



wwPDB EM Validation Summary Report ⓘ

Mar 25, 2024 – 05:51 PM JST

PDB ID : 7YUW
EMDB ID : EMD-34113
Title : MtaLon-ADP for the spiral oligomers of pentamer
Authors : Li, S.; Hsieh, K.; Kuo, C.; Lee, S.; Ho, M.; Wang, C.; Zhang, K.; Chang, C.I.
Deposited on : 2022-08-18
Resolution : 3.60 Å(reported)

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 ⓘ 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:

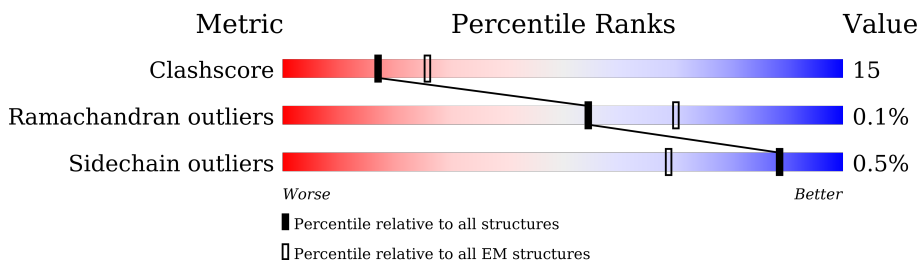
EMDB validation analysis : 0.0.1.dev70
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36

1 Overall quality at a glance

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

The reported resolution of this entry is 3.60 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 $\leq 5\%$. 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	793	
1	B	793	
1	C	793	
1	D	793	
1	E	793	

2 Entry composition [i](#)

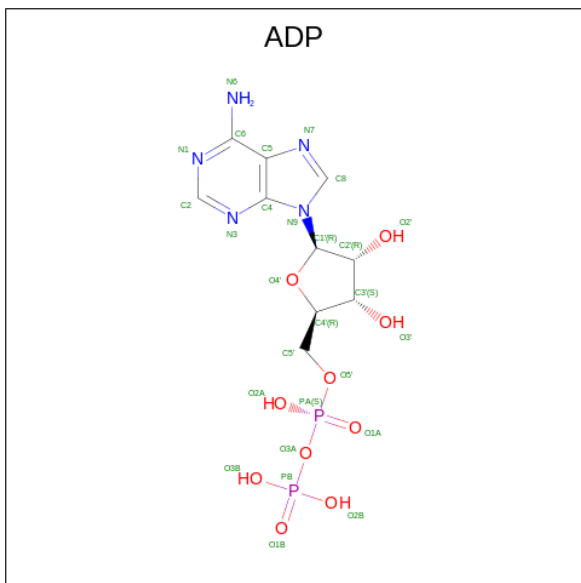
There are 2 unique types of molecules in this entry. The entry contains 30483 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Lon protease.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	773	Total 6075	C 3838	N 1067	O 1149	S 21	0	0
1	B	773	Total 6075	C 3838	N 1067	O 1149	S 21	0	0
1	C	773	Total 6075	C 3838	N 1067	O 1149	S 21	0	0
1	D	773	Total 6075	C 3838	N 1067	O 1149	S 21	0	0
1	E	773	Total 6075	C 3838	N 1067	O 1149	S 21	0	0

- Molecule 2 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).



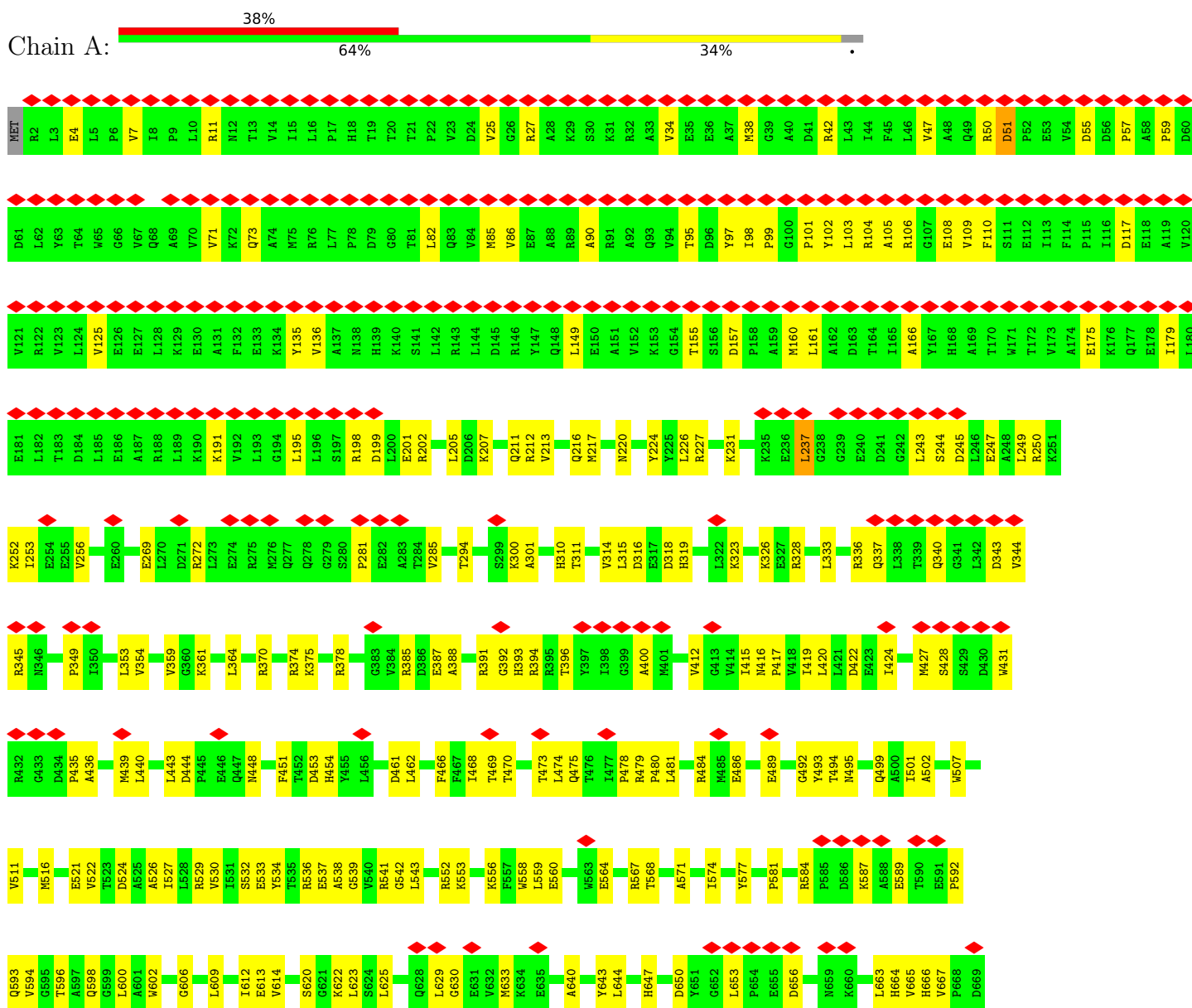
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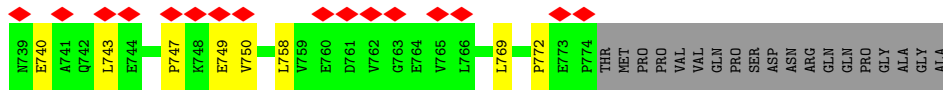
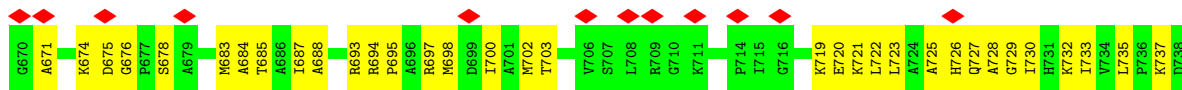
Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
2	B	1	Total 27	C 10	N 5	O 10	P 2	0
2	C	1	Total 27	C 10	N 5	O 10	P 2	0
2	D	1	Total 27	C 10	N 5	O 10	P 2	0

3 Residue-property plots

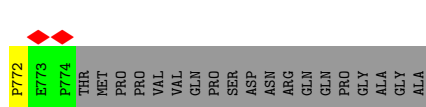
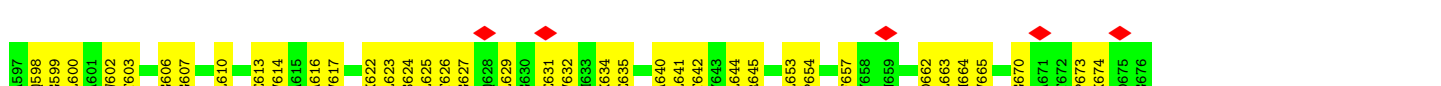
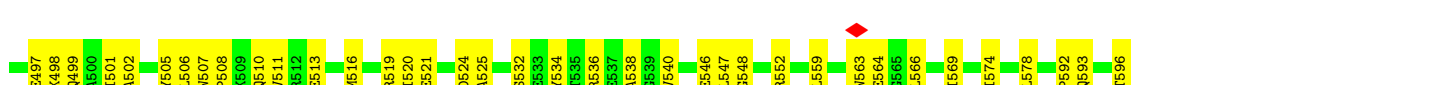
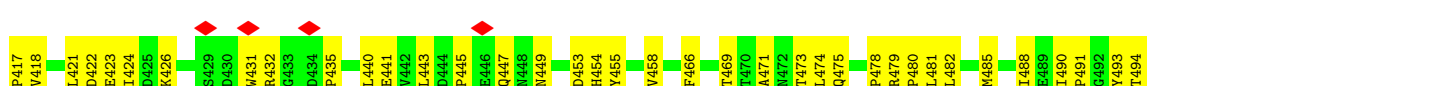
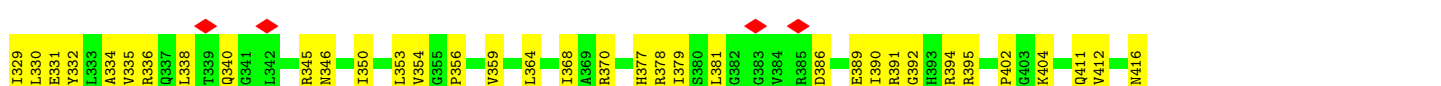
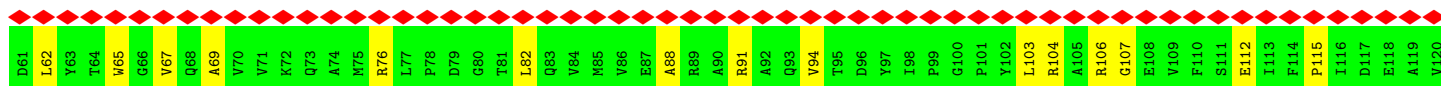
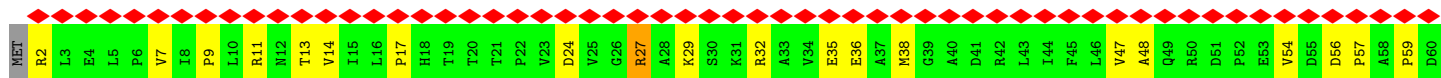
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

