



Full wwPDB EM Validation Report ⓘ

Dec 8, 2025 – 02:39 PM JST

PDB ID : 9KWZ / pdb_00009kwz
EMDB ID : EMD-62622
Title : Cryo-EM structure of the ICT01-BTN2A1/BTN3A1/BTN3A2 complex
Authors : Xin, W.Z.; Huang, B.D.; Zhou, Q.
Deposited on : 2024-12-06
Resolution : 3.70 Å(reported)

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

EMDB validation analysis : 0.0.1.dev129
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.47

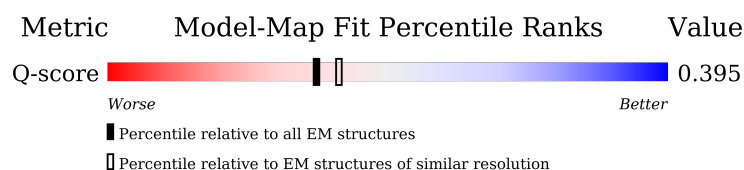
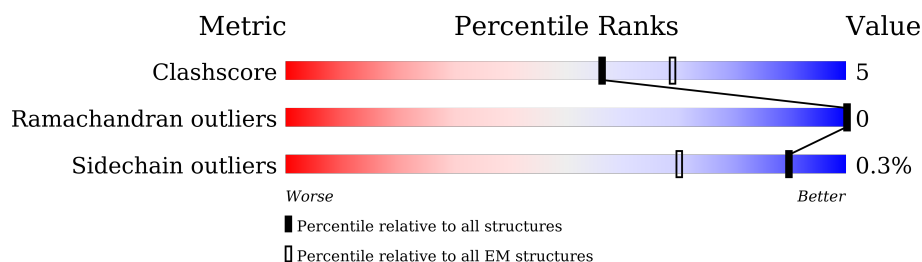
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.70 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
Q-score	-	25397	11569 (3.20 - 4.20)

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

Mol	Chain	Length	Quality of chain
1	A	534	
1	B	534	
2	E	340	
3	F	539	

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Mol	Chain	Length	Quality of chain
4	H	255	8% 45% 42% • 12%
5	L	236	8% 55% 36% 9%

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 10022 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 Butyrophilin subfamily 2 member A1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	217	Total	C	N	O	S	0	0
			1704	1075	298	320	11		
1	B	216	Total	C	N	O	S	0	0
			1695	1070	296	318	11		

There are 70 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	7	MET	-	initiating methionine	UNP Q7KYR7
A	8	ASP	-	expression tag	UNP Q7KYR7
A	9	MET	-	expression tag	UNP Q7KYR7
A	10	ARG	-	expression tag	UNP Q7KYR7
A	11	VAL	-	expression tag	UNP Q7KYR7
A	12	PRO	-	expression tag	UNP Q7KYR7
A	13	ALA	-	expression tag	UNP Q7KYR7
A	14	GLN	-	expression tag	UNP Q7KYR7
A	15	LEU	-	expression tag	UNP Q7KYR7
A	16	LEU	-	expression tag	UNP Q7KYR7
A	17	GLY	-	expression tag	UNP Q7KYR7
A	18	LEU	-	expression tag	UNP Q7KYR7
A	19	LEU	-	expression tag	UNP Q7KYR7
A	20	LEU	-	expression tag	UNP Q7KYR7
A	21	LEU	-	expression tag	UNP Q7KYR7
A	22	TRP	-	expression tag	UNP Q7KYR7
A	23	LEU	-	expression tag	UNP Q7KYR7
A	24	SER	-	expression tag	UNP Q7KYR7
A	25	GLY	-	expression tag	UNP Q7KYR7
A	26	ALA	-	expression tag	UNP Q7KYR7
A	27	ARG	-	expression tag	UNP Q7KYR7
A	28	CYS	-	expression tag	UNP Q7KYR7
A	528	GLY	-	expression tag	UNP Q7KYR7
A	529	SER	-	expression tag	UNP Q7KYR7
A	530	SER	-	expression tag	UNP Q7KYR7
A	531	GLY	-	expression tag	UNP Q7KYR7

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Chain	Residue	Modelled	Actual	Comment	Reference
A	532	MET	-	expression tag	UNP Q7KYR7
A	533	ASP	-	expression tag	UNP Q7KYR7
A	534	TYR	-	expression tag	UNP Q7KYR7
A	535	LYS	-	expression tag	UNP Q7KYR7
A	536	ASP	-	expression tag	UNP Q7KYR7
A	537	ASP	-	expression tag	UNP Q7KYR7
A	538	ASP	-	expression tag	UNP Q7KYR7
A	539	ASP	-	expression tag	UNP Q7KYR7
A	540	LYS	-	expression tag	UNP Q7KYR7
B	7	MET	-	initiating methionine	UNP Q7KYR7
B	8	ASP	-	expression tag	UNP Q7KYR7
B	9	MET	-	expression tag	UNP Q7KYR7
B	10	ARG	-	expression tag	UNP Q7KYR7
B	11	VAL	-	expression tag	UNP Q7KYR7
B	12	PRO	-	expression tag	UNP Q7KYR7
B	13	ALA	-	expression tag	UNP Q7KYR7
B	14	GLN	-	expression tag	UNP Q7KYR7
B	15	LEU	-	expression tag	UNP Q7KYR7
B	16	LEU	-	expression tag	UNP Q7KYR7
B	17	GLY	-	expression tag	UNP Q7KYR7
B	18	LEU	-	expression tag	UNP Q7KYR7
B	19	LEU	-	expression tag	UNP Q7KYR7
B	20	LEU	-	expression tag	UNP Q7KYR7
B	21	LEU	-	expression tag	UNP Q7KYR7
B	22	TRP	-	expression tag	UNP Q7KYR7
B	23	LEU	-	expression tag	UNP Q7KYR7
B	24	SER	-	expression tag	UNP Q7KYR7
B	25	GLY	-	expression tag	UNP Q7KYR7
B	26	ALA	-	expression tag	UNP Q7KYR7
B	27	ARG	-	expression tag	UNP Q7KYR7
B	28	CYS	-	expression tag	UNP Q7KYR7
B	528	GLY	-	expression tag	UNP Q7KYR7
B	529	SER	-	expression tag	UNP Q7KYR7
B	530	SER	-	expression tag	UNP Q7KYR7
B	531	GLY	-	expression tag	UNP Q7KYR7
B	532	MET	-	expression tag	UNP Q7KYR7
B	533	ASP	-	expression tag	UNP Q7KYR7
B	534	TYR	-	expression tag	UNP Q7KYR7
B	535	LYS	-	expression tag	UNP Q7KYR7
B	536	ASP	-	expression tag	UNP Q7KYR7
B	537	ASP	-	expression tag	UNP Q7KYR7
B	538	ASP	-	expression tag	UNP Q7KYR7

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Chain	Residue	Modelled	Actual	Comment	Reference
B	539	ASP	-	expression tag	UNP Q7KYR7
B	540	LYS	-	expression tag	UNP Q7KYR7

- Molecule 2 is a protein called Butyrophilin subfamily 3 member A2.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	E	216	Total	C	N	O	S	0	0
			1630	1027	279	316	8		

There are 35 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	8	MET	-	initiating methionine	UNP P78410
E	9	ASP	-	expression tag	UNP P78410
E	10	MET	-	expression tag	UNP P78410
E	11	ARG	-	expression tag	UNP P78410
E	12	VAL	-	expression tag	UNP P78410
E	13	PRO	-	expression tag	UNP P78410
E	14	ALA	-	expression tag	UNP P78410
E	15	GLN	-	expression tag	UNP P78410
E	16	LEU	-	expression tag	UNP P78410
E	17	LEU	-	expression tag	UNP P78410
E	18	GLY	-	expression tag	UNP P78410
E	19	LEU	-	expression tag	UNP P78410
E	20	LEU	-	expression tag	UNP P78410
E	21	LEU	-	expression tag	UNP P78410
E	22	LEU	-	expression tag	UNP P78410
E	23	TRP	-	expression tag	UNP P78410
E	24	LEU	-	expression tag	UNP P78410
E	25	SER	-	expression tag	UNP P78410
E	26	GLY	-	expression tag	UNP P78410
E	27	ALA	-	expression tag	UNP P78410
E	28	ARG	-	expression tag	UNP P78410
E	29	CYS	-	expression tag	UNP P78410
E	335	GLY	-	expression tag	UNP P78410
E	336	SER	-	expression tag	UNP P78410
E	337	SER	-	expression tag	UNP P78410
E	338	GLY	-	expression tag	UNP P78410
E	339	MET	-	expression tag	UNP P78410
E	340	ASP	-	expression tag	UNP P78410
E	341	TYR	-	expression tag	UNP P78410
E	342	LYS	-	expression tag	UNP P78410

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Chain	Residue	Modelled	Actual	Comment	Reference
E	343	ASP	-	expression tag	UNP P78410
E	344	ASP	-	expression tag	UNP P78410
E	345	ASP	-	expression tag	UNP P78410
E	346	ASP	-	expression tag	UNP P78410
E	347	LYS	-	expression tag	UNP P78410

- Molecule 3 is a protein called Butyrophilin subfamily 3 member A1.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	F	216	Total	C	N	O	S	0	0
			1629	1025	279	317	8		

There are 55 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
F	8	MET	-	initiating methionine	UNP O00481
F	9	ASP	-	expression tag	UNP O00481
F	10	MET	-	expression tag	UNP O00481
F	11	ARG	-	expression tag	UNP O00481
F	12	VAL	-	expression tag	UNP O00481
F	13	PRO	-	expression tag	UNP O00481
F	14	ALA	-	expression tag	UNP O00481
F	15	GLN	-	expression tag	UNP O00481
F	16	LEU	-	expression tag	UNP O00481
F	17	LEU	-	expression tag	UNP O00481
F	18	GLY	-	expression tag	UNP O00481
F	19	LEU	-	expression tag	UNP O00481
F	20	LEU	-	expression tag	UNP O00481
F	21	LEU	-	expression tag	UNP O00481
F	22	LEU	-	expression tag	UNP O00481
F	23	TRP	-	expression tag	UNP O00481
F	24	LEU	-	expression tag	UNP O00481
F	25	SER	-	expression tag	UNP O00481
F	26	GLY	-	expression tag	UNP O00481
F	27	ALA	-	expression tag	UNP O00481
F	28	ARG	-	expression tag	UNP O00481
F	29	CYS	-	expression tag	UNP O00481
F	514	GLY	-	expression tag	UNP O00481
F	515	SER	-	expression tag	UNP O00481
F	516	SER	-	expression tag	UNP O00481
F	517	GLY	-	expression tag	UNP O00481
F	518	ALA	-	expression tag	UNP O00481

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Chain	Residue	Modelled	Actual	Comment	Reference
F	519	TRP	-	expression tag	UNP O00481
F	520	SER	-	expression tag	UNP O00481
F	521	HIS	-	expression tag	UNP O00481
F	522	PRO	-	expression tag	UNP O00481
F	523	GLN	-	expression tag	UNP O00481
F	524	PHE	-	expression tag	UNP O00481
F	525	GLU	-	expression tag	UNP O00481
F	526	LYS	-	expression tag	UNP O00481
F	527	GLY	-	expression tag	UNP O00481
F	528	GLY	-	expression tag	UNP O00481
F	529	GLY	-	expression tag	UNP O00481
F	530	SER	-	expression tag	UNP O00481
F	531	GLY	-	expression tag	UNP O00481
F	532	GLY	-	expression tag	UNP O00481
F	533	GLY	-	expression tag	UNP O00481
F	534	SER	-	expression tag	UNP O00481
F	535	GLY	-	expression tag	UNP O00481
F	536	GLY	-	expression tag	UNP O00481
F	537	SER	-	expression tag	UNP O00481
F	538	ALA	-	expression tag	UNP O00481
F	539	TRP	-	expression tag	UNP O00481
F	540	SER	-	expression tag	UNP O00481
F	541	HIS	-	expression tag	UNP O00481
F	542	PRO	-	expression tag	UNP O00481
F	543	GLN	-	expression tag	UNP O00481
F	544	PHE	-	expression tag	UNP O00481
F	545	GLU	-	expression tag	UNP O00481
F	546	LYS	-	expression tag	UNP O00481

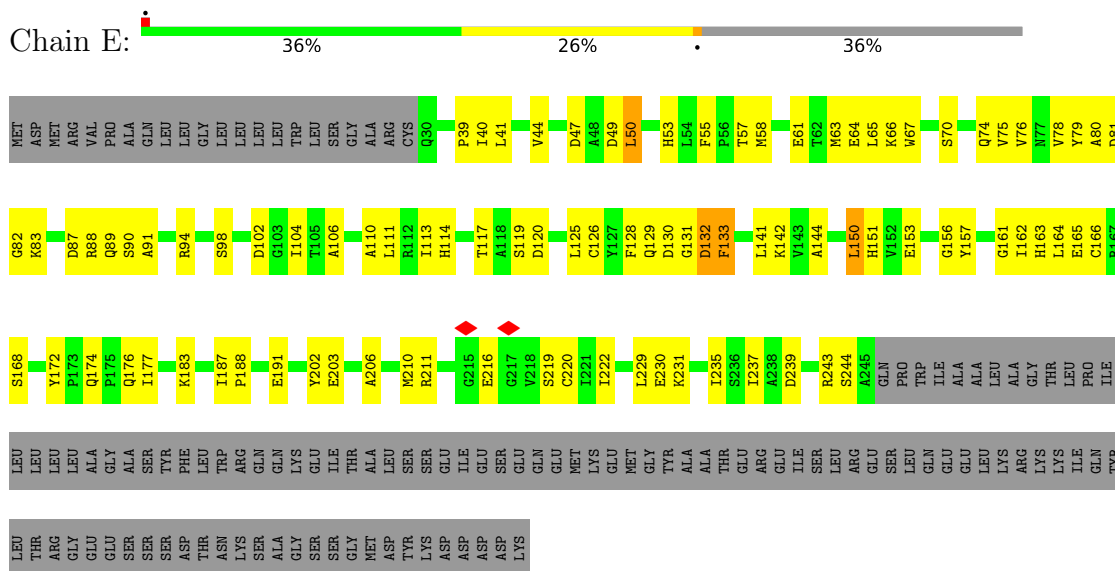
- Molecule 4 is a protein called ICT01 heavy chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	H	225	Total	C	N	O	S	0	0
			1710	1080	285	337	8		

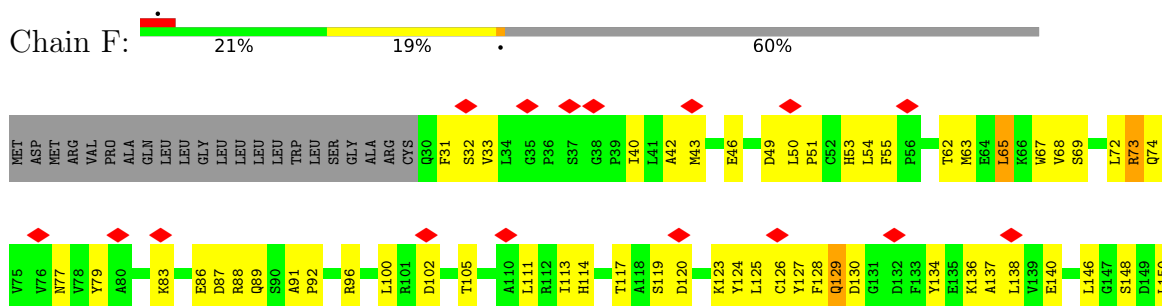
- Molecule 5 is a protein called ICT01 light chain.

