Full wwPDB EM Validation Report ⓘ

Jan 24, 2024 – 03:59 pm GMT

PDB ID	:	4A5Q
EMDB ID	:	EMD-1978
Title	:	Crystal structure of the chitinase Chi1 fitted into the 3D structure of the Yersinia entomophaga toxin complex
Authors	:	Busby, J.N.; Landsberg, M.J.; Simpson, R.M.; Jones, S.A.; Hankamer, B.; Hurst, M.R.H.; Lott, J.S.
Deposited on	:	2011-10-27
Resolution	:	17.00 Å(reported)
Based on initial model	:	3OA5

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

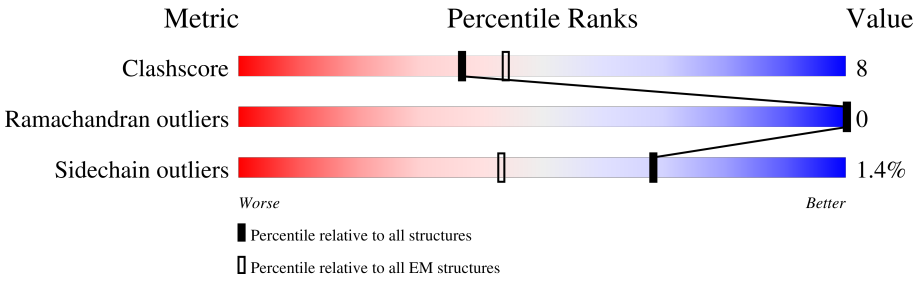
EMDB validation analysis	:	0.0.1.dev70
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 17.00 Å.

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



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

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

Mol	Chain	Length	Quality of chain
1	A	546	10% 87% 6% •• 6%
1	B	546	9% 86% 7% • 6%
1	C	546	8% 87% 6% •• 6%
1	D	546	8% 87% 6% •• 6%
1	E	546	11% 86% 7% • 6%

2 Entry composition (i)

There is only 1 type of molecule in this entry. The entry contains 20005 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 CHI1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	515	Total	C	N	O	S	0	0
			4001	2541	662	788	10		
1	B	515	Total	C	N	O	S	0	0
			4001	2541	662	788	10		
1	C	515	Total	C	N	O	S	0	0
			4001	2541	662	788	10		
1	D	515	Total	C	N	O	S	0	0
			4001	2541	662	788	10		
1	E	515	Total	C	N	O	S	0	0
			4001	2541	662	788	10		

There are 20 discrepancies between the modelled and reference sequences:

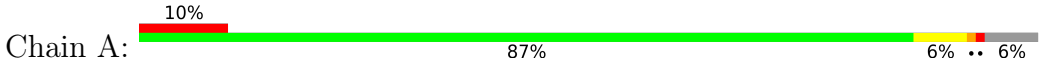
Chain	Residue	Modelled	Actual	Comment	Reference
A	-3	GLY	-	expression tag	UNP B6A876
A	-2	SER	-	expression tag	UNP B6A876
A	-1	GLY	-	expression tag	UNP B6A876
A	0	ALA	-	expression tag	UNP B6A876
B	-3	GLY	-	expression tag	UNP B6A876
B	-2	SER	-	expression tag	UNP B6A876
B	-1	GLY	-	expression tag	UNP B6A876
B	0	ALA	-	expression tag	UNP B6A876
C	-3	GLY	-	expression tag	UNP B6A876
C	-2	SER	-	expression tag	UNP B6A876
C	-1	GLY	-	expression tag	UNP B6A876
C	0	ALA	-	expression tag	UNP B6A876
D	-3	GLY	-	expression tag	UNP B6A876
D	-2	SER	-	expression tag	UNP B6A876
D	-1	GLY	-	expression tag	UNP B6A876
D	0	ALA	-	expression tag	UNP B6A876
E	-3	GLY	-	expression tag	UNP B6A876
E	-2	SER	-	expression tag	UNP B6A876
E	-1	GLY	-	expression tag	UNP B6A876
E	0	ALA	-	expression tag	UNP B6A876

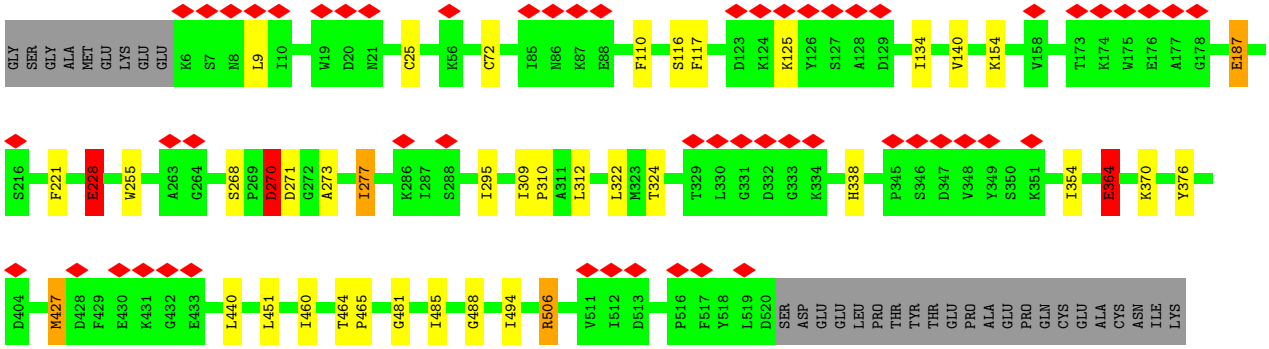
3 Residue-property plots (i)

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: CHI1

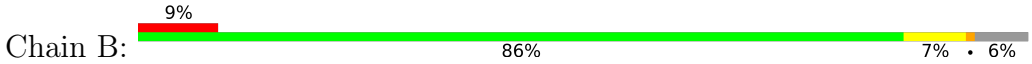
Chain A:

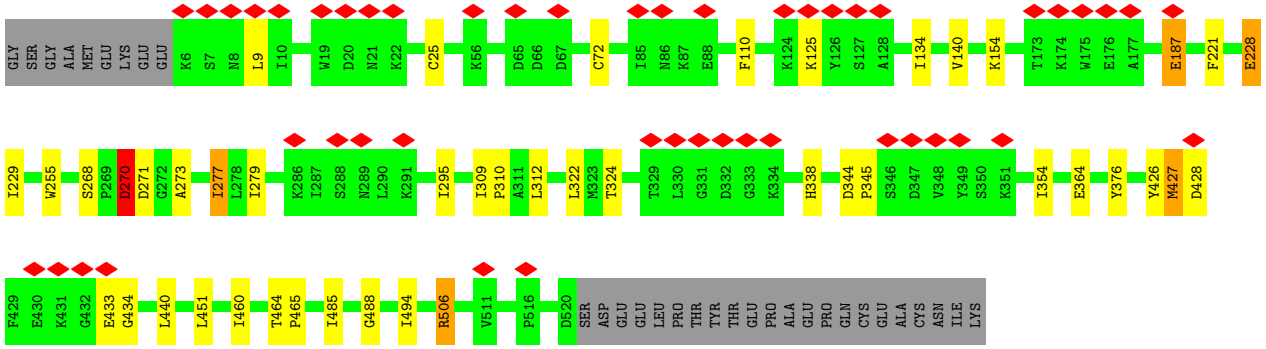




• Molecule 1: CHI1

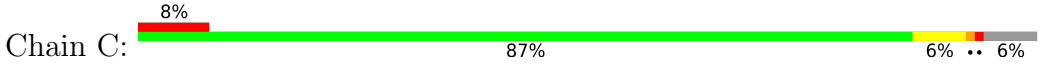
Chain B:

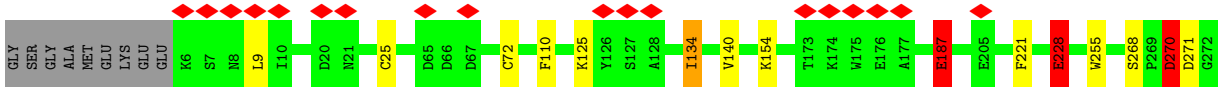


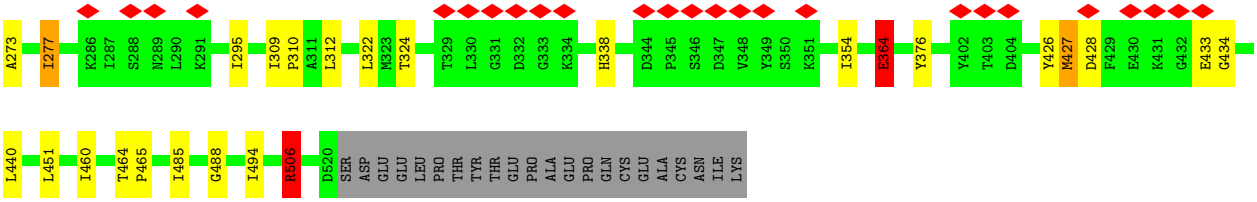


• Molecule 1: CHI1

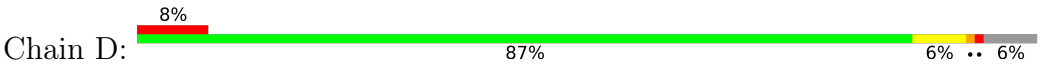
Chain C:

