Full wwPDB EM Validation Report ⓘ

Jul 24, 2025 – 12:21 PM JST

PDB ID	:	9JOV / pdb_00009jov
EMDB ID	:	EMD-61686
Title	:	Cryo-EM structure of the myxol-bound light-driven proton pumping rhodopsin, NM-R1
Authors	:	Hosaka, T.; Shirouzu, M.
Deposited on	:	2024-09-25
Resolution	:	2.27 Å(reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

The following versions of software and data (see references ⓘ) were used in the production of this report:

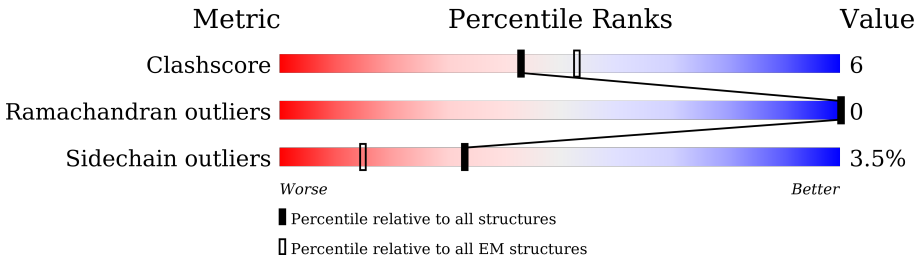
EMDB validation analysis	:	0.0.1.dev118
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.0rc1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.44

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 2.27 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	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=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	254	7% 80% 9% • 9%
1	B	254	8% 81% 8% • 9%
1	C	254	7% 83% 7% 9%
1	D	254	7% 78% 10% • 9%
1	E	254	8% 82% 7% • 9%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
4	D12	D	302	-	-	X	-
4	D12	E	302	-	-	X	-

2 Entry composition (i)

There are 6 unique types of molecules in this entry. The entry contains 10041 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 Proteorhodopsin.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	230	Total	C	N	O	S	0	0
			1840	1247	283	298	12		
1	B	230	Total	C	N	O	S	0	0
			1840	1247	283	298	12		
1	C	230	Total	C	N	O	S	0	0
			1840	1247	283	298	12		
1	D	230	Total	C	N	O	S	0	0
			1840	1247	283	298	12		
1	E	230	Total	C	N	O	S	0	0
			1840	1247	283	298	12		

There are 40 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	247	LEU	-	expression tag	UNP W8VZ92
A	248	GLU	-	expression tag	UNP W8VZ92
A	249	GLU	-	expression tag	UNP W8VZ92
A	250	ASN	-	expression tag	UNP W8VZ92
A	251	LEU	-	expression tag	UNP W8VZ92
A	252	TYR	-	expression tag	UNP W8VZ92
A	253	PHE	-	expression tag	UNP W8VZ92
A	254	GLN	-	expression tag	UNP W8VZ92
B	247	LEU	-	expression tag	UNP W8VZ92
B	248	GLU	-	expression tag	UNP W8VZ92
B	249	GLU	-	expression tag	UNP W8VZ92
B	250	ASN	-	expression tag	UNP W8VZ92
B	251	LEU	-	expression tag	UNP W8VZ92
B	252	TYR	-	expression tag	UNP W8VZ92
B	253	PHE	-	expression tag	UNP W8VZ92
B	254	GLN	-	expression tag	UNP W8VZ92
C	247	LEU	-	expression tag	UNP W8VZ92
C	248	GLU	-	expression tag	UNP W8VZ92
C	249	GLU	-	expression tag	UNP W8VZ92
C	250	ASN	-	expression tag	UNP W8VZ92

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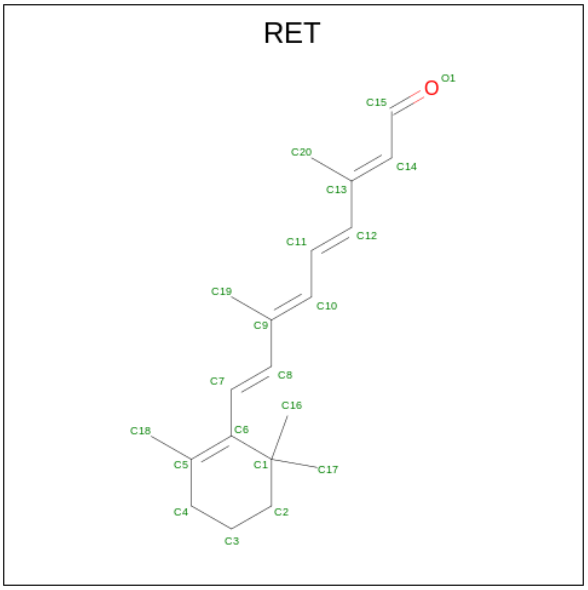
Chain	Residue	Modelled	Actual	Comment	Reference
C	251	LEU	-	expression tag	UNP W8VZ92
C	252	TYR	-	expression tag	UNP W8VZ92
C	253	PHE	-	expression tag	UNP W8VZ92
C	254	GLN	-	expression tag	UNP W8VZ92
D	247	LEU	-	expression tag	UNP W8VZ92
D	248	GLU	-	expression tag	UNP W8VZ92
D	249	GLU	-	expression tag	UNP W8VZ92
D	250	ASN	-	expression tag	UNP W8VZ92
D	251	LEU	-	expression tag	UNP W8VZ92
D	252	TYR	-	expression tag	UNP W8VZ92
D	253	PHE	-	expression tag	UNP W8VZ92
D	254	GLN	-	expression tag	UNP W8VZ92
E	247	LEU	-	expression tag	UNP W8VZ92
E	248	GLU	-	expression tag	UNP W8VZ92
E	249	GLU	-	expression tag	UNP W8VZ92
E	250	ASN	-	expression tag	UNP W8VZ92
E	251	LEU	-	expression tag	UNP W8VZ92
E	252	TYR	-	expression tag	UNP W8VZ92
E	253	PHE	-	expression tag	UNP W8VZ92
E	254	GLN	-	expression tag	UNP W8VZ92

- Molecule 2 is RETINAL (CCD ID: RET) (formula: $C_{20}H_{28}O$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	AltConf
2	A	1	Total C 20 20	0

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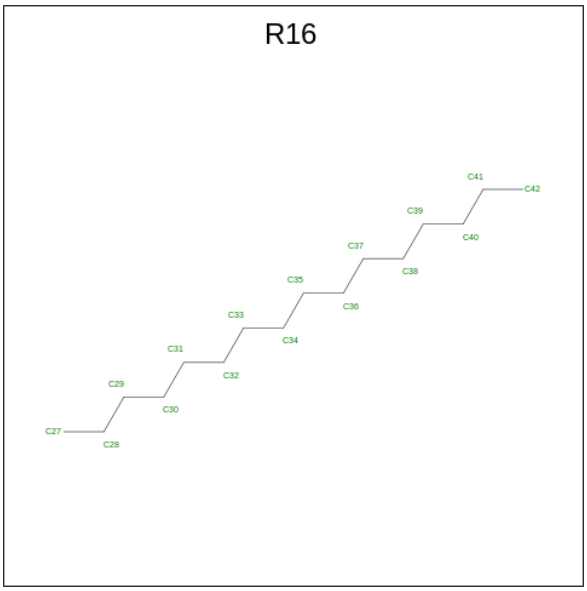
Mol	Chain	Residues	Atoms	AltConf
2	B	1	Total C 20 20	0
2	C	1	Total C 20 20	0
2	D	1	Total C 20 20	0
2	E	1	Total C 20 20	0

- Molecule 3 is HEXADECANE (CCD ID: R16) (formula: $C_{16}H_{34}$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	AltConf
3	A	1	Total C 16 16	0
3	A	1	Total C 16 16	0
3	A	1	Total C 16 16	0
3	A	1	Total C 16 16	0
3	A	1	Total C 16 16	0
3	B	1	Total C 16 16	0
3	B	1	Total C 16 16	0

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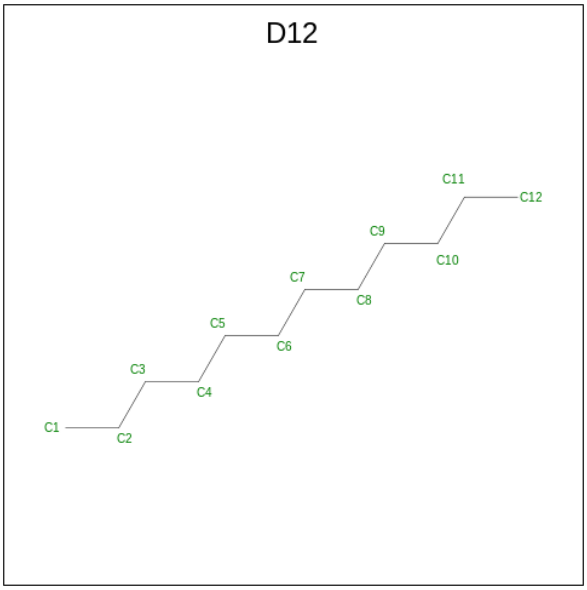
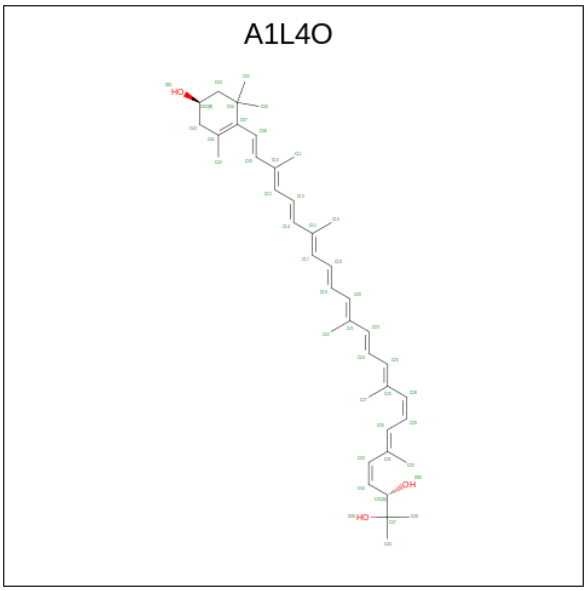
Mol	Chain	Residues	Atoms	AltConf
3	B	1	Total C 16 16	0
3	C	1	Total C 16 16	0
3	C	1	Total C 16 16	0
3	C	1	Total C 16 16	0
3	C	1	Total C 16 16	0
3	D	1	Total C 16 16	0
3	D	1	Total C 16 16	0
3	D	1	Total C 16 16	0
3	D	1	Total C 16 16	0
3	E	1	Total C 16 16	0
3	E	1	Total C 16 16	0
3	E	1	Total C 16 16	0

- Molecule 4 is DODECANE (CCD ID: D12) (formula: $C_{12}H_{26}$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	AltConf
4	A	1	Total C 12 12	0
4	A	1	Total C 12 12	0
4	A	1	Total C 12 12	0
4	B	1	Total C 12 12	0
4	C	1	Total C 12 12	0
4	C	1	Total C 12 12	0
4	D	1	Total C 12 12	0
4	D	1	Total C 12 12	0
4	E	1	Total C 12 12	0
4	E	1	Total C 12 12	0
4	E	1	Total C 12 12	0

- Molecule 5 is (3 {S},4 {Z},6 {E},8 {Z},10 {E},12 {E},14 {E},16 {E},18 {E},20 {E},22 {E},24 {E})-2,6,10,14,19,23-hexamethyl-25-[(4 {R})-2,6,6-trimethyl-4-oxidanyl-cyclohexen-1-yl]pentacosa-4,6,8,10,12,14,16,18,20,22,24-undecaene-2,3-diol (CCD ID: A1L4O) (formula: $C_{40}H_{56}O_3$).



Mol	Chain	Residues	Atoms	AltConf
5	A	1	Total C O 43 40 3	0
5	B	1	Total C O 43 40 3	0
5	C	1	Total C O 43 40 3	0
5	D	1	Total C O 43 40 3	0
5	E	1	Total C O 43 40 3	0

- Molecule 6 is water.

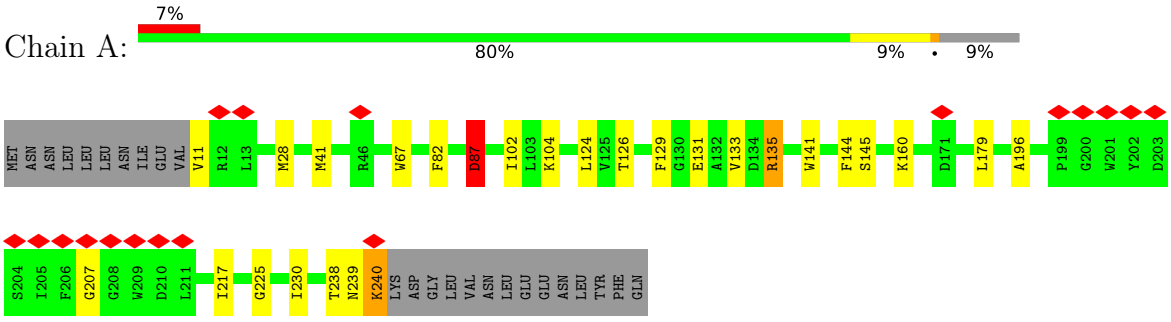
Mol	Chain	Residues	Atoms	AltConf
6	A	15	Total O 15 15	0
6	B	20	Total O 20 20	0
6	C	19	Total O 19 19	0
6	D	20	Total O 20 20	0
6	E	16	Total O 16 16	0

3 Residue-property plots (i)

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

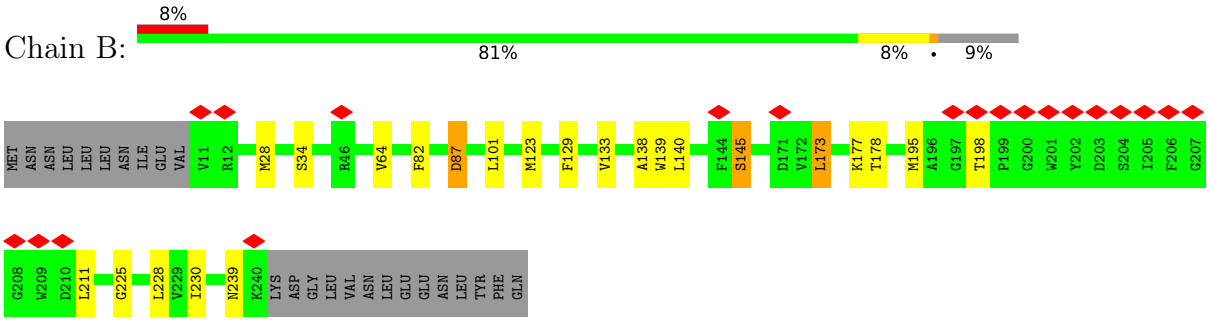
• Molecule 1: Proteorhodopsin

Chain A:



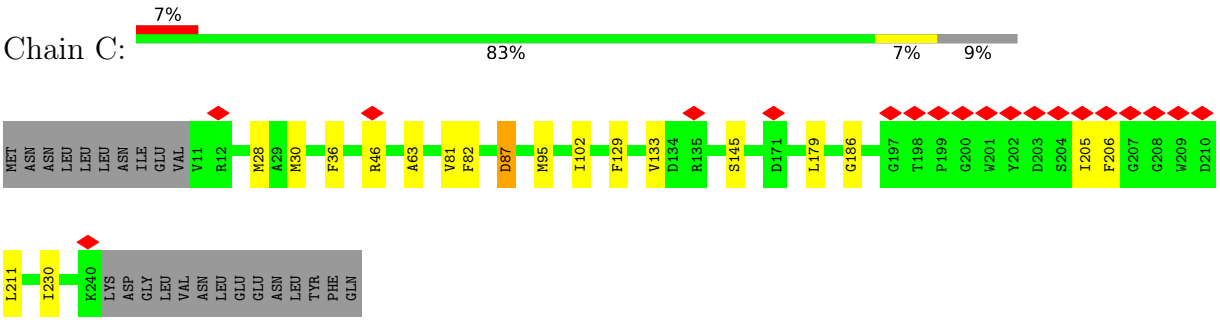
• Molecule 1: Proteorhodopsin

Chain B:



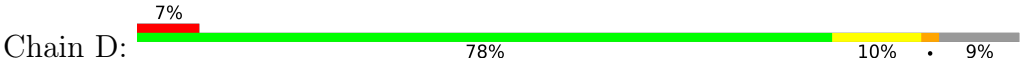
• Molecule 1: Proteorhodopsin

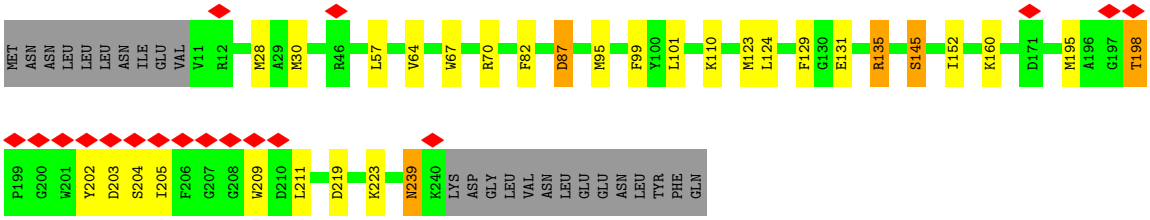
Chain C:



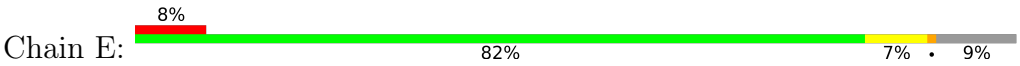
• Molecule 1: Proteorhodopsin

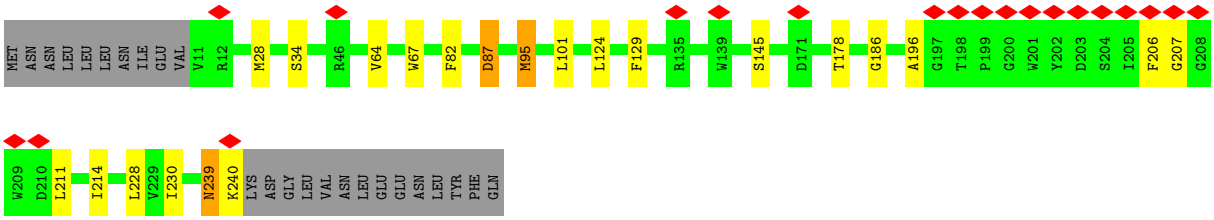
Chain D:





• Molecule 1: Proteorhodopsin





4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	897953	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	60.425	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.188	Depositor
Minimum map value	-0.084	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.006	Depositor
Recommended contour level	0.057	Depositor
Map size (Å)	232.4, 232.4, 232.4	wwPDB
Map dimensions	280, 280, 280	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.83, 0.83, 0.83	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: D12, R16, RET, A1L4O

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	0.64	0/1904	1.02	2/2592 (0.1%)
1	B	0.65	0/1904	1.01	4/2592 (0.2%)
1	C	0.65	0/1904	1.02	1/2592 (0.0%)
1	D	0.65	0/1904	1.03	5/2592 (0.2%)
1	E	0.64	0/1904	1.04	4/2592 (0.2%)
All	All	0.65	0/9520	1.02	16/12960 (0.1%)

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	D	0	1

There are no bond length outliers.

