



## Full wwPDB EM Validation Report ⓘ

May 19, 2024 – 11:46 AM EDT

PDB ID : 7MUE  
EMDB ID : EMD-24006  
Title : Legionella pneumophila Dot/Icm T4SS PR  
Authors : Sheedlo, M.J.; Durie, C.L.; Swanson, M.; Lacy, D.B.; Ohi, M.D.  
Deposited on : 2021-05-14  
Resolution : 2.80 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) : 2.36.2

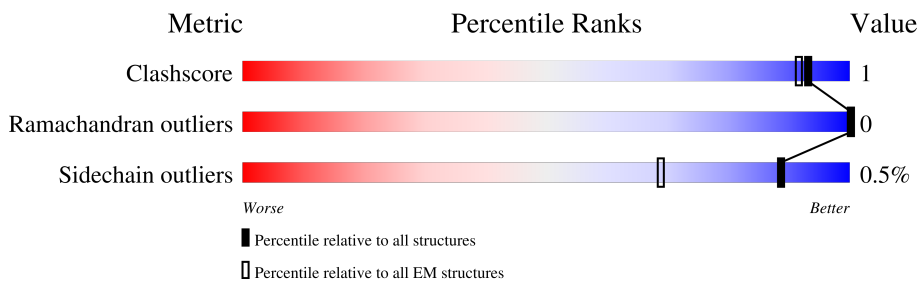
# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 2.80 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.





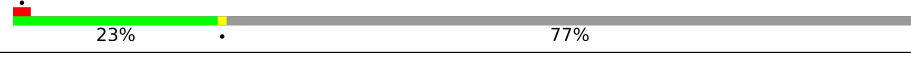

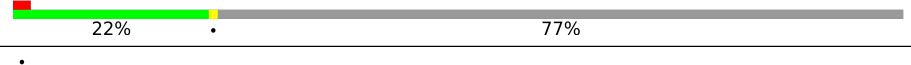

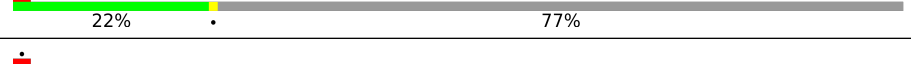


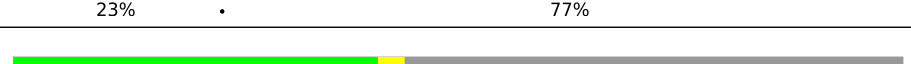


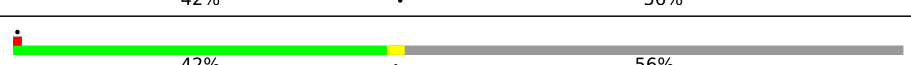
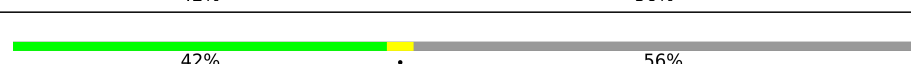
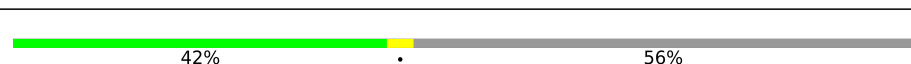










Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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	AF	269	
1	BF	269	
1	CF	269	
1	DF	269	
1	EF	269	
1	FF	269	
1	GF	269	
1	HF	269	








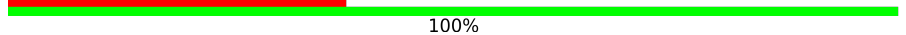
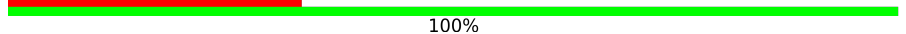
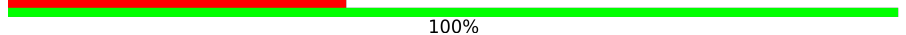
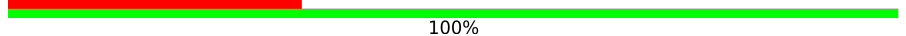
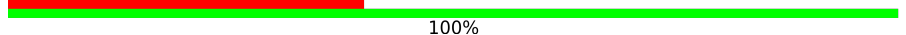

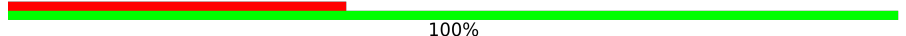
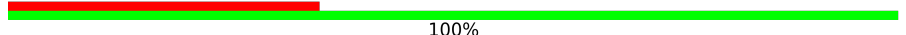
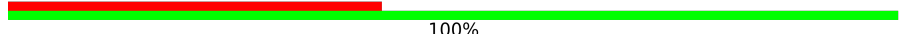
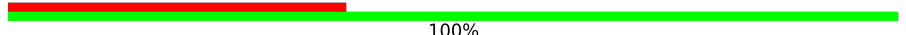
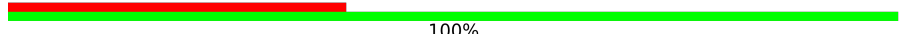
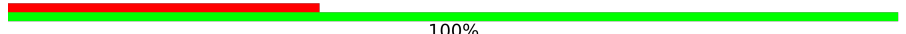
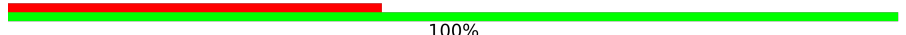
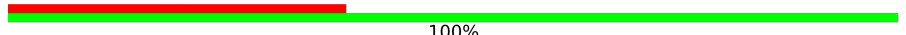
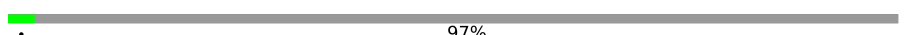
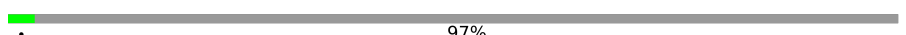
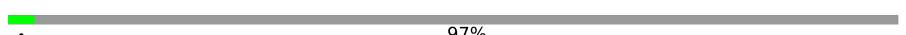
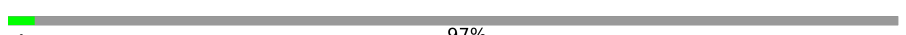
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Mol	Chain	Length	Quality of chain
1	IF	269	 22% 77%
1	JF	269	 22% 77%
1	KF	269	 23% 77%
1	LF	269	 22% 77%
1	MF	269	 22% 77%
1	VF	269	 23% 77%
1	WF	269	 22% 77%
1	XF	269	 21% 77%
1	YF	269	 22% 77%
1	ZF	269	 23% 77%
2	AH	361	 41% 56%
2	BH	361	 42% 56%
2	CH	361	 42% 56%
2	DH	361	 42% 56%
2	EH	361	 42% 56%
2	FH	361	 42% 56%
2	GH	361	 43% 56%
2	HH	361	 42% 56%
2	IH	361	 42% 56%
2	JH	361	 43% 56%
2	KH	361	 43% 56%
2	LH	361	 42% 56%
2	MH	361	 42% 56%
2	VH	361	 43% 56%
2	WH	361	 42% 56%

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Mol	Chain	Length	Quality of chain
2	XH	361	 43% 56%
2	YH	361	 42% 56%
2	ZH	361	 42% 56%
3	AX	48	 35% 100%
3	BX	48	 35% 100%
3	CX	48	 38% 100%
3	DX	48	 38% 100%
3	EX	48	 38% 100%
3	FX	48	 33% 100%
3	GX	48	 38% 100%
3	HX	48	 33% 100%
3	IX	48	 40% 100%
3	JX	48	 35% 100%
3	KX	48	 38% 100%
3	LX	48	 35% 100%
3	MX	48	 42% 100%
3	VX	48	 38% 100%
3	WX	48	 38% 100%
3	XX	48	 35% 100%
3	YX	48	 42% 100%
3	ZX	48	 38% 100%
4	AG	1048	 97%
4	BG	1048	 97%
4	CG	1048	 97%
4	DG	1048	 97%

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Mol	Chain	Length	Quality of chain
4	EG	1048	97%
4	FG	1048	97%
4	GG	1048	97%
4	HG	1048	97%
4	IG	1048	97%
4	JG	1048	97%
4	KG	1048	97%
4	LG	1048	97%
4	MG	1048	97%
4	VG	1048	97%
4	WG	1048	97%
4	XG	1048	97%
4	YG	1048	97%
4	ZG	1048	97%

## 2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 40266 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 DotF.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	AF	63	483	308	84	90	1	0	0
1	BF	63	483	308	84	90	1	0	0
1	CF	63	483	308	84	90	1	0	0
1	DF	63	483	308	84	90	1	0	0
1	EF	63	483	308	84	90	1	0	0
1	FF	63	483	308	84	90	1	0	0
1	GF	63	483	308	84	90	1	0	0
1	HF	63	483	308	84	90	1	0	0
1	IF	63	483	308	84	90	1	0	0
1	JF	63	483	308	84	90	1	0	0
1	KF	63	483	308	84	90	1	0	0
1	LF	63	483	308	84	90	1	0	0
1	MF	63	483	308	84	90	1	0	0
1	VF	63	483	308	84	90	1	0	0
1	WF	63	483	308	84	90	1	0	0
1	XF	63	483	308	84	90	1	0	0
1	YF	63	483	308	84	90	1	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
1	ZF	63	Total	C	N	O	S	0	0
			483	308	84	90	1		

- Molecule 2 is a protein called Type IV secretion protein IcmK.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	XH	160	Total	C	N	O	S	0	0
			1238	795	207	233	3		
2	YH	160	Total	C	N	O	S	0	0
			1238	795	207	233	3		
2	ZH	160	Total	C	N	O	S	0	0
			1238	795	207	233	3		
2	AH	160	Total	C	N	O	S	0	0
			1238	795	207	233	3		
2	BH	160	Total	C	N	O	S	0	0
			1238	795	207	233	3		
2	CH	160	Total	C	N	O	S	0	0
			1238	795	207	233	3		
2	DH	160	Total	C	N	O	S	0	0
			1238	795	207	233	3		
2	EH	160	Total	C	N	O	S	0	0
			1238	795	207	233	3		
2	FH	160	Total	C	N	O	S	0	0
			1238	795	207	233	3		
2	GH	160	Total	C	N	O	S	0	0
			1238	795	207	233	3		
2	HH	160	Total	C	N	O	S	0	0
			1238	795	207	233	3		
2	IH	160	Total	C	N	O	S	0	0
			1238	795	207	233	3		
2	JH	160	Total	C	N	O	S	0	0
			1238	795	207	233	3		
2	KH	160	Total	C	N	O	S	0	0
			1238	795	207	233	3		
2	LH	160	Total	C	N	O	S	0	0
			1238	795	207	233	3		
2	MH	160	Total	C	N	O	S	0	0
			1238	795	207	233	3		
2	VH	160	Total	C	N	O	S	0	0
			1238	795	207	233	3		
2	WH	160	Total	C	N	O	S	0	0
			1238	795	207	233	3		

- Molecule 3 is a protein called Unknown protein fragment.

