



Full wwPDB EM Validation Report ⓘ

Jun 29, 2025 – 12:15 am BST

PDB ID : 8AT2 / pdb_00008at2
EMDB ID : EMD-15631
Title : Structure of the augmin TIII subcomplex
Authors : Zupa, E.; Pfeffer, S.
Deposited on : 2022-08-22
Resolution : 7.70 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.dev118
MolProbity : 4-5-2 with Phenix2.0rc1
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.44

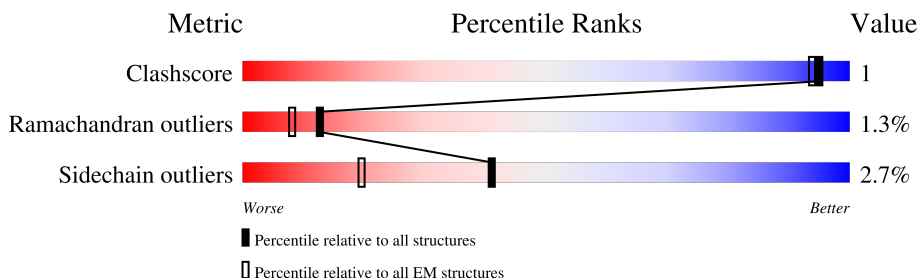
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 7.70 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)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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

Mol	Chain	Length	Quality of chain
1	B	286	
2	C	597	
3	D	353	
4	E	666	

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 11362 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 HAUS augmin-like complex subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	B	230	Total	C	N	O	S	0	0
			1832	1149	303	369	11		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	156	ARG	GLN	variant	UNP Q3B8L5

- Molecule 2 is a protein called HAUS augmin-like complex subunit 3.

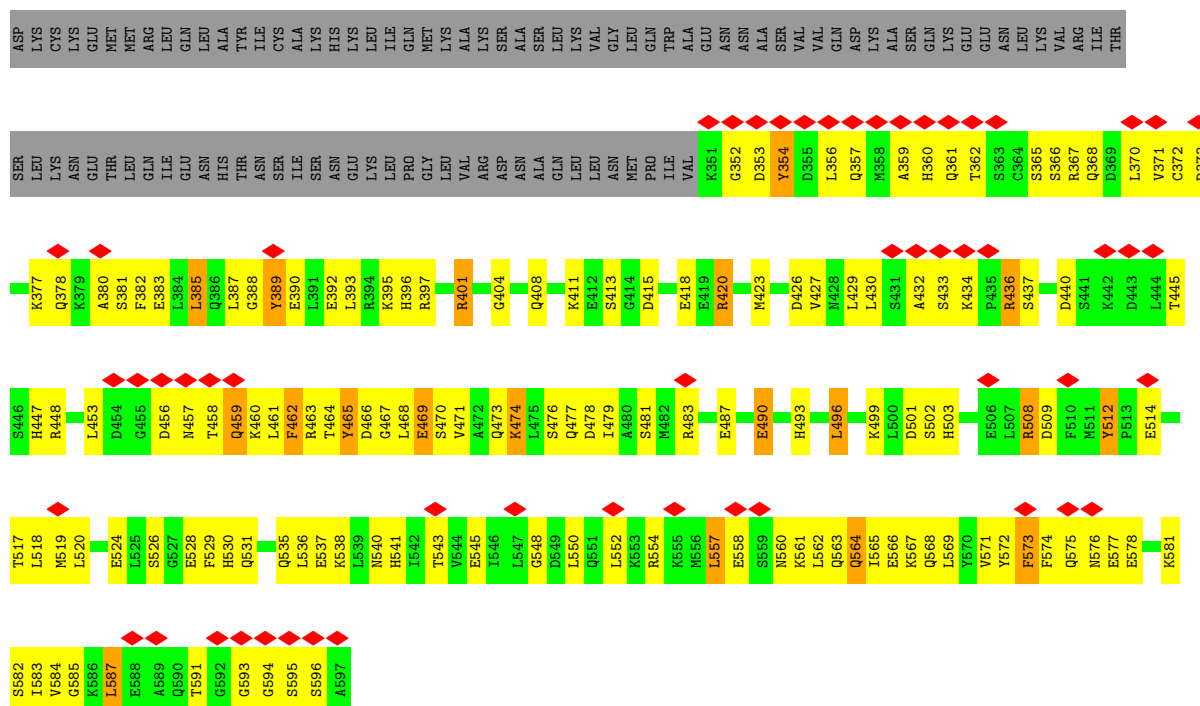
Mol	Chain	Residues	Atoms					AltConf	Trace
2	C	396	Total	C	N	O	S	0	0
			3192	1991	552	634	15		

- Molecule 3 is a protein called HAUS augmin like complex subunit 4 L homeolog.

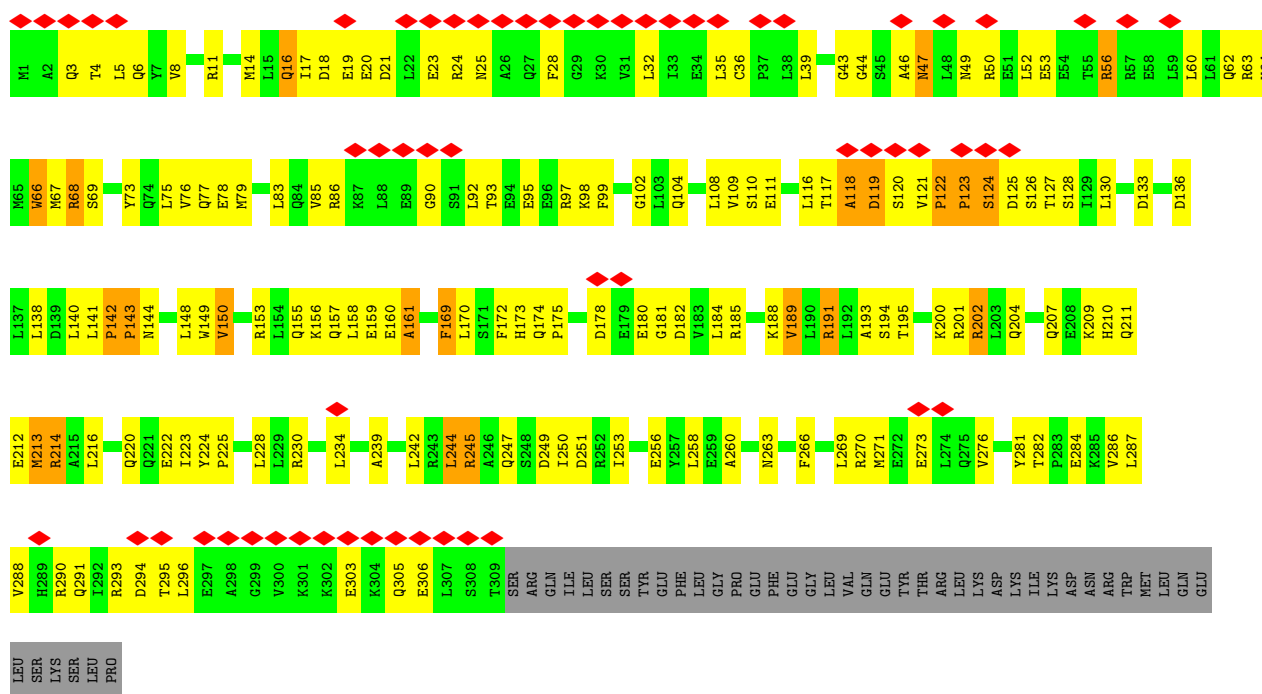
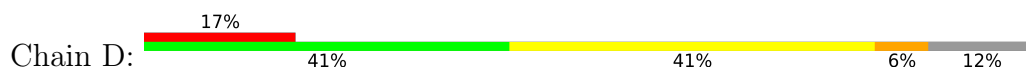
Mol	Chain	Residues	Atoms					AltConf	Trace
3	D	309	Total	C	N	O	S	0	0
			2514	1569	446	484	15		

- Molecule 4 is a protein called HAUS augmin-like complex subunit 5.

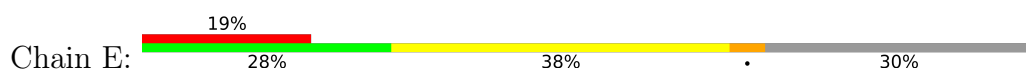
Mol	Chain	Residues	Atoms					AltConf	Trace
4	E	469	Total	C	N	O	S	0	0
			3824	2380	703	721	20		



• Molecule 3: HAUS augmin like complex subunit 4 L homeolog



• Molecule 4: HAUS augmin-like complex subunit 5





4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	82776	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	69	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	81000	Depositor
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	5.815	Depositor
Minimum map value	-1.974	Depositor
Average map value	-0.004	Depositor
Map value standard deviation	0.098	Depositor
Recommended contour level	1.31	Depositor
Map size (Å)	547.84, 547.84, 547.84	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	2.14, 2.14, 2.14	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	B	2.31	73/1853 (3.9%)	2.46	134/2489 (5.4%)
2	C	2.26	106/3231 (3.3%)	2.57	248/4328 (5.7%)
3	D	2.25	90/2541 (3.5%)	2.45	165/3416 (4.8%)
4	E	2.27	134/3885 (3.4%)	2.49	262/5223 (5.0%)
All	All	2.27	403/11510 (3.5%)	2.50	809/15456 (5.2%)

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	B	0	5
2	C	0	26
3	D	0	13
4	E	0	18
All	All	0	62

All (403) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	360	HIS	ND1-CE1	11.75	1.44	1.32
1	B	164	GLN	CA-CB	10.03	1.69	1.53
3	D	44	GLY	CA-C	-9.89	1.42	1.52
1	B	113	ILE	CA-CB	9.68	1.59	1.54
2	C	520	LEU	CA-C	-8.84	1.46	1.52
2	C	114	HIS	ND1-CE1	8.83	1.41	1.32
4	E	120	ASN	N-CA	-8.81	1.35	1.46
2	C	198	LEU	CA-CB	8.75	1.64	1.53
1	B	167	PHE	CA-CB	8.69	1.66	1.53
2	C	582	SER	CA-C	-8.66	1.42	1.52
1	B	131	GLN	CA-C	-8.64	1.42	1.52
4	E	220	HIS	ND1-CE1	8.62	1.41	1.32

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	41	ASN	N-CA	-8.62	1.35	1.46
2	C	232	SER	CA-C	-8.49	1.41	1.52
2	C	114	HIS	CB-CG	8.45	1.61	1.50
2	C	461	LEU	N-CA	-8.30	1.37	1.46
2	C	244	ASN	CA-C	-8.28	1.42	1.52
4	E	553	LEU	CA-C	-8.28	1.42	1.52
1	B	88	GLY	CA-C	-8.27	1.42	1.52
1	B	106	ASN	CA-CB	8.21	1.67	1.53
3	D	90	GLY	C-N	8.11	1.43	1.33
2	C	356	LEU	CA-CB	7.96	1.65	1.53
1	B	143	LYS	CA-C	7.88	1.62	1.52
4	E	127	LEU	CA-C	7.85	1.62	1.52
4	E	171	ARG	CD-NE	7.79	1.57	1.46
4	E	177	ALA	N-CA	-7.78	1.36	1.46
2	C	196	GLN	CA-C	-7.66	1.42	1.52
1	B	55	LEU	CA-C	-7.62	1.42	1.52
4	E	174	MET	CA-CB	7.62	1.64	1.53
2	C	162	HIS	ND1-CE1	7.61	1.40	1.32
4	E	418	LEU	CA-CB	7.54	1.65	1.53
4	E	650	ARG	CD-NE	7.53	1.56	1.46
1	B	194	HIS	CB-CG	7.50	1.60	1.50
2	C	418	GLU	CA-CB	7.48	1.65	1.53
4	E	432	LYS	CA-C	7.47	1.62	1.52
2	C	578	GLU	CA-CB	7.44	1.65	1.53
1	B	62	VAL	N-CA	-7.42	1.37	1.46
3	D	98	LYS	N-CA	-7.40	1.37	1.46
2	C	385	LEU	C-O	-7.40	1.15	1.24
4	E	415	GLU	C-N	7.38	1.43	1.33
4	E	609	GLU	C-O	-7.30	1.15	1.24
2	C	585	GLY	CA-C	7.25	1.60	1.52
1	B	154	LEU	CA-CB	7.23	1.64	1.53
2	C	462	PHE	N-CA	-7.20	1.37	1.46
4	E	203	ARG	NE-CZ	7.20	1.41	1.33
4	E	191	GLU	C-N	7.19	1.43	1.33
4	E	129	ARG	NE-CZ	7.16	1.41	1.33
2	C	383	GLU	CA-CB	7.15	1.64	1.53
2	C	572	TYR	CA-CB	7.13	1.64	1.53
3	D	95	GLU	N-CA	-7.13	1.37	1.46
2	C	191	PRO	CA-C	-7.10	1.44	1.52
1	B	201	SER	CA-CB	7.08	1.64	1.53
3	D	195	THR	C-N	7.04	1.43	1.33
2	C	142	THR	N-CA	-7.04	1.37	1.46

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	167	ILE	N-CA	-7.02	1.38	1.46
2	C	151	HIS	CA-C	-7.01	1.43	1.52
2	C	529	PHE	N-CA	-7.00	1.37	1.46
4	E	571	LEU	CA-C	-6.99	1.43	1.52
4	E	176	SER	C-N	6.99	1.43	1.33
1	B	117	ASN	C-N	6.98	1.42	1.33
2	C	110	GLN	CA-C	-6.97	1.43	1.52
3	D	136	ASP	CA-C	-6.97	1.43	1.52
3	D	141	LEU	C-N	6.97	1.41	1.33
1	B	33	ILE	C-N	6.97	1.43	1.33
2	C	571	VAL	CA-C	-6.95	1.43	1.52
3	D	86	ARG	CD-NE	6.94	1.55	1.46
3	D	68	ARG	CD-NE	6.94	1.55	1.46
1	B	224	LEU	CA-C	-6.93	1.43	1.52
4	E	162	LEU	N-CA	-6.92	1.37	1.46
2	C	371	VAL	C-N	6.92	1.42	1.33
4	E	410	GLN	N-CA	-6.90	1.37	1.46
2	C	576	ASN	CA-C	-6.89	1.45	1.52
2	C	503	HIS	ND1-CE1	6.89	1.39	1.32
1	B	159	LYS	N-CA	-6.88	1.38	1.46
2	C	126	SER	CA-CB	6.87	1.64	1.53
4	E	194	ARG	CA-CB	-6.86	1.42	1.53
4	E	466	GLU	C-O	-6.85	1.16	1.24
3	D	8	VAL	CA-C	-6.82	1.44	1.52
2	C	206	GLU	CA-CB	6.81	1.64	1.53
3	D	109	VAL	N-CA	-6.80	1.38	1.46
1	B	8	ILE	C-N	6.80	1.42	1.33
4	E	192	VAL	CA-C	-6.79	1.44	1.52
1	B	57	LEU	CA-CB	6.78	1.63	1.53
4	E	519	GLY	C-N	6.77	1.42	1.33
3	D	16	GLN	N-CA	-6.77	1.37	1.46
2	C	393	LEU	N-CA	-6.76	1.38	1.46
3	D	85	VAL	CA-C	-6.75	1.44	1.52
3	D	16	GLN	CA-C	-6.74	1.44	1.52
3	D	126	SER	N-CA	-6.73	1.38	1.46
3	D	212	GLU	CA-CB	6.69	1.64	1.53
2	C	397	ARG	NE-CZ	6.64	1.40	1.33
2	C	577	GLU	N-CA	6.63	1.54	1.46
2	C	240	GLN	N-CA	-6.63	1.37	1.45
4	E	83	GLN	CA-C	-6.63	1.44	1.52
1	B	85	SER	N-CA	-6.62	1.37	1.45
1	B	141	ARG	C-N	6.59	1.42	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	E	193	LEU	N-CA	-6.55	1.38	1.46
3	D	290	ARG	N-CA	-6.55	1.38	1.46
4	E	512	ASN	N-CA	-6.55	1.38	1.46
3	D	194	SER	CA-C	-6.54	1.44	1.52
2	C	448	ARG	CA-C	-6.54	1.44	1.52
1	B	150	LEU	C-N	6.54	1.42	1.33
3	D	242	LEU	CA-C	-6.53	1.46	1.53
4	E	464	ILE	C-N	6.53	1.42	1.33
4	E	255	GLU	N-CA	-6.52	1.38	1.46
4	E	175	PHE	CA-C	-6.50	1.44	1.53
4	E	428	GLN	CA-CB	6.50	1.63	1.53
3	D	3	GLN	CA-C	-6.49	1.44	1.52
3	D	126	SER	C-N	6.49	1.42	1.33
1	B	37	LEU	CA-CB	6.49	1.63	1.53
3	D	68	ARG	CZ-NH1	6.48	1.41	1.32
4	E	470	LEU	CA-C	-6.46	1.43	1.52
2	C	554	ARG	CD-NE	6.44	1.55	1.46
2	C	194	LEU	CA-C	-6.43	1.44	1.52
1	B	69	LEU	C-N	6.43	1.42	1.33
2	C	239	VAL	C-N	6.42	1.41	1.33
2	C	396	HIS	C-N	6.42	1.42	1.33
2	C	131	MET	N-CA	6.42	1.54	1.46
4	E	210	LEU	N-CA	6.42	1.54	1.46
3	D	270	ARG	NE-CZ	6.41	1.40	1.33
3	D	25	ASN	CA-C	-6.40	1.44	1.53
3	D	212	GLU	C-O	-6.40	1.16	1.24
4	E	181	ASP	N-CA	-6.39	1.38	1.46
1	B	211	HIS	ND1-CE1	6.37	1.39	1.32
4	E	170	GLN	CA-C	-6.37	1.44	1.52
1	B	94	GLN	CA-C	-6.32	1.44	1.52
4	E	115	VAL	N-CA	-6.31	1.38	1.46
2	C	367	ARG	CD-NE	6.31	1.55	1.46
2	C	151	HIS	N-CA	6.30	1.53	1.46
2	C	572	TYR	CA-C	6.30	1.60	1.52
2	C	517	THR	CA-CB	6.29	1.64	1.53
2	C	524	GLU	N-CA	-6.29	1.38	1.46
2	C	388	GLY	C-N	6.28	1.42	1.33
4	E	539	VAL	CA-CB	6.27	1.61	1.54
4	E	586	LEU	CA-C	-6.25	1.44	1.52
3	D	306	GLU	CA-CB	6.24	1.63	1.53
2	C	177	PHE	C-N	6.23	1.40	1.33
2	C	381	SER	C-N	6.23	1.42	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	E	509	ARG	CZ-NH1	6.21	1.41	1.32
4	E	542	HIS	ND1-CE1	6.21	1.38	1.32
4	E	101	HIS	C-O	-6.21	1.16	1.24
3	D	222	GLU	N-CA	-6.21	1.38	1.46
1	B	61	GLU	C-O	-6.18	1.16	1.24
3	D	4	THR	C-N	6.18	1.41	1.33
4	E	407	GLN	CA-CB	6.17	1.62	1.53
3	D	119	ASP	C-N	6.16	1.38	1.33
1	B	175	ARG	CD-NE	6.15	1.54	1.46
2	C	142	THR	C-N	6.15	1.42	1.33
2	C	166	SER	CA-C	-6.14	1.44	1.52
2	C	463	ARG	CA-CB	6.14	1.60	1.53
4	E	256	ARG	CD-NE	6.12	1.54	1.46
2	C	481	SER	CA-C	-6.11	1.44	1.52
2	C	401	ARG	CA-C	-6.11	1.45	1.52
3	D	193	ALA	CA-C	-6.11	1.45	1.52
4	E	219	VAL	CA-CB	-6.07	1.46	1.53
4	E	252	ALA	C-N	6.07	1.41	1.33
2	C	477	GLN	C-N	6.06	1.41	1.33
4	E	597	MET	C-N	6.06	1.40	1.33
2	C	213	LEU	C-N	6.04	1.41	1.33
1	B	95	ILE	CA-C	-6.04	1.45	1.52
2	C	155	VAL	CA-CB	-6.04	1.47	1.54
4	E	504	GLU	C-N	6.04	1.41	1.33
3	D	50	ARG	CA-CB	6.04	1.62	1.53
3	D	6	GLN	C-N	6.01	1.41	1.33
2	C	187	LEU	CA-C	-6.01	1.44	1.52
3	D	14	MET	CA-C	-6.01	1.44	1.52
2	C	568	GLN	C-N	6.01	1.41	1.33
1	B	193	ILE	C-N	6.01	1.42	1.33
4	E	155	ILE	C-N	6.00	1.41	1.33
4	E	208	ARG	NE-CZ	6.00	1.39	1.33
2	C	176	SER	C-N	6.00	1.42	1.33
4	E	239	GLU	CA-CB	6.00	1.62	1.53
4	E	127	LEU	C-N	5.99	1.41	1.33
4	E	521	PHE	CA-C	-5.99	1.44	1.52
1	B	4	LYS	CA-C	-5.99	1.44	1.52
4	E	102	HIS	ND1-CE1	5.98	1.38	1.32
3	D	111	GLU	C-O	-5.98	1.17	1.24
1	B	71	ASP	C-N	5.98	1.41	1.33
2	C	118	ARG	CZ-NH1	5.98	1.41	1.32
2	C	448	ARG	CZ-NH1	5.97	1.41	1.32

