Full wwPDB EM Validation Report ⓘ

Nov 19, 2026 – 12:33 PM EST

PDB ID	:	36BO / pdb_000036bo
EMDB ID	:	EMD-77364
Title	:	Cryo-EM structure of the VchCAST strand-transfer complex Class 1 (STC, Class 1)
Authors	:	Dubey, S.; Florez Ariza, A.J.; Truong, V.H.; Fatma, S.; Kellogg, E.H.
Deposited on	:	2026-05-29
Resolution	:	2.90 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:

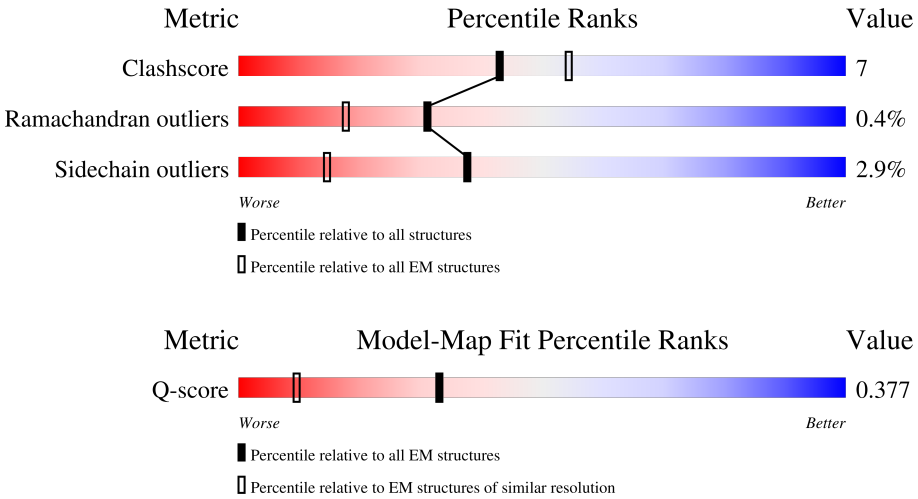
EMDB validation analysis	:	0.0.1.dev133
MolProbity	:	4-5-2 with Phenix2.2
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.51

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 2.90 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	13054 (2.40 - 3.40)

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

Mol	Chain	Length	Quality of chain
1	A	230	6% 90% 9%
1	B	230	7% 89% 10%
2	C	652	9% 55% 7% • 37%
2	D	652	15% 61% 12% 27%

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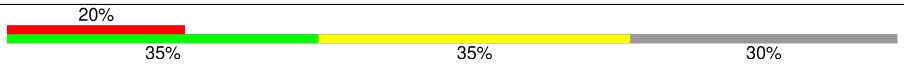
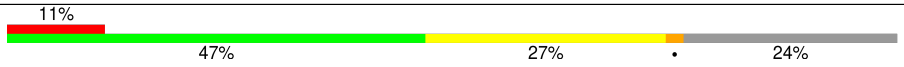
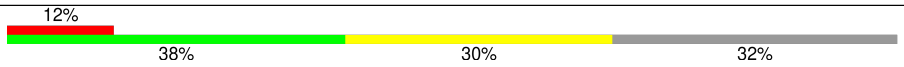
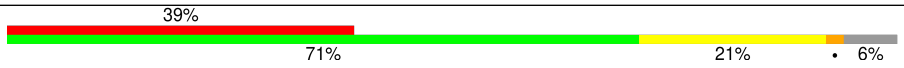
Mol	Chain	Length	Quality of chain
2	E	652	
2	F	652	
3	2	20	
4	3	189	
5	4	133	
6	5	128	
7	6	91	
8	7	99	
9	X	99	
10	Y	94	

2 Entry composition

There are 11 unique types of molecules in this entry. The entry contains 27321 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 TnsA.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	230	Total	C	N	O	S	0	0
			1856	1179	324	350	3		
1	B	230	Total	C	N	O	S	0	0
			1856	1179	324	350	3		

- Molecule 2 is a protein called TnsB.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	C	410	Total	C	N	O	S	0	0
			3385	2155	584	635	11		
2	D	477	Total	C	N	O	S	0	0
			3935	2513	678	733	11		
2	E	526	Total	C	N	O	S	0	0
			4315	2741	763	799	12		
2	F	521	Total	C	N	O	S	1	0
			4284	2724	758	790	12		

- Molecule 3 is a DNA chain called TargetFlank-RC.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	2	14	Total	C	N	O	P	0	0
			291	139	50	88	14		

- Molecule 4 is a DNA chain called RE-TS.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	3	49	Total	C	N	O	P	0	0
			1014	487	179	299	49		

- Molecule 5 is a DNA chain called LE-TSD-TargetFlank.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	4	101	Total	C	N	O	P	0	0
			2070	996	363	610	101		

- Molecule 6 is a DNA chain called HFR-LE.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	5	87	Total	C	N	O	P	0	0
			1778	855	321	515	87		

- Molecule 7 is a DNA chain called HFR-RE.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	6	40	Total	C	N	O	P	0	0
			817	392	151	234	40		

- Molecule 8 is a DNA chain called NTS-Scramble.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	7	11	Total	C	N	O	P	0	0
			223	108	39	65	11		

- Molecule 9 is a protein called IHF-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	X	93	Total	C	N	O	S	0	0
			751	470	140	140	1		

- Molecule 10 is a protein called IHF-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	Y	94	Total	C	N	O	S	0	0
			742	461	139	139	3		

- Molecule 11 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
11	E	1	Total	Mg	0
			1	1	
11	F	1	Total	Mg	0
			1	1	
11	3	1	Total	Mg	0
			1	1	

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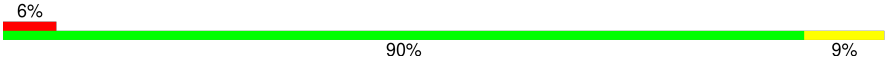
Mol	Chain	Residues	Atoms		AltConf
			Total	Mg	
11	4	1	1	1	0

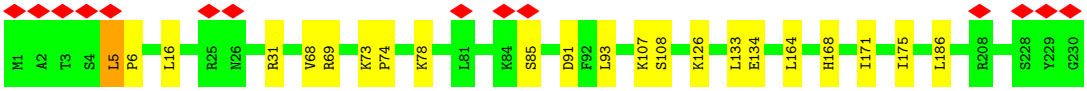
3 Residue-property plots (i)

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

- Molecule 1: TnsA

Chain A:

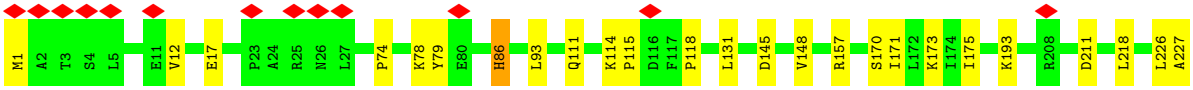




- Molecule 1: TnsA

Chain B:



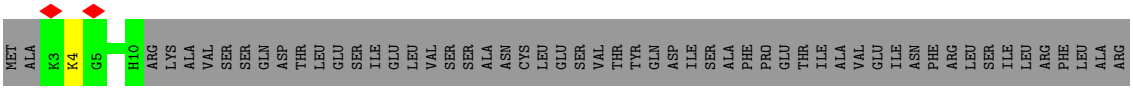


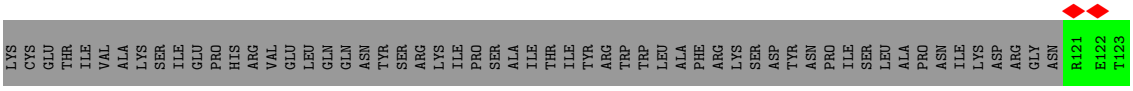


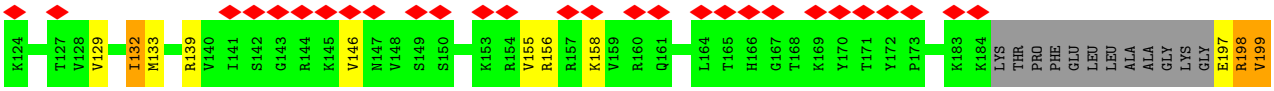
- Molecule 2: TnsB

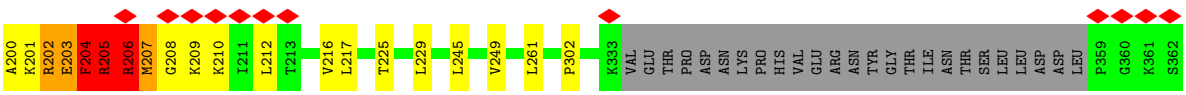
Chain C:

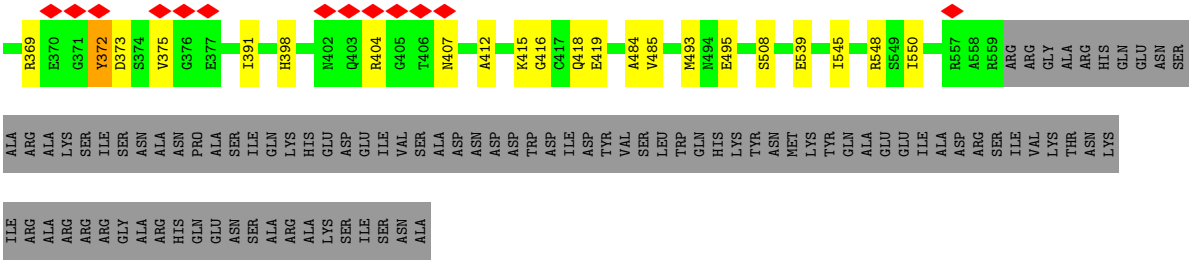








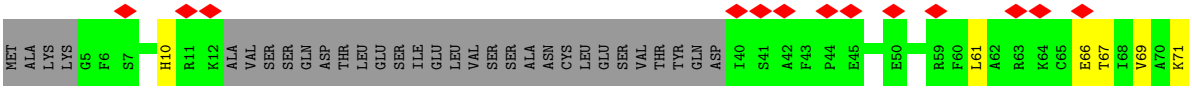


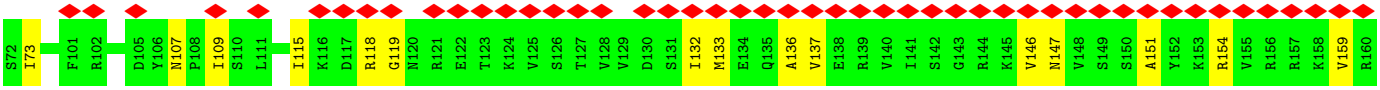


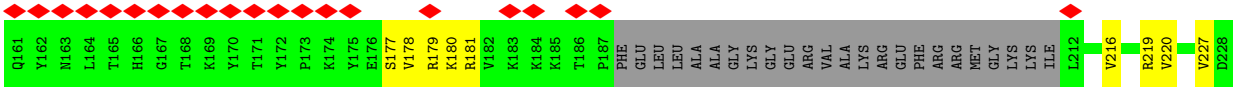
• Molecule 2: TnsB

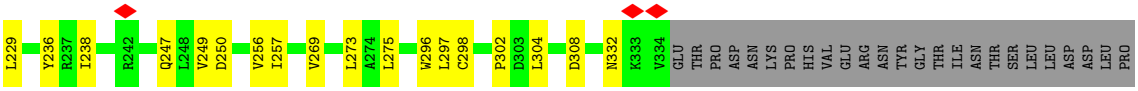
Chain D:

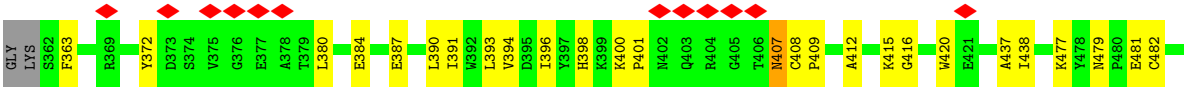


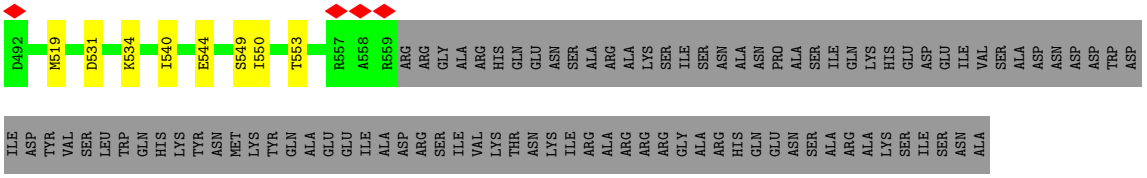








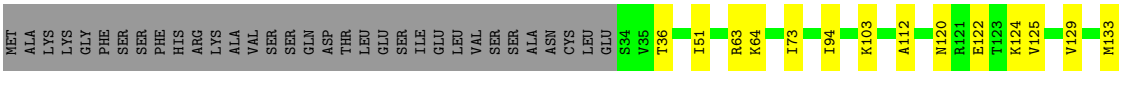


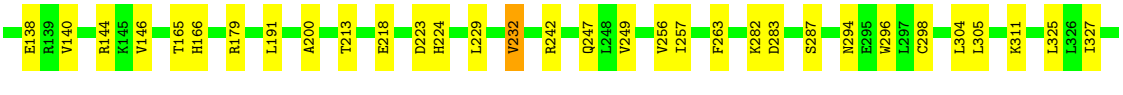


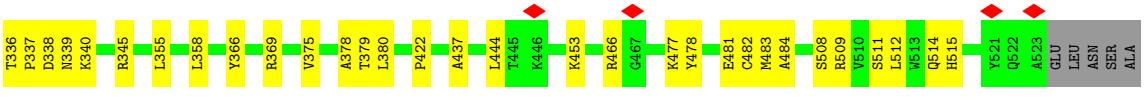
• Molecule 2: TnsB

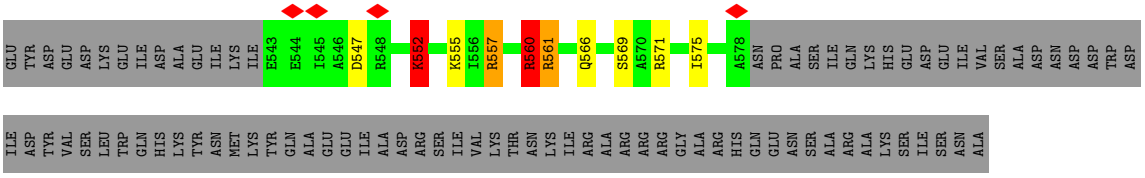
Chain E:









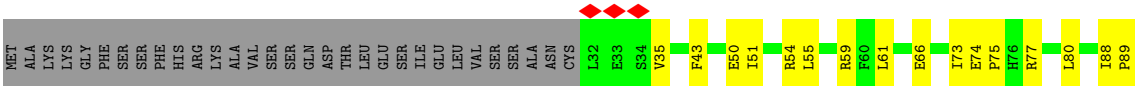


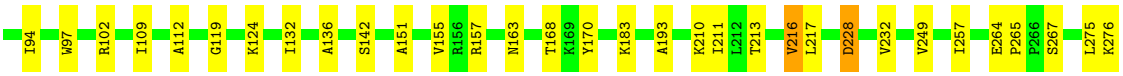


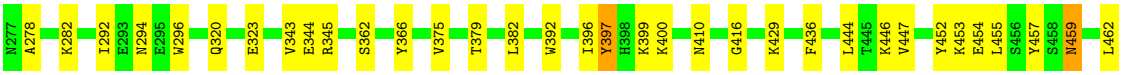
• Molecule 2: TnsB

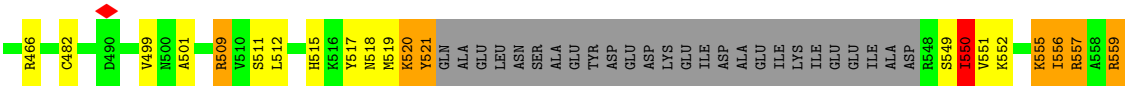
Chain F:

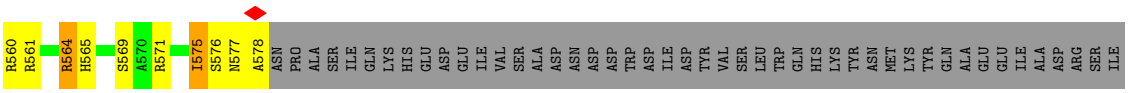








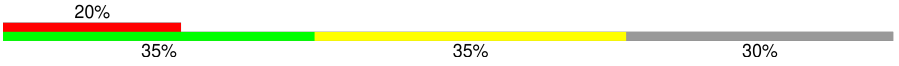


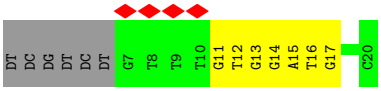




• Molecule 3: TargetFlank-RC

Chain 2:



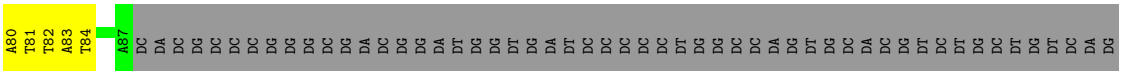


• Molecule 4: RE-TS

Chain 3:



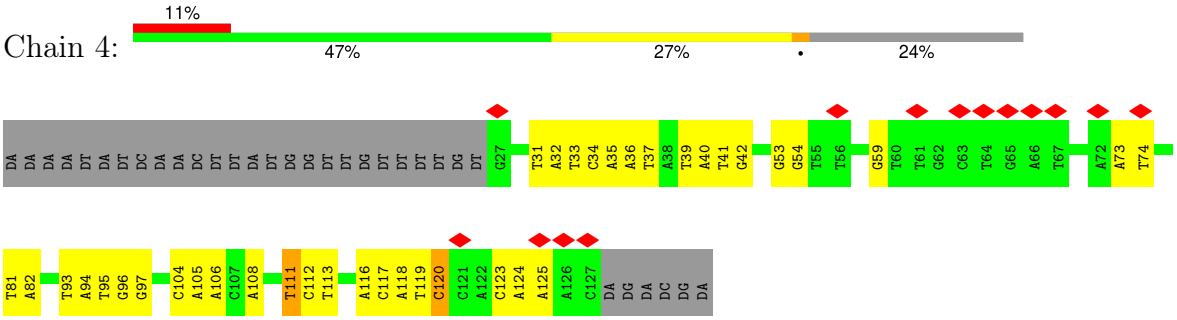






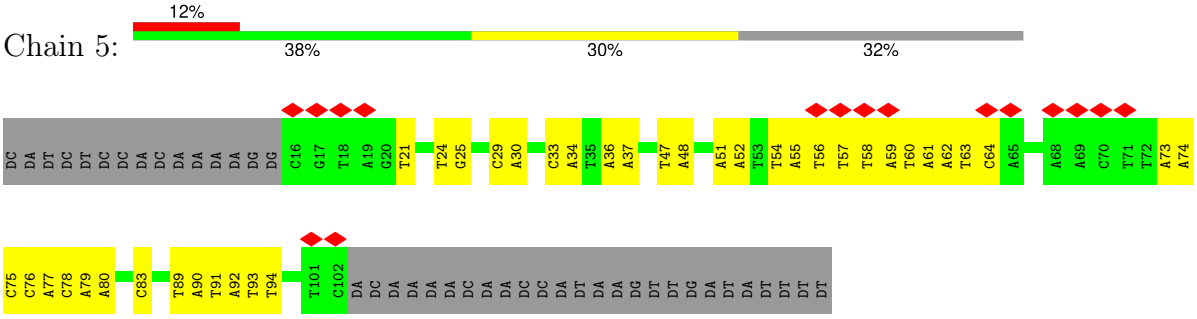
• Molecule 5: LE-TSD-TargetFlank

Chain 4:



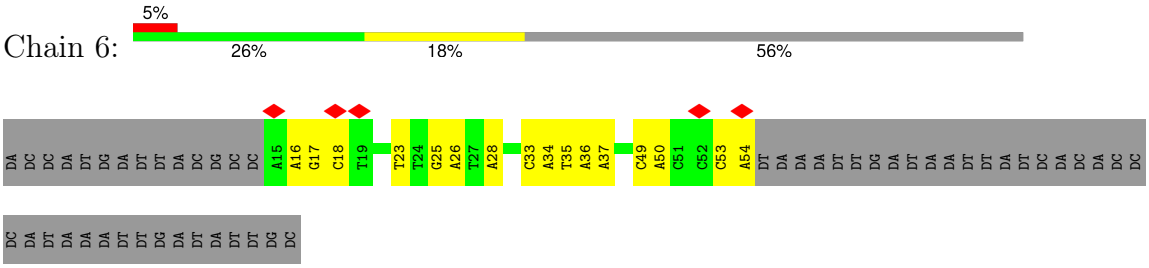
• Molecule 6: HFR-LE

Chain 5:



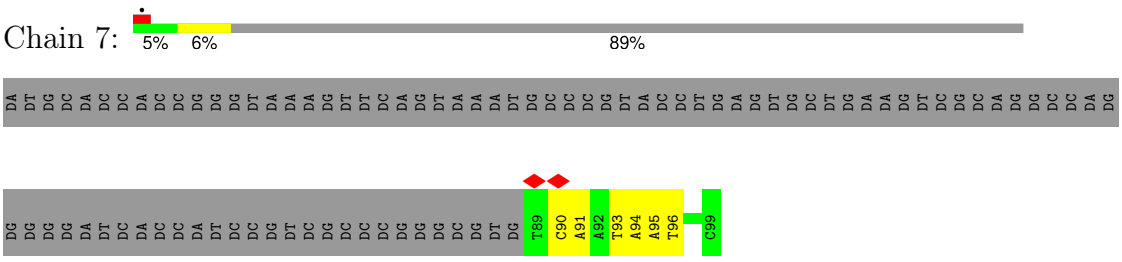
• Molecule 7: HFR-RE

Chain 6:



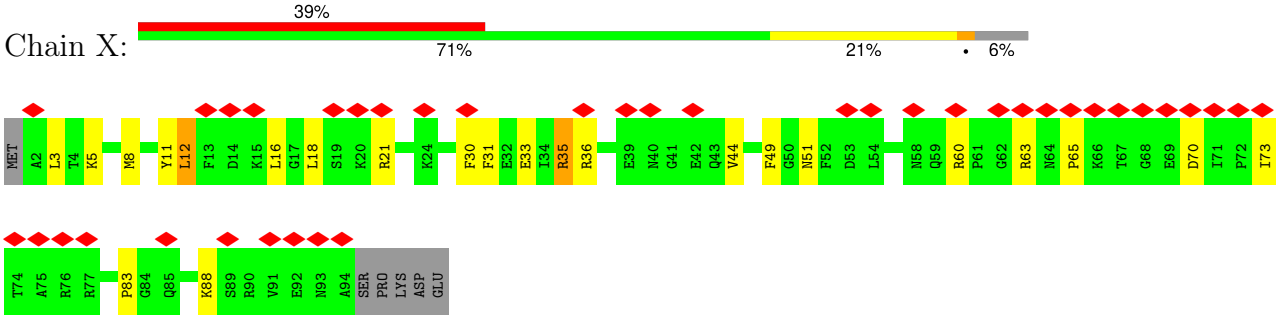
• Molecule 8: NTS-Scramble

Chain 7:

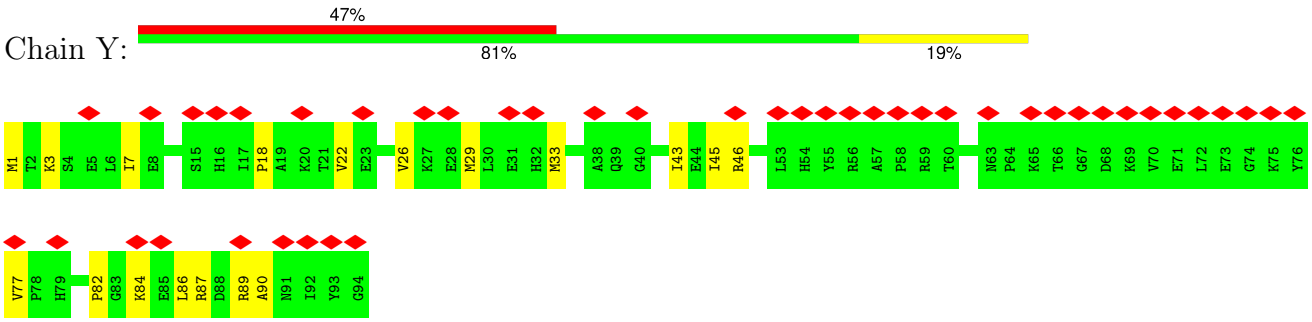


• Molecule 9: IHF-A

Chain X:



• Molecule 10: IHF-B



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	51169	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	60	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	1.932	Depositor
Minimum map value	-0.002	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.023	Depositor
Recommended contour level	0.058	Depositor
Map size (Å)	370.0, 370.0, 370.0	wwPDB
Map dimensions	500, 500, 500	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.74, 0.74, 0.74	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: MG

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	0.17	0/1891	0.26	0/2554
1	B	0.09	0/1891	0.25	0/2554
2	C	0.15	0/3454	0.35	0/4650
2	D	0.09	0/4020	0.25	0/5429
2	E	0.33	1/4407 (0.0%)	0.55	7/5951 (0.1%)
2	F	0.31	1/4376 (0.0%)	0.49	1/5909 (0.0%)
3	2	0.67	0/325	0.92	0/501
4	3	0.69	0/1136	0.91	0/1752
5	4	0.71	1/2320 (0.0%)	0.93	1/3579 (0.0%)
6	5	0.69	0/1995	0.85	0/3074
7	6	0.72	0/917	0.83	0/1411
8	7	0.66	0/249	0.88	0/381
9	X	0.09	0/761	0.29	0/1016
10	Y	0.09	0/755	0.24	0/1010
All	All	0.40	3/28497 (0.0%)	0.57	9/39771 (0.0%)

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
2	C	0	3
2	E	0	4
2	F	0	7
All	All	0	14

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	4	120	DC	C1'-N1	6.22	1.55	1.47

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	F	511	SER	CA-CB	-5.55	1.45	1.53
2	E	511	SER	CA-CB	-5.53	1.46	1.53

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	E	224	HIS	CA-CB-CG	7.21	121.01	113.80
2	E	224	HIS	CB-CA-C	-6.24	99.68	109.72
2	E	223	ASP	O-C-N	-6.07	118.56	123.11
2	E	339	ASN	N-CA-C	-5.58	106.31	113.23
5	4	111	DT	O4'-C1'-N1	5.35	111.74	108.00
2	E	552	LYS	CB-CA-C	-5.21	100.06	110.42
2	E	339	ASN	CB-CA-C	5.08	119.87	109.55
2	F	512	LEU	N-CA-CB	5.04	117.99	110.22
2	E	512	LEU	N-CA-C	-5.02	106.84	113.12

There are no chirality outliers.

All (14) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	C	198	ARG	Sidechain
2	C	205	ARG	Sidechain
2	C	206	ARG	Sidechain
2	E	509	ARG	Sidechain
2	E	557	ARG	Sidechain
2	E	560	ARG	Sidechain
2	E	561	ARG	Sidechain
2	F	509	ARG	Mainchain
2	F	557	ARG	Sidechain
2	F	559	ARG	Sidechain
2	F	560	ARG	Sidechain
2	F	561	ARG	Sidechain
2	F	564	ARG	Sidechain
2	F	571	ARG	Sidechain

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1856	0	1881	12	0
1	B	1856	0	1881	11	0
2	C	3385	0	3365	41	0
2	D	3935	0	3919	48	0
2	E	4315	0	4322	46	0
2	F	4284	0	4296	81	0
3	2	291	0	161	5	0
4	3	1014	0	561	19	0
5	4	2070	0	1150	33	0
6	5	1778	0	986	35	0
7	6	817	0	452	13	0
8	7	223	0	126	6	0
9	X	751	0	767	22	0
10	Y	742	0	749	15	0
11	3	1	0	0	0	0
11	4	1	0	0	0	0
11	E	1	0	0	0	0
11	F	1	0	0	0	0
All	All	27321	0	24616	342	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 7.

