wwPDB EM Validation Summary Report ⓘ

Dec 11, 2022 – 10:56 pm GMT

PDB ID	:	6TDV
EMDB ID	:	EMD-10468
Title	:	Cryo-EM structure of Euglena gracilis mitochondrial ATP synthase, membrane region
Authors	:	Muhleip, A.; Amunts, A.
Deposited on	:	2019-11-10
Resolution	:	2.80 Å(reported)

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

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

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

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

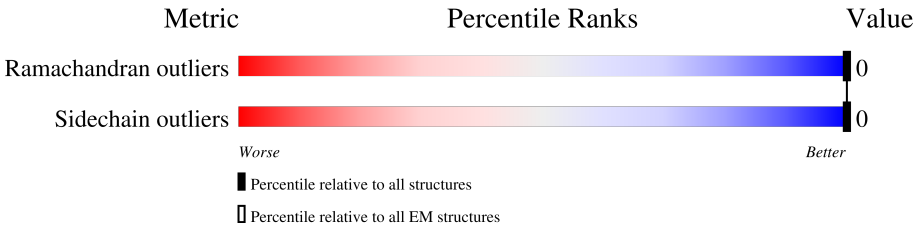
EMDB validation analysis	:	0.0.1.dev43
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.9
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.31.3

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 2.80 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)
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 <=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	487	7% 100%
1	a	487	7% 100%
2	B	338	8% 9% 91%
2	b	338	8% 9% 91%
3	D	187	99%
3	d	187	99%
4	E	97	7% 99%
4	e	97	7% 99%
5	F	274	100%

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Mol	Chain	Length	Quality of chain
5	f	274	100%
6	G	112	11% 99%
6	g	112	11% 99%
7	H	476	22% 82% 18%
7	h	476	22% 82% 18%
8	I	98	99%
8	i	98	99%
9	J	104	99%
9	j	104	99%
10	K	113	91% 9%
10	k	113	91% 9%
11	L	57	14% 100%
11	l	57	12% 100%
12	M	169	16% 98%
12	m	169	16% 98%
13	N	137	13% 96%
13	n	137	13% 96%
14	O	116	12% 86% 14%
14	o	116	12% 86% 14%
15	P	120	7% 95% 5%
15	p	120	7% 95% 5%
16	Q	90	24% 99%
16	q	90	26% 99%
17	R	78	8% 88% 12%
17	r	78	8% 88% 12%

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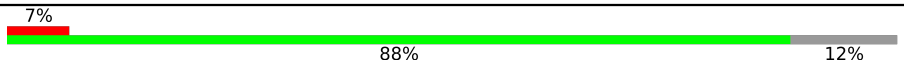
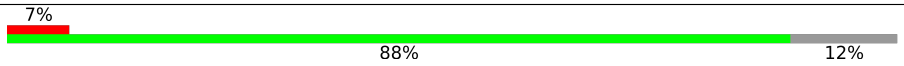
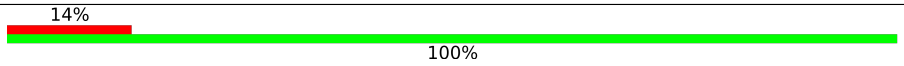
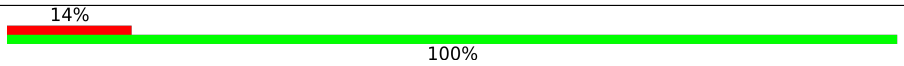
Mol	Chain	Length	Quality of chain
18	S	74	
18	s	74	
19	T	66	
19	t	66	

2 Entry composition (i)

There are 23 unique types of molecules in this entry. The entry contains 95420 atoms, of which 47674 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 ATPTB1.

Mol	Chain	Residues	Atoms						AltConf	Trace
1	A	486	Total	C	H	N	O	S	0	0
			7864	2525	3919	677	733	10		
1	a	486	Total	C	H	N	O	S	0	0
			7864	2525	3919	677	733	10		

- Molecule 2 is a protein called ATPTB3.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	31	Total	C	H	N	O	0	0
			494	153	243	44	54		
2	b	31	Total	C	H	N	O	0	0
			494	153	243	44	54		

- Molecule 3 is a protein called ATPTB6.

Mol	Chain	Residues	Atoms						AltConf	Trace
3	D	186	Total	C	H	N	O	S	0	0
			3040	977	1519	269	267	8		
3	d	186	Total	C	H	N	O	S	0	0
			3040	977	1519	269	267	8		

- Molecule 4 is a protein called ATPTB12.

Mol	Chain	Residues	Atoms						AltConf	Trace
4	E	96	Total	C	H	N	O	S	0	0
			1574	509	777	144	141	3		
4	e	96	Total	C	H	N	O	S	0	0
			1577	510	779	144	141	3		

- Molecule 5 is a protein called subunit a.

Mol	Chain	Residues	Atoms						AltConf	Trace
5	F	274	Total	C	H	N	O	S	0	0
			4639	1566	2327	341	391	14		
5	f	274	Total	C	H	N	O	S	0	0
			4642	1566	2329	342	391	14		

- Molecule 6 is a protein called subunit b.

Mol	Chain	Residues	Atoms						AltConf	Trace
6	G	111	Total	C	H	N	O	S	0	0
			1803	566	924	160	146	7		
6	g	111	Total	C	H	N	O	S	0	0
			1803	566	924	160	146	7		

- Molecule 7 is a protein called subunit d.

Mol	Chain	Residues	Atoms						AltConf	Trace
7	H	388	Total	C	H	N	O	S	0	0
			6165	1987	3059	512	598	9		
7	h	388	Total	C	H	N	O	S	0	0
			6165	1987	3059	512	598	9		

- Molecule 8 is a protein called subunit f.

Mol	Chain	Residues	Atoms						AltConf	Trace
8	I	97	Total	C	H	N	O	S	0	0
			1553	504	771	140	135	3		
8	i	97	Total	C	H	N	O	S	0	0
			1553	504	771	140	135	3		

- Molecule 9 is a protein called subunit i/j.

Mol	Chain	Residues	Atoms						AltConf	Trace
9	J	103	Total	C	H	N	O	S	0	0
			1734	581	853	151	146	3		
9	j	103	Total	C	H	N	O	S	0	0
			1734	581	853	151	146	3		

- Molecule 10 is a protein called subunit k.

Mol	Chain	Residues	Atoms						AltConf	Trace
10	K	103	Total	C	H	N	O	S	0	0
			1637	530	821	136	144	6		

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Mol	Chain	Residues	Atoms						AltConf	Trace
10	k	103	Total	C	H	N	O	S	0	0
			1637	530	821	136	144	6		

- Molecule 11 is a protein called subunit 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	L	57	Total	C	H	N	O	0	0
			1008	350	507	69	82		
11	l	57	Total	C	H	N	O	0	0
			1008	350	507	69	82		

- Molecule 12 is a protein called ATPEG1.

Mol	Chain	Residues	Atoms						AltConf	Trace
12	M	166	Total	C	H	N	O	S	0	0
			2717	887	1354	228	240	8		
12	m	166	Total	C	H	N	O	S	0	0
			2717	887	1354	228	240	8		

- Molecule 13 is a protein called ATPEG2.

Mol	Chain	Residues	Atoms						AltConf	Trace
13	N	131	Total	C	H	N	O	S	0	0
			2167	714	1070	198	182	3		
13	n	131	Total	C	H	N	O	S	0	0
			2167	714	1070	198	182	3		

- Molecule 14 is a protein called ATPEG3.

Mol	Chain	Residues	Atoms						AltConf	Trace
14	O	100	Total	C	H	N	O	S	0	0
			1652	556	803	146	145	2		
14	o	100	Total	C	H	N	O	S	0	0
			1652	556	803	146	145	2		

- Molecule 15 is a protein called ATPEG4.

Mol	Chain	Residues	Atoms						AltConf	Trace
15	P	114	Total	C	H	N	O	S	0	0
			1838	601	912	159	160	6		
15	p	114	Total	C	H	N	O	S	0	0
			1838	601	912	159	160	6		

- Molecule 16 is a protein called ATPEG5.

Mol	Chain	Residues	Atoms						AltConf	Trace
16	Q	89	Total	C	H	N	O	S	0	0
			1476	475	723	137	137	4		
16	q	89	Total	C	H	N	O	S	0	0
			1476	475	723	137	137	4		

- Molecule 17 is a protein called ATPEG6.

Mol	Chain	Residues	Atoms						AltConf	Trace
17	R	69	Total	C	H	N	O	S	0	0
			1160	374	581	106	97	2		
17	r	69	Total	C	H	N	O	S	0	0
			1160	374	581	106	97	2		

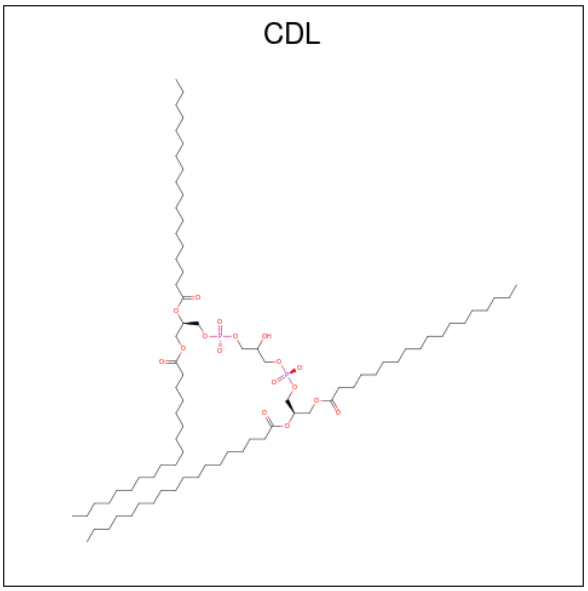
- Molecule 18 is a protein called ATPEG7.

Mol	Chain	Residues	Atoms						AltConf	Trace
18	S	65	Total	C	H	N	O	S	0	0
			1092	371	541	90	89	1		
18	s	65	Total	C	H	N	O	S	0	0
			1092	371	541	90	89	1		

- Molecule 19 is a protein called ATPEG8.

Mol	Chain	Residues	Atoms						AltConf	Trace
19	T	66	Total	C	H	N	O	S	0	0
			1080	349	552	95	83	1		
19	t	66	Total	C	H	N	O	S	0	0
			1080	349	552	95	83	1		

- Molecule 20 is CARDIOLIPIN (three-letter code: CDL) (formula: $C_{81}H_{156}O_{17}P_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
20	A	1	Total	C	H	O	P	0
			636	231	329	68	8	
20	A	1	Total	C	H	O	P	0
			636	231	329	68	8	
20	A	1	Total	C	H	O	P	0
			636	231	329	68	8	
20	A	1	Total	C	H	O	P	0
			636	231	329	68	8	
20	D	1	Total	C	H	O	P	0
			412	139	235	34	4	
20	D	1	Total	C	H	O	P	0
			412	139	235	34	4	
20	E	1	Total	C	H	O	P	0
			95	44	32	17	2	
20	M	1	Total	C	H	O	P	0
			232	92	102	34	4	
20	M	1	Total	C	H	O	P	0
			232	92	102	34	4	
20	O	1	Total	C	H	O	P	0
			124	46	59	17	2	
20	P	1	Total	C	H	O	P	0
			75	29	27	17	2	
20	R	1	Total	C	H	O	P	0
			150	57	74	17	2	
20	a	1	Total	C	H	O	P	0
			636	231	329	68	8	
20	a	1	Total	C	H	O	P	0
			636	231	329	68	8	

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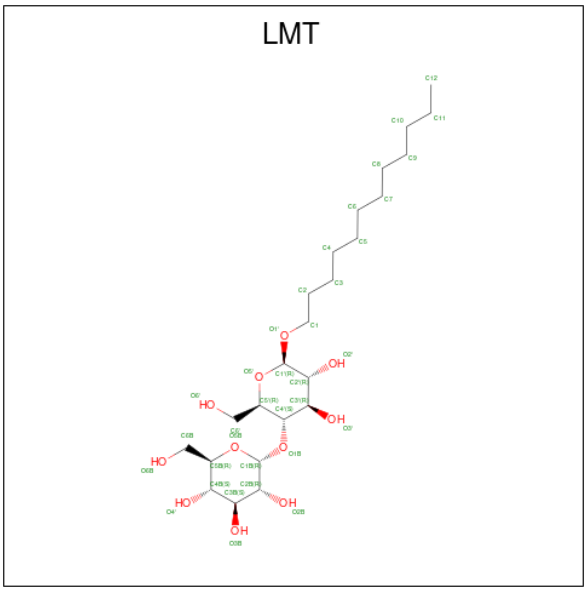
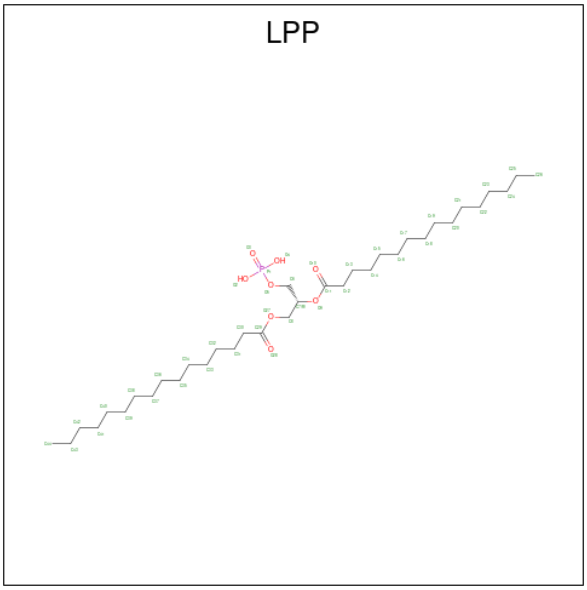
Mol	Chain	Residues	Atoms					AltConf
20	a	1	Total	C	H	O	P	0
			636	231	329	68	8	
20	a	1	Total	C	H	O	P	0
			636	231	329	68	8	
20	d	1	Total	C	H	O	P	0
			412	139	235	34	4	
20	d	1	Total	C	H	O	P	0
			412	139	235	34	4	
20	e	1	Total	C	H	O	P	0
			95	44	32	17	2	
20	m	1	Total	C	H	O	P	0
			232	92	102	34	4	
20	m	1	Total	C	H	O	P	0
			232	92	102	34	4	
20	o	1	Total	C	H	O	P	0
			124	46	59	17	2	
20	p	1	Total	C	H	O	P	0
			319	108	173	34	4	
20	p	1	Total	C	H	O	P	0
			319	108	173	34	4	
20	r	1	Total	C	H	O	P	0
			150	57	74	17	2	

- Molecule 21 is DODECYL-BETA-D-MALTOSIDE (three-letter code: LMT) (formula: $C_{24}H_{46}O_{11}$).



Mol	Chain	Residues	Atoms				AltConf
21	D	1	Total	C	H	O	0
			81	24	46	11	
21	F	1	Total	C	H	O	0
			81	24	46	11	
21	N	1	Total	C	H	O	0
			81	24	46	11	
21	Q	1	Total	C	H	O	0
			81	24	46	11	
21	d	1	Total	C	H	O	0
			81	24	46	11	
21	f	1	Total	C	H	O	0
			81	24	46	11	
21	n	1	Total	C	H	O	0
			81	24	46	11	
21	q	1	Total	C	H	O	0
			81	24	46	11	

- Molecule 22 is 2-(HEXADECANOYLOXY)-1-[(PHOSPHONOOXY)METHYL]ETHYL HEXADECANOATE (three-letter code: LPP) (formula: $C_{35}H_{69}O_8P$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
22	F	1	Total	C	H	O	P	0
			41	15	17	8	1	
22	I	1	Total	C	H	O	P	0
			111	35	67	8	1	
22	N	1	Total	C	H	O	P	0
			43	17	17	8	1	

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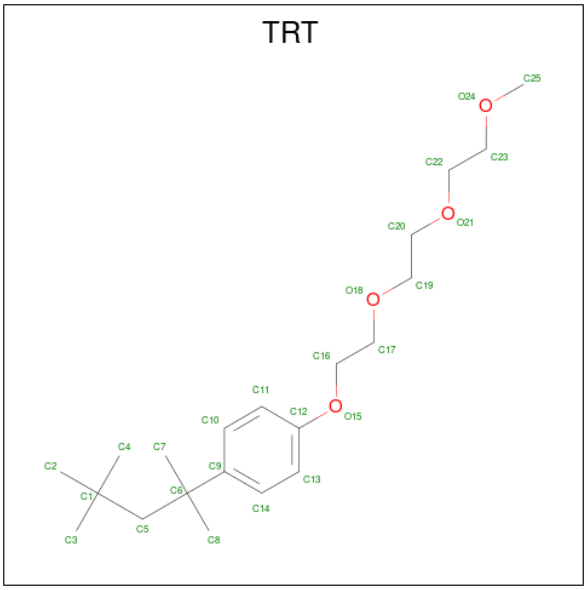
Mol	Chain	Residues	Atoms					AltConf
22	O	1	Total	C	H	O	P	0
			113	37	58	16	2	
22	O	1	Total	C	H	O	P	0
			113	37	58	16	2	
22	P	1	Total	C	H	O	P	0
			43	17	17	8	1	
22	R	1	Total	C	H	O	P	0
			48	22	17	8	1	
22	f	1	Total	C	H	O	P	0
			41	15	17	8	1	
22	i	1	Total	C	H	O	P	0
			111	35	67	8	1	
22	o	1	Total	C	H	O	P	0
			113	37	58	16	2	
22	o	1	Total	C	H	O	P	0
			113	37	58	16	2	
22	r	1	Total	C	H	O	P	0
			48	22	17	8	1	

- Molecule 23 is FRAGMENT OF TRITON X-100 (three-letter code: TRT) (formula: $C_{21}H_{36}O_4$).



Mol	Chain	Residues	Atoms				AltConf
23	G	1	Total	C	H	O	0
			122	42	72	8	
23	G	1	Total	C	H	O	0
			122	42	72	8	

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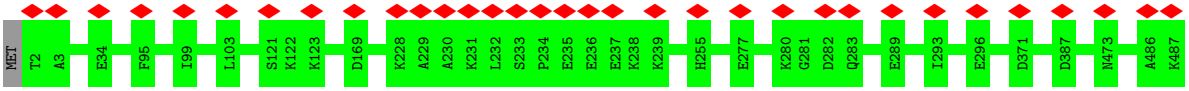
Mol	Chain	Residues	Atoms				AltConf
23	M	1	Total	C	H	O	0
			122	42	72	8	
23	M	1	Total	C	H	O	0
			122	42	72	8	
23	N	1	Total	C	H	O	0
			122	42	72	8	
23	N	1	Total	C	H	O	0
			122	42	72	8	
23	P	1	Total	C	H	O	0
			61	21	36	4	
23	R	1	Total	C	H	O	0
			61	21	36	4	
23	g	1	Total	C	H	O	0
			122	42	72	8	
23	g	1	Total	C	H	O	0
			122	42	72	8	
23	m	1	Total	C	H	O	0
			122	42	72	8	
23	m	1	Total	C	H	O	0
			122	42	72	8	
23	n	1	Total	C	H	O	0
			122	42	72	8	
23	n	1	Total	C	H	O	0
			122	42	72	8	
23	p	1	Total	C	H	O	0
			61	21	36	4	
23	r	1	Total	C	H	O	0
			61	21	36	4	

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.

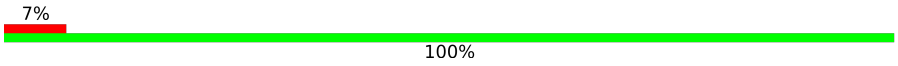
• Molecule 1: ATPTB1

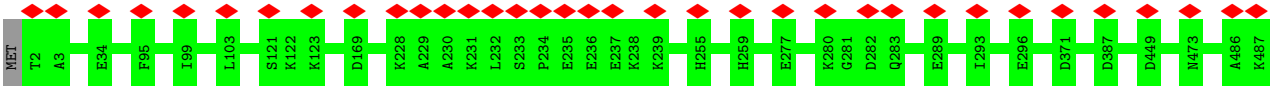
Chain A:



• Molecule 1: ATPTB1

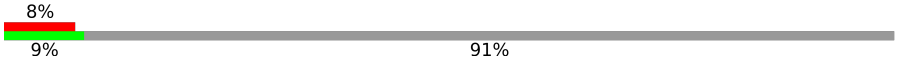
Chain a:

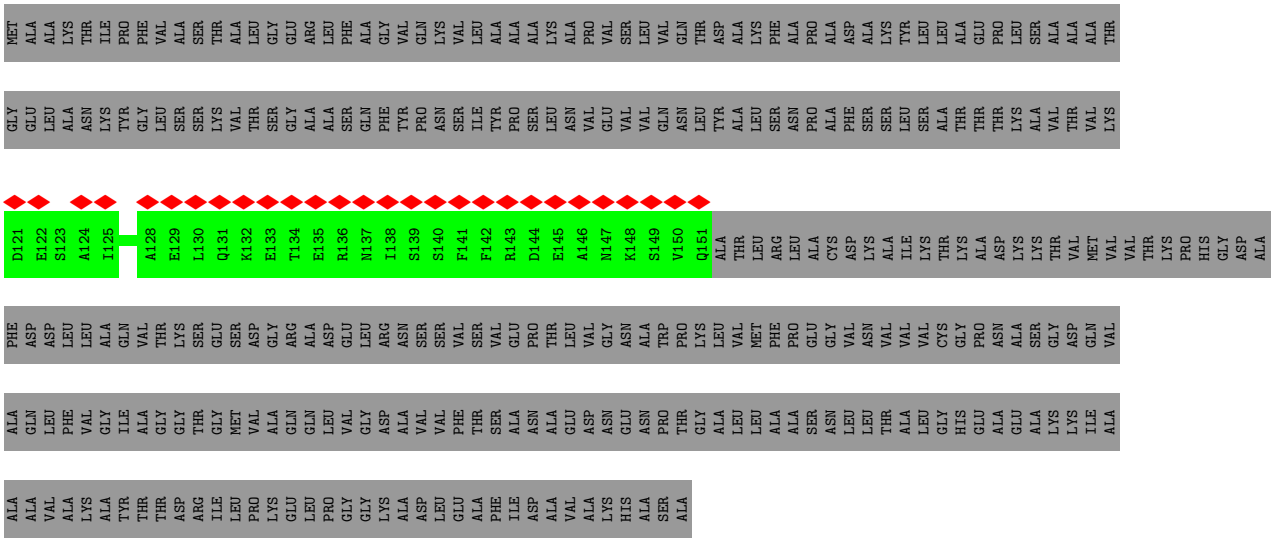




• Molecule 2: ATPTB3

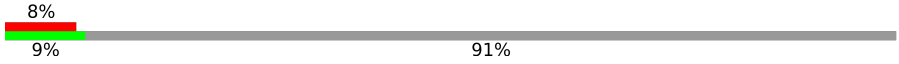
Chain B:

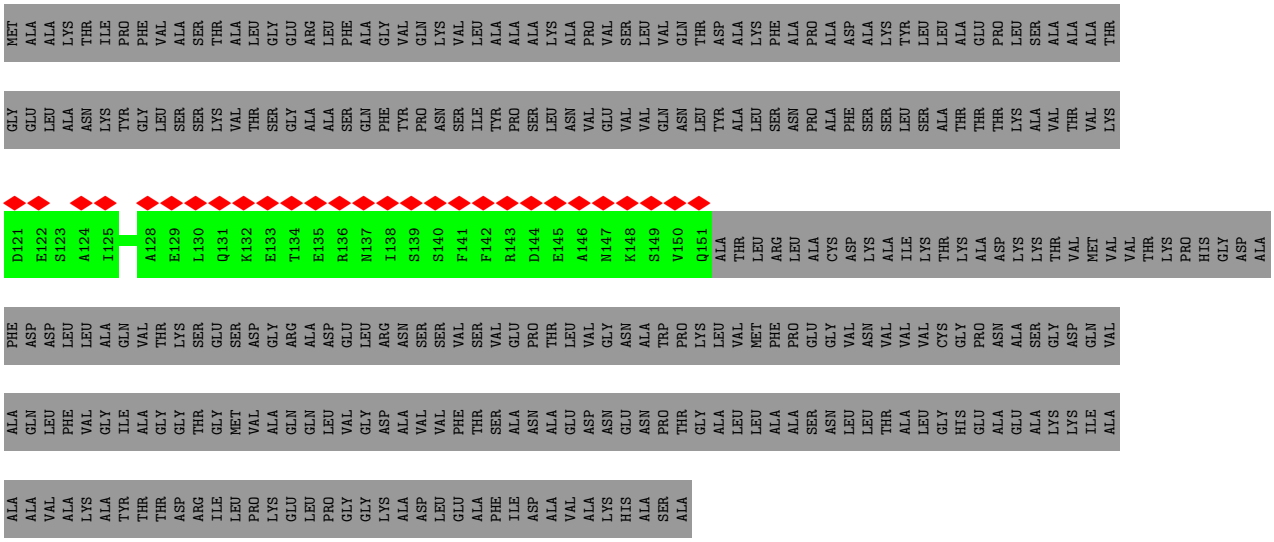




• Molecule 2: ATPTB3

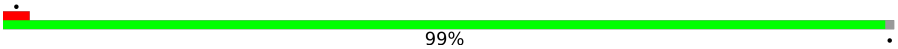
Chain b:

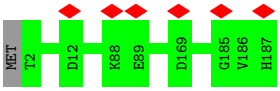




• Molecule 3: ATPTB6

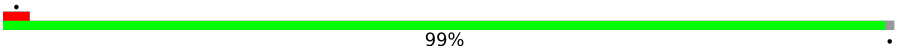
Chain D:

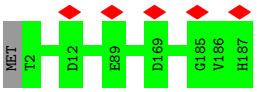




• Molecule 3: ATPTB6

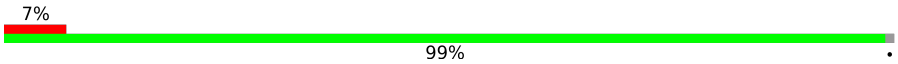
Chain d:

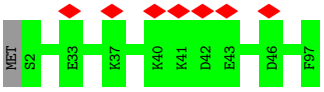




• Molecule 4: ATPTB12

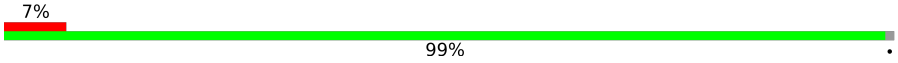
Chain E:

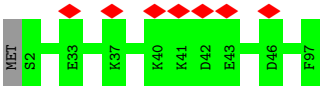




• Molecule 4: ATPTB12

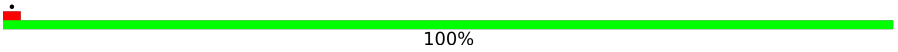
Chain e:

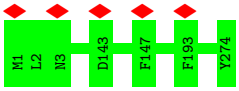




• Molecule 5: subunit a

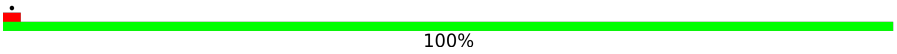
Chain F:

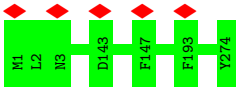




• Molecule 5: subunit a

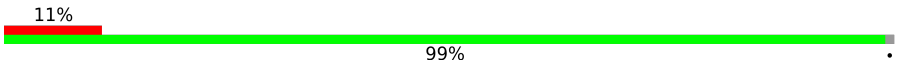
Chain f:

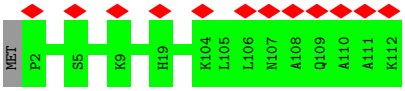




• Molecule 6: subunit b

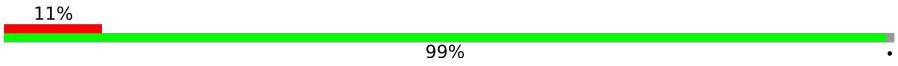
Chain G:

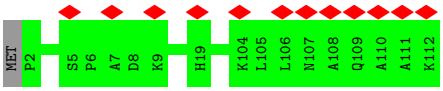




• Molecule 6: subunit b

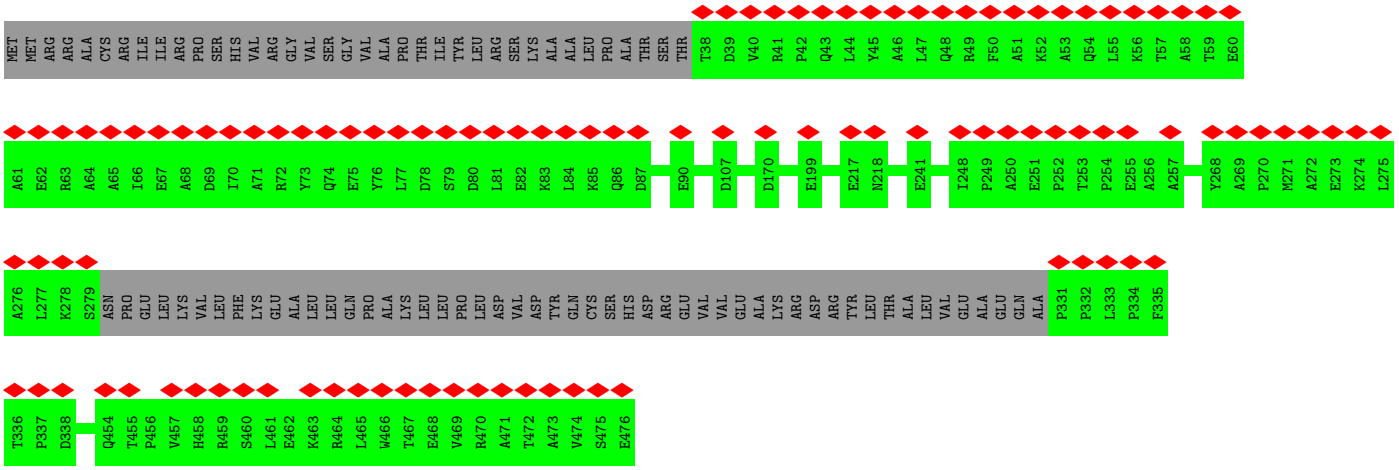
Chain g:





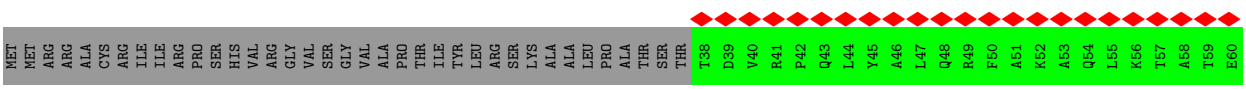
• Molecule 7: subunit d

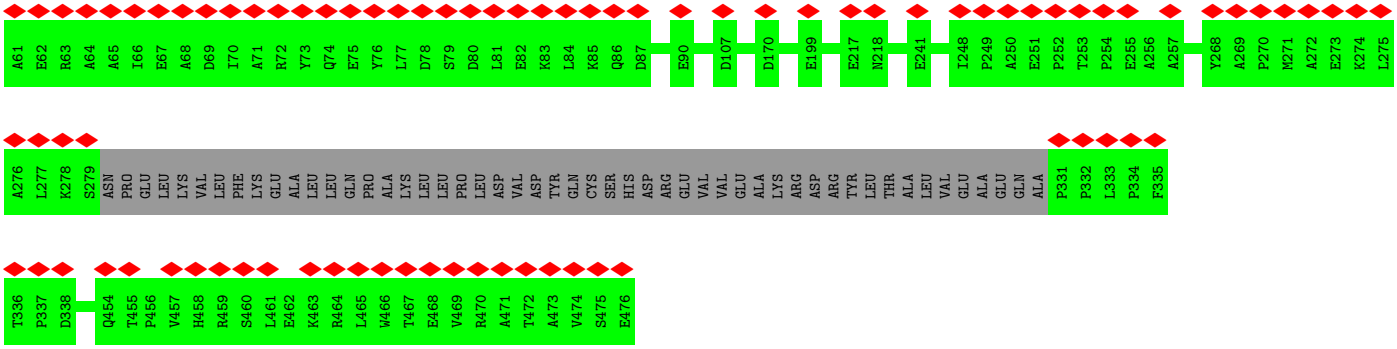
Chain H:



• Molecule 7: subunit d

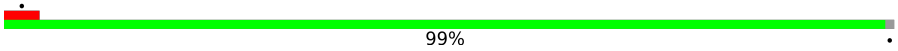
Chain h:

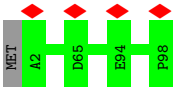




• Molecule 8: subunit f

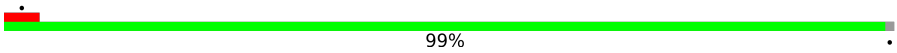
Chain I:

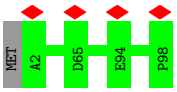




• Molecule 8: subunit f

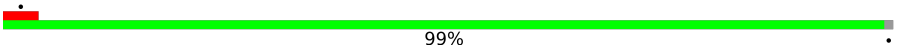
Chain i:

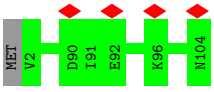




• Molecule 9: subunit i/j

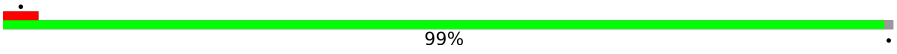
Chain J:

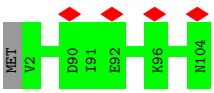




• Molecule 9: subunit i/j

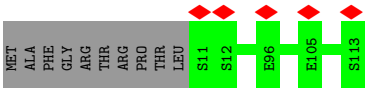
Chain j:





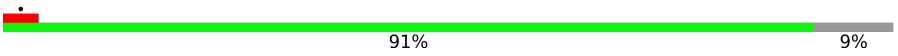
• Molecule 10: subunit k

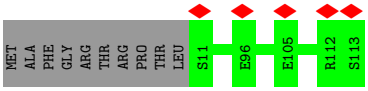
Chain K:



• Molecule 10: subunit k

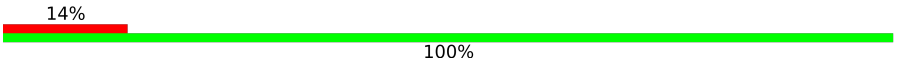
Chain k:

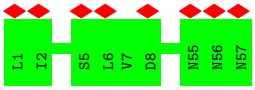




• Molecule 11: subunit 8

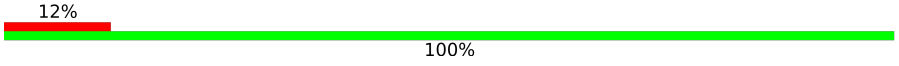
Chain L:

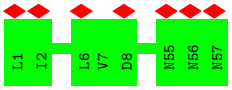




• Molecule 11: subunit 8

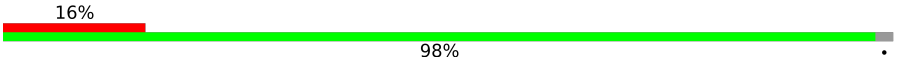
Chain l:

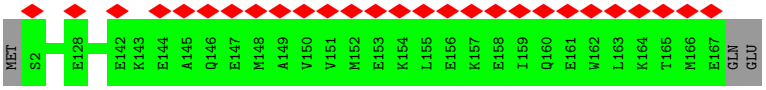




• Molecule 12: ATPEG1

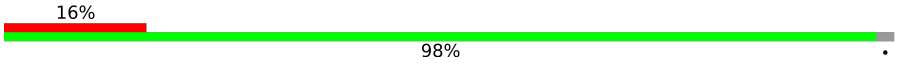
Chain M:

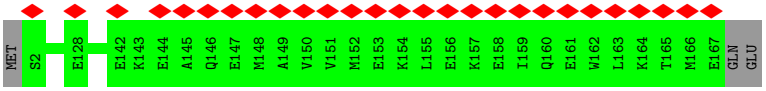




• Molecule 12: ATPEG1

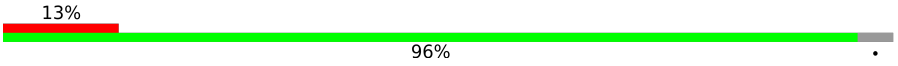
Chain m:

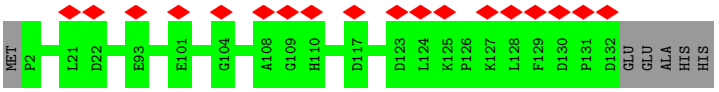




• Molecule 13: ATPEG2

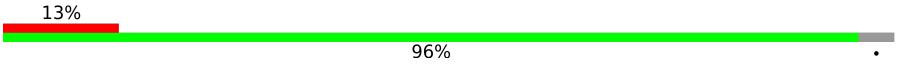
Chain N:

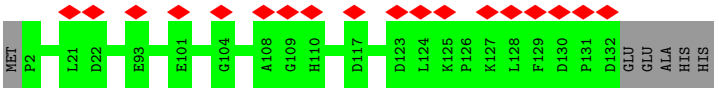




• Molecule 13: ATPEG2

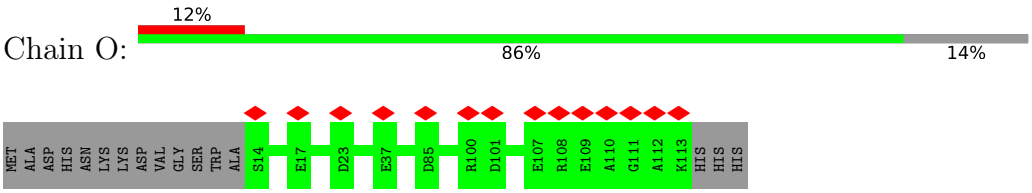
Chain n:





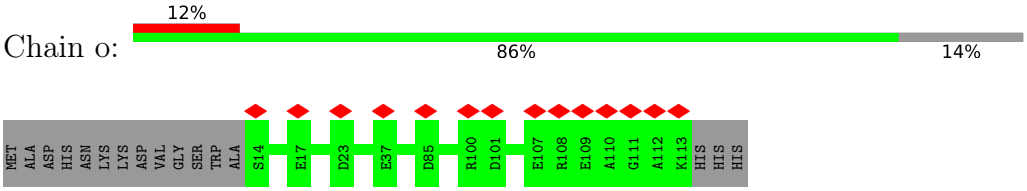
• Molecule 14: ATPEG3

Chain O:



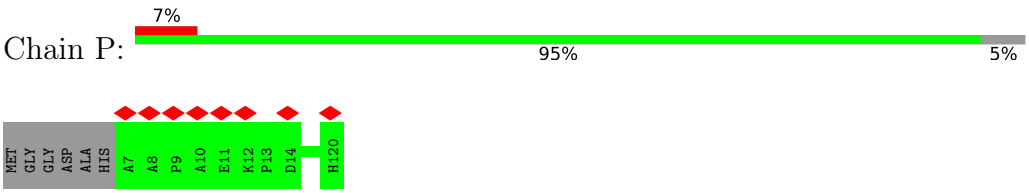
• Molecule 14: ATPEG3

Chain o:



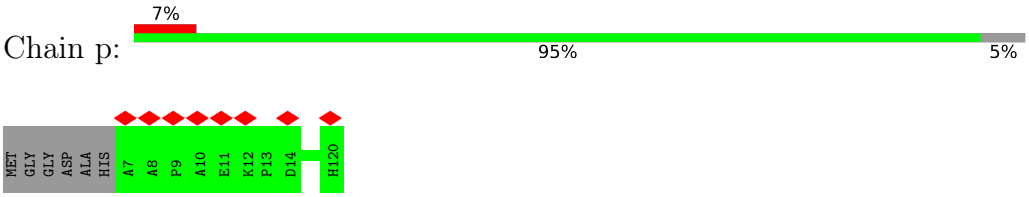
• Molecule 15: ATPEG4

Chain P:



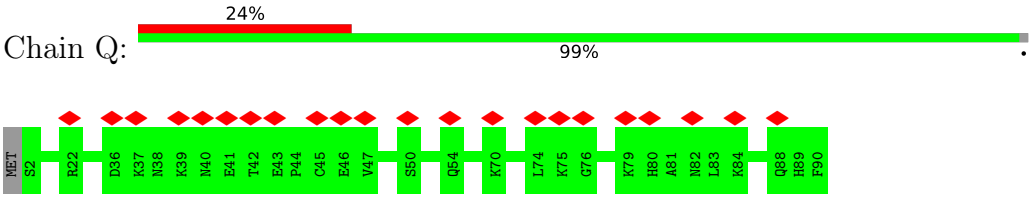
• Molecule 15: ATPEG4

Chain p:



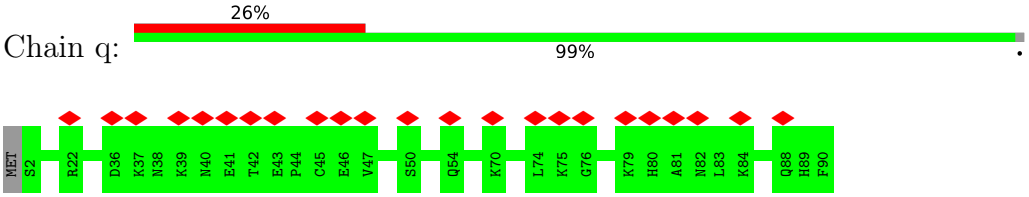
• Molecule 16: ATPEG5

Chain Q:



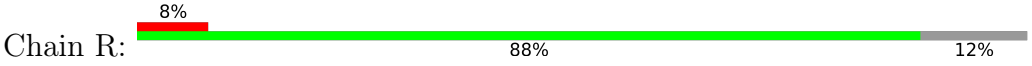
• Molecule 16: ATPEG5

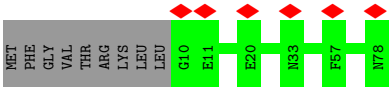
Chain q:



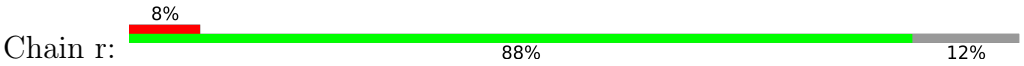
• Molecule 17: ATPEG6

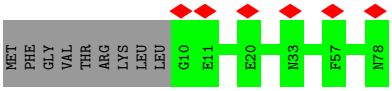
Chain R:



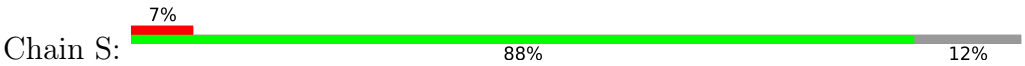


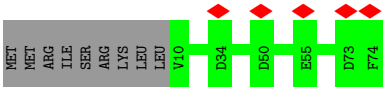
• Molecule 17: ATPEG6



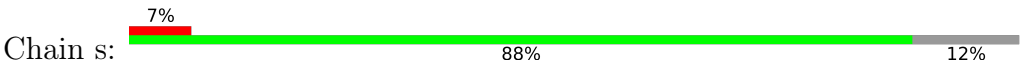


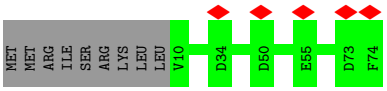
• Molecule 18: ATPEG7



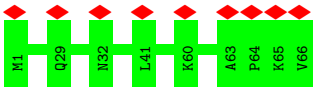


• Molecule 18: ATPEG7

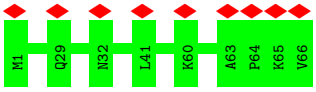




• Molecule 19: ATPEG8



• Molecule 19: ATPEG8



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C2	Depositor
Number of particles used	150242	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 ($e^-/Å^2$)	36.3	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	130000	Depositor
Image detector	GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	0.133	Depositor
Minimum map value	-0.061	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.003	Depositor
Recommended contour level	0.025	Depositor
Map size (Å)	461.99997, 461.99997, 461.99997	wwPDB
Map dimensions	440, 440, 440	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.05, 1.05, 1.05	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: LMT, LPP, TRT, CDL

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	0.35	0/4047	0.49	0/5500
1	a	0.35	0/4047	0.50	0/5500
2	B	0.24	0/252	0.37	0/335
2	b	0.25	0/252	0.37	0/335
3	D	0.34	0/1559	0.52	0/2106
3	d	0.34	0/1559	0.52	0/2106
4	E	0.32	0/819	0.47	0/1096
4	e	0.31	0/821	0.46	0/1100
5	F	0.37	0/2377	0.46	0/3228
5	f	0.37	0/2379	0.46	0/3233
6	G	0.34	0/901	0.57	0/1218
6	g	0.34	0/901	0.57	0/1218
7	H	0.33	0/3185	0.47	0/4352
7	h	0.33	0/3185	0.47	0/4352
8	I	0.35	0/804	0.47	0/1084
8	i	0.35	0/804	0.47	0/1084
9	J	0.34	0/918	0.46	0/1255
9	j	0.34	0/918	0.46	0/1255
10	K	0.32	0/839	0.45	0/1135
10	k	0.32	0/839	0.45	0/1135
11	L	0.40	0/518	0.46	0/711
11	l	0.40	0/518	0.46	0/711
12	M	0.33	0/1399	0.45	0/1895
12	m	0.34	0/1399	0.45	0/1895
13	N	0.34	0/1137	0.47	0/1540
13	n	0.34	0/1137	0.48	0/1540
14	O	0.32	0/881	0.44	0/1193
14	o	0.32	0/881	0.44	0/1193
15	P	0.36	0/955	0.49	0/1292
15	p	0.36	0/955	0.49	0/1292
16	Q	0.29	0/774	0.51	0/1040
16	q	0.29	0/774	0.51	0/1040

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\#\|Z\| > 5$	RMSZ	$\#\|Z\| > 5$
17	R	0.30	0/594	0.51	0/798
17	r	0.30	0/594	0.51	0/798
18	S	0.34	0/575	0.48	0/785
18	s	0.34	0/575	0.48	0/785
19	T	0.33	0/543	0.52	0/730
19	t	0.33	0/543	0.52	0/730
All	All	0.34	0/46158	0.48	0/62595

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

Due to software issues we are unable to calculate clashes - this section is therefore empty.

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	484/487 (99%)	467 (96%)	17 (4%)	0	100	100
1	a	484/487 (99%)	467 (96%)	17 (4%)	0	100	100
2	B	29/338 (9%)	29 (100%)	0	0	100	100
2	b	29/338 (9%)	29 (100%)	0	0	100	100
3	D	184/187 (98%)	180 (98%)	4 (2%)	0	100	100
3	d	184/187 (98%)	180 (98%)	4 (2%)	0	100	100
4	E	94/97 (97%)	91 (97%)	3 (3%)	0	100	100
4	e	94/97 (97%)	91 (97%)	3 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
5	F	270/274 (98%)	262 (97%)	8 (3%)	0	100	100
5	f	272/274 (99%)	264 (97%)	8 (3%)	0	100	100
6	G	109/112 (97%)	108 (99%)	1 (1%)	0	100	100
6	g	109/112 (97%)	108 (99%)	1 (1%)	0	100	100
7	H	384/476 (81%)	380 (99%)	4 (1%)	0	100	100
7	h	384/476 (81%)	380 (99%)	4 (1%)	0	100	100
8	I	95/98 (97%)	91 (96%)	4 (4%)	0	100	100
8	i	95/98 (97%)	92 (97%)	3 (3%)	0	100	100
9	J	101/104 (97%)	99 (98%)	2 (2%)	0	100	100
9	j	101/104 (97%)	99 (98%)	2 (2%)	0	100	100
10	K	101/113 (89%)	99 (98%)	2 (2%)	0	100	100
10	k	101/113 (89%)	99 (98%)	2 (2%)	0	100	100
11	L	55/57 (96%)	51 (93%)	4 (7%)	0	100	100
11	l	55/57 (96%)	51 (93%)	4 (7%)	0	100	100
12	M	164/169 (97%)	164 (100%)	0	0	100	100
12	m	164/169 (97%)	164 (100%)	0	0	100	100
13	N	129/137 (94%)	124 (96%)	5 (4%)	0	100	100
13	n	129/137 (94%)	124 (96%)	5 (4%)	0	100	100
14	O	98/116 (84%)	95 (97%)	3 (3%)	0	100	100
14	o	98/116 (84%)	95 (97%)	3 (3%)	0	100	100
15	P	112/120 (93%)	109 (97%)	3 (3%)	0	100	100
15	p	112/120 (93%)	109 (97%)	3 (3%)	0	100	100
16	Q	87/90 (97%)	80 (92%)	7 (8%)	0	100	100
16	q	87/90 (97%)	80 (92%)	7 (8%)	0	100	100
17	R	67/78 (86%)	66 (98%)	1 (2%)	0	100	100
17	r	67/78 (86%)	66 (98%)	1 (2%)	0	100	100
18	S	63/74 (85%)	61 (97%)	2 (3%)	0	100	100
18	s	63/74 (85%)	61 (97%)	2 (3%)	0	100	100
19	T	64/66 (97%)	63 (98%)	1 (2%)	0	100	100
19	t	64/66 (97%)	63 (98%)	1 (2%)	0	100	100
All	All	5382/6386 (84%)	5241 (97%)	141 (3%)	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	426/427 (100%)	426 (100%)	0	100	100
1	a	426/427 (100%)	426 (100%)	0	100	100
2	B	28/259 (11%)	28 (100%)	0	100	100
2	b	28/259 (11%)	28 (100%)	0	100	100
3	D	159/160 (99%)	159 (100%)	0	100	100
3	d	159/160 (99%)	159 (100%)	0	100	100
4	E	80/82 (98%)	80 (100%)	0	100	100
4	e	81/82 (99%)	81 (100%)	0	100	100
5	F	258/259 (100%)	258 (100%)	0	100	100
5	f	259/259 (100%)	259 (100%)	0	100	100
6	G	98/99 (99%)	98 (100%)	0	100	100
6	g	98/99 (99%)	98 (100%)	0	100	100
7	H	339/414 (82%)	339 (100%)	0	100	100
7	h	339/414 (82%)	339 (100%)	0	100	100
8	I	82/83 (99%)	82 (100%)	0	100	100
8	i	82/83 (99%)	82 (100%)	0	100	100
9	J	94/95 (99%)	94 (100%)	0	100	100
9	j	94/95 (99%)	94 (100%)	0	100	100
10	K	89/97 (92%)	89 (100%)	0	100	100
10	k	89/97 (92%)	89 (100%)	0	100	100
11	L	56/56 (100%)	56 (100%)	0	100	100
11	l	56/56 (100%)	56 (100%)	0	100	100
12	M	137/140 (98%)	137 (100%)	0	100	100
12	m	137/140 (98%)	137 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
13	N	114/119 (96%)	114 (100%)	0	100	100
13	n	114/119 (96%)	114 (100%)	0	100	100
14	O	90/103 (87%)	90 (100%)	0	100	100
14	o	90/103 (87%)	90 (100%)	0	100	100
15	P	96/99 (97%)	96 (100%)	0	100	100
15	p	96/99 (97%)	96 (100%)	0	100	100
16	Q	82/83 (99%)	82 (100%)	0	100	100
16	q	82/83 (99%)	82 (100%)	0	100	100
17	R	59/67 (88%)	59 (100%)	0	100	100
17	r	59/67 (88%)	59 (100%)	0	100	100
18	S	59/68 (87%)	59 (100%)	0	100	100
18	s	59/68 (87%)	59 (100%)	0	100	100
19	T	54/54 (100%)	54 (100%)	0	100	100
19	t	54/54 (100%)	54 (100%)	0	100	100
All	All	4802/5528 (87%)	4802 (100%)	0	100	100

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

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
5	F	32	ASN
5	f	32	ASN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

61 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	$\#\|Z\| > 2$
22	LPP	N	203	-	25,25,43	1.34	3 (12%)	29,30,48	1.24	2 (6%)
22	LPP	F	301	-	23,23,43	1.37	3 (13%)	27,28,48	1.19	2 (7%)
23	TRT	M	201	-	25,25,25	0.55	0	33,33,33	0.70	1 (3%)
21	LMT	d	203	-	36,36,36	1.19	5 (13%)	47,47,47	0.91	1 (2%)
23	TRT	g	201	-	25,25,25	0.53	0	33,33,33	0.80	1 (3%)
23	TRT	N	201	-	25,25,25	0.50	0	33,33,33	0.87	1 (3%)
20	CDL	a	503	-	80,80,99	0.97	8 (10%)	85,91,111	1.04	4 (4%)
22	LPP	R	102	-	30,30,43	1.25	4 (13%)	34,35,48	1.22	2 (5%)
23	TRT	r	103	-	25,25,25	0.53	0	33,33,33	0.83	1 (3%)
20	CDL	A	501	-	80,80,99	0.97	7 (8%)	86,92,111	1.11	5 (5%)
20	CDL	a	504	-	62,62,99	1.10	8 (12%)	68,74,111	1.17	4 (5%)
20	CDL	A	502	-	80,80,99	0.98	8 (10%)	86,92,111	1.08	4 (4%)
23	TRT	p	203	-	25,25,25	1.25	3 (12%)	33,33,33	4.75	8 (24%)
23	TRT	m	204	-	25,25,25	0.54	0	33,33,33	0.79	1 (3%)
20	CDL	P	201	-	47,47,99	1.24	8 (17%)	53,59,111	1.29	5 (9%)
23	TRT	G	202	-	25,25,25	0.59	0	33,33,33	0.69	0
20	CDL	M	203	-	76,76,99	0.99	8 (10%)	82,88,111	1.09	4 (4%)
20	CDL	O	201	-	64,64,99	1.07	8 (12%)	70,76,111	1.07	4 (5%)
20	CDL	a	502	-	80,80,99	0.97	8 (10%)	86,92,111	1.08	4 (4%)
23	TRT	R	103	-	25,25,25	0.53	0	33,33,33	0.83	1 (3%)
20	CDL	A	503	-	80,80,99	0.97	8 (10%)	85,91,111	1.05	4 (4%)
22	LPP	r	102	-	30,30,43	1.24	4 (13%)	34,35,48	1.22	2 (5%)
20	CDL	E	101	-	62,62,99	1.08	8 (12%)	68,74,111	1.11	4 (5%)
20	CDL	m	201	-	76,76,99	0.99	8 (10%)	82,88,111	1.09	4 (4%)
20	CDL	d	202	-	84,84,99	0.95	7 (8%)	90,96,111	1.01	4 (4%)
20	CDL	D	201	-	90,90,99	0.91	8 (8%)	96,102,111	1.03	4 (4%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
21	LMT	n	201	-	36,36,36	1.20	6 (16%)	47,47,47	1.02	3 (6%)
22	LPP	o	202	-	22,22,43	1.39	2 (9%)	26,27,48	1.17	2 (7%)
20	CDL	o	201	-	64,64,99	1.07	8 (12%)	70,76,111	1.08	4 (5%)
23	TRT	n	203	-	25,25,25	0.60	0	33,33,33	0.63	0
21	LMT	F	302	-	36,36,36	1.18	5 (13%)	47,47,47	0.95	2 (4%)
20	CDL	m	202	-	52,52,99	1.19	8 (15%)	58,64,111	1.24	4 (6%)
22	LPP	O	202	-	22,22,43	1.39	3 (13%)	26,27,48	1.17	2 (7%)
23	TRT	M	202	-	25,25,25	0.54	0	33,33,33	0.79	1 (3%)
21	LMT	D	203	-	36,36,36	1.19	5 (13%)	47,47,47	0.91	1 (2%)
23	TRT	n	202	-	25,25,25	0.51	0	33,33,33	0.87	1 (3%)
22	LPP	f	301	-	23,23,43	1.37	3 (13%)	27,28,48	1.20	2 (7%)
22	LPP	o	203	-	31,31,43	1.26	4 (12%)	35,36,48	1.11	2 (5%)
23	TRT	g	202	-	25,25,25	0.60	0	33,33,33	0.69	0
23	TRT	m	203	-	25,25,25	0.55	0	33,33,33	0.70	1 (3%)
20	CDL	R	101	-	75,75,99	1.00	8 (10%)	81,87,111	1.05	4 (4%)
21	LMT	Q	101	-	36,36,36	1.17	6 (16%)	47,47,47	1.01	2 (4%)
20	CDL	p	202	-	47,47,99	1.23	8 (17%)	53,59,111	1.28	5 (9%)
20	CDL	r	101	-	75,75,99	1.00	8 (10%)	81,87,111	1.03	4 (4%)
22	LPP	P	202	-	25,25,43	1.33	3 (12%)	29,30,48	1.24	2 (6%)
20	CDL	e	101	-	62,62,99	1.08	8 (12%)	68,74,111	1.11	4 (5%)
21	LMT	q	101	-	36,36,36	1.17	6 (16%)	47,47,47	1.00	2 (4%)
20	CDL	D	202	-	84,84,99	0.95	8 (9%)	90,96,111	1.03	4 (4%)
23	TRT	P	203	-	25,25,25	1.25	3 (12%)	33,33,33	4.75	8 (24%)
20	CDL	d	201	-	90,90,99	0.91	8 (8%)	96,102,111	1.04	4 (4%)
23	TRT	G	201	-	25,25,25	0.53	0	33,33,33	0.79	1 (3%)
21	LMT	f	302	-	36,36,36	1.18	5 (13%)	47,47,47	0.95	2 (4%)
22	LPP	i	101	-	43,43,43	1.11	3 (6%)	47,48,48	0.98	2 (4%)
20	CDL	a	501	-	80,80,99	0.96	7 (8%)	86,92,111	1.11	5 (5%)
22	LPP	O	203	-	31,31,43	1.25	3 (9%)	35,36,48	1.11	2 (5%)
21	LMT	N	204	-	36,36,36	1.20	6 (16%)	47,47,47	1.02	5 (10%)
20	CDL	p	201	-	97,97,99	0.89	8 (8%)	103,109,111	1.00	4 (3%)
23	TRT	N	202	-	25,25,25	0.61	0	33,33,33	0.64	0
20	CDL	A	504	-	62,62,99	1.09	8 (12%)	68,74,111	1.17	4 (5%)
20	CDL	M	204	-	52,52,99	1.19	8 (15%)	58,64,111	1.25	4 (6%)
22	LPP	I	101	-	43,43,43	1.11	2 (4%)	47,48,48	0.98	2 (4%)