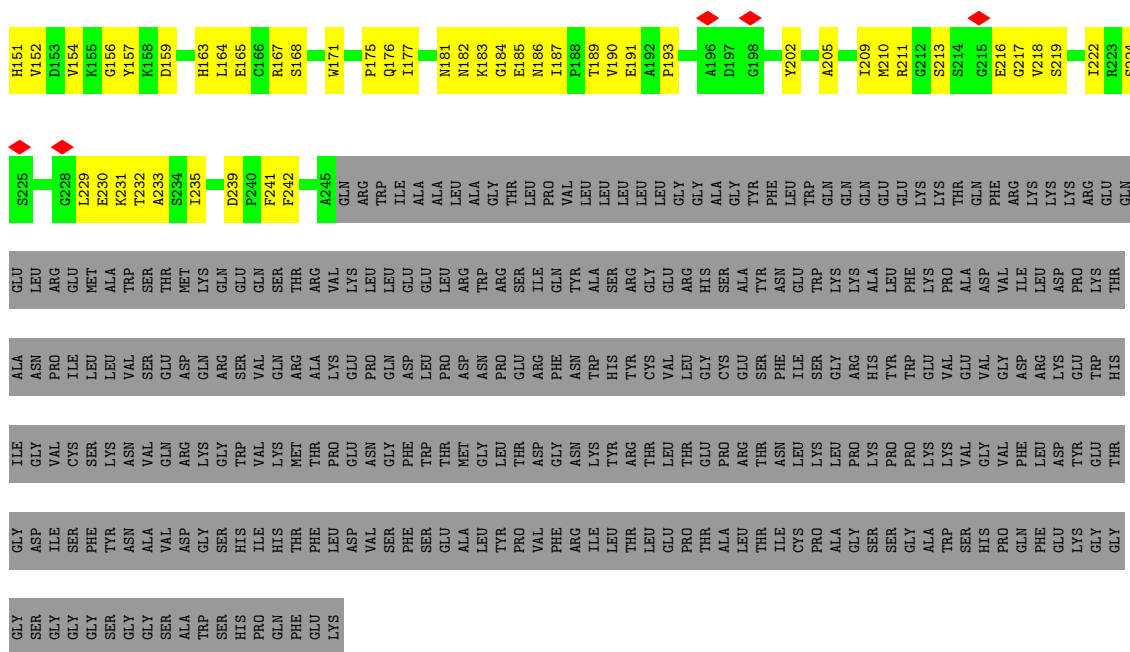
Mol	Chain	Residues	Atoms					AltConf	Trace
5	L	214	Total	C	N	O	S	0	0
			1654	1037	278	333	6		

- Molecule 2: Butyrophilin subfamily 3 member A2

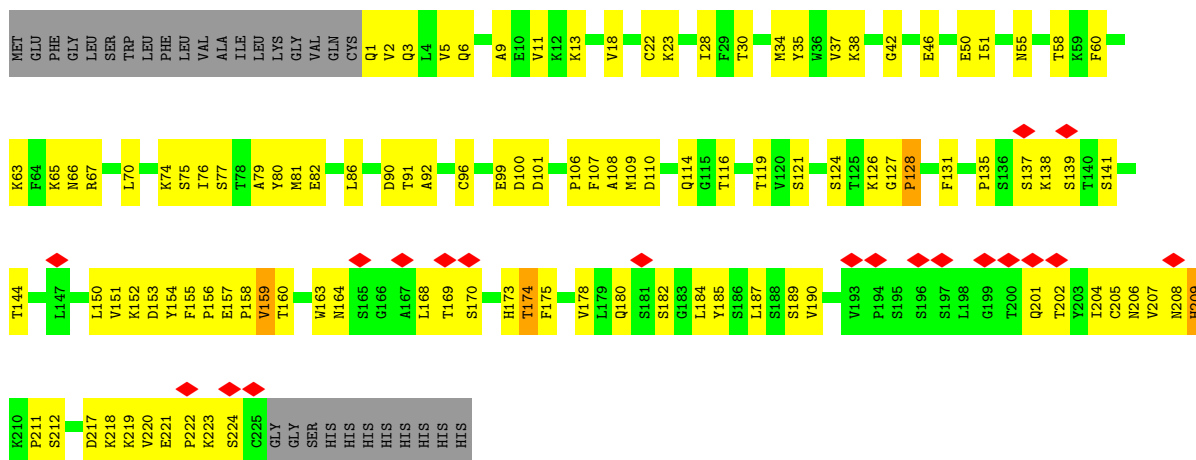
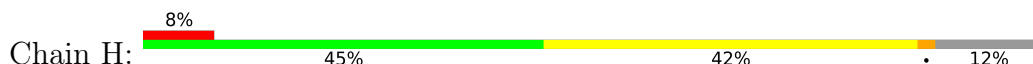


- Molecule 3: Butyrophilin subfamily 3 member A1

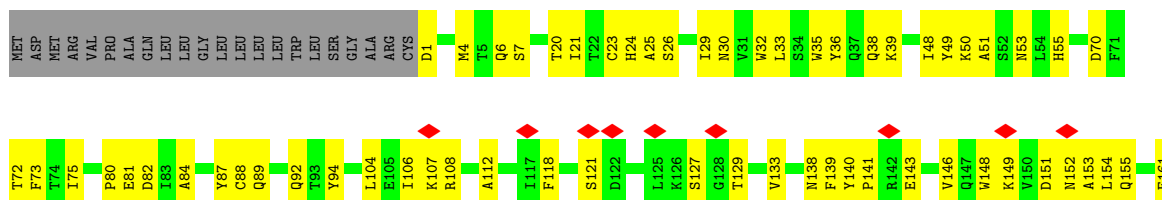


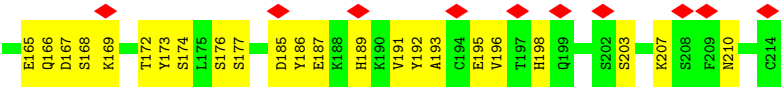


- Molecule 4: ICT01 heavy chain



- Molecule 5: ICT01 light chain





4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	354724	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.140	Depositor
Minimum map value	-0.108	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.002	Depositor
Recommended contour level	0.013	Depositor
Map size ($\text{\AA}$)	391.32, 391.32, 391.32	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	1.087, 1.087, 1.087	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	2.36	95/1741 (5.5%)	2.06	81/2356 (3.4%)
1	B	2.35	66/1732 (3.8%)	1.88	66/2344 (2.8%)
2	E	2.44	81/1663 (4.9%)	1.80	54/2255 (2.4%)
3	F	2.38	78/1662 (4.7%)	1.91	63/2254 (2.8%)
4	H	2.34	76/1751 (4.3%)	1.88	67/2380 (2.8%)
5	L	2.34	69/1692 (4.1%)	1.89	51/2299 (2.2%)
All	All	2.37	465/10241 (4.5%)	1.91	382/13888 (2.8%)

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	1
3	F	0	1
All	All	0	2

All (465) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	E	114	HIS	ND1-CE1	11.66	1.44	1.32
2	E	129	GLN	CA-C	10.28	1.64	1.52
4	H	81	MET	SD-CE	-10.26	1.53	1.79
3	F	163	HIS	ND1-CE1	9.86	1.42	1.32
1	B	68	ARG	CA-C	-9.73	1.41	1.53
1	A	219	CYS	CA-C	9.38	1.64	1.52
1	A	236	ILE	CA-C	-9.38	1.45	1.53
4	H	5	VAL	CA-C	9.23	1.64	1.52
4	H	160	THR	CA-C	8.86	1.64	1.52
1	B	171	TYR	CA-C	8.84	1.62	1.52
2	E	70	SER	CA-C	8.79	1.60	1.52
1	B	202	MET	SD-CE	-8.78	1.57	1.79

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	E	172	TYR	CA-CB	8.78	1.61	1.53
3	F	86	GLU	CA-C	8.63	1.63	1.52
3	F	123	LYS	CA-C	-8.61	1.42	1.52
1	B	103	ILE	CA-C	8.53	1.63	1.52
1	B	232	SER	CA-C	8.47	1.62	1.52
3	F	130	ASP	CA-C	8.46	1.62	1.52
2	E	114	HIS	CD2-NE2	8.29	1.47	1.37
4	H	107	PHE	CA-C	8.29	1.63	1.52
2	E	91	ALA	N-CA	8.28	1.54	1.46
4	H	30	THR	CA-C	8.26	1.64	1.53
1	A	200	LEU	CA-C	8.25	1.62	1.52
4	H	65	LYS	CA-C	-8.21	1.41	1.52
3	F	74	GLN	CA-C	-8.20	1.41	1.53
4	H	108	ALA	C-O	-8.19	1.15	1.24
5	L	32	TRP	CA-C	8.18	1.63	1.52
3	F	186	ASN	CA-C	-8.17	1.43	1.52
2	E	58	MET	SD-CE	-8.11	1.59	1.79
2	E	66	LYS	CA-C	-8.09	1.43	1.52
1	B	188	ALA	CA-C	-8.04	1.43	1.52
5	L	80	PRO	N-CA	7.99	1.53	1.47
3	F	83	LYS	C-O	-7.93	1.16	1.24
1	B	119	GLU	CA-C	-7.87	1.44	1.53
2	E	235	ILE	CA-C	-7.86	1.43	1.52
1	B	62	MET	CA-C	7.76	1.62	1.52
4	H	58	THR	CA-C	7.75	1.61	1.52
3	F	40	ILE	CA-C	7.70	1.61	1.52
2	E	125	LEU	CA-C	-7.69	1.43	1.52
4	H	189	SER	CA-C	7.65	1.62	1.52
4	H	168	LEU	N-CA	7.59	1.55	1.46
2	E	102	ASP	CA-C	7.58	1.60	1.52
2	E	125	LEU	N-CA	7.54	1.55	1.45
2	E	98	SER	CA-C	-7.50	1.43	1.52
4	H	211	PRO	C-O	-7.49	1.15	1.23
2	E	203	GLU	CA-C	-7.47	1.43	1.52
3	F	43	MET	CA-C	-7.45	1.43	1.53
1	A	49	LEU	CA-C	-7.43	1.43	1.52
2	E	166	CYS	CA-C	7.43	1.61	1.52
4	H	109	MET	SD-CE	-7.41	1.61	1.79
4	H	126	LYS	CA-C	-7.40	1.43	1.52
5	L	118	PHE	CA-C	-7.39	1.46	1.52
1	A	66	TRP	CA-C	7.39	1.60	1.52
4	H	66	ASN	CA-C	7.30	1.61	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	F	63	MET	SD-CE	-7.30	1.61	1.79
3	F	33	VAL	CA-C	7.30	1.60	1.53
3	F	46	GLU	CA-C	-7.29	1.43	1.52
2	E	177	ILE	C-N	7.28	1.41	1.33
1	B	46	ASN	CA-C	-7.27	1.43	1.53
3	F	159	ASP	CA-C	7.23	1.62	1.53
3	F	231	LYS	CA-C	7.23	1.61	1.52
1	A	166	ILE	C-O	7.22	1.31	1.24
3	F	83	LYS	CA-C	7.22	1.61	1.53
4	H	76	ILE	C-O	-7.19	1.16	1.24
5	L	51	ALA	N-CA	7.19	1.54	1.46
1	A	241	MET	CA-C	7.18	1.60	1.52
1	A	131	ARG	CA-C	-7.17	1.43	1.52
1	B	108	VAL	CA-C	-7.13	1.44	1.52
1	A	175	LEU	N-CA	-7.12	1.37	1.46
1	A	232	SER	C-O	-7.11	1.15	1.23
5	L	48	ILE	CA-C	7.10	1.62	1.52
3	F	205	ALA	CA-C	-7.09	1.44	1.52
3	F	31	PHE	CA-C	-7.08	1.44	1.53
1	B	89	MET	SD-CE	-7.03	1.61	1.79
2	E	172	TYR	C-O	7.01	1.31	1.24
5	L	29	ILE	N-CA	-7.01	1.38	1.46
5	L	4	MET	CA-C	6.99	1.61	1.52
5	L	6	GLN	N-CA	-6.95	1.37	1.46
1	A	107	SER	CA-C	-6.94	1.43	1.53
1	B	150	LEU	N-CA	6.94	1.54	1.46
4	H	35	TYR	CA-C	6.93	1.61	1.52
4	H	209	HIS	ND1-CE1	6.92	1.39	1.32
5	L	7	SER	C-O	6.91	1.29	1.24
3	F	154	VAL	CA-C	6.87	1.61	1.52
2	E	229	LEU	CA-C	6.83	1.61	1.52
2	E	157	TYR	CA-C	6.81	1.60	1.53
1	A	223	ASN	CA-C	6.80	1.61	1.53
5	L	84	ALA	CA-C	6.79	1.61	1.52
5	L	167	ASP	N-CA	-6.79	1.37	1.45
4	H	153	ASP	CA-C	-6.77	1.46	1.53
1	B	225	LEU	CA-C	-6.75	1.43	1.52
5	L	139	PHE	CA-C	6.74	1.60	1.52
5	L	189	HIS	N-CA	-6.74	1.37	1.46
2	E	53	HIS	ND1-CE1	6.73	1.39	1.32
4	H	190	VAL	N-CA	6.71	1.54	1.46
1	A	77	VAL	C-O	-6.67	1.17	1.24

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	E	50	LEU	C-N	6.66	1.41	1.33
5	L	172	THR	N-CA	-6.65	1.38	1.45
1	A	151	ILE	CA-C	6.65	1.60	1.52
1	B	82	ARG	CA-C	-6.64	1.44	1.52
1	A	116	THR	CA-C	6.64	1.60	1.52
4	H	126	LYS	N-CA	6.64	1.54	1.45
1	A	229	LYS	N-CA	-6.62	1.38	1.46
1	A	36	THR	CA-C	6.62	1.61	1.52
2	E	187	ILE	N-CA	6.62	1.53	1.46
1	B	212	LYS	C-O	6.60	1.31	1.23
3	F	53	HIS	CD2-NE2	6.59	1.45	1.37
2	E	106	ALA	CA-C	6.59	1.61	1.52
1	B	161	ILE	N-CA	-6.56	1.38	1.46
2	E	163	HIS	CE1-NE2	-6.56	1.25	1.32
1	A	51	CYS	C-O	-6.56	1.16	1.23
1	A	148	LYS	C-O	-6.54	1.16	1.24
2	E	163	HIS	CG-ND1	-6.54	1.31	1.38
5	L	207	LYS	N-CA	-6.54	1.38	1.46
5	L	151	ASP	CA-C	-6.53	1.45	1.53
4	H	163	TRP	N-CA	6.51	1.54	1.46
1	B	63	GLU	N-CA	6.49	1.54	1.46
4	H	3	GLN	N-CA	-6.47	1.38	1.46
1	B	113	HIS	C-O	-6.47	1.15	1.23
2	E	237	ILE	C-O	6.45	1.30	1.24
1	A	49	LEU	CB-CG	-6.45	1.40	1.53
5	L	24	HIS	CA-C	6.45	1.60	1.52
2	E	41	LEU	N-CA	-6.44	1.38	1.46
2	E	78	VAL	N-CA	6.44	1.53	1.46
5	L	166	GLN	C-N	6.43	1.41	1.33
1	A	31	ILE	CA-C	6.43	1.60	1.52
1	A	164	GLU	N-CA	-6.41	1.39	1.46
5	L	89	GLN	N-CA	6.41	1.53	1.45
1	B	178	TRP	CA-C	-6.41	1.44	1.52
2	E	162	ILE	CA-C	6.41	1.60	1.52
3	F	232	THR	N-CA	-6.41	1.38	1.46
4	H	204	ILE	C-O	6.41	1.30	1.23
1	B	42	THR	CA-C	6.39	1.60	1.52
4	H	206	ASN	N-CA	-6.39	1.37	1.46
5	L	210	ASN	N-CA	-6.38	1.37	1.45
1	A	157	GLU	N-CA	-6.37	1.38	1.46
4	H	128	PRO	CA-C	-6.37	1.45	1.53
4	H	91	THR	C-O	-6.36	1.16	1.24

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	L	176	SER	CA-C	-6.36	1.45	1.52
3	F	202	TYR	CA-C	-6.36	1.44	1.52
5	L	143	GLU	N-CA	-6.36	1.38	1.46
1	A	164	GLU	CA-C	-6.34	1.45	1.52
2	E	94	ARG	CA-C	6.33	1.61	1.52
5	L	112	ALA	CA-C	6.33	1.61	1.52
2	E	188	PRO	CA-C	-6.33	1.44	1.52
3	F	137	ALA	CA-C	-6.33	1.44	1.52
1	B	231	GLU	C-O	-6.32	1.16	1.24
2	E	206	ALA	CA-C	-6.31	1.44	1.52
1	B	78	TYR	CA-C	-6.30	1.45	1.52
3	F	42	ALA	CA-C	6.30	1.59	1.52
1	A	166	ILE	CA-C	6.29	1.60	1.52
5	L	72	THR	N-CA	6.29	1.53	1.46
1	A	100	SER	CA-C	6.27	1.61	1.52
1	A	135	GLU	N-CA	6.27	1.53	1.45
3	F	146	LEU	CA-C	-6.27	1.45	1.52
4	H	9	ALA	N-CA	6.26	1.54	1.45
1	A	110	LEU	C-O	-6.26	1.16	1.24
2	E	126	CYS	CA-C	-6.24	1.45	1.52
1	A	141	VAL	CA-C	6.24	1.60	1.52
3	F	86	GLU	N-CA	-6.23	1.38	1.46
1	B	238	GLU	C-O	-6.23	1.15	1.24
1	B	143	ALA	CA-C	6.23	1.59	1.52
1	A	74	ALA	CA-C	-6.23	1.45	1.52
5	L	88	CYS	N-CA	6.22	1.53	1.45
4	H	110	ASP	N-CA	6.22	1.53	1.46
5	L	4	MET	SD-CE	6.22	1.95	1.79
2	E	144	ALA	N-CA	-6.21	1.37	1.45
3	F	157	TYR	CA-C	6.21	1.60	1.52
1	A	73	PRO	C-N	6.21	1.41	1.33
3	F	54	LEU	CA-C	6.19	1.59	1.52
1	B	39	ILE	CA-C	6.19	1.59	1.52
1	A	86	GLU	CA-C	6.17	1.60	1.52
1	A	111	VAL	C-O	6.17	1.30	1.24
3	F	89	GLN	N-CA	6.17	1.53	1.46
2	E	202	TYR	N-CA	6.15	1.53	1.45
1	B	45	GLU	CA-C	-6.14	1.45	1.52
4	H	189	SER	N-CA	-6.14	1.38	1.45
4	H	138	LYS	CA-C	-6.12	1.46	1.53
1	A	52	HIS	CE1-NE2	-6.12	1.26	1.32
1	B	152	SER	N-CA	-6.11	1.38	1.45

