



Full wwPDB EM Validation Report ⓘ

Apr 14, 2026 – 06:19 PM EDT

PDB ID : 9O6G / pdb_00009o6g
EMDB ID : EMD-70173
Title : Wildtype rabbit TRPV5 in nanodics in the presence of Menthol and PI(4,5)P2
Authors : De Jesus-Perez, J.J.; Moiseenkova-Bell, V.Y.
Deposited on : 2025-04-13
Resolution : 3.37 Å(reported)
Based on initial model : 8FFO

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:

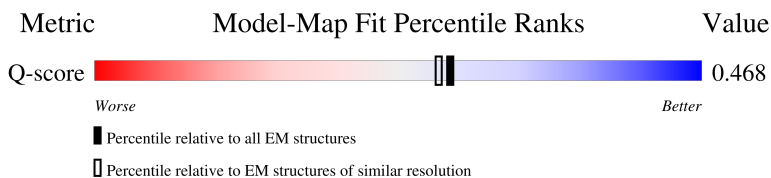
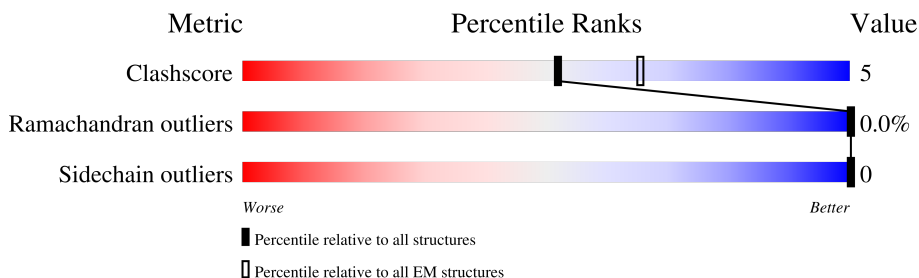
EMDB validation analysis : 0.0.1.dev132
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4-5-2 with Phenix2.0
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDb archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

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 3.37 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	14287 (2.87 - 3.87)

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	739	
1	B	739	
1	C	739	
1	D	739	

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 20263 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 Transient receptor potential cation channel subfamily V member 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	609	Total	C	N	O	S	0	0
			4877	3152	826	864	35		
1	B	609	Total	C	N	O	S	0	0
			4877	3152	826	864	35		
1	C	609	Total	C	N	O	S	0	0
			4877	3152	826	864	35		
1	D	609	Total	C	N	O	S	0	0
			4877	3152	826	864	35		

There are 36 discrepancies between the modelled and reference sequences:

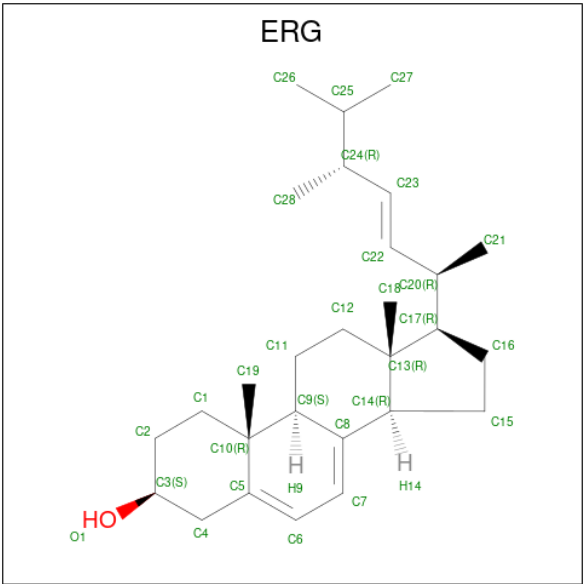
Chain	Residue	Modelled	Actual	Comment	Reference
A	731	THR	-	expression tag	UNP Q9XSM3
A	732	GLU	-	expression tag	UNP Q9XSM3
A	733	THR	-	expression tag	UNP Q9XSM3
A	734	SER	-	expression tag	UNP Q9XSM3
A	735	GLN	-	expression tag	UNP Q9XSM3
A	736	VAL	-	expression tag	UNP Q9XSM3
A	737	ALA	-	expression tag	UNP Q9XSM3
A	738	PRO	-	expression tag	UNP Q9XSM3
A	739	ALA	-	expression tag	UNP Q9XSM3
B	731	THR	-	expression tag	UNP Q9XSM3
B	732	GLU	-	expression tag	UNP Q9XSM3
B	733	THR	-	expression tag	UNP Q9XSM3
B	734	SER	-	expression tag	UNP Q9XSM3
B	735	GLN	-	expression tag	UNP Q9XSM3
B	736	VAL	-	expression tag	UNP Q9XSM3
B	737	ALA	-	expression tag	UNP Q9XSM3
B	738	PRO	-	expression tag	UNP Q9XSM3
B	739	ALA	-	expression tag	UNP Q9XSM3
C	731	THR	-	expression tag	UNP Q9XSM3
C	732	GLU	-	expression tag	UNP Q9XSM3
C	733	THR	-	expression tag	UNP Q9XSM3

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Chain	Residue	Modelled	Actual	Comment	Reference
C	734	SER	-	expression tag	UNP Q9XSM3
C	735	GLN	-	expression tag	UNP Q9XSM3
C	736	VAL	-	expression tag	UNP Q9XSM3
C	737	ALA	-	expression tag	UNP Q9XSM3
C	738	PRO	-	expression tag	UNP Q9XSM3
C	739	ALA	-	expression tag	UNP Q9XSM3
D	731	THR	-	expression tag	UNP Q9XSM3
D	732	GLU	-	expression tag	UNP Q9XSM3
D	733	THR	-	expression tag	UNP Q9XSM3
D	734	SER	-	expression tag	UNP Q9XSM3
D	735	GLN	-	expression tag	UNP Q9XSM3
D	736	VAL	-	expression tag	UNP Q9XSM3
D	737	ALA	-	expression tag	UNP Q9XSM3
D	738	PRO	-	expression tag	UNP Q9XSM3
D	739	ALA	-	expression tag	UNP Q9XSM3

- Molecule 2 is ERGOSTEROL (CCD ID: ERG) (formula: C₂₈H₄₄O).



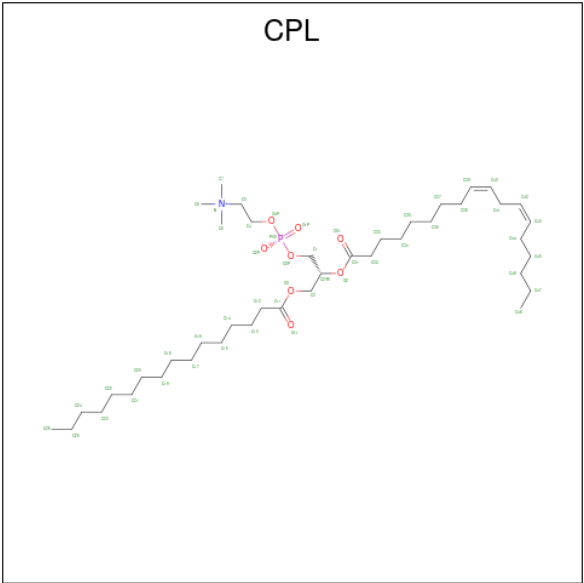
Mol	Chain	Residues	Atoms			AltConf
2	A	1	Total	C	O	0
			29	28	1	
2	A	1	Total	C	O	0
			29	28	1	
2	B	1	Total	C	O	0
			29	28	1	
2	B	1	Total	C	O	0
			29	28	1	

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Mol	Chain	Residues	Atoms			AltConf
2	C	1	Total	C	O	0
			29	28	1	
2	C	1	Total	C	O	0
			29	28	1	
2	D	1	Total	C	O	0
			29	28	1	
2	D	1	Total	C	O	0
			29	28	1	

- Molecule 3 is 1-PALMITOYL-2-LINOLEOYL-SN-GLYCERO-3-PHOSPHOCHOLINE (CCD ID: CPL) (formula: C₄₂H₈₀NO₈P).



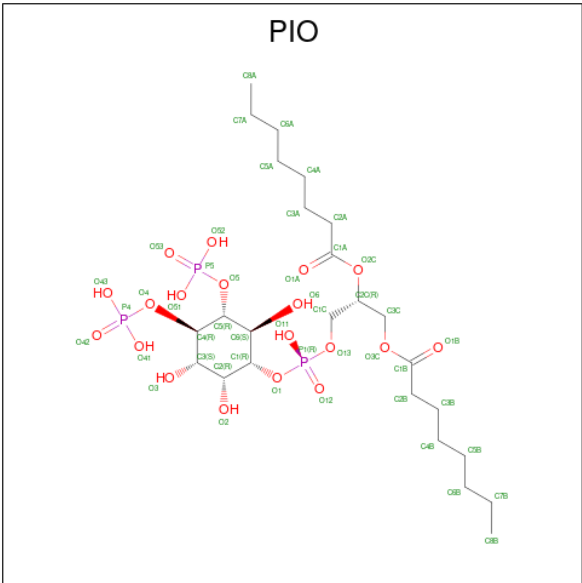
Mol	Chain	Residues	Atoms					AltConf
3	A	1	Total	C				0
			12	12				
3	A	1	Total	C				0
			12	12				
3	A	1	Total	C				0
			12	12				
3	A	1	Total	C	N	O	P	0
			45	35	1	8	1	
3	B	1	Total	C				0
			12	12				
3	B	1	Total	C				0
			12	12				
3	B	1	Total	C				0
			12	12				

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
3	B	1	45	35	1	8	1	0
3	C	1	Total	C				0
			12	12				
3	C	1	Total	C				0
			12	12				
3	C	1	Total	C				0
			12	12				
3	D	1	Total	C	N	O	P	0
			45	35	1	8	1	
3	D	1	Total	C	N	O	P	0
			45	35	1	8	1	
3	D	1	Total	C				0
			12	12				
3	D	1	Total	C				0
			12	12				
3	D	1	Total	C				0
			12	12				

- Molecule 4 is [(2R)-2-octanoyloxy-3-[oxidanyl-[(1R,2R,3S,4R,5R,6S)-2,3,6-tris(oxidanyl)-4,5-diphosphonooxy-cyclohexyl]oxy-phosphoryl]oxy-propyl] octanoate (CCD ID: PIO) (formula: C₂₅H₄₉O₁₉P₃).



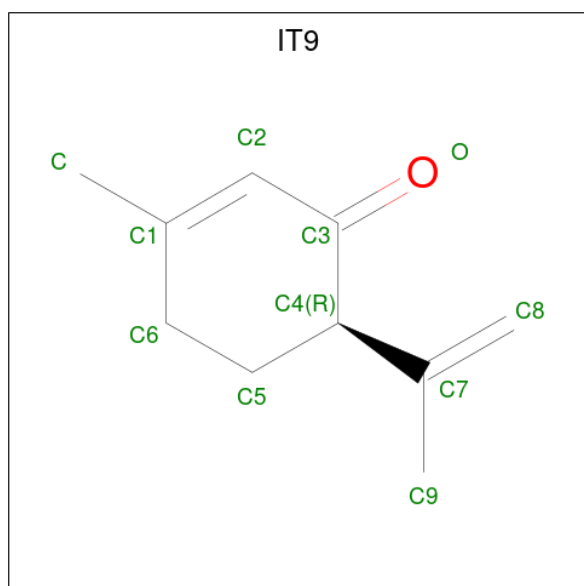
Mol	Chain	Residues	Atoms				AltConf
4	A	1	Total	C	O	P	0
			47	25	19	3	

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Mol	Chain	Residues	Atoms				AltConf
4	B	1	Total	C	O	P	0
			47	25	19	3	
4	C	1	Total	C	O	P	0
			47	25	19	3	
4	D	1	Total	C	O	P	0
			47	25	19	3	

- Molecule 5 is (-)-Isopiperitenone (CCD ID: IT9) (formula: C₁₀H₁₄O) (labeled as "Ligand of Interest" by depositor).

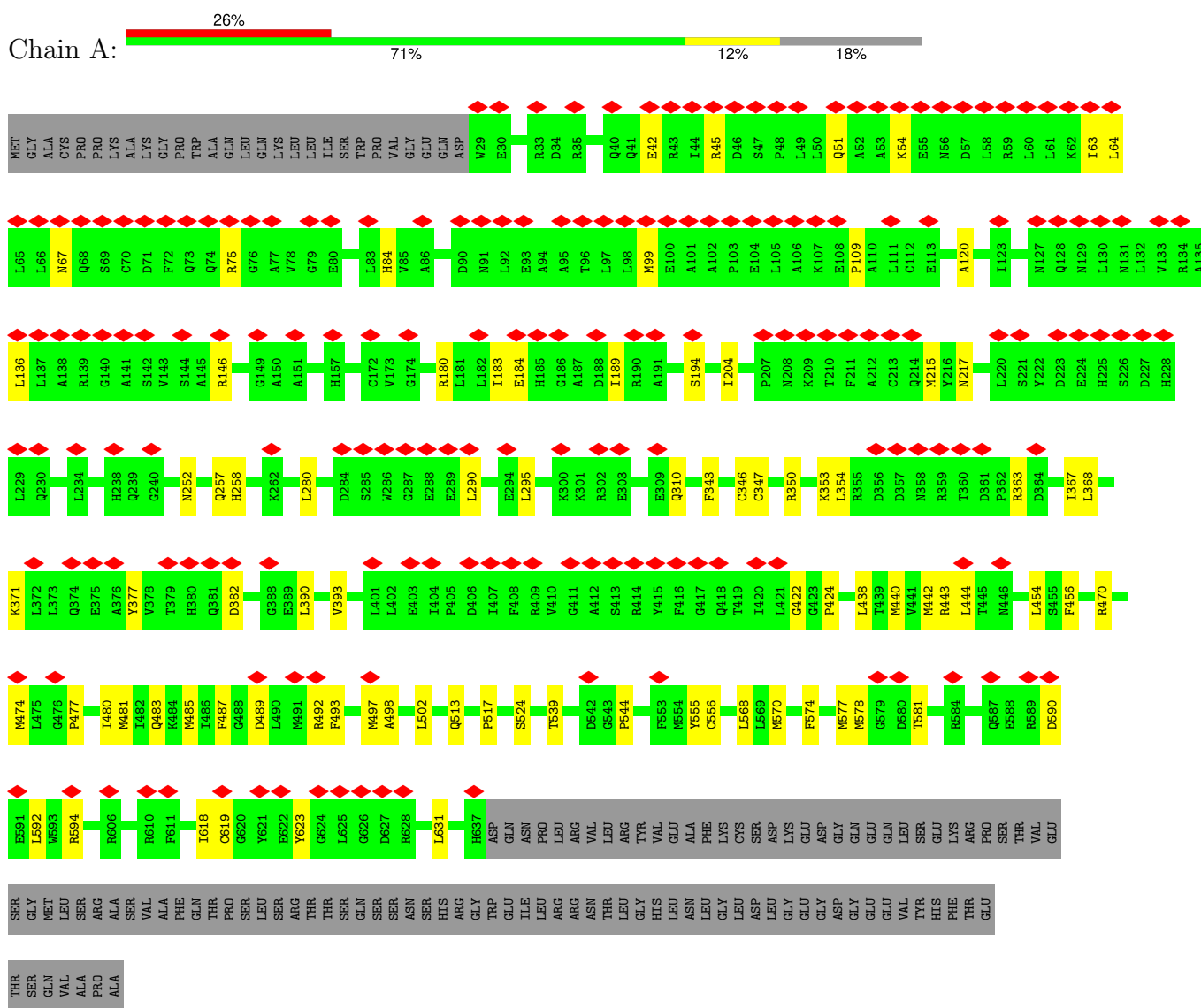


Mol	Chain	Residues	Atoms				AltConf
5	B	1	Total	C	O		0
			11	10	1		

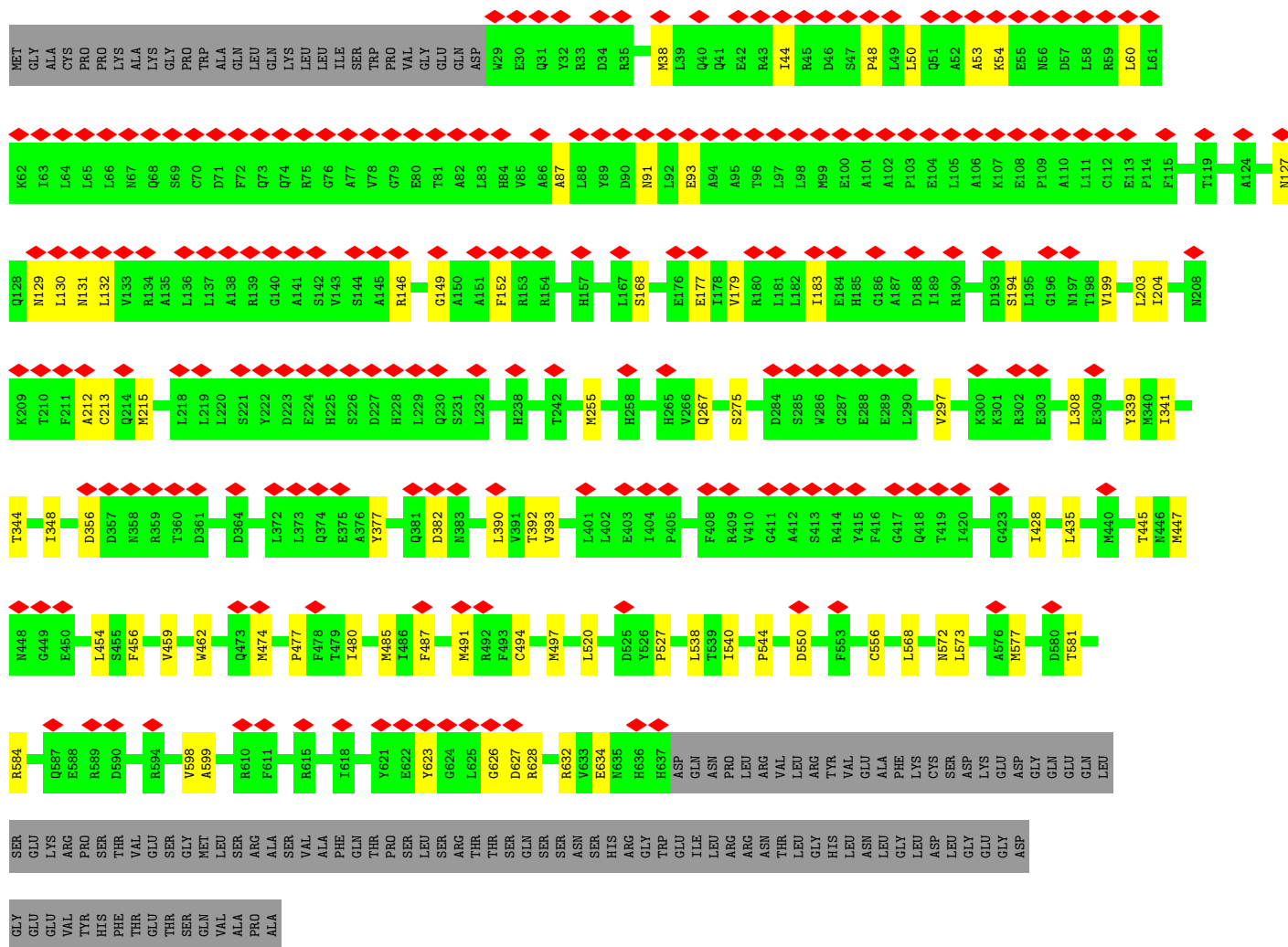
3 Residue-property plots

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.

