wwPDB EM Validation Summary Report (i)

Mar 20, 2024 – 08:04 am GMT

PDB ID	:	8ADN
EMDB ID	:	EMD-15365
Title	:	Vairimorpha necatrix 20S proteasome from spores
Authors	:	Jespersen, N.; Ehrenbolger, K.; Winiger, R.; Svedberg, D.; Vossbrinck, C.R.; Barandun, J.
Deposited on	:	2022-07-08
Resolution	:	2.77 Å(reported)
Based on initial model	:	5CZ4

This is a wwPDB EM Validation Summary 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 (i) 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 (i)) were used in the production of this report:

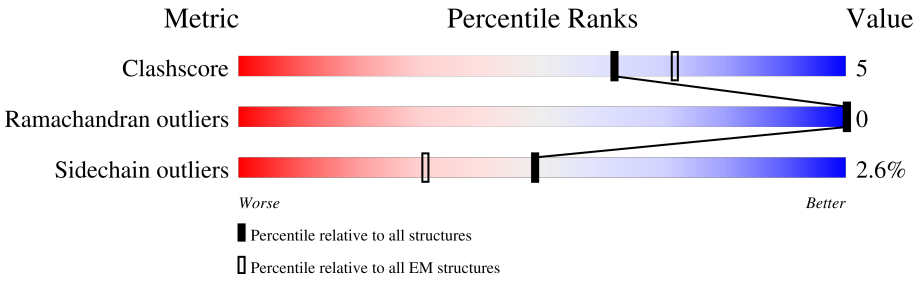
EMDB validation analysis	:	0.0.1.dev92
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 2.77 Å.

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



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

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=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	3	147	36% 59%
1	4	147	36% 5% 59%
2	A	227	10% 89% 9%
2	O	227	9% 93% 7%
3	B	231	84% 14%
3	P	231	85% 14%
4	C	225	16% 85% 12%
4	Q	225	19% 87% 9%

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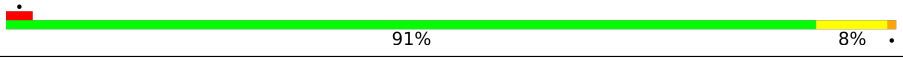
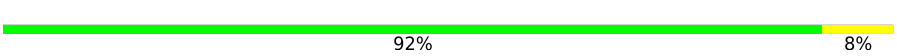
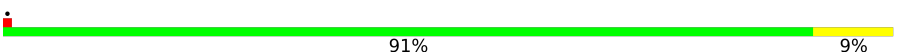
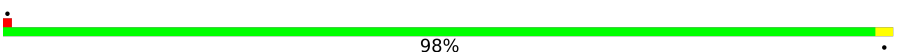
Mol	Chain	Length	Quality of chain
5	D	234	
5	R	234	
6	E	230	
6	S	230	
7	F	243	
7	T	243	
8	G	234	
8	U	234	
9	H	227	
9	V	227	
10	I	205	
10	W	205	
11	J	193	
11	X	193	
12	K	228	
12	Y	228	
13	L	297	
13	Z	297	
14	M	212	
14	a	212	
15	N	216	
15	b	216	

2 Entry composition (i)

There are 15 unique types of molecules in this entry. The entry contains 48318 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 Proteasome Inhibitor 31-Like.

Mol	Chain	Residues	Atoms				AltConf	Trace
1	3	60	Total 478	C 304	N 78	O 96	0	0
1	4	60	Total 478	C 304	N 78	O 96	0	0

- Molecule 2 is a protein called Proteasome subunit alpha type-2.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	A	225	Total 1686	C 1063	N 284	O 334	S 5	0	0
2	O	225	Total 1686	C 1063	N 284	O 334	S 5	0	0

- Molecule 3 is a protein called Proteasome subunit alpha type-3.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	B	228	Total 1858	C 1187	N 299	O 362	S 10	0	0
3	P	228	Total 1858	C 1187	N 299	O 362	S 10	0	0

- Molecule 4 is a protein called Proteasome subunit alpha type-4.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	C	219	Total 1613	C 1020	N 275	O 311	S 7	0	0
4	Q	219	Total 1613	C 1020	N 275	O 311	S 7	0	0

- Molecule 5 is a protein called Proteasome subunit alpha type-5.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	D	233	Total	C	N	O	S	0	0
			1853	1174	307	365	7		
5	R	233	Total	C	N	O	S	0	0
			1853	1174	307	365	7		

- Molecule 6 is a protein called Proteasome subunit alpha type-6.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	E	225	Total	C	N	O	S	0	0
			1811	1152	308	346	5		
6	S	225	Total	C	N	O	S	0	0
			1811	1152	308	346	5		

- Molecule 7 is a protein called Proteasome subunit alpha type-7.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	F	234	Total	C	N	O	S	0	0
			1879	1188	317	365	9		
7	T	234	Total	C	N	O	S	0	0
			1879	1188	317	365	9		

- Molecule 8 is a protein called Proteasome subunit alpha type-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	G	233	Total	C	N	O	S	0	0
			1843	1186	290	359	8		
8	U	233	Total	C	N	O	S	0	0
			1843	1186	290	359	8		

- Molecule 9 is a protein called Proteasome subunit beta type-2.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	H	218	Total	C	N	O	S	0	0
			1659	1037	293	318	11		
9	V	218	Total	C	N	O	S	0	0
			1659	1037	293	318	11		

- Molecule 10 is a protein called Proteasome subunit beta type-3.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	I	203	Total	C	N	O	S	0	0
			1594	1015	257	308	14		

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Mol	Chain	Residues	Atoms					AltConf	Trace
10	W	203	Total	C	N	O	S	0	0
			1594	1015	257	308	14		

- Molecule 11 is a protein called Proteasome subunit beta type-4.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	J	193	Total	C	N	O	S	0	0
			1542	983	250	303	6		
11	X	193	Total	C	N	O	S	0	0
			1542	983	250	303	6		

- Molecule 12 is a protein called Proteasome subunit beta type-5.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	K	195	Total	C	N	O	S	0	0
			1509	961	254	285	9		
12	Y	195	Total	C	N	O	S	0	0
			1509	961	254	285	9		

- Molecule 13 is a protein called Proteasome subunit beta type-6.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	L	208	Total	C	N	O	S	0	0
			1690	1074	280	330	6		
13	Z	208	Total	C	N	O	S	0	0
			1690	1074	280	330	6		

- Molecule 14 is a protein called Proteasome subunit beta type-7.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	M	212	Total	C	N	O	S	0	0
			1662	1041	285	323	13		
14	a	212	Total	C	N	O	S	0	0
			1662	1041	285	323	13		

- Molecule 15 is a protein called Proteasome subunit beta type-1.

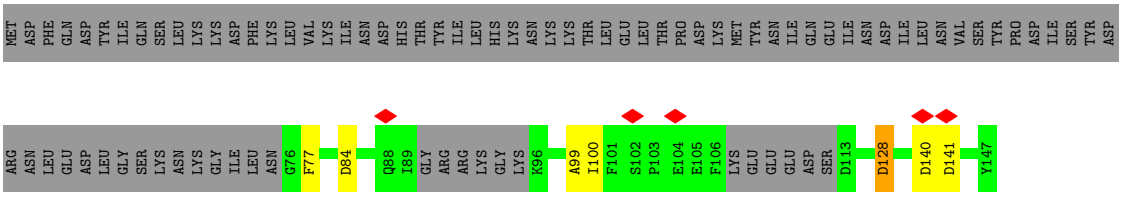
Mol	Chain	Residues	Atoms					AltConf	Trace
15	N	194	Total	C	N	O	S	0	0
			1482	934	249	286	13		
15	b	194	Total	C	N	O	S	0	0
			1482	934	249	286	13		

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.

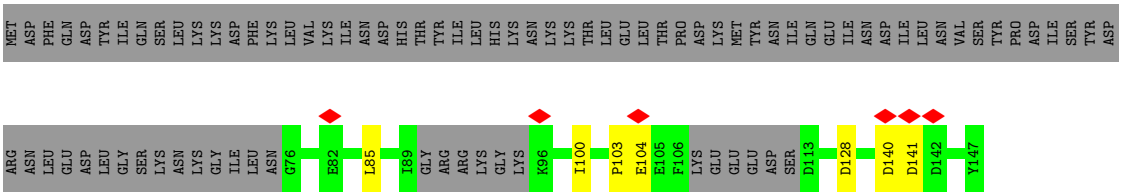
• Molecule 1: Proteasome Inhibitor 31-Like

Chain 3:



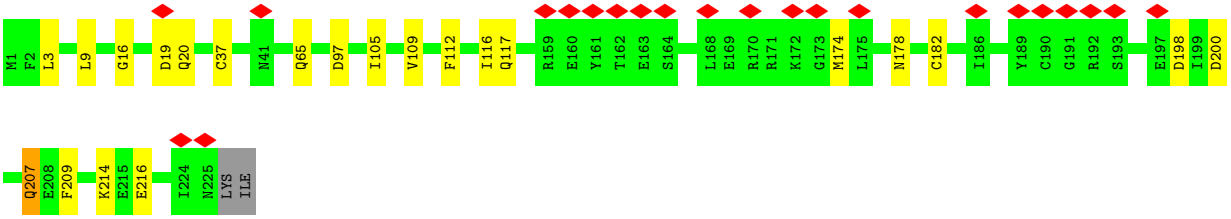
• Molecule 1: Proteasome Inhibitor 31-Like

Chain 4:



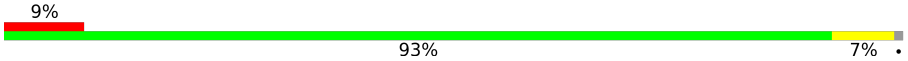
• Molecule 2: Proteasome subunit alpha type-2

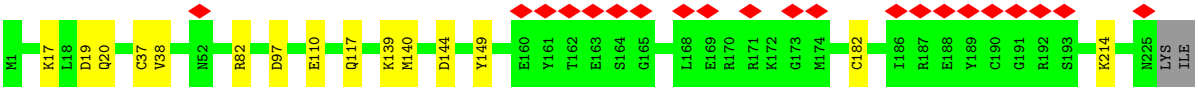
Chain A:



• Molecule 2: Proteasome subunit alpha type-2

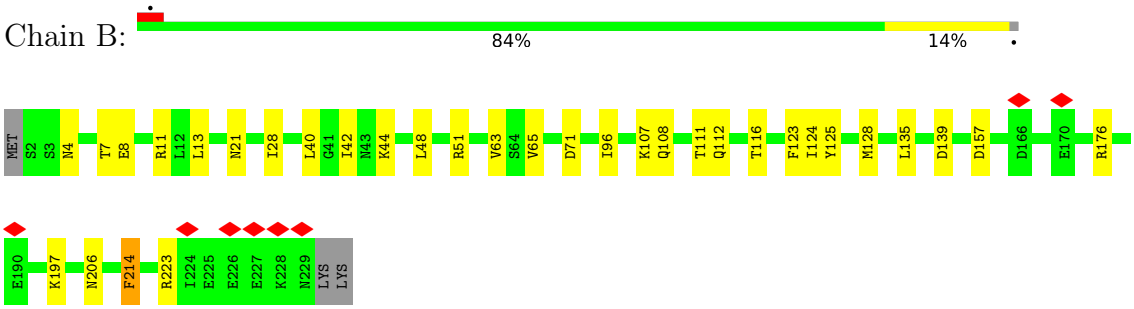
Chain O:





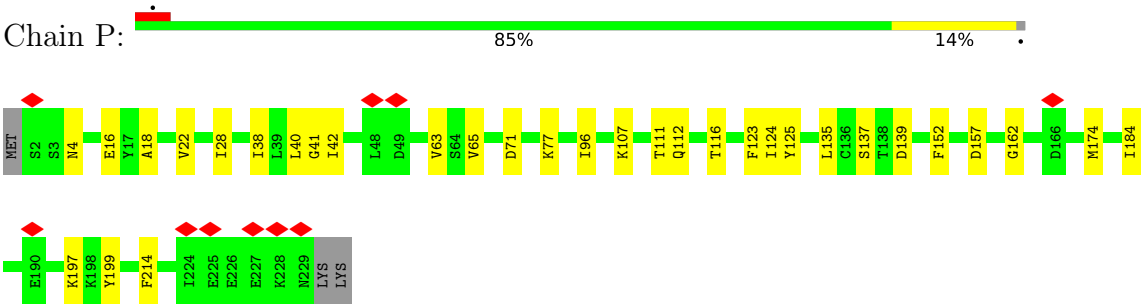
• Molecule 3: Proteasome subunit alpha type-3

Chain B:



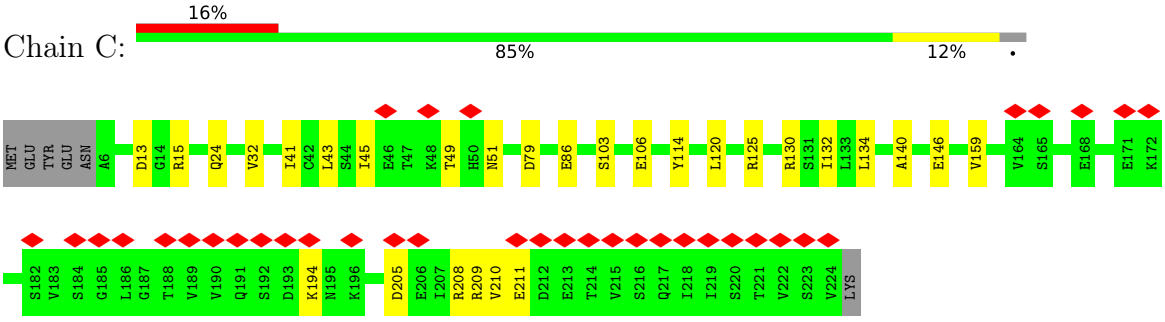
• Molecule 3: Proteasome subunit alpha type-3

Chain P:



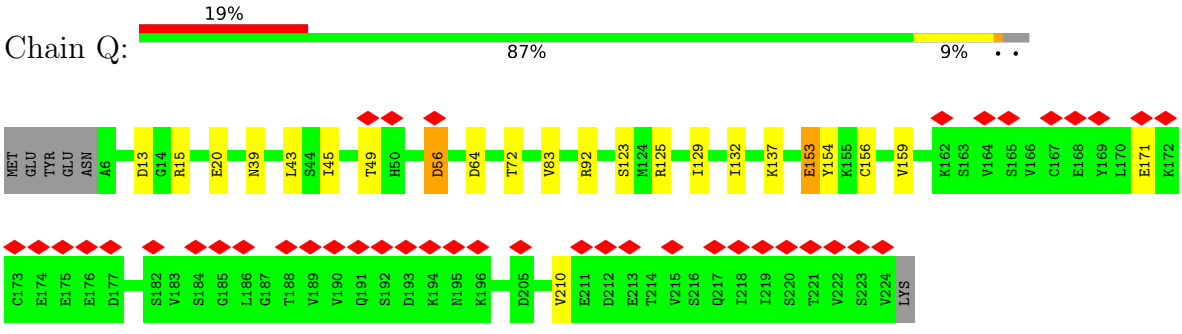
• Molecule 4: Proteasome subunit alpha type-4

Chain C:



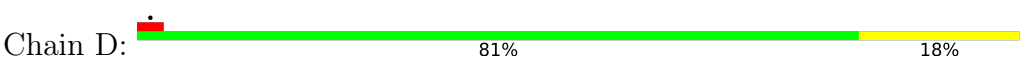
• Molecule 4: Proteasome subunit alpha type-4

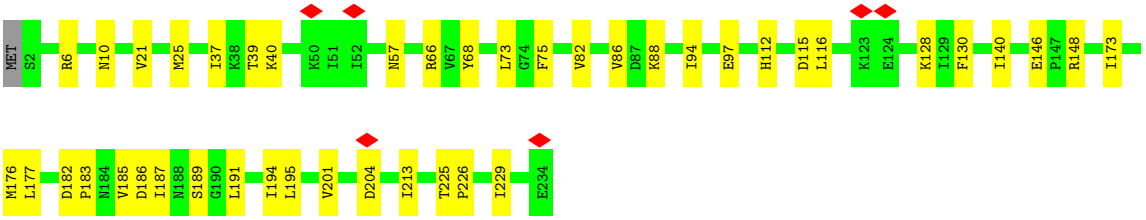
Chain Q:



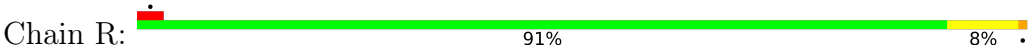
• Molecule 5: Proteasome subunit alpha type-5

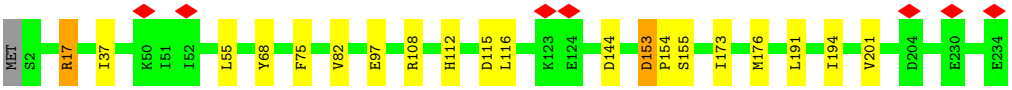
Chain D:



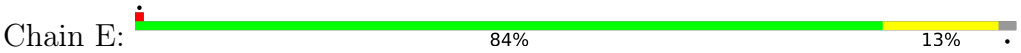


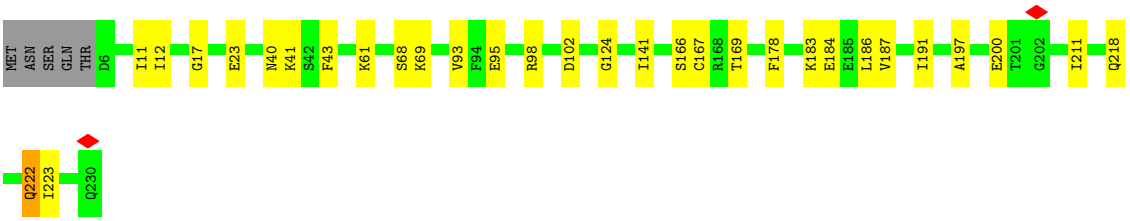
• Molecule 5: Proteasome subunit alpha type-5



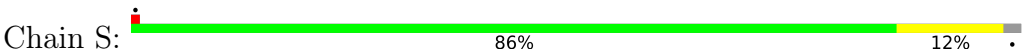


• Molecule 6: Proteasome subunit alpha type-6

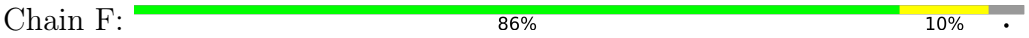


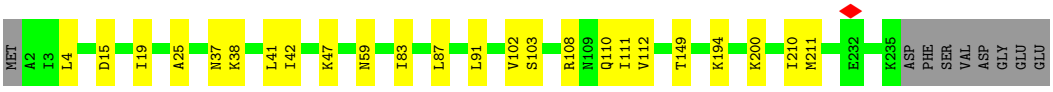


• Molecule 6: Proteasome subunit alpha type-6

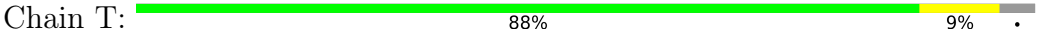


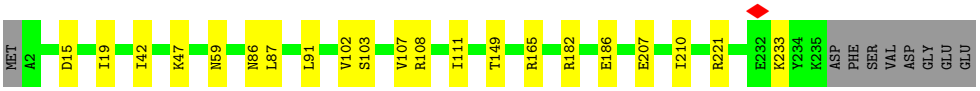
• Molecule 7: Proteasome subunit alpha type-7





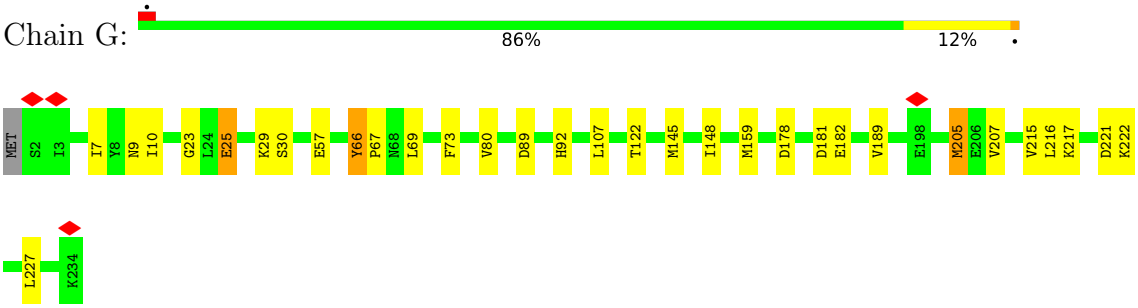
• Molecule 7: Proteasome subunit alpha type-7