- Molecule 1: Lon protease

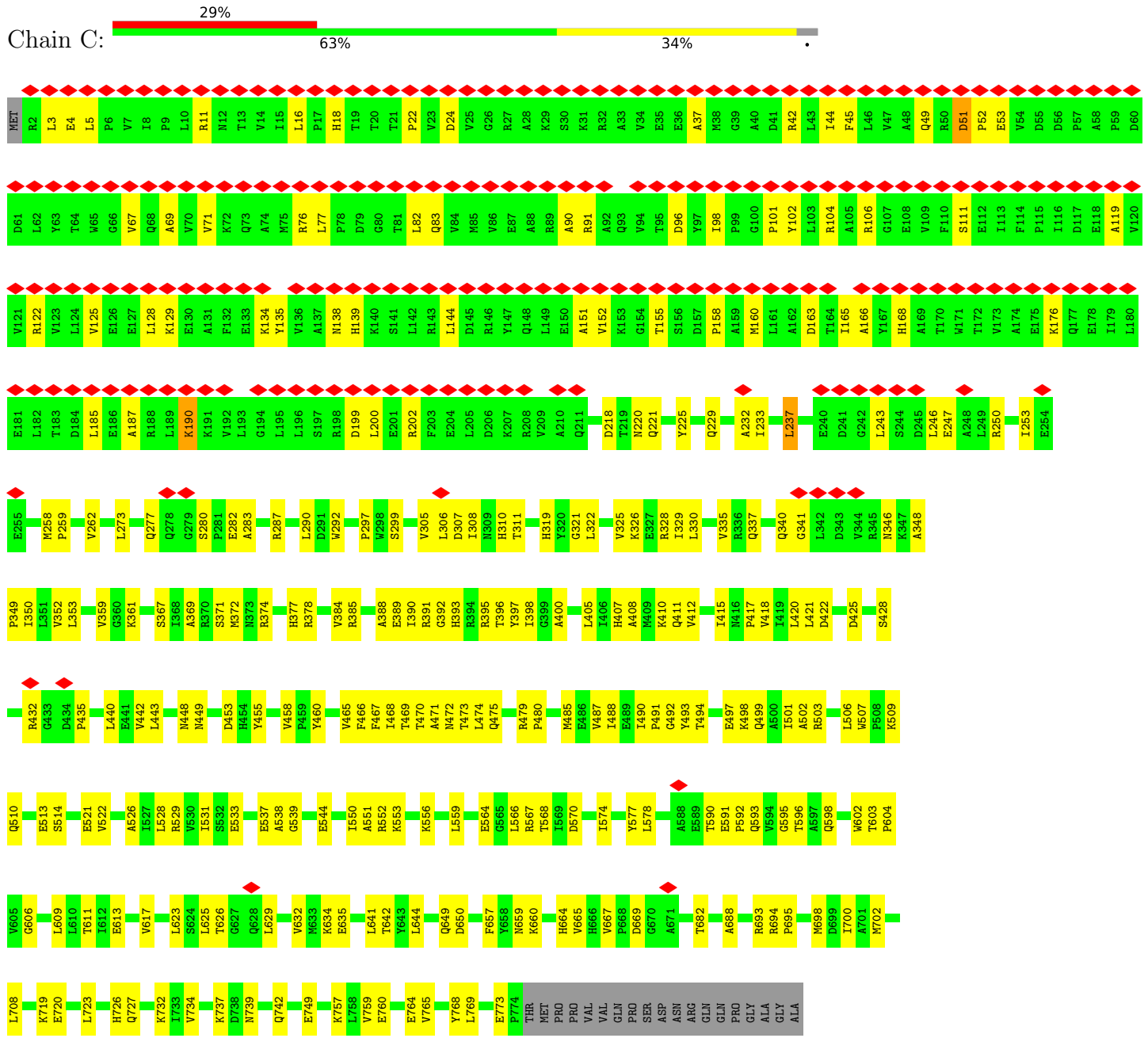




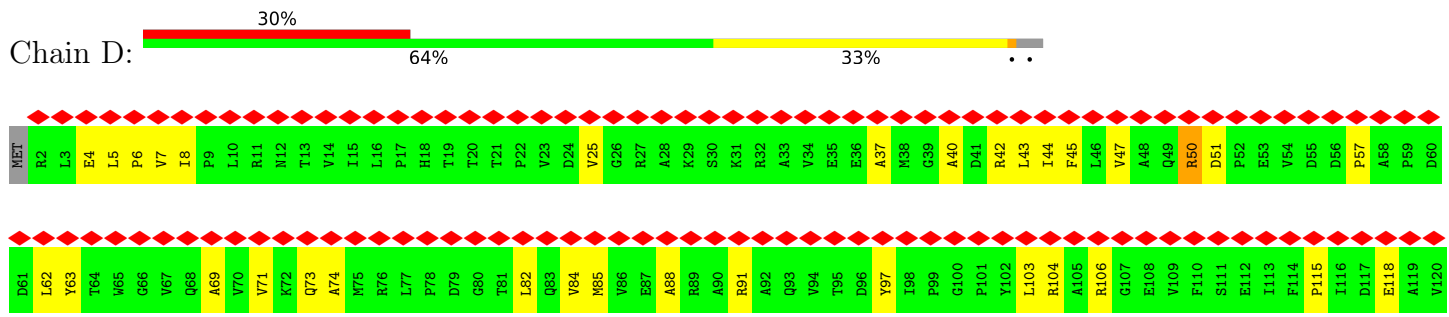
• Molecule 1: Lon protease

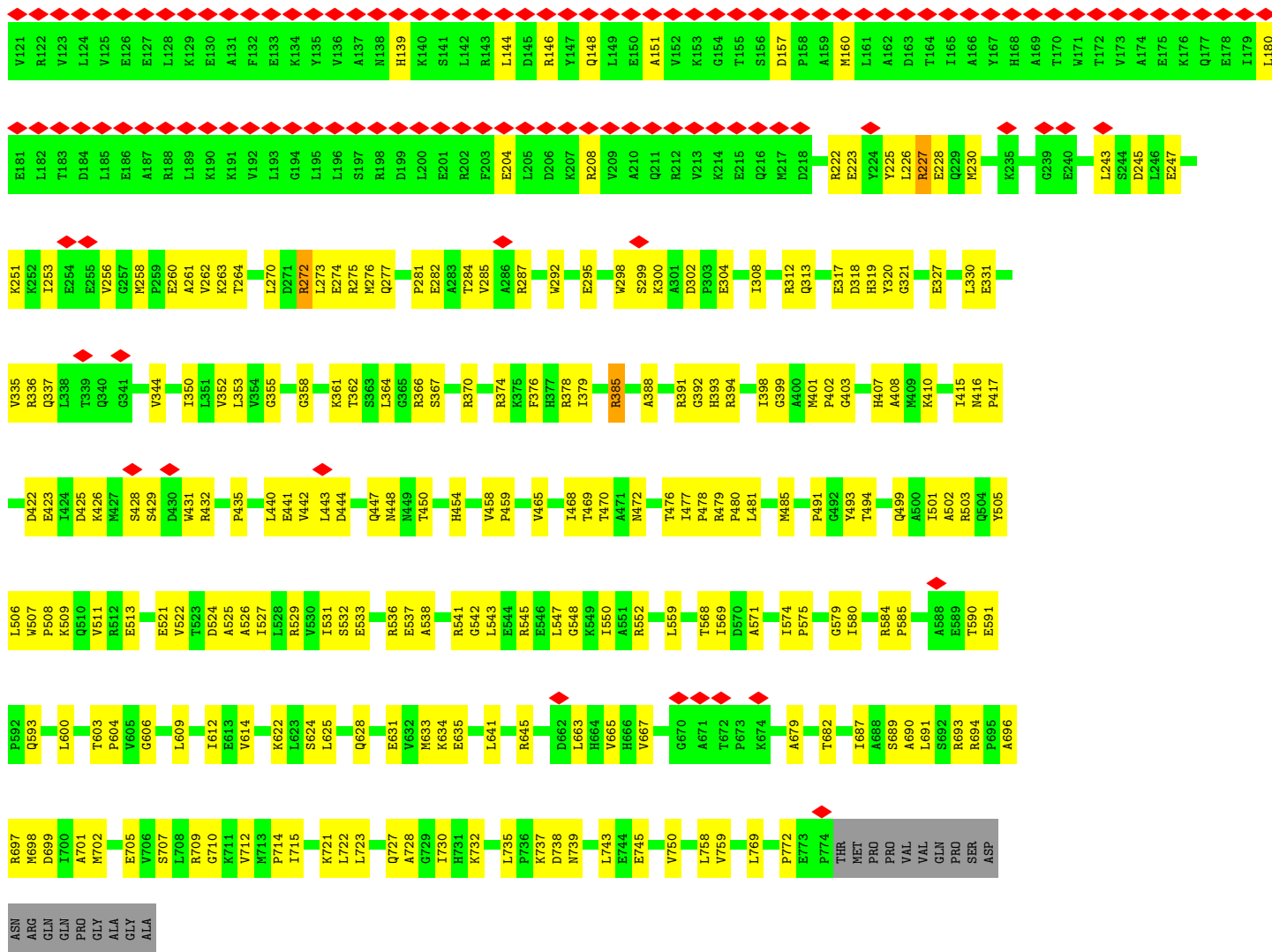


• Molecule 1: Lon protease

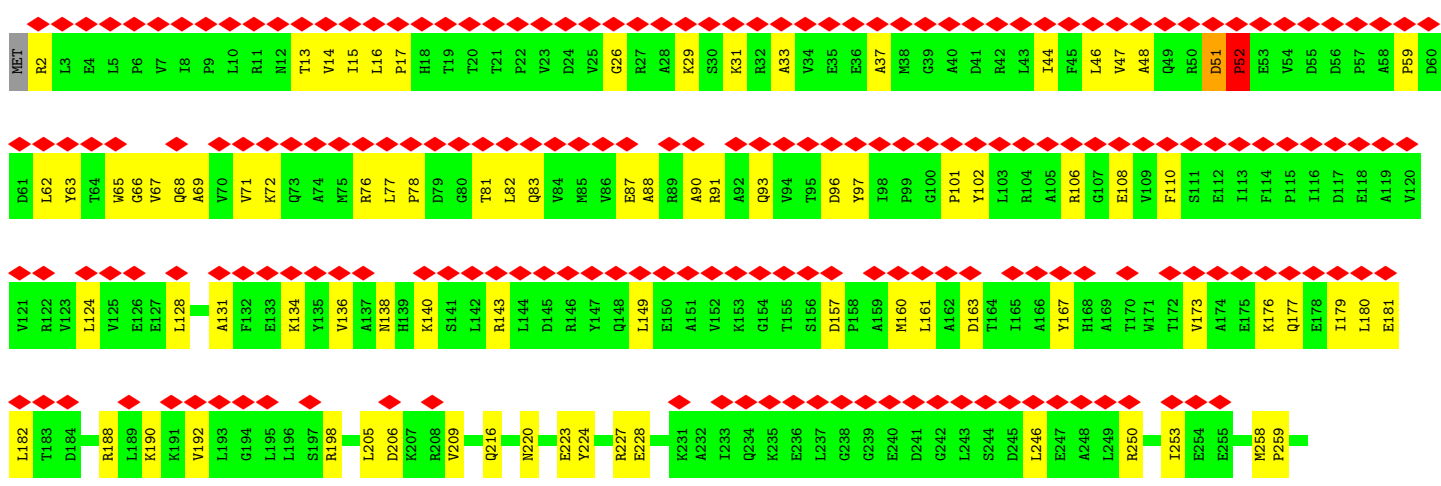
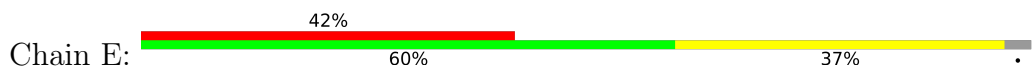


• Molecule 1: Lon protease





• Molecule 1: Lon protease



V262	K263	T264	K265	A266	L267	K268	E269	L270	D271	R272	L273	E274	R275	M276	Q277	Q278	Q279	S280	P281	E282	A283	T284	V285	A286	R287	T288	W292	L293	T294	E295	V296	P297	W298	S299	D302	P303	E304	V305	L306	D307	I308	N309	H310	T311	R312	Q313	V314	D318	H319	L322	R328	E331	Y332		
V335	R336	T339	L342	D343	V344	R345	N346	K347	A348	P349	L351	V354	P357	G358	K361	L364	S371	M372	N373	R374	H377	R378	L379	S380	L381	G382	G383	D386	E387	A388	E389	I390	R391	G392	H393	R394	E395	T396	Y397	I398	G399	A400	M401	P402	G403	K404	H407								
Q411	G412	V413	M416	L421	D422	E423	L424	D425	W431	R432	G433	D434	P435	A436	S437	A438	E441	D444	P445	E446	Q447	M448	F451	T452	D453	H454	Y455	L456	D457	T469	T473	L474	Q475	T476	I477	P478	R479	P480	L481	L482	D483	R484	M485	E486	V487	I488	E489	I490	P491	G492					
Y493	T494	M495	M496	E497	K498	I501	A502	L506	P507	P508	K509	Q510	V511	R512	E513	S514	G515	M516	R519	I520	E521	V522	T523	D524	A525	A526	R529	V530	I531	S532	E533	Y534	T535	R536	E537	A538	G539	Y540	R541	E544	R545	E546	L547	G548	K549	I550	A551	W558	L559	E560	G561	A562	W563		
E564	G565	L566	R567	T568	I569	S572	D573	I574	P575	T576	Y577	L578	G579	I580	R584	P585	D586	K587	A588	E589	T596	A597	Q598	G599	W602	T603	P604	V605	G606	G607	T608	L609	L610	T611	I612	E613	V614	A615	A616	V617	P618	G619	S620	G621	K622	L623	S624	L625	T626	G627	Q628	L629	G630	E631	V632
M633	K634	E635	H647	T648	Q649	G652	D656	F657	Y658	N659	K660	V661	D662	L663	H664	V665	H666	V667	G670	A671	T672	P673	K674	D675	G676	P677	S678	A679	G680	L681	T682	M683	A684	T685	A686	I687	A690	L691	S692	R693	R694	G697	M698	D699	I700	A701	M702	L703	G704	E705	V706	S707			
M713	F714	L715	G716	G717	W718	K719	E720	K721	L722	L723	A724	A725	H726	Q727	A728	K732	I733	K737	D738	N739	Q742	E745	L746	P747	K748	E749	V750	L756	K757	L758	W759	V765	L766	E767	Y768	L769	L770	L771	P772	E773	P774	THR	MET	PRO	PRO	VAL	VAL	GLN	PRO	SER	ASP	ASN	ARG		

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	253989	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	48	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	1.669	Depositor
Minimum map value	-1.316	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.045	Depositor
Recommended contour level	0.17	Depositor
Map size (\AA)	275.52, 275.52, 275.52	wwPDB
Map dimensions	336, 336, 336	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	0.82, 0.82, 0.82	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: ADP

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	0/6184	0.53	0/8380
1	B	0.27	0/6184	0.54	0/8380
1	C	0.28	0/6184	0.55	0/8380
1	D	0.27	0/6184	0.54	0/8380
1	E	0.26	0/6184	0.53	0/8380
All	All	0.27	0/30920	0.54	0/41900

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1
1	C	0	1
1	E	0	2
All	All	0	4