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
22	LPP	N	203	-	-	12/27/27/45	-
22	LPP	F	301	-	-	5/25/25/45	-
23	TRT	M	201	-	-	10/23/23/23	0/1/1/1
21	LMT	d	203	-	-	8/21/61/61	0/2/2/2
23	TRT	g	201	-	-	8/23/23/23	0/1/1/1
23	TRT	N	201	-	-	7/23/23/23	0/1/1/1
20	CDL	a	503	-	-	34/89/89/110	-
22	LPP	R	102	-	-	13/32/32/45	-
23	TRT	r	103	-	-	9/23/23/23	0/1/1/1
20	CDL	A	501	-	-	29/91/91/110	-
20	CDL	a	504	-	-	34/73/73/110	-
20	CDL	A	502	-	-	31/91/91/110	-
23	TRT	p	203	-	-	15/23/23/23	0/1/1/1
23	TRT	m	204	-	-	8/23/23/23	0/1/1/1
20	CDL	P	201	-	-	27/57/57/110	-
23	TRT	G	202	-	-	16/23/23/23	0/1/1/1
20	CDL	M	203	-	-	41/87/87/110	-
20	CDL	O	201	-	-	34/75/75/110	-
20	CDL	a	502	-	-	33/91/91/110	-
23	TRT	R	103	-	-	9/23/23/23	0/1/1/1
20	CDL	A	503	-	-	34/89/89/110	-
22	LPP	r	102	-	-	13/32/32/45	-
20	CDL	E	101	-	-	42/73/73/110	-
20	CDL	m	201	-	-	41/87/87/110	-
20	CDL	d	202	-	-	44/95/95/110	-
20	CDL	D	201	-	-	39/101/101/110	-
21	LMT	n	201	-	-	9/21/61/61	0/2/2/2
22	LPP	o	202	-	-	10/24/24/45	-
20	CDL	o	201	-	-	37/75/75/110	-
23	TRT	n	203	-	-	14/23/23/23	0/1/1/1
21	LMT	F	302	-	-	8/21/61/61	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
20	CDL	m	202	-	-	31/63/63/110	-
22	LPP	O	202	-	-	10/24/24/45	-
23	TRT	M	202	-	-	8/23/23/23	0/1/1/1
21	LMT	D	203	-	-	8/21/61/61	0/2/2/2
23	TRT	n	202	-	-	7/23/23/23	0/1/1/1
22	LPP	f	301	-	-	5/25/25/45	-
22	LPP	o	203	-	-	14/33/33/45	-
23	TRT	g	202	-	-	16/23/23/23	0/1/1/1
23	TRT	m	203	-	-	10/23/23/23	0/1/1/1
20	CDL	R	101	-	-	36/86/86/110	-
21	LMT	Q	101	-	-	6/21/61/61	0/2/2/2
20	CDL	p	202	-	-	25/57/57/110	-
20	CDL	r	101	-	-	37/86/86/110	-
22	LPP	P	202	-	-	12/27/27/45	-
20	CDL	e	101	-	-	43/73/73/110	-
21	LMT	q	101	-	-	6/21/61/61	0/2/2/2
20	CDL	D	202	-	-	43/95/95/110	-
23	TRT	P	203	-	-	15/23/23/23	0/1/1/1
20	CDL	d	201	-	-	36/101/101/110	-
23	TRT	G	201	-	-	8/23/23/23	0/1/1/1
21	LMT	f	302	-	-	8/21/61/61	0/2/2/2
22	LPP	i	101	-	-	14/45/45/45	-
20	CDL	a	501	-	-	30/91/91/110	-
22	LPP	O	203	-	-	14/33/33/45	-
21	LMT	N	204	-	-	9/21/61/61	0/2/2/2
20	CDL	p	201	-	-	46/108/108/110	-
23	TRT	N	202	-	-	14/23/23/23	0/1/1/1
20	CDL	A	504	-	-	34/73/73/110	-
20	CDL	M	204	-	-	31/63/63/110	-
22	LPP	I	101	-	-	14/45/45/45	-

The worst 5 of 284 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
23	P	203	TRT	C6-C9	4.14	1.60	1.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
23	p	203	TRT	C6-C9	4.14	1.60	1.53
22	P	202	LPP	O9-C11	3.36	1.43	1.34
22	N	203	LPP	O9-C11	3.34	1.43	1.34
22	I	101	LPP	O9-C11	3.25	1.43	1.34

The worst 5 of 172 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
23	P	203	TRT	C7-C6-C8	16.40	152.16	107.28
23	p	203	TRT	C7-C6-C8	16.39	152.14	107.28
23	P	203	TRT	C5-C6-C9	12.47	139.47	111.93
23	p	203	TRT	C5-C6-C9	12.47	139.46	111.93
23	p	203	TRT	C8-C6-C9	-11.32	81.81	110.20

There are no chirality outliers.

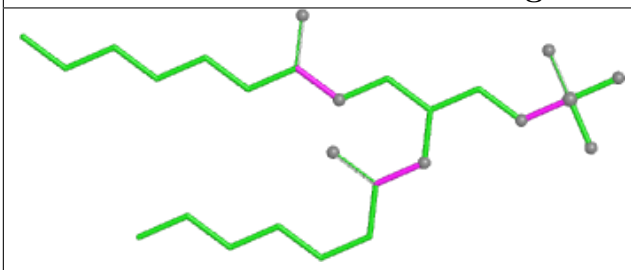
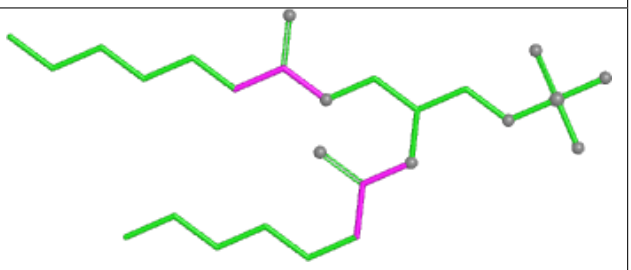
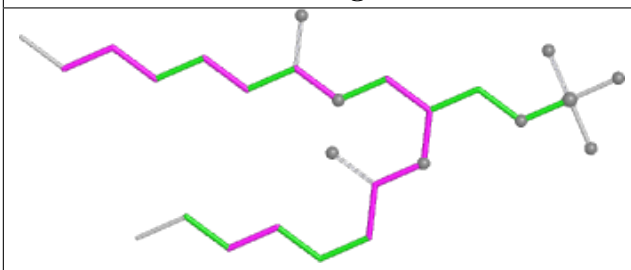
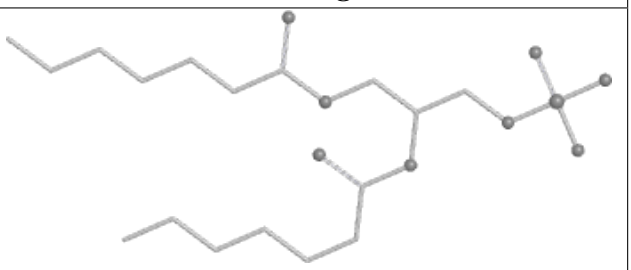
5 of 1264 torsion outliers are listed below:

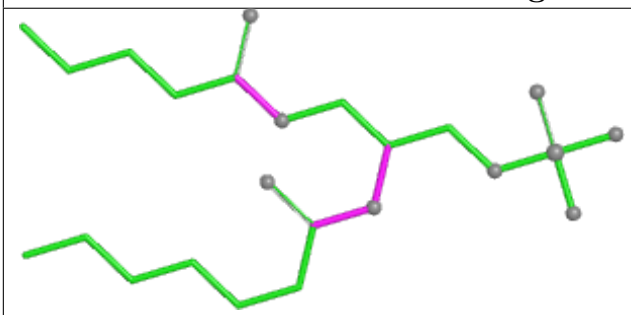
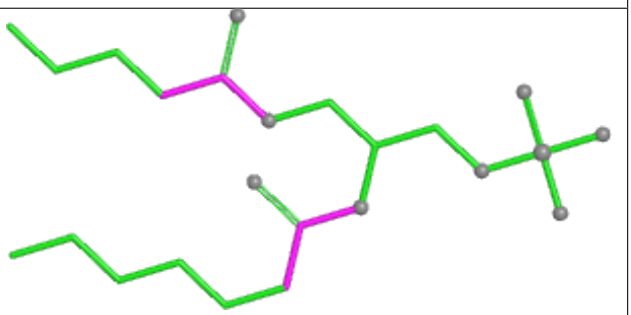
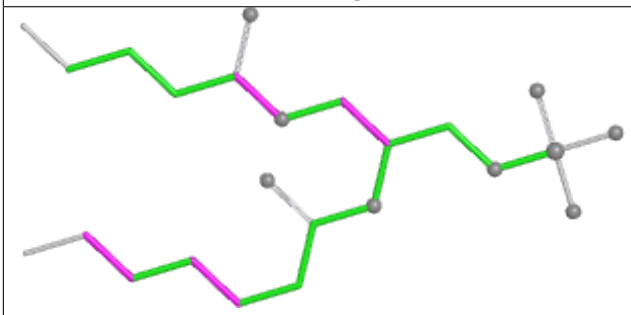
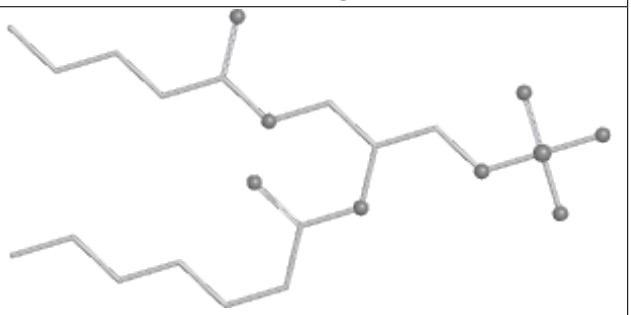
Mol	Chain	Res	Type	Atoms
20	A	501	CDL	CB2-OB2-PB2-OB3
20	A	501	CDL	CB3-OB5-PB2-OB3
20	A	501	CDL	C51-CB5-OB6-CB4
20	A	502	CDL	O1-C1-CB2-OB2
20	A	502	CDL	CA3-OA5-PA1-OA3

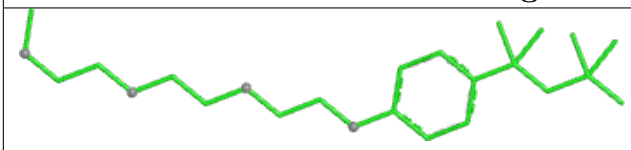
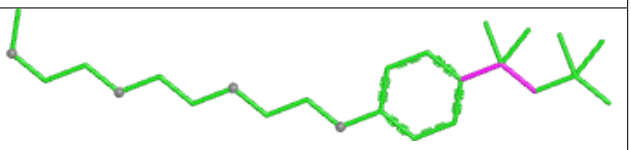
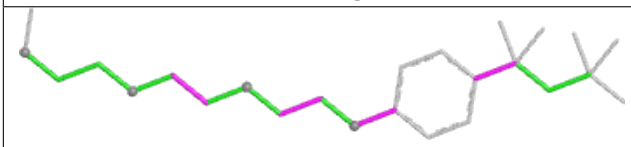
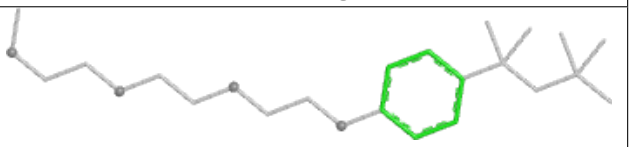
There are no ring outliers.

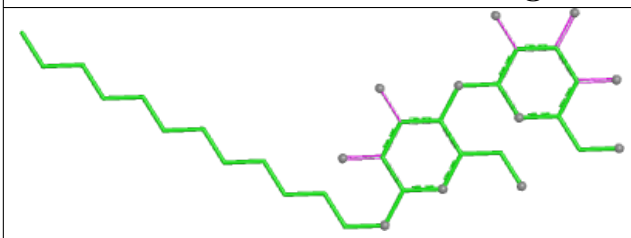
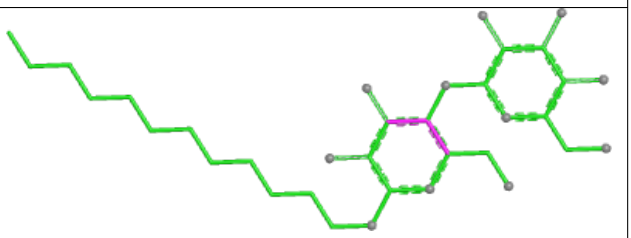
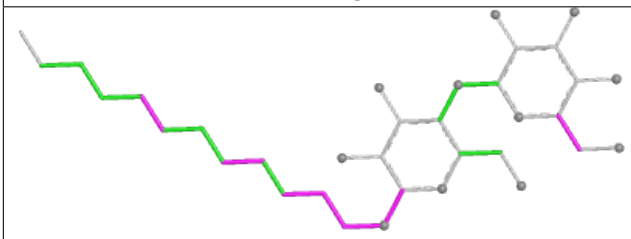
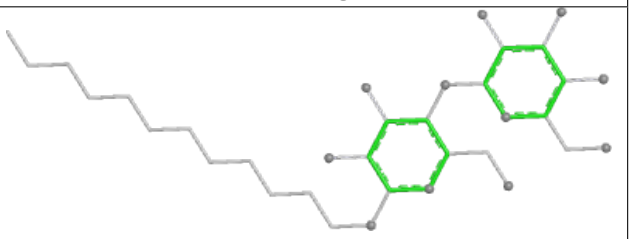
No monomer is involved in short contacts.

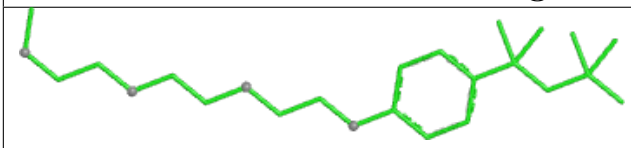
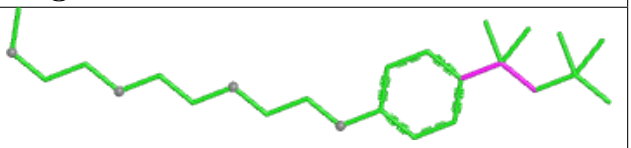
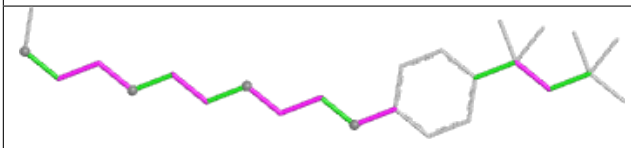
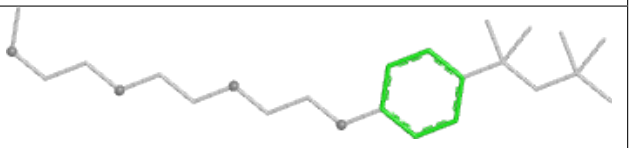
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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 LPP N 203	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand LPP F 301	
 Bond lengths	 Bond angles
 Torsions	 Rings

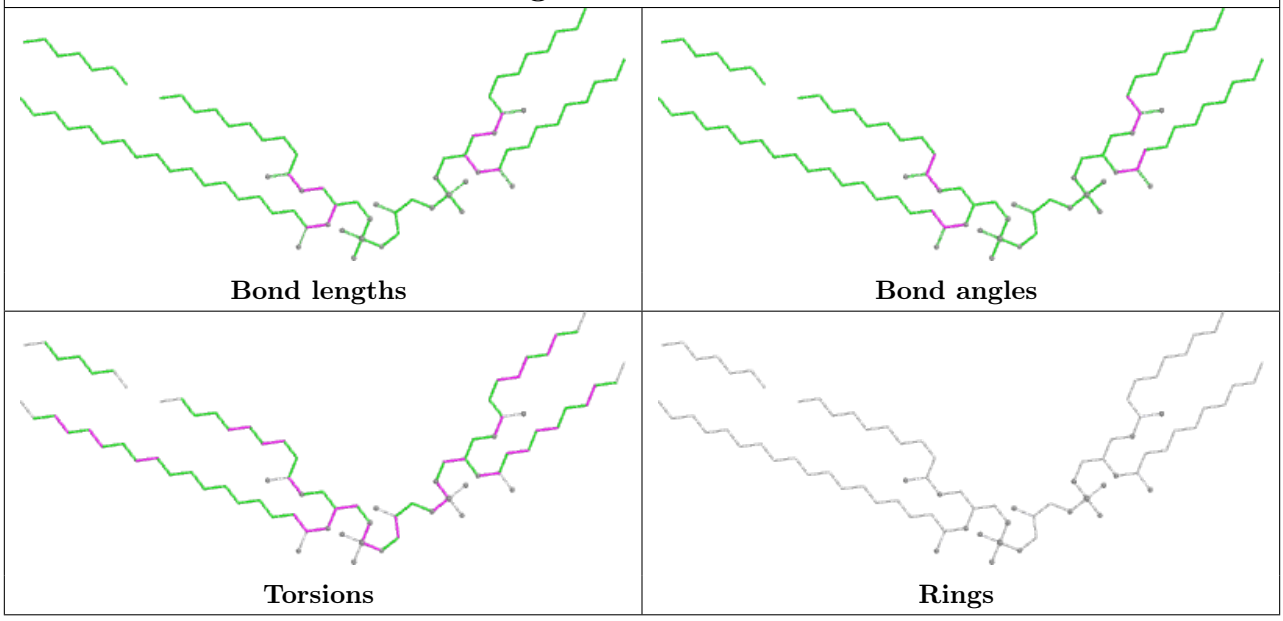
Ligand TRT M 201	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand LMT d 203	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand TRT g 201	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand TRT N 201

Ligand CDL a 503



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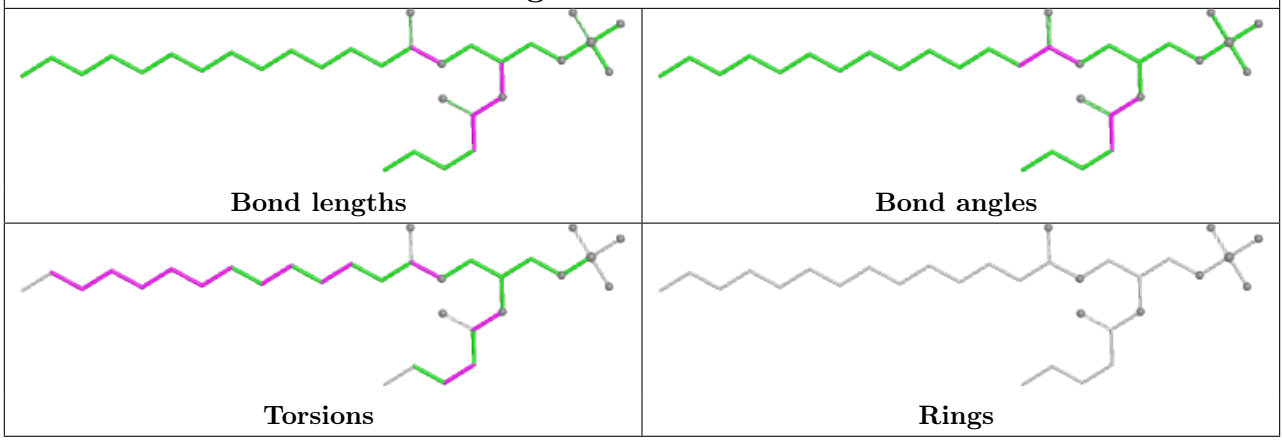

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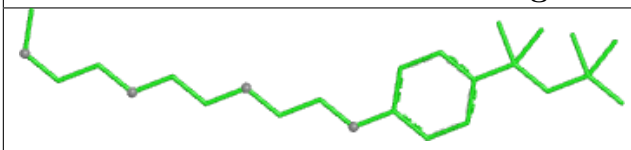
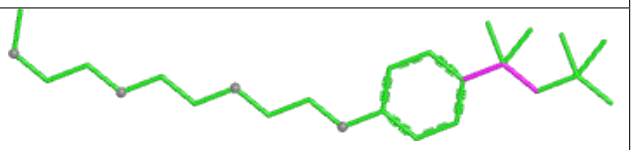
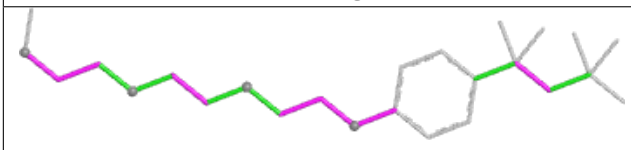
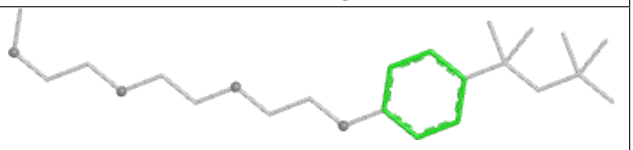
 Bond lengths	 Bond angles
 Torsions	 Rings

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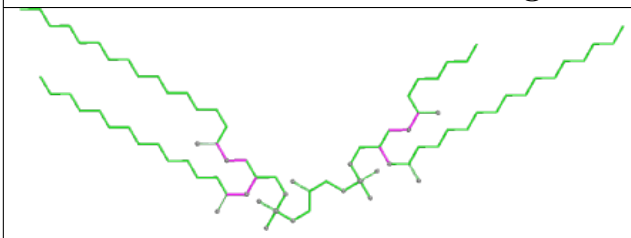
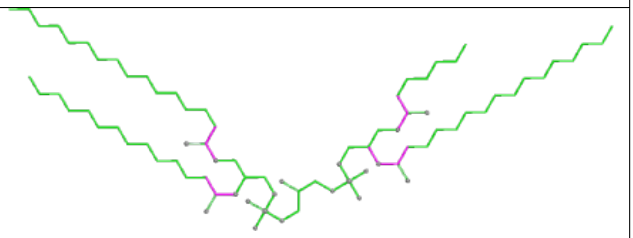
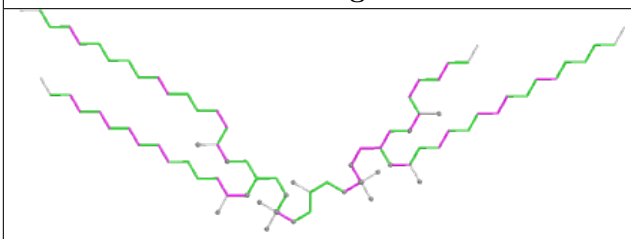
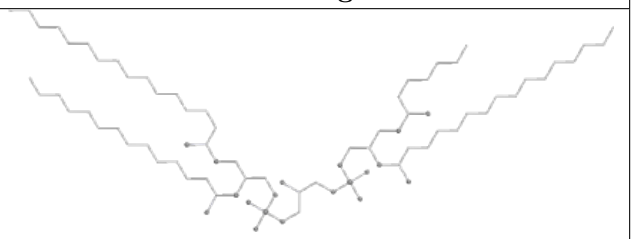
 Bond lengths	 Bond angles
 Torsions	 Rings

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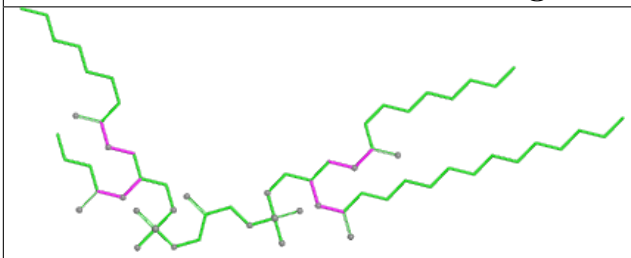
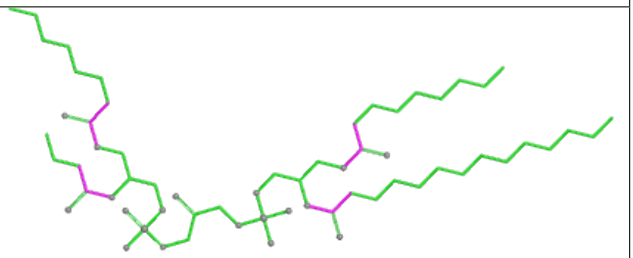
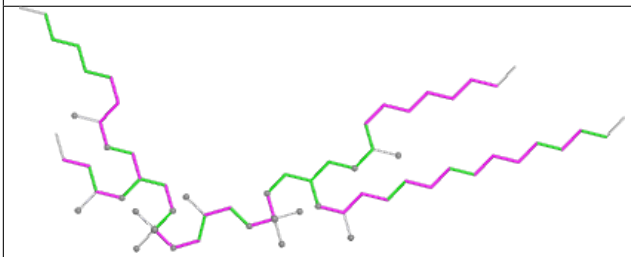
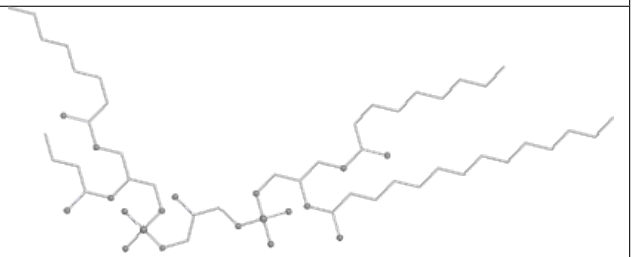
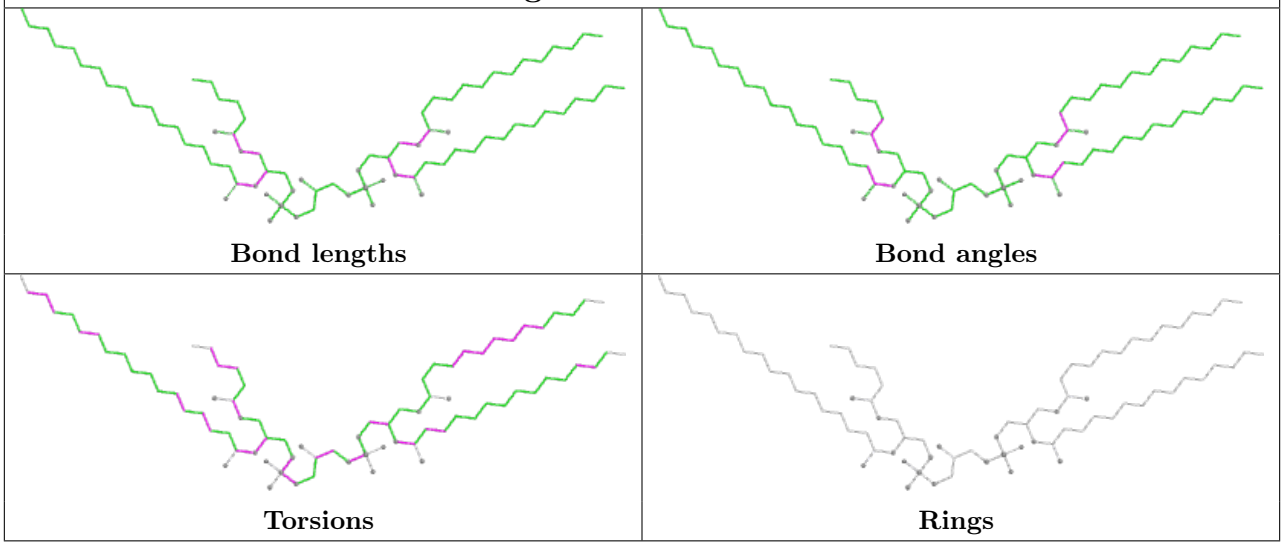
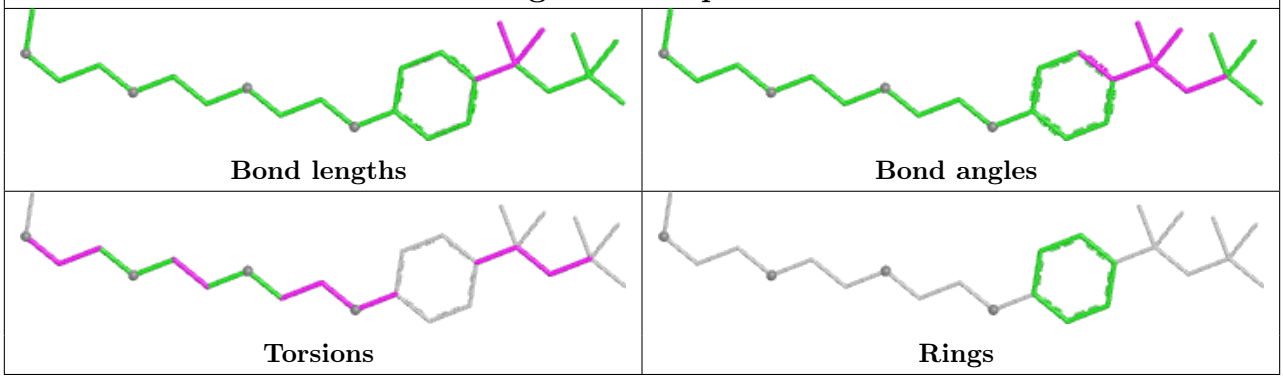
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand CDL A 502