All (342) 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)
2:C:369:ARG:NH1	2:C:373:ASP:OD2	1.81	1.13
2:F:509:ARG:HH12	2:F:578:ALA:CB	1.65	1.09
2:F:509:ARG:HH12	2:F:578:ALA:HB1	1.17	1.06
2:F:520:LYS:NZ	2:F:521:TYR:HB3	1.81	0.95
2:F:520:LYS:HZ3	2:F:521:TYR:HB3	1.27	0.95
2:F:265:PRO:HD3	2:F:564:ARG:HE	1.40	0.86
2:F:265:PRO:CD	2:F:564:ARG:HE	1.92	0.83
2:C:369:ARG:NH1	2:C:373:ASP:CG	2.36	0.83
2:F:509:ARG:NH1	2:F:578:ALA:CB	2.43	0.82
2:F:75:PRO:HD3	9:X:21:ARG:HH22	1.46	0.79
2:C:372:TYR:O	2:C:373:ASP:OD1	2.05	0.74
2:F:509:ARG:NH1	2:F:578:ALA:HB1	1.98	0.73
2:E:547:ASP:OD1	2:E:566:GLN:NE2	2.22	0.72
6:5:59:DA:H2"	6:5:60:DT:H5"	1.74	0.70
2:D:66:GLU:HG2	2:D:67:THR:HG23	1.72	0.70
2:C:204:PHE:HB3	2:E:63:ARG:HH22	1.56	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:179:ARG:HH12	7:6:28:DA:H2'	1.57	0.69
9:X:5:LYS:HE2	10:Y:46:ARG:HB3	1.72	0.69
10:Y:82:PRO:HB3	10:Y:86:LEU:HD23	1.75	0.69
2:F:397:TYR:HA	2:F:400:LYS:HB3	1.74	0.67
2:D:147:ASN:HD21	6:5:80:DA:H5"	1.60	0.67
2:C:197:GLU:HB3	2:C:202:ARG:HA	1.76	0.66
6:5:76:DC:H2'	6:5:77:DA:C8	2.31	0.66
2:D:407:ASN:C	2:D:407:ASN:HD22	2.03	0.66
2:F:564:ARG:NH1	5:4:116:DA:OP1	2.29	0.65
2:D:412:ALA:HA	2:D:415:LYS:HE2	1.78	0.65
9:X:60:ARG:HB3	9:X:73:ILE:HB	1.79	0.64
2:E:129:VAL:O	2:E:133:MET:HG3	1.98	0.63
2:E:257:ILE:HG22	2:E:298:CYS:HB3	1.79	0.63
2:C:206:ARG:HH21	2:C:206:ARG:HG3	1.62	0.62
2:C:200:ALA:HB1	2:E:63:ARG:HH21	1.65	0.62
2:F:453:LYS:HG2	2:F:454:GLU:HG2	1.82	0.62
2:E:437:ALA:HB3	2:E:477:LYS:HZ2	1.64	0.62
2:F:265:PRO:CD	2:F:564:ARG:NE	2.62	0.61
4:3:43:DG:H2"	4:3:44:DT:H5"	1.82	0.61
2:D:115:ILE:HA	2:D:118:ARG:HH11	1.65	0.61
6:5:73:DA:H2"	6:5:74:DA:C8	2.36	0.61
6:5:75:DC:H2'	6:5:76:DC:C6	2.36	0.61
2:D:177:SER:HA	2:D:180:LYS:HE2	1.83	0.60
2:E:337:PRO:HB2	5:4:108:DA:N3	2.16	0.60
2:D:540:ILE:O	2:D:544:GLU:HG3	2.01	0.60
2:D:257:ILE:HG22	2:D:298:CYS:HB3	1.83	0.60
1:B:211:ASP:OD2	1:B:227:ALA:HA	2.03	0.59
2:F:265:PRO:HD2	2:F:564:ARG:CZ	2.33	0.59
8:7:90:DC:H2"	8:7:91:DA:H5'	1.85	0.59
2:E:478:TYR:HB2	2:E:483:MET:HE1	1.83	0.59
2:D:531:ASP:HB3	2:D:534:LYS:HG3	1.84	0.59
3:2:13:DG:H2"	3:2:14:DG:C8	2.38	0.58
2:C:493:MET:HB2	2:C:495:GLU:HG2	1.85	0.58
2:D:549:SER:O	2:D:553:THR:HG22	2.04	0.58
2:F:136:ALA:HB1	2:F:151:ALA:HB1	1.85	0.58
5:4:123:DC:H2"	5:4:124:DA:C8	2.39	0.58
6:5:78:DC:H2'	6:5:79:DA:C8	2.38	0.58
2:E:124:LYS:HD3	4:3:59:DG:H1'	1.86	0.57
2:D:407:ASN:C	2:D:407:ASN:ND2	2.63	0.57
2:D:146:VAL:HG11	2:D:154:ARG:HH12	1.69	0.57
2:C:484:ALA:HB2	2:C:508:SER:HA	1.85	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:X:83:PRO:HG2	9:X:88:LYS:HE2	1.86	0.57
2:F:444:LEU:HG	2:F:466:ARG:HG3	1.87	0.57
9:X:60:ARG:HG2	9:X:73:ILE:HD12	1.87	0.57
2:E:51:ILE:HD11	2:E:112:ALA:HB2	1.87	0.56
2:C:539:GLU:HB3	2:F:157:ARG:HH11	1.71	0.56
4:3:81:DT:H2'	4:3:82:DT:H71	1.88	0.56
5:4:81:DT:H2"	5:4:82:DA:C8	2.41	0.56
2:D:236:TYR:HB2	2:D:238:ILE:HG22	1.89	0.55
2:C:206:ARG:HG2	2:E:64:LYS:O	2.07	0.55
2:F:265:PRO:HD2	2:F:564:ARG:HE	1.72	0.55
2:E:484:ALA:HB2	2:E:508:SER:HA	1.88	0.54
2:F:124:LYS:HB2	5:4:97:DG:H5'	1.88	0.54
5:4:112:DC:H1'	5:4:113:DT:H5"	1.89	0.54
5:4:119:DT:H2"	5:4:120:DC:C2	2.42	0.54
2:C:202:ARG:O	2:C:203:GLU:C	2.49	0.54
2:F:457:TYR:HA	2:F:501:ALA:HA	1.89	0.54
1:B:157:ARG:HH21	2:E:422:PRO:HA	1.73	0.54
2:F:517:TYR:HA	2:F:520:LYS:HD3	1.90	0.54
2:F:482:CYS:HB2	2:F:575:ILE:HD12	1.89	0.54
2:F:73:ILE:HD13	2:F:94:ILE:HB	1.90	0.53
2:E:191:LEU:HD23	2:E:200:ALA:HA	1.90	0.53
2:E:249:VAL:HA	2:E:256:VAL:HA	1.90	0.53
2:F:119:GLY:HA2	5:4:94:DA:N3	2.24	0.53
2:D:219:ARG:HG3	2:D:304:LEU:HD23	1.89	0.53
5:4:39:DT:H2"	5:4:40:DA:C8	2.43	0.53
2:D:107:ASN:HB3	2:D:109:ILE:HG12	1.90	0.53
2:E:311:LYS:HD2	4:3:80:DA:H1'	1.89	0.53
2:D:220:VAL:HG12	2:D:250:ASP:HA	1.91	0.53
2:D:398:HIS:HA	2:D:409:PRO:HG2	1.91	0.52
1:A:68:VAL:HG12	1:A:69:ARG:HG2	1.91	0.52
2:F:216:VAL:HG23	2:F:416:GLY:HA3	1.91	0.52
6:5:60:DT:H2"	6:5:61:DA:C8	2.45	0.52
6:5:61:DA:H2"	6:5:62:DA:C8	2.43	0.52
2:F:459:ASN:ND2	2:F:499:VAL:HG22	2.24	0.52
2:F:265:PRO:HD2	2:F:564:ARG:NE	2.25	0.52
2:D:553:THR:HG21	2:F:379:THR:HG22	1.91	0.52
4:3:72:DA:H2'	4:3:73:DG:H8	1.74	0.52
9:X:63:ARG:HA	9:X:70:ASP:HA	1.92	0.52
2:E:125:VAL:HG13	4:3:60:DG:H5'	1.91	0.52
2:F:257:ILE:HG22	2:F:278:ALA:HB1	1.92	0.52
2:D:387:GLU:O	2:D:391:ILE:HG13	2.11	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:216:VAL:HG13	2:D:416:GLY:HA3	1.92	0.51
2:F:267:SER:HB3	5:4:116:DA:H5"	1.91	0.51
2:F:51:ILE:HD11	2:F:112:ALA:HB2	1.92	0.51
6:5:63:DT:H2"	6:5:64:DC:C6	2.45	0.51
2:F:576:SER:O	2:F:578:ALA:N	2.44	0.51
5:4:34:DC:H2"	5:4:35:DA:C8	2.46	0.51
2:F:459:ASN:HD22	2:F:499:VAL:HG22	1.76	0.51
2:D:132:ILE:HD11	2:D:159:VAL:HG23	1.92	0.51
6:5:51:DA:H1'	10:Y:46:ARG:HH12	1.76	0.50
2:E:444:LEU:HG	2:E:466:ARG:HG3	1.93	0.50
2:E:514:GLN:HE22	2:E:569:SER:HB2	1.76	0.50
2:F:74:GLU:HA	2:F:77:ARG:HG3	1.94	0.50
2:C:209:LYS:HA	2:C:212:LEU:HD12	1.93	0.50
2:C:203:GLU:O	2:C:205:ARG:N	2.44	0.50
2:D:390:LEU:O	2:D:394:VAL:HG12	2.11	0.50
2:E:263:PHE:CD1	2:E:560:ARG:HG3	2.47	0.50
2:F:282:LYS:HD2	2:F:296:TRP:CE3	2.47	0.50
2:D:227:VAL:HG12	2:D:229:LEU:H	1.77	0.50
6:5:51:DA:H2"	6:5:52:DA:C8	2.46	0.50
3:2:14:DG:H2"	3:2:15:DA:C8	2.47	0.49
4:3:73:DG:N1	5:4:111:DT:H71	2.27	0.49
2:D:269:VAL:HG13	2:D:438:ILE:HD11	1.94	0.49
4:3:72:DA:H2'	4:3:73:DG:C8	2.47	0.49
2:C:204:PHE:HA	2:C:207:MET:CG	2.42	0.49
2:E:140:VAL:HG22	2:E:146:VAL:HG23	1.94	0.49
6:5:60:DT:H2"	6:5:61:DA:H8	1.78	0.49
2:F:132:ILE:HG22	2:F:155:VAL:HG22	1.94	0.49
1:A:164:LEU:HD23	1:A:168:HIS:HB3	1.94	0.48
2:E:73:ILE:HD13	2:E:94:ILE:HB	1.95	0.48
6:5:77:DA:H2'	6:5:78:DC:O4'	2.13	0.48
9:X:3:LEU:HB2	10:Y:43:ILE:HG12	1.94	0.48
9:X:30:PHE:HD2	10:Y:29:MET:HE3	1.77	0.48
2:C:372:TYR:CD1	2:C:372:TYR:N	2.81	0.48
2:F:549:SER:O	2:F:550:ILE:C	2.55	0.48
2:C:200:ALA:C	2:C:202:ARG:N	2.66	0.48
2:D:396:ILE:HG22	2:D:400:LYS:NZ	2.28	0.48
4:3:68:DA:H2"	4:3:69:DA:C8	2.49	0.48
7:6:49:DC:H2"	7:6:50:DA:H8	1.78	0.48
2:E:483:MET:HE3	2:E:483:MET:HA	1.95	0.48
10:Y:18:PRO:O	10:Y:22:VAL:HG23	2.13	0.48
2:E:232:VAL:HG23	2:E:378:ALA:HB1	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:55:LEU:O	2:F:59:ARG:HG2	2.13	0.48
5:4:124:DA:H2"	5:4:125:DA:C8	2.49	0.48
2:E:283:ASP:O	2:E:287:SER:HB3	2.13	0.48
2:D:275:LEU:HD11	2:D:302:PRO:HG3	1.96	0.48
2:E:482:CYS:HB2	2:E:575:ILE:HG21	1.96	0.48
6:5:89:DT:H2"	6:5:90:DA:C8	2.48	0.48
7:6:33:DC:H2"	7:6:34:DA:C8	2.49	0.48
2:F:576:SER:C	2:F:578:ALA:N	2.72	0.47
5:4:40:DA:H2'	5:4:41:DT:H71	1.95	0.47
9:X:49:PHE:CE2	10:Y:33:MET:HG3	2.48	0.47
2:F:80:LEU:HB3	2:F:88:ILE:HG13	1.96	0.47
8:7:93:DT:H2"	8:7:94:DA:H8	1.80	0.47
1:B:79:TYR:CE1	1:B:86:HIS:HB2	2.50	0.47
2:C:200:ALA:C	2:C:202:ARG:H	2.22	0.47
2:F:457:TYR:HB3	2:F:499:VAL:HG12	1.96	0.47
5:4:104:DC:H2"	5:4:105:DA:H8	1.80	0.47
7:6:17:DG:H1'	7:6:18:DC:H5'	1.96	0.47
4:3:41:DG:H2'	4:3:42:DT:C6	2.50	0.46
6:5:74:DA:H5"	10:Y:3:LYS:HE3	1.96	0.46
9:X:3:LEU:HD21	9:X:11:TYR:HE2	1.80	0.46
1:A:175:ILE:HD11	1:A:186:LEU:HD11	1.97	0.46
2:E:179:ARG:HD3	7:6:28:DA:OP2	2.15	0.46
2:C:415:LYS:O	2:C:419:GLU:HG3	2.15	0.46
2:F:275:LEU:HD23	2:F:436:PHE:HZ	1.80	0.46
2:F:399:LYS:HG2	2:F:410:ASN:ND2	2.31	0.46
2:D:69:VAL:HG12	2:D:71:LYS:H	1.79	0.46
2:E:366:TYR:HA	2:E:369:ARG:HG3	1.98	0.46
6:5:91:DT:H2"	6:5:92:DA:H8	1.81	0.46
2:C:539:GLU:HB3	2:F:157:ARG:HD3	1.97	0.46
2:E:552:LYS:HB2	2:E:552:LYS:HE2	1.55	0.46
2:E:249:VAL:HG22	2:E:256:VAL:HG22	1.98	0.46
5:4:105:DA:H2"	5:4:106:DA:C8	2.51	0.46
1:A:78:LYS:HG2	1:A:85:SER:HB2	1.98	0.46
2:F:163:ASN:HD21	2:F:170:TYR:HB2	1.81	0.46
2:F:345:ARG:HD2	2:F:345:ARG:HA	1.60	0.46
2:C:229:LEU:HD23	2:C:229:LEU:HA	1.80	0.46
2:D:61:LEU:HD11	2:D:73:ILE:HG23	1.98	0.46
2:F:142:SER:HB3	2:F:193:ALA:HB1	1.96	0.46
5:4:105:DA:H2"	5:4:106:DA:H8	1.80	0.46
2:F:265:PRO:HD3	2:F:564:ARG:NE	2.20	0.46
2:F:429:LYS:HE3	2:F:429:LYS:HB3	1.84	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:4:93:DT:H2"	5:4:94:DA:H8	1.80	0.46
2:F:61:LEU:HD21	2:F:80:LEU:HD11	1.97	0.45
5:4:53:DG:H4'	5:4:54:DG:OP1	2.16	0.45
2:C:132:ILE:HD11	2:C:158:LYS:HB3	1.99	0.45
2:C:216:VAL:HG13	2:C:416:GLY:HA3	1.98	0.45
2:E:242:ARG:O	2:E:560:ARG:NH1	2.49	0.45
4:3:41:DG:H3'	4:3:42:DT:H71	1.99	0.45
1:B:170:SER:HA	1:B:173:LYS:HE2	1.98	0.45
2:C:204:PHE:CZ	2:C:210:LYS:HB3	2.52	0.45
2:F:210:LYS:NZ	7:6:23:DT:H5"	2.31	0.45
2:D:479:ASN:ND2	2:D:482:CYS:H	2.15	0.45
6:5:47:DT:H2"	6:5:48:DA:C8	2.51	0.45
10:Y:84:LYS:HD2	10:Y:87:ARG:HE	1.82	0.45
2:F:517:TYR:O	2:F:518:ASN:C	2.59	0.45
2:F:520:LYS:HZ1	2:F:521:TYR:HB3	1.71	0.45
5:4:34:DC:H2"	5:4:35:DA:H5"	1.98	0.45
2:C:204:PHE:HE1	2:C:208:GLY:HA2	1.82	0.45
2:D:273:LEU:HD13	2:D:481:GLU:HG3	1.97	0.45
2:E:229:LEU:HD21	2:E:380:LEU:HD13	1.98	0.45
1:A:171:ILE:O	1:A:175:ILE:HG12	2.17	0.45
2:E:305:LEU:HD12	2:E:327:ILE:HG21	1.98	0.45
2:F:453:LYS:O	2:F:515:HIS:NE2	2.41	0.45
1:B:193:LYS:HD3	1:B:193:LYS:HA	1.70	0.45
2:D:308:ASP:HA	2:D:332:ASN:HB2	1.99	0.45
2:E:453:LYS:O	2:E:515:HIS:NE2	2.50	0.44
5:4:117:DC:H2"	5:4:118:DA:H8	1.82	0.44
1:A:5:LEU:HD13	1:A:6:PRO:HD2	1.99	0.44
7:6:35:DT:H2"	7:6:36:DA:C8	2.52	0.44
2:F:217:LEU:HD21	2:F:257:ILE:HG13	1.99	0.44
5:4:31:DT:H4'	5:4:32:DA:OP1	2.16	0.44
8:7:95:DA:H5'	8:7:95:DA:H8	1.83	0.44
2:F:396:ILE:HG22	2:F:397:TYR:H	1.82	0.44
9:X:33:GLU:HG3	9:X:36:ARG:CZ	2.46	0.44
1:A:16:LEU:HD11	1:A:133:LEU:HD11	1.98	0.44
5:4:41:DT:H2"	5:4:42:DG:H8	1.83	0.44
9:X:16:LEU:HB2	9:X:18:LEU:HG	1.99	0.44
2:D:133:MET:HE3	2:D:178:VAL:HG22	1.99	0.44
1:A:73:LYS:HE2	1:A:91:ASP:HA	1.98	0.44
1:A:126:LYS:HA	1:A:126:LYS:HD2	1.74	0.44
7:6:53:DC:H4'	7:6:54:DA:OP1	2.16	0.44
1:B:111:GLN:HA	1:B:114:LYS:HE2	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:5:54:DT:H4'	6:5:55:DA:OP1	2.17	0.44
2:C:412:ALA:HA	2:C:415:LYS:HE2	2.00	0.44
3:2:14:DG:H1	5:4:120:DC:H5	1.66	0.44
1:A:74:PRO:HG3	1:A:93:LEU:HB2	2.00	0.43
2:D:363:PHE:CD1	2:D:363:PHE:C	2.96	0.43
4:3:41:DG:H8	4:3:41:DG:H5"	1.83	0.43
6:5:93:DT:H2'	6:5:94:DT:H71	1.99	0.43
2:C:4:LYS:HB3	2:C:4:LYS:HE2	1.81	0.43
2:C:129:VAL:O	2:C:133:MET:HG2	2.17	0.43
2:F:43:PHE:HE2	2:F:109:ILE:HD12	1.84	0.43
2:F:264:GLU:OE2	2:F:564:ARG:NH2	2.51	0.43
3:2:16:DT:H2"	3:2:17:DG:H8	1.82	0.43
2:C:391:ILE:HD13	2:C:391:ILE:HA	1.90	0.43
2:D:179:ARG:HH12	6:5:83:DC:H5	1.65	0.43
9:X:35:ARG:CZ	10:Y:89:ARG:HB3	2.49	0.43
9:X:35:ARG:HH22	10:Y:90:ALA:HA	1.82	0.43
2:C:197:GLU:CD	2:C:203:GLU:H	2.26	0.43
4:3:58:DT:H2"	4:3:59:DG:C8	2.54	0.43
2:C:245:LEU:HD13	2:C:261:LEU:HD13	2.00	0.43
2:E:282:LYS:HG2	2:E:296:TRP:CE3	2.52	0.43
2:F:50:GLU:O	2:F:54:ARG:HG3	2.19	0.43
6:5:92:DA:C2'	6:5:93:DT:H71	2.49	0.43
8:7:93:DT:H2"	8:7:94:DA:C8	2.54	0.43
2:C:155:VAL:HG12	2:C:156:ARG:HH11	1.83	0.43
2:C:203:GLU:O	2:C:204:PHE:C	2.61	0.43
2:F:344:GLU:HB3	4:3:70:DC:H2"	2.01	0.43
4:3:51:DC:H2"	4:3:52:DA:C8	2.54	0.43
6:5:21:DT:H6	6:5:21:DT:H2'	1.64	0.43
7:6:36:DA:H2"	7:6:37:DA:C8	2.54	0.43
2:D:256:VAL:HB	2:D:393:LEU:HD11	2.00	0.43
2:E:103:LYS:HB2	2:E:103:LYS:HE2	1.79	0.43
2:C:545:ILE:HG12	2:C:548:ARG:HH22	1.84	0.43
2:D:136:ALA:HB1	2:D:151:ALA:HB1	2.00	0.43
5:4:117:DC:H2"	5:4:118:DA:C8	2.54	0.43
8:7:95:DA:H2'	8:7:96:DT:H71	2.01	0.43
5:4:36:DA:H2'	5:4:37:DT:H71	2.00	0.42
9:X:31:PHE:HE2	10:Y:45:ILE:HG12	1.83	0.42
2:F:66:GLU:H	2:F:66:GLU:HG2	1.59	0.42
1:B:74:PRO:HG3	1:B:93:LEU:HB2	2.01	0.42
2:C:139:ARG:HH21	2:C:146:VAL:HG11	1.84	0.42
2:D:437:ALA:HB3	2:D:477:LYS:HG2	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:145:ASP:HB3	1:B:148:VAL:HG12	2.02	0.42
2:D:137:VAL:HG21	2:D:181:ARG:HG2	2.01	0.42
2:E:144:ARG:H	2:E:144:ARG:HG2	1.64	0.42
6:5:24:DT:H2"	6:5:25:DG:C8	2.54	0.42
6:5:33:DC:H2"	6:5:34:DA:C8	2.54	0.42
6:5:79:DA:H2"	6:5:80:DA:C8	2.54	0.42
1:B:171:ILE:O	1:B:175:ILE:HG13	2.19	0.42
2:D:296:TRP:HB3	2:D:394:VAL:HG23	2.01	0.42
2:E:120:ASN:OD1	2:E:122:GLU:HG2	2.19	0.42
2:E:355:LEU:HA	2:E:358:LEU:HD12	2.00	0.42
5:4:59:DG:H3'	9:X:51:ASN:HD21	1.84	0.42
6:5:57:DT:H2"	6:5:58:DT:C6	2.55	0.42
2:F:183:LYS:HD2	2:F:183:LYS:HA	1.74	0.42
2:F:228:ASP:HB3	2:F:362:SER:HB3	2.01	0.42
4:3:83:DA:H2'	4:3:84:DT:H71	2.00	0.42
7:6:36:DA:H2"	7:6:37:DA:H8	1.85	0.42
2:D:550:ILE:HG12	2:F:379:THR:HG21	2.02	0.42
5:4:73:DA:H2'	5:4:74:DT:C6	2.54	0.42
2:C:217:LEU:HB3	2:C:302:PRO:HA	2.01	0.42
6:5:79:DA:H2"	6:5:80:DA:H8	1.85	0.42
1:A:5:LEU:HG	1:A:134:GLU:HG3	2.01	0.42
2:D:119:GLY:HA2	5:4:40:DA:N3	2.34	0.42
2:F:462:LEU:HD12	2:F:462:LEU:HA	1.88	0.42
4:3:74:DA:H2	5:4:111:DT:O2	2.03	0.42
6:5:56:DT:O2	9:X:65:PRO:HB2	2.19	0.42
7:6:25:DG:H2"	7:6:26:DA:C8	2.55	0.42
2:D:229:LEU:HD11	2:D:372:TYR:HB3	2.02	0.41
2:E:557:ARG:HD2	2:E:561:ARG:HH12	1.84	0.41
2:F:275:LEU:HD23	2:F:436:PHE:CZ	2.54	0.41
6:5:57:DT:O2	9:X:65:PRO:HG3	2.20	0.41
2:F:576:SER:C	2:F:578:ALA:H	2.28	0.41
5:4:53:DG:H2"	5:4:54:DG:O5'	2.20	0.41
2:C:205:ARG:HD2	2:C:205:ARG:HA	1.45	0.41
2:D:136:ALA:HA	2:D:154:ARG:HH21	1.84	0.41
6:5:36:DA:H2"	6:5:37:DA:H8	1.85	0.41
8:7:95:DA:H5'	8:7:95:DA:C8	2.55	0.41
2:F:276:LYS:HB2	2:F:276:LYS:HE3	1.92	0.41
7:6:16:DA:H4'	7:6:17:DG:OP1	2.20	0.41
2:D:247:GLN:HG2	2:D:256:VAL:HG11	2.02	0.41
2:F:382:LEU:HD12	2:F:382:LEU:HA	1.93	0.41
2:F:452:TYR:HB3	2:F:455:LEU:HD12	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:229:LEU:HD23	2:C:375:VAL:HB	2.01	0.41
2:D:401:PRO:HA	2:D:408:CYS:HA	2.03	0.41
2:F:555:LYS:HE2	2:F:555:LYS:HB2	1.42	0.41
6:5:91:DT:H2"	6:5:92:DA:C8	2.56	0.41
1:A:31:ARG:HE	1:A:31:ARG:HB2	1.70	0.41
2:F:366:TYR:HB3	4:3:74:DA:H2'	2.02	0.41
2:C:404:ARG:CZ	2:C:407:ASN:HB3	2.51	0.41
2:E:481:GLU:HG2	2:E:571:ARG:HD2	2.02	0.41
2:F:515:HIS:CE1	2:F:519:MET:HE3	2.55	0.41
1:B:12:VAL:HG11	1:B:131:LEU:HD23	2.03	0.41
1:B:115:PRO:O	1:B:118:PRO:HD2	2.21	0.41
2:D:118:ARG:HH12	6:5:93:DT:H5'	1.86	0.41
2:D:519:MET:HE3	2:D:519:MET:HB3	1.91	0.41
2:E:218:GLU:O	2:E:304:LEU:HB3	2.21	0.41
2:F:446:LYS:HD3	2:F:447:VAL:HG12	2.03	0.41
2:F:556:ILE:HD13	2:F:556:ILE:HA	1.82	0.41
3:2:11:DG:H1'	3:2:12:DT:H5'	2.02	0.41
5:4:33:DT:H2"	5:4:34:DC:O5'	2.21	0.41
5:4:95:DT:H2"	5:4:96:DG:C8	2.55	0.41
6:5:60:DT:H1'	9:X:60:ARG:HH11	1.85	0.41
7:6:25:DG:H2"	7:6:26:DA:H8	1.86	0.41
9:X:8:MET:O	9:X:12:LEU:HD22	2.21	0.41
9:X:30:PHE:CD2	10:Y:29:MET:HE3	2.56	0.41
9:X:44:VAL:HG12	10:Y:1:MET:N	2.36	0.41
2:C:206:ARG:HG3	2:C:206:ARG:NH2	2.28	0.41
2:D:380:LEU:HD22	2:D:384:GLU:HB3	2.03	0.41
6:5:78:DC:H2'	6:5:79:DA:H8	1.82	0.40
2:F:102:ARG:HE	2:F:102:ARG:HB3	1.74	0.40
10:Y:7:ILE:HG12	10:Y:26:VAL:HG21	2.03	0.40
2:C:550:ILE:HA	2:E:379:THR:HG21	2.04	0.40
2:F:392:TRP:O	2:F:396:ILE:HB	2.20	0.40
2:F:575:ILE:H	2:F:575:ILE:HG13	1.73	0.40
2:E:345:ARG:HA	2:E:345:ARG:HD2	1.65	0.40
2:F:89:PRO:HG2	2:F:97:TRP:CH2	2.57	0.40
2:F:509:ARG:NH1	2:F:578:ALA:HB3	2.32	0.40
2:E:165:THR:HG23	2:E:166:HIS:CD2	2.56	0.40
2:F:320:GLN:HA	2:F:323:GLU:HG2	2.04	0.40
4:3:83:DA:N3	4:3:83:DA:H5'	2.36	0.40
6:5:29:DC:H2"	6:5:30:DA:H8	1.86	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	228/230 (99%)	224 (98%)	4 (2%)	0	100	100
1	B	228/230 (99%)	220 (96%)	8 (4%)	0	100	100
2	C	402/652 (62%)	386 (96%)	14 (4%)	2 (0%)	24	54
2	D	469/652 (72%)	454 (97%)	14 (3%)	1 (0%)	43	72
2	E	522/652 (80%)	487 (93%)	33 (6%)	2 (0%)	30	59
2	F	518/652 (79%)	493 (95%)	21 (4%)	4 (1%)	16	44
9	X	91/99 (92%)	90 (99%)	1 (1%)	0	100	100
10	Y	92/94 (98%)	92 (100%)	0	0	100	100
All	All	2550/3261 (78%)	2446 (96%)	95 (4%)	9 (0%)	31	59