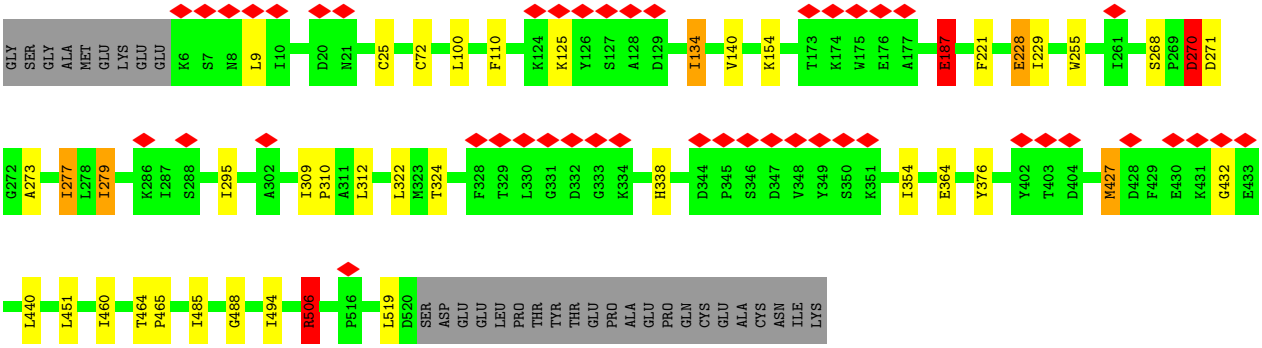




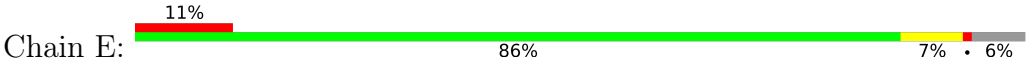


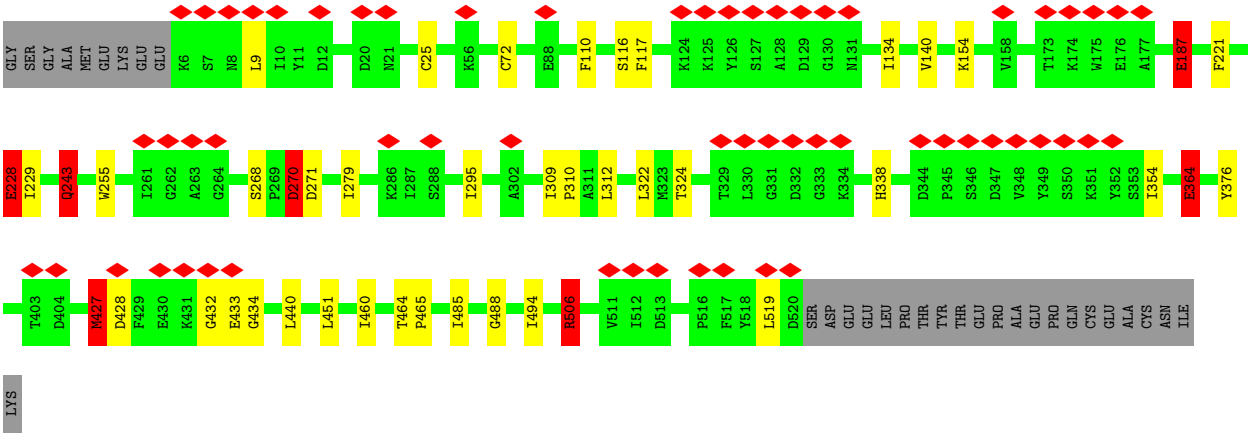
• Molecule 1: CHI1





• Molecule 1: CHI1





4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C5	Depositor
Number of particles used	10604	Depositor
Resolution determination method	Not provided	
CTF correction method	Not provided	
Microscope	FEI TECNAI F30	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	80	Depositor
Minimum defocus (nm)	900	Depositor
Maximum defocus (nm)	950	Depositor
Magnification	59000	Depositor
Image detector	GATAN ULTRASCAN 4000 (4k x 4k)	Depositor
Maximum map value	13.068	Depositor
Minimum map value	-11.994	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.872	Depositor
Recommended contour level	6.13	Depositor
Map size (Å)	702, 702, 702	wwPDB
Map dimensions	180, 180, 180	wwPDB
Map angles (°)	90, 90, 90	wwPDB
Pixel spacing (Å)	3.9, 3.9, 3.9	Depositor

5 Model quality

5.1 Standard geometry

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	A	9.27	18/4093 (0.4%)	2.59	26/5555 (0.5%)
1	B	9.00	15/4093 (0.4%)	2.18	22/5555 (0.4%)
1	C	5.59	14/4093 (0.3%)	4.42	18/5555 (0.3%)
1	D	3.15	16/4093 (0.4%)	1.63	20/5555 (0.4%)
1	E	9.94	17/4093 (0.4%)	2.97	34/5555 (0.6%)
All	All	7.83	80/20465 (0.4%)	2.91	120/27775 (0.4%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	3
1	B	0	2
1	C	0	5
1	D	0	4
1	E	0	6
All	All	0	20

All (80) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	E	187	GLU	CD-OE2	442.53	6.12	1.25
1	B	187	GLU	CD-OE2	442.52	6.12	1.25
1	A	187	GLU	CD-OE2	442.51	6.12	1.25
1	E	364	GLU	CD-OE1	337.57	4.96	1.25
1	A	187	GLU	CD-OE1	314.34	4.71	1.25
1	B	187	GLU	CD-OE1	314.34	4.71	1.25
1	C	506	ARG	CZ-NH1	230.82	4.33	1.33
1	C	187	GLU	CG-CD	165.24	3.99	1.51
1	D	187	GLU	CG-CD	165.22	3.99	1.51
1	C	506	ARG	CZ-NH2	163.65	3.45	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	E	506	ARG	CZ-NH2	163.63	3.45	1.33
1	A	187	GLU	CG-CD	158.15	3.89	1.51
1	E	187	GLU	CG-CD	158.14	3.89	1.51
1	B	187	GLU	CG-CD	158.13	3.89	1.51
1	E	364	GLU	CG-CD	125.11	3.39	1.51
1	E	228	GLU	CD-OE2	116.27	2.53	1.25
1	A	364	GLU	CG-CD	100.72	3.03	1.51
1	C	364	GLU	CG-CD	100.72	3.03	1.51
1	A	228	GLU	CD-OE1	68.00	2.00	1.25
1	D	270	ASP	CG-OD1	59.51	2.62	1.25
1	A	270	ASP	CG-OD1	59.50	2.62	1.25
1	B	270	ASP	CG-OD1	59.47	2.62	1.25
1	C	270	ASP	CG-OD1	59.47	2.62	1.25
1	E	506	ARG	NE-CZ	57.67	2.08	1.33
1	A	228	GLU	CG-CD	-55.98	0.68	1.51
1	E	228	GLU	CG-CD	-55.94	0.68	1.51
1	D	506	ARG	CD-NE	-52.64	0.56	1.46
1	B	270	ASP	CG-OD2	51.68	2.44	1.25
1	A	270	ASP	CG-OD2	51.68	2.44	1.25
1	D	270	ASP	CG-OD2	51.67	2.44	1.25
1	C	270	ASP	CG-OD2	51.66	2.44	1.25
1	A	506	ARG	CD-NE	45.04	2.23	1.46
1	B	187	GLU	CB-CG	40.82	2.29	1.52
1	A	506	ARG	NE-CZ	38.63	1.83	1.33
1	E	270	ASP	CG-OD2	37.69	2.12	1.25
1	E	243	GLN	CD-NE2	37.54	2.26	1.32
1	E	270	ASP	CB-CG	-23.53	1.02	1.51
1	B	506	ARG	CG-CD	22.26	2.07	1.51
1	A	506	ARG	CG-CD	22.24	2.07	1.51
1	D	506	ARG	CG-CD	22.23	2.07	1.51
1	C	506	ARG	CG-CD	22.23	2.07	1.51
1	A	228	GLU	CB-CG	16.88	1.84	1.52
1	E	228	GLU	CB-CG	16.85	1.84	1.52
1	C	187	GLU	CB-CG	16.11	1.82	1.52
1	D	187	GLU	CB-CG	16.09	1.82	1.52
1	E	427	MET	SD-CE	14.57	2.59	1.77
1	A	427	MET	SD-CE	11.15	2.40	1.77
1	D	427	MET	SD-CE	11.15	2.40	1.77
1	B	187	GLU	CA-CB	10.56	1.77	1.53
1	C	228	GLU	CG-CD	9.45	1.66	1.51
1	D	228	GLU	CG-CD	9.41	1.66	1.51
1	B	228	GLU	CG-CD	9.41	1.66	1.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	279	ILE	CB-CG1	9.13	1.79	1.54
1	A	228	GLU	CA-CB	7.84	1.71	1.53
1	B	134	ILE	CG1-CD1	-7.72	0.97	1.50
1	C	134	ILE	CG1-CD1	-7.72	0.97	1.50
1	D	134	ILE	CG1-CD1	-7.71	0.97	1.50
1	D	125	LYS	CE-NZ	6.32	1.64	1.49
1	C	125	LYS	CE-NZ	6.30	1.64	1.49
1	B	125	LYS	CE-NZ	6.29	1.64	1.49
1	A	134	ILE	CB-CG1	5.99	1.70	1.54
1	B	364	GLU	CB-CG	5.84	1.63	1.52
1	E	364	GLU	CB-CG	5.84	1.63	1.52
1	D	364	GLU	CB-CG	5.83	1.63	1.52
1	E	187	GLU	CA-CB	-5.59	1.41	1.53
1	A	25	CYS	CB-SG	-5.58	1.72	1.81
1	B	25	CYS	CB-SG	-5.55	1.72	1.81
1	C	25	CYS	CB-SG	-5.55	1.72	1.81
1	D	427	MET	CG-SD	5.55	1.95	1.81
1	E	25	CYS	CB-SG	-5.55	1.72	1.81
1	D	25	CYS	CB-SG	-5.54	1.72	1.81
1	A	427	MET	CG-SD	5.50	1.95	1.81
1	B	228	GLU	CA-CB	-5.50	1.41	1.53
1	D	228	GLU	CA-CB	-5.49	1.41	1.53
1	B	228	GLU	CB-CG	5.46	1.62	1.52
1	D	228	GLU	CB-CG	5.45	1.62	1.52
1	C	228	GLU	CB-CG	5.45	1.62	1.52
1	C	364	GLU	CB-CG	5.27	1.62	1.52
1	E	229	ILE	CB-CG2	5.23	1.69	1.52
1	A	364	GLU	CB-CG	5.21	1.62	1.52

