



Full wwPDB EM Validation Report ⓘ

Oct 3, 2026 – 10:25 AM EDT

PDB ID : 9ZFS / pdb_00009zfs
EMDB ID : EMD-74150
Title : CryoEM structure of respiratory complex III intermediate from *Acanthamoeba castellanii*
Authors : Fry, M.Y.; Luce, B.E.; Stefely, J.A.; Samuelson, J.; Mootha, V.K.; Chao, L.H.
Deposited on : 2025-12-02
Resolution : 3.65 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:

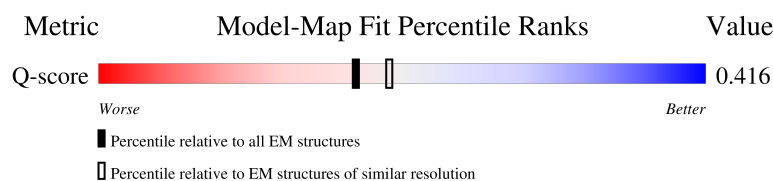
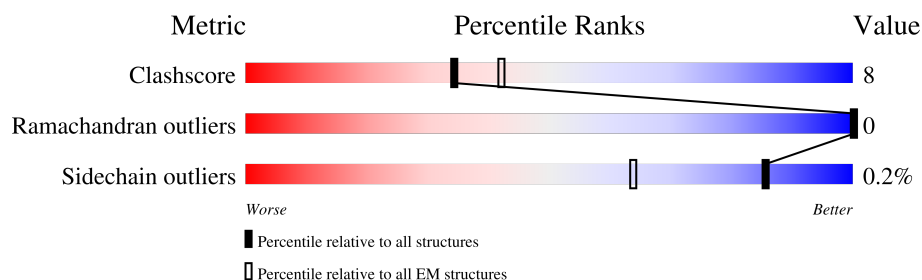
EMDB validation analysis : 0.0.1.dev133
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4-5-2 with Phenix2.2
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.51

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 3.65 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.



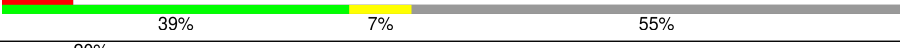
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	11564 (3.15 - 4.15)

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	B	502	
1	C	502	
2	E	67	
2	F	67	

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Mol	Chain	Length	Quality of chain
3	H	491	
3	J	491	
4	I	122	
4	M	122	
5	K	82	
5	O	82	
6	A	70	
6	N	70	
7	G	305	
7	R	305	
8	Q	385	
8	T	385	
9	L	95	
9	W	95	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
10	HEM	Q	501	-	-	X	-
10	HEM	T	402	-	-	X	-

2 Entry composition [i](#)

There are 10 unique types of molecules in this entry. The entry contains 52157 atoms, of which 25836 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 Peptidase M16 family protein.

Mol	Chain	Residues	Atoms						AltConf	Trace
1	B	449	Total	C	H	N	O	S	0	0
			6770	2138	3357	614	656	5		
1	C	449	Total	C	H	N	O	S	0	0
			6763	2138	3350	614	656	5		

- Molecule 2 is a protein called Cytochrome b-c1 complex subunit 8.

Mol	Chain	Residues	Atoms						AltConf	Trace
2	E	58	Total	C	H	N	O	S	0	0
			1006	339	503	89	74	1		
2	F	58	Total	C	H	N	O	S	0	0
			1006	339	503	89	74	1		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	1	MET	-	initiating methionine	UNP L8GXE4
F	1	MET	-	initiating methionine	UNP L8GXE4

- Molecule 3 is a protein called mitochondrial processing peptidase, Mitochondrial-processing peptidase subunit beta.

Mol	Chain	Residues	Atoms						AltConf	Trace
3	J	454	Total	C	H	N	O	S	0	0
			7114	2266	3522	620	696	10		
3	H	454	Total	C	H	N	O	S	0	0
			7114	2266	3522	620	696	10		

- Molecule 4 is a protein called Ubiquinolcytochrome c reductase complex 14 kDa protein.

Mol	Chain	Residues	Atoms						AltConf	Trace
4	M	104	Total	C	H	N	O	S	0	0
			1716	547	843	154	170	2		

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Mol	Chain	Residues	Atoms					AltConf	Trace
4	I	104	Total	C	H	N	O	S	
			1716	547	843	154	170	2	
								0	0

- Molecule 5 is a protein called Cytochrome b-c1 complex subunit 9.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	O	34	Total	C	H	N	O		
			553	181	270	51	51	0	0
5	K	34	Total	C	H	N	O		
			553	181	270	51	51	0	0

There are 30 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
O	38	GLY	-	insertion	UNP L8HKA7
O	39	VAL	-	insertion	UNP L8HKA7
O	40	SER	-	insertion	UNP L8HKA7
O	41	ARG	-	insertion	UNP L8HKA7
O	42	THR	-	insertion	UNP L8HKA7
O	43	VAL	-	insertion	UNP L8HKA7
O	44	ASP	-	insertion	UNP L8HKA7
O	45	PHE	-	insertion	UNP L8HKA7
O	46	TRP	-	insertion	UNP L8HKA7
O	47	TRP	-	insertion	UNP L8HKA7
O	48	ASN	-	insertion	UNP L8HKA7
O	49	SER	-	insertion	UNP L8HKA7
O	50	VAL	-	insertion	UNP L8HKA7
O	51	ASN	-	insertion	UNP L8HKA7
O	52	LYS	-	insertion	UNP L8HKA7
K	38	GLY	-	insertion	UNP L8HKA7
K	39	VAL	-	insertion	UNP L8HKA7
K	40	SER	-	insertion	UNP L8HKA7
K	41	ARG	-	insertion	UNP L8HKA7
K	42	THR	-	insertion	UNP L8HKA7
K	43	VAL	-	insertion	UNP L8HKA7
K	44	ASP	-	insertion	UNP L8HKA7
K	45	PHE	-	insertion	UNP L8HKA7
K	46	TRP	-	insertion	UNP L8HKA7
K	47	TRP	-	insertion	UNP L8HKA7
K	48	ASN	-	insertion	UNP L8HKA7
K	49	SER	-	insertion	UNP L8HKA7
K	50	VAL	-	insertion	UNP L8HKA7

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Chain	Residue	Modelled	Actual	Comment	Reference
K	51	ASN	-	insertion	UNP L8HKA7
K	52	LYS	-	insertion	UNP L8HKA7

- Molecule 6 is a protein called Cytochrome b-c1 complex subunit 6.

Mol	Chain	Residues	Atoms						AltConf	Trace
6	A	47	Total	C	H	N	O	S	0	0
			782	257	388	66	68	3		
6	N	47	Total	C	H	N	O	S	0	0
			782	257	388	66	68	3		

- Molecule 7 is a protein called Cytochrome c1, heme protein.

Mol	Chain	Residues	Atoms						AltConf	Trace
7	G	136	Total	C	H	N	O	S	0	0
			2235	725	1114	196	193	7		
7	R	138	Total	C	H	N	O	S	0	0
			2261	734	1125	198	197	7		

- Molecule 8 is a protein called Cytochrome b.

Mol	Chain	Residues	Atoms						AltConf	Trace
8	Q	330	Total	C	H	N	O	S	0	0
			5429	1861	2735	398	425	10		
8	T	330	Total	C	H	N	O	S	0	0
			5429	1861	2735	398	425	10		

- Molecule 9 is a protein called Cytochrome b-c1 complex subunit 10.

Mol	Chain	Residues	Atoms						AltConf	Trace
9	L	23	Total	C	H	N	O		0	0
			378	127	184	33	34			
9	W	23	Total	C	H	N	O		0	0
			378	127	184	33	34			

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
L	47	GLY	-	insertion	UNP L8HFA4
L	48	ALA	-	insertion	UNP L8HFA4
L	49	LEU	-	insertion	UNP L8HFA4

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Chain	Residue	Modelled	Actual	Comment	Reference
L	50	ALA	-	insertion	UNP L8HFA4
W	47	GLY	-	insertion	UNP L8HFA4
W	48	ALA	-	insertion	UNP L8HFA4
W	49	LEU	-	insertion	UNP L8HFA4
W	50	ALA	-	insertion	UNP L8HFA4

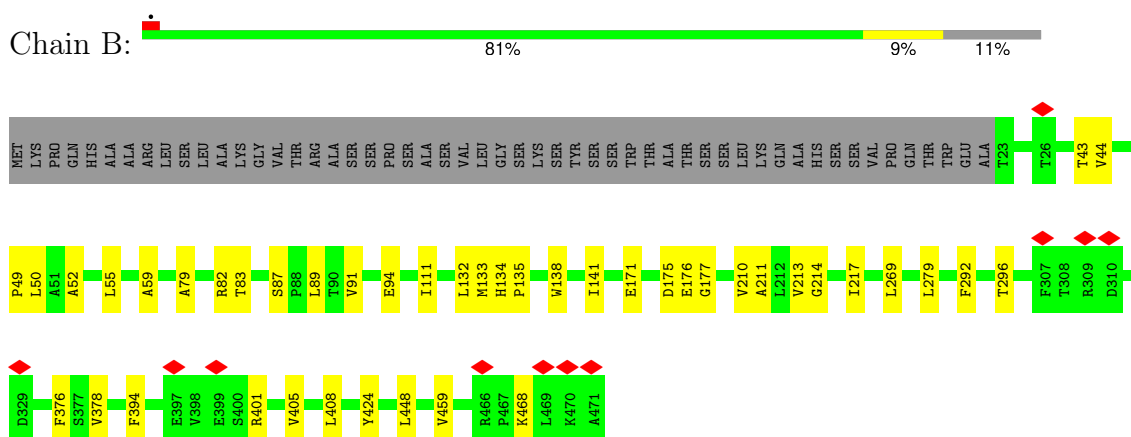
- # HEM

Mol	Chain	Residues	Atoms					AltConf
10	Q	1	Total 43	C 34	Fe 1	N 4	O 4	0
10	Q	1	Total 43	C 34	Fe 1	N 4	O 4	0
10	T	1	Total 43	C 34	Fe 1	N 4	O 4	0
10	T	1	Total 43	C 34	Fe 1	N 4	O 4	0

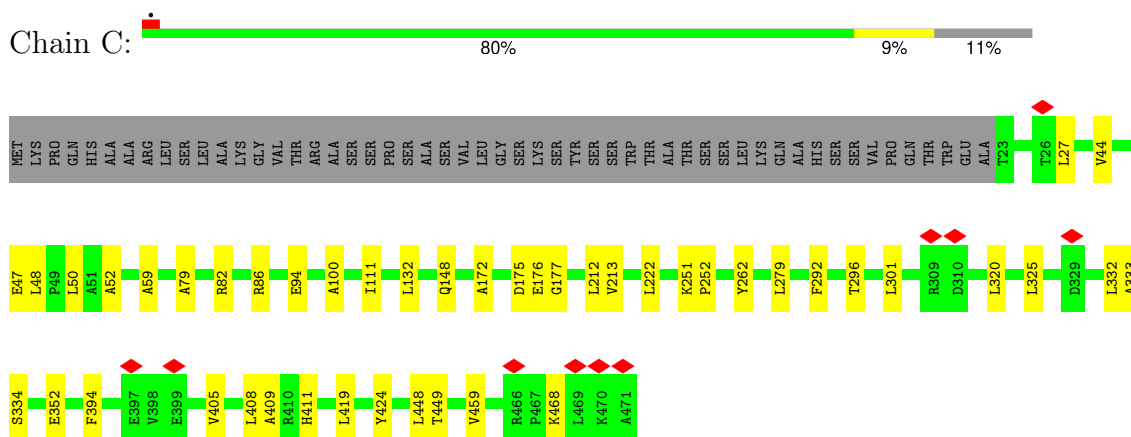
3 Residue-property plots

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.

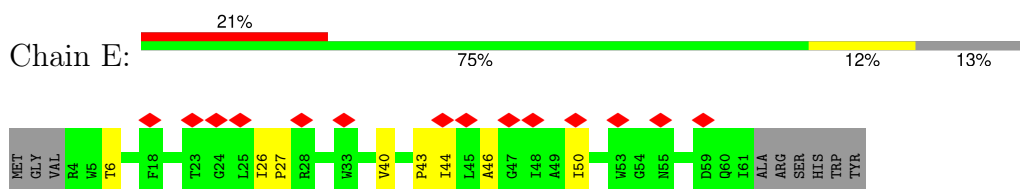
- Molecule 1: Peptidase M16 family protein



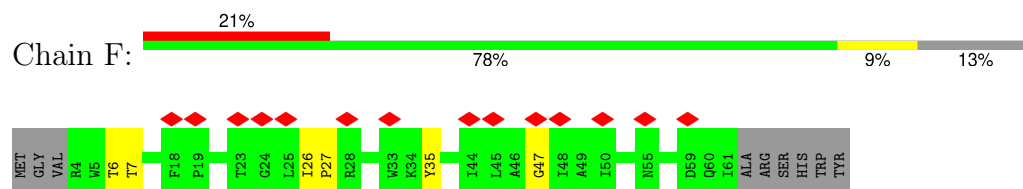
- Molecule 1: Peptidase M16 family protein



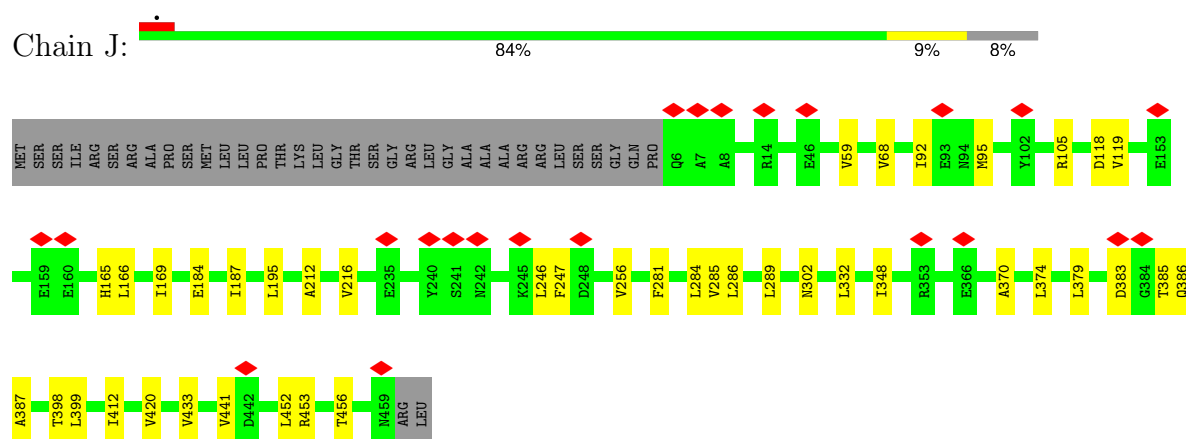
- Molecule 2: Cytochrome b-c1 complex subunit 8



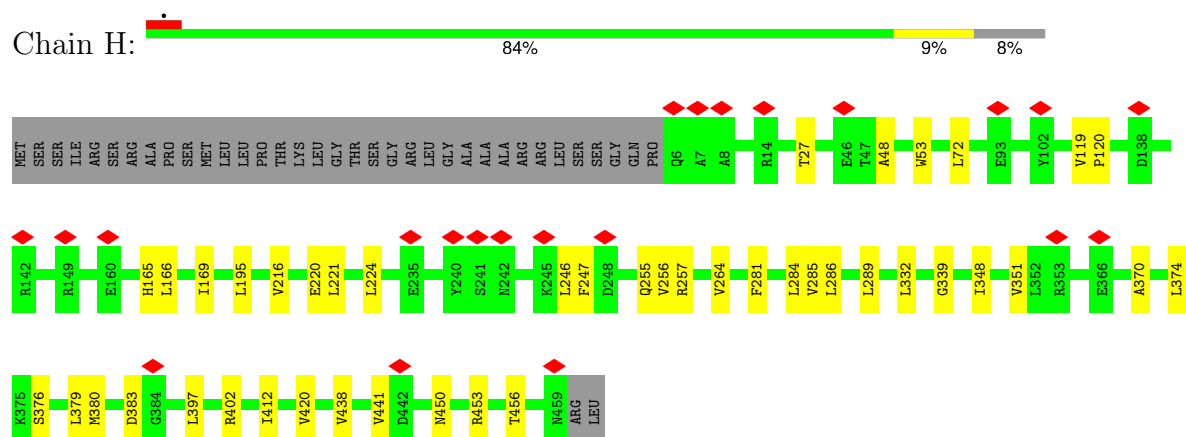
- Molecule 2: Cytochrome b-c1 complex subunit 8



