wwPDB EM Validation Summary Report

Jun 11, 2025 – 04:37 PM JST

PDB ID	:	9LK5 / pdb_00009lk5
EMDB ID	:	EMD-63168
Title	:	The structure of Lhcb8-C2S2 PSII-LHCII supercomplex from Arabidopsis thaliana
Authors	:	Zhou, Q.; Caferri, R.; Shan, J.Y.; Amelii, A.; Bassi, R.; Liu, Z.F.
Deposited on	:	2025-01-16
Resolution	:	3.00 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:

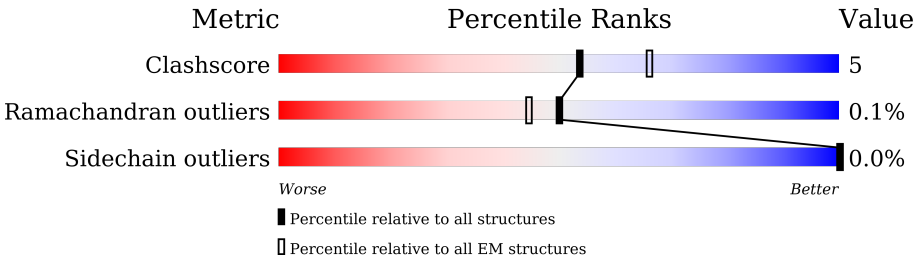
EMDB validation analysis	:	0.0.1.dev118
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.0rc1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.43.1

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 3.00 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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

Mol	Chain	Length	Quality of chain
1	A	353	86% 9% 5%
1	a	353	86% 8% 5%
2	B	508	88% 8% .
2	b	508	87% 10% .
3	C	473	88% 7% 5%
3	c	473	88% 7% 5%
4	D	353	88% 8% .
4	d	353	88% 8% .

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
5	E	83	78% 7% 14%
5	e	83	76% 10% 14%
6	F	39	72% 23%
6	f	39	72% 23%
7	G	267	74% 8% 18%
7	N	267	73% 9% 18%
7	g	267	75% 7% 18%
7	n	267	73% 9% 18%
8	H	73	74% 7% 19%
8	h	73	67% 14% 19%
9	I	36	86% 8% 6%
9	i	36	86% 8% 6%
10	J	40	15% 72% 28%
10	j	40	15% 70% 28%
11	K	61	57% 39%
11	k	61	57% 39%
12	L	38	84% 13%
12	l	38	79% 16%
13	M	34	82% 12% 6%
13	m	34	82% 12% 6%
14	O	332	53% 6% 40%
14	o	332	52% 7% 40%
15	S	280	72% 7% 21%
15	s	280	71% 8% 21%
16	T	33	85% 12%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
16	t	33	82% 6% 12%
17	U	103	17% 5% 78%
17	u	103	17% 5% 78%
18	W	133	35% 5% 59%
18	w	133	36% 5% 59%
19	X	116	33% 67%
19	x	116	32% 67%
20	Y	265	75% 8% 17%
20	y	265	74% 9% 17%
21	Z	62	94% 5%
21	z	62	92% 6%
22	R	286	71% 6% 23%
22	r	286	72% 5% 23%

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
23	CLA	A	401	X	-	-	-
23	CLA	A	402	X	-	-	-
23	CLA	A	404	X	-	-	-
23	CLA	B	601	X	-	-	-
23	CLA	B	602	X	-	-	-
23	CLA	B	603	X	-	-	-
23	CLA	B	604	X	-	-	-
23	CLA	B	605	X	-	-	-
23	CLA	B	606	X	-	-	-
23	CLA	B	607	X	-	-	-
23	CLA	B	608	X	-	-	-
23	CLA	B	609	X	-	-	-
23	CLA	B	610	X	-	-	-
23	CLA	B	611	X	-	-	-
23	CLA	B	612	X	-	-	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
23	CLA	B	613	X	-	-	-
23	CLA	B	614	X	-	-	-
23	CLA	B	615	X	-	-	-
23	CLA	B	616	X	-	-	-
23	CLA	C	502	X	-	-	-
23	CLA	C	503	X	-	-	-
23	CLA	C	504	X	-	-	-
23	CLA	C	505	X	-	-	-
23	CLA	C	506	X	-	-	-
23	CLA	C	507	X	-	-	-
23	CLA	C	508	X	-	-	-
23	CLA	C	509	X	-	-	-
23	CLA	C	510	X	-	-	-
23	CLA	C	511	X	-	-	-
23	CLA	C	512	X	-	-	-
23	CLA	C	513	X	-	-	-
23	CLA	C	514	X	-	-	-
23	CLA	D	401	X	-	-	-
23	CLA	D	403	X	-	-	-
23	CLA	D	404	X	-	-	-
23	CLA	G	602	X	-	-	-
23	CLA	G	603	X	-	-	-
23	CLA	G	604	X	-	-	-
23	CLA	G	610	X	-	-	-
23	CLA	G	611	X	-	-	-
23	CLA	G	612	X	-	-	-
23	CLA	G	613	X	-	-	-
23	CLA	G	614	X	-	-	-
23	CLA	N	602	X	-	-	-
23	CLA	N	603	X	-	-	-
23	CLA	N	604	X	-	-	-
23	CLA	N	610	X	-	-	-
23	CLA	N	611	X	-	-	-
23	CLA	N	612	X	-	-	-
23	CLA	N	613	X	-	-	-
23	CLA	N	614	X	-	-	-
23	CLA	R	302	X	-	-	-
23	CLA	R	303	X	-	-	-
23	CLA	R	304	X	-	-	-
23	CLA	R	305	X	-	-	-
23	CLA	R	309	X	-	-	-
23	CLA	R	310	X	-	-	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
23	CLA	R	311	X	-	-	-
23	CLA	R	312	X	-	-	-
23	CLA	R	313	X	-	-	-
23	CLA	S	303	X	-	-	-
23	CLA	S	304	X	-	-	-
23	CLA	S	305	X	-	-	-
23	CLA	S	309	X	-	-	-
23	CLA	S	310	X	-	-	-
23	CLA	S	311	X	-	-	-
23	CLA	S	312	X	-	-	-
23	CLA	S	313	X	-	-	-
23	CLA	S	314	X	-	-	-
23	CLA	Y	303	X	-	-	-
23	CLA	Y	304	X	-	-	-
23	CLA	Y	305	X	-	-	-
23	CLA	Y	311	X	-	-	-
23	CLA	Y	312	X	-	-	-
23	CLA	Y	313	X	-	-	-
23	CLA	Y	314	X	-	-	-
23	CLA	Y	315	X	-	-	-
23	CLA	a	401	X	-	-	-
23	CLA	a	404	X	-	-	-
23	CLA	b	603	X	-	-	-
23	CLA	b	604	X	-	-	-
23	CLA	b	605	X	-	-	-
23	CLA	b	606	X	-	-	-
23	CLA	b	607	X	-	-	-
23	CLA	b	608	X	-	-	-
23	CLA	b	609	X	-	-	-
23	CLA	b	610	X	-	-	-
23	CLA	b	611	X	-	-	-
23	CLA	b	612	X	-	-	-
23	CLA	b	613	X	-	-	-
23	CLA	b	614	X	-	-	-
23	CLA	b	615	X	-	-	-
23	CLA	b	616	X	-	-	-
23	CLA	b	617	X	-	-	-
23	CLA	b	618	X	-	-	-
23	CLA	c	501	X	-	-	-
23	CLA	c	502	X	-	-	-
23	CLA	c	503	X	-	-	-
23	CLA	c	504	X	-	-	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
23	CLA	c	505	X	-	-	-
23	CLA	c	506	X	-	-	-
23	CLA	c	507	X	-	-	-
23	CLA	c	508	X	-	-	-
23	CLA	c	509	X	-	-	-
23	CLA	c	510	X	-	-	-
23	CLA	c	511	X	-	-	-
23	CLA	c	512	X	-	-	-
23	CLA	c	513	X	-	-	-
23	CLA	d	401	X	-	-	-
23	CLA	d	402	X	-	-	-
23	CLA	d	403	X	-	-	-
23	CLA	d	404	X	-	-	-
23	CLA	g	602	X	-	-	-
23	CLA	g	603	X	-	-	-
23	CLA	g	604	X	-	-	-
23	CLA	g	610	X	-	-	-
23	CLA	g	611	X	-	-	-
23	CLA	g	612	X	-	-	-
23	CLA	g	613	X	-	-	-
23	CLA	g	614	X	-	-	-
23	CLA	n	602	X	-	-	-
23	CLA	n	603	X	-	-	-
23	CLA	n	604	X	-	-	-
23	CLA	n	610	X	-	-	-
23	CLA	n	611	X	-	-	-
23	CLA	n	612	X	-	-	-
23	CLA	n	613	X	-	-	-
23	CLA	n	614	X	-	-	-
23	CLA	r	601	X	-	-	-
23	CLA	r	602	X	-	-	-
23	CLA	r	603	X	-	-	-
23	CLA	r	604	X	-	-	-
23	CLA	r	608	X	-	-	-
23	CLA	r	609	X	-	-	-
23	CLA	r	610	X	-	-	-
23	CLA	r	611	X	-	-	-
23	CLA	r	612	X	-	-	-
23	CLA	s	602	X	-	-	-
23	CLA	s	603	X	-	-	-
23	CLA	s	604	X	-	-	-
23	CLA	s	608	X	-	-	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
23	CLA	s	609	X	-	-	-
23	CLA	s	610	X	-	-	-
23	CLA	s	611	X	-	-	-
23	CLA	s	612	X	-	-	-
23	CLA	s	613	X	-	-	-
23	CLA	y	303	X	-	-	-
23	CLA	y	304	X	-	-	-
23	CLA	y	305	X	-	-	-
23	CLA	y	311	X	-	-	-
23	CLA	y	312	X	-	-	-
23	CLA	y	313	X	-	-	-
23	CLA	y	314	X	-	-	-
23	CLA	y	315	X	-	-	-
27	BCT	A	407	-	-	X	-
27	BCT	a	408	-	-	X	-
33	PL9	D	406	-	X	-	-
33	PL9	d	406	-	X	-	-
35	CHL	G	601	X	-	-	-
35	CHL	G	605	X	-	-	-
35	CHL	G	606	X	-	-	-
35	CHL	G	607	X	-	-	-
35	CHL	G	608	X	-	-	-
35	CHL	G	609	X	-	-	-
35	CHL	N	601	X	-	-	-
35	CHL	N	605	X	-	-	-
35	CHL	N	606	X	-	-	-
35	CHL	N	607	X	-	-	-
35	CHL	N	608	X	-	-	-
35	CHL	N	609	X	-	-	-
35	CHL	R	306	X	-	-	-
35	CHL	R	307	X	-	-	-
35	CHL	R	308	X	-	-	-
35	CHL	S	302	X	-	-	-
35	CHL	S	306	X	-	-	-
35	CHL	S	307	X	-	-	-
35	CHL	S	308	X	-	-	-
35	CHL	Y	302	X	-	-	-
35	CHL	Y	306	X	-	-	-
35	CHL	Y	307	X	-	-	-
35	CHL	Y	308	X	-	-	-
35	CHL	Y	309	X	-	-	-
35	CHL	Y	310	X	-	-	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
35	CHL	g	601	X	-	-	-
35	CHL	g	605	X	-	-	-
35	CHL	g	606	X	-	-	-
35	CHL	g	607	X	-	-	-
35	CHL	g	608	X	-	-	-
35	CHL	g	609	X	-	-	-
35	CHL	n	601	X	-	-	-
35	CHL	n	605	X	-	-	-
35	CHL	n	606	X	-	-	-
35	CHL	n	607	X	-	-	-
35	CHL	n	608	X	-	-	-
35	CHL	n	609	X	-	-	-
35	CHL	r	605	X	-	-	-
35	CHL	r	606	X	-	-	-
35	CHL	r	607	X	-	-	-
35	CHL	s	601	X	-	-	-
35	CHL	s	605	X	-	-	-
35	CHL	s	606	X	-	-	-
35	CHL	s	607	X	-	-	-
35	CHL	y	302	X	-	-	-
35	CHL	y	306	X	-	-	-
35	CHL	y	307	X	-	-	-
35	CHL	y	308	X	-	-	-
35	CHL	y	309	X	-	-	-
35	CHL	y	310	X	-	-	-

2 Entry composition (i)

There are 39 unique types of molecules in this entry. The entry contains 71232 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Photosystem II protein D1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	335	Total	C	N	O	S	0	0
			2623	1712	431	467	13		
1	a	335	Total	C	N	O	S	0	0
			2623	1712	431	467	13		

- Molecule 2 is a protein called Photosystem II CP47 reaction center protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	489	Total	C	N	O	S	0	0
			3829	2506	647	664	12		
2	b	489	Total	C	N	O	S	0	0
			3829	2506	647	664	12		

- Molecule 3 is a protein called Photosystem II CP43 reaction center protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	C	449	Total	C	N	O	S	0	0
			3480	2285	582	602	11		
3	c	449	Total	C	N	O	S	0	0
			3480	2285	582	602	11		

- Molecule 4 is a protein called Photosystem II D2 protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	D	339	Total	C	N	O	S	0	0
			2696	1783	441	460	12		
4	d	339	Total	C	N	O	S	0	0
			2696	1783	441	460	12		

- Molecule 5 is a protein called Cytochrome b559 subunit alpha.

Mol	Chain	Residues	Atoms				AltConf	Trace
5	E	71	Total 576	C 377	N 93	O 106	0	0
5	e	71	Total 576	C 377	N 93	O 106	0	0

- Molecule 6 is a protein called Cytochrome b559 subunit beta.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	F	30	Total 235	C 156	N 41	O 37	S 1	0	0
6	f	30	Total 235	C 156	N 41	O 37	S 1	0	0

- Molecule 7 is a protein called Chlorophyll a-b binding protein 2, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	G	219	Total 1666	C 1078	N 273	O 310	S 5	0	0
7	N	219	Total 1666	C 1078	N 273	O 310	S 5	0	0
7	g	219	Total 1666	C 1078	N 273	O 310	S 5	0	0
7	n	219	Total 1666	C 1078	N 273	O 310	S 5	0	0

- Molecule 8 is a protein called Photosystem II reaction center protein H.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	H	59	Total 438	C 289	N 68	O 79	S 2	0	0
8	h	59	Total 438	C 289	N 68	O 79	S 2	0	0

- Molecule 9 is a protein called Photosystem II reaction center protein I.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	I	34	Total 277	C 190	N 43	O 43	S 1	0	0
9	i	34	Total 277	C 190	N 43	O 43	S 1	0	0

- Molecule 10 is a protein called Photosystem II reaction center protein J.

Mol	Chain	Residues	Atoms				AltConf	Trace
10	J	29	Total	C	N	O	0	0
			219	152	33	34		
10	j	29	Total	C	N	O	0	0
			219	152	33	34		

- Molecule 11 is a protein called Photosystem II reaction center protein K.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	K	37	Total	C	N	O	S	0	0
			301	211	44	45	1		
11	k	37	Total	C	N	O	S	0	0
			301	211	44	45	1		

- Molecule 12 is a protein called Photosystem II reaction center protein L.

Mol	Chain	Residues	Atoms				AltConf	Trace
12	L	37	Total	C	N	O	0	0
			309	204	48	57		
12	l	37	Total	C	N	O	0	0
			309	204	48	57		

- Molecule 13 is a protein called Photosystem II reaction center protein M.

Mol	Chain	Residues	Atoms				AltConf	Trace
13	M	32	Total	C	N	O	0	0
			250	172	36	42		
13	m	32	Total	C	N	O	0	0
			250	172	36	42		

- Molecule 14 is a protein called Oxygen-evolving enhancer protein 1-1, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	O	198	Total	C	N	O	S	0	0
			1523	974	240	305	4		
14	o	198	Total	C	N	O	S	0	0
			1523	974	240	305	4		

- Molecule 15 is a protein called Chlorophyll a-b binding protein CP26, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	S	221	Total	C	N	O	S	0	0
			1705	1111	277	313	4		

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf	Trace
15	s	221	Total	C	N	O	S	0	0
			1705	1111	277	313	4		

- Molecule 16 is a protein called Photosystem II reaction center protein T.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	T	29	Total	C	N	O	S	0	0
			239	168	33	37	1		
16	t	29	Total	C	N	O	S	0	0
			239	168	33	37	1		

- Molecule 17 is a protein called Photosystem II 5 kDa protein, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	U	23	Total	C	N	O	S	0	0
			179	114	31	31	3		
17	u	23	Total	C	N	O	S	0	0
			179	114	31	31	3		

- Molecule 18 is a protein called Photosystem II reaction center W protein, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	W	54	Total	C	N	O	S	0	0
			427	282	61	83	1		
18	w	54	Total	C	N	O	S	0	0
			427	282	61	83	1		

- Molecule 19 is a protein called (thale cress) hypothetical protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
19	X	38	Total	C	N	O	0	0
			267	176	42	49		
19	x	38	Total	C	N	O	0	0
			267	176	42	49		

- Molecule 20 is a protein called Chlorophyll a-b binding protein 2.2, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	Y	220	Total	C	N	O	S	0	0
			1699	1107	273	314	5		
20	y	220	Total	C	N	O	S	0	0
			1699	1107	273	314	5		

- Molecule 21 is a protein called Photosystem II reaction center protein Z.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	Z	61	Total	C	N	O	S	0	0
			458	310	68	79	1		
21	z	61	Total	C	N	O	S	0	0
			458	310	68	79	1		

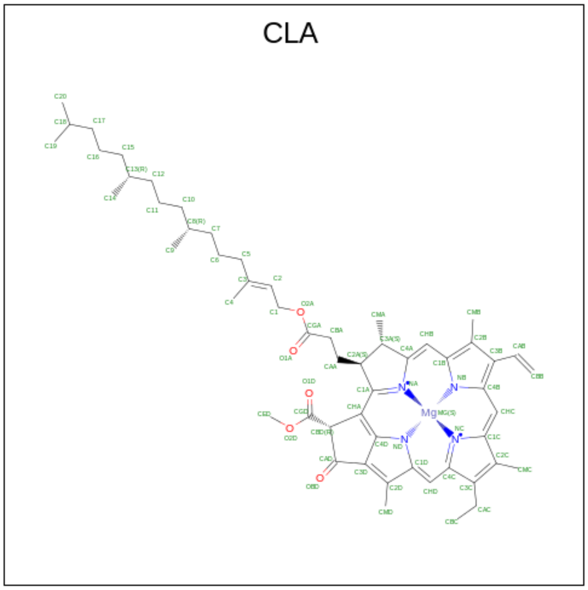
- Molecule 22 is a protein called Chlorophyll a-b binding protein CP29.3, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	r	220	Total	C	N	O	S	0	0
			1718	1124	274	316	4		
22	R	220	Total	C	N	O	S	0	0
			1718	1124	274	316	4		

There are 20 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
r	277	GLY	-	expression tag	UNP Q9S7W1
r	278	GLY	-	expression tag	UNP Q9S7W1
r	279	GLY	-	expression tag	UNP Q9S7W1
r	280	GLY	-	expression tag	UNP Q9S7W1
r	281	HIS	-	expression tag	UNP Q9S7W1
r	282	HIS	-	expression tag	UNP Q9S7W1
r	283	HIS	-	expression tag	UNP Q9S7W1
r	284	HIS	-	expression tag	UNP Q9S7W1
r	285	HIS	-	expression tag	UNP Q9S7W1
r	286	HIS	-	expression tag	UNP Q9S7W1
R	277	GLY	-	expression tag	UNP Q9S7W1
R	278	GLY	-	expression tag	UNP Q9S7W1
R	279	GLY	-	expression tag	UNP Q9S7W1
R	280	GLY	-	expression tag	UNP Q9S7W1
R	281	HIS	-	expression tag	UNP Q9S7W1
R	282	HIS	-	expression tag	UNP Q9S7W1
R	283	HIS	-	expression tag	UNP Q9S7W1
R	284	HIS	-	expression tag	UNP Q9S7W1
R	285	HIS	-	expression tag	UNP Q9S7W1
R	286	HIS	-	expression tag	UNP Q9S7W1

- Molecule 23 is CHLOROPHYLL A (CCD ID: CLA) (formula: $C_{55}H_{72}MgN_4O_5$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	AltConf
23	A	1	Total C Mg N O 65 55 1 4 5	0
23	A	1	Total C Mg N O 50 40 1 4 5	0
23	A	1	Total C Mg N O 60 50 1 4 5	0
23	B	1	Total C Mg N O 65 55 1 4 5	0
23	B	1	Total C Mg N O 65 55 1 4 5	0
23	B	1	Total C Mg N O 65 55 1 4 5	0
23	B	1	Total C Mg N O 65 55 1 4 5	0
23	B	1	Total C Mg N O 65 55 1 4 5	0
23	B	1	Total C Mg N O 65 55 1 4 5	0
23	B	1	Total C Mg N O 65 55 1 4 5	0
23	B	1	Total C Mg N O 65 55 1 4 5	0
23	B	1	Total C Mg N O 65 55 1 4 5	0
23	B	1	Total C Mg N O 65 55 1 4 5	0
23	B	1	Total C Mg N O 65 55 1 4 5	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf
23	B	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	B	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	B	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	B	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	B	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	C	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	C	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	C	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	C	1	Total	C	Mg	N	O	0
			60	50	1	4	5	
23	C	1	Total	C	Mg	N	O	0
			58	48	1	4	5	
23	C	1	Total	C	Mg	N	O	0
			51	41	1	4	5	
23	C	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	C	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	C	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	C	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	C	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	C	1	Total	C	Mg	N	O	0
			56	46	1	4	5	
23	C	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	D	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	D	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	D	1	Total	C	Mg	N	O	0
			65	55	1	4	5	

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf
23	G	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	G	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	G	1	Total	C	Mg	N	O	0
			49	39	1	4	5	
23	G	1	Total	C	Mg	N	O	0
			64	54	1	4	5	
23	G	1	Total	C	Mg	N	O	0
			60	50	1	4	5	
23	G	1	Total	C	Mg	N	O	0
			45	35	1	4	5	
23	G	1	Total	C	Mg	N	O	0
			58	48	1	4	5	
23	G	1	Total	C	Mg	N	O	0
			42	34	1	4	3	
23	N	1	Total	C	Mg	N	O	0
			61	51	1	4	5	
23	N	1	Total	C	Mg	N	O	0
			59	49	1	4	5	
23	N	1	Total	C	Mg	N	O	0
			50	40	1	4	5	
23	N	1	Total	C	Mg	N	O	0
			59	49	1	4	5	
23	N	1	Total	C	Mg	N	O	0
			60	50	1	4	5	
23	N	1	Total	C	Mg	N	O	0
			45	35	1	4	5	
23	N	1	Total	C	Mg	N	O	0
			60	50	1	4	5	
23	N	1	Total	C	Mg	N	O	0
			41	33	1	4	3	
23	S	1	Total	C	Mg	N	O	0
			46	36	1	4	5	
23	S	1	Total	C	Mg	N	O	0
			45	35	1	4	5	
23	S	1	Total	C	Mg	N	O	0
			50	40	1	4	5	
23	S	1	Total	C	Mg	N	O	0
			45	35	1	4	5	
23	S	1	Total	C	Mg	N	O	0
			46	36	1	4	5	

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf
23	S	1	Total 42	C 34	Mg 1	N 4	O 3	0
23	S	1	Total 45	C 35	Mg 1	N 4	O 5	0
23	S	1	Total 55	C 45	Mg 1	N 4	O 5	0
23	S	1	Total 41	C 33	Mg 1	N 4	O 3	0
23	Y	1	Total 61	C 51	Mg 1	N 4	O 5	0
23	Y	1	Total 65	C 55	Mg 1	N 4	O 5	0
23	Y	1	Total 50	C 40	Mg 1	N 4	O 5	0
23	Y	1	Total 60	C 50	Mg 1	N 4	O 5	0
23	Y	1	Total 60	C 50	Mg 1	N 4	O 5	0
23	Y	1	Total 60	C 50	Mg 1	N 4	O 5	0
23	Y	1	Total 65	C 55	Mg 1	N 4	O 5	0
23	Y	1	Total 45	C 35	Mg 1	N 4	O 5	0
23	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
23	a	1	Total 60	C 50	Mg 1	N 4	O 5	0
23	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
23	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
23	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
23	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
23	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
23	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
23	b	1	Total 65	C 55	Mg 1	N 4	O 5	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf
23	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
23	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
23	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
23	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
23	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
23	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
23	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
23	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
23	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
23	c	1	Total 65	C 55	Mg 1	N 4	O 5	0
23	c	1	Total 65	C 55	Mg 1	N 4	O 5	0
23	c	1	Total 65	C 55	Mg 1	N 4	O 5	0
23	c	1	Total 60	C 50	Mg 1	N 4	O 5	0
23	c	1	Total 58	C 48	Mg 1	N 4	O 5	0
23	c	1	Total 51	C 41	Mg 1	N 4	O 5	0
23	c	1	Total 65	C 55	Mg 1	N 4	O 5	0
23	c	1	Total 65	C 55	Mg 1	N 4	O 5	0
23	c	1	Total 65	C 55	Mg 1	N 4	O 5	0
23	c	1	Total 65	C 55	Mg 1	N 4	O 5	0
23	c	1	Total 65	C 55	Mg 1	N 4	O 5	0
23	c	1	Total 56	C 46	Mg 1	N 4	O 5	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf
23	c	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	d	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	d	1	Total	C	Mg	N	O	0
			50	40	1	4	5	
23	d	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	d	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	g	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	g	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	g	1	Total	C	Mg	N	O	0
			49	39	1	4	5	
23	g	1	Total	C	Mg	N	O	0
			64	54	1	4	5	
23	g	1	Total	C	Mg	N	O	0
			60	50	1	4	5	
23	g	1	Total	C	Mg	N	O	0
			45	35	1	4	5	
23	g	1	Total	C	Mg	N	O	0
			58	48	1	4	5	
23	g	1	Total	C	Mg	N	O	0
			42	34	1	4	3	
23	r	1	Total	C	Mg	N	O	0
			49	39	1	4	5	
23	r	1	Total	C	Mg	N	O	0
			60	50	1	4	5	
23	r	1	Total	C	Mg	N	O	0
			60	50	1	4	5	
23	r	1	Total	C	Mg	N	O	0
			48	38	1	4	5	
23	r	1	Total	C	Mg	N	O	0
			58	48	1	4	5	
23	r	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	r	1	Total	C	Mg	N	O	0
			41	33	1	4	3	
23	r	1	Total	C	Mg	N	O	0
			65	55	1	4	5	

Continued on next page...

Continued from previous page...

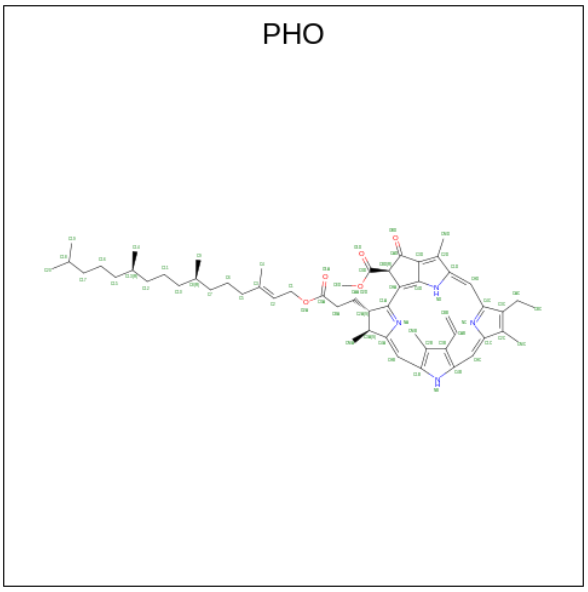
Mol	Chain	Residues	Atoms					AltConf
23	r	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	s	1	Total	C	Mg	N	O	0
			46	36	1	4	5	
23	s	1	Total	C	Mg	N	O	0
			45	35	1	4	5	
23	s	1	Total	C	Mg	N	O	0
			50	40	1	4	5	
23	s	1	Total	C	Mg	N	O	0
			45	35	1	4	5	
23	s	1	Total	C	Mg	N	O	0
			46	36	1	4	5	
23	s	1	Total	C	Mg	N	O	0
			42	34	1	4	3	
23	s	1	Total	C	Mg	N	O	0
			45	35	1	4	5	
23	s	1	Total	C	Mg	N	O	0
			55	45	1	4	5	
23	s	1	Total	C	Mg	N	O	0
			41	33	1	4	3	
23	n	1	Total	C	Mg	N	O	0
			61	51	1	4	5	
23	n	1	Total	C	Mg	N	O	0
			59	49	1	4	5	
23	n	1	Total	C	Mg	N	O	0
			50	40	1	4	5	
23	n	1	Total	C	Mg	N	O	0
			59	49	1	4	5	
23	n	1	Total	C	Mg	N	O	0
			60	50	1	4	5	
23	n	1	Total	C	Mg	N	O	0
			45	35	1	4	5	
23	n	1	Total	C	Mg	N	O	0
			60	50	1	4	5	
23	n	1	Total	C	Mg	N	O	0
			41	33	1	4	3	
23	y	1	Total	C	Mg	N	O	0
			61	51	1	4	5	
23	y	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	y	1	Total	C	Mg	N	O	0
			50	40	1	4	5	

Continued on next page...

Continued from previous page...

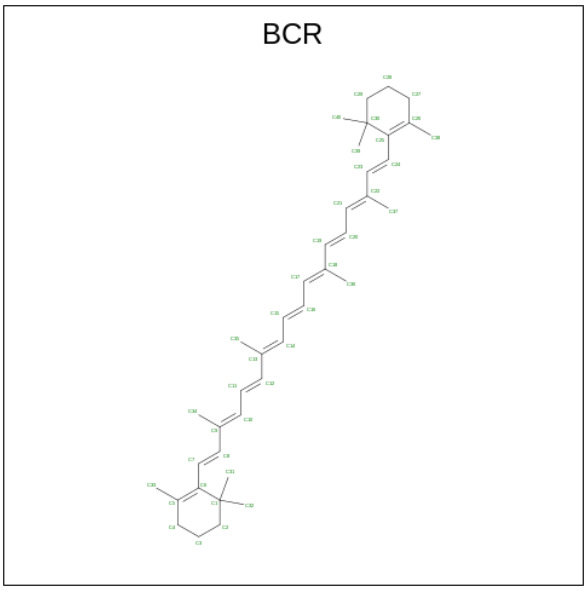
Mol	Chain	Residues	Atoms					AltConf
23	y	1	Total	C	Mg	N	O	0
			60	50	1	4	5	
23	y	1	Total	C	Mg	N	O	0
			60	50	1	4	5	
23	y	1	Total	C	Mg	N	O	0
			60	50	1	4	5	
23	y	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	y	1	Total	C	Mg	N	O	0
			45	35	1	4	5	
23	R	1	Total	C	Mg	N	O	0
			49	39	1	4	5	
23	R	1	Total	C	Mg	N	O	0
			60	50	1	4	5	
23	R	1	Total	C	Mg	N	O	0
			60	50	1	4	5	
23	R	1	Total	C	Mg	N	O	0
			48	38	1	4	5	
23	R	1	Total	C	Mg	N	O	0
			58	48	1	4	5	
23	R	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	R	1	Total	C	Mg	N	O	0
			41	33	1	4	3	
23	R	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
23	R	1	Total	C	Mg	N	O	0
			65	55	1	4	5	

- Molecule 24 is PHEOPHYTIN A (CCD ID: PHO) (formula: $C_{55}H_{74}N_4O_5$).



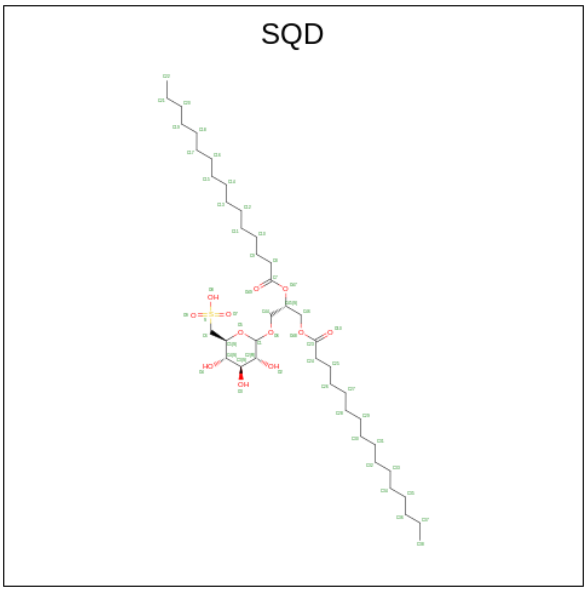
Mol	Chain	Residues	Atoms				AltConf
24	A	1	Total	C	N	O	0
			64	55	4	5	
24	D	1	Total	C	N	O	0
			64	55	4	5	
24	a	1	Total	C	N	O	0
			64	55	4	5	
24	a	1	Total	C	N	O	0
			64	55	4	5	

- Molecule 25 is BETA-CAROTENE (CCD ID: BCR) (formula: $C_{40}H_{56}$).



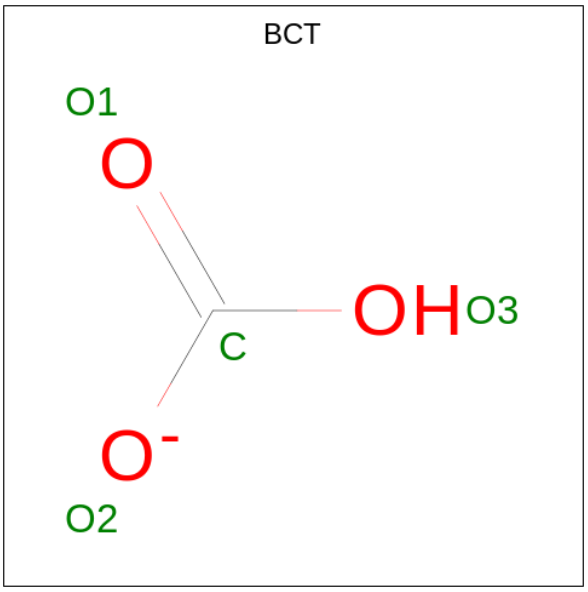
Mol	Chain	Residues	Atoms	AltConf
25	A	1	Total C 40 40	0
25	B	1	Total C 40 40	0
25	B	1	Total C 40 40	0
25	B	1	Total C 40 40	0
25	C	1	Total C 40 40	0
25	C	1	Total C 40 40	0
25	C	1	Total C 40 40	0
25	D	1	Total C 40 40	0
25	H	1	Total C 40 40	0
25	K	1	Total C 40 40	0
25	a	1	Total C 40 40	0
25	b	1	Total C 40 40	0
25	b	1	Total C 40 40	0
25	b	1	Total C 40 40	0
25	c	1	Total C 40 40	0
25	c	1	Total C 40 40	0
25	d	1	Total C 40 40	0
25	h	1	Total C 40 40	0
25	k	1	Total C 40 40	0
25	z	1	Total C 40 40	0

- Molecule 26 is 1,2-DI-O-ACYL-3-O-[6-DEOXY-6-SULFO-ALPHA-D-GLUCOPYRANOSYL]-SN-GLYCEROL (CCD ID: SQD) (formula: $C_{41}H_{78}O_{12}S$).



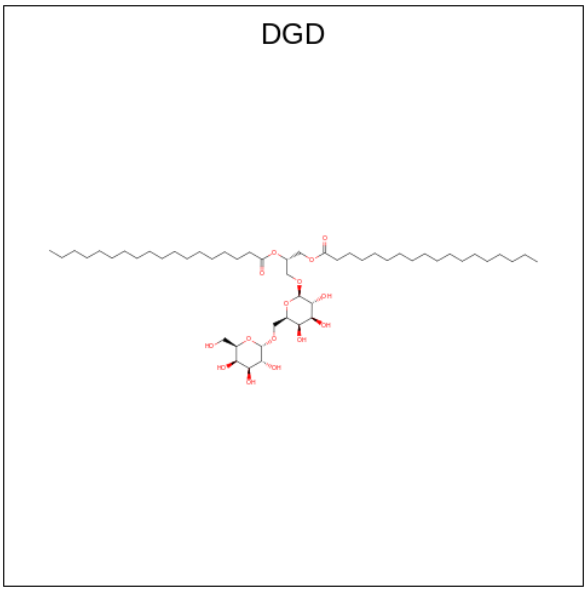
Mol	Chain	Residues	Atoms				AltConf
26	A	1	Total	C	O	S	0
			50	37	12	1	
26	B	1	Total	C	O	S	0
			54	41	12	1	
26	C	1	Total	C	O	S	0
			45	32	12	1	
26	L	1	Total	C	O	S	0
			54	41	12	1	
26	a	1	Total	C	O	S	0
			50	37	12	1	
26	b	1	Total	C	O	S	0
			54	41	12	1	
26	c	1	Total	C	O	S	0
			45	32	12	1	
26	l	1	Total	C	O	S	0
			54	41	12	1	

- Molecule 27 is BICARBONATE ION (CCD ID: BCT) (formula: CHO_3).



Mol	Chain	Residues	Atoms			AltConf
27	A	1	Total	C	O	0
			4	1	3	
27	a	1	Total	C	O	0
			4	1	3	

- Molecule 28 is DIGALACTOSYL DIACYL GLYCEROL (DGDG) (CCD ID: DGD) (formula: $C_{51}H_{96}O_{15}$).



Mol	Chain	Residues	Atoms			AltConf
28	A	1	Total	C	O	0
			59	44	15	

Continued on next page...

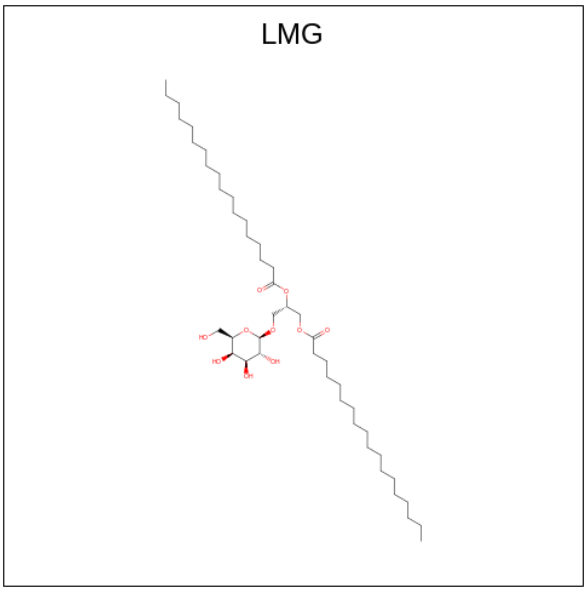
Continued from previous page...

Mol	Chain	Residues	Atoms	AltConf
28	B	1	Total C O 59 44 15	0
28	B	1	Total C O 56 41 15	0
28	C	1	Total C O 55 40 15	0
28	D	1	Total C O 62 47 15	0
28	b	1	Total C O 56 41 15	0
28	c	1	Total C O 55 40 15	0
28	d	1	Total C O 62 47 15	0

- Molecule 29 is FE (II) ION (CCD ID: FE2) (formula: Fe).

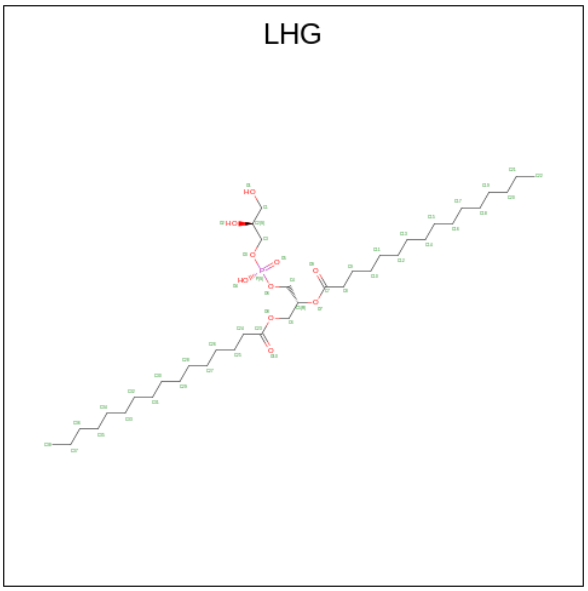
Mol	Chain	Residues	Atoms	AltConf
29	A	1	Total Fe 1 1	0
29	a	1	Total Fe 1 1	0

- Molecule 30 is 1,2-DISTEAROYL-MONOGALACTOSYL-DIGLYCERIDE (CCD ID: LMG) (formula: $C_{45}H_{86}O_{10}$).



Mol	Chain	Residues	Atoms			AltConf
30	B	1	Total	C	O	0
			51	41	10	
30	B	1	Total	C	O	0
			40	30	10	
30	C	1	Total	C	O	0
			48	38	10	
30	C	1	Total	C	O	0
			50	40	10	
30	D	1	Total	C	O	0
			46	36	10	
30	S	1	Total	C	O	0
			55	45	10	
30	W	1	Total	C	O	0
			51	41	10	
30	a	1	Total	C	O	0
			48	38	10	
30	b	1	Total	C	O	0
			40	30	10	
30	b	1	Total	C	O	0
			51	41	10	
30	c	1	Total	C	O	0
			50	40	10	
30	d	1	Total	C	O	0
			46	36	10	
30	s	1	Total	C	O	0
			55	45	10	
30	w	1	Total	C	O	0
			51	41	10	

- Molecule 31 is 1,2-DIPALMITOYL-PHOSPHATIDYL-GLYCEROLE (CCD ID: LHG) (formula: $C_{38}H_{75}O_{10}P$).



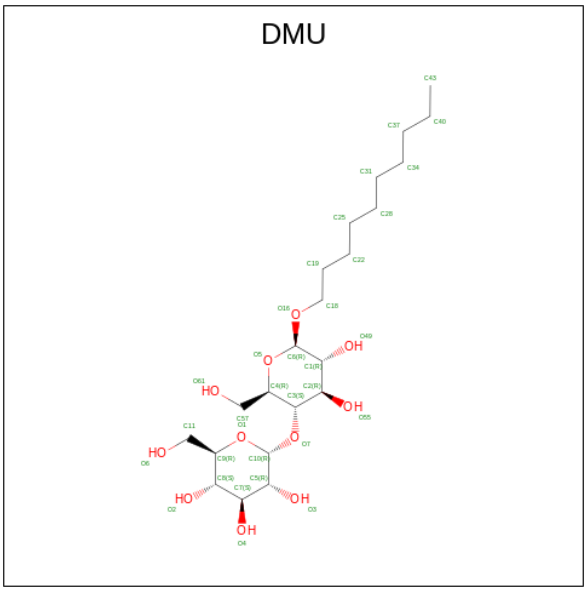
Mol	Chain	Residues	Atoms				AltConf
31	B	1	Total	C	O	P	0
			49	38	10	1	
31	B	1	Total	C	O	P	0
			46	35	10	1	
31	B	1	Total	C	O	P	0
			40	29	10	1	
31	C	1	Total	C	O	P	0
			49	38	10	1	
31	D	1	Total	C	O	P	0
			49	38	10	1	
31	D	1	Total	C	O	P	0
			49	38	10	1	
31	G	1	Total	C	O	P	0
			46	35	10	1	
31	L	1	Total	C	O	P	0
			49	38	10	1	
31	L	1	Total	C	O	P	0
			49	38	10	1	
31	N	1	Total	C	O	P	0
			49	38	10	1	
31	S	1	Total	C	O	P	0
			49	38	10	1	
31	W	1	Total	C	O	P	0
			49	38	10	1	
31	Y	1	Total	C	O	P	0
			49	38	10	1	
31	b	1	Total	C	O	P	0
			49	38	10	1	

Continued on next page...

Continued from previous page...

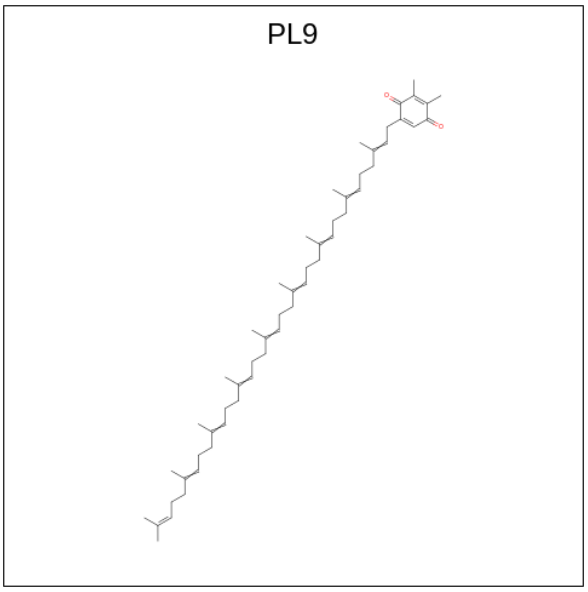
Mol	Chain	Residues	Atoms				AltConf
31	b	1	Total	C	O	P	0
			46	35	10	1	
31	b	1	Total	C	O	P	0
			40	29	10	1	
31	c	1	Total	C	O	P	0
			49	38	10	1	
31	c	1	Total	C	O	P	0
			49	38	10	1	
31	d	1	Total	C	O	P	0
			49	38	10	1	
31	d	1	Total	C	O	P	0
			49	38	10	1	
31	g	1	Total	C	O	P	0
			46	35	10	1	
31	l	1	Total	C	O	P	0
			49	38	10	1	
31	l	1	Total	C	O	P	0
			49	38	10	1	
31	r	1	Total	C	O	P	0
			42	31	10	1	
31	s	1	Total	C	O	P	0
			49	38	10	1	
31	n	1	Total	C	O	P	0
			49	38	10	1	
31	y	1	Total	C	O	P	0
			49	38	10	1	
31	R	1	Total	C	O	P	0
			42	31	10	1	

- Molecule 32 is DECYL-BETA-D-MALTOPYRANOSIDE (CCD ID: DMU) (formula: $C_{22}H_{42}O_{11}$).



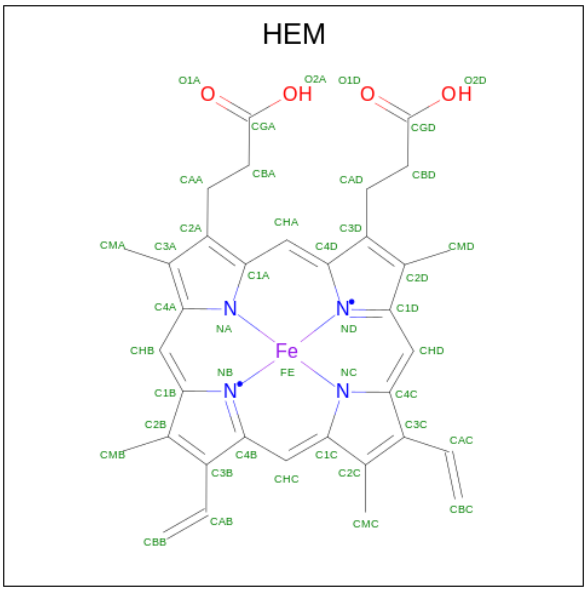
Mol	Chain	Residues	Atoms			AltConf
32	C	1	Total	C	O	0
			33	22	11	
32	C	1	Total	C	O	0
			33	22	11	
32	S	1	Total	C	O	0
			33	22	11	
32	c	1	Total	C	O	0
			33	22	11	
32	c	1	Total	C	O	0
			33	22	11	
32	s	1	Total	C	O	0
			33	22	11	

- Molecule 33 is 2,3-DIMETHYL-5-(3,7,11,15,19,23,27,31,35-NONAMETHYL-2,6,10,14,18,22,26,30,34-HEXATRIACONTANONAENYL-2,5-CYCLOHEXADIENE-1,4-DIONE-2,3-DIMETHYL-5-SOLANESYL-1,4-BENZOQUINONE (CCD ID: PL9) (formula: $C_{53}H_{80}O_2$).



Mol	Chain	Residues	Atoms	AltConf
33	D	1	Total C O 55 53 2	0
33	d	1	Total C O 55 53 2	0

- Molecule 34 is PROTOPORPHYRIN IX CONTAINING FE (CCD ID: HEM) (formula: $C_{34}H_{32}FeN_4O_4$).



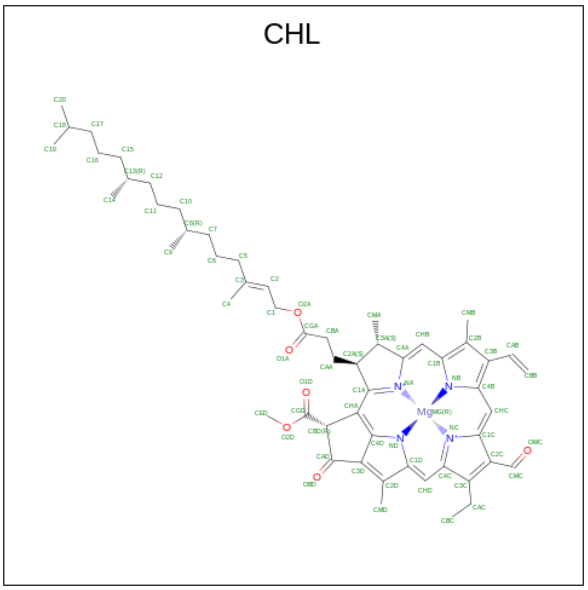
Mol	Chain	Residues	Atoms	AltConf
34	F	1	Total C Fe N O 43 34 1 4 4	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf
34	f	1	Total	C	Fe	N	O	0
			43	34	1	4	4	

- Molecule 35 is CHLOROPHYLL B (CCD ID: CHL) (formula: $C_{55}H_{70}MgN_4O_6$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
35	G	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
35	G	1	Total	C	Mg	N	O	0
			46	35	1	4	6	
35	G	1	Total	C	Mg	N	O	0
			43	34	1	4	4	
35	G	1	Total	C	Mg	N	O	0
			43	34	1	4	4	
35	G	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
35	G	1	Total	C	Mg	N	O	0
			61	50	1	4	6	
35	N	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
35	N	1	Total	C	Mg	N	O	0
			48	37	1	4	6	
35	N	1	Total	C	Mg	N	O	0
			46	35	1	4	6	
35	N	1	Total	C	Mg	N	O	0
			46	35	1	4	6	

Continued on next page...

Continued from previous page...

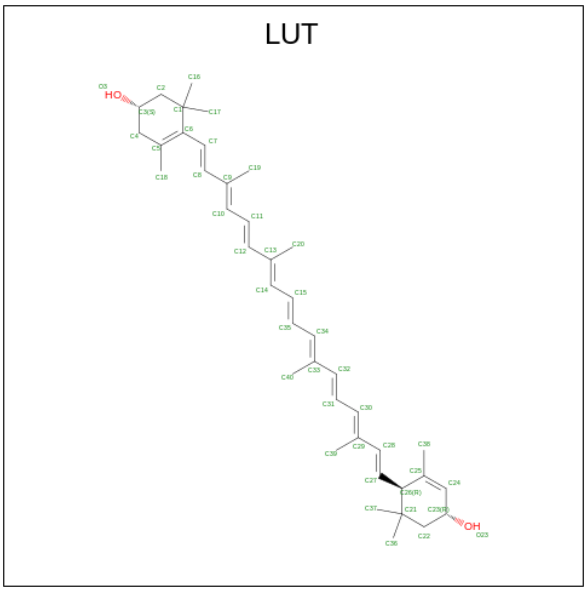
Mol	Chain	Residues	Atoms					AltConf
35	N	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
35	N	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
35	S	1	Total	C	Mg	N	O	0
			46	35	1	4	6	
35	S	1	Total	C	Mg	N	O	0
			46	35	1	4	6	
35	S	1	Total	C	Mg	N	O	0
			43	34	1	4	4	
35	S	1	Total	C	Mg	N	O	0
			49	38	1	4	6	
35	Y	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
35	Y	1	Total	C	Mg	N	O	0
			51	40	1	4	6	
35	Y	1	Total	C	Mg	N	O	0
			50	39	1	4	6	
35	Y	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
35	Y	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
35	Y	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
35	g	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
35	g	1	Total	C	Mg	N	O	0
			46	35	1	4	6	
35	g	1	Total	C	Mg	N	O	0
			43	34	1	4	4	
35	g	1	Total	C	Mg	N	O	0
			43	34	1	4	4	
35	g	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
35	g	1	Total	C	Mg	N	O	0
			61	50	1	4	6	
35	r	1	Total	C	Mg	N	O	0
			46	35	1	4	6	
35	r	1	Total	C	Mg	N	O	0
			46	35	1	4	6	
35	r	1	Total	C	Mg	N	O	0
			61	50	1	4	6	

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf
35	s	1	Total	C	Mg	N	O	0
			46	35	1	4	6	
35	s	1	Total	C	Mg	N	O	0
			46	35	1	4	6	
35	s	1	Total	C	Mg	N	O	0
			43	34	1	4	4	
35	s	1	Total	C	Mg	N	O	0
			49	38	1	4	6	
35	n	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
35	n	1	Total	C	Mg	N	O	0
			48	37	1	4	6	
35	n	1	Total	C	Mg	N	O	0
			46	35	1	4	6	
35	n	1	Total	C	Mg	N	O	0
			46	35	1	4	6	
35	n	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
35	n	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
35	y	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
35	y	1	Total	C	Mg	N	O	0
			51	40	1	4	6	
35	y	1	Total	C	Mg	N	O	0
			50	39	1	4	6	
35	y	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
35	y	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
35	y	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
35	R	1	Total	C	Mg	N	O	0
			46	35	1	4	6	
35	R	1	Total	C	Mg	N	O	0
			46	35	1	4	6	
35	R	1	Total	C	Mg	N	O	0
			61	50	1	4	6	

- Molecule 36 is (3R,3'R,6S)-4,5-DIDEHYDRO-5,6-DIHYDRO-BETA,BETA-CAROTENE-3,3'-DIOL (CCD ID: LUT) (formula: $C_{40}H_{56}O_2$) (labeled as "Ligand of Interest" by depositor).



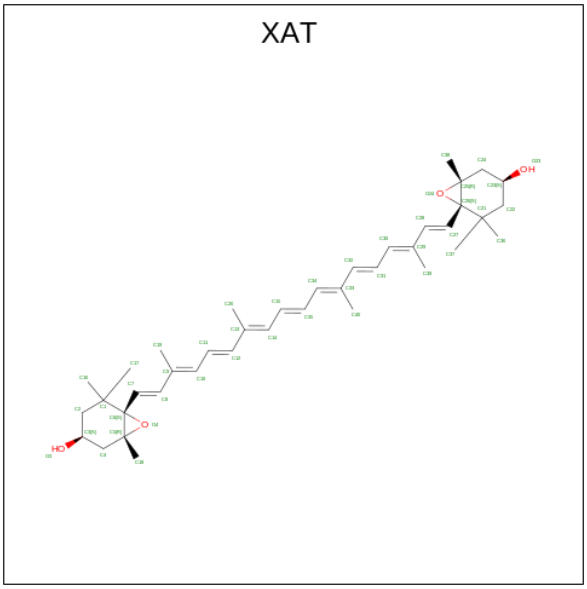
Mol	Chain	Residues	Atoms			AltConf
36	G	1	Total	C	O	0
			42	40	2	
36	G	1	Total	C	O	0
			42	40	2	
36	N	1	Total	C	O	0
			42	40	2	
36	N	1	Total	C	O	0
			42	40	2	
36	S	1	Total	C	O	0
			42	40	2	
36	S	1	Total	C	O	0
			42	40	2	
36	Y	1	Total	C	O	0
			42	40	2	
36	Y	1	Total	C	O	0
			42	40	2	
36	g	1	Total	C	O	0
			42	40	2	
36	g	1	Total	C	O	0
			42	40	2	
36	r	1	Total	C	O	0
			42	40	2	
36	s	1	Total	C	O	0
			42	40	2	
36	s	1	Total	C	O	0
			42	40	2	
36	n	1	Total	C	O	0
			42	40	2	

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms	AltConf
36	n	1	Total C O 42 40 2	0
36	y	1	Total C O 42 40 2	0
36	y	1	Total C O 42 40 2	0
36	R	1	Total C O 42 40 2	0

- Molecule 37 is (3S,5R,6S,3'S,5'R,6'S)-5,6,5',6'-DIEPOXY-5,6,5',6'- TETRAHYDRO-BETA ,BETA-CAROTENE-3,3'-DIOL (CCD ID: XAT) (formula: $C_{40}H_{56}O_4$) (labeled as "Ligand of Interest" by depositor).



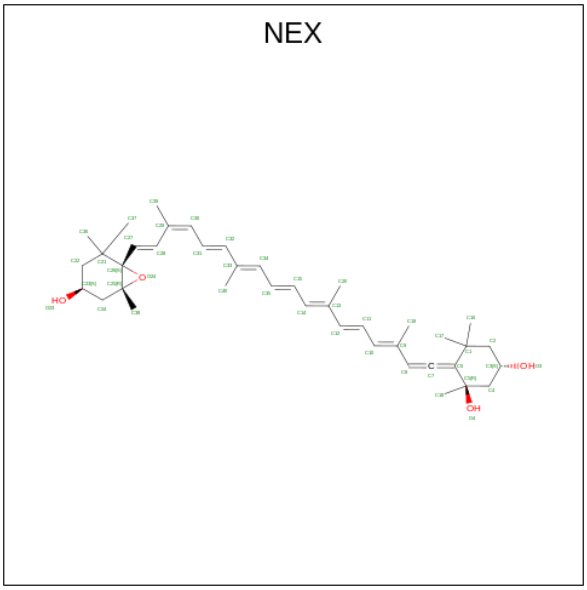
Mol	Chain	Residues	Atoms	AltConf
37	G	1	Total C O 44 40 4	0
37	G	1	Total C O 44 40 4	0
37	Y	1	Total C O 44 40 4	0
37	g	1	Total C O 44 40 4	0
37	g	1	Total C O 44 40 4	0
37	r	1	Total C O 44 40 4	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms	AltConf
37	y	1	Total C O 44 40 4	0
37	R	1	Total C O 44 40 4	0

- Molecule 38 is (1R,3R)-6-{(3E,5E,7E,9E,11E,13E,15E,17E)-18-[(1S,4R,6R)-4-HYDROXY-2,2,6-TRIMETHYL-7-OXABICYCLO[4.1.0]HEPT-1-YL]-3,7,12,16-TETRAMETHYLOCTADECA-1,3,5,7,9,11,13,15,17-NONAENYLIDENE}-1,5,5-TRIMETHYLCYCLOHEXANE-1,3-DIOL (CCD ID: NEX) (formula: $C_{40}H_{56}O_4$) (labeled as "Ligand of Interest" by depositor).



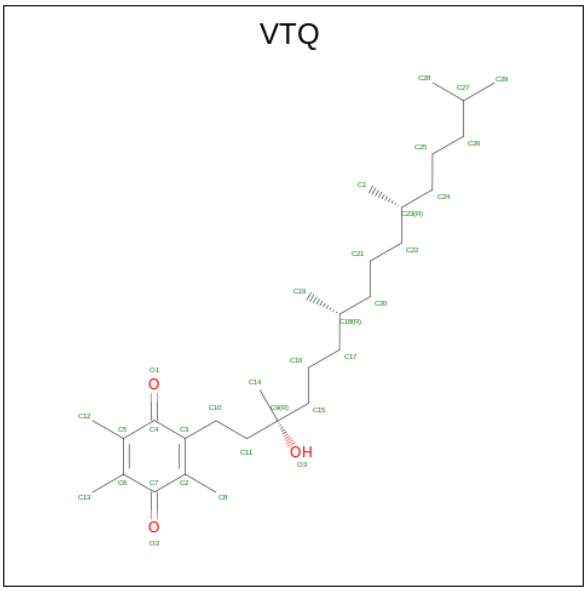
Mol	Chain	Residues	Atoms	AltConf
38	G	1	Total C O 44 40 4	0
38	N	1	Total C O 44 40 4	0
38	S	1	Total C O 44 40 4	0
38	Y	1	Total C O 44 40 4	0
38	g	1	Total C O 44 40 4	0
38	r	1	Total C O 44 40 4	0
38	s	1	Total C O 44 40 4	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms	AltConf
38	n	1	Total C O 44 40 4	0
38	R	1	Total C O 44 40 4	0
38	R	1	Total C O 44 40 4	0

- Molecule 39 is RRR-ALPHA-TOCOPHERYLQUINONE (CCD ID: VTQ) (formula: $C_{29}H_{50}O_3$).



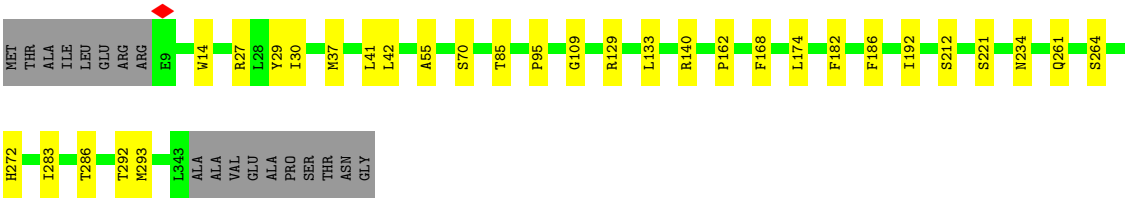
Mol	Chain	Residues	Atoms	AltConf
39	W	1	Total C O 32 29 3	0
39	w	1	Total C O 32 29 3	0

3 Residue-property plots (i)

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

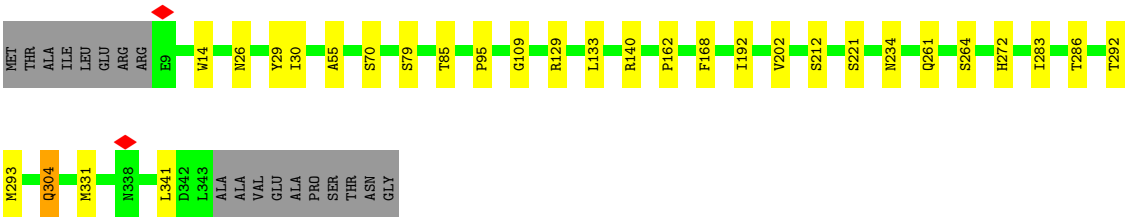
• Molecule 1: Photosystem II protein D1

Chain A:



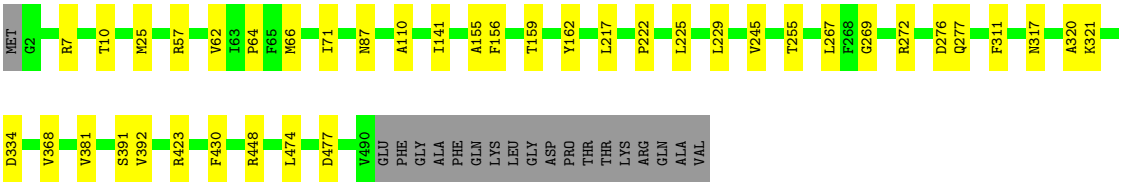
• Molecule 1: Photosystem II protein D1

Chain a:



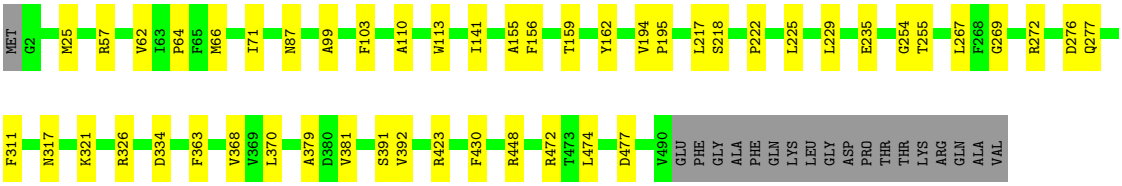
• Molecule 2: Photosystem II CP47 reaction center protein

Chain B:



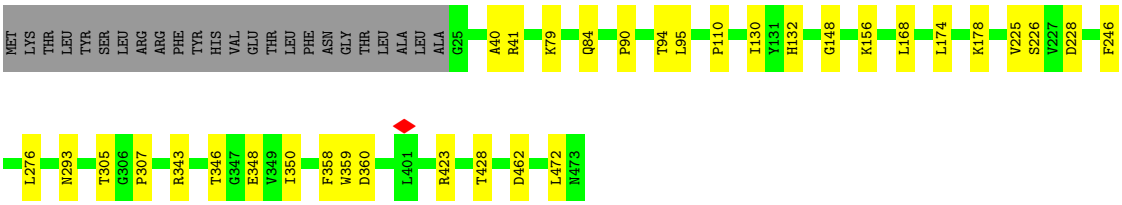
• Molecule 2: Photosystem II CP47 reaction center protein

Chain b:



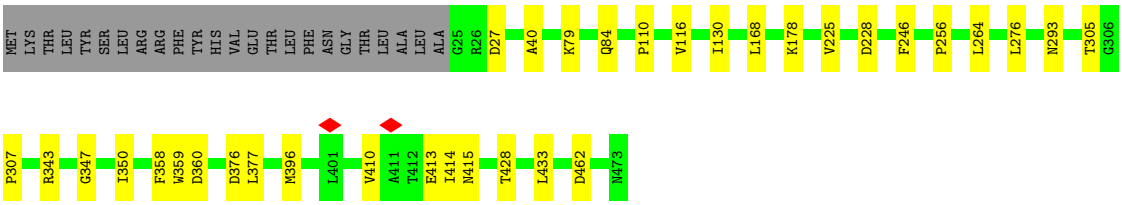
• Molecule 3: Photosystem II CP43 reaction center protein

Chain C:



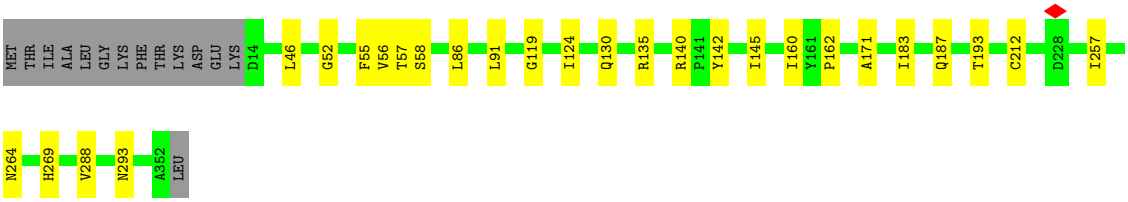
• Molecule 3: Photosystem II CP43 reaction center protein

Chain c:



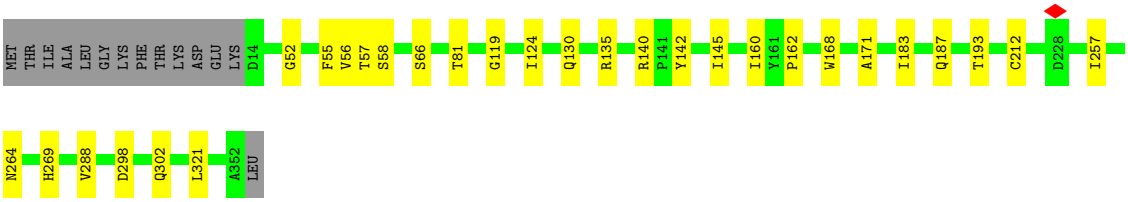
• Molecule 4: Photosystem II D2 protein

Chain D:



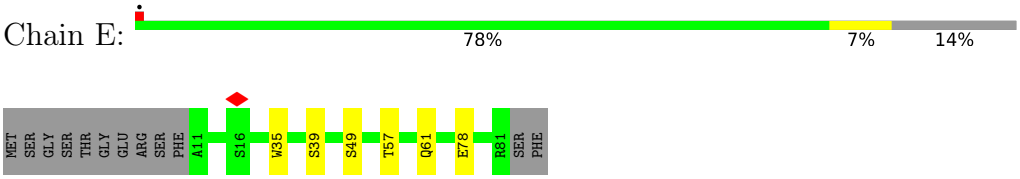
• Molecule 4: Photosystem II D2 protein

Chain d:



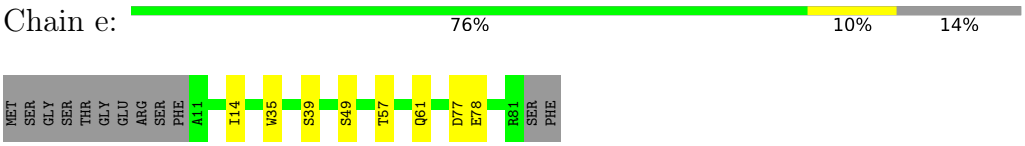
• Molecule 5: Cytochrome b559 subunit alpha

Chain E:



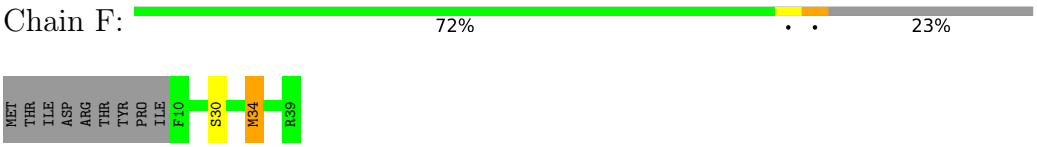
• Molecule 5: Cytochrome b559 subunit alpha

Chain e:



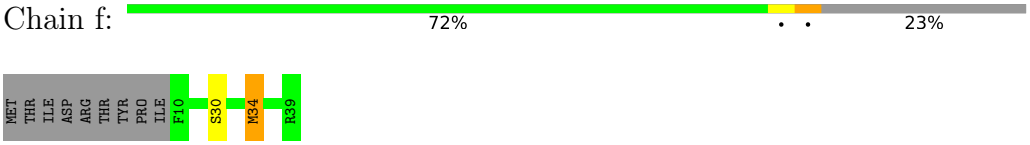
• Molecule 6: Cytochrome b559 subunit beta

Chain F:



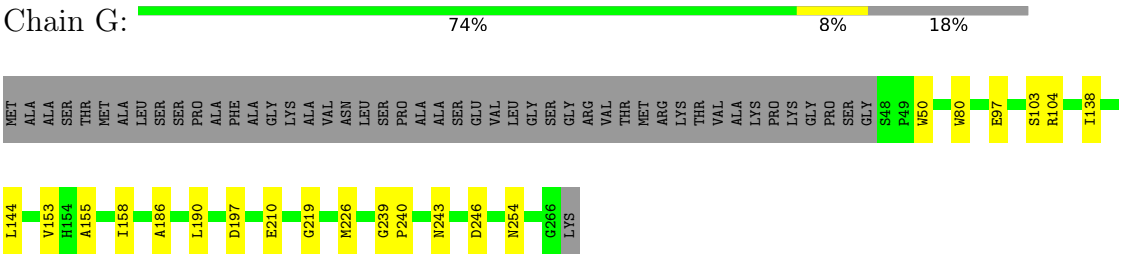
• Molecule 6: Cytochrome b559 subunit beta

Chain f:



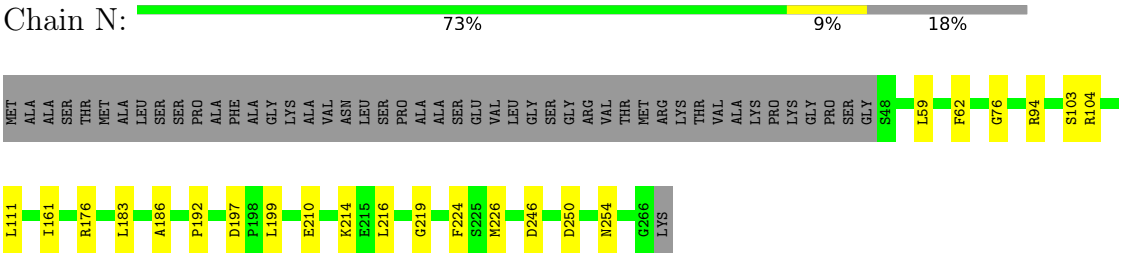
• Molecule 7: Chlorophyll a-b binding protein 2, chloroplastic

Chain G:



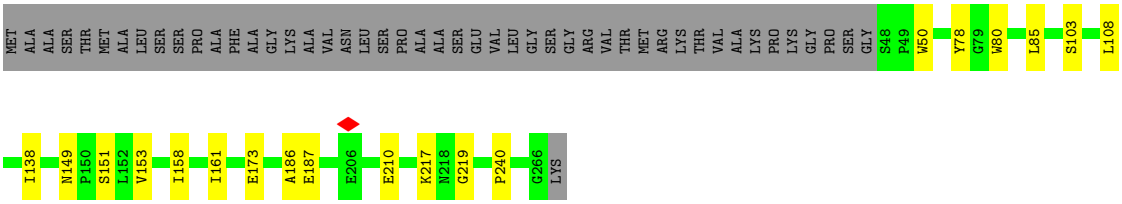
• Molecule 7: Chlorophyll a-b binding protein 2, chloroplastic

Chain N:

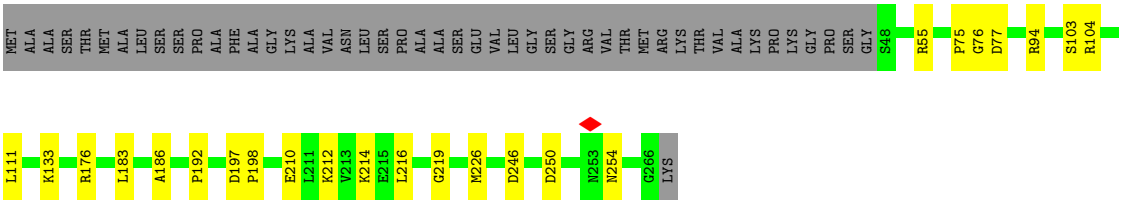


• Molecule 7: Chlorophyll a-b binding protein 2, chloroplastic

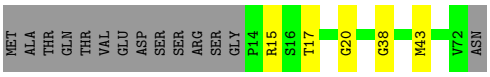
Chain g:



• Molecule 7: Chlorophyll a-b binding protein 2, chloroplastic

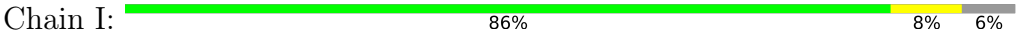


• Molecule 8: Photosystem II reaction center protein H

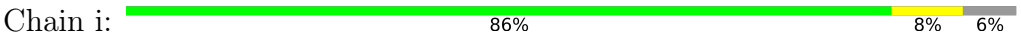


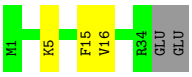
• Molecule 8: Photosystem II reaction center protein H

• Molecule 9: Photosystem II reaction center protein I

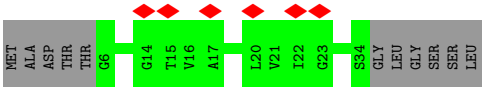


• Molecule 9: Photosystem II reaction center protein I



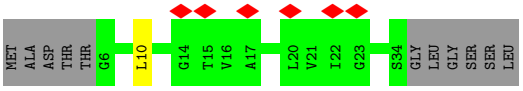


• Molecule 10: Photosystem II reaction center protein J



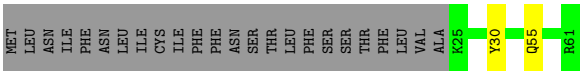
• Molecule 10: Photosystem II reaction center protein J

Chain j:



• Molecule 11: Photosystem II reaction center protein K

Chain K:

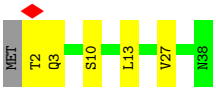


• Molecule 11: Photosystem II reaction center protein K

Chain k:

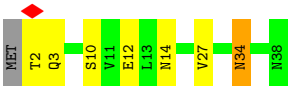
• Molecule 12: Photosystem II reaction center protein L

Chain L:



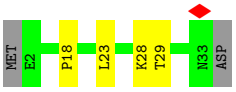
• Molecule 12: Photosystem II reaction center protein L

Chain l:



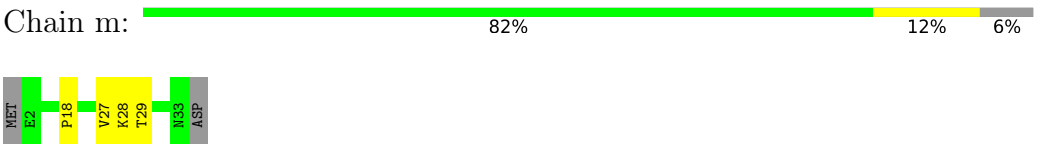
• Molecule 13: Photosystem II reaction center protein M

Chain M:



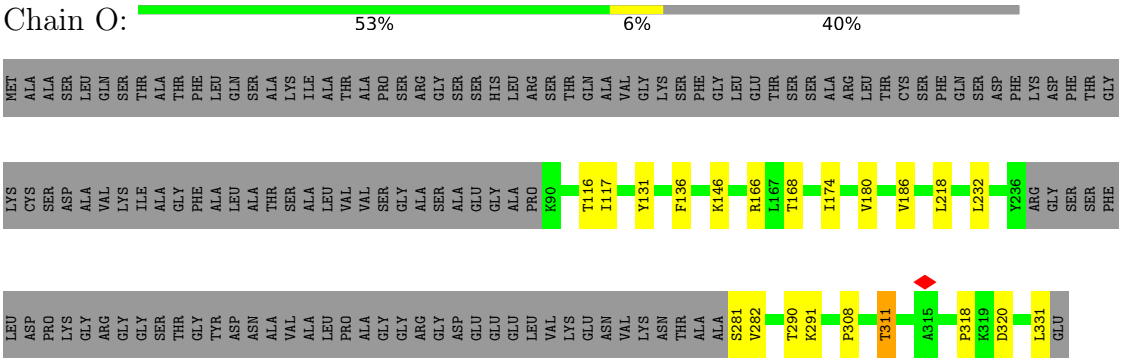
• Molecule 13: Photosystem II reaction center protein M

Chain m:



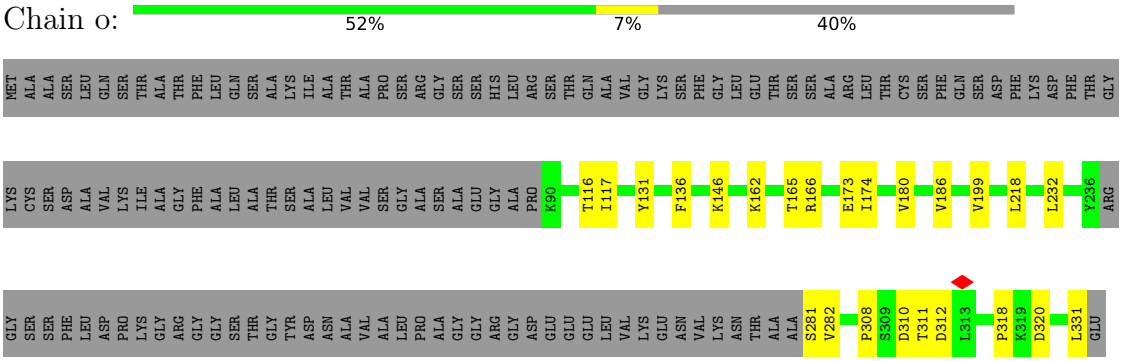
• Molecule 14: Oxygen-evolving enhancer protein 1-1, chloroplastic

Chain O:



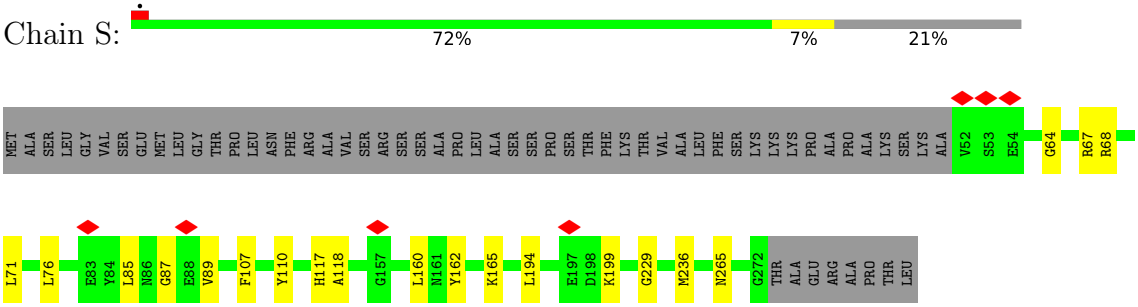
• Molecule 14: Oxygen-evolving enhancer protein 1-1, chloroplastic

Chain o:



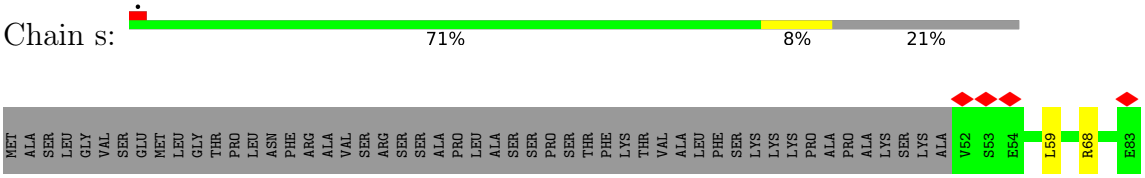
• Molecule 15: Chlorophyll a-b binding protein CP26, chloroplastic

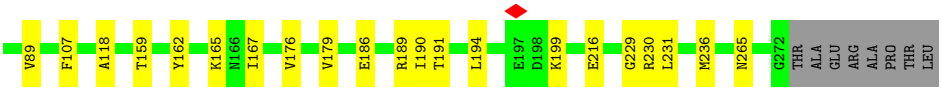
Chain S:



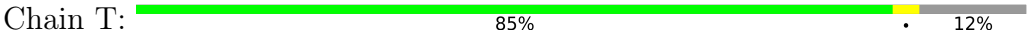
• Molecule 15: Chlorophyll a-b binding protein CP26, chloroplastic

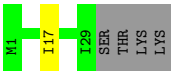
Chain s:



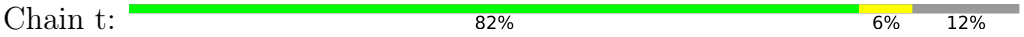


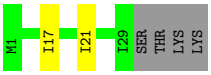
• Molecule 16: Photosystem II reaction center protein T



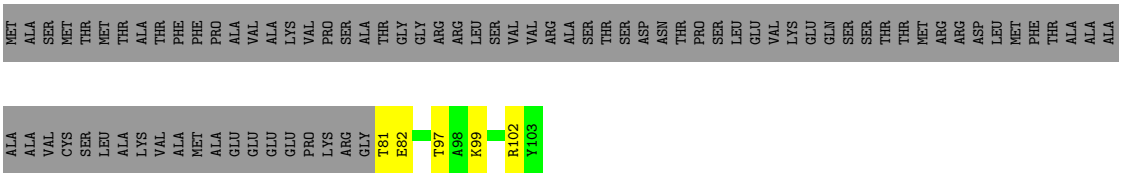


• Molecule 16: Photosystem II reaction center protein T

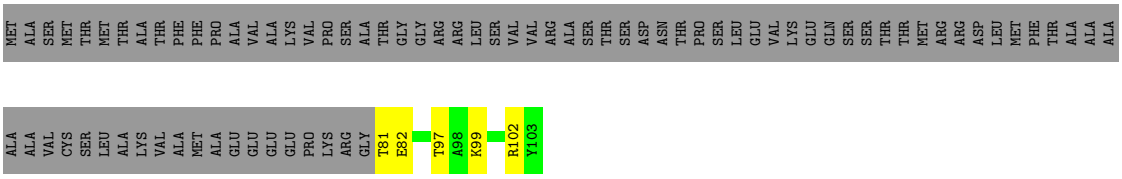




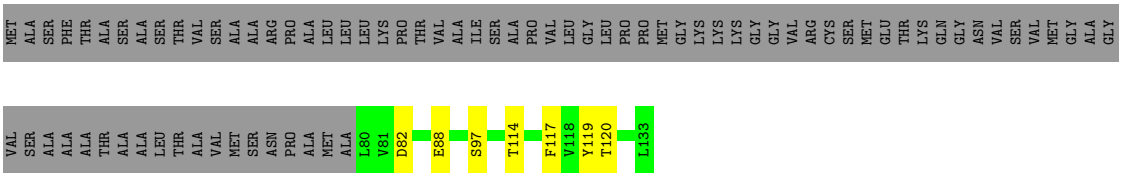
• Molecule 17: Photosystem II 5 kDa protein, chloroplastic



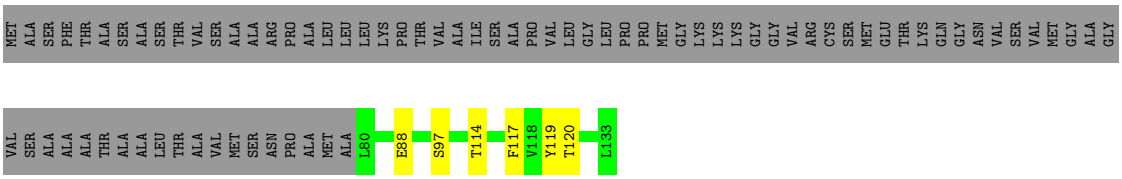
• Molecule 17: Photosystem II 5 kDa protein, chloroplastic



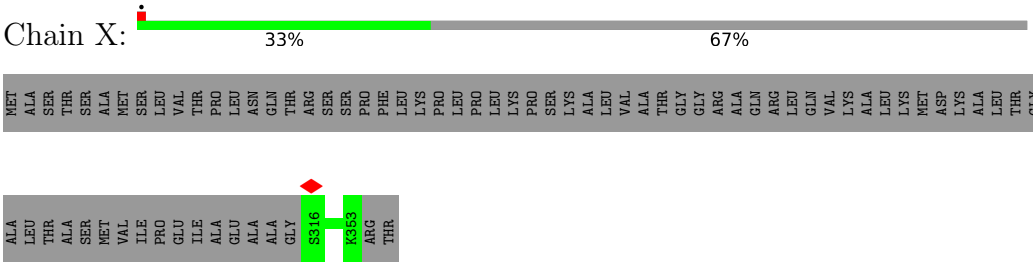
• Molecule 18: Photosystem II reaction center W protein, chloroplastic



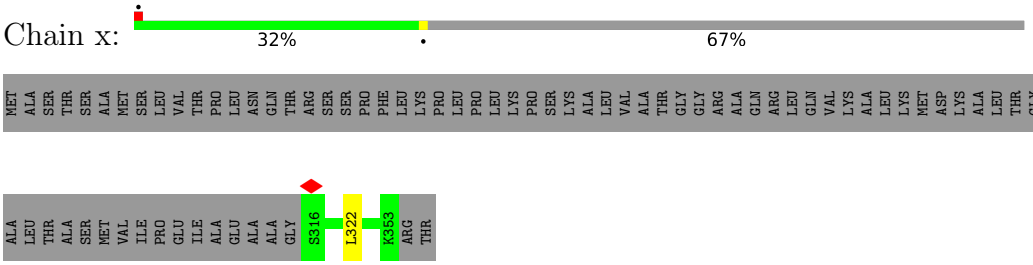
• Molecule 18: Photosystem II reaction center W protein, chloroplastic



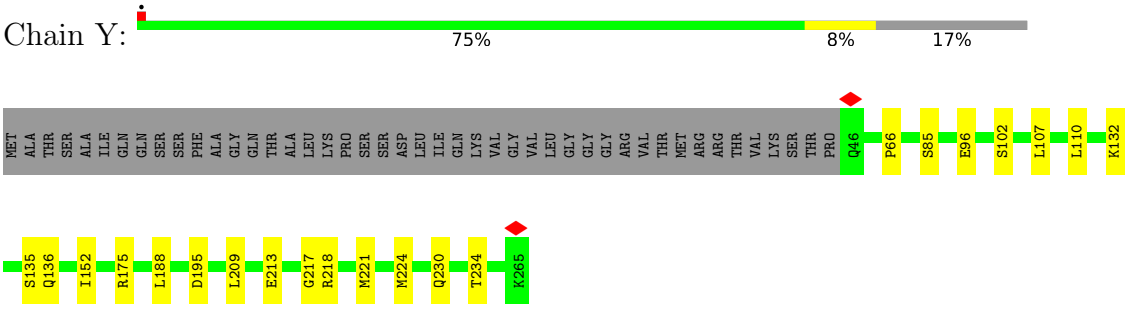
• Molecule 19: (thale cress) hypothetical protein



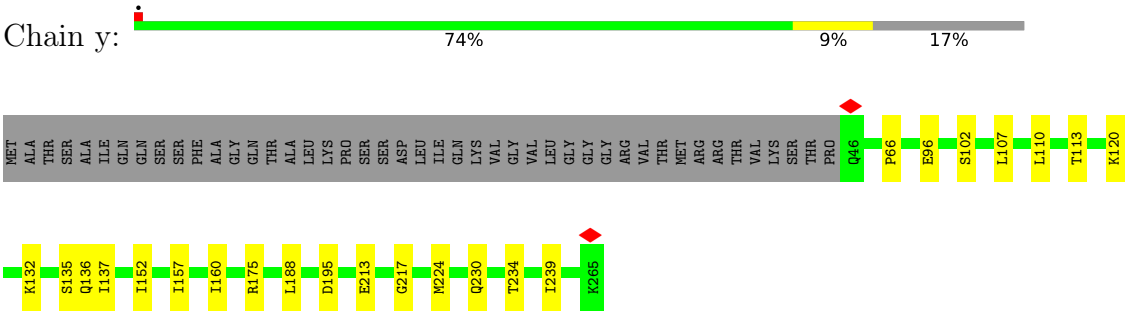
• Molecule 19: (thale cress) hypothetical protein



• Molecule 20: Chlorophyll a-b binding protein 2.2, chloroplastic

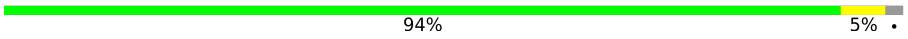


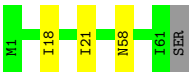
• Molecule 20: Chlorophyll a-b binding protein 2.2, chloroplastic



• Molecule 21: Photosystem II reaction center protein Z

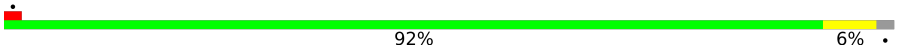
Chain Z:

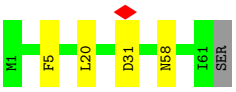




• Molecule 21: Photosystem II reaction center protein Z

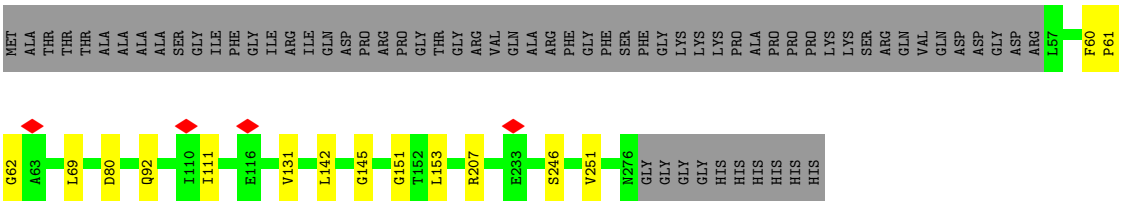
Chain z:





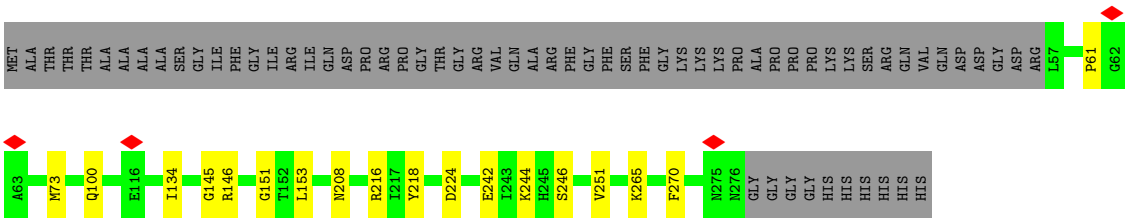
• Molecule 22: Chlorophyll a-b binding protein CP29.3, chloroplastic

Chain r:



• Molecule 22: Chlorophyll a-b binding protein CP29.3, chloroplastic

Chain R:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	104217	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	60	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	28.356	Depositor
Minimum map value	-16.319	Depositor
Average map value	-0.012	Depositor
Map value standard deviation	1.048	Depositor
Recommended contour level	3	Depositor
Map size (Å)	381.59998, 381.59998, 381.59998	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.06, 1.06, 1.06	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: LUT, PHO, BCT, PL9, LHG, DMU, NEX, BCR, VTQ, HEM, XAT, FE2, LMG, CHL, SQD, CLA, DGD

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	A	0.25	0/2704	0.54	0/3687
1	a	0.27	0/2704	0.56	1/3687 (0.0%)
2	B	0.22	0/3959	0.44	0/5394
2	b	0.22	0/3959	0.46	0/5394
3	C	0.23	0/3595	0.49	0/4899
3	c	0.23	0/3595	0.49	0/4899
4	D	0.24	0/2789	0.51	0/3803
4	d	0.24	0/2789	0.49	0/3803
5	E	0.30	0/593	0.79	1/808 (0.1%)
5	e	0.30	0/593	0.84	4/808 (0.5%)
6	F	0.31	0/241	0.78	2/327 (0.6%)
6	f	0.32	0/241	0.81	1/327 (0.3%)
7	G	0.23	0/1716	0.47	1/2336 (0.0%)
7	N	0.23	0/1716	0.47	0/2336
7	g	0.25	0/1716	0.55	1/2336 (0.0%)
7	n	0.22	0/1716	0.44	0/2336
8	H	0.29	0/447	0.52	0/608
8	h	0.30	0/447	0.58	0/608
9	I	0.28	0/285	0.58	0/385
9	i	0.28	0/285	0.56	0/385
10	J	0.23	0/225	0.43	0/306
10	j	0.23	0/225	0.42	0/306
11	K	0.47	0/312	0.86	0/428
11	k	0.44	0/312	0.89	0/428
12	L	0.23	0/317	0.52	0/431
12	l	0.29	0/317	0.62	0/431
13	M	0.41	0/254	0.69	0/348
13	m	0.35	0/254	0.71	0/348
14	O	0.23	0/1556	0.62	4/2104 (0.2%)
14	o	0.26	0/1556	0.66	4/2104 (0.2%)
15	S	0.26	0/1750	0.57	0/2376

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
15	s	0.25	0/1750	0.54	0/2376
16	T	0.23	0/246	0.53	0/333
16	t	0.29	0/246	0.65	0/333
17	U	0.13	0/181	0.39	0/242
17	u	0.12	0/181	0.40	0/242
18	W	0.24	0/438	0.54	0/594
18	w	0.22	0/438	0.47	0/594
19	X	0.25	0/270	0.48	0/367
19	x	0.25	0/270	0.49	0/367
20	Y	0.23	0/1753	0.51	0/2385
20	y	0.23	0/1753	0.51	0/2385
21	Z	0.30	0/468	0.64	0/641
21	z	0.33	0/468	0.71	0/641
22	R	0.25	0/1766	0.58	0/2403
22	r	0.23	0/1766	0.52	0/2403
All	All	0.25	0/55162	0.54	19/75082 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
3	c	0	1

There are no bond length outliers.

The worst 5 of 19 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
6	f	34	MET	CB-CG-SD	-6.43	93.41	112.70
14	O	311	THR	CA-C-N	6.36	133.69	121.54
14	O	311	THR	C-N-CA	6.36	133.69	121.54
14	o	311	THR	CA-C-N	6.21	133.40	121.54
14	o	311	THR	C-N-CA	6.21	133.40	121.54

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
3	c	413	GLU	Peptide

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2623	0	2527	22	0
1	a	2623	0	2527	24	0
2	B	3829	0	3707	30	0
2	b	3829	0	3707	36	0
3	C	3480	0	3409	27	0
3	c	3480	0	3409	28	0
4	D	2696	0	2585	22	0
4	d	2696	0	2585	25	0
5	E	576	0	559	3	0
5	e	576	0	559	4	0
6	F	235	0	242	1	0
6	f	235	0	242	1	0
7	G	1666	0	1593	12	0
7	N	1666	0	1593	19	0
7	g	1666	0	1593	12	0
7	n	1666	0	1593	18	0
8	H	438	0	465	4	0
8	h	438	0	465	8	0
9	I	277	0	289	3	0
9	i	277	0	289	3	0
10	J	219	0	231	0	0
10	j	219	0	231	1	0
11	K	301	0	313	2	0
11	k	301	0	313	2	0
12	L	309	0	298	5	0
12	l	309	0	298	6	0
13	M	250	0	273	5	0
13	m	250	0	273	4	0
14	O	1523	0	1504	11	0
14	o	1523	0	1504	12	0
15	S	1705	0	1681	14	0
15	s	1705	0	1681	15	0
16	T	239	0	255	1	0
16	t	239	0	255	2	0
17	U	179	0	190	3	0
17	u	179	0	190	3	0
18	W	427	0	405	6	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
18	w	427	0	405	5	0
19	X	267	0	292	0	0
19	x	267	0	292	1	0
20	Y	1699	0	1630	17	0
20	y	1699	0	1630	17	0
21	Z	458	0	490	2	0
21	z	458	0	490	4	0
22	R	1718	0	1691	13	0
22	r	1718	0	1691	11	0
23	A	175	0	170	6	0
23	B	1040	0	1152	23	0
23	C	810	0	854	21	0
23	D	195	0	216	9	0
23	G	448	0	429	9	0
23	N	435	0	396	7	0
23	R	511	0	493	11	0
23	S	415	0	313	8	0
23	Y	466	0	454	15	0
23	a	125	0	131	5	0
23	b	1040	0	1152	22	0
23	c	810	0	854	16	0
23	d	245	0	255	8	0
23	g	448	0	429	9	0
23	n	435	0	396	8	0
23	r	511	0	493	8	0
23	s	415	0	313	6	0
23	y	466	0	454	12	0
24	A	64	0	74	3	0
24	D	64	0	74	5	0
24	a	128	0	148	4	0
25	A	40	0	56	1	0
25	B	120	0	168	8	0
25	C	120	0	168	10	0
25	D	40	0	56	1	0
25	H	40	0	56	3	0
25	K	40	0	56	1	0
25	a	40	0	56	4	0
25	b	120	0	168	11	0
25	c	80	0	112	6	0
25	d	40	0	56	1	0
25	h	40	0	56	2	0
25	k	40	0	56	3	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
25	z	40	0	56	2	0
26	A	50	0	67	0	0
26	B	54	0	78	3	0
26	C	45	0	54	2	0
26	L	54	0	78	1	0
26	a	50	0	67	2	0
26	b	54	0	78	3	0
26	c	45	0	54	1	0
26	l	54	0	78	4	0
27	A	4	0	0	2	0
27	a	4	0	0	2	0
28	A	59	0	76	1	0
28	B	115	0	146	4	0
28	C	55	0	68	2	0
28	D	62	0	82	3	0
28	b	56	0	70	0	0
28	c	55	0	68	2	0
28	d	62	0	82	5	0
29	A	1	0	0	0	0
29	a	1	0	0	0	0
30	B	91	0	122	6	0
30	C	98	0	139	2	0
30	D	46	0	62	1	0
30	S	55	0	86	0	0
30	W	51	0	75	0	0
30	a	48	0	66	0	0
30	b	91	0	122	6	0
30	c	50	0	73	0	0
30	d	46	0	62	0	0
30	s	55	0	86	0	0
30	w	51	0	75	0	0
31	B	135	0	192	3	0
31	C	49	0	74	2	0
31	D	98	0	148	4	0
31	G	46	0	65	2	0
31	L	98	0	148	4	0
31	N	49	0	74	2	0
31	R	42	0	57	1	0
31	S	49	0	74	3	0
31	W	49	0	74	1	0
31	Y	49	0	74	3	0
31	b	135	0	192	3	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
31	c	98	0	148	2	0
31	d	98	0	148	7	0
31	g	46	0	65	4	0
31	l	98	0	148	3	0
31	n	49	0	74	1	0
31	r	42	0	57	1	0
31	s	49	0	74	2	0
31	y	49	0	74	3	0
32	C	66	0	84	2	0
32	S	33	0	42	1	0
32	c	66	0	84	2	0
32	s	33	0	42	1	0
33	D	55	0	80	2	0
33	d	55	0	80	0	0
34	F	43	0	30	1	0
34	f	43	0	30	1	0
35	G	325	0	286	7	0
35	N	338	0	305	9	0
35	R	153	0	119	2	0
35	S	184	0	125	5	0
35	Y	365	0	354	13	0
35	g	325	0	286	8	0
35	n	338	0	305	11	0
35	r	153	0	119	2	0
35	s	184	0	125	3	0
35	y	365	0	354	15	0
36	G	84	0	112	6	0
36	N	84	0	112	9	0
36	R	42	0	56	4	0
36	S	84	0	112	6	0
36	Y	84	0	112	7	0
36	g	84	0	112	5	0
36	n	84	0	112	7	0
36	r	42	0	56	3	0
36	s	84	0	112	4	0
36	y	84	0	112	7	0
37	G	88	0	112	4	0
37	R	44	0	56	1	0
37	Y	44	0	56	5	0
37	g	88	0	112	6	0
37	r	44	0	56	2	0
37	y	44	0	56	6	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
38	G	44	0	56	1	0
38	N	44	0	56	3	0
38	R	88	0	112	6	0
38	S	44	0	56	1	0
38	Y	44	0	56	1	0
38	g	44	0	56	1	0
38	n	44	0	56	1	0
38	r	44	0	56	1	0
38	s	44	0	56	1	0
39	W	32	0	50	0	0
39	w	32	0	50	0	0
All	All	71232	0	71854	714	0

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

The worst 5 of 714 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:Y:311:CLA:HAB	36:Y:316:LUT:H32	1.62	0.80
3:c:276:LEU:HD21	23:c:508:CLA:HAB	1.69	0.75
23:s:609:CLA:HAB	36:s:614:LUT:H32	1.70	0.74
3:C:276:LEU:HD21	23:C:509:CLA:HAB	1.69	0.74
23:n:602:CLA:HAB	36:n:616:LUT:H32	1.68	0.74

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	333/353 (94%)	314 (94%)	19 (6%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	a	333/353 (94%)	315 (95%)	18 (5%)	0	100	100
2	B	487/508 (96%)	467 (96%)	20 (4%)	0	100	100
2	b	487/508 (96%)	469 (96%)	18 (4%)	0	100	100
3	C	447/473 (94%)	432 (97%)	15 (3%)	0	100	100
3	c	447/473 (94%)	434 (97%)	13 (3%)	0	100	100
4	D	337/353 (96%)	327 (97%)	10 (3%)	0	100	100
4	d	337/353 (96%)	329 (98%)	8 (2%)	0	100	100
5	E	69/83 (83%)	65 (94%)	4 (6%)	0	100	100
5	e	69/83 (83%)	63 (91%)	6 (9%)	0	100	100
6	F	28/39 (72%)	26 (93%)	2 (7%)	0	100	100
6	f	28/39 (72%)	27 (96%)	1 (4%)	0	100	100
7	G	217/267 (81%)	206 (95%)	10 (5%)	1 (0%)	25	61
7	N	217/267 (81%)	207 (95%)	10 (5%)	0	100	100
7	g	217/267 (81%)	208 (96%)	8 (4%)	1 (0%)	25	61
7	n	217/267 (81%)	204 (94%)	13 (6%)	0	100	100
8	H	57/73 (78%)	56 (98%)	1 (2%)	0	100	100
8	h	57/73 (78%)	55 (96%)	2 (4%)	0	100	100
9	I	32/36 (89%)	32 (100%)	0	0	100	100
9	i	32/36 (89%)	31 (97%)	1 (3%)	0	100	100
10	J	27/40 (68%)	27 (100%)	0	0	100	100
10	j	27/40 (68%)	27 (100%)	0	0	100	100
11	K	35/61 (57%)	35 (100%)	0	0	100	100
11	k	35/61 (57%)	35 (100%)	0	0	100	100
12	L	35/38 (92%)	34 (97%)	1 (3%)	0	100	100
12	l	35/38 (92%)	34 (97%)	1 (3%)	0	100	100
13	M	30/34 (88%)	29 (97%)	1 (3%)	0	100	100
13	m	30/34 (88%)	29 (97%)	1 (3%)	0	100	100
14	O	194/332 (58%)	180 (93%)	14 (7%)	0	100	100
14	o	194/332 (58%)	176 (91%)	17 (9%)	1 (0%)	25	61
15	S	219/280 (78%)	200 (91%)	19 (9%)	0	100	100
15	s	219/280 (78%)	206 (94%)	13 (6%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
16	T	27/33 (82%)	26 (96%)	1 (4%)	0	100	100
16	t	27/33 (82%)	27 (100%)	0	0	100	100
17	U	21/103 (20%)	19 (90%)	2 (10%)	0	100	100
17	u	21/103 (20%)	19 (90%)	2 (10%)	0	100	100
18	W	52/133 (39%)	51 (98%)	1 (2%)	0	100	100
18	w	52/133 (39%)	51 (98%)	1 (2%)	0	100	100
19	X	36/116 (31%)	36 (100%)	0	0	100	100
19	x	36/116 (31%)	36 (100%)	0	0	100	100
20	Y	218/265 (82%)	211 (97%)	6 (3%)	1 (0%)	25	61
20	y	218/265 (82%)	209 (96%)	8 (4%)	1 (0%)	25	61
21	Z	59/62 (95%)	59 (100%)	0	0	100	100
21	z	59/62 (95%)	59 (100%)	0	0	100	100
22	R	218/286 (76%)	210 (96%)	8 (4%)	0	100	100
22	r	218/286 (76%)	209 (96%)	9 (4%)	0	100	100
All	All	6790/8470 (80%)	6501 (96%)	284 (4%)	5 (0%)	50	81

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
14	o	312	ASP
20	y	152	ILE
20	Y	152	ILE
7	g	153	VAL
7	G	153	VAL

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	272/285 (95%)	272 (100%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	a	272/285 (95%)	272 (100%)	0	100	100
2	B	387/402 (96%)	387 (100%)	0	100	100
2	b	387/402 (96%)	387 (100%)	0	100	100
3	C	352/373 (94%)	352 (100%)	0	100	100
3	c	352/373 (94%)	352 (100%)	0	100	100
4	D	271/283 (96%)	271 (100%)	0	100	100
4	d	271/283 (96%)	271 (100%)	0	100	100
5	E	63/73 (86%)	63 (100%)	0	100	100
5	e	63/73 (86%)	63 (100%)	0	100	100
6	F	25/34 (74%)	25 (100%)	0	100	100
6	f	25/34 (74%)	25 (100%)	0	100	100
7	G	167/201 (83%)	167 (100%)	0	100	100
7	N	167/201 (83%)	167 (100%)	0	100	100
7	g	167/201 (83%)	167 (100%)	0	100	100
7	n	167/201 (83%)	167 (100%)	0	100	100
8	H	49/61 (80%)	49 (100%)	0	100	100
8	h	49/61 (80%)	49 (100%)	0	100	100
9	I	31/33 (94%)	31 (100%)	0	100	100
9	i	31/33 (94%)	31 (100%)	0	100	100
10	J	22/30 (73%)	22 (100%)	0	100	100
10	j	22/30 (73%)	22 (100%)	0	100	100
11	K	32/55 (58%)	32 (100%)	0	100	100
11	k	32/55 (58%)	32 (100%)	0	100	100
12	L	35/36 (97%)	35 (100%)	0	100	100
12	l	35/36 (97%)	34 (97%)	1 (3%)	37	70
13	M	28/30 (93%)	28 (100%)	0	100	100
13	m	28/30 (93%)	28 (100%)	0	100	100
14	O	170/268 (63%)	170 (100%)	0	100	100
14	o	170/268 (63%)	170 (100%)	0	100	100
15	S	172/219 (78%)	172 (100%)	0	100	100
15	s	172/219 (78%)	172 (100%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
16	T	26/30 (87%)	26 (100%)	0	100	100
16	t	26/30 (87%)	26 (100%)	0	100	100
17	U	19/82 (23%)	19 (100%)	0	100	100
17	u	19/82 (23%)	19 (100%)	0	100	100
18	W	47/102 (46%)	47 (100%)	0	100	100
18	w	47/102 (46%)	47 (100%)	0	100	100
19	X	32/92 (35%)	32 (100%)	0	100	100
19	x	32/92 (35%)	32 (100%)	0	100	100
20	Y	173/209 (83%)	173 (100%)	0	100	100
20	y	173/209 (83%)	173 (100%)	0	100	100
21	Z	53/54 (98%)	53 (100%)	0	100	100
21	z	53/54 (98%)	53 (100%)	0	100	100
22	R	178/226 (79%)	178 (100%)	0	100	100
22	r	178/226 (79%)	178 (100%)	0	100	100
All	All	5542/6758 (82%)	5541 (100%)	1 (0%)	100	100

All (1) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
12	l	34	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 38 such sidechains are listed below:

Mol	Chain	Res	Type
7	g	243	ASN
20	y	164	GLN
14	o	307	GLN
7	n	165	GLN
22	R	126	GLN

5.3.3 RNA

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 338 ligands modelled in this entry, 2 are monoatomic - leaving 336 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
31	LHG	L	101	-	48,48,48	0.91	2 (4%)	51,54,54	1.01	3 (5%)
36	LUT	S	315	-	42,43,43	0.74	0	51,60,60	1.60	11 (21%)
36	LUT	g	616	-	42,43,43	0.75	0	51,60,60	1.62	11 (21%)
38	NEX	R	316	-	38,46,46	0.86	1 (2%)	50,70,70	2.30	16 (32%)
23	CLA	N	602	7	61,69,73	1.52	7 (11%)	71,108,113	1.49	8 (11%)
23	CLA	c	504	-	60,68,73	1.57	6 (10%)	70,107,113	1.36	6 (8%)
35	CHL	n	607	-	46,54,74	1.72	6 (13%)	49,90,114	1.79	11 (22%)
23	CLA	y	305	-	50,58,73	1.72	7 (14%)	58,95,113	1.52	6 (10%)
25	BCR	B	619	-	41,41,41	0.68	0	56,56,56	1.73	11 (19%)
23	CLA	b	611	2	65,73,73	1.53	7 (10%)	76,113,113	1.28	7 (9%)
23	CLA	b	609	-	65,73,73	1.51	7 (10%)	76,113,113	1.31	6 (7%)
35	CHL	y	302	20	66,74,74	1.44	6 (9%)	73,114,114	1.38	9 (12%)
23	CLA	b	610	2	65,73,73	1.50	7 (10%)	76,113,113	1.32	7 (9%)
38	NEX	S	317	-	38,46,46	0.86	1 (2%)	50,70,70	2.26	17 (34%)
35	CHL	G	605	7	46,54,74	1.79	6 (13%)	49,90,114	1.50	9 (18%)
31	LHG	N	618	23	48,48,48	0.92	2 (4%)	51,54,54	1.05	4 (7%)
23	CLA	S	310	15	45,53,73	1.79	6 (13%)	52,89,113	1.52	7 (13%)
37	XAT	G	620	-	39,47,47	0.91	0	54,74,74	2.47	17 (31%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
23	CLA	Y	315	20	45,53,73	1.80	6 (13%)	52,89,113	1.48	6 (11%)
30	LMG	s	619	-	55,55,55	0.90	2 (3%)	63,63,63	0.98	4 (6%)
32	DMU	C	523	-	34,34,34	0.59	0	45,45,45	0.81	1 (2%)
36	LUT	S	316	-	42,43,43	0.77	0	51,60,60	1.48	8 (15%)
25	BCR	D	405	-	41,41,41	0.67	0	56,56,56	1.99	15 (26%)
23	CLA	b	616	2	65,73,73	1.51	6 (9%)	76,113,113	1.33	9 (11%)
31	LHG	n	618	23	48,48,48	0.92	2 (4%)	51,54,54	1.07	4 (7%)
23	CLA	d	401	-	65,73,73	1.47	6 (9%)	76,113,113	1.42	8 (10%)
27	BCT	a	408	29	2,3,3	0.87	0	2,3,3	3.26	2 (100%)
23	CLA	Y	305	-	50,58,73	1.73	7 (14%)	58,95,113	1.55	6 (10%)
23	CLA	r	608	22	58,66,73	1.58	6 (10%)	67,104,113	1.36	7 (10%)
30	LMG	c	521	-	50,50,55	0.97	2 (4%)	58,58,63	1.07	4 (6%)
23	CLA	S	311	31	42,50,73	1.85	6 (14%)	48,85,113	1.48	7 (14%)
37	XAT	y	301	-	39,47,47	0.91	0	54,74,74	2.56	17 (31%)
23	CLA	b	613	2	65,73,73	1.48	7 (10%)	76,113,113	1.32	6 (7%)
35	CHL	g	607	-	43,51,74	1.78	6 (13%)	45,86,114	1.72	9 (20%)
30	LMG	D	409	-	46,46,55	0.99	2 (4%)	54,54,63	0.97	2 (3%)
23	CLA	b	614	2	65,73,73	1.46	7 (10%)	76,113,113	1.54	7 (9%)
23	CLA	B	601	-	65,73,73	1.53	7 (10%)	76,113,113	1.34	9 (11%)
32	DMU	c	522	-	34,34,34	0.58	0	45,45,45	0.81	1 (2%)
31	LHG	B	627	-	39,39,48	1.03	2 (5%)	42,45,54	0.97	2 (4%)
23	CLA	n	603	7	59,67,73	1.60	7 (11%)	68,105,113	1.42	9 (13%)
32	DMU	c	519	-	34,34,34	0.54	0	45,45,45	1.50	5 (11%)
35	CHL	y	307	-	50,58,74	1.66	6 (12%)	52,94,114	1.68	8 (15%)
23	CLA	N	613	7	60,68,73	1.58	6 (10%)	70,107,113	1.44	10 (14%)
23	CLA	n	604	-	50,58,73	1.70	6 (12%)	58,95,113	1.48	6 (10%)
23	CLA	y	304	20	65,73,73	1.56	7 (10%)	76,113,113	1.40	9 (11%)
23	CLA	r	612	22	65,73,73	1.52	6 (9%)	76,113,113	1.37	8 (10%)
35	CHL	G	606	-	43,51,74	1.80	6 (13%)	45,86,114	1.71	10 (22%)
35	CHL	R	307	-	46,54,74	1.77	6 (13%)	49,90,114	1.52	8 (16%)
23	CLA	R	302	22	49,57,73	1.77	6 (12%)	55,93,113	1.49	8 (14%)
23	CLA	c	510	3	65,73,73	1.50	6 (9%)	76,113,113	1.40	8 (10%)
25	BCR	z	101	-	41,41,41	0.71	0	56,56,56	1.63	9 (16%)
23	CLA	D	403	4	65,73,73	1.54	7 (10%)	76,113,113	1.30	7 (9%)
23	CLA	g	611	31	60,68,73	1.57	6 (10%)	70,107,113	1.35	6 (8%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
23	CLA	r	602	22	60,68,73	1.56	6 (10%)	70,107,113	1.29	8 (11%)
23	CLA	c	505	3	58,66,73	1.59	6 (10%)	67,104,113	1.43	8 (11%)
24	PHO	a	403	-	51,69,69	0.65	0	47,99,99	0.90	3 (6%)
23	CLA	R	313	22	65,73,73	1.51	6 (9%)	76,113,113	1.34	9 (11%)
23	CLA	G	611	31	60,68,73	1.55	6 (10%)	70,107,113	1.35	7 (10%)
26	SQD	l	101	-	53,54,54	1.19	4 (7%)	62,65,65	1.09	4 (6%)
30	LMG	b	622	-	51,51,55	0.94	2 (3%)	59,59,63	0.99	3 (5%)
27	BCT	A	407	29	2,3,3	0.87	0	2,3,3	3.25	2 (100%)
35	CHL	Y	307	-	50,58,74	1.66	6 (12%)	52,94,114	1.69	8 (15%)
38	NEX	Y	318	-	38,46,46	0.92	1 (2%)	50,70,70	3.98	18 (36%)
23	CLA	s	613	15	41,49,73	1.85	6 (14%)	47,84,113	1.63	9 (19%)
23	CLA	b	606	2	65,73,73	1.51	8 (12%)	76,113,113	1.46	9 (11%)
23	CLA	g	603	7	65,73,73	1.53	7 (10%)	76,113,113	1.34	10 (13%)
35	CHL	Y	308	-	66,74,74	1.45	7 (10%)	73,114,114	1.49	11 (15%)
30	LMG	C	501	-	48,48,55	0.95	2 (4%)	56,56,63	1.06	4 (7%)
26	SQD	L	103	-	53,54,54	1.18	4 (7%)	62,65,65	1.10	6 (9%)
23	CLA	Y	303	20	61,69,73	1.53	6 (9%)	71,108,113	1.37	6 (8%)
28	DGD	b	625	-	57,57,67	0.95	2 (3%)	71,71,81	1.06	4 (5%)
31	LHG	D	408	-	48,48,48	0.94	2 (4%)	51,54,54	1.10	2 (3%)
23	CLA	r	611	22	65,73,73	1.52	6 (9%)	76,113,113	1.35	7 (9%)
30	LMG	B	620	-	51,51,55	0.94	2 (3%)	59,59,63	0.98	3 (5%)
32	DMU	S	319	-	34,34,34	0.53	0	45,45,45	0.97	2 (4%)
23	CLA	s	602	15	46,54,73	1.79	6 (13%)	53,90,113	1.47	7 (13%)
37	XAT	G	617	-	39,47,47	0.87	0	54,74,74	2.51	16 (29%)
23	CLA	n	613	7	60,68,73	1.57	6 (10%)	70,107,113	1.45	10 (14%)
35	CHL	s	606	-	43,51,74	1.78	5 (11%)	45,86,114	1.77	10 (22%)
35	CHL	G	609	7	61,69,74	1.54	7 (11%)	67,108,114	1.68	10 (14%)
38	NEX	G	618	-	38,46,46	0.88	1 (2%)	50,70,70	2.34	16 (32%)
35	CHL	r	606	-	46,54,74	1.74	6 (13%)	49,90,114	1.52	8 (16%)
23	CLA	g	612	7	45,53,73	1.80	7 (15%)	52,89,113	1.52	7 (13%)
23	CLA	N	611	31	60,68,73	1.56	6 (10%)	70,107,113	1.45	8 (11%)
23	CLA	c	501	3	65,73,73	1.53	8 (12%)	76,113,113	1.26	7 (9%)
35	CHL	n	606	-	46,54,74	1.75	6 (13%)	49,90,114	1.62	9 (18%)
23	CLA	S	314	15	41,49,73	1.87	6 (14%)	47,84,113	1.66	10 (21%)
23	CLA	C	505	-	60,68,73	1.57	6 (10%)	70,107,113	1.37	7 (10%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
39	VTQ	w	201	-	30,32,32	0.42	0	39,44,44	0.50	0
23	CLA	s	608	15	45,53,73	1.83	6 (13%)	52,89,113	1.52	9 (17%)
35	CHL	S	307	-	43,51,74	1.77	5 (11%)	45,86,114	1.72	9 (20%)
23	CLA	N	614	7	41,49,73	1.88	5 (12%)	47,84,113	1.50	7 (14%)
31	LHG	B	622	-	45,45,48	0.96	2 (4%)	48,51,54	0.99	3 (6%)
31	LHG	s	617	23	48,48,48	0.93	2 (4%)	51,54,54	0.99	2 (3%)
23	CLA	n	611	31	60,68,73	1.57	6 (10%)	70,107,113	1.45	8 (11%)
24	PHO	D	402	-	51,69,69	0.64	0	47,99,99	0.96	3 (6%)
23	CLA	c	513	3	65,73,73	1.51	7 (10%)	76,113,113	1.34	9 (11%)
30	LMG	W	203	-	51,51,55	0.94	2 (3%)	59,59,63	1.04	3 (5%)
23	CLA	C	512	3	65,73,73	1.52	5 (7%)	76,113,113	1.41	8 (10%)
35	CHL	G	608	-	66,74,74	1.46	6 (9%)	73,114,114	1.28	7 (9%)
23	CLA	a	404	1	60,68,73	1.53	6 (10%)	70,107,113	1.41	7 (10%)
37	XAT	r	614	-	39,47,47	0.89	0	54,74,74	2.49	17 (31%)
31	LHG	R	317	23	41,41,48	1.01	2 (4%)	44,47,54	1.05	3 (6%)
23	CLA	S	305	-	50,58,73	1.75	7 (14%)	58,95,113	1.53	7 (12%)
23	CLA	s	612	15	55,63,73	1.65	6 (10%)	64,101,113	1.43	6 (9%)
36	LUT	R	314	-	42,43,43	0.73	0	51,60,60	1.60	10 (19%)
26	SQD	B	625	-	53,54,54	1.20	4 (7%)	62,65,65	3.67	8 (12%)
23	CLA	B	602	2	65,73,73	1.51	6 (9%)	76,113,113	1.27	8 (10%)
31	LHG	b	624	-	45,45,48	0.96	2 (4%)	48,51,54	0.98	2 (4%)
31	LHG	d	408	-	48,48,48	0.94	2 (4%)	51,54,54	1.10	2 (3%)
35	CHL	N	609	7	66,74,74	1.46	6 (9%)	73,114,114	1.59	11 (15%)
23	CLA	B	607	-	65,73,73	1.52	7 (10%)	76,113,113	1.32	6 (7%)
23	CLA	R	303	22	60,68,73	1.58	7 (11%)	70,107,113	1.30	7 (10%)
23	CLA	R	310	22	65,73,73	1.50	6 (9%)	76,113,113	1.31	6 (7%)
35	CHL	y	310	20	66,74,74	1.51	7 (10%)	73,114,114	1.53	10 (13%)
23	CLA	C	502	3	65,73,73	1.53	7 (10%)	76,113,113	1.24	7 (9%)
23	CLA	r	610	31	41,49,73	1.87	6 (14%)	47,84,113	1.60	7 (14%)
23	CLA	d	403	4	65,73,73	1.47	7 (10%)	76,113,113	1.45	7 (9%)
37	XAT	R	315	-	39,47,47	0.88	0	54,74,74	2.51	19 (35%)
28	DGD	C	517	-	56,56,67	0.92	2 (3%)	70,70,81	1.02	3 (4%)
35	CHL	R	306	-	46,54,74	1.75	5 (10%)	49,90,114	1.63	8 (16%)
23	CLA	B	603	2	65,73,73	1.49	7 (10%)	76,113,113	1.31	7 (9%)
23	CLA	B	608	2	65,73,73	1.51	7 (10%)	76,113,113	1.33	7 (9%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
23	CLA	B	604	2	65,73,73	1.52	7 (10%)	76,113,113	1.45	8 (10%)
35	CHL	n	608	-	66,74,74	1.47	6 (9%)	73,114,114	1.30	7 (9%)
30	LMG	C	522	-	50,50,55	0.96	2 (4%)	58,58,63	1.08	4 (6%)
23	CLA	G	604	-	49,57,73	1.72	6 (12%)	55,93,113	1.50	6 (10%)
23	CLA	R	311	31	41,49,73	1.89	6 (14%)	47,84,113	1.59	7 (14%)
25	BCR	K	101	-	41,41,41	0.65	0	56,56,56	1.80	16 (28%)
23	CLA	g	614	7	42,50,73	1.84	6 (14%)	48,85,113	1.47	8 (16%)
34	HEM	f	101	6,5	41,50,50	1.50	5 (12%)	45,82,82	1.62	8 (17%)
25	BCR	b	620	-	41,41,41	0.68	0	56,56,56	1.83	17 (30%)
23	CLA	G	612	7	45,53,73	1.80	6 (13%)	52,89,113	1.53	9 (17%)
23	CLA	S	309	15	45,53,73	1.88	6 (13%)	52,89,113	1.50	7 (13%)
31	LHG	b	623	-	48,48,48	0.93	2 (4%)	51,54,54	1.00	3 (5%)
35	CHL	n	605	7	48,56,74	1.65	5 (10%)	51,92,114	1.82	10 (19%)
35	CHL	y	306	20	51,59,74	1.68	6 (11%)	55,96,114	1.50	10 (18%)
23	CLA	g	613	7	58,66,73	1.61	6 (10%)	67,104,113	1.40	7 (10%)
35	CHL	S	302	15	46,54,74	1.73	6 (13%)	49,90,114	1.70	8 (16%)
23	CLA	C	507	3	51,59,73	1.62	6 (11%)	59,96,113	1.78	8 (13%)
23	CLA	G	614	7	42,50,73	1.83	6 (14%)	48,85,113	1.49	8 (16%)
35	CHL	N	605	7	48,56,74	1.64	6 (12%)	51,92,114	1.85	11 (21%)
23	CLA	R	309	22	58,66,73	1.59	6 (10%)	67,104,113	1.35	7 (10%)
23	CLA	B	606	2	65,73,73	1.50	8 (12%)	76,113,113	1.34	7 (9%)
23	CLA	D	401	-	65,73,73	1.48	6 (9%)	76,113,113	1.41	7 (9%)
31	LHG	d	407	-	48,48,48	0.93	2 (4%)	51,54,54	0.95	2 (3%)
25	BCR	B	618	-	41,41,41	0.68	0	56,56,56	1.83	17 (30%)
35	CHL	r	605	-	46,54,74	1.75	5 (10%)	49,90,114	1.62	8 (16%)
28	DGD	A	408	-	60,60,67	0.91	2 (3%)	74,74,81	0.96	3 (4%)
35	CHL	s	601	15	46,54,74	1.73	6 (13%)	49,90,114	1.69	7 (14%)
30	LMG	a	407	-	48,48,55	0.96	2 (4%)	56,56,63	1.01	3 (5%)
36	LUT	G	615	-	42,43,43	0.73	0	51,60,60	1.54	10 (19%)
35	CHL	g	606	-	43,51,74	1.74	6 (13%)	45,86,114	1.70	8 (17%)
23	CLA	D	404	4	65,73,73	1.51	6 (9%)	76,113,113	1.36	7 (9%)
25	BCR	d	405	-	41,41,41	0.67	0	56,56,56	1.99	15 (26%)
23	CLA	b	607	2	65,73,73	1.50	8 (12%)	76,113,113	1.50	10 (13%)
35	CHL	N	601	7	66,74,74	1.41	6 (9%)	73,114,114	1.49	9 (12%)
37	XAT	g	617	-	39,47,47	0.89	0	54,74,74	2.51	16 (29%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
35	CHL	n	609	7	66,74,74	1.46	6 (9%)	73,114,114	1.57	11 (15%)
25	BCR	C	515	-	41,41,41	0.70	0	56,56,56	1.61	9 (16%)
33	PL9	d	406	-	55,55,55	4.32	23 (41%)	68,69,69	3.64	33 (48%)
23	CLA	r	604	-	48,56,73	1.76	7 (14%)	55,92,113	1.54	8 (14%)
24	PHO	a	402	-	51,69,69	0.69	1 (1%)	47,99,99	0.87	3 (6%)
23	CLA	b	618	2	65,73,73	1.47	7 (10%)	76,113,113	1.46	9 (11%)
23	CLA	b	615	2	65,73,73	1.52	8 (12%)	76,113,113	1.34	7 (9%)
28	DGD	B	626	-	57,57,67	0.96	2 (3%)	71,71,81	1.04	4 (5%)
34	HEM	F	101	6,5	41,50,50	1.51	5 (12%)	45,82,82	1.63	8 (17%)
23	CLA	b	608	2	65,73,73	1.50	8 (12%)	76,113,113	1.33	7 (9%)
30	LMG	w	202	-	51,51,55	0.94	2 (3%)	59,59,63	1.03	3 (5%)
23	CLA	C	509	3	65,73,73	1.50	7 (10%)	76,113,113	1.40	7 (9%)
23	CLA	G	613	7	58,66,73	1.62	6 (10%)	67,104,113	1.39	7 (10%)
31	LHG	C	518	-	48,48,48	0.92	2 (4%)	51,54,54	0.94	2 (3%)
23	CLA	S	313	15	55,63,73	1.65	6 (10%)	64,101,113	1.44	6 (9%)
23	CLA	d	404	4	65,73,73	1.50	6 (9%)	76,113,113	1.36	8 (10%)
31	LHG	B	621	-	48,48,48	0.93	2 (4%)	51,54,54	1.01	3 (5%)
25	BCR	b	619	-	41,41,41	0.70	0	56,56,56	1.68	12 (21%)
23	CLA	b	605	2	65,73,73	1.49	8 (12%)	76,113,113	1.31	7 (9%)
35	CHL	N	606	-	46,54,74	1.75	6 (13%)	49,90,114	1.63	11 (22%)
23	CLA	y	313	20	60,68,73	1.56	7 (11%)	70,107,113	1.42	10 (14%)
33	PL9	D	406	-	55,55,55	4.31	22 (40%)	68,69,69	3.66	33 (48%)
23	CLA	C	503	3	65,73,73	1.51	7 (10%)	76,113,113	1.44	8 (10%)
31	LHG	g	619	23	45,45,48	0.96	2 (4%)	48,51,54	1.04	3 (6%)
31	LHG	c	516	-	48,48,48	0.93	2 (4%)	51,54,54	1.02	3 (5%)
35	CHL	r	607	-	61,69,74	1.52	6 (9%)	67,108,114	1.40	10 (14%)
30	LMG	S	301	-	55,55,55	0.90	2 (3%)	63,63,63	0.97	4 (6%)
35	CHL	g	605	7	46,54,74	1.79	6 (13%)	49,90,114	1.50	9 (18%)
35	CHL	g	609	7	61,69,74	1.58	8 (13%)	67,108,114	1.37	8 (11%)
23	CLA	b	604	2	65,73,73	1.50	6 (9%)	76,113,113	1.27	8 (10%)
26	SQD	C	521	-	44,45,54	1.31	4 (9%)	53,56,65	3.96	8 (15%)
39	VTQ	W	202	-	30,32,32	0.42	0	39,44,44	0.50	0
23	CLA	R	304	22	60,68,73	1.56	6 (10%)	70,107,113	1.42	7 (10%)
36	LUT	N	616	-	42,43,43	0.75	0	51,60,60	1.49	11 (21%)
23	CLA	C	514	3	65,73,73	1.51	7 (10%)	76,113,113	1.36	9 (11%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
23	CLA	Y	311	20	60,68,73	1.48	6 (10%)	70,107,113	1.40	6 (8%)
23	CLA	c	503	3	65,73,73	1.50	6 (9%)	76,113,113	1.30	7 (9%)
23	CLA	s	603	15	45,53,73	1.83	7 (15%)	52,89,113	1.59	8 (15%)
23	CLA	g	602	7	65,73,73	1.46	7 (10%)	76,113,113	1.26	7 (9%)
23	CLA	r	601	22	49,57,73	1.79	6 (12%)	55,93,113	1.49	8 (14%)
36	LUT	Y	316	-	42,43,43	0.71	0	51,60,60	1.48	9 (17%)
28	DGD	d	410	-	63,63,67	0.90	2 (3%)	77,77,81	0.94	2 (2%)
23	CLA	R	305	-	48,56,73	1.76	6 (12%)	55,92,113	1.54	8 (14%)
23	CLA	N	604	-	50,58,73	1.71	6 (12%)	58,95,113	1.53	6 (10%)
36	LUT	s	615	-	42,43,43	0.73	0	51,60,60	1.47	8 (15%)
23	CLA	n	610	7	59,67,73	1.52	6 (10%)	68,105,113	1.38	7 (10%)
36	LUT	r	613	-	42,43,43	0.73	0	51,60,60	1.67	11 (21%)
23	CLA	N	612	7	45,53,73	1.84	7 (15%)	52,89,113	1.60	8 (15%)
23	CLA	S	312	15	45,53,73	1.76	6 (13%)	52,89,113	1.72	8 (15%)
23	CLA	Y	313	20	60,68,73	1.54	7 (11%)	70,107,113	1.44	9 (12%)
23	CLA	b	617	2	65,73,73	1.49	7 (10%)	76,113,113	1.44	10 (13%)
26	SQD	b	602	-	53,54,54	1.20	4 (7%)	62,65,65	3.65	8 (12%)
23	CLA	G	603	7	65,73,73	1.51	6 (9%)	76,113,113	1.36	10 (13%)
35	CHL	g	608	-	66,74,74	1.46	6 (9%)	73,114,114	1.28	7 (9%)
38	NEX	N	617	-	38,46,46	0.87	1 (2%)	50,70,70	2.23	15 (30%)
23	CLA	c	502	3	65,73,73	1.50	7 (10%)	76,113,113	1.44	8 (10%)
26	SQD	c	520	-	44,45,54	1.31	4 (9%)	53,56,65	3.95	8 (15%)
36	LUT	Y	317	-	42,43,43	0.74	0	51,60,60	1.55	11 (21%)
25	BCR	C	516	-	41,41,41	0.69	0	56,56,56	1.71	13 (23%)
23	CLA	C	506	3	58,66,73	1.58	6 (10%)	67,104,113	1.46	8 (11%)
35	CHL	Y	306	20	51,59,74	1.68	6 (11%)	55,96,114	1.49	10 (18%)
38	NEX	n	617	-	38,46,46	0.87	1 (2%)	50,70,70	2.23	16 (32%)
23	CLA	B	610	-	65,73,73	1.45	7 (10%)	76,113,113	1.46	7 (9%)
23	CLA	Y	304	20	65,73,73	1.53	7 (10%)	76,113,113	1.38	8 (10%)
36	LUT	s	614	-	42,43,43	0.74	0	51,60,60	1.59	11 (21%)
23	CLA	n	614	7	41,49,73	1.86	6 (14%)	47,84,113	1.51	7 (14%)
23	CLA	b	603	-	65,73,73	1.53	7 (10%)	76,113,113	1.34	9 (11%)
23	CLA	R	312	22	65,73,73	1.51	6 (9%)	76,113,113	1.38	8 (10%)
23	CLA	d	402	-	50,58,73	1.77	7 (14%)	58,95,113	1.52	8 (13%)
23	CLA	s	604	-	50,58,73	1.73	7 (14%)	58,95,113	1.53	6 (10%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
35	CHL	s	607	-	49,57,74	1.71	5 (10%)	52,93,114	1.53	10 (19%)
23	CLA	C	510	3	65,73,73	1.53	7 (10%)	76,113,113	1.33	7 (9%)
38	NEX	g	618	-	38,46,46	0.88	1 (2%)	50,70,70	2.45	16 (32%)
35	CHL	s	605	-	46,54,74	1.77	6 (13%)	49,90,114	1.63	7 (14%)
35	CHL	S	308	-	49,57,74	1.70	5 (10%)	52,93,114	1.66	10 (19%)
23	CLA	C	504	3	65,73,73	1.50	6 (9%)	76,113,113	1.31	6 (7%)
23	CLA	C	508	-	65,73,73	1.46	6 (9%)	76,113,113	1.42	8 (10%)
23	CLA	N	610	7	59,67,73	1.51	6 (10%)	68,105,113	1.45	7 (10%)
23	CLA	S	303	15	46,54,73	1.78	6 (13%)	53,90,113	1.49	6 (11%)
31	LHG	y	318	23	48,48,48	0.92	2 (4%)	51,54,54	0.98	2 (3%)
23	CLA	n	602	7	61,69,73	1.51	7 (11%)	71,108,113	1.51	7 (9%)
35	CHL	N	608	-	66,74,74	1.47	6 (9%)	73,114,114	1.33	8 (10%)
35	CHL	g	601	7	66,74,74	1.45	8 (12%)	73,114,114	1.41	11 (15%)
25	BCR	c	518	-	41,41,41	0.67	0	56,56,56	1.82	13 (23%)
31	LHG	G	619	23	45,45,48	0.96	2 (4%)	48,51,54	1.05	3 (6%)
26	SQD	A	406	-	49,50,54	1.24	4 (8%)	58,61,65	1.05	5 (8%)
35	CHL	R	308	-	61,69,74	1.53	6 (9%)	67,108,114	1.43	10 (14%)
35	CHL	Y	302	20	66,74,74	1.44	6 (9%)	73,114,114	1.38	9 (12%)
23	CLA	B	612	2	65,73,73	1.44	7 (10%)	76,113,113	1.55	7 (9%)
23	CLA	c	511	3	65,73,73	1.52	7 (10%)	76,113,113	1.36	7 (9%)
25	BCR	C	519	-	41,41,41	0.67	0	56,56,56	1.96	15 (26%)
25	BCR	b	621	-	41,41,41	0.68	0	56,56,56	1.72	10 (17%)
35	CHL	G	607	-	43,51,74	1.79	6 (13%)	45,86,114	1.68	8 (17%)
35	CHL	y	308	-	66,74,74	1.44	7 (10%)	73,114,114	1.50	11 (15%)
30	LMG	d	409	-	46,46,55	0.99	2 (4%)	54,54,63	0.98	2 (3%)
23	CLA	b	612	-	65,73,73	1.46	7 (10%)	76,113,113	1.47	7 (9%)
23	CLA	y	303	20	61,69,73	1.53	6 (9%)	71,108,113	1.36	6 (8%)
31	LHG	l	103	-	48,48,48	0.97	2 (4%)	51,54,54	0.93	3 (5%)
23	CLA	y	314	20	65,73,73	1.51	6 (9%)	76,113,113	1.35	7 (9%)
30	LMG	B	623	-	40,40,55	1.06	2 (5%)	48,48,63	0.99	2 (4%)
31	LHG	Y	319	23	48,48,48	0.92	2 (4%)	51,54,54	0.97	2 (3%)
35	CHL	G	601	7	66,74,74	1.46	8 (12%)	73,114,114	1.42	10 (13%)
38	NEX	R	301	-	38,46,46	0.91	1 (2%)	50,70,70	4.00	18 (36%)
24	PHO	A	403	-	51,69,69	0.69	1 (1%)	47,99,99	0.87	3 (6%)
32	DMU	C	520	-	34,34,34	0.54	0	45,45,45	1.48	5 (11%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
35	CHL	y	309	-	66,74,74	1.47	6 (9%)	73,114,114	1.34	9 (12%)
23	CLA	c	508	3	65,73,73	1.50	6 (9%)	76,113,113	1.39	7 (9%)
25	BCR	H	101	-	41,41,41	0.71	0	56,56,56	1.56	7 (12%)
23	CLA	g	610	7	64,72,73	1.44	6 (9%)	74,111,113	1.30	6 (8%)
28	DGD	B	624	-	60,60,67	0.89	2 (3%)	74,74,81	0.91	2 (2%)
23	CLA	y	315	20	45,53,73	1.80	6 (13%)	52,89,113	1.47	6 (11%)
23	CLA	A	401	1	65,73,73	1.50	7 (10%)	76,113,113	1.31	6 (7%)
30	LMG	b	601	-	40,40,55	1.06	2 (5%)	48,48,63	1.00	2 (4%)
35	CHL	Y	310	20	66,74,74	1.51	7 (10%)	73,114,114	1.53	9 (12%)
37	XAT	Y	301	-	39,47,47	0.91	0	54,74,74	2.56	18 (33%)
31	LHG	L	102	-	48,48,48	0.97	2 (4%)	51,54,54	0.93	2 (3%)
36	LUT	g	615	-	42,43,43	0.73	0	51,60,60	1.53	9 (17%)
38	NEX	s	616	-	38,46,46	0.89	1 (2%)	50,70,70	2.35	20 (40%)
31	LHG	W	201	-	48,48,48	0.93	2 (4%)	51,54,54	1.03	3 (5%)
28	DGD	c	515	-	56,56,67	0.92	2 (3%)	70,70,81	1.01	3 (4%)
23	CLA	B	609	2	65,73,73	1.52	7 (10%)	76,113,113	1.28	7 (9%)
31	LHG	b	626	-	39,39,48	1.03	2 (5%)	42,45,54	0.97	2 (4%)
23	CLA	s	611	15	45,53,73	1.85	7 (15%)	52,89,113	1.56	10 (19%)
23	CLA	n	612	7	45,53,73	1.84	7 (15%)	52,89,113	1.58	8 (15%)
35	CHL	N	607	-	46,54,74	1.74	6 (13%)	49,90,114	1.74	10 (20%)
35	CHL	Y	309	-	66,74,74	1.47	6 (9%)	73,114,114	1.34	9 (12%)
25	BCR	h	101	-	41,41,41	0.70	0	56,56,56	1.59	9 (16%)
23	CLA	c	507	-	65,73,73	1.46	6 (9%)	76,113,113	1.42	8 (10%)
23	CLA	y	312	31	60,68,73	1.55	6 (10%)	70,107,113	1.38	7 (10%)
32	DMU	s	618	-	34,34,34	0.54	0	45,45,45	0.98	1 (2%)
28	DGD	D	410	-	63,63,67	0.90	2 (3%)	77,77,81	0.92	2 (2%)
23	CLA	C	513	3	56,64,73	1.60	5 (8%)	65,102,113	1.51	7 (10%)
36	LUT	G	616	-	42,43,43	0.76	0	51,60,60	1.58	12 (23%)
36	LUT	n	616	-	42,43,43	0.76	0	51,60,60	1.54	13 (25%)
25	BCR	B	617	-	41,41,41	0.70	0	56,56,56	1.66	12 (21%)
25	BCR	A	405	-	41,41,41	0.68	0	56,56,56	1.69	12 (21%)
31	LHG	l	102	-	48,48,48	0.91	2 (4%)	51,54,54	1.01	3 (5%)
31	LHG	D	407	-	48,48,48	0.93	2 (4%)	51,54,54	0.94	2 (3%)
38	NEX	r	615	-	38,46,46	0.90	1 (2%)	50,70,70	2.31	18 (36%)
36	LUT	n	615	-	42,43,43	0.72	0	51,60,60	1.53	11 (21%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
23	CLA	G	602	7	65,73,73	1.48	8 (12%)	76,113,113	1.25	7 (9%)
23	CLA	Y	314	20	65,73,73	1.52	6 (9%)	76,113,113	1.35	7 (9%)
23	CLA	a	401	1	65,73,73	1.50	7 (10%)	76,113,113	1.34	6 (7%)
37	XAT	g	620	-	39,47,47	0.92	0	54,74,74	2.47	18 (33%)
31	LHG	S	318	23	48,48,48	0.92	2 (4%)	51,54,54	0.99	2 (3%)
23	CLA	A	404	1	60,68,73	1.52	6 (10%)	70,107,113	1.41	7 (10%)
23	CLA	B	616	2	65,73,73	1.47	7 (10%)	76,113,113	1.46	9 (11%)
23	CLA	g	604	-	49,57,73	1.73	6 (12%)	55,93,113	1.48	6 (10%)
23	CLA	r	603	22	60,68,73	1.56	6 (10%)	70,107,113	1.39	7 (10%)
23	CLA	A	402	-	50,58,73	1.74	7 (14%)	58,95,113	1.58	9 (15%)
23	CLA	C	511	3	65,73,73	1.49	6 (9%)	76,113,113	1.40	8 (10%)
23	CLA	B	611	2	65,73,73	1.49	7 (10%)	76,113,113	1.32	6 (7%)
23	CLA	G	610	7	64,72,73	1.49	6 (9%)	74,111,113	1.33	7 (9%)
23	CLA	B	614	2	65,73,73	1.50	6 (9%)	76,113,113	1.32	9 (11%)
36	LUT	N	615	-	42,43,43	0.72	0	51,60,60	1.48	9 (17%)
31	LHG	c	517	-	48,48,48	0.92	2 (4%)	51,54,54	0.98	2 (3%)
36	LUT	y	316	-	42,43,43	0.72	0	51,60,60	1.52	10 (19%)
23	CLA	c	509	3	65,73,73	1.52	6 (9%)	76,113,113	1.33	7 (9%)
36	LUT	y	317	-	42,43,43	0.74	0	51,60,60	1.50	10 (19%)
35	CHL	S	306	-	46,54,74	1.80	5 (10%)	49,90,114	1.65	10 (20%)
23	CLA	c	512	3	56,64,73	1.60	6 (10%)	65,102,113	1.53	7 (10%)
31	LHG	r	616	23	41,41,48	1.00	2 (4%)	44,47,54	1.05	3 (6%)
23	CLA	s	610	31	42,50,73	1.85	6 (14%)	48,85,113	1.53	7 (14%)
23	CLA	c	506	3	51,59,73	1.67	6 (11%)	59,96,113	1.53	7 (11%)
23	CLA	s	609	15	45,53,73	1.78	6 (13%)	52,89,113	1.64	8 (15%)
25	BCR	c	514	-	41,41,41	0.69	0	56,56,56	1.72	14 (25%)
23	CLA	N	603	7	59,67,73	1.62	7 (11%)	68,105,113	1.47	8 (11%)
35	CHL	n	601	7	66,74,74	1.43	6 (9%)	73,114,114	1.51	8 (10%)
25	BCR	k	101	-	41,41,41	0.65	0	56,56,56	1.84	15 (26%)
23	CLA	y	311	20	60,68,73	1.53	6 (10%)	70,107,113	1.43	7 (10%)
25	BCR	a	405	-	41,41,41	0.69	0	56,56,56	1.70	11 (19%)
23	CLA	r	609	22	65,73,73	1.49	7 (10%)	76,113,113	1.30	7 (9%)
23	CLA	S	304	15	45,53,73	1.81	6 (13%)	52,89,113	1.58	7 (13%)
26	SQD	a	406	-	49,50,54	1.24	4 (8%)	58,61,65	1.05	5 (8%)
23	CLA	B	613	2	65,73,73	1.51	8 (12%)	76,113,113	1.34	7 (9%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
23	CLA	B	615	2	65,73,73	1.49	7 (10%)	76,113,113	1.43	11 (14%)
23	CLA	Y	312	31	60,68,73	1.55	6 (10%)	70,107,113	1.39	7 (10%)
23	CLA	B	605	2	65,73,73	1.50	7 (10%)	76,113,113	1.49	10 (13%)

