



## Full wwPDB EM Validation Report ⓘ

Apr 2, 2024 – 12:19 PM EDT

PDB ID : 8TVA  
EMDB ID : EMD-41635  
Title : Outer Mat-T4P complex  
Authors : Meng, R.; Xing, Z.; Thongchol, J.; Zhang, J.  
Deposited on : 2023-08-17  
Resolution : 8.55 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](mailto: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>.

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

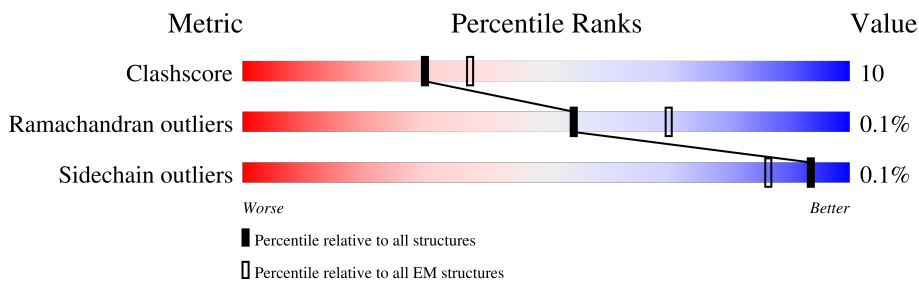
EMDB validation analysis : 0.0.1.dev92  
MolProbity : 4.02b-467  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.36.1

# 1 Overall quality at a glance i

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

The reported resolution of this entry is 8.55 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  $\geq 3$ , 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	534	<div style="display: flex; justify-content: space-between;"> <span>69%</span> <span>99%</span> </div>
2	BK	70	<div style="display: flex; justify-content: space-between;"> <span>23%</span> <span>87%</span> <span>13%</span> </div>
2	BL	70	<div style="display: flex; justify-content: space-between;"> <span>53%</span> <span>90%</span> <span>10%</span> </div>
2	BM	70	<div style="display: flex; justify-content: space-between;"> <span>49%</span> <span>94%</span> <span>6%</span> </div>
2	BN	70	<div style="display: flex; justify-content: space-between;"> <span>41%</span> <span>91%</span> <span>9%</span> </div>
2	BO	70	<div style="display: flex; justify-content: space-between;"> <span>19%</span> <span>83%</span> <span>17%</span> </div>
2	BP	70	<div style="display: flex; justify-content: space-between;"> <span>49%</span> <span>89%</span> <span>11%</span> </div>
2	BQ	70	<div style="display: flex; justify-content: space-between;"> <span>30%</span> <span>79%</span> <span>21%</span> </div>

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Mol	Chain	Length	Quality of chain
2	BR	70	24% 70% 30%
2	BS	70	20% 77% 21%
2	BT	70	39% 89% 11%
2	BU	70	27% 84% 16%
2	BV	70	23% 76% 24%
2	BW	70	16% 81% 19%
2	BX	70	26% 77% 23%
2	BY	70	61% 86% 14%
2	BZ	70	17% 74% 26%
2	CA	70	34% 84% 16%
2	CB	70	7% 79% 21%
2	CC	70	26% 77% 23%
2	CD	70	33% 79% 21%
3	CE	69	17% 81% 19%
3	CF	69	51% 77% 23%
3	CG	69	68% 84% 16%
3	CH	69	38% 88% 12%
3	CI	69	51% 83% 17%
3	CJ	69	26% 83% 17%
3	CK	69	39% 80% 20%
3	CL	69	26% 87% 13%
3	CM	69	26% 74% 26%
3	CN	69	14% 78% 22%
3	CO	69	45% 75% 25%
3	CP	69	78% 22%

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Mol	Chain	Length	Quality of chain
3	CQ	69	<p>19% 72% 28%</p>
3	CR	69	<p>9% 86% 14%</p>
3	CS	69	<p>54% 74% 26%</p>
3	CT	69	<p>9% 77% 23%</p>
3	CU	69	<p>12% 83% 17%</p>
3	CV	69	<p>72% 90% 10%</p>
3	CW	69	<p>14% 78% 22%</p>
3	CX	69	<p>7% 84% 16%</p>

## 2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 24524 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 Maturation protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	b	534	4304	2746	765	776	17	0	0

- Molecule 2 is a protein called Fimbrial protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	BK	70	520	332	84	100	4	0	0
2	BL	70	520	332	84	100	4	0	0
2	BM	70	520	332	84	100	4	0	0
2	BN	70	520	332	84	100	4	0	0
2	BO	70	520	332	84	100	4	0	0
2	BP	70	520	332	84	100	4	0	0
2	BQ	70	520	332	84	100	4	0	0
2	BR	70	520	332	84	100	4	0	0
2	BS	70	520	332	84	100	4	0	0
2	BT	70	520	332	84	100	4	0	0
2	BU	70	520	332	84	100	4	0	0
2	BV	70	520	332	84	100	4	0	0
2	BW	70	520	332	84	100	4	0	0
2	BX	70	520	332	84	100	4	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
2	BY	70	Total	C	N	O	S	0	0
			520	332	84	100	4		
2	BZ	70	Total	C	N	O	S	0	0
			520	332	84	100	4		
2	CA	70	Total	C	N	O	S	0	0
			520	332	84	100	4		
2	CB	70	Total	C	N	O	S	0	0
			520	332	84	100	4		
2	CC	70	Total	C	N	O	S	0	0
			520	332	84	100	4		
2	CD	70	Total	C	N	O	S	0	0
			520	332	84	100	4		

- Molecule 3 is a protein called Fimbrial protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	CE	69	Total	C	N	O	S	0	0
			491	305	83	101	2		
3	CF	69	Total	C	N	O	S	0	0
			491	305	83	101	2		
3	CG	69	Total	C	N	O	S	0	0
			491	305	83	101	2		
3	CH	69	Total	C	N	O	S	0	0
			491	305	83	101	2		
3	CI	69	Total	C	N	O	S	0	0
			491	305	83	101	2		
3	CJ	69	Total	C	N	O	S	0	0
			491	305	83	101	2		
3	CK	69	Total	C	N	O	S	0	0
			491	305	83	101	2		
3	CL	69	Total	C	N	O	S	0	0
			491	305	83	101	2		
3	CM	69	Total	C	N	O	S	0	0
			491	305	83	101	2		
3	CN	69	Total	C	N	O	S	0	0
			491	305	83	101	2		
3	CO	69	Total	C	N	O	S	0	0
			491	305	83	101	2		
3	CP	69	Total	C	N	O	S	0	0
			491	305	83	101	2		
3	CQ	69	Total	C	N	O	S	0	0
			491	305	83	101	2		

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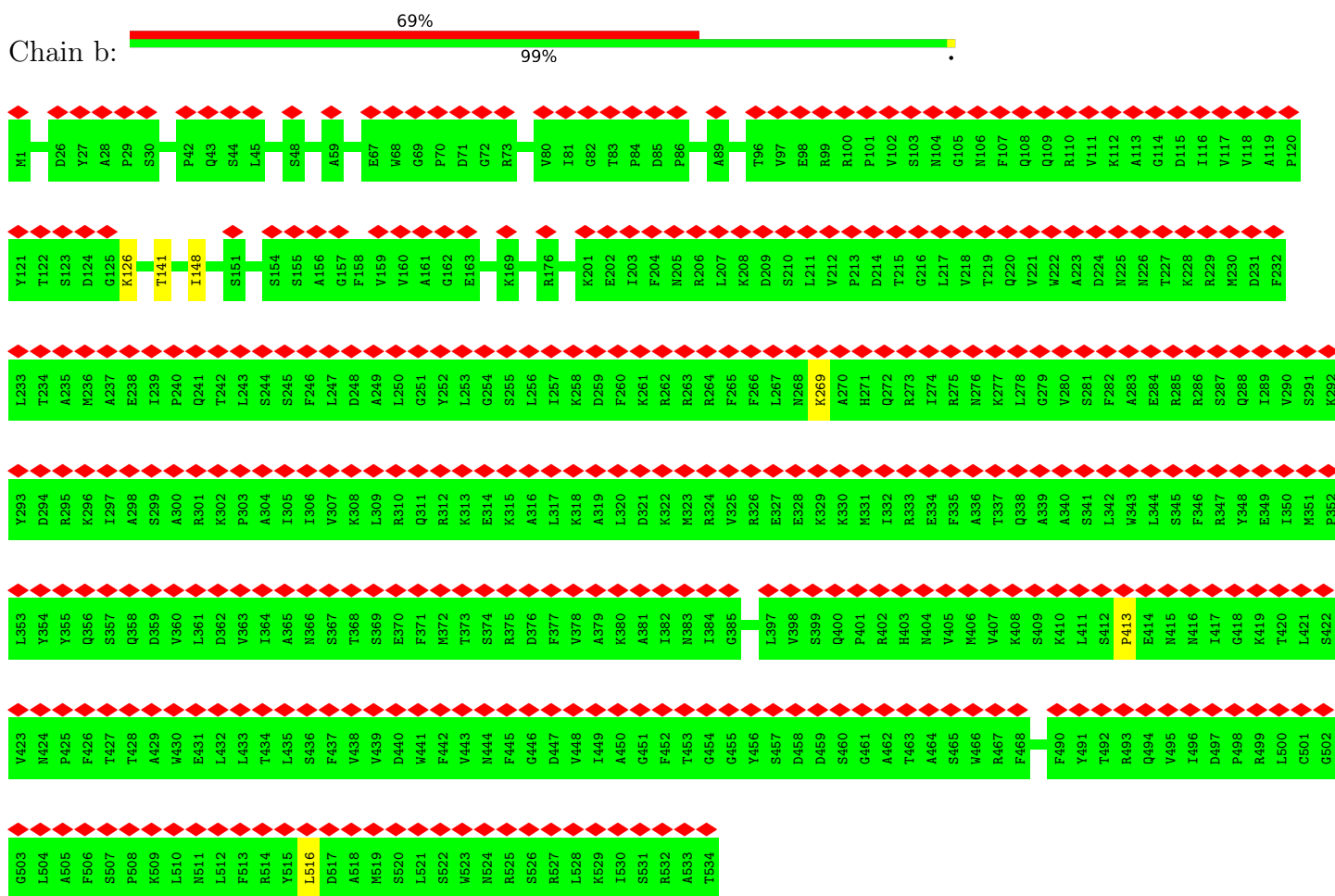
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Mol	Chain	Residues	Atoms					AltConf	Trace
3	CR	69	Total 491	C 305	N 83	O 101	S 2	0	0
3	CS	69	Total 491	C 305	N 83	O 101	S 2	0	0
3	CT	69	Total 491	C 305	N 83	O 101	S 2	0	0
3	CU	69	Total 491	C 305	N 83	O 101	S 2	0	0
3	CV	69	Total 491	C 305	N 83	O 101	S 2	0	0
3	CW	69	Total 491	C 305	N 83	O 101	S 2	0	0
3	CX	69	Total 491	C 305	N 83	O 101	S 2	0	0

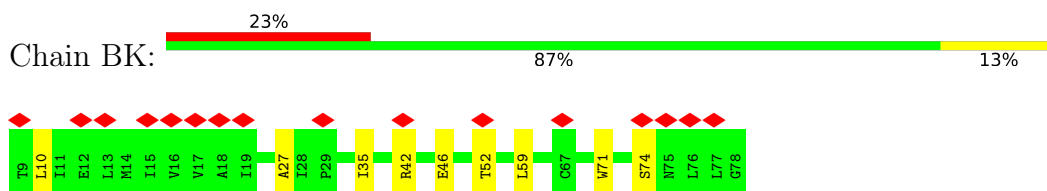
### 3 Residue-property plots [i](#)

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: Maturation protein

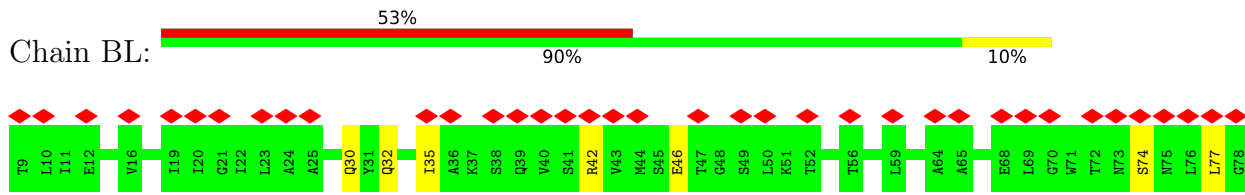


- Molecule 2: Fimbrial protein

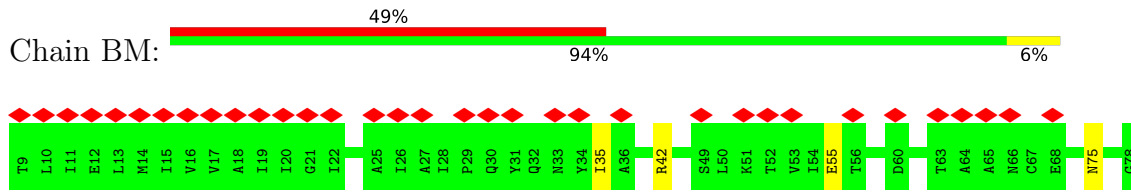


- Molecule 2: Fimbrial protein

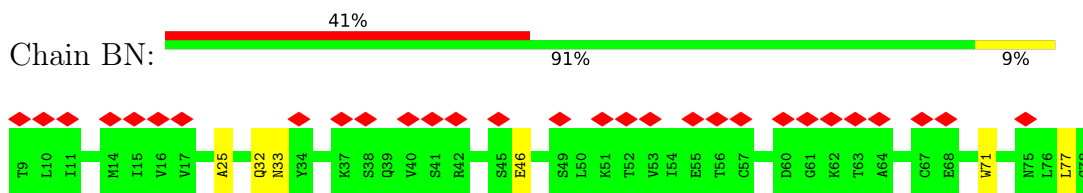




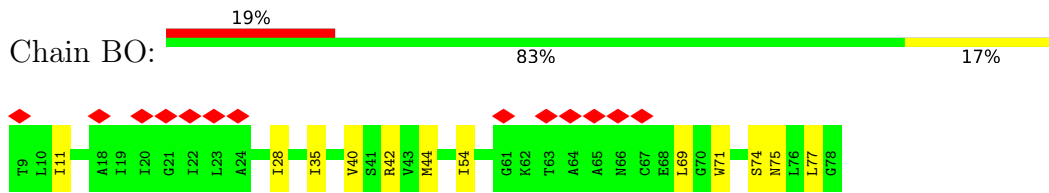
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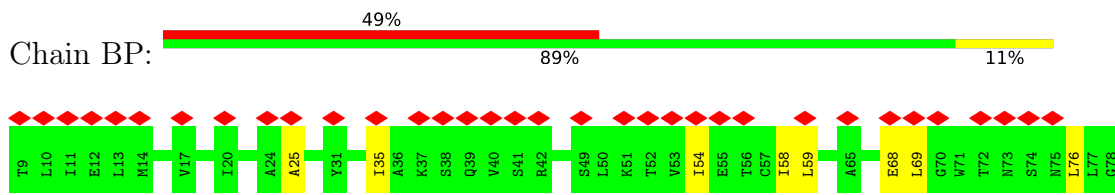
• Molecule 2: Fimbrial protein



