



Full wwPDB EM Map/Model Validation Report ⓘ

May 22, 2020 – 11:40 am BST

PDB ID : 6SUE
EMDB ID : EMD-10312
Title : Structure of Photorhabdus luminescens Tc holotoxin pore, Mutation TccC3-D651A
Authors : Roderer, D.; Raunser, S.
Deposited on : 2019-09-13
Resolution : 3.40 Å(reported)

This is a Full wwPDB EM Map/Model 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 following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

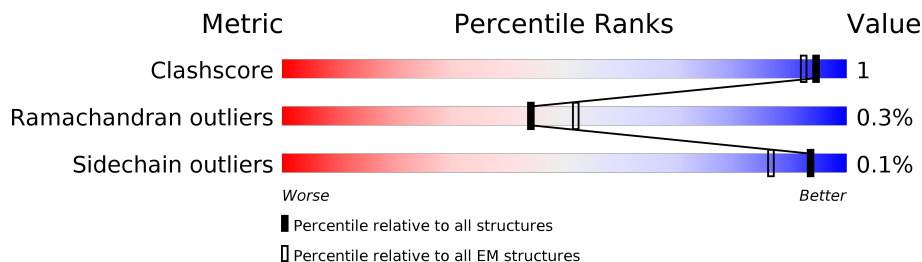
EMDB validation analysis : 0.0.0.dev33
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.11

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 on 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 108270 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	Total	C	N	O	S	0	0
			18197	11530	3083	3525	59		
1	B	2292	Total	C	N	O	S	0	0
			18197	11530	3083	3525	59		
1	C	2292	Total	C	N	O	S	0	0
			18197	11530	3083	3525	59		
1	D	2292	Total	C	N	O	S	0	0
			18197	11530	3083	3525	59		
1	E	2292	Total	C	N	O	S	0	0
			18197	11530	3083	3525	59		

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	2168	Total	C	N	O	S	0	0
			17285	10833	3064	3351	37		

There are 7 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

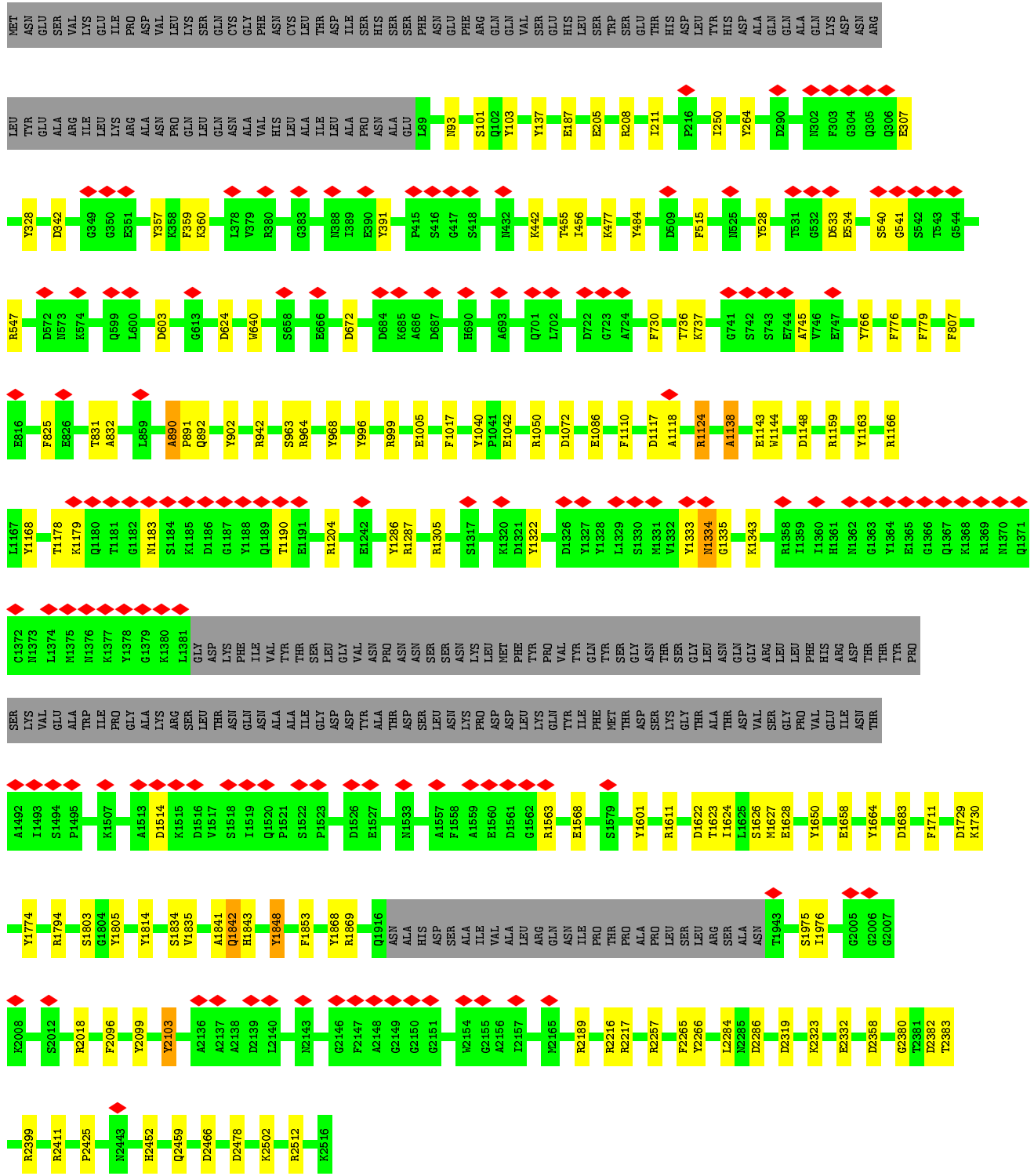
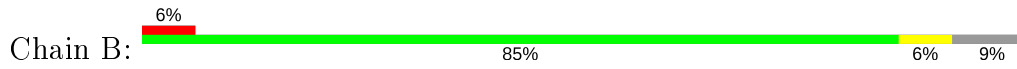
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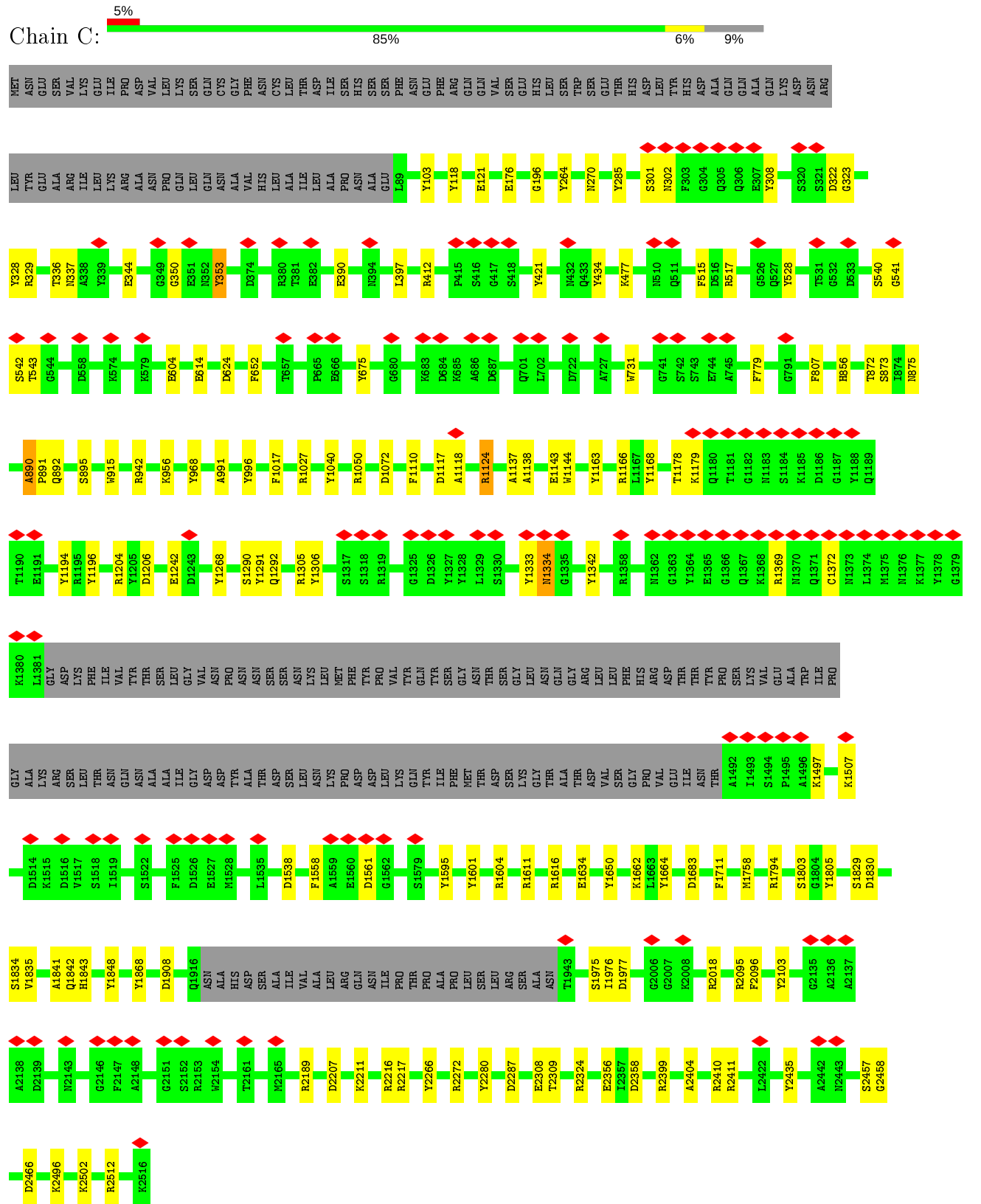
Chain	Residue	Modelled	Actual	Comment	Reference
F	1478	ARG	-	linker	UNP Q8GF99
F	1479	PRO	-	linker	UNP Q8GF99
F	2130	ALA	ASP	engineered mutation	UNP Q8GF97



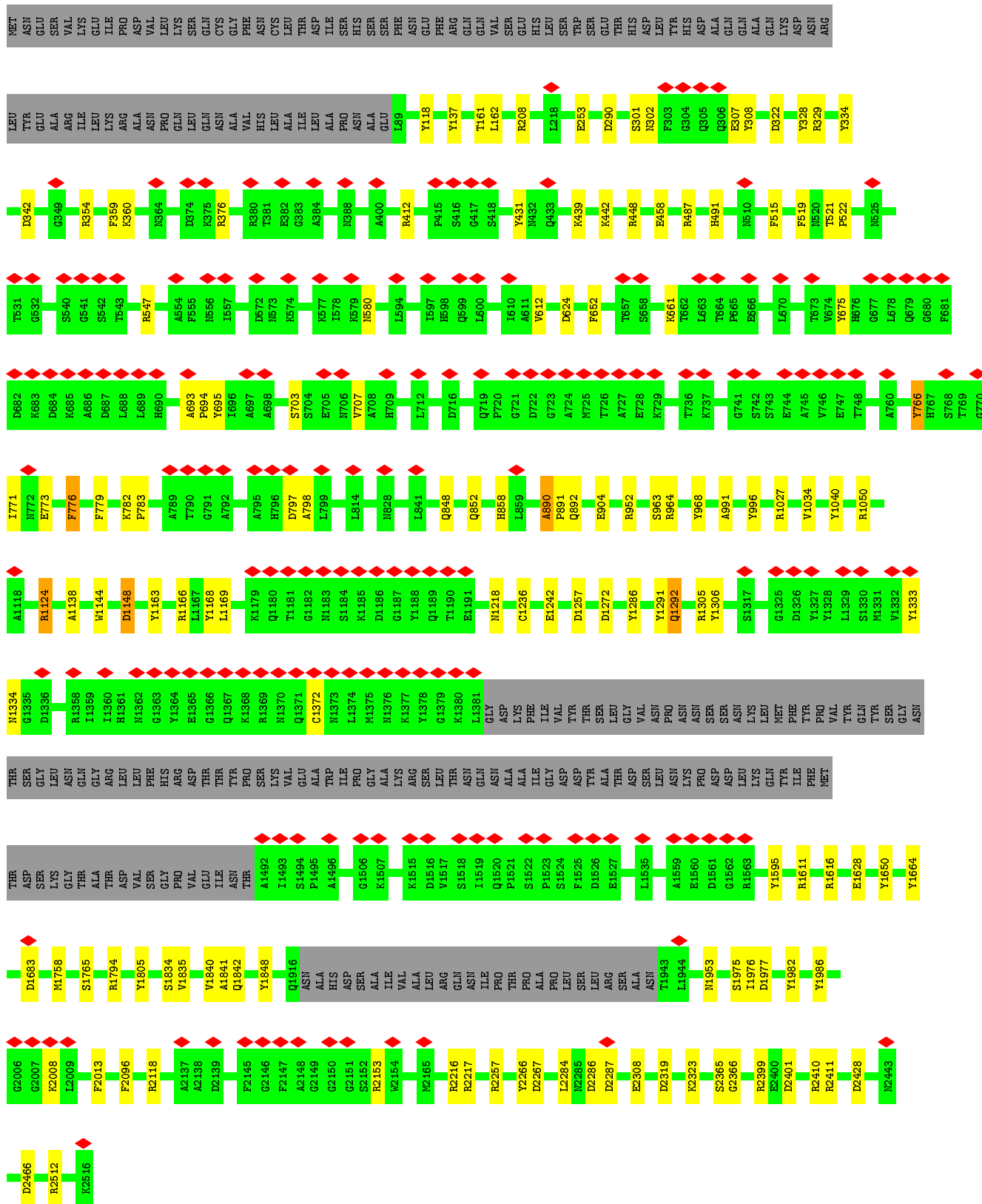
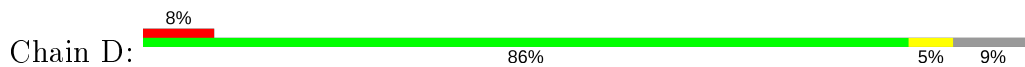
• Molecule 1: TcdA1