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
31	LHG	L	101	-	-	8/53/53/53	-
36	LUT	S	315	-	-	2/29/67/67	0/2/2/2
36	LUT	g	616	-	-	0/29/67/67	0/2/2/2
38	NEX	R	316	-	-	5/27/83/83	0/3/3/3
23	CLA	N	602	7	1/1/14/20	11/33/111/115	-
23	CLA	c	504	-	1/1/14/20	3/31/109/115	-
35	CHL	n	607	-	3/3/16/26	9/15/113/137	-
23	CLA	y	305	-	1/1/12/20	7/19/97/115	-
25	BCR	B	619	-	-	6/29/63/63	0/2/2/2
23	CLA	b	611	2	1/1/15/20	11/37/115/115	-
23	CLA	b	609	-	1/1/15/20	14/37/115/115	-
35	CHL	y	302	20	3/3/20/26	14/39/137/137	-
23	CLA	b	610	2	1/1/15/20	16/37/115/115	-
38	NEX	S	317	-	-	4/27/83/83	0/3/3/3
35	CHL	G	605	7	3/3/16/26	10/15/113/137	-
31	LHG	N	618	23	-	9/53/53/53	-
23	CLA	S	310	15	1/1/11/20	9/13/91/115	-
37	XAT	G	620	-	-	0/31/93/93	0/4/4/4
23	CLA	Y	315	20	1/1/11/20	4/13/91/115	-
30	LMG	s	619	-	-	5/50/70/70	0/1/1/1
32	DMU	C	523	-	-	6/19/59/59	0/2/2/2
36	LUT	S	316	-	-	2/29/67/67	0/2/2/2
25	BCR	D	405	-	-	7/29/63/63	0/2/2/2
23	CLA	b	616	2	1/1/15/20	16/37/115/115	-
31	LHG	n	618	23	-	10/53/53/53	-
23	CLA	d	401	-	1/1/15/20	12/37/115/115	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
23	CLA	Y	305	-	1/1/12/20	7/19/97/115	-
23	CLA	r	608	22	1/1/13/20	7/29/107/115	-
30	LMG	c	521	-	-	9/45/65/70	0/1/1/1
23	CLA	S	311	31	1/1/10/20	4/10/88/115	-
37	XAT	y	301	-	-	0/31/93/93	0/4/4/4
23	CLA	b	613	2	1/1/15/20	10/37/115/115	-
35	CHL	g	607	-	3/3/15/26	5/12/110/137	-
30	LMG	D	409	-	-	3/41/61/70	0/1/1/1
23	CLA	b	614	2	1/1/15/20	18/37/115/115	-
23	CLA	B	601	-	1/1/15/20	13/37/115/115	-
32	DMU	c	522	-	-	5/19/59/59	0/2/2/2
31	LHG	B	627	-	-	13/44/44/53	-
23	CLA	n	603	7	1/1/13/20	10/30/108/115	-
32	DMU	c	519	-	-	6/19/59/59	0/2/2/2
35	CHL	y	307	-	3/3/16/26	10/20/118/137	-
23	CLA	N	613	7	1/1/14/20	12/31/109/115	-
23	CLA	n	604	-	1/1/12/20	4/19/97/115	-
23	CLA	y	304	20	1/1/15/20	13/37/115/115	-
23	CLA	r	612	22	1/1/15/20	9/37/115/115	-
35	CHL	G	606	-	3/3/15/26	8/12/110/137	-
35	CHL	R	307	-	3/3/16/26	5/15/113/137	-
23	CLA	R	302	22	1/1/11/20	10/18/96/115	-
23	CLA	c	510	3	1/1/15/20	13/37/115/115	-
25	BCR	z	101	-	-	0/29/63/63	0/2/2/2
23	CLA	D	403	4	1/1/15/20	5/37/115/115	-
23	CLA	g	611	31	1/1/14/20	4/31/109/115	-
23	CLA	r	602	22	1/1/14/20	16/31/109/115	-
23	CLA	c	505	3	1/1/13/20	13/29/107/115	-
24	PHO	a	403	-	-	7/37/103/103	0/5/6/6
23	CLA	R	313	22	1/1/15/20	9/37/115/115	-
23	CLA	G	611	31	1/1/14/20	3/31/109/115	-
26	SQD	l	101	-	-	17/49/69/69	0/1/1/1
30	LMG	b	622	-	-	7/46/66/70	0/1/1/1
35	CHL	Y	307	-	3/3/16/26	10/20/118/137	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
38	NEX	Y	318	-	-	3/27/83/83	0/3/3/3
23	CLA	s	613	15	1/1/10/20	6/8/86/115	-
23	CLA	b	606	2	1/1/15/20	9/37/115/115	-
23	CLA	g	603	7	1/1/15/20	6/37/115/115	-
35	CHL	Y	308	-	3/3/20/26	22/39/137/137	-
30	LMG	C	501	-	-	5/43/63/70	0/1/1/1
26	SQD	L	103	-	-	15/49/69/69	0/1/1/1
23	CLA	Y	303	20	1/1/14/20	16/33/111/115	-
28	DGD	b	625	-	-	12/45/85/95	0/2/2/2
31	LHG	D	408	-	-	7/53/53/53	-
23	CLA	r	611	22	1/1/15/20	10/37/115/115	-
30	LMG	B	620	-	-	9/46/66/70	0/1/1/1
32	DMU	S	319	-	-	4/19/59/59	0/2/2/2
23	CLA	s	602	15	1/1/11/20	8/15/93/115	-
37	XAT	G	617	-	-	1/31/93/93	0/4/4/4
23	CLA	n	613	7	1/1/14/20	12/31/109/115	-
35	CHL	s	606	-	3/3/15/26	4/12/110/137	-
35	CHL	G	609	7	3/3/19/26	10/33/131/137	-
38	NEX	G	618	-	-	3/27/83/83	0/3/3/3
35	CHL	r	606	-	3/3/16/26	5/15/113/137	-
23	CLA	g	612	7	1/1/11/20	7/13/91/115	-
23	CLA	N	611	31	1/1/14/20	9/31/109/115	-
23	CLA	c	501	3	1/1/15/20	12/37/115/115	-
35	CHL	n	606	-	3/3/16/26	7/15/113/137	-
23	CLA	S	314	15	1/1/10/20	6/8/86/115	-
23	CLA	C	505	-	1/1/14/20	5/31/109/115	-
39	VTQ	w	201	-	-	3/25/49/49	0/1/1/1
23	CLA	s	608	15	1/1/11/20	4/13/91/115	-
35	CHL	S	307	-	3/3/15/26	5/12/110/137	-
23	CLA	N	614	7	1/1/10/20	3/8/86/115	-
31	LHG	B	622	-	-	11/50/50/53	-
31	LHG	s	617	23	-	9/53/53/53	-
23	CLA	n	611	31	1/1/14/20	9/31/109/115	-
24	PHO	D	402	-	-	6/37/103/103	0/5/6/6

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
23	CLA	c	513	3	1/1/15/20	7/37/115/115	-
30	LMG	W	203	-	-	7/46/66/70	0/1/1/1
23	CLA	C	512	3	1/1/15/20	14/37/115/115	-
35	CHL	G	608	-	3/3/20/26	15/39/137/137	-
23	CLA	a	404	1	1/1/14/20	12/31/109/115	-
37	XAT	r	614	-	-	1/31/93/93	0/4/4/4
31	LHG	R	317	23	-	8/46/46/53	-
23	CLA	S	305	-	1/1/12/20	5/19/97/115	-
23	CLA	s	612	15	1/1/13/20	9/25/103/115	-
36	LUT	R	314	-	-	2/29/67/67	0/2/2/2
26	SQD	B	625	-	-	19/49/69/69	0/1/1/1
23	CLA	B	602	2	1/1/15/20	13/37/115/115	-
31	LHG	b	624	-	-	9/50/50/53	-
31	LHG	d	408	-	-	9/53/53/53	-
35	CHL	N	609	7	3/3/20/26	14/39/137/137	-
23	CLA	B	607	-	1/1/15/20	13/37/115/115	-
23	CLA	R	303	22	1/1/14/20	13/31/109/115	-
23	CLA	R	310	22	1/1/15/20	9/37/115/115	-
35	CHL	y	310	20	3/3/20/26	19/39/137/137	-
23	CLA	C	502	3	1/1/15/20	13/37/115/115	-
23	CLA	r	610	31	1/1/10/20	4/8/86/115	-
23	CLA	d	403	4	1/1/15/20	11/37/115/115	-
37	XAT	R	315	-	-	1/31/93/93	0/4/4/4
28	DGD	C	517	-	-	4/44/84/95	0/2/2/2
35	CHL	R	306	-	3/3/16/26	7/15/113/137	-
23	CLA	B	603	2	1/1/15/20	17/37/115/115	-
23	CLA	B	608	2	1/1/15/20	12/37/115/115	-
23	CLA	B	604	2	1/1/15/20	9/37/115/115	-
35	CHL	n	608	-	3/3/20/26	8/39/137/137	-
30	LMG	C	522	-	-	9/45/65/70	0/1/1/1
23	CLA	G	604	-	1/1/11/20	9/18/96/115	-
23	CLA	R	311	31	1/1/10/20	5/8/86/115	-
25	BCR	K	101	-	-	4/29/63/63	0/2/2/2
23	CLA	g	614	7	1/1/10/20	5/10/88/115	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
34	HEM	f	101	6,5	-	5/12/54/54	-
25	BCR	b	620	-	-	0/29/63/63	0/2/2/2
23	CLA	G	612	7	1/1/11/20	7/13/91/115	-
23	CLA	S	309	15	1/1/11/20	8/13/91/115	-
31	LHG	b	623	-	-	11/53/53/53	-
35	CHL	n	605	7	3/3/16/26	12/18/116/137	-
35	CHL	y	306	20	3/3/17/26	11/21/119/137	-
23	CLA	g	613	7	1/1/13/20	11/29/107/115	-
35	CHL	S	302	15	3/3/16/26	7/15/113/137	-
23	CLA	C	507	3	1/1/12/20	5/21/99/115	-
23	CLA	G	614	7	1/1/10/20	5/10/88/115	-
35	CHL	N	605	7	3/3/16/26	12/18/116/137	-
23	CLA	R	309	22	1/1/13/20	5/29/107/115	-
23	CLA	B	606	2	1/1/15/20	7/37/115/115	-
23	CLA	D	401	-	1/1/15/20	14/37/115/115	-
31	LHG	d	407	-	-	12/53/53/53	-
25	BCR	B	618	-	-	0/29/63/63	0/2/2/2
35	CHL	r	605	-	3/3/16/26	7/15/113/137	-
28	DGD	A	408	-	-	8/48/88/95	0/2/2/2
35	CHL	s	601	15	3/3/16/26	6/15/113/137	-
30	LMG	a	407	-	-	2/43/63/70	0/1/1/1
36	LUT	G	615	-	-	2/29/67/67	0/2/2/2
35	CHL	g	606	-	3/3/15/26	4/12/110/137	-
23	CLA	D	404	4	1/1/15/20	16/37/115/115	-
25	BCR	d	405	-	-	7/29/63/63	0/2/2/2
23	CLA	b	607	2	1/1/15/20	11/37/115/115	-
35	CHL	N	601	7	3/3/20/26	11/39/137/137	-
37	XAT	g	617	-	-	2/31/93/93	0/4/4/4
35	CHL	n	609	7	3/3/20/26	13/39/137/137	-
25	BCR	C	515	-	-	0/29/63/63	0/2/2/2
33	PL9	d	406	-	-	25/53/73/73	0/1/1/1
23	CLA	r	604	-	1/1/11/20	8/17/95/115	-
24	PHO	a	402	-	-	14/37/103/103	0/5/6/6
23	CLA	b	618	2	1/1/15/20	12/37/115/115	-
23	CLA	b	615	2	1/1/15/20	13/37/115/115	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
28	DGD	B	626	-	-	13/45/85/95	0/2/2/2
34	HEM	F	101	6,5	-	5/12/54/54	-
23	CLA	b	608	2	1/1/15/20	10/37/115/115	-
30	LMG	w	202	-	-	7/46/66/70	0/1/1/1
23	CLA	C	509	3	1/1/15/20	11/37/115/115	-
23	CLA	G	613	7	1/1/13/20	12/29/107/115	-
31	LHG	C	518	-	-	11/53/53/53	-
23	CLA	S	313	15	1/1/13/20	9/25/103/115	-
23	CLA	d	404	4	1/1/15/20	15/37/115/115	-
31	LHG	B	621	-	-	11/53/53/53	-
25	BCR	b	619	-	-	6/29/63/63	0/2/2/2
23	CLA	b	605	2	1/1/15/20	14/37/115/115	-
35	CHL	N	606	-	3/3/16/26	9/15/113/137	-
23	CLA	y	313	20	1/1/14/20	9/31/109/115	-
33	PL9	D	406	-	-	26/53/73/73	0/1/1/1
23	CLA	C	503	3	1/1/15/20	11/37/115/115	-
31	LHG	g	619	23	-	10/50/50/53	-
31	LHG	c	516	-	-	9/53/53/53	-
35	CHL	r	607	-	3/3/19/26	11/33/131/137	-
30	LMG	S	301	-	-	5/50/70/70	0/1/1/1
35	CHL	g	605	7	3/3/16/26	10/15/113/137	-
35	CHL	g	609	7	3/3/19/26	12/33/131/137	-
23	CLA	b	604	2	1/1/15/20	10/37/115/115	-
26	SQD	C	521	-	-	2/40/60/69	0/1/1/1
39	VTQ	W	202	-	-	3/25/49/49	0/1/1/1
23	CLA	R	304	22	1/1/14/20	7/31/109/115	-
36	LUT	N	616	-	-	1/29/67/67	0/2/2/2
23	CLA	C	514	3	1/1/15/20	5/37/115/115	-
23	CLA	Y	311	20	1/1/14/20	8/31/109/115	-
23	CLA	c	503	3	1/1/15/20	16/37/115/115	-
23	CLA	s	603	15	1/1/11/20	5/13/91/115	-
23	CLA	g	602	7	1/1/15/20	14/37/115/115	-
23	CLA	r	601	22	1/1/11/20	11/18/96/115	-
36	LUT	Y	316	-	-	3/29/67/67	0/2/2/2

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
28	DGD	d	410	-	-	9/51/91/95	0/2/2/2
23	CLA	R	305	-	1/1/11/20	8/17/95/115	-
23	CLA	N	604	-	1/1/12/20	5/19/97/115	-
36	LUT	s	615	-	-	3/29/67/67	0/2/2/2
23	CLA	n	610	7	1/1/13/20	10/30/108/115	-
36	LUT	r	613	-	-	2/29/67/67	0/2/2/2
23	CLA	N	612	7	1/1/11/20	7/13/91/115	-
23	CLA	S	312	15	1/1/11/20	6/13/91/115	-
23	CLA	Y	313	20	1/1/14/20	9/31/109/115	-
23	CLA	b	617	2	1/1/15/20	18/37/115/115	-
26	SQD	b	602	-	-	20/49/69/69	0/1/1/1
23	CLA	G	603	7	1/1/15/20	7/37/115/115	-
35	CHL	g	608	-	3/3/20/26	16/39/137/137	-
38	NEX	N	617	-	-	4/27/83/83	0/3/3/3
23	CLA	c	502	3	1/1/15/20	11/37/115/115	-
26	SQD	c	520	-	-	2/40/60/69	0/1/1/1
36	LUT	Y	317	-	-	1/29/67/67	0/2/2/2
25	BCR	C	516	-	-	0/29/63/63	0/2/2/2
23	CLA	C	506	3	1/1/13/20	13/29/107/115	-
35	CHL	Y	306	20	3/3/17/26	11/21/119/137	-
38	NEX	n	617	-	-	5/27/83/83	0/3/3/3
23	CLA	B	610	-	1/1/15/20	11/37/115/115	-
23	CLA	Y	304	20	1/1/15/20	11/37/115/115	-
36	LUT	s	614	-	-	2/29/67/67	0/2/2/2
23	CLA	n	614	7	1/1/10/20	3/8/86/115	-
23	CLA	b	603	-	1/1/15/20	13/37/115/115	-
23	CLA	R	312	22	1/1/15/20	12/37/115/115	-
23	CLA	d	402	-	1/1/12/20	10/19/97/115	-
23	CLA	s	604	-	1/1/12/20	3/19/97/115	-
35	CHL	s	607	-	3/3/16/26	12/19/117/137	-
23	CLA	C	510	3	1/1/15/20	9/37/115/115	-
38	NEX	g	618	-	-	2/27/83/83	0/3/3/3
35	CHL	s	605	-	3/3/16/26	6/15/113/137	-
35	CHL	S	308	-	3/3/16/26	12/19/117/137	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
23	CLA	C	504	3	1/1/15/20	17/37/115/115	-
23	CLA	C	508	-	1/1/15/20	10/37/115/115	-
23	CLA	N	610	7	1/1/13/20	9/30/108/115	-
23	CLA	S	303	15	1/1/11/20	6/15/93/115	-
31	LHG	y	318	23	-	12/53/53/53	-
23	CLA	n	602	7	1/1/14/20	10/33/111/115	-
35	CHL	N	608	-	3/3/20/26	8/39/137/137	-
35	CHL	g	601	7	3/3/20/26	17/39/137/137	-
25	BCR	c	518	-	-	2/29/63/63	0/2/2/2
31	LHG	G	619	23	-	11/50/50/53	-
26	SQD	A	406	-	-	5/45/65/69	0/1/1/1
35	CHL	R	308	-	3/3/19/26	11/33/131/137	-
35	CHL	Y	302	20	3/3/20/26	15/39/137/137	-
23	CLA	B	612	2	1/1/15/20	18/37/115/115	-
23	CLA	c	511	3	1/1/15/20	11/37/115/115	-
25	BCR	C	519	-	-	0/29/63/63	0/2/2/2
35	CHL	G	607	-	3/3/15/26	4/12/110/137	-
25	BCR	b	621	-	-	4/29/63/63	0/2/2/2
35	CHL	y	308	-	3/3/20/26	20/39/137/137	-
30	LMG	d	409	-	-	3/41/61/70	0/1/1/1
23	CLA	b	612	-	1/1/15/20	11/37/115/115	-
23	CLA	y	303	20	1/1/14/20	16/33/111/115	-
31	LHG	l	103	-	-	18/53/53/53	-
23	CLA	y	314	20	1/1/15/20	13/37/115/115	-
30	LMG	B	623	-	-	3/35/55/70	0/1/1/1
31	LHG	Y	319	23	-	12/53/53/53	-
35	CHL	G	601	7	3/3/20/26	18/39/137/137	-
38	NEX	R	301	-	-	4/27/83/83	0/3/3/3
24	PHO	A	403	-	-	13/37/103/103	0/5/6/6
32	DMU	C	520	-	-	7/19/59/59	0/2/2/2
35	CHL	y	309	-	3/3/20/26	11/39/137/137	-
23	CLA	c	508	3	1/1/15/20	11/37/115/115	-
25	BCR	H	101	-	-	7/29/63/63	0/2/2/2
23	CLA	g	610	7	1/1/14/20	13/36/114/115	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
28	DGD	B	624	-	-	7/48/88/95	0/2/2/2
23	CLA	y	315	20	1/1/11/20	4/13/91/115	-
23	CLA	A	401	1	1/1/15/20	8/37/115/115	-
30	LMG	b	601	-	-	3/35/55/70	0/1/1/1
35	CHL	Y	310	20	3/3/20/26	18/39/137/137	-
37	XAT	Y	301	-	-	0/31/93/93	0/4/4/4
31	LHG	L	102	-	-	18/53/53/53	-
36	LUT	g	615	-	-	3/29/67/67	0/2/2/2
38	NEX	s	616	-	-	2/27/83/83	0/3/3/3
31	LHG	W	201	-	-	9/53/53/53	-
28	DGD	c	515	-	-	4/44/84/95	0/2/2/2
23	CLA	B	609	2	1/1/15/20	12/37/115/115	-
31	LHG	b	626	-	-	13/44/44/53	-
23	CLA	s	611	15	1/1/11/20	2/13/91/115	-
23	CLA	n	612	7	1/1/11/20	8/13/91/115	-
35	CHL	N	607	-	3/3/16/26	9/15/113/137	-
35	CHL	Y	309	-	3/3/20/26	12/39/137/137	-
25	BCR	h	101	-	-	7/29/63/63	0/2/2/2
23	CLA	c	507	-	1/1/15/20	8/37/115/115	-
23	CLA	y	312	31	1/1/14/20	8/31/109/115	-
32	DMU	s	618	-	-	5/19/59/59	0/2/2/2
28	DGD	D	410	-	-	4/51/91/95	0/2/2/2
23	CLA	C	513	3	1/1/13/20	8/27/105/115	-
36	LUT	G	616	-	-	1/29/67/67	0/2/2/2
36	LUT	n	616	-	-	1/29/67/67	0/2/2/2
25	BCR	B	617	-	-	6/29/63/63	0/2/2/2
25	BCR	A	405	-	-	2/29/63/63	0/2/2/2
31	LHG	l	102	-	-	9/53/53/53	-
31	LHG	D	407	-	-	11/53/53/53	-
38	NEX	r	615	-	-	5/27/83/83	0/3/3/3
36	LUT	n	615	-	-	3/29/67/67	0/2/2/2
23	CLA	G	602	7	1/1/15/20	18/37/115/115	-
23	CLA	Y	314	20	1/1/15/20	11/37/115/115	-
23	CLA	a	401	1	1/1/15/20	8/37/115/115	-
37	XAT	g	620	-	-	0/31/93/93	0/4/4/4

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
31	LHG	S	318	23	-	10/53/53/53	-
23	CLA	A	404	1	1/1/14/20	12/31/109/115	-
23	CLA	B	616	2	1/1/15/20	10/37/115/115	-
23	CLA	g	604	-	1/1/11/20	7/18/96/115	-
23	CLA	r	603	22	1/1/14/20	6/31/109/115	-
23	CLA	A	402	-	1/1/12/20	5/19/97/115	-
23	CLA	C	511	3	1/1/15/20	13/37/115/115	-
23	CLA	B	611	2	1/1/15/20	9/37/115/115	-
23	CLA	G	610	7	1/1/14/20	11/36/114/115	-
23	CLA	B	614	2	1/1/15/20	21/37/115/115	-
36	LUT	N	615	-	-	2/29/67/67	0/2/2/2
31	LHG	c	517	-	-	12/53/53/53	-
36	LUT	y	316	-	-	2/29/67/67	0/2/2/2
23	CLA	c	509	3	1/1/15/20	9/37/115/115	-
36	LUT	y	317	-	-	1/29/67/67	0/2/2/2
35	CHL	S	306	-	3/3/16/26	8/15/113/137	-
23	CLA	c	512	3	1/1/13/20	8/27/105/115	-
31	LHG	r	616	23	-	6/46/46/53	-
23	CLA	s	610	31	1/1/10/20	4/10/88/115	-
23	CLA	c	506	3	1/1/12/20	8/21/99/115	-
23	CLA	s	609	15	1/1/11/20	6/13/91/115	-
25	BCR	c	514	-	-	0/29/63/63	0/2/2/2
23	CLA	N	603	7	1/1/13/20	11/30/108/115	-
35	CHL	n	601	7	3/3/20/26	14/39/137/137	-
25	BCR	k	101	-	-	4/29/63/63	0/2/2/2
23	CLA	y	311	20	1/1/14/20	8/31/109/115	-
25	BCR	a	405	-	-	2/29/63/63	0/2/2/2
23	CLA	r	609	22	1/1/15/20	10/37/115/115	-
23	CLA	S	304	15	1/1/11/20	5/13/91/115	-
26	SQD	a	406	-	-	8/45/65/69	0/1/1/1
23	CLA	B	613	2	1/1/15/20	13/37/115/115	-
23	CLA	B	615	2	1/1/15/20	14/37/115/115	-
23	CLA	Y	312	31	1/1/14/20	9/31/109/115	-
23	CLA	B	605	2	1/1/15/20	11/37/115/115	-

The worst 5 of 1498 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
33	d	406	PL9	C23-C24	10.33	1.57	1.33
33	D	406	PL9	C23-C24	10.29	1.57	1.33
33	d	406	PL9	C38-C39	10.14	1.57	1.33
33	D	406	PL9	C38-C39	10.02	1.57	1.33
33	d	406	PL9	C18-C19	9.68	1.56	1.33

The worst 5 of 2661 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
26	B	625	SQD	O9-S-C6	-20.17	82.96	106.94
26	C	521	SQD	O9-S-C6	-20.02	83.14	106.94
26	c	520	SQD	O9-S-C6	-19.99	83.18	106.94
26	b	602	SQD	O9-S-C6	-19.91	83.27	106.94
38	R	301	NEX	C17-C1-C6	-17.45	94.86	110.47

5 of 304 chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
23	A	401	CLA	ND
23	A	402	CLA	ND
23	A	404	CLA	ND
23	B	601	CLA	ND
23	B	602	CLA	ND

5 of 2827 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
23	A	401	CLA	CBD-CGD-O2D-CED
23	A	402	CLA	C1A-C2A-CAA-CBA
23	A	402	CLA	CHA-CBD-CGD-O1D
23	A	402	CLA	CHA-CBD-CGD-O2D
23	A	404	CLA	CHA-CBD-CGD-O1D

There are no ring outliers.

260 monomers are involved in 465 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
31	L	101	LHG	3	0
36	S	315	LUT	2	0
36	g	616	LUT	2	0
38	R	316	NEX	3	0

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Clashes	Symm-Clashes
23	N	602	CLA	1	0
35	n	607	CHL	2	0
23	y	305	CLA	2	0
25	B	619	BCR	4	0
23	b	611	CLA	1	0
23	b	609	CLA	3	0
35	y	302	CHL	3	0
23	b	610	CLA	3	0
38	S	317	NEX	1	0
31	N	618	LHG	2	0
23	S	310	CLA	2	0
37	G	620	XAT	2	0
32	C	523	DMU	1	0
36	S	316	LUT	4	0
25	D	405	BCR	1	0
23	b	616	CLA	3	0
31	n	618	LHG	1	0
23	d	401	CLA	3	0
27	a	408	BCT	2	0
23	Y	305	CLA	2	0
23	r	608	CLA	2	0
23	S	311	CLA	1	0
37	y	301	XAT	6	0
30	D	409	LMG	1	0
23	b	614	CLA	2	0
23	B	601	CLA	1	0
32	c	522	DMU	1	0
31	B	627	LHG	1	0
23	n	603	CLA	1	0
32	c	519	DMU	1	0
35	y	307	CHL	1	0
23	n	604	CLA	1	0
23	y	304	CLA	4	0
23	r	612	CLA	1	0
35	R	307	CHL	1	0
23	R	302	CLA	1	0
23	c	510	CLA	1	0
25	z	101	BCR	2	0
23	D	403	CLA	6	0
23	r	602	CLA	1	0
24	a	403	PHO	4	0
23	R	313	CLA	2	0

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Clashes	Symm-Clashes
26	l	101	SQD	4	0
30	b	622	LMG	4	0
27	A	407	BCT	2	0
38	Y	318	NEX	1	0
23	b	606	CLA	1	0
23	g	603	CLA	2	0
35	Y	308	CHL	4	0
30	C	501	LMG	2	0
26	L	103	SQD	1	0
23	Y	303	CLA	2	0
31	D	408	LHG	3	0
30	B	620	LMG	5	0
32	S	319	DMU	1	0
23	s	602	CLA	2	0
37	G	617	XAT	2	0
38	G	618	NEX	1	0
23	N	611	CLA	1	0
35	n	606	CHL	1	0
23	S	314	CLA	1	0
35	S	307	CHL	2	0
31	B	622	LHG	1	0
31	s	617	LHG	2	0
23	n	611	CLA	1	0
24	D	402	PHO	5	0
23	c	513	CLA	3	0
23	C	512	CLA	2	0
35	G	608	CHL	2	0
23	a	404	CLA	2	0
37	r	614	XAT	2	0
31	R	317	LHG	1	0
23	S	305	CLA	1	0
36	R	314	LUT	4	0
26	B	625	SQD	3	0
23	B	602	CLA	2	0
31	b	624	LHG	2	0
31	d	408	LHG	5	0
35	N	609	CHL	1	0
23	B	607	CLA	3	0
23	R	303	CLA	2	0
23	R	310	CLA	3	0
35	y	310	CHL	4	0
23	C	502	CLA	1	0

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Clashes	Symm-Clashes
23	r	610	CLA	1	0
23	d	403	CLA	4	0
37	R	315	XAT	1	0
28	C	517	DGD	2	0
23	B	603	CLA	1	0
23	B	608	CLA	1	0
23	B	604	CLA	2	0
35	n	608	CHL	3	0
23	R	311	CLA	2	0
25	K	101	BCR	1	0
23	g	614	CLA	1	0
34	f	101	HEM	1	0
25	b	620	BCR	2	0
31	b	623	LHG	1	0
35	y	306	CHL	1	0
23	g	613	CLA	1	0
23	C	507	CLA	1	0
23	G	614	CLA	1	0
35	N	605	CHL	1	0
23	R	309	CLA	1	0
23	B	606	CLA	2	0
23	D	401	CLA	3	0
31	d	407	LHG	2	0
28	A	408	DGD	1	0
36	G	615	LUT	4	0
25	d	405	BCR	1	0
35	N	601	CHL	3	0
37	g	617	XAT	1	0
35	n	609	CHL	2	0
25	C	515	BCR	7	0
23	r	604	CLA	1	0
23	b	618	CLA	2	0
23	b	615	CLA	4	0
34	F	101	HEM	1	0
23	b	608	CLA	4	0
23	C	509	CLA	3	0
23	G	613	CLA	2	0
31	C	518	LHG	2	0
31	B	621	LHG	1	0
25	b	619	BCR	5	0
23	b	605	CLA	1	0
23	y	313	CLA	2	0

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Clashes	Symm-Clashes
33	D	406	PL9	2	0
23	C	503	CLA	3	0
31	g	619	LHG	4	0
31	c	516	LHG	2	0
35	r	607	CHL	2	0
35	g	605	CHL	1	0
35	g	609	CHL	1	0
23	b	604	CLA	1	0
26	C	521	SQD	2	0
36	N	616	LUT	4	0
23	C	514	CLA	4	0
23	Y	311	CLA	4	0
23	c	503	CLA	2	0
23	s	603	CLA	1	0
23	g	602	CLA	5	0
23	r	601	CLA	1	0
36	Y	316	LUT	5	0
28	d	410	DGD	5	0
23	R	305	CLA	1	0
23	N	604	CLA	1	0
36	s	615	LUT	2	0
23	n	610	CLA	2	0
36	r	613	LUT	3	0
23	N	612	CLA	2	0
23	Y	313	CLA	2	0
23	b	617	CLA	1	0
26	b	602	SQD	3	0
23	G	603	CLA	1	0
35	g	608	CHL	1	0
38	N	617	NEX	3	0
23	c	502	CLA	3	0
26	c	520	SQD	1	0
36	Y	317	LUT	2	0
25	C	516	BCR	1	0
38	n	617	NEX	1	0
23	B	610	CLA	1	0
23	Y	304	CLA	4	0
36	s	614	LUT	2	0
23	d	402	CLA	1	0
35	s	607	CHL	3	0
23	C	510	CLA	1	0
38	g	618	NEX	1	0

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Clashes	Symm-Clashes
35	S	308	CHL	2	0
23	C	504	CLA	2	0
23	C	508	CLA	3	0
23	N	610	CLA	2	0
23	S	303	CLA	2	0
31	y	318	LHG	3	0
23	n	602	CLA	1	0
35	N	608	CHL	3	0
35	g	601	CHL	5	0
25	c	518	BCR	4	0
31	G	619	LHG	2	0
35	R	308	CHL	1	0
35	Y	302	CHL	2	0
23	B	612	CLA	4	0
23	c	511	CLA	1	0
25	C	519	BCR	3	0
25	b	621	BCR	4	0
35	y	308	CHL	5	0
23	b	612	CLA	1	0
31	l	103	LHG	1	0
30	B	623	LMG	1	0
31	Y	319	LHG	3	0
35	G	601	CHL	5	0
38	R	301	NEX	3	0
24	A	403	PHO	3	0
32	C	520	DMU	1	0
35	y	309	CHL	1	0
23	c	508	CLA	2	0
25	H	101	BCR	3	0
23	g	610	CLA	1	0
28	B	624	DGD	4	0
23	A	401	CLA	2	0
30	b	601	LMG	2	0
35	Y	310	CHL	5	0
37	Y	301	XAT	5	0
31	L	102	LHG	1	0
36	g	615	LUT	3	0
38	s	616	NEX	1	0
31	W	201	LHG	1	0
28	c	515	DGD	2	0
23	s	611	CLA	1	0
23	n	612	CLA	2	0

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Clashes	Symm-Clashes
35	N	607	CHL	1	0
35	Y	309	CHL	2	0
25	h	101	BCR	2	0
23	c	507	CLA	2	0
23	y	312	CLA	1	0
32	s	618	DMU	1	0
28	D	410	DGD	3	0
36	G	616	LUT	2	0
36	n	616	LUT	3	0
25	B	617	BCR	4	0
25	A	405	BCR	1	0
31	l	102	LHG	2	0
31	D	407	LHG	1	0
38	r	615	NEX	1	0
36	n	615	LUT	4	0
23	G	602	CLA	4	0
23	a	401	CLA	3	0
37	g	620	XAT	5	0
31	S	318	LHG	3	0
23	A	404	CLA	3	0
23	B	616	CLA	1	0
23	g	604	CLA	1	0
23	r	603	CLA	1	0
23	A	402	CLA	1	0
23	C	511	CLA	3	0
23	B	611	CLA	2	0
23	G	610	CLA	2	0
23	B	614	CLA	3	0
36	N	615	LUT	5	0
36	y	316	LUT	4	0
23	c	509	CLA	3	0
36	y	317	LUT	3	0
35	S	306	CHL	3	0
31	r	616	LHG	1	0
23	c	506	CLA	1	0
23	s	609	CLA	2	0
25	c	514	BCR	2	0
35	n	601	CHL	4	0
25	k	101	BCR	3	0
23	y	311	CLA	3	0
25	a	405	BCR	4	0
23	r	609	CLA	1	0

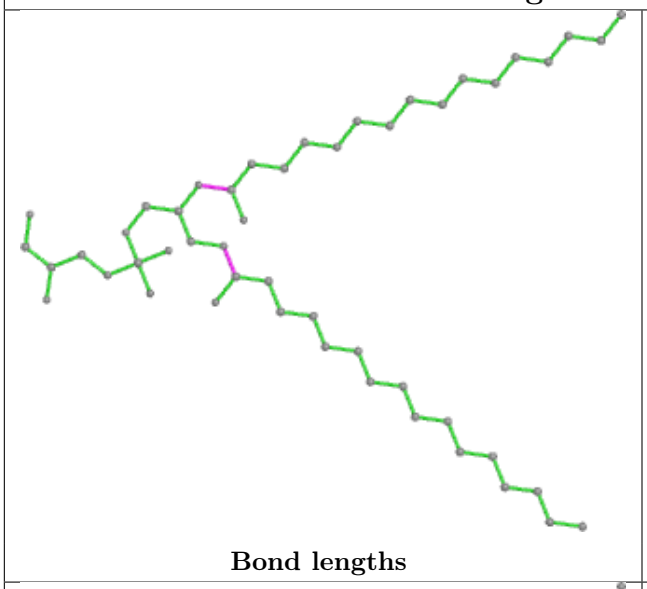
Continued on next page...

Continued from previous page...

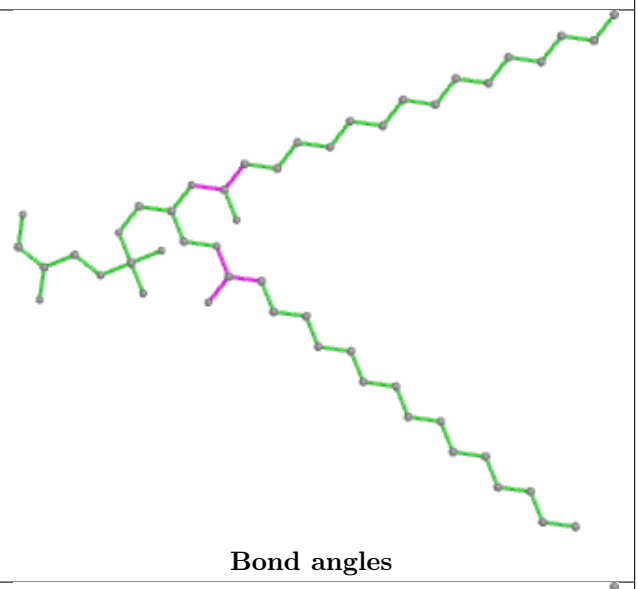
Mol	Chain	Res	Type	Clashes	Symm-Clashes
23	S	304	CLA	1	0
26	a	406	SQD	2	0
23	B	613	CLA	5	0
23	Y	312	CLA	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