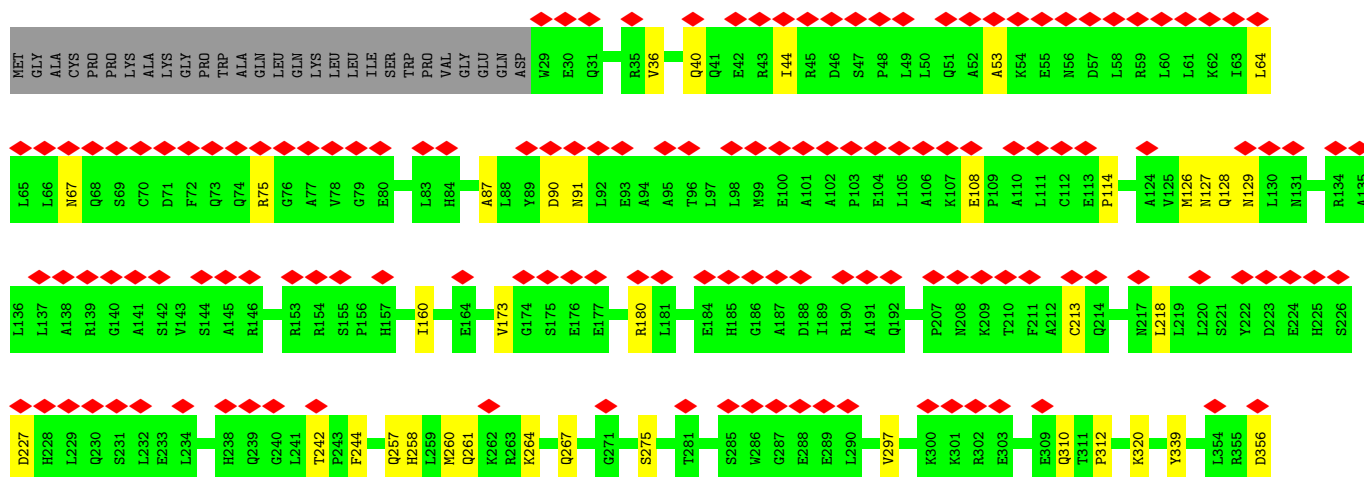
- Molecule 1: Transient receptor potential cation channel subfamily V member 5

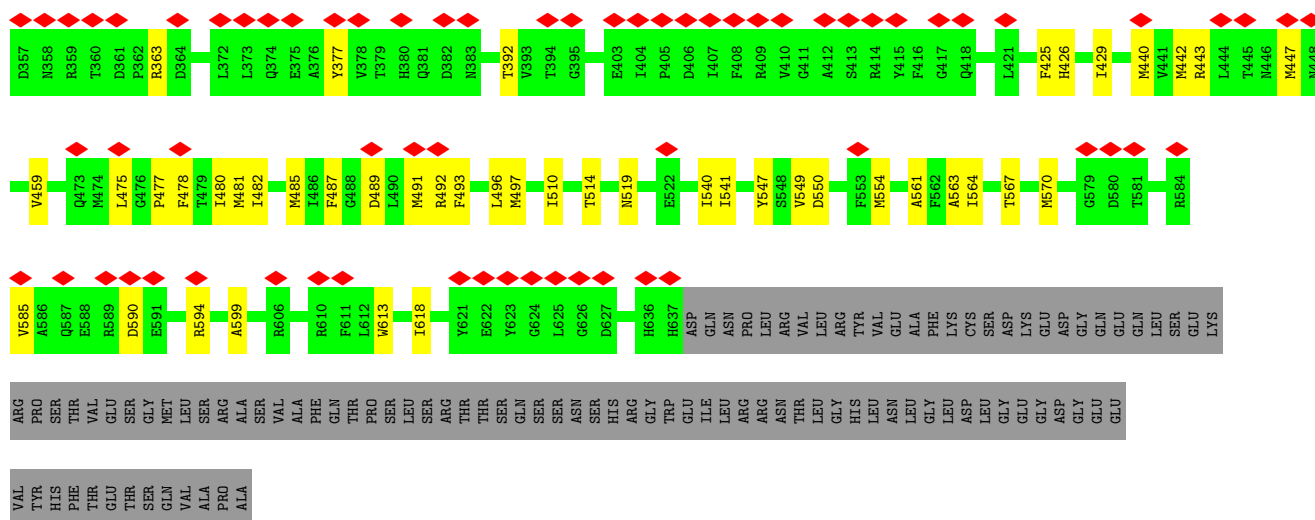


- Molecule 1: Transient receptor potential cation channel subfamily V member 5

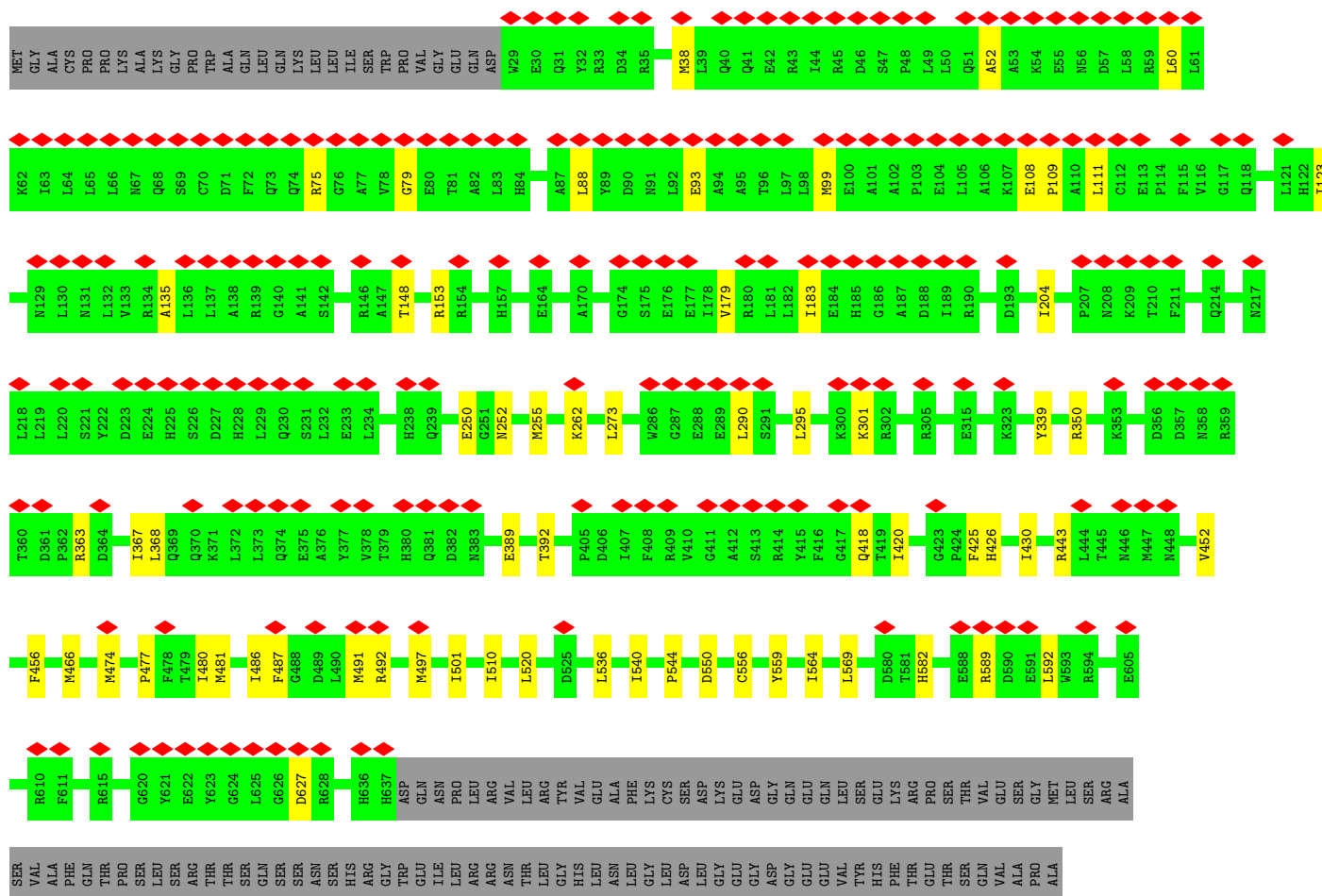
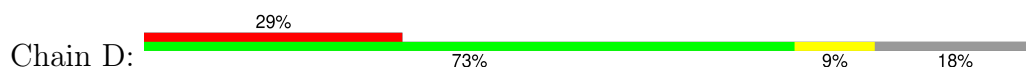


- Molecule 1: Transient receptor potential cation channel subfamily V member 5





- Molecule 1: Transient receptor potential cation channel subfamily V member 5



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	42348	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	42	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	105000	Depositor
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.697	Depositor
Minimum map value	-0.462	Depositor
Average map value	0.003	Depositor
Map value standard deviation	0.029	Depositor
Recommended contour level	0.19	Depositor
Map size (\AA)	239.04, 239.04, 239.04	wwPDB
Map dimensions	288, 288, 288	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	0.83, 0.83, 0.83	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: ERG, PIO, IT9, CPL

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	0.25	0/4991	0.54	0/6778
1	B	0.23	0/4991	0.50	0/6778
1	C	0.22	0/4991	0.51	0/6778
1	D	0.21	0/4991	0.49	0/6778
All	All	0.23	0/19964	0.51	0/27112

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	4877	0	4909	67	0
1	B	4877	0	4909	57	0
1	C	4877	0	4909	59	0
1	D	4877	0	4909	52	0
2	A	58	0	88	5	0
2	B	58	0	88	10	0
2	C	58	0	88	7	0
2	D	58	0	88	6	0
3	A	81	0	134	2	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	B	81	0	134	3	0
3	C	36	0	69	1	0
3	D	126	0	199	1	0
4	A	47	0	44	7	0
4	B	47	0	44	5	0
4	C	47	0	44	3	0
4	D	47	0	44	3	0
5	B	11	0	0	0	0
All	All	20263	0	20700	221	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 5.

All (221) 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:C:491:MET:HE2	4:C:806:PIO:H5AA	1.52	0.92
1:A:497:MET:HE2	2:A:805:ERG:H283	1.58	0.85
1:A:343:PHE:HA	1:A:346:CYS:SG	2.33	0.68
1:B:459:VAL:HG11	2:B:802:ERG:H272	1.77	0.67
1:A:42:GLU:HA	1:A:45:ARG:HE	1.62	0.65
1:D:456:PHE:CE1	2:D:803:ERG:H271	2.32	0.65
1:D:418:GLN:HG3	1:D:420:ILE:H	1.62	0.64
1:A:474:MET:HB3	1:D:492:ARG:HG2	1.78	0.64
1:A:424:PRO:HG3	4:A:807:PIO:H2BA	1.79	0.64
1:D:52:ALA:HB2	1:D:60:LEU:HD23	1.80	0.64
1:A:347:CYS:SG	1:A:454:LEU:HD22	2.37	0.63
1:B:445:THR:OG1	1:B:447:MET:HG2	1.99	0.63
1:A:456:PHE:HE1	2:A:801:ERG:H263	1.64	0.62
1:D:497:MET:HB3	2:D:807:ERG:H261	1.81	0.62
1:A:487:PHE:HZ	4:A:807:PIO:H4BA	1.63	0.62
1:B:50:LEU:HD12	1:B:50:LEU:H	1.64	0.62
1:A:42:GLU:OE1	1:B:623:TYR:HA	1.99	0.62
1:C:213:CYS:HG	1:C:258:HIS:HD1	1.47	0.61
1:D:486:ILE:O	1:D:491:MET:HG2	1.99	0.61
1:B:556:CYS:SG	2:C:805:ERG:H3	2.41	0.61
1:B:494:CYS:HB2	2:B:806:ERG:H261	1.82	0.61
1:A:539:THR:HG23	1:B:540:ILE:HD12	1.82	0.60
1:A:350:ARG:HE	1:D:510:ILE:HD11	1.65	0.60
1:B:204:ILE:HG12	1:B:255:MET:HG2	1.83	0.59
1:C:497:MET:HE3	2:C:805:ERG:H273	1.85	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:459:VAL:HG11	2:C:801:ERG:H25	1.85	0.59
1:C:487:PHE:CD1	4:C:806:PIO:H5A	2.38	0.58
1:D:109:PRO:HB2	1:D:111:LEU:HD23	1.85	0.58
1:C:64:LEU:O	1:C:67:ASN:ND2	2.36	0.57
1:D:99:MET:HE3	1:D:135:ALA:HB1	1.87	0.57
1:B:129:ASN:HD21	1:B:132:LEU:HD23	1.71	0.56
1:A:498:ALA:O	1:A:502:LEU:HB2	2.06	0.56
1:B:632:ARG:NH2	1:B:634:GLU:OE1	2.39	0.56
1:C:36:VAL:HG11	1:C:114:PRO:HG3	1.87	0.56
2:C:805:ERG:H211	2:C:805:ERG:H272	1.88	0.56
1:A:590:ASP:O	1:A:594:ARG:HG2	2.07	0.55
1:C:257:GLN:OE1	1:C:310:GLN:NE2	2.40	0.55
1:C:87:ALA:O	1:C:127:ASN:ND2	2.39	0.55
1:C:492:ARG:HG2	1:D:474:MET:HB2	1.90	0.54
1:C:356:ASP:N	1:C:356:ASP:OD1	2.41	0.54
1:B:53:ALA:O	1:B:91:ASN:ND2	2.41	0.53
2:A:805:ERG:H3	1:D:556:CYS:SG	2.49	0.53
1:D:480:ILE:HG21	1:D:592:LEU:HD13	1.90	0.53
1:C:487:PHE:HD1	4:C:806:PIO:H5A	1.74	0.53
1:C:496:LEU:HD22	1:D:466:MET:HG2	1.91	0.53
1:B:428:ILE:HD11	2:B:802:ERG:C7	2.38	0.53
1:C:213:CYS:SG	1:C:258:HIS:ND1	2.75	0.53
1:A:180:ARG:O	1:A:184:GLU:HB2	2.09	0.53
1:B:38:MET:HG3	1:C:618:ILE:HG21	1.90	0.53
1:C:489:ASP:OD1	1:C:492:ARG:NH1	2.42	0.53
1:C:320:LYS:HG2	1:C:613:TRP:HZ3	1.73	0.53
1:A:492:ARG:NH1	1:B:474:MET:SD	2.80	0.52
1:A:63:ILE:O	1:A:67:ASN:ND2	2.42	0.52
1:A:574:PHE:HA	1:A:577:MET:HE2	1.92	0.52
1:B:44:ILE:HG21	1:B:54:LYS:HD3	1.90	0.52
1:C:180:ARG:HE	1:C:218:LEU:HD11	1.74	0.52
1:D:204:ILE:O	1:D:252:ASN:ND2	2.41	0.52
1:A:480:ILE:HG21	1:A:592:LEU:HD13	1.92	0.52
2:B:806:ERG:H212	3:B:807:CPL:H39	1.91	0.52
1:A:343:PHE:HA	1:A:346:CYS:HG	1.72	0.52
1:A:568:LEU:HD13	1:B:538:LEU:HD22	1.91	0.52
1:C:53:ALA:O	1:C:91:ASN:ND2	2.38	0.52
1:D:389:GLU:HG2	3:D:804:CPL:H251	1.90	0.52
1:B:146:ARG:NH2	1:B:194:SER:OG	2.43	0.52
1:C:550:ASP:OD1	1:D:363:ARG:NH1	2.43	0.51
1:B:435:LEU:HD13	1:B:456:PHE:HB3	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:627:ASP:OD1	1:B:627:ASP:N	2.44	0.51
1:A:146:ARG:NH2	1:A:194:SER:OG	2.43	0.51
1:A:487:PHE:CE1	4:A:807:PIO:H2BA	2.45	0.51
1:A:217:ASN:OD1	1:A:258:HIS:NE2	2.40	0.51
1:A:280:LEU:HD11	1:A:631:LEU:HB2	1.92	0.51
1:B:491:MET:HE3	4:B:808:PIO:H6AA	1.92	0.51
1:C:497:MET:HE2	2:C:805:ERG:H262	1.92	0.51
1:D:477:PRO:HG2	1:D:589:ARG:HD3	1.92	0.51
1:B:550:ASP:OD1	1:C:363:ARG:NH2	2.43	0.50
1:C:377:TYR:OH	1:C:443:ARG:NH1	2.44	0.50
1:D:75:ARG:HH22	1:D:108:GLU:HB3	1.75	0.50
1:A:422:GLY:HA3	1:A:470:ARG:HH12	1.76	0.50
1:A:180:ARG:O	1:A:184:GLU:CB	2.59	0.50
1:C:540:ILE:HG22	1:C:541:ILE:HG23	1.94	0.50
1:B:520:LEU:HD11	1:B:544:PRO:HB3	1.93	0.50
1:D:627:ASP:OD1	1:D:627:ASP:N	2.45	0.49
1:B:573:LEU:O	1:B:577:MET:HB3	2.12	0.49
1:A:444:LEU:N	1:A:444:LEU:HD22	2.28	0.49
1:D:204:ILE:HG12	1:D:255:MET:HG2	1.93	0.49
1:A:257:GLN:NE2	1:A:310:GLN:OE1	2.45	0.49
1:A:487:PHE:CZ	4:A:807:PIO:H2BA	2.47	0.49
1:B:297:VAL:HG21	1:B:599:ALA:HB2	1.95	0.49
1:B:477:PRO:HA	1:B:480:ILE:HD13	1.94	0.49
1:C:481:MET:HB2	1:C:585:VAL:HG11	1.94	0.49
1:B:487:PHE:HD1	4:B:808:PIO:H6A	1.77	0.49
1:A:618:ILE:HG21	1:D:38:MET:HE3	1.94	0.48
1:A:290:LEU:HD12	1:A:295:LEU:HD21	1.94	0.48
1:A:363:ARG:NH1	1:D:550:ASP:OD2	2.47	0.48
1:C:440:MET:HG2	3:C:802:CPL:H211	1.95	0.48
1:C:129:ASN:OD1	1:C:129:ASN:N	2.46	0.48
1:A:367:ILE:HG13	1:A:368:LEU:HG	1.96	0.48
1:D:520:LEU:HD11	1:D:544:PRO:HB3	1.96	0.48
1:A:183:ILE:HD11	1:A:189:ILE:CG2	2.44	0.48
1:A:353:LYS:HB3	1:A:371:LYS:HG2	1.96	0.47
1:A:487:PHE:CD1	4:A:807:PIO:H6A	2.49	0.47
1:C:554:MET:HE2	1:C:554:MET:HB2	1.77	0.47
1:D:339:TYR:HE1	1:D:392:THR:HA	1.79	0.47
3:A:806:CPL:H171	1:B:341:ILE:HG12	1.96	0.47
1:B:487:PHE:HB3	4:B:808:PIO:H4AA	1.96	0.47
1:D:367:ILE:HG13	1:D:368:LEU:HG	1.97	0.47
1:B:213:CYS:HA	1:B:255:MET:HE1	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:485:MET:HB3	1:A:485:MET:HE2	1.75	0.47
1:C:227:ASP:OD1	1:C:227:ASP:N	2.45	0.47
1:B:527:PRO:O	2:B:806:ERG:H11	2.14	0.47
1:B:87:ALA:O	1:B:127:ASN:ND2	2.47	0.46
1:C:519:ASN:HD22	1:C:549:VAL:HG11	1.79	0.46
1:C:564:ILE:HD11	2:D:807:ERG:H24	1.97	0.46
1:C:126:MET:HA	1:C:173:VAL:HG11	1.97	0.46
1:A:424:PRO:HG3	4:A:807:PIO:C2B	2.45	0.46
1:B:626:GLY:H	1:B:628:ARG:HH21	1.64	0.46
1:D:487:PHE:HD1	4:D:808:PIO:H4AA	1.81	0.46
1:D:250:GLU:HA	1:D:301:LYS:HG3	1.98	0.46
1:B:344:THR:OG1	1:B:462:TRP:NE1	2.41	0.45
1:A:556:CYS:SG	2:B:806:ERG:H3	2.56	0.45
1:B:497:MET:HE3	2:B:806:ERG:H262	1.99	0.45
1:D:75:ARG:HB3	1:D:79:GLY:HA2	1.97	0.45
1:D:497:MET:O	1:D:501:ILE:HB	2.17	0.45
1:A:483:GLN:HE21	2:A:801:ERG:H41	1.81	0.45
1:C:547:TYR:O	1:D:363:ARG:NH2	2.50	0.45
1:D:481:MET:SD	1:D:582:HIS:ND1	2.76	0.45
1:B:377:TYR:HA	1:B:382:ASP:HB3	1.99	0.45
1:B:339:TYR:HE1	1:B:392:THR:HA	1.82	0.45
2:B:806:ERG:H23	2:B:806:ERG:H272	1.72	0.45
1:D:93:GLU:OE1	1:D:93:GLU:N	2.48	0.45
1:B:456:PHE:CD1	2:B:802:ERG:H262	2.52	0.45
2:D:807:ERG:H162	2:D:807:ERG:H22	1.77	0.44
1:D:487:PHE:CE1	4:D:808:PIO:H5B	2.52	0.44
1:A:354:LEU:HA	1:A:368:LEU:HD23	2.00	0.44
1:A:84:HIS:HD2	1:A:120:ALA:HB2	1.83	0.44
1:A:489:ASP:OD2	1:A:581:THR:OG1	2.35	0.44
1:C:554:MET:HE1	1:D:452:VAL:HG13	1.99	0.44
1:D:252:ASN:HB3	1:D:255:MET:HB3	2.00	0.44
1:C:339:TYR:HE1	1:C:392:THR:HA	1.82	0.44
1:A:619:CYS:HB3	1:A:623:TYR:HE2	1.82	0.44
1:B:356:ASP:OD1	1:B:356:ASP:N	2.47	0.44
1:B:568:LEU:O	1:B:572:ASN:ND2	2.51	0.43
1:C:213:CYS:HG	1:C:258:HIS:CE1	2.33	0.43
1:A:64:LEU:N	1:A:64:LEU:HD22	2.33	0.43
1:B:203:LEU:HD22	1:B:212:ALA:HB1	2.01	0.43
2:B:806:ERG:H212	2:B:806:ERG:H121	2.01	0.43
1:D:88:LEU:HA	1:D:123:ILE:HG21	1.99	0.43
1:A:493:PHE:HZ	1:A:570:MET:HB3	1.84	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:215:MET:HE2	1:B:215:MET:HB2	1.91	0.43
1:C:261:GLN:HG2	1:C:264:LYS:HE3	2.00	0.43
1:A:99:MET:HE1	1:A:136:LEU:HA	1.99	0.43
1:A:456:PHE:HD1	2:A:801:ERG:H272	1.83	0.43
1:A:544:PRO:O	1:A:555:TYR:OH	2.27	0.43
1:A:377:TYR:HA	1:A:382:ASP:HB3	1.99	0.43
1:C:425:PHE:CZ	2:C:801:ERG:H42	2.52	0.43
1:C:514:THR:HA	1:D:368:LEU:HB2	1.99	0.43
1:A:577:MET:HE3	1:A:577:MET:HB2	1.84	0.43
1:C:297:VAL:HG21	1:C:599:ALA:HB2	2.00	0.43
1:C:90:ASP:OD1	1:C:129:ASN:ND2	2.52	0.43
1:D:536:LEU:HD13	1:D:559:TYR:HE1	1.83	0.43
1:A:377:TYR:OH	1:A:443:ARG:NH1	2.52	0.43
1:B:130:LEU:HD21	1:B:177:GLU:HG3	2.01	0.43
1:D:564:ILE:HD13	1:D:564:ILE:HA	1.92	0.43
3:B:804:CPL:H241	3:B:804:CPL:H212	1.90	0.42
1:C:267:GLN:OE1	1:C:275:SER:OG	2.32	0.42
1:A:75:ARG:NH2	1:A:109:PRO:O	2.53	0.42
1:C:442:MET:HG2	1:C:447:MET:HB2	2.00	0.42
1:C:493:PHE:HZ	1:C:570:MET:HB3	1.83	0.42
1:A:204:ILE:O	1:A:252:ASN:ND2	2.52	0.42
1:B:60:LEU:HD23	1:B:60:LEU:HA	1.92	0.42
1:C:475:LEU:HA	1:C:478:PHE:CD1	2.55	0.42
1:C:567:THR:HG21	1:D:540:ILE:HD12	2.01	0.42
1:A:485:MET:HG3	1:D:569:LEU:HD11	2.02	0.42
1:C:160:ILE:HG12	1:D:273:LEU:HD11	2.02	0.42
1:D:487:PHE:CE1	4:D:808:PIO:H7AA	2.54	0.42
1:C:477:PRO:HA	1:C:480:ILE:HG22	2.02	0.42
1:B:267:GLN:OE1	1:B:275:SER:OG	2.30	0.42
1:A:444:LEU:N	1:A:444:LEU:CD2	2.83	0.42
1:C:426:HIS:HA	1:C:429:ILE:HG22	2.01	0.42
1:C:561:ALA:CB	2:D:803:ERG:H24	2.49	0.42
1:A:438:LEU:O	1:A:442:MET:HG2	2.20	0.41
1:B:168:SER:HA	1:B:199:VAL:HG23	2.02	0.41
1:B:577:MET:HE2	1:B:577:MET:HB2	1.89	0.41
1:B:179:VAL:O	1:B:183:ILE:HG13	2.20	0.41
1:D:148:THR:O	1:D:153:ARG:NH1	2.54	0.41
1:D:426:HIS:O	1:D:430:ILE:HG13	2.20	0.41
1:C:40:GLN:O	1:C:44:ILE:HG13	2.20	0.41
1:C:260:MET:HG2	1:C:312:PRO:HG3	2.01	0.41
1:C:128:GLN:NE2	1:C:173:VAL:O	2.53	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:510:ILE:O	1:D:350:ARG:NH2	2.53	0.41
1:D:262:LYS:HA	1:D:262:LYS:HD2	1.90	0.41
1:A:215:MET:HE3	1:A:215:MET:HB2	1.97	0.41
1:B:131:ASN:N	1:B:131:ASN:OD1	2.53	0.41
1:B:149:GLY:HA3	1:B:152:PHE:HD2	1.84	0.41
1:B:390:LEU:HA	1:B:393:VAL:HG12	2.01	0.41
1:C:590:ASP:OD2	1:C:594:ARG:NH1	2.50	0.41
1:A:51:GLN:HA	1:A:54:LYS:HG2	2.03	0.41
1:A:390:LEU:HA	1:A:393:VAL:HG12	2.02	0.41
1:A:487:PHE:HE1	4:A:807:PIO:O3C	2.04	0.41
1:B:485:MET:HG2	1:B:581:THR:HG21	2.03	0.41
1:B:584:ARG:HH22	4:B:808:PIO:H4	1.85	0.41
1:C:242:THR:HG22	1:C:244:PHE:H	1.86	0.41
2:C:801:ERG:H263	2:C:801:ERG:H23	1.80	0.41
1:D:108:GLU:HA	1:D:109:PRO:HD3	1.87	0.41
1:A:440:MET:HG3	3:A:802:CPL:H221	2.02	0.41
1:D:179:VAL:O	1:D:183:ILE:HG12	2.21	0.41
1:A:477:PRO:O	1:A:481:MET:HG3	2.21	0.40
1:B:491:MET:CE	4:B:808:PIO:H6AA	2.51	0.40
1:A:470:ARG:HE	1:A:470:ARG:HB3	1.67	0.40
1:A:574:PHE:O	1:A:578:MET:HG2	2.21	0.40
1:B:454:LEU:HD21	3:B:803:CPL:H262	2.03	0.40
1:A:513:GLN:NE2	1:B:348:ILE:O	2.40	0.40
1:A:517:PRO:HB3	1:A:524:SER:HB2	2.03	0.40
1:C:563:ALA:O	1:C:567:THR:HB	2.21	0.40
1:D:425:PHE:CZ	2:D:803:ERG:H22A	2.55	0.40
1:D:389:GLU:OE1	1:D:443:ARG:NH1	2.52	0.40
1:B:93:GLU:OE2	1:B:93:GLU:N	2.50	0.40
1:B:308:LEU:HD22	1:B:598:VAL:HG21	2.04	0.40
1:C:75:ARG:NH2	1:C:108:GLU:OE1	2.55	0.40
1:C:482:ILE:HA	1:C:485:MET:HE3	2.04	0.40
1:D:290:LEU:HD22	1:D:295:LEU:HD21	2.04	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	607/739 (82%)	596 (98%)	11 (2%)	0	100	100
1	B	607/739 (82%)	595 (98%)	11 (2%)	1 (0%)	43	70
1	C	607/739 (82%)	595 (98%)	12 (2%)	0	100	100
1	D	607/739 (82%)	592 (98%)	15 (2%)	0	100	100
All	All	2428/2956 (82%)	2378 (98%)	49 (2%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	48	PRO