Mol	Chain	Residues	Atoms				AltConf	Trace
3	AX	48	Total	C	N	O	0	0
			240	144	48	48		
3	BX	48	Total	C	N	O	0	0
			240	144	48	48		
3	CX	48	Total	C	N	O	0	0
			240	144	48	48		
3	DX	48	Total	C	N	O	0	0
			240	144	48	48		
3	EX	48	Total	C	N	O	0	0
			240	144	48	48		
3	FX	48	Total	C	N	O	0	0
			240	144	48	48		
3	GX	48	Total	C	N	O	0	0
			240	144	48	48		
3	HX	48	Total	C	N	O	0	0
			240	144	48	48		
3	IX	48	Total	C	N	O	0	0
			240	144	48	48		
3	JX	48	Total	C	N	O	0	0
			240	144	48	48		
3	KX	48	Total	C	N	O	0	0
			240	144	48	48		
3	LX	48	Total	C	N	O	0	0
			240	144	48	48		
3	MX	48	Total	C	N	O	0	0
			240	144	48	48		
3	VX	48	Total	C	N	O	0	0
			240	144	48	48		
3	WX	48	Total	C	N	O	0	0
			240	144	48	48		
3	XX	48	Total	C	N	O	0	0
			240	144	48	48		
3	YX	48	Total	C	N	O	0	0
			240	144	48	48		
3	ZX	48	Total	C	N	O	0	0
			240	144	48	48		

- Molecule 4 is a protein called IcmE protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	IG	34	Total	C	N	O	S	0	0
			276	168	47	60	1		

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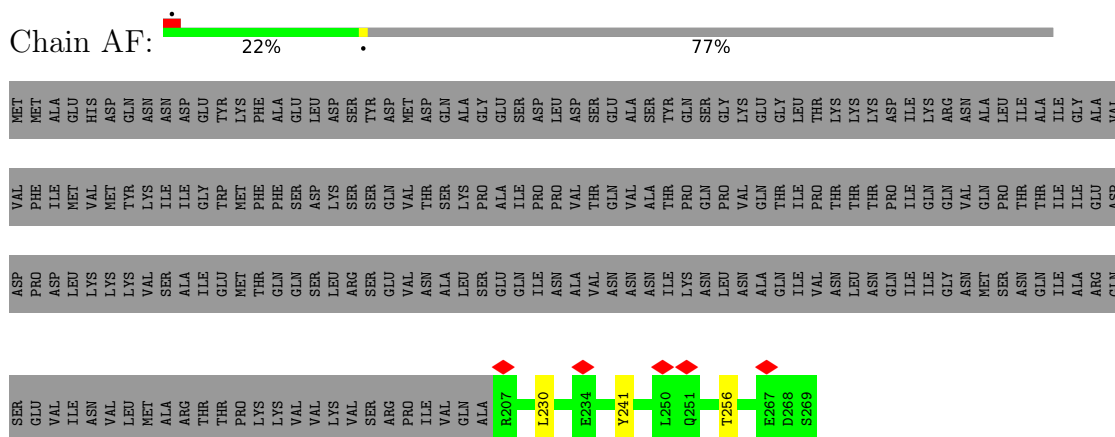
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Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	AG	34	Total 276	C 168	N 47	O 60	S 1	0	0
4	BG	34	Total 276	C 168	N 47	O 60	S 1	0	0
4	CG	34	Total 276	C 168	N 47	O 60	S 1	0	0
4	DG	34	Total 276	C 168	N 47	O 60	S 1	0	0
4	EG	34	Total 276	C 168	N 47	O 60	S 1	0	0
4	FG	34	Total 276	C 168	N 47	O 60	S 1	0	0
4	GG	34	Total 276	C 168	N 47	O 60	S 1	0	0
4	HG	34	Total 276	C 168	N 47	O 60	S 1	0	0
4	JG	34	Total 276	C 168	N 47	O 60	S 1	0	0
4	KG	34	Total 276	C 168	N 47	O 60	S 1	0	0
4	LG	34	Total 276	C 168	N 47	O 60	S 1	0	0
4	MG	34	Total 276	C 168	N 47	O 60	S 1	0	0
4	VG	34	Total 276	C 168	N 47	O 60	S 1	0	0
4	WG	34	Total 276	C 168	N 47	O 60	S 1	0	0
4	XG	34	Total 276	C 168	N 47	O 60	S 1	0	0
4	YG	34	Total 276	C 168	N 47	O 60	S 1	0	0
4	ZG	34	Total 276	C 168	N 47	O 60	S 1	0	0

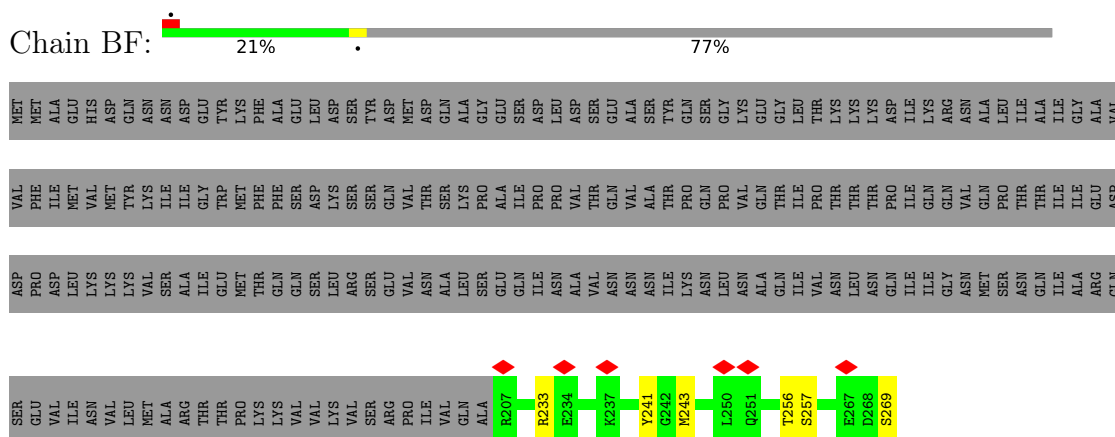
### 3 Residue-property plots [i](#)

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.

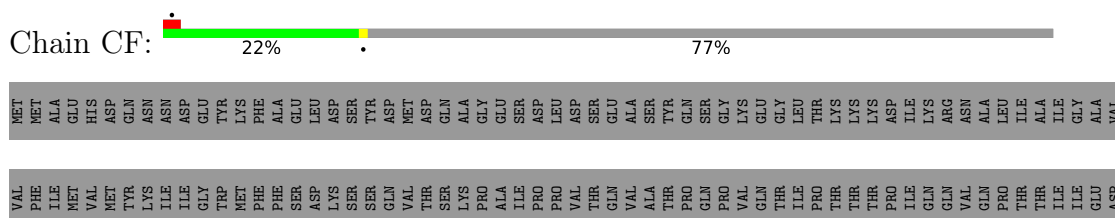
- Molecule 1: DotF



- Molecule 1: DotF

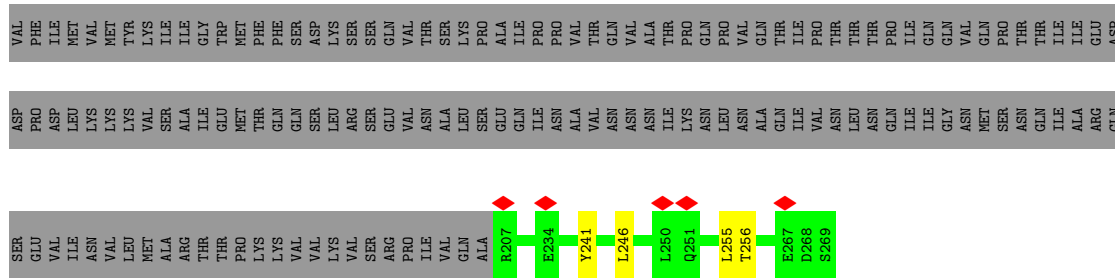


- Molecule 1: DotF

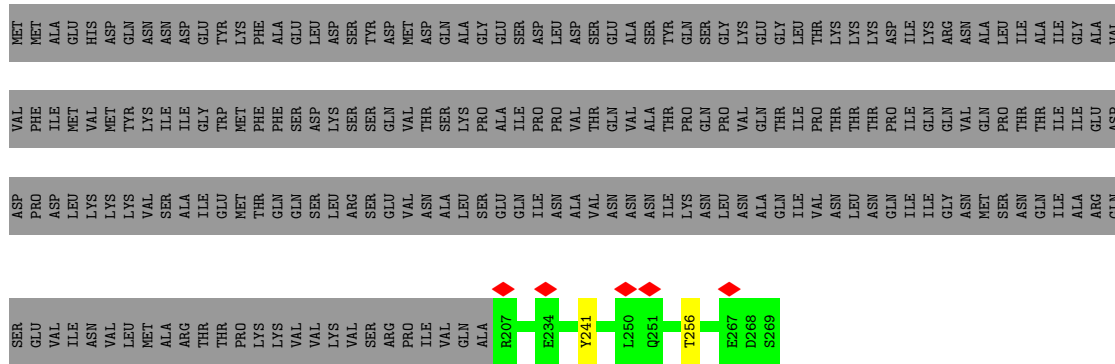




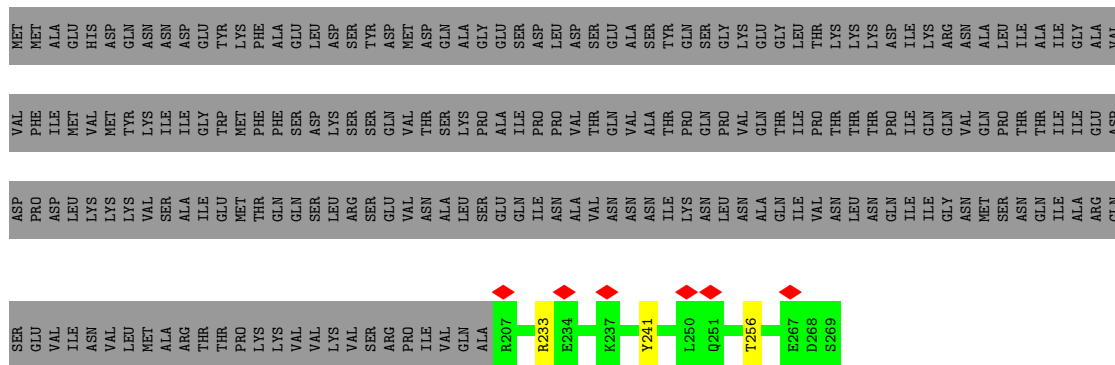




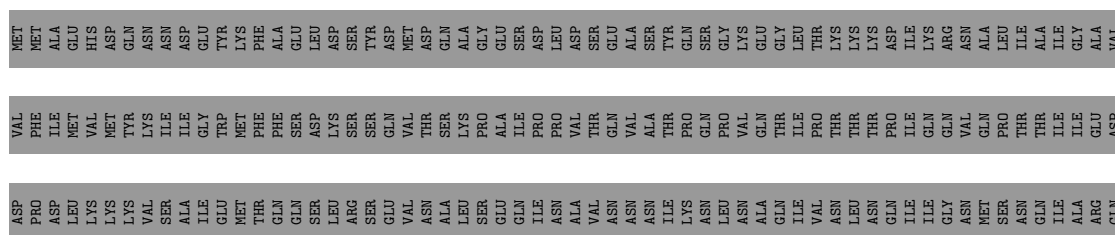
• Molecule 1: DotF

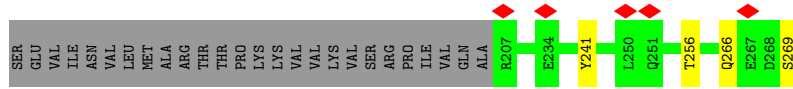


• Molecule 1: DotF

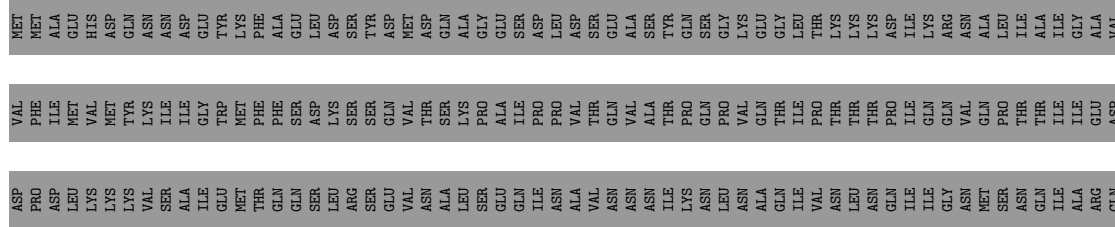


• Molecule 1: DotF

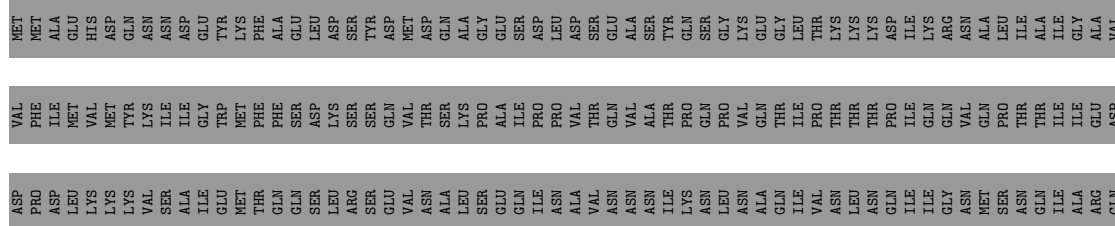




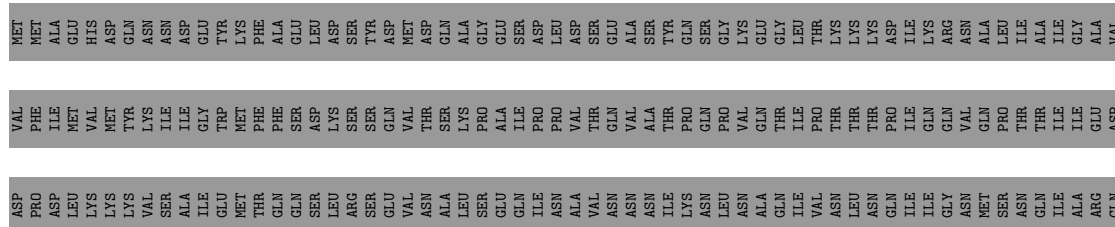
• Molecule 1: DotF



• Molecule 1: DotF



• Molecule 1: DotF



• Molecule 1: DotF





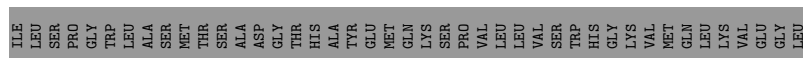
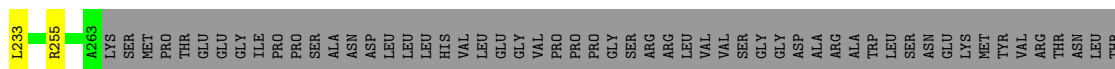




