11	1:E:360:LEU:HD22	1.96	0.47
2:I:377:ILE:HB	2:I:388:LYS:HD3	1.97	0.47
2:I:412:ARG:HG3	2:I:422:TYR:HA	1.95	0.47
1:B:563:LYS:HA	1:B:563:LYS:HD3	1.68	0.47
1:F:288:THR:HB	1:F:339:SER:HB2	1.97	0.47
1:G:551:ASP:N	1:G:551:ASP:OD1	2.44	0.47
2:H:515:THR:OG1	2:H:549:ASP:OD1	2.32	0.47
2:I:562:ILE:HG13	2:I:570:ILE:HD12	1.97	0.47
1:A:284:SER:OG	1:G:343:GLU:OE2	2.30	0.47
1:F:276:ASP:OD1	1:F:276:ASP:N	2.43	0.47
2:I:74:THR:OG1	2:I:75:ASP:N	2.48	0.47
1:C:494:ASN:HB3	1:C:500:LEU:HD23	1.97	0.47
1:E:328:ASN:O	1:F:301:SER:OG	2.29	0.47
1:F:665:ILE:O	1:F:677:ASP:N	2.48	0.47
2:H:190:LYS:CB	2:H:192:ILE:HD12	2.43	0.47
2:H:404:SER:OG	2:H:406:ASN:O	2.29	0.47
1:C:655:VAL:HG21	1:C:719:ASN:HD21	1.80	0.46
1:D:357:THR:HG21	1:D:436:TYR:HD1	1.80	0.46
1:G:252:ARG:CG	1:G:252:ARG:NH1	2.73	0.46
2:H:645:VAL:HG11	2:H:708:ILE:HG23	1.96	0.46
1:C:657:ASN:HD22	1:C:662:MET:HG2	1.80	0.46
2:H:28:ASP:HA	2:H:31:ASN:HB2	1.97	0.46
1:G:247:VAL:O	1:G:252:ARG:NH1	2.45	0.46
2:I:685:ARG:HG2	2:I:730:LEU:HD11	1.97	0.46
1:E:337:SER:OG	1:F:292:ASN:OD1	2.34	0.46
1:G:195:ASP:N	1:G:195:ASP:OD1	2.47	0.46
2:I:581:PHE:HA	2:I:584:LYS:HG2	1.98	0.46
1:F:253:HIS:HE1	1:F:255:LEU:HD12	1.79	0.46
2:H:314:GLY:HA2	2:H:543:ASN:HB3	1.98	0.46
1:F:707:ILE:HG23	1:F:709:ASN:HD22	1.80	0.46
1:C:289:ILE:HG12	1:C:338:LEU:HD23	1.97	0.46
2:H:663:LYS:HA	2:H:663:LYS:HD3	1.76	0.46
1:B:258:ALA:HB1	1:B:372:ALA:HB2	1.97	0.46
1:F:312:SER:OG	1:F:315:ASP:O	2.34	0.46
2:I:422:TYR:OH	2:I:439:ARG:NH1	2.48	0.46
2:I:304:ASN:O	2:I:308:SER:OG	2.25	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:399:TYR:OH	2:I:421:GLN:OE1	2.34	0.46
1:A:622:SER:HB3	1:A:734:ILE:HG22	1.98	0.46
1:A:643:ILE:HG13	1:A:699:TYR:HB2	1.98	0.46
1:A:423:ALA:HB1	1:A:428:SER:HA	1.99	0.45
1:C:606:GLY:HA2	1:C:638:ILE:HD12	1.98	0.45
1:D:621:ASN:HB2	1:D:628:LEU:HD23	1.97	0.45
1:E:488:THR:HG22	1:E:506:ALA:HA	1.97	0.45
1:E:642:TYR:O	1:E:657:ASN:ND2	2.49	0.45
2:H:334:ASP:OD2	2:H:422:TYR:OH	2.31	0.45
2:I:304:ASN:HA	2:I:307:LYS:HG2	1.98	0.45
2:I:377:ILE:HD13	2:I:413:ILE:HG21	1.98	0.45
1:A:690:SER:HB2	1:A:694:TYR:HE2	1.81	0.45
1:B:647:GLU:HB3	1:B:695:LYS:HB2	1.98	0.45
1:C:665:ILE:O	1:C:677:ASP:N	2.45	0.45
2:H:130:SER:HA	2:H:133:SER:HB2	1.99	0.45
1:A:301:SER:HA	1:A:326:ASN:HA	1.97	0.45
1:A:518:LYS:H	1:A:518:LYS:HG2	1.51	0.45
1:B:698:VAL:HB	1:B:727:PHE:HB3	1.99	0.45
1:D:699:TYR:HD2	1:D:723:LYS:HE3	1.81	0.45
1:F:290:SER:HB3	1:F:337:SER:HB3	1.98	0.45
1:F:296:SER:HB2	1:F:331:THR:HB	1.98	0.45
1:F:329:SER:OG	1:F:330:SER:N	2.50	0.45
1:D:561:ASN:HD21	1:D:584:ASN:HD22	1.65	0.45
1:E:271:LEU:HD13	1:E:442:LEU:HD23	1.97	0.45
1:F:232:PRO:HD3	1:F:480:VAL:HG11	1.98	0.45
2:H:185:LEU:O	2:H:189:ASN:N	2.50	0.45
2:I:392:GLU:HB3	2:I:401:LEU:HD13	1.99	0.45
1:A:647:GLU:HG3	1:A:651:GLY:HA2	1.99	0.45
1:E:618:GLU:HB2	1:E:630:ASN:HB3	1.99	0.45
2:H:494:LYS:HD2	2:H:494:LYS:HA	1.72	0.45
2:H:505:ILE:HD12	2:H:597:ARG:HH21	1.82	0.45
2:I:327:VAL:HG11	2:I:337:LEU:HB3	1.99	0.45
1:A:414:LYS:HA	1:A:414:LYS:HD2	1.77	0.45
1:E:494:ASN:HB3	1:E:500:LEU:HD23	1.98	0.45
2:H:448:VAL:HG23	2:H:451:VAL:HB	1.98	0.45
2:I:194:ILE:CG1	2:I:198:LYS:HE3	2.39	0.45
1:B:388:ASN:OD1	1:B:388:ASN:N	2.49	0.45
1:G:270:ILE:HB	1:G:361:ASN:HB3	1.99	0.45
2:H:493:GLN:HG2	2:H:678:ILE:HD11	1.99	0.45
2:I:93:ASN:HB3	2:I:101:LYS:HD3	1.99	0.45
1:D:717:SER:OG	1:D:718:THR:N	2.45	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:659:GLU:HA	2:I:662:LYS:HE2	1.98	0.44
1:B:648:ASP:H	1:B:652:LEU:H	1.65	0.44
1:E:551:ASP:N	1:E:551:ASP:OD1	2.50	0.44
1:F:717:SER:OG	1:F:719:ASN:ND2	2.50	0.44
2:H:466:PRO:HD2	2:H:592:LEU:HD13	1.98	0.44
1:C:329:SER:HA	1:D:300:THR:HA	1.99	0.44
1:E:643:ILE:HA	1:E:657:ASN:HD21	1.82	0.44
1:G:335:ASP:O	1:G:336:HIS:ND1	2.50	0.44
2:H:164:LYS:HB3	2:H:164:LYS:HE3	1.76	0.44
1:A:300:THR:HB	1:A:327:SER:HB2	1.99	0.44
1:G:723:LYS:HE2	1:G:723:LYS:HB3	1.73	0.44
1:A:425:ASP:HB2	1:A:430:THR:HB	1.99	0.44
1:E:179:ASP:OD1	1:E:179:ASP:N	2.37	0.44
1:E:329:SER:HB2	1:F:300:THR:HG23	1.98	0.44
1:G:214:LYS:HE3	1:G:214:LYS:HB3	1.82	0.44
2:H:180:LYS:HE2	2:H:180:LYS:HB3	1.85	0.44
2:H:516:LEU:HD13	2:H:520:GLN:HB3	2.00	0.44
1:G:265:ASP:OD1	1:G:265:ASP:N	2.51	0.44