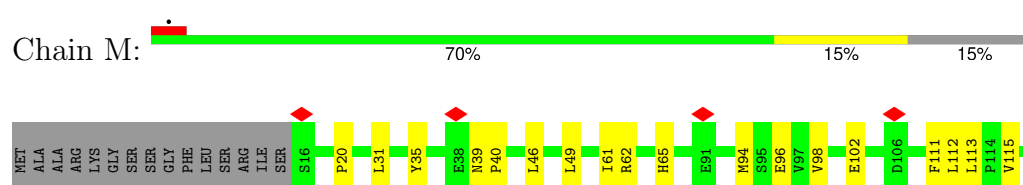
- Molecule 3: mitochondrial processing peptidase, Mitochondrial-processing peptidase subunit beta



- Molecule 3: mitochondrial processing peptidase, Mitochondrial-processing peptidase subunit beta



- Molecule 4: Ubiquinolcytochrome c reductase complex 14 kDa protein

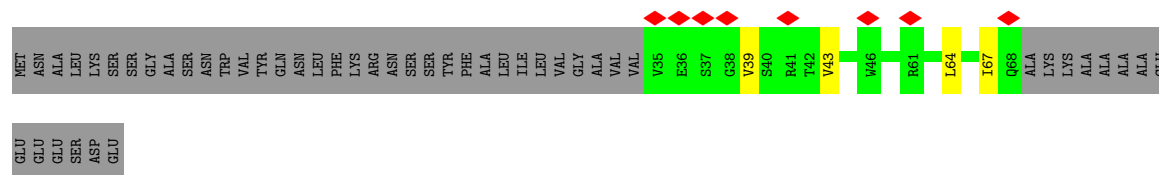
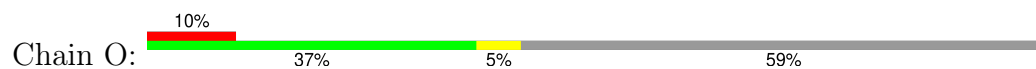


- Molecule 4: Ubiquinolcytochrome c reductase complex 14 kDa protein

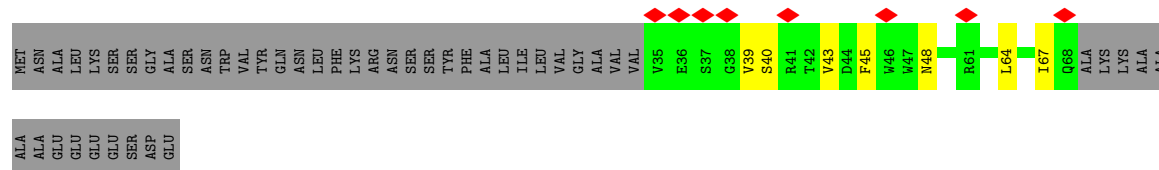
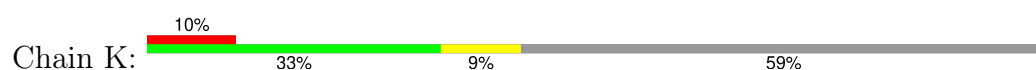




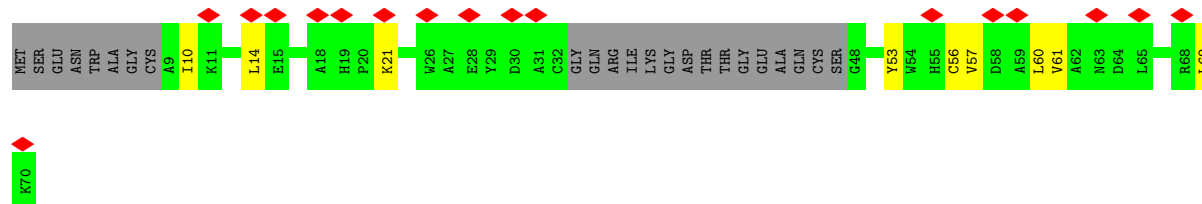
• Molecule 5: Cytochrome b-c1 complex subunit 9



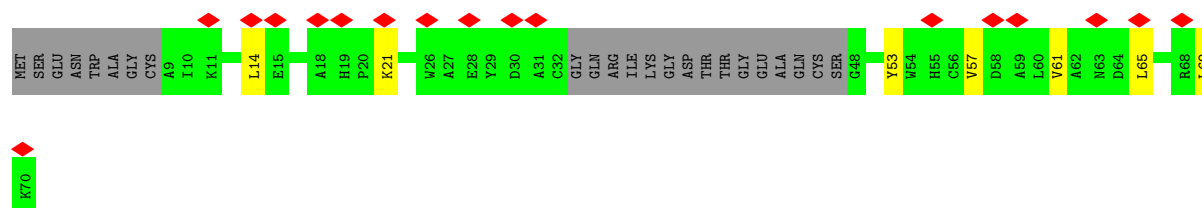
• Molecule 5: Cytochrome b-c1 complex subunit 9



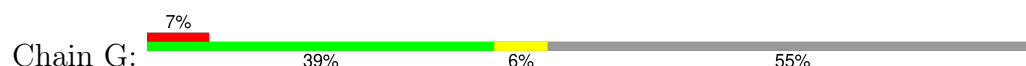
• Molecule 6: Cytochrome b-c1 complex subunit 6



• Molecule 6: Cytochrome b-c1 complex subunit 6

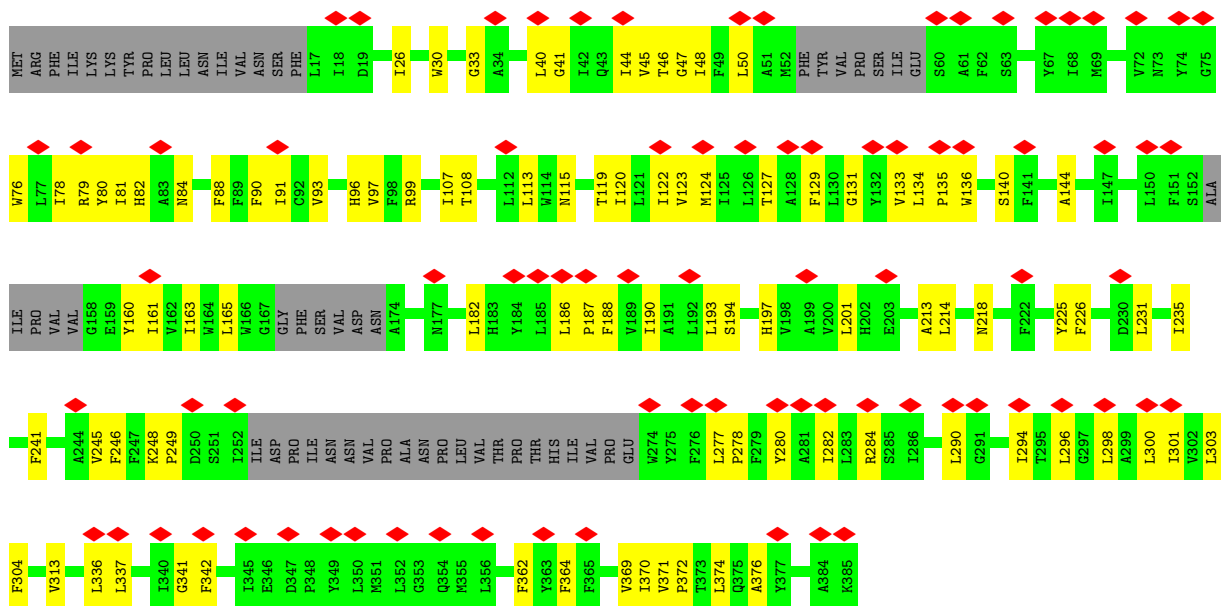


• Molecule 7: Cytochrome c1, heme protein

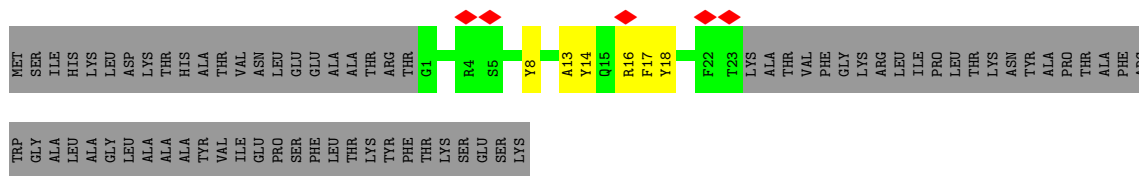




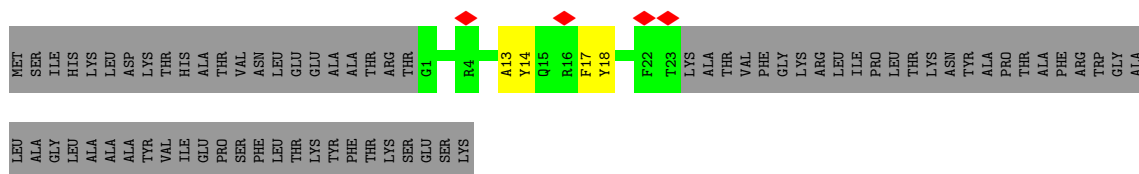
- Molecule 8: Cytochrome b



- Molecule 9: Cytochrome b-c1 complex subunit 10



- Molecule 9: Cytochrome b-c1 complex subunit 10



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	5208	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	0.99	Depositor
Minimum defocus (nm)	600	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	105000	Depositor
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.376	Depositor
Minimum map value	-0.201	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.017	Depositor
Recommended contour level	0.111	Depositor
Map size ($\text{\AA}$)	328.80002, 328.80002, 328.80002	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	0.822, 0.822, 0.822	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: HEM

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	B	0.12	0/3484	0.30	0/4738
1	C	0.16	0/3484	0.34	0/4738
2	E	0.12	0/526	0.32	0/718
2	F	0.11	0/526	0.27	0/718
3	H	0.12	0/3663	0.29	0/4963
3	J	0.12	0/3663	0.30	0/4963
4	I	0.16	0/893	0.36	0/1204
4	M	0.14	0/893	0.36	0/1204
5	K	0.10	0/291	0.27	0/395
5	O	0.10	0/291	0.27	0/395
6	A	0.11	0/404	0.24	0/539
6	N	0.12	0/404	0.27	0/539
7	G	0.17	0/1152	0.35	0/1552
7	R	0.14	0/1168	0.34	0/1574
8	Q	0.17	0/2790	0.40	0/3807
8	T	0.15	0/2790	0.34	0/3807
9	L	0.22	0/200	0.30	0/272
9	W	0.22	0/200	0.26	0/272
All	All	0.14	0/26822	0.33	0/36398