All (16) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	D	203	ASP	N-CA-C	-6.14	102.91	110.65
1	E	211	LEU	N-CA-CB	-5.99	101.60	110.53
1	A	129	PHE	N-CA-CB	5.61	118.14	110.01
1	B	211	LEU	N-CA-CB	-5.59	102.21	110.49
1	E	129	PHE	N-CA-CB	5.33	117.73	110.01
1	C	129	PHE	N-CA-CB	5.29	117.68	110.01
1	E	178	THR	CA-CB-OG1	-5.29	101.67	109.60
1	B	129	PHE	N-CA-CB	5.25	117.63	110.01
1	A	87	ASP	CA-CB-CG	5.25	117.85	112.60
1	D	30	MET	CG-SD-CE	-5.23	89.40	100.90
1	D	129	PHE	N-CA-CB	5.11	117.62	110.12

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	D	195	MET	CG-SD-CE	5.08	112.08	100.90
1	B	195	MET	CG-SD-CE	-5.02	89.85	100.90
1	D	99	PHE	N-CA-CB	5.02	117.50	110.12
1	B	178	THR	CA-CB-OG1	-5.01	102.08	109.60
1	E	95	MET	CG-SD-CE	-5.00	89.89	100.90

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	D	70	ARG	Sidechain

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	1840	0	1823	21	0
1	B	1840	0	1823	15	0
1	C	1840	0	1823	13	0
1	D	1840	0	1823	24	0
1	E	1840	0	1823	15	0
2	A	20	0	27	3	0
2	B	20	0	27	5	0
2	C	20	0	27	7	0
2	D	20	0	27	6	0
2	E	20	0	27	4	0
3	A	80	0	170	12	0
3	B	48	0	102	2	0
3	C	64	0	136	8	0
3	D	64	0	136	10	0
3	E	48	0	102	6	0
4	A	36	0	78	8	0
4	B	12	0	26	0	0
4	C	24	0	52	5	0
4	D	24	0	52	9	0
4	E	36	0	78	10	0
5	A	43	0	0	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	B	43	0	0	0	0
5	C	43	0	0	0	0
5	D	43	0	0	1	0
5	E	43	0	0	1	0
6	A	15	0	0	0	0
6	B	20	0	0	0	0
6	C	19	0	0	1	0
6	D	20	0	0	3	0
6	E	16	0	0	0	0
All	All	10041	0	10182	128	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 (128) 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)
3:C:301:R16:H271	4:C:302:D12:H12	1.35	1.07
3:E:301:R16:H271	4:E:302:D12:H12	1.37	1.04
1:D:219:ASP:OD2	6:D:401:HOH:O	1.81	0.98
1:D:123:MET:HE1	1:D:152:ILE:HD12	1.54	0.90
1:D:123:MET:CE	1:D:152:ILE:HD12	2.07	0.84
3:D:305:R16:H301	4:E:302:D12:H123	1.62	0.82
3:A:309:R16:H302	4:A:310:D12:H112	1.67	0.74
1:D:110:LYS:HE2	4:D:302:D12:H101	1.70	0.74
2:A:301:RET:H8	2:A:301:RET:H161	1.69	0.74
3:C:301:R16:H271	4:C:302:D12:C1	2.16	0.73
3:A:309:R16:C30	4:A:310:D12:H112	2.19	0.72
3:C:305:R16:H302	4:D:302:D12:H112	1.75	0.69
1:E:196:ALA:O	1:E:207:GLY:HA2	1.95	0.66
1:E:239:ASN:C	1:E:239:ASN:HD22	2.03	0.66
5:D:307:A1L4O:C29	5:D:307:A1L4O:C34	2.71	0.66
1:D:239:ASN:C	1:D:239:ASN:HD22	2.03	0.66
1:D:198:THR:HG22	1:D:202:TYR:HE1	1.62	0.65
3:C:305:R16:C30	4:D:302:D12:H112	2.28	0.64
2:C:303:RET:H8	2:C:303:RET:H161	1.81	0.63
3:A:304:R16:H312	4:A:305:D12:H122	1.80	0.63
1:D:131:GLU:OE1	6:D:402:HOH:O	2.16	0.60
1:E:28:MET:HA	1:E:28:MET:HE2	1.84	0.60
3:E:301:R16:H271	4:E:302:D12:C1	2.24	0.59
1:A:67:TRP:CE3	3:A:308:R16:H371	2.37	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:305:R16:H301	4:E:302:D12:C12	2.33	0.58
3:A:304:R16:C31	4:A:305:D12:H122	2.34	0.57
2:B:301:RET:H8	2:B:301:RET:H161	1.86	0.57
3:A:303:R16:H271	4:A:305:D12:H12	1.87	0.56
1:D:28:MET:HA	1:D:28:MET:HE2	1.86	0.56
1:A:28:MET:HA	1:A:28:MET:HE2	1.87	0.56
2:C:303:RET:H8	2:C:303:RET:H171	1.86	0.56
1:D:205:ILE:HG23	1:D:205:ILE:O	2.07	0.55
2:D:303:RET:H161	2:D:303:RET:H8	1.89	0.54
3:C:305:R16:H302	4:D:302:D12:C12	2.38	0.54
1:C:95:MET:HE1	2:C:303:RET:H201	1.88	0.54
3:C:305:R16:H302	4:D:302:D12:C11	2.37	0.54
2:C:303:RET:H161	2:C:303:RET:C8	2.38	0.54
1:C:28:MET:HA	1:C:28:MET:HE2	1.90	0.54
1:A:179:LEU:HD11	1:A:230:ILE:HD11	1.90	0.53
1:E:95:MET:HE1	2:E:303:RET:H201	1.90	0.53
1:E:186:GLY:HA2	4:E:306:D12:H71	1.91	0.53
1:B:28:MET:HA	1:B:28:MET:HE2	1.92	0.53
1:D:223:LYS:NZ	6:D:403:HOH:O	2.42	0.52
3:A:304:R16:H321	1:B:101:LEU:HD21	1.92	0.52
3:D:301:R16:H271	4:D:302:D12:H11	1.91	0.52
1:D:28:MET:HE1	1:E:64:VAL:HG11	1.92	0.51
3:B:303:R16:H322	4:C:302:D12:H123	1.91	0.51
1:C:36:PHE:HB2	1:D:57:LEU:HD11	1.93	0.51
3:D:305:R16:H321	4:E:302:D12:H91	1.92	0.51
2:C:303:RET:H171	2:C:303:RET:C8	2.41	0.51
1:B:173:LEU:HD22	1:B:177:LYS:HD2	1.92	0.50
3:A:309:R16:C31	4:A:310:D12:H112	2.41	0.49
1:A:238:THR:O	1:A:240:LYS:HD3	2.11	0.49
1:A:104:LYS:HZ2	3:A:309:R16:H292	1.77	0.49
3:D:301:R16:C27	4:D:302:D12:H11	2.43	0.49
1:E:95:MET:HE1	2:E:303:RET:C15	2.43	0.48
1:B:139:TRP:CZ2	1:B:140:LEU:HD13	2.48	0.48
3:D:305:R16:C30	4:E:302:D12:H123	2.39	0.48
1:D:95:MET:HE1	2:D:303:RET:H201	1.96	0.47
1:D:198:THR:HG22	1:D:202:TYR:CE1	2.47	0.47
1:A:104:LYS:NZ	3:A:309:R16:H292	2.29	0.47
1:A:126:THR:HG21	1:A:144:PHE:HB2	1.96	0.47
2:A:301:RET:H161	2:A:301:RET:C8	2.38	0.47
1:C:81:VAL:HG23	6:C:416:HOH:O	2.14	0.47
1:E:67:TRP:CD1	3:E:308:R16:H412	2.50	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:95:MET:HE1	2:D:303:RET:C15	2.45	0.47
1:A:28:MET:HE1	1:B:64:VAL:HG11	1.97	0.47
1:B:82:PHE:CD1	1:B:82:PHE:C	2.93	0.47
1:E:87:ASP:OD1	1:E:87:ASP:C	2.58	0.46
1:E:82:PHE:CD1	1:E:82:PHE:C	2.93	0.46
1:A:145:SER:HB3	2:A:301:RET:H41	1.98	0.46
1:B:87:ASP:OD1	1:B:87:ASP:C	2.58	0.46
1:B:228:LEU:HD13	4:C:302:D12:H72	1.97	0.46
1:C:82:PHE:C	1:C:82:PHE:CD1	2.93	0.46
1:C:95:MET:HE1	2:C:303:RET:C15	2.46	0.46
1:D:82:PHE:C	1:D:82:PHE:CD1	2.93	0.46
1:C:186:GLY:HA2	4:C:306:D12:H61	1.98	0.46
1:C:205:ILE:O	1:C:206:PHE:C	2.59	0.46
1:A:87:ASP:OD1	1:A:87:ASP:C	2.58	0.45
1:C:87:ASP:OD1	1:C:87:ASP:C	2.59	0.45
1:A:126:THR:CG2	1:A:141:TRP:O	2.64	0.45
1:A:82:PHE:CD1	1:A:82:PHE:C	2.93	0.45
1:D:87:ASP:C	1:D:87:ASP:OD1	2.58	0.45
3:D:305:R16:C30	4:E:302:D12:C12	2.94	0.45
1:D:110:LYS:HE2	4:D:302:D12:C10	2.42	0.45
2:E:303:RET:H161	2:E:303:RET:H8	1.99	0.45
1:A:11:VAL:HG12	1:A:11:VAL:O	2.17	0.44
1:A:217:ILE:HG12	3:A:302:R16:H423	1.99	0.44
1:A:225:GLY:HA2	3:A:302:R16:H312	2.00	0.44
1:A:102:ILE:HG21	1:A:230:ILE:HD12	1.99	0.44
1:B:138:ALA:HB1	1:B:198:THR:CG2	2.48	0.44
1:B:239:ASN:C	1:B:239:ASN:OD1	2.60	0.44
1:C:30:MET:HB3	1:C:63:ALA:HB2	2.00	0.44
1:C:179:LEU:HD11	1:C:230:ILE:HD11	1.99	0.44
1:C:28:MET:HE1	1:D:64:VAL:HG11	1.99	0.44
5:E:307:A1L4O:C09	5:E:307:A1L4O:C42	2.95	0.43
4:A:306:D12:H122	5:A:307:A1L4O:C39	2.49	0.43
1:B:138:ALA:CB	1:B:198:THR:HG23	2.49	0.43
1:B:225:GLY:HA2	3:B:302:R16:H322	2.00	0.43
3:C:305:R16:H311	1:D:101:LEU:HD21	1.99	0.43
1:C:102:ILE:HG21	1:C:230:ILE:HD12	2.01	0.43
1:B:138:ALA:HB1	1:B:198:THR:HG21	2.01	0.43
3:D:305:R16:H311	1:E:101:LEU:HD21	2.00	0.43
1:A:239:ASN:OD1	1:A:239:ASN:C	2.60	0.43
2:B:301:RET:H11	2:B:301:RET:H191	1.90	0.42
1:B:145:SER:HB2	2:B:301:RET:H41	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:214:ILE:HG23	4:E:306:D12:H21	2.02	0.42
1:A:124:LEU:HD13	1:A:124:LEU:HA	1.92	0.42
1:A:196:ALA:O	1:A:207:GLY:HA2	2.19	0.42
3:D:308:R16:H272	3:E:308:R16:H302	2.01	0.42
1:E:124:LEU:HD13	1:E:124:LEU:HA	1.93	0.42
4:A:310:D12:H41	1:E:228:LEU:HD13	2.01	0.41
2:D:303:RET:H8	2:D:303:RET:H171	2.01	0.41
2:B:301:RET:H181	2:B:301:RET:H7	1.81	0.41
1:D:124:LEU:HD13	1:D:124:LEU:HA	1.92	0.41
1:D:131:GLU:O	1:D:135:ARG:HD2	2.20	0.41
3:C:305:R16:H322	4:D:302:D12:H102	2.02	0.41
1:D:123:MET:O	1:D:145:SER:OG	2.37	0.41
3:E:301:R16:C27	4:E:302:D12:H12	2.28	0.41
1:D:67:TRP:CE2	3:D:308:R16:H422	2.56	0.41
1:A:131:GLU:O	1:A:135:ARG:HD2	2.21	0.41
1:E:67:TRP:CE3	3:E:308:R16:H381	2.56	0.41
1:A:41:MET:HE2	1:A:41:MET:HB3	1.95	0.41
2:D:303:RET:H181	2:D:303:RET:H7	1.89	0.41
2:E:303:RET:H8	2:E:303:RET:H171	2.03	0.40
1:B:123:MET:CE	2:B:301:RET:H192	2.52	0.40
2:C:303:RET:H11	2:C:303:RET:H191	1.92	0.40
2:D:303:RET:H11	2:D:303:RET:H191	1.83	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	228/254 (90%)	225 (99%)	3 (1%)	0	100	100
1	B	228/254 (90%)	226 (99%)	2 (1%)	0	100	100
1	C	228/254 (90%)	224 (98%)	4 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	D	228/254 (90%)	223 (98%)	5 (2%)	0	100	100
1	E	228/254 (90%)	225 (99%)	3 (1%)	0	100	100
All	All	1140/1270 (90%)	1123 (98%)	17 (2%)	0	100	100

There are no Ramachandran outliers to report.

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	183/206 (89%)	178 (97%)	5 (3%)	40	54
1	B	183/206 (89%)	177 (97%)	6 (3%)	33	46
1	C	183/206 (89%)	178 (97%)	5 (3%)	40	54
1	D	183/206 (89%)	174 (95%)	9 (5%)	21	29
1	E	183/206 (89%)	176 (96%)	7 (4%)	28	40
All	All	915/1030 (89%)	883 (96%)	32 (4%)	33	43

All (32) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	87	ASP
1	A	133	VAL
1	A	135	ARG
1	A	160	LYS
1	A	240	LYS
1	B	34	SER
1	B	87	ASP
1	B	133	VAL
1	B	145	SER
1	B	173	LEU
1	B	230	ILE
1	C	46	ARG
1	C	87	ASP

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Mol	Chain	Res	Type
1	C	133	VAL
1	C	145	SER
1	C	211	LEU
1	D	87	ASP
1	D	135	ARG
1	D	145	SER
1	D	160	LYS
1	D	198	THR
1	D	204	SER
1	D	209	TRP
1	D	211	LEU
1	D	239	ASN
1	E	34	SER
1	E	87	ASP
1	E	145	SER
1	E	206	PHE
1	E	230	ILE
1	E	239	ASN
1	E	240	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (14) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	65	HIS
1	A	176	HIS
1	A	232	ASN
1	A	236	GLN
1	B	232	ASN
1	B	236	GLN
1	C	65	HIS
1	C	176	HIS
1	C	232	ASN
1	C	236	GLN
1	D	232	ASN
1	D	239	ASN
1	E	65	HIS
1	E	239	ASN

5.3.3 RNA

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

40 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	$\#\|Z\| > 2$
3	R16	C	305	-	15,15,15	0.24	0	14,14,14	0.29	0
4	D12	E	306	-	11,11,11	0.15	0	10,10,10	0.17	0
4	D12	A	305	-	11,11,11	0.23	0	10,10,10	0.32	0
2	RET	A	301	1	20,20,21	2.42	6 (30%)	27,27,28	1.60	4 (14%)
3	R16	A	303	-	15,15,15	0.20	0	14,14,14	0.17	0
3	R16	A	302	-	15,15,15	0.24	0	14,14,14	0.47	0
3	R16	C	301	-	15,15,15	0.31	0	14,14,14	0.24	0
5	A1L4O	B	305	-	42,43,43	0.92	1 (2%)	53,58,58	2.53	19 (35%)
4	D12	C	306	-	11,11,11	0.26	0	10,10,10	0.25	0
3	R16	C	308	-	15,15,15	0.28	0	14,14,14	0.29	0
3	R16	C	304	-	15,15,15	0.28	0	14,14,14	0.37	0
5	A1L4O	C	307	-	42,43,43	0.91	1 (2%)	53,58,58	2.30	22 (41%)
3	R16	D	308	-	15,15,15	0.28	0	14,14,14	0.24	0
4	D12	D	306	-	11,11,11	0.23	0	10,10,10	0.23	0
5	A1L4O	E	307	-	42,43,43	0.81	1 (2%)	53,58,58	2.43	20 (37%)
4	D12	B	304	-	11,11,11	0.25	0	10,10,10	0.33	0
3	R16	D	304	-	15,15,15	0.34	0	14,14,14	0.48	0
4	D12	D	302	-	11,11,11	0.21	0	10,10,10	0.43	0
4	D12	A	310	-	11,11,11	0.26	0	10,10,10	0.12	0
4	D12	C	302	-	11,11,11	0.26	0	10,10,10	0.28	0
4	D12	E	305	-	11,11,11	0.32	0	10,10,10	0.41	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
3	R16	D	301	-	15,15,15	0.19	0	14,14,14	0.34	0
5	A1L4O	A	307	-	42,43,43	0.81	0	53,58,58	2.66	22 (41%)
3	R16	D	305	-	15,15,15	0.24	0	14,14,14	0.23	0
2	RET	E	303	1	20,20,21	1.52	3 (15%)	27,27,28	1.38	4 (14%)
3	R16	A	308	-	15,15,15	0.41	0	14,14,14	0.17	0
3	R16	E	308	-	15,15,15	0.24	0	14,14,14	0.23	0
4	D12	A	306	-	11,11,11	0.26	0	10,10,10	0.16	0
3	R16	B	303	-	15,15,15	0.25	0	14,14,14	0.43	0
5	A1L4O	D	307	-	42,43,43	0.91	1 (2%)	53,58,58	2.56	23 (43%)
2	RET	B	301	1	20,20,21	2.51	3 (15%)	27,27,28	1.56	4 (14%)
3	R16	B	302	-	15,15,15	0.25	0	14,14,14	0.39	0
2	RET	D	303	1	20,20,21	1.87	5 (25%)	27,27,28	1.45	3 (11%)
2	RET	C	303	1	20,20,21	2.06	2 (10%)	27,27,28	1.33	4 (14%)
3	R16	E	301	-	15,15,15	0.23	0	14,14,14	0.19	0
3	R16	A	304	-	15,15,15	0.19	0	14,14,14	0.24	0
3	R16	E	304	-	15,15,15	0.24	0	14,14,14	0.31	0
4	D12	E	302	-	11,11,11	0.22	0	10,10,10	0.25	0
3	R16	B	306	-	15,15,15	0.21	0	14,14,14	0.17	0
3	R16	A	309	-	15,15,15	0.23	0	14,14,14	0.25	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	R16	C	305	-	-	10/13/13/13	-
4	D12	E	306	-	-	4/9/9/9	-
4	D12	A	305	-	-	5/9/9/9	-
2	RET	A	301	1	-	1/13/30/31	0/1/1/1
3	R16	A	303	-	-	6/13/13/13	-
3	R16	A	302	-	-	9/13/13/13	-
3	R16	C	301	-	-	5/13/13/13	-
5	A1L4O	B	305	-	-	16/41/60/60	0/1/1/1
4	D12	C	306	-	-	6/9/9/9	-
3	R16	C	308	-	-	7/13/13/13	-
3	R16	C	304	-	-	9/13/13/13	-
5	A1L4O	C	307	-	-	11/41/60/60	0/1/1/1
3	R16	D	308	-	-	6/13/13/13	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	D12	D	306	-	-	6/9/9/9	-
5	A1L4O	E	307	-	-	18/41/60/60	0/1/1/1
4	D12	B	304	-	-	4/9/9/9	-
3	R16	D	304	-	-	5/13/13/13	-
4	D12	D	302	-	-	1/9/9/9	-
4	D12	A	310	-	-	5/9/9/9	-
4	D12	C	302	-	-	4/9/9/9	-
4	D12	E	305	-	-	1/9/9/9	-
3	R16	D	301	-	-	5/13/13/13	-
5	A1L4O	A	307	-	-	13/41/60/60	0/1/1/1
3	R16	D	305	-	-	9/13/13/13	-
2	RET	E	303	1	-	0/13/30/31	0/1/1/1
3	R16	A	308	-	-	5/13/13/13	-
3	R16	E	308	-	-	8/13/13/13	-
4	D12	A	306	-	-	4/9/9/9	-
3	R16	B	303	-	-	7/13/13/13	-
5	A1L4O	D	307	-	-	15/41/60/60	0/1/1/1
2	RET	B	301	1	-	1/13/30/31	0/1/1/1
3	R16	B	302	-	-	11/13/13/13	-
2	RET	D	303	1	-	0/13/30/31	0/1/1/1
2	RET	C	303	1	-	0/13/30/31	0/1/1/1
3	R16	E	301	-	-	5/13/13/13	-
3	R16	A	304	-	-	7/13/13/13	-
3	R16	E	304	-	-	4/13/13/13	-
4	D12	E	302	-	-	2/9/9/9	-
3	R16	B	306	-	-	8/13/13/13	-
3	R16	A	309	-	-	8/13/13/13	-

All (23) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	301	RET	C14-C13	9.90	1.41	1.33
2	A	301	RET	C14-C13	8.93	1.40	1.33
2	C	303	RET	C14-C13	7.63	1.39	1.33
2	D	303	RET	C14-C13	5.57	1.38	1.33
2	E	303	RET	C14-C13	4.16	1.37	1.33
2	C	303	RET	C10-C9	3.23	1.40	1.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	303	RET	C10-C9	3.21	1.40	1.35
2	A	301	RET	C12-C13	-3.02	1.39	1.45
2	E	303	RET	C10-C9	2.98	1.39	1.35
2	D	303	RET	C11-C12	2.82	1.41	1.34
2	B	301	RET	C12-C13	-2.63	1.40	1.45
5	C	307	A1L4O	C35-C34	2.58	1.53	1.50
5	B	305	A1L4O	C35-C34	2.48	1.53	1.50
2	D	303	RET	C12-C13	-2.28	1.41	1.45
2	A	301	RET	C8-C7	2.27	1.39	1.33
2	A	301	RET	C10-C9	2.25	1.38	1.35
2	D	303	RET	C8-C9	-2.21	1.41	1.45
2	A	301	RET	C2-C3	-2.18	1.47	1.52
5	D	307	A1L4O	C33-C34	2.17	1.37	1.32
5	E	307	A1L4O	C09-C10	2.14	1.50	1.45
2	B	301	RET	C10-C9	2.06	1.38	1.35
2	E	303	RET	C11-C10	-2.05	1.37	1.43
2	A	301	RET	C11-C10	-2.04	1.37	1.43

