



Full wwPDB EM Validation Report ⓘ

Nov 1, 2022 – 05:26 PM EDT

PDB ID : 5IRX
EMDB ID : EMD-8117
Title : Structure of TRPV1 in complex with DkTx and RTX, determined in lipid nanodisc
Authors : Gao, Y.; Cao, E.; Julius, D.; Cheng, Y.
Deposited on : 2016-03-14
Resolution : 2.95 Å(reported)
Based on initial model : 3J5Q

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.dev43
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.2

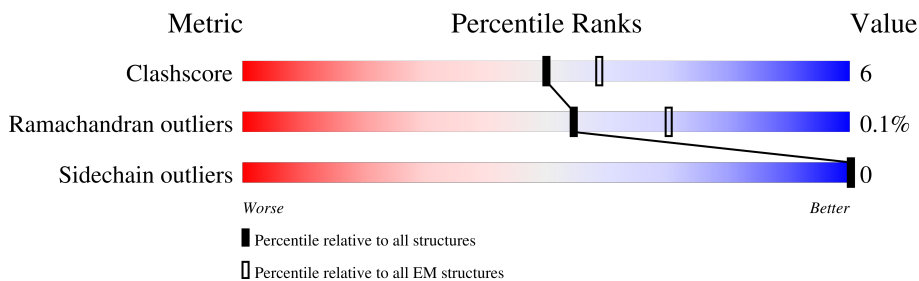
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 2.95 Å.

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



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

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	636	
1	B	636	
1	C	636	
1	D	636	
2	E	75	
2	F	75	

2 Entry composition i

There are 6 unique types of molecules in this entry. The entry contains 13677 atoms, of which 515 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 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	394	2893	1920	479	478	16	0	0
1	B	394	2893	1920	479	478	16	0	0
1	C	394	2893	1920	479	478	16	0	0
1	D	394	2893	1920	479	478	16	0	0

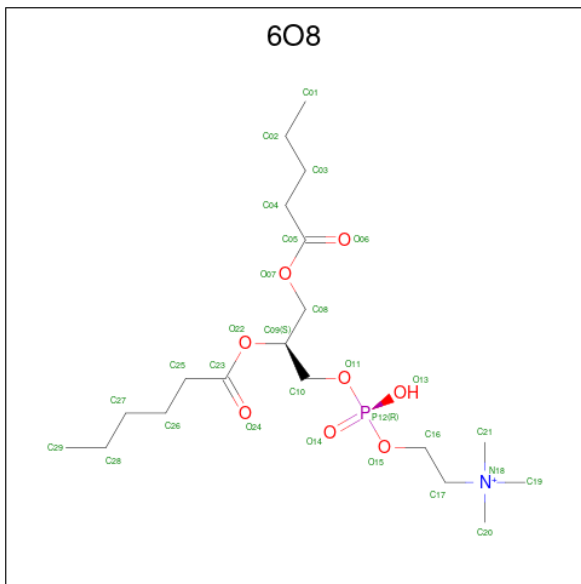
There are 16 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	106	ALA	-	expression tag	UNP O35433
A	107	MET	-	expression tag	UNP O35433
A	108	GLY	-	expression tag	UNP O35433
A	109	SER	-	expression tag	UNP O35433
B	106	ALA	-	expression tag	UNP O35433
B	107	MET	-	expression tag	UNP O35433
B	108	GLY	-	expression tag	UNP O35433
B	109	SER	-	expression tag	UNP O35433
C	106	ALA	-	expression tag	UNP O35433
C	107	MET	-	expression tag	UNP O35433
C	108	GLY	-	expression tag	UNP O35433
C	109	SER	-	expression tag	UNP O35433
D	106	ALA	-	expression tag	UNP O35433
D	107	MET	-	expression tag	UNP O35433
D	108	GLY	-	expression tag	UNP O35433
D	109	SER	-	expression tag	UNP O35433

- Molecule 2 is a protein called Tau-theraphotoxin-Hs1a.

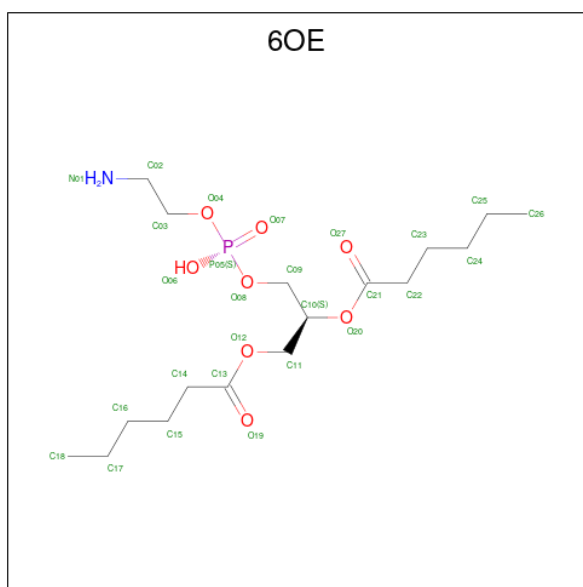
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	E	75	Total 493	C 311	N 83	O 86	S 13	0	0
2	F	75	Total 493	C 311	N 83	O 86	S 13	0	0

- Molecule 3 is (4R,7S)-4-hydroxy-N,N,N-trimethyl-4,9-dioxo-7-[(pentanoyloxy)methyl]-3,5,8-trioxa-4lambda 5 -phosphatetradecan-1-aminium (three-letter code: 6O8) (formula: C₁₉H₃₉NO₈P).



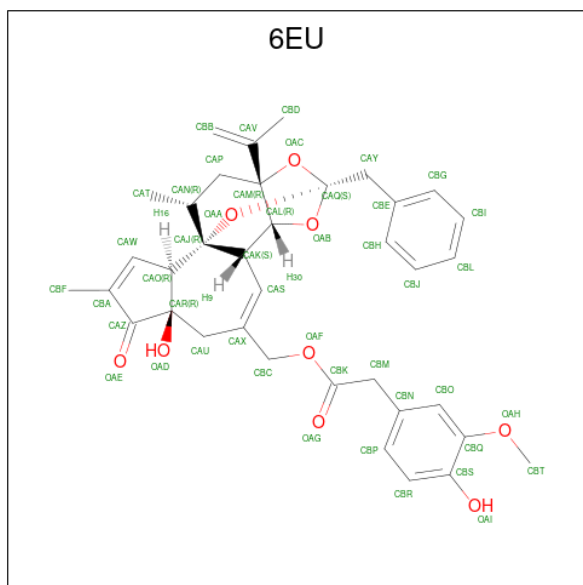
Mol	Chain	Residues	Atoms					AltConf	
			Total	C	H	N	O		P
3	A	1	Total 65	C 19	H 36	N 1	O 8	P 1	0
3	B	1	Total 65	C 19	H 36	N 1	O 8	P 1	0
3	C	1	Total 65	C 19	H 36	N 1	O 8	P 1	0
3	D	1	Total 65	C 19	H 36	N 1	O 8	P 1	0

- Molecule 4 is (2S)-3-[(S)-(2-aminoethoxy)(hydroxy)phosphoryl]oxy}-2-(hexanoyloxy)propyl hexanoate (three-letter code: 6OE) (formula: C₁₇H₃₄NO₈P).



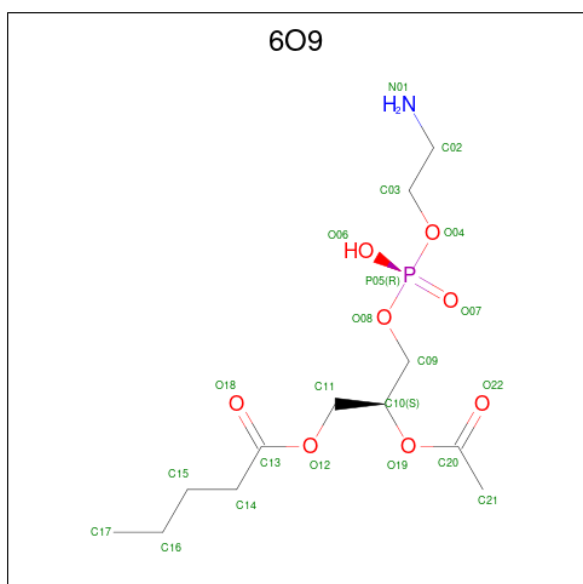
Mol	Chain	Residues	Atoms					AltConf	
			Total	C	H	N	O		P
4	A	1	Total	C	H	N	O	P	0
			116	34	62	2	16	2	
4	A	1	Total	C	H	N	O	P	0
			116	34	62	2	16	2	
4	B	1	Total	C	H	N	O	P	0
			58	17	31	1	8	1	
4	C	1	Total	C	H	N	O	P	0
			57	17	30	1	8	1	
4	D	1	Total	C	H	N	O	P	0
			116	34	62	2	16	2	
4	D	1	Total	C	H	N	O	P	0
			116	34	62	2	16	2	
4	E	1	Total	C	H	N	O	P	0
			58	17	31	1	8	1	
4	F	1	Total	C	H	N	O	P	0
			58	17	31	1	8	1	

- Molecule 5 is resiniferatoxin (three-letter code: 6EU) (formula: C₃₇H₄₀O₉).

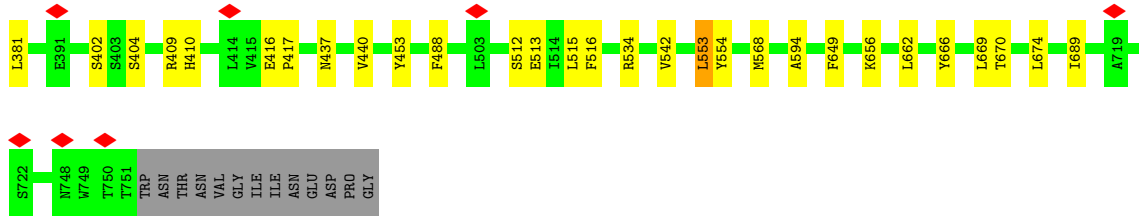


Mol	Chain	Residues	Atoms			AltConf	
5	A	1	Total	C	H	O	0
			56	37	10	9	
5	B	1	Total	C	H	O	0
			56	37	10	9	
5	C	1	Total	C	H	O	0
			56	37	10	9	
5	D	1	Total	C	H	O	0
			56	37	10	9	

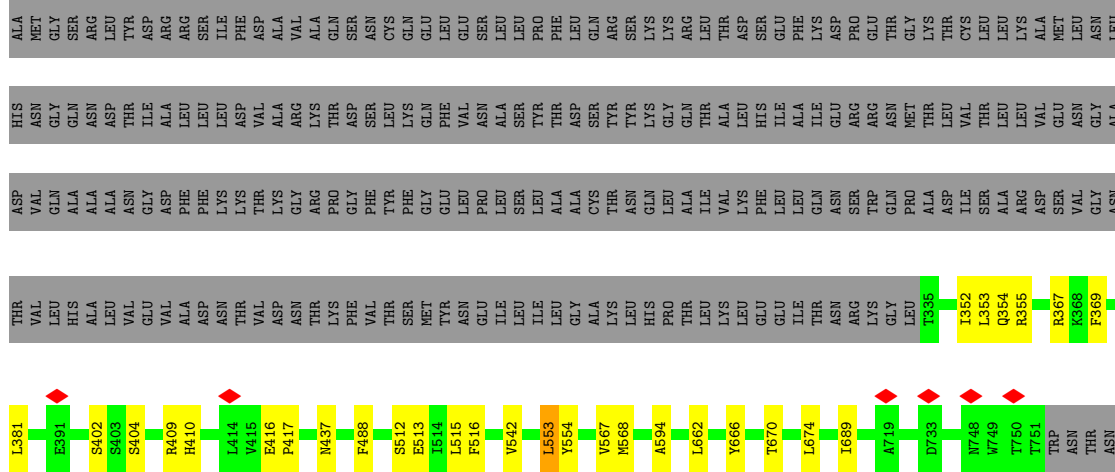
- Molecule 6 is (2S)-2-(acetyloxy)-3-[[[R)-(2-aminoethoxy)(hydroxy)phosphoryl]oxy]propyl pentanoate (three-letter code: 6O9) (formula: C₁₂H₂₄NO₈P).



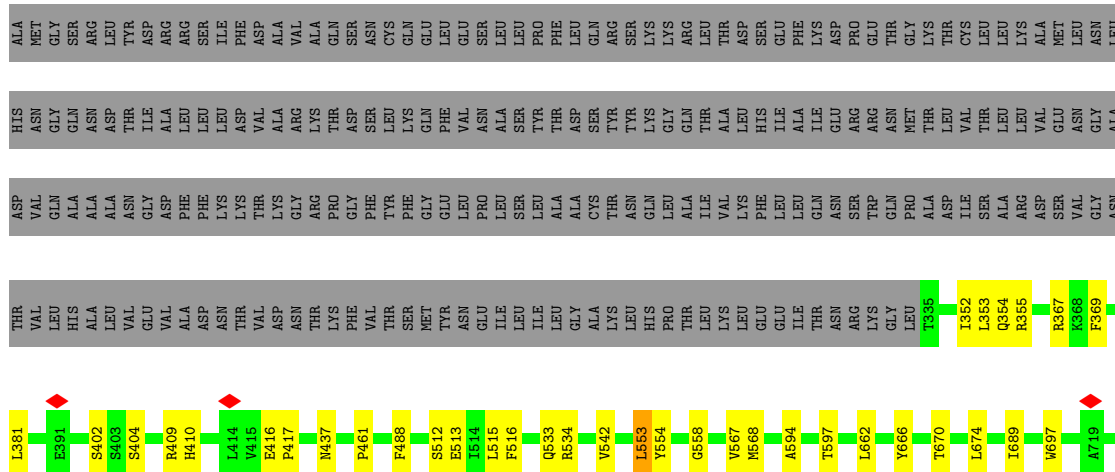
Mol	Chain	Residues	Atoms					AltConf	
			Total	C	H	N	O		P
6	D	1	Total 43	12	21	1	8	1	0
6	E	1	Total 43	12	21	1	8	1	0
6	F	1	Total 86	24	42	2	16	2	0
6	F	1	Total 86	24	42	2	16	2	0



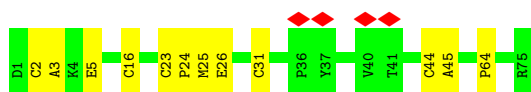
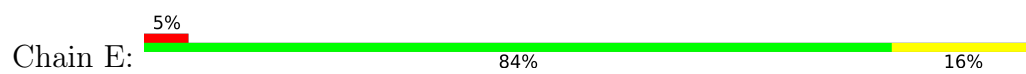
- Molecule 1: Transient receptor potential cation channel subfamily V member 1



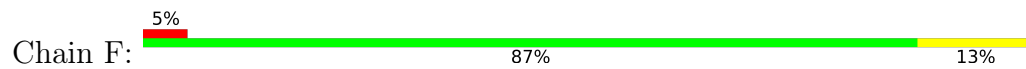
- Molecule 1: Transient receptor potential cation channel subfamily V member 1



- Molecule 2: Tau-theraphotoxin-Hs1a



• Molecule 2: Tau-theraphotoxin-Hs1a



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C4	Depositor
Number of particles used	73929	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION; CTF correction was performed before classification and refinement.	Depositor
Microscope	FEI POLARA 300	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	41	Depositor
Minimum defocus (nm)	700	Depositor
Maximum defocus (nm)	2200	Depositor
Magnification	41132	Depositor
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	24.292	Depositor
Minimum map value	-14.311	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	1.000	Depositor
Recommended contour level	3.5	Depositor
Map size (Å)	233.3952, 233.3952, 233.3952	wwPDB
Map dimensions	192, 192, 192	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.2156, 1.2156, 1.2156	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: 6EU, 6O9, 6O8, 6OE

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	0.58	0/2966	0.64	1/4034 (0.0%)
1	B	0.58	0/2966	0.64	1/4034 (0.0%)
1	C	0.58	0/2966	0.64	1/4034 (0.0%)
1	D	0.58	0/2966	0.64	1/4034 (0.0%)
2	E	0.49	0/505	0.74	2/688 (0.3%)
2	F	0.49	0/505	0.74	2/688 (0.3%)
All	All	0.57	0/12874	0.65	8/17512 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1
1	B	0	1
1	C	0	1
1	D	0	1
All	All	0	4

There are no bond length outliers.

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	23	CYS	C-N-CD	-7.04	105.11	120.60
2	E	23	CYS	C-N-CD	-7.02	105.15	120.60
1	B	553	LEU	CA-CB-CG	5.76	128.55	115.30
1	D	553	LEU	CA-CB-CG	5.76	128.55	115.30
2	F	23	CYS	C-N-CA	5.76	146.19	122.00
2	E	23	CYS	C-N-CA	5.75	146.15	122.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	553	LEU	CA-CB-CG	5.73	128.49	115.30
1	C	553	LEU	CA-CB-CG	5.73	128.47	115.30

There are no chirality outliers.

All (4) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	416	GLU	Peptide
1	B	416	GLU	Peptide
1	C	416	GLU	Peptide
1	D	416	GLU	Peptide

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2893	0	2601	33	0
1	B	2893	0	2601	35	0
1	C	2893	0	2601	31	0
1	D	2893	0	2601	33	0
2	E	493	0	367	6	0
2	F	493	0	367	5	0
3	A	29	36	0	8	0
3	B	29	36	0	9	0
3	C	29	36	0	8	0
3	D	29	36	0	7	0
4	A	54	62	0	1	0
4	B	27	31	0	1	0
4	C	27	30	0	0	0
4	D	54	62	0	1	0
4	E	27	31	0	1	0
4	F	27	31	0	1	0
5	A	46	10	0	12	0
5	B	46	10	0	10	0
5	C	46	10	0	10	0
5	D	46	10	0	10	0
6	D	22	21	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	E	22	21	0	0	0
6	F	44	42	0	0	0
All	All	13162	515	11138	146	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 6.

