



Full wwPDB EM Validation Report ⓘ

May 19, 2024 – 03:20 am BST

PDB ID : 6SUF
EMDB ID : EMD-10313
Title : Structure of Photorhabdus luminescens Tc holotoxin pore
Authors : Roderer, D.; Raunser, S.
Deposited on : 2019-09-13
Resolution : 3.40 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.dev92
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36.2

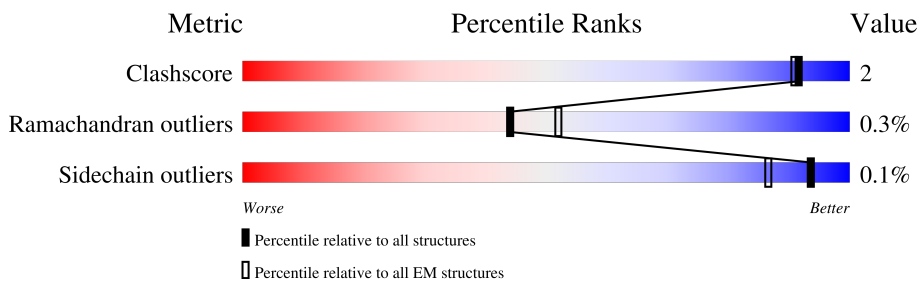
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.40 Å.

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



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

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. 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	2516	
1	B	2516	
1	C	2516	
1	D	2516	
1	E	2516	
2	F	2439	

2 Entry composition [i](#)

There are 2 unique types of molecules in this entry. The entry contains 108112 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 TcdA1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	2292	18197	11530	3083	3525	59	0	0
1	B	2292	18197	11530	3083	3525	59	0	0
1	C	2292	18197	11530	3083	3525	59	0	0
1	D	2292	18197	11530	3083	3525	59	0	0
1	E	2292	18197	11530	3083	3525	59	0	0

There are 5 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	904	GLU	GLN	conflict	UNP Q9RN43
B	904	GLU	GLN	conflict	UNP Q9RN43
C	904	GLU	GLN	conflict	UNP Q9RN43
D	904	GLU	GLN	conflict	UNP Q9RN43
E	904	GLU	GLN	conflict	UNP Q9RN43

- Molecule 2 is a protein called TcdB2,TccC3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	F	2147	17127	10729	3040	3323	35	0	0

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
F	543	GLU	ASP	conflict	UNP Q8GF99
F	1475	PRO	-	linker	UNP Q8GF99
F	1476	GLY	-	linker	UNP Q8GF99
F	1477	SER	-	linker	UNP Q8GF99

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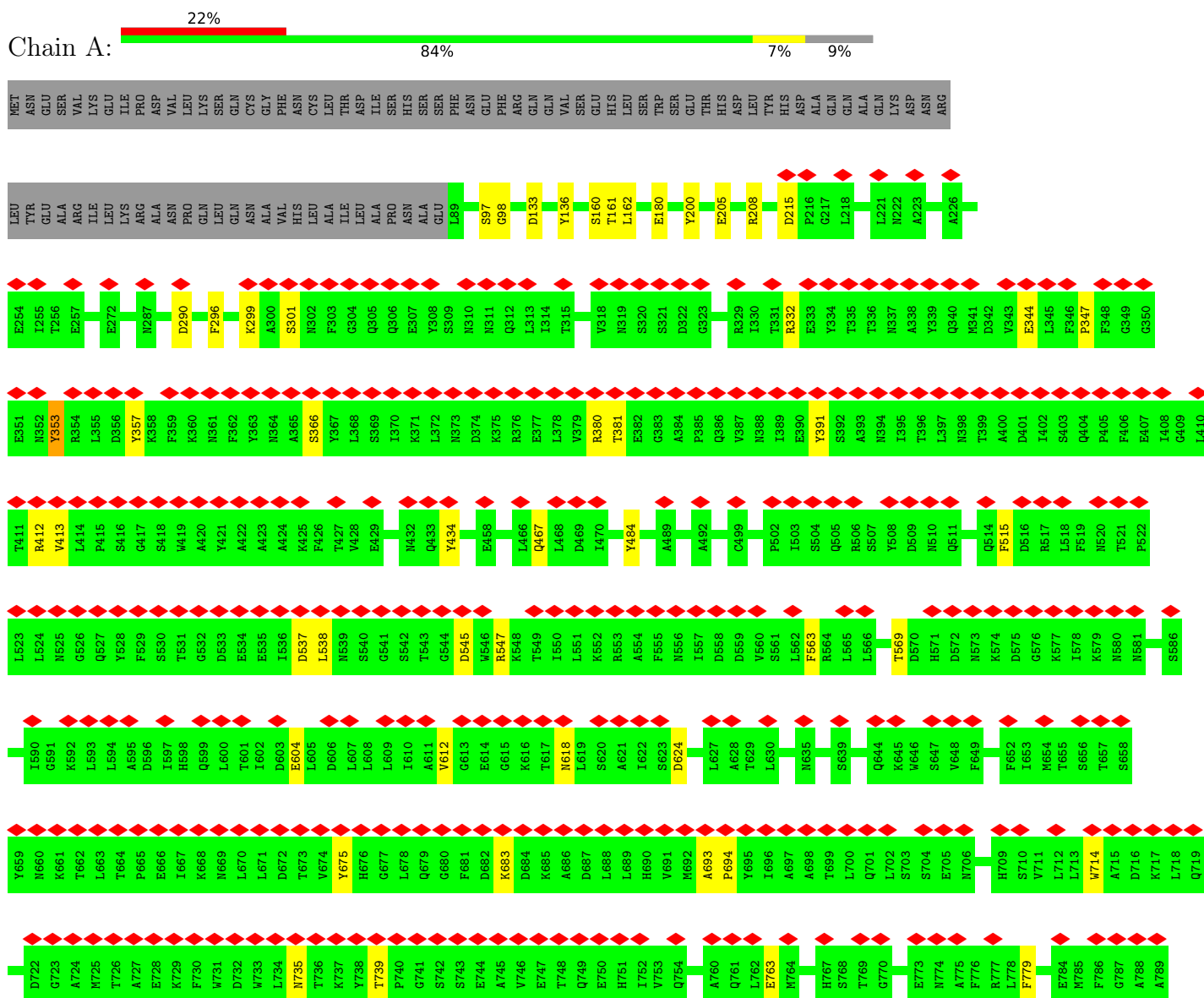
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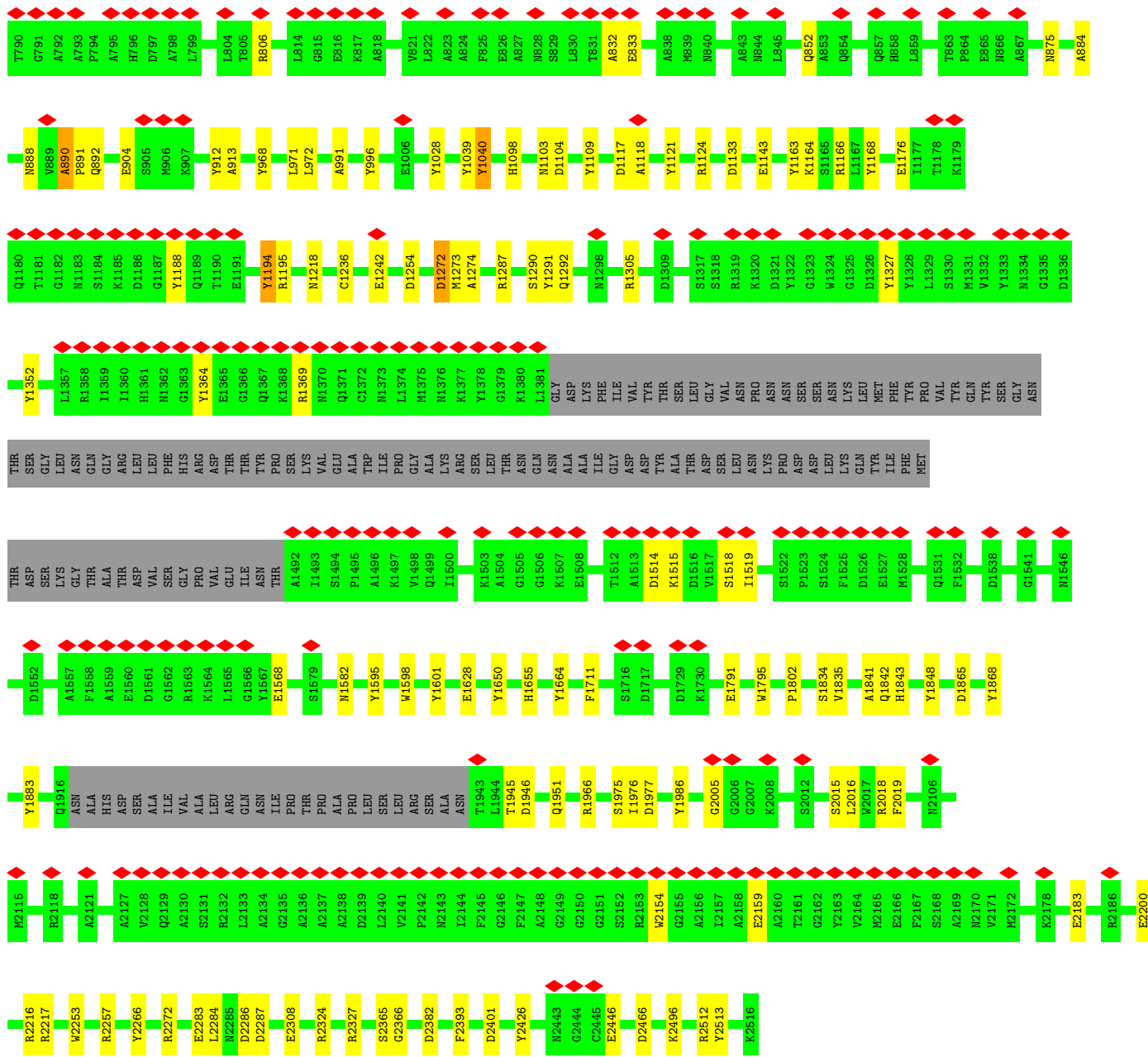
Chain	Residue	Modelled	Actual	Comment	Reference
F	1478	ARG	-	linker	UNP Q8GF99
F	1479	PRO	-	linker	UNP Q8GF99

3 Residue-property plots

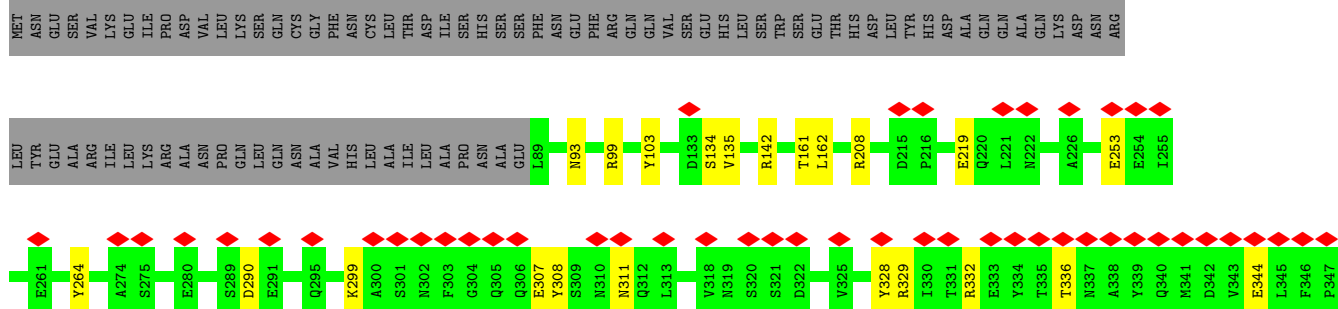
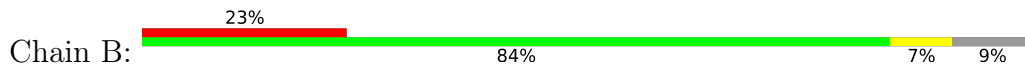
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

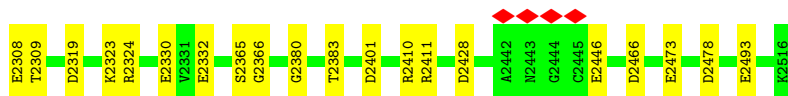
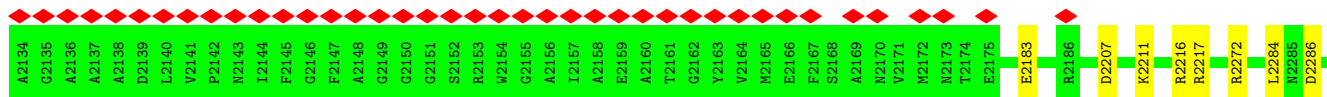
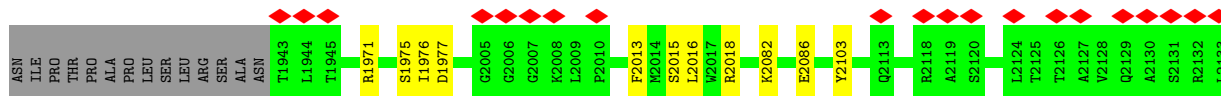
• Molecule 1: TcdA1



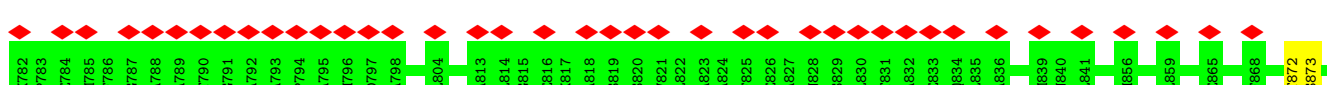
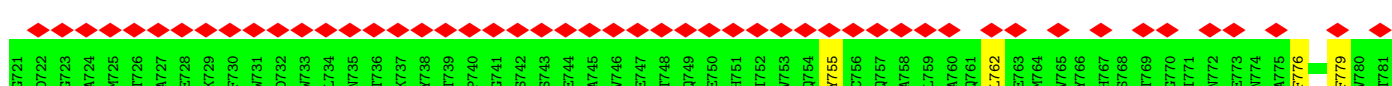
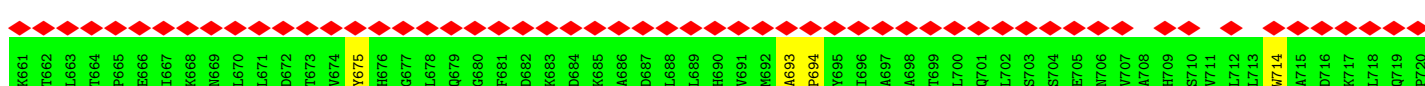
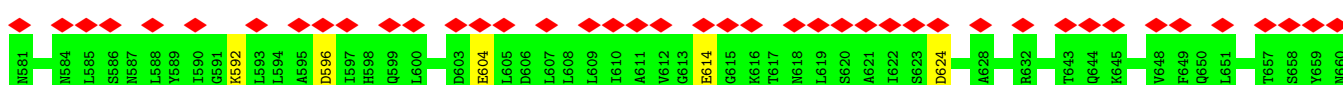
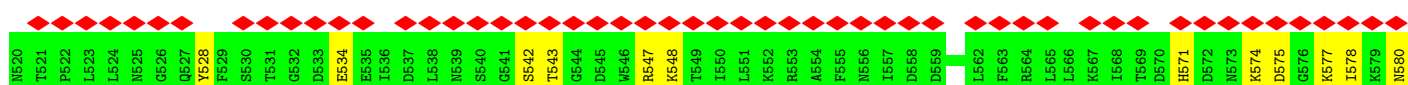
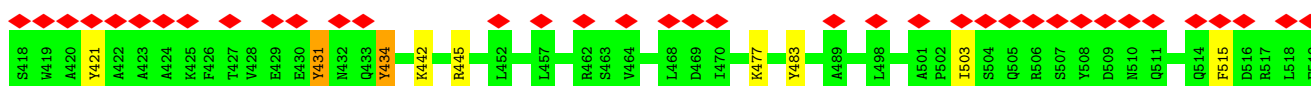
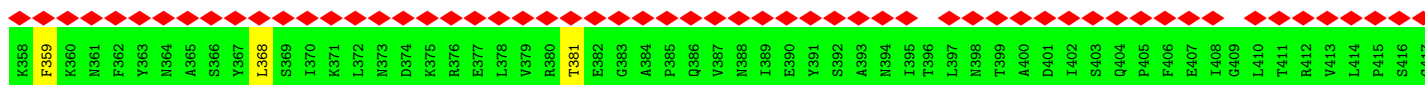
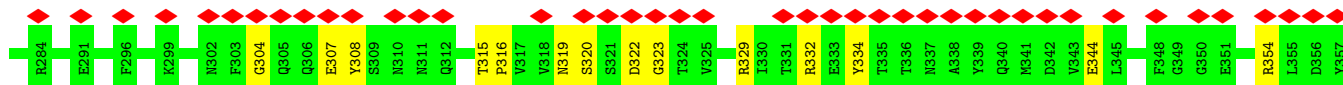
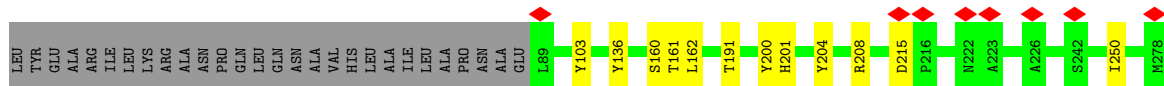
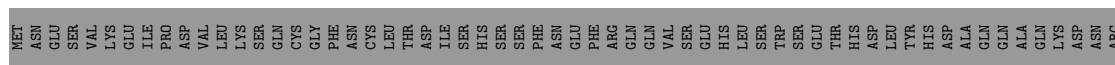
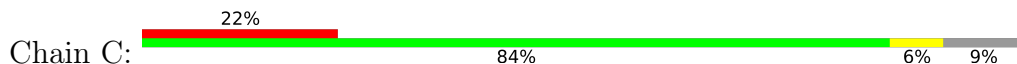