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	14	LYS	N-CA	-5.96	1.39	1.46
1	B	179	MET	C-N	5.96	1.42	1.33
3	D	271	MET	CA-C	-5.95	1.45	1.52
4	E	144	GLU	CA-CB	5.95	1.62	1.53
4	E	229	LEU	CA-CB	5.94	1.62	1.53
4	E	565	SER	CA-CB	5.94	1.62	1.53
3	D	295	THR	N-CA	-5.92	1.39	1.46
4	E	211	HIS	ND1-CE1	5.91	1.38	1.32
1	B	153	SER	CA-C	-5.90	1.45	1.52
4	E	270	PHE	N-CA	-5.90	1.38	1.46
4	E	126	ASP	CA-CB	5.90	1.62	1.53
3	D	36	CYS	CA-CB	5.89	1.61	1.53
1	B	207	GLU	N-CA	-5.88	1.37	1.46
4	E	510	MET	N-CA	-5.87	1.38	1.46
2	C	117	ARG	CZ-NH1	5.86	1.41	1.32
4	E	450	LYS	N-CA	-5.86	1.39	1.46
1	B	177	GLN	C-N	5.86	1.42	1.34
4	E	256	ARG	NE-CZ	5.85	1.39	1.33
4	E	197	ARG	C-N	5.85	1.41	1.33
1	B	204	GLY	C-N	5.84	1.42	1.33
2	C	404	GLY	C-N	5.84	1.41	1.33
3	D	23	GLU	CA-CB	5.83	1.62	1.53
1	B	196	ALA	CA-C	-5.82	1.45	1.52
4	E	260	ASN	N-CA	-5.80	1.39	1.46
3	D	214	ARG	CD-NE	5.80	1.54	1.46
4	E	515	ALA	C-N	-5.80	1.27	1.34
3	D	92	LEU	CA-C	-5.80	1.45	1.52
4	E	274	ALA	N-CA	-5.79	1.39	1.46
2	C	216	PHE	CA-CB	5.79	1.62	1.53
2	C	178	PHE	N-CA	-5.78	1.40	1.46
3	D	293	ARG	CD-NE	5.77	1.54	1.46
1	B	200	LEU	C-N	5.76	1.41	1.33
2	C	146	PHE	N-CA	-5.76	1.39	1.46
4	E	405	LEU	C-N	5.76	1.42	1.34
3	D	160	GLU	CA-C	-5.75	1.45	1.52
4	E	162	LEU	CA-CB	5.74	1.62	1.53
4	E	97	ARG	NE-CZ	5.74	1.39	1.33
4	E	135	ARG	N-CA	-5.74	1.39	1.46
2	C	479	ILE	CA-CB	-5.74	1.47	1.54
4	E	410	GLN	C-N	5.74	1.41	1.33
2	C	573	PHE	CA-CB	5.72	1.62	1.53
1	B	27	ASN	CA-CB	5.72	1.63	1.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	148	LEU	N-CA	-5.70	1.39	1.46
1	B	124	VAL	N-CA	-5.70	1.39	1.46
1	B	53	GLU	C-N	5.70	1.41	1.33
4	E	145	CYS	CA-C	-5.69	1.45	1.52
3	D	56	ARG	CA-C	-5.69	1.45	1.52
2	C	447	HIS	CD2-NE2	5.69	1.44	1.37
3	D	133	ASP	N-CA	-5.68	1.38	1.46
4	E	429	ILE	C-N	5.68	1.41	1.33
4	E	565	SER	CA-C	-5.67	1.45	1.52
4	E	158	ARG	CA-CB	5.66	1.62	1.53
4	E	178	VAL	CA-C	-5.65	1.45	1.52
1	B	85	SER	CA-C	-5.64	1.45	1.53
4	E	566	LYS	CA-C	-5.64	1.45	1.52
4	E	554	ARG	C-N	5.63	1.41	1.33
4	E	599	PRO	C-N	5.63	1.41	1.33
1	B	74	THR	CA-C	-5.63	1.45	1.52
4	E	611	HIS	CA-C	-5.63	1.45	1.52
3	D	24	ARG	NE-CZ	5.62	1.39	1.33
4	E	221	PRO	CA-C	-5.62	1.44	1.52
2	C	552	LEU	N-CA	-5.61	1.39	1.46
2	C	359	ALA	N-CA	5.60	1.53	1.46
1	B	181	LYS	CA-C	-5.60	1.45	1.52
4	E	482	SER	C-N	5.60	1.42	1.33
4	E	467	SER	CA-C	5.59	1.60	1.52
4	E	164	GLU	C-N	5.59	1.41	1.33
4	E	640	GLY	C-N	5.58	1.40	1.33
3	D	270	ARG	C-N	5.57	1.41	1.33
1	B	182	LEU	C-O	-5.55	1.17	1.24
4	E	520	ILE	CB-CG1	5.55	1.64	1.53
3	D	21	ASP	CA-C	5.55	1.59	1.52
3	D	149	TRP	C-N	5.54	1.40	1.33
4	E	602	GLN	CA-C	-5.54	1.45	1.52
1	B	90	ASN	C-N	5.53	1.41	1.33
3	D	287	LEU	C-O	5.53	1.30	1.24
1	B	63	LYS	CA-CB	5.52	1.61	1.53
1	B	5	SER	CA-CB	5.51	1.62	1.53
3	D	202	ARG	CA-C	-5.51	1.45	1.52
4	E	166	ARG	CD-NE	5.51	1.53	1.46
2	C	583	ILE	CA-C	-5.51	1.45	1.52
3	D	11	ARG	NE-CZ	5.50	1.39	1.33
4	E	207	LEU	C-N	5.50	1.40	1.33
2	C	154	ARG	C-N	5.49	1.40	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	143	PRO	C-N	5.49	1.41	1.34
1	B	203	ALA	CA-C	5.48	1.60	1.52
1	B	98	SER	N-CA	-5.48	1.39	1.46
1	B	7	LYS	CA-C	-5.46	1.45	1.52
1	B	213	SER	C-N	5.46	1.41	1.33
2	C	206	GLU	N-CA	-5.45	1.39	1.46
3	D	189	VAL	C-N	5.45	1.41	1.33
4	E	135	ARG	CD-NE	5.45	1.53	1.46
1	B	122	GLU	N-CA	5.44	1.53	1.46
2	C	216	PHE	C-N	5.44	1.41	1.33
3	D	138	LEU	CA-CB	5.43	1.63	1.53
3	D	60	LEU	CA-C	-5.43	1.45	1.52
3	D	191	ARG	CZ-NH1	5.42	1.40	1.32
3	D	20	GLU	N-CA	5.42	1.53	1.46
2	C	202	TYR	N-CA	-5.42	1.39	1.46
4	E	579	THR	C-N	5.42	1.41	1.33
4	E	161	GLN	C-N	5.41	1.41	1.33
2	C	514	GLU	C-N	5.41	1.41	1.33
2	C	372	CYS	N-CA	-5.40	1.40	1.46
3	D	68	ARG	NE-CZ	5.40	1.39	1.33
3	D	204	GLN	C-N	5.40	1.41	1.33
3	D	270	ARG	CA-CB	5.40	1.61	1.53
2	C	526	SER	C-N	5.39	1.41	1.33
4	E	86	ARG	NE-CZ	5.39	1.39	1.33
4	E	584	LYS	CA-CB	5.39	1.61	1.53
4	E	249	HIS	ND1-CE1	5.39	1.38	1.32
1	B	134	GLU	N-CA	5.38	1.52	1.46
2	C	126	SER	CA-C	-5.38	1.45	1.52
4	E	186	THR	C-N	5.38	1.41	1.33
4	E	417	CYS	C-N	5.37	1.41	1.33
4	E	152	ASN	CA-CB	5.37	1.61	1.53
2	C	453	LEU	N-CA	-5.37	1.39	1.46
1	B	181	LYS	N-CA	-5.36	1.39	1.46
1	B	46	LYS	CA-C	-5.36	1.45	1.52
2	C	154	ARG	NE-CZ	5.35	1.39	1.33
3	D	97	ARG	CA-C	-5.35	1.46	1.52
2	C	139	GLU	CA-C	5.34	1.59	1.52
4	E	547	LYS	CA-CB	5.34	1.61	1.53
4	E	173	VAL	N-CA	-5.34	1.38	1.46
2	C	501	ASP	C-N	5.33	1.41	1.33
4	E	451	TYR	CA-CB	5.33	1.61	1.53
2	C	469	GLU	CA-CB	5.33	1.61	1.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	170	ALA	CA-C	-5.33	1.46	1.52
3	D	239	ALA	CA-C	-5.33	1.46	1.52
4	E	220	HIS	CA-C	5.33	1.59	1.53
2	C	181	PRO	N-CA	-5.32	1.40	1.47
4	E	167	ARG	N-CA	-5.31	1.40	1.46
1	B	126	ILE	N-CA	-5.30	1.40	1.46
3	D	185	ARG	CD-NE	5.30	1.53	1.46
4	E	285	LYS	C-N	5.29	1.41	1.33
4	E	94	LEU	CA-CB	5.29	1.61	1.53
2	C	380	ALA	C-N	5.29	1.40	1.33
2	C	474	LYS	CA-CB	5.29	1.61	1.53
3	D	211	GLN	N-CA	-5.29	1.40	1.46
4	E	202	LEU	C-N	5.29	1.41	1.33
3	D	200	LYS	N-CA	-5.28	1.40	1.46
4	E	430	LEU	N-CA	5.27	1.52	1.46
2	C	151	HIS	ND1-CE1	5.25	1.37	1.32
4	E	185	SER	CA-C	-5.25	1.46	1.52
4	E	106	GLN	CA-CB	5.25	1.61	1.53
4	E	174	MET	CA-C	-5.24	1.46	1.52
3	D	130	LEU	C-N	5.24	1.40	1.33
4	E	227	ARG	NE-CZ	5.23	1.38	1.33
3	D	296	LEU	CA-CB	5.23	1.61	1.53
3	D	47	ASN	CA-CB	5.22	1.61	1.53
4	E	192	VAL	C-N	5.21	1.40	1.33
1	B	223	GLU	C-N	5.21	1.41	1.33
1	B	223	GLU	CA-C	5.21	1.59	1.52
3	D	173	HIS	CE1-NE2	5.20	1.37	1.32
2	C	464	THR	CA-C	-5.20	1.46	1.52
4	E	487	PRO	CA-CB	-5.20	1.46	1.53
3	D	50	ARG	NE-CZ	5.20	1.38	1.33
1	B	35	TYR	C-N	5.19	1.40	1.33
4	E	265	LEU	C-N	5.19	1.41	1.33
2	C	467	GLY	C-N	5.18	1.40	1.33
3	D	19	GLU	CA-CB	5.18	1.61	1.53
1	B	59	SER	CA-CB	5.17	1.61	1.53
4	E	619	GLN	N-CA	5.17	1.52	1.46
2	C	236	PHE	N-CA	-5.17	1.40	1.46
3	D	184	LEU	CA-C	-5.17	1.46	1.52
3	D	207	GLN	CA-CB	5.17	1.61	1.53
1	B	83	ASN	CA-C	-5.17	1.46	1.52
3	D	6	GLN	CA-CB	5.17	1.61	1.53
3	D	4	THR	N-CA	-5.16	1.40	1.46

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	140	LEU	C-N	5.16	1.41	1.33
4	E	101	HIS	C-N	5.16	1.40	1.33
2	C	436	ARG	CD-NE	5.16	1.53	1.46
2	C	512	TYR	N-CA	5.15	1.54	1.45
3	D	66	TRP	N-CA	-5.15	1.40	1.46
4	E	472	ASP	CA-CB	5.15	1.62	1.53
2	C	378	GLN	C-N	5.14	1.40	1.33
4	E	513	THR	C-N	5.14	1.40	1.33
4	E	277	SER	CA-C	5.14	1.59	1.52
1	B	168	GLU	N-CA	-5.13	1.40	1.46
2	C	155	VAL	C-N	5.13	1.40	1.33
3	D	39	LEU	CA-CB	5.13	1.62	1.53
2	C	473	GLN	C-O	-5.13	1.17	1.24
1	B	81	TYR	CA-CB	5.12	1.62	1.53
4	E	171	ARG	CZ-NH1	5.12	1.40	1.32
3	D	108	LEU	C-N	5.12	1.40	1.33
3	D	23	GLU	N-CA	-5.11	1.40	1.46
3	D	181	GLY	N-CA	5.11	1.51	1.45
3	D	263	ASN	CA-C	-5.11	1.46	1.52
4	E	658	LEU	C-N	5.11	1.41	1.34
3	D	142	PRO	CA-C	5.10	1.56	1.52
2	C	240	GLN	C-N	5.10	1.40	1.33
1	B	14	LYS	CA-CB	5.09	1.61	1.53
4	E	268	LEU	C-O	-5.09	1.18	1.24
1	B	22	PRO	C-N	5.09	1.40	1.33
3	D	269	LEU	CA-CB	5.08	1.61	1.53
2	C	235	ASN	C-N	5.08	1.40	1.33
3	D	64	LYS	CA-C	5.07	1.59	1.52
1	B	71	ASP	CA-C	-5.06	1.46	1.52
1	B	157	ASP	C-N	5.05	1.40	1.33
4	E	102	HIS	CG-ND1	5.05	1.43	1.38
2	C	401	ARG	C-N	5.05	1.40	1.33
4	E	258	THR	CA-C	-5.05	1.46	1.52
4	E	645	ARG	CD-NE	5.05	1.53	1.46
4	E	99	GLU	CA-C	-5.04	1.46	1.52
2	C	189	SER	N-CA	-5.04	1.39	1.45
1	B	92	LEU	C-N	5.03	1.40	1.33
4	E	241	VAL	C-N	5.03	1.41	1.34
4	E	494	THR	N-CA	-5.03	1.39	1.45
4	E	627	GLU	CA-C	-5.03	1.45	1.52
3	D	258	LEU	CB-CG	5.03	1.63	1.53
3	D	39	LEU	N-CA	-5.02	1.39	1.46