All (146) 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)
2:F:26:GLU:O	4:F:103:6OE:O07	1.74	1.05
2:E:26:GLU:O	4:E:102:6OE:O07	1.82	0.96
1:C:513:GLU:OE1	3:C:801:6O8:C21	2.23	0.87
1:D:513:GLU:OE1	3:D:801:6O8:C21	2.25	0.85
1:A:513:GLU:OE1	3:A:801:6O8:C21	2.26	0.84
1:D:513:GLU:OE2	3:D:801:6O8:C21	2.27	0.82
1:C:513:GLU:OE2	3:C:801:6O8:C21	2.29	0.81
1:B:513:GLU:OE1	3:B:801:6O8:C21	2.29	0.81
1:B:554:TYR:HB2	5:B:803:6EU:CBT	2.10	0.80
1:D:488:PHE:CZ	3:D:801:6O8:O24	2.37	0.78
1:A:513:GLU:OE2	3:A:801:6O8:C21	2.32	0.78
1:C:488:PHE:CZ	3:C:801:6O8:O24	2.36	0.78
1:B:513:GLU:OE2	3:B:801:6O8:C21	2.32	0.77
1:A:554:TYR:HB2	5:A:804:6EU:CBT	2.14	0.77
1:A:488:PHE:CZ	3:A:801:6O8:O24	2.38	0.75
1:C:554:TYR:HB2	5:C:803:6EU:CBT	2.17	0.74
1:C:513:GLU:CD	3:C:801:6O8:C21	2.56	0.74
1:D:554:TYR:HB2	5:D:805:6EU:CBT	2.16	0.74
1:D:513:GLU:CD	3:D:801:6O8:C21	2.56	0.74
1:A:513:GLU:CD	3:A:801:6O8:C21	2.59	0.71
1:B:513:GLU:CD	3:B:801:6O8:C21	2.61	0.69
1:B:488:PHE:CZ	3:B:801:6O8:O24	2.45	0.68
1:B:437:ASN:OD1	3:B:801:6O8:O06	2.13	0.66
2:F:44:CYS:SG	2:F:45:ALA:N	2.69	0.65
2:E:2:CYS:SG	2:E:3:ALA:N	2.69	0.65
2:F:2:CYS:SG	2:F:3:ALA:N	2.69	0.65
2:E:44:CYS:SG	2:E:45:ALA:N	2.69	0.65
1:A:437:ASN:OD1	3:A:801:6O8:O06	2.16	0.62
1:C:437:ASN:OD1	3:C:801:6O8:O06	2.16	0.62
1:B:352:ILE:HG23	1:B:355:ARG:HH21	1.66	0.61
1:C:352:ILE:HG23	1:C:355:ARG:HH21	1.66	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:352:ILE:HG23	1:D:355:ARG:HH21	1.66	0.60
1:A:516:PHE:CD2	3:A:801:6O8:C19	2.84	0.59
1:C:516:PHE:CD2	3:C:801:6O8:C19	2.86	0.59
1:A:352:ILE:HG23	1:A:355:ARG:HH21	1.66	0.59
1:B:512:SER:OG	5:B:803:6EU:CBT	2.51	0.59
1:D:437:ASN:OD1	3:D:801:6O8:O06	2.21	0.59
1:D:516:PHE:CD2	3:D:801:6O8:C19	2.86	0.58
1:C:353:LEU:HB3	1:C:417:PRO:HG3	1.88	0.56
1:B:353:LEU:HB3	1:B:417:PRO:HG3	1.88	0.55
1:D:353:LEU:HB3	1:D:417:PRO:HG3	1.88	0.55
1:C:512:SER:OG	5:C:803:6EU:CBT	2.54	0.55
1:D:512:SER:OG	5:D:805:6EU:CBT	2.55	0.55
1:A:353:LEU:HB3	1:A:417:PRO:HG3	1.88	0.54
5:C:803:6EU:CAT	5:C:803:6EU:CAW	2.85	0.54
5:A:804:6EU:CAW	5:A:804:6EU:CAT	2.86	0.54
1:B:516:PHE:CD2	3:B:801:6O8:C19	2.91	0.53
5:B:803:6EU:CAT	5:B:803:6EU:CAW	2.86	0.53
5:D:805:6EU:CAT	5:D:805:6EU:CAW	2.86	0.53
1:D:404:SER:H	1:D:409:ARG:HH22	1.57	0.53
1:B:404:SER:H	1:B:409:ARG:HH22	1.57	0.53
1:C:404:SER:H	1:C:409:ARG:HH22	1.57	0.52
1:B:534:ARG:NE	4:B:802:6OE:C11	2.73	0.52
1:A:404:SER:H	1:A:409:ARG:HH22	1.57	0.52
1:A:542:VAL:HG13	1:B:594:ALA:HB1	1.92	0.51
1:C:594:ALA:HB1	1:D:542:VAL:HG13	1.94	0.50
1:A:553:LEU:HD11	5:A:804:6EU:CBN	2.42	0.50
1:A:553:LEU:CD1	5:A:804:6EU:CBP	2.89	0.50
1:B:515:LEU:HD23	5:B:803:6EU:CBB	2.42	0.50
1:B:453:TYR:HA	1:D:597:THR:HG22	1.94	0.50
1:D:568:MET:HB3	1:D:689:ILE:HG21	1.94	0.49
1:A:512:SER:OG	5:A:804:6EU:CBT	2.60	0.49
1:B:402:SER:O	1:B:409:ARG:NH2	2.46	0.49
1:C:402:SER:O	1:C:409:ARG:NH2	2.46	0.49
1:D:402:SER:O	1:D:409:ARG:NH2	2.46	0.49
1:C:568:MET:HB3	1:C:689:ILE:HG21	1.94	0.49
1:A:594:ALA:HB1	1:C:542:VAL:HG13	1.94	0.48
1:B:542:VAL:HG13	1:D:594:ALA:HB1	1.95	0.48
1:A:402:SER:O	1:A:409:ARG:NH2	2.46	0.48
1:B:670:THR:HA	1:B:674:LEU:HB2	1.96	0.48
1:B:568:MET:HB3	1:B:689:ILE:HG21	1.94	0.48
1:A:670:THR:HA	1:A:674:LEU:HB2	1.96	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:515:LEU:CD2	5:A:804:6EU:CBB	2.91	0.48
1:A:553:LEU:HD11	5:A:804:6EU:CBM	2.43	0.48
1:D:670:THR:HA	1:D:674:LEU:HB2	1.96	0.48
1:A:534:ARG:NE	4:A:803:6OE:C11	2.77	0.48
1:C:670:THR:HA	1:C:674:LEU:HB2	1.95	0.47
1:A:568:MET:HB3	1:A:689:ILE:HG21	1.94	0.47
1:A:515:LEU:HD23	5:A:804:6EU:CBB	2.44	0.47
1:B:649:PHE:O	1:B:656:LYS:NZ	2.37	0.47
1:D:534:ARG:NE	4:D:804:6OE:C11	2.78	0.47
1:A:554:TYR:CZ	3:A:801:6O8:C20	2.98	0.46
1:A:651:GLU:OE2	1:A:653:TYR:OH	2.26	0.46
1:B:440:VAL:HG12	3:B:801:6O8:C25	2.45	0.46
1:B:515:LEU:CD2	5:B:803:6EU:CBB	2.93	0.46
1:B:553:LEU:HD11	5:B:803:6EU:CBM	2.45	0.46
1:A:553:LEU:HD11	5:A:804:6EU:CBP	2.45	0.46
1:C:554:TYR:CZ	3:C:801:6O8:C20	2.99	0.46
5:A:804:6EU:CBJ	1:B:669:LEU:HD13	2.46	0.45
1:B:554:TYR:CZ	3:B:801:6O8:C20	2.99	0.45
1:C:553:LEU:HD11	5:C:803:6EU:CBM	2.46	0.45
1:C:553:LEU:HD11	5:C:803:6EU:CBN	2.46	0.45
1:D:553:LEU:HD11	5:D:805:6EU:CBM	2.47	0.45
1:C:515:LEU:CD2	5:C:803:6EU:CBB	2.95	0.44
1:D:553:LEU:HD11	5:D:805:6EU:CBN	2.47	0.44
1:D:553:LEU:CD1	5:D:805:6EU:CBP	2.95	0.44
1:D:515:LEU:CD2	5:D:805:6EU:CBB	2.96	0.44
1:C:409:ARG:HG3	1:C:410:HIS:H	1.83	0.44
1:D:409:ARG:HG3	1:D:410:HIS:H	1.83	0.44
1:C:354:GLN:HE22	1:C:417:PRO:HD3	1.83	0.43
1:D:515:LEU:HD23	5:D:805:6EU:CBB	2.48	0.43
1:B:409:ARG:HG3	1:B:410:HIS:H	1.83	0.43
1:C:515:LEU:HD23	5:C:803:6EU:CBB	2.48	0.43
1:C:553:LEU:CD1	5:C:803:6EU:CBP	2.95	0.43
1:B:553:LEU:CD1	5:B:803:6EU:CBP	2.96	0.43
1:B:512:SER:HB2	5:B:803:6EU:OAI	2.18	0.43
1:B:354:GLN:HE22	1:B:417:PRO:HD3	1.83	0.43
1:B:553:LEU:HD11	5:B:803:6EU:CBN	2.49	0.43
1:A:354:GLN:HE22	1:A:417:PRO:HD3	1.84	0.43
1:A:409:ARG:HG3	1:A:410:HIS:H	1.83	0.43
1:A:662:LEU:O	1:A:666:TYR:N	2.53	0.42
1:D:369:PHE:O	1:D:381:LEU:N	2.51	0.42
1:D:554:TYR:CZ	3:D:801:6O8:C20	3.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:554:TYR:CE2	3:A:801:6O8:C20	3.03	0.42
1:B:369:PHE:O	1:B:381:LEU:N	2.51	0.42
1:D:353:LEU:HA	1:D:367:ARG:HG2	2.02	0.42
1:D:354:GLN:HE22	1:D:417:PRO:HD3	1.83	0.42
1:D:662:LEU:O	1:D:666:TYR:N	2.53	0.42
1:C:662:LEU:O	1:C:666:TYR:N	2.53	0.42
1:B:662:LEU:O	1:B:666:TYR:N	2.53	0.42
2:F:2:CYS:SG	2:F:16:CYS:N	2.93	0.42
1:A:353:LEU:HA	1:A:367:ARG:HG2	2.02	0.41
1:A:369:PHE:O	1:A:381:LEU:N	2.51	0.41
1:C:353:LEU:HA	1:C:367:ARG:HG2	2.02	0.41
1:B:353:LEU:HA	1:B:367:ARG:HG2	2.02	0.41
5:A:804:6EU:CBL	1:B:669:LEU:HD13	2.50	0.41
2:E:2:CYS:SG	2:E:16:CYS:N	2.93	0.41
5:B:803:6EU:OAD	5:B:803:6EU:CAK	2.69	0.41
1:C:666:TYR:O	1:C:670:THR:HG22	2.21	0.41
1:B:554:TYR:CE2	3:B:801:6O8:C20	3.04	0.41
1:D:553:LEU:HD11	5:D:805:6EU:CBP	2.51	0.41
1:D:558:GLY:O	1:D:697:TRP:NE1	2.46	0.41
2:F:24:PRO:HB2	2:F:25:MET:H	1.76	0.41
1:D:461:PRO:HA	1:D:533:GLN:HG2	2.03	0.41
1:A:666:TYR:O	1:A:670:THR:HG22	2.21	0.40
1:C:369:PHE:O	1:C:381:LEU:N	2.51	0.40
1:C:553:LEU:HD11	5:C:803:6EU:CBP	2.51	0.40
5:C:803:6EU:OAD	5:C:803:6EU:CAK	2.69	0.40
5:D:805:6EU:CAK	5:D:805:6EU:OAD	2.69	0.40
2:E:24:PRO:HB2	2:E:25:MET:H	1.76	0.40
1:C:554:TYR:CE2	3:C:801:6O8:C20	3.04	0.40
1:A:668:ILE:HD12	1:A:672:ILE:HG13	2.03	0.40
1:D:567:VAL:HG12	1:D:689:ILE:HD11	2.03	0.40
5:A:804:6EU:OAD	5:A:804:6EU:CAK	2.69	0.40
1:C:567:VAL:HG12	1:C:689:ILE:HD11	2.03	0.40
2:E:5:GLU:HA	2:E:31:CYS:HB2	2.02	0.40

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	392/636 (62%)	355 (91%)	37 (9%)	0	100	100
1	B	392/636 (62%)	356 (91%)	36 (9%)	0	100	100
1	C	392/636 (62%)	355 (91%)	37 (9%)	0	100	100
1	D	392/636 (62%)	355 (91%)	37 (9%)	0	100	100
2	E	73/75 (97%)	54 (74%)	18 (25%)	1 (1%)	11	39
2	F	73/75 (97%)	54 (74%)	18 (25%)	1 (1%)	11	39
All	All	1714/2694 (64%)	1529 (89%)	183 (11%)	2 (0%)	54	83

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	E	64	PRO
2	F	64	PRO

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	242/562 (43%)	242 (100%)	0	100	100
1	B	242/562 (43%)	242 (100%)	0	100	100
1	C	242/562 (43%)	242 (100%)	0	100	100
1	D	242/562 (43%)	242 (100%)	0	100	100
2	E	37/66 (56%)	37 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	F	37/66 (56%)	37 (100%)	0	100	100
All	All	1042/2380 (44%)	1042 (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. There are no such sidechains identified.

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

20 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	$\# Z > 2$
5	6EU	B	803	-	43,52,52	2.31	10 (23%)	42,83,83	1.73	7 (16%)
4	6OE	C	802	-	26,26,26	1.16	4 (15%)	29,31,31	1.05	2 (6%)
6	6O9	D	802	-	21,21,21	1.29	4 (19%)	24,26,26	1.31	2 (8%)
4	6OE	F	103	-	26,26,26	1.16	4 (15%)	29,31,31	1.16	2 (6%)
3	6O8	D	801	-	28,28,28	1.54	7 (25%)	34,36,36	1.28	4 (11%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
6	6O9	F	102	-	21,21,21	1.30	4 (19%)	24,26,26	1.32	2 (8%)
4	6OE	A	803	-	26,26,26	1.16	4 (15%)	29,31,31	1.04	2 (6%)
4	6OE	A	802	-	26,26,26	1.16	4 (15%)	29,31,31	1.18	2 (6%)
5	6EU	A	804	-	43,52,52	2.31	10 (23%)	42,83,83	1.73	6 (14%)
6	6O9	F	101	-	21,21,21	1.30	4 (19%)	24,26,26	1.30	2 (8%)
4	6OE	E	102	-	26,26,26	1.16	4 (15%)	29,31,31	1.16	2 (6%)
3	6O8	C	801	-	28,28,28	1.54	7 (25%)	34,36,36	1.28	4 (11%)
5	6EU	C	803	-	43,52,52	2.31	10 (23%)	42,83,83	1.73	7 (16%)
5	6EU	D	805	-	43,52,52	2.31	10 (23%)	42,83,83	1.74	6 (14%)
4	6OE	D	803	-	26,26,26	1.16	4 (15%)	29,31,31	1.15	2 (6%)
4	6OE	D	804	-	26,26,26	1.16	4 (15%)	29,31,31	1.04	2 (6%)
3	6O8	A	801	-	28,28,28	1.54	7 (25%)	34,36,36	1.28	4 (11%)
6	6O9	E	101	-	21,21,21	1.31	4 (19%)	24,26,26	1.30	2 (8%)
4	6OE	B	802	-	26,26,26	1.16	4 (15%)	29,31,31	1.04	2 (6%)
3	6O8	B	801	-	28,28,28	1.54	7 (25%)	34,36,36	1.28	4 (11%)

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
5	6EU	B	803	-	-	4/20/101/101	0/8/7/7
4	6OE	C	802	-	-	15/30/30/30	-
6	6O9	D	802	-	-	12/24/24/24	-
4	6OE	F	103	-	-	15/30/30/30	-
3	6O8	D	801	-	-	13/32/32/32	-
6	6O9	F	102	-	-	11/24/24/24	-
4	6OE	A	803	-	-	14/30/30/30	-
4	6OE	A	802	-	-	15/30/30/30	-
5	6EU	A	804	-	-	4/20/101/101	0/8/7/7
6	6O9	F	101	-	-	13/24/24/24	-
4	6OE	E	102	-	-	14/30/30/30	-
3	6O8	C	801	-	-	14/32/32/32	-
5	6EU	C	803	-	-	4/20/101/101	0/8/7/7
5	6EU	D	805	-	-	4/20/101/101	0/8/7/7

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	6OE	D	803	-	-	16/30/30/30	-
4	6OE	D	804	-	-	14/30/30/30	-
3	6O8	A	801	-	-	14/32/32/32	-
6	6O9	E	101	-	-	11/24/24/24	-
4	6OE	B	802	-	-	14/30/30/30	-
3	6O8	B	801	-	-	14/32/32/32	-

All (116) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	A	804	6EU	CBM-CBN	-7.66	1.39	1.51
5	B	803	6EU	CBM-CBN	-7.66	1.39	1.51
5	D	805	6EU	CBM-CBN	-7.66	1.39	1.51
5	C	803	6EU	CBM-CBN	-7.62	1.39	1.51
5	B	803	6EU	CAY-CBE	-7.42	1.38	1.51
5	A	804	6EU	CAY-CBE	-7.35	1.39	1.51
5	C	803	6EU	CAY-CBE	-7.35	1.39	1.51
5	D	805	6EU	CAY-CBE	-7.35	1.39	1.51
5	B	803	6EU	CBC-CAX	-5.29	1.38	1.50
5	A	804	6EU	CBC-CAX	-5.28	1.39	1.50
5	C	803	6EU	CBC-CAX	-5.28	1.39	1.50
5	D	805	6EU	CBC-CAX	-5.28	1.39	1.50
5	A	804	6EU	CAS-CAX	4.32	1.40	1.33
5	B	803	6EU	CAS-CAX	4.32	1.40	1.33
5	C	803	6EU	CAS-CAX	4.32	1.40	1.33
5	D	805	6EU	CAS-CAX	4.32	1.40	1.33
5	D	805	6EU	CAK-CAS	-4.14	1.40	1.50
5	A	804	6EU	CAK-CAS	-4.13	1.40	1.50
5	B	803	6EU	CAK-CAS	-4.13	1.40	1.50
5	C	803	6EU	CAK-CAS	-4.13	1.40	1.50
5	D	805	6EU	CBB-CAV	3.62	1.52	1.34
5	B	803	6EU	CBB-CAV	3.62	1.52	1.34
5	C	803	6EU	CBB-CAV	3.62	1.52	1.34
5	A	804	6EU	CBB-CAV	3.62	1.52	1.34
3	B	801	6O8	O22-C09	-2.96	1.39	1.46
3	D	801	6O8	O22-C09	-2.92	1.39	1.46
3	A	801	6O8	O22-C09	-2.92	1.39	1.46
3	C	801	6O8	O22-C09	-2.91	1.39	1.46
3	D	801	6O8	C19-N18	-2.86	1.41	1.50
5	A	804	6EU	CAU-CAX	-2.86	1.40	1.52
5	B	803	6EU	CAU-CAX	-2.86	1.40	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	C	803	6EU	CAU-CAX	-2.85	1.40	1.52
5	D	805	6EU	CAU-CAX	-2.84	1.40	1.52
3	A	801	6O8	C19-N18	-2.83	1.41	1.50
3	C	801	6O8	C19-N18	-2.83	1.41	1.50
3	B	801	6O8	C19-N18	-2.81	1.41	1.50
3	A	801	6O8	C17-N18	-2.69	1.42	1.51
3	B	801	6O8	C17-N18	-2.68	1.42	1.51
3	C	801	6O8	C17-N18	-2.67	1.42	1.51
3	D	801	6O8	C17-N18	-2.67	1.42	1.51
3	A	801	6O8	C21-N18	-2.67	1.42	1.50
3	B	801	6O8	C21-N18	-2.66	1.42	1.50
3	C	801	6O8	C21-N18	-2.66	1.42	1.50
3	D	801	6O8	C21-N18	-2.64	1.42	1.50
5	A	804	6EU	CAO-CAW	-2.64	1.40	1.49
5	B	803	6EU	CAO-CAW	-2.64	1.40	1.49
5	C	803	6EU	CAO-CAW	-2.64	1.40	1.49
3	B	801	6O8	C20-N18	-2.63	1.42	1.50
3	C	801	6O8	C20-N18	-2.63	1.42	1.50
3	D	801	6O8	C20-N18	-2.63	1.42	1.50
5	D	805	6EU	CAO-CAW	-2.61	1.40	1.49
3	A	801	6O8	C20-N18	-2.61	1.42	1.50
3	A	801	6O8	O07-C08	-2.55	1.39	1.45
3	D	801	6O8	O07-C08	-2.55	1.39	1.45
4	C	802	6OE	O20-C10	-2.54	1.40	1.46
3	C	801	6O8	O07-C08	-2.52	1.39	1.45
3	B	801	6O8	O07-C08	-2.52	1.39	1.45
4	B	802	6OE	O20-C10	-2.52	1.40	1.46
4	D	804	6OE	O20-C10	-2.51	1.40	1.46
6	F	101	6O9	O19-C10	-2.51	1.40	1.46
6	F	102	6O9	O19-C10	-2.50	1.40	1.46
6	E	101	6O9	O19-C10	-2.50	1.40	1.46
4	A	803	6OE	O20-C10	-2.49	1.40	1.46
6	D	802	6O9	O19-C10	-2.47	1.40	1.46
5	A	804	6EU	CAM-CAL	2.45	1.57	1.54
5	C	803	6EU	CAM-CAL	2.45	1.57	1.54
4	F	103	6OE	O20-C10	-2.44	1.40	1.46
6	F	102	6O9	O19-C20	2.43	1.40	1.35
6	E	101	6O9	O19-C20	2.43	1.40	1.35
5	D	805	6EU	CAM-CAL	2.43	1.57	1.54
5	B	803	6EU	CAM-CAL	2.42	1.57	1.54
4	D	803	6OE	O20-C10	-2.41	1.40	1.46
6	D	802	6O9	O19-C20	2.40	1.40	1.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	E	102	6OE	O20-C10	-2.39	1.40	1.46
6	F	101	6O9	O19-C20	2.39	1.40	1.35
4	A	802	6OE	O20-C10	-2.39	1.40	1.46
4	C	802	6OE	O12-C13	2.38	1.40	1.33
4	D	803	6OE	O12-C13	2.38	1.40	1.33
4	B	802	6OE	O12-C13	2.38	1.40	1.33
4	F	103	6OE	O12-C13	2.37	1.40	1.33
4	A	803	6OE	O12-C13	2.37	1.40	1.33
4	D	804	6OE	O12-C13	2.37	1.40	1.33
4	A	802	6OE	O12-C13	2.35	1.40	1.33
4	E	102	6OE	O12-C13	2.34	1.40	1.33
6	E	101	6O9	O12-C13	2.32	1.40	1.33
6	F	102	6O9	O12-C13	2.31	1.40	1.33
6	F	101	6O9	O12-C13	2.31	1.40	1.33
6	E	101	6O9	O12-C11	-2.30	1.39	1.45
6	D	802	6O9	O12-C13	2.30	1.40	1.33
6	F	101	6O9	O12-C11	-2.29	1.39	1.45
6	F	102	6O9	O12-C11	-2.27	1.40	1.45
6	D	802	6O9	O12-C11	-2.26	1.40	1.45
4	A	802	6OE	O20-C21	2.23	1.40	1.34
4	E	102	6OE	O12-C11	-2.23	1.40	1.45
4	F	103	6OE	O12-C11	-2.22	1.40	1.45
4	D	803	6OE	O20-C21	2.20	1.40	1.34
4	E	102	6OE	O20-C21	2.20	1.40	1.34
4	A	802	6OE	O12-C11	-2.19	1.40	1.45
4	D	804	6OE	O12-C11	-2.19	1.40	1.45
4	B	802	6OE	O12-C11	-2.18	1.40	1.45
4	D	803	6OE	O12-C11	-2.18	1.40	1.45
4	F	103	6OE	O20-C21	2.18	1.40	1.34
5	A	804	6EU	OAA-CAQ	2.17	1.45	1.42
5	B	803	6EU	OAA-CAQ	2.17	1.45	1.42
4	A	803	6OE	O12-C11	-2.17	1.40	1.45
4	C	802	6OE	O12-C11	-2.16	1.40	1.45
3	D	801	6O8	O07-C05	2.15	1.39	1.33
3	B	801	6O8	O07-C05	2.14	1.39	1.33
3	C	801	6O8	O07-C05	2.13	1.39	1.33
5	C	803	6EU	OAA-CAQ	2.12	1.45	1.42
5	D	805	6EU	OAA-CAQ	2.12	1.45	1.42
3	A	801	6O8	O07-C05	2.12	1.39	1.33
4	A	803	6OE	O20-C21	2.10	1.40	1.34
4	B	802	6OE	O20-C21	2.08	1.40	1.34
4	D	804	6OE	O20-C21	2.08	1.40	1.34

