



Full wwPDB EM Validation Report ⓘ

Jan 1, 2025 – 11:30 PM EST

PDB ID : 9E8I
EMDB ID : EMD-47721
Title : Human proteasome in resting state conformation bound to TXNL1 in Forward conformation
Authors : Arkinson, C.; Gee, C.L.; Martin, A.
Deposited on : 2024-11-05
Resolution : 2.87 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:

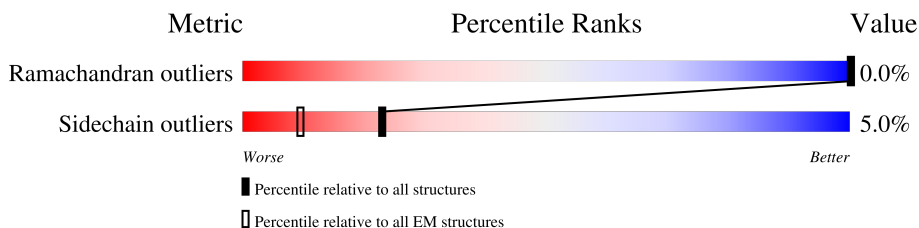
EMDB validation analysis : 0.0.1.dev113
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.40

1 Overall quality at a glance

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

The reported resolution of this entry is 2.87 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.



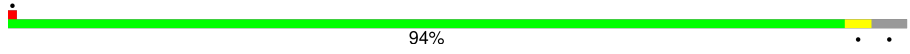
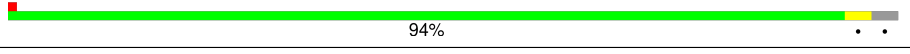


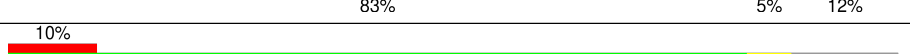

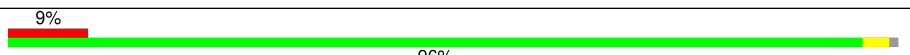
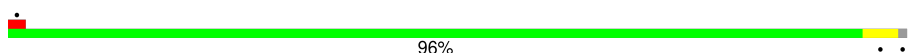

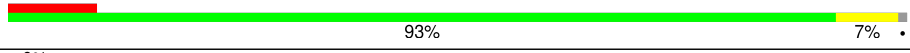


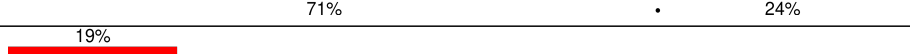
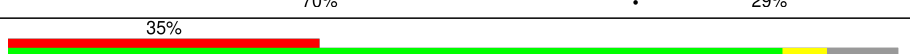
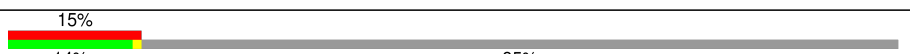



Metric	Whole archive (#Entries)	EM structures (#Entries)
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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	A	433	10% 87% 9%
2	B	440	10% 89% 8%
3	C	406	87% 10%
4	D	418	88% 9%
5	E	389	89% 9%
6	F	439	76% 20%
7	G	246	93% 5%
8	H	234	94%
9	I	261	87% 10%

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Mol	Chain	Length	Quality of chain
10	J	248	 94%
11	K	241	 94%
12	L	263	 84% 6% 10%
13	M	255	 89% 5% 6%
14	U	953	 83% 5% 12%
15	V	534	 10% 83% 5% 12%
16	W	456	 92%
17	X	422	 9% 96%
18	Y	389	 96%
19	Z	324	 85% 12%
20	a	376	 10% 93% 7%
21	b	377	 6% 48% 50%
22	c	424	 67% 32%
23	d	350	 5% 71% 24%
24	e	70	 19% 70% 29%
25	f	908	 35% 87% 5% 8%
26	g	601	 15% 14% 85%
27	u	289	 27% 48% 48%

2 Entry composition [i](#)

There are 31 unique types of molecules in this entry. The entry contains 71304 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 26S proteasome regulatory subunit 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	395	3107	1956	547	586	18	0	0

- Molecule 2 is a protein called 26S proteasome regulatory subunit 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	405	3192	2012	546	619	15	0	0

- Molecule 3 is a protein called 26S protease regulatory subunit 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	366	2895	1824	518	536	17	0	0

- Molecule 4 is a protein called 26S proteasome regulatory subunit 6B.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	D	380	3039	1923	524	579	13	0	0

- Molecule 5 is a protein called 26S protease regulatory subunit 10B.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	E	354	2797	1761	495	525	16	0	0

- Molecule 6 is a protein called 26S proteasome regulatory subunit 6A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	F	351	2743	1733	472	522	16	0	0

- Molecule 7 is a protein called Proteasome subunit alpha type-6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	G	242	Total	C	N	O	S	0	0
			1886	1197	315	361	13		

- Molecule 8 is a protein called Proteasome subunit alpha type-2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	H	230	Total	C	N	O	S	0	0
			1793	1147	302	338	6		

- Molecule 9 is a protein called Proteasome subunit alpha type-4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	I	236	Total	C	N	O	S	1	0
			1841	1161	316	354	10		

- Molecule 10 is a protein called Proteasome subunit alpha type-7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	J	239	Total	C	N	O	S	0	0
			1887	1183	334	365	5		

- Molecule 11 is a protein called Proteasome subunit alpha type-5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	K	234	Total	C	N	O	S	0	0
			1790	1125	295	359	11		

- Molecule 12 is a protein called Proteasome subunit alpha type-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	L	237	Total	C	N	O	S	0	0
			1864	1167	335	351	11		

- Molecule 13 is a protein called Proteasome subunit alpha type-3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	M	240	Total	C	N	O	S	0	0
			1881	1193	321	356	11		

- Molecule 14 is a protein called 26S proteasome non-ATPase regulatory subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
14	U	838	6515	4135	1106	1230	44	0	0

- Molecule 15 is a protein called 26S proteasome non-ATPase regulatory subunit 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
15	V	470	3841	2438	685	704	14	0	0

- Molecule 16 is a protein called 26S proteasome non-ATPase regulatory subunit 12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
16	W	438	3570	2261	609	677	23	0	0

- Molecule 17 is a protein called 26S proteasome non-ATPase regulatory subunit 11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
17	X	419	3317	2105	564	636	12	0	0

- Molecule 18 is a protein called 26S proteasome non-ATPase regulatory subunit 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
18	Y	386	3179	2025	542	595	17	0	0

- Molecule 19 is a protein called 26S proteasome non-ATPase regulatory subunit 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
19	Z	286	2285	1461	392	427	5	0	0

- Molecule 20 is a protein called 26S proteasome non-ATPase regulatory subunit 13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
20	a	373	2995	1911	510	559	15	0	0

- Molecule 21 is a protein called 26S proteasome non-ATPase regulatory subunit 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
21	b	189	1446	903	259	277	7	0	0

- Molecule 22 is a protein called 26S proteasome non-ATPase regulatory subunit 14.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
22	c	290	2282	1447	392	424	19	0	0

There are 114 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
c	311	LEU	-	expression tag	UNP O00487
c	312	ILE	-	expression tag	UNP O00487
c	313	ASN	-	expression tag	UNP O00487
c	314	HIS	-	expression tag	UNP O00487
c	315	HIS	-	expression tag	UNP O00487
c	316	HIS	-	expression tag	UNP O00487
c	317	HIS	-	expression tag	UNP O00487
c	318	HIS	-	expression tag	UNP O00487
c	319	HIS	-	expression tag	UNP O00487
c	320	ASP	-	expression tag	UNP O00487
c	321	TYR	-	expression tag	UNP O00487
c	322	ASP	-	expression tag	UNP O00487
c	323	ILE	-	expression tag	UNP O00487
c	324	PRO	-	expression tag	UNP O00487
c	325	THR	-	expression tag	UNP O00487
c	326	THR	-	expression tag	UNP O00487
c	327	ALA	-	expression tag	UNP O00487
c	328	SER	-	expression tag	UNP O00487
c	329	GLU	-	expression tag	UNP O00487
c	330	ASN	-	expression tag	UNP O00487
c	331	LEU	-	expression tag	UNP O00487
c	332	TYR	-	expression tag	UNP O00487
c	333	PHE	-	expression tag	UNP O00487
c	334	GLN	-	expression tag	UNP O00487
c	335	GLY	-	expression tag	UNP O00487
c	336	GLU	-	expression tag	UNP O00487
c	337	LEU	-	expression tag	UNP O00487
c	338	GLY	-	expression tag	UNP O00487
c	339	MET	-	expression tag	UNP O00487
c	340	ARG	-	expression tag	UNP O00487
c	341	GLY	-	expression tag	UNP O00487

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Chain	Residue	Modelled	Actual	Comment	Reference
c	342	SER	-	expression tag	UNP O00487
c	343	ALA	-	expression tag	UNP O00487
c	344	GLY	-	expression tag	UNP O00487
c	345	LYS	-	expression tag	UNP O00487
c	346	ALA	-	expression tag	UNP O00487
c	347	GLY	-	expression tag	UNP O00487
c	348	GLU	-	expression tag	UNP O00487
c	349	GLY	-	expression tag	UNP O00487
c	350	GLU	-	expression tag	UNP O00487
c	351	ILE	-	expression tag	UNP O00487
c	352	PRO	-	expression tag	UNP O00487
c	353	ALA	-	expression tag	UNP O00487
c	354	PRO	-	expression tag	UNP O00487
c	355	LEU	-	expression tag	UNP O00487
c	356	ALA	-	expression tag	UNP O00487
c	357	GLY	-	expression tag	UNP O00487
c	358	THR	-	expression tag	UNP O00487
c	359	VAL	-	expression tag	UNP O00487
c	360	SER	-	expression tag	UNP O00487
c	361	LYS	-	expression tag	UNP O00487
c	362	ILE	-	expression tag	UNP O00487
c	363	LEU	-	expression tag	UNP O00487
c	364	VAL	-	expression tag	UNP O00487
c	365	LYS	-	expression tag	UNP O00487
c	366	GLU	-	expression tag	UNP O00487
c	367	GLY	-	expression tag	UNP O00487
c	368	ASP	-	expression tag	UNP O00487
c	369	THR	-	expression tag	UNP O00487
c	370	VAL	-	expression tag	UNP O00487
c	371	LYS	-	expression tag	UNP O00487
c	372	ALA	-	expression tag	UNP O00487
c	373	GLY	-	expression tag	UNP O00487
c	374	GLN	-	expression tag	UNP O00487
c	375	THR	-	expression tag	UNP O00487
c	376	VAL	-	expression tag	UNP O00487
c	377	LEU	-	expression tag	UNP O00487
c	378	VAL	-	expression tag	UNP O00487
c	379	LEU	-	expression tag	UNP O00487
c	380	GLU	-	expression tag	UNP O00487
c	381	ALA	-	expression tag	UNP O00487
c	382	MET	-	expression tag	UNP O00487
c	383	LYS	-	expression tag	UNP O00487

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Chain	Residue	Modelled	Actual	Comment	Reference
c	384	MET	-	expression tag	UNP O00487
c	385	GLU	-	expression tag	UNP O00487
c	386	THR	-	expression tag	UNP O00487
c	387	GLU	-	expression tag	UNP O00487
c	388	ILE	-	expression tag	UNP O00487
c	389	ASN	-	expression tag	UNP O00487
c	390	ALA	-	expression tag	UNP O00487
c	391	PRO	-	expression tag	UNP O00487
c	392	THR	-	expression tag	UNP O00487
c	393	ASP	-	expression tag	UNP O00487
c	394	GLY	-	expression tag	UNP O00487
c	395	LYS	-	expression tag	UNP O00487
c	396	VAL	-	expression tag	UNP O00487
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c	398	LYS	-	expression tag	UNP O00487
c	399	VAL	-	expression tag	UNP O00487
c	400	LEU	-	expression tag	UNP O00487
c	401	VAL	-	expression tag	UNP O00487
c	402	LYS	-	expression tag	UNP O00487
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c	414	ILE	-	expression tag	UNP O00487
c	415	LYS	-	expression tag	UNP O00487
c	416	ILE	-	expression tag	UNP O00487
c	417	GLY	-	expression tag	UNP O00487
c	418	VAL	-	expression tag	UNP O00487
c	419	HIS	-	expression tag	UNP O00487
c	420	HIS	-	expression tag	UNP O00487
c	421	HIS	-	expression tag	UNP O00487
c	422	HIS	-	expression tag	UNP O00487
c	423	HIS	-	expression tag	UNP O00487
c	424	HIS	-	expression tag	UNP O00487

- Molecule 23 is a protein called 26S proteasome non-ATPase regulatory subunit 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
23	d	265	2166	1402	355	400	9	0	0

- Molecule 24 is a protein called 26S proteasome complex subunit SEM1.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
24	e	50	425	260	65	100	0	0

- Molecule 25 is a protein called 26S proteasome non-ATPase regulatory subunit 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
25	f	831	6433	4071	1089	1228	45	0	0

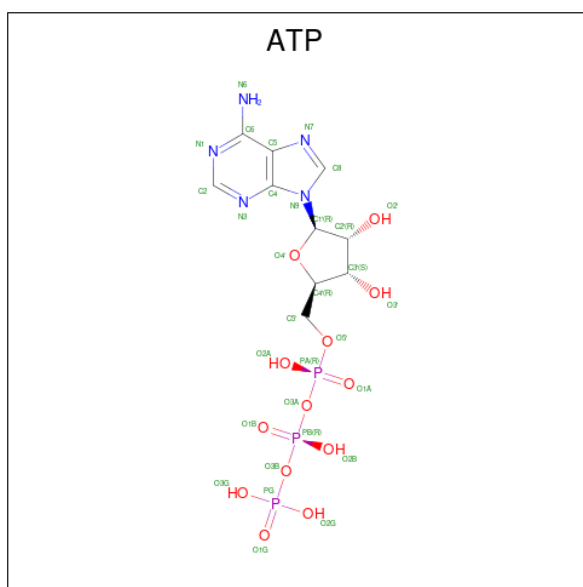
- Molecule 26 is a protein called Isoform 2 of NEDD8 ultimate buster 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
26	g	91	736	466	134	135	1	0	0

- Molecule 27 is a protein called Thioredoxin-like protein 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
27	u	151	1210	767	192	243	8	0	0

- Molecule 28 is ADENOSINE-5'-TRIPHOSPHATE (three-letter code: ATP) (formula: C₁₀H₁₆N₅O₁₃P₃) (labeled as "Ligand of Interest" by depositor).