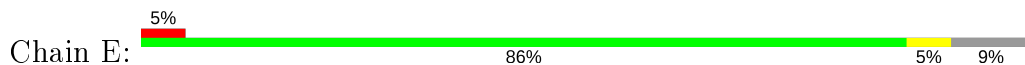
• Molecule 1: TcdA1



• Molecule 1: TcdA1

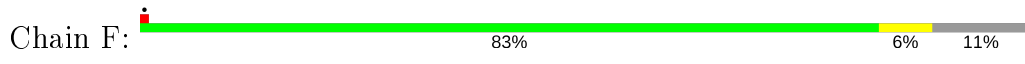


• Molecule 1: TcdA1



MET	ASN	GLU	SER	VAL	ARG	GLY	LEU	ILE	PRO	ARG	ASP	VAL	VAL	LYS	LYS	SER	GLN	CYS	PHE	PHE	ASN	CYS	LEU	THR	ASP	ILE	THR	HIS	SER	SER	SER	PHE	ASN	GLU	PHE	ARG	ARG	GLN	VAL	VAL	GLY	VAL	VAL	GLU	HIS	LEU	SER	TRP	GLU	THR	ASP	LEU	TYR	HIS	ASP	ALA	GLN	GLN	ALA	ALA	GLY	LYS	ASP	ASN	ARG																																																																																										
LEU	TRP	ALA	ARG	ILE	LEU	LYS	ARG	ALA	ASN	PRO	PRO	GLN	LEU	GLN	ALA	ALA	ASN	VAL	GLY	GLY	HIS	LEU	ALA	ALA	ILE	ILE	ALA	PRO	ALA	ALA	GLU	L89	V109	Y137	L138	D139	T140	R141	T161	L162	E176	R193	Y204	N270	K299	N302	F303	G304	Q305	Q306	D222	Y328	R29	R32	Y39	E351	S366	L378	V379	T381	E382	G383	A384	F385	Q386	E390	V391	R412	P415	S416	G417	Y431	Y434	R448	E458	R487	Y488	N510	F515	Y528	T531	G532	D533	S540	S542	T543	G544	R547	R548	N556																																																																	
D559	D572	N573	K574	K579	D624	W640	Y659	D684	K685	A686	E705	F730	E744	E763	I771	F776	T790	R806	E816	Q857	K890	P891	Q892	R942	K956	S963	R964	N975	A991	Y996	E1005	F1017	W1021	Y1024	V1034	Y1040	D1046	R1050	D1072	A1118	Y1121	R1124	E1143	W1144	P1153	Y1154	R1159	Y1163	K1164	S1165	L1167	Y1168	L1169	Q1180	T1181	N1183	S1184	K1185	D1186	G1187	Y1188	Q1189	T1190	E1191	Y1196	E1242	Y1268	Y1286	R1305	S1317																																																																																					
D1326	Y1327	Y1328	L1329	G1335	Y1342	R1358	I1359	I1360	H1361	M1362	G1363	Y1364	E1365	G1366	Q1367	K1368	R1369	M1370	Q1371	C1372	M1373	L1374	M1375	M1376	K1377	Y1378	G1379	K1380	L1381	GLY	ASP	LYS	PHE	ILE	VAL	TYR	THR	SER	LEU	GLY	VAL	ASN	ASN	PRO	ASN	PRO	ASN	ASN	PRO	LEU	VAL	D1326	Y1327	Y1328	L1329	G1335	Y1342	R1358	I1359	I1360	H1361	M1362	G1363	Y1364	E1365	G1366	Q1367	K1368	R1369	M1370	Q1371	C1372	M1373	L1374	M1375	M1376	K1377	Y1378	G1379	K1380	L1381	GLY	ASP	LYS	PHE	ILE	VAL	TYR	THR	SER	LEU	GLY	VAL	ASN	ASN	PRO	ASN	PRO	ASN	ASN	PRO	LEU	VAL	D1326	Y1327	Y1328	L1329	G1335	Y1342	R1358	I1359	I1360	H1361	M1362	G1363	Y1364	E1365	G1366	Q1367	K1368	R1369	M1370	Q1371	C1372	M1373	L1374	M1375	M1376	K1377	Y1378	G1379	K1380	L1381	GLY	ASP	LYS	PHE	ILE	VAL	TYR	THR	SER	LEU	GLY	VAL	ASN	ASN	PRO	ASN	PRO	ASN	ASN	PRO	LEU	VAL
TYR	GLN	TYR	GLY	ASN	THR	SER	GLY	ASN	GLN	LYS	ASN	GLY	ARG	LEU	LEU	PHE	HIS	ARG	ASP	THR	THR	TYR	PRO	ASN	THR	THR	LYS	VAL	GLU	ALA	TRP	ILE	PRO	GLY	ALA	LYS	ARG	SER	LEU	THR	ASN	GLN	ASN	ALA	ALA	ILE	GLY	ASP	VAL	TYR	THR	SER	LEU	GLY	VAL	ASN	ASN	PRO	ASN	ASN	SER	SER	ASN	LYS	LEU	MET	TYR	PRO	VAL																																																																																						
LYS	GLN	TYR	ILE	PHE	ASN	THR	ASP	SER	GLY	LYS	THR	ALA	THR	VAL	VAL	GLY	GLY	PRO	VAL	VAL	THR	ASN	THR	A1492	I1493	S1494	P1495	K1507	D1514	K1515	D1516	V1517	S1518	I1519	S1522	P1523	S1524	F1525	D1526	E1527	L1535	D1538	A1559	E1560	D1561	G1562	R1563	K1564	L1565	Y1595	W1598																																																																																																								
Y1601	R1616	E1634	Y1650	E1658	Y1664	F1711	W1721	Y1774	W1795	Y1805	S1834	Y1835	Y1840	A1841	Q1842	Y1848	Y1868	Q1916	ASN	ALA	HIS	ASP	SER	ALA	VAL	ALA	LEU	ARG	GLN	ASN	ILE	PRO	THR	PRO	PRO	ALA	PRO	PRO	LEU	SER	LEU	ARG	ALA	D1535	D1538	A1559	E1560	D1561	G1562	R1563	K1564	L1565	Y1595	W1598																																																																																																					
ASN	I1943	M1953	Y1982	D1991	P1992	K1993	G2005	G2006	G2007	E2008	R2018	R2095	Y2103	G2135	A2136	A2137	A2138	D2139	L2140	F2145	G2146	F2147	A2148	G2149	G2150	G2151	S2152	R2153	W2154	R2189	R2216	R2217	Y2286	L2284	N2285	D2286	D2287	T2309	D2358	S2365	G2366	R2399																																																																																																																	
Y2402	R2411	D2428	A2442	D2466	E2473	K2502	Y2513	K2516																																																																																																																																																			

• Molecule 2: TcdB2, TccC3



H1	Q2	I3	D6	G17	G18	G19	R49	G50	Y51	D73	C74	D94	T95	F96	R131	H137	D153	D161	R174	S179	Q180	R196	Y204	D209	Y228	Q253	K256	Y259	R267	S268	R269	W283	L284	C285	R286	R300	T301	R302
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4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	337823	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 ($e^-/\text{\AA}^2$)	100	Depositor
Minimum defocus (nm)	Not provided	Depositor
Maximum defocus (nm)	Not provided	Depositor
Magnification	Not provided	Depositor
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	0.165	Depositor
Minimum map value	-0.083	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.005	Depositor
Recommended contour level	0.02	Depositor
Map size (Å)	426.24, 426.24, 426.24	Depositor
Map dimensions	384, 384, 384	Depositor
Map angles (°)	90.0, 90.0, 90.0	Depositor
Pixel spacing (Å)	1.11, 1.11, 1.11	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	1.12	46/18587 (0.2%)	0.93	40/25239 (0.2%)
1	B	1.12	47/18587 (0.3%)	0.93	48/25239 (0.2%)
1	C	1.13	54/18587 (0.3%)	0.94	52/25239 (0.2%)
1	D	1.12	38/18587 (0.2%)	0.93	43/25239 (0.2%)
1	E	1.12	43/18587 (0.2%)	0.94	50/25239 (0.2%)
2	F	1.18	46/17708 (0.3%)	0.98	70/24137 (0.3%)
All	All	1.13	274/110643 (0.2%)	0.94	303/150332 (0.2%)