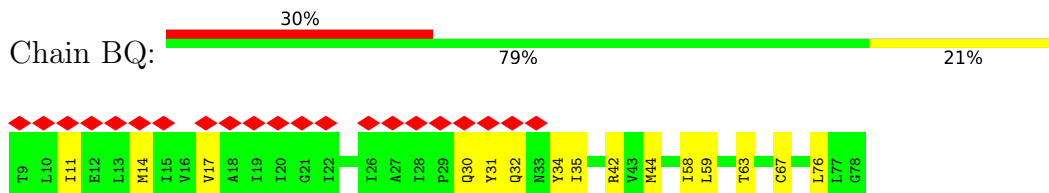
• Molecule 2: Fimbrial protein



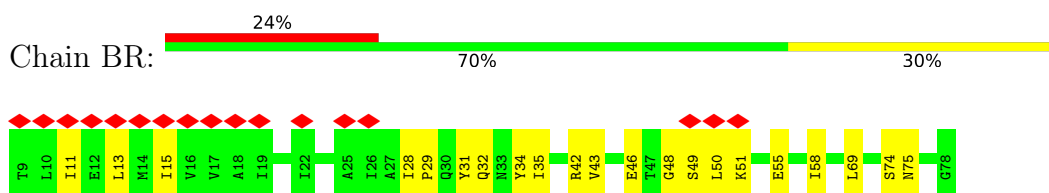
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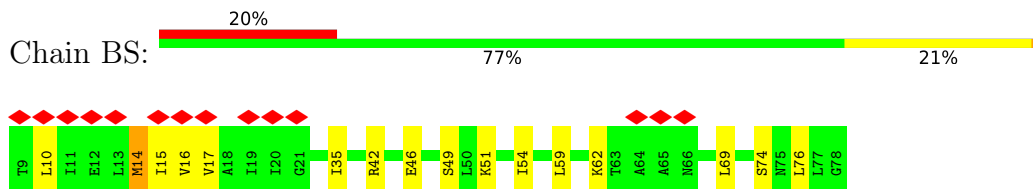
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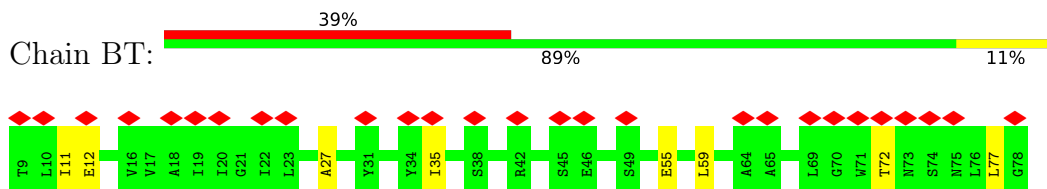
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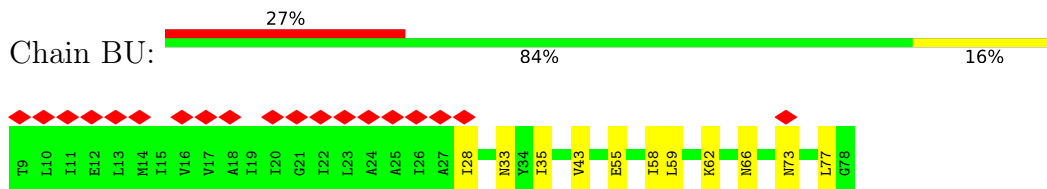
• Molecule 2: Fimbrial protein



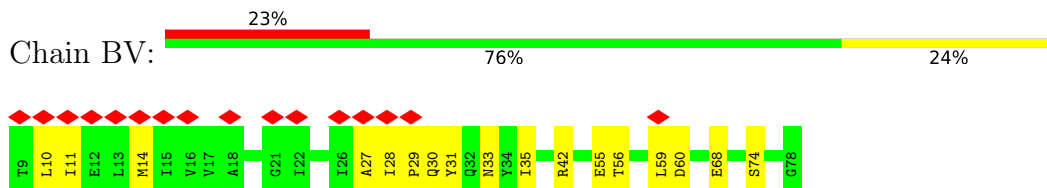
• Molecule 2: Fimbrial protein



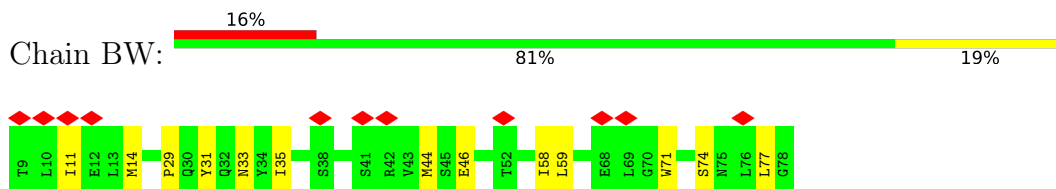
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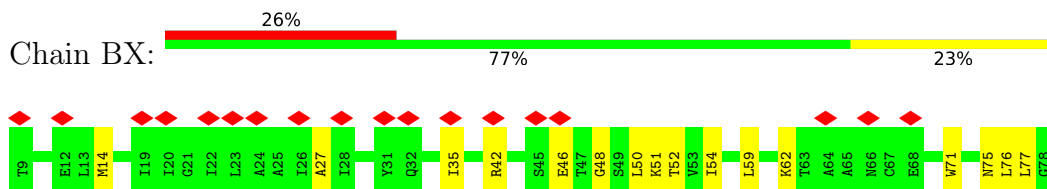
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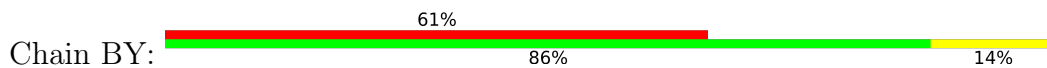
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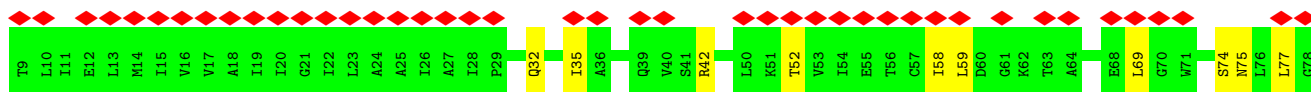


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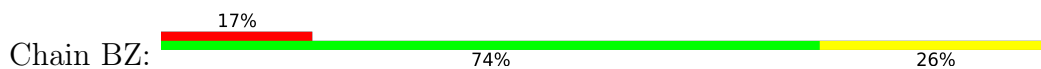


• Molecule 2: Fimbrial protein

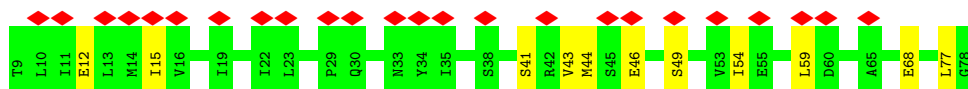
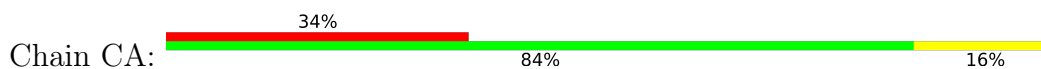




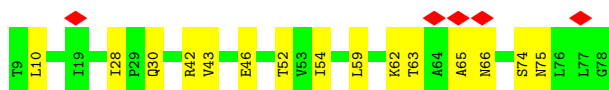
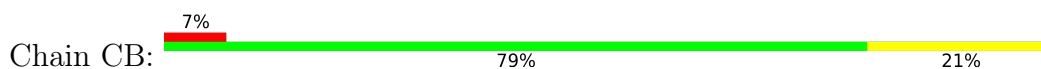
- Molecule 2: Fimbrial protein



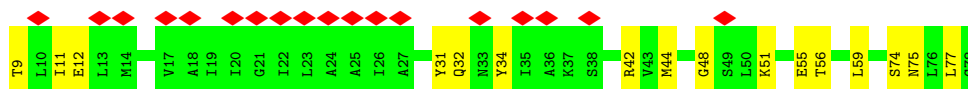
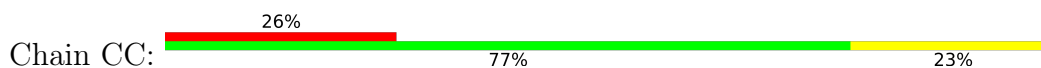
- Molecule 2: Fimbrial protein



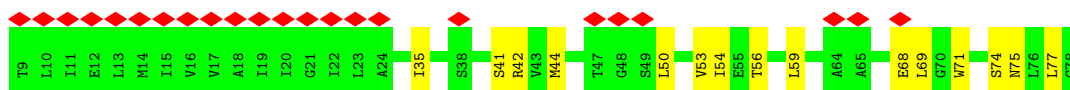
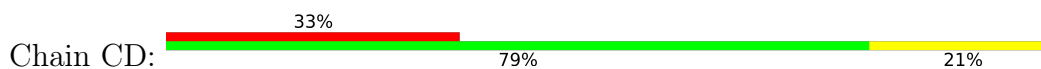
- Molecule 2: Fimbrial protein



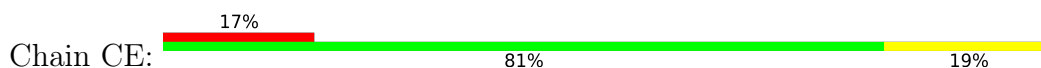
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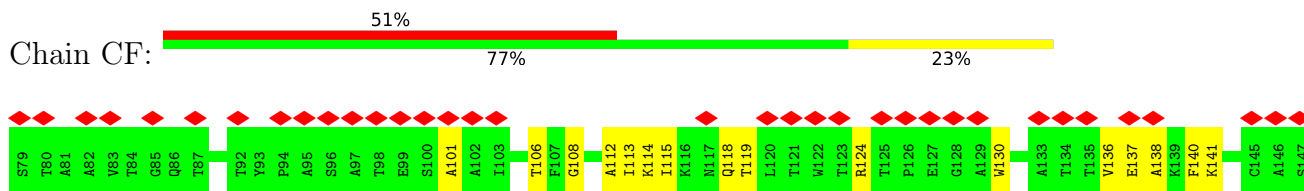
- Molecule 2: Fimbrial protein



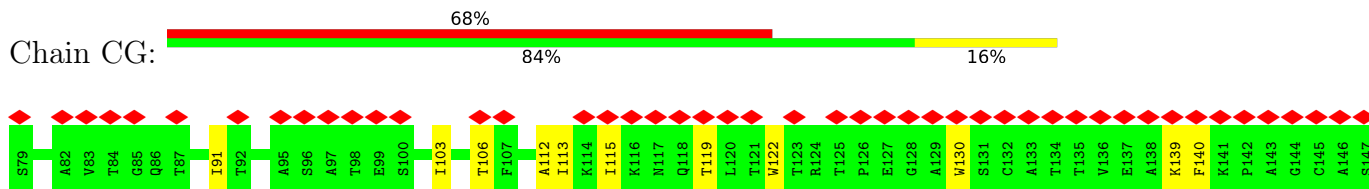
- Molecule 3: Fimbrial protein



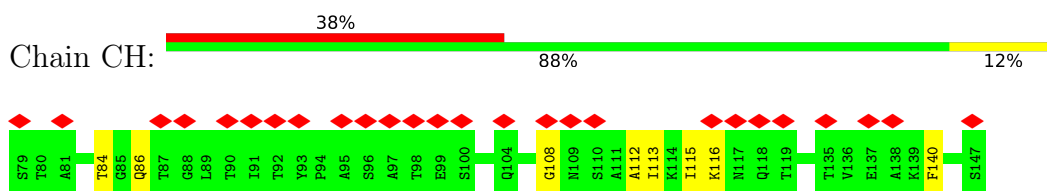
- Molecule 3: Fimbrial protein



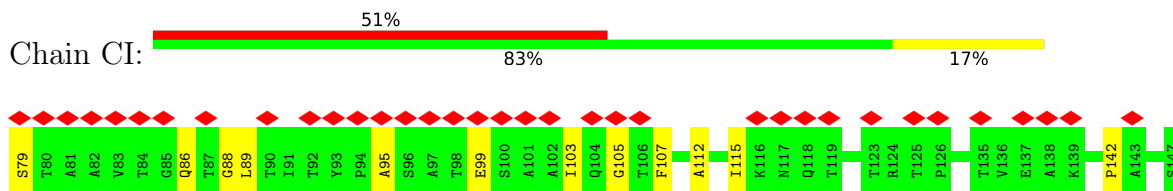
• Molecule 3: Fimbrial protein



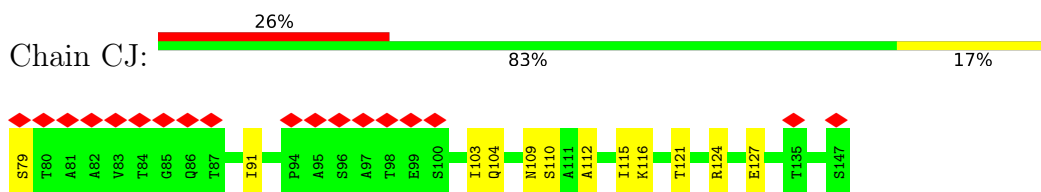
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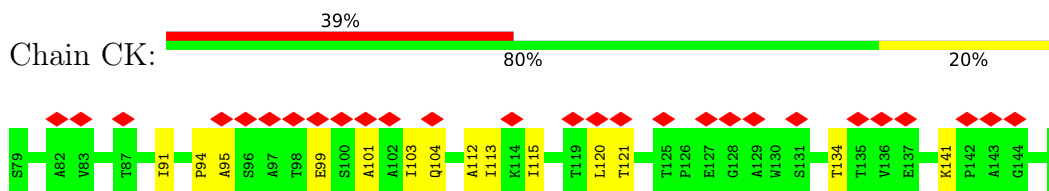
• Molecule 3: Fimbrial protein