2:H:412:ARG:HD2	2:H:423:LYS:HE3	2.00	0.44
2:I:413:ILE:HB	2:I:420:VAL:HG22	1.98	0.44
2:I:453:LYS:NZ	2:I:537:THR:O	2.39	0.44
2:I:516:LEU:HD13	2:I:520:GLN:HB3	1.98	0.44
1:A:669:ARG:HA	1:A:669:ARG:HD3	1.78	0.44
1:B:494:ASN:HB3	1:B:500:LEU:HD23	1.99	0.44
1:C:609:GLU:HA	1:C:612:VAL:HG22	2.00	0.44
2:I:683:LYS:HA	2:I:686:LYS:HE3	1.99	0.44
1:F:300:THR:O	1:F:327:SER:N	2.51	0.43
1:G:645:GLU:HG3	1:G:655:VAL:HG22	1.98	0.43
2:I:252:LYS:HA	2:I:252:LYS:HD3	1.80	0.43
2:H:177:PHE:HB2	2:H:182:LYS:HE2	2.01	0.43
2:I:193:ASP:O	2:I:196:PHE:N	2.51	0.43
1:A:268:ASN:HB2	1:A:363:ASN:HB2	2.00	0.43
1:C:304:HIS:HB3	1:C:323:GLY:H	1.82	0.43
1:C:463:ASN:ND2	1:C:466:ASN:OD1	2.51	0.43
1:C:667:SER:OG	1:C:668:LEU:N	2.51	0.43
1:E:195:ASP:N	1:E:195:ASP:OD1	2.51	0.43
1:E:644:VAL:HG23	1:E:698:VAL:HG22	2.01	0.43
1:G:299:HIS:HE1	1:G:326:ASN:HB2	1.84	0.43
2:H:462:PHE:HA	2:H:546:THR:HB	2.00	0.43
2:H:499:LEU:HD12	2:H:502:LYS:HE2	1.98	0.43
1:A:597:HIS:ND1	1:A:606:GLY:O	2.50	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:498:LEU:O	1:E:637:LYS:NZ	2.51	0.43
1:G:232:PRO:HG3	1:G:459:ILE:HG21	2.01	0.43
1:F:488:THR:HG22	1:F:506:ALA:HA	1.99	0.43
2:H:182:LYS:HE3	2:H:182:LYS:HB2	1.88	0.43
1:A:178:ARG:NH1	1:A:224:GLU:OE2	2.49	0.43
1:C:653:LYS:HD2	1:C:653:LYS:HA	1.89	0.43
1:E:629:LEU:O	1:E:674:THR:OG1	2.36	0.43
2:H:188:ASN:O	2:H:190:LYS:N	2.51	0.43
2:I:468:LEU:HD22	2:I:677:HIS:HE1	1.84	0.43
1:B:203:LEU:HD12	1:B:204:SER:N	2.34	0.43
1:C:213:LYS:HB2	1:C:213:LYS:HE2	1.84	0.43
1:G:616:HIS:CE1	1:G:632:ASP:H	2.36	0.43
1:G:643:ILE:HG23	1:G:657:ASN:HB2	1.99	0.43
1:G:668:LEU:HD12	1:G:668:LEU:HA	1.89	0.43
1:A:573:ASN:HB3	1:A:576:THR:HG22	2.01	0.43
1:G:537:ASN:N	1:G:537:ASN:OD1	2.52	0.43
2:I:130:SER:O	2:I:130:SER:OG	2.37	0.43
2:I:735:LYS:H	2:I:735:LYS:HG2	1.66	0.43
1:A:292:ASN:HD22	1:G:337:SER:HB2	1.84	0.43
1:B:232:PRO:HD3	1:B:480:VAL:HG11	2.01	0.43
1:C:699:TYR:HE1	1:C:727:PHE:H	1.67	0.43
1:D:657:ASN:ND2	1:D:662:MET:O	2.51	0.43
1:F:533:PHE:HB3	1:F:540:LEU:HD11	2.01	0.43
2:H:313:LYS:HB3	2:H:455:LEU:HB3	2.01	0.43
1:D:699:TYR:HD2	1:D:723:LYS:HB3	1.83	0.43
1:E:552:PHE:HD1	1:E:591:ILE:HG12	1.84	0.43
1:G:365:ARG:NH1	1:G:412:PRO:O	2.51	0.43
2:H:93:ASN:HB3	2:H:101:LYS:HE3	2.01	0.43
2:H:521:LYS:HG2	2:H:524:LEU:HD12	2.01	0.43
2:I:317:VAL:HG12	2:I:319:GLY:H	1.83	0.43
1:G:253:HIS:CE1	1:G:255:LEU:HD12	2.54	0.42
2:H:358:ILE:HD12	2:H:367:LYS:HE3	2.01	0.42
2:I:58:LYS:HA	2:I:58:LYS:HD2	1.79	0.42
1:A:691:ASN:HD21	1:A:693:ASN:HB2	1.84	0.42
2:I:408:VAL:HG22	2:I:428:LYS:HE2	2.01	0.42
2:I:315:LEU:HD12	2:I:511:SER:HA	2.01	0.42
1:A:388:ASN:OD1	1:A:388:ASN:N	2.52	0.42
1:A:664:ASN:OD1	1:A:664:ASN:N	2.53	0.42
1:C:179:ASP:OD1	1:C:179:ASP:N	2.47	0.42
1:E:319:SER:OG	1:F:309:VAL:O	2.29	0.42
1:F:246:ASN:HB2	1:F:373:PRO:HG3	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:628:LEU:HB3	1:C:673:LYS:HB3	2.02	0.42
1:G:621:ASN:HB2	1:G:628:LEU:HD22	2.02	0.42
1:G:730:LYS:HB3	1:G:730:LYS:HE2	1.85	0.42
2:I:237:LYS:HB3	2:I:237:LYS:HE2	1.76	0.42
2:I:268:ALA:HB2	2:I:571:LEU:HB2	2.01	0.42
1:A:551:ASP:OD1	1:A:551:ASP:N	2.51	0.42
1:C:397:LYS:HA	1:C:397:LYS:HD3	1.86	0.42
2:H:148:ILE:HG21	2:H:238:LEU:HD21	2.01	0.42
1:F:259:TYR:OH	1:F:502:GLU:OE2	2.30	0.42
1:G:197:LYS:HE2	1:G:197:LYS:HB3	1.96	0.42
1:G:271:LEU:HD13	1:G:439:PHE:HE1	1.85	0.42
2:H:356:LYS:HA	2:H:359:THR:HG22	2.02	0.42
2:I:194:ILE:HD11	2:I:198:LYS:CG	2.49	0.42
2:I:294:LEU:HG	2:I:463:ALA:HB3	2.02	0.42
2:I:532:LYS:HA	2:I:536:TYR:HB3	2.01	0.42
1:D:209:ASN:HD22	1:D:209:ASN:HA	1.68	0.42
1:F:329:SER:HA	1:G:300:THR:HA	2.01	0.42
2:I:528:ASN:HD21	2:I:542:VAL:H	1.68	0.42
1:B:435:ASN:OD1	1:B:435:ASN:N	2.51	0.42
1:B:613:LYS:NZ	1:B:614:GLU:OE2	2.53	0.42
1:F:183:ILE:HA	1:F:184:PRO:HD3	1.93	0.42
1:G:357:THR:HG21	1:G:436:TYR:HA	2.02	0.42
1:G:563:LYS:HA	1:G:563:LYS:HD3	1.76	0.42
2:H:320:LYS:HG2	2:H:339:LYS:HZ1	1.85	0.42
2:H:685:ARG:HG3	2:H:730:LEU:HD11	2.02	0.42
1:A:596:PHE:HA	1:A:607:ALA:HA	2.01	0.42
1:B:612:VAL:O	1:B:616:HIS:ND1	2.53	0.42
1:C:425:ASP:OD1	1:C:426:ASP:N	2.53	0.42
2:I:53:LEU:HD12	2:I:53:LEU:HA	1.87	0.42
2:I:482:LYS:HB2	2:I:482:LYS:HE2	1.93	0.42
1:A:343:GLU:OE2	1:B:284:SER:OG	2.38	0.41