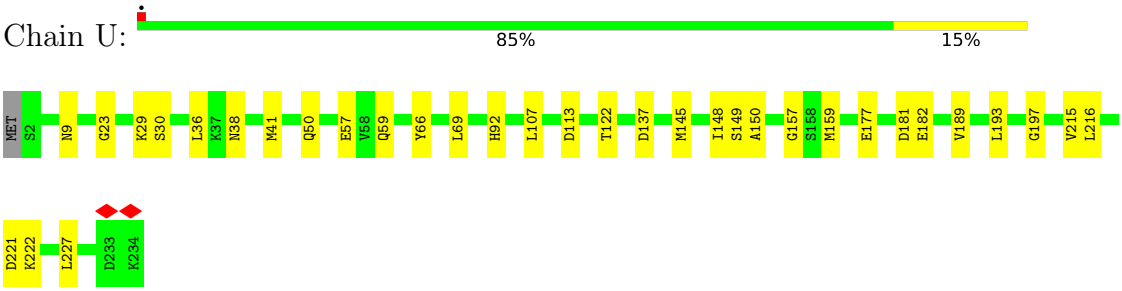
• Molecule 8: Proteasome subunit alpha type-1

Chain G:



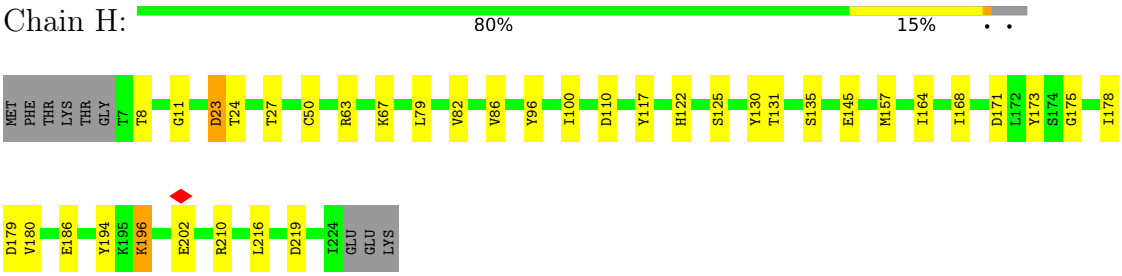
• Molecule 8: Proteasome subunit alpha type-1

Chain U:



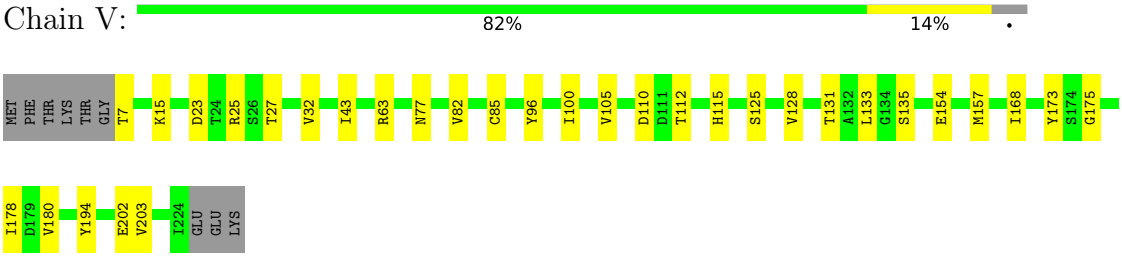
• Molecule 9: Proteasome subunit beta type-2

Chain H:



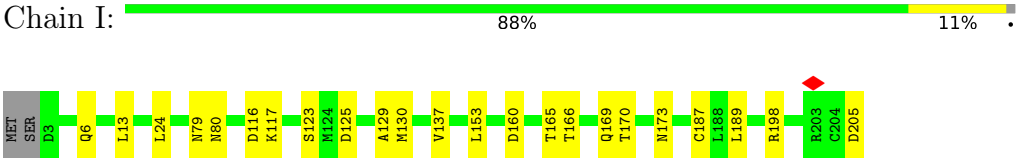
• Molecule 9: Proteasome subunit beta type-2

Chain V:



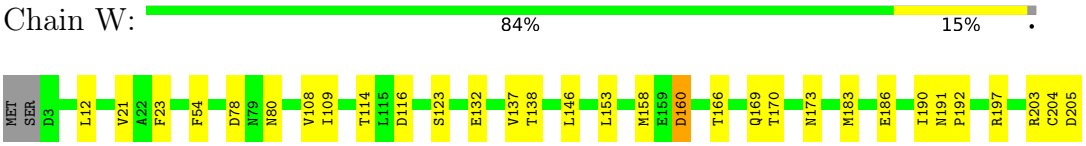
• Molecule 10: Proteasome subunit beta type-3

Chain I:



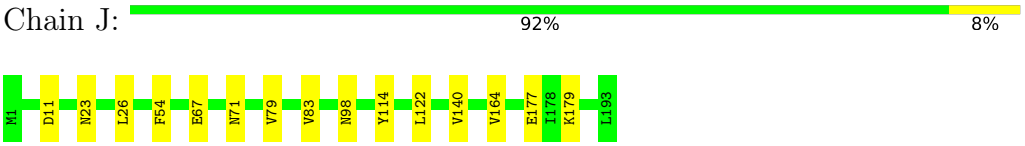
• Molecule 10: Proteasome subunit beta type-3

Chain W:



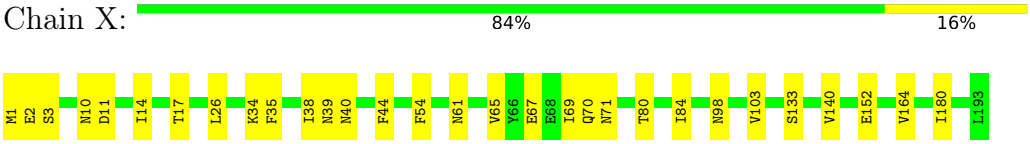
• Molecule 11: Proteasome subunit beta type-4

Chain J:



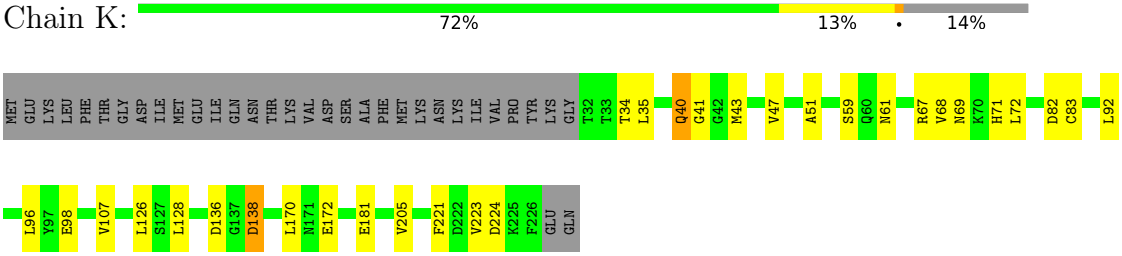
• Molecule 11: Proteasome subunit beta type-4

Chain X:



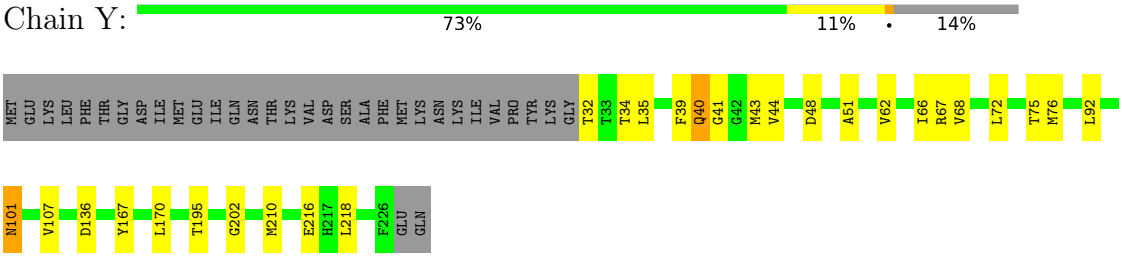
• Molecule 12: Proteasome subunit beta type-5

Chain K:



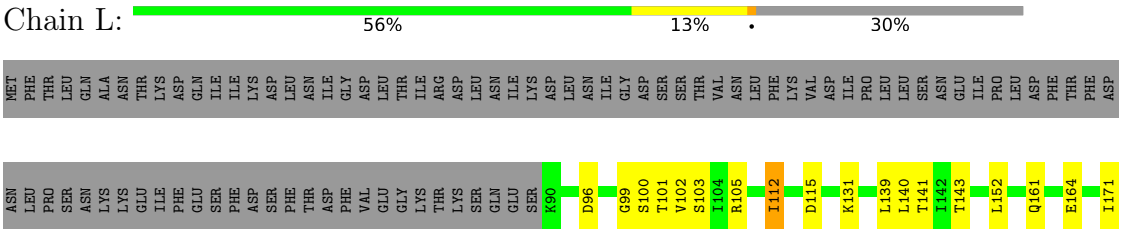
• Molecule 12: Proteasome subunit beta type-5

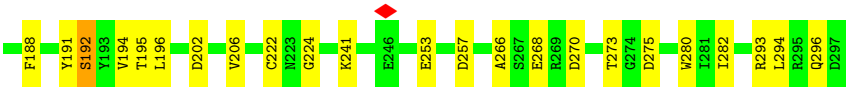
Chain Y:



• Molecule 13: Proteasome subunit beta type-6

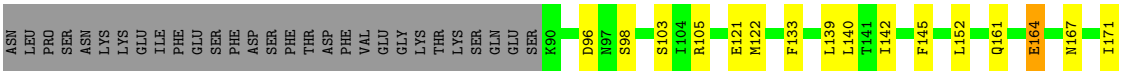
Chain L:





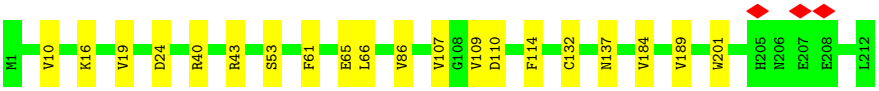
• Molecule 13: Proteasome subunit beta type-6

Chain Z:



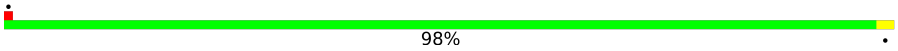
• Molecule 14: Proteasome subunit beta type-7

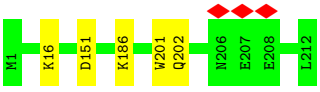
Chain M:



• Molecule 14: Proteasome subunit beta type-7

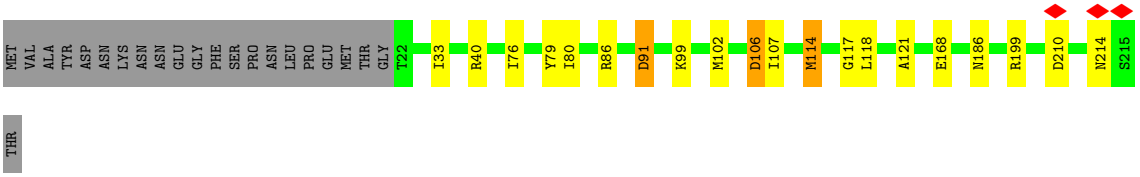
Chain a:





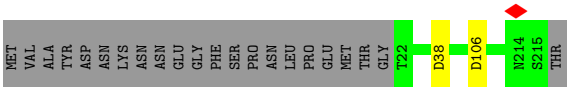
• Molecule 15: Proteasome subunit beta type-1

Chain N:



• Molecule 15: Proteasome subunit beta type-1

Chain b:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C2	Depositor
Number of particles used	52679	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 ($e^-/Å^2$)	35.01, 36.334	Depositor
Minimum defocus (nm)	700	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	130000	Depositor
Image detector	GATAN K2 QUANTUM (4k x 4k), GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	4.477	Depositor
Minimum map value	-2.358	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.135	Depositor
Recommended contour level	0.5	Depositor
Map size (Å)	416.80002, 416.80002, 416.80002	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.042, 1.042, 1.042	Depositor

5 Model quality

5.1 Standard geometry

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|>5$	RMSZ	#$\|Z\|>5$
1	3	0.25	0/489	0.43	0/653
1	4	0.25	0/489	0.45	0/653
2	A	0.28	0/1711	0.47	0/2316
2	O	0.27	0/1711	0.48	0/2316
3	B	0.27	0/1891	0.47	0/2535
3	P	0.26	0/1891	0.46	0/2535
4	C	0.26	0/1636	0.47	0/2214
4	Q	0.26	0/1636	0.48	0/2214
5	D	0.26	0/1883	0.46	0/2537
5	R	0.26	0/1883	0.48	0/2537
6	E	0.26	0/1841	0.48	0/2478
6	S	0.26	0/1841	0.48	0/2478
7	F	0.26	0/1903	0.47	0/2556
7	T	0.26	0/1903	0.47	0/2556
8	G	0.27	0/1880	0.44	0/2543
8	U	0.27	0/1880	0.44	0/2543
9	H	0.27	0/1687	0.52	0/2280
9	V	0.27	0/1687	0.51	0/2280
10	I	0.28	0/1625	0.48	0/2183
10	W	0.28	0/1625	0.48	0/2183
11	J	0.28	0/1567	0.46	0/2114
11	X	0.28	0/1567	0.47	0/2114
12	K	0.28	0/1542	0.47	0/2078
12	Y	0.27	0/1542	0.47	0/2078
13	L	0.28	0/1727	0.50	0/2332
13	Z	0.28	0/1727	0.50	0/2332
14	M	0.27	0/1684	0.51	0/2279
14	a	0.27	0/1684	0.50	0/2279
15	N	0.28	0/1504	0.50	0/2027
15	b	0.28	0/1504	0.51	0/2027
All	All	0.27	0/49140	0.48	0/66250

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	3	478	0	444	8	0
1	4	478	0	444	4	0
2	A	1686	0	1583	14	0
2	O	1686	0	1583	9	0
3	B	1858	0	1827	20	0
3	P	1858	0	1827	25	0
4	C	1613	0	1502	15	0
4	Q	1613	0	1502	15	0
5	D	1853	0	1851	30	0
5	R	1853	0	1851	18	0
6	E	1811	0	1827	17	0
6	S	1811	0	1827	14	0
7	F	1879	0	1919	16	0
7	T	1879	0	1919	11	0
8	G	1843	0	1817	19	0
8	U	1843	0	1817	19	0
9	H	1659	0	1663	23	0
9	V	1659	0	1663	18	0
10	I	1594	0	1574	12	0
10	W	1594	0	1574	16	0
11	J	1542	0	1539	8	0
11	X	1542	0	1539	18	0
12	K	1509	0	1467	20	0
12	Y	1509	0	1467	17	0
13	L	1690	0	1630	20	0
13	Z	1690	0	1630	27	0
14	M	1662	0	1669	11	0
14	a	1662	0	1669	0	0
15	N	1482	0	1493	14	0
15	b	1482	0	1493	0	0
All	All	48318	0	47610	413	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 5.

The worst 5 of 413 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)
7:F:103:SER:OG	15:N:91:ASP:OD2	1.81	0.98
9:H:186:GLU:OE1	9:H:186:GLU:N	2.09	0.86
9:V:7:THR:N	9:V:135:SER:HG	1.74	0.84
13:Z:96:ASP:OD1	13:Z:98:SER:OG	1.94	0.84
2:O:82:ARG:NH2	8:U:150:ALA:O	2.13	0.82

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	3	54/147 (37%)	53 (98%)	1 (2%)	0	100	100
1	4	54/147 (37%)	51 (94%)	3 (6%)	0	100	100
2	A	223/227 (98%)	221 (99%)	2 (1%)	0	100	100
2	O	223/227 (98%)	219 (98%)	4 (2%)	0	100	100
3	B	226/231 (98%)	223 (99%)	3 (1%)	0	100	100
3	P	226/231 (98%)	222 (98%)	4 (2%)	0	100	100
4	C	217/225 (96%)	212 (98%)	5 (2%)	0	100	100
4	Q	217/225 (96%)	211 (97%)	6 (3%)	0	100	100
5	D	231/234 (99%)	221 (96%)	10 (4%)	0	100	100
5	R	231/234 (99%)	222 (96%)	9 (4%)	0	100	100
6	E	223/230 (97%)	220 (99%)	3 (1%)	0	100	100
6	S	223/230 (97%)	221 (99%)	2 (1%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
7	F	232/243 (96%)	224 (97%)	8 (3%)	0	100	100
7	T	232/243 (96%)	229 (99%)	3 (1%)	0	100	100
8	G	231/234 (99%)	228 (99%)	3 (1%)	0	100	100
8	U	231/234 (99%)	225 (97%)	6 (3%)	0	100	100
9	H	216/227 (95%)	211 (98%)	5 (2%)	0	100	100
9	V	216/227 (95%)	212 (98%)	4 (2%)	0	100	100
10	I	201/205 (98%)	195 (97%)	6 (3%)	0	100	100
10	W	201/205 (98%)	197 (98%)	4 (2%)	0	100	100
11	J	191/193 (99%)	191 (100%)	0	0	100	100
11	X	191/193 (99%)	188 (98%)	3 (2%)	0	100	100
12	K	193/228 (85%)	191 (99%)	2 (1%)	0	100	100
12	Y	193/228 (85%)	189 (98%)	4 (2%)	0	100	100
13	L	206/297 (69%)	202 (98%)	4 (2%)	0	100	100
13	Z	206/297 (69%)	204 (99%)	2 (1%)	0	100	100
14	M	210/212 (99%)	200 (95%)	10 (5%)	0	100	100
14	a	210/212 (99%)	196 (93%)	14 (7%)	0	100	100
15	N	192/216 (89%)	188 (98%)	4 (2%)	0	100	100
15	b	192/216 (89%)	188 (98%)	4 (2%)	0	100	100
All	All	6092/6698 (91%)	5954 (98%)	138 (2%)	0	100	100

There are no Ramachandran outliers to report.

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	3	52/135 (38%)	50 (96%)	2 (4%)	33	64
1	4	52/135 (38%)	49 (94%)	3 (6%)	20	47
2	A	172/206 (84%)	168 (98%)	4 (2%)	50	79

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
2	O	172/206 (84%)	168 (98%)	4 (2%)	50 79
3	B	206/209 (99%)	198 (96%)	8 (4%)	32 63
3	P	206/209 (99%)	205 (100%)	1 (0%)	88 95
4	C	157/207 (76%)	152 (97%)	5 (3%)	39 70
4	Q	157/207 (76%)	151 (96%)	6 (4%)	33 64
5	D	208/209 (100%)	206 (99%)	2 (1%)	76 91
5	R	208/209 (100%)	205 (99%)	3 (1%)	67 87
6	E	204/209 (98%)	198 (97%)	6 (3%)	42 73
6	S	204/209 (98%)	199 (98%)	5 (2%)	47 77
7	F	215/223 (96%)	213 (99%)	2 (1%)	78 92
7	T	215/223 (96%)	212 (99%)	3 (1%)	67 87
8	G	200/201 (100%)	191 (96%)	9 (4%)	27 58
8	U	200/201 (100%)	193 (96%)	7 (4%)	36 67
9	H	182/190 (96%)	175 (96%)	7 (4%)	33 64
9	V	182/190 (96%)	179 (98%)	3 (2%)	62 86
10	I	179/181 (99%)	174 (97%)	5 (3%)	43 74
10	W	179/181 (99%)	172 (96%)	7 (4%)	32 63
11	J	177/177 (100%)	176 (99%)	1 (1%)	86 95
11	X	177/177 (100%)	175 (99%)	2 (1%)	73 90
12	K	157/187 (84%)	150 (96%)	7 (4%)	27 58
12	Y	157/187 (84%)	151 (96%)	6 (4%)	33 64
13	L	186/271 (69%)	175 (94%)	11 (6%)	19 46
13	Z	186/271 (69%)	181 (97%)	5 (3%)	44 75
14	M	195/195 (100%)	193 (99%)	2 (1%)	76 91
14	a	195/195 (100%)	190 (97%)	5 (3%)	46 76
15	N	159/178 (89%)	156 (98%)	3 (2%)	57 83
15	b	159/178 (89%)	157 (99%)	2 (1%)	69 89
All	All	5298/5956 (89%)	5162 (97%)	136 (3%)	49 76

5 of 136 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
10	W	204	CYS

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Mol	Chain	Res	Type
12	Y	43	MET
14	a	151	ASP
10	I	130	MET
9	H	219	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
5	D	64	HIS

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

There are no ligands in this entry.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

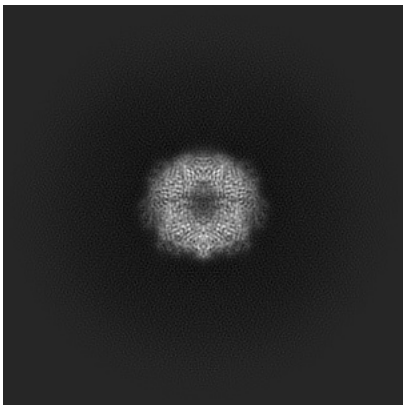
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-15365. These allow visual inspection of the internal detail of the map and identification of artifacts.

