



Full wwPDB EM Validation Report ⓘ

Nov 4, 2024 – 09:25 AM EST

PDB ID : 7UJJ
EMDB ID : EMD-26563
Title : Stx2a and DARPin complex
Authors : Jiang, M.; Zhang, J.
Deposited on : 2022-03-30
Resolution : 6.50 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.dev113
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4.02b-467
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.39

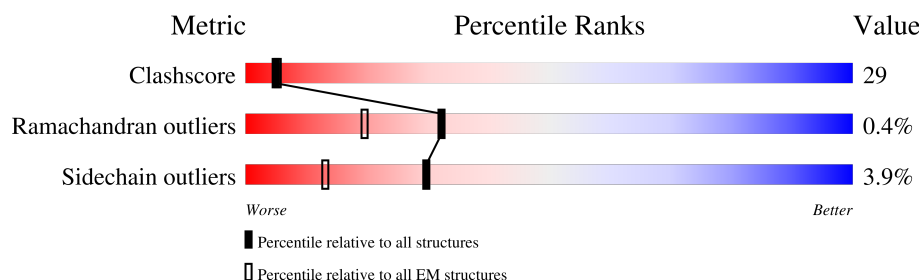
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 6.50 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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

Mol	Chain	Length	Quality of chain
1	G	185	
2	A	297	
3	B	70	
3	C	70	
3	D	70	
3	E	70	
3	F	70	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard

residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
4	1PS	G	201	-	-	X	-
5	FMT	G	202	-	-	X	-
7	EDO	D	102	-	X	-	-
7	EDO	F	104	-	X	-	-

2 Entry composition

There are 8 unique types of molecules in this entry. The entry contains 8403 atoms, of which 1388 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 DARPin.

Mol	Chain	Residues	Atoms						AltConf	Trace
1	G	185	Total	C	H	N	O	S	0	0
			2786	875	1388	253	268	2		

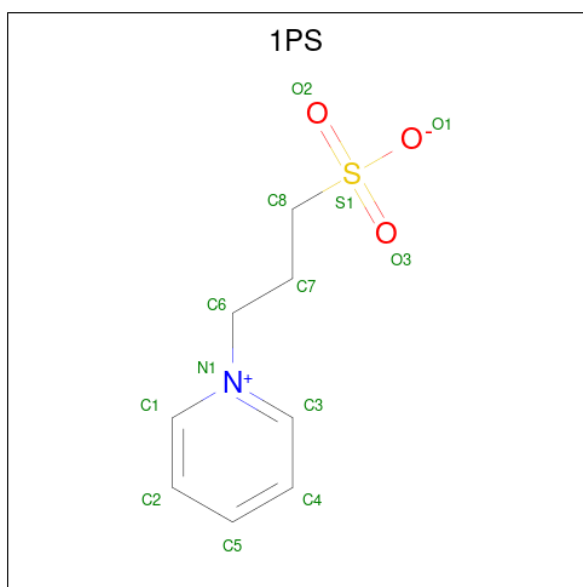
- Molecule 2 is a protein called Shiga-like toxin 2 subunit A.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	A	281	Total	C	N	O	S	5	0
			2225	1393	392	433	7		

- Molecule 3 is a protein called Shiga-like toxin 2 subunit B.

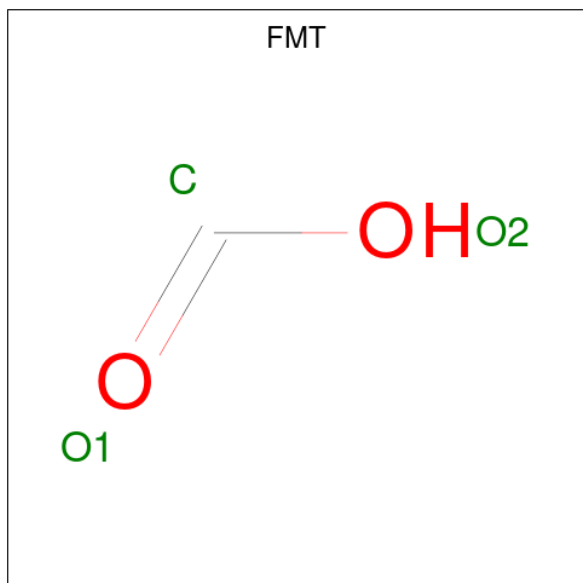
Mol	Chain	Residues	Atoms					AltConf	Trace
3	B	70	Total	C	N	O	S	0	0
			549	342	89	115	3		
3	C	70	Total	C	N	O	S	4	0
			559	348	89	119	3		
3	D	70	Total	C	N	O	S	0	0
			549	342	89	115	3		
3	E	70	Total	C	N	O	S	0	0
			549	342	89	115	3		
3	F	70	Total	C	N	O	S	1	0
			550	342	89	116	3		

- Molecule 4 is 3-PYRIDINIUM-1-YLPROPANE-1-SULFONATE (three-letter code: 1PS) (formula: C₈H₁₁NO₃S).



Mol	Chain	Residues	Atoms					AltConf
4	G	1	Total	C	N	O	S	0
			13	8	1	3	1	
4	C	1	Total	C	N	O	S	0
			13	8	1	3	1	
4	D	1	Total	C	N	O	S	0
			13	8	1	3	1	
4	F	1	Total	C	N	O	S	0
			13	8	1	3	1	

- Molecule 5 is FORMIC ACID (three-letter code: FMT) (formula: CH_2O_2).



Mol	Chain	Residues	Atoms			AltConf
5	G	1	Total	C	O	0
			3	1	2	
5	A	1	Total	C	O	0
			3	1	2	
5	A	1	Total	C	O	0
			3	1	2	
5	A	1	Total	C	O	0
			3	1	2	
5	A	1	Total	C	O	0
			3	1	2	
5	A	1	Total	C	O	1
			6	2	4	
5	B	1	Total	C	O	0
			3	1	2	
5	C	1	Total	C	O	0
			3	1	2	
5	C	1	Total	C	O	0
			3	1	2	
5	D	1	Total	C	O	0
			3	1	2	
5	E	1	Total	C	O	0
			3	1	2	
5	E	1	Total	C	O	0
			3	1	2	
5	E	1	Total	C	O	0
			3	1	2	
5	F	1	Total	C	O	0
			3	1	2	

- Molecule 6 is SODIUM ION (three-letter code: NA) (formula: Na).

Mol	Chain	Residues	Atoms		AltConf
6	A	3	Total	Na	0
			3	3	
6	B	1	Total	Na	0
			1	1	
6	F	1	Total	Na	0
			1	1	

- Molecule 7 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: C₂H₆O₂).



Mol	Chain	Residues	Atoms			AltConf
7	A	1	Total	C	O	0
			4	2	2	
7	A	1	Total	C	O	0
			4	2	2	
7	D	1	Total	C	O	0
			4	2	2	
7	F	1	Total	C	O	0
			4	2	2	
7	F	1	Total	C	O	0
			4	2	2	

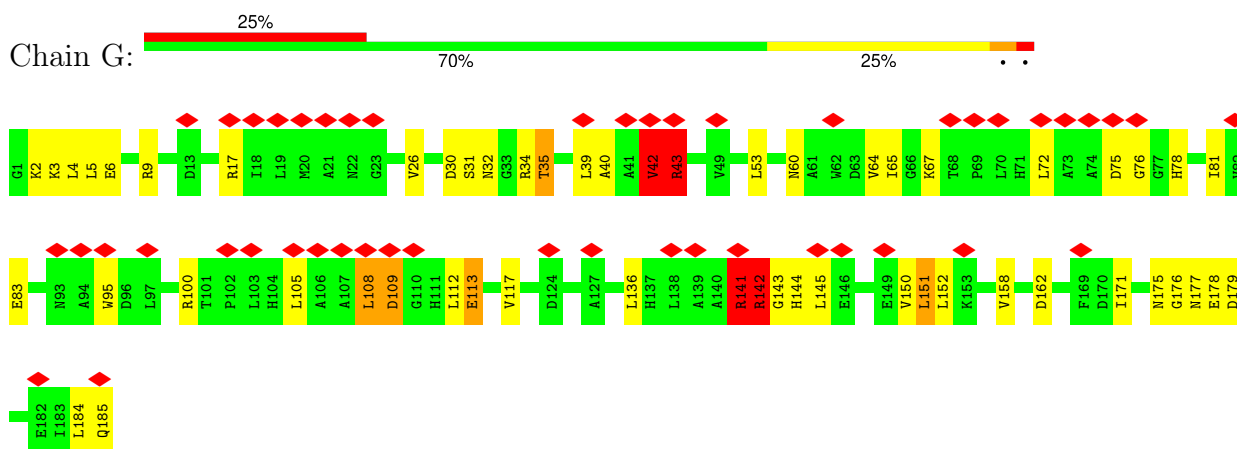
- Molecule 8 is water.

Mol	Chain	Residues	Atoms		AltConf
8	G	13	Total	O	0
			13	13	
8	A	234	Total	O	0
			234	234	
8	B	42	Total	O	0
			42	42	
8	C	71	Total	O	0
			71	71	
8	D	60	Total	O	0
			60	60	
8	E	39	Total	O	0
			39	39	
8	F	52	Total	O	0
			52	52	

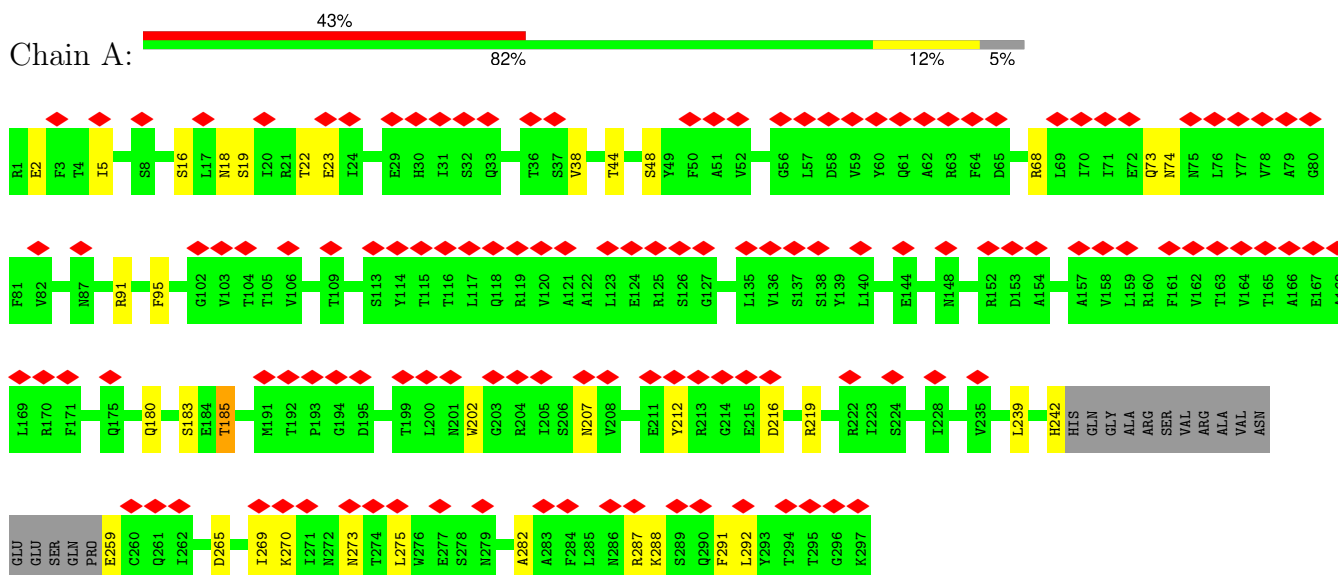
3 Residue-property plots

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

• Molecule 1: DARPin

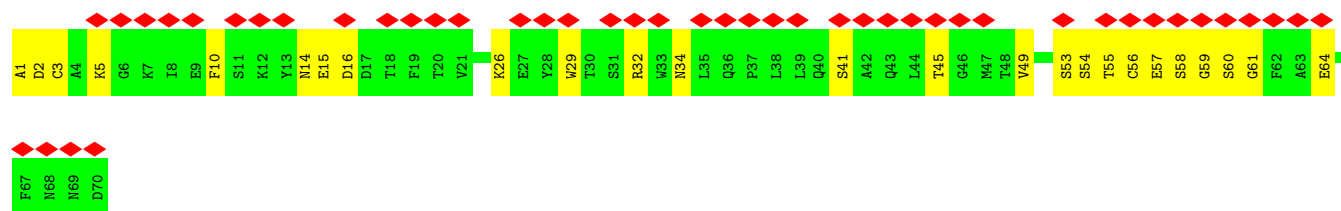


• Molecule 2: Shiga-like toxin 2 subunit A

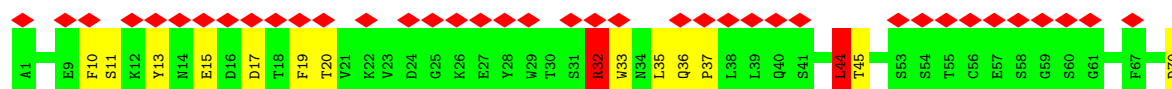
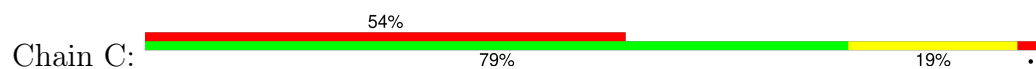