All (120) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	506	ARG	NE-CZ-NH1	-212.40	14.10	120.30
1	C	506	ARG	NE-CZ-NH2	-203.54	18.53	120.30
1	E	506	ARG	NE-CZ-NH2	-160.14	40.23	120.30
1	A	187	GLU	OE1-CD-OE2	-87.70	18.07	123.30
1	B	187	GLU	OE1-CD-OE2	-87.70	18.07	123.30
1	C	506	ARG	NH1-CZ-NH2	-79.51	31.93	119.40
1	A	506	ARG	NE-CZ-NH2	-62.92	88.84	120.30
1	A	506	ARG	NE-CZ-NH1	61.02	150.81	120.30
1	A	270	ASP	CB-CG-OD1	-60.25	64.07	118.30
1	C	270	ASP	CB-CG-OD1	-60.25	64.07	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	D	270	ASP	CB-CG-OD1	-60.25	64.08	118.30
1	B	270	ASP	CB-CG-OD1	-60.24	64.08	118.30
1	E	187	GLU	CG-CD-OE2	-53.14	12.02	118.30
1	A	187	GLU	CG-CD-OE2	-53.14	12.02	118.30
1	B	187	GLU	CG-CD-OE2	-53.14	12.02	118.30
1	E	228	GLU	OE1-CD-OE2	-51.25	61.80	123.30
1	B	270	ASP	CB-CG-OD2	-51.11	72.30	118.30
1	D	270	ASP	CB-CG-OD2	-51.11	72.31	118.30
1	A	270	ASP	CB-CG-OD2	-51.09	72.32	118.30
1	C	270	ASP	CB-CG-OD2	-51.08	72.33	118.30
1	E	364	GLU	OE1-CD-OE2	-47.00	66.90	123.30
1	E	364	GLU	CG-CD-OE1	-46.30	25.71	118.30
1	E	506	ARG	NE-CZ-NH1	-44.65	97.98	120.30
1	A	187	GLU	CG-CD-OE1	-44.11	30.09	118.30
1	B	187	GLU	CG-CD-OE1	-44.11	30.09	118.30
1	D	270	ASP	OD1-CG-OD2	-38.05	51.00	123.30
1	C	270	ASP	OD1-CG-OD2	-38.04	51.02	123.30
1	A	270	ASP	OD1-CG-OD2	-38.04	51.03	123.30
1	B	270	ASP	OD1-CG-OD2	-38.04	51.03	123.30
1	A	506	ARG	CD-NE-CZ	-34.91	74.73	123.60
1	E	187	GLU	OE1-CD-OE2	32.52	162.32	123.30
1	C	187	GLU	CB-CG-CD	-31.06	30.34	114.20
1	D	187	GLU	CB-CG-CD	-31.06	30.34	114.20
1	E	270	ASP	CB-CG-OD2	-30.43	90.91	118.30
1	C	364	GLU	CG-CD-OE2	-30.39	57.53	118.30
1	A	364	GLU	CG-CD-OE2	-30.38	57.54	118.30
1	B	187	GLU	CB-CG-CD	-27.58	39.74	114.20
1	A	187	GLU	CB-CG-CD	-26.04	43.90	114.20
1	E	187	GLU	CB-CG-CD	-26.03	43.91	114.20
1	E	364	GLU	CB-CG-CD	-25.01	46.68	114.20
1	E	228	GLU	CG-CD-OE2	-24.52	69.26	118.30
1	E	187	GLU	CG-CD-OE1	24.43	167.16	118.30
1	E	364	GLU	CG-CD-OE2	-24.39	69.52	118.30
1	C	187	GLU	CG-CD-OE2	-22.79	72.73	118.30
1	D	187	GLU	CG-CD-OE2	-22.77	72.76	118.30
1	A	364	GLU	CG-CD-OE1	22.25	162.80	118.30
1	C	364	GLU	CG-CD-OE1	22.24	162.79	118.30
1	B	506	ARG	CG-CD-NE	-22.20	65.18	111.80
1	D	506	ARG	CD-NE-CZ	-21.10	94.06	123.60
1	A	364	GLU	CB-CG-CD	-20.72	58.27	114.20
1	C	364	GLU	CB-CG-CD	-20.71	58.28	114.20
1	C	187	GLU	CG-CD-OE1	20.33	158.95	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	D	187	GLU	CG-CD-OE1	20.32	158.93	118.30
1	A	228	GLU	CB-CG-CD	20.12	168.52	114.20
1	E	228	GLU	CB-CG-CD	20.11	168.49	114.20
1	A	506	ARG	CG-CD-NE	-19.51	70.84	111.80
1	A	228	GLU	OE1-CD-OE2	-17.69	102.07	123.30
1	E	506	ARG	CD-NE-CZ	-16.56	100.41	123.60
1	E	243	GLN	CG-CD-NE2	-16.54	77.00	116.70
1	B	187	GLU	CA-CB-CG	-16.23	77.69	113.40
1	E	506	ARG	NH1-CZ-NH2	16.10	137.11	119.40
1	E	270	ASP	CB-CG-OD1	-14.97	104.83	118.30
1	E	427	MET	CG-SD-CE	-14.75	76.60	100.20
1	E	270	ASP	CA-CB-CG	14.27	144.79	113.40
1	D	427	MET	CG-SD-CE	-13.42	78.73	100.20
1	A	427	MET	CG-SD-CE	-13.40	78.77	100.20
1	B	506	ARG	CB-CG-CD	-11.18	82.54	111.60
1	A	506	ARG	CB-CG-CD	-11.17	82.55	111.60
1	B	279	ILE	CB-CG1-CD1	10.43	143.10	113.90
1	E	279	ILE	CB-CG1-CD1	10.42	143.08	113.90
1	D	279	ILE	CA-CB-CG1	-10.10	91.81	111.00
1	E	134	ILE	CB-CG1-CD1	9.68	141.00	113.90
1	D	506	ARG	CG-CD-NE	9.16	131.04	111.80
1	A	228	GLU	CA-CB-CG	-9.07	93.44	113.40
1	E	270	ASP	OD1-CG-OD2	-8.97	106.26	123.30
1	D	228	GLU	CG-CD-OE1	-8.86	100.57	118.30
1	C	134	ILE	CB-CG1-CD1	8.85	138.69	113.90
1	B	134	ILE	CB-CG1-CD1	8.85	138.68	113.90
1	C	228	GLU	CG-CD-OE1	-8.84	100.61	118.30
1	D	134	ILE	CB-CG1-CD1	8.84	138.64	113.90
1	B	228	GLU	CG-CD-OE1	-8.84	100.63	118.30
1	E	187	GLU	CB-CA-C	8.54	127.49	110.40
1	E	228	GLU	CA-CB-CG	-8.26	95.22	113.40
1	A	125	LYS	CD-CE-NZ	7.94	129.97	111.70
1	E	243	GLN	OE1-CD-NE2	-7.53	104.58	121.90
1	C	506	ARG	CB-CG-CD	-7.10	93.15	111.60
1	A	134	ILE	CG1-CB-CG2	-7.03	95.94	111.40
1	B	229	ILE	CB-CG1-CD1	7.01	133.54	113.90
1	D	506	ARG	CB-CG-CD	-6.83	93.83	111.60
1	A	134	ILE	CA-CB-CG1	-6.44	98.77	111.00
1	B	187	GLU	CB-CA-C	-6.37	97.66	110.40
1	E	279	ILE	CG1-CB-CG2	-6.32	97.50	111.40
1	B	279	ILE	CG1-CB-CG2	-6.31	97.52	111.40
1	B	228	GLU	CB-CA-C	6.16	122.72	110.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	D	228	GLU	CB-CA-C	6.11	122.62	110.40
1	E	427	MET	CB-CG-SD	5.97	130.30	112.40
1	A	228	GLU	CB-CA-C	-5.87	98.66	110.40
1	E	243	GLN	CB-CG-CD	5.85	126.81	111.60
1	E	228	GLU	CG-CD-OE1	-5.74	106.82	118.30
1	E	229	ILE	CB-CG1-CD1	5.72	129.92	113.90
1	C	125	LYS	CD-CE-NZ	-5.62	98.78	111.70
1	B	125	LYS	CD-CE-NZ	-5.62	98.78	111.70
1	D	125	LYS	CD-CE-NZ	-5.61	98.79	111.70
1	B	279	ILE	CA-CB-CG2	-5.45	100.01	110.90
1	B	187	GLU	N-CA-CB	-5.41	100.87	110.60
1	D	271	ASP	CB-CG-OD1	5.41	123.17	118.30
1	A	228	GLU	N-CA-CB	-5.36	100.96	110.60
1	C	271	ASP	CB-CG-OD1	5.35	123.12	118.30
1	A	271	ASP	CB-CG-OD1	5.34	123.11	118.30
1	E	271	ASP	CB-CG-OD1	5.33	123.09	118.30
1	E	229	ILE	CG1-CB-CG2	-5.32	99.70	111.40
1	B	228	GLU	CB-CG-CD	-5.31	99.87	114.20
1	C	228	GLU	CB-CG-CD	-5.31	99.87	114.20
1	D	228	GLU	CB-CG-CD	-5.30	99.90	114.20
1	B	271	ASP	CB-CG-OD1	5.29	123.06	118.30
1	D	506	ARG	CA-CB-CG	5.20	124.84	113.40
1	D	229	ILE	CG1-CB-CG2	5.19	122.82	111.40
1	E	279	ILE	CA-CB-CG2	-5.09	100.72	110.90
1	D	427	MET	CB-CG-SD	-5.07	97.18	112.40
1	A	427	MET	CB-CG-SD	-5.07	97.18	112.40

There are no chirality outliers.

All (20) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	228	GLU	Sidechain
1	A	270	ASP	Sidechain
1	A	364	GLU	Sidechain
1	B	228	GLU	Sidechain
1	B	270	ASP	Sidechain
1	C	187	GLU	Sidechain
1	C	228	GLU	Sidechain
1	C	270	ASP	Sidechain
1	C	364	GLU	Sidechain
1	C	506	ARG	Sidechain
1	D	187	GLU	Sidechain

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Mol	Chain	Res	Type	Group
1	D	228	GLU	Sidechain
1	D	270	ASP	Sidechain
1	D	506	ARG	Sidechain
1	E	187	GLU	Sidechain
1	E	228	GLU	Sidechain
1	E	243	GLN	Sidechain
1	E	270	ASP	Sidechain
1	E	364	GLU	Sidechain
1	E	506	ARG	Sidechain

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	4001	0	3799	65	0
1	B	4001	0	3799	68	0
1	C	4001	0	3799	69	0
1	D	4001	0	3799	47	0
1	E	4001	0	3799	73	0
All	All	20005	0	18995	322	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 8.