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	E	216	GLU	N-CA	-6.11	1.38	1.46
2	E	219	SER	CA-C	6.10	1.59	1.52
5	L	36	TYR	C-O	-6.10	1.16	1.23
4	H	5	VAL	C-O	-6.10	1.18	1.24
3	F	242	PHE	C-O	-6.09	1.16	1.24
2	E	153	GLU	C-O	-6.09	1.17	1.24
4	H	159	VAL	CA-C	6.08	1.60	1.52
2	E	161	GLY	C-N	6.08	1.41	1.33
1	A	182	TYR	N-CA	6.08	1.54	1.46
5	L	168	SER	N-CA	6.07	1.54	1.46
2	E	166	CYS	C-O	6.07	1.31	1.24
2	E	50	LEU	C-O	-6.07	1.19	1.24
4	H	220	VAL	N-CA	-6.07	1.39	1.46
5	L	173	TYR	C-O	-6.07	1.16	1.23
2	E	78	VAL	C-O	-6.06	1.17	1.24
5	L	23	CYS	CA-C	6.06	1.60	1.52
1	B	74	ALA	N-CA	6.04	1.52	1.45
3	F	114	HIS	C-O	-6.04	1.16	1.23
1	B	132	SER	CA-C	6.04	1.60	1.52
1	A	134	ASP	C-O	6.03	1.31	1.23
1	B	153	MET	CA-C	-6.03	1.45	1.52
1	A	182	TYR	C-O	-6.03	1.16	1.24
5	L	174	SER	CA-C	6.03	1.59	1.52
3	F	185	GLU	CA-C	6.03	1.59	1.52
5	L	70	ASP	C-O	6.02	1.31	1.24
3	F	241	PHE	N-CA	-6.01	1.38	1.46
1	A	147	SER	CA-C	-6.01	1.44	1.53
4	H	223	LYS	N-CA	6.01	1.53	1.45
1	A	52	HIS	ND1-CE1	6.00	1.38	1.32
1	B	41	ALA	CA-C	5.99	1.60	1.52
3	F	189	THR	CA-C	-5.99	1.45	1.52
1	B	142	VAL	N-CA	-5.98	1.39	1.46
2	E	188	PRO	N-CA	5.98	1.54	1.47
5	L	146	VAL	N-CA	-5.97	1.39	1.46
2	E	113	ILE	CA-C	5.96	1.60	1.52
2	E	55	PHE	N-CA	5.96	1.54	1.46
1	A	165	CYS	CA-C	-5.95	1.45	1.52
3	F	233	ALA	N-CA	5.94	1.53	1.46
2	E	174	GLN	CA-C	5.92	1.60	1.52
3	F	187	ILE	CA-C	5.91	1.59	1.52
4	H	67	ARG	CA-C	5.91	1.61	1.52
2	E	89	GLN	CA-C	5.90	1.60	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	H	82	GLU	N-CA	-5.90	1.39	1.46
2	E	168	SER	C-N	5.89	1.41	1.33
1	B	172	PRO	CB-CG	-5.89	1.28	1.51
5	L	192	TYR	CA-C	5.88	1.59	1.52
3	F	138	LEU	CB-CG	5.88	1.65	1.53
1	A	151	ILE	N-CA	5.87	1.53	1.46
2	E	163	HIS	CA-C	5.87	1.60	1.53
4	H	141	SER	CA-C	5.87	1.60	1.52
2	E	163	HIS	C-O	-5.86	1.17	1.23
3	F	125	LEU	CA-C	5.86	1.59	1.52
2	E	188	PRO	C-O	5.86	1.30	1.23
2	E	74	GLN	C-N	5.85	1.39	1.33
4	H	18	VAL	C-O	5.85	1.29	1.24
1	A	113	HIS	ND1-CE1	5.84	1.38	1.32
4	H	116	THR	N-CA	5.84	1.53	1.46
1	B	235	PHE	CA-C	5.83	1.59	1.52
2	E	128	PHE	CA-C	-5.83	1.45	1.52
5	L	186	TYR	C-O	-5.83	1.16	1.24
2	E	142	LYS	C-O	5.82	1.30	1.24
2	E	168	SER	CA-C	5.82	1.59	1.52
1	A	61	ASP	C-N	5.82	1.41	1.33
3	F	124	TYR	N-CA	5.82	1.53	1.45
3	F	123	LYS	C-O	-5.81	1.16	1.23
1	A	215	ARG	N-CA	-5.81	1.38	1.46
5	L	20	THR	N-CA	5.81	1.53	1.45
3	F	43	MET	SD-CE	-5.80	1.65	1.79
1	A	75	VAL	C-N	5.79	1.40	1.33
1	A	113	HIS	CG-ND1	-5.79	1.31	1.38
2	E	40	ILE	N-CA	5.77	1.53	1.46
1	A	154	ARG	N-CA	-5.76	1.39	1.46
2	E	111	LEU	N-CA	5.76	1.53	1.46
3	F	91	ALA	CA-C	5.75	1.59	1.52
5	L	203	SER	CA-C	5.75	1.58	1.52
4	H	38	LYS	C-N	5.75	1.40	1.33
1	A	189	LEU	CA-C	-5.74	1.45	1.52
2	E	64	GLU	CA-C	-5.74	1.45	1.52
3	F	171	TRP	CA-C	-5.73	1.45	1.52
5	L	81	GLU	N-CA	-5.71	1.38	1.46
2	E	162	ILE	CB-CG1	5.71	1.64	1.53
4	H	77	SER	N-CA	-5.71	1.39	1.46
1	A	79	LYS	CA-C	-5.70	1.45	1.52
5	L	21	ILE	CB-CG1	5.70	1.64	1.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	F	151	HIS	C-N	5.70	1.40	1.33
2	E	110	ALA	CA-C	5.70	1.59	1.52
1	A	172	PRO	CB-CG	-5.69	1.28	1.51
1	B	224	THR	C-O	5.69	1.31	1.24
1	A	81	GLY	C-O	-5.69	1.18	1.23
1	B	60	GLU	CA-C	-5.69	1.45	1.53
4	H	212	SER	CA-C	5.68	1.61	1.52
4	H	178	VAL	CA-C	-5.66	1.45	1.52
2	E	39	PRO	C-O	5.66	1.30	1.23
1	B	163	LEU	CA-C	-5.66	1.45	1.52
4	H	23	LYS	C-O	-5.65	1.17	1.24
2	E	163	HIS	CD2-NE2	5.65	1.44	1.37
1	B	185	VAL	CA-C	5.64	1.59	1.52
1	A	64	VAL	CA-C	5.64	1.59	1.52
2	E	75	VAL	C-O	5.64	1.29	1.23
1	A	103	ILE	C-O	-5.63	1.17	1.24
1	A	43	VAL	CA-C	5.63	1.59	1.52
1	A	189	LEU	N-CA	-5.62	1.39	1.46
1	B	113	HIS	CD2-NE2	5.61	1.44	1.37
5	L	30	ASN	C-O	-5.61	1.17	1.24
5	L	38	GLN	N-CA	-5.61	1.39	1.46
4	H	92	ALA	CA-C	5.59	1.59	1.52
2	E	231	LYS	CA-C	5.59	1.59	1.52
1	A	72	SER	CA-C	-5.58	1.45	1.52
1	A	214	VAL	CA-C	5.58	1.59	1.52
3	F	209	ILE	CA-C	5.58	1.59	1.52
1	B	58	ASN	CA-C	-5.57	1.44	1.52
1	A	232	SER	N-CA	5.56	1.53	1.45
5	L	24	HIS	CD2-NE2	5.54	1.44	1.37
1	A	87	GLU	C-N	5.54	1.41	1.33
4	H	150	LEU	CB-CG	-5.54	1.42	1.53
4	H	101	ASP	N-CA	-5.54	1.39	1.46
1	A	188	ALA	C-N	5.54	1.40	1.33
2	E	165	GLU	N-CA	5.53	1.53	1.46
2	E	176	GLN	CA-C	5.53	1.59	1.52
1	A	70	GLN	C-O	-5.53	1.17	1.24
1	B	174	PRO	C-O	5.53	1.31	1.24
4	H	217	ASP	C-O	5.53	1.30	1.23
1	A	190	LYS	N-CA	-5.52	1.39	1.46
4	H	170	SER	N-CA	5.52	1.52	1.46
1	B	156	HIS	CD2-NE2	5.51	1.44	1.37
1	A	225	LEU	C-N	5.51	1.42	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	L	153	ALA	CA-C	-5.50	1.45	1.52
3	F	213	SER	N-CA	-5.50	1.39	1.46
5	L	154	LEU	N-CA	5.49	1.53	1.46
1	A	52	HIS	CG-ND1	-5.49	1.32	1.38
1	B	118	GLN	CA-C	5.49	1.60	1.52
3	F	105	THR	CA-C	5.49	1.60	1.52
1	A	162	ARG	C-O	5.48	1.30	1.23
2	E	106	ALA	N-CA	5.48	1.53	1.46
2	E	239	ASP	N-CA	5.48	1.52	1.46
4	H	63	LYS	CA-C	5.47	1.59	1.52
2	E	65	LEU	C-O	-5.47	1.17	1.24
4	H	37	VAL	CA-C	5.46	1.58	1.52
3	F	239	ASP	CA-C	5.45	1.59	1.52
2	E	164	LEU	CB-CG	5.45	1.64	1.53
5	L	165	GLU	N-CA	5.44	1.53	1.45
1	A	131	ARG	N-CA	5.44	1.53	1.46
1	A	234	ILE	C-O	-5.44	1.18	1.23
2	E	244	SER	CA-C	5.44	1.59	1.52
2	E	67	TRP	C-N	5.43	1.40	1.33
4	H	34	MET	SD-CE	5.43	1.93	1.79
1	A	176	THR	C-N	-5.41	1.26	1.33
1	B	136	ALA	N-CA	5.41	1.52	1.45
5	L	154	LEU	C-O	-5.41	1.17	1.24
1	B	47	THR	CA-C	-5.40	1.46	1.52
1	A	84	ARG	C-O	-5.39	1.17	1.24
1	B	49	LEU	C-O	-5.39	1.17	1.24
5	L	127	SER	C-O	-5.39	1.17	1.23
3	F	46	GLU	N-CA	5.38	1.52	1.45
5	L	55	HIS	C-N	5.38	1.40	1.33
2	E	156	GLY	C-O	5.38	1.29	1.24
5	L	82	ASP	C-N	5.38	1.38	1.33
3	F	140	GLU	C-O	-5.37	1.17	1.23
1	A	223	ASN	C-O	5.37	1.30	1.23
1	B	124	ARG	C-N	5.37	1.41	1.33
3	F	72	LEU	C-N	5.37	1.40	1.33
1	A	75	VAL	CA-C	-5.36	1.45	1.52
3	F	163	HIS	CD2-NE2	5.36	1.43	1.37
4	H	1	GLN	C-N	5.35	1.40	1.33
4	H	22	CYS	C-N	5.35	1.40	1.33
5	L	148	TRP	CA-C	-5.35	1.45	1.52
5	L	26	SER	N-CA	5.33	1.52	1.46
5	L	185	ASP	CA-C	-5.33	1.45	1.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	86	GLU	CA-C	5.32	1.59	1.52
1	A	190	LYS	C-O	5.32	1.29	1.23
1	B	50	ARG	CA-C	5.32	1.58	1.52
4	H	204	ILE	CA-C	5.32	1.59	1.52
1	A	97	THR	CA-C	5.31	1.60	1.53
1	A	231	GLU	CA-C	5.30	1.58	1.52
1	A	65	ARG	CA-C	-5.30	1.46	1.52
3	F	210	MET	SD-CE	5.30	1.92	1.79
5	L	196	VAL	C-N	5.30	1.40	1.33
3	F	232	THR	CA-C	5.30	1.59	1.52
1	A	30	PHE	C-N	-5.29	1.26	1.33
2	E	237	ILE	C-N	-5.29	1.26	1.33
4	H	110	ASP	CA-C	-5.29	1.47	1.52
1	B	202	MET	N-CA	5.28	1.52	1.45
5	L	88	CYS	C-N	5.28	1.40	1.33
1	A	184	GLY	C-N	-5.28	1.26	1.33
3	F	190	VAL	N-CA	5.27	1.52	1.46
1	A	162	ARG	CA-C	-5.27	1.46	1.52
3	F	167	ARG	CA-C	5.26	1.59	1.52
2	E	120	ASP	CA-C	-5.26	1.45	1.52
3	F	184	GLY	C-O	-5.26	1.17	1.24
2	E	133	PHE	CA-C	5.26	1.59	1.52
1	A	225	LEU	C-O	5.26	1.30	1.24
1	B	192	VAL	N-CA	5.25	1.52	1.46
3	F	168	SER	C-N	5.25	1.41	1.33
3	F	218	VAL	C-N	5.25	1.40	1.33
4	H	205	CYS	CA-C	5.25	1.58	1.52
2	E	89	GLN	N-CA	-5.24	1.39	1.46
4	H	180	GLN	CD-NE2	-5.24	1.22	1.33
1	B	80	GLY	N-CA	5.24	1.52	1.45
1	B	208	ILE	CA-C	-5.23	1.46	1.52
1	A	51	CYS	N-CA	-5.23	1.39	1.46
1	A	52	HIS	C-O	-5.23	1.17	1.23
1	B	63	GLU	CA-C	-5.23	1.46	1.52
1	B	45	GLU	C-N	-5.23	1.26	1.33
1	A	99	VAL	CA-C	5.22	1.58	1.53
4	H	135	PRO	N-CA	5.22	1.53	1.47
4	H	119	THR	C-O	5.22	1.30	1.24
5	L	195	GLU	N-CA	-5.21	1.39	1.46
1	B	148	LYS	CA-C	5.21	1.59	1.52
3	F	119	SER	CA-C	5.21	1.59	1.52
1	B	236	ILE	CA-C	5.20	1.58	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	L	55	HIS	CE1-NE2	5.20	1.37	1.32
3	F	53	HIS	ND1-CE1	5.20	1.37	1.32
3	F	49	ASP	C-O	5.20	1.30	1.23
5	L	192	TYR	C-O	-5.20	1.17	1.23
1	B	126	TYR	C-O	-5.19	1.18	1.24
1	A	86	GLU	C-O	-5.19	1.18	1.24
1	A	210	ARG	C-N	5.18	1.40	1.33
4	H	11	VAL	CA-C	-5.18	1.46	1.52
4	H	106	PRO	CA-C	5.18	1.57	1.52
4	H	50	GLU	CA-C	-5.18	1.46	1.52
1	A	177	VAL	CA-CB	5.18	1.61	1.54
3	F	136	LYS	C-O	5.17	1.29	1.23
4	H	3	GLN	CD-NE2	-5.17	1.22	1.33
4	H	96	CYS	C-N	5.17	1.40	1.33
5	L	53	ASN	CA-C	-5.16	1.46	1.52
5	L	152	ASN	CA-C	5.16	1.59	1.53
1	A	155	GLY	N-CA	5.15	1.49	1.45
5	L	35	TRP	C-O	-5.15	1.18	1.24
5	L	107	LYS	CA-C	5.14	1.58	1.52
1	B	228	GLN	C-N	5.14	1.40	1.33
3	F	211	ARG	CA-C	-5.14	1.46	1.53
4	H	90	ASP	CG-OD1	-5.13	1.15	1.25
5	L	138	ASN	N-CA	5.13	1.53	1.46
3	F	87	ASP	CA-C	5.11	1.58	1.52
2	E	44	VAL	N-CA	-5.11	1.40	1.46
3	F	120	ASP	CA-C	-5.11	1.46	1.52
1	A	185	VAL	CA-C	5.11	1.59	1.52
4	H	28	ILE	N-CA	5.10	1.52	1.46
3	F	65	LEU	CA-CB	-5.10	1.44	1.53
4	H	124	SER	CA-C	-5.10	1.46	1.52
1	B	229	LYS	C-O	-5.09	1.18	1.24
4	H	182	SER	N-CA	5.09	1.52	1.46
3	F	92	PRO	C-O	-5.09	1.17	1.24
3	F	186	ASN	C-N	5.08	1.39	1.33
3	F	73	ARG	CA-C	5.08	1.59	1.53
3	F	193	PRO	C-O	-5.08	1.17	1.23
1	B	167	SER	C-O	-5.07	1.17	1.23
4	H	58	THR	C-O	-5.07	1.17	1.23
4	H	101	ASP	C-N	5.07	1.40	1.33
1	A	98	PHE	C-O	-5.07	1.17	1.23
3	F	181	ASN	C-N	5.06	1.41	1.33
1	A	33	VAL	C-O	-5.06	1.18	1.24