• Molecule 3: Shiga-like toxin 2 subunit B

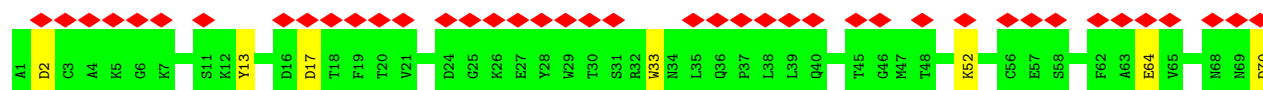
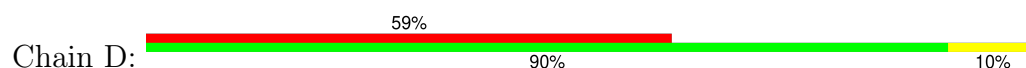




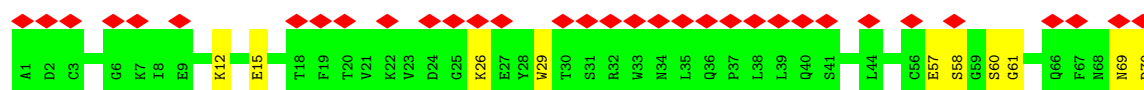
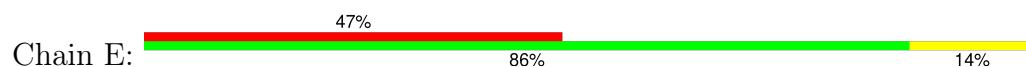
• Molecule 3: Shiga-like toxin 2 subunit B



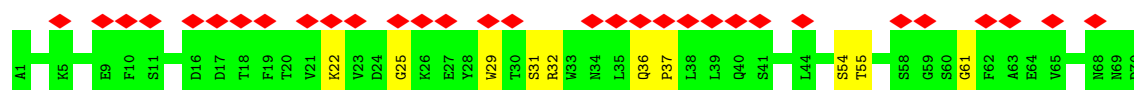
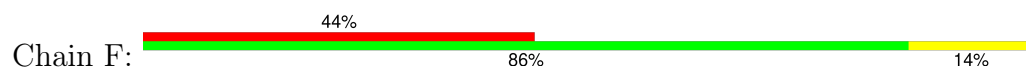
• Molecule 3: Shiga-like toxin 2 subunit B



• Molecule 3: Shiga-like toxin 2 subunit B



• Molecule 3: Shiga-like toxin 2 subunit B



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	108744	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	2.109	Depositor
Minimum map value	-1.597	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.086	Depositor
Recommended contour level	0.73	Depositor
Map size (Å)	273.92, 273.92, 273.92	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.07, 1.07, 1.07	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: FMT, 1PS, NA, EDO

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	G	0.61	0/1420	1.15	7/1930 (0.4%)
2	A	0.77	0/2291	0.98	5/3114 (0.2%)
3	B	0.78	0/559	0.90	0/753
3	C	0.84	0/589	1.04	3/794 (0.4%)
3	D	0.90	0/559	0.96	0/753
3	E	0.84	0/559	0.94	0/753
3	F	0.77	0/565	0.87	0/761
All	All	0.76	0/6542	1.01	15/8858 (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	G	0	4

There are no bond length outliers.

All (15) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	219	ARG	NE-CZ-NH2	-8.37	116.11	120.30
1	G	142	ARG	NE-CZ-NH1	8.22	124.41	120.30
3	C	44[A]	LEU	CA-CB-CG	8.18	134.11	115.30
3	C	44[B]	LEU	CA-CB-CG	8.18	134.11	115.30
1	G	141	ARG	NE-CZ-NH1	7.75	124.17	120.30
2	A	219	ARG	NE-CZ-NH1	7.45	124.03	120.30
1	G	17	ARG	NE-CZ-NH1	6.89	123.74	120.30
1	G	43	ARG	NE-CZ-NH1	6.30	123.45	120.30
2	A	287	ARG	NE-CZ-NH1	5.62	123.11	120.30

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	G	42	VAL	CA-CB-CG2	5.47	119.10	110.90
2	A	38	VAL	N-CA-C	-5.40	96.42	111.00
1	G	43	ARG	CD-NE-CZ	5.32	131.05	123.60
1	G	142	ARG	NH1-CZ-NH2	-5.11	113.78	119.40
3	C	32	ARG	NE-CZ-NH2	-5.03	117.78	120.30
2	A	265	ASP	CB-CG-OD1	5.02	122.82	118.30

There are no chirality outliers.

All (4) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	G	100	ARG	Sidechain
1	G	141	ARG	Sidechain
1	G	150	VAL	Peptide
1	G	151	LEU	Peptide

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	G	1398	1388	1384	294	0
2	A	2225	0	2192	32	0
3	B	549	0	511	184	0
3	C	559	0	531	42	0
3	D	549	0	518	6	0
3	E	549	0	518	14	0
3	F	550	0	514	34	0
4	C	13	0	11	0	0
4	D	13	0	11	0	0
4	F	13	0	11	0	0
4	G	13	0	9	29	0
5	A	21	0	7	1	0
5	B	3	0	1	0	0
5	C	6	0	2	0	0
5	D	3	0	1	0	0
5	E	9	0	3	1	0
5	F	3	0	1	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	G	3	0	1	4	0
6	A	3	0	0	0	0
6	B	1	0	0	0	0
6	F	1	0	0	0	0
7	A	8	0	12	3	0
7	D	4	0	6	2	0
7	F	8	0	12	3	0
8	A	234	0	0	2	0
8	B	42	0	0	11	0
8	C	71	0	0	0	0
8	D	60	0	0	0	0
8	E	39	0	0	1	0
8	F	52	0	0	1	0
8	G	13	0	0	27	0
All	All	7015	1388	6256	369	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 29.

All (369) 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:G:142:ARG:CZ	3:B:14:ASN:CB	1.82	1.56
1:G:9:ARG:HH21	3:B:1:ALA:CB	1.14	1.53
1:G:75:ASP:CG	3:B:29:TRP:HZ2	1.06	1.50
1:G:5:LEU:CD1	3:B:1:ALA:HB2	1.42	1.49
1:G:39:LEU:HD13	3:B:55:THR:CA	1.37	1.49
1:G:75:ASP:CA	4:G:201:1PS:H4	1.38	1.48
1:G:142:ARG:NH2	3:B:14:ASN:HB3	1.19	1.46
1:G:39:LEU:CD2	3:B:54:SER:C	1.84	1.45
1:G:9:ARG:CD	3:B:3:CYS:HA	1.41	1.45
1:G:9:ARG:NH2	3:B:1:ALA:CB	1.76	1.44
1:G:39:LEU:HD13	3:B:55:THR:C	1.32	1.43
1:G:32:ASN:HB3	3:C:15[B]:GLU:CD	1.34	1.42
1:G:75:ASP:CG	3:B:29:TRP:CZ2	1.93	1.42
1:G:39:LEU:CD1	3:B:55:THR:C	1.89	1.40
1:G:75:ASP:HA	4:G:201:1PS:C4	1.51	1.40
1:G:39:LEU:HD22	3:B:54:SER:C	1.39	1.39
1:G:34:ARG:CG	8:G:311:HOH:O	1.73	1.36
1:G:142:ARG:NH2	3:B:14:ASN:CB	1.73	1.35
1:G:142:ARG:CZ	3:B:14:ASN:HB3	0.86	1.32

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:142:ARG:NH2	3:B:14:ASN:CG	1.84	1.30
1:G:64:VAL:HG12	3:C:15[B]:GLU:CD	1.50	1.28
1:G:179:ASP:OD2	3:F:54[A]:SER:HB3	1.25	1.28
1:G:39:LEU:HD13	3:B:55:THR:N	1.49	1.27
1:G:32:ASN:HA	3:C:15[B]:GLU:OE1	1.28	1.26
1:G:32:ASN:CG	8:G:303:HOH:O	1.66	1.25
1:G:179:ASP:OD2	3:F:54[B]:SER:OG	1.54	1.24
1:G:9:ARG:NH2	3:B:1:ALA:HB1	1.39	1.22
1:G:64:VAL:CG1	3:C:15[B]:GLU:CD	2.07	1.22
1:G:39:LEU:HA	3:B:56:CYS:N	1.51	1.22
1:G:39:LEU:CD1	3:B:55:THR:CA	2.14	1.22
1:G:142:ARG:NE	3:B:14:ASN:HB3	1.53	1.22
1:G:9:ARG:NH2	3:B:1:ALA:C	1.92	1.22
1:G:32:ASN:N	8:G:303:HOH:O	1.69	1.20
1:G:43:ARG:CD	3:B:58:SER:H	1.54	1.19
1:G:9:ARG:HD2	3:B:3:CYS:CA	1.63	1.19
1:G:72:LEU:HD12	8:B:228:HOH:O	1.42	1.19
1:G:142:ARG:NE	8:G:304:HOH:O	1.76	1.19
1:G:5:LEU:CD1	3:B:1:ALA:CB	2.21	1.18
1:G:32:ASN:CB	3:C:15[B]:GLU:CD	2.12	1.18
1:G:75:ASP:OD1	3:B:29:TRP:CZ2	1.95	1.17
1:G:32:ASN:ND2	8:G:303:HOH:O	1.72	1.17
1:G:75:ASP:CA	4:G:201:1PS:C4	2.15	1.17
1:G:177:ASN:ND2	8:G:306:HOH:O	1.78	1.16
1:G:9:ARG:CD	3:B:3:CYS:CA	2.16	1.15
1:G:32:ASN:CA	3:C:15[B]:GLU:OE1	1.97	1.12
1:G:144:HIS:CD2	8:G:305:HOH:O	2.01	1.13
1:G:67:LYS:NZ	3:B:29:TRP:HH2	1.46	1.12
1:G:34:ARG:CD	8:G:311:HOH:O	1.84	1.12
1:G:65:ILE:HD11	3:B:32:ARG:NH2	1.63	1.12
1:G:39:LEU:CG	3:B:55:THR:HA	1.81	1.11
1:G:179:ASP:CG	3:F:54[B]:SER:OG	1.87	1.11
1:G:34:ARG:HG2	8:G:311:HOH:O	1.38	1.10
1:G:109:ASP:OD2	4:G:201:1PS:C1	2.00	1.10
1:G:5:LEU:HD13	3:B:1:ALA:HB2	1.11	1.09
3:E:26:LYS:HE2	3:E:58:SER:HB2	1.11	1.09
1:G:72:LEU:CD1	8:B:228:HOH:O	1.97	1.09
1:G:39:LEU:CA	3:B:56:CYS:N	2.15	1.08
1:G:43:ARG:CG	3:B:58:SER:N	2.14	1.08
1:G:5:LEU:HD13	3:B:1:ALA:CB	1.82	1.08
1:G:39:LEU:CA	3:B:56:CYS:H	1.66	1.07