All (322) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:427:MET:HE2	1:E:427:MET:CA	1.23	1.66
1:B:187:GLU:CA	1:B:187:GLU:CB	1.77	1.60
1:B:427:MET:CE	1:B:427:MET:HA	1.30	1.60
1:E:427:MET:HA	1:E:427:MET:CE	1.30	1.60
1:C:427:MET:HA	1:C:427:MET:CE	1.31	1.59
1:C:187:GLU:CG	1:C:187:GLU:CB	1.82	1.57
1:A:228:GLU:CG	1:A:228:GLU:CB	1.84	1.56
1:D:279:ILE:CG1	1:D:279:ILE:CB	1.79	1.55
1:E:228:GLU:CB	1:E:228:GLU:CG	1.84	1.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:187:GLU:CB	1:D:187:GLU:CG	1.82	1.52
1:C:427:MET:CE	1:C:434:GLY:HA2	1.41	1.51
1:B:427:MET:CE	1:B:434:GLY:HA2	1.41	1.49
1:E:427:MET:CE	1:E:434:GLY:HA2	1.41	1.48
1:C:427:MET:HE1	1:C:434:GLY:CA	1.44	1.45
1:A:506:ARG:NE	1:A:506:ARG:CZ	1.83	1.40
1:B:427:MET:CA	1:B:427:MET:HE2	1.50	1.38
1:A:228:GLU:CG	1:A:228:GLU:OE2	1.71	1.34
1:A:506:ARG:CD	1:A:506:ARG:CG	2.07	1.32
1:C:506:ARG:CD	1:C:506:ARG:CG	2.07	1.32
1:B:506:ARG:CD	1:B:506:ARG:CG	2.07	1.31
1:D:506:ARG:CD	1:D:506:ARG:CG	2.07	1.31
1:B:506:ARG:CG	1:B:506:ARG:NE	1.97	1.27
1:B:427:MET:HE1	1:B:434:GLY:CA	1.69	1.22
1:E:427:MET:HE3	1:E:434:GLY:CA	1.69	1.21
1:C:427:MET:CE	1:C:427:MET:CA	2.20	1.16
1:E:506:ARG:CZ	1:E:506:ARG:NE	2.08	1.15
1:C:187:GLU:HB2	1:C:187:GLU:CD	1.70	1.12
1:C:427:MET:HA	1:C:427:MET:HE2	1.23	1.11
1:B:187:GLU:CB	1:B:187:GLU:CG	2.29	1.10
1:A:427:MET:SD	1:A:427:MET:CE	2.40	1.10
1:B:427:MET:HE3	1:B:434:GLY:HA2	1.23	1.09
1:E:364:GLU:HB2	1:E:364:GLU:CD	1.70	1.09
1:D:187:GLU:HB2	1:D:187:GLU:CD	1.70	1.09
1:B:427:MET:HE1	1:B:434:GLY:HA2	1.11	1.09
1:B:427:MET:HA	1:B:427:MET:HE3	1.32	1.08
1:D:427:MET:SD	1:D:427:MET:CE	2.40	1.08
1:E:364:GLU:OE1	1:E:364:GLU:HG2	1.52	1.08
1:C:506:ARG:CD	1:C:506:ARG:NH1	2.20	1.04
1:B:427:MET:CE	1:B:427:MET:CA	2.17	1.03
1:E:506:ARG:HE	1:E:506:ARG:NH2	1.57	1.03
1:A:506:ARG:NE	1:A:506:ARG:CD	2.23	1.02
1:C:427:MET:CA	1:C:427:MET:HE2	1.86	1.02
1:C:506:ARG:NH1	1:C:506:ARG:HH21	1.58	1.02
1:C:427:MET:HE2	1:C:428:ASP:N	1.75	1.01
1:C:506:ARG:NH2	1:C:506:ARG:HE	1.59	1.01
1:C:427:MET:HE2	1:C:428:ASP:H	1.23	1.01
1:B:427:MET:CE	1:B:434:GLY:CA	2.31	1.01
1:B:187:GLU:CD	1:B:187:GLU:HB3	1.82	1.00
1:B:187:GLU:OE1	1:B:187:GLU:HG2	1.61	1.00
1:A:228:GLU:OE1	1:A:228:GLU:CD	2.00	1.00

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:427:MET:CE	1:E:434:GLY:CA	2.31	0.99
1:E:243:GLN:NE2	1:E:243:GLN:HG3	1.77	0.99
1:C:506:ARG:NH1	1:C:506:ARG:HD3	1.78	0.98
1:B:506:ARG:CD	1:B:506:ARG:CB	2.41	0.98
1:A:187:GLU:HG2	1:A:187:GLU:OE1	1.63	0.98
1:E:427:MET:HE1	1:E:433:GLU:O	1.63	0.98
1:C:427:MET:HA	1:C:427:MET:HE3	1.00	0.98
1:A:506:ARG:CD	1:A:506:ARG:CB	2.41	0.97
1:E:187:GLU:OE2	1:E:187:GLU:HG2	1.65	0.97
1:B:187:GLU:HG2	1:B:187:GLU:OE2	1.64	0.96
1:A:364:GLU:HB3	1:A:364:GLU:CD	1.85	0.96
1:A:187:GLU:HG2	1:A:187:GLU:OE2	1.65	0.96
1:C:364:GLU:CD	1:C:364:GLU:HB3	1.85	0.96
1:E:506:ARG:HH11	1:E:506:ARG:CG	1.80	0.94
1:C:427:MET:CA	1:C:427:MET:HE3	1.91	0.94
1:E:270:ASP:HB3	1:E:270:ASP:OD2	1.69	0.92
1:A:506:ARG:CZ	1:A:506:ARG:CD	2.48	0.91
1:C:506:ARG:NH1	1:C:506:ARG:HD2	1.86	0.91
1:B:427:MET:HE2	1:B:428:ASP:N	1.85	0.90
1:E:427:MET:CE	1:E:427:MET:SD	2.59	0.90
1:D:270:ASP:HB2	1:D:270:ASP:OD2	1.71	0.90
1:D:279:ILE:CG1	1:D:279:ILE:CA	2.48	0.90
1:A:228:GLU:OE2	1:A:228:GLU:HG3	1.48	0.90
1:C:427:MET:HE3	1:C:434:GLY:HA2	1.54	0.90
1:B:270:ASP:OD2	1:B:270:ASP:HB2	1.71	0.89
1:E:228:GLU:CG	1:E:228:GLU:CA	2.50	0.89
1:E:270:ASP:OD2	1:E:270:ASP:CG	2.12	0.88
1:B:427:MET:HE2	1:B:427:MET:C	1.93	0.88
1:C:270:ASP:HB2	1:C:270:ASP:OD2	1.73	0.88
1:E:243:GLN:NE2	1:E:243:GLN:CD	2.26	0.88
1:A:270:ASP:HB2	1:A:270:ASP:OD2	1.73	0.87
1:B:427:MET:HA	1:B:427:MET:HE2	0.88	0.86
1:C:506:ARG:NH2	1:C:506:ARG:NE	2.24	0.86
1:A:273:ALA:O	1:A:277:ILE:HD13	1.76	0.86
1:A:506:ARG:NE	1:A:506:ARG:NH2	2.24	0.85
1:B:273:ALA:O	1:B:277:ILE:HD13	1.76	0.85
1:A:273:ALA:O	1:A:277:ILE:CD1	2.25	0.84
1:D:273:ALA:O	1:D:277:ILE:CD1	2.25	0.84
1:C:427:MET:HE1	1:C:434:GLY:N	1.92	0.84
1:C:273:ALA:O	1:C:277:ILE:CD1	2.25	0.84
1:D:273:ALA:O	1:D:277:ILE:HD13	1.76	0.84