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	D	0	1

All (274) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	1242	GLU	CG-CD	-10.17	1.36	1.51
1	A	1242	GLU	CG-CD	-10.04	1.36	1.51
1	A	308	TYR	CB-CG	-9.65	1.37	1.51
1	C	1242	GLU	CG-CD	-9.22	1.38	1.51
2	F	1860	PHE	CB-CG	-9.12	1.35	1.51
1	E	996	TYR	CB-CG	-8.73	1.38	1.51
1	B	1124	ARG	CD-NE	-8.33	1.32	1.46
1	D	1163	TYR	CB-CG	-8.26	1.39	1.51
1	E	1163	TYR	CB-CG	-8.07	1.39	1.51
1	A	902	TYR	CB-CG	-8.06	1.39	1.51
1	E	1664	TYR	CB-CG	-8.02	1.39	1.51
1	B	1163	TYR	CB-CG	-7.99	1.39	1.51
1	A	1242	GLU	CD-OE2	-7.85	1.17	1.25
1	E	1242	GLU	CG-CD	-7.83	1.40	1.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	996	TYR	CB-CG	-7.69	1.40	1.51
1	B	1843	HIS	CB-CG	-7.66	1.36	1.50
1	A	1163	TYR	CB-CG	-7.51	1.40	1.51
1	B	1848	TYR	CG-CD1	-7.46	1.29	1.39
1	E	515	PHE	CB-CG	-7.46	1.38	1.51
1	C	1242	GLU	CD-OE2	-7.45	1.17	1.25
1	C	1163	TYR	CB-CG	-7.44	1.40	1.51
1	E	1372	CYS	CB-SG	-7.44	1.69	1.82
2	F	1872	TYR	CE1-CZ	-7.39	1.28	1.38
1	A	1843	HIS	CB-CG	-7.31	1.36	1.50
2	F	744	HIS	CB-CG	-7.28	1.36	1.50
1	C	1601	TYR	CB-CG	-7.27	1.40	1.51
1	D	1664	TYR	CB-CG	-7.27	1.40	1.51
1	D	1242	GLU	CD-OE2	-7.25	1.17	1.25
1	D	996	TYR	CB-CG	-7.17	1.40	1.51
1	D	1124	ARG	CD-NE	-7.15	1.34	1.46
1	D	776	PHE	CG-CD2	-7.14	1.28	1.38
1	B	640	TRP	CB-CG	-7.12	1.37	1.50
2	F	875	TYR	CB-CG	-7.09	1.41	1.51
1	D	580	ASN	CB-CG	-6.94	1.35	1.51
1	B	1842	GLN	CG-CD	-6.87	1.35	1.51
1	B	776	PHE	CB-CG	-6.86	1.39	1.51
1	C	1843	HIS	CB-CG	-6.85	1.37	1.50
1	B	1664	TYR	CB-CG	-6.84	1.41	1.51
2	F	483	TRP	CB-CG	-6.81	1.38	1.50
1	C	807	PHE	CG-CD1	-6.75	1.28	1.38
1	B	1805	TYR	CB-CG	-6.71	1.41	1.51
1	E	1634	GLU	CD-OE1	-6.68	1.18	1.25
1	D	491	HIS	CB-CG	-6.67	1.38	1.50
1	A	1848	TYR	CE2-CZ	-6.57	1.30	1.38
2	F	348	PHE	CB-CG	-6.55	1.40	1.51
1	A	1268	TYR	CB-CG	-6.54	1.41	1.51
1	B	902	TYR	CB-CG	-6.51	1.41	1.51
1	A	1664	TYR	CB-CG	-6.49	1.42	1.51
2	F	2119	TYR	CB-CG	-6.49	1.42	1.51
1	C	1848	TYR	CE2-CZ	-6.48	1.30	1.38
1	A	776	PHE	CB-CG	-6.45	1.40	1.51
1	E	1595	TYR	CB-CG	-6.43	1.42	1.51
1	A	996	TYR	CB-CG	-6.42	1.42	1.51
2	F	174	ARG	CD-NE	-6.41	1.35	1.46
1	D	515	PHE	CB-CG	-6.35	1.40	1.51
1	A	1721	TRP	CB-CG	-6.33	1.38	1.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	1848	TYR	CB-CG	-6.30	1.42	1.51
1	D	1124	ARG	CB-CG	-6.29	1.35	1.52
1	A	1143	GLU	CG-CD	-6.28	1.42	1.51
2	F	285	CYS	CB-SG	-6.25	1.71	1.82
1	D	776	PHE	CG-CD1	-6.21	1.29	1.38
1	D	2013	PHE	CB-CG	-6.20	1.40	1.51
1	A	763	GLU	CG-CD	-6.20	1.42	1.51
1	B	1124	ARG	CB-CG	-6.19	1.35	1.52
1	A	1121	TYR	CB-CG	-6.18	1.42	1.51
1	E	1805	TYR	CB-CG	-6.18	1.42	1.51
1	C	1634	GLU	CD-OE1	-6.17	1.18	1.25
1	A	2272	ARG	CG-CD	-6.16	1.36	1.51
1	E	1005	GLU	CD-OE1	-6.16	1.18	1.25
1	C	779	PHE	CB-CG	-6.16	1.40	1.51
1	D	359	PHE	CB-CG	-6.14	1.41	1.51
2	F	339	GLU	CG-CD	-6.13	1.42	1.51
2	F	259	TYR	CB-CG	-6.12	1.42	1.51
1	C	515	PHE	CB-CG	-6.11	1.41	1.51
2	F	779	ARG	CZ-NH1	-6.11	1.25	1.33
1	B	1848	TYR	CE2-CZ	-6.09	1.30	1.38
1	A	1568	GLU	CG-CD	-6.09	1.42	1.51
1	C	1306	TYR	CB-CG	-6.08	1.42	1.51
1	E	1268	TYR	CB-CG	-6.03	1.42	1.51
1	A	515	PHE	CB-CG	-5.99	1.41	1.51
1	A	344	GLU	CD-OE1	-5.97	1.19	1.25
1	B	515	PHE	CB-CG	-5.97	1.41	1.51
1	C	1664	TYR	CB-CG	-5.97	1.42	1.51
1	A	1595	TYR	CB-CG	-5.95	1.42	1.51
1	E	1658	GLU	CD-OE1	-5.94	1.19	1.25
1	E	1242	GLU	CD-OE1	-5.93	1.19	1.25
1	C	2272	ARG	CG-CD	-5.93	1.37	1.51
1	B	807	PHE	CG-CD1	-5.93	1.29	1.38
1	A	103	TYR	CB-CG	-5.91	1.42	1.51
1	A	1650	TYR	CG-CD1	-5.90	1.31	1.39
1	A	1342	TYR	CB-CG	-5.90	1.42	1.51
2	F	339	GLU	CD-OE2	-5.88	1.19	1.25
1	D	308	TYR	CB-CG	-5.88	1.42	1.51
1	C	968	TYR	CG-CD1	-5.88	1.31	1.39
1	A	1805	TYR	CB-CG	-5.88	1.42	1.51
1	C	1650	TYR	CG-CD1	-5.87	1.31	1.39
1	E	1795	TRP	CB-CG	-5.87	1.39	1.50
2	F	783	TYR	CB-CG	-5.86	1.42	1.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	996	TYR	CG-CD1	-5.82	1.31	1.39
1	E	528	TYR	CB-CG	-5.82	1.43	1.51
2	F	1406	PHE	CB-CG	-5.81	1.41	1.51
1	C	264	TYR	CB-CG	-5.81	1.43	1.51
1	D	307	GLU	CD-OE2	-5.81	1.19	1.25
1	E	1650	TYR	CD1-CE1	-5.80	1.30	1.39
2	F	771	TRP	CB-CG	-5.78	1.39	1.50
1	E	204	TYR	CB-CG	-5.77	1.43	1.51
1	C	604	GLU	CG-CD	-5.77	1.43	1.51
2	F	367	GLU	CD-OE1	-5.75	1.19	1.25
1	C	996	TYR	CG-CD1	-5.75	1.31	1.39
1	B	1322	TYR	CB-CG	-5.74	1.43	1.51
1	D	779	PHE	CB-CG	-5.73	1.41	1.51
1	C	1110	PHE	CB-CG	-5.72	1.41	1.51
1	D	1034	VAL	CB-CG2	-5.72	1.40	1.52
1	A	1650	TYR	CD1-CE1	-5.71	1.30	1.39
1	E	1527	GLU	CD-OE2	-5.71	1.19	1.25
2	F	1554	ASN	CB-CG	-5.67	1.38	1.51
1	B	1628	GLU	CD-OE2	-5.66	1.19	1.25
2	F	411	TYR	CB-CG	-5.66	1.43	1.51
1	B	968	TYR	CG-CD1	-5.64	1.31	1.39
1	C	1595	TYR	CB-CG	-5.64	1.43	1.51
1	E	730	PHE	CB-CG	-5.64	1.41	1.51
1	E	1650	TYR	CG-CD1	-5.63	1.31	1.39
1	B	730	PHE	CB-CG	-5.63	1.41	1.51
1	E	1342	TYR	CB-CG	-5.61	1.43	1.51
2	F	664	MET	CG-SD	-5.59	1.66	1.81
1	B	2099	TYR	CB-CG	-5.59	1.43	1.51
1	D	675	TYR	CB-CG	-5.58	1.43	1.51
2	F	1840	TYR	CB-CG	-5.58	1.43	1.51
1	C	344	GLU	CG-CD	-5.57	1.43	1.51
2	F	1836	TYR	CB-CG	-5.57	1.43	1.51
1	E	141	ARG	CG-CD	-5.56	1.38	1.51
1	E	1124	ARG	CB-CG	-5.56	1.37	1.52
2	F	2093	GLU	CD-OE1	-5.56	1.19	1.25
1	A	902	TYR	CD2-CE2	-5.56	1.31	1.39
1	D	904	GLU	CD-OE1	-5.54	1.19	1.25
2	F	1455	TRP	CB-CG	-5.54	1.40	1.50
1	B	264	TYR	CB-CG	-5.52	1.43	1.51
1	C	1868	TYR	CB-CG	-5.52	1.43	1.51
1	D	612	VAL	CB-CG2	-5.51	1.41	1.52
1	B	2096	PHE	CB-CG	-5.51	1.42	1.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	307	GLU	CD-OE2	-5.49	1.19	1.25
1	C	2356	GLU	CD-OE1	-5.49	1.19	1.25
1	E	328	TYR	CB-CG	-5.48	1.43	1.51
1	C	1848	TYR	CB-CG	-5.47	1.43	1.51
1	A	1598	TRP	CB-CG	-5.46	1.40	1.50
1	A	2393	PHE	CB-CG	-5.45	1.42	1.51
1	C	1268	TYR	CB-CG	-5.45	1.43	1.51
1	A	1034	VAL	CB-CG2	-5.45	1.41	1.52
1	C	1650	TYR	CB-CG	-5.45	1.43	1.51
1	C	1650	TYR	CD1-CE1	-5.44	1.31	1.39
2	F	256	TRP	CD2-CE3	-5.44	1.32	1.40
2	F	174	ARG	CZ-NH2	-5.43	1.25	1.33
1	C	2096	PHE	CB-CG	-5.43	1.42	1.51
2	F	396	TRP	CB-CG	-5.42	1.40	1.50
2	F	204	TYR	CB-CG	-5.41	1.43	1.51
1	C	103	TYR	CB-CG	-5.41	1.43	1.51
1	A	604	GLU	CD-OE1	-5.40	1.19	1.25
2	F	370	TYR	CD1-CE1	-5.40	1.31	1.39
1	C	1342	TYR	CB-CG	-5.38	1.43	1.51
2	F	1383	ARG	CB-CG	-5.38	1.38	1.52
1	E	1124	ARG	CD-NE	-5.37	1.37	1.46
1	B	2103	TYR	CB-CG	-5.37	1.43	1.51
1	C	1805	TYR	CB-CG	-5.37	1.43	1.51
1	A	2159	GLU	CD-OE2	-5.36	1.19	1.25
1	B	766	TYR	CB-CG	-5.35	1.43	1.51
1	B	1005	GLU	CD-OE1	-5.35	1.19	1.25
1	C	353	TYR	CE1-CZ	-5.35	1.31	1.38
1	D	858	HIS	CB-CG	-5.35	1.40	1.50
1	E	640	TRP	CB-CG	-5.34	1.40	1.50
1	E	1121	TYR	CB-CG	-5.34	1.43	1.51
2	F	873	GLU	CD-OE1	-5.34	1.19	1.25
1	A	264	TYR	CB-CG	-5.33	1.43	1.51
2	F	842	TRP	CB-CG	-5.33	1.40	1.50
1	C	353	TYR	CD1-CE1	-5.33	1.31	1.39
1	B	1110	PHE	CB-CG	-5.33	1.42	1.51
2	F	1257	GLU	CD-OE1	-5.33	1.19	1.25
1	A	1123	TRP	CB-CG	-5.32	1.40	1.50
1	D	1218	ASN	CB-CG	-5.32	1.38	1.51
1	B	996	TYR	CB-CG	-5.31	1.43	1.51
1	B	1568	GLU	CG-CD	-5.30	1.44	1.51
1	C	1124	ARG	CB-CG	-5.30	1.38	1.52
1	B	328	TYR	CB-CG	-5.30	1.43	1.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	1372	CYS	CB-SG	-5.29	1.73	1.81
1	C	1868	TYR	CD2-CE2	-5.29	1.31	1.39
1	A	766	TYR	CG-CD1	-5.28	1.32	1.39
1	B	2332	GLU	CD-OE1	-5.28	1.19	1.25
1	C	118	TYR	CE2-CZ	-5.27	1.31	1.38
1	E	141	ARG	CD-NE	-5.27	1.37	1.46
2	F	390	PHE	CB-CG	-5.27	1.42	1.51
1	B	1853	PHE	CB-CG	-5.27	1.42	1.51
1	B	137	TYR	CB-CG	-5.26	1.43	1.51
1	D	652	PHE	CB-CG	-5.26	1.42	1.51
1	B	2452	HIS	CB-CG	-5.25	1.40	1.50
1	C	1372	CYS	CB-SG	-5.25	1.73	1.81
1	E	1017	PHE	CB-CG	-5.24	1.42	1.51
1	A	1628	GLU	CD-OE2	-5.24	1.19	1.25
1	B	187	GLU	CD-OE1	-5.24	1.19	1.25
2	F	1764	GLU	CD-OE1	-5.23	1.19	1.25
1	E	1143	GLU	CG-CD	-5.23	1.44	1.51
1	B	1017	PHE	CB-CG	-5.23	1.42	1.51
1	B	1848	TYR	CD1-CE1	-5.22	1.31	1.39
1	D	1848	TYR	CE2-CZ	-5.22	1.31	1.38
1	C	731	TRP	CZ3-CH2	-5.21	1.31	1.40
1	D	1163	TYR	CD1-CE1	-5.21	1.31	1.39
1	C	1124	ARG	CD-NE	-5.21	1.37	1.46
2	F	495	GLU	CD-OE1	-5.20	1.20	1.25
1	A	1868	TYR	CG-CD1	-5.20	1.32	1.39
1	E	2402	TYR	CB-CG	-5.20	1.43	1.51
1	E	1021	TRP	CB-CG	-5.20	1.40	1.50
1	E	1034	VAL	CB-CG2	-5.19	1.42	1.52
2	F	96	PHE	CB-CG	-5.19	1.42	1.51
2	F	687	TRP	CB-CG	-5.19	1.41	1.50
1	A	1853	PHE	CB-CG	-5.18	1.42	1.51
1	C	1017	PHE	CB-CG	-5.17	1.42	1.51
1	B	776	PHE	CG-CD2	-5.16	1.31	1.38
1	C	1143	GLU	CG-CD	-5.15	1.44	1.51
1	D	2096	PHE	CB-CG	-5.15	1.42	1.51
2	F	859	TYR	CE2-CZ	-5.15	1.31	1.38
1	B	2265	PHE	CB-CG	-5.15	1.42	1.51
1	C	2308	GLU	CD-OE2	-5.14	1.20	1.25
1	A	1650	TYR	CB-CG	-5.14	1.44	1.51
1	E	763	GLU	CG-CD	-5.14	1.44	1.51
1	A	1086	GLU	CD-OE1	-5.14	1.20	1.25
2	F	1299	TRP	CZ3-CH2	-5.14	1.31	1.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	390	GLU	CD-OE1	-5.13	1.20	1.25
1	E	390	GLU	CG-CD	-5.13	1.44	1.51
1	D	1805	TYR	CB-CG	-5.13	1.44	1.51
1	C	614	GLU	CD-OE2	-5.12	1.20	1.25
1	B	534	GLU	CD-OE2	-5.12	1.20	1.25
1	B	1143	GLU	CD-OE2	-5.12	1.20	1.25
1	E	2473	GLU	CG-CD	-5.12	1.44	1.51
1	D	1236	CYS	CB-SG	-5.12	1.73	1.81
2	F	228	TYR	CB-CG	-5.11	1.44	1.51
1	D	1595	TYR	CB-CG	-5.11	1.44	1.51
1	E	109	VAL	CB-CG1	-5.11	1.42	1.52
2	F	355	GLU	CD-OE2	-5.11	1.20	1.25
1	B	205	GLU	CD-OE2	-5.11	1.20	1.25
1	E	1721	TRP	CB-CG	-5.11	1.41	1.50
1	B	1658	GLU	CD-OE1	-5.10	1.20	1.25
1	C	652	PHE	CB-CG	-5.10	1.42	1.51
1	D	1628	GLU	CD-OE2	-5.10	1.20	1.25
1	E	816	GLU	CD-OE2	-5.10	1.20	1.25
1	E	1650	TYR	CB-CG	-5.10	1.44	1.51
1	D	703	SER	CB-OG	-5.09	1.35	1.42
2	F	286	ARG	CD-NE	-5.09	1.37	1.46
1	D	2308	GLU	CD-OE2	-5.09	1.20	1.25
1	C	121	GLU	CD-OE2	-5.08	1.20	1.25
1	E	1196	TYR	CB-CG	-5.07	1.44	1.51
1	C	2435	TYR	CB-CG	-5.07	1.44	1.51
1	A	766	TYR	CD1-CE1	-5.06	1.31	1.39
1	C	875	ASN	CB-CG	-5.06	1.39	1.51
1	C	2280	TYR	CB-CG	-5.06	1.44	1.51
1	C	996	TYR	CG-CD2	-5.05	1.32	1.39
1	A	205	GLU	CD-OE2	-5.05	1.20	1.25
1	B	528	TYR	CB-CG	-5.05	1.44	1.51
1	D	695	TYR	CB-CG	-5.05	1.44	1.51
1	A	730	PHE	CB-CG	-5.04	1.42	1.51
1	B	1805	TYR	CD1-CE1	-5.04	1.31	1.39
1	A	1163	TYR	CG-CD1	-5.04	1.32	1.39
1	A	2096	PHE	CB-CG	-5.04	1.42	1.51
1	D	328	TYR	CB-CG	-5.04	1.44	1.51
1	B	1086	GLU	CD-OE1	-5.04	1.20	1.25
1	C	1163	TYR	CD1-CE1	-5.04	1.31	1.39
1	C	915	TRP	CB-CG	-5.03	1.41	1.50
2	F	174	ARG	CB-CG	-5.03	1.39	1.52
1	C	328	TYR	CB-CG	-5.03	1.44	1.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	E	193	ARG	CG-CD	-5.03	1.39	1.51
1	D	1765	SER	CA-CB	-5.02	1.45	1.52
1	E	1598	TRP	CB-CG	-5.01	1.41	1.50
2	F	887	TYR	CB-CG	-5.01	1.44	1.51
1	B	1042	GLU	CD-OE2	-5.01	1.20	1.25
2	F	495	GLU	CD-OE2	-5.01	1.20	1.25
1	A	2308	GLU	CD-OE2	-5.01	1.20	1.25
1	D	118	TYR	CE2-CZ	-5.01	1.32	1.38