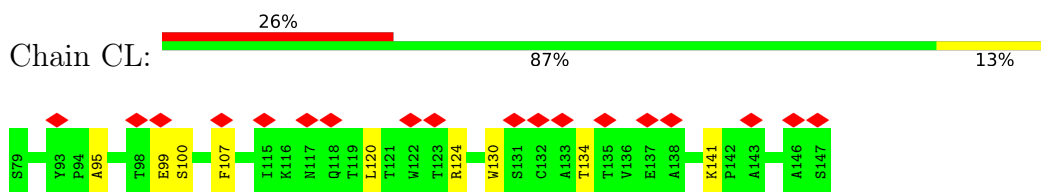
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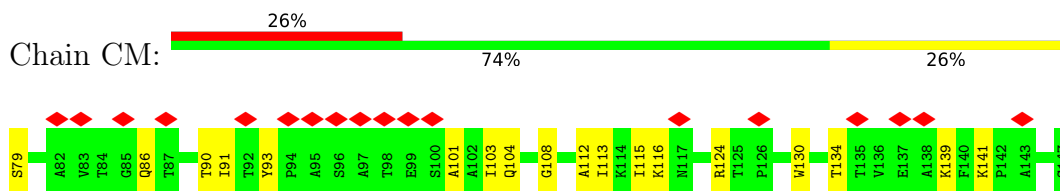
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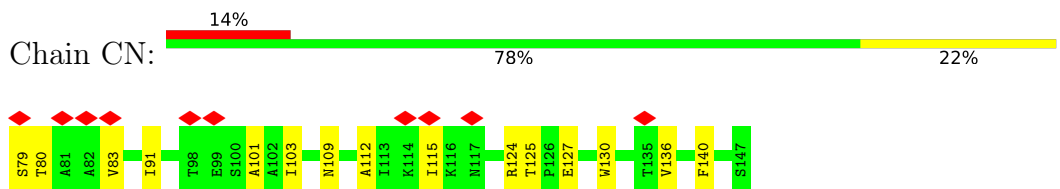
• Molecule 3: Fimbrial protein



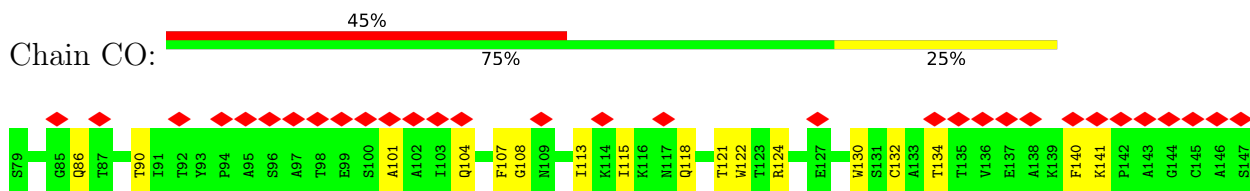
- Molecule 3: Fimbrial protein



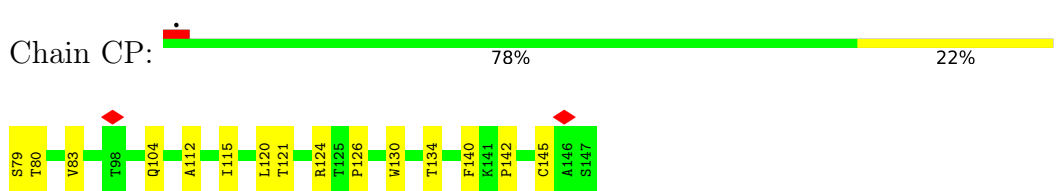
- Molecule 3: Fimbrial protein



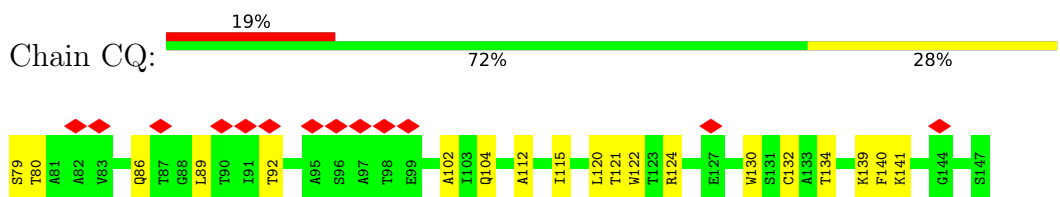
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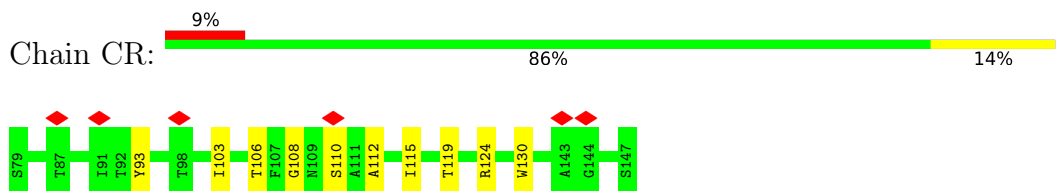
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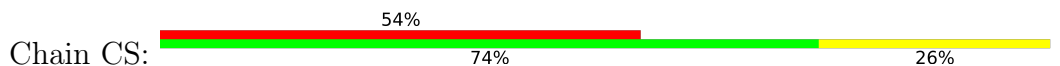
- Molecule 3: Fimbrial protein

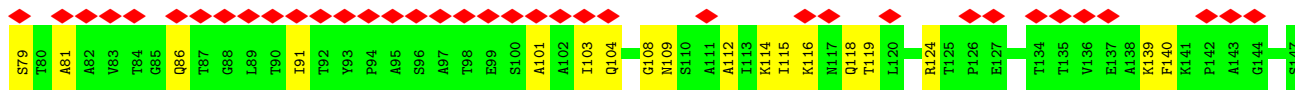


- Molecule 3: Fimbrial protein

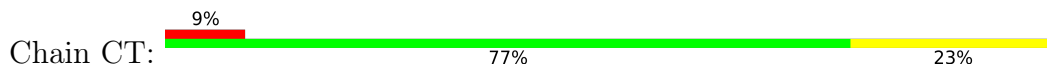


- Molecule 3: Fimbrial protein

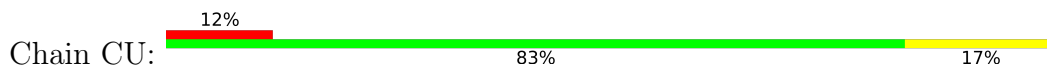




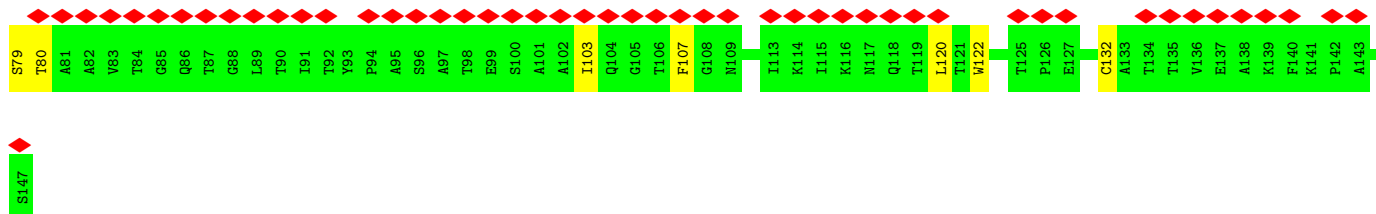
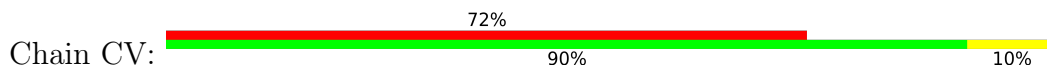
• Molecule 3: Fimbrial protein



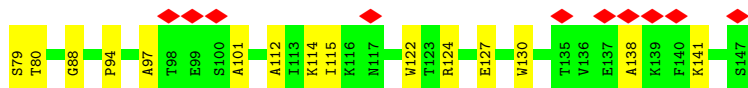
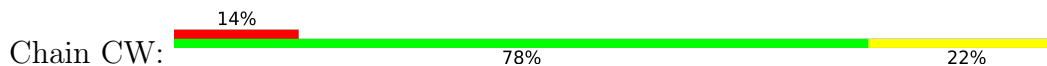
• Molecule 3: Fimbrial protein



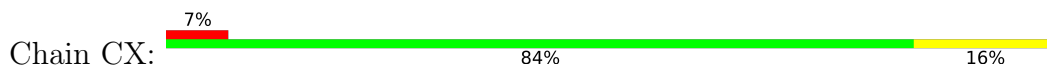
• Molecule 3: Fimbrial protein



• Molecule 3: Fimbrial protein



• Molecule 3: Fimbrial protein



## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	16000	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	50	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	3500	Depositor
Magnification	130000	Depositor
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	5.520	Depositor
Minimum map value	-2.519	Depositor
Average map value	-0.003	Depositor
Map value standard deviation	0.136	Depositor
Recommended contour level	1.29	Depositor
Map size ( $\text{\AA}$ )	741.99994, 741.99994, 741.99994	wwPDB
Map dimensions	350, 350, 350	wwPDB
Map angles ( $^\circ$ )	90.0, 90.0, 90.0	wwPDB
Pixel spacing ( $\text{\AA}$ )	2.12, 2.12, 2.12	Depositor

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 5$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
1	b	0.32	0/4409	0.61	1/5964 (0.0%)
2	BK	0.23	0/524	0.39	0/712
2	BL	0.22	0/524	0.39	0/712
2	BM	0.24	0/524	0.44	0/712
2	BN	0.23	0/524	0.41	0/712
2	BO	0.23	0/524	0.40	0/712
2	BP	0.23	0/524	0.41	0/712
2	BQ	0.27	0/524	0.40	0/712
2	BR	0.22	0/524	0.39	0/712
2	BS	0.23	0/524	0.38	0/712
2	BT	0.23	0/524	0.40	0/712
2	BU	0.23	0/524	0.40	0/712
2	BV	0.23	0/524	0.41	0/712
2	BW	0.23	0/524	0.41	0/712
2	BX	0.23	0/524	0.41	0/712
2	BY	0.23	0/524	0.42	0/712
2	BZ	0.23	0/524	0.40	0/712
2	CA	0.23	0/524	0.39	0/712
2	CB	0.23	0/524	0.41	0/712
2	CC	0.23	0/524	0.40	0/712
2	CD	0.24	0/524	0.42	0/712
3	CE	0.24	0/500	0.48	0/682
3	CF	0.24	0/500	0.48	0/682
3	CG	0.25	0/500	0.47	0/682
3	CH	0.24	0/500	0.48	0/682
3	CI	0.24	0/500	0.48	0/682
3	CJ	0.25	0/500	0.49	0/682
3	CK	0.25	0/500	0.49	0/682
3	CL	0.24	0/500	0.47	0/682
3	CM	0.24	0/500	0.47	0/682
3	CN	0.25	0/500	0.47	0/682
3	CO	0.25	0/500	0.48	0/682
3	CP	0.25	0/500	0.48	0/682
3	CQ	0.24	0/500	0.48	0/682



Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
3	CR	0.24	0/500	0.46	0/682
3	CS	0.25	0/500	0.48	0/682
3	CT	0.25	0/500	0.48	0/682
3	CU	0.24	0/500	0.47	0/682
3	CV	0.25	0/500	0.48	0/682
3	CW	0.24	0/500	0.46	0/682
3	CX	0.25	0/500	0.48	0/682
All	All	0.25	0/24889	0.48	1/33844 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	b	516	LEU	CA-CB-CG	6.09	129.32	115.30

There are no chirality outliers.

There are no planarity outliers.

## 5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	b	4304	0	4315	0	0
2	BK	520	0	548	10	0
2	BL	520	0	548	7	0
2	BM	520	0	548	3	0
2	BN	520	0	548	6	0
2	BO	520	0	548	13	0
2	BP	520	0	548	11	0
2	BQ	520	0	548	14	0
2	BR	520	0	548	20	0
2	BS	520	0	548	15	0
2	BT	520	0	548	11	0
2	BU	520	0	548	13	0
2	BV	520	0	548	15	0
2	BW	520	0	548	14	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	BX	520	0	548	17	0
2	BY	520	0	548	15	0
2	BZ	520	0	548	21	0
2	CA	520	0	548	11	0
2	CB	520	0	548	13	0
2	CC	520	0	548	18	0
2	CD	520	0	548	13	0
3	CE	491	0	482	7	0
3	CF	491	0	482	12	0
3	CG	491	0	482	7	0
3	CH	491	0	482	7	0
3	CI	491	0	482	10	0
3	CJ	491	0	482	10	0
3	CK	491	0	482	8	0
3	CL	491	0	482	8	0
3	CM	491	0	482	16	0
3	CN	491	0	482	10	0
3	CO	491	0	482	13	0
3	CP	491	0	482	11	0
3	CQ	491	0	482	16	0
3	CR	491	0	482	7	0
3	CS	491	0	482	16	0
3	CT	491	0	482	12	0
3	CU	491	0	482	8	0
3	CV	491	0	482	5	0
3	CW	491	0	482	14	0
3	CX	491	0	482	8	0
All	All	24524	0	24915	321	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 10.