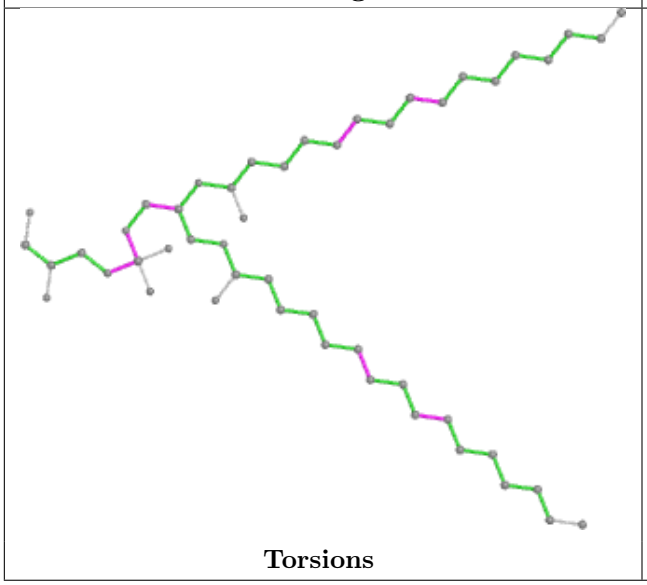
Ligand LHG L 101



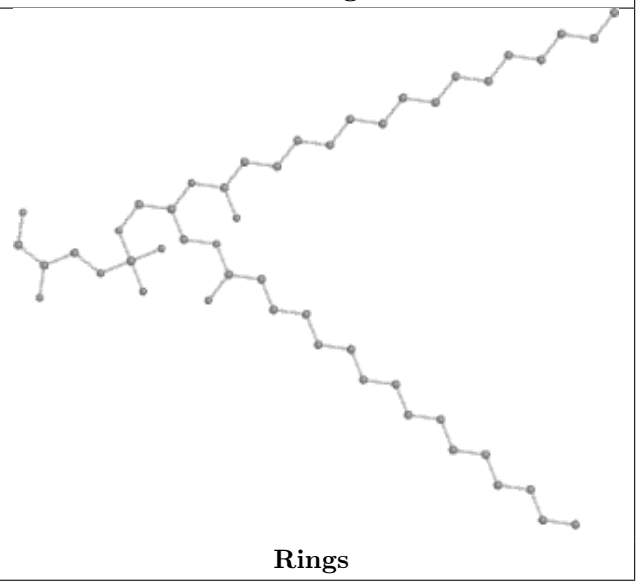
Bond lengths



Bond angles

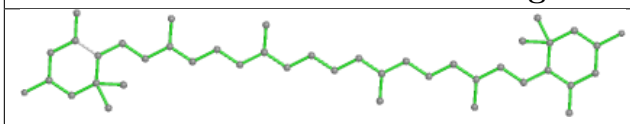


Torsions

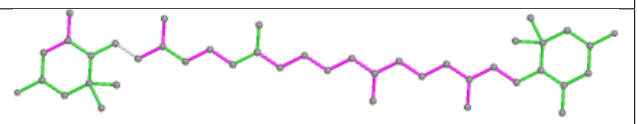


Rings

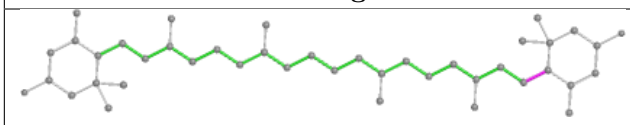
Ligand LUT S 315



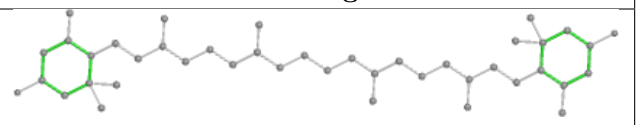
Bond lengths



Bond angles

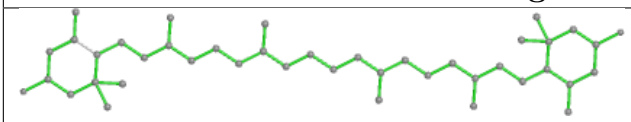


Torsions

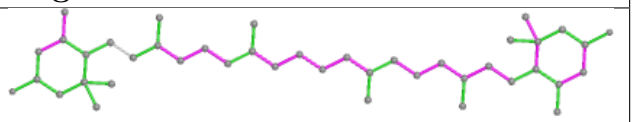


Rings

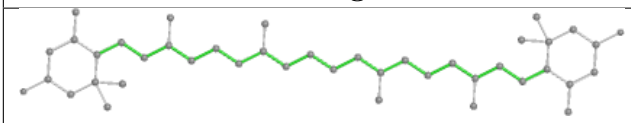
Ligand LUT g 616



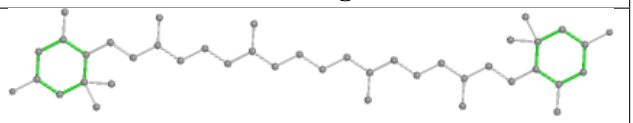
Bond lengths



Bond angles

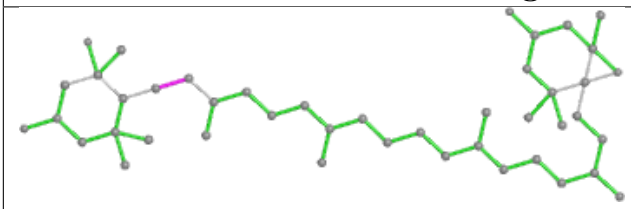


Torsions

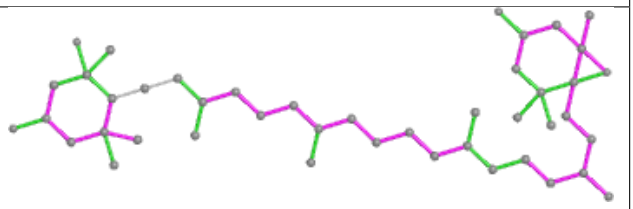


Rings

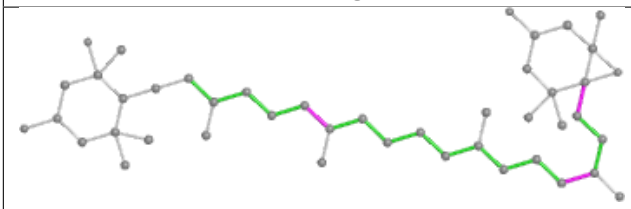
Ligand NEX R 316



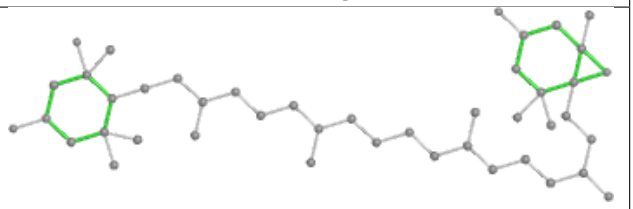
Bond lengths



Bond angles

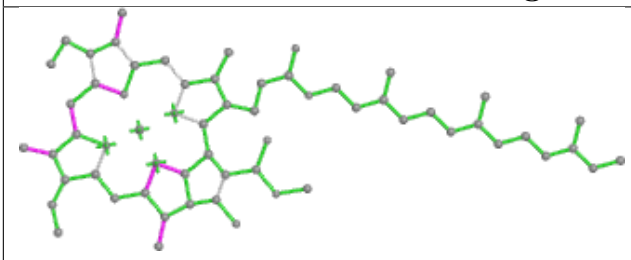


Torsions

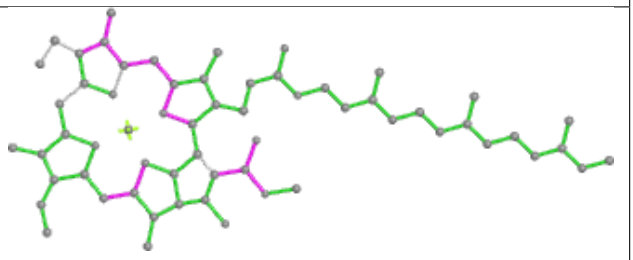


Rings

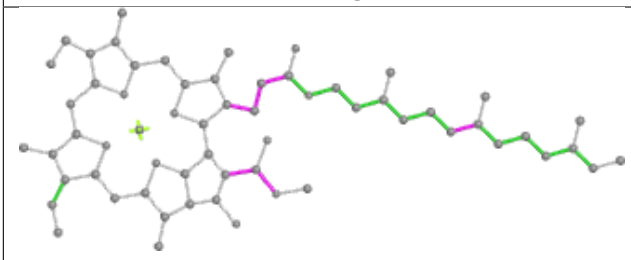
Ligand CLA N 602



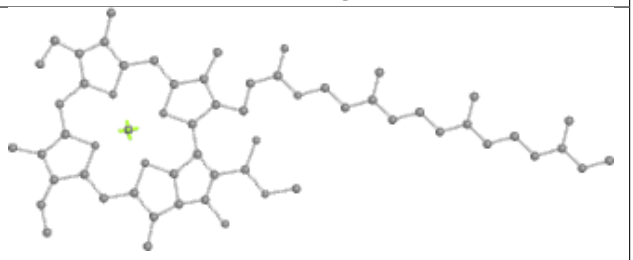
Bond lengths



Bond angles

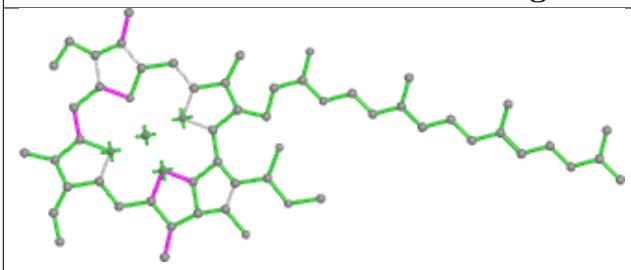


Torsions

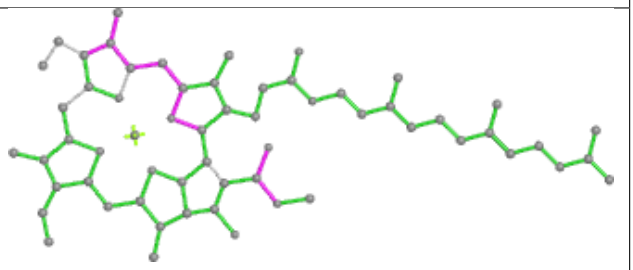


Rings

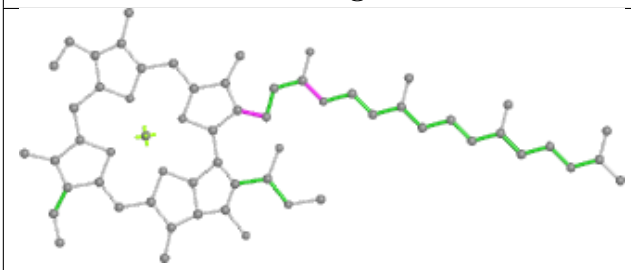
Ligand CLA c 504



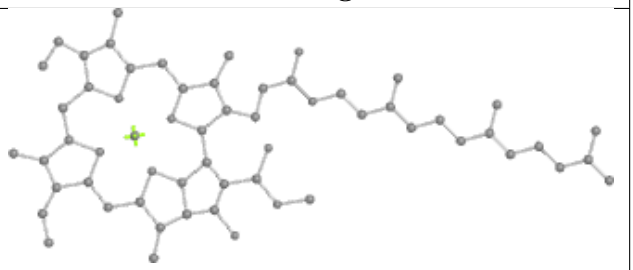
Bond lengths



Bond angles

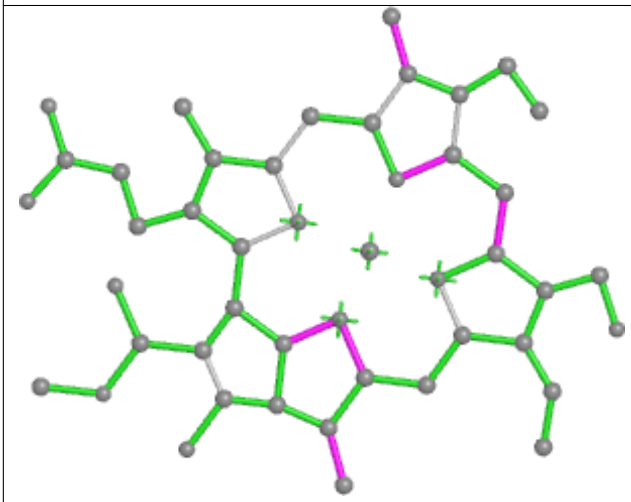


Torsions

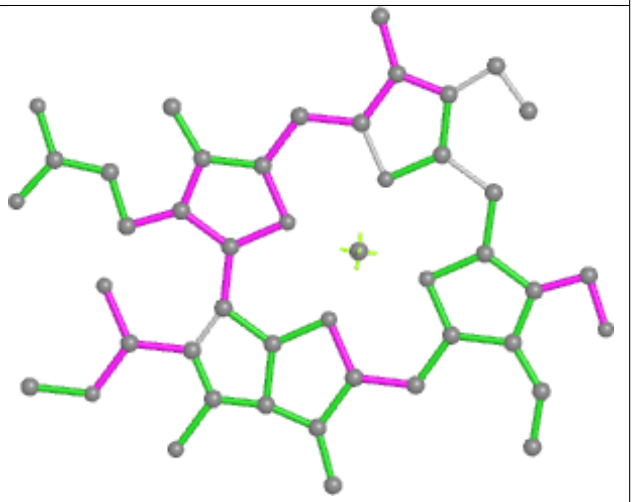


Rings

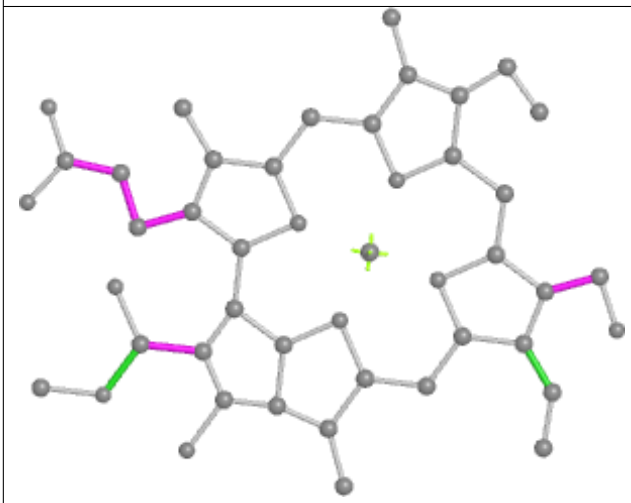
Ligand CHL n 607



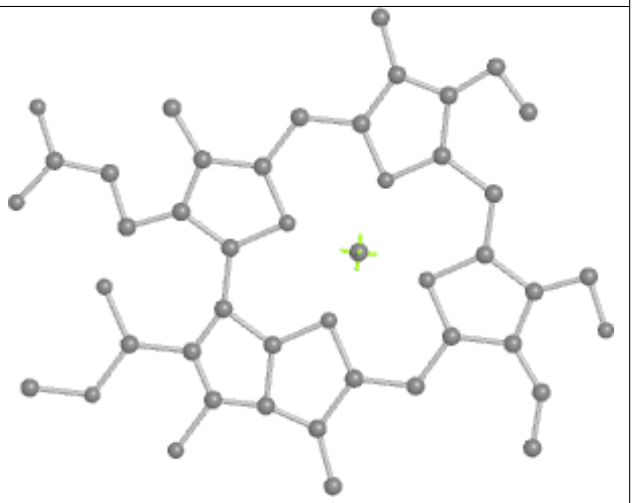
Bond lengths



Bond angles

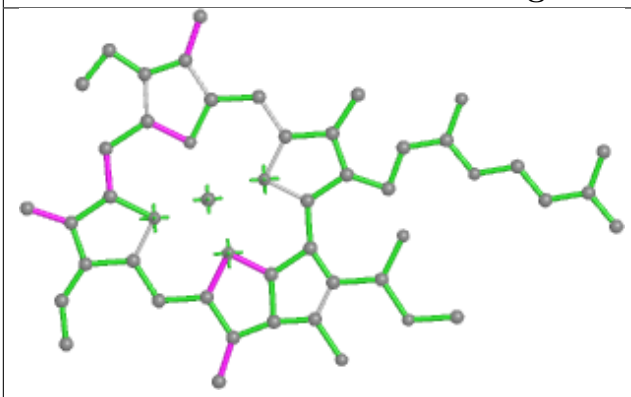


Torsions

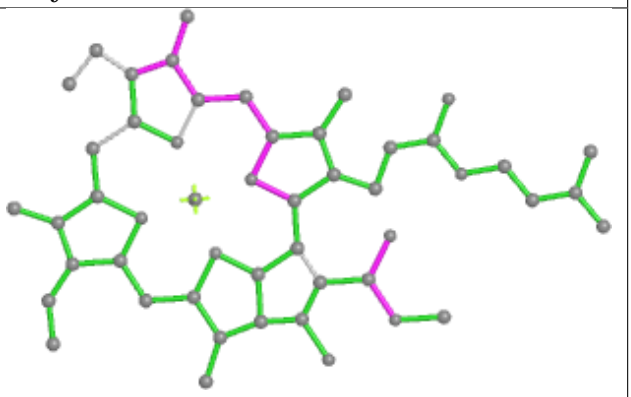


Rings

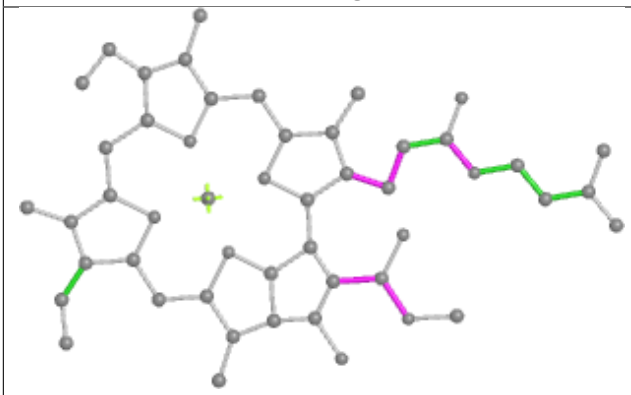
Ligand CLA y 305



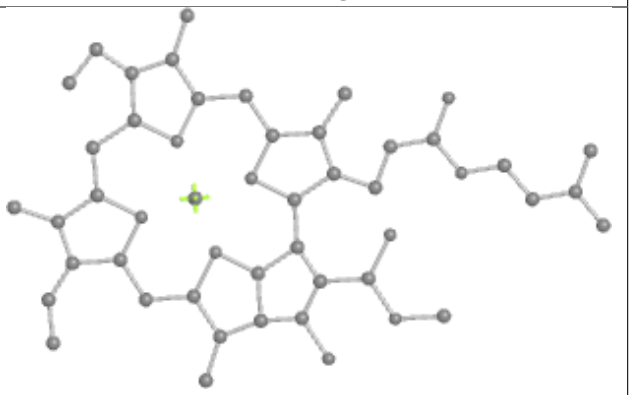
Bond lengths



Bond angles

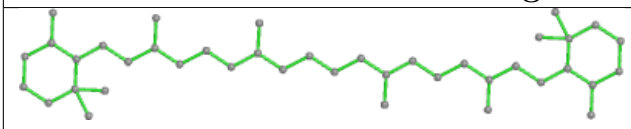


Torsions

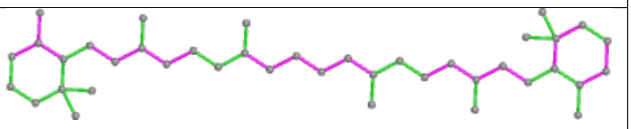


Rings

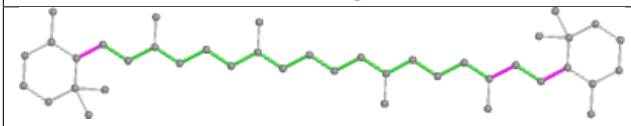
Ligand BCR B 619



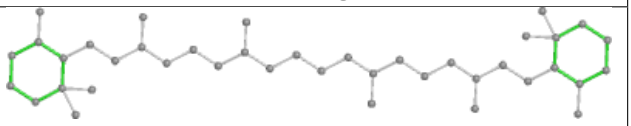
Bond lengths



Bond angles

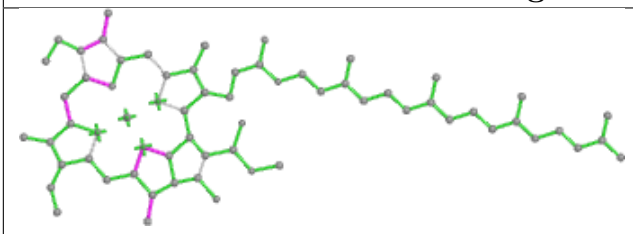


Torsions

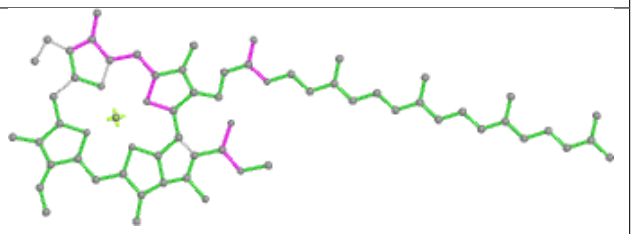


Rings

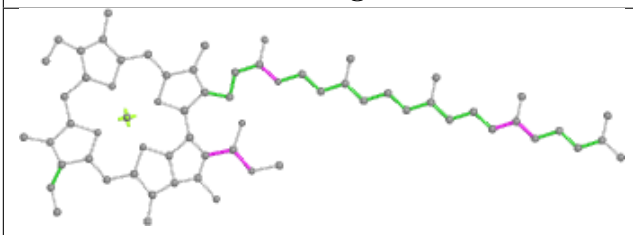
Ligand CLA b 611



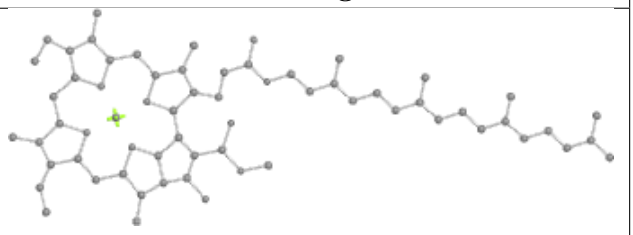
Bond lengths



Bond angles

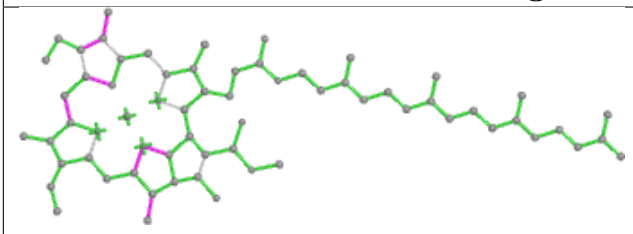


Torsions

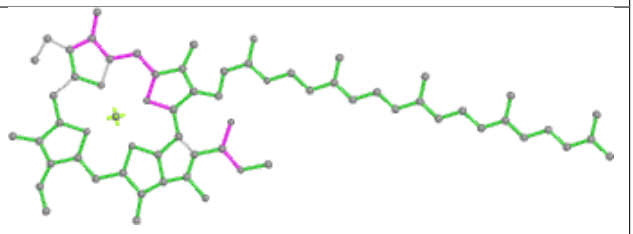


Rings

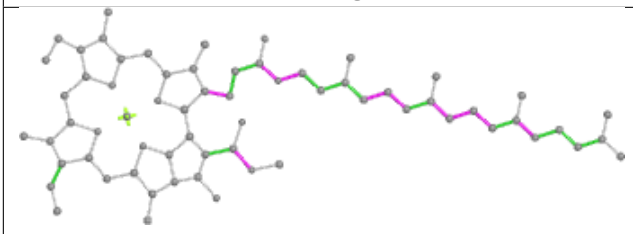
Ligand CLA b 609



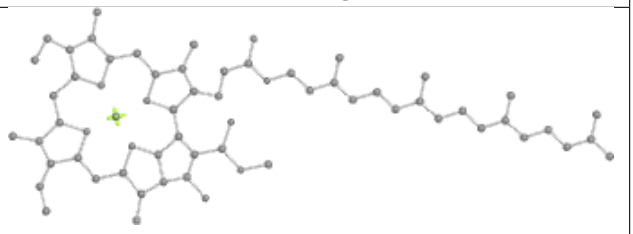
Bond lengths



Bond angles

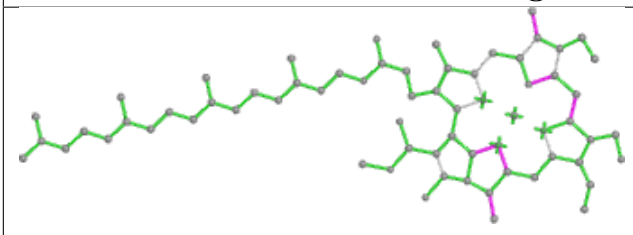


Torsions

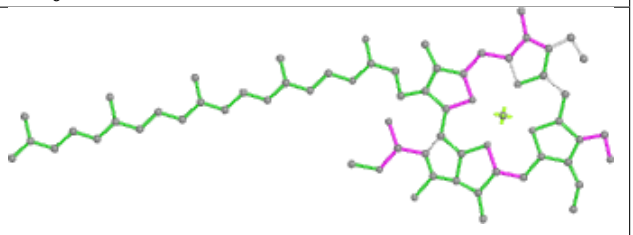


Rings

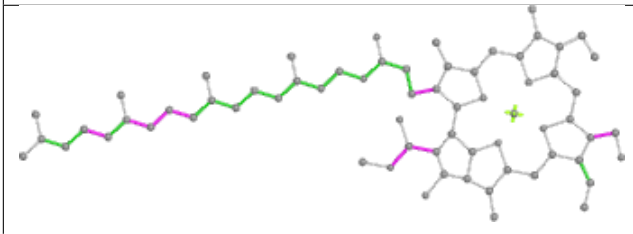
Ligand CHL y 302



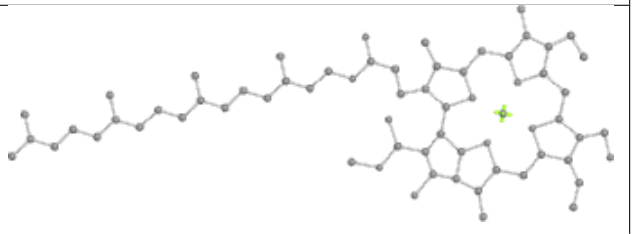
Bond lengths



Bond angles

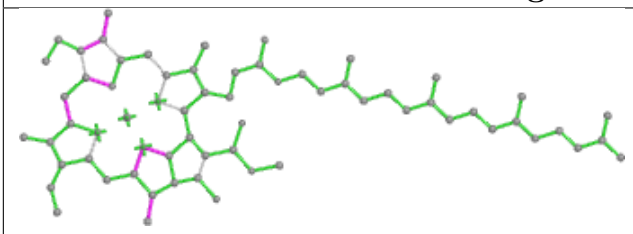


Torsions

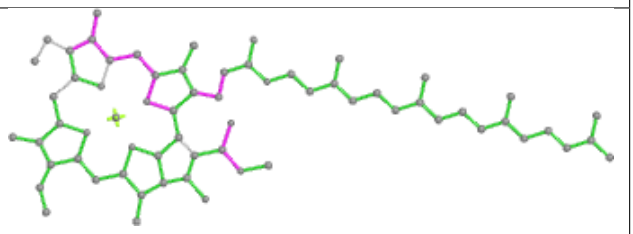


Rings

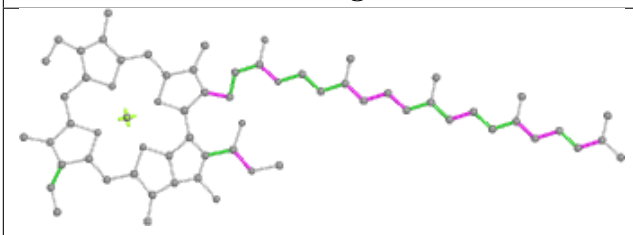
Ligand CLA b 610



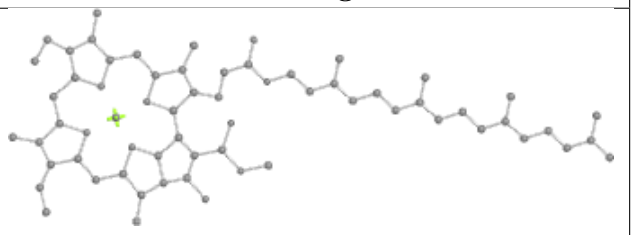
Bond lengths



Bond angles

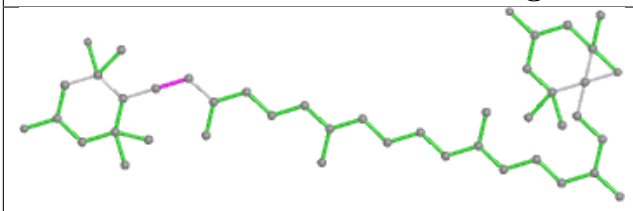


Torsions

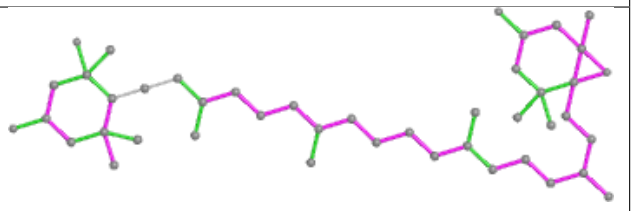


Rings

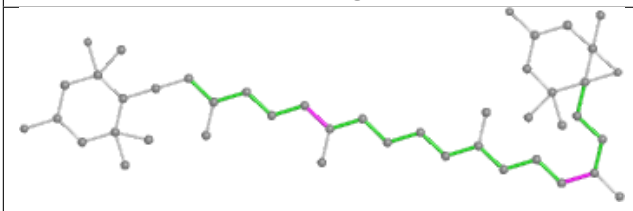
Ligand NEX S 317



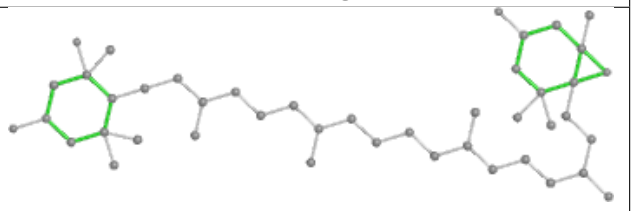
Bond lengths



Bond angles

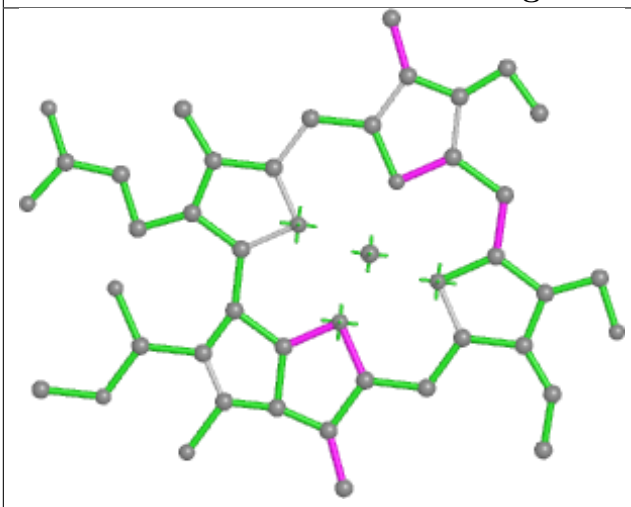


Torsions

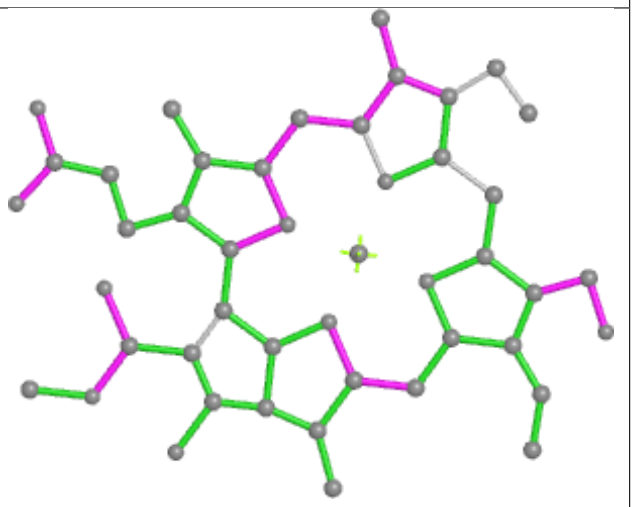


Rings

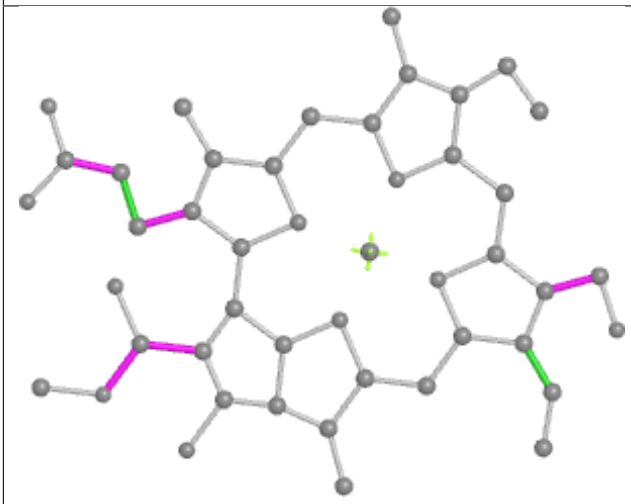
Ligand CHL G 605



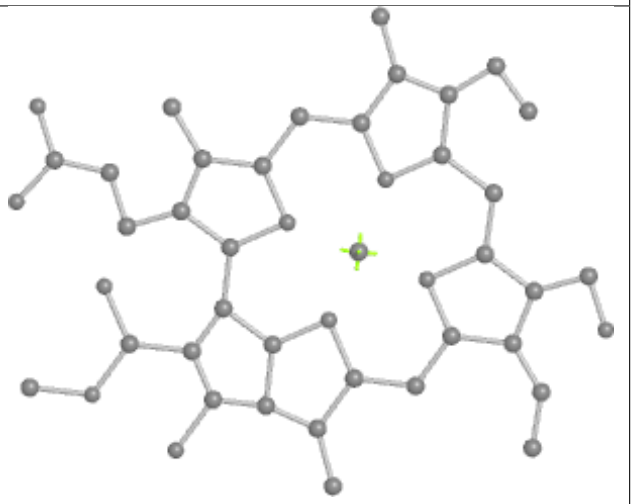
Bond lengths



Bond angles

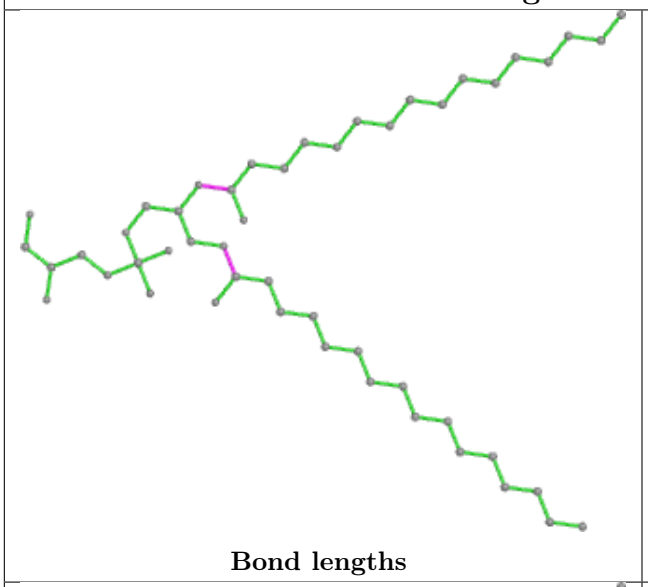


Torsions

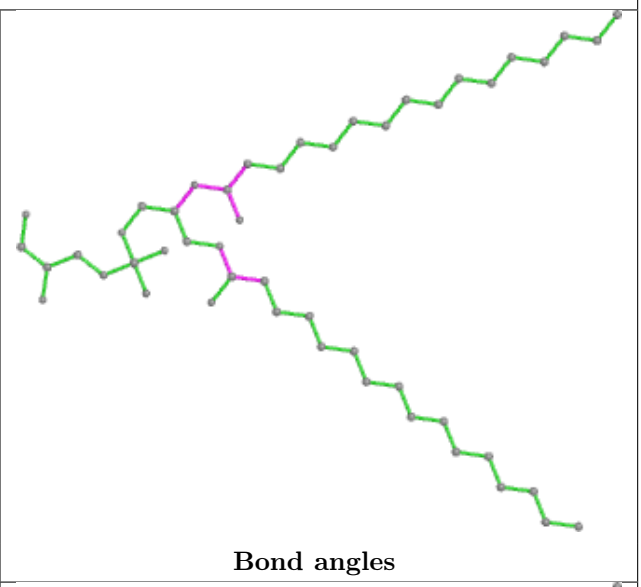


Rings

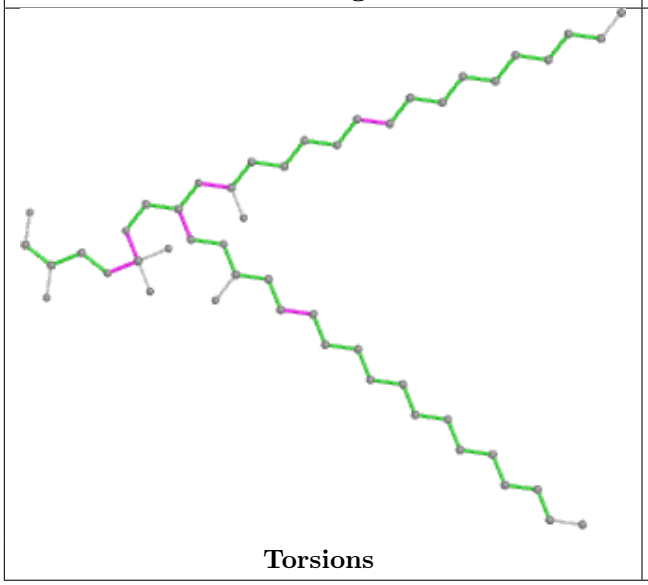
Ligand LHG N 618



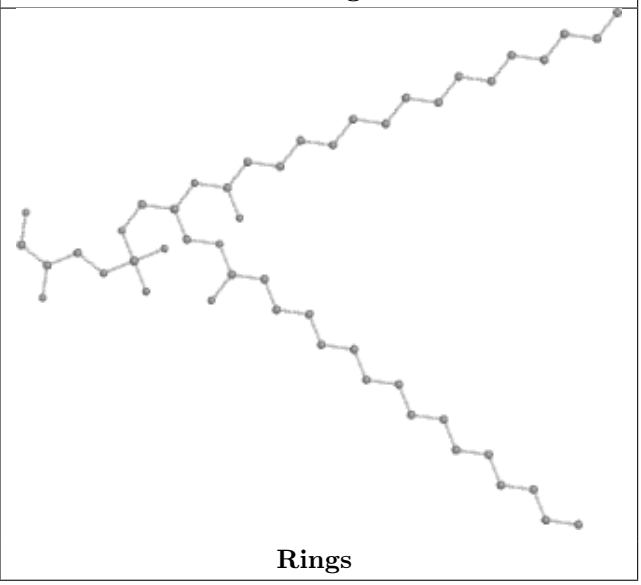
Bond lengths



Bond angles

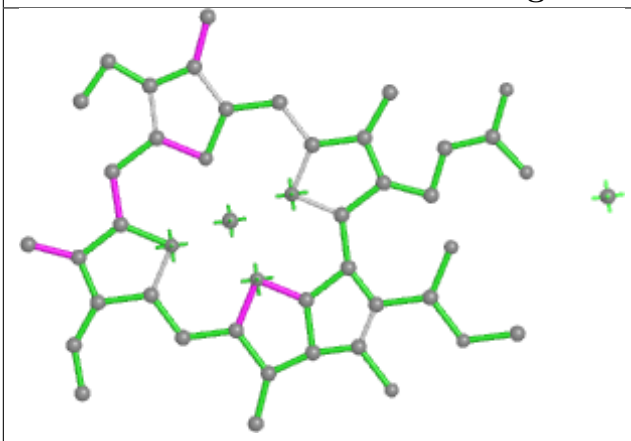


Torsions

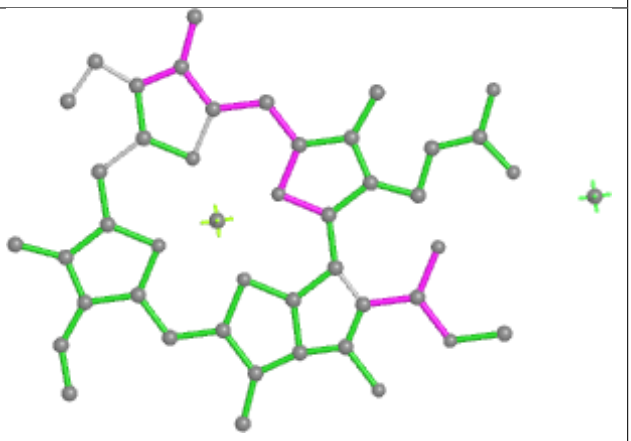


Rings

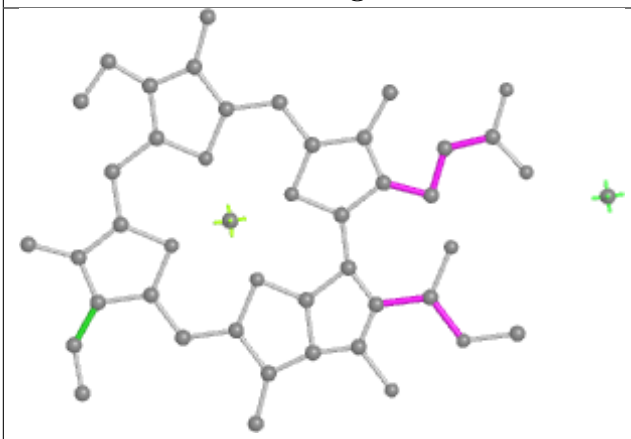
Ligand CLA S 310



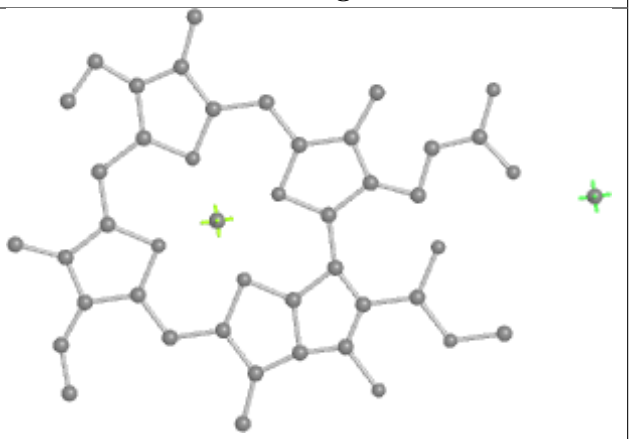
Bond lengths



Bond angles

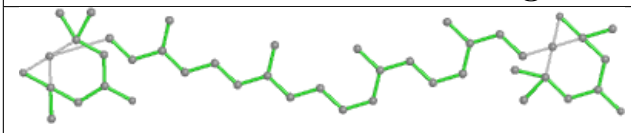


Torsions

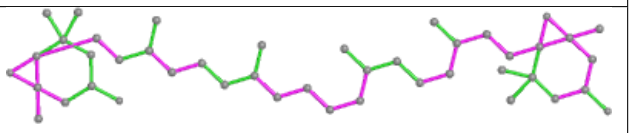


Rings

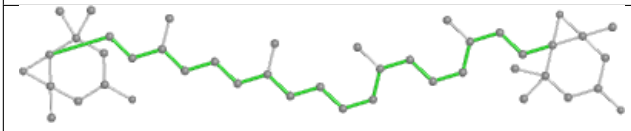
Ligand XAT G 620



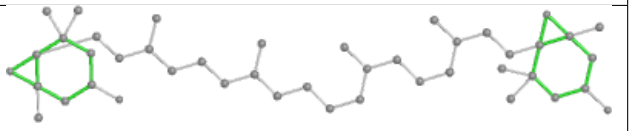
Bond lengths



Bond angles

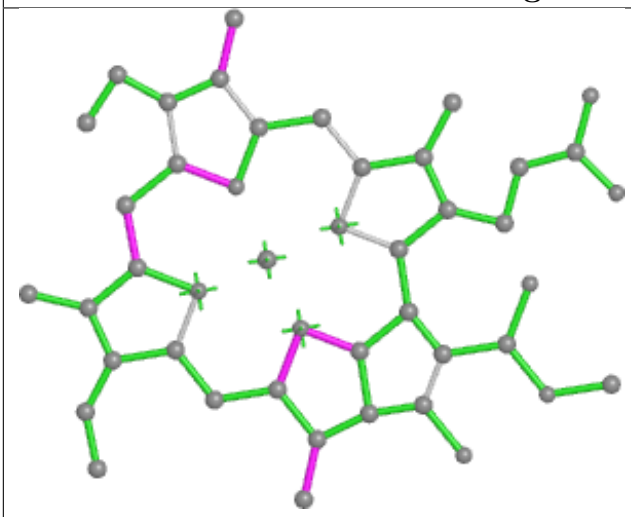


Torsions

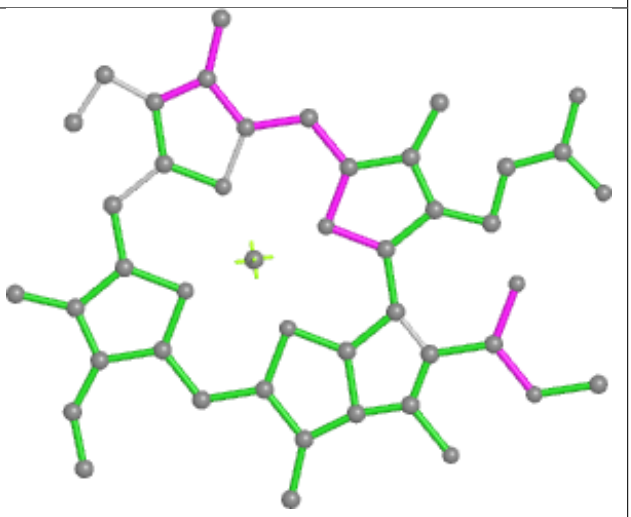


Rings

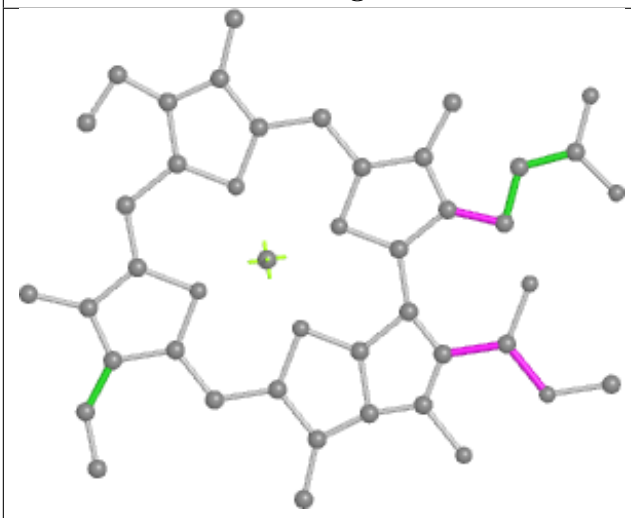
Ligand CLA Y 315



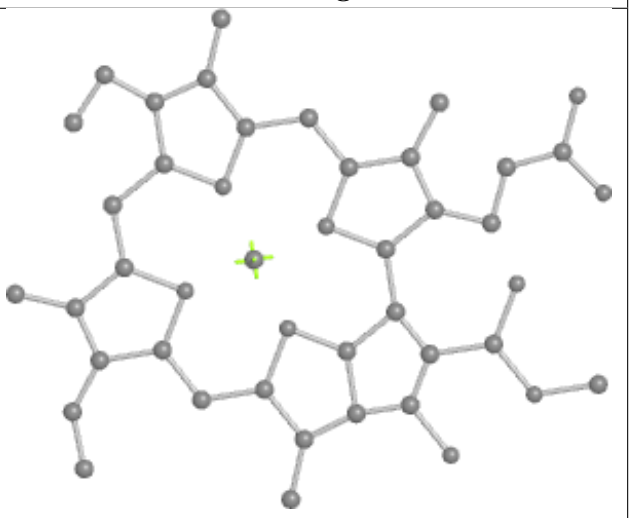
Bond lengths



Bond angles

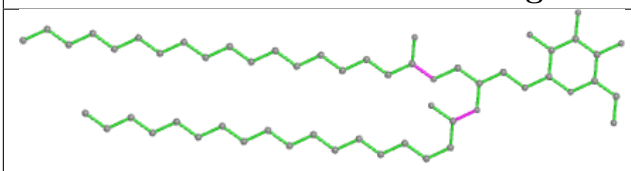


Torsions

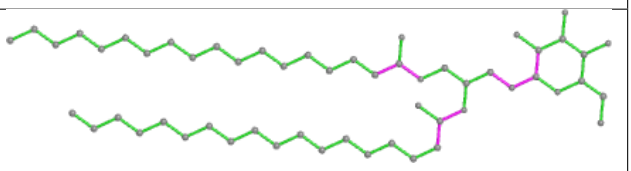


Rings

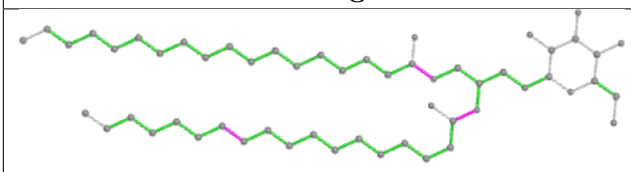
Ligand LMG s 619



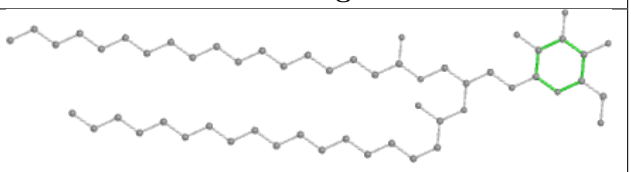
Bond lengths



Bond angles

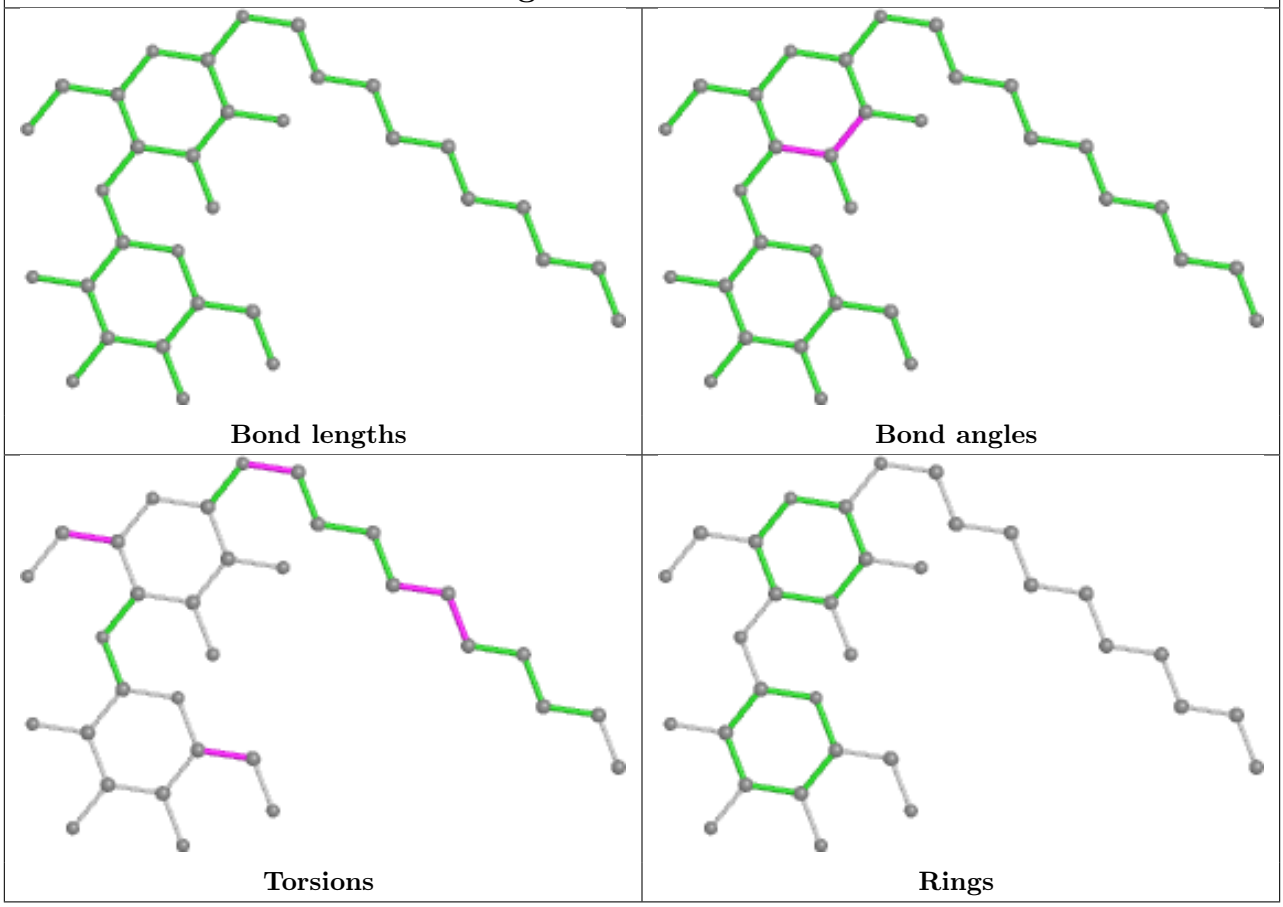


Torsions

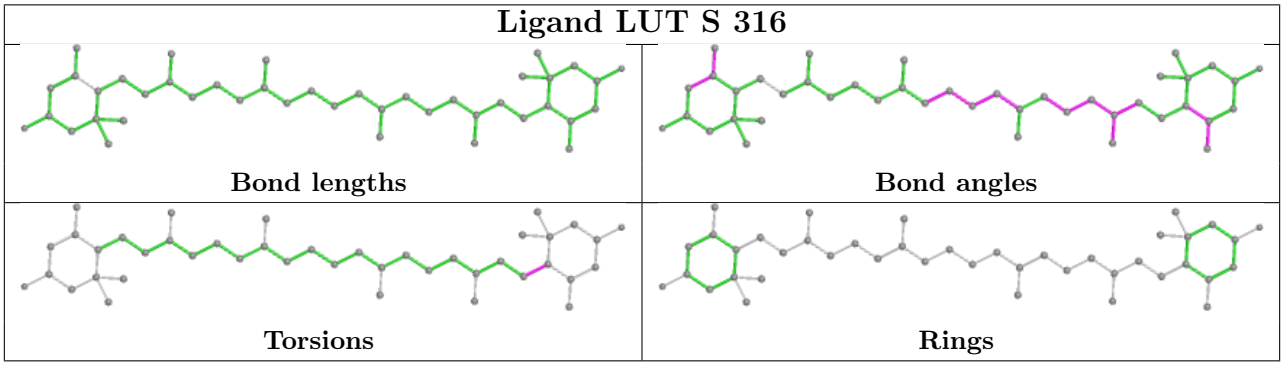


Rings

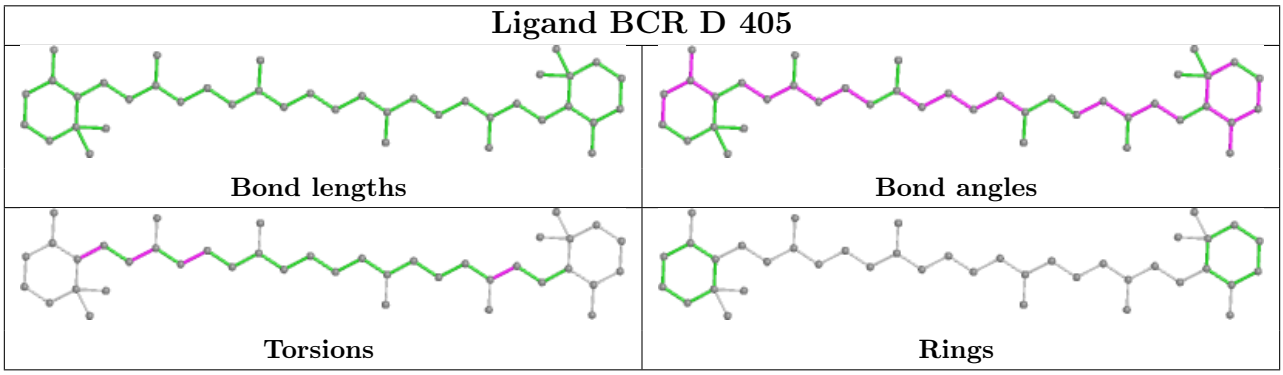
Ligand DMU C 523



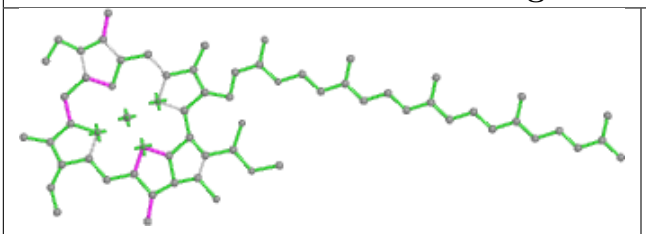
Ligand LUT S 316



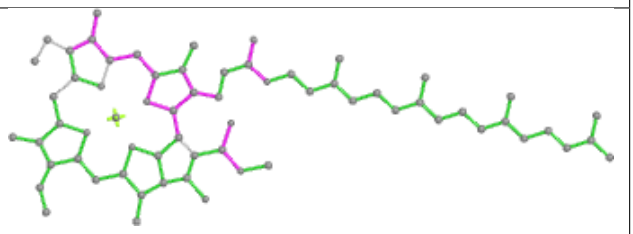
Ligand BCR D 405



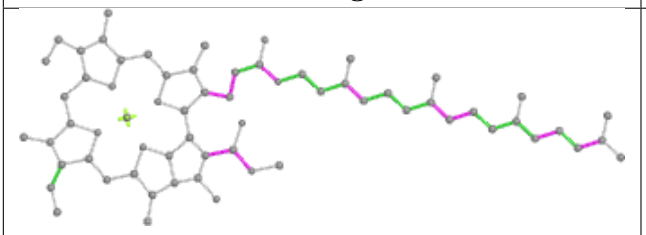
Ligand CLA b 616



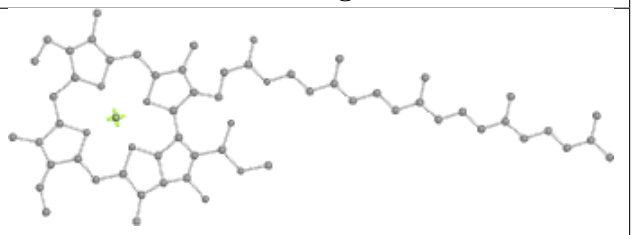
Bond lengths



Bond angles

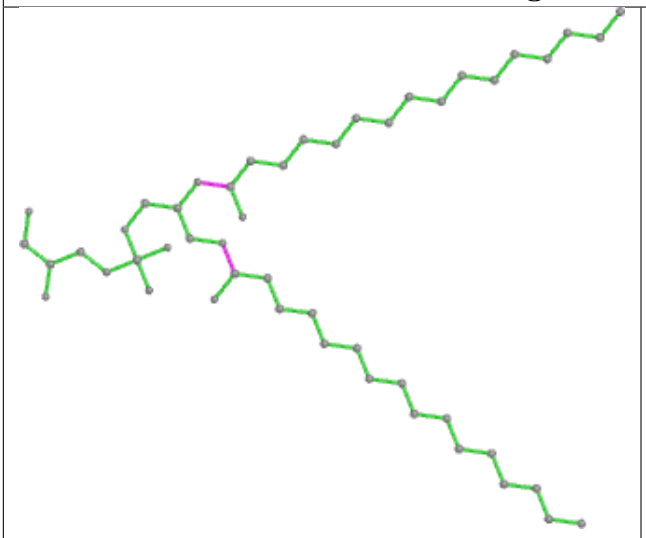


Torsions

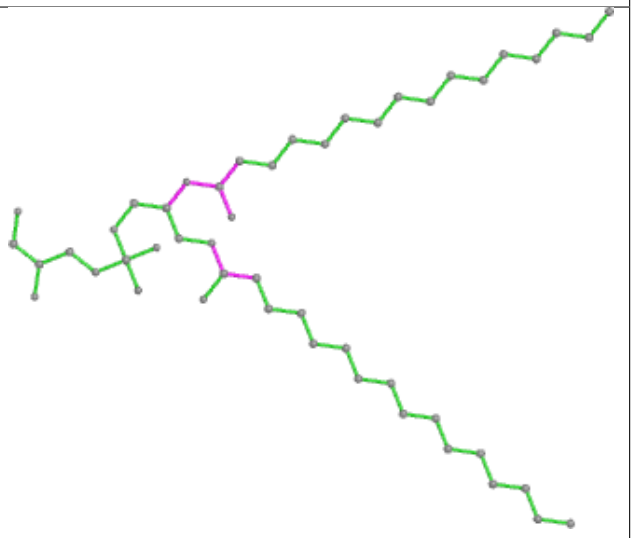


Rings

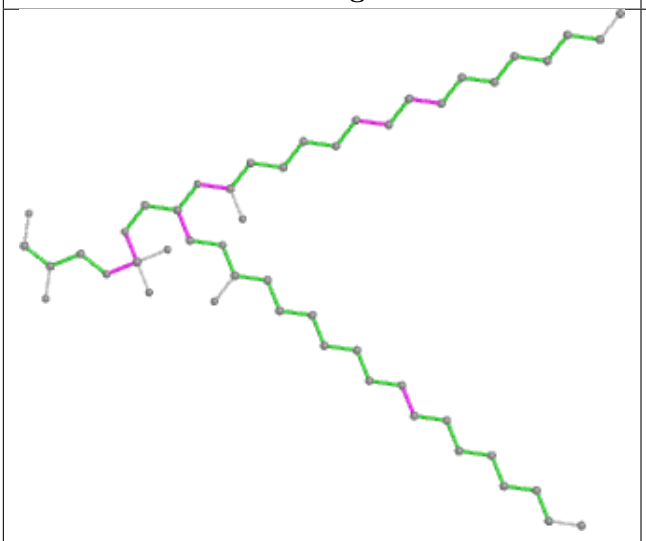
Ligand LHG n 618



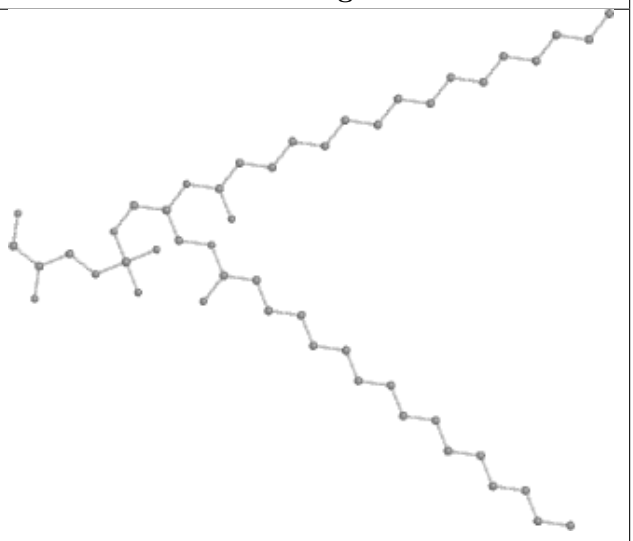
Bond lengths



Bond angles

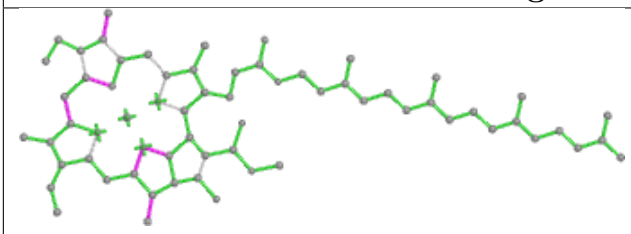


Torsions

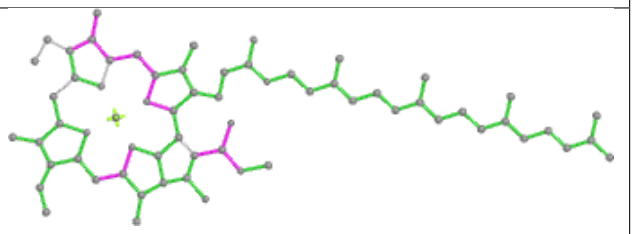


Rings

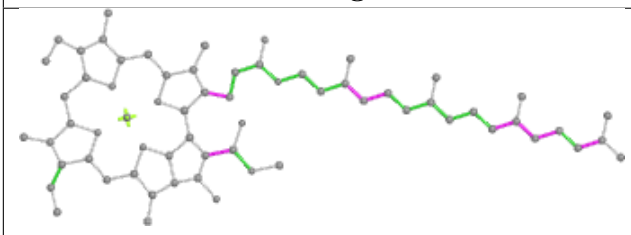
Ligand CLA d 401



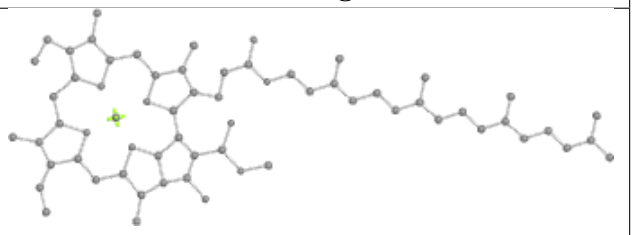
Bond lengths



Bond angles

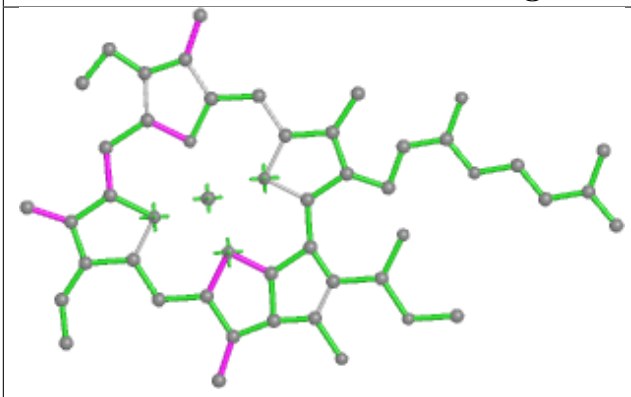


Torsions

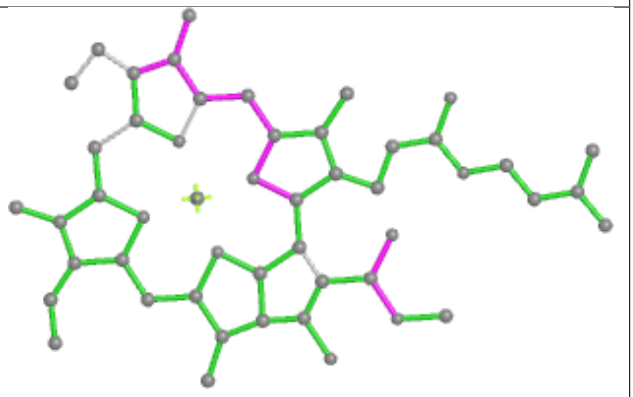


Rings

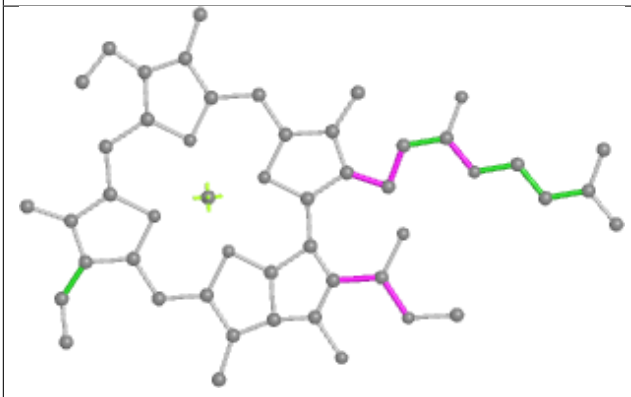
Ligand CLA Y 305



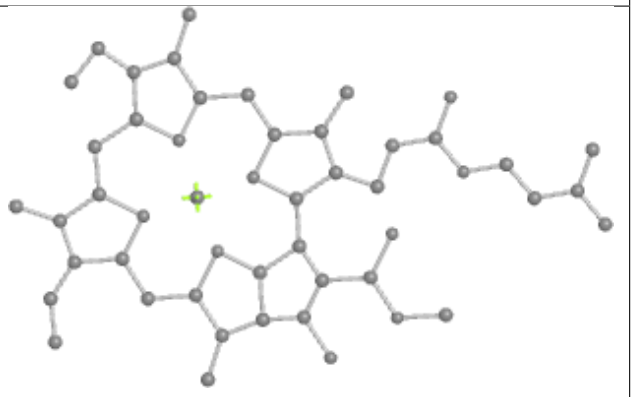
Bond lengths



Bond angles

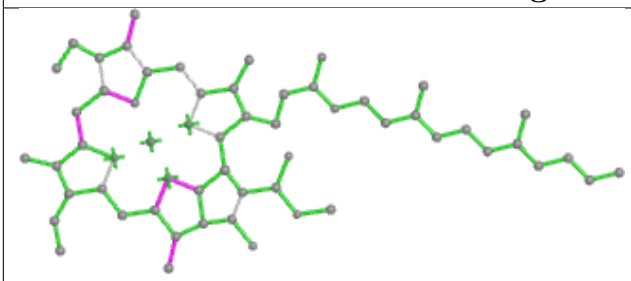


Torsions

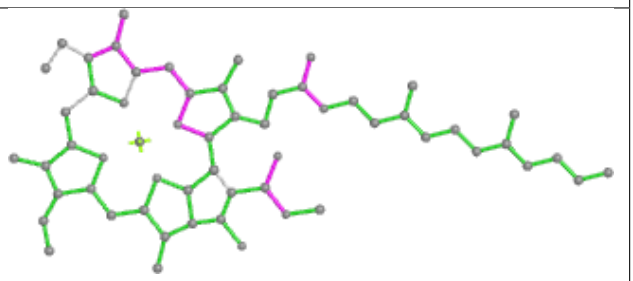


Rings

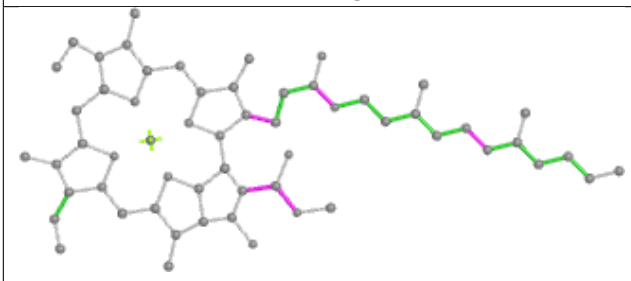
Ligand CLA r 608



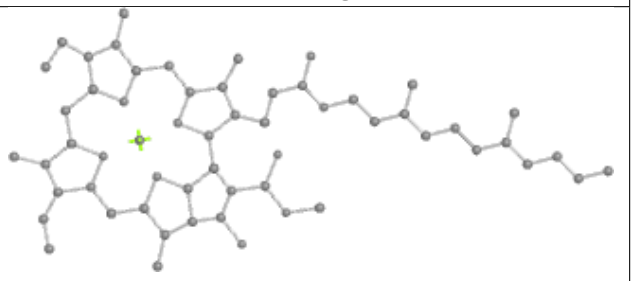
Bond lengths



Bond angles

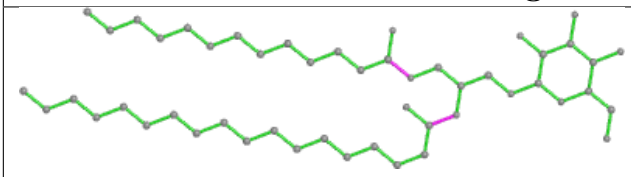


Torsions

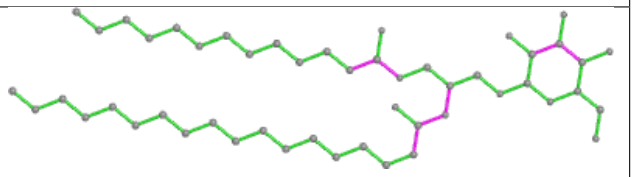


Rings

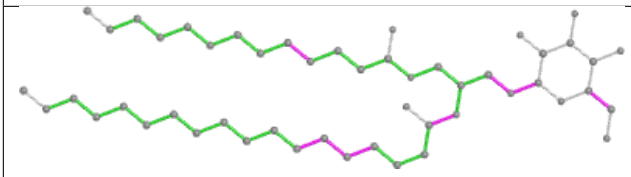
Ligand LMG c 521



Bond lengths



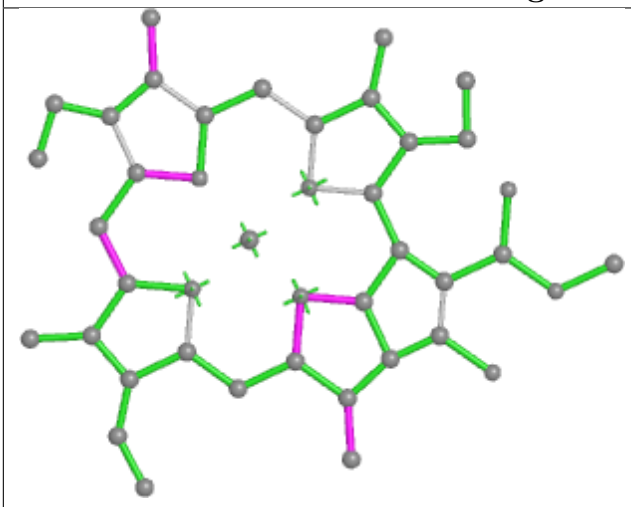
Bond angles



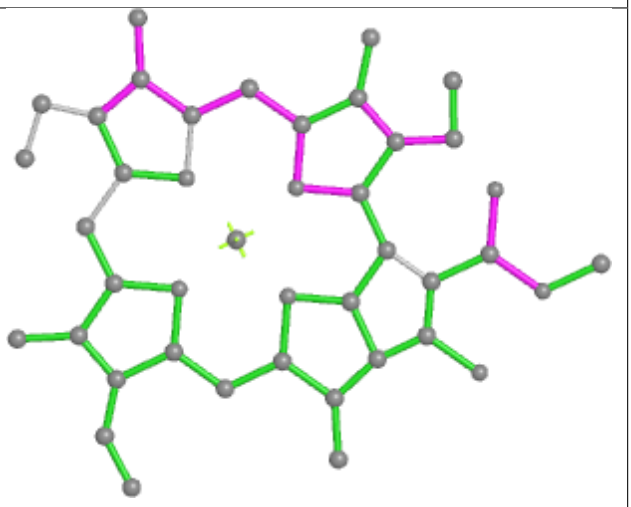
Torsions

Rings

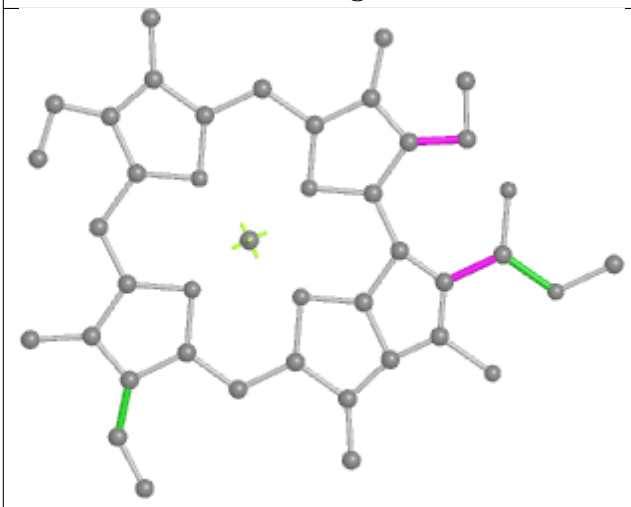
Ligand CLA S 311



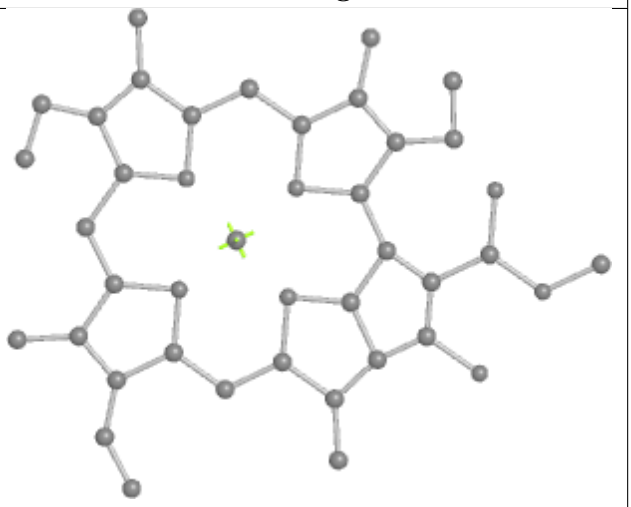
Bond lengths



Bond angles

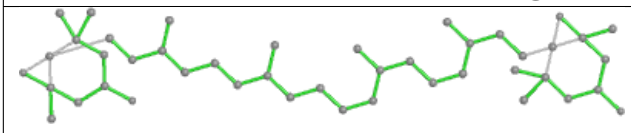


Torsions

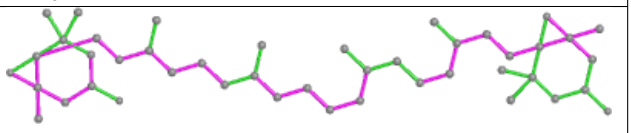


Rings

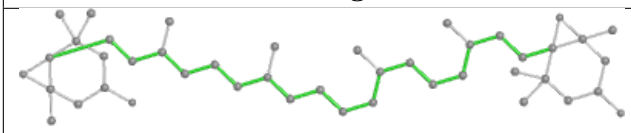
Ligand XAT y 301



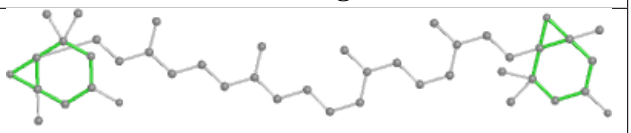
Bond lengths



Bond angles

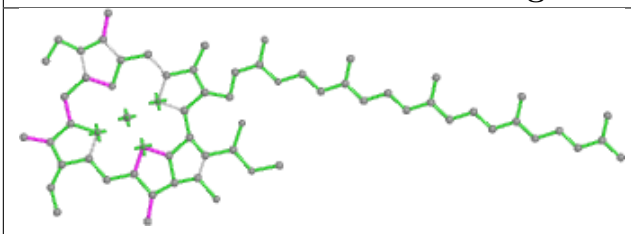


Torsions

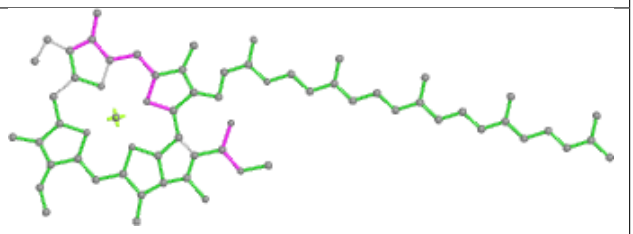


Rings

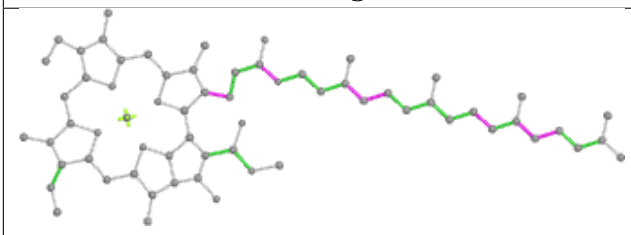
Ligand CLA b 613



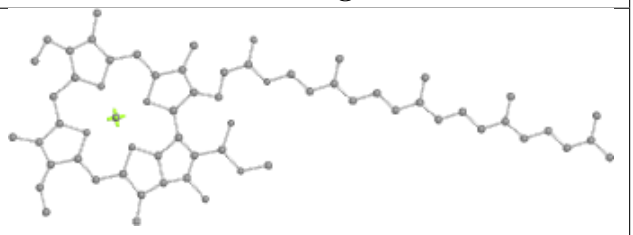
Bond lengths



Bond angles

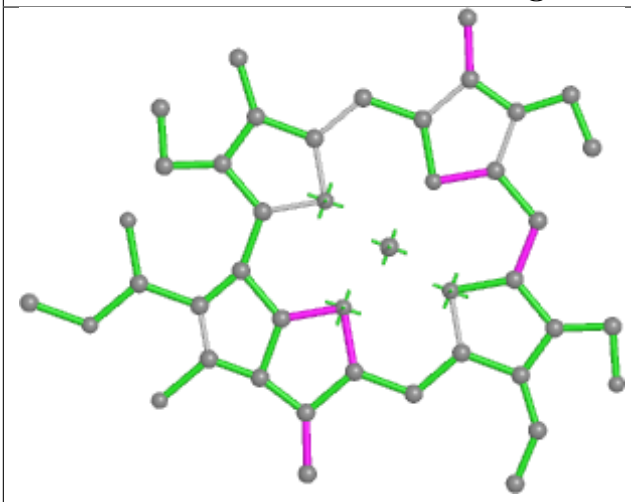


Torsions

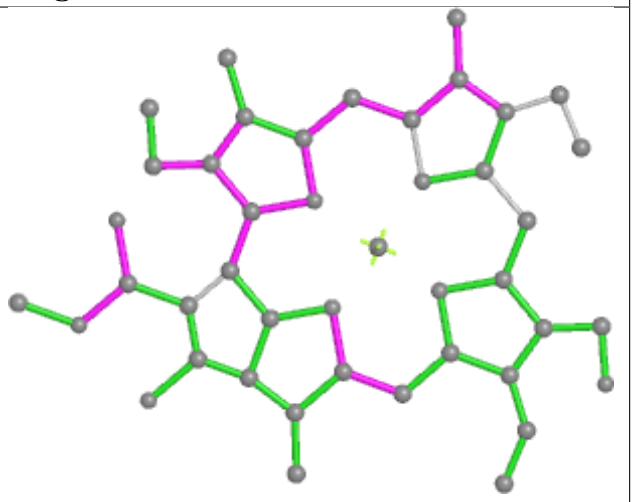


Rings

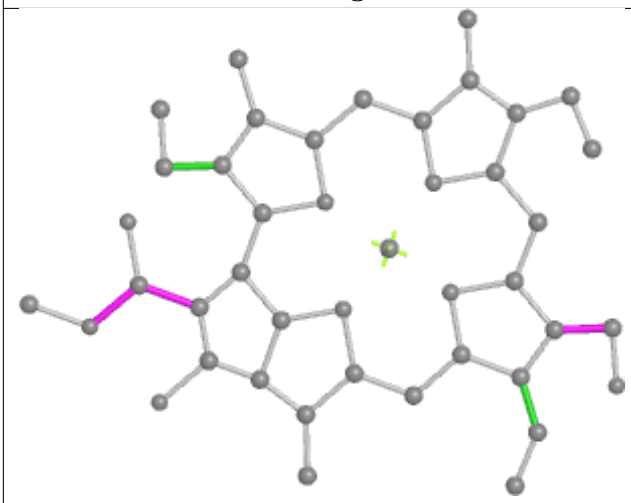
Ligand CHL g 607



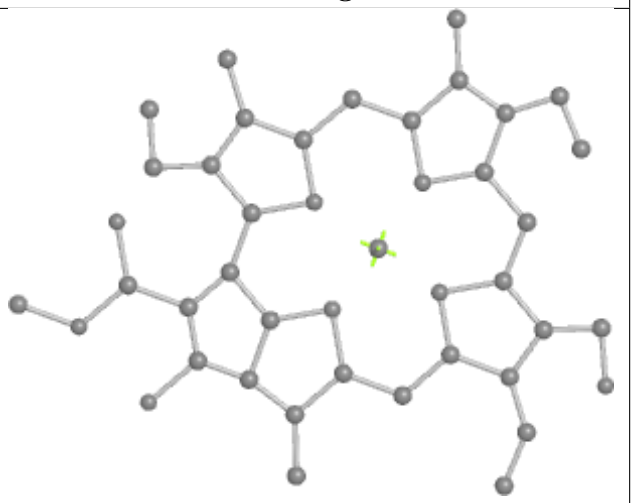
Bond lengths



Bond angles

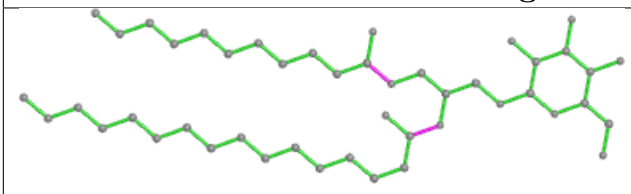


Torsions

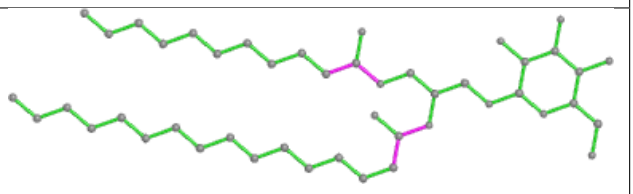


Rings

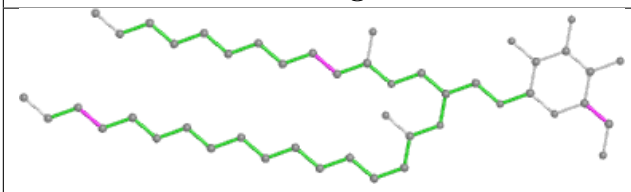
Ligand LMG D 409



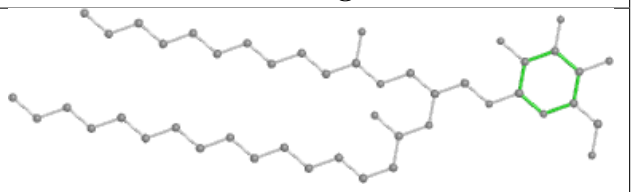
Bond lengths



Bond angles

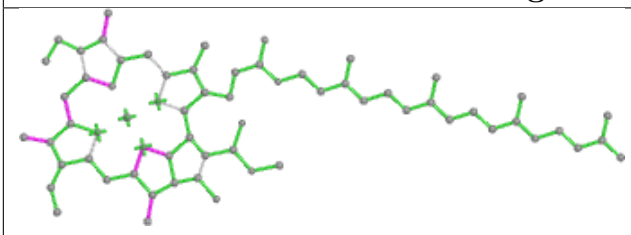


Torsions

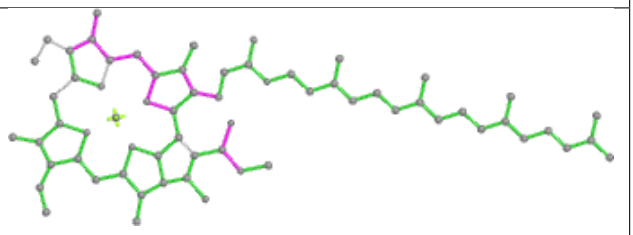


Rings

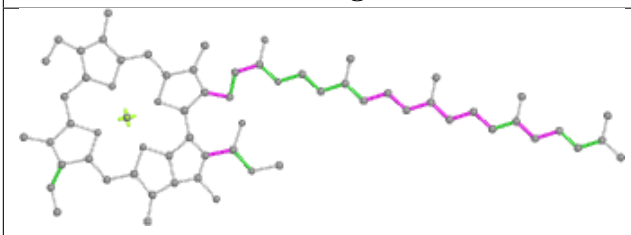
Ligand CLA b 614



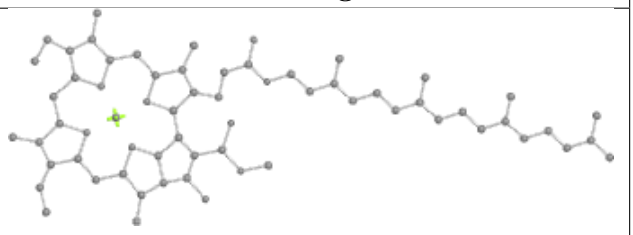
Bond lengths



Bond angles

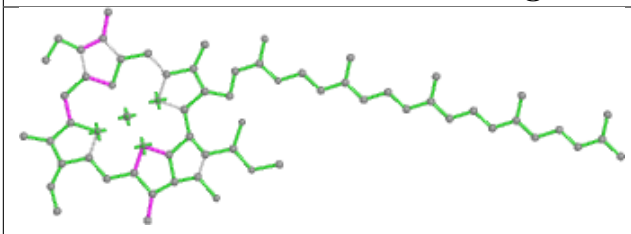


Torsions

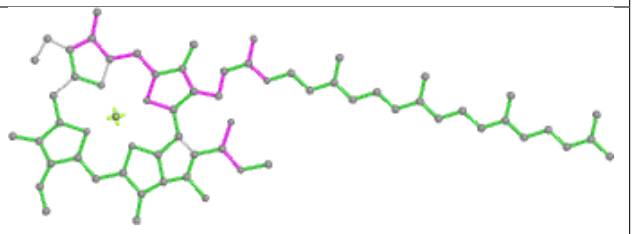


Rings

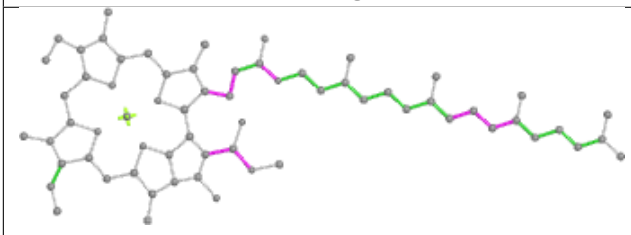
Ligand CLA B 601



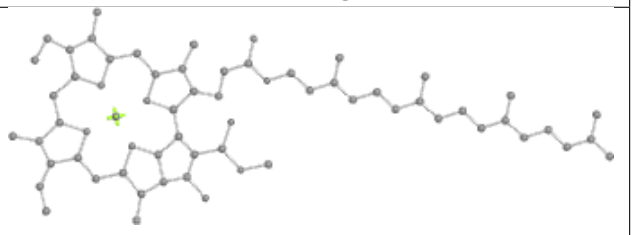
Bond lengths



Bond angles

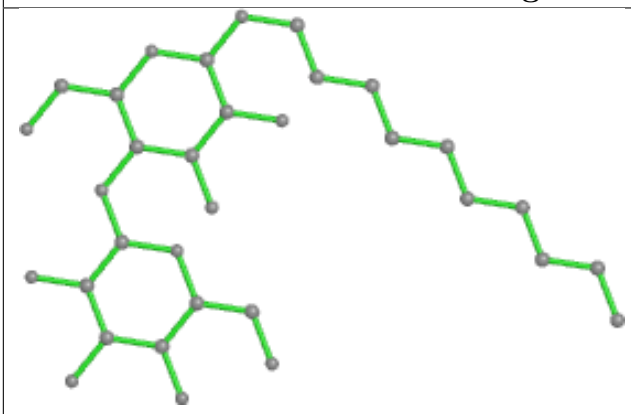


Torsions

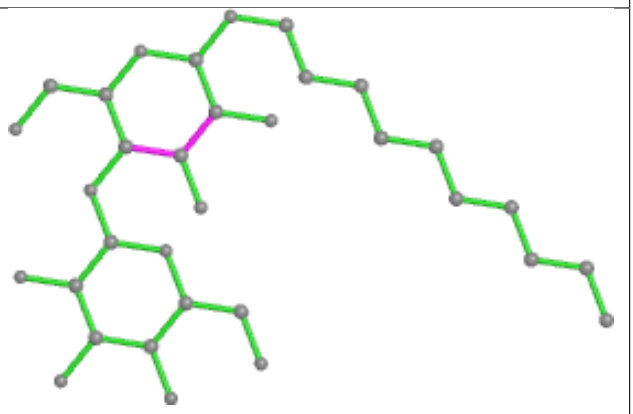


Rings

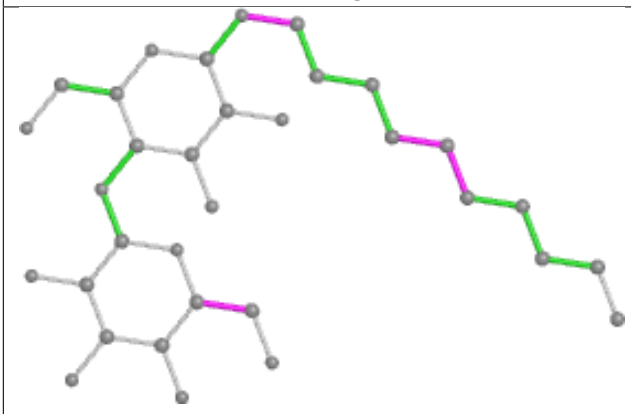
Ligand DMU c 522



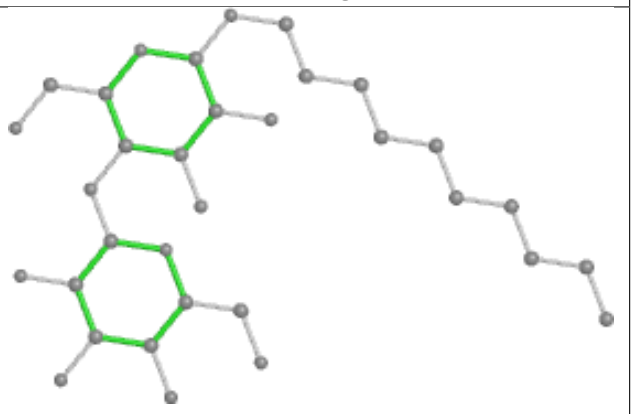
Bond lengths



Bond angles

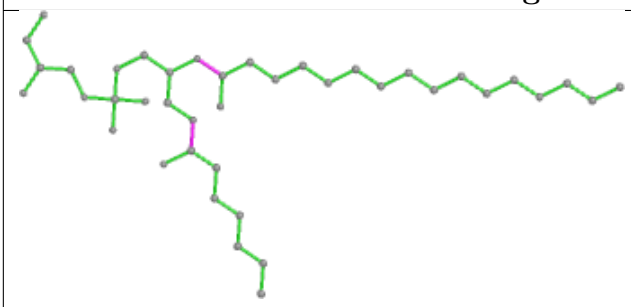


Torsions

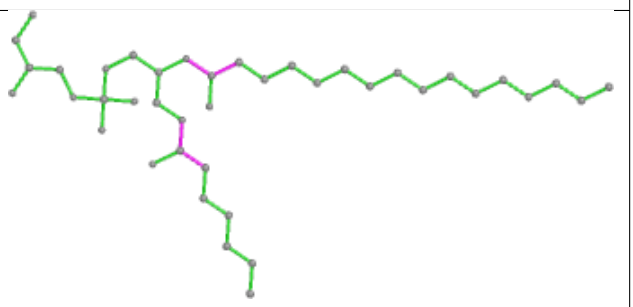


Rings

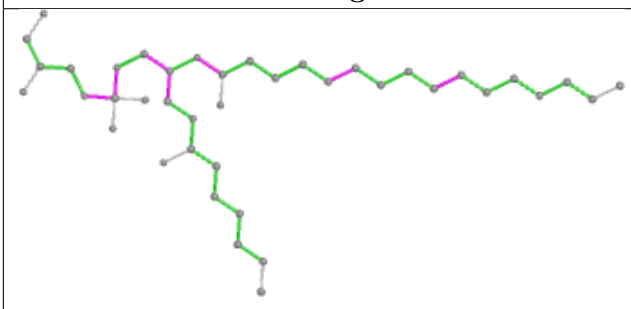
Ligand LHG B 627



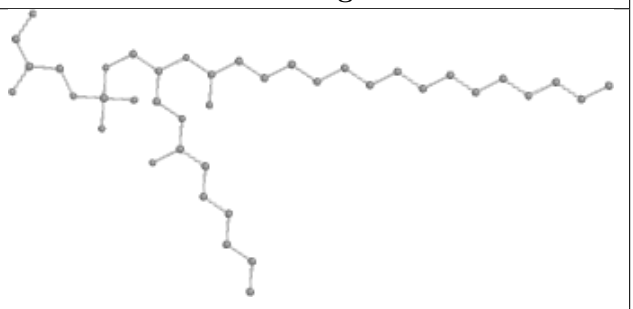
Bond lengths



Bond angles

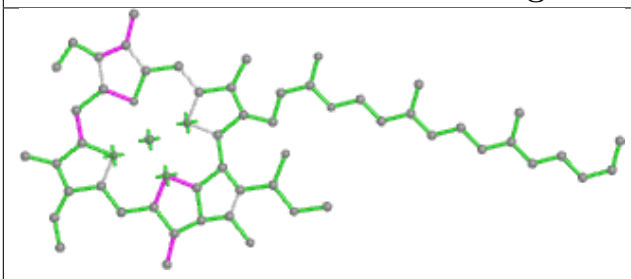


Torsions

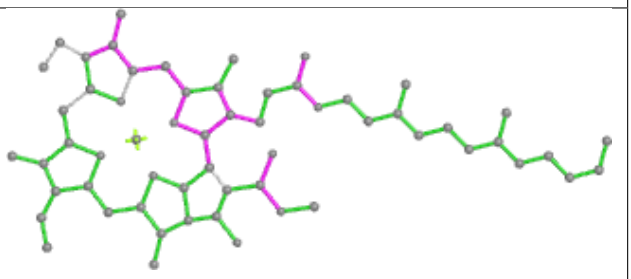


Rings

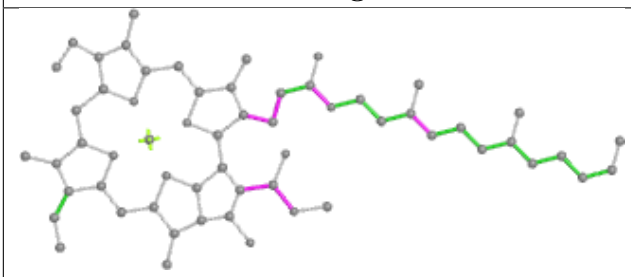
Ligand CLA n 603



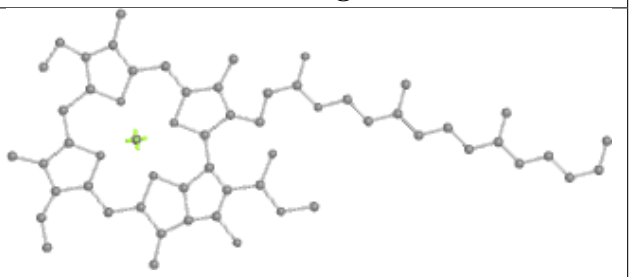
Bond lengths



Bond angles

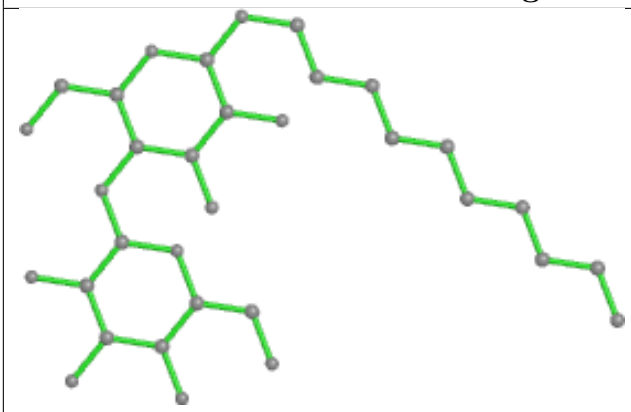


Torsions

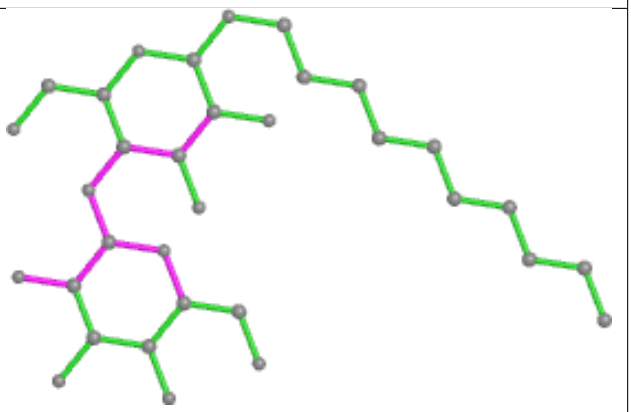


Rings

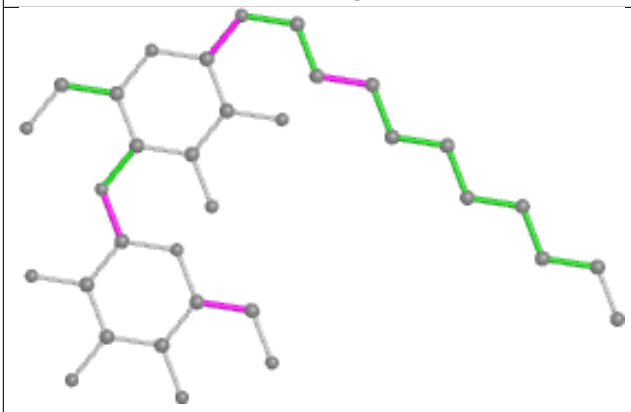
Ligand DMU c 519



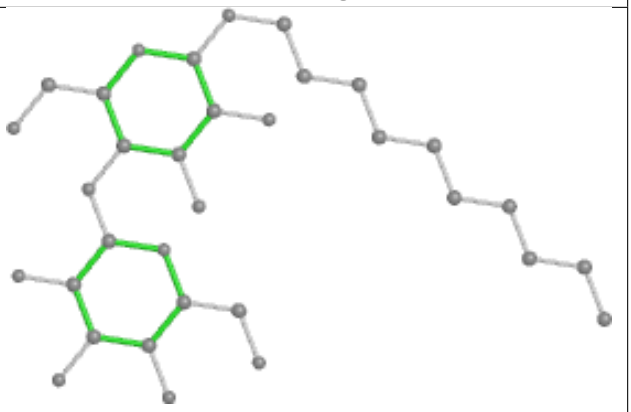
Bond lengths



Bond angles

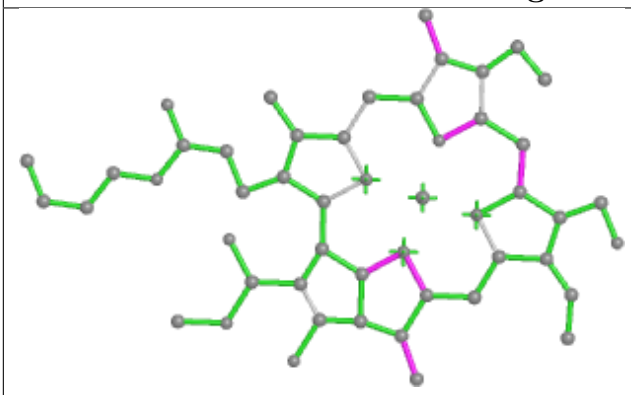


Torsions

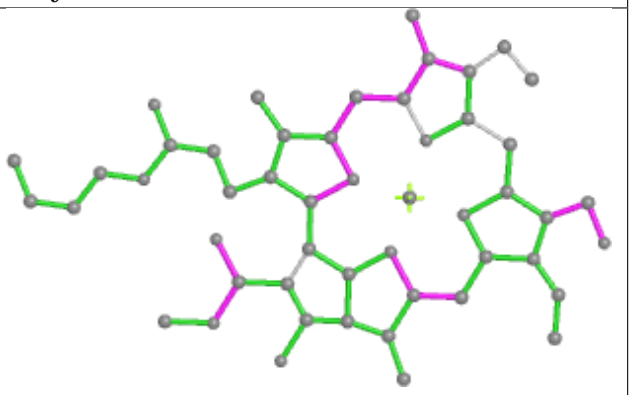


Rings

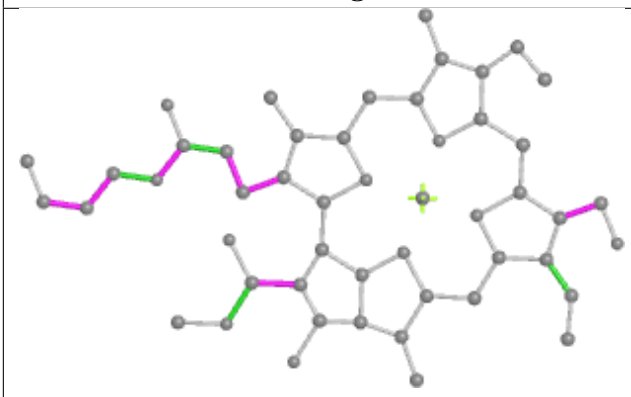
Ligand CHL y 307



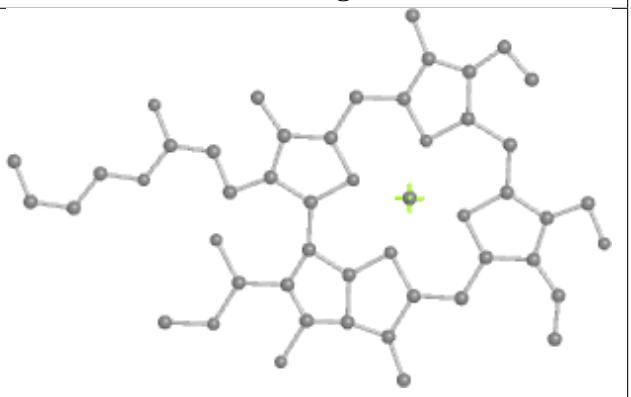
Bond lengths



Bond angles

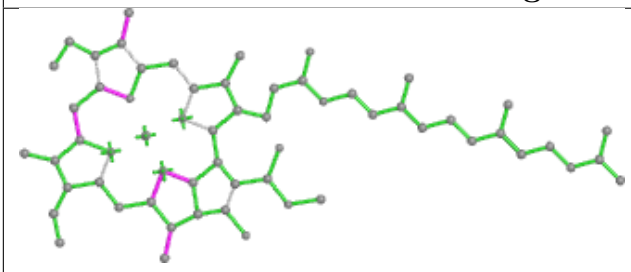


Torsions

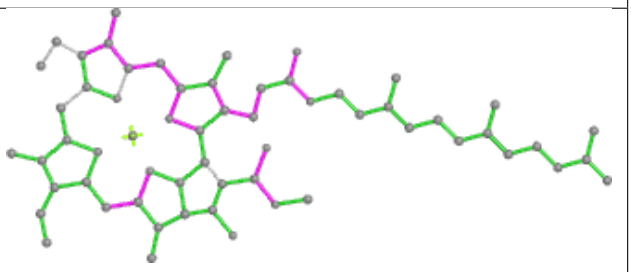


Rings

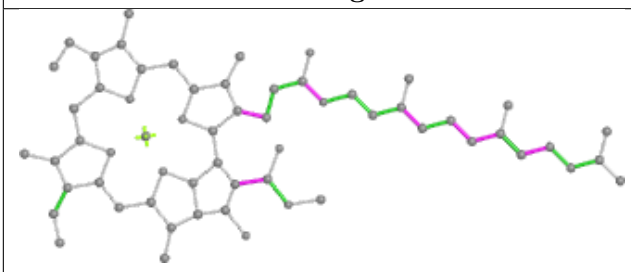
Ligand CLA N 613



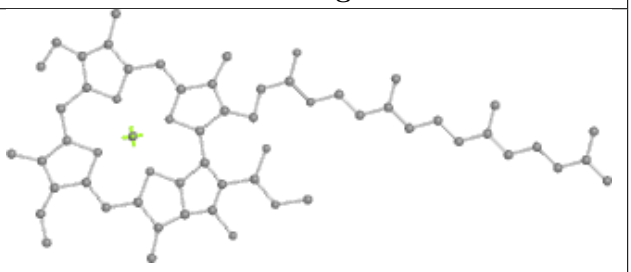
Bond lengths



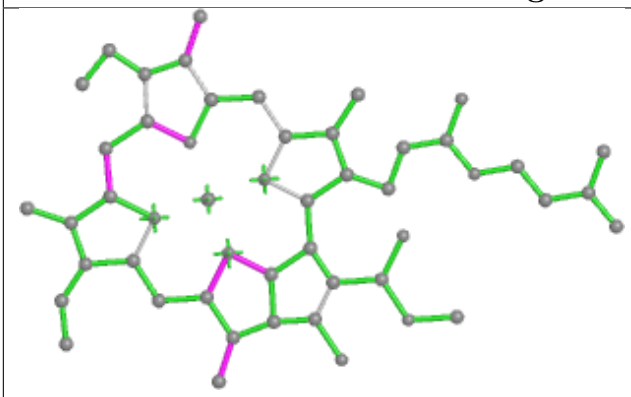
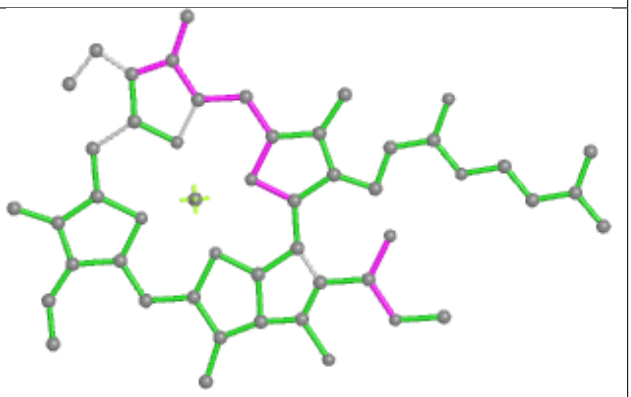
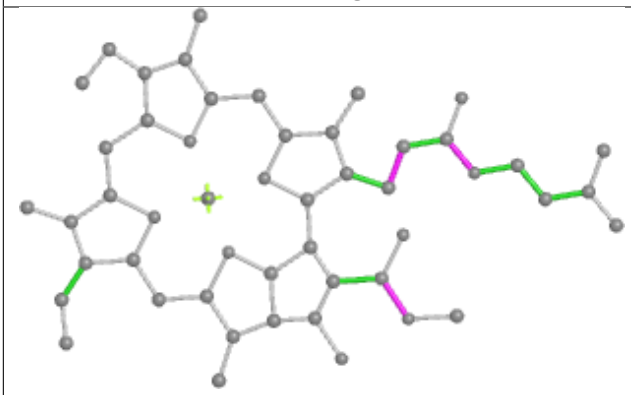
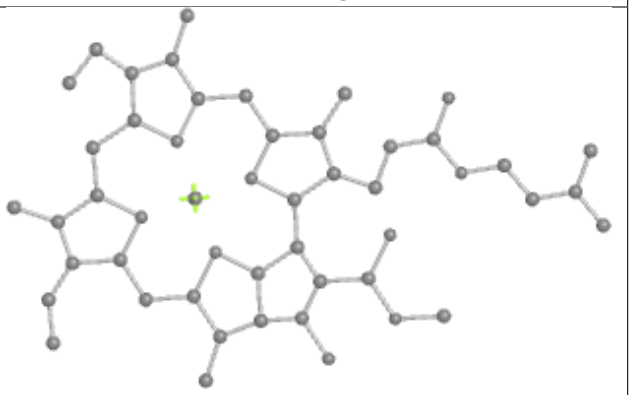
Bond angles

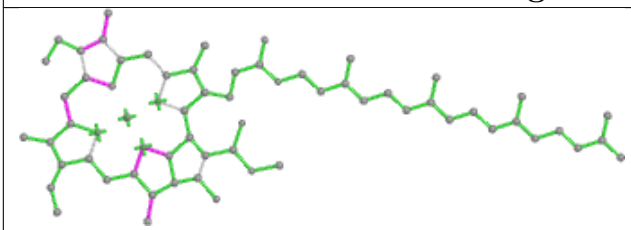
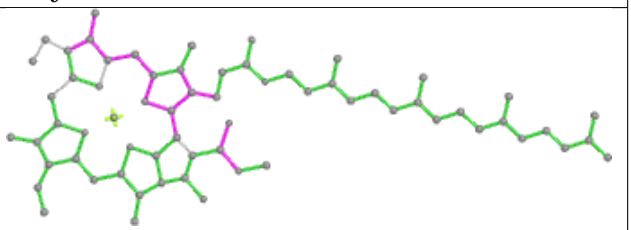
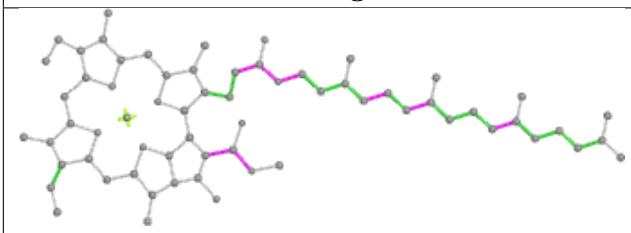
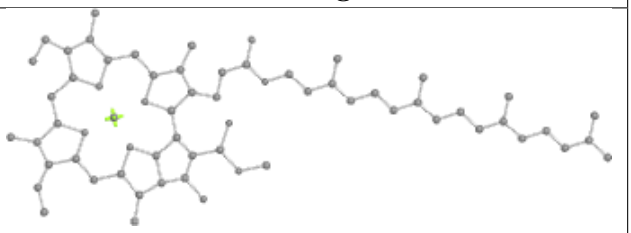


Torsions

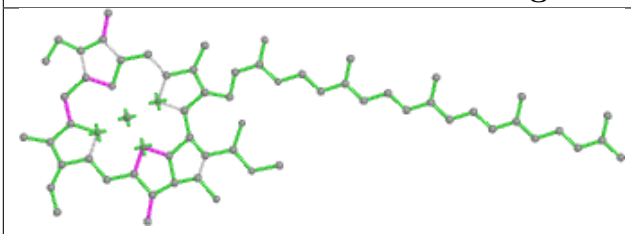


Rings

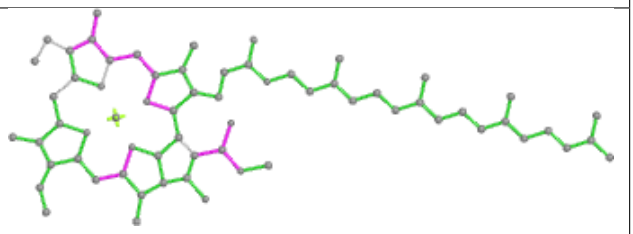
Ligand CLA n 604	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand CLA y 304	
 Bond lengths	 Bond angles
 Torsions	 Rings

