



wwPDB EM Validation Summary Report ⓘ

Mar 23, 2026 – 03:43 AM UTC

PDB ID : 8D1J / pdb_00008d1j
EMDB ID : EMD-27132
Title : hBest1 5mM Ca²⁺ (Ca²⁺-bound) closed state
Authors : Owji, A.P.; Kittredge, A.; Hendrickson, W.A.; Tingting, Y.
Deposited on : 2022-05-27
Resolution : 2.05 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.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

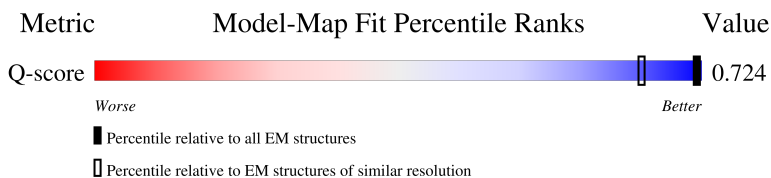
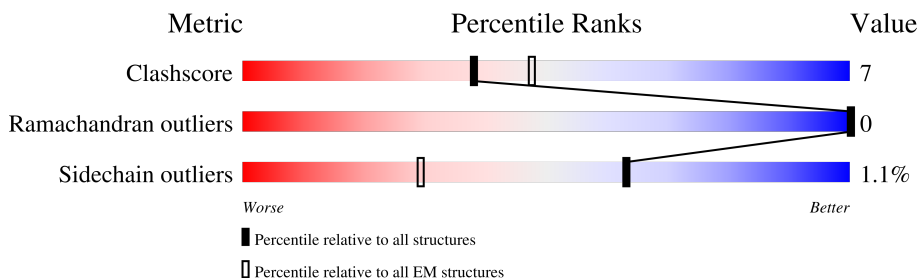
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 2.05 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	1849 (1.55 - 2.55)

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	585	
1	B	585	
1	C	585	
1	D	585	

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Mol	Chain	Length	Quality of chain
1	E	585	 A horizontal bar chart showing the quality of chain E. The bar is divided into three segments: a green segment representing 54%, a yellow segment representing 11%, and a grey segment representing 36%. A small red flag icon is positioned at the beginning of the green segment.

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 17151 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 Bestrophin-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	376	Total	C	N	O	S	0	0
			3118	2052	510	540	16		
1	C	376	Total	C	N	O	S	0	0
			3118	2052	510	540	16		
1	B	376	Total	C	N	O	S	0	0
			3118	2052	510	540	16		
1	D	376	Total	C	N	O	S	0	0
			3118	2052	510	540	16		
1	E	376	Total	C	N	O	S	0	0
			3118	2052	510	540	16		

- Molecule 2 is CALCIUM ION (CCD ID: CA) (formula: Ca) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
2	A	1	Total	Ca	0
			1	1	
2	C	1	Total	Ca	0
			1	1	
2	B	1	Total	Ca	0
			1	1	
2	D	1	Total	Ca	0
			1	1	
2	E	1	Total	Ca	0
			1	1	

- Molecule 3 is 1,2-DIMYRISTOYL-RAC-GLYCERO-3-PHOSPHOCHOLINE (CCD ID: MC3) (formula: C₃₆H₇₂NO₈P).



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Mol	Chain	Residues	Atoms	AltConf
3	C	1	Total C 14 14	0
3	C	1	Total C O 35 31 4	0
3	B	1	Total C O 35 31 4	0
3	B	1	Total C 5 5	0
3	B	1	Total C O P 38 29 8 1	0
3	B	1	Total C 14 14	0
3	B	1	Total C 12 12	0
3	B	1	Total C 14 14	0
3	B	1	Total C 10 10	0
3	B	1	Total C 14 14	0
3	D	1	Total C O 35 31 4	0
3	D	1	Total C 5 5	0
3	D	1	Total C O P 38 29 8 1	0
3	D	1	Total C 14 14	0
3	D	1	Total C 12 12	0
3	D	1	Total C 14 14	0
3	D	1	Total C 10 10	0
3	D	1	Total C 14 14	0
3	E	1	Total C O 35 31 4	0
3	E	1	Total C 5 5	0
3	E	1	Total C O P 38 29 8 1	0

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Mol	Chain	Residues	Atoms		AltConf
3	E	1	Total	C	0
			14	14	
3	E	1	Total	C	0
			12	12	
3	E	1	Total	C	0
			14	14	
3	E	1	Total	C	0
			10	10	
3	E	1	Total	C	0
			14	14	

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		AltConf
4	A	168	Total	O	0
			168	168	
4	C	170	Total	O	0
			170	170	
4	B	171	Total	O	0
			171	171	
4	D	169	Total	O	0
			169	169	
4	E	168	Total	O	0
			168	168	

GLN	VAL	ARG	ARG	LYS	THR	VAL	GLU	ASP	MET	PRO	GLU	ILE	ASN	LEU	LYS	GLU	PRO	THR	ASN	ILE	THR	THR	LEU	LYS	ASP	HIS	MET	ASP	PRO	TYR	TRP	ALA	ALA	LEU	GLU	GLY	ASN	HIS
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Chain B:



ASN	LEU	THR	ASP	MET	PRO	GLU	ILE	PRO	GLU	ASN	HIS	LEU	LYS	GLU	PRO	LEU	GLU	GLN	SER	PRO	THR	ASN	ILE	HIS	THR	THR	LEU	LYS	ASP	HIS	MET	ASP	PRO	TYR	TRP	ALA	LEU	GLU	ASN	ARG	ASP	GLU	ALA	HIS	SER
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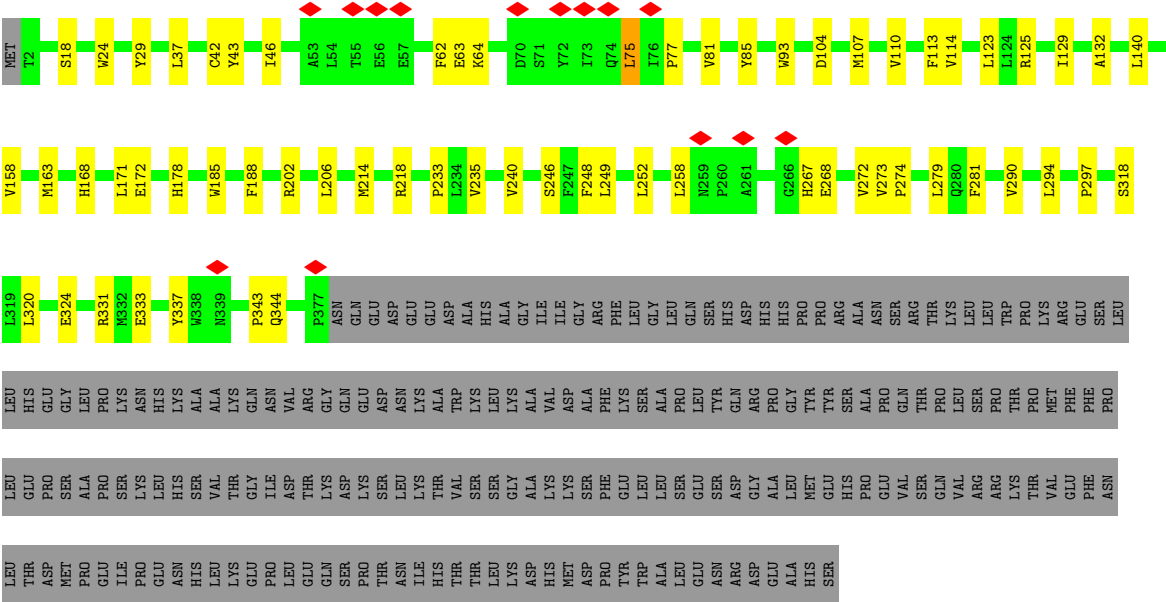
Chain D:



SER	PRO	THR	PRO	MET	PHE	PHE	PRO	LEU	GLU	PRO	SER	ALA	PRO	SER	LYS	HIS	SER	THR	THR	GLY	ILE	ASP	THR	THR	LYS	ASP	LYS	LYS	SER	SER	LEU	LEU	LYS	THR	THR	VAL	SER	SER	SER	SER	GLY	ALA	LYS	LYS	SER	SER	PHE	GLU	LEU	LEU	SER	SER	GLU	GLU	ASP	SER	GLY	ALA	LEU	LEU	MET	GLU	HIS	PRO	GLU	VAL	SER	SER	GLN	VAL
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ARG	ARG	LYS	THR	VAL	GLU	PHE	ASN	LEU	THR	ASP	MET	PRO	GLU	ILE	PRO	GLU	ASN	HIS	LEU	LYS	GLU	PRO	LEU	GLU	GLN	SER	PRO	THR	ASN	ILE	HIS	THR	THR	LEU	LYS	ASP	HIS	MET	ASP	PRO	TYR	TRP	ALA	LEU	GLU	ASN	ARG	ASP	GLU	ALA	HIS	SER
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● Molecule 1: Bestrophin-1



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C5	Depositor
Number of particles used	132151	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 ($e^-/\text{\AA}^2$)	58	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	10.965	Depositor
Minimum map value	-4.732	Depositor
Average map value	-0.008	Depositor
Map value standard deviation	0.409	Depositor
Recommended contour level	0.8	Depositor
Map size ($\text{\AA}$)	143.45801, 143.45801, 143.45801	wwPDB
Map dimensions	280, 280, 280	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	0.51235, 0.51235, 0.51235	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: MC3, CA

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	0.20	0/3213	0.40	0/4377
1	B	0.20	0/3213	0.40	0/4377
1	C	0.20	0/3213	0.40	0/4377
1	D	0.20	0/3213	0.40	0/4377
1	E	0.20	0/3213	0.40	0/4377
All	All	0.20	0/16065	0.40	0/21885

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	3118	0	3089	49	0
1	B	3118	0	3089	56	0
1	C	3118	0	3089	55	0
1	D	3118	0	3089	53	0
1	E	3118	0	3089	48	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0
2	C	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	D	1	0	0	0	0
2	E	1	0	0	0	0
3	A	142	0	235	12	0
3	B	142	0	235	13	0
3	C	142	0	235	14	0
3	D	142	0	235	11	0
3	E	142	0	235	12	0
4	A	168	0	0	3	0
4	B	171	0	0	3	0
4	C	170	0	0	3	0
4	D	169	0	0	3	0
4	E	168	0	0	3	0
All	All	17151	0	16620	243	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 7.

The worst 5 of 243 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:A:75:LEU:HD22	1:E:77:PRO:CG	2.31	0.61
1:C:77:PRO:CG	1:D:75:LEU:HD22	2.31	0.60
1:E:272:VAL:HG11	3:E:607:MC3:H361	1.84	0.60
1:C:272:VAL:HG11	3:C:606:MC3:H361	1.84	0.60
1:C:75:LEU:HD22	1:B:77:PRO:CG	2.31	0.60

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	374/585 (64%)	370 (99%)	4 (1%)	0	100	100
1	B	374/585 (64%)	370 (99%)	4 (1%)	0	100	100
1	C	374/585 (64%)	370 (99%)	4 (1%)	0	100	100
1	D	374/585 (64%)	370 (99%)	4 (1%)	0	100	100
1	E	374/585 (64%)	370 (99%)	4 (1%)	0	100	100
All	All	1870/2925 (64%)	1850 (99%)	20 (1%)	0	100	100

There are no Ramachandran outliers to report.

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	339/524 (65%)	336 (99%)	3 (1%)	70	75
1	B	339/524 (65%)	336 (99%)	3 (1%)	70	75
1	C	339/524 (65%)	335 (99%)	4 (1%)	63	65
1	D	339/524 (65%)	335 (99%)	4 (1%)	63	65
1	E	339/524 (65%)	335 (99%)	4 (1%)	63	65
All	All	1695/2620 (65%)	1677 (99%)	18 (1%)	63	68

5 of 18 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	E	18	SER
1	E	344	GLN
1	E	178	HIS
1	B	178	HIS
1	D	344	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 6 such sidechains are listed below:

Mol	Chain	Res	Type
1	D	133	ASN
1	E	133	ASN
1	E	136	ASN
1	C	133	ASN
1	A	133	ASN

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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 45 ligands modelled in this entry, 5 are monoatomic - leaving 40 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
3	MC3	A	605	-	11,11,45	0.30	0	10,10,53	0.77	0
3	MC3	E	609	-	13,13,45	0.26	0	12,12,53	0.86	0
3	MC3	B	607	-	13,13,45	0.29	0	12,12,53	0.79	0
3	MC3	A	607	-	9,9,45	0.31	0	8,8,53	0.74	0
3	MC3	E	603	-	4,4,45	0.31	0	3,3,53	0.58	0
3	MC3	C	607	-	9,9,45	0.31	0	8,8,53	0.74	0
3	MC3	B	609	-	13,13,45	0.27	0	12,12,53	0.86	0
3	MC3	A	603	-	37,37,45	1.05	4 (10%)	40,42,53	1.14	2 (5%)
3	MC3	A	609	-	34,34,45	1.04	4 (11%)	36,36,53	1.26	3 (8%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	MC3	D	605	-	13,13,45	0.28	0	12,12,53	0.86	0
3	MC3	E	607	-	13,13,45	0.29	0	12,12,53	0.79	0
3	MC3	B	601	-	34,34,45	1.05	4 (11%)	36,36,53	1.26	3 (8%)
3	MC3	B	604	-	37,37,45	1.04	4 (10%)	40,42,53	1.14	2 (5%)
3	MC3	C	605	-	11,11,45	0.30	0	10,10,53	0.77	0
3	MC3	E	608	-	9,9,45	0.31	0	8,8,53	0.74	0
3	MC3	C	609	-	34,34,45	1.05	4 (11%)	36,36,53	1.26	3 (8%)
3	MC3	E	606	-	11,11,45	0.30	0	10,10,53	0.77	0
3	MC3	C	603	-	37,37,45	1.04	4 (10%)	40,42,53	1.14	2 (5%)
3	MC3	D	607	-	13,13,45	0.29	0	12,12,53	0.79	0
3	MC3	E	605	-	13,13,45	0.28	0	12,12,53	0.86	0
3	MC3	D	606	-	11,11,45	0.31	0	10,10,53	0.78	0
3	MC3	D	603	-	4,4,45	0.31	0	3,3,53	0.58	0
3	MC3	D	609	-	13,13,45	0.27	0	12,12,53	0.86	0
3	MC3	E	604	-	37,37,45	1.04	4 (10%)	40,42,53	1.13	2 (5%)
3	MC3	D	601	-	34,34,45	1.05	4 (11%)	36,36,53	1.26	3 (8%)
3	MC3	A	604	-	13,13,45	0.28	0	12,12,53	0.86	0
3	MC3	A	602	-	4,4,45	0.31	0	3,3,53	0.58	0
3	MC3	B	603	-	4,4,45	0.30	0	3,3,53	0.58	0
3	MC3	E	601	-	34,34,45	1.05	4 (11%)	36,36,53	1.26	3 (8%)
3	MC3	B	608	-	9,9,45	0.31	0	8,8,53	0.74	0
3	MC3	C	602	-	4,4,45	0.31	0	3,3,53	0.58	0
3	MC3	D	608	-	9,9,45	0.31	0	8,8,53	0.74	0
3	MC3	B	606	-	11,11,45	0.30	0	10,10,53	0.77	0
3	MC3	C	608	-	13,13,45	0.26	0	12,12,53	0.86	0
3	MC3	B	605	-	13,13,45	0.28	0	12,12,53	0.86	0
3	MC3	D	604	-	37,37,45	1.04	4 (10%)	40,42,53	1.14	2 (5%)
3	MC3	A	608	-	13,13,45	0.27	0	12,12,53	0.86	0
3	MC3	C	604	-	13,13,45	0.28	0	12,12,53	0.86	0
3	MC3	A	606	-	13,13,45	0.29	0	12,12,53	0.79	0
3	MC3	C	606	-	13,13,45	0.29	0	12,12,53	0.79	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	MC3	A	605	-	-	2/9/9/49	-
3	MC3	E	609	-	-	10/11/11/49	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	MC3	B	607	-	-	7/11/11/49	-
3	MC3	A	607	-	-	3/7/7/49	-
3	MC3	E	603	-	-	0/2/2/49	-
3	MC3	C	607	-	-	3/7/7/49	-
3	MC3	B	609	-	-	10/11/11/49	-
3	MC3	A	603	-	-	25/39/39/49	-
3	MC3	A	609	-	-	16/35/35/49	-
3	MC3	D	605	-	-	4/11/11/49	-
3	MC3	E	607	-	-	7/11/11/49	-
3	MC3	B	601	-	-	16/35/35/49	-
3	MC3	B	604	-	-	25/39/39/49	-
3	MC3	C	605	-	-	2/9/9/49	-
3	MC3	E	608	-	-	3/7/7/49	-
3	MC3	C	609	-	-	16/35/35/49	-
3	MC3	E	606	-	-	2/9/9/49	-
3	MC3	C	603	-	-	25/39/39/49	-
3	MC3	D	607	-	-	7/11/11/49	-
3	MC3	E	605	-	-	4/11/11/49	-
3	MC3	D	606	-	-	2/9/9/49	-
3	MC3	D	603	-	-	0/2/2/49	-
3	MC3	D	609	-	-	10/11/11/49	-
3	MC3	E	604	-	-	25/39/39/49	-
3	MC3	D	601	-	-	16/35/35/49	-
3	MC3	A	604	-	-	4/11/11/49	-
3	MC3	A	602	-	-	0/2/2/49	-
3	MC3	B	603	-	-	0/2/2/49	-
3	MC3	E	601	-	-	16/35/35/49	-
3	MC3	B	608	-	-	3/7/7/49	-
3	MC3	C	602	-	-	0/2/2/49	-
3	MC3	D	608	-	-	3/7/7/49	-
3	MC3	B	606	-	-	2/9/9/49	-
3	MC3	C	608	-	-	10/11/11/49	-
3	MC3	B	605	-	-	4/11/11/49	-
3	MC3	D	604	-	-	25/39/39/49	-
3	MC3	A	608	-	-	10/11/11/49	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	MC3	C	604	-	-	4/11/11/49	-
3	MC3	A	606	-	-	7/11/11/49	-
3	MC3	C	606	-	-	7/11/11/49	-

The worst 5 of 40 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	601	MC3	O2-C2	-3.90	1.40	1.47
3	C	609	MC3	O2-C2	-3.89	1.40	1.47
3	B	601	MC3	O2-C2	-3.89	1.40	1.47
3	A	609	MC3	O2-C2	-3.88	1.40	1.47
3	E	601	MC3	O2-C2	-3.87	1.40	1.47

The worst 5 of 25 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	C	609	MC3	O2-C31-C32	3.94	120.02	111.48
3	E	601	MC3	O2-C31-C32	3.94	120.01	111.48
3	D	601	MC3	O2-C31-C32	3.94	120.01	111.48
3	A	609	MC3	O2-C31-C32	3.94	120.00	111.48
3	B	601	MC3	O2-C31-C32	3.94	120.00	111.48

There are no chirality outliers.

5 of 335 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	603	MC3	O3P-C1-C2-O2
3	A	603	MC3	C1-O3P-P-O1P
3	A	603	MC3	C1-O3P-P-O2P
3	A	603	MC3	C1-O3P-P-O4P
3	C	603	MC3	O3P-C1-C2-O2

There are no ring outliers.

28 monomers are involved in 62 short contacts:

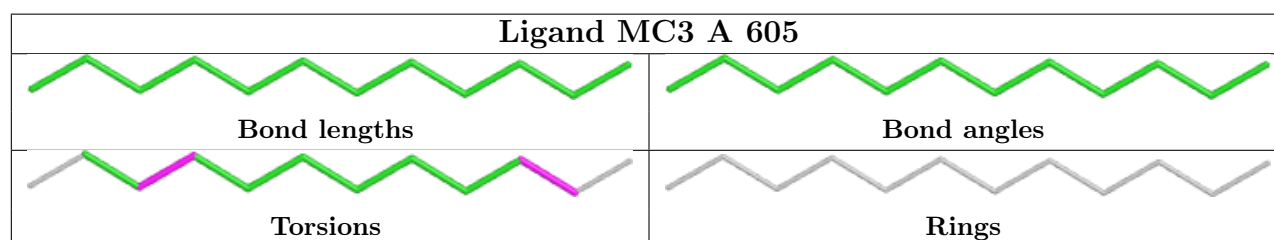
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	605	MC3	1	0
3	E	609	MC3	1	0
3	B	607	MC3	2	0
3	B	609	MC3	1	0

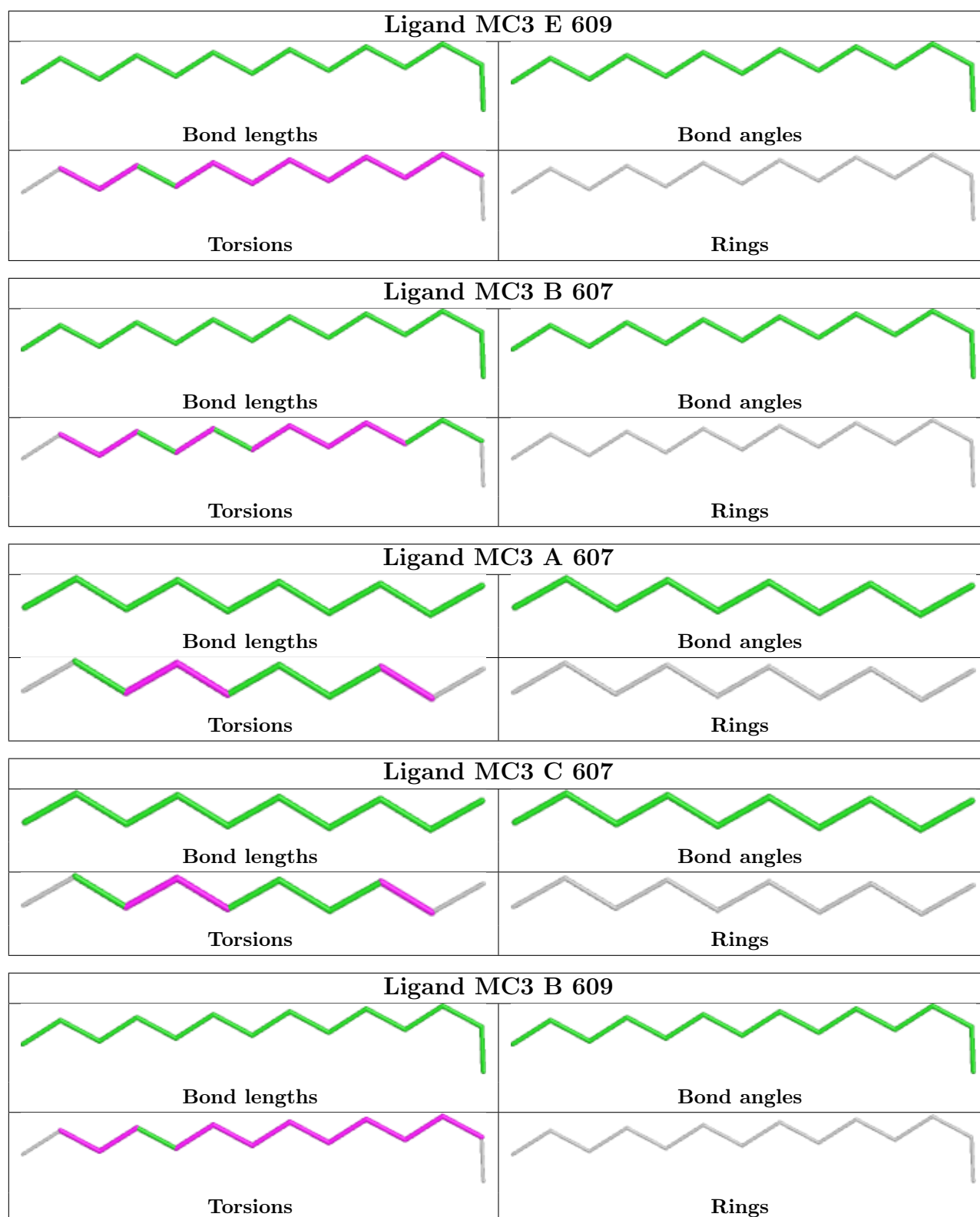
Continued on next page...

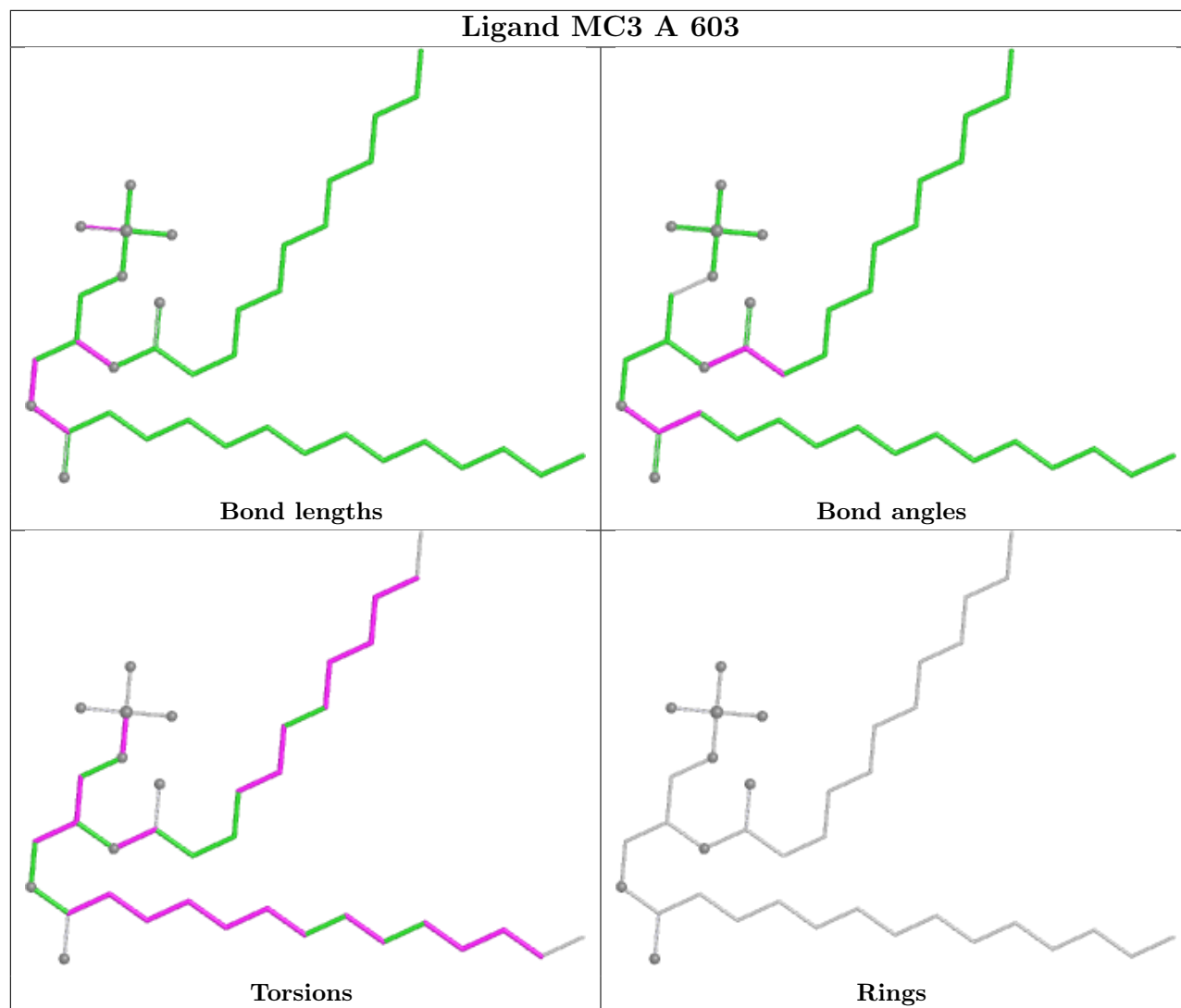
Continued from previous page...