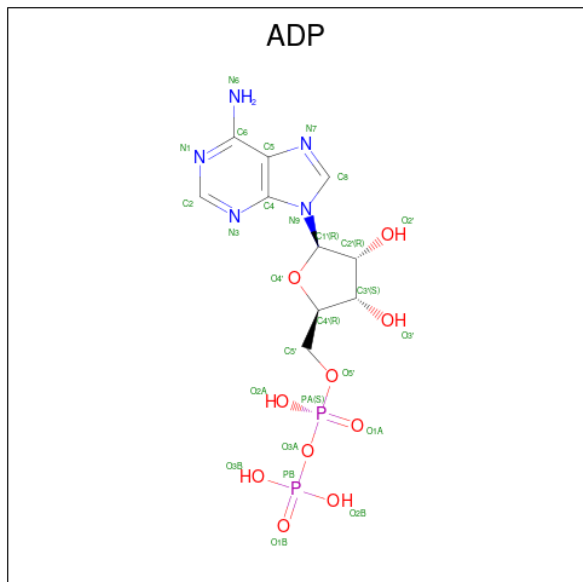


Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
28	A	1	Total	C	N	O	P	0
			31	10	5	13	3	
28	B	1	Total	C	N	O	P	0
			31	10	5	13	3	
28	D	1	Total	C	N	O	P	0
			31	10	5	13	3	
28	E	1	Total	C	N	O	P	0
			31	10	5	13	3	
28	F	1	Total	C	N	O	P	0
			31	10	5	13	3	

- Molecule 29 is MAGNESIUM ION (three-letter code: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
			Total	Mg	
29	A	1	Total	Mg	0
			1	1	
29	B	1	Total	Mg	0
			1	1	
29	C	1	Total	Mg	0
			1	1	
29	D	1	Total	Mg	0
			1	1	
29	E	1	Total	Mg	0
			1	1	
29	F	1	Total	Mg	0
			1	1	

- Molecule 30 is ADENOSINE-5'-DIPHOSPHATE (three-letter code: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
30	C	1	27	10	5	10	2	0

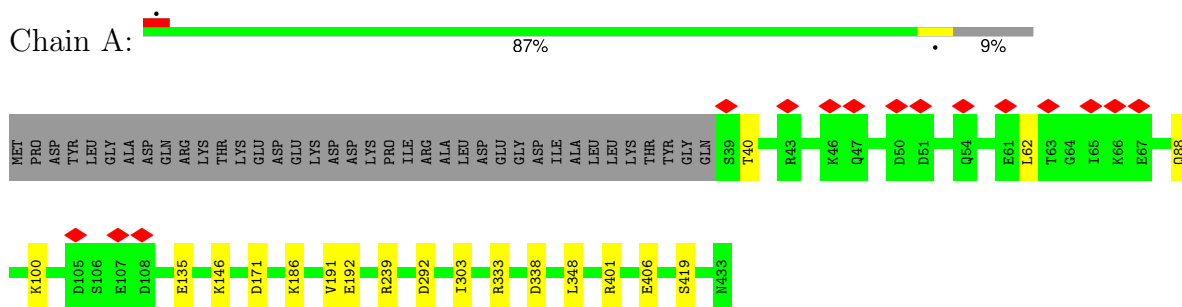
- Molecule 31 is ZINC ION (three-letter code: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
			Total	Zn	
31	c	1	1	1	0

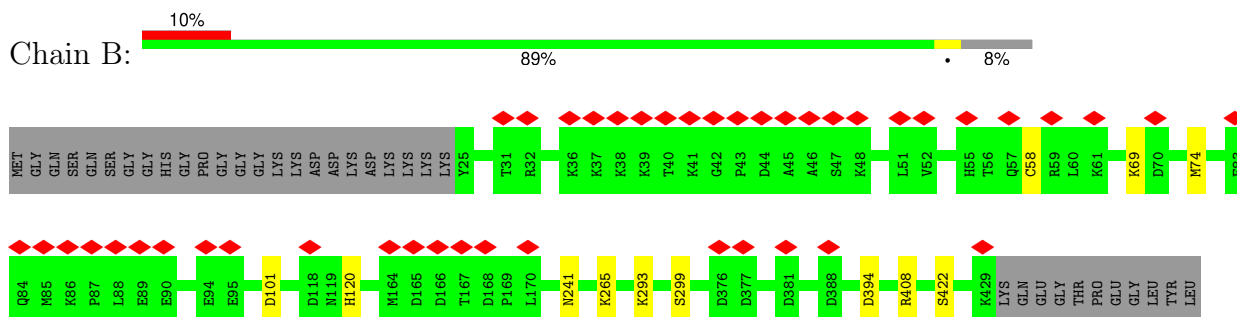
3 Residue-property plots [i](#)

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

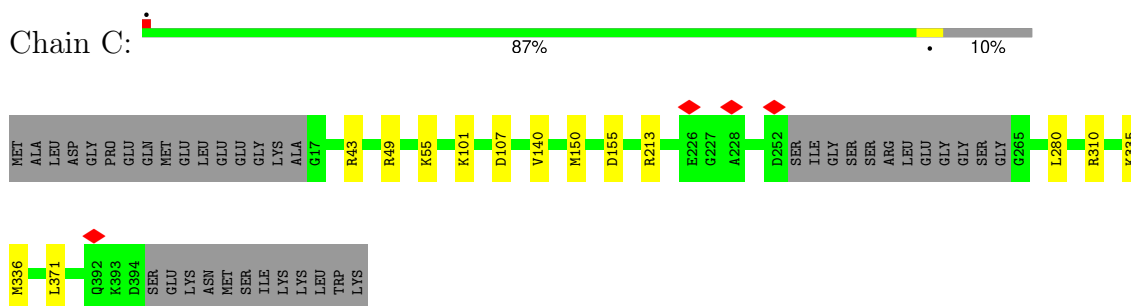
- Molecule 1: 26S proteasome regulatory subunit 7



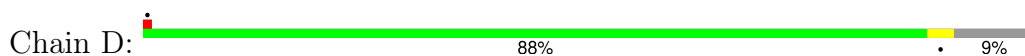
- Molecule 2: 26S proteasome regulatory subunit 4

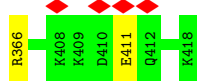
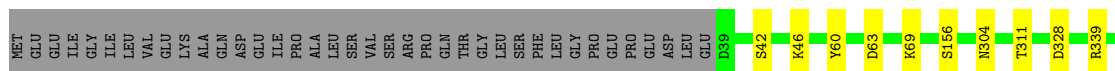


- Molecule 3: 26S protease regulatory subunit 8

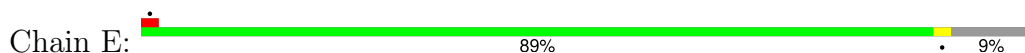


- Molecule 4: 26S proteasome regulatory subunit 6B

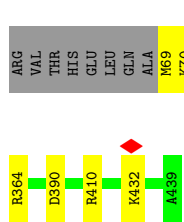
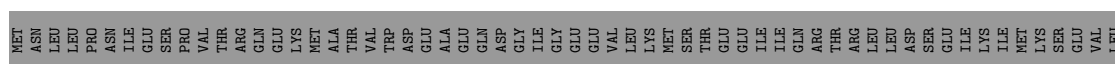
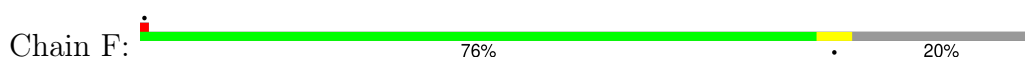




• Molecule 5: 26S protease regulatory subunit 10B



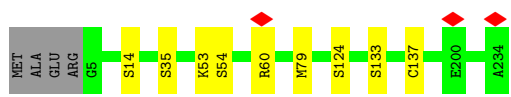
• Molecule 6: 26S proteasome regulatory subunit 6A



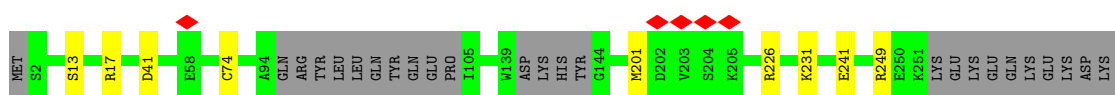
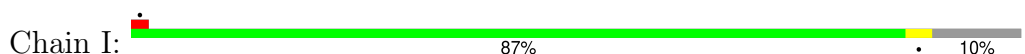
• Molecule 7: Proteasome subunit alpha type-6



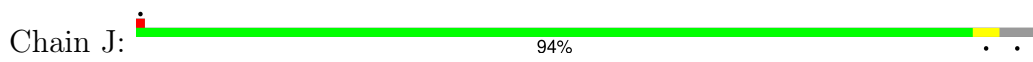
• Molecule 8: Proteasome subunit alpha type-2



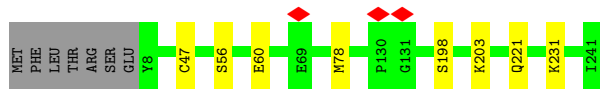
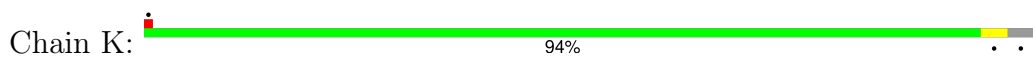
• Molecule 9: Proteasome subunit alpha type-4



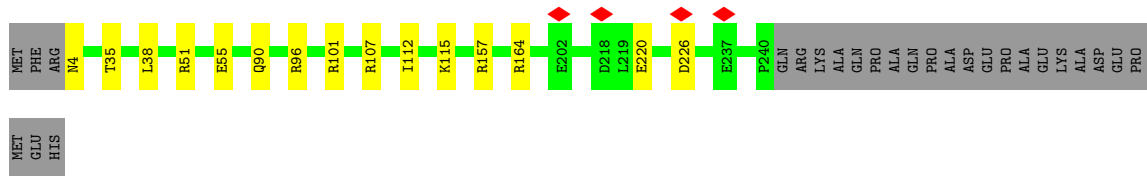
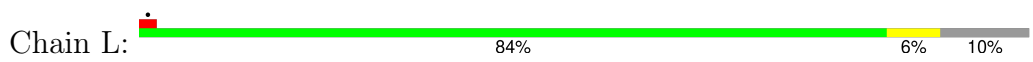
• Molecule 10: Proteasome subunit alpha type-7



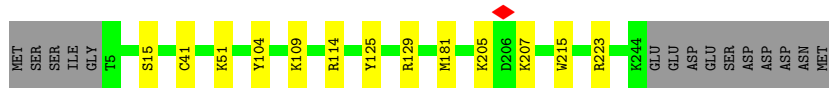
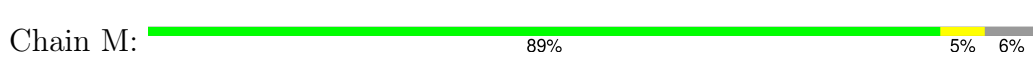
• Molecule 11: Proteasome subunit alpha type-5



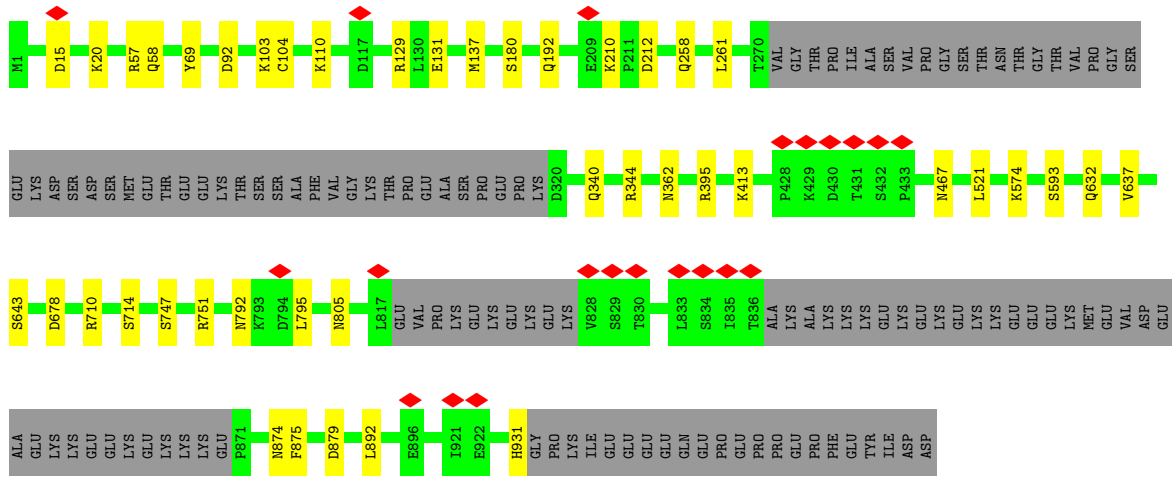
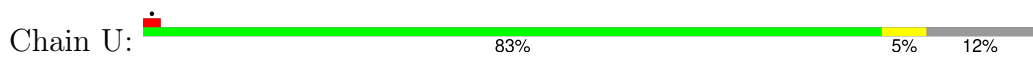
• Molecule 12: Proteasome subunit alpha type-1



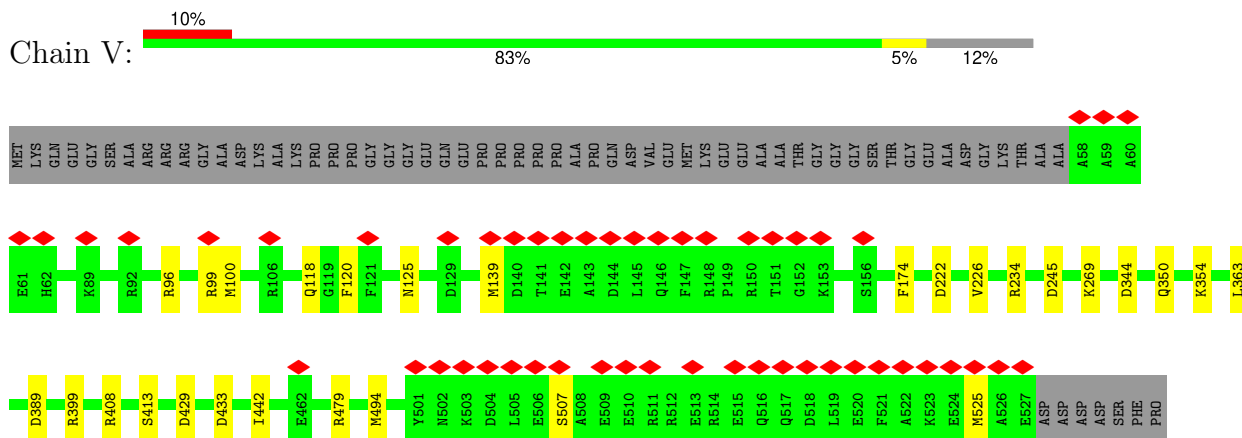
• Molecule 13: Proteasome subunit alpha type-3



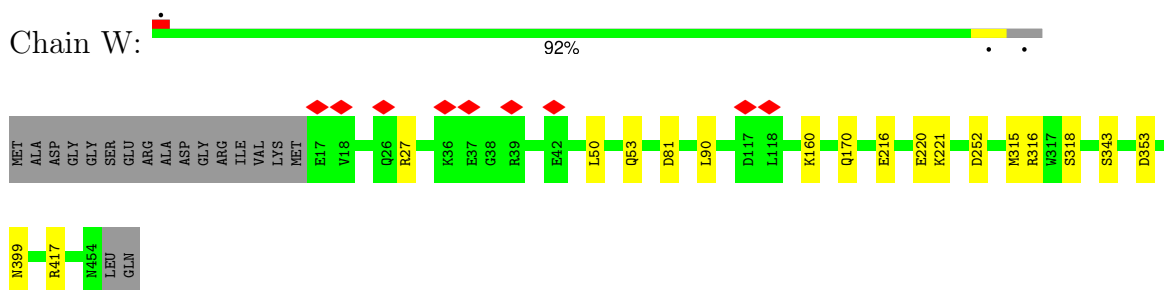
• Molecule 14: 26S proteasome non-ATPase regulatory subunit 1



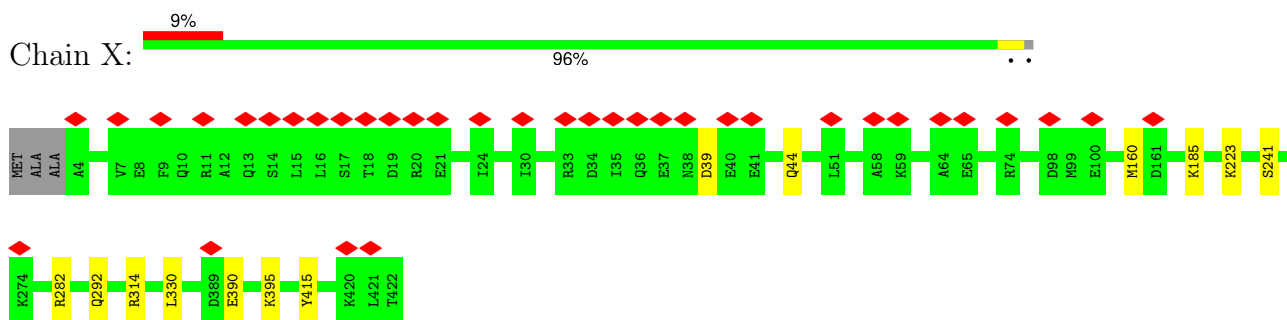
- Molecule 15: 26S proteasome non-ATPase regulatory subunit 3



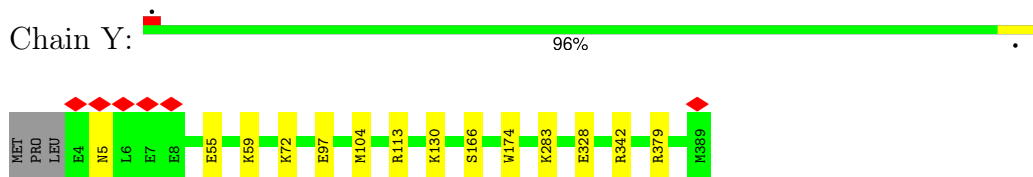
- Molecule 16: 26S proteasome non-ATPase regulatory subunit 12