1:B:363:ASN:HB3	1:B:418:PRO:HG2	2.02	0.41
2:H:440:ASN:OD1	2:H:440:ASN:N	2.53	0.41
2:I:151:LYS:HG2	2:I:156:ASP:HB2	2.01	0.41
2:I:747:LEU:HD23	2:I:747:LEU:HA	1.91	0.41
1:D:397:LYS:HA	1:D:397:LYS:HD3	1.90	0.41
1:E:635:ILE:HG23	1:E:638:ILE:HD11	2.02	0.41
2:H:517:SER:OG	2:H:518:ASN:N	2.51	0.41
2:H:645:VAL:HG12	2:H:709:ALA:H	1.84	0.41
2:I:441:ILE:HG22	2:I:443:VAL:HB	2.02	0.41
1:C:627:LEU:N	1:C:676:ILE:O	2.53	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:422:ASN:OD1	1:A:422:ASN:N	2.53	0.41
1:A:637:LYS:HD2	1:A:637:LYS:HA	1.87	0.41
1:B:476:ASN:OD1	1:B:476:ASN:N	2.44	0.41
1:E:175:VAL:HA	1:E:176:PRO:HD3	1.94	0.41
2:H:559:GLU:HB3	2:H:571:LEU:HD11	2.02	0.41
2:I:647:LYS:HE3	2:I:647:LYS:HB3	1.87	0.41
1:A:449:ARG:NH2	1:A:451:ASP:OD1	2.53	0.41
1:D:615:ALA:H	1:D:616:HIS:HD2	1.68	0.41
1:F:387:LYS:HB2	1:F:387:LYS:HE2	1.76	0.41
2:H:470:GLU:O	2:H:474:GLN:N	2.54	0.41
1:A:224:GLU:OE1	1:B:242:ARG:NH2	2.54	0.41
1:A:368:ASN:HB2	1:A:405:LEU:HG	2.03	0.41
1:C:286:THR:HB	1:C:341:ALA:HB3	2.02	0.41
1:C:476:ASN:OD1	1:C:476:ASN:N	2.48	0.41
1:C:633:LYS:HB2	1:C:633:LYS:HE3	1.84	0.41
1:D:331:THR:HG23	1:E:298:THR:HA	2.01	0.41
1:D:412:PRO:HD3	1:D:419:ILE:HG23	2.02	0.41
1:E:183:ILE:HA	1:E:184:PRO:HD3	1.88	0.41
2:H:556:LYS:HA	2:H:556:LYS:HD3	1.89	0.41
2:H:626:THR:HA	2:H:672:TYR:CE2	2.56	0.41
2:I:269:LEU:O	2:I:273:GLY:N	2.54	0.41
2:I:300:LYS:HA	2:I:303:THR:HG22	2.02	0.41
1:A:302:GLU:O	1:A:325:SER:N	2.53	0.41
1:D:545:LYS:HG2	1:D:549:GLU:HG3	2.02	0.41
1:D:639:LEU:HD23	1:D:639:LEU:HA	1.87	0.41
1:E:211:HIS:HB3	1:E:216:LEU:HD12	2.02	0.41
1:B:291:LYS:NZ	1:B:293:THR:OG1	2.42	0.41
1:C:296:SER:N	1:C:331:THR:O	2.54	0.41
1:E:622:SER:OG	1:E:729:LYS:NZ	2.45	0.41
1:E:716:THR:O	1:E:716:THR:OG1	2.35	0.41
1:G:626:GLY:HA2	1:G:677:ASP:HA	2.03	0.41
2:I:324:TRP:HB2	2:I:385:ILE:HG21	2.02	0.41
1:A:524:LYS:HD3	1:A:579:ASP:HB3	2.03	0.41
1:B:322:ALA:O	1:C:306:ASN:ND2	2.54	0.41
1:D:249:PRO:HA	1:D:252:ARG:HG3	2.03	0.41
1:D:270:ILE:HB	1:D:361:ASN:HB3	2.03	0.41
1:D:277:GLN:HG3	1:D:350:MET:HG2	2.03	0.41
1:D:658:ASP:OD1	1:D:658:ASP:N	2.54	0.41
1:E:246:ASN:HB2	1:E:373:PRO:HG3	2.02	0.41
1:E:563:LYS:HD3	1:E:563:LYS:HA	1.80	0.41
1:E:578:LEU:HD23	1:E:578:LEU:HA	1.92	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:113:LYS:HB3	2:H:117:PRO:HA	2.02	0.41
2:H:201:LEU:HD12	2:H:201:LEU:HA	1.91	0.41
2:H:281:ALA:HA	2:H:284:LYS:HG2	2.03	0.41
2:H:548:GLN:OE1	2:H:596:ASN:ND2	2.53	0.41
2:H:618:LYS:HD2	2:H:618:LYS:HA	1.91	0.41
2:H:752:ASN:OD1	2:H:756:ASN:ND2	2.54	0.41
2:I:75:ASP:HB2	2:I:742:LEU:HD11	2.02	0.41
1:A:280:GLN:HB3	1:A:347:ALA:HB3	2.03	0.41
1:C:425:ASP:OD2	1:C:429:SER:OG	2.39	0.41
1:C:694:TYR:O	1:C:731:GLY:N	2.54	0.41
1:F:423:ALA:HB1	1:F:428:SER:HA	2.02	0.41
1:F:729:LYS:HG2	1:F:730:LYS:H	1.86	0.41
1:B:354:THR:OG1	1:C:275:GLU:O	2.35	0.40
2:H:353:GLU:HA	2:H:356:LYS:HG2	2.04	0.40
2:I:340:LYS:HB2	2:I:340:LYS:HE2	1.87	0.40
1:B:291:LYS:HZ1	1:B:293:THR:HG1	1.63	0.40
1:E:582:LYS:HD3	1:E:582:LYS:HA	1.86	0.40
1:F:236:PHE:O	1:F:240:THR:OG1	2.30	0.40
1:F:718:THR:O	1:F:718:THR:OG1	2.39	0.40
1:G:425:ASP:HB2	1:G:430:THR:HB	2.02	0.40
2:H:412:ARG:HB2	2:H:422:TYR:HA	2.03	0.40
2:H:471:ILE:HD11	2:H:592:LEU:HD11	2.03	0.40
1:A:460:ALA:HB2	1:A:471:VAL:HG22	2.04	0.40
1:F:624:THR:HG22	1:F:686:PRO:HB2	2.02	0.40
2:I:326:PRO:HB2	2:I:372:LEU:HD22	2.03	0.40
1:B:203:LEU:HD12	1:B:204:SER:H	1.86	0.40
1:F:181:ASP:N	1:F:181:ASP:OD1	2.48	0.40
1:D:508:VAL:HG23	1:D:516:THR:HA	2.03	0.40
2:H:52:LEU:HD11	2:H:136:VAL:HG21	2.04	0.40
2:I:224:LEU:HD12	2:I:224:LEU:HA	1.86	0.40
2:I:500:LEU:HD23	2:I:500:LEU:HA	1.87	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	560/735 (76%)	515 (92%)	45 (8%)	0	100	100
1	B	560/735 (76%)	510 (91%)	50 (9%)	0	100	100
1	C	560/735 (76%)	512 (91%)	48 (9%)	0	100	100
1	D	560/735 (76%)	511 (91%)	48 (9%)	1 (0%)	47	78
1	E	560/735 (76%)	520 (93%)	40 (7%)	0	100	100
1	F	560/735 (76%)	516 (92%)	44 (8%)	0	100	100
1	G	560/735 (76%)	528 (94%)	32 (6%)	0	100	100
2	H	714/767 (93%)	656 (92%)	56 (8%)	2 (0%)	41	72
2	I	714/767 (93%)	653 (92%)	61 (8%)	0	100	100
All	All	5348/6679 (80%)	4921 (92%)	424 (8%)	3 (0%)	54	82