All (321) 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)
2:BK:35:ILE:HG13	2:CD:59:LEU:HD13	1.64	0.80
2:BO:42:ARG:NH1	2:BO:74:SER:OG	2.18	0.77
2:BQ:31:TYR:HA	2:BQ:34:TYR:HD2	1.51	0.75
2:BP:54:ILE:HG13	3:CJ:103:ILE:HD11	1.71	0.72
2:BX:35:ILE:HG13	2:CA:59:LEU:HD13	1.71	0.69
3:CO:90:THR:HB	3:CO:104:GLN:HB2	1.73	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:BY:35:ILE:HG13	2:CB:59:LEU:HD13	1.75	0.69
3:CW:79:SER:OG	3:CW:80:THR:N	2.26	0.69
3:CX:79:SER:OG	3:CX:80:THR:N	2.25	0.68
2:BO:35:ILE:HG13	2:BS:59:LEU:HD13	1.73	0.68
2:BP:25:ALA:O	2:BS:42:ARG:NH1	2.26	0.67
2:BX:42:ARG:HH22	2:BX:75:ASN:HD21	1.43	0.67
2:BU:55:GLU:OE1	3:CO:130:TRP:NE1	2.28	0.66
2:CA:68:GLU:HG3	3:CS:139:LYS:HB3	1.77	0.65
2:BR:42:ARG:NH1	2:BR:74:SER:OG	2.30	0.65
3:CV:79:SER:OG	3:CV:80:THR:N	2.28	0.65
2:BT:35:ILE:HG13	2:BX:59:LEU:HD13	1.78	0.65
2:BZ:35:ILE:HG13	2:CC:59:LEU:HD13	1.77	0.65
3:CQ:112:ALA:HB3	3:CQ:115:ILE:HG12	1.79	0.65
3:CW:138:ALA:HA	3:CW:141:LYS:HE2	1.77	0.65
3:CM:90:THR:HB	3:CM:104:GLN:HB3	1.79	0.64
2:BV:35:ILE:HG13	2:BZ:59:LEU:HD13	1.80	0.64
3:CE:114:LYS:NZ	3:CE:137:GLU:OE2	2.29	0.63
2:BT:55:GLU:OE2	3:CN:130:TRP:NE1	2.32	0.63
2:BW:58:ILE:HG23	3:CM:113:ILE:HD12	1.81	0.63
3:CJ:109:ASN:O	3:CJ:116:LYS:NZ	2.32	0.63
3:CT:112:ALA:HB3	3:CT:115:ILE:HG12	1.81	0.63
2:BM:42:ARG:NH2	2:BM:75:ASN:OD1	2.31	0.62
2:CC:42:ARG:NH1	2:CC:74:SER:OG	2.32	0.62
3:CN:91:ILE:HG12	3:CN:103:ILE:HG23	1.80	0.62
2:BW:74:SER:O	3:CQ:86:GLN:NE2	2.30	0.62
3:CF:106:THR:HG22	3:CF:119:THR:HG22	1.82	0.61
2:BS:35:ILE:HG13	2:BW:59:LEU:HD13	1.82	0.61
2:BX:50:LEU:HD11	2:BX:71:TRP:HB2	1.82	0.61
2:CC:55:GLU:OE1	3:CW:130:TRP:NE1	2.32	0.61
2:BY:32:GLN:NE2	3:CS:114:LYS:HD3	2.16	0.61
2:CC:48:GLY:HA2	2:CC:51:LYS:HD3	1.83	0.60
3:CH:112:ALA:HB3	3:CH:115:ILE:HG12	1.83	0.60
3:CS:104:GLN:HE21	3:CS:119:THR:HB	1.64	0.60
3:CN:79:SER:OG	3:CN:80:THR:N	2.34	0.60
3:CP:79:SER:OG	3:CP:80:THR:N	2.34	0.60
2:BV:55:GLU:OE1	3:CP:130:TRP:NE1	2.34	0.60
3:CO:101:ALA:HB3	3:CO:124:ARG:HB3	1.84	0.60
3:CP:79:SER:OG	3:CP:83:VAL:O	2.19	0.60
2:BY:42:ARG:NH1	2:BY:75:ASN:OD1	2.33	0.60
2:CD:77:LEU:HD12	3:CX:108:GLY:HA3	1.83	0.60
3:CT:101:ALA:HB3	3:CT:124:ARG:HB3	1.84	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:CD:42:ARG:NH1	2:CD:74:SER:OG	2.34	0.59
2:BS:74:SER:O	3:CM:86:GLN:NE2	2.33	0.59
2:BU:73:ASN:OD1	3:CO:86:GLN:NE2	2.35	0.59
3:CW:112:ALA:HB3	3:CW:115:ILE:HG12	1.84	0.59
2:BZ:42:ARG:NH1	2:BZ:74:SER:OG	2.36	0.59
3:CQ:79:SER:OG	3:CQ:80:THR:N	2.36	0.59
3:CP:142:PRO:HG2	3:CP:145:CYS:HB2	1.83	0.59
2:BL:32:GLN:OE1	3:CJ:124:ARG:NH1	2.35	0.58
2:BL:30:GLN:NE2	3:CJ:127:GLU:O	2.36	0.58
2:BX:77:LEU:HD12	3:CR:108:GLY:HA3	1.86	0.58
3:CF:114:LYS:HG3	3:CF:115:ILE:HG23	1.85	0.58
2:BV:33:ASN:HA	3:CP:140:PHE:HE1	1.67	0.58
2:BV:42:ARG:NH1	2:BV:74:SER:OG	2.35	0.58
3:CJ:112:ALA:HB3	3:CJ:115:ILE:HG12	1.86	0.58
2:BN:25:ALA:O	2:BQ:42:ARG:NH1	2.33	0.58
2:BW:11:ILE:HD12	2:BW:11:ILE:H	1.69	0.57
3:CM:112:ALA:HB3	3:CM:115:ILE:HG12	1.87	0.57
2:BX:35:ILE:HG21	2:CA:59:LEU:HB3	1.86	0.57
2:CC:31:TYR:HA	2:CC:34:TYR:HD2	1.69	0.57
2:BO:35:ILE:HG21	2:BS:59:LEU:HB3	1.86	0.57
3:CT:104:GLN:HA	3:CT:121:THR:HA	1.87	0.57
2:BK:52:THR:HA	2:BT:11:ILE:HD13	1.86	0.57
2:BY:32:GLN:HE21	3:CS:114:LYS:HD3	1.69	0.57
2:BZ:42:ARG:HH22	2:BZ:75:ASN:HD21	1.53	0.57
3:CQ:92:THR:HB	3:CQ:102:ALA:H	1.69	0.56
2:BZ:35:ILE:HG21	2:CC:59:LEU:HB3	1.86	0.56
2:CB:63:THR:HG23	2:CB:65:ALA:H	1.70	0.56
2:BV:35:ILE:HG21	2:BZ:59:LEU:HB3	1.87	0.56
2:BL:35:ILE:HG21	2:BP:59:LEU:HD22	1.87	0.56
2:BQ:58:ILE:HG23	3:CG:113:ILE:HD12	1.87	0.56
2:BU:58:ILE:HG23	3:CK:113:ILE:HD12	1.87	0.56
3:CI:95:ALA:N	3:CI:99:GLU:OE2	2.37	0.56
3:CN:101:ALA:HB3	3:CN:124:ARG:HB3	1.87	0.55
3:CO:122:TRP:CE2	3:CO:132:CYS:HB2	2.41	0.55
3:CS:108:GLY:HA2	3:CS:116:LYS:HD3	1.88	0.55
2:CA:54:ILE:HG13	3:CU:103:ILE:HD11	1.88	0.55
2:BK:71:TRP:NE1	3:CE:86:GLN:OE1	2.34	0.54
3:CP:112:ALA:HB3	3:CP:115:ILE:HG12	1.88	0.54
2:CD:53:VAL:HG11	2:CD:69:LEU:HA	1.89	0.54
2:BY:69:LEU:O	3:CS:79:SER:OG	2.25	0.54
3:CF:101:ALA:HB3	3:CF:124:ARG:HB3	1.89	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:BM:55:GLU:OE1	3:CG:130:TRP:NE1	2.37	0.54
3:CI:112:ALA:HB3	3:CI:115:ILE:HG12	1.88	0.54
2:BK:46:GLU:HG2	2:BX:27:ALA:HB3	1.90	0.54
2:BR:42:ARG:HH22	2:BR:75:ASN:HD21	1.54	0.54
3:CF:138:ALA:HA	3:CF:141:LYS:HD3	1.90	0.54
3:CM:108:GLY:HA2	3:CM:116:LYS:HD2	1.90	0.53
2:BM:35:ILE:HG21	2:BQ:59:LEU:HB3	1.90	0.53
3:CE:95:ALA:N	3:CE:99:GLU:OE2	2.31	0.53
2:BR:55:GLU:OE1	3:CL:130:TRP:NE1	2.39	0.53
2:BR:58:ILE:HG23	3:CH:113:ILE:HD12	1.89	0.53
2:BX:42:ARG:NH1	2:BX:75:ASN:OD1	2.34	0.53
3:CU:112:ALA:HB3	3:CU:115:ILE:HG12	1.90	0.53
2:CA:77:LEU:HD12	3:CU:108:GLY:HA3	1.91	0.53
2:BK:46:GLU:HB3	2:BK:71:TRP:HH2	1.74	0.53
2:BQ:30:GLN:HE21	2:BT:72:THR:HG22	1.74	0.52
2:BZ:77:LEU:HD12	3:CT:108:GLY:HA3	1.91	0.52
2:BN:77:LEU:HD12	3:CH:108:GLY:HA3	1.92	0.52
2:BT:35:ILE:HG21	2:BX:59:LEU:HB3	1.91	0.52
2:CD:68:GLU:HG2	3:CU:139:LYS:HB3	1.92	0.52
2:CC:77:LEU:HG	3:CW:88:GLY:HA3	1.90	0.52
2:CD:50:LEU:HD21	2:CD:71:TRP:HB2	1.92	0.52
2:BS:69:LEU:O	3:CM:79:SER:OG	2.27	0.52
2:CD:42:ARG:NH1	2:CD:75:ASN:OD1	2.40	0.52
3:CE:112:ALA:HB3	3:CE:115:ILE:HG12	1.91	0.52
2:CB:10:LEU:HD22	2:CC:12:GLU:HG3	1.93	0.51
3:CN:112:ALA:HB3	3:CN:115:ILE:HG12	1.91	0.51
2:BQ:11:ILE:HG13	2:BX:52:THR:HG23	1.92	0.51
3:CM:91:ILE:HD13	3:CM:103:ILE:HG23	1.92	0.51
3:CM:134:THR:HG23	3:CM:141:LYS:HE2	1.93	0.51
2:BX:48:GLY:HA2	2:BX:51:LYS:HG3	1.91	0.51
3:CK:112:ALA:HB3	3:CK:115:ILE:HG12	1.92	0.51
2:CB:43:VAL:HG13	3:CV:120:LEU:HD13	1.92	0.51
3:CE:101:ALA:HB3	3:CE:124:ARG:HB3	1.91	0.51
3:CF:112:ALA:HB3	3:CF:115:ILE:HG12	1.93	0.51
3:CX:123:THR:OG1	3:CX:131:SER:OG	2.21	0.51
2:BW:33:ASN:HA	3:CQ:140:PHE:HE1	1.76	0.51
2:CD:69:LEU:N	3:CX:79:SER:O	2.39	0.51
2:BR:13:LEU:HG	2:BS:16:VAL:HG13	1.93	0.50
2:BR:32:GLN:NE2	3:CP:126:PRO:O	2.40	0.50
2:CD:77:LEU:HD23	3:CX:86:GLN:HE21	1.76	0.50
2:BR:43:VAL:HG12	3:CL:120:LEU:HD22	1.94	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:BZ:68:GLU:HG2	3:CQ:139:LYS:HG2	1.94	0.50
3:CF:136:VAL:HG21	3:CF:140:PHE:HD2	1.77	0.50
3:CR:112:ALA:HB3	3:CR:115:ILE:HG12	1.94	0.50
2:BL:77:LEU:HD12	3:CF:108:GLY:HA3	1.94	0.49
2:BW:77:LEU:HD23	3:CQ:86:GLN:HE21	1.77	0.49
3:CT:114:LYS:HD2	3:CW:97:ALA:HB1	1.93	0.49
2:BR:11:ILE:HA	2:BY:52:THR:HG23	1.95	0.49
2:BS:54:ILE:HG13	3:CM:103:ILE:HD11	1.94	0.49
2:BO:71:TRP:NE1	3:CI:86:GLN:OE1	2.42	0.49
2:BY:74:SER:O	3:CS:86:GLN:NE2	2.31	0.49
3:CG:106:THR:HG23	3:CG:119:THR:HG22	1.94	0.49
2:BL:42:ARG:O	2:BL:46:GLU:HG3	2.13	0.49
2:CA:41:SER:HA	2:CA:44:MET:HE2	1.95	0.49
2:BR:46:GLU:O	2:BR:49:SER:OG	2.29	0.49
3:CT:92:THR:HB	3:CT:102:ALA:HB3	1.93	0.49
2:BR:48:GLY:HA2	2:BR:51:LYS:HG3	1.94	0.49
2:BR:15:ILE:HG23	2:BU:35:ILE:HD11	1.94	0.48
2:CC:9:THR:HG23	2:CC:12:GLU:H	1.78	0.48
3:CM:101:ALA:HB3	3:CM:124:ARG:HB3	1.95	0.48
3:CT:94:PRO:HB3	3:CT:99:GLU:HB2	1.95	0.48
3:CU:80:THR:HG23	3:CU:83:VAL:H	1.78	0.48
2:BK:46:GLU:HB3	2:BK:71:TRP:CH2	2.48	0.48
2:CB:28:ILE:HG22	2:CB:30:GLN:H	1.78	0.48
3:CN:79:SER:OG	3:CN:83:VAL:O	2.32	0.48
2:BU:77:LEU:HD23	3:CO:86:GLN:HE21	1.78	0.48
2:BR:11:ILE:HG21	2:BU:28:ILE:HD12	1.95	0.48
2:BO:54:ILE:HD13	3:CI:103:ILE:HD11	1.95	0.48
2:BY:77:LEU:HG	3:CS:109:ASN:HB2	1.96	0.48
3:CS:91:ILE:HG12	3:CS:103:ILE:HG23	1.96	0.48
3:CO:134:THR:HG23	3:CO:141:LYS:HE2	1.96	0.48
2:BQ:31:TYR:HA	2:BQ:34:TYR:CD2	2.38	0.48
2:CC:42:ARG:NH1	2:CC:75:ASN:OD1	2.45	0.48
2:BW:14:MET:SD	2:CC:56:THR:HG21	2.54	0.48
2:BX:62:LYS:O	3:CR:93:TYR:OH	2.25	0.48
2:BY:42:ARG:HH22	2:BY:75:ASN:HD21	1.62	0.48
2:BN:33:ASN:HA	3:CH:140:PHE:HE1	1.80	0.47
2:BR:50:LEU:HD13	2:BR:69:LEU:HD21	1.95	0.47
2:CA:43:VAL:HG21	3:CU:107:PHE:CE1	2.49	0.47
3:CU:92:THR:HB	3:CU:102:ALA:HB3	1.96	0.47
2:BW:71:TRP:CE2	3:CQ:89:LEU:HD22	2.50	0.47
3:CX:105:GLY:N	3:CX:120:LEU:O	2.31	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:BN:32:GLN:OE1	3:CL:124:ARG:NH1	2.40	0.47
2:BY:69:LEU:HD11	3:CS:81:ALA:HA	1.97	0.47
2:BO:77:LEU:HG	3:CI:88:GLY:HA3	1.97	0.47
2:BP:68:GLU:OE2	3:CJ:79:SER:OG	2.23	0.47
2:BQ:32:GLN:HA	2:BU:59:LEU:HD21	1.96	0.47
2:BR:35:ILE:HG21	2:BV:59:LEU:HB3	1.97	0.47
2:BZ:27:ALA:HB2	2:CB:74:SER:HB2	1.96	0.47
2:BY:42:ARG:HH22	2:BY:75:ASN:ND2	2.12	0.47
2:BY:77:LEU:HD12	3:CS:108:GLY:HA3	1.96	0.47
2:BZ:29:PRO:HG2	2:BZ:31:TYR:CZ	2.49	0.47
3:CQ:124:ARG:HB2	3:CQ:130:TRP:CD2	2.50	0.47