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	93	ARG	CA-C	-5.06	1.48	1.52
4	H	74	LYS	N-CA	5.06	1.52	1.45
1	B	43	VAL	CA-C	5.06	1.58	1.52
3	F	229	LEU	N-CA	5.06	1.51	1.45
4	H	137	SER	C-N	5.06	1.40	1.33
4	H	6	GLN	C-N	5.06	1.40	1.33
1	A	82	ARG	C-N	5.05	1.40	1.33
2	E	119	SER	C-N	5.05	1.41	1.33
2	E	183	LYS	CA-C	-5.05	1.46	1.52
1	B	156	HIS	CA-C	5.05	1.58	1.52
1	A	115	ILE	CA-C	-5.05	1.45	1.52
1	A	194	MET	CA-C	5.05	1.59	1.52
3	F	219	SER	C-N	-5.05	1.27	1.33
5	L	108	ARG	N-CA	-5.05	1.38	1.46
5	L	104	LEU	N-CA	5.05	1.52	1.46
1	A	191	GLU	C-N	5.04	1.40	1.33
5	L	187	GLU	CA-C	5.04	1.59	1.52
1	A	134	ASP	CG-OD2	-5.04	1.15	1.25
1	B	222	ASN	CA-C	-5.04	1.46	1.52
3	F	175	PRO	N-CA	5.04	1.52	1.47
3	F	150	LEU	CA-C	-5.03	1.46	1.52
3	F	51	PRO	C-O	-5.03	1.20	1.24
5	L	25	ALA	C-O	5.02	1.30	1.23
2	E	61	GLU	CA-C	5.02	1.59	1.52
1	B	96	THR	CA-C	5.02	1.58	1.52
4	H	86	LEU	N-CA	5.02	1.52	1.45
5	L	177	SER	CA-C	5.02	1.58	1.52
5	L	32	TRP	N-CA	-5.01	1.40	1.46
5	L	169	LYS	C-O	5.01	1.29	1.24
3	F	63	MET	C-N	5.01	1.40	1.33
1	B	55	PRO	C-O	-5.00	1.18	1.23
3	F	111	LEU	C-O	5.00	1.30	1.23
4	H	22	CYS	C-O	-5.00	1.18	1.24

All (382) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	173	LYS	N-CA-C	10.23	122.15	109.57
1	A	60	GLU	N-CA-C	-10.15	100.84	113.02
1	A	36	THR	N-CA-C	-10.12	100.93	113.38
1	A	67	PHE	N-CA-C	10.11	121.58	108.34
4	H	218	LYS	CA-C-O	-9.58	110.99	121.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	F	183	LYS	N-CA-C	-9.35	101.57	113.72
3	F	96	ARG	N-CA-C	-9.23	100.90	112.72
4	H	101	ASP	CA-CB-CG	9.19	121.79	112.60
3	F	241	PHE	N-CA-C	-9.15	99.73	112.45
2	E	102	ASP	CA-CB-CG	9.11	121.70	112.60
3	F	130	ASP	CA-CB-CG	8.78	121.38	112.60
2	E	80	ALA	CA-C-O	-8.63	112.01	121.33
1	A	240	PHE	N-CA-C	-8.55	99.07	111.30
4	H	219	LYS	N-CA-C	8.55	122.56	108.96
3	F	74	GLN	OE1-CD-NE2	8.53	131.13	122.60
1	B	66	TRP	N-CA-C	8.44	122.53	109.96
4	H	131	PHE	CA-CB-CG	-8.29	105.51	113.80
1	B	189	LEU	N-CA-C	-8.24	101.85	112.23
5	L	1	ASP	CA-CB-CG	8.19	120.79	112.60
1	A	223	ASN	OD1-CG-ND2	-8.18	114.42	122.60
1	A	189	LEU	N-CA-C	8.13	119.83	110.97
1	A	90	GLU	CA-C-O	-8.12	112.29	120.82
4	H	106	PRO	O-C-N	8.09	128.47	122.73
3	F	128	PHE	N-CA-C	8.05	122.75	109.06
1	A	43	VAL	N-CA-C	-7.99	99.27	109.58
4	H	204	ILE	CA-C-O	-7.95	113.33	121.67
4	H	51	ILE	N-CA-C	7.93	120.94	108.89
1	B	114	ASN	CA-CB-CG	7.86	120.46	112.60
1	A	91	GLU	N-CA-C	7.82	122.46	113.15
2	E	67	TRP	N-CA-C	7.69	121.99	109.76
1	B	65	ARG	N-CA-C	7.65	120.81	107.49
1	A	90	GLU	N-CA-C	7.60	119.20	111.07
4	H	96	CYS	CA-C-O	7.46	128.60	120.32
1	B	46	ASN	CA-C-O	-7.39	113.29	121.87
1	A	110	LEU	N-CA-C	7.38	121.47	109.59
1	A	236	ILE	O-C-N	-7.37	116.73	121.37
1	B	149	PRO	N-CA-C	7.35	122.89	111.21
1	A	226	LEU	CA-C-O	7.30	128.14	119.60
1	B	70	GLN	OE1-CD-NE2	-7.25	115.36	122.60
1	A	98	PHE	CA-CB-CG	7.23	121.03	113.80
4	H	201	GLN	OE1-CD-NE2	-7.20	115.41	122.60
3	F	123	LYS	N-CA-C	7.14	121.14	109.72
1	A	125	CYS	CA-C-O	-7.13	113.11	121.46
4	H	163	TRP	N-CA-C	7.13	120.08	109.59
2	E	104	ILE	N-CA-C	-7.13	102.59	112.50
3	F	74	GLN	N-CA-C	7.12	119.95	109.69
1	A	128	GLN	N-CA-C	7.10	119.96	107.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	L	30	ASN	CA-CB-CG	7.09	119.69	112.60
5	L	39	LYS	N-CA-C	-7.08	100.87	110.36
2	E	81	ASP	CA-CB-CG	7.07	119.67	112.60
1	B	77	VAL	N-CA-C	6.98	117.89	108.11
2	E	61	GLU	N-CA-C	-6.98	104.77	113.28
1	A	161	ILE	N-CA-C	6.96	118.83	108.46
3	F	83	LYS	CA-C-O	-6.92	113.78	121.05
4	H	11	VAL	N-CA-C	6.92	117.86	108.17
4	H	221	GLU	N-CA-C	6.92	119.44	109.48
1	A	79	LYS	N-CA-C	6.89	119.97	108.20
1	A	240	PHE	CA-CB-CG	6.89	120.69	113.80
4	H	217	ASP	CA-C-O	-6.87	113.09	121.06
1	A	95	ARG	N-CA-C	-6.86	103.58	112.23
1	B	165	CYS	N-CA-C	6.84	120.45	108.75
1	A	52	HIS	N-CA-C	-6.84	101.05	110.35
3	F	49	ASP	CA-C-O	-6.82	114.15	121.45
1	A	133	TYR	N-CA-C	6.80	120.76	109.95
1	A	76	PHE	CA-CB-CG	6.78	120.58	113.80
5	L	155	GLN	N-CA-C	6.78	120.50	109.59
4	H	100	ASP	CA-CB-CG	6.72	119.32	112.60
5	L	118	PHE	N-CA-C	6.72	121.42	108.45
4	H	46	GLU	N-CA-C	6.69	120.44	109.06
5	L	51	ALA	N-CA-CB	-6.69	106.54	114.17
3	F	102	ASP	CA-CB-CG	6.65	119.25	112.60
5	L	138	ASN	CA-C-O	-6.65	113.90	122.14
5	L	133	VAL	O-C-N	-6.61	115.93	123.00
1	B	68	ARG	N-CA-C	6.56	121.59	111.56
4	H	60	PHE	N-CA-C	6.56	120.59	110.42
2	E	157	TYR	CA-C-O	-6.55	113.73	122.51
4	H	174	THR	N-CA-C	-6.54	102.09	110.53
2	E	87	ASP	CA-CB-CG	6.54	119.14	112.60
2	E	126	CYS	N-CA-C	-6.50	99.71	110.17
4	H	66	ASN	CA-CB-CG	6.49	119.09	112.60
3	F	117	THR	N-CA-C	-6.49	100.01	110.32
1	B	58	ASN	N-CA-C	6.47	119.61	109.96
3	F	191	GLU	N-CA-C	-6.47	100.63	109.95
3	F	154	VAL	CA-C-O	-6.47	113.73	120.27
2	E	157	TYR	N-CA-C	-6.46	100.60	109.71
2	E	210	MET	CA-C-O	-6.45	113.22	120.32
3	F	152	VAL	N-CA-C	6.44	117.78	107.73
1	B	231	GLU	N-CA-C	6.43	119.94	109.59
2	E	113	ILE	N-CA-C	-6.43	98.96	109.12

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	F	181	ASN	OD1-CG-ND2	6.41	129.01	122.60
3	F	62	THR	CA-CB-OG1	-6.40	100.00	109.60
4	H	107	PHE	CA-CB-CG	6.39	120.19	113.80
1	A	49	LEU	N-CA-C	6.39	119.20	108.02
5	L	49	TYR	N-CA-C	-6.39	99.79	109.95
1	A	131	ARG	N-CA-C	6.37	121.22	113.38
4	H	106	PRO	CA-C-O	-6.37	114.23	121.11
2	E	239	ASP	CA-C-O	-6.35	112.18	118.34
4	H	80	TYR	CA-C-O	-6.34	113.94	121.11
3	F	235	ILE	N-CA-C	6.34	116.98	108.11
5	L	4	MET	N-CA-C	-6.32	99.72	109.52
1	B	202	MET	N-CA-C	-6.32	99.52	109.50
2	E	47	ASP	N-CA-C	-6.32	101.60	110.50
1	A	194	MET	N-CA-C	-6.30	99.23	109.82
1	A	165	CYS	N-CA-C	6.30	119.50	109.24
5	L	33	LEU	N-CA-C	-6.29	99.41	108.60
5	L	177	SER	N-CA-C	-6.28	99.49	109.23
1	A	98	PHE	N-CA-C	6.28	119.72	110.30
1	A	226	LEU	N-CA-C	-6.28	104.68	112.90
5	L	88	CYS	N-CA-C	-6.28	99.97	109.95
5	L	72	THR	CA-C-O	6.27	127.83	120.43
1	A	184	GLY	CA-C-O	-6.27	116.80	122.57
1	A	166	ILE	CA-C-O	-6.27	113.60	120.43
3	F	163	HIS	CA-CB-CG	6.26	120.06	113.80
4	H	204	ILE	CA-C-N	-6.23	114.20	122.99
4	H	204	ILE	C-N-CA	-6.23	114.20	122.99
1	A	166	ILE	O-C-N	6.23	129.80	123.07
1	A	148	LYS	N-CA-C	6.23	116.77	109.60
1	A	82	ARG	N-CA-C	6.22	119.37	110.10
3	F	151	HIS	CA-C-N	-6.19	114.63	122.43
3	F	151	HIS	C-N-CA	-6.19	114.63	122.43
4	H	99	GLU	N-CA-C	-6.18	102.56	110.53
1	A	96	THR	N-CA-C	6.17	118.00	110.41
1	B	199	GLY	CA-C-N	-6.16	114.57	122.77
1	B	199	GLY	C-N-CA	-6.16	114.57	122.77
4	H	13	LYS	CA-C-O	-6.16	113.08	120.41
1	B	148	LYS	CA-C-N	-6.14	113.45	119.78
1	B	148	LYS	C-N-CA	-6.14	113.45	119.78
4	H	127	GLY	N-CA-C	6.14	119.65	112.10
1	A	46	ASN	CA-C-O	-6.13	114.22	120.84
4	H	204	ILE	O-C-N	6.12	129.84	123.04
3	F	88	ARG	N-CA-C	-6.10	101.34	110.06

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	127	PHE	CA-C-O	-6.08	114.26	120.71
2	E	88	ARG	N-CA-C	6.07	120.30	112.41
5	L	87	TYR	CA-C-O	-6.07	113.68	120.66
3	F	62	THR	N-CA-C	-6.07	103.03	110.61
4	H	80	TYR	N-CA-C	-6.04	100.05	109.72
1	A	49	LEU	CD1-CG-CD2	-6.03	97.54	110.80
4	H	100	ASP	N-CA-C	6.02	118.29	110.53
1	A	151	ILE	N-CA-C	-6.00	99.72	108.11
1	B	154	ARG	CA-C-N	5.99	129.61	121.83
1	B	154	ARG	C-N-CA	5.99	129.61	121.83
3	F	242	PHE	CA-CB-CG	-5.98	107.82	113.80
3	F	222	ILE	CA-C-O	-5.96	113.83	121.40
3	F	164	LEU	N-CA-C	-5.94	99.72	109.40
3	F	176	GLN	N-CA-C	5.92	119.91	109.96
4	H	208	ASN	CA-CB-CG	5.90	118.50	112.60
1	B	212	LYS	O-C-N	-5.89	116.43	123.27
5	L	94	TYR	CA-C-O	-5.88	114.29	120.88
5	L	138	ASN	CA-C-N	-5.88	113.58	122.81
5	L	138	ASN	C-N-CA	-5.88	113.58	122.81
1	B	83	GLU	N-CA-C	5.88	118.31	108.96
1	B	134	ASP	CA-CB-CG	5.88	118.48	112.60
3	F	83	LYS	CA-C-N	5.88	130.83	122.72
3	F	83	LYS	C-N-CA	5.88	130.83	122.72
4	H	212	SER	CA-C-O	-5.86	111.36	119.16
1	A	122	THR	N-CA-C	5.86	118.67	108.76
1	A	216	ASN	CA-CB-CG	5.85	118.45	112.60
2	E	66	LYS	N-CA-C	5.84	117.91	107.80
3	F	67	TRP	N-CA-C	5.84	118.48	110.24
5	L	50	LYS	CG-CD-CE	5.84	124.74	111.30
4	H	42	GLY	O-C-N	-5.84	117.26	122.57
2	E	235	ILE	CB-CG1-CD1	5.83	126.03	113.80
1	A	62	MET	N-CA-C	-5.82	101.39	110.42
5	L	36	TYR	N-CA-C	-5.82	101.12	110.14
4	H	90	ASP	N-CA-C	-5.82	104.74	112.94
2	E	156	GLY	CA-C-O	-5.81	116.57	122.56
4	H	79	ALA	CA-C-N	-5.81	113.69	122.81
4	H	79	ALA	C-N-CA	-5.81	113.69	122.81
3	F	156	GLY	N-CA-C	5.79	121.88	111.34
4	H	35	TYR	N-CA-C	-5.78	99.59	109.24
4	H	121	SER	CA-CB-OG	-5.77	99.55	111.10
3	F	50	LEU	CA-C-O	-5.76	113.34	119.22
2	E	126	CYS	CA-C-O	-5.76	114.48	121.28