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	E	628	GLN	N-CA	-5.02	1.39	1.46
4	E	112	ARG	CA-C	-5.02	1.45	1.52
4	E	575	THR	C-N	5.02	1.44	1.33
3	D	180	GLU	C-N	5.02	1.41	1.33
4	E	251	LEU	CA-C	-5.02	1.46	1.52
2	C	396	HIS	N-CA	-5.02	1.40	1.46
1	B	60	ALA	C-O	-5.01	1.18	1.24
3	D	77	GLN	C-O	-5.01	1.18	1.24
4	E	187	PHE	C-N	5.01	1.40	1.33
2	C	493	HIS	ND1-CE1	5.01	1.37	1.32
4	E	210	LEU	CA-C	-5.01	1.46	1.52
2	C	146	PHE	CA-CB	5.01	1.61	1.53
2	C	437	SER	CA-C	-5.01	1.46	1.52

All (809) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	582	SER	O-C-N	11.05	134.02	122.09
2	C	574	PHE	CA-CB-CG	-11.00	102.80	113.80
2	C	385	LEU	CA-C-N	10.46	134.29	120.28
2	C	385	LEU	C-N-CA	10.46	134.29	120.28
2	C	126	SER	CA-C-N	10.01	130.85	119.94
2	C	126	SER	C-N-CA	10.01	130.85	119.94
2	C	550	LEU	CA-C-N	9.97	133.64	120.28
2	C	550	LEU	C-N-CA	9.97	133.64	120.28
3	D	142	PRO	CA-C-N	9.60	131.84	119.84
3	D	142	PRO	C-N-CA	9.60	131.84	119.84
2	C	392	GLU	N-CA-C	9.35	121.47	111.28
1	B	152	LYS	CA-C-N	9.31	132.76	120.28
1	B	152	LYS	C-N-CA	9.31	132.76	120.28
2	C	395	LYS	CA-C-N	9.31	132.76	120.28
2	C	395	LYS	C-N-CA	9.31	132.76	120.28
2	C	463	ARG	NE-CZ-NH2	-9.21	110.91	119.20
4	E	207	LEU	CA-C-N	9.12	132.29	120.44
4	E	207	LEU	C-N-CA	9.12	132.29	120.44
3	D	216	LEU	N-CA-CB	9.06	123.57	110.16
4	E	84	GLN	N-CA-C	9.04	121.14	111.28
2	C	169	ASN	CA-C-N	8.98	129.94	119.98
2	C	169	ASN	C-N-CA	8.98	129.94	119.98
4	E	187	PHE	N-CA-C	-8.95	94.82	109.40
3	D	174	GLN	CA-C-N	8.94	128.68	119.56
3	D	174	GLN	C-N-CA	8.94	128.68	119.56

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	222	PHE	CA-C-N	8.83	134.06	120.82
2	C	222	PHE	C-N-CA	8.83	134.06	120.82
3	D	288	VAL	CA-C-N	8.81	132.96	120.28
3	D	288	VAL	C-N-CA	8.81	132.96	120.28
1	B	218	SER	N-CA-C	8.79	120.86	111.28
2	C	541	HIS	ND1-CE1-NE2	8.73	117.13	108.40
4	E	268	LEU	N-CA-CB	8.67	122.99	110.16
2	C	352	GLY	CA-C-N	8.67	132.23	120.44
2	C	352	GLY	C-N-CA	8.67	132.23	120.44
3	D	210	HIS	CA-CB-CG	-8.65	105.15	113.80
3	D	143	PRO	CA-C-N	8.57	132.89	120.38
3	D	143	PRO	C-N-CA	8.57	132.89	120.38
1	B	187	GLU	CA-C-N	8.54	132.42	120.29
1	B	187	GLU	C-N-CA	8.54	132.42	120.29
1	B	7	LYS	CA-C-N	8.52	131.47	120.56
1	B	7	LYS	C-N-CA	8.52	131.47	120.56
4	E	545	ASP	CA-C-N	8.52	131.69	120.28
4	E	545	ASP	C-N-CA	8.52	131.69	120.28
4	E	126	ASP	CA-CB-CG	8.46	121.06	112.60
4	E	179	ASP	N-CA-CB	8.45	121.70	110.29
1	B	212	ARG	NE-CZ-NH2	-8.41	111.63	119.20
1	B	122	GLU	CA-C-O	8.38	129.30	120.42
2	C	201	LYS	N-CA-C	8.36	120.40	111.28
3	D	141	LEU	CA-C-N	8.33	128.96	120.38
3	D	141	LEU	C-N-CA	8.33	128.96	120.38
2	C	462	PHE	CA-CB-CG	-8.26	105.55	113.80
1	B	216	SER	CA-C-N	8.19	131.26	120.28
1	B	216	SER	C-N-CA	8.19	131.26	120.28
4	E	414	GLN	CA-C-N	8.16	131.56	120.38
4	E	414	GLN	C-N-CA	8.16	131.56	120.38
2	C	143	GLY	CA-C-O	8.07	129.06	120.75
2	C	110	GLN	CA-C-N	8.05	130.90	120.44
2	C	110	GLN	C-N-CA	8.05	130.90	120.44
1	B	179	MET	N-CA-C	8.03	120.11	111.36
4	E	611	HIS	CA-CB-CG	8.01	121.81	113.80
4	E	186	THR	CA-C-O	7.96	129.81	120.66
3	D	225	PRO	N-CA-CB	7.94	111.97	103.39
3	D	213	MET	CA-C-N	7.85	130.80	120.28
3	D	213	MET	C-N-CA	7.85	130.80	120.28
4	E	544	ALA	CA-C-N	7.81	130.75	120.28
4	E	544	ALA	C-N-CA	7.81	130.75	120.28
4	E	225	ASP	CA-C-O	-7.80	112.29	120.55

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	118	ARG	NE-CZ-NH1	7.79	129.29	121.50
2	C	219	GLU	N-CA-C	7.75	122.00	112.54
3	D	140	LEU	N-CA-C	-7.74	103.66	113.72
4	E	598	VAL	CA-C-N	7.74	127.64	119.05
4	E	598	VAL	C-N-CA	7.74	127.64	119.05
1	B	228	SER	CA-C-N	7.71	130.62	120.28
1	B	228	SER	C-N-CA	7.71	130.62	120.28
3	D	220	GLN	OE1-CD-NE2	7.68	130.28	122.60
2	C	240	GLN	CA-C-N	7.67	136.18	121.54
2	C	240	GLN	C-N-CA	7.67	136.18	121.54
4	E	179	ASP	N-CA-C	-7.66	100.42	110.07
4	E	459	TRP	CA-C-N	7.65	127.70	119.28
4	E	459	TRP	C-N-CA	7.65	127.70	119.28
4	E	278	LYS	CA-C-N	7.64	133.87	121.87
4	E	278	LYS	C-N-CA	7.64	133.87	121.87
4	E	249	HIS	O-C-N	-7.64	113.44	122.15
1	B	194	HIS	CE1-NE2-CD2	-7.59	101.41	109.00
2	C	413	SER	CA-C-N	7.55	128.37	119.98
2	C	413	SER	C-N-CA	7.55	128.37	119.98
4	E	156	GLN	OE1-CD-NE2	7.55	130.15	122.60
4	E	534	LYS	N-CA-C	7.53	121.31	110.10
2	C	401	ARG	NE-CZ-NH2	-7.45	112.49	119.20
3	D	174	GLN	CA-C-O	-7.45	112.58	121.00
4	E	196	VAL	O-C-N	-7.44	114.16	121.83
2	C	184	ALA	CA-C-N	7.44	130.11	120.44
2	C	184	ALA	C-N-CA	7.44	130.11	120.44
2	C	457	ASN	N-CA-C	-7.44	103.61	114.39
4	E	508	ASN	CA-CB-CG	-7.43	105.17	112.60
4	E	226	LEU	N-CA-C	-7.41	103.23	111.82
1	B	185	LYS	CA-C-N	7.40	130.20	120.28
1	B	185	LYS	C-N-CA	7.40	130.20	120.28
2	C	206	GLU	CA-C-N	7.40	130.80	120.29
2	C	206	GLU	C-N-CA	7.40	130.80	120.29
4	E	129	ARG	CA-C-O	-7.37	113.08	120.82
4	E	456	LEU	N-CA-C	-7.33	103.96	113.12
1	B	166	ASN	CA-CB-CG	7.32	119.92	112.60
2	C	198	LEU	N-CA-CB	7.31	121.59	109.60
2	C	496	LEU	O-C-N	-7.30	114.55	122.07
2	C	361	GLN	CA-C-N	7.27	130.34	120.38
2	C	361	GLN	C-N-CA	7.27	130.34	120.38
3	D	228	LEU	N-CA-CB	7.27	120.81	110.12
3	D	126	SER	O-C-N	-7.27	114.71	123.29

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	541	HIS	CE1-NE2-CD2	-7.25	101.75	109.00
2	C	538	LYS	CA-C-N	7.24	129.98	120.28
2	C	538	LYS	C-N-CA	7.24	129.98	120.28
2	C	582	SER	CA-C-O	-7.24	113.25	120.70
2	C	466	ASP	CA-C-N	7.22	127.94	120.00
2	C	466	ASP	C-N-CA	7.22	127.94	120.00
4	E	211	HIS	CA-C-N	7.21	129.95	120.28
4	E	211	HIS	C-N-CA	7.21	129.95	120.28
2	C	478	ASP	N-CA-CB	7.21	120.46	110.01
2	C	390	GLU	CA-C-O	-7.21	112.91	120.55
2	C	519	MET	CA-C-O	7.20	129.30	121.16
4	E	181	ASP	N-CA-C	7.18	119.11	111.28
4	E	173	VAL	CA-C-O	7.16	128.36	120.48
1	B	146	GLU	CA-C-O	7.14	128.12	120.55
2	C	420	ARG	NE-CZ-NH2	7.14	125.62	119.20
2	C	180	THR	O-C-N	-7.10	113.72	121.53
3	D	230	ARG	N-CA-C	7.08	119.00	111.28
2	C	205	LEU	N-CA-C	7.08	118.99	111.28
1	B	83	ASN	N-CA-C	-7.07	97.72	109.24
3	D	138	LEU	CA-C-N	7.06	132.51	120.72
3	D	138	LEU	C-N-CA	7.06	132.51	120.72
2	C	217	THR	N-CA-C	-7.06	103.67	111.36
3	D	144	ASN	O-C-N	-7.06	114.16	122.20
3	D	291	GLN	N-CA-C	7.04	118.60	111.07
4	E	603	ARG	NE-CZ-NH2	-7.03	112.87	119.20
2	C	429	LEU	CA-C-O	7.02	127.81	119.60
2	C	575	GLN	OE1-CD-NE2	7.00	129.60	122.60
2	C	440	ASP	CA-CB-CG	6.99	119.59	112.60
4	E	411	GLN	CA-C-N	6.99	129.95	120.38
4	E	411	GLN	C-N-CA	6.99	129.95	120.38
4	E	542	HIS	CA-CB-CG	6.97	120.77	113.80
4	E	106	GLN	CA-C-N	6.97	130.00	120.46
4	E	106	GLN	C-N-CA	6.97	130.00	120.46
4	E	279	GLY	O-C-N	-6.96	114.81	121.77
3	D	250	ILE	CA-C-N	6.96	129.60	120.28
3	D	250	ILE	C-N-CA	6.96	129.60	120.28
4	E	124	ALA	O-C-N	6.96	129.50	122.12
4	E	268	LEU	CB-CA-C	-6.96	99.02	110.85
3	D	108	LEU	CA-C-N	6.95	129.98	120.46
3	D	108	LEU	C-N-CA	6.95	129.98	120.46
1	B	90	ASN	CA-CB-CG	-6.93	105.67	112.60
4	E	656	THR	N-CA-CB	6.93	120.42	110.16

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	59	SER	CA-C-N	6.92	130.11	120.29
1	B	59	SER	C-N-CA	6.92	130.11	120.29
3	D	36	CYS	O-C-N	-6.91	114.33	120.48
4	E	634	LEU	CA-C-O	-6.90	114.15	119.46
2	C	210	THR	CA-C-N	6.90	130.09	120.29
2	C	210	THR	C-N-CA	6.90	130.09	120.29
2	C	426	ASP	CA-C-N	6.89	131.60	120.30
2	C	426	ASP	C-N-CA	6.89	131.60	120.30
3	D	93	THR	N-CA-CB	6.89	120.21	110.36
4	E	139	LYS	CA-C-N	6.87	129.48	120.28
4	E	139	LYS	C-N-CA	6.87	129.48	120.28
4	E	653	VAL	CA-C-N	6.87	130.04	120.29
4	E	653	VAL	C-N-CA	6.87	130.04	120.29
3	D	195	THR	O-C-N	-6.86	114.85	122.12
4	E	432	LYS	N-CA-C	-6.84	103.82	111.28
3	D	121	VAL	N-CA-C	-6.83	94.12	108.88
2	C	587	LEU	O-C-N	-6.83	113.87	122.27
1	B	159	LYS	N-CA-C	6.82	118.72	111.28
3	D	270	ARG	NE-CZ-NH2	-6.82	113.06	119.20
4	E	426	HIS	CA-CB-CG	-6.81	106.99	113.80
4	E	213	ASP	N-CA-C	6.80	119.53	111.71
4	E	580	ASP	N-CA-CB	6.80	120.22	110.16
4	E	437	SER	N-CA-C	6.79	118.69	111.28
1	B	134	GLU	O-C-N	-6.79	114.92	122.12
2	C	436	ARG	NE-CZ-NH2	6.79	125.31	119.20
4	E	124	ALA	CA-C-N	6.78	129.92	120.29
4	E	124	ALA	C-N-CA	6.78	129.92	120.29
2	C	152	LEU	CA-C-N	6.78	130.61	120.31
2	C	152	LEU	C-N-CA	6.78	130.61	120.31
2	C	389	TYR	N-CA-CB	6.78	120.08	110.12
3	D	18	ASP	CA-CB-CG	6.76	119.36	112.60
3	D	200	LYS	N-CA-C	6.76	118.30	111.07
4	E	567	THR	CA-CB-OG1	6.76	119.73	109.60
2	C	141	GLU	CB-CG-CD	-6.75	101.12	112.60
4	E	175	PHE	CA-CB-CG	-6.75	107.06	113.80
4	E	509	ARG	NE-CZ-NH2	6.75	125.27	119.20
1	B	38	ALA	CA-C-N	6.74	129.31	120.28
1	B	38	ALA	C-N-CA	6.74	129.31	120.28
3	D	282	THR	N-CA-CB	6.72	119.11	110.04
4	E	522	LYS	O-C-N	6.71	129.23	122.12
2	C	365	SER	CA-C-O	-6.71	113.78	120.82
2	C	476	SER	CA-C-N	6.70	129.80	120.29

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	476	SER	C-N-CA	6.70	129.80	120.29
4	E	647	TRP	CB-CG-CD2	-6.69	117.43	126.80
4	E	530	LEU	CA-C-N	6.68	128.20	119.84
4	E	530	LEU	C-N-CA	6.68	128.20	119.84
2	C	178	PHE	N-CA-CB	6.67	120.67	110.79
4	E	551	PHE	N-CA-C	-6.67	104.01	111.28
4	E	632	LEU	N-CA-C	-6.67	104.28	112.88
4	E	234	TRP	N-CA-C	-6.66	104.10	111.36
2	C	216	PHE	N-CA-C	6.66	118.54	111.28
1	B	174	ILE	O-C-N	6.65	128.68	121.83
2	C	423	MET	CG-SD-CE	-6.65	86.28	100.90
2	C	535	GLN	CB-CA-C	-6.64	99.76	110.79
2	C	168	VAL	CA-CB-CG2	-6.64	99.11	110.40
1	B	95	ILE	N-CA-CB	6.63	118.31	110.55
4	E	620	ALA	CA-C-N	6.63	129.70	120.29
4	E	620	ALA	C-N-CA	6.63	129.70	120.29
1	B	68	TYR	N-CA-C	6.61	118.14	111.07
2	C	232	SER	N-CA-CB	6.60	121.65	110.49
2	C	545	GLU	O-C-N	6.60	129.11	122.12
4	E	236	SER	O-C-N	-6.60	115.13	122.12
2	C	234	GLU	O-C-N	6.59	130.78	123.01
4	E	246	THR	CA-C-N	6.58	126.36	119.05
4	E	246	THR	C-N-CA	6.58	126.36	119.05
3	D	224	TYR	CA-C-N	6.58	126.52	119.28
3	D	224	TYR	C-N-CA	6.58	126.52	119.28
1	B	194	HIS	ND1-CE1-NE2	6.57	114.97	108.40
3	D	43	GLY	N-CA-C	-6.57	106.09	114.37
4	E	665	ARG	NH1-CZ-NH2	-6.57	110.76	119.30
1	B	137	LEU	O-C-N	6.56	129.07	122.12
1	B	125	ALA	N-CA-C	6.55	118.42	111.28
2	C	242	ASN	N-CA-C	-6.53	98.57	108.96
4	E	416	ALA	O-C-N	-6.53	115.20	122.12
3	D	53	GLU	CA-C-N	6.51	128.91	120.44
3	D	53	GLU	C-N-CA	6.51	128.91	120.44
3	D	157	GLN	CB-CG-CD	-6.50	101.54	112.60
4	E	501	PRO	CA-C-O	-6.49	114.28	121.23
4	E	523	GLY	CA-C-N	6.49	129.35	120.46
4	E	523	GLY	C-N-CA	6.49	129.35	120.46
2	C	575	GLN	CA-C-N	-6.49	111.96	121.76
2	C	575	GLN	C-N-CA	-6.49	111.96	121.76
4	E	222	GLY	N-CA-C	-6.49	106.09	114.85
3	D	256	GLU	CA-C-O	6.48	127.29	120.42