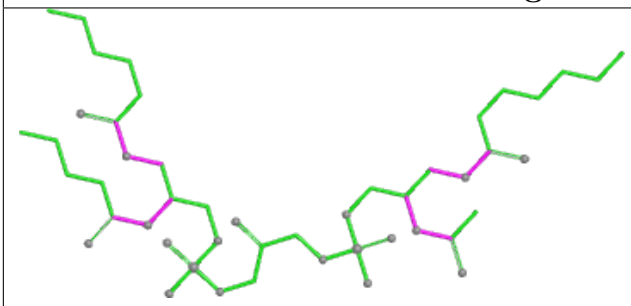


Ligand TRT p 203

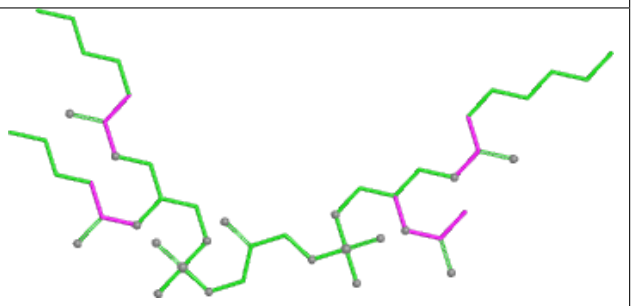


Ligand TRT m 204

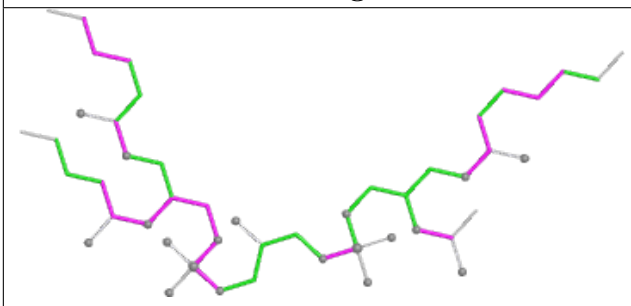
Ligand CDL P 201



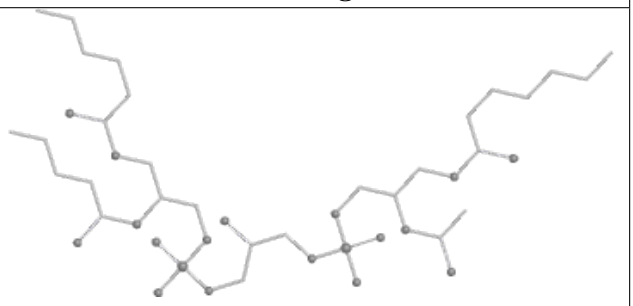
Bond lengths



Bond angles

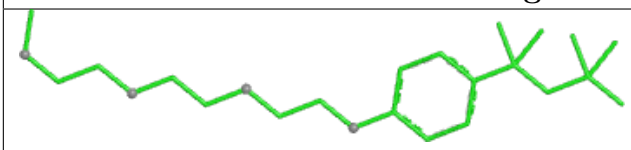


Torsions



Rings

Ligand TRT G 202



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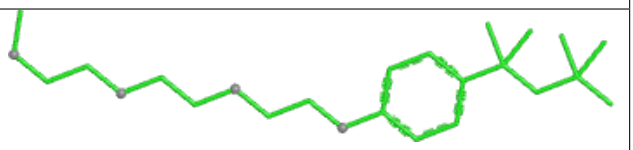

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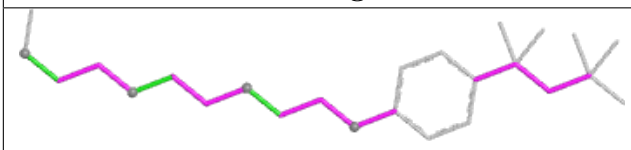
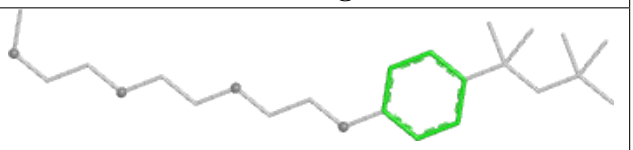
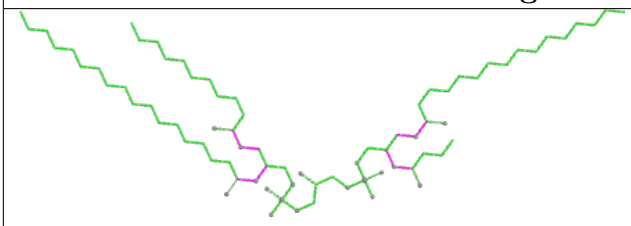


Torsions

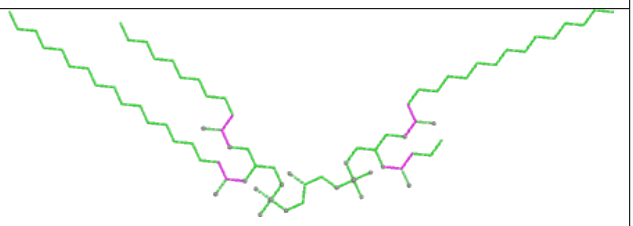


Rings

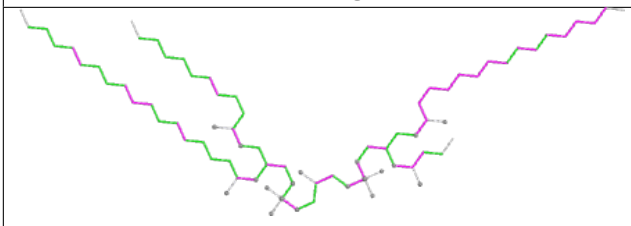
Ligand CDL M 203



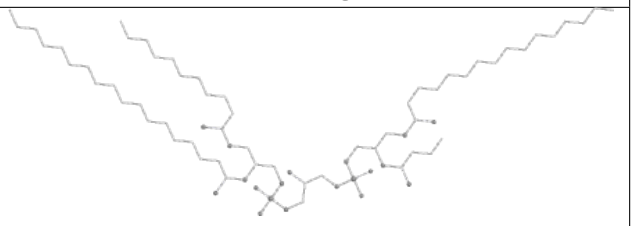
Bond lengths



Bond angles

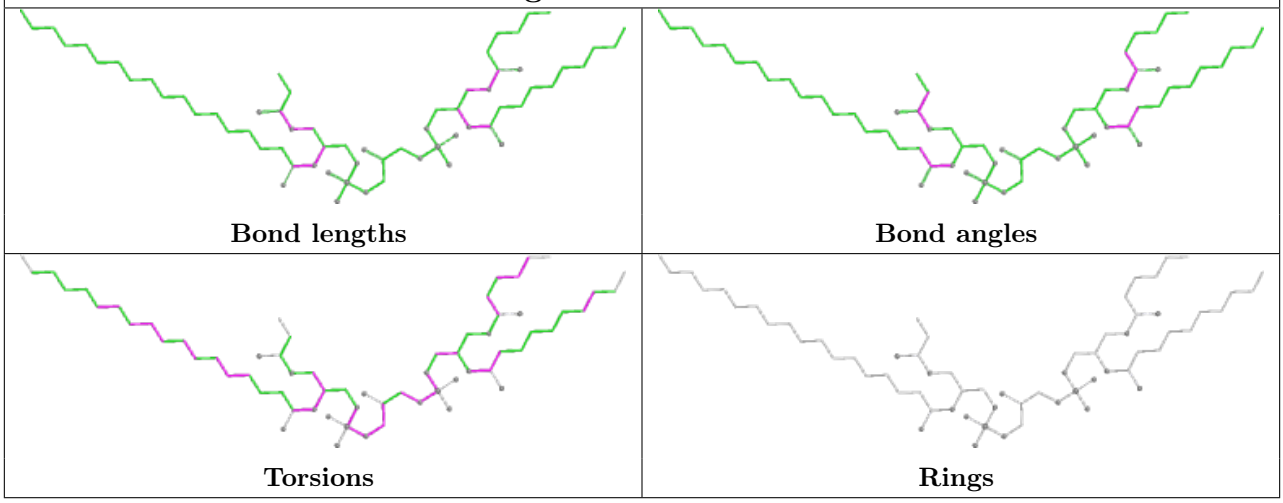


Torsions

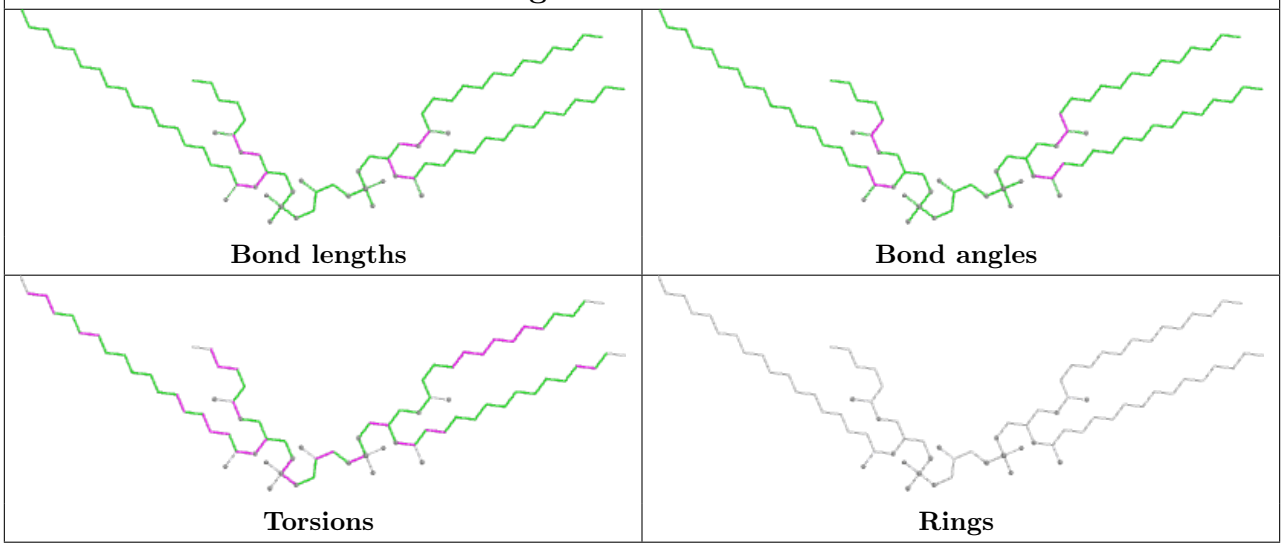


Rings

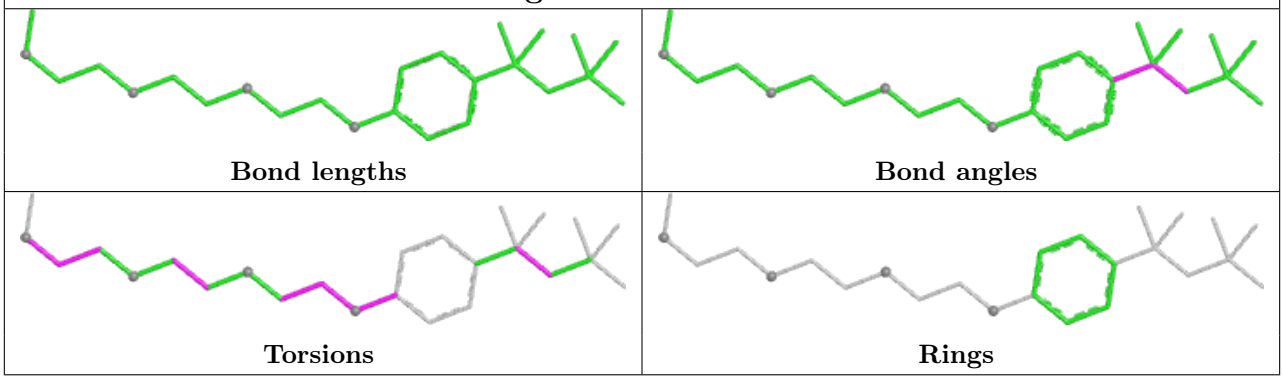
Ligand CDL O 201



Ligand CDL a 502



Ligand TRT R 103



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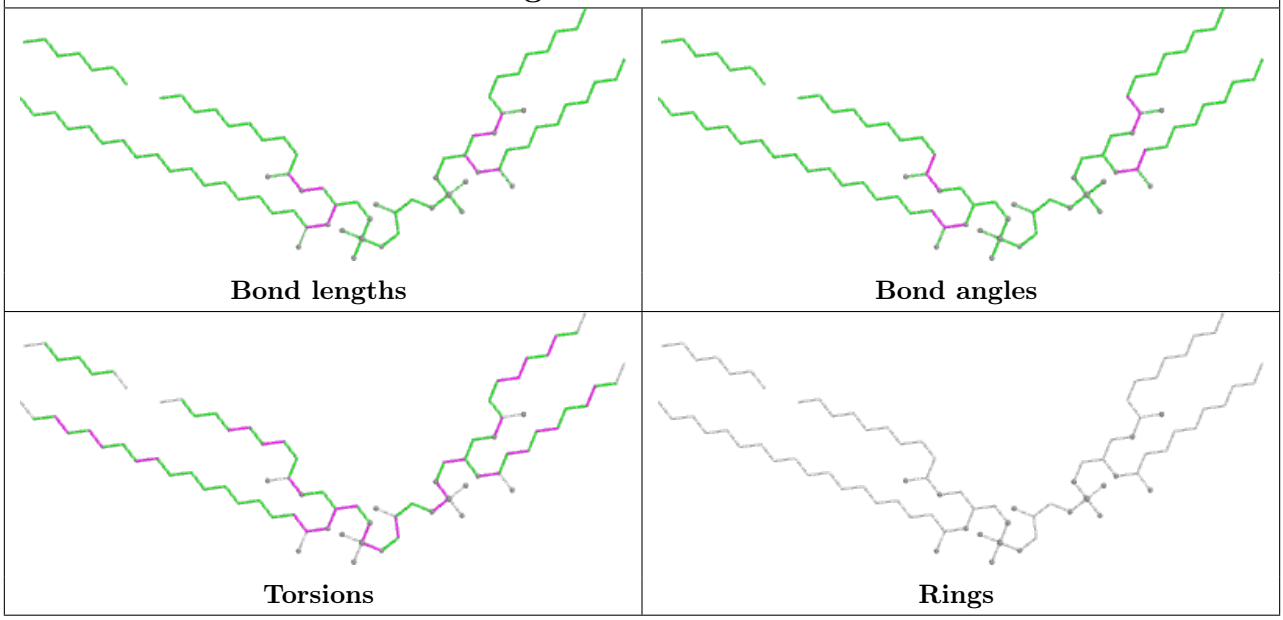
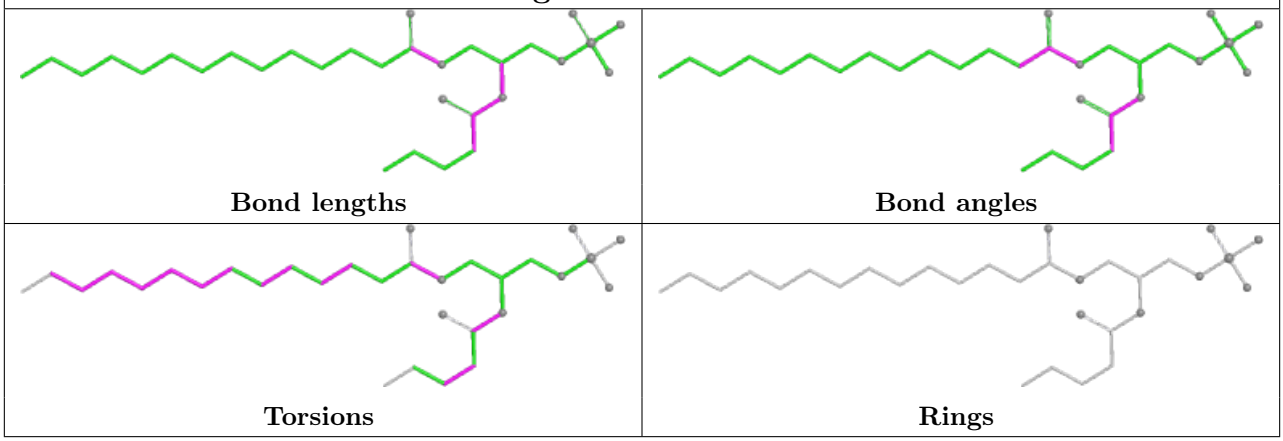
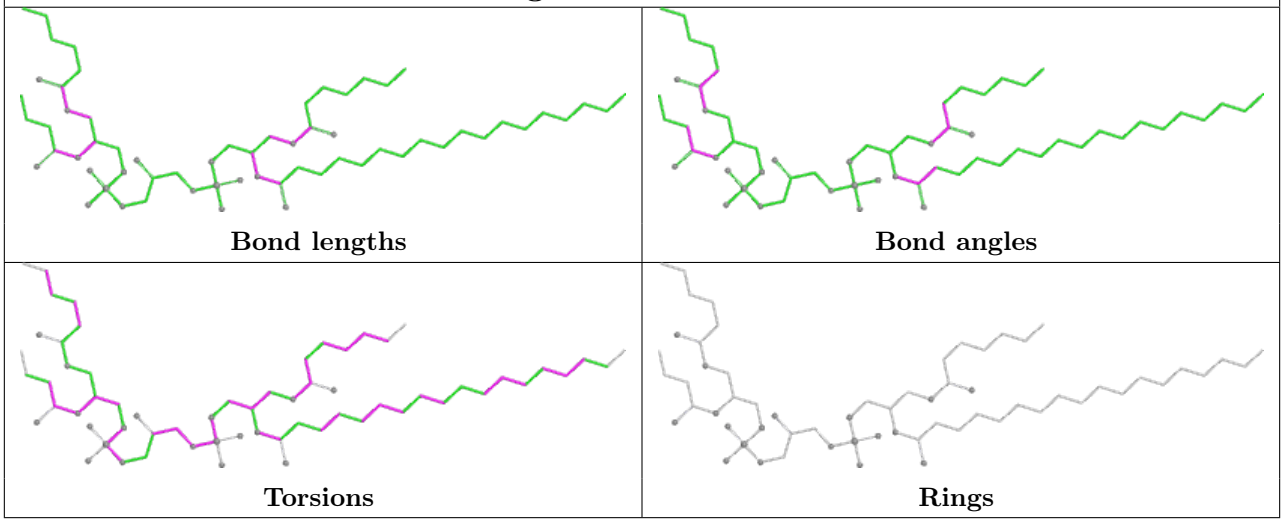


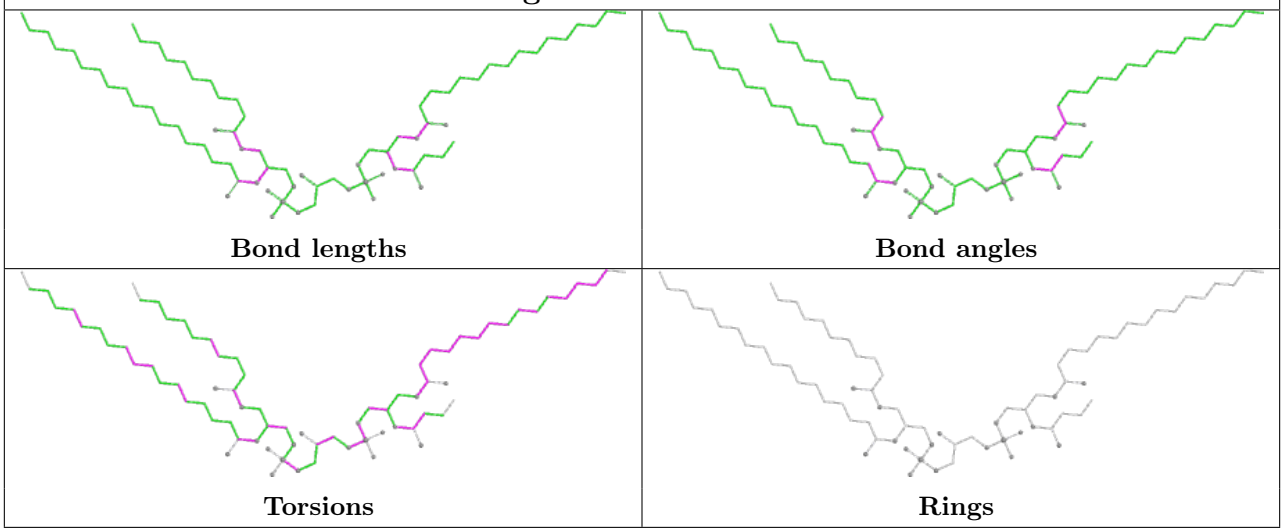
Ligand LPP r 102



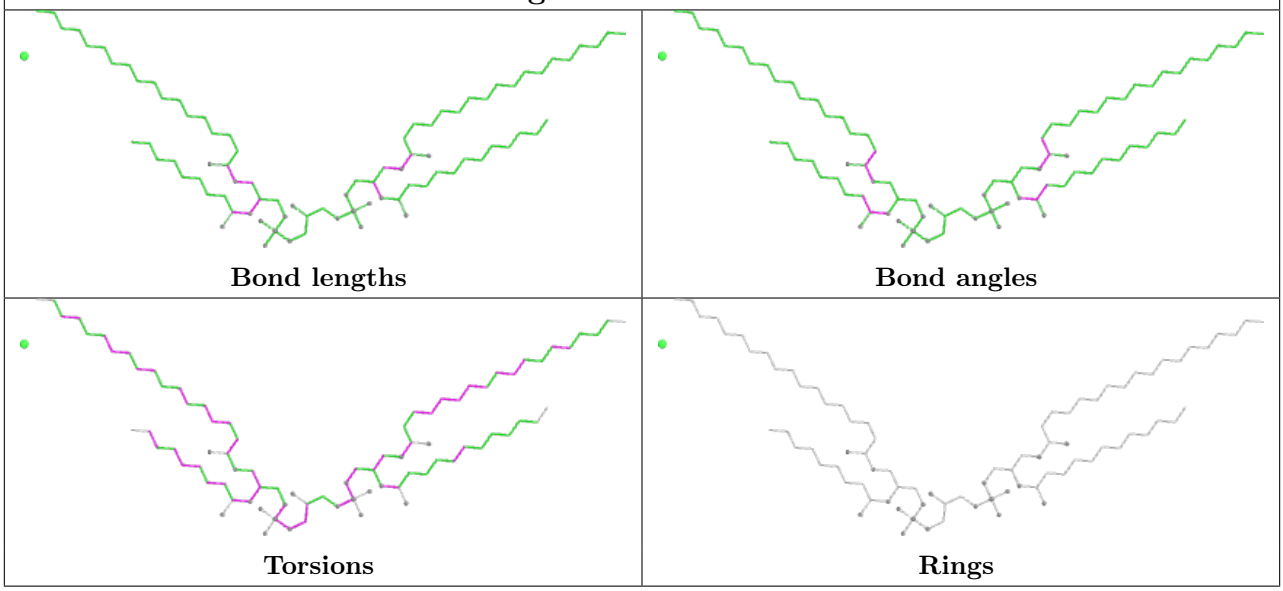
Ligand CDL E 101



Ligand CDL m 201



Ligand CDL d 202



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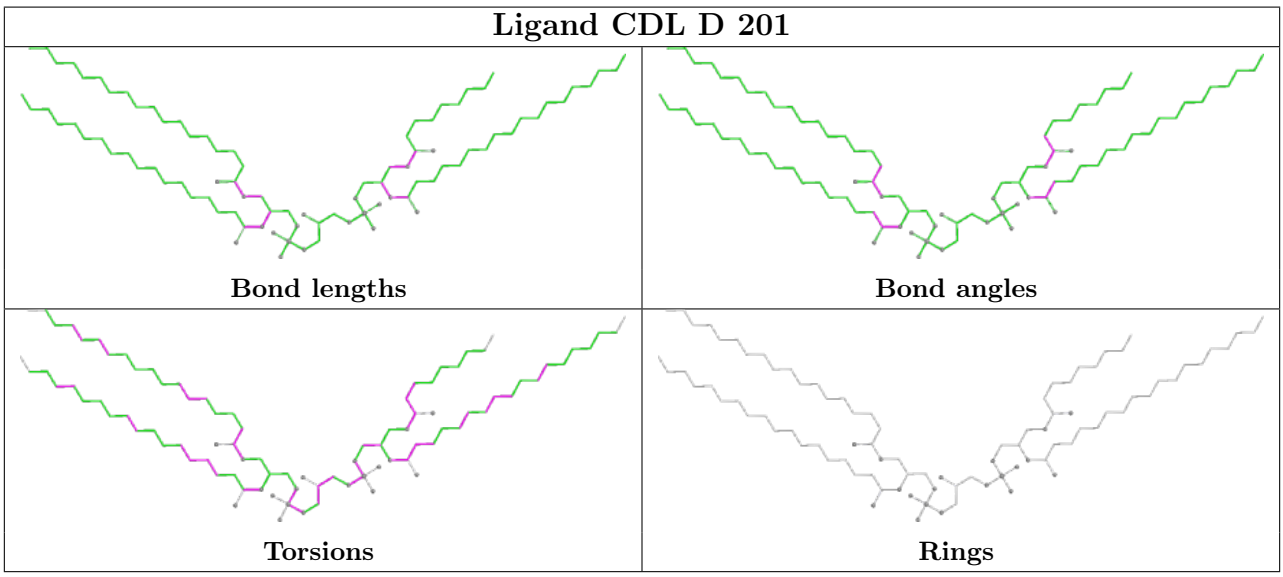
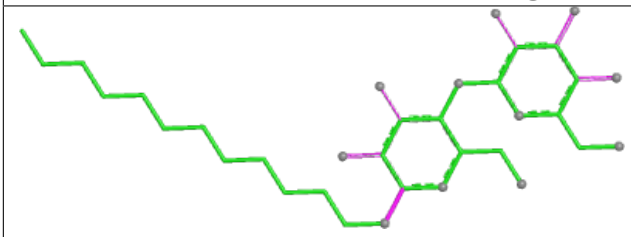
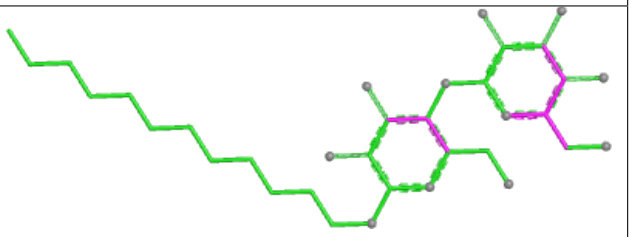