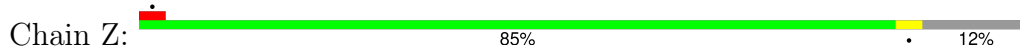
- Molecule 17: 26S proteasome non-ATPase regulatory subunit 11

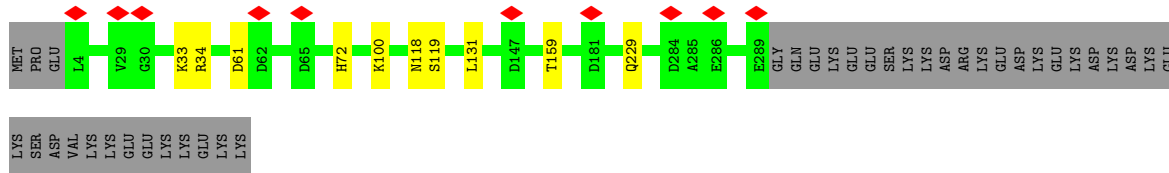


- Molecule 18: 26S proteasome non-ATPase regulatory subunit 6

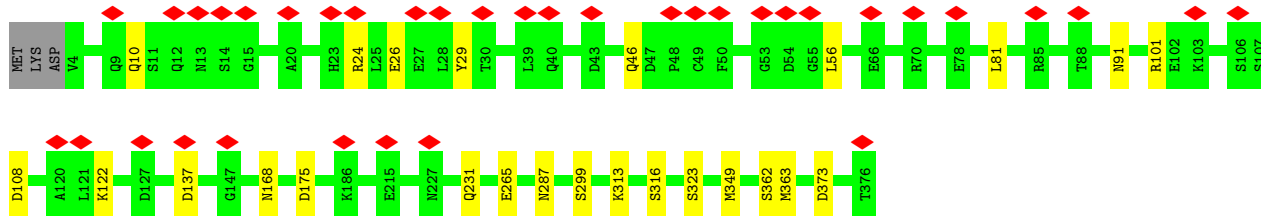
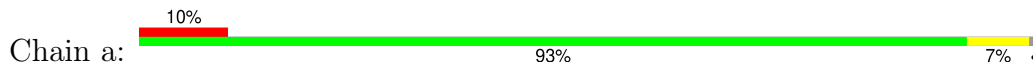


- Molecule 19: 26S proteasome non-ATPase regulatory subunit 7

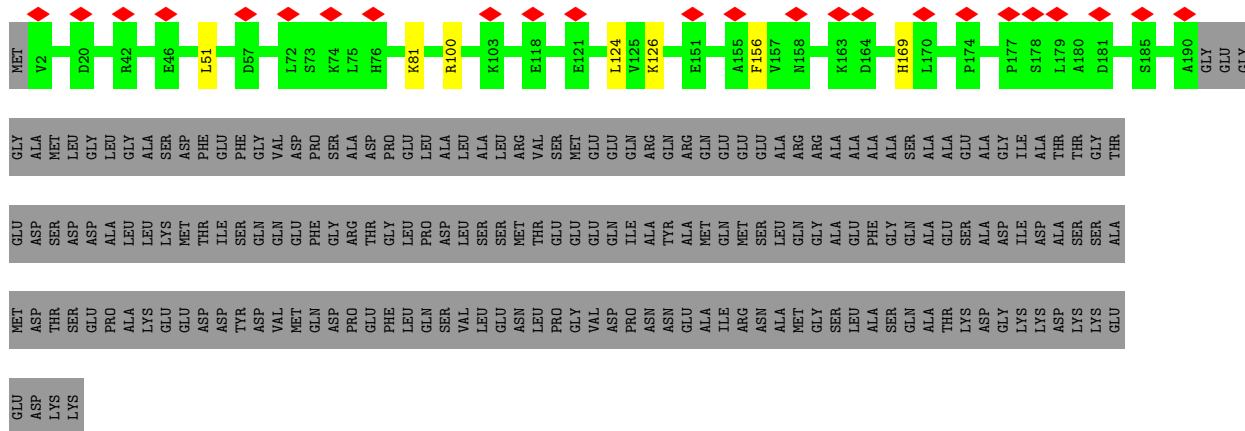




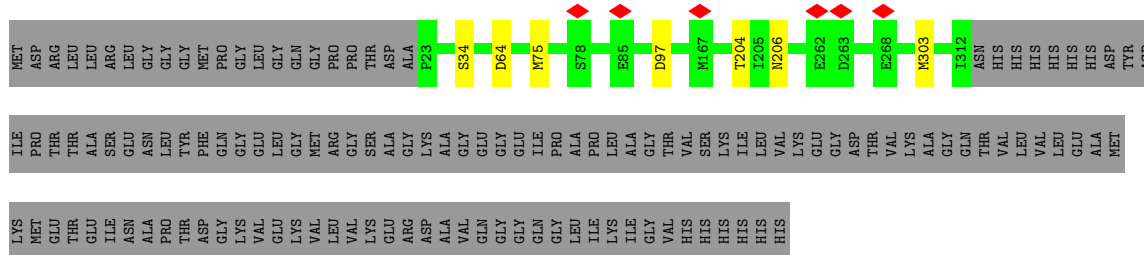
• Molecule 20: 26S proteasome non-ATPase regulatory subunit 13



• Molecule 21: 26S proteasome non-ATPase regulatory subunit 4

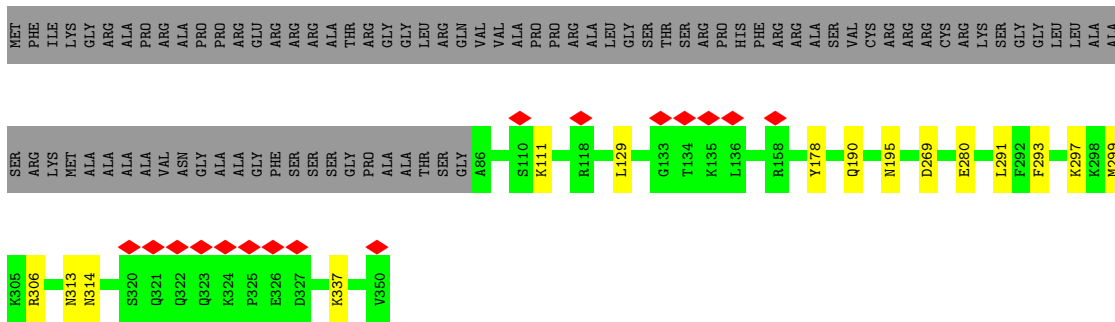


• Molecule 22: 26S proteasome non-ATPase regulatory subunit 14

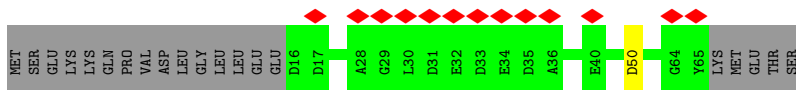


• Molecule 23: 26S proteasome non-ATPase regulatory subunit 8

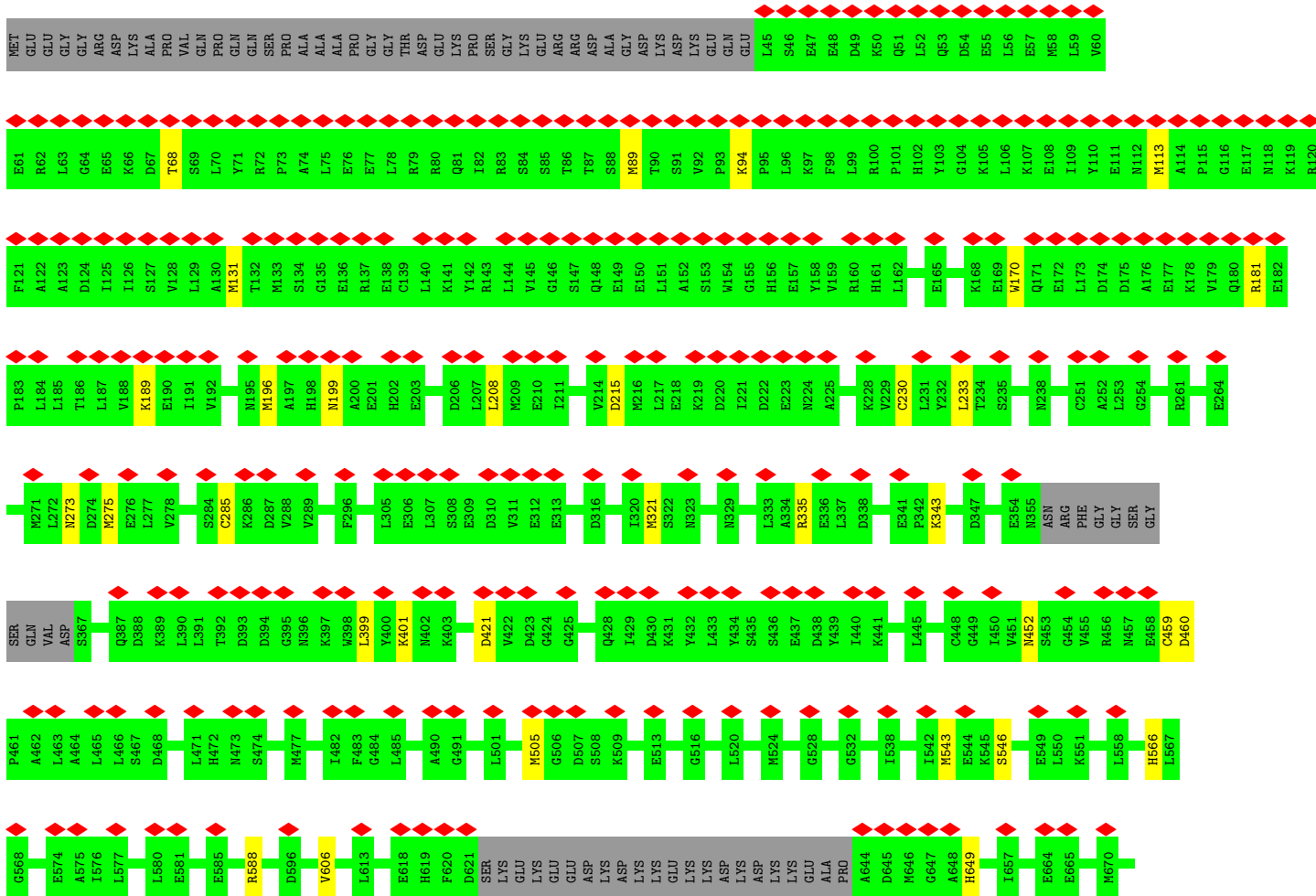
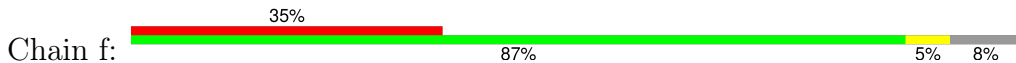


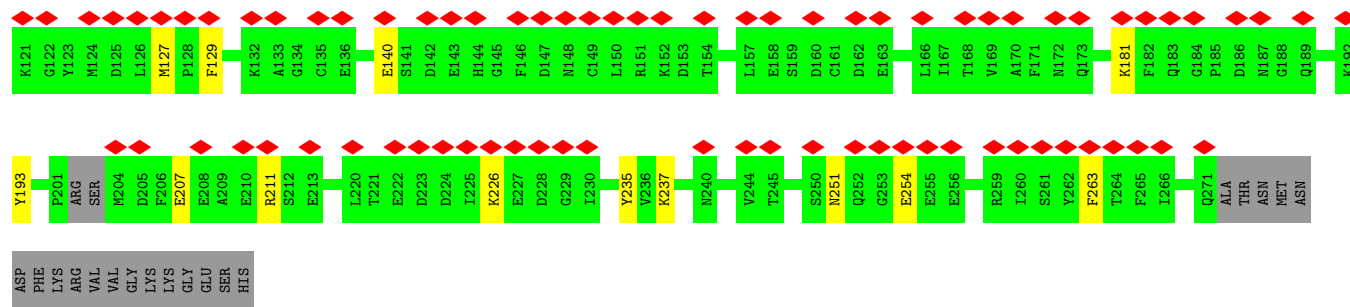


• Molecule 24: 26S proteasome complex subunit SEM1



• Molecule 25: 26S proteasome non-ATPase regulatory subunit 2





4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	62431	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 ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	1700	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	1.025	Depositor
Minimum map value	-0.387	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.038	Depositor
Recommended contour level	0.15	Depositor
Map size (\AA)	356.32, 356.32, 356.32	wwPDB
Map dimensions	340, 340, 340	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.048, 1.048, 1.048	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.26	0/3159	0.50	0/4265
2	B	0.26	0/3241	0.49	0/4372
3	C	0.26	0/2933	0.49	0/3946
4	D	0.28	0/3089	0.48	0/4168
5	E	0.26	0/2842	0.49	0/3832
6	F	0.27	0/2781	0.48	0/3748
7	G	0.28	0/1920	0.46	0/2595
8	H	0.28	0/1832	0.48	0/2481
9	I	0.26	0/1867	0.49	0/2509
10	J	0.27	0/1913	0.50	0/2581
11	K	0.26	0/1818	0.46	0/2455
12	L	0.26	0/1899	0.53	0/2567
13	M	0.27	0/1916	0.49	0/2580
14	U	0.27	0/6630	0.48	0/8977
15	V	0.26	0/3913	0.50	0/5277
16	W	0.25	0/3618	0.47	0/4868
17	X	0.25	0/3363	0.46	0/4534
18	Y	0.26	0/3237	0.48	0/4360
19	Z	0.27	0/2328	0.46	0/3156
20	a	0.26	0/3053	0.49	1/4133 (0.0%)
21	b	0.25	0/1466	0.50	0/1986
22	c	0.26	0/2325	0.45	0/3143
23	d	0.26	0/2212	0.46	0/2988
24	e	0.25	0/437	0.43	0/595
25	f	0.25	0/6542	0.52	1/8856 (0.0%)
26	g	0.25	0/743	0.57	0/994
27	u	0.26	0/1234	0.51	0/1668
All	All	0.26	0/72311	0.49	2/97634 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
20	a	56	LEU	CA-CB-CG	5.20	127.27	115.30
25	f	460	ASP	CB-CG-OD2	5.19	122.97	118.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

Due to software issues we are unable to calculate clashes - this section is therefore empty.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	393/433 (91%)	376 (96%)	17 (4%)	0	100	100
2	B	403/440 (92%)	390 (97%)	13 (3%)	0	100	100
3	C	362/406 (89%)	355 (98%)	7 (2%)	0	100	100
4	D	378/418 (90%)	371 (98%)	7 (2%)	0	100	100
5	E	352/389 (90%)	347 (99%)	5 (1%)	0	100	100
6	F	347/439 (79%)	338 (97%)	9 (3%)	0	100	100
7	G	240/246 (98%)	234 (98%)	6 (2%)	0	100	100
8	H	228/234 (97%)	227 (100%)	1 (0%)	0	100	100
9	I	231/261 (88%)	226 (98%)	5 (2%)	0	100	100
10	J	237/248 (96%)	235 (99%)	2 (1%)	0	100	100
11	K	232/241 (96%)	226 (97%)	6 (3%)	0	100	100
12	L	235/263 (89%)	231 (98%)	4 (2%)	0	100	100
13	M	238/255 (93%)	233 (98%)	5 (2%)	0	100	100
14	U	830/953 (87%)	814 (98%)	16 (2%)	0	100	100
15	V	468/534 (88%)	462 (99%)	6 (1%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
16	W	436/456 (96%)	426 (98%)	10 (2%)	0	100	100
17	X	417/422 (99%)	405 (97%)	12 (3%)	0	100	100
18	Y	384/389 (99%)	383 (100%)	1 (0%)	0	100	100
19	Z	284/324 (88%)	276 (97%)	8 (3%)	0	100	100
20	a	371/376 (99%)	365 (98%)	6 (2%)	0	100	100
21	b	187/377 (50%)	178 (95%)	9 (5%)	0	100	100
22	c	288/424 (68%)	285 (99%)	3 (1%)	0	100	100
23	d	263/350 (75%)	245 (93%)	18 (7%)	0	100	100
24	e	48/70 (69%)	43 (90%)	5 (10%)	0	100	100
25	f	825/908 (91%)	801 (97%)	24 (3%)	0	100	100
26	g	89/601 (15%)	84 (94%)	4 (4%)	1 (1%)	12	34
27	u	147/289 (51%)	137 (93%)	10 (7%)	0	100	100
All	All	8913/10746 (83%)	8693 (98%)	219 (2%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
26	g	160	GLN