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	527/638 (83%)	527 (100%)	0	100	100
1	B	527/638 (83%)	527 (100%)	0	100	100
1	C	527/638 (83%)	527 (100%)	0	100	100
1	D	527/638 (83%)	527 (100%)	0	100	100
All	All	2108/2552 (83%)	2108 (100%)	0	100	100

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (27) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	31	GLN
1	A	41	GLN
1	A	51	GLN

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Mol	Chain	Res	Type
1	A	128	GLN
1	A	206	GLN
1	A	252	ASN
1	B	31	GLN
1	B	238	HIS
1	B	252	ASN
1	B	483	GLN
1	B	572	ASN
1	C	84	HIS
1	C	206	GLN
1	C	208	ASN
1	C	230	GLN
1	C	238	HIS
1	C	239	GLN
1	C	310	GLN
1	C	418	GLN
1	D	40	GLN
1	D	67	ASN
1	D	131	ASN
1	D	165	HIS
1	D	206	GLN
1	D	238	HIS
1	D	258	HIS
1	D	519	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

29 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	ERG	D	803	-	32,32,32	0.52	0	45,50,50	0.80	1 (2%)
2	ERG	A	801	-	32,32,32	0.60	1 (3%)	45,50,50	0.69	1 (2%)
3	CPL	C	804	-	11,11,51	0.99	0	10,10,59	0.12	0
3	CPL	D	801	-	44,44,51	1.91	11 (25%)	50,52,59	1.16	5 (10%)
4	PIO	C	806	-	47,47,47	0.51	0	62,65,65	0.47	0
3	CPL	A	804	-	11,11,51	1.00	0	10,10,59	0.10	0
3	CPL	D	802	-	44,44,51	1.85	10 (22%)	50,52,59	1.10	3 (6%)
3	CPL	A	806	-	44,44,51	1.88	10 (22%)	50,52,59	1.09	4 (8%)
2	ERG	B	802	-	32,32,32	0.54	1 (3%)	45,50,50	0.67	0
4	PIO	A	807	-	47,47,47	0.50	0	62,65,65	0.50	0
2	ERG	B	806	-	32,32,32	0.52	0	45,50,50	0.78	1 (2%)
3	CPL	D	804	-	11,11,51	1.00	0	10,10,59	0.15	0
3	CPL	C	802	-	11,11,51	0.97	0	10,10,59	0.10	0
3	CPL	D	805	-	11,11,51	1.00	0	10,10,59	0.09	0
3	CPL	C	803	-	11,11,51	0.99	0	10,10,59	0.11	0
3	CPL	A	802	-	11,11,51	1.07	0	10,10,59	0.11	0
3	CPL	D	806	-	11,11,51	0.98	0	10,10,59	0.10	0
2	ERG	C	805	-	32,32,32	0.51	0	45,50,50	0.65	0
3	CPL	B	803	-	11,11,51	0.99	0	10,10,59	0.19	0
3	CPL	A	803	-	11,11,51	0.97	0	10,10,59	0.10	0
4	PIO	B	808	-	47,47,47	0.46	0	62,65,65	0.52	0
4	PIO	D	808	-	47,47,47	0.50	0	62,65,65	0.45	0
2	ERG	C	801	-	32,32,32	0.56	1 (3%)	45,50,50	0.67	0
3	CPL	B	805	-	11,11,51	1.01	0	10,10,59	0.09	0
2	ERG	D	807	-	32,32,32	0.52	0	45,50,50	0.68	0
3	CPL	B	804	-	11,11,51	0.94	0	10,10,59	0.13	0
3	CPL	B	807	-	44,44,51	1.90	11 (25%)	50,52,59	1.14	4 (8%)
5	IT9	B	801	-	11,11,11	0.52	0	10,15,15	0.52	0
2	ERG	A	805	-	32,32,32	0.53	0	45,50,50	0.78	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
2	ERG	D	803	-	-	9/13/71/71	0/4/4/4
2	ERG	A	801	-	-	11/13/71/71	0/4/4/4
3	CPL	C	804	-	-	0/9/9/55	-
3	CPL	D	801	-	-	23/48/48/55	-
4	PIO	C	806	-	-	17/44/68/68	0/1/1/1
3	CPL	A	804	-	-	0/9/9/55	-
3	CPL	D	802	-	-	23/48/48/55	-
3	CPL	A	806	-	-	25/48/48/55	-
2	ERG	B	802	-	-	11/13/71/71	0/4/4/4
4	PIO	A	807	-	-	6/44/68/68	0/1/1/1
2	ERG	B	806	-	-	4/13/71/71	0/4/4/4
3	CPL	D	804	-	-	0/9/9/55	-
3	CPL	C	802	-	-	1/9/9/55	-
3	CPL	D	805	-	-	0/9/9/55	-
3	CPL	C	803	-	-	2/9/9/55	-
3	CPL	A	802	-	-	4/9/9/55	-
3	CPL	D	806	-	-	0/9/9/55	-
2	ERG	C	805	-	-	9/13/71/71	0/4/4/4
3	CPL	B	803	-	-	2/9/9/55	-
3	CPL	A	803	-	-	2/9/9/55	-
4	PIO	B	808	-	-	15/44/68/68	0/1/1/1
4	PIO	D	808	-	-	10/44/68/68	0/1/1/1
2	ERG	C	801	-	-	7/13/71/71	0/4/4/4
3	CPL	B	805	-	-	0/9/9/55	-
2	ERG	D	807	-	-	11/13/71/71	0/4/4/4
3	CPL	B	804	-	-	1/9/9/55	-
3	CPL	B	807	-	-	22/48/48/55	-
5	IT9	B	801	-	-	0/4/17/17	0/1/1/1
2	ERG	A	805	-	-	7/13/71/71	0/4/4/4

All (45) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	807	CPL	P-O4P	6.47	1.84	1.59
3	A	806	CPL	P-O4P	6.39	1.84	1.59
3	D	802	CPL	P-O4P	6.36	1.84	1.59
3	D	801	CPL	P-O4P	6.34	1.84	1.59

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	801	CPL	C3-C2	4.45	1.64	1.50
3	D	802	CPL	C3-C2	4.23	1.64	1.50
3	B	807	CPL	C3-C2	4.18	1.63	1.50
3	A	806	CPL	C3-C2	4.16	1.63	1.50
3	D	802	CPL	P-O3P	3.89	1.74	1.59
3	A	806	CPL	P-O3P	3.83	1.74	1.59
3	D	801	CPL	P-O3P	3.82	1.74	1.59
3	B	807	CPL	P-O3P	3.79	1.74	1.59
3	B	807	CPL	C5-C4	3.51	1.61	1.51
3	A	806	CPL	C5-C4	3.25	1.61	1.51
3	D	801	CPL	C5-C4	3.24	1.61	1.51
3	D	802	CPL	C5-C4	2.89	1.60	1.51
3	D	801	CPL	C1-C2	2.72	1.59	1.50
3	D	801	CPL	C32-C31	2.66	1.58	1.50
3	B	807	CPL	C32-C31	2.61	1.58	1.50
3	B	807	CPL	C1-C2	2.58	1.58	1.50
3	A	806	CPL	C1-C2	2.56	1.58	1.50
3	D	802	CPL	C1-C2	2.56	1.58	1.50
3	A	806	CPL	C32-C31	2.52	1.58	1.50
3	D	801	CPL	O3-C11	2.39	1.40	1.33
2	A	801	ERG	C10-C9	2.38	1.58	1.55
3	D	802	CPL	C32-C31	2.36	1.57	1.50
3	D	801	CPL	O2-C31	2.32	1.40	1.34
3	D	802	CPL	O3-C11	2.31	1.40	1.33
3	B	807	CPL	O2-C31	2.31	1.40	1.34
3	A	806	CPL	O3-C11	2.25	1.39	1.33
3	B	807	CPL	O3-C11	2.20	1.39	1.33
3	D	801	CPL	C5-N	2.19	1.58	1.51
3	A	806	CPL	C5-N	2.18	1.58	1.51
3	D	802	CPL	O4P-C4	-2.17	1.36	1.44
3	D	801	CPL	O4P-C4	-2.15	1.36	1.44
3	A	806	CPL	O4P-C4	-2.14	1.36	1.44
3	D	802	CPL	C12-C11	2.14	1.56	1.50
3	B	807	CPL	C5-N	2.13	1.58	1.51
3	D	801	CPL	C12-C11	2.13	1.56	1.50
2	C	801	ERG	C10-C9	2.12	1.58	1.55
3	B	807	CPL	C12-C11	2.06	1.56	1.50
2	B	802	ERG	C10-C9	2.06	1.58	1.55
3	D	802	CPL	O2-C31	2.01	1.40	1.34
3	B	807	CPL	O4P-C4	-2.00	1.36	1.44
3	A	806	CPL	O2-C31	2.00	1.39	1.34

All (20) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	807	CPL	O2-C31-C32	4.74	121.73	111.48
3	D	801	CPL	O2-C31-C32	4.72	121.69	111.48
3	A	806	CPL	O2-C31-C32	4.52	121.25	111.48
3	D	802	CPL	O2-C31-C32	4.39	120.97	111.48
3	D	801	CPL	O3-C11-C12	3.58	122.76	111.83
3	D	802	CPL	O3-C11-C12	3.53	122.60	111.83
3	A	806	CPL	O3-C11-C12	3.43	122.28	111.83
3	B	807	CPL	O3-C11-C12	3.41	122.22	111.83
2	D	803	ERG	C14-C8-C9	2.90	119.06	114.46
3	B	807	CPL	C2-O2-C31	2.52	123.83	117.80
3	D	802	CPL	O3-C11-O11	-2.40	117.61	123.63
3	D	801	CPL	O3-C11-O11	-2.37	117.70	123.63
3	D	801	CPL	C2-O2-C31	2.37	123.46	117.80
3	B	807	CPL	O3-C11-O11	-2.37	117.71	123.63
3	A	806	CPL	O3-C11-O11	-2.27	117.94	123.63
2	A	805	ERG	C14-C13-C17	-2.18	97.44	99.72
2	A	801	ERG	C9-C10-C5	2.13	113.06	109.66
2	B	806	ERG	C14-C8-C9	-2.09	111.14	114.46
3	A	806	CPL	O2-C31-O31	-2.03	118.96	123.70
3	D	801	CPL	O3-C3-C2	2.00	114.17	108.40

There are no chirality outliers.