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:273:ALA:O	1:C:277:ILE:HD13	1.76	0.84
1:B:273:ALA:O	1:B:277:ILE:CD1	2.25	0.84
1:B:427:MET:HE1	1:B:433:GLU:O	1.78	0.84
1:A:506:ARG:CZ	1:A:506:ARG:CG	2.57	0.83
1:A:228:GLU:CD	1:A:228:GLU:HG2	1.21	0.83
1:B:506:ARG:CG	1:B:506:ARG:CZ	2.57	0.83
1:A:228:GLU:CD	1:A:228:GLU:HG3	1.21	0.82
1:B:187:GLU:CA	1:B:187:GLU:CG	2.58	0.82
1:E:243:GLN:NE2	1:E:243:GLN:CG	2.41	0.82
1:D:506:ARG:CD	1:D:506:ARG:CB	2.57	0.81
1:B:427:MET:HE1	1:B:433:GLU:C	2.00	0.81
1:A:228:GLU:CG	1:A:228:GLU:CA	2.58	0.80
1:C:506:ARG:HH21	1:C:506:ARG:HH11	1.29	0.80
1:E:506:ARG:HH11	1:E:506:ARG:CD	1.94	0.80
1:E:506:ARG:HH11	1:E:506:ARG:HG3	1.46	0.80
1:B:187:GLU:CB	1:B:187:GLU:C	2.49	0.80
1:A:228:GLU:CB	1:A:228:GLU:CD	2.50	0.79
1:D:279:ILE:CB	1:D:279:ILE:CD1	2.57	0.79
1:A:506:ARG:CD	1:A:506:ARG:HB3	2.12	0.79
1:C:506:ARG:NH1	1:C:506:ARG:NH2	2.30	0.79
1:D:9:LEU:HD22	1:D:494:ILE:HD11	1.65	0.79
1:E:427:MET:HE1	1:E:434:GLY:HA2	1.58	0.78
1:B:506:ARG:CD	1:B:506:ARG:HB3	2.12	0.78
1:C:9:LEU:HD22	1:C:494:ILE:HD11	1.65	0.77
1:C:270:ASP:HB2	1:C:270:ASP:OD1	1.84	0.77
1:B:427:MET:HE1	1:B:434:GLY:N	1.99	0.77
1:E:228:GLU:CB	1:E:228:GLU:HG3	2.13	0.77
1:B:427:MET:HE2	1:B:428:ASP:H	1.47	0.77
1:C:506:ARG:CD	1:C:506:ARG:CB	2.63	0.77
1:A:228:GLU:CG	1:A:228:GLU:CD	0.68	0.76
1:A:228:GLU:CB	1:A:228:GLU:HG2	2.13	0.76
1:D:506:ARG:CD	1:D:506:ARG:HB2	2.16	0.76
1:B:187:GLU:CB	1:B:187:GLU:N	2.48	0.76
1:E:228:GLU:CA	1:E:228:GLU:HG3	2.15	0.76
1:B:9:LEU:HD22	1:B:494:ILE:HD11	1.65	0.76
1:E:506:ARG:NE	1:E:506:ARG:NH2	2.30	0.76
1:E:427:MET:HE2	1:E:427:MET:CB	2.14	0.76
1:A:270:ASP:HB2	1:A:270:ASP:OD1	1.84	0.76
1:C:427:MET:HE1	1:C:434:GLY:HA2	0.78	0.76
1:A:9:LEU:HD22	1:A:494:ILE:HD11	1.65	0.76
1:E:9:LEU:HD22	1:E:494:ILE:HD11	1.65	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:427:MET:HE2	1:C:427:MET:C	2.07	0.75
1:A:506:ARG:NE	1:A:506:ARG:CG	2.49	0.75
1:A:228:GLU:CB	1:A:228:GLU:HG3	2.13	0.74
1:E:270:ASP:OD2	1:E:270:ASP:CB	2.36	0.74
1:C:270:ASP:OD1	1:C:270:ASP:CB	2.37	0.73
1:B:295:ILE:HD13	1:B:312:LEU:HD13	1.70	0.72
1:D:270:ASP:OD1	1:D:270:ASP:CB	2.37	0.72
1:A:270:ASP:OD1	1:A:270:ASP:CB	2.37	0.72
1:A:364:GLU:CD	1:A:364:GLU:CB	2.57	0.72
1:A:295:ILE:HD13	1:A:312:LEU:HD13	1.71	0.72
1:B:187:GLU:CG	1:B:187:GLU:OE1	2.37	0.72
1:E:295:ILE:HD13	1:E:312:LEU:HD13	1.70	0.72
1:A:228:GLU:HG3	1:A:228:GLU:CA	2.18	0.72
1:B:270:ASP:OD1	1:B:270:ASP:CB	2.37	0.72
1:D:295:ILE:HD13	1:D:312:LEU:HD13	1.70	0.72
1:A:187:GLU:OE1	1:A:187:GLU:CG	2.37	0.71
1:C:364:GLU:CD	1:C:364:GLU:CB	2.57	0.71
1:E:228:GLU:CG	1:E:228:GLU:OE2	2.38	0.71
1:C:295:ILE:HD13	1:C:312:LEU:HD13	1.70	0.71
1:D:270:ASP:HB2	1:D:270:ASP:OD1	1.91	0.71
1:B:270:ASP:HB2	1:B:270:ASP:OD1	1.91	0.71
1:E:228:GLU:CB	1:E:228:GLU:HG2	2.13	0.70
1:E:506:ARG:HG3	1:E:506:ARG:NH1	2.05	0.70
1:A:228:GLU:CG	1:A:228:GLU:OE1	2.39	0.70
1:E:427:MET:HE1	1:E:428:ASP:H	1.56	0.70
1:B:187:GLU:CB	1:B:187:GLU:CD	2.58	0.69
1:A:506:ARG:CZ	1:A:506:ARG:HG3	2.22	0.69
1:B:506:ARG:CZ	1:B:506:ARG:HG3	2.22	0.69
1:D:268:SER:OG	1:D:270:ASP:OD1	2.06	0.69
1:E:427:MET:HE3	1:E:434:GLY:HA2	0.73	0.68
1:E:364:GLU:CD	1:E:364:GLU:CB	2.56	0.68
1:D:270:ASP:OD2	1:D:270:ASP:CB	2.42	0.68
1:B:268:SER:OG	1:B:270:ASP:OD1	2.06	0.68
1:E:506:ARG:CD	1:E:506:ARG:NH1	2.56	0.67
1:B:270:ASP:OD2	1:B:270:ASP:CB	2.42	0.66
1:E:427:MET:HE1	1:E:434:GLY:CA	2.17	0.66
1:A:270:ASP:OD2	1:A:270:ASP:CB	2.42	0.66
1:C:270:ASP:OD2	1:C:270:ASP:CB	2.42	0.66
1:E:427:MET:CA	1:E:427:MET:CE	2.17	0.65
1:C:427:MET:HE1	1:C:433:GLU:C	2.16	0.65
1:C:506:ARG:CD	1:C:506:ARG:NH2	2.60	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:506:ARG:CD	1:C:506:ARG:HB2	2.26	0.65
1:D:187:GLU:HB2	1:D:187:GLU:OE2	1.97	0.64
1:E:506:ARG:CZ	1:E:506:ARG:CD	2.75	0.64
1:C:187:GLU:HB2	1:C:187:GLU:OE2	1.97	0.63
1:C:187:GLU:CB	1:C:187:GLU:CD	2.59	0.63
1:C:268:SER:OG	1:C:270:ASP:OD1	2.06	0.63
1:A:187:GLU:OE2	1:A:187:GLU:CG	2.46	0.63
1:E:427:MET:HE1	1:E:433:GLU:C	2.18	0.63
1:D:506:ARG:HB2	1:D:506:ARG:HD2	1.81	0.62
1:E:187:GLU:OE2	1:E:187:GLU:CG	2.46	0.62
1:E:427:MET:CE	1:E:428:ASP:H	2.13	0.62
1:D:427:MET:CE	1:D:427:MET:CG	2.78	0.62
1:B:427:MET:CE	1:B:428:ASP:H	2.13	0.62
1:D:270:ASP:OD2	1:D:270:ASP:OD1	2.18	0.62
1:B:270:ASP:OD2	1:B:270:ASP:OD1	2.18	0.61
1:C:270:ASP:OD2	1:C:270:ASP:OD1	2.18	0.61
1:A:427:MET:CE	1:A:427:MET:CG	2.78	0.61
1:E:427:MET:CE	1:E:427:MET:CB	2.73	0.61
1:E:427:MET:CE	1:E:427:MET:CG	2.79	0.61
1:D:277:ILE:HD12	1:D:277:ILE:N	2.16	0.61
1:A:277:ILE:N	1:A:277:ILE:HD12	2.16	0.61
1:B:277:ILE:HD12	1:B:277:ILE:N	2.16	0.61
1:A:270:ASP:OD2	1:A:270:ASP:OD1	2.18	0.60
1:C:187:GLU:CG	1:C:187:GLU:CA	2.77	0.60
1:C:277:ILE:N	1:C:277:ILE:HD12	2.16	0.60
1:E:506:ARG:CG	1:E:506:ARG:NH1	2.58	0.60
1:A:187:GLU:OE1	1:A:187:GLU:OE2	2.20	0.60
1:D:187:GLU:CB	1:D:187:GLU:CD	2.59	0.59
1:E:268:SER:OG	1:E:270:ASP:OD1	2.06	0.59
1:B:187:GLU:OE1	1:B:187:GLU:OE2	2.20	0.59
1:D:187:GLU:CG	1:D:187:GLU:CA	2.78	0.58
1:B:187:GLU:CG	1:B:187:GLU:OE2	2.46	0.58
1:C:506:ARG:HD2	1:C:506:ARG:HB2	1.86	0.56
1:D:279:ILE:CA	1:D:279:ILE:HG12	2.34	0.56
1:A:270:ASP:OD2	1:A:270:ASP:CG	2.44	0.56
1:B:270:ASP:OD2	1:B:270:ASP:CG	2.44	0.56
1:D:270:ASP:OD2	1:D:270:ASP:CG	2.44	0.56
1:A:295:ILE:HD13	1:A:312:LEU:CD1	2.36	0.56
1:D:295:ILE:HD13	1:D:312:LEU:CD1	2.36	0.56
1:C:270:ASP:OD2	1:C:270:ASP:CG	2.44	0.56
1:B:295:ILE:HD13	1:B:312:LEU:CD1	2.36	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:364:GLU:OE1	1:E:364:GLU:CG	2.41	0.55
1:E:228:GLU:OE2	1:E:228:GLU:OE1	2.23	0.55
1:E:295:ILE:HD13	1:E:312:LEU:CD1	2.36	0.55
1:C:295:ILE:HD13	1:C:312:LEU:CD1	2.36	0.55
1:E:427:MET:HE2	1:E:427:MET:C	2.16	0.54
1:C:427:MET:CE	1:C:433:GLU:O	2.57	0.53
1:C:322:LEU:HG	1:C:324:THR:HG23	1.91	0.53
1:C:427:MET:HE1	1:C:433:GLU:O	2.08	0.53
1:A:506:ARG:NE	1:A:506:ARG:HH21	2.03	0.53
1:D:322:LEU:HG	1:D:324:THR:HG23	1.91	0.53
1:E:322:LEU:HG	1:E:324:THR:HG23	1.91	0.53
1:B:322:LEU:HG	1:B:324:THR:HG23	1.91	0.53
1:E:427:MET:CE	1:E:428:ASP:N	2.71	0.52
1:A:322:LEU:HG	1:A:324:THR:HG23	1.91	0.52
1:A:364:GLU:CG	1:A:364:GLU:OE2	2.58	0.52
1:C:364:GLU:OE2	1:C:364:GLU:CG	2.58	0.52
1:C:426:TYR:O	1:C:427:MET:HE3	2.09	0.51
1:A:228:GLU:OE1	1:A:228:GLU:HG2	2.11	0.50
1:D:277:ILE:CD1	1:D:277:ILE:H	2.25	0.50
1:D:277:ILE:HD12	1:D:277:ILE:H	1.77	0.49
1:E:228:GLU:HG3	1:E:228:GLU:HA	1.91	0.49
1:A:72:CYS:HB2	1:A:110:PHE:CG	2.48	0.49
1:A:277:ILE:CD1	1:A:277:ILE:H	2.26	0.49
1:B:277:ILE:CD1	1:B:277:ILE:H	2.25	0.49
1:C:506:ARG:NH2	1:C:506:ARG:HD2	2.28	0.49
1:C:72:CYS:HB2	1:C:110:PHE:CG	2.48	0.49
1:D:72:CYS:HB2	1:D:110:PHE:CG	2.48	0.49
1:E:228:GLU:CG	1:E:228:GLU:HA	2.41	0.49
1:C:277:ILE:CD1	1:C:277:ILE:H	2.26	0.48
1:A:277:ILE:HD12	1:A:277:ILE:H	1.77	0.48
1:B:72:CYS:HB2	1:B:110:PHE:CG	2.48	0.48
1:C:277:ILE:HD12	1:C:277:ILE:H	1.77	0.48
1:B:277:ILE:HD12	1:B:277:ILE:H	1.77	0.48
1:E:72:CYS:HB2	1:E:110:PHE:CG	2.48	0.48
1:E:506:ARG:HH11	1:E:506:ARG:HD3	1.77	0.47
1:D:277:ILE:CD1	1:D:277:ILE:N	2.78	0.47
1:B:270:ASP:OD1	1:B:270:ASP:CA	2.63	0.47
1:C:451:LEU:HB2	1:C:460:ILE:HB	1.97	0.47
1:B:187:GLU:CG	1:B:187:GLU:HA	2.43	0.46
1:E:322:LEU:HG	1:E:324:THR:CG2	2.46	0.46
1:C:277:ILE:CD1	1:C:277:ILE:N	2.78	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:322:LEU:HG	1:B:324:THR:CG2	2.46	0.46
1:D:270:ASP:OD1	1:D:270:ASP:CA	2.63	0.46
1:D:322:LEU:HG	1:D:324:THR:CG2	2.46	0.46
1:A:322:LEU:HG	1:A:324:THR:CG2	2.46	0.46
1:C:322:LEU:HG	1:C:324:THR:CG2	2.45	0.46
1:D:451:LEU:HB2	1:D:460:ILE:HB	1.97	0.46
1:B:427:MET:CE	1:B:433:GLU:O	2.57	0.45
1:A:277:ILE:CD1	1:A:277:ILE:N	2.78	0.45
1:B:451:LEU:HB2	1:B:460:ILE:HB	1.97	0.45
1:A:268:SER:OG	1:A:270:ASP:OD1	2.06	0.45
1:E:506:ARG:HE	1:E:506:ARG:HH21	1.52	0.45
1:A:451:LEU:HB2	1:A:460:ILE:HB	1.97	0.45
1:E:451:LEU:HB2	1:E:460:ILE:HB	1.97	0.44
1:B:426:TYR:O	1:B:427:MET:HE3	2.17	0.44
1:B:140:VAL:HB	1:B:154:LYS:HE2	1.99	0.44
1:E:116:SER:HA	1:E:117:PHE:HA	1.84	0.44
1:D:72:CYS:SG	1:D:488:GLY:HA3	2.58	0.44
1:A:72:CYS:SG	1:A:488:GLY:HA3	2.58	0.43
1:A:140:VAL:HB	1:A:154:LYS:HE2	1.99	0.43
1:D:140:VAL:HB	1:D:154:LYS:HE2	1.99	0.43
1:E:140:VAL:HB	1:E:154:LYS:HE2	1.99	0.43
1:C:72:CYS:SG	1:C:488:GLY:HA3	2.58	0.43
1:C:140:VAL:HB	1:C:154:LYS:HE2	1.99	0.43
1:E:72:CYS:SG	1:E:488:GLY:HA3	2.58	0.43
1:C:309:ILE:N	1:C:310:PRO:CD	2.82	0.43
1:D:100:LEU:HD23	1:D:100:LEU:HA	1.85	0.43
1:D:309:ILE:N	1:D:310:PRO:CD	2.82	0.43
1:E:309:ILE:N	1:E:310:PRO:CD	2.82	0.43
1:E:228:GLU:CB	1:E:228:GLU:OE2	2.67	0.43
1:B:72:CYS:SG	1:B:488:GLY:HA3	2.58	0.43
1:B:464:THR:HB	1:B:465:PRO:HD2	2.01	0.43
1:A:465:PRO:HG3	1:A:494:ILE:HG22	2.01	0.43
1:B:309:ILE:N	1:B:310:PRO:CD	2.82	0.43
1:C:464:THR:HB	1:C:465:PRO:HD2	2.01	0.43
1:D:465:PRO:HG3	1:D:494:ILE:HG22	2.01	0.43
1:E:465:PRO:HG3	1:E:494:ILE:HG22	2.01	0.43
1:C:221:PHE:HB3	1:C:255:TRP:CD2	2.54	0.42
1:B:221:PHE:HB3	1:B:255:TRP:CD2	2.55	0.42
1:C:465:PRO:HG3	1:C:494:ILE:HG22	2.01	0.42
1:E:324:THR:HB	1:E:354:ILE:HG12	2.01	0.42
1:E:464:THR:HB	1:E:465:PRO:HD2	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:309:ILE:N	1:A:310:PRO:CD	2.82	0.42
1:B:465:PRO:HG3	1:B:494:ILE:HG22	2.01	0.42
1:A:221:PHE:HB3	1:A:255:TRP:CD2	2.55	0.42
1:A:464:THR:HB	1:A:465:PRO:HD2	2.01	0.42
1:B:376:TYR:CZ	1:B:485:ILE:HB	2.55	0.42
1:B:324:THR:HB	1:B:354:ILE:HG12	2.01	0.42
1:C:427:MET:CE	1:C:434:GLY:CA	2.31	0.42
1:D:324:THR:HB	1:D:354:ILE:HG12	2.01	0.42
1:D:279:ILE:HG12	1:D:279:ILE:N	2.35	0.41
1:A:116:SER:HA	1:A:117:PHE:HA	1.84	0.41
1:A:324:THR:HB	1:A:354:ILE:HG12	2.01	0.41
1:C:324:THR:HB	1:C:354:ILE:HG12	2.01	0.41
1:E:221:PHE:HB3	1:E:255:TRP:CD2	2.55	0.41
1:C:376:TYR:CZ	1:C:485:ILE:HB	2.55	0.41
1:D:464:THR:HB	1:D:465:PRO:HD2	2.01	0.41
1:D:221:PHE:HB3	1:D:255:TRP:CD2	2.55	0.41
1:D:432:GLY:HA2	1:D:519:LEU:HD21	2.03	0.41
1:A:376:TYR:CZ	1:A:485:ILE:HB	2.55	0.41
1:D:376:TYR:CZ	1:D:485:ILE:HB	2.55	0.41
1:E:376:TYR:CZ	1:E:485:ILE:HB	2.55	0.41
1:B:277:ILE:CD1	1:B:277:ILE:N	2.78	0.41
1:E:187:GLU:CD	1:E:187:GLU:HB2	2.41	0.41
1:E:427:MET:CE	1:E:433:GLU:C	2.89	0.41
1:B:344:ASP:HA	1:B:345:PRO:HD3	1.94	0.40
1:A:370:LYS:HD3	1:A:481:GLY:HA2	2.04	0.40
1:E:432:GLY:HA2	1:E:519:LEU:HD21	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	A	513/546 (94%)	496 (97%)	17 (3%)	0	100	100
1	B	513/546 (94%)	496 (97%)	17 (3%)	0	100	100
1	C	513/546 (94%)	496 (97%)	17 (3%)	0	100	100
1	D	513/546 (94%)	496 (97%)	17 (3%)	0	100	100
1	E	513/546 (94%)	496 (97%)	17 (3%)	0	100	100
All	All	2565/2730 (94%)	2480 (97%)	85 (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	A	413/456 (91%)	408 (99%)	5 (1%)	71	83
1	B	413/456 (91%)	408 (99%)	5 (1%)	71	83
1	C	413/456 (91%)	404 (98%)	9 (2%)	52	71
1	D	413/456 (91%)	407 (98%)	6 (2%)	65	80
1	E	413/456 (91%)	410 (99%)	3 (1%)	84	90
All	All	2065/2280 (91%)	2037 (99%)	28 (1%)	68	80