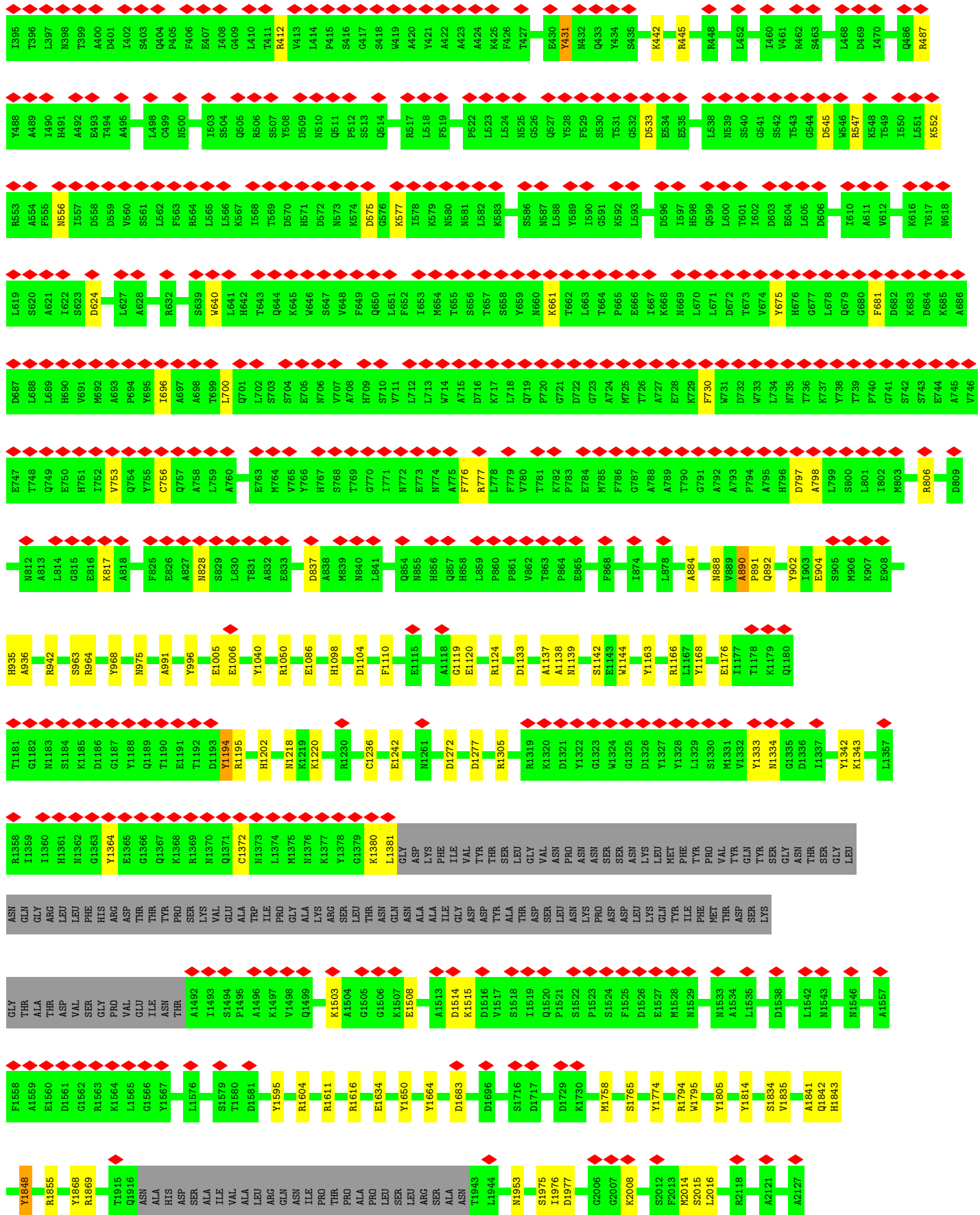
• Molecule 1: TcdA1

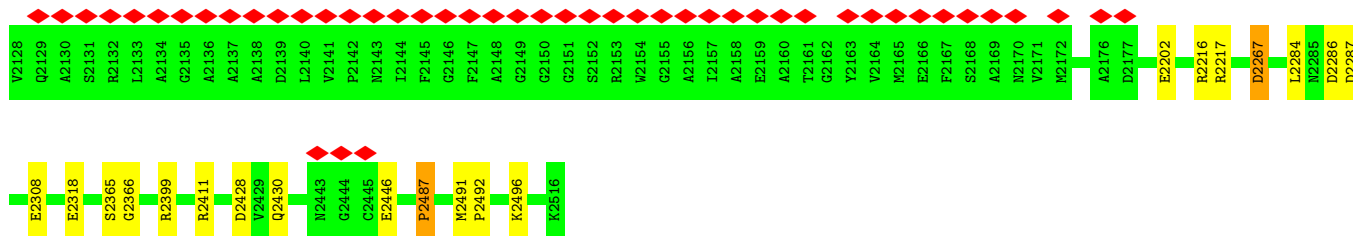




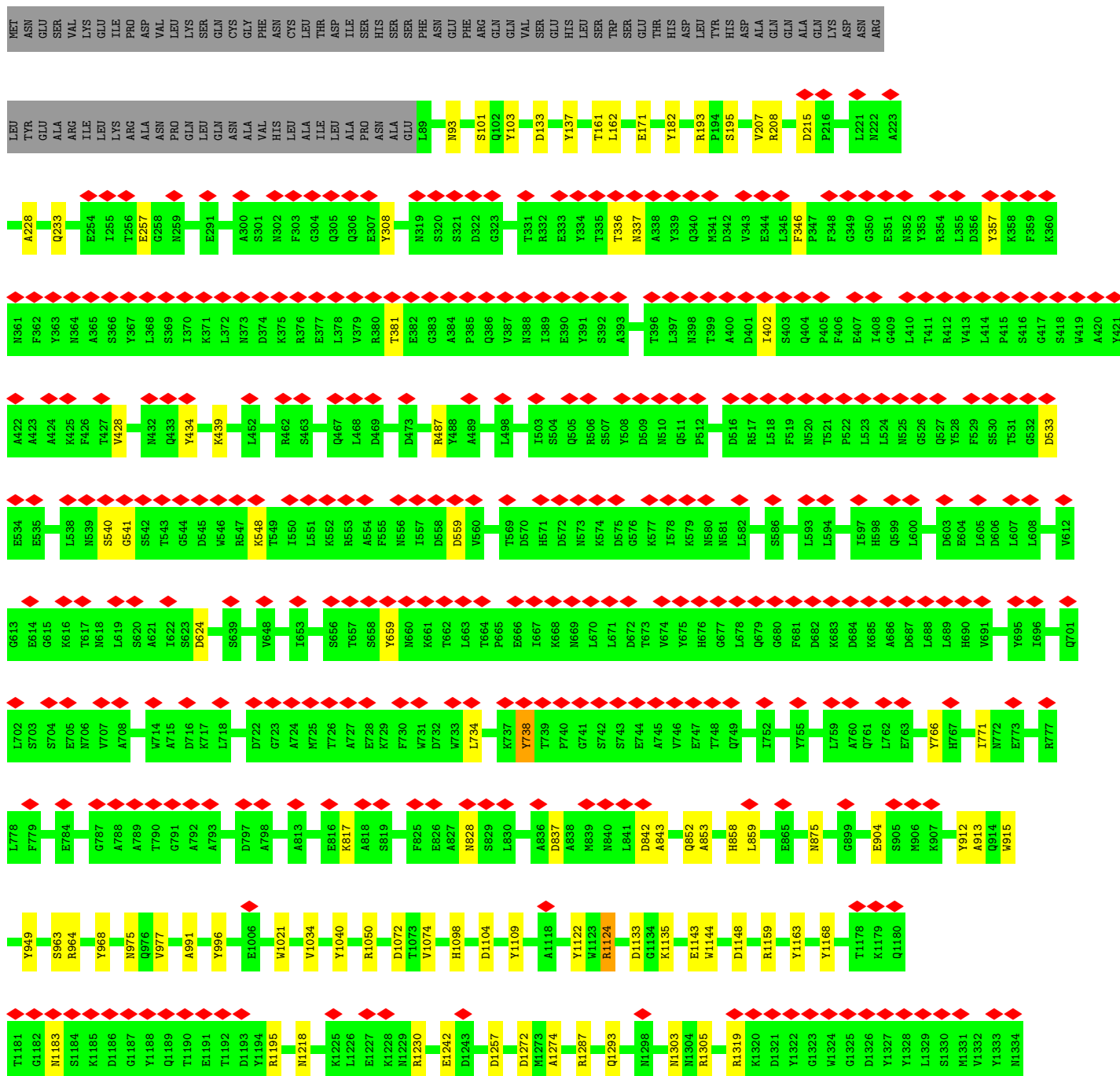
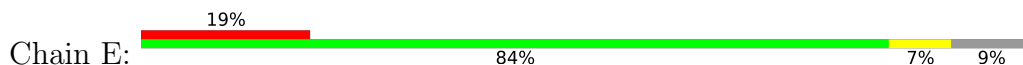
● Molecule 1: TcdA1

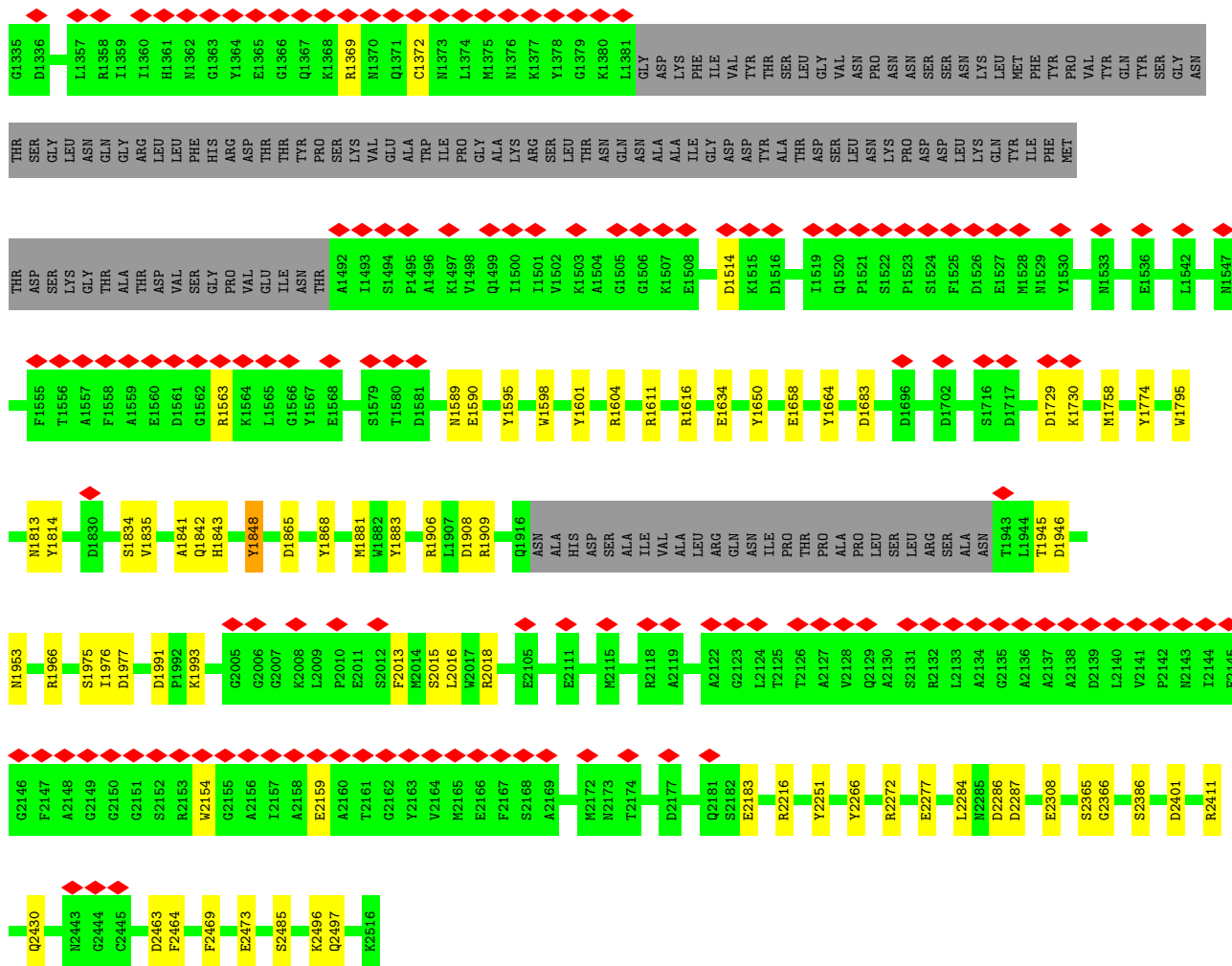




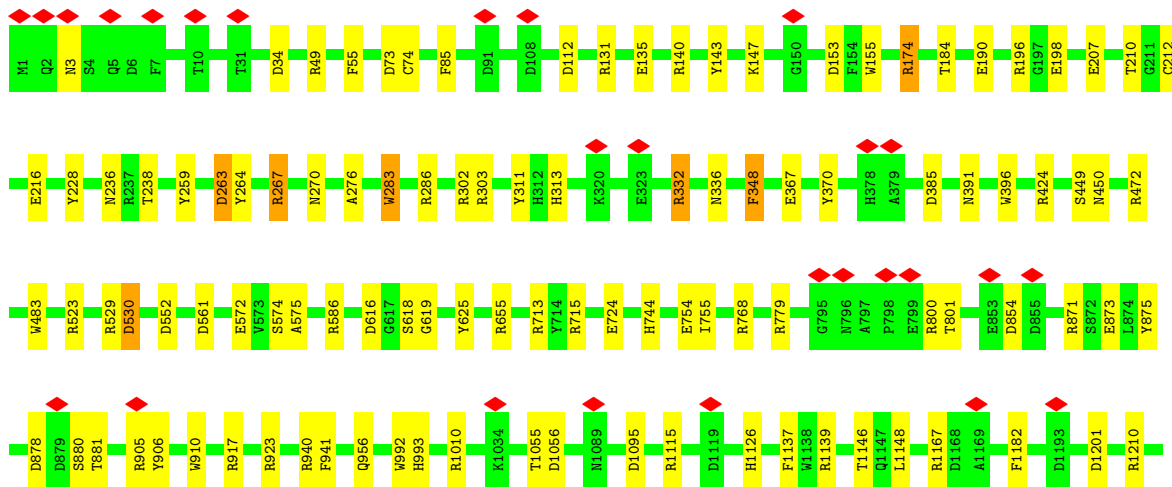
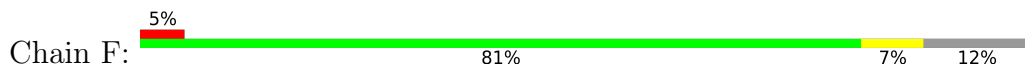


• Molecule 1: TcdA1





• Molecule 2: TcdB2,TccC3



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	64806	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 ($e^-/\text{\AA}^2$)	60	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.113	Depositor
Minimum map value	-0.059	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.003	Depositor
Recommended contour level	0.015	Depositor
Map size (Å)	440.99997, 440.99997, 440.99997	wwPDB
Map dimensions	420, 420, 420	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.05, 1.05, 1.05	Depositor

5 Model quality i

5.1 Standard geometry i

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	1.16	65/18587 (0.3%)	0.94	42/25239 (0.2%)
1	B	1.15	58/18587 (0.3%)	0.95	57/25239 (0.2%)
1	C	1.14	57/18587 (0.3%)	0.96	53/25239 (0.2%)
1	D	1.14	47/18587 (0.3%)	0.94	39/25239 (0.2%)
1	E	1.14	43/18587 (0.2%)	0.94	39/25239 (0.2%)
2	F	1.18	45/17548 (0.3%)	0.99	62/23921 (0.3%)
All	All	1.15	315/110483 (0.3%)	0.95	292/150116 (0.2%)