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	340/372 (91%)	321 (94%)	19 (6%)	17	44
2	B	359/385 (93%)	347 (97%)	12 (3%)	33	65
3	C	320/352 (91%)	306 (96%)	14 (4%)	24	54
4	D	333/366 (91%)	321 (96%)	12 (4%)	30	62
5	E	309/341 (91%)	302 (98%)	7 (2%)	45	75
6	F	299/379 (79%)	282 (94%)	17 (6%)	17	43

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
7	G	206/210 (98%)	193 (94%)	13 (6%)	15	39
8	H	188/191 (98%)	179 (95%)	9 (5%)	21	51
9	I	197/221 (89%)	188 (95%)	9 (5%)	23	52
10	J	203/211 (96%)	196 (97%)	7 (3%)	32	64
11	K	196/203 (97%)	188 (96%)	8 (4%)	26	57
12	L	203/224 (91%)	188 (93%)	15 (7%)	11	31
13	M	198/212 (93%)	185 (93%)	13 (7%)	14	36
14	U	712/816 (87%)	669 (94%)	43 (6%)	16	41
15	V	415/460 (90%)	387 (93%)	28 (7%)	13	36
16	W	403/416 (97%)	385 (96%)	18 (4%)	23	53
17	X	361/362 (100%)	348 (96%)	13 (4%)	30	62
18	Y	341/344 (99%)	327 (96%)	14 (4%)	26	57
19	Z	258/295 (88%)	248 (96%)	10 (4%)	27	59
20	a	333/336 (99%)	309 (93%)	24 (7%)	12	32
21	b	166/312 (53%)	159 (96%)	7 (4%)	25	56
22	c	255/359 (71%)	248 (97%)	7 (3%)	40	71
23	d	235/294 (80%)	220 (94%)	15 (6%)	14	38
24	e	44/63 (70%)	43 (98%)	1 (2%)	45	75
25	f	701/763 (92%)	661 (94%)	40 (6%)	17	43
26	g	81/527 (15%)	76 (94%)	5 (6%)	15	39
27	u	138/253 (54%)	125 (91%)	13 (9%)	7	21
All	All	7794/9267 (84%)	7401 (95%)	393 (5%)	23	49

All (393) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	40	THR
1	A	62	LEU
1	A	88	GLN
1	A	100	LYS
1	A	135	GLU
1	A	146	LYS
1	A	171	ASP
1	A	186	LYS
1	A	191	VAL

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Mol	Chain	Res	Type
1	A	192	GLU
1	A	239	ARG
1	A	292	ASP
1	A	303	ILE
1	A	333	ARG
1	A	338	ASP
1	A	348	LEU
1	A	401	ARG
1	A	406	GLU
1	A	419	SER
2	B	58	CYS
2	B	69	LYS
2	B	74	MET
2	B	101	ASP
2	B	120	HIS
2	B	241	ASN
2	B	265	LYS
2	B	293	LYS
2	B	299	SER
2	B	394	ASP
2	B	408	ARG
2	B	422	SER
3	C	43	ARG
3	C	49	ARG
3	C	55	LYS
3	C	101	LYS
3	C	107	ASP
3	C	140	VAL
3	C	150	MET
3	C	155	ASP
3	C	213	ARG
3	C	280	LEU
3	C	310	ARG
3	C	335	LYS
3	C	336	MET
3	C	371	LEU
4	D	42	SER
4	D	46	LYS
4	D	60	TYR
4	D	63	ASP
4	D	69	LYS
4	D	156	SER

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Mol	Chain	Res	Type
4	D	304	ASN
4	D	311	THR
4	D	328	ASP
4	D	339	ARG
4	D	366	ARG
4	D	411	GLU
5	E	102	MET
5	E	109	ARG
5	E	195	PHE
5	E	197	LYS
5	E	202	SER
5	E	251	ARG
5	E	281	ARG
6	F	69	MET
6	F	70	LYS
6	F	81	LYS
6	F	98	ASP
6	F	159	LEU
6	F	179	GLU
6	F	180	ARG
6	F	197	GLU
6	F	263	ASP
6	F	276	LYS
6	F	281	SER
6	F	289	ASP
6	F	356	MET
6	F	364	ARG
6	F	390	ASP
6	F	410	ARG
6	F	432	LYS
7	G	54	LYS
7	G	58	ASP
7	G	67	THR
7	G	78	CYS
7	G	92	GLN
7	G	112	ASP
7	G	117	ARG
7	G	131	MET
7	G	154	CYS
7	G	186	LYS
7	G	187	PHE
7	G	213	SER

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Mol	Chain	Res	Type
7	G	223	GLU
8	H	14	SER
8	H	35	SER
8	H	53	LYS
8	H	54	SER
8	H	60	ARG
8	H	79	MET
8	H	124	SER
8	H	133	SER
8	H	137	CYS
9	I	13	SER
9	I	17	ARG
9	I	41	ASP
9	I	74	CYS
9	I	201	MET
9	I	226	ARG
9	I	231	LYS
9	I	241	GLU
9	I	249	ARG
10	J	4	ASP
10	J	60	ARG
10	J	79	ASP
10	J	113	SER
10	J	124	ARG
10	J	143	ARG
10	J	227	LYS
11	K	47	CYS
11	K	56	SER
11	K	60	GLU
11	K	78	MET
11	K	198	SER
11	K	203	LYS
11	K	221	GLN
11	K	231	LYS
12	L	4	ASN
12	L	35	THR
12	L	38	LEU
12	L	51	ARG
12	L	55	GLU
12	L	90	GLN
12	L	96	ARG
12	L	101	ARG

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Mol	Chain	Res	Type
12	L	107	ARG
12	L	112	ILE
12	L	115	LYS
12	L	157	ARG
12	L	164	ARG
12	L	220	GLU
12	L	226	ASP
13	M	15	SER
13	M	41	CYS
13	M	51	LYS
13	M	104	TYR
13	M	109	LYS
13	M	114	ARG
13	M	125	TYR
13	M	129	ARG
13	M	181	MET
13	M	205	LYS
13	M	207	LYS
13	M	215	TRP
13	M	223	ARG
14	U	15	ASP
14	U	20	LYS
14	U	57	ARG
14	U	58	GLN
14	U	69	TYR
14	U	92	ASP
14	U	103	LYS
14	U	104	CYS
14	U	110	LYS
14	U	129	ARG
14	U	131	GLU
14	U	137	MET
14	U	180	SER
14	U	192	GLN
14	U	210	LYS
14	U	212	ASP
14	U	258	GLN
14	U	261	LEU
14	U	340	GLN
14	U	344	ARG
14	U	362	ASN
14	U	395	ARG

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Mol	Chain	Res	Type
14	U	413	LYS
14	U	467	ASN
14	U	521	LEU
14	U	574	LYS
14	U	593	SER
14	U	632	GLN
14	U	637	VAL
14	U	643	SER
14	U	678	ASP
14	U	710	ARG
14	U	714	SER
14	U	747	SER
14	U	751	ARG
14	U	792	ASN
14	U	795	LEU
14	U	805	ASN
14	U	874	ASN
14	U	875	PHE
14	U	879	ASP
14	U	892	LEU
14	U	931	HIS
15	V	96	ARG
15	V	99	ARG
15	V	100	MET
15	V	118	GLN
15	V	120	PHE
15	V	125	ASN
15	V	139	MET
15	V	174	PHE
15	V	222	ASP
15	V	226	VAL
15	V	234	ARG
15	V	245	ASP
15	V	269	LYS
15	V	344	ASP
15	V	350	GLN
15	V	354	LYS
15	V	363	LEU
15	V	389	ASP
15	V	399	ARG
15	V	408	ARG
15	V	413	SER

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Mol	Chain	Res	Type
15	V	429	ASP
15	V	433	ASP
15	V	442	ILE
15	V	479	ARG
15	V	494	MET
15	V	507	SER
15	V	525	MET
16	W	27	ARG
16	W	50	LEU
16	W	53	GLN
16	W	81	ASP
16	W	90	LEU
16	W	160	LYS
16	W	170	GLN
16	W	216	GLU
16	W	220	GLU
16	W	221	LYS
16	W	252	ASP
16	W	315	MET
16	W	316	ARG
16	W	318	SER
16	W	343	SER
16	W	353	ASP
16	W	399	ASN
16	W	417	ARG
17	X	39	ASP
17	X	44	GLN
17	X	160	MET
17	X	185	LYS
17	X	223	LYS
17	X	241	SER
17	X	282	ARG
17	X	292	GLN
17	X	314	ARG
17	X	330	LEU
17	X	390	GLU
17	X	395	LYS
17	X	415	TYR
18	Y	5	ASN
18	Y	55	GLU
18	Y	59	LYS
18	Y	72	LYS

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Mol	Chain	Res	Type
18	Y	97	GLU
18	Y	104	MET
18	Y	113	ARG
18	Y	130	LYS
18	Y	166	SER
18	Y	174	TRP
18	Y	283	LYS
18	Y	328	GLU
18	Y	342	ARG
18	Y	379	ARG
19	Z	33	LYS
19	Z	34	ARG
19	Z	61	ASP
19	Z	72	HIS
19	Z	100	LYS
19	Z	118	ASN
19	Z	119	SER
19	Z	131	LEU
19	Z	159	THR
19	Z	229	GLN
20	a	10	GLN
20	a	24	ARG
20	a	26	GLU
20	a	29	TYR
20	a	46	GLN
20	a	81	LEU
20	a	91	ASN
20	a	101	ARG
20	a	108	ASP
20	a	122	LYS
20	a	137	ASP
20	a	168	ASN
20	a	175	ASP
20	a	231	GLN
20	a	265	GLU
20	a	287	ASN
20	a	299	SER
20	a	313	LYS
20	a	316	SER
20	a	323	SER
20	a	349	MET
20	a	362	SER

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Mol	Chain	Res	Type
20	a	363	MET
20	a	373	ASP
21	b	51	LEU
21	b	81	LYS
21	b	100	ARG
21	b	124	LEU
21	b	126	LYS
21	b	156	PHE
21	b	169	HIS
22	c	34	SER
22	c	64	ASP
22	c	75	MET
22	c	97	ASP
22	c	204	THR
22	c	206	ASN
22	c	303	MET
23	d	111	LYS
23	d	129	LEU
23	d	178	TYR
23	d	190	GLN
23	d	195	ASN
23	d	269	ASP
23	d	280	GLU
23	d	291	LEU
23	d	293	PHE
23	d	297	LYS
23	d	299	MET
23	d	306	ARG
23	d	313	ASN
23	d	314	ASN
23	d	337	LYS
24	e	50	ASP
25	f	68	THR
25	f	89	MET
25	f	94	LYS
25	f	113	MET
25	f	131	MET
25	f	170	TRP
25	f	181	ARG
25	f	189	LYS
25	f	196	MET
25	f	199	ASN

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Mol	Chain	Res	Type
25	f	208	LEU
25	f	215	ASP
25	f	230	CYS
25	f	233	LEU
25	f	273	ASN
25	f	275	MET
25	f	285	CYS
25	f	321	MET
25	f	335	ARG
25	f	343	LYS
25	f	399	LEU
25	f	401	LYS
25	f	421	ASP
25	f	452	ASN
25	f	459	CYS
25	f	505	MET
25	f	543	MET
25	f	546	SER
25	f	566	HIS
25	f	588	ARG
25	f	606	VAL
25	f	649	HIS
25	f	696	LEU
25	f	737	ASN
25	f	788	MET
25	f	816	TYR
25	f	821	LEU
25	f	828	ARG
25	f	902	LYS
25	f	905	ASN
26	g	115	LYS
26	g	133	LYS
26	g	134	LYS
26	g	154	MET
26	g	167	LYS
27	u	127	MET
27	u	129	PHE
27	u	140	GLU
27	u	181	LYS
27	u	193	TYR
27	u	207	GLU
27	u	211	ARG

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Mol	Chain	Res	Type
27	u	226	LYS
27	u	235	TYR
27	u	237	LYS
27	u	251	ASN
27	u	254	GLU
27	u	263	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (23) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	183	GLN
1	A	247	GLN
2	B	366	GLN
4	D	65	GLN
4	D	221	HIS
4	D	222	HIS
11	K	41	GLN
11	K	164	GLN
14	U	421	GLN
14	U	450	HIS
15	V	299	GLN
15	V	365	GLN
16	W	416	GLN
17	X	283	GLN
18	Y	184	GLN
19	Z	32	GLN
19	Z	193	ASN
19	Z	224	HIS
20	a	12	GLN
23	d	322	GLN
25	f	199	ASN
26	g	168	ASN
27	u	144	HIS

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 13 ligands modelled in this entry, 7 are monoatomic - leaving 6 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
28	ATP	A	501	29	28,33,33	0.71	0	34,52,52	0.63	1 (2%)
30	ADP	C	501	-	24,29,29	0.85	0	29,45,45	1.17	2 (6%)
28	ATP	E	501	29	28,33,33	0.67	0	34,52,52	0.66	1 (2%)
28	ATP	D	501	29	28,33,33	0.66	0	34,52,52	0.73	1 (2%)
28	ATP	F	501	29	28,33,33	0.67	0	34,52,52	0.65	1 (2%)
28	ATP	B	501	29	28,33,33	0.65	0	34,52,52	0.61	1 (2%)

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
28	ATP	A	501	29	-	2/18/38/38	0/3/3/3
30	ADP	C	501	-	-	4/12/32/32	0/3/3/3
28	ATP	E	501	29	-	7/18/38/38	0/3/3/3
28	ATP	D	501	29	-	5/18/38/38	0/3/3/3
28	ATP	F	501	29	-	4/18/38/38	0/3/3/3
28	ATP	B	501	29	-	4/18/38/38	0/3/3/3

There are no bond length outliers.

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
30	C	501	ADP	N3-C2-N1	-3.57	123.83	128.67
30	C	501	ADP	C4-C5-N7	-2.39	106.81	109.34
28	F	501	ATP	C5-C6-N6	2.32	123.84	120.31
28	D	501	ATP	C5-C6-N6	2.29	123.80	120.31
28	B	501	ATP	C5-C6-N6	2.29	123.80	120.31
28	A	501	ATP	C5-C6-N6	2.28	123.78	120.31
28	E	501	ATP	C5-C6-N6	2.28	123.78	120.31

There are no chirality outliers.