All (303) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	354	ARG	NE-CZ-NH2	-12.65	113.97	120.30
1	E	1616	ARG	NE-CZ-NH2	-11.43	114.59	120.30
2	F	286	ARG	NE-CZ-NH1	-11.17	114.72	120.30
2	F	1585	ARG	NE-CZ-NH2	-11.04	114.78	120.30
1	E	2018	ARG	NE-CZ-NH2	-10.61	115.00	120.30
1	C	1616	ARG	NE-CZ-NH2	-10.36	115.12	120.30
1	B	1869	ARG	NE-CZ-NH2	-10.09	115.25	120.30
1	C	517	ARG	NE-CZ-NH1	10.06	125.33	120.30
1	D	547	ARG	NE-CZ-NH2	-9.77	115.41	120.30
1	C	2018	ARG	NE-CZ-NH2	-9.68	115.46	120.30
2	F	174	ARG	NE-CZ-NH2	-9.59	115.50	120.30
2	F	2117	ARG	NE-CZ-NH1	-9.53	115.53	120.30
2	F	424	ARG	NE-CZ-NH2	-9.34	115.63	120.30
1	B	2018	ARG	NE-CZ-NH2	-9.33	115.63	120.30
2	F	1585	ARG	NE-CZ-NH1	9.25	124.93	120.30
1	C	353	TYR	CB-CG-CD1	-9.16	115.50	121.00
1	A	2018	ARG	NE-CZ-NH2	-9.10	115.75	120.30
2	F	871	ARG	NE-CZ-NH2	-9.10	115.75	120.30
1	E	1124	ARG	NE-CZ-NH2	-8.99	115.81	120.30
1	C	1124	ARG	NE-CZ-NH2	-8.96	115.82	120.30
1	E	2216	ARG	NE-CZ-NH2	-8.93	115.84	120.30
2	F	174	ARG	NE-CZ-NH1	8.89	124.74	120.30
1	B	1124	ARG	NE-CZ-NH2	-8.82	115.89	120.30
1	A	1650	TYR	CB-CG-CD1	-8.79	115.73	121.00
1	E	1650	TYR	CB-CG-CD1	-8.78	115.73	121.00
1	C	1204	ARG	NE-CZ-NH2	-8.57	116.02	120.30
1	E	1305	ARG	NE-CZ-NH1	8.55	124.57	120.30
1	D	1166	ARG	NE-CZ-NH1	8.48	124.54	120.30
1	B	1322	TYR	CB-CG-CD1	-8.48	115.91	121.00
2	F	1044	ARG	NE-CZ-NH2	-8.47	116.06	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	1650	TYR	CB-CG-CD1	-8.47	115.92	121.00
1	E	547	ARG	NE-CZ-NH2	-8.46	116.07	120.30
1	E	1159	ARG	NE-CZ-NH2	-8.41	116.09	120.30
1	A	2410	ARG	NE-CZ-NH2	-8.39	116.11	120.30
1	B	1159	ARG	NE-CZ-NH2	-8.33	116.14	120.30
1	D	487	ARG	NE-CZ-NH2	-8.32	116.14	120.30
1	C	1650	TYR	CB-CG-CD1	-8.27	116.04	121.00
2	F	302	ARG	NE-CZ-NH2	-8.25	116.17	120.30
1	C	807	PHE	CB-CG-CD2	8.20	126.54	120.80
1	E	1563	ARG	NE-CZ-NH2	-8.19	116.21	120.30
1	D	2512	ARG	NE-CZ-NH2	-8.13	116.23	120.30
1	E	1601	TYR	CB-CG-CD2	-7.97	116.22	121.00
1	A	1611	ARG	NE-CZ-NH2	-7.96	116.32	120.30
1	B	1563	ARG	NE-CZ-NH2	-7.95	116.32	120.30
1	A	1868	TYR	CB-CG-CD1	-7.95	116.23	121.00
1	B	137	TYR	CB-CG-CD1	-7.92	116.25	121.00
1	D	1124	ARG	NE-CZ-NH2	-7.91	116.34	120.30
1	B	1794	ARG	NE-CZ-NH2	-7.88	116.36	120.30
1	E	942	ARG	NE-CZ-NH2	-7.88	116.36	120.30
1	A	2512	ARG	NE-CZ-NH2	-7.86	116.37	120.30
1	C	807	PHE	CB-CG-CD1	-7.82	115.32	120.80
2	F	131	ARG	NE-CZ-NH2	-7.77	116.42	120.30
1	C	2410	ARG	NE-CZ-NH2	-7.75	116.42	120.30
1	D	448	ARG	NE-CZ-NH2	7.71	124.15	120.30
1	B	942	ARG	NE-CZ-NH2	-7.69	116.45	120.30
1	C	1611	ARG	NE-CZ-NH2	-7.66	116.47	120.30
1	B	1611	ARG	NE-CZ-NH2	-7.65	116.48	120.30
1	D	1794	ARG	NE-CZ-NH2	-7.64	116.48	120.30
1	B	2512	ARG	NE-CZ-NH2	-7.58	116.51	120.30
1	D	208	ARG	NE-CZ-NH2	-7.57	116.52	120.30
1	D	1611	ARG	NE-CZ-NH2	-7.53	116.54	120.30
1	C	1369	ARG	NE-CZ-NH2	-7.52	116.54	120.30
1	A	942	ARG	NE-CZ-NH2	-7.51	116.54	120.30
1	A	2216	ARG	NE-CZ-NH2	-7.51	116.55	120.30
1	B	2216	ARG	NE-CZ-NH2	-7.50	116.55	120.30
2	F	1383	ARG	NE-CZ-NH2	-7.44	116.58	120.30
1	A	766	TYR	CB-CG-CD1	-7.42	116.55	121.00
2	F	1411	ARG	NE-CZ-NH2	-7.39	116.60	120.30
1	E	2216	ARG	NE-CZ-NH1	7.38	123.99	120.30
1	E	1868	TYR	CB-CG-CD1	-7.36	116.58	121.00
2	F	1436	ARG	NE-CZ-NH2	-7.35	116.62	120.30
1	E	1050	ARG	NE-CZ-NH1	7.30	123.95	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	547	ARG	NE-CZ-NH2	-7.29	116.65	120.30
1	C	1040	TYR	CB-CG-CD1	-7.24	116.65	121.00
1	B	1305	ARG	NE-CZ-NH2	-7.23	116.68	120.30
1	D	1168	TYR	CB-CG-CD2	-7.22	116.67	121.00
1	B	1305	ARG	NE-CZ-NH1	7.17	123.89	120.30
1	B	1166	ARG	NE-CZ-NH1	7.12	123.86	120.30
1	D	2410	ARG	NE-CZ-NH2	-7.12	116.74	120.30
1	D	1650	TYR	CB-CG-CD1	-7.05	116.77	121.00
2	F	49	ARG	NE-CZ-NH1	7.04	123.82	120.30
2	F	2051	ARG	NE-CZ-NH2	-7.02	116.79	120.30
1	A	528	TYR	CB-CG-CD1	-7.01	116.79	121.00
1	C	1168	TYR	CB-CG-CD2	-6.99	116.81	121.00
1	E	1305	ARG	NE-CZ-NH2	-6.97	116.82	120.30
2	F	917	ARG	NE-CZ-NH2	-6.97	116.82	120.30
1	B	1868	TYR	CB-CG-CD1	-6.94	116.83	121.00
1	B	1050	ARG	NE-CZ-NH2	6.87	123.73	120.30
1	C	2512	ARG	NE-CZ-NH2	-6.87	116.87	120.30
2	F	1139	ARG	NE-CZ-NH2	-6.87	116.87	120.30
1	B	1601	TYR	CB-CG-CD2	-6.83	116.90	121.00
1	A	1204	ARG	NE-CZ-NH2	-6.82	116.89	120.30
1	E	1286	TYR	CB-CG-CD2	-6.81	116.91	121.00
2	F	800	ARG	NE-CZ-NH2	-6.76	116.92	120.30
1	E	1072	ASP	CB-CG-OD1	6.76	124.38	118.30
1	A	1369	ARG	NE-CZ-NH2	-6.74	116.93	120.30
1	C	2216	ARG	NE-CZ-NH2	-6.73	116.94	120.30
2	F	625	TYR	CB-CG-CD1	-6.67	117.00	121.00
1	B	1287	ARG	NE-CZ-NH2	-6.63	116.98	120.30
1	C	1601	TYR	CB-CG-CD2	-6.62	117.03	121.00
1	E	806	ARG	NE-CZ-NH2	-6.57	117.02	120.30
1	A	434	TYR	CB-CG-CD1	-6.55	117.07	121.00
1	E	1711	PHE	CB-CG-CD2	6.55	125.38	120.80
2	F	2114	TYR	CB-CG-CD2	-6.51	117.09	121.00
1	B	1040	TYR	CB-CG-CD1	-6.47	117.11	121.00
2	F	49	ARG	NE-CZ-NH2	-6.47	117.06	120.30
2	F	1001	ARG	NE-CZ-NH2	-6.47	117.07	120.30
1	C	2399	ARG	NE-CZ-NH2	-6.46	117.07	120.30
2	F	1383	ARG	NE-CZ-NH1	6.42	123.51	120.30
1	E	1982	TYR	CB-CG-CD1	-6.41	117.15	121.00
1	E	204	TYR	CB-CG-CD2	-6.41	117.16	121.00
2	F	1205	ARG	NE-CZ-NH2	-6.39	117.10	120.30
1	E	1168	TYR	CB-CG-CD2	-6.39	117.17	121.00
1	C	1794	ARG	NE-CZ-NH2	-6.37	117.11	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	332	ARG	NE-CZ-NH2	-6.36	117.12	120.30
1	D	1982	TYR	CB-CG-CD1	-6.35	117.19	121.00
1	D	2512	ARG	NE-CZ-NH1	6.34	123.47	120.30
2	F	768	ARG	NE-CZ-NH2	-6.33	117.14	120.30
1	A	1287	ARG	NE-CZ-NH2	-6.32	117.14	120.30
2	F	196	ARG	NE-CZ-NH2	-6.30	117.15	120.30
1	C	517	ARG	NE-CZ-NH2	-6.29	117.15	120.30
1	E	448	ARG	NE-CZ-NH2	6.28	123.44	120.30
1	D	1616	ARG	NE-CZ-NH2	-6.28	117.16	120.30
1	B	208	ARG	NE-CZ-NH2	-6.28	117.16	120.30
2	F	859	TYR	CB-CG-CD2	-6.27	117.24	121.00
2	F	1167	ARG	NE-CZ-NH2	-6.26	117.17	120.30
2	F	976	TYR	CB-CG-CD1	-6.26	117.24	121.00
2	F	2051	ARG	NE-CZ-NH1	6.26	123.43	120.30
1	B	999	ARG	NE-CZ-NH2	-6.25	117.17	120.30
1	D	1148	ASP	CB-CG-OD2	6.25	123.93	118.30
1	A	2266	TYR	CB-CG-CD2	-6.24	117.26	121.00
1	D	354	ARG	NE-CZ-NH2	-6.24	117.18	120.30
1	C	2411	ARG	NE-CZ-NH1	6.21	123.41	120.30
1	A	208	ARG	NE-CZ-NH2	-6.21	117.19	120.30
1	D	2428	ASP	CB-CG-OD1	6.21	123.89	118.30
1	A	2512	ARG	NE-CZ-NH1	6.19	123.39	120.30
1	B	484	TYR	CB-CG-CD1	-6.19	117.29	121.00
2	F	131	ARG	NE-CZ-NH1	6.18	123.39	120.30
1	D	1050	ARG	NE-CZ-NH2	6.18	123.39	120.30
1	E	1358	ARG	NE-CZ-NH2	-6.16	117.22	120.30
1	A	1050	ARG	NE-CZ-NH2	6.15	123.38	120.30
1	C	2512	ARG	NE-CZ-NH1	6.14	123.37	120.30
1	C	1711	PHE	CB-CG-CD2	6.13	125.09	120.80
2	F	1848	ARG	NE-CZ-NH2	6.11	123.36	120.30
2	F	1367	ARG	NE-CZ-NH2	-6.11	117.25	120.30
1	D	2411	ARG	NE-CZ-NH1	6.09	123.35	120.30
1	D	1306	TYR	CB-CG-CD2	-6.08	117.35	121.00
2	F	332	ARG	NE-CZ-NH1	6.08	123.34	120.30
2	F	2125	ARG	NE-CZ-NH2	-6.08	117.26	120.30
2	F	1789	ARG	NE-CZ-NH2	-6.06	117.27	120.30
1	D	519	PHE	CB-CG-CD2	6.06	125.04	120.80
1	E	488	TYR	CB-CG-CD1	-6.02	117.39	121.00
1	C	1166	ARG	NE-CZ-NH1	6.01	123.31	120.30
1	E	2018	ARG	NE-CZ-NH1	6.01	123.31	120.30
1	B	1159	ARG	NE-CZ-NH1	6.00	123.30	120.30
1	E	1166	ARG	NE-CZ-NH1	5.99	123.30	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	1412	TYR	CB-CG-CD1	-5.99	117.41	121.00
1	A	1711	PHE	CB-CG-CD2	5.98	124.99	120.80
2	F	1790	ARG	NE-CZ-NH2	-5.98	117.31	120.30
1	E	1369	ARG	NE-CZ-NH2	-5.98	117.31	120.30
1	C	1204	ARG	NE-CZ-NH1	5.97	123.28	120.30
1	B	103	TYR	CB-CG-CD2	-5.96	117.42	121.00
1	A	332	ARG	NE-CZ-NH2	-5.96	117.32	120.30
1	E	1711	PHE	CB-CG-CD1	-5.95	116.63	120.80
2	F	1318	ARG	NE-CZ-NH1	5.95	123.27	120.30
1	A	1883	TYR	CB-CG-CD1	-5.94	117.44	121.00
1	C	1305	ARG	NE-CZ-NH2	-5.94	117.33	120.30
1	C	1072	ASP	CB-CG-OD1	5.93	123.64	118.30
1	D	2118	ARG	NE-CZ-NH2	-5.92	117.34	120.30
1	C	1305	ARG	NE-CZ-NH1	5.89	123.25	120.30
1	D	1986	TYR	CB-CG-CD1	-5.89	117.47	121.00
1	C	421	TYR	CB-CG-CD1	-5.89	117.47	121.00
2	F	1790	ARG	NE-CZ-NH1	5.78	123.19	120.30
1	C	2324	ARG	NE-CZ-NH1	5.77	123.19	120.30
1	A	412	ARG	NE-CZ-NH2	-5.74	117.43	120.30
1	E	2411	ARG	NE-CZ-NH1	5.72	123.16	120.30
1	C	412	ARG	NE-CZ-NH1	5.71	123.15	120.30
1	D	2216	ARG	NE-CZ-NH2	-5.70	117.45	120.30
1	E	547	ARG	NE-CZ-NH1	5.68	123.14	120.30
2	F	921	TYR	CB-CG-CD2	-5.68	117.59	121.00
1	A	1024	TYR	CB-CG-CD2	-5.67	117.60	121.00
2	F	259	TYR	CB-CG-CD1	-5.67	117.60	121.00
1	B	890	ALA	C-N-CD	-5.65	108.17	120.60
2	F	754	GLU	N-CA-C	-5.64	95.77	111.00
1	A	555	PHE	CB-CG-CD1	-5.63	116.86	120.80
1	C	942	ARG	NE-CZ-NH2	-5.63	117.49	120.30
2	F	713	ARG	NE-CZ-NH1	5.62	123.11	120.30
2	F	1115	ARG	NE-CZ-NH1	5.61	123.10	120.30
1	C	2266	TYR	CB-CG-CD2	-5.60	117.64	121.00
2	F	1044	ARG	NE-CZ-NH1	5.59	123.10	120.30
1	A	1168	TYR	CB-CG-CD2	-5.59	117.65	121.00
2	F	906	TYR	CB-CG-CD1	-5.59	117.65	121.00
1	C	1194	TYR	CB-CG-CD2	-5.57	117.66	121.00
1	D	2266	TYR	CB-CG-CD2	-5.56	117.66	121.00
1	C	1072	ASP	CB-CG-OD2	-5.56	113.30	118.30
1	E	1124	ARG	CB-CA-C	-5.55	99.30	110.40
1	A	1982	TYR	CB-CG-CD2	-5.54	117.67	121.00
1	C	1027	ARG	NE-CZ-NH2	-5.54	117.53	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	2217	ARG	NE-CZ-NH2	-5.52	117.54	120.30
2	F	2112	TYR	CB-CG-CD1	-5.52	117.69	121.00
1	A	2324	ARG	NE-CZ-NH1	5.52	123.06	120.30
2	F	1972	TYR	CB-CG-CD1	-5.51	117.69	121.00
1	A	136	TYR	CB-CG-CD1	-5.50	117.70	121.00
1	C	353	TYR	CB-CG-CD2	5.50	124.30	121.00
1	C	1124	ARG	CB-CA-C	-5.50	99.39	110.40
1	E	2217	ARG	NE-CZ-NH2	-5.49	117.56	120.30
2	F	94	ASP	CB-CG-OD1	5.49	123.24	118.30
1	B	2512	ARG	NE-CZ-NH1	5.48	123.04	120.30
1	E	1024	TYR	CB-CG-CD1	-5.46	117.72	121.00
1	B	2266	TYR	CB-CG-CD2	-5.46	117.73	121.00
1	E	412	ARG	NE-CZ-NH2	-5.45	117.57	120.30
2	F	267	ARG	NE-CZ-NH1	5.44	123.02	120.30
1	D	448	ARG	NE-CZ-NH1	-5.44	117.58	120.30
2	F	2100	ARG	NE-CZ-NH2	-5.43	117.59	120.30
1	D	2399	ARG	NE-CZ-NH2	-5.42	117.59	120.30
1	B	2217	ARG	NE-CZ-NH2	-5.42	117.59	120.30
1	B	672	ASP	CB-CG-OD1	5.41	123.17	118.30
1	B	825	PHE	CB-CG-CD2	-5.41	117.01	120.80
1	B	2411	ARG	NE-CZ-NH1	5.41	123.00	120.30
1	A	902	TYR	CB-CG-CD2	-5.40	117.76	121.00
1	C	1050	ARG	NE-CZ-NH1	-5.40	117.60	120.30
2	F	1848	ARG	NE-CZ-NH1	-5.39	117.60	120.30
1	C	2399	ARG	NE-CZ-NH1	5.39	123.00	120.30
1	B	807	PHE	CB-CG-CD2	5.38	124.56	120.80
1	B	779	PHE	CB-CA-C	-5.38	99.65	110.40
1	A	208	ARG	NE-CZ-NH1	5.37	122.98	120.30
1	C	2217	ARG	NE-CZ-NH2	-5.37	117.62	120.30
1	D	1272	ASP	N-CA-C	-5.37	96.51	111.00
1	D	2217	ARG	NE-CZ-NH2	-5.36	117.62	120.30
2	F	51	TYR	CB-CG-CD1	-5.34	117.79	121.00
2	F	1425	TYR	CB-CG-CD1	-5.34	117.79	121.00
2	F	2033	ARG	NE-CZ-NH2	-5.34	117.63	120.30
1	E	2513	TYR	CB-CG-CD1	-5.34	117.80	121.00
1	A	2411	ARG	NE-CZ-NH1	5.33	122.97	120.30
1	E	2266	TYR	CB-CG-CD2	-5.33	117.80	121.00
1	B	1711	PHE	CB-CG-CD2	5.33	124.53	120.80
1	E	2428	ASP	CB-CG-OD1	5.32	123.09	118.30
2	F	1318	ARG	NE-CZ-NH2	-5.32	117.64	120.30
1	B	1168	TYR	CB-CG-CD2	-5.32	117.81	121.00
1	A	2005	GLY	N-CA-C	-5.30	99.85	113.10