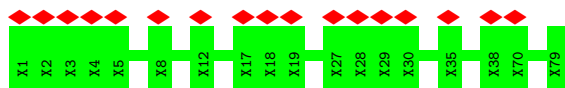




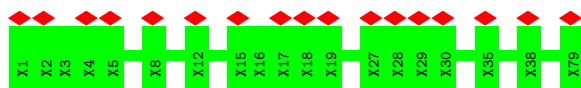




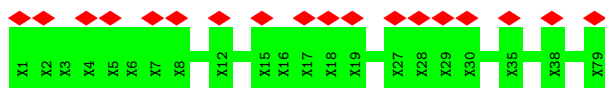
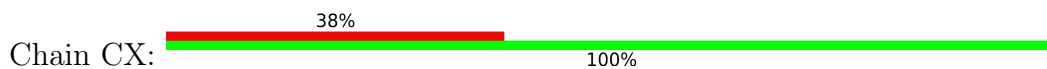
- Molecule 3: Unknown protein fragment



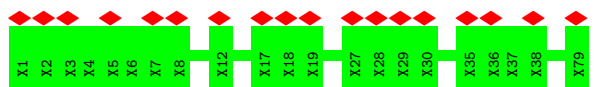
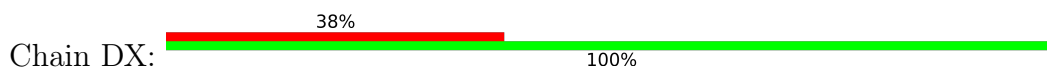
- Molecule 3: Unknown protein fragment



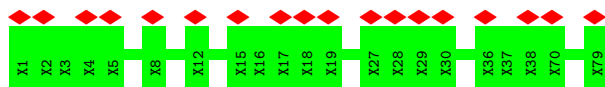
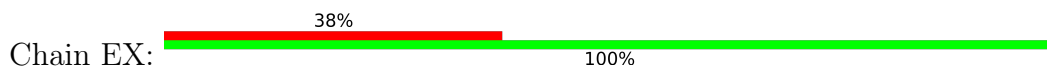
- Molecule 3: Unknown protein fragment



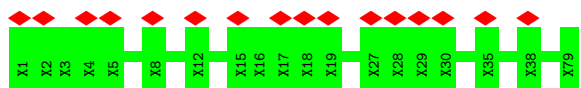
- Molecule 3: Unknown protein fragment



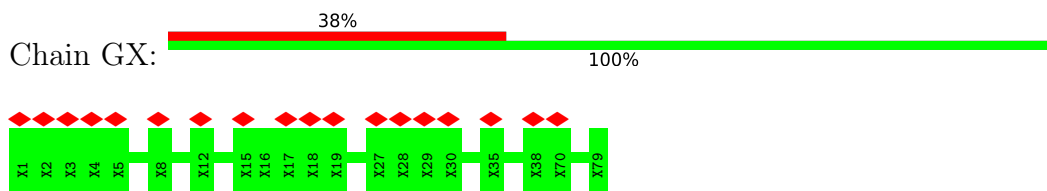
- Molecule 3: Unknown protein fragment



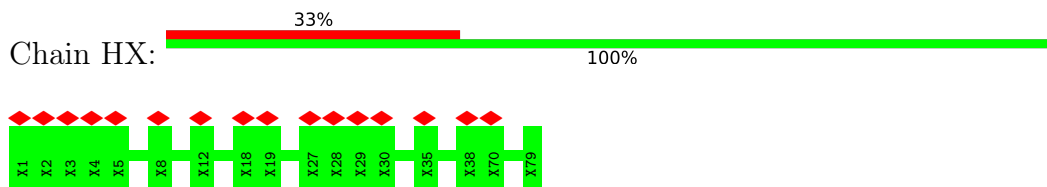
- Molecule 3: Unknown protein fragment



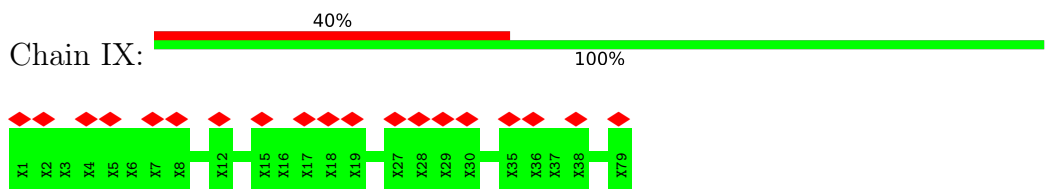
- Molecule 3: Unknown protein fragment



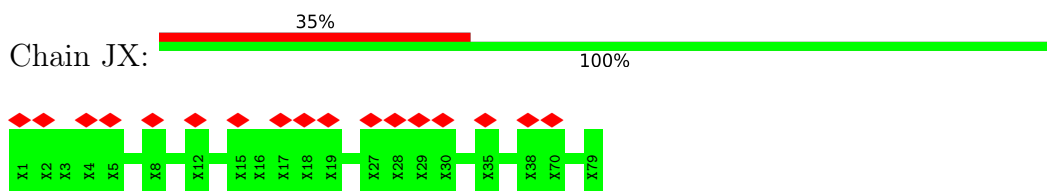
- Molecule 3: Unknown protein fragment



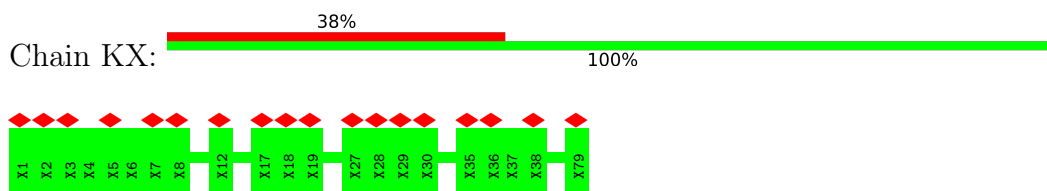
- Molecule 3: Unknown protein fragment



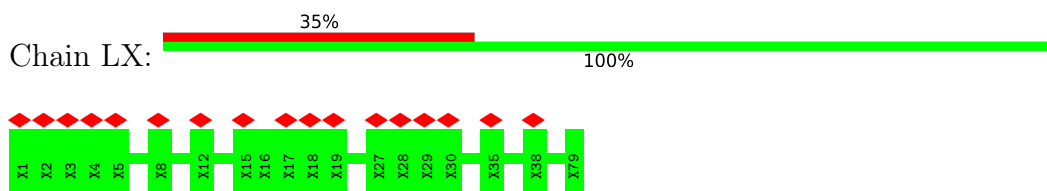
- Molecule 3: Unknown protein fragment



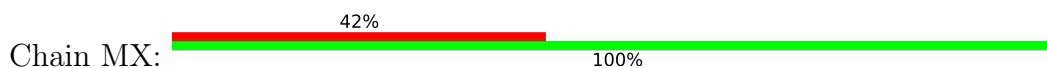
- Molecule 3: Unknown protein fragment

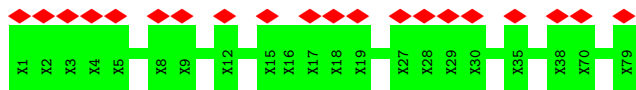


- Molecule 3: Unknown protein fragment

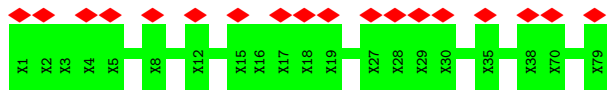
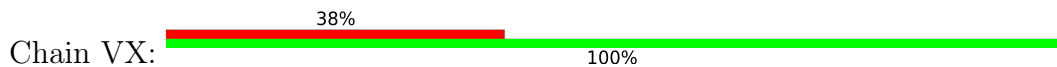


- Molecule 3: Unknown protein fragment

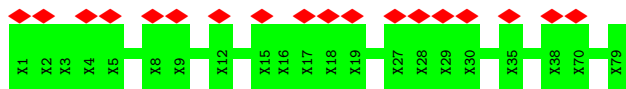
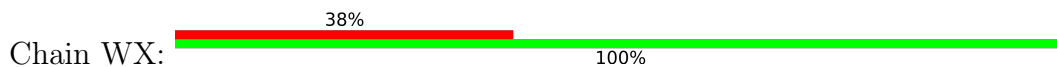




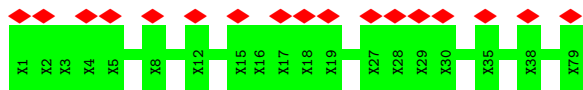
• Molecule 3: Unknown protein fragment



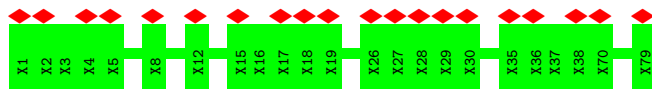
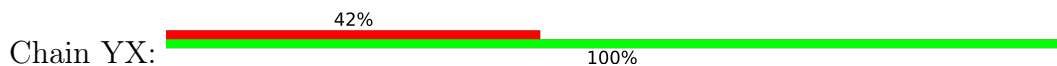
• Molecule 3: Unknown protein fragment



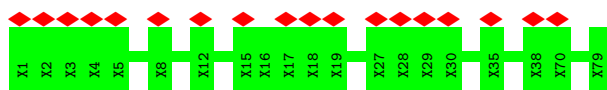
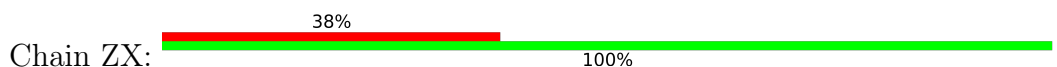
• Molecule 3: Unknown protein fragment



• Molecule 3: Unknown protein fragment



• Molecule 3: Unknown protein fragment



• Molecule 4: IcmE protein



MET ALA SER PRO GLY VAL LEU ASP PRD TYR PHE SER ASN THR ARG THR ARG VAL ILE ILE ILE THR PHE THR ALA ALA LEU LEU ILE ILE ILE THR PHE THR ALA ALA VAL ALA LEU LEU ILE ILE VAL VAL ILE ILE PHE PHE LYS ILE ARG THR GLN THR ALA THR THR GLY SER GLU VAL GLY VAL VAL ILE VAL SER SER THR VAL PRO GLY PHE ILE GLN ILE

SER ILE PRO GLY VAL LEU ASP PRD TYR PHE SER ASN THR ARG THR ARG VAL ILE ILE ILE THR PHE THR ALA ALA VAL ALA LEU LEU ILE ILE VAL VAL ILE ILE PHE PHE LYS ILE ARG THR GLN THR ALA THR THR GLY SER GLU VAL GLY VAL VAL ILE VAL SER SER THR VAL PRO GLY PHE ILE GLN ILE

























GLU	LEU	ARG	ASN	ALA	GLY	PHE	SER	PRO	GLN	SER	GLY	GLN	LEU	GLY	THR	ASP	PRO	LEU	ASP	GLY	THR	GLN	LEU	ILE
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GLN	ASN	GLU	GLN	LEU	ALA	GLU	ASP	THR	GLN	SER	THR	VAL	GLU	THR	GLY	GLY	LEU	GLY	THR	GLY	GLY	THR	PRO	ILE
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

MET	PHE	ALA	VAL	LEU	ASP	THR	SER	VAL	GLN	ASN	SER	THR	VAL	GLU	THR	GLY	LEU	GLY	LEU	LEU	GLY	THR	ASP	ILE
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SER	ILE	SER	ALA	TVR	ASN	ILE	PRO	ARG	THR	LEU	ALA	THR	VAL	GLU	ASN	GLY	LEU	LEU	PHE	LEU	GLN	PRO	SER	ASN
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ASN	ILE	THR	VAL	ALA	ASN	GLY	VAL	VAL	GLN	LEU	GLY	THR	VAL	GLN	GLY	LEU	ALA	TRP	ARG	GLY	THR	GLN	THR	ILE
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● Molecule 4: IcmE protein