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (4) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	51	ASP	Peptide
1	C	51	ASP	Peptide
1	E	51	ASP	Peptide
1	E	52	PRO	Peptide

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	6075	0	6188	187	0
1	B	6075	0	6188	202	0
1	C	6075	0	6188	195	0
1	D	6075	0	6188	198	0
1	E	6075	0	6188	212	0
2	A	27	0	12	1	0
2	B	27	0	12	1	0
2	C	27	0	12	3	0
2	D	27	0	12	3	0
All	All	30483	0	30988	946	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 15.

The worst 5 of 946 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:502:ALA:HA	1:D:506:LEU:HB2	1.61	0.83
1:C:502:ALA:HA	1:C:506:LEU:HB2	1.62	0.81
1:C:243:LEU:HA	1:C:247:GLU:HB2	1.60	0.80
1:E:14:VAL:HG21	1:E:177:GLN:HB2	1.64	0.80
1:B:502:ALA:HA	1:B:506:LEU:HB2	1.65	0.79

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	771/793 (97%)	716 (93%)	55 (7%)	0	100	100
1	B	771/793 (97%)	704 (91%)	67 (9%)	0	100	100
1	C	771/793 (97%)	697 (90%)	74 (10%)	0	100	100
1	D	771/793 (97%)	705 (91%)	65 (8%)	1 (0%)	51	83
1	E	771/793 (97%)	714 (93%)	56 (7%)	1 (0%)	51	83
All	All	3855/3965 (97%)	3536 (92%)	317 (8%)	2 (0%)	54	83

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	320	TYR
1	E	52	PRO

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	649/665 (98%)	646 (100%)	3 (0%)	88	95
1	B	649/665 (98%)	646 (100%)	3 (0%)	88	95
1	C	649/665 (98%)	645 (99%)	4 (1%)	86	94
1	D	649/665 (98%)	644 (99%)	5 (1%)	81	91
1	E	649/665 (98%)	648 (100%)	1 (0%)	93	98
All	All	3245/3325 (98%)	3229 (100%)	16 (0%)	89	95

5 of 16 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	D	545	ARG
1	D	385	ARG
1	C	246	LEU
1	D	272	ARG
1	C	237	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 9 such sidechains are listed below:

Mol	Chain	Res	Type
1	E	234	GLN
1	E	727	GLN
1	C	168	HIS
1	C	319	HIS
1	C	499	GLN

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](#)

4 ligands are modelled in this entry.

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	$\# Z > 2$
2	ADP	A	801	-	24,29,29	0.96	1 (4%)	29,45,45	1.36	4 (13%)
2	ADP	C	801	-	24,29,29	0.91	1 (4%)	29,45,45	1.57	4 (13%)
2	ADP	D	801	-	24,29,29	0.91	1 (4%)	29,45,45	1.42	4 (13%)
2	ADP	B	801	-	24,29,29	0.92	1 (4%)	29,45,45	1.54	4 (13%)

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
2	ADP	A	801	-	-	4/12/32/32	0/3/3/3
2	ADP	C	801	-	-	3/12/32/32	0/3/3/3
2	ADP	D	801	-	-	9/12/32/32	0/3/3/3
2	ADP	B	801	-	-	4/12/32/32	0/3/3/3

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	801	ADP	C5-C4	2.47	1.47	1.40
2	D	801	ADP	C5-C4	2.32	1.47	1.40
2	B	801	ADP	C5-C4	2.28	1.47	1.40
2	C	801	ADP	C5-C4	2.25	1.46	1.40

The worst 5 of 16 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	801	ADP	PA-O3A-PB	-4.45	117.55	132.83
2	C	801	ADP	PA-O3A-PB	-4.45	117.55	132.83
2	C	801	ADP	C3'-C2'-C1'	3.48	106.21	100.98
2	D	801	ADP	C3'-C2'-C1'	3.44	106.16	100.98
2	A	801	ADP	N3-C2-N1	-3.25	123.60	128.68

There are no chirality outliers.

5 of 20 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	801	ADP	C5'-O5'-PA-O1A
2	B	801	ADP	C5'-O5'-PA-O3A
2	C	801	ADP	C5'-O5'-PA-O1A
2	C	801	ADP	C5'-O5'-PA-O3A
2	D	801	ADP	PA-O3A-PB-O2B

There are no ring outliers.

