wwPDB EM Validation Summary Report ⓘ

Nov 20, 2022 – 09:43 PM JST

PDB ID	:	7COY
EMDB ID	:	EMD-30420
Title	:	Structure of the far-red light utilizing photosystem I of Acaryochloris marina
Authors	:	Kawakami, K.; Yonekura, K.; Hamaguchi, T.; Kashino, Y.; Shinzawa-Itoh, K.; Inoue-Kashino, N.; Itoh, S.; Ifuku, K.; Yamashita, E.
Deposited on	:	2020-08-05
Resolution	:	2.50 Å(reported)

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

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

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

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

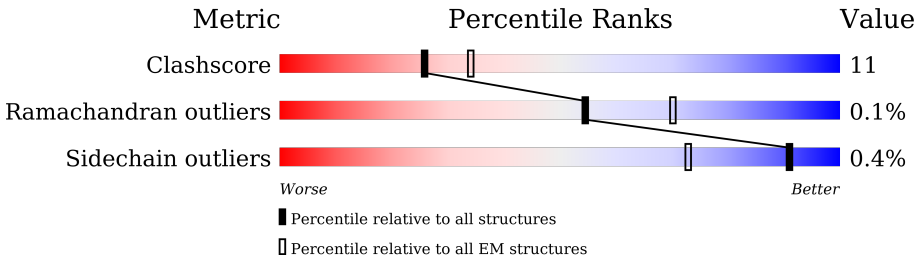
EMDB validation analysis	:	0.0.1.dev43
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.9
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.31.3

1 Overall quality at a glance

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

The reported resolution of this entry is 2.50 Å.

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



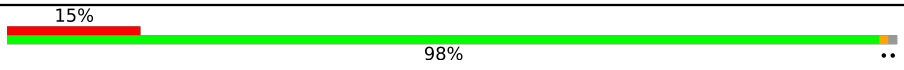
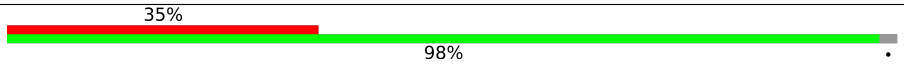
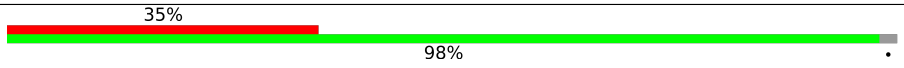
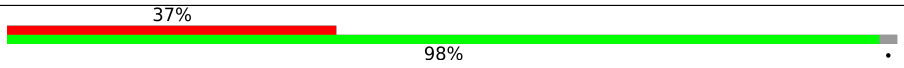
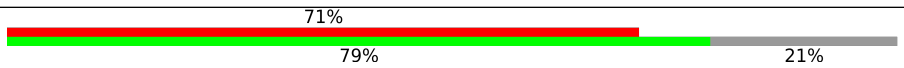
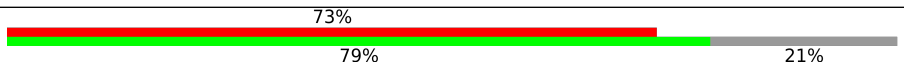
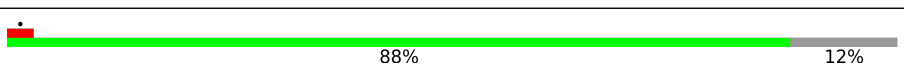
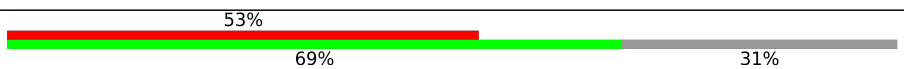
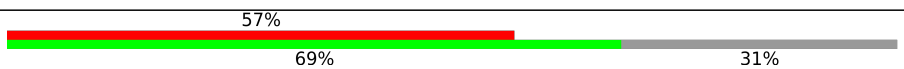
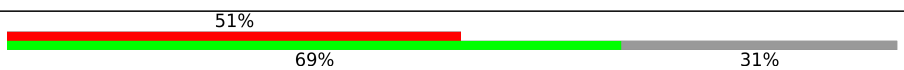
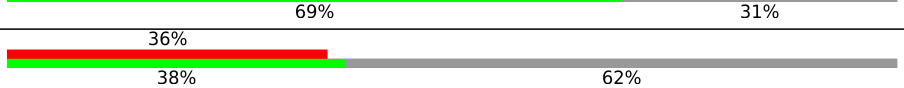
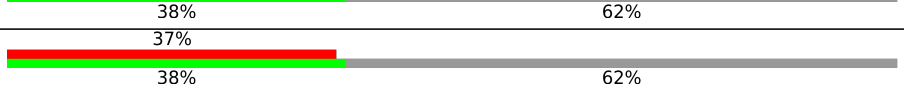
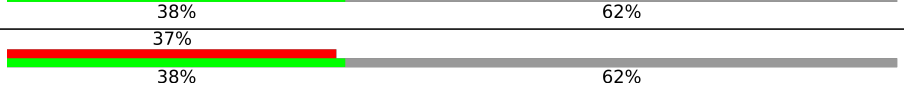
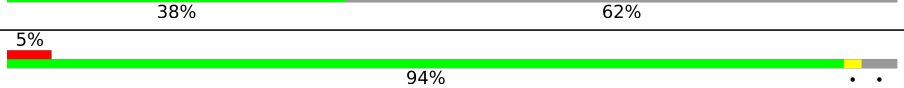
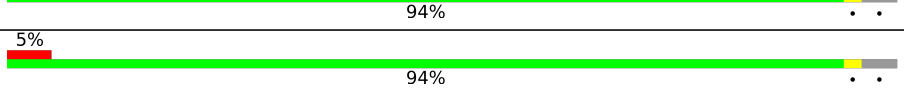
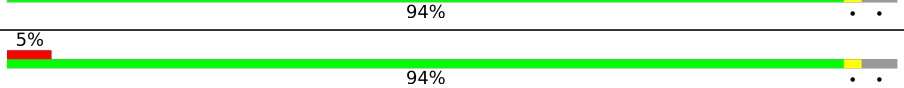
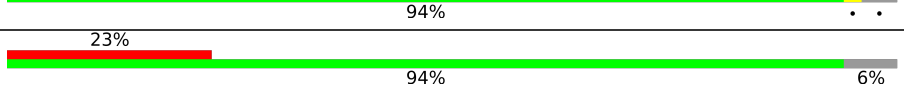
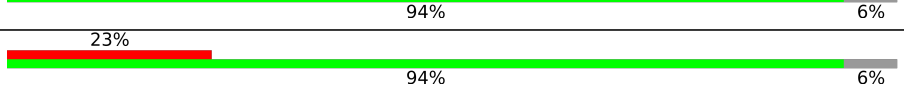
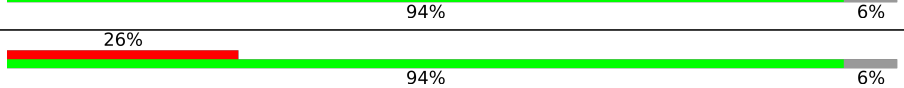
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=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	aA	753	19% 90% • 9%
1	bA	753	19% 90% • 9%
1	cA	753	19% 90% • 9%
2	aB	736	18% 89% 11%
2	bB	736	18% 89% 11%
2	cB	736	18% 89% 11%
3	aC	81	14% 98% ••
3	bC	81	19% 98% ••