MET	ALA	SER	LYS	GLU	ASN	ASP	THR	LEU	LYS	SER	THR	VAL	GLU	THR	GLY	VAL	VAL	VAL	GLY	THR	LYS	ILE	GLN
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SER	ILE	PRO	GLY	VAL	GLU	ASP	THR	PRO	ALA	GLN	TVR	ALA	LEU	LYS	THR	ARG	VAL	VAL	GLY	GLY	ILE	THR	ALA
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ALA	LEU	ALA	GLN	GLU	LEU	GLY	PRO	GLN	ASP	ILE	GLU	VAL	GLN	ASP	GLY	VAL	VAL	GLN	GLN	GLY	THR	GLY	GLU
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LEU	GLU	VAL	CYS	GLU	CYS	GLY	LYS	GLU	ALA	ASP	THR	VAL	GLU	ASN	ARG	ALA	PHE	GLY	LEU	LEU	GLY	ASP	LEU
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LYS	GLY	ALA	PHE	SER	ASP	ALA	GLA	LYS	SER	GLY	THR	ILE	ARG	ALA	GLN	VAL	SER	ALA	SER	THR	ILE	LYS	LYS
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ALA	ALA	GLY	THR	ALA	LYS	GLY	PRO	ALA	PHE	SER	GLY	THR	ARG	ALA	LEU	THR	PRO	THR	ALA	ASP	ALA	LYS	LYS
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ALA	ALA	GLN	GLY	GLU	PRO	PRO	GLY	THR	LYS	VAL	ASP	ASP	CYS	GLY	VAL	ARG	SER	GLY	GLY	GLY	PHE	THR	ALA
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ASN	ALA	PHE	THR	PRO	ALA	GLN	ILE	ALA	LEU	SER	PRO	ALA	GLY	LYS	VAL	ASP	GLY	LEU	LEU	GLY	GLY	ALA	ASP
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ALA	GLN	SER	LEU	ALA	GLY	ALA	PHE	THR	PRO	THR	GLY	ALA	PHE	GLY	GLU	ASP	ARG	VAL	VAL	SER	LYS	ALA	THR
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ILE	LYS	GLN	THR	LEU	GLY	CYS	SER	ALA	THR	ALA	ALA	LYS	THR	ALA	LEU	ASP	ALA	GLY	THR	ALA	LYS	GLU	GLN
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GLU	LEU	ASP	VAL	GLY	PHE	SER	ALA	ALA	ALA	GLY	LEU	ALA	ALA	GLY	GLY	PHE	ALA	ALA	ALA	ALA	ASP	ALA	LYS
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

GLU	LEU	LYS	ALA	GLY	PHE	SER	ASN	LYS	VAL	ALA	ASN	GLY	ALA	ASN	LYS	ALA	ALA	ALA	GLY	THR	ASP	ALA	ALA
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GLU	LEU	ARG	ASN	ALA	GLY	PHE	SER	GLN	GLY	LEU	ALA	GLY	GLN	GLN	LEU	ALA	ASP	GLY	LEU	PHE	SER	GLY	LYS
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----



MET PHE PHE THR VAL TYR ASP THR SER VAL VAL ASN VAL GLY THR MET

SER ILE SER ALA VAL TYR ILE ASP THR ALA THR ASP VAL VAL ASN THR

ASN ILE THR VAL ASN GLY VAL THR ASN THR ARG THR ALA THR GLY THR

• Molecule 4: IcmE protein

Chain VG: . 97%

MET ALA SER THR VAL TYR ASP THR ALA THR ASP VAL VAL ASN THR

SER ILE PRO GLN GLY VAL GLU LEU ASP PRO THR GLN THR TYR LEU LEU

ALA LEU ALA GLN VAL CYS GLU LEU GLY THR ASP THR TYR ASN THR THR

LEU GLU GLN VAL CYS LEU GLY THR TYR ASN THR THR TYR ASN THR THR

LYS GLY THR PHE THR ASP ALA THR LYS LEU LEU LEU THR TYR ASN THR

ALA ALA TYR THR ALA PRO GLY PHE SER THR LEU LEU LEU THR THR THR

ALA ALA GLN ALA THR GLU LEU PRO PRO GLY THR VAL VAL THR THR THR

ASN ALA GLY THR ALA THR PRO LEU LEU LEU LEU LEU LEU LEU LEU LEU

ALA GLN SER LEU LEU ALA ALA ALA PHE THR PRO THR LEU LEU LEU LEU

ILE LYS GLN THR VAL GLY CYS SER THR ALA THR THR THR THR THR THR

GLU LEU LYS ASP PHE SER SER LEU ALA ALA ALA ALA ALA ALA ALA ALA

GLU LEU ARG ASN VAL ALA PHE SER SER SER SER SER SER SER SER SER

GLU LEU ARG ASN VAL ALA PHE SER SER SER SER SER SER SER SER SER

GLN ASN GLU GLN LEU LEU ALA ASP THR SER SER SER SER SER SER SER SER

MET PHE PHE THR VAL TYR ASP THR SER VAL VAL ASN VAL GLY THR MET











## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	43907	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	50	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.124	Depositor
Minimum map value	-0.053	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.002	Depositor
Recommended contour level	0.025	Depositor
Map size ( $\text{\AA}$ )	561.0, 561.0, 561.0	wwPDB
Map dimensions	510, 510, 510	wwPDB
Map angles ( $^\circ$ )	90.0, 90.0, 90.0	wwPDB
Pixel spacing ( $\text{\AA}$ )	1.1, 1.1, 1.1	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	AF	0.26	0/490	0.63	1/660 (0.2%)
1	BF	0.25	0/490	0.62	0/660
1	CF	0.26	0/490	0.63	0/660
1	DF	0.25	0/490	0.59	0/660
1	EF	0.26	0/490	0.61	0/660
1	FF	0.26	0/490	0.60	0/660
1	GF	0.26	0/490	0.58	0/660
1	HF	0.26	0/490	0.63	1/660 (0.2%)
1	IF	0.25	0/490	0.59	0/660
1	JF	0.26	0/490	0.60	0/660
1	KF	0.26	0/490	0.59	0/660
1	LF	0.26	0/490	0.62	0/660
1	MF	0.26	0/490	0.60	0/660
1	VF	0.26	0/490	0.61	0/660
1	WF	0.26	0/490	0.60	0/660
1	XF	0.26	0/490	0.63	0/660
1	YF	0.26	0/490	0.60	0/660
1	ZF	0.25	0/490	0.59	0/660
2	AH	0.26	0/1269	0.58	1/1734 (0.1%)
2	BH	0.26	0/1269	0.53	0/1734
2	CH	0.26	0/1269	0.58	1/1734 (0.1%)
2	DH	0.26	0/1269	0.52	0/1734
2	EH	0.26	0/1269	0.55	0/1734
2	FH	0.26	0/1269	0.55	1/1734 (0.1%)
2	GH	0.26	0/1269	0.57	1/1734 (0.1%)
2	HH	0.26	0/1269	0.57	1/1734 (0.1%)
2	IH	0.26	0/1269	0.54	0/1734
2	JH	0.25	0/1269	0.52	0/1734
2	KH	0.26	0/1269	0.52	0/1734
2	LH	0.26	0/1269	0.56	1/1734 (0.1%)
2	MH	0.26	0/1269	0.56	1/1734 (0.1%)
2	VH	0.25	0/1269	0.53	0/1734
2	WH	0.26	0/1269	0.56	1/1734 (0.1%)
2	XH	0.26	0/1269	0.53	0/1734

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
2	YH	0.26	0/1269	0.54	0/1734
2	ZH	0.26	0/1269	0.58	1/1734 (0.1%)
4	AG	0.24	0/278	0.44	0/377
4	BG	0.23	0/278	0.45	0/377
4	CG	0.24	0/278	0.49	0/377
4	DG	0.23	0/278	0.43	0/377
4	EG	0.23	0/278	0.43	0/377
4	FG	0.23	0/278	0.43	0/377
4	GG	0.23	0/278	0.44	0/377
4	HG	0.29	0/278	0.49	0/377
4	IG	0.25	0/278	0.47	0/377
4	JG	0.24	0/278	0.45	0/377
4	KG	0.23	0/278	0.43	0/377
4	LG	0.23	0/278	0.43	0/377
4	MG	0.26	0/278	0.46	0/377
4	VG	0.25	0/278	0.45	0/377
4	WG	0.23	0/278	0.44	0/377
4	XG	0.27	0/278	0.48	0/377
4	YG	0.24	0/278	0.43	0/377
4	ZG	0.23	0/278	0.44	0/377
All	All	0.26	0/36666	0.55	11/49878 (0.0%)

There are no bond length outliers.

All (11) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	WH	183	ASP	CB-CG-OD1	7.75	125.28	118.30
2	CH	183	ASP	CB-CG-OD1	7.73	125.26	118.30
2	MH	183	ASP	CB-CG-OD1	7.72	125.25	118.30
2	ZH	183	ASP	CB-CG-OD1	7.70	125.23	118.30
2	GH	183	ASP	CB-CG-OD1	7.62	125.15	118.30
2	AH	183	ASP	CB-CG-OD1	7.35	124.92	118.30
2	HH	183	ASP	CB-CG-OD1	7.32	124.89	118.30
2	LH	183	ASP	CB-CG-OD1	7.22	124.80	118.30
2	FH	183	ASP	CB-CG-OD1	7.18	124.76	118.30
1	AF	230	LEU	CA-CB-CG	5.14	127.13	115.30
1	HF	230	LEU	CA-CB-CG	5.08	126.99	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	AF	483	0	502	1	0
1	BF	483	0	502	4	0
1	CF	483	0	502	2	0
1	DF	483	0	502	2	0
1	EF	483	0	502	2	0
1	FF	483	0	502	3	0
1	GF	483	0	502	3	0
1	HF	483	0	502	4	0
1	IF	483	0	502	2	0
1	JF	483	0	502	2	0
1	KF	483	0	502	1	0
1	LF	483	0	502	2	0
1	MF	483	0	502	3	0
1	VF	483	0	502	1	0
1	WF	483	0	502	3	0
1	XF	483	0	502	4	0
1	YF	483	0	502	2	0
1	ZF	483	0	502	1	0
2	AH	1238	0	1252	6	0
2	BH	1238	0	1252	4	0
2	CH	1238	0	1252	5	0
2	DH	1238	0	1252	5	0
2	EH	1238	0	1252	5	0
2	FH	1238	0	1252	5	0
2	GH	1238	0	1252	2	0
2	HH	1238	0	1252	5	0
2	IH	1238	0	1252	4	0
2	JH	1238	0	1252	1	0
2	KH	1238	0	1252	3	0
2	LH	1238	0	1252	4	0
2	MH	1238	0	1252	3	0
2	VH	1238	0	1252	3	0
2	WH	1238	0	1252	4	0
2	XH	1238	0	1252	3	0
2	YH	1238	0	1252	4	0
2	ZH	1238	0	1252	3	0
3	AX	240	0	55	0	0

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	BX	240	0	55	0	0
3	CX	240	0	55	0	0
3	DX	240	0	54	0	0
3	EX	240	0	54	0	0
3	FX	240	0	55	0	0
3	GX	240	0	55	0	0
3	HX	240	0	54	0	0
3	IX	240	0	54	0	0
3	JX	240	0	55	0	0
3	KX	240	0	55	0	0
3	LX	240	0	55	0	0
3	MX	240	0	55	0	0
3	VX	240	0	55	0	0
3	WX	240	0	54	0	0
3	XX	240	0	55	0	0
3	YX	240	0	54	0	0
3	ZX	240	0	55	0	0
4	AG	276	0	263	1	0
4	BG	276	0	263	2	0
4	CG	276	0	263	2	0
4	DG	276	0	263	1	0
4	EG	276	0	263	1	0
4	FG	276	0	263	1	0
4	GG	276	0	263	0	0
4	HG	276	0	263	1	0
4	IG	276	0	263	1	0
4	JG	276	0	263	1	0
4	KG	276	0	263	1	0
4	LG	276	0	263	1	0
4	MG	276	0	263	2	0
4	VG	276	0	263	1	0
4	WG	276	0	263	2	0
4	XG	276	0	263	0	0
4	YG	276	0	263	1	0
4	ZG	276	0	263	0	0
All	All	40266	0	37290	103	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 1.