4 monomers are involved in 8 short contacts:

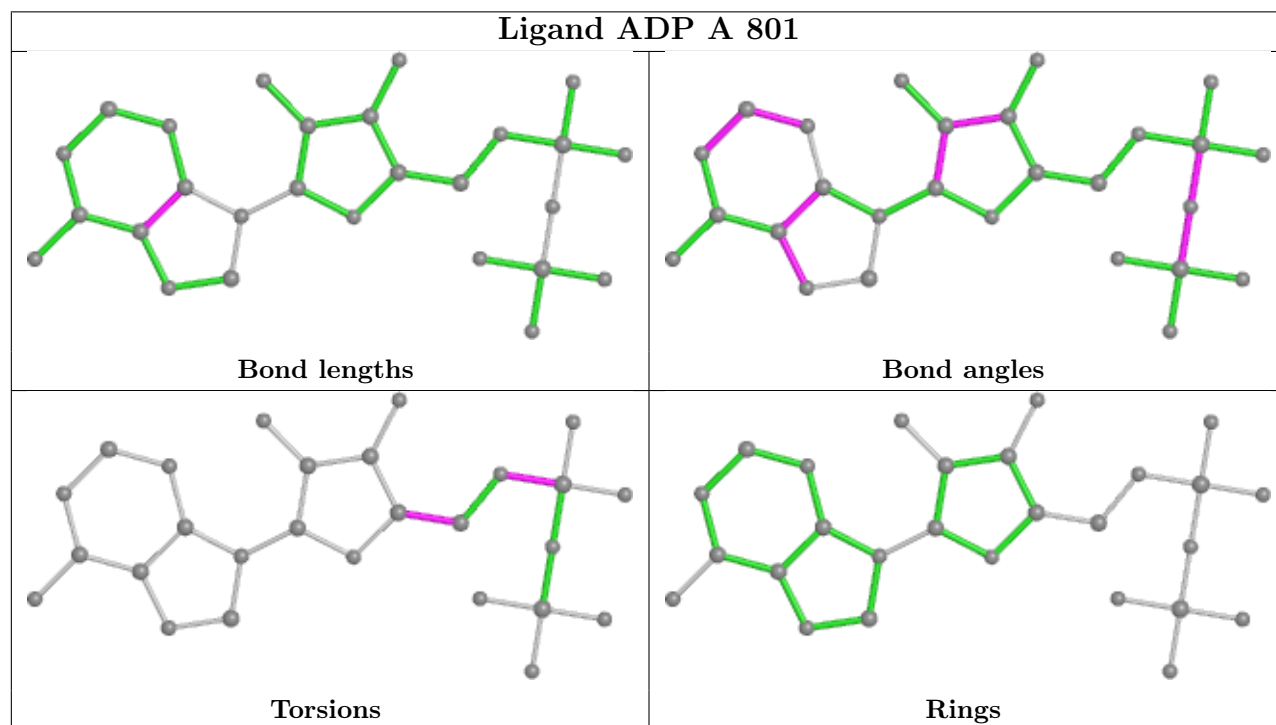
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	801	ADP	1	0

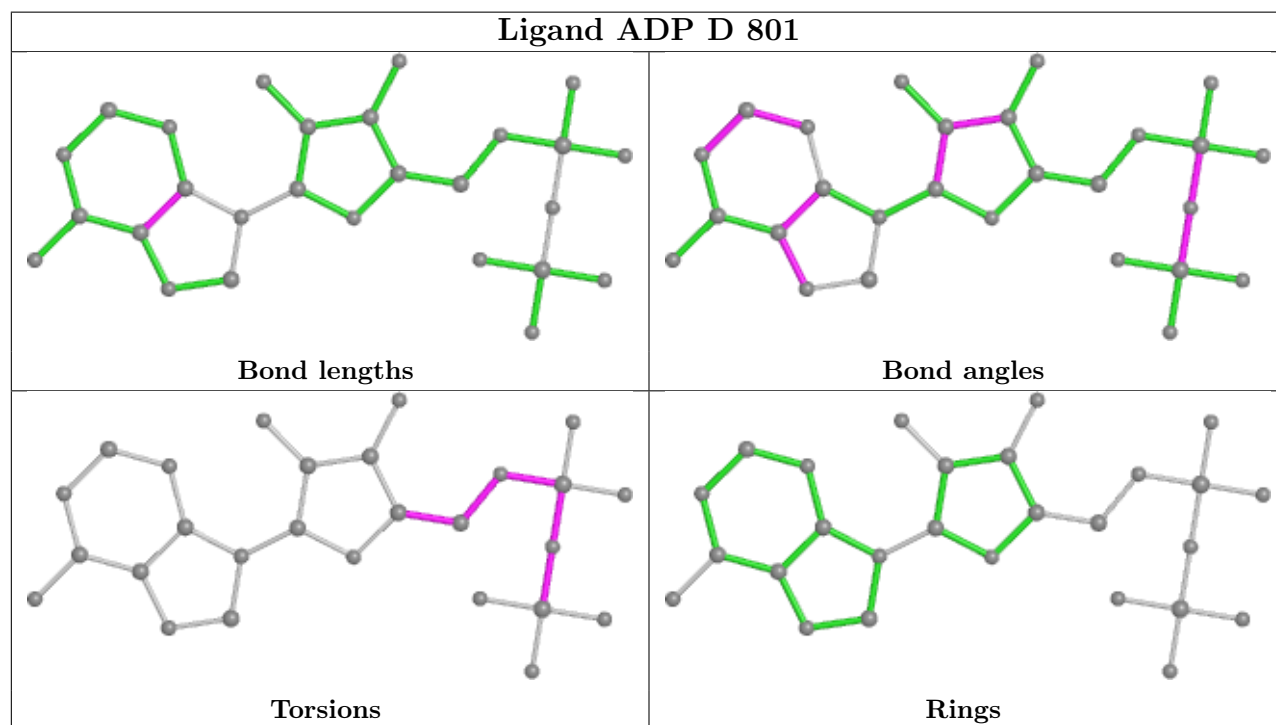
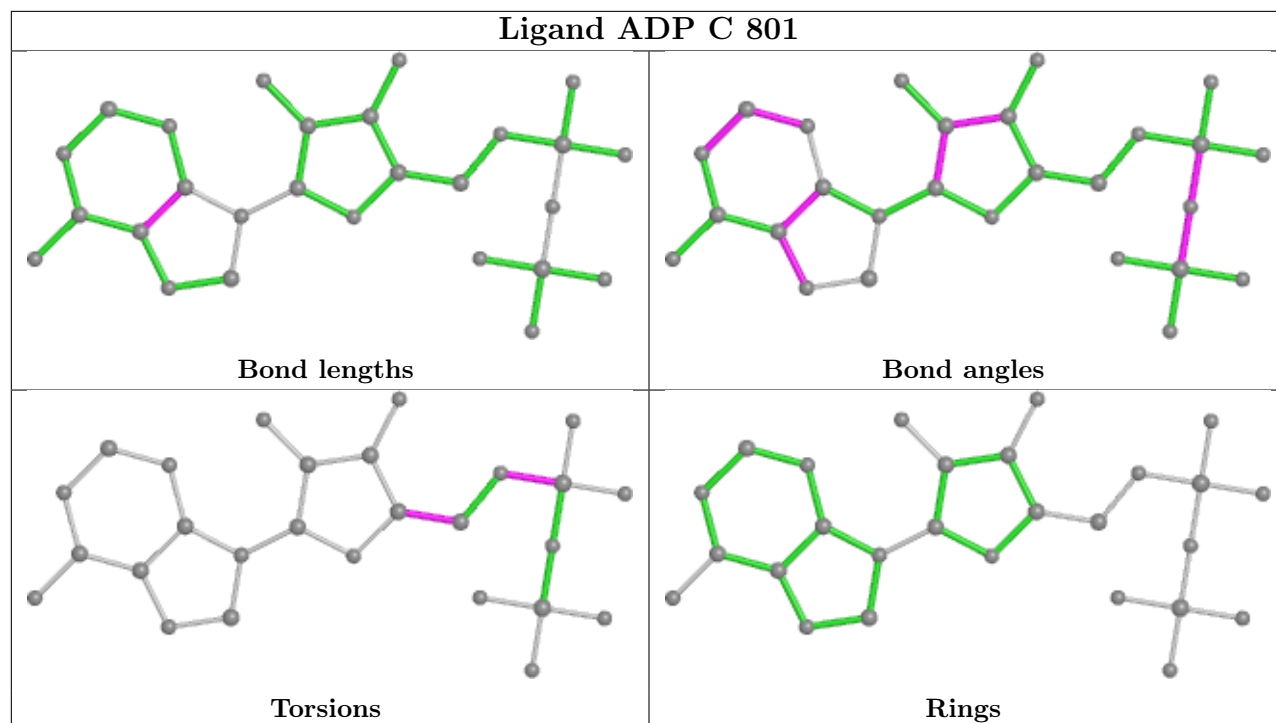
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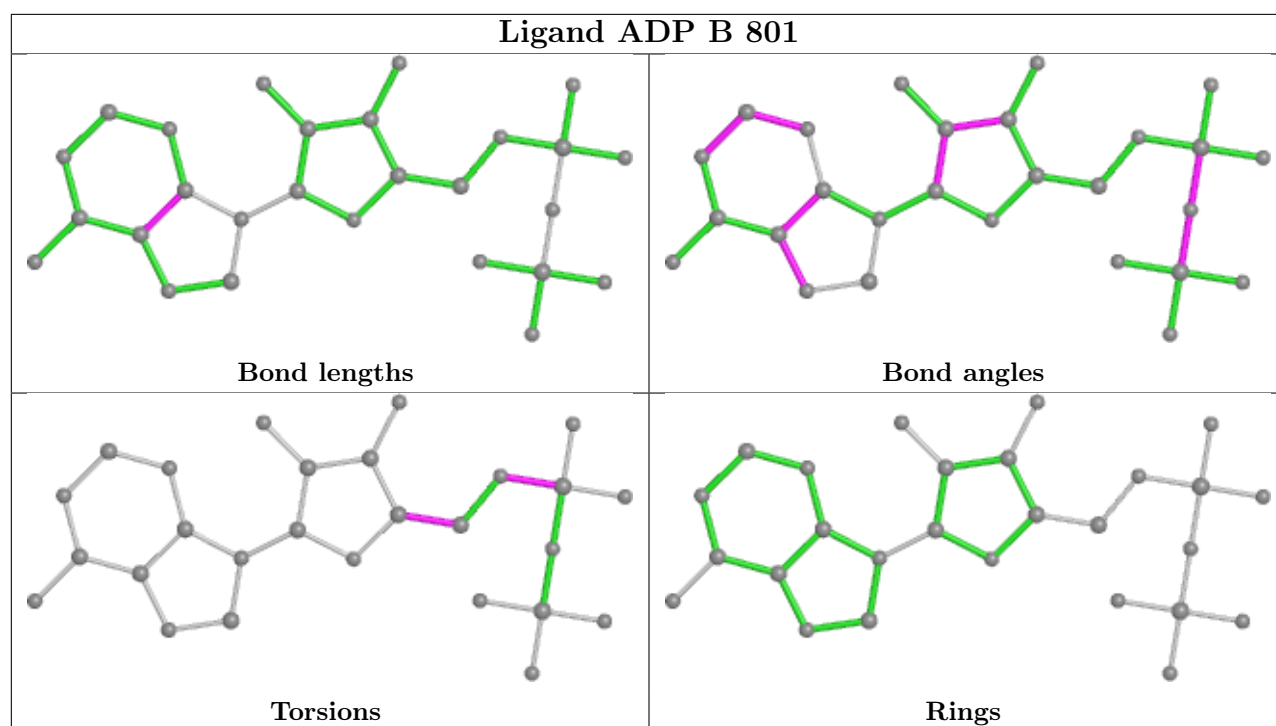
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Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	C	801	ADP	3	0
2	D	801	ADP	3	0
2	B	801	ADP	1	0

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.