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	H	189	ASN
2	H	766	GLU
1	D	254	PRO

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	501/661 (76%)	498 (99%)	3 (1%)	86	94
1	B	501/661 (76%)	494 (99%)	7 (1%)	67	83
1	C	501/661 (76%)	497 (99%)	4 (1%)	81	91
1	D	501/661 (76%)	500 (100%)	1 (0%)	93	98
1	E	501/661 (76%)	499 (100%)	2 (0%)	91	95
1	F	501/661 (76%)	499 (100%)	2 (0%)	91	95
1	G	501/661 (76%)	501 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	H	651/698 (93%)	644 (99%)	7 (1%)	73	86
2	I	651/698 (93%)	645 (99%)	6 (1%)	78	90
All	All	4809/6023 (80%)	4777 (99%)	32 (1%)	84	92

All (32) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	276	ASP
1	A	518	LYS
1	A	563	LYS
1	B	175	VAL
1	B	203	LEU
1	B	276	ASP
1	B	287	ARG
1	B	295	THR
1	B	401	LEU
1	B	497	ASP
1	C	282	THR
1	C	297	ARG
1	C	542	TYR
1	C	543	GLN
1	D	203	LEU
1	E	276	ASP
1	E	600	ARG
1	F	497	ASP
1	F	548	THR
2	H	164	LYS
2	H	165	SER
2	H	190	LYS
2	H	193	ASP
2	H	198	LYS
2	H	330	TYR
2	H	766	GLU
2	I	67	LEU
2	I	165	SER
2	I	169	ASP
2	I	193	ASP
2	I	194	ILE
2	I	750	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (73) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	292	ASN
1	A	363	ASN
1	A	389	GLN
1	A	539	ASN
1	A	691	ASN
1	A	697	ASN
1	B	304	HIS
1	B	389	GLN
1	B	601	ASN
1	C	281	ASN
1	C	306	ASN
1	C	363	ASN
1	C	389	GLN
1	C	424	GLN
1	C	463	ASN
1	C	601	ASN
1	C	682	ASN
1	C	705	ASN
1	C	719	ASN
1	D	209	ASN
1	D	389	GLN
1	D	458	ASN
1	D	494	ASN
1	D	561	ASN
1	D	616	HIS
1	D	621	ASN
1	D	691	ASN
1	D	705	ASN
1	E	277	GLN
1	E	292	ASN
1	E	306	ASN
1	E	389	GLN
1	E	409	ASN
1	E	463	ASN
1	E	560	GLN
1	E	682	ASN
1	F	292	ASN
1	F	304	HIS
1	F	363	ASN
1	F	389	GLN
1	F	463	ASN
1	F	697	ASN
1	F	709	ASN

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Mol	Chain	Res	Type
1	F	719	ASN
1	G	268	ASN
1	G	299	HIS
1	G	363	ASN
1	G	389	GLN
1	G	437	ASN
1	G	458	ASN
1	G	553	ASN
2	H	278	HIS
2	H	383	ASN
2	H	405	ASN
2	H	417	ASN
2	H	447	ASN
2	H	493	GLN
2	I	200	ASN
2	I	205	GLN
2	I	383	ASN
2	I	407	GLN
2	I	418	ASN
2	I	493	GLN
2	I	498	ASN
2	I	522	GLN
2	I	528	ASN
2	I	574	ASN
2	I	585	ASN
2	I	676	ASN
2	I	677	HIS
2	I	717	GLN
2	I	725	ASN
2	I	737	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](#)

Of 14 ligands modelled in this entry, 14 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

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.

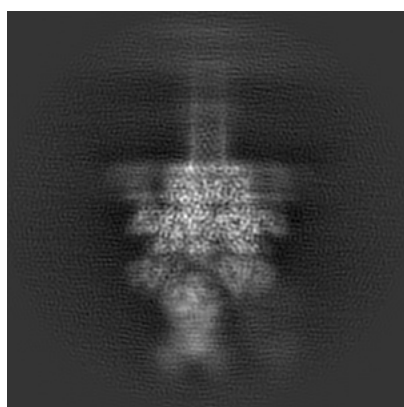
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-20958. These allow visual inspection of the internal detail of the map and identification of artifacts.