All (9) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	F	577	ASN
2	C	204	PHE
2	F	550	ILE
2	F	397	TYR
2	C	199	VAL
2	E	375	VAL
2	F	249	VAL
2	D	10	HIS
2	E	247	GLN

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	205/205 (100%)	202 (98%)	3 (2%)	57 84
1	B	205/205 (100%)	199 (97%)	6 (3%)	37 71
2	C	371/582 (64%)	355 (96%)	16 (4%)	26 60
2	D	433/582 (74%)	429 (99%)	4 (1%)	70 90
2	E	472/582 (81%)	460 (98%)	12 (2%)	42 74
2	F	469/582 (81%)	445 (95%)	24 (5%)	21 53
9	X	80/86 (93%)	78 (98%)	2 (2%)	42 74
10	Y	78/79 (99%)	77 (99%)	1 (1%)	61 86
All	All	2313/2903 (80%)	2245 (97%)	68 (3%)	38 71

All (68) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	5	LEU
1	A	107	LYS
1	A	108	SER
1	B	1	MET
1	B	17	GLU
1	B	78	LYS
1	B	86	HIS
1	B	218	LEU
1	B	226	LEU
2	C	132	ILE
2	C	198	ARG
2	C	199	VAL
2	C	201	LYS
2	C	202	ARG
2	C	203	GLU
2	C	204	PHE
2	C	205	ARG
2	C	206	ARG
2	C	207	MET
2	C	225	THR
2	C	249	VAL
2	C	372	TYR
2	C	398	HIS
2	C	418	GLN
2	C	485	VAL

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Mol	Chain	Res	Type
2	D	249	VAL
2	D	297	LEU
2	D	407	ASN
2	D	420	TRP
2	E	36	THR
2	E	138	GLU
2	E	213	THR
2	E	232	VAL
2	E	294	ASN
2	E	325	LEU
2	E	336	THR
2	E	338	ASP
2	E	340	LYS
2	E	552	LYS
2	E	555	LYS
2	E	560	ARG
2	F	35	VAL
2	F	168	THR
2	F	211	ILE
2	F	213	THR
2	F	216	VAL
2	F	228	ASP
2	F	232	VAL
2	F	292	ILE
2	F	294	ASN
2	F	343	VAL
2	F	375	VAL
2	F	459	ASN
2	F	520	LYS
2	F	521	TYR
2	F	550	ILE
2	F	551	VAL
2	F	552	LYS
2	F	555	LYS
2	F	556	ILE
2	F	557	ARG
2	F	559	ARG
2	F	565	HIS
2	F	569	SER
2	F	575	ILE
9	X	12	LEU
9	X	35	ARG

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Mol	Chain	Res	Type
10	Y	77	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
2	E	161	GLN
2	E	398	HIS
2	E	514	GLN
2	F	76	HIS
2	F	514	GLN
2	F	566	GLN

5.3.3 RNA

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains

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

5.5 Carbohydrates

There are no oligosaccharides in this entry.