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	C	802	6OE	O20-C21	2.08	1.40	1.34

All (66) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	D	805	6EU	CBT-OAH-CBQ	-5.70	108.93	117.53
5	A	804	6EU	CBT-OAH-CBQ	-5.67	108.97	117.53
5	B	803	6EU	CBT-OAH-CBQ	-5.66	108.98	117.53
5	C	803	6EU	CBT-OAH-CBQ	-5.66	108.98	117.53
6	F	102	6O9	O19-C20-C21	4.97	120.24	111.09
6	D	802	6O9	O19-C20-C21	4.92	120.14	111.09
6	F	101	6O9	O19-C20-C21	4.91	120.13	111.09
6	E	101	6O9	O19-C20-C21	4.89	120.08	111.09
3	C	801	6O8	O22-C23-C25	4.60	121.41	111.50
3	A	801	6O8	O22-C23-C25	4.60	121.41	111.50
3	B	801	6O8	O22-C23-C25	4.57	121.36	111.50
3	D	801	6O8	O22-C23-C25	4.57	121.36	111.50
5	D	805	6EU	CAW-CBA-CAZ	4.55	112.13	108.66
5	A	804	6EU	CAW-CBA-CAZ	4.49	112.09	108.66
5	B	803	6EU	CAW-CBA-CAZ	4.49	112.09	108.66
5	C	803	6EU	CAW-CBA-CAZ	4.48	112.08	108.66
5	B	803	6EU	OAC-CAM-CAP	-4.44	106.77	109.59
5	C	803	6EU	OAC-CAM-CAP	-4.39	106.80	109.59
5	A	804	6EU	OAC-CAM-CAP	-4.38	106.80	109.59
4	A	802	6OE	O20-C21-C22	4.36	120.89	111.50
5	D	805	6EU	OAC-CAM-CAP	-4.34	106.83	109.59
4	F	103	6OE	O20-C21-C22	4.29	120.74	111.50
4	E	102	6OE	O20-C21-C22	4.28	120.72	111.50
4	D	803	6OE	O20-C21-C22	4.26	120.68	111.50
4	C	802	6OE	O20-C21-C22	3.72	119.52	111.50
4	B	802	6OE	O20-C21-C22	3.69	119.45	111.50
4	D	804	6OE	O20-C21-C22	3.68	119.43	111.50
4	A	803	6OE	O20-C21-C22	3.66	119.38	111.50
5	D	805	6EU	CBF-CBA-CAW	-3.21	123.78	130.48
5	A	804	6EU	CBF-CBA-CAW	-3.20	123.78	130.48
5	B	803	6EU	CBF-CBA-CAW	-3.20	123.79	130.48
5	C	803	6EU	CBF-CBA-CAW	-3.19	123.82	130.48
5	B	803	6EU	CAU-CAR-CAO	-2.84	110.22	115.77
5	A	804	6EU	CAU-CAR-CAO	-2.82	110.24	115.77
5	C	803	6EU	CAU-CAR-CAO	-2.82	110.24	115.77
5	D	805	6EU	CAU-CAR-CAO	-2.82	110.24	115.77
5	D	805	6EU	OAF-CBK-CBM	2.74	115.72	111.07

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	A	804	6EU	OAF-CBK-CBM	2.74	115.71	111.07
5	B	803	6EU	OAF-CBK-CBM	2.73	115.70	111.07
5	C	803	6EU	OAF-CBK-CBM	2.72	115.68	111.07
4	A	802	6OE	O12-C13-C14	2.70	120.38	111.91
4	F	103	6OE	O12-C13-C14	2.69	120.34	111.91
4	E	102	6OE	O12-C13-C14	2.68	120.32	111.91
4	D	803	6OE	O12-C13-C14	2.67	120.29	111.91
4	B	802	6OE	O12-C13-C14	2.66	120.27	111.91
4	C	802	6OE	O12-C13-C14	2.65	120.23	111.91
4	A	803	6OE	O12-C13-C14	2.65	120.22	111.91
4	D	804	6OE	O12-C13-C14	2.64	120.20	111.91
3	A	801	6O8	O07-C05-C04	2.50	119.75	111.91
3	B	801	6O8	O07-C05-C04	2.48	119.69	111.91
3	C	801	6O8	O07-C05-C04	2.47	119.67	111.91
3	D	801	6O8	O07-C05-C04	2.47	119.67	111.91
3	C	801	6O8	C09-O22-C23	-2.47	111.71	117.79
3	A	801	6O8	C09-O22-C23	-2.47	111.71	117.79
3	D	801	6O8	C09-O22-C23	-2.45	111.75	117.79
3	B	801	6O8	C09-O22-C23	-2.44	111.78	117.79
6	E	101	6O9	O12-C13-C14	2.35	119.29	111.91
6	F	101	6O9	O12-C13-C14	2.33	119.22	111.91
6	D	802	6O9	O12-C13-C14	2.33	119.21	111.91
6	F	102	6O9	O12-C13-C14	2.31	119.15	111.91
3	B	801	6O8	P12-O15-C16	-2.19	110.83	121.59
3	C	801	6O8	P12-O15-C16	-2.19	110.83	121.59
3	D	801	6O8	P12-O15-C16	-2.19	110.83	121.59
3	A	801	6O8	P12-O15-C16	-2.19	110.83	121.59
5	C	803	6EU	CBC-OAF-CBK	-2.01	111.21	115.68
5	B	803	6EU	CBC-OAF-CBK	-2.01	111.22	115.68

There are no chirality outliers.

All (235) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	801	6O8	C10-O11-P12-O13
3	A	801	6O8	C10-O11-P12-O14
3	A	801	6O8	C16-O15-P12-O14
3	A	801	6O8	C25-C23-O22-C09
3	B	801	6O8	C10-O11-P12-O13
3	B	801	6O8	C10-O11-P12-O14
3	B	801	6O8	C16-O15-P12-O14
3	B	801	6O8	C25-C23-O22-C09

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Mol	Chain	Res	Type	Atoms
3	C	801	6O8	C10-O11-P12-O13
3	C	801	6O8	C10-O11-P12-O14
3	C	801	6O8	C16-O15-P12-O14
3	C	801	6O8	C25-C23-O22-C09
3	D	801	6O8	C10-O11-P12-O13
3	D	801	6O8	C10-O11-P12-O14
3	D	801	6O8	C16-O15-P12-O14
3	D	801	6O8	C25-C23-O22-C09
4	A	803	6OE	N01-C02-C03-O04
4	A	803	6OE	C09-O08-P05-O07
4	B	802	6OE	N01-C02-C03-O04
4	B	802	6OE	C09-O08-P05-O07
4	C	802	6OE	N01-C02-C03-O04
4	C	802	6OE	C09-O08-P05-O07
4	D	803	6OE	C03-O04-P05-O06
4	D	804	6OE	N01-C02-C03-O04
4	D	804	6OE	C09-O08-P05-O07
4	E	102	6OE	N01-C02-C03-O04
4	E	102	6OE	C03-O04-P05-O07
4	E	102	6OE	C03-O04-P05-O08
6	D	802	6O9	N01-C02-C03-O04
6	D	802	6O9	C03-O04-P05-O06
6	D	802	6O9	C03-O04-P05-O07
6	E	101	6O9	N01-C02-C03-O04
6	E	101	6O9	C03-O04-P05-O06
6	E	101	6O9	C03-O04-P05-O07
6	F	101	6O9	N01-C02-C03-O04
6	F	101	6O9	C03-O04-P05-O06
6	F	101	6O9	C03-O04-P05-O07
6	F	101	6O9	C09-O08-P05-O06
6	F	102	6O9	N01-C02-C03-O04
6	F	102	6O9	C03-O04-P05-O06
6	F	102	6O9	C03-O04-P05-O07
3	A	801	6O8	O06-C05-O07-C08
3	B	801	6O8	O06-C05-O07-C08
3	C	801	6O8	O06-C05-O07-C08
3	D	801	6O8	O06-C05-O07-C08
3	A	801	6O8	O24-C23-O22-C09
3	B	801	6O8	O24-C23-O22-C09
3	C	801	6O8	O24-C23-O22-C09
3	D	801	6O8	O24-C23-O22-C09
3	A	801	6O8	C04-C05-O07-C08

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Mol	Chain	Res	Type	Atoms
3	B	801	6O8	C04-C05-O07-C08
3	C	801	6O8	C04-C05-O07-C08
3	D	801	6O8	C04-C05-O07-C08
4	A	803	6OE	C14-C13-O12-C11
4	B	802	6OE	C14-C13-O12-C11
4	C	802	6OE	C14-C13-O12-C11
4	D	804	6OE	C14-C13-O12-C11
5	A	804	6EU	CBM-CBK-OAF-CBC
5	B	803	6EU	CBM-CBK-OAF-CBC
5	C	803	6EU	CBM-CBK-OAF-CBC
5	D	805	6EU	CBM-CBK-OAF-CBC
4	A	803	6OE	O19-C13-O12-C11
4	B	802	6OE	O19-C13-O12-C11
4	C	802	6OE	O19-C13-O12-C11
4	D	804	6OE	O19-C13-O12-C11
5	A	804	6EU	OAG-CBK-OAF-CBC
5	B	803	6EU	OAG-CBK-OAF-CBC
5	C	803	6EU	OAG-CBK-OAF-CBC
5	D	805	6EU	OAG-CBK-OAF-CBC
3	A	801	6O8	C10-O11-P12-O15
3	B	801	6O8	C10-O11-P12-O15
3	C	801	6O8	C10-O11-P12-O15
3	D	801	6O8	C10-O11-P12-O15
4	A	802	6OE	C03-O04-P05-O08
4	A	803	6OE	C03-O04-P05-O08
4	B	802	6OE	C03-O04-P05-O08
4	C	802	6OE	C03-O04-P05-O08
4	D	803	6OE	C03-O04-P05-O08
4	D	804	6OE	C03-O04-P05-O08
4	F	103	6OE	C03-O04-P05-O08
6	D	802	6O9	C03-O04-P05-O08
6	D	802	6O9	C09-O08-P05-O04
6	E	101	6O9	C03-O04-P05-O08
6	E	101	6O9	C09-O08-P05-O04
6	F	101	6O9	C03-O04-P05-O08
6	F	101	6O9	C09-O08-P05-O04
6	F	102	6O9	C03-O04-P05-O08
6	F	102	6O9	C09-O08-P05-O04
5	A	804	6EU	CBO-CBQ-OAH-CBT
5	B	803	6EU	CBO-CBQ-OAH-CBT
5	C	803	6EU	CBO-CBQ-OAH-CBT
5	D	805	6EU	CBO-CBQ-OAH-CBT

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Mol	Chain	Res	Type	Atoms
6	E	101	6O9	C21-C20-O19-C10
6	D	802	6O9	C21-C20-O19-C10
6	F	102	6O9	C21-C20-O19-C10
4	A	802	6OE	C13-C14-C15-C16
4	D	803	6OE	C13-C14-C15-C16
4	E	102	6OE	C13-C14-C15-C16
4	F	103	6OE	C13-C14-C15-C16
4	A	802	6OE	C14-C13-O12-C11
4	D	803	6OE	C14-C13-O12-C11
4	E	102	6OE	C14-C13-O12-C11
4	F	103	6OE	C14-C13-O12-C11
6	F	101	6O9	C21-C20-O19-C10
5	A	804	6EU	CBS-CBQ-OAH-CBT
5	D	805	6EU	CBS-CBQ-OAH-CBT
5	B	803	6EU	CBS-CBQ-OAH-CBT
5	C	803	6EU	CBS-CBQ-OAH-CBT
3	A	801	6O8	C09-C10-O11-P12
3	B	801	6O8	C09-C10-O11-P12
3	C	801	6O8	C09-C10-O11-P12
3	D	801	6O8	C09-C10-O11-P12
4	D	803	6OE	O08-C09-C10-C11
4	F	103	6OE	O08-C09-C10-C11
4	C	802	6OE	C22-C21-O20-C10
4	A	802	6OE	O19-C13-O12-C11
4	C	802	6OE	C09-C10-C11-O12
6	D	802	6O9	C09-C10-C11-O12
6	E	101	6O9	C09-C10-C11-O12
6	F	101	6O9	C09-C10-C11-O12
6	F	102	6O9	C09-C10-C11-O12
4	D	803	6OE	O19-C13-O12-C11
4	E	102	6OE	O19-C13-O12-C11
4	F	103	6OE	O19-C13-O12-C11
4	F	103	6OE	O08-C09-C10-O20
6	F	101	6O9	O19-C10-C11-O12
4	A	802	6OE	O08-C09-C10-C11
4	A	803	6OE	O08-C09-C10-C11
4	B	802	6OE	O08-C09-C10-C11
4	D	804	6OE	O08-C09-C10-C11
4	E	102	6OE	O08-C09-C10-C11
4	A	802	6OE	N01-C02-C03-O04
6	E	101	6O9	O22-C20-O19-C10
6	D	802	6O9	O22-C20-O19-C10

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Mol	Chain	Res	Type	Atoms
4	D	804	6OE	C09-C10-C11-O12
4	C	802	6OE	O27-C21-O20-C10
6	F	102	6O9	O22-C20-O19-C10
4	D	803	6OE	O08-C09-C10-O20
4	E	102	6OE	O08-C09-C10-O20
4	A	803	6OE	O20-C10-C11-O12
4	B	802	6OE	O20-C10-C11-O12
4	C	802	6OE	O20-C10-C11-O12
4	D	804	6OE	O20-C10-C11-O12
6	D	802	6O9	O19-C10-C11-O12
6	E	101	6O9	O19-C10-C11-O12
6	F	102	6O9	O19-C10-C11-O12
6	F	101	6O9	O22-C20-O19-C10
4	E	102	6OE	O20-C21-C22-C23
4	C	802	6OE	O08-C09-C10-C11
4	D	803	6OE	O20-C21-C22-C23
4	F	103	6OE	O20-C21-C22-C23
4	A	802	6OE	O20-C21-C22-C23
4	D	804	6OE	C22-C21-O20-C10
4	A	803	6OE	C09-C10-C11-O12
4	B	802	6OE	C09-C10-C11-O12
4	A	802	6OE	O08-C09-C10-O20
4	A	803	6OE	O08-C09-C10-O20
4	B	802	6OE	O08-C09-C10-O20
4	D	804	6OE	O08-C09-C10-O20
4	D	804	6OE	O27-C21-O20-C10
4	A	802	6OE	C22-C21-O20-C10
4	A	803	6OE	C22-C21-O20-C10
4	B	802	6OE	C22-C21-O20-C10
4	A	802	6OE	O27-C21-O20-C10
4	A	803	6OE	O27-C21-O20-C10
4	B	802	6OE	O27-C21-O20-C10
3	A	801	6O8	C16-O15-P12-O11
3	B	801	6O8	C16-O15-P12-O11
3	C	801	6O8	C16-O15-P12-O11
3	D	801	6O8	C16-O15-P12-O11
3	A	801	6O8	C16-O15-P12-O13
3	B	801	6O8	C16-O15-P12-O13
3	C	801	6O8	C16-O15-P12-O13
3	D	801	6O8	C16-O15-P12-O13
4	A	802	6OE	C03-O04-P05-O07
4	A	803	6OE	C03-O04-P05-O07

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Mol	Chain	Res	Type	Atoms
4	B	802	6OE	C03-O04-P05-O07
4	C	802	6OE	C03-O04-P05-O07
4	D	803	6OE	C03-O04-P05-O07
4	D	804	6OE	C03-O04-P05-O07
4	F	103	6OE	C03-O04-P05-O07
6	D	802	6O9	C09-O08-P05-O07
6	E	101	6O9	C09-O08-P05-O07
6	F	101	6O9	C09-O08-P05-O07
6	F	102	6O9	C09-O08-P05-O07
6	D	802	6O9	C02-C03-O04-P05
6	E	101	6O9	C02-C03-O04-P05
6	F	101	6O9	C02-C03-O04-P05
6	F	102	6O9	C02-C03-O04-P05
4	D	803	6OE	O27-C21-O20-C10
4	F	103	6OE	O27-C21-O20-C10
4	F	103	6OE	C22-C21-O20-C10
3	A	801	6O8	O15-C16-C17-N18
3	B	801	6O8	O15-C16-C17-N18
3	C	801	6O8	O15-C16-C17-N18
3	D	801	6O8	O15-C16-C17-N18
4	E	102	6OE	O27-C21-O20-C10
4	D	803	6OE	C22-C21-O20-C10
4	A	803	6OE	C23-C24-C25-C26
4	B	802	6OE	C23-C24-C25-C26
4	E	102	6OE	C22-C21-O20-C10
4	C	802	6OE	O08-C09-C10-O20
4	C	802	6OE	C23-C24-C25-C26
4	D	804	6OE	C23-C24-C25-C26
4	F	103	6OE	N01-C02-C03-O04
4	E	102	6OE	C14-C15-C16-C17
4	A	802	6OE	C14-C15-C16-C17
4	F	103	6OE	C14-C15-C16-C17
4	D	803	6OE	C14-C15-C16-C17
4	C	802	6OE	C22-C23-C24-C25
4	D	803	6OE	N01-C02-C03-O04
3	B	801	6O8	C25-C26-C27-C28
3	C	801	6O8	C25-C26-C27-C28
3	D	801	6O8	C25-C26-C27-C28
3	A	801	6O8	C25-C26-C27-C28
4	A	802	6OE	C23-C24-C25-C26
4	E	102	6OE	O27-C21-C22-C23
4	F	103	6OE	O27-C21-C22-C23