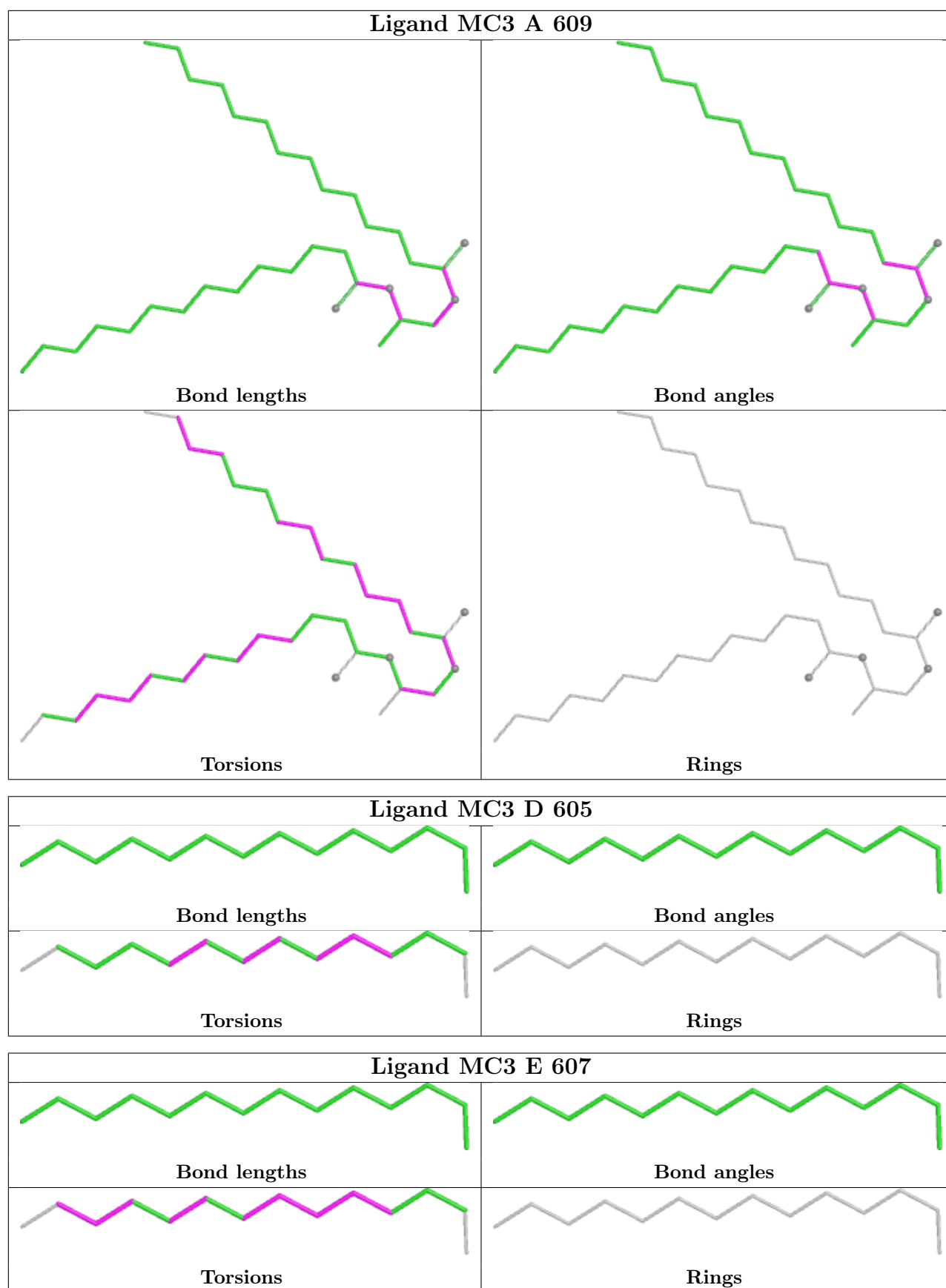
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	603	MC3	2	0
3	A	609	MC3	4	0
3	D	605	MC3	2	0
3	E	607	MC3	2	0
3	B	601	MC3	4	0
3	B	604	MC3	3	0
3	C	605	MC3	1	0
3	C	609	MC3	5	0
3	C	603	MC3	3	0
3	D	607	MC3	2	0
3	E	605	MC3	2	0
3	D	609	MC3	1	0
3	E	604	MC3	3	0
3	D	601	MC3	4	0
3	A	604	MC3	2	0
3	E	601	MC3	4	0
3	B	606	MC3	1	0
3	C	608	MC3	1	0
3	B	605	MC3	2	0
3	D	604	MC3	2	0
3	A	608	MC3	1	0
3	C	604	MC3	2	0
3	A	606	MC3	2	0
3	C	606	MC3	2	0

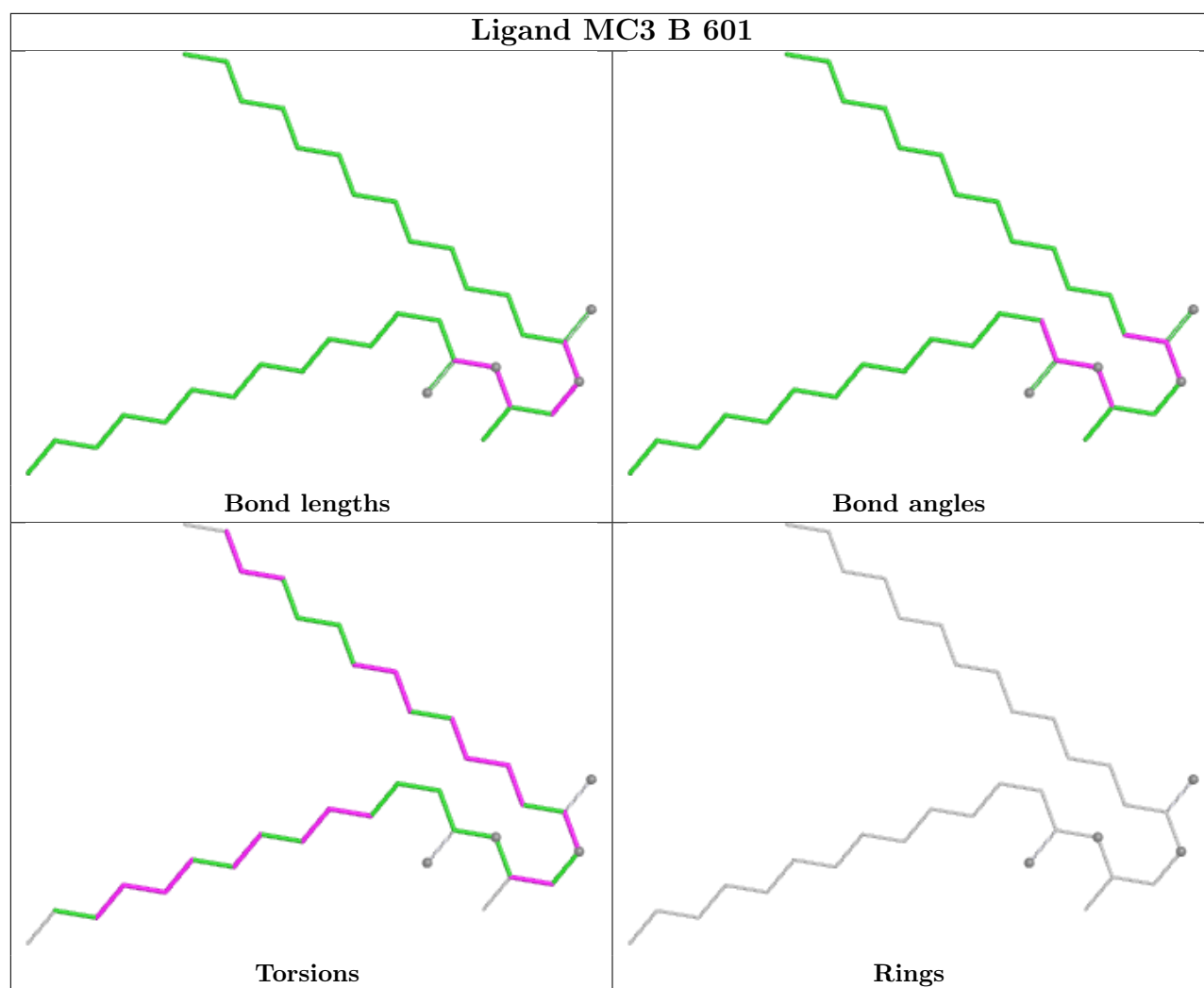
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