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	117	ASN	CA-C-N	6.47	128.85	120.44
1	B	117	ASN	C-N-CA	6.47	128.85	120.44
1	B	12	LEU	CA-C-N	6.47	130.15	120.31
1	B	12	LEU	C-N-CA	6.47	130.15	120.31
4	E	123	ARG	NE-CZ-NH2	-6.47	113.38	119.20
1	B	175	ARG	CA-C-O	6.47	127.28	120.42
2	C	502	SER	N-CA-CB	6.47	119.73	110.16
4	E	450	LYS	N-CA-CB	6.46	119.62	110.12
1	B	201	SER	CB-CA-C	6.46	121.83	110.85
3	D	124	SER	O-C-N	-6.46	114.00	122.59
1	B	165	CYS	CA-C-O	-6.44	113.72	120.55
2	C	541	HIS	CA-C-N	6.43	129.26	120.46
2	C	541	HIS	C-N-CA	6.43	129.26	120.46
4	E	85	ARG	NE-CZ-NH2	-6.40	113.44	119.20
4	E	497	PHE	CA-C-N	6.40	133.76	121.54
4	E	497	PHE	C-N-CA	6.40	133.76	121.54
2	C	357	GLN	N-CA-CB	6.39	119.28	110.01
4	E	619	GLN	N-CA-CB	6.38	120.05	110.22
1	B	191	TYR	N-CA-C	-6.38	104.41	111.36
2	C	118	ARG	NE-CZ-NH2	-6.38	113.46	119.20
2	C	392	GLU	CA-C-N	6.37	128.82	120.28
2	C	392	GLU	C-N-CA	6.37	128.82	120.28
3	D	281	TYR	CA-CB-CG	-6.37	102.44	113.90
4	E	220	HIS	CG-CD2-NE2	6.36	113.56	107.20
4	E	535	ALA	CA-C-N	6.35	126.04	119.56
4	E	535	ALA	C-N-CA	6.35	126.04	119.56
4	E	461	GLN	CG-CD-NE2	-6.35	106.88	116.40
3	D	195	THR	CA-C-O	6.35	127.28	120.55
3	D	76	VAL	N-CA-C	6.34	117.09	110.62
2	C	531	GLN	CA-C-N	6.34	128.78	120.28
2	C	531	GLN	C-N-CA	6.34	128.78	120.28
2	C	395	LYS	N-CA-C	6.34	118.19	111.28
3	D	263	ASN	CA-CB-CG	-6.34	106.26	112.60
4	E	268	LEU	CA-C-N	6.33	128.77	120.28
4	E	268	LEU	C-N-CA	6.33	128.77	120.28
1	B	128	LEU	CB-CA-C	-6.33	100.09	110.85
2	C	366	SER	O-C-N	6.32	128.82	122.12
2	C	584	VAL	CA-C-N	6.32	126.99	119.98
2	C	584	VAL	C-N-CA	6.32	126.99	119.98
4	E	631	GLN	OE1-CD-NE2	6.32	128.92	122.60
1	B	159	LYS	CA-C-N	6.31	128.74	120.28
1	B	159	LYS	C-N-CA	6.31	128.74	120.28

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	E	154	LYS	CA-C-N	6.31	129.38	120.42
4	E	154	LYS	C-N-CA	6.31	129.38	120.42
3	D	223	ILE	CA-C-N	6.29	128.68	120.26
3	D	223	ILE	C-N-CA	6.29	128.68	120.26
2	C	529	PHE	CA-CB-CG	6.28	120.08	113.80
1	B	84	LEU	N-CA-C	-6.28	99.43	108.60
4	E	198	GLU	N-CA-C	6.28	117.92	111.14
3	D	273	GLU	N-CA-CB	6.28	119.11	110.01
3	D	251	ASP	N-CA-CB	6.28	119.34	110.12
4	E	211	HIS	CE1-NE2-CD2	-6.27	102.73	109.00
2	C	543	THR	CA-C-N	6.27	129.32	120.42
2	C	543	THR	C-N-CA	6.27	129.32	120.42
1	B	97	ASP	CA-C-N	6.26	128.67	120.28
1	B	97	ASP	C-N-CA	6.26	128.67	120.28
3	D	104	GLN	O-C-N	6.26	128.76	122.12
2	C	131	MET	CA-C-N	6.25	128.66	120.28
2	C	131	MET	C-N-CA	6.25	128.66	120.28
1	B	171	LYS	CA-C-N	6.25	129.29	120.42
1	B	171	LYS	C-N-CA	6.25	129.29	120.42
4	E	572	GLN	OE1-CD-NE2	6.24	128.84	122.60
1	B	101	ALA	N-CA-C	6.24	118.89	111.71
3	D	5	LEU	CA-C-N	6.24	128.64	120.28
3	D	5	LEU	C-N-CA	6.24	128.64	120.28
2	C	161	ASN	CA-CB-CG	-6.23	106.37	112.60
2	C	478	ASP	CA-CB-CG	6.22	118.82	112.60
4	E	211	HIS	ND1-CE1-NE2	6.22	114.62	108.40
1	B	147	ALA	CA-C-N	6.20	129.09	120.29
1	B	147	ALA	C-N-CA	6.20	129.09	120.29
4	E	465	GLN	CA-C-N	6.20	129.09	120.29
4	E	465	GLN	C-N-CA	6.20	129.09	120.29
1	B	226	ALA	CA-C-O	6.20	126.99	120.42
1	B	50	LEU	N-CA-CB	6.19	119.22	110.12
3	D	201	ARG	CA-C-O	-6.19	113.99	120.55
4	E	83	GLN	N-CA-CB	6.19	119.04	110.07
2	C	518	LEU	CA-C-O	6.18	127.59	120.60
2	C	564	GLN	N-CA-CB	6.18	119.20	110.12
2	C	566	GLU	CB-CG-CD	-6.18	102.09	112.60
1	B	94	GLN	CA-CB-CG	6.17	126.45	114.10
4	E	639	ARG	N-CA-CB	6.17	121.18	110.81
2	C	220	HIS	CA-CB-CG	-6.17	107.63	113.80
4	E	101	HIS	CE1-NE2-CD2	-6.17	102.83	109.00
2	C	536	LEU	CA-C-N	6.16	129.04	120.29

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	536	LEU	C-N-CA	6.16	129.04	120.29
3	D	6	GLN	CA-C-O	-6.16	114.02	120.55
2	C	140	GLU	CA-C-N	6.16	128.45	120.44
2	C	140	GLU	C-N-CA	6.16	128.45	120.44
4	E	246	THR	CA-CB-OG1	6.16	118.84	109.60
2	C	193	PHE	CA-CB-CG	-6.15	107.65	113.80
4	E	642	LEU	N-CA-C	-6.15	99.78	109.50
3	D	32	LEU	N-CA-C	6.14	117.97	111.28
4	E	598	VAL	O-C-N	-6.14	114.10	121.10
2	C	509	ASP	CA-CB-CG	6.14	118.74	112.60
1	B	57	LEU	CA-C-N	6.13	128.50	120.28
1	B	57	LEU	C-N-CA	6.13	128.50	120.28
3	D	120	SER	CA-C-O	-6.13	112.97	121.98
2	C	574	PHE	O-C-N	6.12	130.44	122.42
2	C	353	ASP	O-C-N	-6.11	115.49	122.09
4	E	455	LYS	N-CA-CB	6.10	118.71	110.59
4	E	237	MET	CA-C-N	6.09	128.36	120.44
4	E	237	MET	C-N-CA	6.09	128.36	120.44
1	B	128	LEU	CA-C-N	6.09	128.44	120.28
1	B	128	LEU	C-N-CA	6.09	128.44	120.28
3	D	150	VAL	CA-C-N	6.09	128.44	120.28
3	D	150	VAL	C-N-CA	6.09	128.44	120.28
2	C	493	HIS	CA-C-N	6.08	128.43	120.28
2	C	493	HIS	C-N-CA	6.08	128.43	120.28
2	C	180	THR	CA-C-N	6.08	126.10	119.90
2	C	180	THR	C-N-CA	6.08	126.10	119.90
2	C	562	LEU	N-CA-C	-6.07	104.67	111.28
4	E	467	SER	CA-C-N	6.06	129.52	120.31
4	E	467	SER	C-N-CA	6.06	129.52	120.31
2	C	118	ARG	N-CA-C	6.05	117.88	111.28
4	E	616	LYS	CA-C-N	6.05	128.88	120.29
4	E	616	LYS	C-N-CA	6.05	128.88	120.29
2	C	243	VAL	O-C-N	-6.05	115.98	121.91
3	D	202	ARG	CA-C-O	-6.04	114.47	120.82
2	C	519	MET	CA-C-N	6.04	129.63	122.44
2	C	519	MET	C-N-CA	6.04	129.63	122.44
2	C	554	ARG	N-CA-CB	6.04	119.00	110.12
4	E	637	GLU	CB-CG-CD	-6.04	102.33	112.60
4	E	240	LYS	CA-C-N	6.04	128.17	120.56
4	E	240	LYS	C-N-CA	6.04	128.17	120.56
3	D	25	ASN	CA-C-N	6.04	128.37	120.28
3	D	25	ASN	C-N-CA	6.04	128.37	120.28

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	E	237	MET	O-C-N	-6.03	115.27	122.15
2	C	569	LEU	CA-C-O	-6.03	114.16	120.55
2	C	493	HIS	CG-CD2-NE2	6.03	113.23	107.20
2	C	370	LEU	CA-C-N	6.03	128.15	120.56
2	C	370	LEU	C-N-CA	6.03	128.15	120.56
2	C	471	VAL	CA-C-O	-6.02	114.47	120.85
3	D	290	ARG	NE-CZ-NH2	6.02	124.62	119.20
3	D	141	LEU	CA-C-O	-6.02	113.75	120.25
4	E	643	THR	O-C-N	6.02	129.71	122.85
2	C	362	THR	CA-CB-CG2	6.01	120.72	110.50
4	E	267	LYS	CA-C-O	6.01	126.79	120.42
2	C	99	LYS	CA-C-N	6.00	128.32	120.28
2	C	99	LYS	C-N-CA	6.00	128.32	120.28
2	C	470	SER	CA-C-O	-6.00	114.52	120.70
2	C	408	GLN	OE1-CD-NE2	5.99	128.59	122.60
4	E	517	TYR	CA-C-N	5.99	128.59	120.44
4	E	517	TYR	C-N-CA	5.99	128.59	120.44
4	E	229	LEU	N-CA-C	5.99	117.81	111.28
4	E	276	LEU	CA-C-N	5.98	128.29	120.28
4	E	276	LEU	C-N-CA	5.98	128.29	120.28
2	C	116	ARG	O-C-N	-5.98	115.64	122.09
4	E	240	LYS	N-CA-C	5.97	117.79	111.28
3	D	126	SER	CA-C-O	5.97	126.88	120.38
1	B	154	LEU	O-C-N	-5.96	115.36	122.15
4	E	463	ILE	CA-C-N	5.95	128.61	120.46
4	E	463	ILE	C-N-CA	5.95	128.61	120.46
2	C	373	ASP	CB-CA-C	-5.94	100.58	110.68
1	B	42	GLU	O-C-N	-5.94	115.95	122.07
3	D	17	ILE	N-CA-C	-5.94	99.24	108.44
4	E	141	ARG	NE-CZ-NH2	-5.93	113.86	119.20
4	E	415	GLU	CA-C-O	5.92	127.02	120.63
2	C	530	HIS	CA-C-N	5.92	128.21	120.28
2	C	530	HIS	C-N-CA	5.92	128.21	120.28
4	E	622	VAL	CA-C-O	5.91	127.10	120.95
2	C	353	ASP	CA-C-O	5.91	126.79	120.70
3	D	110	SER	CA-C-O	-5.91	114.16	120.42
4	E	462	GLU	O-C-N	-5.91	115.42	122.15
1	B	2	ASP	CB-CA-C	-5.90	98.34	110.38
3	D	83	LEU	CA-C-N	5.90	128.67	120.29
3	D	83	LEU	C-N-CA	5.90	128.67	120.29
4	E	643	THR	CA-C-N	5.90	128.18	120.28
4	E	643	THR	C-N-CA	5.90	128.18	120.28

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	62	VAL	CA-C-N	5.89	128.18	120.28
1	B	62	VAL	C-N-CA	5.89	128.18	120.28
1	B	122	GLU	O-C-N	-5.89	115.43	122.15
3	D	234	LEU	CB-CA-C	-5.89	101.01	110.79
4	E	236	SER	CA-C-O	5.89	126.79	120.55
1	B	173	GLU	O-C-N	-5.88	115.89	122.12
1	B	32	GLU	CA-C-N	5.88	127.97	120.56
1	B	32	GLU	C-N-CA	5.88	127.97	120.56
4	E	197	ARG	CA-C-O	-5.88	114.32	120.55
2	C	151	HIS	N-CA-CB	5.87	118.75	110.12
3	D	69	SER	CA-C-N	5.87	128.15	120.28
3	D	69	SER	C-N-CA	5.87	128.15	120.28
3	D	286	VAL	CA-C-N	5.87	128.15	120.28
3	D	286	VAL	C-N-CA	5.87	128.15	120.28
2	C	567	LYS	CA-C-N	5.87	132.22	122.54
2	C	567	LYS	C-N-CA	5.87	132.22	122.54
2	C	106	ALA	CA-C-O	5.87	126.64	120.42
3	D	294	ASP	CA-CB-CG	-5.86	106.74	112.60
2	C	244	ASN	OD1-CG-ND2	-5.86	116.74	122.60
3	D	202	ARG	CA-C-N	5.86	128.05	120.44
3	D	202	ARG	C-N-CA	5.86	128.05	120.44
1	B	220	THR	N-CA-CB	5.84	118.81	110.16
2	C	359	ALA	N-CA-C	5.84	117.65	111.28
2	C	574	PHE	CA-C-O	-5.84	112.49	119.15
3	D	247	GLN	OE1-CD-NE2	5.83	128.43	122.60
2	C	174	LEU	N-CA-C	5.83	117.63	111.28
4	E	91	LYS	O-C-N	5.83	128.29	122.12
4	E	220	HIS	CE1-NE2-CD2	-5.82	103.18	109.00
4	E	420	LEU	CA-C-O	-5.82	113.28	119.97
2	C	572	TYR	N-CA-CB	5.82	118.67	110.12
2	C	411	LYS	CA-C-N	5.81	128.07	120.28
2	C	411	LYS	C-N-CA	5.81	128.07	120.28
2	C	537	GLU	N-CA-CB	5.81	118.77	110.16
2	C	223	GLU	CA-C-N	5.80	132.79	121.41
2	C	223	GLU	C-N-CA	5.80	132.79	121.41
2	C	360	HIS	CB-CG-CD2	-5.80	123.66	131.20
4	E	497	PHE	CA-CB-CG	-5.80	108.00	113.80
2	C	373	ASP	N-CA-CB	5.79	118.75	110.06
4	E	120	ASN	N-CA-C	-5.79	98.97	108.41
4	E	272	GLN	CA-C-N	5.79	128.04	120.28
4	E	272	GLN	C-N-CA	5.79	128.04	120.28
3	D	102	GLY	CA-C-N	5.79	128.32	120.44