All (125) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	B	305	A1L4O	C29-C30-C31	8.60	139.59	127.31
5	A	307	A1L4O	C24-C25-C26	-7.16	117.10	127.31
5	E	307	A1L4O	C24-C25-C26	-6.83	117.57	127.31
5	E	307	A1L4O	C29-C30-C31	-6.41	118.17	127.31
5	B	305	A1L4O	C30-C29-C28	6.31	142.90	123.22
5	B	305	A1L4O	C08-C09-C10	-6.15	116.94	126.23
5	A	307	A1L4O	C29-C30-C31	-6.05	118.67	127.31
5	D	307	A1L4O	C24-C23-C21	-6.03	109.48	126.42
5	A	307	A1L4O	C08-C09-C10	-5.92	117.30	126.23
5	A	307	A1L4O	C18-C17-C15	-5.70	119.17	127.31
5	C	307	A1L4O	C09-C08-C07	-5.57	111.55	127.20
5	D	307	A1L4O	C29-C30-C31	-5.56	119.38	127.31
5	D	307	A1L4O	C09-C08-C07	-5.54	111.65	127.20
5	D	307	A1L4O	C13-C12-C10	-5.33	119.70	127.31
5	D	307	A1L4O	C28-C26-C25	-5.33	110.77	118.94
5	D	307	A1L4O	C19-C20-C21	-5.31	119.74	127.31
5	E	307	A1L4O	C09-C08-C07	-5.14	112.77	127.20
2	B	301	RET	C19-C9-C10	-5.01	115.90	122.92
2	A	301	RET	C19-C9-C10	-4.98	115.94	122.92
2	D	303	RET	C19-C9-C10	-4.91	116.04	122.92
5	C	307	A1L4O	C42-C41-C07	-4.84	119.09	124.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	E	307	A1L4O	C13-C12-C10	-4.74	120.55	127.31
5	C	307	A1L4O	C19-C20-C21	-4.65	120.67	127.31
5	D	307	A1L4O	C18-C17-C15	-4.45	120.96	127.31
2	C	303	RET	C19-C9-C10	-4.35	116.83	122.92
2	E	303	RET	C19-C9-C10	-4.34	116.84	122.92
5	A	307	A1L4O	C27-C26-C28	-4.34	111.24	118.08
5	C	307	A1L4O	C13-C12-C10	-4.30	121.17	127.31
5	B	305	A1L4O	C42-C41-C07	-4.22	119.78	124.53
5	A	307	A1L4O	C28-C26-C25	4.21	125.41	118.94
5	A	307	A1L4O	C13-C12-C10	-4.14	121.41	127.31
5	A	307	A1L4O	C35-C34-C33	4.06	131.54	124.22
2	A	301	RET	C19-C9-C8	4.03	124.43	118.08
5	B	305	A1L4O	C32-C31-C33	-4.02	111.74	118.08
5	E	307	A1L4O	C19-C20-C21	-3.88	121.77	127.31
5	D	307	A1L4O	C16-C15-C17	-3.84	117.55	122.92
5	E	307	A1L4O	C35-C34-C33	-3.79	117.38	124.22
5	B	305	A1L4O	C35-C34-C33	3.78	131.04	124.22
5	A	307	A1L4O	C24-C23-C21	-3.74	115.92	126.42
5	E	307	A1L4O	C18-C17-C15	-3.66	122.08	127.31
5	C	307	A1L4O	C35-C34-C33	3.66	130.83	124.22
5	D	307	A1L4O	C16-C15-C14	3.66	123.84	118.08
2	B	301	RET	C19-C9-C8	3.62	123.78	118.08
5	C	307	A1L4O	C16-C15-C14	3.55	123.67	118.08
2	D	303	RET	C19-C9-C8	3.55	123.66	118.08
5	A	307	A1L4O	C19-C20-C21	-3.52	122.28	127.31
2	E	303	RET	C19-C9-C8	3.50	123.60	118.08
5	E	307	A1L4O	C24-C23-C21	-3.50	116.58	126.42
5	C	307	A1L4O	C28-C26-C25	-3.45	113.64	118.94
5	B	305	A1L4O	C16-C15-C17	-3.39	118.17	122.92
5	B	305	A1L4O	C13-C12-C10	-3.36	122.51	127.31
5	E	307	A1L4O	C27-C26-C28	-3.35	112.80	118.08
5	C	307	A1L4O	C11-C10-C12	-3.34	118.24	122.92
5	B	305	A1L4O	C18-C17-C15	-3.33	122.56	127.31
5	E	307	A1L4O	C16-C15-C17	-3.33	118.26	122.92
5	B	305	A1L4O	C28-C26-C25	-3.30	113.88	118.94
5	B	305	A1L4O	C32-C31-C30	3.29	127.53	122.92
5	D	307	A1L4O	C42-C41-C07	-3.28	120.84	124.53
5	A	307	A1L4O	C05-C04-C07	-3.26	105.02	110.30
5	C	307	A1L4O	C18-C17-C15	-3.24	122.68	127.31
5	A	307	A1L4O	C16-C15-C17	-3.23	118.40	122.92
5	D	307	A1L4O	C27-C26-C25	3.23	127.45	122.92
5	C	307	A1L4O	C19-C18-C17	-3.22	116.87	123.47

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	B	305	A1L4O	C16-C15-C14	3.21	123.14	118.08
5	C	307	A1L4O	C23-C21-C20	-3.05	114.26	118.94
5	E	307	A1L4O	C16-C15-C14	3.03	122.85	118.08
5	E	307	A1L4O	C30-C29-C28	3.02	132.65	123.22
5	C	307	A1L4O	C18-C19-C20	-3.00	117.32	123.47
5	A	307	A1L4O	C11-C10-C12	-3.00	118.72	122.92
5	A	307	A1L4O	C18-C19-C20	-2.97	117.39	123.47
5	C	307	A1L4O	C40-C37-C39	-2.97	106.32	110.56
5	E	307	A1L4O	C11-C10-C12	-2.95	118.80	122.92
5	A	307	A1L4O	C32-C31-C33	2.94	122.70	118.08
5	D	307	A1L4O	C40-C37-C39	-2.88	106.44	110.56
5	A	307	A1L4O	C16-C15-C14	2.86	122.59	118.08
5	E	307	A1L4O	C11-C10-C09	2.85	122.57	118.08
5	E	307	A1L4O	C28-C26-C25	2.83	123.29	118.94
5	A	307	A1L4O	C32-C31-C30	-2.81	118.98	122.92
5	D	307	A1L4O	C40-C37-C35	2.79	114.22	110.62
5	D	307	A1L4O	C03-C02-C43	2.77	114.09	110.30
5	A	307	A1L4O	C30-C29-C28	-2.76	114.60	123.22
5	B	305	A1L4O	C19-C20-C21	-2.76	123.37	127.31
5	C	307	A1L4O	C39-C37-C35	2.72	114.14	110.62
5	B	305	A1L4O	C11-C10-C12	-2.72	119.11	122.92
5	C	307	A1L4O	C25-C24-C23	-2.70	114.80	123.22
5	D	307	A1L4O	C05-C04-C07	-2.67	105.97	110.30
5	C	307	A1L4O	C30-C29-C28	-2.65	114.94	123.22
5	C	307	A1L4O	C33-C31-C30	2.63	122.98	118.94
2	A	301	RET	C2-C1-C6	2.63	114.53	110.48
5	E	307	A1L4O	C42-C41-C07	-2.63	121.58	124.53
5	C	307	A1L4O	C05-C04-C07	2.63	114.56	110.30
5	C	307	A1L4O	C11-C10-C09	2.57	122.13	118.08
5	B	305	A1L4O	C05-C04-C07	-2.50	106.25	110.30
5	E	307	A1L4O	C05-C04-C07	-2.49	106.27	110.30
5	A	307	A1L4O	C09-C08-C07	-2.48	120.23	127.20
2	D	303	RET	C1-C6-C5	-2.45	119.16	122.61
2	C	303	RET	C2-C1-C6	2.44	114.24	110.48
5	D	307	A1L4O	C32-C31-C30	-2.44	119.50	122.92
5	D	307	A1L4O	C08-C09-C10	-2.43	122.57	126.23
5	D	307	A1L4O	C19-C18-C17	-2.42	118.53	123.47
5	B	305	A1L4O	C27-C26-C28	2.41	121.88	118.08
2	B	301	RET	C7-C8-C9	-2.40	122.61	126.23
5	C	307	A1L4O	C27-C26-C28	2.36	121.80	118.08
2	C	303	RET	C19-C9-C8	2.36	121.80	118.08
5	E	307	A1L4O	C32-C31-C33	2.35	121.78	118.08

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	E	303	RET	C1-C6-C5	-2.34	119.32	122.61
5	C	307	A1L4O	C08-C09-C10	-2.31	122.74	126.23
2	C	303	RET	C16-C1-C6	-2.27	106.61	110.30
5	D	307	A1L4O	C35-C34-C33	2.20	128.19	124.22
2	A	301	RET	C1-C6-C5	-2.18	119.54	122.61
5	B	305	A1L4O	C13-C14-C15	-2.17	120.33	126.42
5	A	307	A1L4O	C40-C37-C39	-2.15	107.48	110.56
5	D	307	A1L4O	C24-C25-C26	2.15	130.37	127.31
5	D	307	A1L4O	C27-C26-C28	2.11	121.40	118.08
2	B	301	RET	C1-C6-C5	-2.10	119.66	122.61
5	B	305	A1L4O	C19-C18-C17	-2.08	119.22	123.47
5	E	307	A1L4O	C19-C18-C17	-2.07	119.23	123.47
5	E	307	A1L4O	C13-C14-C15	-2.07	120.61	126.42
5	D	307	A1L4O	C30-C29-C28	2.06	129.65	123.22
5	B	305	A1L4O	C04-C07-C41	-2.04	119.74	122.61
5	C	307	A1L4O	C16-C15-C17	-2.03	120.07	122.92
2	E	303	RET	C1-C6-C7	2.03	121.51	115.78
5	D	307	A1L4O	C13-C14-C15	-2.03	120.72	126.42
5	A	307	A1L4O	C11-C10-C09	2.00	121.23	118.08
5	A	307	A1L4O	C42-C41-C07	-2.00	122.28	124.53

There are no chirality outliers.

All (251) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	A	307	A1L4O	C25-C26-C28-C29
5	A	307	A1L4O	C34-C35-C37-C39
5	A	307	A1L4O	C34-C35-C37-C40
5	A	307	A1L4O	C34-C35-C37-O38
5	A	307	A1L4O	O36-C35-C37-C39
5	A	307	A1L4O	O36-C35-C37-C40
5	A	307	A1L4O	O36-C35-C37-O38
5	B	305	A1L4O	C28-C29-C30-C31
5	B	305	A1L4O	C30-C31-C33-C34
5	B	305	A1L4O	C32-C31-C33-C34
5	B	305	A1L4O	C33-C34-C35-C37
5	B	305	A1L4O	C33-C34-C35-O36
5	B	305	A1L4O	O36-C35-C37-C39
5	B	305	A1L4O	O36-C35-C37-O38
5	C	307	A1L4O	C04-C07-C08-C09
5	C	307	A1L4O	C41-C07-C08-C09
5	C	307	A1L4O	C30-C31-C33-C34

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Mol	Chain	Res	Type	Atoms
5	C	307	A1L4O	C32-C31-C33-C34
5	C	307	A1L4O	C34-C35-C37-C39
5	C	307	A1L4O	C34-C35-C37-C40
5	C	307	A1L4O	C34-C35-C37-O38
5	C	307	A1L4O	O36-C35-C37-C39
5	C	307	A1L4O	O36-C35-C37-C40
5	C	307	A1L4O	O36-C35-C37-O38
5	D	307	A1L4O	C32-C31-C33-C34
5	D	307	A1L4O	C34-C35-C37-C39
5	D	307	A1L4O	C34-C35-C37-C40
5	D	307	A1L4O	C34-C35-C37-O38
5	D	307	A1L4O	O36-C35-C37-C39
5	D	307	A1L4O	O36-C35-C37-C40
5	D	307	A1L4O	O36-C35-C37-O38
5	E	307	A1L4O	C20-C21-C23-C24
5	E	307	A1L4O	C30-C31-C33-C34
5	E	307	A1L4O	C32-C31-C33-C34
5	E	307	A1L4O	C33-C34-C35-C37
5	E	307	A1L4O	C33-C34-C35-O36
5	E	307	A1L4O	C34-C35-C37-C39
5	E	307	A1L4O	C34-C35-C37-C40
5	E	307	A1L4O	C34-C35-C37-O38
5	E	307	A1L4O	O36-C35-C37-C39
5	E	307	A1L4O	O36-C35-C37-C40
5	E	307	A1L4O	O36-C35-C37-O38
5	D	307	A1L4O	C23-C24-C25-C26
3	A	308	R16	C38-C39-C40-C41
3	B	303	R16	C31-C32-C33-C34
4	A	310	D12	C2-C3-C4-C5
4	A	310	D12	C6-C7-C8-C9
5	A	307	A1L4O	C27-C26-C28-C29
5	A	307	A1L4O	C32-C31-C33-C34
5	D	307	A1L4O	C22-C21-C23-C24
5	E	307	A1L4O	C27-C26-C28-C29
5	A	307	A1L4O	C30-C31-C33-C34
5	B	305	A1L4O	C25-C26-C28-C29
5	D	307	A1L4O	C20-C21-C23-C24
5	E	307	A1L4O	C25-C26-C28-C29
5	B	305	A1L4O	C26-C28-C29-C30
3	C	308	R16	C28-C29-C30-C31
3	B	306	R16	C36-C37-C38-C39
3	B	303	R16	C33-C34-C35-C36

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Mol	Chain	Res	Type	Atoms
3	D	308	R16	C36-C37-C38-C39
3	B	302	R16	C36-C37-C38-C39
3	B	306	R16	C37-C38-C39-C40
4	A	310	D12	C11-C10-C9-C8
4	C	306	D12	C11-C10-C9-C8
4	C	306	D12	C3-C4-C5-C6
3	C	305	R16	C37-C38-C39-C40
3	A	309	R16	C28-C29-C30-C31
3	C	305	R16	C29-C30-C31-C32
3	D	305	R16	C28-C29-C30-C31
3	D	304	R16	C34-C35-C36-C37
3	C	301	R16	C38-C39-C40-C41
3	E	308	R16	C38-C39-C40-C41
4	A	306	D12	C6-C7-C8-C9
3	A	304	R16	C30-C31-C32-C33
3	B	306	R16	C35-C36-C37-C38
3	E	304	R16	C29-C30-C31-C32
5	B	305	A1L4O	C27-C26-C28-C29
3	B	306	R16	C34-C35-C36-C37
3	D	305	R16	C32-C33-C34-C35
4	D	306	D12	C11-C10-C9-C8
3	E	308	R16	C31-C32-C33-C34
3	A	304	R16	C33-C34-C35-C36
3	A	304	R16	C37-C38-C39-C40
3	A	308	R16	C33-C34-C35-C36
3	D	305	R16	C31-C32-C33-C34
3	D	305	R16	C38-C39-C40-C41
3	E	308	R16	C36-C37-C38-C39
4	C	306	D12	C4-C5-C6-C7
4	E	306	D12	C4-C5-C6-C7
3	A	309	R16	C37-C38-C39-C40
3	C	301	R16	C37-C38-C39-C40
3	D	308	R16	C34-C35-C36-C37
3	A	302	R16	C35-C36-C37-C38
3	A	304	R16	C32-C33-C34-C35
4	A	305	D12	C3-C4-C5-C6
3	C	305	R16	C33-C34-C35-C36
3	D	304	R16	C37-C38-C39-C40
4	A	305	D12	C2-C3-C4-C5
4	D	306	D12	C5-C6-C7-C8
3	C	301	R16	C34-C35-C36-C37
4	A	305	D12	C11-C10-C9-C8

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Mol	Chain	Res	Type	Atoms
3	C	305	R16	C30-C31-C32-C33
3	A	304	R16	C29-C30-C31-C32
3	C	308	R16	C38-C39-C40-C41
3	C	308	R16	C32-C33-C34-C35
3	E	301	R16	C34-C35-C36-C37
3	C	304	R16	C33-C34-C35-C36
3	C	308	R16	C36-C37-C38-C39
3	B	306	R16	C28-C29-C30-C31
3	D	305	R16	C29-C30-C31-C32
3	A	304	R16	C38-C39-C40-C41
4	D	302	D12	C9-C10-C11-C12
3	A	302	R16	C31-C32-C33-C34
3	A	302	R16	C36-C37-C38-C39
3	B	302	R16	C35-C36-C37-C38
3	E	301	R16	C33-C34-C35-C36
3	A	308	R16	C37-C38-C39-C40
4	E	306	D12	C11-C10-C9-C8
4	A	306	D12	C2-C3-C4-C5
3	B	302	R16	C28-C29-C30-C31
3	B	303	R16	C34-C35-C36-C37
3	B	306	R16	C31-C32-C33-C34
4	D	306	D12	C2-C3-C4-C5
5	E	307	A1L4O	C26-C28-C29-C30
3	C	308	R16	C33-C34-C35-C36
3	E	308	R16	C37-C38-C39-C40
3	A	303	R16	C31-C32-C33-C34
3	B	303	R16	C37-C38-C39-C40
3	C	305	R16	C31-C32-C33-C34
3	B	302	R16	C33-C34-C35-C36
4	A	306	D12	C11-C10-C9-C8
3	A	309	R16	C32-C33-C34-C35
5	B	305	A1L4O	C08-C09-C10-C12
3	D	301	R16	C36-C37-C38-C39
3	B	302	R16	C32-C33-C34-C35
3	E	304	R16	C28-C29-C30-C31
3	D	304	R16	C30-C31-C32-C33
3	D	305	R16	C37-C38-C39-C40
3	E	308	R16	C29-C30-C31-C32
3	C	305	R16	C39-C40-C41-C42
4	A	310	D12	C4-C5-C6-C7
4	A	306	D12	C1-C2-C3-C4
3	C	304	R16	C28-C29-C30-C31

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Mol	Chain	Res	Type	Atoms
3	C	308	R16	C27-C28-C29-C30
3	A	302	R16	C38-C39-C40-C41
3	A	303	R16	C30-C31-C32-C33
3	D	301	R16	C34-C35-C36-C37
3	B	306	R16	C29-C30-C31-C32
3	D	308	R16	C38-C39-C40-C41
5	B	305	A1L4O	O36-C35-C37-C40
4	A	305	D12	C1-C2-C3-C4
4	C	306	D12	C7-C8-C9-C10
5	D	307	A1L4O	C30-C31-C33-C34
4	B	304	D12	C5-C6-C7-C8
3	C	305	R16	C28-C29-C30-C31
3	D	301	R16	C32-C33-C34-C35
3	E	301	R16	C36-C37-C38-C39
3	C	304	R16	C29-C30-C31-C32
3	C	304	R16	C36-C37-C38-C39
4	A	305	D12	C4-C5-C6-C7
4	C	306	D12	C6-C7-C8-C9
5	E	307	A1L4O	C23-C24-C25-C26
3	C	304	R16	C32-C33-C34-C35
3	A	308	R16	C29-C30-C31-C32
4	D	306	D12	C4-C5-C6-C7
3	E	308	R16	C34-C35-C36-C37
4	D	306	D12	C3-C4-C5-C6
3	A	302	R16	C28-C29-C30-C31
3	B	302	R16	C29-C30-C31-C32
3	D	308	R16	C27-C28-C29-C30
3	C	304	R16	C35-C36-C37-C38
3	A	302	R16	C32-C33-C34-C35
3	C	304	R16	C34-C35-C36-C37
5	C	307	A1L4O	C18-C19-C20-C21
3	D	308	R16	C30-C31-C32-C33
3	E	301	R16	C32-C33-C34-C35
4	B	304	D12	C7-C8-C9-C10
4	C	306	D12	C5-C6-C7-C8
3	B	302	R16	C37-C38-C39-C40
4	C	302	D12	C4-C5-C6-C7
3	C	301	R16	C32-C33-C34-C35
3	B	303	R16	C39-C40-C41-C42
2	B	301	RET	C11-C12-C13-C20
4	E	305	D12	C11-C10-C9-C8
3	C	301	R16	C33-C34-C35-C36

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Mol	Chain	Res	Type	Atoms
3	B	303	R16	C35-C36-C37-C38
3	D	305	R16	C34-C35-C36-C37
4	E	302	D12	C9-C10-C11-C12
3	D	304	R16	C36-C37-C38-C39
3	B	302	R16	C39-C40-C41-C42
3	A	303	R16	C37-C38-C39-C40
4	E	302	D12	C5-C6-C7-C8
3	A	309	R16	C31-C32-C33-C34
3	C	305	R16	C36-C37-C38-C39
3	A	308	R16	C35-C36-C37-C38
3	A	309	R16	C27-C28-C29-C30
5	D	307	A1L4O	C26-C28-C29-C30
4	B	304	D12	C2-C3-C4-C5
3	B	303	R16	C30-C31-C32-C33
3	D	301	R16	C31-C32-C33-C34
3	A	309	R16	C29-C30-C31-C32
5	D	307	A1L4O	C33-C34-C35-O36
3	A	309	R16	C33-C34-C35-C36
5	B	305	A1L4O	C41-C07-C08-C09
5	B	305	A1L4O	C34-C35-C37-C39
5	B	305	A1L4O	C34-C35-C37-C40
3	A	302	R16	C37-C38-C39-C40
5	A	307	A1L4O	C28-C29-C30-C31
3	D	301	R16	C37-C38-C39-C40
3	D	308	R16	C33-C34-C35-C36
3	E	304	R16	C27-C28-C29-C30
3	B	302	R16	C31-C32-C33-C34
4	C	302	D12	C5-C6-C7-C8
3	E	304	R16	C30-C31-C32-C33
3	C	305	R16	C35-C36-C37-C38
3	A	302	R16	C27-C28-C29-C30
3	D	305	R16	C27-C28-C29-C30
4	D	306	D12	C6-C7-C8-C9
3	A	303	R16	C34-C35-C36-C37
5	E	307	A1L4O	C29-C30-C31-C32
3	A	302	R16	C34-C35-C36-C37
5	E	307	A1L4O	C22-C21-C23-C24
5	B	305	A1L4O	C34-C35-C37-O38
2	A	301	RET	C20-C13-C14-C15
3	B	302	R16	C30-C31-C32-C33
5	A	307	A1L4O	C29-C30-C31-C33
5	E	307	A1L4O	C29-C30-C31-C33

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Mol	Chain	Res	Type	Atoms
4	A	310	D12	C3-C4-C5-C6
3	C	304	R16	C30-C31-C32-C33
3	E	308	R16	C30-C31-C32-C33
4	E	306	D12	C1-C2-C3-C4
3	C	308	R16	C31-C32-C33-C34
3	C	304	R16	C38-C39-C40-C41
3	E	301	R16	C38-C39-C40-C41
4	C	302	D12	C7-C8-C9-C10
4	E	306	D12	C3-C4-C5-C6
3	E	308	R16	C28-C29-C30-C31
5	A	307	A1L4O	C29-C30-C31-C32
5	D	307	A1L4O	C29-C30-C31-C32
3	B	306	R16	C27-C28-C29-C30
3	A	309	R16	C38-C39-C40-C41
3	A	303	R16	C32-C33-C34-C35
5	D	307	A1L4O	C29-C30-C31-C33
3	A	303	R16	C38-C39-C40-C41
3	C	305	R16	C27-C28-C29-C30
3	D	305	R16	C39-C40-C41-C42
4	C	302	D12	C9-C10-C11-C12
4	B	304	D12	C3-C4-C5-C6
3	A	304	R16	C39-C40-C41-C42
3	D	304	R16	C31-C32-C33-C34
3	B	302	R16	C34-C35-C36-C37

There are no ring outliers.