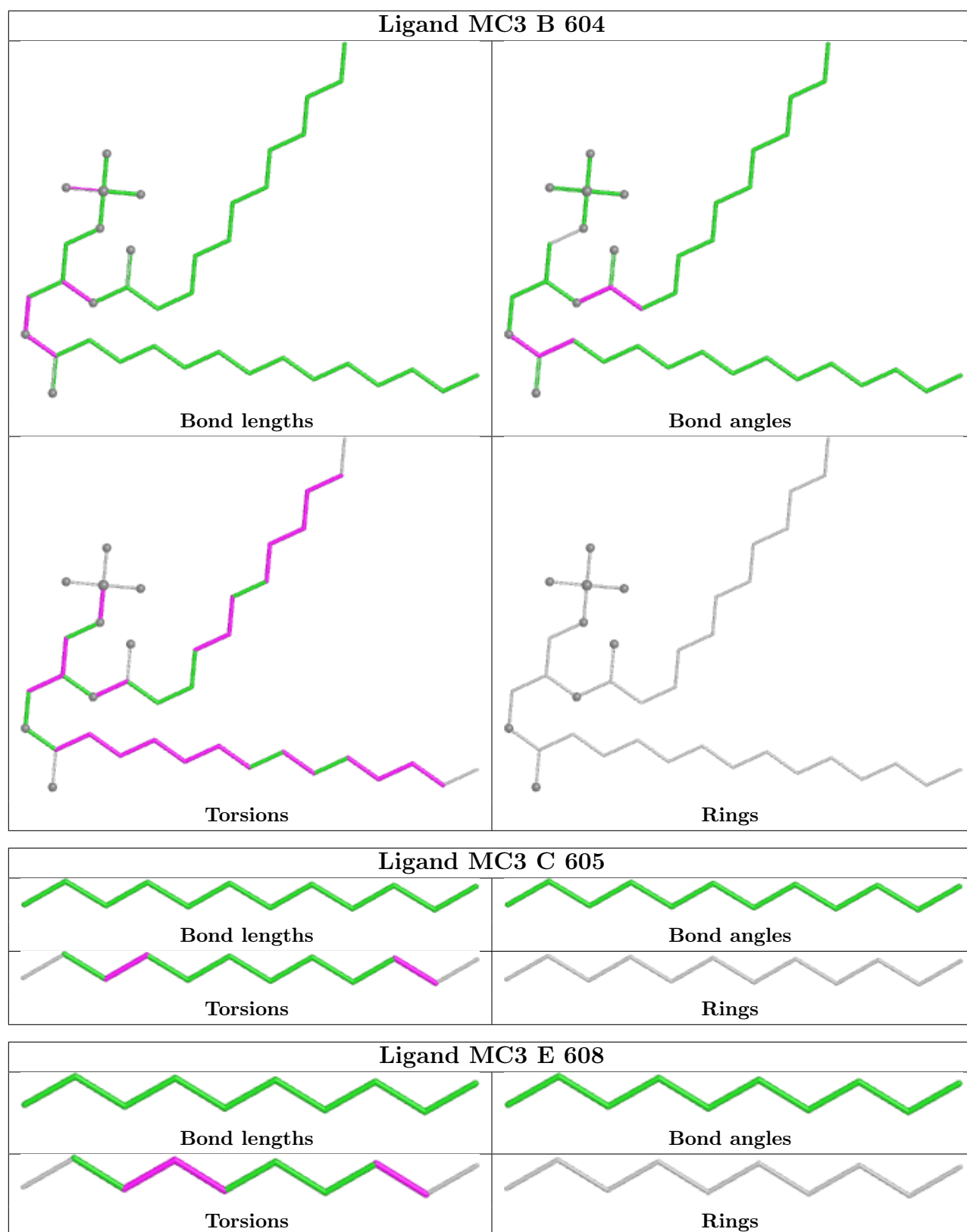


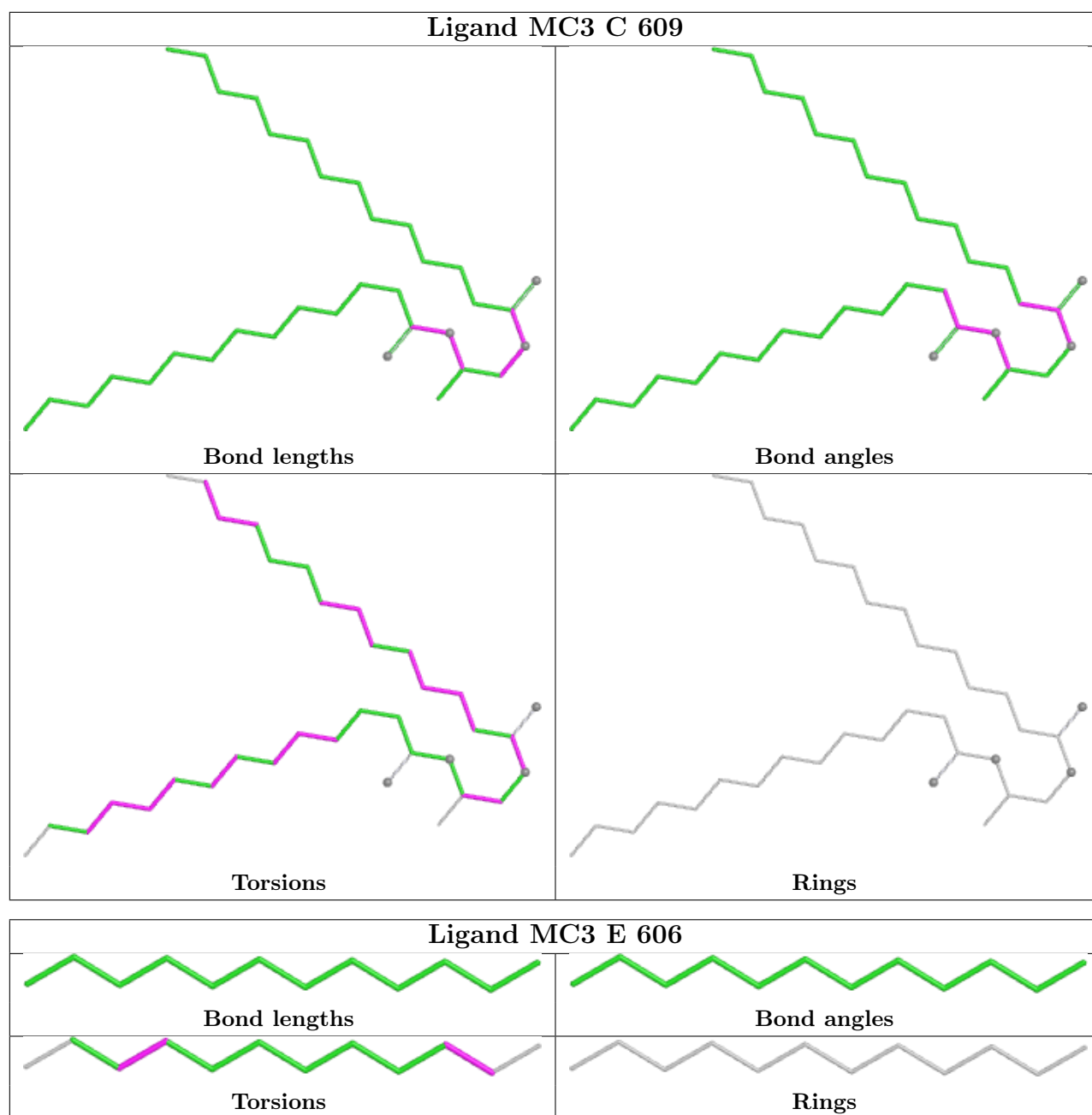


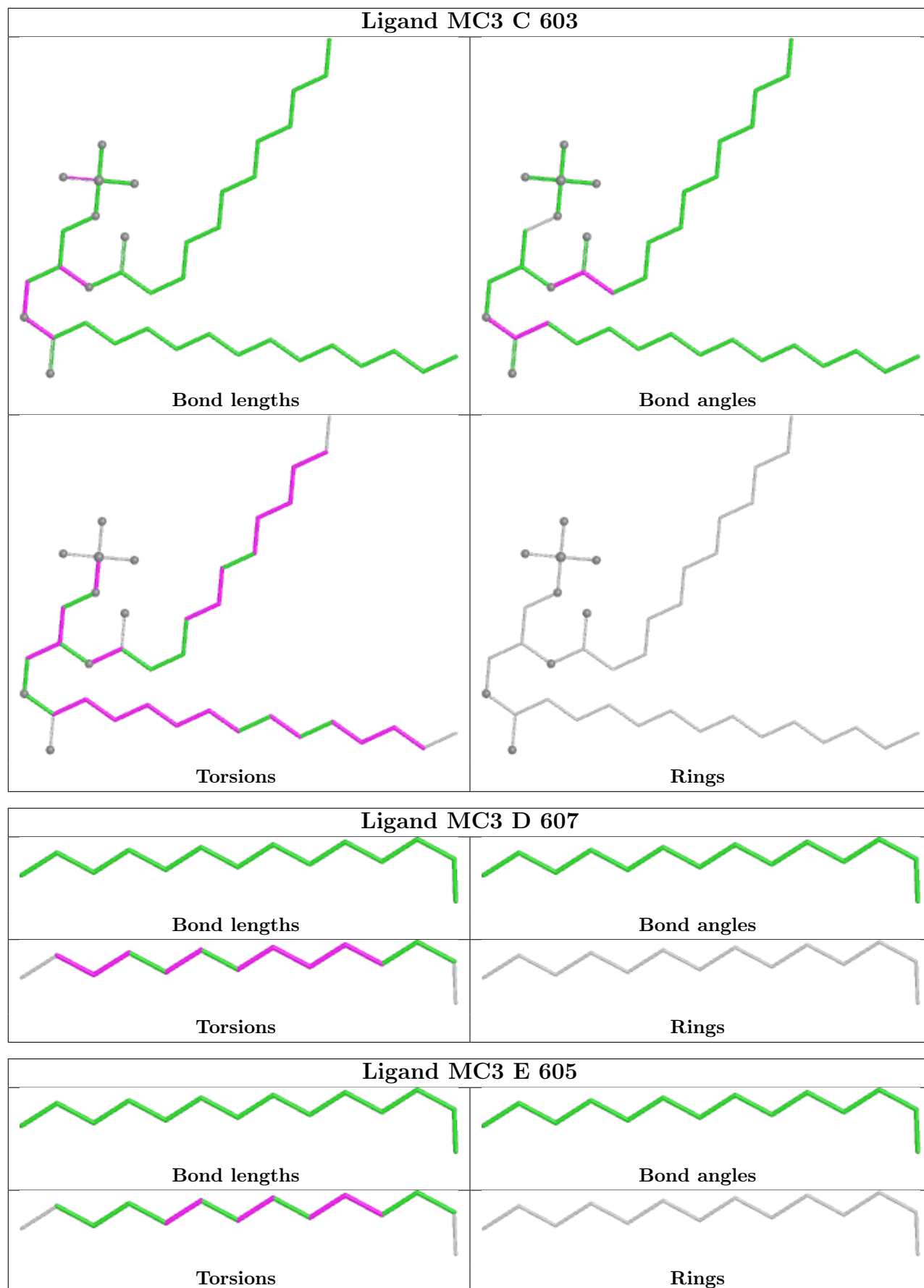


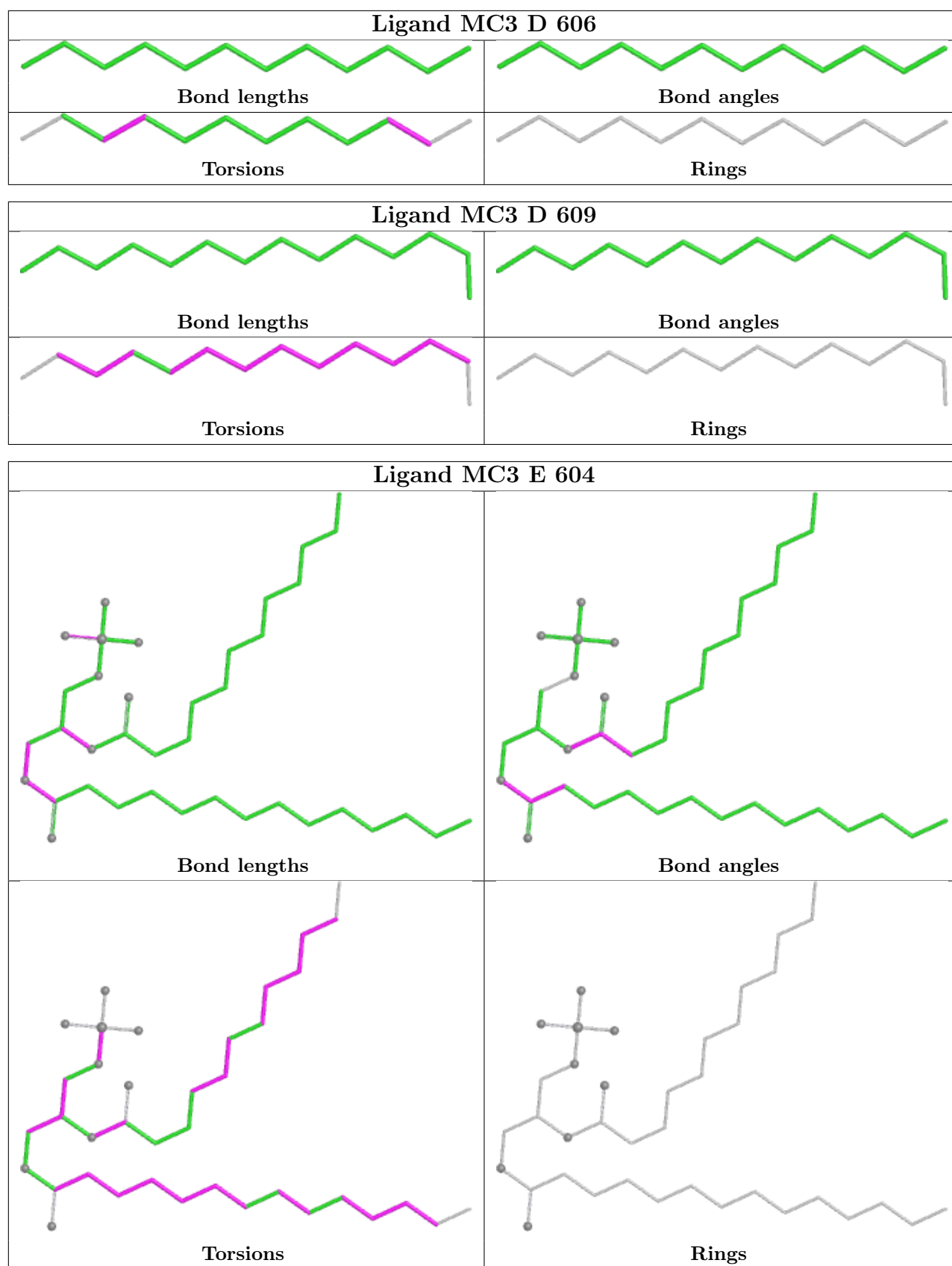


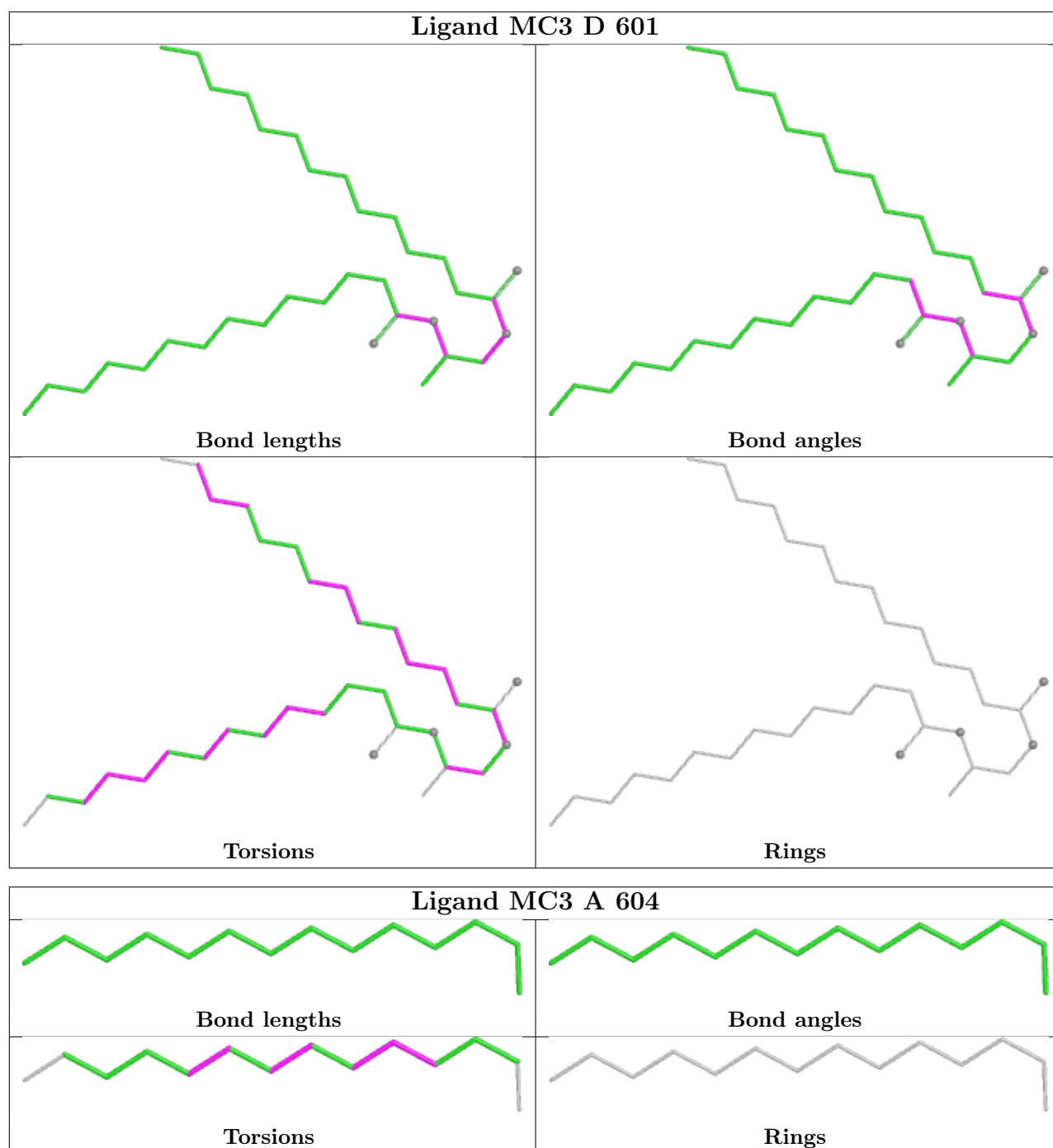


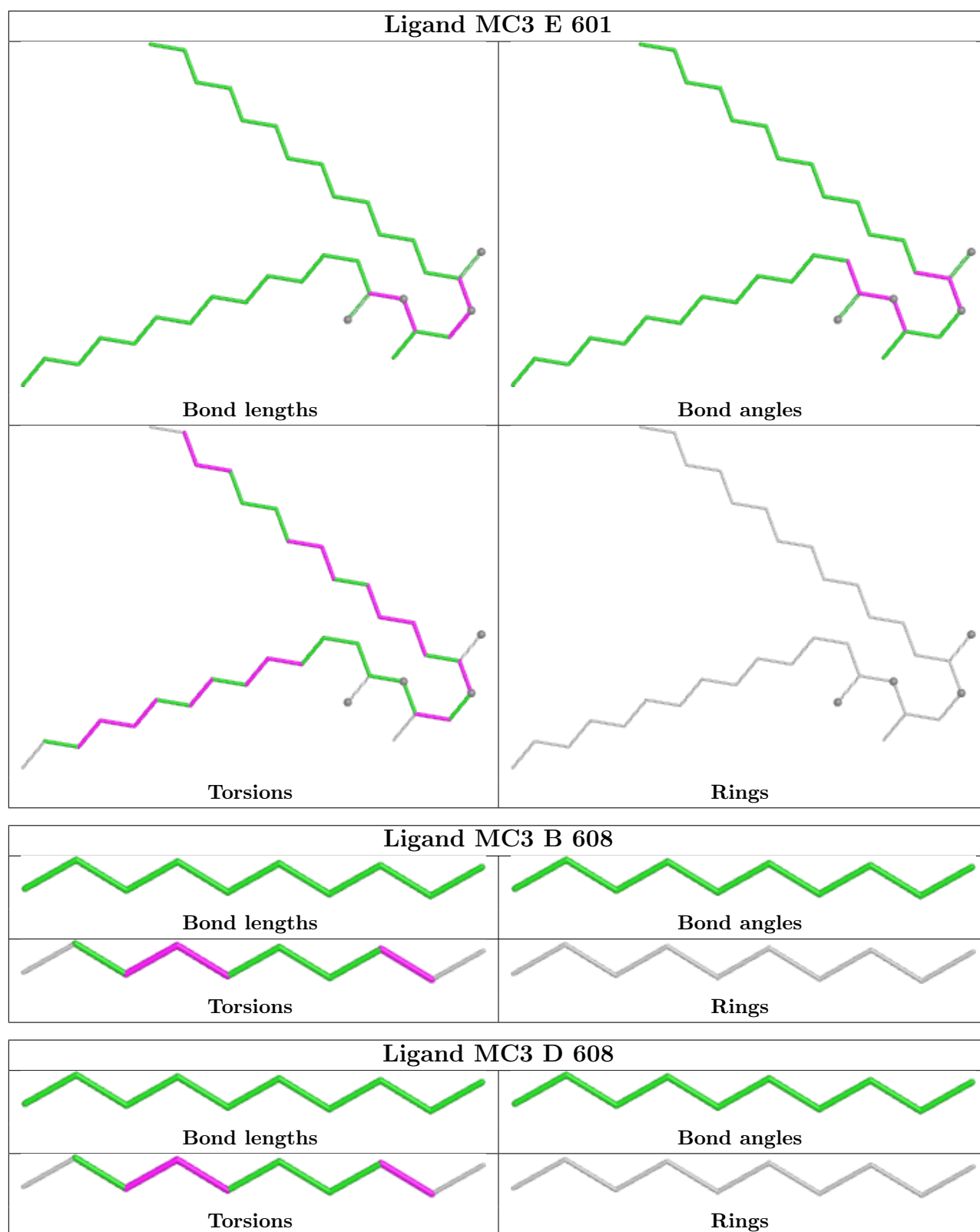


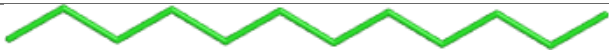
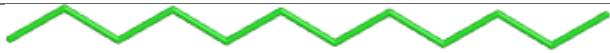






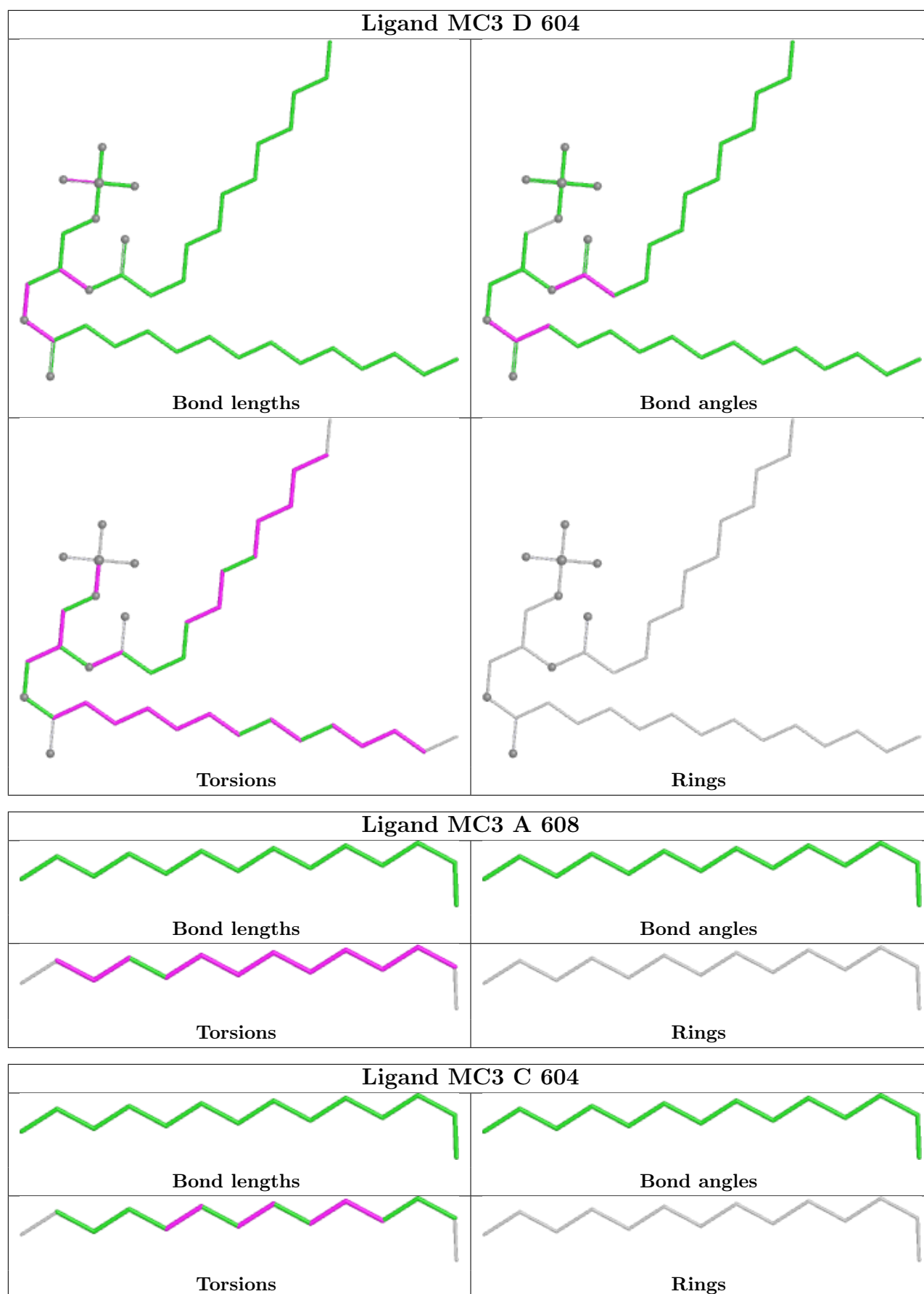


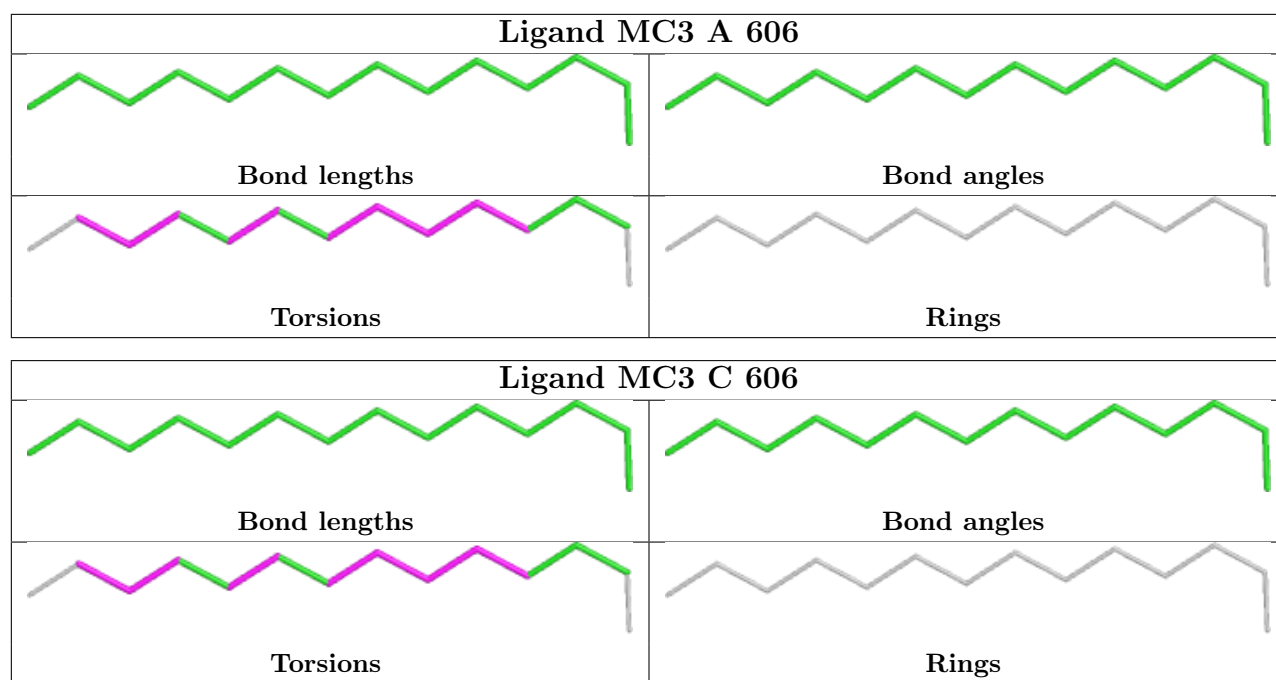


Ligand MC3 B 606	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand MC3 C 608	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand MC3 B 605	
 Bond lengths	 Bond angles
 Torsions	 Rings





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.

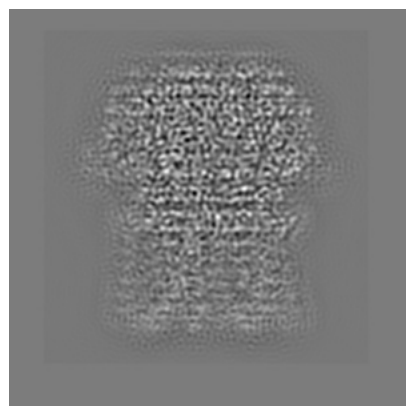
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-27132. These allow visual inspection of the internal detail of the map and identification of artifacts.