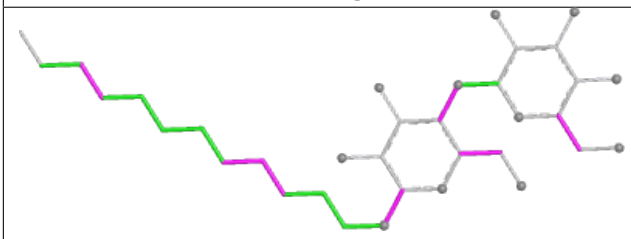
Ligand LMT n 201



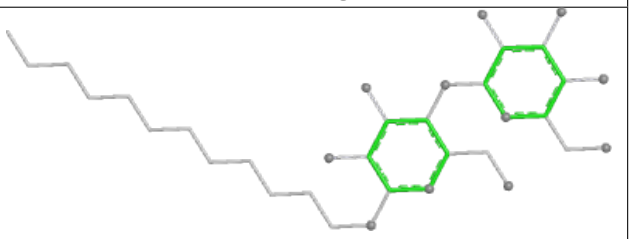
Bond lengths



Bond angles

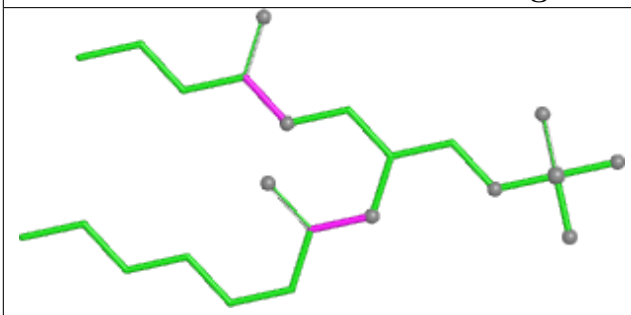


Torsions

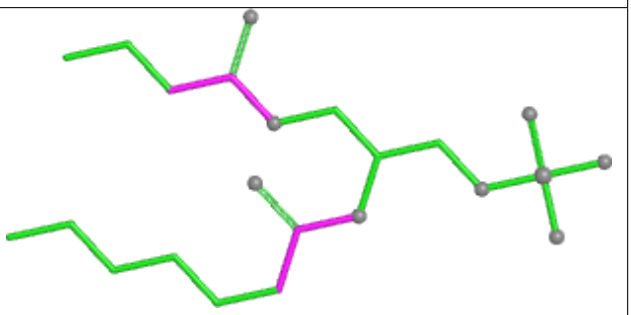


Rings

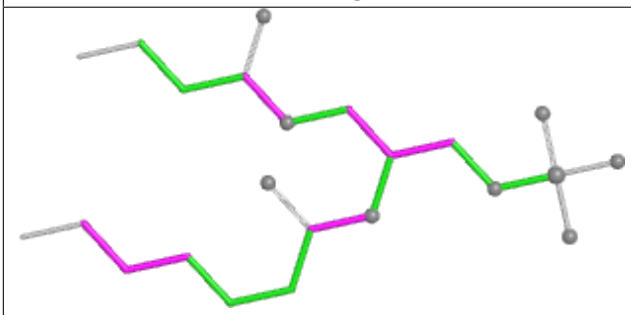
Ligand LPP o 202



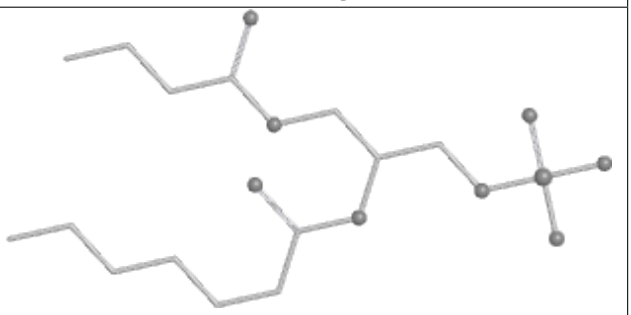
Bond lengths



Bond angles

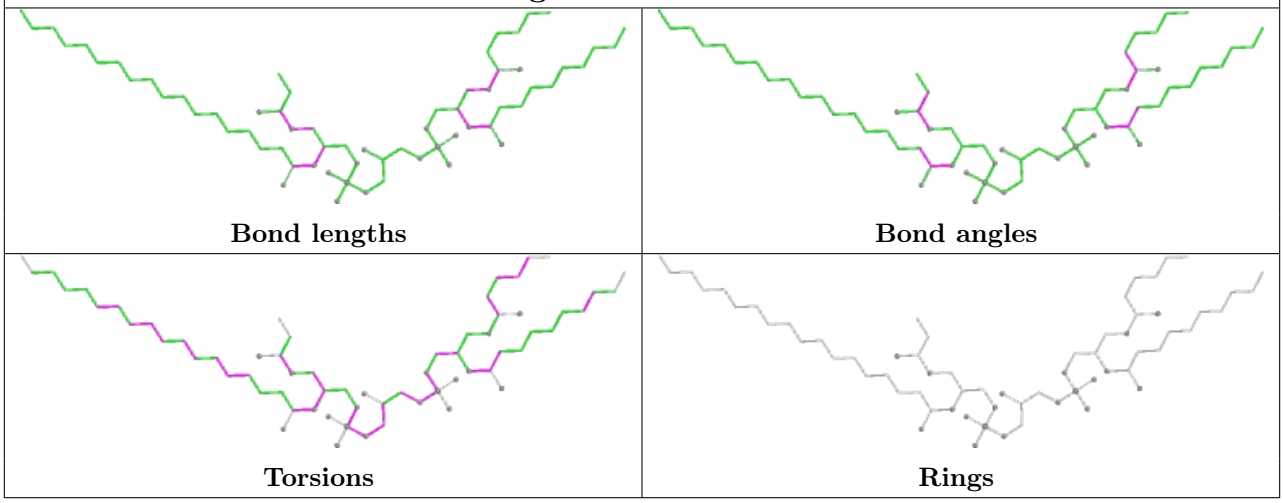


Torsions

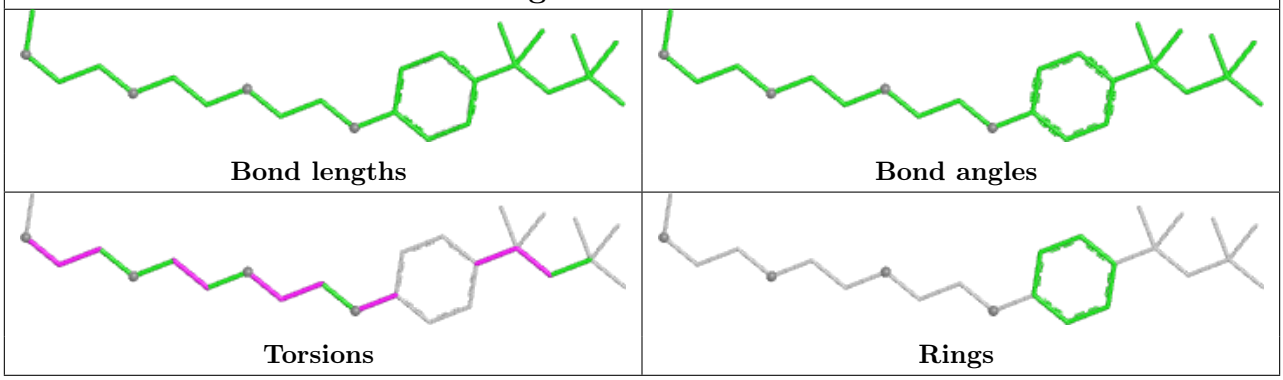


Rings

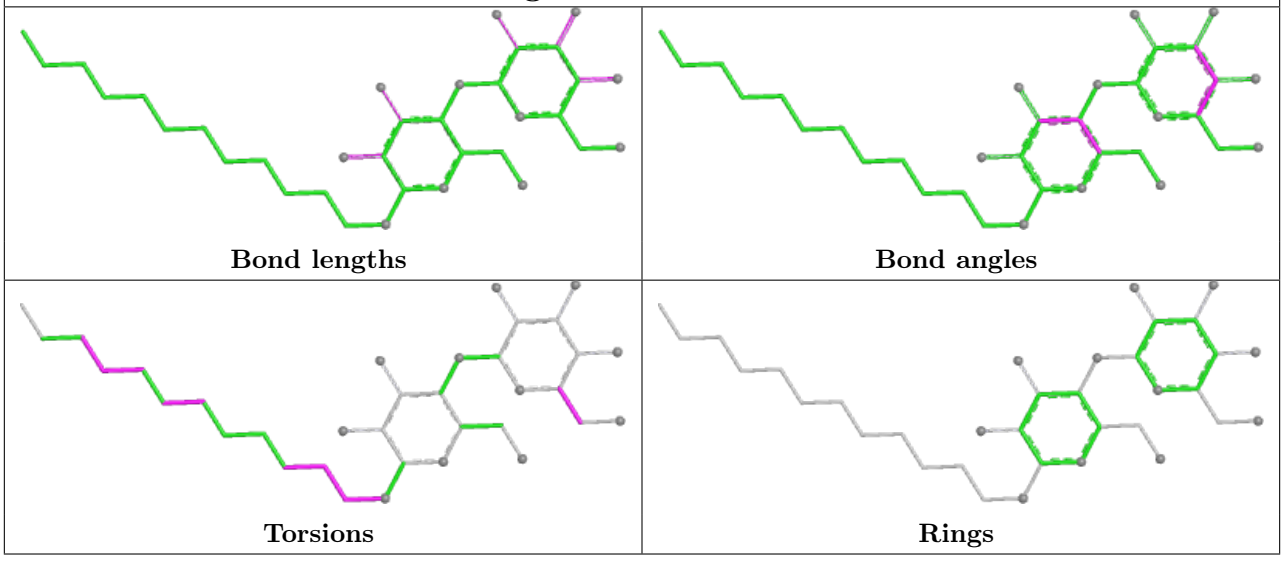
Ligand CDL o 201

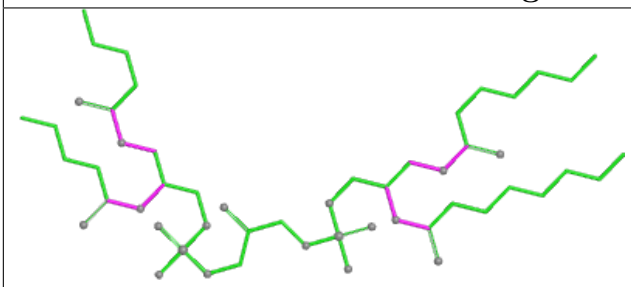
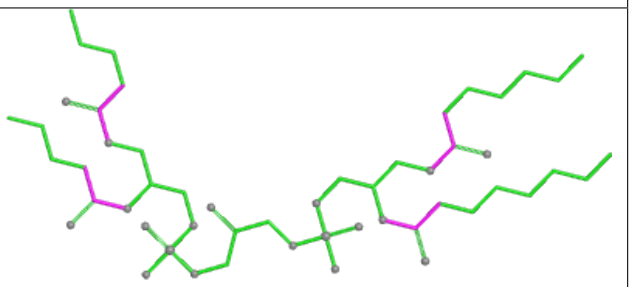
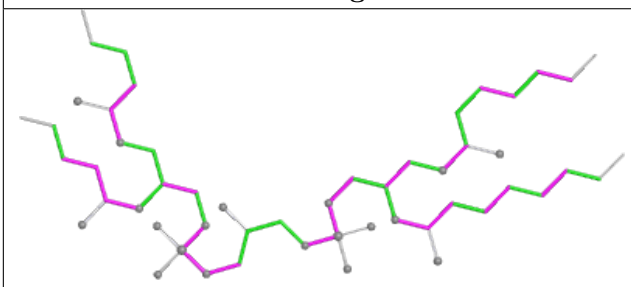
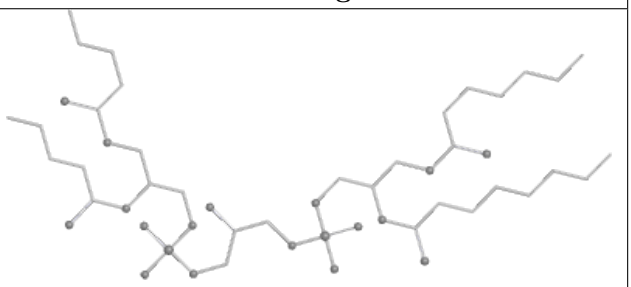


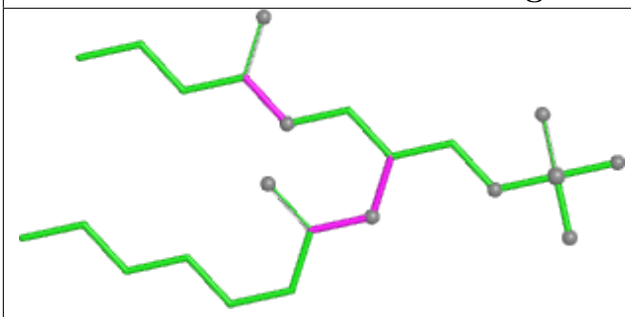
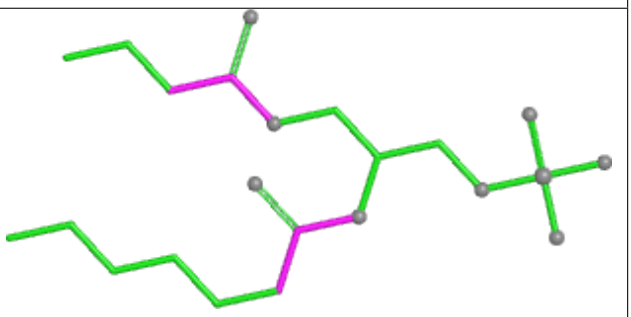
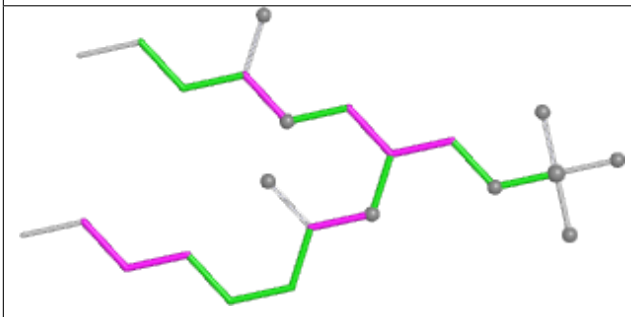
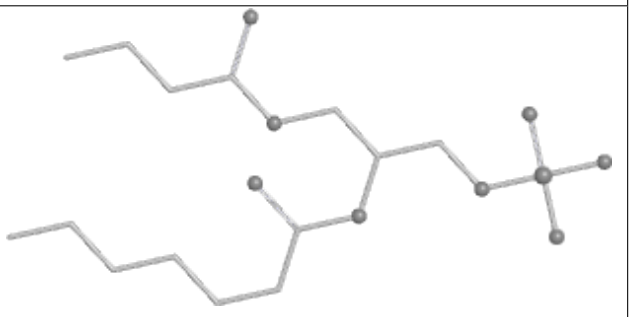
Ligand TRT n 203

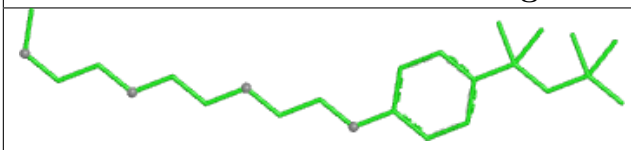
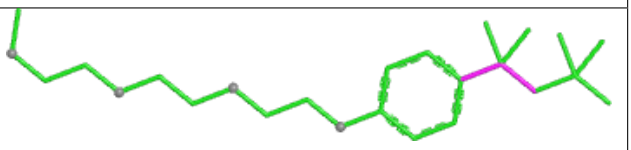
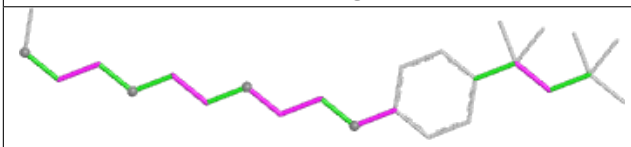
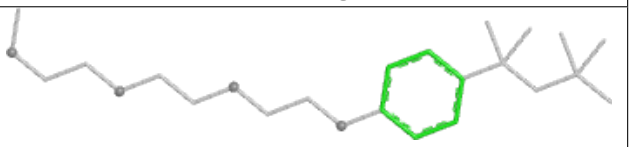


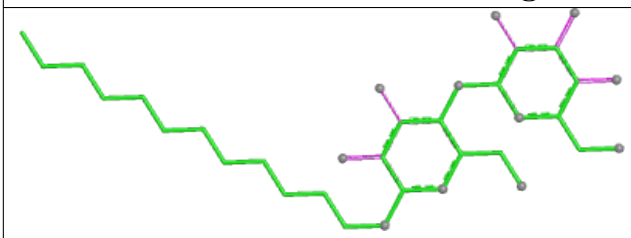
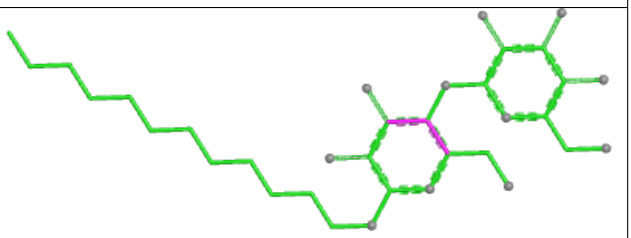
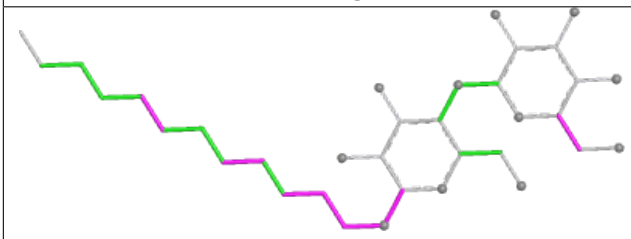
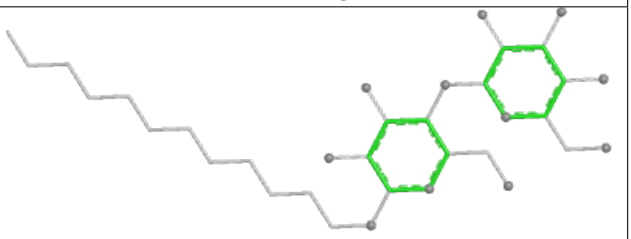
Ligand LMT F 302

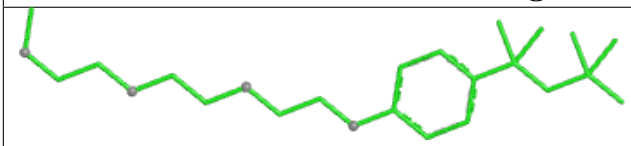
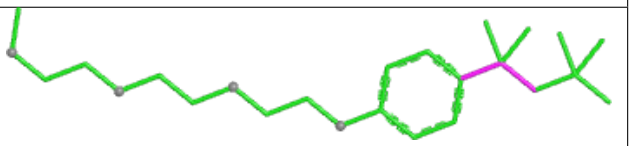
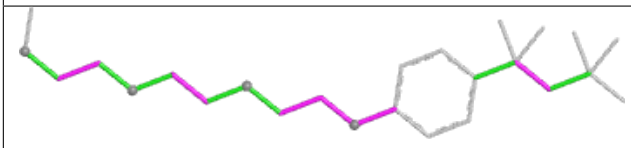
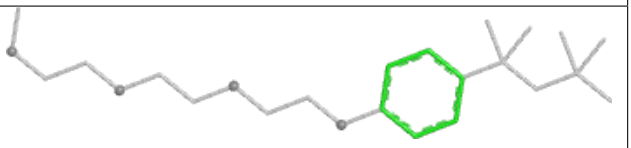


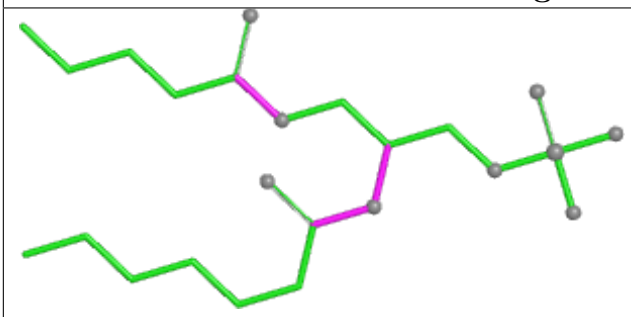
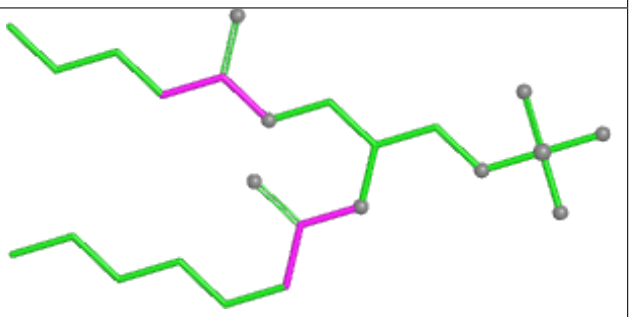
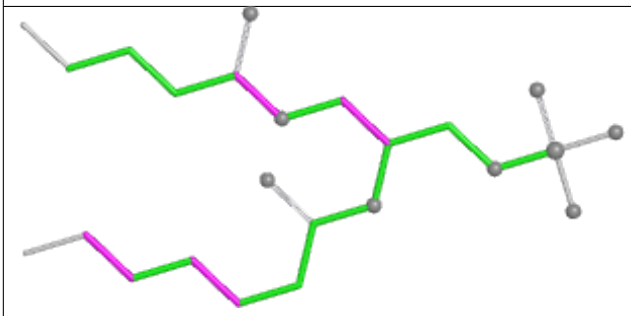
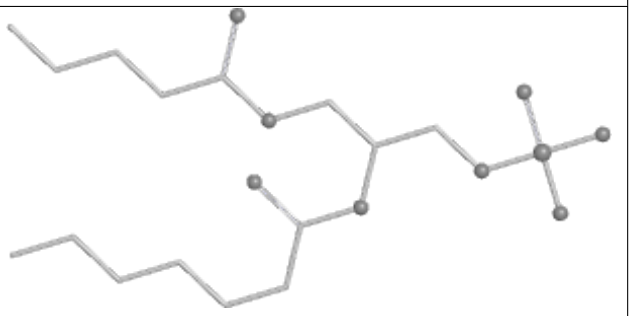
Ligand CDL m 202	
 Bond lengths	 Bond angles
 Torsions	 Rings

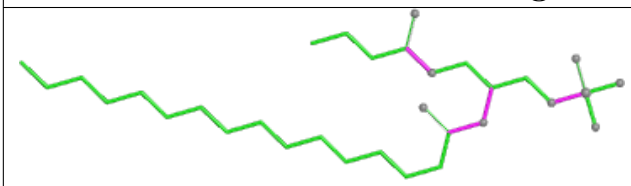
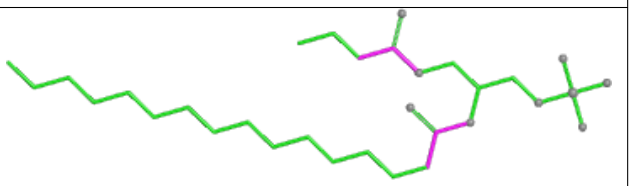
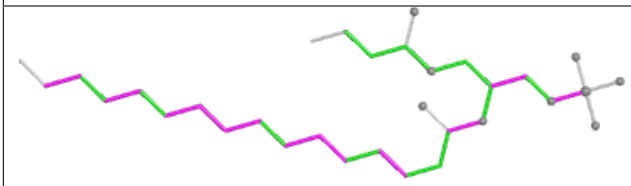
Ligand LPP O 202	
 Bond lengths	 Bond angles
 Torsions	 Rings

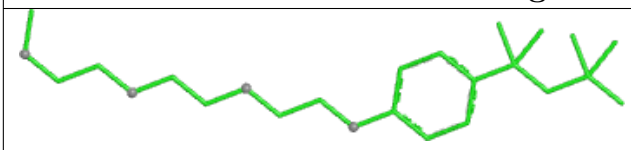
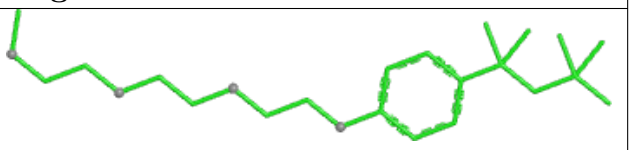
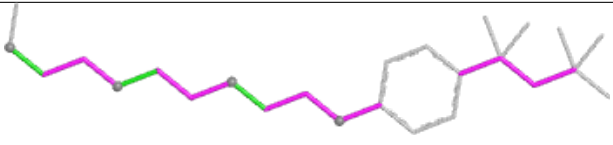
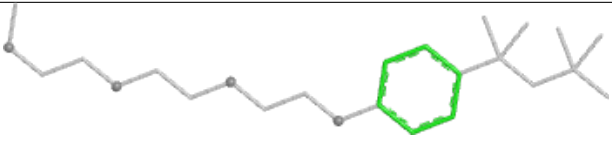
Ligand TRT M 202	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand LMT D 203	
 Bond lengths	 Bond angles
 Torsions	 Rings

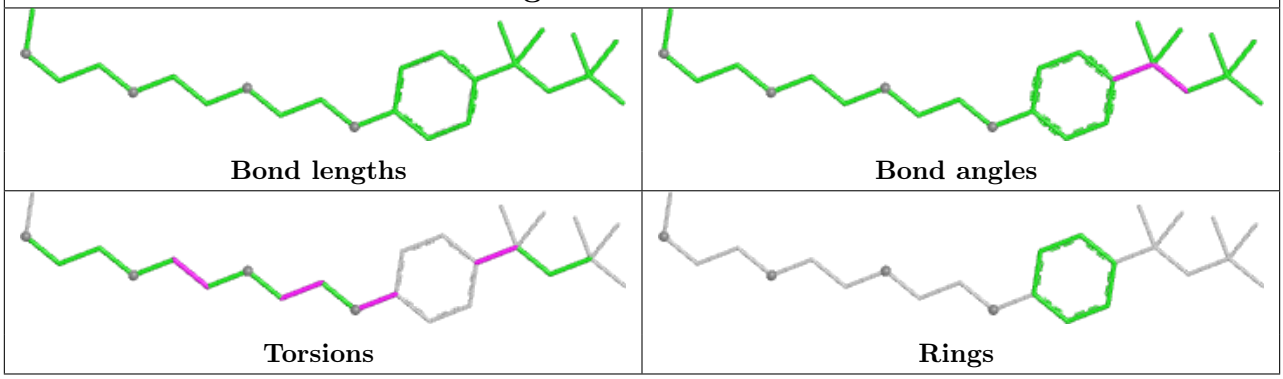
Ligand TRT n 202	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand LPP f 301	
 Bond lengths	 Bond angles
 Torsions	 Rings