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	B	3413	3357	3356	43	0
1	C	3413	3350	3356	40	0
2	E	503	503	502	8	0
2	F	503	503	502	4	0
3	H	3592	3522	3521	35	0
3	J	3592	3522	3521	29	0
4	I	873	843	842	13	0
4	M	873	843	842	17	0
5	K	283	270	269	5	0
5	O	283	270	269	3	0
6	A	394	388	386	8	0
6	N	394	388	386	12	0
7	G	1121	1114	1110	21	0
7	R	1136	1125	1122	18	0
8	Q	2694	2735	2730	103	0
8	T	2694	2735	2730	99	0
9	L	194	184	186	9	0
9	W	194	184	186	4	0
10	Q	86	0	60	41	0
10	T	86	0	60	35	0
All	All	26321	25836	25936	425	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 (425) 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)
8:Q:201:LEU:CD1	10:Q:502:HEM:HAA1	1.86	1.05
8:Q:201:LEU:HD11	10:Q:502:HEM:HAA1	1.39	1.00
8:T:96:HIS:NE2	10:T:402:HEM:ND	2.12	0.97
8:Q:113:LEU:CD2	10:Q:502:HEM:C2D	2.57	0.87
1:B:43:THR:HG23	1:B:214:GLY:O	1.76	0.85
1:B:394:PHE:CE2	1:B:424:TYR:CD2	2.66	0.82
8:Q:201:LEU:CD1	10:Q:502:HEM:CAA	2.58	0.81
8:T:120:ILE:HG21	10:T:402:HEM:CBB	2.10	0.80
8:T:134:LEU:HD22	10:T:401:HEM:HAD2	1.63	0.80
8:Q:141:PHE:O	8:Q:145:THR:HG23	1.82	0.78
8:Q:201:LEU:HD13	10:Q:502:HEM:CAA	2.16	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:Q:131:GLY:HA3	10:Q:501:HEM:C3A	2.23	0.73
8:T:241:PHE:O	8:T:245:VAL:HG23	1.88	0.73
8:Q:134:LEU:HD23	10:Q:501:HEM:C3D	2.21	0.73
6:N:57:VAL:O	6:N:61:VAL:HG12	1.89	0.72
8:T:290:LEU:O	8:T:294:ILE:HG23	1.89	0.71
6:A:53:TYR:O	6:A:57:VAL:HG23	1.91	0.71
8:T:30:TRP:NE1	10:T:402:HEM:O2D	2.23	0.71
8:Q:241:PHE:O	8:Q:245:VAL:HG23	1.91	0.71
7:G:261:LYS:HZ3	8:Q:228:PHE:HB2	1.56	0.71
1:B:292:PHE:O	1:B:296:THR:HG23	1.90	0.70
5:O:43:VAL:HG11	7:G:245:LYS:HD3	1.73	0.70
1:B:394:PHE:CE2	1:B:424:TYR:CE2	2.80	0.70
6:A:57:VAL:O	6:A:61:VAL:HG12	1.92	0.70
8:Q:113:LEU:HD21	10:Q:502:HEM:C3D	2.27	0.70
8:Q:376:ALA:HB2	9:L:18:TYR:HD2	1.56	0.69
4:M:35:TYR:CZ	4:M:94:MET:HE1	2.28	0.69
7:G:70:VAL:HG11	7:G:224:VAL:CG2	2.23	0.69
3:H:216:VAL:CG2	3:H:221:LEU:HD11	2.23	0.69
8:Q:43:GLN:HG2	10:Q:501:HEM:HAB	1.74	0.69
8:Q:113:LEU:HD22	10:Q:502:HEM:C2D	2.28	0.68
7:G:261:LYS:HA	7:G:261:LYS:HE2	1.74	0.68
8:T:134:LEU:HD22	10:T:401:HEM:CAD	2.22	0.68
8:Q:131:GLY:O	10:Q:501:HEM:CAA	2.42	0.67
1:C:419:LEU:HD12	1:C:424:TYR:CE2	2.28	0.67
6:N:53:TYR:O	6:N:57:VAL:HG23	1.94	0.67
8:Q:376:ALA:HB1	9:L:14:TYR:OH	1.95	0.67
4:M:20:PRO:CB	8:Q:374:LEU:HD21	2.24	0.66
7:R:70:VAL:HG11	7:R:224:VAL:CG2	2.26	0.65
8:T:115:ASN:O	8:T:119:THR:HG23	1.96	0.65
5:O:39:VAL:O	5:O:43:VAL:HG12	1.97	0.65
8:Q:113:LEU:HD21	10:Q:502:HEM:C2D	2.31	0.64
2:E:40:VAL:HG12	2:E:44:ILE:CD1	2.27	0.64
8:T:120:ILE:CG2	10:T:402:HEM:CBB	2.76	0.64
8:T:96:HIS:NE2	10:T:402:HEM:C4D	2.65	0.64
6:N:14:LEU:HD13	6:N:65:LEU:HA	1.78	0.63
1:C:292:PHE:O	1:C:296:THR:HG23	1.97	0.63
1:C:59:ALA:HB3	1:C:111:ILE:HD12	1.80	0.63
8:T:41:GLY:O	8:T:44:ILE:HG12	1.98	0.62
8:T:97:VAL:HG22	10:T:402:HEM:CAC	2.30	0.62
1:B:52:ALA:HB3	1:B:405:VAL:HG21	1.82	0.61
8:Q:134:LEU:HD23	10:Q:501:HEM:C4D	2.35	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:T:96:HIS:HD2	10:T:402:HEM:C4C	2.19	0.61
3:H:216:VAL:HG21	3:H:221:LEU:HD11	1.81	0.61
6:N:14:LEU:CD1	6:N:65:LEU:HA	2.30	0.61
8:Q:376:ALA:HB2	9:L:18:TYR:CD2	2.35	0.60
8:T:133:VAL:HG22	8:T:144:ALA:HB2	1.83	0.60
1:C:100:ALA:HB1	3:H:380:MET:HE2	1.83	0.60
8:T:190:ILE:HG23	10:T:402:HEM:HBB1	1.85	0.59
8:Q:131:GLY:O	10:Q:501:HEM:HAA2	2.02	0.59
1:B:213:VAL:HG23	1:B:405:VAL:HG13	1.83	0.59
8:T:47:GLY:CA	8:T:82:HIS:CE1	2.85	0.59
1:B:394:PHE:CZ	1:B:424:TYR:CG	2.90	0.59
8:Q:113:LEU:CD2	10:Q:502:HEM:C3D	2.83	0.59
1:C:251:LYS:HG3	1:C:252:PRO:HD2	1.84	0.59
8:T:201:LEU:CD1	10:T:402:HEM:HAA1	2.33	0.59
8:T:303:LEU:HD12	8:T:364:PHE:CE2	2.39	0.58
8:T:303:LEU:HD12	8:T:364:PHE:HE2	1.68	0.58
8:Q:134:LEU:CD2	10:Q:501:HEM:C3D	2.87	0.57
6:N:14:LEU:HD13	6:N:65:LEU:HB2	1.86	0.57
1:C:419:LEU:HB2	1:C:424:TYR:CE2	2.39	0.57
6:N:14:LEU:HD13	6:N:65:LEU:CA	2.35	0.57
8:T:188:PHE:CD1	8:T:188:PHE:O	2.58	0.57
8:T:96:HIS:NE2	10:T:402:HEM:C1D	2.73	0.56
8:Q:131:GLY:HA3	10:Q:501:HEM:C4A	2.41	0.56
1:B:269:LEU:O	1:B:269:LEU:HD23	2.06	0.56
8:Q:82:HIS:CE1	10:Q:501:HEM:NC	2.74	0.56
6:A:10:ILE:O	6:A:14:LEU:HD22	2.05	0.56
5:K:40:SER:HA	7:R:245:LYS:HZ2	1.71	0.55
8:Q:88:PHE:HA	8:Q:91:ILE:HG22	1.87	0.55
4:I:113:LEU:HD13	4:I:113:LEU:C	2.30	0.55
8:Q:48:ILE:N	10:Q:501:HEM:CBC	2.69	0.55
1:C:333:ALA:HB3	1:C:352:GLU:HB3	1.89	0.55
8:T:40:LEU:O	8:T:44:ILE:HG23	2.07	0.55
2:E:40:VAL:HG12	2:E:44:ILE:HD11	1.88	0.55
7:G:261:LYS:NZ	8:Q:228:PHE:C	2.64	0.55
5:K:43:VAL:HG21	7:R:245:LYS:HD3	1.88	0.55
5:K:64:LEU:HD12	5:K:67:ILE:HD11	1.89	0.55
8:Q:80:TYR:O	8:Q:84:ASN:OD1	2.25	0.54
8:Q:222:PHE:CD1	8:Q:226:PHE:HB2	2.42	0.54
8:T:96:HIS:CD2	10:T:402:HEM:C4C	2.95	0.54
5:O:64:LEU:HD12	5:O:67:ILE:HD11	1.90	0.54
8:T:120:ILE:HG21	10:T:402:HEM:CAB	2.37	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:394:PHE:CD2	1:B:424:TYR:CE2	2.96	0.54
8:Q:50:LEU:HG	8:Q:78:ILE:HG22	1.90	0.54
8:Q:299:ALA:O	8:Q:302:VAL:HG12	2.08	0.54
7:G:261:LYS:HZ1	8:Q:228:PHE:C	2.16	0.54
8:T:122:ILE:HG22	8:T:300:LEU:HD11	1.89	0.54
8:Q:48:ILE:HG22	10:Q:501:HEM:HBC1	1.90	0.54
8:Q:143:ALA:O	8:Q:147:ILE:HG22	2.08	0.54
3:J:433:VAL:HG21	3:J:452:LEU:HD21	1.89	0.53
3:H:53:TRP:HB3	3:H:397:LEU:HD11	1.90	0.53
6:N:14:LEU:HD13	6:N:65:LEU:CB	2.38	0.53
1:B:394:PHE:CE2	1:B:424:TYR:CG	2.96	0.53
7:G:243:GLY:HA2	8:Q:246:PHE:HD2	1.72	0.53
1:B:292:PHE:HE1	1:B:424:TYR:CD2	2.26	0.53
8:Q:376:ALA:HB1	9:L:14:TYR:HH	1.73	0.53
1:C:320:LEU:HD12	1:C:334:SER:OG	2.08	0.53
1:B:59:ALA:HB3	1:B:111:ILE:HD12	1.90	0.53
3:J:285:VAL:O	3:J:289:LEU:HD23	2.08	0.53
8:T:313:VAL:HG21	9:W:17:PHE:CD1	2.43	0.53
8:T:107:ILE:HG22	8:T:108:THR:N	2.23	0.53
1:B:394:PHE:CD2	1:B:424:TYR:CD2	2.97	0.53
1:B:87:SER:HG	4:I:103:GLU:CD	2.17	0.53
3:J:385:THR:HG23	3:J:386:GLN:N	2.23	0.53
8:Q:113:LEU:HD11	8:Q:201:LEU:HB2	1.91	0.53
1:C:411:HIS:CE1	1:C:424:TYR:OH	2.62	0.53
8:T:296:LEU:C	8:T:296:LEU:HD23	2.34	0.53
1:C:292:PHE:HE1	1:C:424:TYR:CD1	2.27	0.53
7:R:238:GLU:OE2	7:R:238:GLU:HA	2.09	0.53
8:T:88:PHE:HA	8:T:91:ILE:HG22	1.91	0.53
4:M:46:LEU:HA	4:M:49:LEU:HD23	1.91	0.52
8:T:107:ILE:HG22	8:T:108:THR:H	1.74	0.52
8:Q:120:ILE:HG21	10:Q:502:HEM:CBB	2.40	0.52
8:T:48:ILE:N	10:T:401:HEM:CBC	2.72	0.52
1:B:171:GLU:HA	1:B:171:GLU:OE1	2.09	0.52
3:H:285:VAL:O	3:H:289:LEU:HD23	2.09	0.52
8:Q:113:LEU:HD22	10:Q:502:HEM:CMD	2.40	0.52
3:J:383:ASP:O	3:J:387:ALA:HB3	2.10	0.52
8:T:50:LEU:HG	8:T:78:ILE:HG22	1.90	0.52
8:Q:113:LEU:HD21	10:Q:502:HEM:C4D	2.44	0.52
3:H:165:HIS:O	3:H:169:ILE:HG23	2.10	0.52
8:T:41:GLY:O	8:T:44:ILE:CG1	2.58	0.52
8:T:201:LEU:HD13	10:T:402:HEM:HAA1	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:T:194:SER:HB2	10:T:402:HEM:CMB	2.40	0.52
8:Q:78:ILE:HD12	8:Q:78:ILE:H	1.75	0.51
3:J:68:VAL:HG23	3:J:195:LEU:HD12	1.92	0.51
8:Q:113:LEU:CD2	10:Q:502:HEM:C1D	2.94	0.51
8:T:369:VAL:HG13	8:T:370:ILE:N	2.24	0.51
4:I:98:VAL:HG11	9:W:13:ALA:HA	1.92	0.51
8:T:113:LEU:HD11	8:T:201:LEU:HB2	1.93	0.51
3:H:289:LEU:HD22	3:H:370:ALA:HB2	1.93	0.51
7:R:279:ASN:C	7:R:279:ASN:OD1	2.54	0.51
3:J:453:ARG:O	3:J:456:THR:HG22	2.11	0.50
3:H:72:LEU:HD22	3:H:195:LEU:CD1	2.41	0.50
8:Q:47:GLY:HA3	10:Q:501:HEM:C3C	2.46	0.50
1:B:401:ARG:O	1:B:405:VAL:HG23	2.12	0.50
8:Q:17:LEU:HD11	8:Q:222:PHE:CE2	2.46	0.50
4:I:62:ARG:O	4:I:62:ARG:HD3	2.11	0.50
1:B:94:GLU:OE2	4:I:112:LEU:HD22	2.11	0.50
4:M:112:LEU:HD23	4:M:113:LEU:N	2.27	0.50
6:A:69:LEU:HD11	7:G:219:GLN:NE2	2.25	0.50
8:T:48:ILE:HA	10:T:401:HEM:CBC	2.42	0.50
8:T:376:ALA:HB1	9:W:14:TYR:OH	2.11	0.50
4:M:98:VAL:HG11	9:L:13:ALA:HA	1.94	0.50
8:Q:117:GLY:HA3	10:Q:502:HEM:C3C	2.47	0.50
3:H:289:LEU:HD22	3:H:370:ALA:CB	2.42	0.49
1:B:50:LEU:HD13	3:J:379:LEU:HB3	1.94	0.49
8:Q:369:VAL:HG13	8:Q:370:ILE:N	2.27	0.49
1:B:175:ASP:O	1:B:175:ASP:OD1	2.29	0.49
3:J:289:LEU:HD22	3:J:370:ALA:HB2	1.94	0.49
3:J:165:HIS:O	3:J:169:ILE:HG23	2.11	0.49
4:M:62:ARG:O	4:M:62:ARG:HD3	2.13	0.49
8:Q:201:LEU:HD13	10:Q:502:HEM:C2A	2.47	0.49
2:F:6:THR:HG22	2:F:7:THR:N	2.27	0.49
7:R:154:MET:HE2	7:R:154:MET:HA	1.95	0.49
2:E:40:VAL:O	2:E:44:ILE:HD12	2.13	0.49
4:M:31:LEU:O	4:M:31:LEU:HD23	2.12	0.49
8:T:44:ILE:HG13	8:T:45:VAL:N	2.27	0.49
8:T:79:ARG:HD3	10:T:401:HEM:O2D	2.13	0.49
4:M:112:LEU:O	4:M:115:VAL:HG12	2.13	0.49
5:K:39:VAL:O	5:K:43:VAL:HG22	2.12	0.49
3:H:220:GLU:O	3:H:224:LEU:HG	2.13	0.49
2:E:6:THR:HG22	3:J:256:VAL:HG13	1.95	0.48
8:Q:61:ALA:O	8:Q:65:VAL:HG13	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:419:LEU:HB2	1:C:424:TYR:CD2	2.47	0.48
8:T:182:LEU:O	8:T:186:LEU:HG	2.13	0.48
8:T:190:ILE:CG2	10:T:402:HEM:HBB1	2.43	0.48
1:B:292:PHE:CE1	1:B:424:TYR:CE2	3.01	0.48
1:B:468:LYS:HD2	1:B:468:LYS:N	2.28	0.48
8:T:48:ILE:CA	10:T:401:HEM:CBC	2.90	0.48
3:J:383:ASP:O	3:J:383:ASP:OD1	2.30	0.48
8:T:99:ARG:NH2	10:T:402:HEM:CBD	2.76	0.48
6:A:21:LYS:HD3	6:A:21:LYS:N	2.28	0.48
3:H:166:LEU:HD21	3:H:332:LEU:HD13	1.95	0.48
8:T:48:ILE:HA	10:T:401:HEM:HBC1	1.95	0.48
1:C:86:ARG:NE	1:C:94:GLU:OE1	2.46	0.48
3:H:257:ARG:HG3	3:H:441:VAL:HG23	1.95	0.48
8:T:33:GLY:HA3	10:T:402:HEM:O1A	2.14	0.48
8:T:280:TYR:O	8:T:284:ARG:HG3	2.13	0.48
3:J:398:THR:OG1	3:J:399:LEU:HD22	2.14	0.48
8:Q:188:PHE:O	8:Q:188:PHE:CD1	2.66	0.48
8:T:197:HIS:NE2	10:T:402:HEM:ND	2.62	0.48
4:I:92:PRO:O	4:I:96:GLU:HG2	2.14	0.48
2:E:40:VAL:HG12	2:E:44:ILE:HD12	1.96	0.48
6:A:10:ILE:HG22	6:A:14:LEU:CD2	2.44	0.48
8:Q:43:GLN:HG2	10:Q:501:HEM:CAB	2.44	0.48
3:H:119:VAL:HG12	3:H:120:PRO:HD3	1.94	0.48
7:G:155:VAL:HG21	7:G:228:LEU:C	2.39	0.47
6:N:21:LYS:N	6:N:21:LYS:HD3	2.28	0.47
8:T:127:THR:HG21	10:T:401:HEM:HBB2	1.95	0.47
7:G:261:LYS:HE2	7:G:261:LYS:CA	2.42	0.47
7:R:253:LEU:HD22	8:T:235:ILE:HD12	1.96	0.47
3:J:289:LEU:HD22	3:J:370:ALA:CB	2.44	0.47
8:Q:187:PRO:CB	10:Q:501:HEM:HMC1	2.44	0.47
7:R:161:GLY:O	7:R:165:ILE:HG12	2.15	0.47
8:T:47:GLY:HA3	8:T:82:HIS:HE1	1.78	0.47
8:T:93:VAL:HG13	10:T:402:HEM:HMC2	1.97	0.47
8:T:187:PRO:HG2	10:T:401:HEM:HMC3	1.96	0.47
8:Q:113:LEU:HD21	10:Q:502:HEM:C1D	2.50	0.47
4:I:31:LEU:HD23	4:I:31:LEU:O	2.15	0.47
8:T:371:VAL:HB	8:T:372:PRO:HD3	1.96	0.47
8:T:80:TYR:CE1	8:T:249:PRO:HB2	2.50	0.47
8:Q:117:GLY:C	10:Q:502:HEM:HBC2	2.40	0.47
8:Q:201:LEU:HD11	10:Q:502:HEM:CAA	2.25	0.47