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Mol	Chain	Res	Type	Atoms
4	D	803	6OE	O27-C21-C22-C23
4	F	103	6OE	C23-C24-C25-C26
4	A	802	6OE	C09-O08-P05-O07
4	D	803	6OE	C09-O08-P05-O07
4	F	103	6OE	C09-O08-P05-O07
4	B	802	6OE	C22-C23-C24-C25
4	D	803	6OE	C23-C24-C25-C26
4	A	802	6OE	O27-C21-C22-C23
4	E	102	6OE	C23-C24-C25-C26
4	D	804	6OE	C22-C23-C24-C25
4	C	802	6OE	C02-C03-O04-P05
4	A	803	6OE	C22-C23-C24-C25
6	D	802	6O9	O08-C09-C10-O19
6	F	101	6O9	O08-C09-C10-O19
3	A	801	6O8	C03-C04-C05-O07
3	B	801	6O8	C03-C04-C05-O07
3	C	801	6O8	C03-C04-C05-O07

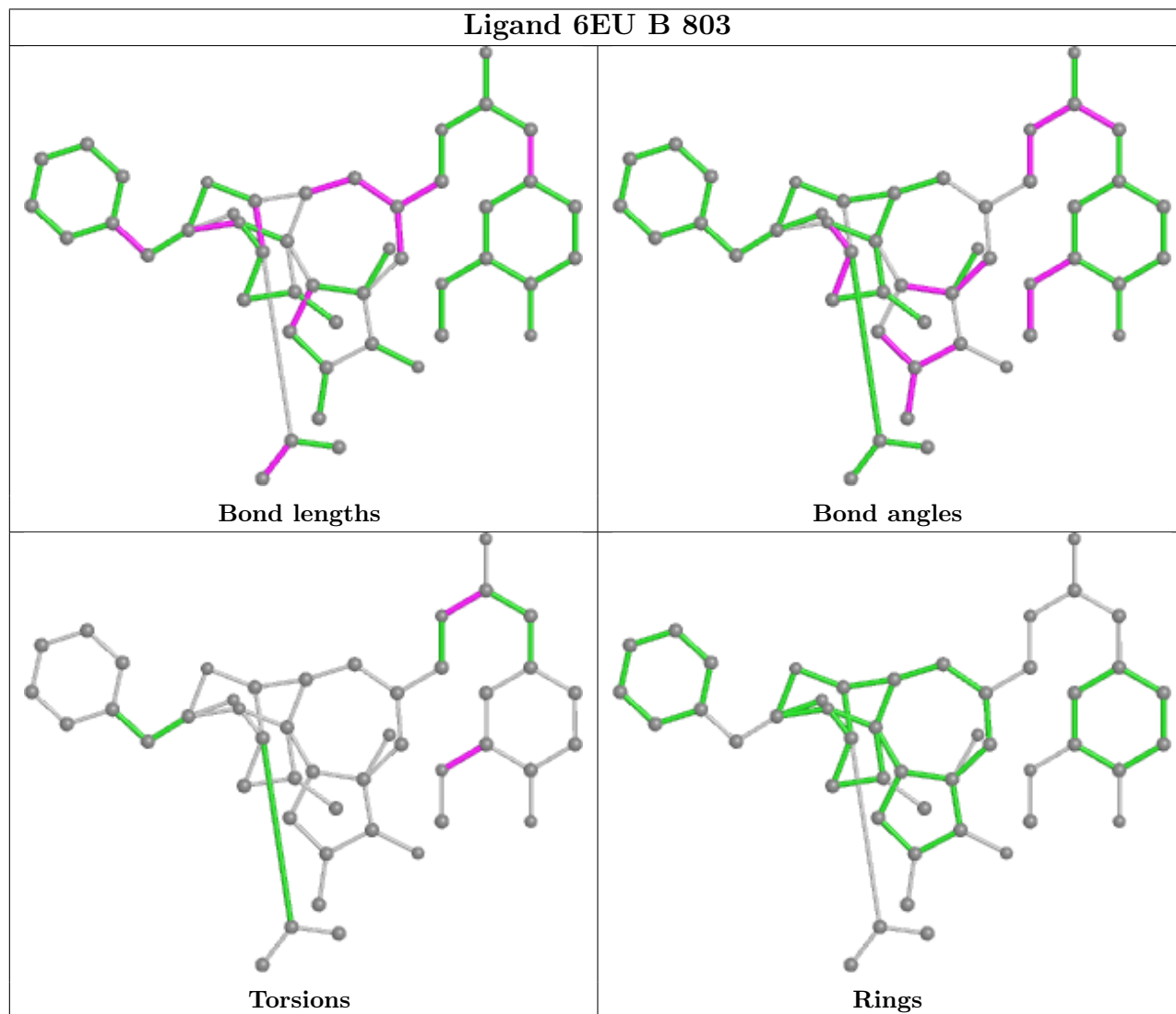
There are no ring outliers.

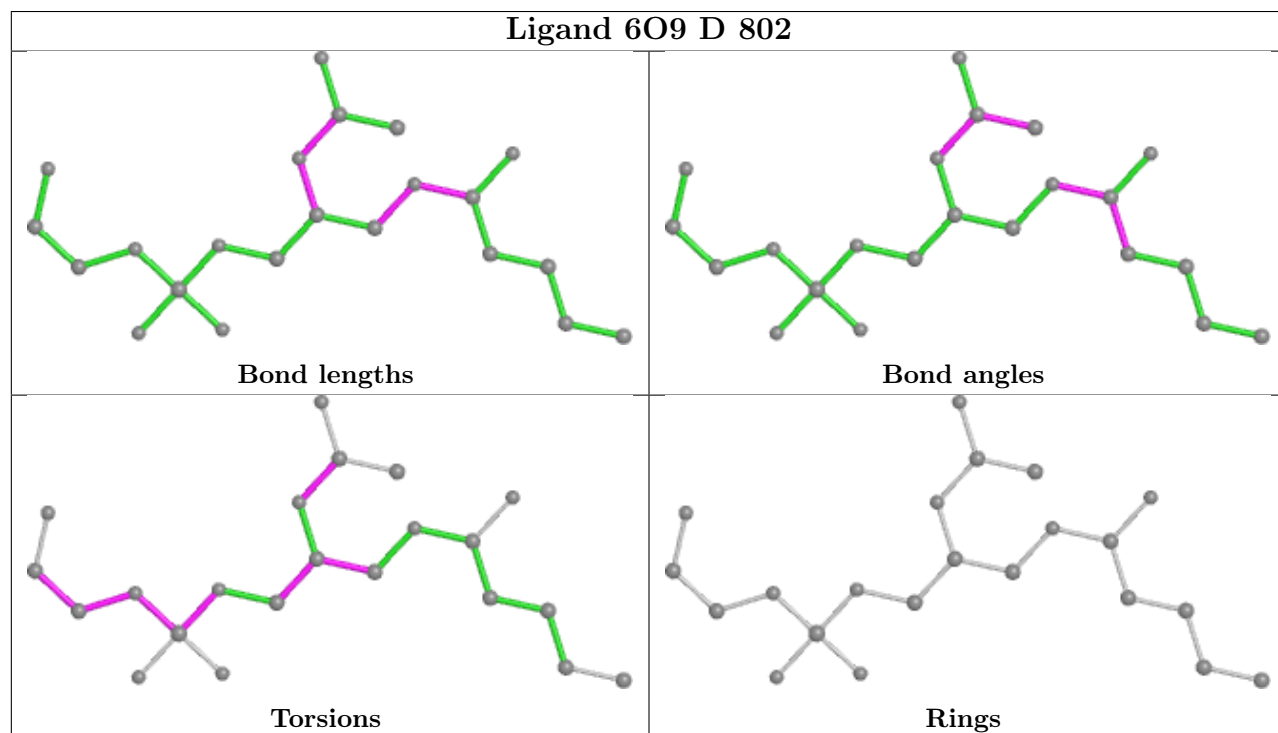
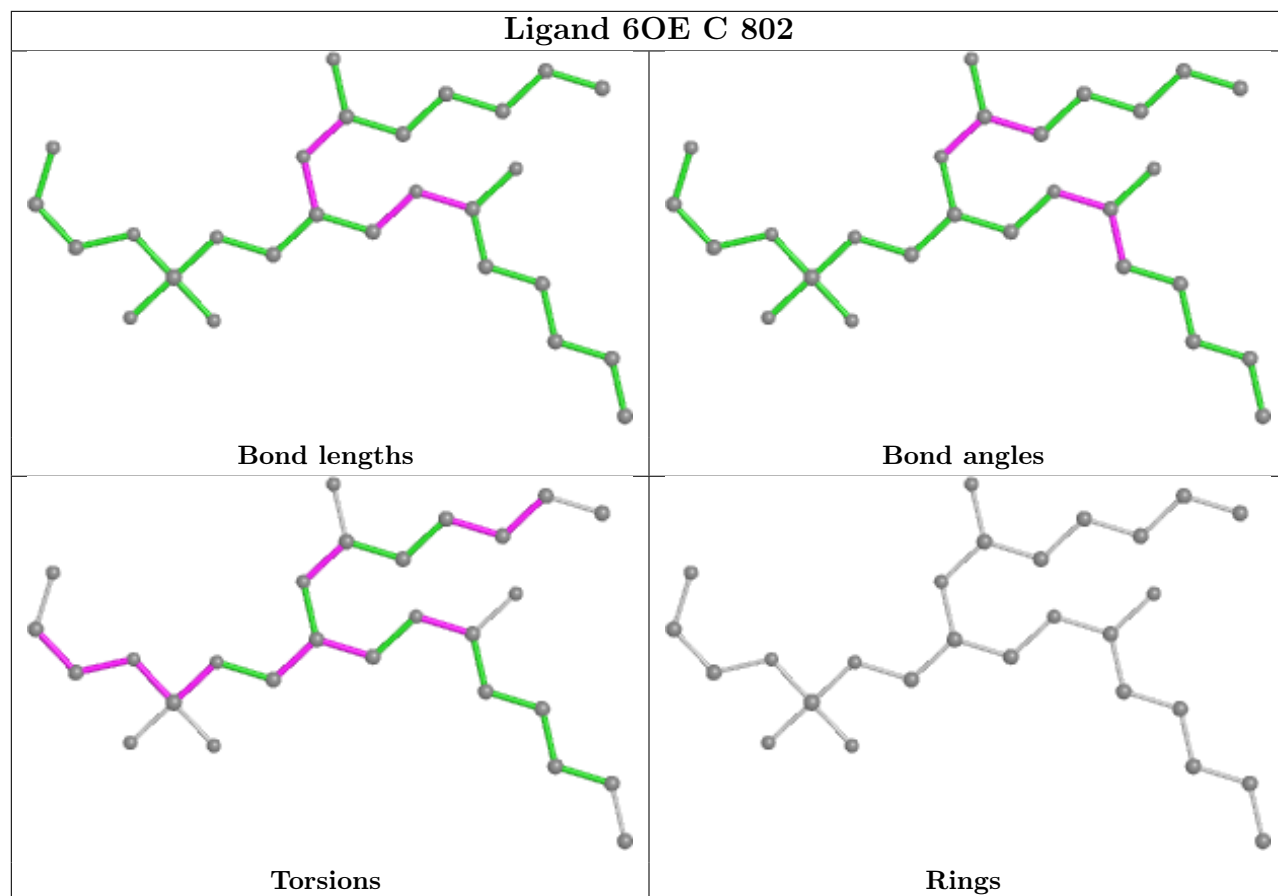
13 monomers are involved in 79 short contacts:

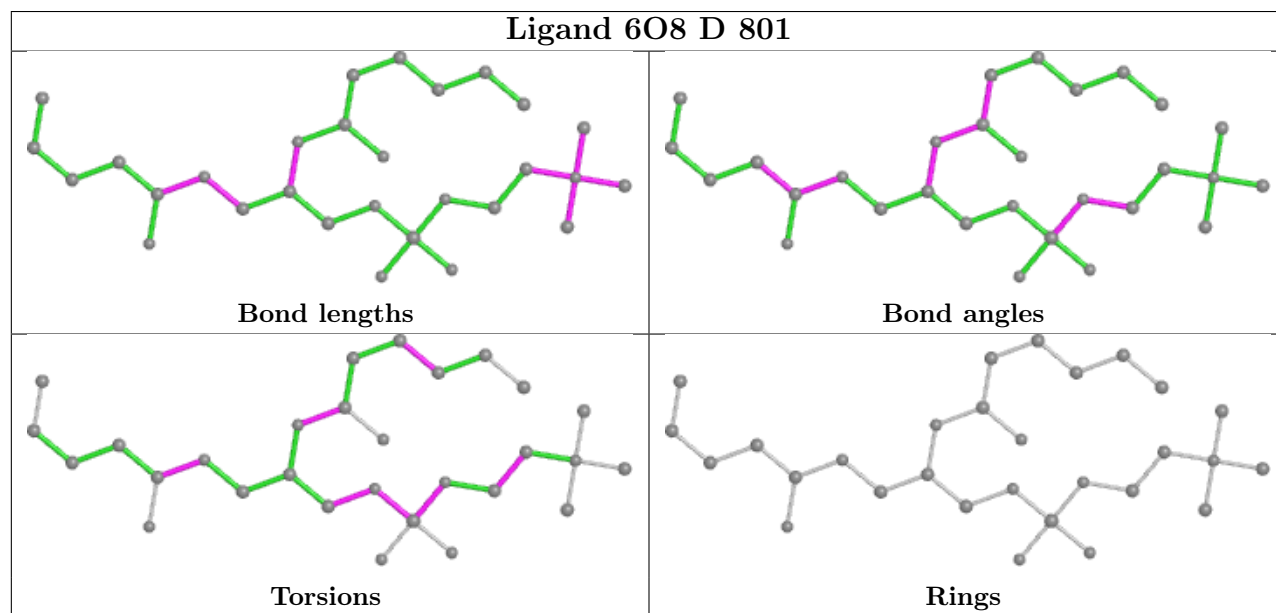
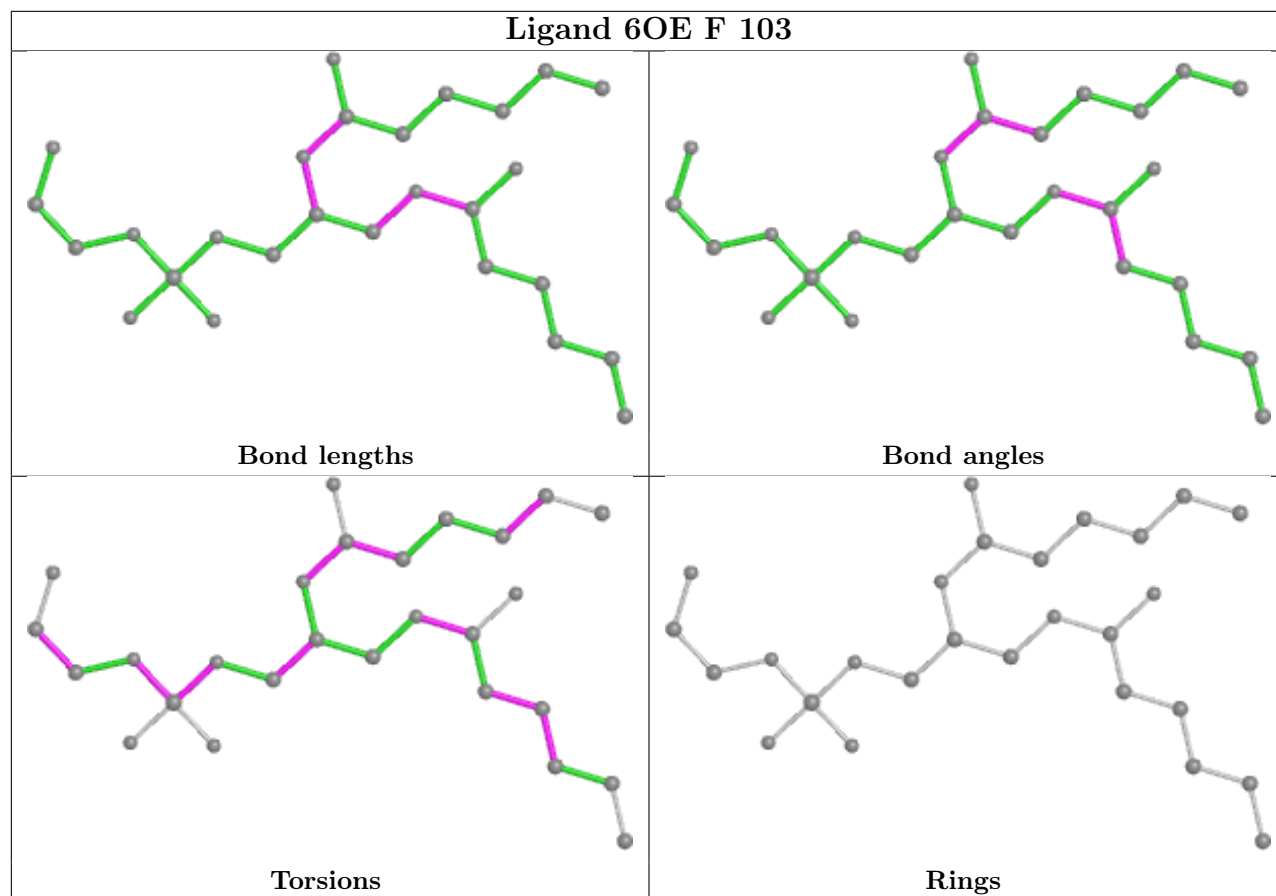
Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	B	803	6EU	10	0
4	F	103	6OE	1	0
3	D	801	6O8	7	0
4	A	803	6OE	1	0
5	A	804	6EU	12	0
4	E	102	6OE	1	0
3	C	801	6O8	8	0
5	C	803	6EU	10	0
5	D	805	6EU	10	0
4	D	804	6OE	1	0
3	A	801	6O8	8	0
4	B	802	6OE	1	0
3	B	801	6O8	9	0