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	D	102	GLY	C-N-CA	5.79	128.32	120.44
3	D	214	ARG	N-CA-CB	5.79	118.63	110.12
2	C	564	GLN	CB-CA-C	-5.79	101.18	110.79
3	D	122	PRO	CA-C-O	-5.79	112.17	120.56
4	E	97	ARG	NE-CZ-NH2	5.78	124.40	119.20
3	D	282	THR	CA-CB-OG1	5.78	118.27	109.60
4	E	190	PRO	CB-CA-C	5.77	118.57	111.12
1	B	178	ASN	CA-CB-CG	-5.76	106.84	112.60
4	E	512	ASN	CA-CB-CG	5.76	118.36	112.60
1	B	167	PHE	CA-C-N	5.75	128.46	120.29
1	B	167	PHE	C-N-CA	5.75	128.46	120.29
2	C	151	HIS	CE1-NE2-CD2	-5.75	103.25	109.00
1	B	33	ILE	CA-C-N	5.75	128.45	120.29
1	B	33	ILE	C-N-CA	5.75	128.45	120.29
4	E	284	LEU	N-CA-C	-5.74	104.69	112.26
2	C	478	ASP	CA-C-N	5.72	127.77	120.56
2	C	478	ASP	C-N-CA	5.72	127.77	120.56
3	D	172	PHE	CA-CB-CG	-5.72	108.08	113.80
1	B	63	LYS	N-CA-C	-5.72	105.05	111.28
4	E	189	GLU	CB-CG-CD	-5.72	102.88	112.60
1	B	227	GLN	CA-C-N	5.72	128.41	120.29
1	B	227	GLN	C-N-CA	5.72	128.41	120.29
2	C	383	GLU	N-CA-C	5.71	117.51	111.28
2	C	98	GLU	N-CA-C	-5.71	105.13	111.36
4	E	624	ASP	CA-CB-CG	5.71	118.31	112.60
4	E	615	GLY	N-CA-C	5.70	120.70	113.24
2	C	220	HIS	ND1-CE1-NE2	5.69	114.09	108.40
2	C	401	ARG	CD-NE-CZ	-5.69	116.43	124.40
4	E	266	LYS	N-CA-CB	5.69	118.58	110.16
2	C	401	ARG	NE-CZ-NH1	5.69	127.19	121.50
3	D	97	ARG	NE-CZ-NH2	5.69	124.32	119.20
4	E	425	LYS	N-CA-C	5.69	117.48	111.28
4	E	600	LYS	CA-C-O	-5.69	114.52	120.55
4	E	287	PHE	N-CA-C	-5.68	104.91	113.89
4	E	412	ASN	OD1-CG-ND2	5.68	128.28	122.60
4	E	223	LYS	N-CA-C	-5.68	106.02	113.17
3	D	73	TYR	CA-C-N	5.67	127.88	120.28
3	D	73	TYR	C-N-CA	5.67	127.88	120.28
1	B	127	GLU	N-CA-C	5.67	117.46	111.28
3	D	16	GLN	N-CA-C	-5.67	99.95	108.96
4	E	274	ALA	N-CA-C	5.66	118.22	111.71
4	E	543	VAL	N-CA-C	5.66	116.39	110.62

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	E	477	GLU	N-CA-C	5.66	117.53	111.36
3	D	148	LEU	CA-C-N	5.65	127.85	120.28
3	D	148	LEU	C-N-CA	5.65	127.85	120.28
3	D	159	GLU	CA-C-N	5.65	128.31	120.29
3	D	159	GLU	C-N-CA	5.65	128.31	120.29
3	D	141	LEU	N-CA-C	-5.64	102.67	109.83
4	E	423	LYS	O-C-N	5.64	128.10	122.12
3	D	293	ARG	CA-C-N	5.64	127.83	120.28
3	D	293	ARG	C-N-CA	5.64	127.83	120.28
4	E	146	GLU	CA-C-O	5.63	126.47	120.10
2	C	440	ASP	CA-C-O	5.62	127.37	121.19
1	B	182	LEU	CA-C-N	5.62	127.81	120.28
1	B	182	LEU	C-N-CA	5.62	127.81	120.28
4	E	112	ARG	NE-CZ-NH1	5.62	127.12	121.50
4	E	515	ALA	CA-C-N	5.62	126.11	120.04
4	E	515	ALA	C-N-CA	5.62	126.11	120.04
1	B	135	ALA	CA-C-O	5.61	126.50	120.55
4	E	585	SER	O-C-N	5.61	128.06	122.12
4	E	145	CYS	N-CA-CB	5.61	118.36	110.12
4	E	514	HIS	CE1-NE2-CD2	-5.60	103.40	109.00
3	D	174	GLN	O-C-N	5.60	125.75	121.27
3	D	16	GLN	N-CA-CB	5.59	119.57	110.17
3	D	79	MET	CA-C-N	5.59	127.77	120.28
3	D	79	MET	C-N-CA	5.59	127.77	120.28
4	E	177	ALA	N-CA-CB	5.58	118.23	109.69
1	B	77	LEU	CA-C-O	5.58	125.19	119.05
3	D	204	GLN	CA-C-N	5.58	127.76	120.28
3	D	204	GLN	C-N-CA	5.58	127.76	120.28
4	E	177	ALA	CB-CA-C	-5.58	101.20	109.90
4	E	535	ALA	CA-C-O	-5.57	114.61	120.02
4	E	591	SER	N-CA-CB	5.57	118.41	110.16
4	E	271	SER	N-CA-C	5.57	118.11	111.71
2	C	129	ARG	NE-CZ-NH1	5.56	127.06	121.50
3	D	78	GLU	CA-C-N	5.56	127.66	120.44
3	D	78	GLU	C-N-CA	5.56	127.66	120.44
2	C	481	SER	N-CA-C	5.55	117.33	111.28
2	C	557	LEU	N-CA-C	-5.55	105.23	112.23
4	E	624	ASP	CA-C-N	5.54	127.71	120.28
4	E	624	ASP	C-N-CA	5.54	127.71	120.28
1	B	220	THR	N-CA-C	-5.54	105.32	111.36
2	C	540	ASN	CA-CB-CG	5.54	118.14	112.60
2	C	352	GLY	N-CA-C	5.54	120.50	113.24

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	447	HIS	CE1-NE2-CD2	-5.54	103.46	109.00
3	D	60	LEU	CA-C-N	5.54	127.97	120.44
3	D	60	LEU	C-N-CA	5.54	127.97	120.44
4	E	283	GLN	CA-C-O	5.54	126.02	119.48
4	E	250	ILE	CA-C-N	5.54	127.64	120.44
4	E	250	ILE	C-N-CA	5.54	127.64	120.44
4	E	472	ASP	N-CA-CB	5.53	119.84	110.49
3	D	195	THR	N-CA-C	5.53	117.31	111.28
4	E	282	CYS	N-CA-C	-5.53	107.11	112.97
2	C	392	GLU	N-CA-CB	-5.52	102.01	110.12
3	D	188	LYS	N-CA-CB	5.52	118.84	110.28
1	B	78	GLY	CA-C-N	5.52	126.00	120.04
1	B	78	GLY	C-N-CA	5.52	126.00	120.04
4	E	193	LEU	N-CA-C	5.51	117.29	111.28
4	E	514	HIS	ND1-CE1-NE2	5.51	113.91	108.40
4	E	650	ARG	NE-CZ-NH2	-5.51	114.24	119.20
2	C	470	SER	O-C-N	5.50	128.03	122.09
3	D	153	ARG	CA-C-N	5.50	127.65	120.28
3	D	153	ARG	C-N-CA	5.50	127.65	120.28
3	D	245	ARG	NE-CZ-NH2	-5.50	114.25	119.20
2	C	366	SER	N-CA-C	5.49	117.27	111.28
3	D	128	SER	N-CA-C	-5.49	102.62	110.59
3	D	249	ASP	CA-CB-CG	5.49	118.09	112.60
4	E	116	GLY	CA-C-N	5.49	132.32	122.38
4	E	116	GLY	C-N-CA	5.49	132.32	122.38
3	D	245	ARG	CA-C-N	5.49	127.58	120.44
3	D	245	ARG	C-N-CA	5.49	127.58	120.44
4	E	556	GLN	CB-CG-CD	-5.49	103.26	112.60
2	C	161	ASN	CA-C-N	5.49	127.58	120.44
2	C	161	ASN	C-N-CA	5.49	127.58	120.44
1	B	8	ILE	O-C-N	-5.49	116.19	121.90
4	E	480	HIS	ND1-CE1-NE2	5.49	113.89	108.40
2	C	100	LEU	O-C-N	5.48	127.93	122.12
2	C	387	LEU	CA-C-N	5.48	126.16	120.03
2	C	387	LEU	C-N-CA	5.48	126.16	120.03
1	B	52	THR	CA-CB-CG2	5.47	119.79	110.50
2	C	354	TYR	CA-C-N	5.47	127.87	120.38
2	C	354	TYR	C-N-CA	5.47	127.87	120.38
2	C	558	GLU	CB-CG-CD	5.46	121.89	112.60
4	E	101	HIS	CG-CD2-NE2	5.46	112.66	107.20
2	C	563	GLN	OE1-CD-NE2	5.46	128.06	122.60
4	E	583	LEU	O-C-N	-5.46	116.34	122.12

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	E	237	MET	CA-C-O	5.45	126.20	120.42
1	B	47	ASP	O-C-N	-5.45	116.46	122.07
3	D	173	HIS	CE1-NE2-CD2	-5.44	103.56	109.00
4	E	243	ASN	OD1-CG-ND2	5.44	128.04	122.60
2	C	499	LYS	N-CA-C	5.44	116.89	111.07
3	D	182	ASP	CA-C-N	5.44	127.52	120.56
3	D	182	ASP	C-N-CA	5.44	127.52	120.56
3	D	276	VAL	CA-C-O	-5.44	115.08	120.85
1	B	138	THR	CA-C-N	5.44	127.51	120.44
1	B	138	THR	C-N-CA	5.44	127.51	120.44
2	C	490	GLU	CB-CA-C	-5.44	101.76	110.79
2	C	401	ARG	CA-C-N	5.43	127.83	120.44
2	C	401	ARG	C-N-CA	5.43	127.83	120.44
1	B	126	ILE	CA-C-N	5.43	127.56	120.28
1	B	126	ILE	C-N-CA	5.43	127.56	120.28
2	C	474	LYS	CA-C-N	5.43	127.50	120.44
2	C	474	LYS	C-N-CA	5.43	127.50	120.44
2	C	203	LEU	N-CA-C	5.42	117.19	111.28
3	D	303	GLU	N-CA-CB	5.42	118.68	110.28
1	B	6	THR	N-CA-CB	5.42	118.18	110.16
1	B	74	THR	N-CA-C	-5.42	105.45	111.36
4	E	121	CYS	N-CA-C	-5.42	105.37	112.41
4	E	592	LEU	O-C-N	-5.42	115.98	122.15
2	C	368	GLN	N-CA-C	5.41	117.18	111.28
1	B	109	LEU	CB-CA-C	-5.41	100.29	110.67
2	C	548	GLY	CA-C-N	5.41	127.97	120.29
2	C	548	GLY	C-N-CA	5.41	127.97	120.29
1	B	157	ASP	CA-C-N	5.40	127.51	120.28
1	B	157	ASP	C-N-CA	5.40	127.51	120.28
4	E	549	GLN	CA-C-O	5.40	126.27	120.55
1	B	4	LYS	O-C-N	-5.40	116.40	122.12
4	E	552	PHE	CA-CB-CG	5.39	119.19	113.80
4	E	587	SER	CA-C-N	5.39	127.78	120.44
4	E	587	SER	C-N-CA	5.39	127.78	120.44
4	E	104	GLN	CA-C-N	5.39	127.94	120.29
4	E	104	GLN	C-N-CA	5.39	127.94	120.29
2	C	389	TYR	CA-C-O	-5.39	114.84	120.55
4	E	157	TYR	CA-C-O	-5.39	114.71	120.42
2	C	195	SER	N-CA-C	5.38	119.10	112.54
4	E	249	HIS	CA-CB-CG	-5.38	108.42	113.80
1	B	111	SER	N-CA-C	-5.37	106.41	113.12
3	D	52	LEU	N-CA-C	5.37	117.13	111.28

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	179	SER	CA-C-N	5.36	128.83	120.68
2	C	179	SER	C-N-CA	5.36	128.83	120.68
3	D	191	ARG	NE-CZ-NH2	5.36	124.03	119.20
4	E	592	LEU	N-CA-C	5.36	117.20	111.36
3	D	191	ARG	CA-C-N	5.36	127.41	120.44
3	D	191	ARG	C-N-CA	5.36	127.41	120.44
4	E	196	VAL	CA-C-N	5.36	127.46	120.28
4	E	196	VAL	C-N-CA	5.36	127.46	120.28
4	E	420	LEU	N-CA-CB	5.36	118.58	110.28
1	B	134	GLU	CA-C-N	5.35	127.45	120.28
1	B	134	GLU	C-N-CA	5.35	127.45	120.28
3	D	173	HIS	ND1-CE1-NE2	5.35	113.75	108.40
1	B	22	PRO	CA-C-O	-5.35	112.80	120.56
1	B	46	LYS	N-CA-C	5.35	117.11	111.28
2	C	508	ARG	NE-CZ-NH2	-5.35	114.39	119.20
1	B	133	MET	CA-C-N	5.34	127.44	120.28
1	B	133	MET	C-N-CA	5.34	127.44	120.28
2	C	528	GLU	N-CA-CB	5.34	118.07	110.16
2	C	217	THR	CA-CB-CG2	-5.34	101.42	110.50
4	E	542	HIS	N-CA-CB	5.34	117.97	110.12
1	B	131	GLN	N-CA-C	5.33	116.90	111.14
3	D	46	ALA	CA-C-N	5.33	127.69	120.44
3	D	46	ALA	C-N-CA	5.33	127.69	120.44
3	D	156	LYS	CA-CB-CG	-5.33	103.44	114.10
4	E	270	PHE	N-CA-CB	5.33	118.14	110.20
2	C	151	HIS	ND1-CE1-NE2	5.33	113.72	108.40
4	E	617	GLU	N-CA-CB	5.33	118.04	110.16
3	D	253	ILE	CA-CB-CG2	5.32	119.55	110.50
4	E	172	GLU	CA-C-N	5.32	130.25	123.13
4	E	172	GLU	C-N-CA	5.32	130.25	123.13
3	D	175	PRO	N-CA-CB	5.32	108.80	103.48
1	B	162	GLU	CA-C-N	5.31	127.84	120.29
1	B	162	GLU	C-N-CA	5.31	127.84	120.29
1	B	23	PRO	N-CD-CG	5.31	111.17	103.20
4	E	486	LEU	O-C-N	-5.31	115.22	121.32
2	C	467	GLY	CA-C-O	5.30	126.28	120.66
4	E	183	SER	CA-C-O	5.30	125.73	119.48
4	E	233	GLN	CA-C-N	5.30	127.82	120.29
4	E	233	GLN	C-N-CA	5.30	127.82	120.29
2	C	123	MET	CG-SD-CE	-5.29	89.27	100.90
4	E	82	GLN	CA-C-O	-5.29	111.81	120.80
2	C	367	ARG	CA-C-N	5.28	127.36	120.28

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	367	ARG	C-N-CA	5.28	127.36	120.28
2	C	565	ILE	O-C-N	5.28	127.27	121.83
1	B	36	GLN	CB-CA-C	-5.28	102.03	110.79
2	C	166	SER	CA-C-N	5.28	127.92	120.42
2	C	166	SER	C-N-CA	5.28	127.92	120.42
1	B	82	THR	CA-C-N	5.28	130.00	122.72
1	B	82	THR	C-N-CA	5.28	130.00	122.72
2	C	587	LEU	CA-C-O	5.27	126.03	119.97
4	E	448	ALA	N-CA-C	5.27	117.02	111.28
2	C	121	LEU	CA-C-N	5.26	127.86	120.28
2	C	121	LEU	C-N-CA	5.26	127.86	120.28
3	D	161	ALA	CA-C-N	5.26	127.33	120.28
3	D	161	ALA	C-N-CA	5.26	127.33	120.28
3	D	234	LEU	N-CA-C	5.26	117.02	111.28
1	B	157	ASP	CA-CB-CG	-5.26	107.34	112.60
4	E	97	ARG	NE-CZ-NH1	-5.26	116.24	121.50
1	B	209	LEU	N-CA-C	-5.26	106.45	112.92
3	D	284	GLU	CB-CA-C	-5.26	102.06	110.79
2	C	231	GLY	CA-C-N	5.26	131.58	121.54
2	C	231	GLY	C-N-CA	5.26	131.58	121.54
4	E	228	SER	CA-C-N	5.25	127.32	120.28
4	E	228	SER	C-N-CA	5.25	127.32	120.28
2	C	221	PHE	N-CA-CB	5.25	118.73	110.23
2	C	560	ASN	CA-C-O	5.24	125.80	120.24
4	E	249	HIS	CE1-NE2-CD2	-5.24	103.76	109.00
4	E	455	LYS	CB-CA-C	-5.24	100.53	109.03
2	C	563	GLN	CB-CG-CD	-5.24	103.70	112.60
3	D	230	ARG	CA-C-N	5.24	127.72	120.29
3	D	230	ARG	C-N-CA	5.24	127.72	120.29
4	E	213	ASP	CA-C-N	5.24	128.27	120.31
4	E	213	ASP	C-N-CA	5.24	128.27	120.31
4	E	585	SER	CA-C-O	-5.23	115.00	120.55
2	C	356	LEU	CA-C-N	5.22	127.23	120.44
2	C	356	LEU	C-N-CA	5.22	127.23	120.44
2	C	187	LEU	O-C-N	5.22	128.46	122.25
3	D	62	GLN	N-CA-C	-5.22	105.67	111.36
3	D	185	ARG	CD-NE-CZ	-5.22	117.09	124.40
1	B	29	ARG	NE-CZ-NH2	5.22	123.90	119.20
3	D	125	ASP	CA-CB-CG	-5.22	107.38	112.60
4	E	625	TRP	N-CA-CB	5.22	117.79	110.12
2	C	229	VAL	CA-C-O	5.22	127.30	120.78
3	D	83	LEU	O-C-N	-5.22	116.59	122.12