All (28) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	228	GLU
1	A	270	ASP
1	A	277	ILE
1	A	338	HIS
1	A	440	LEU
1	B	270	ASP
1	B	277	ILE
1	B	338	HIS
1	B	427	MET
1	B	440	LEU

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Mol	Chain	Res	Type
1	C	134	ILE
1	C	187	GLU
1	C	228	GLU
1	C	270	ASP
1	C	277	ILE
1	C	338	HIS
1	C	427	MET
1	C	440	LEU
1	C	506	ARG
1	D	134	ILE
1	D	187	GLU
1	D	270	ASP
1	D	277	ILE
1	D	338	HIS
1	D	440	LEU
1	E	338	HIS
1	E	427	MET
1	E	440	LEU

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)

There are no chain breaks in this entry.

6 Map visualisation

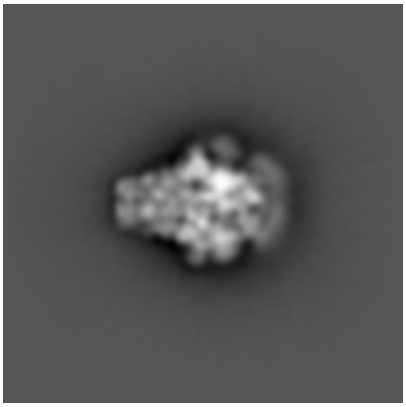
This section contains visualisations of the EMDB entry EMD-1978. These allow visual inspection of the internal detail of the map and identification of artifacts.

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.

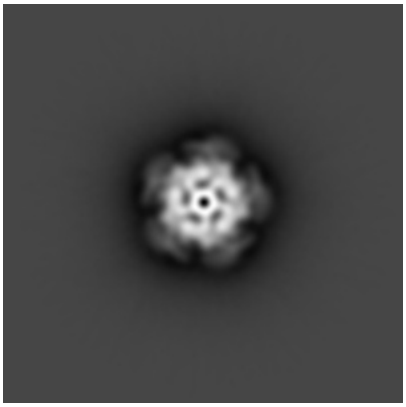
6.1 Orthogonal projections

6.1.1 Primary map

X



Y



Z

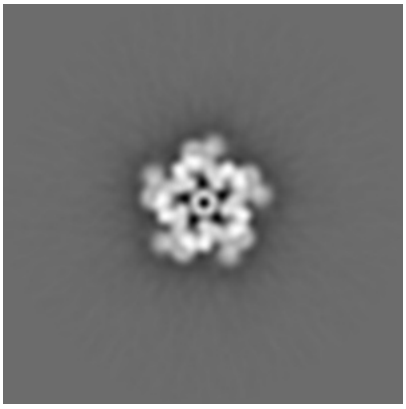
The images above show the map projected in three orthogonal directions.

6.2 Central slices

6.2.1 Primary map

X Index: 90

Y Index: 90



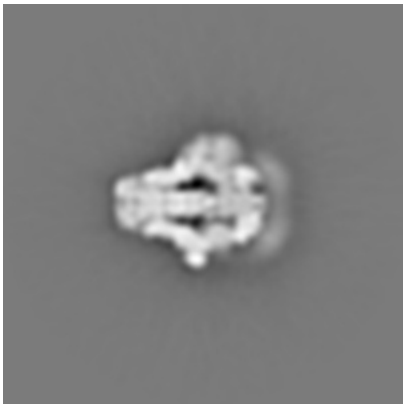
Z Index: 90

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: 86



Y Index: 94

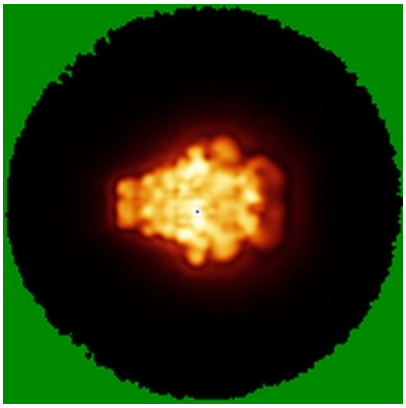
Z Index: 87

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

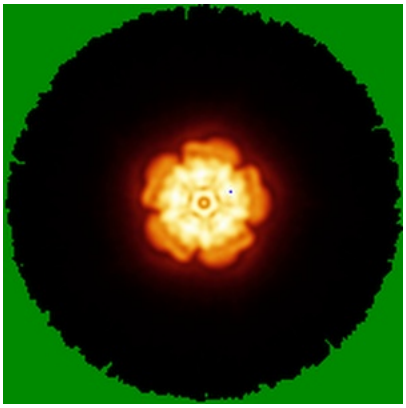
6.4 Orthogonal standard-deviation projections (False-color) (i)

6.4.1 Primary map

X



Y

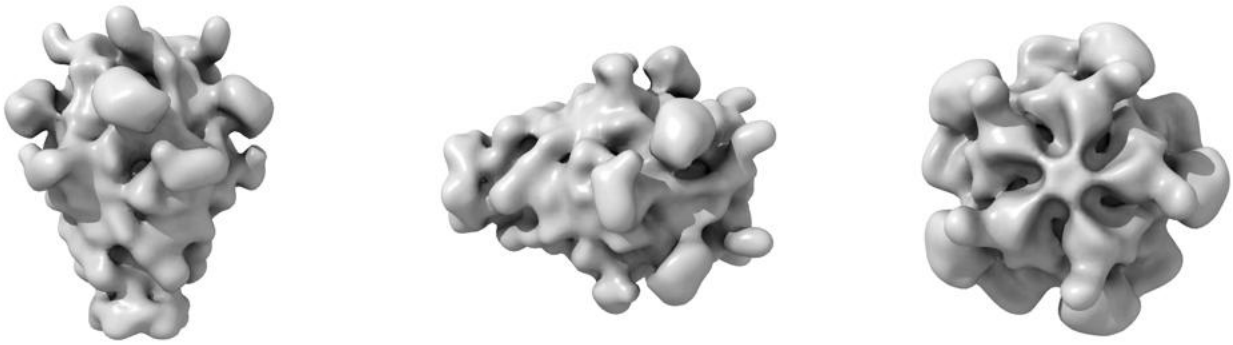


Z

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

6.5 Orthogonal surface views (i)

6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 6.13. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