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
3	cC	81	
4	aD	139	
4	bD	139	
4	cD	139	
5	aE	89	
5	bE	89	
5	cE	89	
6	aF	167	
6	bF	167	
6	cF	167	
7	aI	34	
7	bI	34	
7	cI	34	
8	aJ	51	
8	bJ	51	
8	cJ	51	
9	aK	86	
9	bK	86	
9	cK	86	
10	aL	153	
10	bL	153	
10	cL	153	
11	aM	31	
11	bM	31	
11	cM	31	

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
12	G9R	aA	3101	X	-	-	-
12	G9R	cA	3101	X	-	-	-
14	CL7	aA	3103	X	-	-	-
14	CL7	aA	3104	X	-	-	-
14	CL7	aA	3105	X	-	-	-
14	CL7	aA	3106	X	-	-	-
14	CL7	aA	3107	X	-	-	-
14	CL7	aA	3108	X	-	-	-
14	CL7	aA	3109	X	-	-	-
14	CL7	aA	3110	X	-	-	-
14	CL7	aA	3111	X	-	-	-
14	CL7	aA	3112	X	-	-	-
14	CL7	aA	3113	X	-	-	-
14	CL7	aA	3114	X	-	-	-
14	CL7	aA	3115	X	-	-	-
14	CL7	aA	3116	X	-	-	-
14	CL7	aA	3117	X	-	-	-
14	CL7	aA	3118	X	-	-	-
14	CL7	aA	3119	X	-	-	-
14	CL7	aA	3120	X	-	-	-
14	CL7	aA	3121	X	-	-	-
14	CL7	aA	3122	X	-	-	-
14	CL7	aA	3123	X	-	-	-
14	CL7	aA	3124	X	-	-	-
14	CL7	aA	3125	X	-	-	-
14	CL7	aA	3126	X	-	-	-
14	CL7	aA	3127	X	-	-	-
14	CL7	aA	3128	X	-	-	-
14	CL7	aA	3129	X	-	-	-
14	CL7	aA	3130	X	-	-	-
14	CL7	aA	3131	X	-	-	-
14	CL7	aA	3132	X	-	-	-
14	CL7	aA	3133	X	-	-	-
14	CL7	aA	3134	X	-	-	-
14	CL7	aA	3140	X	-	-	-
14	CL7	aA	3141	X	-	-	-
14	CL7	aA	3142	X	-	-	-
14	CL7	aA	3143	X	-	-	-
14	CL7	aA	3146	X	-	-	-
14	CL7	aB	3002	X	-	-	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
14	CL7	aB	3003	X	-	-	-
14	CL7	aB	3005	X	-	-	-
14	CL7	aB	3006	X	-	-	-
14	CL7	aB	3007	X	-	-	-
14	CL7	aB	3008	X	-	-	-
14	CL7	aB	3009	X	-	-	-
14	CL7	aB	3010	X	-	-	-
14	CL7	aB	3011	X	-	-	-
14	CL7	aB	3012	X	-	-	-
14	CL7	aB	3013	X	-	-	-
14	CL7	aB	3014	X	-	-	-
14	CL7	aB	3015	X	-	-	-
14	CL7	aB	3016	X	-	-	-
14	CL7	aB	3017	X	-	-	-
14	CL7	aB	3018	X	-	-	-
14	CL7	aB	3019	X	-	-	-
14	CL7	aB	3020	X	-	-	-
14	CL7	aB	3021	X	-	-	-
14	CL7	aB	3022	X	-	-	-
14	CL7	aB	3023	X	-	-	-
14	CL7	aB	3024	X	-	-	-
14	CL7	aB	3025	X	-	-	-
14	CL7	aB	3026	X	-	-	-
14	CL7	aB	3030	X	-	-	-
14	CL7	aB	3031	X	-	-	-
14	CL7	aB	3032	X	-	-	-
14	CL7	aF	201	X	-	-	-
14	CL7	aJ	101	X	-	-	-
14	CL7	aK	101	X	-	-	-
14	CL7	aL	202	X	-	-	-
14	CL7	aL	203	X	-	-	-
14	CL7	aL	204	X	-	-	-
14	CL7	bA	3102	X	-	-	-
14	CL7	bA	3103	X	-	-	-
14	CL7	bA	3104	X	-	-	-
14	CL7	bA	3105	X	-	-	-
14	CL7	bA	3106	X	-	-	-
14	CL7	bA	3107	X	-	-	-
14	CL7	bA	3108	X	-	-	-
14	CL7	bA	3109	X	-	-	-
14	CL7	bA	3110	X	-	-	-
14	CL7	bA	3111	X	-	-	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
14	CL7	bA	3112	X	-	-	-
14	CL7	bA	3113	X	-	-	-
14	CL7	bA	3114	X	-	-	-
14	CL7	bA	3115	X	-	-	-
14	CL7	bA	3116	X	-	-	-
14	CL7	bA	3117	X	-	-	-
14	CL7	bA	3118	X	-	-	-
14	CL7	bA	3119	X	-	-	-
14	CL7	bA	3120	X	-	-	-
14	CL7	bA	3121	X	-	-	-
14	CL7	bA	3122	X	-	-	-
14	CL7	bA	3123	X	-	-	-
14	CL7	bA	3124	X	-	-	-
14	CL7	bA	3125	X	-	-	-
14	CL7	bA	3126	X	-	-	-
14	CL7	bA	3127	X	-	-	-
14	CL7	bA	3128	X	-	-	-
14	CL7	bA	3129	X	-	-	-
14	CL7	bA	3130	X	-	-	-
14	CL7	bA	3131	X	-	-	-
14	CL7	bA	3132	X	-	-	-
14	CL7	bA	3133	X	-	-	-
14	CL7	bA	3139	X	-	-	-
14	CL7	bA	3140	X	-	-	-
14	CL7	bA	3141	X	-	-	-
14	CL7	bA	3142	X	-	-	-
14	CL7	bA	3145	X	-	-	-
14	CL7	bB	803	X	-	-	-
14	CL7	bB	804	X	-	-	-
14	CL7	bB	806	X	-	-	-
14	CL7	bB	807	X	-	-	-
14	CL7	bB	808	X	-	-	-
14	CL7	bB	809	X	-	-	-
14	CL7	bB	810	X	-	-	-
14	CL7	bB	811	X	-	-	-
14	CL7	bB	812	X	-	-	-
14	CL7	bB	813	X	-	-	-
14	CL7	bB	814	X	-	-	-
14	CL7	bB	815	X	-	-	-
14	CL7	bB	816	X	-	-	-
14	CL7	bB	817	X	-	-	-
14	CL7	bB	818	X	-	-	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
14	CL7	bB	819	X	-	-	-
14	CL7	bB	820	X	-	-	-
14	CL7	bB	821	X	-	-	-
14	CL7	bB	822	X	-	-	-
14	CL7	bB	823	X	-	-	-
14	CL7	bB	824	X	-	-	-
14	CL7	bB	825	X	-	-	-
14	CL7	bB	826	X	-	-	-
14	CL7	bB	827	X	-	-	-
14	CL7	bB	831	X	-	-	-
14	CL7	bB	832	X	-	-	-
14	CL7	bB	833	X	-	-	-
14	CL7	bF	201	X	-	-	-
14	CL7	bJ	101	X	-	-	-
14	CL7	bK	101	X	-	-	-
14	CL7	bL	203	X	-	-	-
14	CL7	bL	204	X	-	-	-
14	CL7	bL	205	X	-	-	-
14	CL7	cA	3102	X	-	-	-
14	CL7	cA	3103	X	-	-	-
14	CL7	cA	3104	X	-	-	-
14	CL7	cA	3105	X	-	-	-
14	CL7	cA	3106	X	-	-	-
14	CL7	cA	3107	X	-	-	-
14	CL7	cA	3108	X	-	-	-
14	CL7	cA	3109	X	-	-	-
14	CL7	cA	3110	X	-	-	-
14	CL7	cA	3111	X	-	-	-
14	CL7	cA	3112	X	-	-	-
14	CL7	cA	3113	X	-	-	-
14	CL7	cA	3114	X	-	-	-
14	CL7	cA	3115	X	-	-	-
14	CL7	cA	3116	X	-	-	-
14	CL7	cA	3117	X	-	-	-
14	CL7	cA	3118	X	-	-	-
14	CL7	cA	3119	X	-	-	-
14	CL7	cA	3120	X	-	-	-
14	CL7	cA	3121	X	-	-	-
14	CL7	cA	3122	X	-	-	-
14	CL7	cA	3123	X	-	-	-
14	CL7	cA	3124	X	-	-	-
14	CL7	cA	3125	X	-	-	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
14	CL7	cA	3126	X	-	-	-
14	CL7	cA	3127	X	-	-	-
14	CL7	cA	3128	X	-	-	-
14	CL7	cA	3129	X	-	-	-
14	CL7	cA	3130	X	-	-	-
14	CL7	cA	3131	X	-	-	-
14	CL7	cA	3132	X	-	-	-
14	CL7	cA	3133	X	-	-	-
14	CL7	cA	3139	X	-	-	-
14	CL7	cA	3140	X	-	-	-
14	CL7	cA	3141	X	-	-	-
14	CL7	cA	3142	X	-	-	-
14	CL7	cA	3144	X	-	-	-
14	CL7	cB	803	X	-	-	-
14	CL7	cB	804	X	-	-	-
14	CL7	cB	806	X	-	-	-
14	CL7	cB	807	X	-	-	-
14	CL7	cB	808	X	-	-	-
14	CL7	cB	809	X	-	-	-
14	CL7	cB	810	X	-	-	-
14	CL7	cB	811	X	-	-	-
14	CL7	cB	812	X	-	-	-
14	CL7	cB	813	X	-	-	-
14	CL7	cB	814	X	-	-	-
14	CL7	cB	815	X	-	-	-
14	CL7	cB	816	X	-	-	-
14	CL7	cB	817	X	-	-	-
14	CL7	cB	818	X	-	-	-
14	CL7	cB	819	X	-	-	-
14	CL7	cB	820	X	-	-	-
14	CL7	cB	821	X	-	-	-
14	CL7	cB	822	X	-	-	-
14	CL7	cB	823	X	-	-	-
14	CL7	cB	824	X	-	-	-
14	CL7	cB	825	X	-	-	-
14	CL7	cB	826	X	-	-	-
14	CL7	cB	827	X	-	-	-
14	CL7	cB	831	X	-	-	-
14	CL7	cB	832	X	-	-	-
14	CL7	cB	833	X	-	-	-
14	CL7	cF	201	X	-	-	-
14	CL7	cJ	101	X	-	-	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
14	CL7	cK	101	X	-	-	-
14	CL7	cL	203	X	-	-	-
14	CL7	cL	204	X	-	-	-
14	CL7	cL	205	X	-	-	-