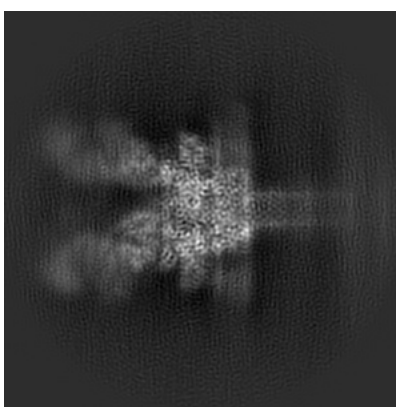
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

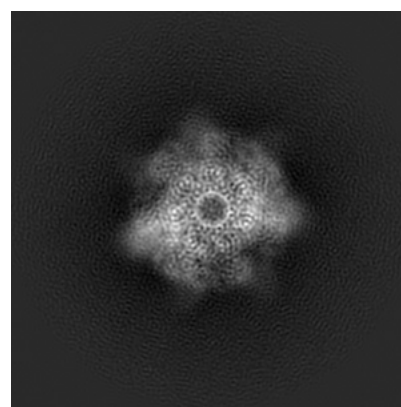
6.1.1 Primary map



X



Y

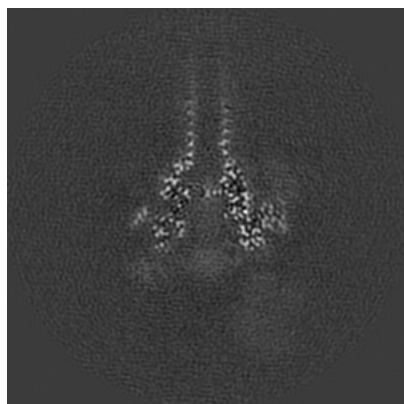


Z

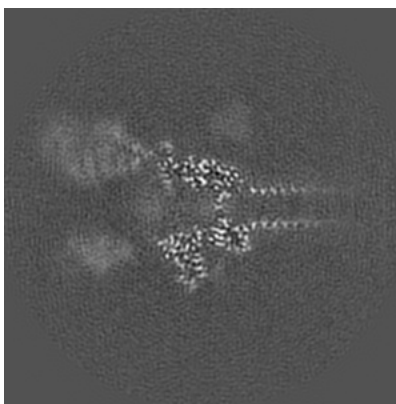
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

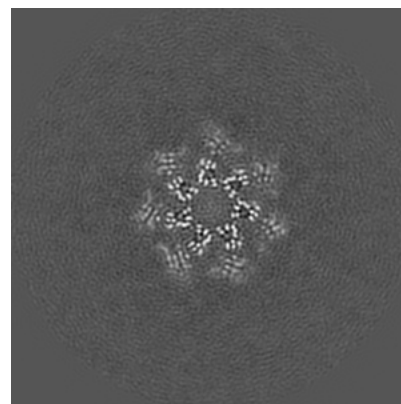
6.2.1 Primary map



X Index: 150



Y Index: 150

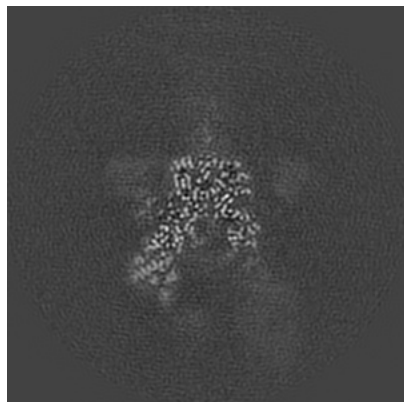


Z Index: 150

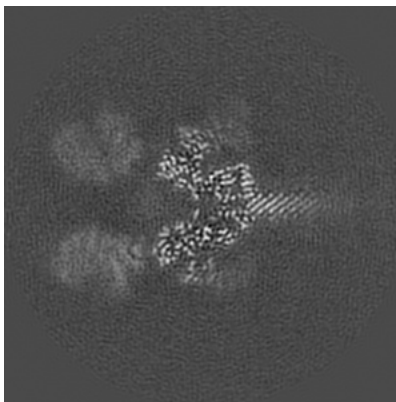
The images above show central slices of the map in three orthogonal directions.

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

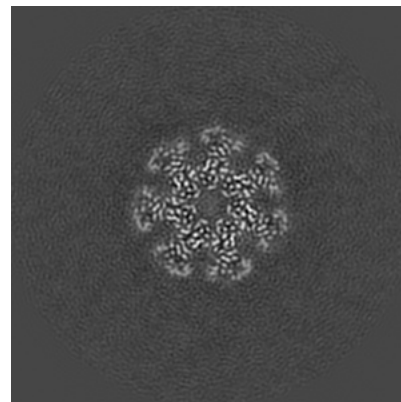
6.3.1 Primary map



X Index: 134



Y Index: 138

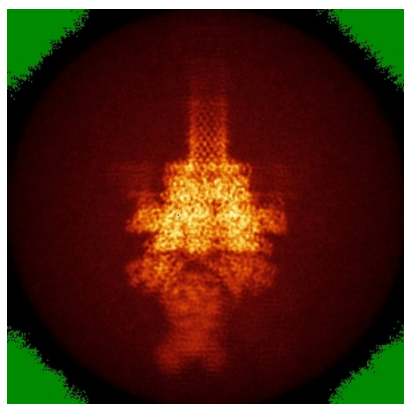


Z Index: 144

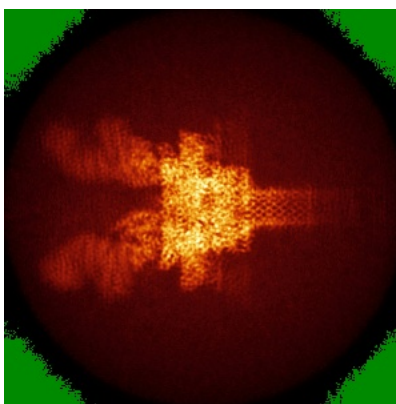
The images above show the largest variance slices of the map in three orthogonal directions.

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

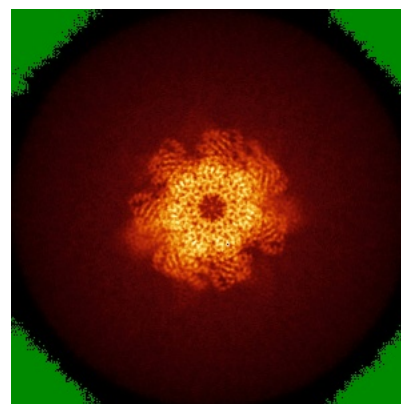
6.4.1 Primary map



X



Y

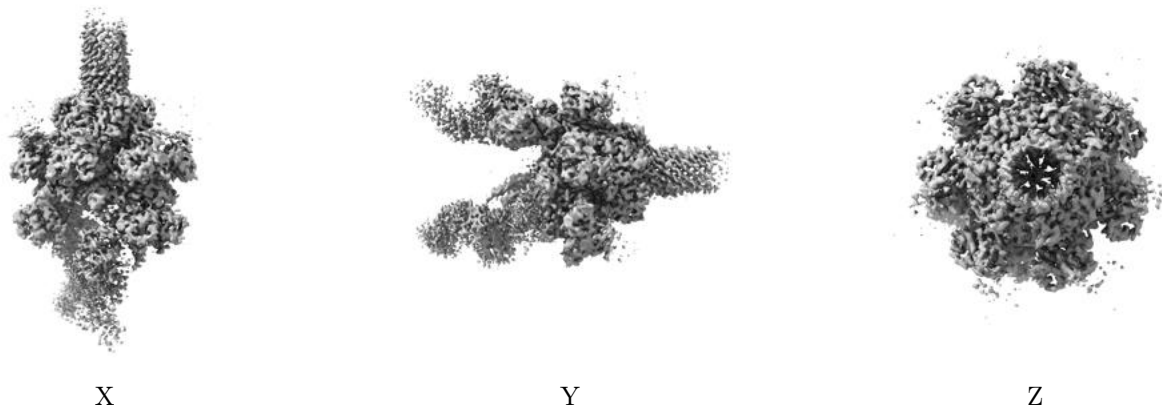


Z

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



The images above show the 3D surface view of the map at the recommended contour level 0.03. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