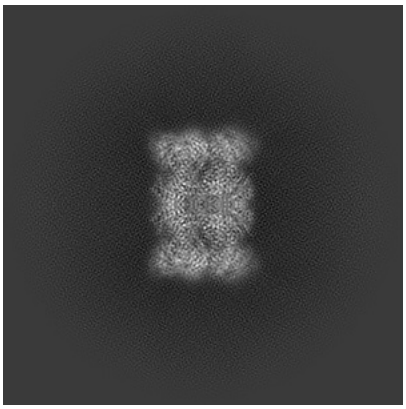
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

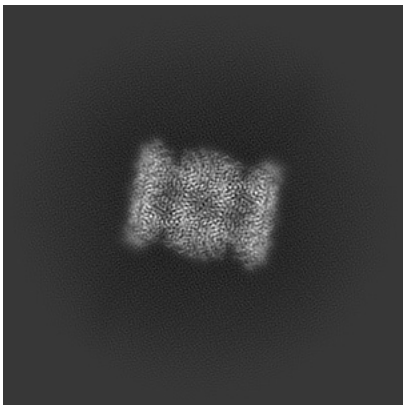
6.1.1 Primary map



X

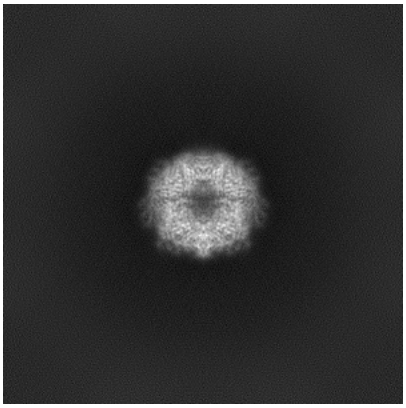


Y

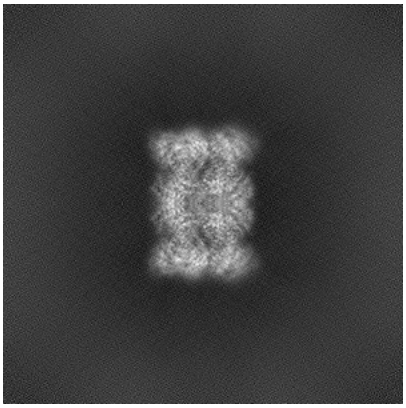


Z

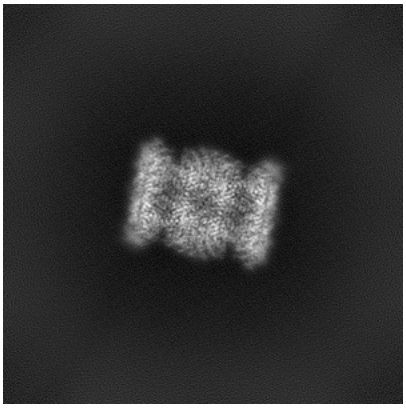
6.1.2 Raw map



X



Y

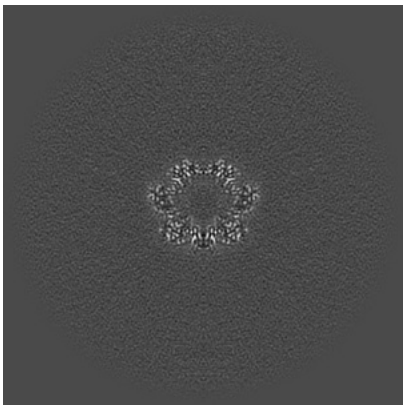


Z

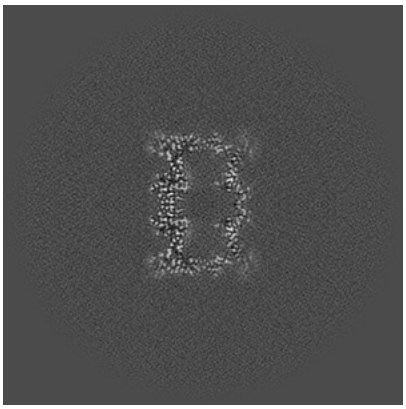
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

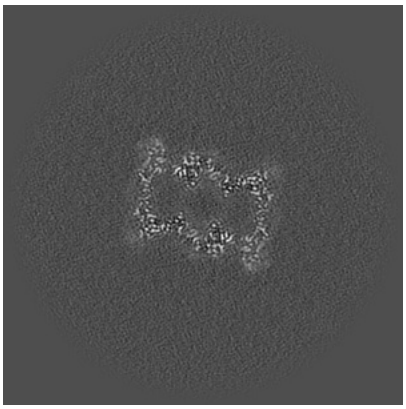
6.2.1 Primary map



X Index: 200

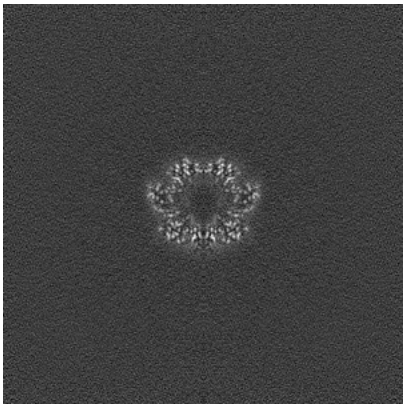


Y Index: 200

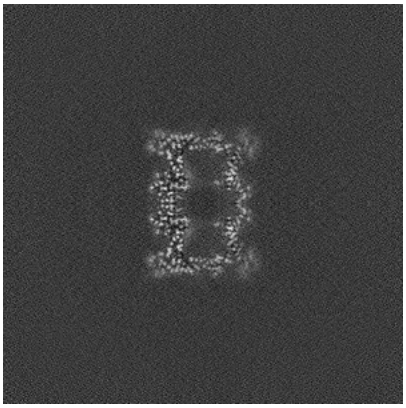


Z Index: 200

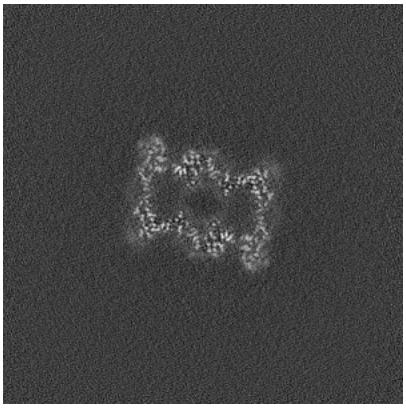
6.2.2 Raw map



X Index: 200



Y Index: 200

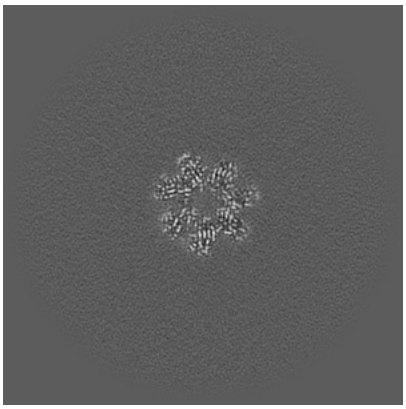


Z Index: 200

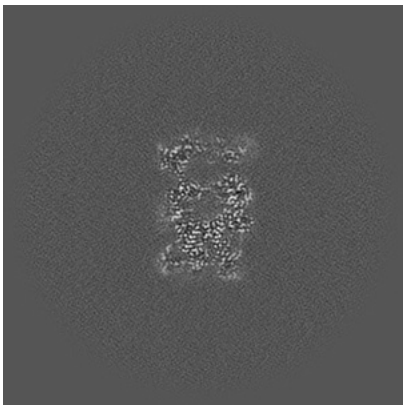
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