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	E	1040	TYR	CB-CG-CD1	-5.30	117.82	121.00
1	A	354	ARG	NE-CZ-NH1	5.30	122.95	120.30
1	E	2095	ARG	NE-CZ-NH2	-5.29	117.65	120.30
1	B	1286	TYR	CB-CG-CD1	-5.28	117.83	121.00
1	C	890	ALA	C-N-CD	-5.28	108.99	120.60
1	D	1305	ARG	NE-CZ-NH2	-5.27	117.66	120.30
1	A	1040	TYR	CB-CG-CD1	-5.27	117.84	121.00
1	C	2018	ARG	NE-CZ-NH1	5.27	122.93	120.30
1	C	308	TYR	CB-CG-CD1	-5.26	117.85	121.00
2	F	2089	ARG	NE-CZ-NH1	5.26	122.93	120.30
1	C	2095	ARG	NE-CZ-NH2	-5.25	117.68	120.30
1	A	2006	GLY	N-CA-C	-5.24	100.00	113.10
1	C	1664	TYR	CB-CG-CD2	-5.24	117.86	121.00
1	E	996	TYR	CB-CG-CD2	-5.24	117.86	121.00
1	E	412	ARG	NE-CZ-NH1	5.23	122.92	120.30
2	F	300	ARG	NE-CZ-NH2	-5.23	117.69	120.30
1	C	675	TYR	CB-CG-CD2	-5.21	117.88	121.00
1	D	952	ARG	NE-CZ-NH2	-5.21	117.70	120.30
1	E	1072	ASP	CB-CG-OD2	-5.20	113.62	118.30
2	F	419	TYR	CB-CG-CD1	-5.20	117.88	121.00
1	D	412	ARG	NE-CZ-NH1	5.20	122.90	120.30
1	E	890	ALA	C-N-CD	-5.19	109.18	120.60
2	F	370	TYR	CB-CG-CD1	-5.18	117.89	121.00
1	A	1604	ARG	NE-CZ-NH1	5.18	122.89	120.30
1	A	391	TYR	CB-CG-CD1	-5.17	117.90	121.00
1	D	1040	TYR	CB-CG-CD1	-5.16	117.90	121.00
1	B	2018	ARG	NE-CZ-NH1	5.15	122.88	120.30
1	E	1124	ARG	NE-CZ-NH1	5.15	122.87	120.30
2	F	765	ARG	NE-CZ-NH2	-5.14	117.73	120.30
1	B	1814	TYR	CB-CG-CD1	-5.14	117.92	121.00
1	C	1616	ARG	NE-CZ-NH1	5.14	122.87	120.30
1	A	1711	PHE	CB-CG-CD1	-5.13	117.21	120.80
1	D	1305	ARG	NE-CZ-NH1	5.12	122.86	120.30
1	B	1204	ARG	NE-CZ-NH1	5.12	122.86	120.30
1	D	2399	ARG	NE-CZ-NH1	5.11	122.86	120.30
1	D	334	TYR	CB-CG-CD2	-5.10	117.94	121.00
2	F	1488	TYR	CB-CG-CD1	-5.10	117.94	121.00
1	E	2399	ARG	NE-CZ-NH2	-5.09	117.75	120.30
1	D	1027	ARG	NE-CZ-NH2	-5.09	117.75	120.30
1	E	434	TYR	CB-CG-CD1	-5.08	117.95	121.00
1	D	1794	ARG	NE-CZ-NH1	5.07	122.83	120.30
2	F	1449	ARG	NE-CZ-NH2	-5.07	117.77	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	1650	TYR	CB-CG-CD2	5.06	124.04	121.00
2	F	688	ARG	NE-CZ-NH2	-5.05	117.77	120.30
1	E	1616	ARG	NE-CZ-NH1	5.05	122.82	120.30
1	D	2153	ARG	NE-CZ-NH2	-5.04	117.78	120.30
2	F	286	ARG	NE-CZ-NH2	5.04	122.82	120.30
1	B	359	PHE	CB-CG-CD1	5.03	124.32	120.80
1	B	2399	ARG	NE-CZ-NH2	-5.03	117.78	120.30
1	D	1286	TYR	CB-CG-CD2	-5.03	117.98	121.00
1	E	332	ARG	NE-CZ-NH2	-5.03	117.79	120.30
2	F	987	TYR	CB-CG-CD2	-5.03	117.98	121.00
2	F	1329	ASP	CB-CG-OD2	5.03	122.83	118.30
1	B	1664	TYR	CB-CG-CD2	-5.02	117.99	121.00
1	D	376	ARG	NE-CZ-NH1	5.02	122.81	120.30
1	C	528	TYR	CB-CG-CD2	-5.02	117.99	121.00
1	B	603	ASP	CB-CG-OD2	5.01	122.81	118.30
1	C	1196	TYR	CB-CG-CD2	-5.01	117.99	121.00
1	C	1711	PHE	CB-CG-CD1	-5.01	117.29	120.80
1	D	137	TYR	CB-CG-CD1	-5.01	117.99	121.00
1	E	487	ARG	NE-CZ-NH2	-5.01	117.80	120.30
1	B	1805	TYR	CB-CG-CD1	-5.01	118.00	121.00
1	C	1604	ARG	NE-CZ-NH1	5.00	122.80	120.30