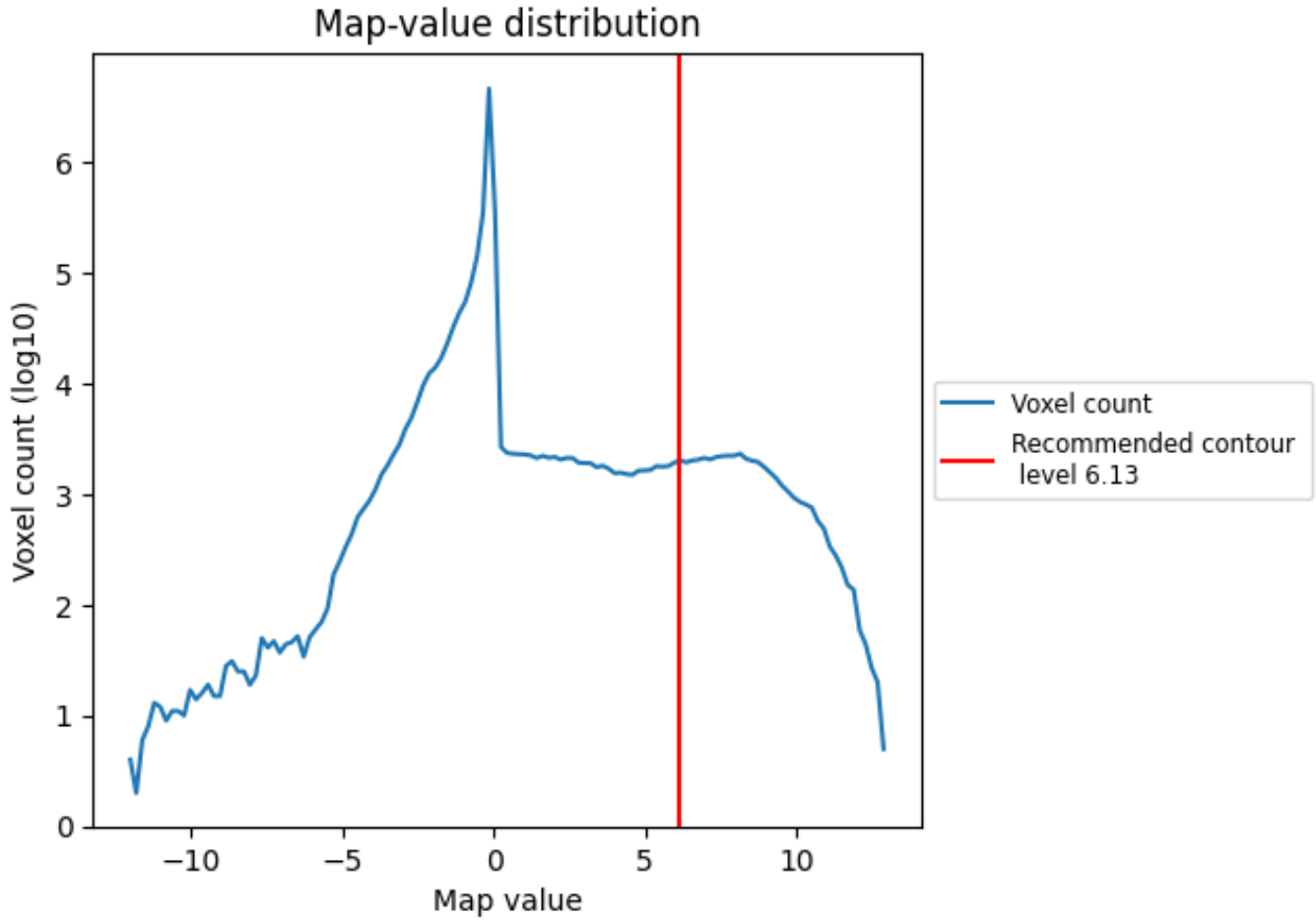
6.6 Mask visualisation (i)

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

7 Map analysis

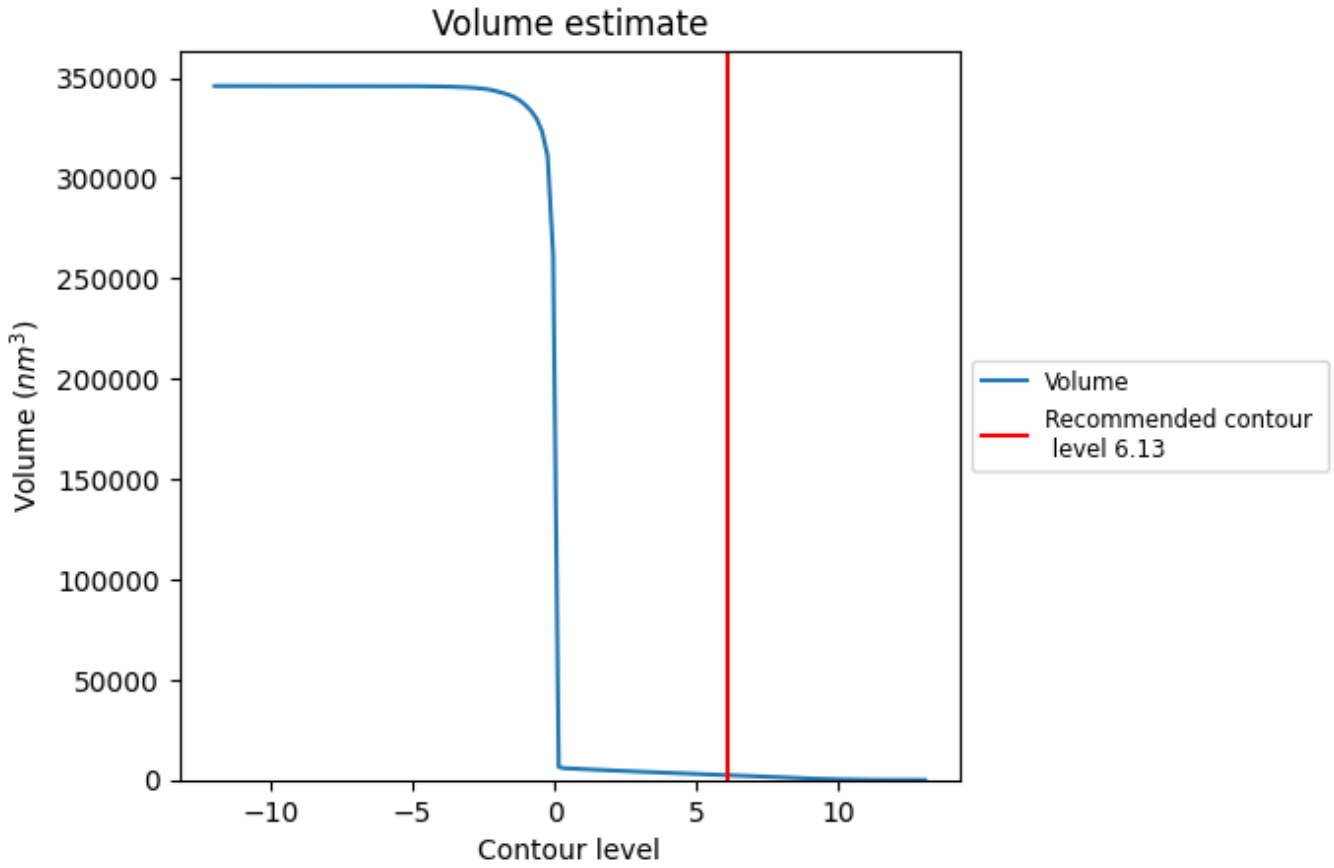
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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.

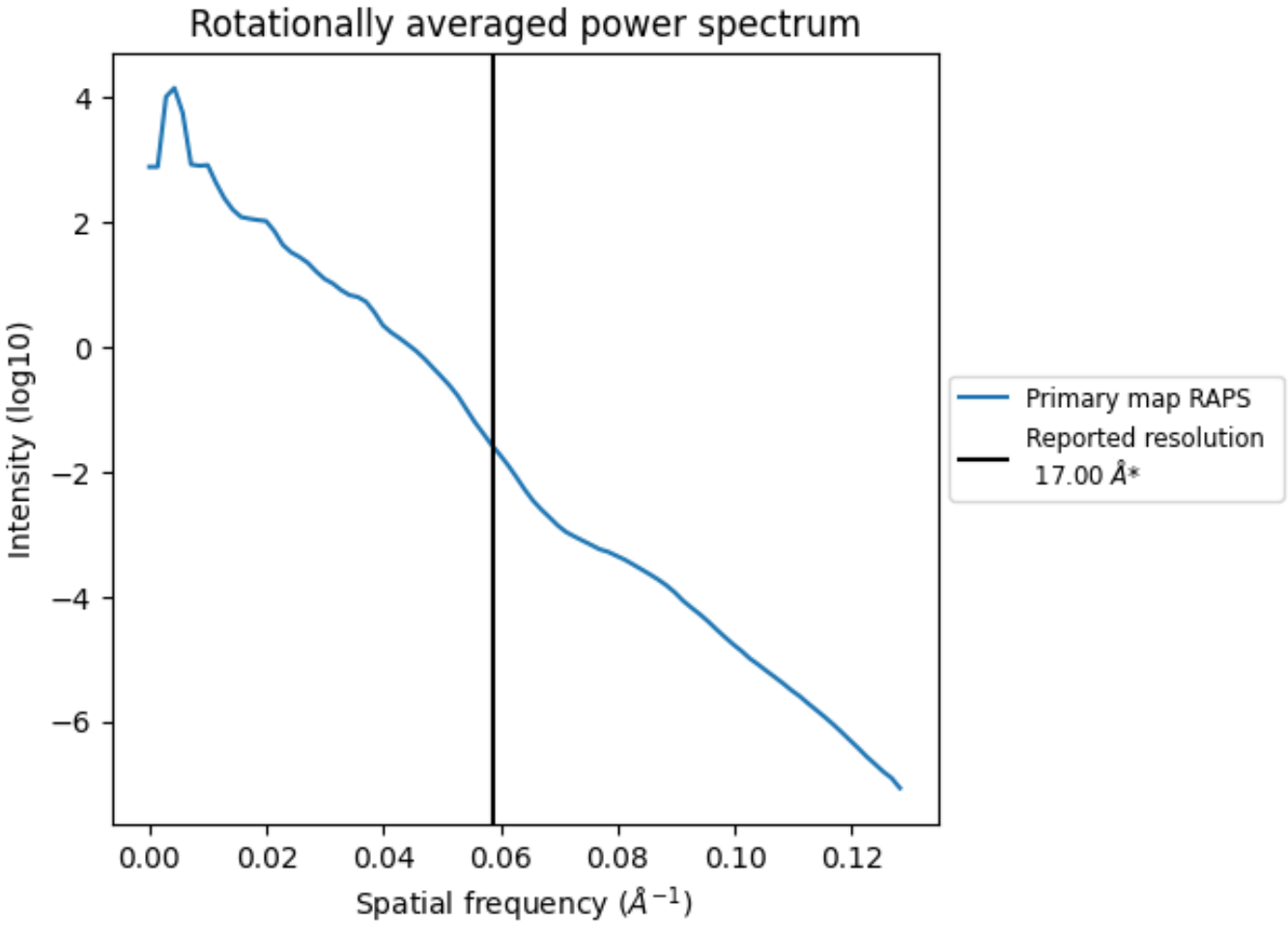
7.2 Volume estimate



The volume at the recommended contour level is 2505 nm^3; this corresponds to an approximate mass of 2262 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 0.059 Å^{-1}