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:39:LEU:HD23	3:B:54:SER:O	1.48	1.07
1:G:142:ARG:CD	8:G:304:HOH:O	1.99	1.07
1:G:5:LEU:HD12	3:B:1:ALA:HB2	1.23	1.07
1:G:75:ASP:O	4:G:201:1PS:H3	1.53	1.07
1:G:43:ARG:CD	3:B:58:SER:N	2.18	1.06
1:G:65:ILE:CD1	3:B:32:ARG:HH21	1.69	1.06
1:G:43:ARG:NE	3:B:58:SER:H	1.27	1.06
1:G:9:ARG:HH21	3:B:1:ALA:HB3	0.95	1.05
1:G:39:LEU:HA	3:B:55:THR:C	1.46	1.05
1:G:39:LEU:CD2	3:B:54:SER:O	0.75	1.05
1:G:39:LEU:HD12	3:B:56:CYS:SG	1.96	1.04
1:G:42:VAL:HG22	3:B:55:THR:OG1	1.58	1.03
1:G:42:VAL:CG2	3:B:55:THR:OG1	2.06	1.03
1:G:176:GLY:CA	3:F:29:TRP:CH2	2.41	1.02
1:G:9:ARG:HH22	3:B:2:ASP:N	1.55	1.02
1:G:32:ASN:HB3	3:C:15[B]:GLU:OE2	1.56	1.02
1:G:179:ASP:HB3	3:F:55:THR:OG1	1.58	1.02
1:G:108:LEU:O	8:G:305:HOH:O	1.77	1.02
1:G:75:ASP:O	4:G:201:1PS:C3	2.08	1.01
1:G:39:LEU:CG	3:B:54:SER:O	2.10	0.99
1:G:9:ARG:NH2	3:B:2:ASP:N	2.11	0.99
1:G:75:ASP:HB3	3:B:29:TRP:NE1	1.77	0.98
1:G:67:LYS:NZ	3:B:29:TRP:CH2	2.31	0.98
1:G:142:ARG:HB2	8:G:302:HOH:O	1.64	0.98
1:G:5:LEU:HD12	3:B:1:ALA:CB	1.88	0.98
1:G:39:LEU:CB	3:B:55:THR:HA	1.66	0.98
1:G:9:ARG:NH2	3:B:1:ALA:CA	2.25	0.97
1:G:65:ILE:HD11	3:B:32:ARG:HH21	1.20	0.97
1:G:75:ASP:C	4:G:201:1PS:H4	1.83	0.97
1:G:75:ASP:CB	3:B:29:TRP:CZ2	2.46	0.97
1:G:39:LEU:HD12	3:B:55:THR:C	1.84	0.97
1:G:64:VAL:CG1	3:C:15[B]:GLU:OE1	2.11	0.97
1:G:75:ASP:CB	3:B:29:TRP:HZ2	1.78	0.97
1:G:64:VAL:HG12	3:C:15[B]:GLU:OE2	1.66	0.95
1:G:39:LEU:HD11	3:B:53:SER:O	1.64	0.95
1:G:43:ARG:NE	3:B:58:SER:N	2.03	0.95
1:G:75:ASP:HB3	3:B:29:TRP:CE2	2.00	0.95
1:G:42:VAL:O	3:B:57:GLU:O	1.84	0.95
1:G:179:ASP:OD2	3:F:54[B]:SER:HB2	1.55	0.94
1:G:142:ARG:HH22	4:G:201:1PS:H81	1.31	0.94
1:G:64:VAL:HG11	3:C:15[B]:GLU:OE1	1.67	0.94

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:34:ARG:HD2	8:G:311:HOH:O	1.50	0.94
1:G:108:LEU:O	4:G:201:1PS:O2	1.83	0.93
1:G:39:LEU:CD1	3:B:55:THR:N	2.24	0.93
1:G:145:LEU:HD22	3:F:54[A]:SER:OG	1.69	0.93
1:G:176:GLY:HA3	3:F:29:TRP:CH2	2.04	0.93
1:G:142:ARG:HH21	3:B:14:ASN:CG	1.57	0.92
1:G:179:ASP:OD1	3:F:54[B]:SER:OG	1.86	0.92
1:G:75:ASP:OD1	3:B:29:TRP:CH2	2.23	0.92
1:G:142:ARG:HH22	4:G:201:1PS:C8	1.84	0.91
8:B:207:HOH:O	3:C:44[B]:LEU:HD21	1.69	0.91
1:G:142:ARG:NE	3:B:14:ASN:CB	2.23	0.90
1:G:78:HIS:NE2	3:B:58:SER:O	2.06	0.89
1:G:75:ASP:HB3	3:B:29:TRP:CZ2	2.07	0.88
1:G:39:LEU:CG	3:B:55:THR:CA	2.45	0.88
2:A:273:ASN:HB2	8:F:238:HOH:O	1.71	0.88
1:G:32:ASN:CB	3:C:15[B]:GLU:OE1	2.20	0.87
1:G:9:ARG:HH21	3:B:1:ALA:CA	1.83	0.87
1:G:39:LEU:CB	3:B:56:CYS:H	1.88	0.86
3:E:57:GLU:HG2	3:E:60:SER:HB3	1.58	0.85
1:G:142:ARG:NE	3:B:14:ASN:CA	2.38	0.85
1:G:39:LEU:CD1	3:B:56:CYS:N	2.38	0.85
1:G:43:ARG:CG	3:B:58:SER:H	1.80	0.85
1:G:5:LEU:CD1	3:B:1:ALA:CA	2.55	0.84
1:G:65:ILE:CD1	3:B:32:ARG:NH2	2.34	0.84
1:G:39:LEU:HD12	3:B:56:CYS:N	1.91	0.84
1:G:75:ASP:HA	4:G:201:1PS:C5	2.07	0.84
1:G:2:LYS:NZ	3:B:1:ALA:HA	1.93	0.84
1:G:42:VAL:O	3:B:57:GLU:C	2.17	0.83
1:G:30:ASP:OD2	3:B:1:ALA:N	2.11	0.83
1:G:67:LYS:HZ2	3:B:29:TRP:HH2	1.26	0.83
1:G:76:GLY:HA2	3:B:59:GLY:O	1.77	0.83
1:G:64:VAL:HG11	3:C:15[B]:GLU:CD	1.93	0.82
1:G:142:ARG:HE	3:B:14:ASN:CA	1.91	0.82
1:G:75:ASP:O	4:G:201:1PS:C4	2.27	0.82
1:G:176:GLY:O	3:F:61:GLY:HA3	1.79	0.82
1:G:75:ASP:HB3	3:B:29:TRP:HE1	1.40	0.82
1:G:9:ARG:HH22	3:B:1:ALA:HB1	1.43	0.82
1:G:39:LEU:HD21	3:B:54:SER:C	1.71	0.81
1:G:34:ARG:NE	3:B:55:THR:H	1.78	0.81
1:G:142:ARG:HB3	8:G:305:HOH:O	1.80	0.81
1:G:108:LEU:HD21	3:B:16:ASP:C	1.78	0.81

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:143:GLY:C	3:B:15:GLU:OE1	2.17	0.80
1:G:176:GLY:O	3:F:61:GLY:CA	2.29	0.80
1:G:75:ASP:HA	4:G:201:1PS:H4	0.84	0.80
1:G:109:ASP:OD2	4:G:201:1PS:H1	1.81	0.80
1:G:72:LEU:HA	8:B:228:HOH:O	1.81	0.80
1:G:9:ARG:HD2	3:B:3:CYS:HA	0.80	0.80
1:G:176:GLY:HA2	3:F:29:TRP:CH2	2.17	0.80
1:G:39:LEU:CB	3:B:56:CYS:N	2.43	0.79
1:G:175:ASN:HA	8:G:309:HOH:O	1.81	0.79
1:G:76:GLY:CA	3:B:59:GLY:O	2.29	0.79
1:G:39:LEU:HD13	3:B:55:THR:O	1.83	0.79
1:G:142:ARG:NH2	4:G:201:1PS:O3	2.01	0.79
8:B:207:HOH:O	3:C:44[B]:LEU:HD11	1.82	0.79
1:G:75:ASP:OD2	3:B:29:TRP:HZ2	1.64	0.78
1:G:109:ASP:OD2	3:B:16:ASP:OD2	2.01	0.78
1:G:39:LEU:CD1	3:B:56:CYS:SG	2.72	0.78
1:G:175:ASN:C	8:G:309:HOH:O	2.21	0.78
1:G:39:LEU:CD1	3:B:54:SER:C	2.52	0.78
1:G:43:ARG:CG	3:B:56:CYS:O	2.32	0.77
2:A:292:LEU:HD13	7:A:4004:EDO:H21	1.65	0.77
1:G:142:ARG:NH1	3:B:14:ASN:HB3	1.89	0.77
1:G:43:ARG:HG2	3:B:58:SER:N	1.73	0.77
1:G:105:LEU:HB3	4:G:201:1PS:H5	1.67	0.77
1:G:142:ARG:HH21	3:B:14:ASN:CB	1.85	0.76
1:G:43:ARG:HG3	3:B:56:CYS:O	1.86	0.76
1:G:175:ASN:O	8:G:309:HOH:O	2.03	0.76
1:G:43:ARG:NE	3:B:57:GLU:OE1	2.19	0.76
1:G:178:GLU:OE1	8:G:310:HOH:O	2.04	0.75
3:B:57:GLU:O	3:B:60:SER:HB2	1.86	0.75
1:G:67:LYS:HZ1	3:B:29:TRP:HH2	1.33	0.74
1:G:176:GLY:HA3	3:F:29:TRP:CZ2	2.22	0.74
1:G:142:ARG:NH2	4:G:201:1PS:H81	1.86	0.73
1:G:142:ARG:N	3:B:15:GLU:O	2.22	0.73
1:G:39:LEU:HD22	3:B:55:THR:N	2.04	0.72
1:G:109:ASP:CG	4:G:201:1PS:C1	2.49	0.72
1:G:179:ASP:CB	3:F:55:THR:OG1	2.35	0.72
1:G:9:ARG:HH22	3:B:1:ALA:C	1.80	0.72
1:G:176:GLY:CA	3:F:29:TRP:CZ2	2.73	0.72
1:G:42:VAL:C	3:B:57:GLU:O	2.27	0.72
1:G:142:ARG:HE	3:B:14:ASN:HA	1.54	0.72
1:G:175:ASN:ND2	5:G:202:FMT:C	2.52	0.72

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:39:LEU:HD21	3:B:54:SER:O	0.89	0.71
1:G:39:LEU:O	3:B:57:GLU:N	2.24	0.70
1:G:142:ARG:H	3:F:32:ARG:HH22	1.39	0.70
1:G:144:HIS:NE2	8:G:305:HOH:O	2.16	0.70
1:G:5:LEU:HD13	3:B:1:ALA:CA	2.19	0.70
1:G:108:LEU:HD21	3:B:16:ASP:O	1.92	0.70
3:C:32:ARG:HD2	3:C:32:ARG:N	2.06	0.69
1:G:142:ARG:NH2	4:G:201:1PS:C8	2.39	0.69
1:G:32:ASN:HB3	3:C:15[B]:GLU:CG	2.21	0.69
1:G:64:VAL:CG1	3:C:15[B]:GLU:CG	2.70	0.69
1:G:34:ARG:HE	3:B:55:THR:H	1.36	0.69
1:G:9:ARG:NE	3:B:3:CYS:HA	1.89	0.68
1:G:39:LEU:CD2	3:B:55:THR:HA	2.21	0.68
1:G:31:SER:C	8:G:303:HOH:O	2.19	0.68
1:G:42:VAL:HG23	3:B:55:THR:OG1	1.93	0.68
2:A:282:ALA:HB2	3:C:45[B]:THR:CG2	2.23	0.68
1:G:75:ASP:O	4:G:201:1PS:H4	1.94	0.67
1:G:143:GLY:CA	3:B:15:GLU:CD	2.58	0.66
1:G:72:LEU:CA	8:B:228:HOH:O	2.42	0.65
1:G:78:HIS:CE1	3:B:58:SER:O	2.49	0.65
1:G:9:ARG:NH2	3:B:1:ALA:HB3	1.77	0.65
1:G:39:LEU:HB3	3:B:56:CYS:H	1.61	0.65
1:G:32:ASN:O	3:C:15[B]:GLU:OE2	2.14	0.65
1:G:39:LEU:CD1	3:B:55:THR:O	2.41	0.65
1:G:175:ASN:HD21	5:G:202:FMT:C	2.10	0.65
1:G:43:ARG:HG2	3:B:56:CYS:O	1.97	0.64
1:G:75:ASP:C	4:G:201:1PS:C4	2.54	0.64
1:G:42:VAL:HG22	3:B:55:THR:HG1	1.60	0.64
1:G:2:LYS:HZ3	3:B:1:ALA:HA	1.63	0.63
1:G:9:ARG:NE	3:B:3:CYS:CA	2.52	0.63
1:G:34:ARG:HE	3:B:55:THR:N	1.97	0.63
1:G:42:VAL:HG13	8:B:228:HOH:O	1.99	0.63
1:G:42:VAL:N	3:B:57:GLU:HB3	2.14	0.62
1:G:175:ASN:ND2	5:G:202:FMT:H	2.14	0.62
3:E:70:ASP:HB3	8:E:206:HOH:O	1.97	0.62
1:G:109:ASP:CB	4:G:201:1PS:C3	2.77	0.62
1:G:5:LEU:HD13	3:B:1:ALA:N	2.15	0.61
1:G:39:LEU:HD22	3:B:55:THR:CA	2.30	0.61
1:G:2:LYS:HZ1	3:B:1:ALA:HA	1.62	0.61
2:A:44[B]:THR:HG22	2:A:74:ASN:OD1	2.00	0.61
2:A:270:LYS:HE3	2:A:273:ASN:HA	1.84	0.60