All (315) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	1372	CYS	CB-SG	-12.62	1.60	1.82
1	A	675	TYR	CB-CG	-10.65	1.35	1.51
1	A	1242	GLU	CG-CD	-10.29	1.36	1.51
1	C	1242	GLU	CG-CD	-9.66	1.37	1.51
1	A	779	PHE	CB-CG	-9.56	1.35	1.51
1	D	1242	GLU	CG-CD	-8.88	1.38	1.51
1	E	1098	HIS	CB-CG	-8.77	1.34	1.50
1	C	1163	TYR	CB-CG	-8.76	1.38	1.51
1	A	675	TYR	CD2-CE2	-8.63	1.26	1.39
1	A	1568	GLU	CG-CD	-8.40	1.39	1.51
1	A	1242	GLU	CD-OE2	-8.28	1.16	1.25
2	F	2119	TYR	CB-CG	-8.20	1.39	1.51
1	B	1242	GLU	CG-CD	-8.19	1.39	1.51
1	C	614	GLU	CD-OE1	-7.97	1.16	1.25
2	F	259	TYR	CB-CG	-7.85	1.39	1.51
1	B	1848	TYR	CB-CG	-7.78	1.40	1.51
1	B	1163	TYR	CB-CG	-7.77	1.40	1.51
1	C	1242	GLU	CD-OE2	-7.63	1.17	1.25
1	B	359	PHE	CB-CG	-7.56	1.38	1.51
1	C	1634	GLU	CD-OE1	-7.53	1.17	1.25
1	D	1098	HIS	CB-CG	-7.49	1.36	1.50
1	B	431	TYR	CB-CG	-7.41	1.40	1.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	1372	CYS	CB-SG	-7.39	1.69	1.82
1	D	1163	TYR	CB-CG	-7.29	1.40	1.51
1	A	344	GLU	CD-OE2	-7.29	1.17	1.25
1	B	1843	HIS	CB-CG	-7.26	1.36	1.50
1	C	1805	TYR	CB-CG	-7.25	1.40	1.51
1	A	1664	TYR	CB-CG	-7.24	1.40	1.51
1	E	1843	HIS	CB-CG	-7.20	1.37	1.50
1	B	1005	GLU	CD-OE1	-7.18	1.17	1.25
1	E	996	TYR	CB-CG	-7.17	1.40	1.51
1	D	681	PHE	CB-CG	-7.16	1.39	1.51
1	C	1143	GLU	CG-CD	-7.13	1.41	1.51
2	F	744	HIS	CB-CG	-7.13	1.37	1.50
1	A	1843	HIS	CB-CG	-7.10	1.37	1.50
1	E	1163	TYR	CB-CG	-7.08	1.41	1.51
1	A	1664	TYR	CD1-CE1	-7.04	1.28	1.39
2	F	1970	GLU	CG-CD	-7.01	1.41	1.51
1	A	968	TYR	CG-CD1	-6.98	1.30	1.39
1	B	996	TYR	CB-CG	-6.93	1.41	1.51
1	B	2330	GLU	CD-OE1	-6.92	1.18	1.25
1	B	1848	TYR	CE2-CZ	-6.91	1.29	1.38
1	B	1848	TYR	CG-CD1	-6.89	1.30	1.39
1	E	346	PHE	CB-CG	-6.82	1.39	1.51
1	D	756	CYS	CB-SG	-6.82	1.70	1.82
1	D	675	TYR	CG-CD1	-6.77	1.30	1.39
1	B	776	PHE	CB-CG	-6.74	1.39	1.51
1	E	1242	GLU	CD-OE2	-6.74	1.18	1.25
1	C	755	TYR	CB-CG	6.70	1.61	1.51
1	D	1843	HIS	CB-CG	-6.70	1.38	1.50
1	C	1658	GLU	CD-OE1	-6.68	1.18	1.25
1	C	675	TYR	CG-CD1	-6.66	1.30	1.39
2	F	198	GLU	CD-OE1	-6.62	1.18	1.25
2	F	174	ARG	CZ-NH2	-6.61	1.24	1.33
1	C	1202	HIS	CB-CG	-6.60	1.38	1.50
1	B	1805	TYR	CB-CG	-6.59	1.41	1.51
2	F	391	ASN	CB-CG	-6.59	1.35	1.51
2	F	367	GLU	CD-OE1	-6.58	1.18	1.25
1	A	1163	TYR	CB-CG	-6.54	1.41	1.51
1	A	763	GLU	CG-CD	-6.49	1.42	1.51
1	B	1124	ARG	CD-NE	-6.49	1.35	1.46
1	C	2272	ARG	CG-CD	-6.47	1.35	1.51
2	F	396	TRP	CB-CG	-6.47	1.38	1.50
1	C	1848	TYR	CB-CG	-6.44	1.42	1.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	1143	GLU	CD-OE2	-6.43	1.18	1.25
1	A	344	GLU	CD-OE1	-6.42	1.18	1.25
1	C	1664	TYR	CB-CG	-6.42	1.42	1.51
1	E	1372	CYS	CB-SG	-6.40	1.71	1.82
1	B	1242	GLU	CD-OE1	-6.39	1.18	1.25
1	D	1218	ASN	CB-CG	-6.32	1.36	1.51
1	C	1848	TYR	CE2-CZ	-6.30	1.30	1.38
1	C	1843	HIS	CB-CG	-6.30	1.38	1.50
1	E	1595	TYR	CB-CG	-6.29	1.42	1.51
1	E	2272	ARG	CG-CD	-6.24	1.36	1.51
2	F	135	GLU	CD-OE1	-6.23	1.18	1.25
1	B	968	TYR	CG-CD1	-6.20	1.31	1.39
1	C	1878	GLU	CG-CD	-6.17	1.42	1.51
1	E	1664	TYR	CB-CG	-6.16	1.42	1.51
2	F	572	GLU	CD-OE1	-6.16	1.18	1.25
2	F	483	TRP	CB-CG	-6.10	1.39	1.50
1	D	1634	GLU	CD-OE1	-6.08	1.19	1.25
1	A	996	TYR	CB-CG	-6.08	1.42	1.51
1	D	1650	TYR	CG-CD1	-6.07	1.31	1.39
1	D	1202	HIS	CB-CG	-6.07	1.39	1.50
1	A	1121	TYR	CB-CG	-6.05	1.42	1.51
1	B	652	PHE	CB-CG	-6.05	1.41	1.51
1	B	954	VAL	CB-CG2	-6.05	1.40	1.52
2	F	228	TYR	CB-CG	-6.04	1.42	1.51
1	B	763	GLU	CD-OE1	-6.02	1.19	1.25
1	E	949	TYR	CG-CD1	-6.00	1.31	1.39
1	C	996	TYR	CB-CG	-6.00	1.42	1.51
1	A	1236	CYS	CB-SG	-5.98	1.72	1.81
1	C	1568	GLU	CG-CD	-5.98	1.43	1.51
1	A	763	GLU	CD-OE2	-5.97	1.19	1.25
1	B	1218	ASN	CB-CG	-5.97	1.37	1.51
2	F	1836	TYR	CB-CG	-5.96	1.42	1.51
1	E	738	TYR	CB-CG	-5.94	1.42	1.51
1	D	1595	TYR	CB-CG	-5.93	1.42	1.51
1	E	1848	TYR	CE2-CZ	-5.91	1.30	1.38
1	C	996	TYR	CG-CD1	-5.90	1.31	1.39
1	E	968	TYR	CG-CD1	-5.90	1.31	1.39
1	D	1805	TYR	CB-CG	-5.90	1.42	1.51
1	E	1021	TRP	CB-CG	-5.89	1.39	1.50
1	C	534	GLU	CD-OE2	-5.88	1.19	1.25
1	C	1124	ARG	CD-NE	-5.88	1.36	1.46
1	E	1143	GLU	CG-CD	-5.87	1.43	1.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	614	GLU	CG-CD	-5.87	1.43	1.51
2	F	941	PHE	CB-CG	-5.87	1.41	1.51
1	E	875	ASN	CB-CG	-5.86	1.37	1.51
1	C	1658	GLU	CD-OE2	-5.85	1.19	1.25
1	E	977	VAL	CB-CG1	-5.83	1.40	1.52
2	F	198	GLU	CG-CD	-5.83	1.43	1.51
1	E	2013	PHE	CB-CG	-5.82	1.41	1.51
1	A	434	TYR	CB-CG	-5.81	1.43	1.51
1	C	2308	GLU	CD-OE1	-5.81	1.19	1.25
1	C	431	TYR	CB-CG	-5.78	1.43	1.51
1	A	2272	ARG	CG-CD	-5.78	1.37	1.51
1	C	604	GLU	CG-CD	-5.77	1.43	1.51
1	D	1664	TYR	CB-CG	-5.76	1.43	1.51
1	D	996	TYR	CG-CD1	-5.76	1.31	1.39
1	A	1143	GLU	CG-CD	-5.74	1.43	1.51
1	D	1650	TYR	CD1-CE1	-5.74	1.30	1.39
1	B	530	SER	CB-OG	-5.74	1.34	1.42
1	E	1218	ASN	CB-CG	-5.74	1.37	1.51
1	C	2103	TYR	CB-CG	-5.73	1.43	1.51
1	D	1848	TYR	CE2-CZ	-5.72	1.31	1.38
2	F	283	TRP	CZ3-CH2	-5.72	1.30	1.40
2	F	992	TRP	CE2-CZ2	-5.71	1.30	1.39
1	A	2183	GLU	CD-OE1	-5.71	1.19	1.25
1	A	2308	GLU	CD-OE1	-5.70	1.19	1.25
1	D	1242	GLU	CD-OE2	-5.70	1.19	1.25
1	A	290	ASP	CB-CG	-5.68	1.39	1.51
1	A	515	PHE	CB-CG	-5.66	1.41	1.51
2	F	993	HIS	CB-CG	-5.66	1.39	1.50
1	A	904	GLU	CD-OE2	-5.65	1.19	1.25
1	A	1598	TRP	CB-CG	-5.65	1.40	1.50
1	E	2159	GLU	CD-OE1	-5.62	1.19	1.25
1	B	1664	TYR	CB-CG	-5.62	1.43	1.51
1	A	1595	TYR	CB-CG	-5.61	1.43	1.51
1	E	1242	GLU	CD-OE1	-5.61	1.19	1.25
1	D	1005	GLU	CG-CD	-5.60	1.43	1.51
2	F	1738	TRP	CB-CG	-5.59	1.40	1.50
1	C	1124	ARG	CB-CG	-5.58	1.37	1.52
1	C	1601	TYR	CB-CG	-5.58	1.43	1.51
1	A	1795	TRP	CB-CG	-5.55	1.40	1.50
1	B	1143	GLU	CD-OE1	-5.55	1.19	1.25
1	C	1765	SER	CA-CB	-5.55	1.44	1.52
1	D	2308	GLU	CD-OE1	-5.55	1.19	1.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	2473	GLU	CG-CD	-5.54	1.43	1.51
1	C	1800	TRP	NE1-CE2	-5.54	1.30	1.37
1	B	328	TYR	CB-CG	-5.54	1.43	1.51
1	A	1568	GLU	CD-OE2	-5.54	1.19	1.25
1	C	1628	GLU	CD-OE2	-5.53	1.19	1.25
1	A	1242	GLU	CD-OE1	-5.52	1.19	1.25
1	A	675	TYR	CG-CD2	-5.51	1.31	1.39
1	D	1163	TYR	CE2-CZ	-5.51	1.31	1.38
1	A	1848	TYR	CB-CG	-5.51	1.43	1.51
1	A	1163	TYR	CG-CD1	-5.50	1.31	1.39
1	D	730	PHE	CB-CG	-5.50	1.42	1.51
2	F	207	GLU	CD-OE1	-5.49	1.19	1.25
1	D	1795	TRP	CB-CG	-5.49	1.40	1.50
1	C	1868	TYR	CB-CG	-5.49	1.43	1.51
1	C	968	TYR	CG-CD1	-5.49	1.32	1.39
1	A	904	GLU	CG-CD	-5.48	1.43	1.51
1	E	1634	GLU	CD-OE2	-5.48	1.19	1.25
1	B	1196	TYR	CB-CG	-5.48	1.43	1.51
1	A	1039	TYR	CG-CD2	-5.47	1.32	1.39
2	F	875	TYR	CB-CG	-5.47	1.43	1.51
1	A	996	TYR	CG-CD1	-5.47	1.32	1.39
1	C	779	PHE	CB-CG	-5.46	1.42	1.51
1	E	1122	TYR	CB-CG	-5.45	1.43	1.51
1	C	307	GLU	CD-OE2	-5.45	1.19	1.25
1	B	1848	TYR	CD1-CE1	-5.45	1.31	1.39
1	B	2272	ARG	CG-CD	-5.44	1.38	1.51
1	D	431	TYR	CB-CG	-5.44	1.43	1.51
1	A	604	GLU	CD-OE1	-5.43	1.19	1.25
1	C	1595	TYR	CB-CG	-5.43	1.43	1.51
2	F	348	PHE	CB-CG	-5.43	1.42	1.51
2	F	1455	TRP	CB-CG	-5.42	1.40	1.50
1	C	103	TYR	CB-CG	-5.42	1.43	1.51
1	E	996	TYR	CG-CD1	-5.42	1.32	1.39
1	D	1236	CYS	CB-SG	-5.41	1.73	1.81
2	F	212	CYS	CB-SG	-5.40	1.73	1.81
1	A	763	GLU	CD-OE1	-5.40	1.19	1.25
1	D	1005	GLU	CD-OE1	-5.39	1.19	1.25
1	B	1570	PHE	CB-CG	-5.39	1.42	1.51
1	B	359	PHE	CD1-CE1	-5.38	1.28	1.39
1	C	2019	PHE	CB-CG	-5.36	1.42	1.51
2	F	1970	GLU	CD-OE2	-5.36	1.19	1.25
1	B	344	GLU	CD-OE1	-5.35	1.19	1.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	1110	PHE	CB-CG	-5.35	1.42	1.51
1	B	307	GLU	CD-OE2	-5.34	1.19	1.25
1	D	103	TYR	CB-CG	-5.34	1.43	1.51
2	F	370	TYR	CD1-CE1	-5.34	1.31	1.39
2	F	1840	TYR	CB-CG	-5.34	1.43	1.51
2	F	724	GLU	CD-OE2	-5.33	1.19	1.25
1	D	753	VAL	CB-CG2	-5.33	1.41	1.52
1	B	2332	GLU	CD-OE1	-5.33	1.19	1.25
1	E	1074	VAL	CB-CG2	-5.33	1.41	1.52
1	A	353	TYR	CB-CG	-5.33	1.43	1.51
1	A	1628	GLU	CD-OE2	-5.32	1.19	1.25
1	B	1163	TYR	CD1-CE1	-5.32	1.31	1.39
1	A	714	TRP	CD2-CE2	-5.31	1.34	1.41
2	F	992	TRP	NE1-CE2	-5.31	1.30	1.37
1	E	1143	GLU	CD-OE2	-5.30	1.19	1.25
2	F	910	TRP	CB-CG	-5.30	1.40	1.50
1	B	103	TYR	CB-CG	-5.30	1.43	1.51
1	E	1124	ARG	CD-NE	-5.29	1.37	1.46
1	B	2183	GLU	CD-OE1	-5.29	1.19	1.25
2	F	155	TRP	CB-CG	-5.29	1.40	1.50
1	B	1628	GLU	CD-OE2	-5.29	1.19	1.25
1	D	1242	GLU	CD-OE1	-5.28	1.19	1.25
2	F	1555	PHE	CB-CG	-5.28	1.42	1.51
1	D	904	GLU	CD-OE1	-5.28	1.19	1.25
1	D	996	TYR	CB-CG	-5.27	1.43	1.51
1	A	875	ASN	CB-CG	-5.27	1.39	1.51
1	A	1352	TYR	CB-CG	-5.27	1.43	1.51
1	E	2308	GLU	CD-OE1	-5.27	1.19	1.25
1	C	1143	GLU	CB-CG	-5.25	1.42	1.52
2	F	1836	TYR	CD2-CE2	-5.25	1.31	1.39
1	B	1122	TYR	CB-CG	-5.25	1.43	1.51
1	A	2019	PHE	CB-CG	-5.24	1.42	1.51
1	D	1848	TYR	CG-CD1	-5.24	1.32	1.39
1	B	1306	TYR	CG-CD2	-5.23	1.32	1.39
1	C	1660	TRP	CD2-CE2	-5.23	1.35	1.41
1	C	1333	TYR	CG-CD1	-5.23	1.32	1.39
1	B	2013	PHE	CB-CG	-5.23	1.42	1.51
1	C	2272	ARG	CD-NE	-5.23	1.37	1.46
1	D	205	GLU	CD-OE2	-5.22	1.20	1.25
1	B	528	TYR	CB-CG	-5.22	1.43	1.51
1	D	2318	GLU	CD-OE2	-5.22	1.20	1.25
2	F	1567	CYS	CB-SG	-5.22	1.73	1.81