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	427	VAL	N-CA-C	-5.21	104.58	111.09
4	E	492	VAL	CA-C-O	5.21	128.20	121.32
1	B	10	MET	N-CA-C	5.21	116.95	111.28
2	C	185	CYS	N-CA-C	-5.20	105.50	111.07
1	B	96	VAL	CA-C-O	-5.20	115.66	121.17
3	D	305	GLN	N-CA-C	-5.20	105.53	111.14
3	D	153	ARG	CG-CD-NE	-5.19	100.58	112.00
4	E	160	GLU	N-CA-C	5.19	116.94	111.28
2	C	554	ARG	NE-CZ-NH1	5.19	126.69	121.50
4	E	161	GLN	CB-CG-CD	-5.18	103.80	112.60
2	C	213	LEU	N-CA-CB	-5.18	102.50	110.16
4	E	427	ILE	CA-CB-CG1	5.18	119.20	110.40
4	E	624	ASP	N-CA-C	5.17	116.92	111.28
2	C	463	ARG	N-CA-C	-5.17	100.65	108.67
3	D	201	ARG	O-C-N	5.17	127.60	122.12
2	C	430	LEU	N-CA-CB	5.17	117.75	110.36
2	C	172	GLN	CA-C-N	5.17	127.62	120.29
2	C	172	GLN	C-N-CA	5.17	127.62	120.29
3	D	260	ALA	O-C-N	5.17	127.59	122.12
4	E	471	GLN	OE1-CD-NE2	-5.16	117.44	122.60
4	E	103	LEU	CA-C-N	5.16	127.19	120.28
4	E	103	LEU	C-N-CA	5.16	127.19	120.28
1	B	33	ILE	N-CA-CB	5.15	116.58	110.55
4	E	446	VAL	CA-C-N	5.15	127.18	120.28
4	E	446	VAL	C-N-CA	5.15	127.18	120.28
4	E	224	GLU	N-CA-C	-5.14	105.13	111.40
3	D	178	ASP	N-CA-CB	-5.14	101.40	110.39
2	C	415	ASP	CA-CB-CG	-5.14	107.46	112.60
1	B	162	GLU	O-C-N	5.13	128.00	122.15
2	C	581	LYS	CA-C-N	5.13	127.42	120.44
2	C	581	LYS	C-N-CA	5.13	127.42	120.44
3	D	68	ARG	CA-C-O	5.13	125.99	120.55
4	E	214	SER	O-C-N	5.13	128.59	122.27
2	C	577	GLU	CA-C-O	5.13	125.85	120.42
4	E	564	ILE	N-CA-C	5.12	115.85	110.62
3	D	79	MET	CG-SD-CE	-5.12	89.63	100.90
4	E	242	TRP	N-CA-C	5.12	117.76	111.82
2	C	227	LYS	N-CA-C	-5.12	99.90	110.80
2	C	396	HIS	CB-CG-CD2	-5.12	124.55	131.20
2	C	560	ASN	CA-C-N	5.11	128.08	120.31
2	C	560	ASN	C-N-CA	5.11	128.08	120.31
4	E	517	TYR	N-CA-C	-5.11	106.63	112.92

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	D	3	GLN	CB-CG-CD	-5.11	103.91	112.60
4	E	584	LYS	CA-C-N	5.11	127.12	120.28
4	E	584	LYS	C-N-CA	5.11	127.12	120.28
1	B	39	GLU	N-CA-C	5.11	116.85	111.28
1	B	84	LEU	O-C-N	-5.10	117.90	123.26
4	E	559	SER	CA-C-N	5.10	127.54	120.29
4	E	559	SER	C-N-CA	5.10	127.54	120.29
1	B	215	VAL	N-CA-CB	5.10	117.47	110.54
4	E	590	TYR	N-CA-C	5.09	116.52	111.07
1	B	86	ARG	N-CA-C	5.09	117.22	111.11
2	C	468	LEU	CA-C-N	5.09	127.10	120.28
2	C	468	LEU	C-N-CA	5.09	127.10	120.28
2	C	479	ILE	CA-C-O	-5.09	115.78	121.17
3	D	169	PHE	CA-C-N	5.08	127.51	120.29
3	D	169	PHE	C-N-CA	5.08	127.51	120.29
1	B	64	ALA	CA-C-N	5.08	127.50	120.29
1	B	64	ALA	C-N-CA	5.08	127.50	120.29
2	C	234	GLU	CA-C-O	-5.07	115.27	121.05
1	B	227	GLN	CA-CB-CG	5.07	124.24	114.10
4	E	173	VAL	CA-CB-CG1	5.07	119.02	110.40
4	E	626	TRP	CB-CG-CD2	-5.07	119.70	126.80
2	C	132	CYS	CB-CA-C	-5.07	102.38	110.79
4	E	622	VAL	CB-CA-C	-5.07	105.30	112.14
4	E	275	ASP	CA-C-N	5.06	128.01	120.31
4	E	275	ASP	C-N-CA	5.06	128.01	120.31
4	E	468	GLN	CA-C-O	5.06	125.79	119.97
4	E	96	LEU	CA-C-O	-5.06	115.06	120.42
1	B	55	LEU	CA-C-N	5.06	127.06	120.28
1	B	55	LEU	C-N-CA	5.06	127.06	120.28
1	B	72	LEU	N-CA-C	-5.06	105.66	111.07
1	B	220	THR	CA-C-O	-5.05	115.06	120.42
3	D	127	THR	N-CA-CB	5.05	117.40	109.97
4	E	577	PRO	N-CA-CB	-5.05	97.04	102.60
4	E	617	GLU	CA-C-O	5.05	125.78	120.42
1	B	82	THR	N-CA-C	-5.05	107.12	113.28
2	C	390	GLU	CB-CG-CD	-5.05	104.02	112.60
4	E	589	HIS	CA-C-N	5.05	127.00	120.44
4	E	589	HIS	C-N-CA	5.05	127.00	120.44
3	D	170	LEU	CA-C-N	5.04	127.04	120.28
3	D	170	LEU	C-N-CA	5.04	127.04	120.28
2	C	114	HIS	CG-CD2-NE2	5.04	112.24	107.20
3	D	216	LEU	CB-CA-C	-5.04	102.29	110.85

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	E	93	ILE	CA-C-O	-5.04	115.83	121.17
1	B	105	LYS	CA-C-N	5.03	131.15	121.54
1	B	105	LYS	C-N-CA	5.03	131.15	121.54
4	E	665	ARG	NE-CZ-NH2	5.03	123.73	119.20
2	C	465	TYR	CA-C-O	5.03	125.75	120.42
3	D	63	ARG	CA-C-N	5.02	127.01	120.28
3	D	63	ARG	C-N-CA	5.02	127.01	120.28
3	D	69	SER	CB-CA-C	-5.02	102.31	110.85
3	D	49	ASN	CA-C-N	-5.02	113.55	120.28
3	D	49	ASN	C-N-CA	-5.02	113.55	120.28
4	E	439	SER	CA-C-N	5.02	127.42	120.29
4	E	439	SER	C-N-CA	5.02	127.42	120.29
2	C	382	PHE	CA-CB-CG	-5.02	108.78	113.80
4	E	660	ARG	CA-C-N	5.02	126.97	120.44
4	E	660	ARG	C-N-CA	5.02	126.97	120.44
2	C	477	GLN	CA-C-N	5.02	126.96	120.44
2	C	477	GLN	C-N-CA	5.02	126.96	120.44
3	D	110	SER	CA-C-N	5.02	126.96	120.44
3	D	110	SER	C-N-CA	5.02	126.96	120.44
2	C	107	LEU	CA-C-N	5.01	127.00	120.28
2	C	107	LEU	C-N-CA	5.01	127.00	120.28
4	E	544	ALA	CA-C-O	-5.01	115.24	120.55
1	B	33	ILE	O-C-N	-5.01	117.00	121.91
3	D	158	LEU	CA-C-N	5.01	127.40	120.29
3	D	158	LEU	C-N-CA	5.01	127.40	120.29
4	E	647	TRP	CB-CG-CD1	5.01	134.41	126.90
4	E	125	GLN	OE1-CD-NE2	5.00	127.60	122.60
2	C	479	ILE	N-CA-C	-5.00	105.62	110.42

There are no chirality outliers.

All (62) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	191	TYR	Sidechain
1	B	194	HIS	Sidechain
1	B	24	TYR	Sidechain
1	B	81	TYR	Sidechain
1	B	86	ARG	Sidechain
2	C	181	PRO	Peptide
2	C	183	THR	Peptide
2	C	186	GLU	Peptide
2	C	221	PHE	Mainchain

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Mol	Chain	Res	Type	Group
2	C	232	SER	Peptide
2	C	233	ASP	Peptide
2	C	235	ASN	Peptide
2	C	236	PHE	Peptide
2	C	241	LEU	Peptide
2	C	354	TYR	Sidechain
2	C	389	TYR	Sidechain
2	C	401	ARG	Sidechain
2	C	420	ARG	Sidechain
2	C	432	ALA	Peptide
2	C	433	SER	Peptide
2	C	436	ARG	Sidechain
2	C	456	ASP	Peptide
2	C	458	THR	Peptide
2	C	459	GLN	Mainchain
2	C	465	TYR	Sidechain
2	C	512	TYR	Sidechain
2	C	573	PHE	Sidechain
2	C	593	GLY	Peptide
2	C	594	GLY	Peptide
2	C	595	SER	Peptide
2	C	596	SER	Peptide
3	D	117	THR	Peptide
3	D	118	ALA	Peptide
3	D	119	ASP	Peptide
3	D	122	PRO	Peptide
3	D	123	PRO	Peptide
3	D	169	PHE	Sidechain
3	D	191	ARG	Sidechain
3	D	202	ARG	Sidechain
3	D	214	ARG	Sidechain
3	D	245	ARG	Sidechain
3	D	28	PHE	Sidechain
3	D	56	ARG	Sidechain
3	D	68	ARG	Sidechain
4	E	112	ARG	Sidechain
4	E	119	LEU	Peptide
4	E	177	ALA	Peptide
4	E	178	VAL	Peptide
4	E	186	THR	Peptide
4	E	216	SER	Peptide
4	E	218	SER	Peptide

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Mol	Chain	Res	Type	Group
4	E	219	VAL	Mainchain
4	E	221	PRO	Peptide
4	E	278	LYS	Peptide
4	E	481	PHE	Sidechain
4	E	518	TYR	Sidechain
4	E	533	TYR	Sidechain
4	E	639	ARG	Sidechain
4	E	648	ARG	Sidechain
4	E	664	SER	Peptide
4	E	665	ARG	Peptide
4	E	85	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	B	1832	0	1877	6	0
2	C	3192	0	3200	6	0
3	D	2514	0	2583	7	0
4	E	3824	0	3867	14	0
All	All	11362	0	11527	23	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 1.

All (23) 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)
3:D:75:LEU:HD22	3:D:161:ALA:HB1	1.77	0.67
3:D:244:LEU:HD11	4:E:585:SER:HB3	1.85	0.58
3:D:66:TRP:CZ3	3:D:67:MET:HE2	2.46	0.51
2:C:460:LYS:HB3	2:C:462:PHE:H	1.79	0.48
4:E:607:GLN:O	4:E:611:HIS:CD2	2.67	0.48
2:C:490:GLU:HA	4:E:560:ARG:HE	1.79	0.48
4:E:138:ASN:O	4:E:142:GLU:HG3	2.16	0.46
1:B:211:HIS:CE1	4:E:628:GLN:HG2	2.50	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:115:ALA:HA	4:E:533:TYR:CZ	2.51	0.45
4:E:642:LEU:HD23	4:E:642:LEU:HA	1.90	0.44
2:C:483:ARG:HG3	4:E:553:LEU:CD1	2.48	0.43
2:C:109:LYS:O	2:C:113:LEU:HD13	2.18	0.43
2:C:557:LEU:HD22	2:C:564:GLN:HG2	2.00	0.43
3:D:209:LYS:HG2	3:D:213:MET:HE2	2.01	0.43
4:E:192:VAL:HG13	4:E:245:HIS:CD2	2.53	0.43
3:D:99:PHE:CD2	3:D:150:VAL:HG13	2.54	0.42
1:B:12:LEU:CD2	3:D:35:LEU:HD21	2.49	0.42
1:B:51:VAL:HA	4:E:540:LEU:HD23	2.01	0.42
3:D:266:PHE:HB2	4:E:611:HIS:CE1	2.55	0.41
1:B:73:LEU:HD22	1:B:77:LEU:CD1	2.51	0.41
4:E:105:GLU:HA	4:E:108:GLN:HE21	1.86	0.40
1:B:211:HIS:HA	4:E:630:VAL:HG23	2.02	0.40
2:C:192:ILE:HG13	4:E:166:ARG:HE	1.86	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	B	228/286 (80%)	225 (99%)	2 (1%)	1 (0%)	30	68
2	C	392/597 (66%)	373 (95%)	12 (3%)	7 (2%)	7	35
3	D	307/353 (87%)	296 (96%)	8 (3%)	3 (1%)	13	49
4	E	465/666 (70%)	446 (96%)	12 (3%)	7 (2%)	8	40
All	All	1392/1902 (73%)	1340 (96%)	34 (2%)	18 (1%)	13	43

All (18) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	C	229	VAL
2	C	232	SER
2	C	241	LEU
2	C	434	LYS
3	D	118	ALA
4	E	218	SER
4	E	636	SER
1	B	106	ASN
2	C	222	PHE
2	C	459	GLN
4	E	118	ASP
4	E	279	GLY
3	D	123	PRO
3	D	124	SER
4	E	578	ASP
4	E	188	LEU
4	E	217	SER
2	C	192	ILE

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	B	208/260 (80%)	204 (98%)	4 (2%)	52	69
2	C	365/541 (68%)	351 (96%)	14 (4%)	28	49
3	D	284/326 (87%)	276 (97%)	8 (3%)	38	57
4	E	432/605 (71%)	423 (98%)	9 (2%)	48	66
All	All	1289/1732 (74%)	1254 (97%)	35 (3%)	41	58

All (35) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	82	THR
1	B	94	GLN
1	B	171	LYS
1	B	172	VAL

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Mol	Chain	Res	Type
2	C	97	ILE
2	C	121	LEU
2	C	217	THR
2	C	377	LYS
2	C	385	LEU
2	C	445	THR
2	C	469	GLU
2	C	474	LYS
2	C	487	GLU
2	C	496	LEU
2	C	508	ARG
2	C	561	LYS
2	C	587	LEU
2	C	591	THR
3	D	16	GLN
3	D	47	ASN
3	D	116	LEU
3	D	142	PRO
3	D	143	PRO
3	D	155	GLN
3	D	189	VAL
3	D	244	LEU
4	E	115	VAL
4	E	186	THR
4	E	241	VAL
4	E	264	GLU
4	E	478	VAL
4	E	484	ILE
4	E	520	ILE
4	E	549	GLN
4	E	630	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (50) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	36	GLN
1	B	83	ASN
1	B	89	ASN
1	B	94	GLN
1	B	106	ASN
2	C	151	HIS
2	C	165	GLN

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Mol	Chain	Res	Type
2	C	172	GLN
2	C	208	GLN
2	C	240	GLN
2	C	360	HIS
2	C	378	GLN
2	C	386	GLN
2	C	447	HIS
2	C	551	GLN
2	C	568	GLN
3	D	6	GLN
3	D	42	ASN
3	D	104	GLN
3	D	135	GLN
3	D	155	GLN
3	D	210	HIS
3	D	221	GLN
3	D	275	GLN
3	D	305	GLN
4	E	82	GLN
4	E	108	GLN
4	E	125	GLN
4	E	138	ASN
4	E	152	ASN
4	E	161	GLN
4	E	170	GLN
4	E	231	HIS
4	E	232	GLN
4	E	233	GLN
4	E	249	HIS
4	E	260	ASN
4	E	272	GLN
4	E	409	GLN
4	E	411	GLN
4	E	426	HIS
4	E	440	GLN
4	E	542	HIS
4	E	556	GLN
4	E	602	GLN
4	E	607	GLN
4	E	611	HIS
4	E	619	GLN
4	E	628	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
4	E	631	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.

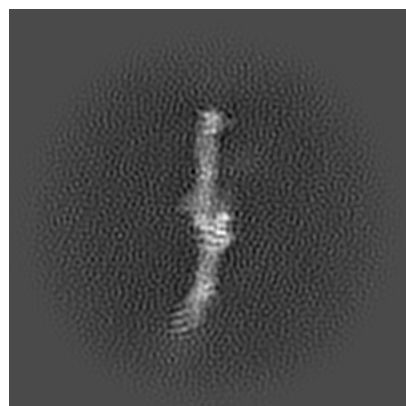
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-15631. These allow visual inspection of the internal detail of the map and identification of artifacts.