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	D	766	TYR	Sidechain

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	18197	0	17794	38	0
1	B	18197	0	17794	47	0
1	C	18197	0	17794	45	0
1	D	18197	0	17794	38	0
1	E	18197	0	17794	37	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	F	17285	0	16668	43	0
All	All	108270	0	105638	240	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 (240) 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:B:1623:THR:OG1	1:B:1624:ILE:N	2.32	0.61
1:E:1774:TYR:HH	1:E:1848:TYR:HH	1.47	0.60
1:B:2319:ASP:OD2	1:B:2323:LYS:NZ	2.36	0.58
1:B:2358:ASP:OD1	1:B:2502:LYS:NZ	2.38	0.57
2:F:1416:ASP:N	2:F:1416:ASP:OD1	2.37	0.57
1:C:624:ASP:OD1	1:C:624:ASP:N	2.37	0.57
1:E:624:ASP:OD1	1:E:624:ASP:N	2.37	0.57
1:D:1148:ASP:OD1	1:D:1148:ASP:N	2.33	0.56
1:A:2207:ASP:OD2	1:A:2211:LYS:NZ	2.38	0.56
1:D:624:ASP:N	1:D:624:ASP:OD1	2.37	0.56
1:C:2207:ASP:OD2	1:C:2211:LYS:NZ	2.38	0.56
1:C:329:ARG:NH1	1:C:434:TYR:OH	2.39	0.56
1:B:1072:ASP:N	1:B:1072:ASP:OD1	2.36	0.56
1:B:624:ASP:N	1:B:624:ASP:OD1	2.37	0.56
1:D:253:GLU:O	1:D:442:LYS:NZ	2.38	0.56
2:F:73:ASP:OD1	2:F:74:CYS:N	2.39	0.56
1:A:2319:ASP:OD2	1:A:2323:LYS:NZ	2.39	0.56
1:B:1626:SER:OG	1:B:1627:MET:N	2.40	0.55
1:A:2358:ASP:OD1	1:A:2502:LYS:NZ	2.39	0.55
1:A:624:ASP:OD1	1:A:624:ASP:N	2.38	0.55
1:B:1774:TYR:OH	1:B:1848:TYR:OH	2.24	0.54
2:F:385:ASP:OD1	2:F:385:ASP:N	2.39	0.54
2:F:829:ASP:OD1	2:F:829:ASP:N	2.39	0.54
1:B:2257:ARG:NH2	1:C:2309:THR:OG1	2.40	0.54
1:D:890:ALA:O	1:D:892:GLN:N	2.42	0.53
1:A:1225:LYS:NZ	1:A:1226:LEU:O	2.40	0.53
1:D:2257:ARG:NH2	1:E:2309:THR:OG1	2.42	0.53
1:E:2358:ASP:OD1	1:E:2502:LYS:NZ	2.42	0.52
1:C:890:ALA:O	1:C:892:GLN:N	2.41	0.52
1:E:548:LYS:NZ	1:E:559:ASP:OD1	2.42	0.52
1:E:890:ALA:O	1:E:892:GLN:N	2.42	0.52
1:B:1774:TYR:HH	1:B:1848:TYR:HH	1.51	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:890:ALA:O	1:B:892:GLN:N	2.42	0.52
1:A:1120:GLU:OE2	1:A:1146:LYS:NZ	2.42	0.52
1:D:1683:ASP:N	1:D:1683:ASP:OD1	2.43	0.52
1:D:301:SER:OG	1:D:302:ASN:N	2.42	0.51
2:F:179:SER:OG	2:F:180:GLN:N	2.43	0.51
1:A:1164:LYS:NZ	1:B:1622:ASP:OD2	2.36	0.51
1:C:540:SER:OG	1:C:541:GLY:N	2.44	0.51
1:C:1291:TYR:O	1:C:1292:GLN:HB3	2.11	0.51
1:A:261:GLU:OE1	1:A:1380:LYS:NZ	2.44	0.50
1:D:2319:ASP:OD2	1:D:2323:LYS:NZ	2.45	0.50
1:E:1841:ALA:O	1:E:1842:GLN:HB2	2.11	0.50
1:D:797:ASP:OD1	1:D:798:ALA:N	2.45	0.50
1:D:848:GLN:HE21	1:D:852:GLN:HE21	1.60	0.50
1:A:890:ALA:O	1:A:892:GLN:N	2.45	0.50
1:B:540:SER:OG	1:B:541:GLY:N	2.44	0.50
1:B:1683:ASP:OD1	1:B:1683:ASP:N	2.43	0.50
2:F:754:GLU:O	2:F:755:ILE:HB	2.12	0.50
2:F:1133:THR:OG1	2:F:1134:ALA:N	2.45	0.50
1:B:342:ASP:OD2	1:B:360:LYS:NZ	2.44	0.49
2:F:616:ASP:N	2:F:616:ASP:OD1	2.45	0.49
1:C:1117:ASP:OD1	1:C:1118:ALA:N	2.45	0.49
1:A:180:GLU:OE1	1:A:184:LYS:NZ	2.45	0.49
1:C:301:SER:OG	1:C:302:ASN:N	2.46	0.49
1:E:161:THR:O	1:E:162:LEU:HB3	2.13	0.49
1:D:2466:ASP:N	1:D:2466:ASP:OD1	2.46	0.48
1:E:176:GLU:OE2	1:E:956:LYS:NZ	2.47	0.48
1:E:2287:ASP:N	1:E:2287:ASP:OD1	2.45	0.48
2:F:1687:ASP:N	2:F:1687:ASP:OD1	2.38	0.48
1:E:2466:ASP:N	1:E:2466:ASP:OD1	2.46	0.48
2:F:1234:SER:OG	2:F:1235:ASP:N	2.46	0.48
2:F:153:ASP:O	2:F:174:ARG:NH2	2.46	0.48
1:C:1841:ALA:O	1:C:1842:GLN:HB2	2.14	0.48
1:D:521:THR:H	1:D:522:PRO:HD2	1.79	0.48
1:D:1333:TYR:CG	1:D:1334:ASN:N	2.82	0.48
1:B:2380:GLY:N	1:B:2383:THR:OG1	2.46	0.48
1:A:1774:TYR:OH	1:A:1848:TYR:OH	2.28	0.48
1:B:1841:ALA:O	1:B:1842:GLN:HB2	2.14	0.48
2:F:161:ASP:OD1	2:F:161:ASP:N	2.42	0.48
1:A:1561:ASP:OD1	1:A:1561:ASP:N	2.46	0.47
1:A:1834:SER:OG	1:A:1835:VAL:N	2.47	0.47
1:B:1148:ASP:N	1:B:1148:ASP:OD1	2.45	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1178:THR:OG1	1:B:1179:LYS:N	2.47	0.47
1:C:1178:THR:OG1	1:C:1179:LYS:N	2.46	0.47
1:B:1514:ASP:N	1:B:1514:ASP:OD1	2.46	0.47
1:D:1841:ALA:O	1:D:1842:GLN:HB2	2.13	0.47
1:B:1834:SER:OG	1:B:1835:VAL:N	2.46	0.47
1:E:1991:ASP:OD2	1:E:1993:LYS:NZ	2.45	0.47
1:A:1343:LYS:NZ	1:B:1803:SER:O	2.47	0.47
1:B:1975:SER:OG	1:B:1976:ILE:N	2.48	0.47
2:F:830:GLN:O	2:F:955:ARG:NH2	2.47	0.47
1:C:1333:TYR:CG	1:C:1334:ASN:N	2.82	0.47
1:E:1124:ARG:HD3	1:E:1144:TRP:CD2	2.50	0.47
1:B:2103:TYR:O	1:B:2189:ARG:NH1	2.48	0.47
1:B:2284:LEU:O	1:B:2286:ASP:N	2.48	0.47
1:E:540:SER:OG	1:E:541:GLY:N	2.47	0.47
2:F:431:ASP:N	2:F:431:ASP:OD1	2.44	0.47
1:B:533:ASP:N	1:B:533:ASP:OD1	2.37	0.47
1:C:872:THR:O	1:C:873:SER:HB2	2.15	0.47
1:B:477:LYS:NZ	1:B:624:ASP:OD2	2.40	0.46
1:D:290:ASP:OD1	1:D:290:ASP:N	2.43	0.46
1:E:1840:VAL:C	1:E:1841:ALA:O	2.52	0.46
1:A:2103:TYR:O	1:A:2189:ARG:NH1	2.49	0.46
1:C:1206:ASP:OD1	1:C:1206:ASP:N	2.42	0.46
1:E:270:ASN:OD1	1:E:270:ASN:N	2.46	0.46
2:F:1793:ASP:N	2:F:1793:ASP:OD1	2.47	0.46
1:A:1133:ASP:OD1	1:A:1133:ASP:N	2.40	0.46
1:C:270:ASN:N	1:C:270:ASN:OD1	2.48	0.46
1:D:1834:SER:OG	1:D:1835:VAL:N	2.49	0.46
1:E:1514:ASP:OD2	1:E:1515:LYS:NZ	2.46	0.46
1:B:1183:ASN:N	1:B:1183:ASN:OD1	2.44	0.46
1:C:1975:SER:OG	1:C:1976:ILE:N	2.47	0.46
1:C:1290:SER:C	1:C:1291:TYR:O	2.49	0.46
1:D:161:THR:O	1:D:162:LEU:HB3	2.16	0.46
2:F:1329:ASP:OD1	2:F:1329:ASP:N	2.43	0.46
1:B:1333:TYR:O	1:B:1334:ASN:C	2.54	0.46
1:D:2008:LYS:NZ	1:D:2267:ASP:OD2	2.43	0.46
1:D:342:ASP:OD2	1:D:360:LYS:NZ	2.46	0.46
1:E:2103:TYR:O	1:E:2189:ARG:NH1	2.49	0.45
2:F:1055:THR:OG1	2:F:1056:ASP:N	2.49	0.45
1:C:176:GLU:OE2	1:C:956:LYS:NZ	2.48	0.45
1:A:1683:ASP:N	1:A:1683:ASP:OD1	2.43	0.45
1:E:1046:ASP:OD1	1:E:1046:ASP:C	2.55	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:357:TYR:CZ	1:B:391:TYR:HB2	2.52	0.45
1:C:1829:SER:OG	1:C:1830:ASP:N	2.50	0.45
1:C:1977:ASP:N	1:C:1977:ASP:OD1	2.45	0.45
1:A:842:ASP:OD1	1:A:843:ALA:N	2.50	0.45
1:C:1834:SER:OG	1:C:1835:VAL:N	2.50	0.45
1:C:1124:ARG:HD3	1:C:1144:TRP:CD2	2.52	0.45
1:C:2103:TYR:O	1:C:2189:ARG:NH1	2.50	0.45
1:D:766:TYR:CD1	1:D:771:ILE:HD11	2.52	0.45
1:E:1834:SER:OG	1:E:1835:VAL:N	2.50	0.45
1:D:329:ARG:HB3	1:D:431:TYR:CE1	2.53	0.44
1:B:250:ILE:O	1:B:442:LYS:NZ	2.50	0.44
1:D:2284:LEU:O	1:D:2286:ASP:N	2.50	0.44
2:F:754:GLU:O	2:F:755:ILE:CB	2.65	0.44
1:A:161:THR:O	1:A:162:LEU:HB3	2.17	0.44
1:E:533:ASP:N	1:E:533:ASP:OD1	2.48	0.44
1:B:1343:LYS:NZ	1:C:1803:SER:O	2.50	0.44
1:C:2457:SER:OG	1:C:2458:GLY:N	2.50	0.44
1:C:2466:ASP:OD1	1:C:2466:ASP:N	2.45	0.44
1:D:1975:SER:OG	1:D:1976:ILE:N	2.50	0.44
1:D:2365:SER:OG	1:D:2366:GLY:N	2.50	0.44
1:E:963:SER:OG	1:E:964:ARG:N	2.48	0.44
1:C:336:THR:OG1	1:C:337:ASN:N	2.49	0.44
2:F:1427:ASP:OD1	2:F:1427:ASP:C	2.55	0.44
1:A:1622:ASP:OD2	1:E:1164:LYS:NZ	2.35	0.44
1:B:963:SER:OG	1:B:964:ARG:N	2.50	0.44
1:D:439:LYS:NZ	1:D:458:GLU:OE2	2.41	0.44
2:F:904:SER:O	2:F:905:ARG:C	2.56	0.44
1:A:537:ASP:OD1	1:A:538:LEU:N	2.51	0.44
1:B:2466:ASP:N	1:B:2466:ASP:OD1	2.47	0.44
1:E:2365:SER:OG	1:E:2366:GLY:N	2.51	0.44
1:C:1683:ASP:OD1	1:C:1683:ASP:N	2.43	0.44
1:D:963:SER:OG	1:D:964:ARG:N	2.49	0.44
2:F:1591:THR:OG1	2:F:1592:ALA:N	2.51	0.44
2:F:618:SER:OG	2:F:619:GLY:N	2.50	0.44
1:A:2466:ASP:N	1:A:2466:ASP:OD1	2.50	0.43
2:F:530:ASP:N	2:F:530:ASP:OD1	2.51	0.43
2:F:209:ASP:OD1	2:F:209:ASP:N	2.46	0.43
2:F:1912:ASN:O	2:F:2125:ARG:NH2	2.51	0.43
1:D:1257:ASP:N	1:D:1257:ASP:OD1	2.46	0.43
1:A:534:GLU:N	1:A:534:GLU:OE1	2.52	0.43
1:C:1662:LYS:NZ	1:C:1830:ASP:OD2	2.40	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:693:ALA:HB3	1:D:694:PRO:HD3	2.01	0.43
1:E:1507:LYS:NZ	1:E:1538:ASP:OD2	2.41	0.43
2:F:253:GLN:O	2:F:259:TYR:OH	2.36	0.43
1:A:1183:ASN:OD1	1:A:1183:ASN:N	2.50	0.43
1:C:1507:LYS:NZ	1:C:1538:ASP:OD2	2.39	0.43
1:B:1138:ALA:HB3	1:B:1842:GLN:OE1	2.19	0.43
1:E:1183:ASN:OD1	1:E:1183:ASN:N	2.48	0.43
1:E:975:ASN:OD1	1:E:975:ASN:N	2.42	0.43
1:A:2347:ASP:OD1	1:A:2347:ASP:N	2.47	0.42
1:D:1291:TYR:O	1:D:1292:GLN:HB2	2.19	0.42
2:F:1370:ASP:OD1	2:F:1370:ASP:N	2.48	0.42
2:F:2090:ASN:OD1	2:F:2091:GLN:N	2.52	0.42
1:A:1524:SER:OG	1:A:1525:PHE:N	2.51	0.42
1:C:1561:ASP:N	1:C:1561:ASP:OD1	2.48	0.42
1:E:329:ARG:HB3	1:E:431:TYR:CE1	2.54	0.42
1:C:1137:ALA:O	1:C:1138:ALA:HB3	2.19	0.42
1:E:2284:LEU:O	1:E:2286:ASP:N	2.52	0.42
1:C:196:GLY:N	1:C:285:TYR:OH	2.52	0.42
1:B:1729:ASP:OD2	1:B:1730:LYS:NZ	2.52	0.42
2:F:1442:THR:OG1	2:F:1443:ALA:N	2.52	0.42
1:C:1291:TYR:O	1:C:1292:GLN:CB	2.65	0.42
1:D:1124:ARG:HD2	1:D:1144:TRP:CE2	2.54	0.42
1:E:1774:TYR:OH	1:E:1848:TYR:OH	2.21	0.42
1:A:176:GLU:OE2	1:A:956:LYS:NZ	2.50	0.42
1:E:771:ILE:HD12	1:E:776:PHE:HA	2.00	0.42
1:B:1333:TYR:O	1:B:1335:GLY:N	2.53	0.42
1:C:353:TYR:CE1	1:C:397:LEU:HB2	2.54	0.42
1:E:386:GLN:OE1	1:E:391:TYR:OH	2.38	0.42
1:C:477:LYS:NZ	1:C:624:ASP:OD2	2.39	0.42
1:D:2287:ASP:OD1	1:D:2287:ASP:N	2.46	0.42
1:C:2496:LYS:NZ	1:D:2401:ASP:OD1	2.49	0.42
1:D:773:GLU:HA	1:D:776:PHE:CD1	2.55	0.42
2:F:2117:ARG:NH1	2:F:2140:LEU:O	2.53	0.42
1:A:2382:ASP:OD1	1:A:2382:ASP:N	2.47	0.42
1:B:93:ASN:N	1:B:93:ASN:OD1	2.47	0.42
1:C:1908:ASP:N	1:C:1908:ASP:OD1	2.52	0.42
1:A:488:TYR:OH	1:A:635:ASN:OD1	2.36	0.41
1:B:1124:ARG:HD2	1:B:1144:TRP:CD2	2.55	0.41
1:A:1991:ASP:OD2	1:A:1993:LYS:NZ	2.47	0.41
1:D:1977:ASP:N	1:D:1977:ASP:OD1	2.44	0.41
1:E:857:GLN:CD	1:E:857:GLN:N	2.73	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:2358:ASP:OD1	1:C:2502:LYS:NZ	2.49	0.41
1:B:2382:ASP:N	1:B:2382:ASP:OD1	2.51	0.41
1:B:1124:ARG:HG3	1:B:1144:TRP:CE3	2.55	0.41
1:B:455:THR:OG1	1:B:456:ILE:N	2.53	0.41
1:C:856:HIS:NE2	1:C:895:SER:OG	2.54	0.41
1:E:299:LYS:NZ	1:E:458:GLU:OE2	2.53	0.41
1:A:1333:TYR:O	1:A:1334:ASN:C	2.58	0.41
1:A:1684:THR:OG1	1:A:1685:ASN:N	2.54	0.41
1:B:1117:ASP:OD1	1:B:1118:ALA:N	2.53	0.41
1:D:1840:VAL:C	1:D:1841:ALA:O	2.56	0.41
1:A:2365:SER:OG	1:A:2366:GLY:N	2.53	0.41
1:B:736:THR:OG1	1:B:737:LYS:N	2.50	0.41
1:D:782:LYS:N	1:D:783:PRO:HD3	2.36	0.41
2:F:772:ASP:OD1	2:F:779:ARG:NE	2.53	0.41
2:F:574:SER:OG	2:F:575:ALA:N	2.54	0.41
1:A:2103:TYR:CE1	1:A:2193:GLU:HB2	2.55	0.41
1:D:322:ASP:OD1	1:D:322:ASP:N	2.32	0.41
1:D:707:VAL:HG13	1:D:776:PHE:CD2	2.55	0.41
1:B:2478:ASP:OD1	1:B:2478:ASP:N	2.40	0.41
1:B:2382:ASP:OD2	1:C:2404:ALA:N	2.54	0.41
2:F:1484:ASP:OD2	2:F:1486:LYS:NZ	2.37	0.41
1:B:831:THR:OG1	1:B:832:ALA:N	2.54	0.41
2:F:1268:PHE:O	2:F:1272:ALA:N	2.55	0.41
2:F:1515:ASN:N	2:F:1515:ASN:OD1	2.46	0.41
2:F:2044:ASP:OD1	2:F:2044:ASP:N	2.45	0.41
1:A:465:ASN:O	1:A:466:LEU:C	2.58	0.40
1:C:1497:LYS:HB3	1:C:1558:PHE:HB2	2.02	0.40
2:F:1247:PRO:HA	2:F:1332:ASP:OD1	2.21	0.40
1:C:2287:ASP:OD1	1:C:2287:ASP:N	2.45	0.40
1:B:2459:GLN:OE1	1:B:2459:GLN:N	2.53	0.40
1:C:542:SER:OG	1:C:543:THR:N	2.49	0.40
2:F:1393:ASP:OD1	2:F:1393:ASP:N	2.49	0.40
2:F:269:ASN:OD1	2:F:269:ASN:N	2.47	0.40
2:F:283:TRP:CZ3	2:F:303:ARG:HB3	2.56	0.40
1:A:2466:ASP:OD1	1:A:2467:GLY:N	2.55	0.40
1:C:322:ASP:OD1	1:C:323:GLY:N	2.54	0.40
1:E:1153:PRO:O	1:E:1154:TYR:C	2.60	0.40
1:E:1559:ALA:HB3	1:E:1563:ARG:HG2	2.04	0.40
2:F:1329:ASP:OD1	2:F:1330:ARG:N	2.54	0.40
2:F:6:ASP:N	2:F:6:ASP:OD1	2.44	0.40
1:A:545:ASP:OD1	1:A:545:ASP:C	2.60	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:693:ALA:HB3	1:A:694:PRO:HD3	2.03	0.40
1:E:137:TYR:CE2	1:E:139:ASP:HB2	2.57	0.40
2:F:841:THR:OG1	2:F:842:TRP:N	2.53	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%)	2240 (98%)	40 (2%)	6 (0%)	41	72
1	B	2286/2516 (91%)	2225 (97%)	54 (2%)	7 (0%)	41	72
1	C	2286/2516 (91%)	2225 (97%)	56 (2%)	5 (0%)	47	78
1	D	2286/2516 (91%)	2233 (98%)	46 (2%)	7 (0%)	41	72
1	E	2286/2516 (91%)	2239 (98%)	39 (2%)	8 (0%)	41	72
2	F	2162/2439 (89%)	2111 (98%)	46 (2%)	5 (0%)	47	78
All	All	13592/15019 (90%)	13273 (98%)	281 (2%)	38 (0%)	44	72

All (38) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	891	PRO
1	B	891	PRO
1	C	891	PRO
1	D	891	PRO
1	E	790	THR
1	E	891	PRO
1	A	991	ALA
1	A	1334	ASN
1	B	1138	ALA

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Mol	Chain	Res	Type
1	B	1334	ASN
1	C	991	ALA
1	C	1334	ASN
1	D	991	ALA
1	D	1138	ALA
1	E	991	ALA
1	E	1154	TYR
2	F	755	ILE
1	D	1292	GLN
2	F	137	HIS
2	F	602	ALA
1	B	1190	THR
1	C	1758	MET
1	E	659	TYR
1	A	890	ALA
1	A	1758	MET
1	A	1953	ASN
1	B	101	SER
1	B	2425	PRO
1	D	890	ALA
1	E	1953	ASN
2	F	530	ASP
1	B	745	ALA
1	C	350	GLY
1	D	1758	MET
1	D	1953	ASN
1	E	304	GLY
2	F	2115	GLY
1	E	890	ALA

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%)	1960 (100%)	0	100	100
1	B	1960/2157 (91%)	1959 (100%)	1 (0%)	93	98

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	C	1960/2157 (91%)	1960 (100%)	0	100	100
1	D	1960/2157 (91%)	1957 (100%)	3 (0%)	93	98
1	E	1960/2157 (91%)	1959 (100%)	1 (0%)	93	98
2	F	1872/2108 (89%)	1871 (100%)	1 (0%)	93	98
All	All	11672/12893 (90%)	11666 (100%)	6 (0%)	93	98

All (6) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	211	ILE
1	D	661	LYS
1	D	968	TYR
1	D	1169	LEU
1	E	1169	LEU
2	F	472	ARG

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (12) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	587	ASN
1	B	679	GLN
1	C	1671	ASN
1	D	848	GLN
1	D	1951	GLN
1	E	854	GLN
1	E	1362	ASN
1	E	1599	GLN
1	E	1951	GLN
2	F	450	ASN
2	F	1546	GLN
2	F	1650	HIS

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 carbohydrates 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.