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	F	1638	GLU	CD-OE1	-5.22	1.20	1.25
1	A	612	VAL	CB-CG2	-5.21	1.41	1.52
1	A	1868	TYR	CG-CD1	-5.21	1.32	1.39
1	C	1954	GLU	CD-OE2	-5.21	1.20	1.25
1	A	1163	TYR	CE2-CZ	-5.21	1.31	1.38
1	A	1218	ASN	CB-CG	-5.21	1.39	1.51
2	F	873	GLU	CD-OE1	-5.21	1.20	1.25
1	A	1109	TYR	CD1-CE1	-5.20	1.31	1.39
1	B	1765	SER	CA-CB	-5.19	1.45	1.52
1	E	1658	GLU	CD-OE1	-5.19	1.20	1.25
1	A	1848	TYR	CE2-CZ	-5.17	1.31	1.38
1	E	103	TYR	CB-CG	-5.17	1.43	1.51
2	F	311	TYR	CB-CG	-5.17	1.43	1.51
1	C	1848	TYR	CG-CD1	-5.17	1.32	1.39
1	D	1372	CYS	CB-SG	-5.16	1.73	1.81
1	B	2308	GLU	CD-OE1	-5.16	1.20	1.25
1	E	2277	GLU	CB-CG	-5.15	1.42	1.52
1	A	1098	HIS	CB-CG	-5.15	1.40	1.50
1	C	2446	GLU	CD-OE2	-5.15	1.20	1.25
1	E	915	TRP	CB-CG	-5.15	1.41	1.50
1	B	1598	TRP	CB-CG	-5.14	1.41	1.50
1	A	2393	PHE	CB-CG	-5.14	1.42	1.51
1	E	1034	VAL	CB-CG2	-5.14	1.42	1.52
1	B	1039	TYR	CG-CD2	-5.14	1.32	1.39
1	D	1634	GLU	CD-OE2	-5.13	1.20	1.25
1	A	2253	TRP	CZ3-CH2	-5.12	1.31	1.40
1	C	1805	TYR	CD1-CE1	-5.12	1.31	1.39
2	F	1182	PHE	CB-CG	-5.12	1.42	1.51
1	A	205	GLU	CD-OE2	-5.12	1.20	1.25
1	C	1078	PHE	CB-CG	-5.12	1.42	1.51
1	E	2183	GLU	CD-OE1	-5.12	1.20	1.25
1	E	1881	MET	CG-SD	-5.12	1.67	1.81
1	B	264	TYR	CB-CG	-5.11	1.44	1.51
1	B	1163	TYR	CG-CD1	-5.11	1.32	1.39
2	F	190	GLU	CG-CD	-5.11	1.44	1.51
1	C	344	GLU	CD-OE2	-5.11	1.20	1.25
1	D	776	PHE	CG-CD2	-5.11	1.31	1.38
1	B	219	GLU	CD-OE2	-5.10	1.20	1.25
1	C	1163	TYR	CD1-CE1	-5.10	1.31	1.39
1	A	2159	GLU	CD-OE2	-5.10	1.20	1.25
1	E	1598	TRP	CB-CG	-5.09	1.41	1.50
1	B	1086	GLU	CD-OE1	-5.09	1.20	1.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	180	GLU	CD-OE2	-5.09	1.20	1.25
1	A	2283	GLU	CG-CD	-5.09	1.44	1.51
1	C	1115	GLU	CD-OE2	-5.09	1.20	1.25
1	B	2446	GLU	CD-OE1	-5.09	1.20	1.25
1	D	137	TYR	CB-CG	-5.08	1.44	1.51
1	B	1568	GLU	CG-CD	-5.08	1.44	1.51
1	D	1765	SER	CA-CB	-5.07	1.45	1.52
1	E	904	GLU	CD-OE1	-5.07	1.20	1.25
2	F	1636	GLU	CD-OE2	-5.07	1.20	1.25
2	F	779	ARG	CZ-NH1	-5.07	1.26	1.33
1	D	640	TRP	CB-CG	-5.06	1.41	1.50
1	E	2251	TYR	CB-CG	-5.06	1.44	1.51
1	A	2426	TYR	CB-CG	-5.05	1.44	1.51
1	B	1527	GLU	CD-OE2	-5.05	1.20	1.25
1	C	1650	TYR	CG-CD1	-5.05	1.32	1.39
1	A	1791	GLU	CD-OE1	-5.05	1.20	1.25
1	D	2487	PRO	N-CD	-5.05	1.40	1.47
1	C	1268	TYR	CB-CG	-5.05	1.44	1.51
1	D	121	GLU	CD-OE2	-5.05	1.20	1.25
1	E	1868	TYR	CB-CG	-5.04	1.44	1.51
2	F	216	GLU	CD-OE1	-5.04	1.20	1.25
1	C	1143	GLU	CD-OE2	-5.04	1.20	1.25
1	B	1527	GLU	CG-CD	-5.04	1.44	1.51
1	A	2446	GLU	CD-OE1	-5.04	1.20	1.25
1	E	996	TYR	CE2-CZ	-5.04	1.32	1.38
1	D	1342	TYR	CB-CG	-5.04	1.44	1.51
1	D	2446	GLU	CD-OE1	-5.04	1.20	1.25
2	F	1257	GLU	CD-OE2	-5.04	1.20	1.25
1	A	563	PHE	CB-CG	-5.03	1.42	1.51
1	B	730	PHE	CB-CG	-5.03	1.42	1.51
1	C	1086	GLU	CD-OE1	-5.03	1.20	1.25
2	F	1707	PHE	CB-CG	-5.03	1.42	1.51
1	A	2200	GLU	CD-OE1	-5.03	1.20	1.25
1	B	2103	TYR	CB-CG	-5.03	1.44	1.51
1	D	1086	GLU	CD-OE1	-5.02	1.20	1.25
1	A	1143	GLU	CD-OE1	-5.02	1.20	1.25
1	B	1139	ASN	CB-CG	-5.02	1.39	1.51
1	E	1795	TRP	CB-CG	-5.02	1.41	1.50
1	D	2202	GLU	CD-OE2	-5.01	1.20	1.25
1	E	2473	GLU	CG-CD	-5.01	1.44	1.51
1	B	2308	GLU	CD-OE2	-5.00	1.20	1.25

All (292) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	1585	ARG	NE-CZ-NH2	-12.40	114.10	120.30
2	F	332	ARG	NE-CZ-NH2	-11.14	114.73	120.30
1	B	517	ARG	NE-CZ-NH2	-10.70	114.95	120.30
1	B	1124	ARG	NE-CZ-NH2	-9.93	115.34	120.30
1	A	2018	ARG	NE-CZ-NH2	-9.83	115.38	120.30
1	C	2410	ARG	NE-CZ-NH2	-9.41	115.59	120.30
1	C	547	ARG	NE-CZ-NH2	-9.35	115.62	120.30
2	F	1585	ARG	NE-CZ-NH1	9.32	124.96	120.30
1	B	942	ARG	NE-CZ-NH2	-9.26	115.67	120.30
1	B	1869	ARG	NE-CZ-NH2	-9.20	115.70	120.30
1	E	1195	ARG	NE-CZ-NH2	-9.15	115.73	120.30
1	B	2018	ARG	NE-CZ-NH2	-9.12	115.74	120.30
1	C	1124	ARG	NE-CZ-NH2	-9.11	115.75	120.30
1	A	1664	TYR	CB-CG-CD1	-9.05	115.57	121.00
1	C	1563	ARG	NE-CZ-NH2	-9.01	115.80	120.30
1	B	547	ARG	NE-CZ-NH2	-9.00	115.80	120.30
1	B	462	ARG	NE-CZ-NH2	-8.96	115.82	120.30
1	E	1906	ARG	NE-CZ-NH2	-8.93	115.84	120.30
1	A	332	ARG	NE-CZ-NH2	-8.85	115.88	120.30
1	D	1869	ARG	NE-CZ-NH2	-8.79	115.90	120.30
1	E	2018	ARG	NE-CZ-NH2	-8.79	115.91	120.30
2	F	871	ARG	NE-CZ-NH2	-8.63	115.98	120.30
1	E	1563	ARG	NE-CZ-NH2	-8.58	116.01	120.30
1	C	1616	ARG	NE-CZ-NH2	-8.51	116.05	120.30
1	D	1195	ARG	NE-CZ-NH2	-8.35	116.13	120.30
1	D	1650	TYR	CB-CG-CD1	-8.27	116.03	121.00
1	E	1124	ARG	NE-CZ-NH2	-8.27	116.17	120.30
1	D	1611	ARG	NE-CZ-NH2	-8.13	116.23	120.30
1	B	1563	ARG	NE-CZ-NH2	-8.08	116.26	120.30
1	A	1601	TYR	CB-CG-CD2	-8.05	116.17	121.00
1	D	487	ARG	NE-CZ-NH2	-8.05	116.28	120.30
1	E	1611	ARG	NE-CZ-NH2	-8.04	116.28	120.30
1	C	1611	ARG	NE-CZ-NH2	-8.04	116.28	120.30
1	B	1611	ARG	NE-CZ-NH2	-8.02	116.29	120.30
1	C	445	ARG	NE-CZ-NH2	-7.98	116.31	120.30
1	C	359	PHE	CB-CG-CD1	7.91	126.34	120.80
2	F	2125	ARG	NE-CZ-NH2	-7.85	116.38	120.30
1	D	806	ARG	NE-CZ-NH2	-7.83	116.39	120.30
1	C	208	ARG	NE-CZ-NH2	-7.83	116.39	120.30
1	C	2512	ARG	NE-CZ-NH2	-7.78	116.41	120.30
2	F	1411	ARG	NE-CZ-NH2	-7.76	116.42	120.30
1	E	1159	ARG	NE-CZ-NH2	-7.76	116.42	120.30
2	F	1383	ARG	NE-CZ-NH2	-7.75	116.42	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	1287	ARG	NE-CZ-NH2	-7.72	116.44	120.30
1	D	1794	ARG	NE-CZ-NH2	-7.67	116.47	120.30
1	A	1305	ARG	NE-CZ-NH2	-7.64	116.48	120.30
1	B	1794	ARG	NE-CZ-NH2	-7.63	116.49	120.30
1	B	208	ARG	NE-CZ-NH2	-7.56	116.52	120.30
1	A	1868	TYR	CB-CG-CD1	-7.55	116.47	121.00
2	F	332	ARG	NE-CZ-NH1	7.54	124.07	120.30
1	A	1124	ARG	NE-CZ-NH1	7.53	124.06	120.30
1	C	1650	TYR	CB-CG-CD1	-7.50	116.50	121.00
1	A	1040	TYR	CB-CG-CD1	-7.46	116.52	121.00
1	A	2324	ARG	NE-CZ-NH1	7.44	124.02	120.30
1	B	484	TYR	CB-CG-CD1	-7.44	116.54	121.00
2	F	140	ARG	NE-CZ-NH1	7.43	124.02	120.30
1	C	359	PHE	CB-CG-CD2	-7.39	115.63	120.80
1	D	1166	ARG	NE-CZ-NH1	7.37	123.99	120.30
2	F	1763	ARG	NE-CZ-NH1	7.37	123.98	120.30
1	E	1369	ARG	NE-CZ-NH2	-7.34	116.63	120.30
1	B	1159	ARG	NE-CZ-NH2	-7.28	116.66	120.30
2	F	1367	ARG	NE-CZ-NH2	-7.27	116.67	120.30
1	C	1050	ARG	NE-CZ-NH2	7.24	123.92	120.30
2	F	302	ARG	NE-CZ-NH2	-7.23	116.68	120.30
2	F	800	ARG	NE-CZ-NH2	-7.22	116.69	120.30
2	F	1609	ARG	NE-CZ-NH1	7.21	123.91	120.30
1	A	1194	TYR	CB-CG-CD2	-7.20	116.68	121.00
1	D	2216	ARG	NE-CZ-NH2	-7.17	116.72	120.30
1	C	1166	ARG	NE-CZ-NH1	7.14	123.87	120.30
1	B	2216	ARG	NE-CZ-NH2	-7.14	116.73	120.30
1	E	1814	TYR	CB-CG-CD2	-7.11	116.74	121.00
2	F	529	ARG	NE-CZ-NH2	-7.09	116.76	120.30
2	F	196	ARG	NE-CZ-NH2	-6.99	116.81	120.30
2	F	131	ARG	NE-CZ-NH1	6.98	123.79	120.30
1	E	1072	ASP	CB-CG-OD1	6.96	124.56	118.30
1	D	942	ARG	NE-CZ-NH2	-6.94	116.83	120.30
2	F	1449	ARG	NE-CZ-NH2	-6.93	116.83	120.30
1	C	334	TYR	CB-CG-CD1	-6.93	116.84	121.00
1	D	332	ARG	NE-CZ-NH2	-6.92	116.84	120.30
2	F	1436	ARG	NE-CZ-NH2	-6.91	116.84	120.30
2	F	2033	ARG	NE-CZ-NH2	-6.90	116.85	120.30
1	D	1868	TYR	CB-CG-CD1	-6.90	116.86	121.00
1	C	1794	ARG	NE-CZ-NH2	-6.87	116.86	120.30
1	E	137	TYR	CB-CG-CD1	-6.87	116.88	121.00
1	E	1287	ARG	NE-CZ-NH2	-6.84	116.88	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	E	1601	TYR	CB-CG-CD2	-6.82	116.91	121.00
1	E	1168	TYR	CB-CG-CD2	-6.79	116.92	121.00
2	F	1010	ARG	NE-CZ-NH1	-6.76	116.92	120.30
1	B	2018	ARG	NE-CZ-NH1	6.74	123.67	120.30
1	C	1868	TYR	CB-CG-CD1	-6.74	116.96	121.00
1	E	308	TYR	CB-CG-CD2	-6.74	116.96	121.00
2	F	1950	ARG	NE-CZ-NH2	-6.74	116.93	120.30
2	F	1167	ARG	NE-CZ-NH2	-6.74	116.93	120.30
1	A	2216	ARG	NE-CZ-NH2	-6.73	116.93	120.30
2	F	768	ARG	NE-CZ-NH2	-6.70	116.95	120.30
1	C	528	TYR	CB-CG-CD2	-6.68	116.99	121.00
1	B	2324	ARG	NE-CZ-NH1	6.67	123.63	120.30
2	F	1389	ARG	NE-CZ-NH1	6.67	123.63	120.30
1	A	1287	ARG	NE-CZ-NH2	-6.66	116.97	120.30
1	D	1364	TYR	CB-CG-CD1	-6.59	117.05	121.00
1	B	517	ARG	NE-CZ-NH1	6.56	123.58	120.30
1	E	434	TYR	CB-CG-CD1	-6.56	117.06	121.00
2	F	906	TYR	CB-CG-CD2	-6.55	117.07	121.00
1	C	1369	ARG	NE-CZ-NH2	-6.54	117.03	120.30
1	D	890	ALA	C-N-CD	-6.54	106.22	120.60
2	F	424	ARG	NE-CZ-NH1	6.51	123.55	120.30
1	A	1168	TYR	CB-CG-CD2	-6.49	117.11	121.00
1	E	1050	ARG	NE-CZ-NH1	6.48	123.54	120.30
1	C	1601	TYR	CB-CG-CD2	-6.48	117.11	121.00
1	E	1072	ASP	CB-CG-OD2	-6.48	112.47	118.30
2	F	1836	TYR	CB-CG-CD2	-6.48	117.11	121.00
1	A	380	ARG	NE-CZ-NH2	-6.47	117.06	120.30
1	A	1109	TYR	CB-CG-CD1	-6.46	117.13	121.00
1	D	1168	TYR	CB-CG-CD2	-6.46	117.13	121.00
1	E	1868	TYR	CB-CG-CD1	-6.44	117.14	121.00
1	D	1794	ARG	NE-CZ-NH1	6.41	123.51	120.30
1	B	2410	ARG	NE-CZ-NH2	-6.41	117.10	120.30
1	A	1650	TYR	CB-CG-CD1	-6.40	117.16	121.00
1	D	412	ARG	NE-CZ-NH1	6.39	123.49	120.30
1	D	1050	ARG	NE-CZ-NH1	6.38	123.49	120.30
1	A	2018	ARG	NE-CZ-NH1	6.37	123.49	120.30
1	E	1604	ARG	NE-CZ-NH1	6.35	123.47	120.30
1	A	412	ARG	NE-CZ-NH2	-6.34	117.13	120.30
1	D	777	ARG	NE-CZ-NH1	6.33	123.47	120.30
1	D	1040	TYR	CB-CG-CD1	-6.33	117.20	121.00
2	F	2051	ARG	NE-CZ-NH2	-6.31	117.14	120.30
1	C	2512	ARG	NE-CZ-NH1	6.31	123.45	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	2114	TYR	CB-CG-CD2	-6.31	117.22	121.00
2	F	424	ARG	NE-CZ-NH2	-6.29	117.15	120.30
1	B	675	TYR	CB-CG-CD1	-6.27	117.24	121.00
1	C	1168	TYR	CB-CG-CD2	-6.26	117.24	121.00
1	E	1159	ARG	NE-CZ-NH1	6.25	123.43	120.30
1	B	1286	TYR	CB-CG-CD2	-6.22	117.27	121.00
2	F	1115	ARG	NE-CZ-NH1	6.20	123.40	120.30
1	D	902	TYR	CB-CG-CD1	-6.20	117.28	121.00
1	A	136	TYR	CB-CG-CD1	-6.20	117.28	121.00
1	C	421	TYR	CB-CG-CD1	-6.17	117.30	121.00
2	F	2051	ARG	NE-CZ-NH1	6.17	123.39	120.30
1	B	1650	TYR	CB-CG-CD1	-6.13	117.32	121.00
1	C	2216	ARG	NE-CZ-NH2	-6.13	117.24	120.30
1	C	547	ARG	NE-CZ-NH1	6.07	123.34	120.30
1	C	2266	TYR	CB-CG-CD2	-6.06	117.37	121.00
1	B	1109	TYR	CB-CG-CD1	-6.05	117.37	121.00
2	F	655	ARG	NE-CZ-NH2	-6.05	117.28	120.30
1	C	332	ARG	NE-CZ-NH2	-6.03	117.28	120.30
1	E	2266	TYR	CB-CG-CD2	-6.03	117.38	121.00
1	B	1040	TYR	CB-CG-CD1	-6.02	117.39	121.00
1	E	2018	ARG	NE-CZ-NH1	6.02	123.31	120.30
2	F	2007	ARG	NE-CZ-NH2	-6.02	117.29	120.30
2	F	1201	ASP	CB-CG-OD1	6.02	123.72	118.30
2	F	940	ARG	NE-CZ-NH2	-6.00	117.30	120.30
1	B	2411	ARG	NE-CZ-NH1	5.98	123.29	120.30
2	F	1789	ARG	NE-CZ-NH2	-5.97	117.31	120.30
1	C	2217	ARG	NE-CZ-NH2	-5.97	117.32	120.30
1	B	488	TYR	CB-CG-CD1	-5.96	117.43	121.00
1	E	1616	ARG	NE-CZ-NH2	-5.95	117.33	120.30
1	E	2216	ARG	NE-CZ-NH2	-5.95	117.33	120.30
2	F	263	ASP	CB-CG-OD2	5.94	123.65	118.30
1	E	1650	TYR	CB-CG-CD1	-5.92	117.45	121.00
1	A	675	TYR	CB-CG-CD2	-5.87	117.48	121.00
2	F	715	ARG	NE-CZ-NH1	5.87	123.23	120.30
1	D	996	TYR	CB-CG-CD1	-5.86	117.48	121.00
1	A	1195	ARG	NE-CZ-NH1	5.85	123.23	120.30
1	A	1986	TYR	CB-CG-CD2	-5.83	117.50	121.00
1	A	2217	ARG	NE-CZ-NH2	-5.82	117.39	120.30
1	B	564	ARG	NE-CZ-NH2	-5.82	117.39	120.30
1	B	990	ILE	N-CA-C	-5.77	95.43	111.00
1	E	1109	TYR	CB-CG-CD1	-5.77	117.54	121.00
1	D	2428	ASP	CB-CG-OD1	5.76	123.49	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	55	PHE	CB-CG-CD2	-5.75	116.77	120.80
1	E	1563	ARG	NE-CZ-NH1	5.75	123.17	120.30
1	B	376	ARG	NE-CZ-NH1	5.75	123.17	120.30
2	F	713	ARG	NE-CZ-NH1	5.74	123.17	120.30
1	E	2411	ARG	NE-CZ-NH1	5.74	123.17	120.30
1	C	308	TYR	CB-CG-CD1	-5.73	117.56	121.00
1	D	1604	ARG	NE-CZ-NH1	5.70	123.15	120.30
1	E	103	TYR	CB-CG-CD2	-5.69	117.58	121.00
1	B	99	ARG	NE-CZ-NH1	5.67	123.13	120.30
1	A	806	ARG	NE-CZ-NH2	-5.66	117.47	120.30
1	D	1194	TYR	CB-CG-CD2	-5.64	117.61	121.00
1	B	208	ARG	NE-CZ-NH1	5.63	123.12	120.30
1	B	547	ARG	NE-CZ-NH1	5.63	123.12	120.30
1	B	970	TYR	CB-CG-CD1	-5.63	117.62	121.00
1	B	999	ARG	NE-CZ-NH2	-5.62	117.49	120.30
1	D	2217	ARG	NE-CZ-NH2	-5.62	117.49	120.30
1	B	1616	ARG	NE-CZ-NH2	-5.61	117.49	120.30
2	F	586	ARG	NE-CZ-NH2	5.60	123.10	120.30
1	C	1124	ARG	CB-CA-C	-5.59	99.22	110.40
2	F	917	ARG	NE-CZ-NH2	-5.58	117.51	120.30
2	F	370	TYR	CB-CG-CD1	-5.57	117.66	121.00
1	A	484	TYR	CB-CG-CD1	-5.57	117.66	121.00
1	B	807	PHE	CB-CG-CD2	5.57	124.70	120.80
1	D	2014	MET	CG-SD-CE	-5.57	91.30	100.20
1	B	445	ARG	NE-CZ-NH2	-5.56	117.52	120.30
1	C	434	TYR	CB-CG-CD1	-5.55	117.67	121.00
2	F	1527	TYR	CB-CG-CD2	-5.55	117.67	121.00
1	C	204	TYR	CB-CG-CD2	-5.54	117.67	121.00
1	B	1616	ARG	NE-CZ-NH1	5.54	123.07	120.30
1	C	2257	ARG	NE-CZ-NH2	-5.52	117.54	120.30
1	E	1230	ARG	NE-CZ-NH2	-5.52	117.54	120.30
2	F	286	ARG	NE-CZ-NH1	-5.52	117.54	120.30
1	B	1124	ARG	CB-CA-C	-5.51	99.38	110.40
1	B	1868	TYR	CB-CG-CD1	-5.51	117.69	121.00
1	D	2411	ARG	NE-CZ-NH1	5.51	123.05	120.30
1	C	208	ARG	NE-CZ-NH1	5.50	123.05	120.30
1	A	1369	ARG	NE-CZ-NH2	-5.49	117.55	120.30
1	C	1027	ARG	NE-CZ-NH2	-5.48	117.56	120.30
1	C	1306	TYR	CB-CG-CD2	-5.48	117.71	121.00
1	B	1230	ARG	NE-CZ-NH2	-5.48	117.56	120.30
1	B	1148	ASP	CB-CG-OD2	5.48	123.23	118.30
1	A	2005	GLY	N-CA-C	-5.47	99.41	113.10