2 Entry composition (i)

There are 20 unique types of molecules in this entry. The entry contains 57966 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 I P700 chlorophyll a apoprotein A1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	aA	685	Total	C	N	O	S	0	0
			5203	3384	909	886	24		
1	bA	685	Total	C	N	O	S	0	0
			5203	3384	909	886	24		
1	cA	685	Total	C	N	O	S	0	0
			5203	3384	909	886	24		

- Molecule 2 is a protein called Photosystem I P700 chlorophyll a apoprotein A2.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	aB	658	Total	C	N	O	S	0	0
			5007	3292	840	860	15		
2	bB	658	Total	C	N	O	S	0	0
			5007	3292	840	860	15		
2	cB	658	Total	C	N	O	S	0	0
			5007	3292	840	860	15		

- Molecule 3 is a protein called Photosystem I iron-sulfur center.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	aC	80	Total	C	N	O	S	0	0
			573	353	102	108	10		
3	bC	80	Total	C	N	O	S	0	0
			573	353	102	108	10		
3	cC	80	Total	C	N	O	S	0	0
			573	353	102	108	10		

- Molecule 4 is a protein called Photosystem I protein PsaD.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	aD	136	Total	C	N	O	S	0	0
			999	631	177	187	4		

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf	Trace
4	bD	136	Total	C	N	O	S	0	0
			999	631	177	187	4		
4	cD	136	Total	C	N	O	S	0	0
			999	631	177	187	4		

- Molecule 5 is a protein called Photosystem I reaction center subunit IV.

Mol	Chain	Residues	Atoms				AltConf	Trace
5	aE	67	Total	C	N	O	0	0
			375	230	70	75		
5	bE	67	Total	C	N	O	0	0
			375	230	70	75		
5	cE	67	Total	C	N	O	0	0
			375	230	70	75		

- Molecule 6 is a protein called Photosystem I protein PsaF.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	aF	132	Total	C	N	O	S	0	0
			847	529	157	157	4		
6	bF	132	Total	C	N	O	S	0	0
			847	529	157	157	4		
6	cF	132	Total	C	N	O	S	0	0
			847	529	157	157	4		

- Molecule 7 is a protein called Photosystem I protein Psa27.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	aI	30	Total	C	N	O	S	0	0
			225	151	33	39	2		
7	bI	30	Total	C	N	O	S	0	0
			225	151	33	39	2		
7	cI	30	Total	C	N	O	S	0	0
			225	151	33	39	2		

- Molecule 8 is a protein called Photosystem I reaction center subunit IX.