3:CK:94:PRO:HD3	3:CK:101:ALA:HB2	1.97	0.46
3:CR:124:ARG:HB2	3:CR:130:TRP:CD2	2.51	0.46
2:BQ:35:ILE:HG13	2:BU:59:LEU:HD13	1.98	0.46
2:CA:46:GLU:O	2:CA:49:SER:OG	2.32	0.46
3:CS:114:LYS:HG3	3:CS:115:ILE:HG23	1.97	0.46
2:BU:33:ASN:HA	3:CO:140:PHE:HE1	1.80	0.46
2:BV:11:ILE:HA	2:CB:52:THR:HG23	1.98	0.46
2:BT:27:ALA:HB3	2:BW:46:GLU:HG2	1.97	0.46
2:BV:10:LEU:O	2:BV:14:MET:HG2	2.15	0.46
2:BK:27:ALA:HB2	2:CC:74:SER:HB2	1.98	0.46
2:BR:29:PRO:HD2	2:BR:31:TYR:CE2	2.50	0.46
3:CL:134:THR:HG23	3:CL:141:LYS:HE2	1.97	0.46
2:BR:35:ILE:HG13	2:BV:59:LEU:HD13	1.98	0.46
2:BU:62:LYS:HB3	2:BU:66:ASN:HB3	1.98	0.46
2:BY:58:ILE:HG23	3:CO:113:ILE:HD12	1.97	0.46
2:CB:43:VAL:HG11	3:CV:107:PHE:CE1	2.51	0.46
2:CC:51:LYS:HD2	3:CW:122:TRP:CD2	2.51	0.46
2:BS:14:MET:HA	2:BS:17:VAL:HB	1.97	0.46
2:BQ:42:ARG:HD3	2:BQ:76:LEU:HD12	1.99	0.45
2:BX:54:ILE:HG13	3:CR:103:ILE:HD11	1.99	0.45
2:BX:42:ARG:HH22	2:BX:75:ASN:ND2	2.10	0.45
2:BQ:63:THR:O	2:BQ:67:CYS:N	2.46	0.45
3:CQ:104:GLN:HA	3:CQ:121:THR:HA	1.97	0.45
3:CK:134:THR:HG23	3:CK:141:LYS:HE2	1.98	0.45
3:CL:95:ALA:N	3:CL:99:GLU:OE2	2.46	0.45
2:BP:35:ILE:HG13	2:BT:59:LEU:HD13	1.99	0.45
2:BZ:27:ALA:HB3	2:CB:46:GLU:HG2	1.98	0.45
2:BZ:42:ARG:NH1	2:BZ:75:ASN:OD1	2.49	0.45
2:CB:62:LYS:HB3	2:CB:66:ASN:HB2	1.98	0.45
3:CS:115:ILE:HA	3:CS:118:GLN:OE1	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:BV:29:PRO:HD2	2:BV:31:TYR:CE2	2.52	0.45
2:BO:44:MET:CE	3:CI:142:PRO:HG3	2.47	0.45
2:BS:15:ILE:HG23	2:BV:35:ILE:HD11	1.98	0.45
2:BQ:44:MET:CE	3:CK:120:LEU:HD11	2.47	0.44
3:CV:122:TRP:CZ2	3:CV:132:CYS:HB2	2.52	0.44
3:CJ:104:GLN:HA	3:CJ:121:THR:HA	1.98	0.44
2:BK:42:ARG:NH1	2:BK:74:SER:OG	2.51	0.44
2:BO:69:LEU:O	3:CI:79:SER:OG	2.34	0.44
2:BU:43:VAL:HG21	3:CO:107:PHE:CE1	2.52	0.44
3:CP:120:LEU:HD12	3:CP:134:THR:HB	1.97	0.44
2:BZ:33:ASN:HA	3:CT:140:PHE:HE1	1.82	0.44
2:BK:59:LEU:HD13	2:BW:35:ILE:HG13	1.99	0.44
2:BP:76:LEU:HD23	3:CJ:110:SER:HB2	1.99	0.44
2:BO:11:ILE:HD13	2:BR:28:ILE:HD12	2.00	0.44
2:BR:31:TYR:HA	2:BR:34:TYR:HD2	1.82	0.44
3:CK:91:ILE:HG12	3:CK:103:ILE:HG12	1.99	0.44
2:BQ:30:GLN:HE21	2:BT:72:THR:CG2	2.31	0.44
2:BS:10:LEU:HD22	2:BT:12:GLU:HG3	1.98	0.44
3:CM:124:ARG:HB2	3:CM:130:TRP:CE2	2.53	0.44
2:BR:32:GLN:OE1	3:CP:124:ARG:NH1	2.51	0.43
2:BZ:32:GLN:NE2	3:CW:127:GLU:O	2.51	0.43
3:CS:139:LYS:HE3	3:CS:140:PHE:CZ	2.53	0.43
2:BV:27:ALA:HB2	2:BY:74:SER:HB2	2.01	0.43
2:BZ:33:ASN:HA	3:CT:140:PHE:CE1	2.53	0.43
3:CE:134:THR:HG23	3:CE:141:LYS:HE2	2.01	0.43
3:CL:100:SER:HB2	3:CL:124:ARG:O	2.18	0.43
2:BP:69:LEU:HD11	3:CJ:91:ILE:HG13	2.01	0.43
3:CQ:124:ARG:HB2	3:CQ:130:TRP:CE2	2.53	0.43
2:BV:68:GLU:HG2	3:CM:139:LYS:HB2	2.00	0.43
3:CG:112:ALA:HB3	3:CG:115:ILE:HG12	2.00	0.43
3:CW:94:PRO:HD3	3:CW:101:ALA:HB2	2.00	0.43
2:CC:44:MET:O	2:CC:48:GLY:N	2.50	0.43
2:CD:54:ILE:HG13	3:CX:103:ILE:HD11	1.99	0.43
3:CQ:122:TRP:CZ3	3:CQ:132:CYS:HB2	2.53	0.43
3:CX:104:GLN:HG3	3:CX:121:THR:HB	2.00	0.43
2:BS:62:LYS:O	3:CM:93:TYR:OH	2.24	0.43
2:BW:29:PRO:HD2	2:BW:31:TYR:CE2	2.53	0.43
2:BU:35:ILE:HG13	2:BY:59:LEU:HD13	2.00	0.43
2:BK:10:LEU:HD22	2:CA:12:GLU:HG3	2.01	0.43
2:BX:14:MET:SD	2:CD:56:THR:HG22	2.59	0.43
3:CI:89:LEU:HD23	3:CI:105:GLY:HA2	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:CN:101:ALA:O	3:CN:124:ARG:N	2.30	0.43
2:BV:28:ILE:HG22	2:BV:30:GLN:H	1.84	0.43
2:BX:42:ARG:NE	2:BX:46:GLU:OE2	2.42	0.43
3:CO:104:GLN:OE1	3:CO:121:THR:OG1	2.26	0.43
2:CA:41:SER:HA	2:CA:44:MET:CE	2.49	0.42
3:CF:136:VAL:HG22	3:CF:137:GLU:H	1.83	0.42
2:BO:42:ARG:NH1	2:BO:75:ASN:OD1	2.45	0.42
2:BS:42:ARG:HH21	2:BS:76:LEU:HD12	1.84	0.42
3:CS:101:ALA:HB3	3:CS:124:ARG:HB3	2.02	0.42
2:BL:42:ARG:NH1	2:BL:74:SER:OG	2.52	0.42
2:BP:35:ILE:HG21	2:BT:59:LEU:HB3	2.00	0.42
2:BS:46:GLU:O	2:BS:49:SER:OG	2.29	0.42
2:BZ:75:ASN:OD1	2:BZ:76:LEU:N	2.52	0.42
3:CS:112:ALA:HB3	3:CS:115:ILE:HG12	2.02	0.42
2:BP:58:ILE:HD12	3:CF:113:ILE:HD12	2.01	0.42
2:BW:77:LEU:HD23	3:CQ:86:GLN:NE2	2.34	0.42
2:CB:54:ILE:HG13	3:CV:103:ILE:HD11	2.01	0.42
3:CH:84:THR:OG1	3:CH:86:GLN:O	2.38	0.42
3:CR:106:THR:HG23	3:CR:119:THR:HG22	2.02	0.42
3:CG:139:LYS:HE3	3:CG:140:PHE:CZ	2.55	0.42
3:CN:136:VAL:HG12	3:CN:140:PHE:HB2	2.02	0.42
2:CC:51:LYS:HD2	3:CW:122:TRP:CE3	2.54	0.42
2:BN:71:TRP:NE1	3:CH:86:GLN:OE1	2.36	0.42
2:BO:28:ILE:HG13	2:BS:51:LYS:HE3	2.02	0.42
3:CE:100:SER:HB3	3:CE:126:PRO:HD3	2.02	0.42
3:CG:91:ILE:HG13	3:CG:103:ILE:HG23	2.02	0.42
2:BL:35:ILE:HG21	2:BP:59:LEU:HD13	2.02	0.42
2:BW:44:MET:CE	3:CQ:120:LEU:HD11	2.50	0.42
3:CO:115:ILE:HA	3:CO:118:GLN:HG2	2.02	0.42
2:BO:44:MET:HE1	3:CI:142:PRO:HG3	2.01	0.41
3:CM:101:ALA:O	3:CM:124:ARG:N	2.33	0.41
2:BU:77:LEU:HD12	3:CO:108:GLY:HA3	2.01	0.41
2:BV:56:THR:O	2:BV:60:ASP:N	2.53	0.41
3:CK:95:ALA:N	3:CK:99:GLU:OE2	2.35	0.41
2:BZ:12:GLU:O	2:BZ:15:ILE:HG22	2.20	0.41
2:BZ:44:MET:HE2	3:CT:145:CYS:SG	2.60	0.41
2:CA:15:ILE:HG23	2:CD:35:ILE:HD11	2.03	0.41
3:CW:124:ARG:HB2	3:CW:130:TRP:CE3	2.55	0.41
3:CF:124:ARG:HB2	3:CF:130:TRP:CZ3	2.55	0.41
3:CG:122:TRP:CZ3	3:CG:130:TRP:HB3	2.55	0.41
3:CK:104:GLN:HA	3:CK:121:THR:HA	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:CN:125:THR:OG1	3:CN:127:GLU:HG2	2.21	0.41
3:CW:124:ARG:HB2	3:CW:130:TRP:CD2	2.55	0.41
2:BQ:14:MET:HA	2:BQ:17:VAL:HB	2.03	0.41
2:BR:43:VAL:HG21	3:CL:107:PHE:CE1	2.56	0.41
2:BZ:26:ILE:HA	2:CB:42:ARG:HD2	2.02	0.41
3:CP:104:GLN:HA	3:CP:121:THR:HA	2.03	0.41
2:BP:69:LEU:N	3:CJ:79:SER:O	2.41	0.40
2:BT:77:LEU:HD11	3:CN:109:ASN:HB2	2.01	0.40
2:BZ:44:MET:SD	3:CT:120:LEU:HD21	2.61	0.40
2:CB:42:ARG:NH1	2:CB:75:ASN:OD1	2.40	0.40
3:CF:115:ILE:HA	3:CF:118:GLN:HG2	2.02	0.40
3:CL:124:ARG:HB2	3:CL:130:TRP:CE3	2.56	0.40
3:CM:90:THR:N	3:CM:104:GLN:O	2.47	0.40
3:CQ:134:THR:HG23	3:CQ:141:LYS:HE2	2.02	0.40
3:CF:115:ILE:HG21	3:CF:140:PHE:CE2	2.56	0.40
2:BN:46:GLU:HB3	2:BN:71:TRP:HH2	1.86	0.40
2:CC:51:LYS:HG2	3:CW:130:TRP:CE3	2.56	0.40
2:CD:41:SER:HA	2:CD:44:MET:HE2	2.03	0.40
2:BO:40:VAL:HG22	3:CI:107:PHE:CZ	2.57	0.40
2:BW:33:ASN:HA	3:CQ:140:PHE:CE1	2.56	0.40
2:BZ:69:LEU:HD11	3:CT:81:ALA:HA	2.03	0.40
2:CC:11:ILE:H	2:CC:11:ILE:HD12	1.87	0.40
2:CC:32:GLN:HG2	3:CW:114:LYS:NZ	2.36	0.40
3:CH:108:GLY:HA2	3:CH:116:LYS:HD2	2.03	0.40
3:CP:124:ARG:HB2	3:CP:130:TRP:CE2	2.56	0.40
3:CU:124:ARG:HB2	3:CU:130:TRP:CE2	2.57	0.40
2:BX:76:LEU:H	3:CR:110:SER:HB2	1.87	0.40
3:CM:124:ARG:HB2	3:CM:130:TRP:CD2	2.56	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	532/534 (100%)	472 (89%)	57 (11%)	3 (1%)	25	66
2	BK	68/70 (97%)	67 (98%)	1 (2%)	0	100	100
2	BL	68/70 (97%)	66 (97%)	2 (3%)	0	100	100
2	BM	68/70 (97%)	67 (98%)	1 (2%)	0	100	100
2	BN	68/70 (97%)	66 (97%)	2 (3%)	0	100	100
2	BO	68/70 (97%)	67 (98%)	1 (2%)	0	100	100
2	BP	68/70 (97%)	66 (97%)	2 (3%)	0	100	100
2	BQ	68/70 (97%)	67 (98%)	1 (2%)	0	100	100
2	BR	68/70 (97%)	67 (98%)	1 (2%)	0	100	100
2	BS	68/70 (97%)	67 (98%)	1 (2%)	0	100	100
2	BT	68/70 (97%)	66 (97%)	2 (3%)	0	100	100
2	BU	68/70 (97%)	67 (98%)	1 (2%)	0	100	100
2	BV	68/70 (97%)	66 (97%)	2 (3%)	0	100	100
2	BW	68/70 (97%)	67 (98%)	1 (2%)	0	100	100
2	BX	68/70 (97%)	65 (96%)	3 (4%)	0	100	100
2	BY	68/70 (97%)	67 (98%)	1 (2%)	0	100	100
2	BZ	68/70 (97%)	67 (98%)	1 (2%)	0	100	100
2	CA	68/70 (97%)	67 (98%)	1 (2%)	0	100	100
2	CB	68/70 (97%)	66 (97%)	2 (3%)	0	100	100
2	CC	68/70 (97%)	67 (98%)	1 (2%)	0	100	100
2	CD	68/70 (97%)	66 (97%)	2 (3%)	0	100	100
3	CE	67/69 (97%)	64 (96%)	3 (4%)	0	100	100
3	CF	67/69 (97%)	66 (98%)	1 (2%)	0	100	100
3	CG	67/69 (97%)	65 (97%)	2 (3%)	0	100	100
3	CH	67/69 (97%)	66 (98%)	1 (2%)	0	100	100
3	CI	67/69 (97%)	65 (97%)	2 (3%)	0	100	100
3	CJ	67/69 (97%)	65 (97%)	2 (3%)	0	100	100
3	CK	67/69 (97%)	65 (97%)	2 (3%)	0	100	100
3	CL	67/69 (97%)	65 (97%)	2 (3%)	0	100	100
3	CM	67/69 (97%)	66 (98%)	1 (2%)	0	100	100
3	CN	67/69 (97%)	65 (97%)	2 (3%)	0	100	100
3	CO	67/69 (97%)	65 (97%)	2 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	CP	67/69 (97%)	63 (94%)	4 (6%)	0	100	100
3	CQ	67/69 (97%)	64 (96%)	3 (4%)	0	100	100
3	CR	67/69 (97%)	65 (97%)	2 (3%)	0	100	100
3	CS	67/69 (97%)	66 (98%)	1 (2%)	0	100	100
3	CT	67/69 (97%)	64 (96%)	3 (4%)	0	100	100
3	CU	67/69 (97%)	65 (97%)	2 (3%)	0	100	100
3	CV	67/69 (97%)	64 (96%)	3 (4%)	0	100	100
3	CW	67/69 (97%)	63 (94%)	4 (6%)	0	100	100
3	CX	67/69 (97%)	65 (97%)	2 (3%)	0	100	100
All	All	3232/3314 (98%)	3099 (96%)	130 (4%)	3 (0%)	54	86