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	H	81	MET	CA-C-O	-5.76	114.48	120.70
1	B	62	MET	N-CA-C	-5.75	100.03	109.40
5	L	151	ASP	CA-C-N	5.75	130.52	122.36
5	L	151	ASP	C-N-CA	5.75	130.52	122.36
4	H	184	LEU	N-CA-C	-5.75	100.76	108.86
4	H	67	ARG	N-CA-C	-5.74	104.99	113.72
3	F	111	LEU	CA-C-O	-5.74	114.87	121.47
1	A	57	LYS	CA-C-O	-5.74	115.23	121.14
2	E	81	ASP	CA-C-O	-5.73	111.54	119.16
5	L	121	SER	CA-C-N	5.73	128.23	120.44
5	L	121	SER	C-N-CA	5.73	128.23	120.44
2	E	76	VAL	CA-C-O	-5.73	114.78	120.85
5	L	198	HIS	CE1-NE2-CD2	-5.72	103.28	109.00
5	L	92	GLN	CA-C-O	-5.71	114.82	120.70
4	H	212	SER	CA-CB-OG	5.70	122.51	111.10
1	B	65	ARG	CA-C-N	5.70	129.46	121.02
1	B	65	ARG	C-N-CA	5.70	129.46	121.02
3	F	51	PRO	O-C-N	5.69	126.77	122.73
1	A	196	ASP	N-CA-C	-5.69	105.65	112.59
1	A	210	ARG	N-CA-C	-5.67	102.88	111.56
1	B	54	SER	CA-C-O	-5.67	112.39	120.16
1	B	53	LEU	N-CA-C	5.67	118.49	110.50
1	A	157	GLU	CA-C-N	5.66	130.40	122.36
1	A	157	GLU	C-N-CA	5.66	130.40	122.36
1	B	54	SER	CA-CB-OG	5.66	122.42	111.10
1	A	49	LEU	CA-C-O	-5.66	114.46	120.40
4	H	217	ASP	CA-CB-CG	5.64	118.24	112.60
3	F	69	SER	N-CA-C	5.64	118.07	109.95
1	A	200	LEU	N-CA-C	-5.64	99.83	109.24
5	L	191	VAL	N-CA-C	-5.64	100.57	108.80
2	E	172	TYR	CA-C-O	-5.63	114.71	120.63
4	H	86	LEU	CD1-CG-CD2	5.63	123.20	110.80
4	H	127	GLY	CA-C-O	-5.63	117.00	122.46
5	L	106	ILE	N-CA-C	5.63	117.52	108.85
5	L	53	ASN	OD1-CG-ND2	5.62	128.22	122.60
1	B	154	ARG	N-CA-C	-5.62	104.65	113.02
3	F	231	LYS	N-CA-C	-5.61	100.83	109.52
4	H	144	THR	N-CA-C	5.60	118.35	109.50
4	H	217	ASP	O-C-N	5.60	129.76	123.27
2	E	165	GLU	CA-C-N	-5.59	114.83	122.93
2	E	165	GLU	C-N-CA	-5.59	114.83	122.93
4	H	74	LYS	N-CA-C	-5.59	106.82	113.97

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	F	96	ARG	CA-C-O	5.58	126.34	119.81
2	E	119	SER	CA-C-N	-5.58	113.39	122.26
2	E	119	SER	C-N-CA	-5.58	113.39	122.26
1	A	222	ASN	CA-C-N	-5.56	114.94	122.95
1	A	222	ASN	C-N-CA	-5.56	114.94	122.95
2	E	229	LEU	CA-C-O	-5.56	114.72	121.28
1	A	70	GLN	CB-CG-CD	5.56	122.05	112.60
2	E	128	PHE	CA-C-N	-5.56	113.08	121.86
2	E	128	PHE	C-N-CA	-5.56	113.08	121.86
5	L	161	GLU	N-CA-C	5.56	118.64	110.30
2	E	83	LYS	CA-C-O	5.55	127.94	121.44
1	A	58	ASN	CA-CB-CG	5.54	118.14	112.60
5	L	89	GLN	N-CA-C	-5.54	100.65	109.23
1	A	143	ALA	N-CA-C	-5.54	101.91	109.71
1	A	196	ASP	CA-CB-CG	-5.53	107.07	112.60
5	L	55	HIS	CE1-NE2-CD2	-5.53	103.47	109.00
1	B	74	ALA	CA-C-N	5.53	128.27	120.42
1	B	74	ALA	C-N-CA	5.53	128.27	120.42
5	L	94	TYR	N-CA-C	-5.53	102.10	110.39
1	A	219	CYS	N-CA-C	-5.53	100.96	109.52
4	H	55	ASN	CA-C-O	-5.52	115.14	121.82
1	A	42	THR	O-C-N	-5.52	116.45	123.24
4	H	75	SER	CA-C-N	5.51	130.29	123.12
4	H	75	SER	C-N-CA	5.51	130.29	123.12
5	L	29	ILE	CB-CG1-CD1	5.51	125.37	113.80
5	L	155	GLN	CB-CG-CD	5.51	121.96	112.60
3	F	224	SER	CA-CB-OG	-5.50	100.11	111.10
4	H	169	THR	CA-CB-OG1	5.50	117.84	109.60
2	E	176	GLN	N-CA-C	-5.49	99.58	108.52
3	F	100	LEU	CA-C-N	5.49	130.15	122.41
3	F	100	LEU	C-N-CA	5.49	130.15	122.41
5	L	55	HIS	CG-CD2-NE2	5.47	112.67	107.20
4	H	70	LEU	N-CA-C	-5.47	100.78	109.59
2	E	132	ASP	CA-CB-CG	5.46	118.06	112.60
3	F	126	CYS	N-CA-C	-5.46	102.82	110.35
4	H	76	ILE	CB-CG1-CD1	5.46	125.26	113.80
1	A	38	PRO	CA-C-O	-5.45	115.23	121.56
4	H	63	LYS	N-CA-C	-5.45	106.99	113.97
2	E	161	GLY	CA-C-N	-5.45	115.37	122.51
2	E	161	GLY	C-N-CA	-5.45	115.37	122.51
1	A	220	SER	N-CA-C	5.45	117.25	108.32
2	E	57	THR	N-CA-C	-5.45	106.51	112.72

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	L	73	PHE	CA-CB-CG	5.44	119.24	113.80
3	F	113	ILE	N-CA-C	-5.44	100.29	108.12
2	E	82	GLY	N-CA-C	5.43	121.98	114.92
2	E	117	THR	N-CA-C	-5.43	101.18	109.65
4	H	2	VAL	N-CA-C	5.42	116.57	109.58
3	F	216	GLU	N-CA-C	5.42	117.55	108.23
1	A	120	ASN	CA-C-O	-5.42	114.78	120.80
2	E	191	GLU	CB-CG-CD	5.39	121.76	112.60
3	F	241	PHE	CA-CB-CG	5.39	119.19	113.80
4	H	152	LYS	O-C-N	-5.39	117.11	123.25
1	A	51	CYS	CA-C-N	5.39	128.88	120.75
1	A	51	CYS	C-N-CA	5.39	128.88	120.75
3	F	152	VAL	N-CA-CB	-5.38	104.69	111.31
1	A	53	LEU	N-CA-C	5.38	117.67	108.90
1	B	113	HIS	CB-CG-ND1	-5.38	114.63	122.70
1	A	231	GLU	N-CA-C	-5.37	100.90	109.23
3	F	177	ILE	N-CA-C	5.37	116.46	108.46
1	A	161	ILE	CA-C-N	-5.36	113.25	120.87
1	A	161	ILE	C-N-CA	-5.36	113.25	120.87
1	A	223	ASN	CA-CB-CG	-5.36	107.24	112.60
1	B	85	THR	CA-C-O	-5.36	113.63	119.95
1	B	193	SER	CA-C-O	-5.36	113.63	120.27
1	A	63	GLU	CB-CG-CD	5.35	121.70	112.60
2	E	230	GLU	N-CA-C	-5.35	100.94	109.07
2	E	237	ILE	CA-C-O	-5.35	114.68	120.67
3	F	129	GLN	N-CA-C	-5.33	101.31	109.41
3	F	32	SER	CA-CB-OG	5.32	121.75	111.10
1	A	218	SER	CA-C-O	-5.32	115.21	121.44
4	H	91	THR	CA-C-O	5.32	126.61	120.60
2	E	113	ILE	CB-CG1-CD1	5.32	124.97	113.80
1	B	97	THR	CA-C-O	5.31	126.43	120.70
1	B	125	CYS	CA-C-N	5.30	130.48	123.00
1	B	125	CYS	C-N-CA	5.30	130.48	123.00
5	L	149	LYS	O-C-N	-5.30	117.41	123.40
5	L	193	ALA	CA-C-O	5.29	126.60	120.14
1	B	156	HIS	N-CA-C	-5.29	100.41	109.24
2	E	211	ARG	CA-C-O	-5.29	113.64	119.78
5	L	75	ILE	N-CA-C	-5.29	99.95	107.77
3	F	230	GLU	CB-CG-CD	-5.28	103.62	112.60
5	L	129	THR	CA-CB-OG1	5.28	117.52	109.60
3	F	148	SER	N-CA-C	-5.27	103.07	110.35
3	F	187	ILE	CA-C-N	-5.27	113.25	119.84

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	F	187	ILE	C-N-CA	-5.27	113.25	119.84
3	F	102	ASP	N-CA-C	5.27	119.84	113.41
1	A	91	GLU	CB-CG-CD	5.26	121.55	112.60
1	B	127	PHE	N-CA-C	5.26	118.06	109.59
5	L	87	TYR	CA-C-N	-5.26	114.40	122.87
5	L	87	TYR	C-N-CA	-5.26	114.40	122.87
3	F	165	GLU	CA-C-N	5.25	130.82	122.62
3	F	165	GLU	C-N-CA	5.25	130.82	122.62
1	B	82	ARG	N-CA-C	5.25	116.50	108.42
5	L	207	LYS	CA-C-O	-5.25	115.52	121.66
1	B	235	PHE	CA-C-O	-5.25	114.98	120.80
5	L	24	HIS	CE1-NE2-CD2	-5.24	103.76	109.00
3	F	92	PRO	CA-C-O	-5.24	111.68	119.18
1	B	181	PRO	CA-C-N	-5.24	114.27	122.65
1	B	181	PRO	C-N-CA	-5.24	114.27	122.65
1	B	61	ASP	N-CA-C	-5.23	102.83	113.29
1	B	170	TRP	N-CA-C	5.22	117.76	109.24
1	B	109	ALA	N-CA-C	5.22	117.18	108.99
1	B	196	ASP	CA-CB-CG	5.21	117.81	112.60
2	E	172	TYR	CB-CA-C	-5.21	104.84	110.98
5	L	138	ASN	CA-CB-CG	-5.20	107.40	112.60
5	L	138	ASN	O-C-N	5.20	129.26	122.86
4	H	212	SER	O-C-N	5.18	127.31	121.87
1	A	70	GLN	CG-CD-NE2	5.18	124.17	116.40
2	E	79	TYR	N-CA-C	5.17	117.16	108.73
4	H	153	ASP	N-CA-C	5.17	117.48	111.02
1	A	65	ARG	CA-C-O	5.17	127.81	121.56
1	B	63	GLU	CA-C-O	-5.16	114.81	120.69
1	A	154	ARG	N-CA-C	5.16	118.62	111.71
1	B	50	ARG	N-CA-C	-5.15	100.06	108.76
4	H	224	SER	CA-C-O	-5.14	114.46	120.53
2	E	243	ARG	CA-C-N	5.14	130.77	122.29
2	E	243	ARG	C-N-CA	5.14	130.77	122.29
1	A	193	SER	CA-C-O	-5.13	114.62	120.32
1	B	40	LEU	N-CA-C	-5.13	101.39	109.50
1	A	46	ASN	CA-CB-CG	-5.13	107.47	112.60
4	H	222	PRO	CA-C-O	5.13	125.11	121.31
1	B	241	MET	N-CA-C	-5.13	102.70	110.39
3	F	209	ILE	CA-C-O	-5.13	114.97	121.48
1	A	167	SER	CA-CB-OG	5.12	121.35	111.10
1	A	137	ILE	N-CA-C	5.12	116.33	108.71
2	E	166	CYS	CA-C-O	-5.11	115.29	120.71

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	179	ARG	N-CA-C	5.11	116.70	108.32
1	A	92	TYR	O-C-N	-5.10	116.12	123.06
3	F	157	TYR	N-CA-C	-5.10	101.36	108.96
1	B	133	TYR	N-CA-C	5.10	116.59	108.79
5	L	187	GLU	N-CA-C	-5.10	107.03	113.20
2	E	183	LYS	O-C-N	-5.09	115.82	122.59
4	H	204	ILE	CA-CB-CG1	5.09	119.05	110.40
5	L	127	SER	CA-CB-OG	-5.08	100.94	111.10
2	E	165	GLU	CA-C-O	-5.08	113.16	120.11
1	B	149	PRO	N-CA-CB	-5.08	98.93	103.35
3	F	55	PHE	CA-CB-CG	-5.07	108.73	113.80
3	F	68	VAL	O-C-N	-5.07	117.42	123.05
1	A	93	ARG	N-CA-C	5.07	119.08	112.13
3	F	113	ILE	CB-CG1-CD1	5.07	124.45	113.80
1	A	149	PRO	N-CA-CB	-5.07	98.90	103.36
2	E	88	ARG	CA-C-O	-5.07	113.82	119.95
2	E	90	SER	CA-CB-OG	-5.07	100.97	111.10
1	B	46	ASN	CA-CB-CG	-5.04	107.56	112.60
3	F	31	PHE	N-CA-C	5.04	118.84	109.56
5	L	24	HIS	CA-CB-CG	5.04	118.84	113.80
1	B	79	LYS	CA-C-O	-5.04	114.55	120.60
1	B	182	TYR	N-CA-C	-5.04	106.72	112.92
1	B	168	ARG	CA-C-O	-5.04	114.92	120.36
1	B	104	SER	CA-C-O	-5.03	115.08	120.42
1	B	124	ARG	CA-C-N	-5.03	115.09	122.19
1	B	124	ARG	C-N-CA	-5.03	115.09	122.19
4	H	164	ASN	CA-CB-CG	-5.03	107.57	112.60
4	H	139	SER	N-CA-C	5.03	119.40	113.12
4	H	114	GLN	N-CA-C	-5.02	107.14	114.12
1	A	115	ILE	CA-CB-CG2	5.01	119.02	110.50
1	B	101	LYS	N-CA-C	5.01	119.03	113.01
3	F	65	LEU	N-CA-C	-5.01	100.12	110.80
5	L	24	HIS	CB-CG-CD2	-5.01	124.69	131.20
1	B	57	LYS	N-CA-C	-5.00	101.59	109.50
4	H	202	THR	CA-C-N	-5.00	116.33	122.84
4	H	202	THR	C-N-CA	-5.00	116.33	122.84
1	B	126	TYR	CA-C-N	5.00	130.19	122.93
1	B	126	TYR	C-N-CA	5.00	130.19	122.93
2	E	40	ILE	N-CA-C	-5.00	100.69	107.99
2	E	141	LEU	CA-C-N	-5.00	115.94	122.99
2	E	141	LEU	C-N-CA	-5.00	115.94	122.99

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	130	GLY	Peptide
3	F	127	TYR	Peptide

5.2 Too-close contacts

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	1704	0	1688	40	0
1	B	1695	0	1680	2	0
2	E	1630	0	1601	13	0
3	F	1629	0	1603	6	0
4	H	1710	0	1684	28	0
5	L	1654	0	1602	5	0
All	All	10022	0	9858	94	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 5.