8:Q:383:PHE:HA	8:Q:385:LYS:NZ	2.29	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:325:LEU:HD23	1:C:325:LEU:C	2.40	0.47
7:G:253:LEU:HD22	8:Q:235:ILE:HD12	1.97	0.46
1:B:138:TRP:O	1:B:141:ILE:HG22	2.16	0.46
1:B:176:GLU:O	1:B:177:GLY:C	2.58	0.46
4:M:61:ILE:HD12	8:Q:212:ILE:HG21	1.96	0.46
7:G:261:LYS:HA	7:G:261:LYS:CE	2.42	0.46
3:H:119:VAL:N	3:H:120:PRO:CD	2.78	0.46
1:B:134:HIS:O	1:B:135:PRO:C	2.58	0.46
3:J:166:LEU:HD21	3:J:332:LEU:HD13	1.96	0.46
7:G:161:GLY:O	7:G:165:ILE:HD12	2.16	0.46
7:R:243:GLY:HA2	8:T:246:PHE:HD2	1.80	0.46
7:R:268:LEU:HD13	8:T:225:TYR:CZ	2.51	0.46
1:C:212:LEU:HD23	1:C:222:LEU:HD21	1.96	0.46
3:H:441:VAL:HG23	3:H:441:VAL:O	2.15	0.46
3:J:383:ASP:OD1	3:J:383:ASP:C	2.58	0.46
8:T:124:MET:HA	8:T:190:ILE:HD11	1.96	0.46
8:Q:118:VAL:N	10:Q:502:HEM:HBC2	2.31	0.46
8:Q:131:GLY:CA	10:Q:501:HEM:C3A	2.97	0.46
8:Q:343:LYS:HB3	8:Q:344:PRO:HD2	1.98	0.46
1:C:301:LEU:HB3	1:C:320:LEU:HD23	1.98	0.46
8:T:120:ILE:HD13	10:T:402:HEM:HBB2	1.97	0.46
8:T:277:LEU:HD11	8:T:342:PHE:HD1	1.80	0.46
6:N:61:VAL:O	6:N:61:VAL:HG22	2.15	0.46
3:J:92:ILE:HD13	3:J:95:MET:HE3	1.98	0.46
3:J:441:VAL:HG12	3:J:441:VAL:O	2.15	0.46
8:Q:44:ILE:HA	10:Q:501:HEM:HMC3	1.98	0.45
8:Q:46:THR:HG21	8:Q:81:ILE:HG23	1.97	0.45
2:F:6:THR:HG23	3:H:255:GLN:O	2.15	0.45
1:B:213:VAL:CG2	1:B:405:VAL:HG13	2.46	0.45
1:B:279:LEU:HD23	1:B:448:LEU:HD21	1.99	0.45
3:H:383:ASP:C	3:H:383:ASP:OD1	2.59	0.45
4:I:45:VAL:HG11	4:I:90:MET:SD	2.56	0.45
8:T:296:LEU:HD23	8:T:296:LEU:O	2.15	0.45
8:Q:69:MET:SD	8:Q:79:ARG:HG2	2.56	0.45
1:B:79:ALA:O	1:B:132:LEU:HD22	2.17	0.45
1:B:83:THR:HG23	1:B:91:VAL:HG21	1.98	0.45
3:H:284:LEU:HB3	3:H:374:LEU:HD11	1.98	0.45
8:T:99:ARG:NH2	10:T:402:HEM:HBD1	2.32	0.45
8:T:107:ILE:CG2	8:T:108:THR:H	2.29	0.45
8:Q:110:ARG:HG3	8:Q:110:ARG:HH11	1.81	0.45
3:H:453:ARG:O	3:H:456:THR:HG22	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:M:65:HIS:CE1	8:Q:214:LEU:HD21	2.52	0.45
7:G:70:VAL:HG22	7:G:220:MET:SD	2.57	0.45
8:Q:159:GLU:N	8:Q:159:GLU:OE1	2.50	0.45
4:M:111:PHE:CZ	1:C:94:GLU:HG3	2.52	0.45
7:G:220:MET:HE2	7:G:220:MET:HA	1.98	0.45
8:Q:214:LEU:HD22	8:Q:218:ASN:HB2	1.99	0.45
1:C:44:VAL:HG23	1:C:408:LEU:HD11	1.98	0.45
1:C:213:VAL:HG21	1:C:409:ALA:HB2	1.99	0.45
1:C:100:ALA:HB2	3:H:376:SER:HB3	1.98	0.45
1:C:279:LEU:HD23	1:C:448:LEU:HD21	1.99	0.45
8:T:298:LEU:HA	8:T:301:ILE:HG22	2.00	0.44
3:H:246:LEU:O	3:H:246:LEU:HD12	2.18	0.44
8:T:277:LEU:HD22	8:T:341:GLY:C	2.43	0.44
4:M:102:GLU:OE2	4:M:102:GLU:HA	2.17	0.44
8:T:26:ILE:HD11	8:T:226:PHE:CE1	2.53	0.44
1:B:132:LEU:O	1:B:135:PRO:HD3	2.18	0.44
8:Q:375:GLN:HB2	9:L:18:TYR:HE2	1.82	0.44
6:N:65:LEU:C	6:N:65:LEU:HD23	2.42	0.44
10:T:401:HEM:HBC2	10:T:401:HEM:HMC1	2.00	0.44
8:Q:74:TYR:O	8:Q:78:ILE:HD12	2.17	0.44
3:J:246:LEU:HD12	3:J:246:LEU:O	2.17	0.44
1:C:419:LEU:HB2	1:C:424:TYR:HE2	1.83	0.44
8:T:131:GLY:HA3	10:T:401:HEM:C3A	2.52	0.44
8:T:278:PRO:HB3	8:T:337:LEU:HD23	2.00	0.44
3:J:284:LEU:HB3	3:J:374:LEU:HD11	2.00	0.44
4:M:65:HIS:CD2	8:Q:214:LEU:HD21	2.53	0.44
8:T:99:ARG:NH2	10:T:402:HEM:HBD2	2.33	0.44
8:T:231:LEU:O	8:T:235:ILE:HG12	2.18	0.44
1:B:133:MET:O	1:B:135:PRO:HD2	2.18	0.43
8:Q:161:ILE:O	8:Q:165:LEU:HG	2.18	0.43
3:H:256:VAL:CG2	3:H:438:VAL:HG12	2.48	0.43
3:J:95:MET:SD	3:J:118:ASP:HB3	2.57	0.43
3:J:286:LEU:CD2	3:J:420:VAL:HG13	2.48	0.43
1:B:82:ARG:NE	4:I:96:GLU:OE2	2.52	0.43
1:C:176:GLU:O	1:C:177:GLY:C	2.61	0.43
4:I:112:LEU:O	4:I:115:VAL:HG12	2.18	0.43
7:R:118:MET:SD	7:R:118:MET:C	3.01	0.43
7:R:239:ARG:HH12	8:T:76:TRP:HB2	1.83	0.43
8:T:122:ILE:HG13	8:T:123:VAL:N	2.32	0.43
8:Q:78:ILE:HD12	8:Q:78:ILE:N	2.33	0.43
8:Q:150:LEU:C	8:Q:150:LEU:HD23	2.43	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:Q:296:LEU:HD23	8:Q:296:LEU:C	2.43	0.43
8:Q:176:LEU:HD22	8:Q:176:LEU:H	1.83	0.43
5:K:45:PHE:HA	5:K:48:ASN:OD1	2.18	0.43
7:R:253:LEU:C	7:R:253:LEU:HD23	2.44	0.43
3:H:27:THR:HG21	3:H:402:ARG:HD2	2.00	0.43
8:T:160:TYR:HA	8:T:163:ILE:HG22	2.01	0.43
7:G:118:MET:SD	7:G:118:MET:C	3.01	0.43
1:C:251:LYS:CG	1:C:252:PRO:HD2	2.46	0.43
8:T:47:GLY:HA3	10:T:401:HEM:C4C	2.54	0.43
8:T:134:LEU:C	8:T:134:LEU:HD23	2.44	0.43
2:E:26:ILE:HB	2:E:27:PRO:HD3	2.01	0.43
7:G:259:TYR:C	7:G:259:TYR:CD1	2.96	0.43
2:E:40:VAL:O	2:E:43:PRO:HD2	2.19	0.42
3:H:264:VAL:HG12	3:H:339:GLY:O	2.19	0.42
3:H:281:PHE:HD1	3:H:412:ILE:HD11	1.83	0.42
3:H:286:LEU:CD2	3:H:420:VAL:HG13	2.49	0.42
1:B:292:PHE:HE1	1:B:424:TYR:CE2	2.35	0.42
8:Q:43:GLN:HE22	8:Q:86:ALA:HB2	1.83	0.42
1:B:43:THR:HG21	1:B:217:ILE:HG23	2.00	0.42
6:A:61:VAL:O	6:A:61:VAL:HG22	2.19	0.42
8:Q:228:PHE:CD1	8:Q:228:PHE:N	2.87	0.42
8:T:84:ASN:CB	8:T:245:VAL:HG22	2.49	0.42
7:G:253:LEU:C	7:G:253:LEU:HD23	2.44	0.42
8:Q:187:PRO:CG	10:Q:501:HEM:HMC1	2.49	0.42
8:Q:362:PHE:CD1	8:Q:362:PHE:C	2.98	0.42
6:N:14:LEU:CD1	6:N:65:LEU:CB	2.98	0.42
8:T:282:ILE:HG13	8:T:337:LEU:HD21	2.01	0.42
8:Q:47:GLY:C	10:Q:501:HEM:CBC	2.92	0.42
8:Q:117:GLY:HA3	10:Q:502:HEM:HBC2	2.02	0.42
1:C:47:GLU:C	1:C:48:LEU:HD22	2.44	0.42
1:C:262:TYR:OH	1:C:449:THR:HG23	2.20	0.42
3:H:450:ASN:ND2	7:R:264:LYS:HG3	2.34	0.42
8:T:120:ILE:HD11	8:T:194:SER:N	2.34	0.42
8:T:133:VAL:CG2	8:T:144:ALA:HB2	2.48	0.42
3:J:212:ALA:HB1	3:J:216:VAL:HG21	2.02	0.42
7:R:241:VAL:O	7:R:245:LYS:HG2	2.19	0.42
3:J:59:VAL:HG23	3:J:105:ARG:O	2.19	0.42
7:G:261:LYS:CA	7:G:261:LYS:CE	2.98	0.42
8:Q:48:ILE:HG13	8:Q:49:PHE:N	2.34	0.42
2:F:47:GLY:O	8:T:336:LEU:HD21	2.19	0.42
8:T:78:ILE:N	8:T:78:ILE:HD13	2.35	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:T:214:LEU:HD22	8:T:218:ASN:HB2	2.02	0.42
8:T:362:PHE:CD1	8:T:362:PHE:C	2.98	0.42
6:A:56:CYS:O	6:A:60:LEU:HD23	2.19	0.42
8:Q:302:VAL:HG22	8:Q:364:PHE:HD2	1.85	0.42
1:C:468:LYS:HD2	1:C:468:LYS:N	2.35	0.42
8:T:46:THR:HG21	8:T:81:ILE:HG23	2.02	0.42
7:R:246:VAL:HG22	7:R:250:LEU:HD13	2.01	0.42
1:B:44:VAL:HG23	1:B:408:LEU:HD11	2.01	0.41
3:J:281:PHE:HD1	3:J:412:ILE:HD11	1.85	0.41
1:B:210:VAL:HG12	1:B:211:ALA:N	2.35	0.41
1:C:325:LEU:HD23	1:C:325:LEU:O	2.19	0.41
1:C:394:PHE:CE2	1:C:424:TYR:CD1	3.08	0.41
2:F:26:ILE:HB	2:F:27:PRO:HD3	2.02	0.41
8:T:50:LEU:HD11	8:T:79:ARG:HA	2.01	0.41
1:B:376:PHE:CE1	1:B:378:VAL:HG23	2.55	0.41
8:T:41:GLY:HA2	8:T:44:ILE:HG12	2.02	0.41
4:M:20:PRO:HB3	8:Q:374:LEU:HD21	2.02	0.41
8:Q:124:MET:HA	8:Q:190:ILE:HD11	2.02	0.41
8:Q:201:LEU:C	8:Q:201:LEU:HD23	2.45	0.41
1:C:79:ALA:O	1:C:132:LEU:HD22	2.21	0.41
1:C:148:GLN:OE1	1:C:148:GLN:HA	2.20	0.41
1:C:175:ASP:OD1	1:C:175:ASP:O	2.39	0.41
6:N:69:LEU:HD11	7:R:219:GLN:CD	2.45	0.41
2:E:46:ALA:O	2:E:50:ILE:HG12	2.19	0.41
3:J:184:GLU:HA	3:J:187:ILE:HD12	2.03	0.41
3:J:247:PHE:CD1	3:J:247:PHE:C	2.99	0.41
8:Q:231:LEU:O	8:Q:235:ILE:HG12	2.20	0.41
8:Q:277:LEU:HD22	8:Q:341:GLY:C	2.45	0.41
8:Q:282:ILE:HG13	8:Q:337:LEU:HD21	2.03	0.41
3:H:247:PHE:CD1	3:H:247:PHE:C	2.99	0.41
3:H:374:LEU:HD22	3:H:412:ILE:HD12	2.02	0.41
8:T:47:GLY:HA3	8:T:82:HIS:CE1	2.53	0.41
8:T:374:LEU:O	8:T:374:LEU:HD23	2.20	0.41
1:B:89:LEU:HA	3:J:302:ASN:HB3	2.02	0.41
1:B:133:MET:C	1:B:135:PRO:HD2	2.46	0.41
3:J:119:VAL:HG21	3:J:216:VAL:HG12	2.02	0.41
7:G:152:THR:HG22	7:G:153:GLU:OE2	2.20	0.41
8:Q:79:ARG:HD3	10:Q:501:HEM:O1D	2.20	0.41
8:Q:108:THR:OG1	8:Q:109:PRO:HD3	2.19	0.41
8:Q:383:PHE:HD2	9:L:8:TYR:CD2	2.39	0.41
1:C:332:LEU:N	1:C:332:LEU:HD23	2.36	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:459:VAL:O	1:C:459:VAL:HG13	2.21	0.41
8:T:161:ILE:O	8:T:165:LEU:HG	2.20	0.41
8:T:248:LYS:N	8:T:249:PRO:CD	2.84	0.41
1:B:55:LEU:HD11	1:B:210:VAL:CG1	2.50	0.41
8:Q:82:HIS:HE1	10:Q:501:HEM:C1C	2.38	0.41
8:Q:186:LEU:N	8:Q:187:PRO:HD2	2.35	0.41
8:Q:313:VAL:HG21	9:L:17:PHE:CD1	2.55	0.41
4:I:31:LEU:HD23	4:I:31:LEU:C	2.46	0.41
8:Q:31:ASN:OD1	8:Q:230:ASP:OD1	2.39	0.41
8:Q:107:ILE:CG2	8:Q:108:THR:N	2.84	0.41
8:Q:116:LEU:CD2	8:Q:196:ILE:HG22	2.51	0.41
8:Q:298:LEU:HG	8:Q:361:PHE:CE1	2.56	0.41
1:C:50:LEU:HD12	3:H:379:LEU:C	2.46	0.41
3:H:48:ALA:HB1	3:H:216:VAL:HG13	2.03	0.41
3:H:256:VAL:HB	3:H:438:VAL:HA	2.03	0.41
1:B:133:MET:HA	1:B:133:MET:HE2	2.03	0.41
4:M:102:GLU:OE1	9:L:16:ARG:NH1	2.53	0.41
8:Q:134:LEU:CD2	10:Q:501:HEM:CAD	2.99	0.41
3:H:348:ILE:HA	3:H:351:VAL:HG12	2.03	0.41
8:T:129:PHE:CE1	8:T:133:VAL:HG21	2.55	0.41
1:B:52:ALA:CB	1:B:405:VAL:HG21	2.48	0.40
3:J:348:ILE:HD11	3:J:452:LEU:HD11	2.02	0.40
1:C:172:ALA:HA	1:C:449:THR:HG21	2.03	0.40
1:C:292:PHE:CE1	1:C:424:TYR:CD1	3.09	0.40
8:T:136:TRP:HA	8:T:140:SER:HB2	2.03	0.40
8:T:201:LEU:HD13	10:T:402:HEM:CAA	2.51	0.40
1:B:49:PRO:O	1:B:50:LEU:HD12	2.21	0.40
1:B:459:VAL:O	1:B:459:VAL:HG13	2.21	0.40
4:M:96:GLU:OE1	1:C:82:ARG:CZ	2.69	0.40
3:H:216:VAL:CB	3:H:221:LEU:HD11	2.51	0.40
3:H:216:VAL:HB	3:H:221:LEU:HD11	2.02	0.40
4:I:37:ALA:HB3	8:T:213:ALA:CB	2.51	0.40
4:I:111:PHE:HB3	4:I:114:PRO:CG	2.52	0.40
8:T:41:GLY:C	8:T:44:ILE:HG12	2.46	0.40
8:T:119:THR:OG1	8:T:193:LEU:HD21	2.22	0.40
8:T:376:ALA:HB2	9:W:18:TYR:CD1	2.57	0.40
8:Q:351:MET:O	8:Q:354:GLN:HG2	2.21	0.40
8:Q:385:LYS:N	8:Q:385:LYS:HD3	2.36	0.40
1:C:27:LEU:O	1:C:44:VAL:HG13	2.21	0.40
1:C:52:ALA:HB3	1:C:405:VAL:HG21	2.02	0.40
7:R:70:VAL:CG2	7:R:220:MET:SD	3.09	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:M:39:ASN:O	4:M:40:PRO:C	2.62	0.40
7:G:227:PHE:O	7:G:231:THR:HG23	2.21	0.40
1:C:175:ASP:O	1:C:175:ASP:CG	2.65	0.40
8:T:134:LEU:N	8:T:135:PRO:HD2	2.36	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	B	447/502 (89%)	436 (98%)	11 (2%)	0	100	100
1	C	447/502 (89%)	437 (98%)	10 (2%)	0	100	100
2	E	56/67 (84%)	54 (96%)	2 (4%)	0	100	100
2	F	56/67 (84%)	53 (95%)	3 (5%)	0	100	100
3	H	452/491 (92%)	444 (98%)	8 (2%)	0	100	100
3	J	452/491 (92%)	446 (99%)	6 (1%)	0	100	100
4	I	102/122 (84%)	98 (96%)	4 (4%)	0	100	100
4	M	102/122 (84%)	97 (95%)	5 (5%)	0	100	100
5	K	32/82 (39%)	32 (100%)	0	0	100	100
5	O	32/82 (39%)	31 (97%)	1 (3%)	0	100	100
6	A	43/70 (61%)	43 (100%)	0	0	100	100
6	N	43/70 (61%)	43 (100%)	0	0	100	100
7	G	128/305 (42%)	120 (94%)	8 (6%)	0	100	100
7	R	130/305 (43%)	120 (92%)	10 (8%)	0	100	100
8	Q	320/385 (83%)	310 (97%)	10 (3%)	0	100	100
8	T	320/385 (83%)	311 (97%)	9 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
9	L	21/95 (22%)	19 (90%)	2 (10%)	0	100	100
9	W	21/95 (22%)	20 (95%)	1 (5%)	0	100	100
All	All	3204/4238 (76%)	3114 (97%)	90 (3%)	0	100	100