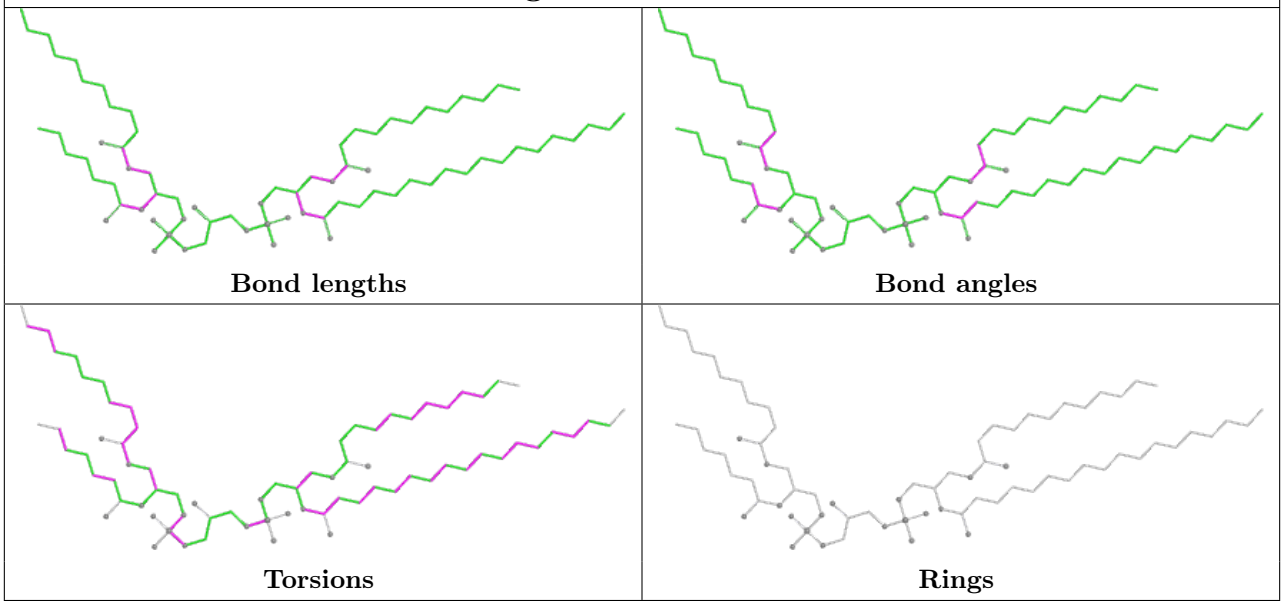
Ligand LPP o 203	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand TRT g 202	
 Bond lengths	 Bond angles
 Torsions	 Rings

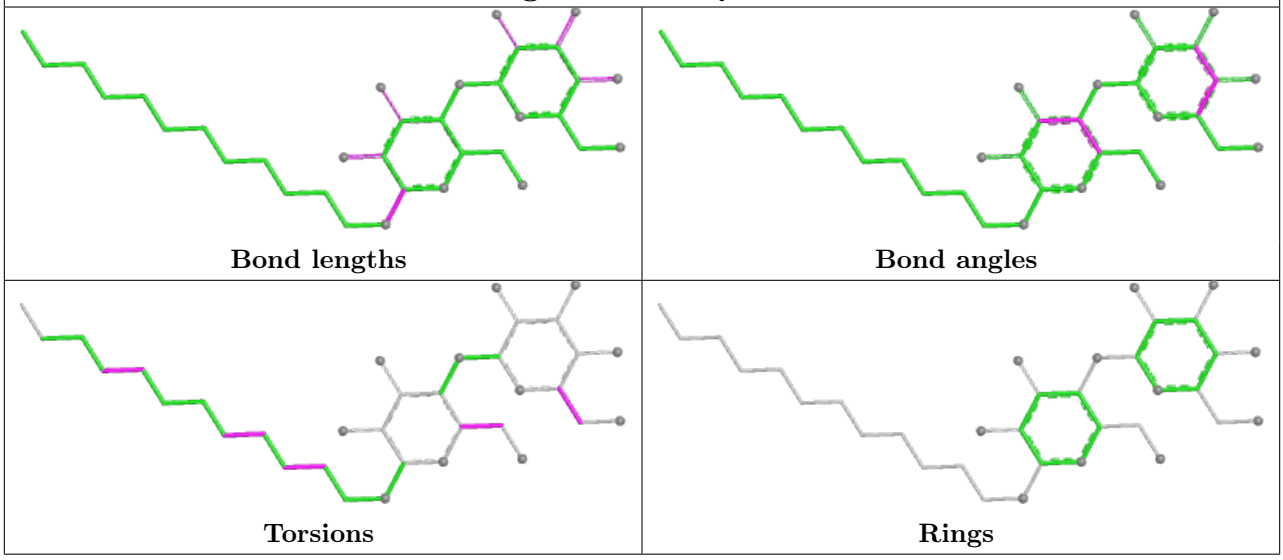
Ligand TRT m 203



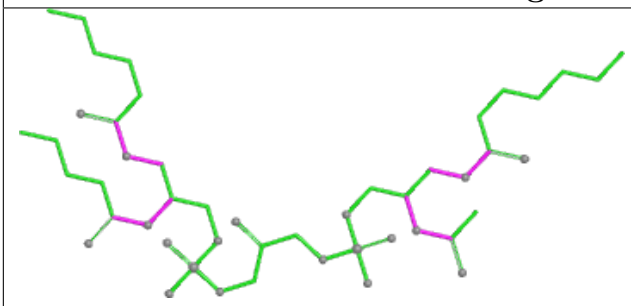
Ligand CDL R 101



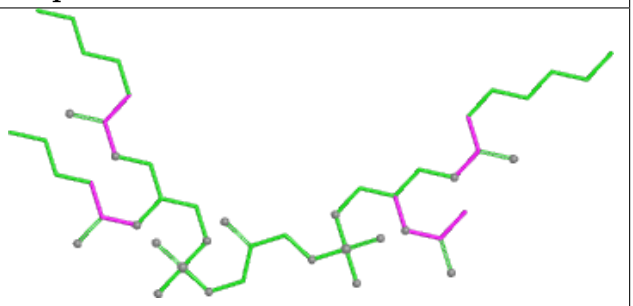
Ligand LMT Q 101



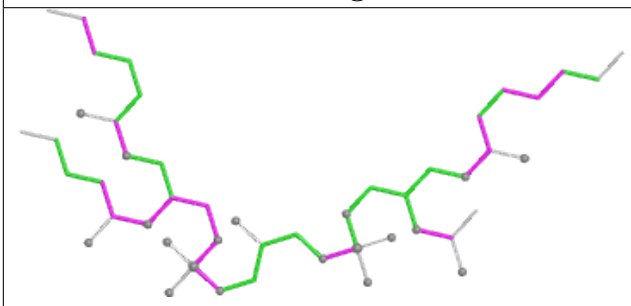
Ligand CDL p 202



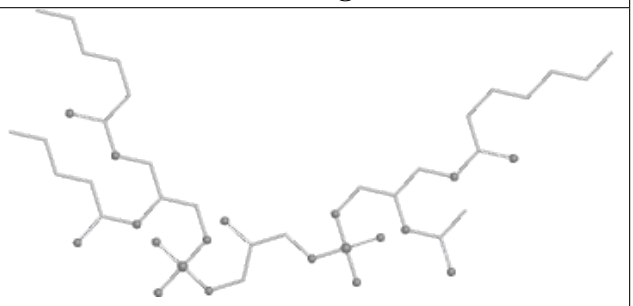
Bond lengths



Bond angles

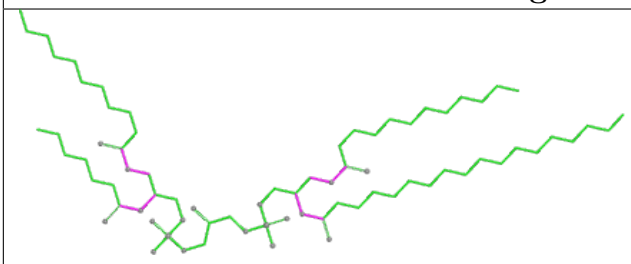


Torsions

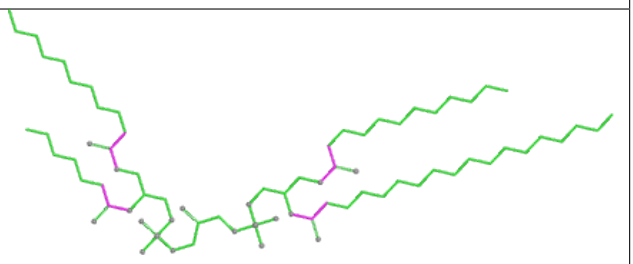


Rings

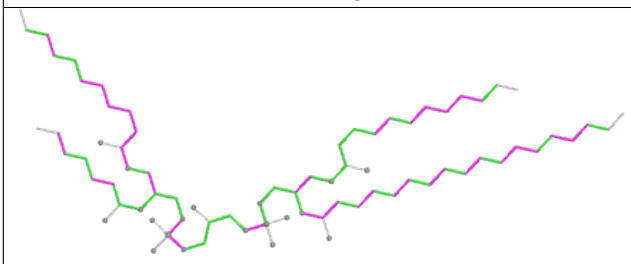
Ligand CDL r 101



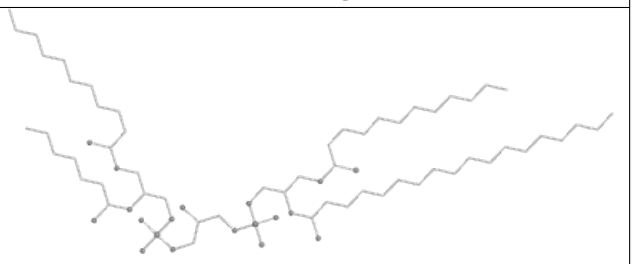
Bond lengths



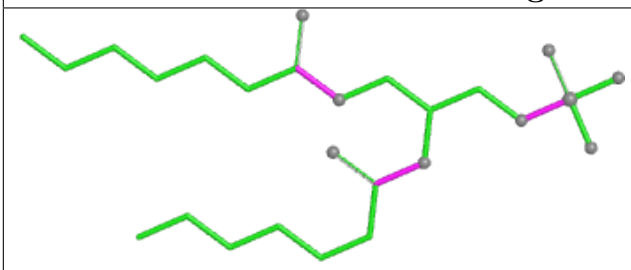
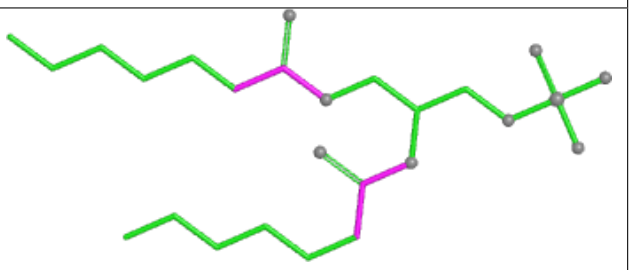
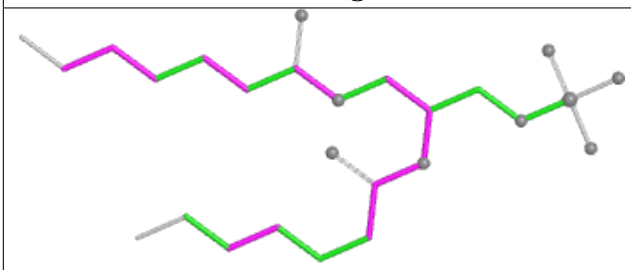
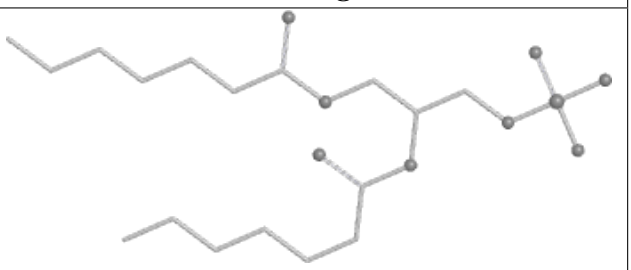
Bond angles

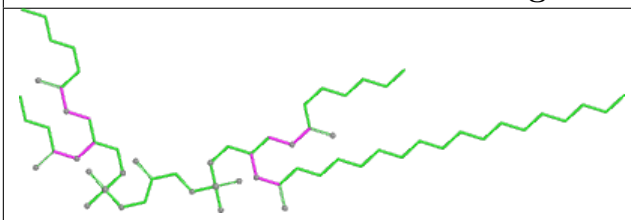
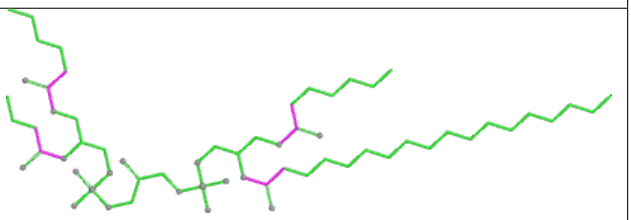
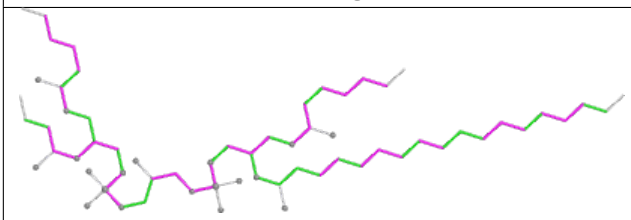
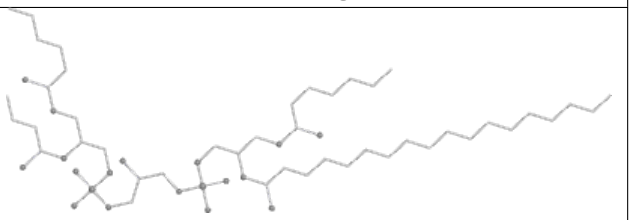


Torsions

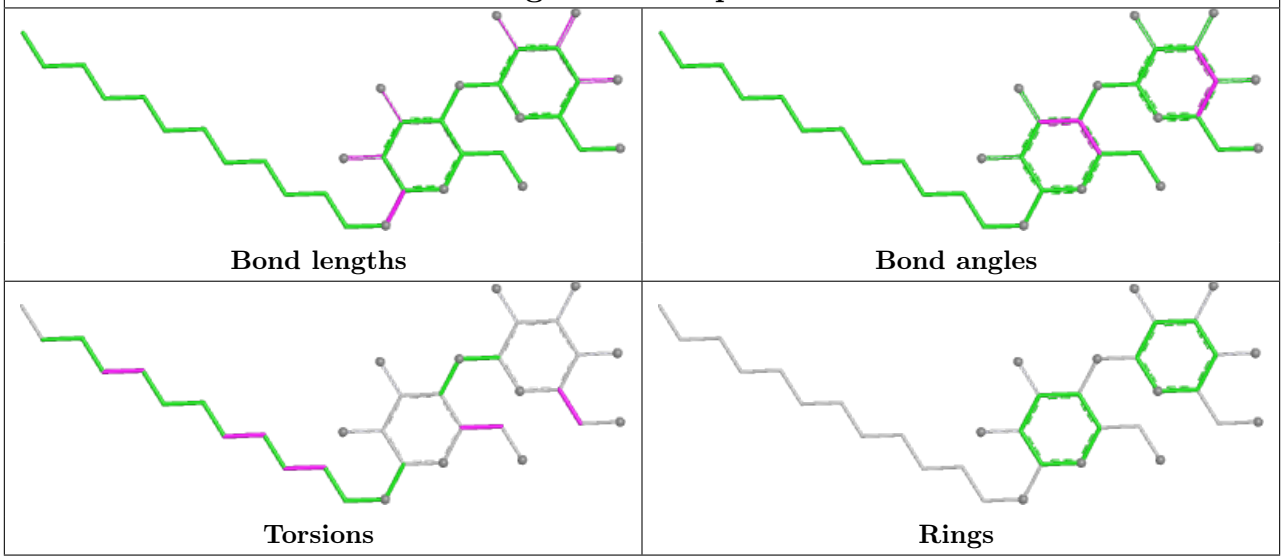


Rings

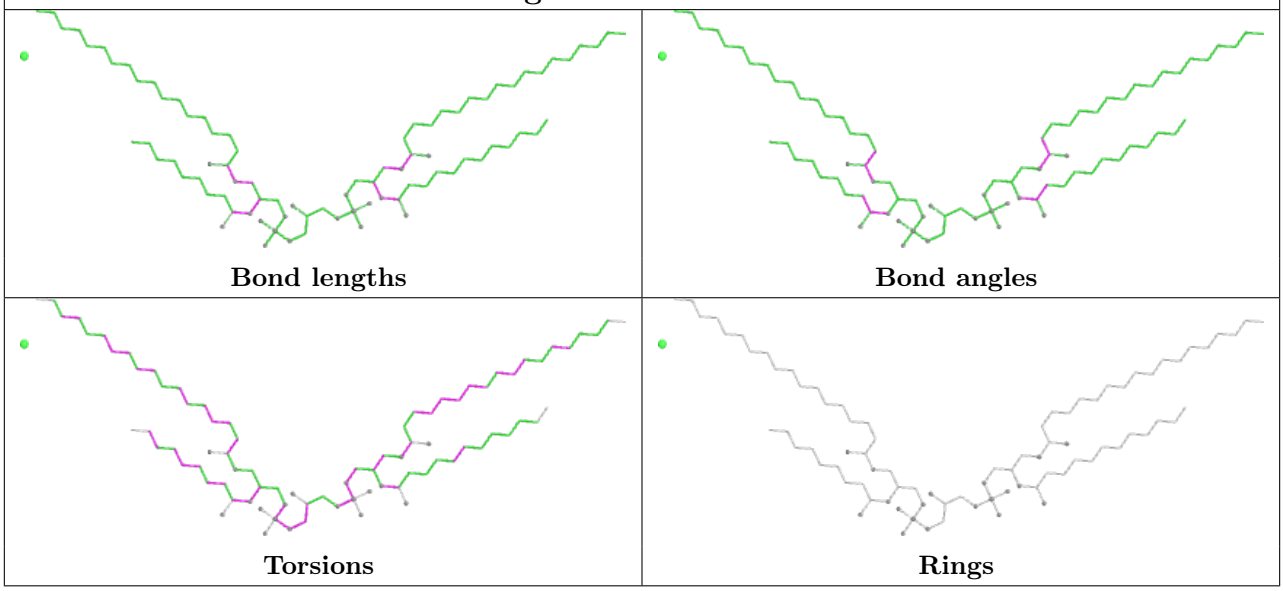
Ligand LPP P 202	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand CDL e 101	
 Bond lengths	 Bond angles
 Torsions	 Rings