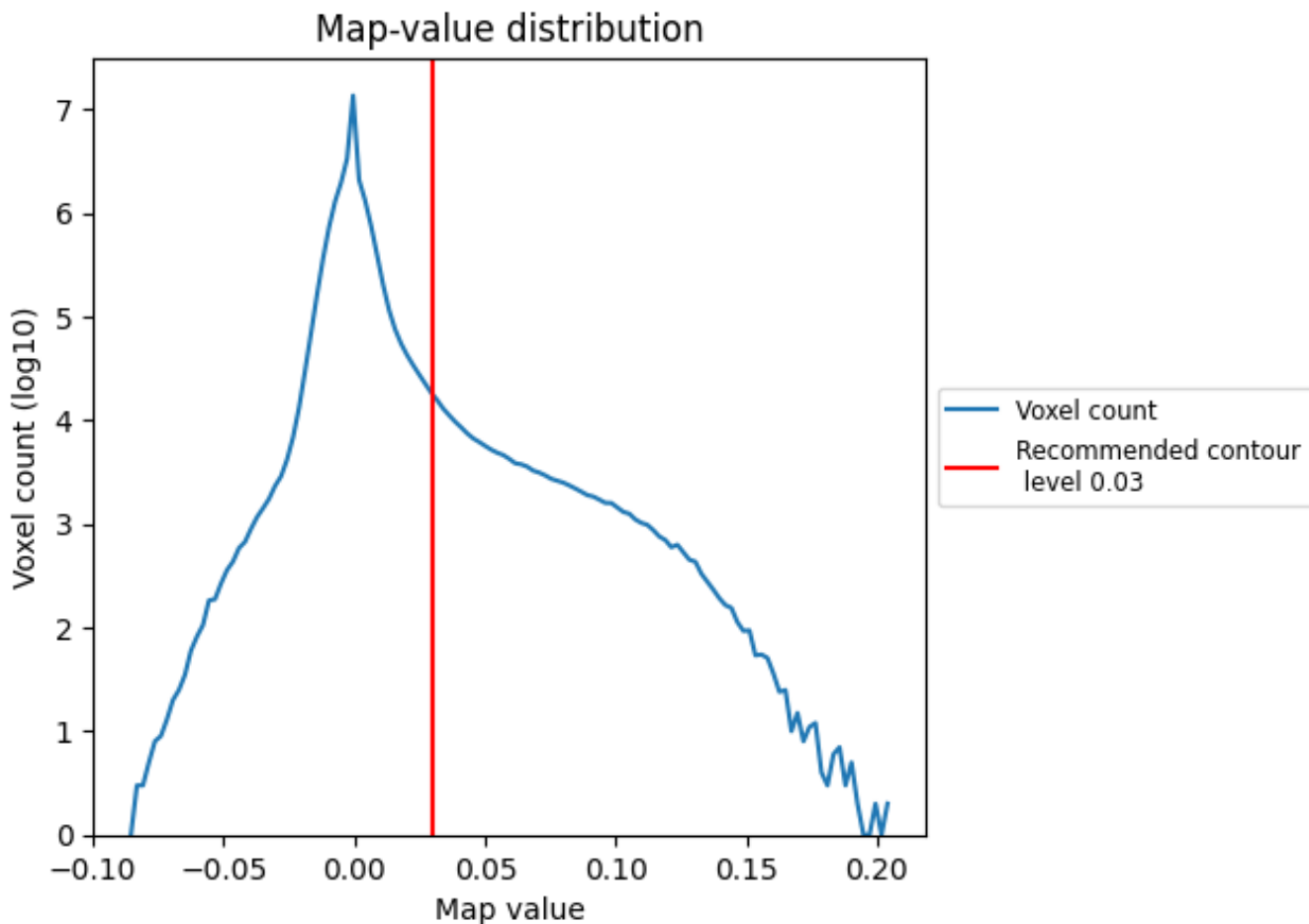
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

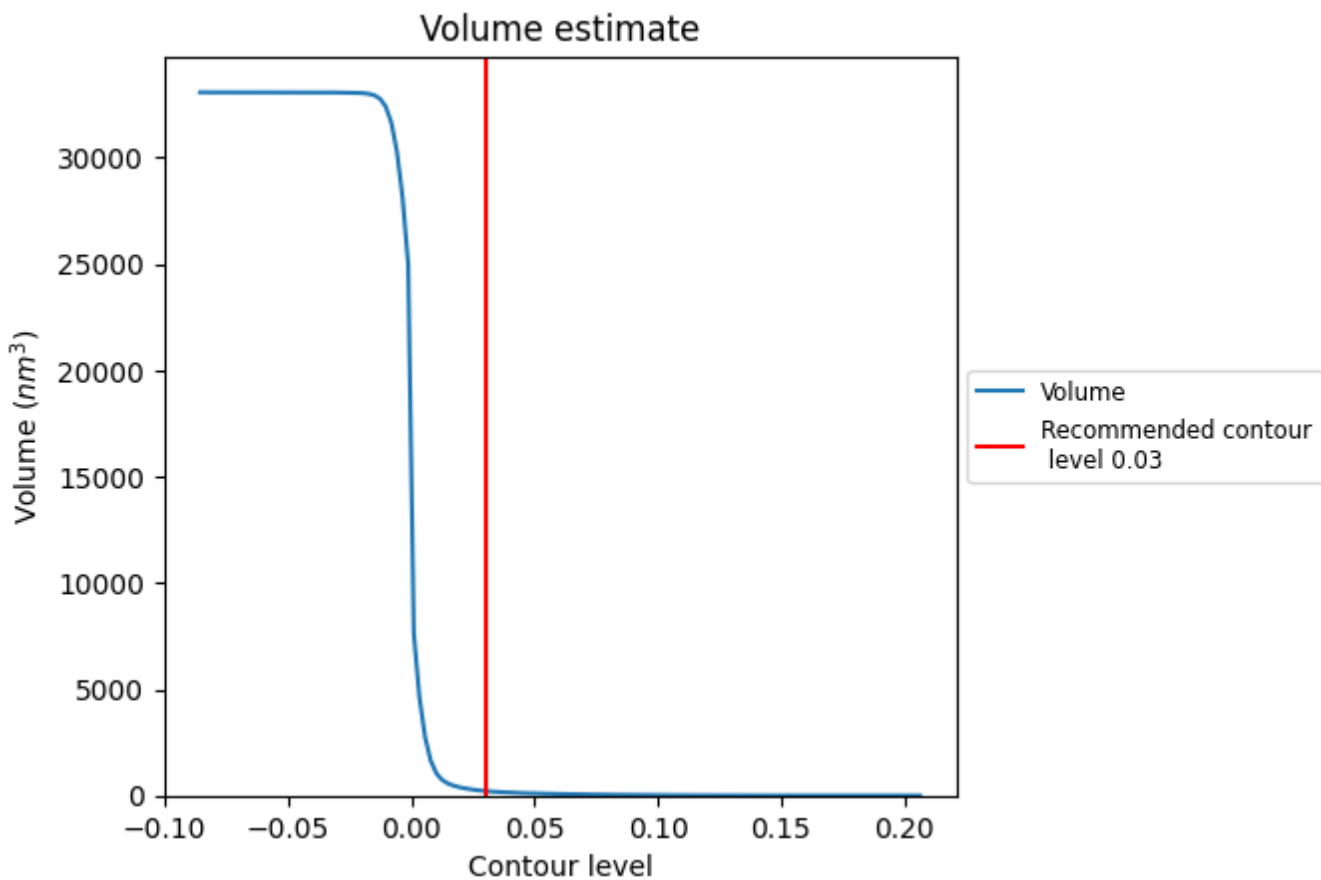
This section contains the results of statistical analysis of the map.