30 monomers are involved in 72 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	C	305	R16	6	0
4	E	306	D12	2	0
4	A	305	D12	3	0
2	A	301	RET	3	0
3	A	303	R16	1	0
3	A	302	R16	2	0
3	C	301	R16	2	0
4	C	306	D12	1	0
3	D	308	R16	2	0
5	E	307	A1L4O	1	0
4	D	302	D12	9	0
4	A	310	D12	4	0
4	C	302	D12	4	0

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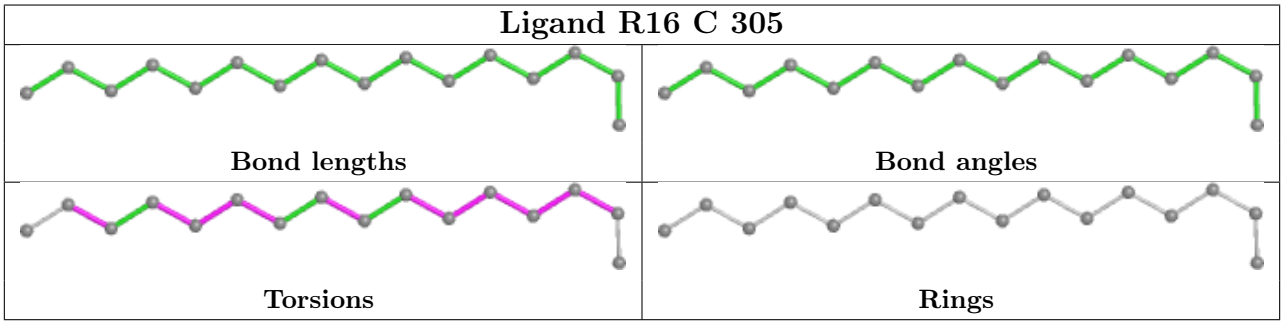
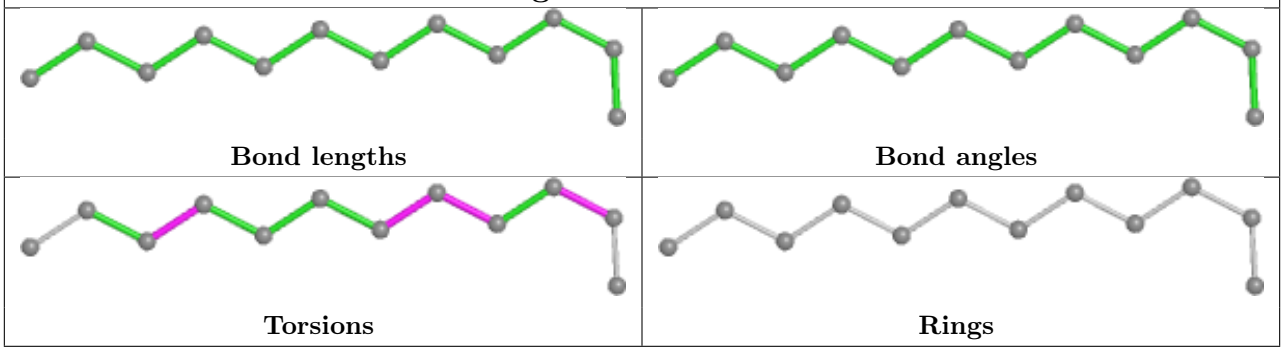
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	D	301	R16	2	0
5	A	307	A1L4O	1	0
3	D	305	R16	6	0
2	E	303	RET	4	0
3	A	308	R16	1	0
3	E	308	R16	3	0
4	A	306	D12	1	0
3	B	303	R16	1	0
5	D	307	A1L4O	1	0
2	B	301	RET	5	0
3	B	302	R16	1	0
2	D	303	RET	6	0
2	C	303	RET	7	0
3	E	301	R16	3	0
3	A	304	R16	3	0
4	E	302	D12	8	0
3	A	309	R16	5	0

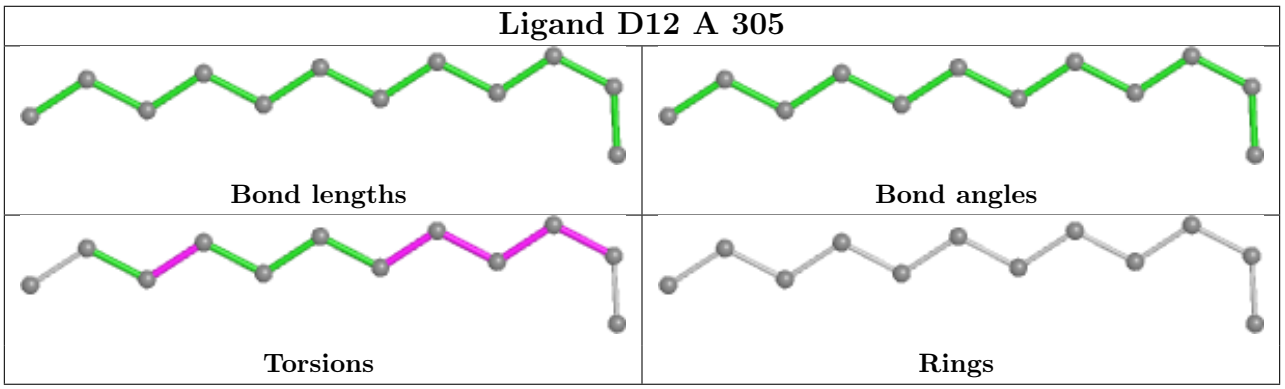
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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



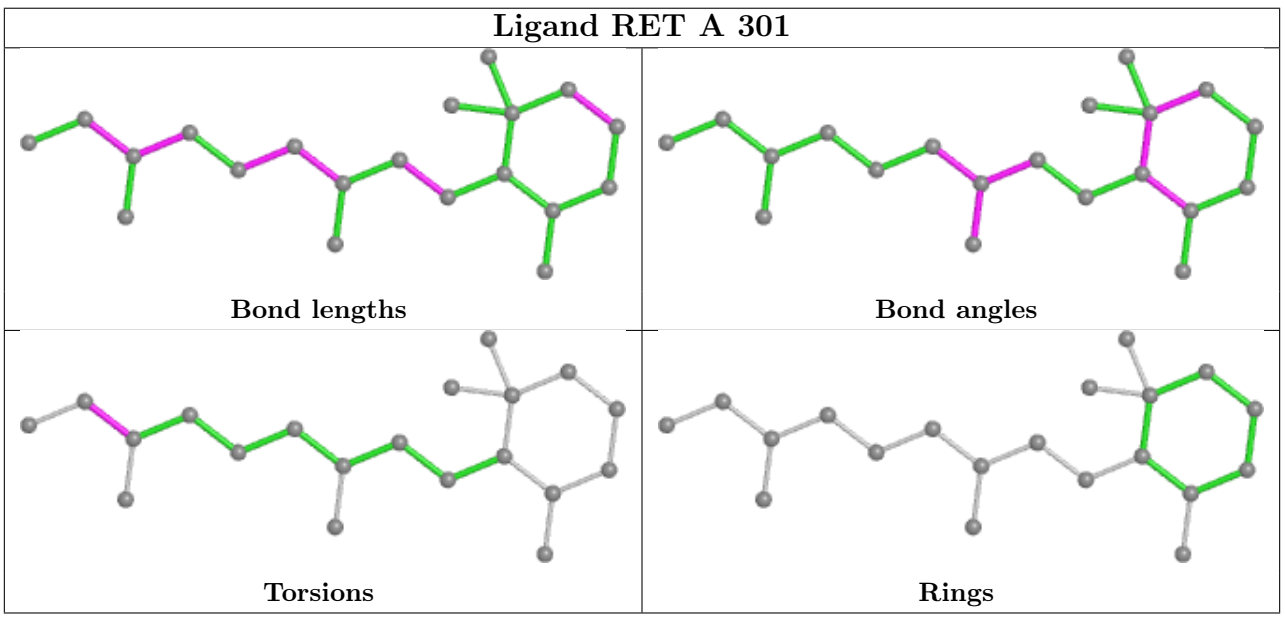
Ligand D12 E 306



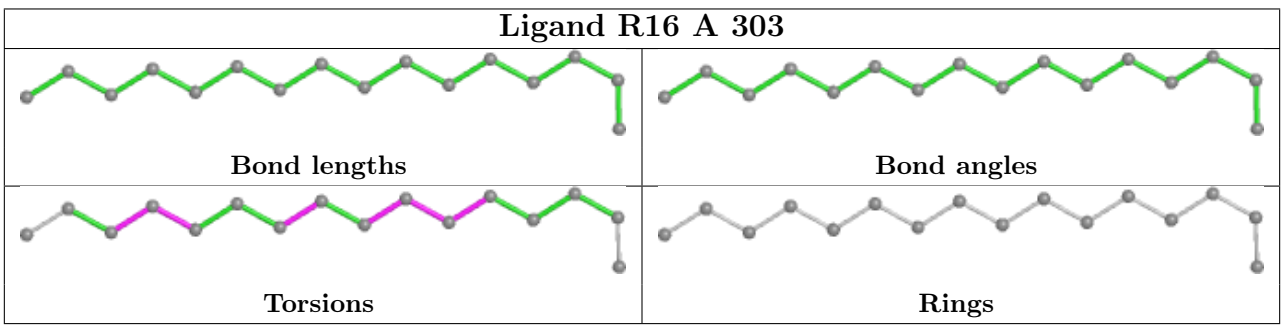
Ligand D12 A 305



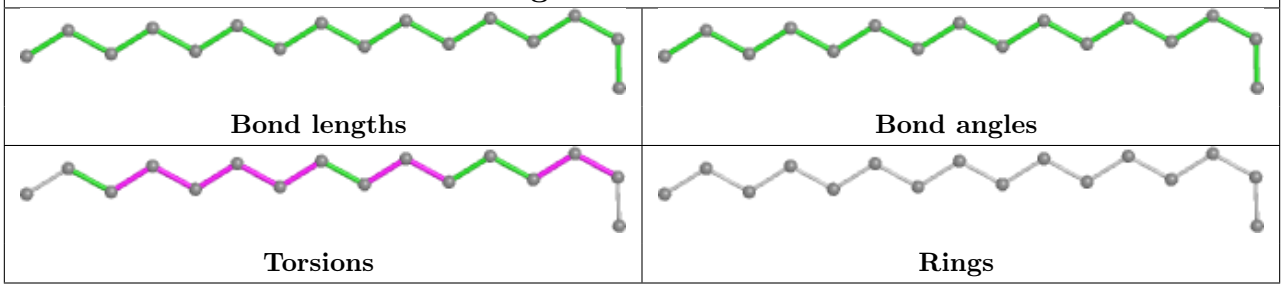
Ligand RET A 301



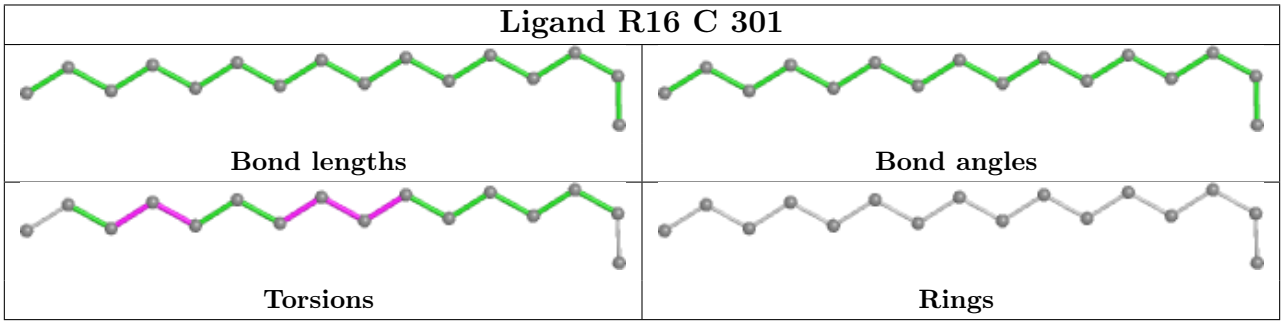
Ligand R16 A 303



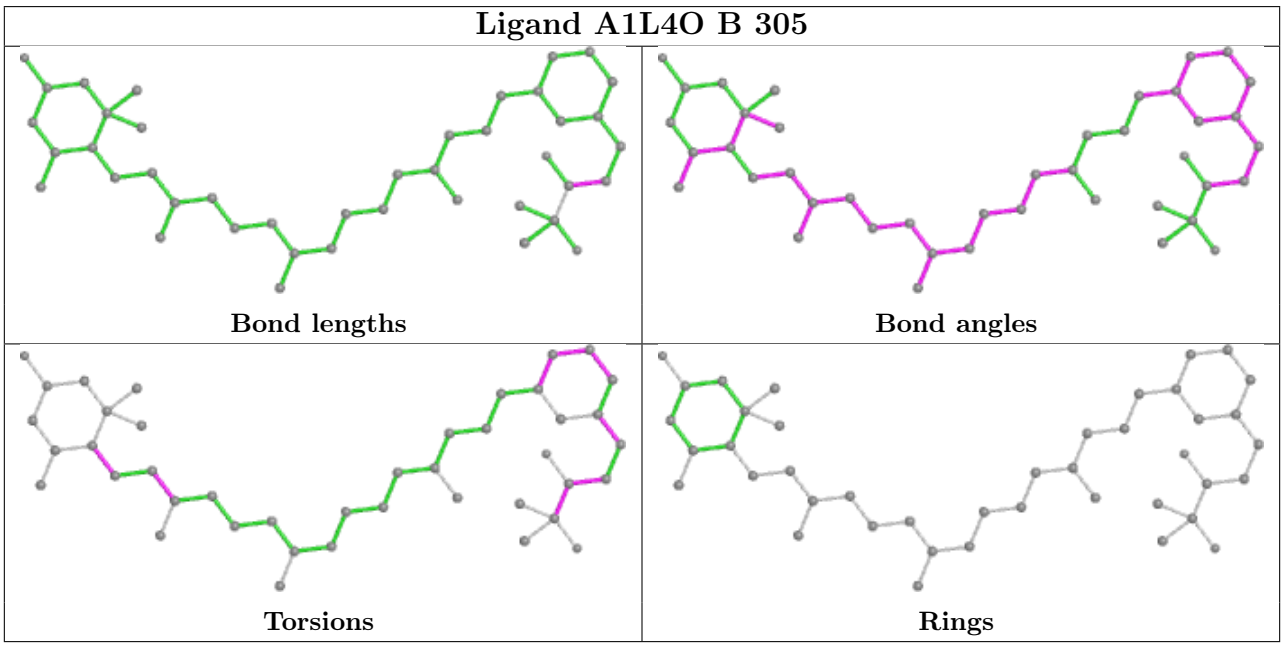
Ligand R16 A 302



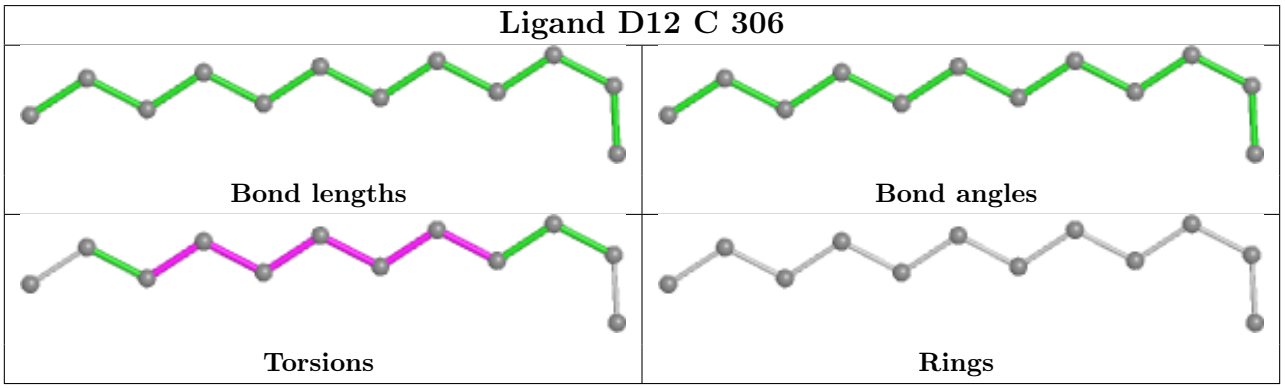
Ligand R16 C 301



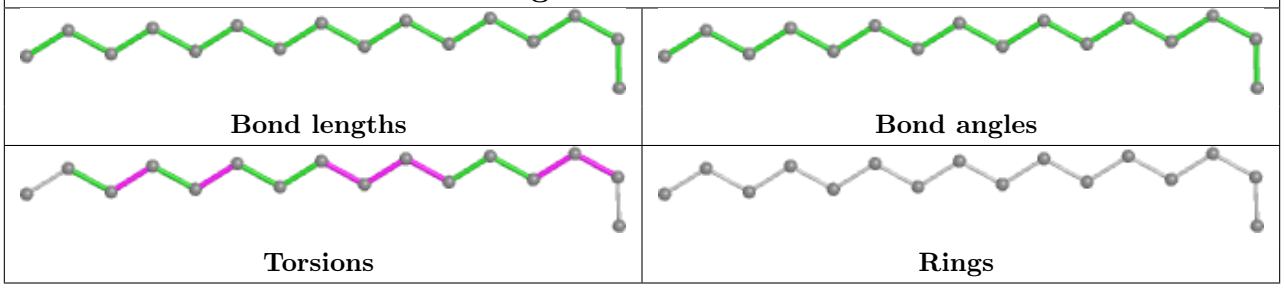
Ligand A1L4O B 305



Ligand D12 C 306



Ligand R16 C 308



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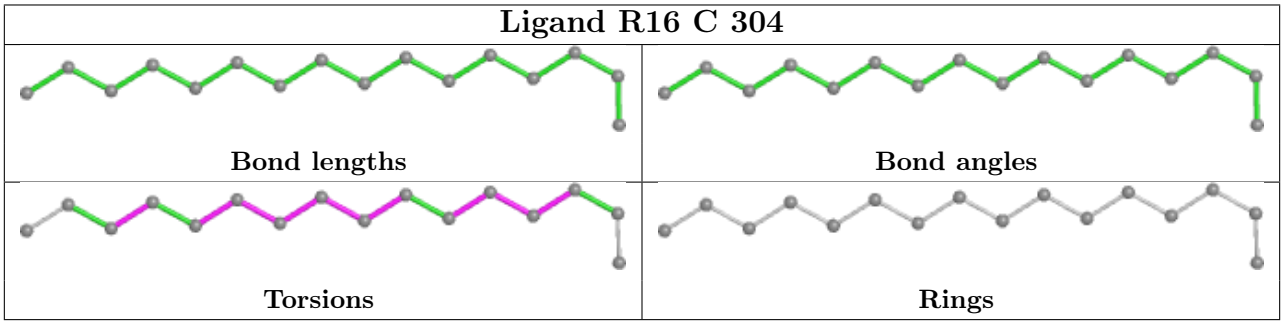
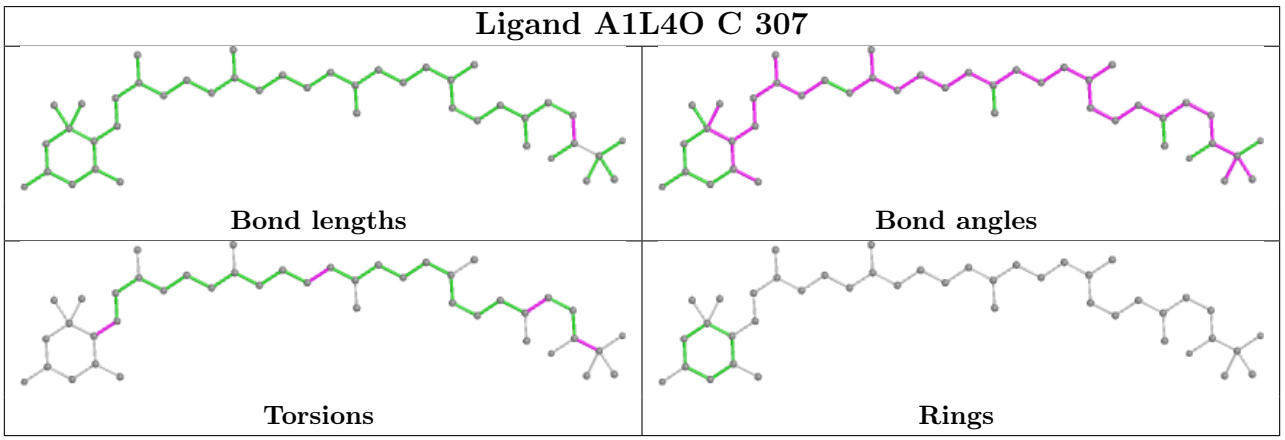
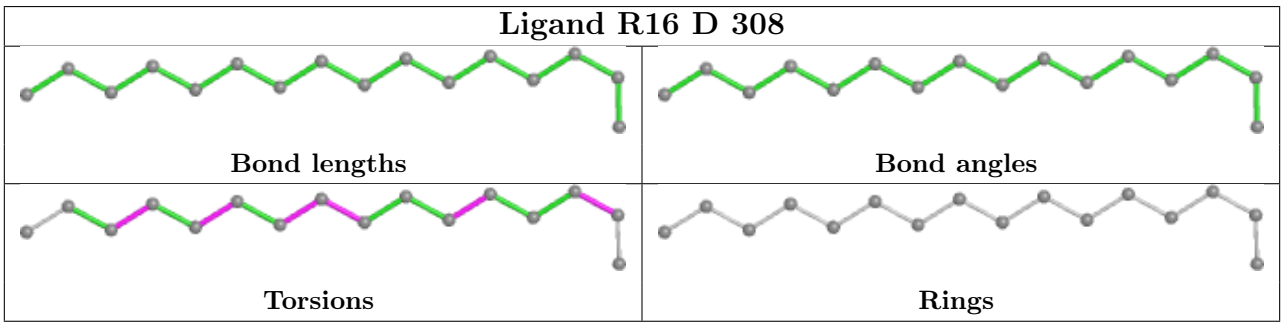