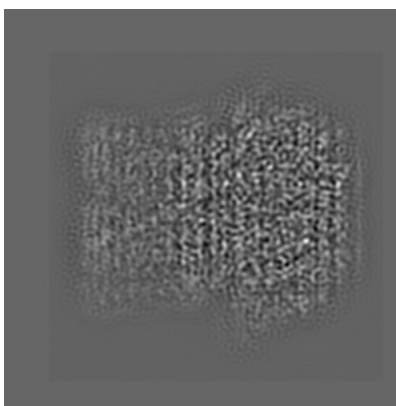
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

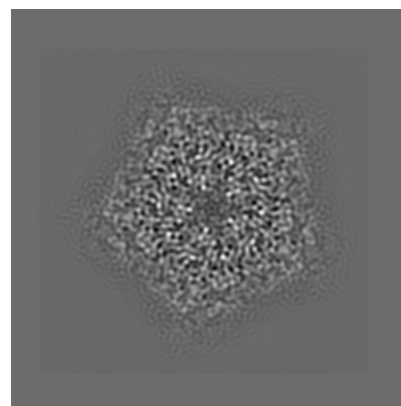
6.1.1 Primary map



X

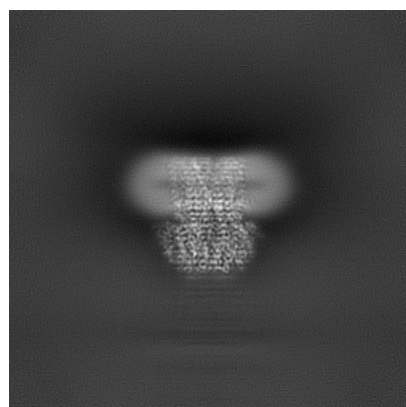


Y

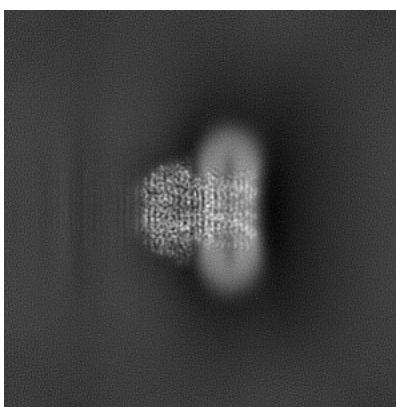


Z

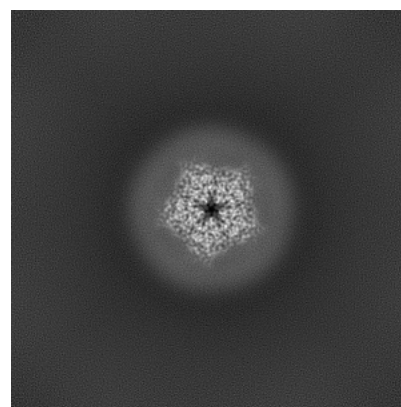
6.1.2 Raw map



X



Y

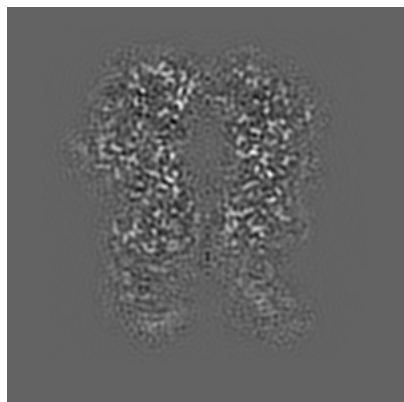


Z

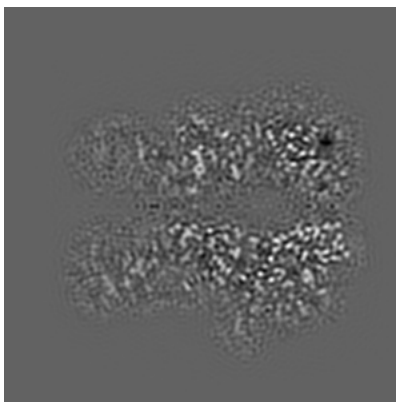
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

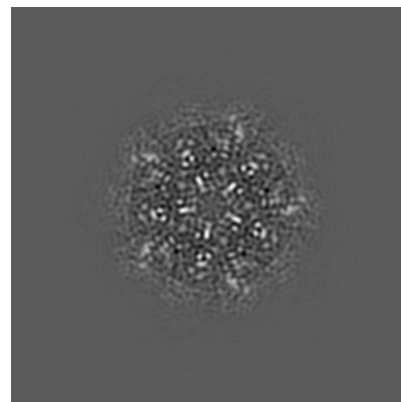
6.2.1 Primary map



X Index: 140

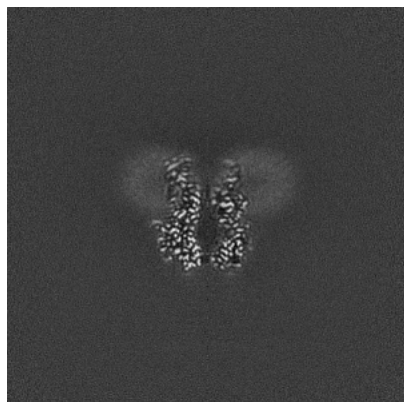


Y Index: 140

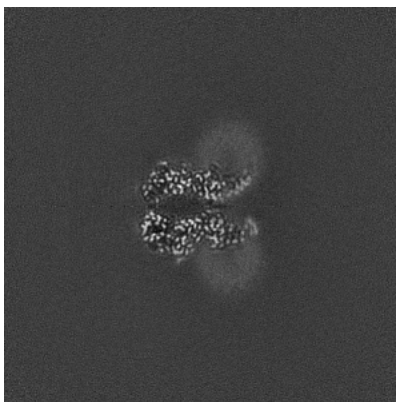


Z Index: 140

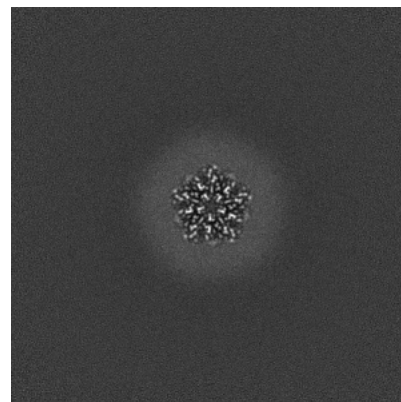
6.2.2 Raw map



X Index: 200



Y Index: 200

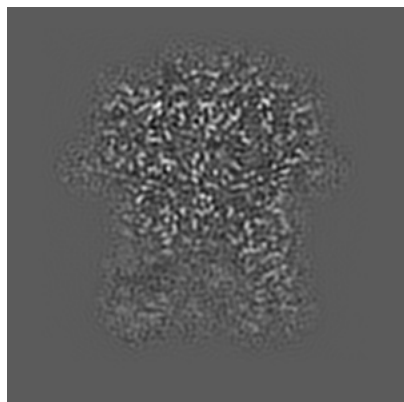


Z Index: 200

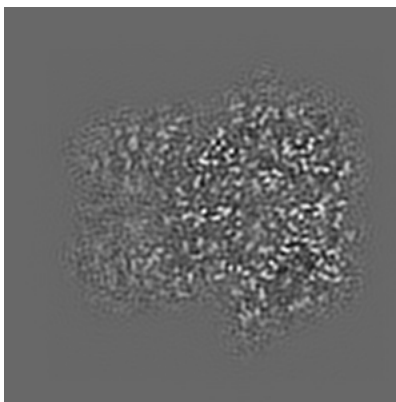
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

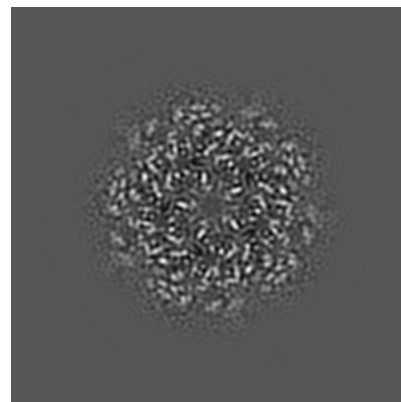
6.3.1 Primary map



X Index: 117

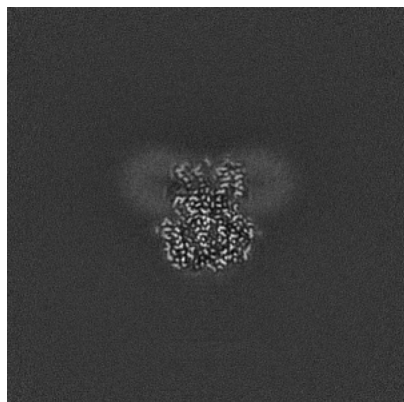


Y Index: 121

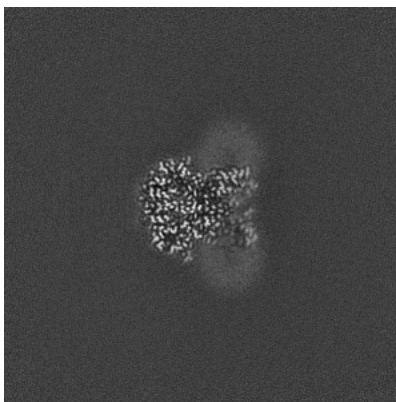


Z Index: 207

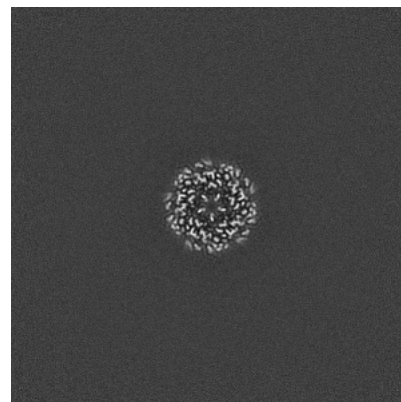
6.3.2 Raw map



X Index: 185



Y Index: 185

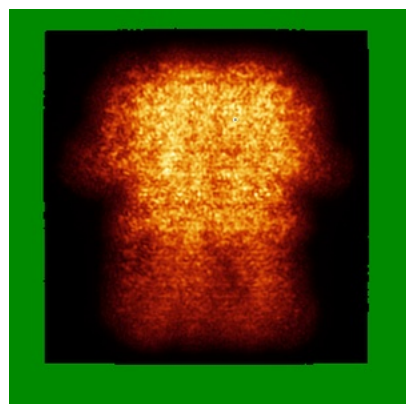


Z Index: 158

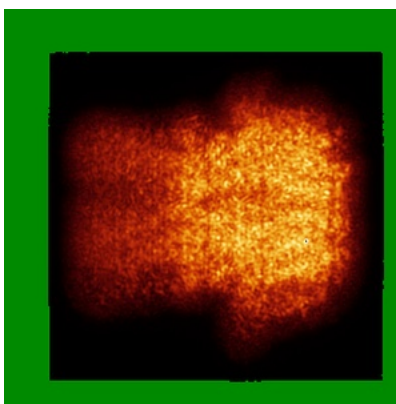
The images above show the largest variance slices of the map in three orthogonal directions.

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

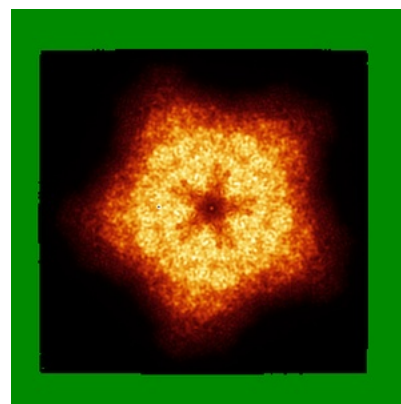
6.4.1 Primary map



X

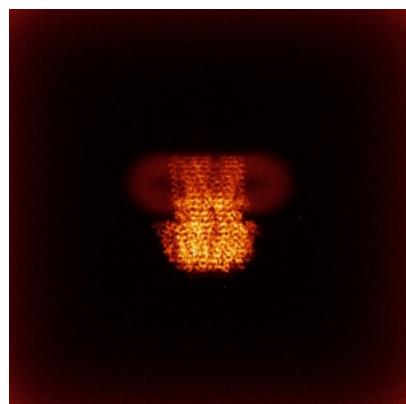


Y

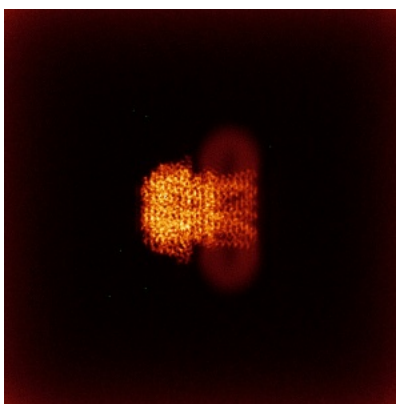


Z

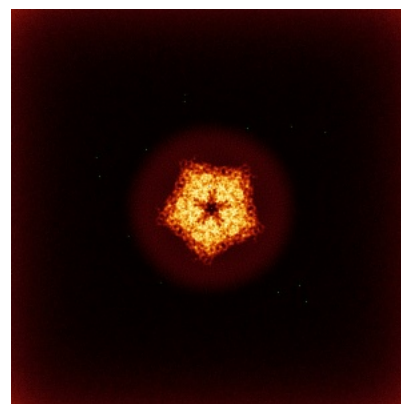
6.4.2 Raw map



X



Y

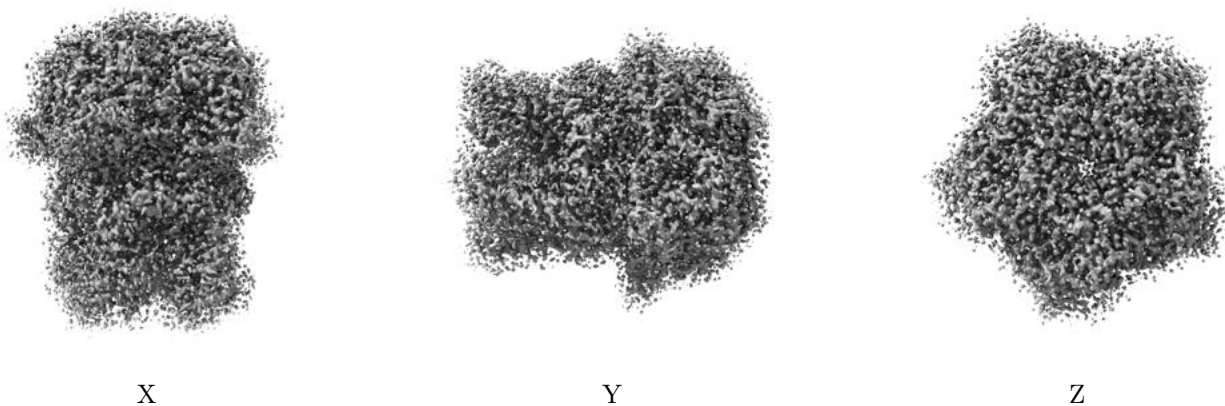


Z

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.