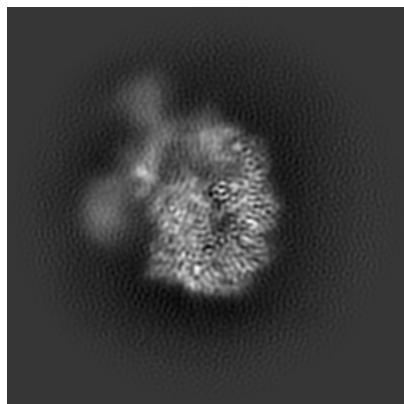
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-34113. These allow visual inspection of the internal detail of the map and identification of artifacts.

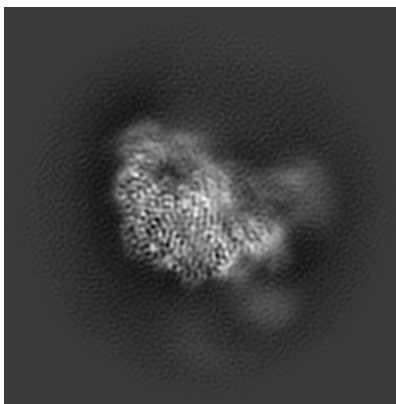
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

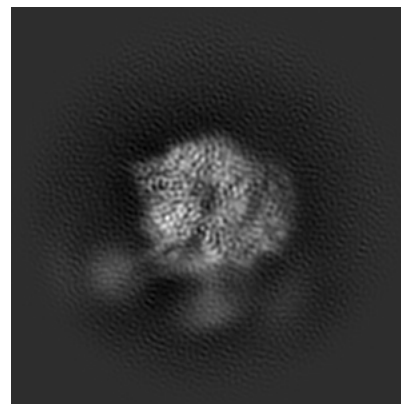
6.1.1 Primary map



X

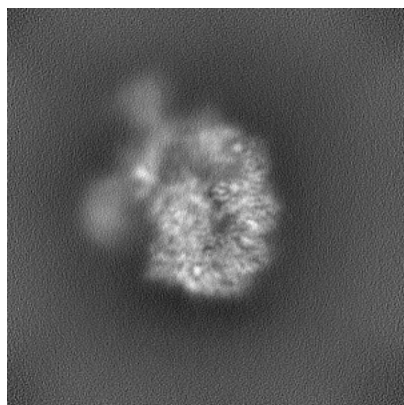


Y

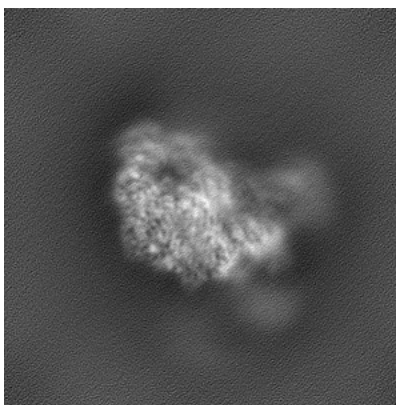


Z

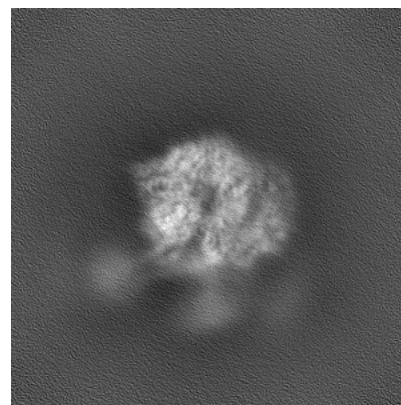
6.1.2 Raw map



X



Y

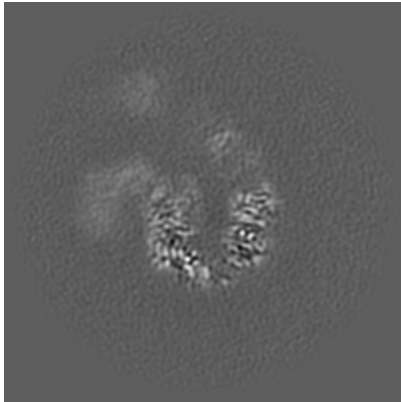


Z

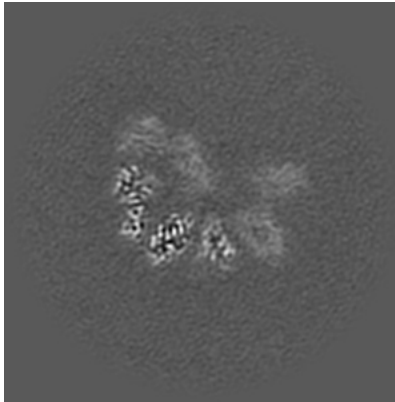
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

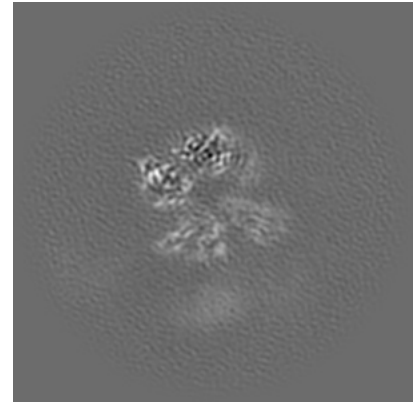
6.2.1 Primary map



X Index: 168

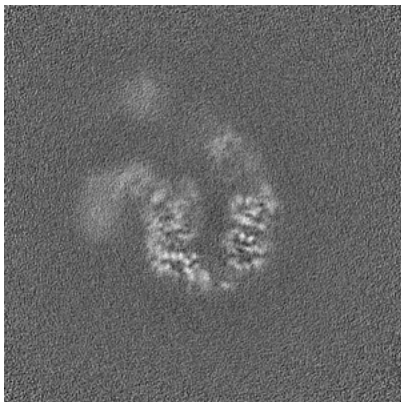


Y Index: 168

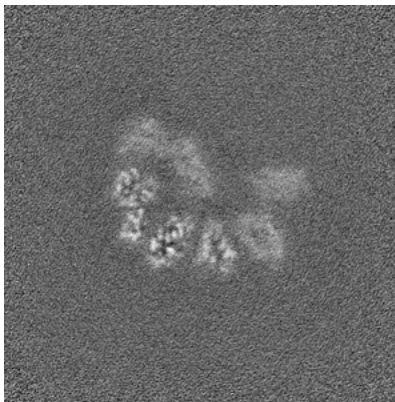


Z Index: 168

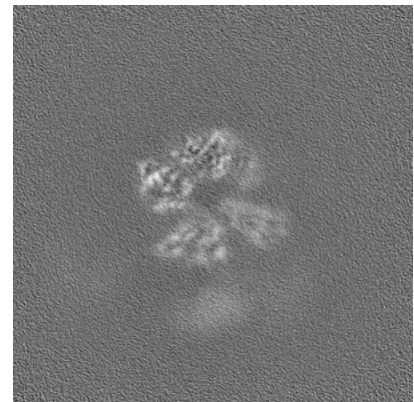
6.2.2 Raw map



X Index: 168



Y Index: 168

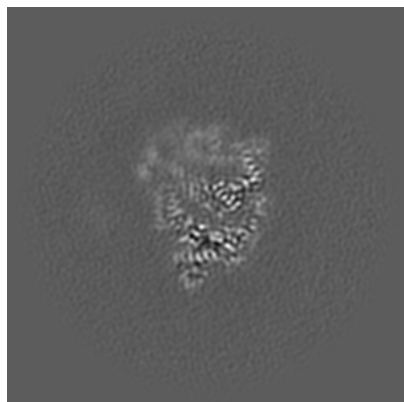


Z Index: 168

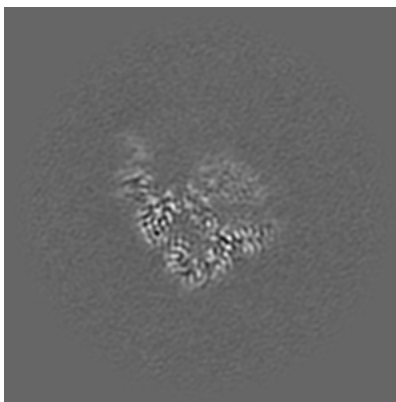
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