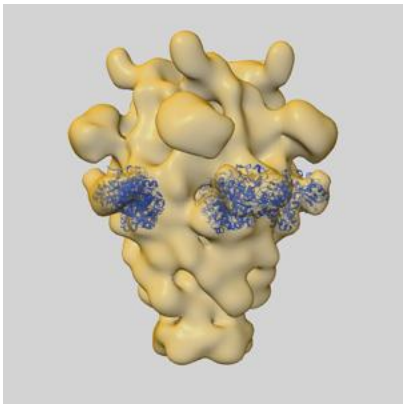
8 Fourier-Shell correlation

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

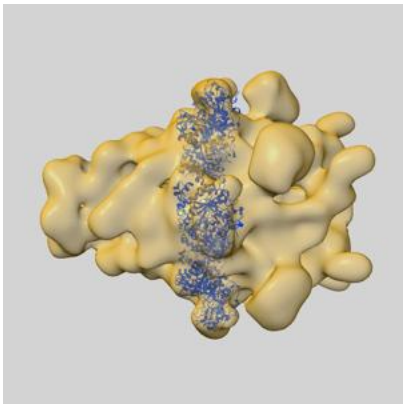
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-1978 and PDB model 4A5Q. Per-residue inclusion information can be found in section 3 on page 4.

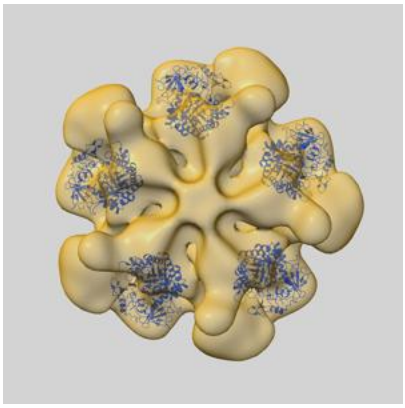
9.1 Map-model overlay



X



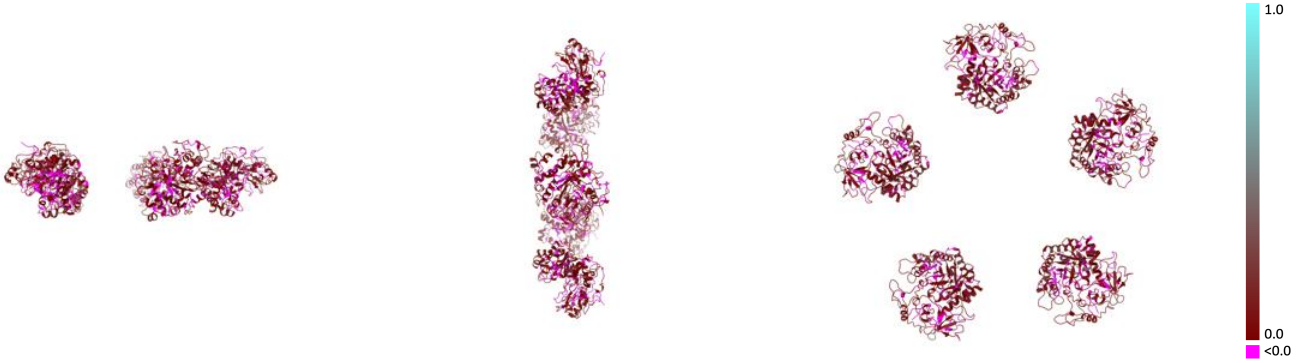
Y



Z

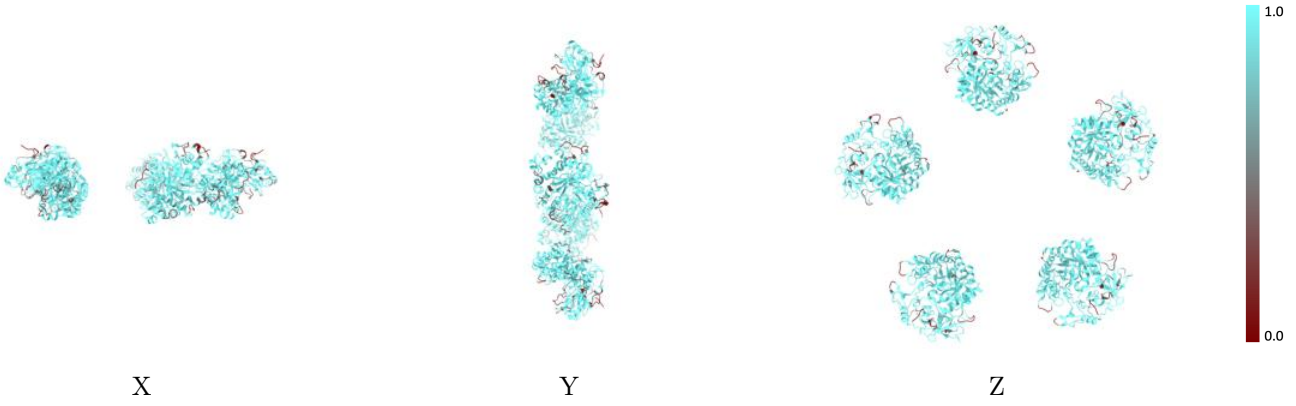
The images above show the 3D surface view of the map at the recommended contour level 6.13 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model (i)



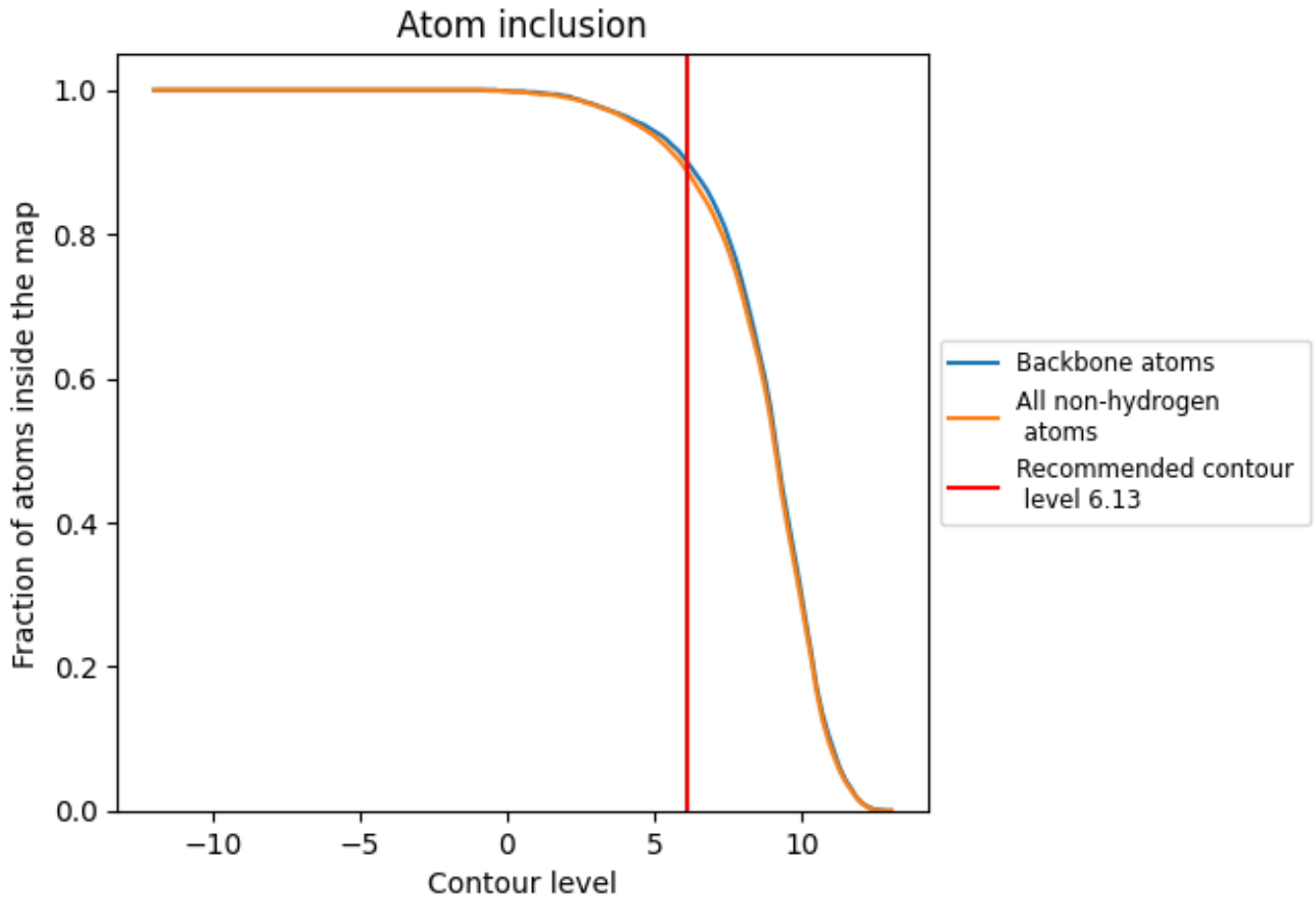
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (6.13).

9.4 Atom inclusion (i)



At the recommended contour level, 90% of all backbone atoms, 89% 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 (6.13) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8870	0.0600
A	0.8780	0.0590
B	0.8890	0.0620
C	0.8960	0.0600
D	0.8940	0.0600
E	0.8780	0.0570