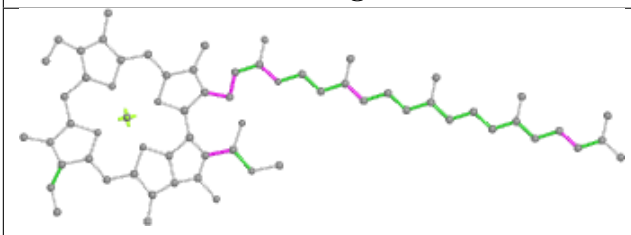
Ligand CLA r 612



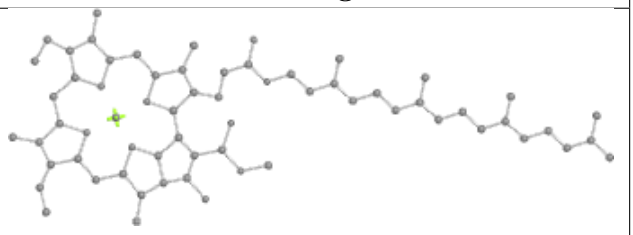
Bond lengths



Bond angles

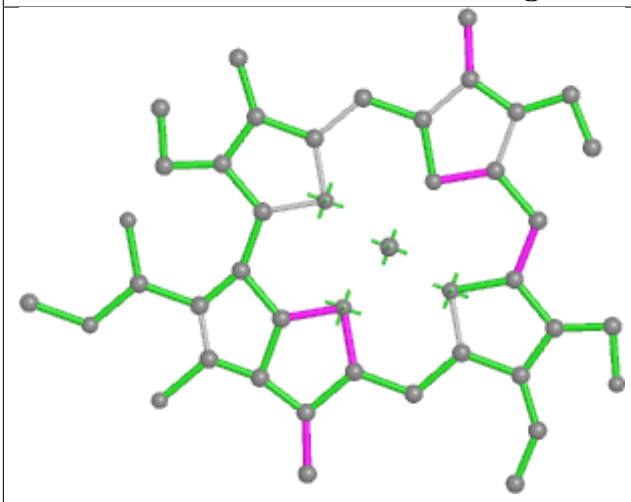


Torsions

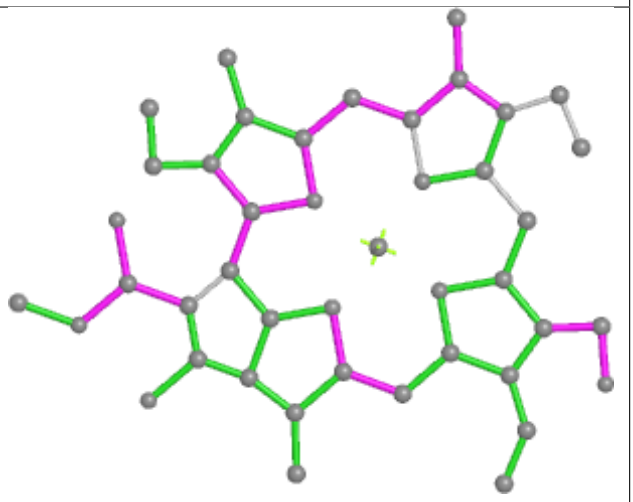


Rings

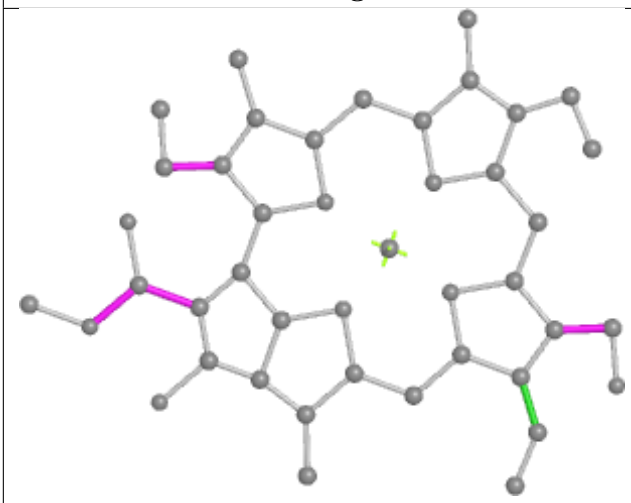
Ligand CHL G 606



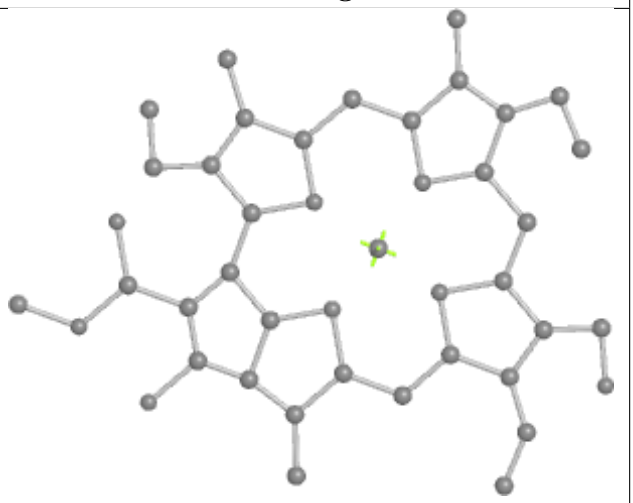
Bond lengths



Bond angles

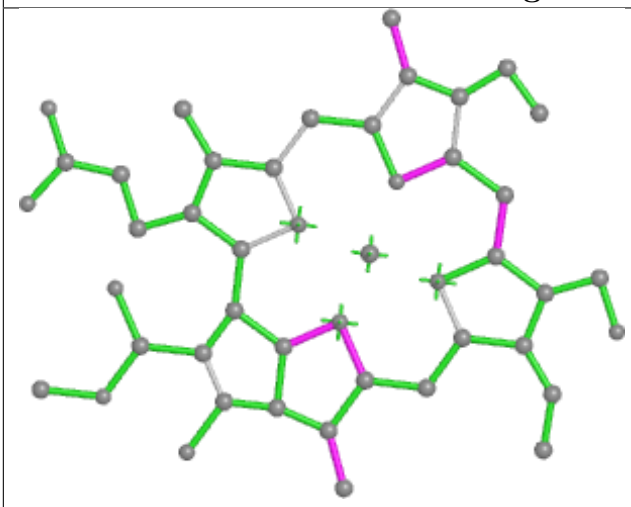


Torsions

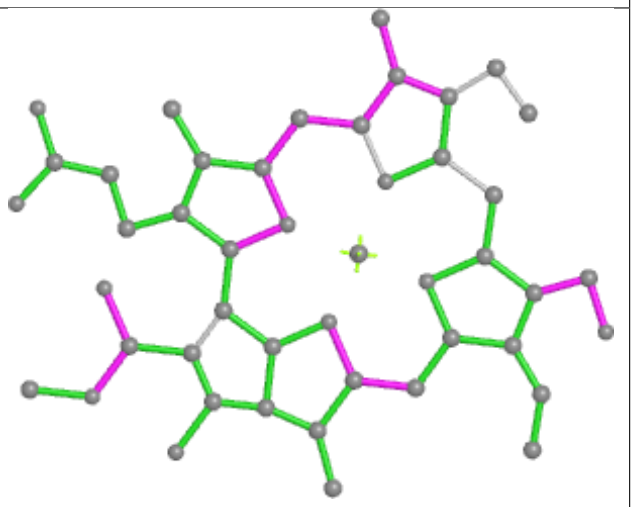


Rings

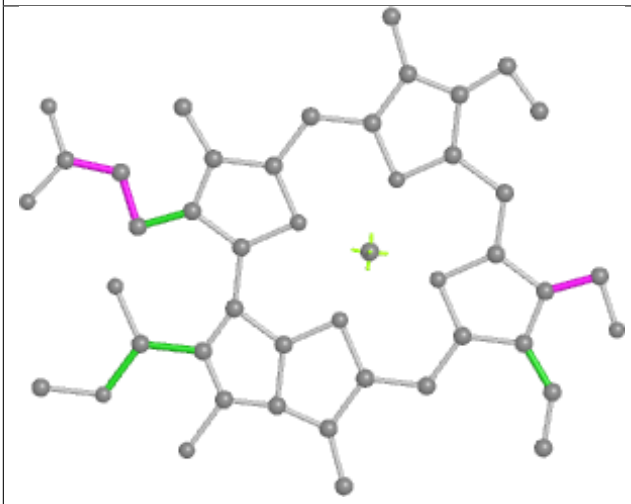
Ligand CHL R 307



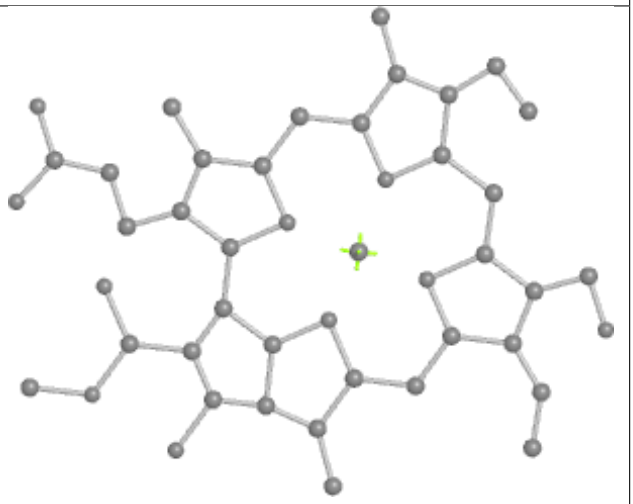
Bond lengths



Bond angles

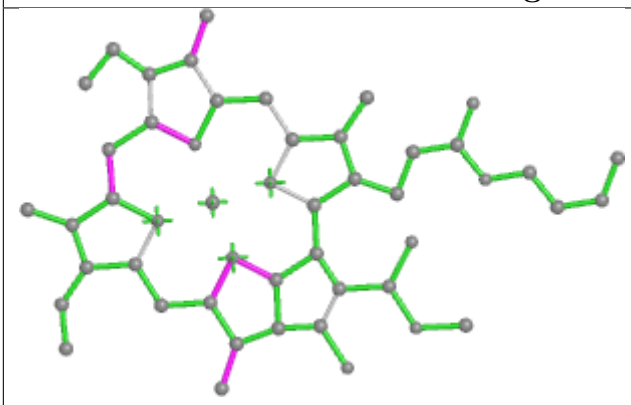


Torsions

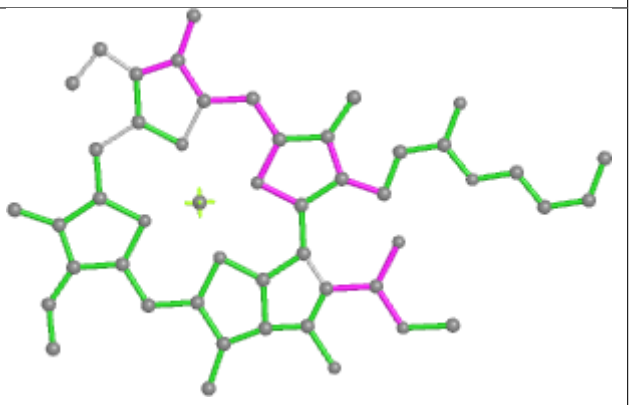


Rings

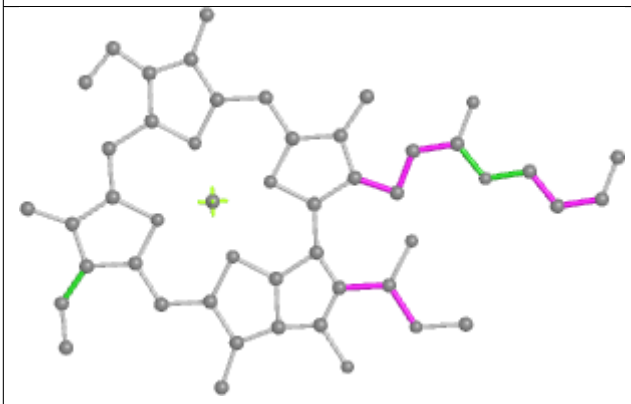
Ligand CLA R 302



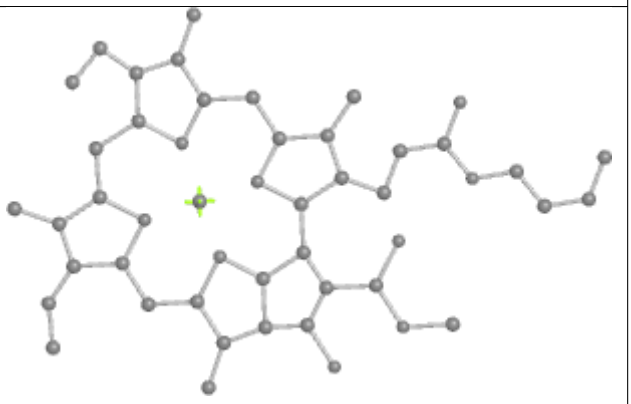
Bond lengths



Bond angles

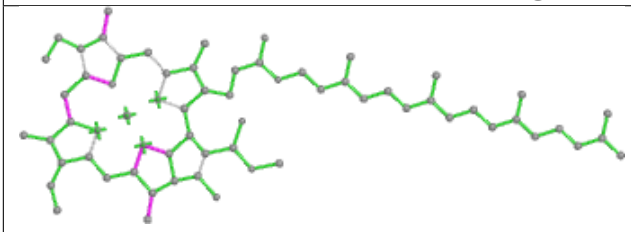


Torsions

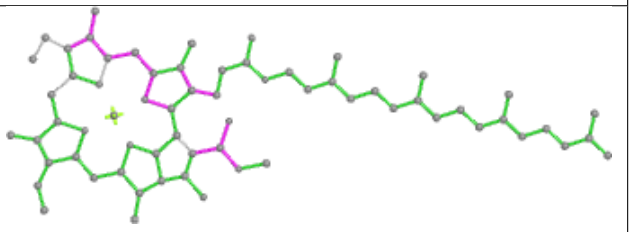


Rings

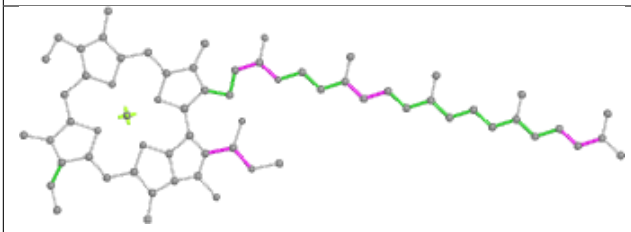
Ligand CLA c 510



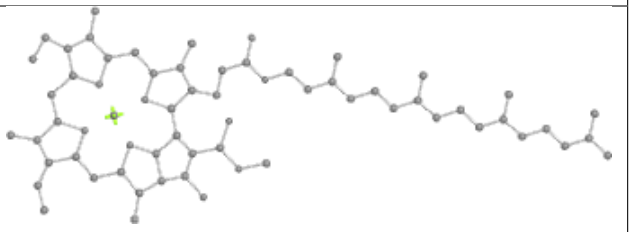
Bond lengths



Bond angles

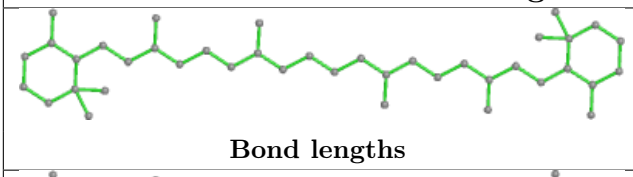


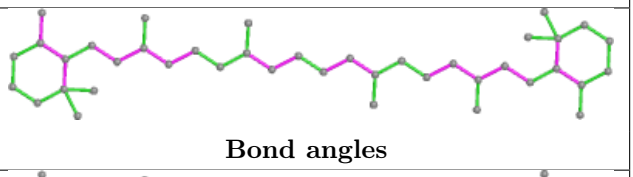
Torsions

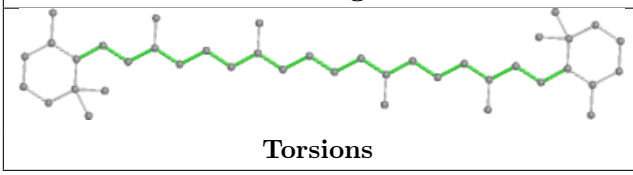


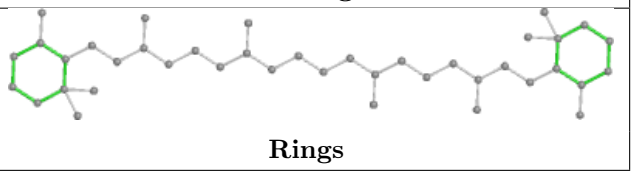
Rings

Ligand BCR z 101

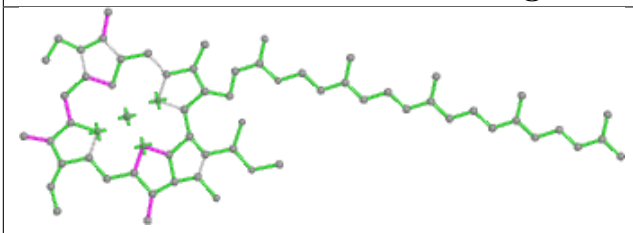

Bond lengths

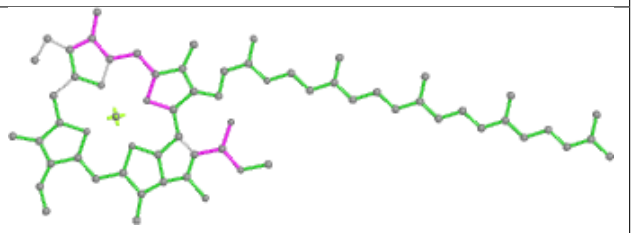

Bond angles

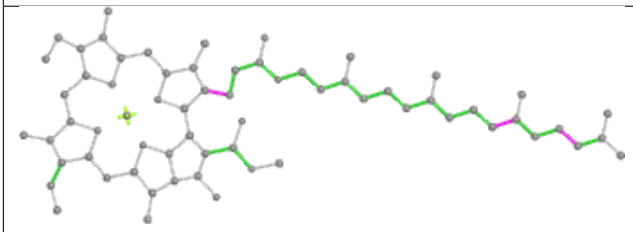

Torsions

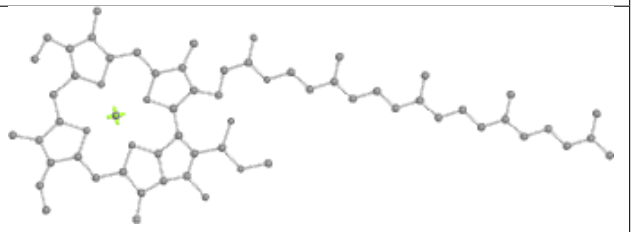

Rings

Ligand CLA D 403

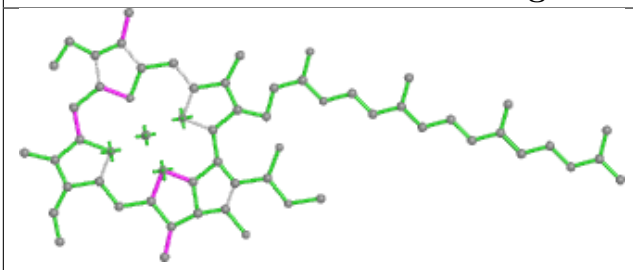

Bond lengths

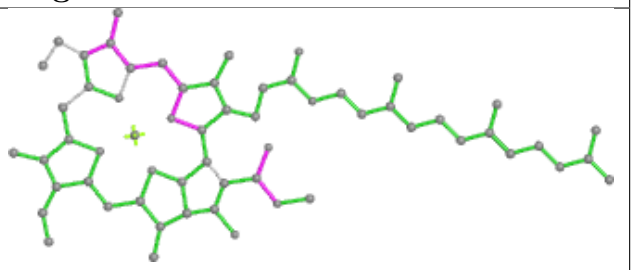

Bond angles

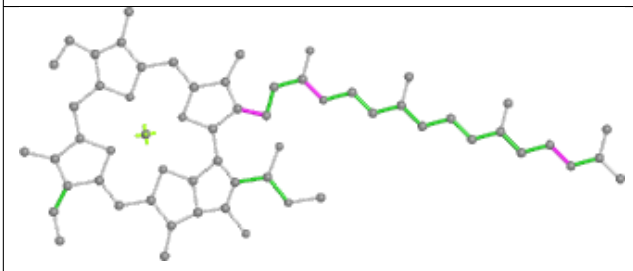

Torsions

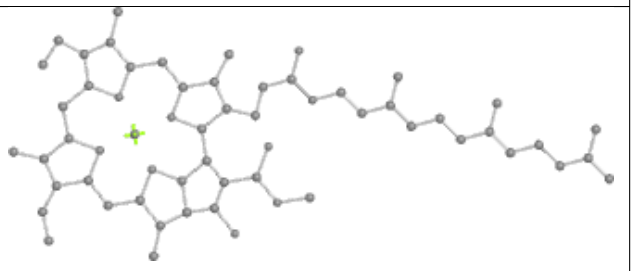

Rings

Ligand CLA g 611

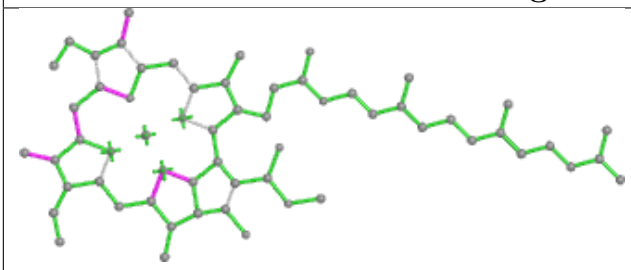

Bond lengths


Bond angles

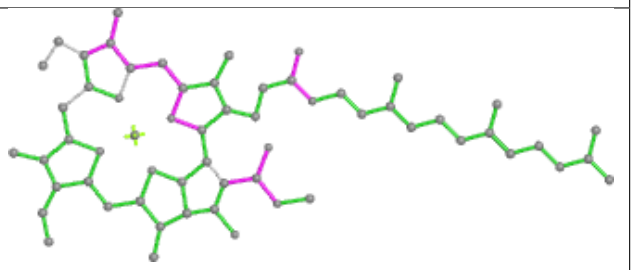

Torsions


Rings

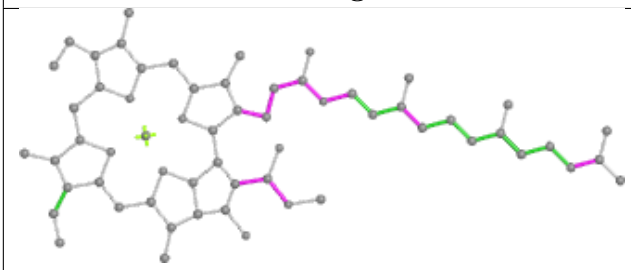
Ligand CLA r 602



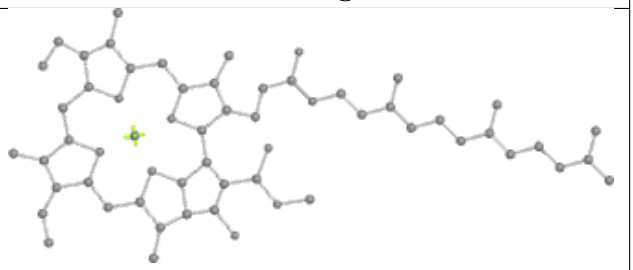
Bond lengths



Bond angles

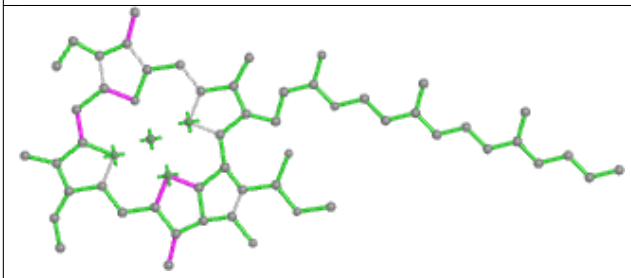


Torsions

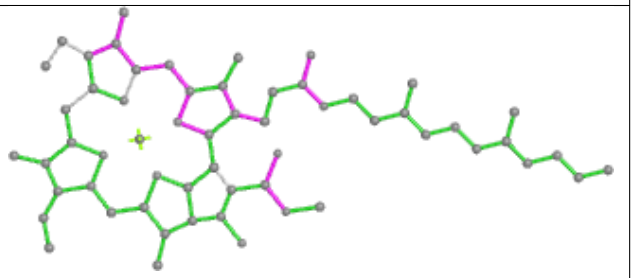


Rings

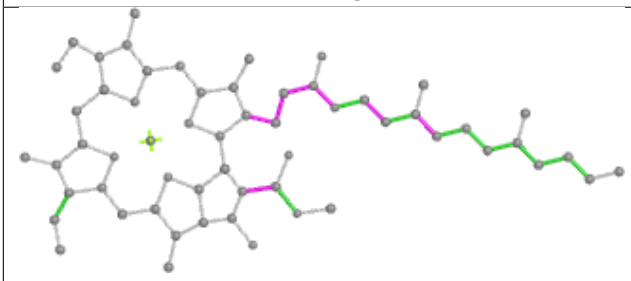
Ligand CLA c 505



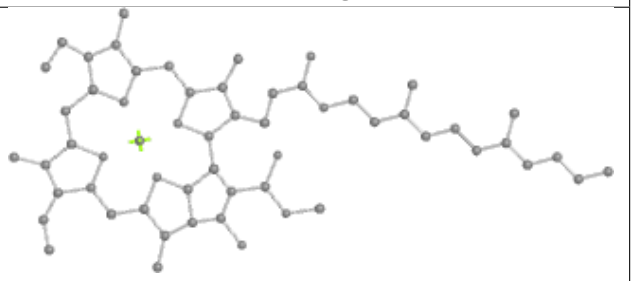
Bond lengths



Bond angles

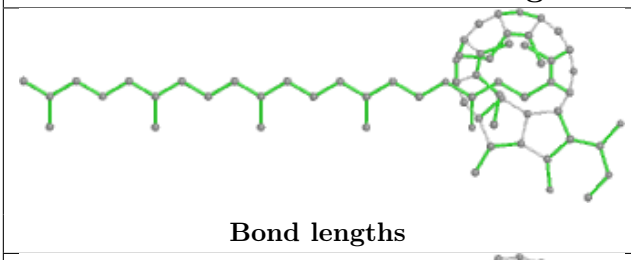


Torsions

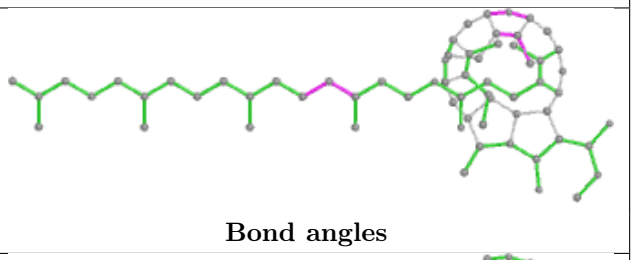


Rings

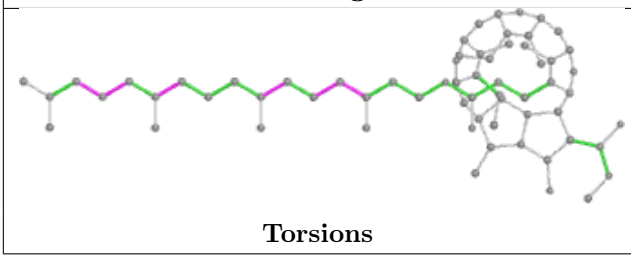
Ligand PHO a 403



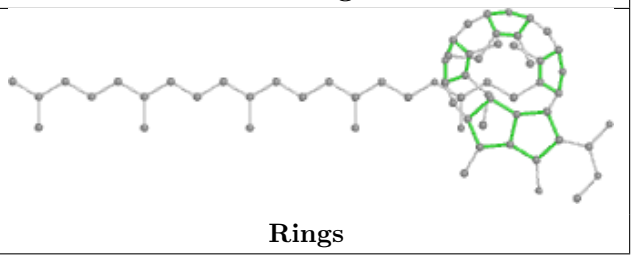
Bond lengths



Bond angles

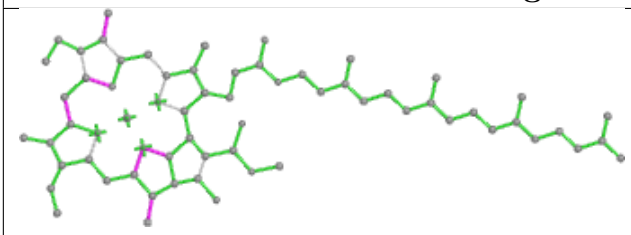


Torsions

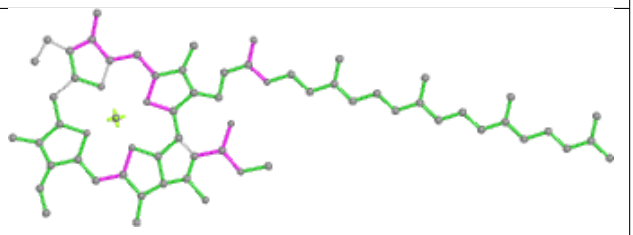


Rings

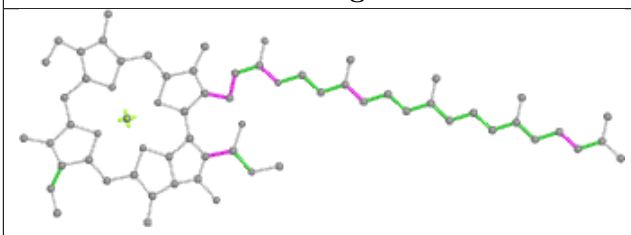
Ligand CLA R 313



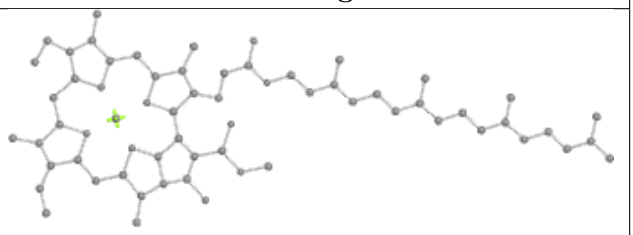
Bond lengths



Bond angles

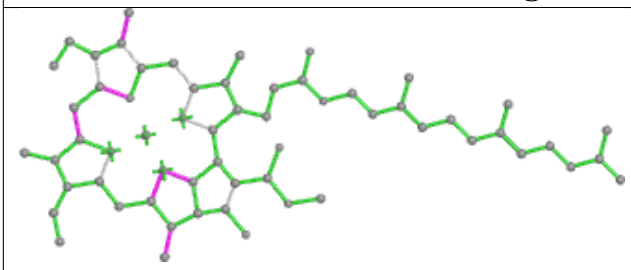


Torsions

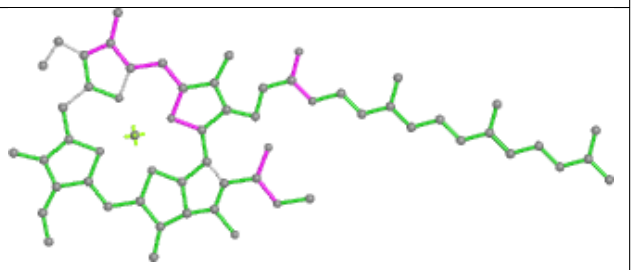


Rings

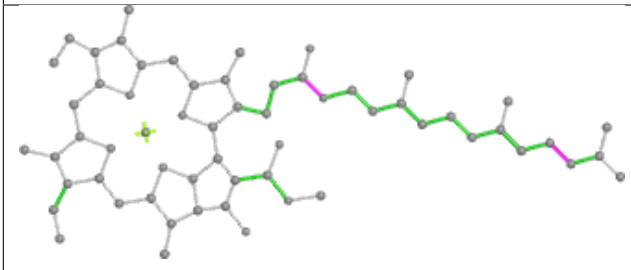
Ligand CLA G 611



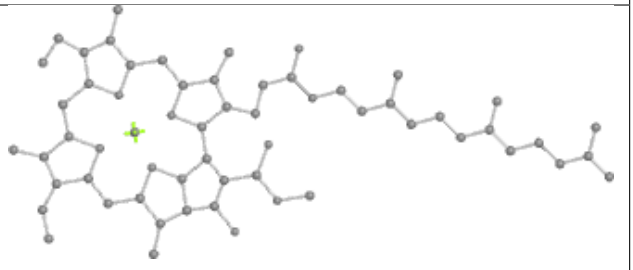
Bond lengths



Bond angles

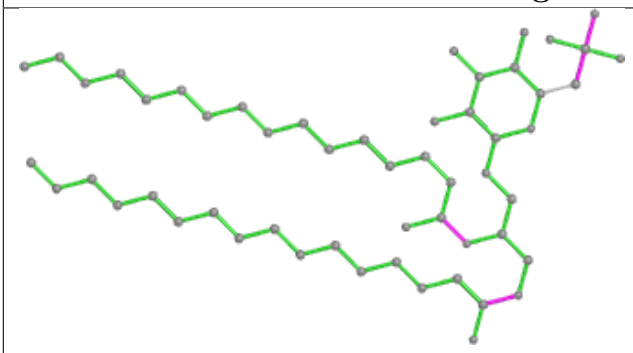


Torsions

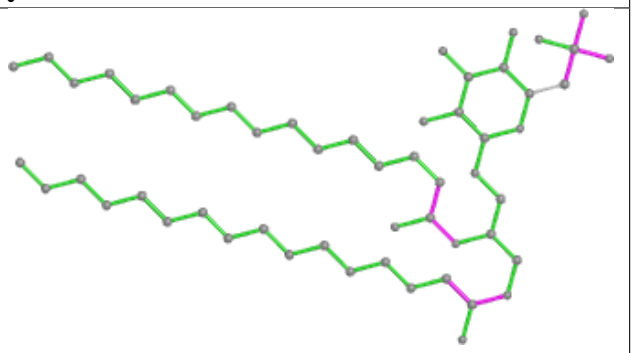


Rings

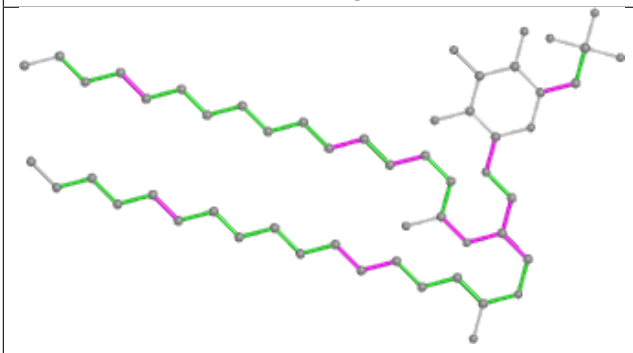
Ligand SQD l 101



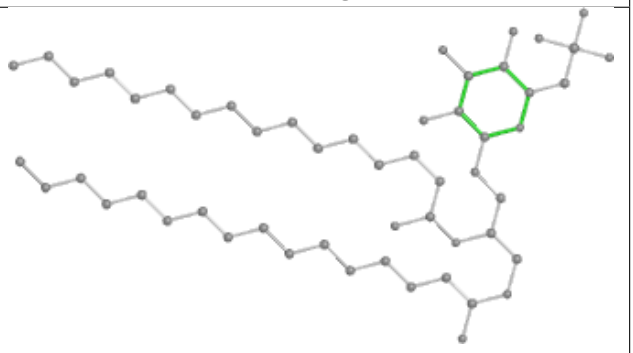
Bond lengths



Bond angles

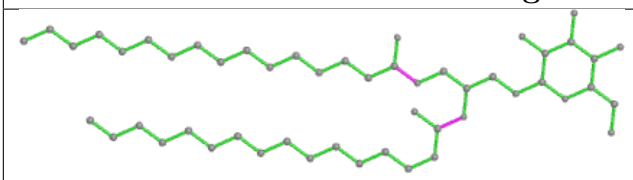


Torsions

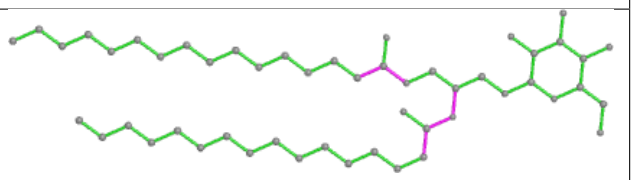


Rings

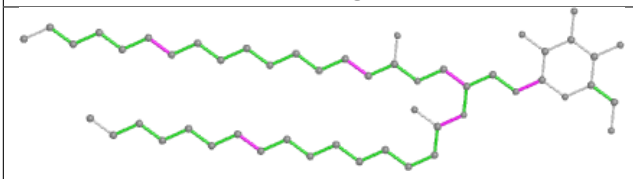
Ligand LMG b 622



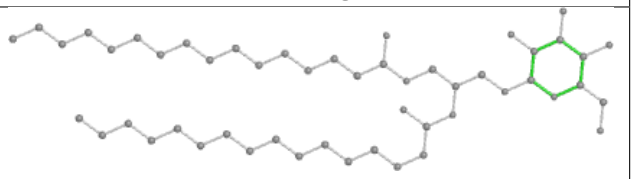
Bond lengths



Bond angles

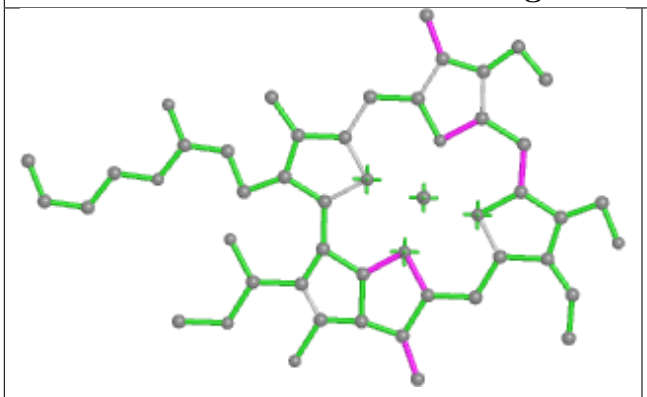


Torsions

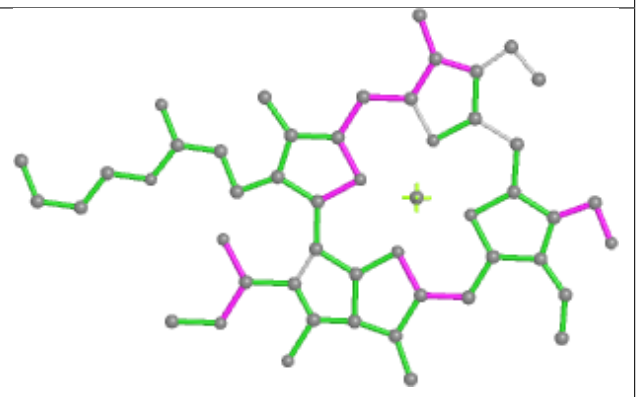


Rings

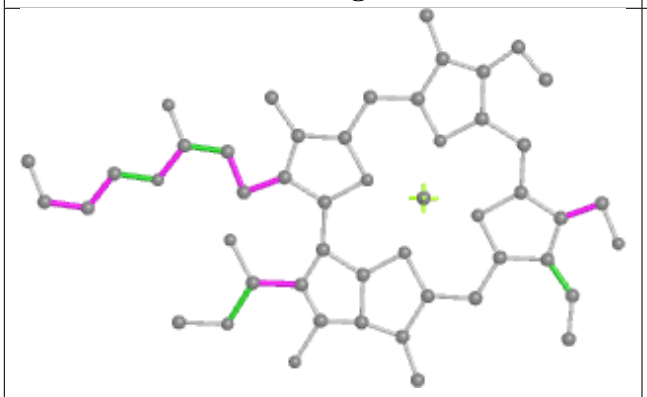
Ligand CHL Y 307



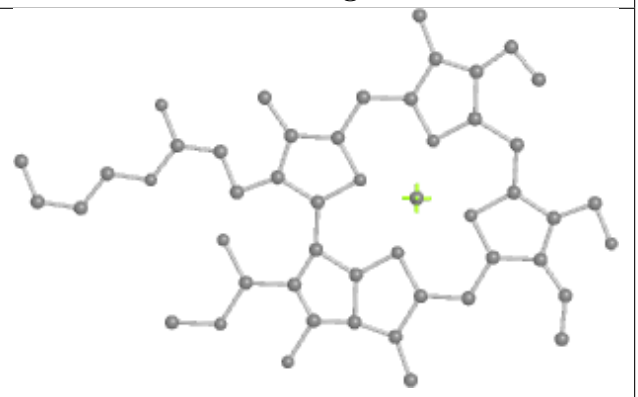
Bond lengths



Bond angles

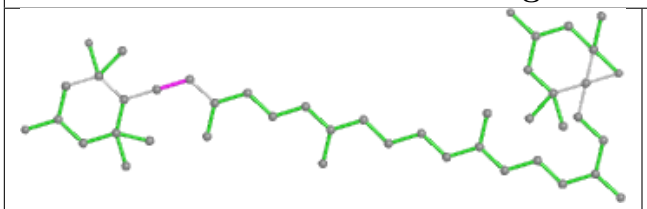


Torsions

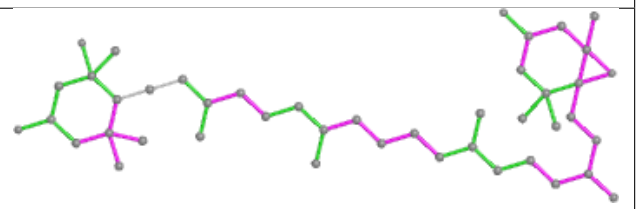


Rings

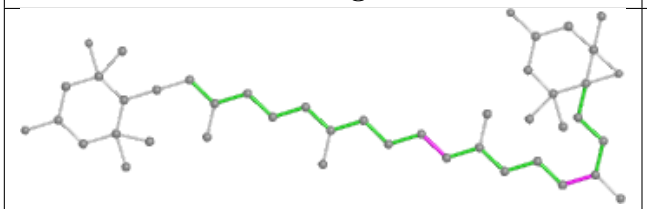
Ligand NEX Y 318



Bond lengths



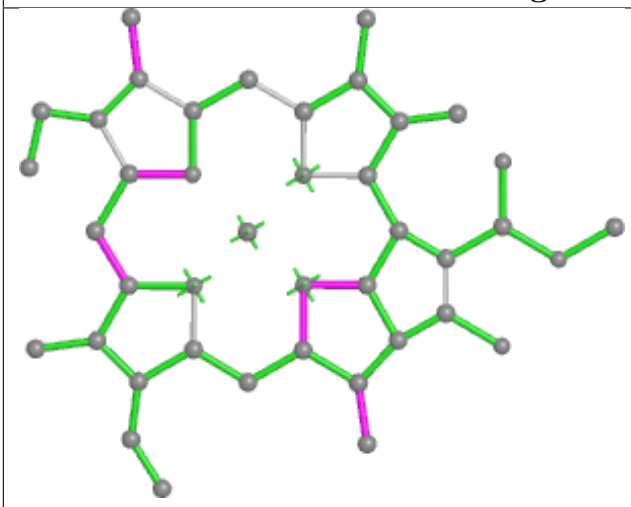
Bond angles



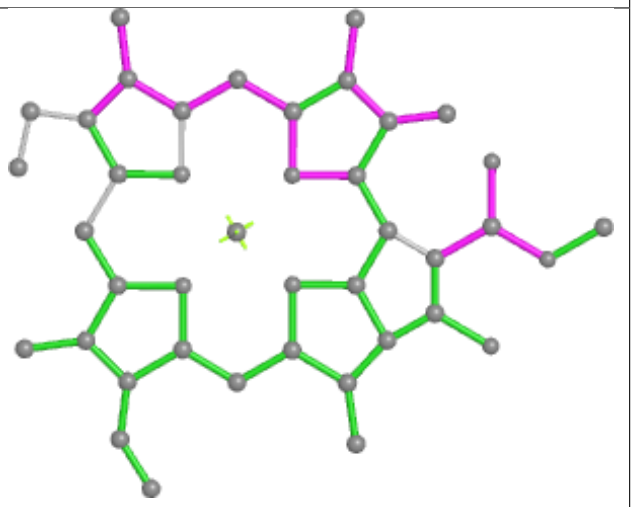
Torsions

Rings

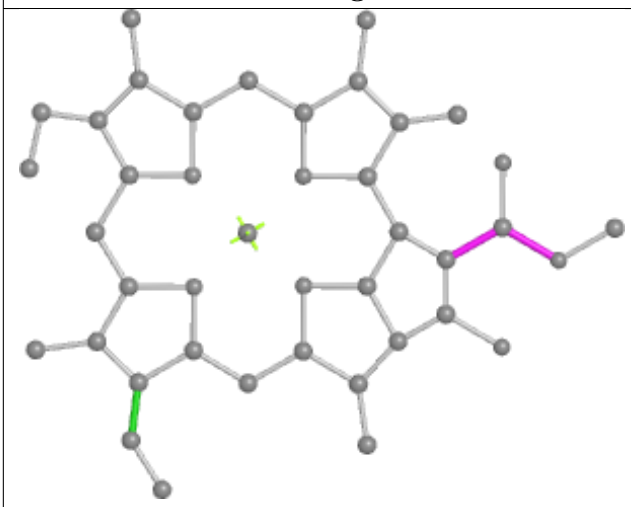
Ligand CLA s 613



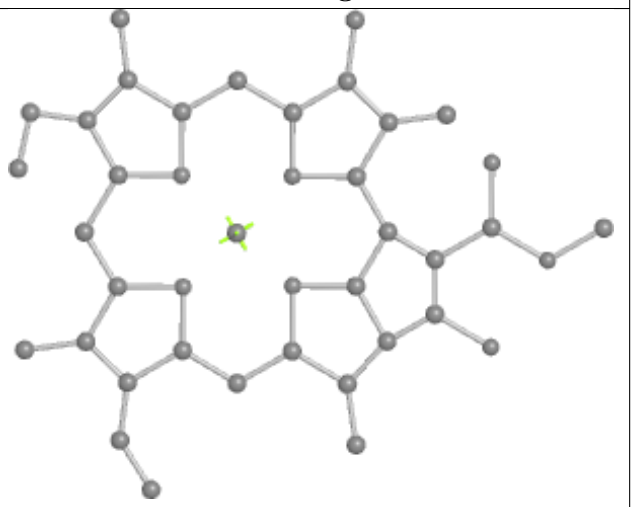
Bond lengths



Bond angles

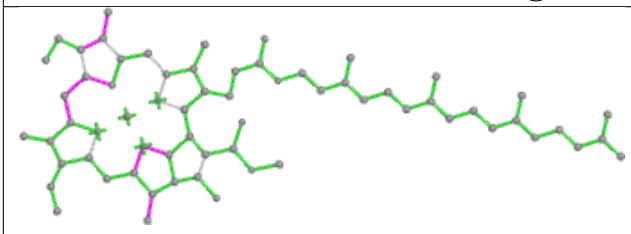


Torsions

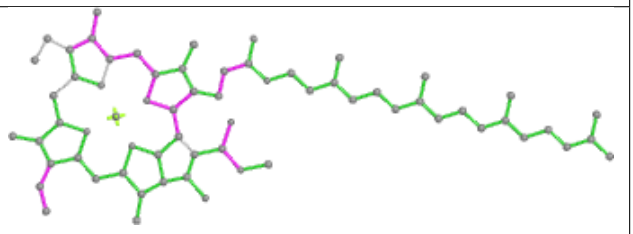


Rings

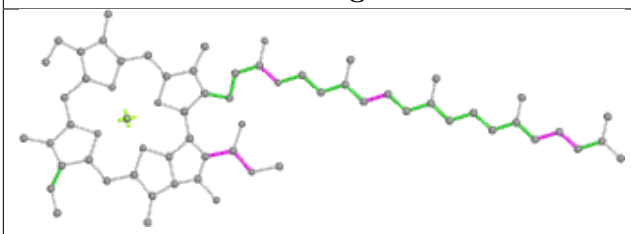
Ligand CLA b 606



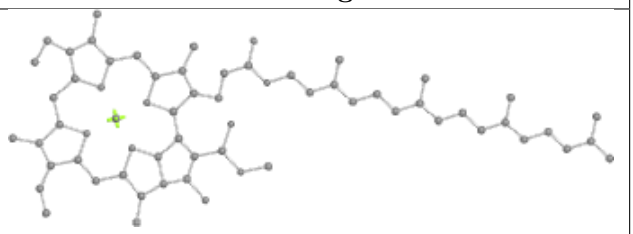
Bond lengths



Bond angles

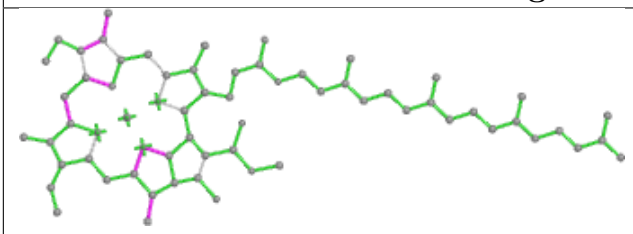


Torsions

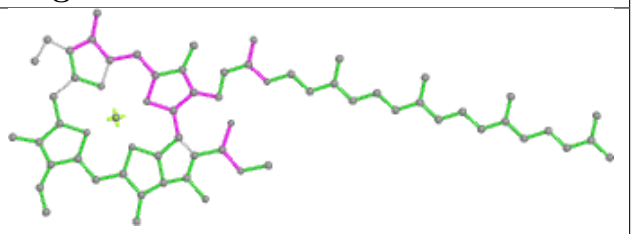


Rings

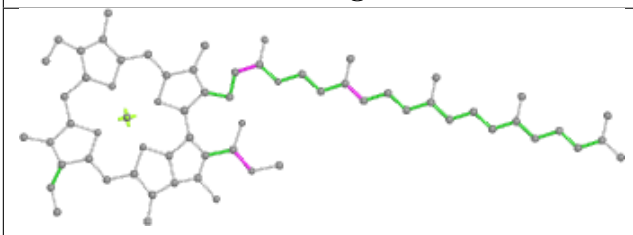
Ligand CLA g 603



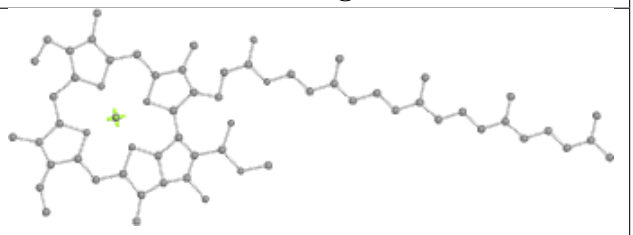
Bond lengths



Bond angles

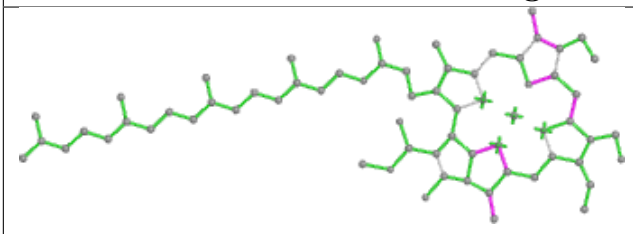


Torsions

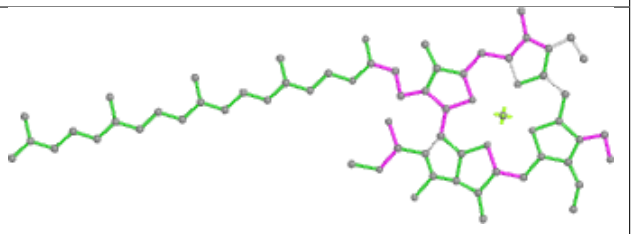


Rings

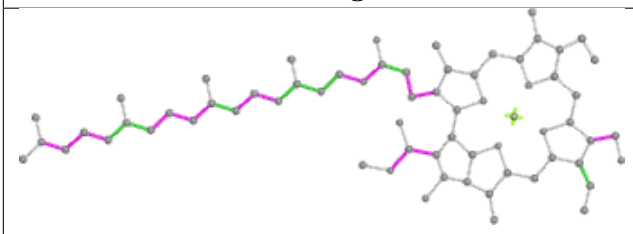
Ligand CHL Y 308



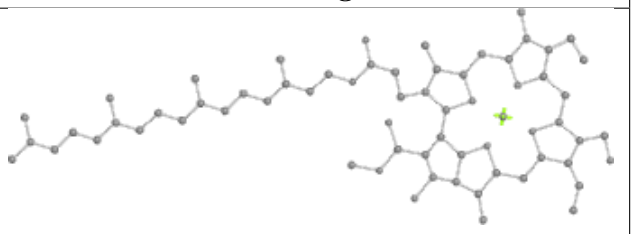
Bond lengths



Bond angles

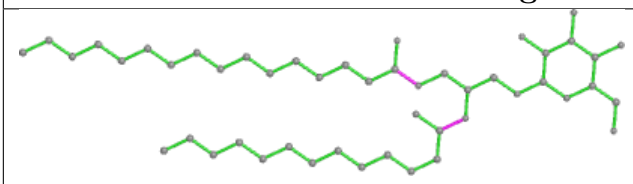


Torsions

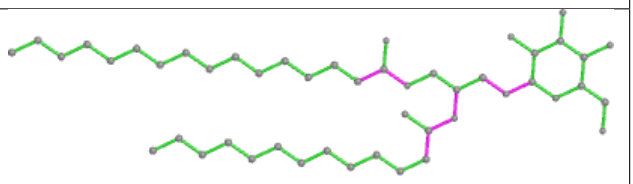


Rings

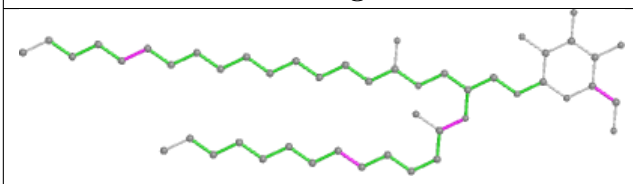
Ligand LMG C 501



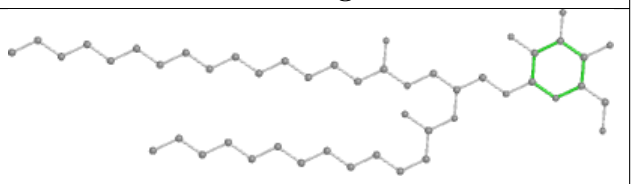
Bond lengths



Bond angles

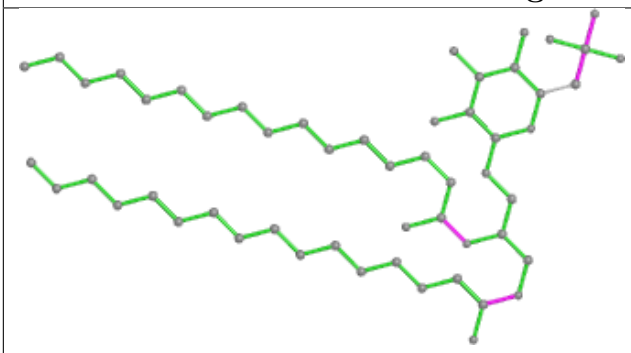


Torsions

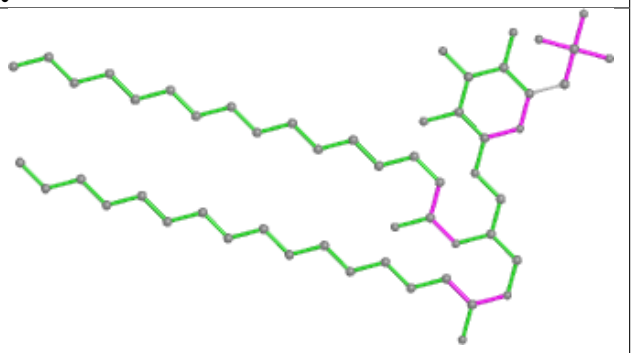


Rings

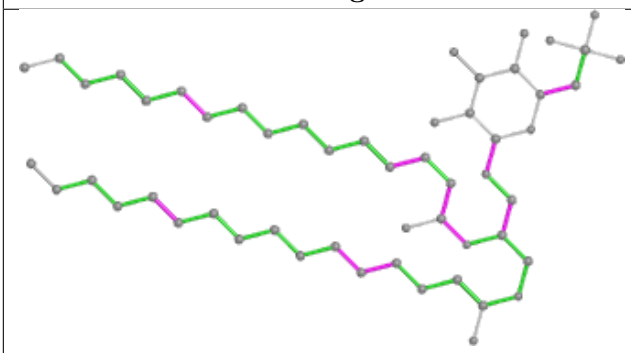
Ligand SQD L 103



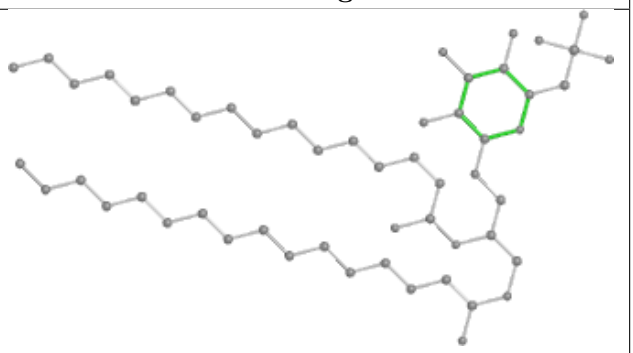
Bond lengths



Bond angles

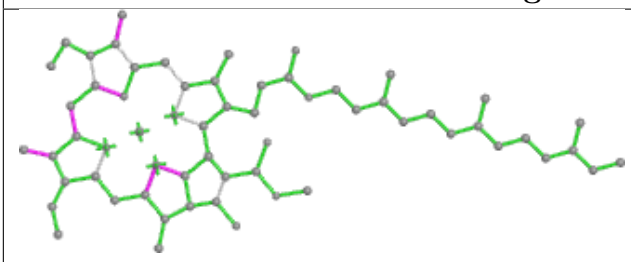


Torsions

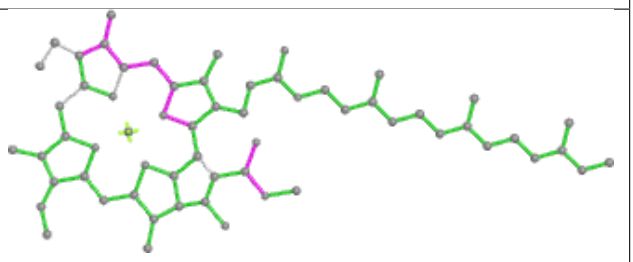


Rings

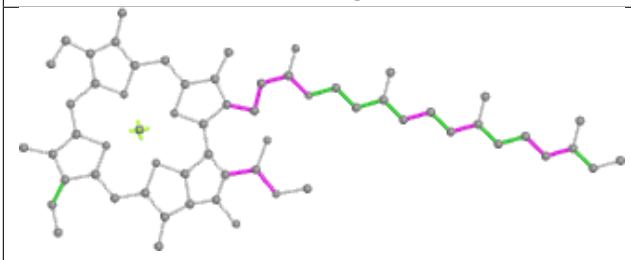
Ligand CLA Y 303



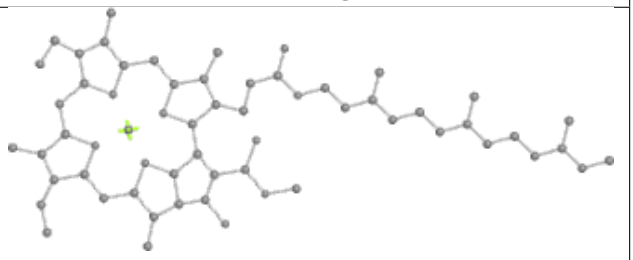
Bond lengths



Bond angles

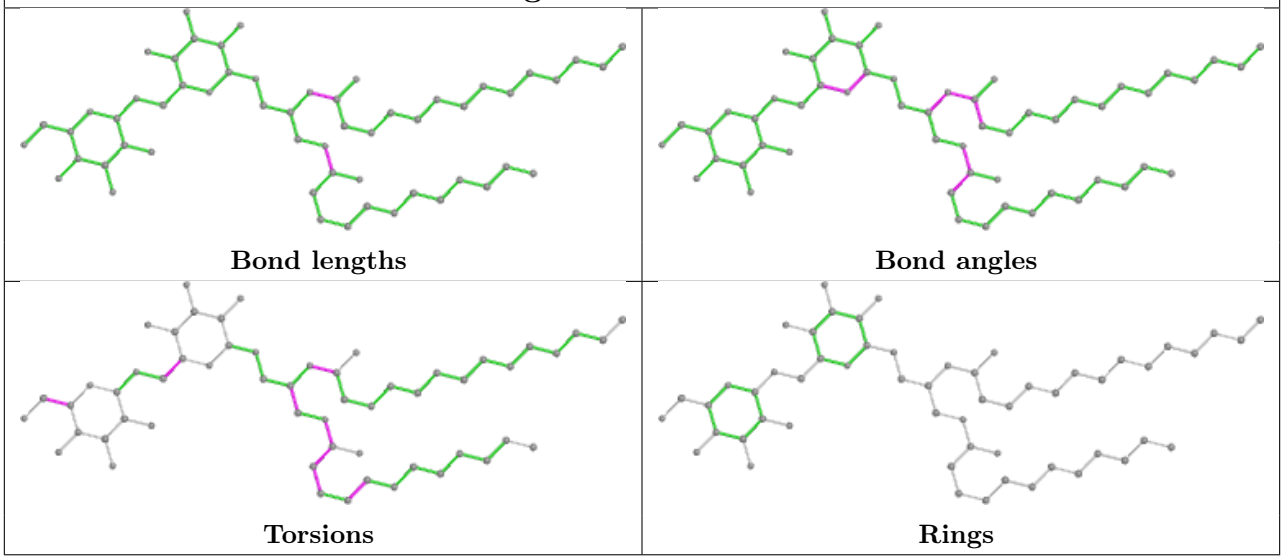


Torsions

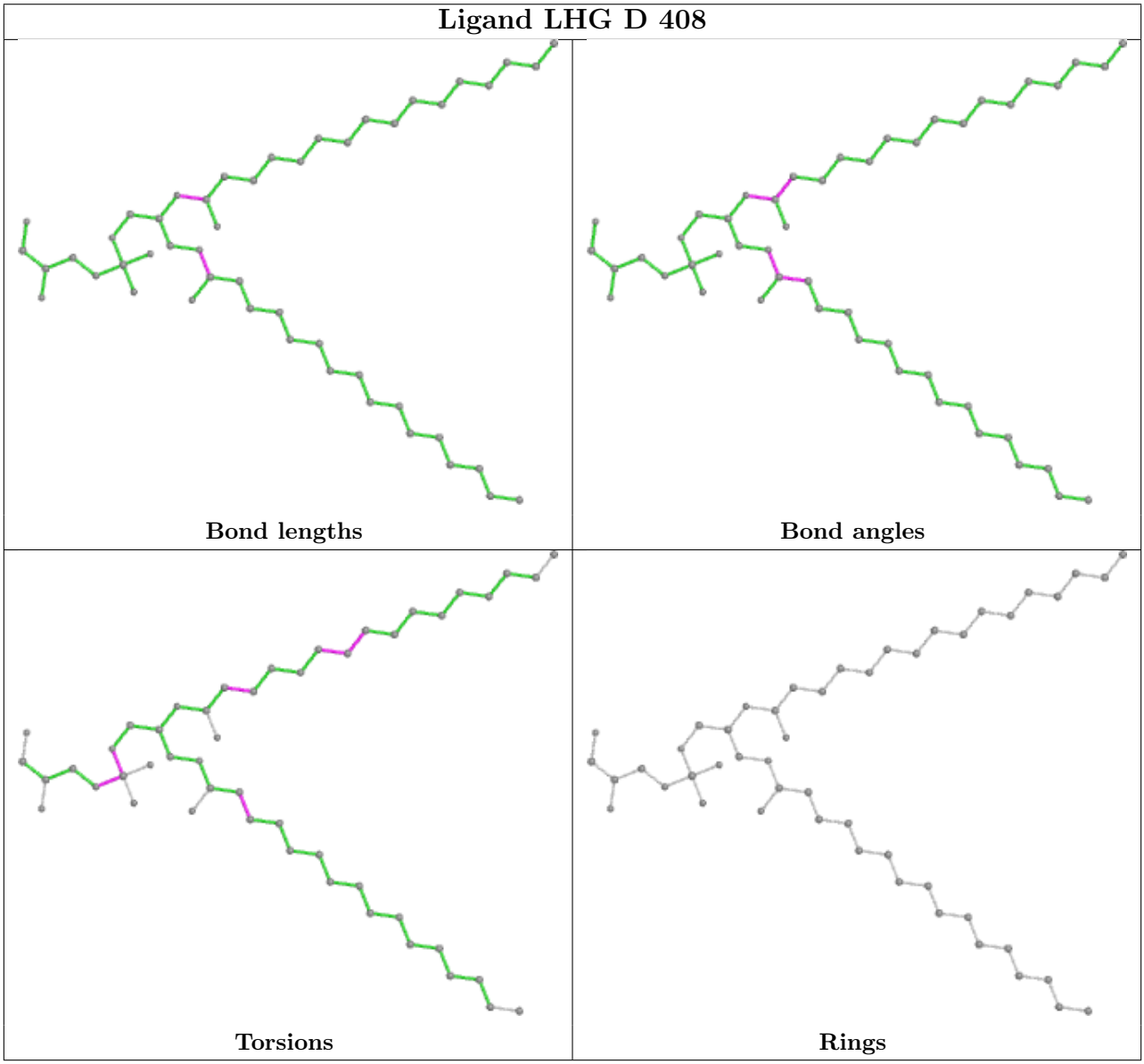


Rings

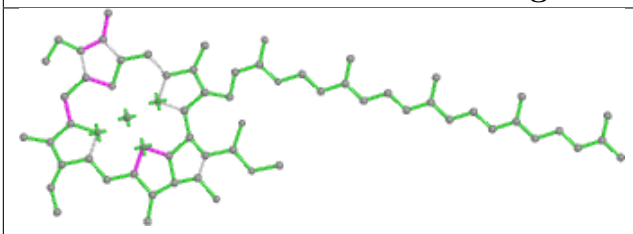
Ligand DGD b 625



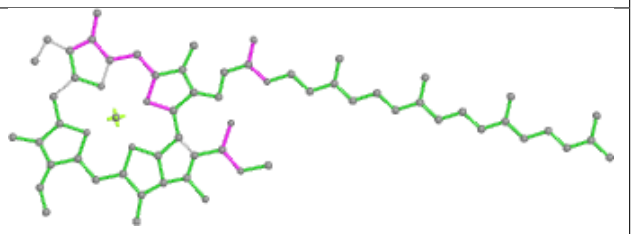
Ligand LHG D 408



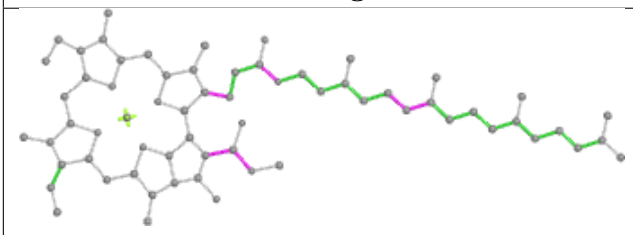
Ligand CLA r 611



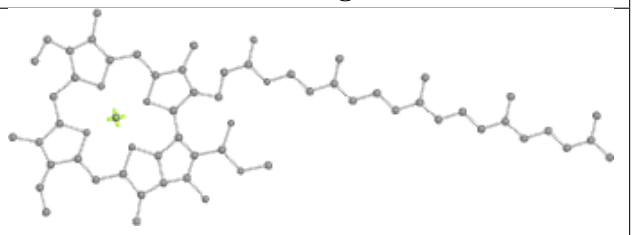
Bond lengths



Bond angles

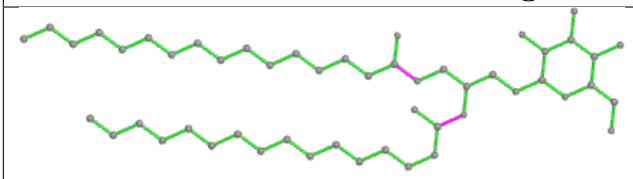


Torsions

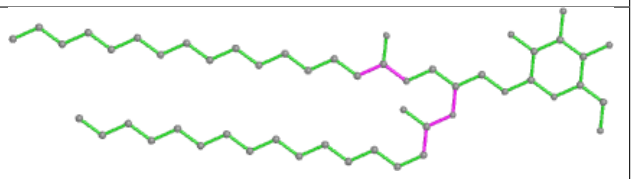


Rings

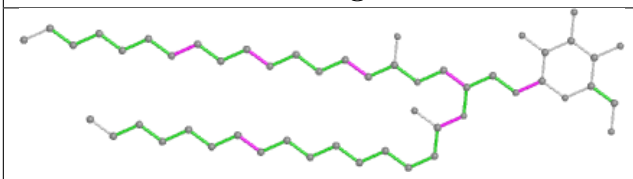
Ligand LMG B 620



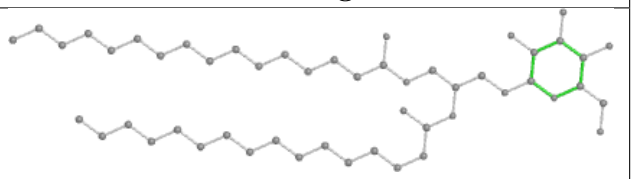
Bond lengths



Bond angles

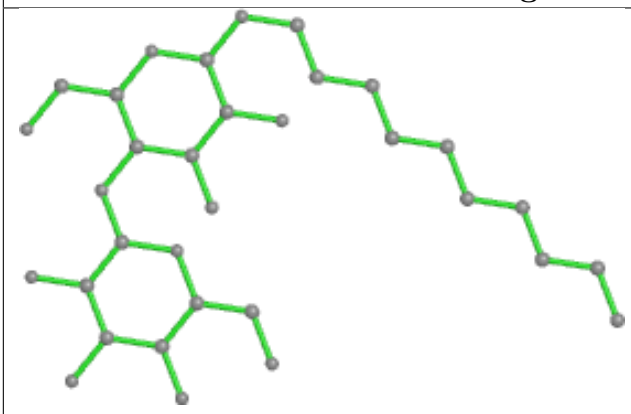


Torsions

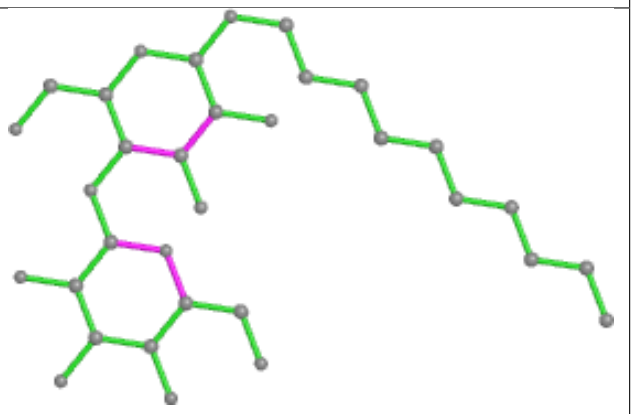


Rings

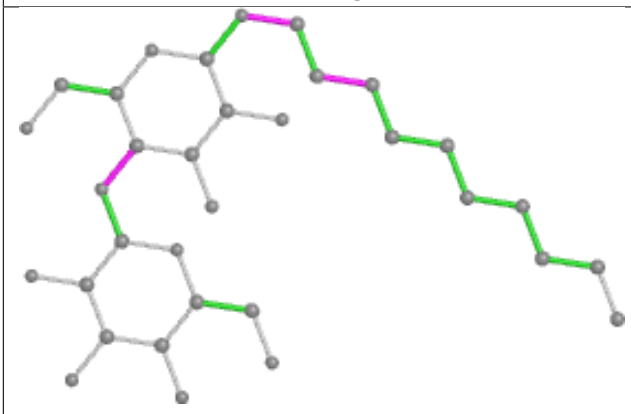
Ligand DMU S 319



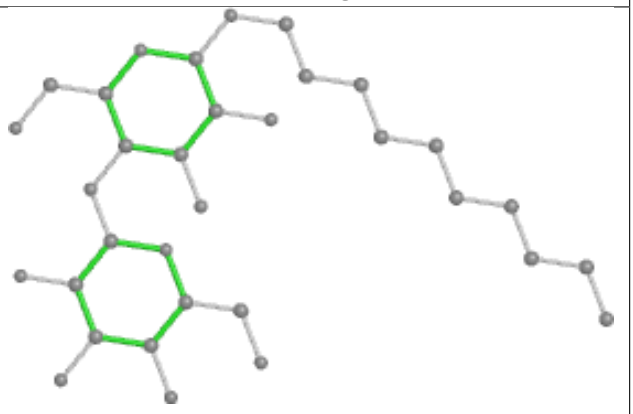
Bond lengths



Bond angles

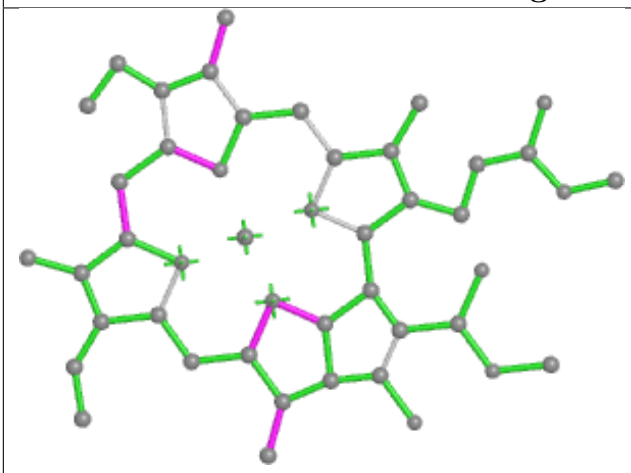


Torsions

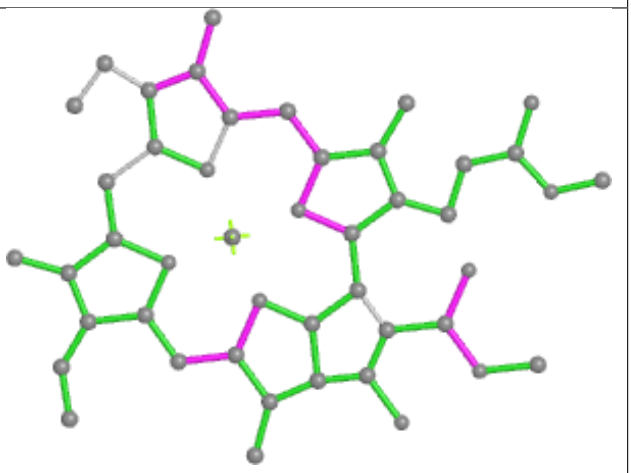


Rings

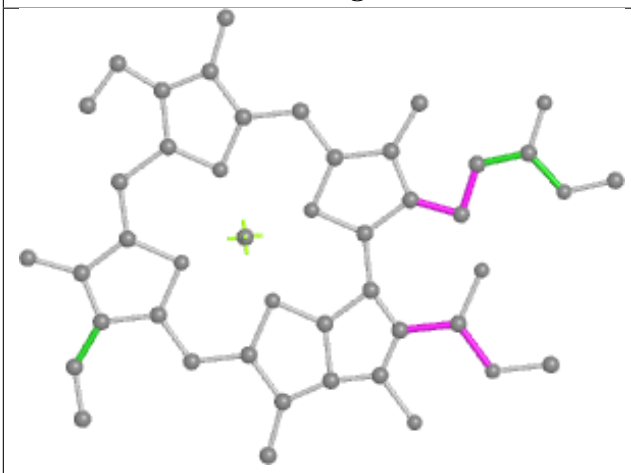
Ligand CLA s 602



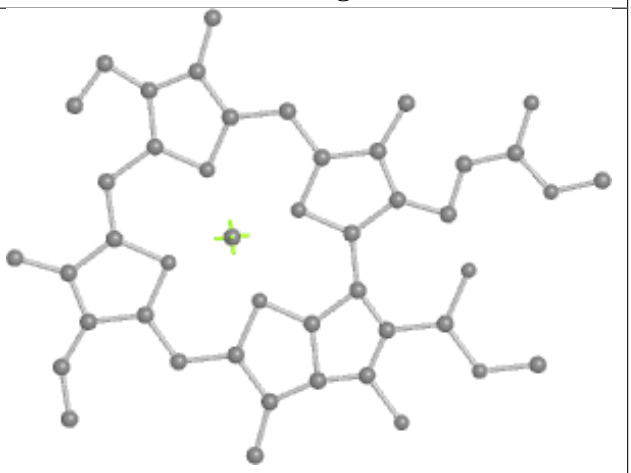
Bond lengths



Bond angles

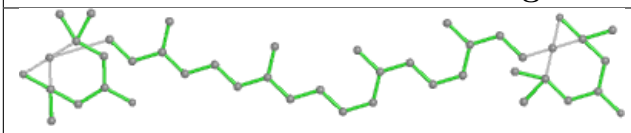


Torsions

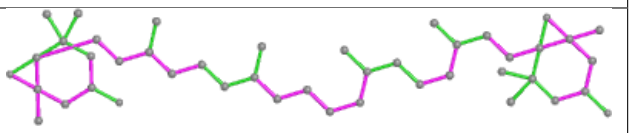


Rings

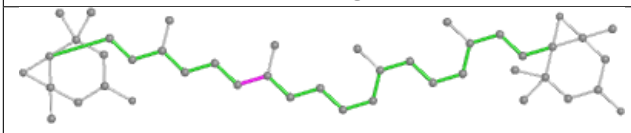
Ligand XAT G 617



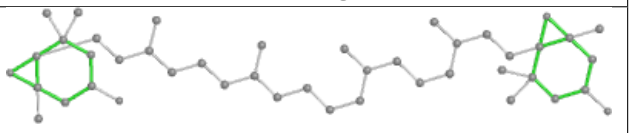
Bond lengths



Bond angles

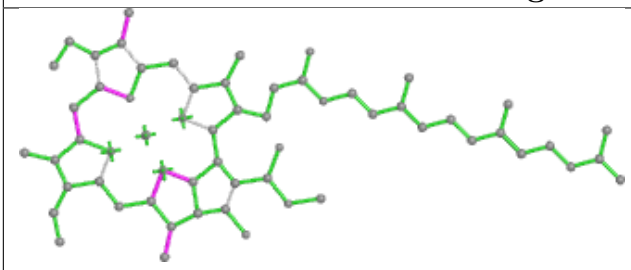


Torsions

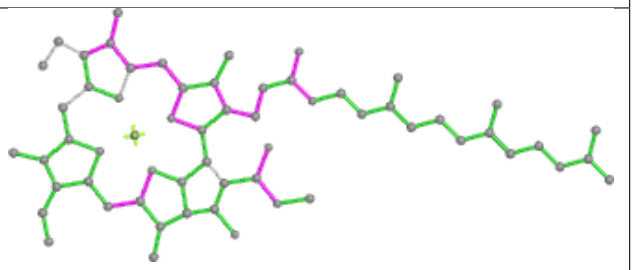


Rings

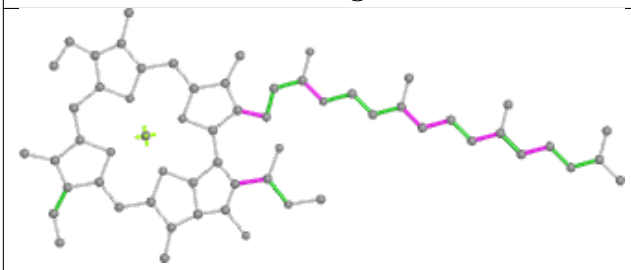
Ligand CLA n 613



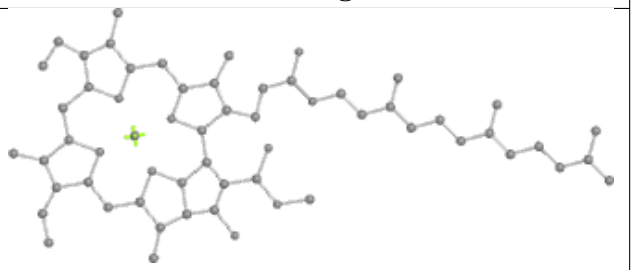
Bond lengths



Bond angles

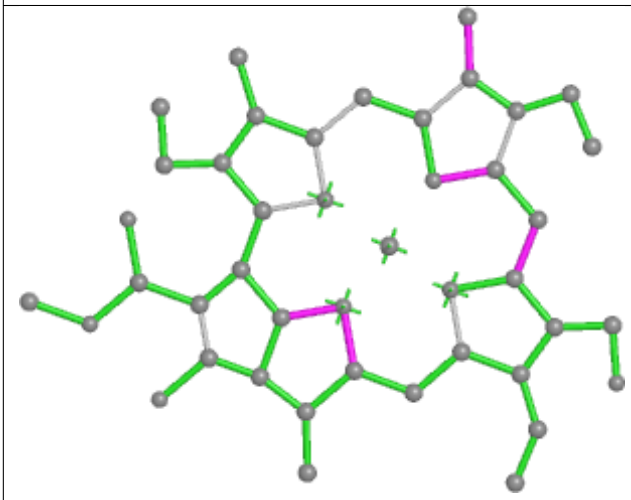


Torsions

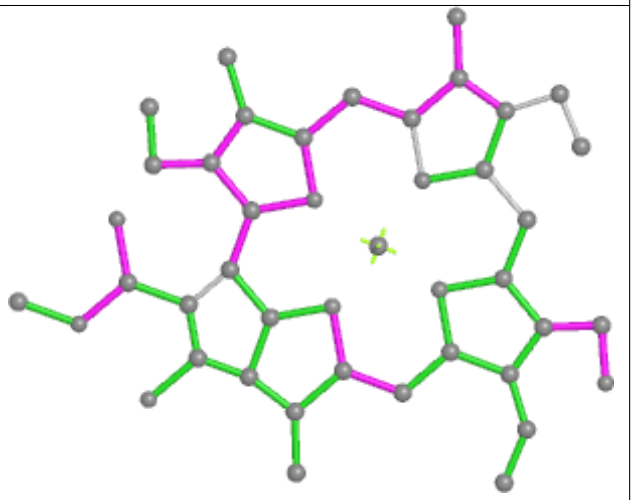


Rings

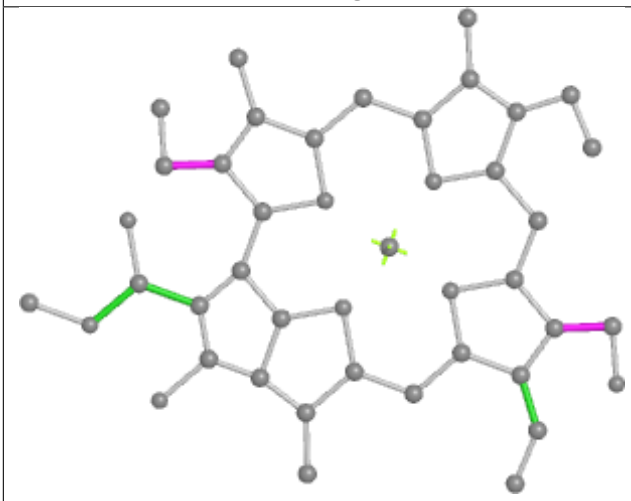
Ligand CHL s 606



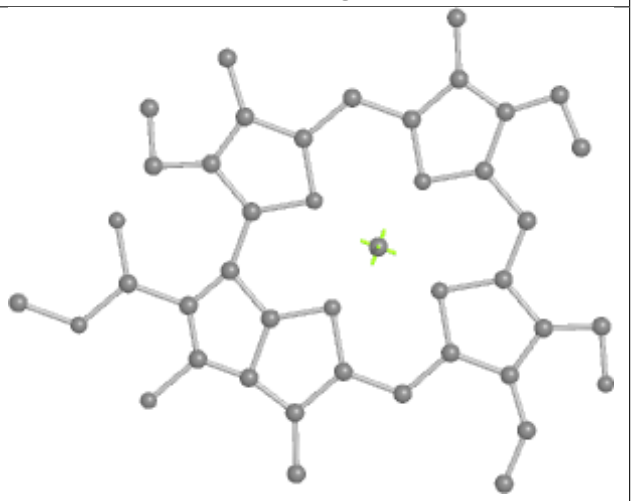
Bond lengths



Bond angles

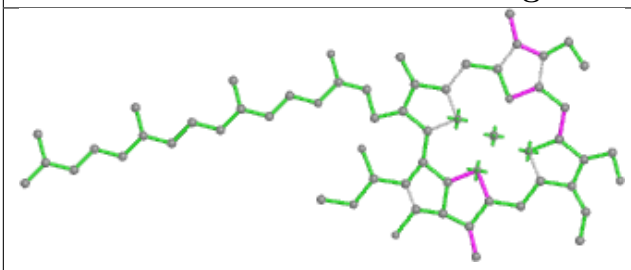


Torsions

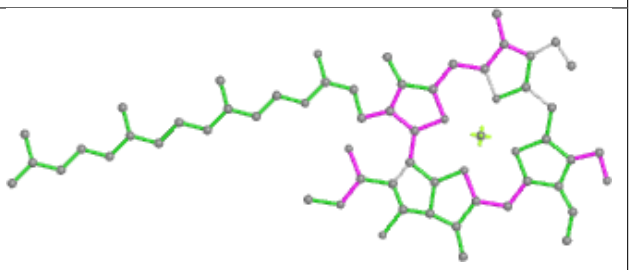


Rings

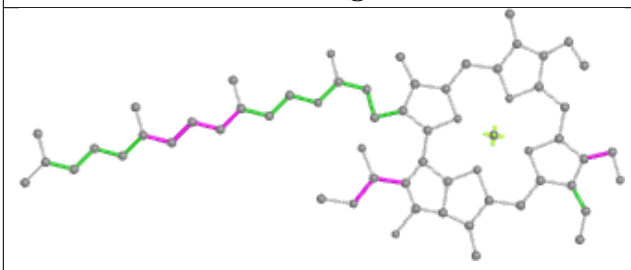
Ligand CHL G 609



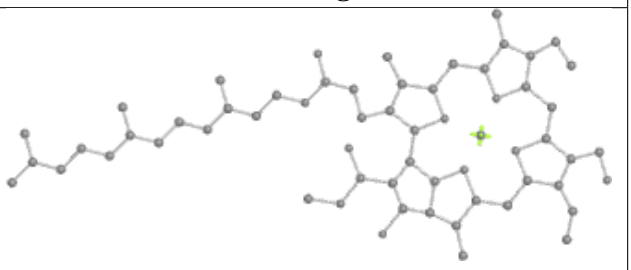
Bond lengths



Bond angles

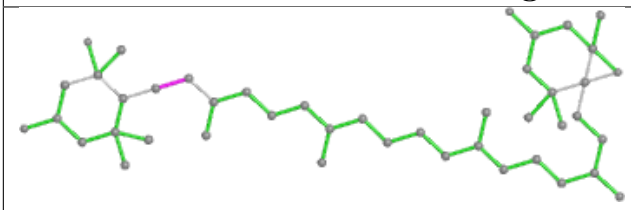


Torsions

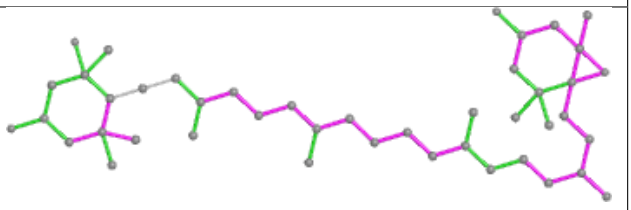


Rings

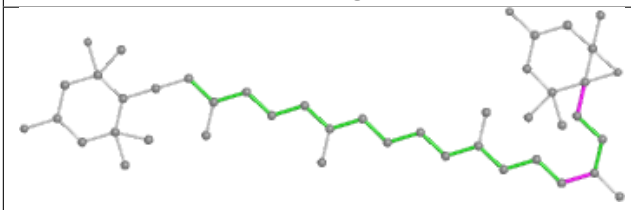
Ligand NEX G 618



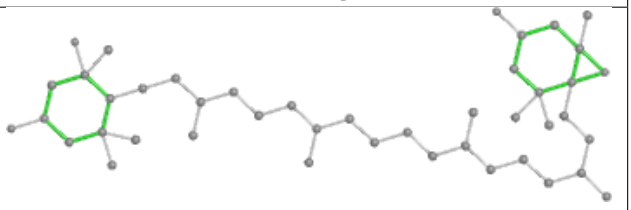
Bond lengths



Bond angles

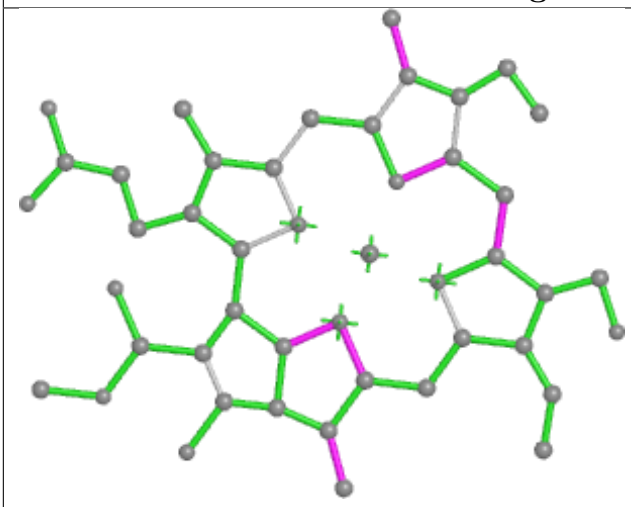


Torsions

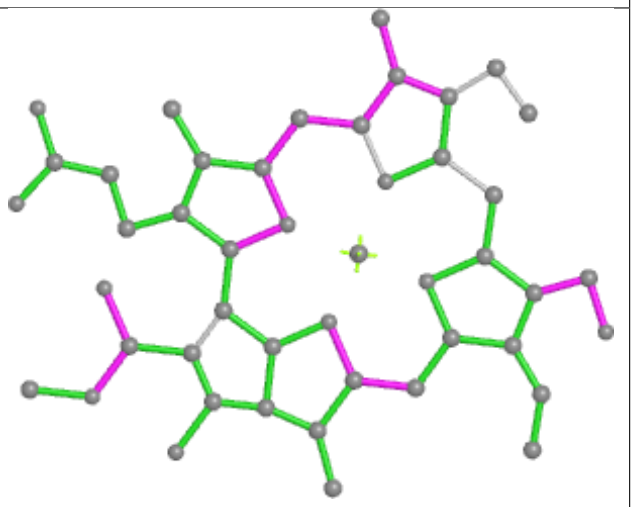


Rings

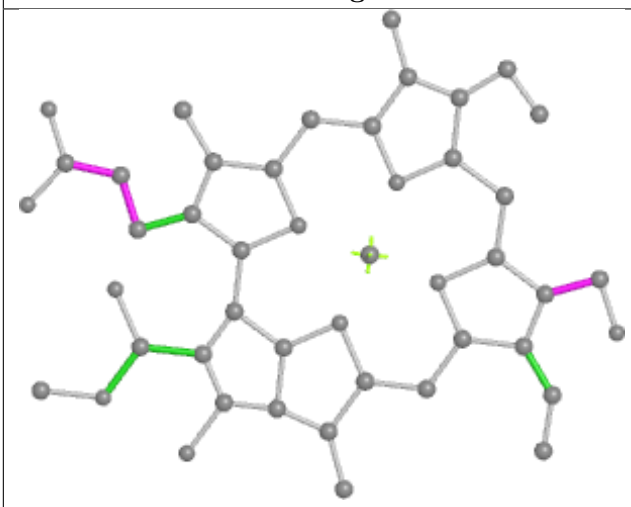
Ligand CHL r 606



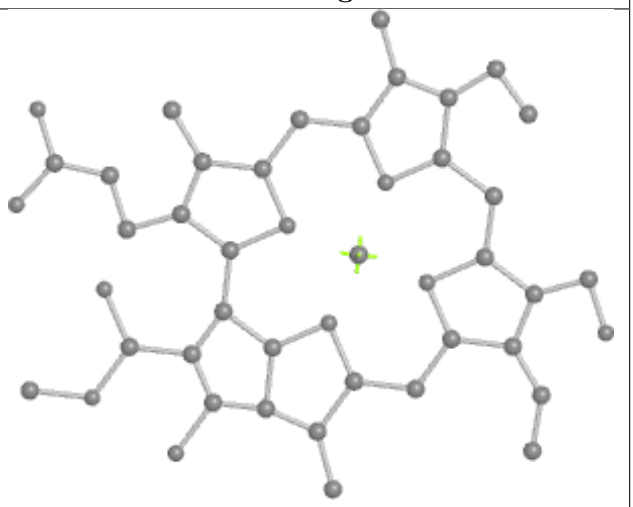
Bond lengths



Bond angles

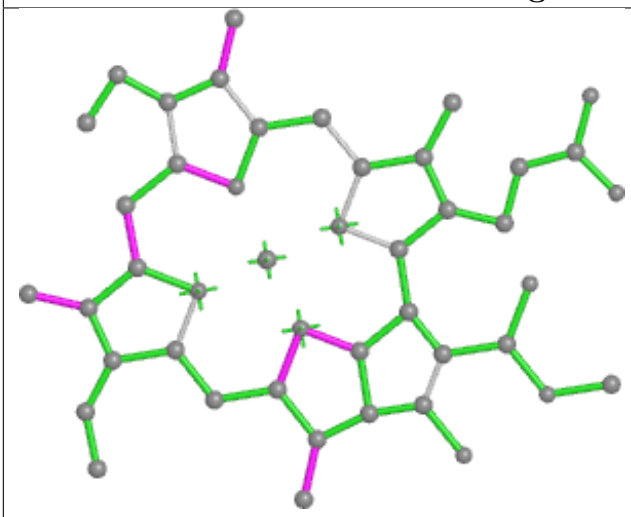


Torsions

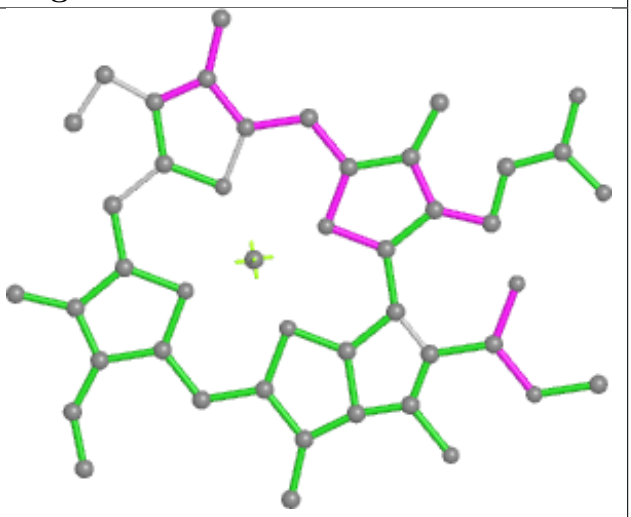


Rings

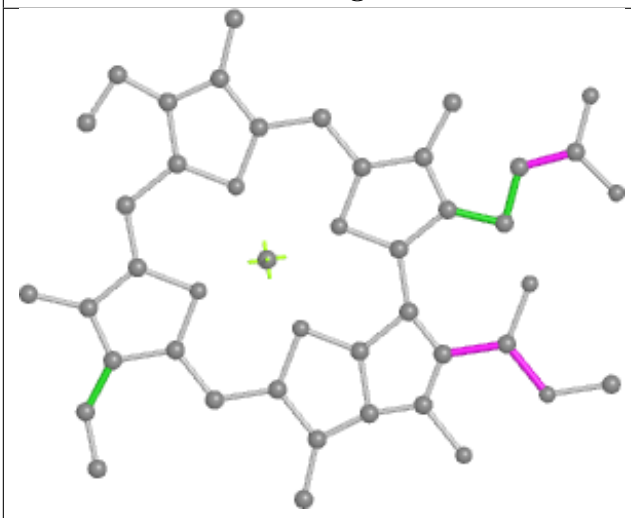
Ligand CLA g 612



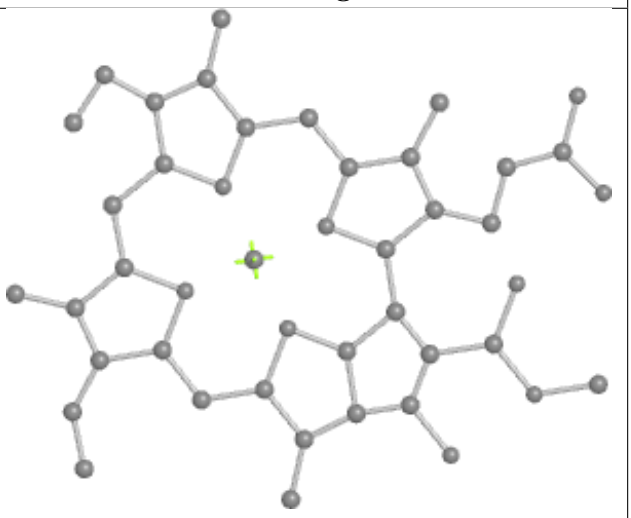
Bond lengths



Bond angles

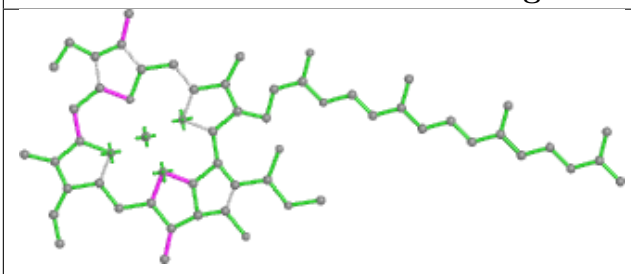


Torsions

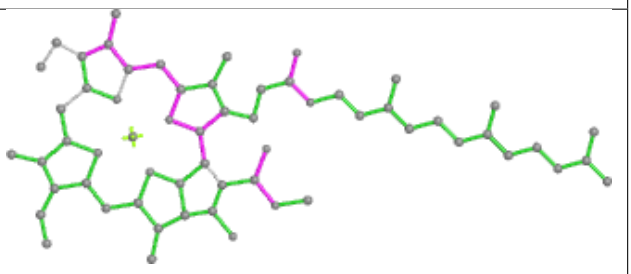


Rings

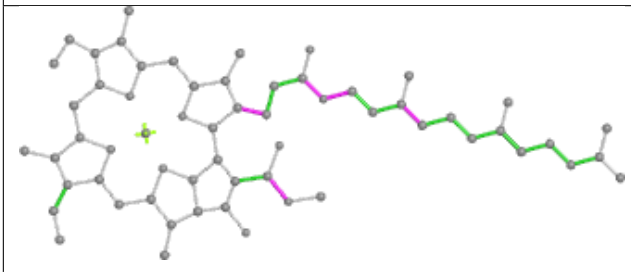
Ligand CLA N 611



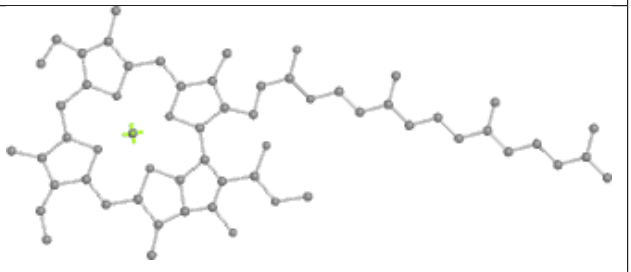
Bond lengths



Bond angles

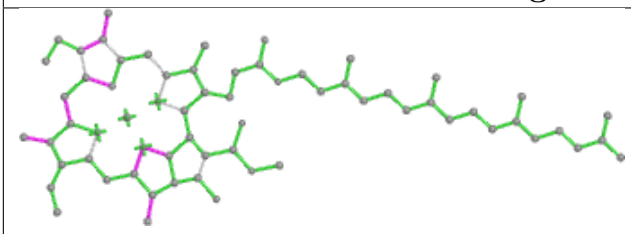


Torsions

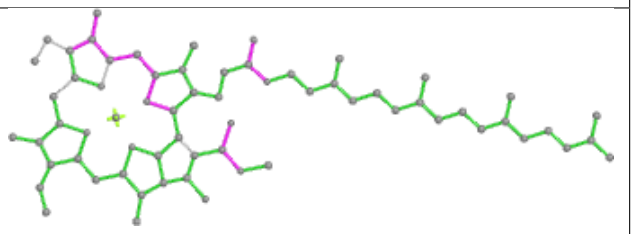


Rings

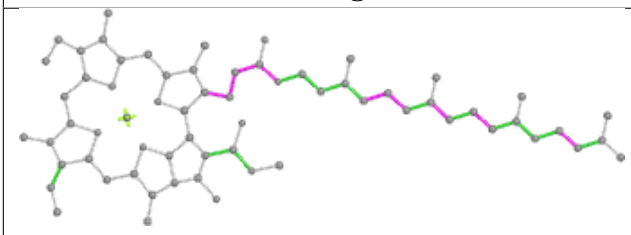
Ligand CLA c 501



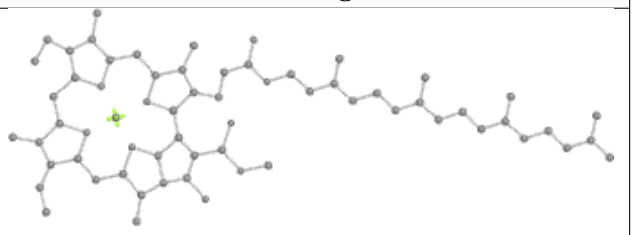
Bond lengths



Bond angles

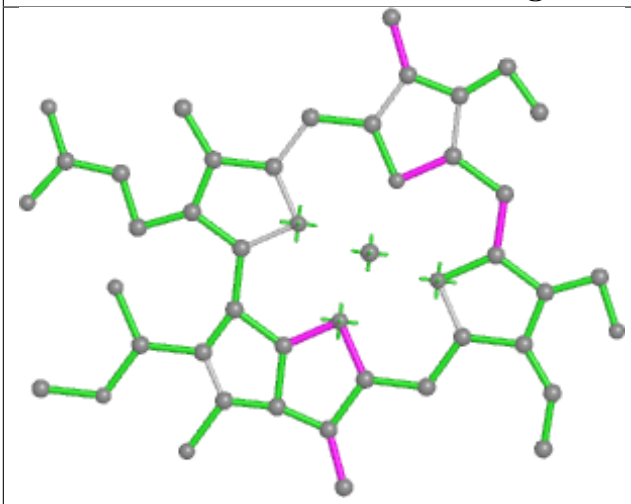


Torsions

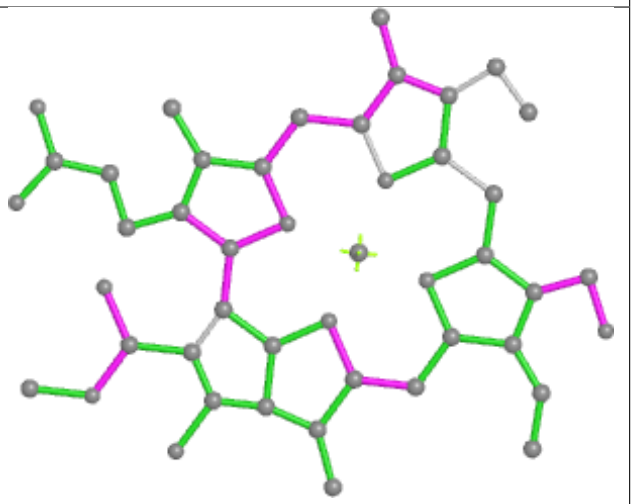


Rings

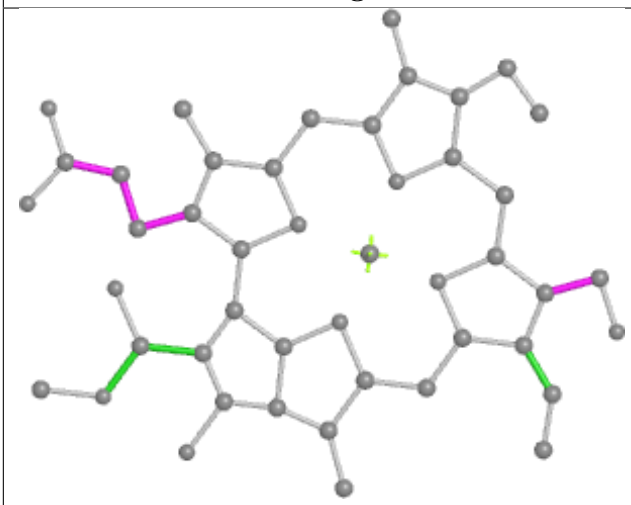
Ligand CHL n 606



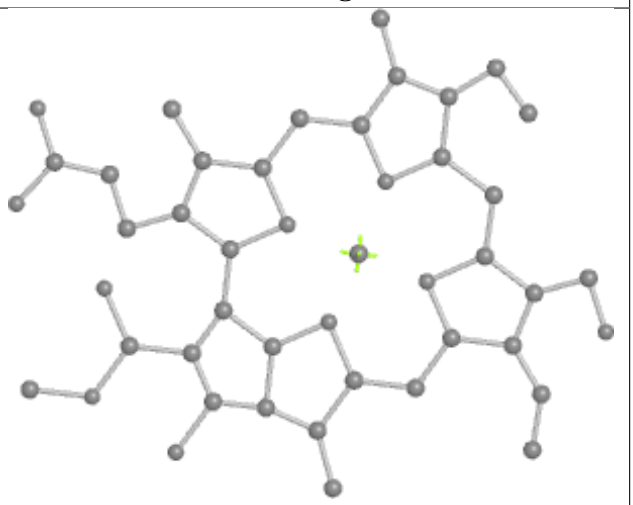
Bond lengths



Bond angles

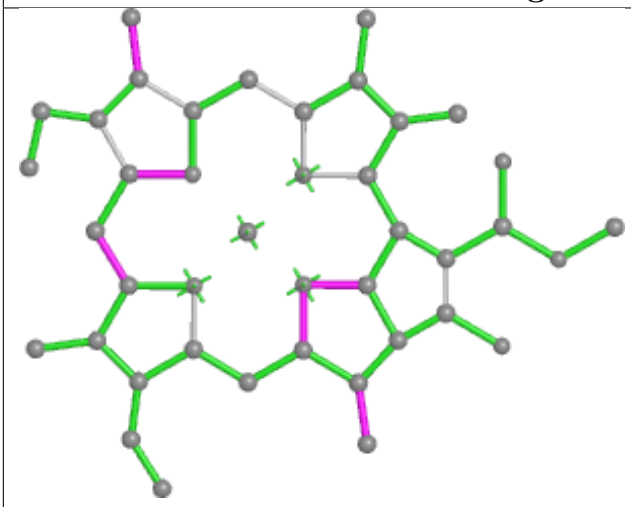


Torsions

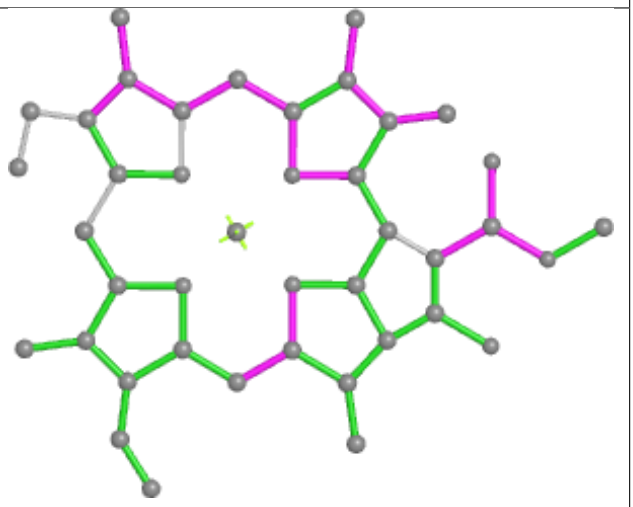


Rings

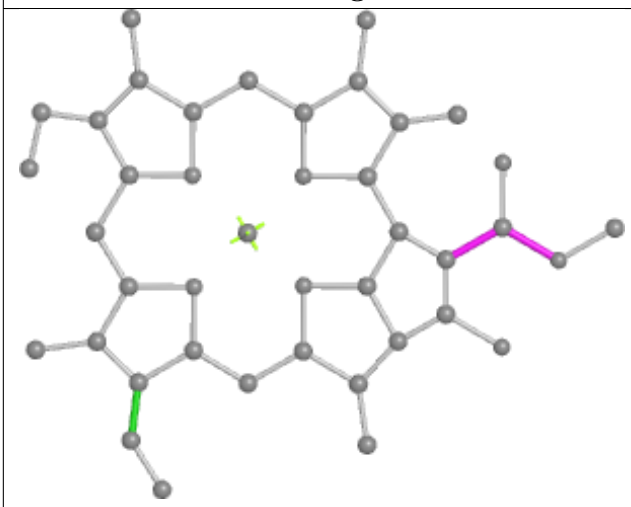
Ligand CLA S 314



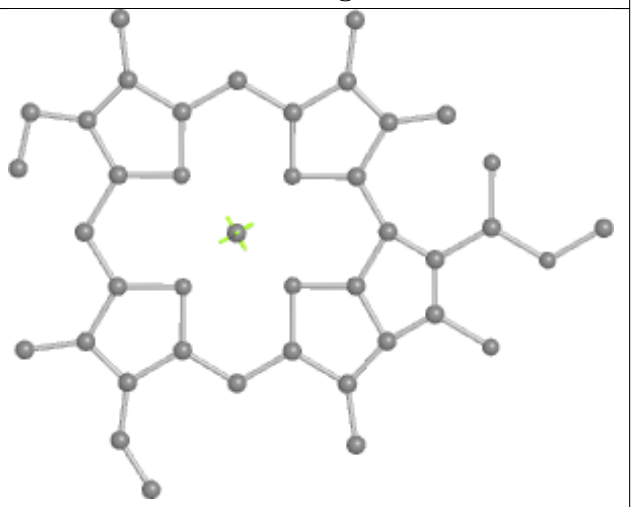
Bond lengths



Bond angles

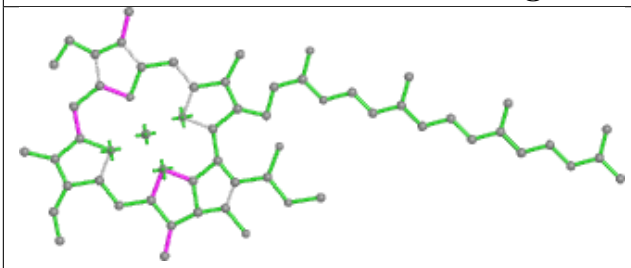


Torsions

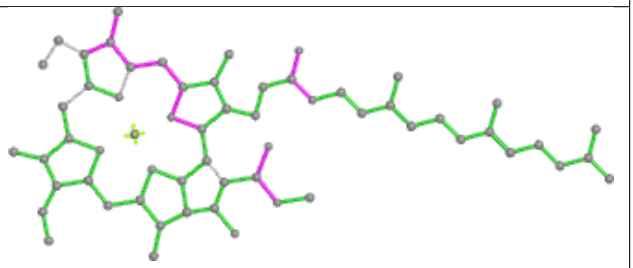


Rings

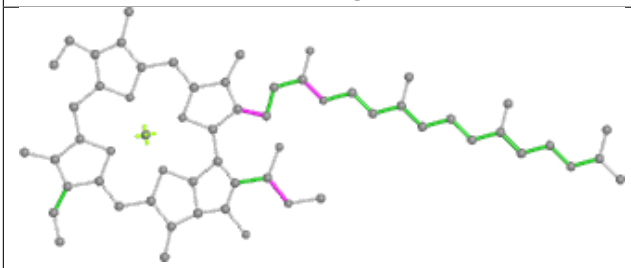
Ligand CLA C 505



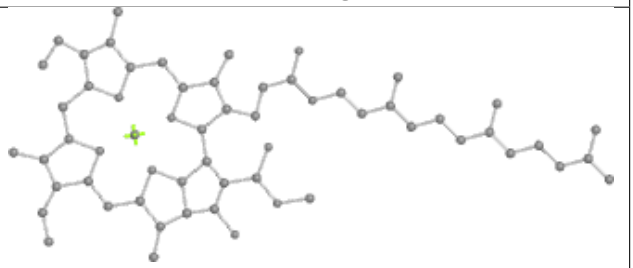
Bond lengths



Bond angles

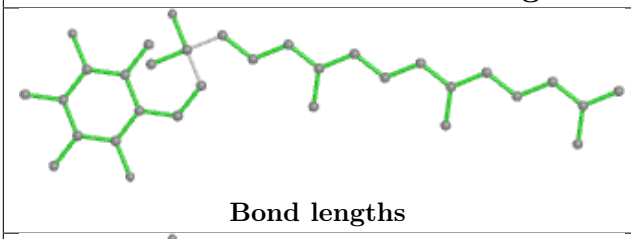


Torsions

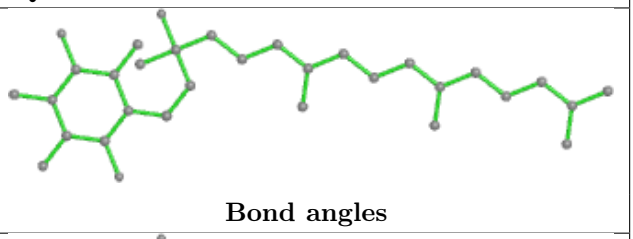


Rings

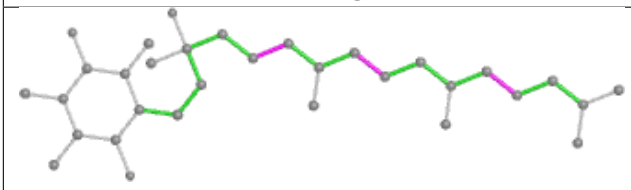
Ligand VTQ w 201



Bond lengths



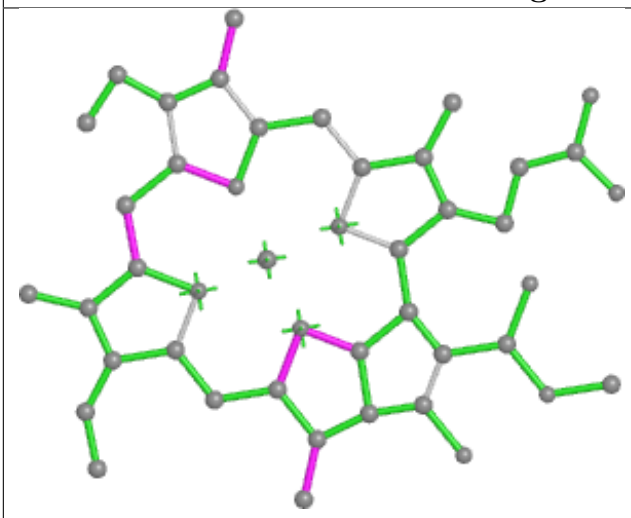
Bond angles



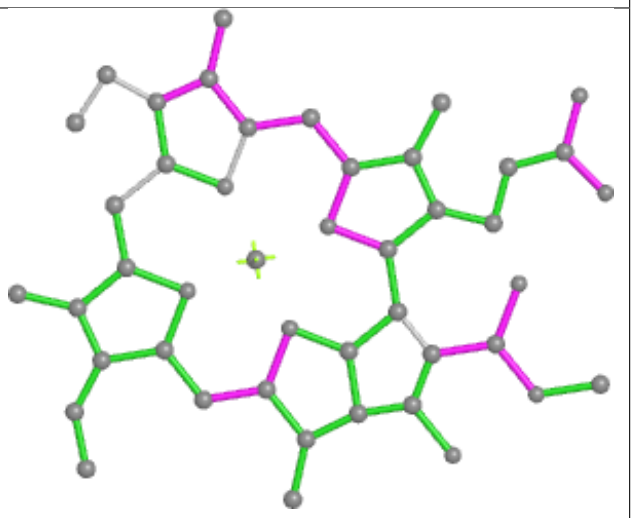
Torsions

Rings

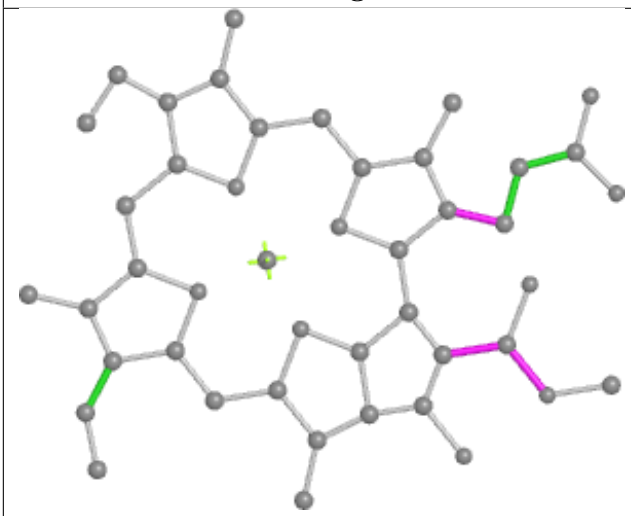
Ligand CLA s 608



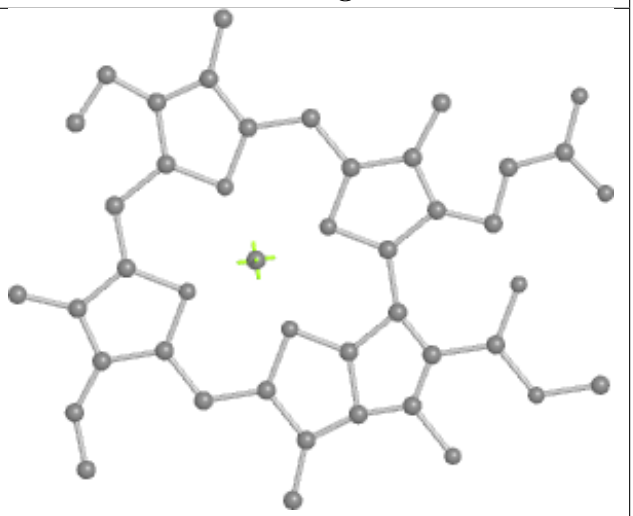
Bond lengths



Bond angles

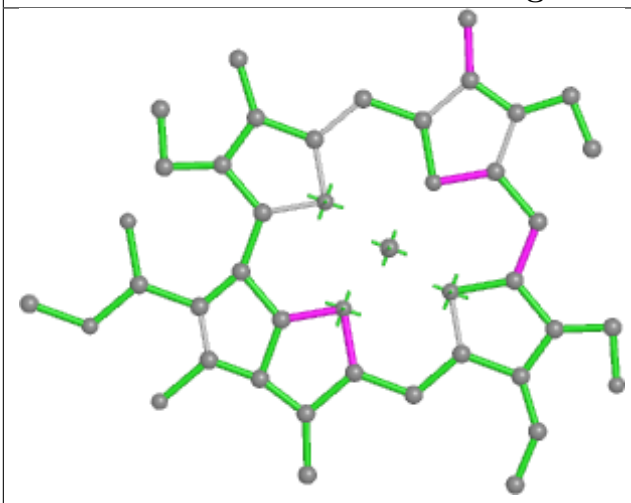


Torsions

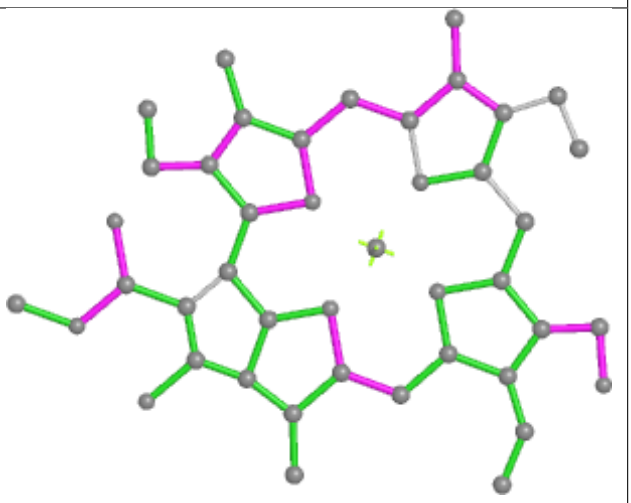


Rings

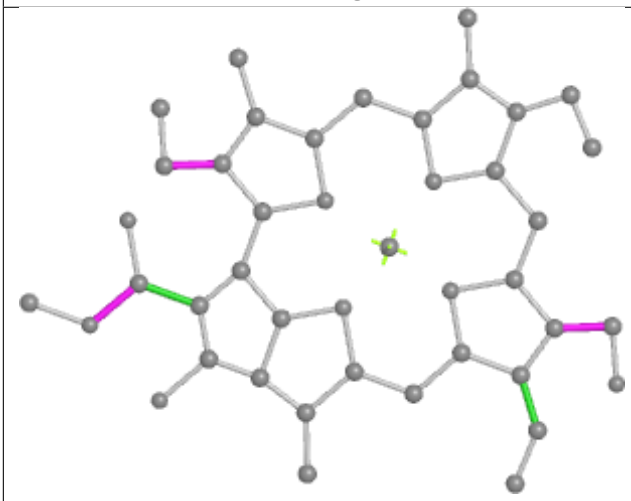
Ligand CHL S 307



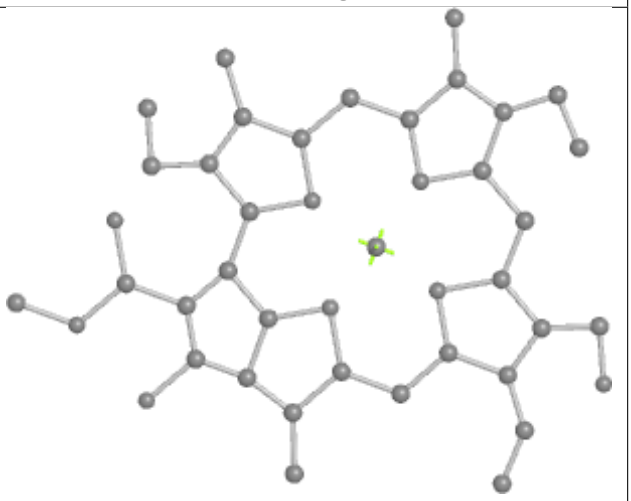
Bond lengths



Bond angles

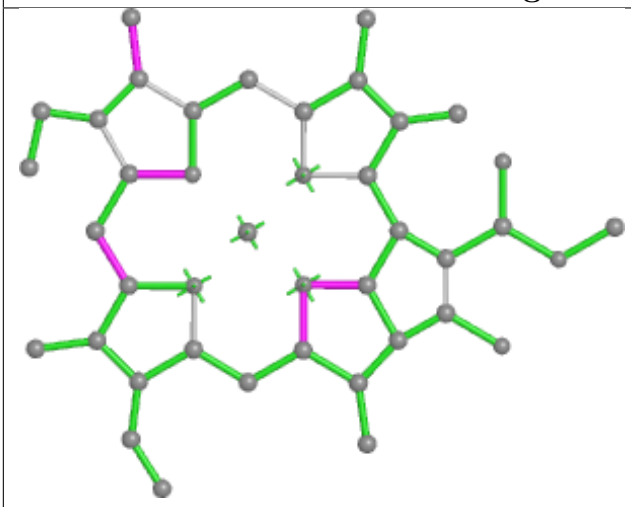


Torsions

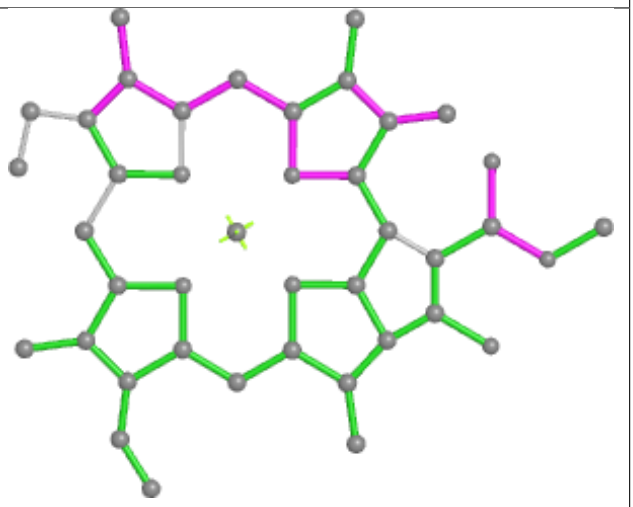


Rings

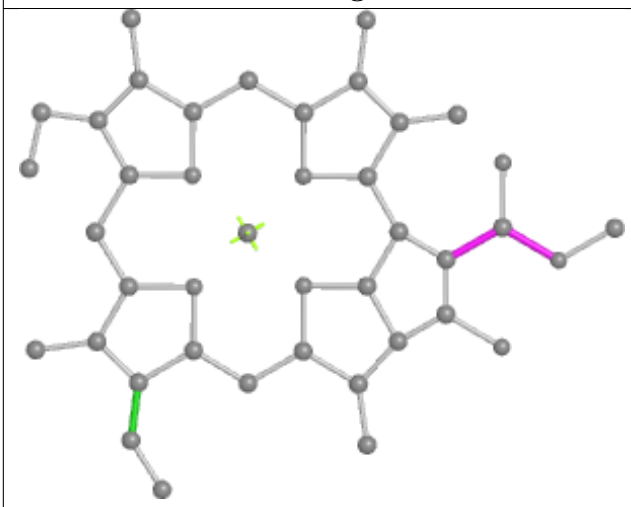
Ligand CLA N 614



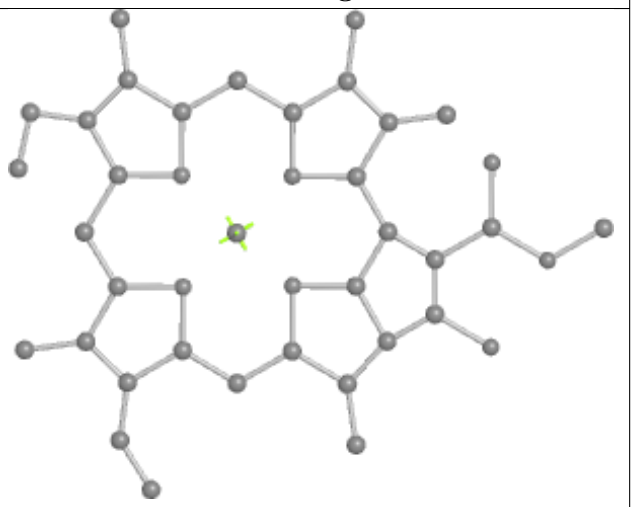
Bond lengths



Bond angles

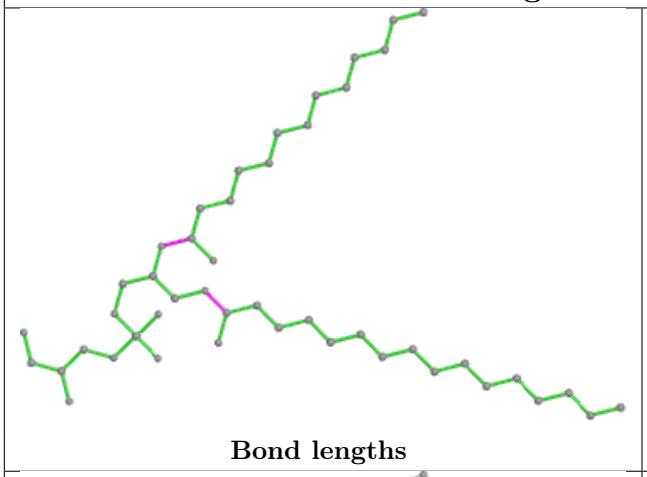


Torsions

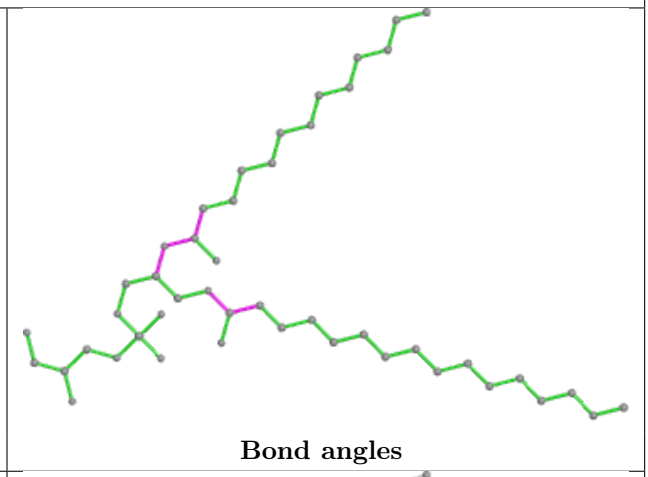


Rings

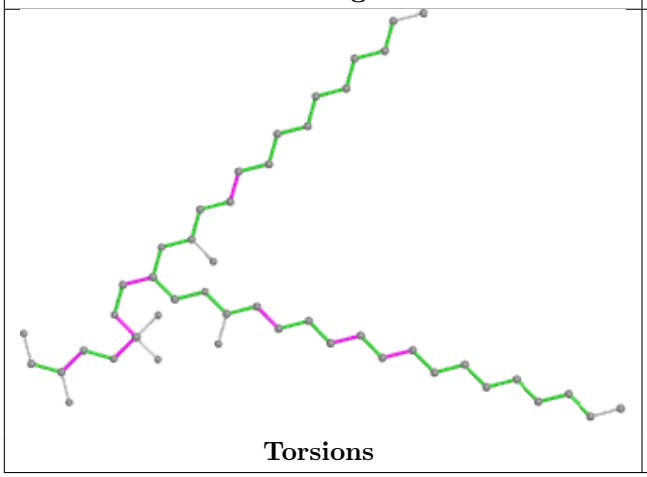
Ligand LHG B 622



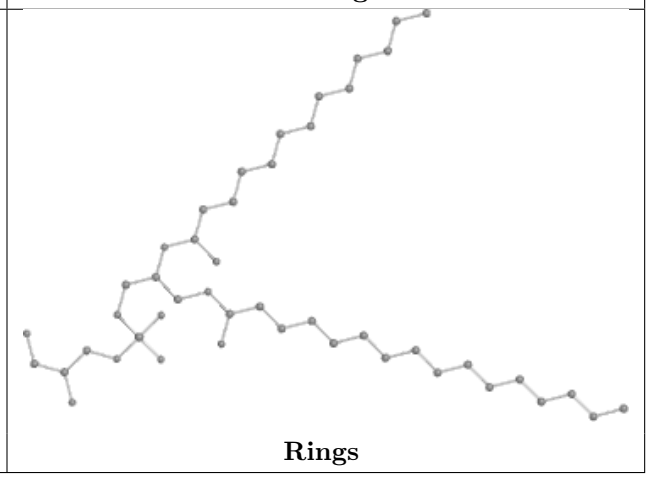
Bond lengths



Bond angles

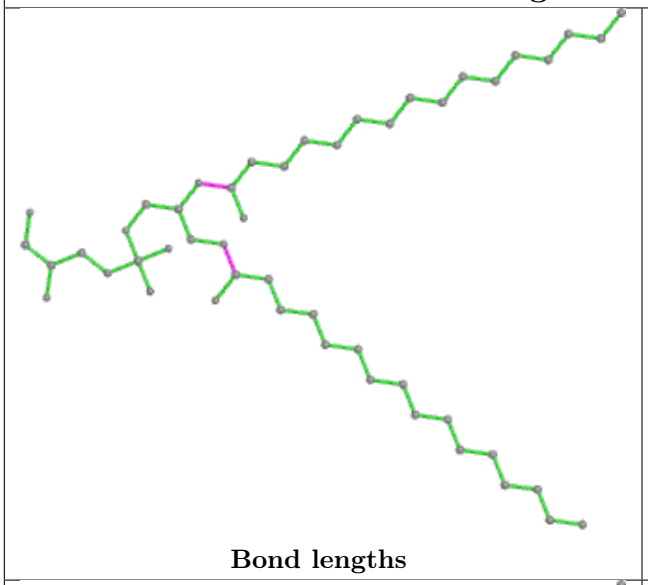


Torsions

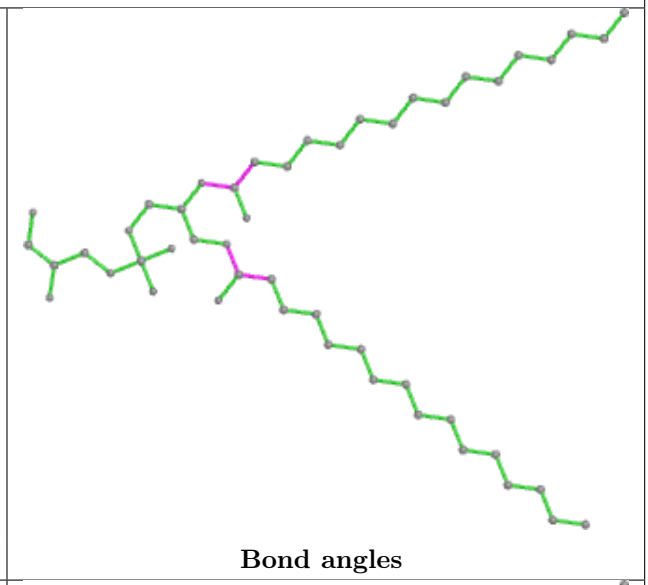


Rings

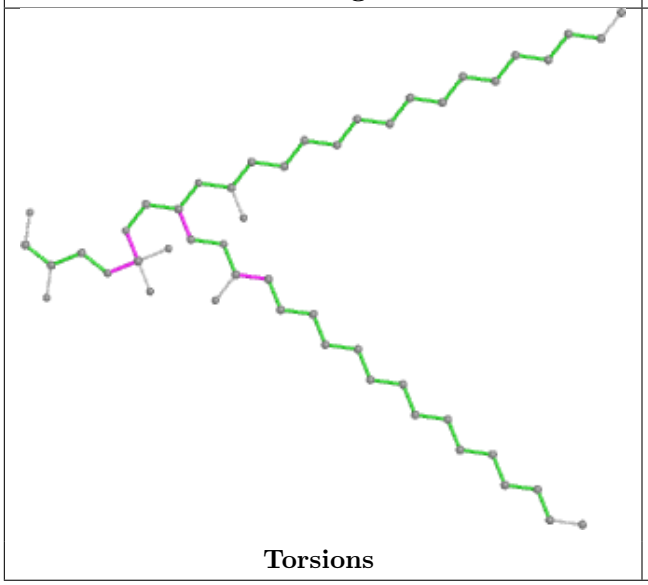
Ligand LHG s 617



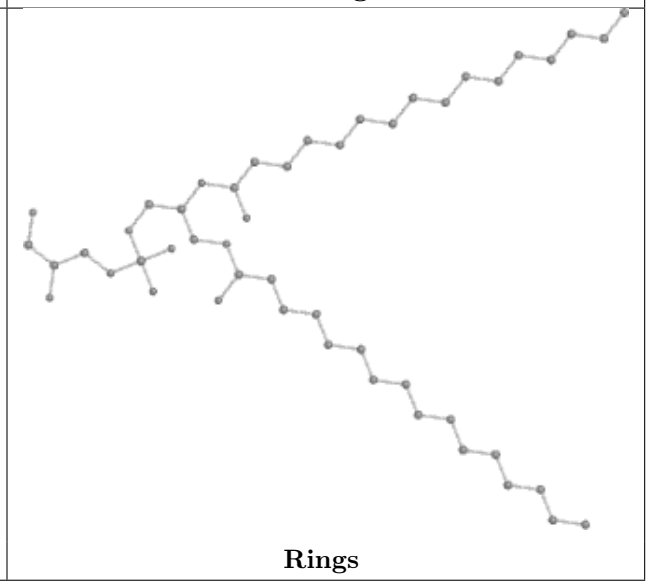
Bond lengths



Bond angles

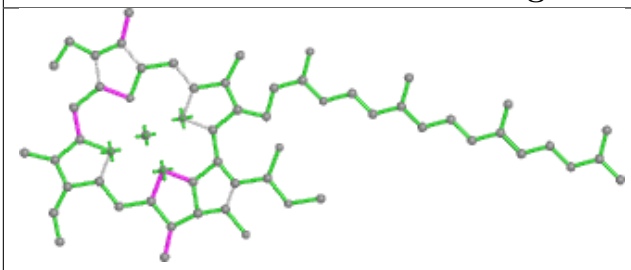


Torsions

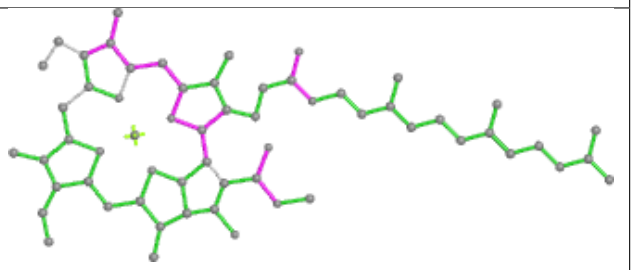


Rings

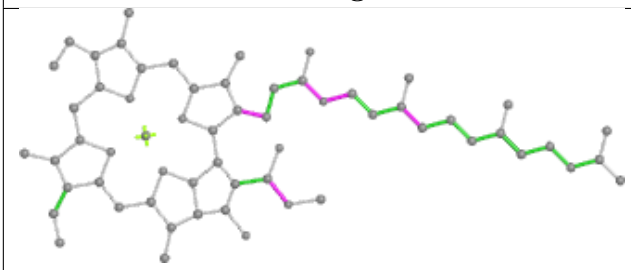
Ligand CLA n 611



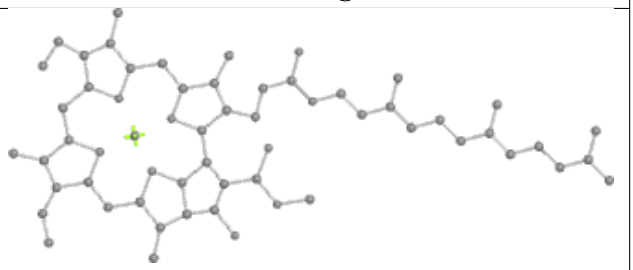
Bond lengths



Bond angles

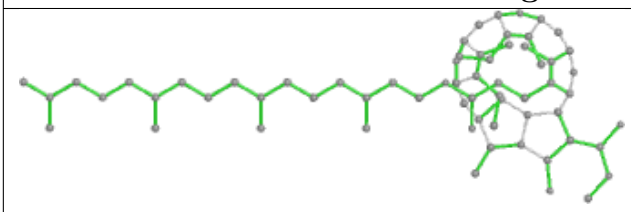


Torsions

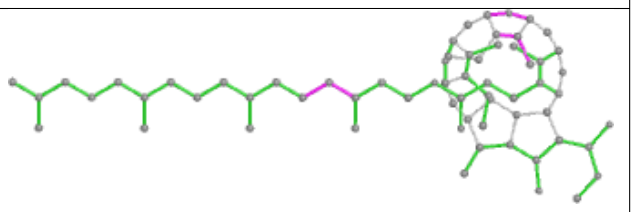


Rings

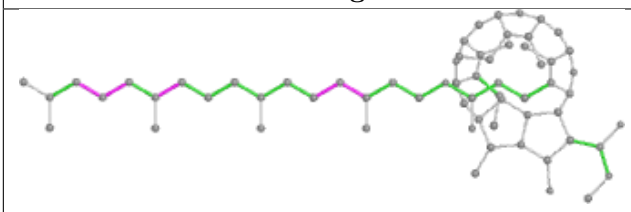
Ligand PHO D 402



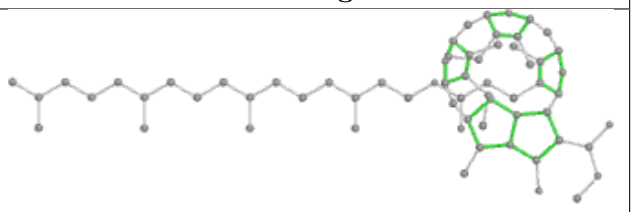
Bond lengths



Bond angles

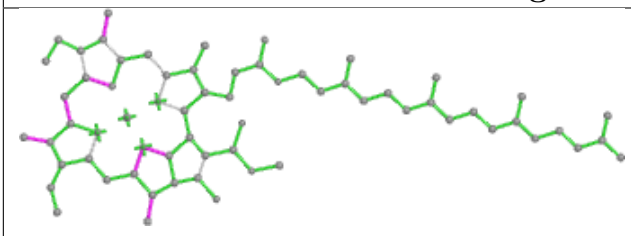


Torsions

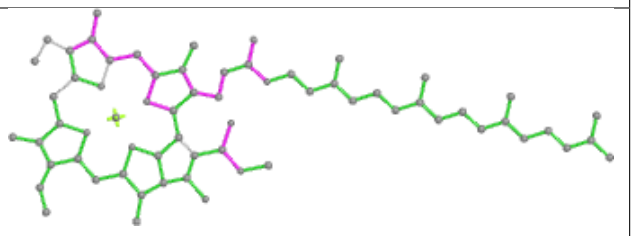


Rings

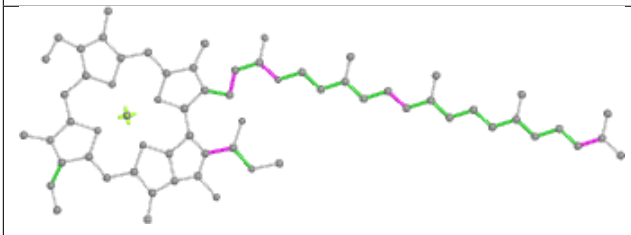
Ligand CLA c 513



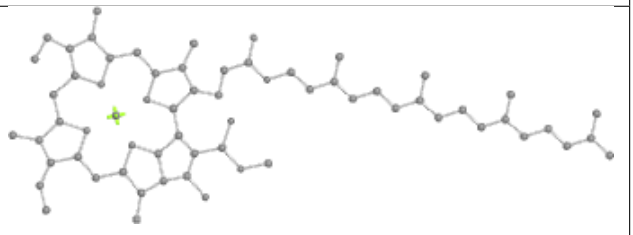
Bond lengths



Bond angles

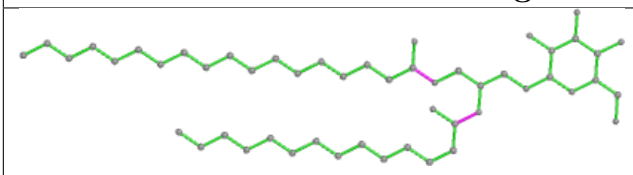


Torsions

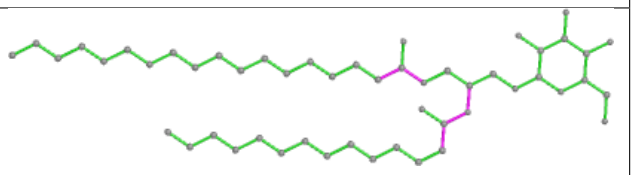


Rings

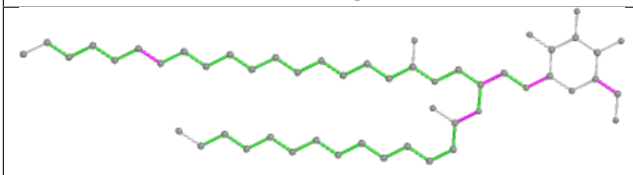
Ligand LMG W 203



Bond lengths



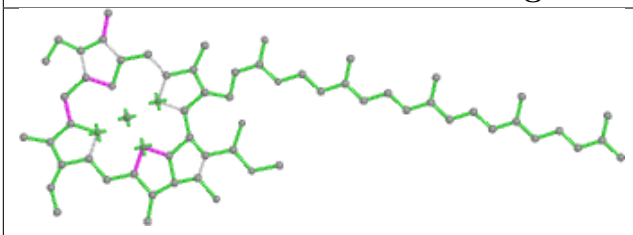
Bond angles



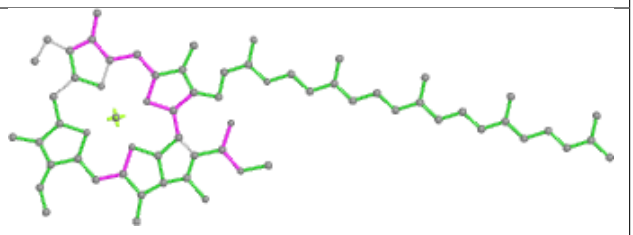
Torsions

Rings

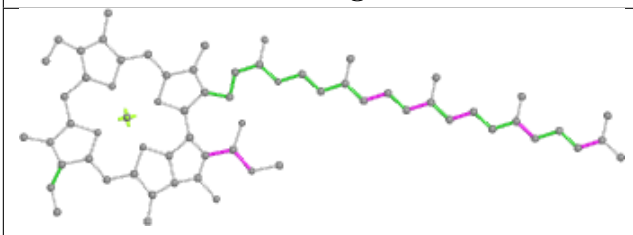
Ligand CLA C 512



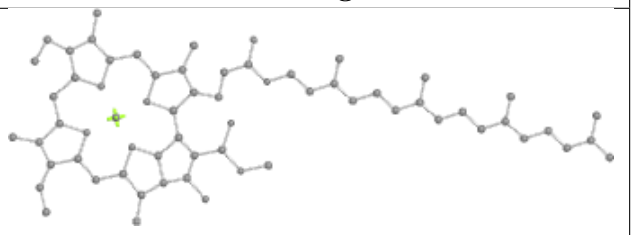
Bond lengths



Bond angles

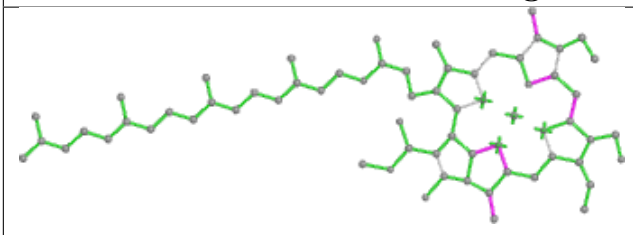


Torsions

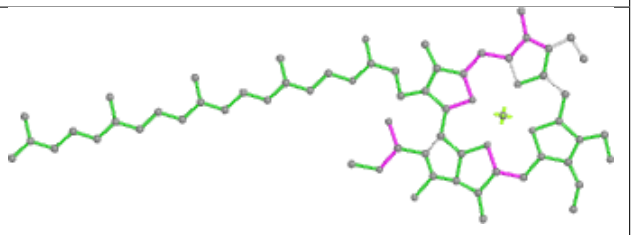


Rings

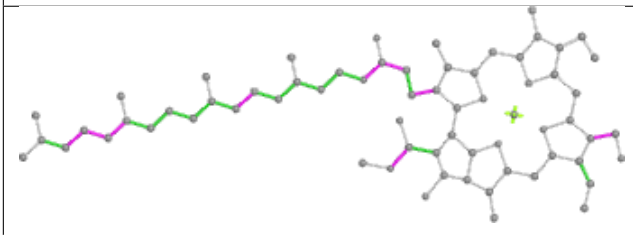
Ligand CHL G 608



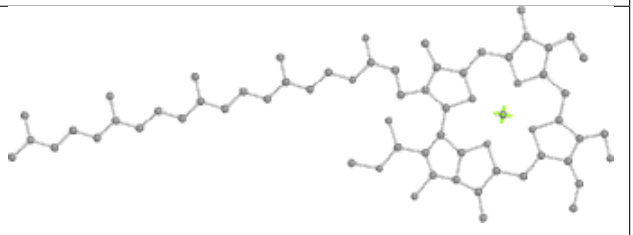
Bond lengths



Bond angles

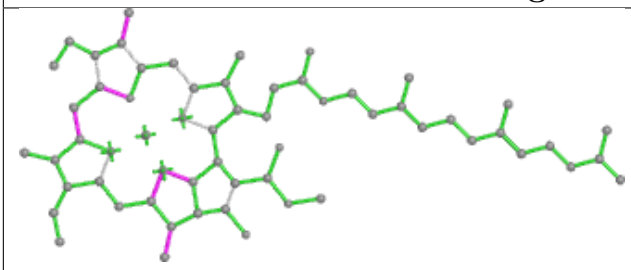


Torsions

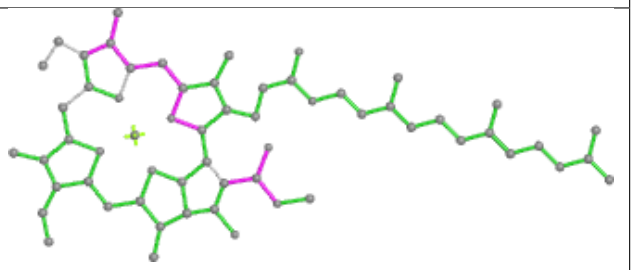


Rings

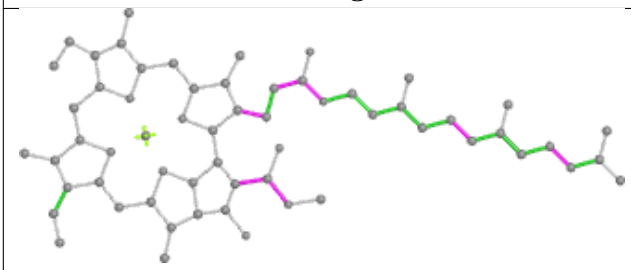
Ligand CLA a 404



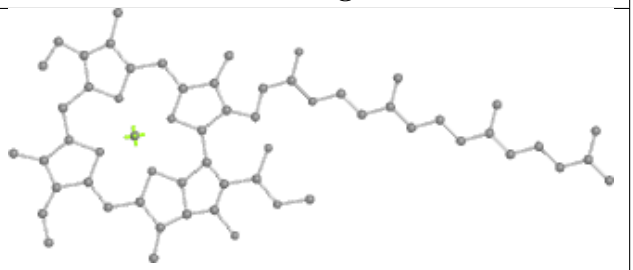
Bond lengths



Bond angles

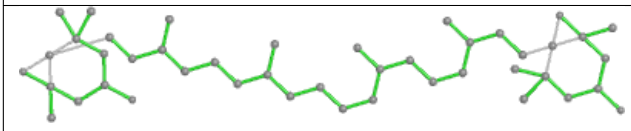


Torsions

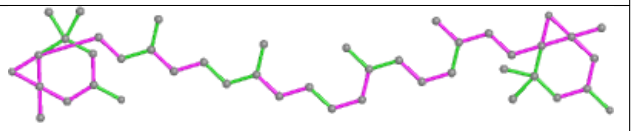


Rings

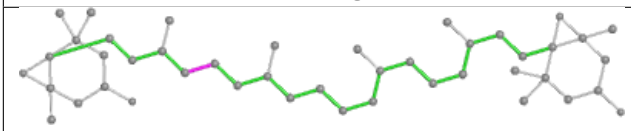
Ligand XAT r 614



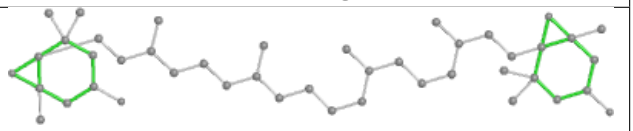
Bond lengths



Bond angles

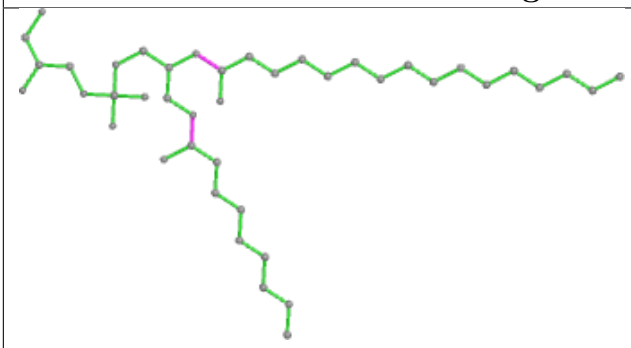


Torsions

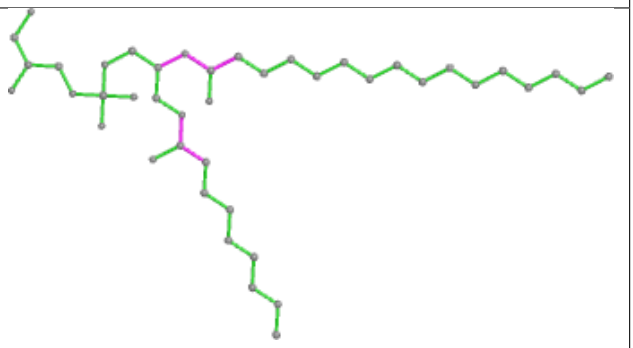


Rings

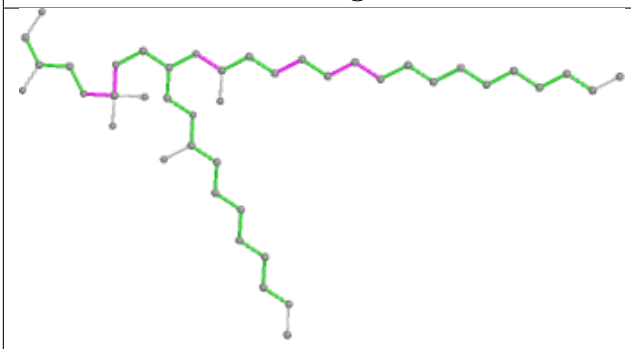
Ligand LHG R 317



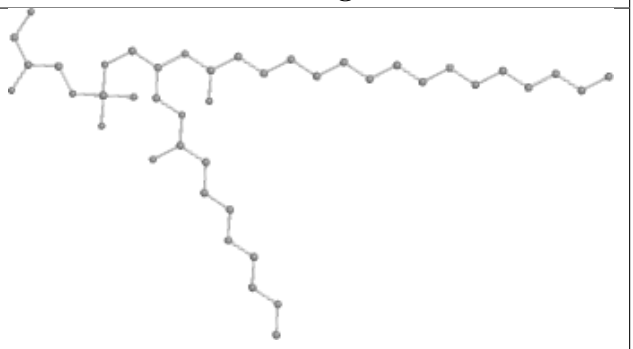
Bond lengths



Bond angles

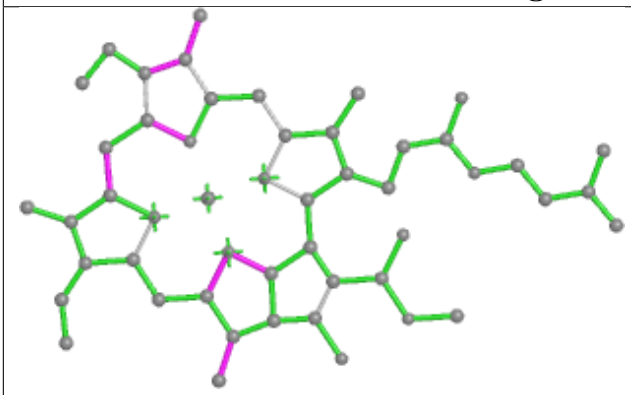


Torsions

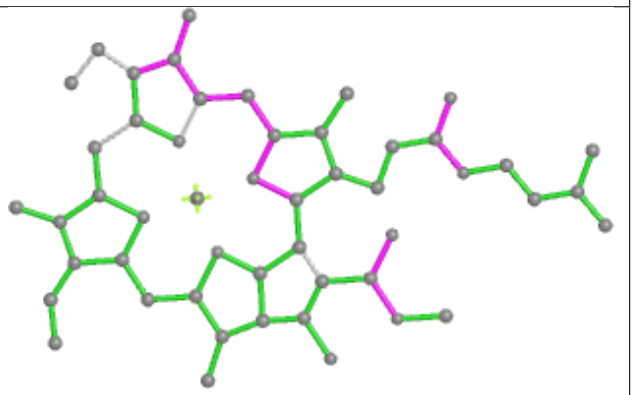


Rings

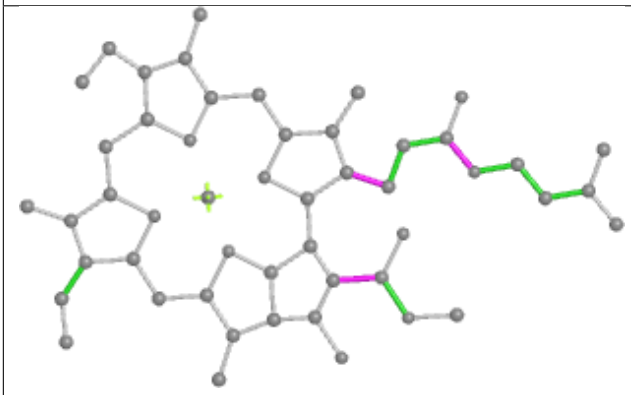
Ligand CLA S 305



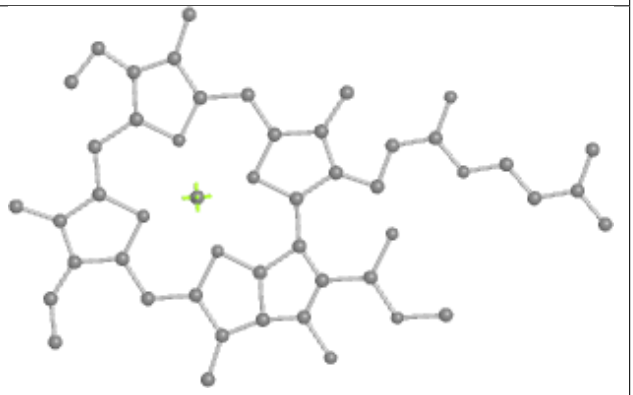
Bond lengths



Bond angles

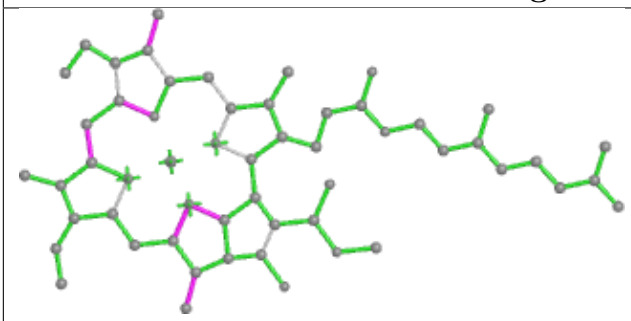


Torsions

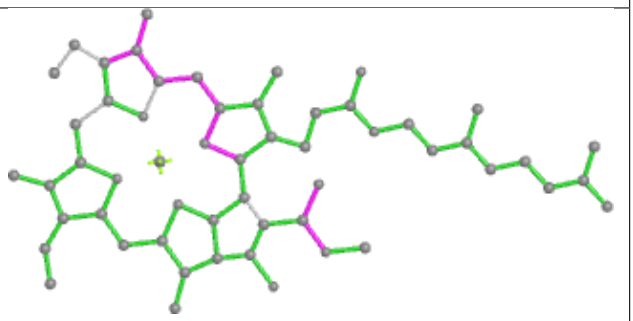


Rings

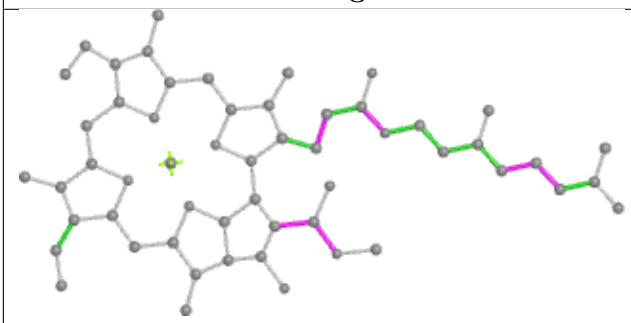
Ligand CLA s 612



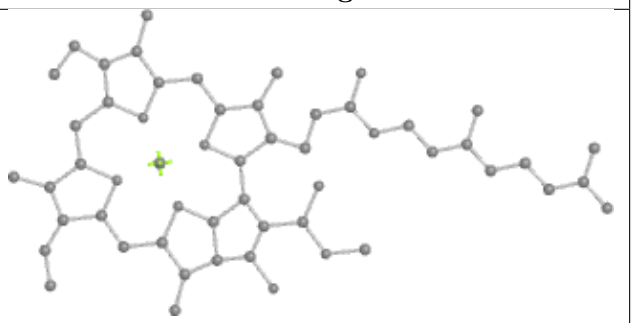
Bond lengths



Bond angles

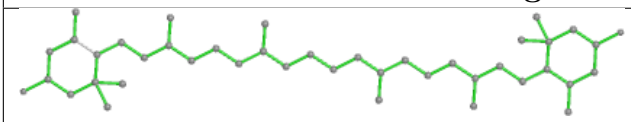


Torsions

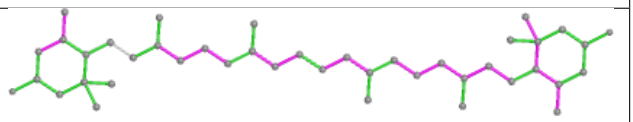


Rings

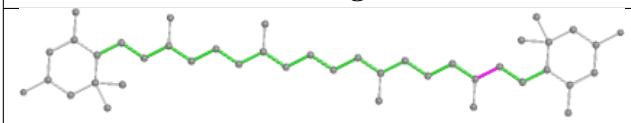
Ligand LUT R 314



Bond lengths



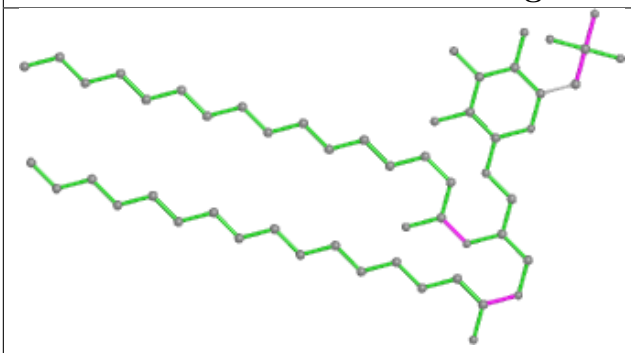
Bond angles



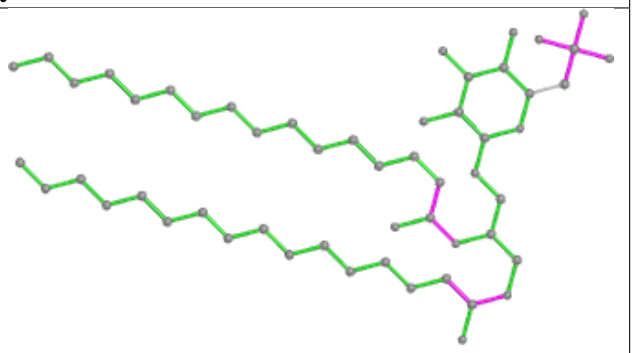
Torsions

Rings

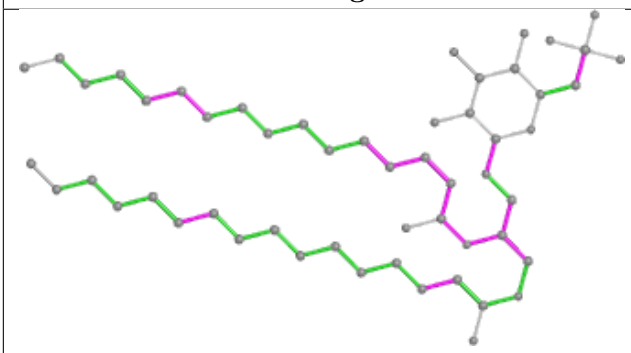
Ligand SQD B 625



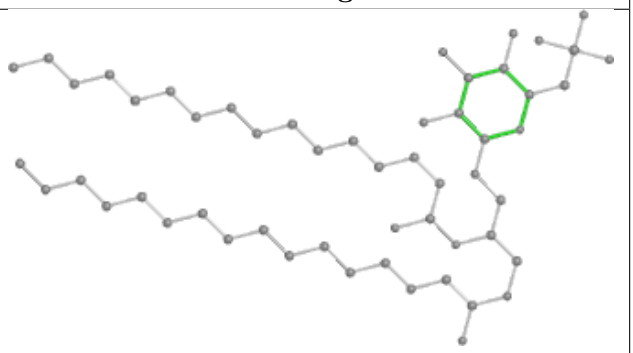
Bond lengths



Bond angles

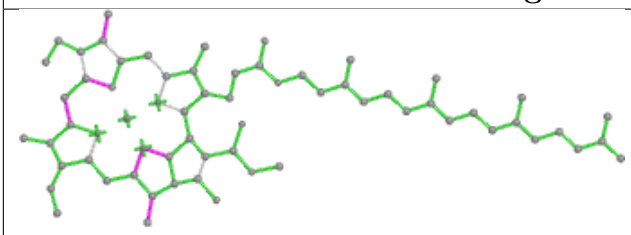


Torsions

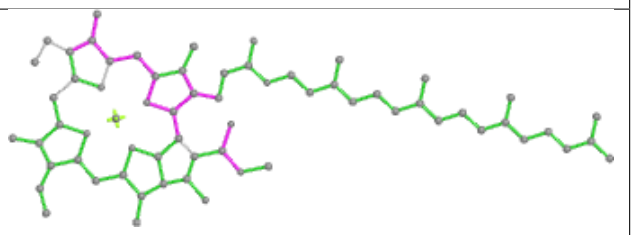


Rings

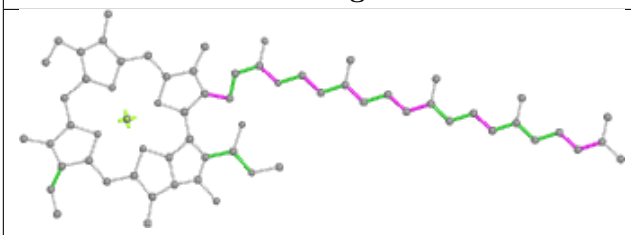
Ligand CLA B 602



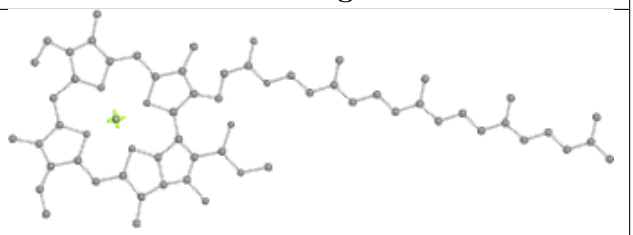
Bond lengths



Bond angles

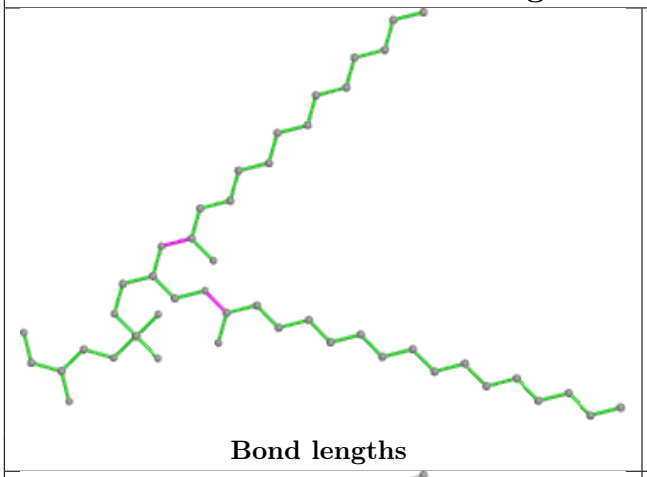


Torsions

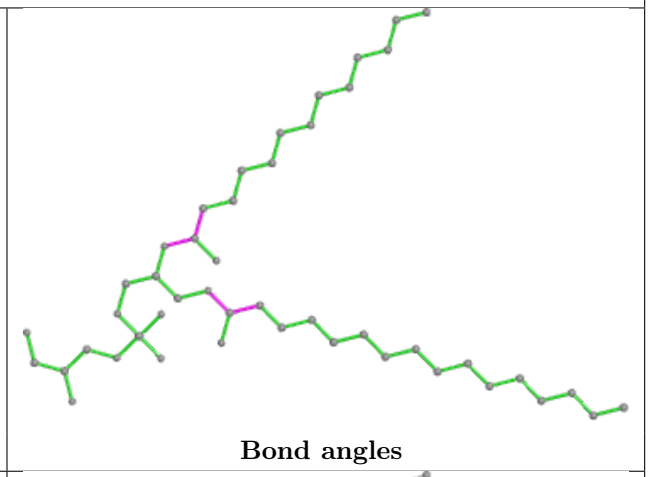


Rings

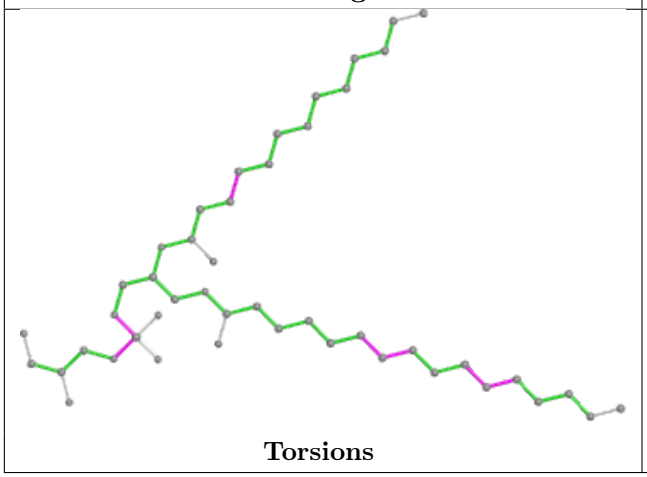
Ligand LHG b 624



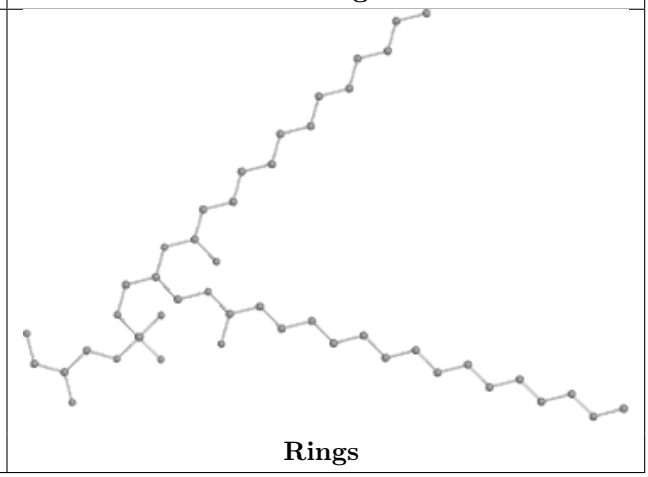
Bond lengths



Bond angles

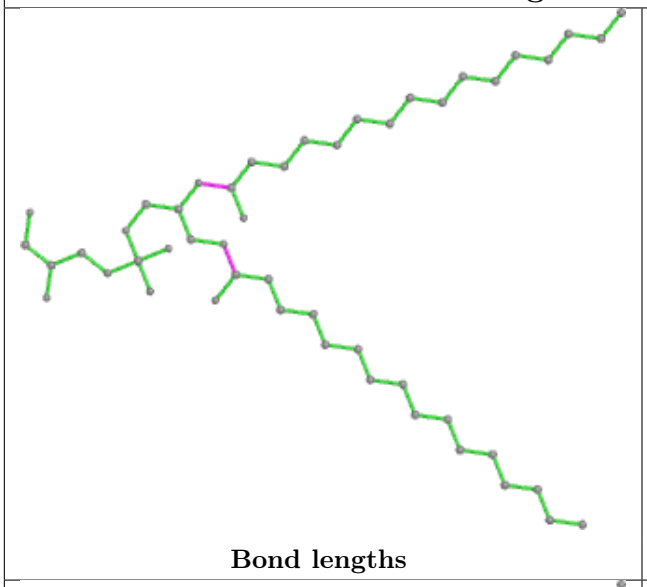


Torsions

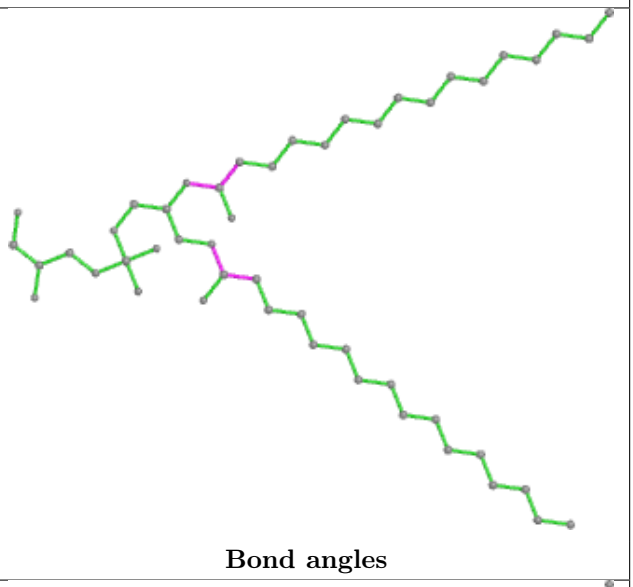


Rings

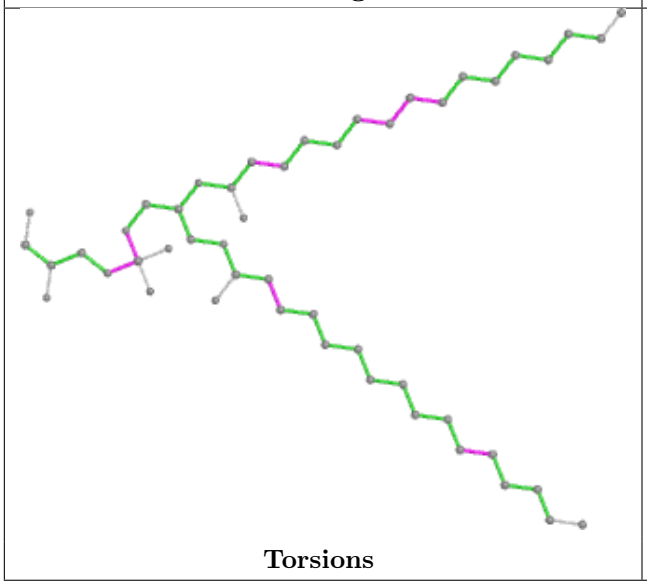
Ligand LHG d 408



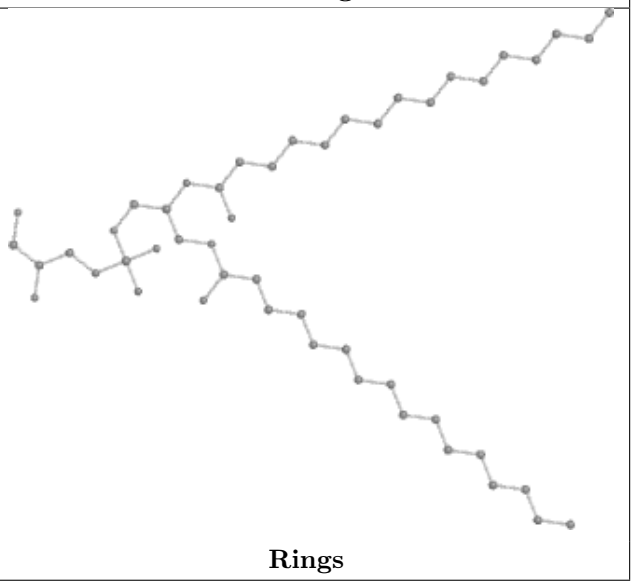
Bond lengths



Bond angles

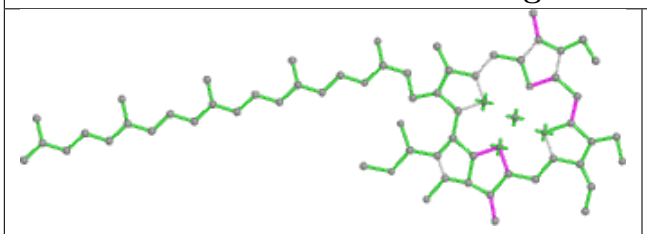


Torsions

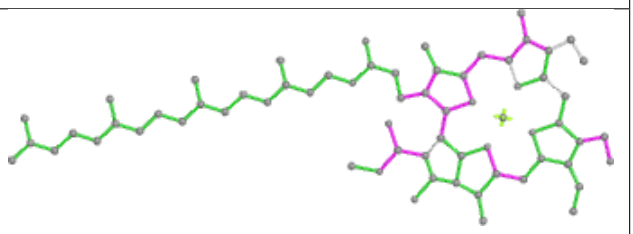


Rings

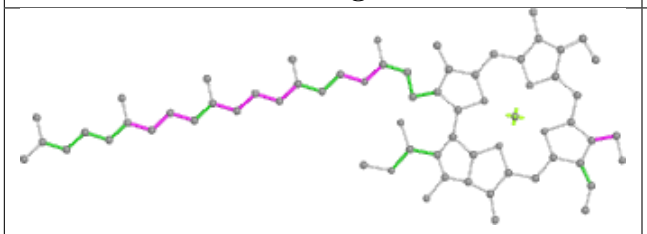
Ligand CHL N 609



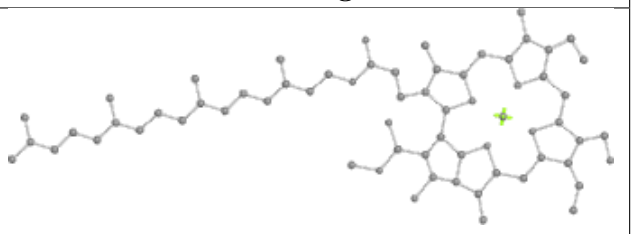
Bond lengths



Bond angles

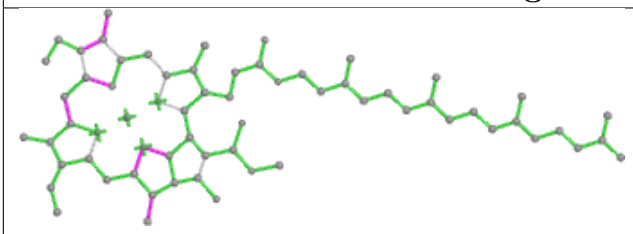


Torsions

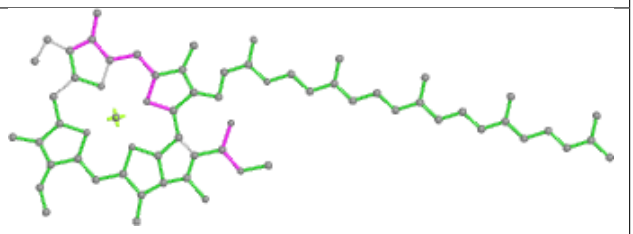


Rings

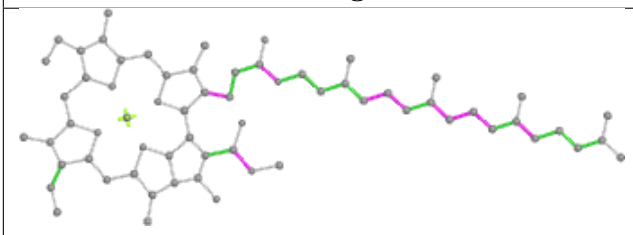
Ligand CLA B 607



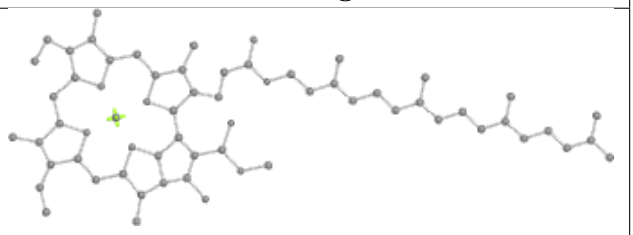
Bond lengths



Bond angles

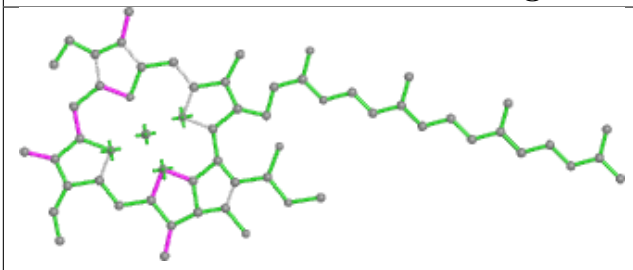


Torsions

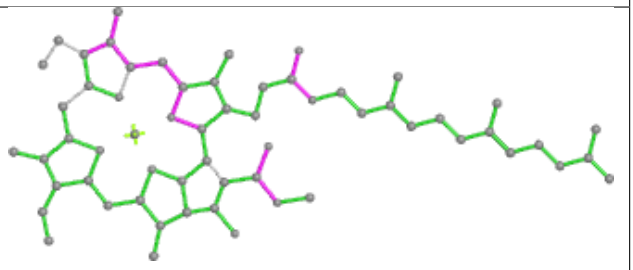


Rings

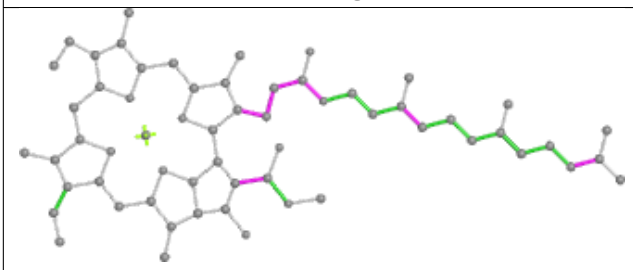
Ligand CLA R 303



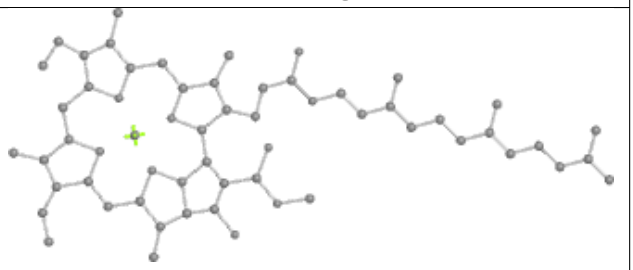
Bond lengths



Bond angles

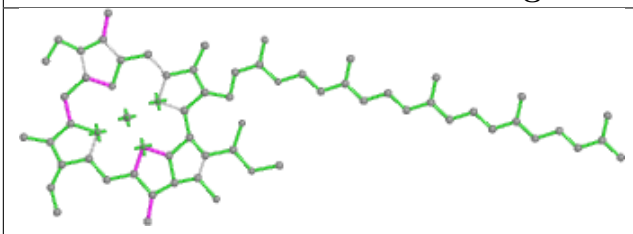


Torsions

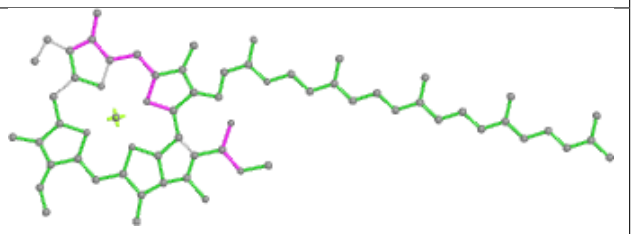


Rings

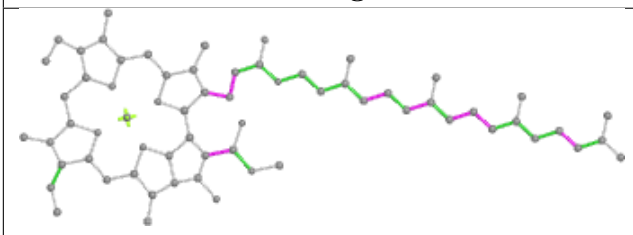
Ligand CLA R 310



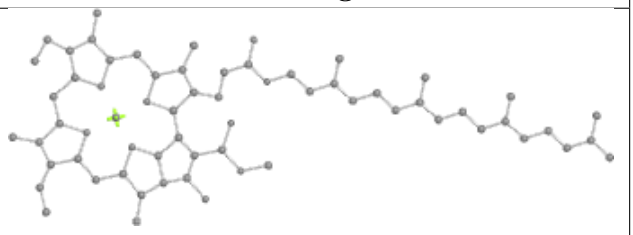
Bond lengths



Bond angles

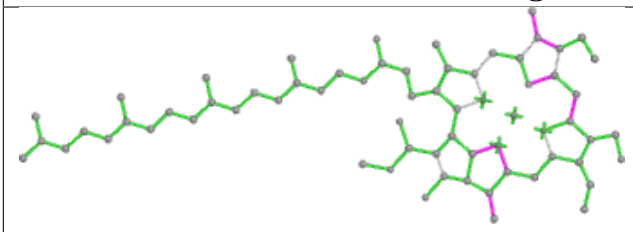


Torsions

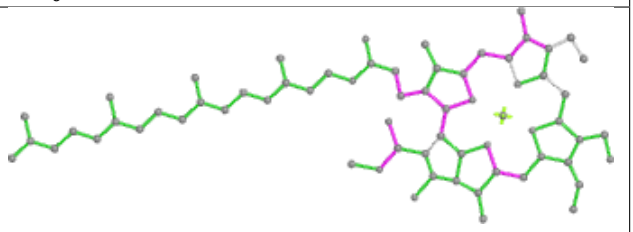


Rings

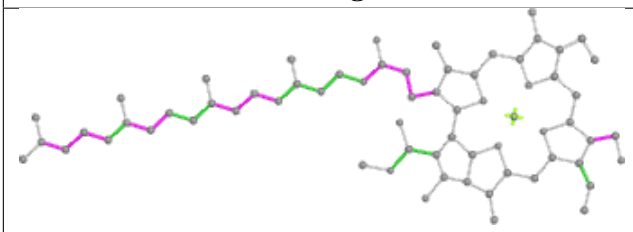
Ligand CHL y 310



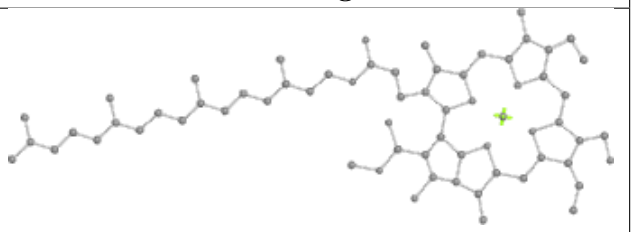
Bond lengths



Bond angles

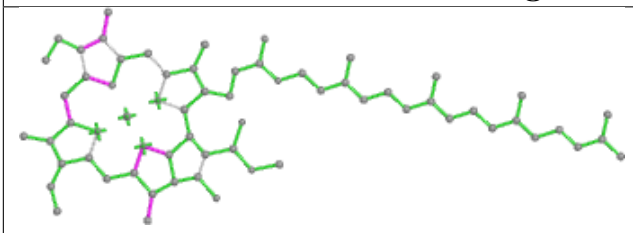


Torsions

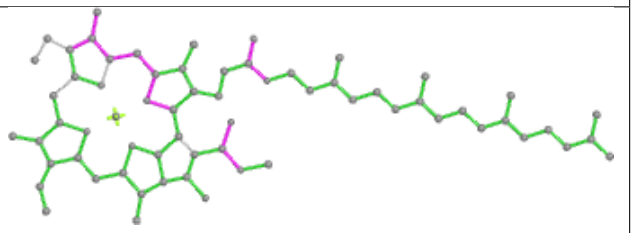


Rings

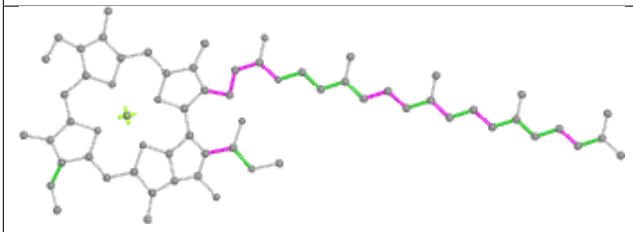
Ligand CLA C 502



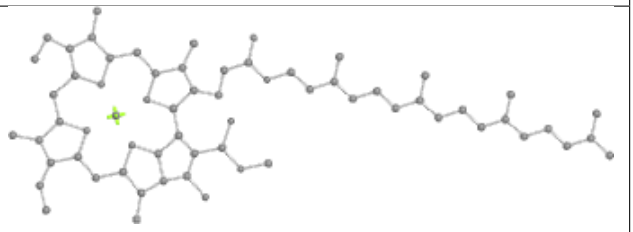
Bond lengths



Bond angles

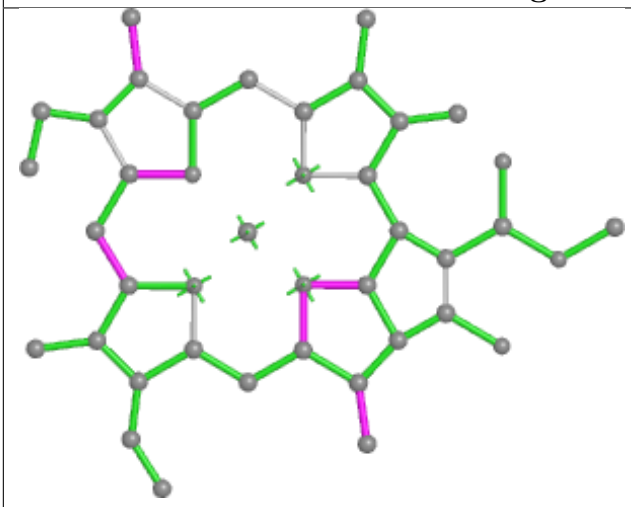


Torsions

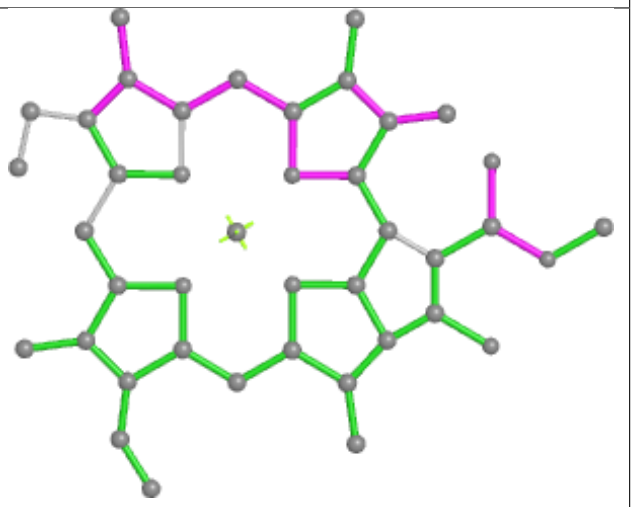


Rings

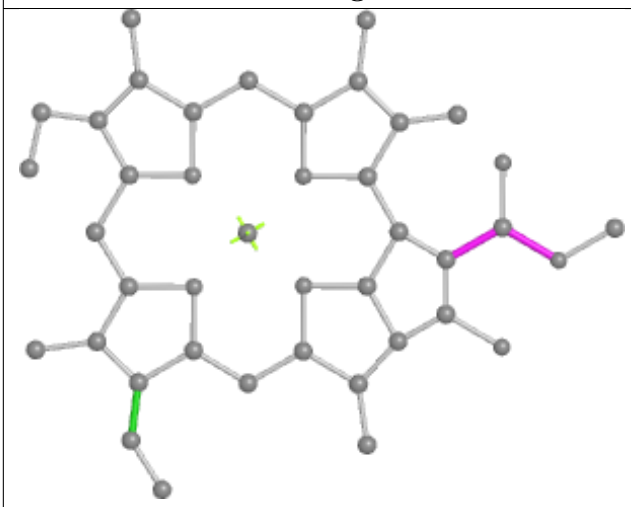
Ligand CLA r 610



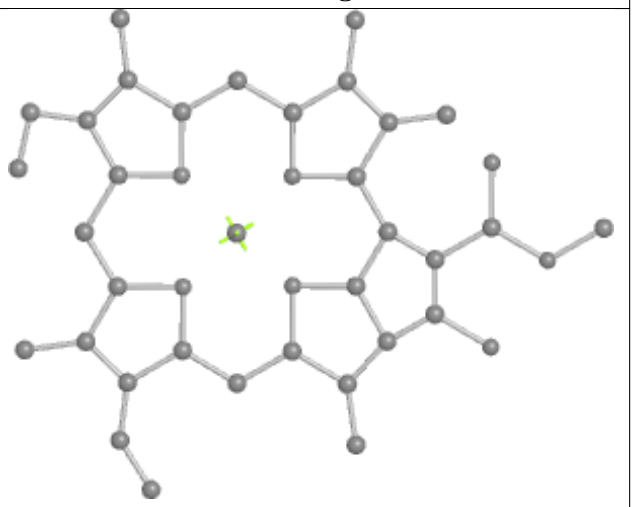
Bond lengths



Bond angles

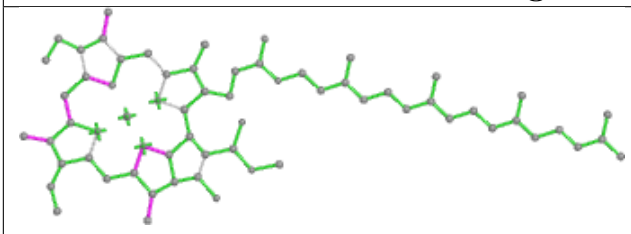


Torsions

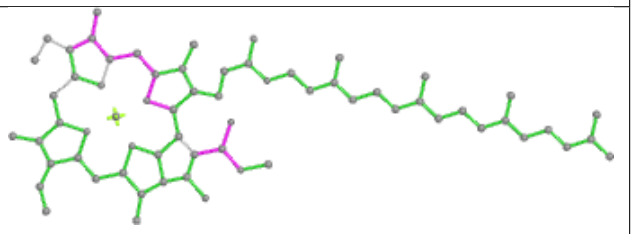


Rings

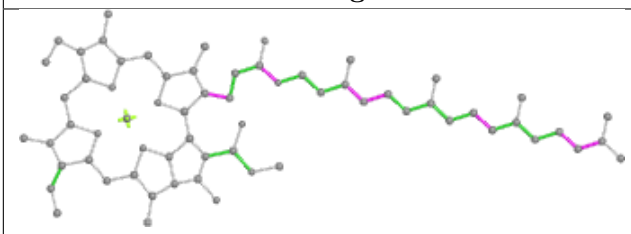
Ligand CLA d 403



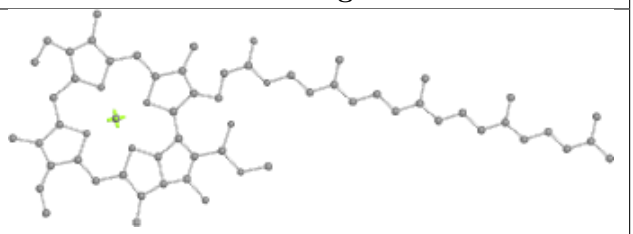
Bond lengths



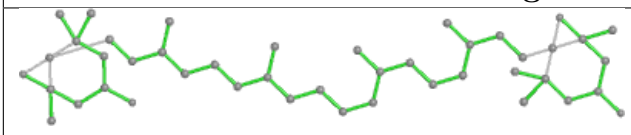
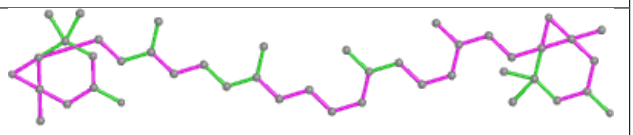
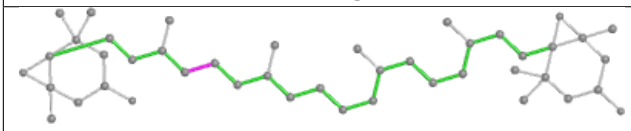
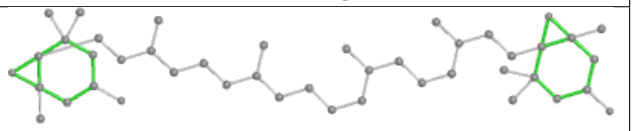
Bond angles

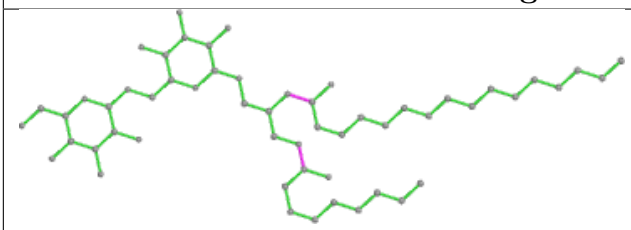
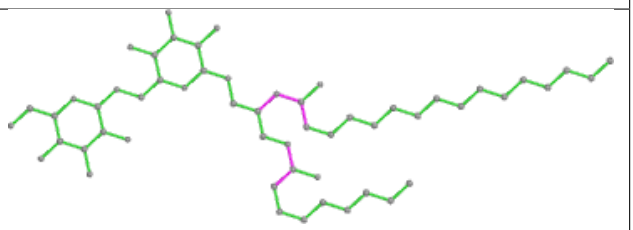
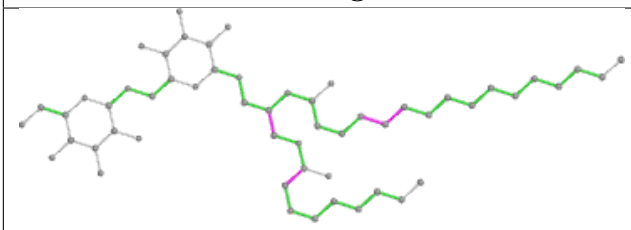
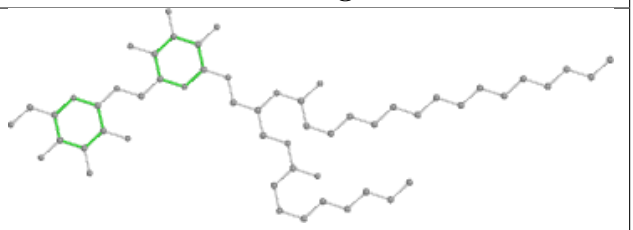


Torsions

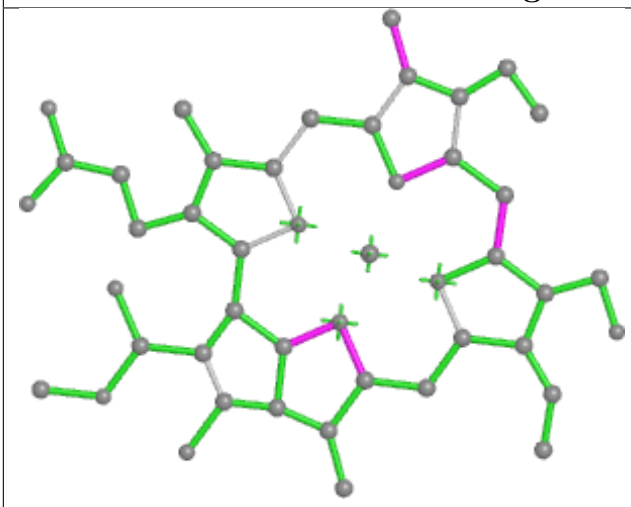


Rings

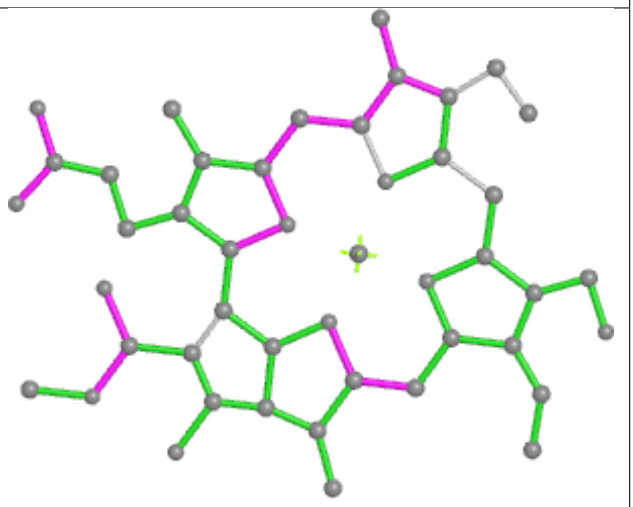
Ligand XAT R 315	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand DGD C 517	
 Bond lengths	 Bond angles
 Torsions	 Rings

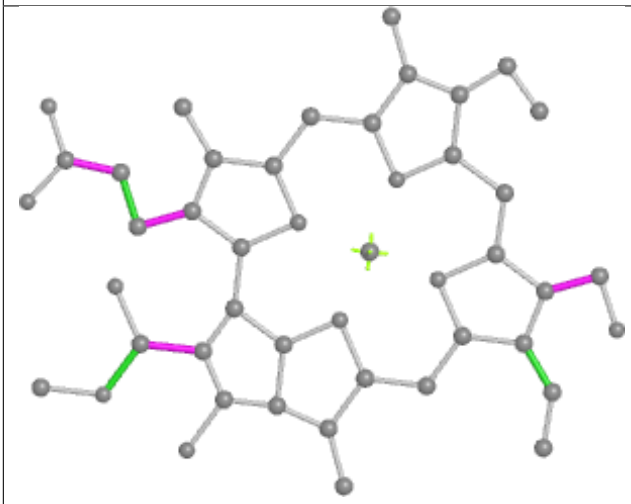
Ligand CHL R 306



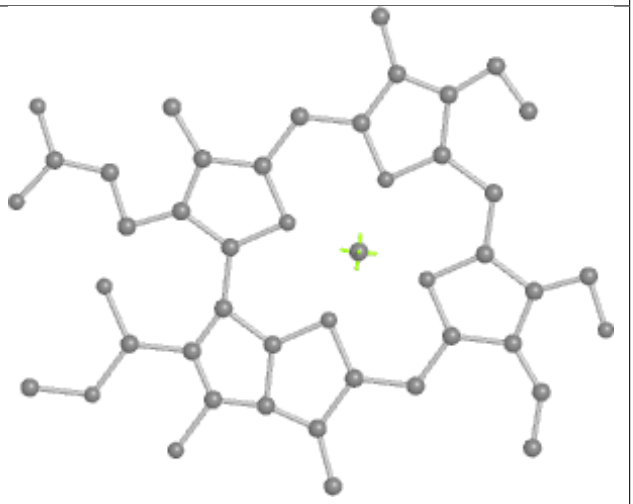
Bond lengths



Bond angles

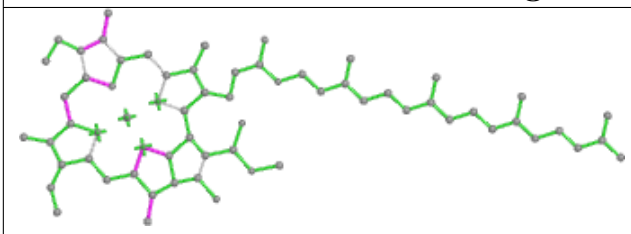


Torsions

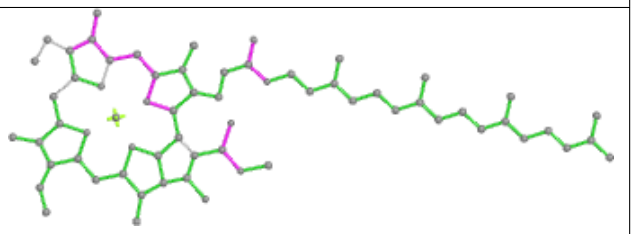


Rings

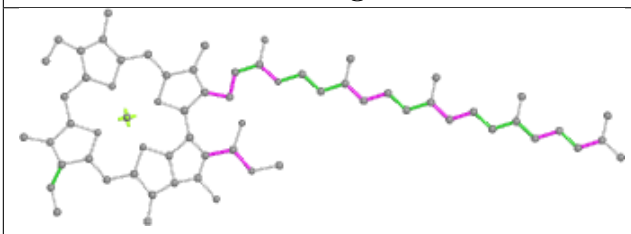
Ligand CLA B 603



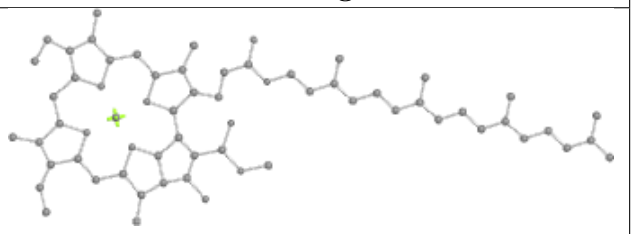
Bond lengths



Bond angles

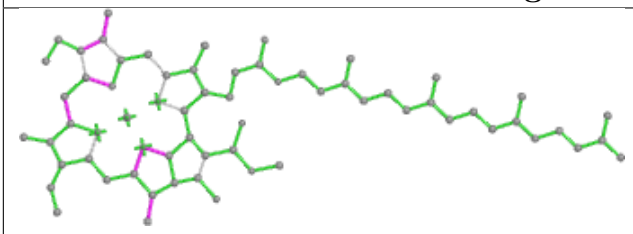


Torsions

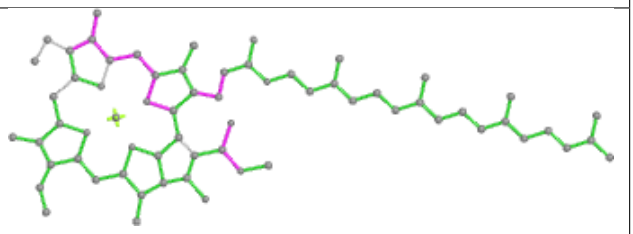


Rings

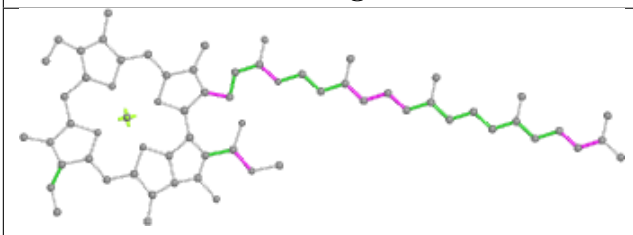
Ligand CLA B 608



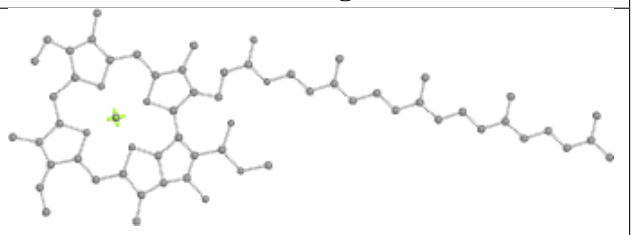
Bond lengths



Bond angles

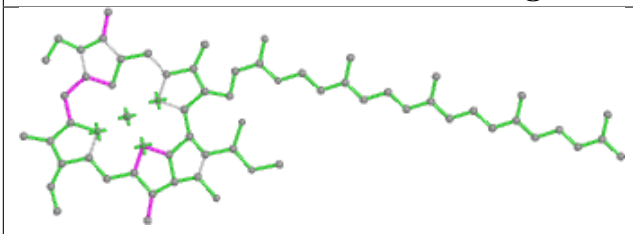


Torsions

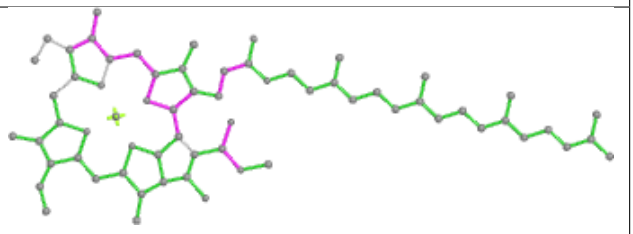


Rings

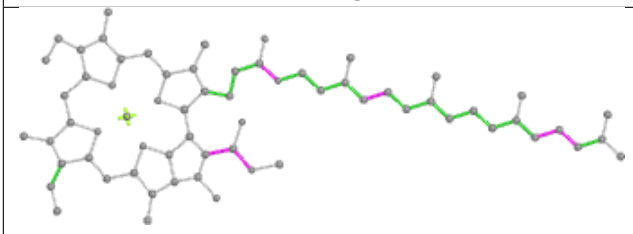
Ligand CLA B 604



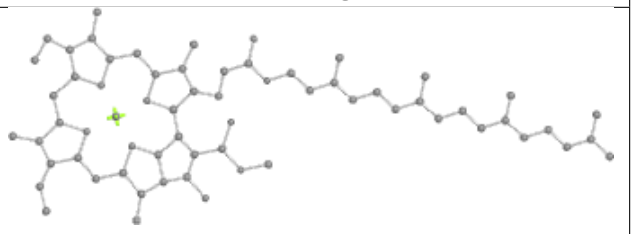
Bond lengths



Bond angles

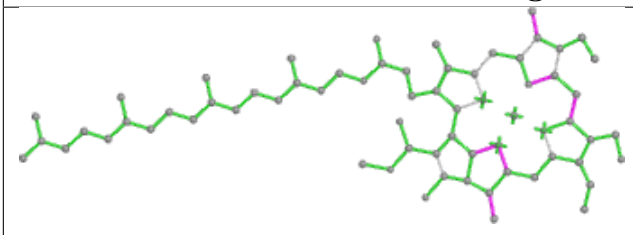


Torsions

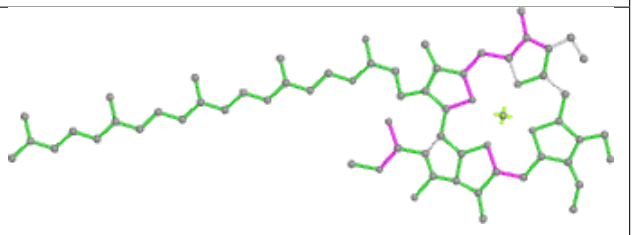


Rings

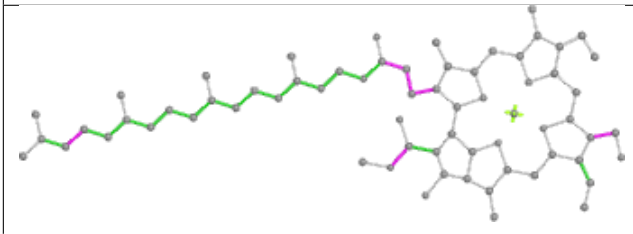
Ligand CHL n 608



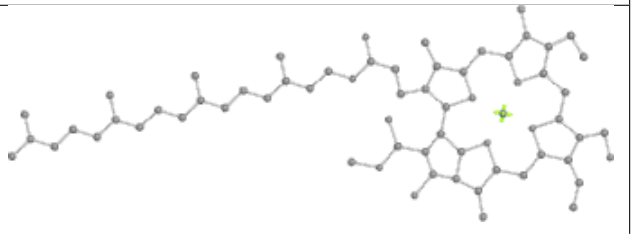
Bond lengths



Bond angles

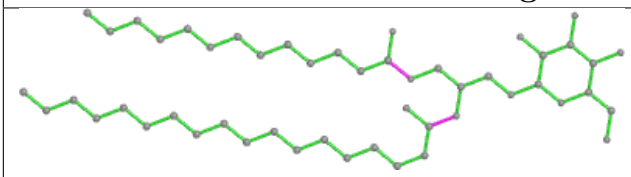


Torsions

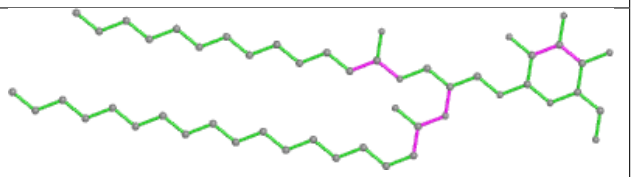


Rings

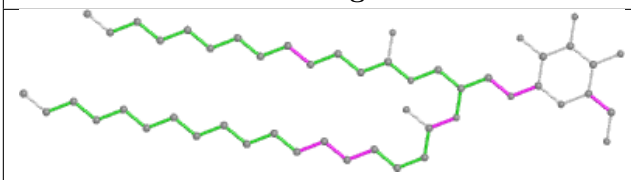
Ligand LMG C 522



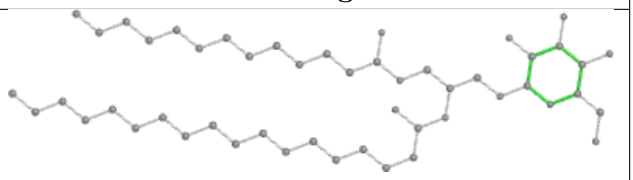
Bond lengths



Bond angles

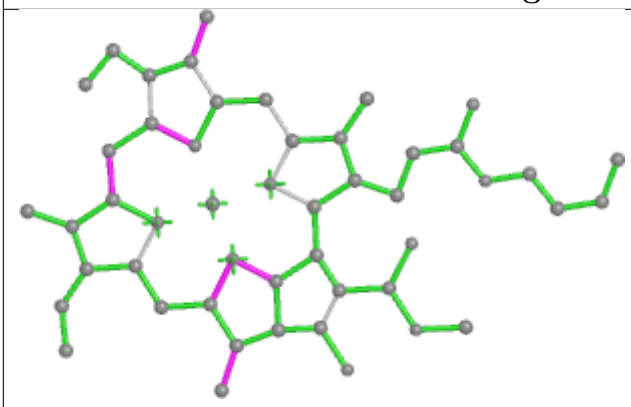


Torsions

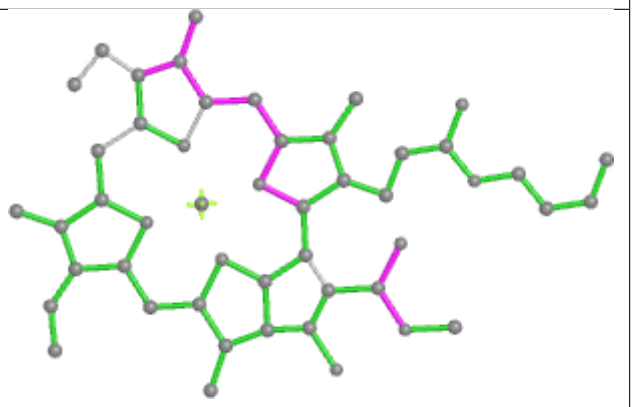


Rings

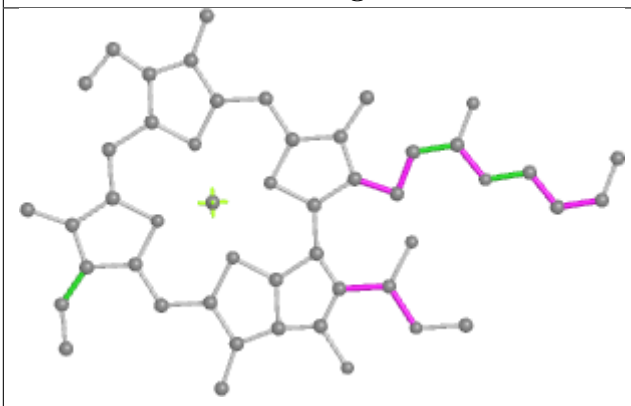
Ligand CLA G 604



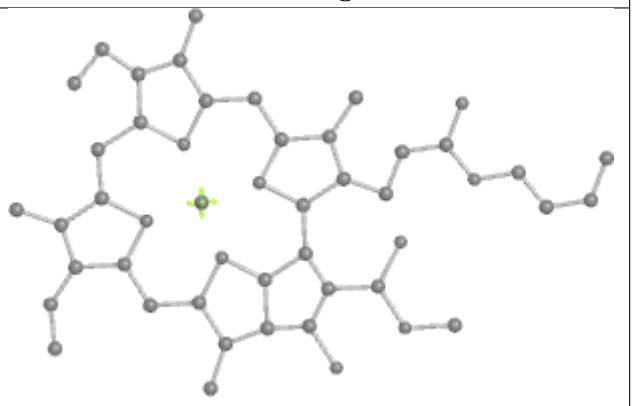
Bond lengths



Bond angles

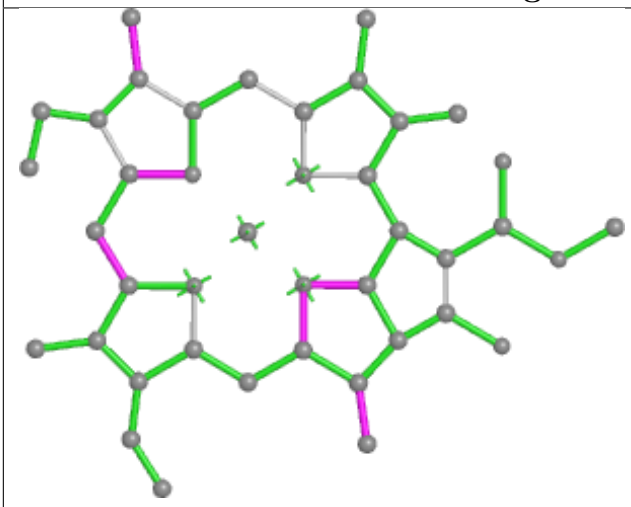


Torsions

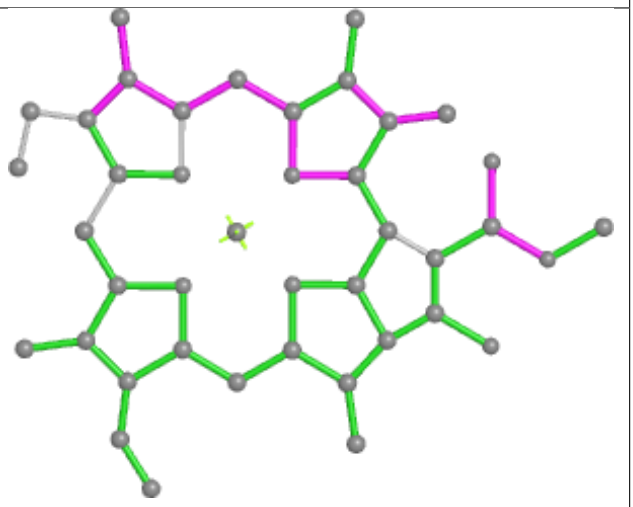


Rings

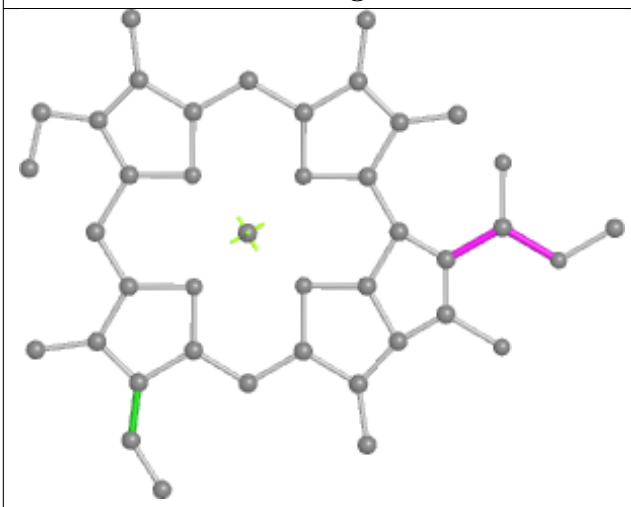
Ligand CLA R 311



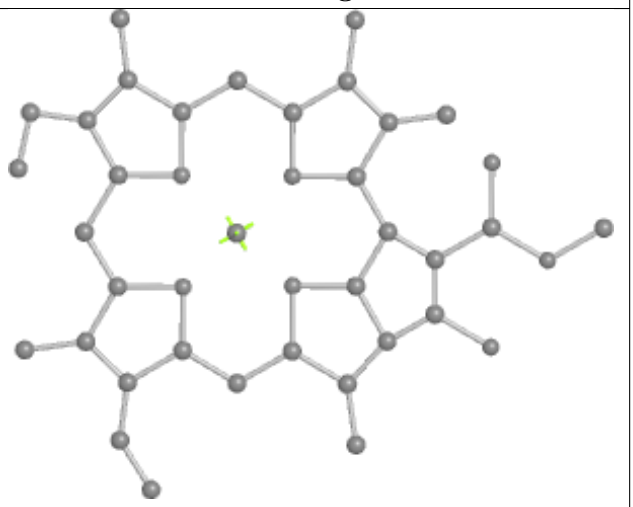
Bond lengths



Bond angles

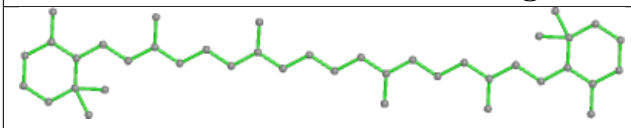


Torsions

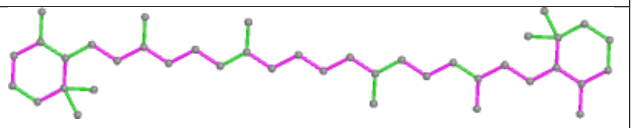


Rings

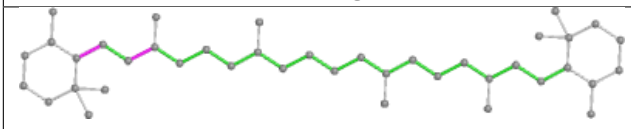
Ligand BCR K 101



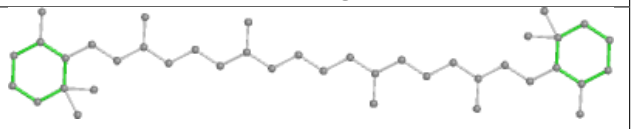
Bond lengths



Bond angles

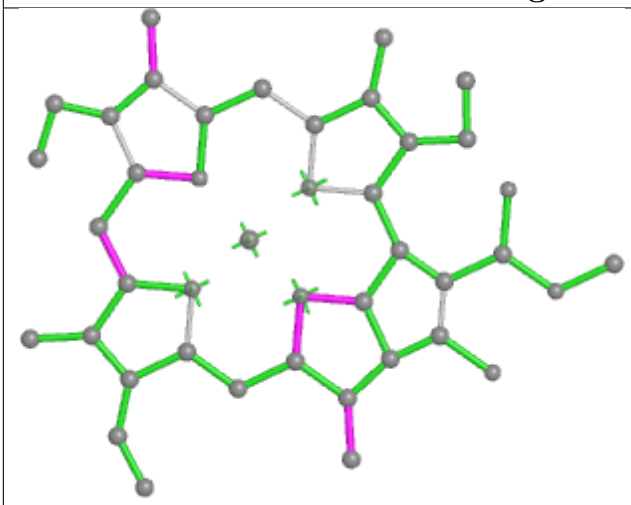


Torsions

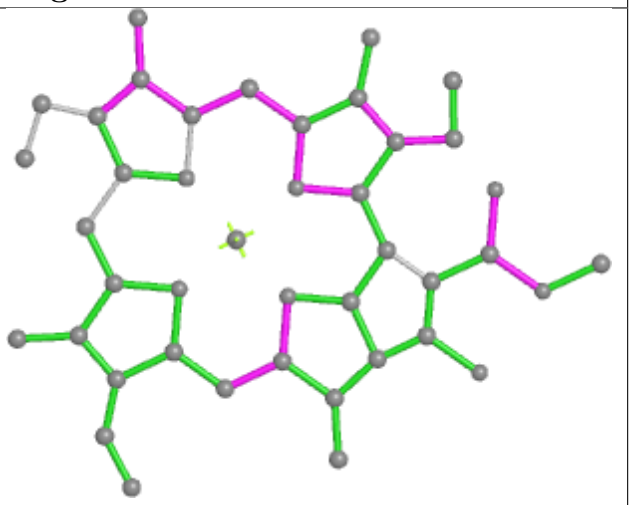


Rings

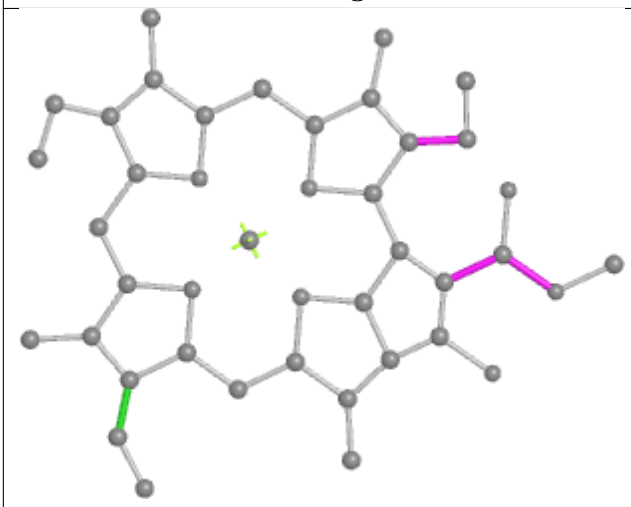
Ligand CLA g 614



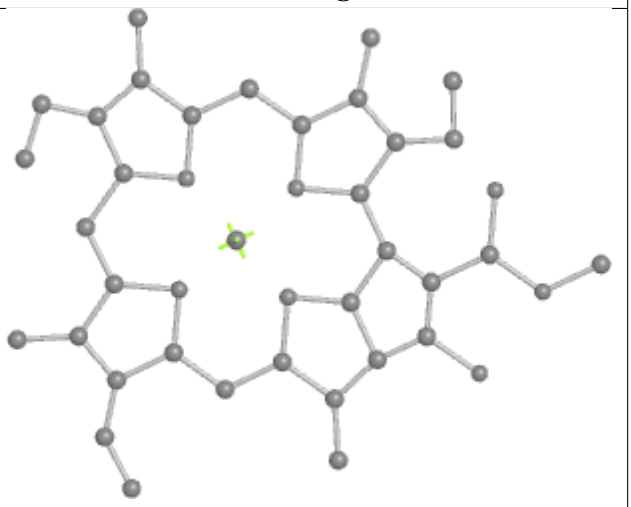
Bond lengths



Bond angles

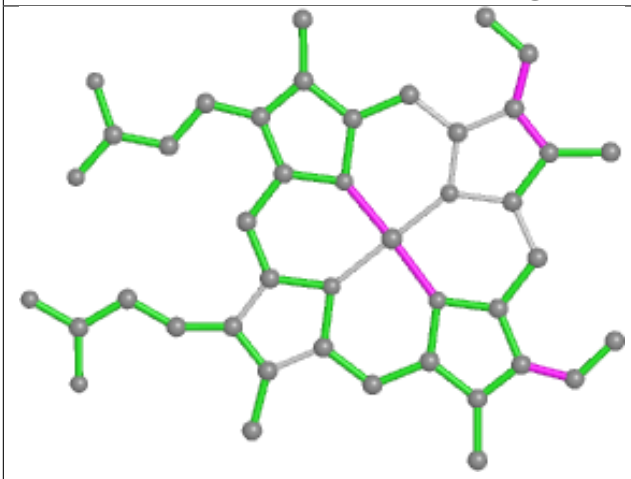


Torsions

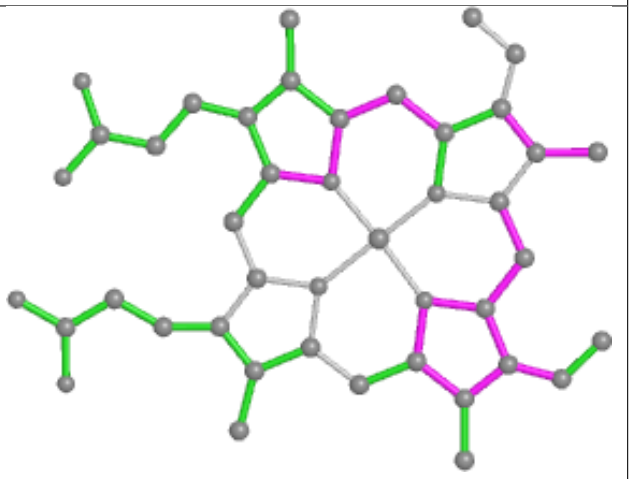


Rings

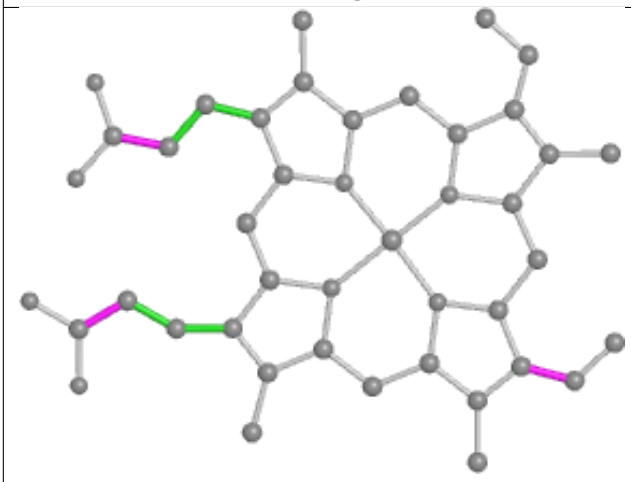
Ligand HEM f 101



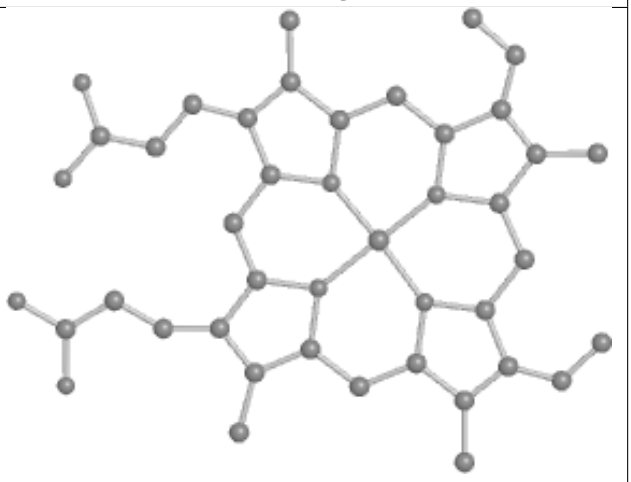
Bond lengths



Bond angles

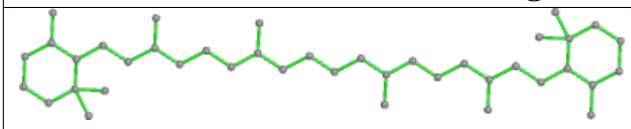


Torsions

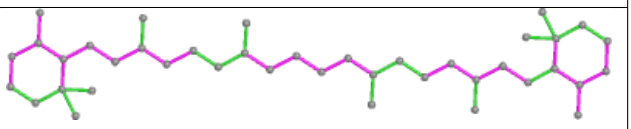


Rings

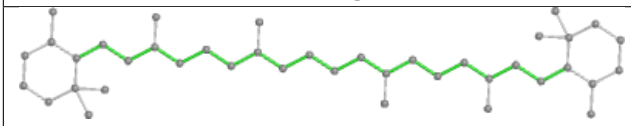
Ligand BCR b 620



Bond lengths



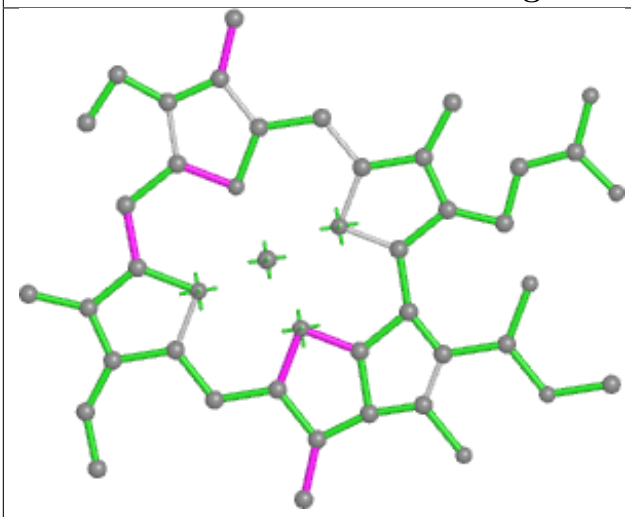
Bond angles



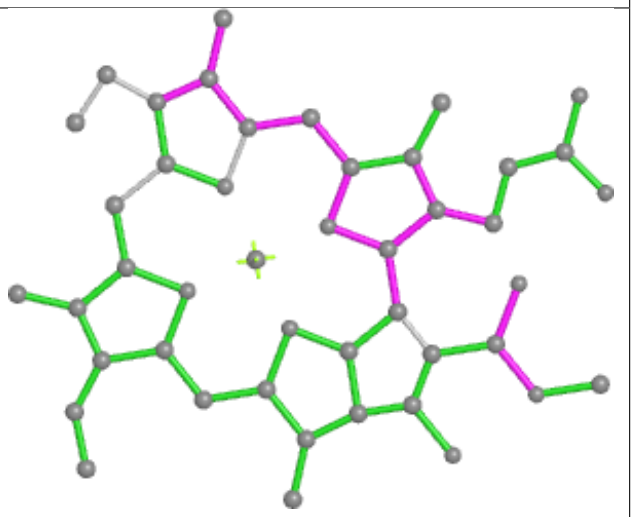
Torsions

Rings

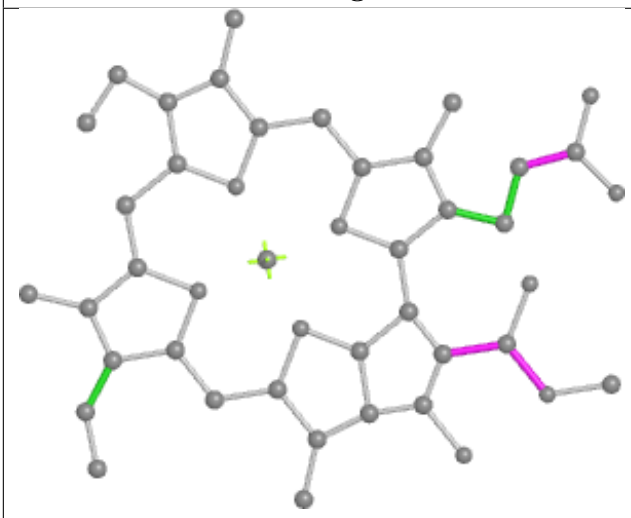
Ligand CLA G 612



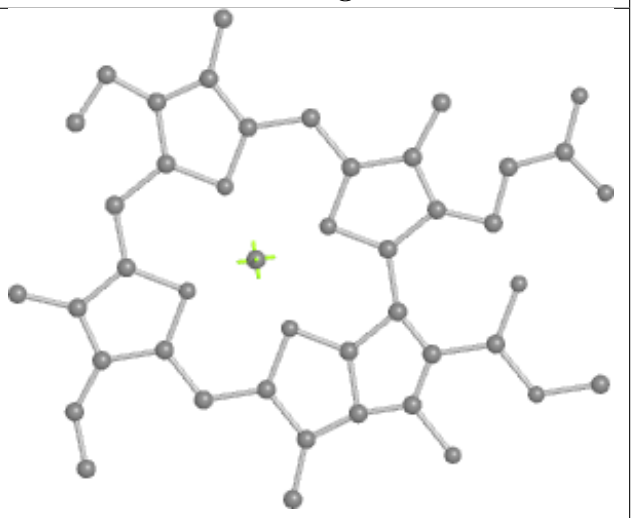
Bond lengths



Bond angles

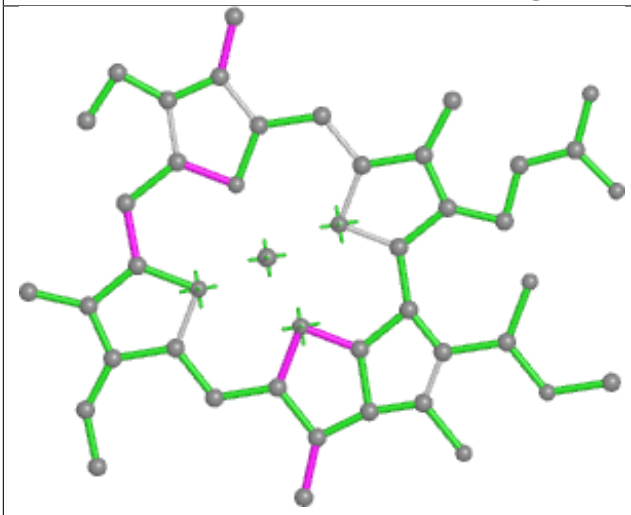


Torsions

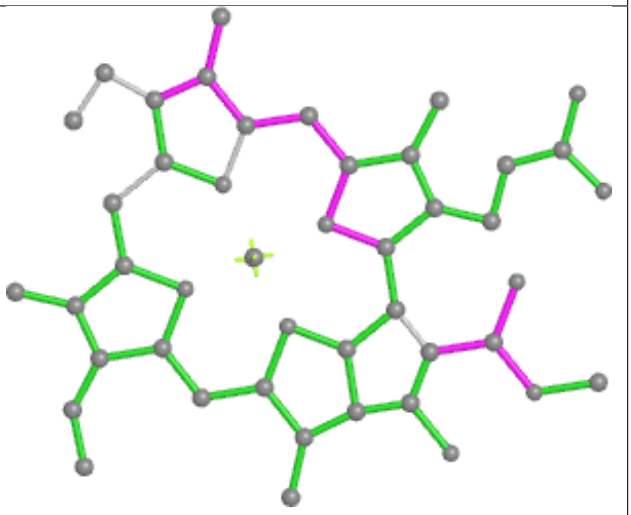


Rings

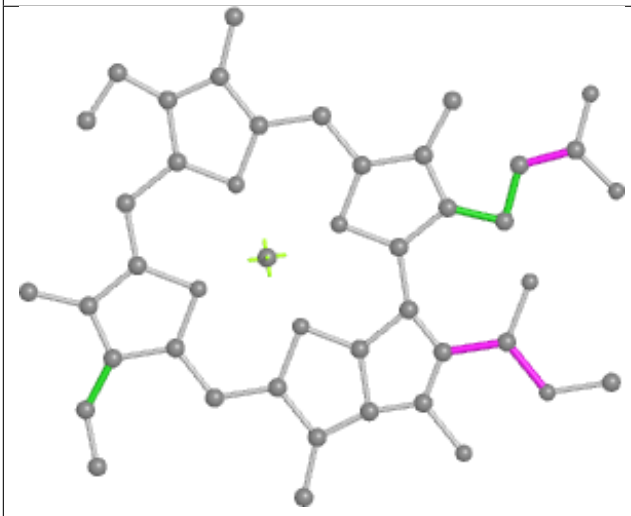
Ligand CLA S 309



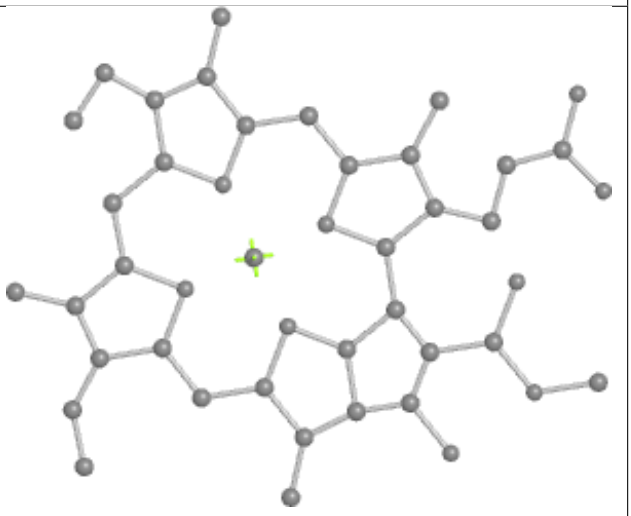
Bond lengths



Bond angles

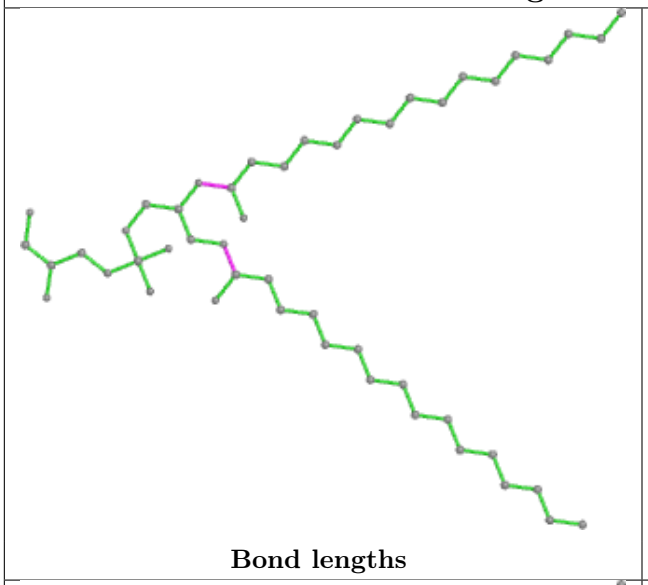


Torsions

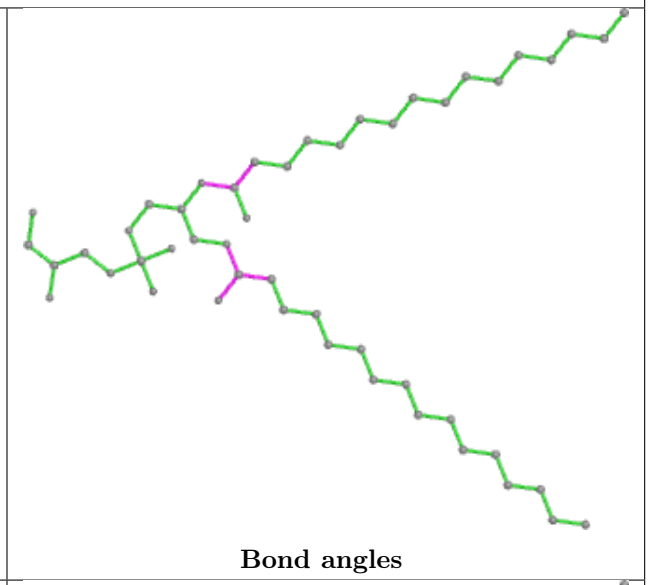


Rings

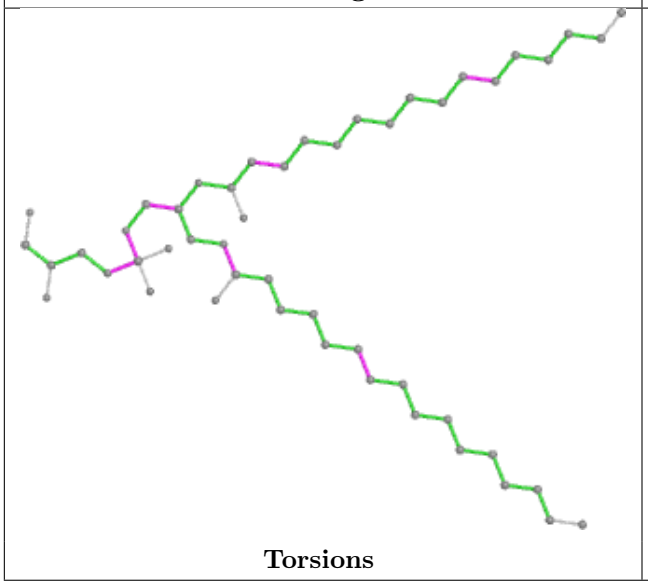
Ligand LHG b 623



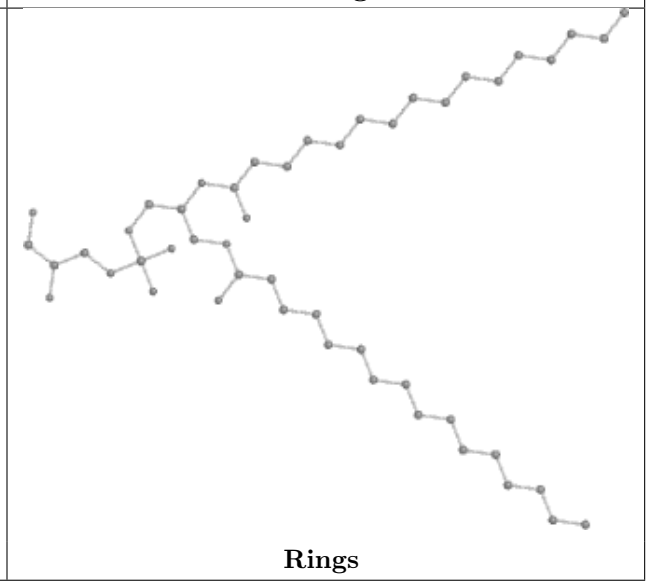
Bond lengths



Bond angles

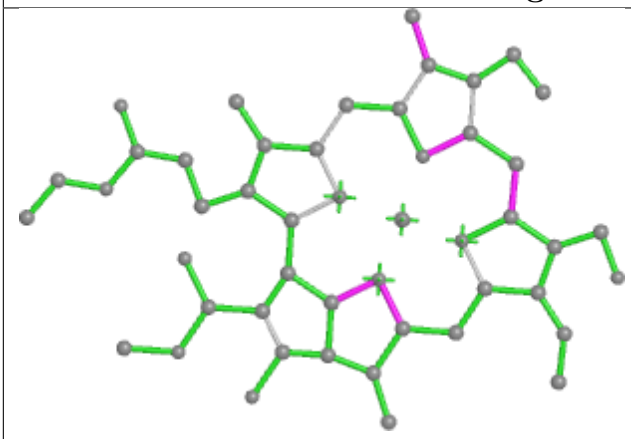


Torsions

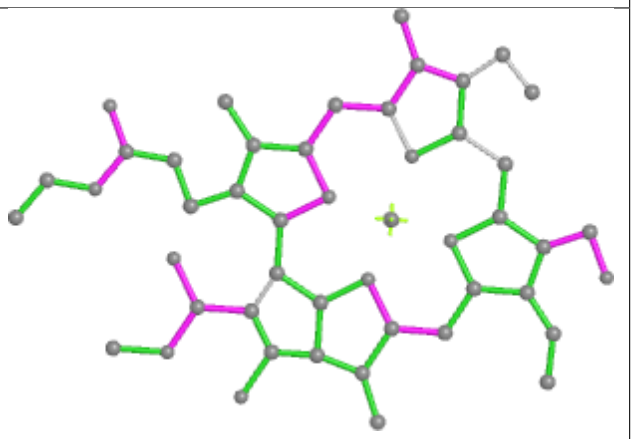


Rings

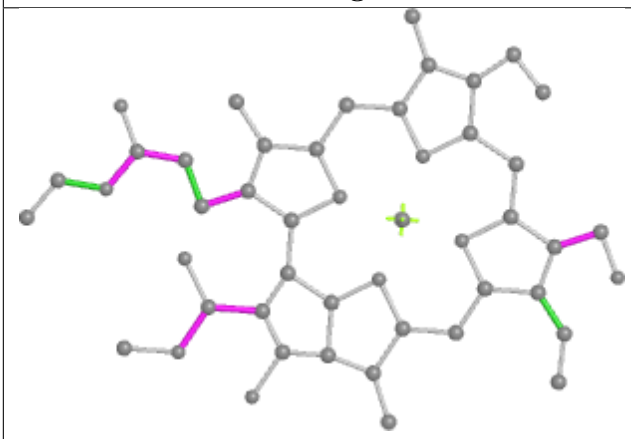
Ligand CHL n 605



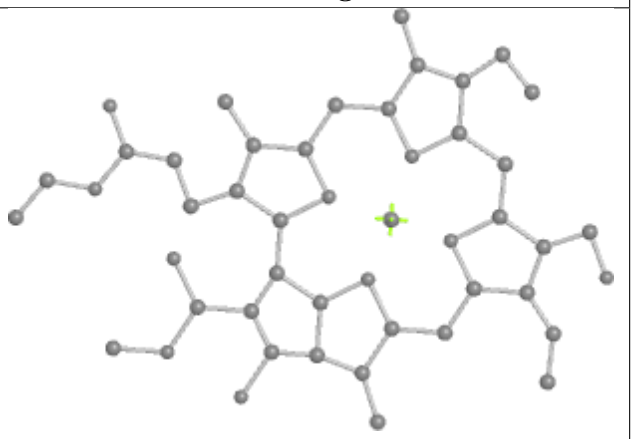
Bond lengths



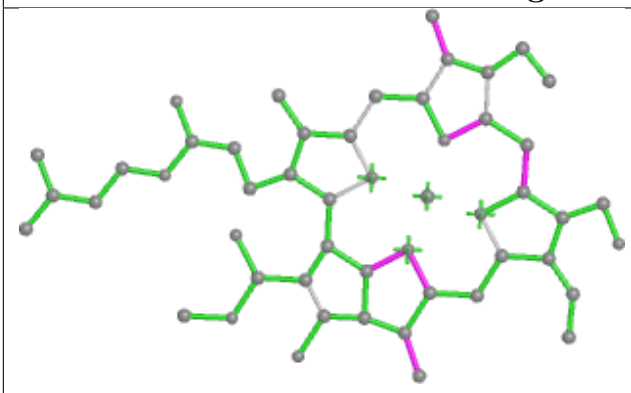
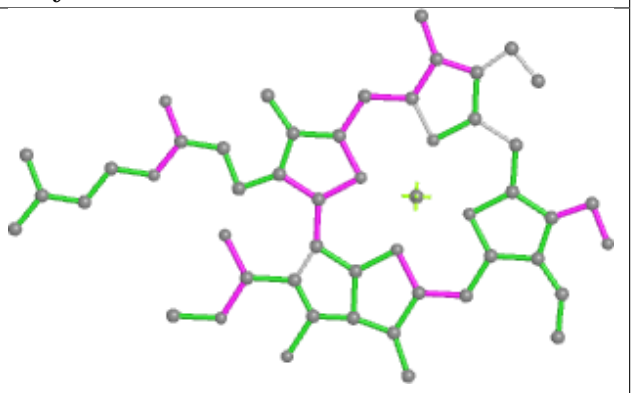
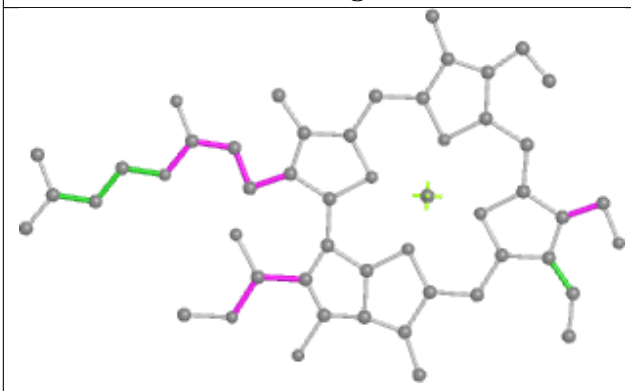
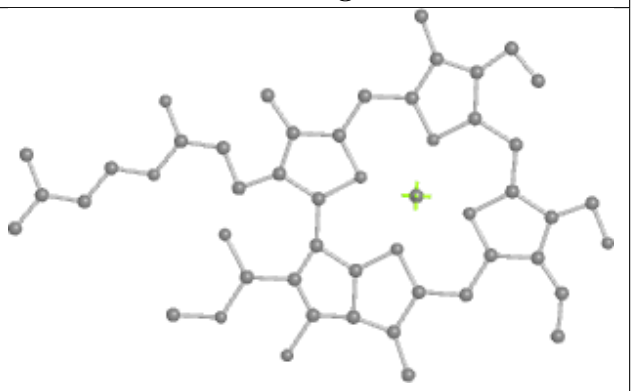
Bond angles