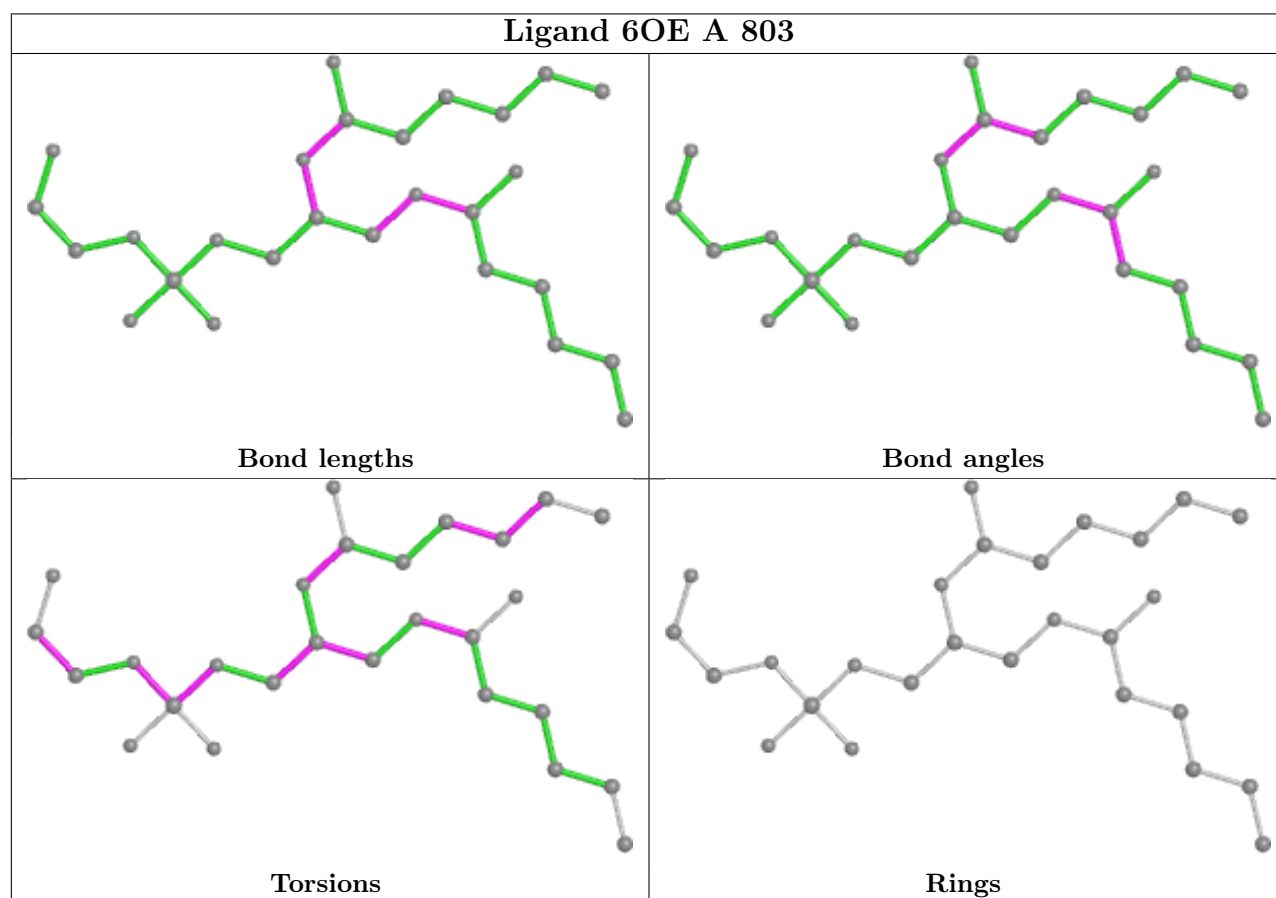
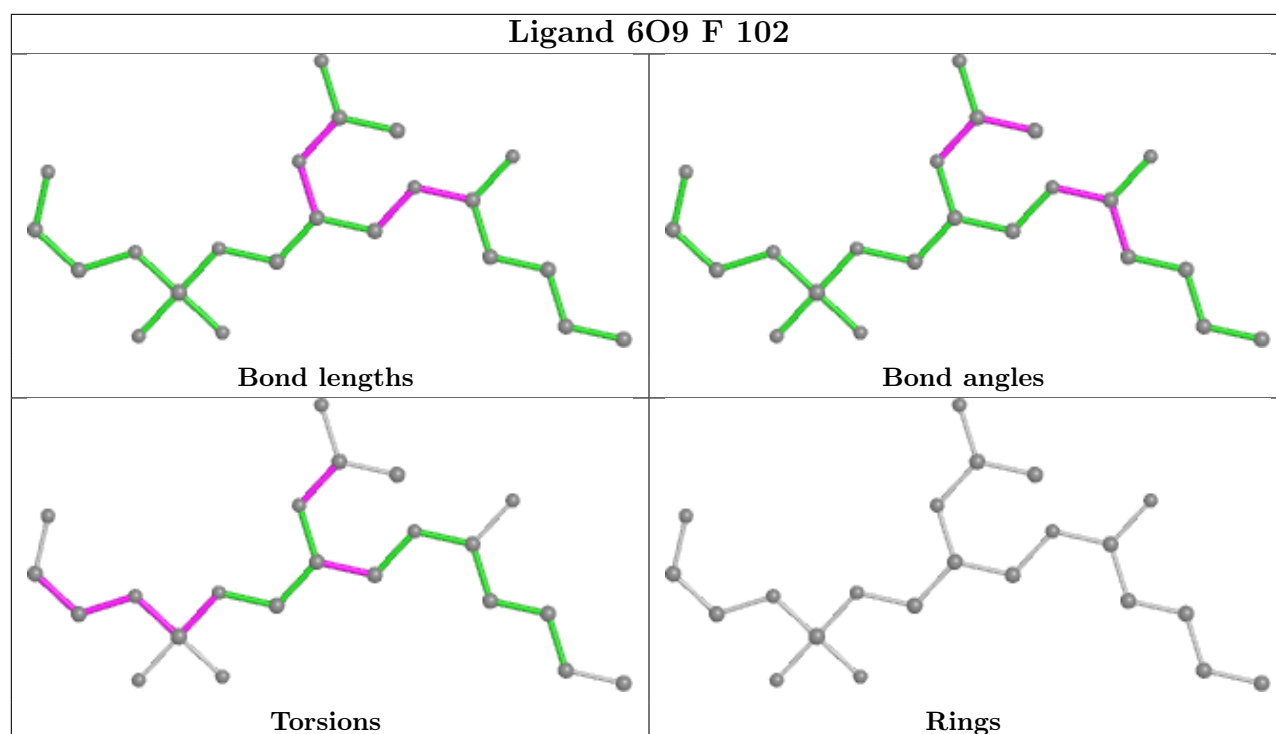
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

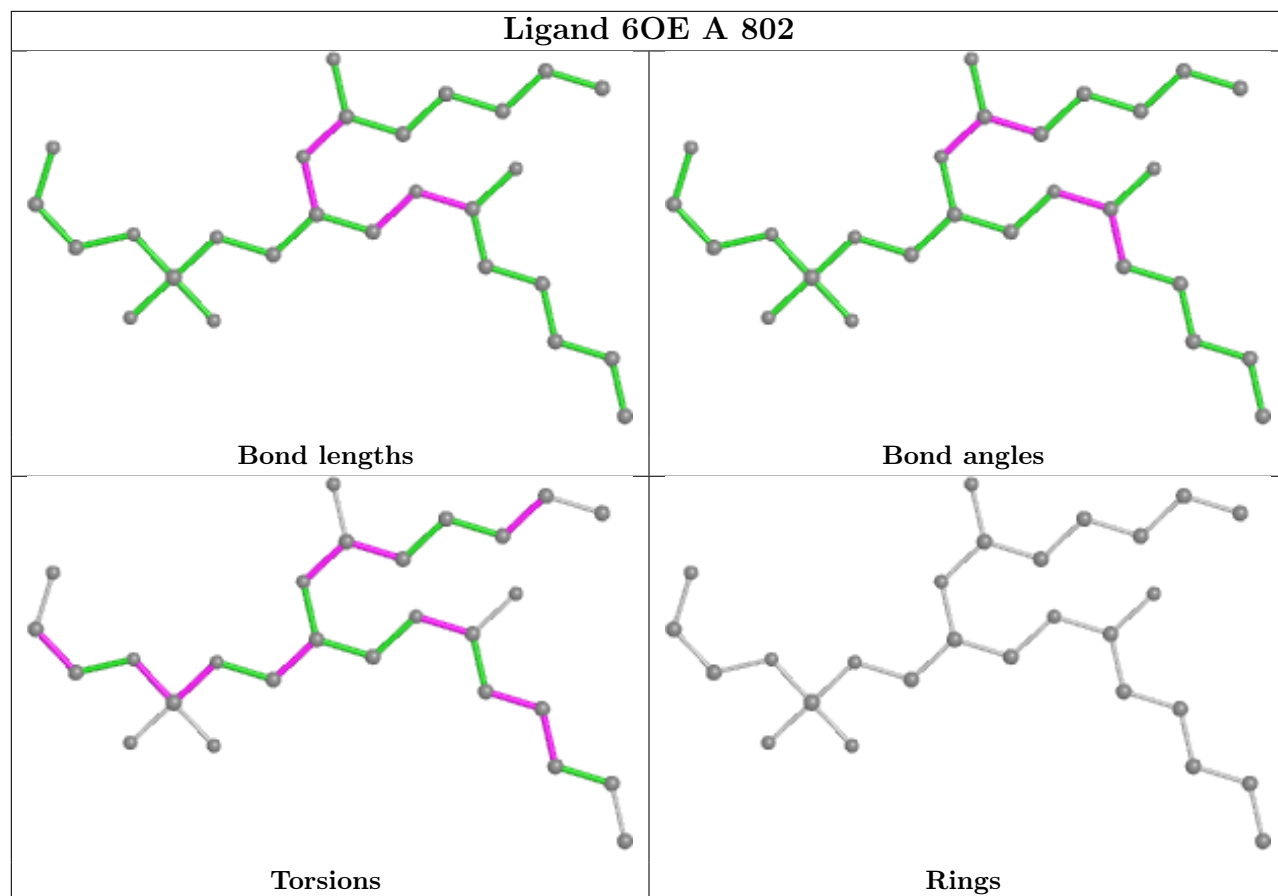
highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified 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.

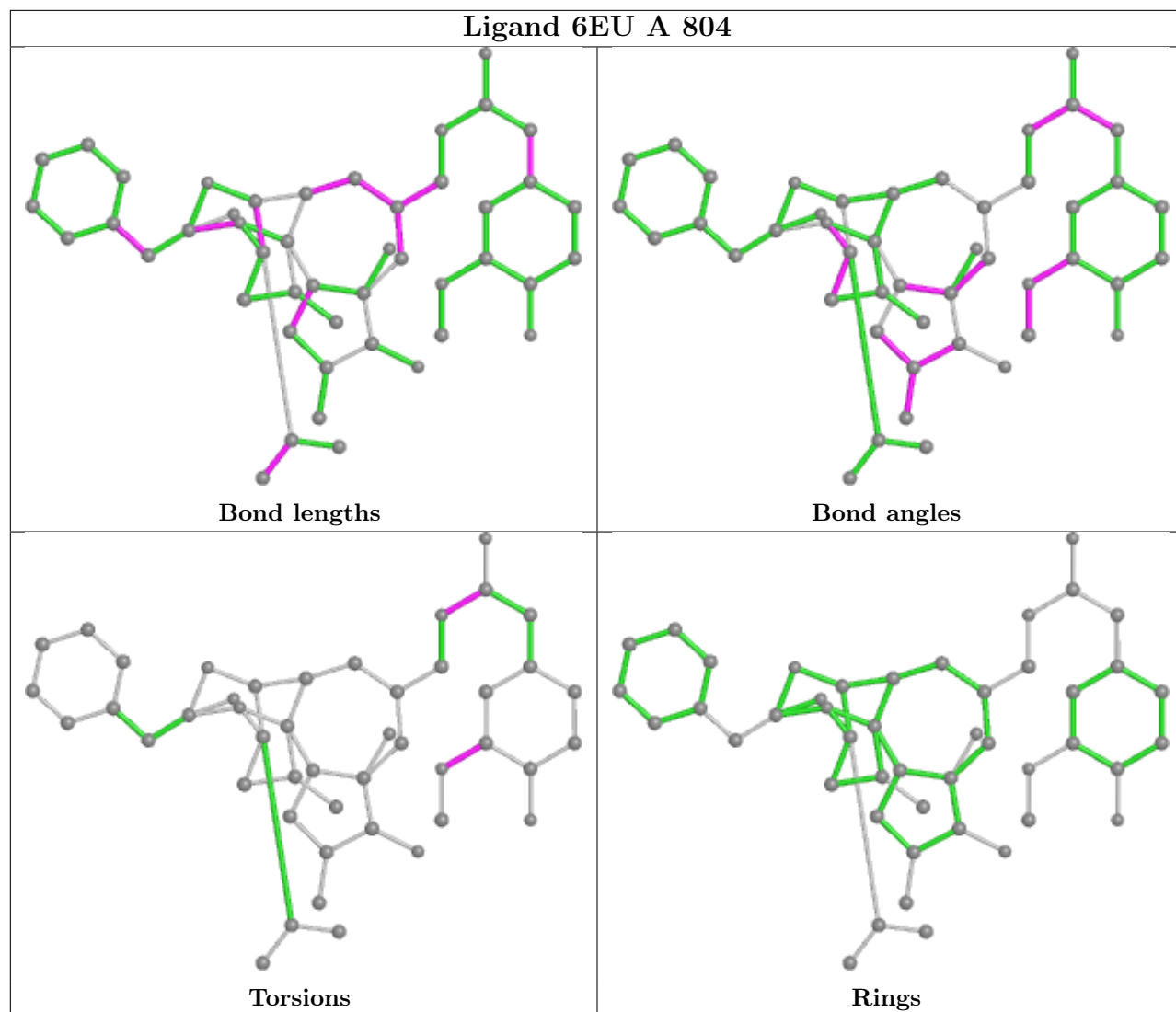


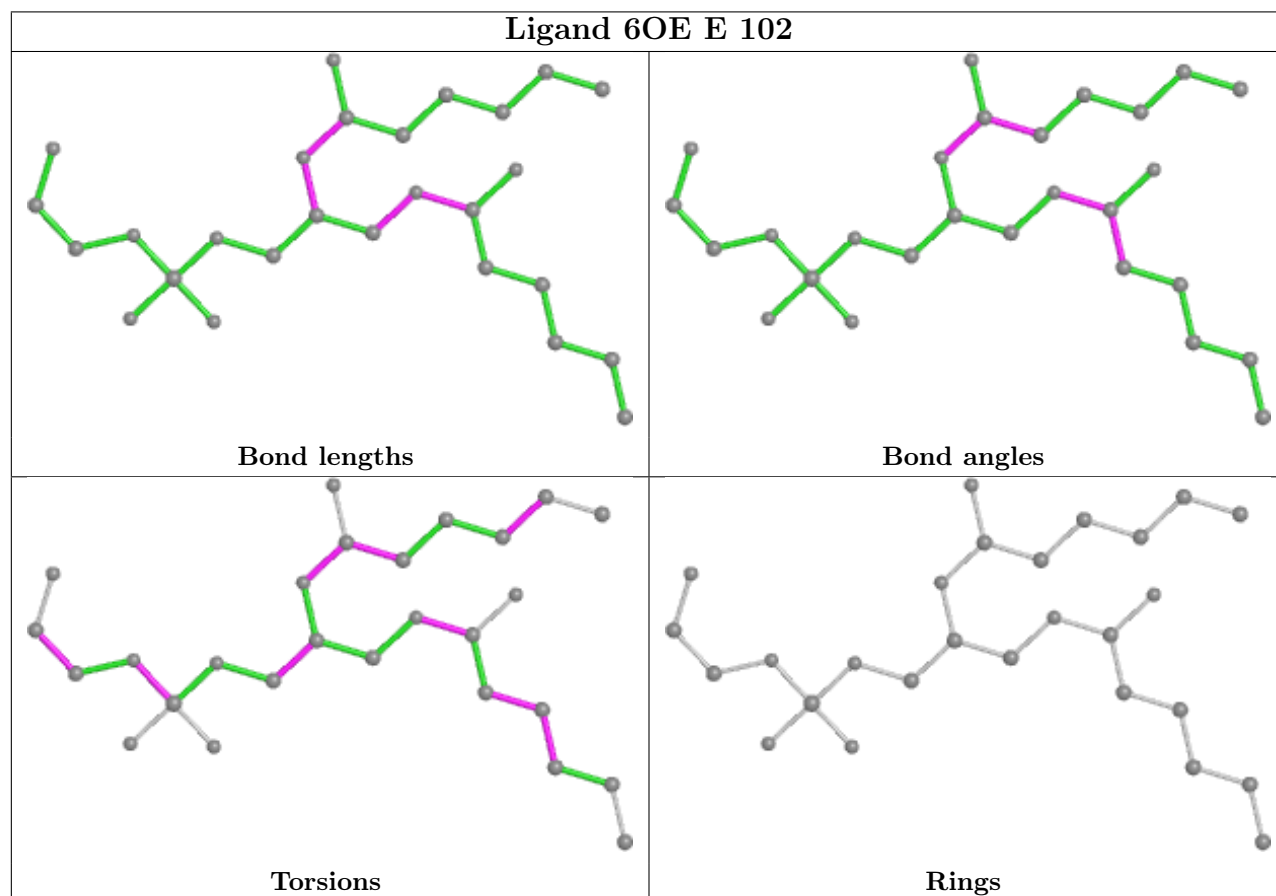
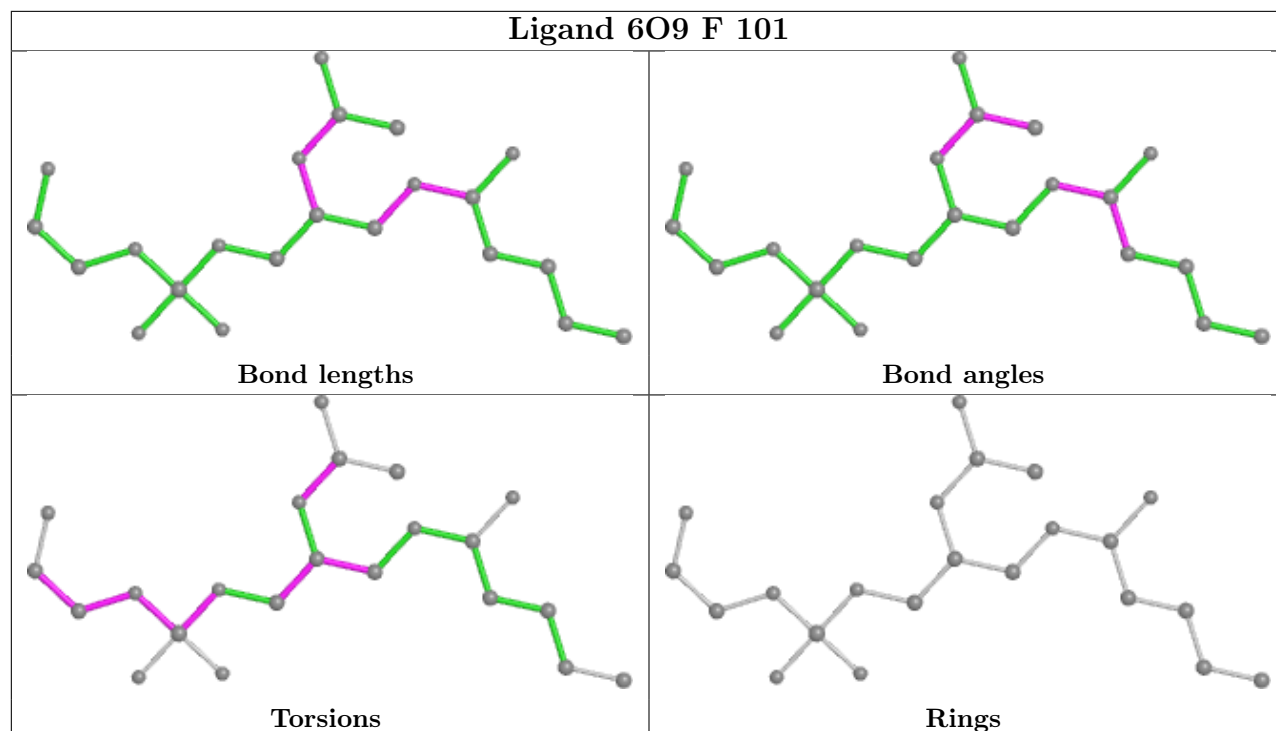