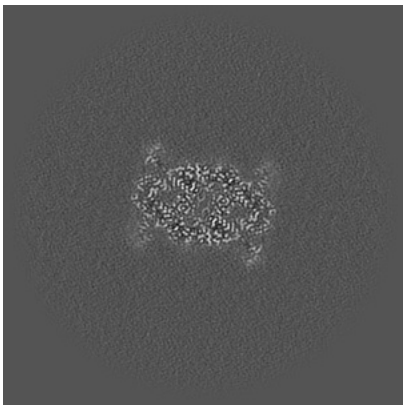
6.3.1 Primary map



X Index: 182

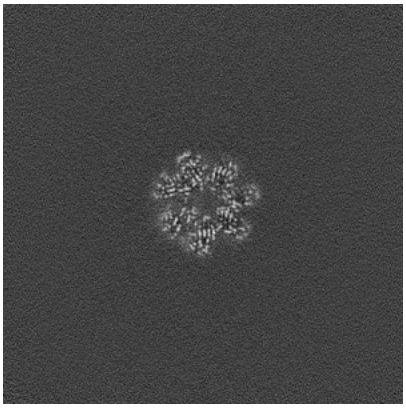


Y Index: 182

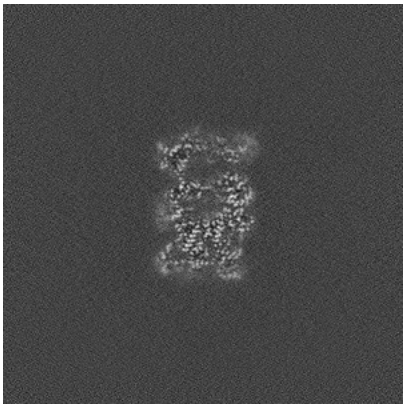


Z Index: 179

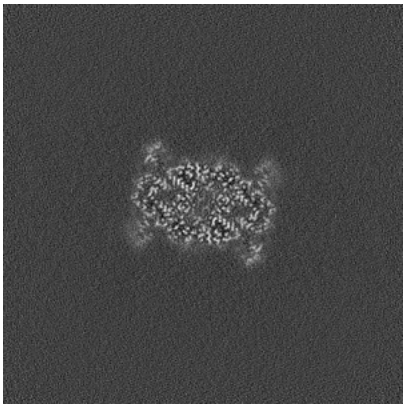
6.3.2 Raw map



X Index: 182



Y Index: 182

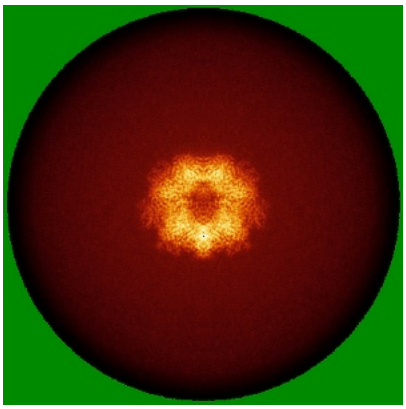


Z Index: 179

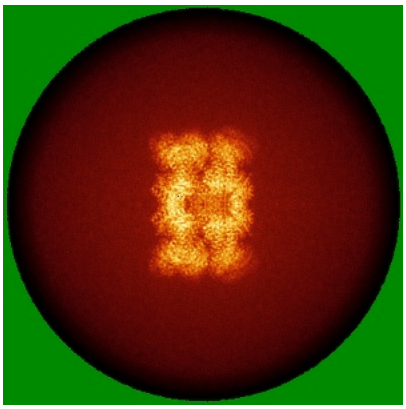
The images above show the largest variance slices of the map in three orthogonal directions.

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

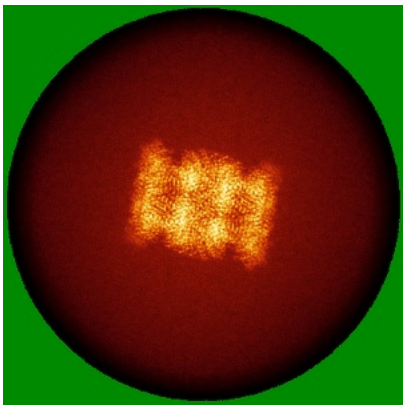
6.4.1 Primary map



X

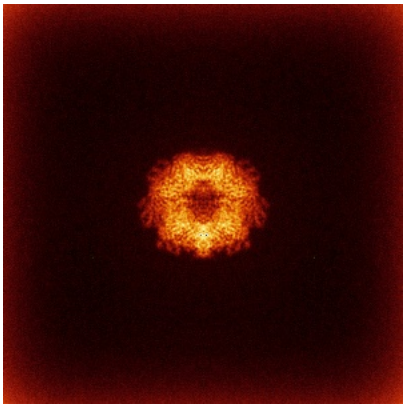


Y

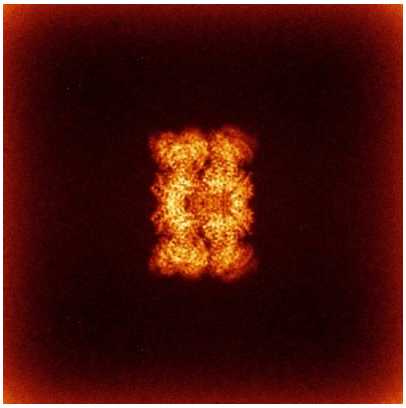


Z

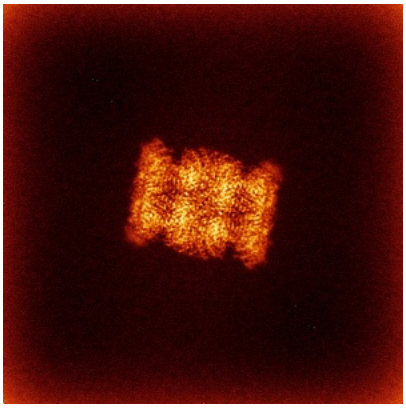
6.4.2 Raw map



X



Y

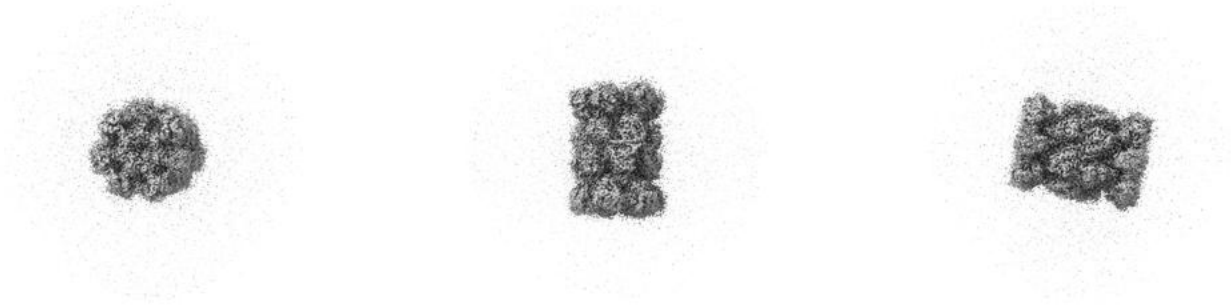


Z

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 0.5. 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.

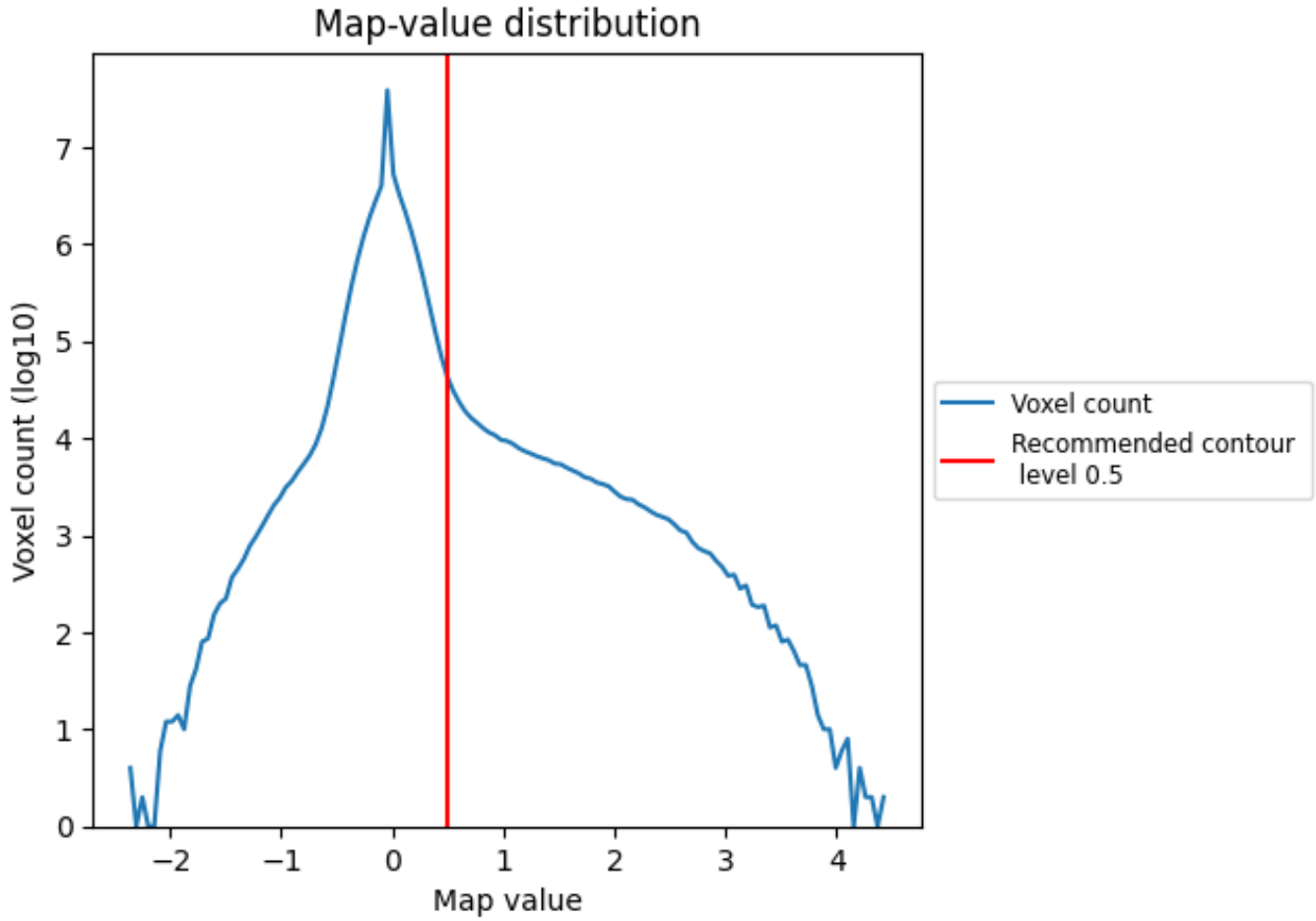
6.6 Mask visualisation (i)