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:42:VAL:CA	3:B:57:GLU:HB3	1.95	0.60
2:A:216:ASP:OD2	2:A:273:ASN:ND2	2.31	0.60
1:G:6:GLU:OE2	3:B:1:ALA:HA	2.02	0.59
1:G:176:GLY:HA2	3:F:29:TRP:CZ2	2.36	0.59
2:A:183:SER:OG	2:A:185:THR:HG23	2.01	0.59
3:D:52:LYS:HE3	3:E:12:LYS:HE3	1.83	0.59
1:G:32:ASN:CA	8:G:303:HOH:O	2.26	0.59
1:G:72:LEU:CB	8:B:228:HOH:O	2.49	0.59
1:G:9:ARG:CZ	3:B:3:CYS:CA	2.71	0.59
1:G:109:ASP:HB2	4:G:201:1PS:C3	2.33	0.59
1:G:34:ARG:NE	3:B:55:THR:N	2.49	0.59
1:G:141:ARG:HG3	3:F:32:ARG:NH2	2.17	0.59
1:G:143:GLY:HA3	3:B:15:GLU:CD	2.23	0.59
1:G:179:ASP:OD2	3:F:54[A]:SER:HB2	1.74	0.59
1:G:40:ALA:O	3:B:57:GLU:HB2	2.04	0.58
1:G:75:ASP:CB	4:G:201:1PS:C4	2.80	0.58
1:G:39:LEU:C	3:B:56:CYS:H	2.07	0.58
1:G:175:ASN:CA	8:G:309:HOH:O	2.41	0.58
1:G:32:ASN:CA	3:C:15[B]:GLU:CD	2.59	0.58
1:G:5:LEU:HD13	3:B:1:ALA:H3	1.69	0.58
1:G:176:GLY:HA3	3:F:61:GLY:HA3	1.86	0.58
3:D:64:GLU:HB2	3:E:15:GLU:HG3	1.86	0.58
1:G:142:ARG:CA	3:B:15:GLU:O	2.46	0.57
3:E:26:LYS:CE	3:E:58:SER:HB2	2.07	0.57
3:F:36:GLN:HB2	3:F:37:PRO:HD3	1.85	0.57
1:G:39:LEU:CD2	3:B:55:THR:N	2.63	0.57
1:G:142:ARG:NH1	3:B:16:ASP:OD1	2.38	0.57
1:G:39:LEU:HD22	3:B:54:SER:O	0.75	0.57
3:E:26:LYS:HE2	3:E:58:SER:CB	2.07	0.56
1:G:39:LEU:HD22	3:B:55:THR:HA	1.85	0.56
2:A:180:GLN:HG2	8:A:4211:HOH:O	2.04	0.56
3:E:69:ASN:O	3:E:70:ASP:CB	2.53	0.56
3:E:70:ASP:OD1	3:E:70:ASP:C	2.44	0.56
1:G:32:ASN:ND2	8:G:308:HOH:O	2.01	0.56
1:G:179:ASP:HB3	3:F:55:THR:HG1	1.64	0.56
1:G:75:ASP:OD2	3:B:29:TRP:CZ2	2.46	0.55
1:G:75:ASP:OD1	4:G:201:1PS:C5	2.54	0.55
1:G:145:LEU:HD13	3:F:54[B]:SER:HB2	1.88	0.55
2:A:282:ALA:HB2	3:C:45[B]:THR:HG23	1.86	0.55
1:G:64:VAL:HG11	3:C:15[B]:GLU:CG	2.37	0.55
1:G:34:ARG:CZ	3:B:55:THR:H	2.18	0.55

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:39:LEU:CG	3:B:54:SER:C	2.68	0.55
2:A:18:ASN:O	2:A:22[B]:THR:HG23	2.06	0.55
1:G:32:ASN:CB	3:C:15[B]:GLU:OE2	2.41	0.54
1:G:65:ILE:HD13	3:B:32:ARG:HH21	1.66	0.54
1:G:39:LEU:HD12	3:B:56:CYS:CB	2.38	0.54
1:G:142:ARG:CB	8:G:302:HOH:O	2.35	0.54
1:G:39:LEU:HD11	3:B:53:SER:C	2.27	0.53
1:G:171:ILE:HD11	5:G:202:FMT:O1	2.09	0.53
2:A:288:LYS:NZ	7:A:4004:EDO:O2	2.27	0.52
1:G:6:GLU:CD	3:B:2:ASP:H	2.13	0.52
1:G:142:ARG:NH1	3:B:16:ASP:CG	2.63	0.52
3:D:17:ASP:HB3	3:D:33:TRP:CH2	2.45	0.52
1:G:39:LEU:HD12	3:B:56:CYS:CA	2.39	0.51
2:A:207:ASN:HD21	5:A:4007:FMT:C	2.23	0.51
1:G:64:VAL:CG1	3:C:15[B]:GLU:HG2	2.40	0.51
3:C:17:ASP:HB3	3:C:33:TRP:CH2	2.45	0.51
2:A:269:ILE:HD11	3:C:44[A]:LEU:CD1	2.41	0.51
1:G:5:LEU:CD1	3:B:1:ALA:HA	2.39	0.50
2:A:2:GLU:CD	2:A:68:ARG:HH22	2.15	0.50
3:D:33:TRP:CD2	7:D:102:EDO:H11	2.46	0.50
1:G:179:ASP:CG	3:F:54[A]:SER:HB2	2.32	0.49
3:E:29:TRP:O	3:E:61:GLY:HA2	2.11	0.49
1:G:108:LEU:O	3:B:16:ASP:HB3	2.12	0.49
1:G:144:HIS:HD2	8:G:305:HOH:O	1.62	0.49
2:A:269:ILE:CD1	3:C:44[A]:LEU:HD13	2.42	0.49
1:G:65:ILE:HD11	3:B:32:ARG:HH22	1.70	0.49
2:A:91:ARG:HD2	2:A:95:PHE:O	2.13	0.49
1:G:142:ARG:HH22	4:G:201:1PS:C7	2.26	0.48
1:G:75:ASP:OD1	4:G:201:1PS:H5	2.14	0.47
1:G:142:ARG:N	3:F:32:ARG:HH22	2.11	0.47
1:G:176:GLY:N	3:F:29:TRP:CH2	2.83	0.47
2:A:19:SER:HB2	7:A:4005:EDO:H12	1.97	0.47
2:A:23:GLU:HG2	8:A:4229:HOH:O	2.15	0.47
2:A:288:LYS:NZ	7:D:102:EDO:O1	2.44	0.47
1:G:42:VAL:HG23	3:B:55:THR:C	2.34	0.47
8:B:207:HOH:O	3:C:44[B]:LEU:CD1	2.53	0.46
1:G:176:GLY:O	3:F:61:GLY:C	2.54	0.46
3:E:69:ASN:O	3:E:70:ASP:CG	2.54	0.46
1:G:6:GLU:OE2	3:B:1:ALA:CA	2.63	0.46
1:G:42:VAL:O	3:B:58:SER:O	2.32	0.46
1:G:42:VAL:HB	3:B:57:GLU:O	2.16	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:269:ILE:HD11	3:C:44[A]:LEU:HD13	1.98	0.46
3:D:2:ASP:OD1	3:D:52:LYS:HG2	2.16	0.46
2:A:259:GLU:CD	2:A:259:GLU:N	2.68	0.46
1:G:35:THR:O	3:B:55:THR:HG22	2.15	0.46
2:A:5:ILE:HA	2:A:16:SER:HB3	1.98	0.46
2:A:291:PHE:HB2	7:F:103:EDO:H21	1.98	0.46
1:G:108:LEU:HB3	3:B:16:ASP:OD2	2.16	0.45
1:G:142:ARG:HD3	3:B:15:GLU:HG3	1.94	0.45
3:C:35:LEU:HD21	3:D:13:TYR:CB	2.46	0.45
1:G:142:ARG:HH22	3:B:14:ASN:CG	2.02	0.45
1:G:177:ASN:CG	8:G:306:HOH:O	2.34	0.45
3:B:45:THR:OG1	3:C:44[B]:LEU:HD21	2.16	0.45
3:E:57:GLU:CG	3:E:60:SER:HB3	2.38	0.45
1:G:184:LEU:O	1:G:185:GLN:O	2.35	0.45
3:F:31:SER:O	7:F:104:EDO:H21	2.17	0.45
1:G:64:VAL:HG11	3:C:15[B]:GLU:HG2	1.98	0.45
1:G:75:ASP:CB	3:B:29:TRP:HE1	2.22	0.45
1:G:2:LYS:HZ1	3:B:1:ALA:CA	2.29	0.44
1:G:6:GLU:OE2	3:B:2:ASP:N	2.49	0.44
2:A:202:TRP:CZ3	2:A:239:LEU:HG	2.51	0.44
1:G:108:LEU:CB	3:B:16:ASP:OD2	2.64	0.44
2:A:180:GLN:HA	2:A:180:GLN:NE2	2.33	0.44
2:A:282:ALA:CB	3:C:45[B]:THR:HG21	2.48	0.44
1:G:141:ARG:HG3	3:F:32:ARG:CZ	2.48	0.43
1:G:142:ARG:HD2	8:G:304:HOH:O	1.90	0.43
8:B:207:HOH:O	3:C:44[B]:LEU:CG	2.67	0.43
1:G:142:ARG:CD	4:G:201:1PS:O2	2.66	0.42
1:G:108:LEU:CA	3:B:16:ASP:HB3	2.50	0.42
3:B:29:TRP:O	3:B:61:GLY:HA2	2.20	0.42
2:A:44[B]:THR:HG1	2:A:48:SER:CB	2.33	0.42
1:G:39:LEU:HD11	3:B:54:SER:C	2.38	0.42
1:G:34:ARG:HD2	3:B:53:SER:HA	1.64	0.42
2:A:212:TYR:HA	2:A:275:LEU:HD22	2.01	0.41
1:G:142:ARG:HD3	3:B:15:GLU:CG	2.21	0.41
1:G:176:GLY:C	3:F:61:GLY:HA3	2.40	0.41
3:C:10:PHE:CD1	3:C:10:PHE:C	2.93	0.41
3:C:11:SER:HA	3:C:20:THR:O	2.21	0.41
1:G:9:ARG:CZ	3:B:2:ASP:N	2.82	0.41
1:G:113:GLU:CD	1:G:113:GLU:H	2.22	0.41
3:F:22:LYS:HE2	3:F:25:GLY:HA2	2.03	0.41
1:G:34:ARG:CZ	3:B:54:SER:HB2	2.51	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:239:LEU:HD11	2:A:259:GLU:HG2	2.03	0.41
3:B:5:LYS:HA	3:B:49:VAL:O	2.20	0.41
3:E:69:ASN:O	3:E:70:ASP:HB3	2.20	0.41
3:B:41:SER:OG	3:C:44[B]:LEU:HD11	2.20	0.41
1:G:109:ASP:CB	4:G:201:1PS:N1	2.67	0.41
3:B:45:THR:HG21	3:C:44[A]:LEU:HD22	2.02	0.41
1:G:176:GLY:CA	3:F:61:GLY:HA3	2.49	0.41
2:A:44[B]:THR:HG21	2:A:73:GLN:HB3	2.03	0.41
3:B:10:PHE:CD1	3:B:10:PHE:C	2.94	0.41
3:B:64:GLU:HA	3:C:13:TYR:O	2.21	0.41
8:B:232:HOH:O	3:C:44[B]:LEU:HD23	2.20	0.41
3:C:19:PHE:HB2	3:C:36:GLN:HG2	2.03	0.41
3:C:36:GLN:HB2	3:C:37:PRO:HD3	2.03	0.41
3:E:69:ASN:O	5:E:103:FMT:H	2.21	0.41
1:G:143:GLY:HA3	3:B:15:GLU:OE2	2.20	0.40
3:B:26:LYS:HE3	3:B:26:LYS:HB2	1.97	0.40
3:F:29:TRP:O	3:F:61:GLY:HA2	2.21	0.40
2:A:202:TRP:CH2	2:A:239:LEU:HG	2.55	0.40
1:G:145:LEU:HD13	3:F:54[A]:SER:HB3	2.03	0.40
7:F:103:EDO:HO2	7:F:104:EDO:HO2	1.65	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	G	183/185 (99%)	168 (92%)	12 (7%)	3 (2%)	8	38
2	A	282/297 (95%)	277 (98%)	5 (2%)	0	100	100
3	B	68/70 (97%)	67 (98%)	1 (2%)	0	100	100
3	C	72/70 (103%)	72 (100%)	0	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	D	68/70 (97%)	67 (98%)	1 (2%)	0	100	100
3	E	68/70 (97%)	66 (97%)	2 (3%)	0	100	100
3	F	69/70 (99%)	68 (99%)	1 (1%)	0	100	100
All	All	810/832 (97%)	785 (97%)	22 (3%)	3 (0%)	32	68