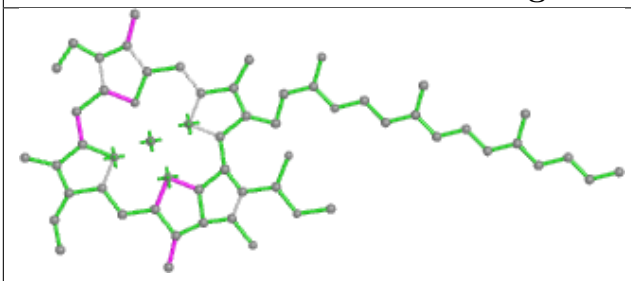
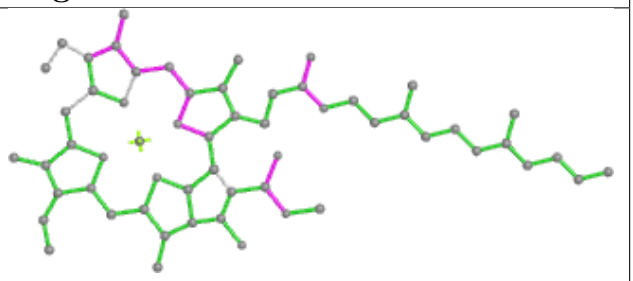
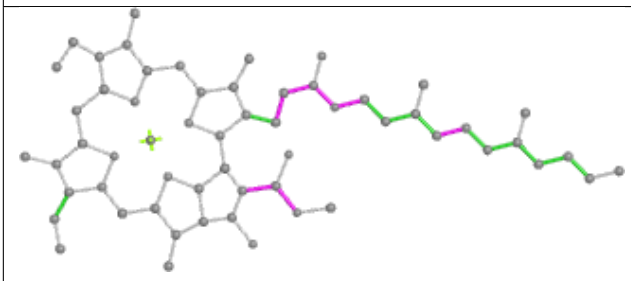
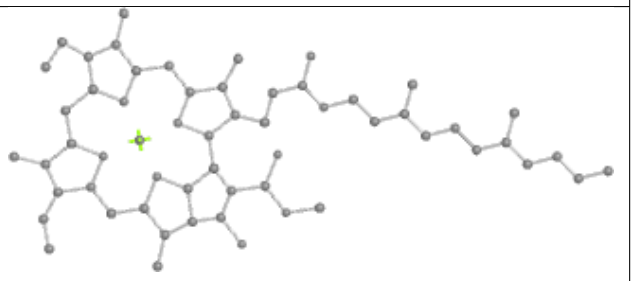


Torsions

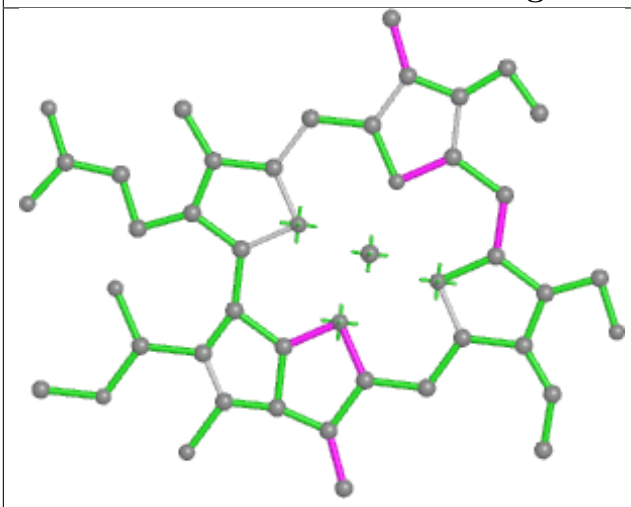


Rings

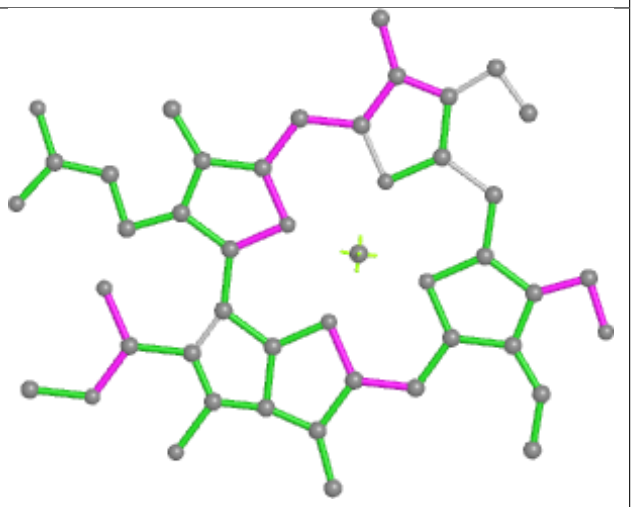
Ligand CHL y 306	
	
Bond lengths	Bond angles
	
Torsions	Rings

Ligand CLA g 613	
	
Bond lengths	Bond angles
	
Torsions	Rings

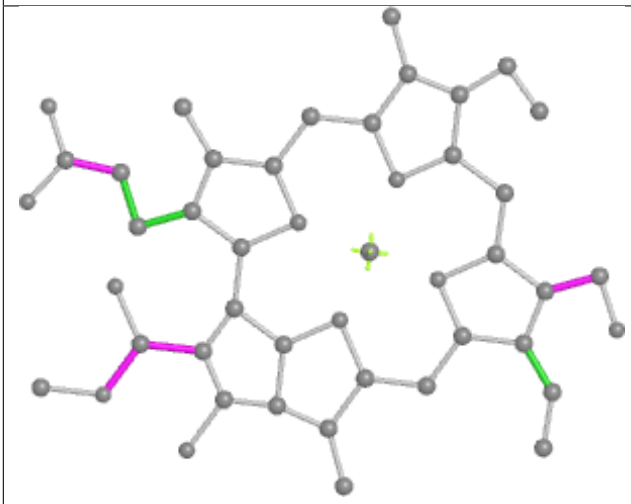
Ligand CHL S 302



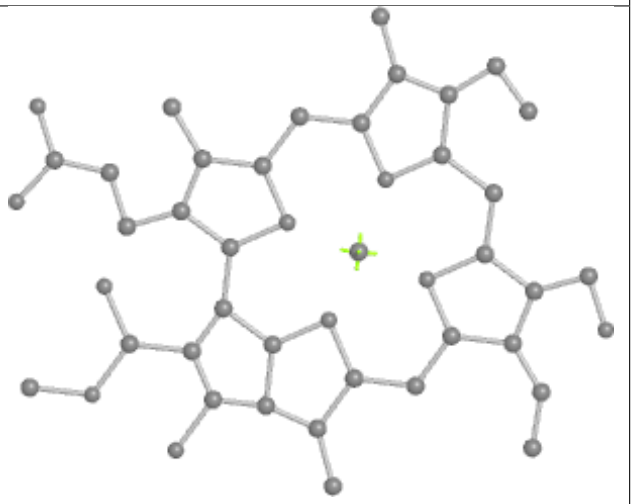
Bond lengths



Bond angles

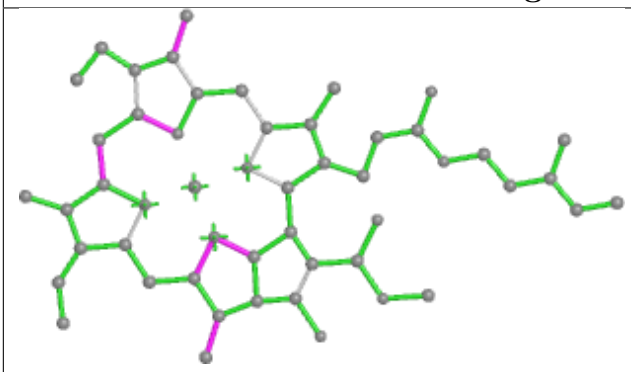


Torsions

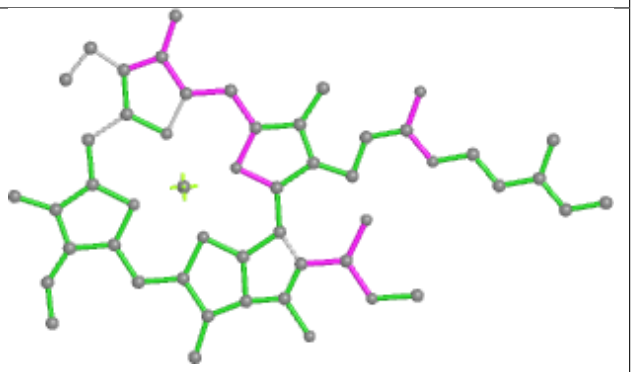


Rings

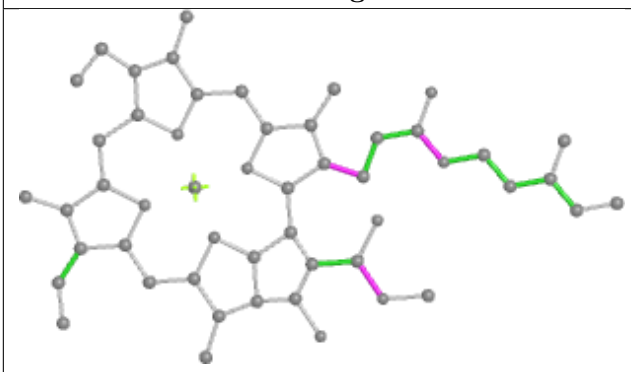
Ligand CLA C 507



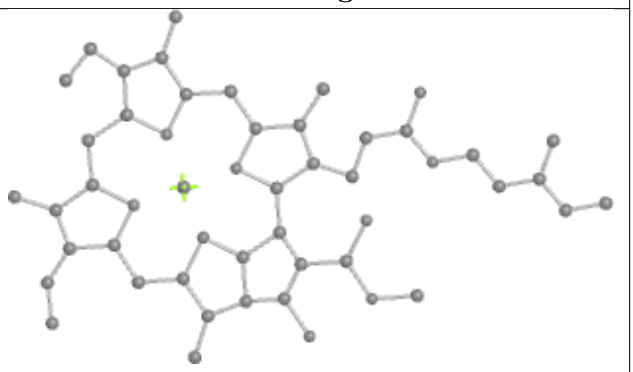
Bond lengths



Bond angles

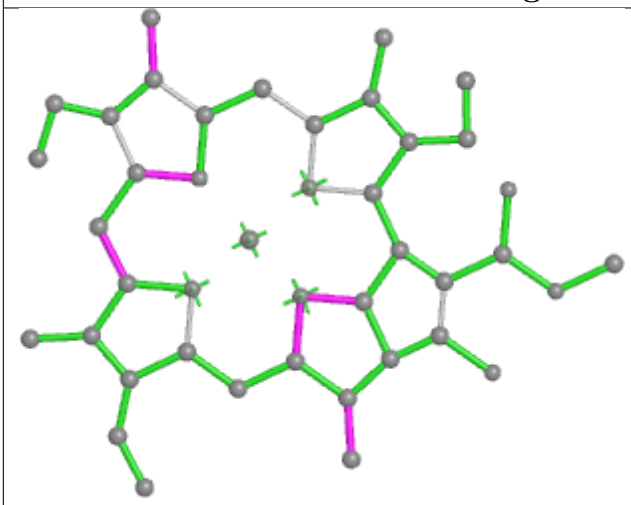


Torsions

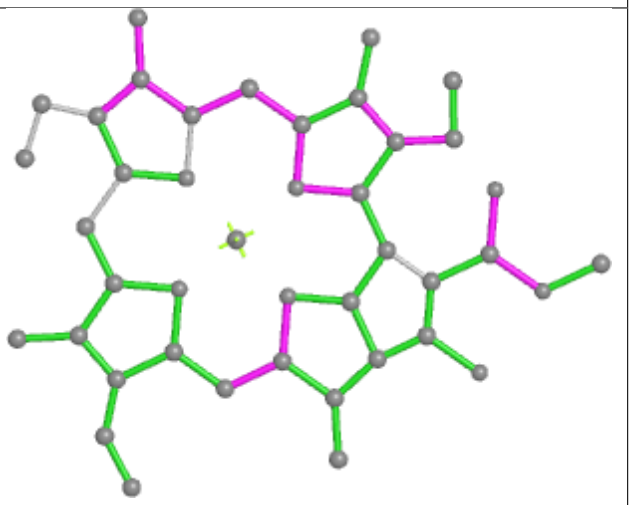


Rings

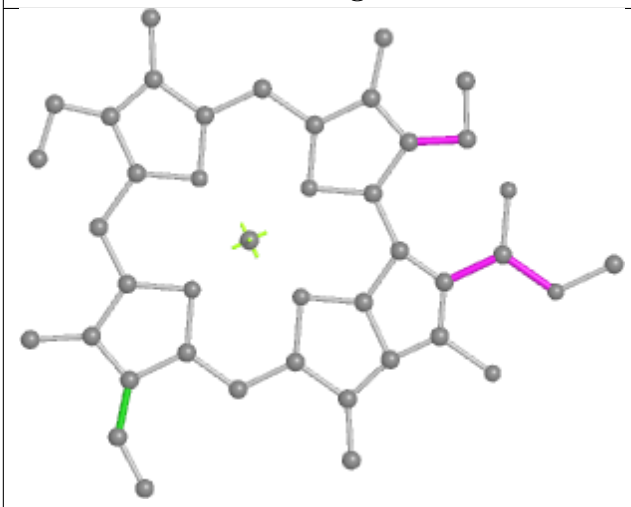
Ligand CLA G 614



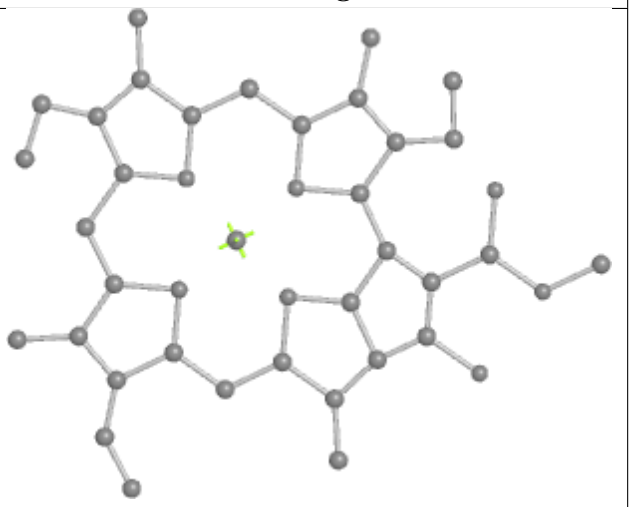
Bond lengths



Bond angles

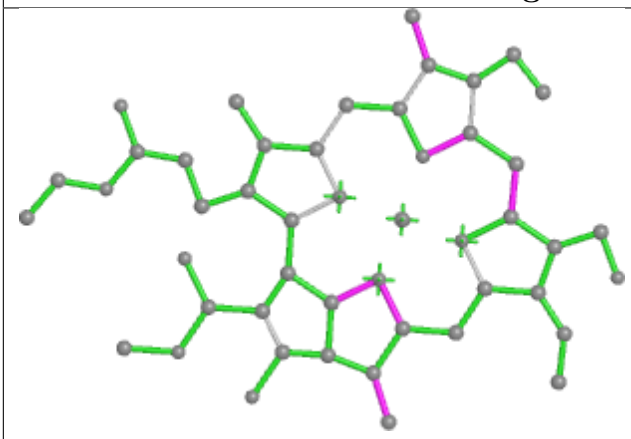


Torsions

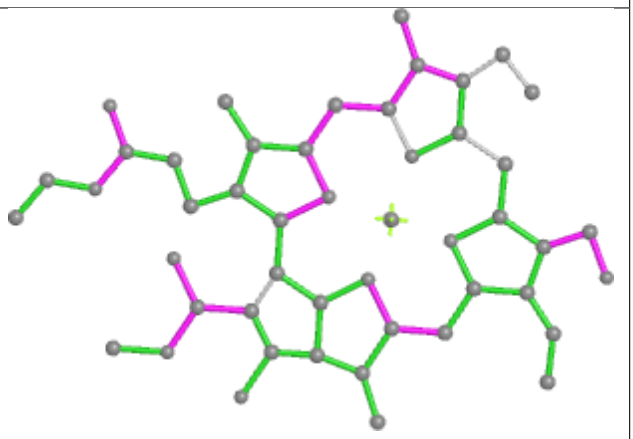


Rings

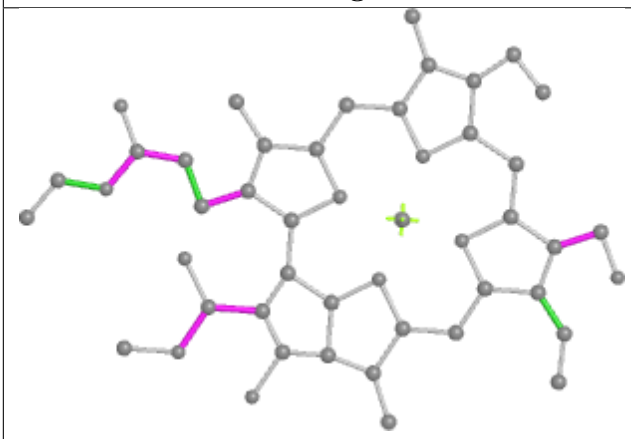
Ligand CHL N 605



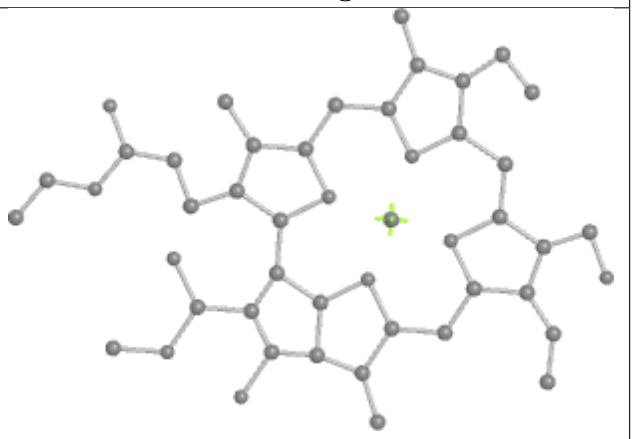
Bond lengths



Bond angles

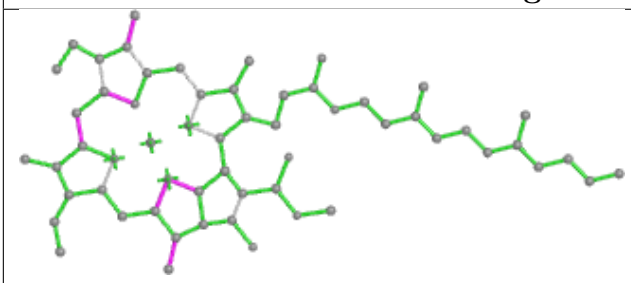


Torsions

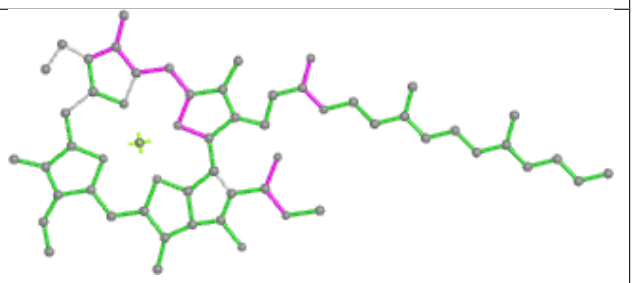


Rings

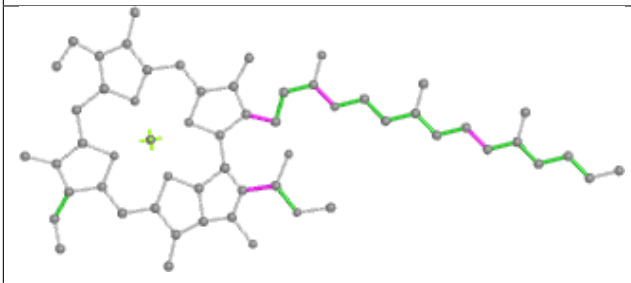
Ligand CLA R 309



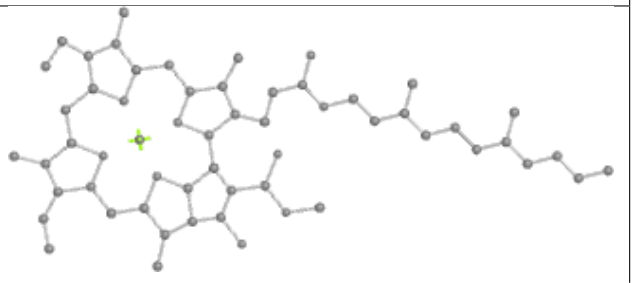
Bond lengths



Bond angles

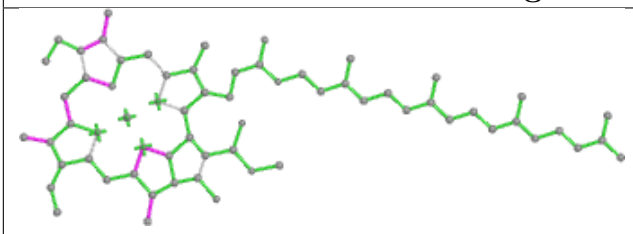


Torsions

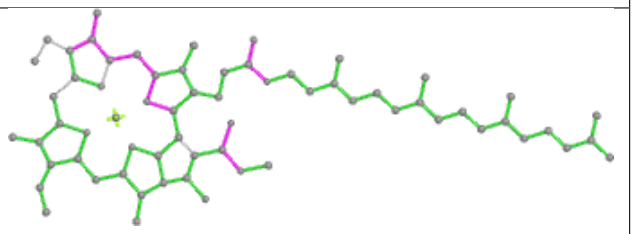


Rings

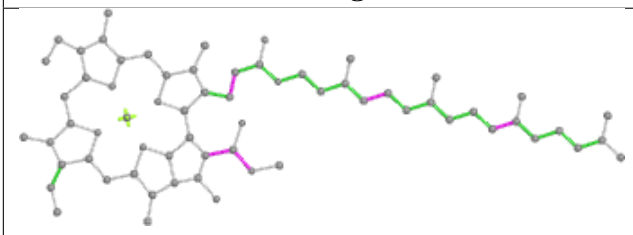
Ligand CLA B 606



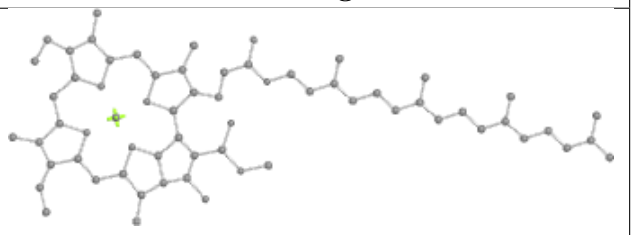
Bond lengths



Bond angles

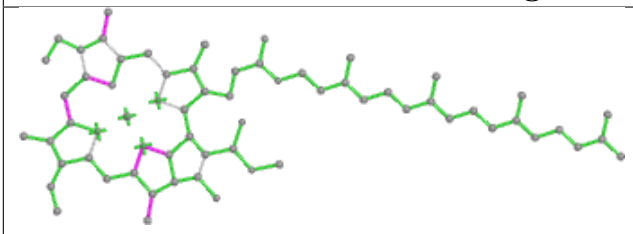


Torsions

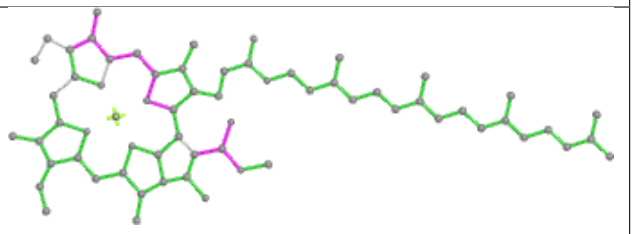


Rings

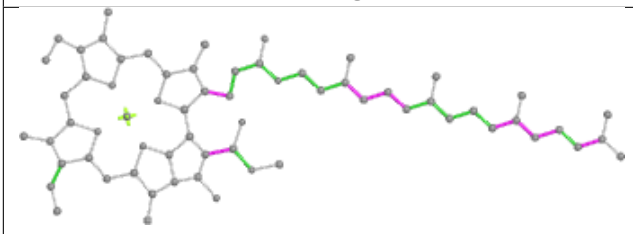
Ligand CLA D 401



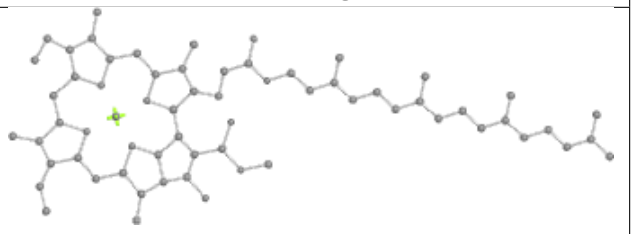
Bond lengths



Bond angles

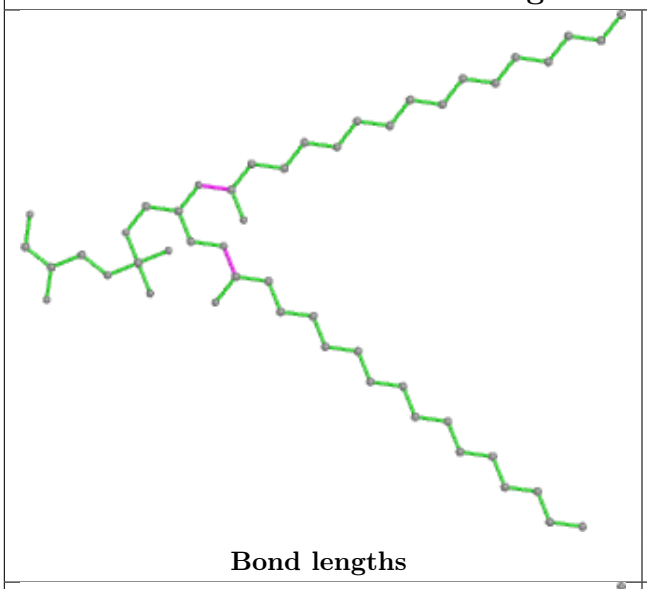


Torsions

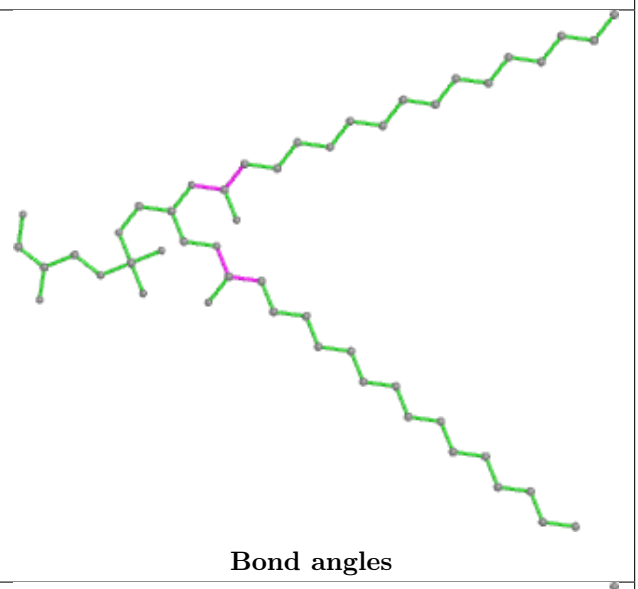


Rings

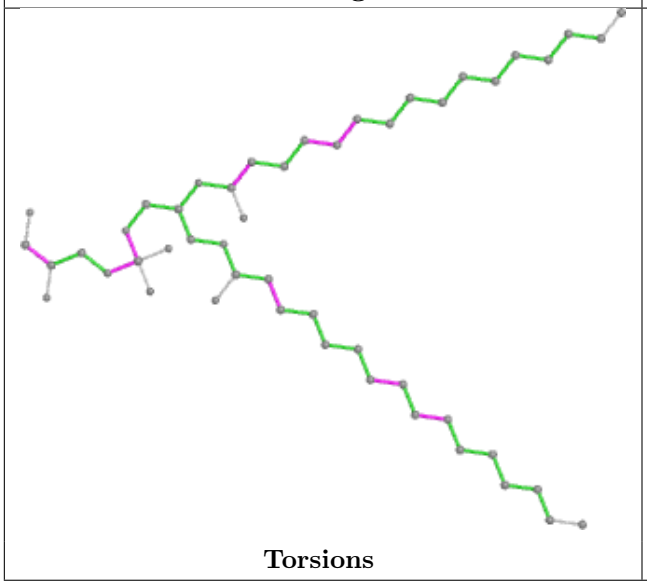
Ligand LHG d 407



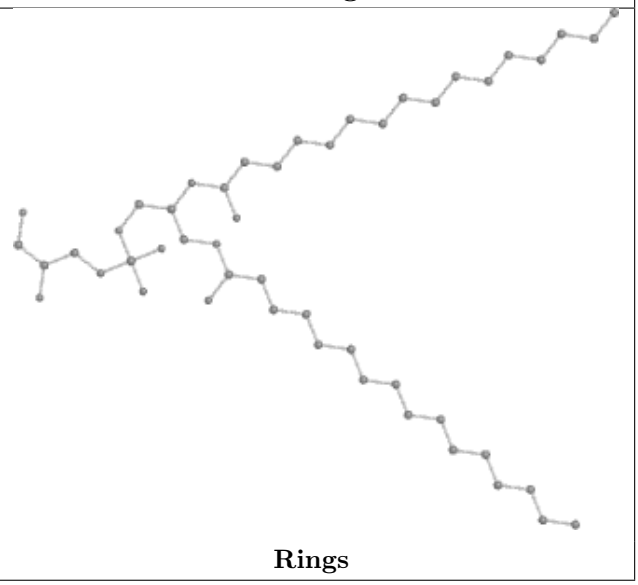
Bond lengths



Bond angles

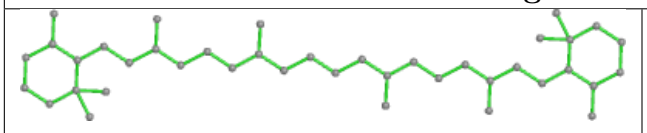


Torsions

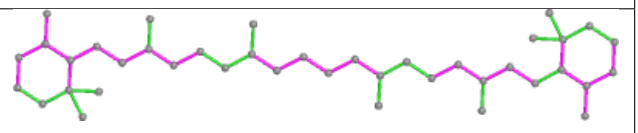


Rings

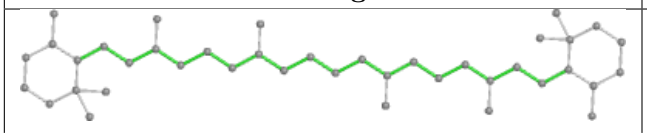
Ligand BCR B 618



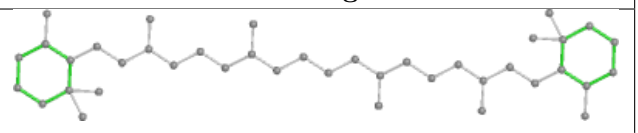
Bond lengths



Bond angles

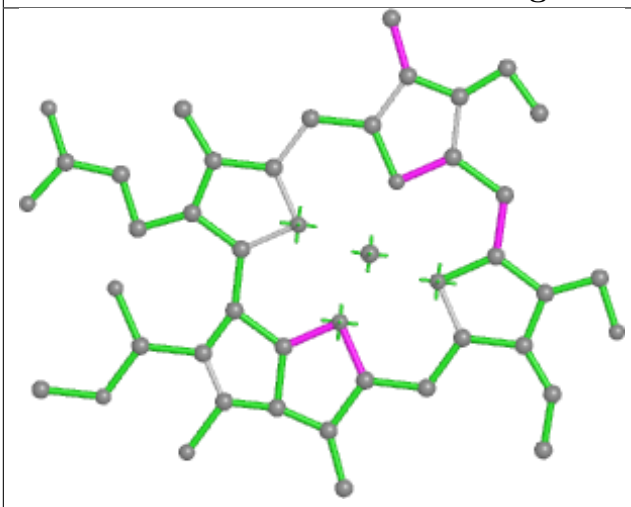


Torsions

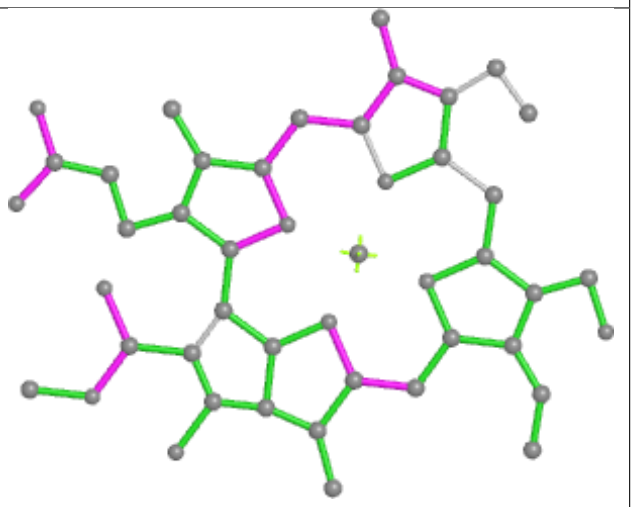


Rings

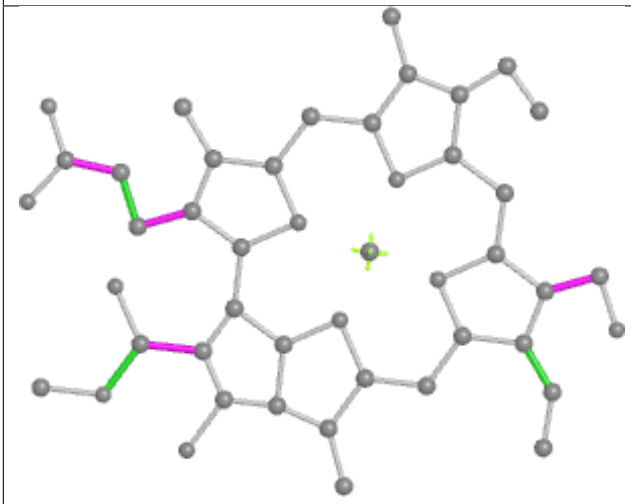
Ligand CHL r 605



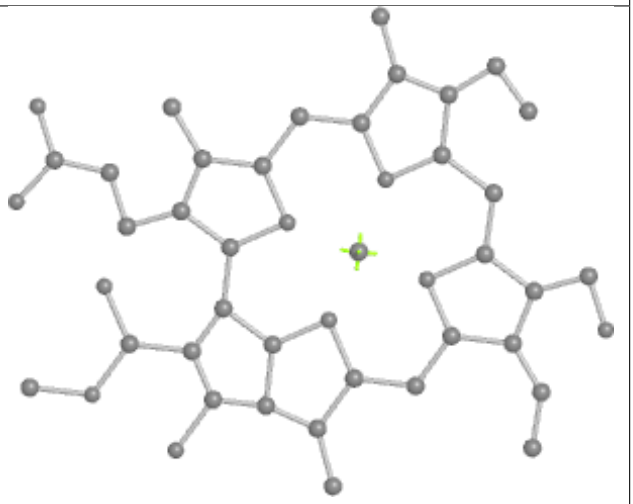
Bond lengths



Bond angles

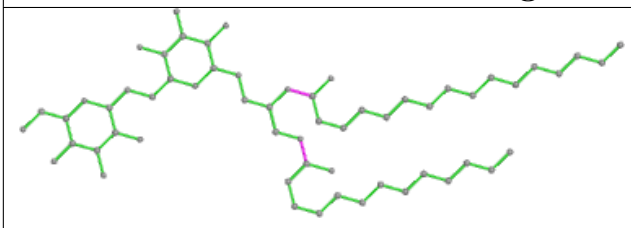


Torsions

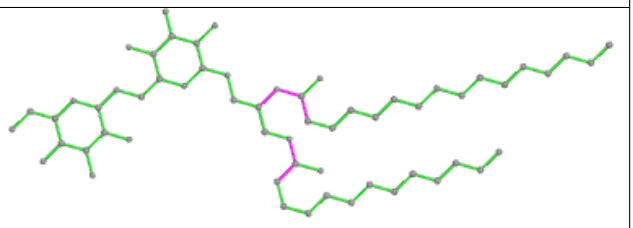


Rings

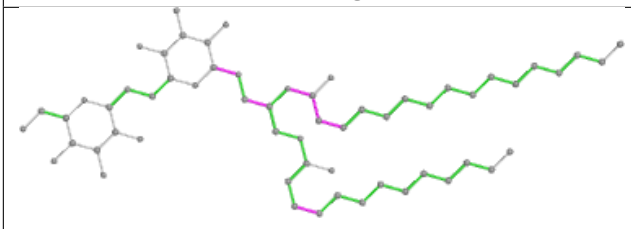
Ligand DGD A 408



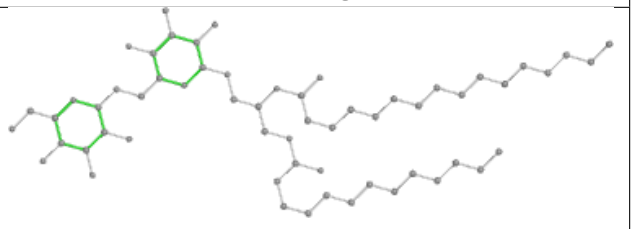
Bond lengths



Bond angles

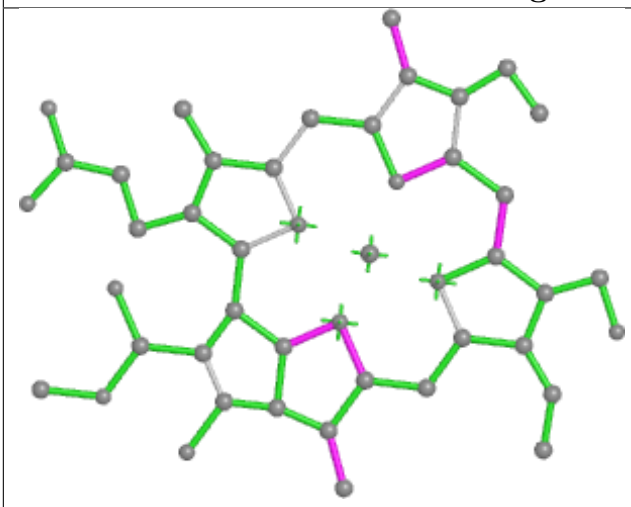


Torsions

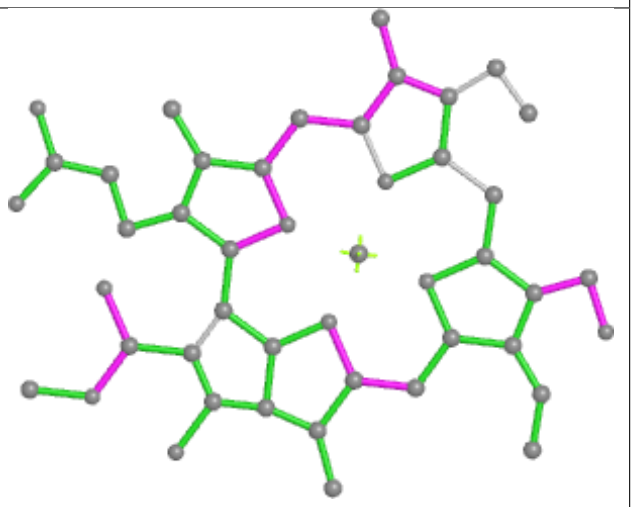


Rings

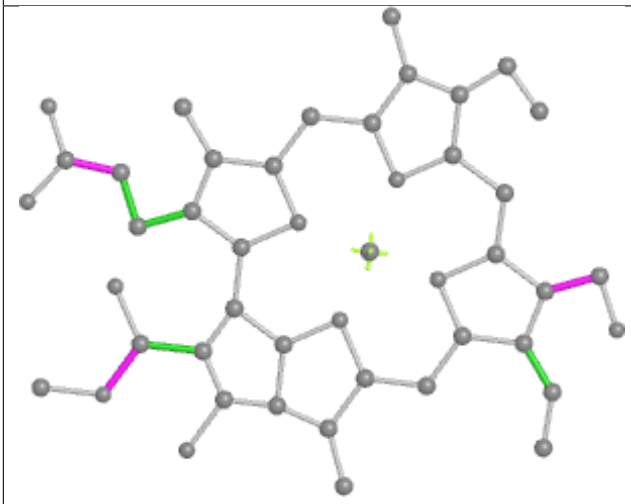
Ligand CHL s 601



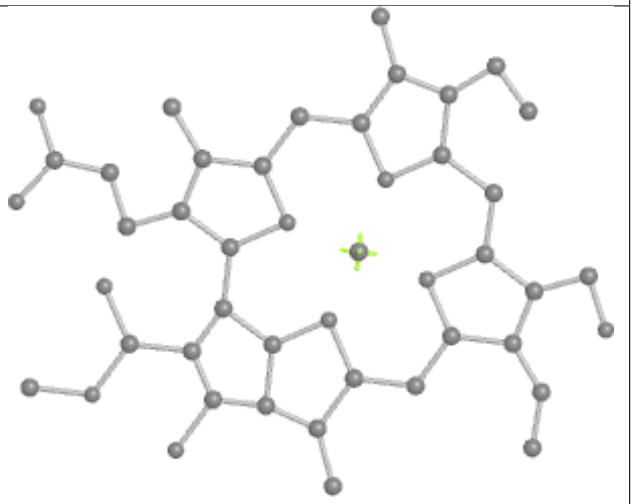
Bond lengths



Bond angles

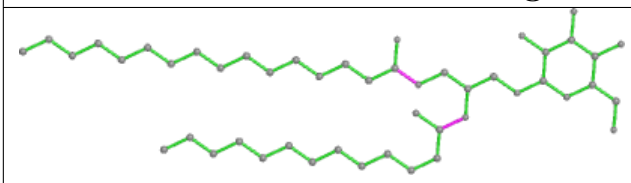


Torsions

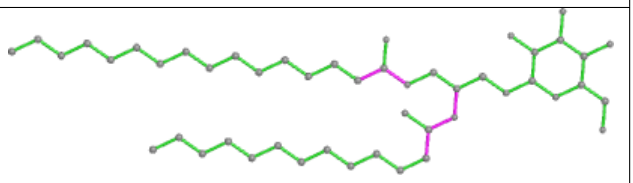


Rings

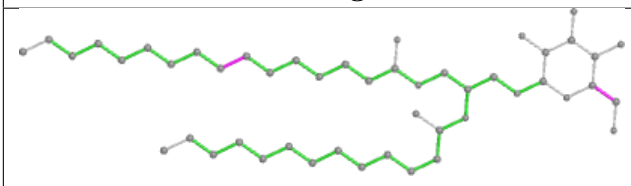
Ligand LMG a 407



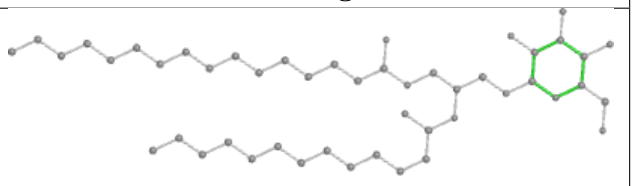
Bond lengths



Bond angles

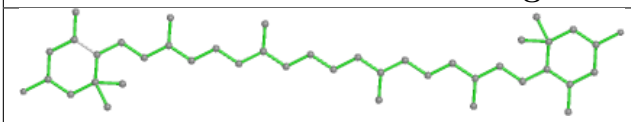


Torsions

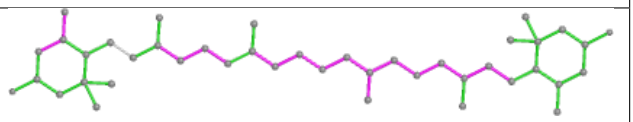


Rings

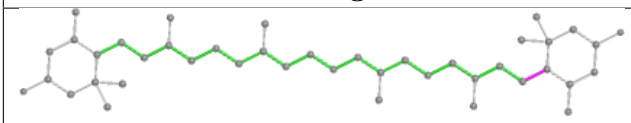
Ligand LUT G 615



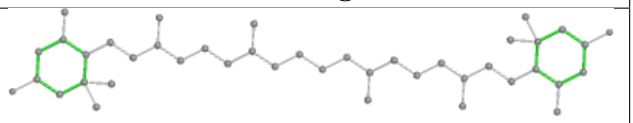
Bond lengths



Bond angles

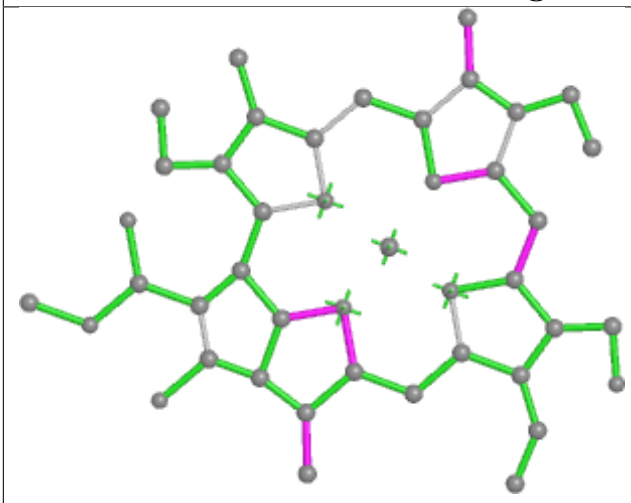


Torsions

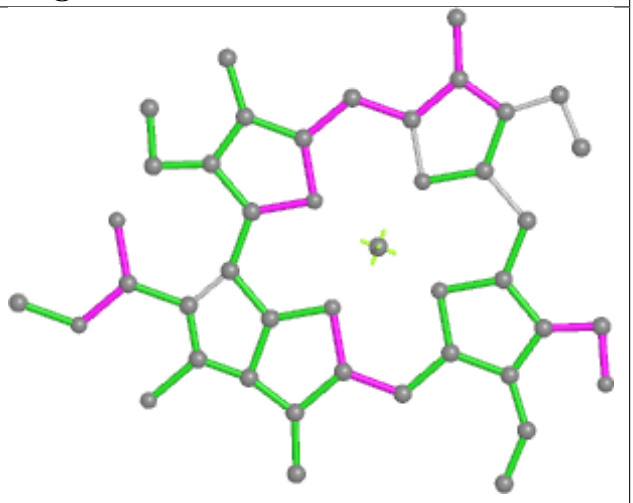


Rings

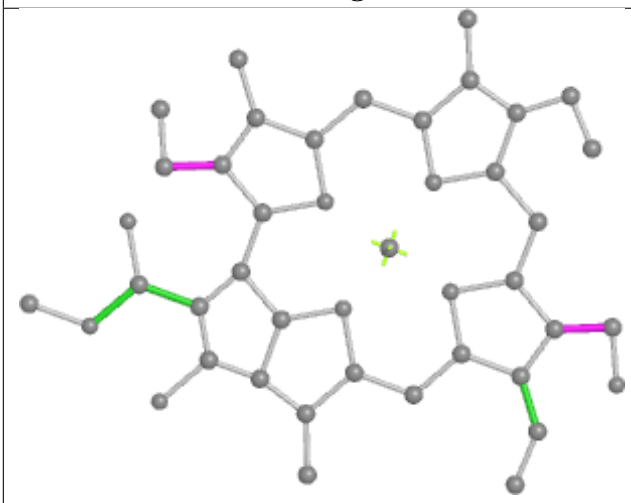
Ligand CHL g 606



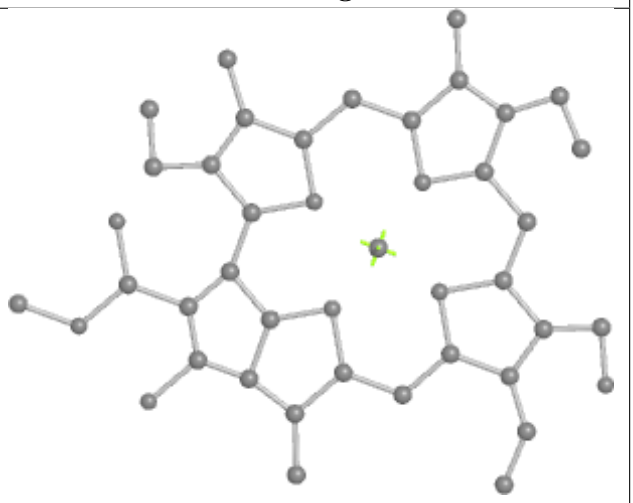
Bond lengths



Bond angles

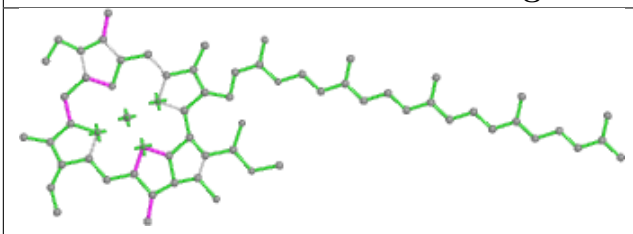


Torsions

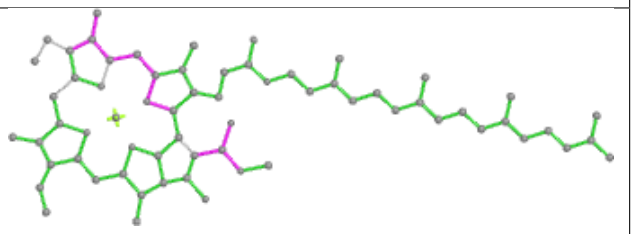


Rings

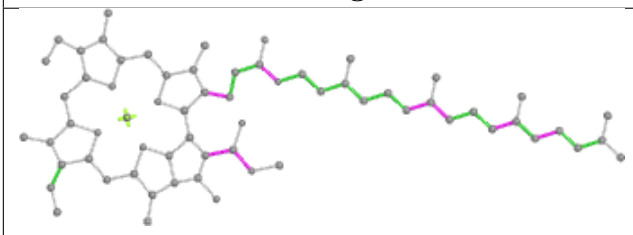
Ligand CLA D 404



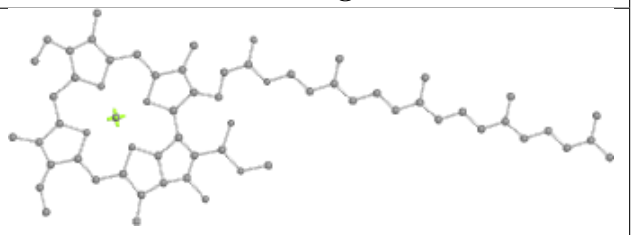
Bond lengths



Bond angles

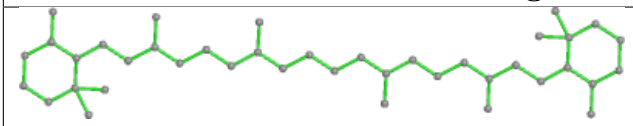


Torsions

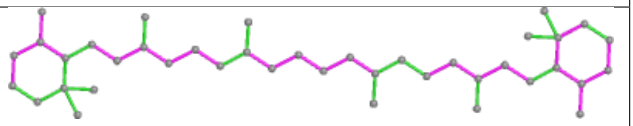


Rings

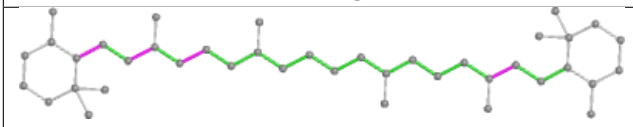
Ligand BCR d 405



Bond lengths



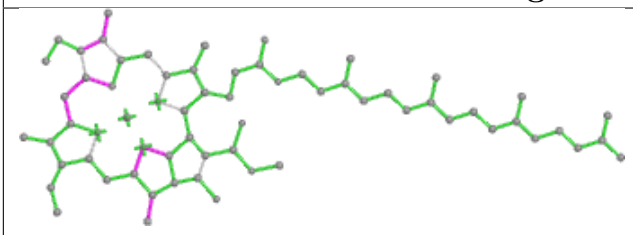
Bond angles



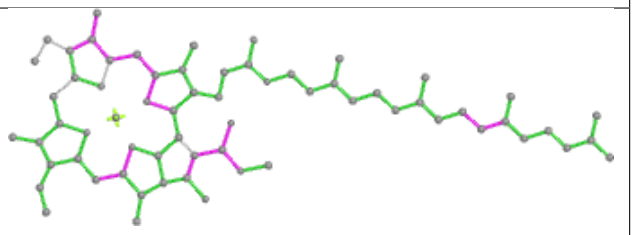
Torsions

Rings

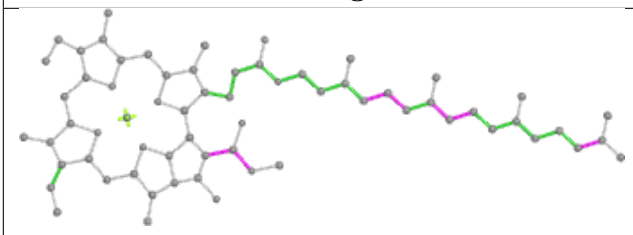
Ligand CLA b 607



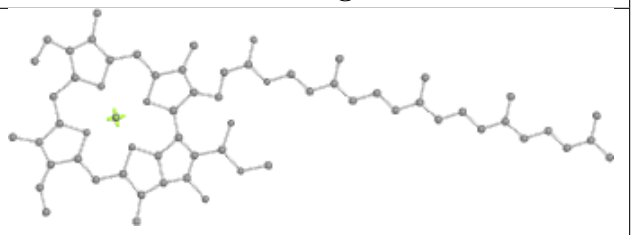
Bond lengths



Bond angles

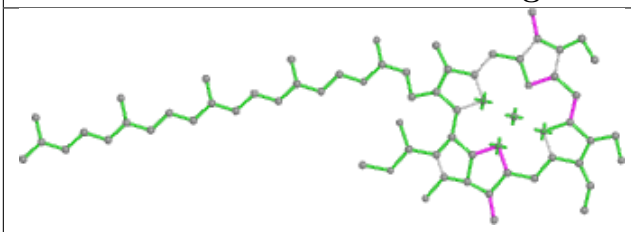


Torsions

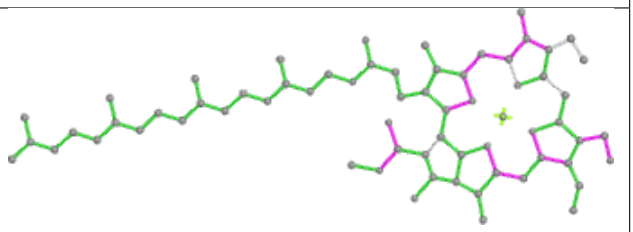


Rings

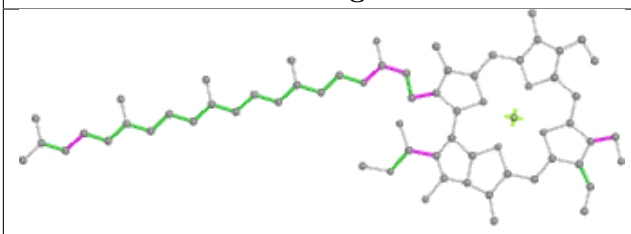
Ligand CHL N 601



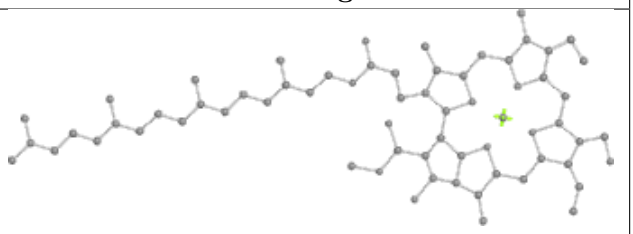
Bond lengths



Bond angles

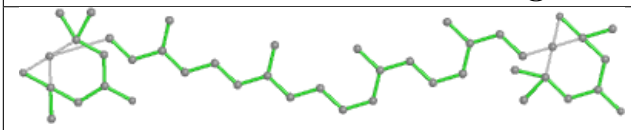


Torsions

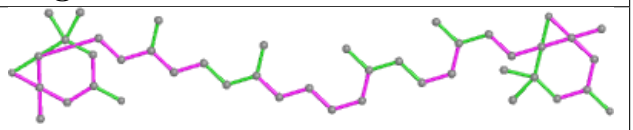


Rings

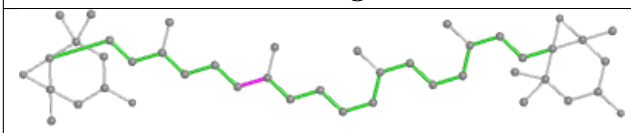
Ligand XAT g 617



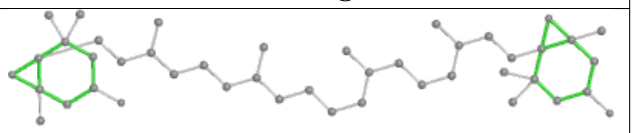
Bond lengths



Bond angles

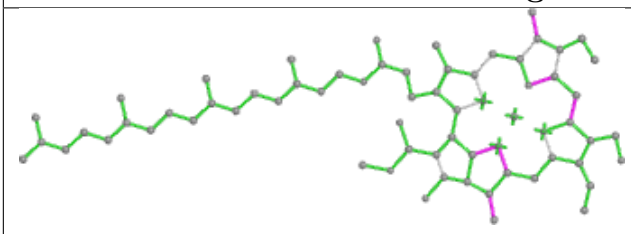


Torsions

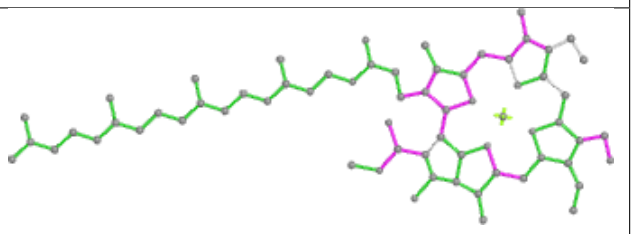


Rings

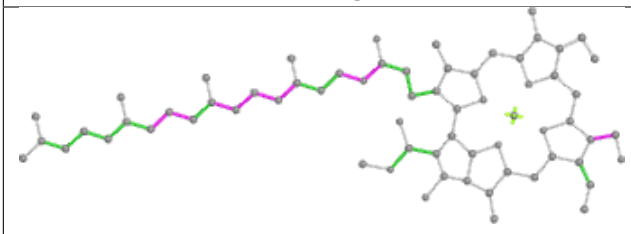
Ligand CHL n 609



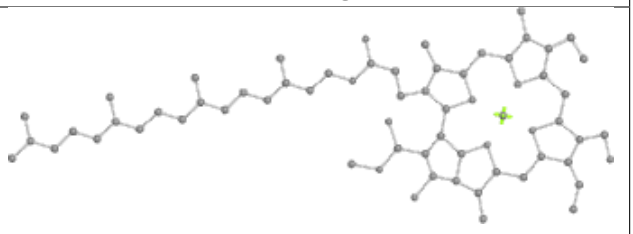
Bond lengths



Bond angles

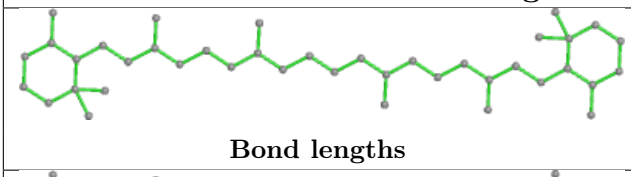


Torsions

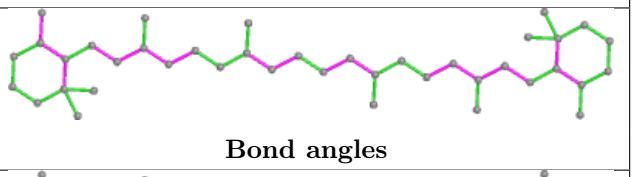


Rings

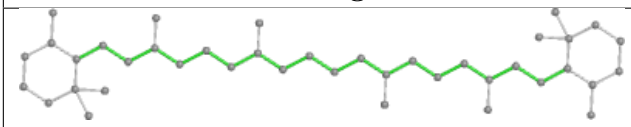
Ligand BCR C 515



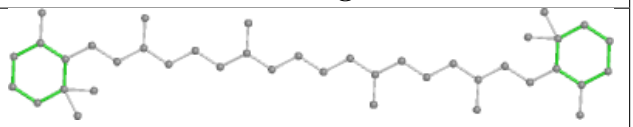
Bond lengths



Bond angles

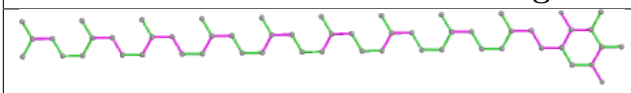


Torsions

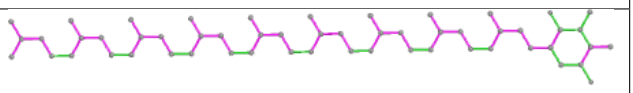


Rings

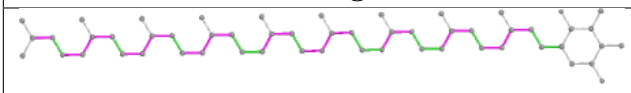
Ligand PL9 d 406



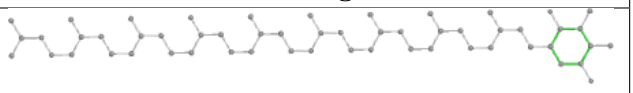
Bond lengths



Bond angles

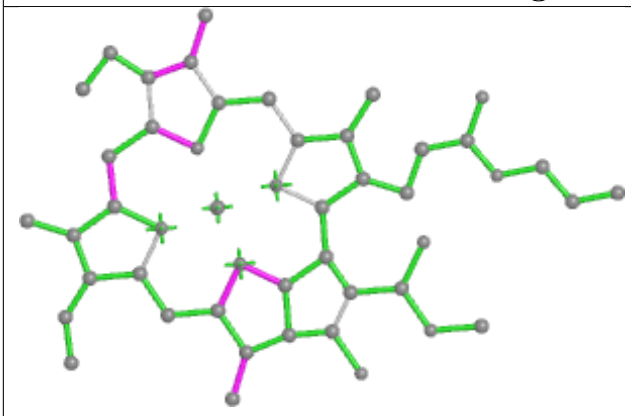


Torsions

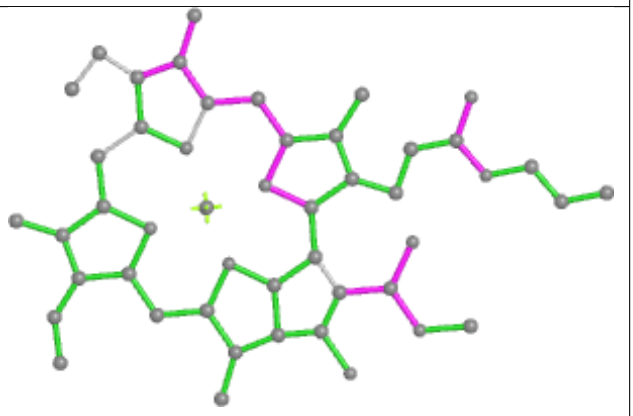


Rings

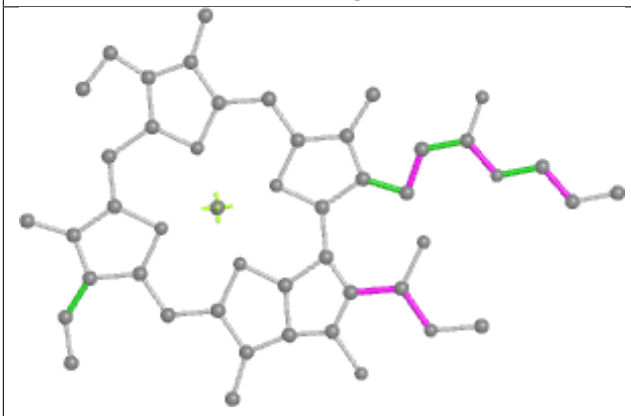
Ligand CLA r 604



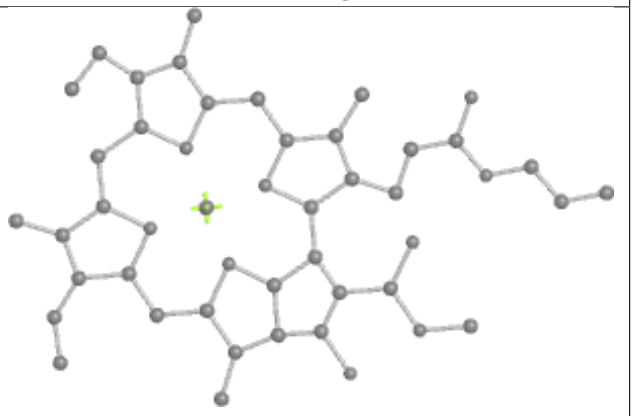
Bond lengths



Bond angles

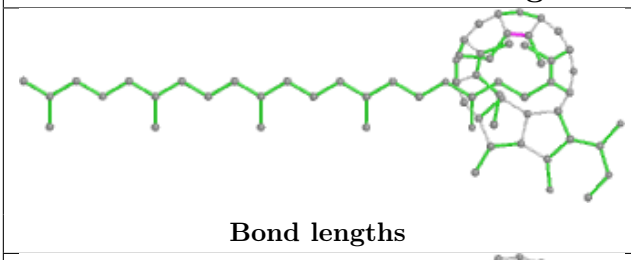


Torsions

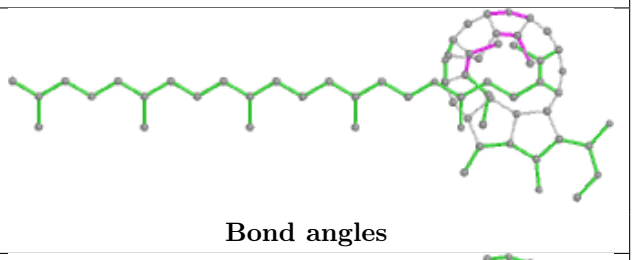


Rings

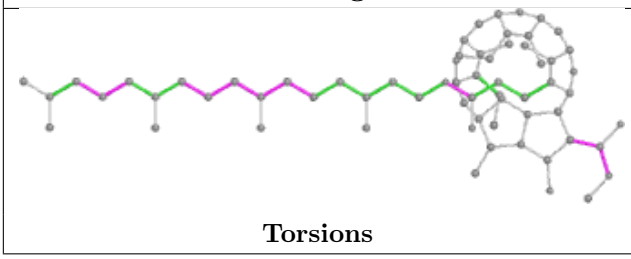
Ligand PHO a 402



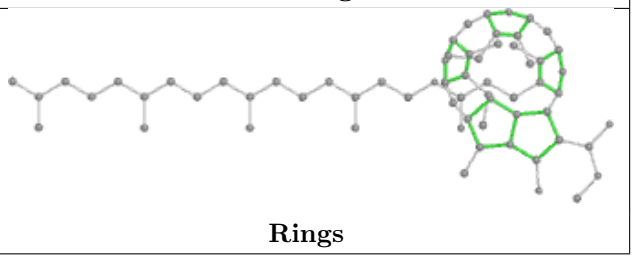
Bond lengths



Bond angles

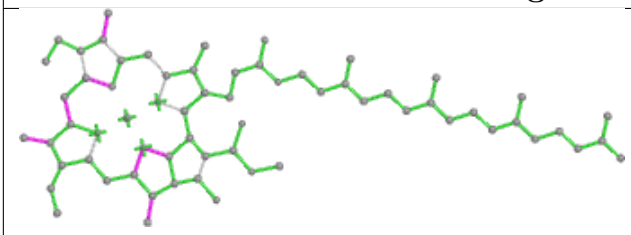


Torsions

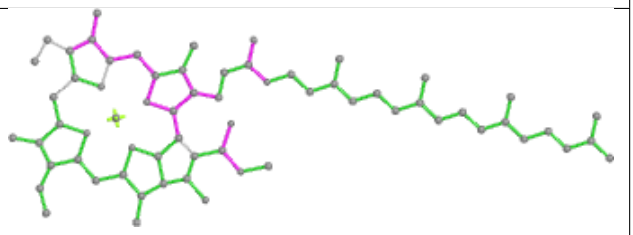


Rings

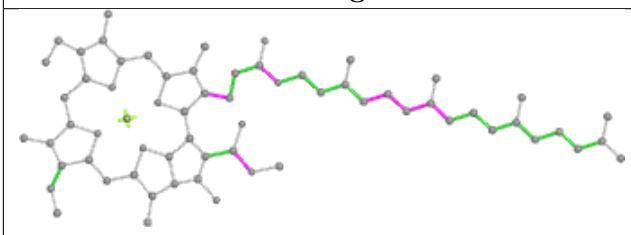
Ligand CLA b 618



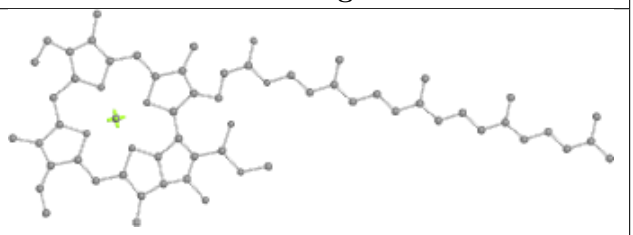
Bond lengths



Bond angles

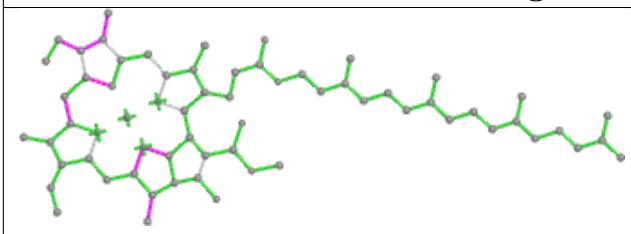


Torsions

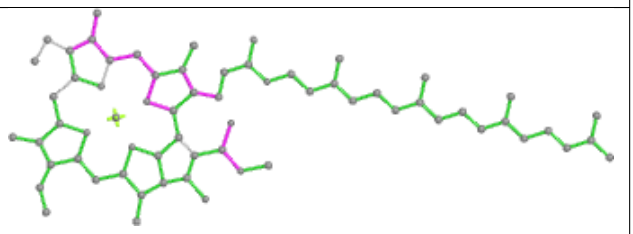


Rings

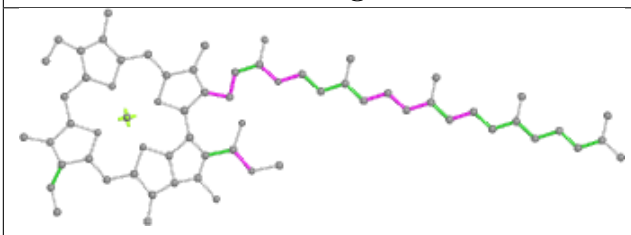
Ligand CLA b 615



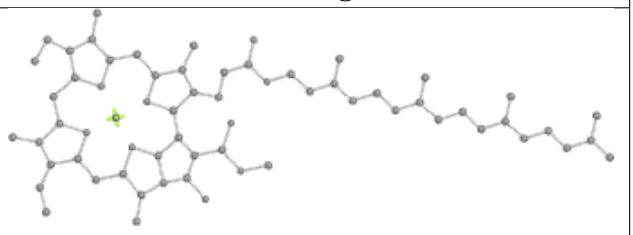
Bond lengths



Bond angles

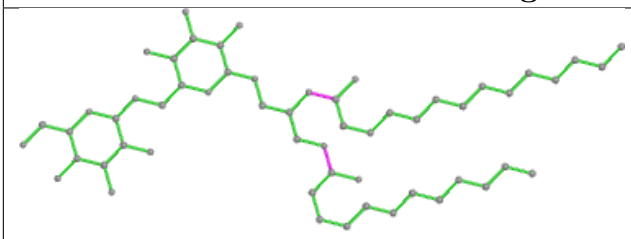


Torsions

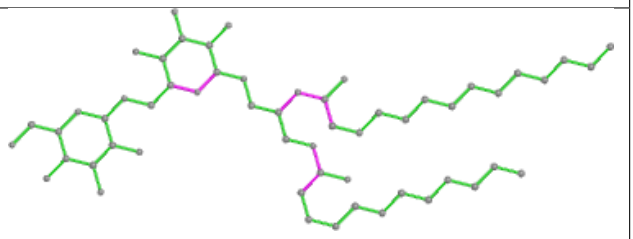


Rings

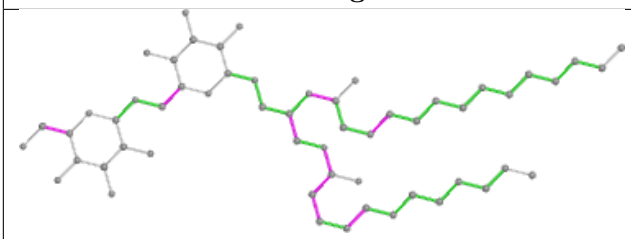
Ligand DGD B 626



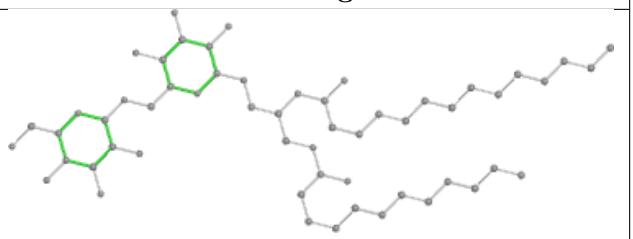
Bond lengths



Bond angles

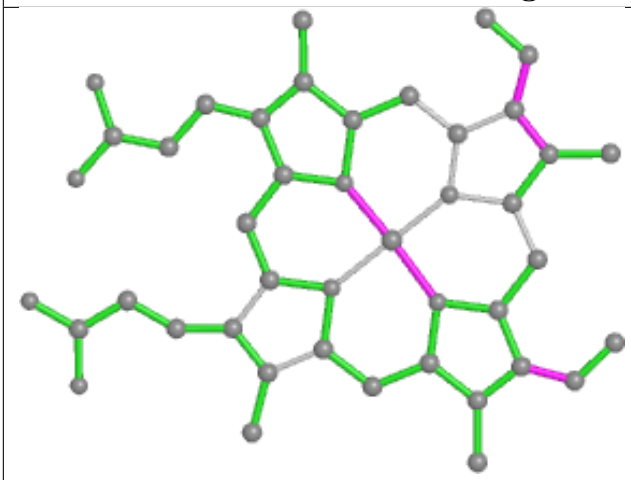


Torsions

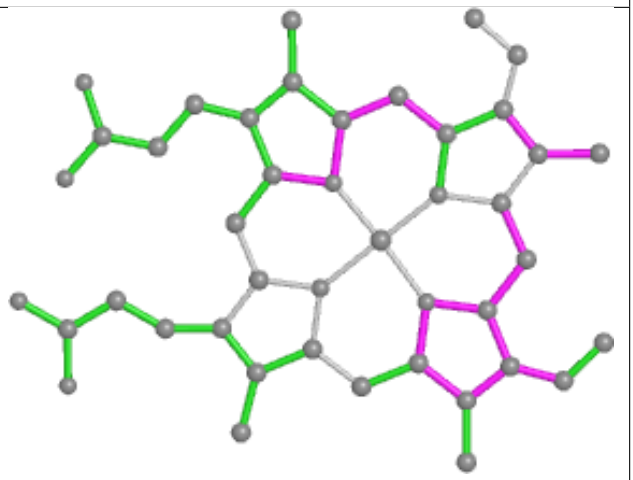


Rings

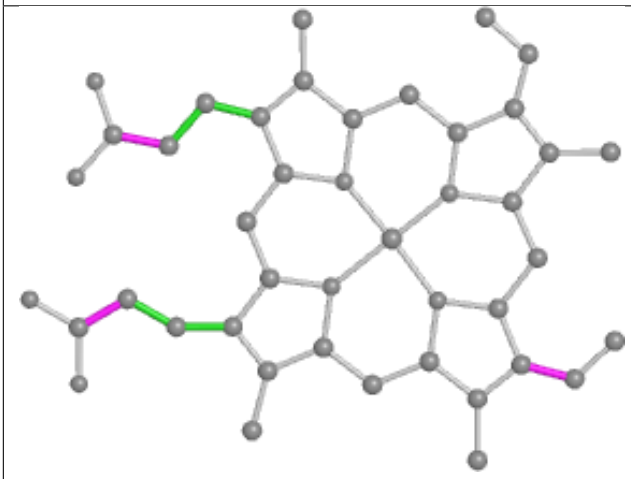
Ligand HEM F 101



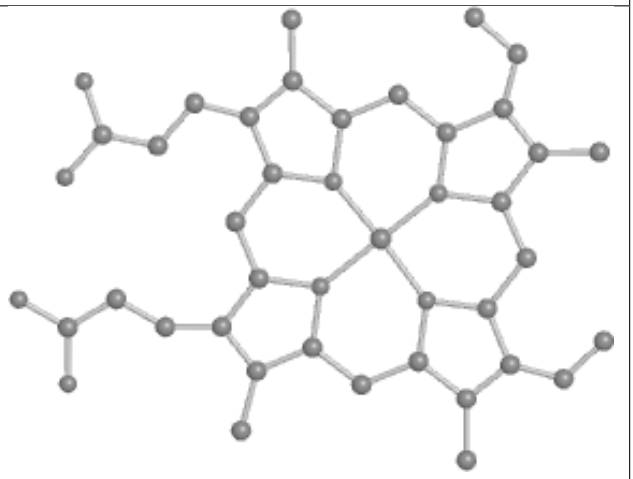
Bond lengths



Bond angles

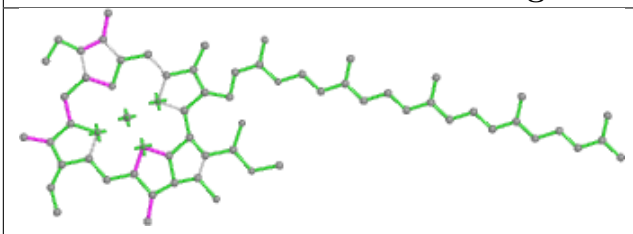


Torsions

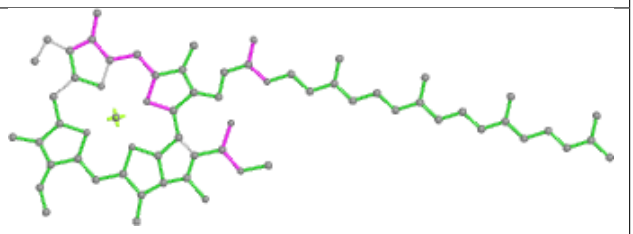


Rings

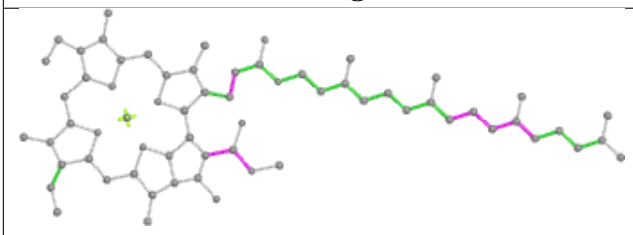
Ligand CLA b 608



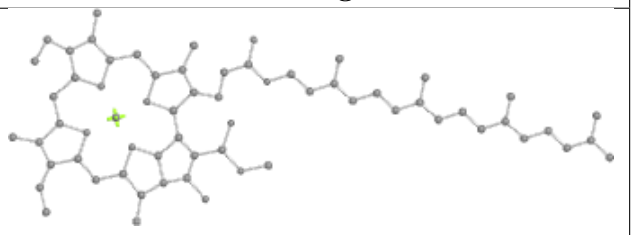
Bond lengths



Bond angles

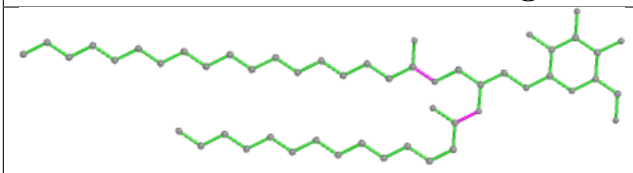


Torsions

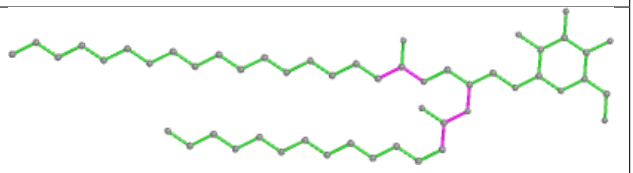


Rings

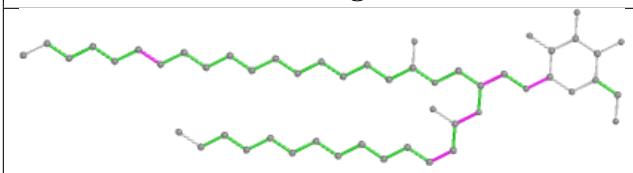
Ligand LMG w 202



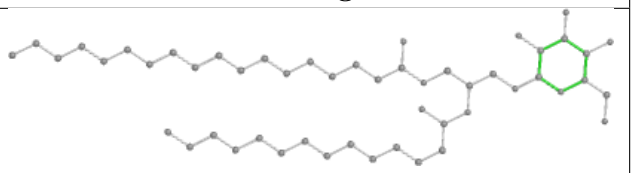
Bond lengths



Bond angles

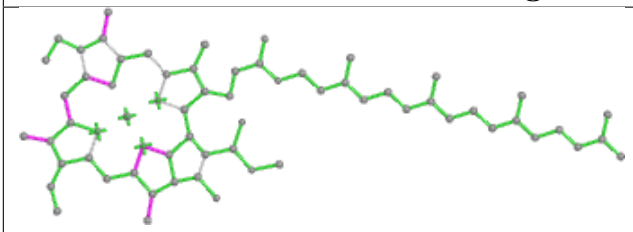


Torsions

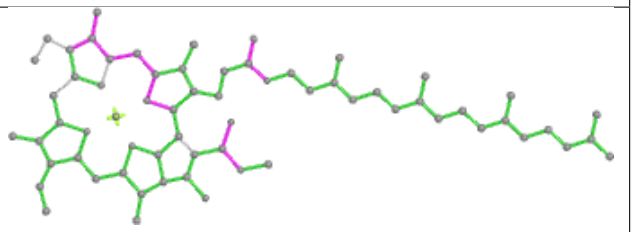


Rings

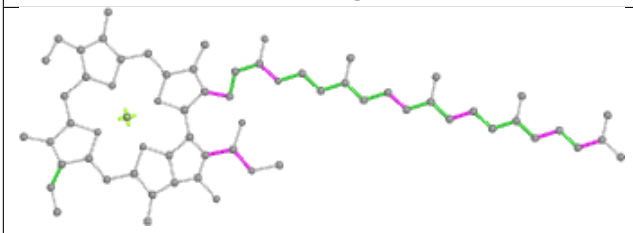
Ligand CLA C 509



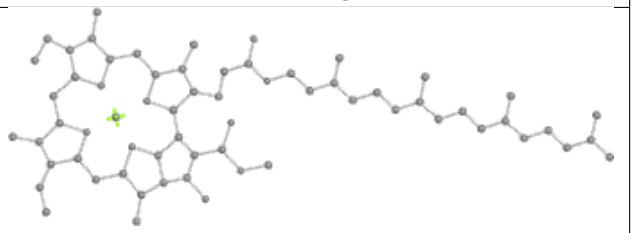
Bond lengths



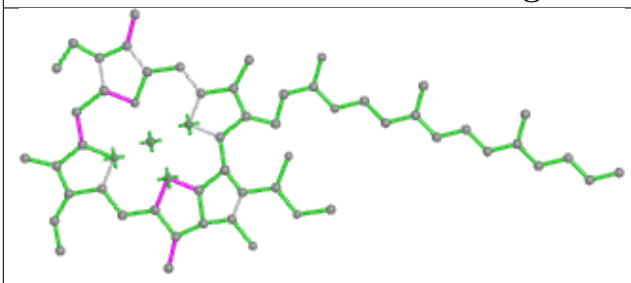
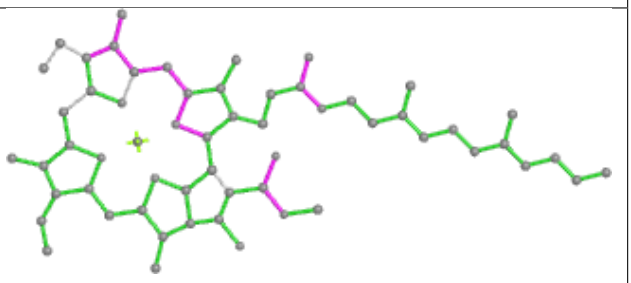
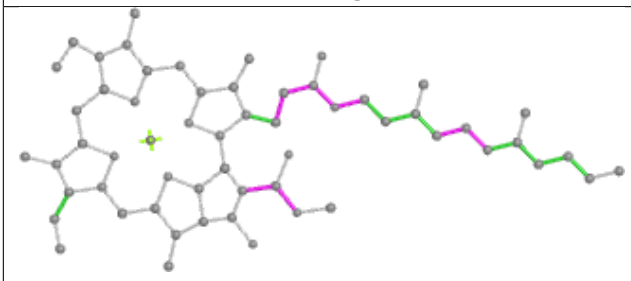
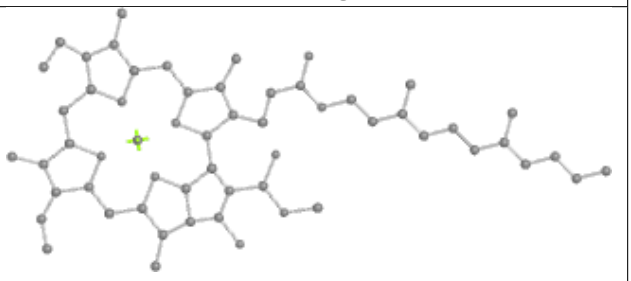
Bond angles



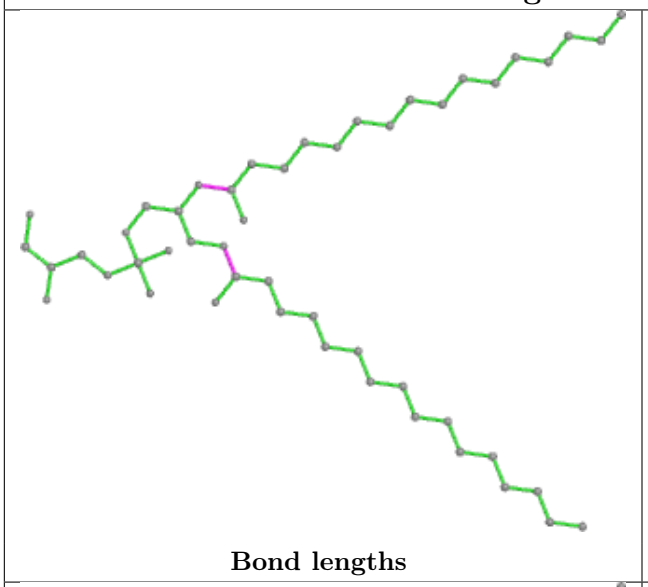
Torsions



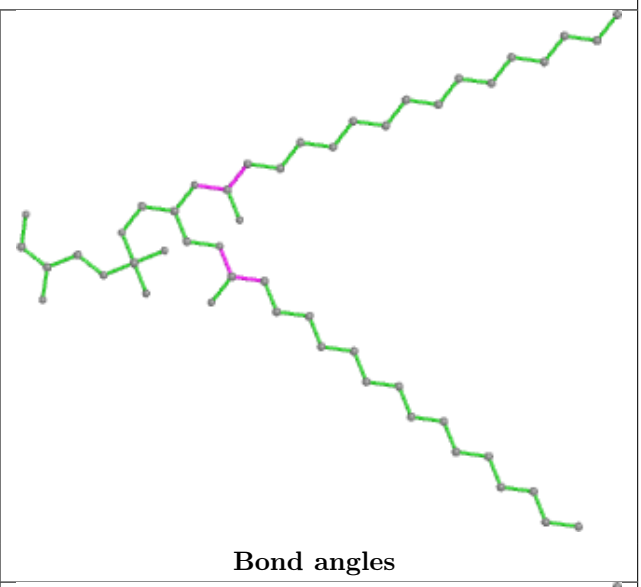
Rings

Ligand CLA G 613	
	
Bond lengths	**Bond angles**
	
Torsions	**Rings**

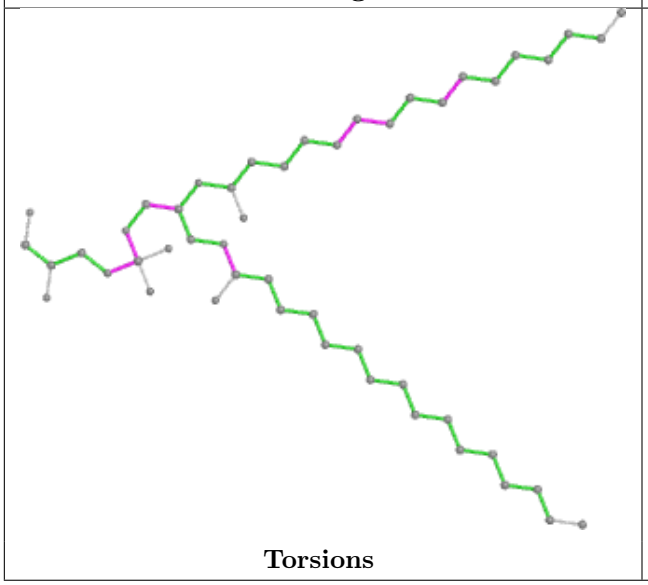
Ligand LHG C 518



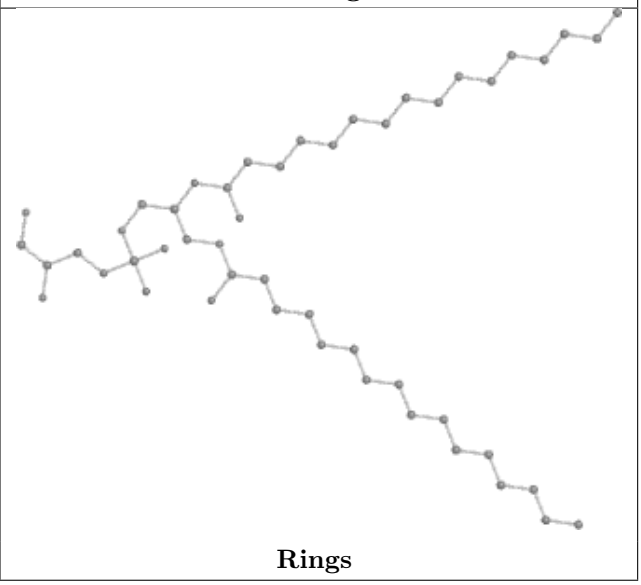
Bond lengths



Bond angles

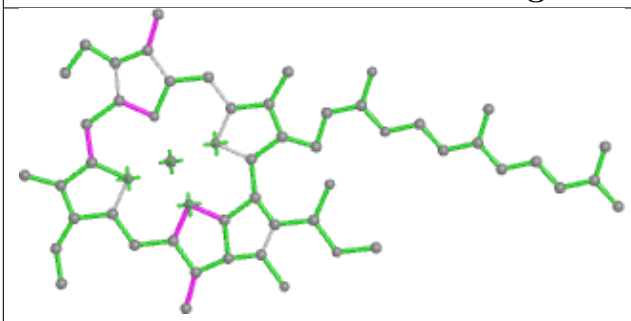


Torsions

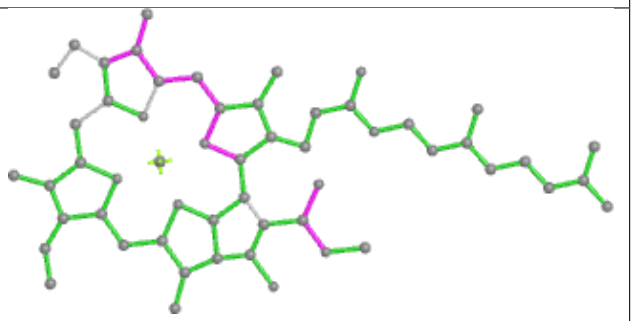


Rings

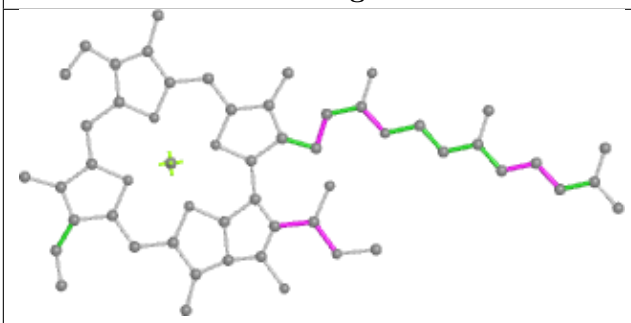
Ligand CLA S 313



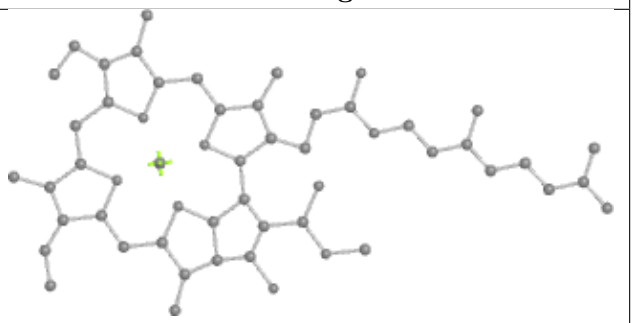
Bond lengths



Bond angles

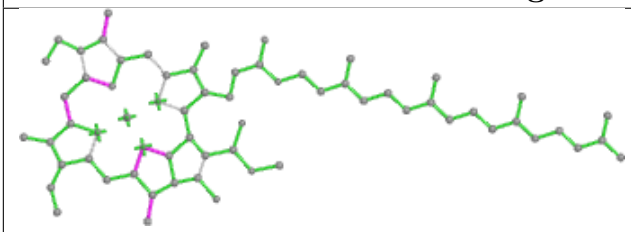


Torsions

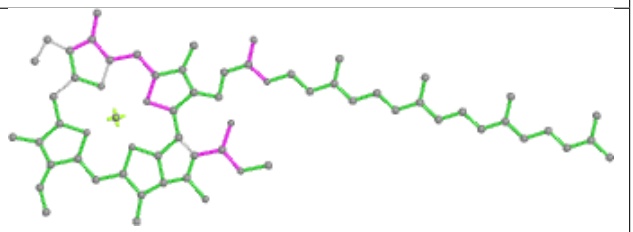


Rings

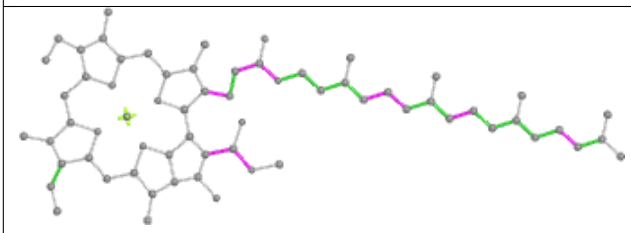
Ligand CLA d 404



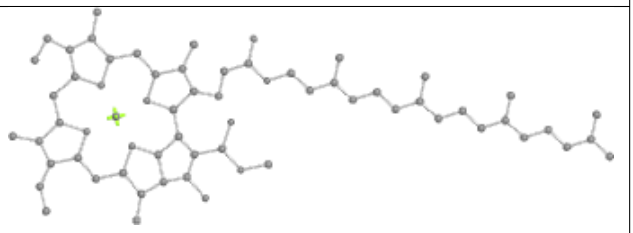
Bond lengths



Bond angles

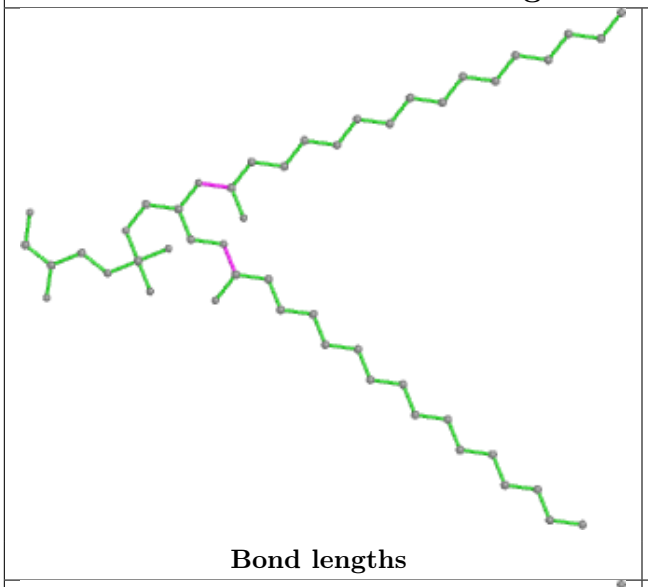


Torsions

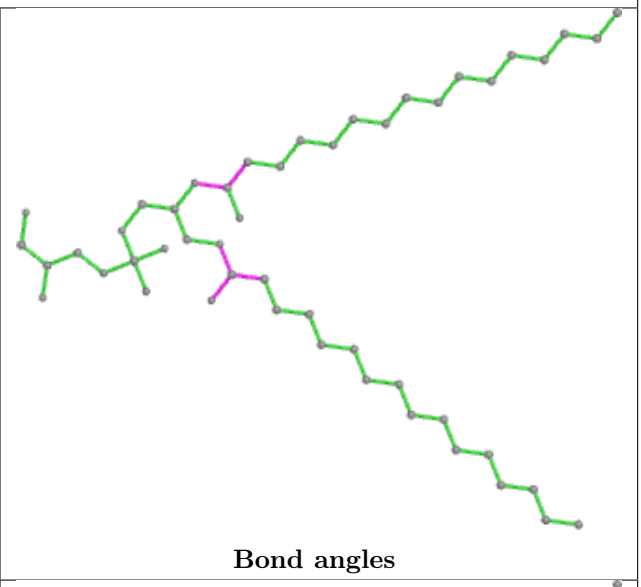


Rings

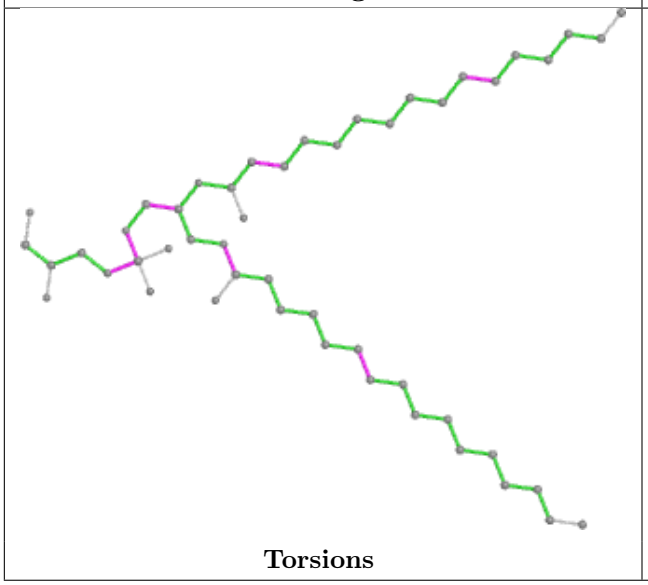
Ligand LHG B 621



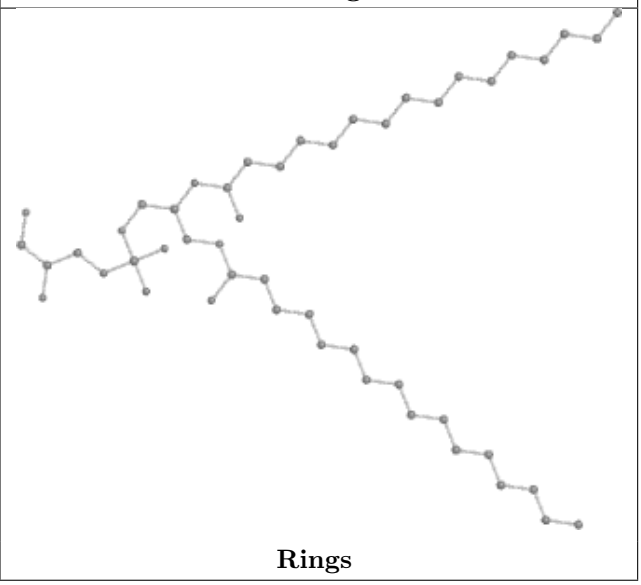
Bond lengths



Bond angles

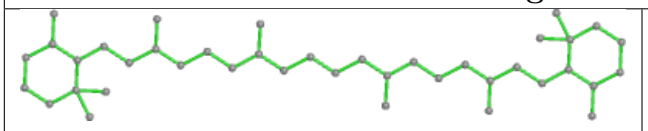


Torsions

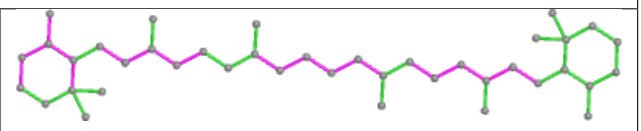


Rings

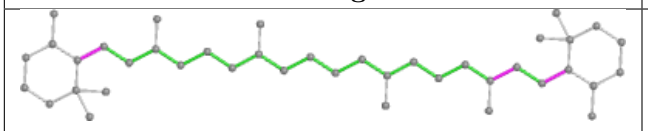
Ligand BCR b 619



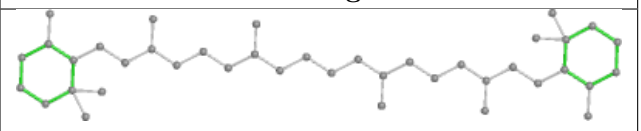
Bond lengths



Bond angles

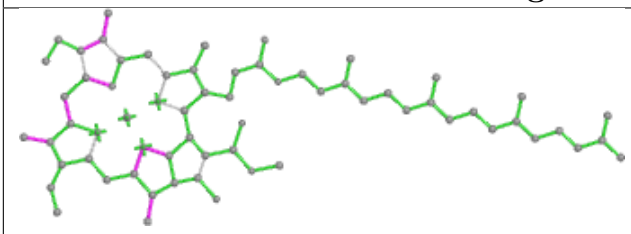


Torsions

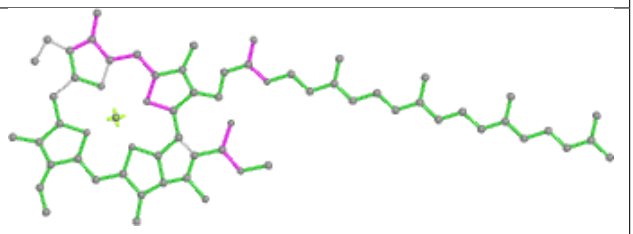


Rings

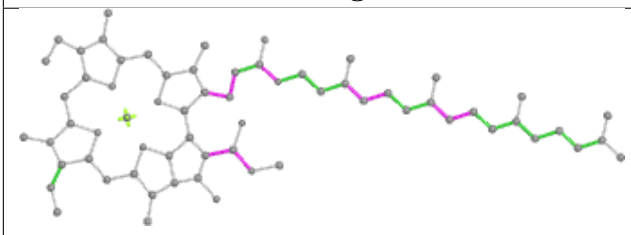
Ligand CLA b 605



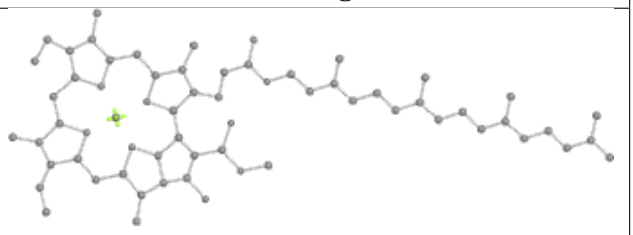
Bond lengths



Bond angles

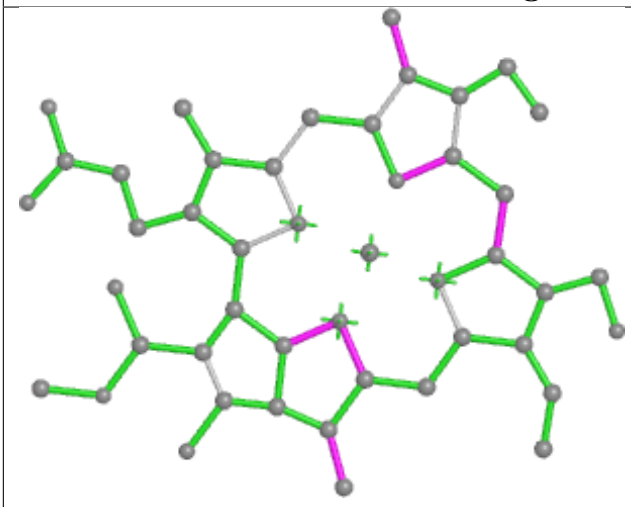


Torsions

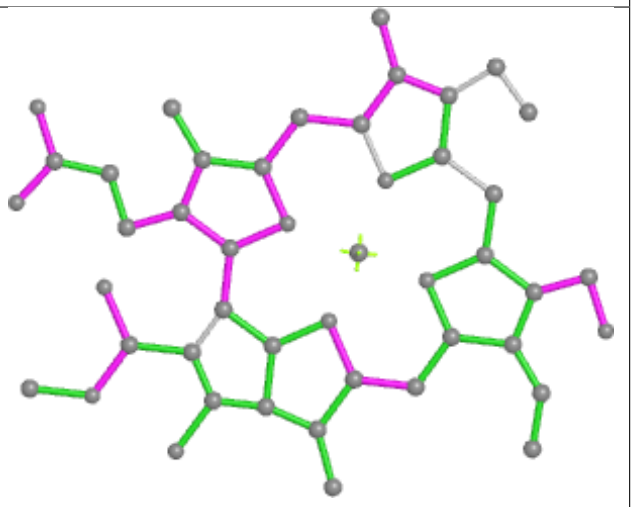


Rings

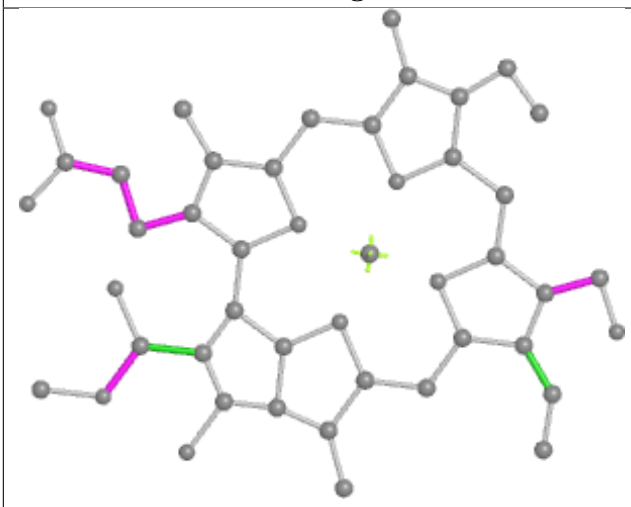
Ligand CHL N 606



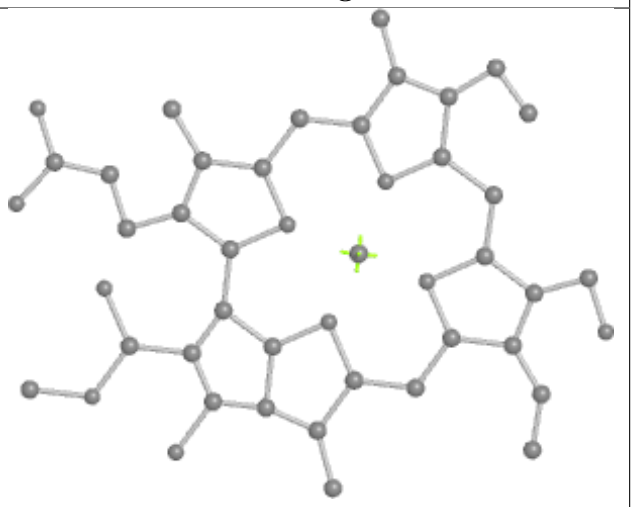
Bond lengths



Bond angles

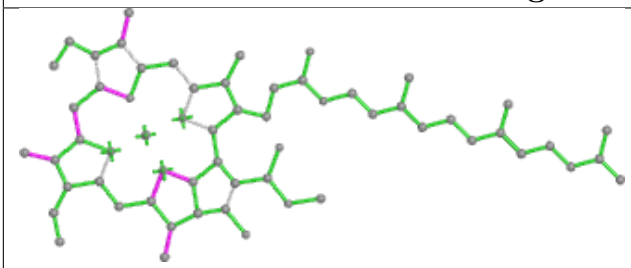


Torsions

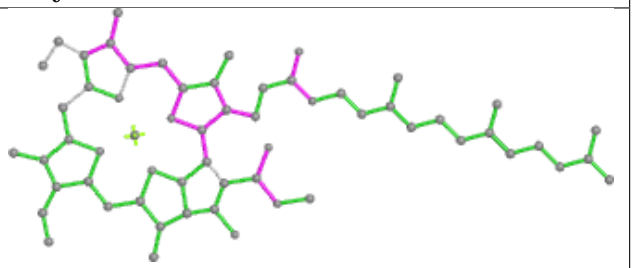


Rings

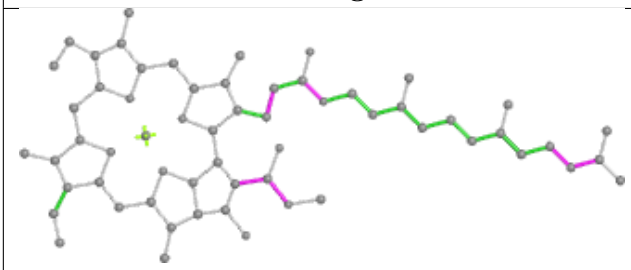
Ligand CLA y 313



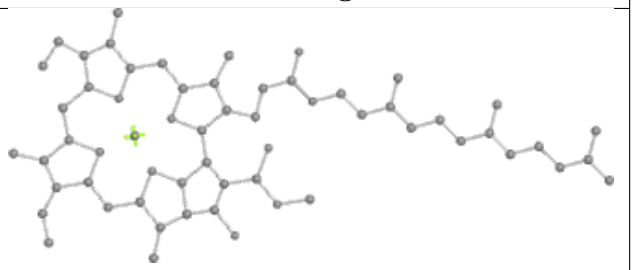
Bond lengths



Bond angles

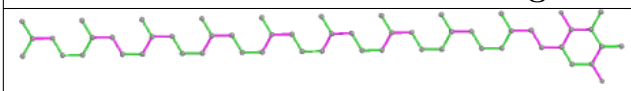


Torsions

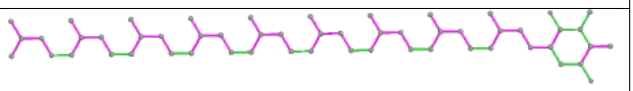


Rings

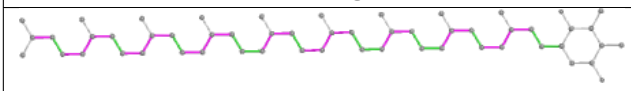
Ligand PL9 D 406



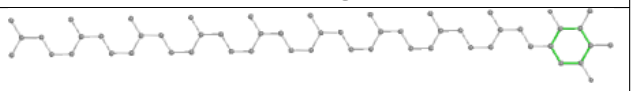
Bond lengths



Bond angles

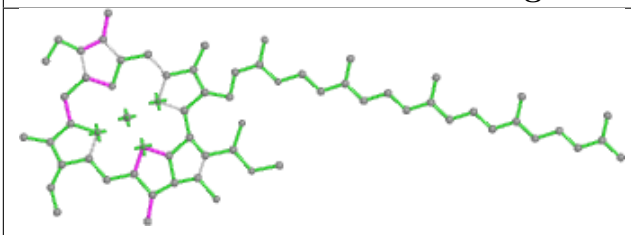


Torsions

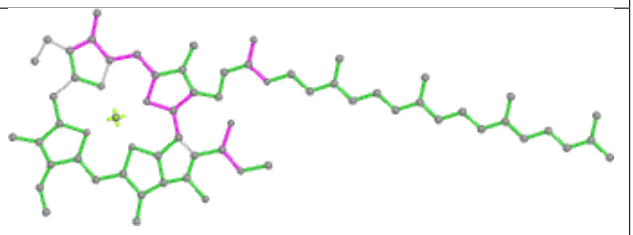


Rings

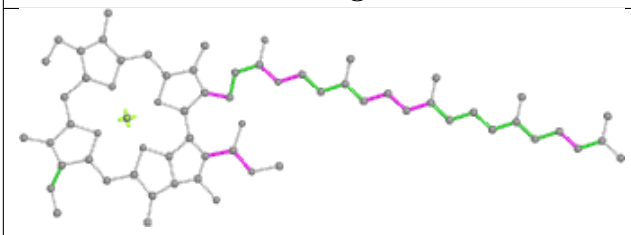
Ligand CLA C 503



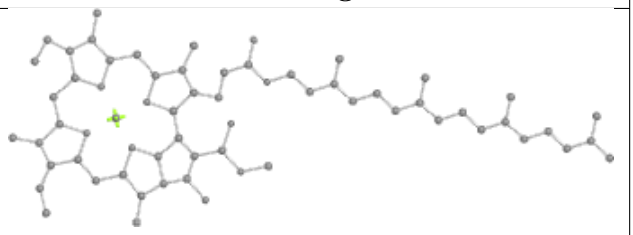
Bond lengths



Bond angles

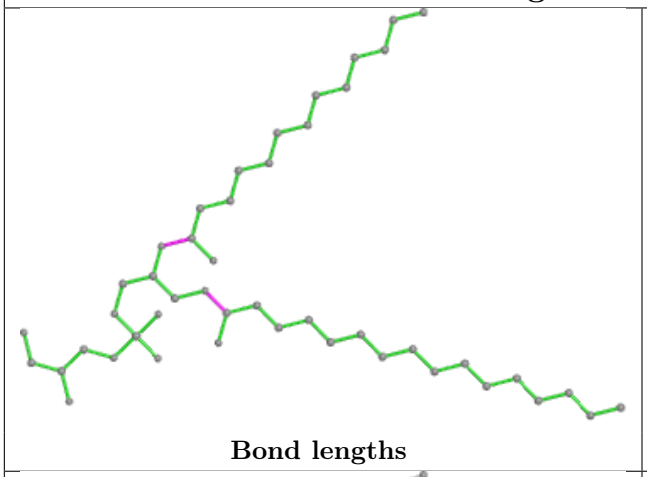


Torsions

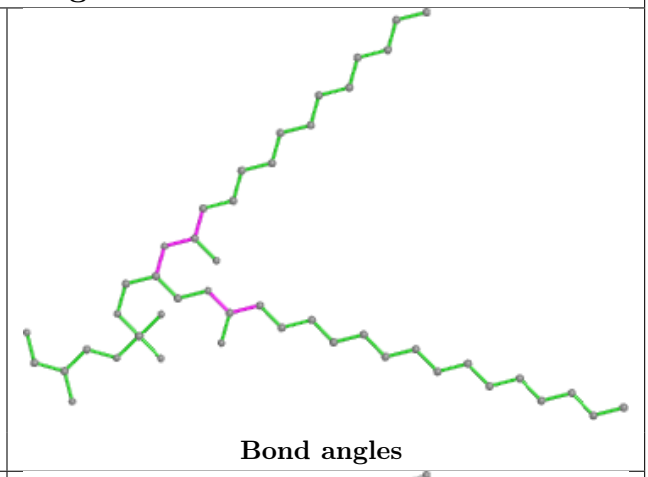


Rings

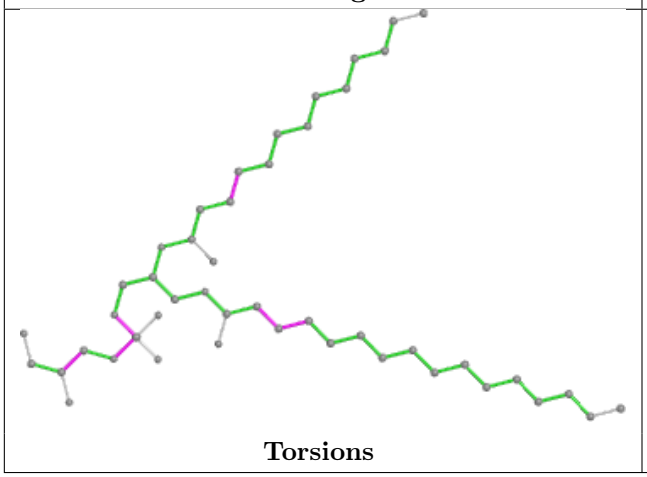
Ligand LHG g 619



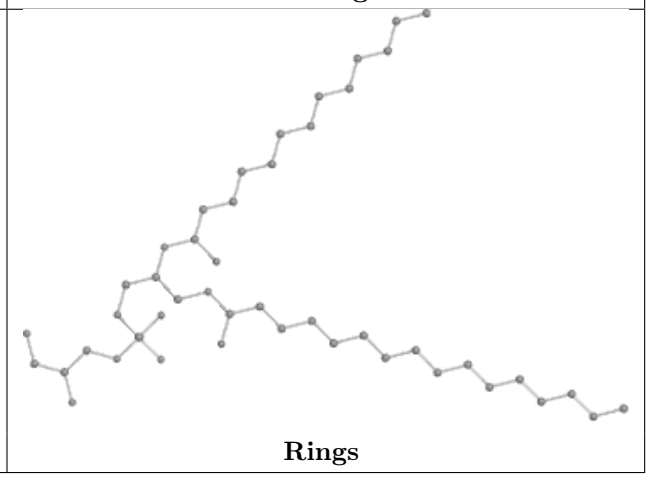
Bond lengths



Bond angles

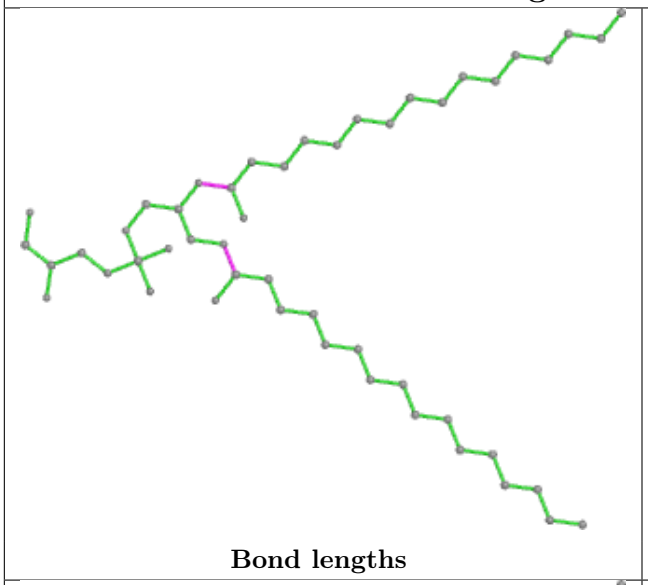


Torsions

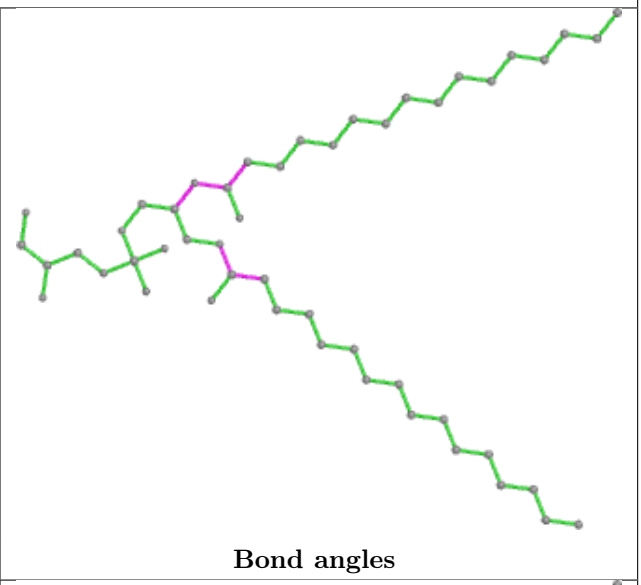


Rings

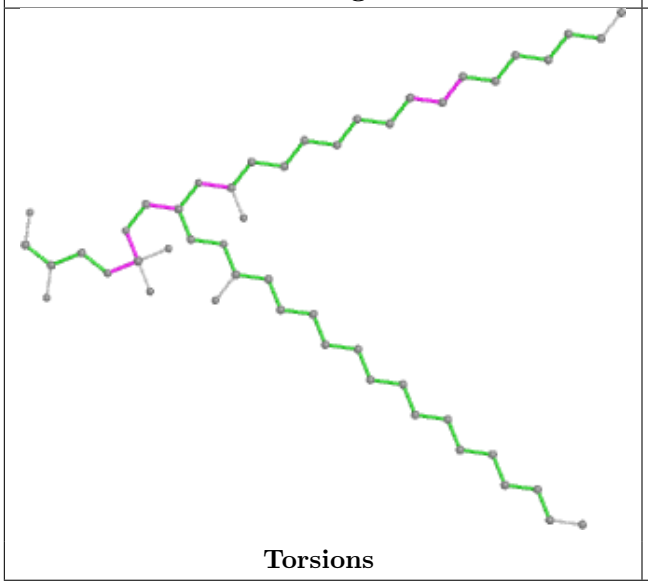
Ligand LHG c 516



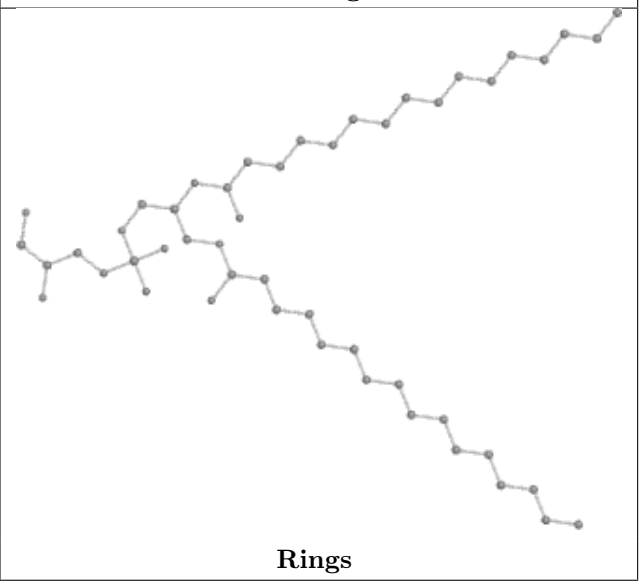
Bond lengths



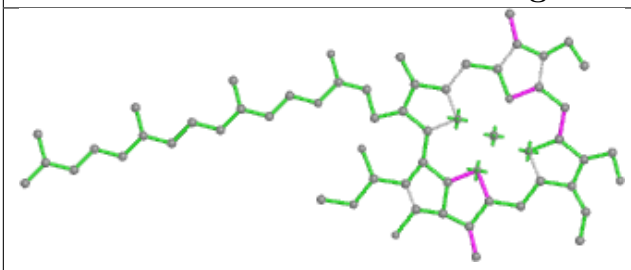
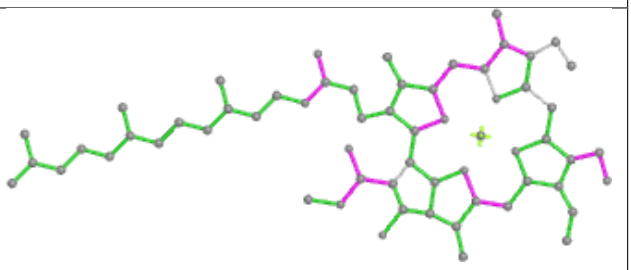
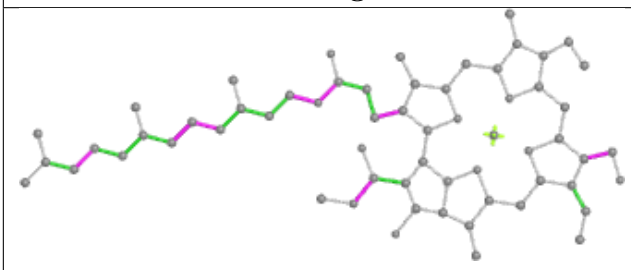
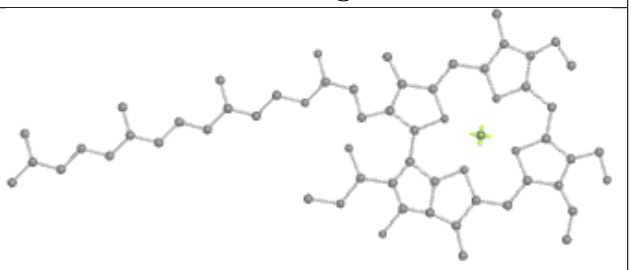
Bond angles

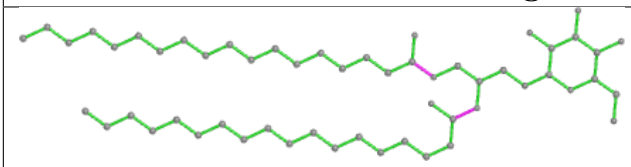
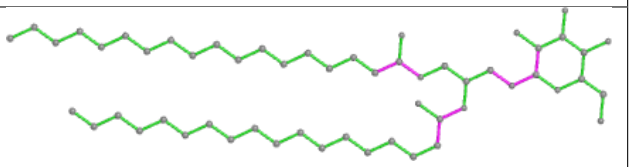
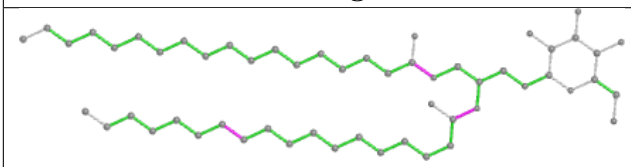
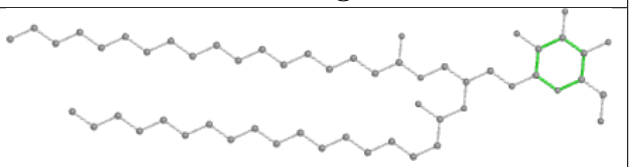


Torsions

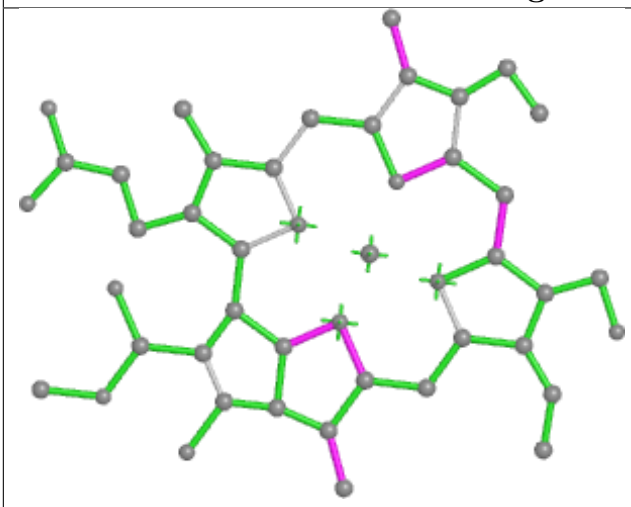


Rings

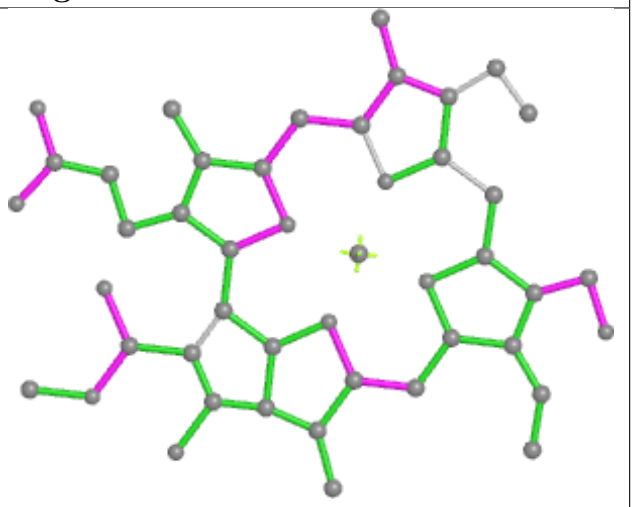
Ligand CHL r 607	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand LMG S 301	
 Bond lengths	 Bond angles
 Torsions	 Rings