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	b	413	PRO
1	b	148	ILE
1	b	141	THR

### 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	b	466/466 (100%)	464 (100%)	2 (0%)	91	94
2	BK	58/58 (100%)	58 (100%)	0	100	100
2	BL	58/58 (100%)	58 (100%)	0	100	100
2	BM	58/58 (100%)	58 (100%)	0	100	100
2	BN	58/58 (100%)	58 (100%)	0	100	100
2	BO	58/58 (100%)	58 (100%)	0	100	100
2	BP	58/58 (100%)	58 (100%)	0	100	100
2	BQ	58/58 (100%)	58 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	BR	58/58 (100%)	58 (100%)	0	100	100
2	BS	58/58 (100%)	57 (98%)	1 (2%)	60	78
2	BT	58/58 (100%)	58 (100%)	0	100	100
2	BU	58/58 (100%)	58 (100%)	0	100	100
2	BV	58/58 (100%)	58 (100%)	0	100	100
2	BW	58/58 (100%)	58 (100%)	0	100	100
2	BX	58/58 (100%)	58 (100%)	0	100	100
2	BY	58/58 (100%)	58 (100%)	0	100	100
2	BZ	58/58 (100%)	58 (100%)	0	100	100
2	CA	58/58 (100%)	58 (100%)	0	100	100
2	CB	58/58 (100%)	58 (100%)	0	100	100
2	CC	58/58 (100%)	58 (100%)	0	100	100
2	CD	58/58 (100%)	58 (100%)	0	100	100
3	CE	50/50 (100%)	50 (100%)	0	100	100
3	CF	50/50 (100%)	50 (100%)	0	100	100
3	CG	50/50 (100%)	50 (100%)	0	100	100
3	CH	50/50 (100%)	50 (100%)	0	100	100
3	CI	50/50 (100%)	50 (100%)	0	100	100
3	CJ	50/50 (100%)	50 (100%)	0	100	100
3	CK	50/50 (100%)	50 (100%)	0	100	100
3	CL	50/50 (100%)	50 (100%)	0	100	100
3	CM	50/50 (100%)	50 (100%)	0	100	100
3	CN	50/50 (100%)	50 (100%)	0	100	100
3	CO	50/50 (100%)	50 (100%)	0	100	100
3	CP	50/50 (100%)	50 (100%)	0	100	100
3	CQ	50/50 (100%)	50 (100%)	0	100	100
3	CR	50/50 (100%)	50 (100%)	0	100	100
3	CS	50/50 (100%)	50 (100%)	0	100	100
3	CT	50/50 (100%)	50 (100%)	0	100	100
3	CU	50/50 (100%)	50 (100%)	0	100	100
3	CV	50/50 (100%)	50 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
3	CW	50/50 (100%)	50 (100%)	0	100	100
3	CX	50/50 (100%)	50 (100%)	0	100	100
All	All	2626/2626 (100%)	2623 (100%)	3 (0%)	93	97

All (3) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	b	126	LYS
1	b	269	LYS
2	BS	14	MET

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	b	220	GLN
2	BQ	30	GLN
2	BY	66	ASN

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

## 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

There are no ligands in this entry.

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues

There are no chain breaks in this entry.

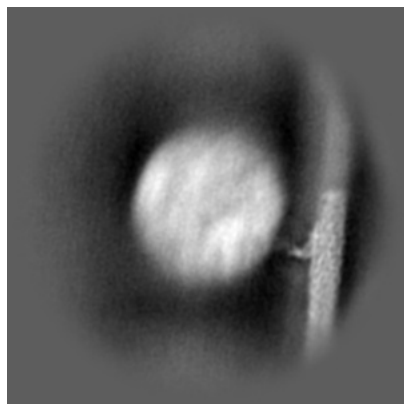
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-41635. These allow visual inspection of the internal detail of the map and identification of artifacts.

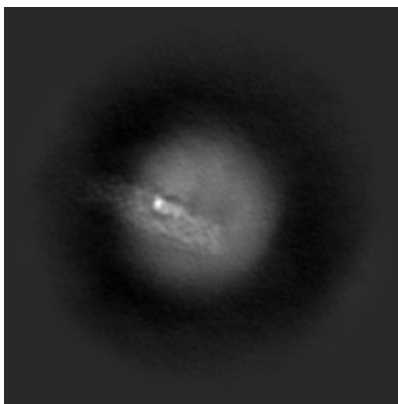
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

### 6.1 Orthogonal projections [i](#)

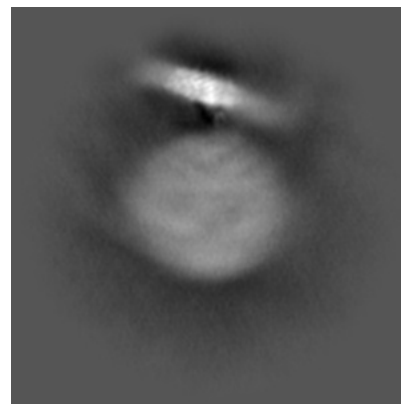
#### 6.1.1 Primary map



X

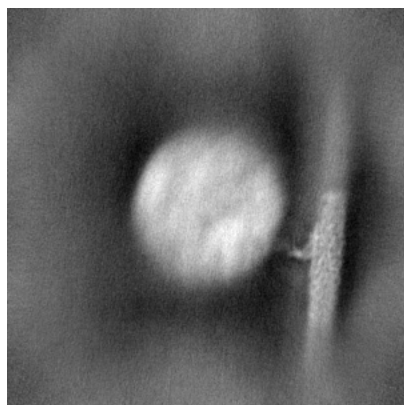


Y

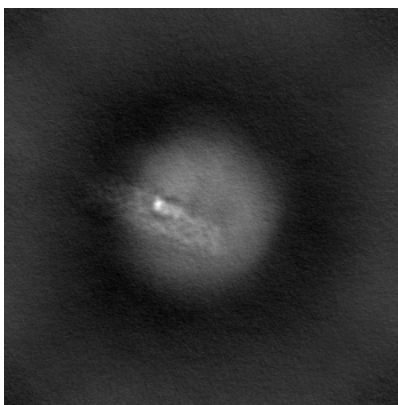


Z

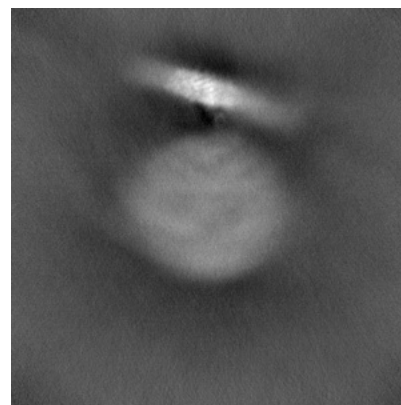
#### 6.1.2 Raw map



X



Y



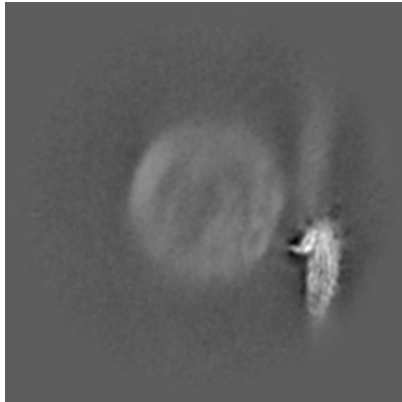
Z

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

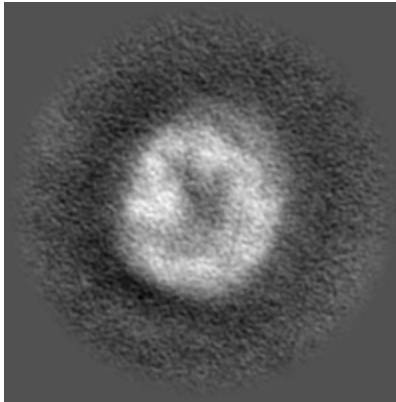


## 6.2 Central slices [i](#)

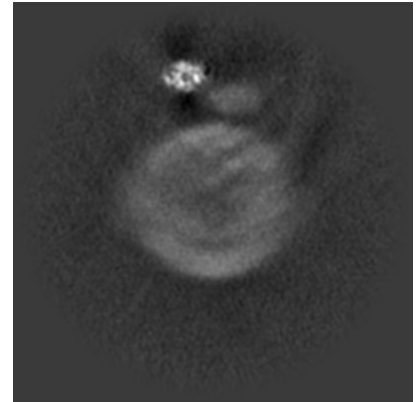
### 6.2.1 Primary map



X Index: 175



Y Index: 175

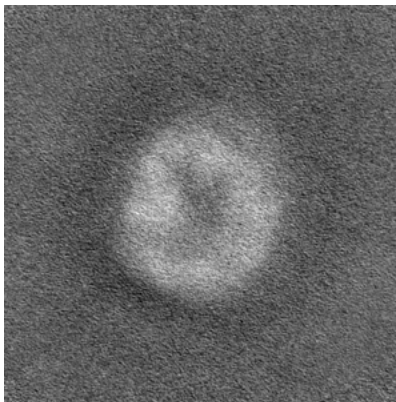


Z Index: 175

### 6.2.2 Raw map



X Index: 175



Y Index: 175

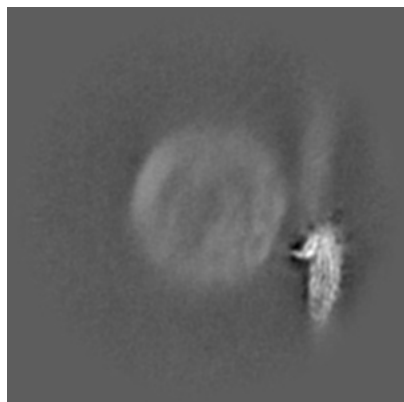


Z Index: 175

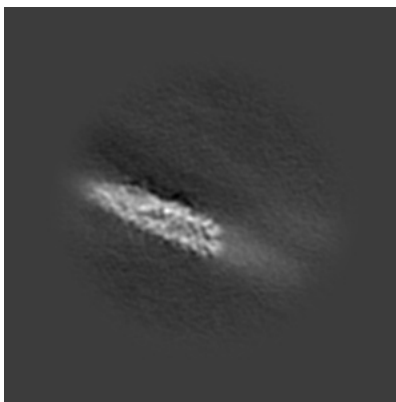
The images above show central slices of the map in three orthogonal directions.

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

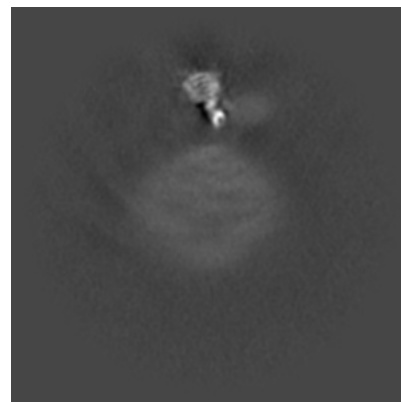
### 6.3.1 Primary map



X Index: 175



Y Index: 283

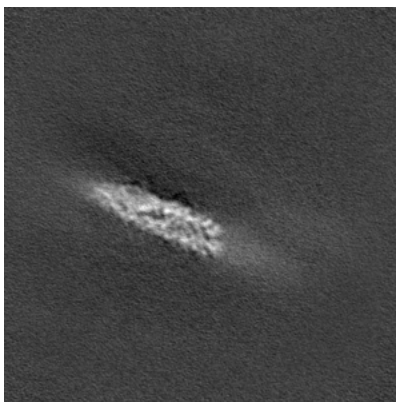


Z Index: 135

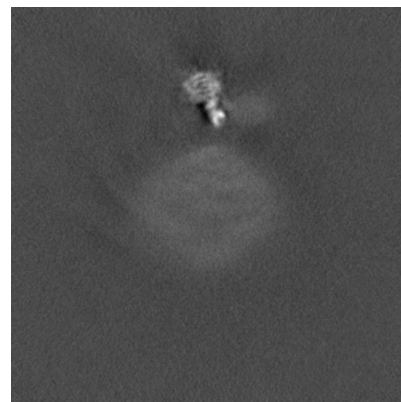
### 6.3.2 Raw map



X Index: 174



Y Index: 283

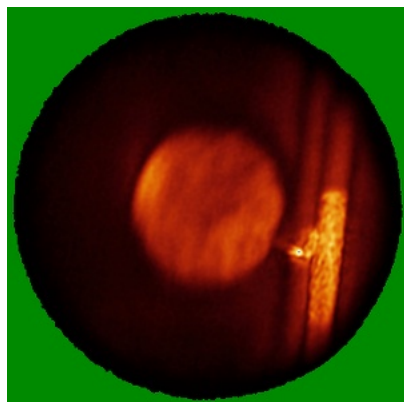


Z Index: 134

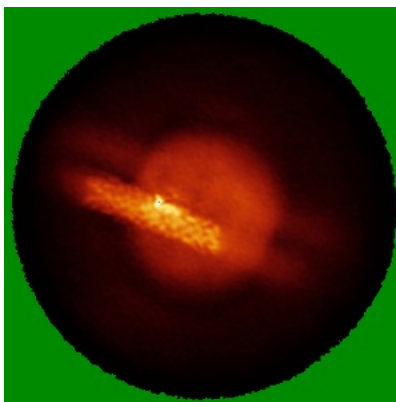
The images above show the largest variance slices of the map in three orthogonal directions.