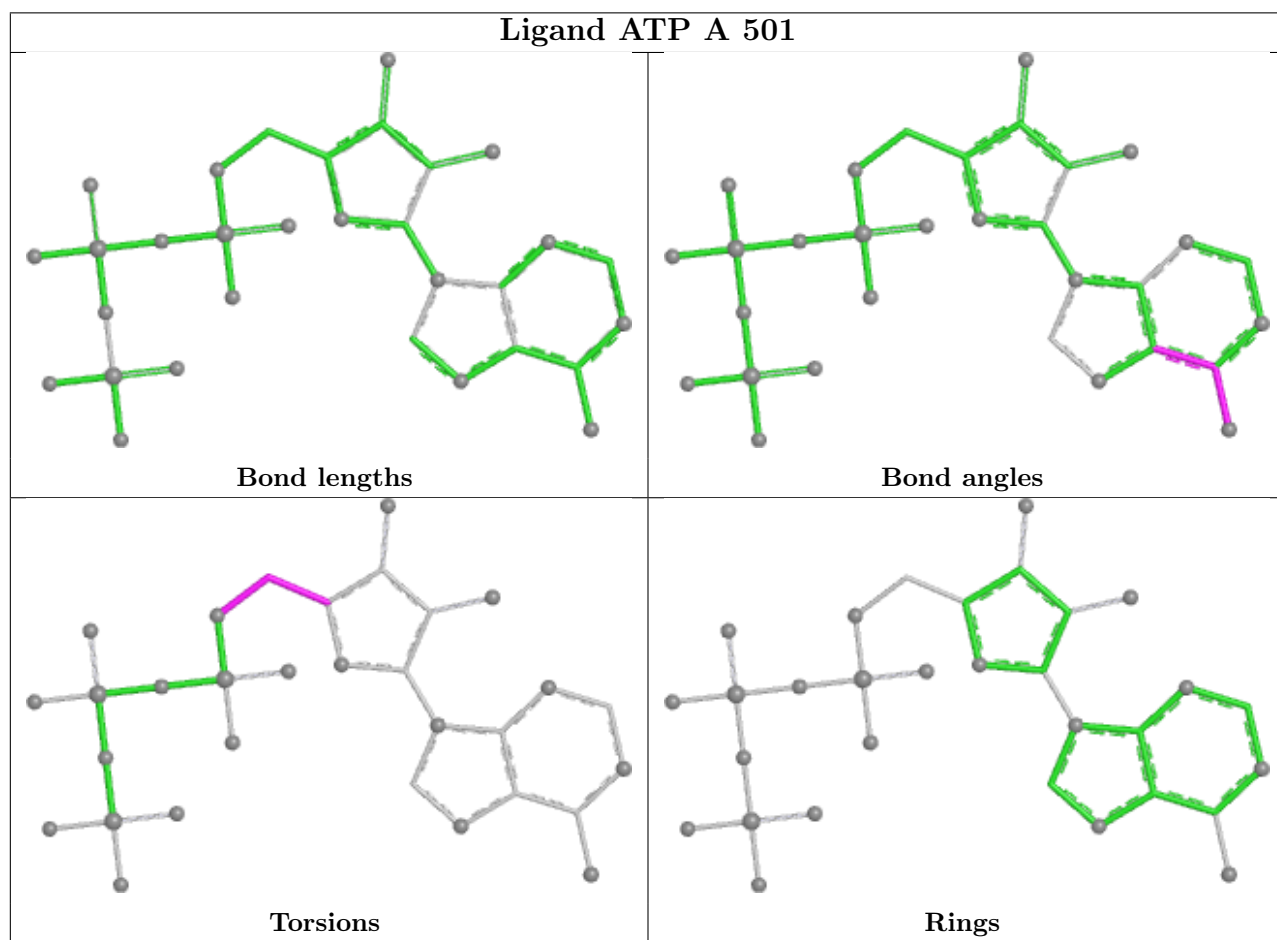
All (26) torsion outliers are listed below:

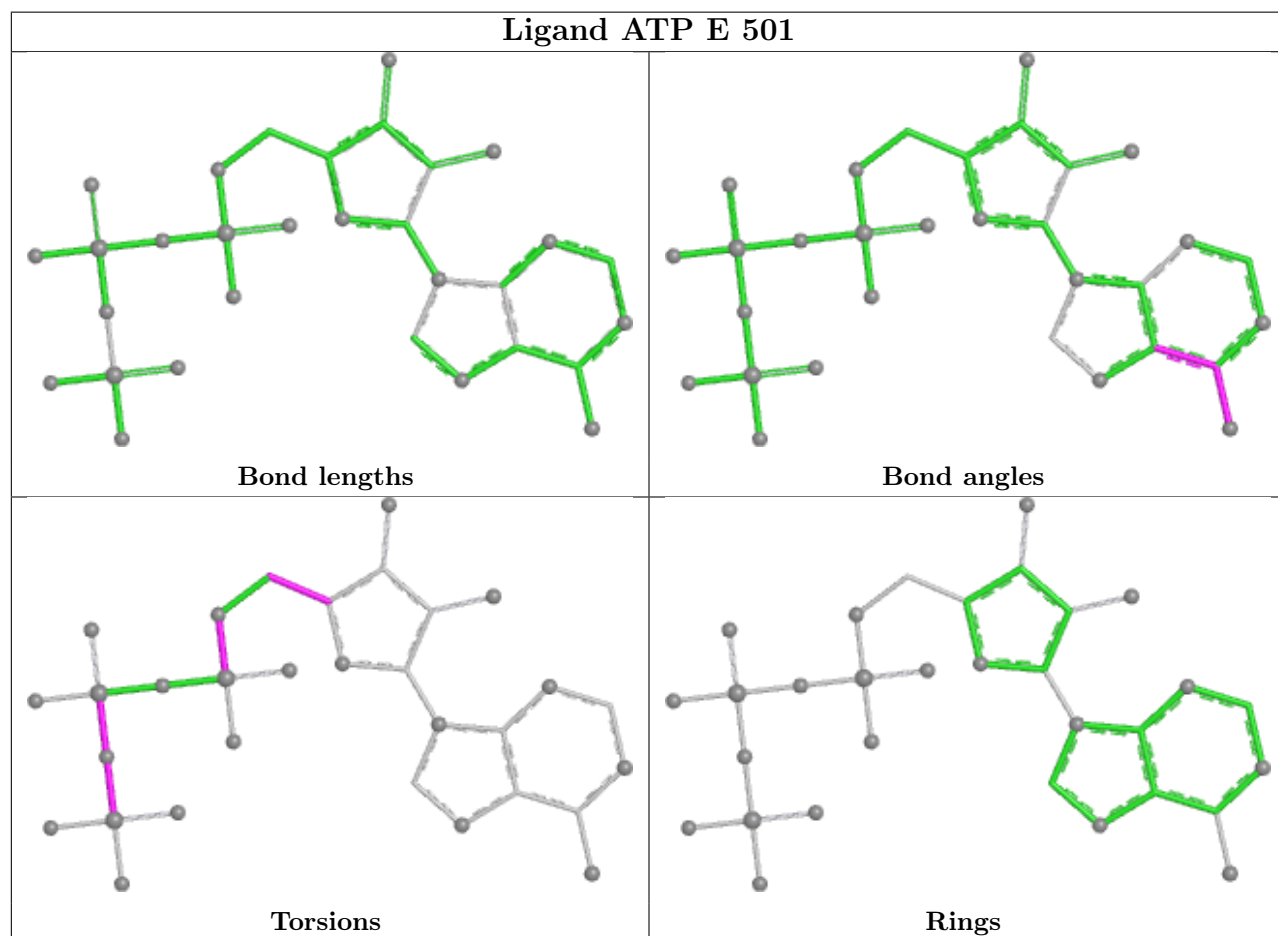
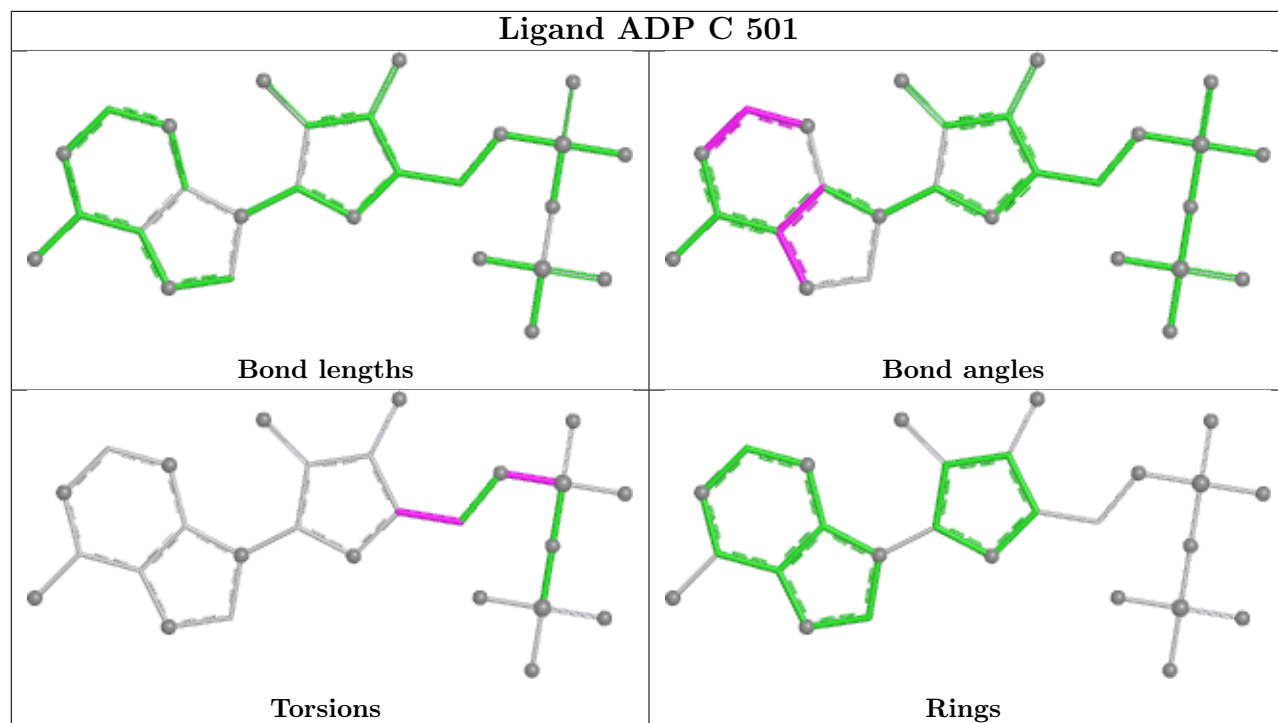
Mol	Chain	Res	Type	Atoms
28	B	501	ATP	PB-O3B-PG-O2G
28	B	501	ATP	C5'-O5'-PA-O1A
28	B	501	ATP	C5'-O5'-PA-O2A
28	B	501	ATP	C5'-O5'-PA-O3A
28	E	501	ATP	PB-O3B-PG-O2G
28	E	501	ATP	C5'-O5'-PA-O2A
28	F	501	ATP	C5'-O5'-PA-O1A
28	F	501	ATP	C5'-O5'-PA-O3A
30	C	501	ADP	C5'-O5'-PA-O1A
30	C	501	ADP	C5'-O5'-PA-O2A
30	C	501	ADP	C5'-O5'-PA-O3A
28	D	501	ATP	O4'-C4'-C5'-O5'
28	D	501	ATP	C3'-C4'-C5'-O5'
28	F	501	ATP	O4'-C4'-C5'-O5'
28	F	501	ATP	C3'-C4'-C5'-O5'
28	A	501	ATP	O4'-C4'-C5'-O5'
28	D	501	ATP	C5'-O5'-PA-O1A
28	E	501	ATP	C5'-O5'-PA-O1A
28	E	501	ATP	O4'-C4'-C5'-O5'
28	E	501	ATP	PG-O3B-PB-O2B
28	D	501	ATP	PA-O3A-PB-O1B
28	E	501	ATP	PB-O3B-PG-O1G
30	C	501	ADP	O4'-C4'-C5'-O5'
28	A	501	ATP	C4'-C5'-O5'-PA
28	E	501	ATP	C3'-C4'-C5'-O5'
28	D	501	ATP	PA-O3A-PB-O2B

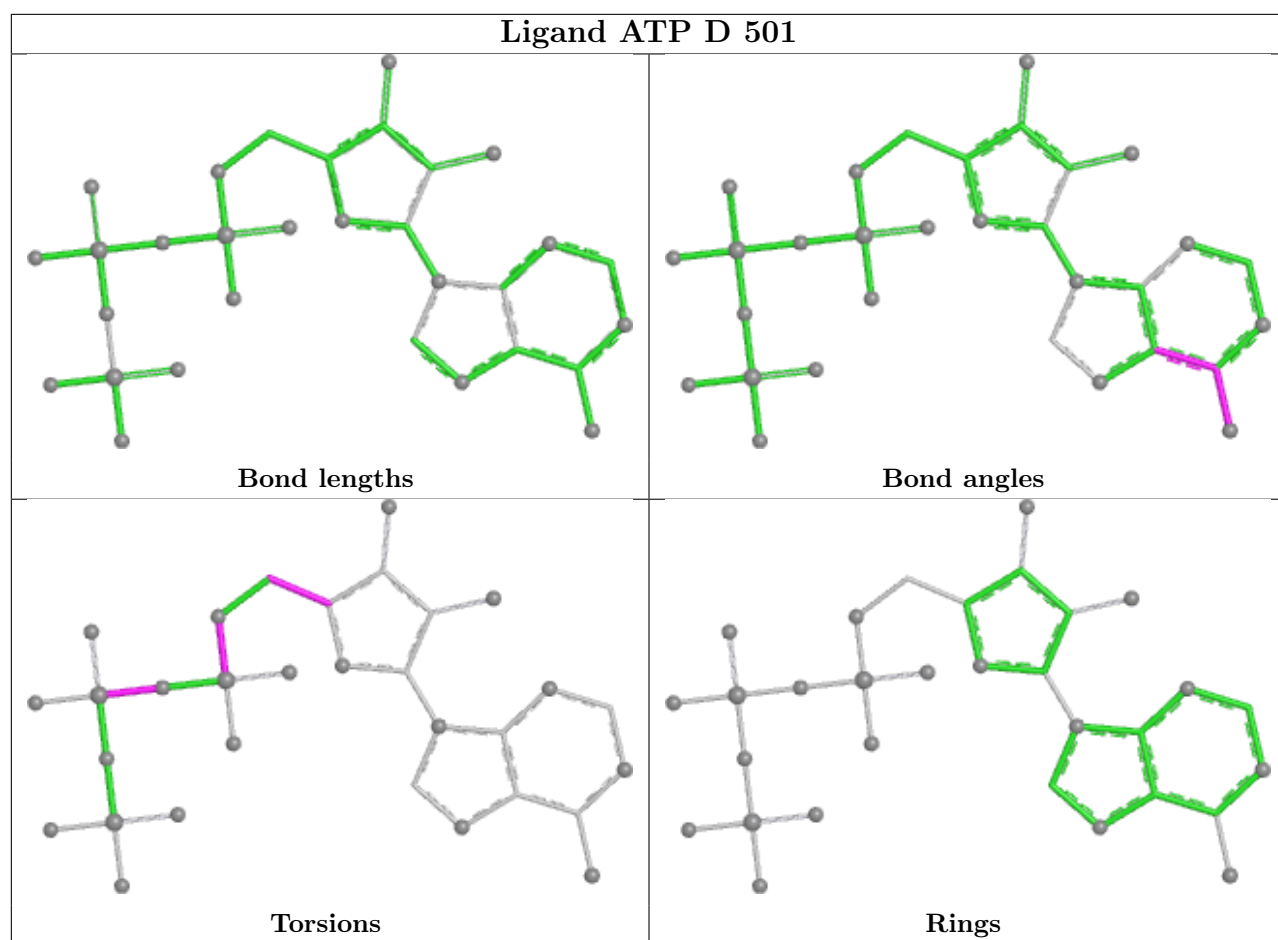
There are no ring outliers.

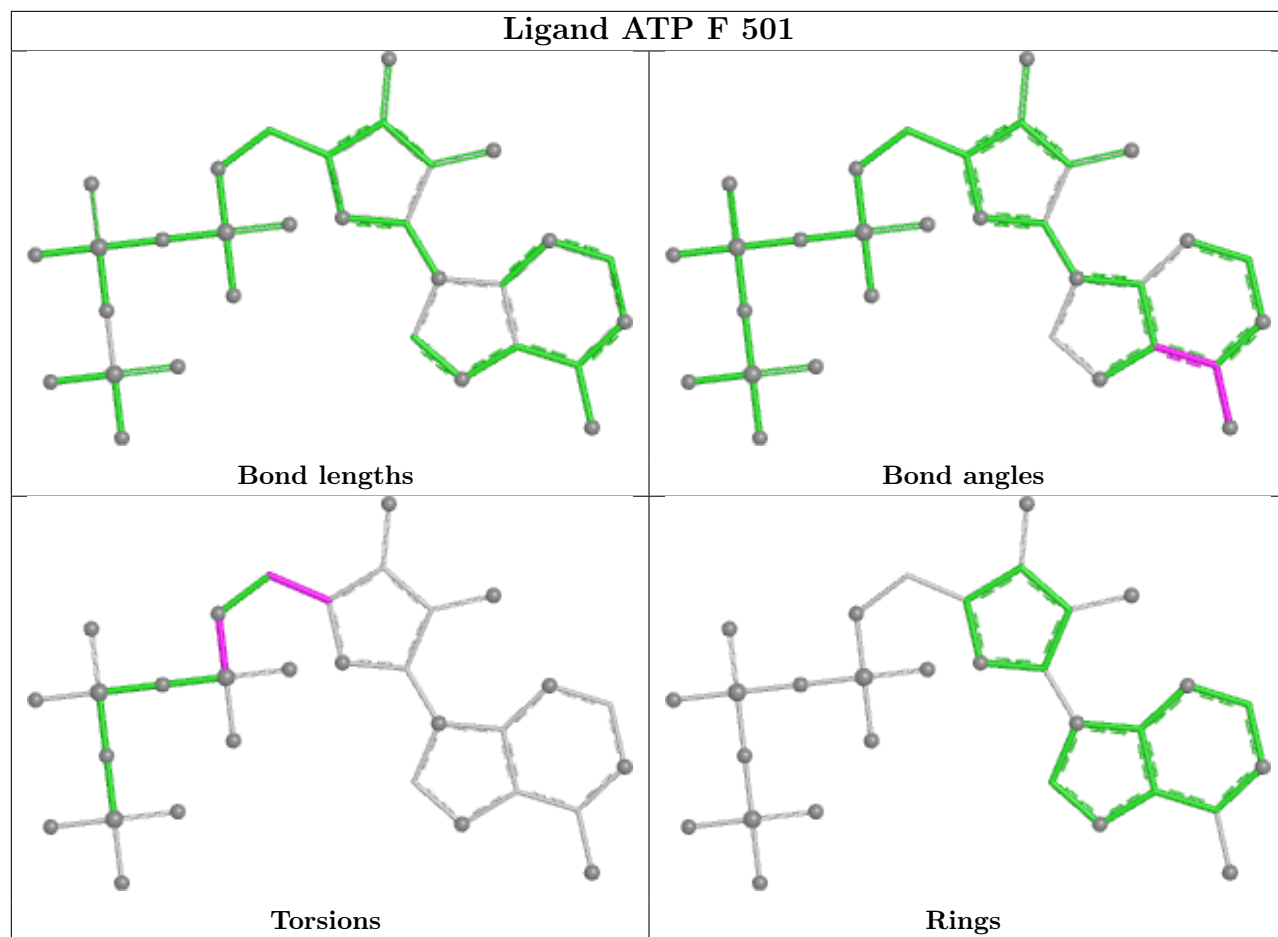
No monomer is involved in short contacts.