5.6 Ligand geometry

Of 4 ligands modelled in this entry, 4 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
4	3	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	3	71:DA	O3'	72:DA	P	3.10

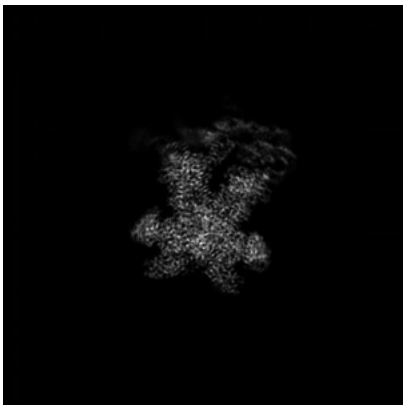
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-77364. These allow visual inspection of the internal detail of the map and identification of artifacts.

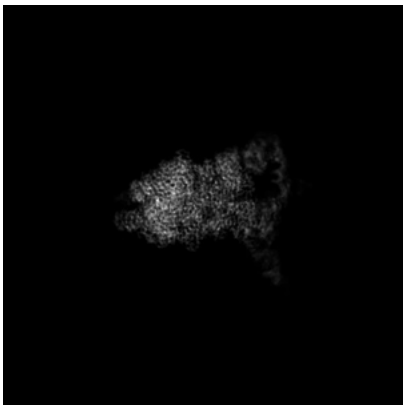
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

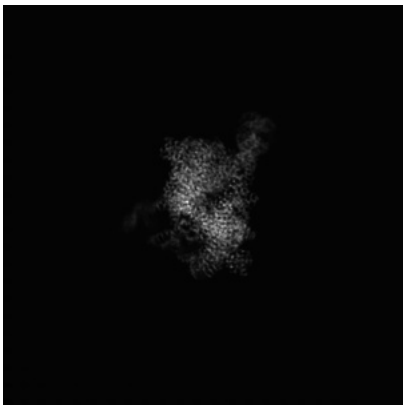
6.1.1 Primary map



X

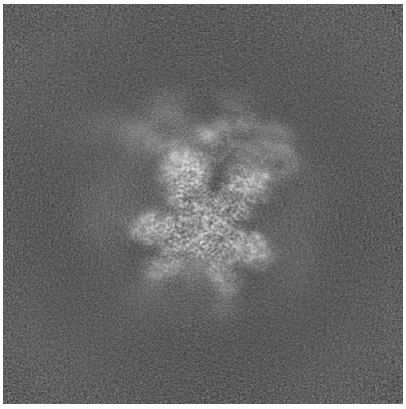


Y

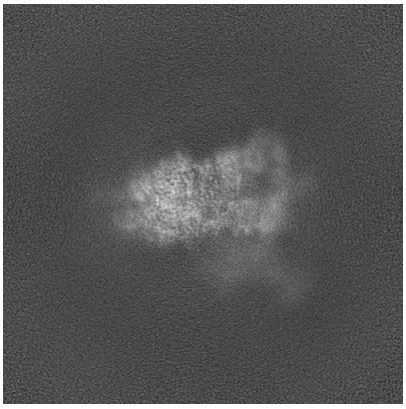


Z

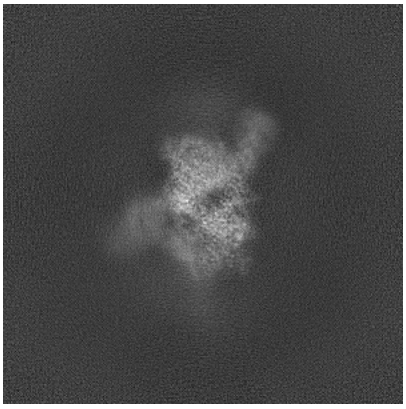
6.1.2 Raw map



X



Y



Z

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

6.2 Central slices (i)

6.2.1 Primary map



X Index: 250

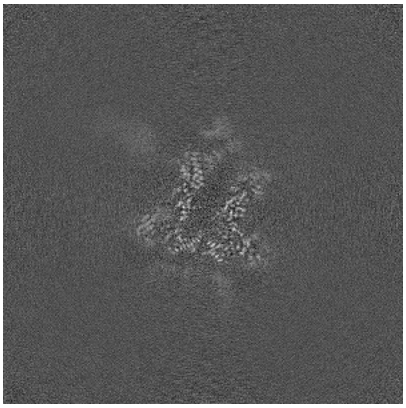


Y Index: 250

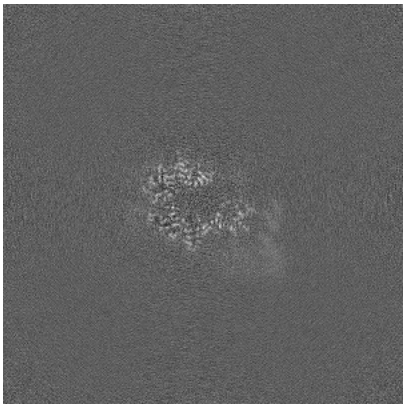


Z Index: 250

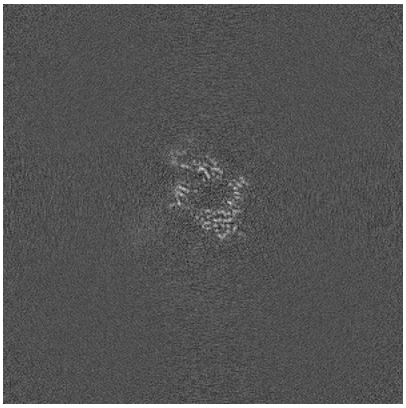
6.2.2 Raw map



X Index: 250



Y Index: 250



Z Index: 250

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

6.3 Largest variance slices (i)

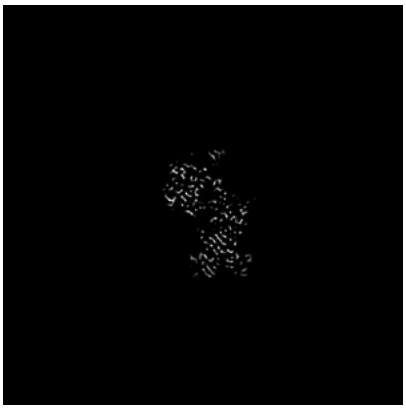
6.3.1 Primary map



X Index: 250

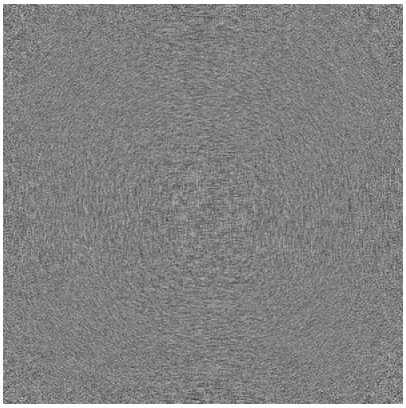


Y Index: 223

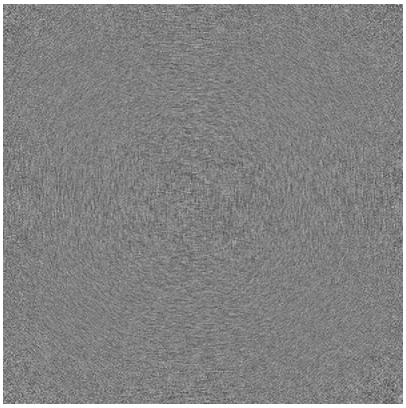


Z Index: 214

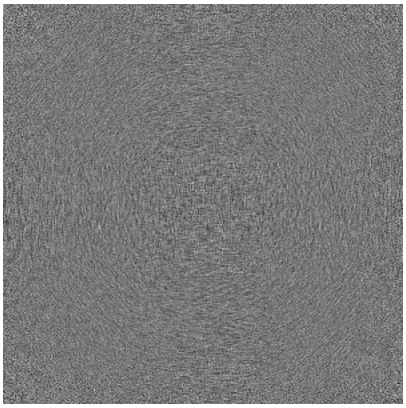
6.3.2 Raw map



X Index: 0



Y Index: 0

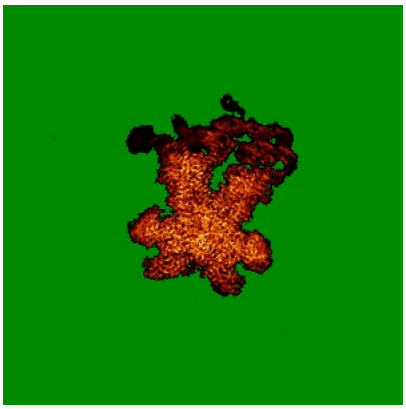


Z Index: 0

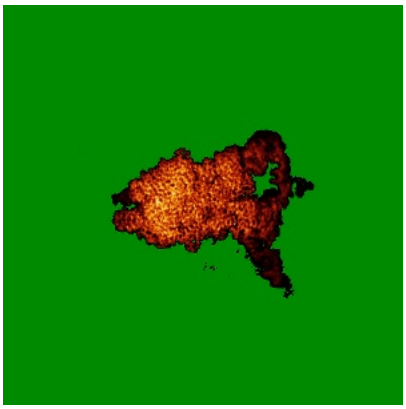
The images above show the largest variance slices of the map in three orthogonal directions.

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

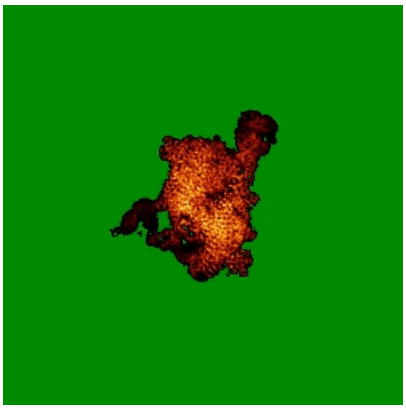
6.4.1 Primary map



X

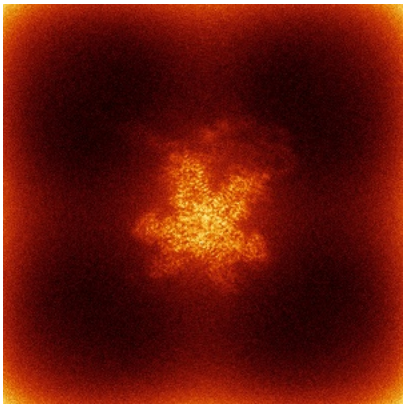


Y

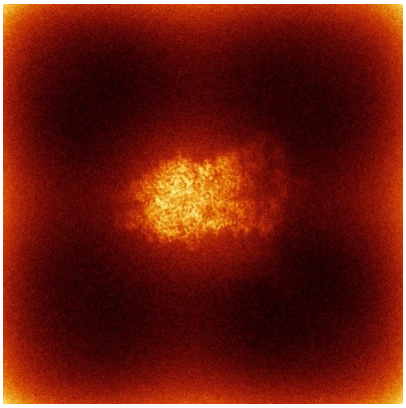


Z

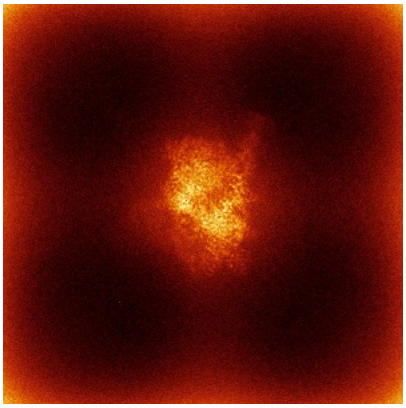
6.4.2 Raw map



X



Y



Z

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

6.5 Orthogonal surface views (i)

6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.058. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