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	1794	ARG	NE-CZ-NH1	5.47	123.03	120.30
2	F	625	TYR	CB-CG-CD1	-5.46	117.72	121.00
1	B	1794	ARG	NE-CZ-NH1	5.46	123.03	120.30
1	A	1272	ASP	N-CA-C	-5.45	96.28	111.00
1	B	2428	ASP	CB-CG-OD1	5.45	123.20	118.30
2	F	905	ARG	NE-CZ-NH2	-5.45	117.58	120.30
1	A	2266	TYR	CB-CG-CD2	-5.44	117.74	121.00
1	A	1028	TYR	CB-CG-CD2	-5.44	117.74	121.00
1	B	359	PHE	CB-CG-CD1	-5.43	117.00	120.80
1	A	1327	TYR	CB-CG-CD1	-5.43	117.74	121.00
2	F	303	ARG	NE-CZ-NH2	-5.42	117.59	120.30
1	A	332	ARG	NE-CZ-NH1	5.41	123.01	120.30
2	F	2007	ARG	NE-CZ-NH1	5.40	123.00	120.30
1	A	1655	HIS	CA-CB-CG	5.40	122.77	113.60
1	E	1883	TYR	CB-CG-CD1	-5.39	117.76	121.00
1	C	1711	PHE	CB-CG-CD2	5.38	124.57	120.80
1	D	1272	ASP	N-CA-C	-5.37	96.50	111.00
1	E	1124	ARG	CB-CA-C	-5.35	99.71	110.40
2	F	1210	ARG	NE-CZ-NH2	-5.34	117.63	120.30
1	A	208	ARG	NE-CZ-NH2	-5.34	117.63	120.30
1	E	308	TYR	CB-CG-CD1	5.33	124.20	121.00
2	F	311	TYR	CB-CG-CD2	-5.32	117.81	121.00
1	D	2267	ASP	CB-CG-OD1	5.31	123.08	118.30
1	A	1166	ARG	NE-CZ-NH2	-5.30	117.65	120.30
2	F	49	ARG	NE-CZ-NH1	5.30	122.95	120.30
1	C	776	PHE	CB-CG-CD2	5.29	124.51	120.80
1	A	2512	ARG	NE-CZ-NH1	5.27	122.94	120.30
1	B	890	ALA	C-N-CD	-5.26	109.02	120.60
1	E	1305	ARG	NE-CZ-NH2	-5.26	117.67	120.30
2	F	1860	PHE	CB-CG-CD1	-5.26	117.12	120.80
1	D	2399	ARG	NE-CZ-NH2	-5.24	117.68	120.30
1	D	1814	TYR	CB-CG-CD1	-5.22	117.87	121.00
1	E	1369	ARG	NE-CZ-NH1	5.22	122.91	120.30
1	B	1194	TYR	CB-CG-CD2	-5.22	117.87	121.00
1	D	487	ARG	NE-CZ-NH1	5.21	122.91	120.30
2	F	286	ARG	NE-CZ-NH2	5.21	122.90	120.30
2	F	523	ARG	NE-CZ-NH2	-5.20	117.70	120.30
1	B	1971	ARG	NE-CZ-NH2	-5.20	117.70	120.30
2	F	1860	PHE	CB-CG-CD2	5.20	124.44	120.80
1	C	1204	ARG	NE-CZ-NH1	5.19	122.90	120.30
1	C	1230	ARG	NE-CZ-NH1	5.19	122.89	120.30
1	D	1305	ARG	NE-CZ-NH2	-5.19	117.70	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	2014	MET	CG-SD-CE	5.18	108.50	100.20
1	A	2513	TYR	CB-CG-CD2	-5.18	117.89	121.00
1	A	1802	PRO	N-CA-C	-5.18	98.64	112.10
1	D	200	TYR	CB-CG-CD2	-5.17	117.89	121.00
1	B	142	ARG	NE-CZ-NH2	-5.17	117.71	120.30
1	E	1040	TYR	CB-CG-CD1	-5.17	117.90	121.00
1	C	1272	ASP	N-CA-C	-5.17	97.05	111.00
1	C	1869	ARG	NE-CZ-NH2	5.16	122.88	120.30
1	B	1159	ARG	NE-CZ-NH1	5.15	122.88	120.30
1	B	1711	PHE	CB-CG-CD2	5.15	124.41	120.80
1	C	136	TYR	CB-CG-CD2	-5.14	117.91	121.00
1	B	1168	TYR	CB-CG-CD2	-5.14	117.92	121.00
1	E	2411	ARG	NE-CZ-NH2	-5.14	117.73	120.30
1	B	1602	ARG	NE-CZ-NH2	-5.14	117.73	120.30
1	C	1040	TYR	CB-CG-CD1	-5.13	117.92	121.00
1	D	1616	ARG	NE-CZ-NH2	-5.13	117.74	120.30
1	E	487	ARG	NE-CZ-NH2	-5.12	117.74	120.30
1	C	1860	LEU	N-CA-C	-5.12	97.17	111.00
1	C	1159	ARG	NE-CZ-NH1	5.11	122.86	120.30
2	F	131	ARG	NE-CZ-NH2	-5.11	117.75	120.30
1	A	1883	TYR	CB-CG-CD1	-5.11	117.94	121.00
1	B	1204	ARG	NE-CZ-NH2	-5.09	117.75	120.30
2	F	143	TYR	CB-CG-CD2	-5.09	117.95	121.00
1	A	1364	TYR	CB-CG-CD1	-5.08	117.95	121.00
1	C	200	TYR	CB-CG-CD2	-5.08	117.95	121.00
1	C	1369	ARG	NE-CZ-NH1	5.07	122.84	120.30
1	D	1305	ARG	NE-CZ-NH1	5.07	122.83	120.30
2	F	2055	ASP	CB-CG-OD1	5.07	122.86	118.30
1	A	1188	TYR	CB-CG-CD1	-5.06	117.96	121.00
1	D	1855	ARG	NE-CZ-NH2	-5.06	117.77	120.30
1	C	1814	TYR	CB-CG-CD1	-5.05	117.97	121.00
1	B	2217	ARG	NE-CZ-NH2	-5.05	117.78	120.30
1	B	332	ARG	NE-CZ-NH1	5.04	122.82	120.30
1	B	1306	TYR	CB-CG-CD2	-5.04	117.97	121.00
1	C	2358	ASP	CB-CG-OD2	5.04	122.84	118.30
2	F	85	PHE	CB-CG-CD1	-5.03	117.28	120.80
1	D	547	ARG	NE-CZ-NH2	-5.02	117.79	120.30
1	C	483	TYR	CB-CG-CD2	-5.01	117.99	121.00
1	A	200	TYR	CB-CG-CD2	-5.00	118.00	121.00

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	18197	0	17794	53	0
1	B	18197	0	17794	58	0
1	C	18197	0	17794	48	0
1	D	18197	0	17794	55	0
1	E	18197	0	17794	60	0
2	F	17127	0	16494	54	0
All	All	108112	0	105464	322	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 2.