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

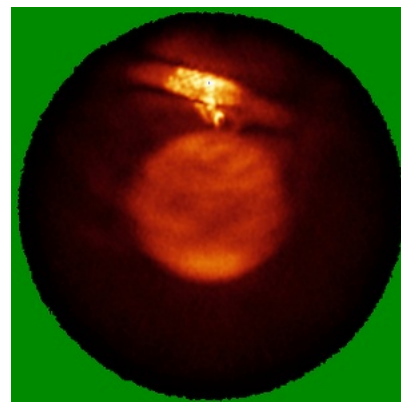
### 6.4.1 Primary map



X

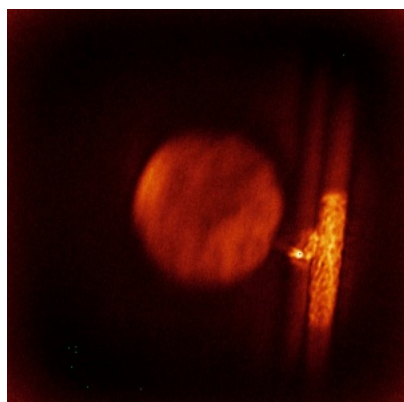


Y

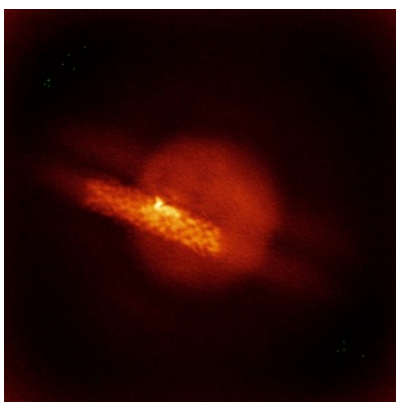


Z

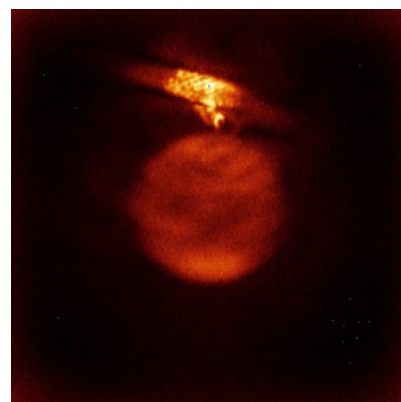
### 6.4.2 Raw map



X



Y

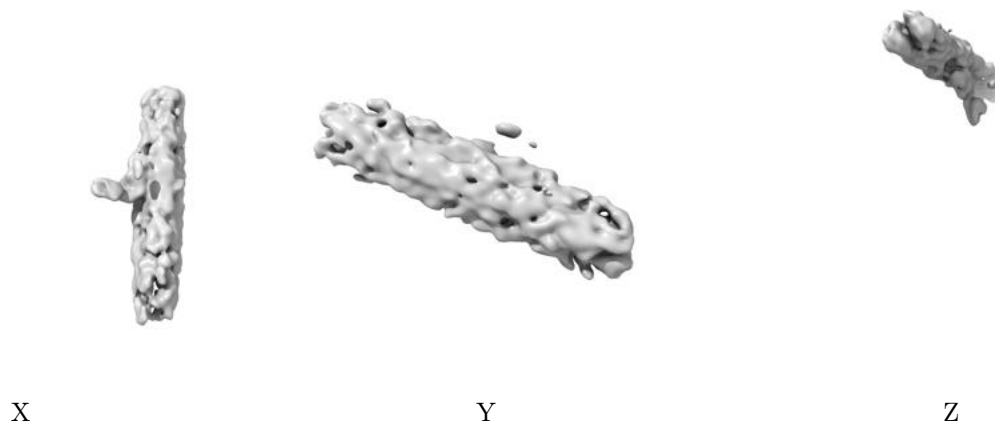


Z

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.

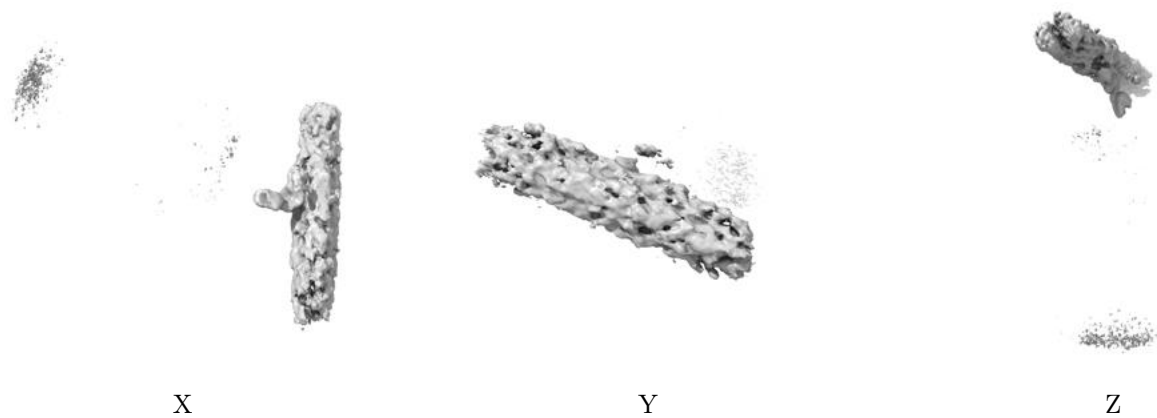
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 1.29. 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.

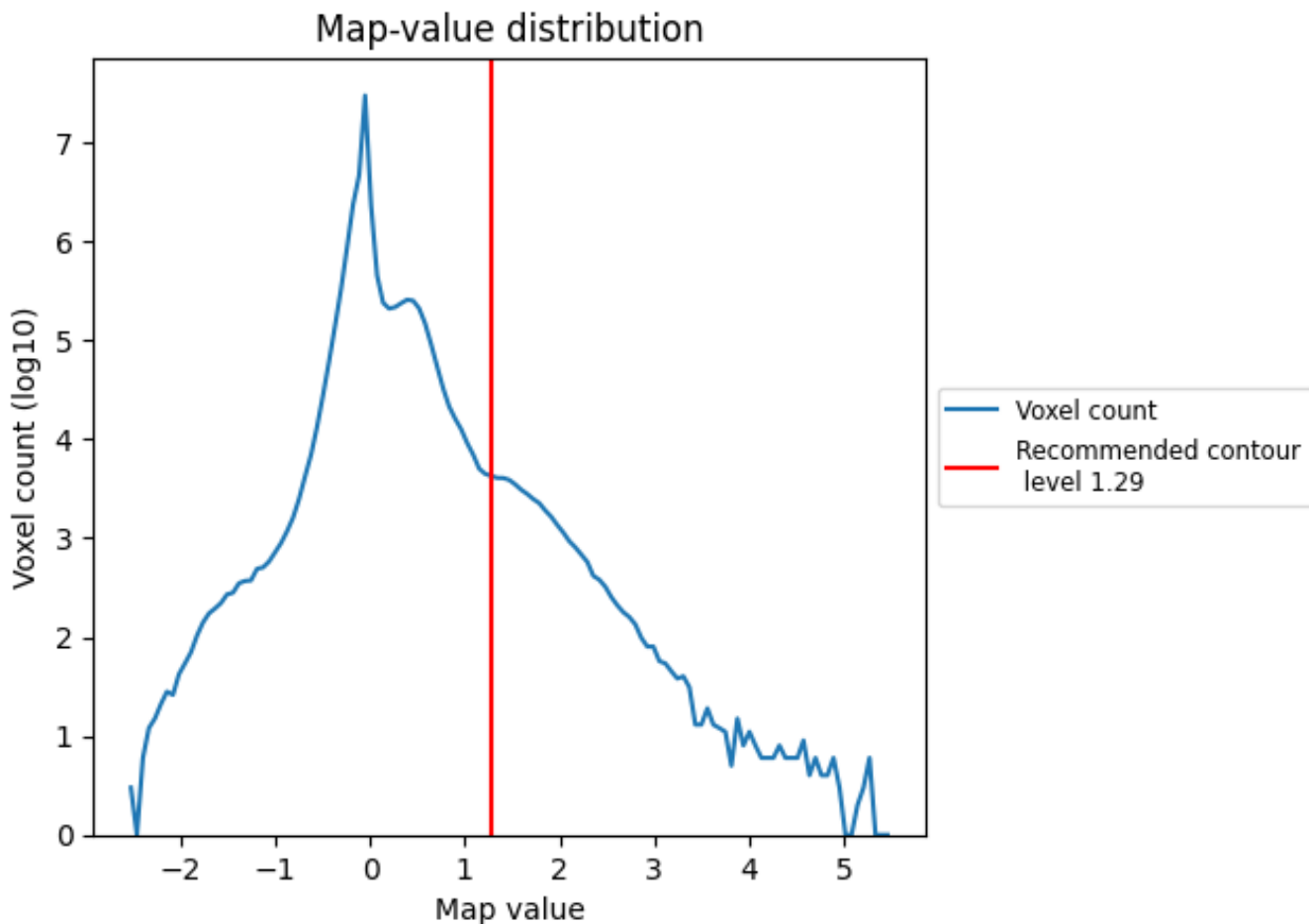
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

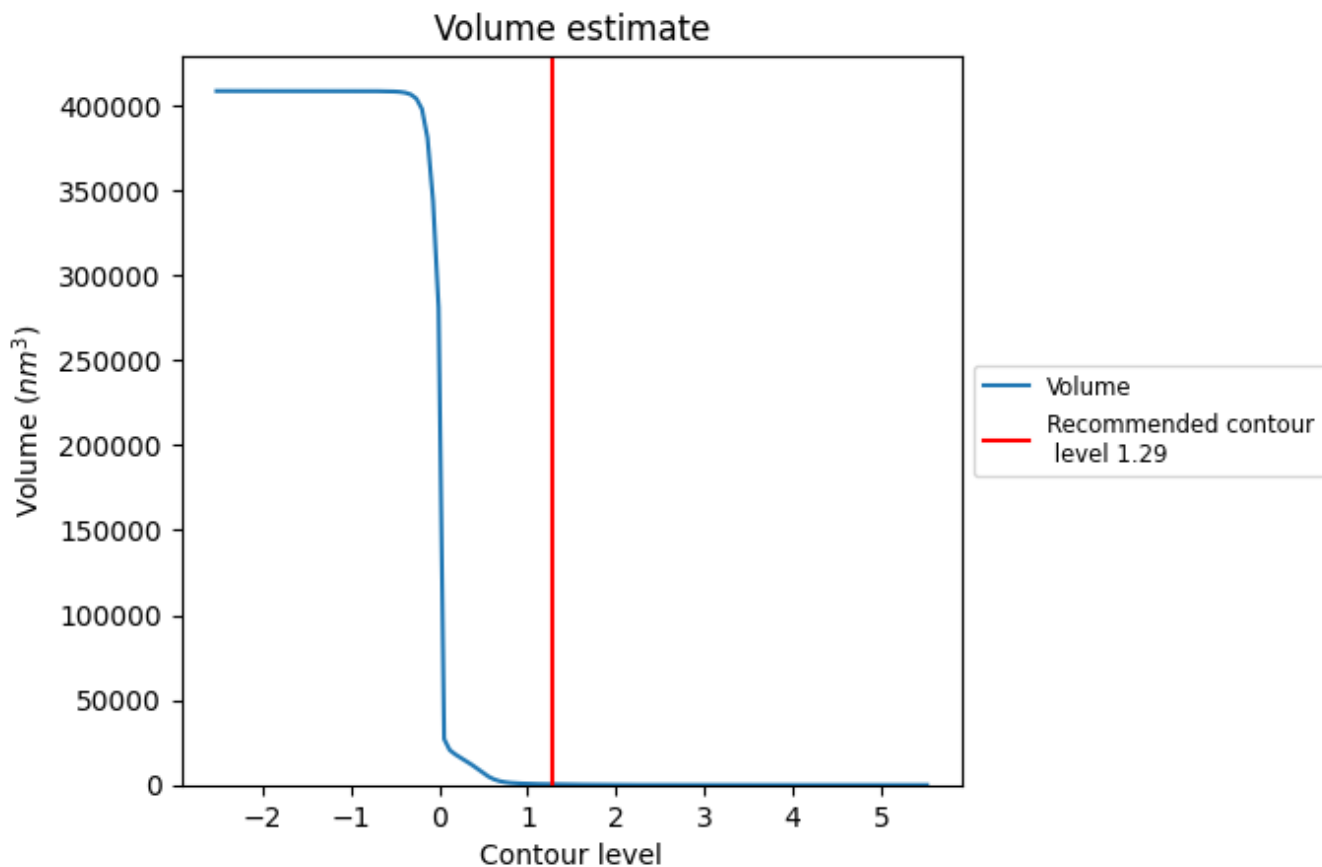
This section contains the results of statistical analysis of the map.

### 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.

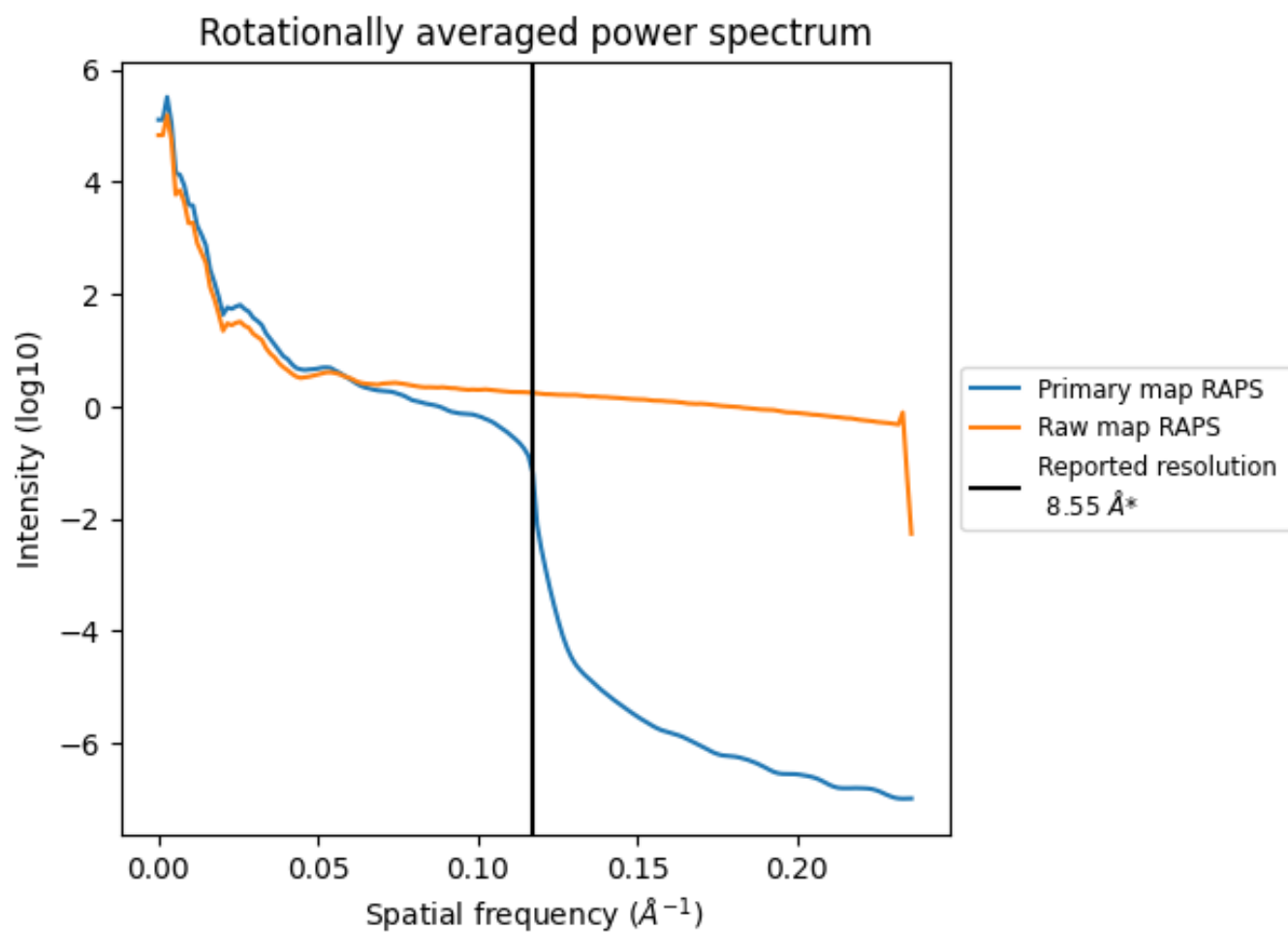
## 7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 394 nm<sup>3</sup>; this corresponds to an approximate mass of 356 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](#)