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	G	142	ARG
1	G	152	LEU
1	G	151	LEU

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	G	143/143 (100%)	123 (86%)	20 (14%)	3	12
2	A	253/261 (97%)	251 (99%)	2 (1%)	79	85
3	B	61/61 (100%)	60 (98%)	1 (2%)	58	74
3	C	65/61 (107%)	61 (94%)	4 (6%)	15	36
3	D	61/61 (100%)	60 (98%)	1 (2%)	58	74
3	E	61/61 (100%)	61 (100%)	0	100	100
3	F	62/61 (102%)	62 (100%)	0	100	100
All	All	706/709 (100%)	678 (96%)	28 (4%)	30	47

All (28) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	G	3	LYS
1	G	4	LEU
1	G	26	VAL
1	G	35	THR

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	G	42	VAL
1	G	43	ARG
1	G	53	LEU
1	G	60	ASN
1	G	81	ILE
1	G	83	GLU
1	G	95	TRP
1	G	108	LEU
1	G	109	ASP
1	G	112	LEU
1	G	113	GLU
1	G	117	VAL
1	G	136	LEU
1	G	142	ARG
1	G	158	VAL
1	G	162	ASP
2	A	185	THR
2	A	242	HIS
3	B	34	ASN
3	C	32	ARG
3	C	44[A]	LEU
3	C	44[B]	LEU
3	C	70	ASP
3	D	70	ASP

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

Mol	Chain	Res	Type
1	G	177	ASN
2	A	42	ASN
2	A	129	GLN
2	A	180	GLN
2	A	207	ASN
2	A	226	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 30 ligands modelled in this entry, 5 are monoatomic - leaving 25 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
4	1PS	C	101	-	13,13,13	0.56	0	17,17,17	0.80	0
5	FMT	B	102	-	2,2,2	0.41	0	1,1,1	0.13	0
5	FMT	E	101	-	2,2,2	0.60	0	1,1,1	0.07	0
7	EDO	F	103	-	3,3,3	1.76	1 (33%)	2,2,2	0.34	0
5	FMT	C	103	-	2,2,2	0.55	0	1,1,1	0.13	0
5	FMT	A	4010	-	2,2,2	0.54	0	1,1,1	0.16	0
5	FMT	A	4008	-	2,2,2	0.54	0	1,1,1	0.19	0
5	FMT	E	103	-	2,2,2	0.73	0	1,1,1	0.24	0
7	EDO	A	4004	-	3,3,3	1.47	0	2,2,2	0.88	0
5	FMT	C	102	-	2,2,2	0.66	0	1,1,1	0.07	0
4	1PS	F	102	-	13,13,13	0.95	1 (7%)	17,17,17	0.54	0
5	FMT	E	102	-	2,2,2	0.62	0	1,1,1	0.07	0
4	1PS	G	201	-	13,13,13	0.92	0	17,17,17	0.37	0
5	FMT	A	4007	6	2,2,2	0.66	0	1,1,1	0.11	0
5	FMT	A	4009	-	2,2,2	0.43	0	1,1,1	0.12	0
5	FMT	F	105	-	2,2,2	0.39	0	1,1,1	0.10	0
4	1PS	D	101	-	13,13,13	1.00	0	17,17,17	0.49	0
5	FMT	A	4011[B]	-	2,2,2	0.67	0	1,1,1	0.18	0
7	EDO	A	4005	-	3,3,3	2.19	2 (66%)	2,2,2	0.68	0
5	FMT	A	4006	-	2,2,2	0.59	0	1,1,1	0.07	0
5	FMT	D	103	-	2,2,2	0.59	0	1,1,1	0.04	0
5	FMT	G	202	-	2,2,2	0.62	0	1,1,1	0.17	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
7	EDO	D	102	-	3,3,3	2.20	2 (66%)	2,2,2	0.57	0
5	FMT	A	4011[A]	-	2,2,2	0.41	0	1,1,1	0.33	0
7	EDO	F	104	-	3,3,3	2.45	2 (66%)	2,2,2	0.46	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	1PS	G	201	-	-	0/7/7/7	0/1/1/1
4	1PS	C	101	-	-	0/7/7/7	0/1/1/1
7	EDO	A	4005	-	-	0/1/1/1	-
7	EDO	D	102	-	-	1/1/1/1	-
7	EDO	A	4004	-	-	1/1/1/1	-
4	1PS	D	101	-	-	0/7/7/7	0/1/1/1
4	1PS	F	102	-	-	0/7/7/7	0/1/1/1
7	EDO	F	103	-	-	0/1/1/1	-
7	EDO	F	104	-	-	1/1/1/1	-

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	F	104	EDO	O2-C2	3.44	1.59	1.42
7	A	4005	EDO	O2-C2	3.04	1.57	1.42
7	D	102	EDO	O2-C2	2.87	1.56	1.42
7	F	103	EDO	O2-C2	2.69	1.55	1.42
7	D	102	EDO	O1-C1	2.42	1.54	1.42
7	F	104	EDO	O1-C1	2.36	1.54	1.42
7	A	4005	EDO	O1-C1	2.23	1.53	1.42
4	F	102	1PS	C3-N1	2.08	1.39	1.34

There are no bond angle outliers.

There are no chirality outliers.

All (3) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
7	A	4004	EDO	O1-C1-C2-O2
7	D	102	EDO	O1-C1-C2-O2
7	F	104	EDO	O1-C1-C2-O2

There are no ring outliers.

9 monomers are involved in 43 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	F	103	EDO	2	0
5	E	103	FMT	1	0
7	A	4004	EDO	2	0
4	G	201	1PS	29	0
5	A	4007	FMT	1	0
7	A	4005	EDO	1	0
5	G	202	FMT	4	0
7	D	102	EDO	2	0
7	F	104	EDO	2	0

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.

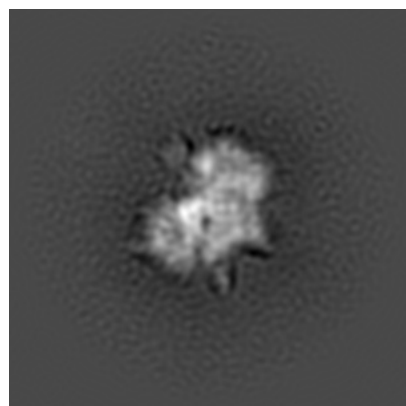
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-26563. These allow visual inspection of the internal detail of the map and identification of artifacts.

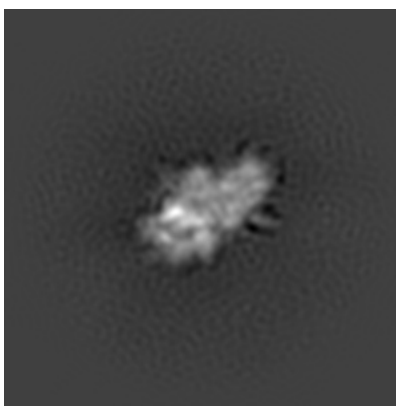
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

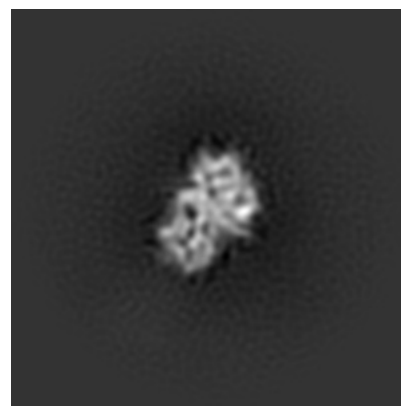
6.1.1 Primary map



X

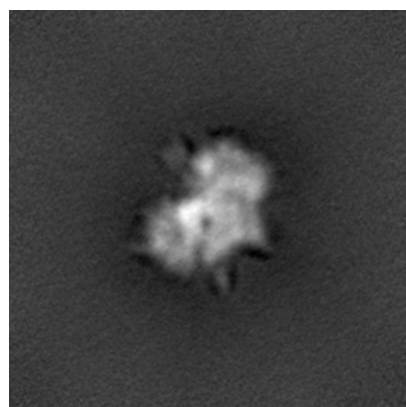


Y

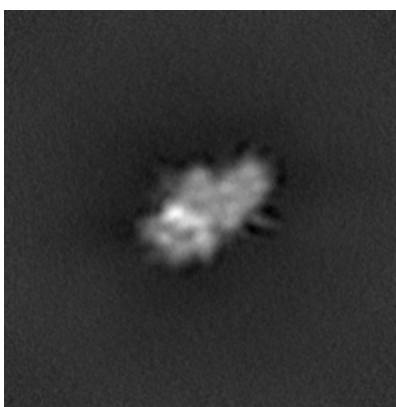


Z

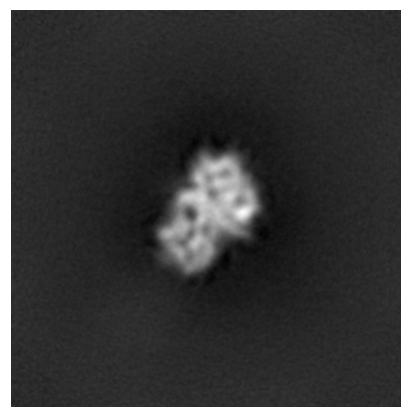
6.1.2 Raw map



X



Y

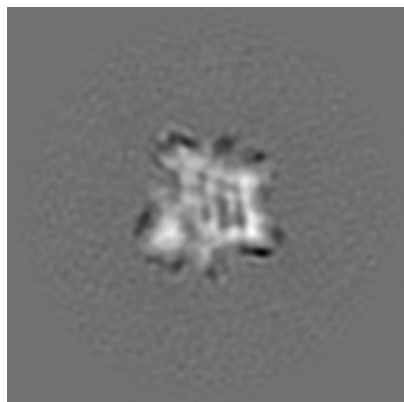


Z

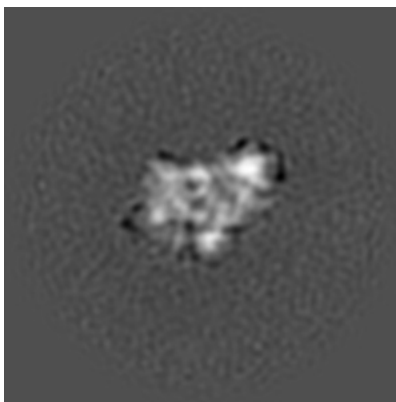
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