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

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:290:ASP:N	1:D:290:ASP:OD1	2.35	0.59
2:F:153:ASP:O	2:F:174:ARG:NH2	2.37	0.58
1:B:624:ASP:OD1	1:B:624:ASP:N	2.37	0.58
1:C:575:ASP:OD2	1:C:577:LYS:NZ	2.35	0.57
1:B:2319:ASP:OD2	1:B:2323:LYS:NZ	2.37	0.57
1:E:1774:TYR:HH	1:E:1848:TYR:HH	1.53	0.57
1:C:624:ASP:N	1:C:624:ASP:OD1	2.37	0.57
1:E:624:ASP:OD1	1:E:624:ASP:N	2.37	0.57
1:A:624:ASP:N	1:A:624:ASP:OD1	2.35	0.57
1:C:250:ILE:O	1:C:442:LYS:NZ	2.38	0.57
1:E:817:LYS:NZ	1:E:837:ASP:OD2	2.38	0.57
2:F:1095:ASP:N	2:F:1095:ASP:OD1	2.37	0.56
1:D:817:LYS:NZ	1:D:837:ASP:OD2	2.38	0.56
1:C:1683:ASP:OD1	1:C:1683:ASP:N	2.38	0.56
1:B:1148:ASP:OD1	1:B:1148:ASP:N	2.33	0.56
1:E:207:VAL:O	1:E:208:ARG:CB	2.54	0.55
1:A:1164:LYS:NZ	1:B:1622:ASP:OD2	2.32	0.55
1:B:890:ALA:O	1:B:892:GLN:N	2.40	0.55
1:D:963:SER:OG	1:D:964:ARG:N	2.38	0.55
1:D:1124:ARG:NE	1:D:1142:SER:O	2.39	0.55
1:E:2015:SER:OG	1:E:2016:LEU:N	2.39	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:624:ASP:OD1	1:D:624:ASP:N	2.36	0.55
1:D:2008:LYS:NZ	1:D:2267:ASP:OD2	2.40	0.55
1:A:1841:ALA:O	1:A:1842:GLN:HB2	2.06	0.55
1:B:336:THR:OG1	1:B:423:ALA:N	2.40	0.54
1:C:1514:ASP:OD2	1:C:1515:LYS:NZ	2.39	0.54
2:F:112:ASP:OD2	2:F:147:LYS:NZ	2.39	0.54
1:B:2207:ASP:OD2	1:B:2211:LYS:NZ	2.41	0.54
2:F:878:ASP:OD2	2:F:923:ARG:NH1	2.40	0.54
1:D:100:ALA:O	1:D:101:SER:C	2.47	0.54
1:D:533:ASP:OD1	1:D:533:ASP:N	2.37	0.54
2:F:263:ASP:OD1	2:F:264:TYR:N	2.41	0.53
1:D:322:ASP:OD1	1:D:323:GLY:N	2.42	0.53
1:E:193:ARG:NH1	1:E:195:SER:O	2.42	0.53
1:E:257:GLU:OE2	1:E:439:LYS:NZ	2.41	0.53
1:A:1291:TYR:O	1:A:1292:GLN:HB3	2.09	0.53
1:D:1104:ASP:OD1	1:D:1104:ASP:N	2.38	0.53
2:F:174:ARG:NH1	2:F:184:THR:OG1	2.42	0.53
2:F:1416:ASP:N	2:F:1416:ASP:OD1	2.37	0.53
1:D:890:ALA:O	1:D:892:GLN:N	2.42	0.53
1:D:1841:ALA:O	1:D:1842:GLN:HB2	2.09	0.53
1:E:1133:ASP:OD1	1:E:1133:ASP:N	2.41	0.53
1:A:1133:ASP:OD1	1:A:1133:ASP:N	2.39	0.53
1:D:253:GLU:O	1:D:442:LYS:NZ	2.42	0.53
1:B:253:GLU:O	1:B:442:LYS:NZ	2.41	0.53
1:C:1616:ARG:NE	1:C:1629:THR:OG1	2.42	0.53
2:F:263:ASP:OD2	2:F:267:ARG:HD2	2.10	0.52
1:A:2257:ARG:NH2	1:B:2309:THR:OG1	2.43	0.52
1:B:1758:MET:O	1:B:1819:ARG:NH2	2.43	0.52
1:E:1841:ALA:O	1:E:1842:GLN:HB2	2.10	0.52
1:C:592:LYS:NZ	1:C:596:ASP:OD2	2.43	0.52
1:A:2327:ARG:NH2	1:E:2469:PHE:O	2.42	0.52
2:F:449:SER:OG	2:F:450:ASN:N	2.41	0.52
1:A:1977:ASP:N	1:A:1977:ASP:OD1	2.41	0.51
1:B:990:ILE:O	1:B:991:ALA:HB3	2.10	0.51
1:B:817:LYS:NZ	1:B:837:ASP:OD2	2.44	0.51
1:D:575:ASP:OD2	1:D:577:LYS:NZ	2.40	0.51
1:D:1514:ASP:OD2	1:D:1515:LYS:NZ	2.39	0.51
1:D:1975:SER:OG	1:D:1976:ILE:N	2.43	0.51
1:E:1257:ASP:OD1	1:E:1257:ASP:N	2.41	0.51
1:A:1254:ASP:OD1	1:A:1254:ASP:N	2.42	0.51
2:F:2143:MET:O	2:F:2145:ARG:N	2.44	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:385:ASP:N	2:F:385:ASP:OD1	2.42	0.51
1:B:1290:SER:C	1:B:1291:TYR:O	2.45	0.50
1:A:1103:ASN:ND2	1:A:1582:ASN:O	2.44	0.50
1:B:1291:TYR:O	1:B:1292:GLN:HB2	2.12	0.50
1:E:540:SER:OG	1:E:541:GLY:N	2.44	0.50
1:A:735:ASN:N	1:A:735:ASN:OD1	2.34	0.50
1:A:1272:ASP:O	1:A:1274:ALA:N	2.44	0.50
2:F:754:GLU:O	2:F:755:ILE:HB	2.11	0.50
1:D:1683:ASP:N	1:D:1683:ASP:OD1	2.41	0.50
1:B:299:LYS:NZ	1:B:458:GLU:OE2	2.44	0.49
1:E:842:ASP:OD1	1:E:843:ALA:N	2.45	0.49
1:A:1290:SER:C	1:A:1291:TYR:O	2.50	0.49
1:B:134:SER:OG	1:B:135:VAL:N	2.45	0.49
2:F:880:SER:OG	2:F:881:THR:N	2.44	0.49
2:F:1340:ARG:NH2	2:F:1710:THR:OG1	2.45	0.49
2:F:3:ASN:HA	2:F:1126:HIS:CG	2.46	0.49
2:F:270:ASN:O	2:F:332:ARG:NH2	2.45	0.49
2:F:1234:SER:OG	2:F:1235:ASP:N	2.44	0.49
1:C:1291:TYR:O	1:C:1292:GLN:CB	2.60	0.49
1:C:1975:SER:OG	1:C:1976:ILE:N	2.44	0.49
1:C:2284:LEU:O	1:C:2286:ASP:N	2.45	0.49
1:B:1975:SER:OG	1:B:1976:ILE:N	2.46	0.49
1:E:1865:ASP:OD1	1:E:1966:ARG:NH1	2.46	0.49
1:A:2382:ASP:OD1	1:A:2382:ASP:N	2.45	0.48
1:C:322:ASP:OD1	1:C:323:GLY:N	2.46	0.48
1:A:1518:SER:OG	1:A:1519:ILE:N	2.46	0.48
1:B:548:LYS:NZ	1:B:559:ASP:OD2	2.45	0.48
2:F:1756:SER:OG	2:F:1757:ALA:N	2.47	0.48
1:B:329:ARG:HB3	1:B:431:TYR:CE1	2.49	0.48
1:E:2463:ASP:OD1	1:E:2464:PHE:N	2.47	0.48
1:D:1119:GLY:O	1:D:1120:GLU:HB2	2.13	0.48
1:D:1006:GLU:OE1	1:D:1343:LYS:NZ	2.46	0.48
2:F:616:ASP:OD1	2:F:616:ASP:N	2.45	0.48
1:B:1526:ASP:N	1:B:1526:ASP:OD1	2.45	0.48
2:F:1146:THR:HG23	2:F:1148:LEU:H	1.79	0.48
1:A:160:SER:C	1:A:161:THR:O	2.50	0.48
1:B:1320:LYS:NZ	1:B:1552:ASP:OD1	2.38	0.48
1:D:1133:ASP:OD1	1:D:1133:ASP:N	2.46	0.48
2:F:561:ASP:C	2:F:561:ASP:OD1	2.51	0.48
1:A:161:THR:O	1:A:162:LEU:HB3	2.14	0.47
1:A:2401:ASP:OD1	1:E:2496:LYS:NZ	2.42	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:2287:ASP:N	1:E:2287:ASP:OD1	2.44	0.47
1:C:329:ARG:HB3	1:C:431:TYR:CE1	2.49	0.47
1:C:571:HIS:O	1:C:574:LYS:NZ	2.46	0.47
1:C:161:THR:O	1:C:162:LEU:HB2	2.14	0.47
1:D:1220:LYS:NZ	1:D:1277:ASP:OD1	2.44	0.47
1:E:2365:SER:OG	1:E:2366:GLY:N	2.48	0.47
1:A:912:TYR:CG	1:A:913:ALA:N	2.82	0.47
1:B:2380:GLY:N	1:B:2383:THR:OG1	2.46	0.47
1:E:1975:SER:OG	1:E:1976:ILE:N	2.47	0.47
2:F:1329:ASP:OD1	2:F:1329:ASP:N	2.46	0.47
1:E:171:GLU:OE1	1:E:182:TYR:OH	2.32	0.47
1:B:359:PHE:CD1	1:B:359:PHE:N	2.83	0.47
1:C:1834:SER:OG	1:C:1835:VAL:N	2.48	0.47
1:C:2466:ASP:OD1	1:C:2466:ASP:N	2.47	0.47
1:D:797:ASP:OD1	1:D:798:ALA:N	2.48	0.47
2:F:1687:ASP:OD1	2:F:1687:ASP:N	2.38	0.47
1:A:1117:ASP:OD1	1:A:1118:ALA:N	2.48	0.47
1:C:477:LYS:NZ	1:C:624:ASP:OD2	2.37	0.47
1:C:1124:ARG:HD3	1:C:1144:TRP:CD2	2.49	0.47
1:E:1834:SER:OG	1:E:1835:VAL:N	2.48	0.47
1:C:304:GLY:O	1:C:354:ARG:NH2	2.47	0.47
1:D:359:PHE:CE1	1:D:385:PRO:HB2	2.50	0.47
1:E:1991:ASP:OD2	1:E:1993:LYS:NZ	2.48	0.47
2:F:1370:ASP:OD1	2:F:1370:ASP:N	2.46	0.47
1:A:296:PHE:O	1:A:299:LYS:NZ	2.46	0.47
1:A:1841:ALA:O	1:A:1842:GLN:CB	2.63	0.47
1:A:537:ASP:OD1	1:A:538:LEU:N	2.48	0.47
1:B:540:SER:OG	1:B:541:GLY:N	2.48	0.47
1:E:1683:ASP:OD1	1:E:1683:ASP:N	2.43	0.47
1:B:1514:ASP:OD1	1:B:1514:ASP:N	2.47	0.46
1:D:359:PHE:N	1:D:359:PHE:CD1	2.83	0.46
1:E:1293:GLN:O	1:E:1303:ASN:ND2	2.48	0.46
1:D:1834:SER:OG	1:D:1835:VAL:N	2.48	0.46
2:F:1795:LYS:NZ	2:F:1818:GLU:OE1	2.47	0.46
1:A:1865:ASP:OD1	1:A:1966:ARG:NH1	2.48	0.46
1:A:2496:LYS:NZ	1:B:2401:ASP:OD1	2.35	0.46
1:A:832:ALA:O	1:A:833:GLU:HB2	2.15	0.46
1:E:357:TYR:OH	1:E:381:THR:OG1	2.28	0.46
1:E:1945:THR:OG1	1:E:1946:ASP:N	2.49	0.46
1:A:1834:SER:OG	1:A:1835:VAL:N	2.48	0.46
1:B:290:ASP:OD1	1:B:290:ASP:N	2.47	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:263:ASP:OD1	2:F:263:ASP:C	2.51	0.46
1:A:890:ALA:O	1:A:892:GLN:N	2.49	0.46
1:D:133:ASP:OD1	1:D:133:ASP:N	2.43	0.46
1:E:1183:ASN:OD1	1:E:1183:ASN:N	2.48	0.46
1:E:1908:ASP:OD1	1:E:1909:ARG:N	2.48	0.46
2:F:1235:ASP:OD1	2:F:1236:VAL:N	2.49	0.46
2:F:1626:THR:OG1	2:F:1950:ARG:NH2	2.49	0.46
1:C:2287:ASP:N	1:C:2287:ASP:OD1	2.47	0.46
1:D:2284:LEU:O	1:D:2286:ASP:N	2.49	0.46
1:B:1220:LYS:NZ	1:B:1277:ASP:OD1	2.45	0.46
1:C:329:ARG:NH1	1:C:434:TYR:OH	2.49	0.46
1:E:852:GLN:O	1:E:853:ALA:C	2.53	0.46
1:A:2365:SER:OG	1:A:2366:GLY:N	2.48	0.46
1:D:161:THR:O	1:D:162:LEU:HB2	2.16	0.46
1:D:2365:SER:OG	1:D:2366:GLY:N	2.49	0.46
1:B:2082:LYS:NZ	1:B:2086:GLU:OE2	2.44	0.46
1:A:1514:ASP:OD2	1:A:1515:LYS:NZ	2.43	0.45
2:F:1510:HIS:ND1	2:F:1521:ARG:NH2	2.64	0.45
1:B:714:TRP:CG	1:B:762:LEU:HD22	2.51	0.45
1:C:578:ILE:HG12	1:C:580:ASN:H	1.80	0.45
1:A:2284:LEU:O	1:A:2286:ASP:N	2.49	0.45
1:B:1507:LYS:NZ	1:B:1538:ASP:OD2	2.40	0.45
1:C:1133:ASP:OD1	1:C:1133:ASP:N	2.43	0.45
1:E:2284:LEU:O	1:E:2286:ASP:N	2.50	0.45
2:F:34:ASP:OD1	2:F:34:ASP:N	2.49	0.45
1:B:1977:ASP:N	1:B:1977:ASP:OD1	2.42	0.45
1:E:1124:ARG:HD3	1:E:1144:TRP:CD2	2.50	0.45
1:B:1022:ASP:OD2	1:B:1023:LYS:NZ	2.49	0.45
1:A:133:ASP:N	1:A:133:ASP:OD1	2.45	0.45
1:A:1291:TYR:O	1:A:1292:GLN:CB	2.64	0.45
1:D:975:ASN:N	1:D:975:ASN:OD1	2.43	0.45
1:E:1514:ASP:OD1	1:E:1514:ASP:N	2.50	0.45
1:E:2430:GLN:OE1	1:E:2497:GLN:NE2	2.50	0.45
2:F:1055:THR:OG1	2:F:1056:ASP:N	2.50	0.45
1:C:693:ALA:HB3	1:C:694:PRO:HD3	1.99	0.45
1:C:2024:GLU:OE2	1:C:2027:ARG:NH1	2.50	0.45
1:A:1176:GLU:HG2	1:A:1194:TYR:CE2	2.52	0.45
1:B:161:THR:O	1:B:162:LEU:HB2	2.17	0.45
1:D:1124:ARG:HG2	1:D:1144:TRP:CE3	2.52	0.45
1:E:1841:ALA:O	1:E:1842:GLN:CB	2.65	0.45
1:E:161:THR:O	1:E:162:LEU:HB2	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:975:ASN:OD1	1:E:975:ASN:N	2.40	0.45
1:A:569:THR:O	1:A:618:ASN:HB2	2.17	0.45
1:A:1975:SER:OG	1:A:1976:ILE:N	2.49	0.44
1:A:2015:SER:OG	1:A:2016:LEU:N	2.50	0.44
1:C:912:TYR:CG	1:C:913:ALA:N	2.83	0.44
1:E:207:VAL:O	1:E:208:ARG:HB3	2.15	0.44
1:B:1056:MET:HE1	1:B:1085:PHE:HB2	1.98	0.44
1:C:1774:TYR:OH	1:C:1848:TYR:OH	2.29	0.44
1:A:301:SER:HB2	1:A:467:GLN:HB2	2.00	0.44
1:A:366:SER:N	1:A:413:VAL:O	2.50	0.44
1:C:191:THR:HG22	1:C:201:HIS:HA	2.00	0.44
1:D:1380:LYS:O	1:D:1381:LEU:C	2.56	0.44
1:D:204:TYR:OH	1:D:238:GLY:O	2.34	0.44
1:D:2496:LYS:NZ	1:E:2401:ASP:OD1	2.43	0.44
1:A:97:SER:OG	1:A:98:GLY:N	2.50	0.44
1:C:160:SER:C	1:C:161:THR:O	2.53	0.44
1:B:1139:ASN:ND2	1:B:1838:ASP:O	2.50	0.44
1:D:1774:TYR:OH	1:D:1848:TYR:OH	2.25	0.44
2:F:530:ASP:OD1	2:F:530:ASP:N	2.50	0.44
2:F:854:ASP:C	2:F:854:ASP:OD1	2.54	0.44
1:B:801:LEU:O	1:B:802:ILE:HB	2.17	0.44
1:E:963:SER:OG	1:E:964:ARG:N	2.49	0.44
2:F:236:ASN:ND2	2:F:238:THR:O	2.50	0.44
2:F:267:ARG:NH1	2:F:276:ALA:O	2.51	0.44
1:A:347:PRO:HB3	1:A:353:TYR:CE2	2.53	0.44
1:A:545:ASP:OD2	1:A:547:ARG:NH1	2.50	0.44
1:A:1040:TYR:OH	1:A:1951:GLN:O	2.35	0.44
1:B:2466:ASP:N	1:B:2466:ASP:OD1	2.47	0.44
1:D:329:ARG:HB3	1:D:431:TYR:CE1	2.53	0.44
1:D:1176:GLU:HG2	1:D:1194:TYR:CE2	2.53	0.44
1:D:545:ASP:OD1	1:D:545:ASP:C	2.57	0.43
1:E:336:THR:OG1	1:E:337:ASN:N	2.50	0.43
2:F:1393:ASP:N	2:F:1393:ASP:OD1	2.50	0.43
2:F:2119:TYR:HB2	2:F:2126:TRP:CZ3	2.53	0.43
1:A:2287:ASP:N	1:A:2287:ASP:OD1	2.40	0.43
1:B:2284:LEU:O	1:B:2286:ASP:N	2.51	0.43
1:C:975:ASN:OD1	1:C:975:ASN:N	2.48	0.43
2:F:210:THR:OG1	2:F:283:TRP:NE1	2.52	0.43
1:A:357:TYR:CZ	1:A:391:TYR:HB2	2.54	0.43
1:B:1178:THR:OG1	1:B:1179:LYS:N	2.51	0.43
1:B:2365:SER:OG	1:B:2366:GLY:N	2.49	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:73:ASP:OD1	2:F:74:CYS:N	2.50	0.43
1:B:2478:ASP:OD1	1:B:2478:ASP:N	2.51	0.43
1:B:1834:SER:OG	1:B:1835:VAL:N	2.51	0.43
1:E:1813:ASN:OD1	1:E:1813:ASN:N	2.45	0.43
1:A:852:GLN:NE2	1:A:892:GLN:OE1	2.52	0.43
1:E:228:ALA:O	1:E:233:GLN:NE2	2.51	0.43
1:B:1137:ALA:O	1:B:1138:ALA:HB3	2.19	0.43
1:D:193:ARG:NH1	1:D:195:SER:O	2.52	0.43
1:A:357:TYR:OH	1:A:381:THR:OG1	2.37	0.43
1:D:884:ALA:O	1:D:888:ASN:N	2.51	0.43
1:E:2386:SER:HG	1:E:2485:SER:HG	1.67	0.43
1:B:831:THR:OG1	1:B:832:ALA:N	2.52	0.42
1:A:1945:THR:OG1	1:A:1946:ASP:N	2.49	0.42
1:D:552:LYS:O	1:D:556:ASN:N	2.52	0.42
1:E:133:ASP:OD1	1:E:133:ASP:N	2.44	0.42
1:E:734:LEU:O	1:E:738:TYR:HB3	2.19	0.42
1:C:1684:THR:OG1	1:C:1685:ASN:N	2.52	0.42
1:E:93:ASN:OD1	1:E:93:ASN:N	2.48	0.42
1:D:828:ASN:N	1:D:828:ASN:OD1	2.47	0.42
1:D:1137:ALA:O	1:D:1139:ASN:N	2.52	0.42
1:E:1977:ASP:N	1:E:1977:ASP:OD1	2.43	0.42
2:F:336:ASN:HB2	2:F:348:PHE:HB3	2.02	0.42
2:F:1751:LYS:NZ	2:F:1769:ASP:OD1	2.47	0.42
1:E:533:ASP:OD1	1:E:533:ASP:N	2.47	0.42
2:F:1137:PHE:O	2:F:1139:ARG:N	2.52	0.42
1:B:1813:ASN:OD1	1:B:1813:ASN:N	2.48	0.42
1:D:2015:SER:OG	1:D:2016:LEU:N	2.49	0.42
1:E:1272:ASP:O	1:E:1274:ALA:N	2.52	0.42
2:F:1432:ASP:OD1	2:F:1432:ASP:C	2.58	0.42
1:A:884:ALA:O	1:A:888:ASN:N	2.52	0.42
1:B:935:HIS:O	1:B:936:ALA:C	2.57	0.42
1:C:1991:ASP:OD2	1:C:1993:LYS:NZ	2.47	0.42
1:D:1333:TYR:CG	1:D:1334:ASN:N	2.87	0.42
1:E:402:ILE:HG23	1:E:428:VAL:HB	2.02	0.42
1:E:1589:ASN:OD1	1:E:1590:GLU:N	2.52	0.42
2:F:1698:ASP:N	2:F:1698:ASP:OD1	2.43	0.42
1:A:1104:ASP:N	1:A:1104:ASP:OD1	2.40	0.42
1:C:1257:ASP:N	1:C:1257:ASP:OD1	2.45	0.42
1:B:477:LYS:NZ	1:B:624:ASP:OD2	2.41	0.41
1:C:503:ILE:HB	1:C:515:PHE:CZ	2.54	0.41
1:D:196:GLY:O	1:D:445:ARG:NH2	2.52	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:1841:ALA:O	1:D:1842:GLN:CB	2.69	0.41
1:E:1148:ASP:N	1:E:1148:ASP:OD1	2.45	0.41
1:A:2466:ASP:OD1	1:A:2466:ASP:N	2.51	0.41
1:B:2015:SER:OG	1:B:2016:LEU:N	2.52	0.41
1:C:2008:LYS:NZ	1:C:2267:ASP:OD2	2.49	0.41
1:E:548:LYS:NZ	1:E:559:ASP:OD1	2.50	0.41
1:E:1133:ASP:OD2	1:E:1135:LYS:NZ	2.53	0.41
1:B:533:ASP:OD1	1:B:533:ASP:N	2.44	0.41
1:C:319:ASN:OD1	1:C:320:SER:N	2.53	0.41
1:D:241:ALA:O	1:D:243:ILE:N	2.54	0.41
1:E:858:HIS:O	1:E:859:LEU:C	2.58	0.41
1:B:614:GLU:OE2	1:B:633:LYS:NZ	2.42	0.41
1:D:2287:ASP:OD1	1:D:2287:ASP:N	2.42	0.41
1:D:2491:MET:HB3	1:D:2492:PRO:HD3	2.03	0.41
1:B:1683:ASP:N	1:B:1683:ASP:OD1	2.43	0.41
1:E:1729:ASP:OD1	1:E:1730:LYS:N	2.53	0.41
1:C:1333:TYR:O	1:C:1335:GLY:N	2.53	0.41
2:F:574:SER:OG	2:F:575:ALA:N	2.53	0.41
2:F:1259:TRP:O	2:F:1318:ARG:HG2	2.21	0.41
1:C:714:TRP:CD2	1:C:762:LEU:HD22	2.55	0.41
1:D:1977:ASP:OD1	1:D:1977:ASP:N	2.50	0.41
1:E:828:ASN:OD1	1:E:828:ASN:N	2.51	0.41
2:F:1442:THR:OG1	2:F:1443:ALA:N	2.54	0.41
2:F:1549:ASN:OD1	2:F:1549:ASN:N	2.50	0.41
1:C:542:SER:OG	1:C:543:THR:N	2.50	0.41
1:B:308:TYR:CZ	1:B:311:ASN:HA	2.56	0.41
1:B:832:ALA:O	1:B:833:GLU:HB2	2.21	0.41
1:C:315:THR:HA	1:C:316:PRO:HD2	1.93	0.41
1:C:1333:TYR:CD1	1:C:1360:ILE:HB	2.56	0.41
1:D:696:ILE:O	1:D:700:LEU:HG	2.21	0.41
1:D:1503:LYS:NZ	1:D:1508:GLU:OE2	2.48	0.41
1:E:766:TYR:CD2	1:E:771:ILE:HD11	2.56	0.41
1:E:912:TYR:CG	1:E:913:ALA:N	2.89	0.41
2:F:1909:ASN:OD1	2:F:1909:ASN:N	2.53	0.41
1:B:597:ILE:HG13	1:B:598:HIS:CD2	2.55	0.40
1:B:1124:ARG:HD3	1:B:1144:TRP:CD2	2.56	0.40
1:D:2430:GLN:O	1:D:2487:PRO:HD2	2.20	0.40
1:A:971:LEU:O	1:A:972:LEU:HB2	2.21	0.40
1:B:990:ILE:O	1:B:992:SER:N	2.54	0.40
1:C:2013:PHE:O	1:C:2015:SER:N	2.54	0.40
1:D:935:HIS:O	1:D:936:ALA:C	2.60	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:1104:ASP:N	1:E:1104:ASP:OD1	2.43	0.40
2:F:552:ASP:OD1	2:F:552:ASP:C	2.60	0.40
2:F:618:SER:OG	2:F:619:GLY:N	2.51	0.40
2:F:1498:ASP:C	2:F:1498:ASP:OD1	2.60	0.40
2:F:1872:TYR:CD1	2:F:1872:TYR:N	2.90	0.40
1:C:1860:LEU:O	1:C:1862:ALA:N	2.55	0.40
2:F:2066:ASP:C	2:F:2066:ASP:OD1	2.60	0.40
1:B:93:ASN:N	1:B:93:ASN:OD1	2.50	0.40
1:C:368:LEU:HB3	1:C:381:THR:HB	2.04	0.40
1:C:872:THR:O	1:C:873:SER:HB2	2.21	0.40
1:C:990:ILE:O	1:C:990:ILE:HG22	2.20	0.40
1:C:1859:LEU:C	1:C:1860:LEU:O	2.54	0.40
1:A:693:ALA:HB3	1:A:694:PRO:HD3	2.04	0.40
1:C:2382:ASP:OD1	1:C:2382:ASP:N	2.46	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	2286/2516 (91%)	2220 (97%)	58 (2%)	8 (0%)	41	72
1	B	2286/2516 (91%)	2222 (97%)	61 (3%)	3 (0%)	51	82
1	C	2286/2516 (91%)	2228 (98%)	51 (2%)	7 (0%)	41	72
1	D	2286/2516 (91%)	2223 (97%)	57 (2%)	6 (0%)	41	72
1	E	2286/2516 (91%)	2230 (98%)	49 (2%)	7 (0%)	41	72
2	F	2143/2439 (88%)	2089 (98%)	50 (2%)	4 (0%)	47	78
All	All	13573/15019 (90%)	13212 (97%)	326 (2%)	35 (0%)	44	72