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.

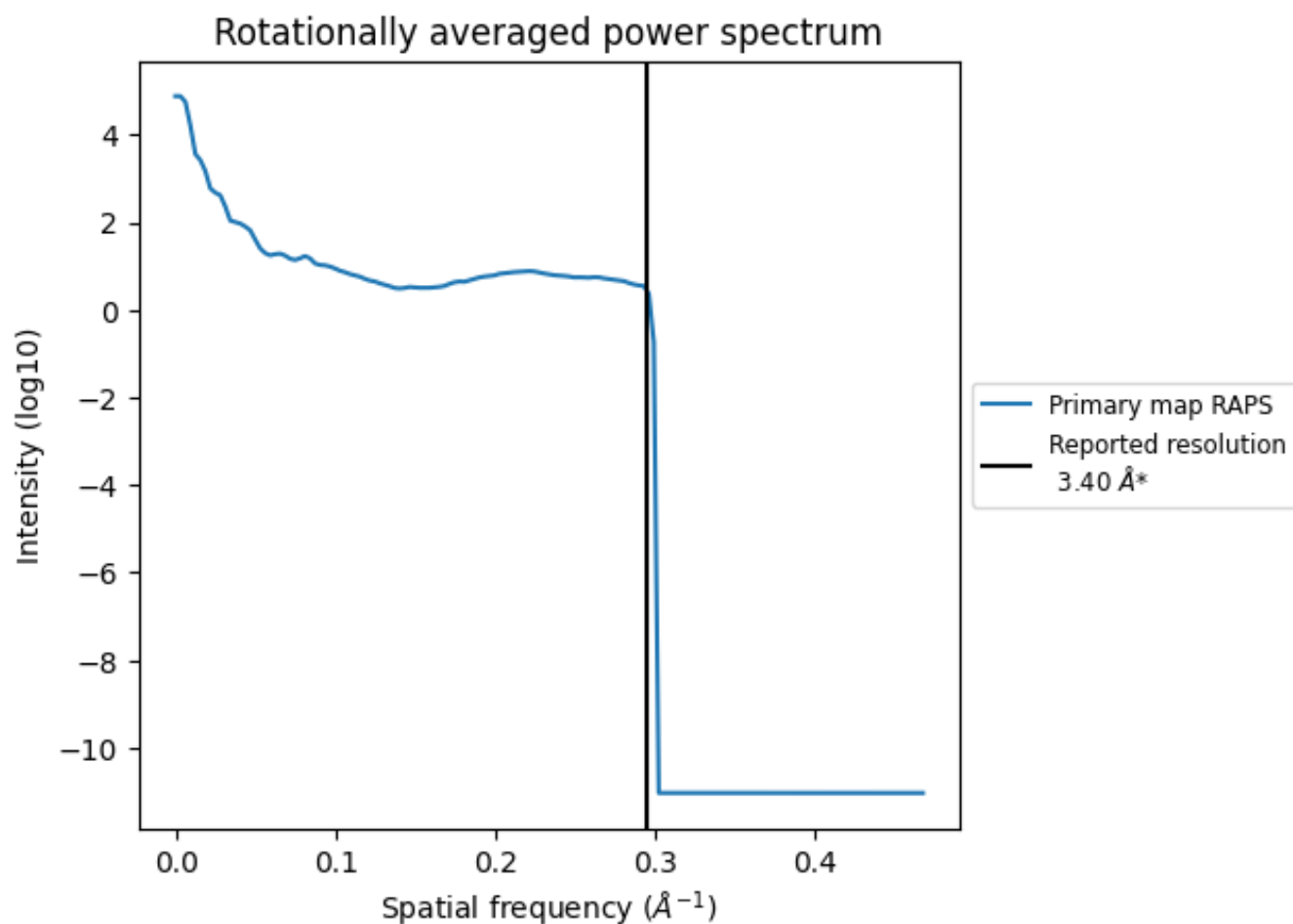
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 214 nm³; this corresponds to an approximate mass of 193 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 0.294 Å⁻¹

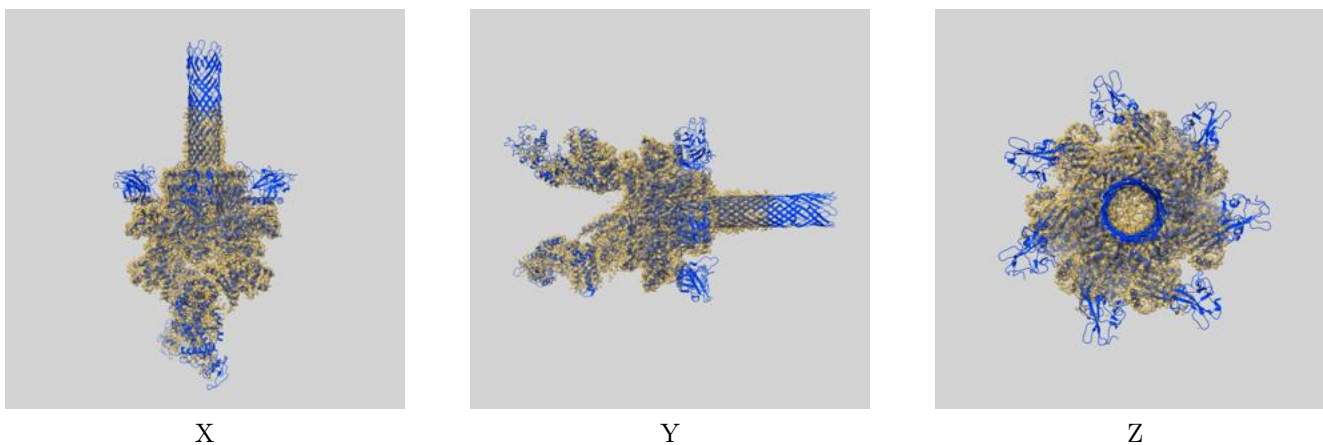
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