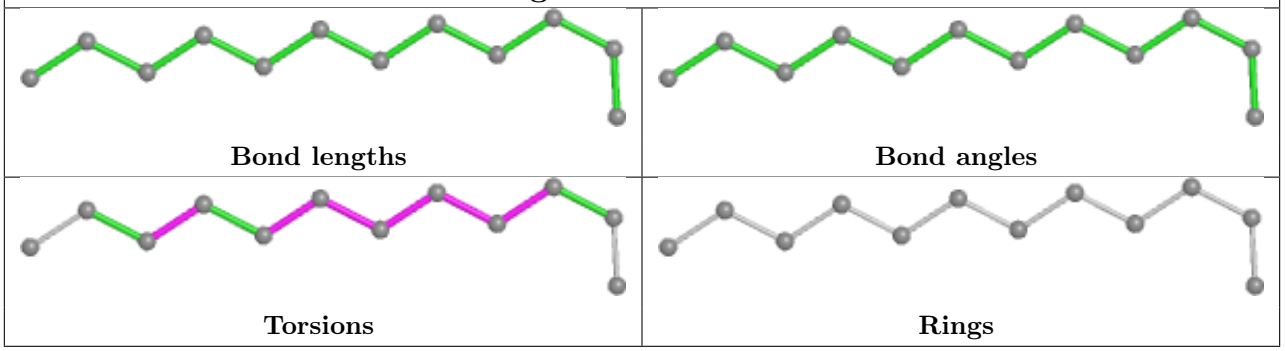
Ligand A1L4O C 307



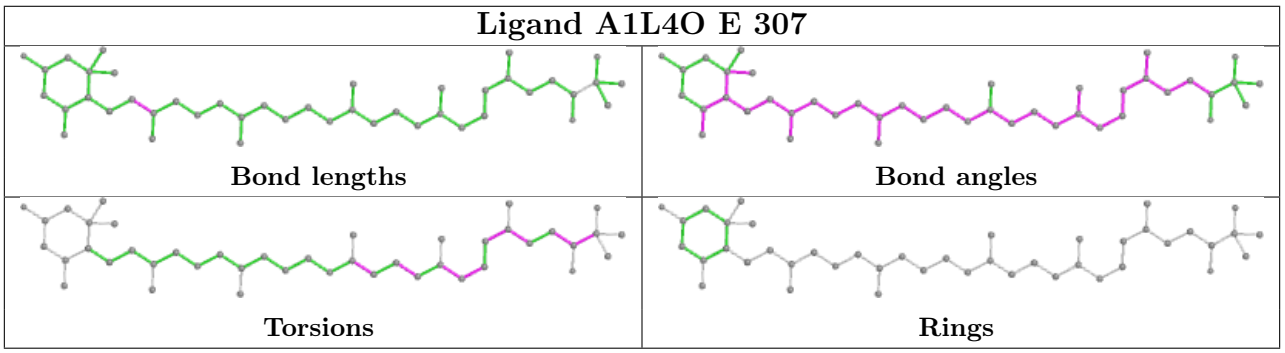
Ligand R16 D 308



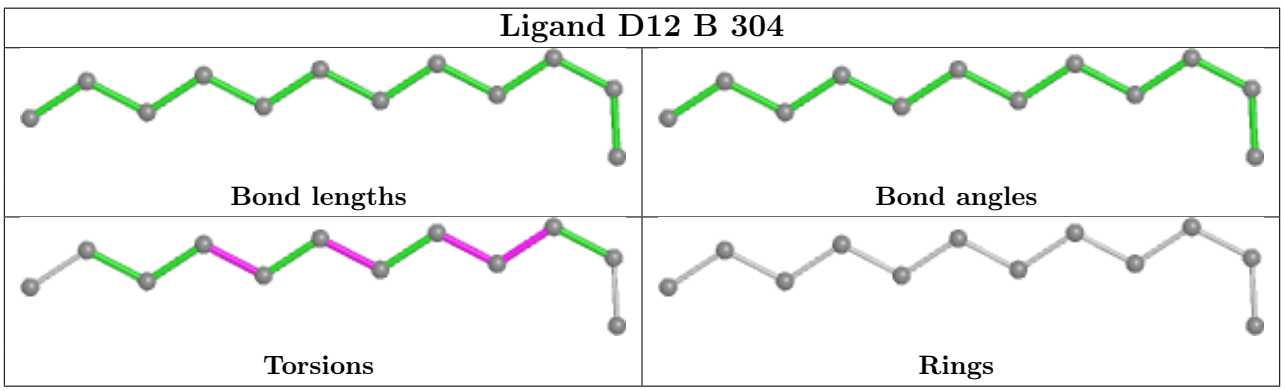
Ligand D12 D 306



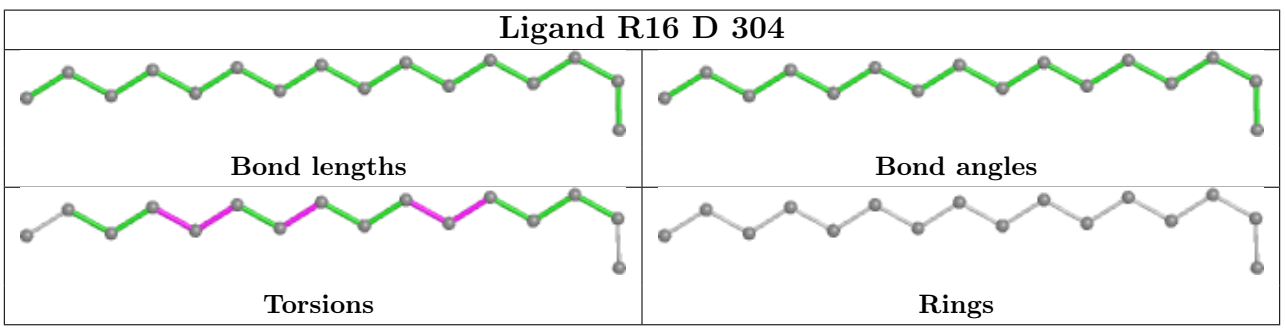
Ligand A1L4O E 307



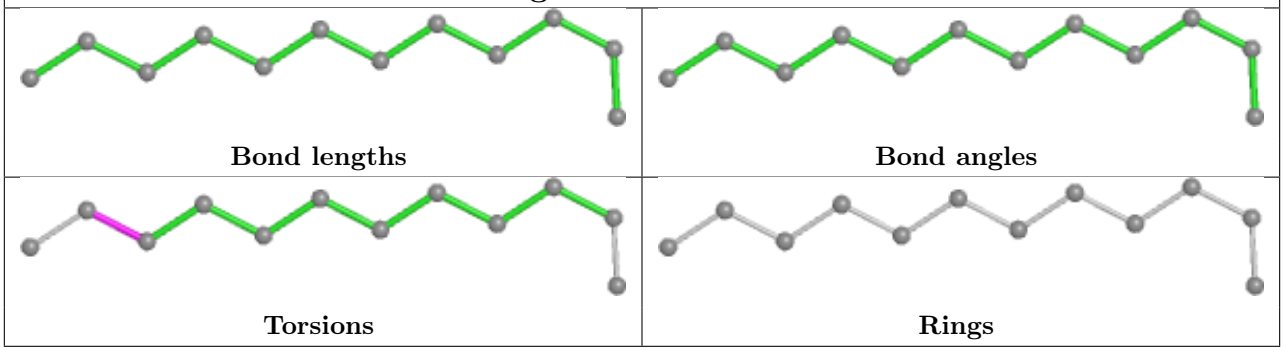
Ligand D12 B 304



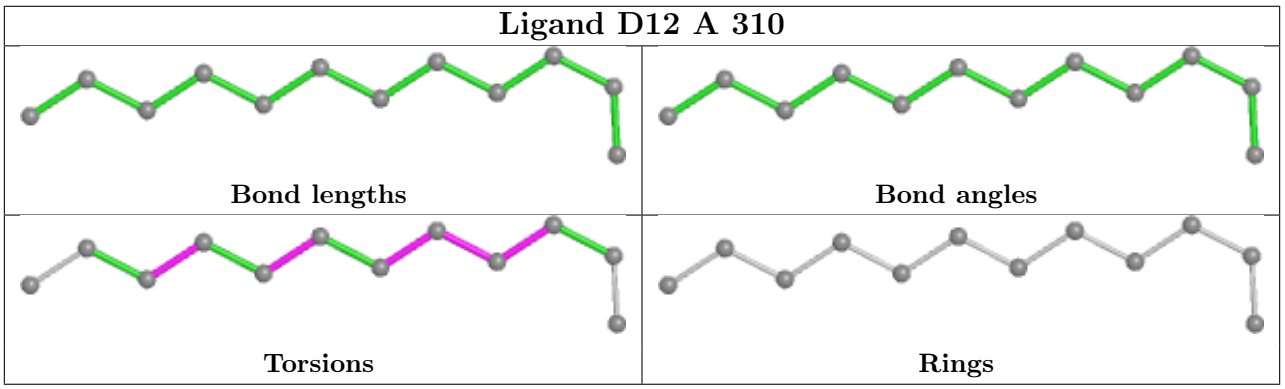
Ligand R16 D 304



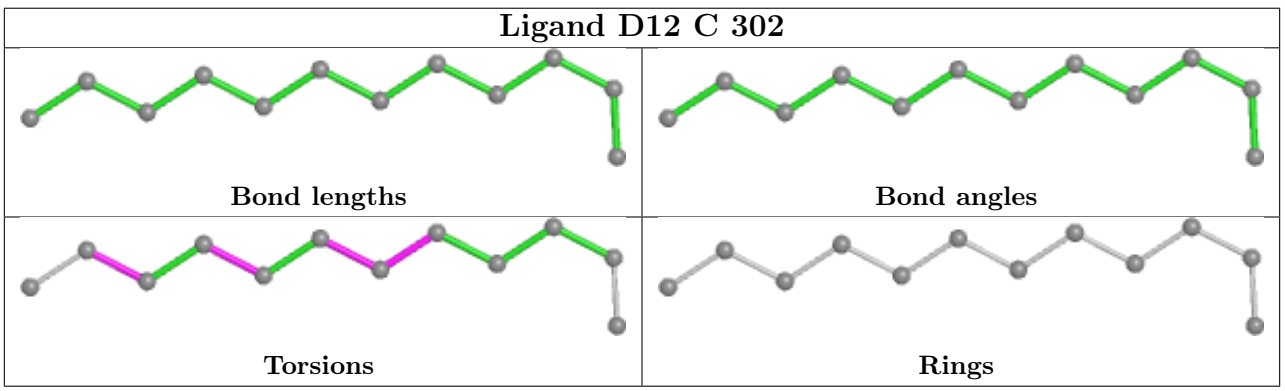
Ligand D12 D 302



Ligand D12 A 310



Ligand D12 C 302



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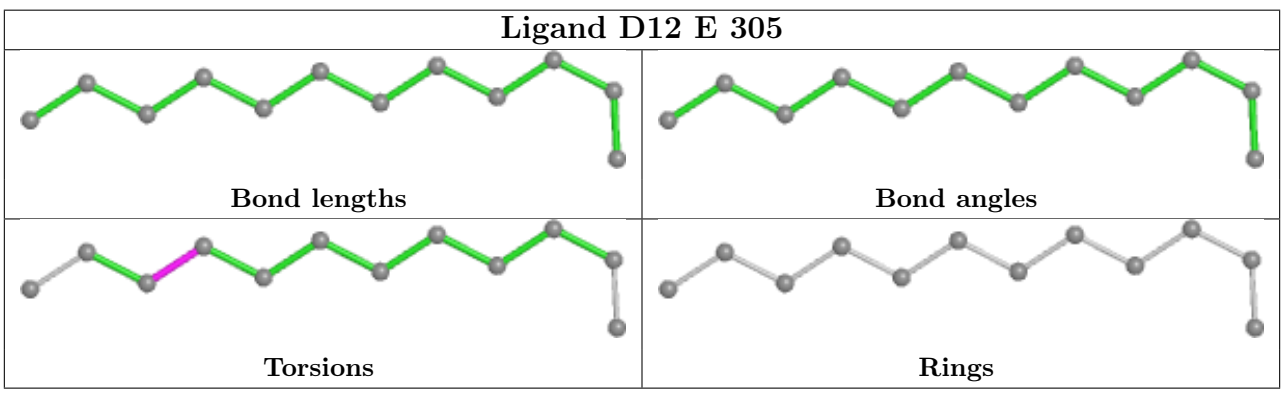

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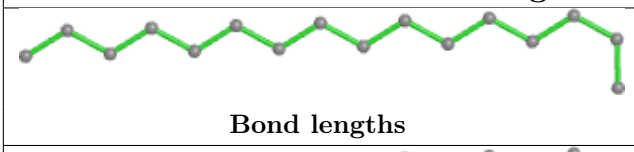
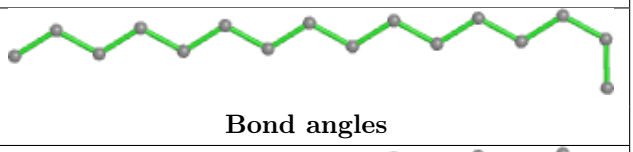
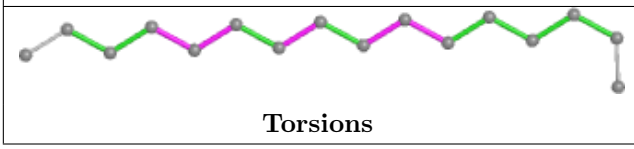