All (35) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	891	PRO
1	B	891	PRO
1	D	101	SER
1	D	891	PRO
1	D	1138	ALA
2	F	956	GLN
2	F	2144	VAL
1	A	991	ALA
1	A	1711	PHE
1	B	2493	GLU
1	C	991	ALA
1	C	1292	GLN
1	C	1334	ASN
1	D	991	ALA
1	E	991	ALA
1	E	2154	TRP
1	C	1138	ALA
1	A	1273	MET
1	C	1758	MET
1	C	1953	ASN
1	D	1953	ASN
1	E	1953	ASN
1	A	2154	TRP
1	B	1334	ASN
1	D	1758	MET
1	E	101	SER
1	E	659	TYR
1	E	1758	MET
2	F	530	ASP
1	A	739	THR
1	A	890	ALA
1	A	215	ASP
1	C	215	ASP
1	E	215	ASP
2	F	801	THR

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	1960/2157 (91%)	1959 (100%)	1 (0%)	93	98
1	B	1960/2157 (91%)	1960 (100%)	0	100	100
1	C	1960/2157 (91%)	1959 (100%)	1 (0%)	93	98
1	D	1960/2157 (91%)	1958 (100%)	2 (0%)	93	98
1	E	1960/2157 (91%)	1959 (100%)	1 (0%)	93	98
2	F	1854/2109 (88%)	1851 (100%)	3 (0%)	93	98
All	All	11654/12894 (90%)	11646 (100%)	8 (0%)	93	98

All (8) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	683	LYS
1	C	548	LYS
1	D	661	LYS
1	D	968	TYR
1	E	1319	ARG
2	F	267	ARG
2	F	313	HIS
2	F	472	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (15) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	1671	ASN
1	A	1951	GLN
1	B	201	HIS
1	B	679	GLN
1	B	1671	ASN
1	B	1951	GLN
1	C	361	ASN
1	C	735	ASN
1	C	1520	GLN
1	C	1655	HIS
1	C	1951	GLN
1	E	735	ASN
2	F	183	GLN
2	F	1650	HIS
2	F	1825	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

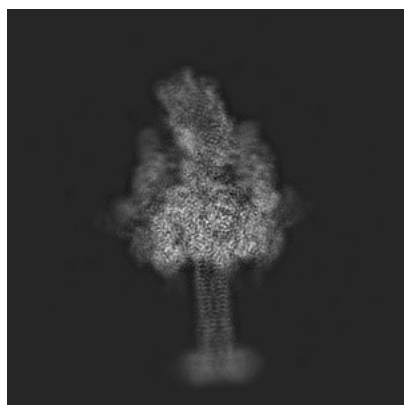
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-10313. These allow visual inspection of the internal detail of the map and identification of artifacts.

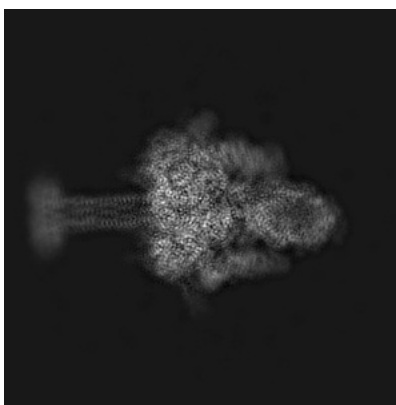
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

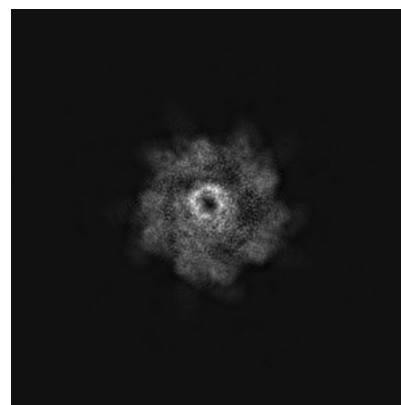
6.1.1 Primary map



X



Y

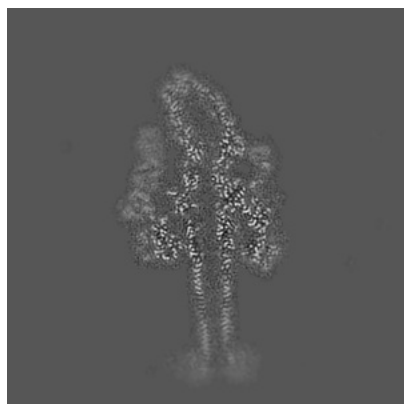


Z

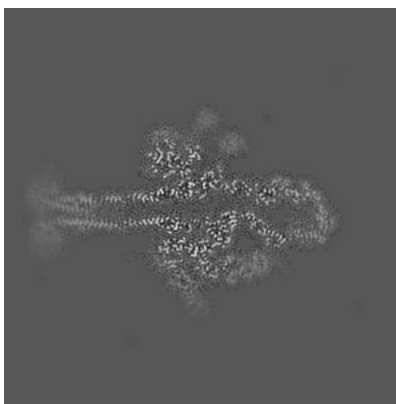
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

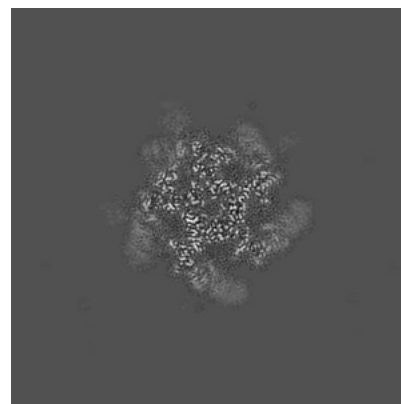
6.2.1 Primary map



X Index: 210



Y Index: 210

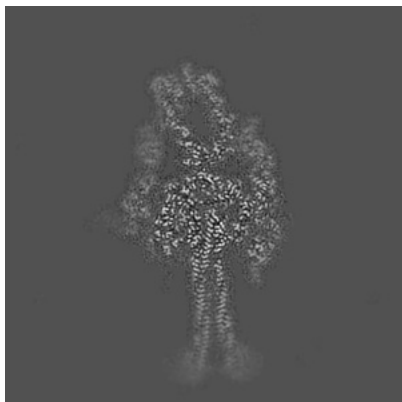


Z Index: 210

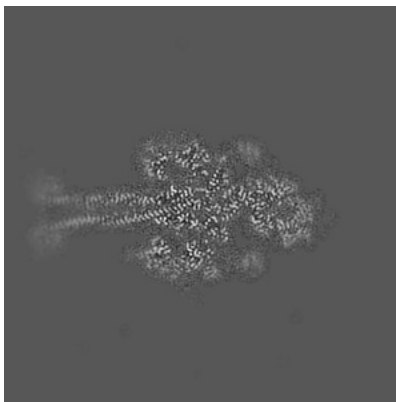
The images above show central slices of the map in three orthogonal directions.

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

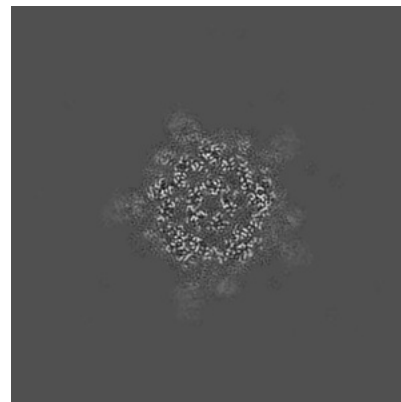
6.3.1 Primary map



X Index: 197



Y Index: 225

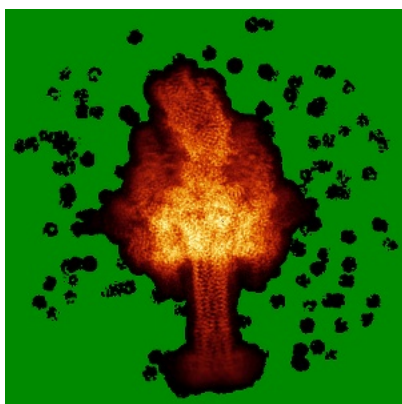


Z Index: 196

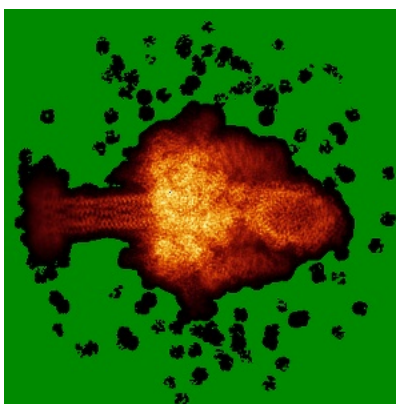
The images above show the largest variance slices of the map in three orthogonal directions.

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

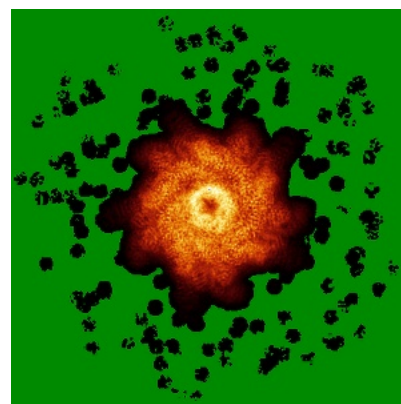
6.4.1 Primary map



X



Y



Z

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

6.5 Orthogonal surface views [i](#)

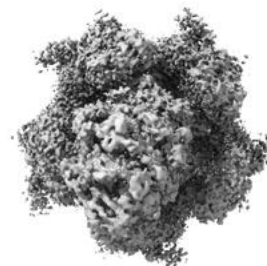
6.5.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.015. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

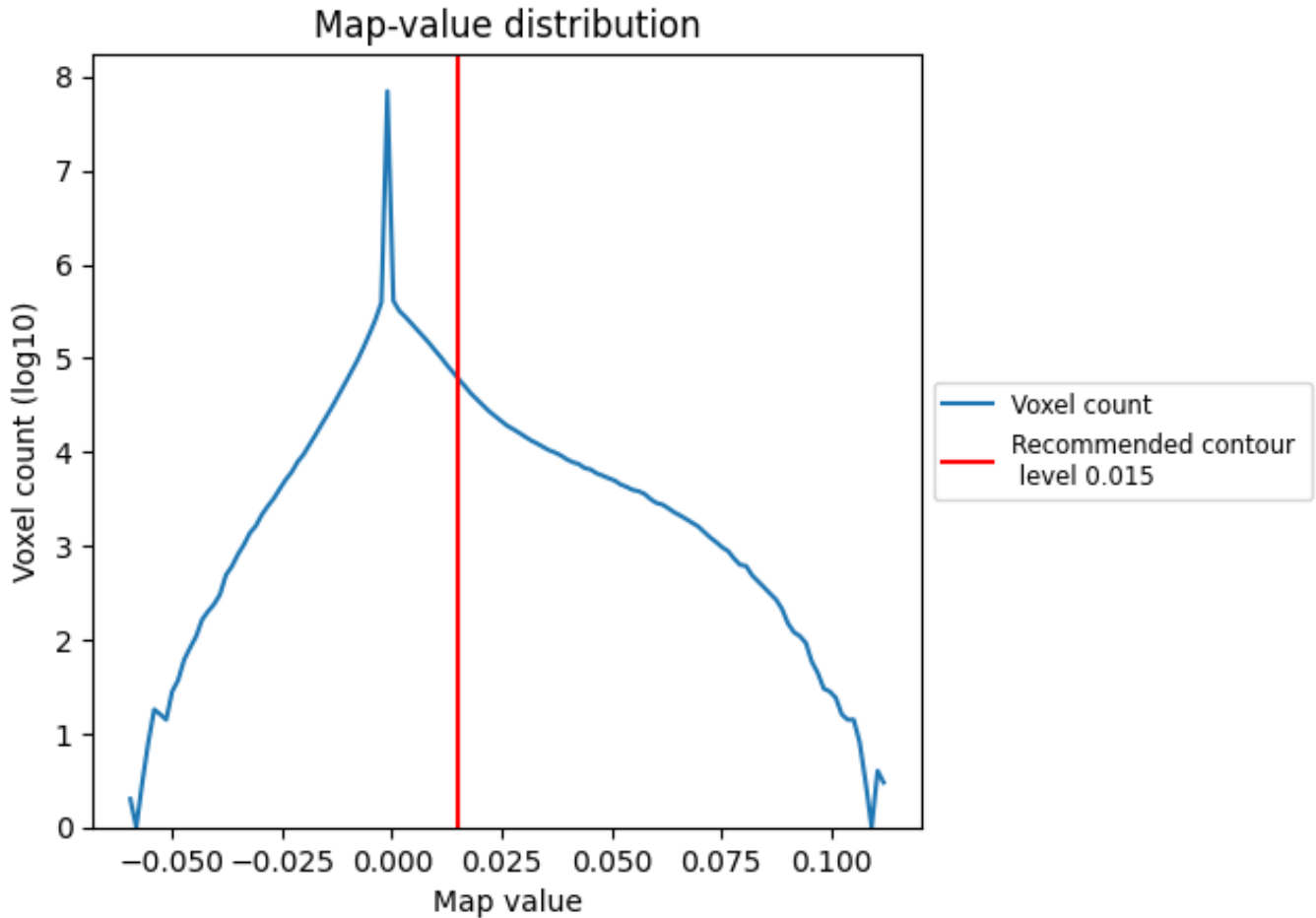
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