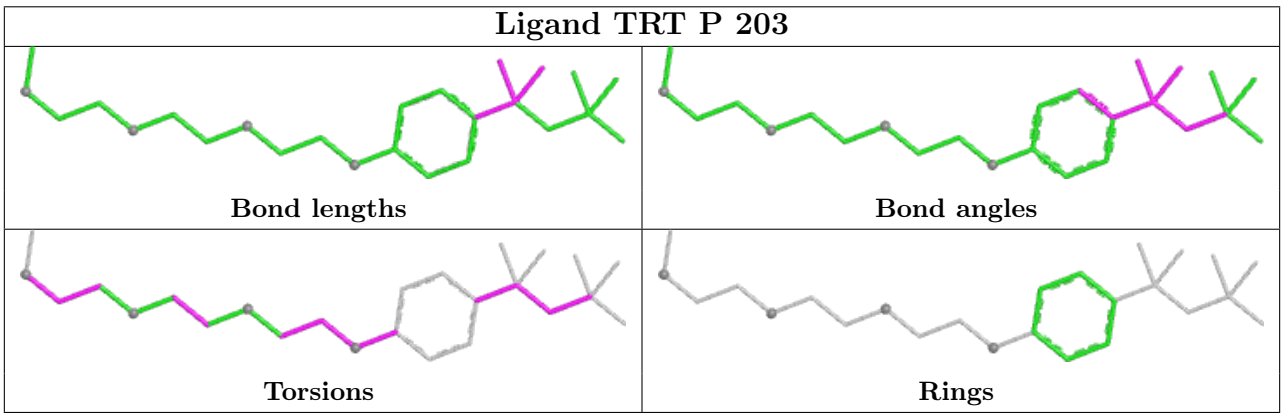
Ligand LMT q 101



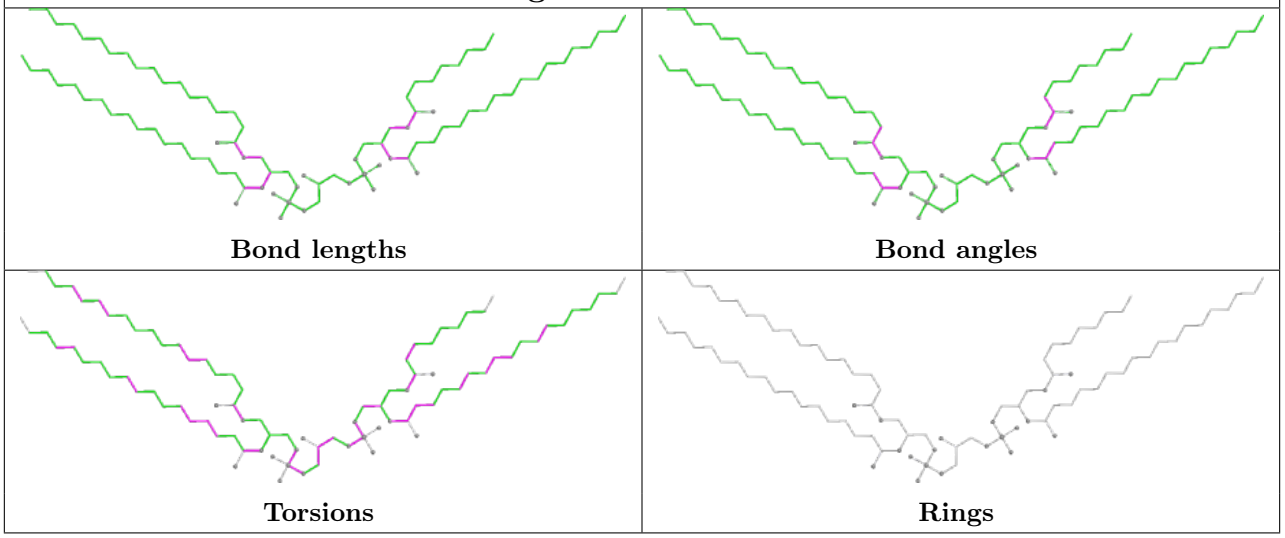
Ligand CDL D 202



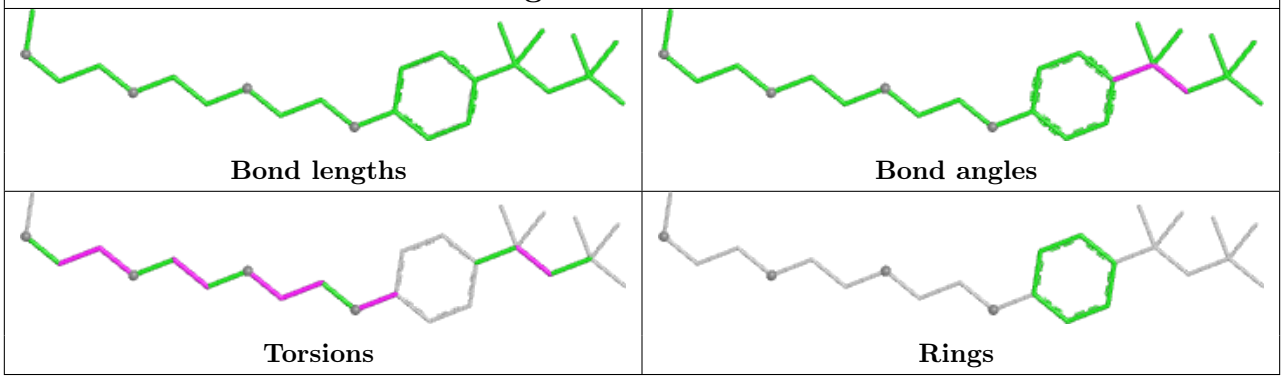
Ligand TRT P 203



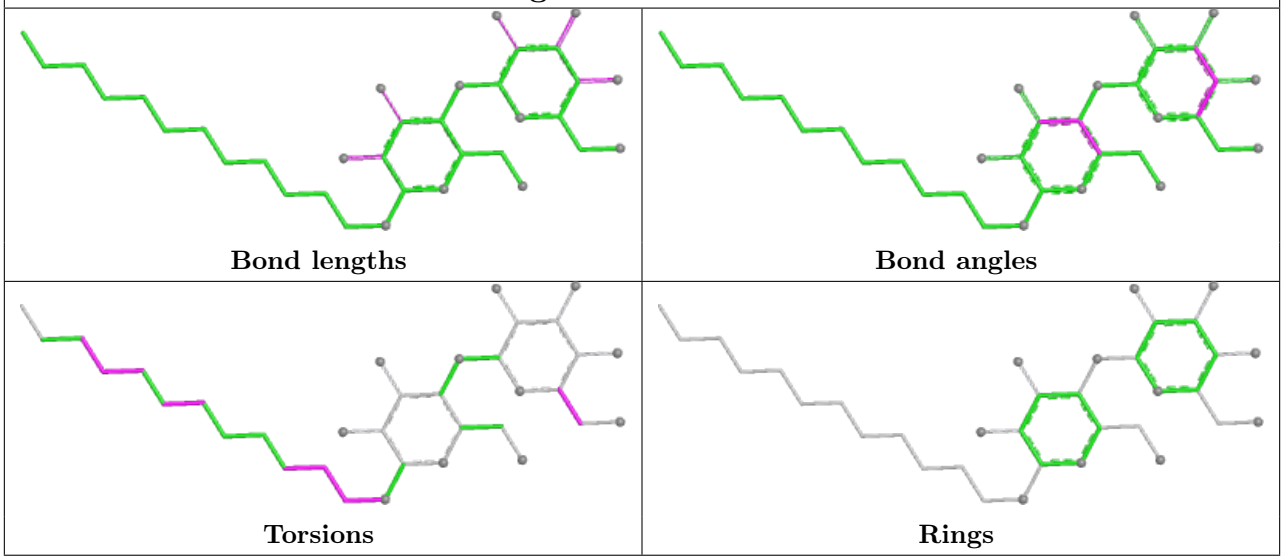
Ligand CDL d 201



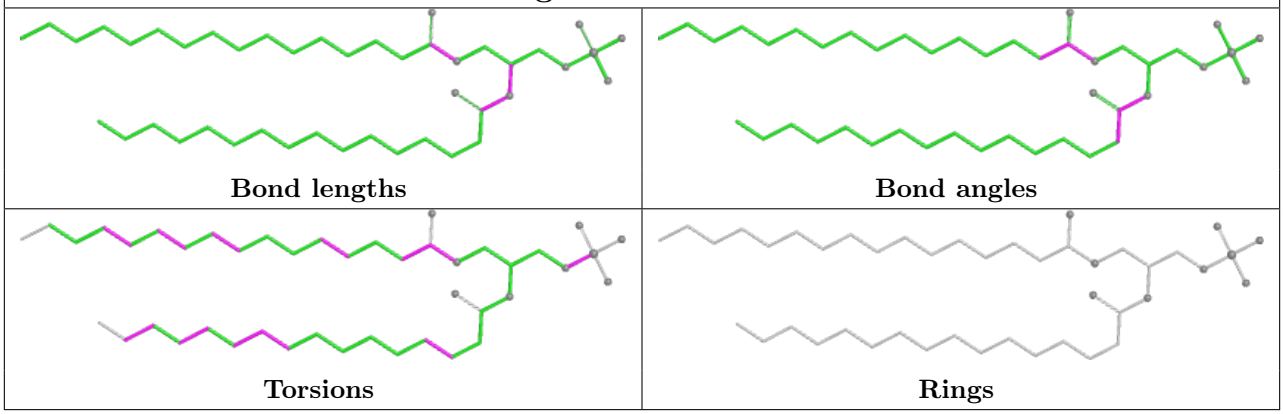
Ligand TRT G 201



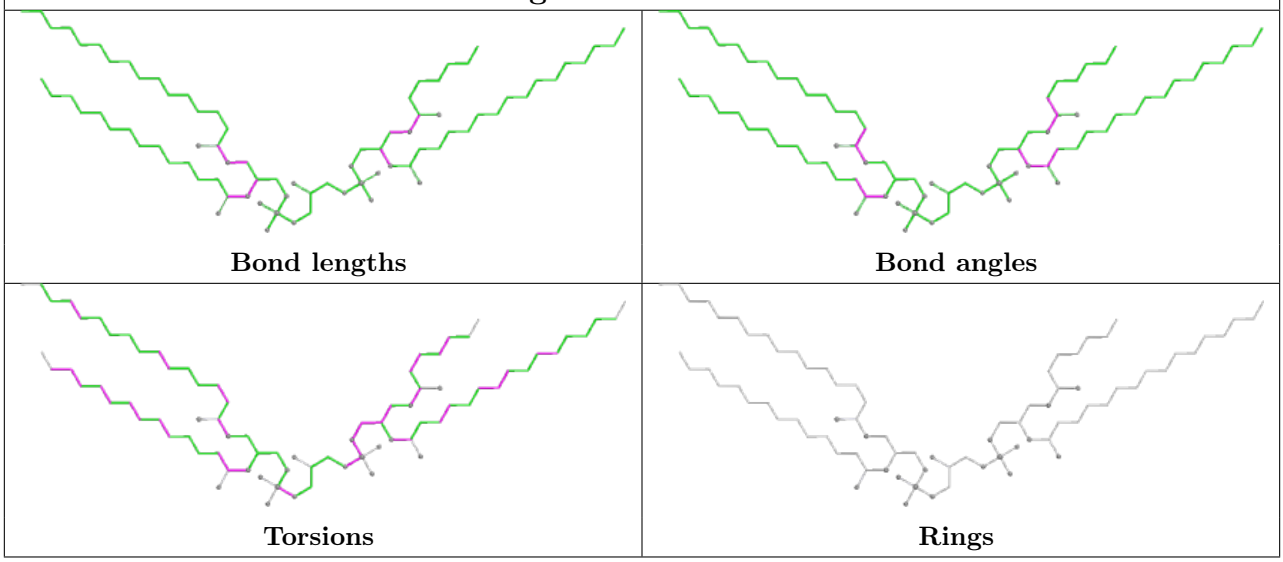
Ligand LMT f 302



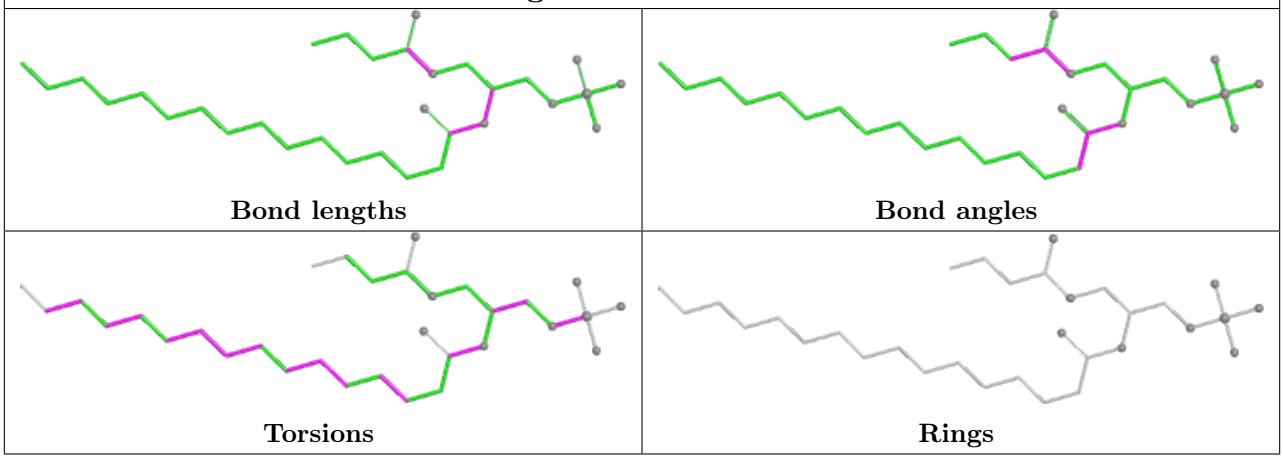
Ligand LPP i 101



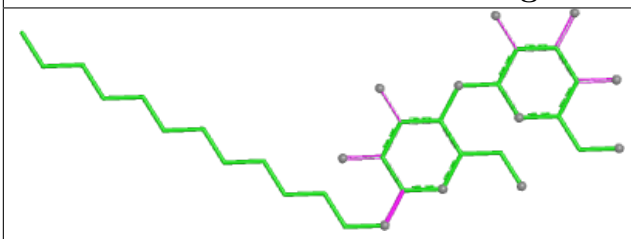
Ligand CDL a 501

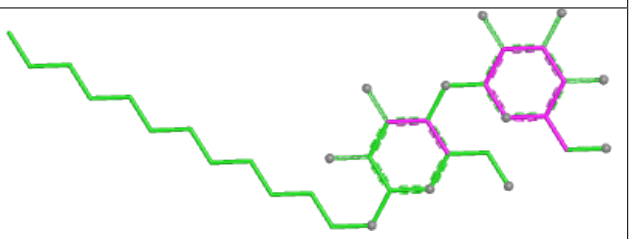


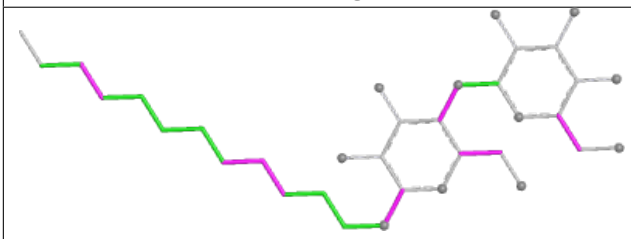
Ligand LPP O 203

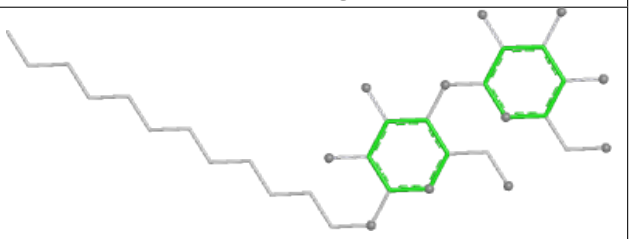


Ligand LMT N 204

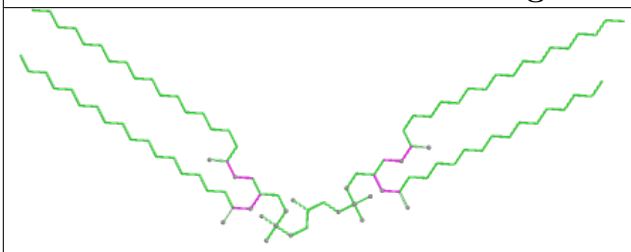

Bond lengths

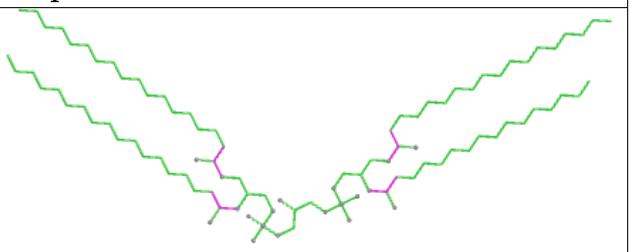

Bond angles

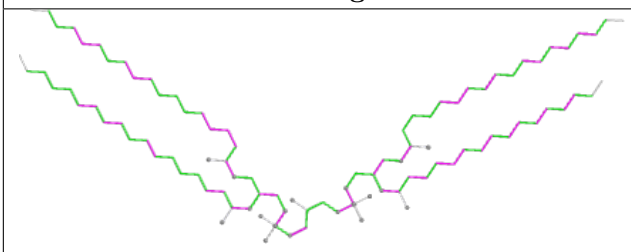

Torsions

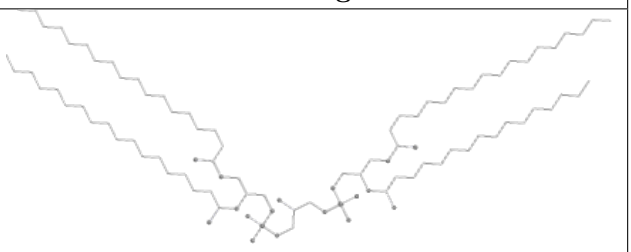

Rings

Ligand CDL p 201

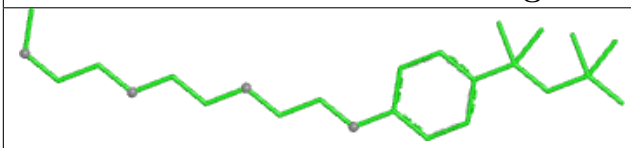

Bond lengths

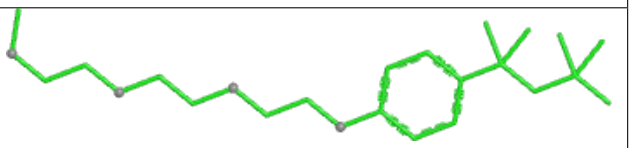

Bond angles

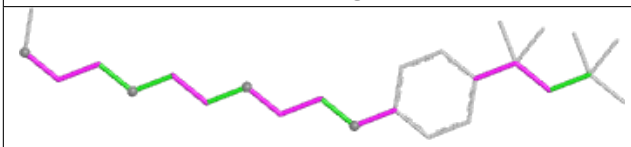

Torsions

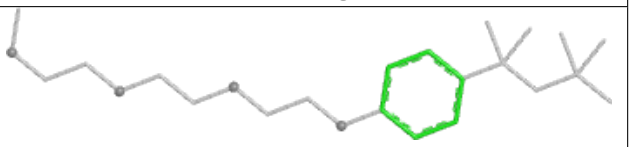

Rings

Ligand TRT N 202

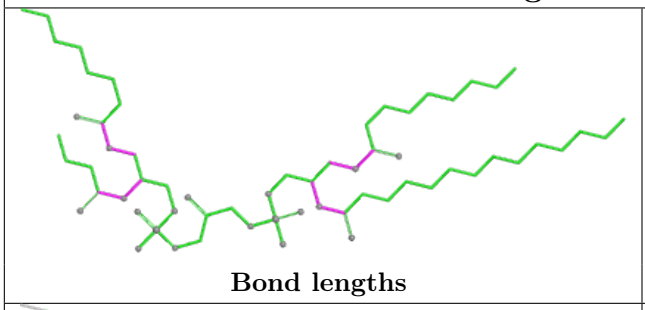

Bond lengths


Bond angles

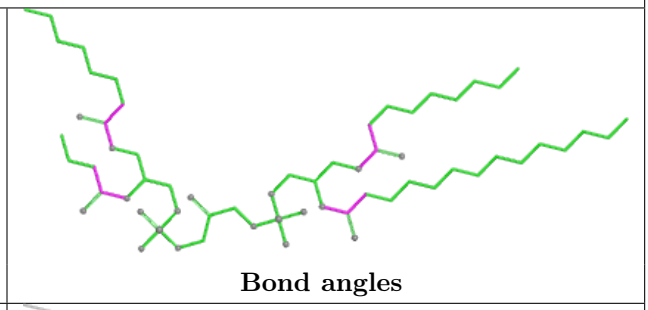

Torsions


Rings

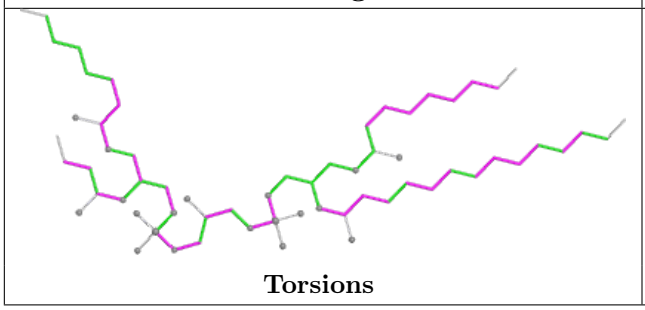
Ligand CDL A 504



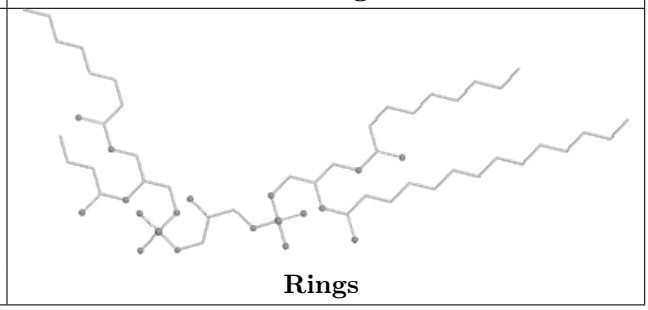
Bond lengths



Bond angles

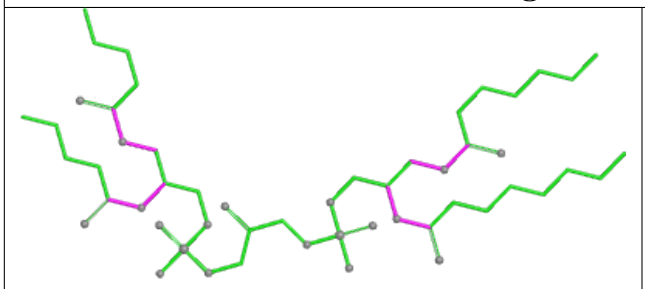


Torsions

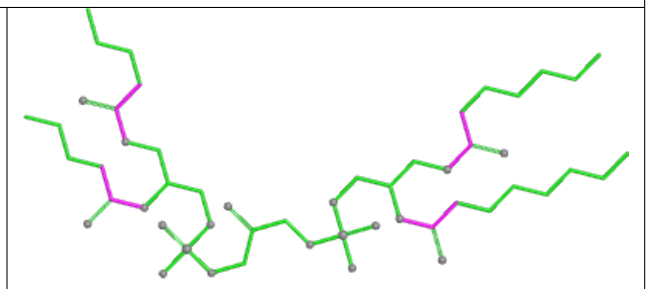


Rings

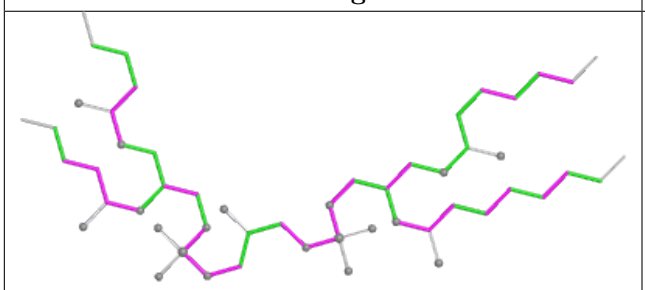
Ligand CDL M 204



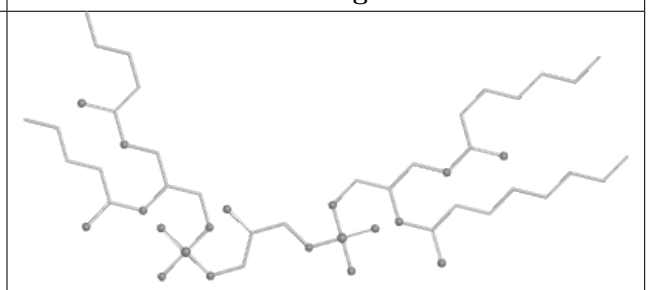
Bond lengths



Bond angles

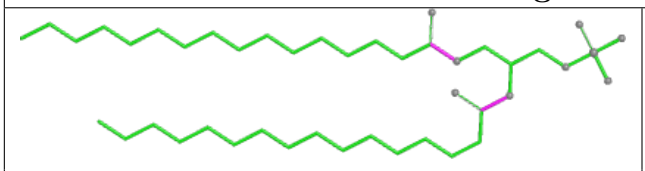


Torsions

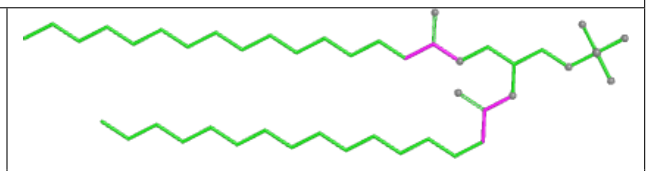


Rings

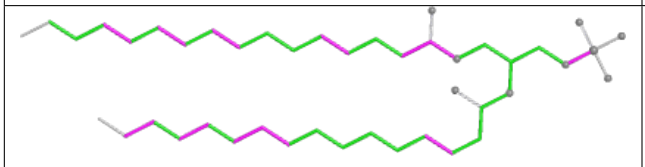
Ligand LPP I 101



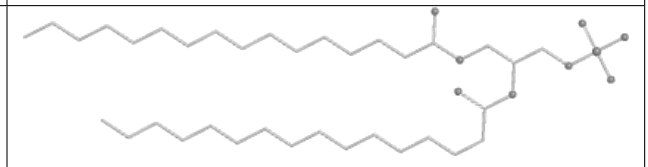
Bond lengths



Bond angles



Torsions



Rings

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

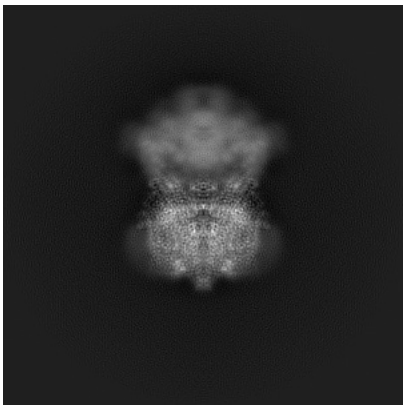
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-10468. These allow visual inspection of the internal detail of the map and identification of artifacts.

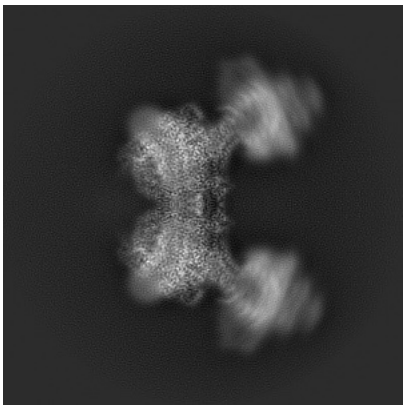
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

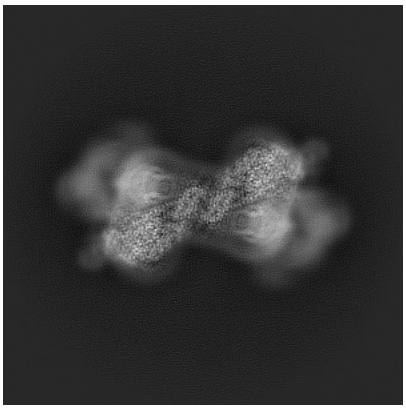
6.1.1 Primary map



X

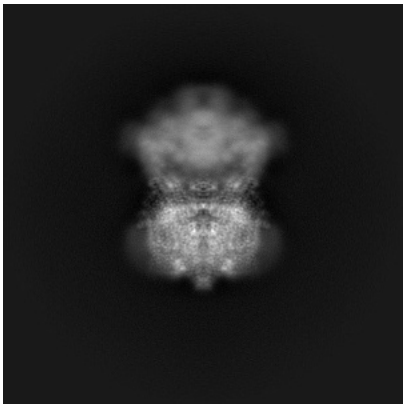


Y

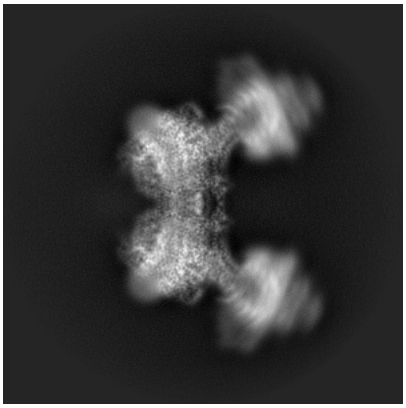


Z

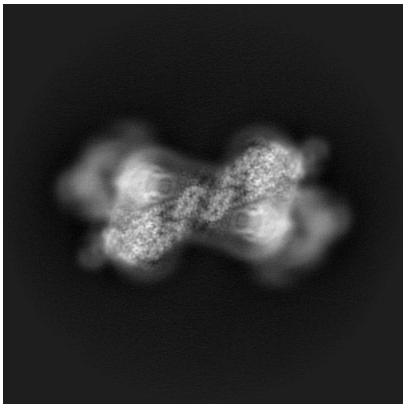
6.1.2 Raw map



X



Y

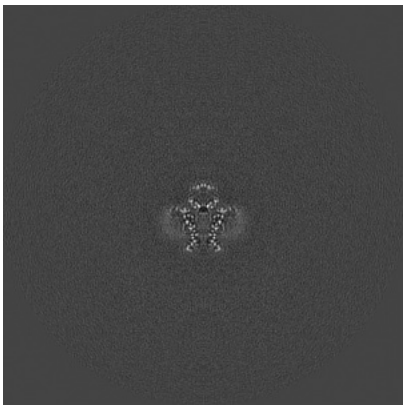


Z

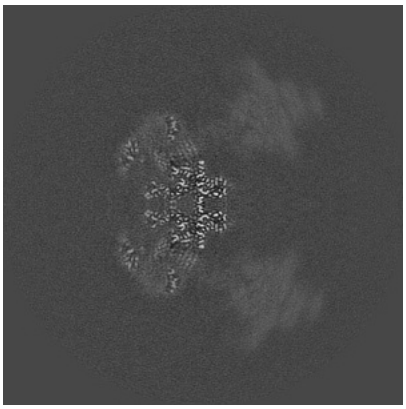
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

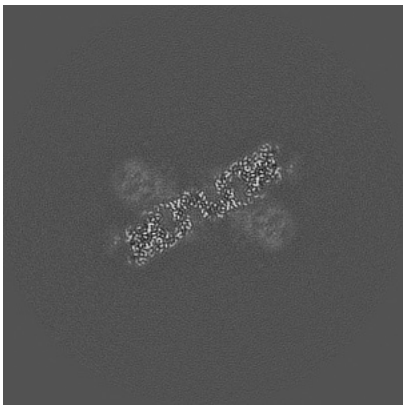
6.2.1 Primary map



X Index: 220

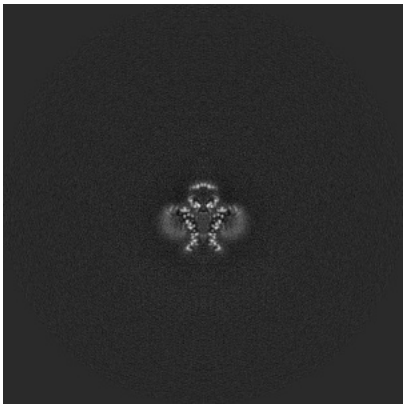


Y Index: 220

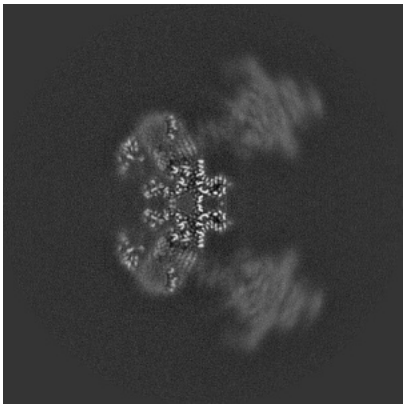


Z Index: 220

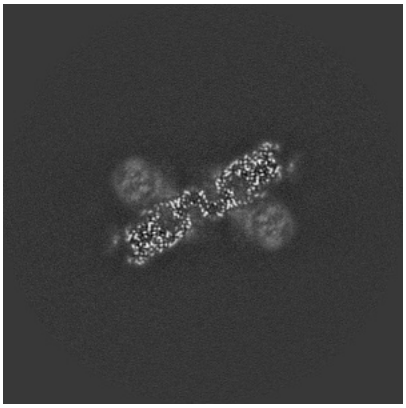
6.2.2 Raw map



X Index: 220



Y Index: 220

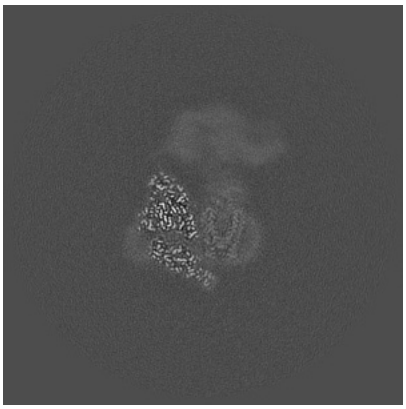


Z Index: 220

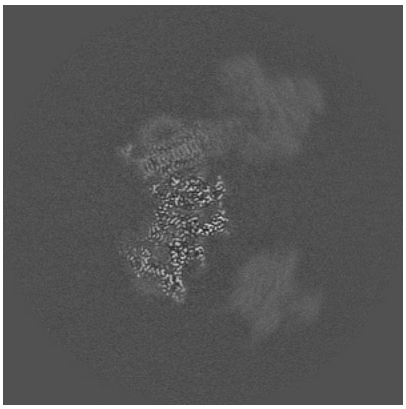
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

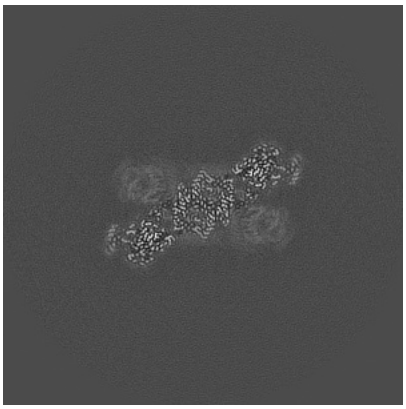
6.3.1 Primary map



X Index: 158

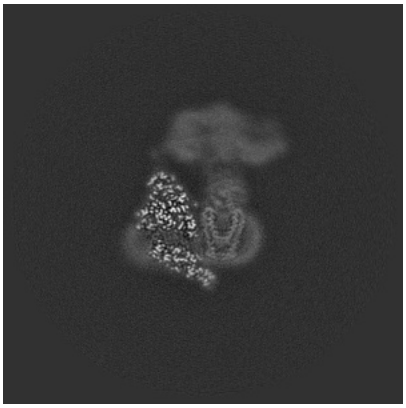


Y Index: 210

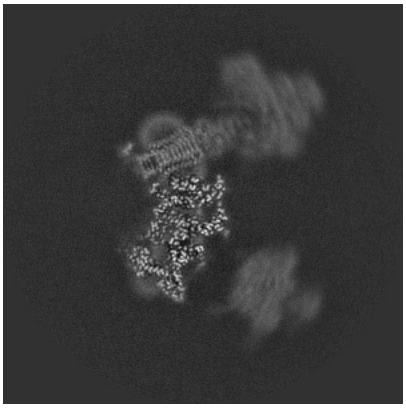


Z Index: 214

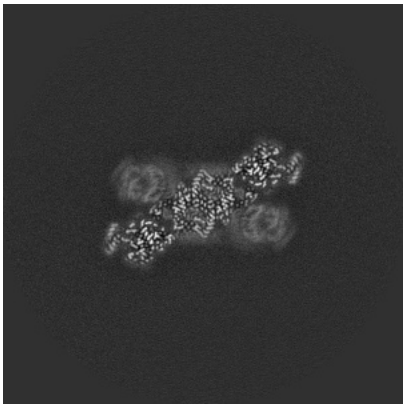
6.3.2 Raw map



X Index: 157



Y Index: 209

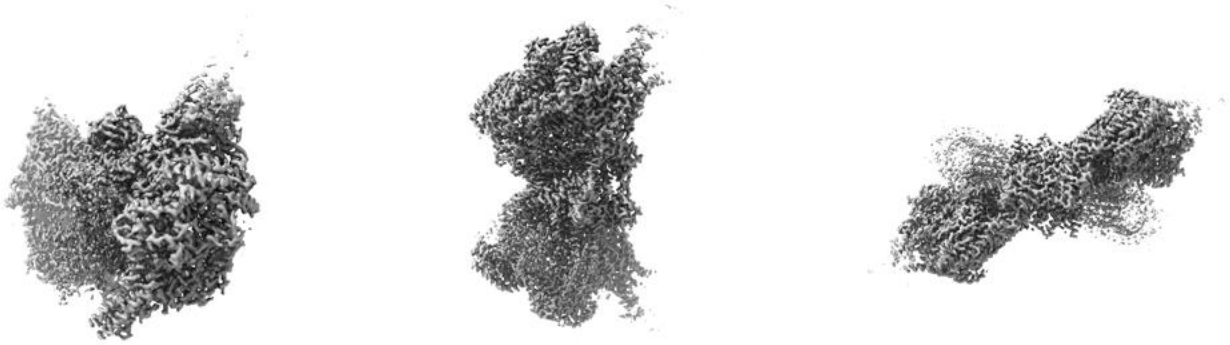


Z Index: 214

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

6.4 Orthogonal surface views (i)

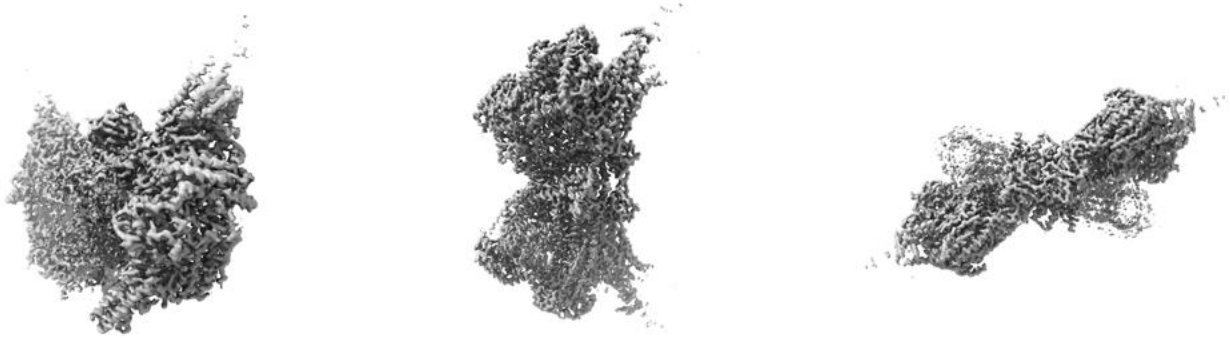
6.4.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.025. 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



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.