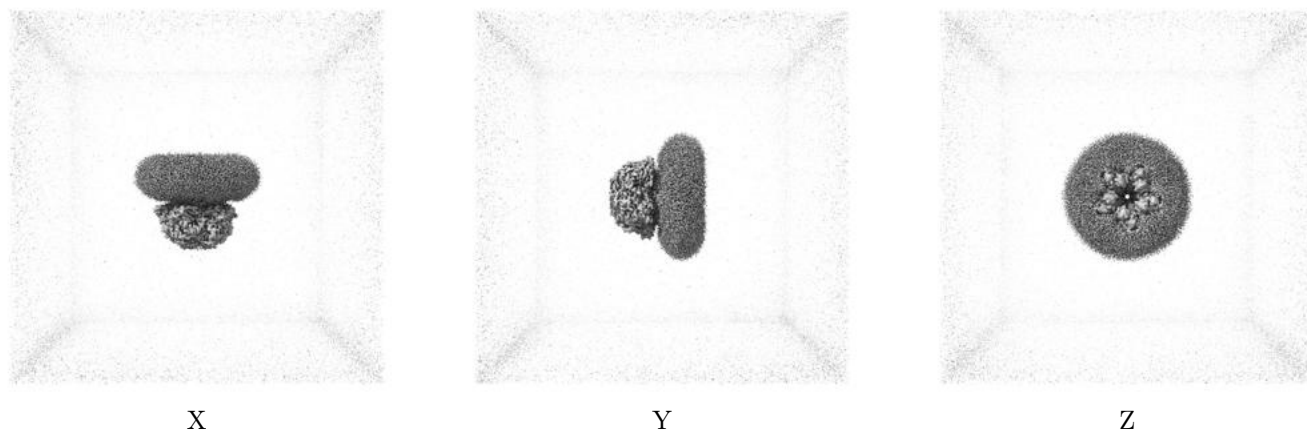
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.8. 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.

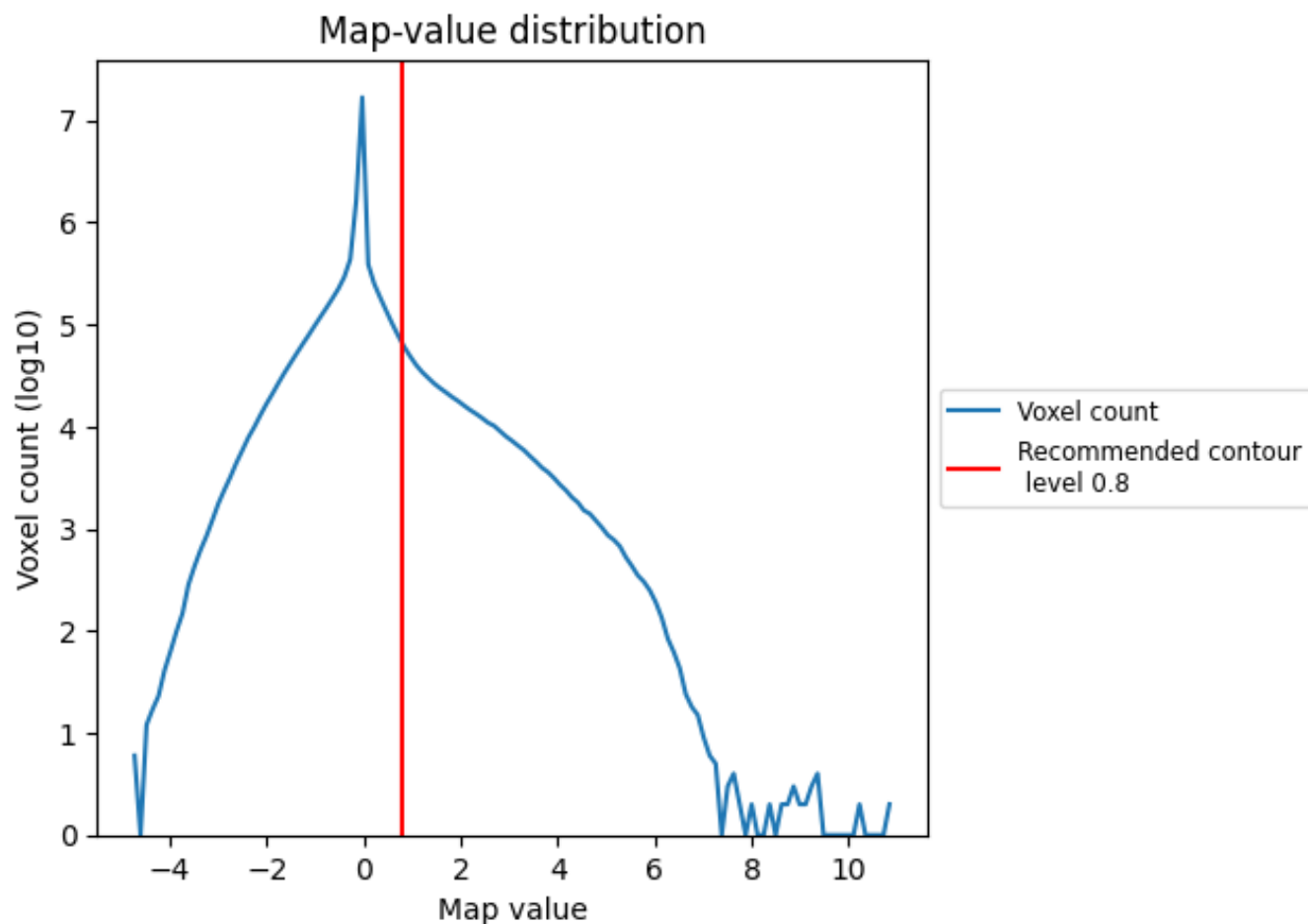
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

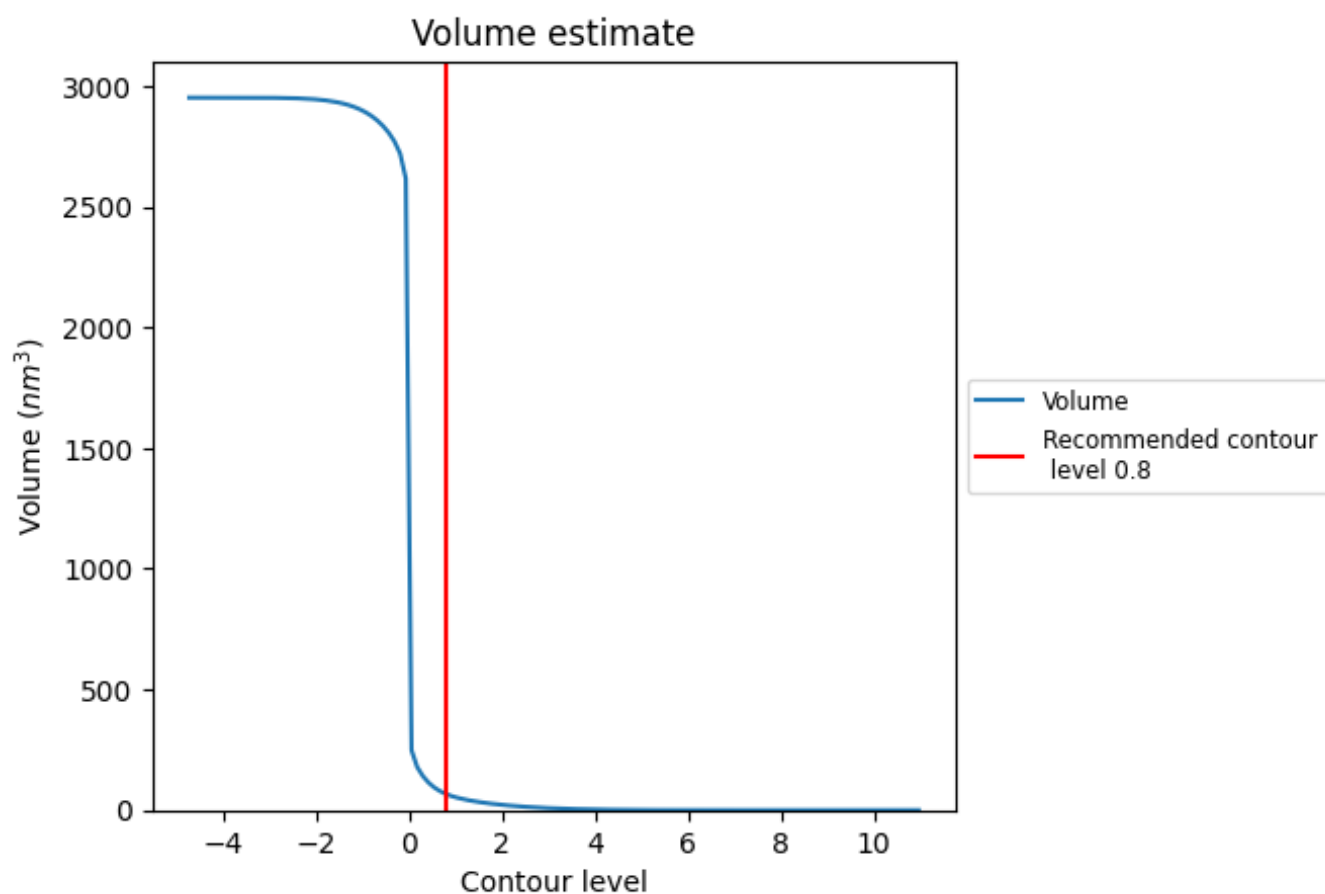
This section contains the results of statistical analysis of the map.

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.

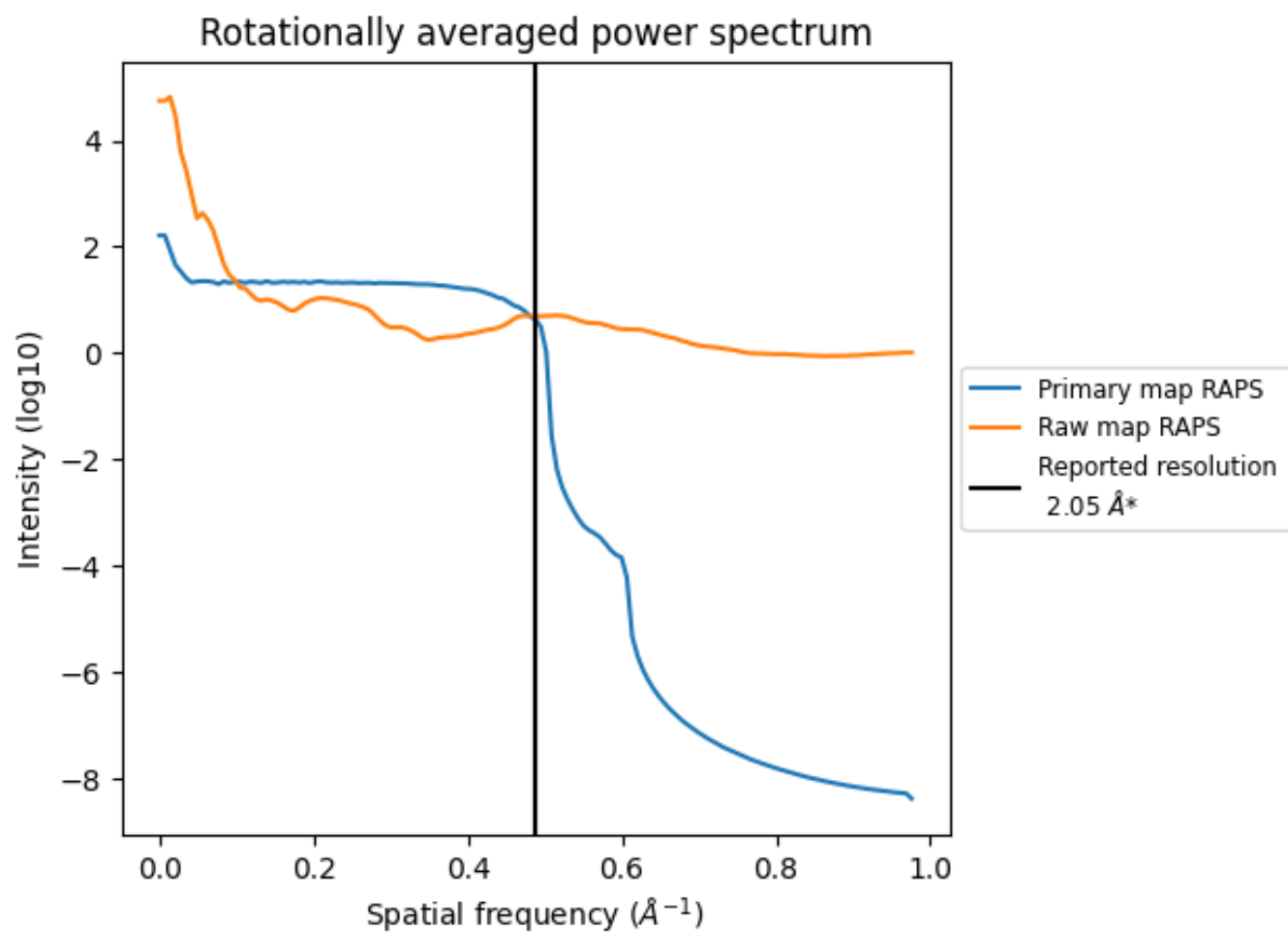
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 66 nm³; this corresponds to an approximate mass of 60 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 ⓘ