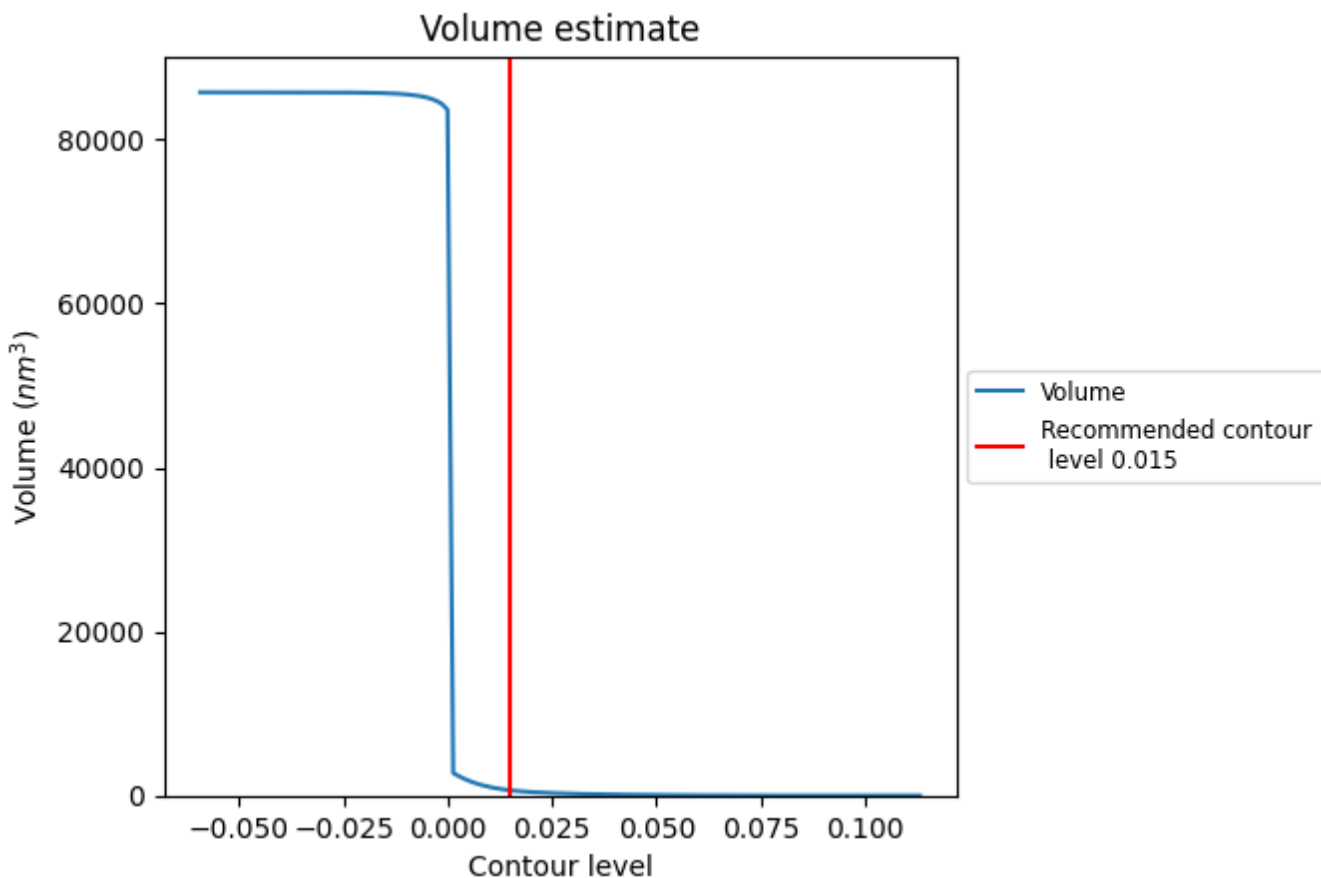
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

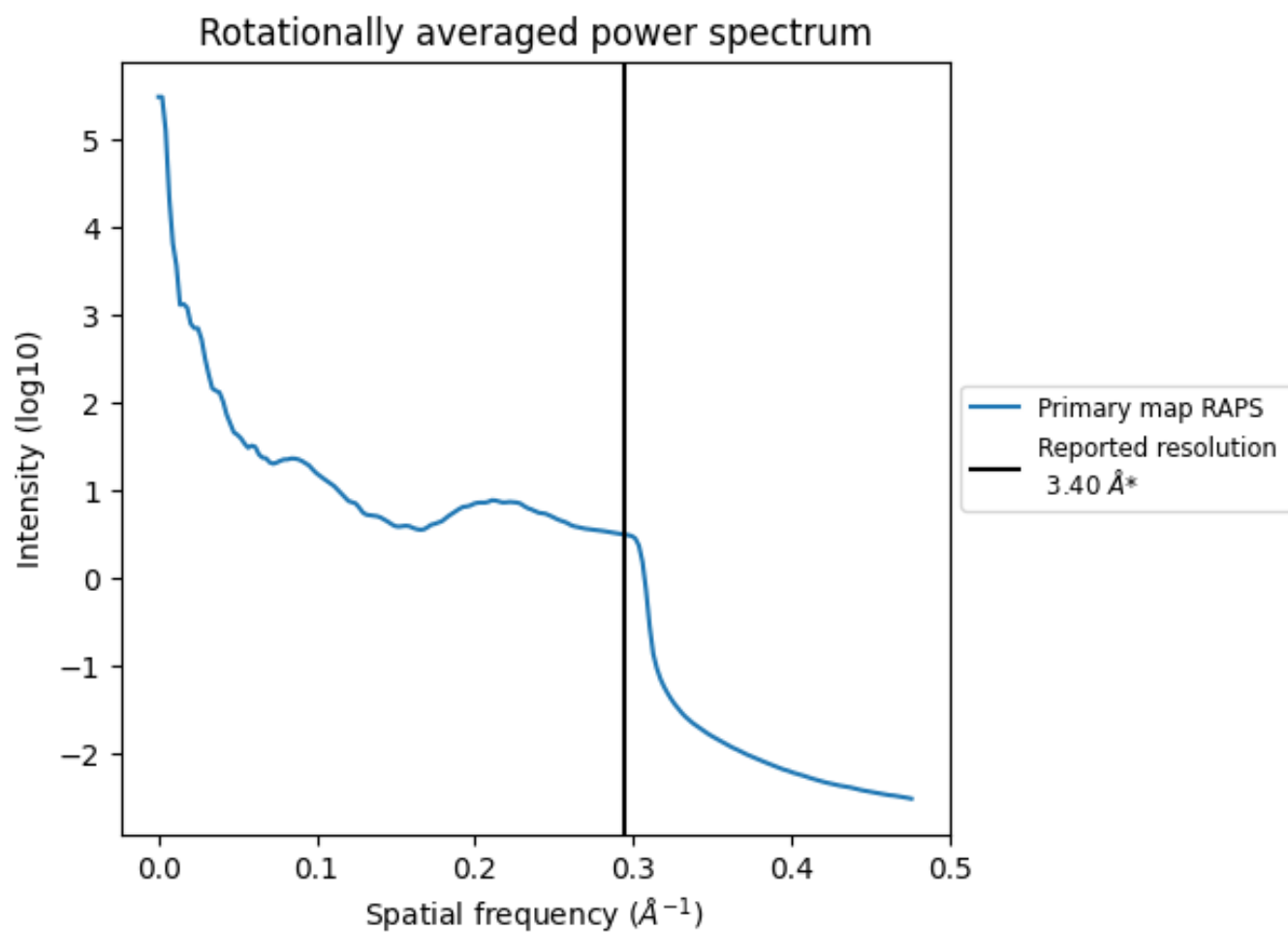
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 639 nm³; this corresponds to an approximate mass of 577 kDa.

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

7.3 Rotationally averaged power spectrum i



*Reported resolution corresponds to spatial frequency of 0.294 Å⁻¹

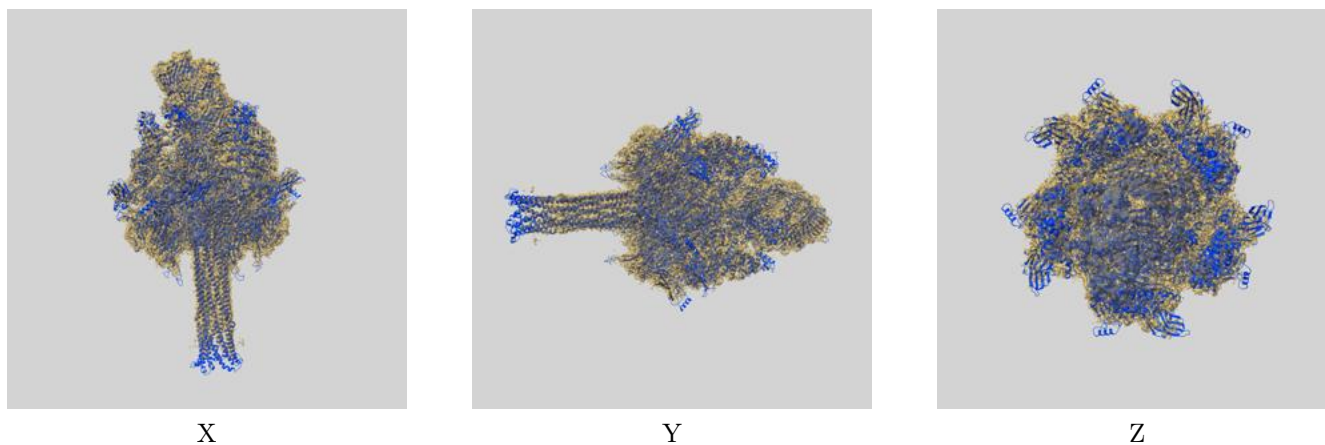
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

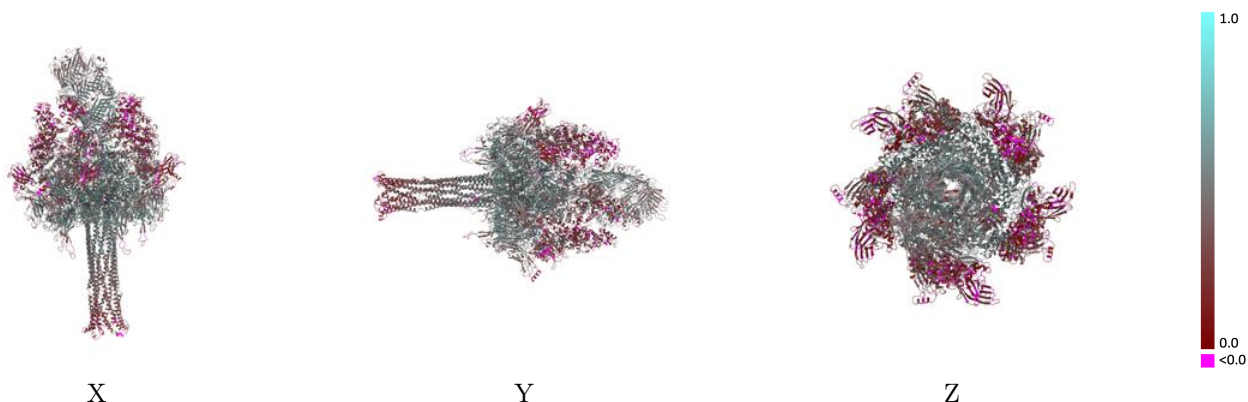
This section contains information regarding the fit between EMDB map EMD-10313 and PDB model 6SUF. Per-residue inclusion information can be found in section 3 on page 5.

9.1 Map-model overlay [i](#)



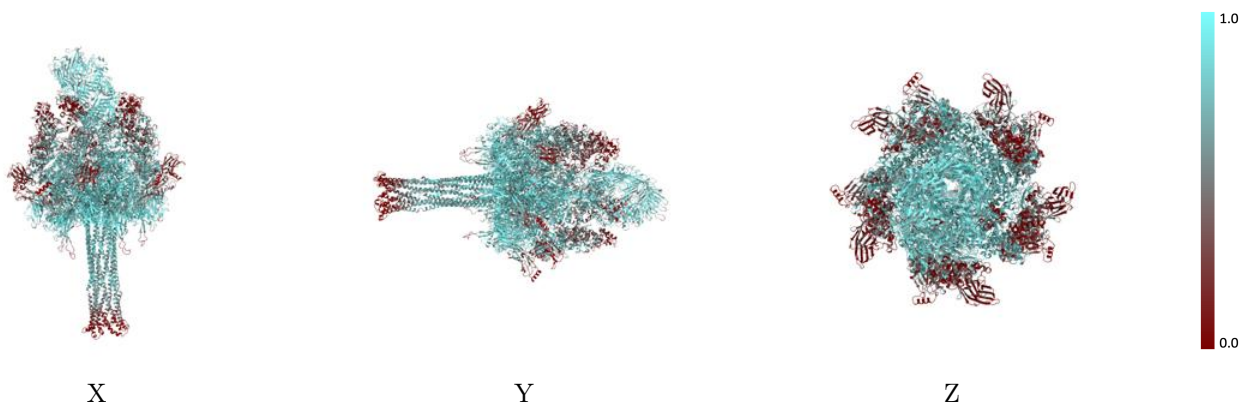
The images above show the 3D surface view of the map at the recommended contour level 0.015 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



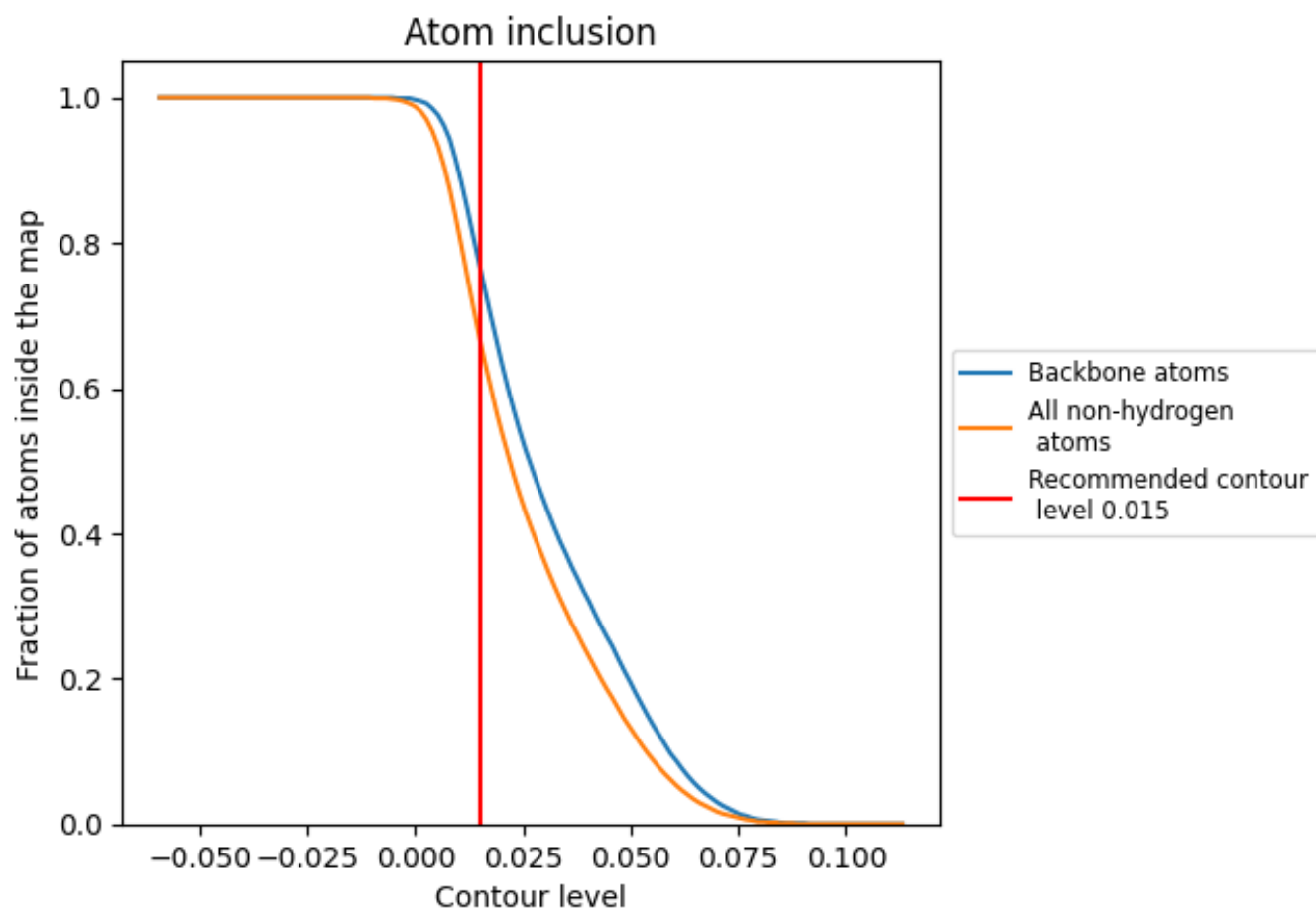
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.015).















9.4 Atom inclusion [i](#)



At the recommended contour level, 77% of all backbone atoms, 67% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary [i](#)

The table lists the average atom inclusion at the recommended contour level (0.015) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.6670	 0.3960
A	 0.6460	 0.3870
B	 0.6360	 0.3810
C	 0.6390	 0.3850
D	 0.6310	 0.3760
E	 0.6650	 0.3940
F	 0.7970	 0.4590