All (222) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	801	ERG	C13-C17-C20-C21
2	A	801	ERG	C16-C17-C20-C21
2	A	801	ERG	C20-C22-C23-C24
2	A	801	ERG	C23-C24-C25-C27
2	A	801	ERG	C28-C24-C25-C26
2	A	805	ERG	C20-C22-C23-C24
2	A	805	ERG	C23-C24-C25-C26
2	A	805	ERG	C28-C24-C25-C26
2	B	802	ERG	C13-C17-C20-C21
2	B	802	ERG	C16-C17-C20-C21
2	B	802	ERG	C20-C22-C23-C24
2	B	802	ERG	C23-C24-C25-C26
2	B	802	ERG	C23-C24-C25-C27
2	B	802	ERG	C28-C24-C25-C26
2	B	802	ERG	C28-C24-C25-C27
2	C	801	ERG	C13-C17-C20-C21
2	C	801	ERG	C16-C17-C20-C21
2	C	801	ERG	C17-C20-C22-C23

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Mol	Chain	Res	Type	Atoms
2	C	801	ERG	C20-C22-C23-C24
2	C	805	ERG	C13-C17-C20-C21
2	C	805	ERG	C16-C17-C20-C21
2	C	805	ERG	C22-C23-C24-C25
2	D	803	ERG	C13-C17-C20-C21
2	D	803	ERG	C16-C17-C20-C21
2	D	803	ERG	C20-C22-C23-C24
2	D	807	ERG	C13-C17-C20-C21
2	D	807	ERG	C16-C17-C20-C21
2	D	807	ERG	C23-C24-C25-C26
2	D	807	ERG	C23-C24-C25-C27
2	D	807	ERG	C28-C24-C25-C27
3	A	806	CPL	C32-C31-O2-C2
3	A	806	CPL	O31-C31-O2-C2
3	A	806	CPL	C4-O4P-P-O1P
3	B	807	CPL	C32-C31-O2-C2
3	B	807	CPL	C1-O3P-P-O4P
3	B	807	CPL	C4-O4P-P-O1P
3	B	807	CPL	C4-O4P-P-O2P
3	B	807	CPL	C4-O4P-P-O3P
3	D	801	CPL	C32-C31-O2-C2
3	D	802	CPL	C2-C3-O3-C11
3	D	802	CPL	C1-O3P-P-O2P
3	D	802	CPL	C1-O3P-P-O4P
3	D	802	CPL	C4-O4P-P-O1P
3	D	802	CPL	C4-O4P-P-O3P
4	C	806	PIO	C1-O1-P1-O13
4	C	806	PIO	C1C-O13-P1-O1
4	C	806	PIO	C1C-O13-P1-O11
4	C	806	PIO	C5-C4-O4-P4
4	C	806	PIO	C2C-C1C-O13-P1
4	C	806	PIO	C2A-C1A-O2C-C2C
4	D	808	PIO	C3-C4-O4-P4
4	D	808	PIO	C5-C4-O4-P4
4	D	808	PIO	C2A-C1A-O2C-C2C
3	D	802	CPL	O11-C11-O3-C3
3	D	802	CPL	C12-C11-O3-C3
3	A	806	CPL	O11-C11-O3-C3
3	D	801	CPL	O11-C11-O3-C3
4	A	807	PIO	O1B-C1B-O3C-C3C
4	C	806	PIO	O1B-C1B-O3C-C3C
3	B	807	CPL	O31-C31-O2-C2

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Mol	Chain	Res	Type	Atoms
3	D	801	CPL	O31-C31-O2-C2
3	D	802	CPL	O31-C31-O2-C2
4	D	808	PIO	O1A-C1A-O2C-C2C
3	A	806	CPL	C12-C11-O3-C3
4	C	806	PIO	C2B-C1B-O3C-C3C
3	D	802	CPL	C32-C31-O2-C2
3	D	801	CPL	C12-C11-O3-C3
4	A	807	PIO	C2B-C1B-O3C-C3C
4	C	806	PIO	O1A-C1A-O2C-C2C
3	B	807	CPL	C2-C1-O3P-P
4	A	807	PIO	C2C-C1C-O13-P1
2	D	803	ERG	C22-C23-C24-C25
4	C	806	PIO	C1A-C2A-C3A-C4A
2	D	807	ERG	C28-C24-C25-C26
4	C	806	PIO	C3-C4-O4-P4
4	B	808	PIO	C2B-C1B-O3C-C3C
2	B	806	ERG	C20-C22-C23-C24
2	C	805	ERG	C20-C22-C23-C24
2	A	801	ERG	C13-C17-C20-C22
2	B	802	ERG	C13-C17-C20-C22
2	C	801	ERG	C13-C17-C20-C22
2	C	805	ERG	C13-C17-C20-C22
2	D	803	ERG	C13-C17-C20-C22
2	D	803	ERG	C16-C17-C20-C22
2	D	807	ERG	C13-C17-C20-C22
2	D	807	ERG	C16-C17-C20-C22
2	A	801	ERG	C17-C20-C22-C23
3	A	806	CPL	C31-C32-C33-C34
2	A	801	ERG	C21-C20-C22-C23
2	D	803	ERG	C22-C23-C24-C28
3	A	806	CPL	C13-C14-C15-C16
3	D	802	CPL	C32-C33-C34-C35
3	A	806	CPL	C14-C15-C16-C17
3	D	801	CPL	C14-C15-C16-C17
4	A	807	PIO	C2A-C1A-O2C-C2C
3	A	803	CPL	C20-C21-C22-C23
4	B	808	PIO	O1B-C1B-O3C-C3C
4	B	808	PIO	C3B-C4B-C5B-C6B
3	D	801	CPL	C17-C18-C19-C20
3	B	807	CPL	C14-C15-C16-C17
3	D	801	CPL	C2-C3-O3-C11
2	A	801	ERG	C23-C24-C25-C26

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Mol	Chain	Res	Type	Atoms
2	A	801	ERG	C28-C24-C25-C27
2	A	805	ERG	C23-C24-C25-C27
2	C	805	ERG	C21-C20-C22-C23
4	B	808	PIO	C1B-C2B-C3B-C4B
4	A	807	PIO	O1A-C1A-O2C-C2C
3	B	803	CPL	C22-C23-C24-C25
4	B	808	PIO	C2A-C1A-O2C-C2C
3	B	807	CPL	O3P-C1-C2-C3
3	A	806	CPL	C2-C3-O3-C11
3	A	806	CPL	C17-C18-C19-C20
3	D	801	CPL	C13-C14-C15-C16
2	A	801	ERG	C16-C17-C20-C22
2	B	802	ERG	C16-C17-C20-C22
2	C	801	ERG	C16-C17-C20-C22
3	A	802	CPL	C21-C22-C23-C24
2	B	806	ERG	C22-C23-C24-C28
2	A	805	ERG	C28-C24-C25-C27
3	A	806	CPL	C3-C2-O2-C31
3	D	802	CPL	C3-C2-O2-C31
2	A	805	ERG	C22-C23-C24-C28
3	D	802	CPL	C23-C24-C25-C26
3	B	807	CPL	C13-C14-C15-C16
3	A	806	CPL	C2-C1-O3P-P
3	D	801	CPL	C2-C1-O3P-P
3	D	802	CPL	C2-C1-O3P-P
3	A	806	CPL	O3P-C1-C2-C3
3	D	801	CPL	O3P-C1-C2-C3
4	B	808	PIO	O13-C1C-C2C-C3C
3	A	806	CPL	C12-C13-C14-C15
3	A	806	CPL	C1-C2-C3-O3
3	D	801	CPL	O2-C2-C3-O3
3	D	802	CPL	O2-C2-C3-O3
3	A	806	CPL	C21-C22-C23-C24
2	C	805	ERG	C16-C17-C20-C22
3	B	807	CPL	C20-C21-C22-C23
4	D	808	PIO	O13-C1C-C2C-C3C
2	D	803	ERG	C21-C20-C22-C23
2	D	807	ERG	C22-C23-C24-C28
3	A	806	CPL	O3P-C1-C2-O2
3	B	807	CPL	O3P-C1-C2-O2
3	D	801	CPL	O3P-C1-C2-O2
3	D	801	CPL	C1-C2-C3-O3

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Mol	Chain	Res	Type	Atoms
3	B	807	CPL	C5-C4-O4P-P
3	D	801	CPL	C5-C4-O4P-P
3	A	802	CPL	C23-C24-C25-C26
3	C	803	CPL	C20-C21-C22-C23
2	B	806	ERG	C22-C23-C24-C25
2	C	805	ERG	C17-C20-C22-C23
4	D	808	PIO	C2C-C1C-O13-P1
4	B	808	PIO	C5-O5-P5-O53
4	B	808	PIO	O1A-C1A-O2C-C2C
3	D	802	CPL	O3P-C1-C2-O2
4	B	808	PIO	O13-C1C-C2C-O2C
4	D	808	PIO	O13-C1C-C2C-O2C
3	A	806	CPL	O2-C2-C3-O3
3	D	802	CPL	C1-C2-C3-O3
3	D	802	CPL	C13-C14-C15-C16
3	A	806	CPL	C4-C5-N-C6
3	B	807	CPL	C1-O3P-P-O1P
3	D	801	CPL	C1-O3P-P-O1P
4	B	808	PIO	C1C-O13-P1-O11
4	B	808	PIO	C2C-C1C-O13-P1
3	B	804	CPL	C21-C22-C23-C24
3	C	802	CPL	C21-C22-C23-C24
3	B	807	CPL	C3-C2-O2-C31
3	B	807	CPL	C4-C5-N-C6
3	D	801	CPL	C4-C5-N-C6
4	C	806	PIO	C2-C1-O1-P1
4	D	808	PIO	C4-O4-P4-O41
3	B	803	CPL	C23-C24-C25-C26
2	B	802	ERG	C21-C20-C22-C23
3	D	801	CPL	C3-C2-O2-C31
2	C	801	ERG	C21-C20-C22-C23
3	D	802	CPL	O3P-C1-C2-C3
4	B	808	PIO	C6-C5-O5-P5
4	C	806	PIO	C4-C5-O5-P5
4	C	806	PIO	C6-C5-O5-P5
3	B	807	CPL	C17-C18-C19-C20
2	B	802	ERG	C22-C23-C24-C28
4	C	806	PIO	C2A-C3A-C4A-C5A
3	A	806	CPL	C4-C5-N-C7
4	D	808	PIO	C4-O4-P4-O42
3	A	806	CPL	C32-C33-C34-C35
3	B	807	CPL	C4-C5-N-C7

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Mol	Chain	Res	Type	Atoms
3	D	801	CPL	C4-C5-N-C7
3	A	806	CPL	C15-C16-C17-C18
2	A	805	ERG	C22-C23-C24-C25
3	A	802	CPL	C18-C19-C20-C21
3	A	806	CPL	C4-C5-N-C8
3	B	807	CPL	C4-C5-N-C8
3	D	801	CPL	C4-C5-N-C8
3	D	801	CPL	C36-C37-C38-C39
2	C	805	ERG	C28-C24-C25-C26
4	B	808	PIO	C4-C5-O5-P5
4	C	806	PIO	C6-C1-O1-P1
4	B	808	PIO	C4A-C5A-C6A-C7A
3	D	802	CPL	C37-C38-C39-C40
2	D	803	ERG	C17-C20-C22-C23
2	D	807	ERG	C22-C23-C24-C25
3	D	801	CPL	C16-C17-C18-C19
3	D	802	CPL	C21-C22-C23-C24
2	D	807	ERG	C21-C20-C22-C23
3	C	803	CPL	C21-C22-C23-C24
4	A	807	PIO	O13-C1C-C2C-C3C
3	A	803	CPL	C17-C18-C19-C20
3	D	802	CPL	O4P-C4-C5-N
4	C	806	PIO	C1-O1-P1-O12
4	D	808	PIO	C1-O1-P1-O11
3	D	802	CPL	O3-C11-C12-C13
3	B	807	CPL	C37-C38-C39-C40
3	A	806	CPL	O3-C11-C12-C13
4	B	808	PIO	O2C-C1A-C2A-C3A
3	D	801	CPL	O2-C31-C32-C33
3	B	807	CPL	O3-C11-C12-C13
3	A	806	CPL	O11-C11-C12-C13
2	B	806	ERG	C23-C24-C25-C27
3	D	801	CPL	O31-C31-C32-C33
3	D	802	CPL	O11-C11-C12-C13
3	A	802	CPL	C19-C20-C21-C22
3	B	807	CPL	O11-C11-C12-C13

There are no ring outliers.

19 monomers are involved in 52 short contacts:

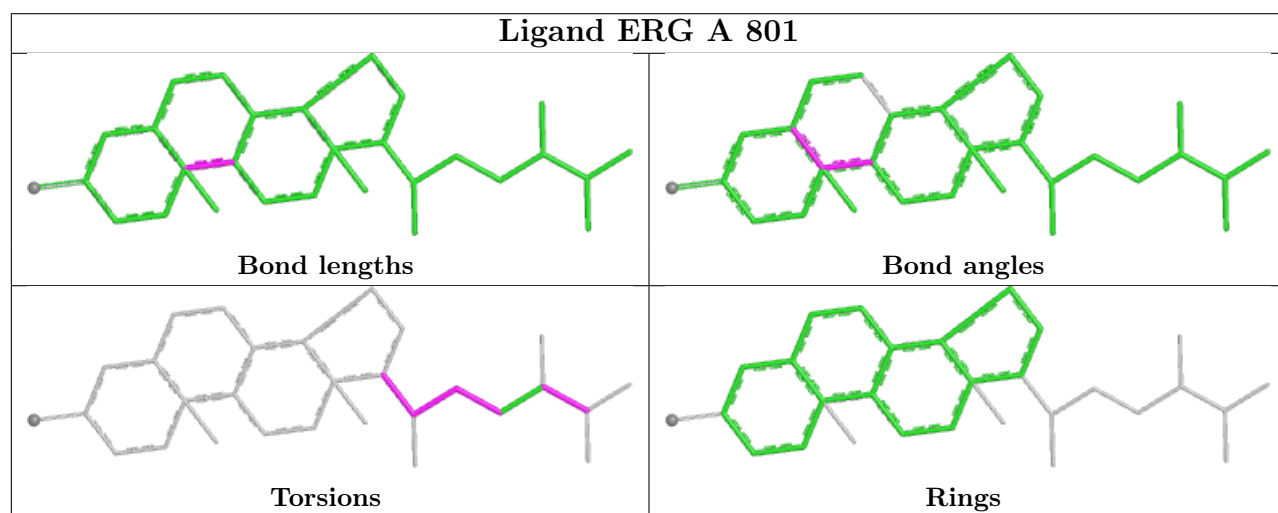
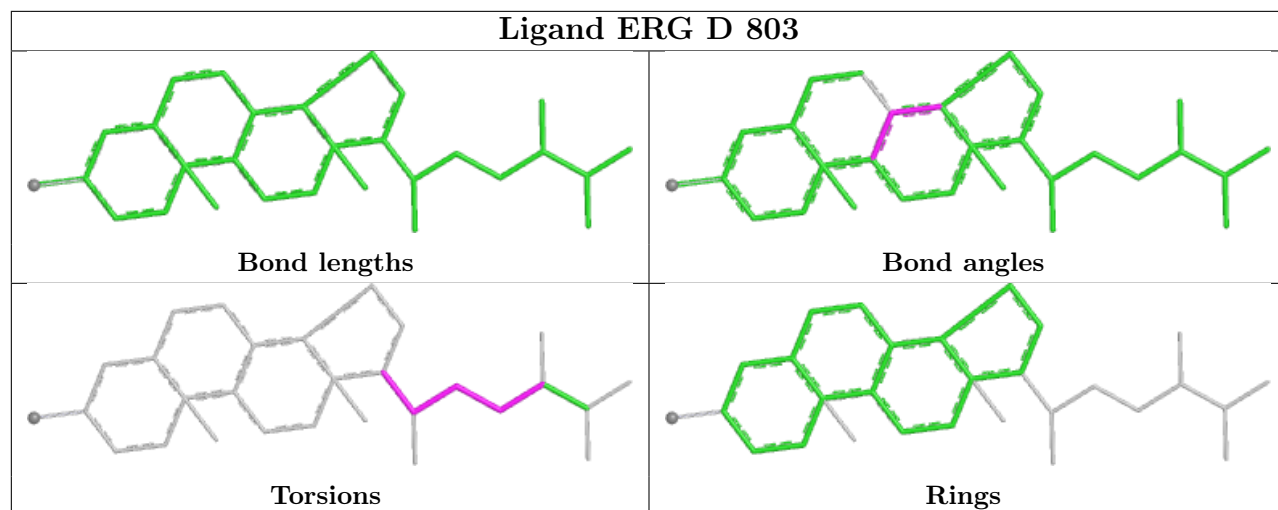
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	D	803	ERG	3	0