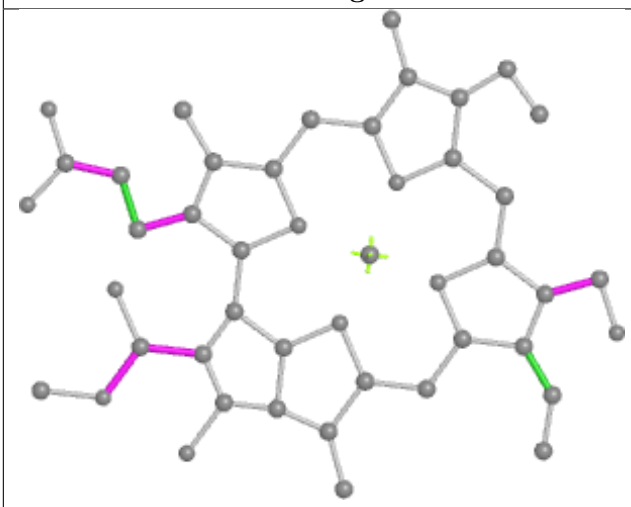
Ligand CHL g 605



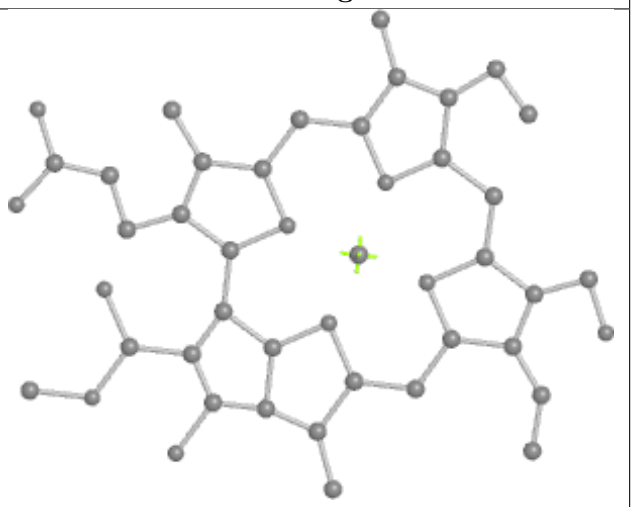
Bond lengths



Bond angles

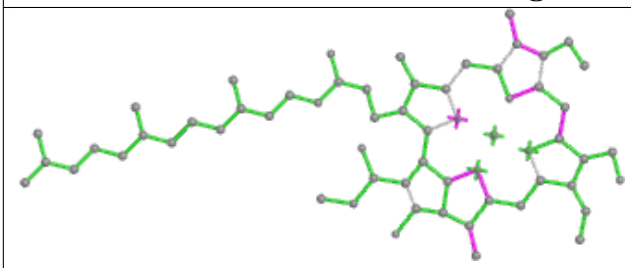


Torsions

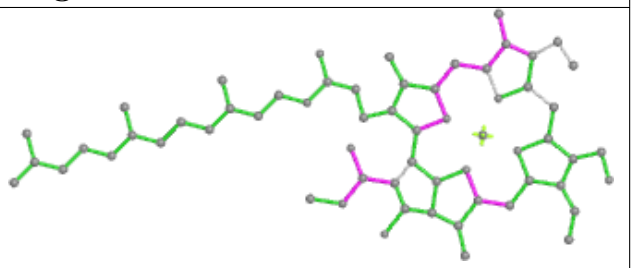


Rings

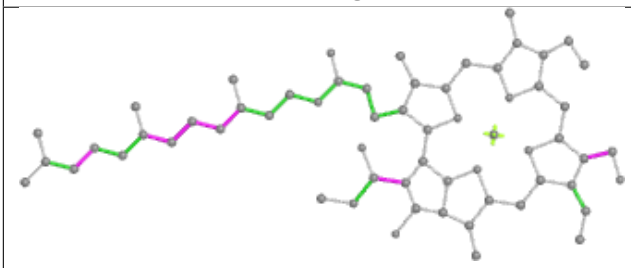
Ligand CHL g 609



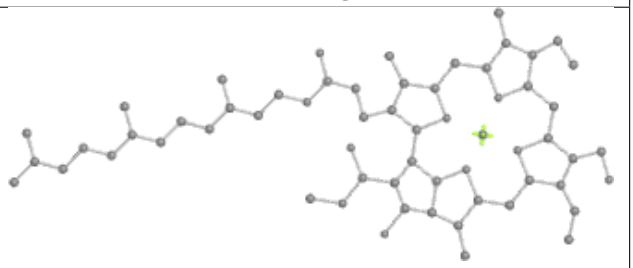
Bond lengths



Bond angles

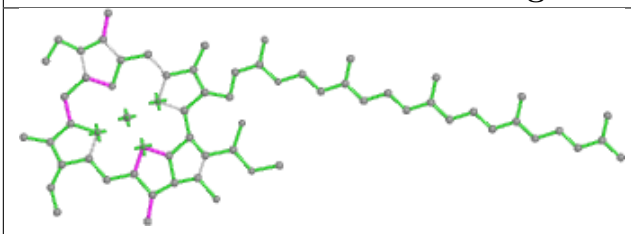


Torsions

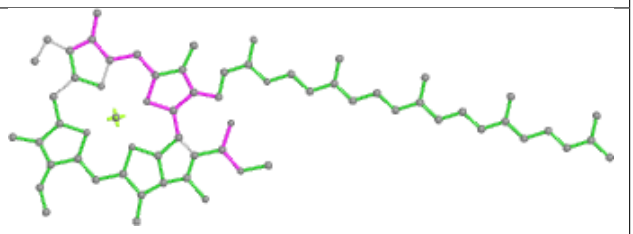


Rings

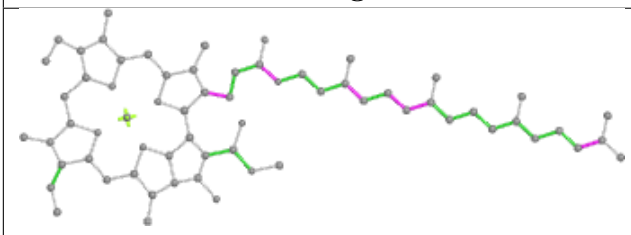
Ligand CLA b 604



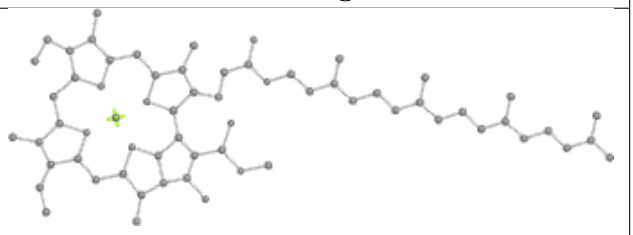
Bond lengths



Bond angles

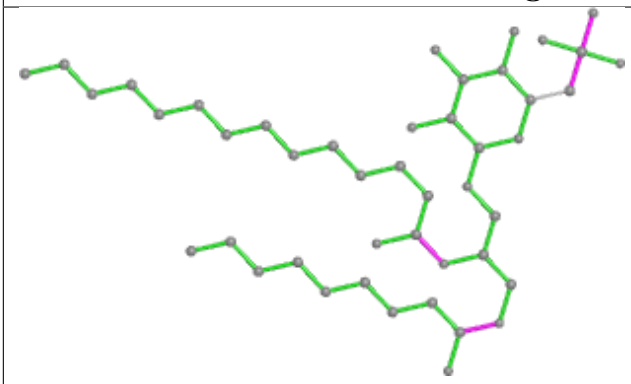


Torsions

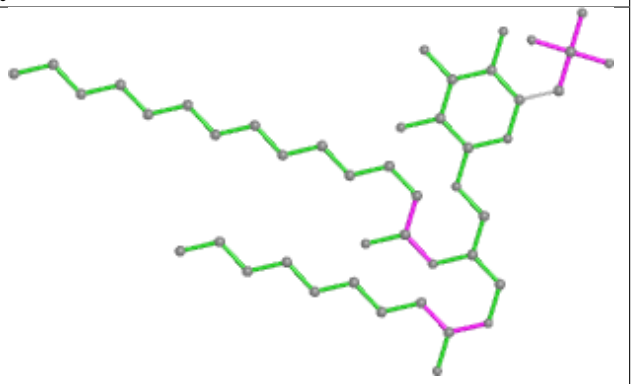


Rings

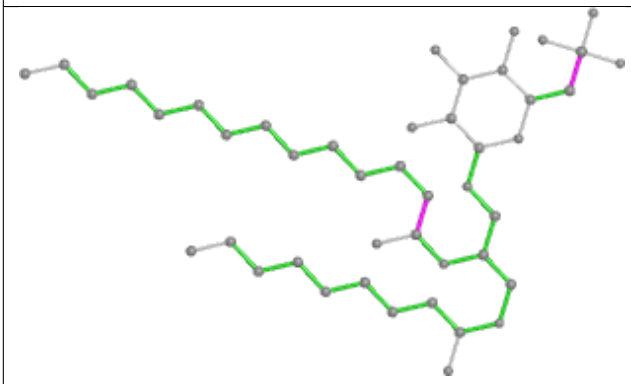
Ligand SQD C 521



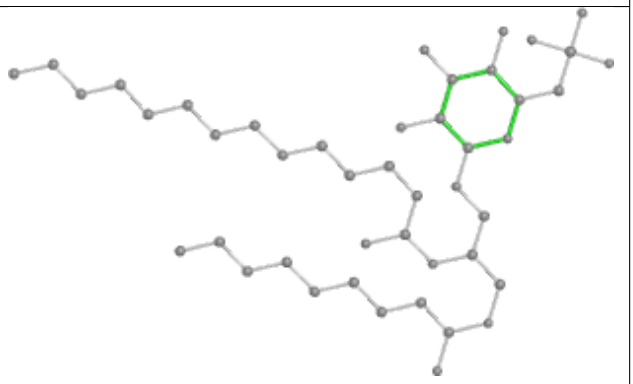
Bond lengths



Bond angles

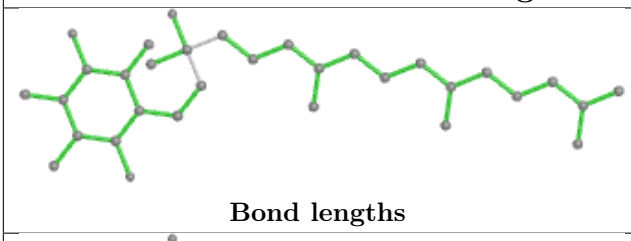


Torsions

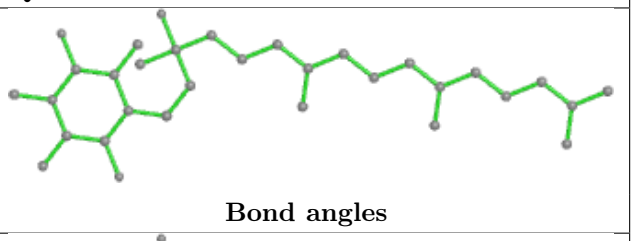


Rings

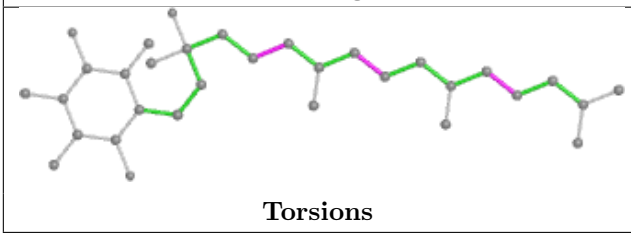
Ligand VTQ W 202



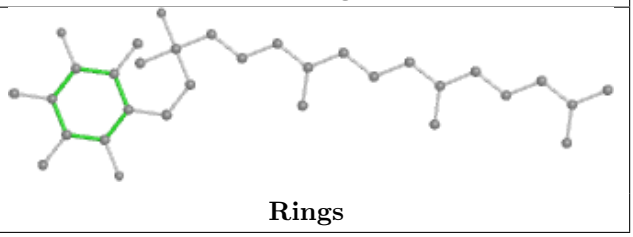
Bond lengths



Bond angles

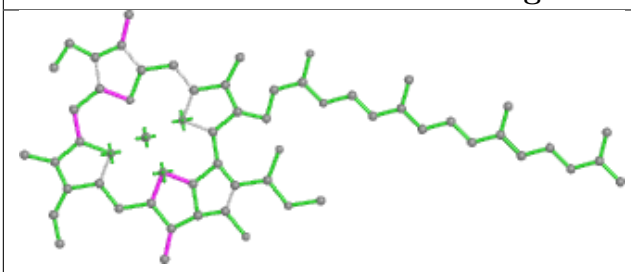


Torsions

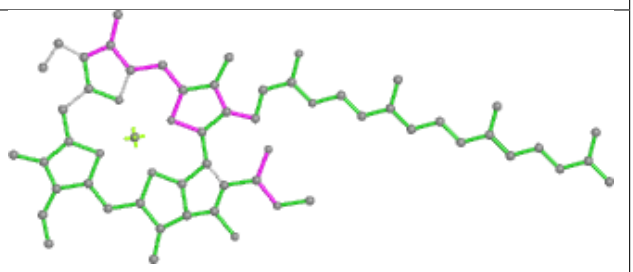


Rings

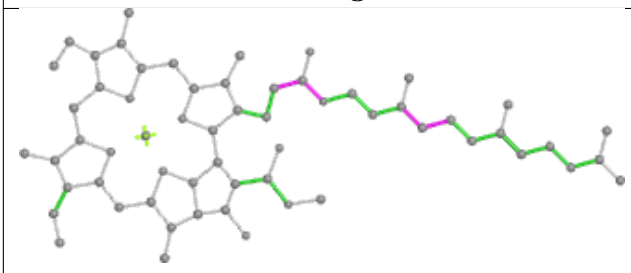
Ligand CLA R 304



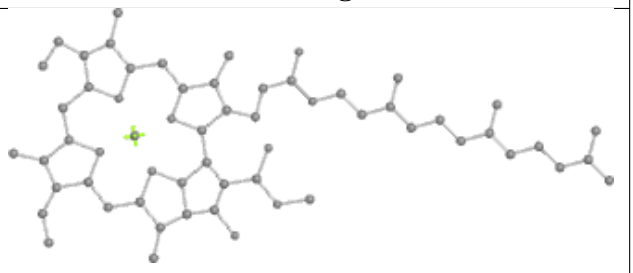
Bond lengths



Bond angles

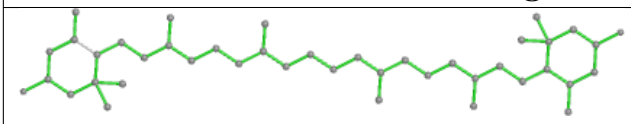


Torsions

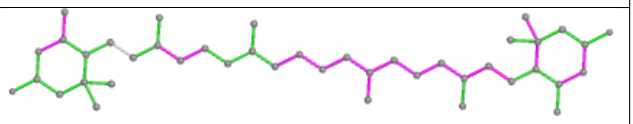


Rings

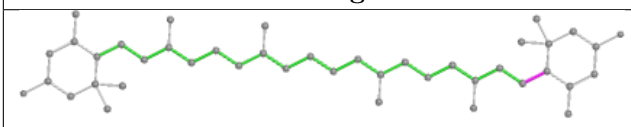
Ligand LUT N 616



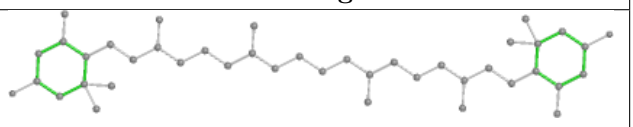
Bond lengths



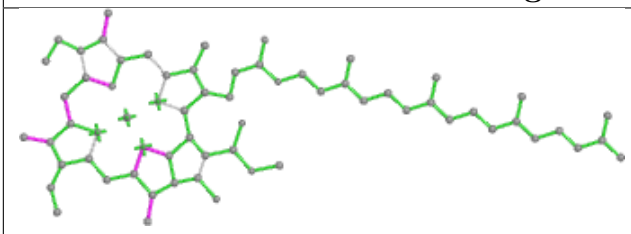
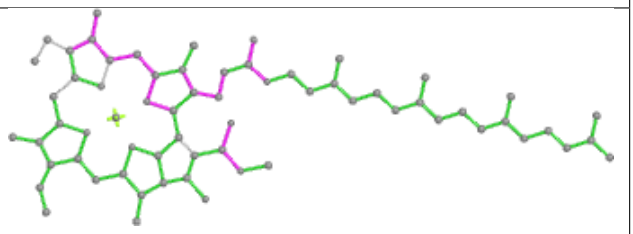
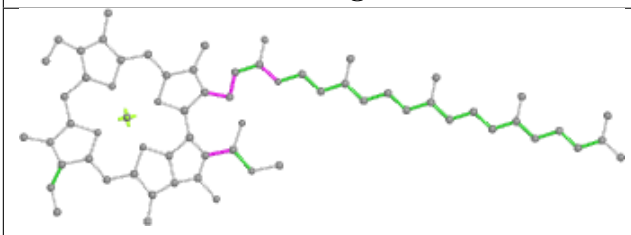
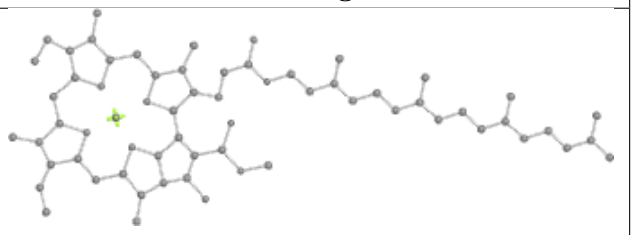
Bond angles

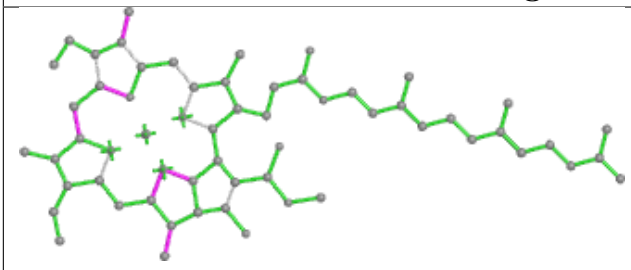
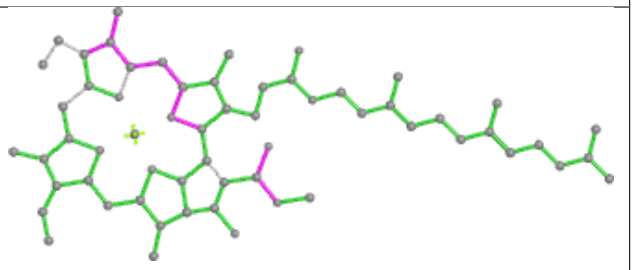
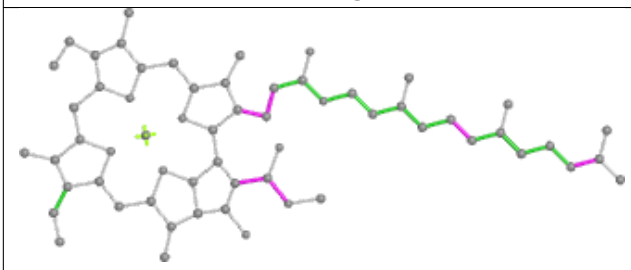
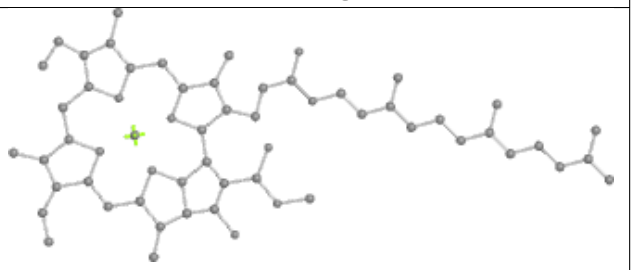


Torsions

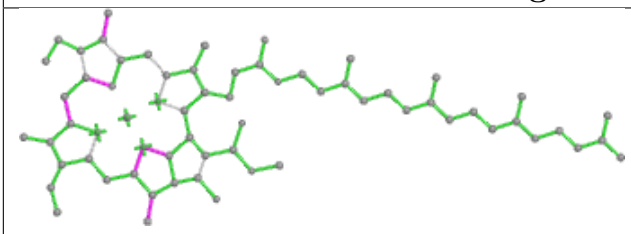


Rings

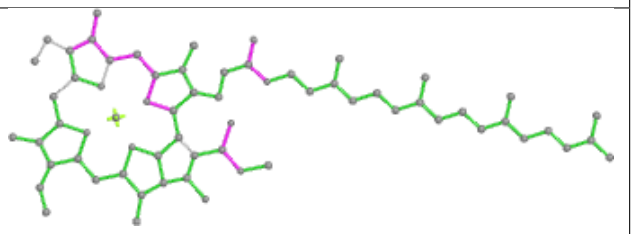
Ligand CLA C 514	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand CLA Y 311	
 Bond lengths	 Bond angles
 Torsions	 Rings

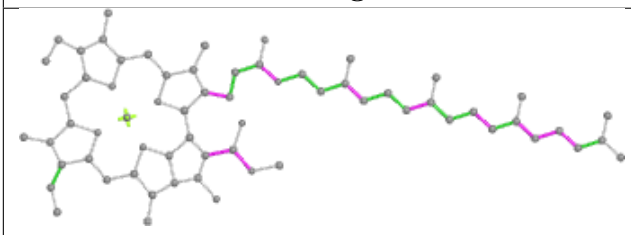
Ligand CLA c 503



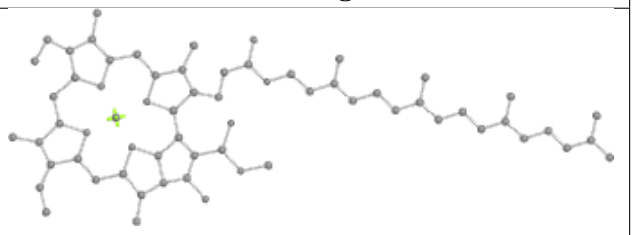
Bond lengths



Bond angles

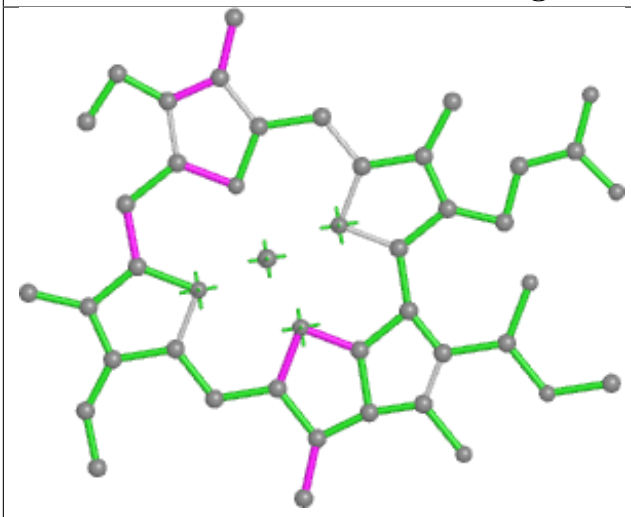


Torsions

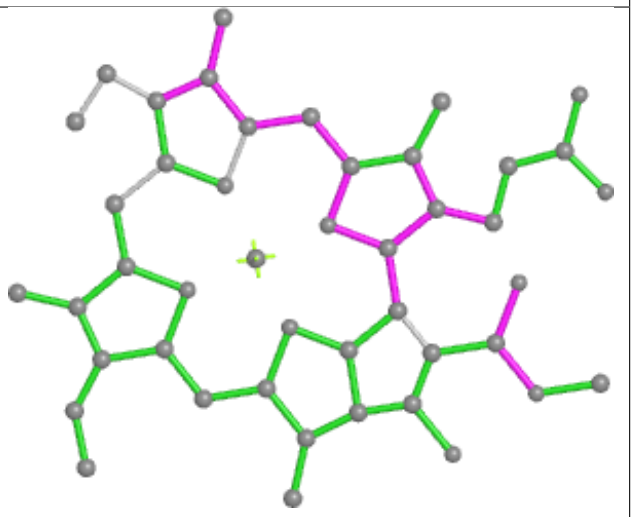


Rings

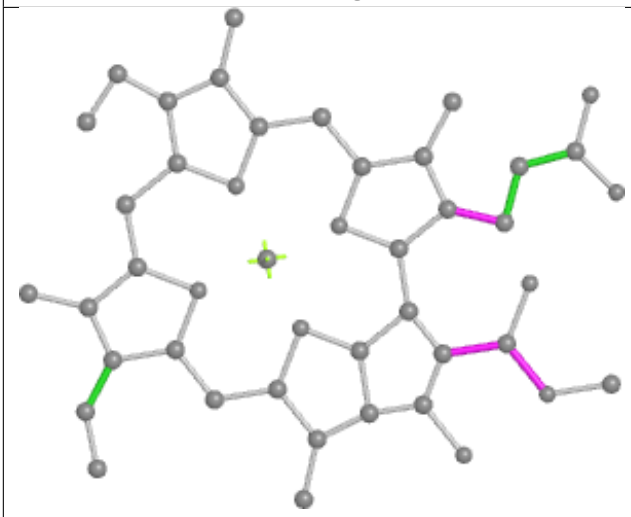
Ligand CLA s 603



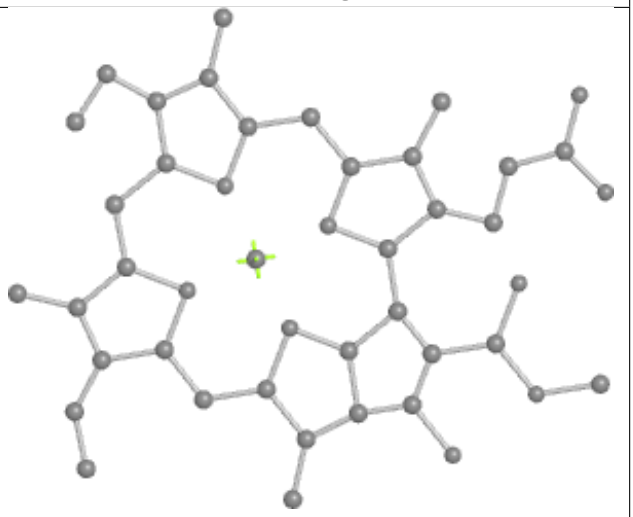
Bond lengths



Bond angles

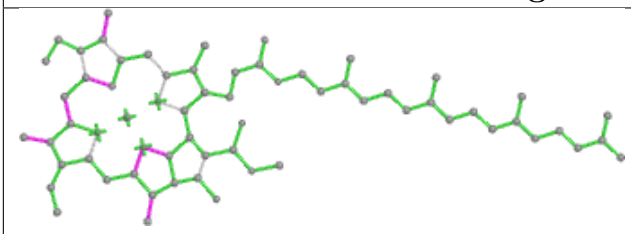


Torsions

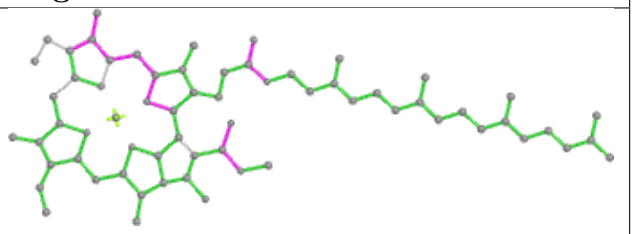


Rings

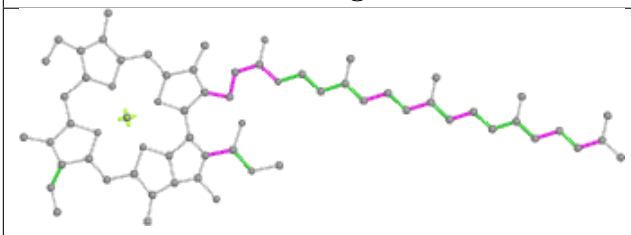
Ligand CLA g 602



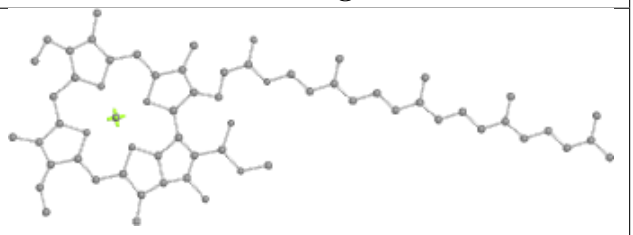
Bond lengths



Bond angles

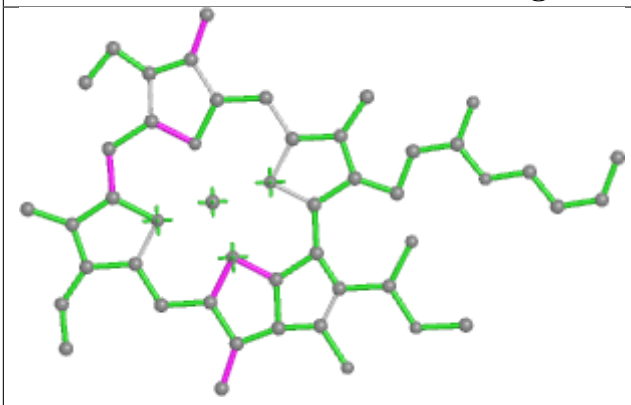


Torsions

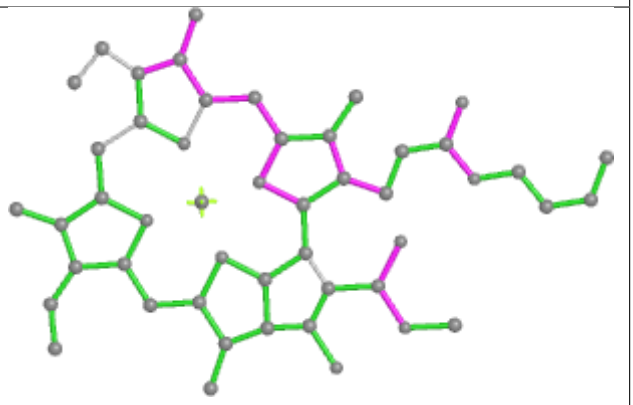


Rings

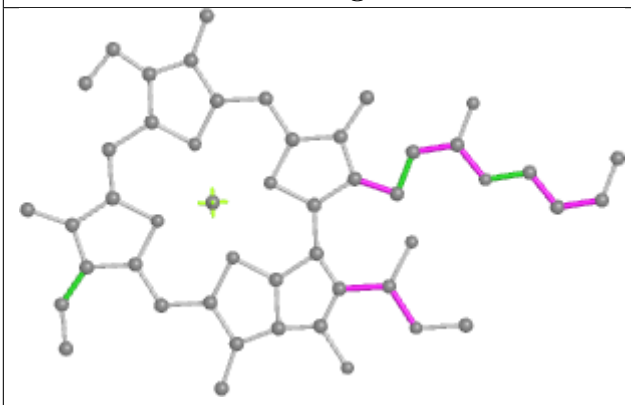
Ligand CLA r 601



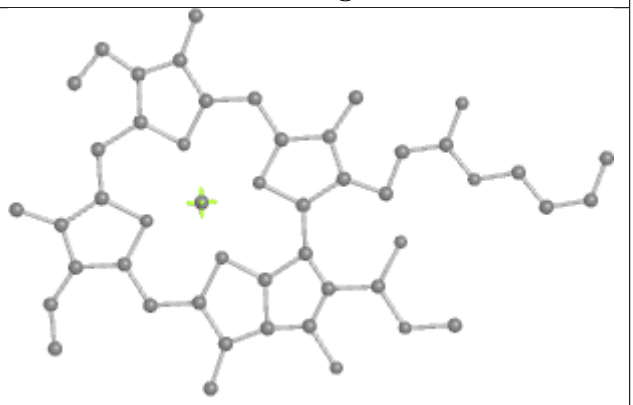
Bond lengths



Bond angles

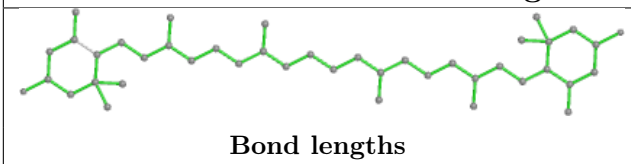


Torsions

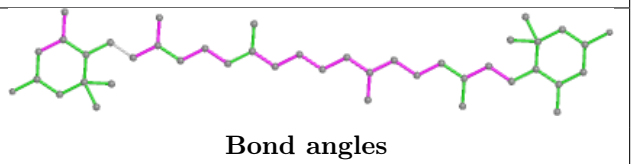


Rings

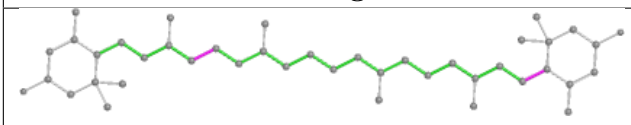
Ligand LUT Y 316



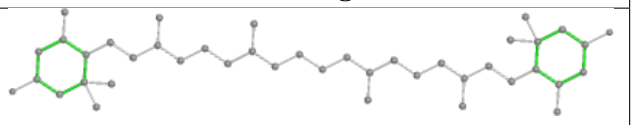
Bond lengths



Bond angles

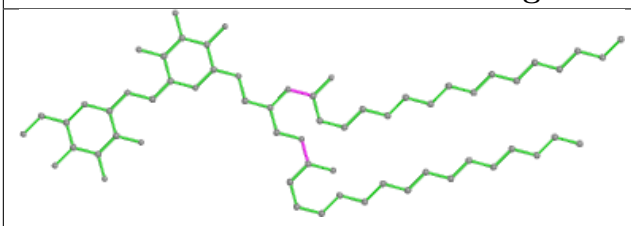


Torsions

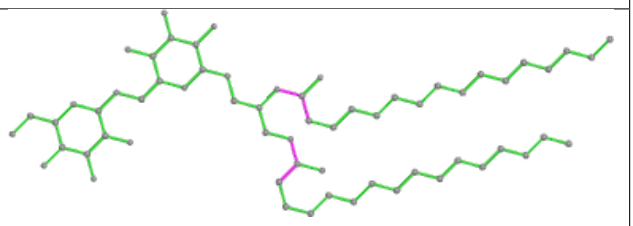


Rings

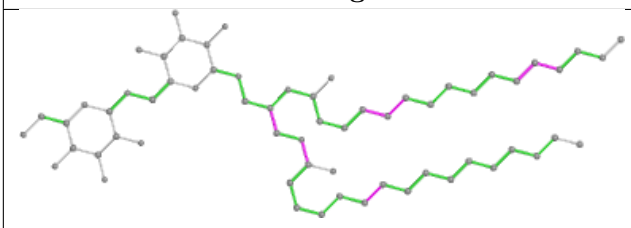
Ligand DGD d 410



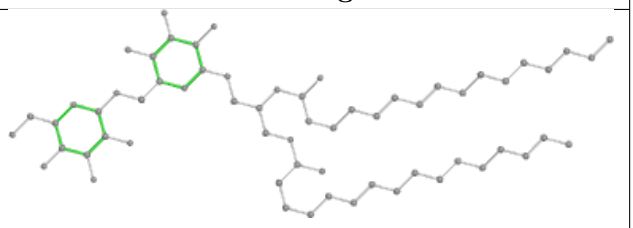
Bond lengths



Bond angles

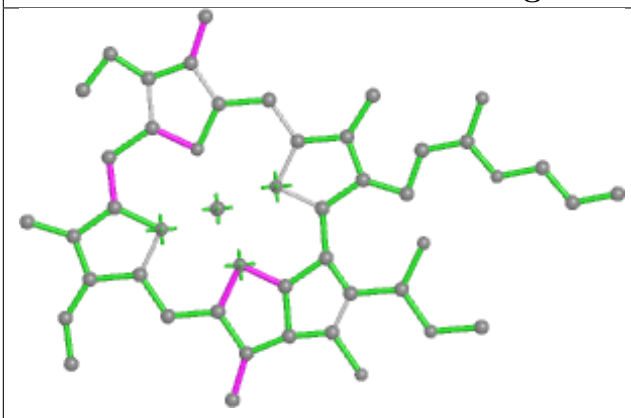


Torsions

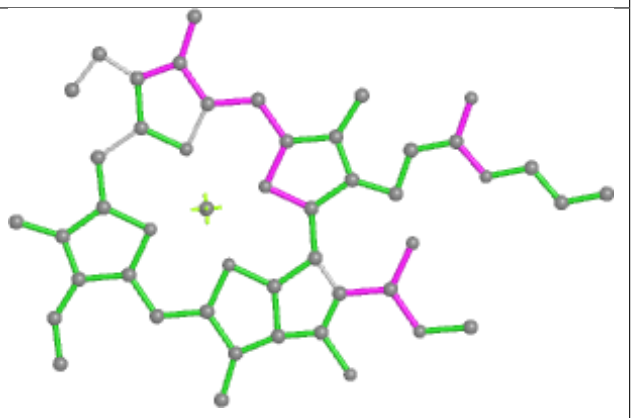


Rings

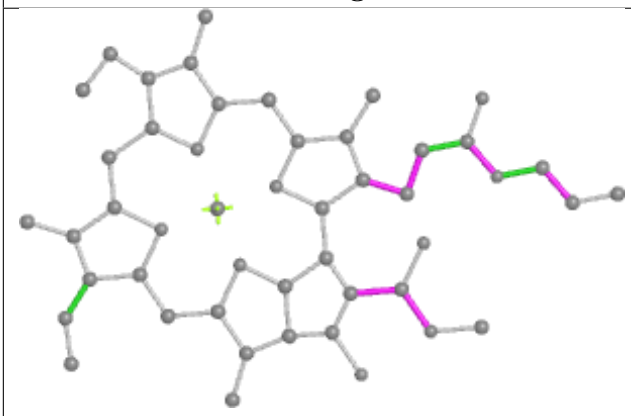
Ligand CLA R 305



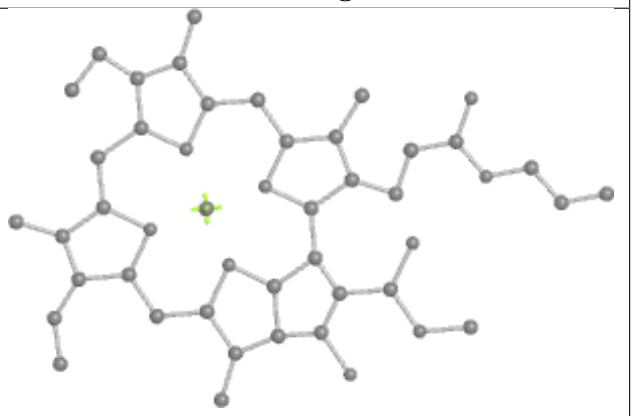
Bond lengths



Bond angles

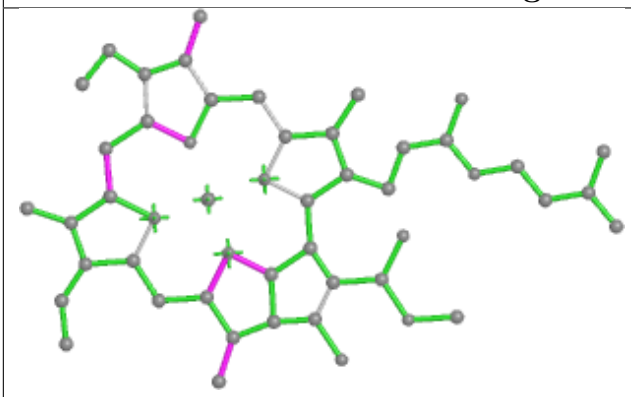


Torsions

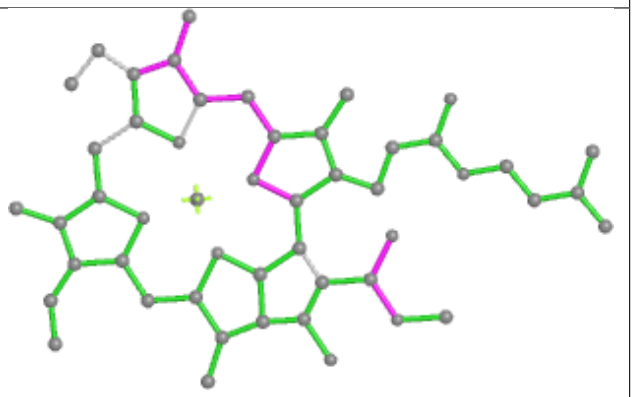


Rings

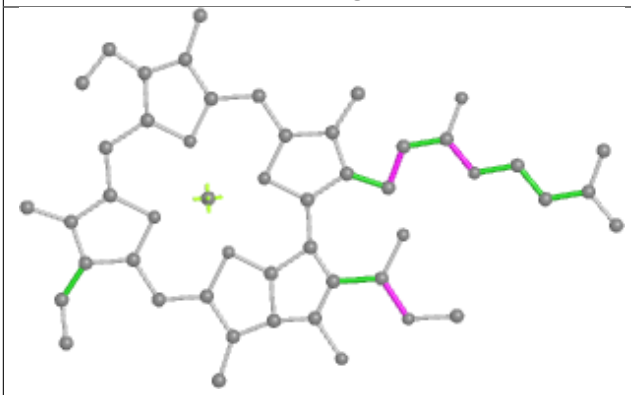
Ligand CLA N 604



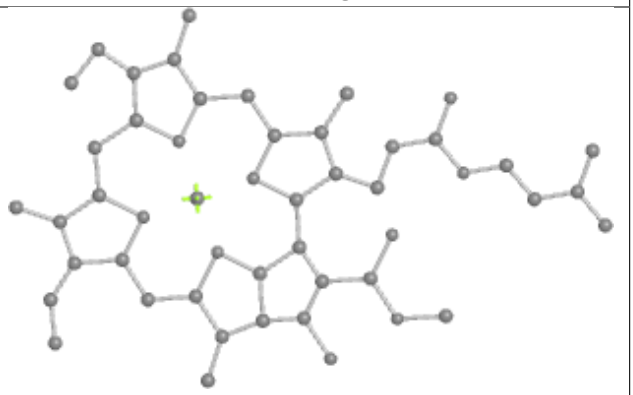
Bond lengths



Bond angles

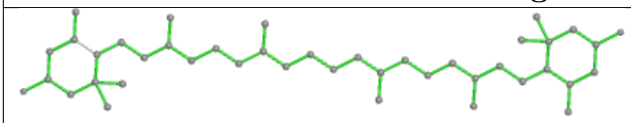


Torsions

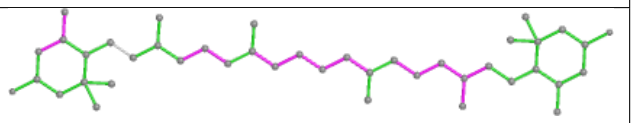


Rings

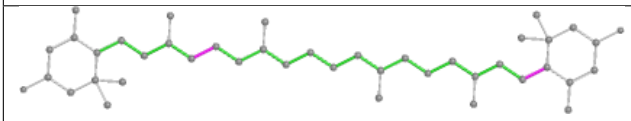
Ligand LUT s 615



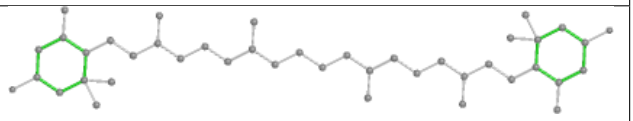
Bond lengths



Bond angles

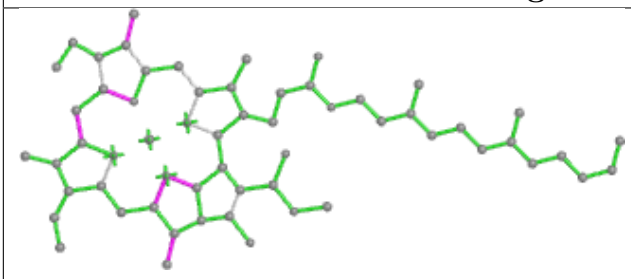


Torsions

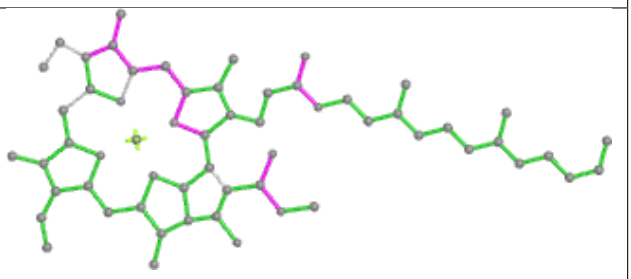


Rings

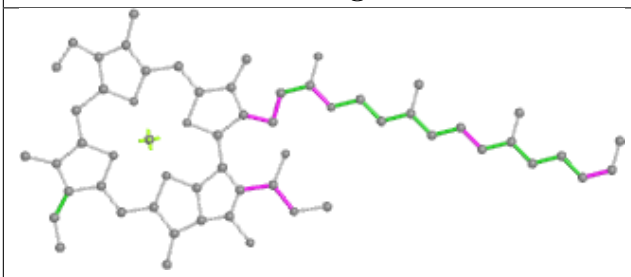
Ligand CLA n 610



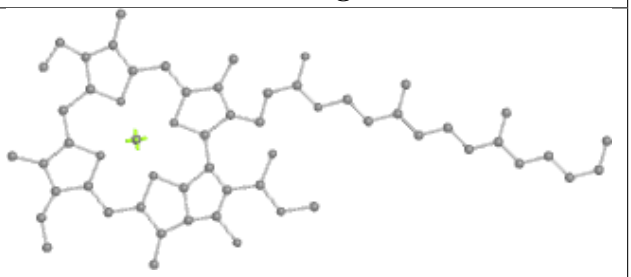
Bond lengths



Bond angles

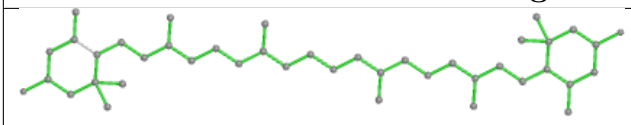


Torsions

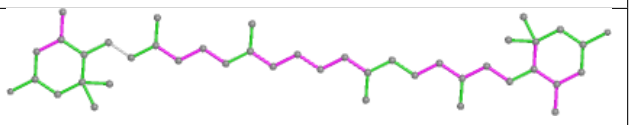


Rings

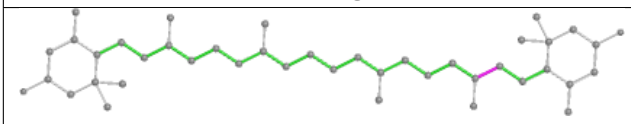
Ligand LUT r 613



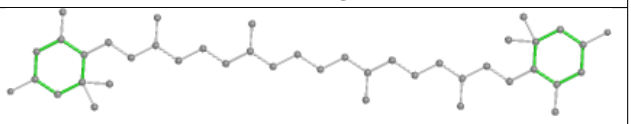
Bond lengths



Bond angles

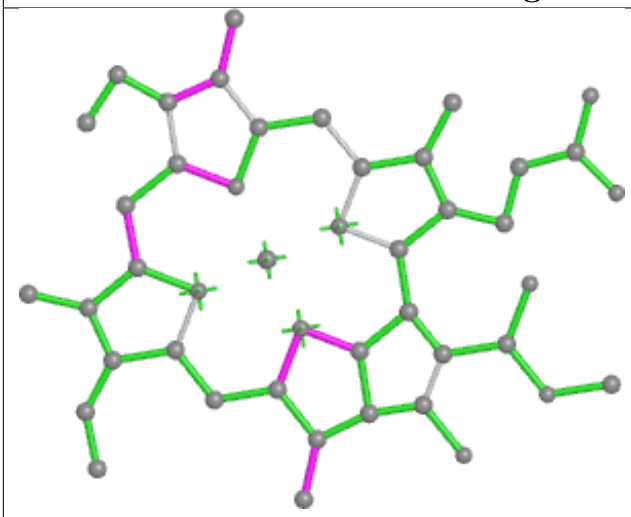


Torsions

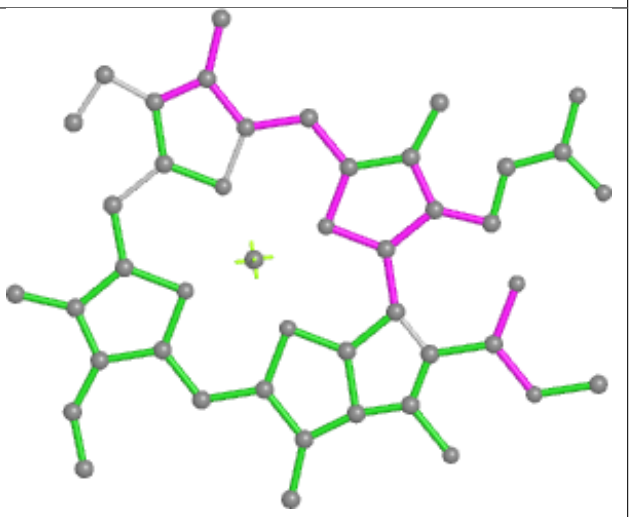


Rings

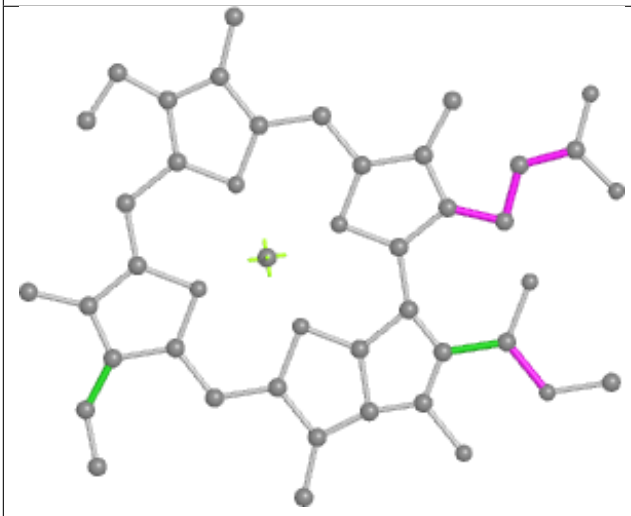
Ligand CLA N 612



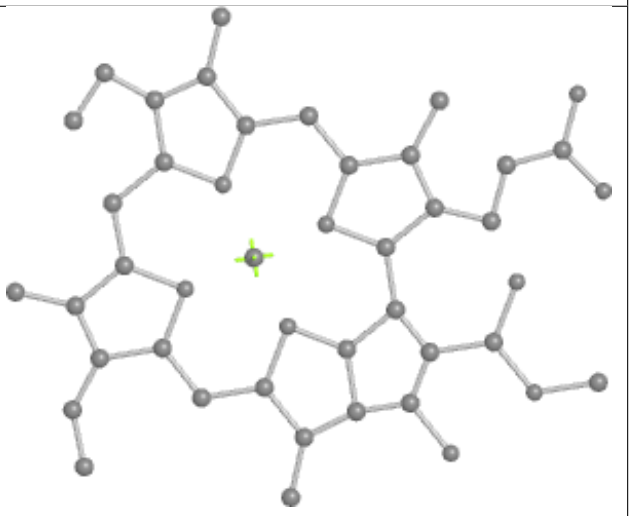
Bond lengths



Bond angles

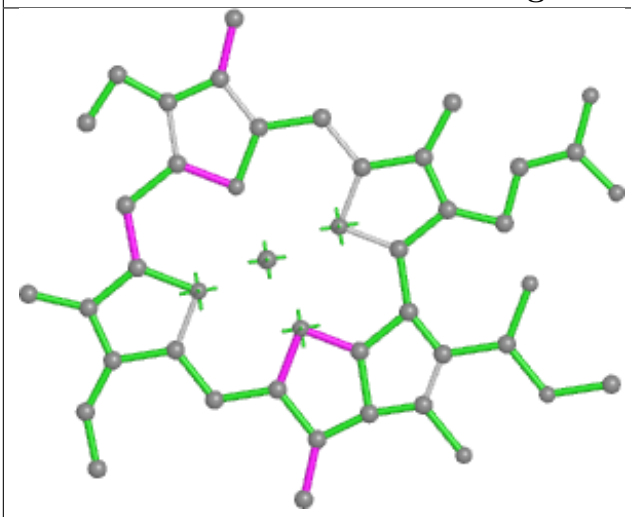


Torsions

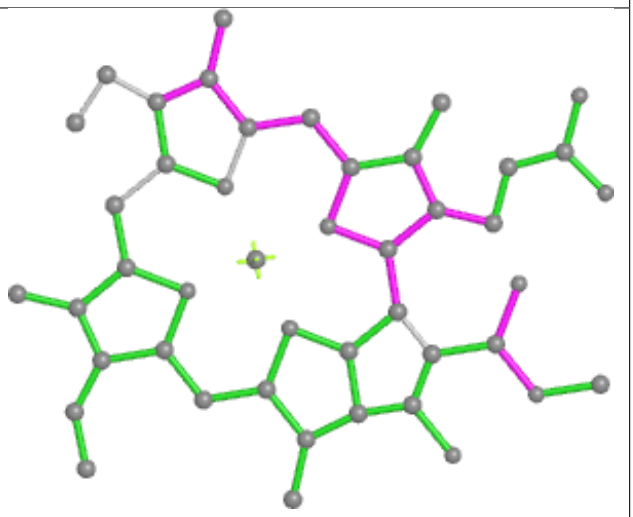


Rings

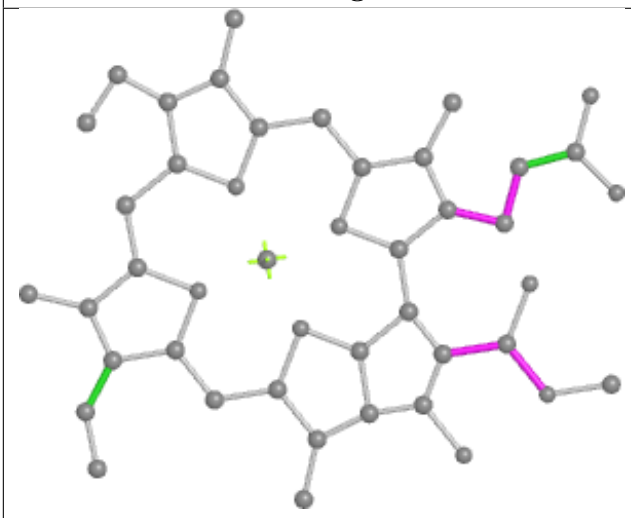
Ligand CLA S 312



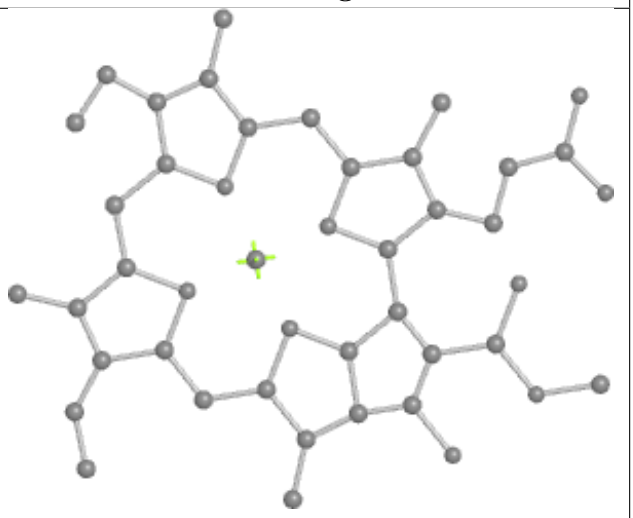
Bond lengths



Bond angles

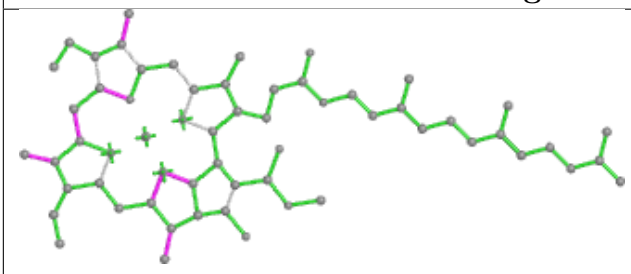


Torsions

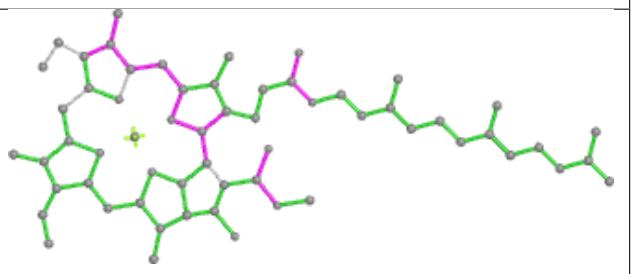


Rings

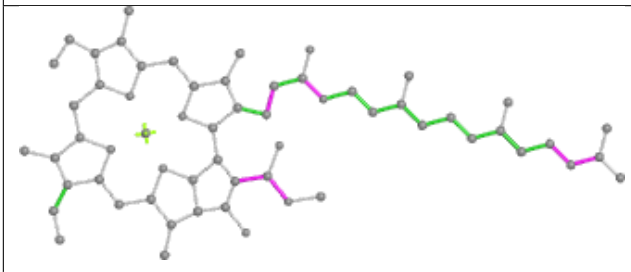
Ligand CLA Y 313



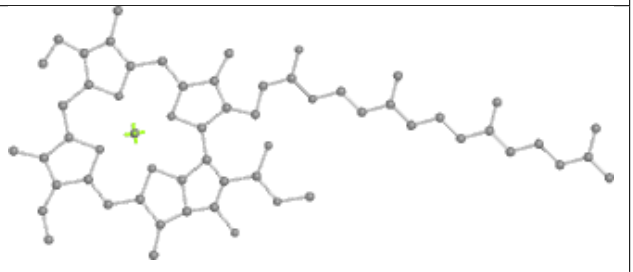
Bond lengths



Bond angles

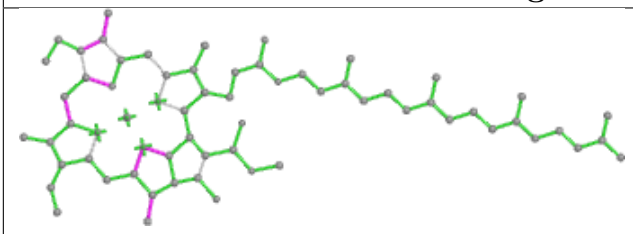


Torsions

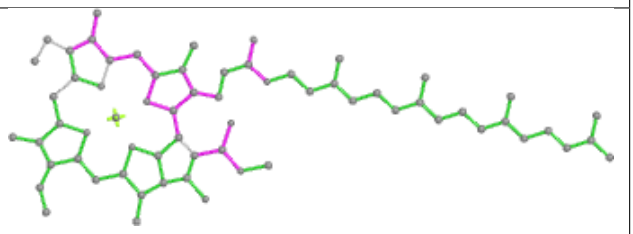


Rings

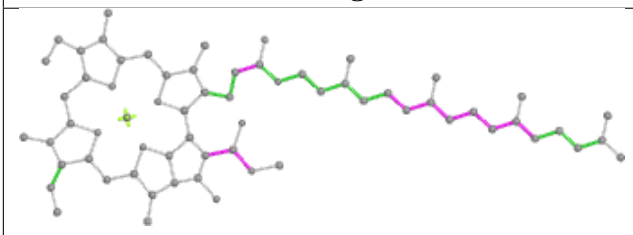
Ligand CLA b 617



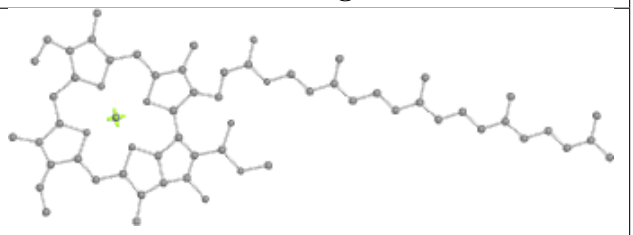
Bond lengths



Bond angles

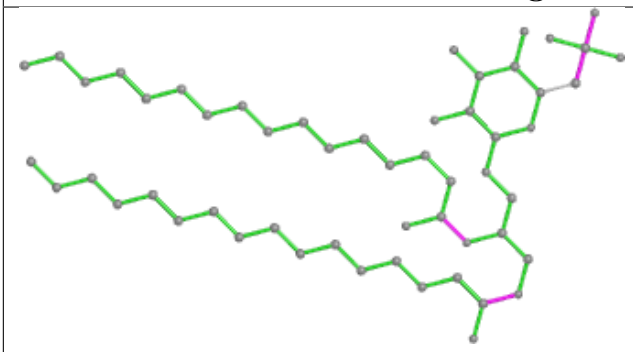


Torsions

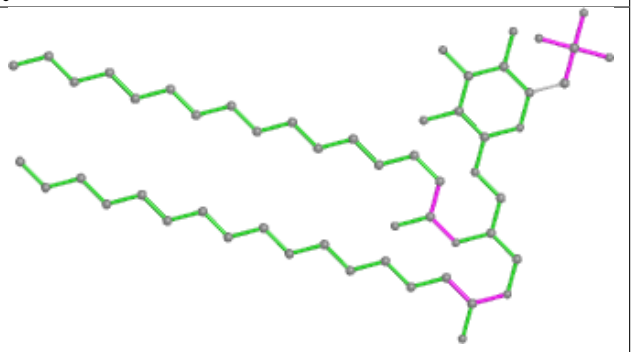


Rings

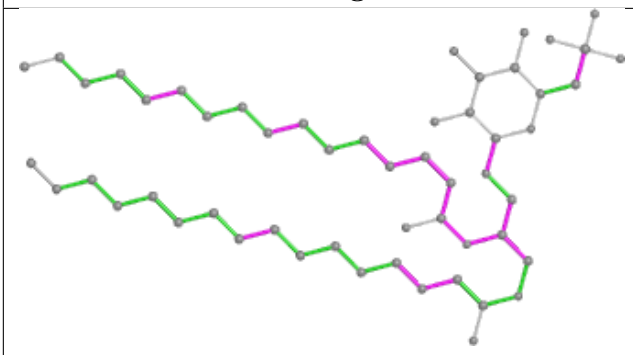
Ligand SQD b 602



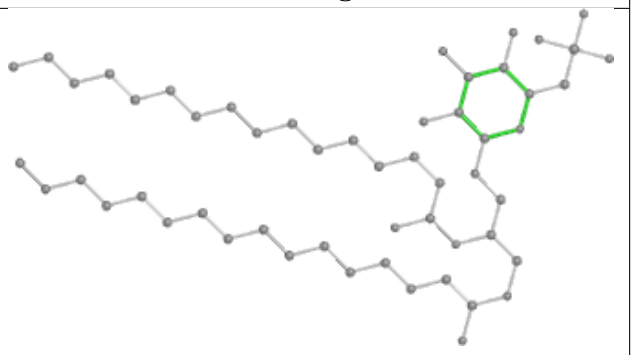
Bond lengths



Bond angles

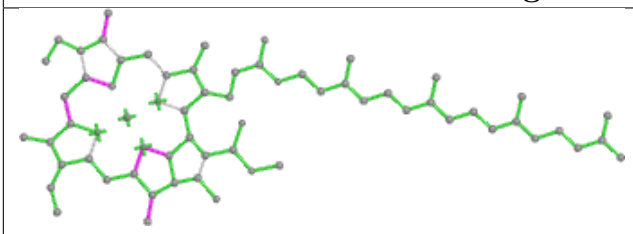


Torsions

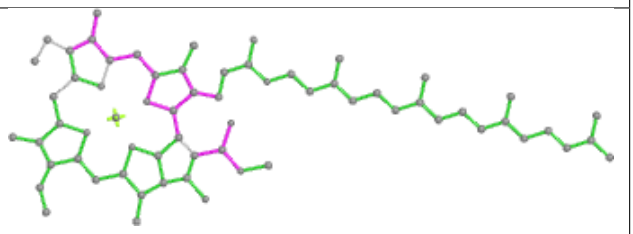


Rings

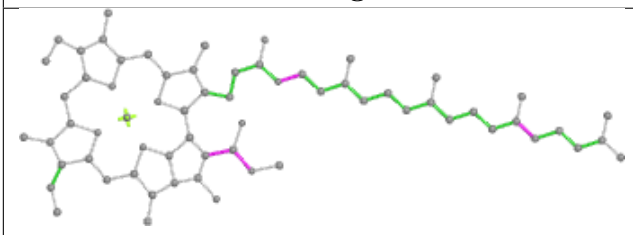
Ligand CLA G 603



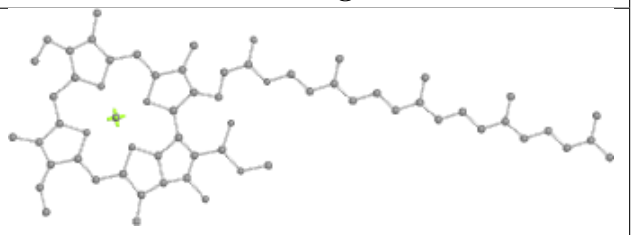
Bond lengths



Bond angles

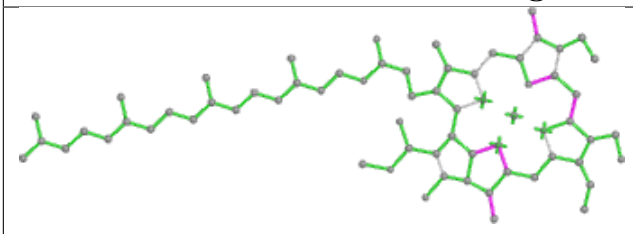


Torsions

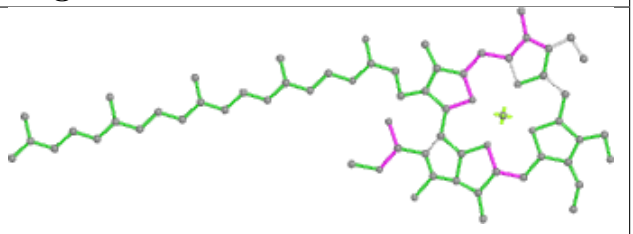


Rings

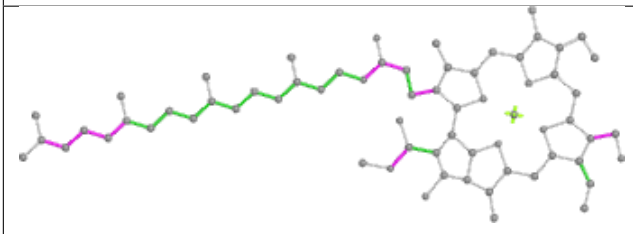
Ligand CHL g 608



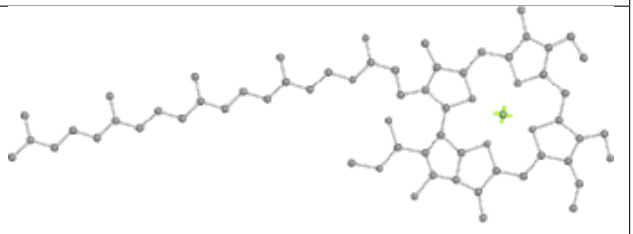
Bond lengths



Bond angles

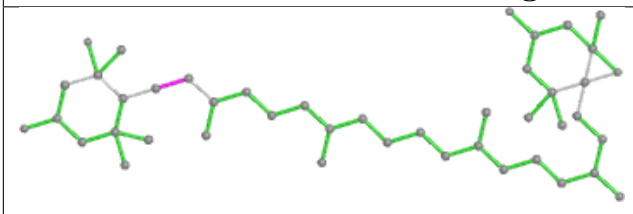


Torsions

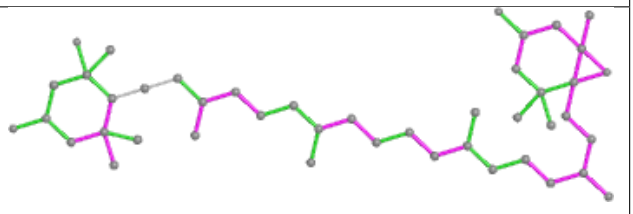


Rings

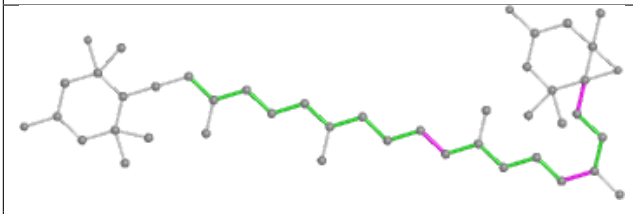
Ligand NEX N 617



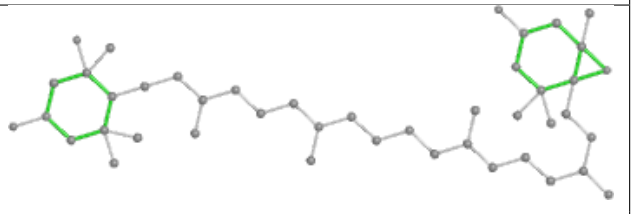
Bond lengths



Bond angles

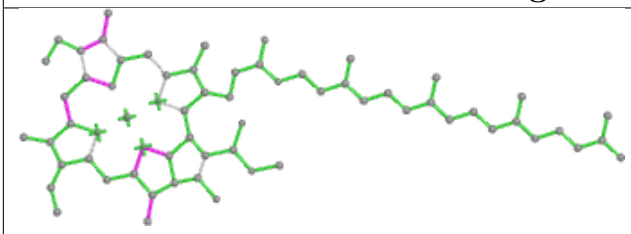


Torsions

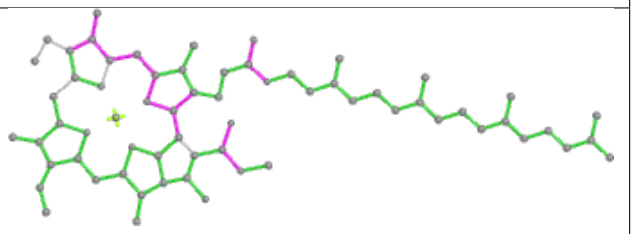


Rings

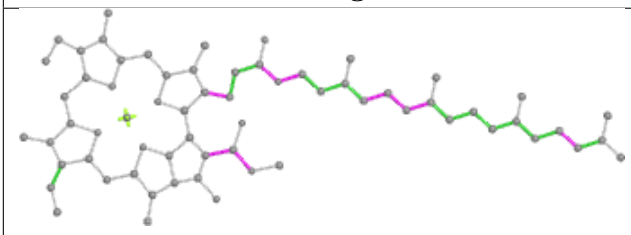
Ligand CLA c 502



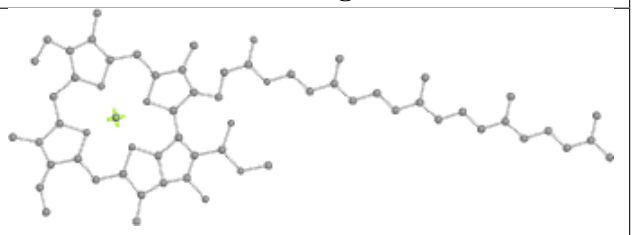
Bond lengths



Bond angles

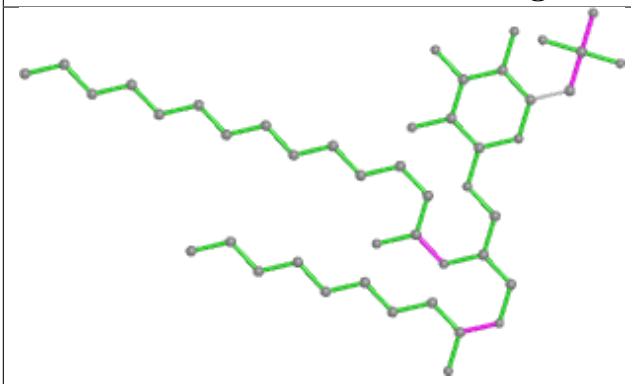


Torsions

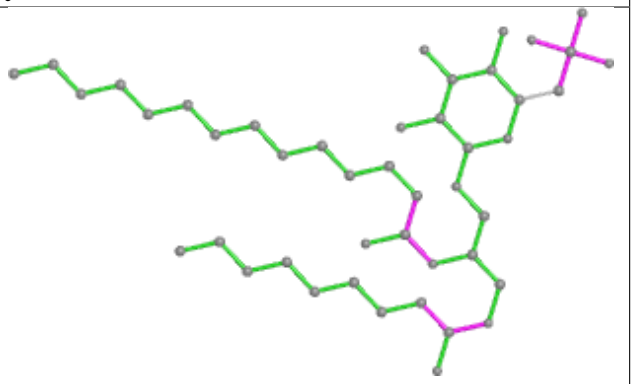


Rings

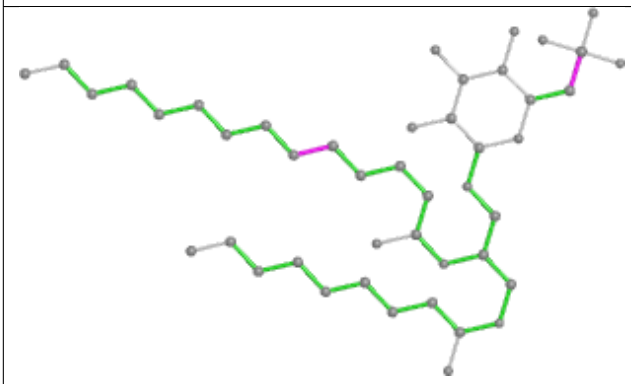
Ligand SQD c 520



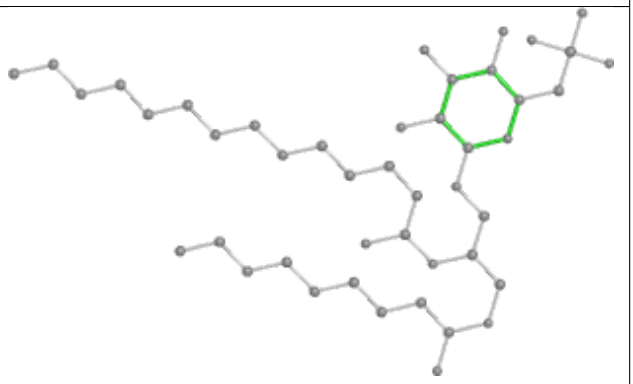
Bond lengths



Bond angles

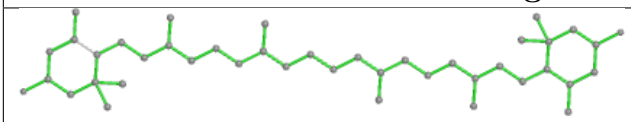


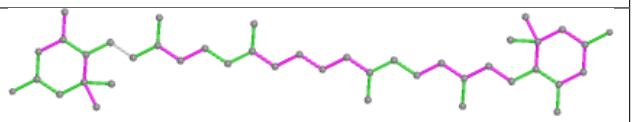
Torsions

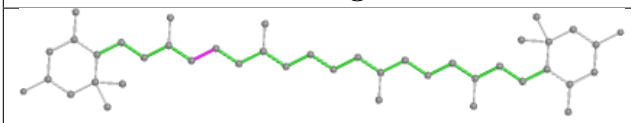


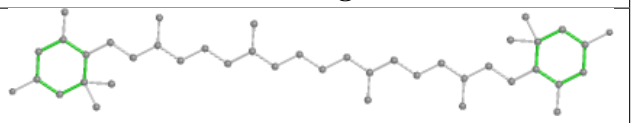
Rings

Ligand LUT Y 317

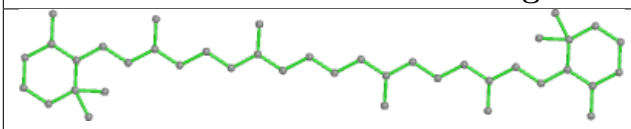

Bond lengths

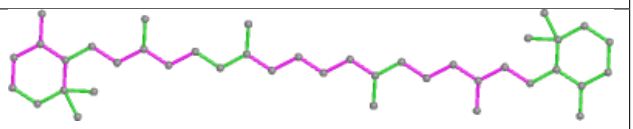

Bond angles

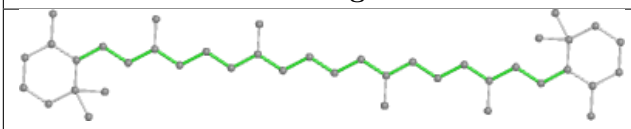

Torsions

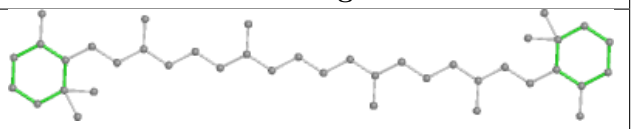

Rings

Ligand BCR C 516

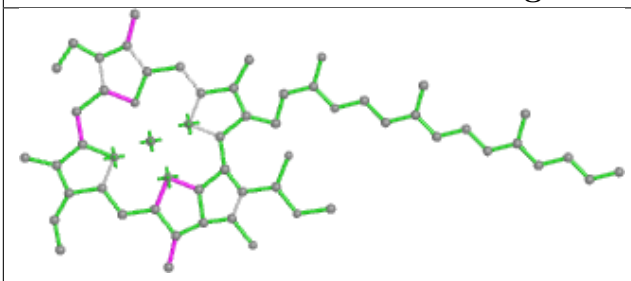

Bond lengths

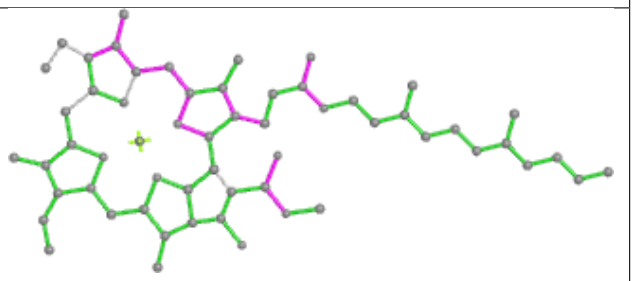

Bond angles

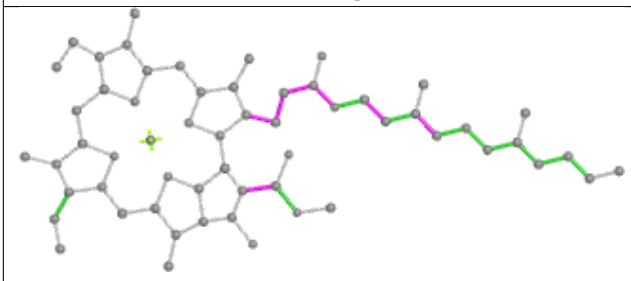

Torsions

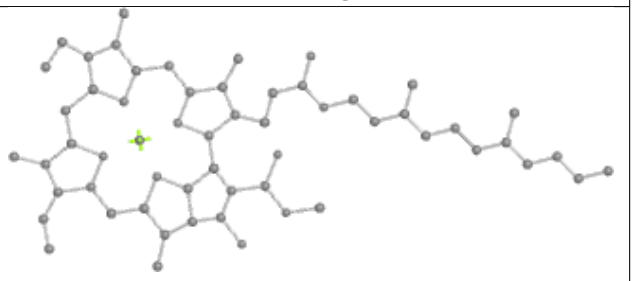

Rings

Ligand CLA C 506

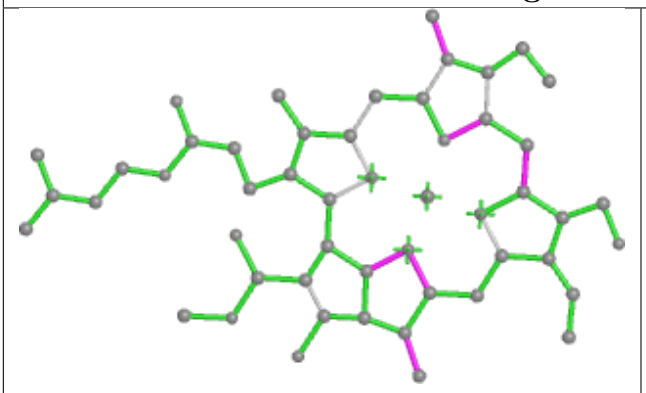

Bond lengths


Bond angles

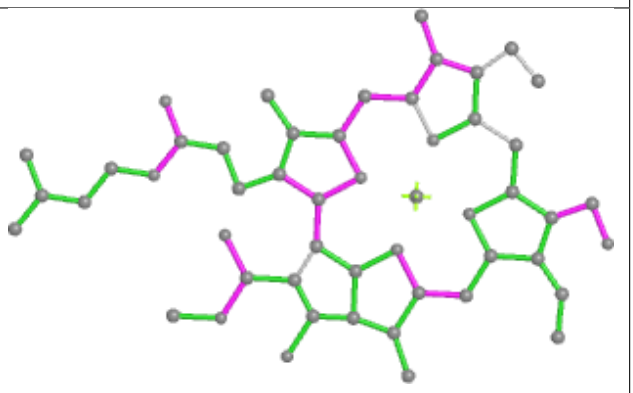

Torsions


Rings

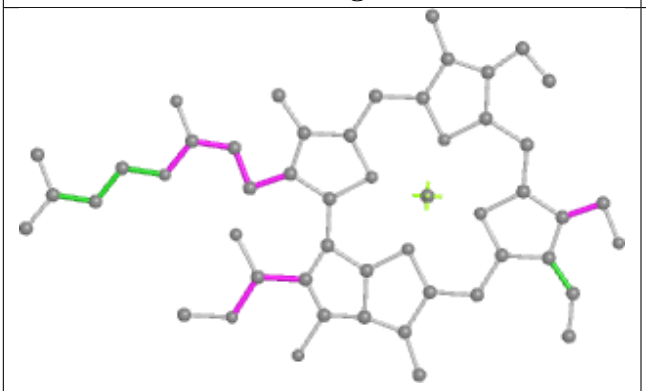
Ligand CHL Y 306



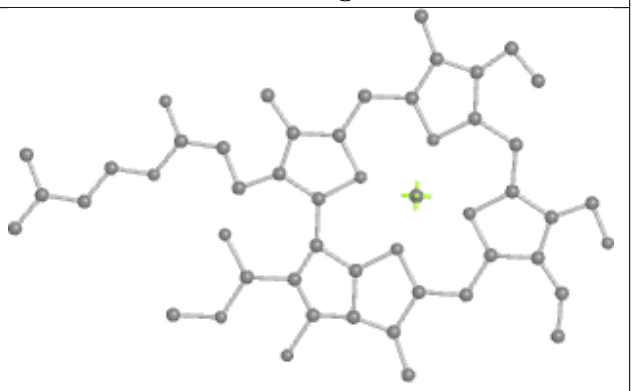
Bond lengths



Bond angles

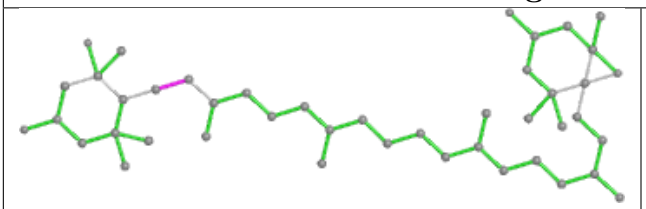


Torsions

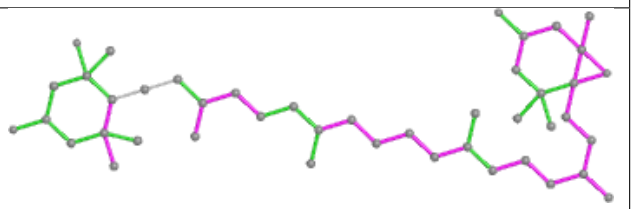


Rings

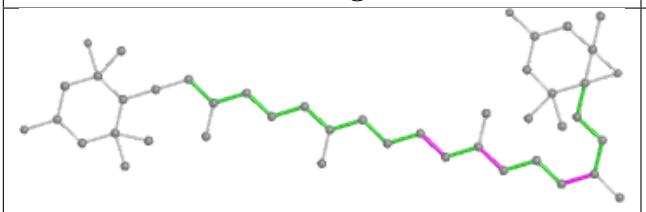
Ligand NEX n 617



Bond lengths



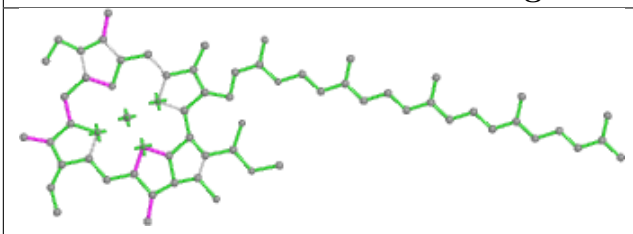
Bond angles



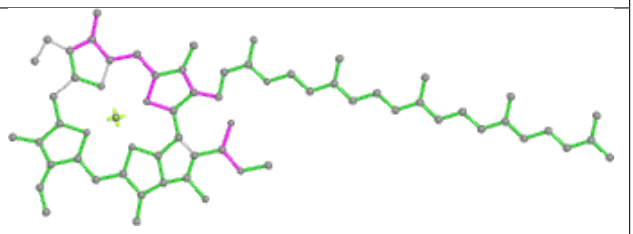
Torsions

Rings

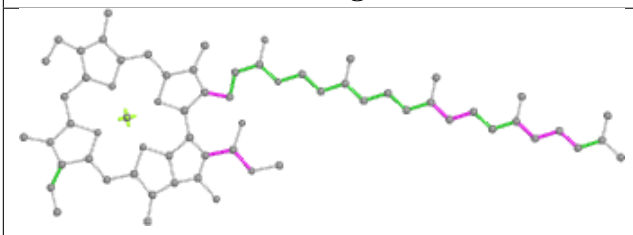
Ligand CLA B 610



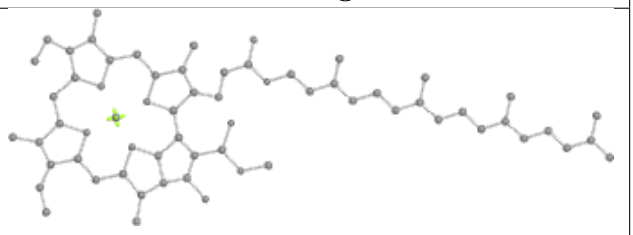
Bond lengths



Bond angles

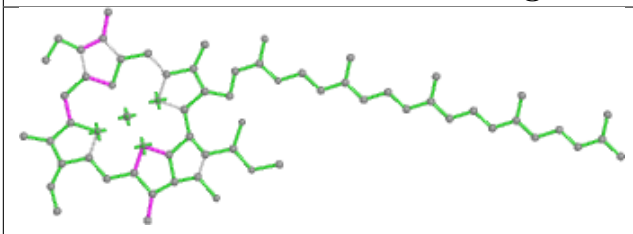


Torsions

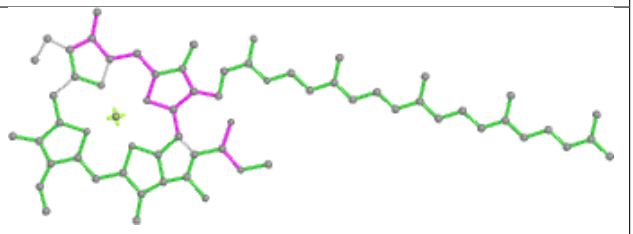


Rings

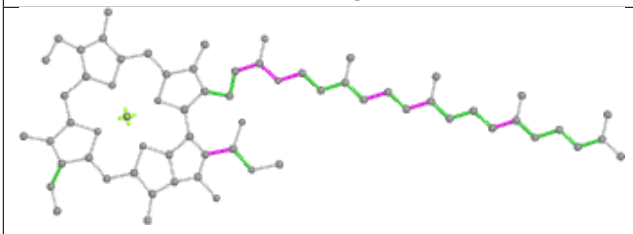
Ligand CLA Y 304



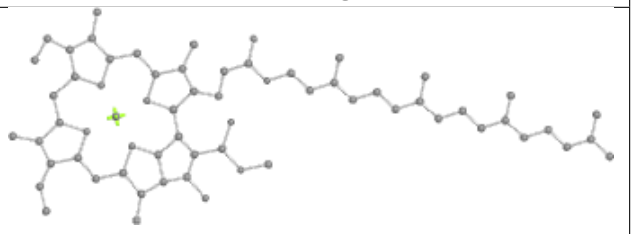
Bond lengths



Bond angles

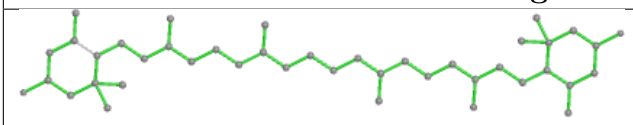


Torsions

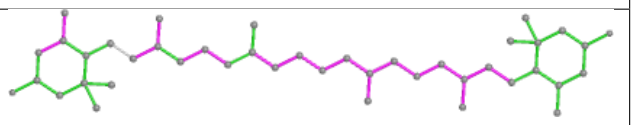


Rings

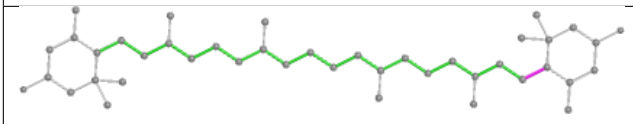
Ligand LUT s 614



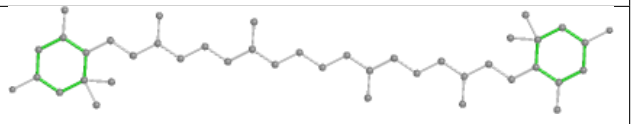
Bond lengths



Bond angles

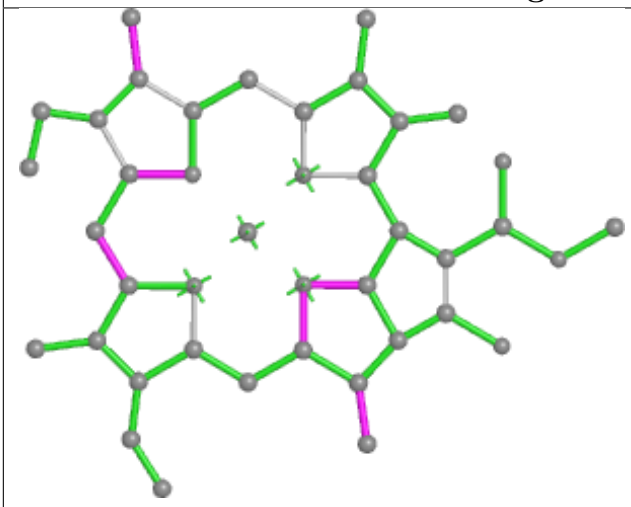


Torsions

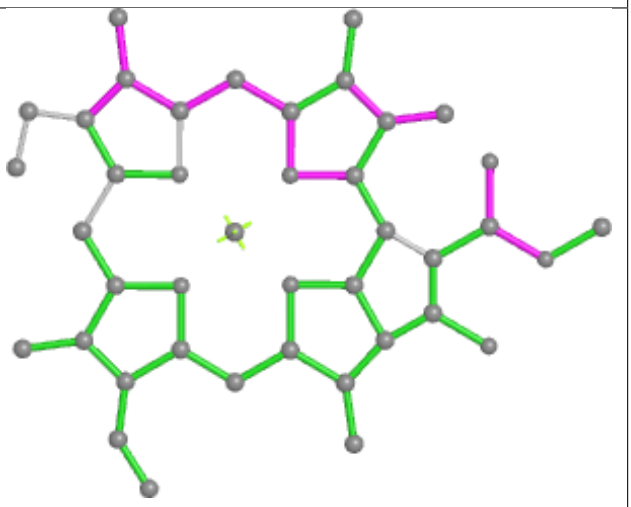


Rings

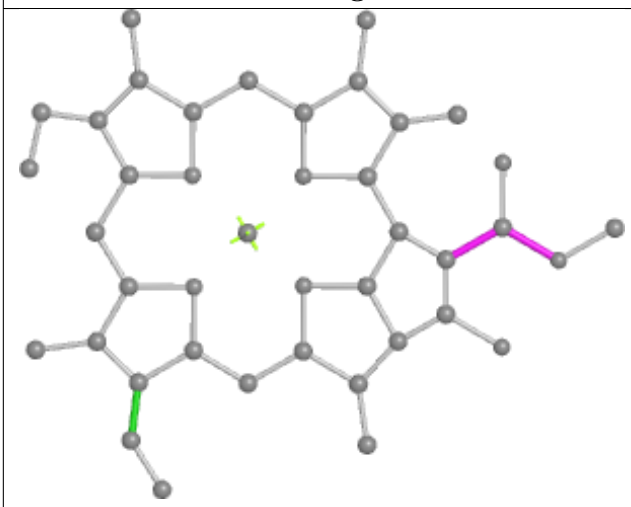
Ligand CLA n 614



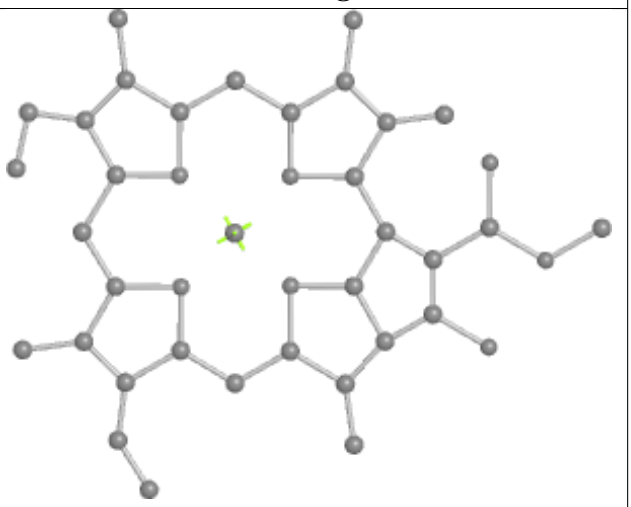
Bond lengths



Bond angles

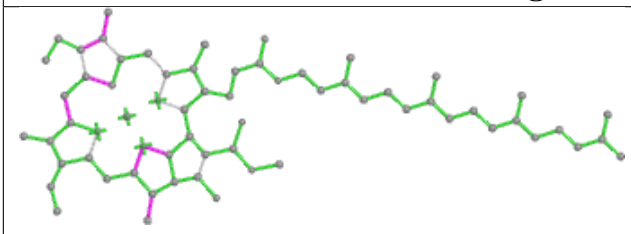


Torsions

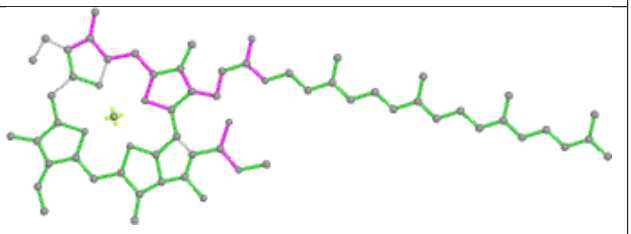


Rings

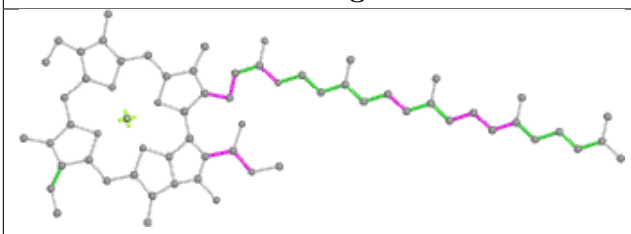
Ligand CLA b 603



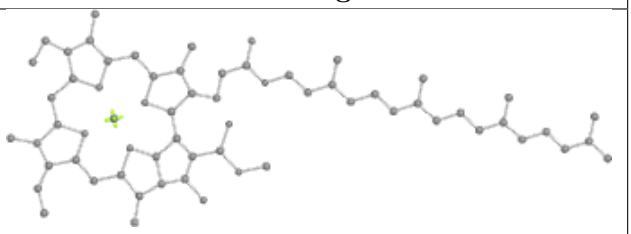
Bond lengths



Bond angles

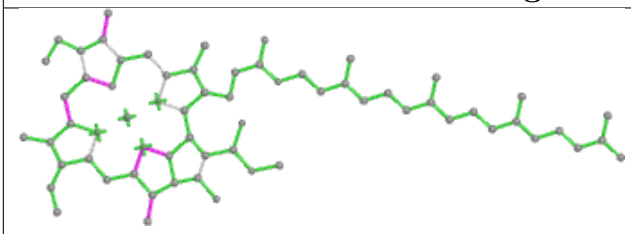


Torsions

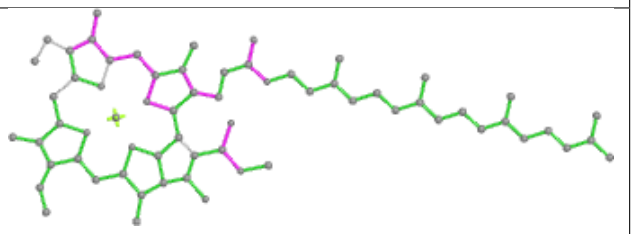


Rings

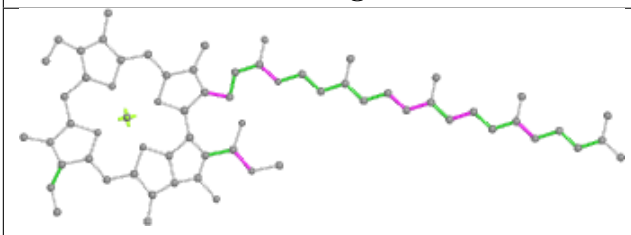
Ligand CLA R 312



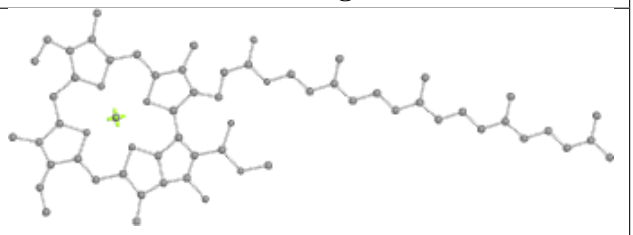
Bond lengths



Bond angles

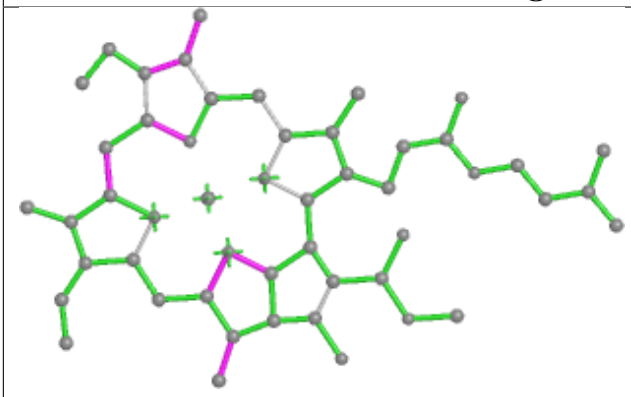


Torsions

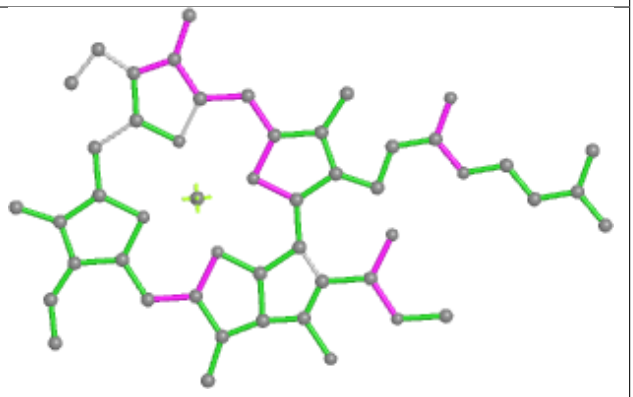


Rings

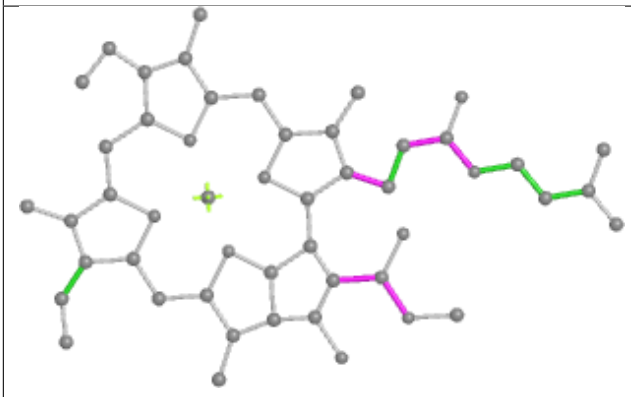
Ligand CLA d 402



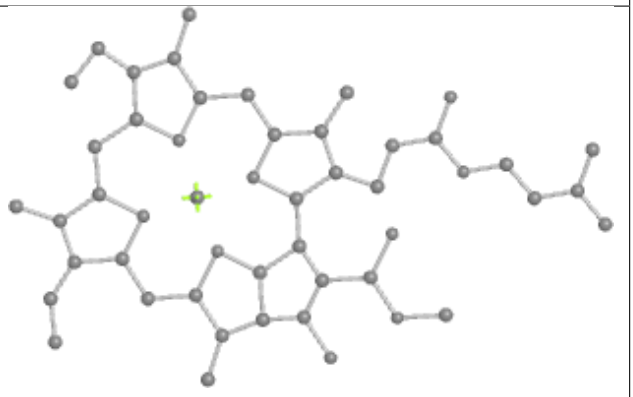
Bond lengths



Bond angles

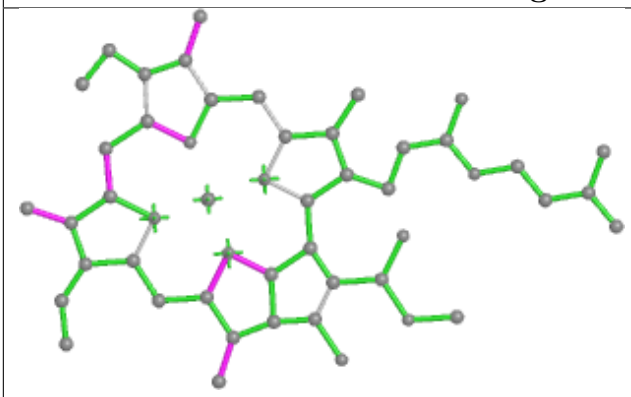


Torsions

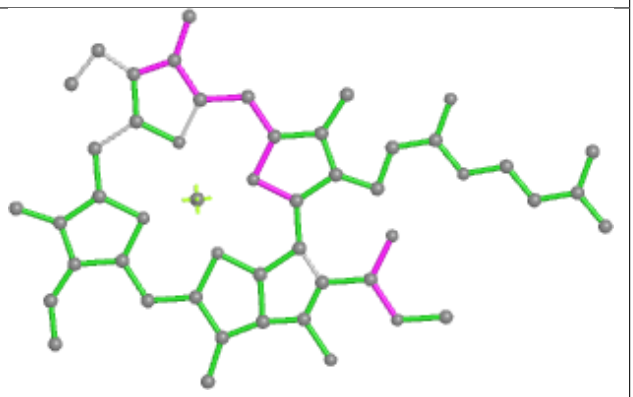


Rings

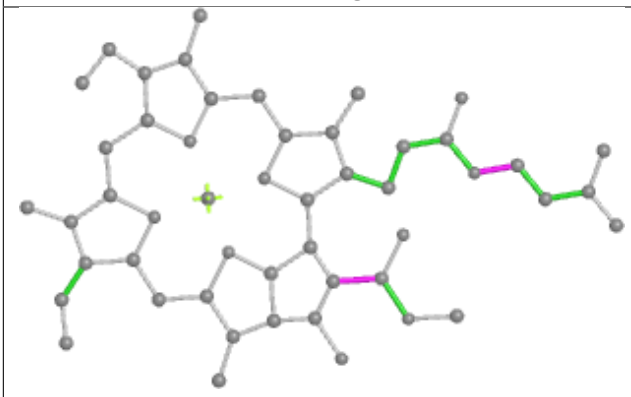
Ligand CLA s 604



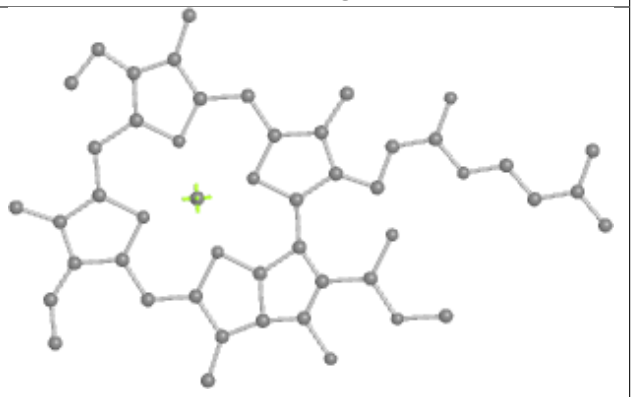
Bond lengths



Bond angles

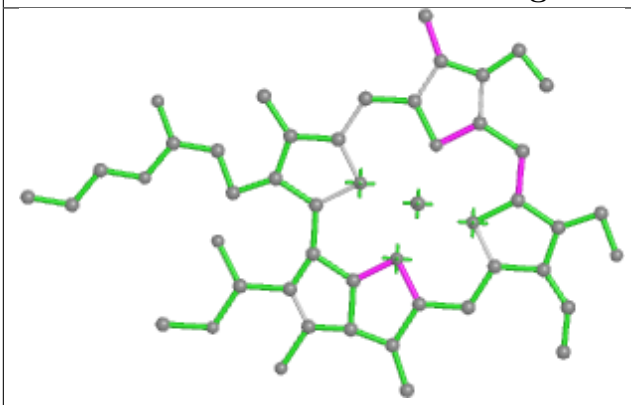


Torsions

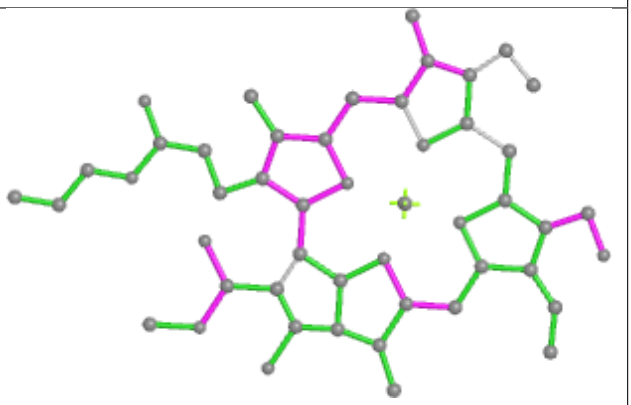


Rings

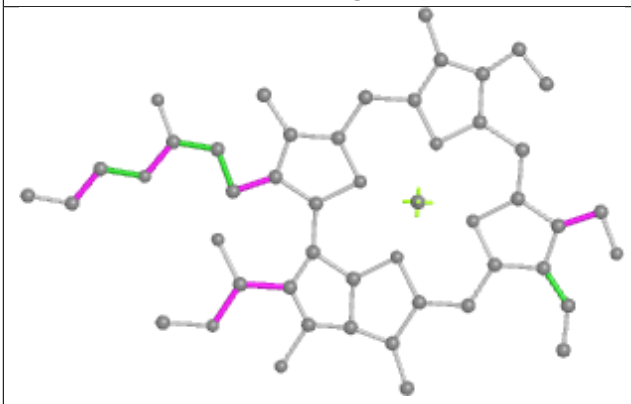
Ligand CHL s 607



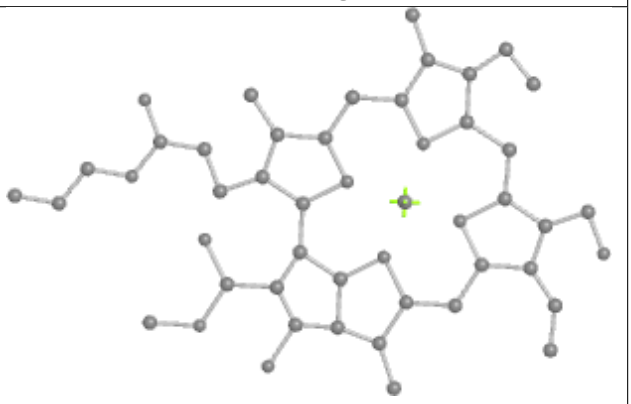
Bond lengths



Bond angles

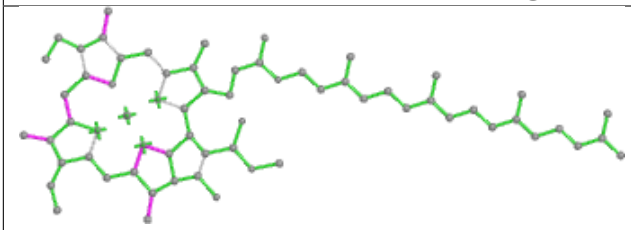


Torsions

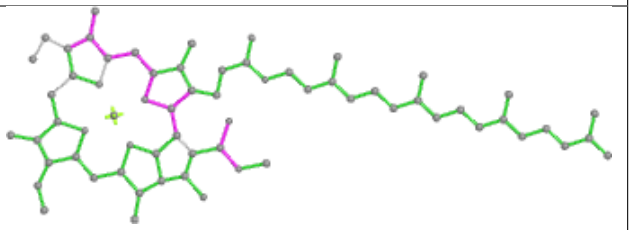


Rings

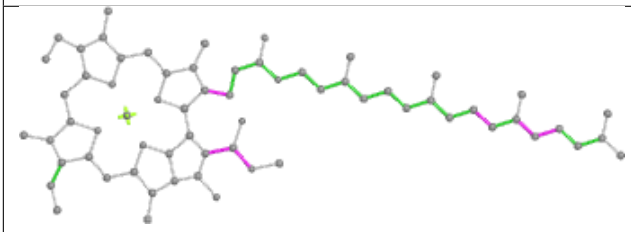
Ligand CLA C 510



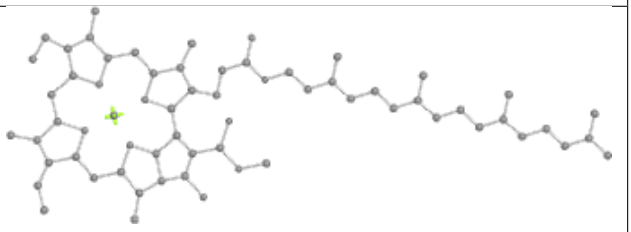
Bond lengths



Bond angles

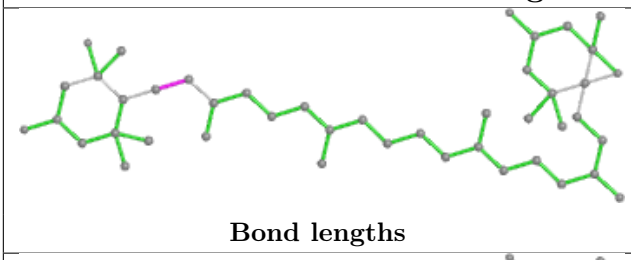


Torsions

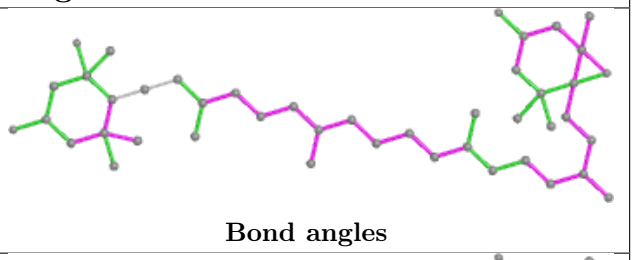


Rings

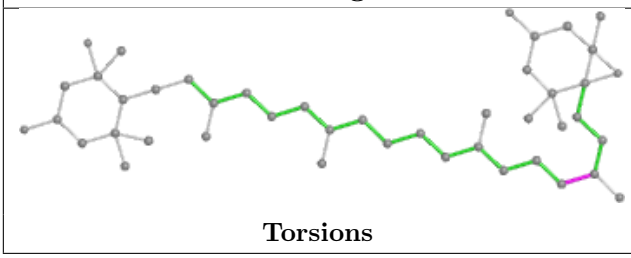
Ligand NEX g 618



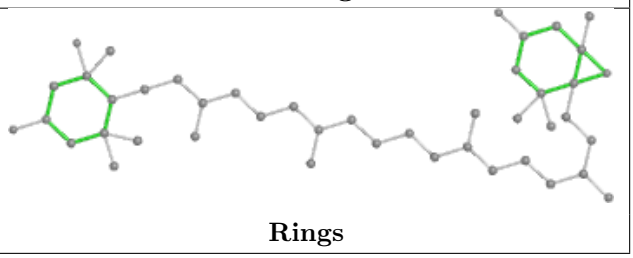
Bond lengths



Bond angles

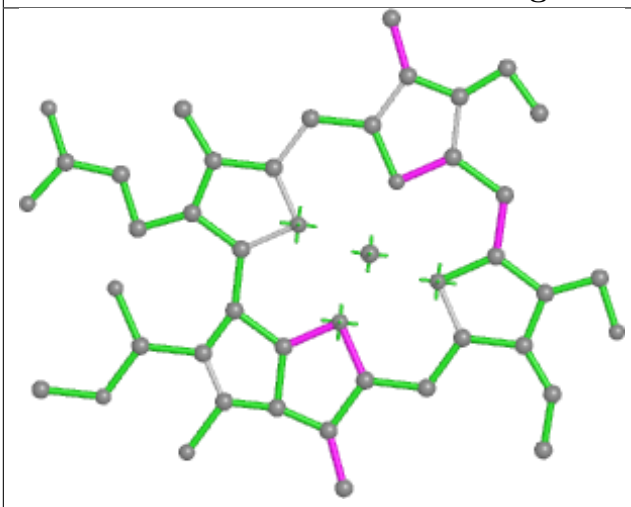


Torsions

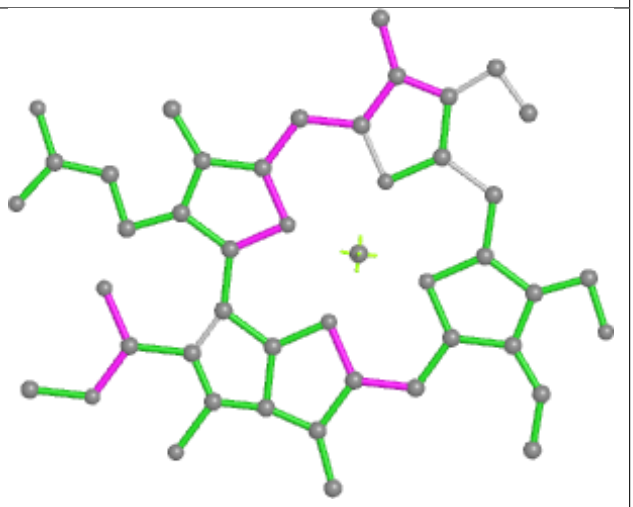


Rings

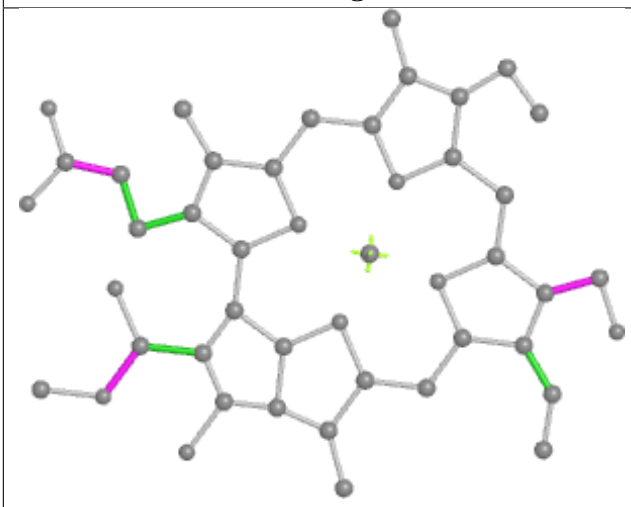
Ligand CHL s 605



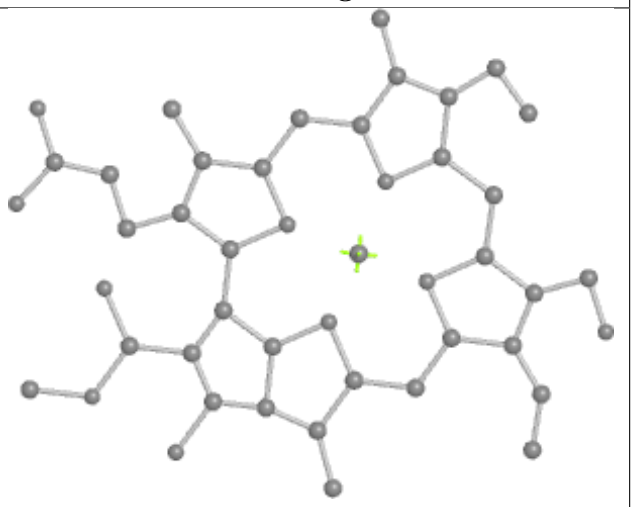
Bond lengths



Bond angles

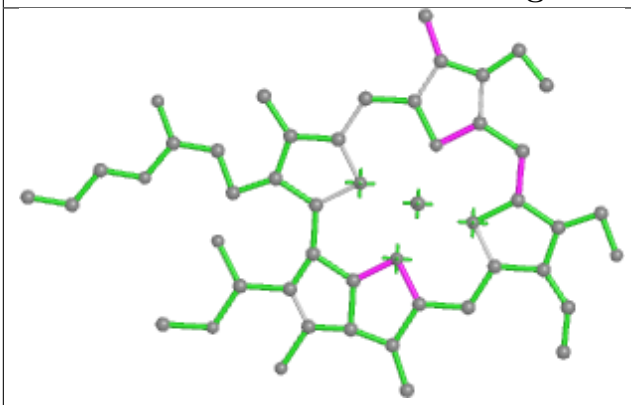


Torsions

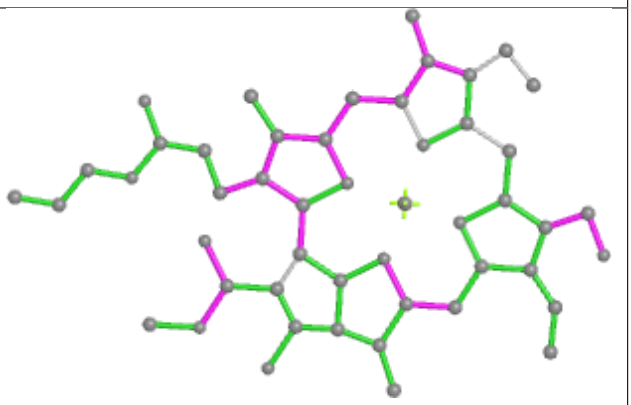


Rings

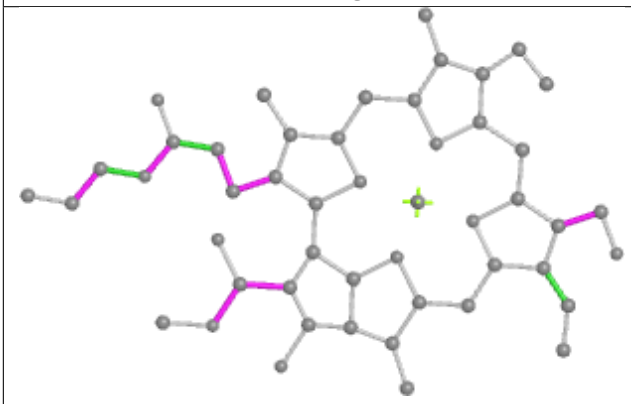
Ligand CHL S 308



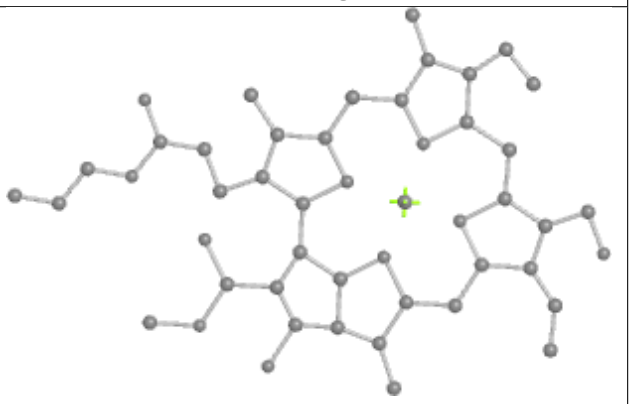
Bond lengths



Bond angles

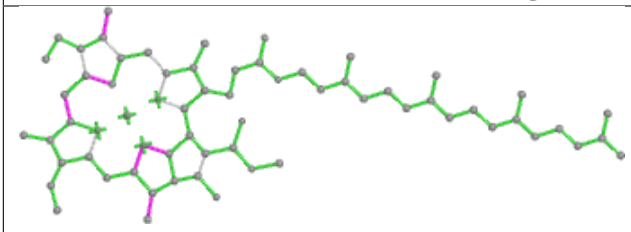


Torsions

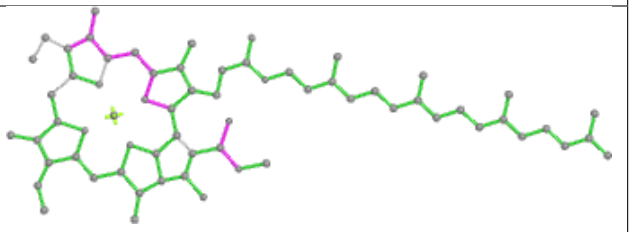


Rings

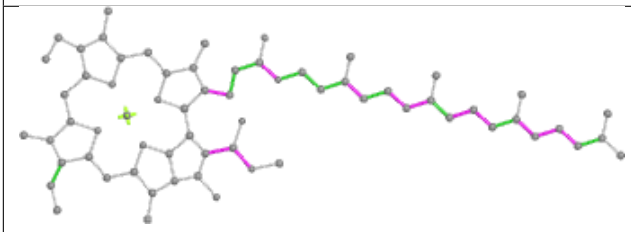
Ligand CLA C 504



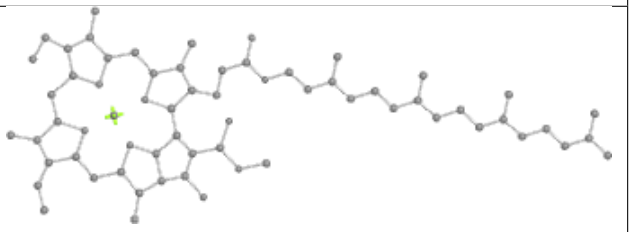
Bond lengths



Bond angles

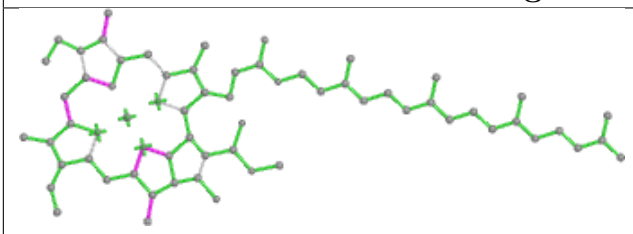


Torsions

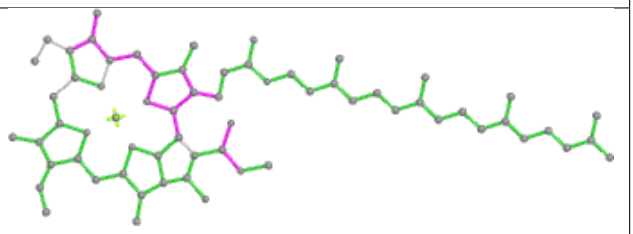


Rings

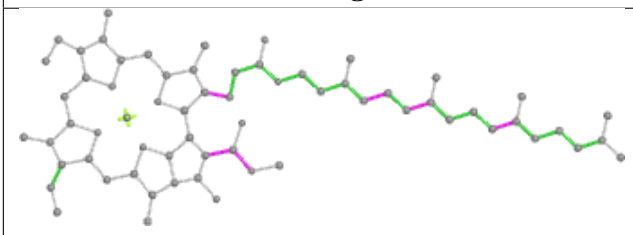
Ligand CLA C 508



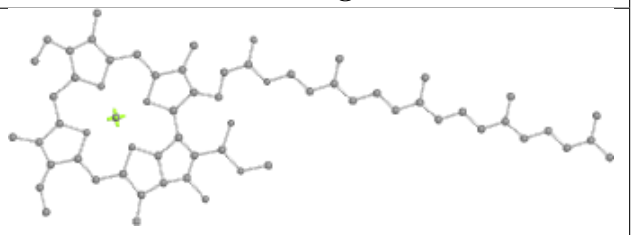
Bond lengths



Bond angles

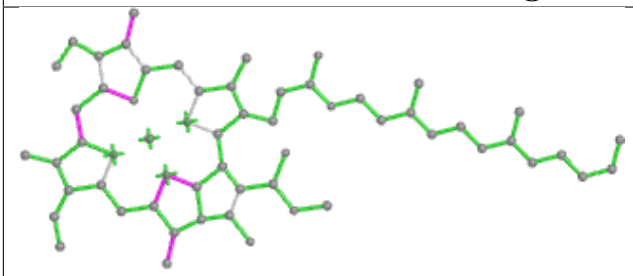


Torsions

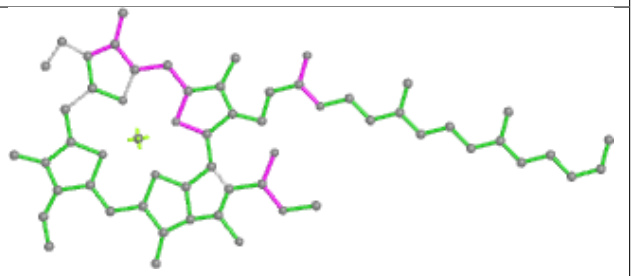


Rings

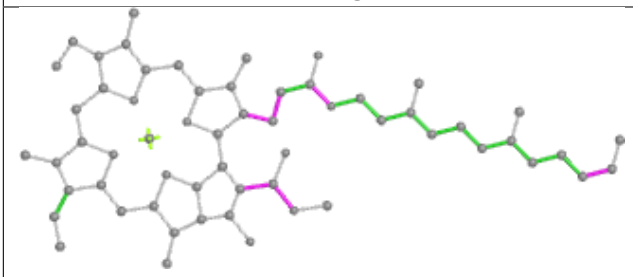
Ligand CLA N 610



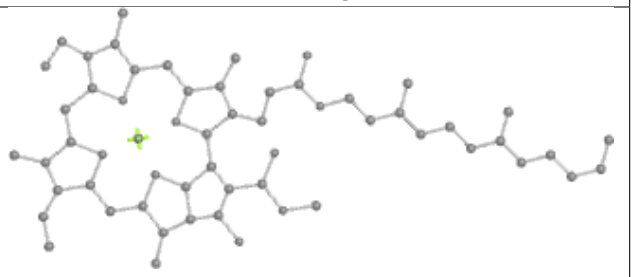
Bond lengths



Bond angles

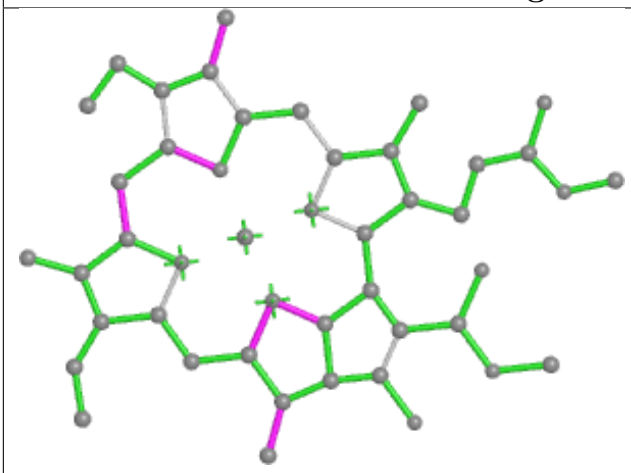


Torsions

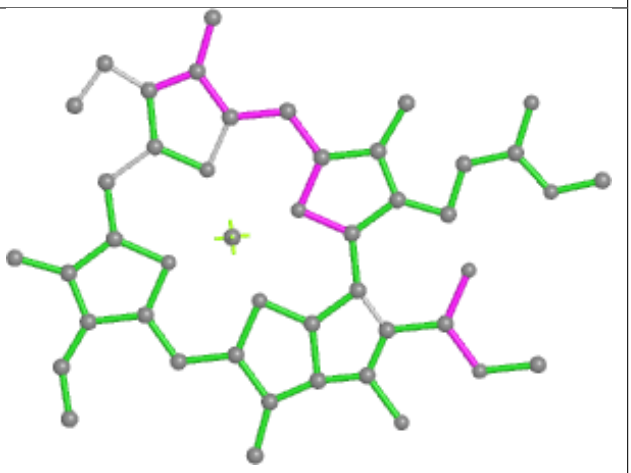


Rings

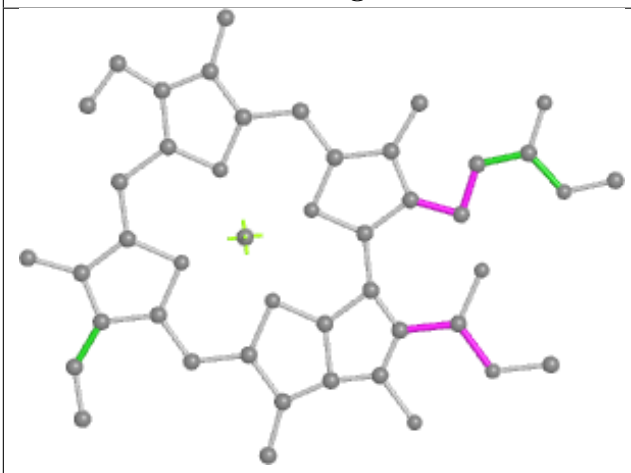
Ligand CLA S 303



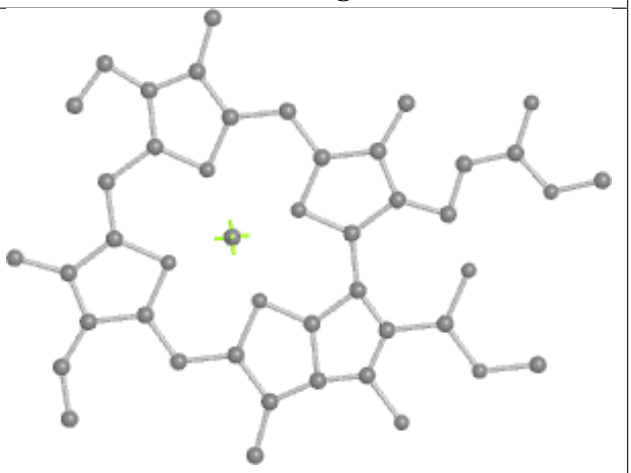
Bond lengths



Bond angles

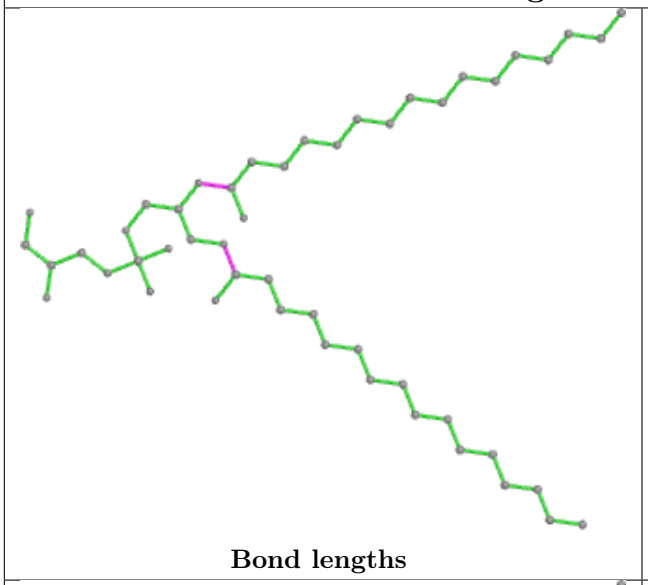


Torsions

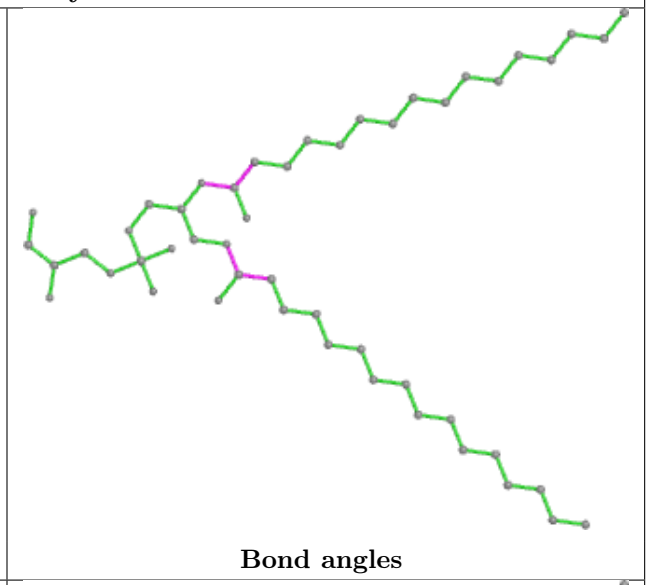


Rings

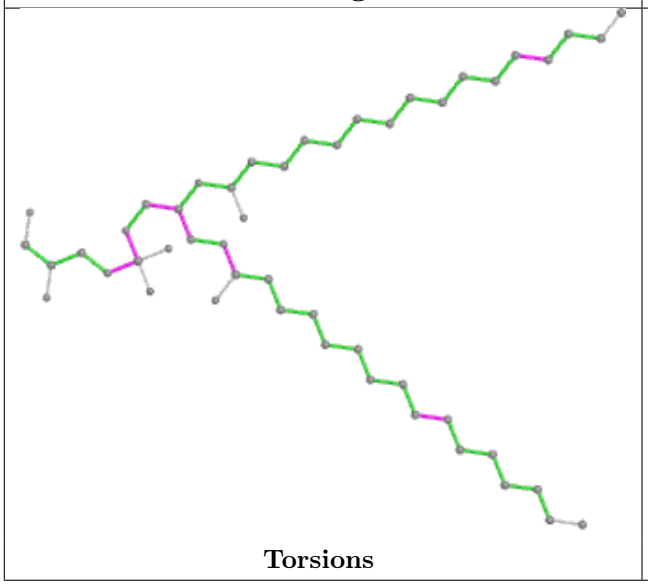
Ligand LHG y 318



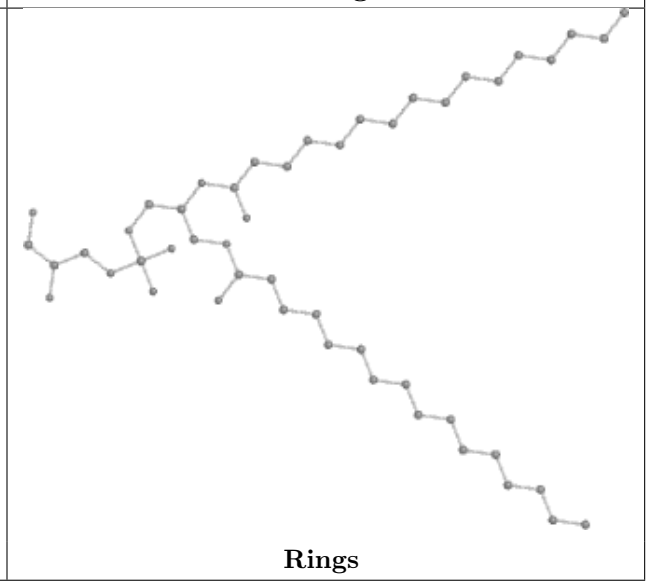
Bond lengths



Bond angles

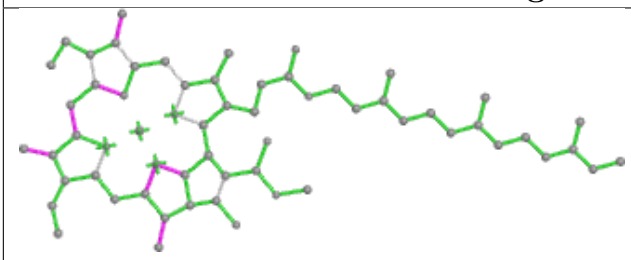


Torsions

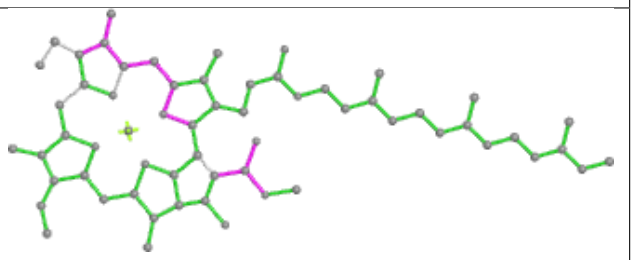


Rings

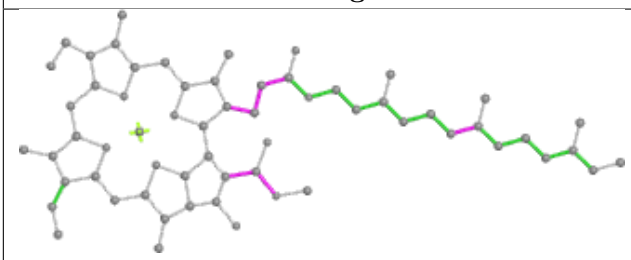
Ligand CLA n 602



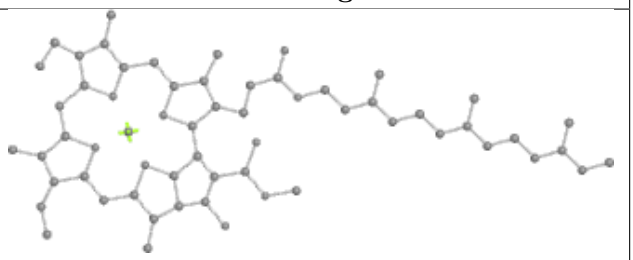
Bond lengths



Bond angles

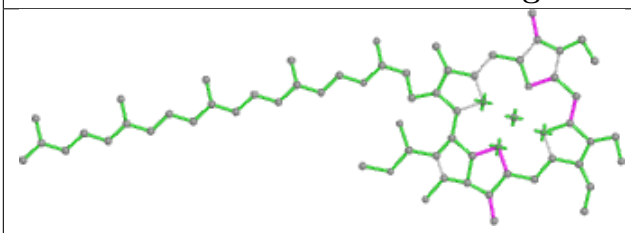


Torsions

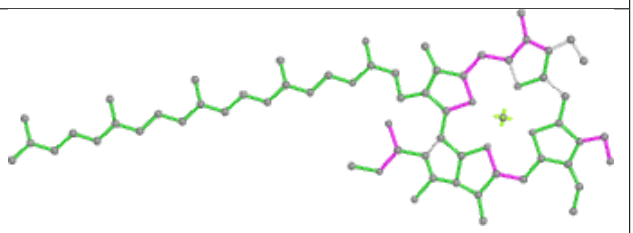


Rings

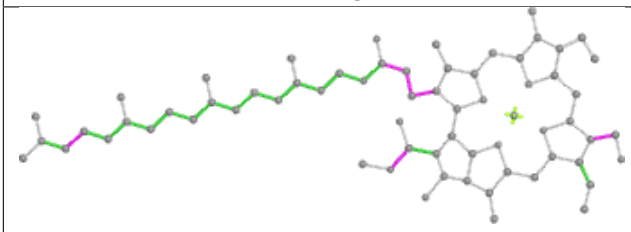
Ligand CHL N 608



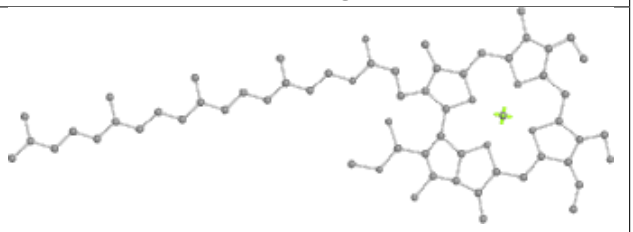
Bond lengths



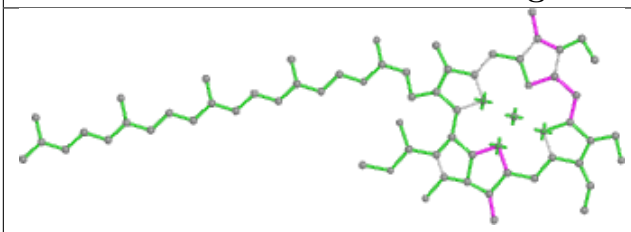
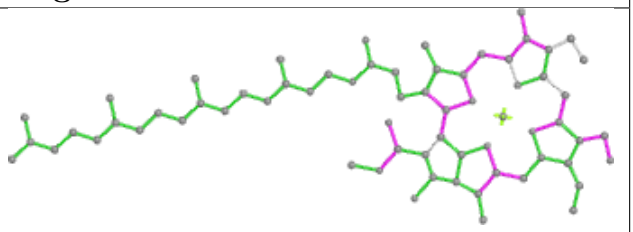
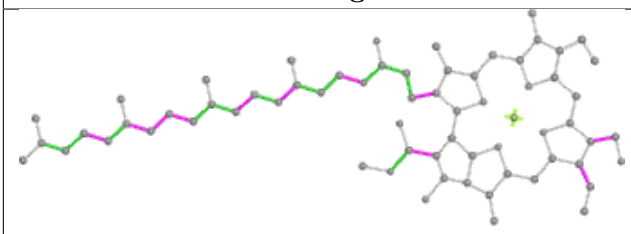
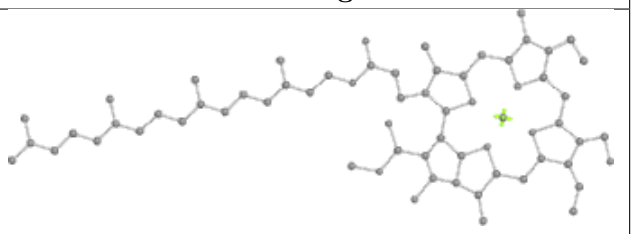
Bond angles