Mol	Chain	Residues	Atoms				AltConf	Trace
8	aJ	35	Total	C	N	O	0	0
			264	184	39	41		
8	bJ	35	Total	C	N	O	0	0
			264	184	39	41		

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms				AltConf	Trace
8	cJ	35	Total	C	N	O	0	0
			264	184	39	41		

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

Mol	Chain	Residues	Atoms				AltConf	Trace
9	aK	33	Total	C	N	O	0	0
			161	95	33	33		
9	bK	33	Total	C	N	O	0	0
			161	95	33	33		
9	cK	33	Total	C	N	O	0	0
			161	95	33	33		

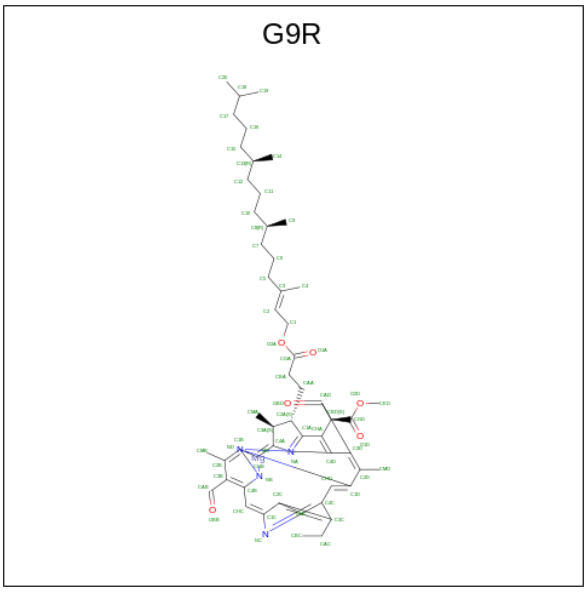
- Molecule 10 is a protein called Photosystem I protein PsaL.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	aL	147	Total	C	N	O	S	0	0
			999	638	168	189	4		
10	bL	147	Total	C	N	O	S	0	0
			999	638	168	189	4		
10	cL	147	Total	C	N	O	S	0	0
			999	638	168	189	4		

- Molecule 11 is a protein called Photosystem I protein PsaM.

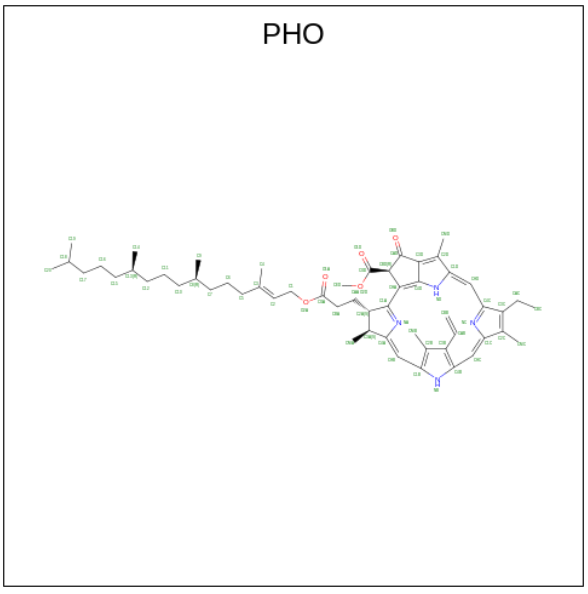
Mol	Chain	Residues	Atoms				AltConf	Trace
11	aM	29	Total	C	N	O	0	0
			205	136	31	38		
11	bM	29	Total	C	N	O	0	0
			205	136	31	38		
11	cM	29	Total	C	N	O	0	0
			205	136	31	38		

- Molecule 12 is CHLOROPHYLL D ISOMER (three-letter code: G9R) (formula: $C_{54}H_{70}MgN_4O_6$) (labeled as "Ligand of Interest" by depositor).



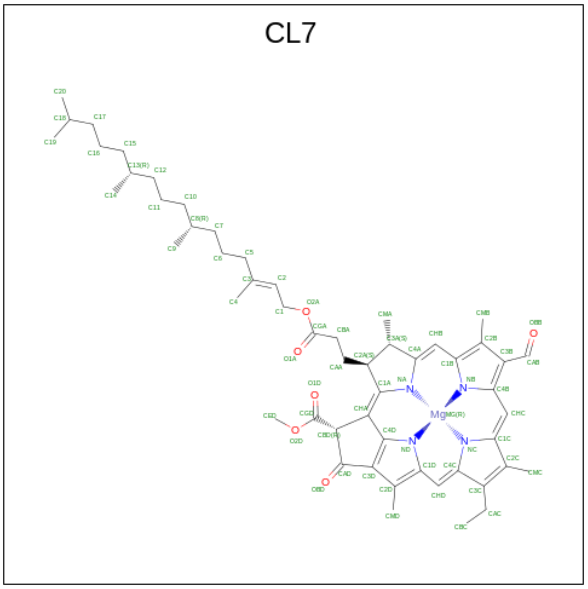
Mol	Chain	Residues	Atoms					AltConf
12	aA	1	Total	C	Mg	N	O	0
			65	54	1	4	6	
12	bA	1	Total	C	Mg	N	O	0
			65	54	1	4	6	
12	cA	1	Total	C	Mg	N	O	0
			65	54	1	4	6	

- Molecule 13 is PHEOPHYTIN A (three-letter code: PHO) (formula: $C_{55}H_{74}N_4O_5$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				AltConf
13	aA	1	Total 64	C 55	N 4	O 5	0
13	aB	1	Total 64	C 55	N 4	O 5	0
13	bB	1	Total 128	C 110	N 8	O 10	0
13	bB	1	Total 128	C 110	N 8	O 10	0
13	cB	1	Total 128	C 110	N 8	O 10	0
13	cB	1	Total 128	C 110	N 8	O 10	0