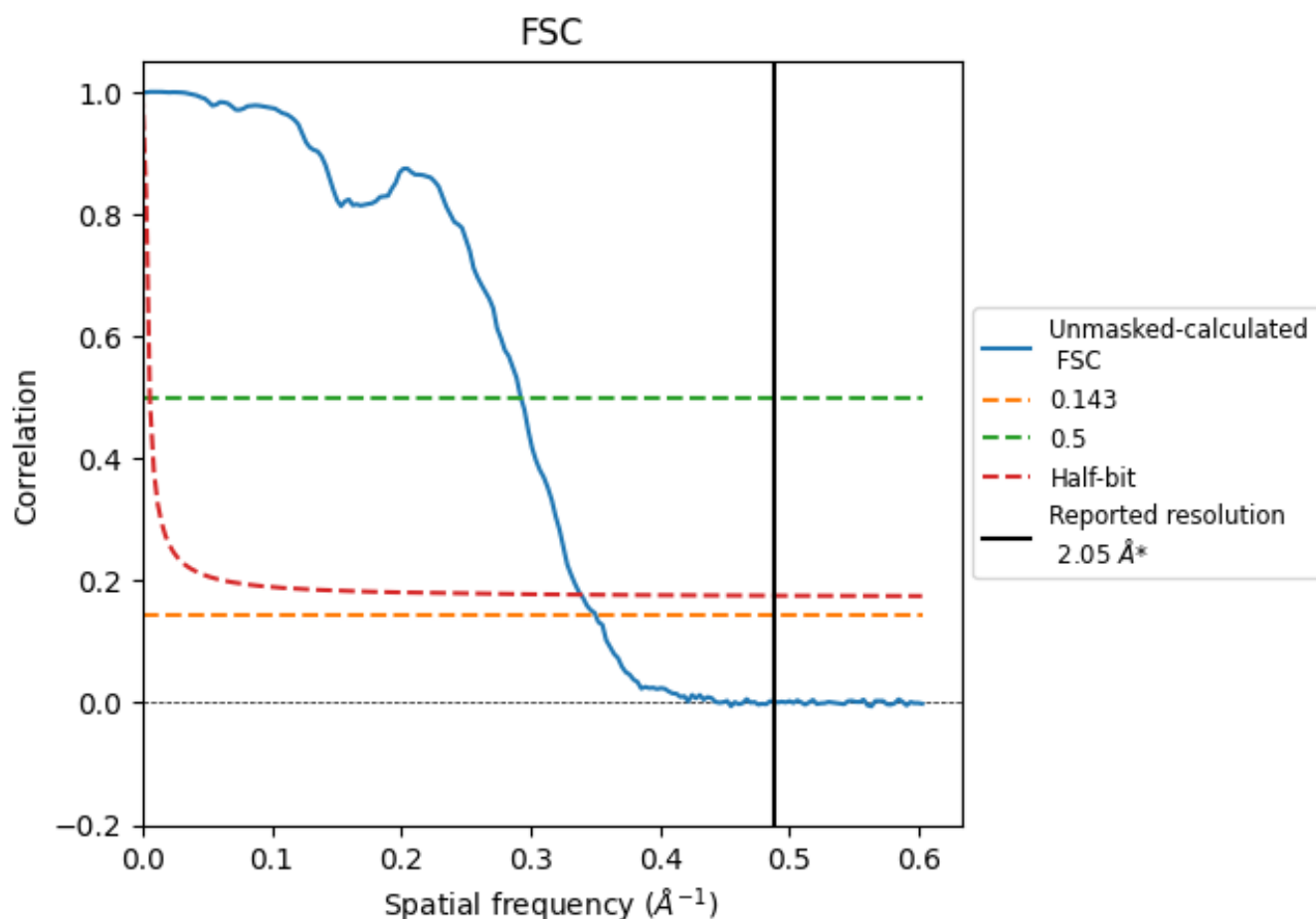


*Reported resolution corresponds to spatial frequency of 0.488 $\text{\AA}^{-1}$

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 0.488 Å⁻¹

8.2 Resolution estimates [i](#)

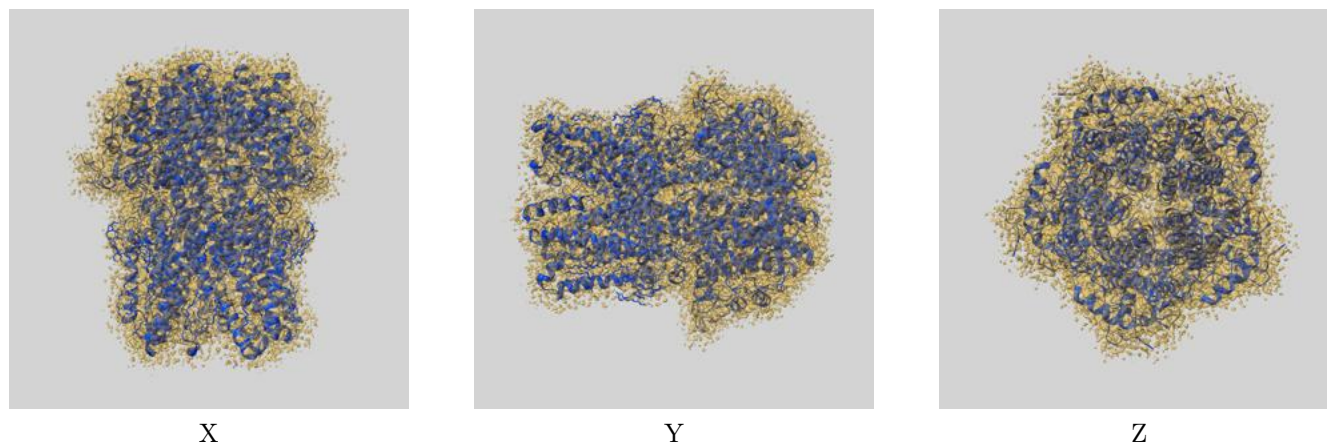
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.05	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	2.86	3.42	2.95

*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 2.86 differs from the reported value 2.05 by more than 10 %

9 Map-model fit [i](#)

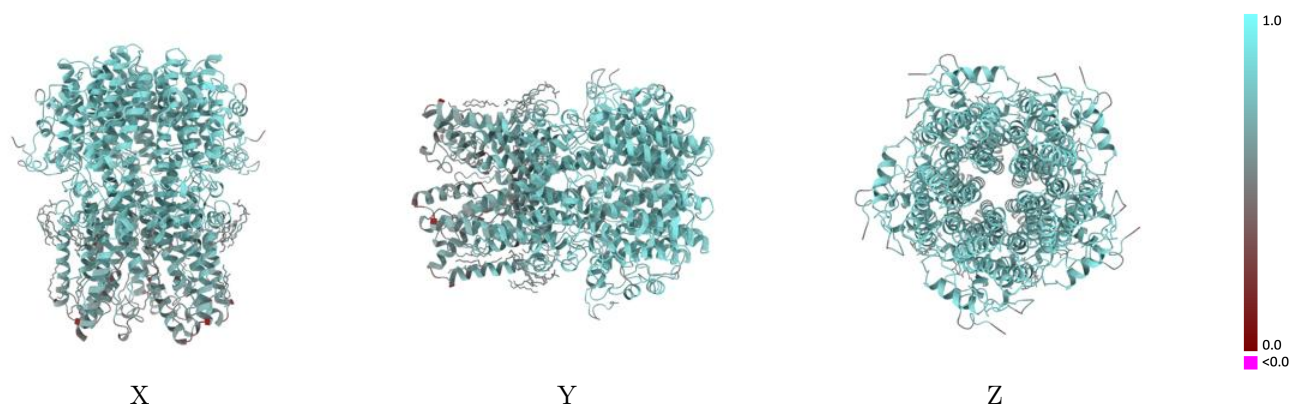
This section contains information regarding the fit between EMDB map EMD-27132 and PDB model 8D1J. Per-residue inclusion information can be found in section [3](#) on page [8](#).

9.1 Map-model overlay [i](#)



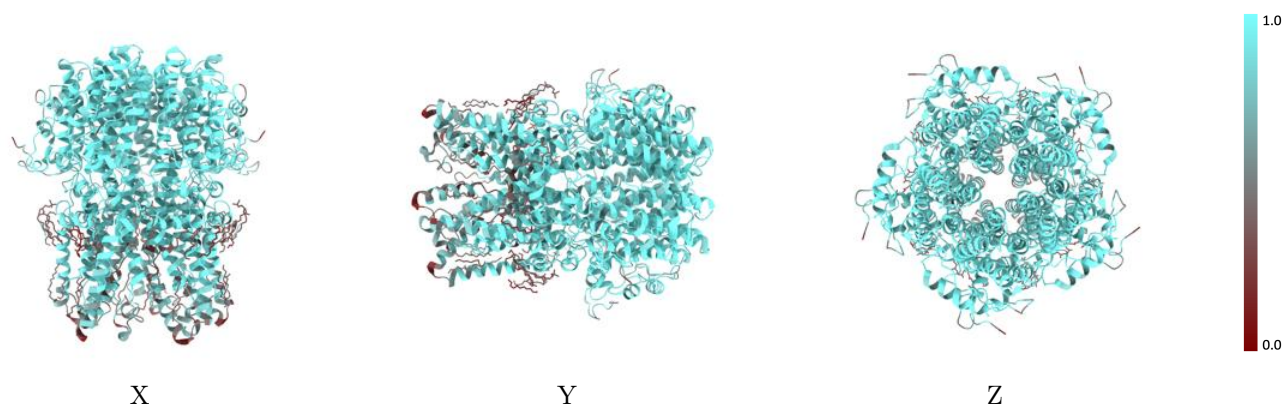
The images above show the 3D surface view of the map at the recommended contour level 0.8 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



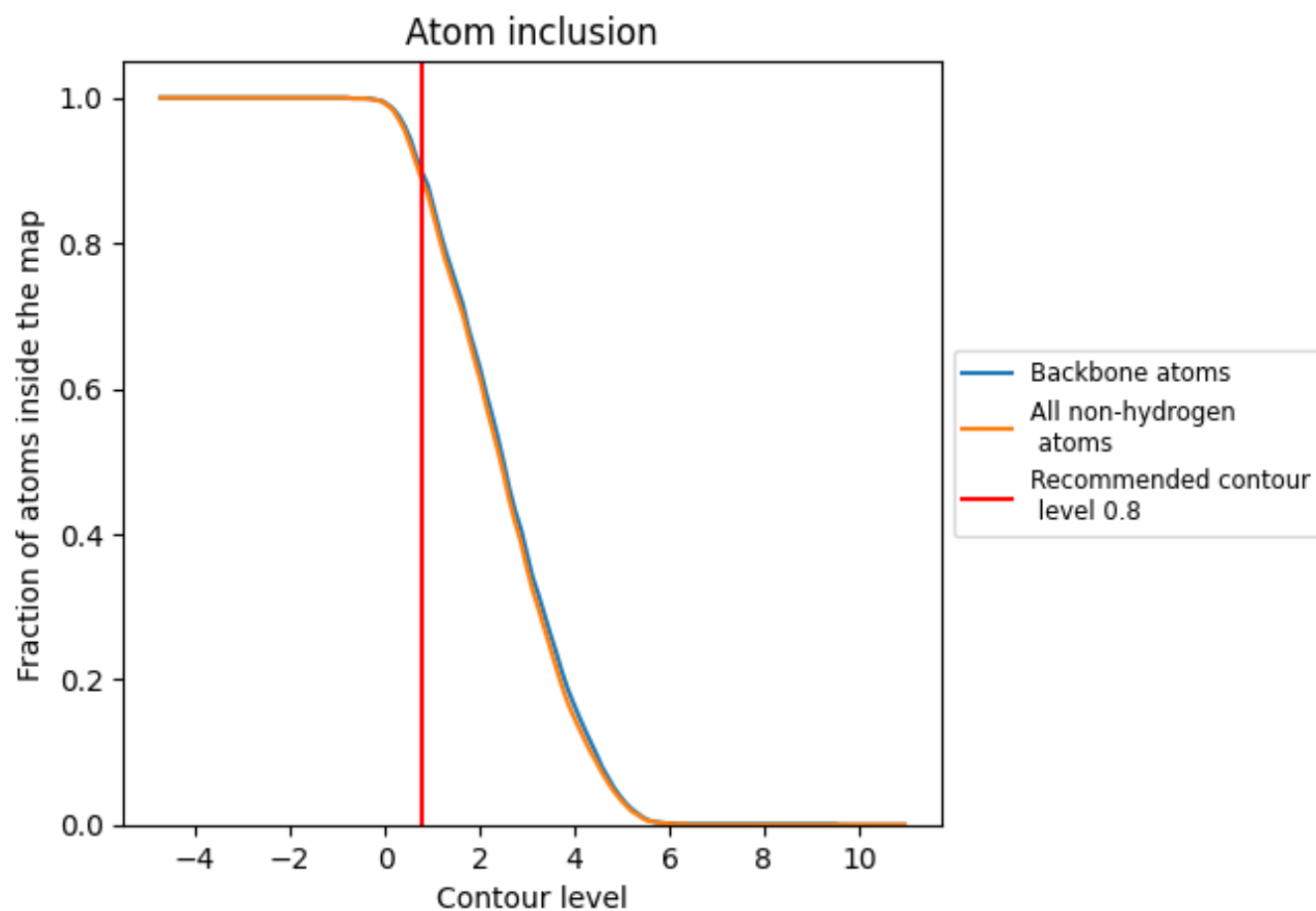
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.8).

9.4 Atom inclusion [i](#)



At the recommended contour level, 90% of all backbone atoms, 88% 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 (0.8) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8840	0.7240
A	0.8830	0.7240
B	0.8860	0.7250
C	0.8840	0.7230
D	0.8850	0.7230
E	0.8840	0.7230