There are no Ramachandran outliers to report.

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	B	348/391 (89%)	348 (100%)	0	100	100
1	C	348/391 (89%)	348 (100%)	0	100	100
2	E	51/58 (88%)	51 (100%)	0	100	100
2	F	51/58 (88%)	50 (98%)	1 (2%)	48	63
3	H	387/416 (93%)	387 (100%)	0	100	100
3	J	387/416 (93%)	387 (100%)	0	100	100
4	I	96/110 (87%)	96 (100%)	0	100	100
4	M	96/110 (87%)	96 (100%)	0	100	100
5	K	31/69 (45%)	31 (100%)	0	100	100
5	O	31/69 (45%)	31 (100%)	0	100	100
6	A	40/57 (70%)	40 (100%)	0	100	100
6	N	40/57 (70%)	40 (100%)	0	100	100
7	G	118/243 (49%)	118 (100%)	0	100	100
7	R	120/243 (49%)	119 (99%)	1 (1%)	73	74
8	Q	288/340 (85%)	286 (99%)	2 (1%)	76	76
8	T	288/340 (85%)	286 (99%)	2 (1%)	76	76
9	L	20/78 (26%)	20 (100%)	0	100	100
9	W	20/78 (26%)	20 (100%)	0	100	100
All	All	2760/3524 (78%)	2754 (100%)	6 (0%)	85	84

All (6) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
8	Q	129	PHE
8	Q	304	PHE
2	F	35	TYR
7	R	52	HIS
8	T	90	PHE
8	T	304	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (13) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	77	HIS
3	J	111	HIS
3	J	265	HIS
3	J	287	GLN
4	M	36	ASN
7	G	52	HIS
1	C	56	HIS
1	C	338	ASN
1	C	411	HIS
3	H	111	HIS
3	H	165	HIS
3	H	172	GLN
3	H	328	HIS

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry

4 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
10	HEM	Q	501	8	50,50,50	1.58	8 (16%)	67,82,82	1.60	11 (16%)
10	HEM	T	402	8	50,50,50	1.58	9 (18%)	67,82,82	1.56	12 (17%)
10	HEM	T	401	8	50,50,50	1.58	8 (16%)	67,82,82	1.62	10 (14%)
10	HEM	Q	502	8	50,50,50	1.59	8 (16%)	67,82,82	1.60	15 (22%)

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
10	HEM	Q	501	8	-	7/14/54/54	-
10	HEM	T	402	8	-	6/14/54/54	-
10	HEM	T	401	8	-	5/14/54/54	-
10	HEM	Q	502	8	-	8/14/54/54	-

All (33) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
10	Q	501	HEM	FE-NB	5.51	2.11	1.94
10	T	401	HEM	FE-NB	5.41	2.11	1.94
10	T	402	HEM	FE-NB	5.32	2.11	1.94
10	Q	502	HEM	FE-NB	5.11	2.10	1.94
10	T	402	HEM	FE-NC	4.39	2.09	1.95
10	Q	502	HEM	FE-NC	4.39	2.09	1.95
10	T	401	HEM	FE-NC	4.37	2.09	1.95
10	Q	501	HEM	FE-NC	4.34	2.09	1.95
10	Q	502	HEM	C1B-NB	-3.43	1.34	1.40
10	Q	502	HEM	C4D-ND	-3.36	1.34	1.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
10	T	402	HEM	C1B-NB	-3.34	1.34	1.40
10	T	402	HEM	C4D-ND	-3.20	1.34	1.40
10	T	401	HEM	C1B-NB	-3.20	1.34	1.40
10	Q	501	HEM	C1B-NB	-3.14	1.34	1.40
10	T	401	HEM	C4D-ND	-3.10	1.34	1.40
10	Q	501	HEM	C4D-ND	-3.09	1.34	1.40
10	Q	502	HEM	C1C-C2C	-2.57	1.40	1.45
10	Q	502	HEM	FE-ND	-2.55	1.87	1.94
10	T	401	HEM	C1C-C2C	-2.50	1.40	1.45
10	T	402	HEM	C1C-C2C	-2.43	1.40	1.45
10	Q	501	HEM	C1C-C2C	-2.37	1.40	1.45
10	T	401	HEM	FE-ND	-2.31	1.87	1.94
10	T	402	HEM	FE-ND	-2.27	1.87	1.94
10	Q	501	HEM	FE-ND	-2.25	1.88	1.94
10	Q	502	HEM	C4B-NB	-2.20	1.34	1.38
10	T	401	HEM	C1D-ND	-2.17	1.34	1.38
10	T	401	HEM	C4B-NB	-2.17	1.34	1.38
10	Q	502	HEM	C1D-ND	-2.15	1.34	1.38
10	T	402	HEM	C1D-ND	-2.14	1.34	1.38
10	T	402	HEM	C3C-C4C	-2.10	1.42	1.46
10	Q	501	HEM	C3C-C4C	-2.09	1.42	1.46
10	Q	501	HEM	C1D-ND	-2.06	1.34	1.38
10	T	402	HEM	C4B-NB	-2.01	1.34	1.38

All (48) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	T	401	HEM	CHC-C4B-NB	5.51	130.35	124.42
10	Q	501	HEM	CHC-C4B-NB	5.24	130.06	124.42
10	Q	502	HEM	CHC-C4B-NB	4.68	129.46	124.42
10	T	402	HEM	CHC-C4B-NB	4.63	129.40	124.42
10	Q	501	HEM	CHD-C1D-ND	4.52	129.29	124.42
10	T	401	HEM	CHD-C1D-ND	4.51	129.28	124.42
10	T	402	HEM	CHD-C1D-ND	4.26	129.01	124.42
10	Q	502	HEM	CHD-C1D-ND	4.25	128.99	124.42
10	Q	502	HEM	CHA-C4D-ND	4.06	129.39	124.37
10	Q	502	HEM	CHB-C1B-NB	3.52	128.72	124.37
10	Q	502	HEM	C1B-NB-C4B	3.45	109.29	105.21
10	T	402	HEM	CHA-C4D-ND	3.42	128.60	124.37
10	T	401	HEM	CHA-C4D-ND	3.31	128.46	124.37
10	T	402	HEM	C1B-NB-C4B	3.31	109.13	105.21
10	T	402	HEM	CHB-C1B-NB	3.30	128.46	124.37

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	T	401	HEM	C1B-NB-C4B	3.14	108.93	105.21
10	Q	501	HEM	C1B-NB-C4B	3.07	108.84	105.21
10	Q	501	HEM	CHA-C4D-ND	3.05	128.14	124.37
10	Q	501	HEM	CHD-C1D-C2D	-2.96	120.36	125.03
10	Q	501	HEM	CHB-C1B-NB	2.92	127.97	124.37
10	T	401	HEM	CHD-C1D-C2D	-2.91	120.43	125.03
10	T	401	HEM	CHB-C1B-NB	2.88	127.92	124.37
10	T	402	HEM	C3B-C4B-NB	-2.83	107.44	109.47
10	Q	502	HEM	C3B-C4B-NB	-2.73	107.51	109.47
10	T	402	HEM	CHD-C1D-C2D	-2.65	120.84	125.03
10	Q	501	HEM	CBA-CAA-C2A	-2.52	105.57	112.53
10	T	401	HEM	CHD-C4C-NC	2.50	127.17	124.45
10	Q	501	HEM	CHD-C4C-NC	2.48	127.15	124.45
10	Q	502	HEM	C4C-CHD-C1D	-2.43	120.85	126.02
10	Q	502	HEM	CHA-C4D-C3D	-2.40	120.81	125.23
10	Q	502	HEM	C4D-ND-C1D	2.29	107.92	105.21
10	T	402	HEM	C4C-CHD-C1D	-2.29	121.16	126.02
10	Q	502	HEM	O2D-CGD-CBD	2.27	121.18	114.00
10	T	402	HEM	C1A-CHA-C4D	-2.24	120.99	126.25
10	Q	502	HEM	CHD-C1D-C2D	-2.23	121.51	125.03
10	Q	502	HEM	C1A-CHA-C4D	-2.22	121.02	126.25
10	Q	501	HEM	CHA-C1A-NA	2.19	127.83	123.86
10	T	401	HEM	CHA-C1A-NA	2.18	127.82	123.86
10	T	402	HEM	O2A-CGA-CBA	2.18	120.89	114.00
10	Q	502	HEM	C4A-CHB-C1B	-2.09	121.34	126.25
10	Q	501	HEM	C1A-CHA-C4D	-2.09	121.34	126.25
10	T	401	HEM	C1A-CHA-C4D	-2.08	121.36	126.25
10	Q	502	HEM	CHB-C1B-C2B	-2.07	121.07	126.95
10	T	401	HEM	O2A-CGA-CBA	2.05	120.48	114.00
10	Q	502	HEM	O2A-CGA-CBA	2.05	120.47	114.00
10	T	402	HEM	CHB-C1B-C2B	-2.04	121.15	126.95
10	Q	501	HEM	O2A-CGA-CBA	2.03	120.42	114.00
10	T	402	HEM	CBD-CAD-C3D	-2.02	106.96	112.53

There are no chirality outliers.

All (26) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
10	Q	502	HEM	C2B-C3B-CAB-CBB
10	Q	502	HEM	C2C-C3C-CAC-CBC
10	Q	502	HEM	C4C-C3C-CAC-CBC
10	T	401	HEM	C2B-C3B-CAB-CBB

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Mol	Chain	Res	Type	Atoms
10	T	402	HEM	C2B-C3B-CAB-CBB
10	T	402	HEM	C2C-C3C-CAC-CBC
10	Q	502	HEM	C4B-C3B-CAB-CBB
10	T	401	HEM	C4B-C3B-CAB-CBB
10	T	402	HEM	C4B-C3B-CAB-CBB
10	T	401	HEM	C3D-CAD-CBD-CGD
10	Q	501	HEM	C2B-C3B-CAB-CBB
10	T	402	HEM	C4C-C3C-CAC-CBC
10	Q	501	HEM	CAA-CBA-CGA-O1A
10	Q	502	HEM	CAA-CBA-CGA-O1A
10	T	401	HEM	CAA-CBA-CGA-O2A
10	Q	501	HEM	CAD-CBD-CGD-O1D
10	Q	502	HEM	CAA-CBA-CGA-O2A
10	T	402	HEM	CAA-CBA-CGA-O2A
10	Q	501	HEM	CAD-CBD-CGD-O2D
10	Q	501	HEM	CAA-CBA-CGA-O2A
10	T	402	HEM	CAA-CBA-CGA-O1A
10	T	401	HEM	CAA-CBA-CGA-O1A
10	Q	501	HEM	C4B-C3B-CAB-CBB
10	Q	502	HEM	CAD-CBD-CGD-O2D
10	Q	502	HEM	CAD-CBD-CGD-O1D
10	Q	501	HEM	C2C-C3C-CAC-CBC

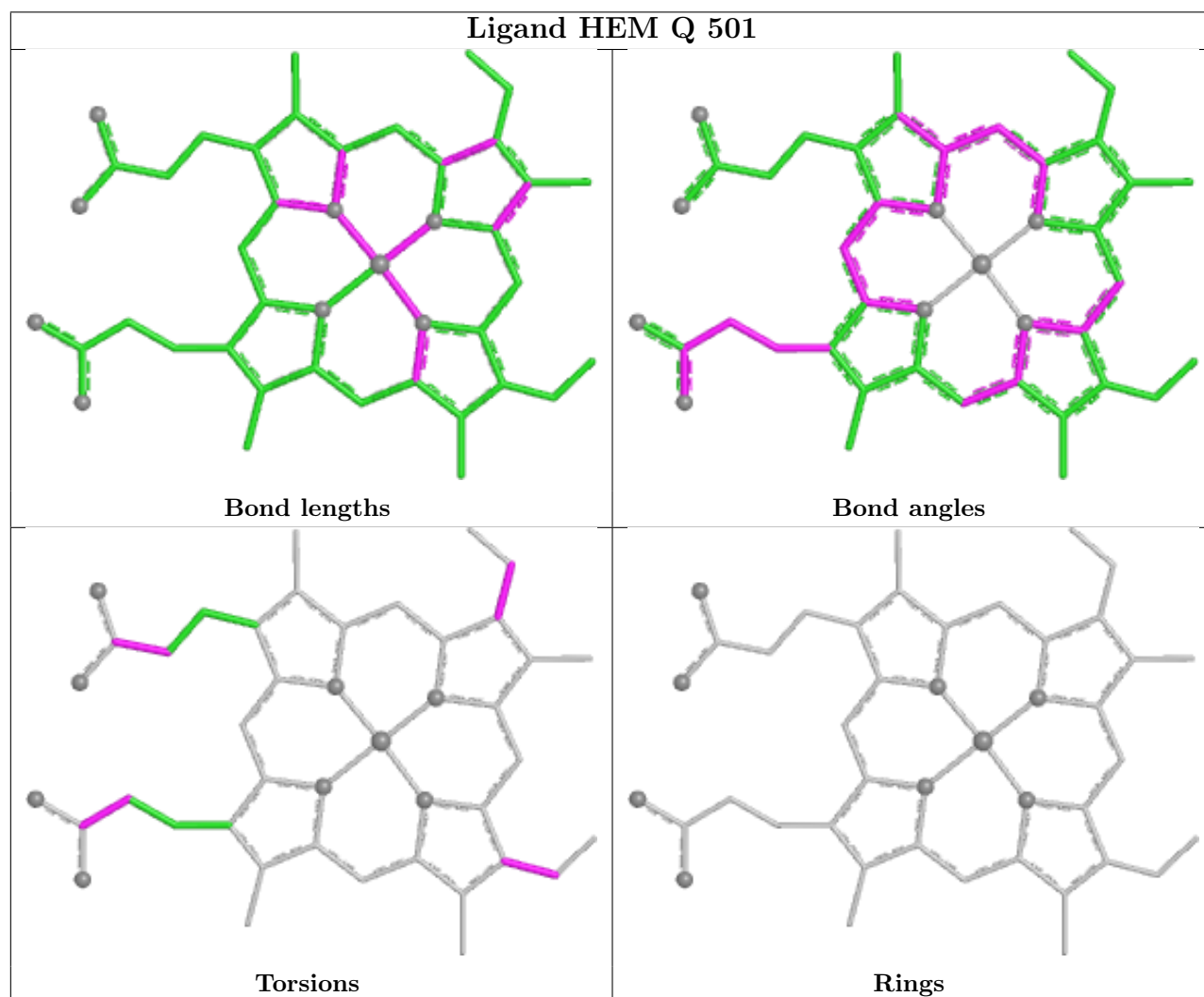
There are no ring outliers.

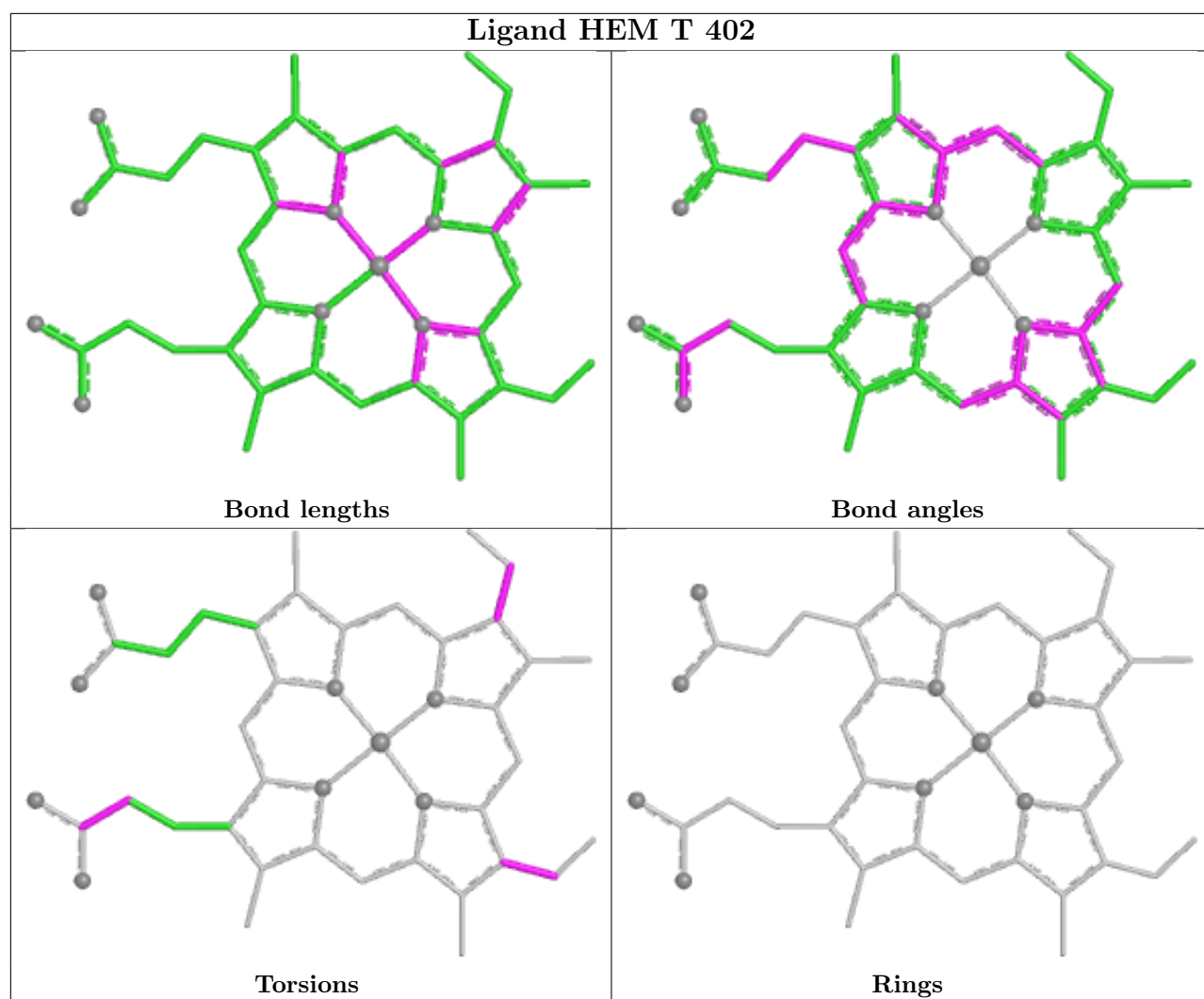
4 monomers are involved in 76 short contacts:

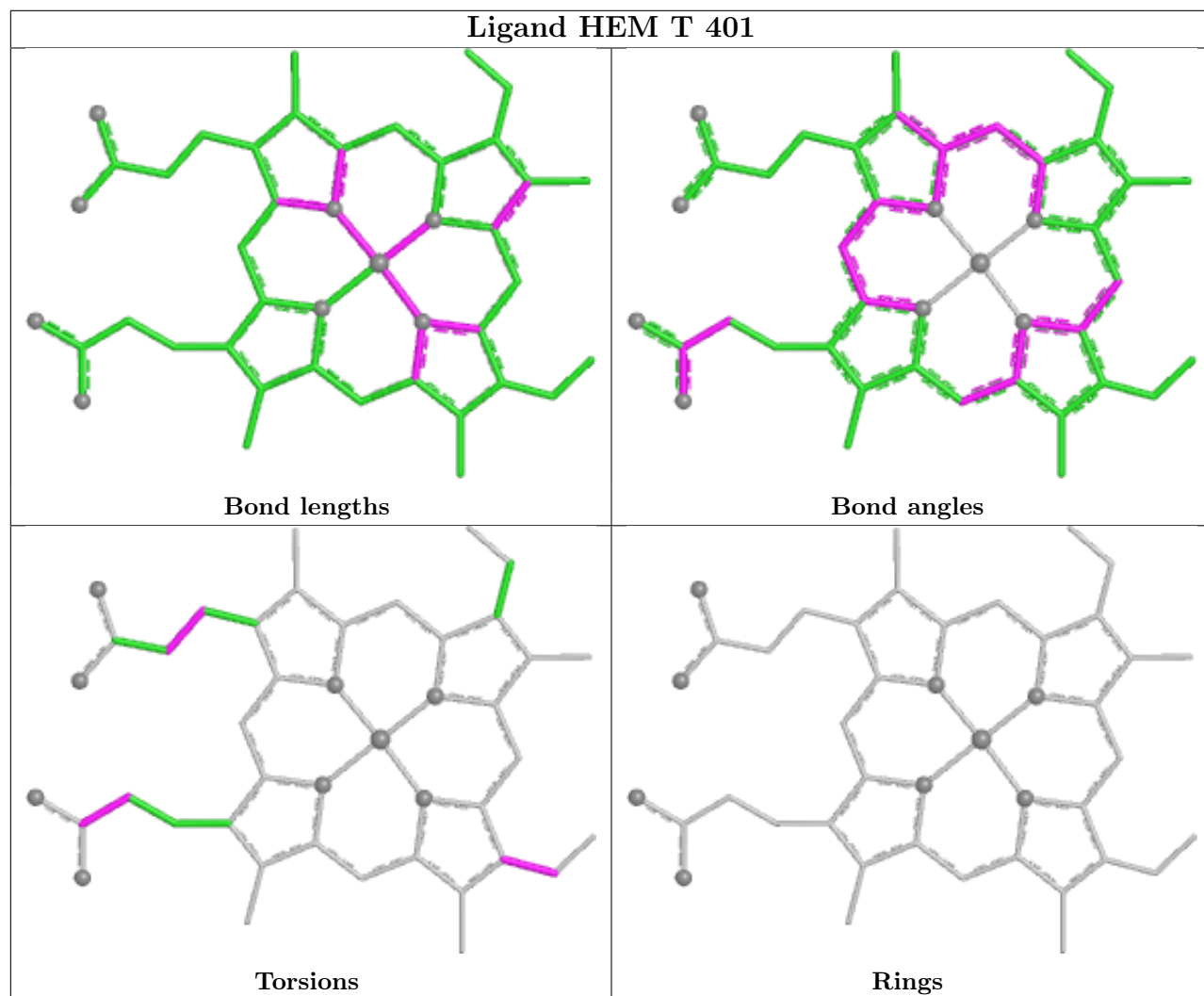
Mol	Chain	Res	Type	Clashes	Symm-Clashes
10	Q	501	HEM	21	0
10	T	402	HEM	23	0
10	T	401	HEM	12	0
10	Q	502	HEM	20	0

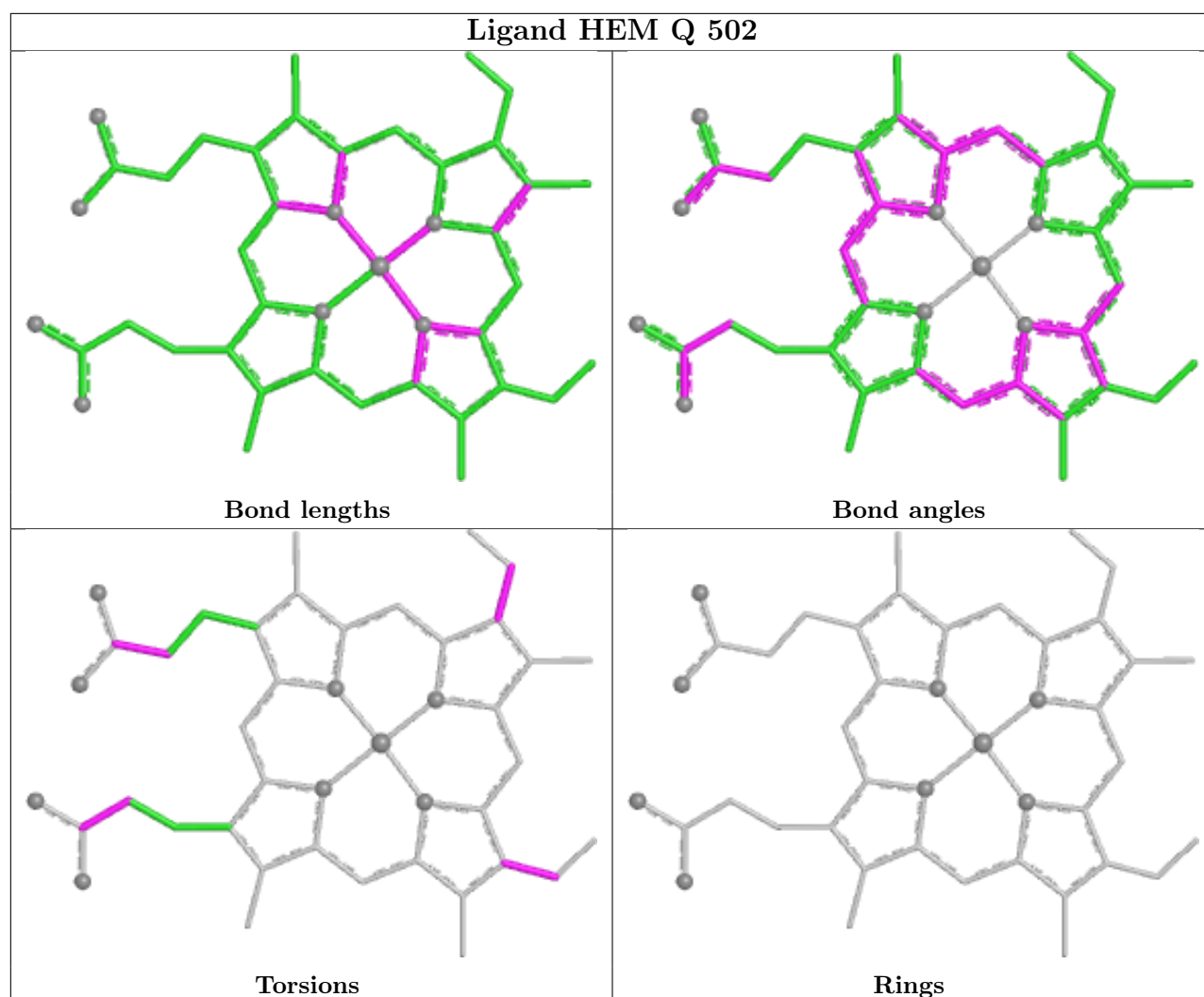
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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.

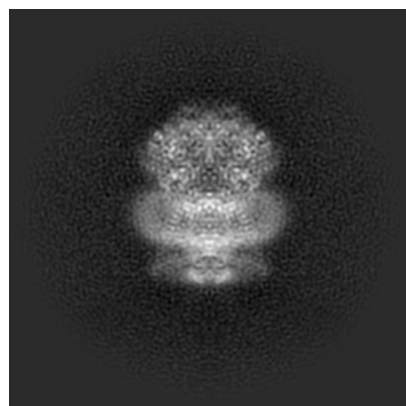
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-74150. These allow visual inspection of the internal detail of the map and identification of artifacts.

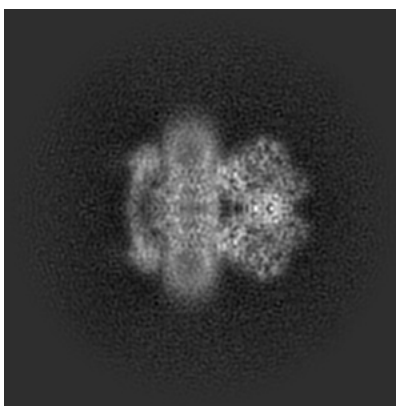
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

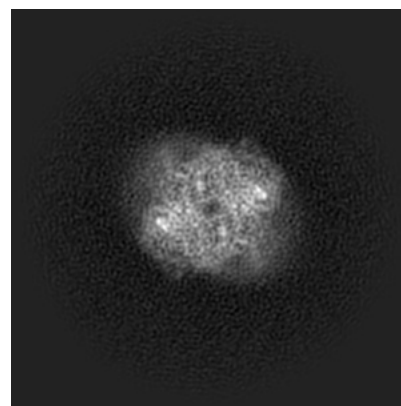
6.1.1 Primary map



X

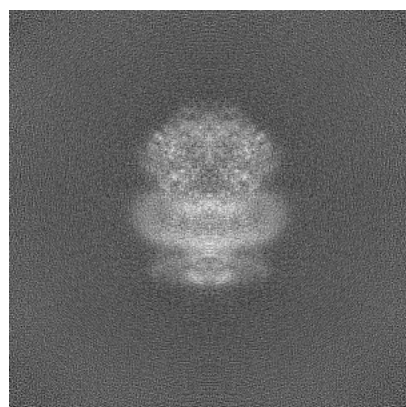


Y

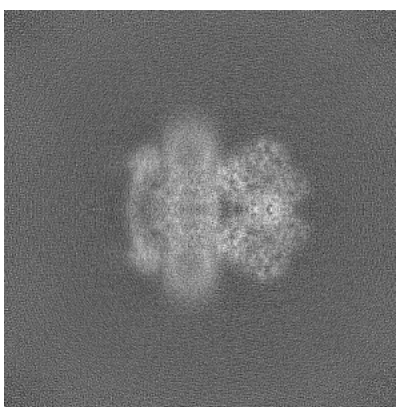


Z

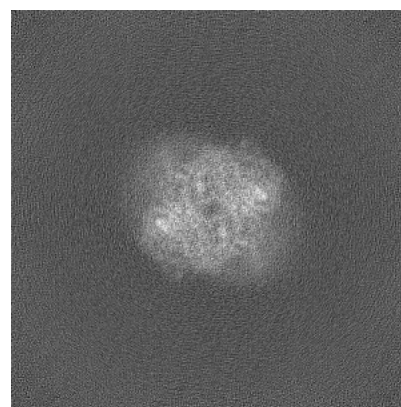
6.1.2 Raw map



X



Y

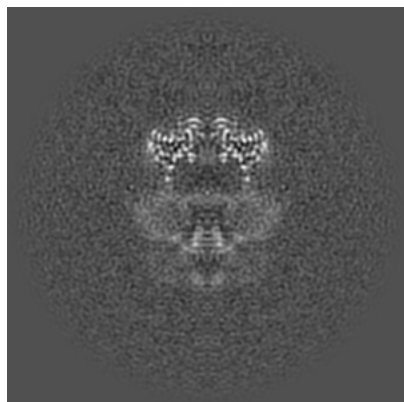


Z

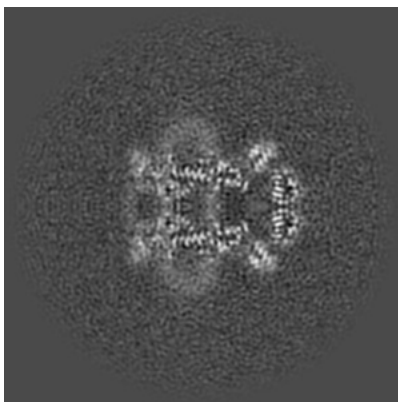
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

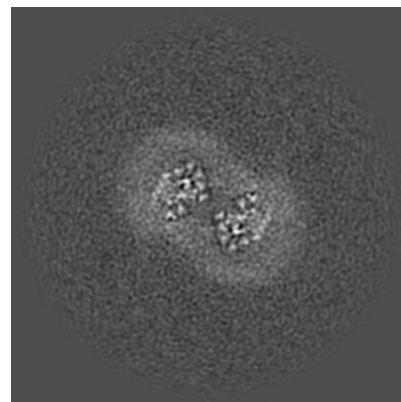
6.2.1 Primary map



X Index: 200

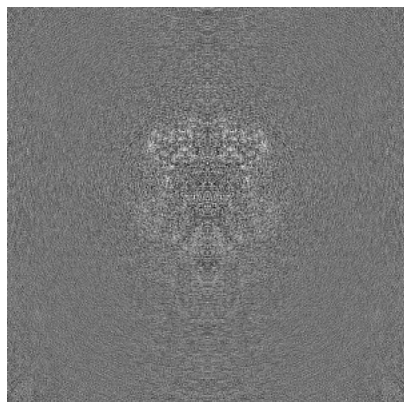


Y Index: 200

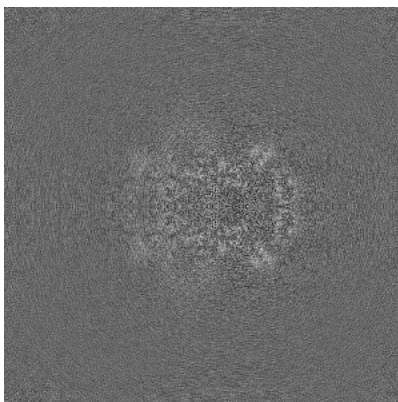


Z Index: 200

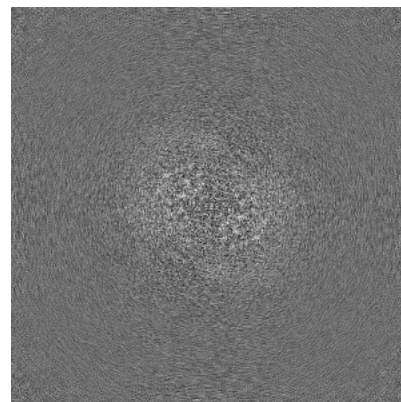
6.2.2 Raw map



X Index: 200



Y Index: 200

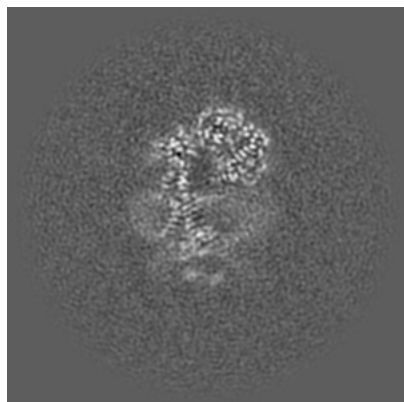


Z Index: 200

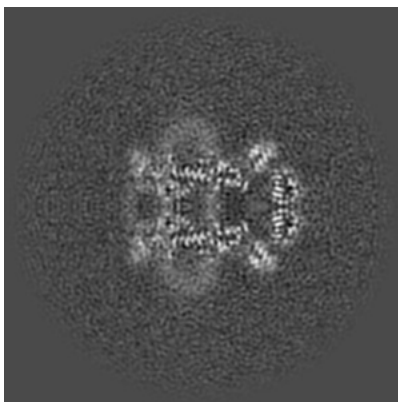
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