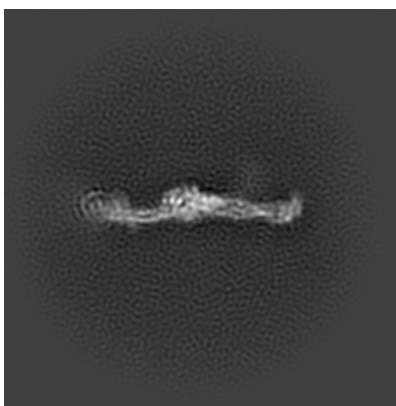
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

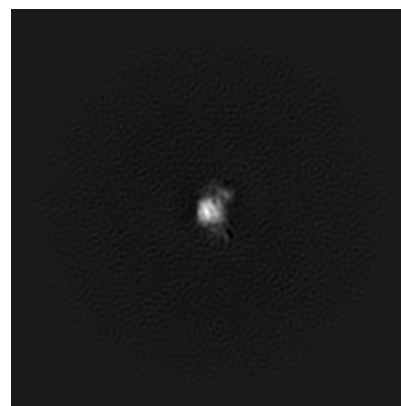
6.1.1 Primary map



X



Y

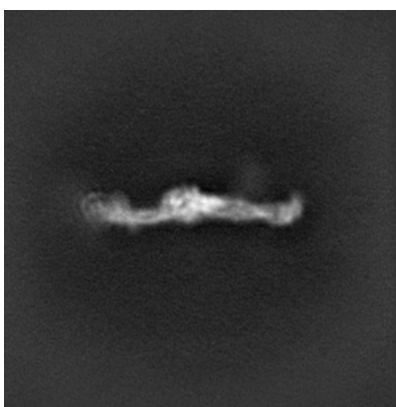


Z

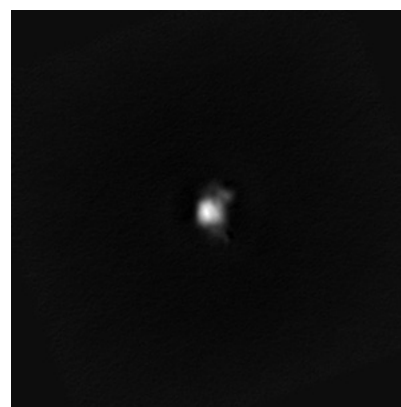
6.1.2 Raw map



X



Y



Z

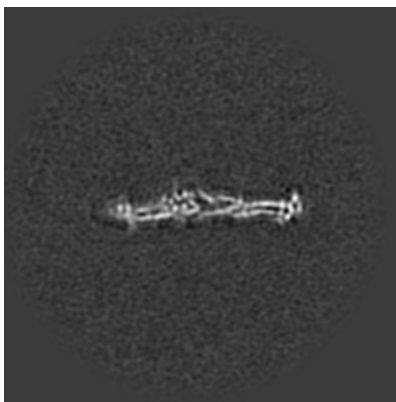
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

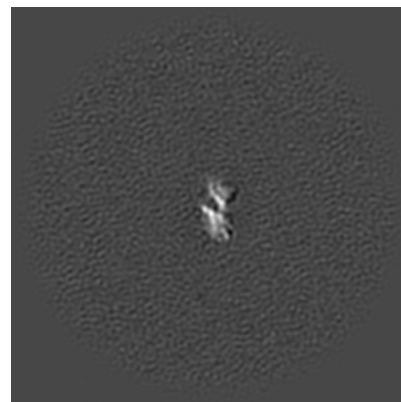
6.2.1 Primary map



X Index: 128



Y Index: 128

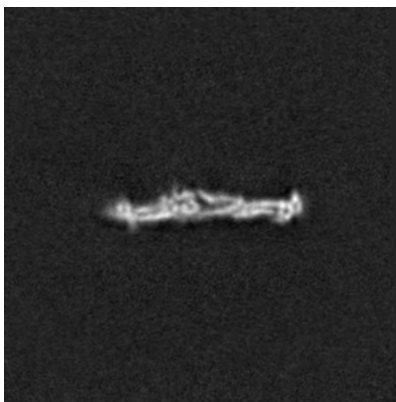


Z Index: 128

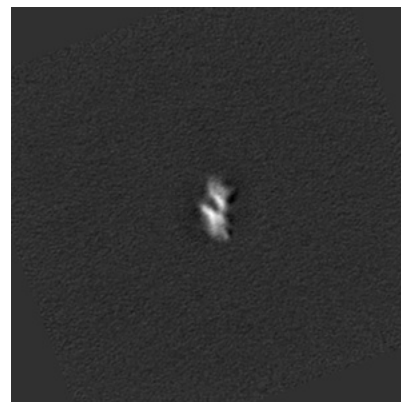
6.2.2 Raw map



X Index: 128



Y Index: 128

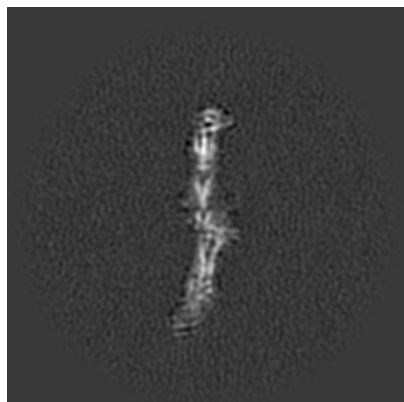


Z Index: 128

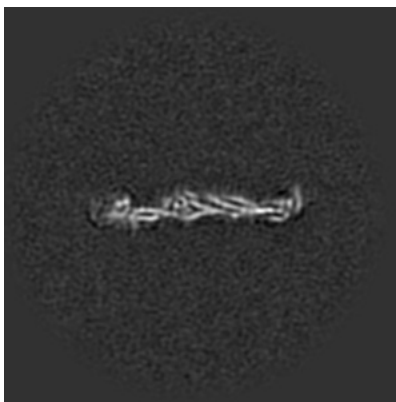
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

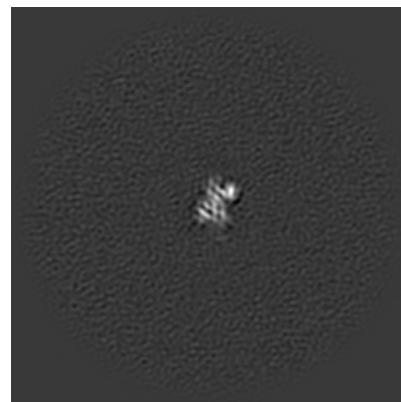
6.3.1 Primary map



X Index: 125



Y Index: 125

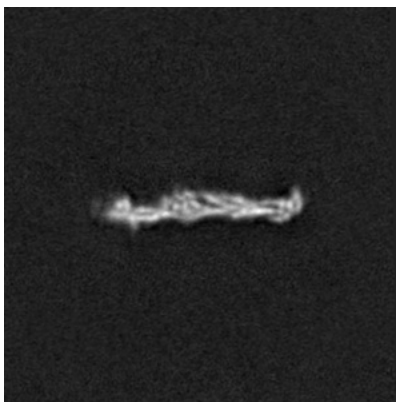


Z Index: 121

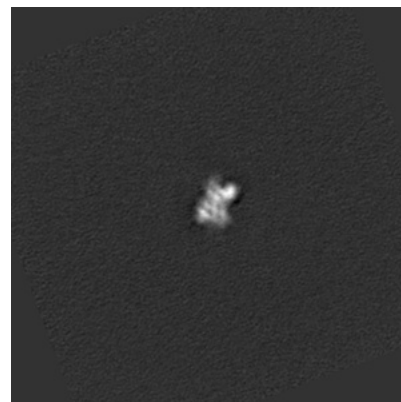
6.3.2 Raw map



X Index: 125



Y Index: 126

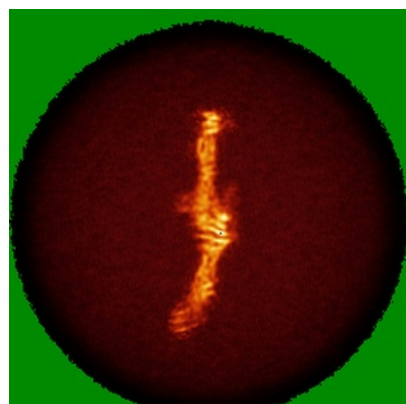


Z Index: 121

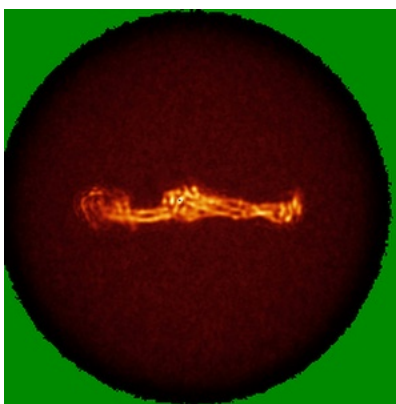
The images above show the largest variance slices of the map in three orthogonal directions.

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

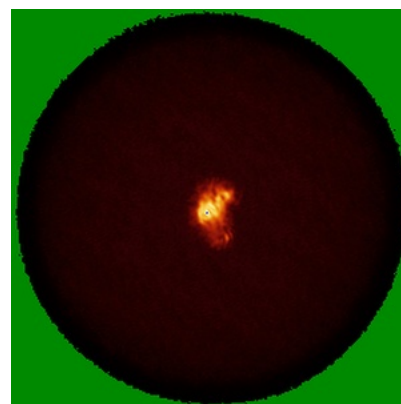
6.4.1 Primary map



X

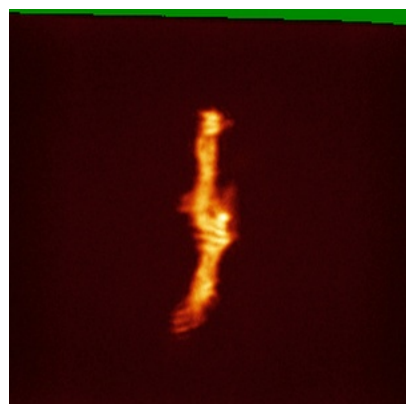


Y



Z

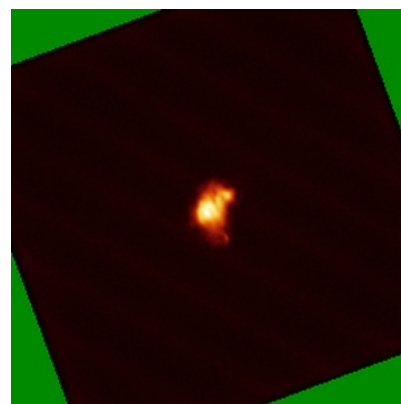
6.4.2 Raw map



X



Y



Z

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

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 1.31. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



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

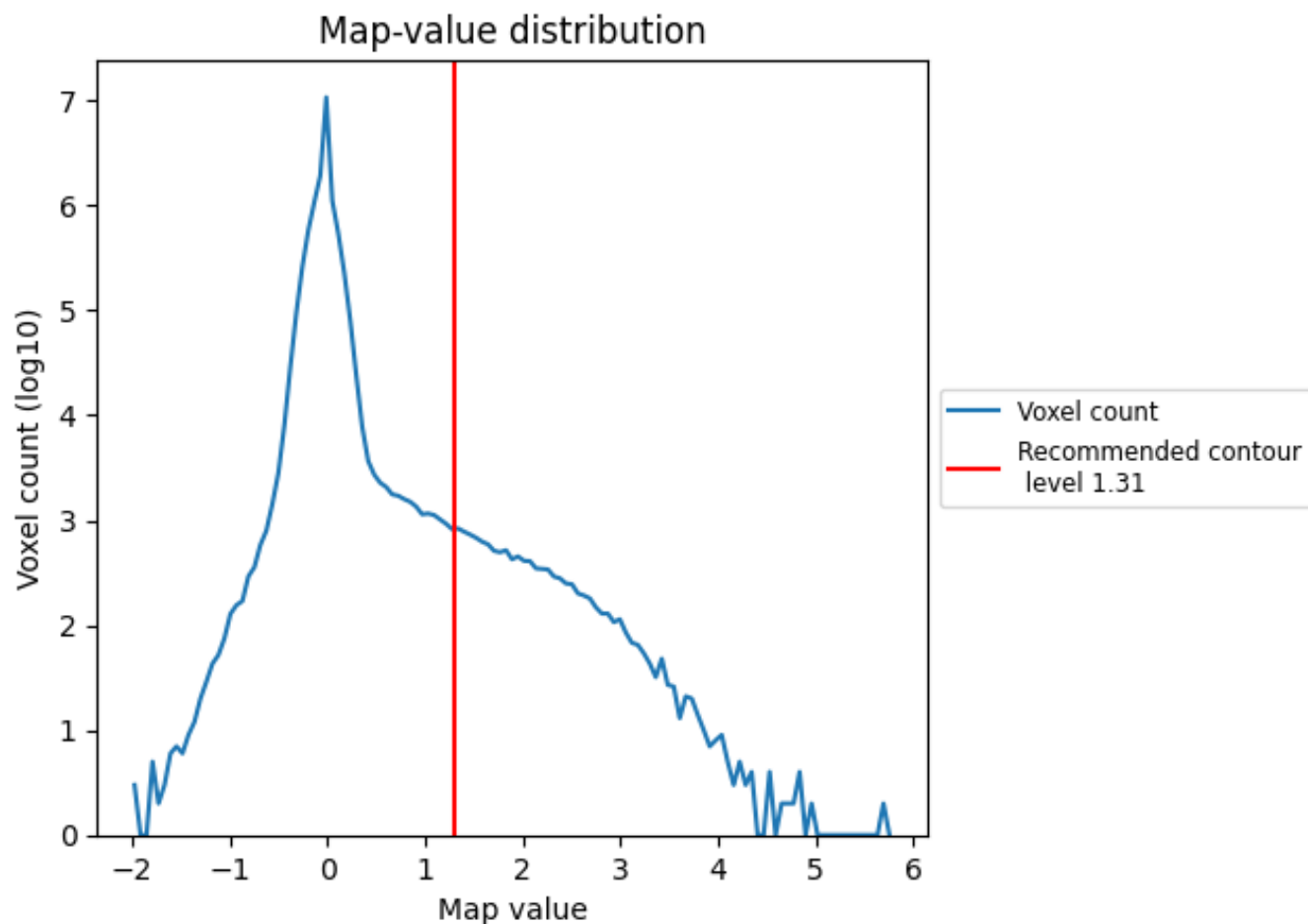
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

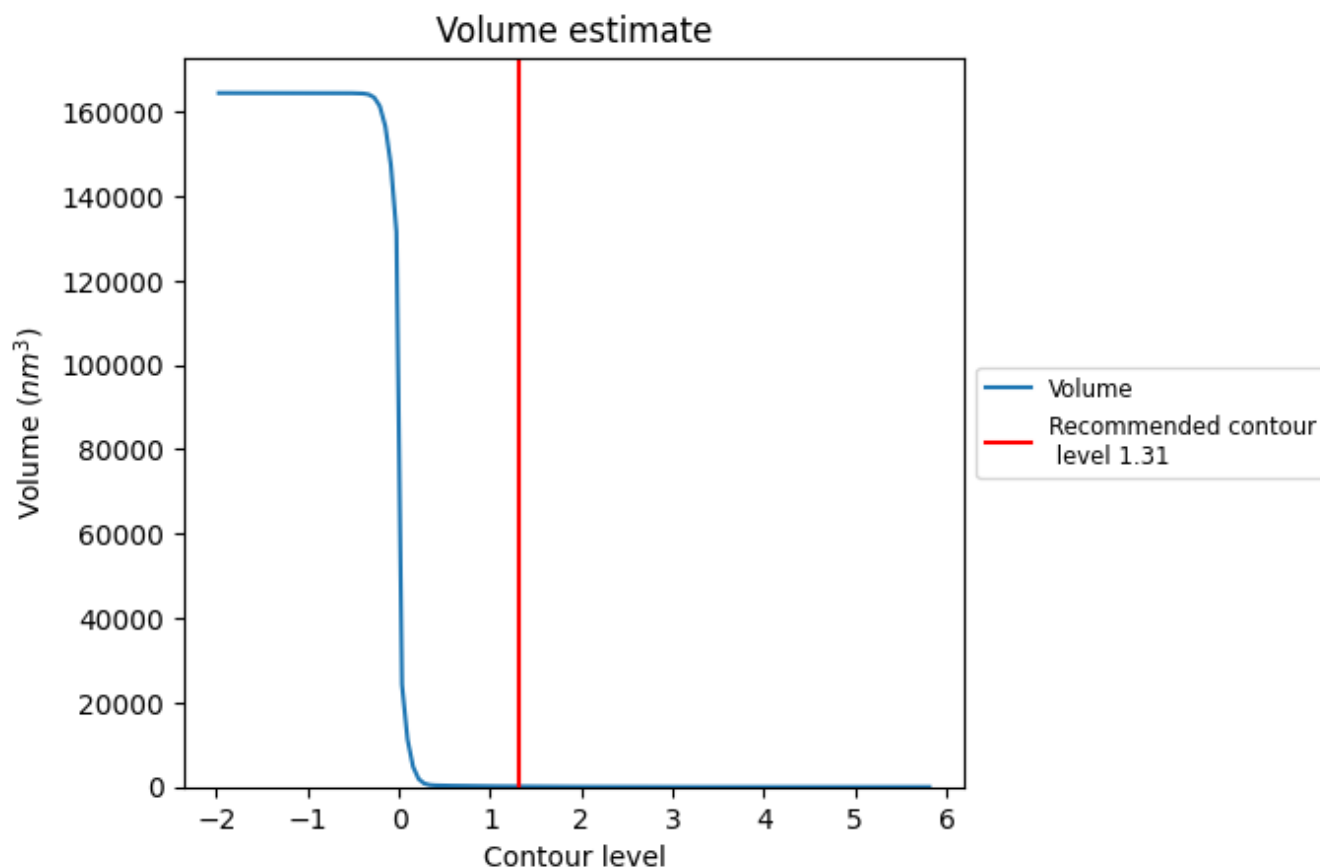
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