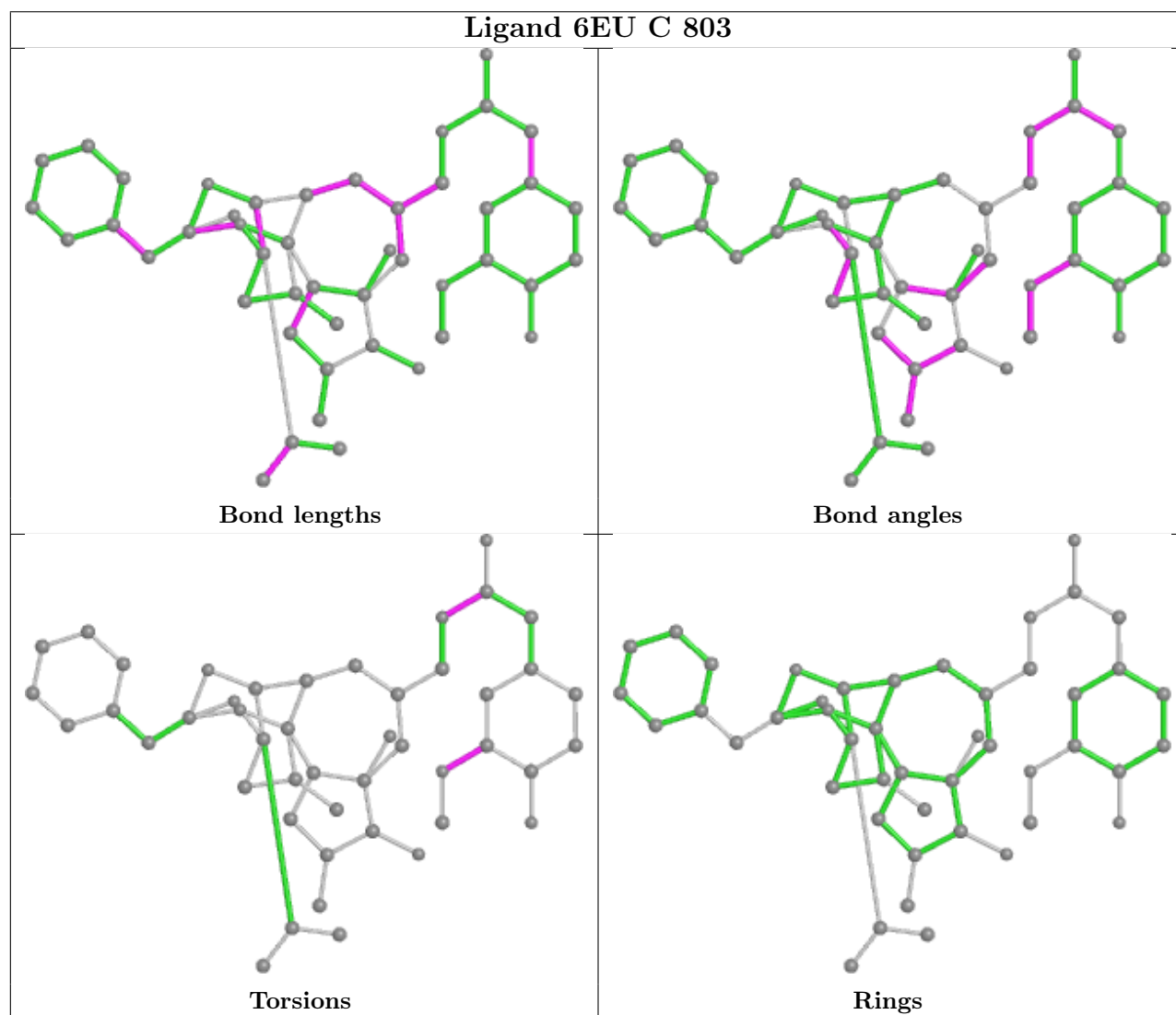
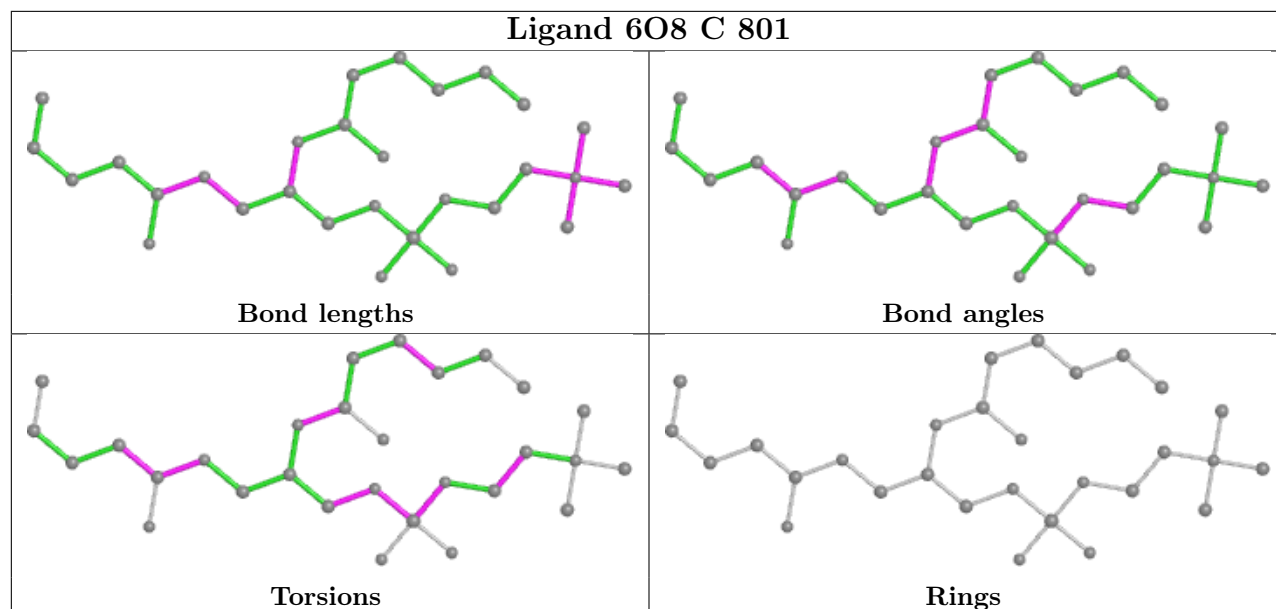


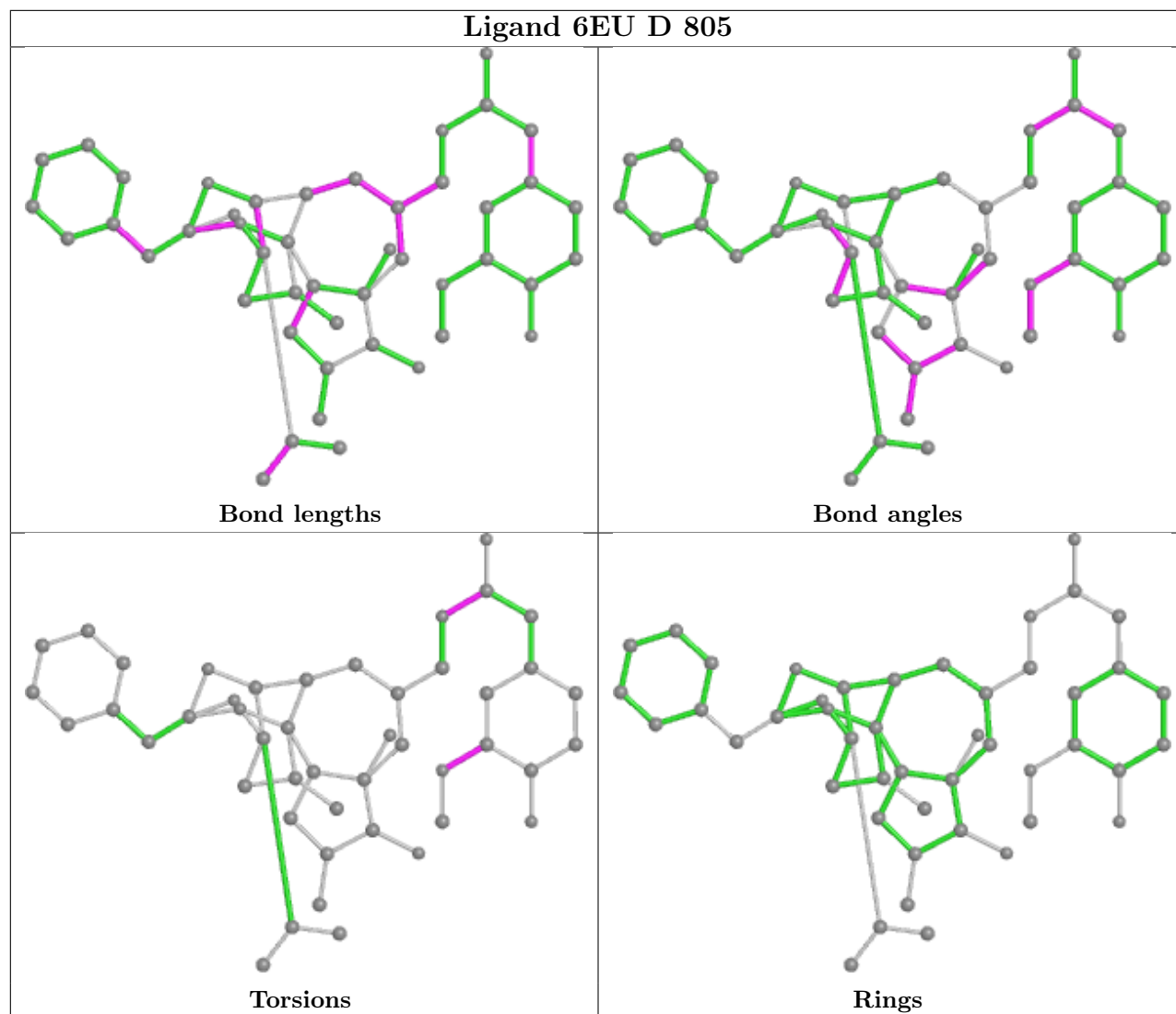


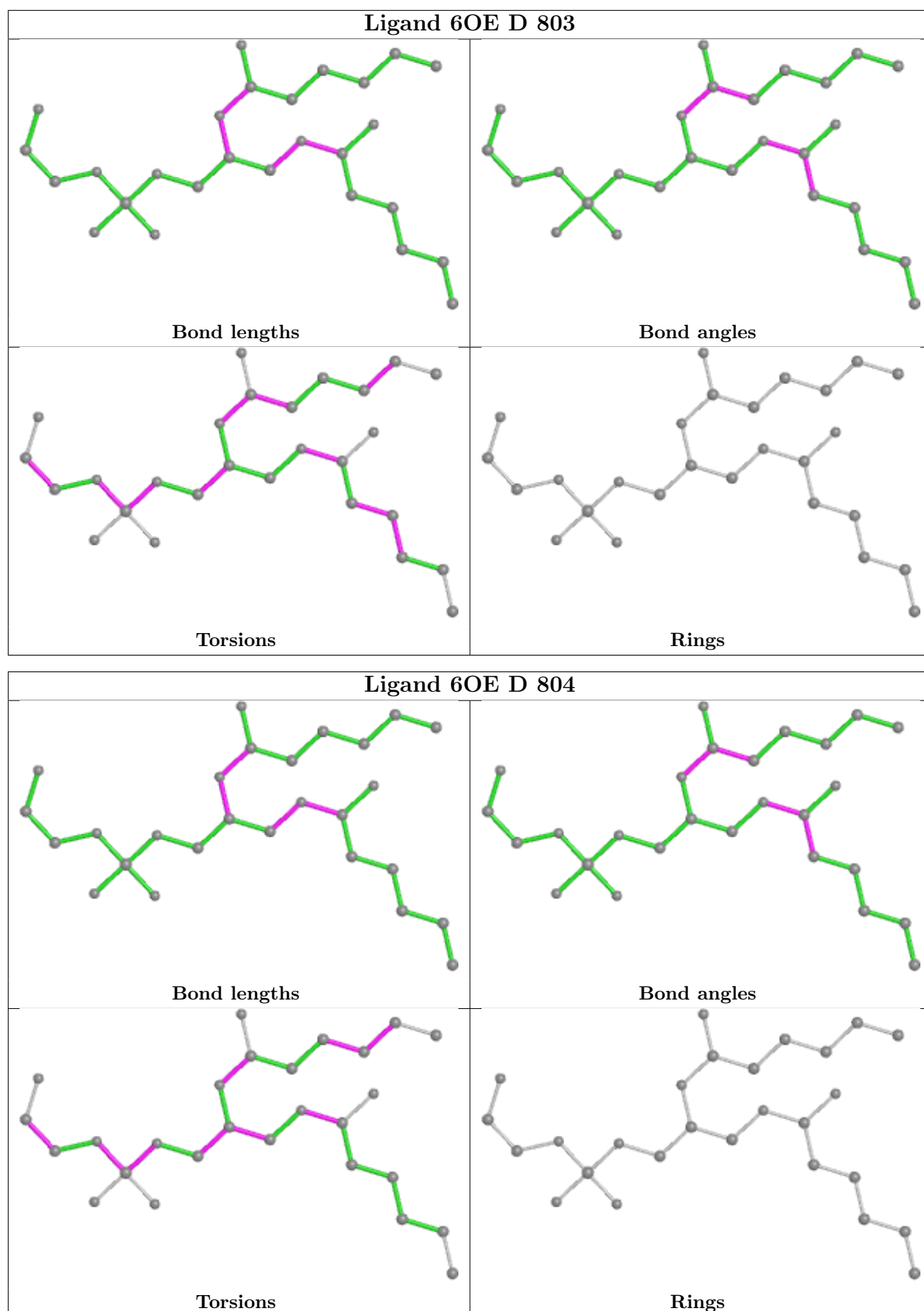


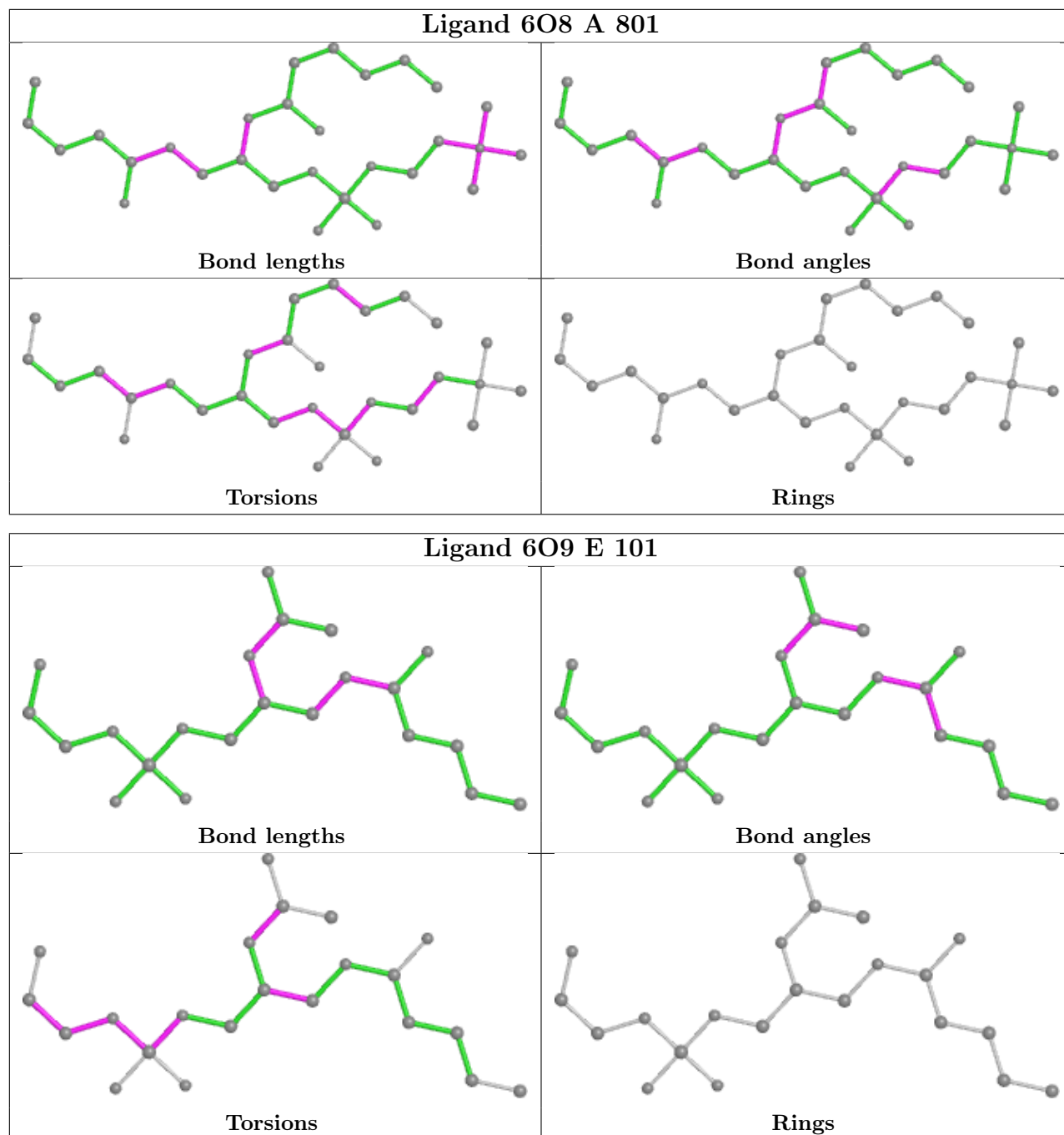


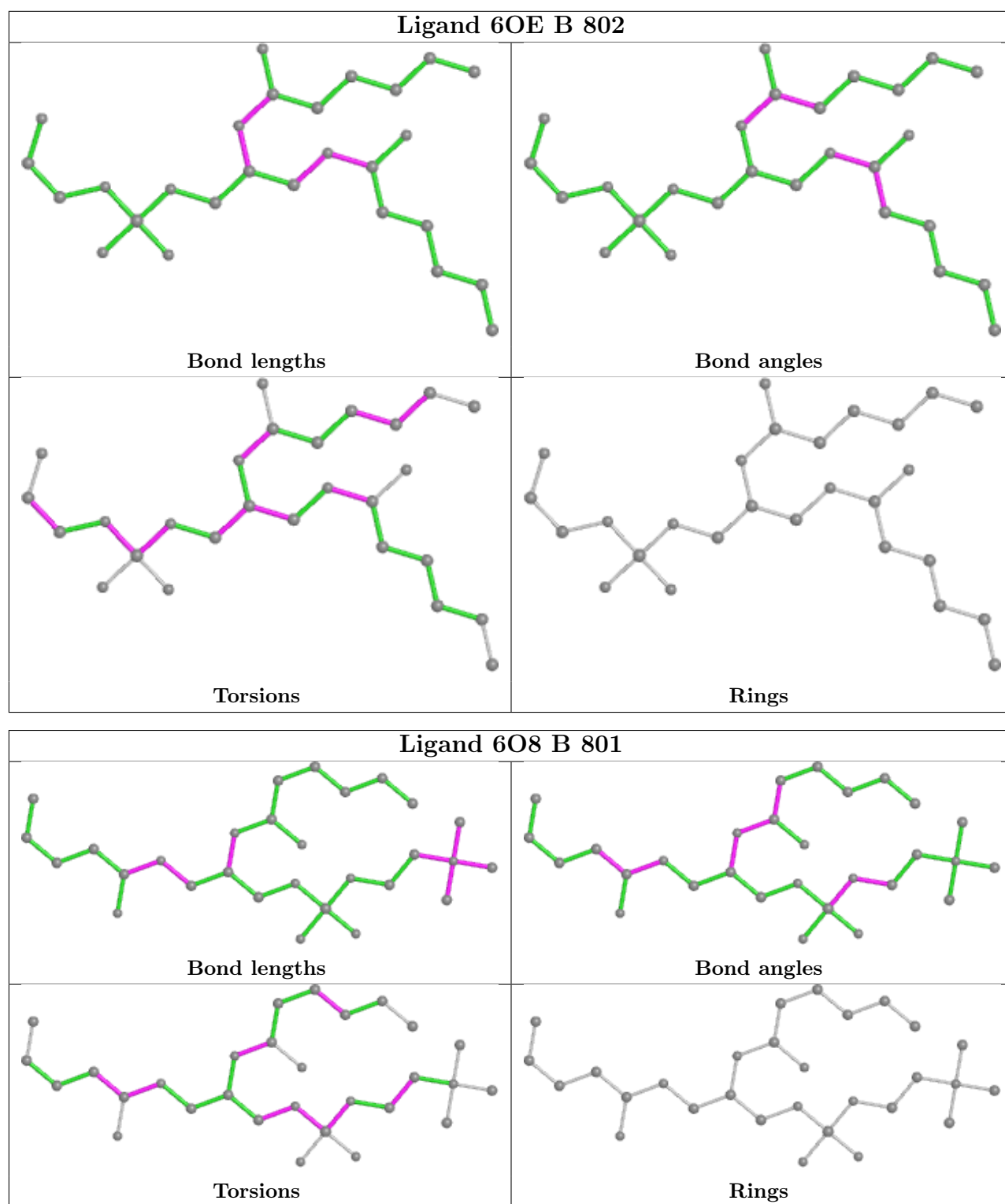












5.7 Other polymers [\(i\)](#)

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

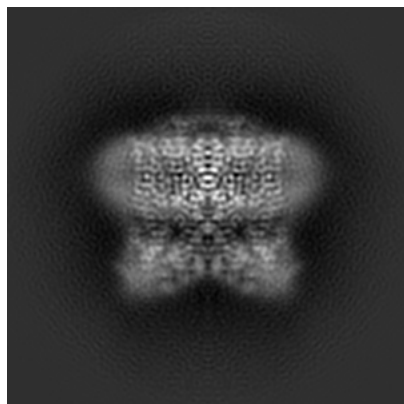
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-8117. These allow visual inspection of the internal detail of the map and identification of artifacts.