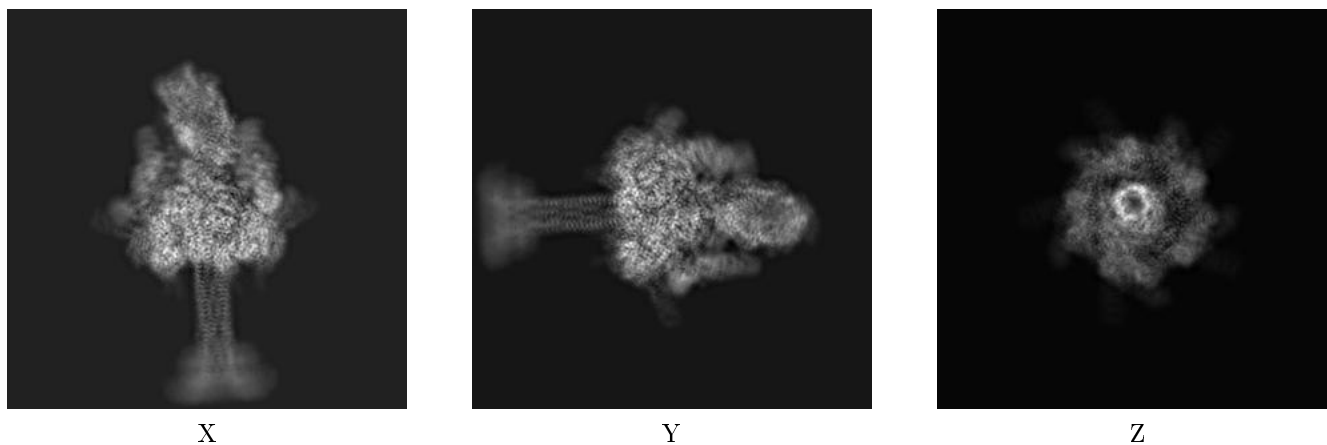
5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Map visualisation [i](#)

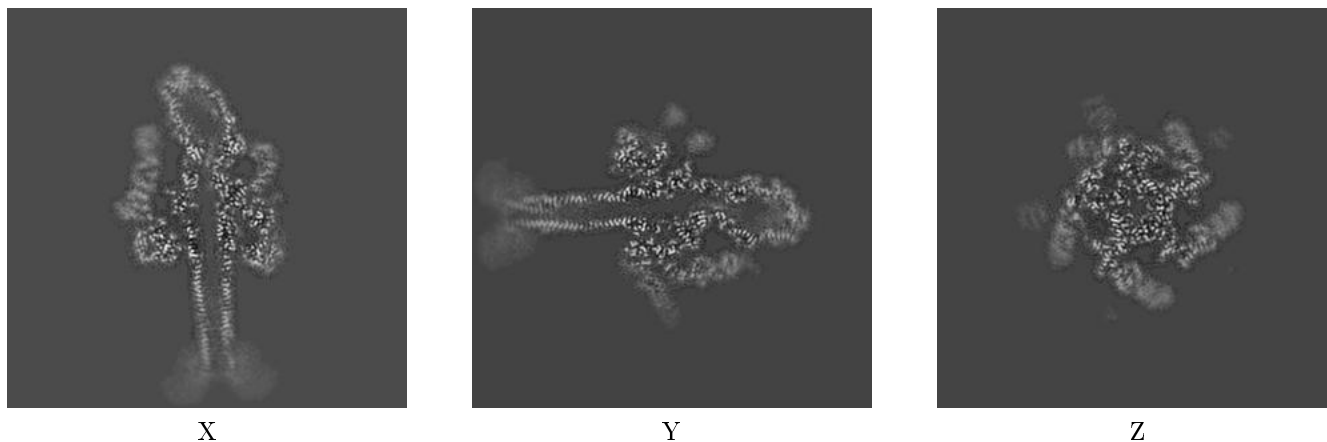
This section contains visualisations of the EMDB entry EMD-10312. These are intended to permit visual inspection of the internal detail of the map and identification of artifacts.

6.1 Orthogonal projections [i](#)



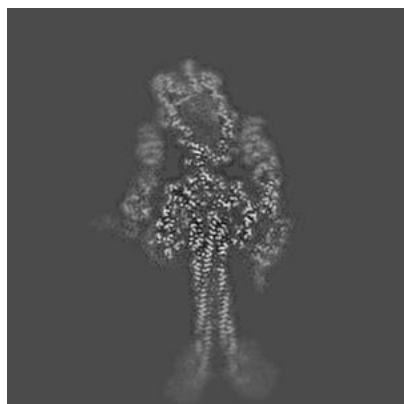
The images above show the map projected in three orthogonal projections, in greyscale.

6.2 Central slices [i](#)

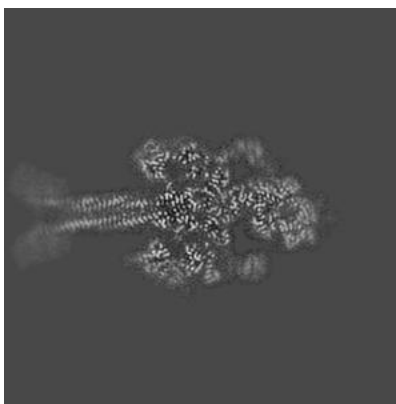


The images above show central slices of the map in three orthogonal directions, in greyscale.

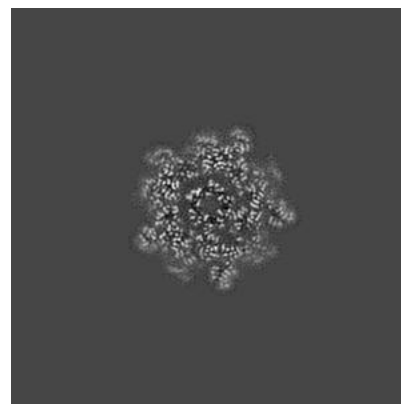
6.3 Largest variance slices [i](#)



X Index: 179



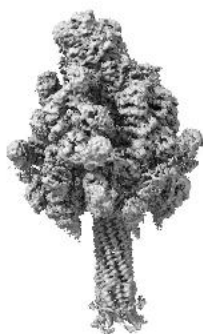
Y Index: 207



Z Index: 153

The images above show the highest variance slices of the map in three orthogonal directions, in greyscale.

6.4 Orthogonal surface views [i](#)



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.02. This in conjunction with the slice images can indicate whether an appropriate contour level has been selected.

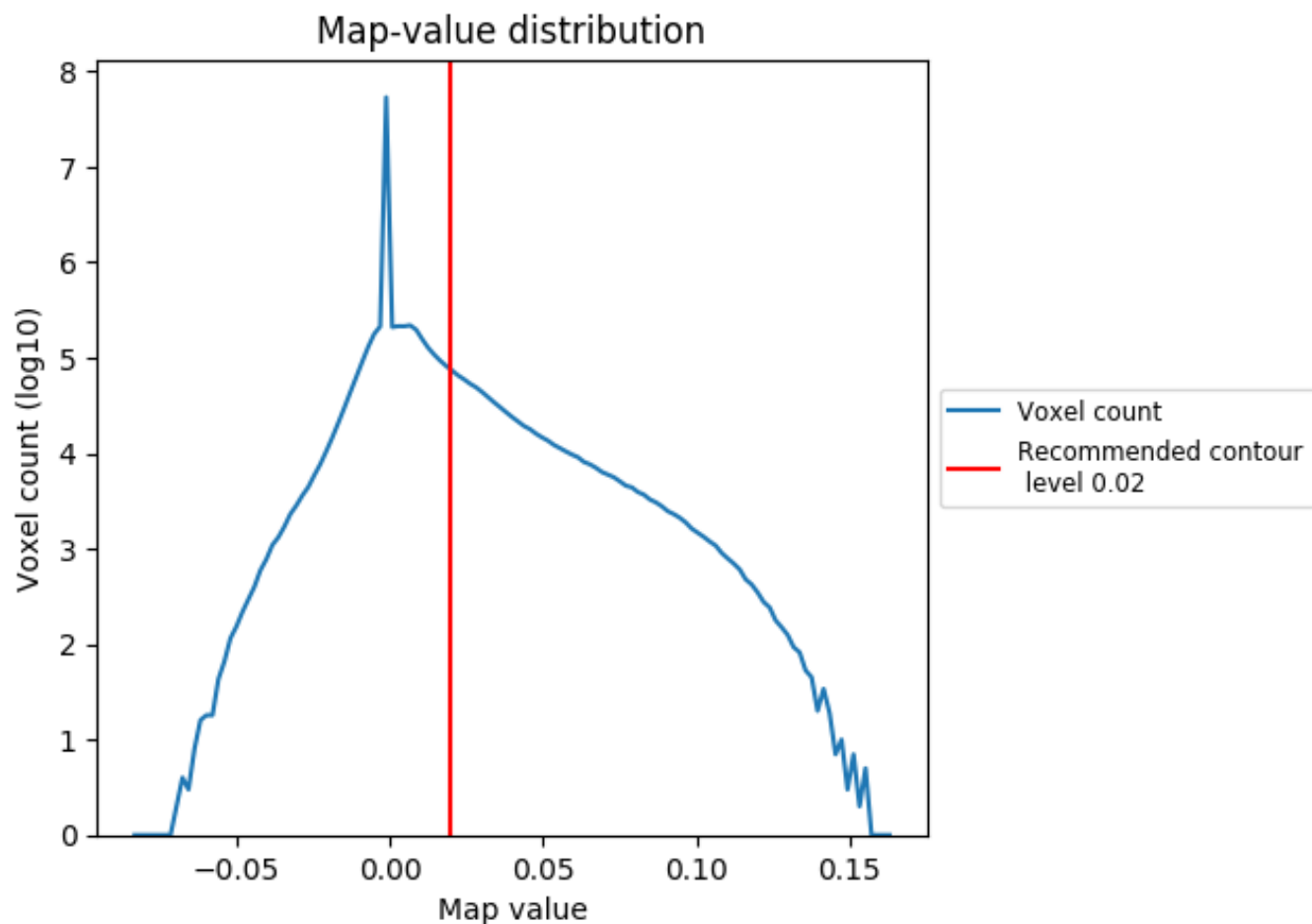
6.5 Mask visualisation [i](#)

This section was not generated. No masks were provided.

7 Map analysis [i](#)

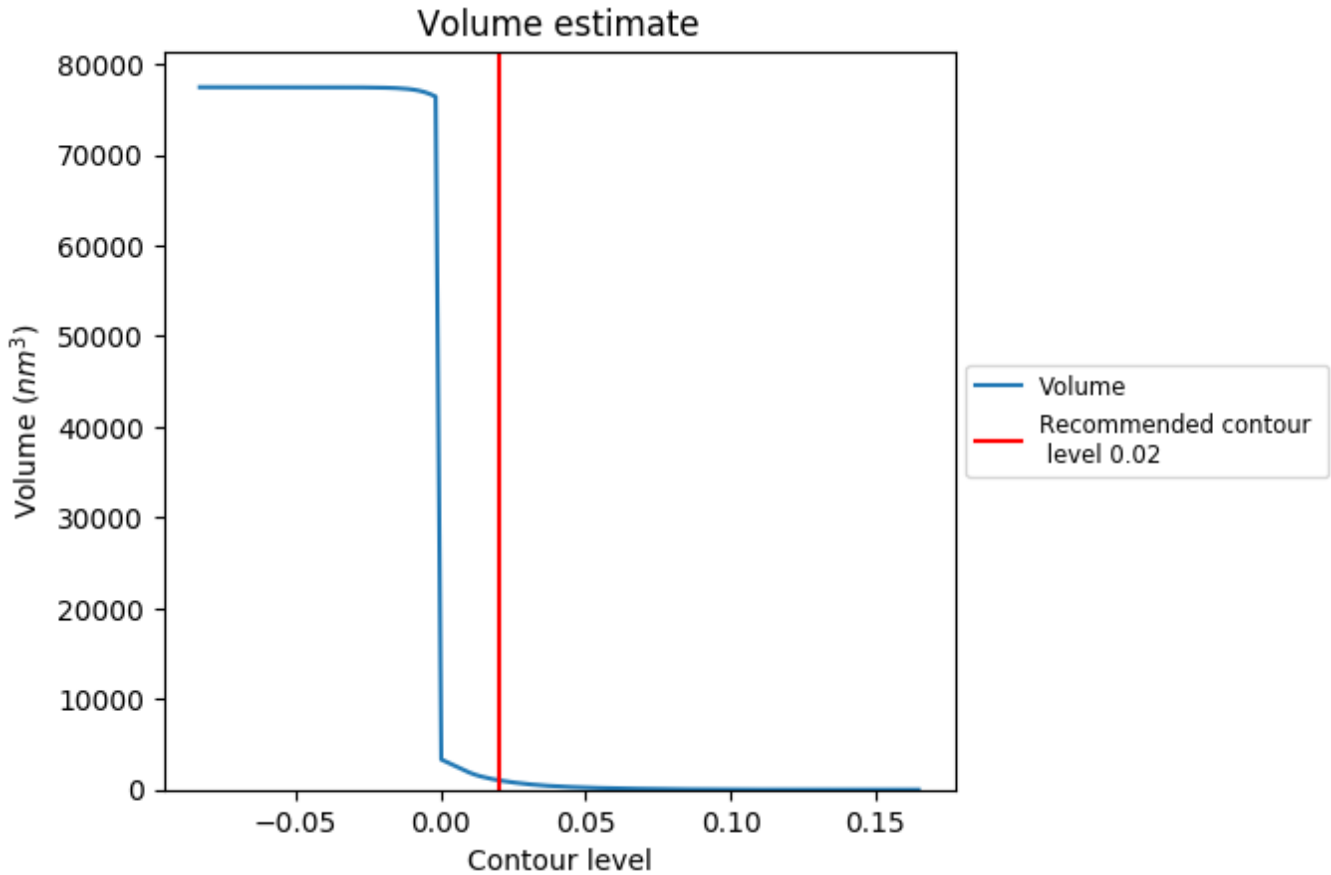
This section contains the results of statistical analysis of the map.