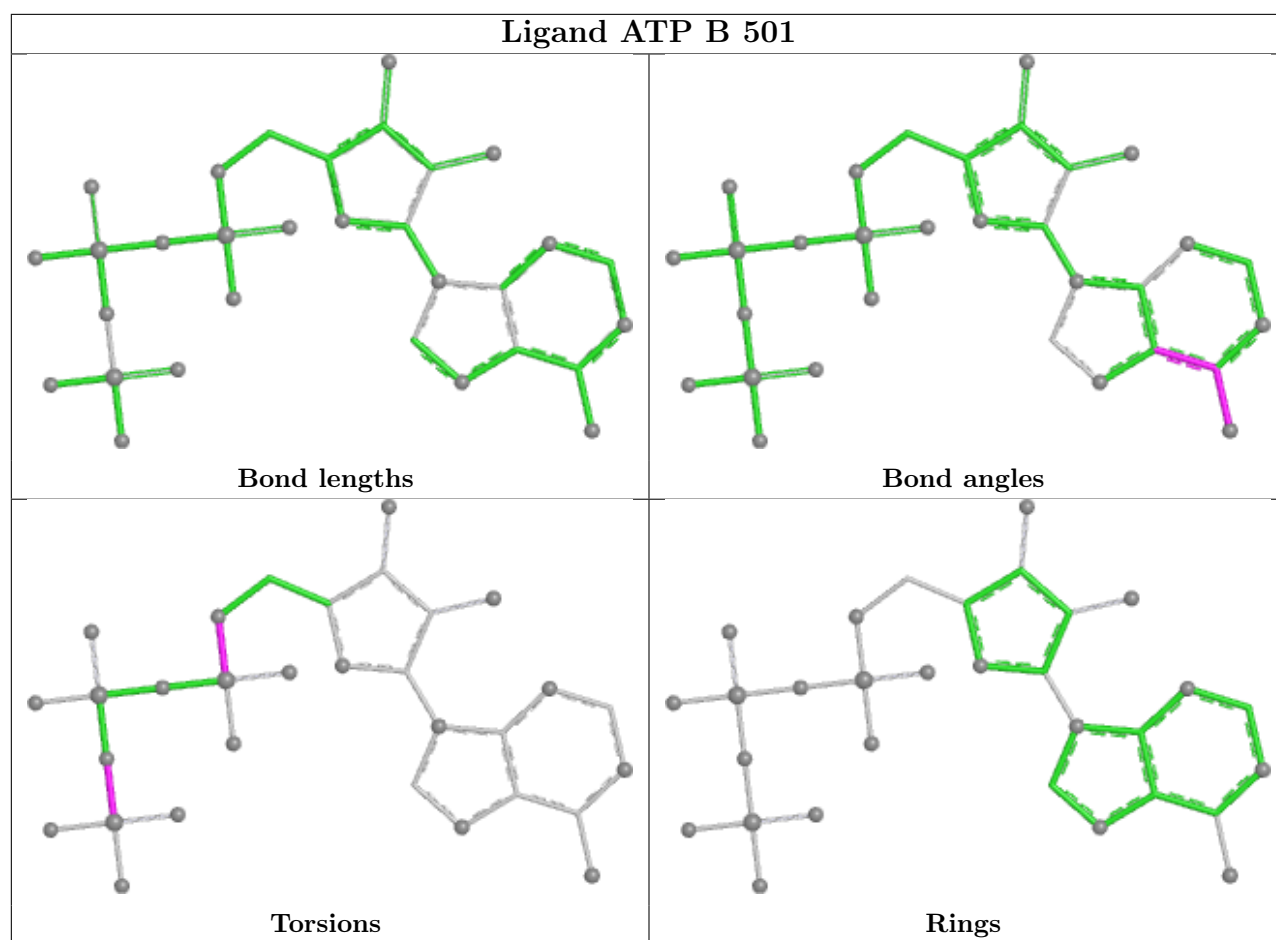
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.











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.

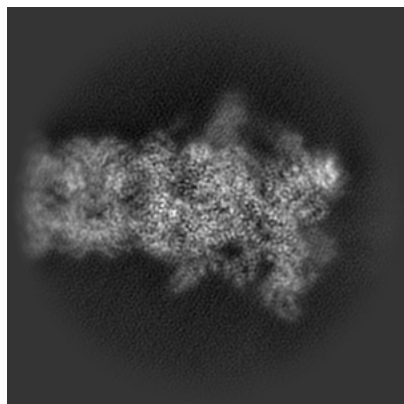
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-47721. These allow visual inspection of the internal detail of the map and identification of artifacts.

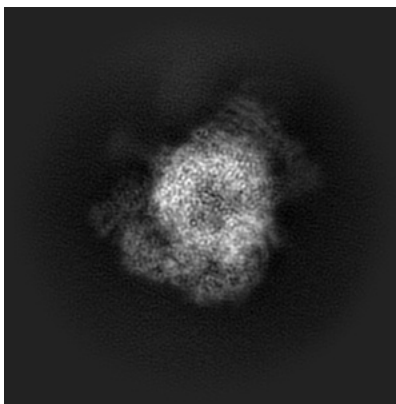
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

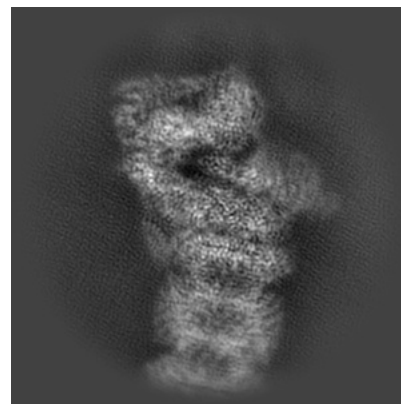
6.1.1 Primary map



X

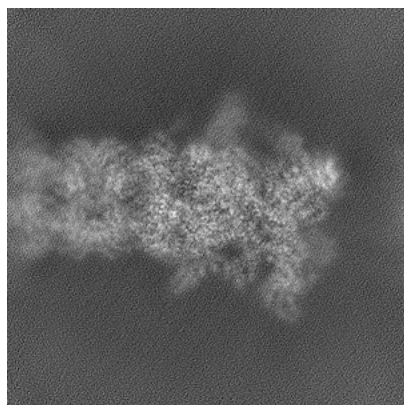


Y

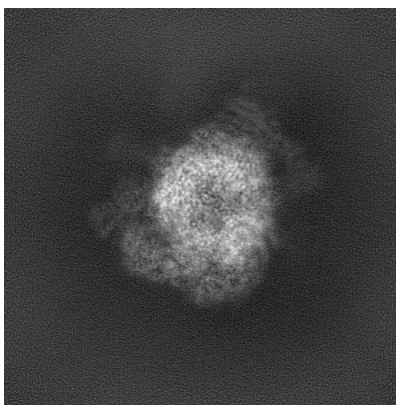


Z

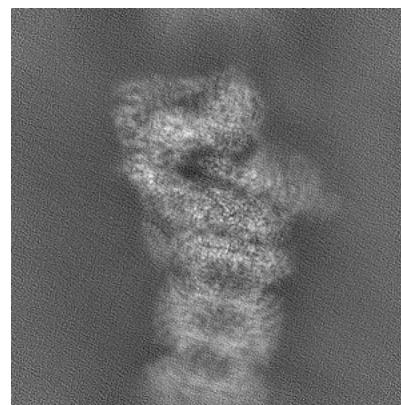
6.1.2 Raw map



X



Y

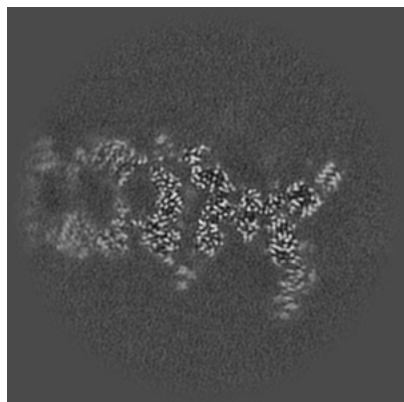


Z

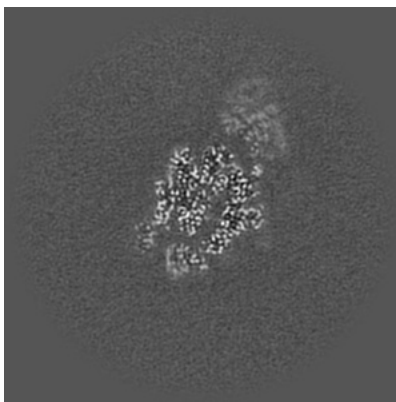
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

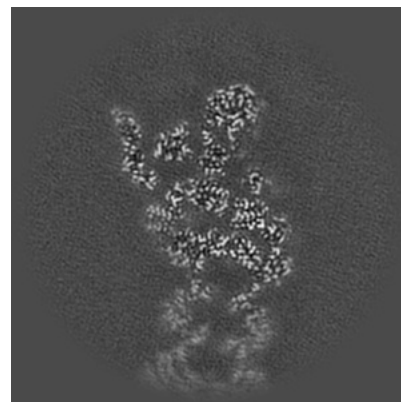
6.2.1 Primary map



X Index: 170

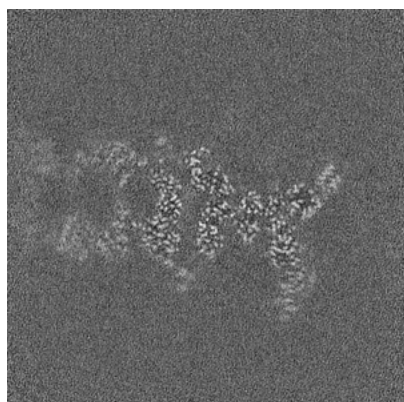


Y Index: 170

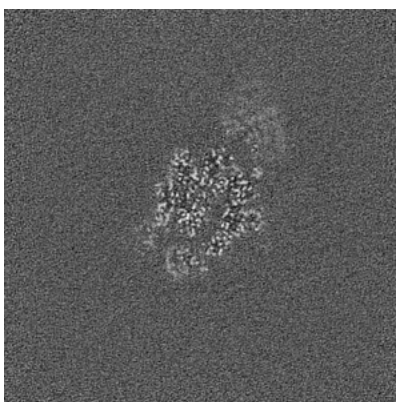


Z Index: 170

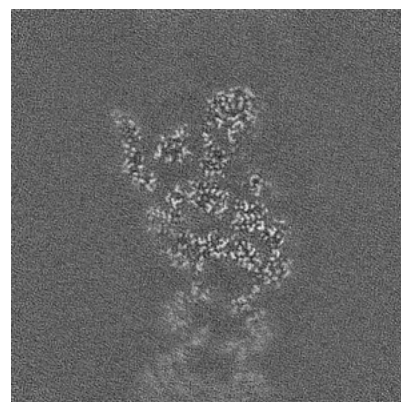
6.2.2 Raw map



X Index: 170



Y Index: 170

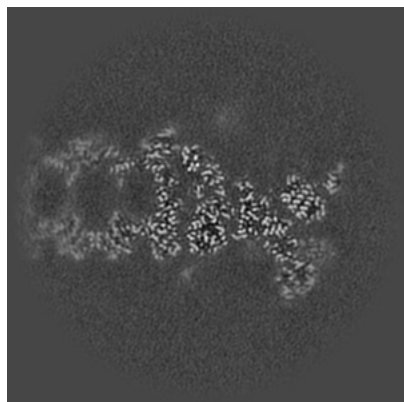


Z Index: 170

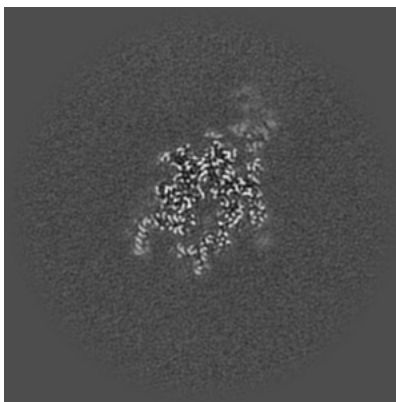
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