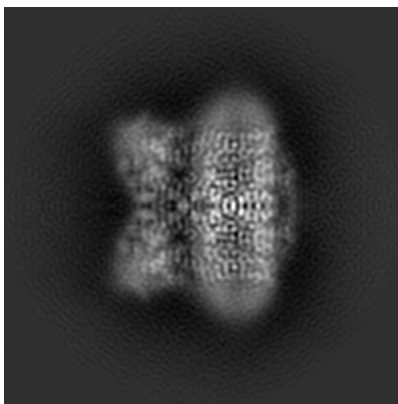
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

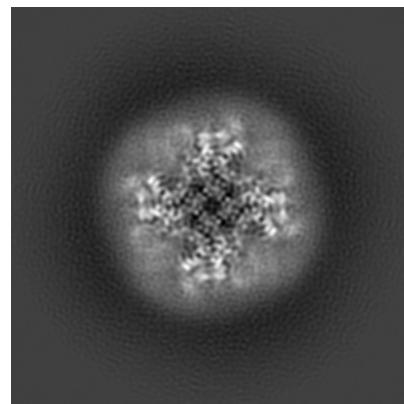
6.1.1 Primary map



X

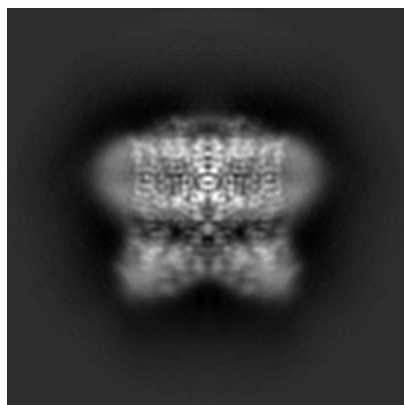


Y

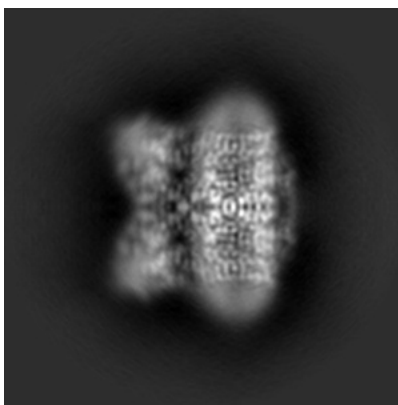


Z

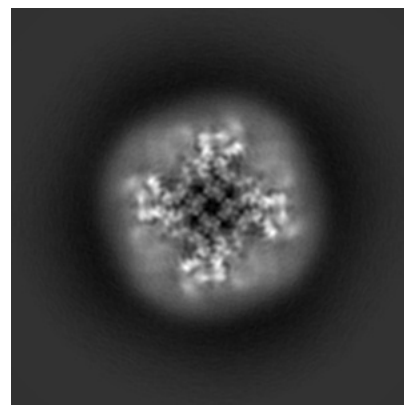
6.1.2 Raw map



X



Y

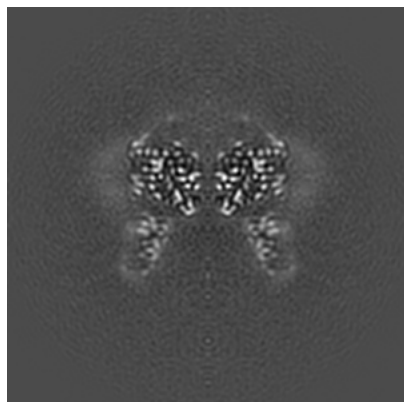


Z

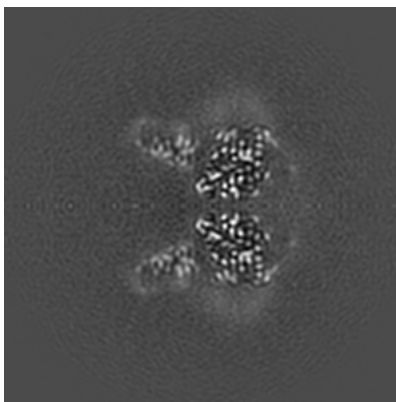
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

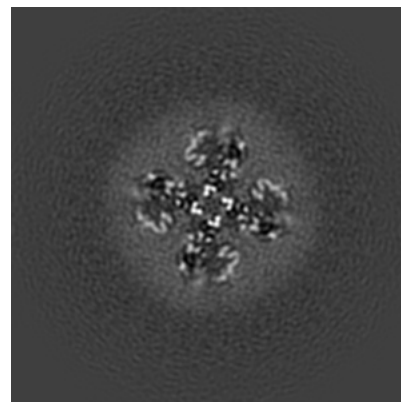
6.2.1 Primary map



X Index: 96

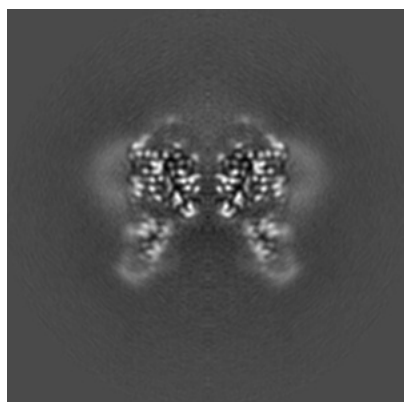


Y Index: 96

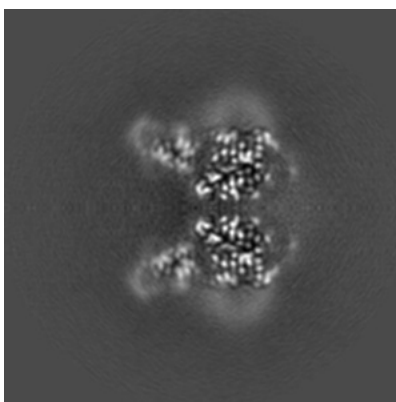


Z Index: 96

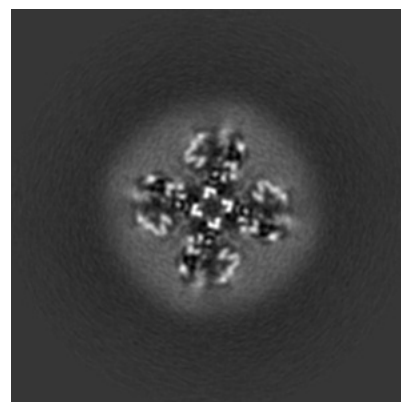
6.2.2 Raw map



X Index: 96



Y Index: 96

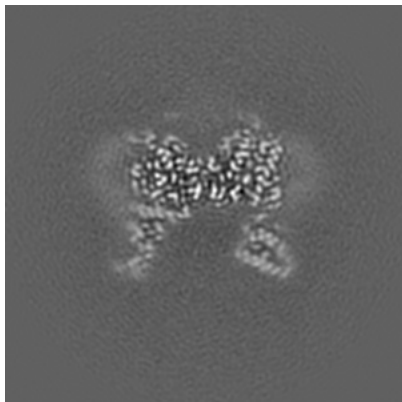


Z Index: 96

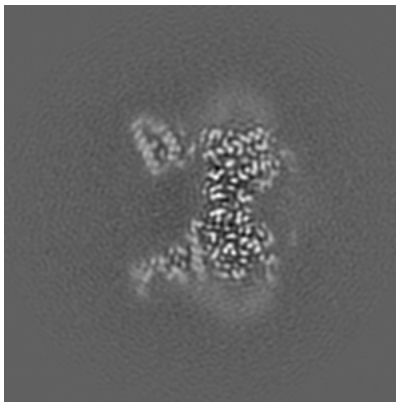
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

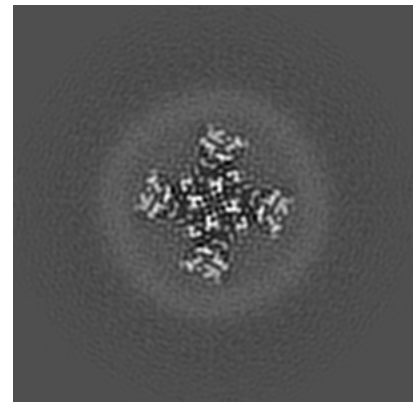
6.3.1 Primary map



X Index: 92

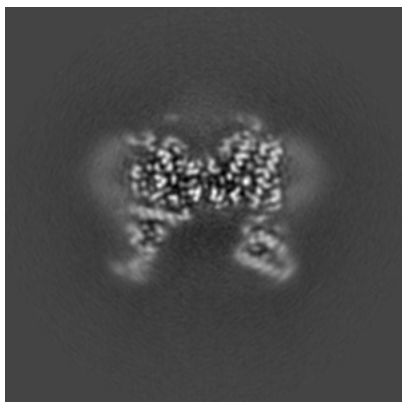


Y Index: 100

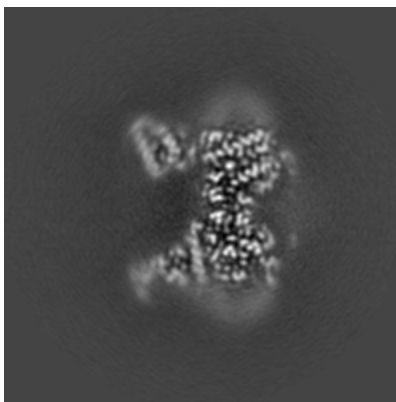


Z Index: 106

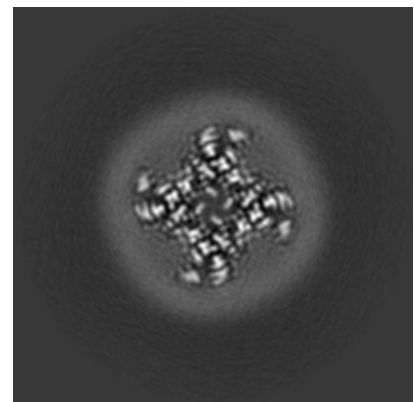
6.3.2 Raw map



X Index: 92



Y Index: 100



Z Index: 121

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

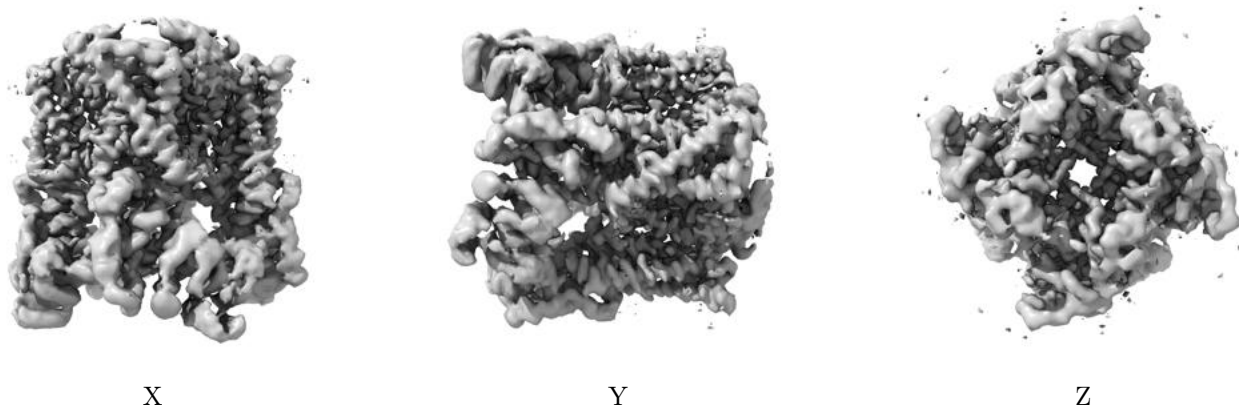
6.4 Orthogonal surface views [i](#)

6.4.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 3.5. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.4.2 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.

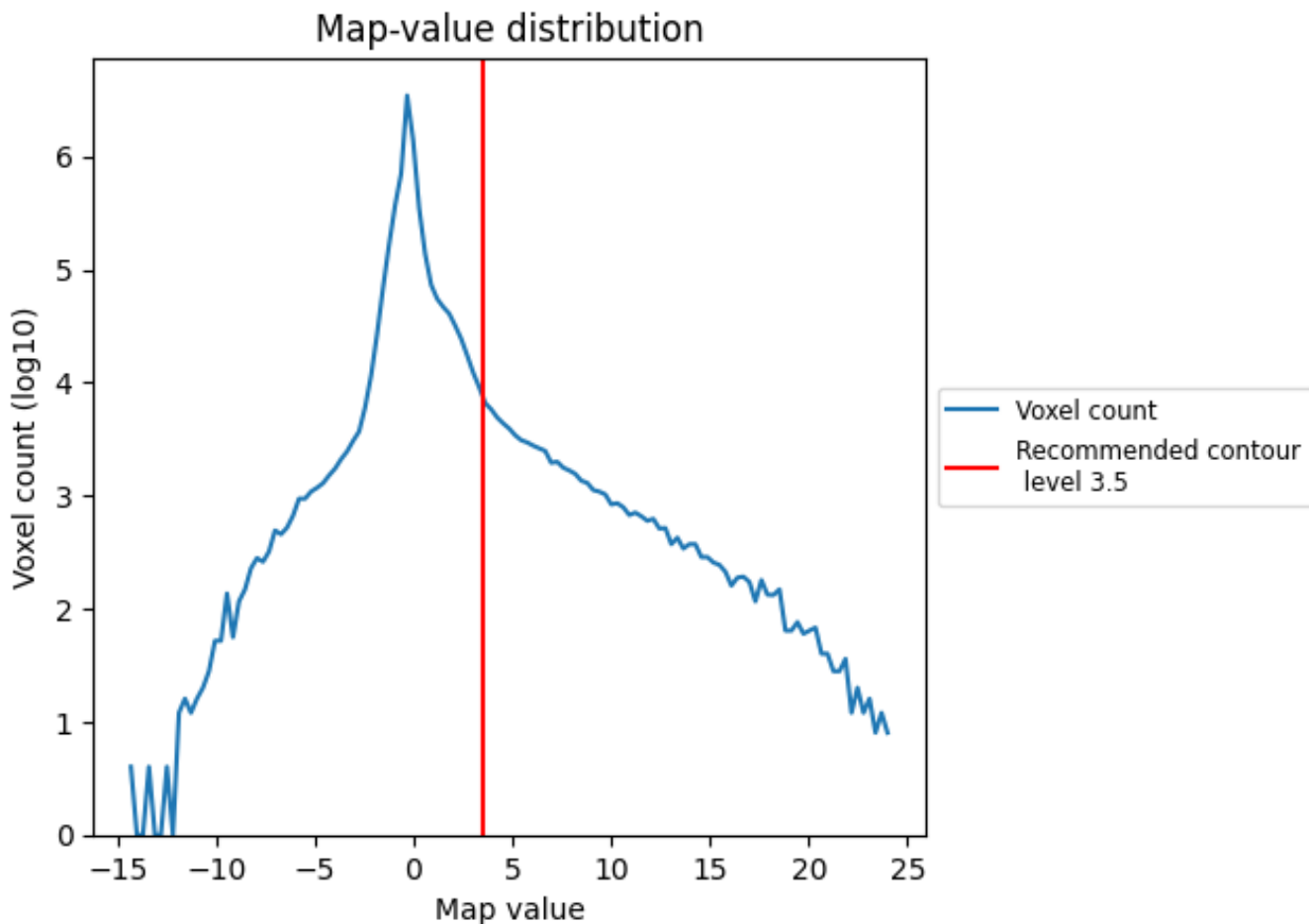
6.5 Mask visualisation [i](#)

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

7 Map analysis [i](#)

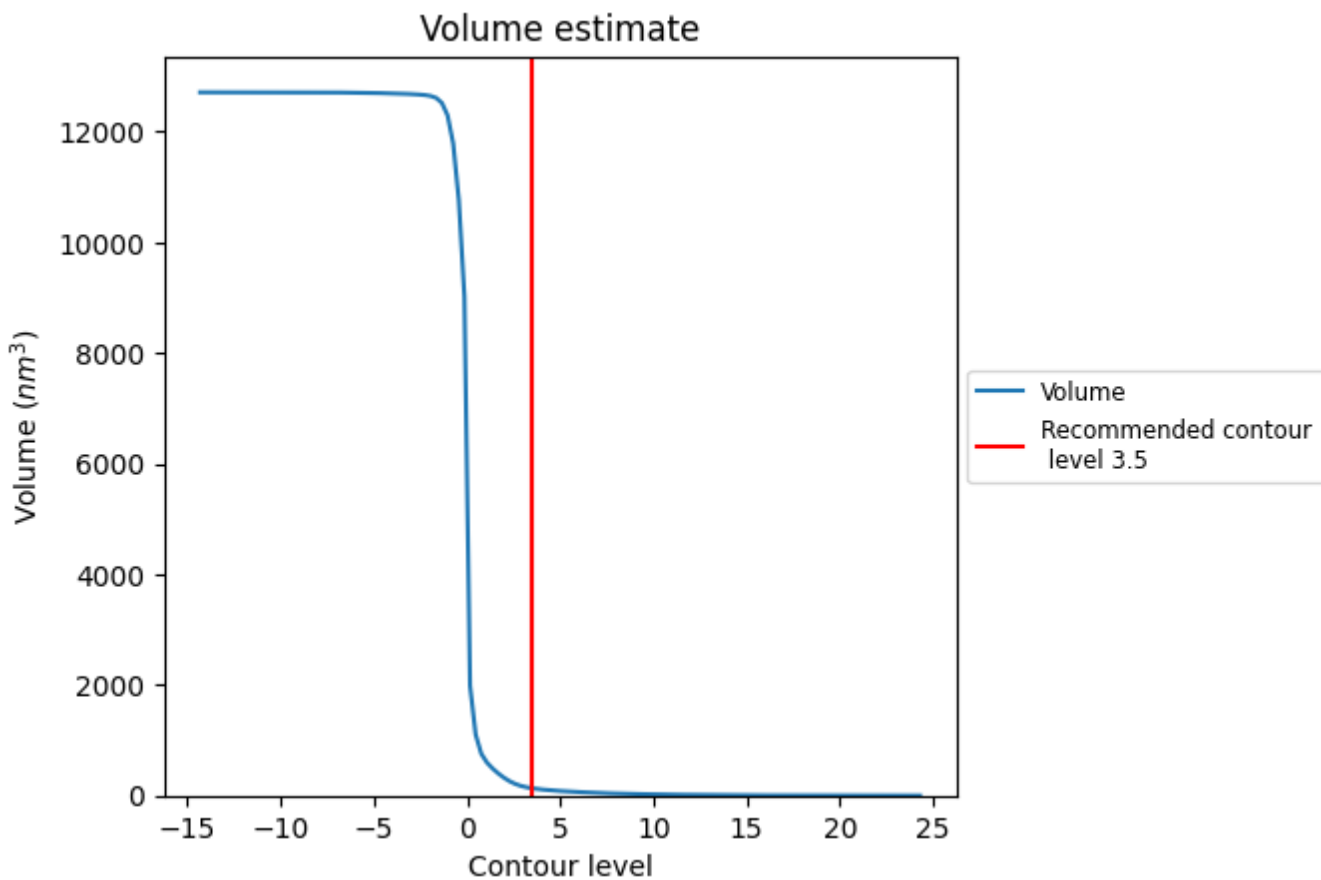
This section contains the results of statistical analysis of the map.