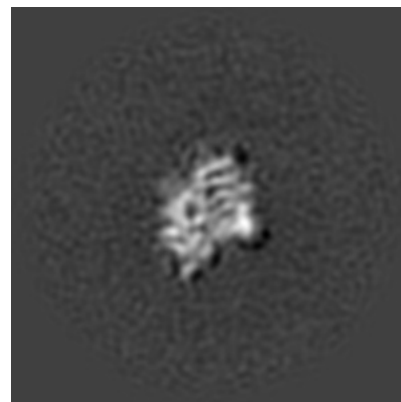
6.2.1 Primary map



X Index: 128

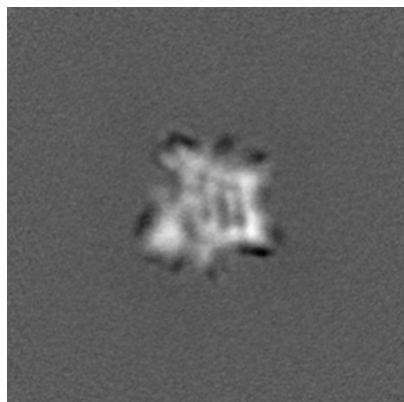


Y Index: 128

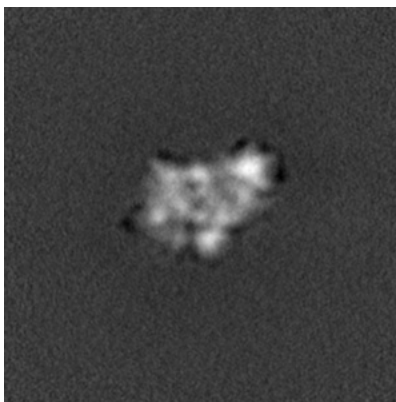


Z Index: 128

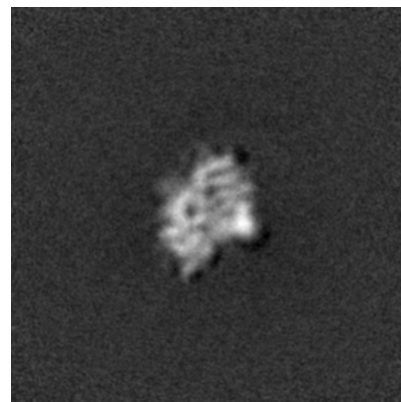
6.2.2 Raw map



X Index: 128



Y Index: 128

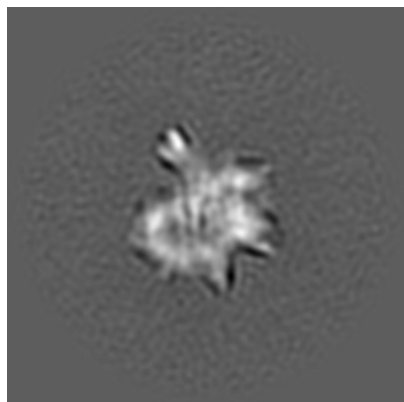


Z Index: 128

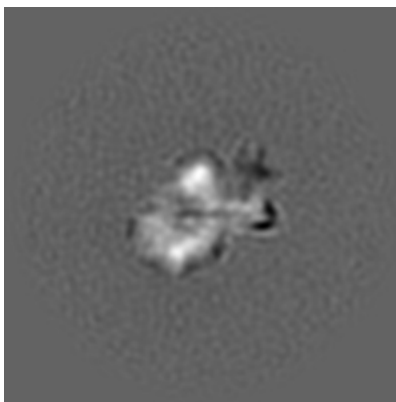
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

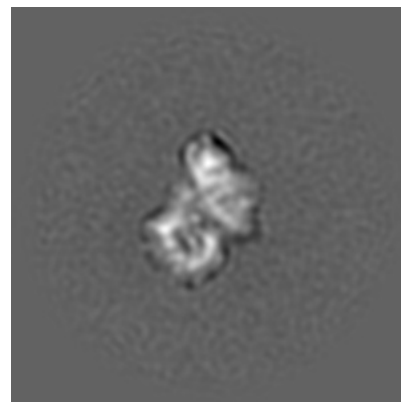
6.3.1 Primary map



X Index: 120

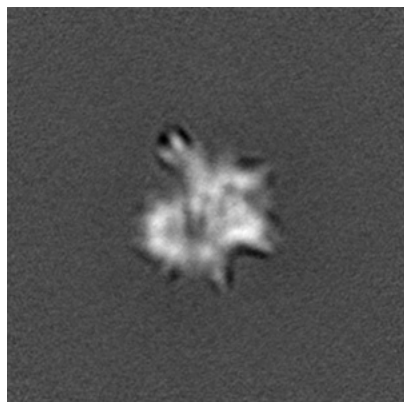


Y Index: 115

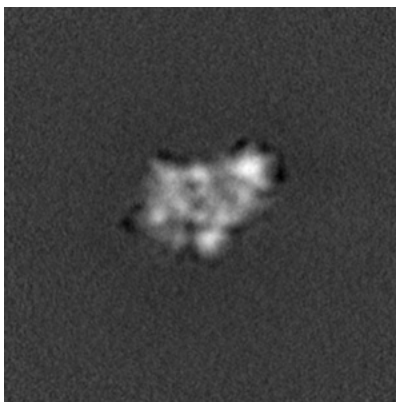


Z Index: 112

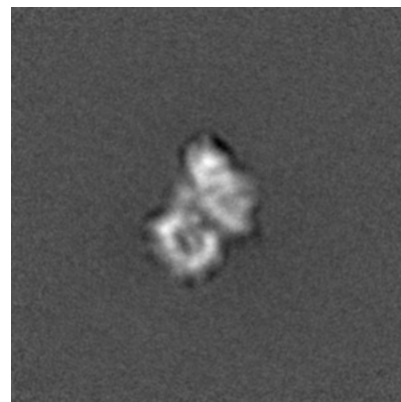
6.3.2 Raw map



X Index: 122



Y Index: 128

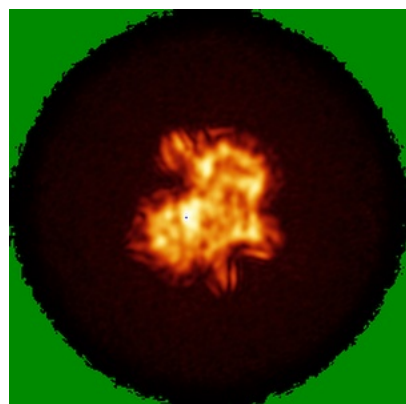


Z Index: 113

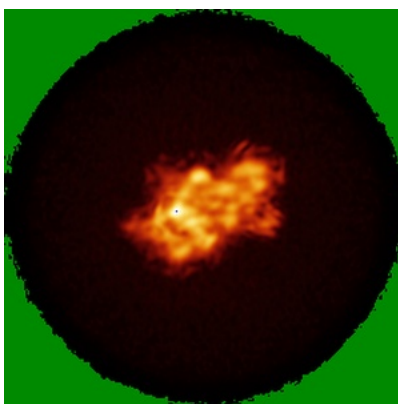
The images above show the largest variance slices of the map in three orthogonal directions.

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

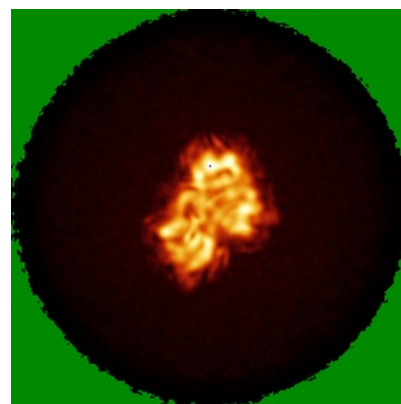
6.4.1 Primary map



X

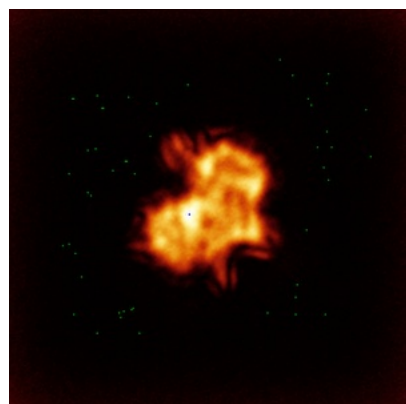


Y

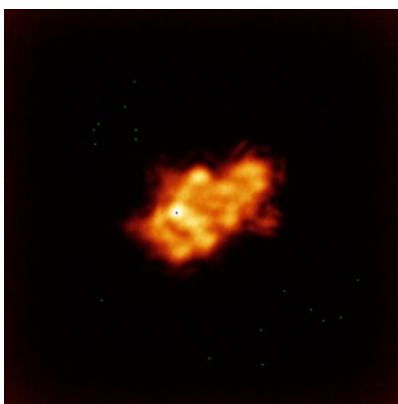


Z

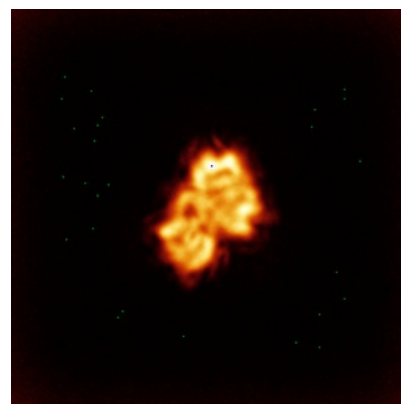
6.4.2 Raw map



X



Y

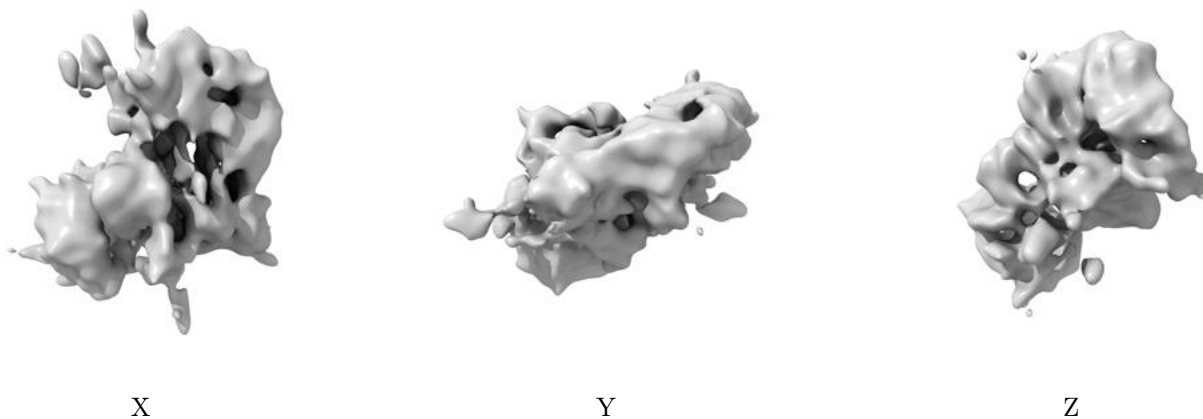


Z

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

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.73. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