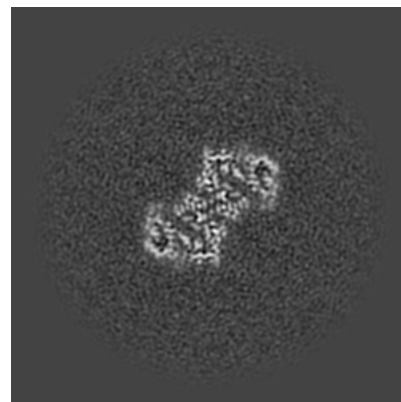
6.3.1 Primary map



X Index: 212

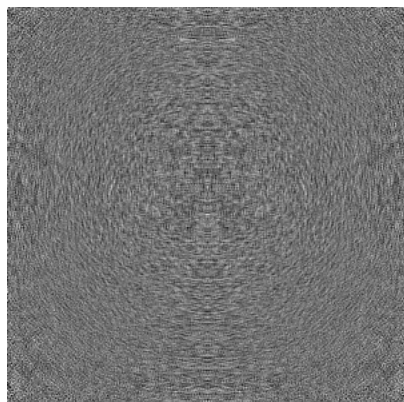


Y Index: 200

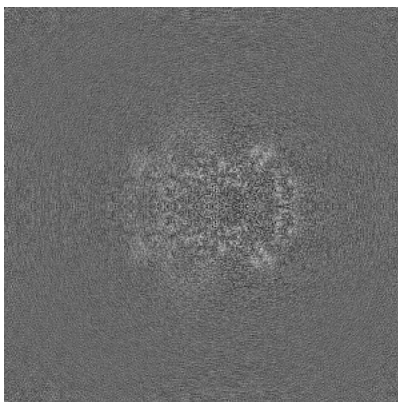


Z Index: 271

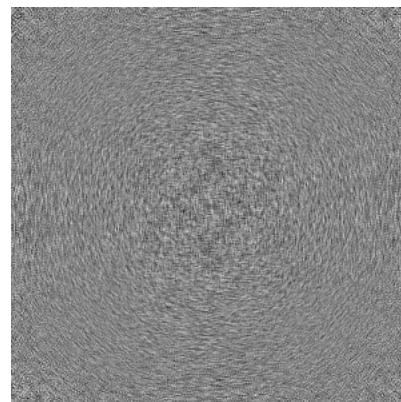
6.3.2 Raw map



X Index: 0



Y Index: 200

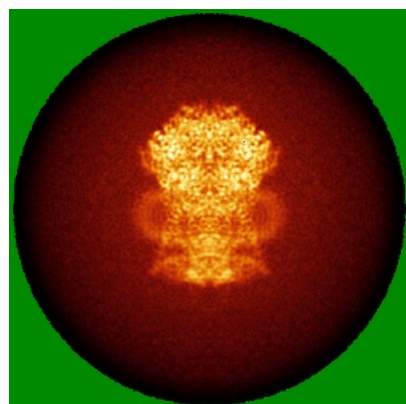


Z Index: 399

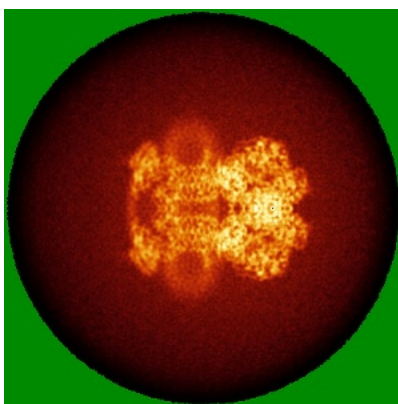
The images above show the largest variance slices of the map in three orthogonal directions.

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

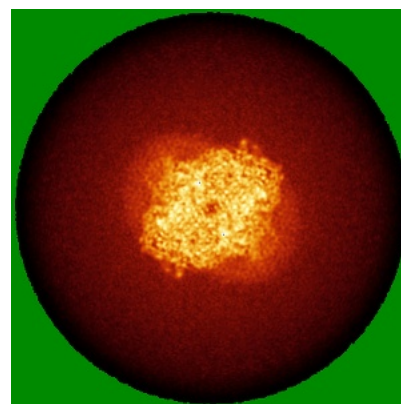
6.4.1 Primary map



X

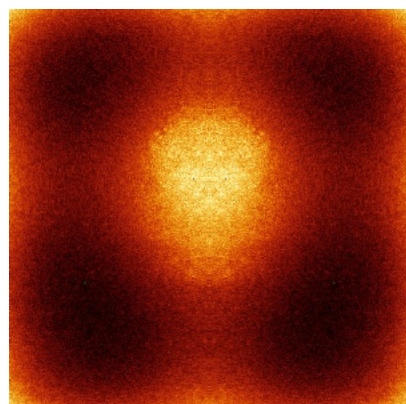


Y

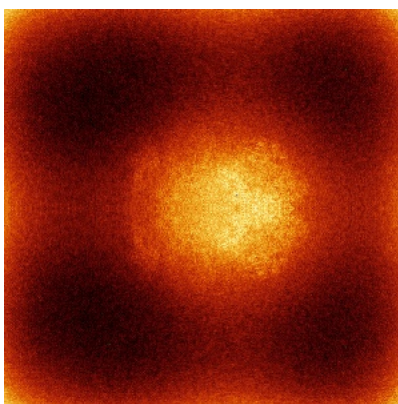


Z

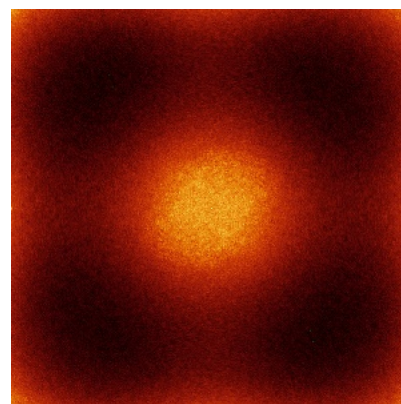
6.4.2 Raw map



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.

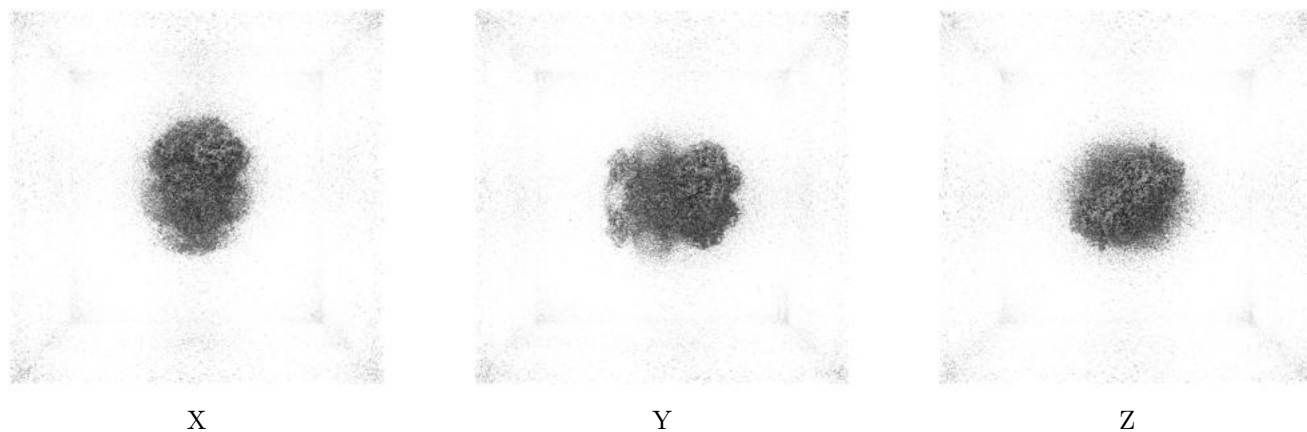
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.111. 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.

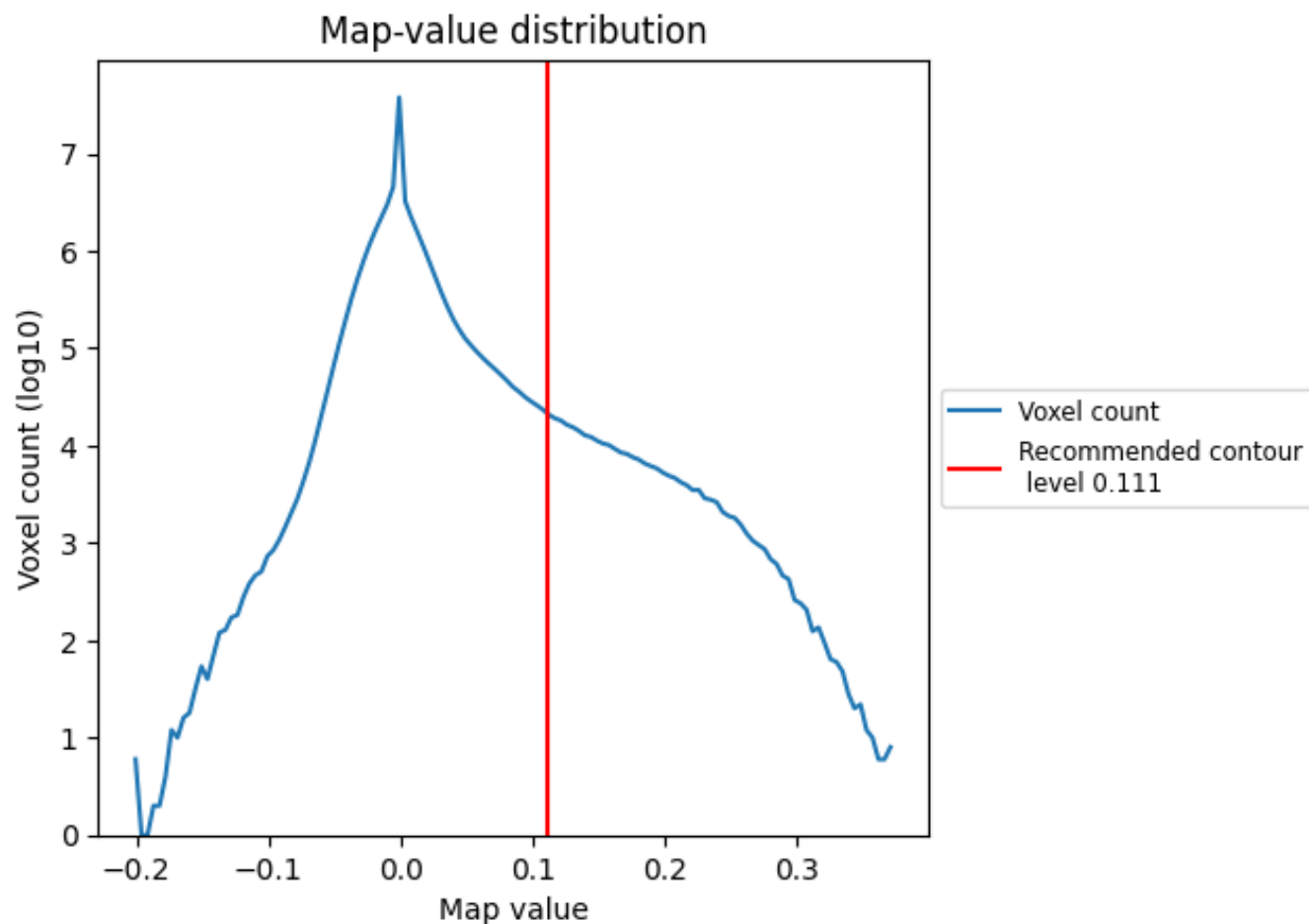
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

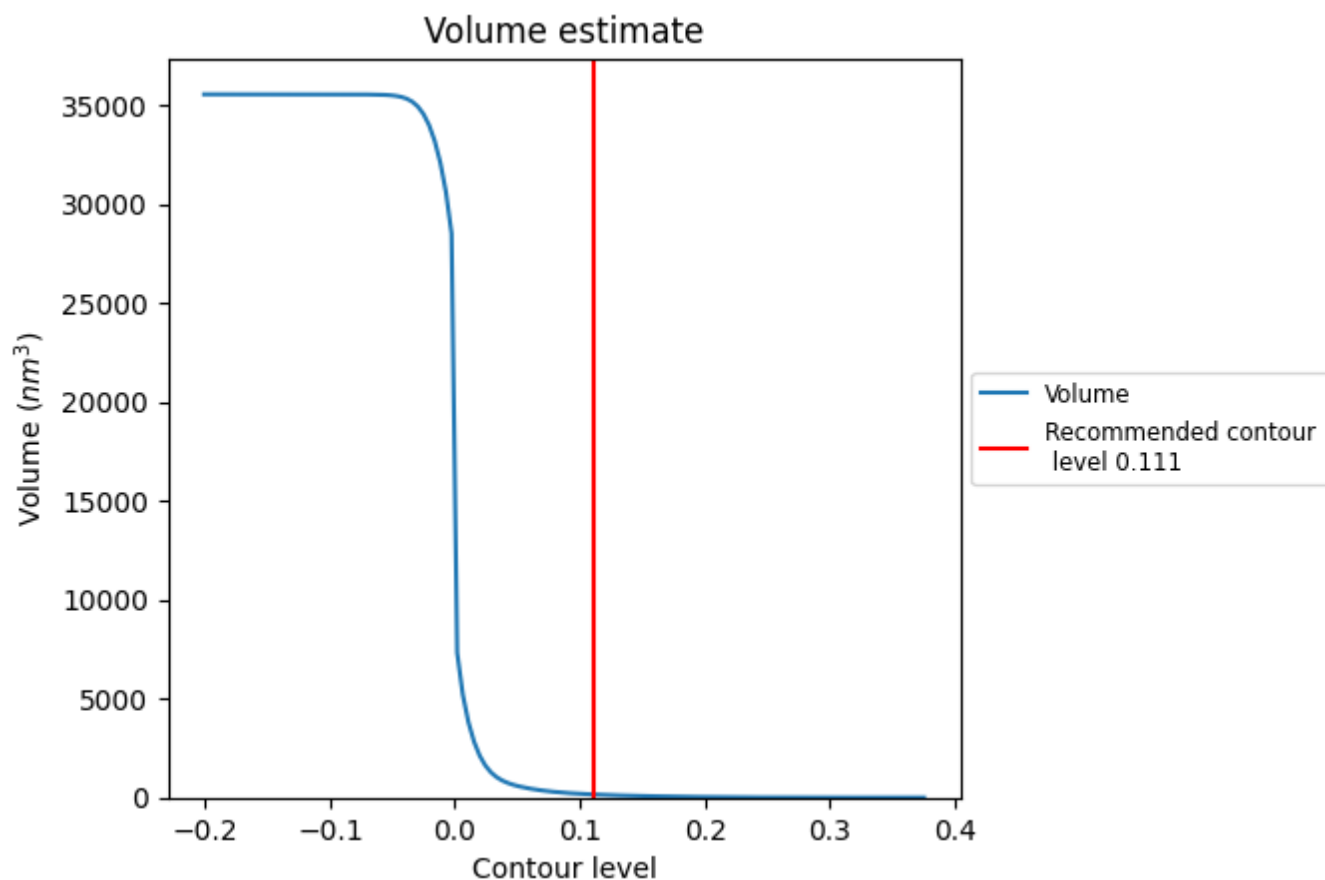
This section contains the results of statistical analysis of the map.

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.