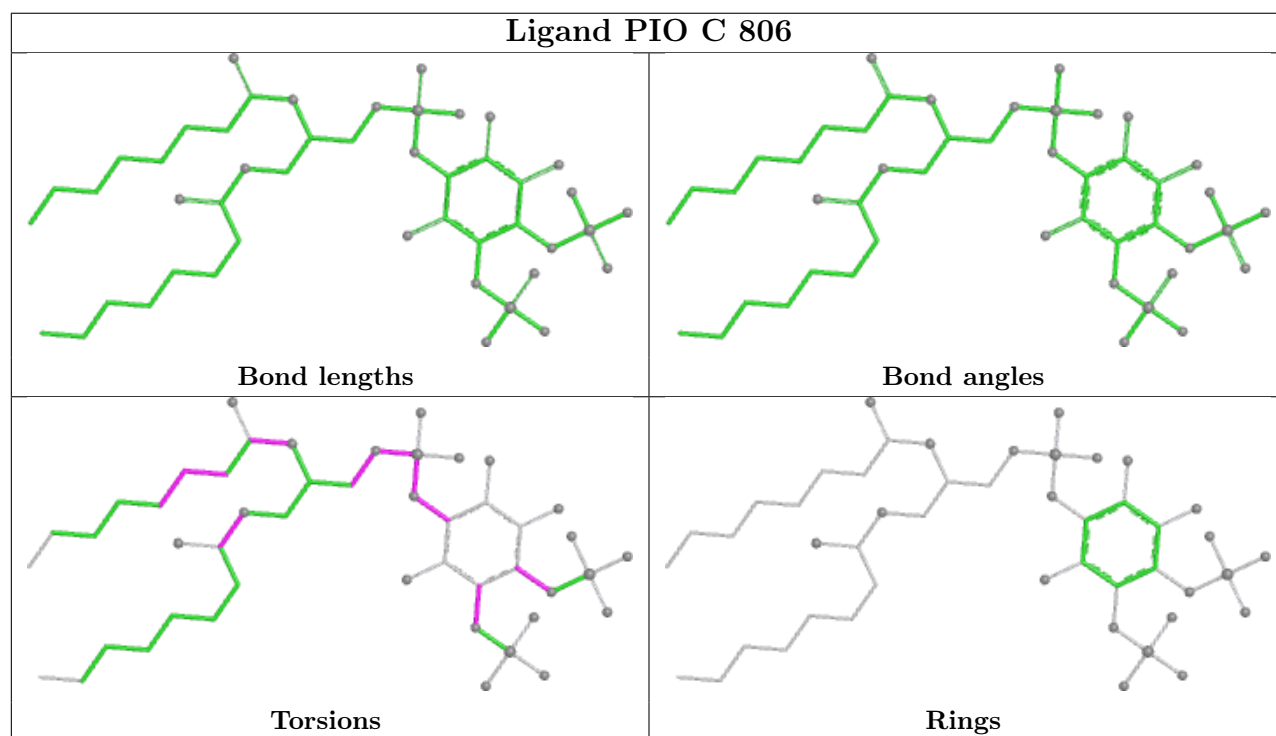
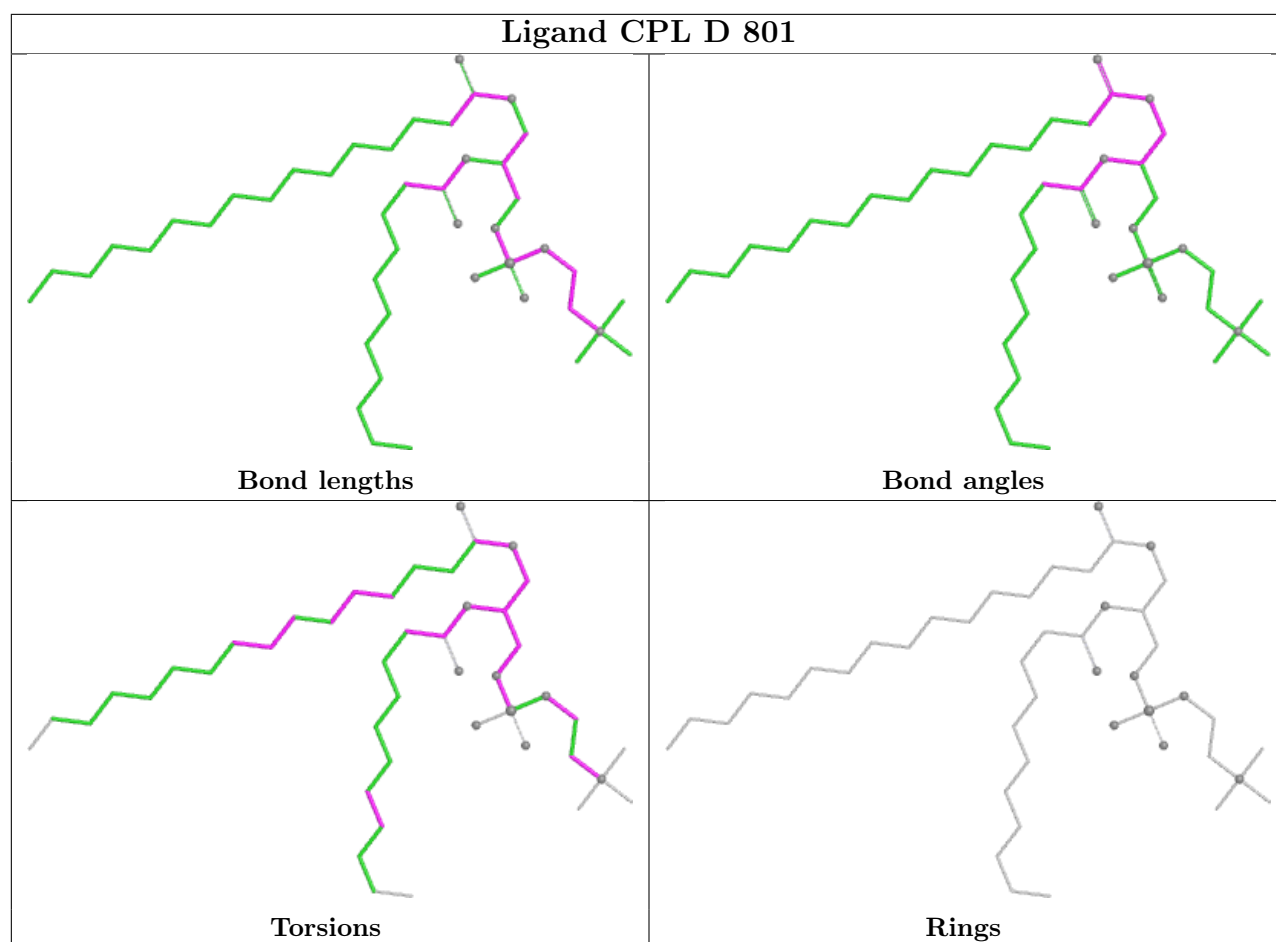
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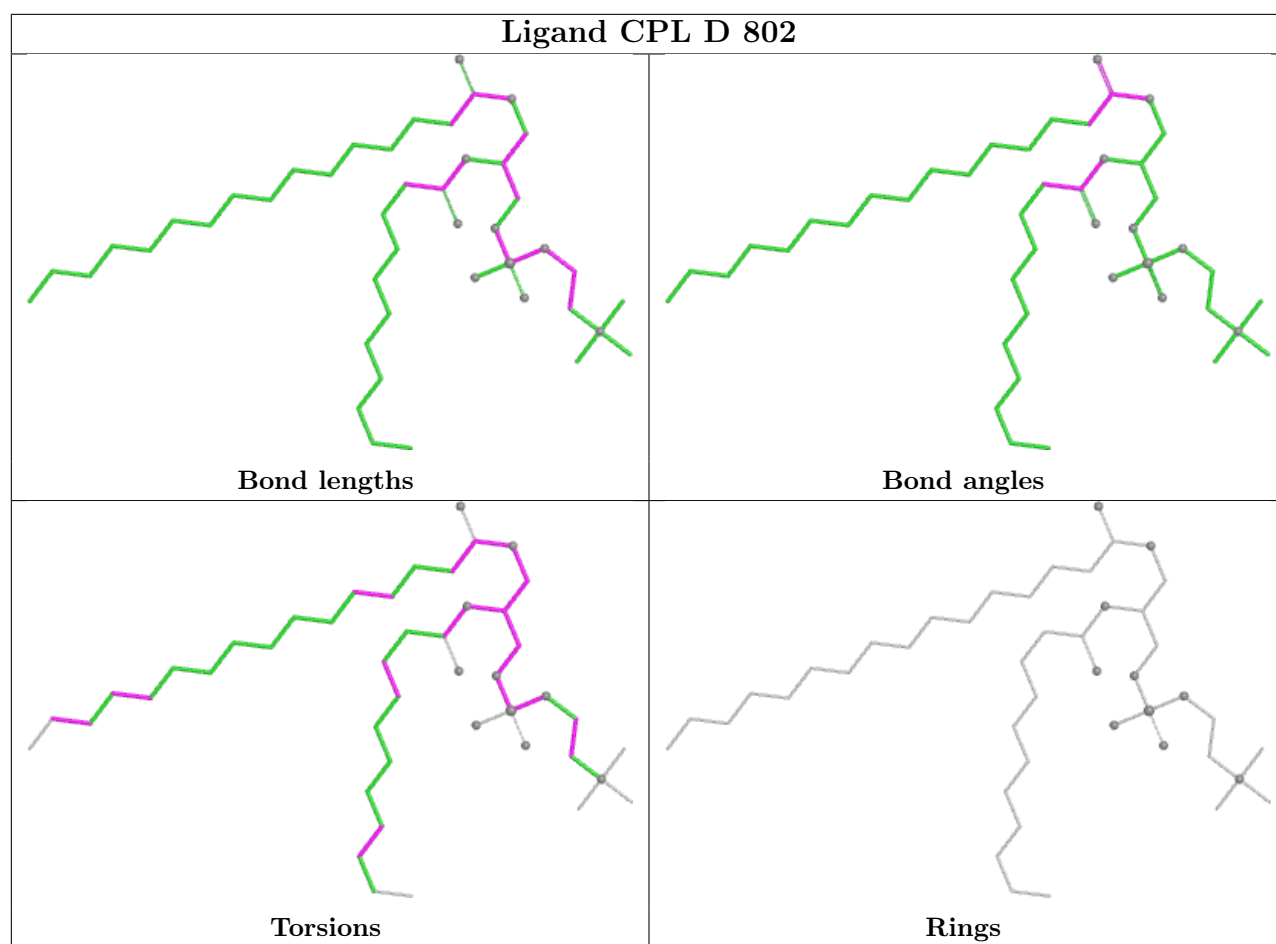
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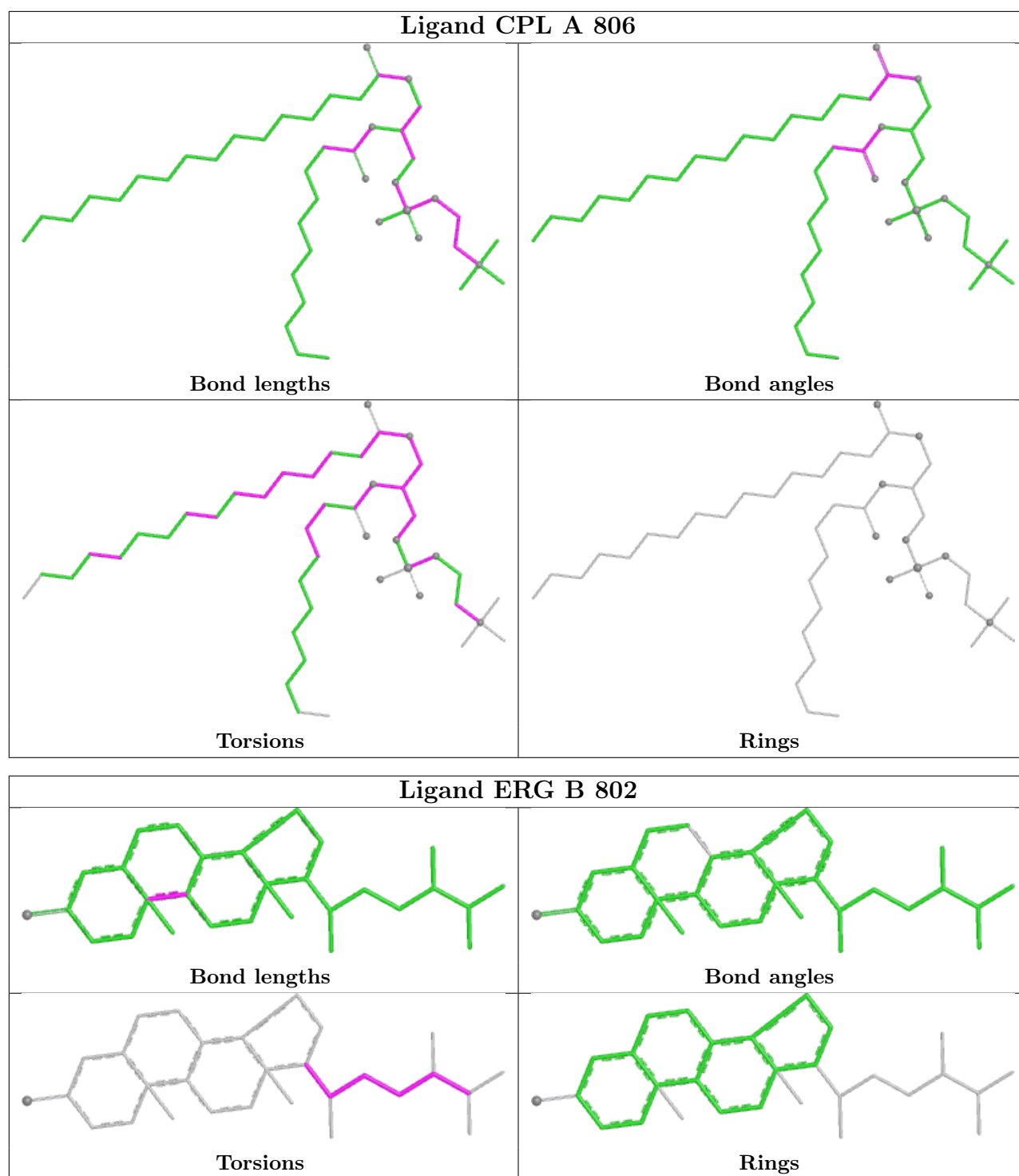
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	801	ERG	3	0
4	C	806	PIO	3	0
3	A	806	CPL	1	0
2	B	802	ERG	3	0
4	A	807	PIO	7	0
2	B	806	ERG	7	0
3	D	804	CPL	1	0
3	C	802	CPL	1	0
3	A	802	CPL	1	0
2	C	805	ERG	4	0
3	B	803	CPL	1	0
4	B	808	PIO	5	0
4	D	808	PIO	3	0
2	C	801	ERG	3	0
2	D	807	ERG	3	0
3	B	804	CPL	1	0
3	B	807	CPL	1	0
2	A	805	ERG	2	0

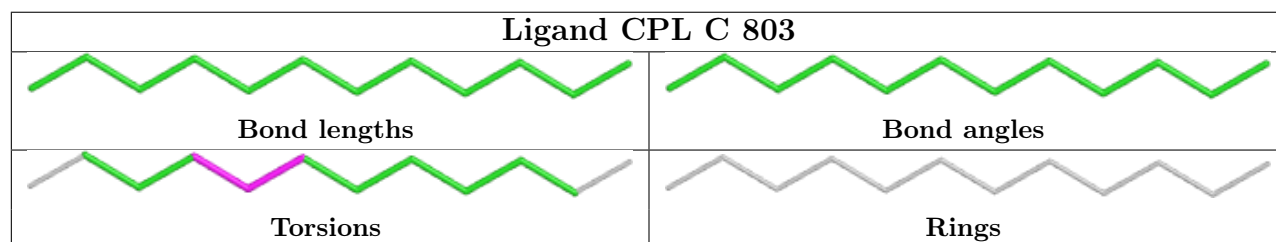
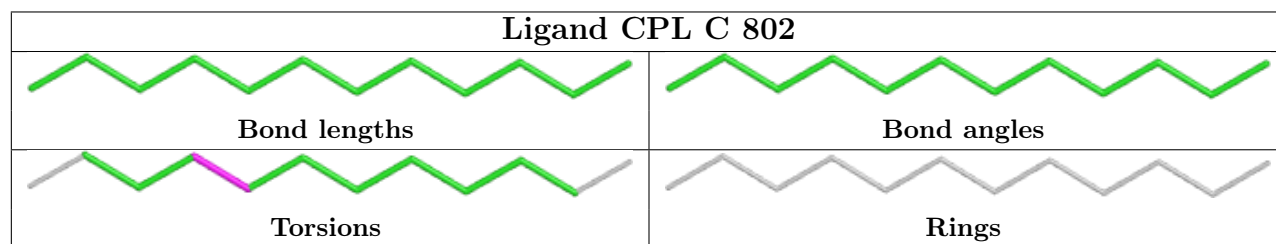
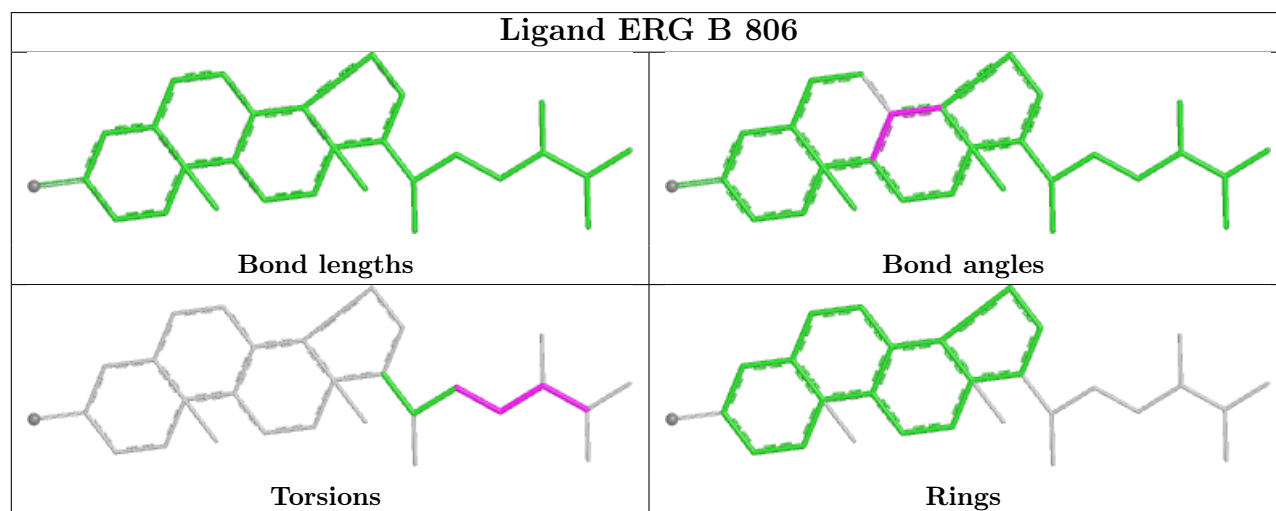
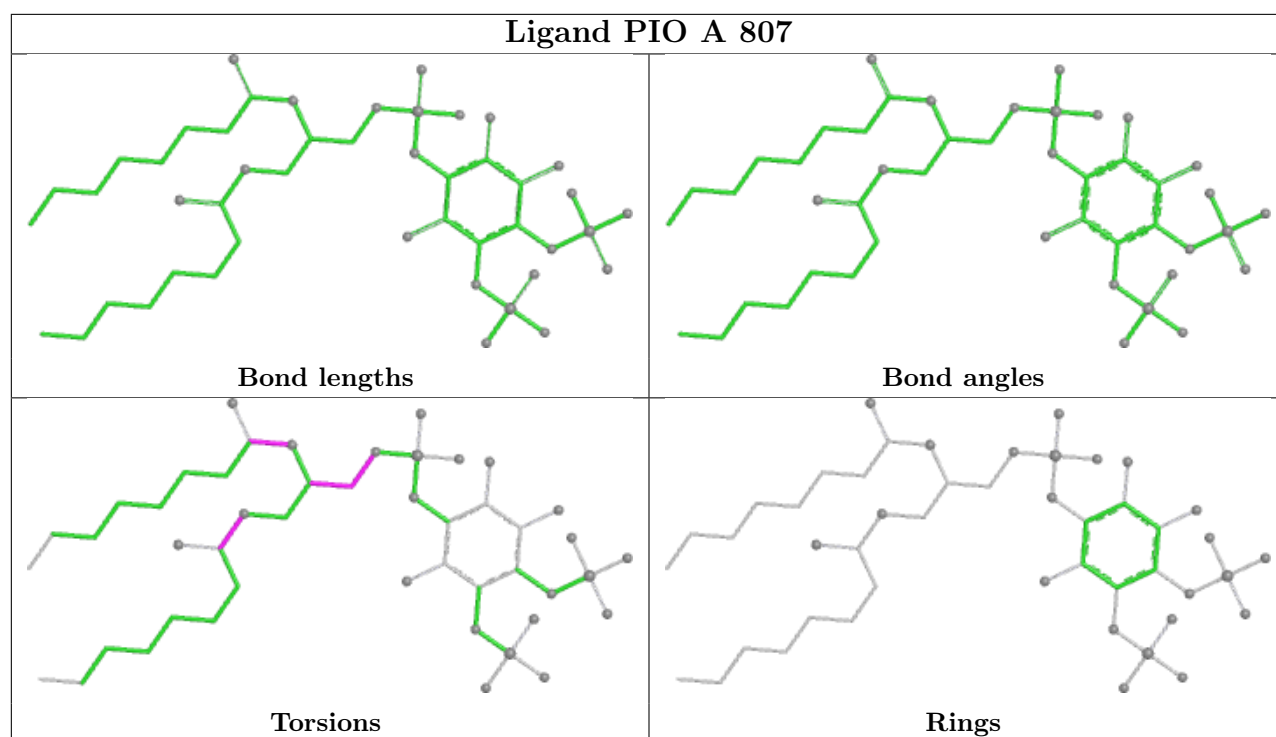
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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.

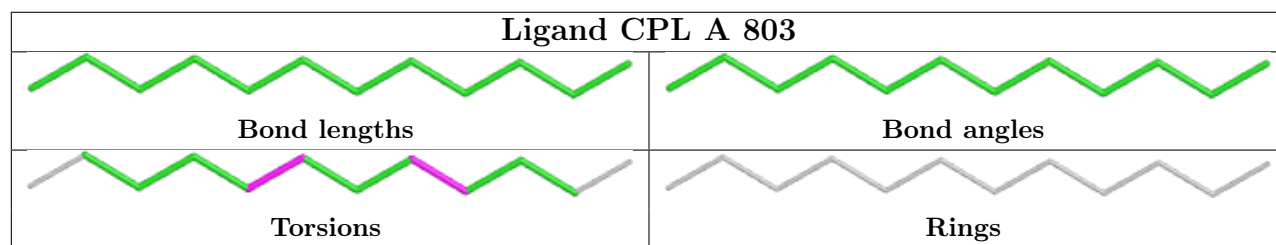
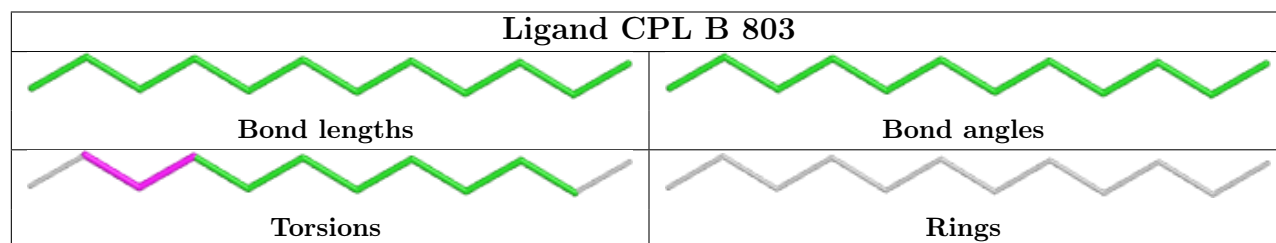
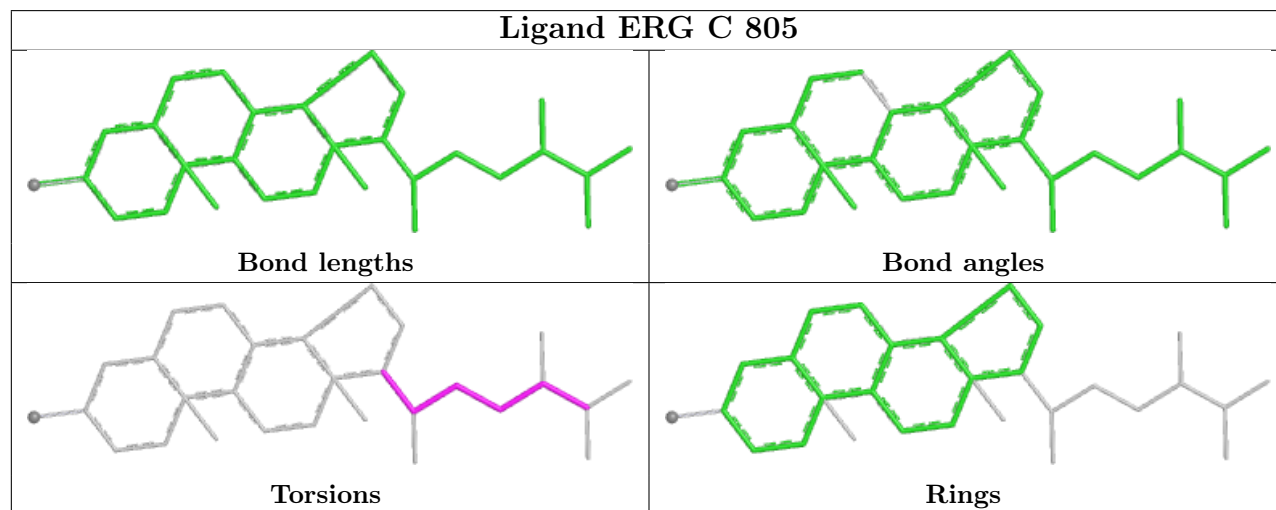
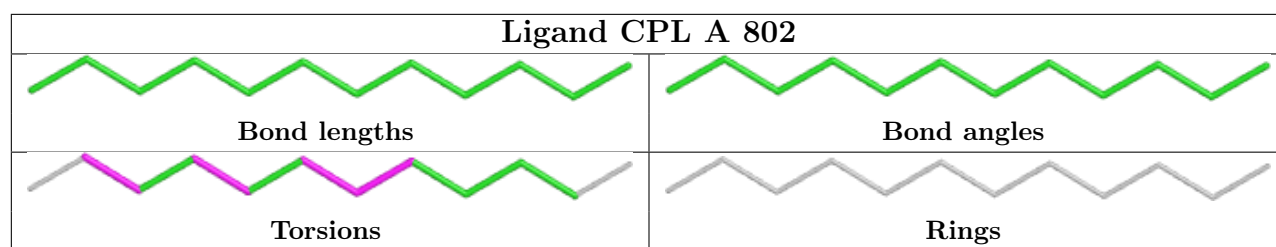