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.

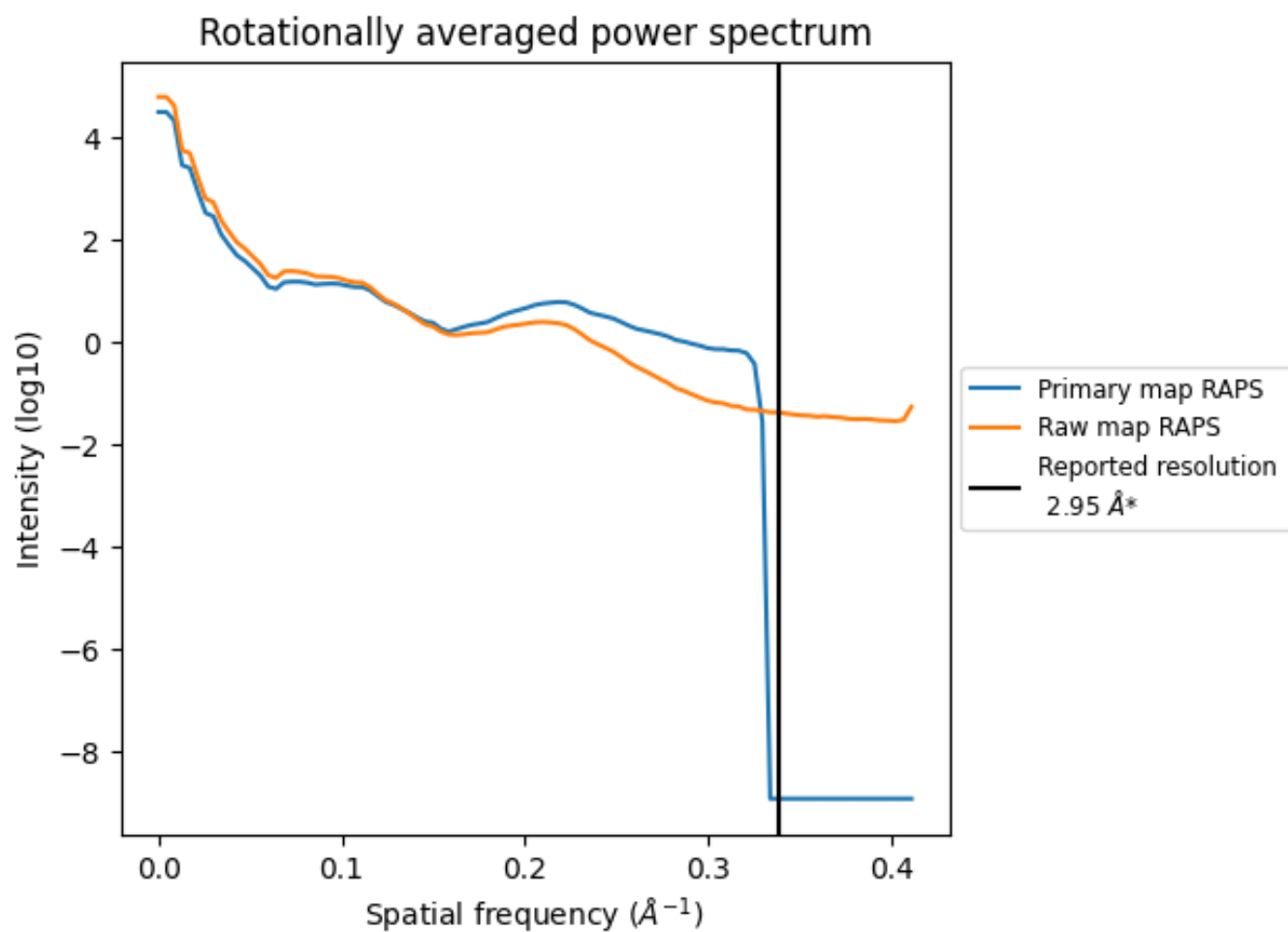
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 131 nm³; this corresponds to an approximate mass of 119 kDa.

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

7.3 Rotationally averaged power spectrum i

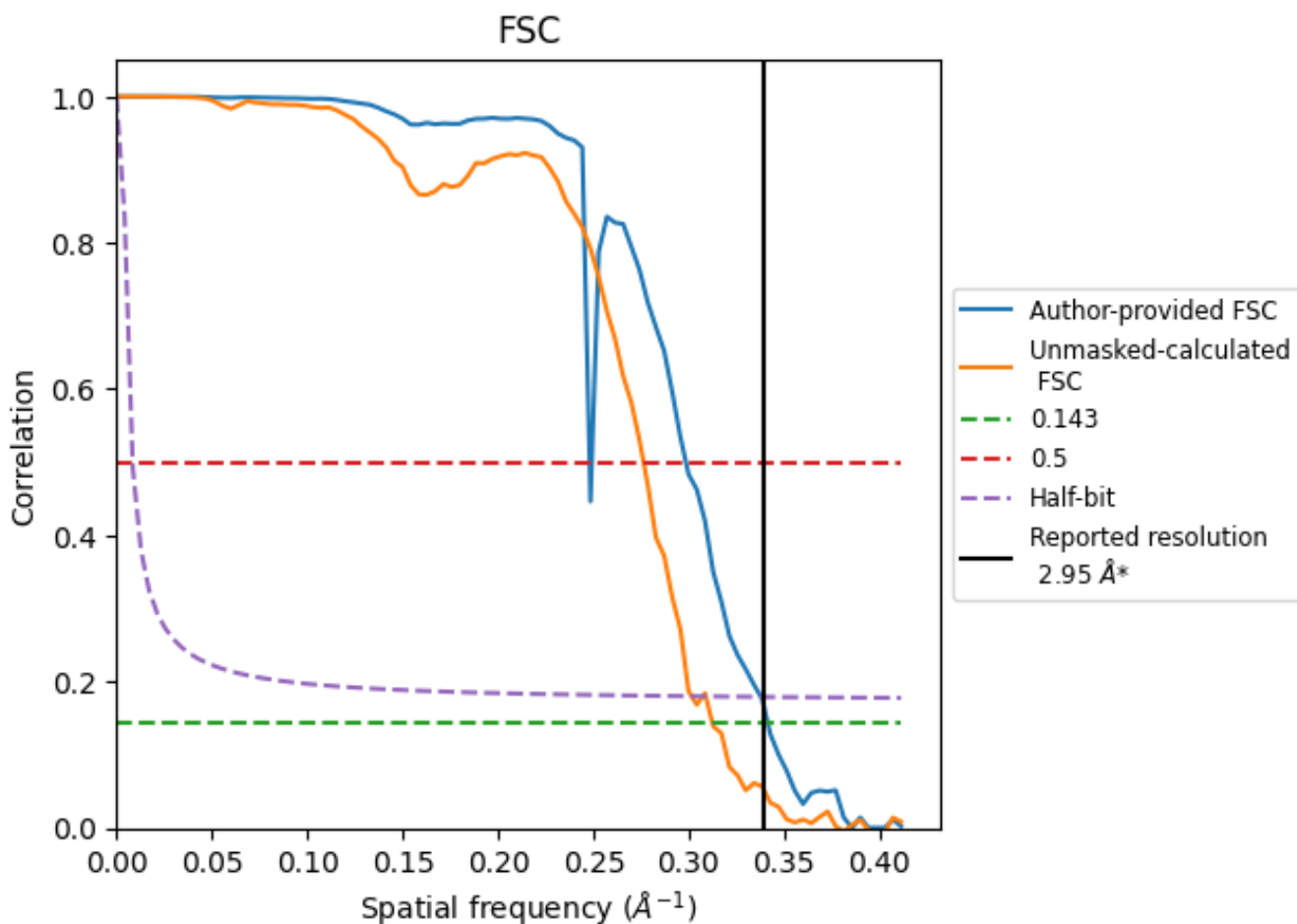


*Reported resolution corresponds to spatial frequency of 0.339 Å⁻¹

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 0.339 Å⁻¹

8.2 Resolution estimates [i](#)

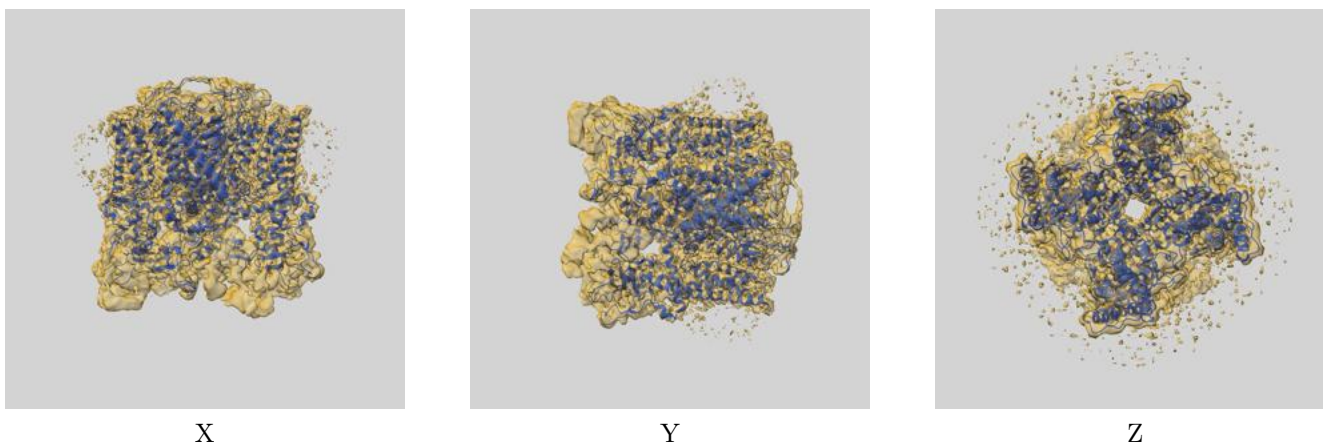
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.95	-	-
Author-provided FSC curve	2.93	4.03	2.96
Unmasked-calculated*	3.20	3.62	3.32

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

9 Map-model fit [i](#)

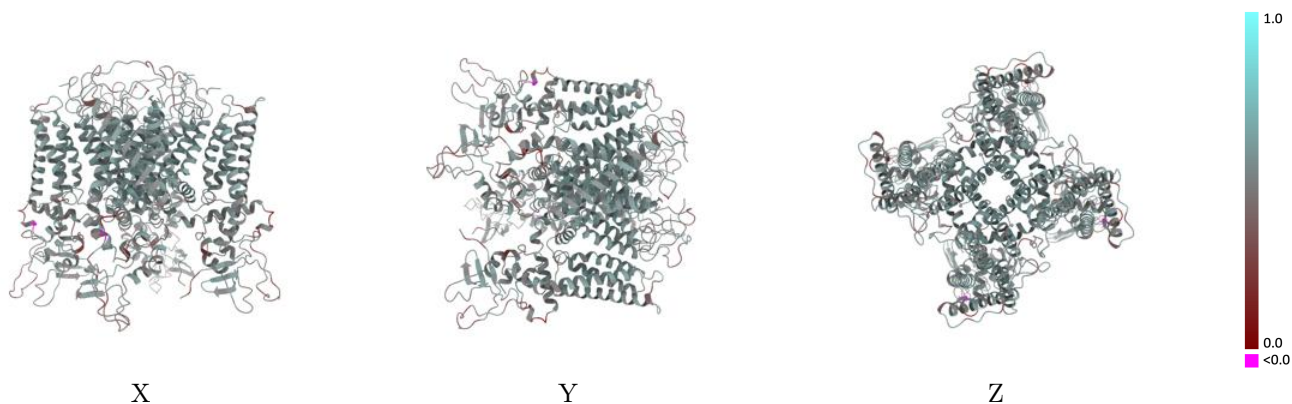
This section contains information regarding the fit between EMDB map EMD-8117 and PDB model 5IRX. Per-residue inclusion information can be found in section 3 on page 8.

9.1 Map-model overlay [i](#)



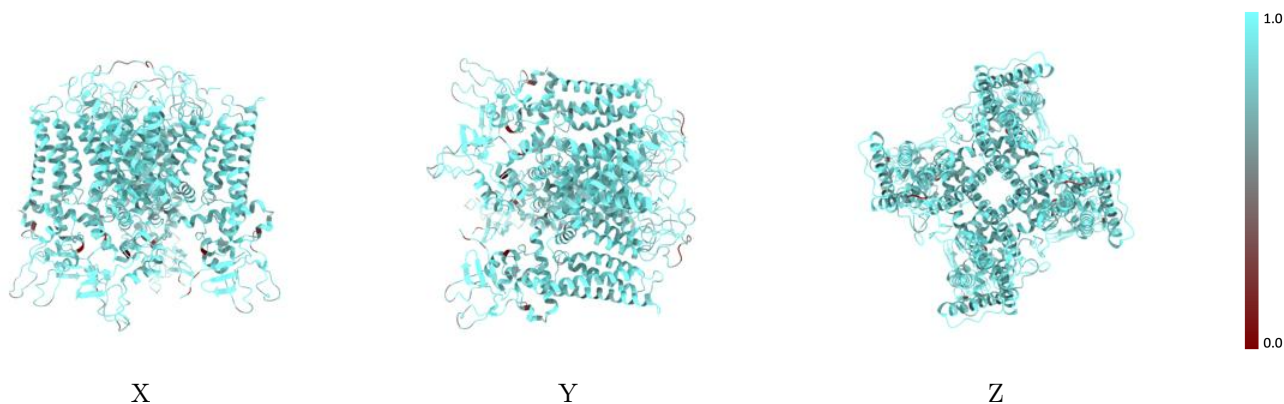
The images above show the 3D surface view of the map at the recommended contour level 3.5 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



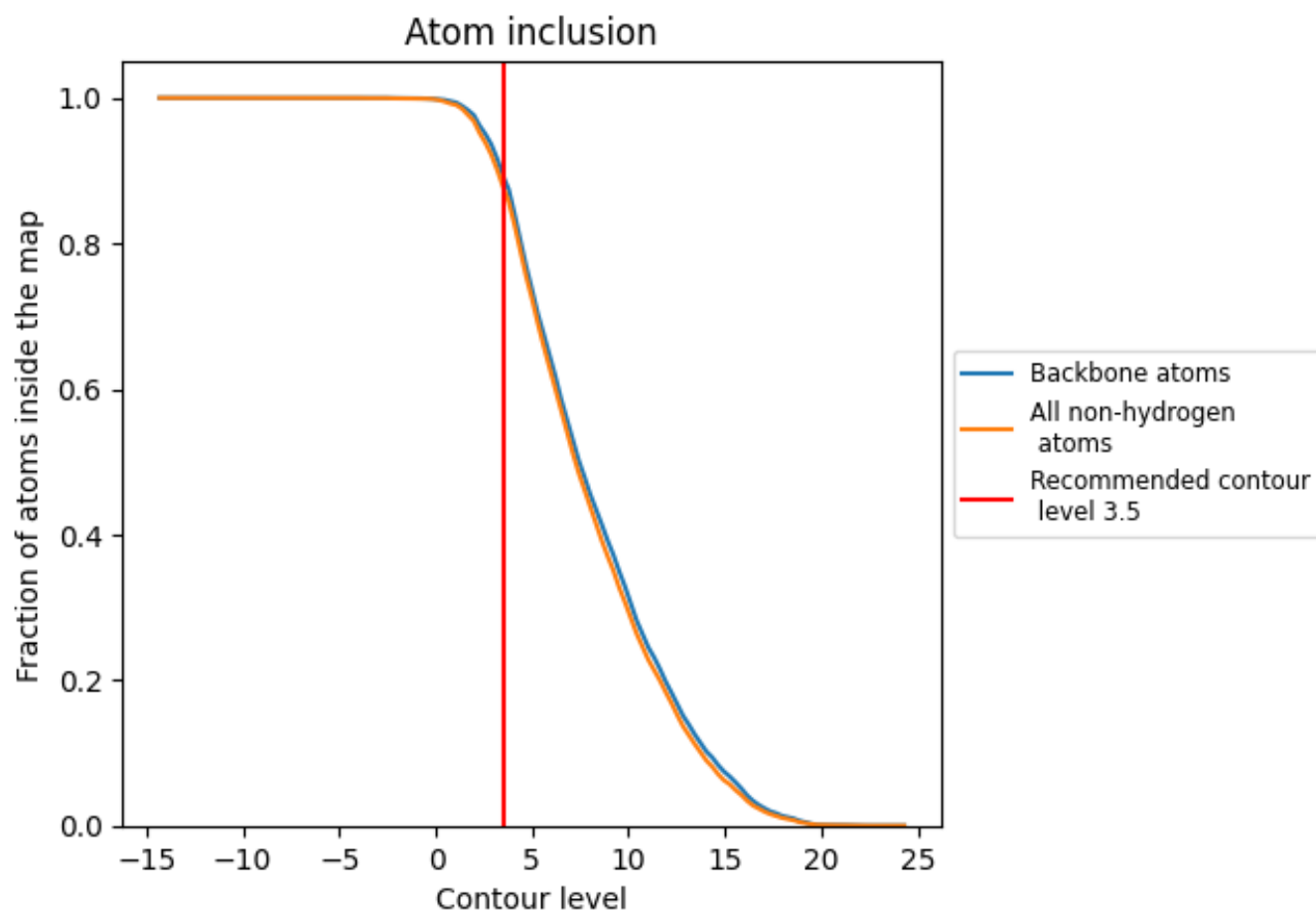
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (3.5).















9.4 Atom inclusion [i](#)



At the recommended contour level, 89% of all backbone atoms, 88% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary [i](#)

The table lists the average atom inclusion at the recommended contour level (3.5) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8771	 0.5210
A	 0.8871	 0.5220
B	 0.8854	 0.5210
C	 0.8878	 0.5230
D	 0.8859	 0.5230
E	 0.8396	 0.5020
F	 0.8297	 0.5040