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

7 Map analysis

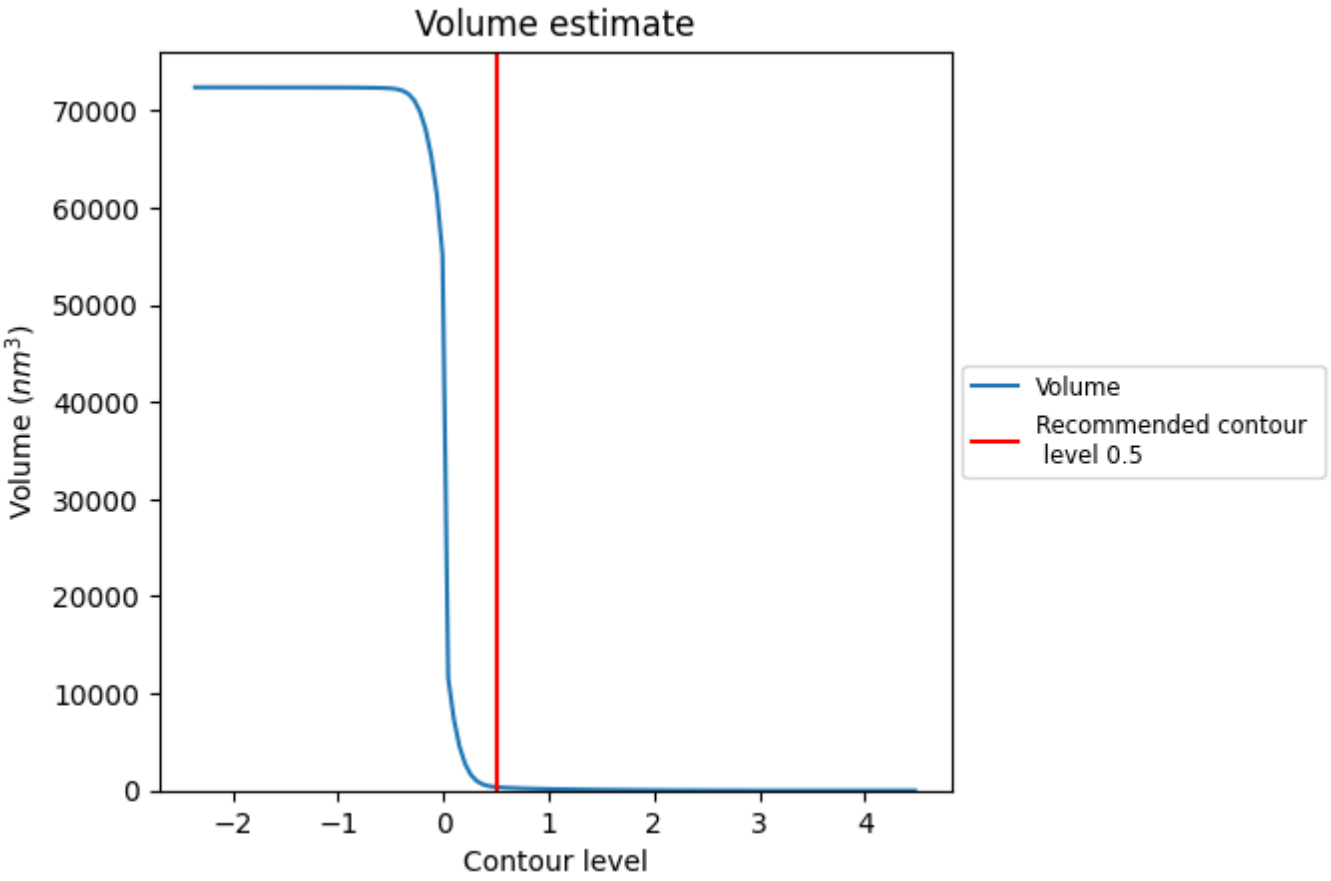
This section contains the results of statistical analysis of the map.

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.

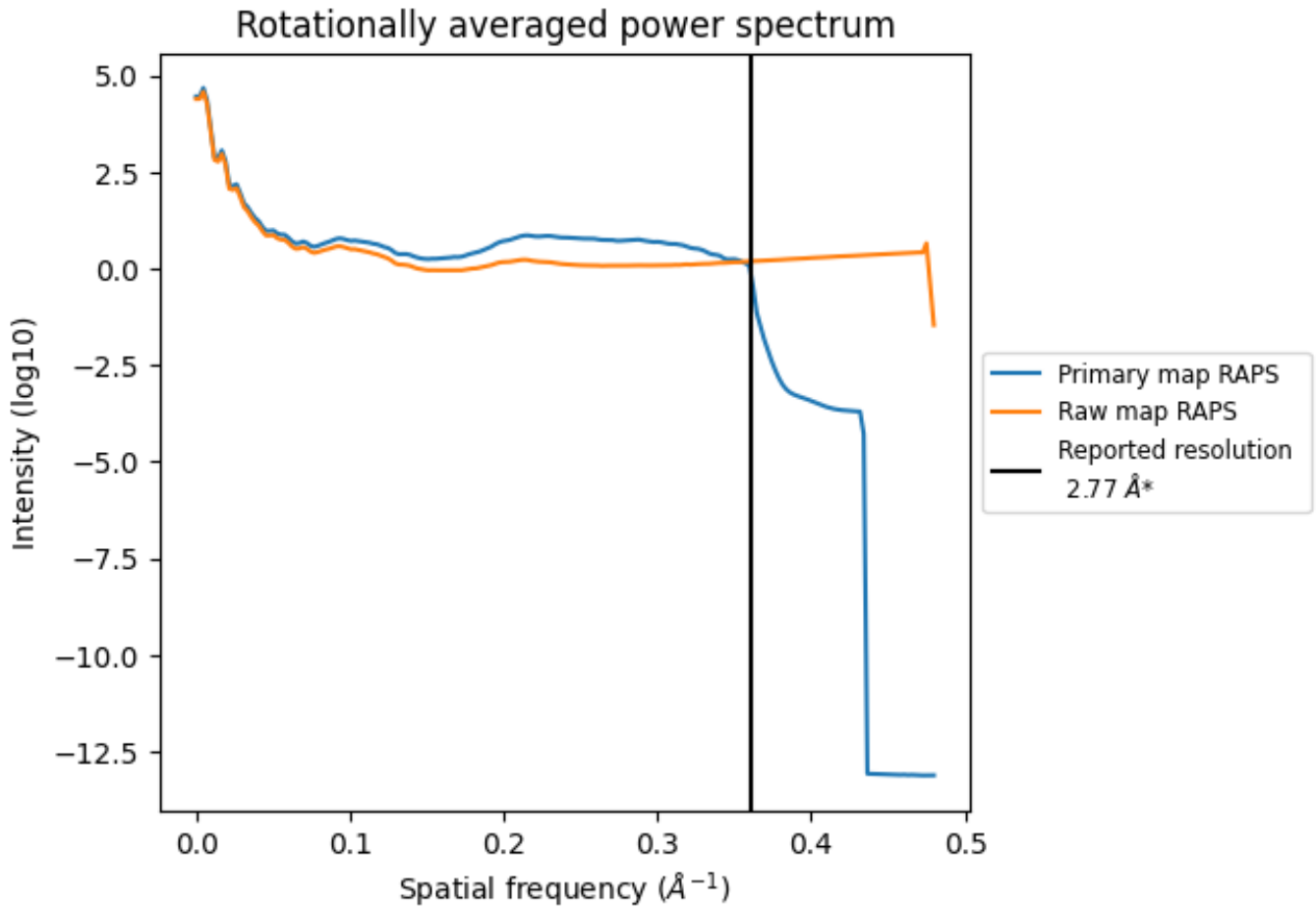
7.2 Volume estimate (i)



The volume at the recommended contour level is 364 nm^3; this corresponds to an approximate mass of 329 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)

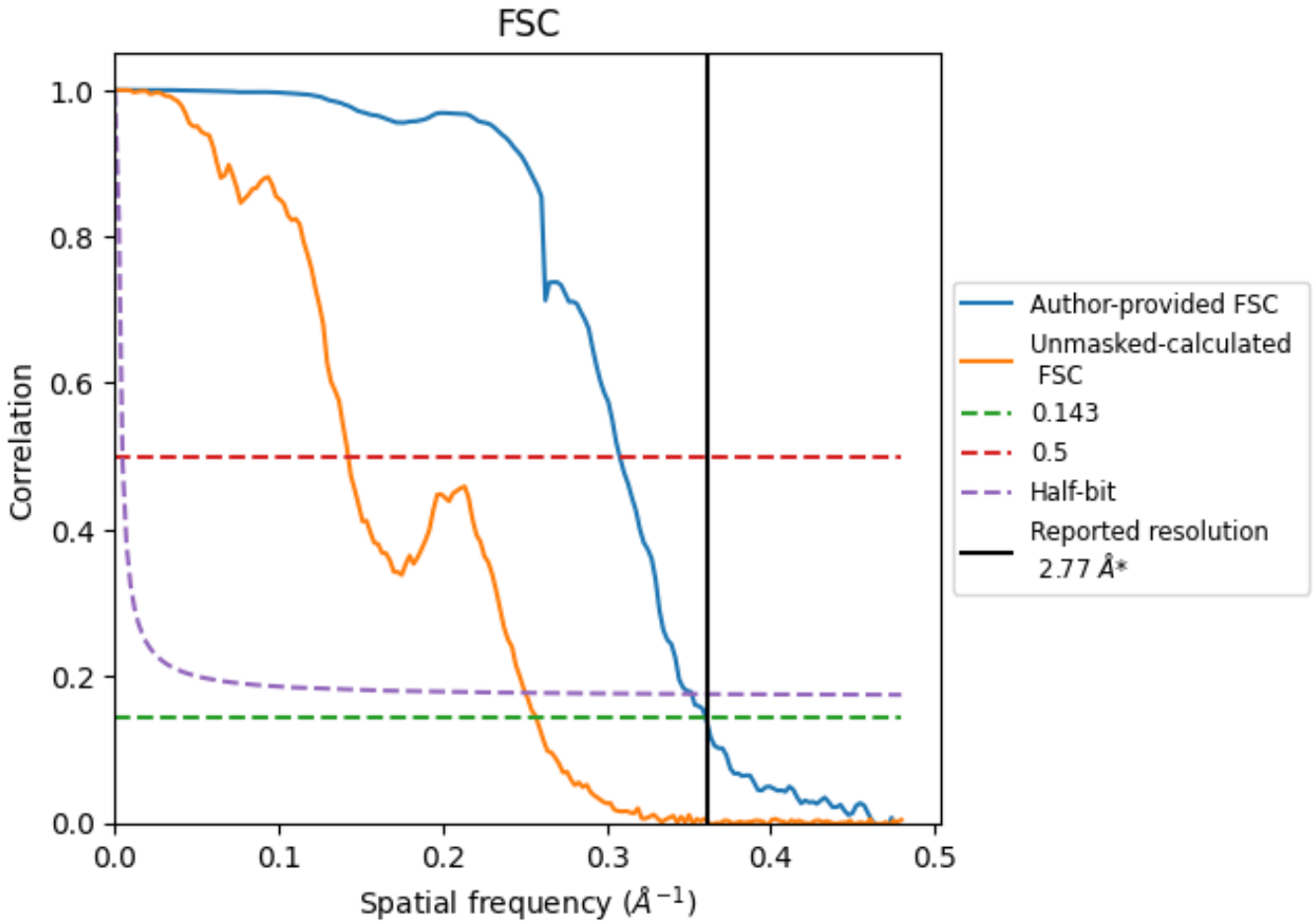


*Reported resolution corresponds to spatial frequency of 0.361 $Å^{-1}$

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 0.361 Å^{-1}

8.2 Resolution estimates (i)

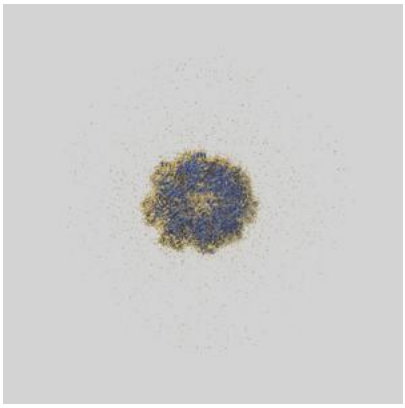
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.77	-	-
Author-provided FSC curve	2.77	3.25	2.84
Unmasked-calculated*	3.89	7.03	3.99