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

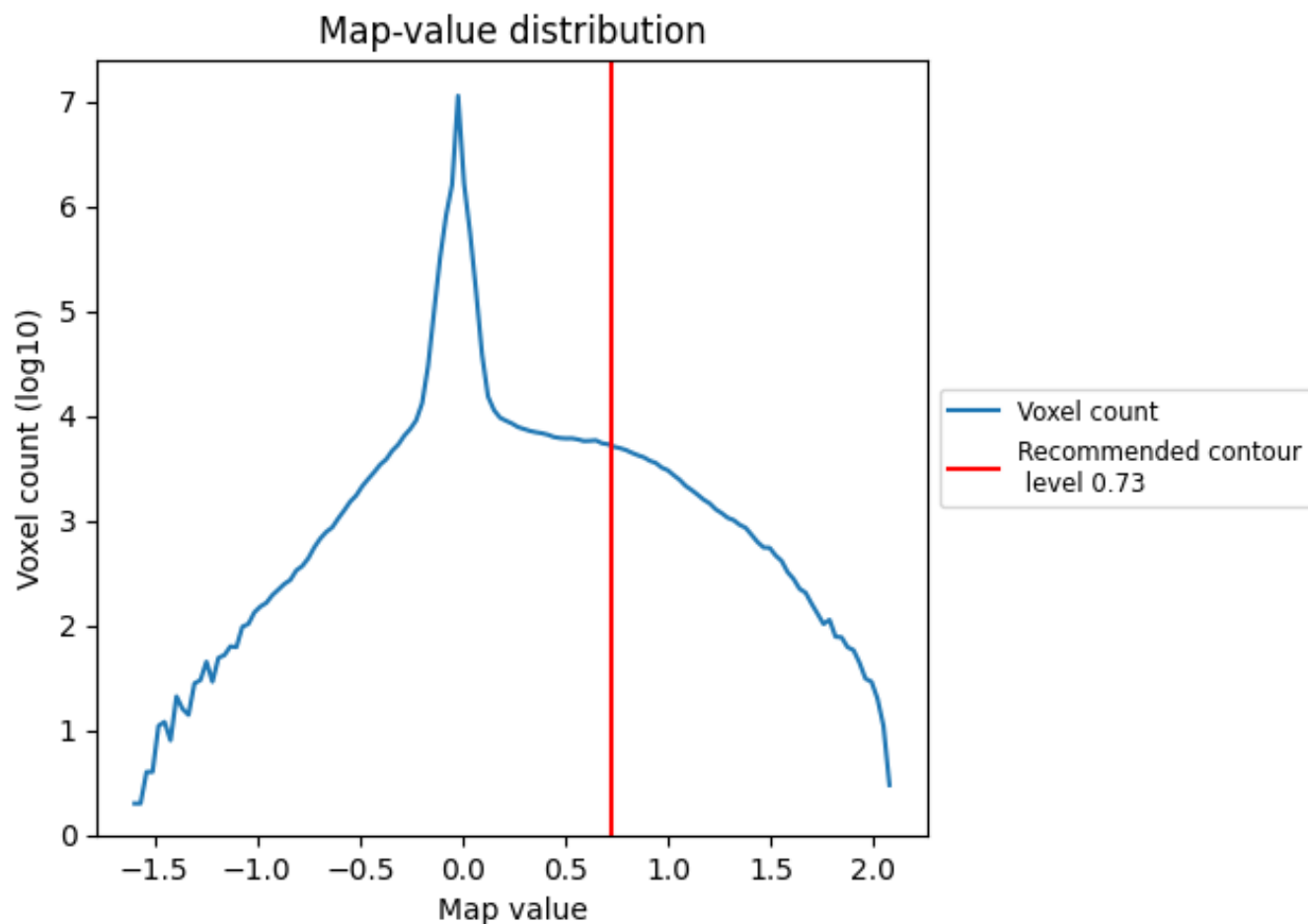
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

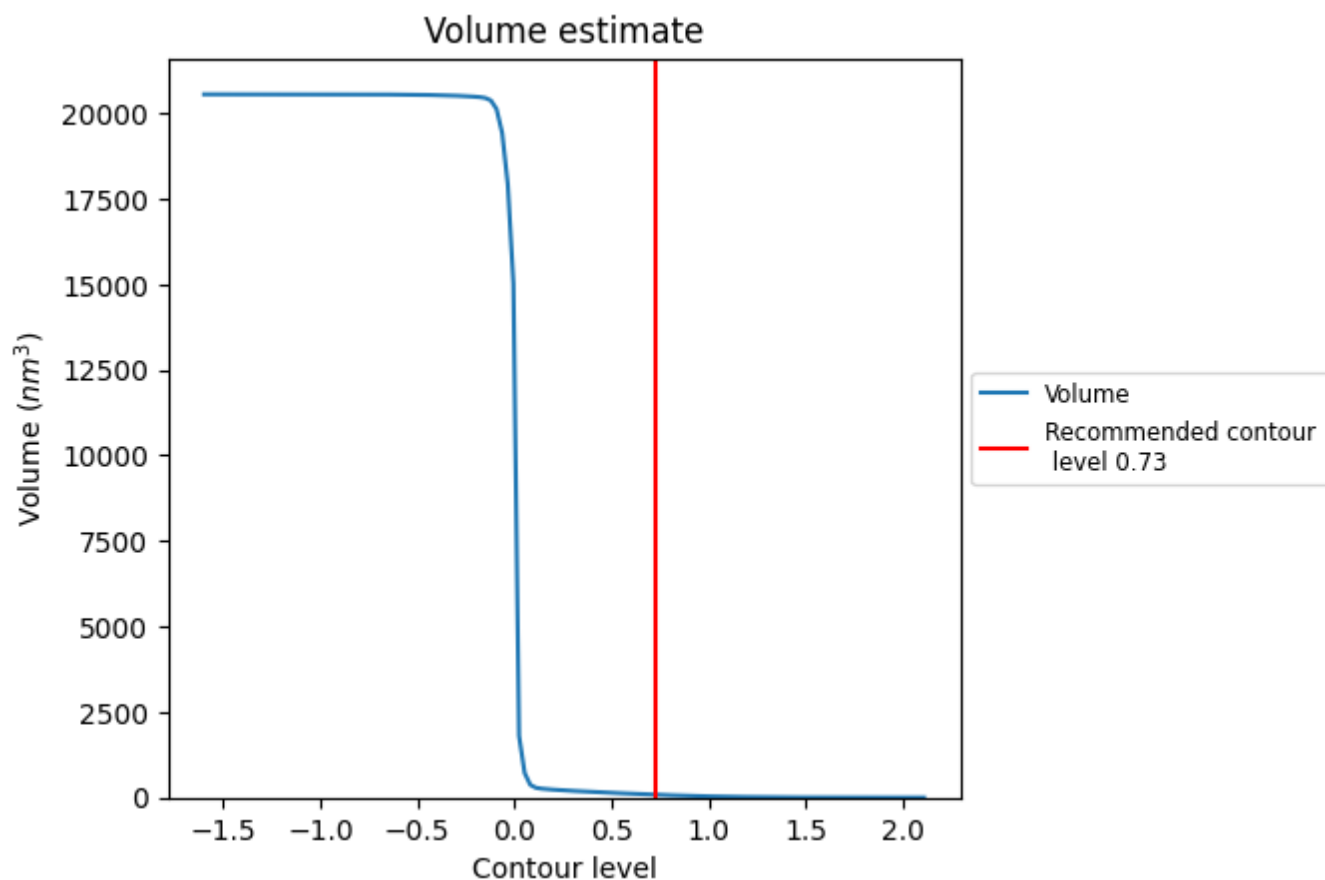
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

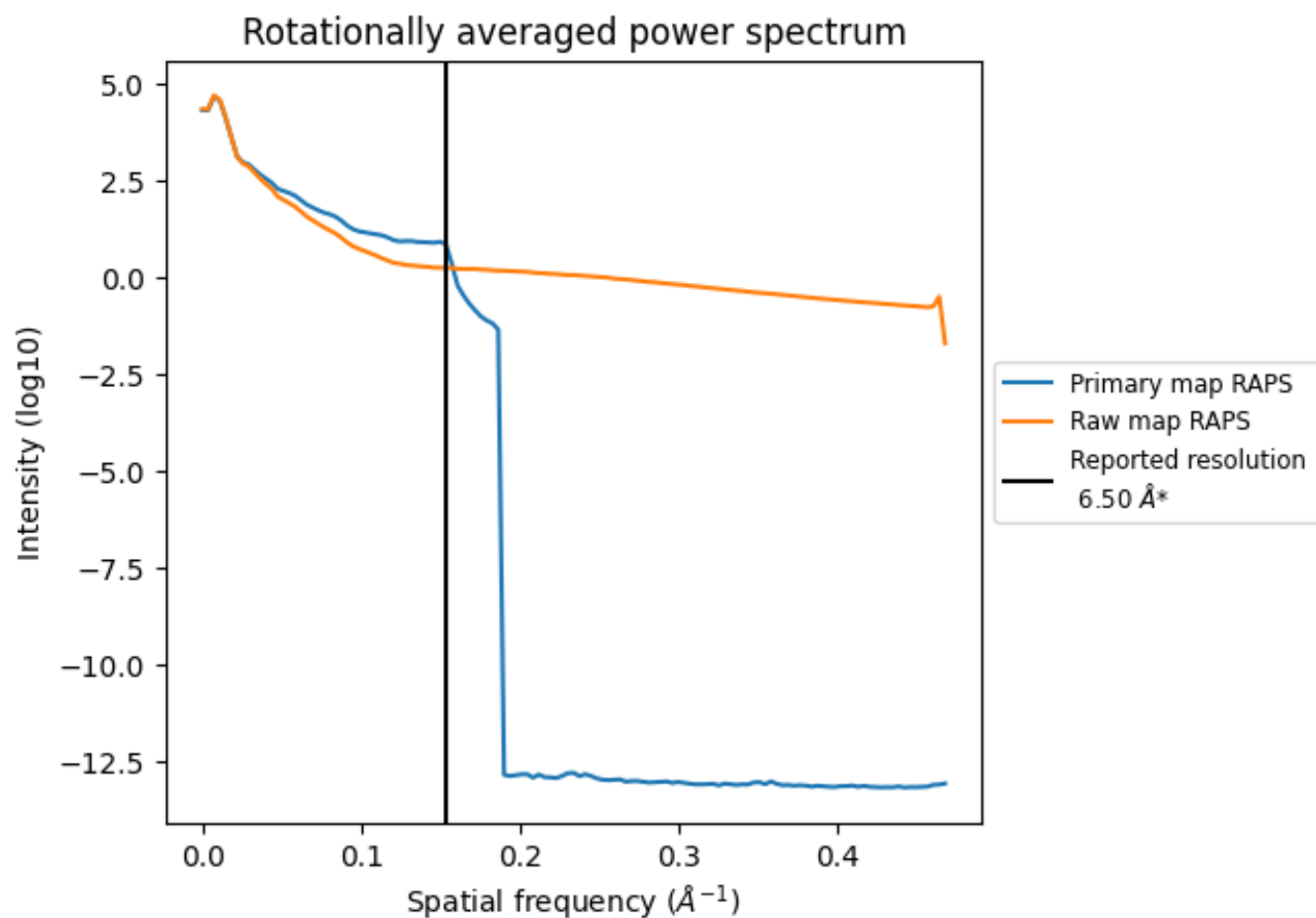
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 83 nm³; this corresponds to an approximate mass of 75 kDa.