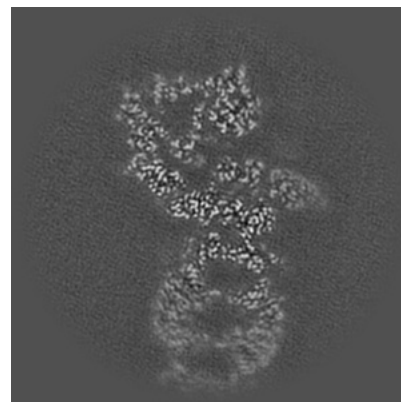
6.3.1 Primary map



X Index: 177

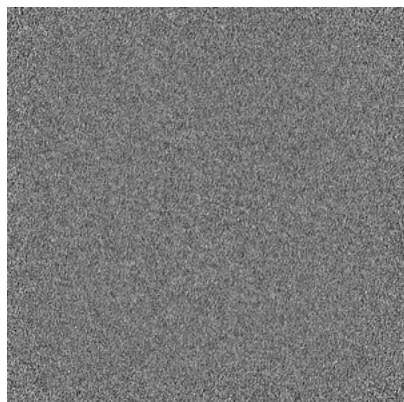


Y Index: 164

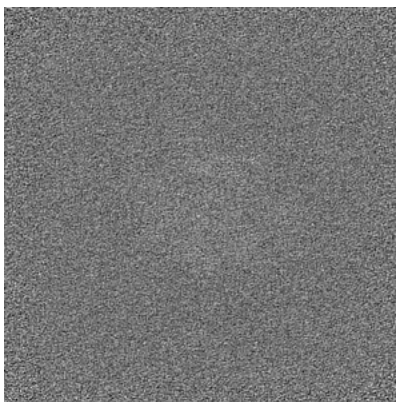


Z Index: 189

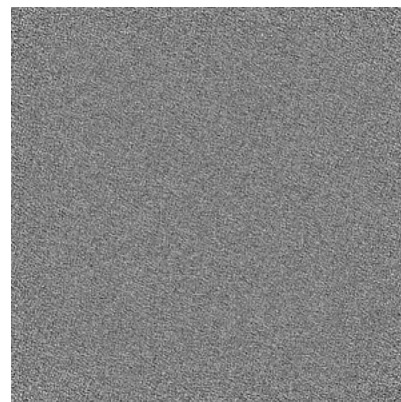
6.3.2 Raw map



X Index: 0



Y Index: 0

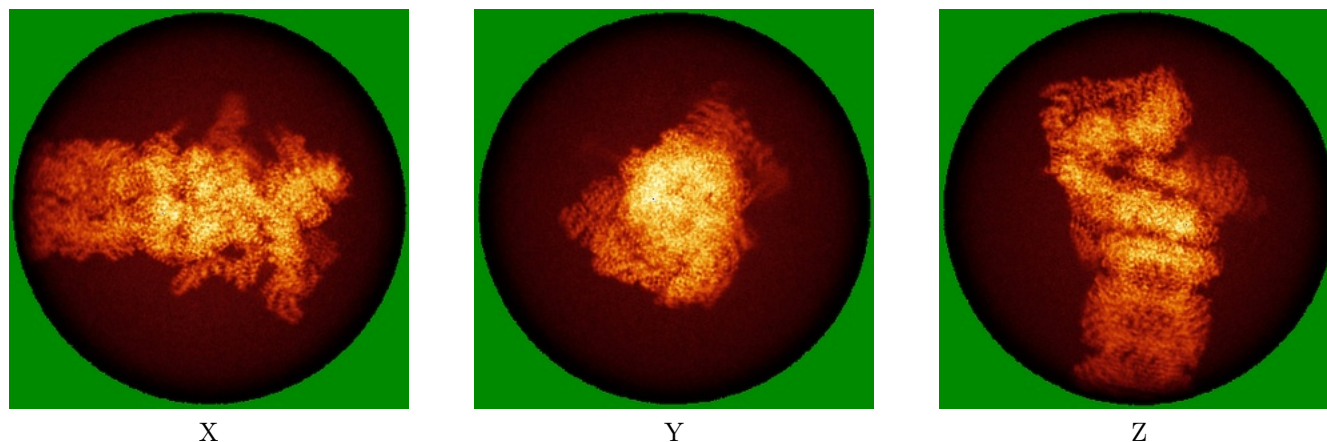


Z Index: 0

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

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

6.4.1 Primary map

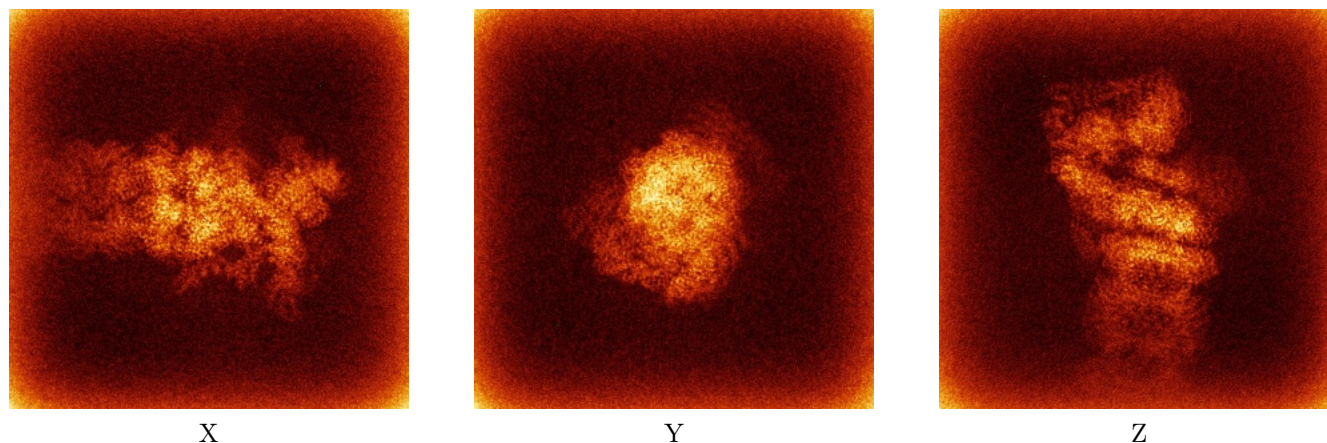


X

Y

Z

6.4.2 Raw map



X

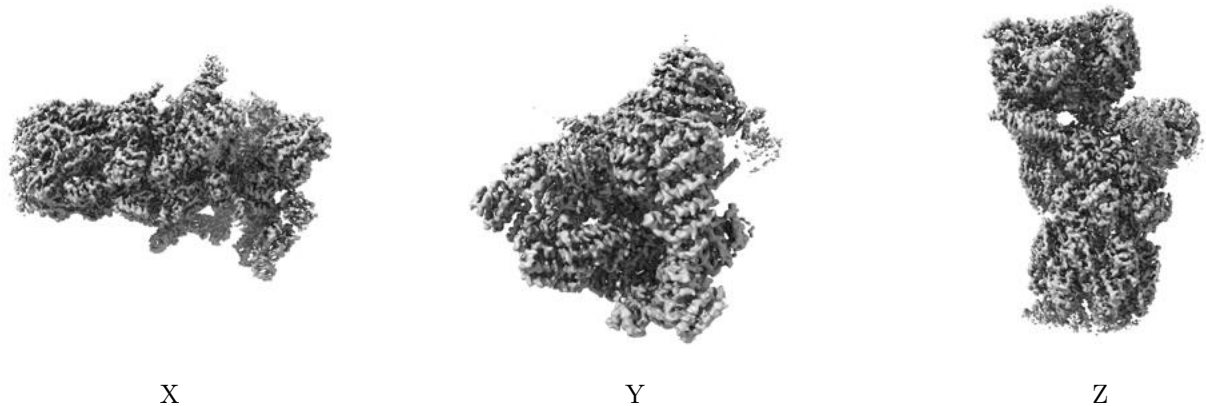
Y

Z

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

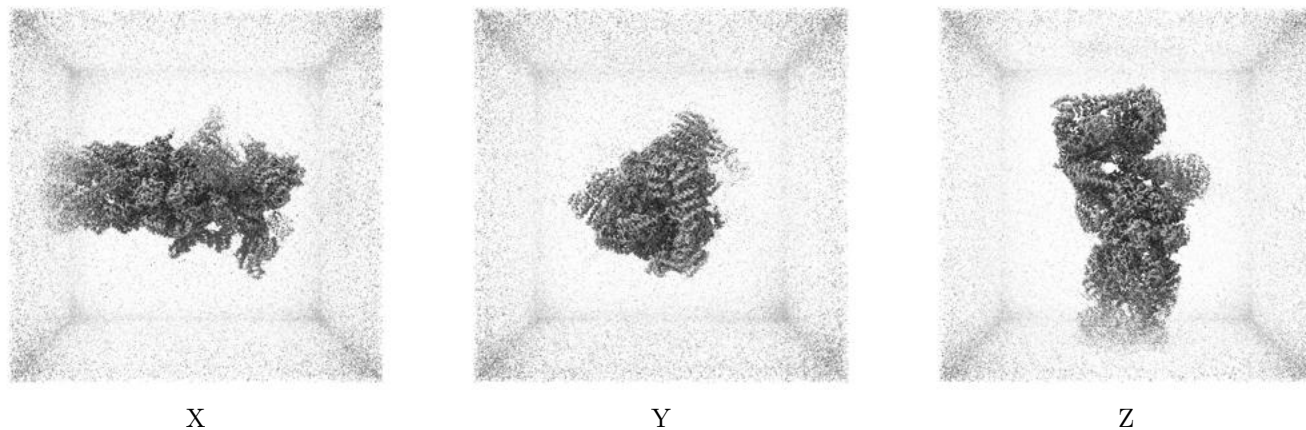
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.15. 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.

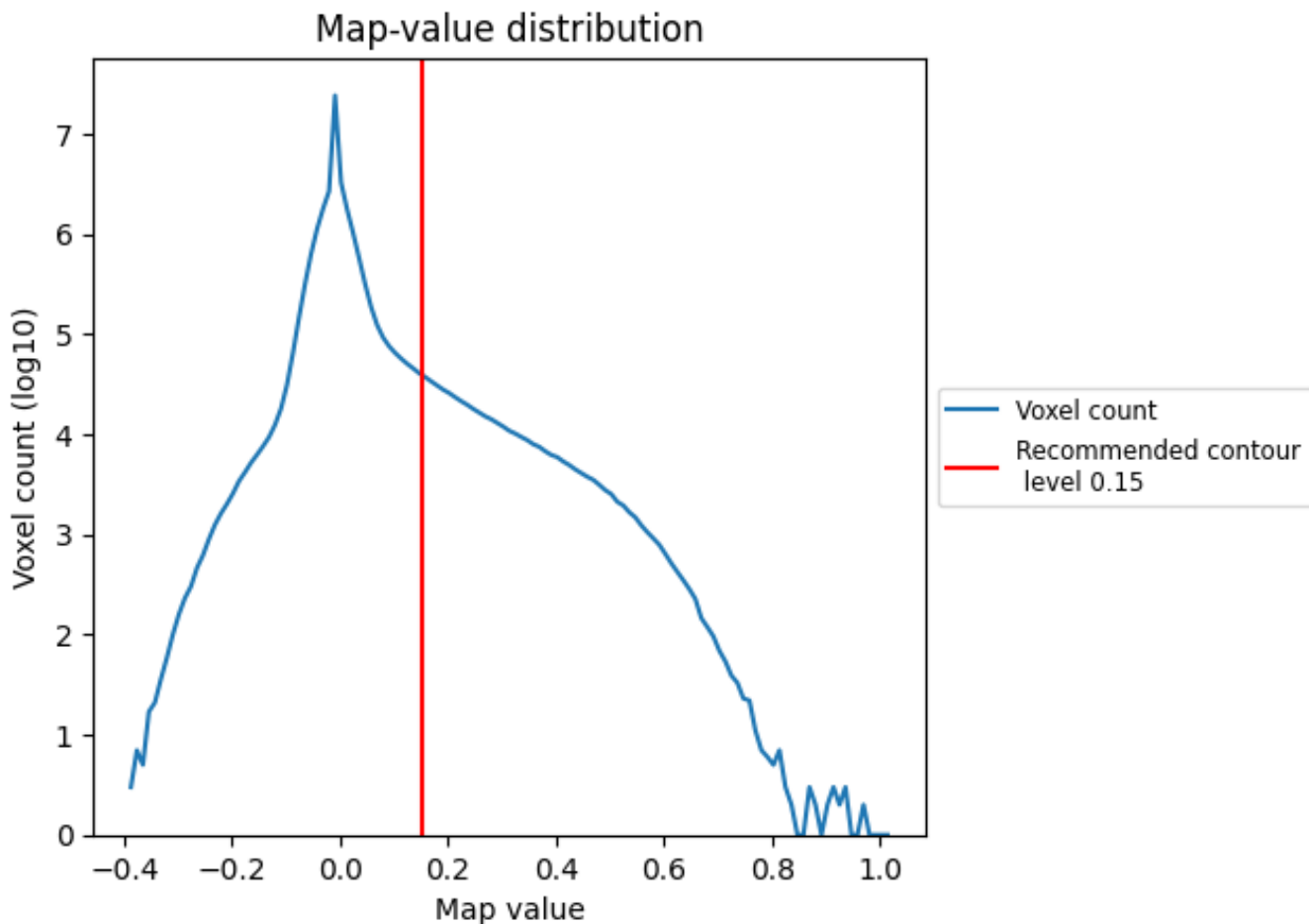
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

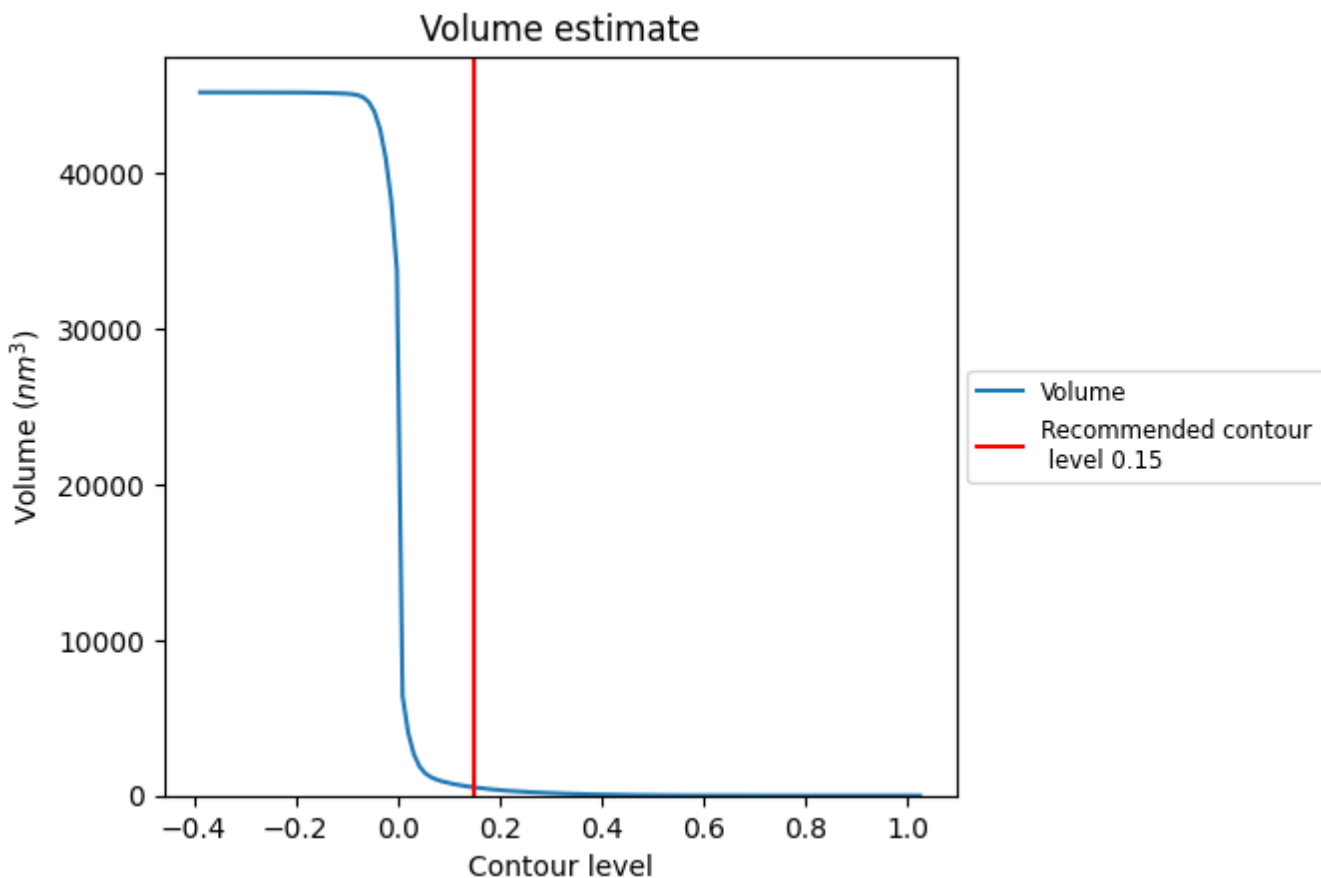
This section contains the results of statistical analysis of the map.

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.