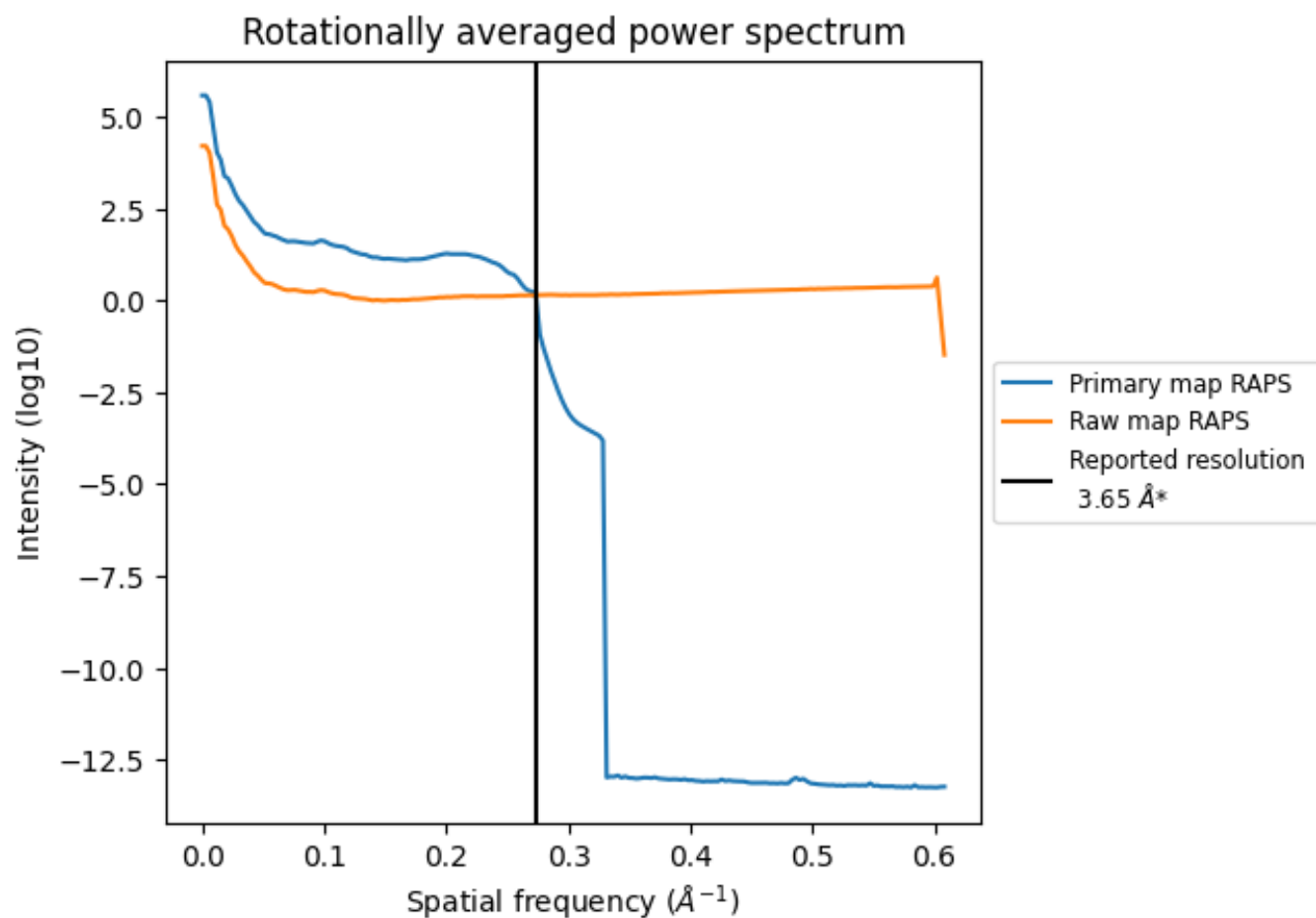
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 156 nm³; this corresponds to an approximate mass of 141 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 ⓘ

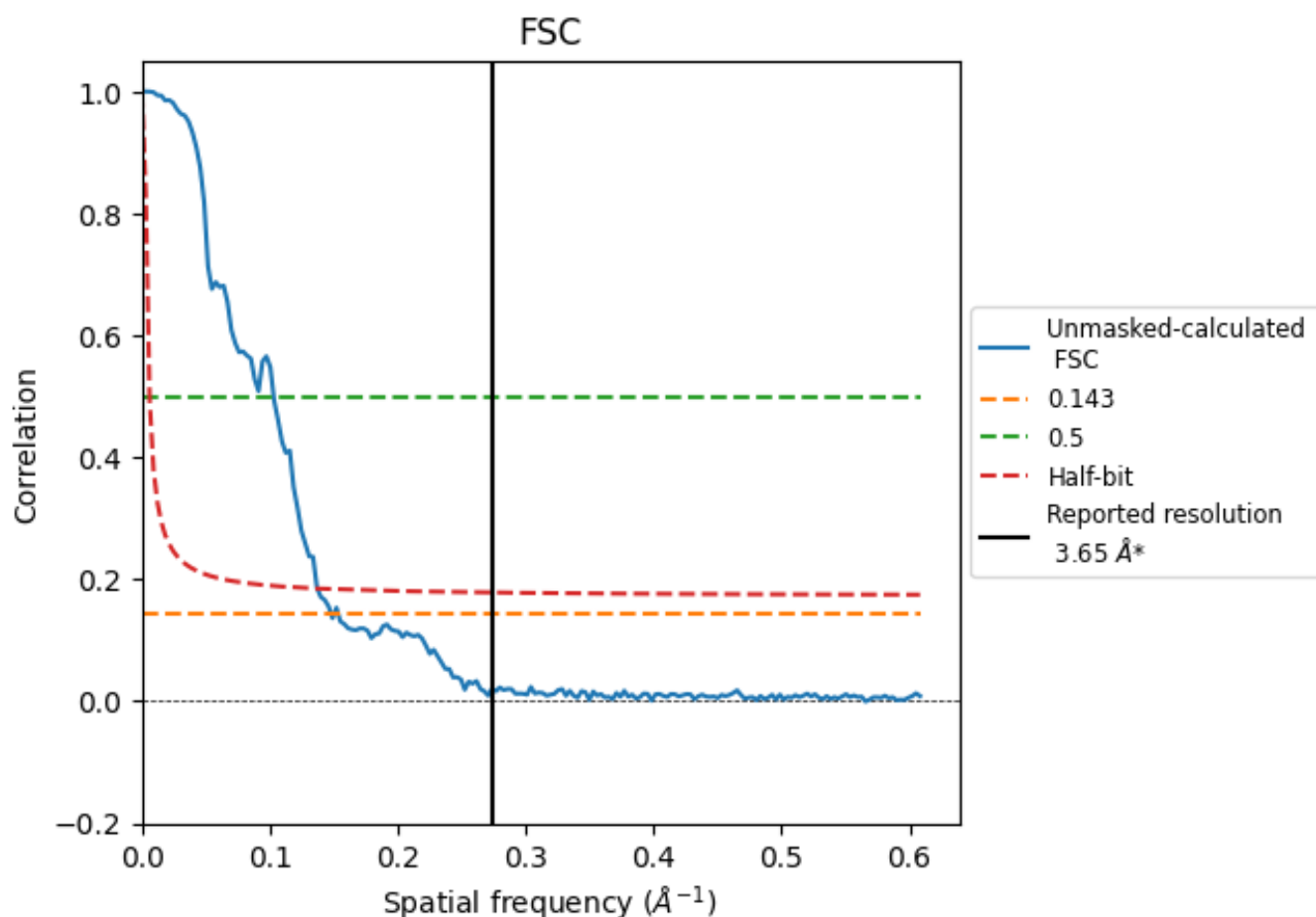


*Reported resolution corresponds to spatial frequency of 0.274 Å⁻¹

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 $0.274 \text{ \AA}^{-1}$

8.2 Resolution estimates [i](#)

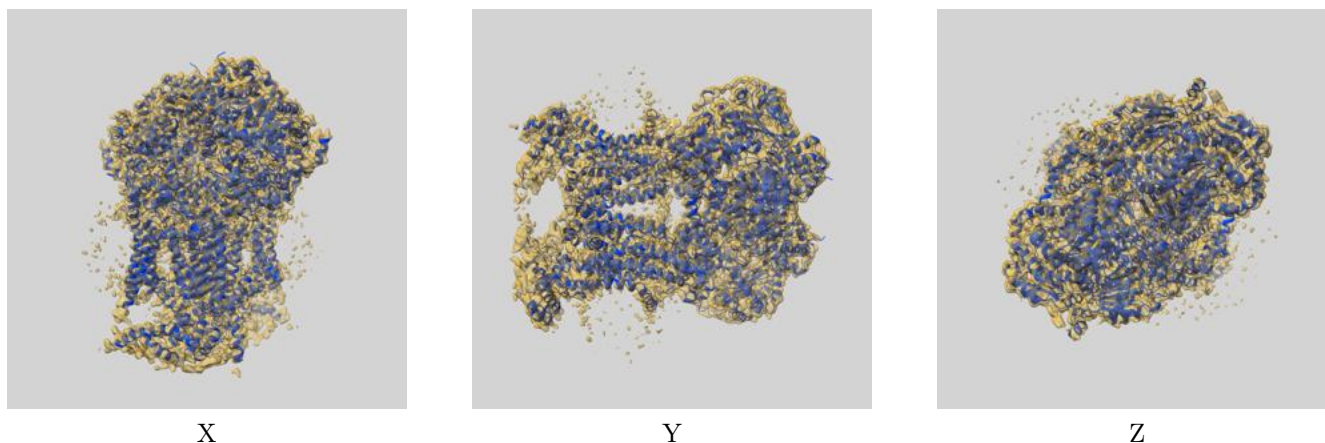
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.65	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	6.76	9.71	7.30

*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 6.76 differs from the reported value 3.65 by more than 10 %

9 Map-model fit [i](#)

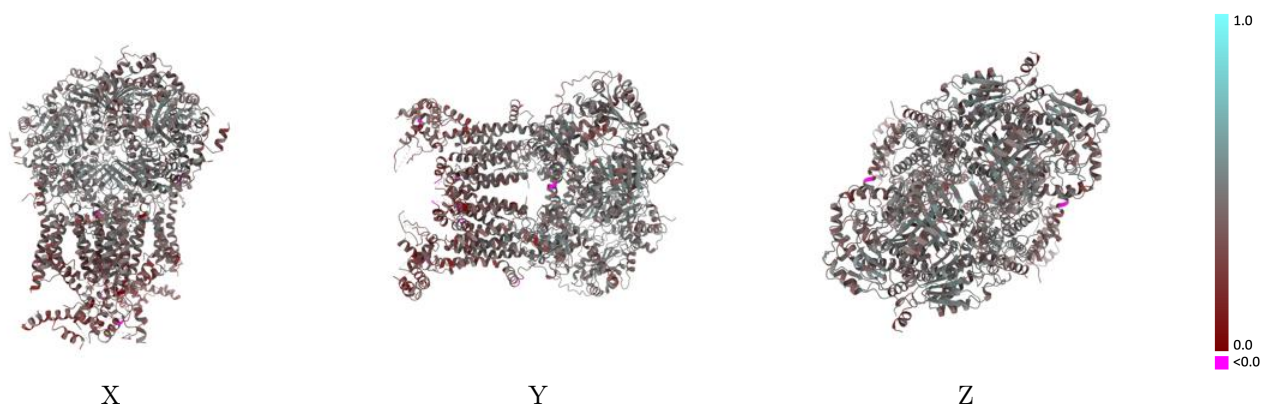
This section contains information regarding the fit between EMDB map EMD-74150 and PDB model 9ZFS. Per-residue inclusion information can be found in section [3](#) on page [8](#).

9.1 Map-model overlay [i](#)



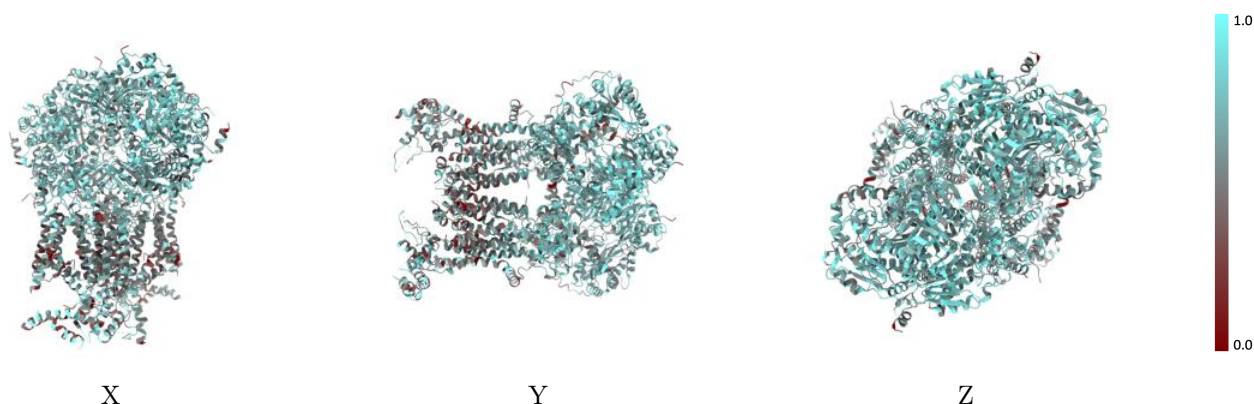
The images above show the 3D surface view of the map at the recommended contour level 0.111 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



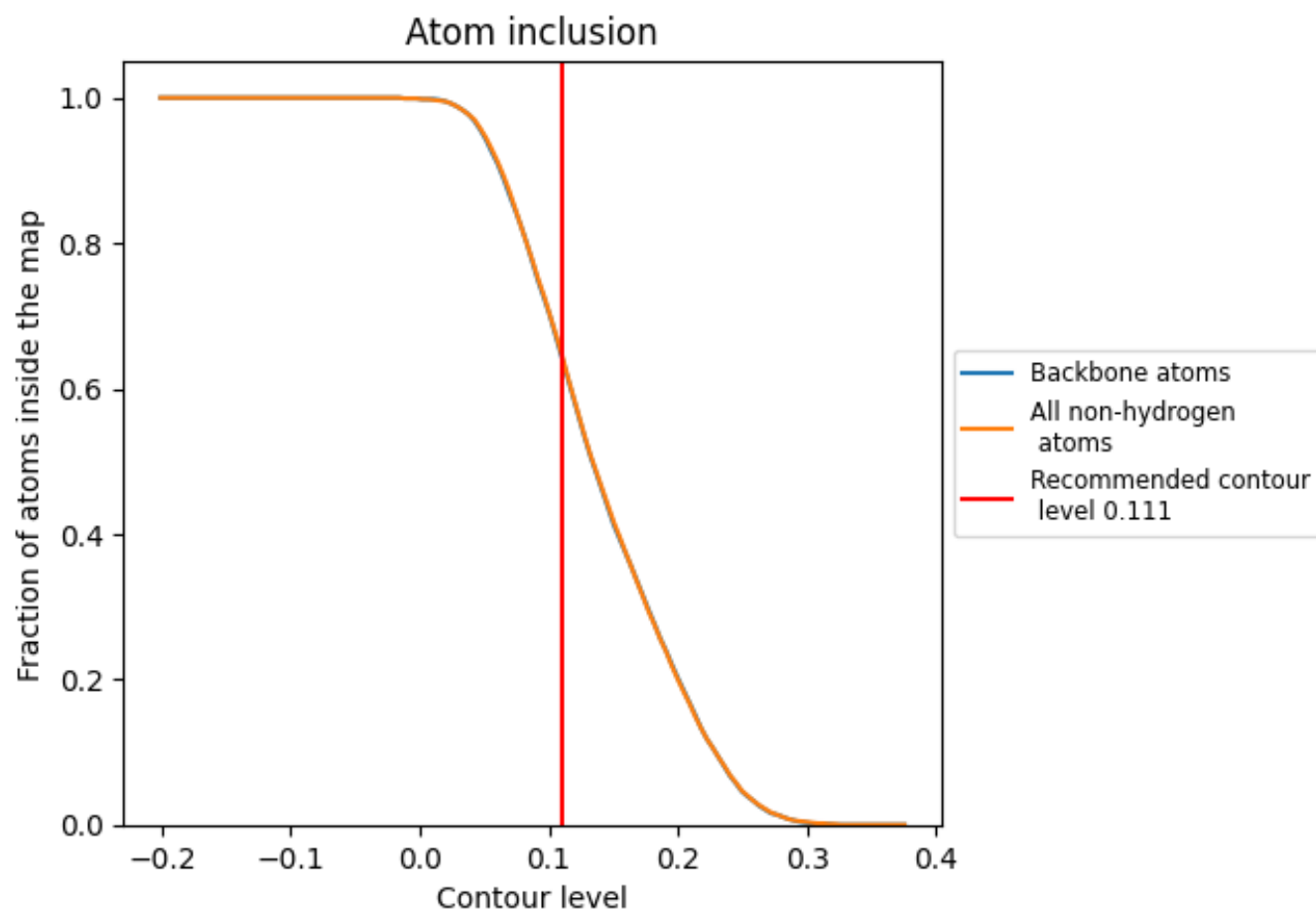
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.111).

9.4 Atom inclusion [i](#)



At the recommended contour level, 64% of all backbone atoms, 64% 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 (0.111) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.6410	 0.4160
A	 0.5170	 0.2660
B	 0.7390	 0.4540
C	 0.7360	 0.4570
E	 0.5750	 0.3790
F	 0.5650	 0.3740
G	 0.6040	 0.3620
H	 0.6860	 0.4450
I	 0.6930	 0.4360
J	 0.6890	 0.4440
K	 0.5180	 0.3350
L	 0.5780	 0.4560
M	 0.7100	 0.4490
N	 0.5120	 0.2680
O	 0.5180	 0.3470
Q	 0.5560	 0.3800
R	 0.5880	 0.3590
T	 0.5490	 0.3740
W	 0.5990	 0.4560