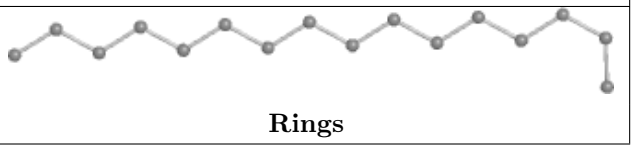
Bond lengths



Bond angles

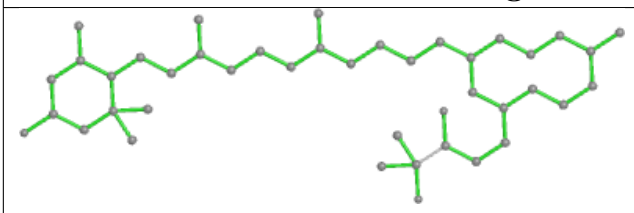


Torsions

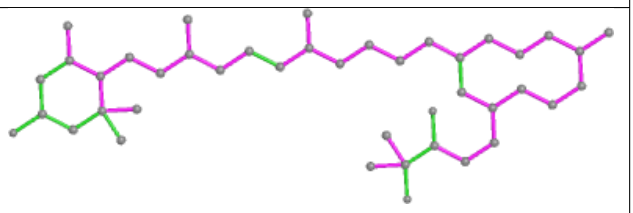


Rings

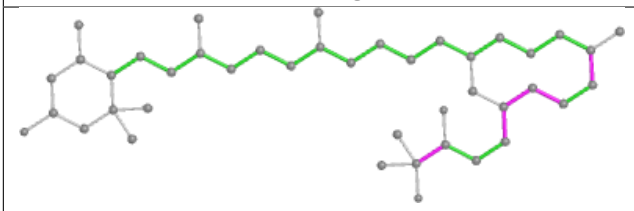
Ligand A1L4O A 307



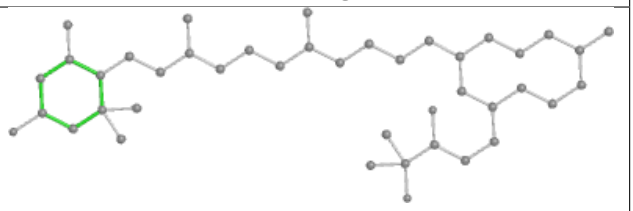
Bond lengths



Bond angles

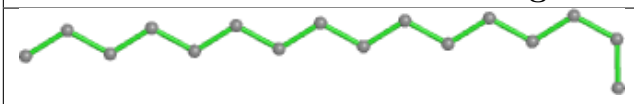


Torsions

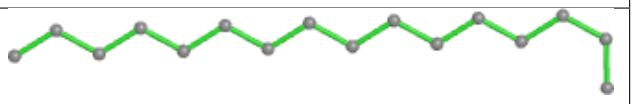


Rings

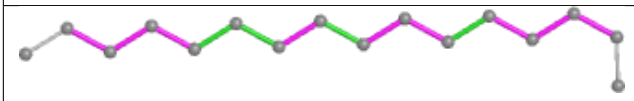
Ligand R16 D 305



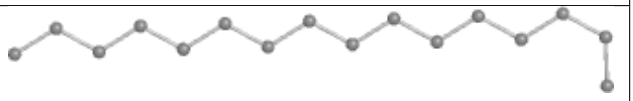
Bond lengths



Bond angles

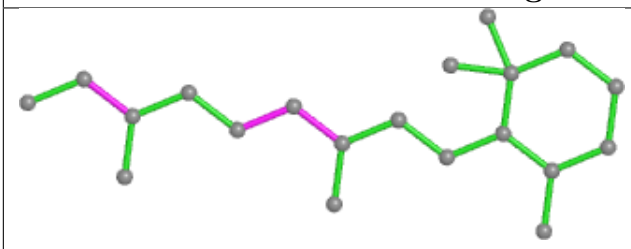


Torsions

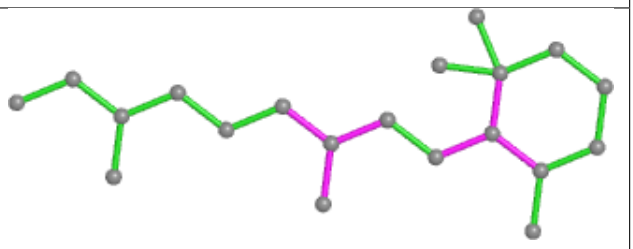


Rings

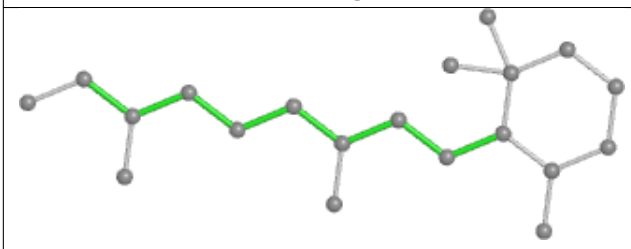
Ligand RET E 303



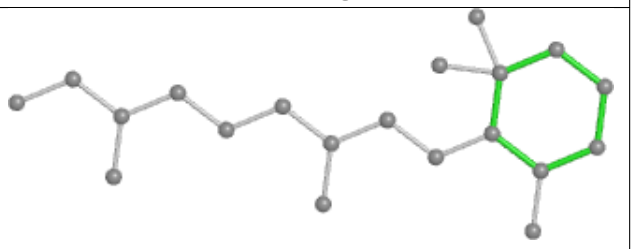
Bond lengths



Bond angles

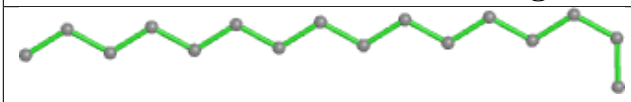


Torsions

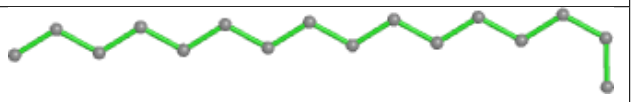


Rings

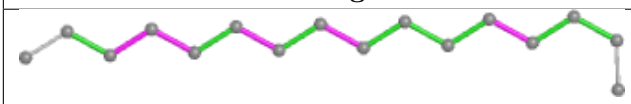
Ligand R16 A 308



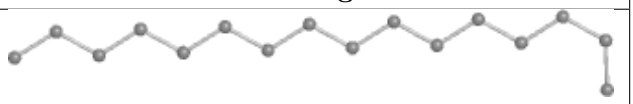
Bond lengths



Bond angles

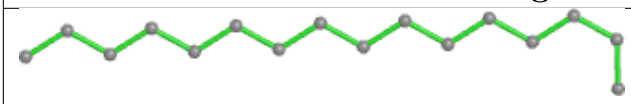


Torsions

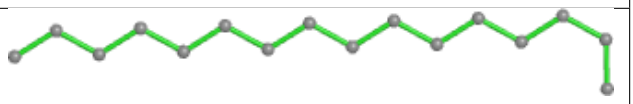


Rings

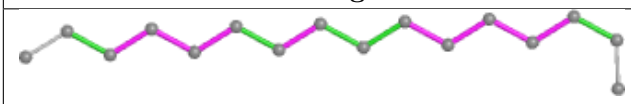
Ligand R16 E 308



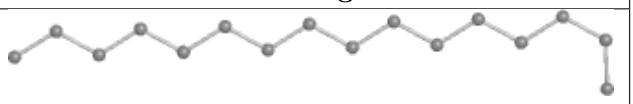
Bond lengths



Bond angles

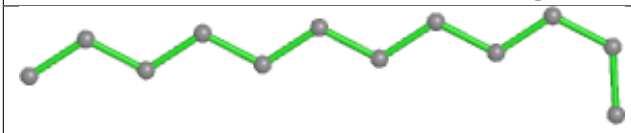


Torsions

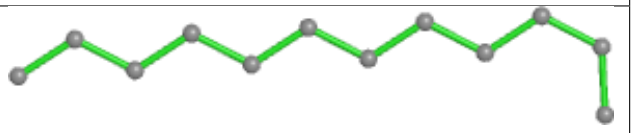


Rings

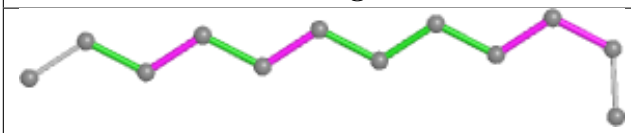
Ligand D12 A 306



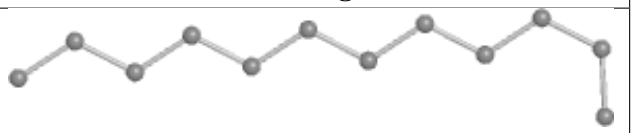
Bond lengths



Bond angles

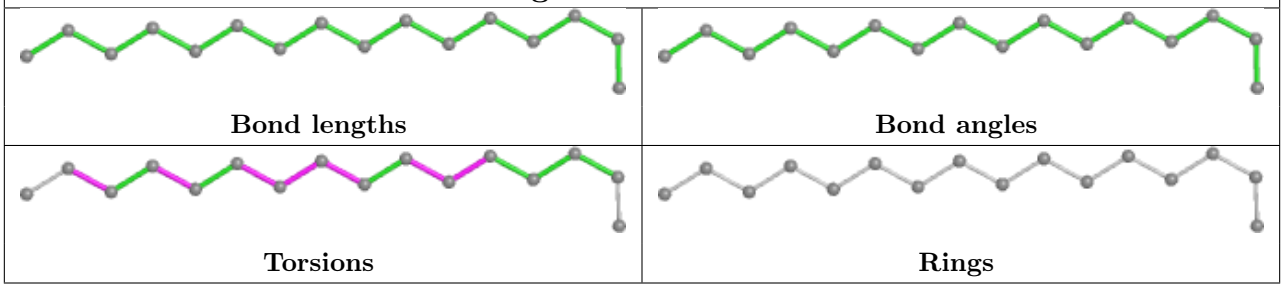


Torsions

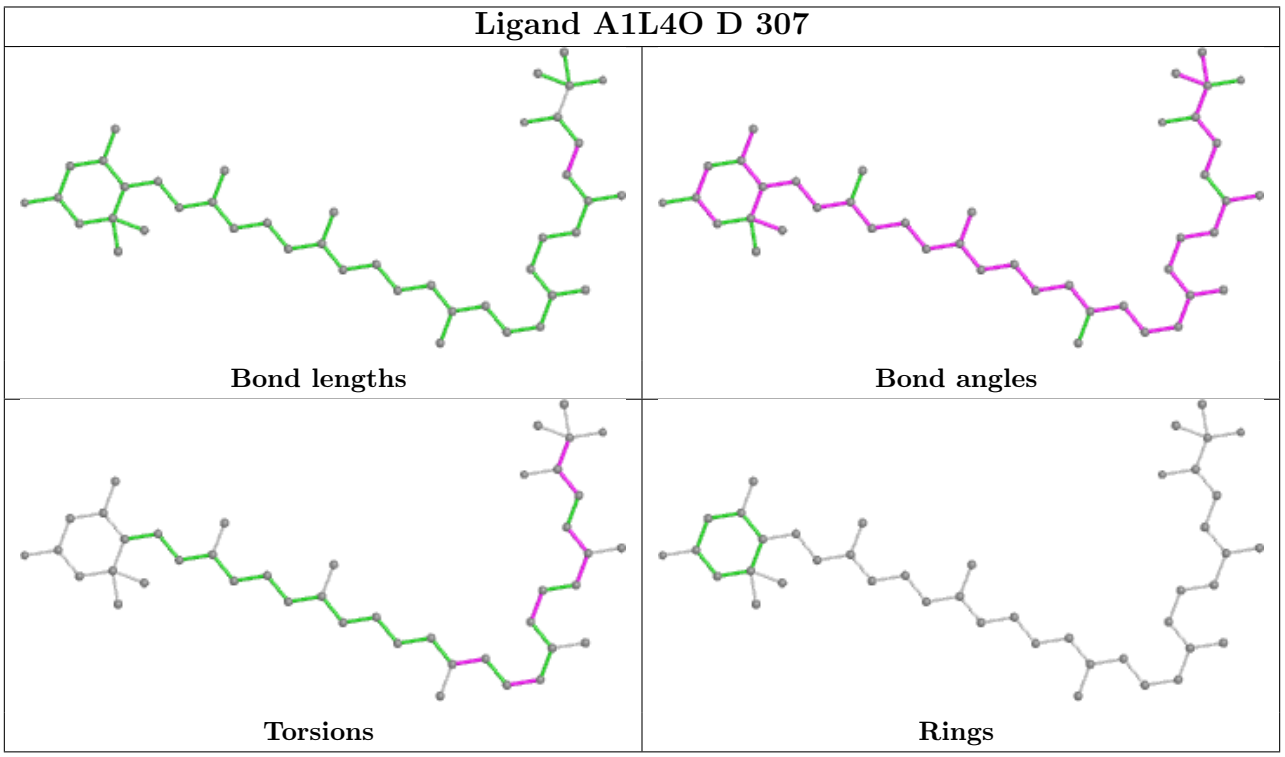


Rings

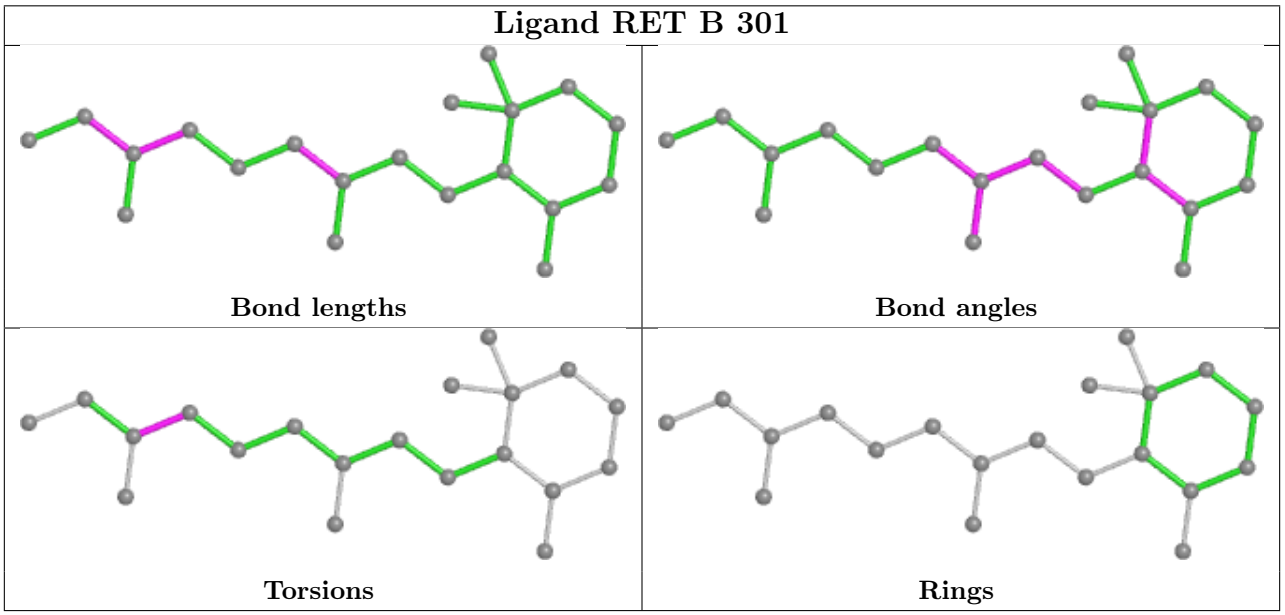
Ligand R16 B 303



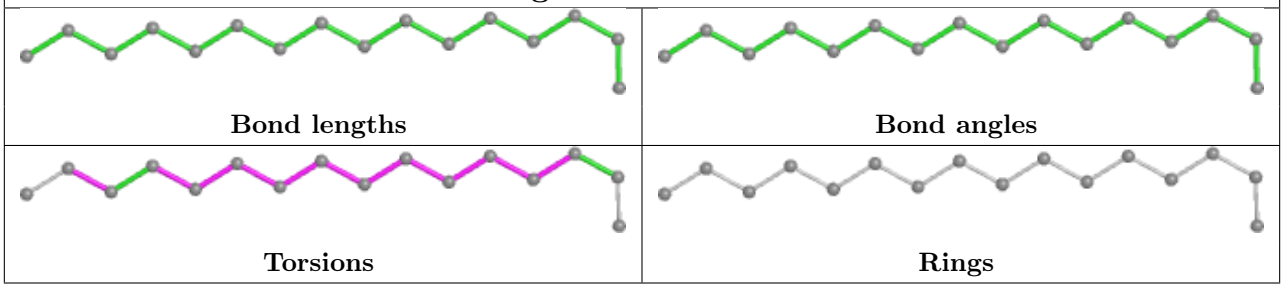
Ligand A1L4O D 307



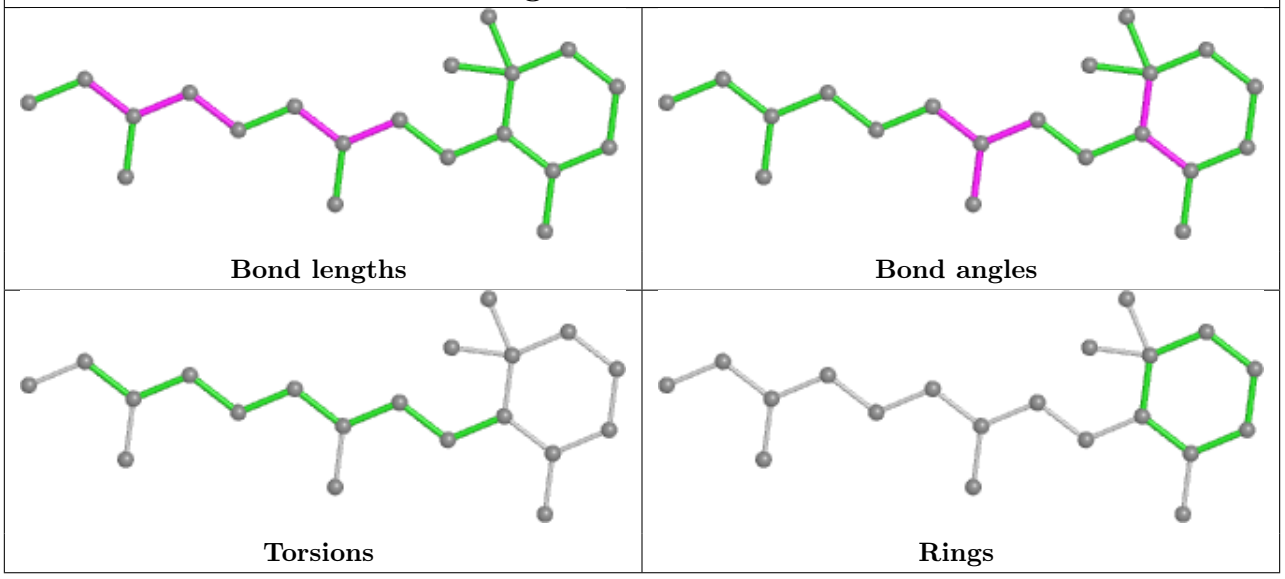
Ligand RET B 301



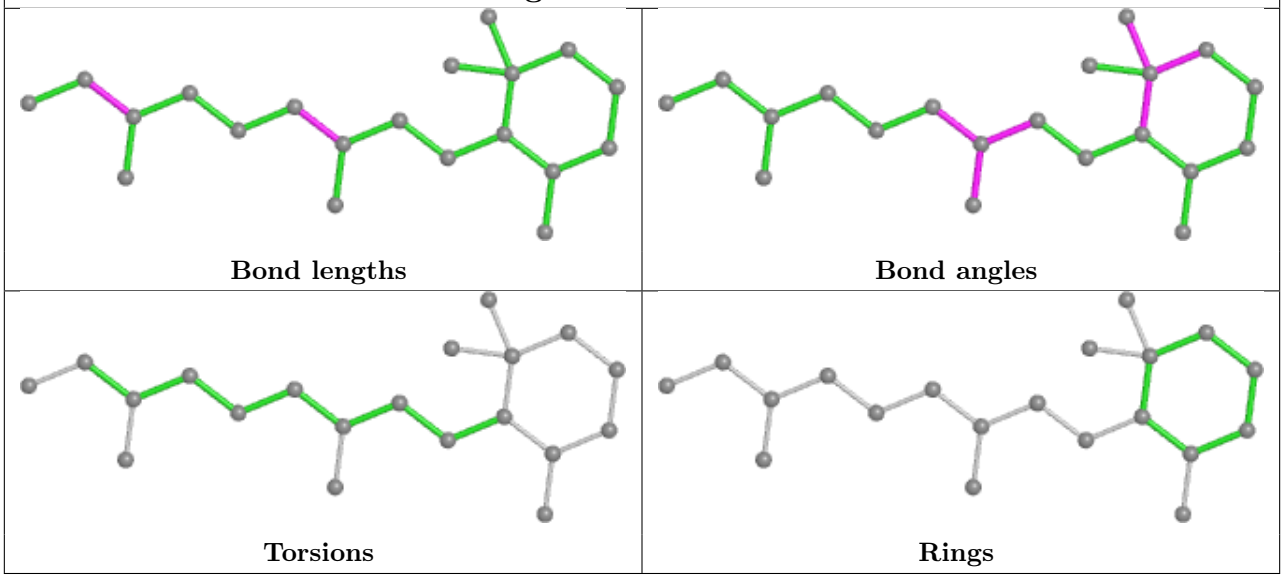
Ligand R16 B 302



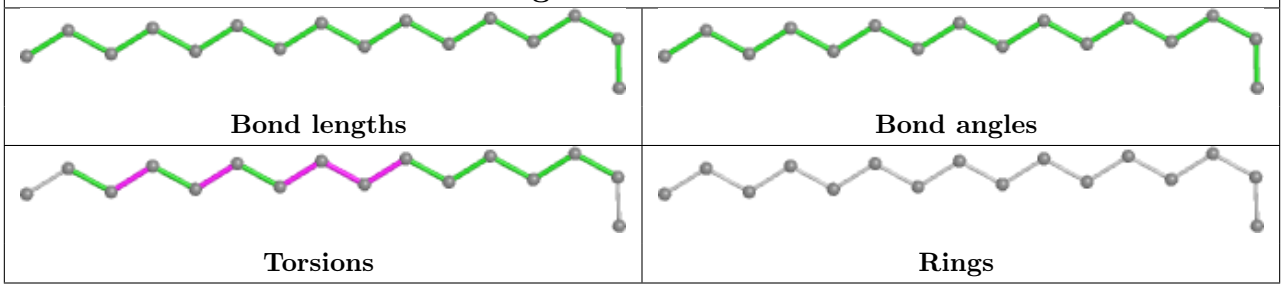
Ligand RET D 303



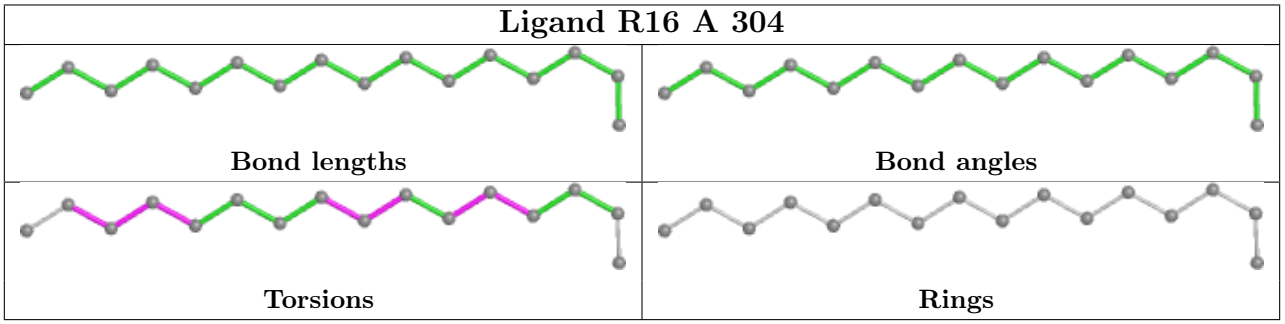
Ligand RET C 303



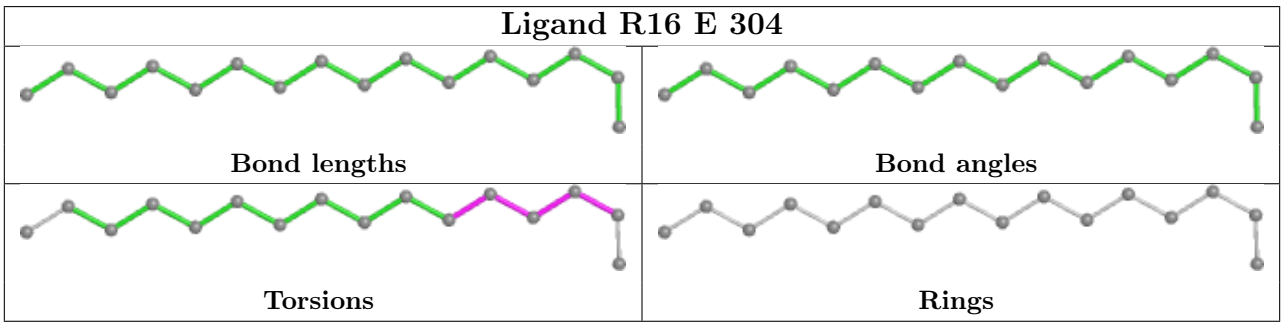
Ligand R16 E 301



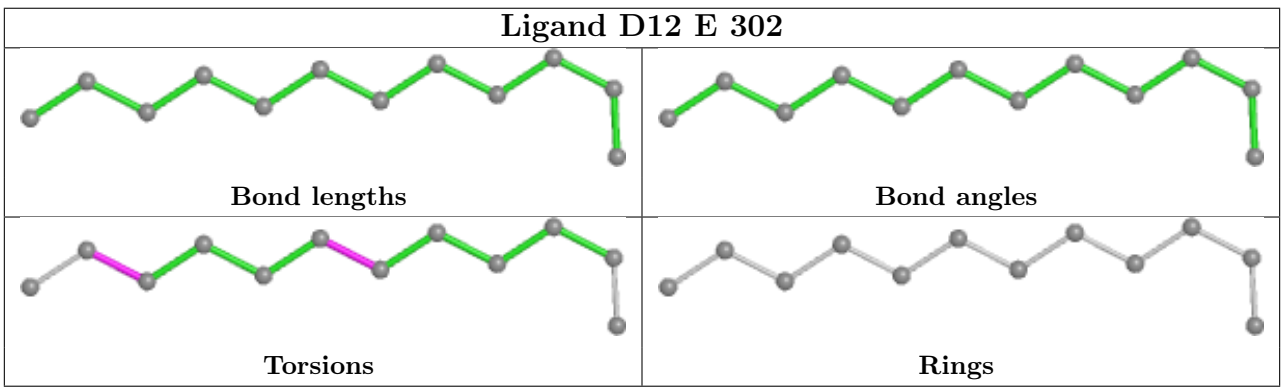
Ligand R16 A 304



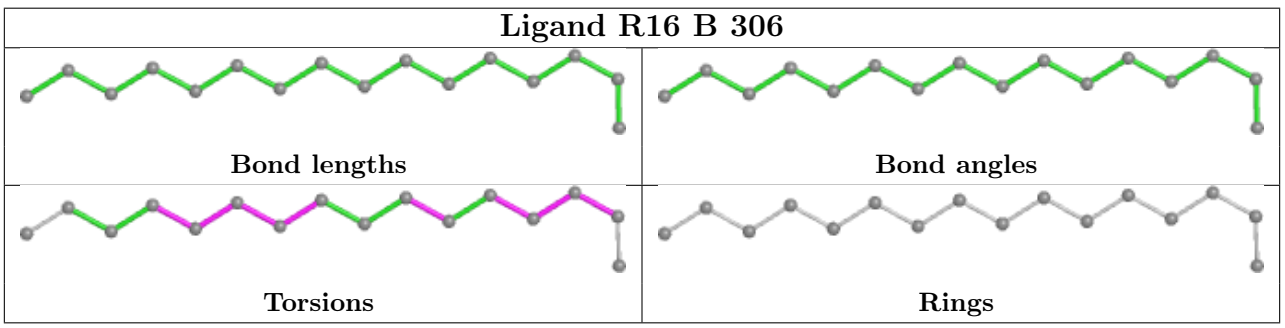
Ligand R16 E 304

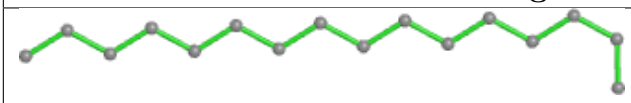
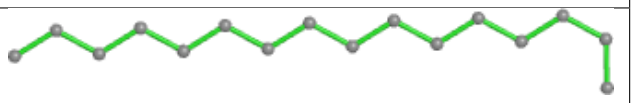
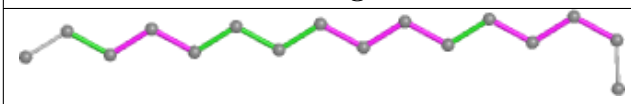
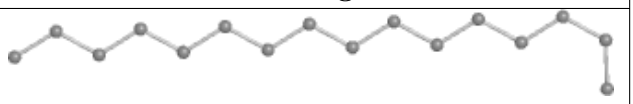


Ligand D12 E 302



Ligand R16 B 306



Ligand R16 A 309	
 Bond lengths	 Bond angles
 Torsions	 Rings

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

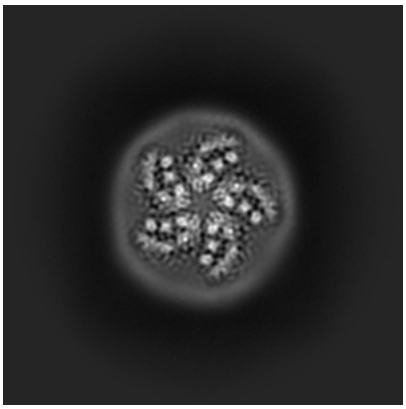
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-61686. These allow visual inspection of the internal detail of the map and identification of artifacts.