- Molecule 14 is CHLOROPHYLL D (three-letter code: CL7) (formula: $C_{54}H_{70}MgN_4O_6$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	aB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	aB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	aB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	aB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	aB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	aB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	aB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	aB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	aB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	aB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf
14	aB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	aB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	aB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	aB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	aB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	aB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	aB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	aB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	aB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	aB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	aB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	aB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	aB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	aB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	aB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	aB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	aB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	aF	1	Total 38	C 31	Mg 1	N 4	O 2	0
14	aJ	1	Total 42	C 33	Mg 1	N 4	O 4	0
14	aK	1	Total 37	C 30	Mg 1	N 4	O 2	0
14	aL	1	Total 172	C 141	Mg 3	N 12	O 16	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms	AltConf
14	aL	1	Total C Mg N O 172 141 3 12 16	0
14	aL	1	Total C Mg N O 172 141 3 12 16	0
14	bA	1	Total C Mg N O 1862 1499 37 148 178	0
14	bA	1	Total C Mg N O 1862 1499 37 148 178	0
14	bA	1	Total C Mg N O 1862 1499 37 148 178	0
14	bA	1	Total C Mg N O 1862 1499 37 148 178	0
14	bA	1	Total C Mg N O 1862 1499 37 148 178	0
14	bA	1	Total C Mg N O 1862 1499 37 148 178	0
14	bA	1	Total C Mg N O 1862 1499 37 148 178	0
14	bA	1	Total C Mg N O 1862 1499 37 148 178	0
14	bA	1	Total C Mg N O 1862 1499 37 148 178	0
14	bA	1	Total C Mg N O 1862 1499 37 148 178	0
14	bA	1	Total C Mg N O 1862 1499 37 148 178	0
14	bA	1	Total C Mg N O 1862 1499 37 148 178	0
14	bA	1	Total C Mg N O 1862 1499 37 148 178	0
14	bA	1	Total C Mg N O 1862 1499 37 148 178	0
14	bA	1	Total C Mg N O 1862 1499 37 148 178	0
14	bA	1	Total C Mg N O 1862 1499 37 148 178	0
14	bA	1	Total C Mg N O 1862 1499 37 148 178	0
14	bA	1	Total C Mg N O 1862 1499 37 148 178	0
14	bA	1	Total C Mg N O 1862 1499 37 148 178	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf
14	bA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	bA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	bA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	bA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	bA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	bA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	bA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	bA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	bA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	bA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	bA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	bA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	bA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	bA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	bA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	bA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	bA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	bA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	bB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	bB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	bB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf
14	bB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	bB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	bB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	bB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	bB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	bB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	bB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	bB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	bB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	bB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	bB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	bB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	bB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	bB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	bB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	bB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	bB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	bB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	bB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	bB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	bB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf
14	bB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	bB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	bB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	bF	1	Total 38	C 31	Mg 1	N 4	O 2	0
14	bJ	1	Total 42	C 33	Mg 1	N 4	O 4	0
14	bK	1	Total 37	C 30	Mg 1	N 4	O 2	0
14	bL	1	Total 172	C 141	Mg 3	N 12	O 16	0
14	bL	1	Total 172	C 141	Mg 3	N 12	O 16	0
14	bL	1	Total 172	C 141	Mg 3	N 12	O 16	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cA	1	Total 1862	C 1499	Mg 37	N 148	O 178	0
14	cB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	cB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	cB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	cB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	cB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	cB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	cB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	cB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	cB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	cB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	cB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	cB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	cB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	cB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	cB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	cB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0
14	cB	1	Total 1410	C 1143	Mg 27	N 108	O 132	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms	AltConf
14	cB	1	Total C Mg N O 1410 1143 27 108 132	0
14	cB	1	Total C Mg N O 1410 1143 27 108 132	0
14	cB	1	Total C Mg N O 1410 1143 27 108 132	0
14	cB	1	Total C Mg N O 1410 1143 27 108 132	0
14	cB	1	Total C Mg N O 1410 1143 27 108 132	0
14	cB	1	Total C Mg N O 1410 1143 27 108 132	0
14	cB	1	Total C Mg N O 1410 1143 27 108 132	0
14	cB	1	Total C Mg N O 1410 1143 27 108 132	0
14	cB	1	Total C Mg N O 1410 1143 27 108 132	0
14	cB	1	Total C Mg N O 1410 1143 27 108 132	0
14	cF	1	Total C Mg N O 38 31 1 4 2	0
14	cJ	1	Total C Mg N O 42 33 1 4 4	0
14	cK	1	Total C Mg N O 37 30 1 4 2	0
14	cL	1	Total C Mg N O 172 141 3 12 16	0
14	cL	1	Total C Mg N O 172 141 3 12 16	0
14	cL	1	Total C Mg N O 172 141 3 12 16	0

- Molecule 15 is UNKNOWN LIGAND (three-letter code: UNL) (formula:) (labeled as "Ligand of Interest" by depositor).

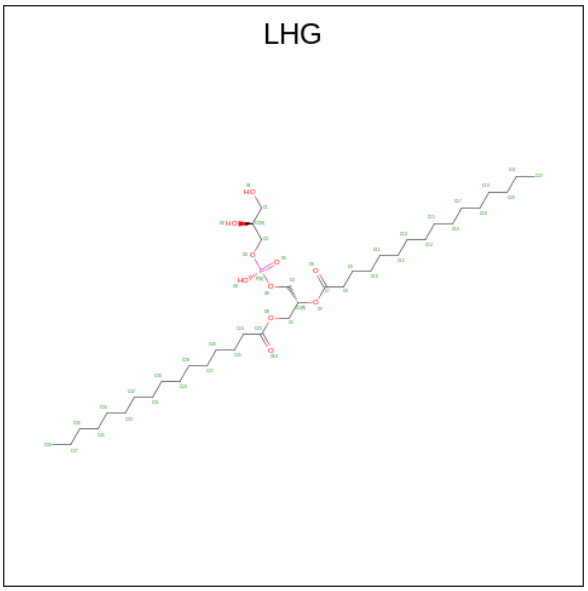
Mol	Chain	Residues	Atoms	AltConf
15	aA	4	Total C 150 150	0
15	aB	3	Total C 120 120	0
15	aI	2	Total C 80 80	0

Continued on next page...

Continued from previous page...

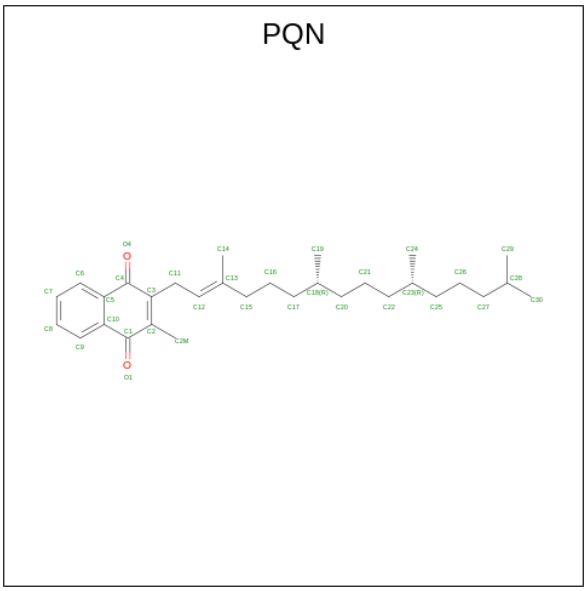
Mol	Chain	Residues	Atoms	AltConf
15	aJ	1	Total C 40 40	0
15	aL	2	Total C 80 80	0
15	bA	4	Total C 150 150	0
15	bB	3	Total C 120 120	0
15	bI	2	Total C 80 80	0
15	bJ	1	Total C 40 40	0
15	bL	2	Total C 80 80	0
15	cA	3	Total C 110 110	0
15	cB	3	Total C 120 120	0
15	cF	1	Total C 40 40	0
15	cI	2	Total C 80 80	0
15	cJ	1	Total C 40 40	0
15	cL	2	Total C 80 80	0

- Molecule 16 is 1,2-DIPALMITOYL-PHOSPHATIDYL-GLYCEROLE (three-letter code: LHG) (formula: $C_{38}H_{75}O_{10}P$) (labeled as "Ligand of Interest" by depositor).