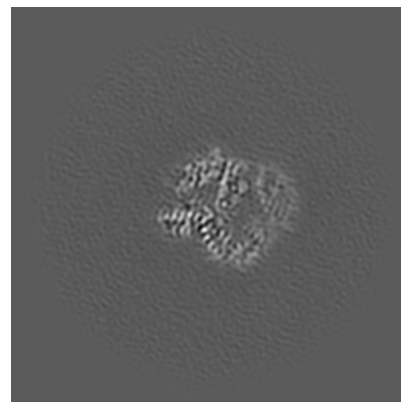
6.3.1 Primary map



X Index: 134

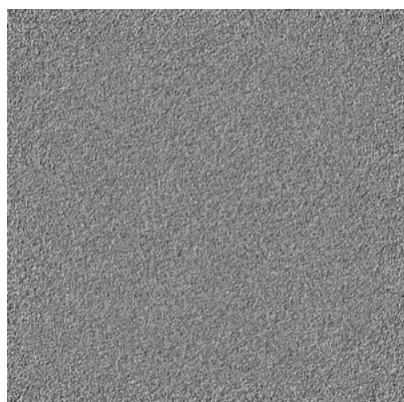


Y Index: 200

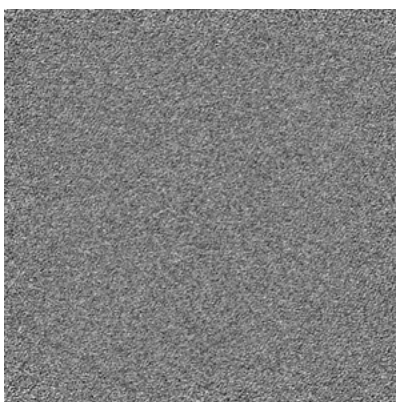


Z Index: 116

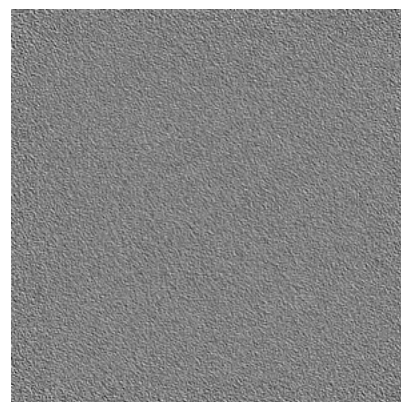
6.3.2 Raw map



X Index: 0



Y Index: 0

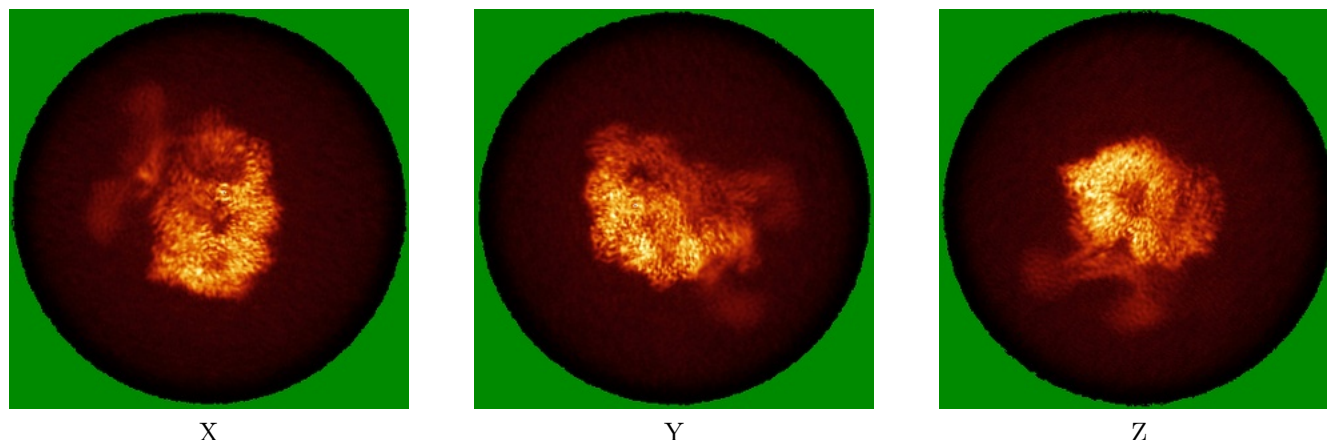


Z Index: 0

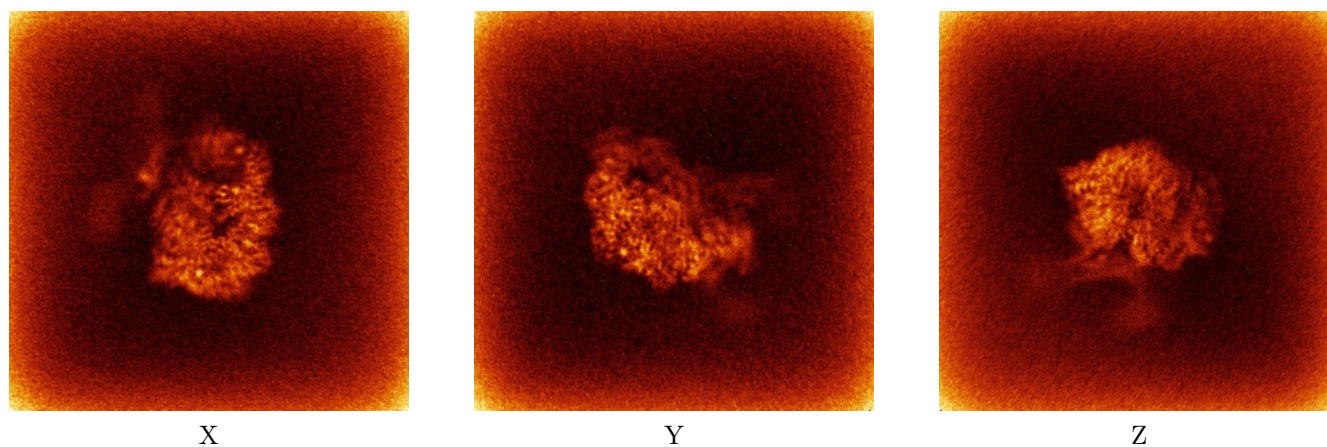
The images above show the largest variance slices of the map in three orthogonal directions.

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

6.4.1 Primary map



6.4.2 Raw map



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.

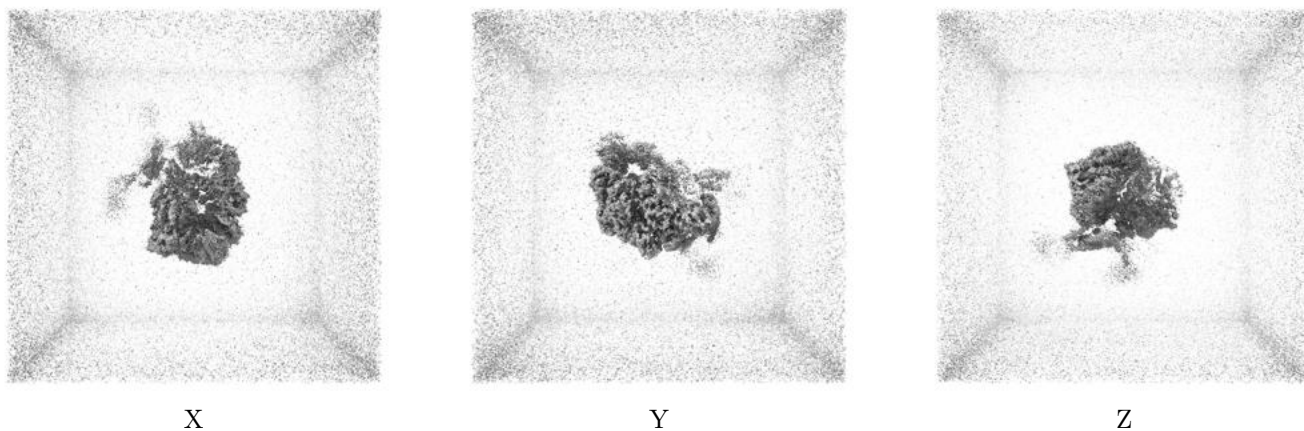
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.17. 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.

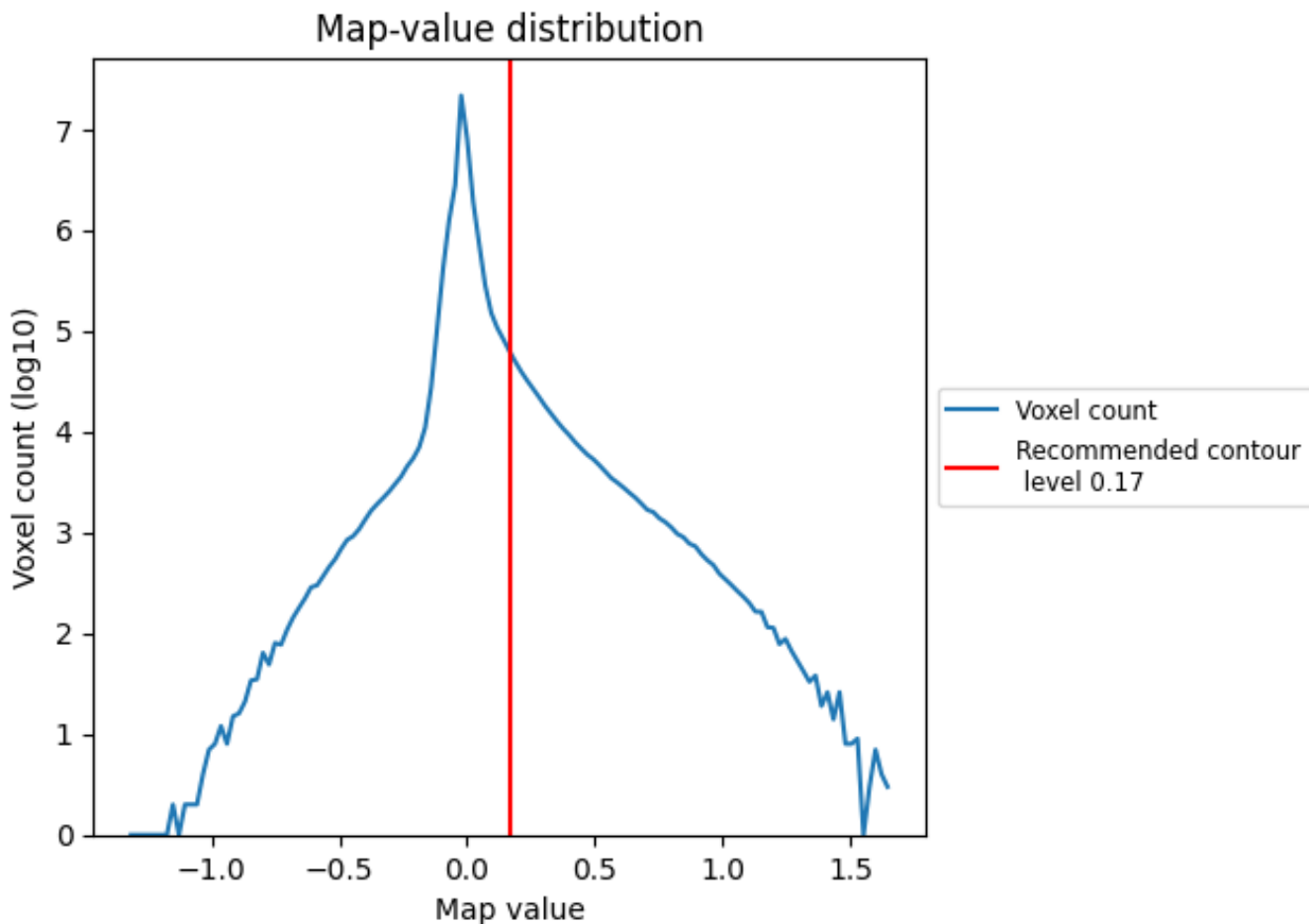
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