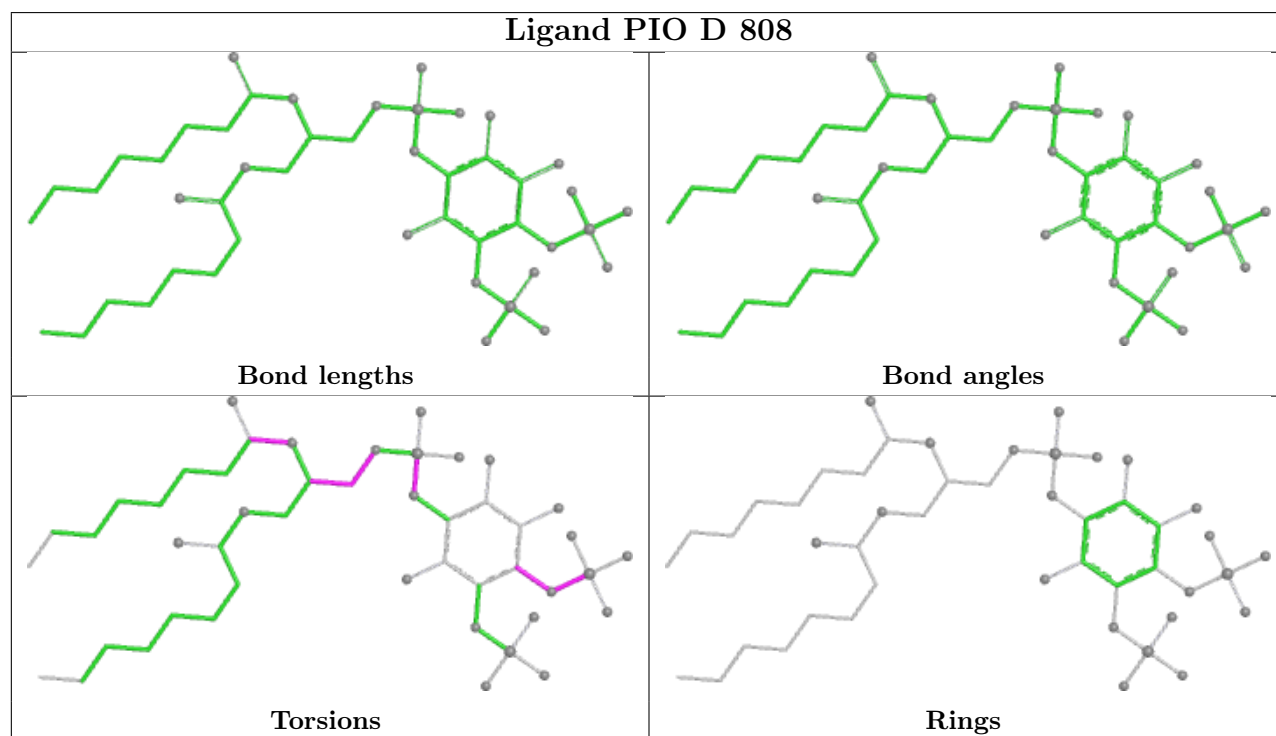
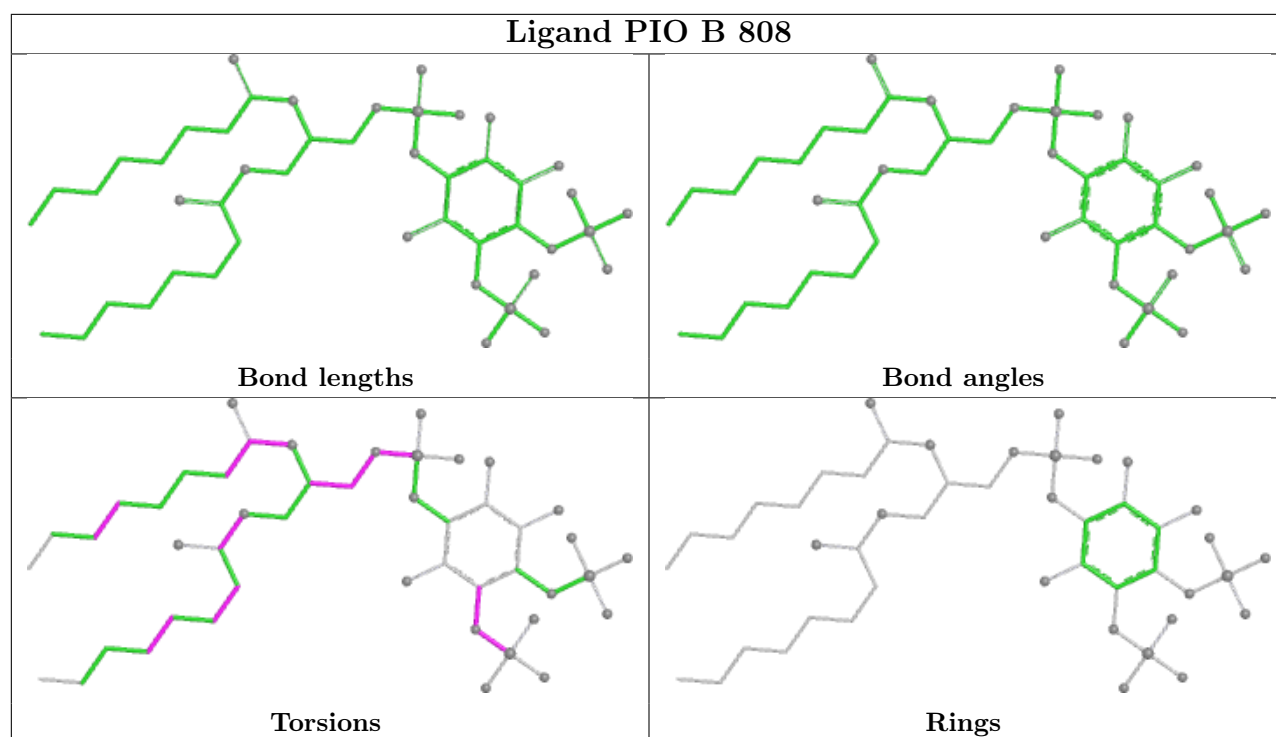


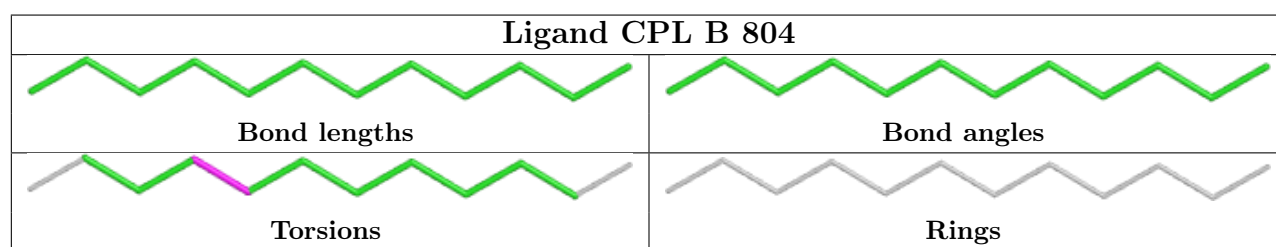
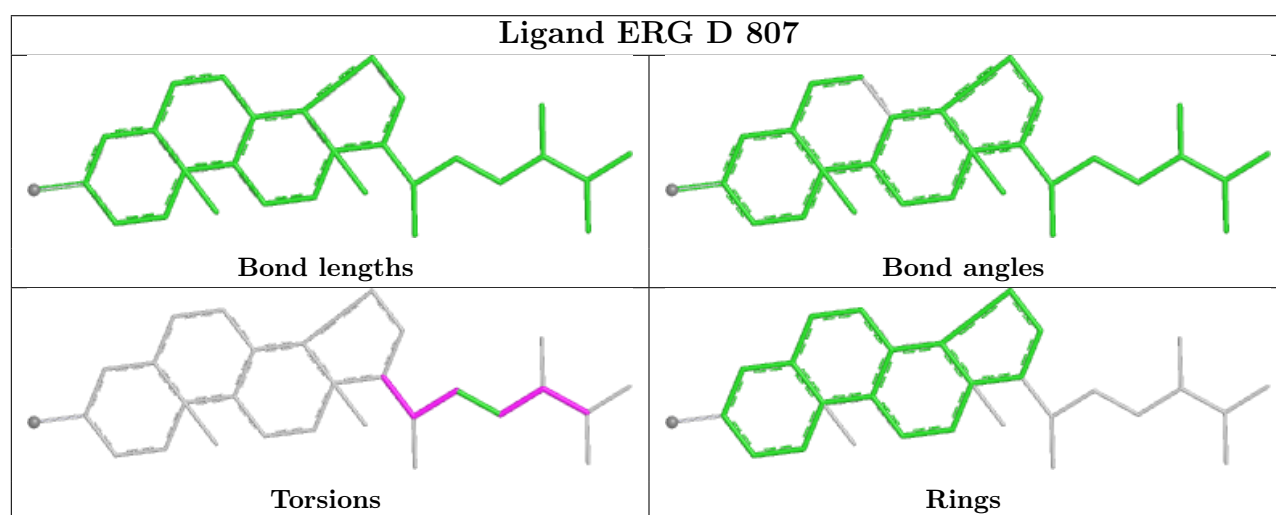
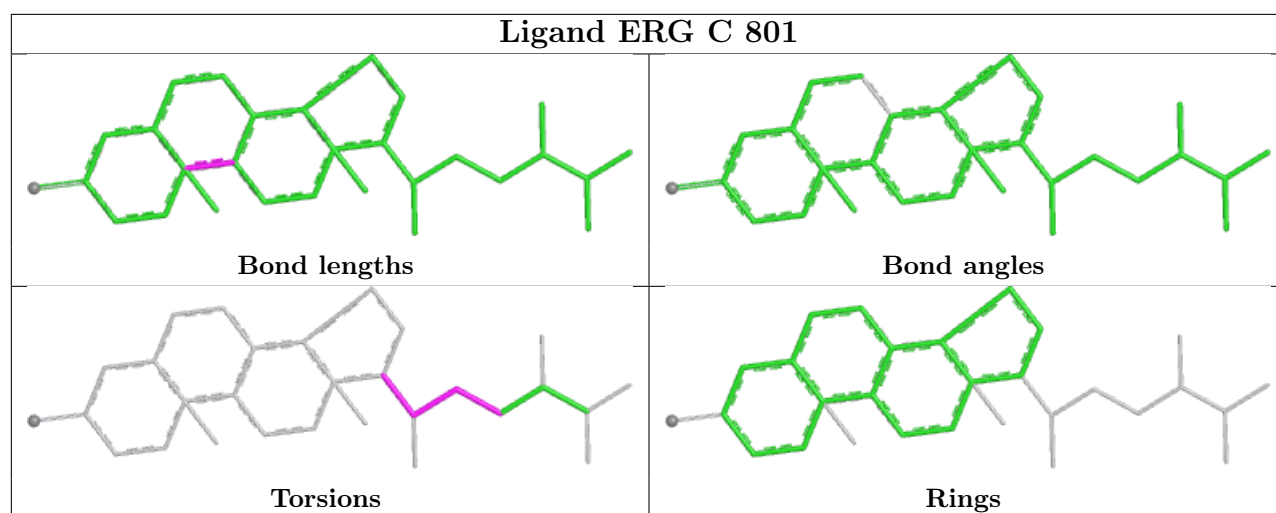


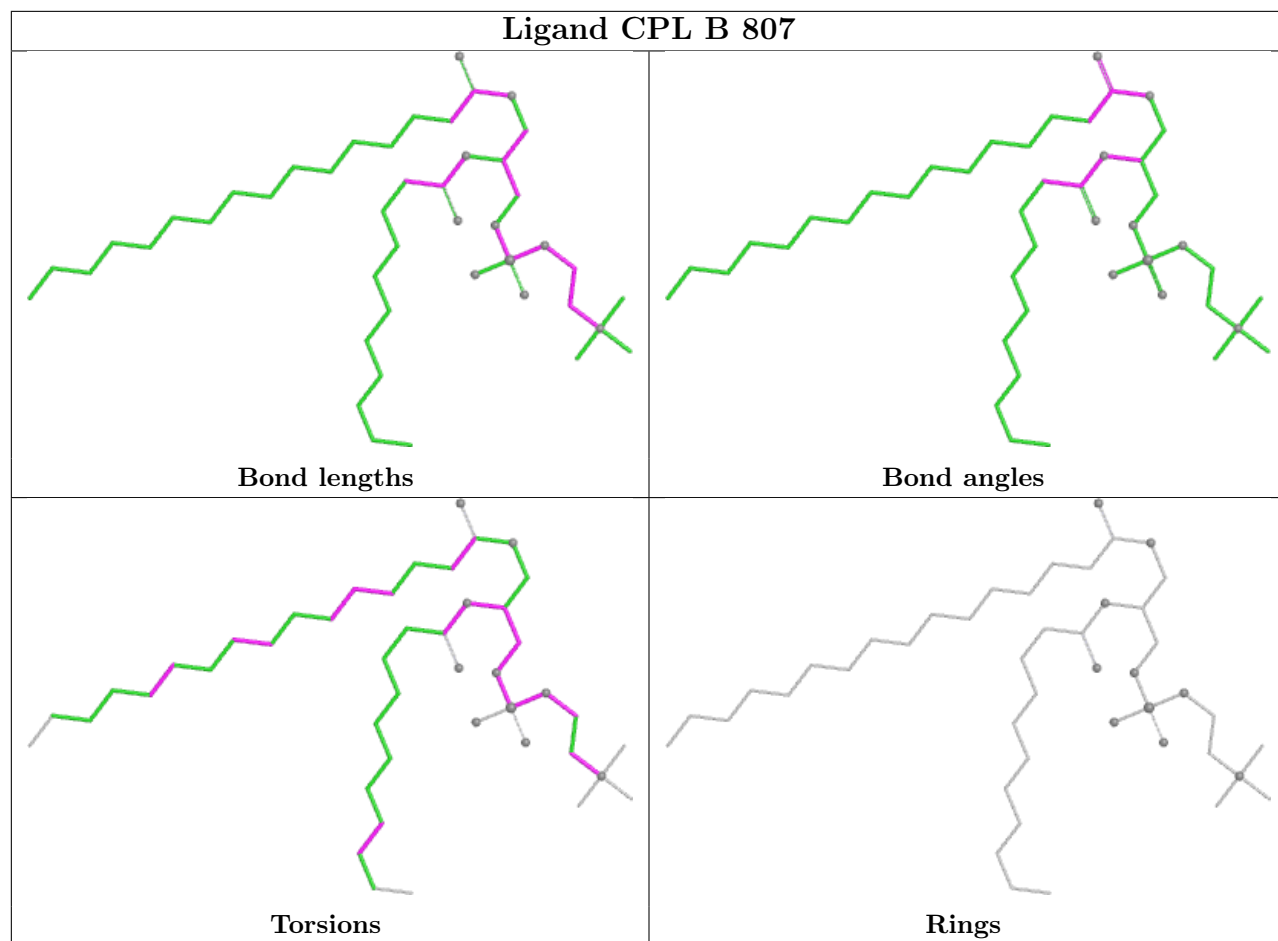


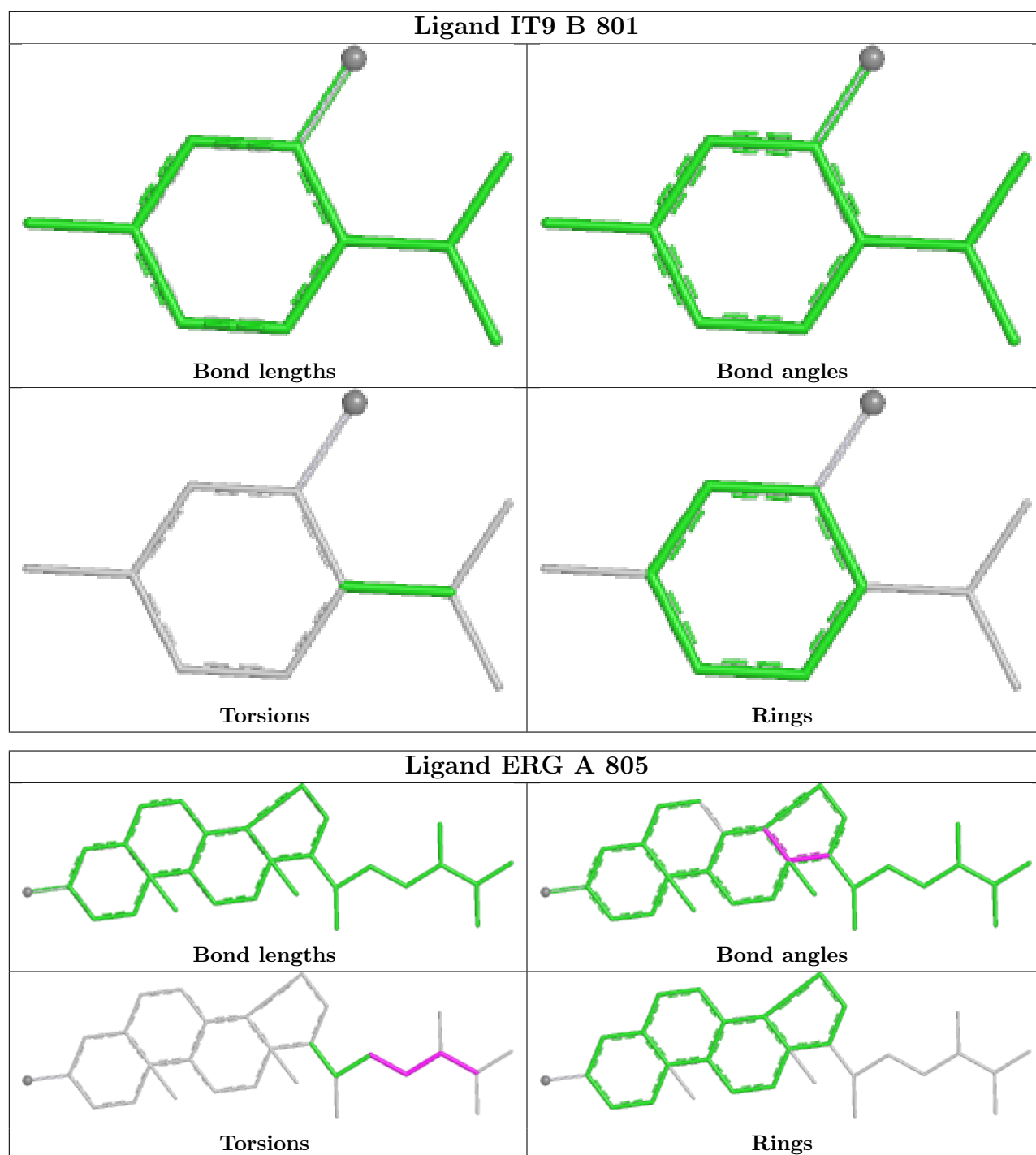












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

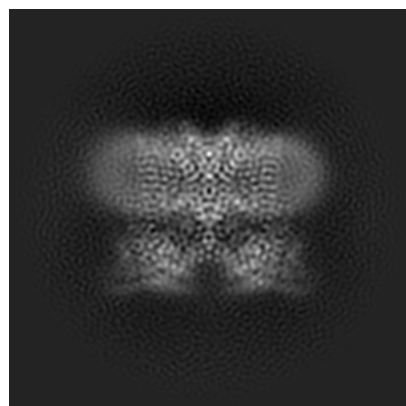
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-70173. These allow visual inspection of the internal detail of the map and identification of artifacts.