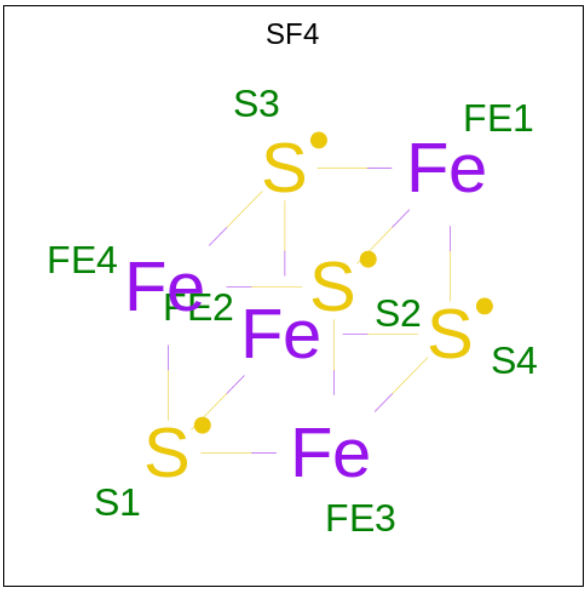
Mol	Chain	Residues	Atoms				AltConf
16	aA	1	Total	C	O	P	0
			70	50	18	2	
16	aA	1	Total	C	O	P	0
			70	50	18	2	
16	bA	1	Total	C	O	P	0
			70	50	18	2	
16	bA	1	Total	C	O	P	0
			70	50	18	2	
16	cA	1	Total	C	O	P	0
			70	50	18	2	
16	cA	1	Total	C	O	P	0
			70	50	18	2	

- Molecule 17 is PHYLLOQUINONE (three-letter code: PQN) (formula: $C_{31}H_{46}O_2$) (labeled as "Ligand of Interest" by depositor).



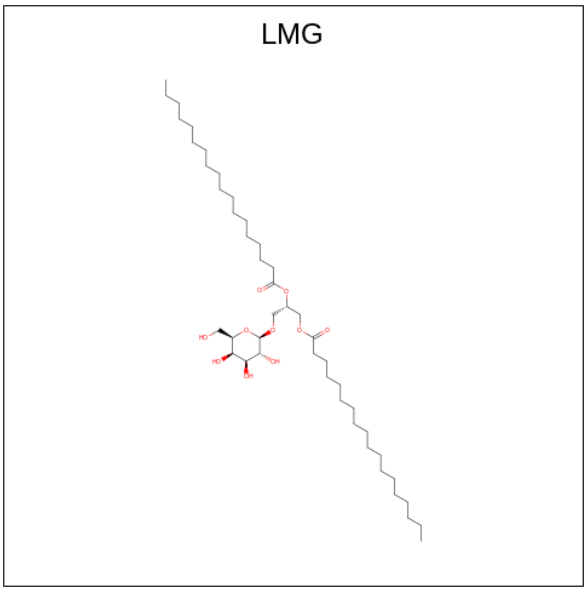
Mol	Chain	Residues	Atoms	AltConf
17	aA	1	Total C O 33 31 2	0
17	aB	1	Total C O 33 31 2	0
17	bA	1	Total C O 33 31 2	0
17	bB	1	Total C O 33 31 2	0
17	cA	1	Total C O 33 31 2	0
17	cB	1	Total C O 33 31 2	0

- Molecule 18 is IRON/SULFUR CLUSTER (three-letter code: SF4) (formula: Fe_4S_4) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms			AltConf
18	aB	1	Total 8	Fe 4	S 4	0
18	aC	1	Total 16	Fe 8	S 8	0
18	aC	1	Total 16	Fe 8	S 8	0
18	bB	1	Total 8	Fe 4	S 4	0
18	bC	1	Total 16	Fe 8	S 8	0
18	bC	1	Total 16	Fe 8	S 8	0
18	cB	1	Total 8	Fe 4	S 4	0
18	cC	1	Total 16	Fe 8	S 8	0
18	cC	1	Total 16	Fe 8	S 8	0

- Molecule 19 is 1,2-DISTEAROYL-MONOGALACTOSYL-DIGLYCERIDE (three-letter code: LMG) (formula: $C_{45}H_{86}O_{10}$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	AltConf
19	aB	1	Total C O 52 42 10	0
19	bB	1	Total C O 52 42 10	0
19	cB	1	Total C O 52 42 10	0

- Molecule 20 is water.

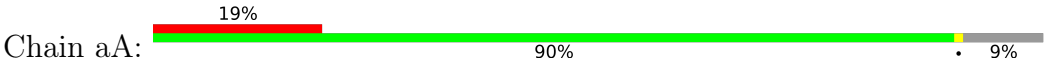
Mol	Chain	Residues	Atoms	AltConf
20	aA	13	Total O 13 13	0
20	aB	12	Total O 12 12	0
20	aL	3	Total O 3 3	0
20	bA	12	Total O 12 12	0
20	bB	13	Total O 13 13	0
20	bL	3	Total O 3 3	0
20	cA	13	Total O 13 13	0
20	cB	12	Total O 12 12	0
20	cL	3	Total O 3 3	0

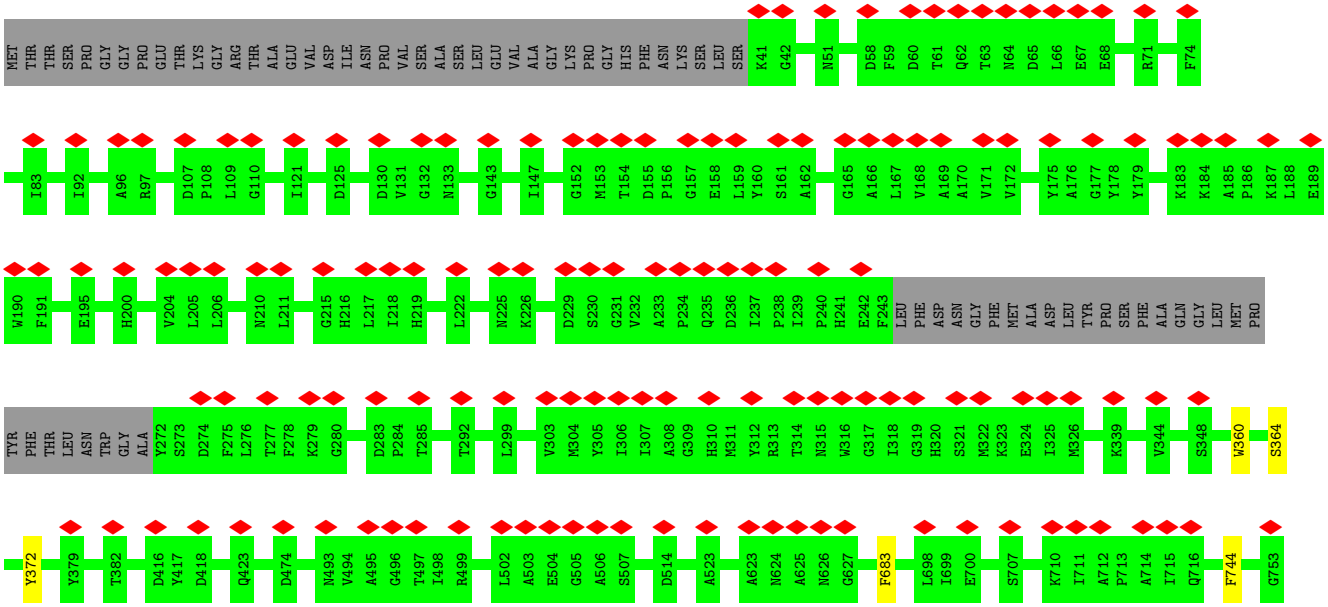
3 Residue-property plots (i)