All (103) 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:DH:204:ILE:HG12	2:DH:215:ILE:HG12	1.81	0.63
2:KH:204:ILE:HG12	2:KH:215:ILE:HG12	1.81	0.62
2:CH:204:ILE:HG12	2:CH:215:ILE:HG12	1.83	0.61
2:IH:204:ILE:HG12	2:IH:215:ILE:HG12	1.83	0.60
2:YH:204:ILE:HG12	2:YH:215:ILE:HG12	1.84	0.60
2:EH:204:ILE:HG12	2:EH:215:ILE:HG12	1.84	0.59
1:LF:241:TYR:HB3	1:LF:256:THR:HG21	1.86	0.58
1:IF:241:TYR:HB3	1:IF:256:THR:HG21	1.85	0.58
1:WF:241:TYR:HB3	1:WF:256:THR:HG21	1.86	0.57
1:MF:241:TYR:HB3	1:MF:256:THR:HG21	1.86	0.57
1:FF:241:TYR:HB3	1:FF:256:THR:HG21	1.87	0.56
1:JF:241:TYR:HB3	1:JF:256:THR:HG21	1.89	0.55
1:HF:241:TYR:HB3	1:HF:256:THR:HG21	1.88	0.55
2:WH:230:LEU:HD12	2:WH:233:LEU:HD12	1.89	0.55
1:AF:241:TYR:HB3	1:AF:256:THR:HG21	1.89	0.55
1:CF:241:TYR:HB3	1:CF:256:THR:HG21	1.87	0.55
1:DF:241:TYR:HB3	1:DF:256:THR:HG21	1.89	0.55
1:GF:241:TYR:HB3	1:GF:256:THR:HG21	1.89	0.55
1:VF:241:TYR:HB3	1:VF:256:THR:HG21	1.89	0.55
1:ZF:241:TYR:HB3	1:ZF:256:THR:HG21	1.89	0.55
2:HH:157:PHE:HA	2:HH:255:ARG:HB2	1.89	0.55
2:AH:157:PHE:HA	2:AH:255:ARG:HB2	1.89	0.55
1:KF:241:TYR:HB3	1:KF:256:THR:HG21	1.89	0.54
1:XF:241:TYR:HB3	1:XF:256:THR:HG21	1.90	0.54
2:VH:230:LEU:HD12	2:VH:233:LEU:HD12	1.90	0.54
1:EF:241:TYR:HB3	1:EF:256:THR:HG21	1.88	0.54
2:JH:230:LEU:HD12	2:JH:233:LEU:HD12	1.89	0.54
2:FH:230:LEU:HD12	2:FH:233:LEU:HD12	1.90	0.54
2:EH:230:LEU:HD12	2:EH:233:LEU:HD12	1.91	0.53
1:BF:241:TYR:HB3	1:BF:256:THR:HG21	1.90	0.53
1:YF:241:TYR:HB3	1:YF:256:THR:HG21	1.90	0.53
2:XH:230:LEU:HD12	2:XH:233:LEU:HD12	1.91	0.53
2:MH:230:LEU:HD12	2:MH:233:LEU:HD12	1.91	0.52
2:LH:230:LEU:HD12	2:LH:233:LEU:HD12	1.90	0.52
2:BH:230:LEU:HD12	2:BH:233:LEU:HD12	1.91	0.52
2:YH:230:LEU:HD12	2:YH:233:LEU:HD12	1.91	0.52
4:VG:794:ILE:HG12	2:EH:107:ILE:HG23	1.91	0.52
2:AH:230:LEU:HD12	2:AH:233:LEU:HD12	1.92	0.51
2:GH:230:LEU:HD12	2:GH:233:LEU:HD12	1.93	0.50
2:CH:230:LEU:HD12	2:CH:233:LEU:HD12	1.92	0.50
2:WH:157:PHE:HA	2:WH:255:ARG:HB2	1.94	0.50
2:ZH:230:LEU:HD12	2:ZH:233:LEU:HD12	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:IH:230:LEU:HD12	2:IH:233:LEU:HD12	1.92	0.50
4:CG:794:ILE:HG12	2:DH:107:ILE:HG23	1.93	0.49
4:CG:802:LEU:HD22	2:DH:115:MET:HG2	1.94	0.49
4:WG:823:GLY:HA2	2:FH:208:LYS:HG3	1.94	0.49
2:HH:230:LEU:HD12	2:HH:233:LEU:HD12	1.93	0.49
2:MH:157:PHE:HA	2:MH:255:ARG:HB2	1.94	0.49
2:EH:157:PHE:HA	2:EH:255:ARG:HB2	1.96	0.48
2:FH:157:PHE:HA	2:FH:255:ARG:HB2	1.94	0.48
4:FG:794:ILE:HG12	2:GH:107:ILE:HG23	1.95	0.48
2:YH:107:ILE:HG23	4:JG:794:ILE:HG12	1.95	0.47
4:AG:794:ILE:HG12	2:CH:107:ILE:HG23	1.96	0.47
4:BG:813:LYS:HE3	2:CH:134:TYR:HE1	1.79	0.47
4:EG:794:ILE:HG12	2:WH:107:ILE:HG23	1.96	0.47
4:HG:794:ILE:HG12	2:IH:107:ILE:HG23	1.96	0.47
2:YH:157:PHE:HA	2:YH:255:ARG:HB2	1.95	0.47
2:DH:230:LEU:HD12	2:DH:233:LEU:HD12	1.96	0.47
2:ZH:157:PHE:HA	2:ZH:255:ARG:HB2	1.97	0.47
2:KH:230:LEU:HD12	2:KH:233:LEU:HD12	1.95	0.47
4:MG:823:GLY:HA2	2:LH:208:LYS:HG3	1.96	0.46
4:YG:794:ILE:HG12	2:MH:107:ILE:HG23	1.97	0.46
2:ZH:107:ILE:HG23	4:LG:794:ILE:HG12	1.96	0.46
4:IG:794:ILE:HG12	2:KH:107:ILE:HG23	1.96	0.46
2:LH:157:PHE:HA	2:LH:255:ARG:HB2	1.95	0.46
1:FF:233:ARG:NH2	1:WF:266:GLN:OE1	2.49	0.46
1:LF:233:ARG:NH2	1:MF:266:GLN:OE1	2.47	0.46
2:CH:157:PHE:HA	2:CH:255:ARG:HB2	1.97	0.46
1:BF:269:SER:O	1:BF:269:SER:OG	2.35	0.45
4:KG:794:ILE:HG12	2:LH:107:ILE:HG23	1.97	0.45
4:DG:794:ILE:HG12	2:FH:107:ILE:HG23	1.99	0.45
4:MG:794:ILE:HG12	2:AH:107:ILE:HG23	1.98	0.45
2:IH:157:PHE:HA	2:IH:255:ARG:HB2	1.98	0.45
4:WG:794:ILE:HG12	2:HH:107:ILE:HG23	2.00	0.44
1:BF:233:ARG:NH2	1:CF:266:GLN:OE1	2.48	0.44
1:MF:269:SER:O	1:MF:269:SER:OG	2.35	0.43
1:BF:243:MET:HB2	1:BF:257:SER:HB3	2.01	0.43
2:BH:157:PHE:HA	2:BH:255:ARG:HB2	2.00	0.42
1:FF:246:LEU:HD23	1:FF:255:LEU:HD23	2.01	0.42
4:BG:794:ILE:HG12	2:VH:107:ILE:HG23	2.01	0.42
2:DH:166:PRO:HA	2:DH:167:PRO:HD3	1.93	0.42
1:DF:233:ARG:NH2	1:EF:266:GLN:OE1	2.49	0.42
1:GF:233:ARG:NH2	1:HF:266:GLN:OE1	2.51	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:XH:157:PHE:HA	2:XH:255:ARG:HB2	2.00	0.42
1:JF:246:LEU:HD23	1:JF:255:LEU:HD23	2.01	0.42
2:FH:166:PRO:HA	2:FH:167:PRO:HD3	1.92	0.42
2:XH:176:VAL:H	2:HH:225:ASN:HD21	1.67	0.42
2:AH:195:ASP:HB3	2:AH:227:ALA:HB3	2.02	0.42
1:XF:269:SER:O	1:XF:269:SER:OG	2.35	0.42
2:EH:166:PRO:HA	2:EH:167:PRO:HD3	1.94	0.41
1:XF:243:MET:HB2	1:XF:257:SER:HB3	2.01	0.41
1:HF:246:LEU:HD23	1:HF:255:LEU:HD23	2.03	0.41
2:WH:166:PRO:HA	2:WH:167:PRO:HD3	1.93	0.41
2:AH:225:ASN:HD21	2:BH:176:VAL:H	1.68	0.41
2:HH:195:ASP:HB3	2:HH:227:ALA:HB3	2.02	0.41
2:AH:105:GLU:O	2:AH:109:LYS:NZ	2.41	0.41
2:VH:166:PRO:HA	2:VH:167:PRO:HD3	1.93	0.41
1:GF:269:SER:O	1:GF:269:SER:OG	2.36	0.41
1:HF:269:SER:O	1:HF:269:SER:OG	2.36	0.41
2:BH:166:PRO:HA	2:BH:167:PRO:HD3	1.92	0.40
1:IF:266:GLN:OE1	1:XF:233:ARG:NH2	2.49	0.40
1:WF:269:SER:O	1:WF:269:SER:OG	2.35	0.40
1:YF:243:MET:HB3	1:YF:257:SER:HB3	2.03	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	AF	61/269 (23%)	57 (93%)	4 (7%)	0	100 100
1	BF	61/269 (23%)	57 (93%)	4 (7%)	0	100 100
1	CF	61/269 (23%)	57 (93%)	4 (7%)	0	100 100
1	DF	61/269 (23%)	57 (93%)	4 (7%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	EF	61/269 (23%)	57 (93%)	4 (7%)	0	100	100
1	FF	61/269 (23%)	57 (93%)	4 (7%)	0	100	100
1	GF	61/269 (23%)	57 (93%)	4 (7%)	0	100	100
1	HF	61/269 (23%)	57 (93%)	4 (7%)	0	100	100
1	IF	61/269 (23%)	57 (93%)	4 (7%)	0	100	100
1	JF	61/269 (23%)	58 (95%)	3 (5%)	0	100	100
1	KF	61/269 (23%)	57 (93%)	4 (7%)	0	100	100
1	LF	61/269 (23%)	57 (93%)	4 (7%)	0	100	100
1	MF	61/269 (23%)	57 (93%)	4 (7%)	0	100	100
1	VF	61/269 (23%)	58 (95%)	3 (5%)	0	100	100
1	WF	61/269 (23%)	57 (93%)	4 (7%)	0	100	100
1	XF	61/269 (23%)	57 (93%)	4 (7%)	0	100	100
1	YF	61/269 (23%)	57 (93%)	4 (7%)	0	100	100
1	ZF	61/269 (23%)	57 (93%)	4 (7%)	0	100	100
2	AH	158/361 (44%)	154 (98%)	4 (2%)	0	100	100
2	BH	158/361 (44%)	154 (98%)	4 (2%)	0	100	100
2	CH	158/361 (44%)	154 (98%)	4 (2%)	0	100	100
2	DH	158/361 (44%)	154 (98%)	4 (2%)	0	100	100
2	EH	158/361 (44%)	154 (98%)	4 (2%)	0	100	100
2	FH	158/361 (44%)	154 (98%)	4 (2%)	0	100	100
2	GH	158/361 (44%)	154 (98%)	4 (2%)	0	100	100
2	HH	158/361 (44%)	154 (98%)	4 (2%)	0	100	100
2	IH	158/361 (44%)	154 (98%)	4 (2%)	0	100	100
2	JH	158/361 (44%)	154 (98%)	4 (2%)	0	100	100
2	KH	158/361 (44%)	154 (98%)	4 (2%)	0	100	100
2	LH	158/361 (44%)	155 (98%)	3 (2%)	0	100	100
2	MH	158/361 (44%)	155 (98%)	3 (2%)	0	100	100
2	VH	158/361 (44%)	154 (98%)	4 (2%)	0	100	100
2	WH	158/361 (44%)	155 (98%)	3 (2%)	0	100	100
2	XH	158/361 (44%)	154 (98%)	4 (2%)	0	100	100
2	YH	158/361 (44%)	153 (97%)	5 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	ZH	158/361 (44%)	154 (98%)	4 (2%)	0	100	100
4	AG	32/1048 (3%)	32 (100%)	0	0	100	100
4	BG	32/1048 (3%)	32 (100%)	0	0	100	100
4	CG	32/1048 (3%)	32 (100%)	0	0	100	100
4	DG	32/1048 (3%)	32 (100%)	0	0	100	100
4	EG	32/1048 (3%)	32 (100%)	0	0	100	100
4	FG	32/1048 (3%)	32 (100%)	0	0	100	100
4	GG	32/1048 (3%)	32 (100%)	0	0	100	100
4	HG	32/1048 (3%)	32 (100%)	0	0	100	100
4	IG	32/1048 (3%)	32 (100%)	0	0	100	100
4	JG	32/1048 (3%)	32 (100%)	0	0	100	100
4	KG	32/1048 (3%)	32 (100%)	0	0	100	100
4	LG	32/1048 (3%)	32 (100%)	0	0	100	100
4	MG	32/1048 (3%)	32 (100%)	0	0	100	100
4	VG	32/1048 (3%)	32 (100%)	0	0	100	100
4	WG	32/1048 (3%)	32 (100%)	0	0	100	100
4	XG	32/1048 (3%)	32 (100%)	0	0	100	100
4	YG	32/1048 (3%)	32 (100%)	0	0	100	100
4	ZG	32/1048 (3%)	32 (100%)	0	0	100	100
All	All	4518/30204 (15%)	4378 (97%)	140 (3%)	0	100	100

There are no Ramachandran outliers to report.