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

7.3 Rotationally averaged power spectrum ⓘ

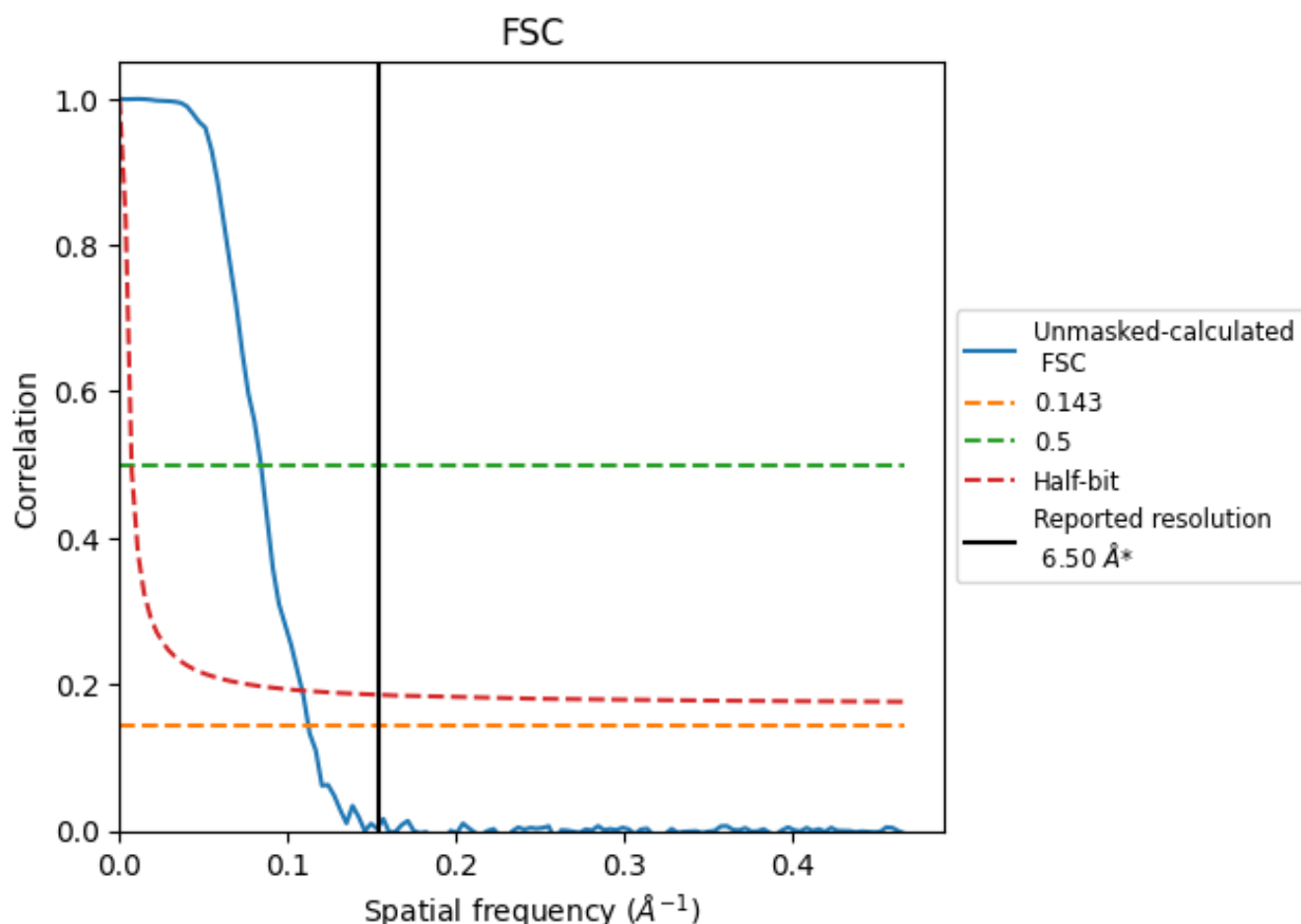


*Reported resolution corresponds to spatial frequency of 0.154 Å⁻¹

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.154 \AA^{-1}

8.2 Resolution estimates [i](#)

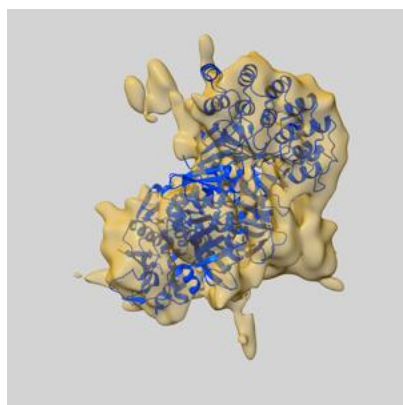
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	6.50	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	8.90	11.88	9.20

*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 8.90 differs from the reported value 6.5 by more than 10 %

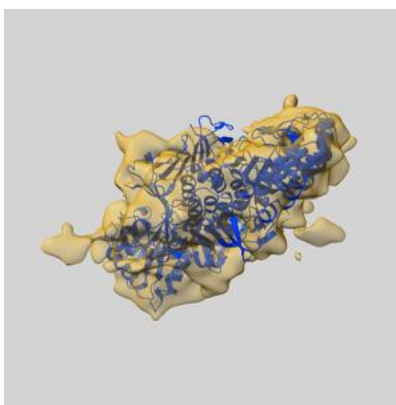
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-26563 and PDB model 7UJJ. Per-residue inclusion information can be found in section [3](#) on page [8](#).

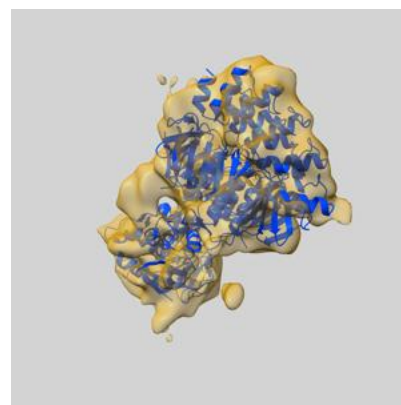
9.1 Map-model overlay [i](#)



X



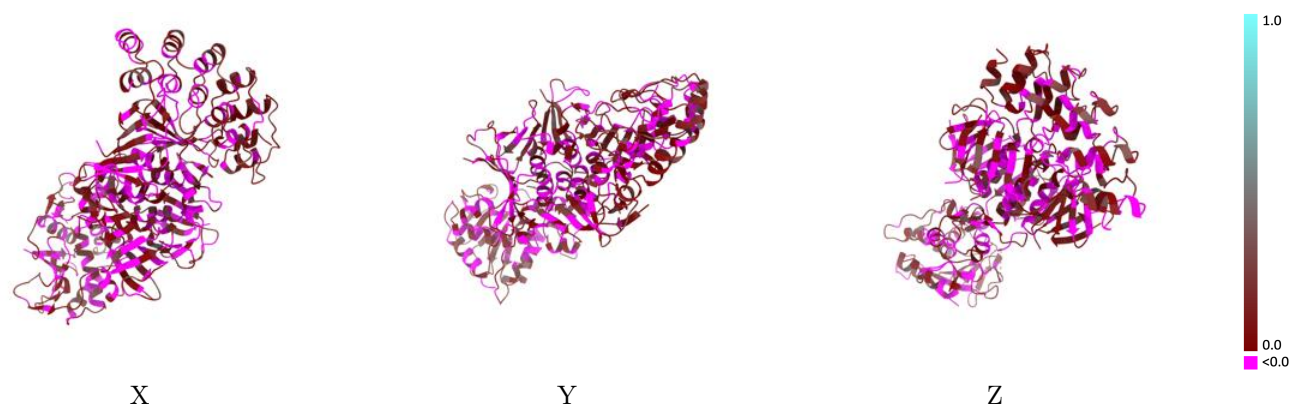
Y



Z

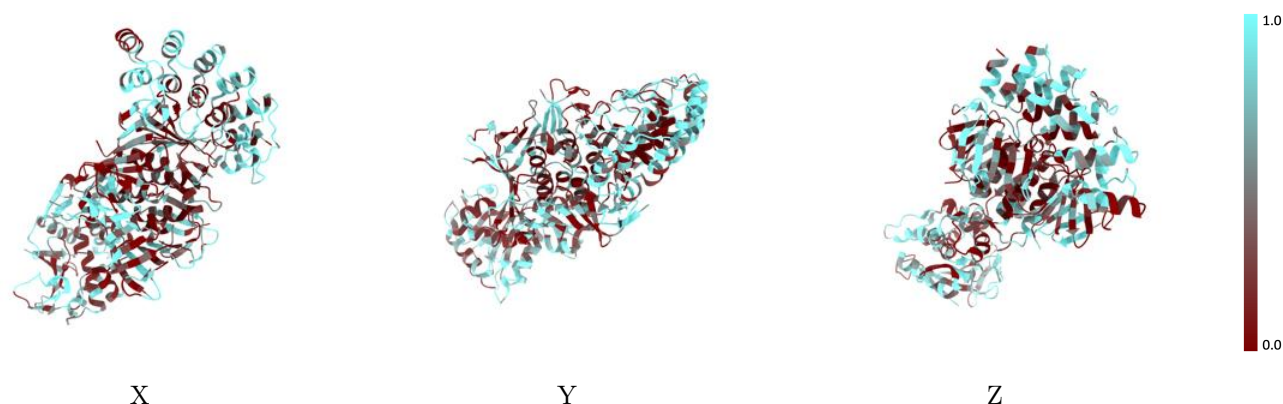
The images above show the 3D surface view of the map at the recommended contour level 0.73 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



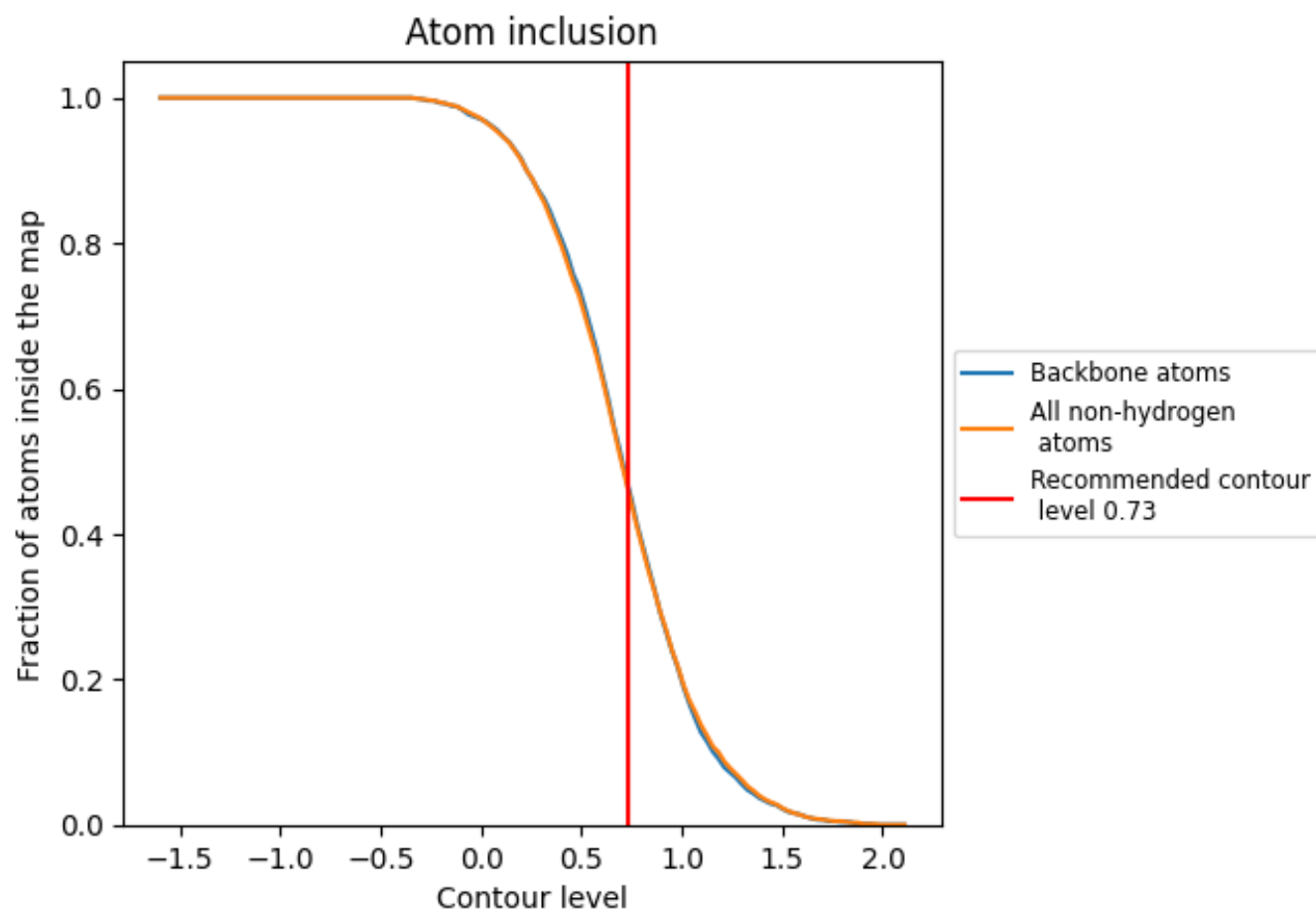
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.73).

9.4 Atom inclusion [i](#)



At the recommended contour level, 47% of all backbone atoms, 46% 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 (0.73) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	<div><div></div>0.4630</div>	<div><div></div>0.0410</div>
A	<div><div></div>0.4850</div>	<div><div></div>0.0410</div>
B	<div><div></div>0.3030</div>	<div><div></div>0.0130</div>
C	<div><div></div>0.4040</div>	<div><div></div>0.0180</div>
D	<div><div></div>0.4080</div>	<div><div></div>0.0440</div>
E	<div><div></div>0.4530</div>	<div><div></div>0.0280</div>
F	<div><div></div>0.4610</div>	<div><div></div>0.0150</div>
G	<div><div></div>0.6320</div>	<div><div></div>0.0770</div>

1.0

0.0

<0.0