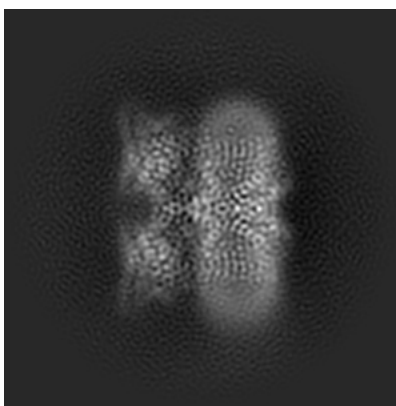
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

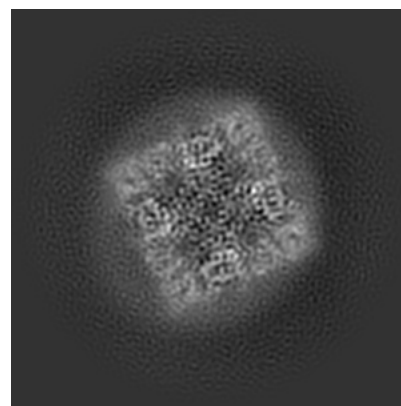
6.1.1 Primary map



X

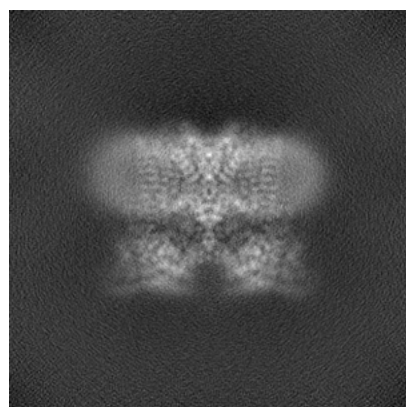


Y

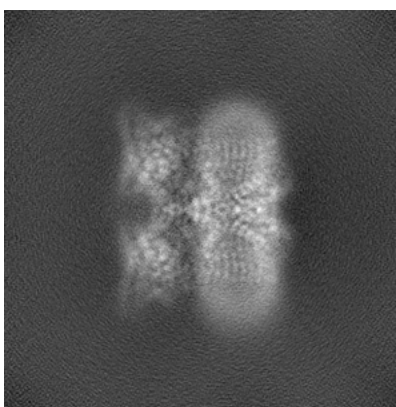


Z

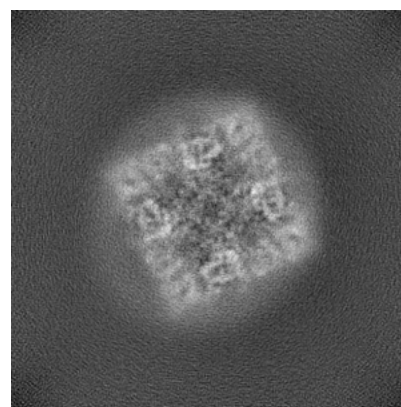
6.1.2 Raw map



X



Y

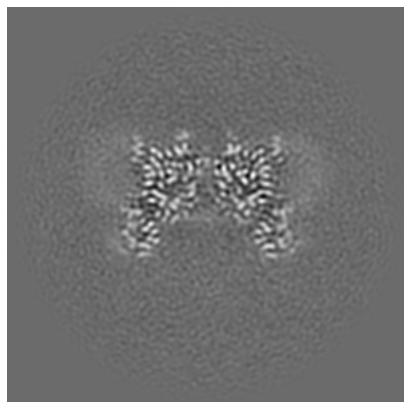


Z

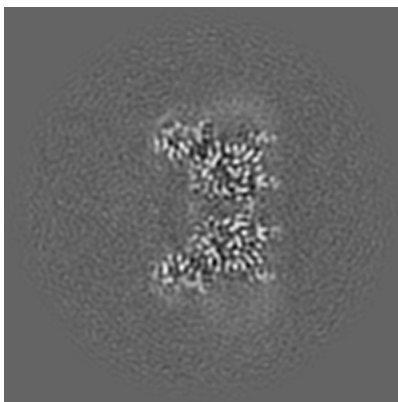
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

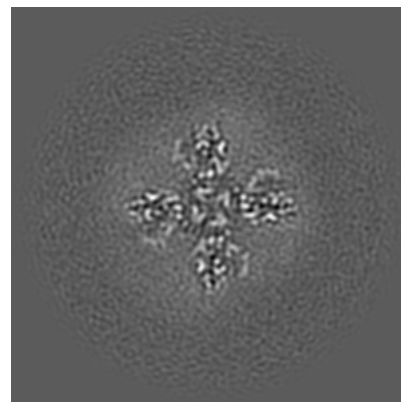
6.2.1 Primary map



X Index: 144

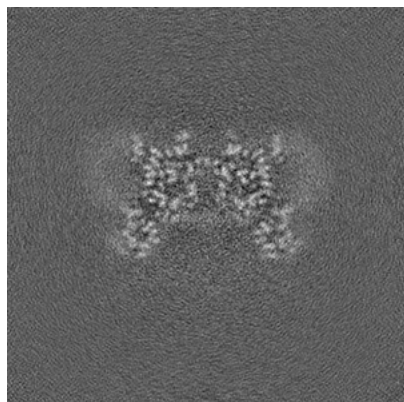


Y Index: 144

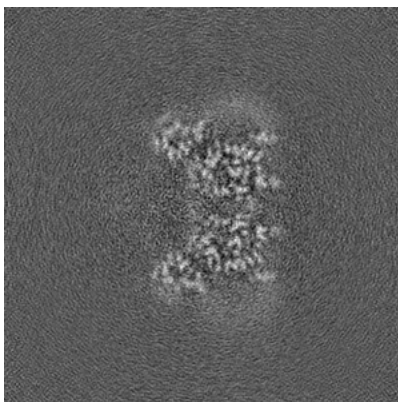


Z Index: 144

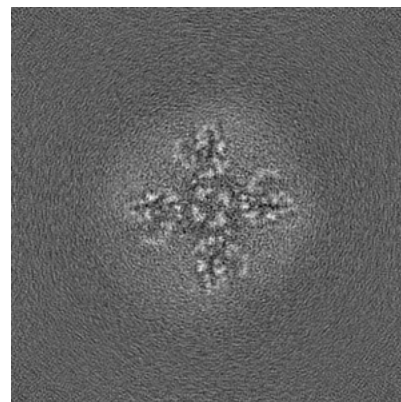
6.2.2 Raw map



X Index: 144



Y Index: 144

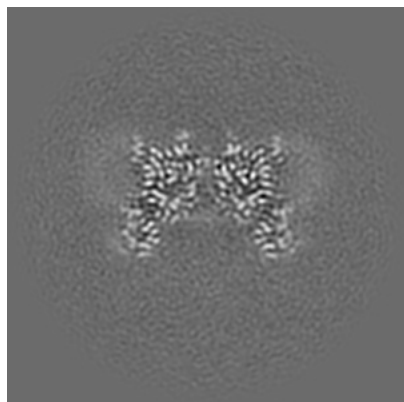


Z Index: 144

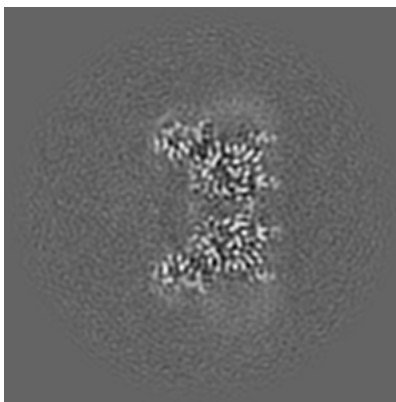
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

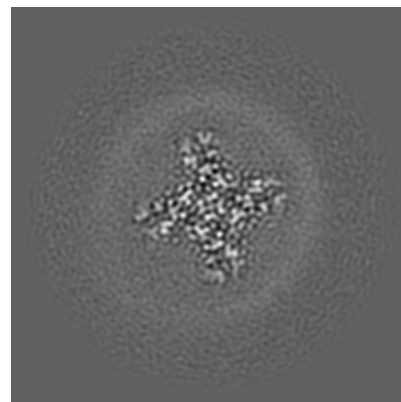
6.3.1 Primary map



X Index: 144

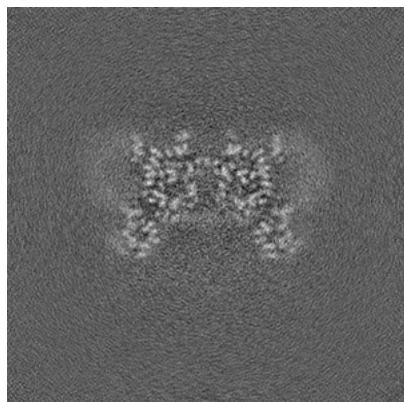


Y Index: 144

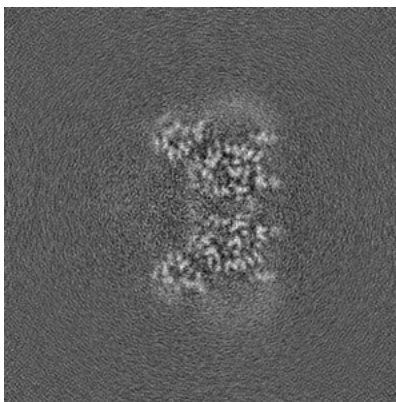


Z Index: 176

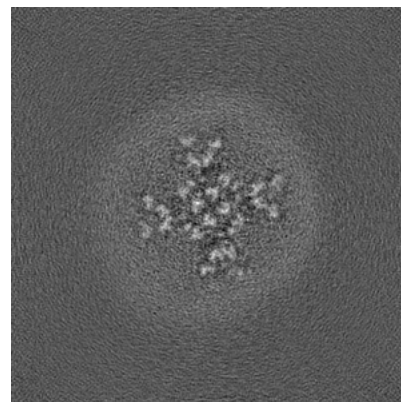
6.3.2 Raw map



X Index: 144



Y Index: 144

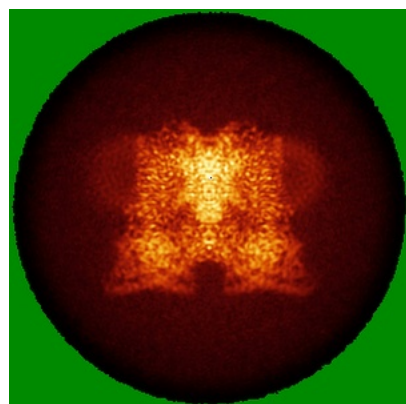


Z Index: 153

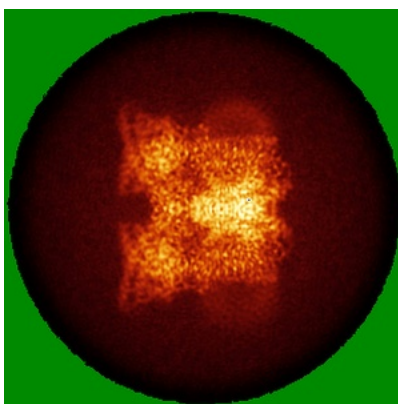
The images above show the largest variance slices of the map in three orthogonal directions.

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

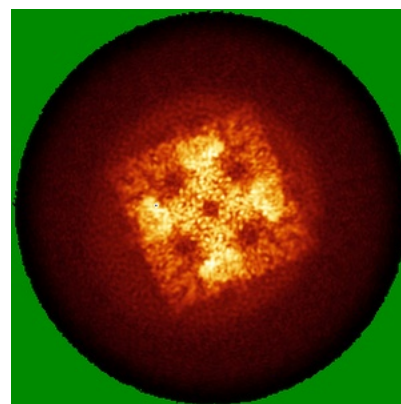
6.4.1 Primary map



X

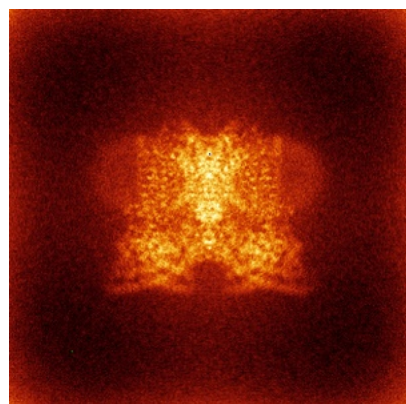


Y

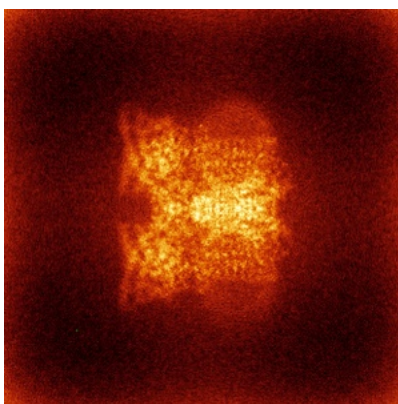


Z

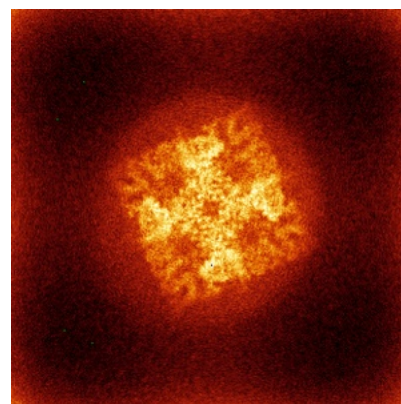
6.4.2 Raw map



X



Y

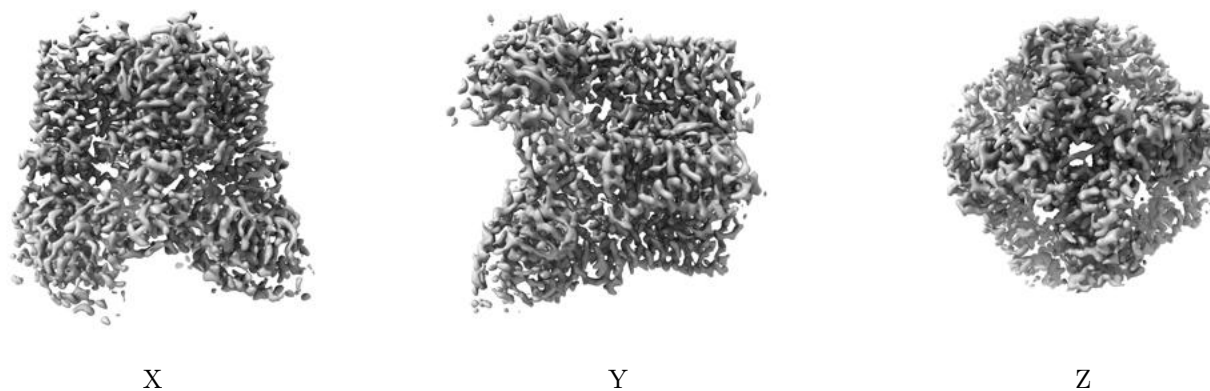


Z

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.

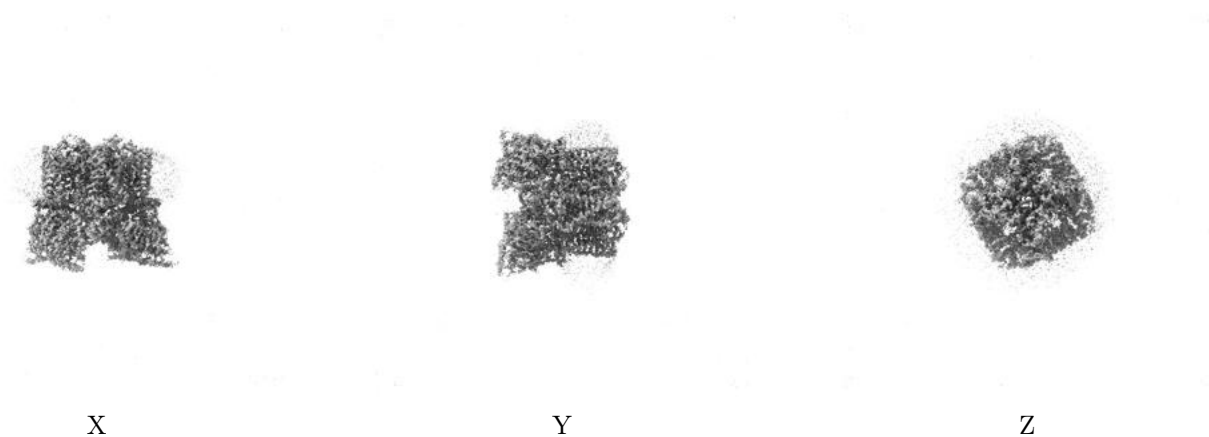
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.19. 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.

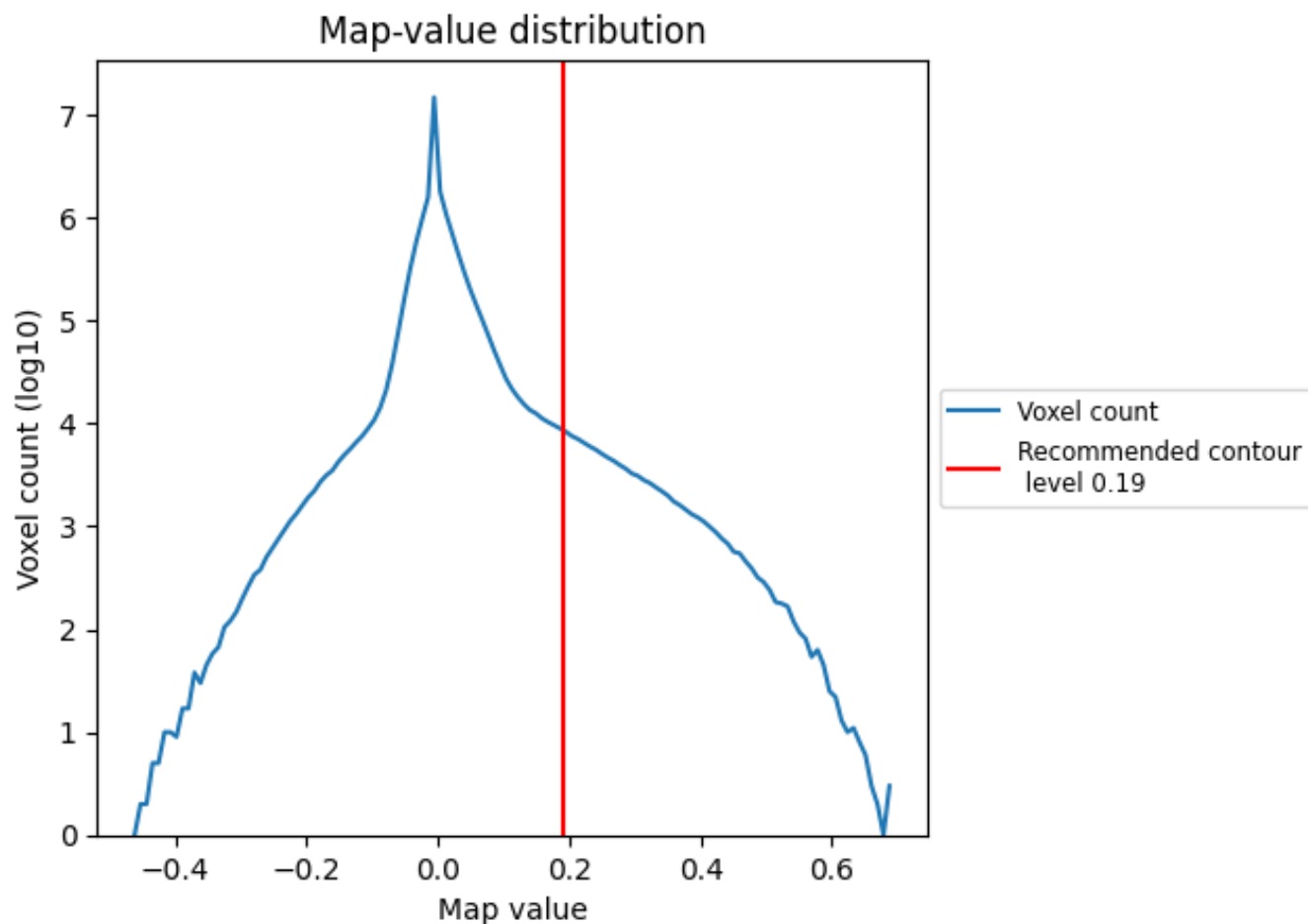
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

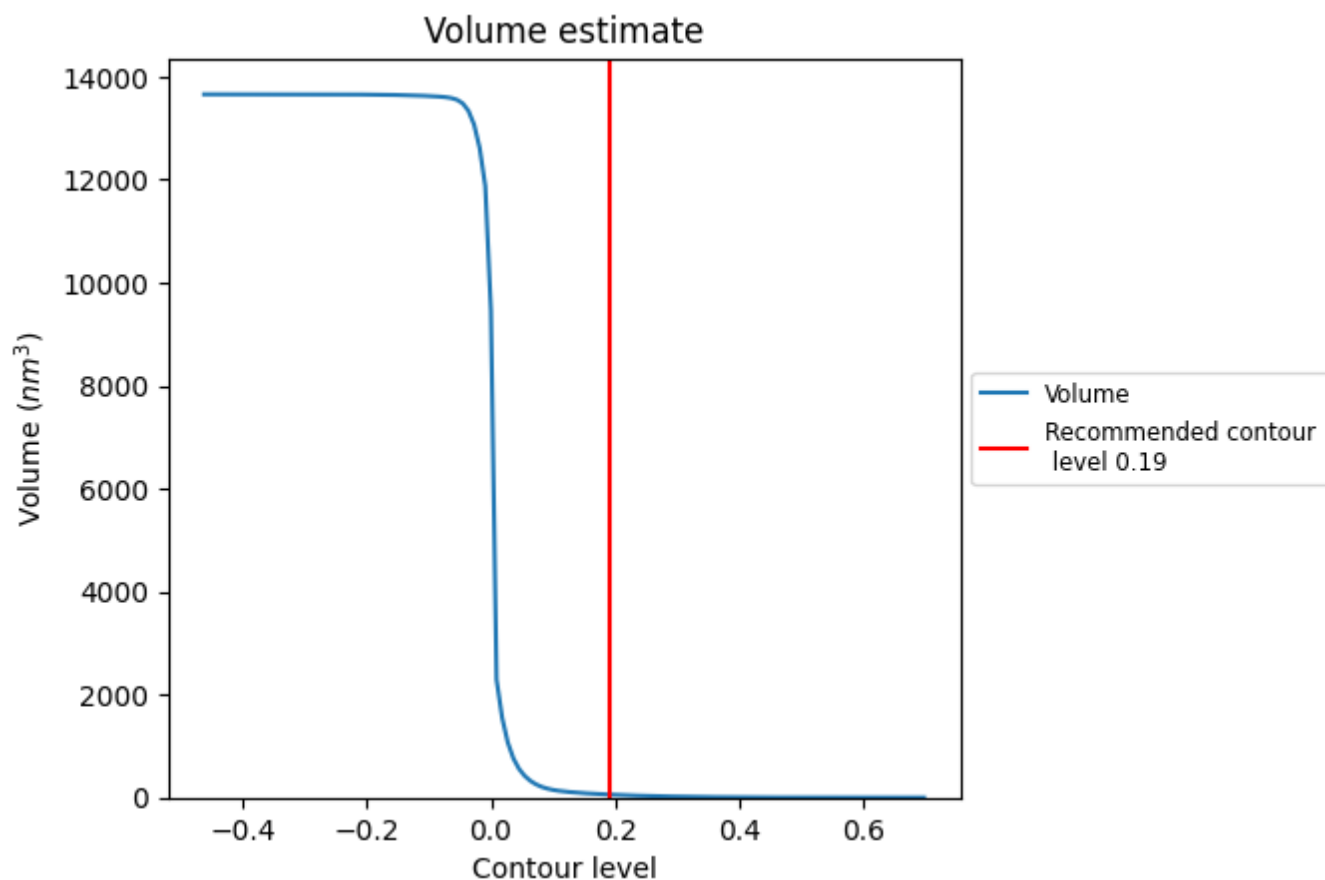
This section contains the results of statistical analysis of the map.