*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 3.89 differs from the reported value 2.77 by more than 10 %

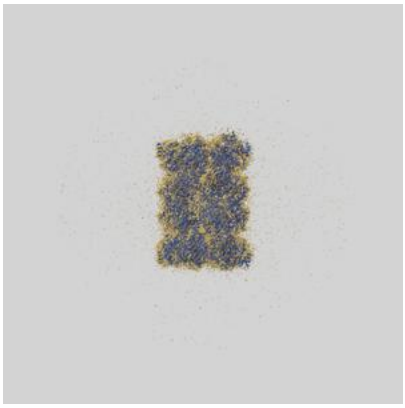
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-15365 and PDB model 8ADN. Per-residue inclusion information can be found in section 3 on page 7.

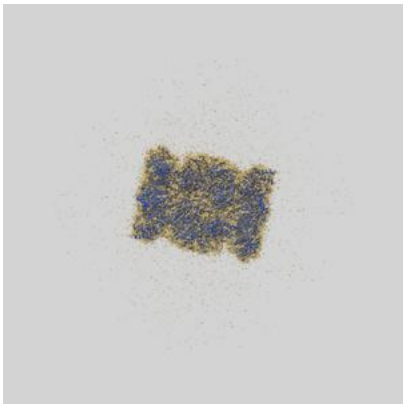
9.1 Map-model overlay



X



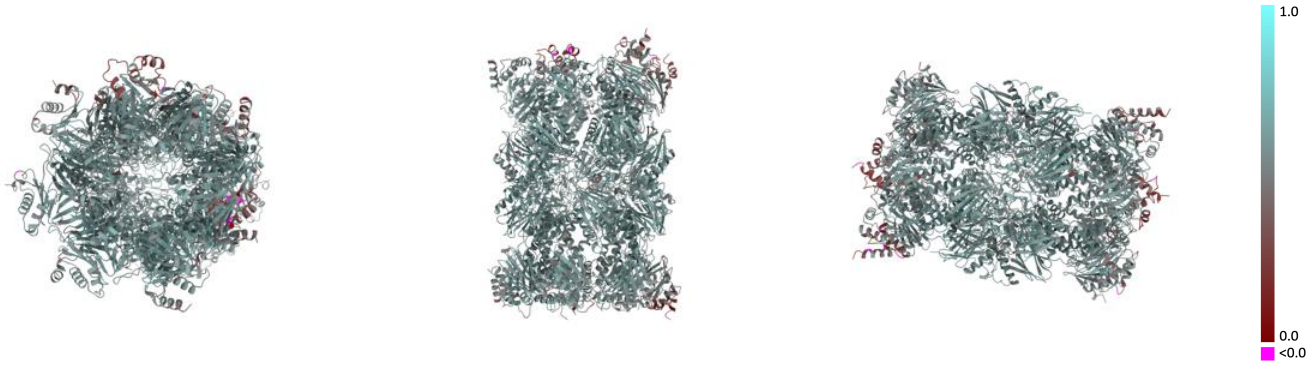
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.5 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.

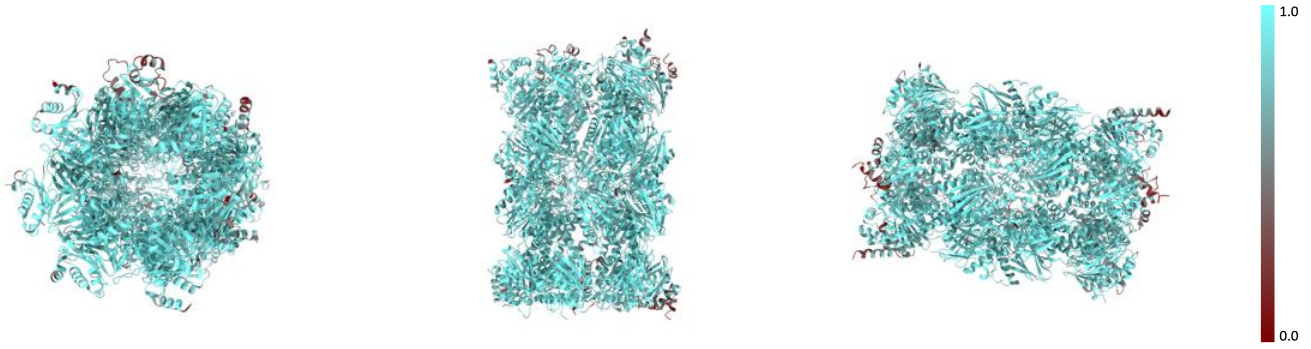
9.2 Q-score mapped to coordinate model (i)



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.

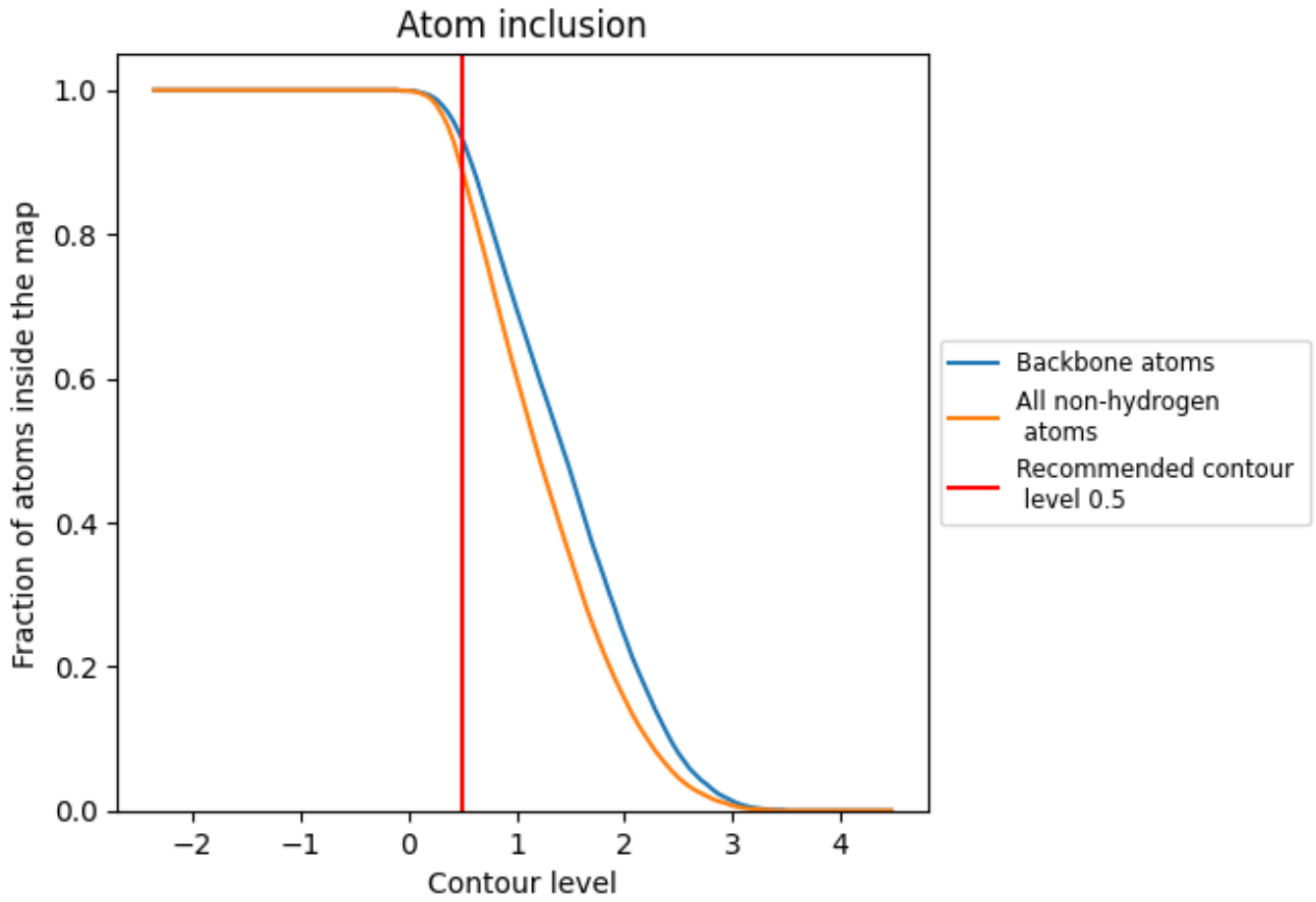
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.5).

9.4 Atom inclusion (i)



At the recommended contour level, 93% of all backbone atoms, 89% 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 (0.5) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8870	0.5660
3	0.7120	0.5340
4	0.7160	0.5310
A	0.8370	0.5280
B	0.8560	0.5340
C	0.7940	0.5180
D	0.8390	0.5430
E	0.8830	0.5510
F	0.9030	0.5700
G	0.8870	0.5670
H	0.9190	0.5890
I	0.9430	0.5970
J	0.9310	0.5950
K	0.9360	0.5910
L	0.9110	0.5820
M	0.9240	0.5880
N	0.9300	0.5920
O	0.8440	0.5320
P	0.8480	0.5350
Q	0.7930	0.5130
R	0.8390	0.5350
S	0.8820	0.5560
T	0.8960	0.5700
U	0.8950	0.5690
V	0.9170	0.5900
W	0.9440	0.5980
X	0.9310	0.5910
Y	0.9360	0.5930
Z	0.9090	0.5830
a	0.9210	0.5860
b	0.9380	0.5960