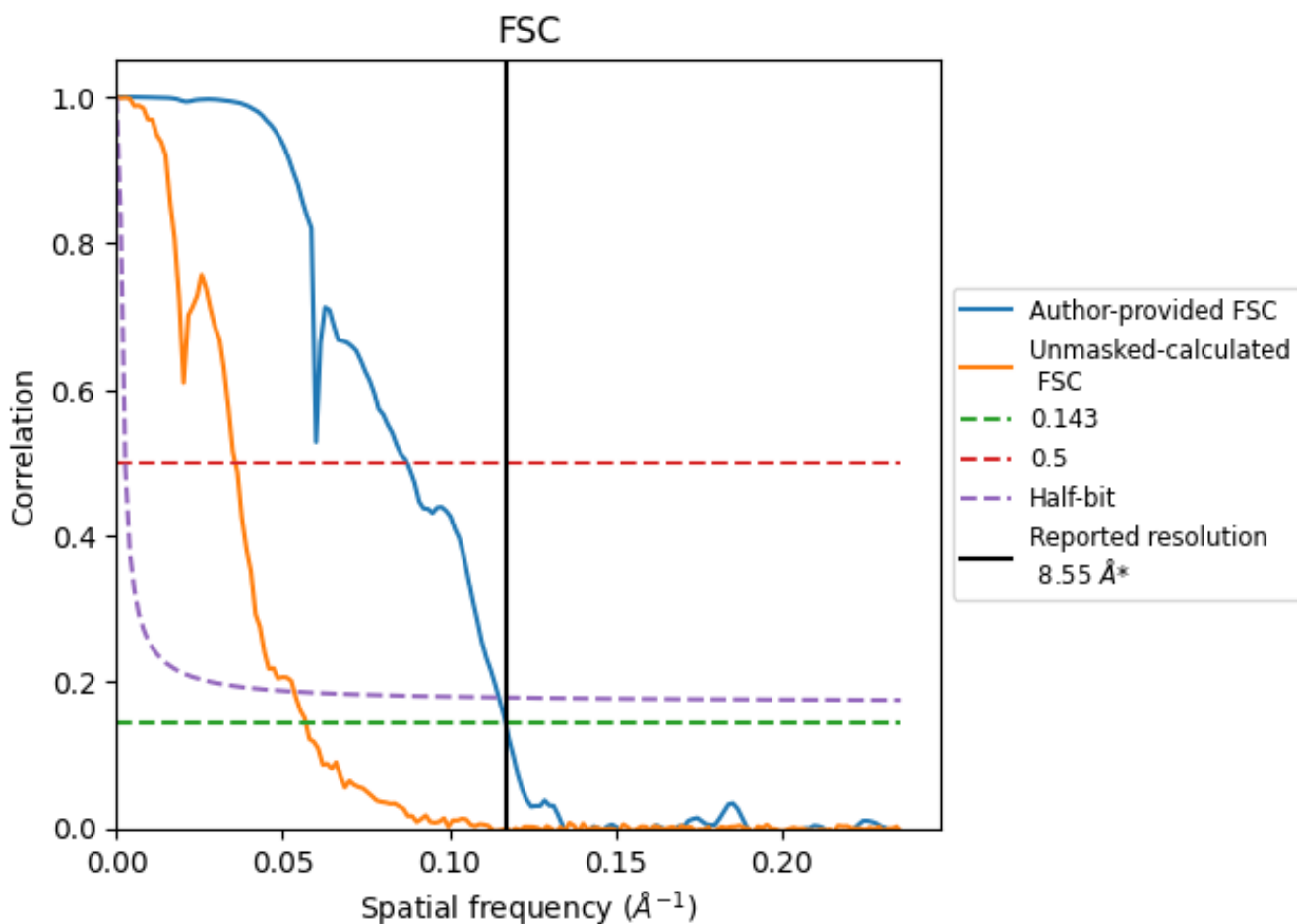


\*Reported resolution corresponds to spatial frequency of 0.117 Å<sup>-1</sup>

## 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 0.117 Å<sup>-1</sup>



## 8.2 Resolution estimates [i](#)

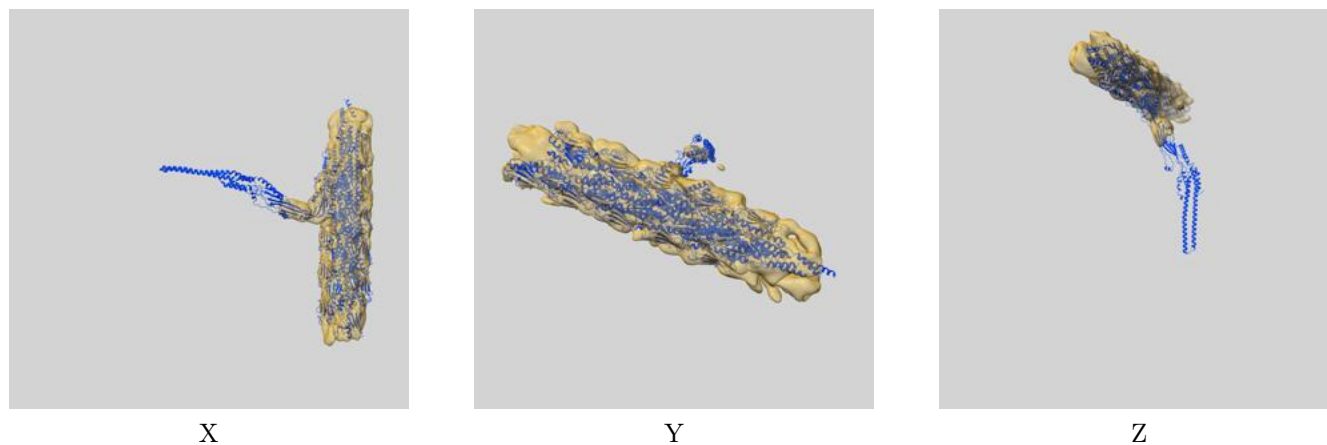
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	8.55	-	-
Author-provided FSC curve	8.55	11.45	8.70
Unmasked-calculated*	17.57	27.93	18.69

\*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 17.57 differs from the reported value 8.55 by more than 10 %

## 9 Map-model fit [i](#)

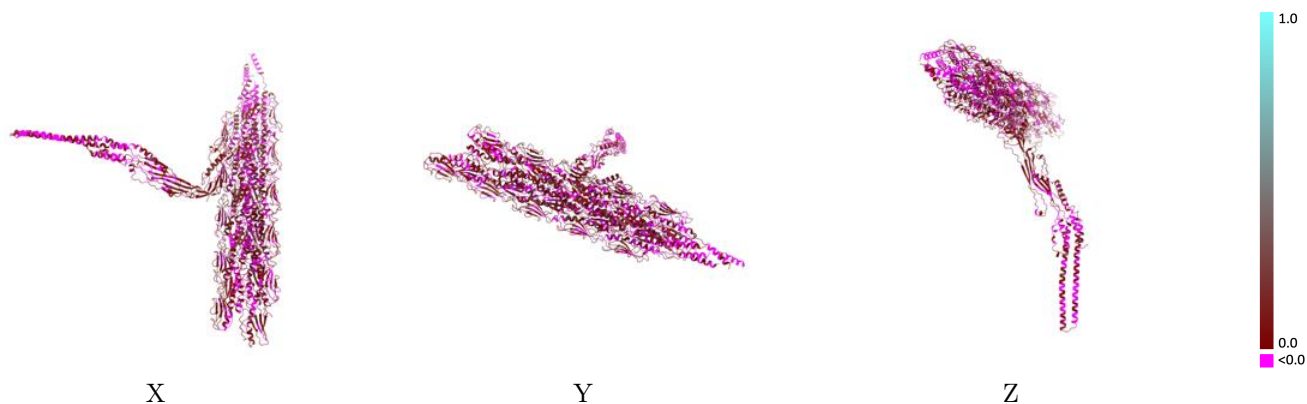
This section contains information regarding the fit between EMDB map EMD-41635 and PDB model 8TVA. Per-residue inclusion information can be found in section 3 on page 8.

### 9.1 Map-model overlay [i](#)



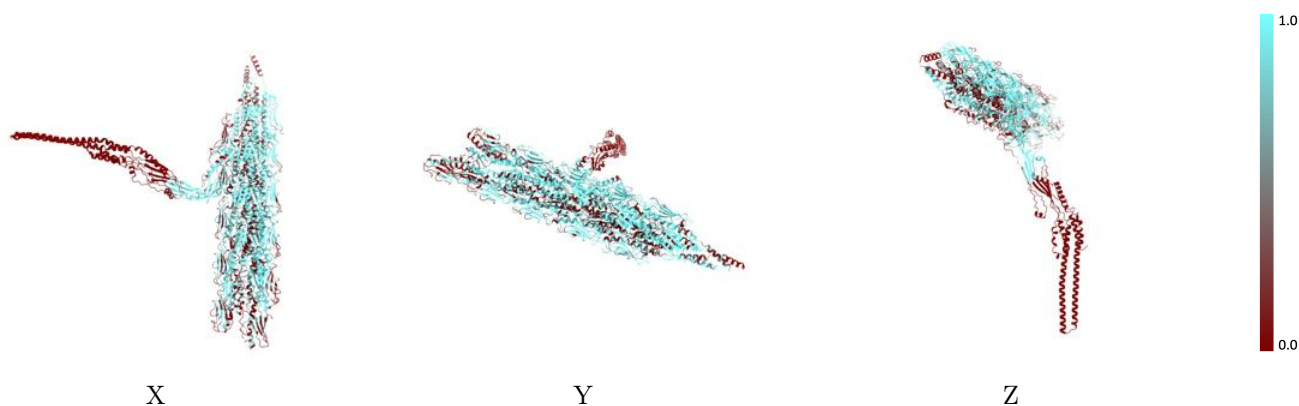
The images above show the 3D surface view of the map at the recommended contour level 1.29 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



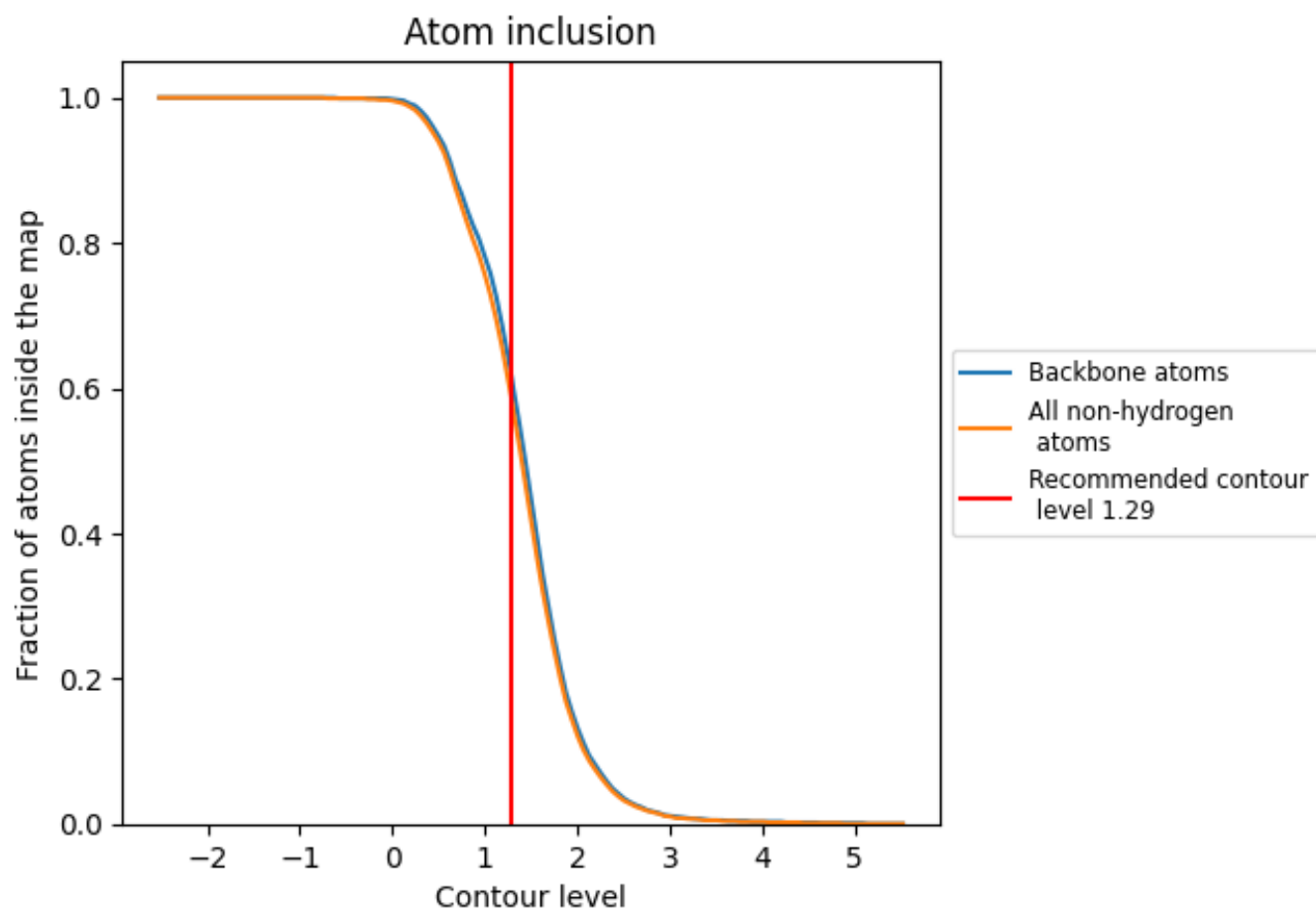
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (1.29).

## 9.4 Atom inclusion [i](#)



At the recommended contour level, 62% 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 (1.29) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.5840	0.0540
BK	0.6990	0.0050
BL	0.4580	0.0460
BM	0.4430	0.0610
BN	0.4930	0.0130
BO	0.7920	0.0770
BP	0.5260	0.0460
BQ	0.6410	0.0890
BR	0.6950	0.0480
BS	0.7860	0.0650
BT	0.5460	0.0650
BU	0.6230	0.0840
BV	0.7150	0.0320
BW	0.7630	0.0550
BX	0.6820	0.0640
BY	0.3510	0.0160
BZ	0.7960	0.0130
CA	0.5550	-0.0080
CB	0.8210	0.0940
CC	0.7070	0.0140
CD	0.6780	-0.0090
CE	0.8020	0.0520
CF	0.4380	0.0860
CG	0.2780	0.0210
CH	0.5700	0.0420
CI	0.4490	0.0240
CJ	0.7280	0.0910
CK	0.5180	0.0630
CL	0.6910	0.0780
CM	0.6400	0.0700
CN	0.7630	0.0780
CO	0.4830	0.0830
CP	0.9380	0.1050
CQ	0.7920	0.0690
CR	0.8580	0.0680



*Continued on next page...*

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Chain	Atom inclusion	Q-score
CS	 0.4550	 0.0940
CT	 0.8850	 0.0530
CU	 0.7940	 0.0960
CV	 0.2530	 0.0640
CW	 0.7840	 0.0710
CX	 0.9050	 0.0760
b	 0.2910	 0.0430