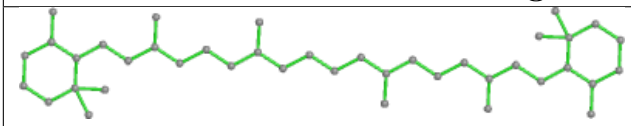
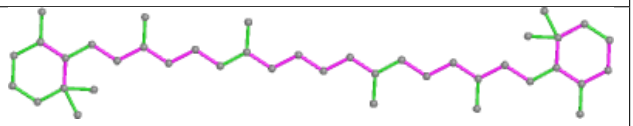
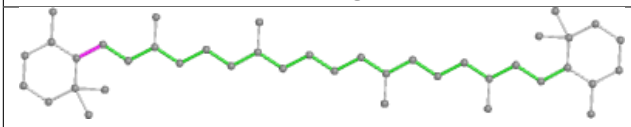
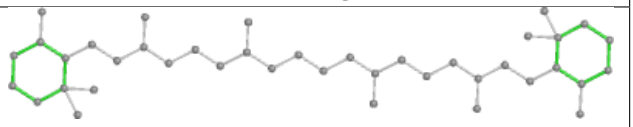


Torsions

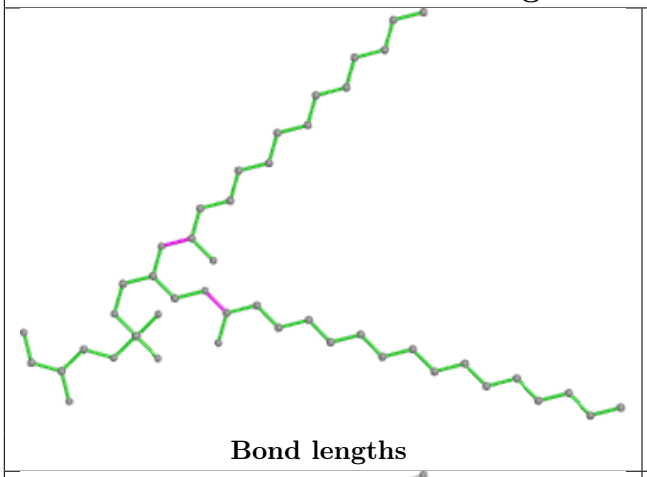


Rings

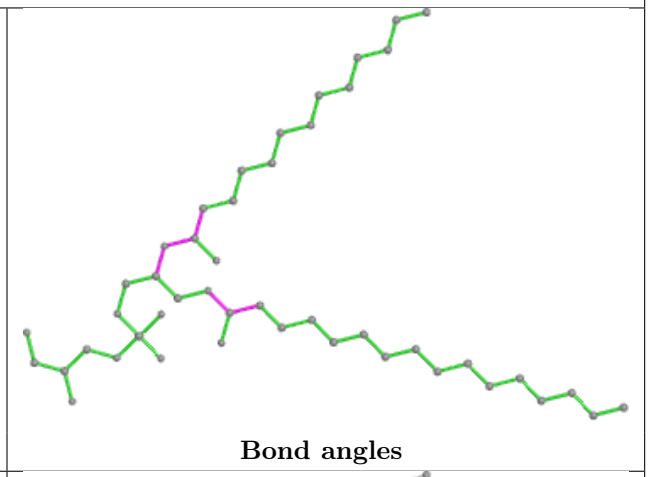
Ligand CHL g 601	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand BCR c 518	
 Bond lengths	 Bond angles
 Torsions	 Rings