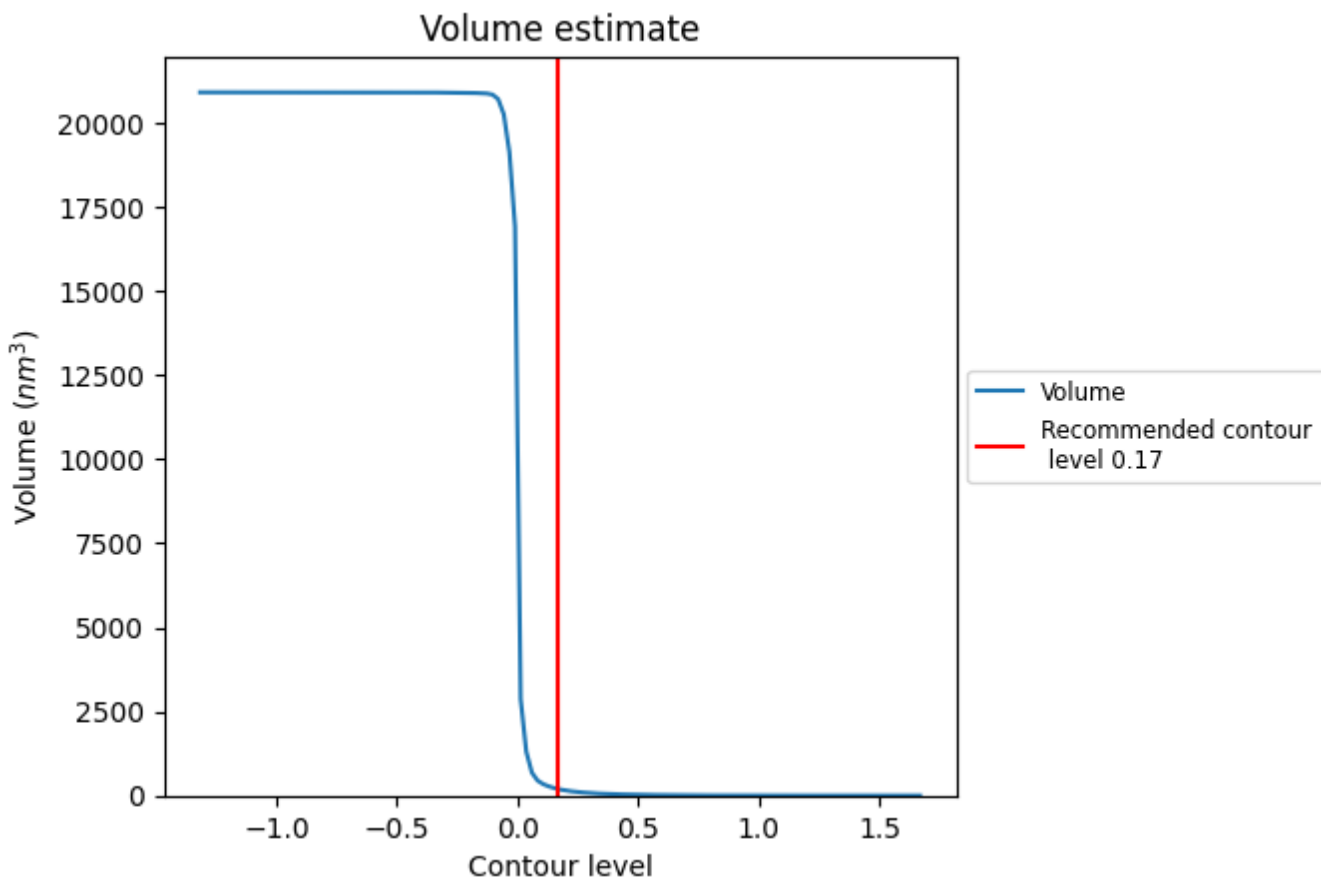
This section contains the results of statistical analysis of the map.

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.

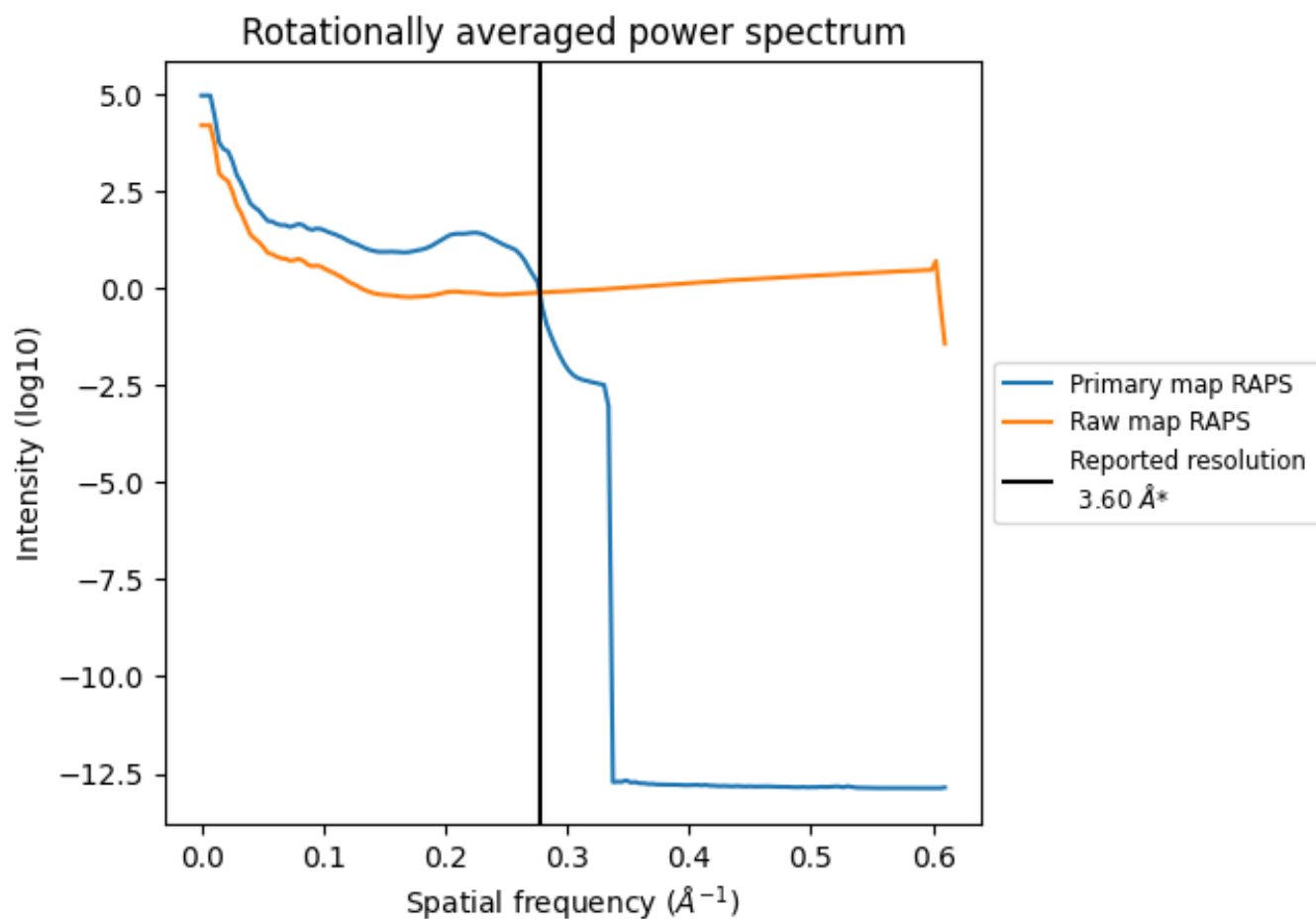
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 193 nm³; this corresponds to an approximate mass of 174 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](#)