X Y Z

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

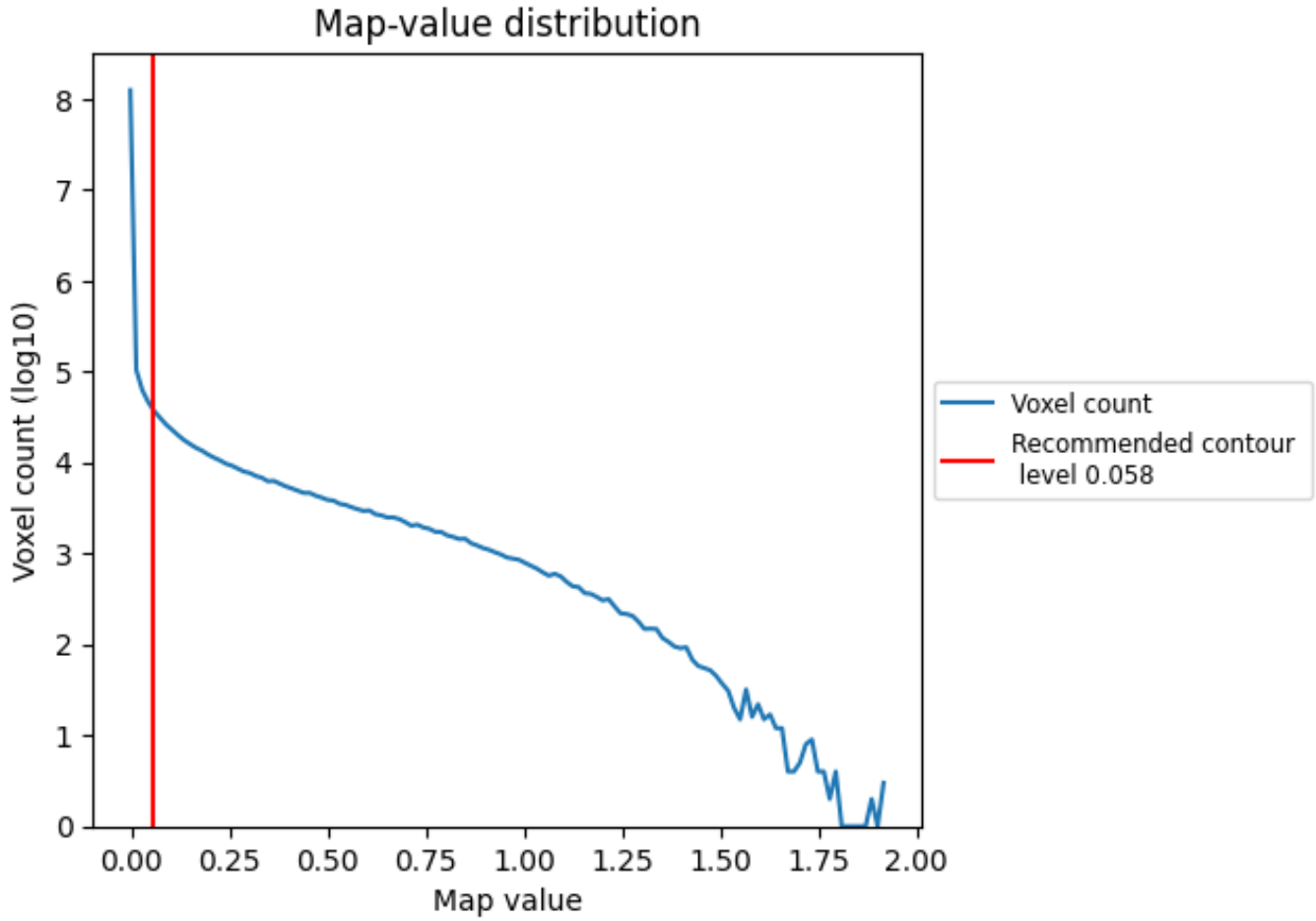
6.6 Mask visualisation (i)

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

7 Map analysis

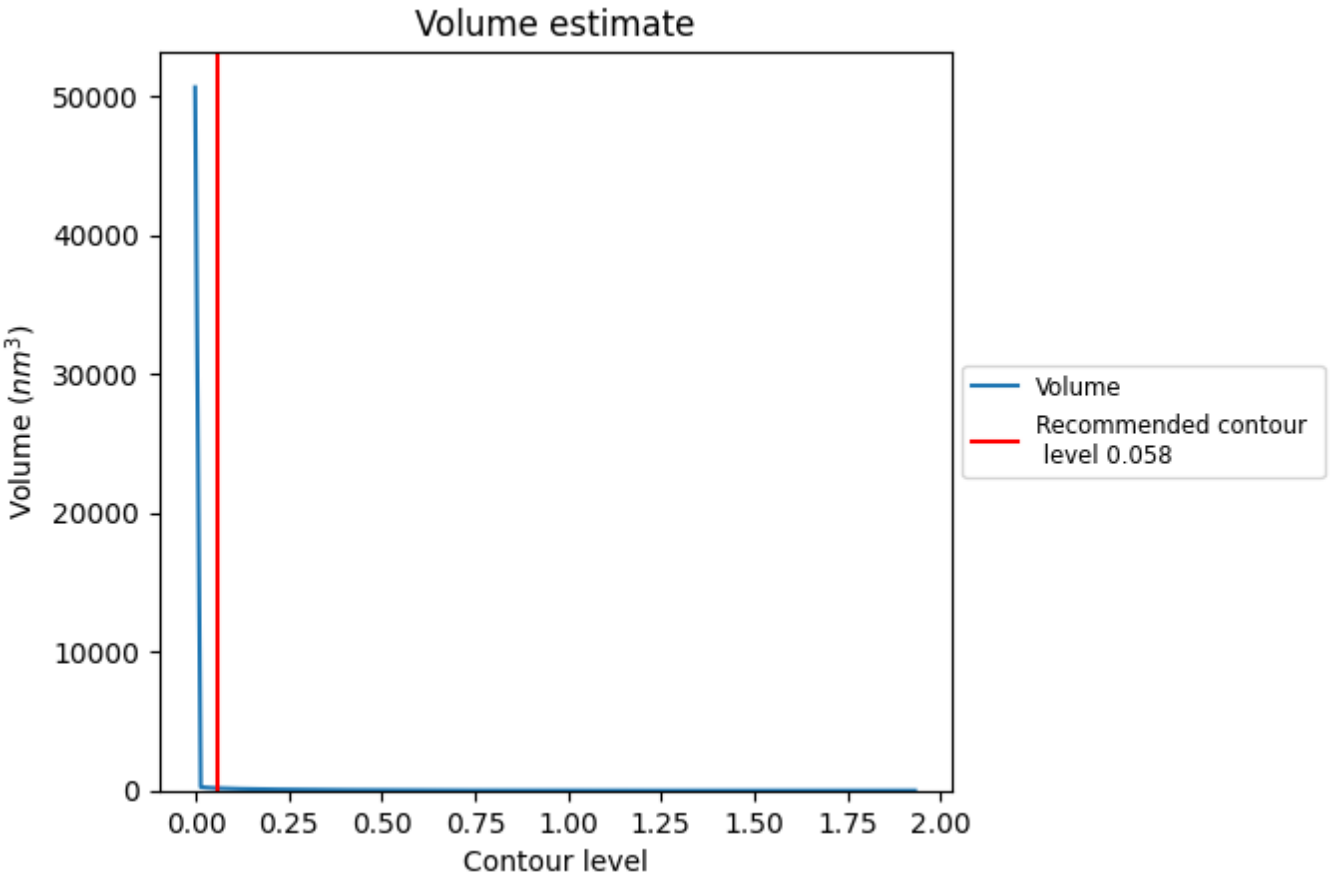
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

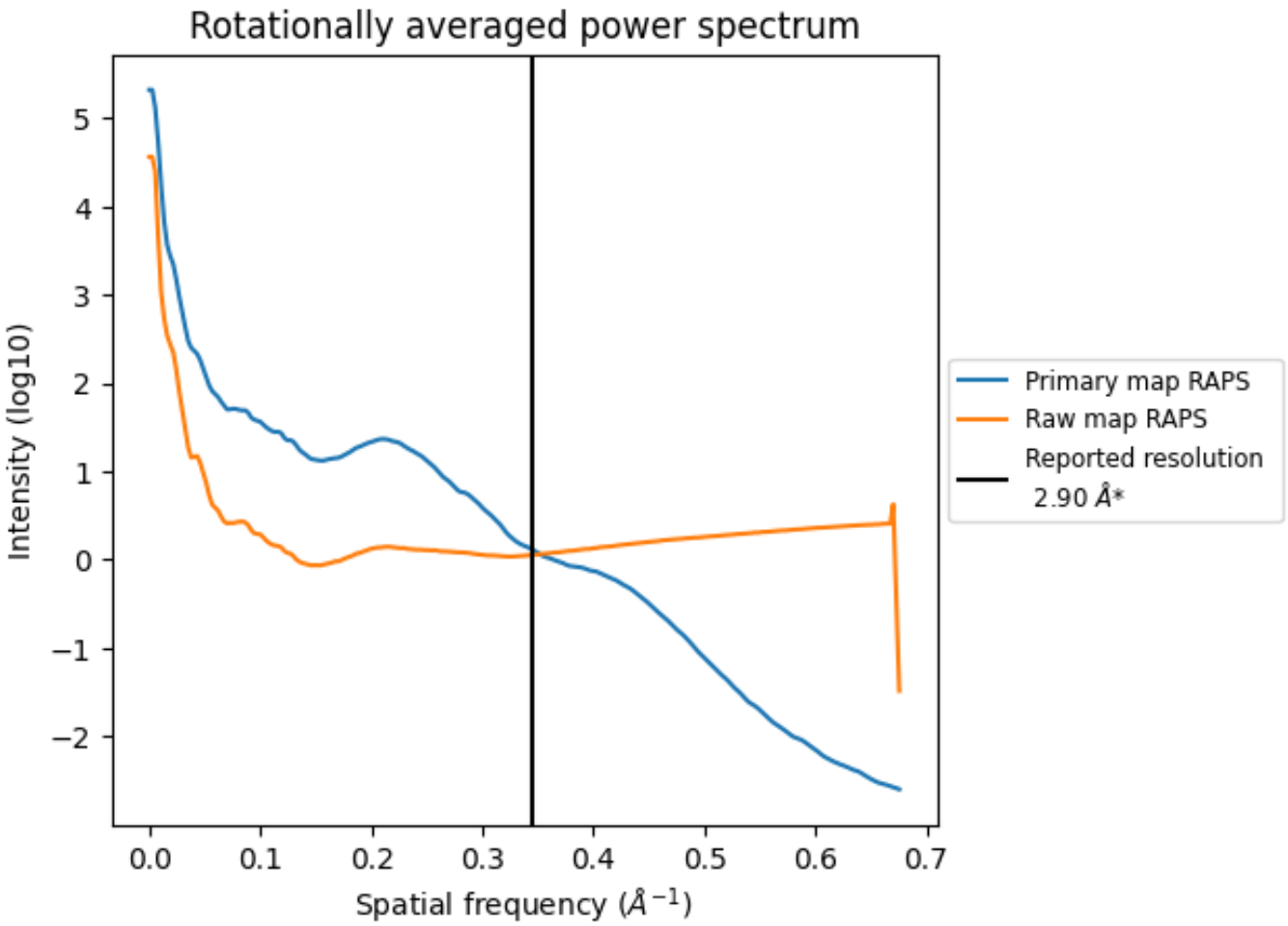
7.2 Volume estimate



The volume at the recommended contour level is 171 nm^3; this corresponds to an approximate mass of 155 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)