All (94) 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:A:64:VAL:HG13	1:A:127:PHE:CE2	1.67	1.27
2:E:150:LEU:CD1	2:E:222:ILE:HD12	1.68	1.23
2:E:150:LEU:HD12	2:E:222:ILE:HD12	1.26	1.14
1:A:64:VAL:CG1	1:A:127:PHE:CE2	2.32	1.13
2:E:150:LEU:HD11	2:E:222:ILE:CD1	1.80	1.10
1:A:125:CYS:CB	1:A:127:PHE:CE1	2.34	1.09
1:A:125:CYS:HB2	1:A:127:PHE:CE1	1.87	1.09
2:E:150:LEU:CD1	2:E:222:ILE:CD1	2.31	1.09
1:A:125:CYS:HB2	1:A:127:PHE:HE1	1.05	1.08
4:H:157:GLU:HB3	4:H:158:PRO:HA	1.34	1.07
1:A:122:THR:HG22	1:A:139:HIS:CD2	1.93	1.02
1:A:125:CYS:CB	1:A:127:PHE:HE1	1.70	1.01
4:H:157:GLU:CB	4:H:158:PRO:HA	1.91	0.98
4:H:155:PHE:HD2	4:H:185:TYR:CE1	1.81	0.97

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:H:174:THR:O	4:H:175:PHE:HD1	1.46	0.97
4:H:174:THR:C	4:H:175:PHE:HD1	1.76	0.94
4:H:155:PHE:CD2	4:H:185:TYR:CE1	2.57	0.93
4:H:174:THR:O	4:H:175:PHE:CD1	2.23	0.91
1:A:125:CYS:HB3	1:A:127:PHE:CE1	2.04	0.90
1:A:64:VAL:HG13	1:A:127:PHE:CD2	2.08	0.88
1:A:128:GLN:HG2	1:A:132:SER:O	1.73	0.87
4:H:159:VAL:HG13	4:H:207:VAL:HG13	1.56	0.86
2:E:63:MET:HG2	2:E:130:ASP:HB2	1.59	0.85
1:A:156:HIS:CE1	1:A:240:PHE:O	2.32	0.82
2:E:150:LEU:HD11	2:E:222:ILE:HD11	1.59	0.82
3:F:65:LEU:HB3	3:F:79:TYR:HB3	1.65	0.77
1:A:64:VAL:HG11	1:A:127:PHE:CE2	2.20	0.77
2:E:150:LEU:HD12	2:E:222:ILE:CD1	2.08	0.76
4:H:154:TYR:CE1	4:H:159:VAL:CG2	2.70	0.74
4:H:157:GLU:CB	4:H:158:PRO:CA	2.65	0.73
1:A:122:THR:CG2	1:A:139:HIS:CD2	2.71	0.72
5:L:140:TYR:HA	5:L:141:PRO:O	1.90	0.72
4:H:173:HIS:HB3	4:H:175:PHE:HE1	1.56	0.71
1:A:64:VAL:HG11	1:A:127:PHE:HE2	1.56	0.70
4:H:174:THR:C	4:H:175:PHE:CD1	2.66	0.70
4:H:154:TYR:CE1	4:H:159:VAL:HG21	2.27	0.70
5:L:140:TYR:CG	5:L:141:PRO:HA	2.28	0.69
1:A:30:PHE:HD1	1:A:54:SER:O	1.76	0.68
1:A:128:GLN:HG3	1:A:133:TYR:HB3	1.75	0.68
1:A:128:GLN:HE21	1:A:131:ARG:HA	1.61	0.65
1:A:64:VAL:HG22	1:A:127:PHE:HD2	1.61	0.65
4:H:155:PHE:HD2	4:H:185:TYR:CD1	2.15	0.64
4:H:159:VAL:CG1	4:H:207:VAL:HG13	2.24	0.64
1:A:156:HIS:HE1	1:A:240:PHE:O	1.81	0.64
1:A:51:CYS:SG	1:A:127:PHE:HZ	2.22	0.63
1:A:50:ARG:O	1:A:138:LEU:HD13	1.99	0.62
5:L:140:TYR:CD2	5:L:141:PRO:HA	2.34	0.62
4:H:156:PRO:O	4:H:209:HIS:HE1	1.82	0.62
1:A:51:CYS:SG	1:A:127:PHE:CZ	2.93	0.62
4:H:154:TYR:CE1	4:H:159:VAL:HG23	2.34	0.62
1:A:128:GLN:NE2	1:A:131:ARG:HA	2.15	0.62
1:A:68:ARG:NH2	1:A:122:THR:O	2.29	0.62
4:H:157:GLU:HB3	4:H:158:PRO:CA	2.20	0.58
1:A:123:TYR:O	1:A:137:ILE:HA	2.04	0.57
4:H:128:PRO:HA	4:H:154:TYR:HB3	1.88	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:128:GLN:HB2	1:A:133:TYR:HB3	1.86	0.56
1:A:128:GLN:HG2	1:A:132:SER:C	2.30	0.56
5:L:140:TYR:HA	5:L:141:PRO:C	2.29	0.56
1:A:128:GLN:HB2	1:A:133:TYR:CB	2.37	0.55
1:A:64:VAL:HG22	1:A:127:PHE:CD2	2.40	0.54
3:F:65:LEU:HD23	3:F:77:ASN:O	2.08	0.53
2:E:150:LEU:HD21	2:E:220:CYS:SG	2.49	0.53
1:B:122:THR:HG22	1:B:139:HIS:CE1	2.43	0.53
2:E:150:LEU:HD11	2:E:222:ILE:CG1	2.37	0.52
2:E:49:ASP:C	2:E:50:LEU:HD12	2.34	0.52
5:L:140:TYR:C	5:L:140:TYR:CD1	2.88	0.52
2:E:151:HIS:C	2:E:151:HIS:CD2	2.89	0.51
4:H:155:PHE:CD2	4:H:185:TYR:HE1	2.26	0.51
2:E:131:GLY:HA3	2:E:132:ASP:C	2.36	0.51
4:H:155:PHE:CE2	4:H:156:PRO:HB3	2.45	0.51
4:H:154:TYR:OH	4:H:187:LEU:HD22	2.11	0.50
1:A:128:GLN:HE21	1:A:131:ARG:CA	2.22	0.50
2:E:131:GLY:HA3	2:E:133:PHE:N	2.27	0.50
4:H:151:VAL:HG12	4:H:154:TYR:CE2	2.47	0.49
4:H:155:PHE:CZ	4:H:156:PRO:HB3	2.47	0.49
1:A:128:GLN:CG	1:A:133:TYR:HB3	2.43	0.48
4:H:154:TYR:O	4:H:185:TYR:HB2	2.14	0.48
1:A:64:VAL:HG13	1:A:127:PHE:CZ	2.39	0.48
3:F:129:GLN:HA	3:F:134:TYR:HA	1.96	0.47
1:B:51:CYS:O	1:B:52:HIS:HB3	2.16	0.46
1:A:122:THR:CG2	1:A:139:HIS:NE2	2.79	0.45
4:H:155:PHE:CD1	4:H:155:PHE:C	2.94	0.45
1:A:122:THR:HG21	1:A:139:HIS:NE2	2.32	0.45
3:F:65:LEU:CB	3:F:79:TYR:HB3	2.41	0.45
4:H:157:GLU:HB2	4:H:158:PRO:HA	1.92	0.44
1:A:64:VAL:CG1	1:A:127:PHE:CD2	2.85	0.44
1:A:128:GLN:HE21	1:A:131:ARG:C	2.25	0.44
3:F:182:ASN:ND2	3:F:217:GLY:H	2.16	0.43
1:A:128:GLN:CB	1:A:133:TYR:HB3	2.48	0.43
3:F:73:ARG:O	3:F:73:ARG:HG3	2.18	0.43
4:H:156:PRO:O	4:H:209:HIS:CE1	2.68	0.41
1:A:54:SER:HA	1:A:56:GLU:N	2.35	0.41
1:A:50:ARG:O	1:A:138:LEU:CD1	2.69	0.41
1:A:128:GLN:CG	1:A:132:SER:O	2.58	0.41

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	215/534 (40%)	213 (99%)	2 (1%)	0	100	100
1	B	214/534 (40%)	212 (99%)	2 (1%)	0	100	100
2	E	214/340 (63%)	210 (98%)	4 (2%)	0	100	100
3	F	214/539 (40%)	209 (98%)	5 (2%)	0	100	100
4	H	223/255 (88%)	219 (98%)	4 (2%)	0	100	100
5	L	212/236 (90%)	211 (100%)	1 (0%)	0	100	100
All	All	1292/2438 (53%)	1274 (99%)	18 (1%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	188/472 (40%)	186 (99%)	2 (1%)	70	80
1	B	187/472 (40%)	187 (100%)	0	100	100
2	E	173/278 (62%)	172 (99%)	1 (1%)	84	90
3	F	175/451 (39%)	175 (100%)	0	100	100
4	H	193/218 (88%)	193 (100%)	0	100	100
5	L	189/207 (91%)	189 (100%)	0	100	100
All	All	1105/2098 (53%)	1102 (100%)	3 (0%)	90	94

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

Mol	Chain	Res	Type
1	A	68	ARG
1	A	140	LEU
2	E	150	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (11) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	128	GLN
1	A	156	HIS
1	A	223	ASN
1	B	58	ASN
1	B	139	HIS
3	F	89	GLN
3	F	151	HIS
3	F	182	ASN
4	H	209	HIS
5	L	27	GLN
5	L	160	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [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.

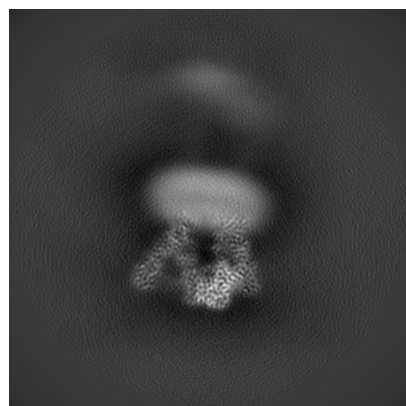
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-62622. These allow visual inspection of the internal detail of the map and identification of artifacts.

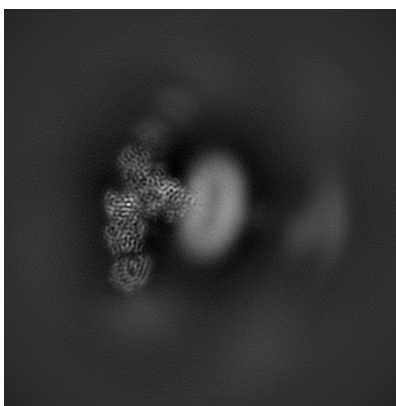
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

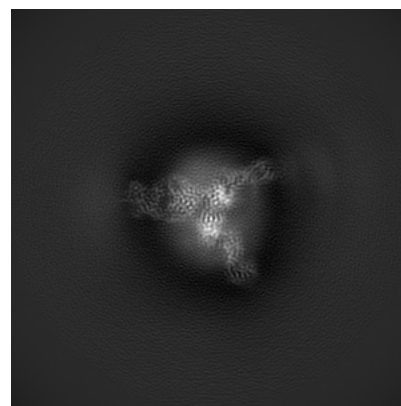
6.1.1 Primary map



X

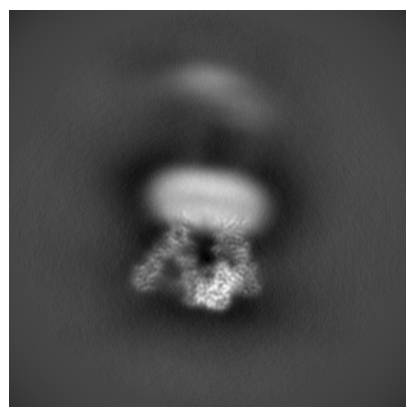


Y

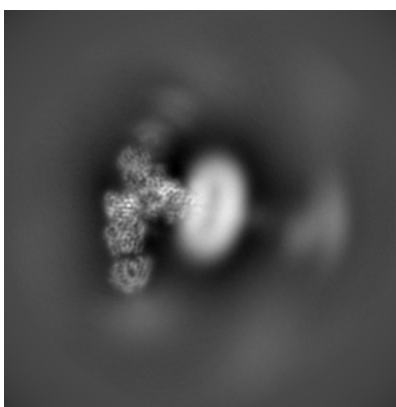


Z

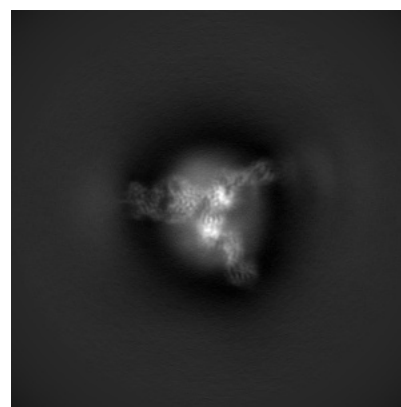
6.1.2 Raw map



X



Y

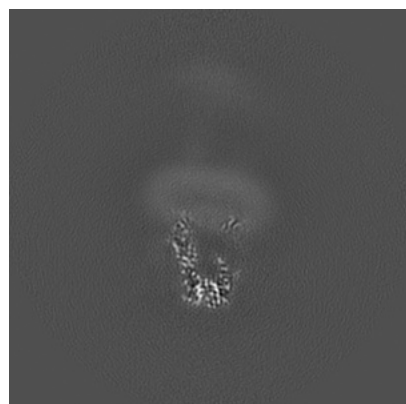


Z

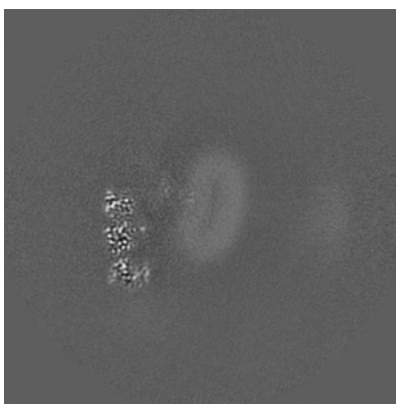
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

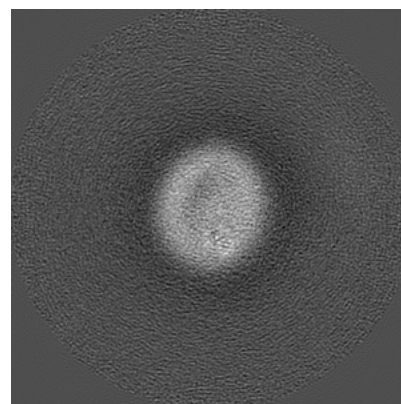
6.2.1 Primary map



X Index: 180

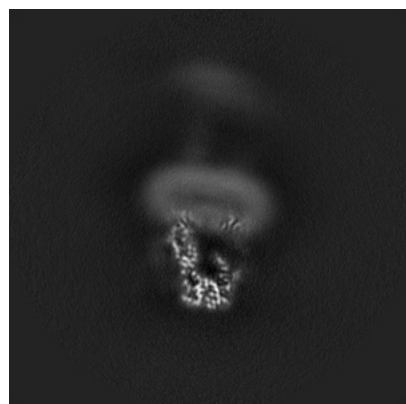


Y Index: 180

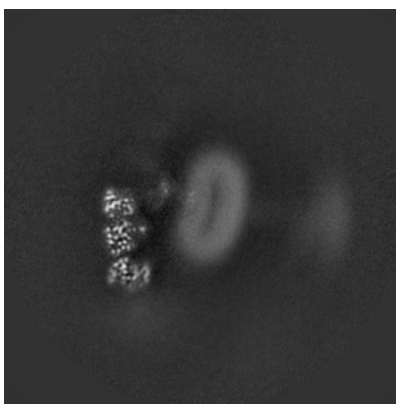


Z Index: 180

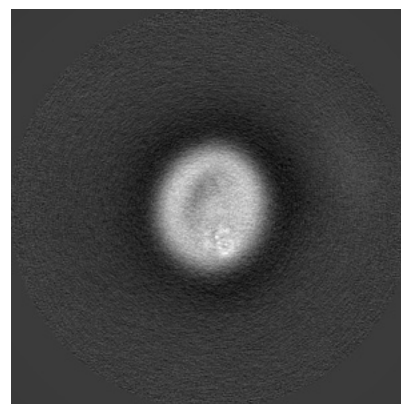
6.2.2 Raw map



X Index: 180



Y Index: 180

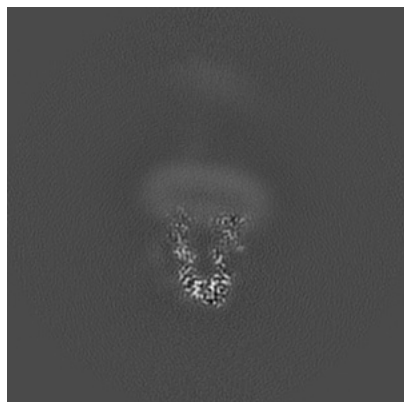


Z Index: 180

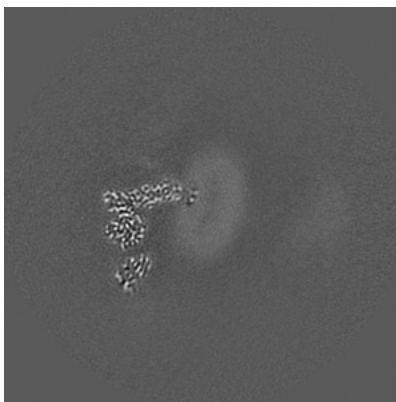
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

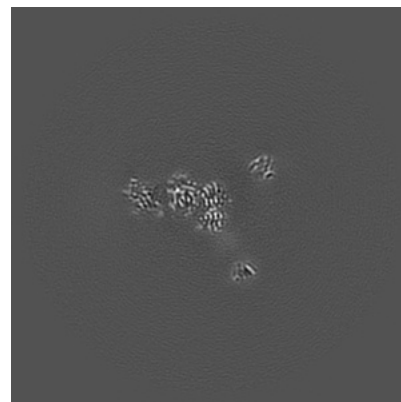
6.3.1 Primary map



X Index: 184

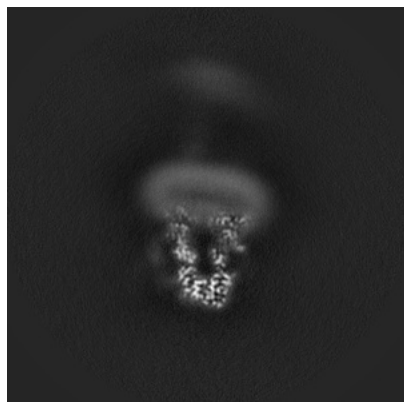


Y Index: 191

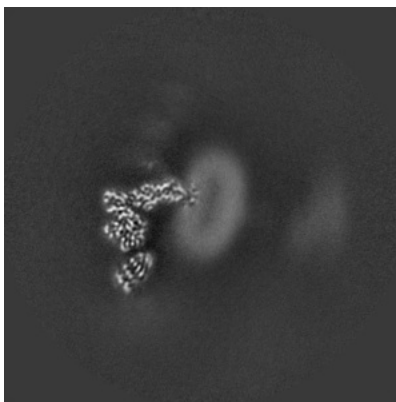


Z Index: 111

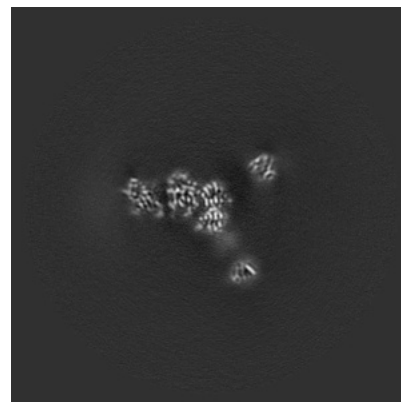
6.3.2 Raw map



X Index: 184



Y Index: 192

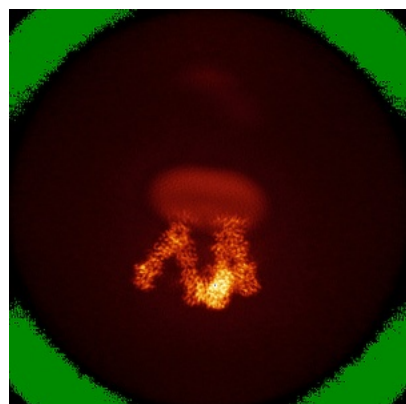


Z Index: 111

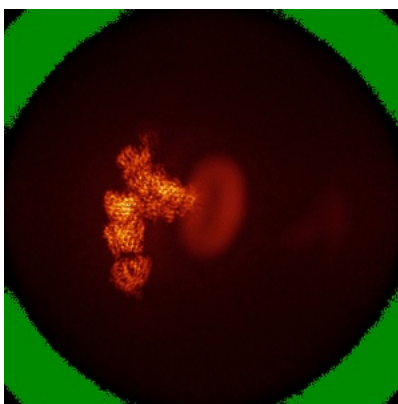
The images above show the largest variance slices of the map in three orthogonal directions.