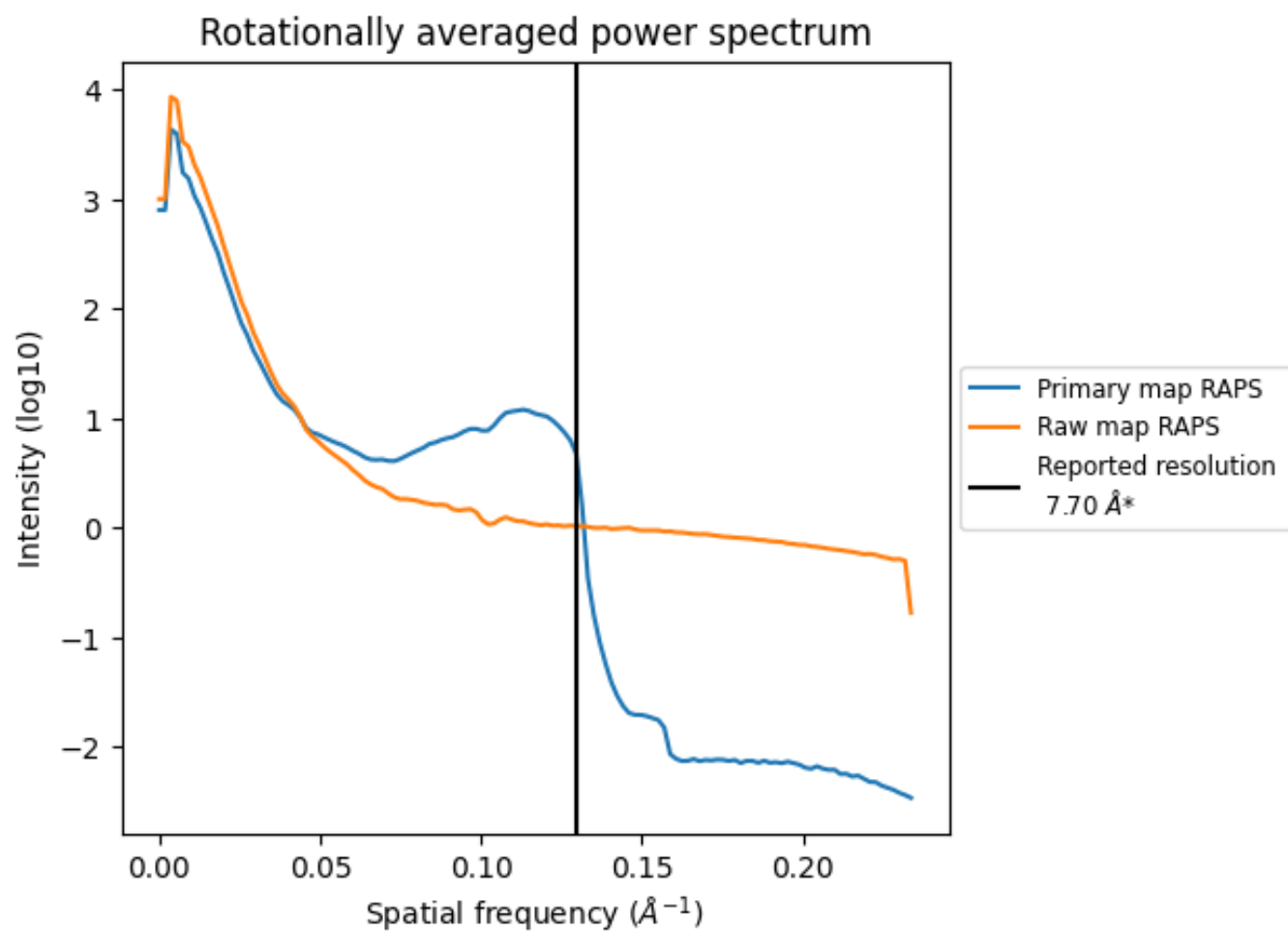
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 115 nm^3 ; this corresponds to an approximate mass of 104 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 ⓘ

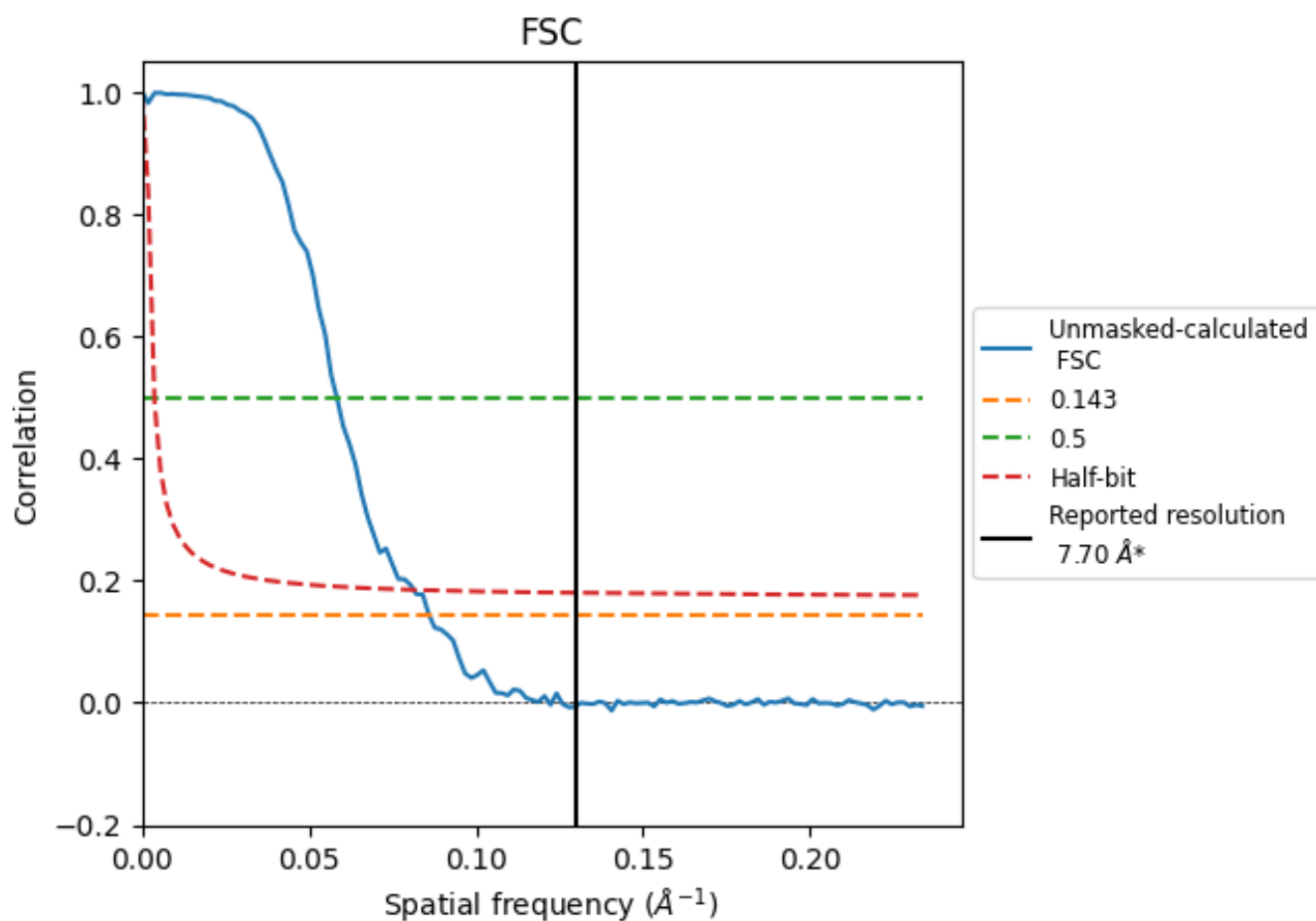


*Reported resolution corresponds to spatial frequency of 0.130 Å⁻¹

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 0.130 Å⁻¹

8.2 Resolution estimates [i](#)

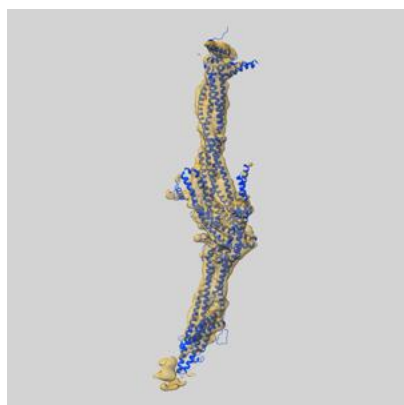
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	7.70	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	11.63	17.15	12.30

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 11.63 differs from the reported value 7.7 by more than 10 %

9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-15631 and PDB model 8AT2. Per-residue inclusion information can be found in section [3](#) on page [4](#).

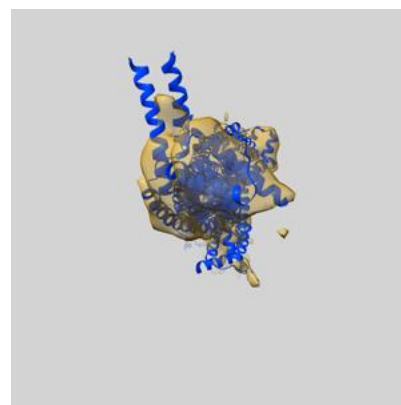
9.1 Map-model overlay [i](#)



X



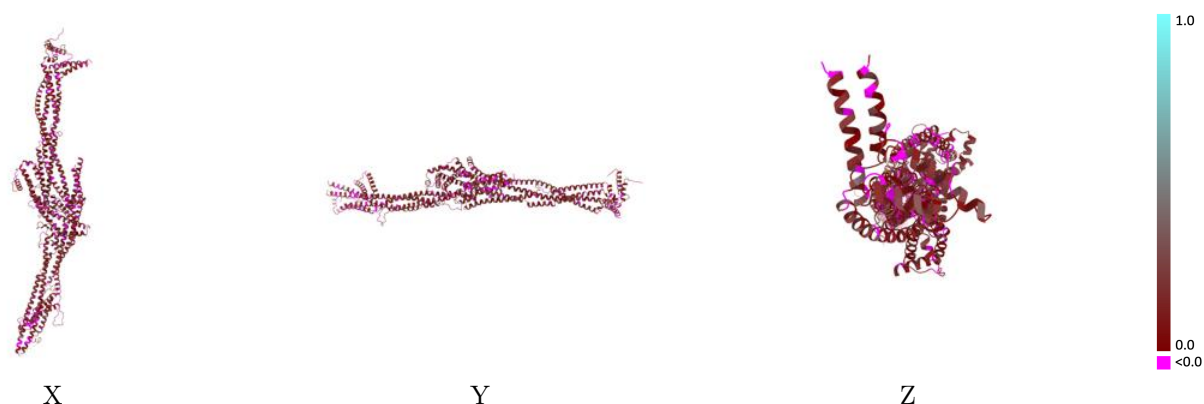
Y



Z

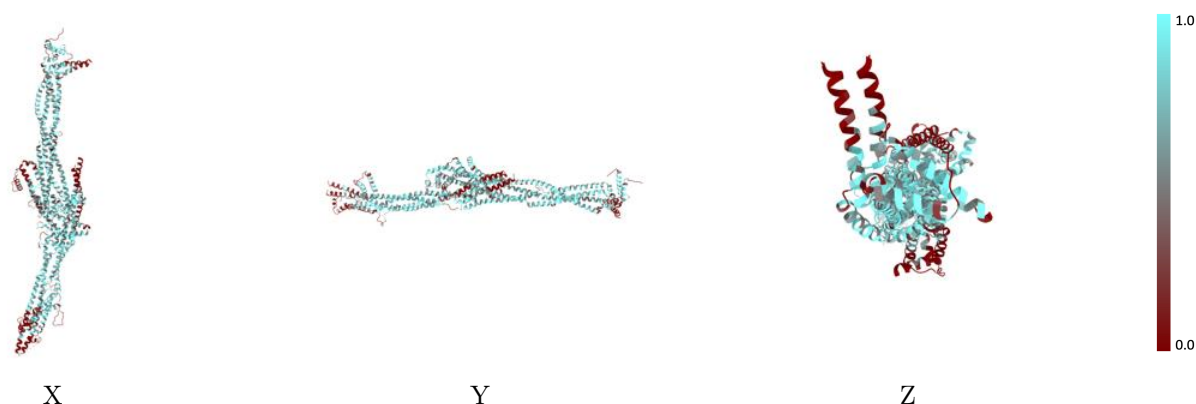
The images above show the 3D surface view of the map at the recommended contour level 1.31 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



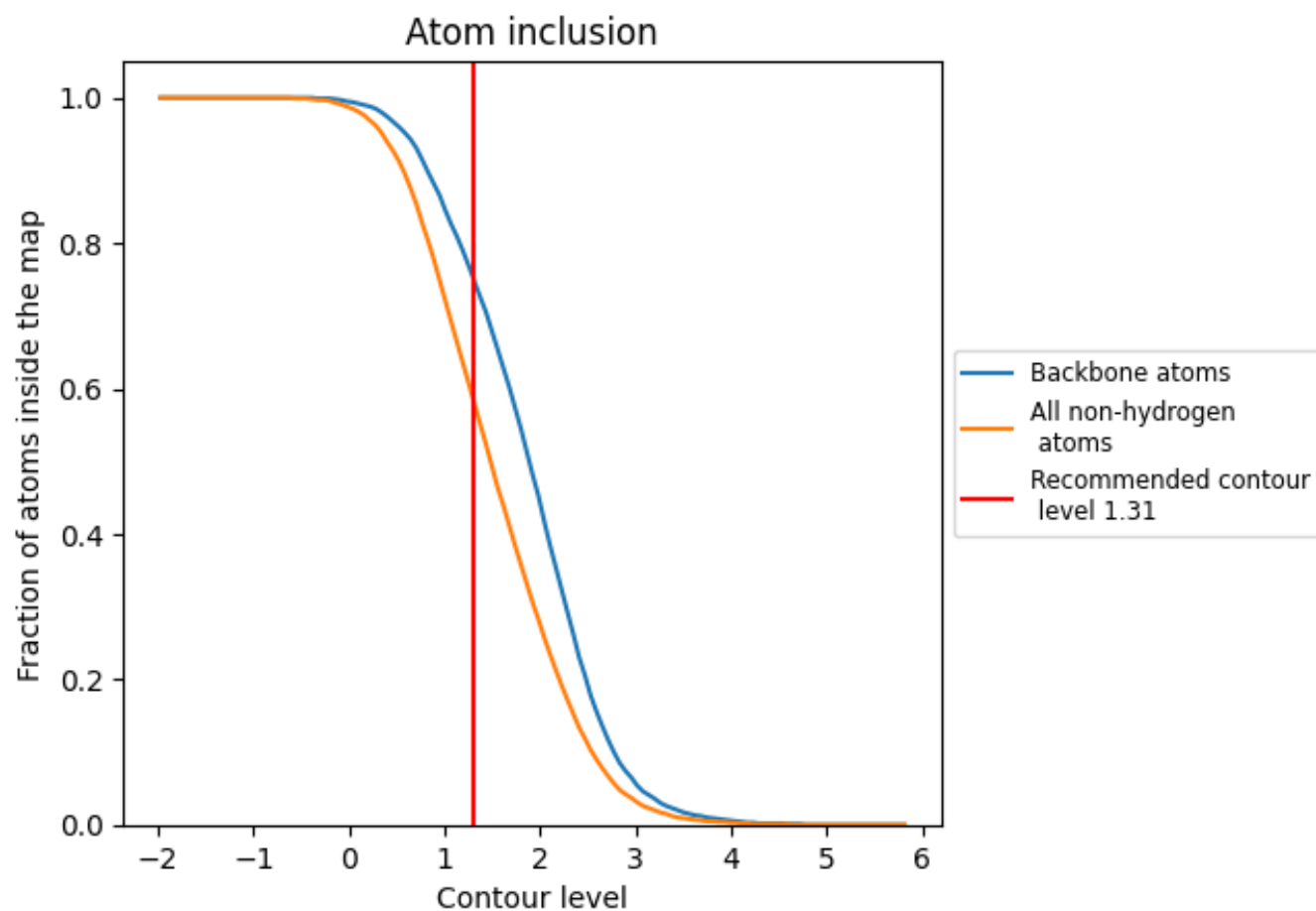
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (1.31).

9.4 Atom inclusion [i](#)



At the recommended contour level, 75% of all backbone atoms, 58% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (1.31) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.5810	0.1240
B	0.5620	0.1310
C	0.5320	0.1070
D	0.6310	0.1320
E	0.5980	0.1300