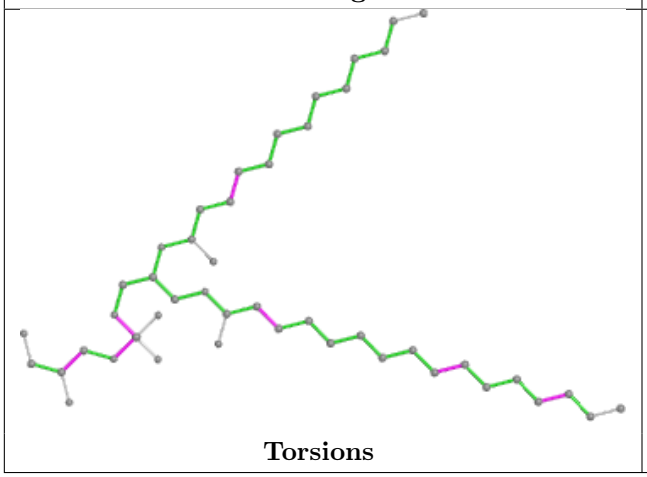
Ligand LHG G 619



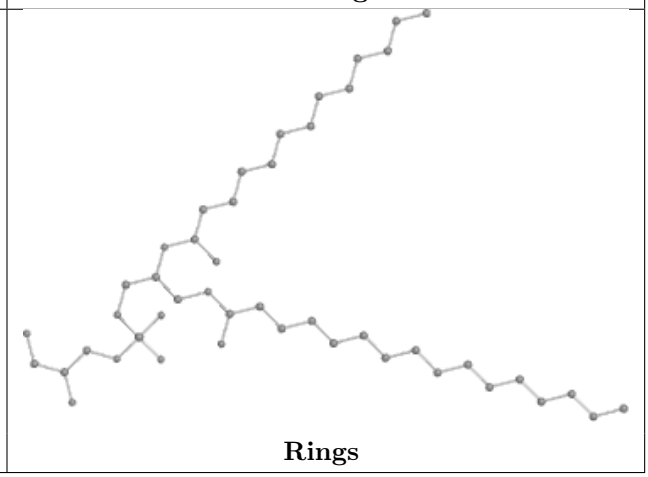
Bond lengths



Bond angles

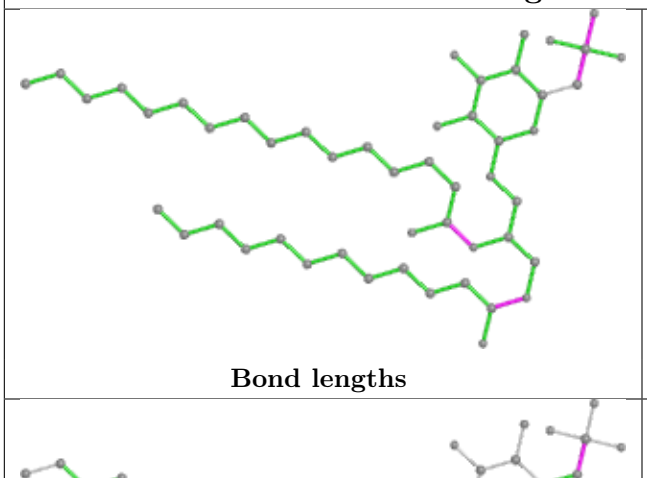


Torsions

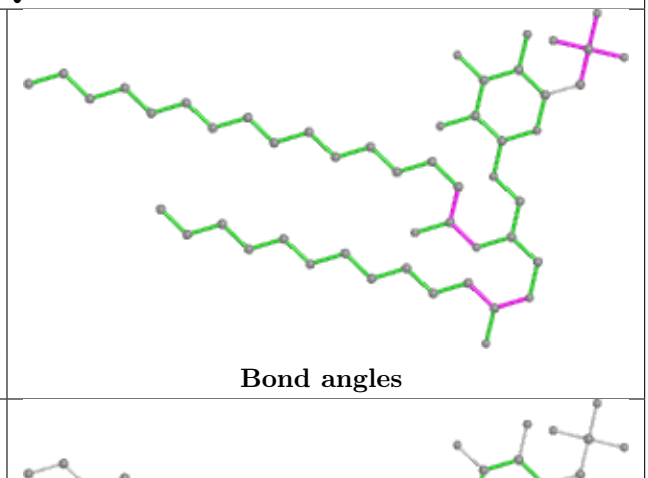


Rings

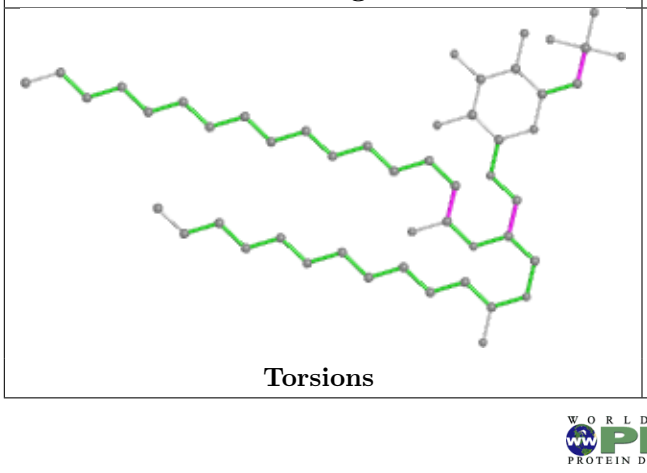
Ligand SQD A 406



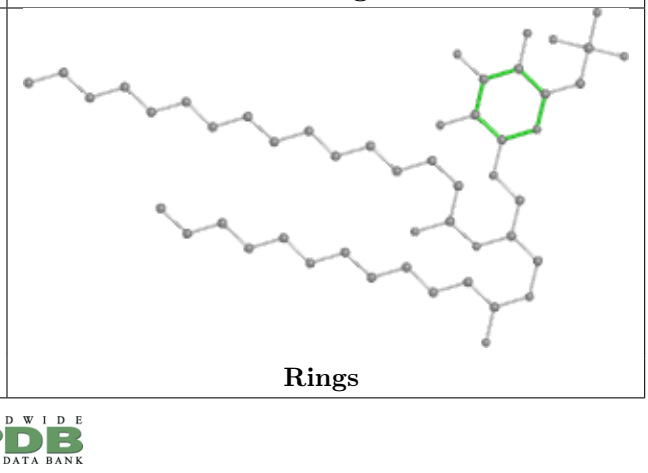
Bond lengths



Bond angles

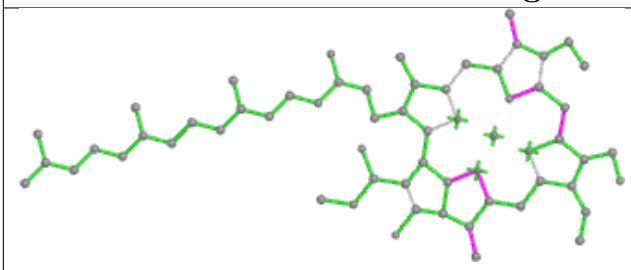


Torsions

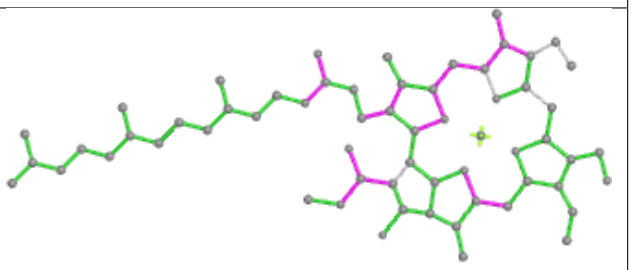


Rings

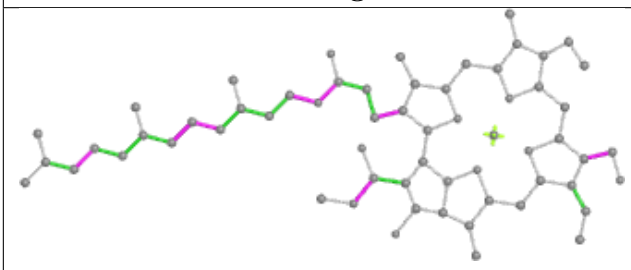
Ligand CHL R 308



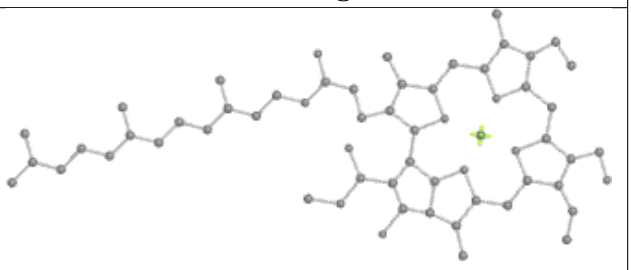
Bond lengths



Bond angles

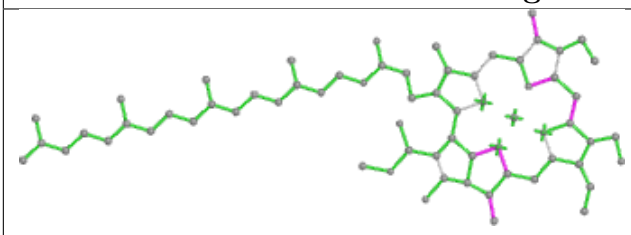


Torsions

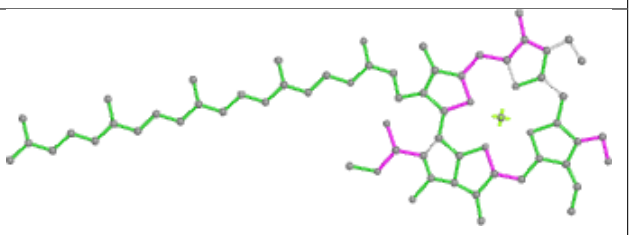


Rings

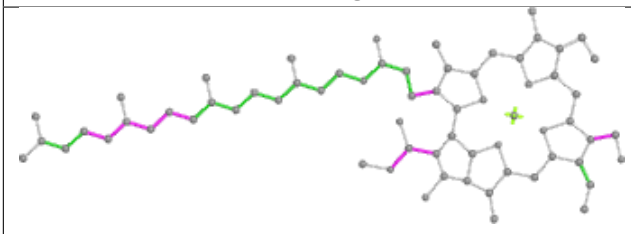
Ligand CHL Y 302



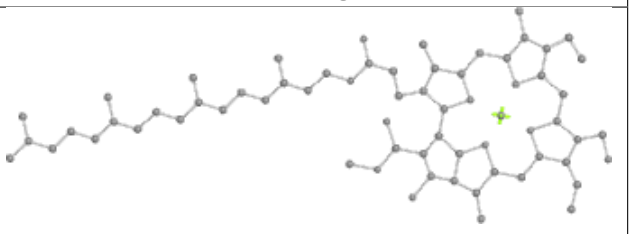
Bond lengths



Bond angles

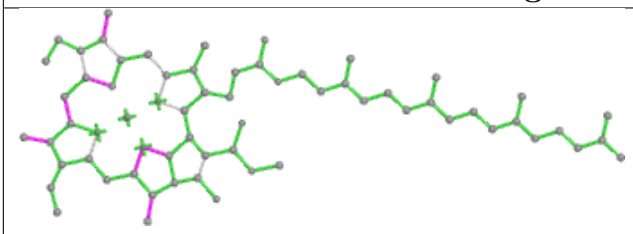


Torsions

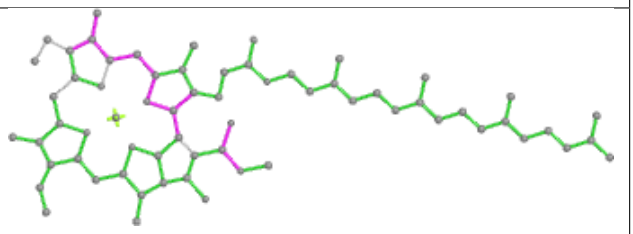


Rings

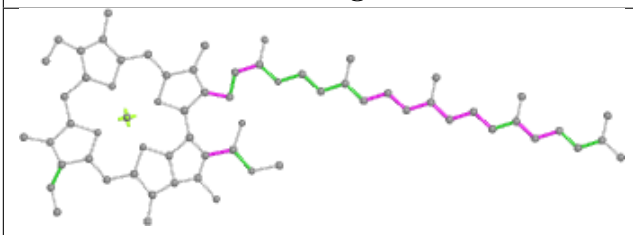
Ligand CLA B 612



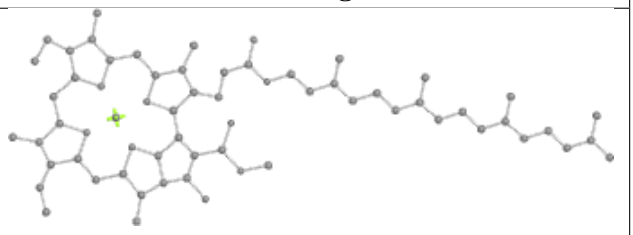
Bond lengths



Bond angles

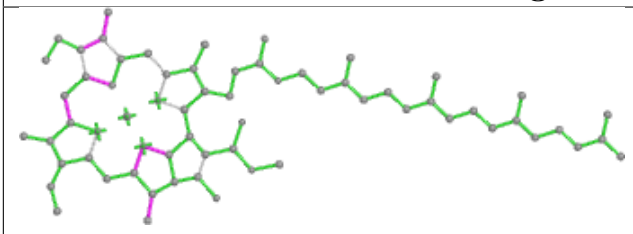


Torsions

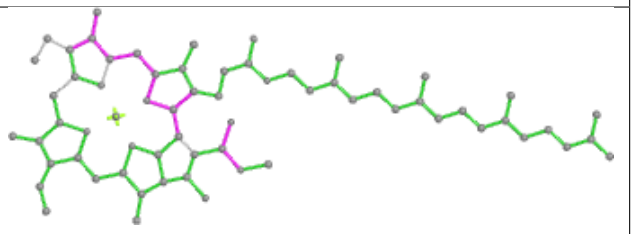


Rings

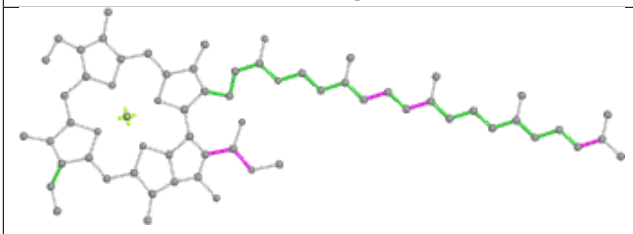
Ligand CLA c 511



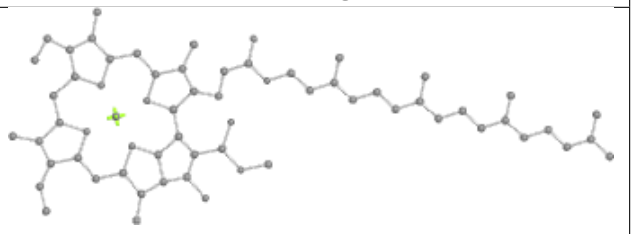
Bond lengths



Bond angles

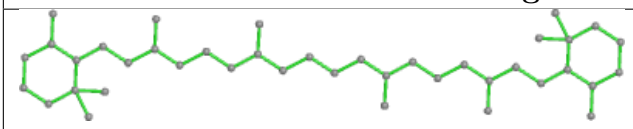


Torsions

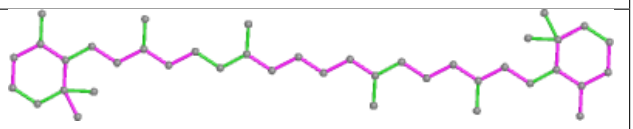


Rings

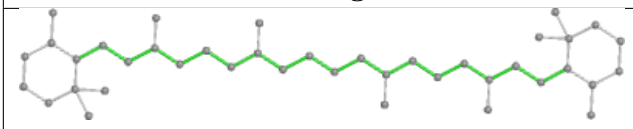
Ligand BCR C 519



Bond lengths



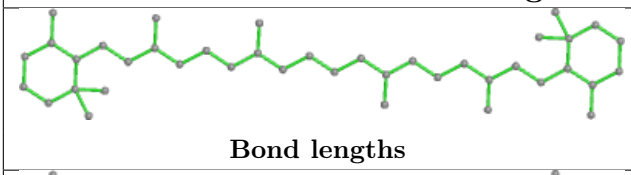
Bond angles



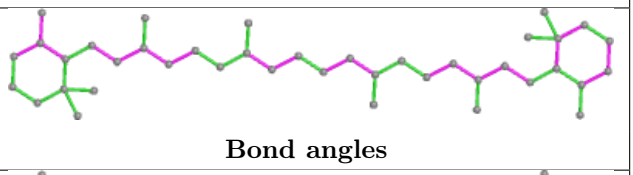
Torsions

Rings

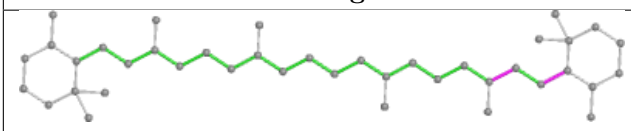
Ligand BCR b 621



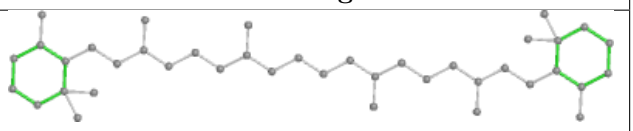
Bond lengths



Bond angles

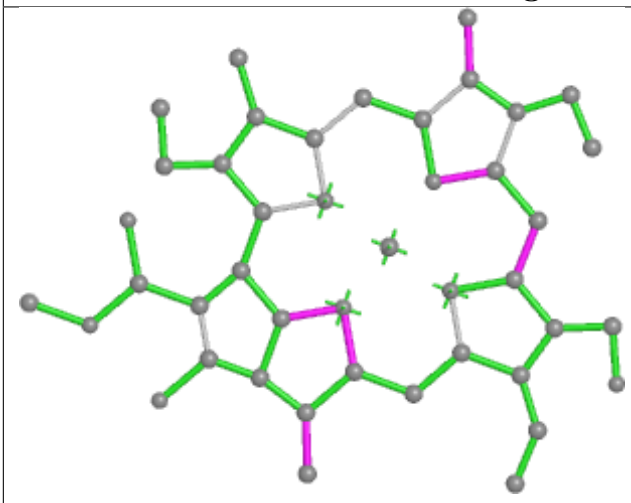


Torsions

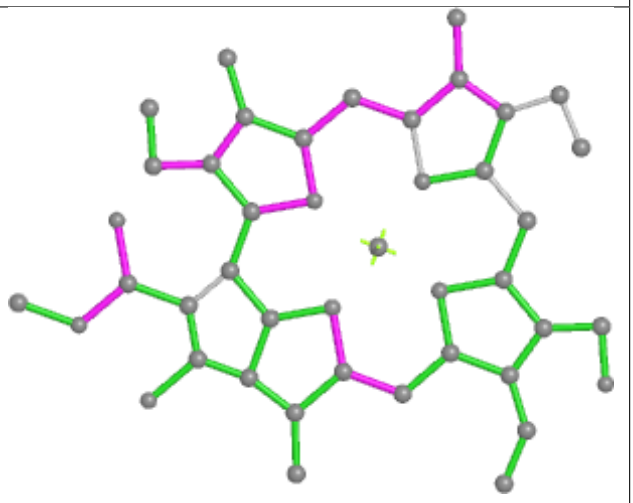


Rings

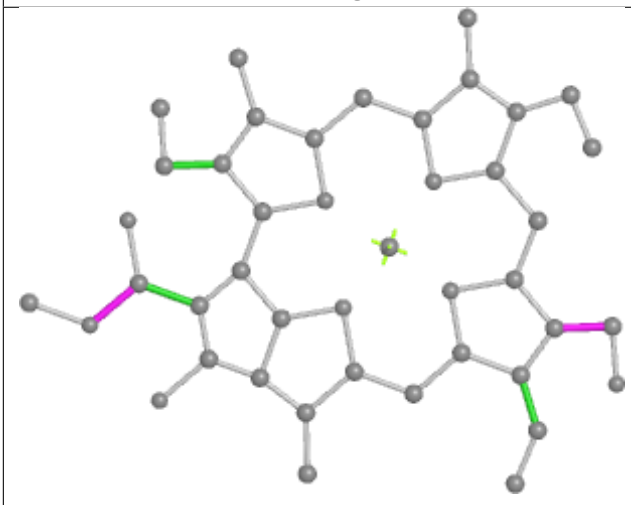
Ligand CHL G 607



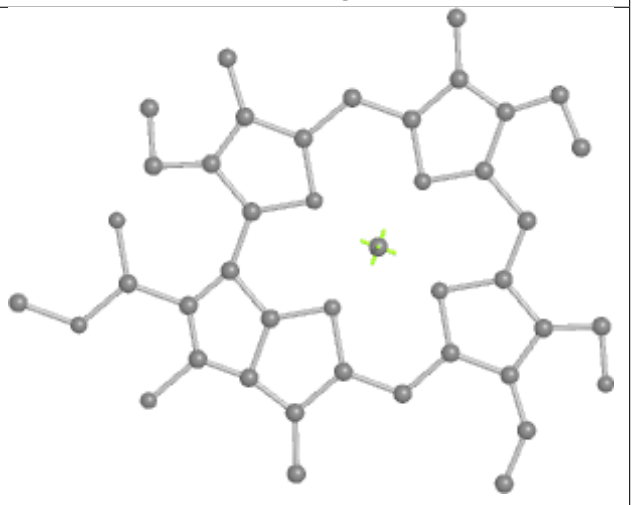
Bond lengths



Bond angles

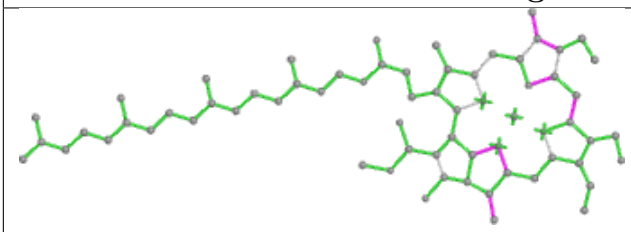


Torsions

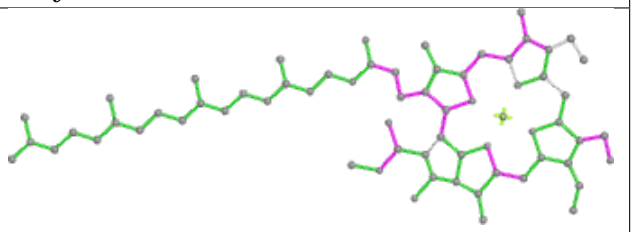


Rings

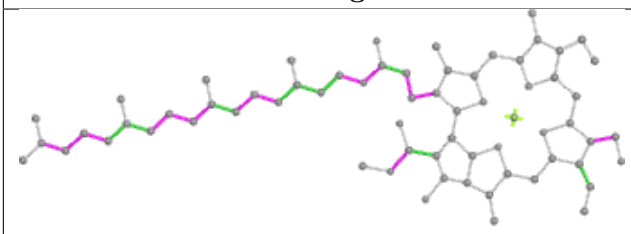
Ligand CHL y 308



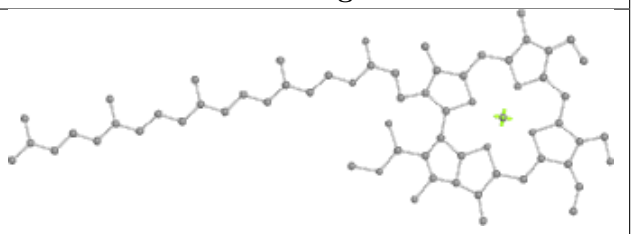
Bond lengths



Bond angles

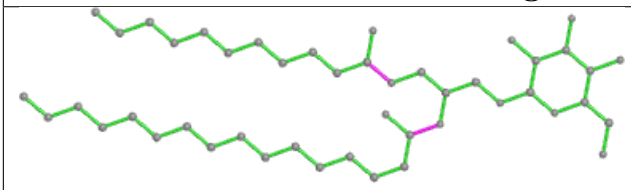


Torsions

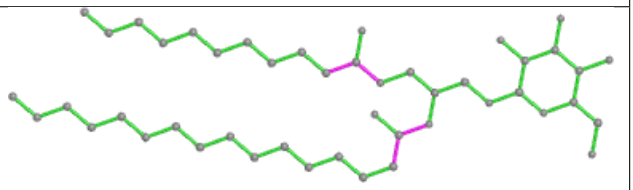


Rings

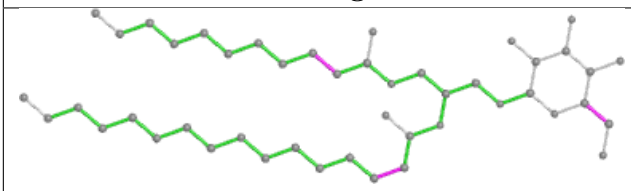
Ligand LMG d 409



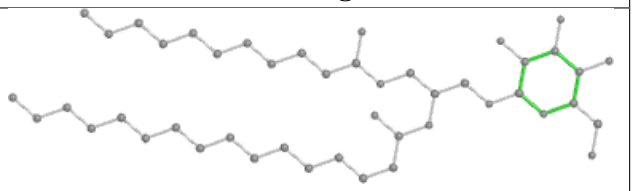
Bond lengths



Bond angles

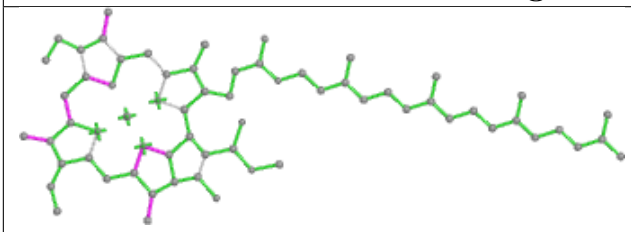


Torsions

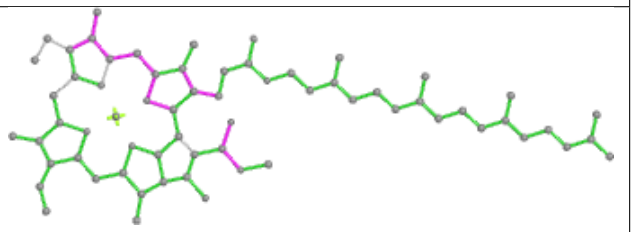


Rings

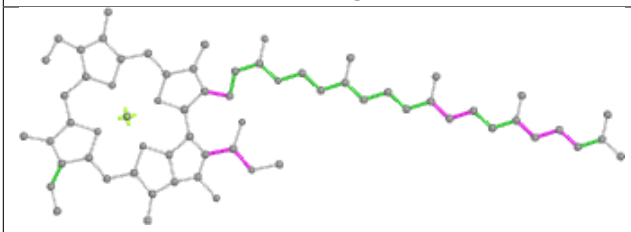
Ligand CLA b 612



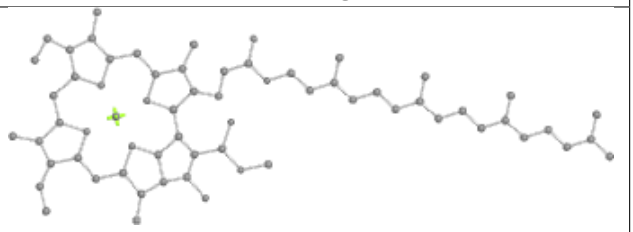
Bond lengths



Bond angles

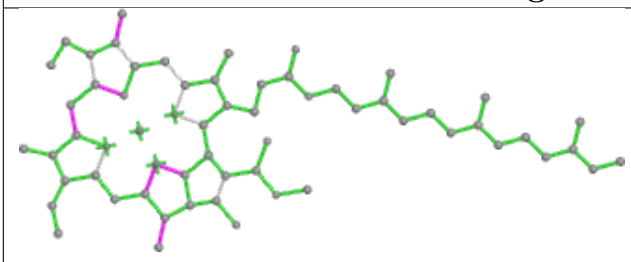


Torsions

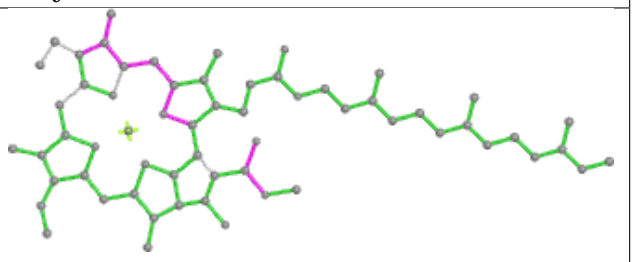


Rings

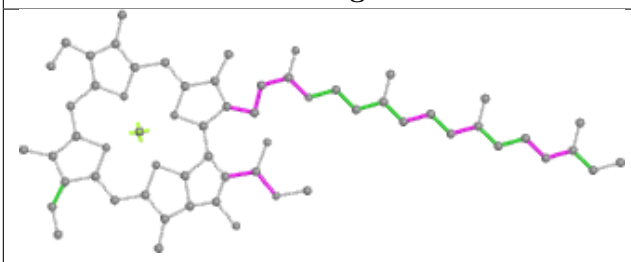
Ligand CLA y 303



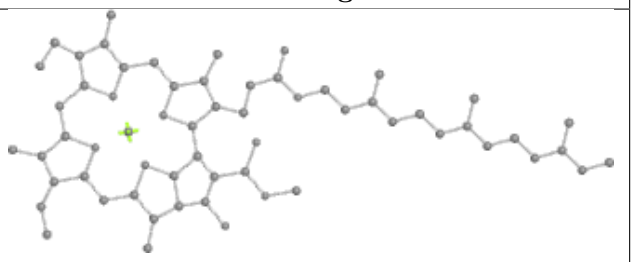
Bond lengths



Bond angles

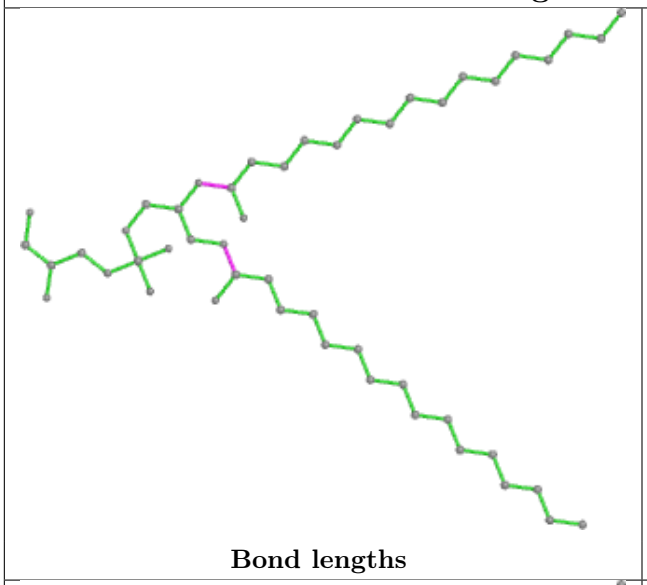


Torsions

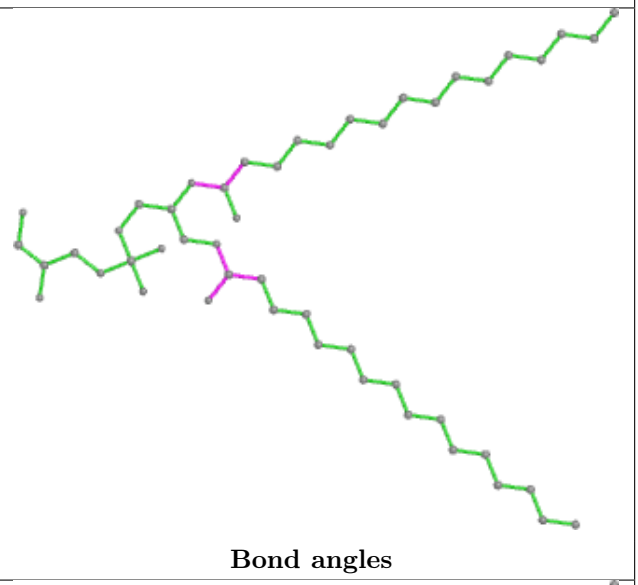


Rings

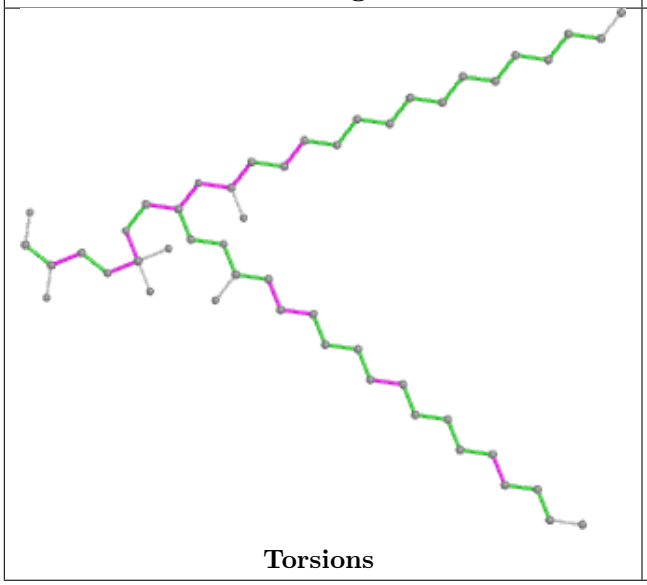
Ligand LHG l 103



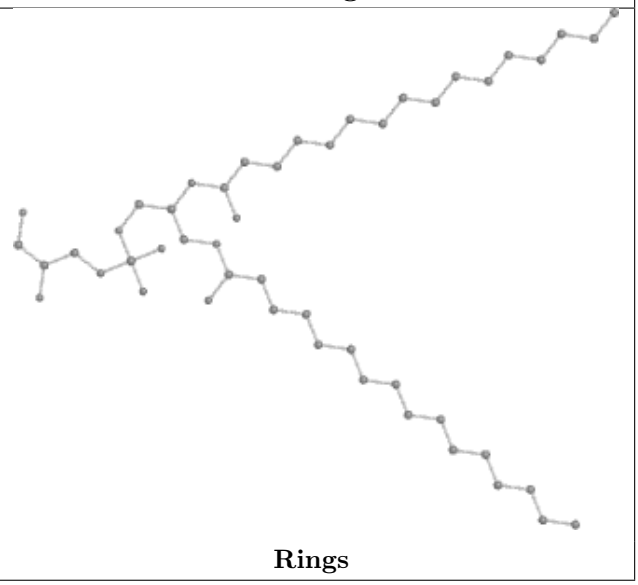
Bond lengths



Bond angles

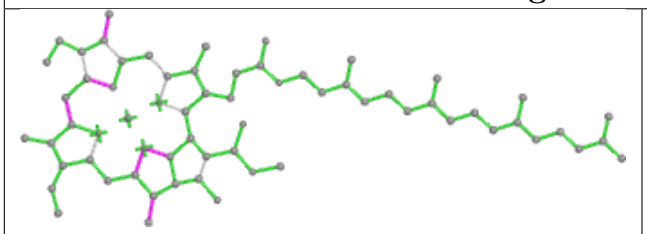


Torsions

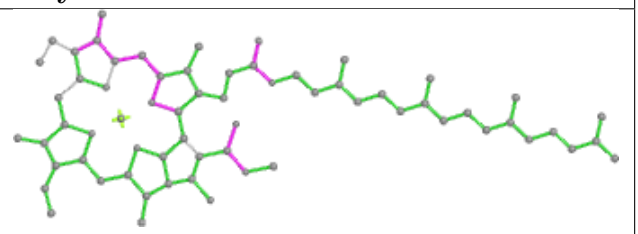


Rings

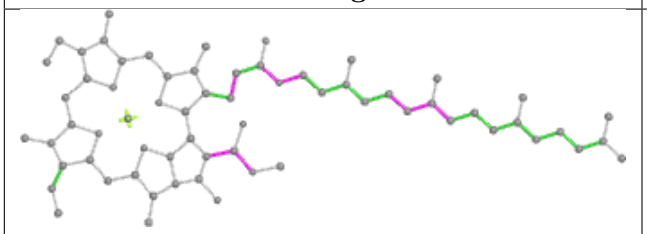
Ligand CLA y 314



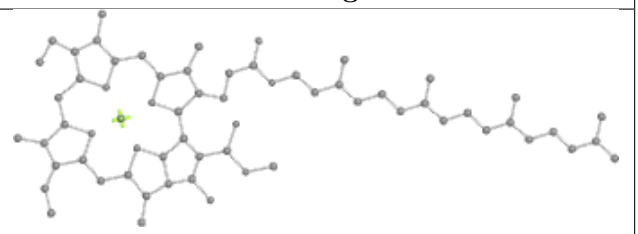
Bond lengths



Bond angles

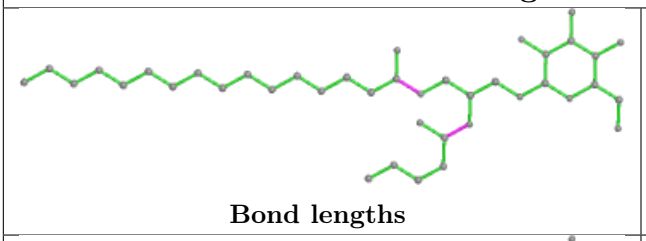


Torsions

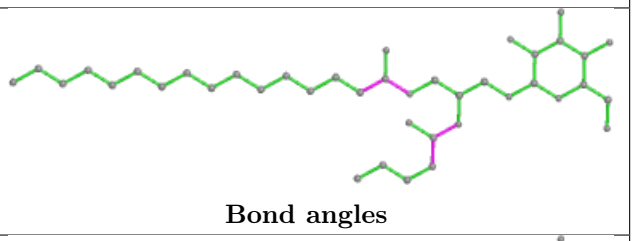


Rings

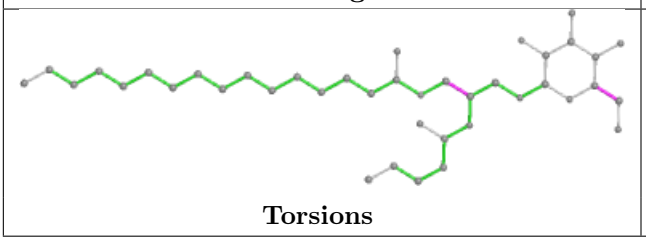
Ligand LMG B 623



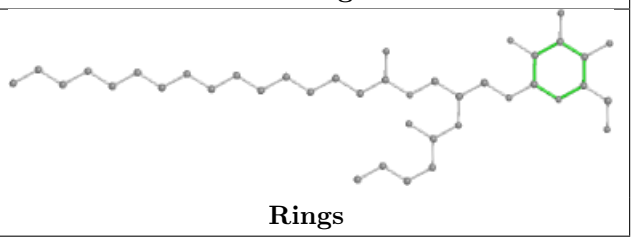
Bond lengths



Bond angles

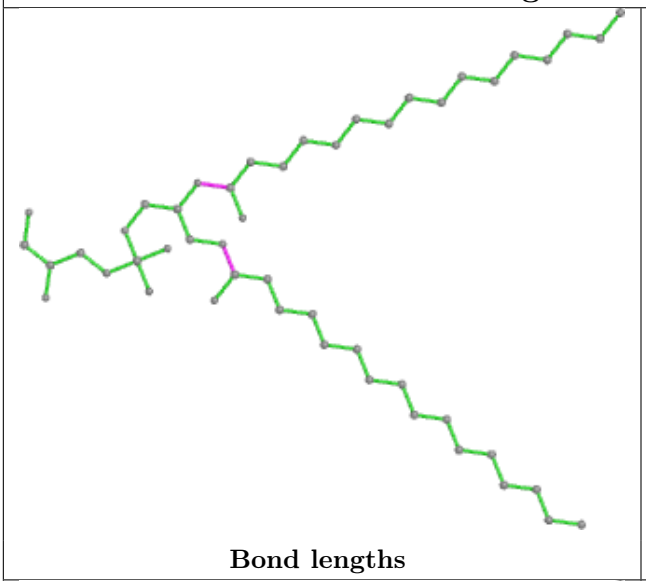


Torsions

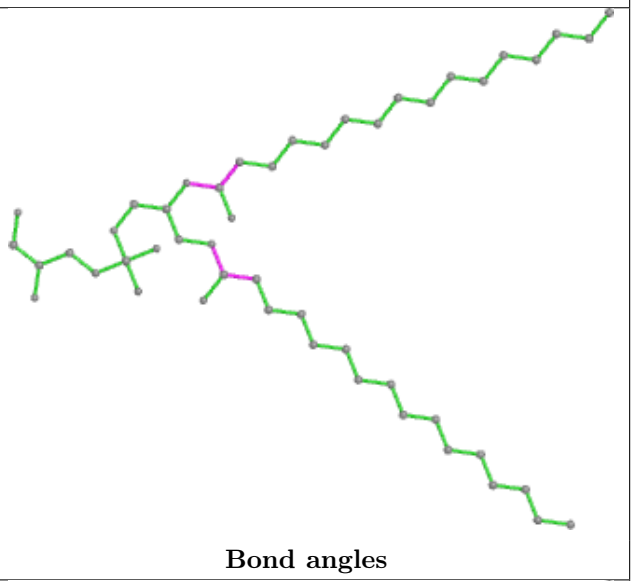


Rings

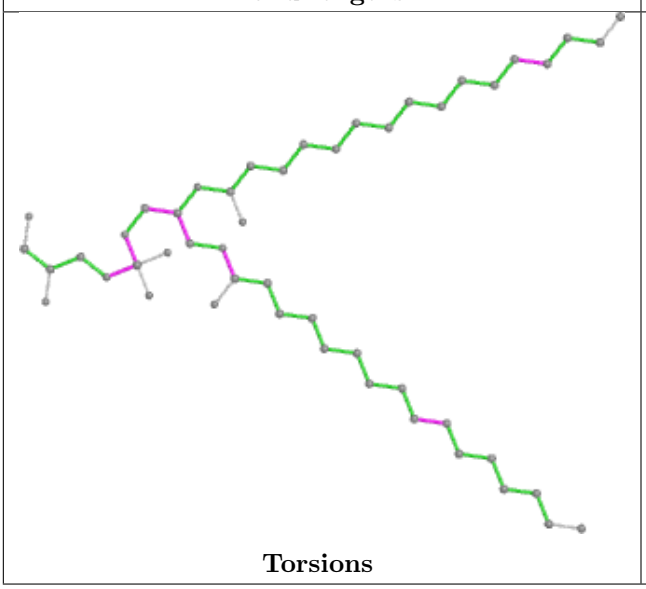
Ligand LHG Y 319



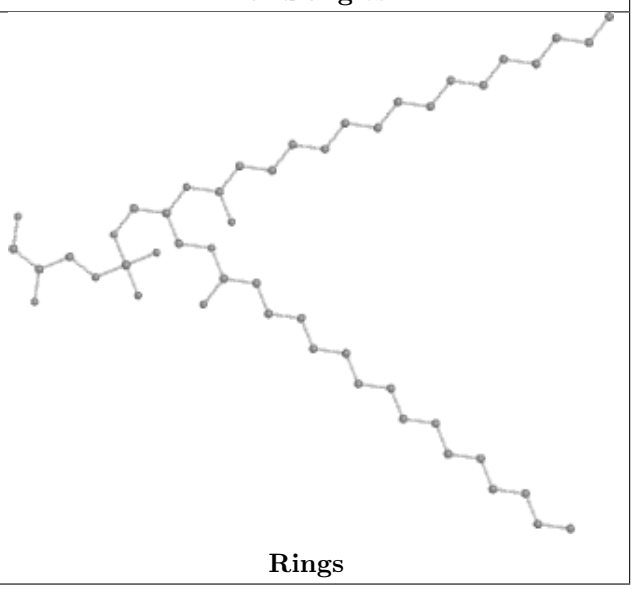
Bond lengths



Bond angles

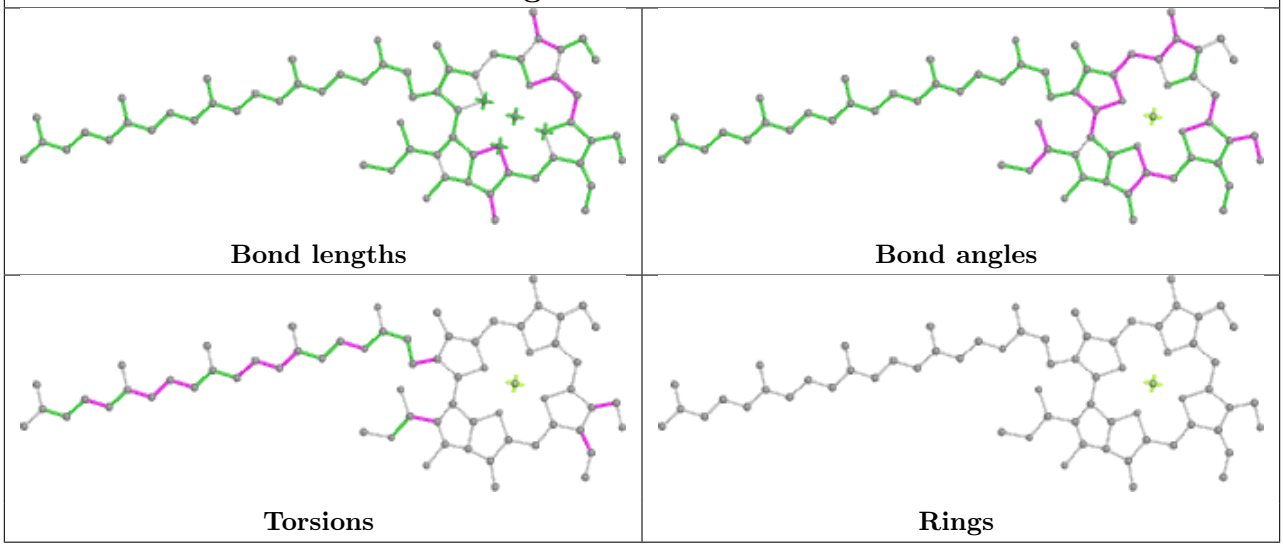


Torsions

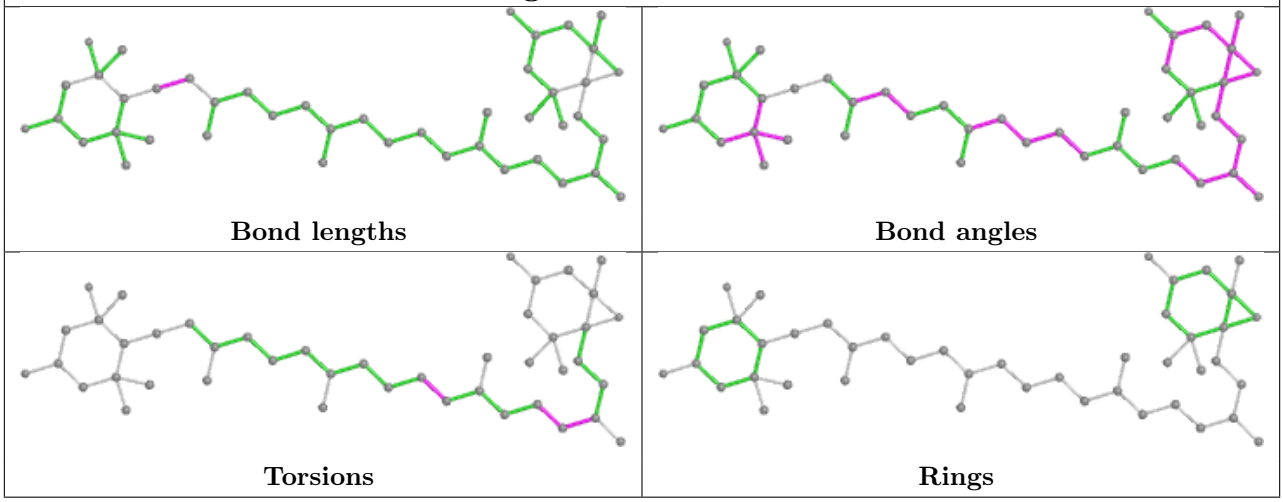


Rings

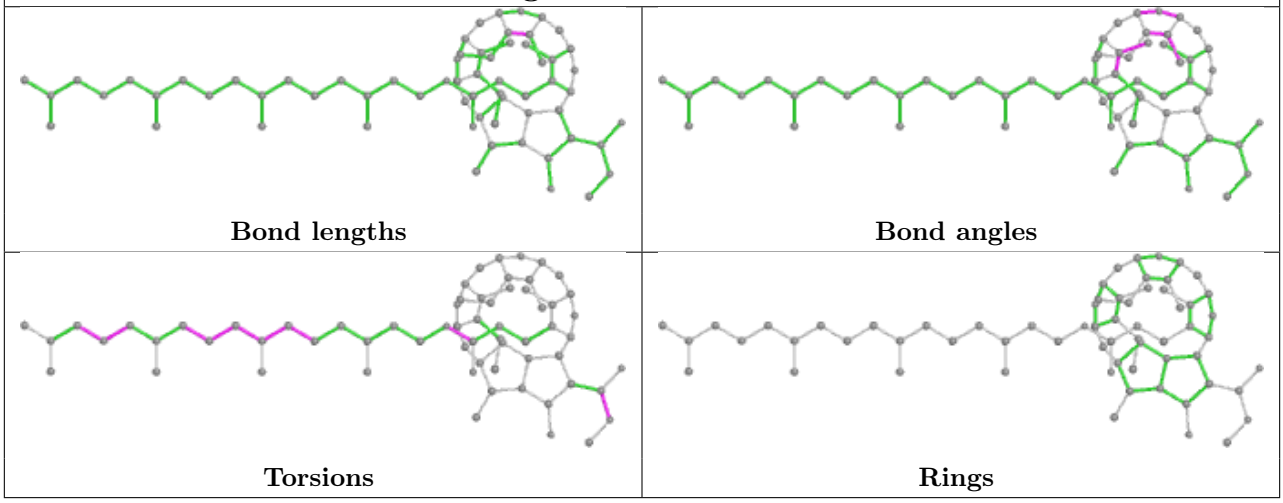
Ligand CHL G 601



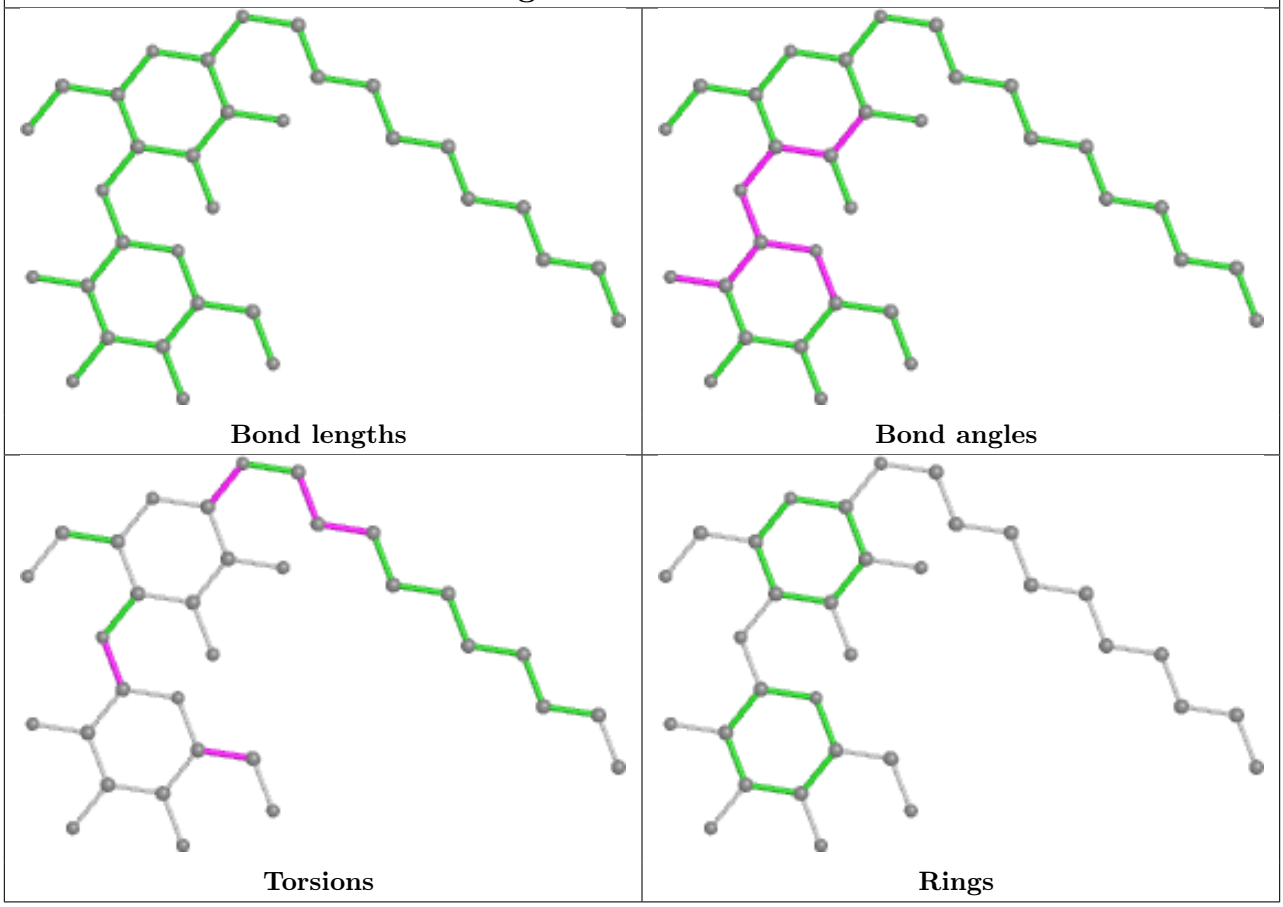
Ligand NEX R 301



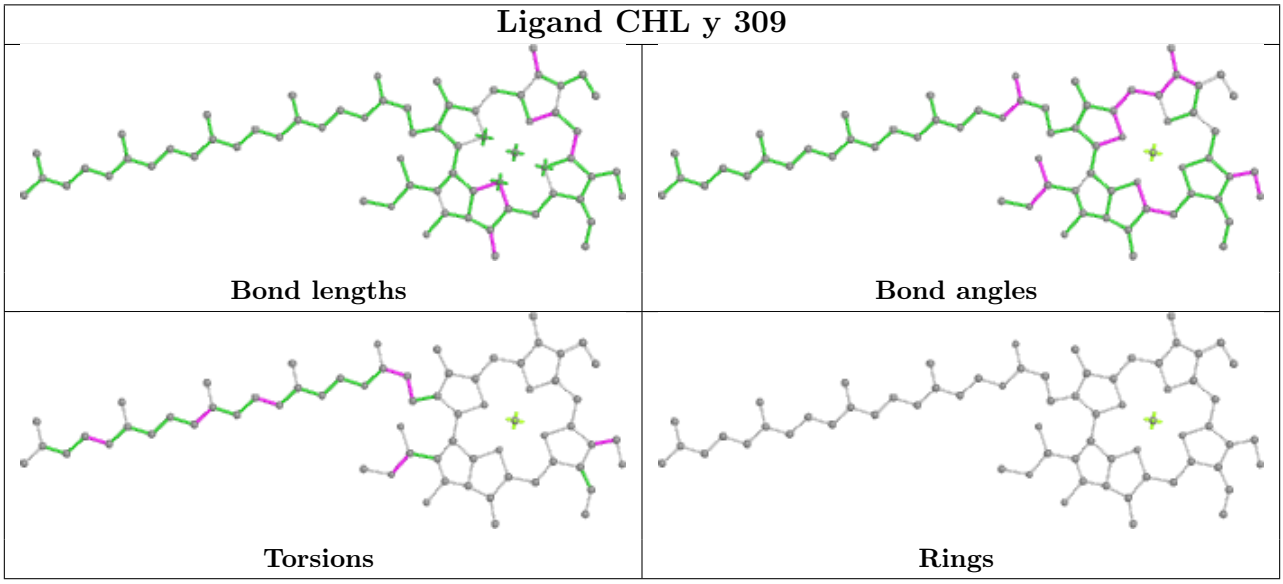
Ligand PHO A 403



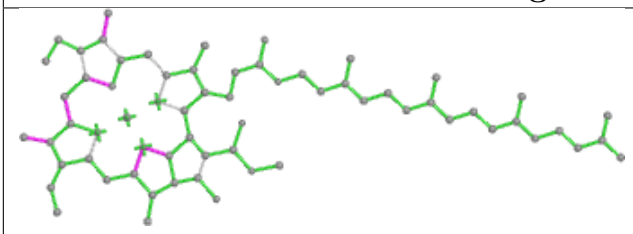
Ligand DMU C 520



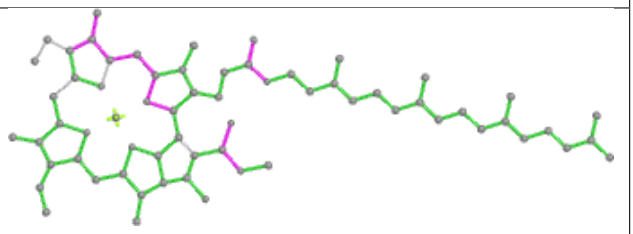
Ligand CHL y 309



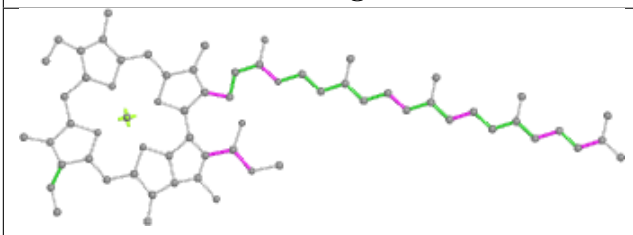
Ligand CLA c 508



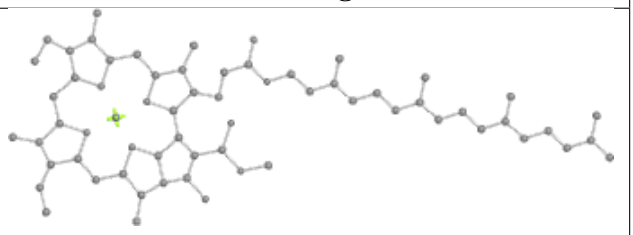
Bond lengths



Bond angles

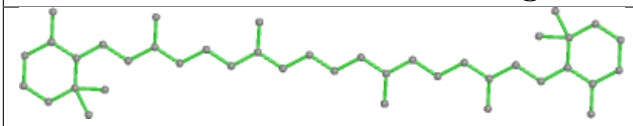


Torsions

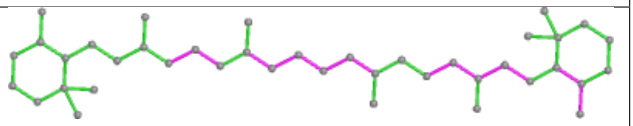


Rings

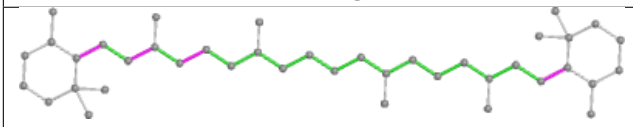
Ligand BCR H 101



Bond lengths



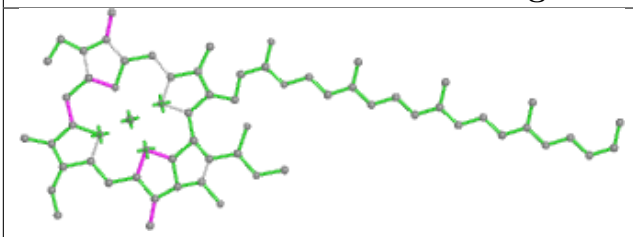
Bond angles



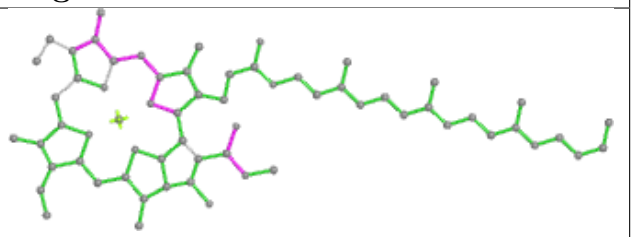
Torsions

Rings

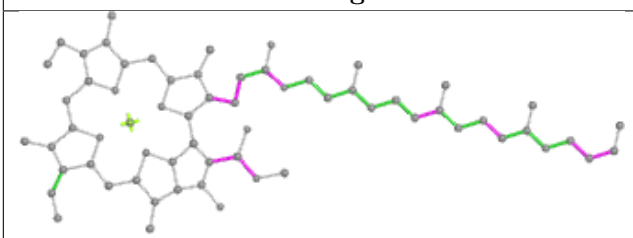
Ligand CLA g 610



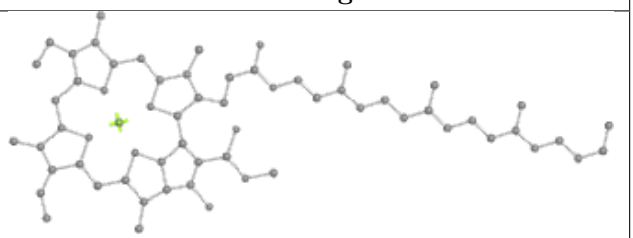
Bond lengths



Bond angles

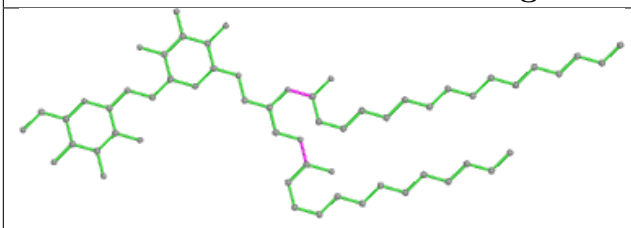


Torsions

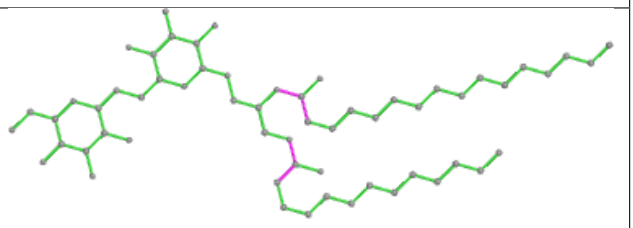


Rings

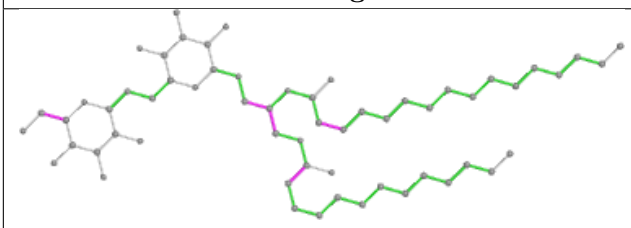
Ligand DGD B 624



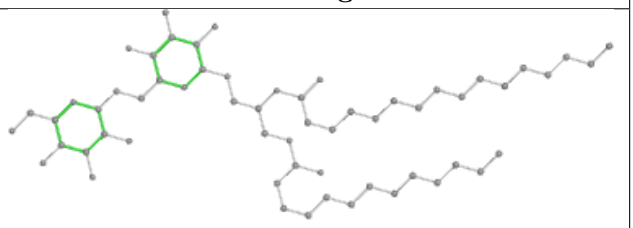
Bond lengths



Bond angles

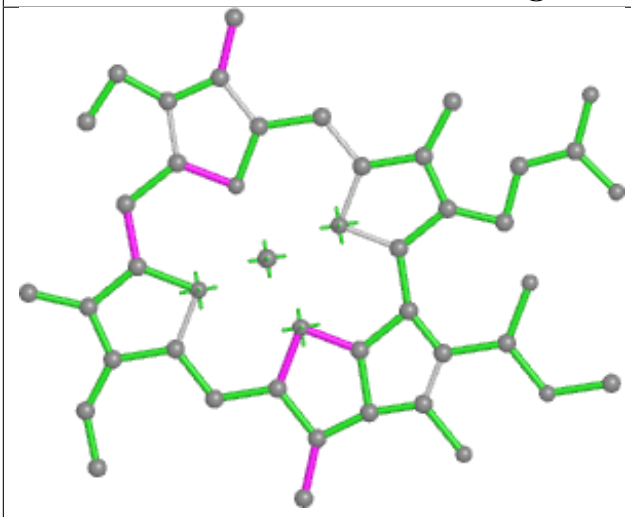


Torsions

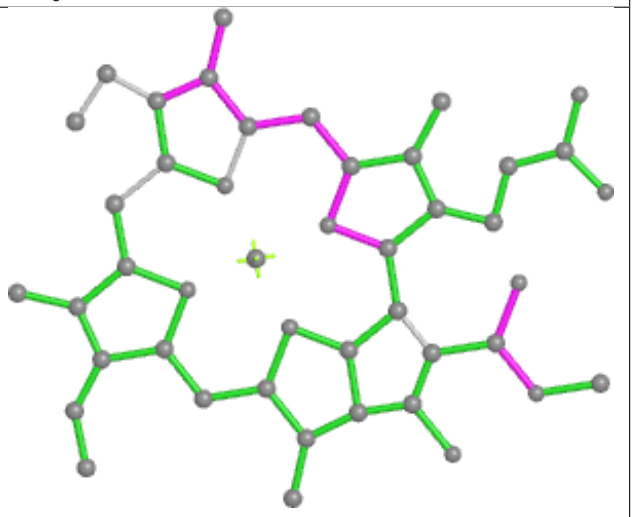


Rings

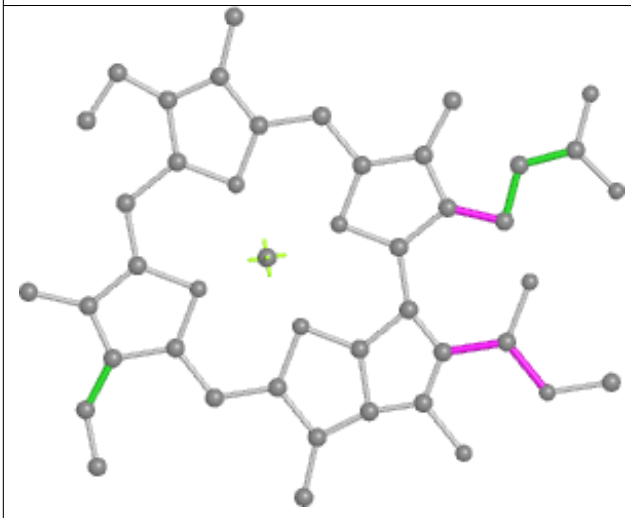
Ligand CLA y 315



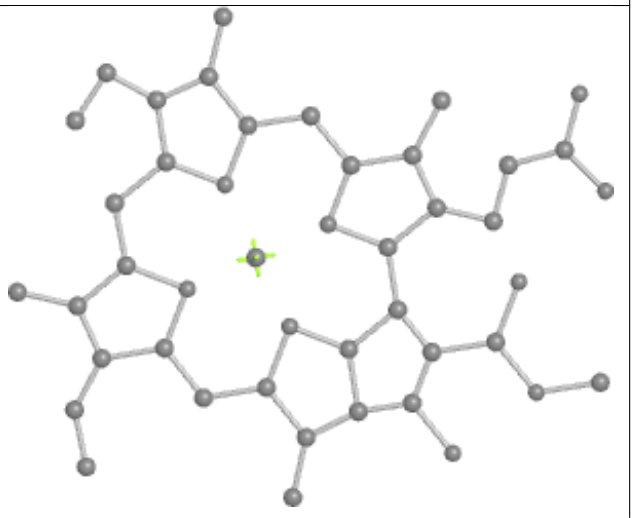
Bond lengths



Bond angles

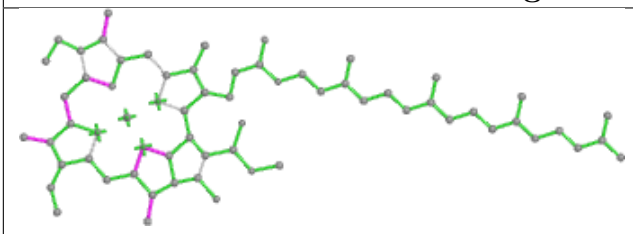


Torsions

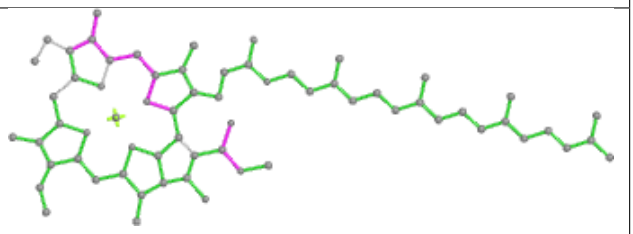


Rings

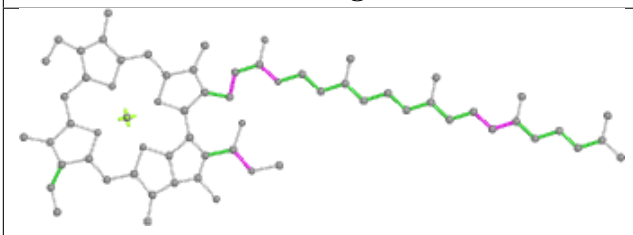
Ligand CLA A 401



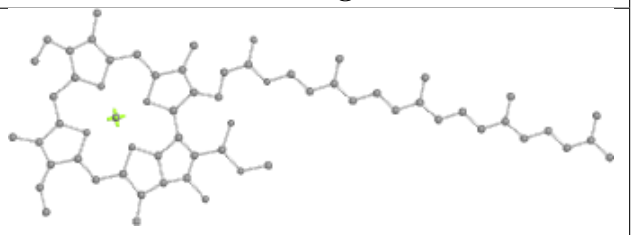
Bond lengths



Bond angles

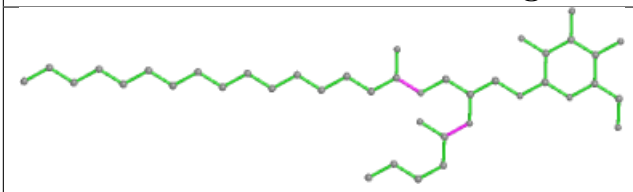


Torsions

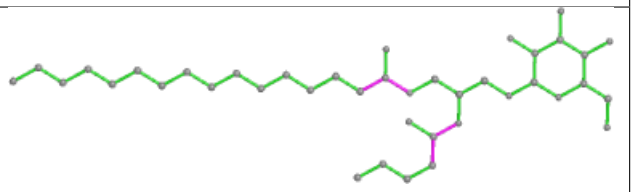


Rings

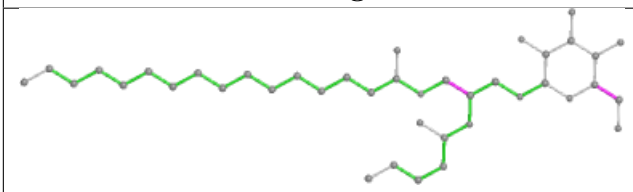
Ligand LMG b 601



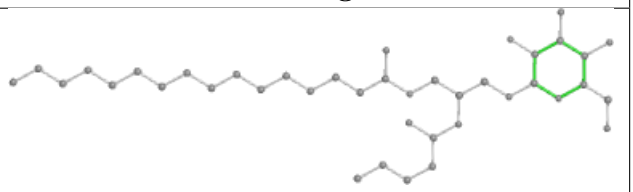
Bond lengths



Bond angles

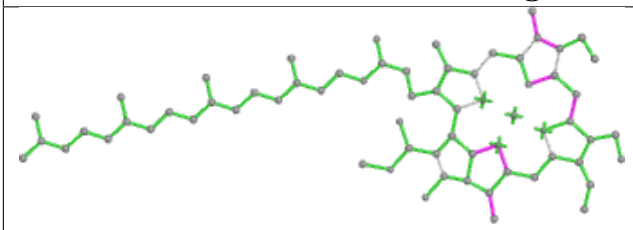


Torsions

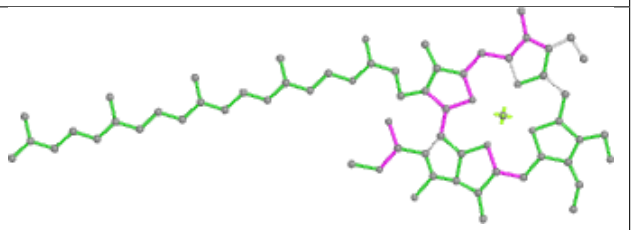


Rings

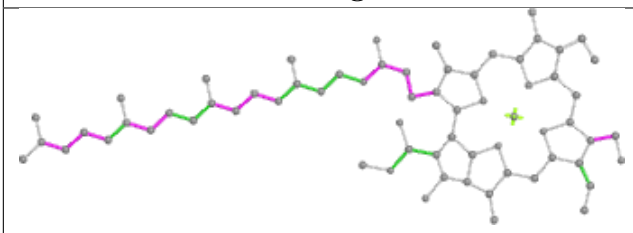
Ligand CHL Y 310



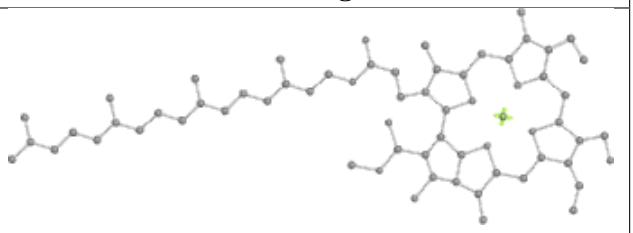
Bond lengths



Bond angles

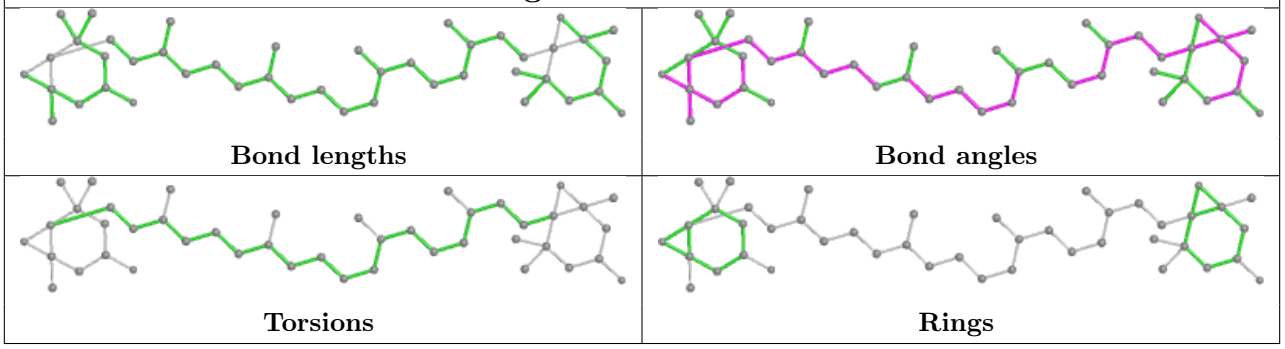


Torsions

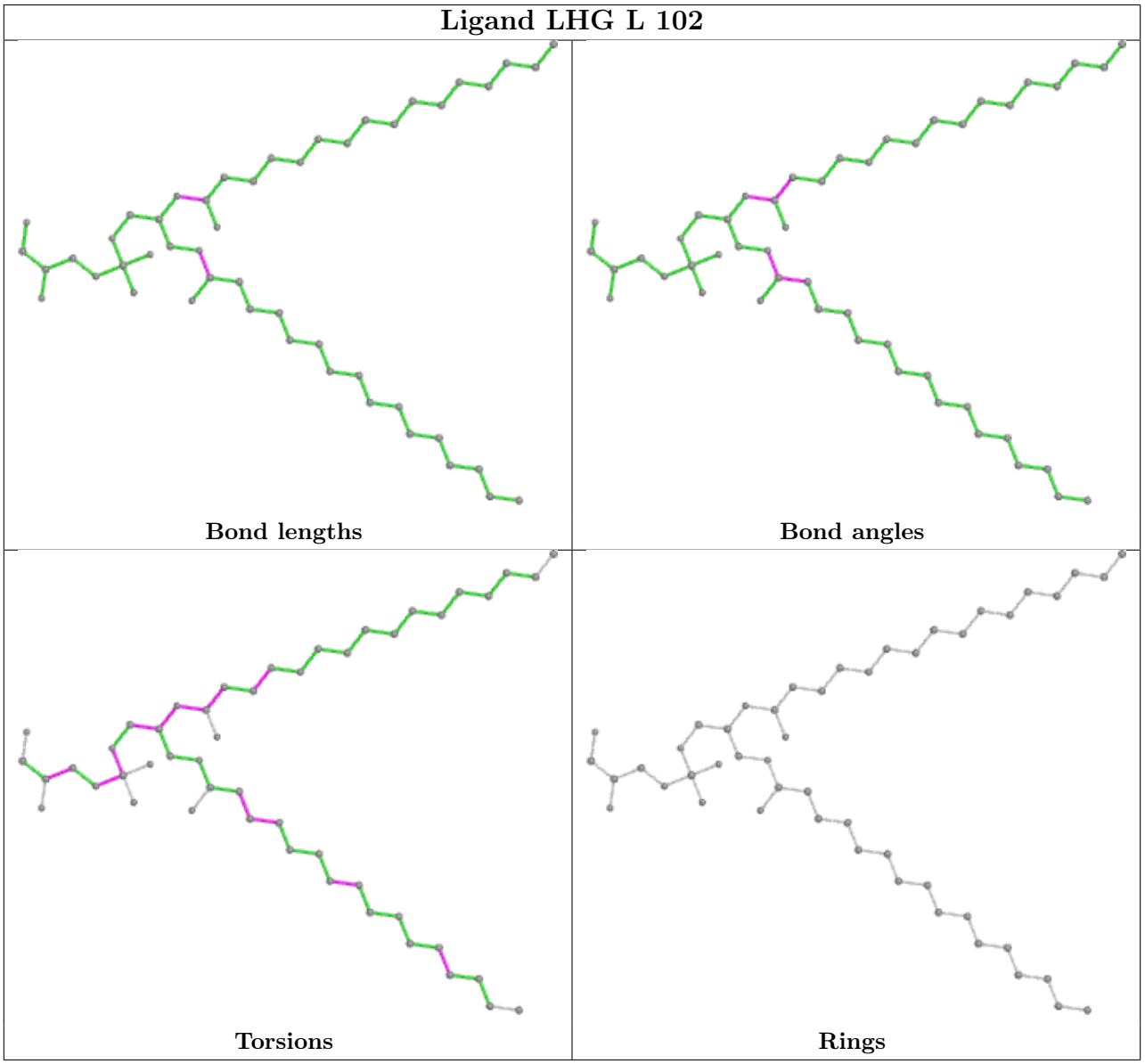


Rings

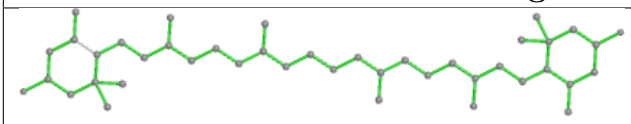
Ligand XAT Y 301



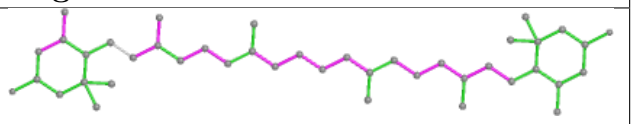
Ligand LHG L 102



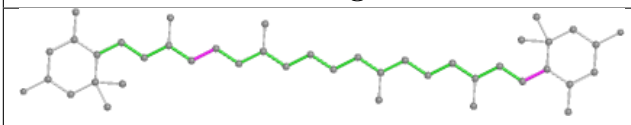
Ligand LUT g 615



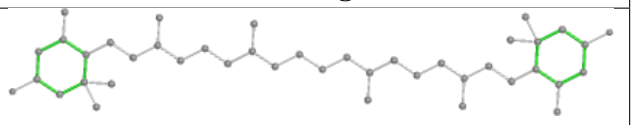
Bond lengths



Bond angles

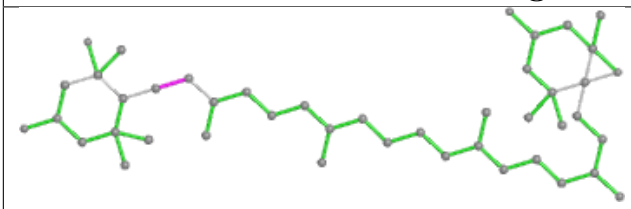


Torsions

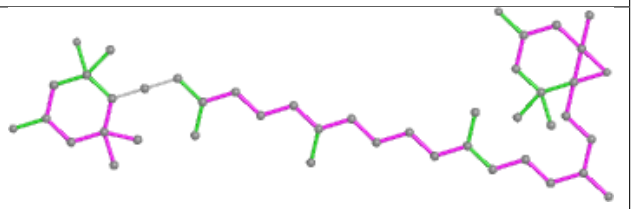


Rings

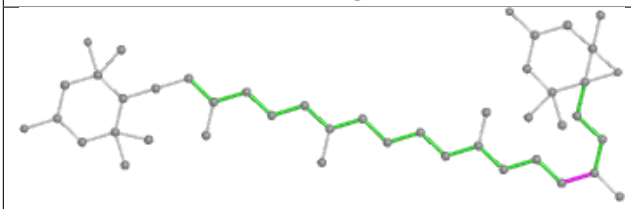
Ligand NEX s 616



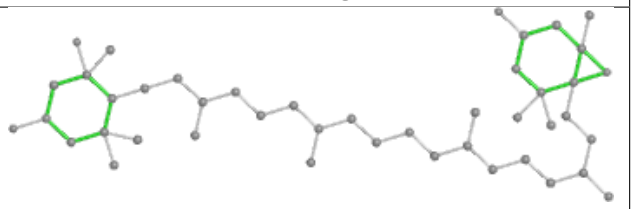
Bond lengths



Bond angles

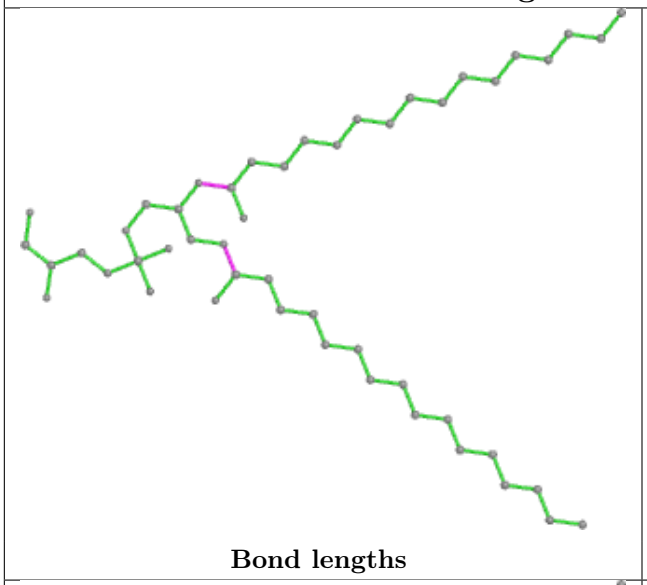


Torsions

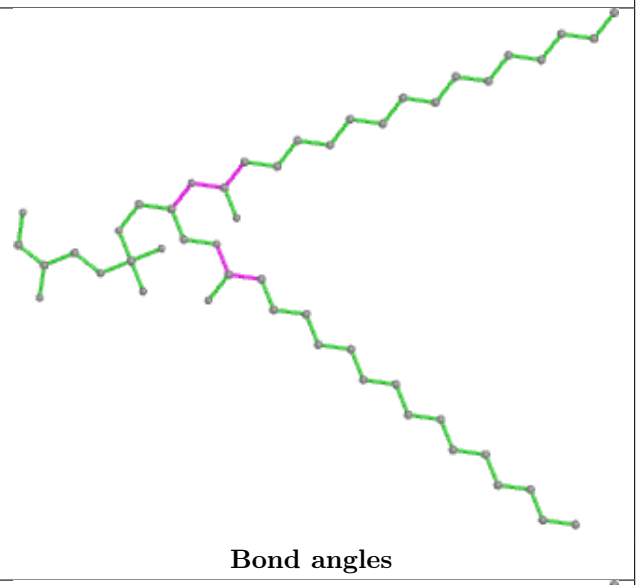


Rings

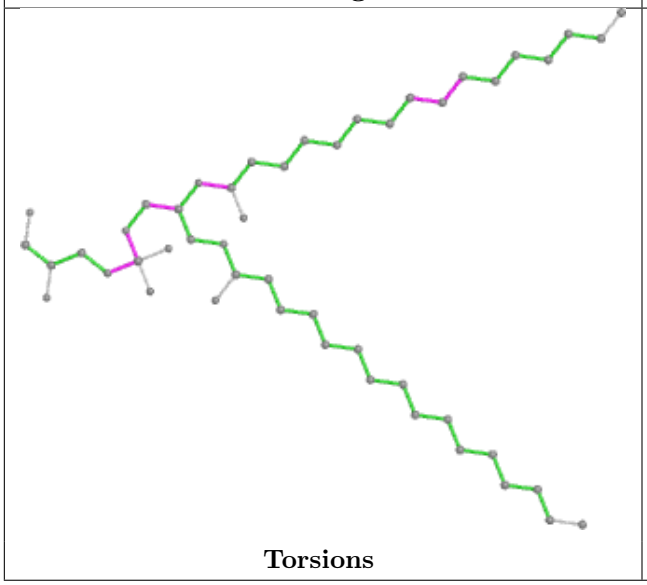
Ligand LHG W 201



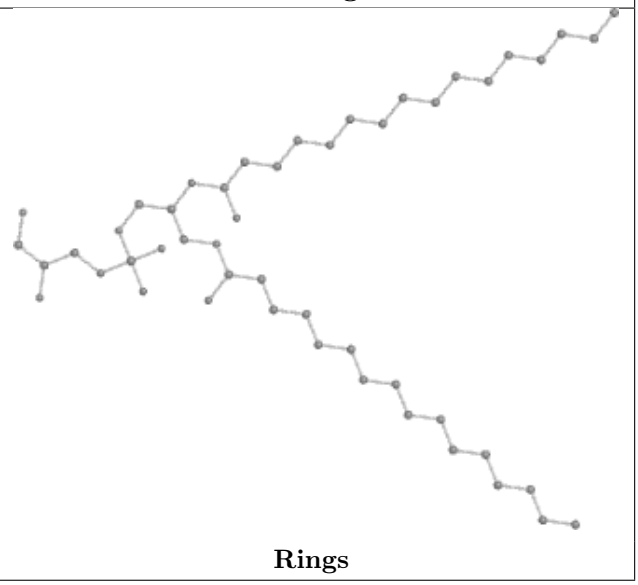
Bond lengths



Bond angles

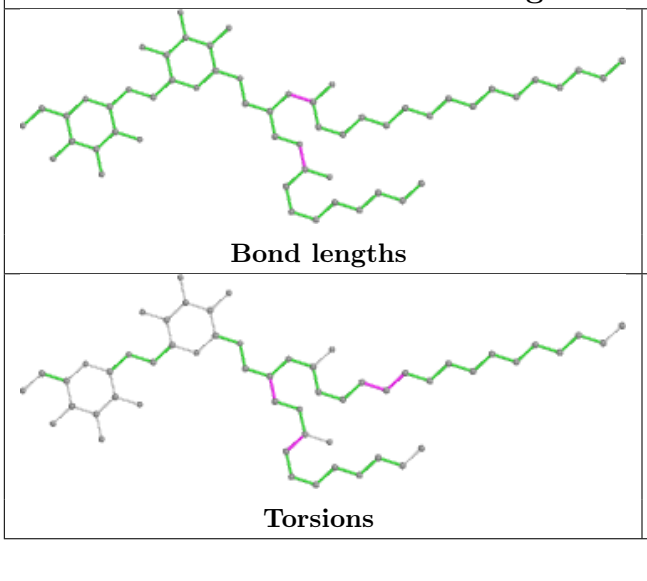


Torsions

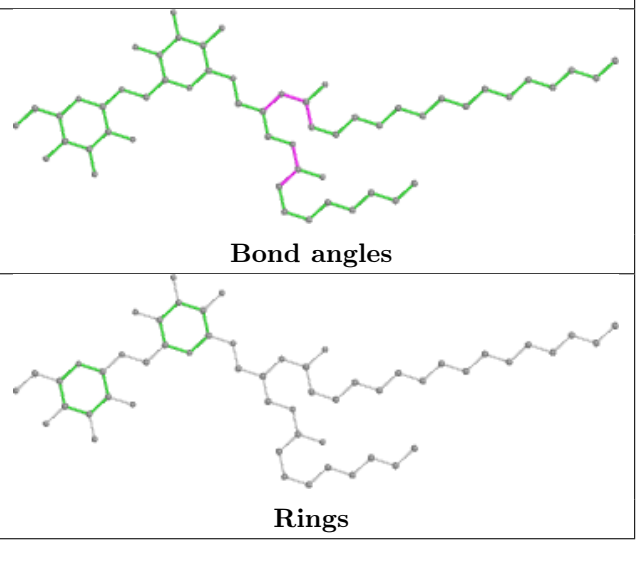


Rings

Ligand DGD c 515



Bond lengths

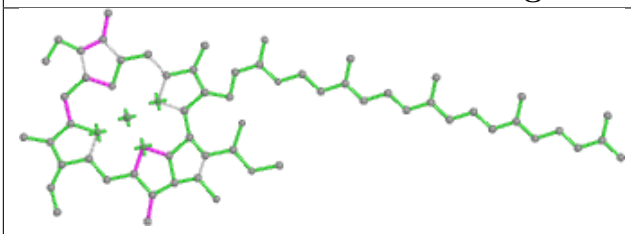


Bond angles

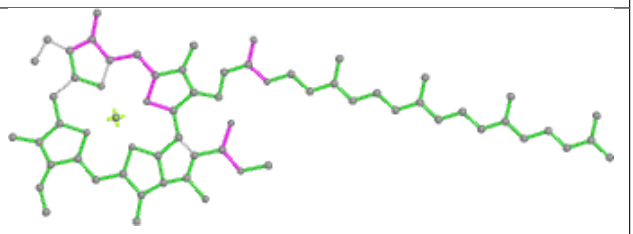
Torsions

Rings

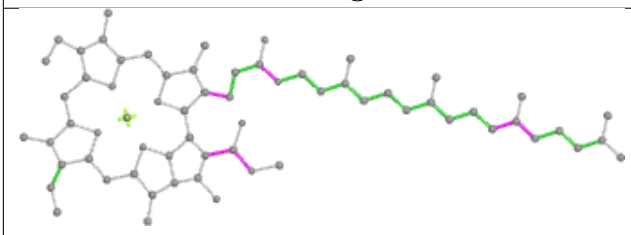
Ligand CLA B 609



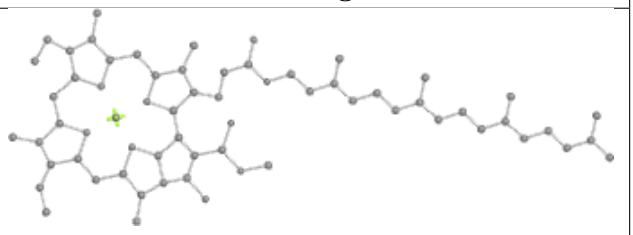
Bond lengths



Bond angles

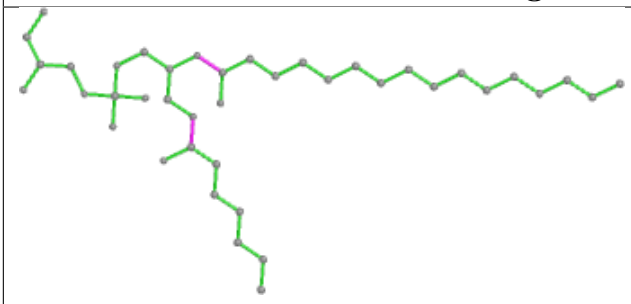


Torsions

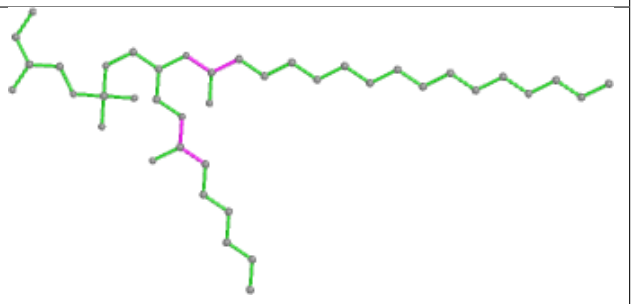


Rings

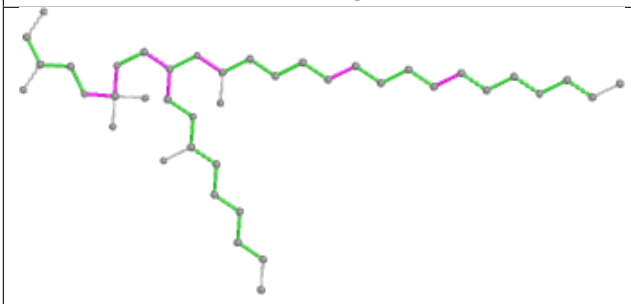
Ligand LHG b 626



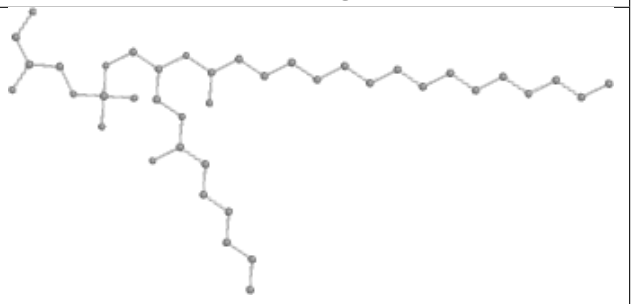
Bond lengths



Bond angles

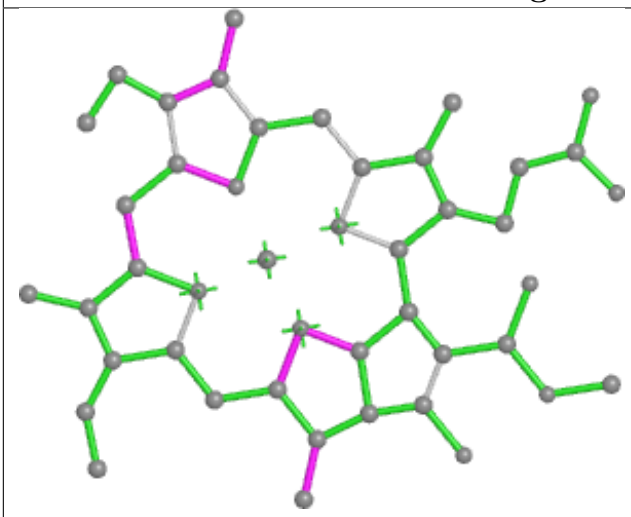


Torsions

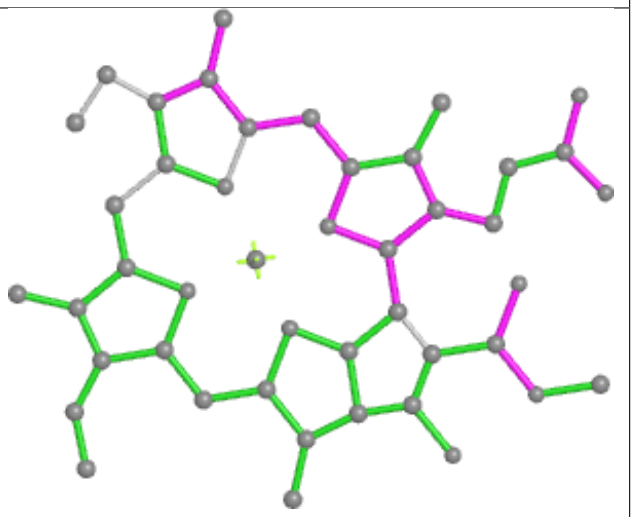


Rings

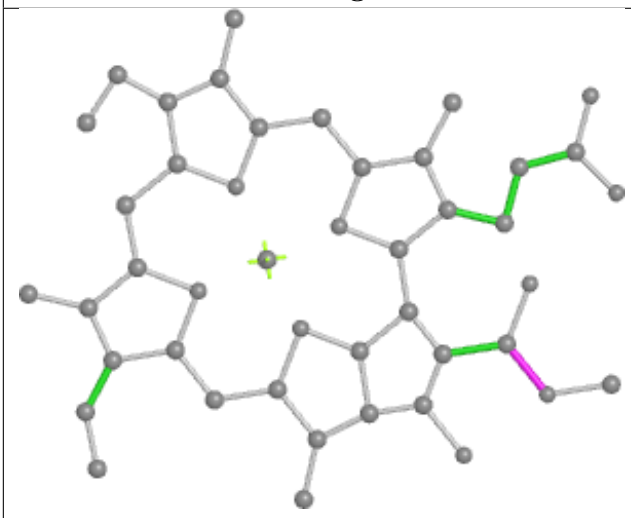
Ligand CLA s 611



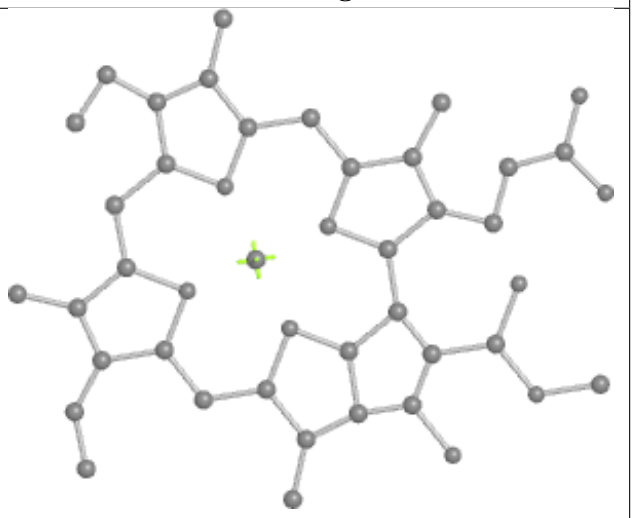
Bond lengths



Bond angles

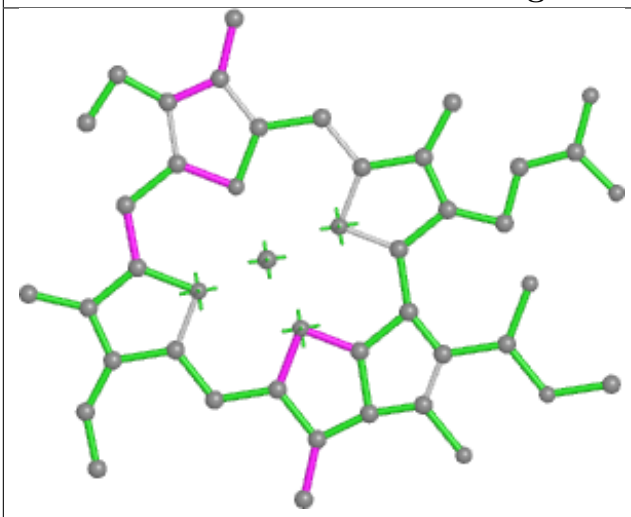


Torsions

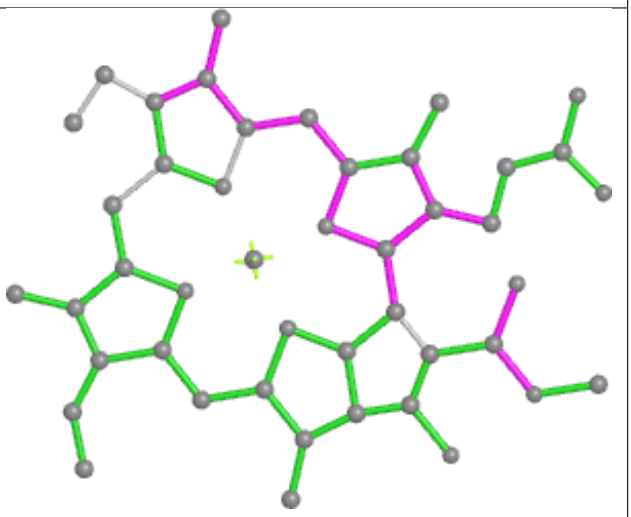


Rings

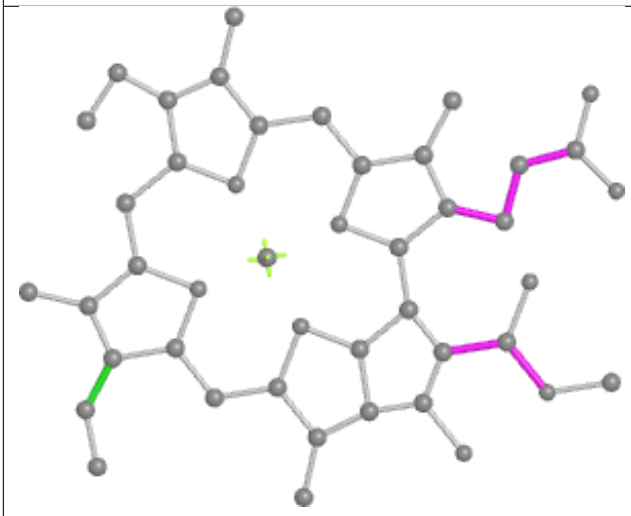
Ligand CLA n 612



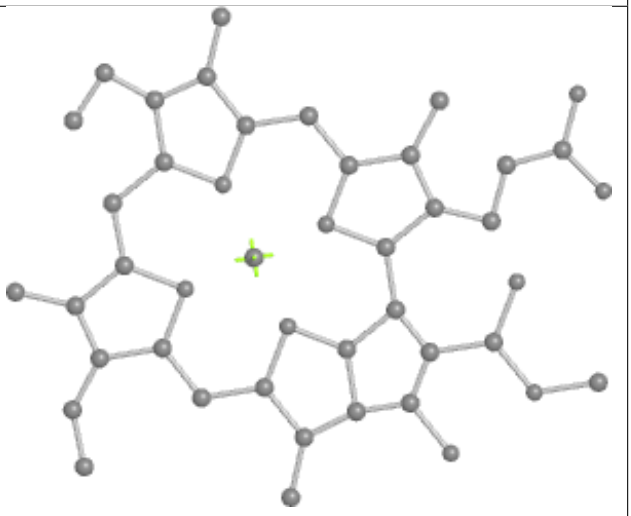
Bond lengths



Bond angles

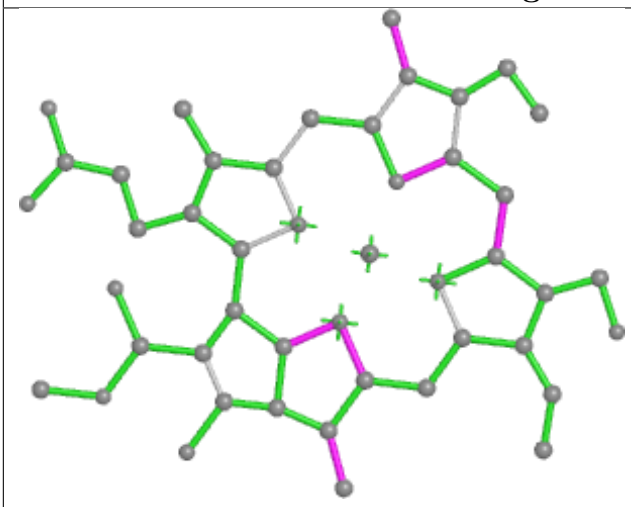


Torsions

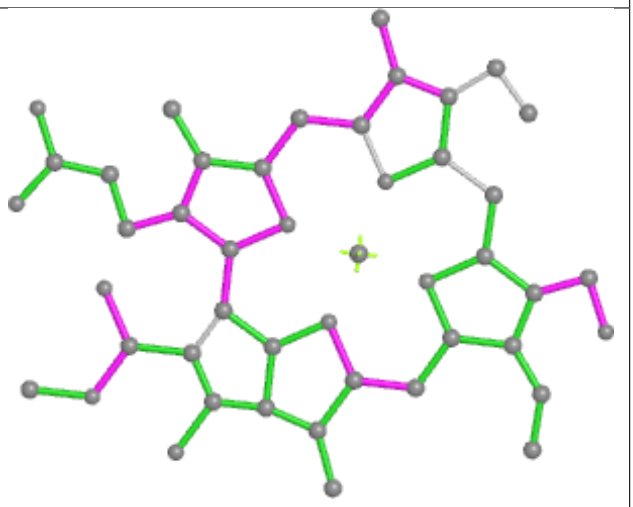


Rings

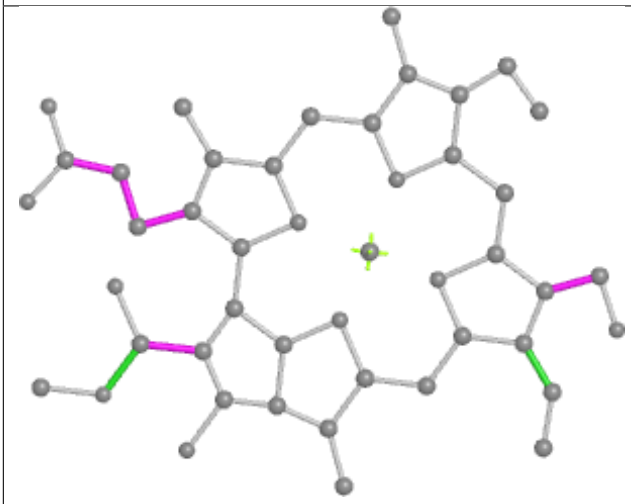
Ligand CHL N 607



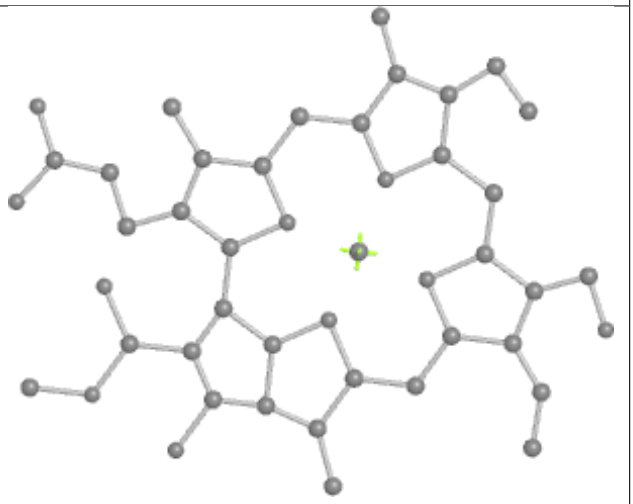
Bond lengths



Bond angles

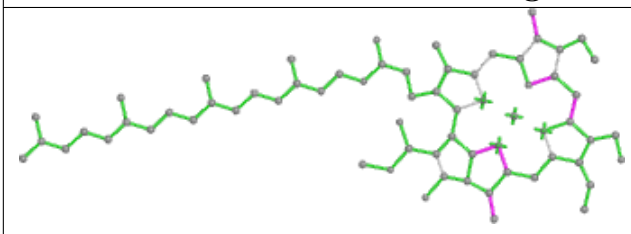


Torsions

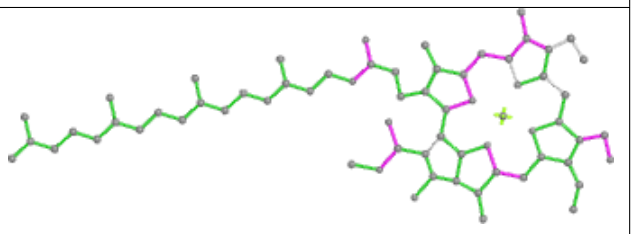


Rings

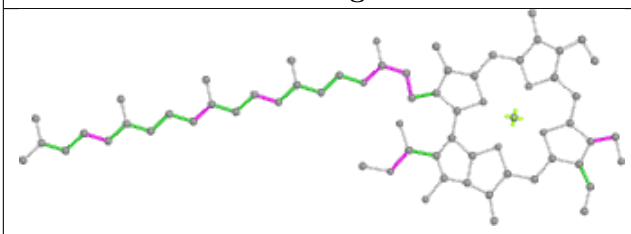
Ligand CHL Y 309



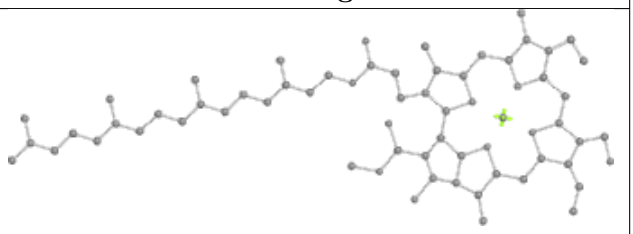
Bond lengths



Bond angles

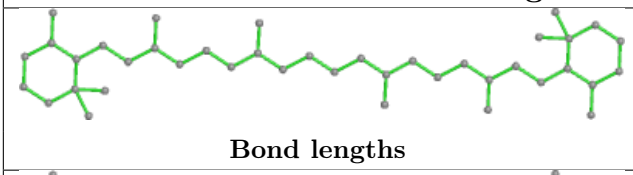


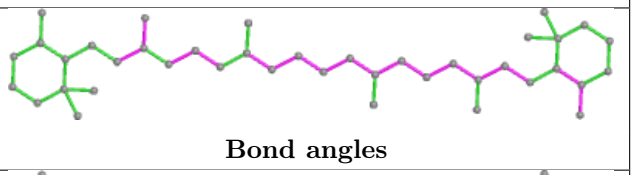
Torsions

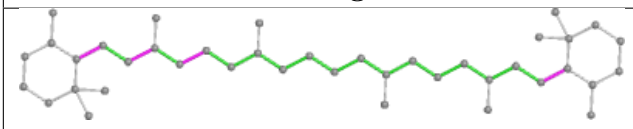


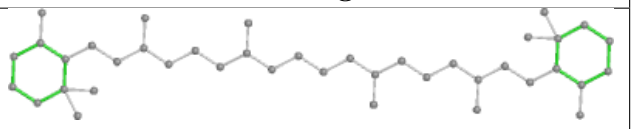
Rings

Ligand BCR h 101

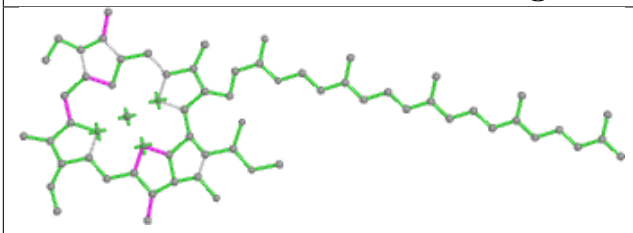

Bond lengths

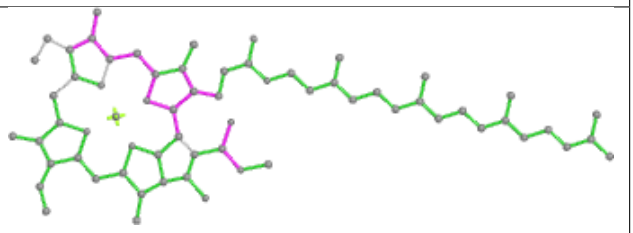

Bond angles

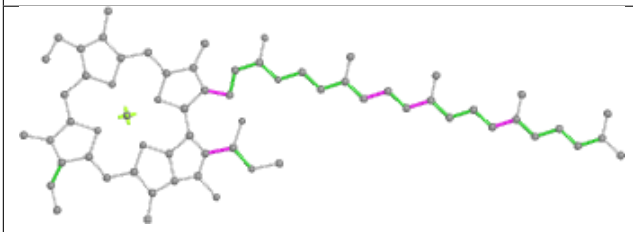

Torsions

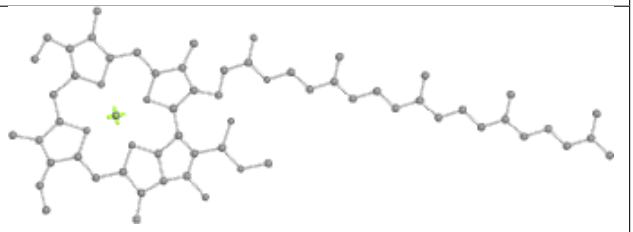

Rings

Ligand CLA c 507

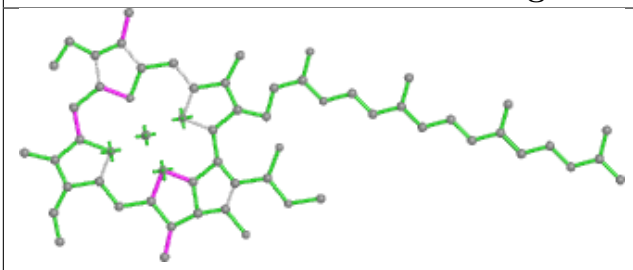

Bond lengths

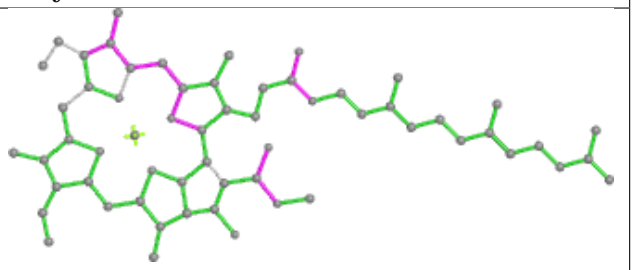

Bond angles

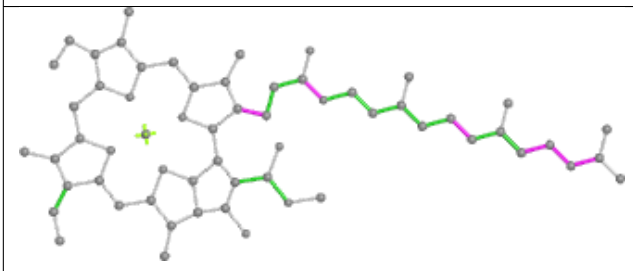

Torsions

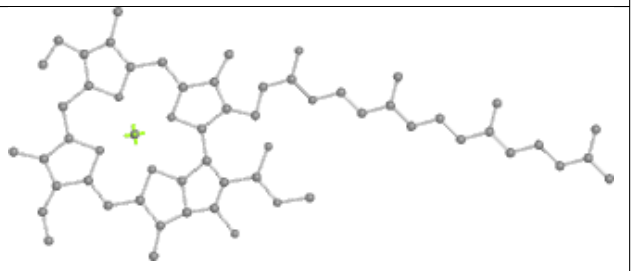

Rings

Ligand CLA y 312

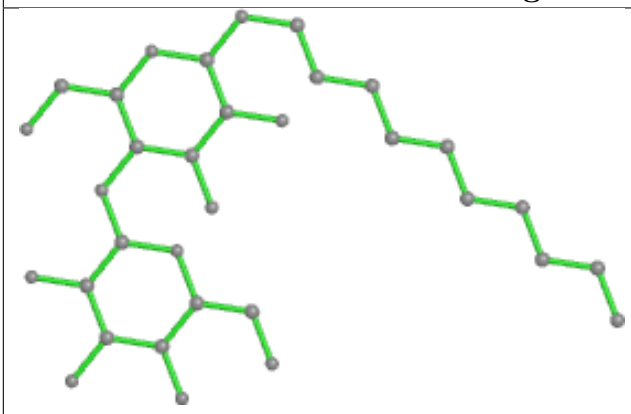

Bond lengths


Bond angles

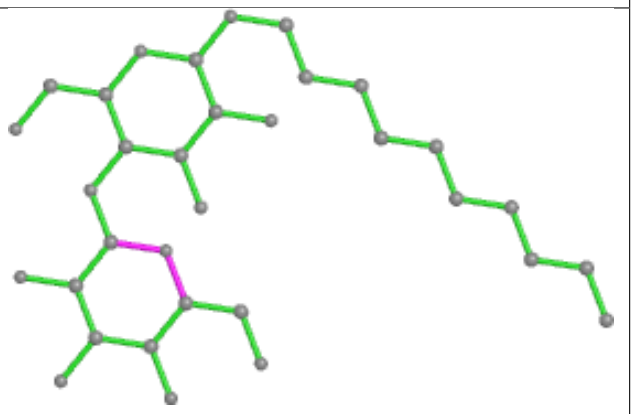

Torsions


Rings

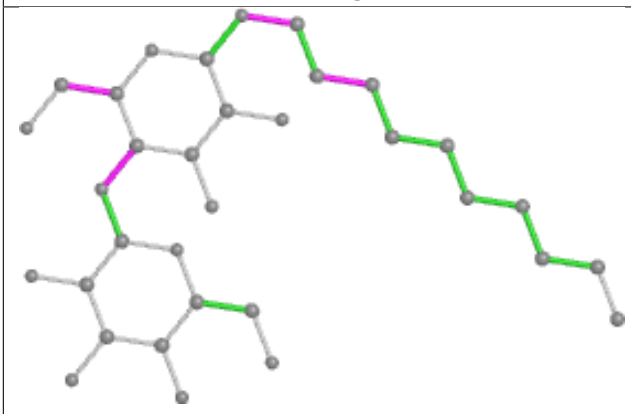
Ligand DMU s 618



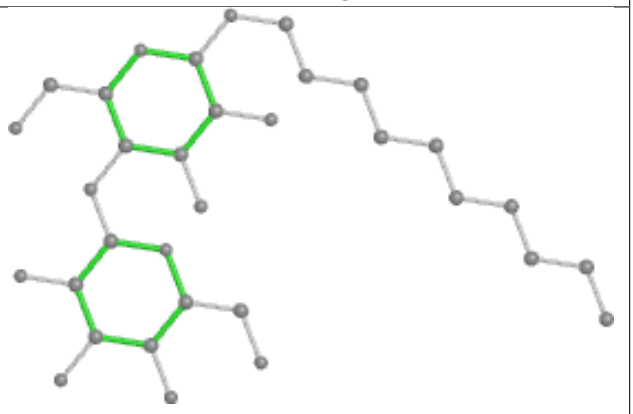
Bond lengths



Bond angles

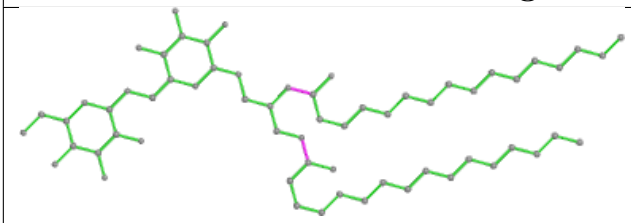


Torsions

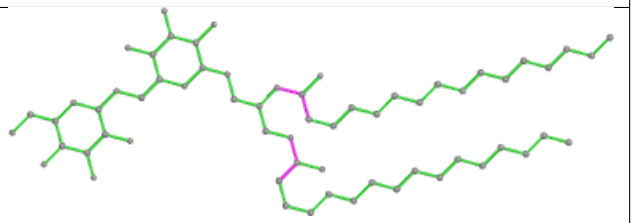


Rings

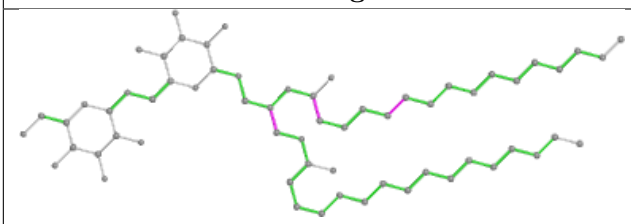
Ligand DGD D 410



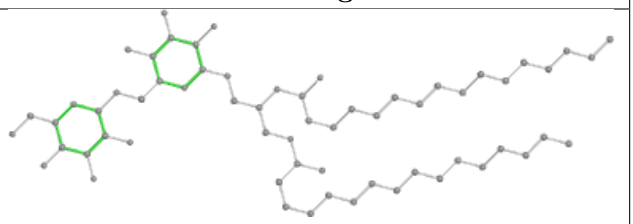
Bond lengths



Bond angles

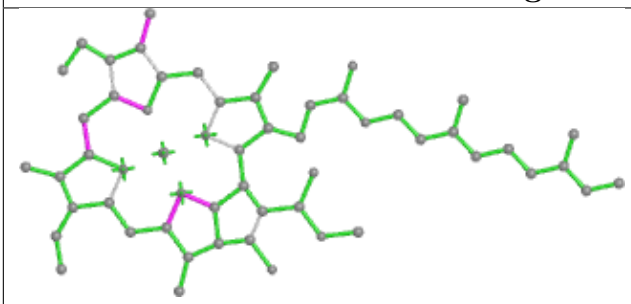


Torsions

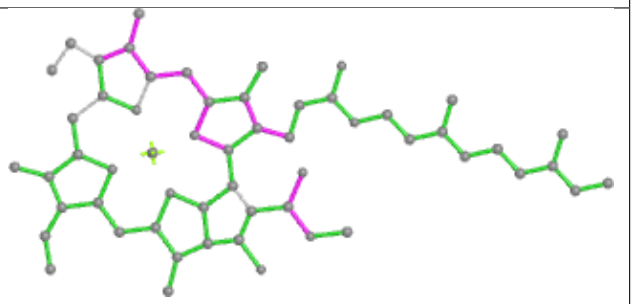


Rings

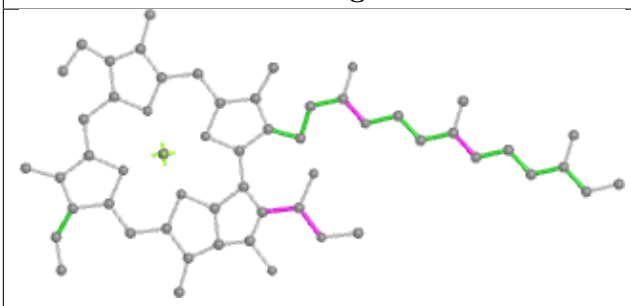
Ligand CLA C 513



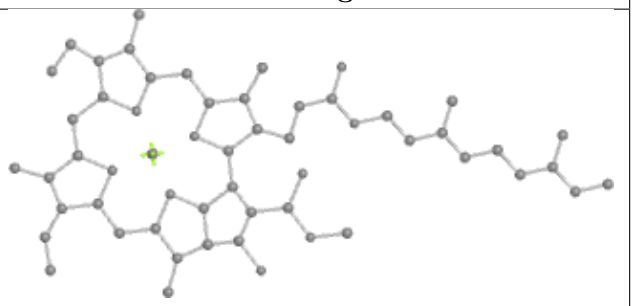
Bond lengths



Bond angles

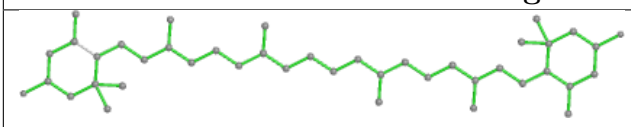


Torsions

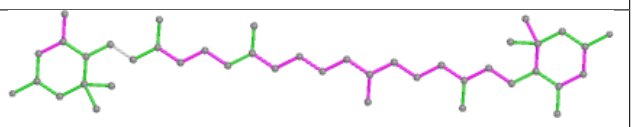


Rings

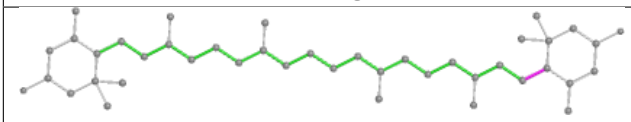
Ligand LUT G 616



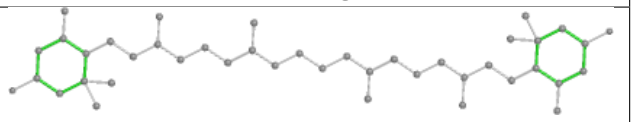
Bond lengths



Bond angles

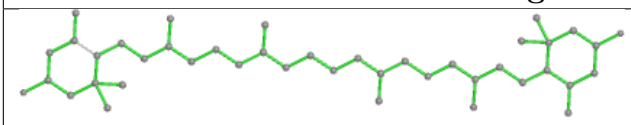


Torsions

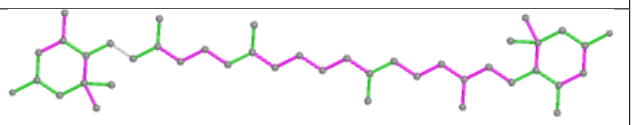


Rings

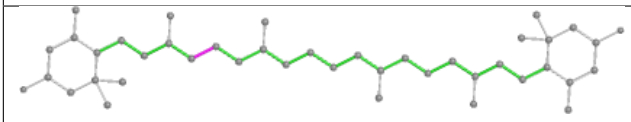
Ligand LUT n 616



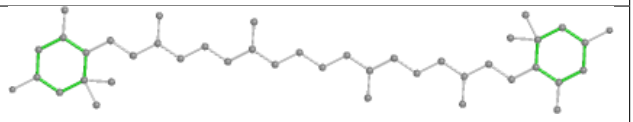
Bond lengths



Bond angles

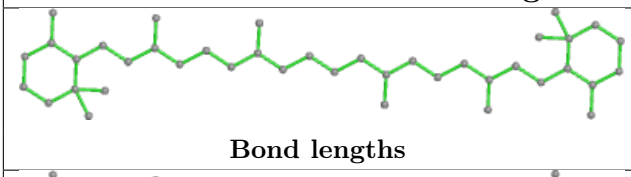


Torsions

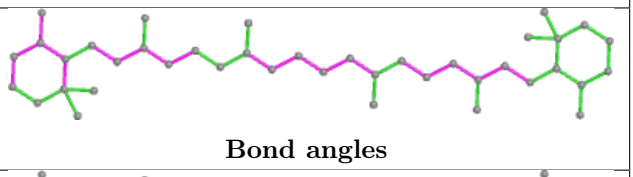


Rings

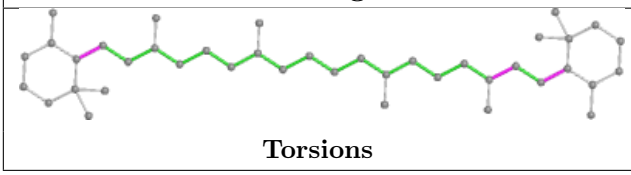
Ligand BCR B 617



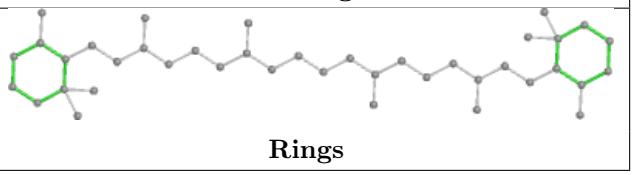
Bond lengths



Bond angles

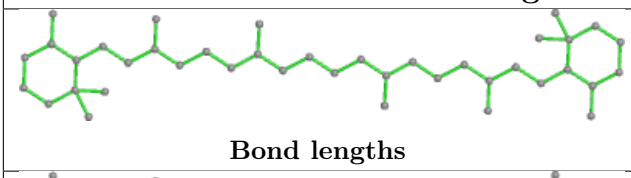


Torsions

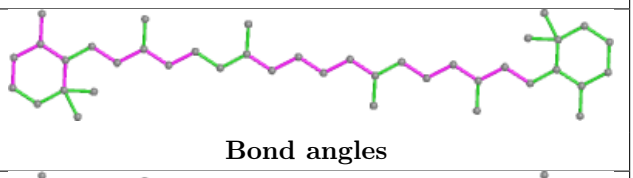


Rings

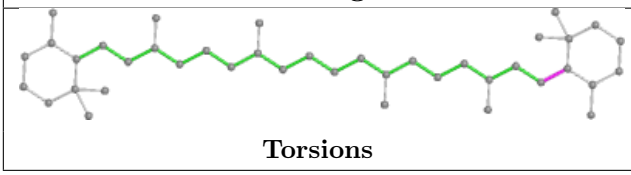
Ligand BCR A 405



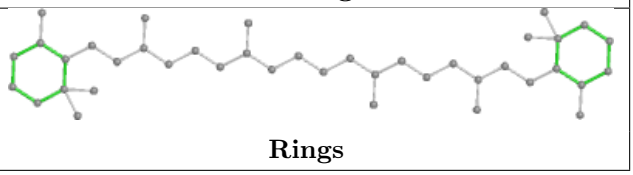
Bond lengths



Bond angles

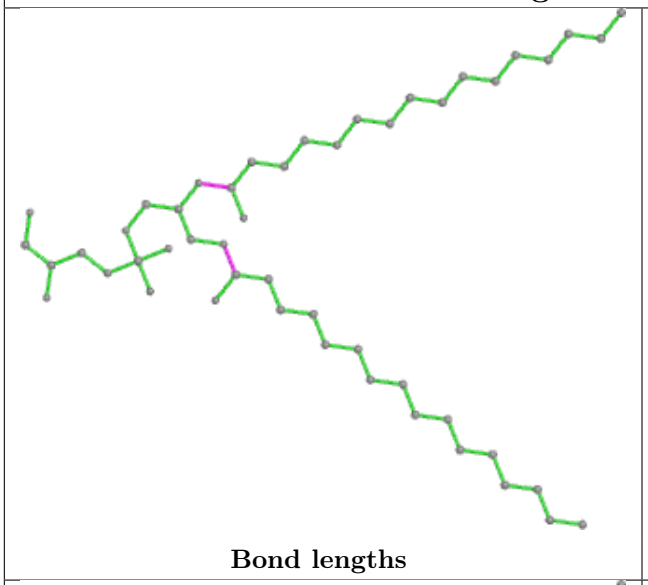


Torsions

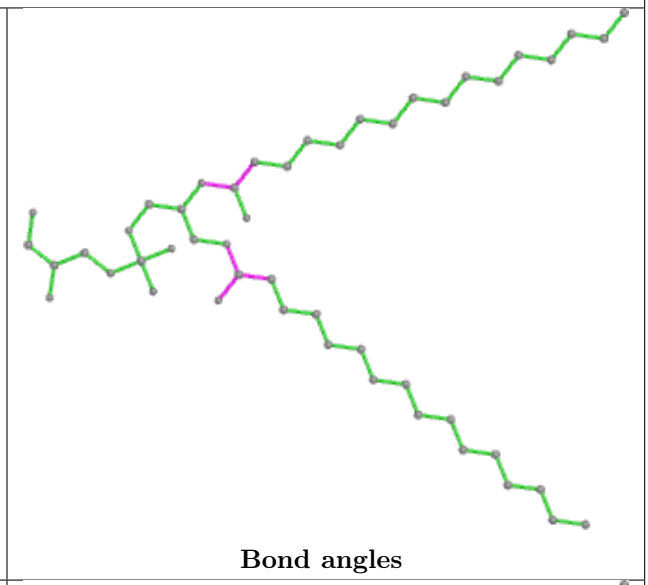


Rings

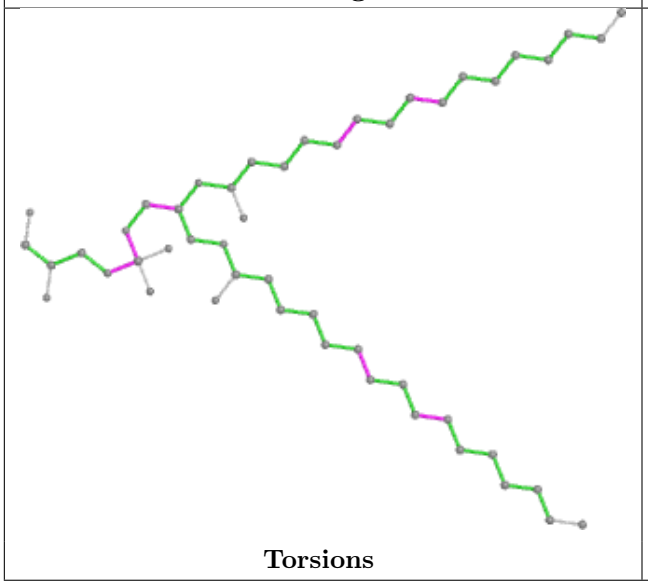
Ligand LHG l 102



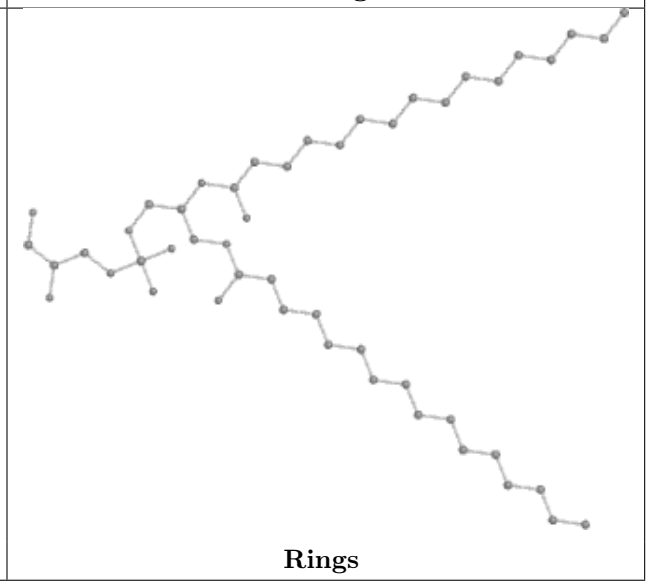
Bond lengths



Bond angles

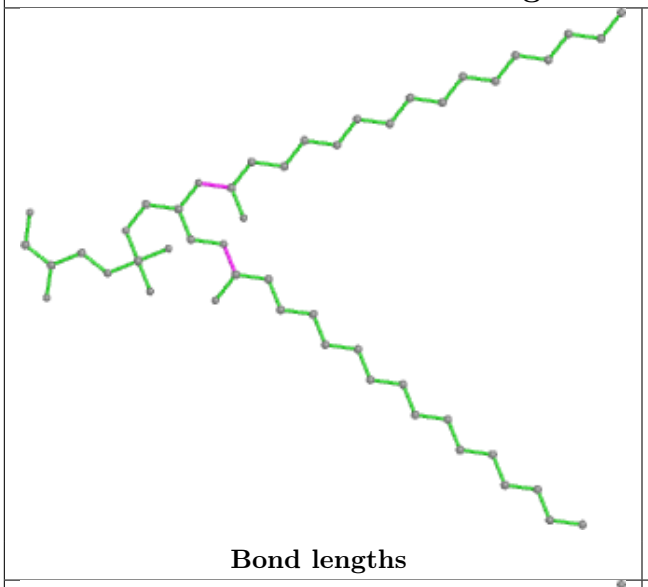


Torsions

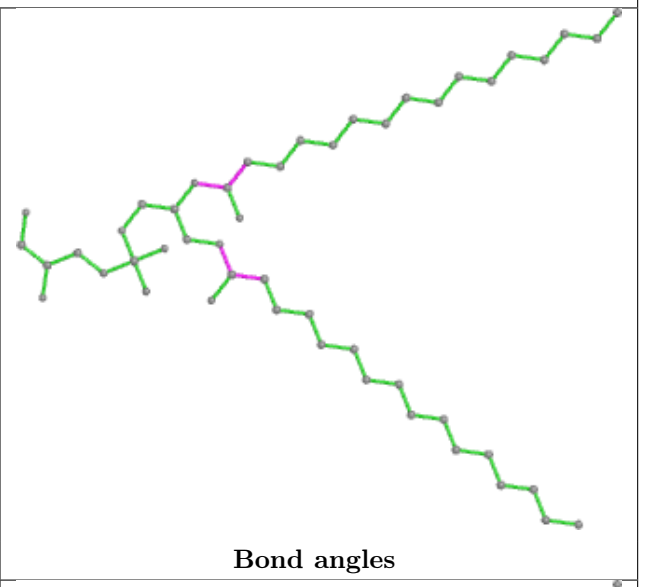


Rings

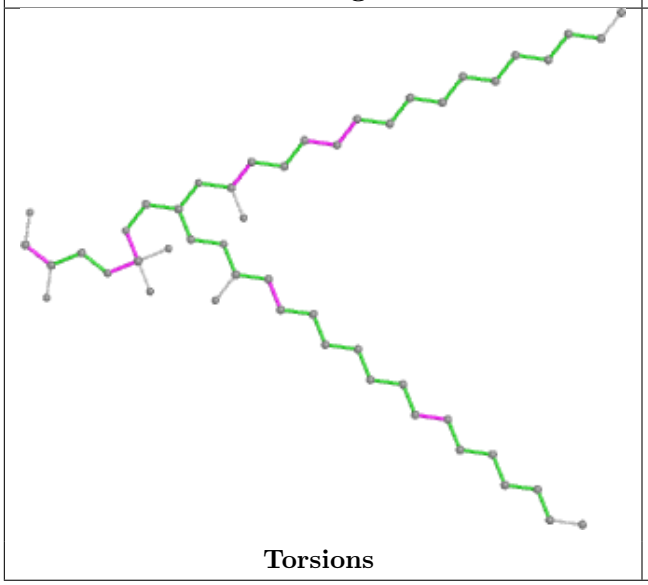
Ligand LHG D 407



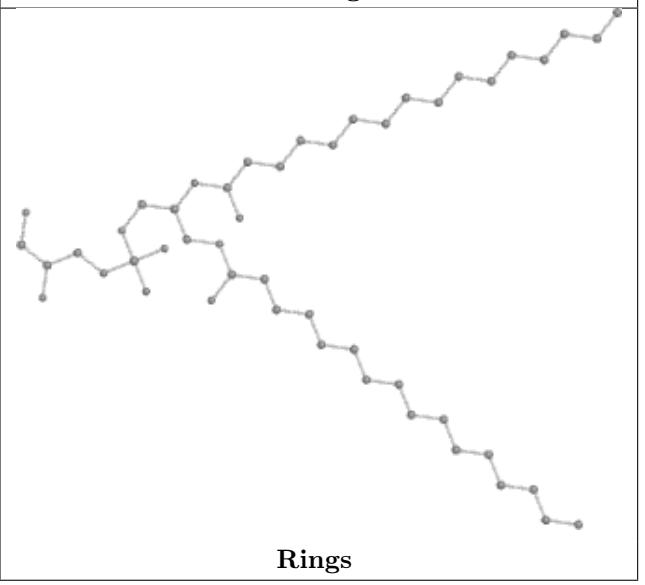
Bond lengths



Bond angles

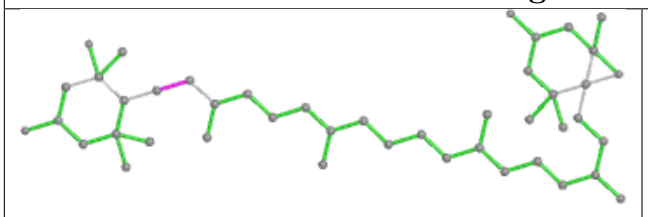


Torsions

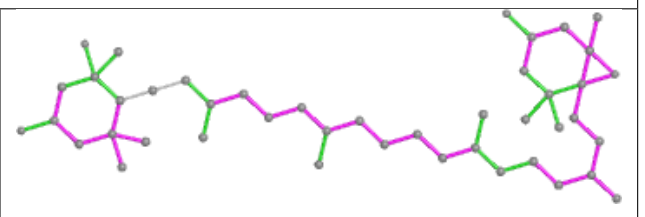


Rings

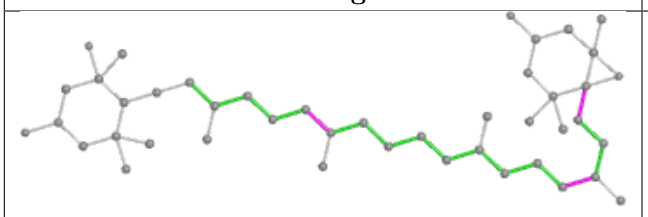
Ligand NEX r 615



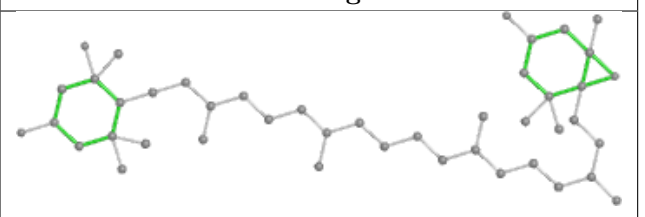
Bond lengths



Bond angles

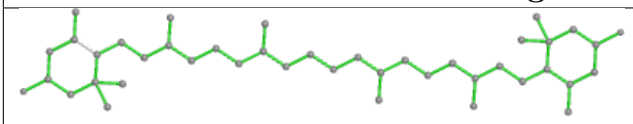


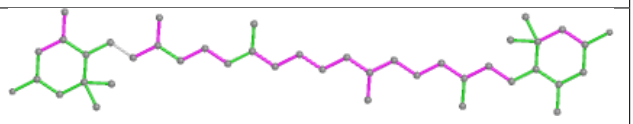
Torsions

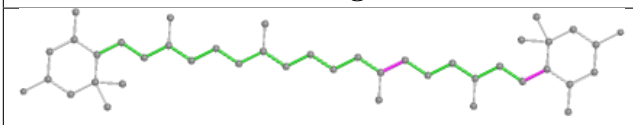


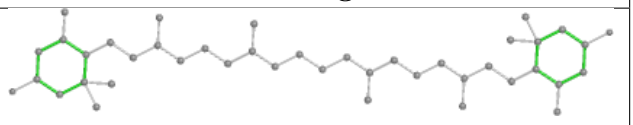
Rings

Ligand LUT n 615

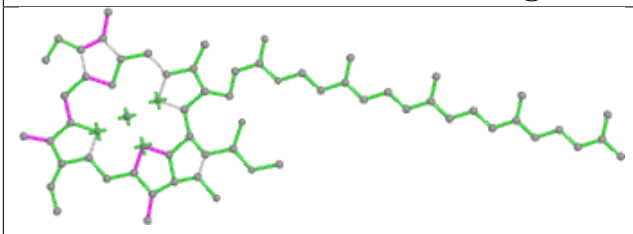

Bond lengths

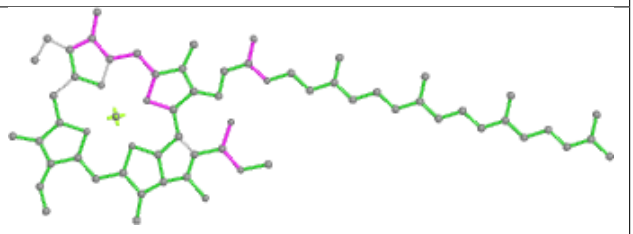

Bond angles

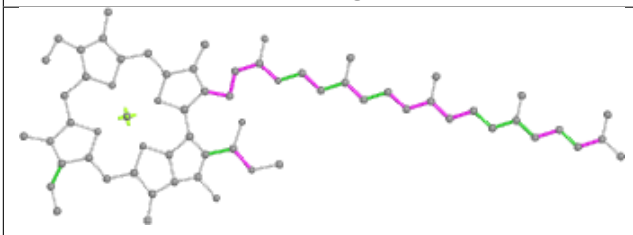

Torsions

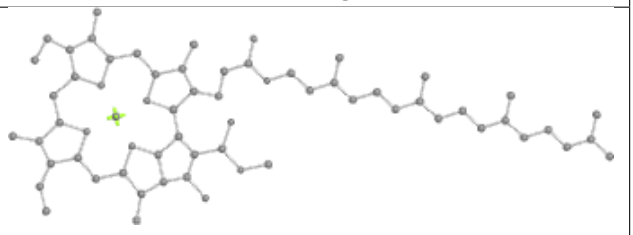

Rings

Ligand CLA G 602

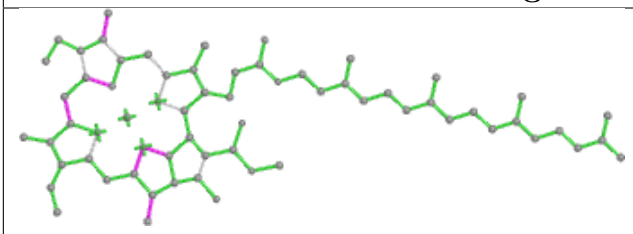

Bond lengths

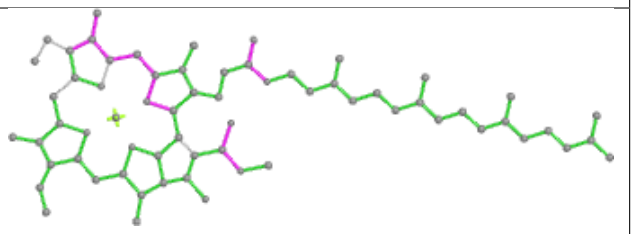

Bond angles

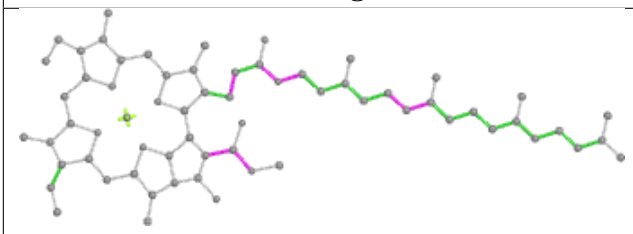

Torsions

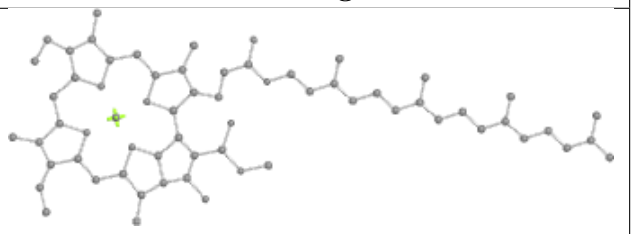

Rings

Ligand CLA Y 314

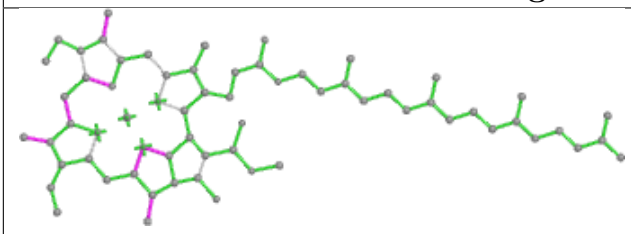

Bond lengths


Bond angles

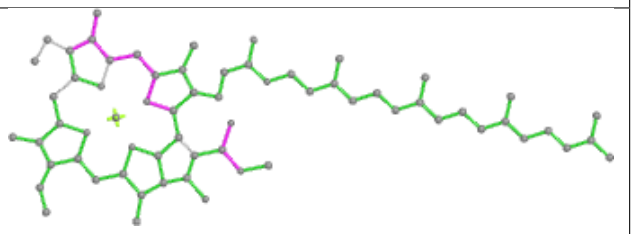

Torsions


Rings

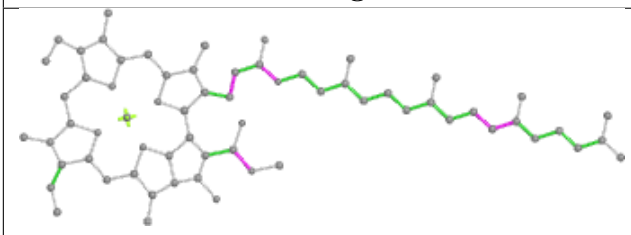
Ligand CLA a 401



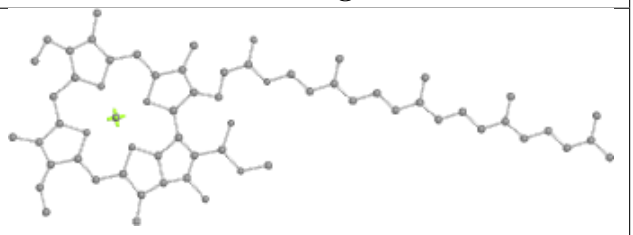
Bond lengths



Bond angles

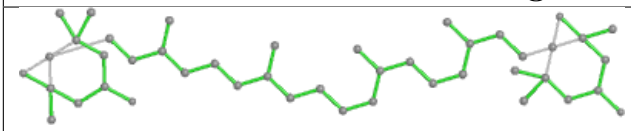


Torsions

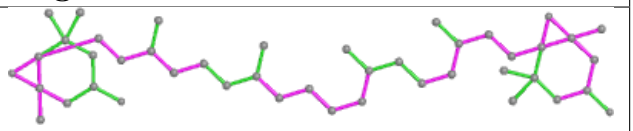


Rings

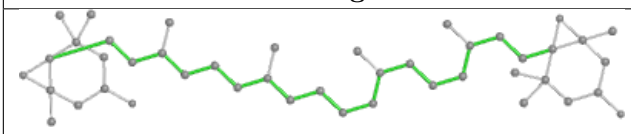
Ligand XAT g 620



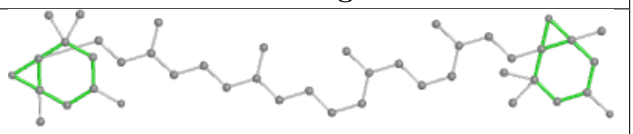
Bond lengths



Bond angles

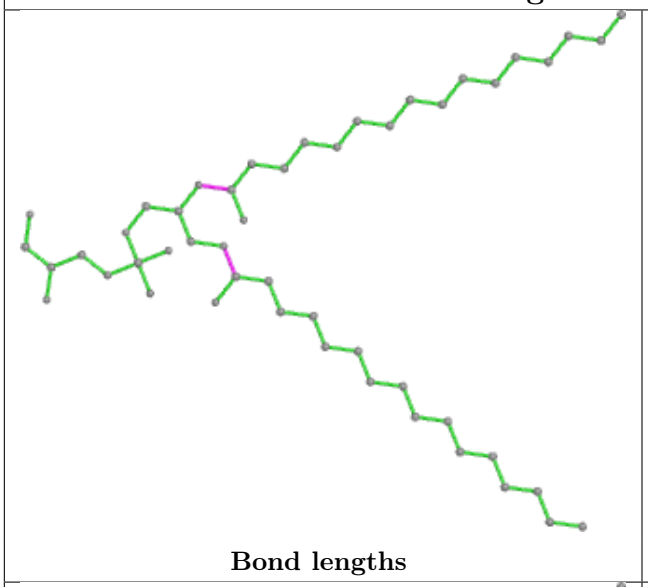


Torsions

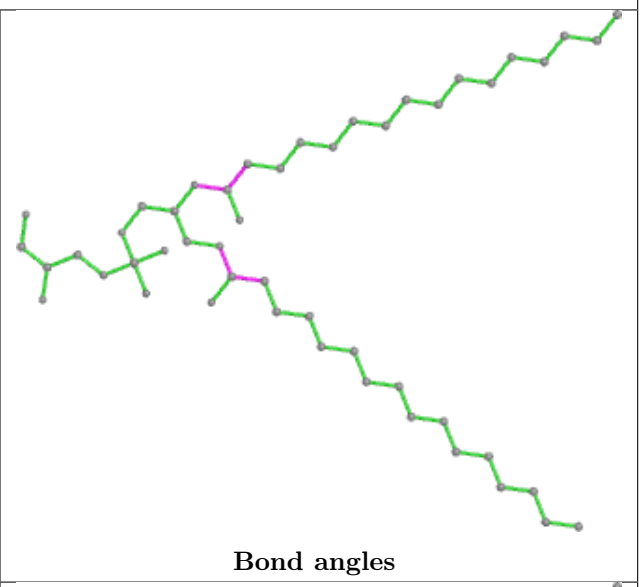


Rings

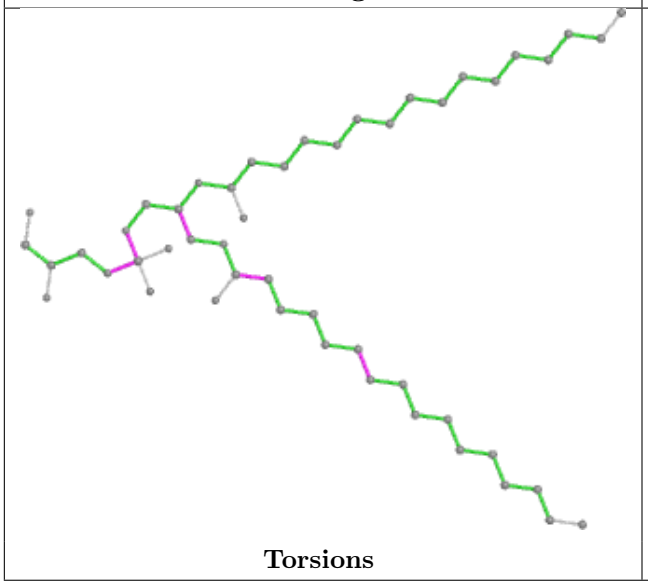
Ligand LHG S 318



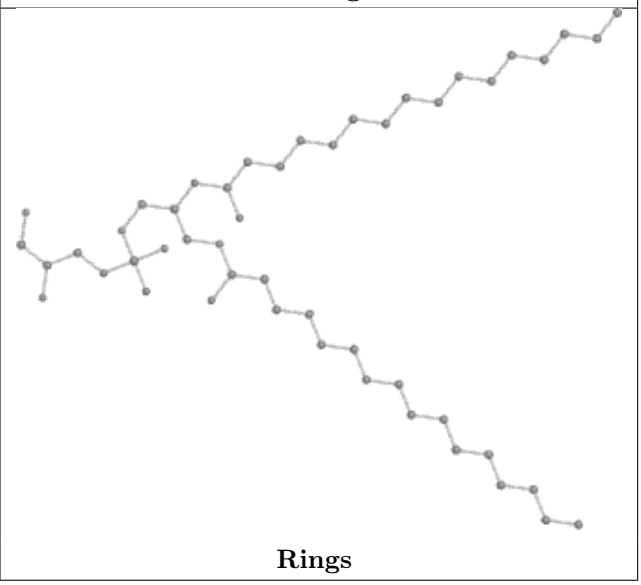
Bond lengths



Bond angles

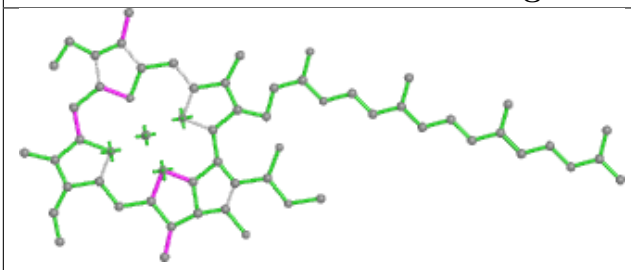


Torsions

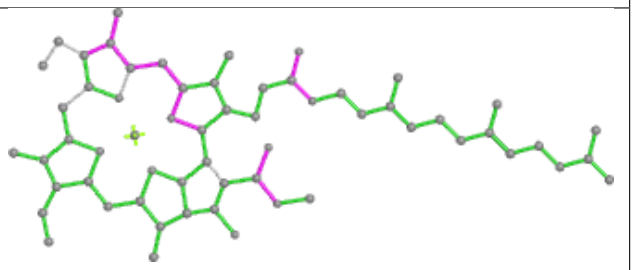


Rings

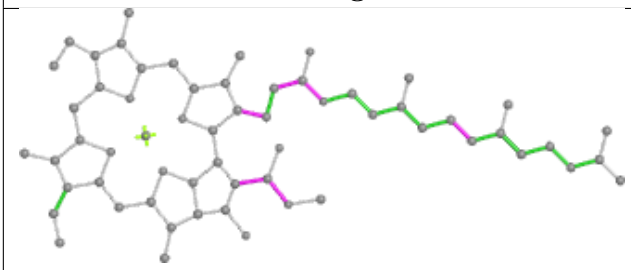
Ligand CLA A 404



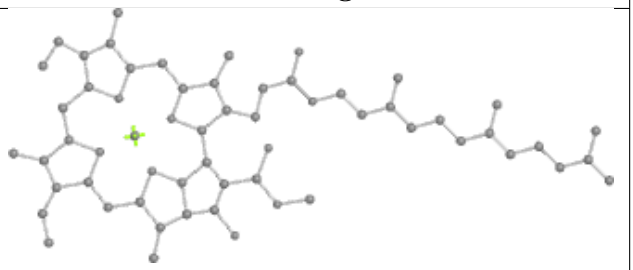
Bond lengths



Bond angles

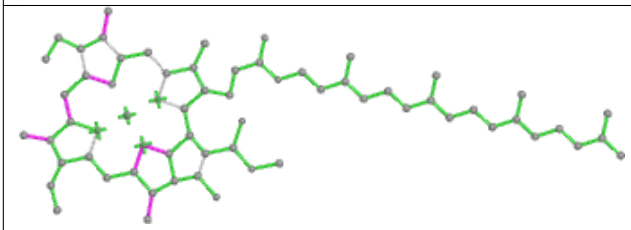


Torsions

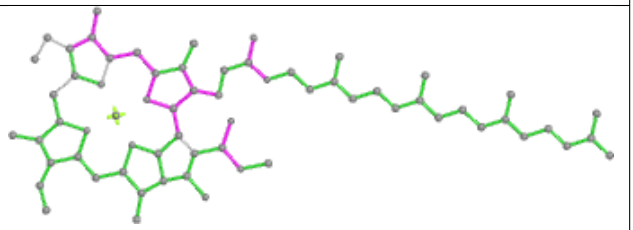


Rings

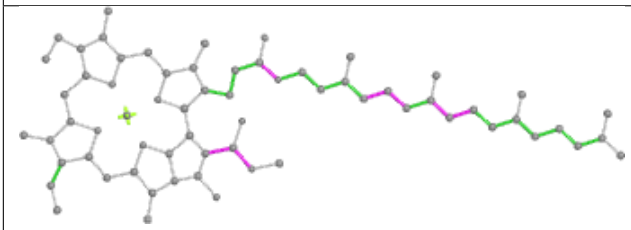
Ligand CLA B 616



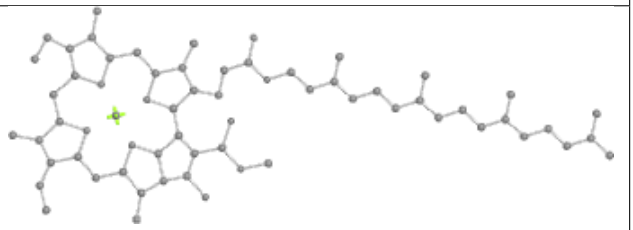
Bond lengths



Bond angles

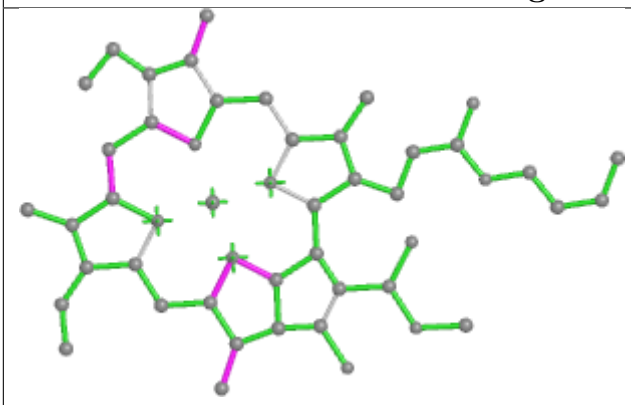


Torsions

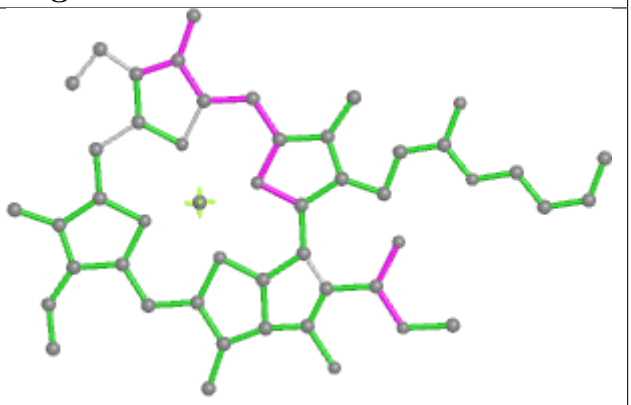


Rings

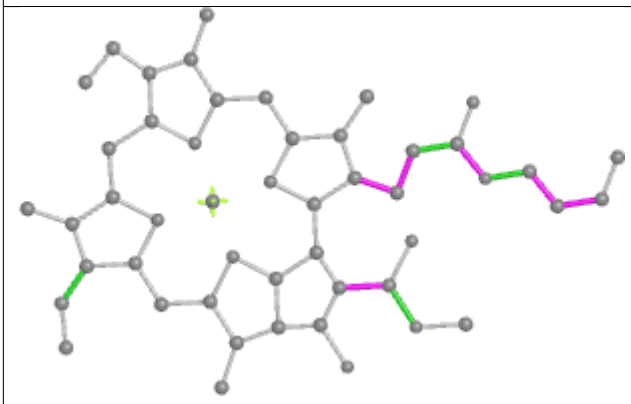
Ligand CLA g 604



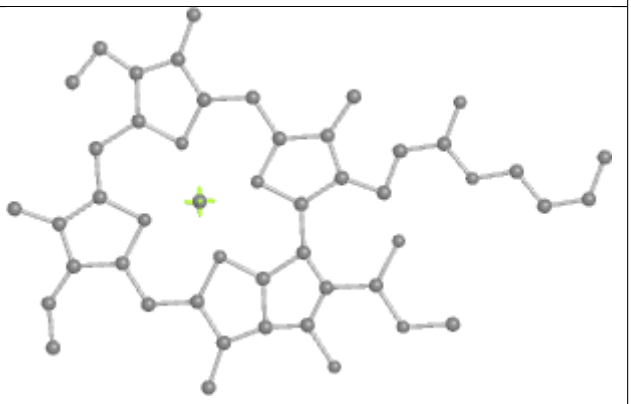
Bond lengths



Bond angles

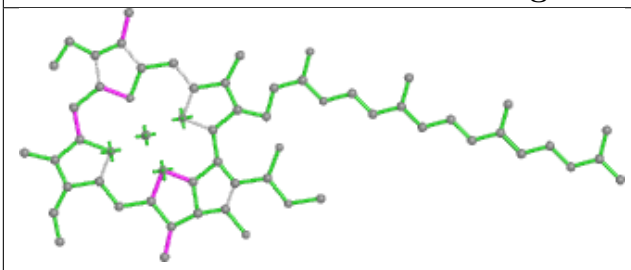


Torsions

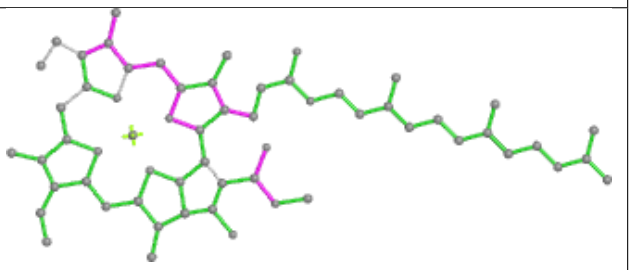


Rings

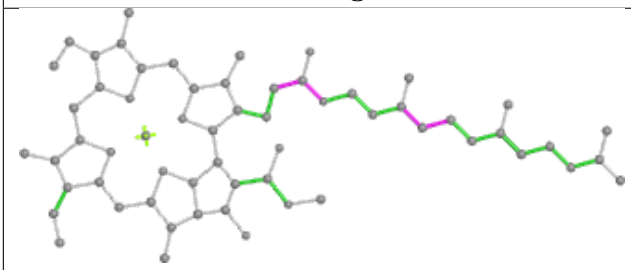
Ligand CLA r 603



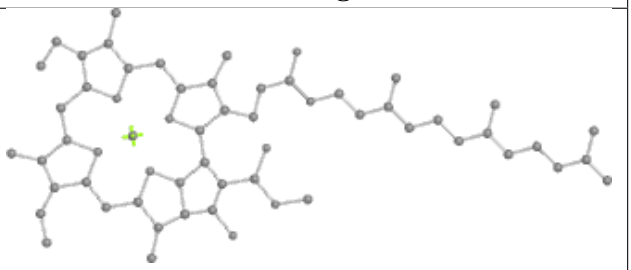
Bond lengths



Bond angles

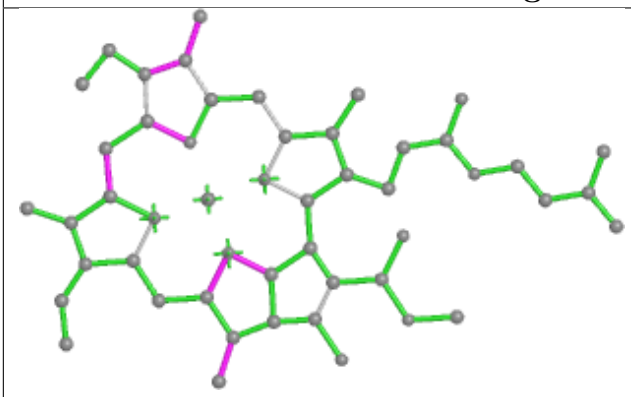


Torsions

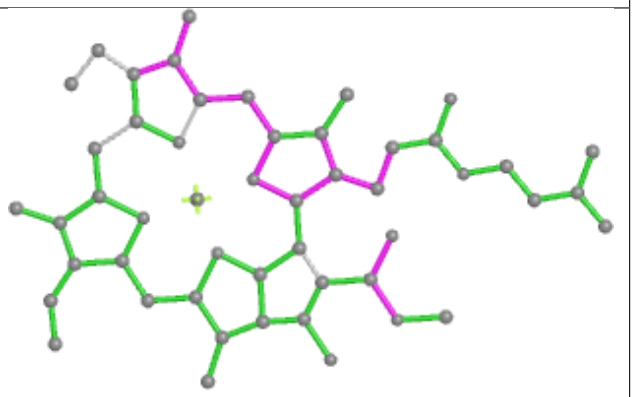


Rings

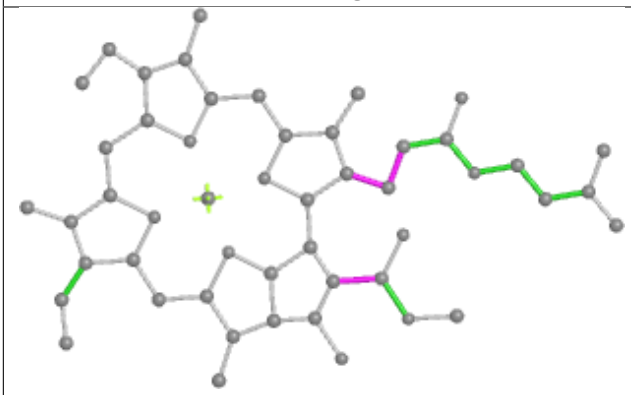
Ligand CLA A 402



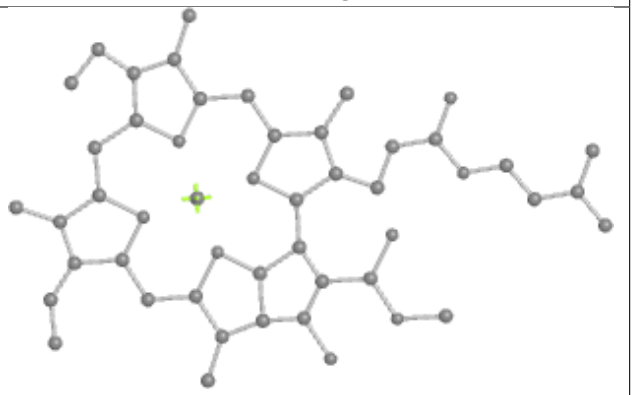
Bond lengths



Bond angles

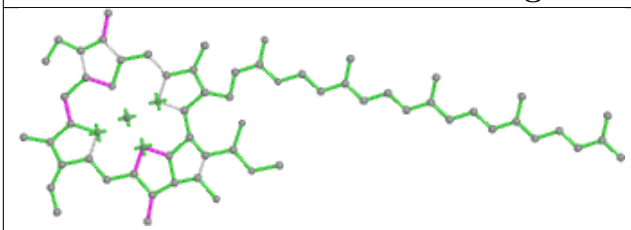


Torsions

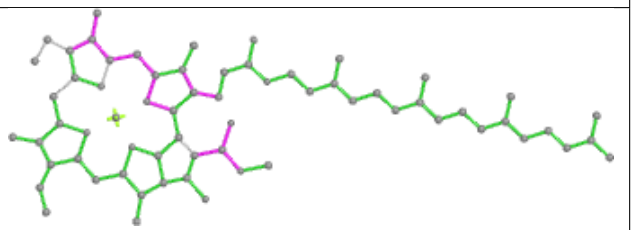


Rings

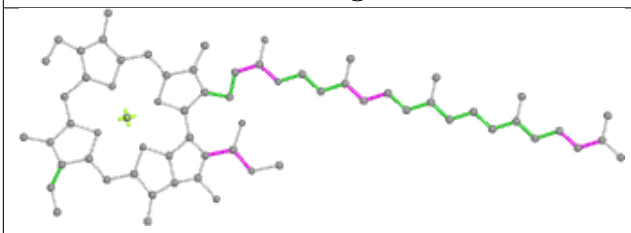
Ligand CLA C 511



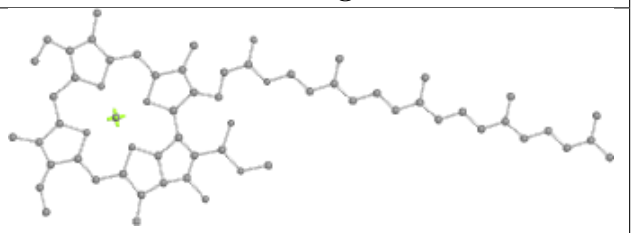
Bond lengths



Bond angles

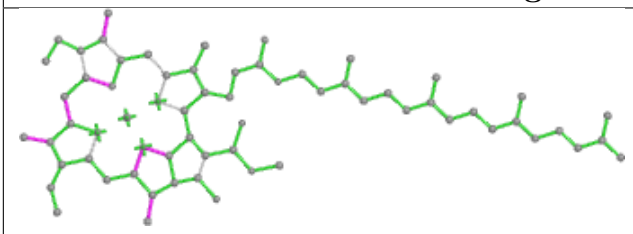


Torsions

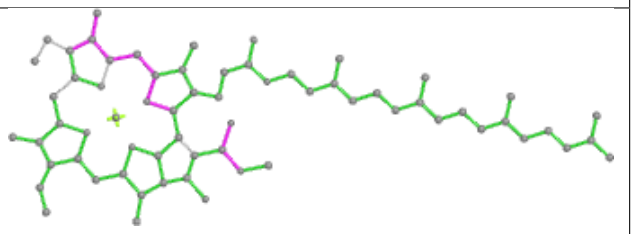


Rings

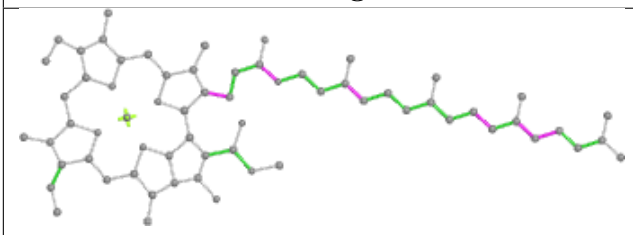
Ligand CLA B 611



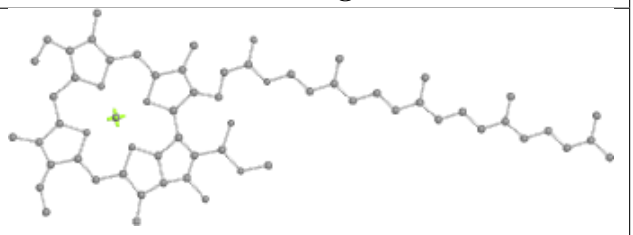
Bond lengths



Bond angles

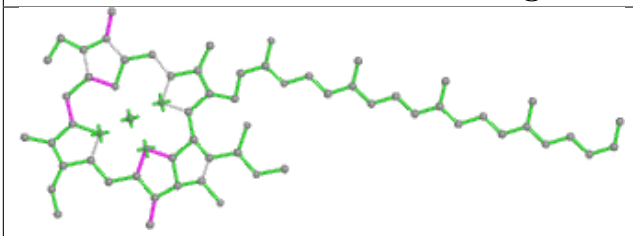


Torsions

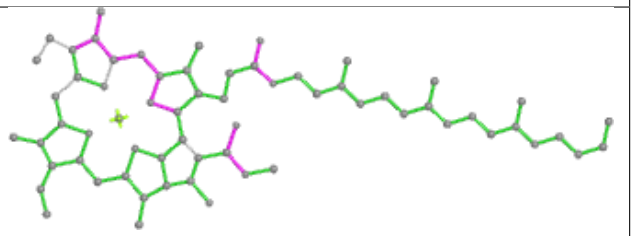


Rings

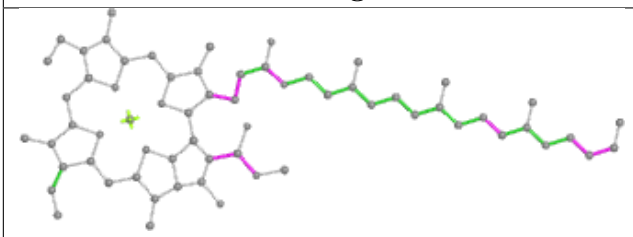
Ligand CLA G 610



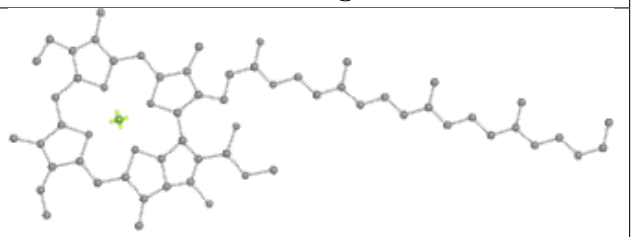
Bond lengths



Bond angles

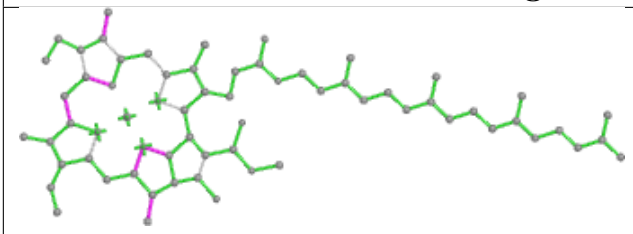


Torsions

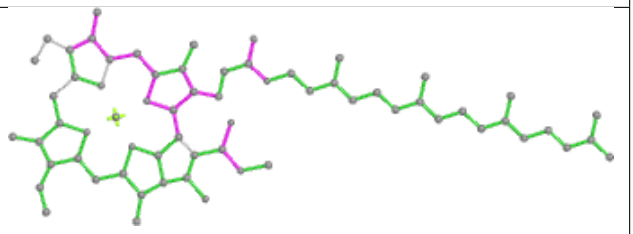


Rings

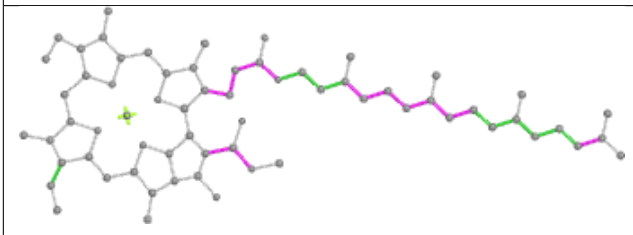
Ligand CLA B 614



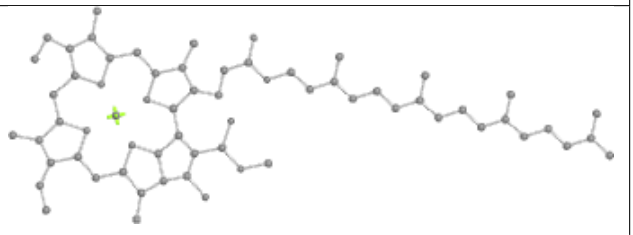
Bond lengths



Bond angles

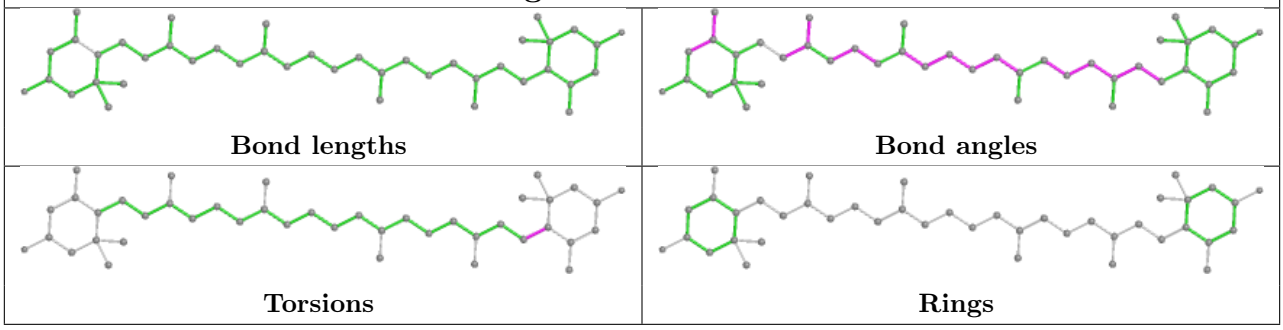


Torsions



Rings

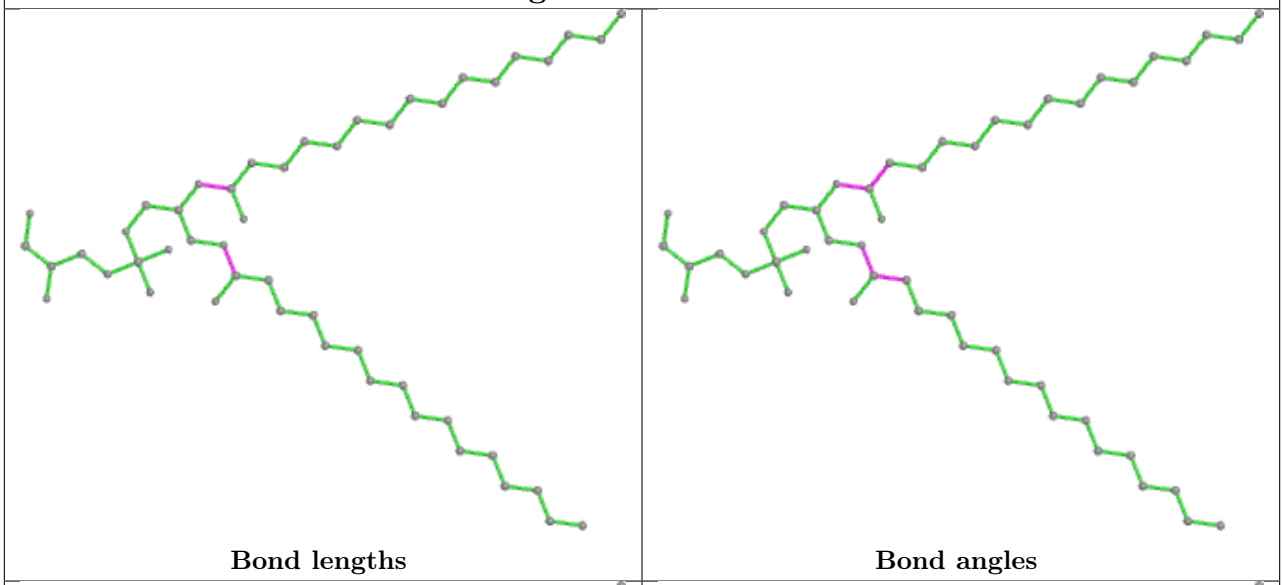
Ligand LUT N 615



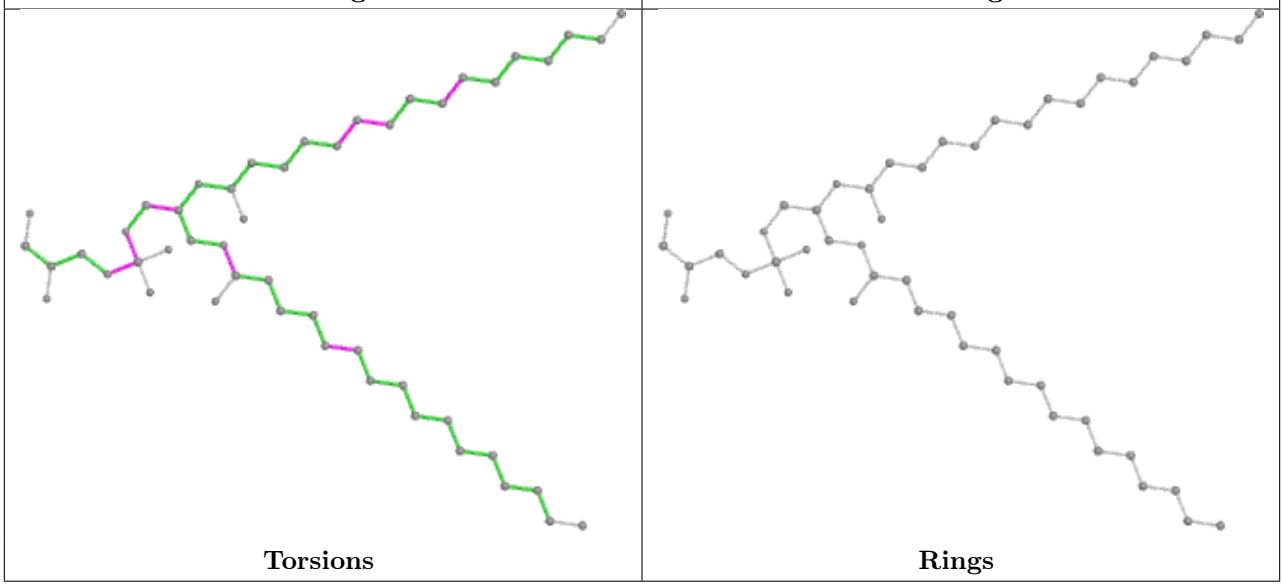
Bond lengths | Bond angles

Torsions | Rings

Ligand LHG c 517

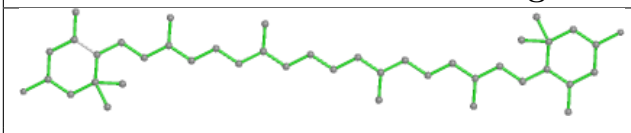


Bond lengths | Bond angles

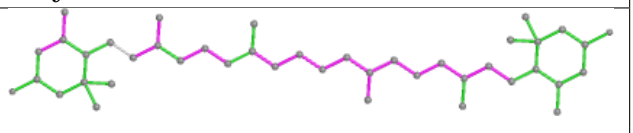


Torsions | Rings

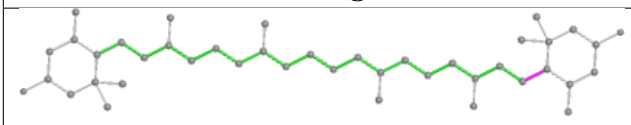
Ligand LUT y 316



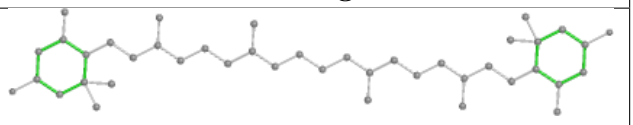
Bond lengths



Bond angles

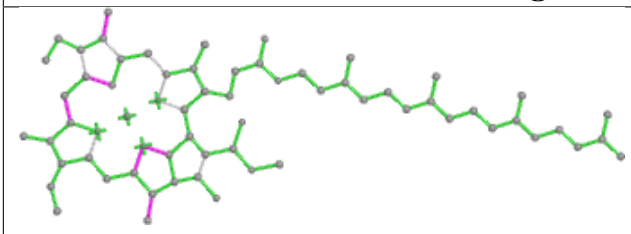


Torsions

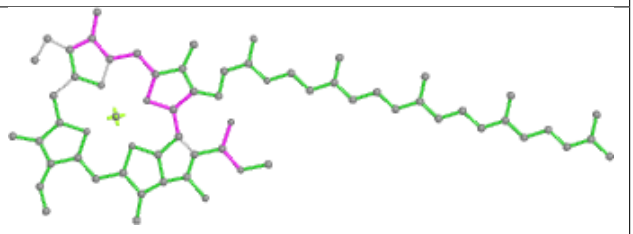


Rings

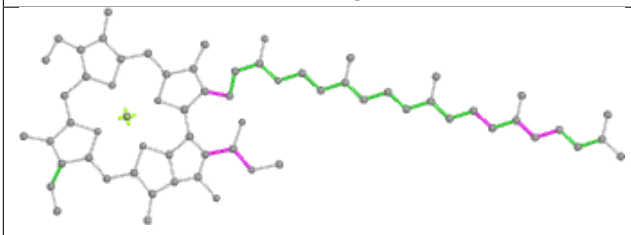
Ligand CLA c 509



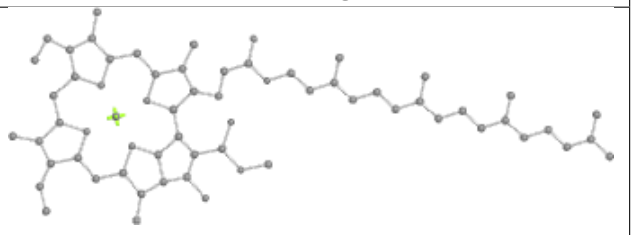
Bond lengths



Bond angles

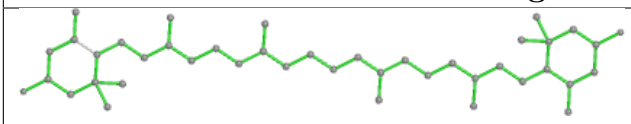


Torsions

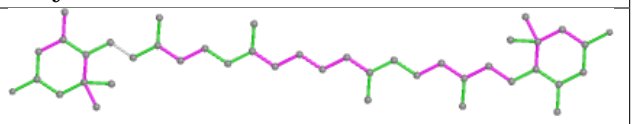


Rings

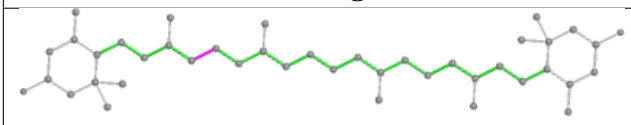
Ligand LUT y 317



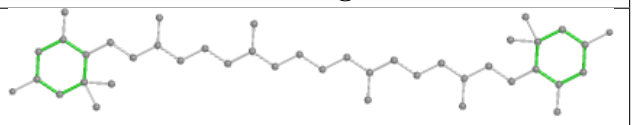
Bond lengths



Bond angles

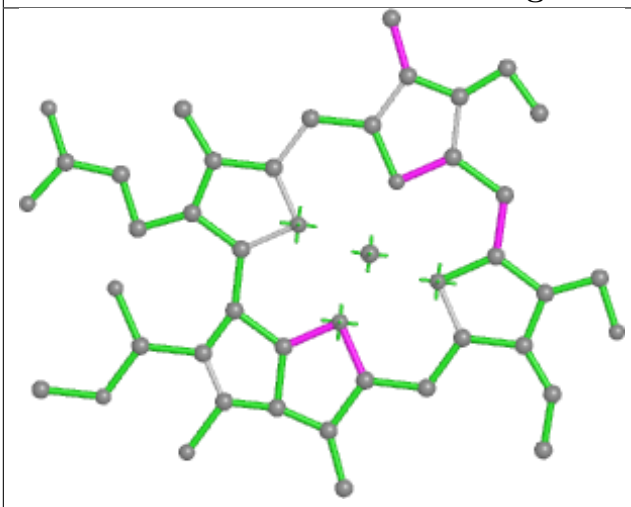


Torsions

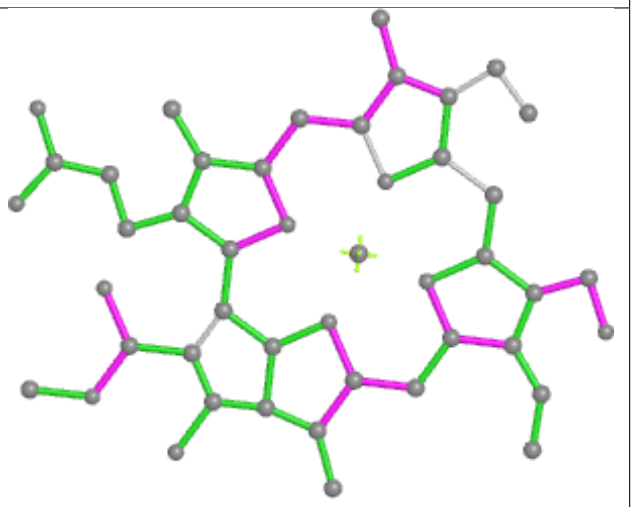


Rings

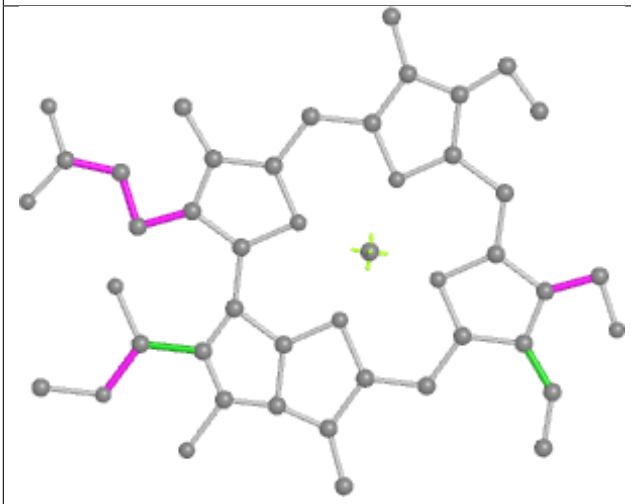
Ligand CHL S 306



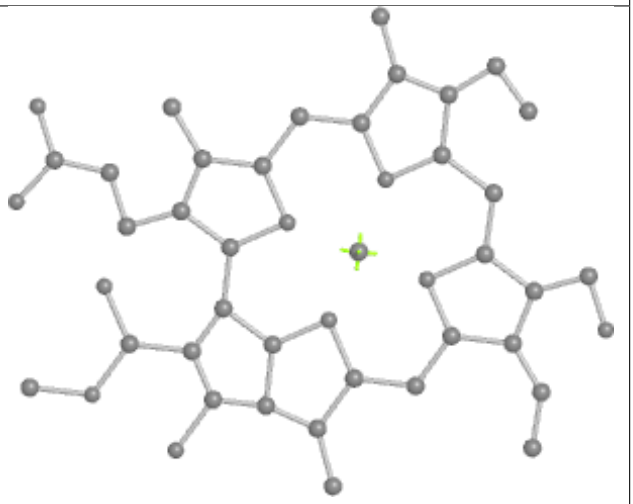
Bond lengths



Bond angles

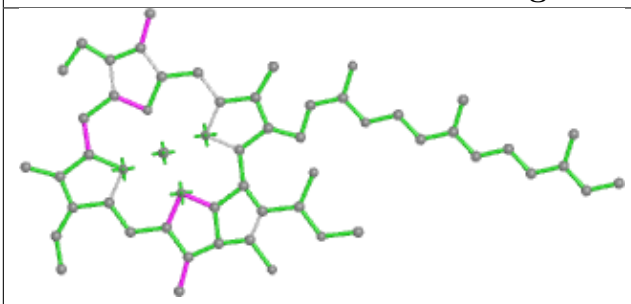


Torsions

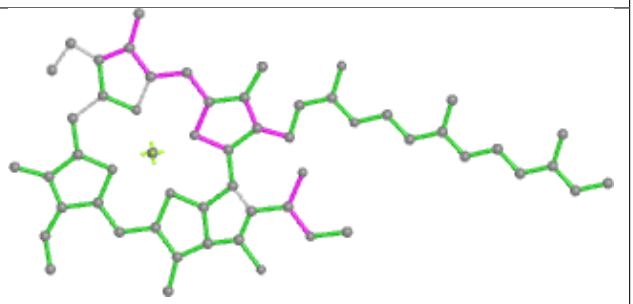


Rings

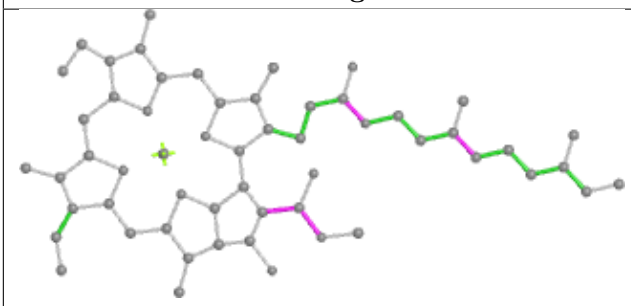
Ligand CLA c 512



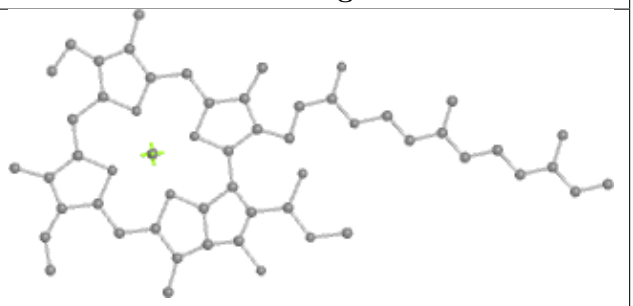
Bond lengths



Bond angles

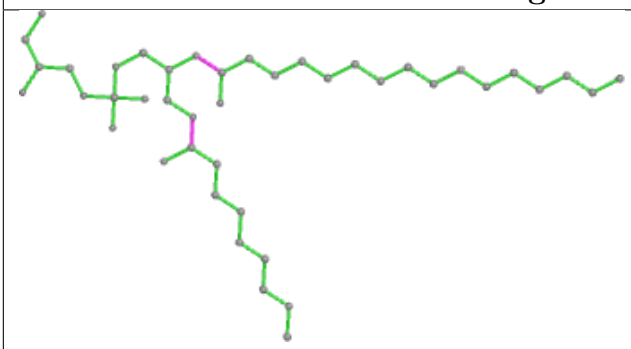


Torsions

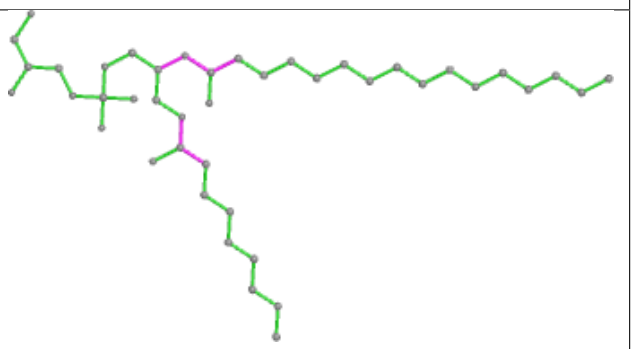


Rings

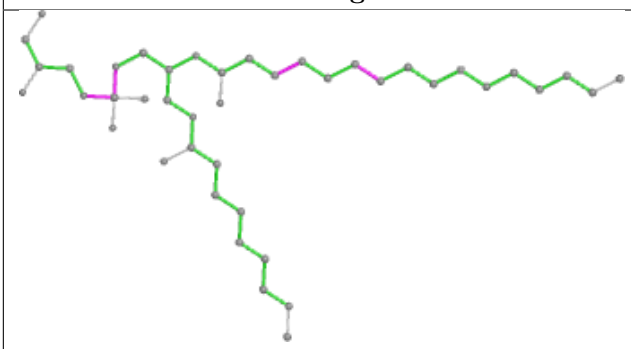
Ligand LHG r 616



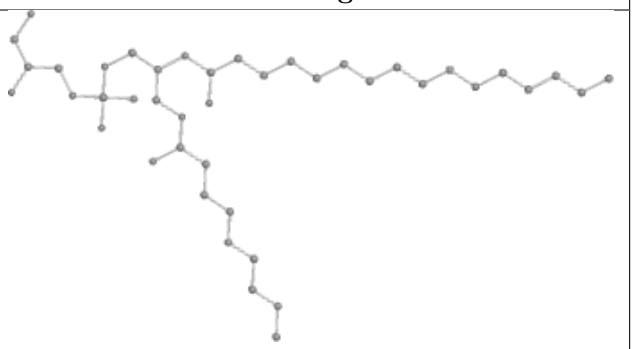
Bond lengths



Bond angles

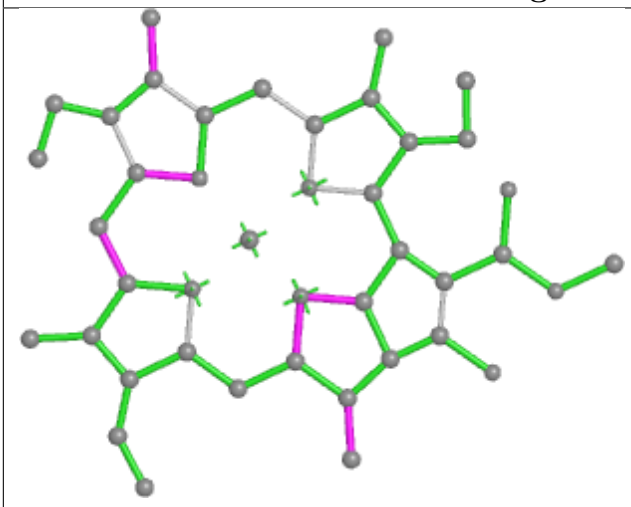


Torsions

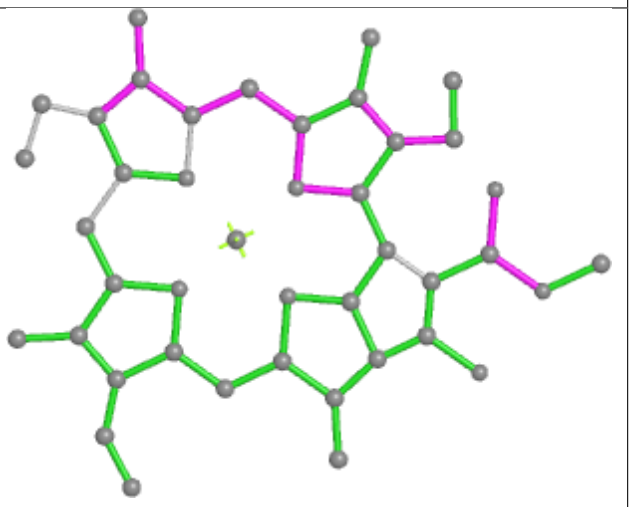


Rings

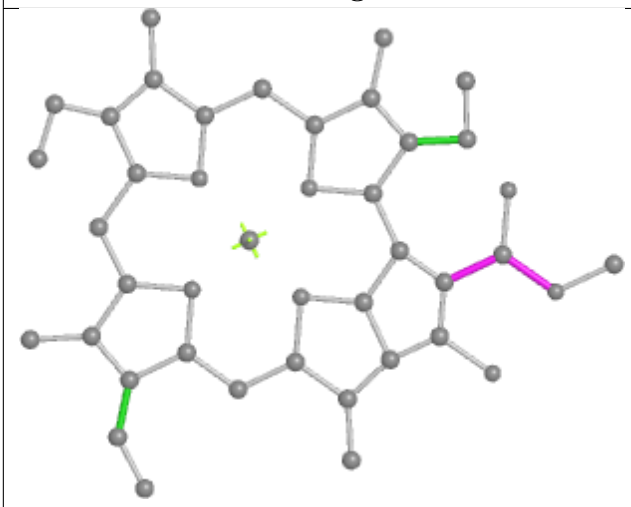
Ligand CLA s 610



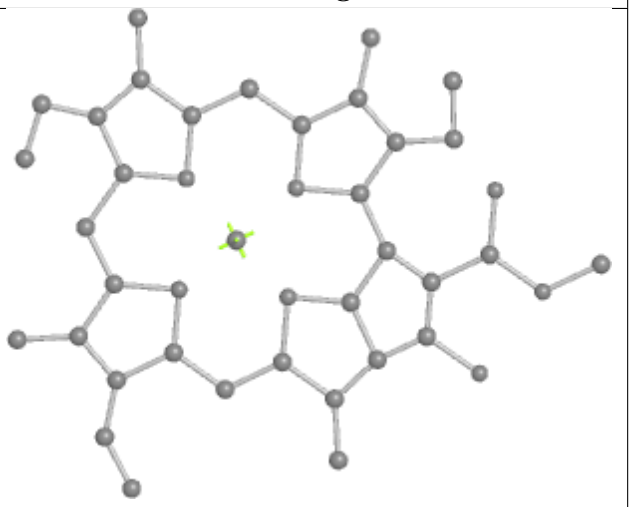
Bond lengths



Bond angles

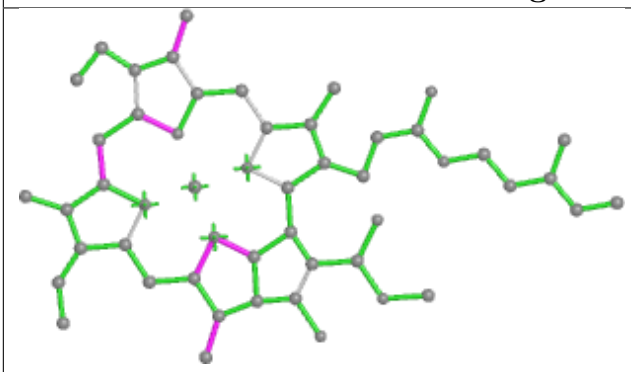


Torsions

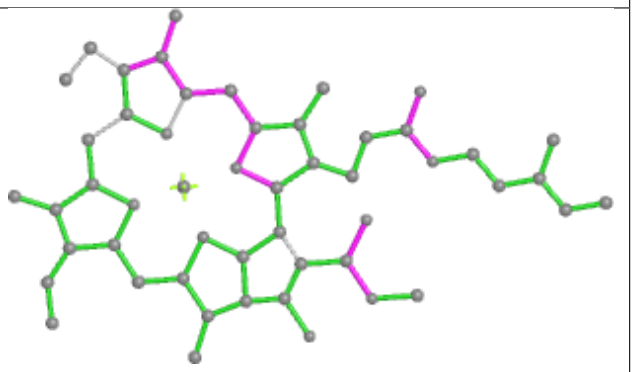


Rings

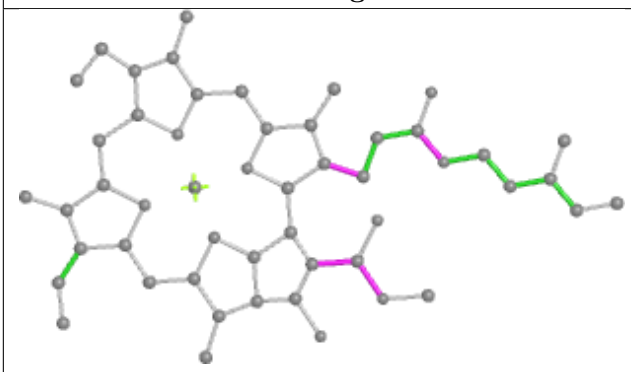
Ligand CLA c 506



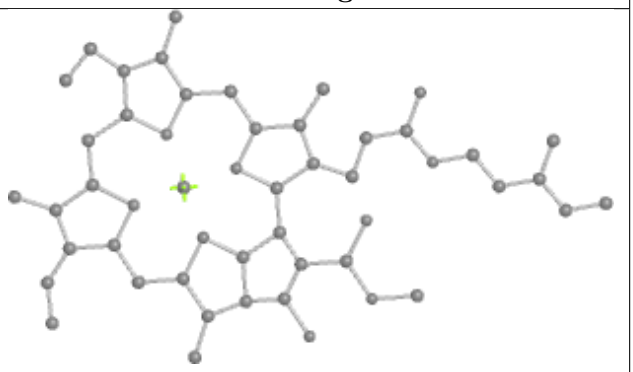
Bond lengths



Bond angles

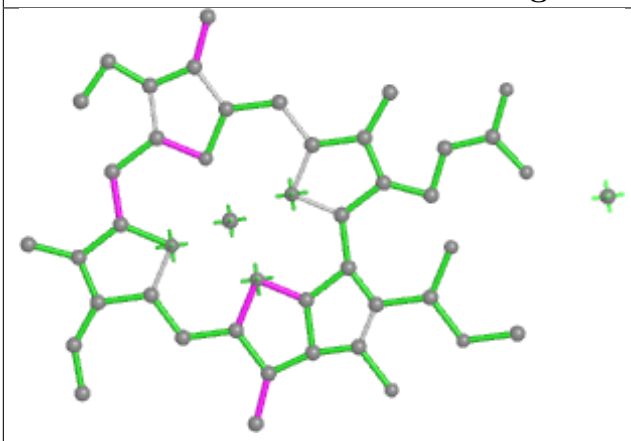


Torsions

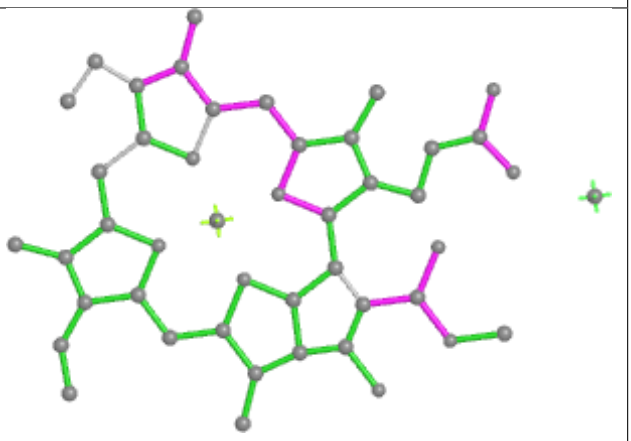


Rings

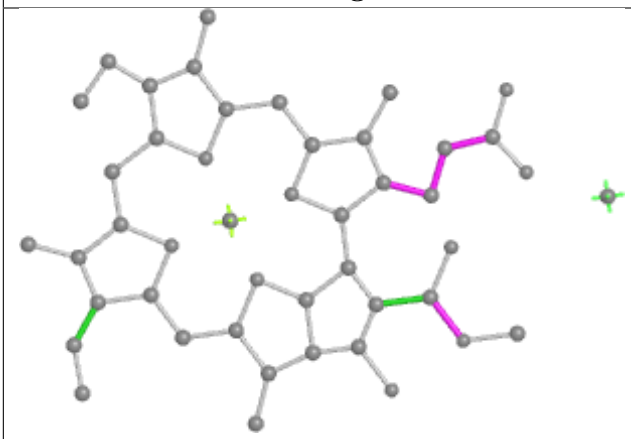
Ligand CLA s 609



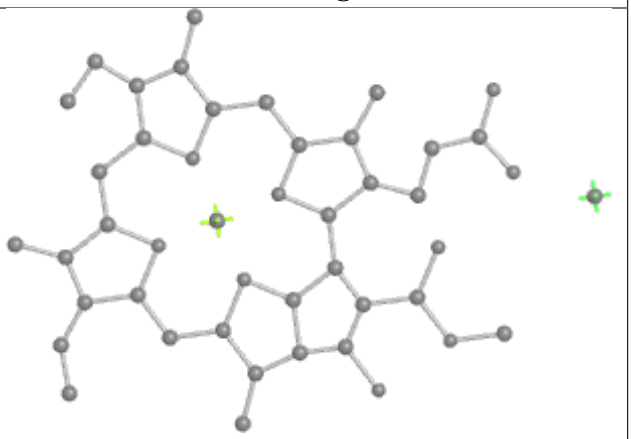
Bond lengths



Bond angles

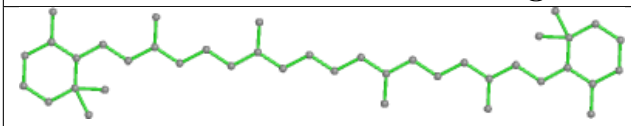


Torsions

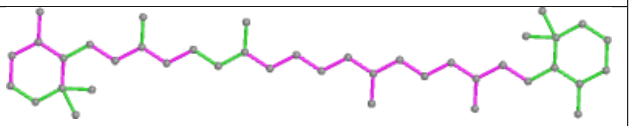


Rings

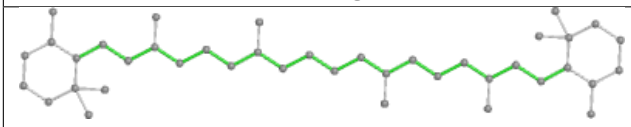
Ligand BCR c 514



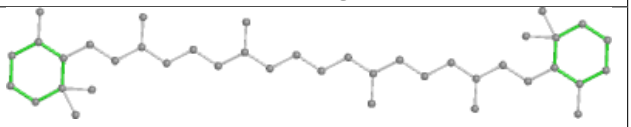
Bond lengths



Bond angles

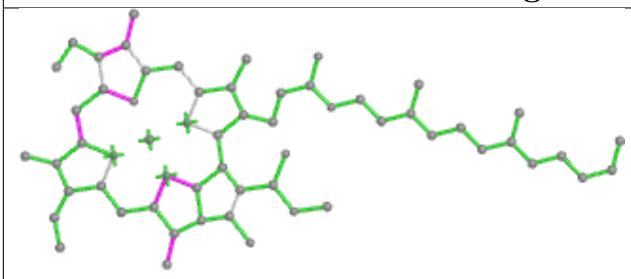


Torsions

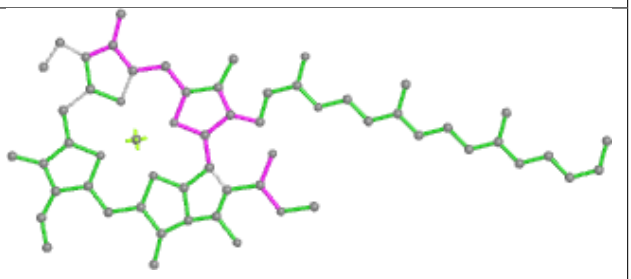


Rings

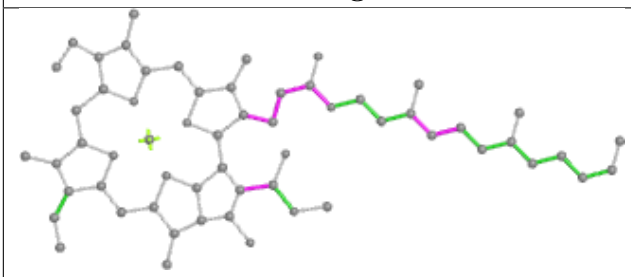
Ligand CLA N 603



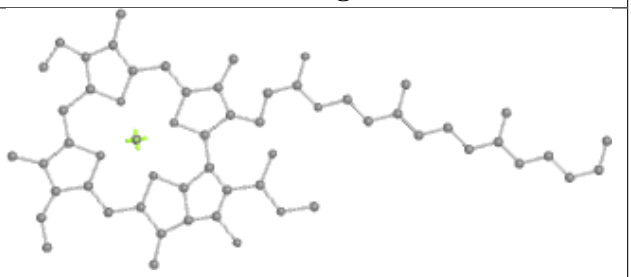
Bond lengths



Bond angles

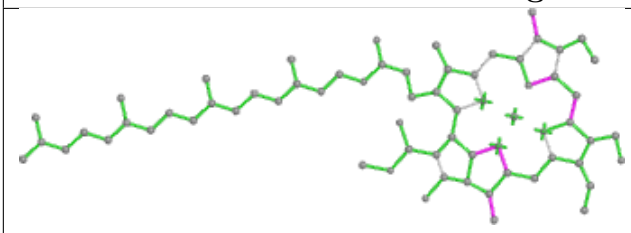


Torsions

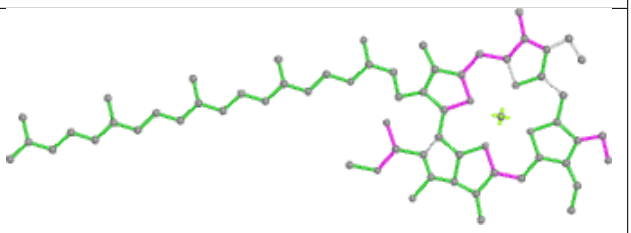


Rings

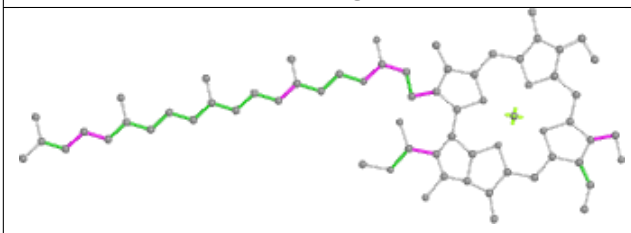
Ligand CHL n 601



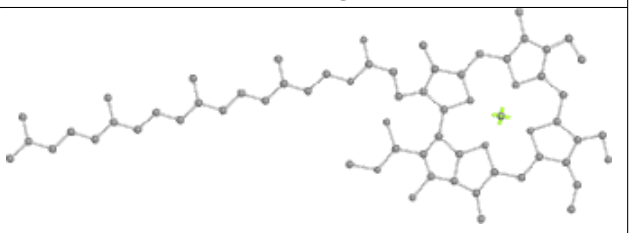
Bond lengths



Bond angles

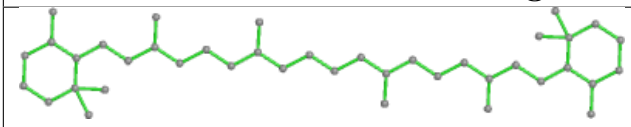


Torsions

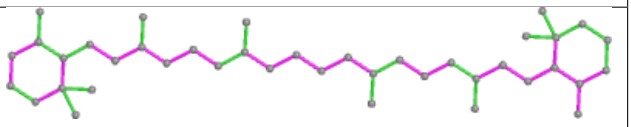


Rings

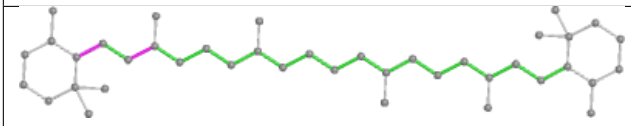
Ligand BCR k 101



Bond lengths



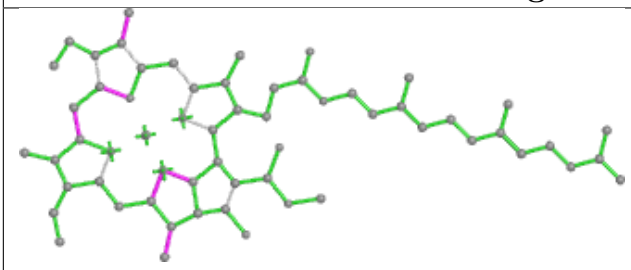
Bond angles



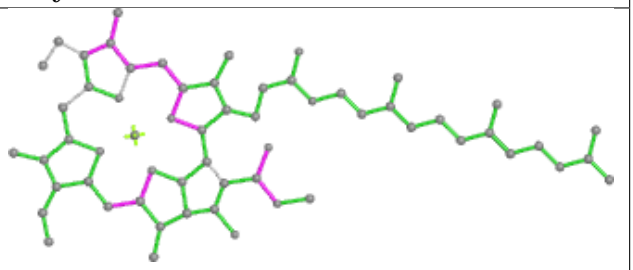
Torsions

Rings

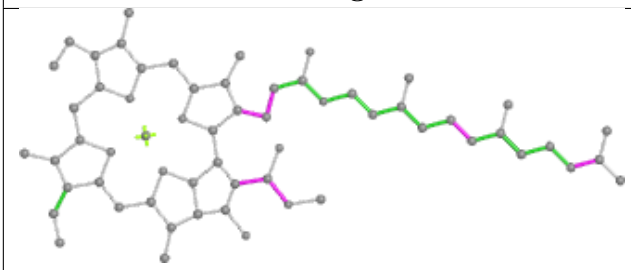
Ligand CLA y 311



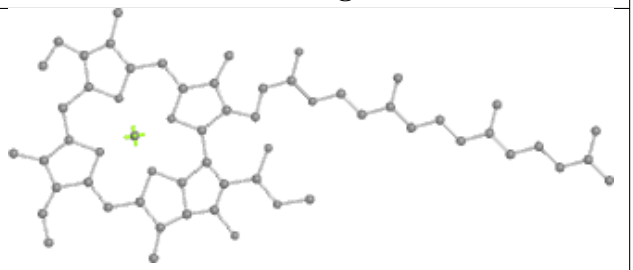
Bond lengths



Bond angles

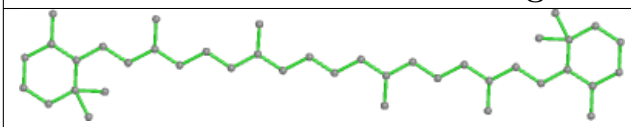


Torsions

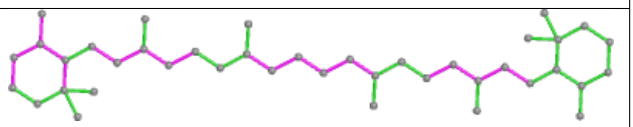


Rings

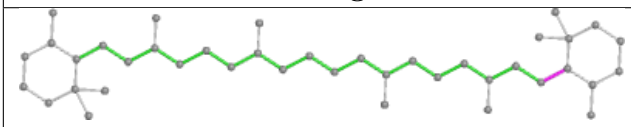
Ligand BCR a 405



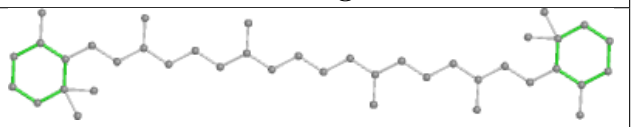
Bond lengths



Bond angles

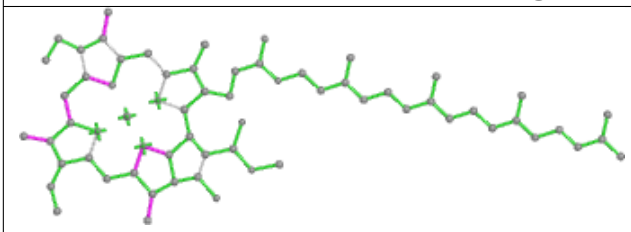


Torsions

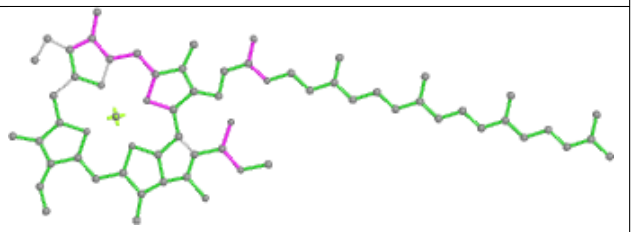


Rings

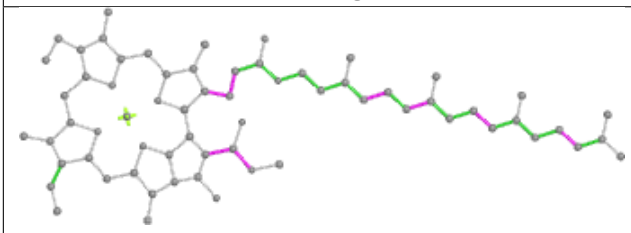
Ligand CLA r 609



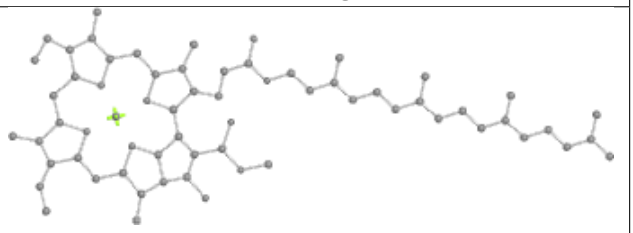
Bond lengths



Bond angles

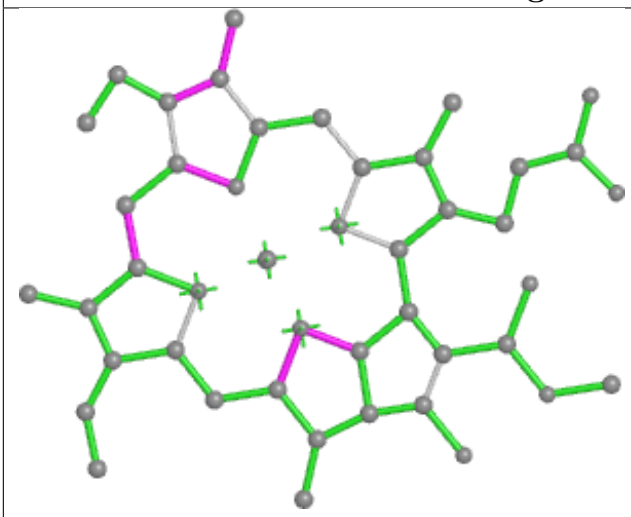


Torsions

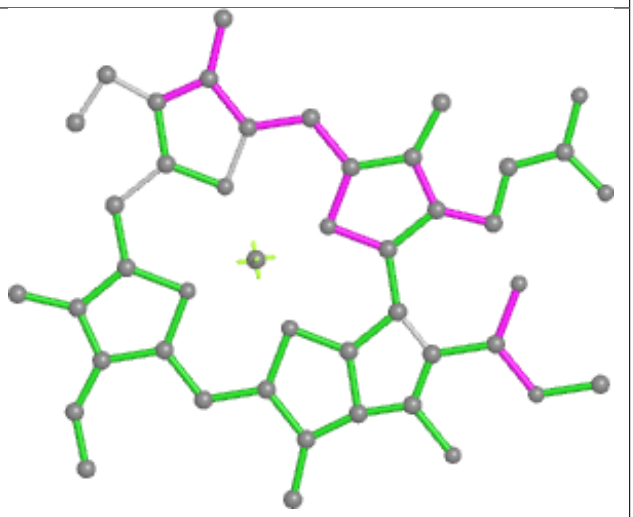


Rings

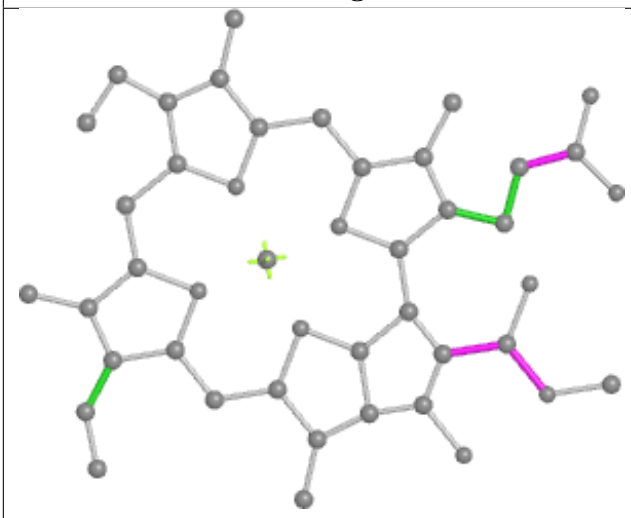
Ligand CLA S 304



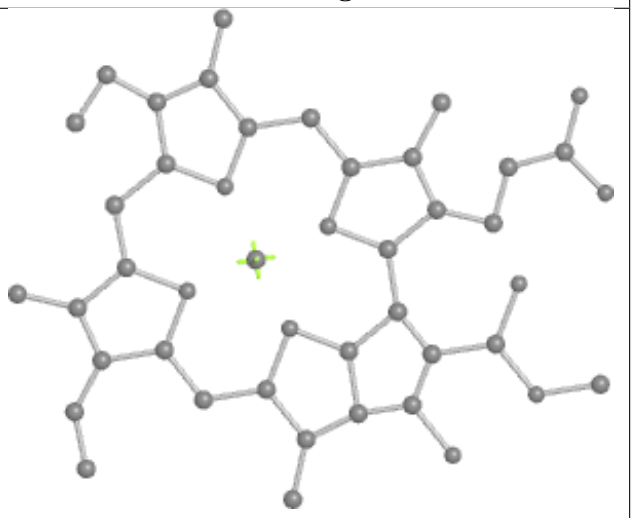
Bond lengths



Bond angles

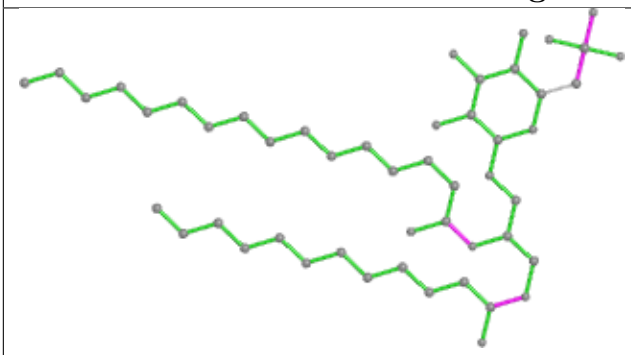


Torsions

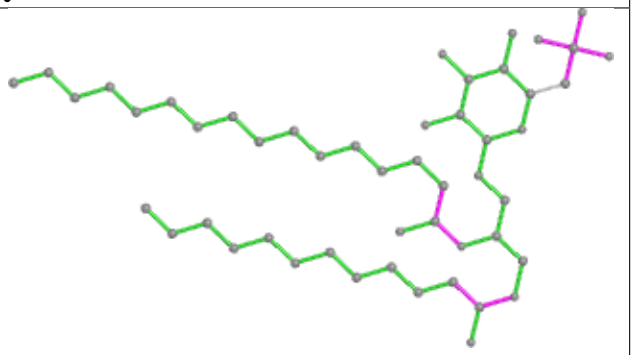


Rings

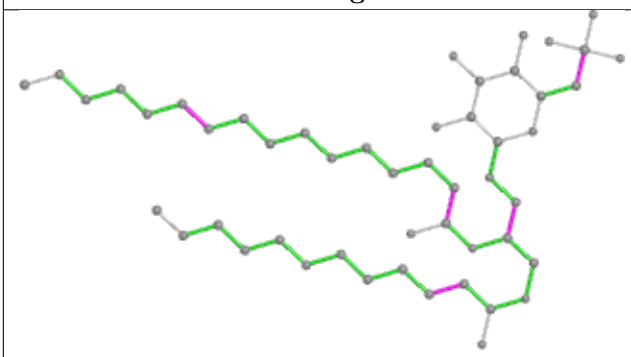
Ligand SQD a 406



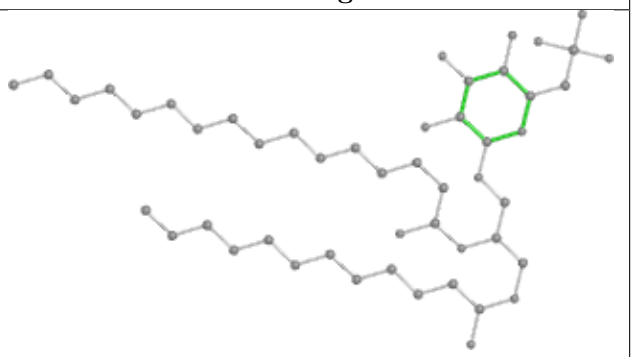
Bond lengths



Bond angles

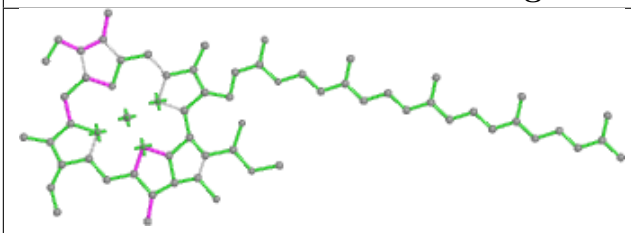


Torsions

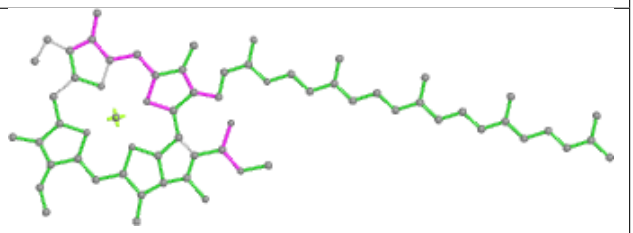


Rings

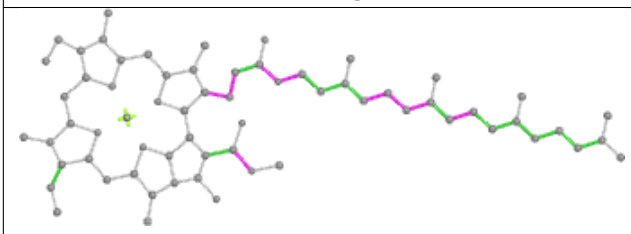
Ligand CLA B 613



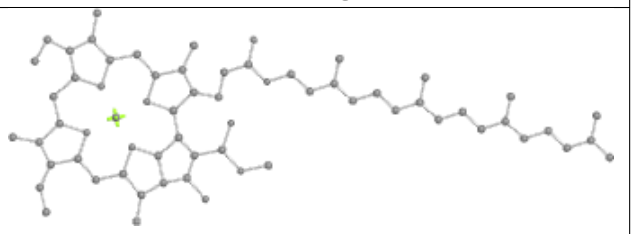
Bond lengths



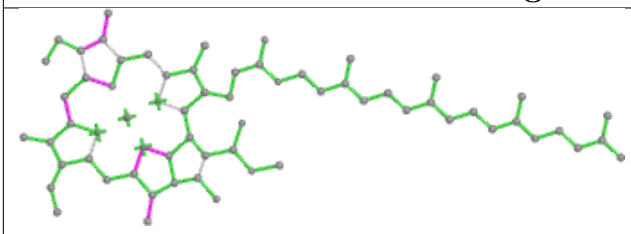
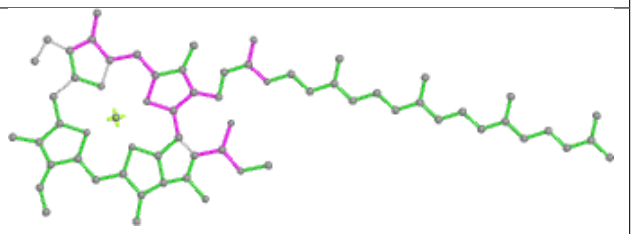
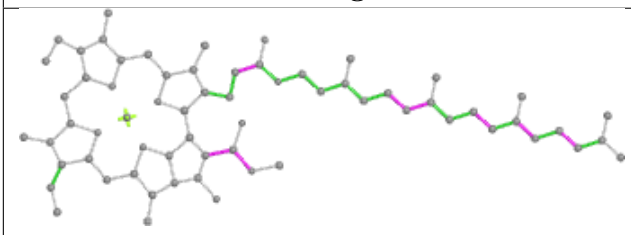
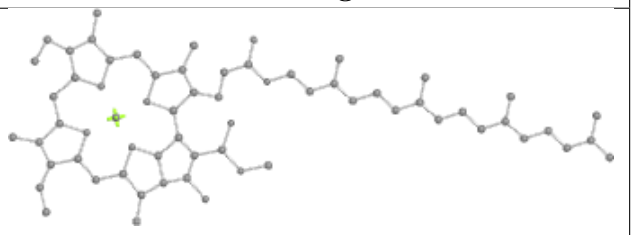
Bond angles

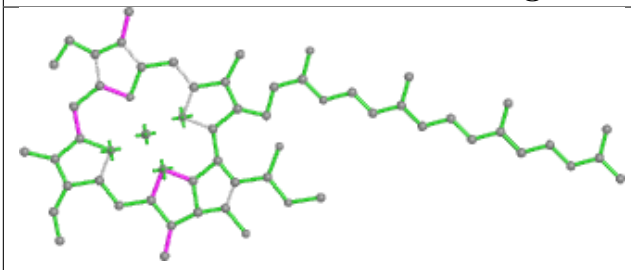
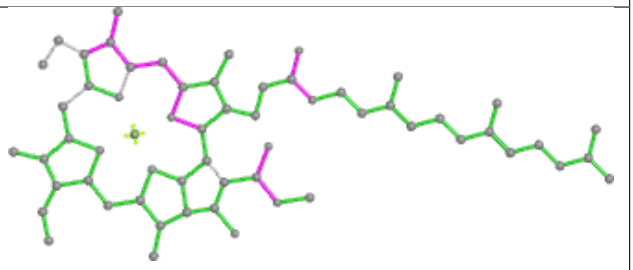
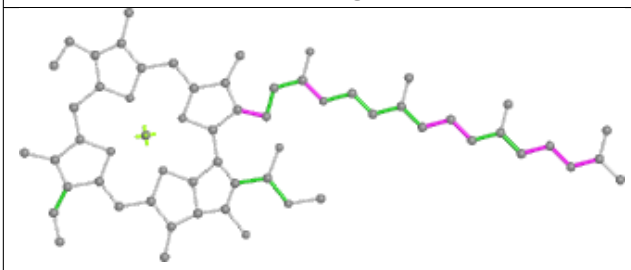
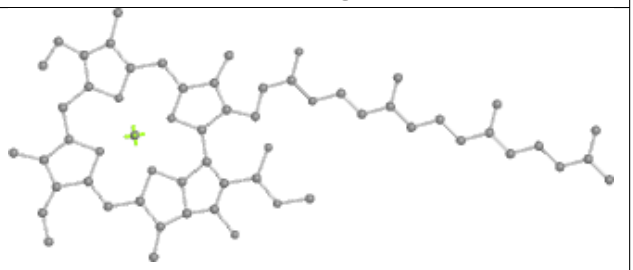


Torsions

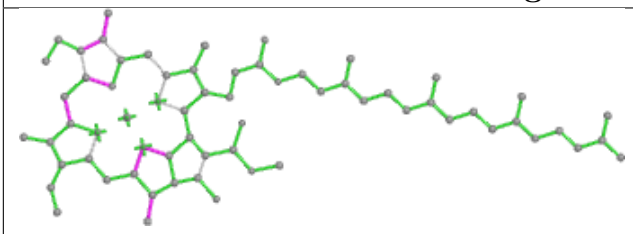


Rings

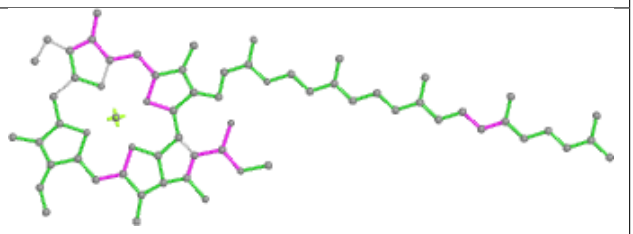
Ligand CLA B 615	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand CLA Y 312	
 Bond lengths	 Bond angles
 Torsions	 Rings

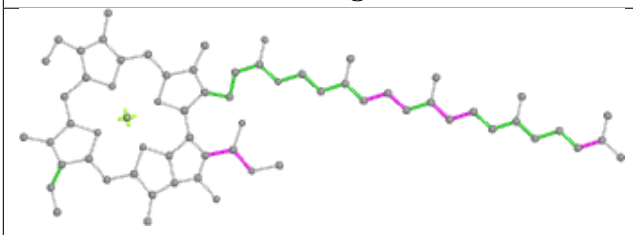
Ligand CLA B 605



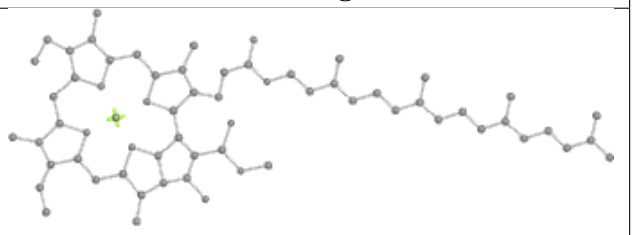
Bond lengths



Bond angles



Torsions



Rings

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

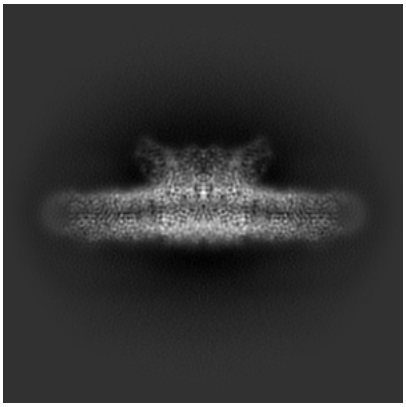
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-63168. These allow visual inspection of the internal detail of the map and identification of artifacts.

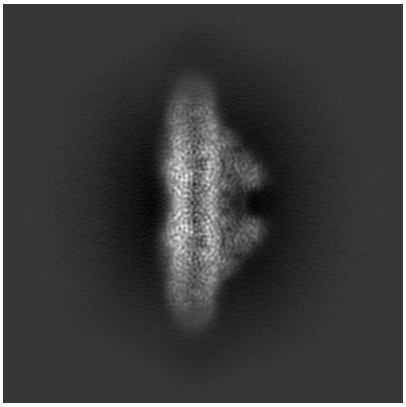
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

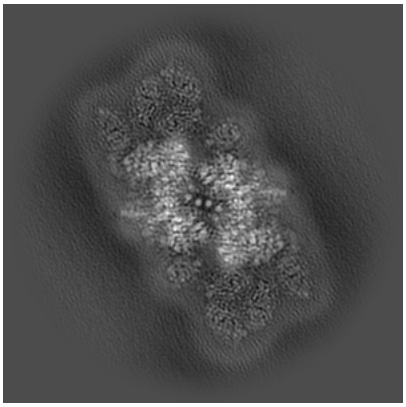
6.1.1 Primary map



X



Y

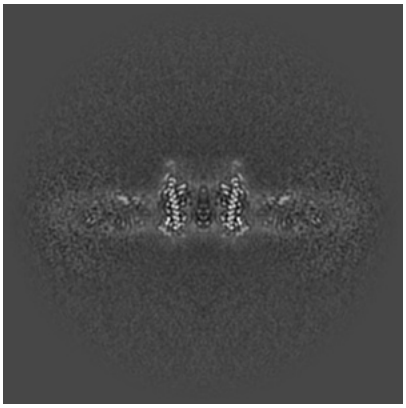


Z

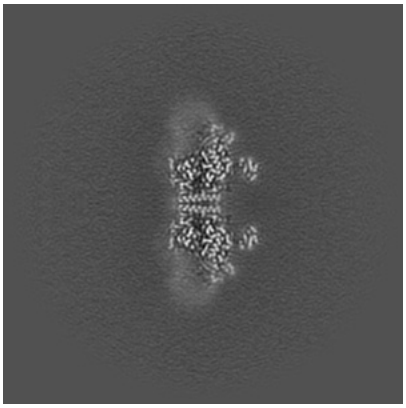
The images above show the map projected in three orthogonal directions.

6.2 Central slices

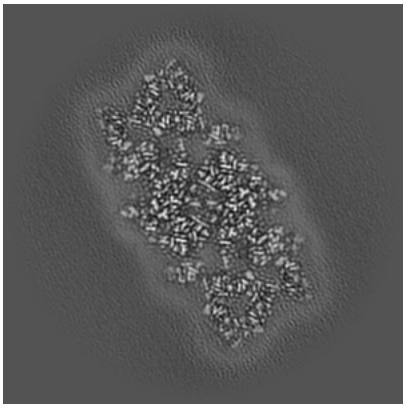
6.2.1 Primary map



X Index: 180



Y Index: 180

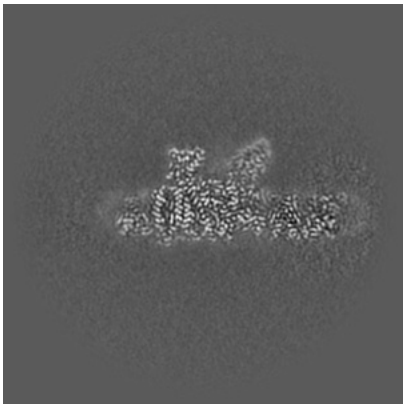


Z Index: 180

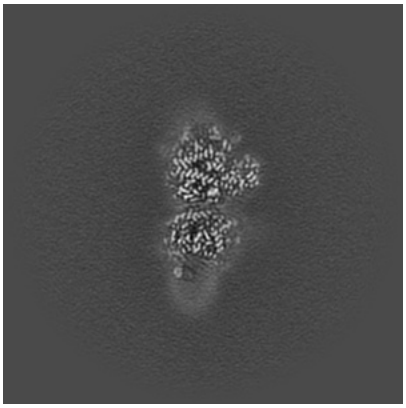
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

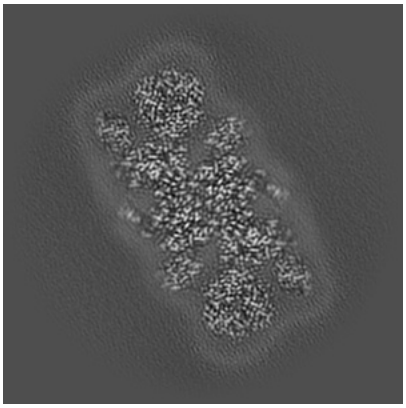
6.3.1 Primary map



X Index: 155



Y Index: 194

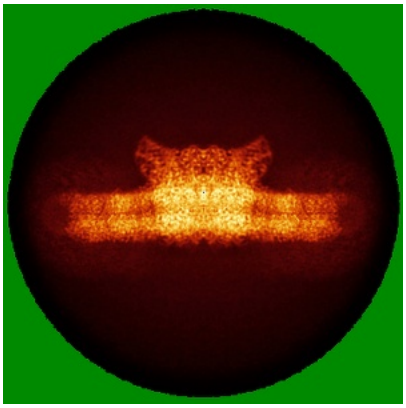


Z Index: 164

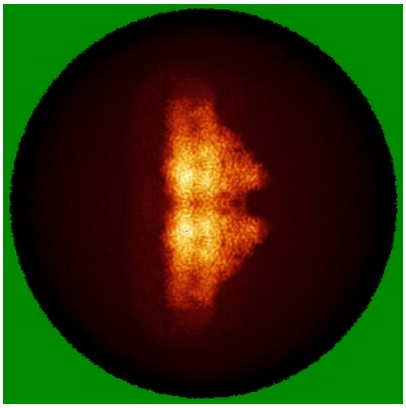
The images above show the largest variance slices of the map in three orthogonal directions.

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

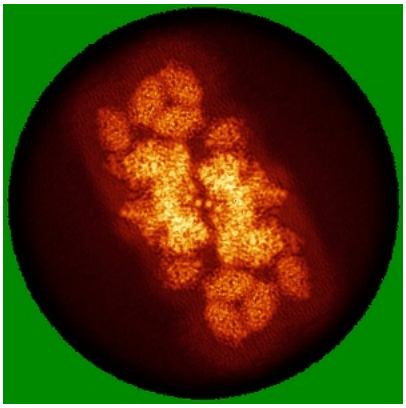
6.4.1 Primary map



X



Y



Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 3.0. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

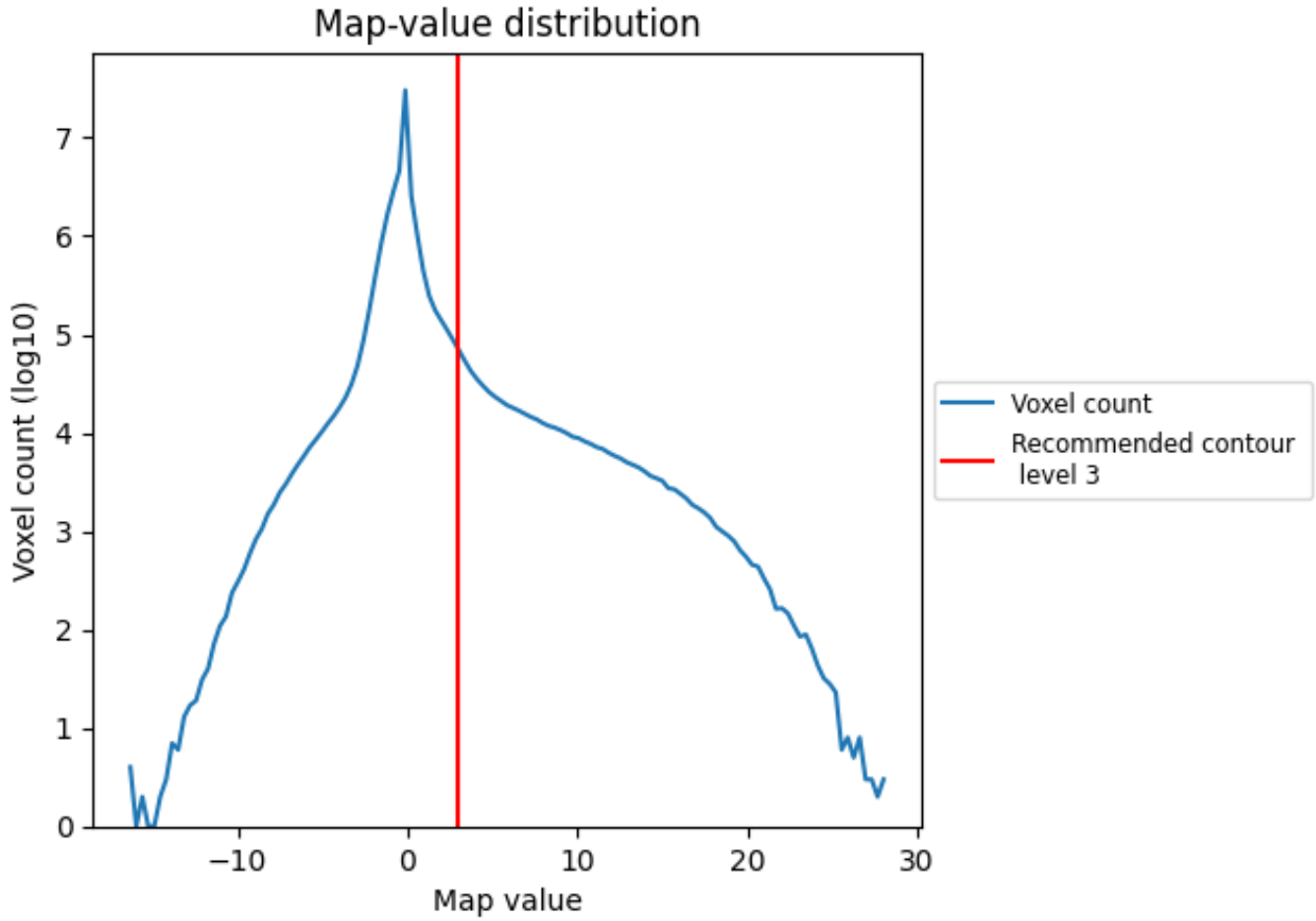
6.6 Mask visualisation (i)

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

7 Map analysis

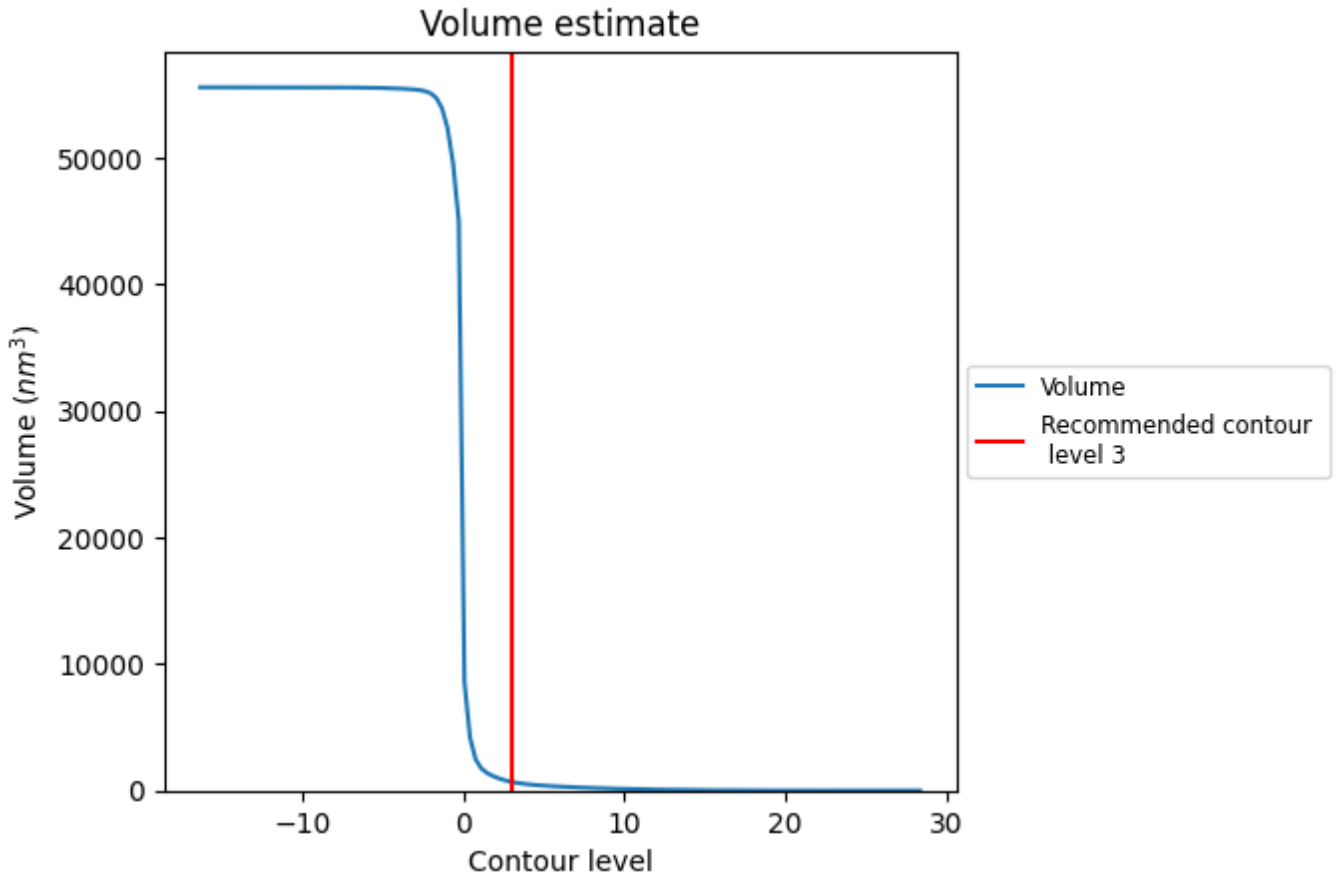
This section contains the results of statistical analysis of the map.

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.

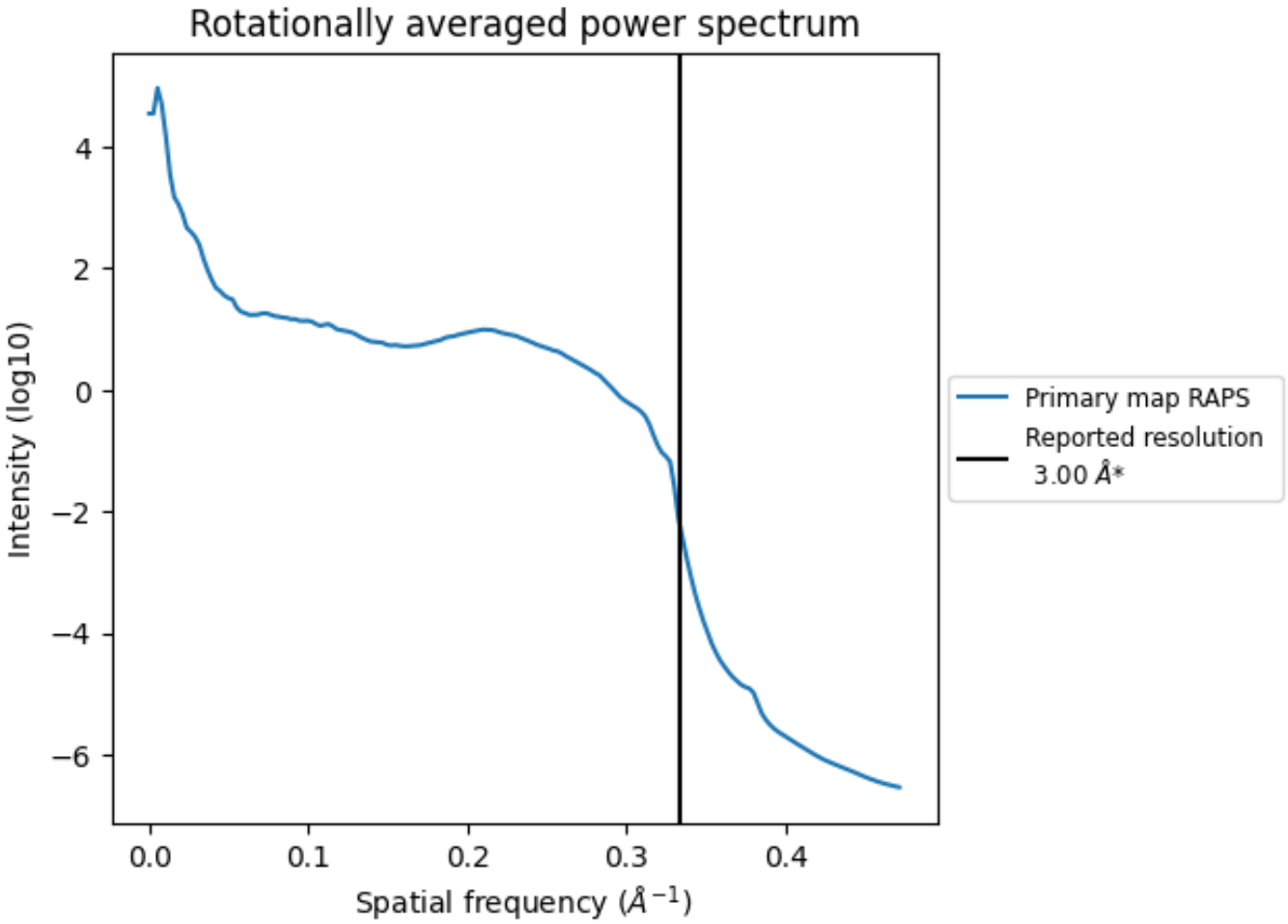
7.2 Volume estimate (i)



The volume at the recommended contour level is 690 nm^3; this corresponds to an approximate mass of 624 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 0.333 Å^{-1}

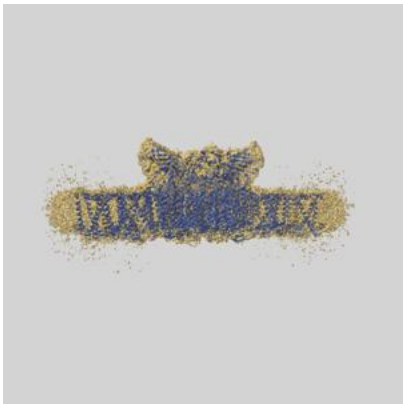
8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

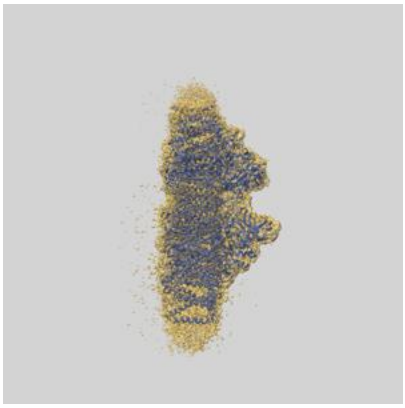
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-63168 and PDB model 9LK5. Per-residue inclusion information can be found in section 3 on page 40.

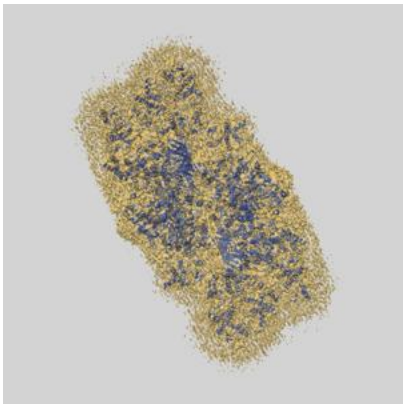
9.1 Map-model overlay



X



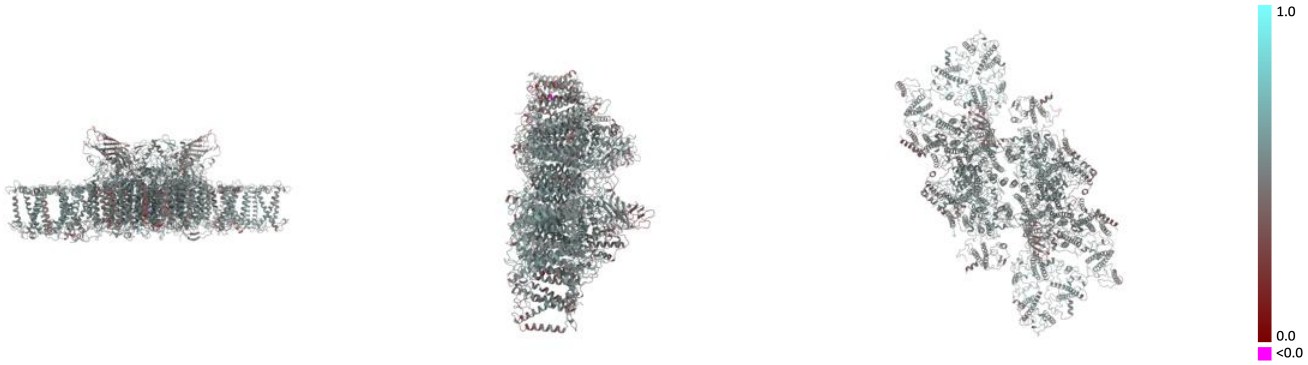
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 3.0 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.

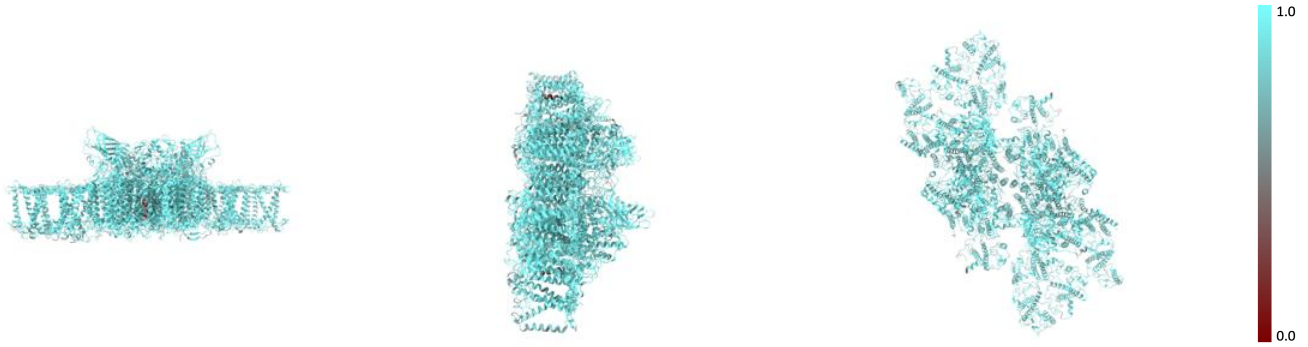
9.2 Q-score mapped to coordinate model



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.

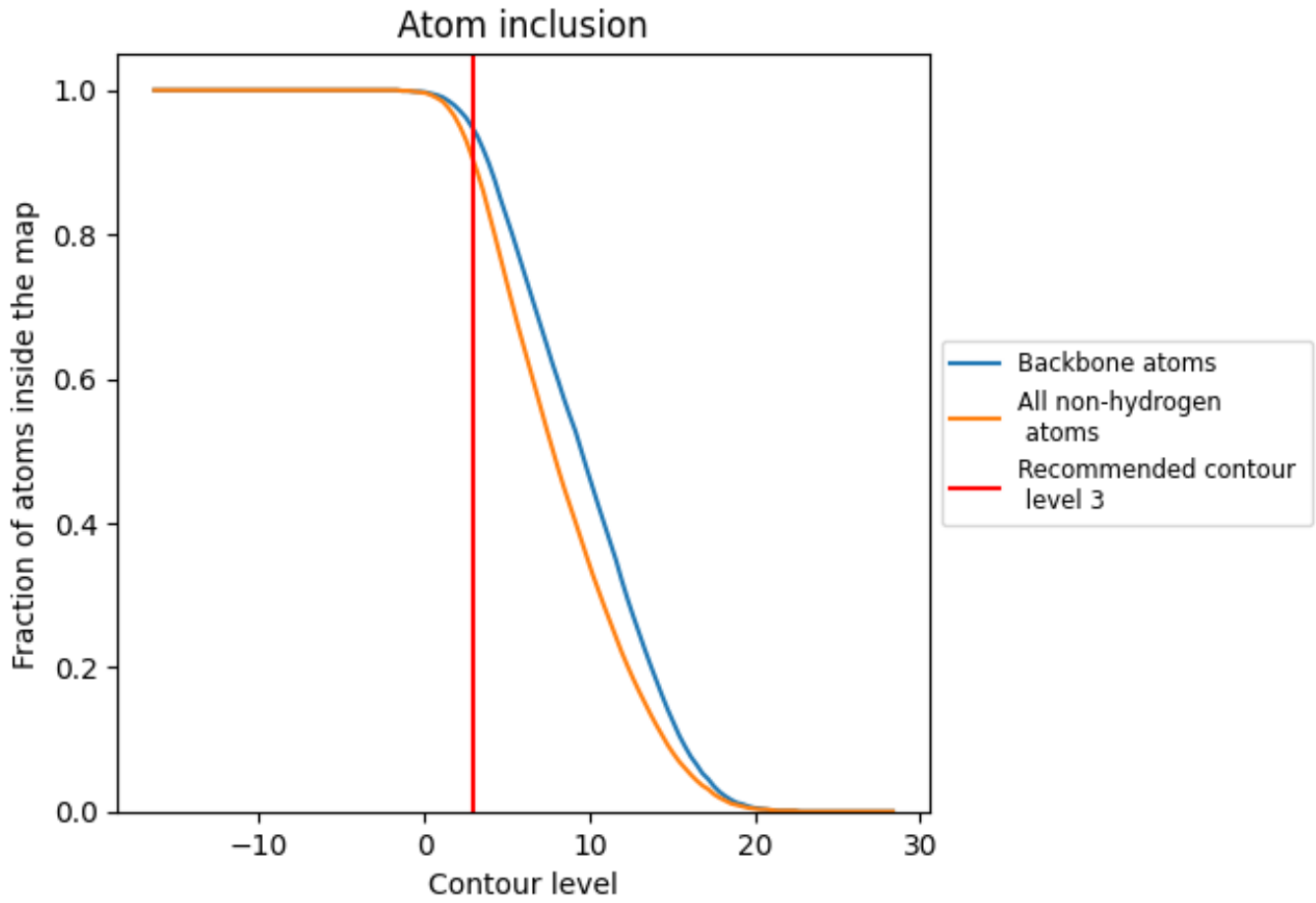
9.3 Atom inclusion mapped to coordinate model



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 (3).

9.4 Atom inclusion (i)



At the recommended contour level, 94% of all backbone atoms, 90% 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 (3) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9010	0.5180
A	0.9390	0.5340
B	0.9400	0.5440
C	0.9310	0.5240
D	0.9470	0.5450
E	0.9160	0.4170
F	0.9070	0.4570
G	0.8560	0.5250
H	0.9390	0.5300
I	0.9670	0.5430
J	0.6820	0.3290
K	0.8690	0.4710
L	0.8900	0.5250
M	0.8830	0.4970
N	0.8900	0.5430
O	0.8950	0.4240
R	0.8310	0.4860
S	0.8270	0.4920
T	0.9240	0.5250
U	0.7090	0.4720
W	0.8520	0.5190
X	0.8500	0.4700
Y	0.9070	0.5580
Z	0.8640	0.4290
a	0.9420	0.5360
b	0.9430	0.5440
c	0.9300	0.5240
d	0.9470	0.5440
e	0.9220	0.4190
f	0.9140	0.4560
g	0.8530	0.5240
h	0.9390	0.5280
i	0.9670	0.5490
j	0.6820	0.3310
k	0.8750	0.4720

Continued on next page...

Continued from previous page...

Chain	Atom inclusion	Q-score
l	0.8920	0.5270
m	0.8680	0.4860
n	0.8810	0.5410
o	0.8980	0.4230
r	0.8400	0.4830
s	0.8210	0.4920
t	0.9150	0.5270
u	0.7200	0.4620
w	0.8730	0.5140
x	0.8350	0.4650
y	0.9060	0.5560
z	0.8690	0.4320