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

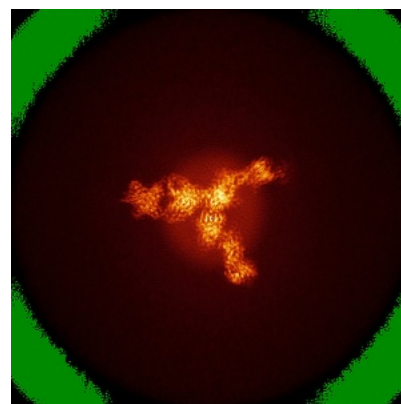
6.4.1 Primary map



X



Y

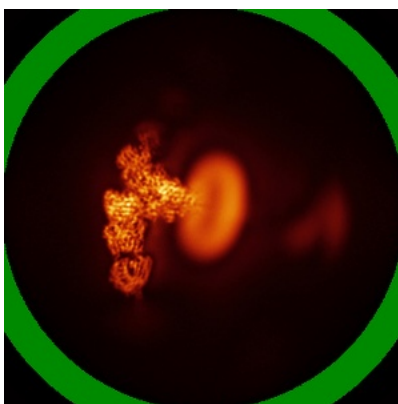


Z

6.4.2 Raw map



X



Y

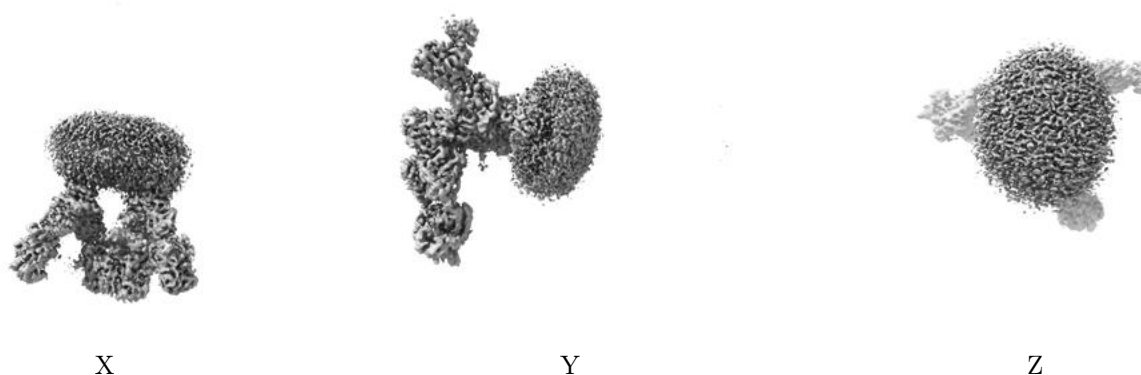


Z

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

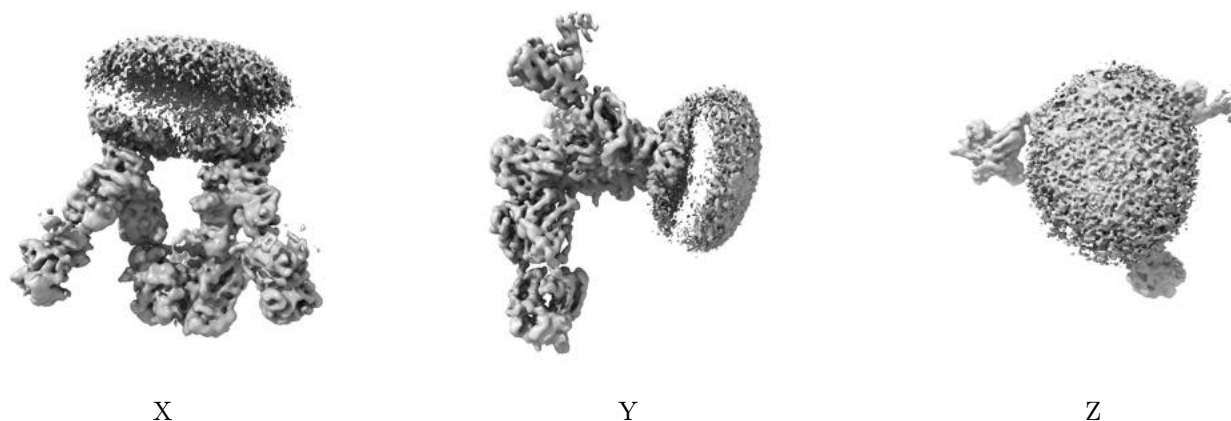
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.013. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

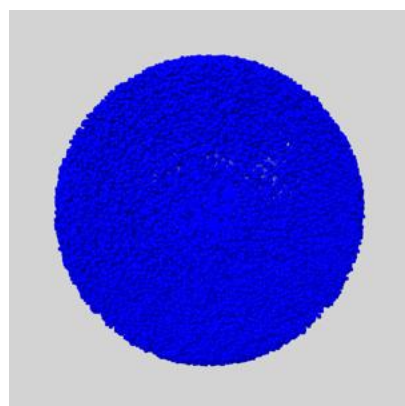
6.6 Mask visualisation [i](#)

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

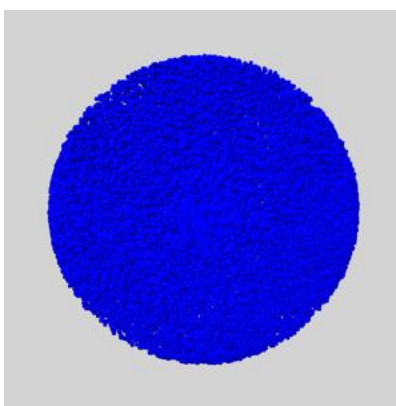
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

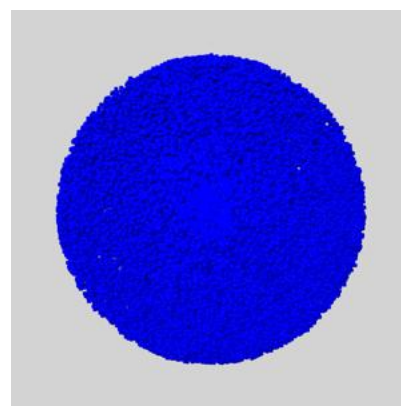
6.6.1 emd_62622_msk_1.map [i](#)



X



Y

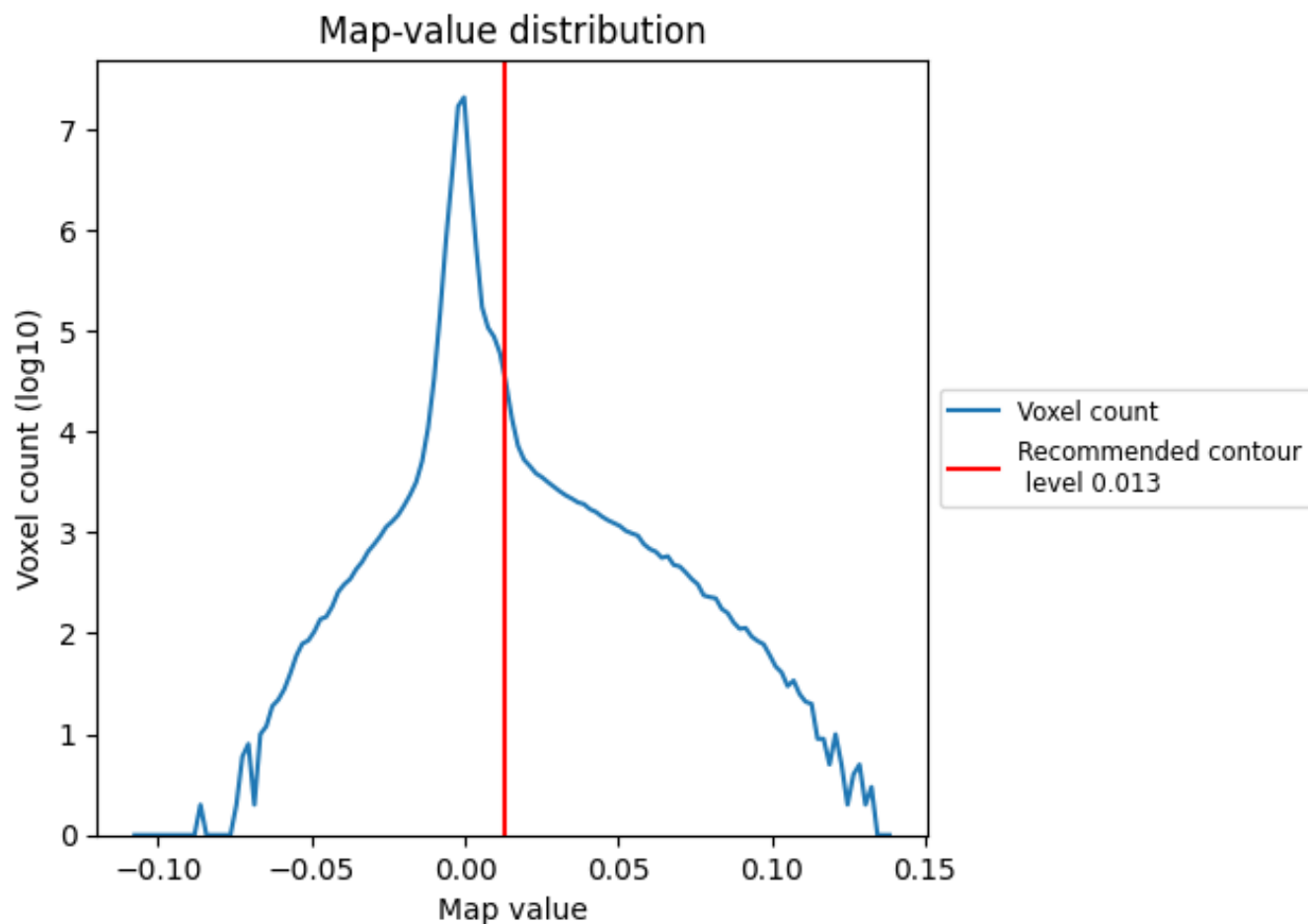


Z

7 Map analysis [i](#)

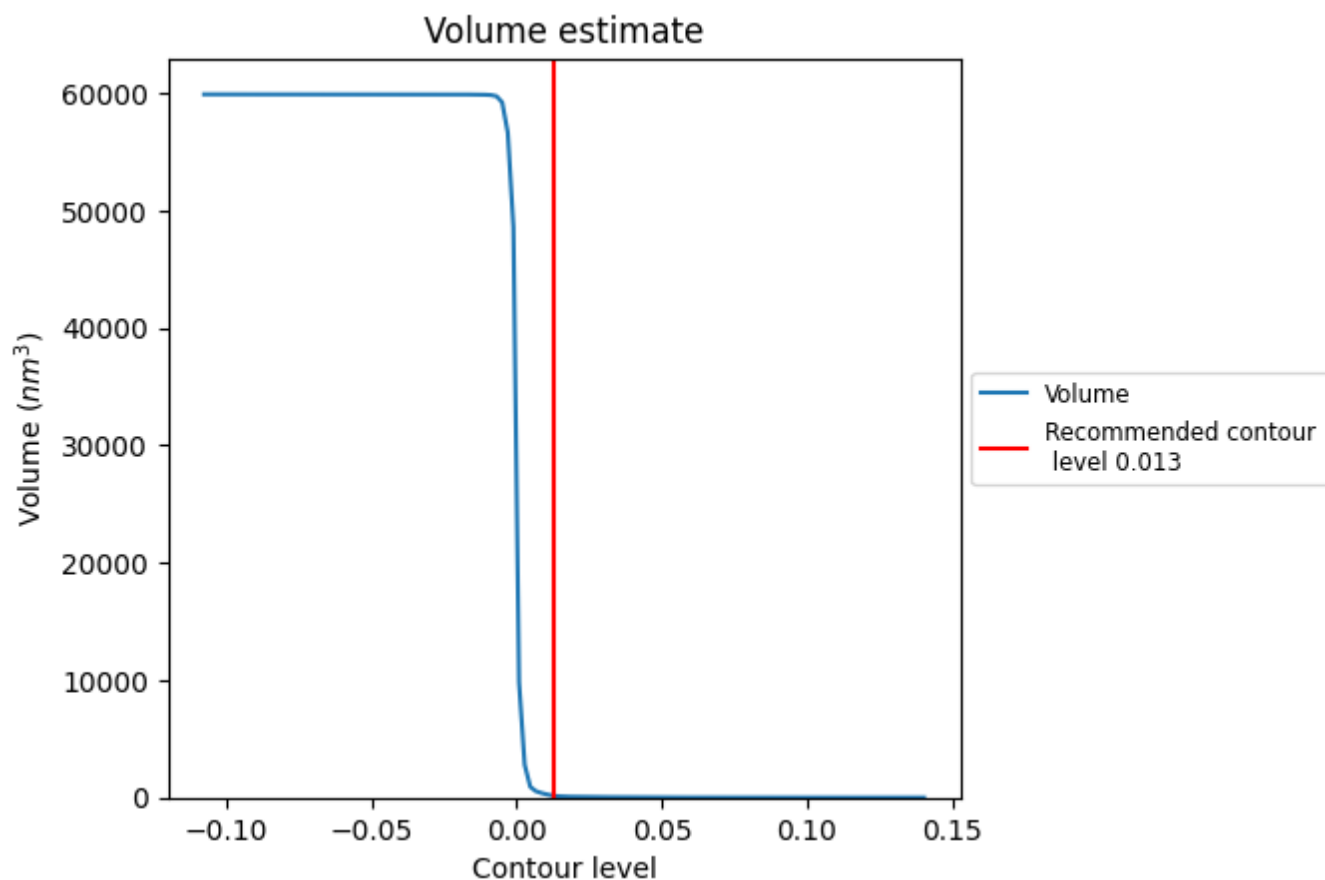
This section contains the results of statistical analysis of the map.

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.