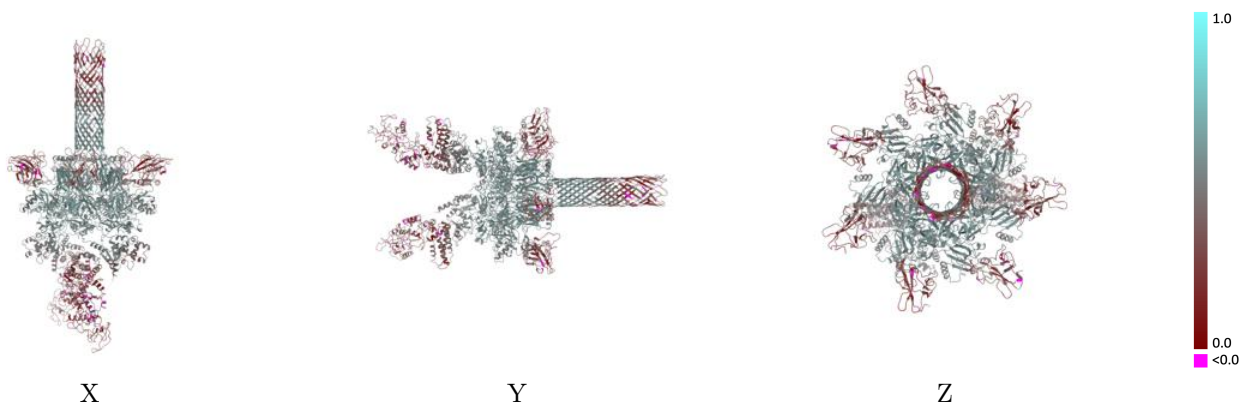
This section contains information regarding the fit between EMDB map EMD-20958 and PDB model 6UZE. Per-residue inclusion information can be found in section 3 on page 6.

9.1 Map-model overlay [i](#)



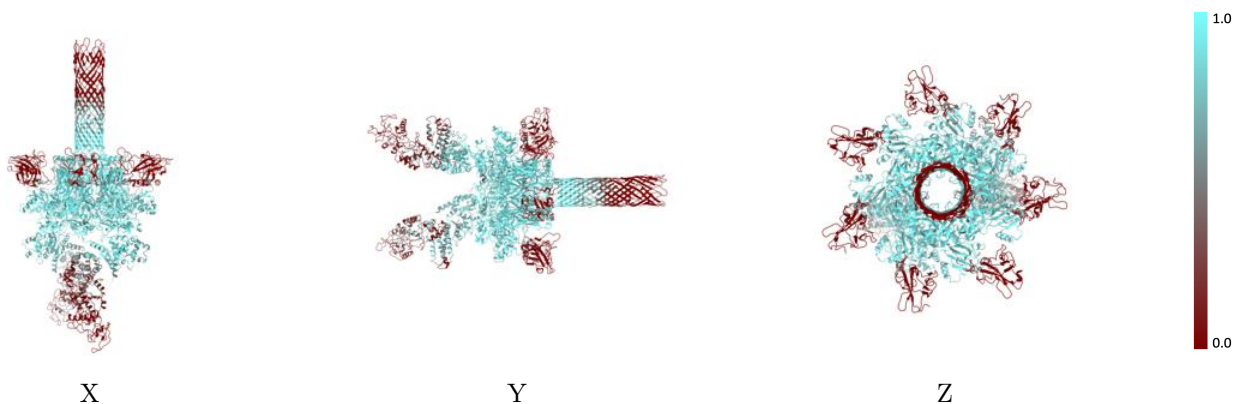
The images above show the 3D surface view of the map at the recommended contour level 0.03 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



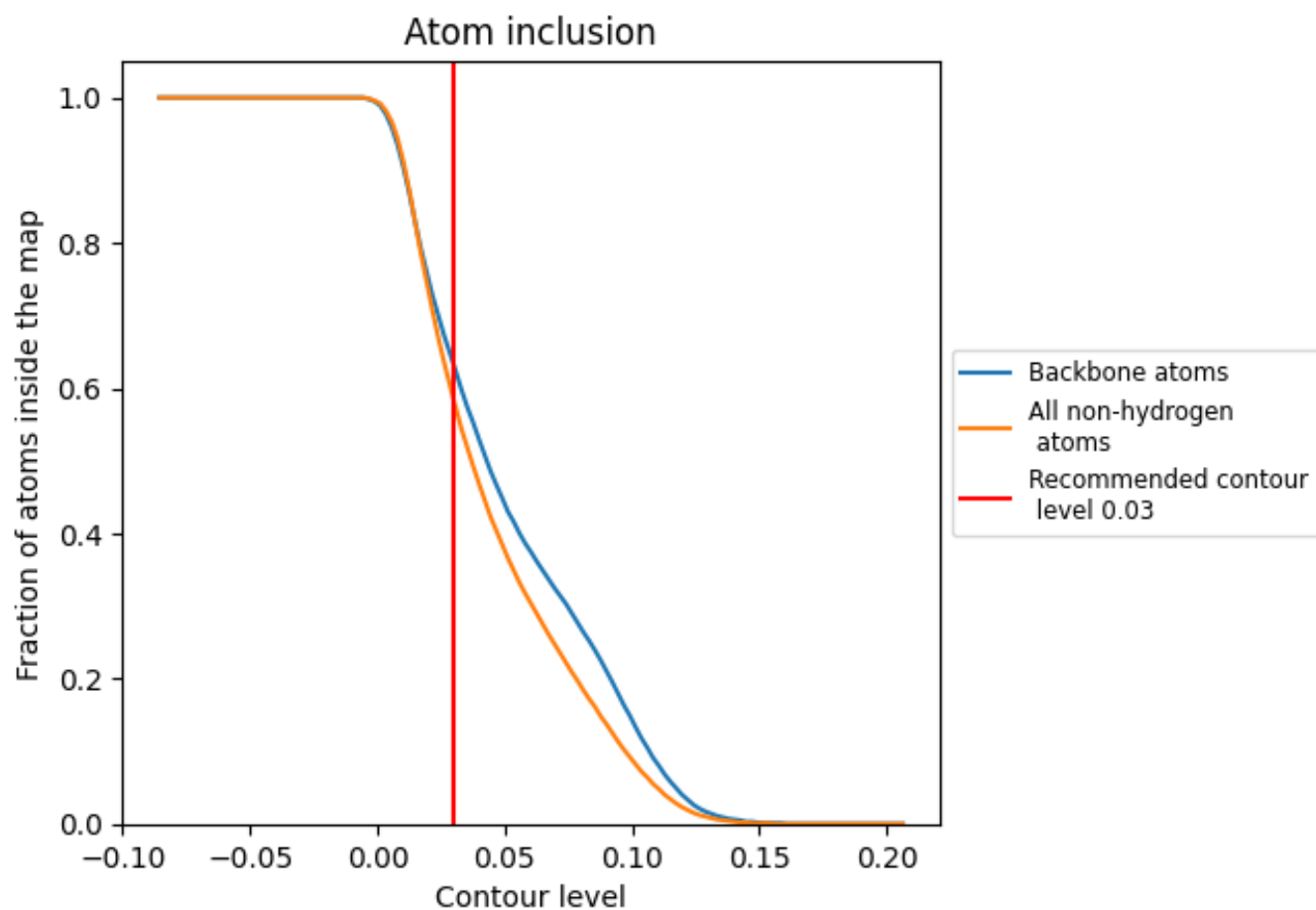
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.03).





















9.4 Atom inclusion [i](#)



At the recommended contour level, 63% of all backbone atoms, 58% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.03) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.5830	 0.4400
A	 0.6250	 0.4770
B	 0.6320	 0.4790
C	 0.6370	 0.4760
D	 0.6450	 0.4750
E	 0.6410	 0.4840
F	 0.6320	 0.4760
G	 0.6170	 0.4780
H	 0.3960	 0.3320
I	 0.5090	 0.3460