### 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	AF	53/237 (22%)	53 (100%)	0	100	100
1	BF	53/237 (22%)	53 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	CF	53/237 (22%)	53 (100%)	0	100	100
1	DF	53/237 (22%)	53 (100%)	0	100	100
1	EF	53/237 (22%)	53 (100%)	0	100	100
1	FF	53/237 (22%)	53 (100%)	0	100	100
1	GF	53/237 (22%)	53 (100%)	0	100	100
1	HF	53/237 (22%)	53 (100%)	0	100	100
1	IF	53/237 (22%)	53 (100%)	0	100	100
1	JF	53/237 (22%)	53 (100%)	0	100	100
1	KF	53/237 (22%)	53 (100%)	0	100	100
1	LF	53/237 (22%)	53 (100%)	0	100	100
1	MF	53/237 (22%)	53 (100%)	0	100	100
1	VF	53/237 (22%)	53 (100%)	0	100	100
1	WF	53/237 (22%)	53 (100%)	0	100	100
1	XF	53/237 (22%)	53 (100%)	0	100	100
1	YF	53/237 (22%)	53 (100%)	0	100	100
1	ZF	53/237 (22%)	53 (100%)	0	100	100
2	AH	137/300 (46%)	136 (99%)	1 (1%)	84	95
2	BH	137/300 (46%)	136 (99%)	1 (1%)	84	95
2	CH	137/300 (46%)	136 (99%)	1 (1%)	84	95
2	DH	137/300 (46%)	136 (99%)	1 (1%)	84	95
2	EH	137/300 (46%)	136 (99%)	1 (1%)	84	95
2	FH	137/300 (46%)	136 (99%)	1 (1%)	84	95
2	GH	137/300 (46%)	136 (99%)	1 (1%)	84	95
2	HH	137/300 (46%)	136 (99%)	1 (1%)	84	95
2	IH	137/300 (46%)	136 (99%)	1 (1%)	84	95
2	JH	137/300 (46%)	136 (99%)	1 (1%)	84	95
2	KH	137/300 (46%)	136 (99%)	1 (1%)	84	95
2	LH	137/300 (46%)	136 (99%)	1 (1%)	84	95
2	MH	137/300 (46%)	136 (99%)	1 (1%)	84	95
2	VH	137/300 (46%)	136 (99%)	1 (1%)	84	95
2	WH	137/300 (46%)	136 (99%)	1 (1%)	84	95

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	XH	137/300 (46%)	136 (99%)	1 (1%)	84	95
2	YH	137/300 (46%)	136 (99%)	1 (1%)	84	95
2	ZH	137/300 (46%)	136 (99%)	1 (1%)	84	95
4	AG	31/765 (4%)	31 (100%)	0	100	100
4	BG	31/765 (4%)	31 (100%)	0	100	100
4	CG	31/765 (4%)	31 (100%)	0	100	100
4	DG	31/765 (4%)	31 (100%)	0	100	100
4	EG	31/765 (4%)	31 (100%)	0	100	100
4	FG	31/765 (4%)	31 (100%)	0	100	100
4	GG	31/765 (4%)	31 (100%)	0	100	100
4	HG	31/765 (4%)	31 (100%)	0	100	100
4	IG	31/765 (4%)	31 (100%)	0	100	100
4	JG	31/765 (4%)	31 (100%)	0	100	100
4	KG	31/765 (4%)	31 (100%)	0	100	100
4	LG	31/765 (4%)	31 (100%)	0	100	100
4	MG	31/765 (4%)	31 (100%)	0	100	100
4	VG	31/765 (4%)	31 (100%)	0	100	100
4	WG	31/765 (4%)	31 (100%)	0	100	100
4	XG	31/765 (4%)	31 (100%)	0	100	100
4	YG	31/765 (4%)	31 (100%)	0	100	100
4	ZG	31/765 (4%)	31 (100%)	0	100	100
All	All	3978/23436 (17%)	3960 (100%)	18 (0%)	89	96

All (18) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	XH	170	ARG
2	YH	170	ARG
2	ZH	170	ARG
2	AH	170	ARG
2	BH	170	ARG
2	CH	170	ARG
2	DH	170	ARG
2	EH	170	ARG
2	FH	170	ARG

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Mol	Chain	Res	Type
2	GH	170	ARG
2	HH	170	ARG
2	IH	170	ARG
2	JH	170	ARG
2	KH	170	ARG
2	LH	170	ARG
2	MH	170	ARG
2	VH	170	ARG
2	WH	170	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

## 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

There are no ligands in this entry.

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
3	ZX	1
3	GX	1
3	CX	1
3	KX	1
3	BX	1
3	HX	1
3	YX	1
3	MX	1
3	XX	1
3	IX	1
3	LX	1
3	WX	1
3	FX	1
3	AX	1
3	EX	1
3	DX	1
3	JX	1
3	VX	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	ZX	38:UNK	C	70:UNK	N	24.53
1	GX	38:UNK	C	70:UNK	N	24.52
1	CX	38:UNK	C	70:UNK	N	24.51
1	KX	38:UNK	C	70:UNK	N	24.51
1	BX	38:UNK	C	70:UNK	N	24.49
1	HX	38:UNK	C	70:UNK	N	24.49
1	YX	38:UNK	C	70:UNK	N	24.49
1	MX	38:UNK	C	70:UNK	N	24.48
1	XX	38:UNK	C	70:UNK	N	24.47
1	IX	38:UNK	C	70:UNK	N	24.46
1	LX	38:UNK	C	70:UNK	N	24.46
1	WX	38:UNK	C	70:UNK	N	24.46
1	FX	38:UNK	C	70:UNK	N	24.45
1	AX	38:UNK	C	70:UNK	N	24.43
1	EX	38:UNK	C	70:UNK	N	24.42
1	DX	38:UNK	C	70:UNK	N	24.41
1	JX	38:UNK	C	70:UNK	N	24.41
1	VX	38:UNK	C	70:UNK	N	24.40

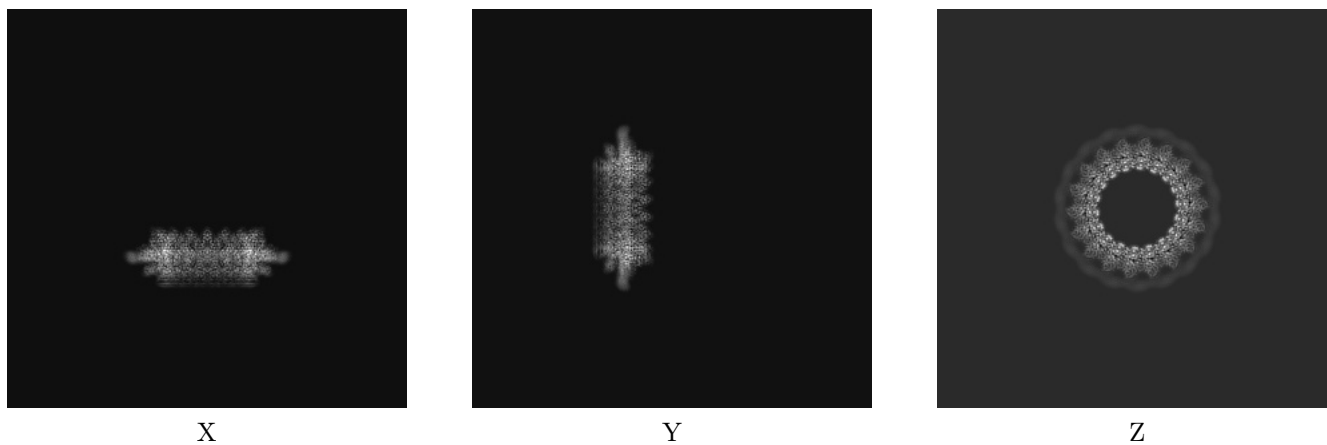
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-24006. These allow visual inspection of the internal detail of the map and identification of artifacts.

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

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

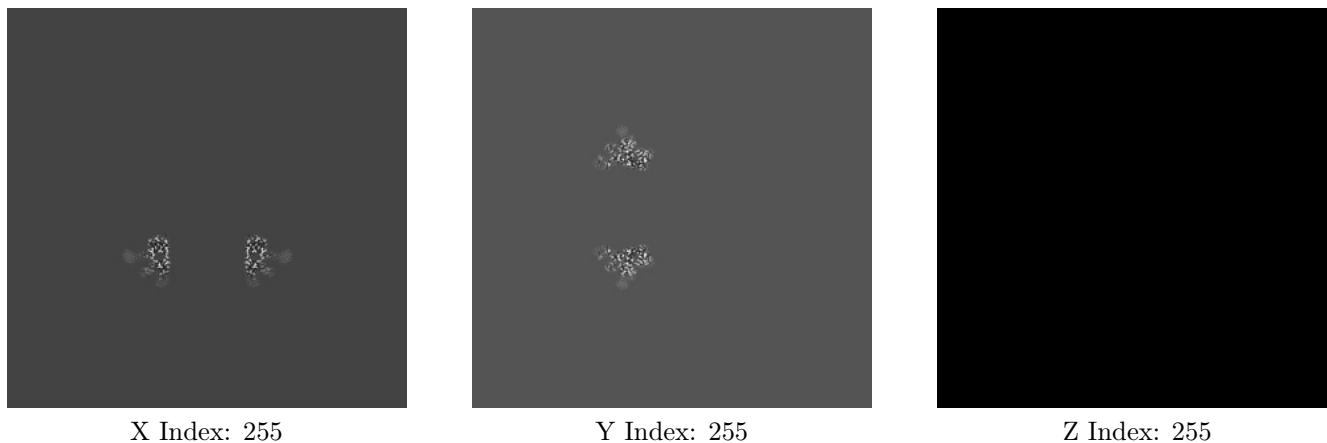
#### 6.1.1 Primary map



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

### 6.2 Central slices [i](#)

#### 6.2.1 Primary map



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

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

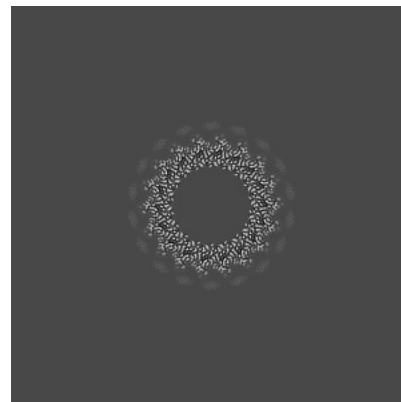
### 6.3.1 Primary map



X Index: 204



Y Index: 202

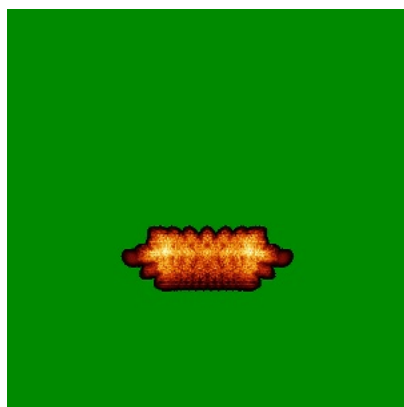


Z Index: 200

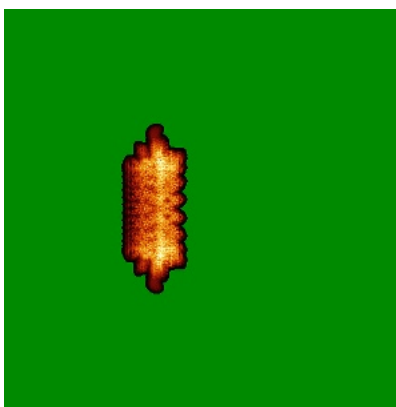
The images above show the largest variance slices of the map in three orthogonal directions.