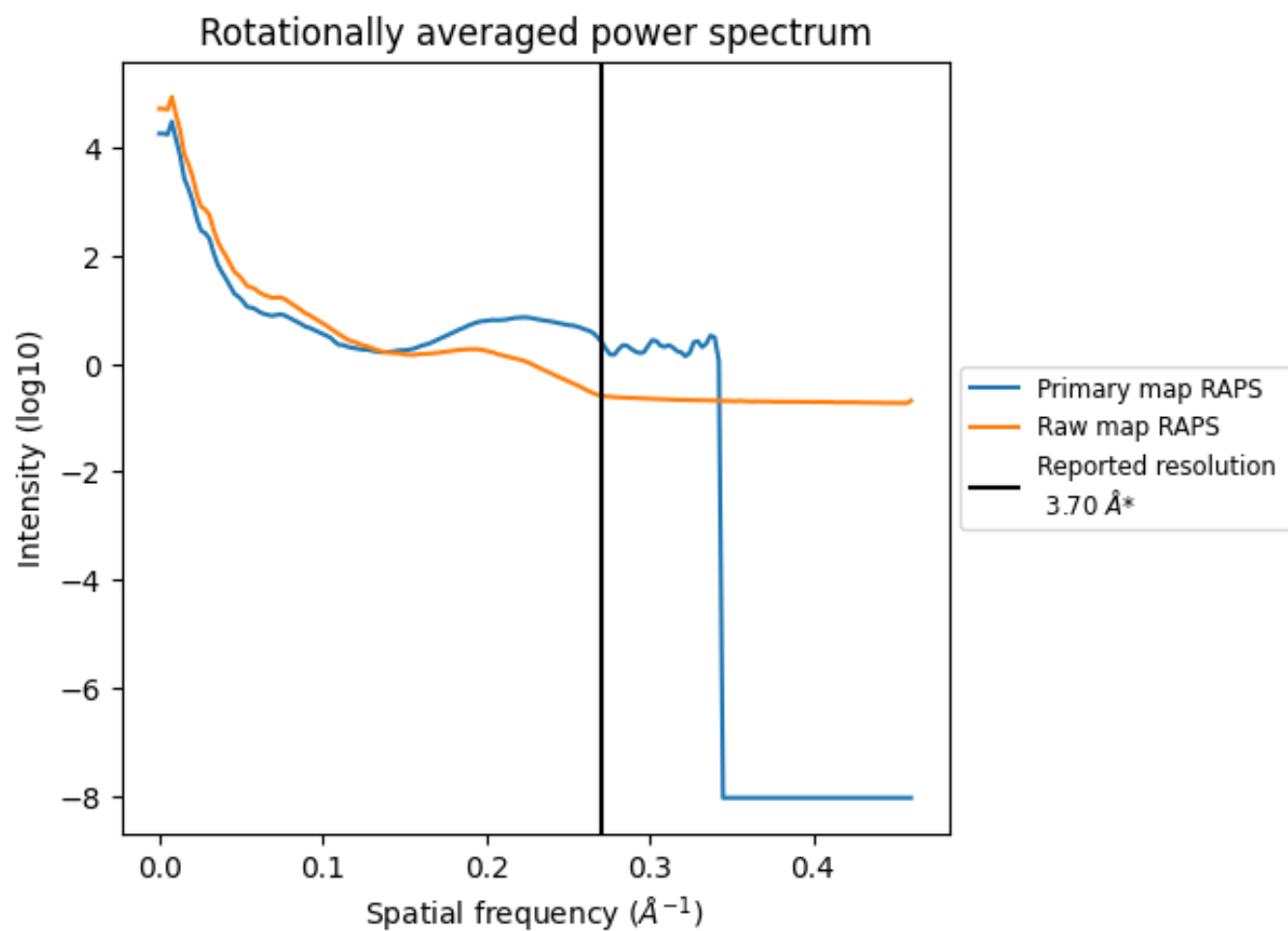
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 151 nm³; this corresponds to an approximate mass of 136 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum ⓘ

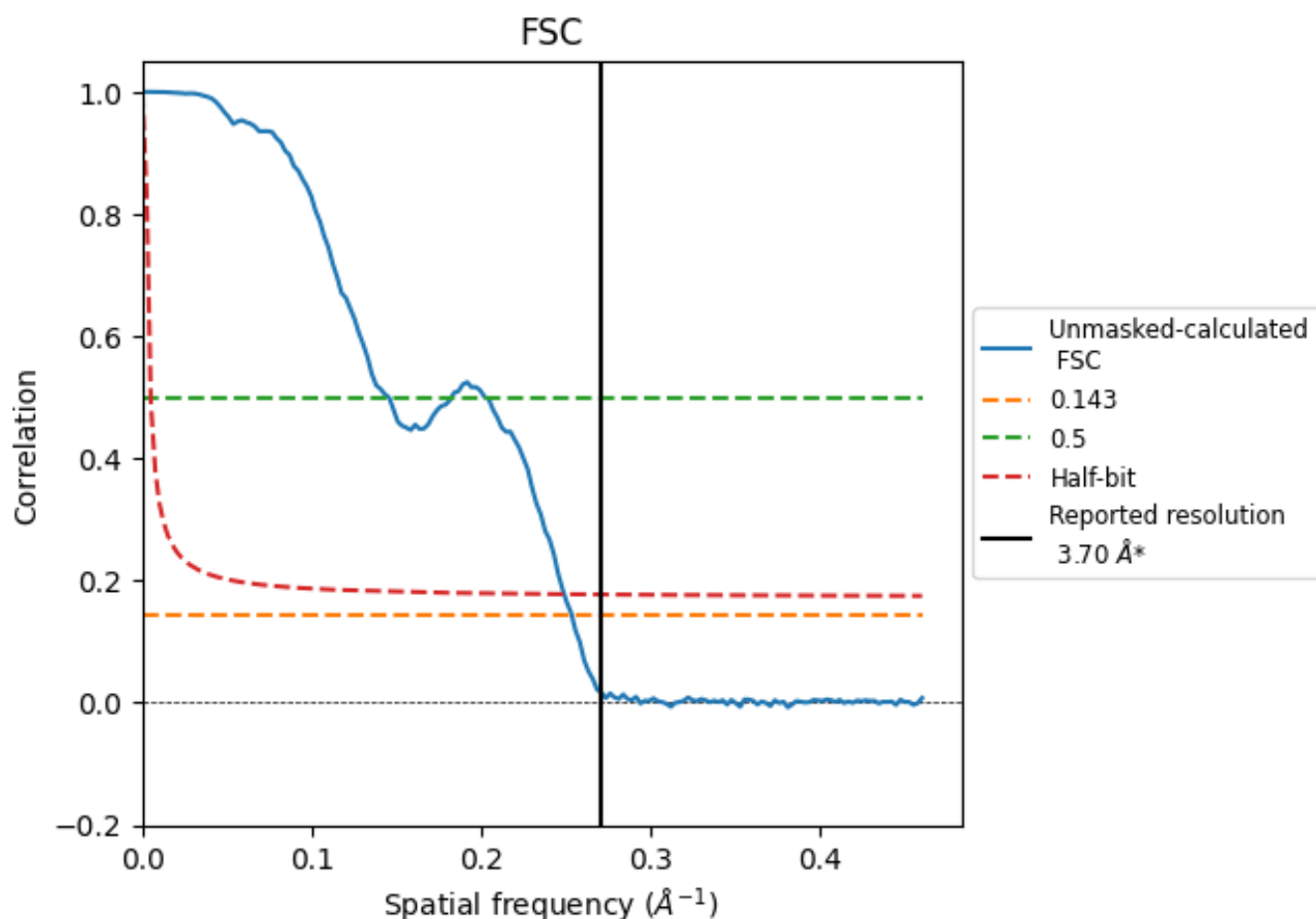


*Reported resolution corresponds to spatial frequency of 0.270 Å⁻¹

8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of $0.270 \text{ \AA}^{-1}$

8.2 Resolution estimates [i](#)

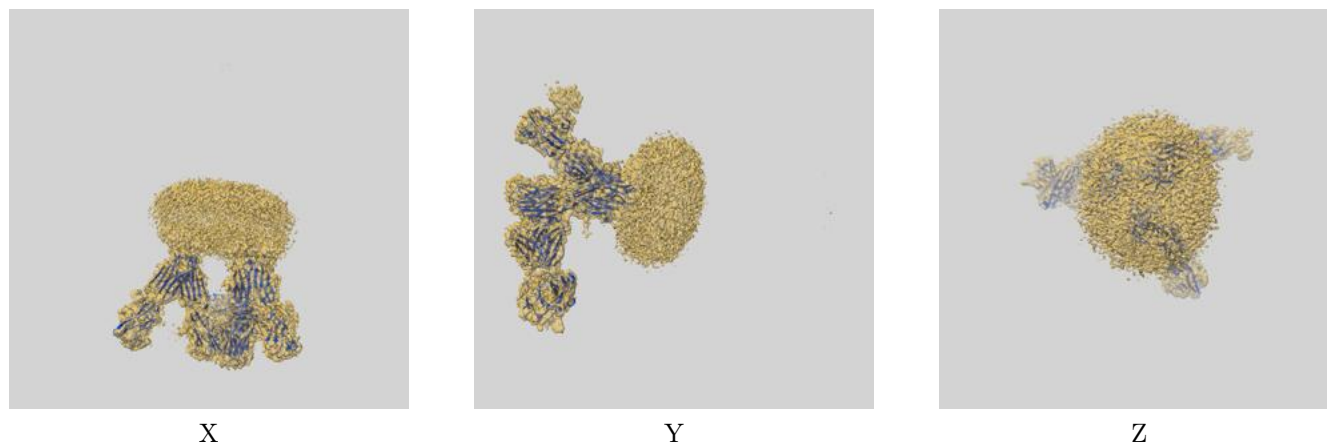
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.70	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.95	6.88	4.02

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

9 Map-model fit [i](#)

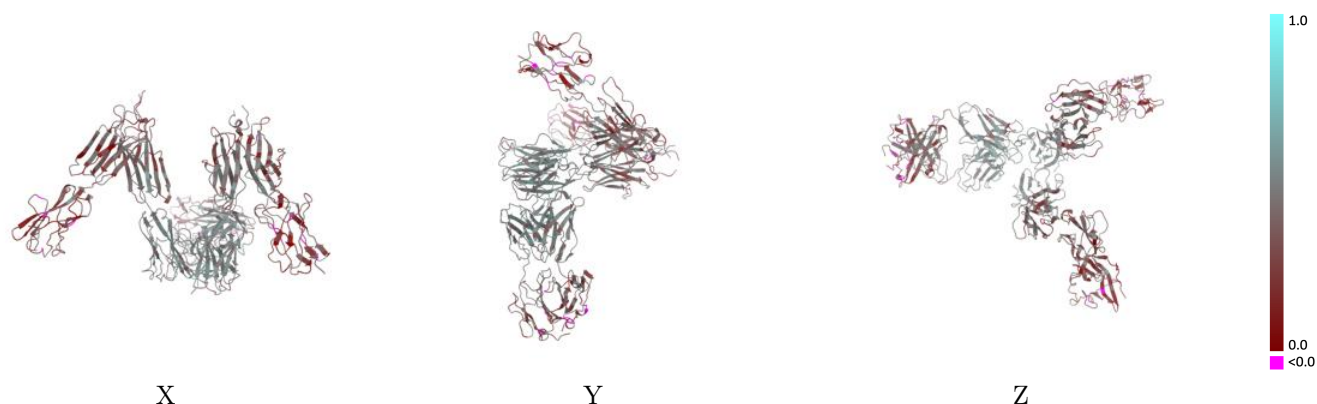
This section contains information regarding the fit between EMDB map EMD-62622 and PDB model 9KWZ. Per-residue inclusion information can be found in section [3](#) on page [9](#).

9.1 Map-model overlay [i](#)



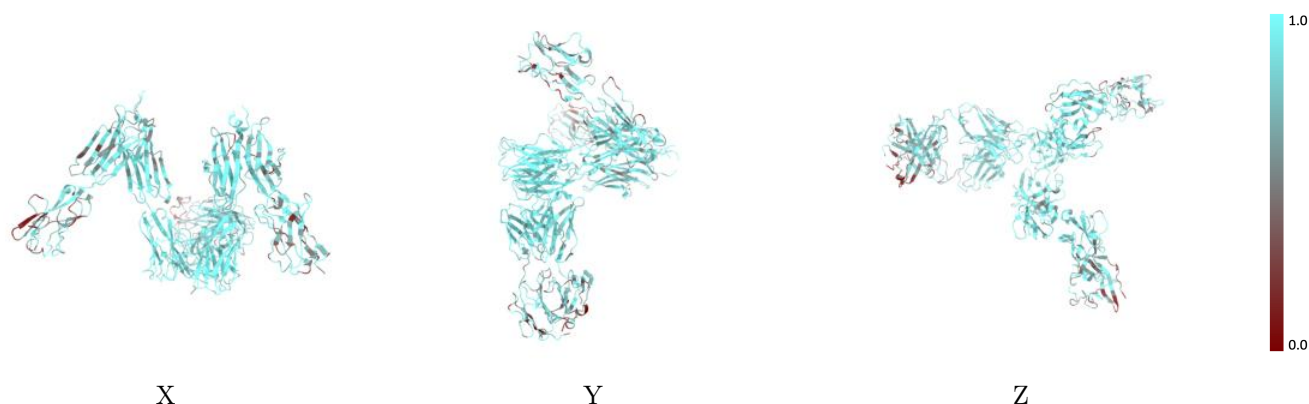
The images above show the 3D surface view of the map at the recommended contour level 0.013 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



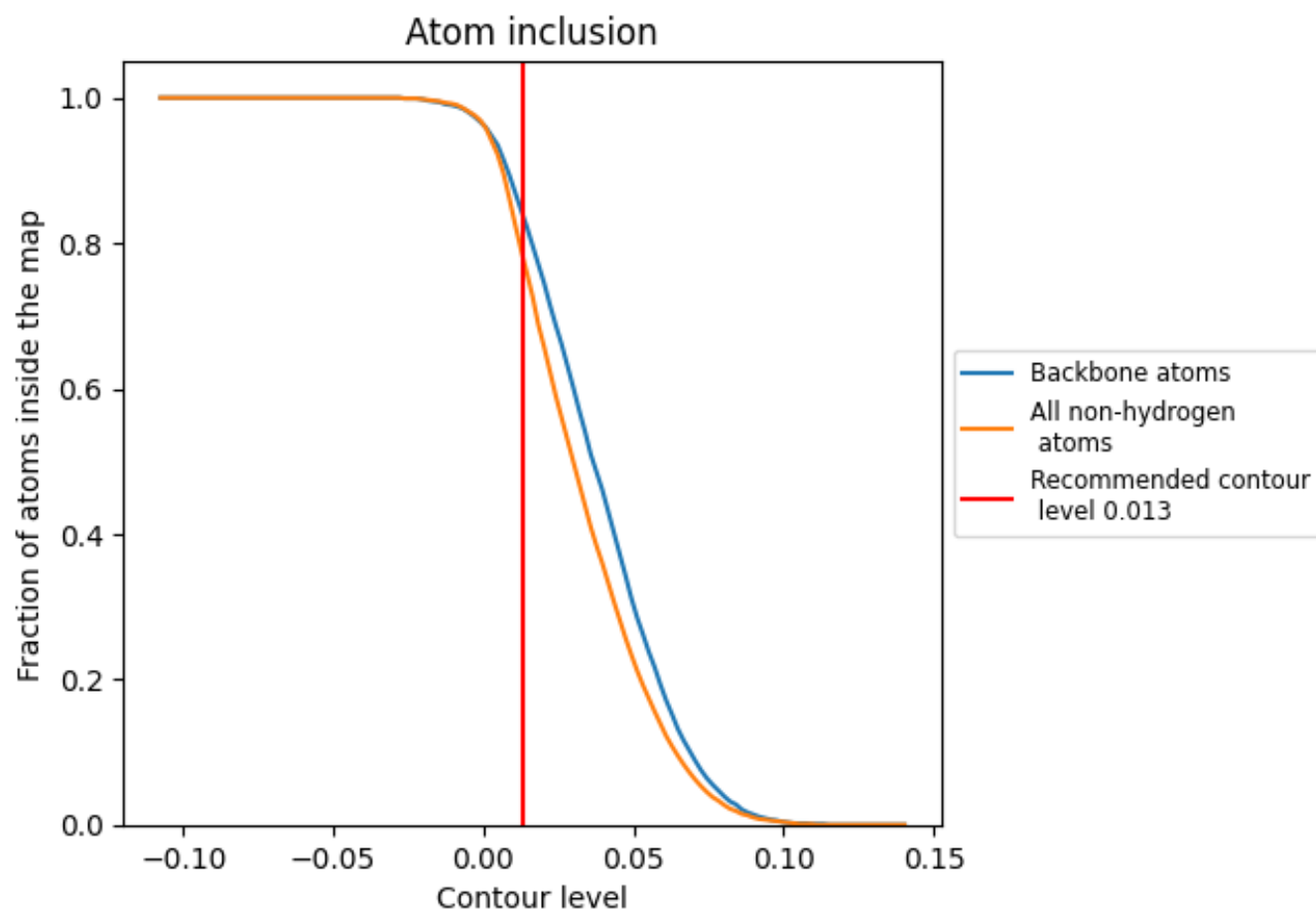
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.013).

9.4 Atom inclusion ⓘ



At the recommended contour level, 84% of all backbone atoms, 78% 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 (0.013) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7830	0.3950
A	0.6990	0.3020
B	0.8600	0.4370
E	0.8770	0.4570
F	0.7310	0.3370
H	0.7520	0.4210
L	0.7820	0.4150

1.0

0.0

<0.0