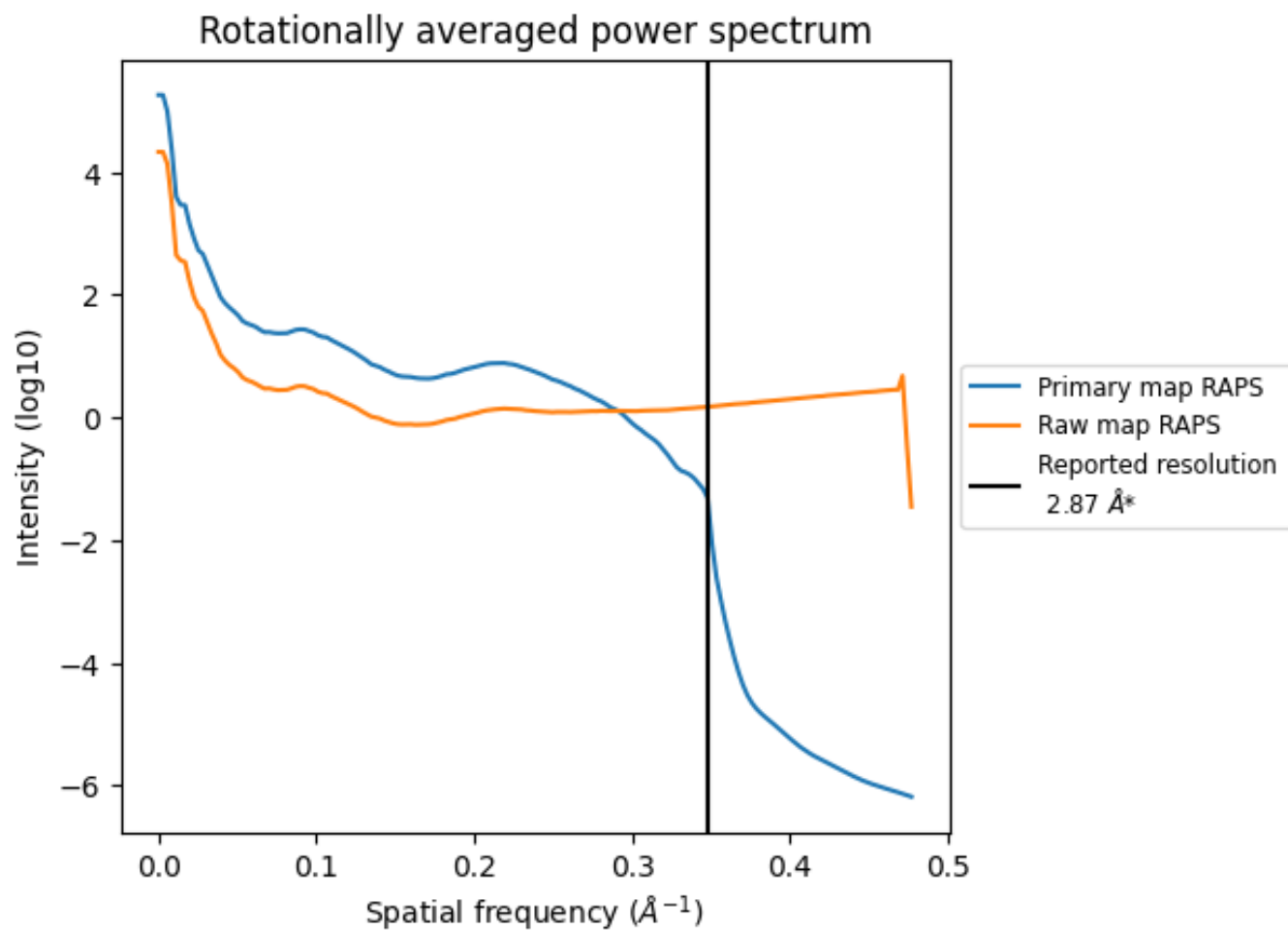
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 530 nm³; this corresponds to an approximate mass of 478 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

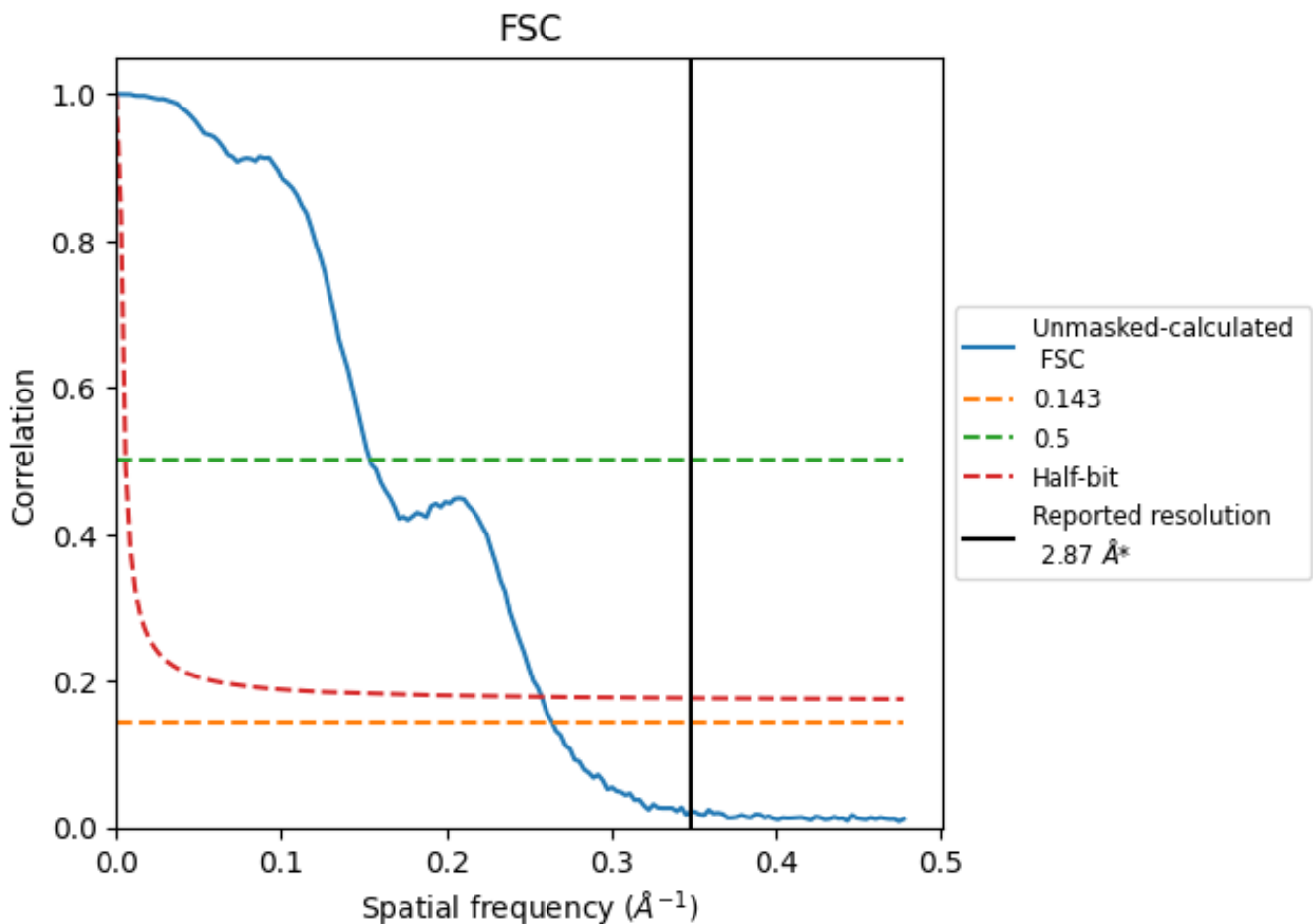


*Reported resolution corresponds to spatial frequency of 0.348 Å⁻¹

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 0.348 Å⁻¹

8.2 Resolution estimates [i](#)

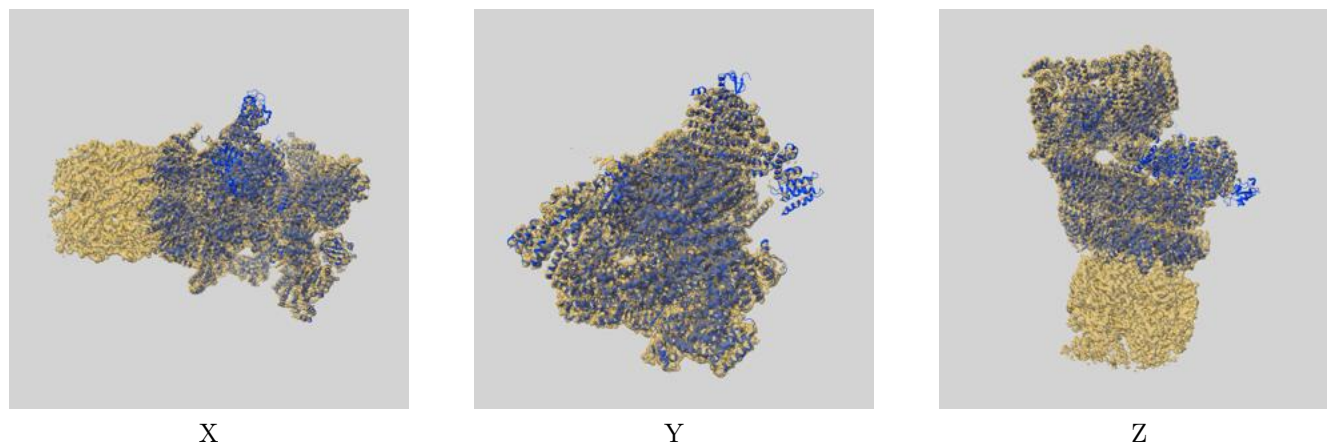
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.87	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.78	6.51	3.88

*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 3.78 differs from the reported value 2.87 by more than 10 %

9 Map-model fit [i](#)

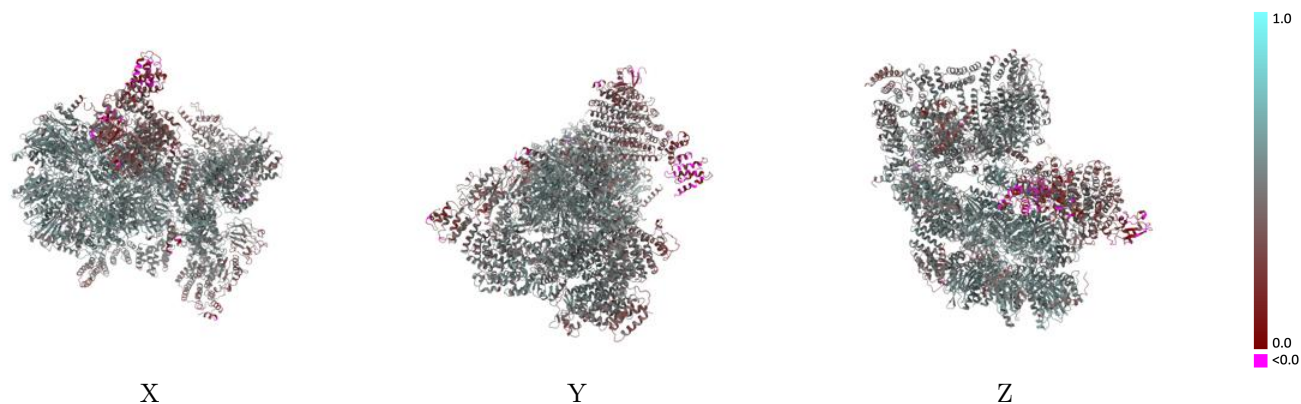
This section contains information regarding the fit between EMDB map EMD-47721 and PDB model 9E8I. Per-residue inclusion information can be found in section 3 on page 13.

9.1 Map-model overlay [i](#)



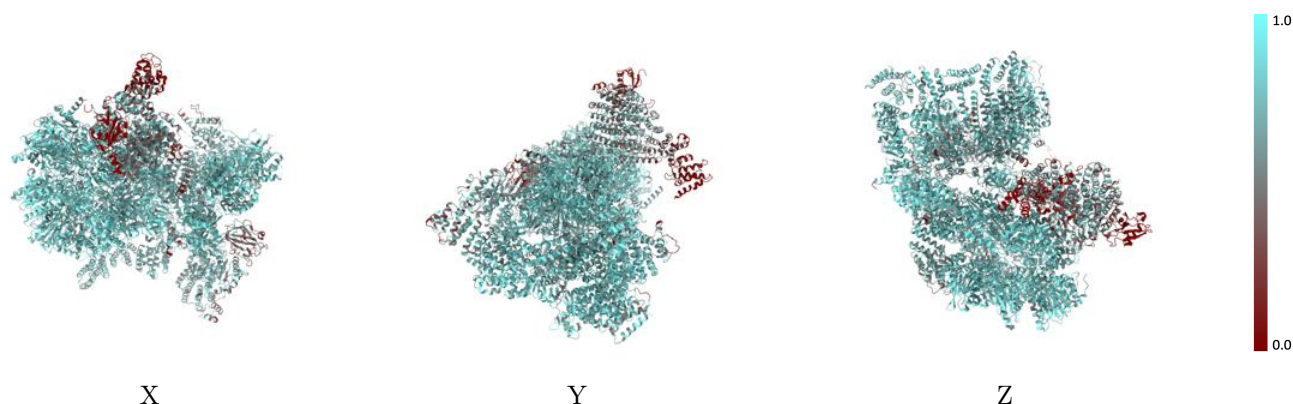
The images above show the 3D surface view of the map at the recommended contour level 0.15 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



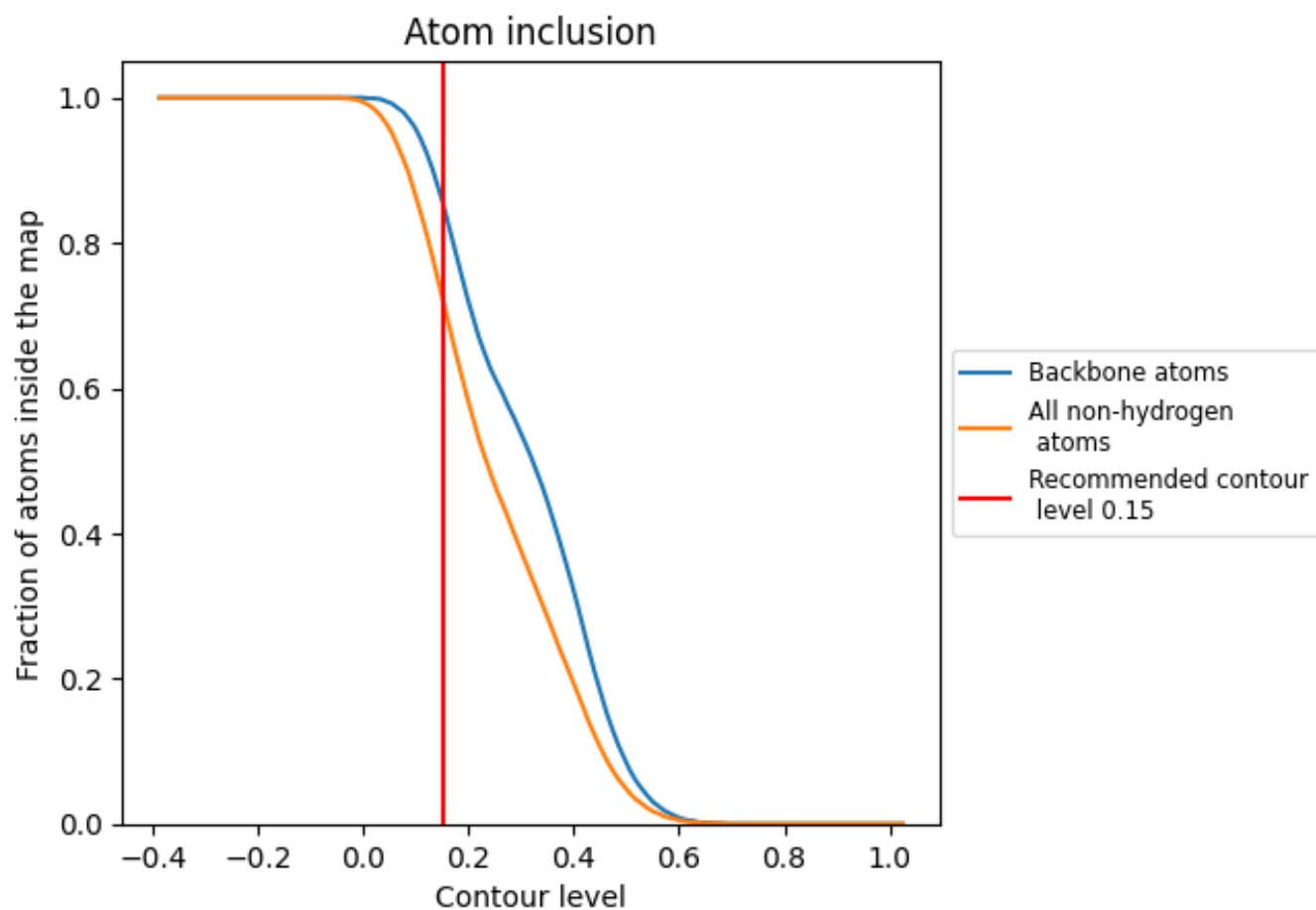
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.15).

























































9.4 Atom inclusion [i](#)



At the recommended contour level, 86% of all backbone atoms, 72% 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 (0.15) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7250	 0.4820
A	 0.7880	 0.5240
B	 0.7190	 0.5010
C	 0.8030	 0.5400
D	 0.8020	 0.5410
E	 0.8260	 0.5440
F	 0.8120	 0.5430
G	 0.8140	 0.5350
H	 0.8240	 0.5420
I	 0.7780	 0.5150
J	 0.7940	 0.5140
K	 0.7880	 0.5320
L	 0.8060	 0.5360
M	 0.8070	 0.5380
U	 0.7630	 0.4900
V	 0.7240	 0.4510
W	 0.7590	 0.4760
X	 0.6990	 0.4660
Y	 0.8280	 0.5220
Z	 0.7720	 0.5140
a	 0.7040	 0.4410
b	 0.6240	 0.4260
c	 0.7830	 0.5320
d	 0.7180	 0.4270
e	 0.6160	 0.3910
f	 0.4490	 0.3310
g	 0.0000	 0.1330
u	 0.4030	 0.4000