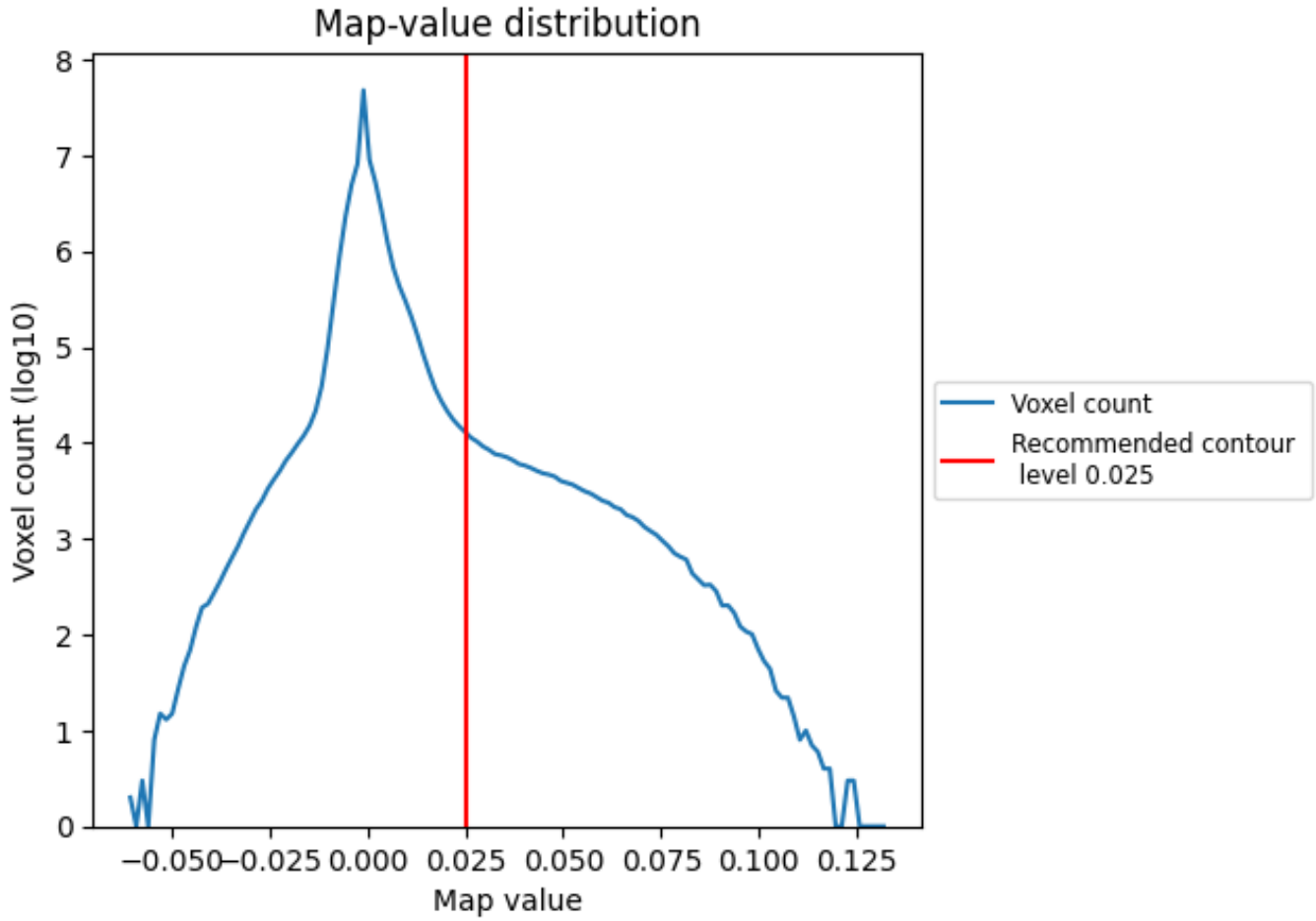
6.5 Mask visualisation (i)

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

7 Map analysis

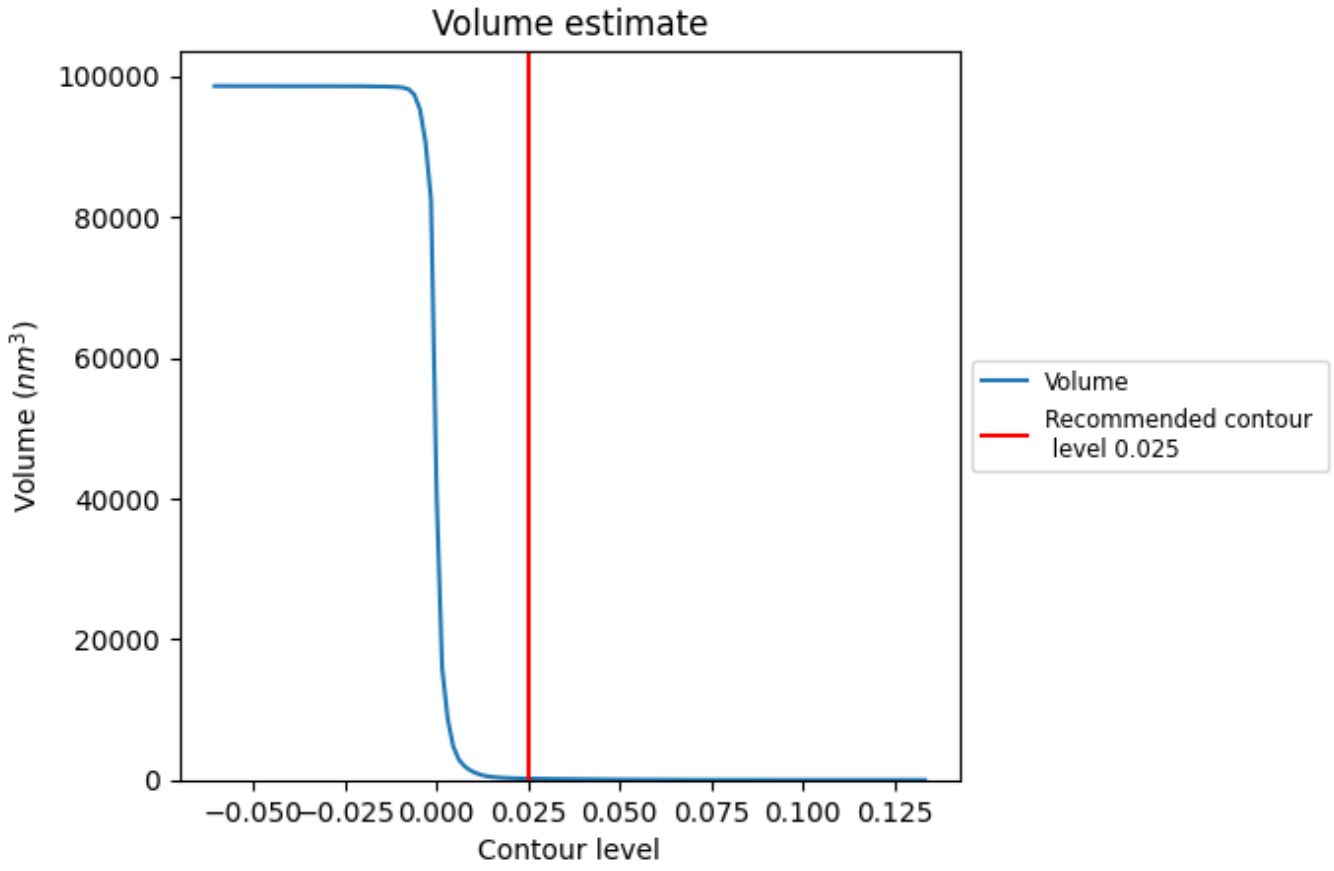
This section contains the results of statistical analysis of the map.

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.

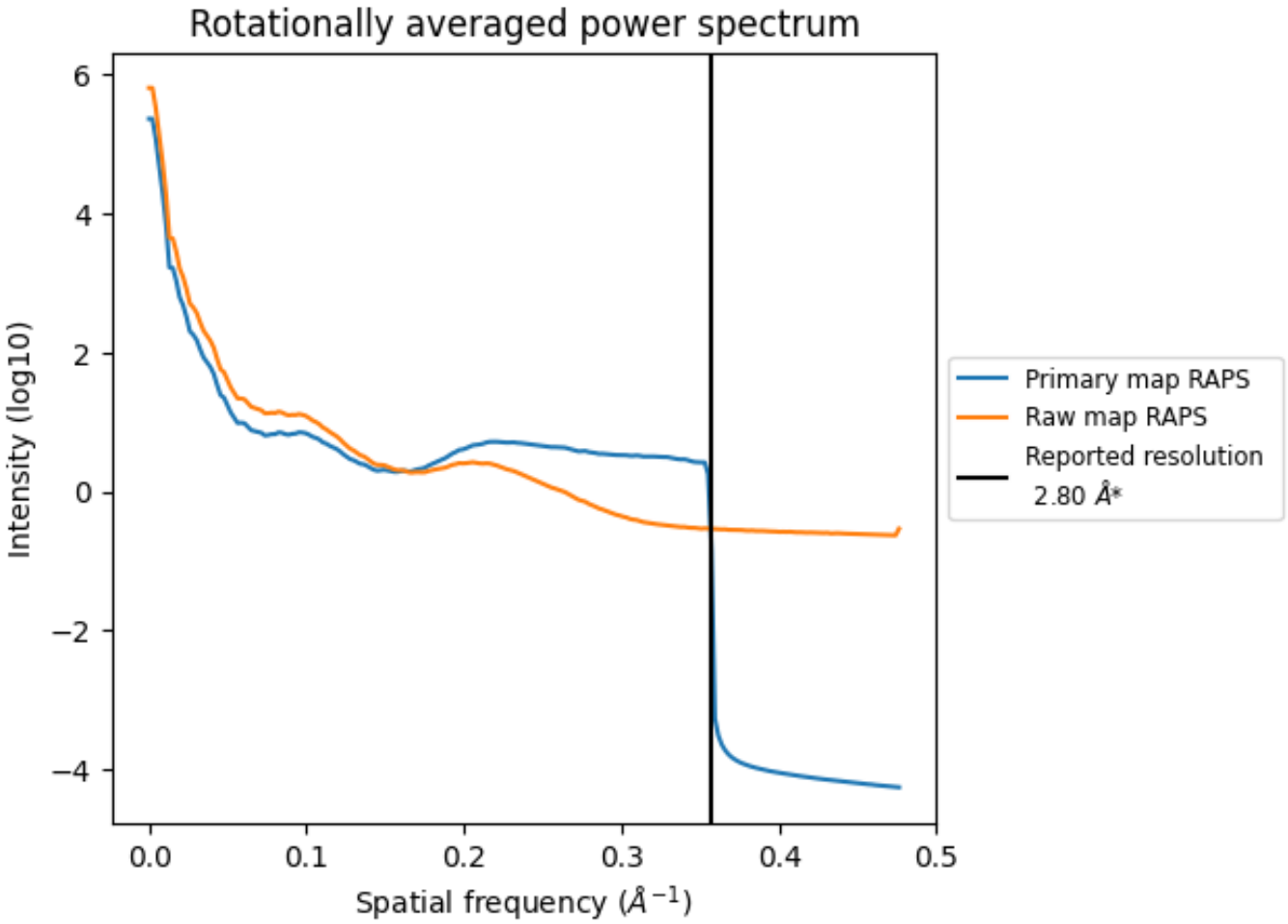
7.2 Volume estimate (i)



The volume at the recommended contour level is 192 nm^3; this corresponds to an approximate mass of 173 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)

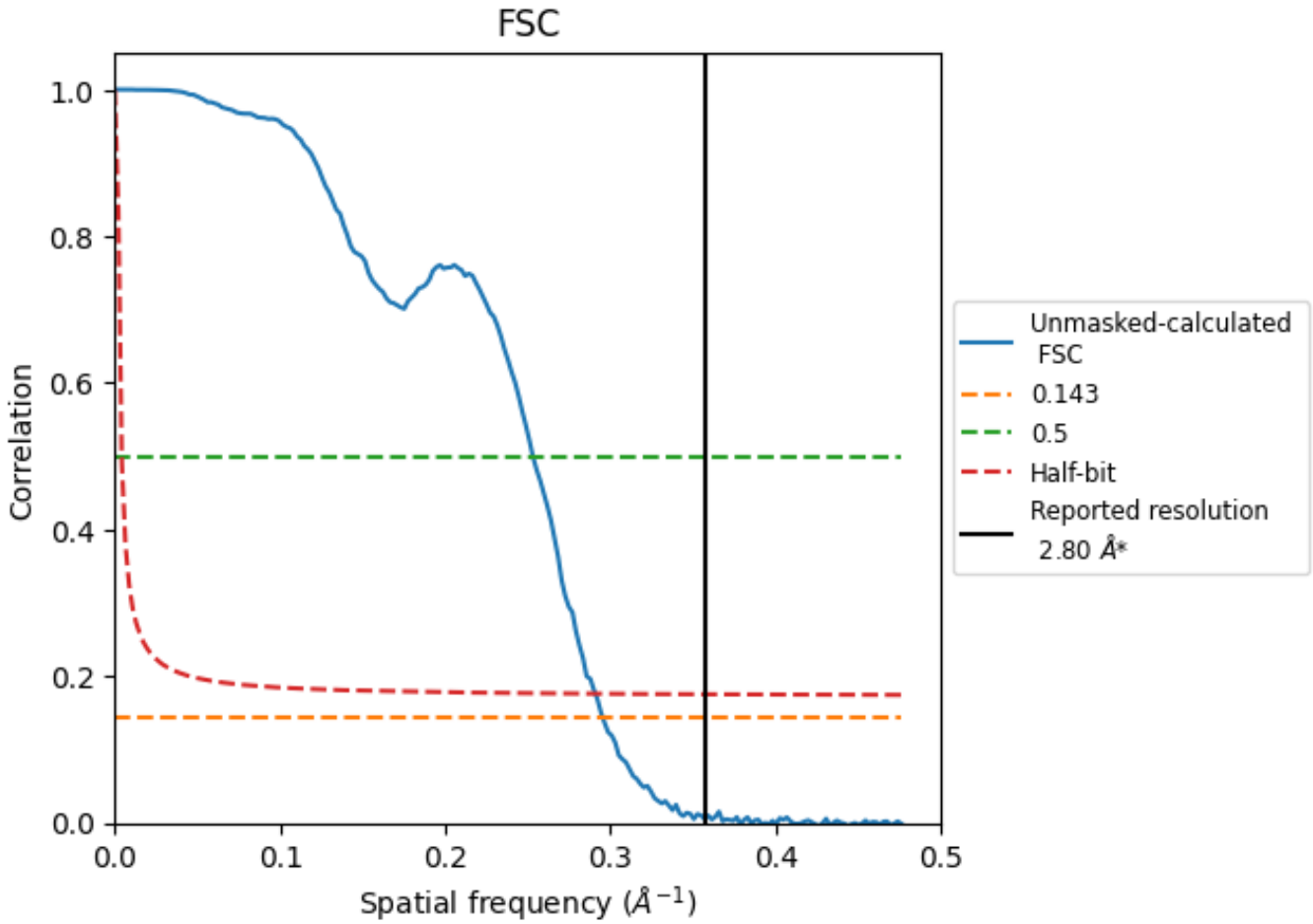


*Reported resolution corresponds to spatial frequency of 0.357 Å^{-1}

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 0.357 Å^{-1}

8.2 Resolution estimates (i)

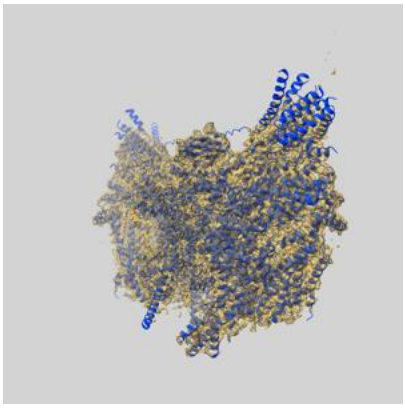
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.80	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.38	3.95	3.44

*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 3.38 differs from the reported value 2.8 by more than 10 %

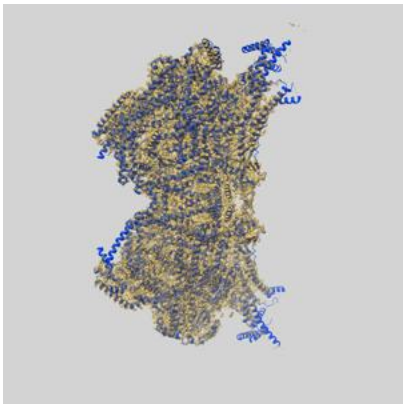
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-10468 and PDB model 6TDV. Per-residue inclusion information can be found in section 3 on page 14.

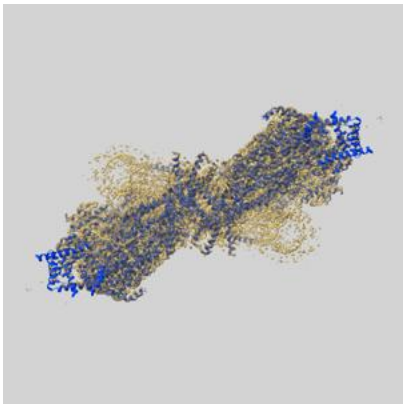
9.1 Map-model overlay



X



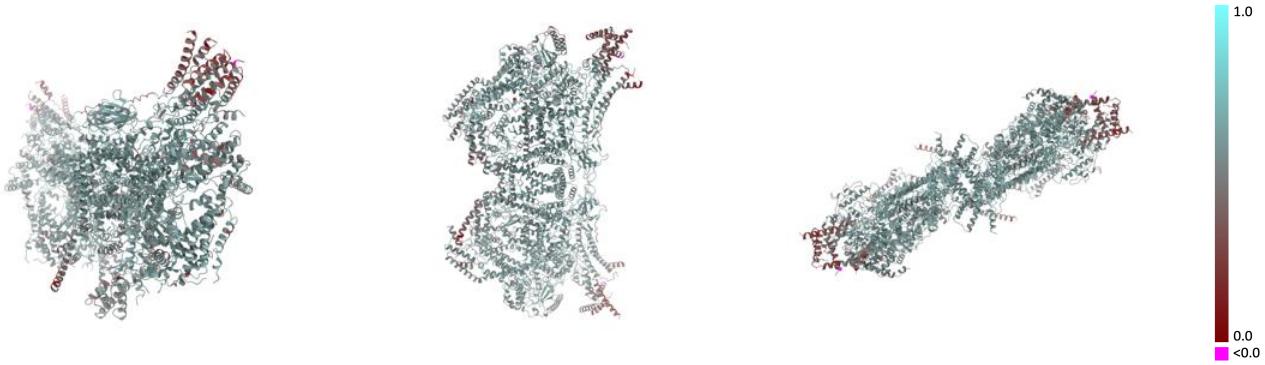
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.025 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.

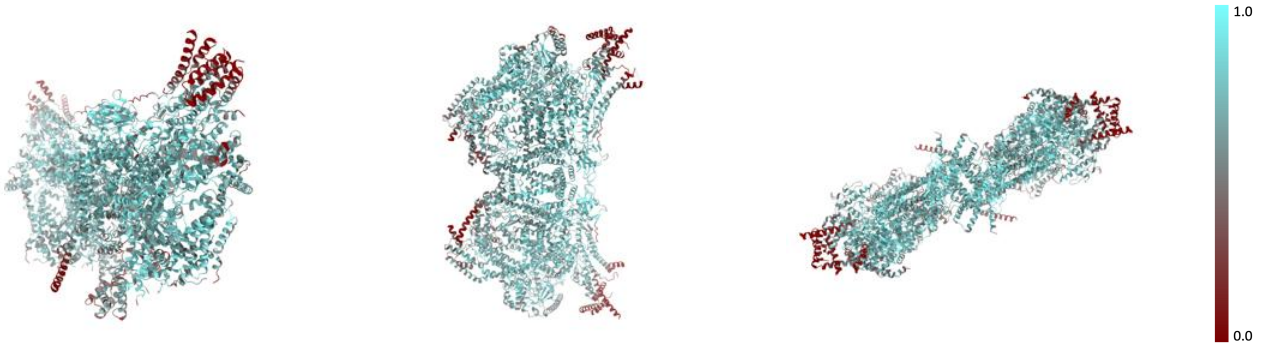
9.2 Q-score mapped to coordinate model (i)



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.

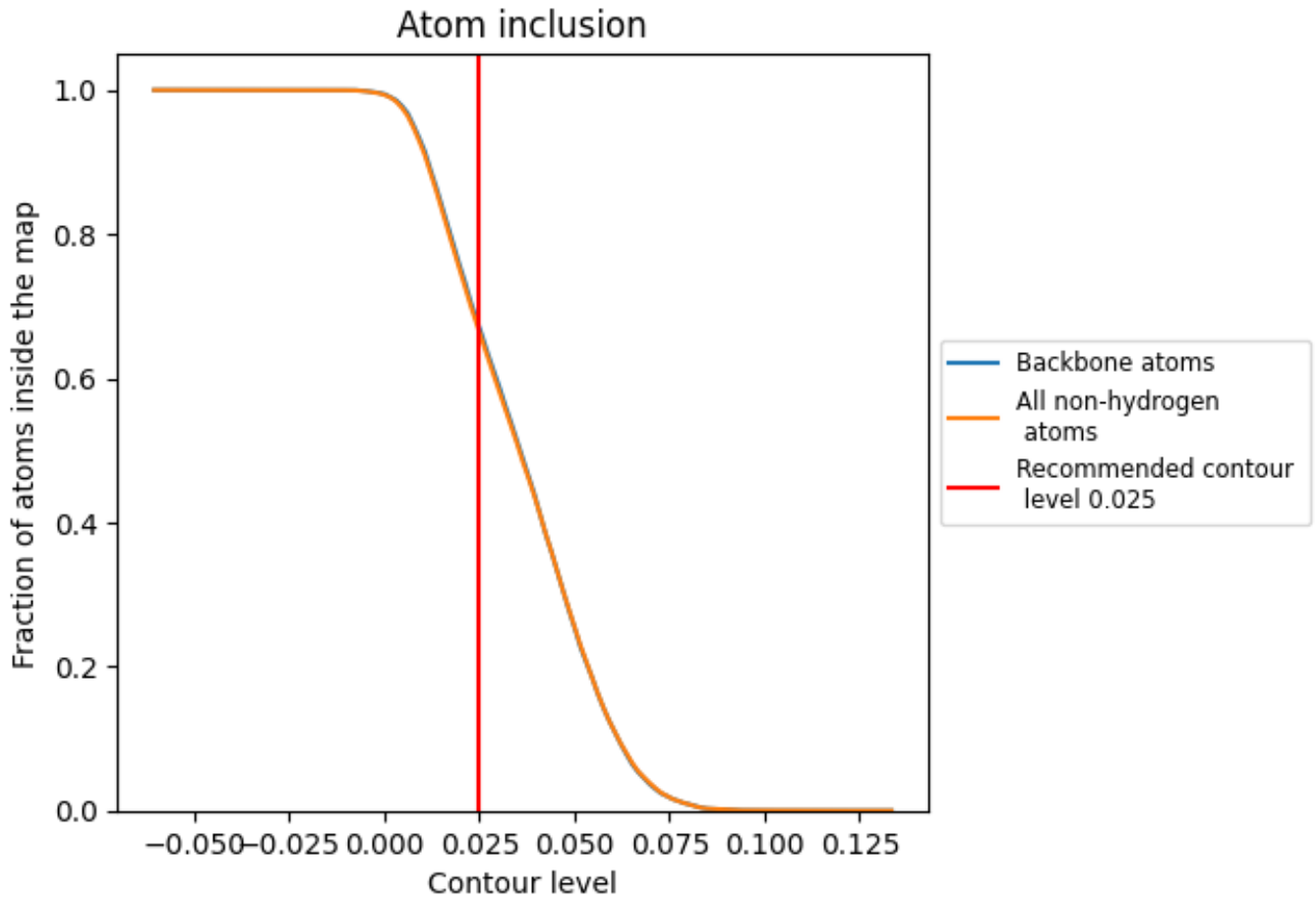
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.025).

9.4 Atom inclusion (i)



At the recommended contour level, 67% of all backbone atoms, 66% 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 (0.025) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.6636	0.5580
A	0.6967	0.5680
B	0.1215	0.3190
D	0.7071	0.5750
E	0.6790	0.5630
F	0.7502	0.5880
G	0.6711	0.5590
H	0.5713	0.5090
I	0.7139	0.5740
J	0.7451	0.5960
K	0.7148	0.5710
L	0.7067	0.5760
M	0.6165	0.5500
N	0.6528	0.5720
O	0.6211	0.5540
P	0.7079	0.5750
Q	0.5481	0.4960
R	0.6093	0.5520
S	0.7361	0.5960
T	0.7058	0.5710
a	0.6974	0.5700
b	0.1215	0.3130
d	0.7083	0.5750
e	0.6782	0.5630
f	0.7495	0.5880
g	0.6711	0.5580
h	0.5730	0.5080
i	0.7139	0.5770
j	0.7451	0.5930
k	0.7136	0.5740
l	0.7067	0.5750
m	0.6218	0.5480
n	0.6571	0.5760
o	0.6211	0.5540
p	0.6642	0.5740

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Chain	Atom inclusion	Q-score
q	0.5481	0.4990
r	0.6093	0.5530
s	0.7342	0.5990
t	0.7115	0.5730