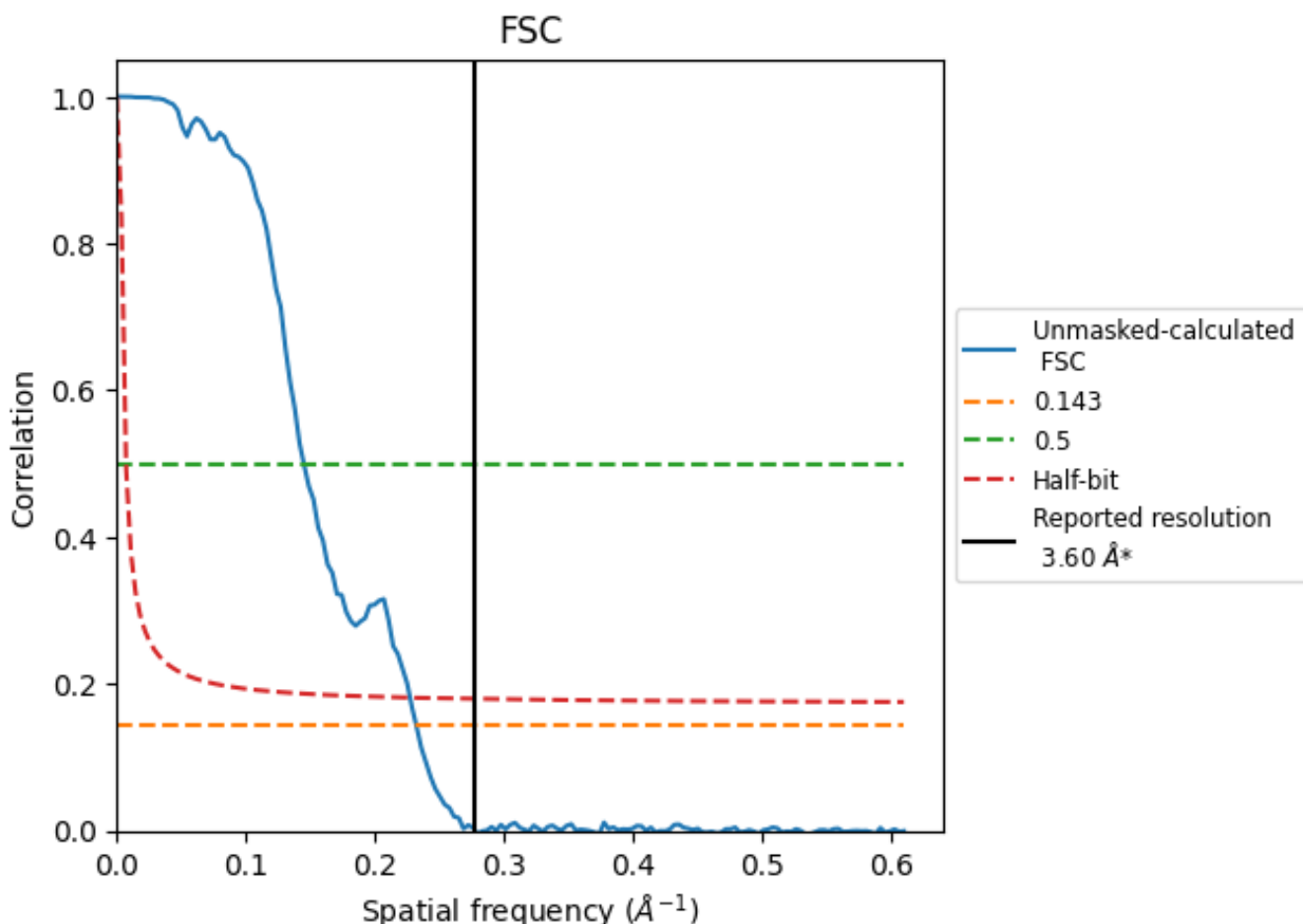


*Reported resolution corresponds to spatial frequency of 0.278 Å⁻¹

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 0.278 Å⁻¹

8.2 Resolution estimates [i](#)

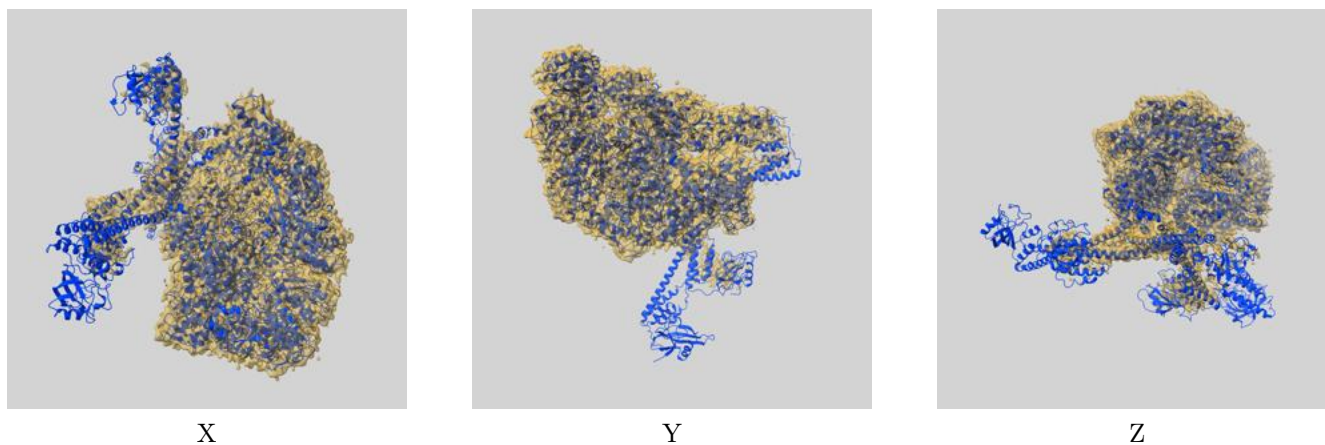
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.60	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	4.31	6.90	4.40

*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 4.31 differs from the reported value 3.6 by more than 10 %

9 Map-model fit [i](#)

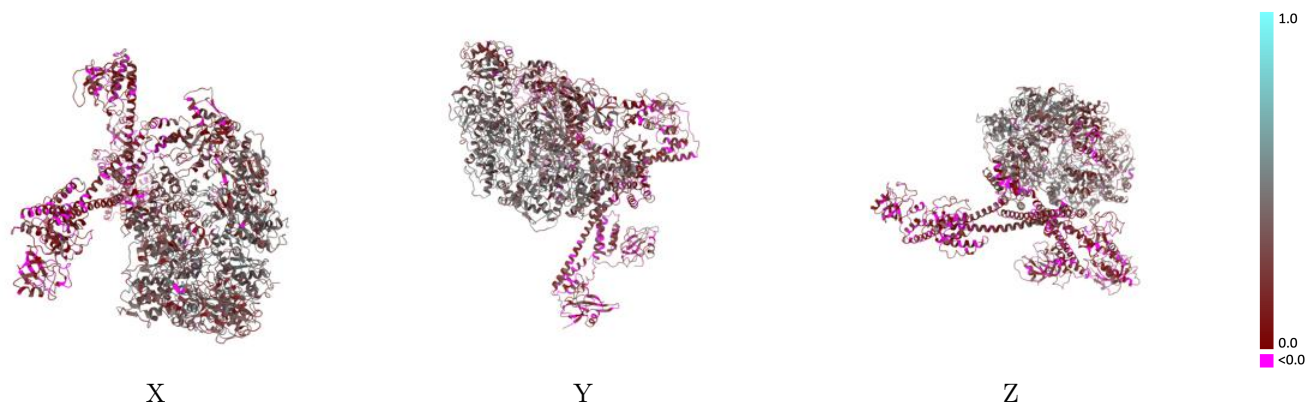
This section contains information regarding the fit between EMDB map EMD-34113 and PDB model 7YUW. Per-residue inclusion information can be found in section 3 on page 5.

9.1 Map-model overlay [i](#)



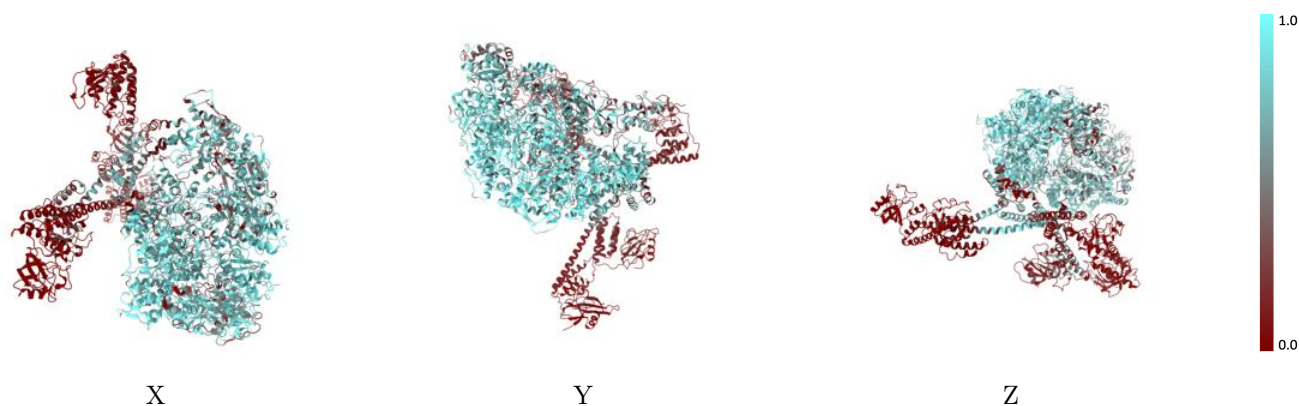
The images above show the 3D surface view of the map at the recommended contour level 0.17 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



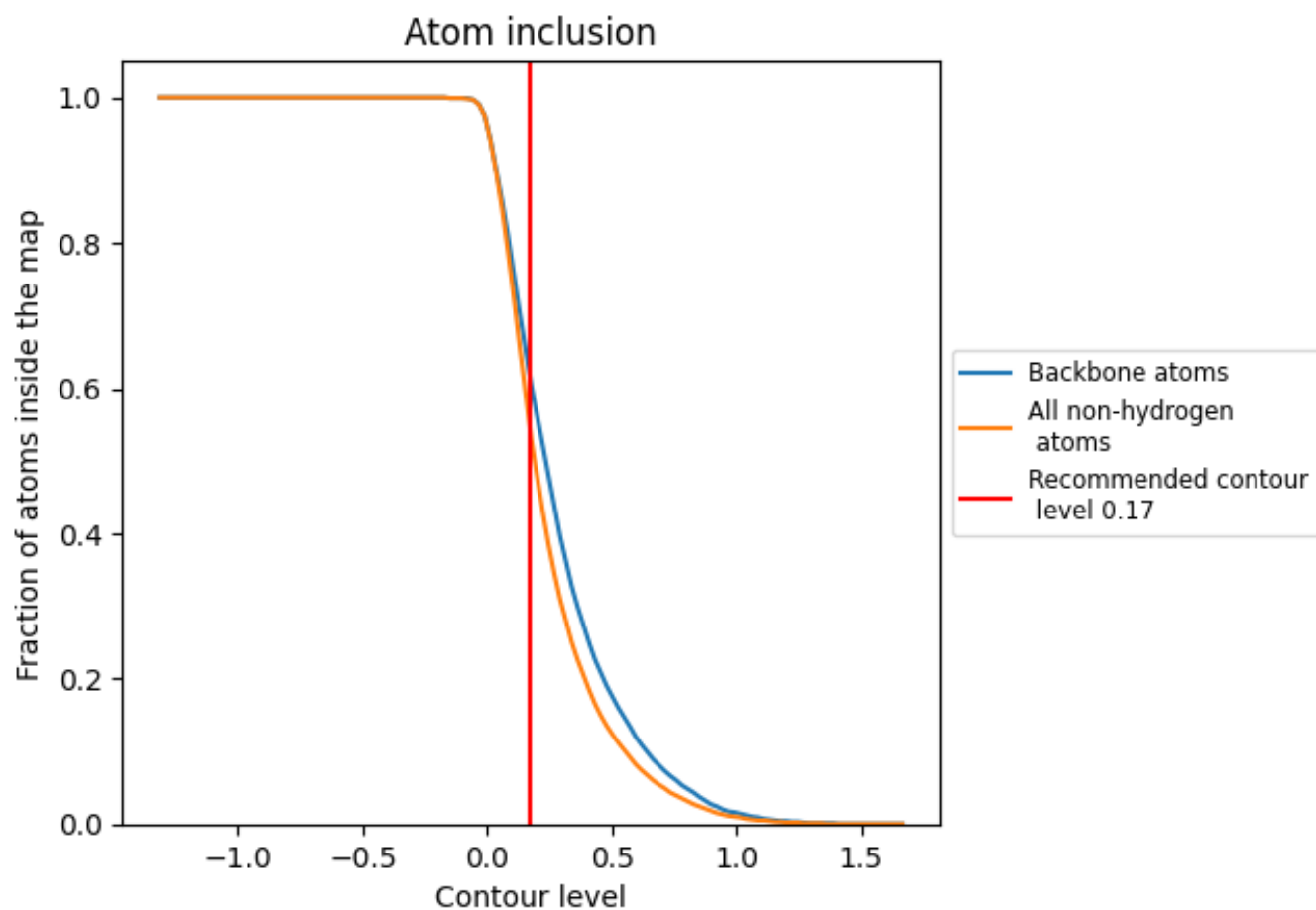
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.17).













9.4 Atom inclusion [i](#)



At the recommended contour level, 62% of all backbone atoms, 55% 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 (0.17) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.5470	 0.2830
A	 0.4960	 0.2490
B	 0.5700	 0.3150
C	 0.6160	 0.3280
D	 0.5890	 0.3130
E	 0.4630	 0.2070