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

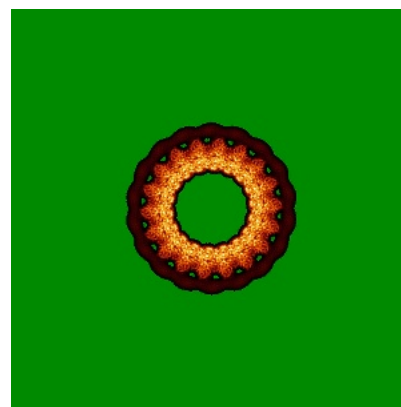
### 6.4.1 Primary map



X



Y



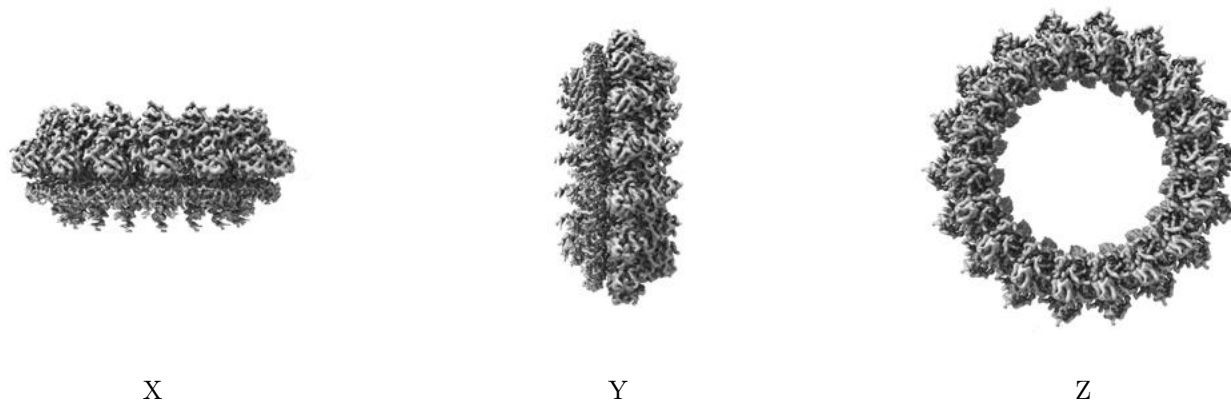
Z

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



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

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.025. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

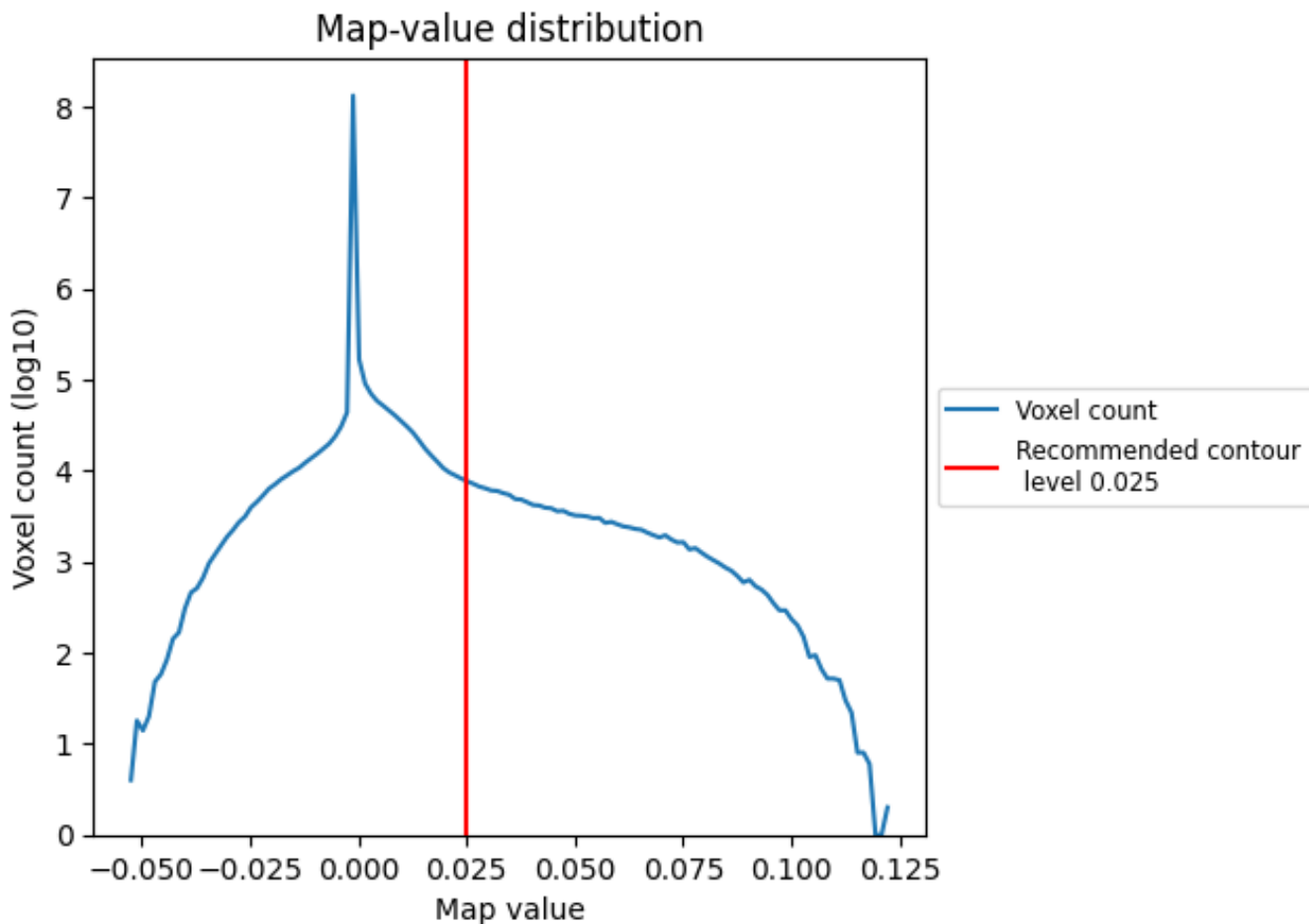
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

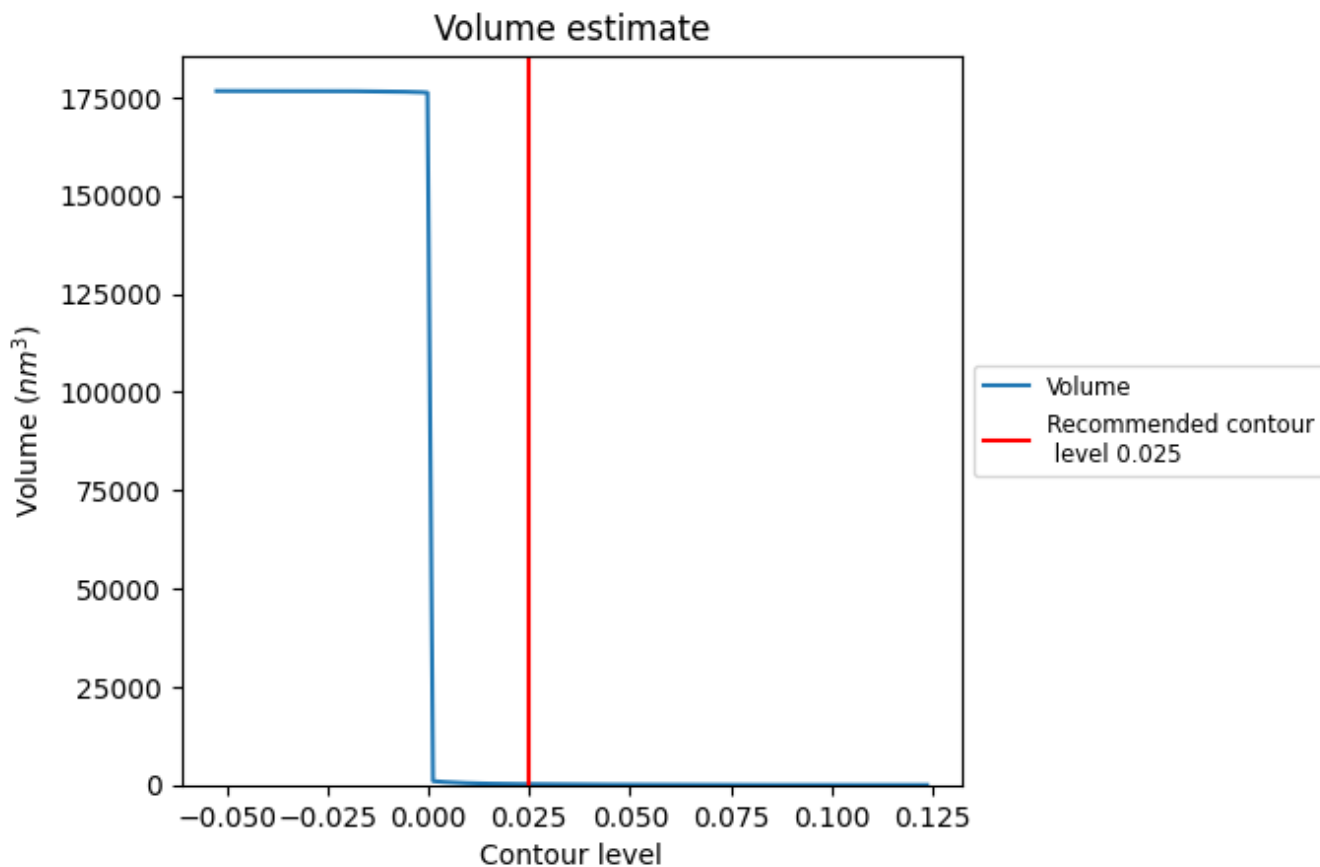
This section contains the results of statistical analysis of the map.

### 7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

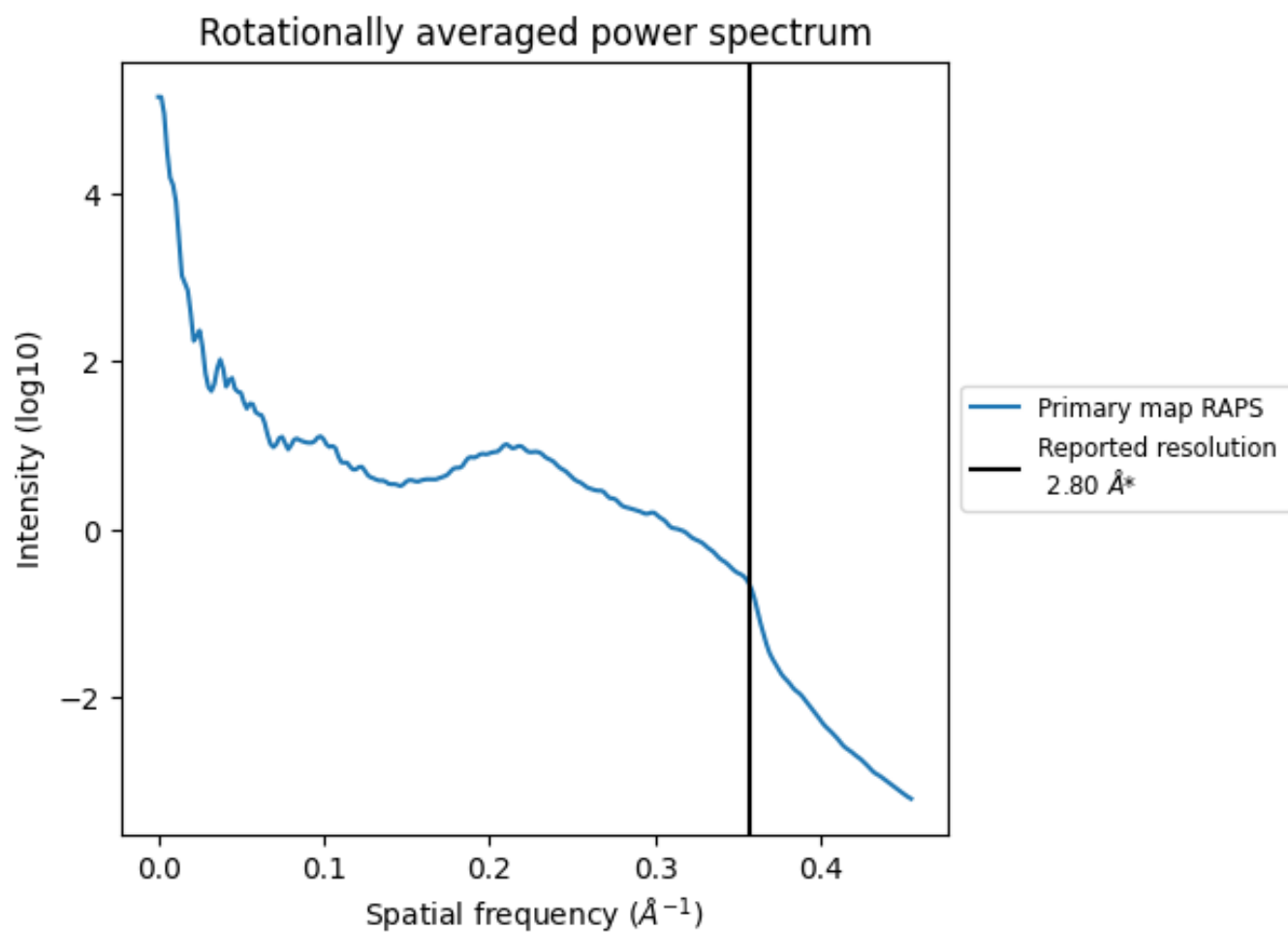
## 7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 203 nm<sup>3</sup>; this corresponds to an approximate mass of 184 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 0.357 Å<sup>-1</sup>