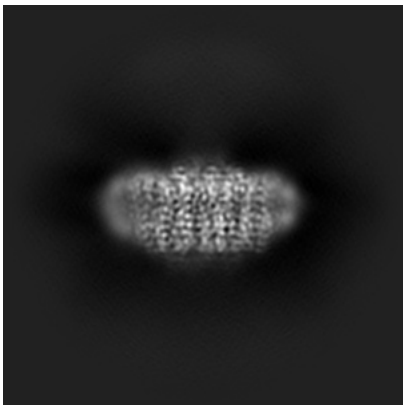
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

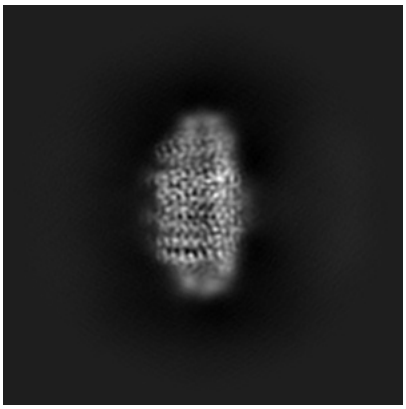
6.1.1 Primary map



X

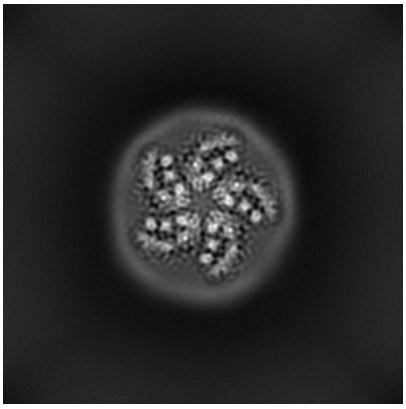


Y

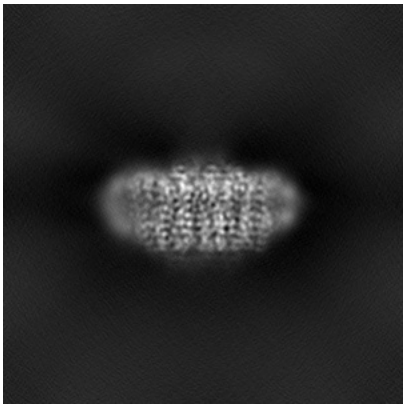


Z

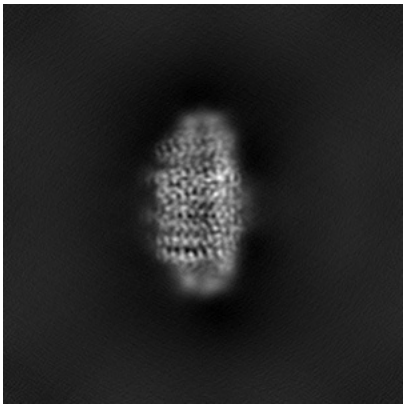
6.1.2 Raw map



X



Y

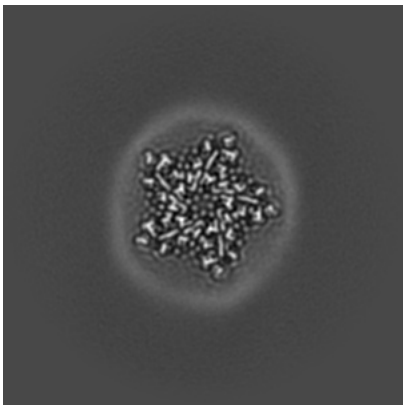


Z

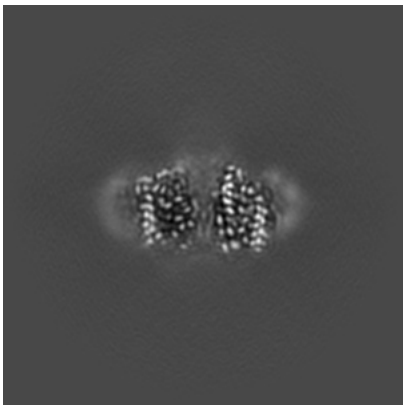
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

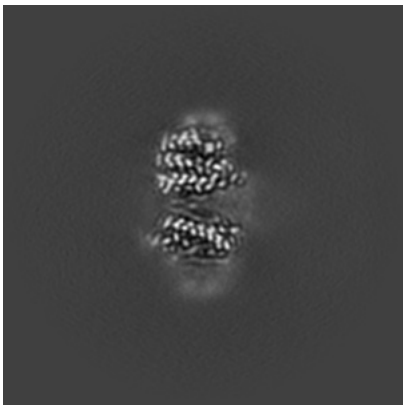
6.2.1 Primary map



X Index: 140

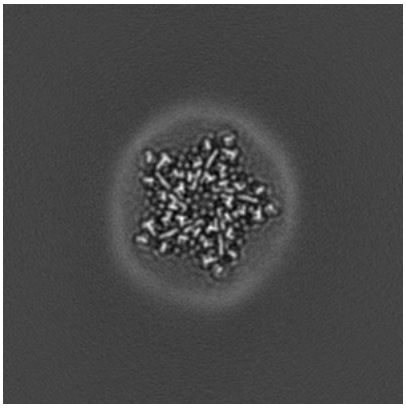


Y Index: 140

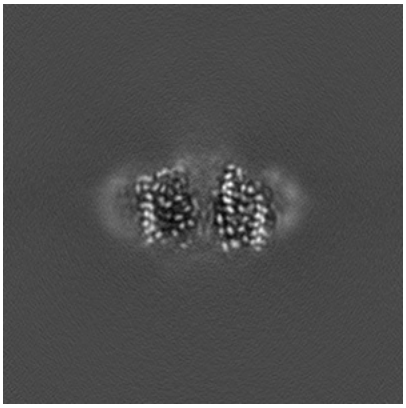


Z Index: 140

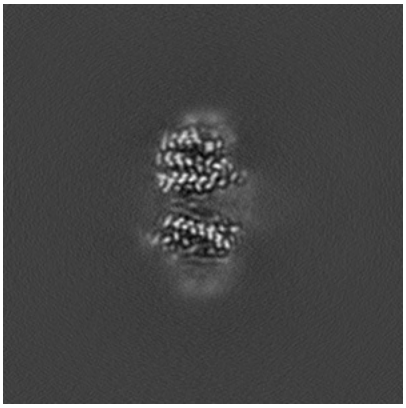
6.2.2 Raw map



X Index: 140



Y Index: 140

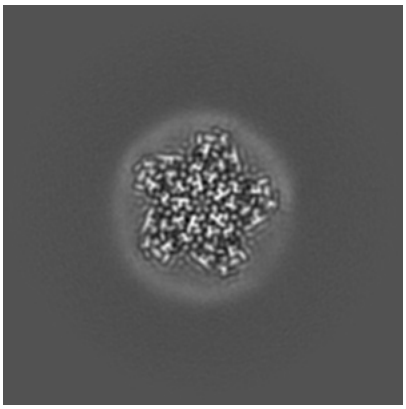


Z Index: 140

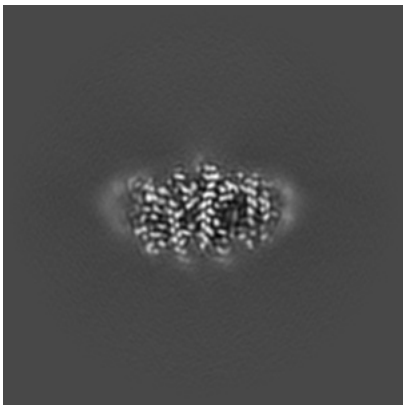
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

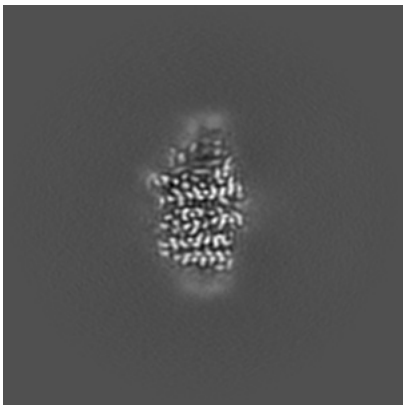
6.3.1 Primary map



X Index: 126

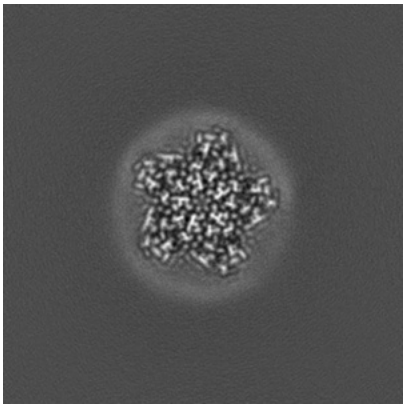


Y Index: 157

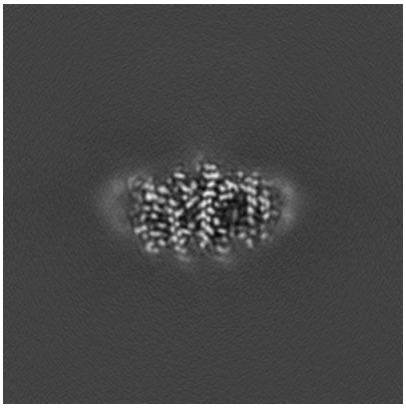


Z Index: 125

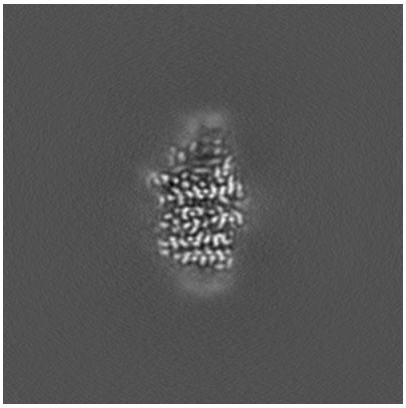
6.3.2 Raw map



X Index: 126



Y Index: 157

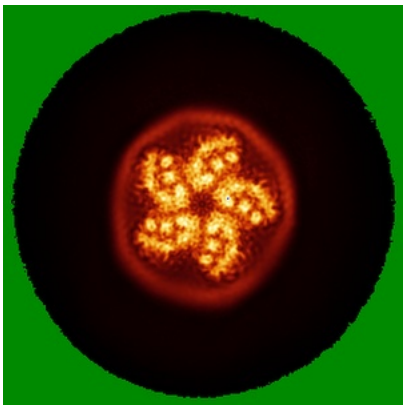


Z Index: 125

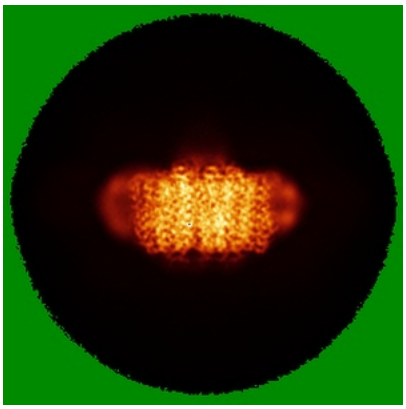
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) (i)

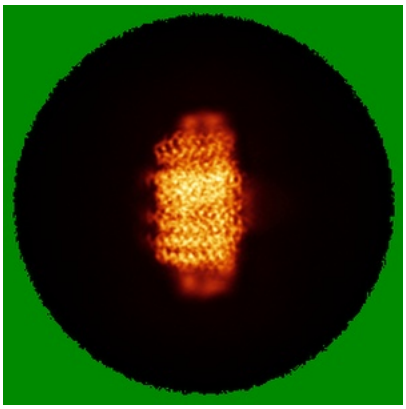
6.4.1 Primary map



X

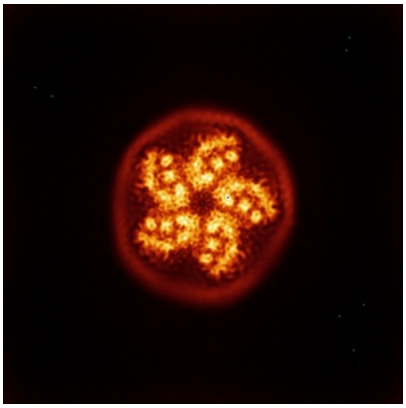


Y

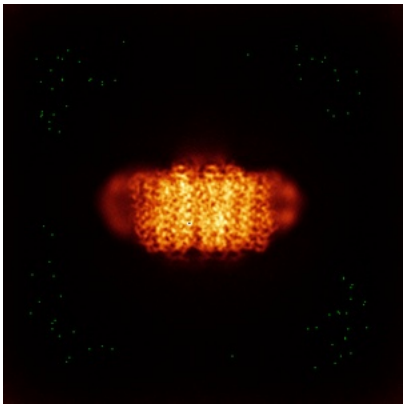


Z

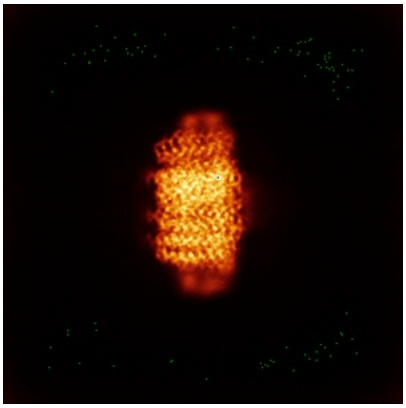
6.4.2 Raw map



X



Y

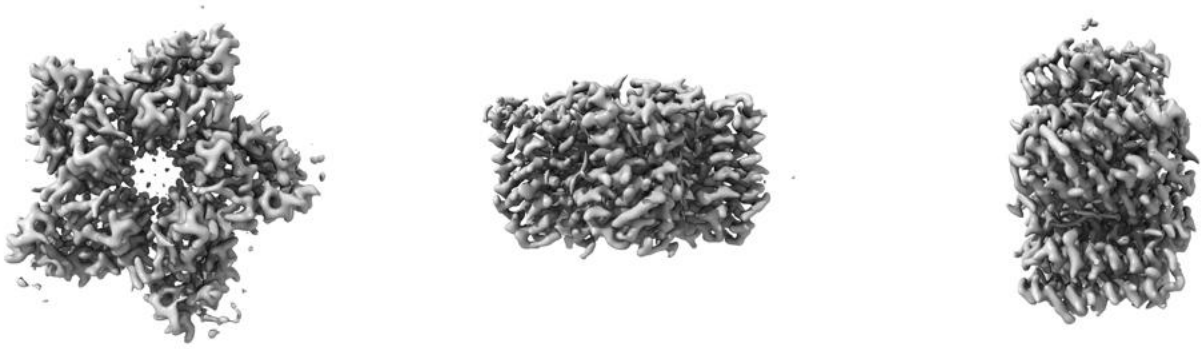


Z

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)

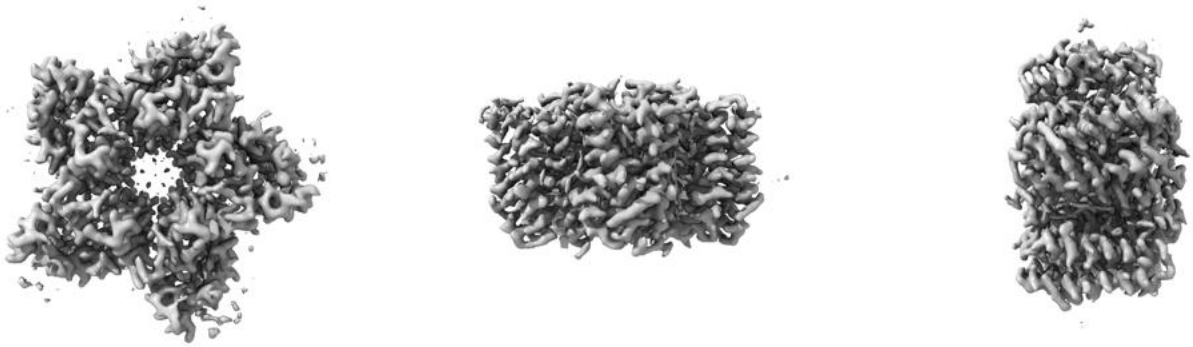
6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.057. 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



X Y Z

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.

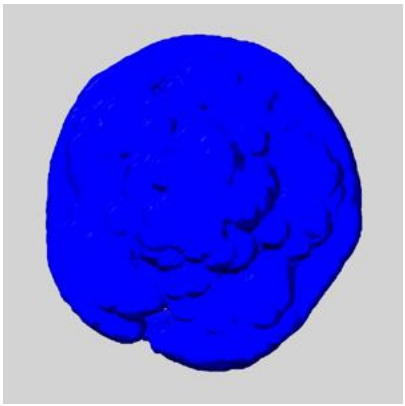
6.6 Mask visualisation

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

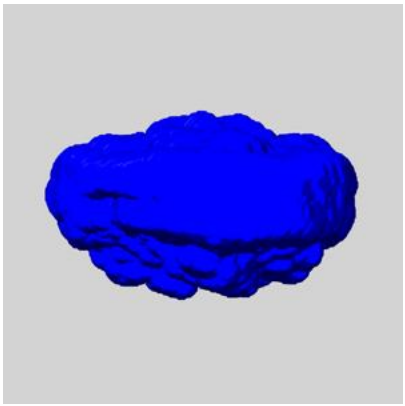
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