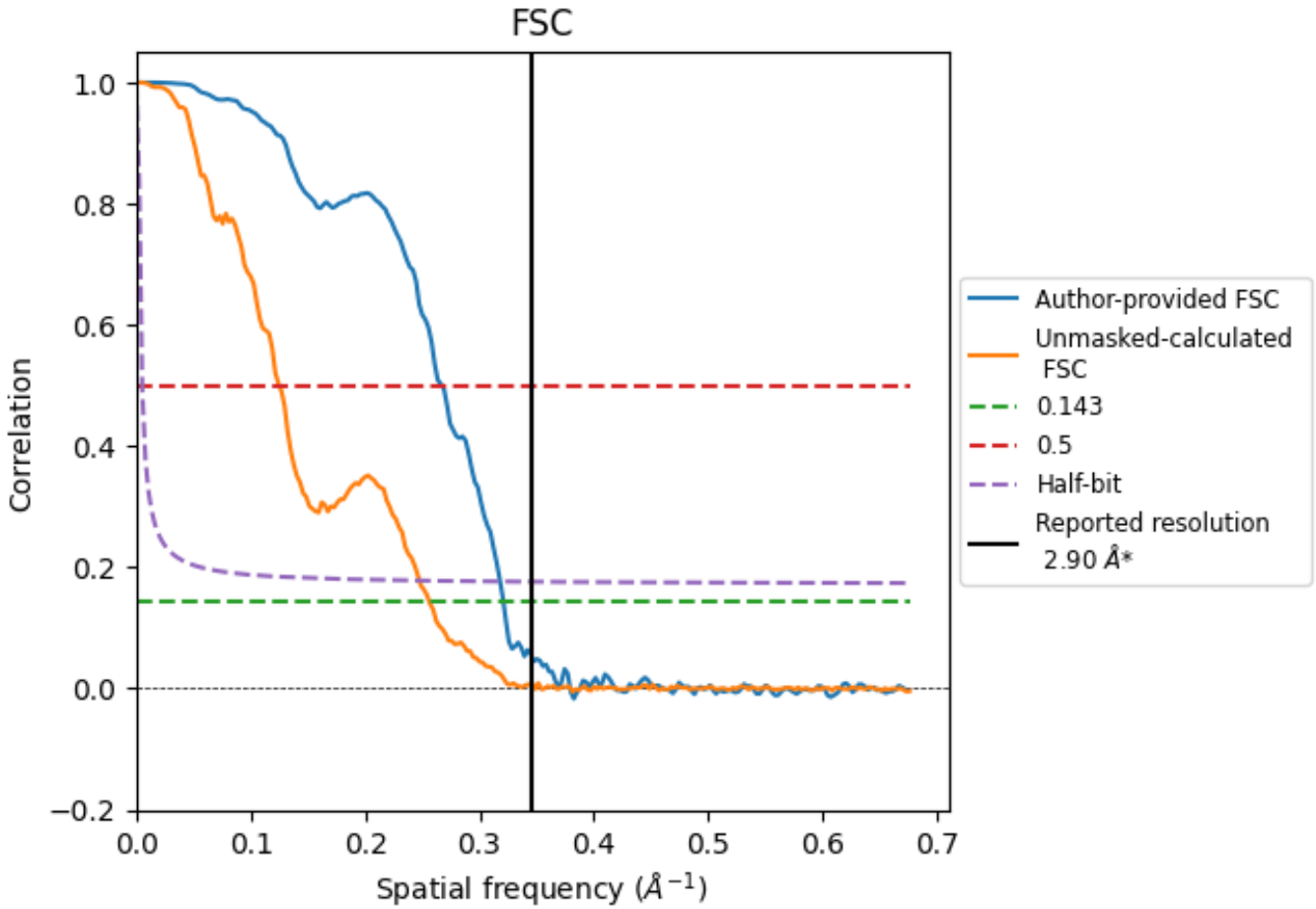


*Reported resolution corresponds to spatial frequency of 0.345 Å^{-1}

8 Fourier-Shell correlation

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

8.1 FSC



*Reported resolution corresponds to spatial frequency of 0.345 Å^{-1}

8.2 Resolution estimates (i)

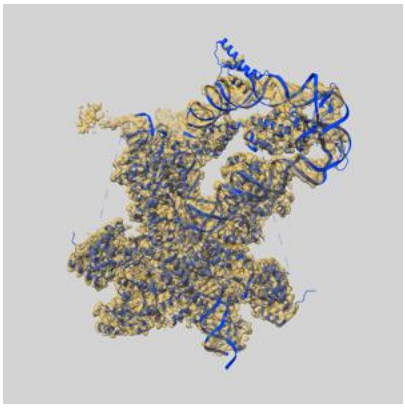
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.90	-	-
Author-provided FSC curve	3.12	3.75	3.14
Unmasked-calculated*	3.90	8.00	4.04

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.90 differs from the reported value 2.9 by more than 10 %

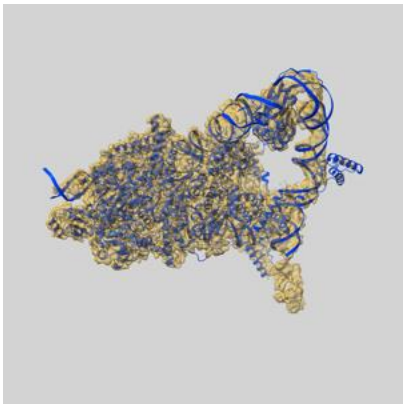
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-77364 and PDB model 36BO. Per-residue inclusion information can be found in section 3 on page 7.

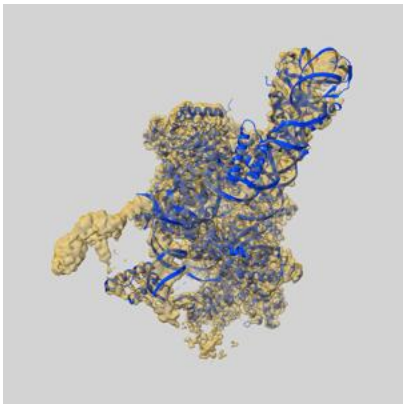
9.1 Map-model overlay



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.058 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.

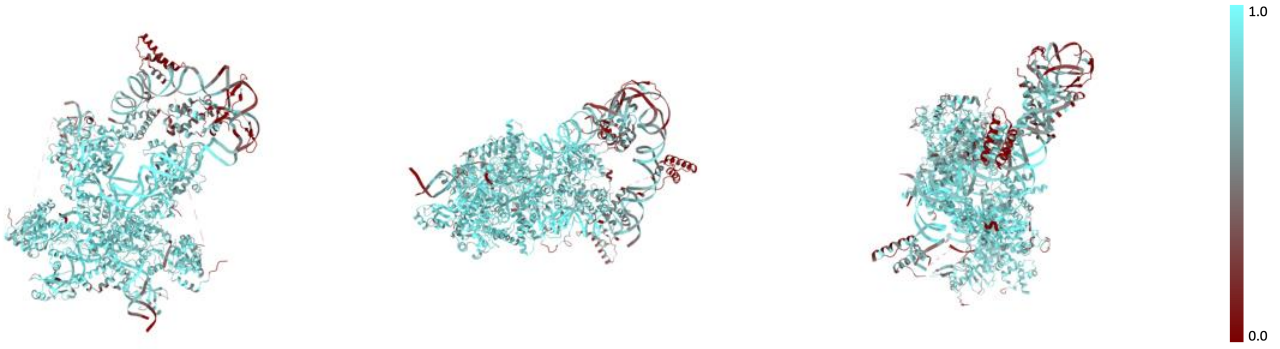
9.2 Q-score mapped to coordinate model (i)



X Y Z

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

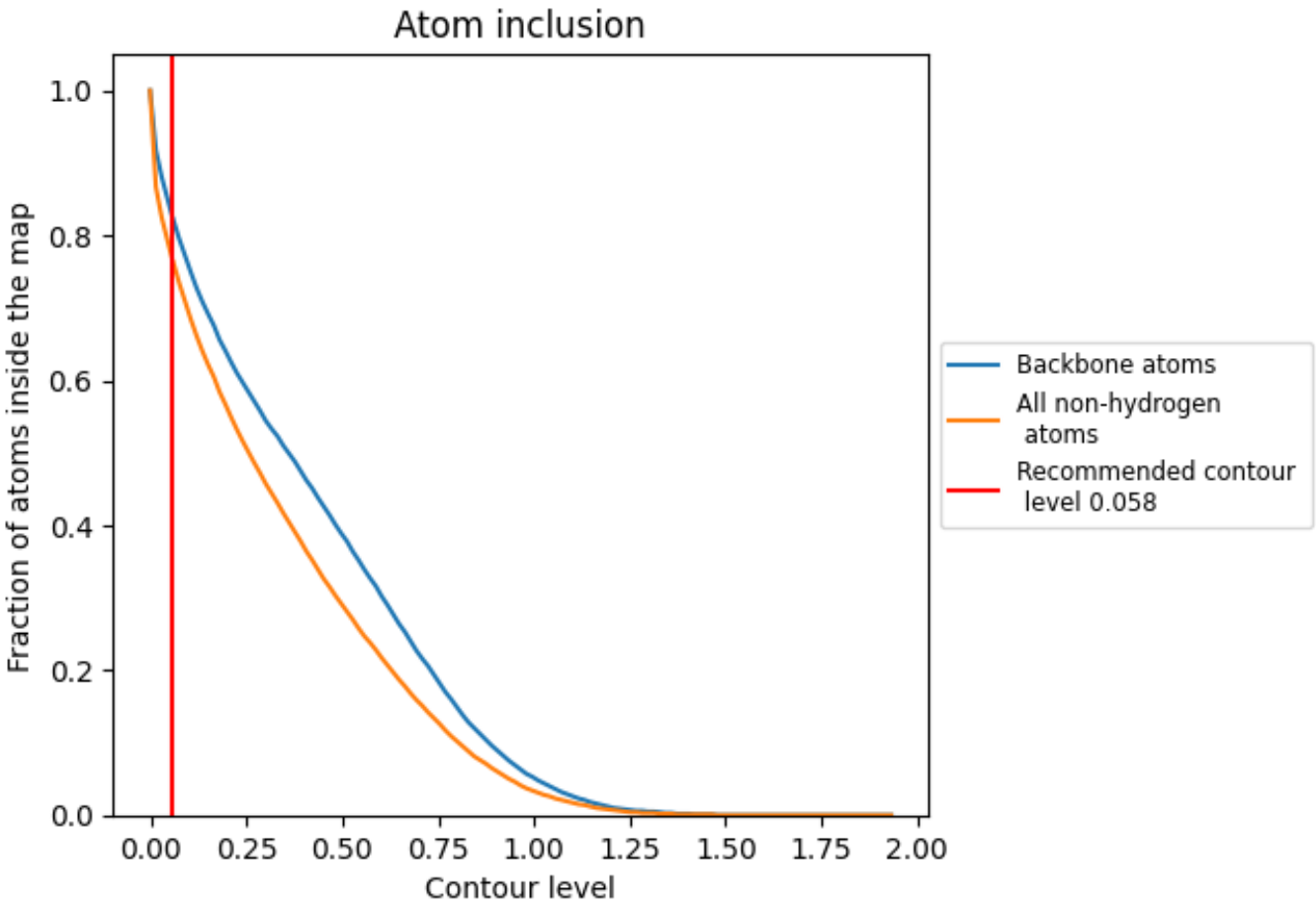
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

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 (0.058).

9.4 Atom inclusion (i)



At the recommended contour level, 82% of all backbone atoms, 76% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.058) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7630	0.3770
2	0.6050	0.3000
3	0.9060	0.4540
4	0.7040	0.2400
5	0.6950	0.2510
6	0.8240	0.4140
7	0.7800	0.3720
A	0.7960	0.4060
B	0.7780	0.3950
C	0.7470	0.3860
D	0.6560	0.3300
E	0.8770	0.4850
F	0.8750	0.4860
X	0.4410	0.0910
Y	0.4420	0.0710