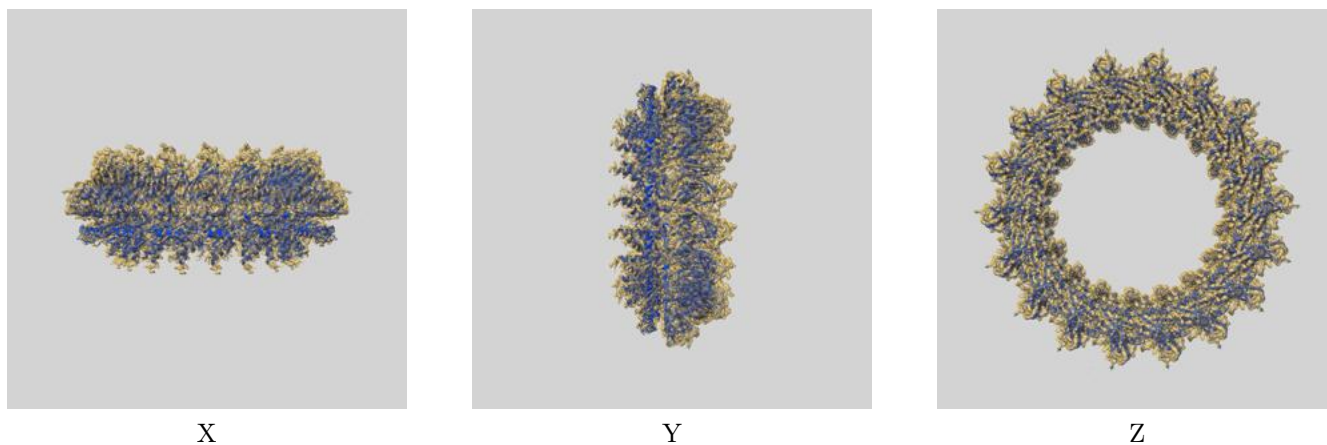
## 8 Fourier-Shell correlation

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

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

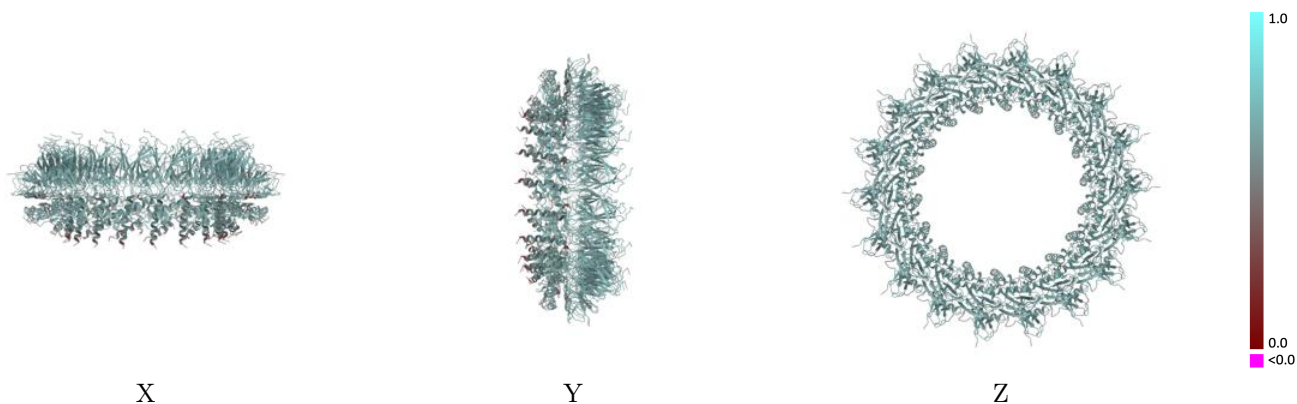
This section contains information regarding the fit between EMDB map EMD-24006 and PDB model 7MUE. Per-residue inclusion information can be found in section [3](#) on page [10](#).

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



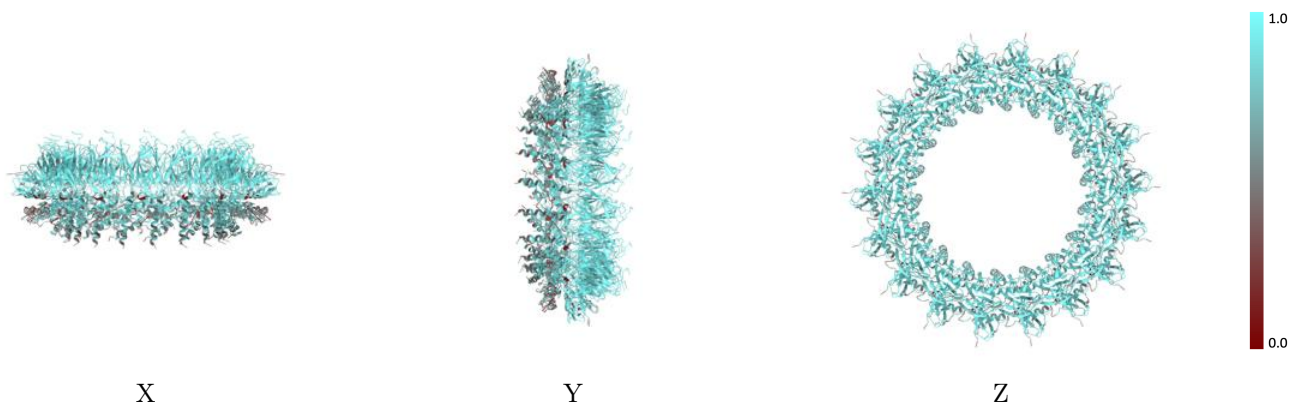
The images above show the 3D surface view of the map at the recommended contour level 0.025 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



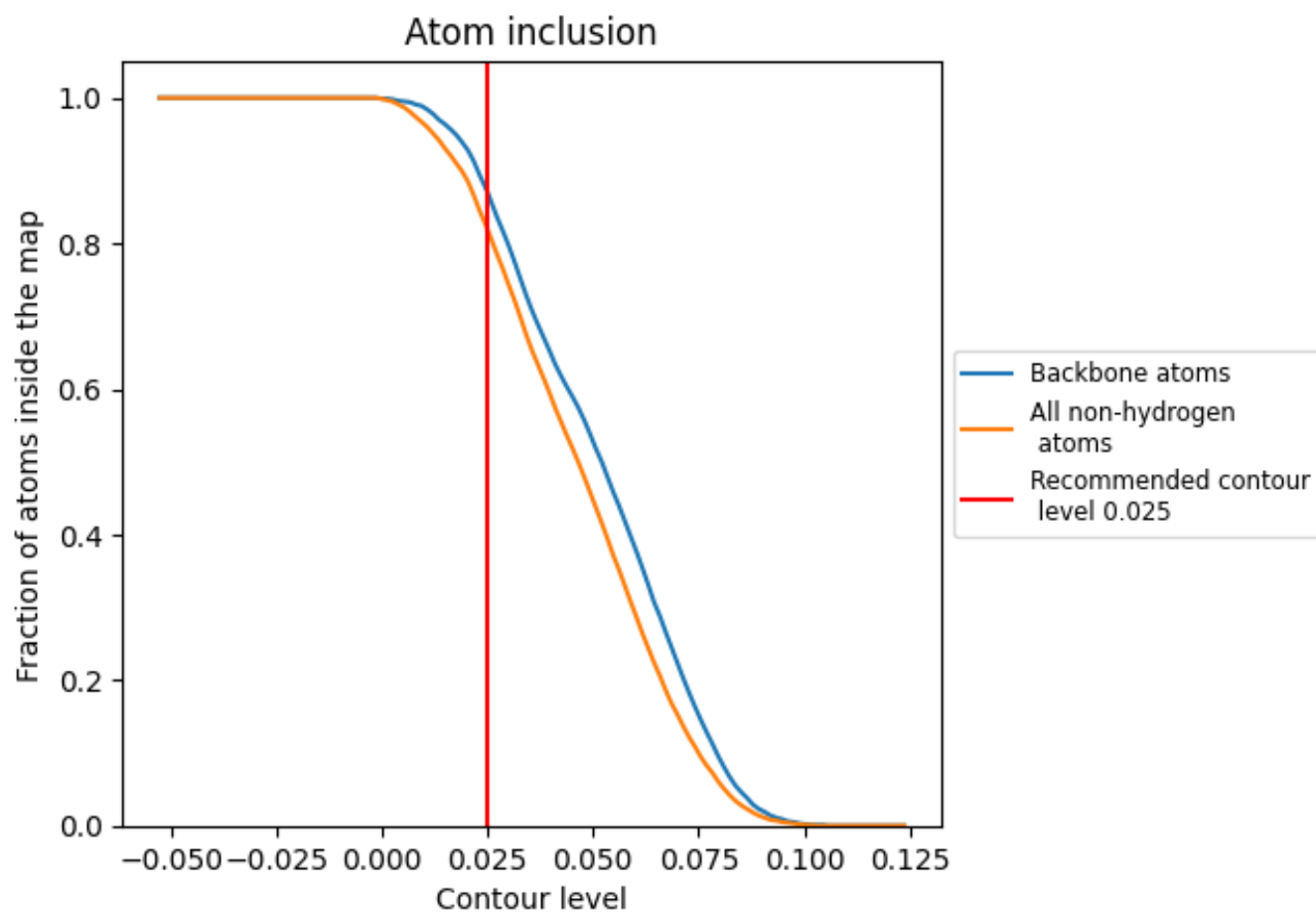
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.025).

## 9.4 Atom inclusion [i](#)









































































At the recommended contour level, 87% of all backbone atoms, 82% 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 (0.025) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8200	 0.6010
AF	 0.7960	 0.5830
AG	 0.7610	 0.5780
AH	 0.8960	 0.6240
AX	 0.5330	 0.5540
BF	 0.7860	 0.5700
BG	 0.7650	 0.5760
BH	 0.9050	 0.6250
BX	 0.5370	 0.5530
CF	 0.7960	 0.5760
CG	 0.7720	 0.5800
CH	 0.9040	 0.6250
CX	 0.5250	 0.5520
DF	 0.7810	 0.5760
DG	 0.7650	 0.5770
DH	 0.8970	 0.6250
DX	 0.5250	 0.5530
EF	 0.7880	 0.5790
EG	 0.7790	 0.5810
EH	 0.9010	 0.6250
EX	 0.5250	 0.5520
FF	 0.7920	 0.5680
FG	 0.7680	 0.5800
FH	 0.8940	 0.6260
FX	 0.5460	 0.5500
GF	 0.8050	 0.5790
GG	 0.7760	 0.5880
GH	 0.8960	 0.6270
GX	 0.5460	 0.5560
HF	 0.7940	 0.5810
HG	 0.7650	 0.5860
HH	 0.8960	 0.6270
HX	 0.5370	 0.5530
IF	 0.7920	 0.5800
IG	 0.7720	 0.5830



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Chain	Atom inclusion	Q-score
IH	 0.9050	 0.6240
IX	 0.5210	 0.5550
JF	 0.7980	 0.5770
JG	 0.7680	 0.5820
JH	 0.8970	 0.6230
JX	 0.5500	 0.5530
KF	 0.7810	 0.5750
KG	 0.7680	 0.5800
KH	 0.8970	 0.6240
KX	 0.5330	 0.5550
LF	 0.7900	 0.5700
LG	 0.7650	 0.5850
LH	 0.8940	 0.6250
LX	 0.5420	 0.5540
MF	 0.7900	 0.5790
MG	 0.7610	 0.5840
MH	 0.8960	 0.6240
MX	 0.5290	 0.5560
VF	 0.8020	 0.5790
VG	 0.7680	 0.5730
VH	 0.8980	 0.6230
VX	 0.5460	 0.5480
WF	 0.7940	 0.5780
WG	 0.7610	 0.5840
WH	 0.8980	 0.6260
WX	 0.5370	 0.5520
XF	 0.7830	 0.5690
XG	 0.7610	 0.5690
XH	 0.9050	 0.6270
XX	 0.5330	 0.5530
YF	 0.7920	 0.5750
YG	 0.7830	 0.5760
YH	 0.9000	 0.6260
YX	 0.5250	 0.5540
ZF	 0.8020	 0.5780
ZG	 0.7790	 0.5820
ZH	 0.8970	 0.6240
ZX	 0.5460	 0.5570