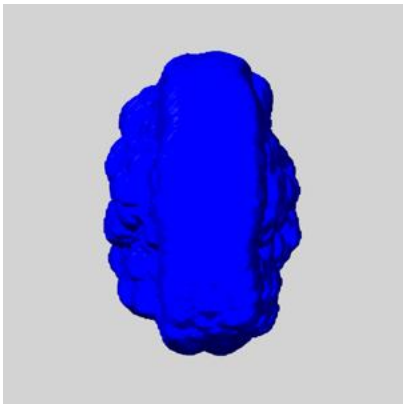
6.6.1 emd_61686_msk_1.map



X



Y

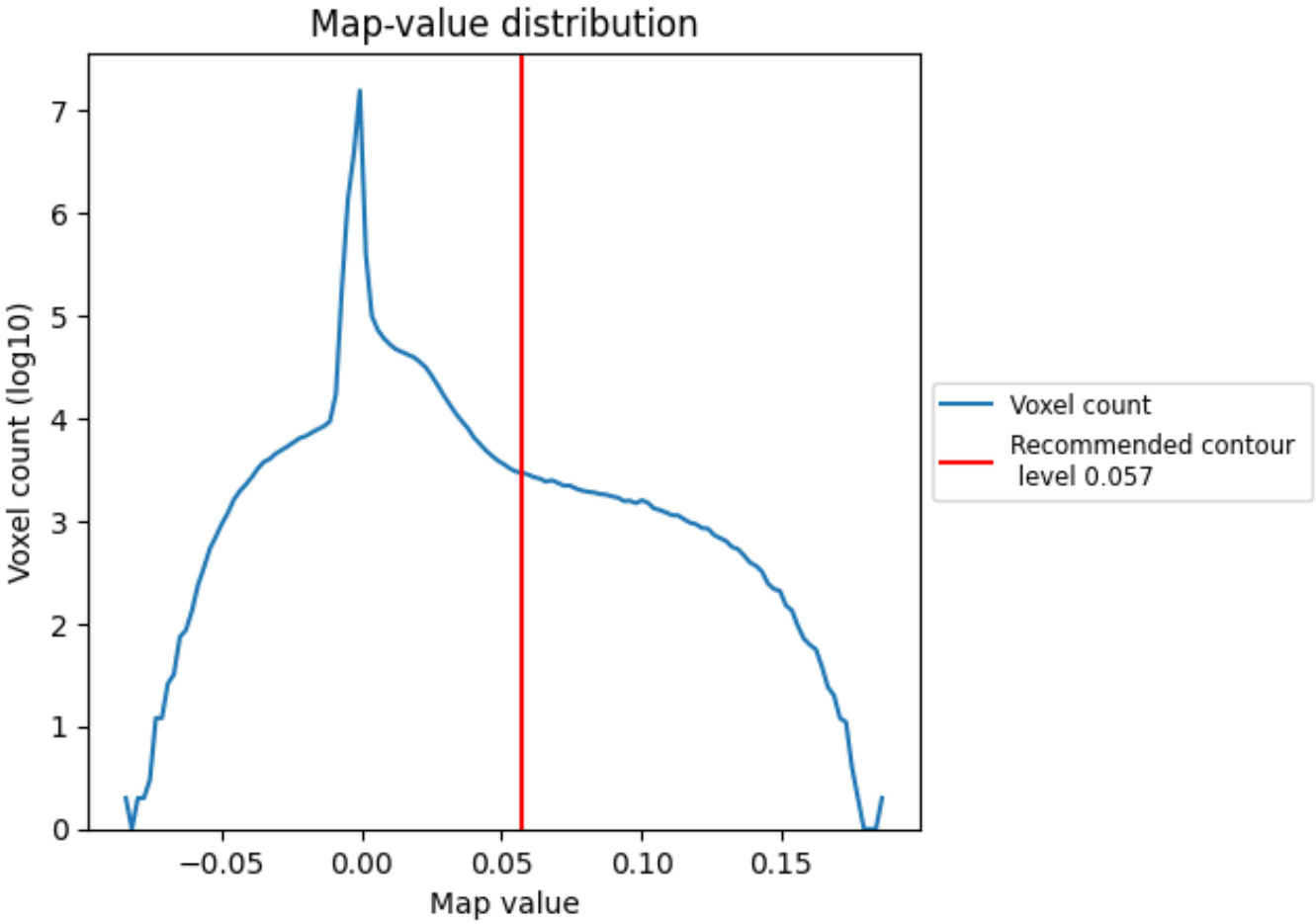


Z

7 Map analysis

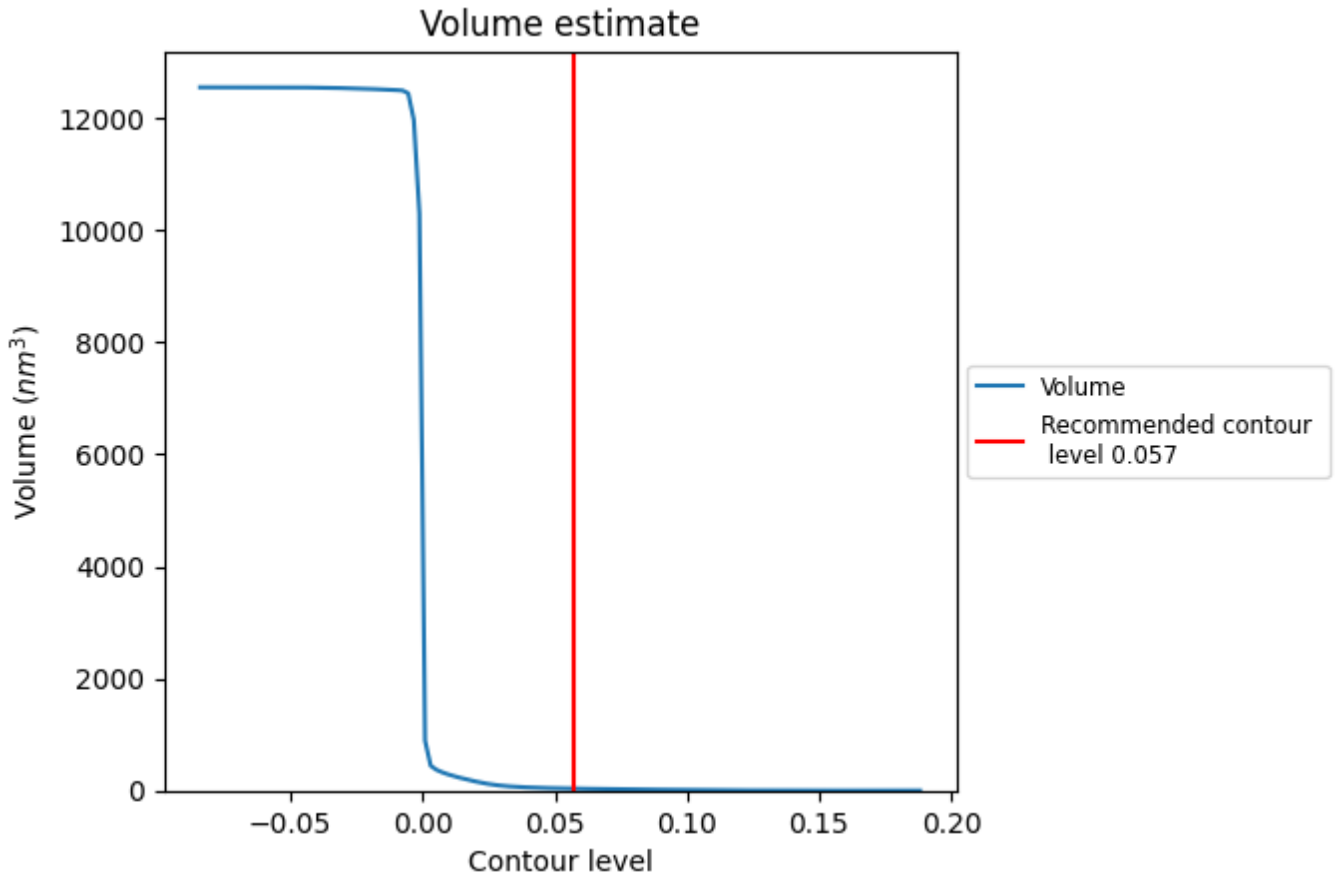
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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.

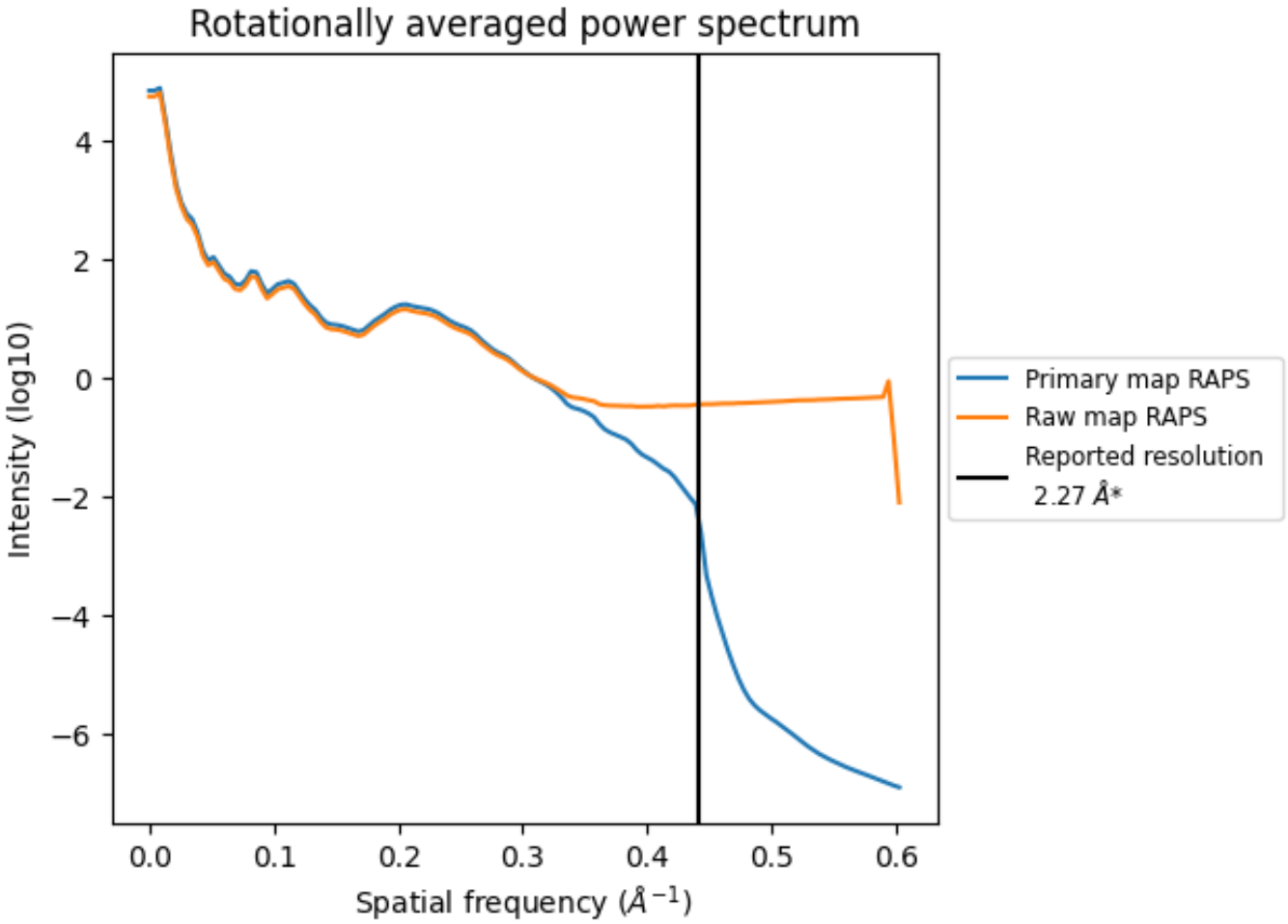
7.2 Volume estimate



The volume at the recommended contour level is 36 nm^3; this corresponds to an approximate mass of 32 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)

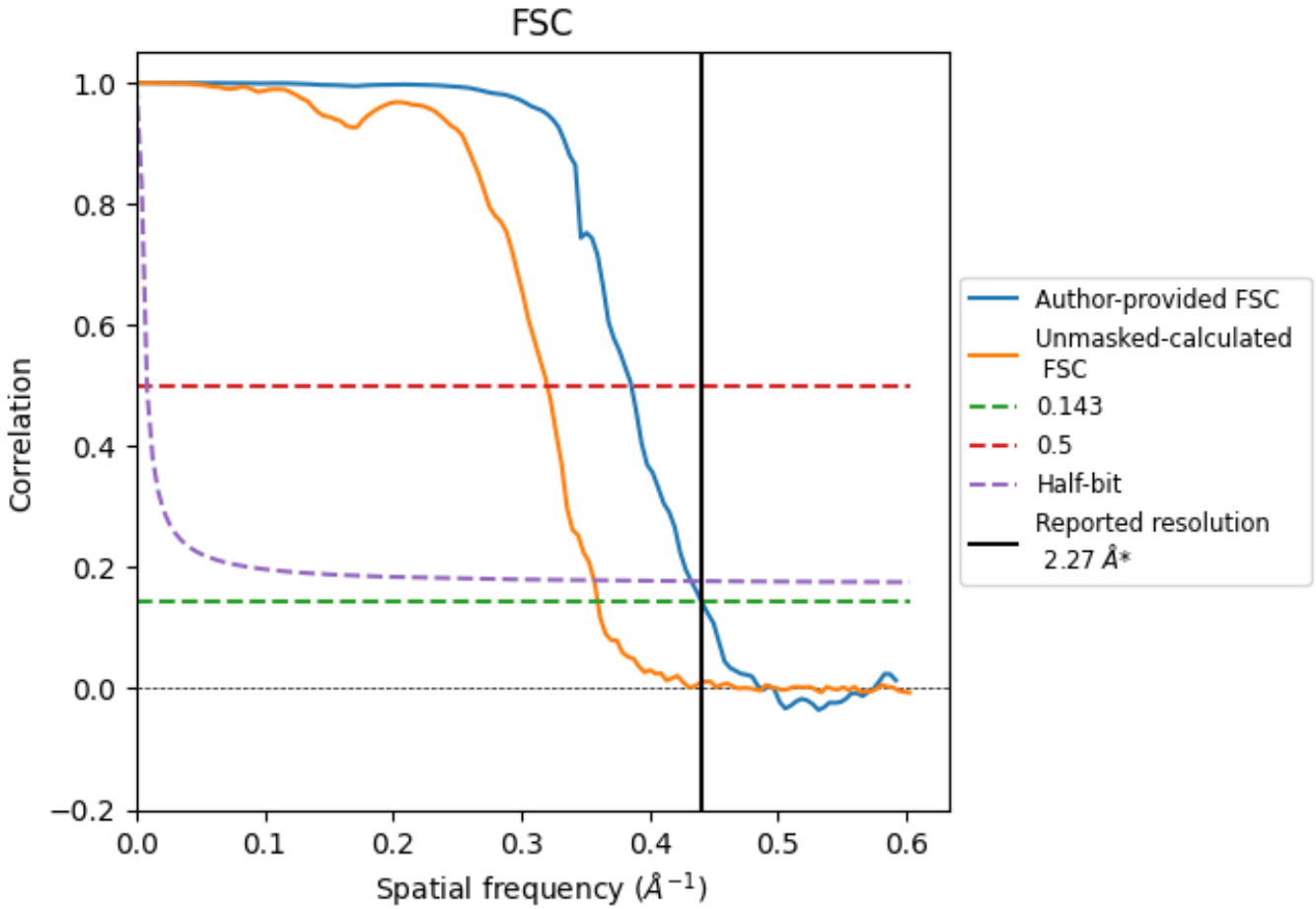


*Reported resolution corresponds to spatial frequency of 0.441 Å^{-1}

8 Fourier-Shell correlation

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



*Reported resolution corresponds to spatial frequency of 0.441 Å^{-1}

8.2 Resolution estimates (i)

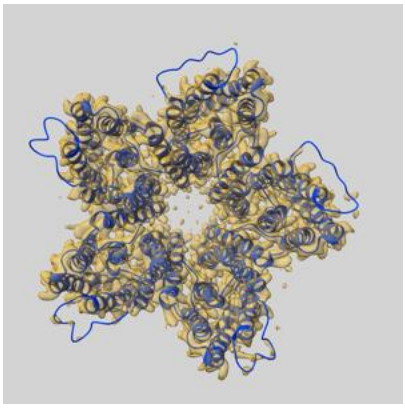
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.27	-	-
Author-provided FSC curve	2.27	2.59	2.31
Unmasked-calculated*	2.78	3.12	2.80

*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 2.78 differs from the reported value 2.27 by more than 10 %

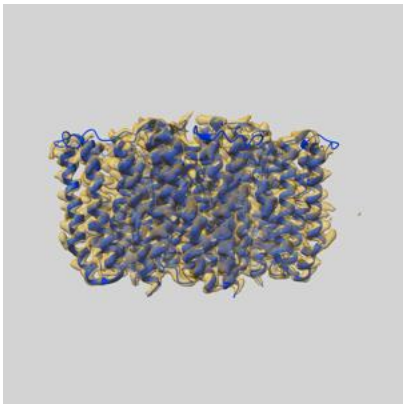
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-61686 and PDB model 9JOV. Per-residue inclusion information can be found in section 3 on page 10.

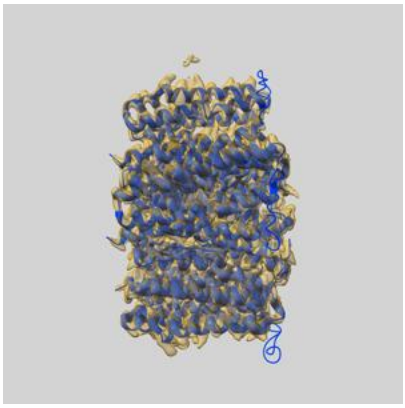
9.1 Map-model overlay



X



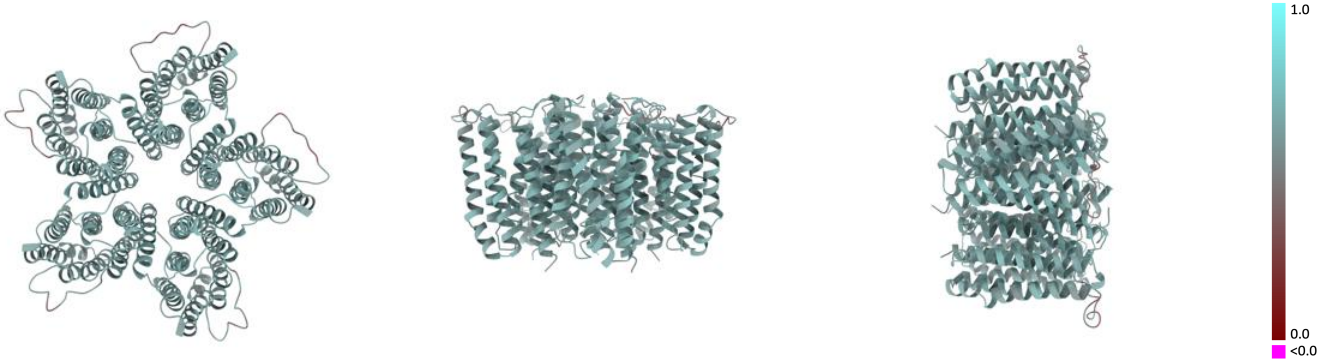
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.057 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.

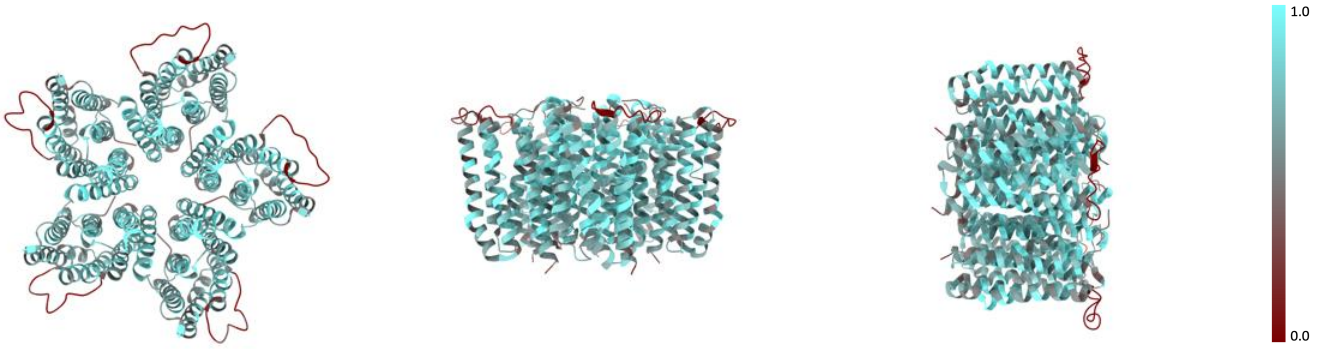
9.2 Q-score mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according 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.

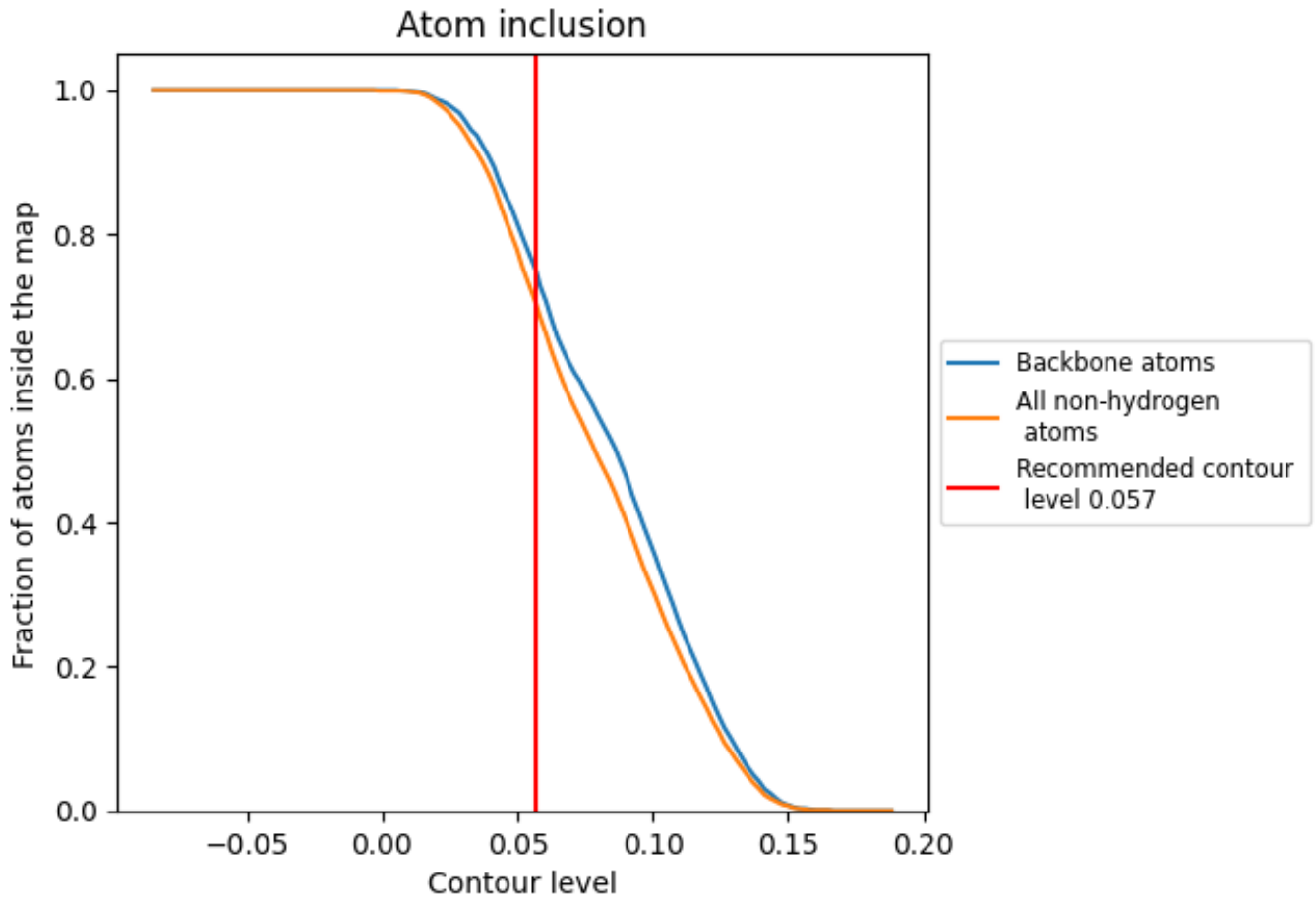
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

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 (0.057).

9.4 Atom inclusion (i)



At the recommended contour level, 75% of all backbone atoms, 70% 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 (0.057) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7020	0.6140
A	0.7070	0.6170
B	0.7150	0.6160
C	0.7140	0.6150
D	0.7050	0.6110
E	0.7050	0.6130