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.

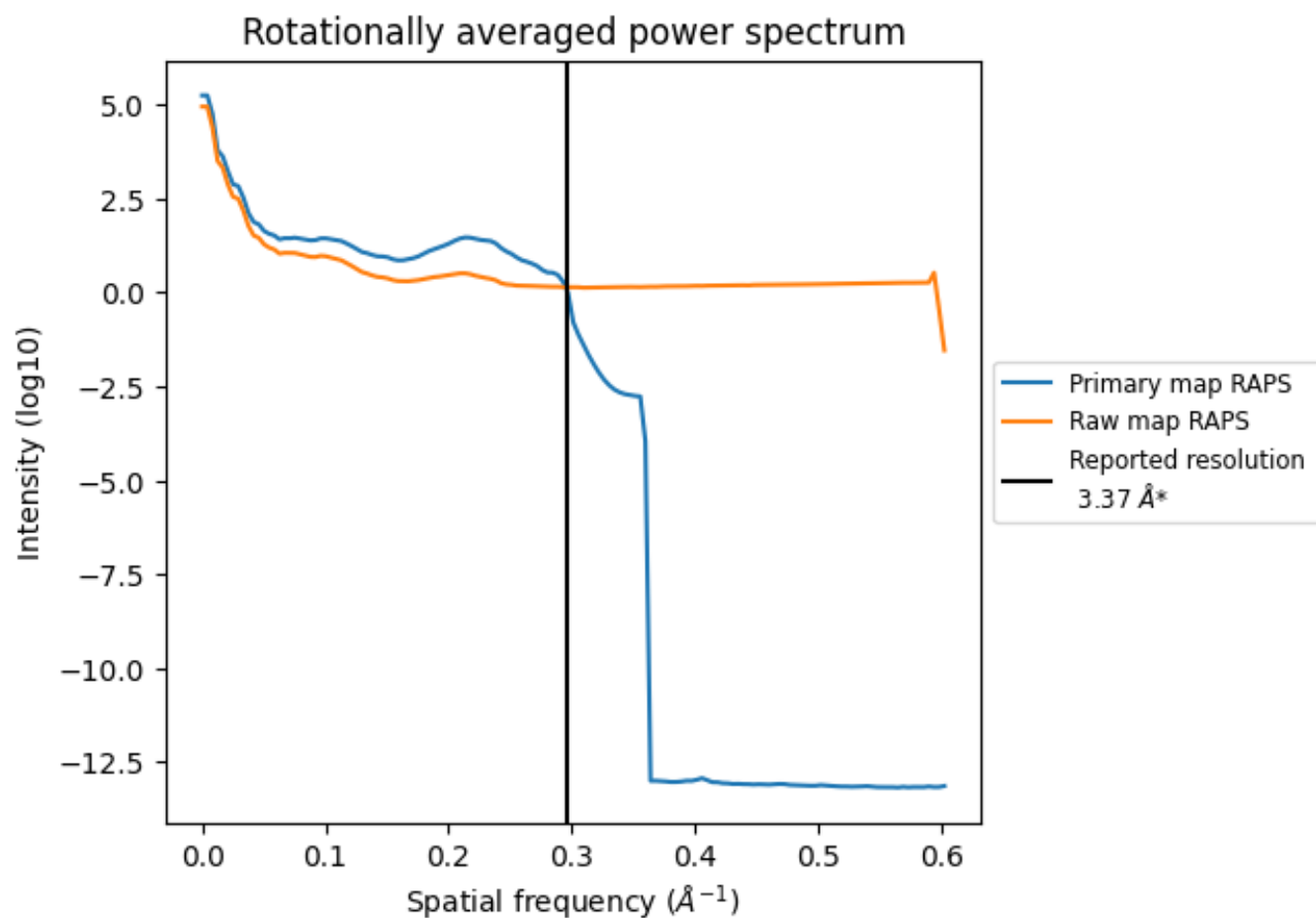
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 58 nm³; this corresponds to an approximate mass of 53 kDa.

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

7.3 Rotationally averaged power spectrum ⓘ

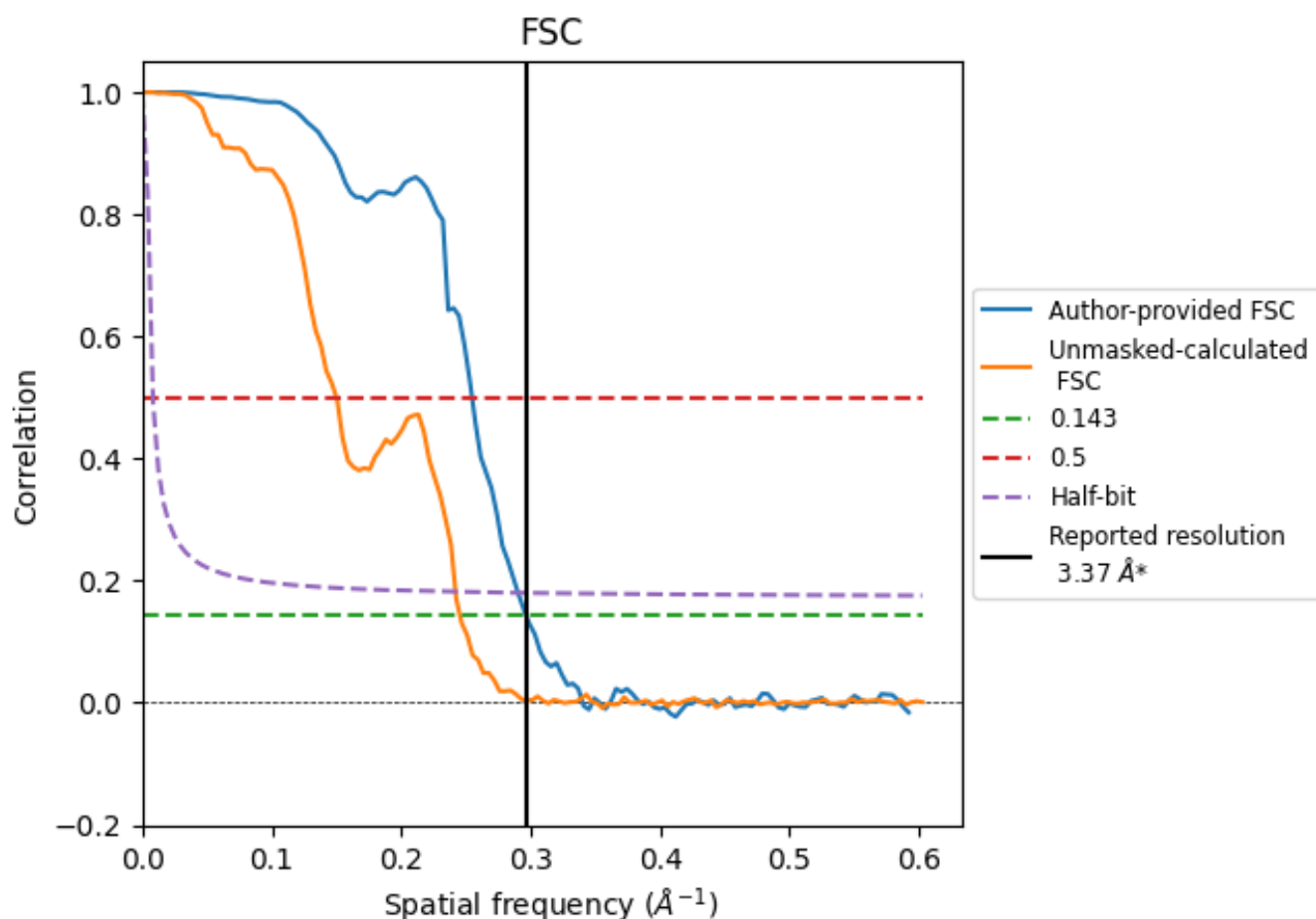


*Reported resolution corresponds to spatial frequency of 0.297 Å⁻¹

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 0.297 \AA^{-1}

8.2 Resolution estimates [i](#)

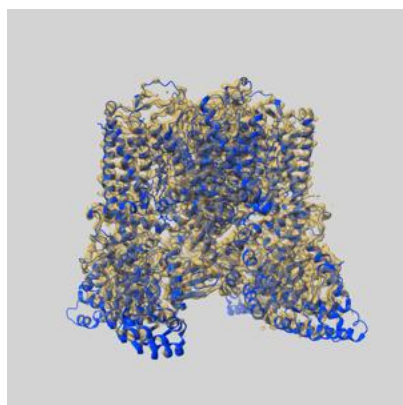
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.37	-	-
Author-provided FSC curve	3.37	3.92	3.44
Unmasked-calculated*	4.07	6.66	4.13

*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 4.07 differs from the reported value 3.37 by more than 10 %

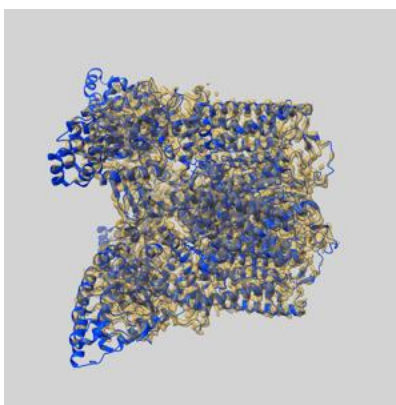
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-70173 and PDB model 9O6G. Per-residue inclusion information can be found in section 3 on page 8.

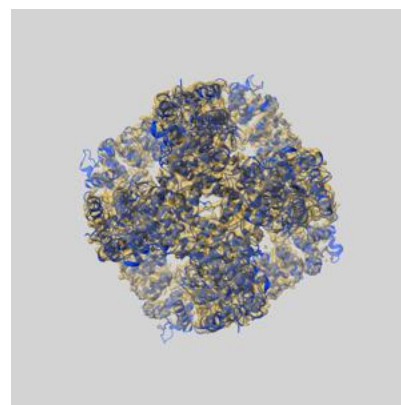
9.1 Map-model overlay [i](#)



X



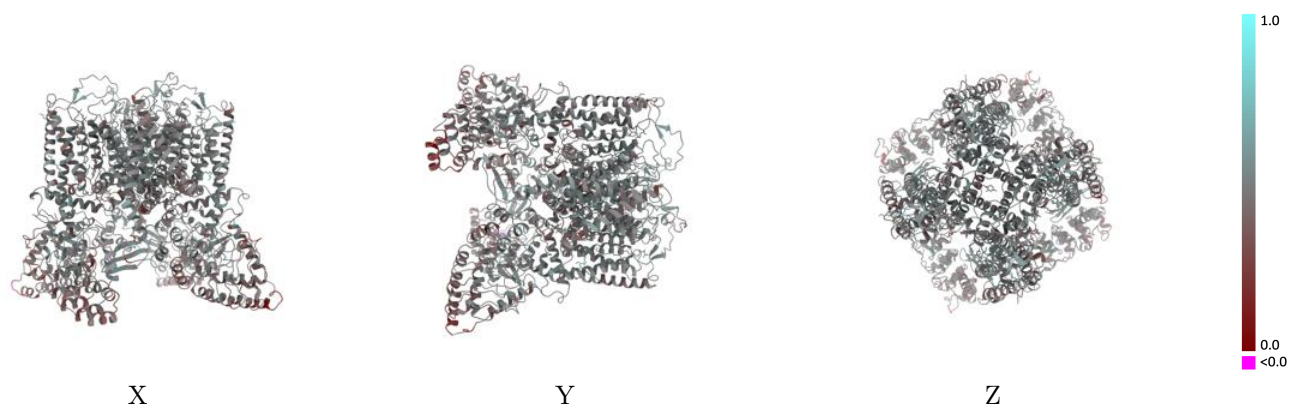
Y



Z

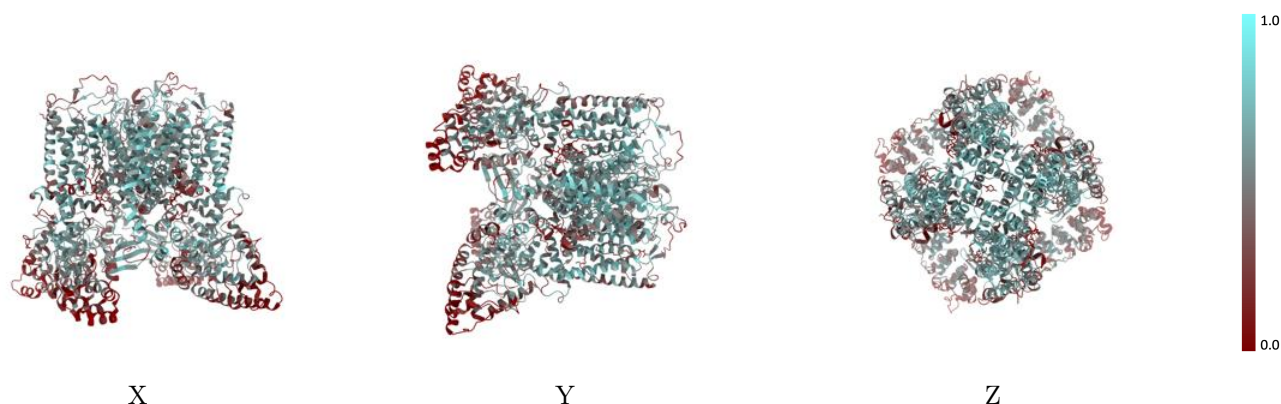
The images above show the 3D surface view of the map at the recommended contour level 0.19 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



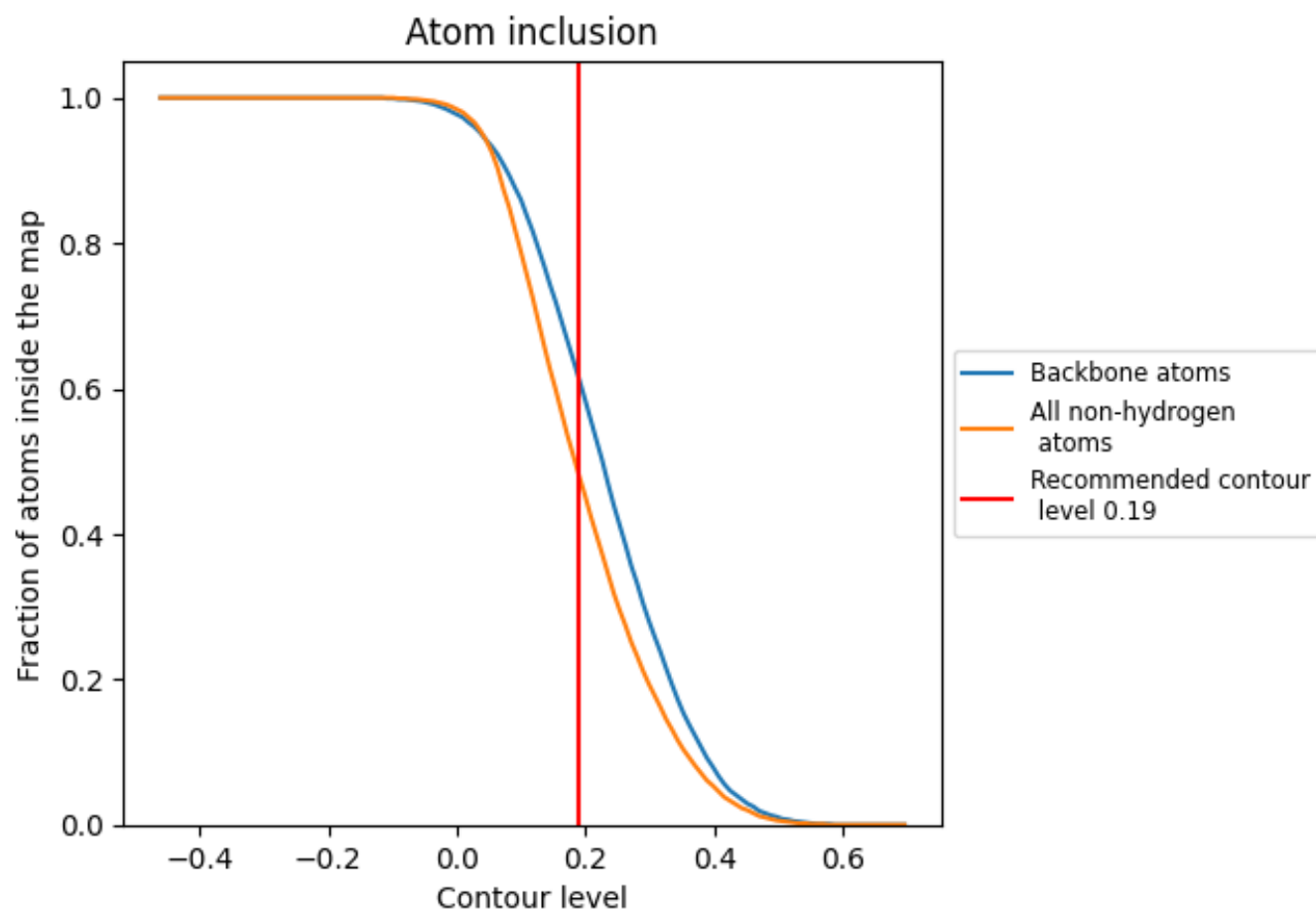
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.19).

9.4 Atom inclusion [i](#)



At the recommended contour level, 61% of all backbone atoms, 48% 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 (0.19) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	<div></div> 0.4800	<div></div> 0.4680
A	<div></div> 0.4910	<div></div> 0.4670
B	<div></div> 0.4760	<div></div> 0.4650
C	<div></div> 0.4770	<div></div> 0.4670
D	<div></div> 0.4780	<div></div> 0.4720