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.

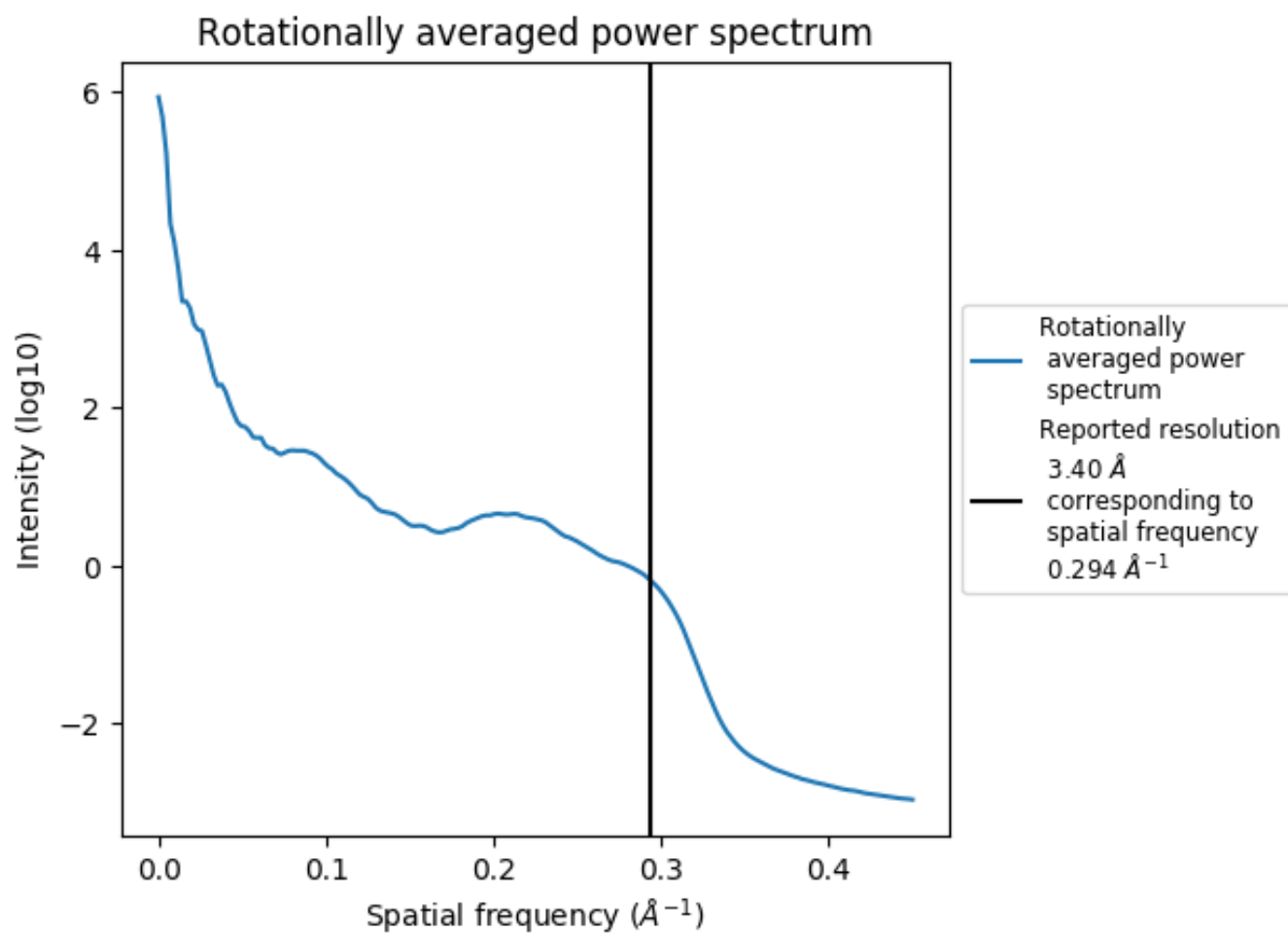
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1043 nm³; this corresponds to an approximate mass of 942 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](#)



8 Fourier-Shell correlation

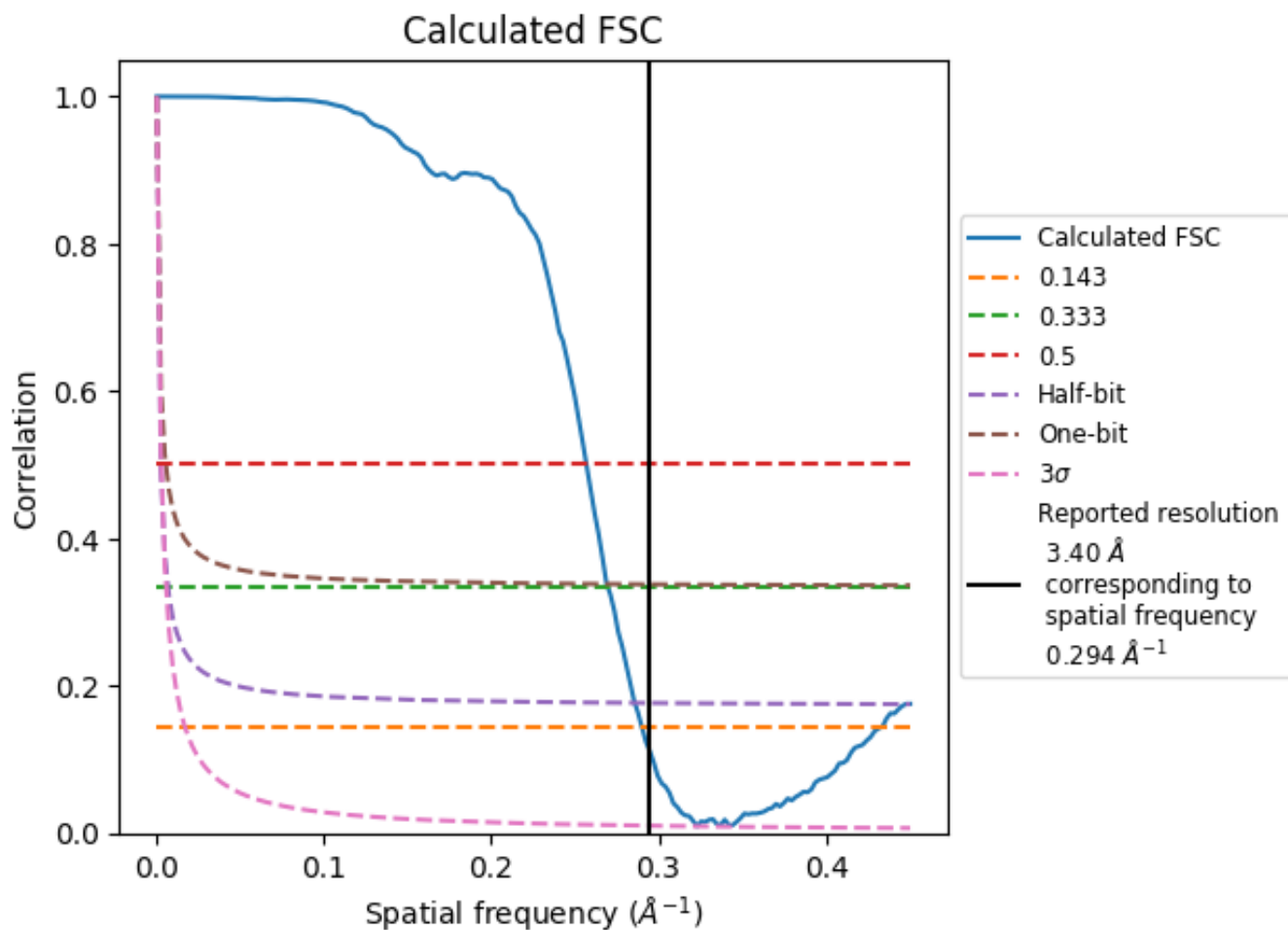
Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution for single-particle and subtomogram-averaging methods. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. Curves are displayed for 3σ , 1-bit and 1/2-bit in addition to lines showing the 0.143 gold standard cut-off, 0.333 cut-off and legacy 0.5 cut-off.

8.1 Resolution estimates

These are global values for the map.

Source	Criterion	Resolution estimate (Å)
Reported value	FSC 0.143 CUT-OFF	3.40
Calculated FSC	FSC 0.5 CUT-OFF	3.89
Calculated FSC	FSC 1 BIT CUT-OFF	3.75
Calculated FSC	FSC 0.33 CUT-OFF	3.71
Calculated FSC	FSC 1/2 BIT CUT-OFF	3.53
Calculated FSC	FSC 0.143 CUT-OFF	3.45
Calculated FSC	FSC 3 SIGMA CUT-OFF	3.12

8.2 Calculated FSC [i](#)



This FSC information has been calculated from the half-maps provided by the depositor. As we request un-masked, un-processed half-maps the curve may be significantly different to the author-provided FSC.

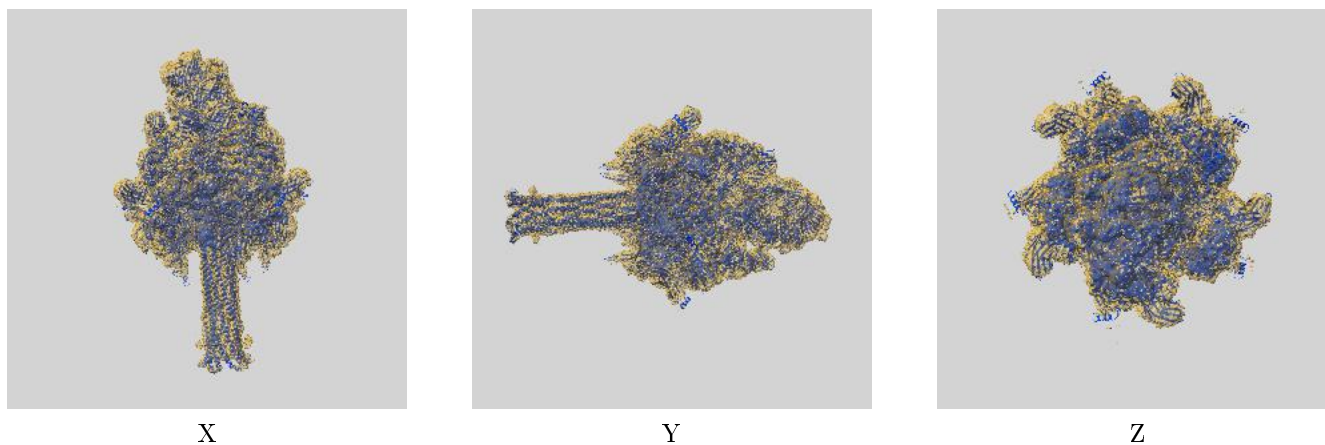
8.3 Author-provided FSC [i](#)

This section was not generated. The author did not provide an FSC file.

9 Map-model fit [i](#)

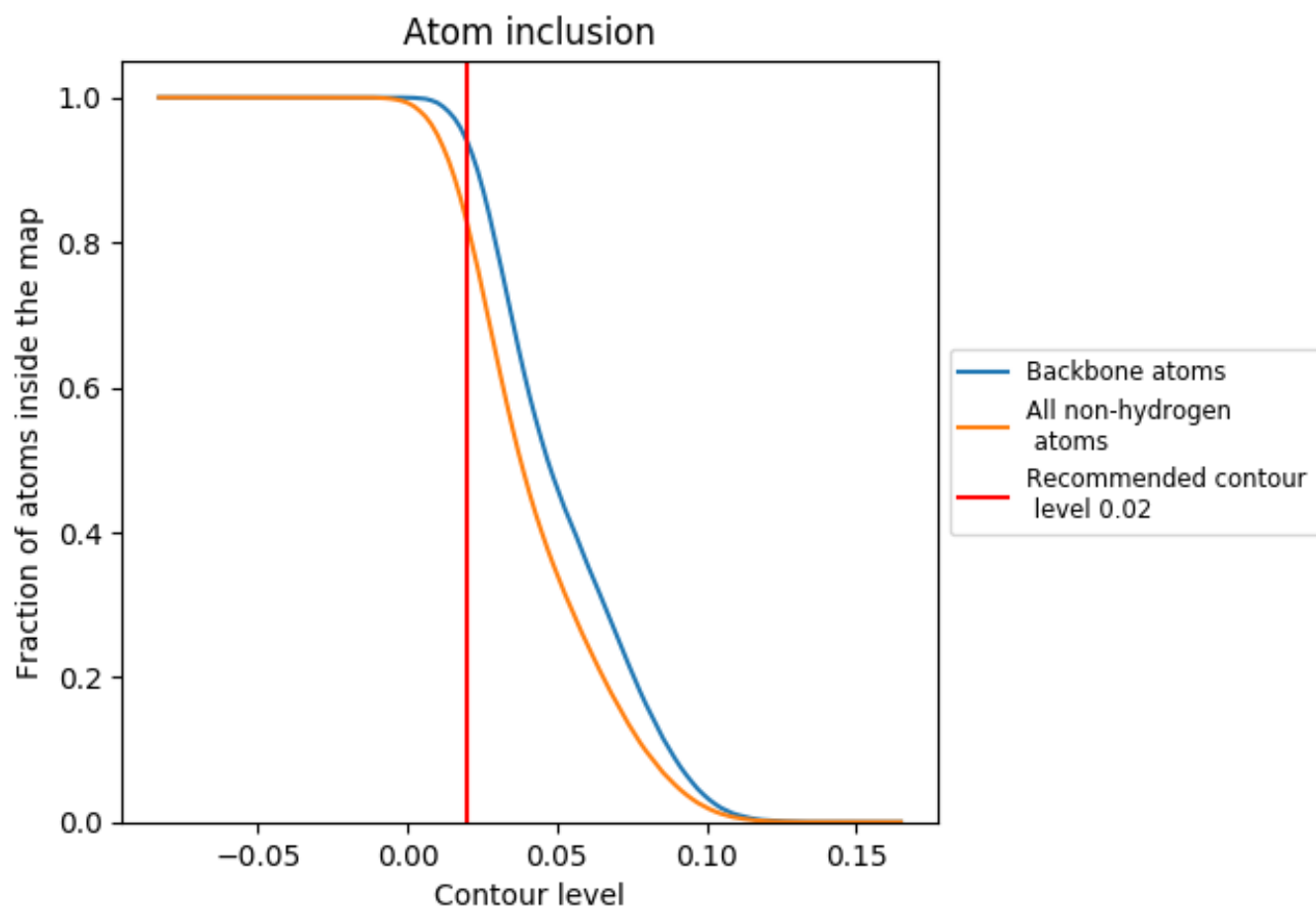
This section contains information regarding the fit between EMDB map EMD-10312 and PDB model 6SUE. Per-residue inclusion information can be found in section 3 on page 5.

9.1 Map-model overlay [i](#)



The images above show the 3D surface view of the map at the recommended contour level 0.02 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 Atom inclusion [i](#)



At the recommended contour level, 94% of all backbone atoms, 82% of all non-hydrogen atoms, are inside the map.