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 I P700 chlorophyll a apoprotein A1

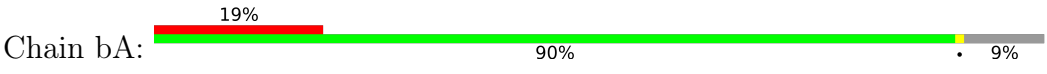
Chain aA:

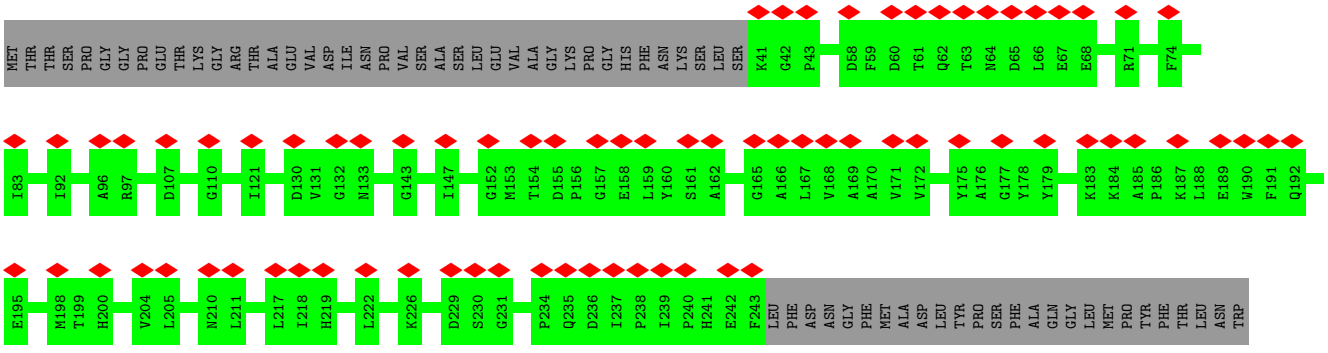


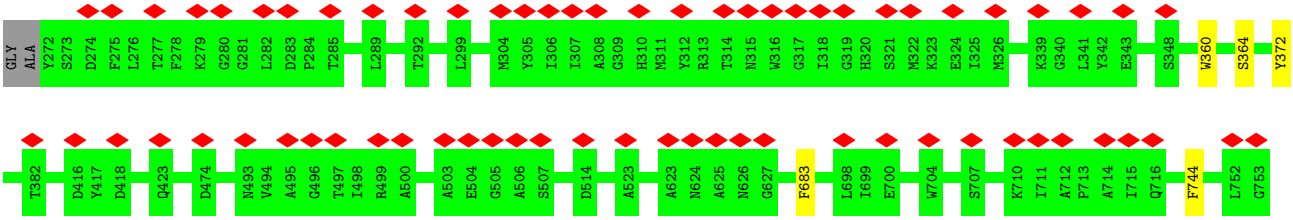


• Molecule 1: Photosystem I P700 chlorophyll a apoprotein A1

Chain bA:

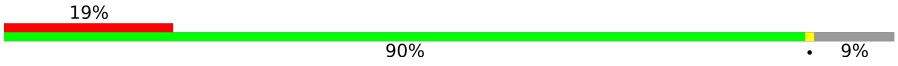


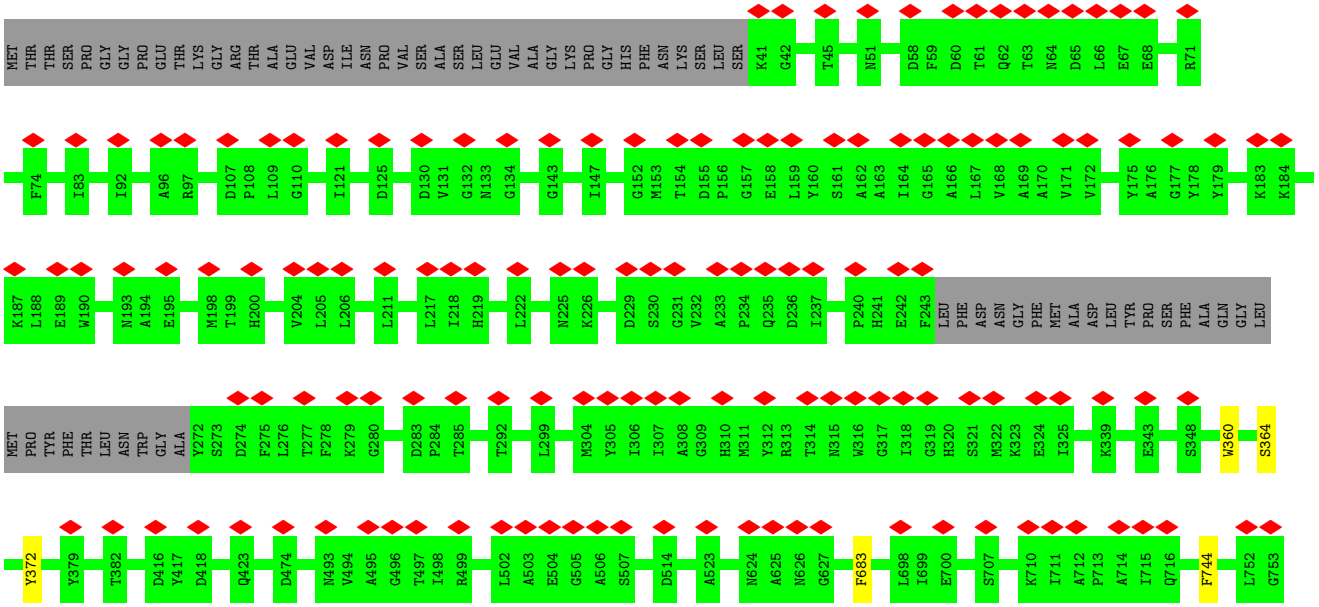




• Molecule 1: Photosystem I P700 chlorophyll a apoprotein A1

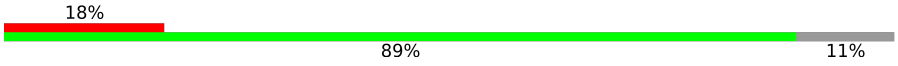
Chain cA:

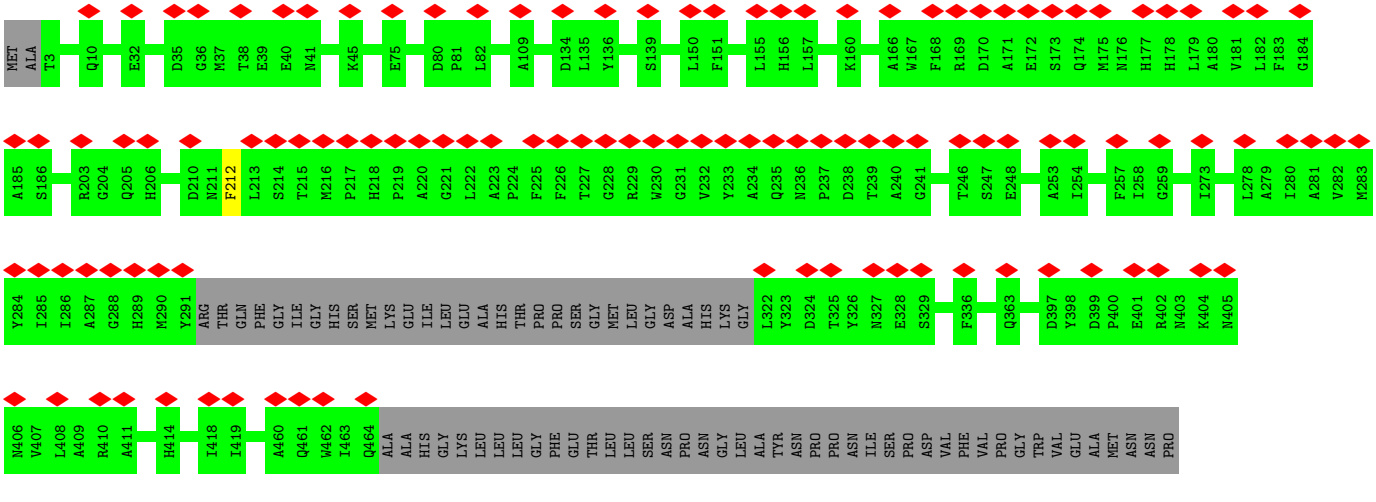


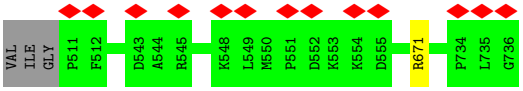


• Molecule 2: Photosystem I P700 chlorophyll a apoprotein A2

Chain aB:

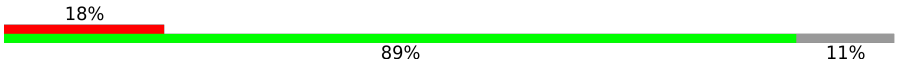


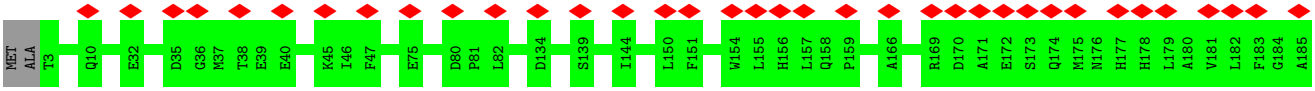


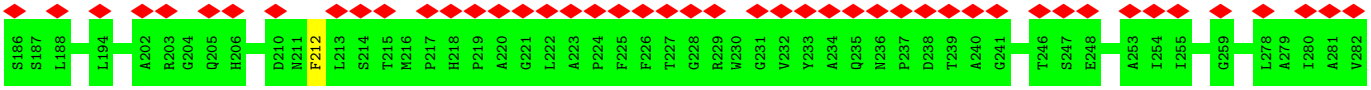


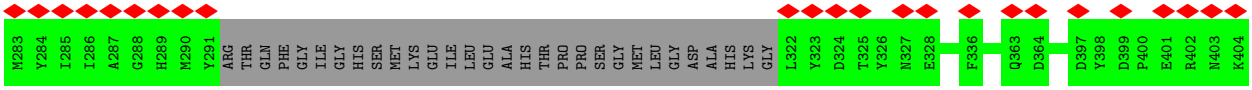
• Molecule 2: Photosystem I P700 chlorophyll a apoprotein A2

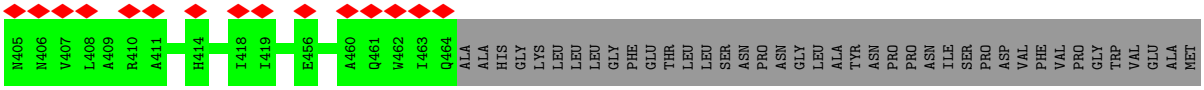
Chain bB:

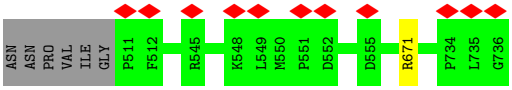






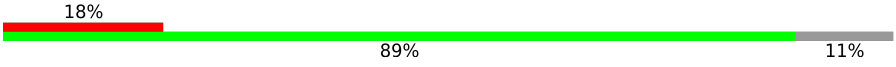


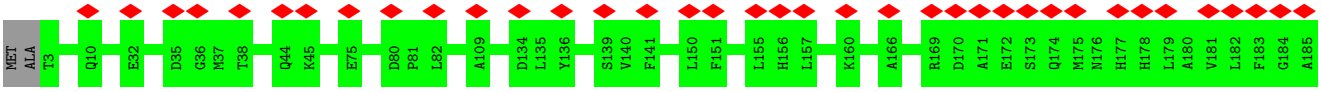


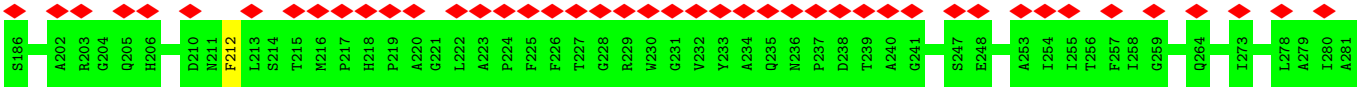


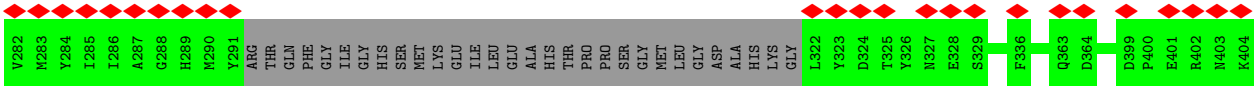
• Molecule 2: Photosystem I P700 chlorophyll a apoprotein A2

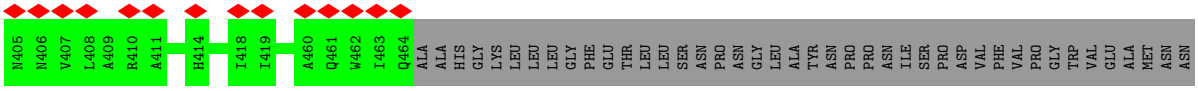
Chain cB:

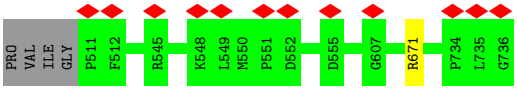






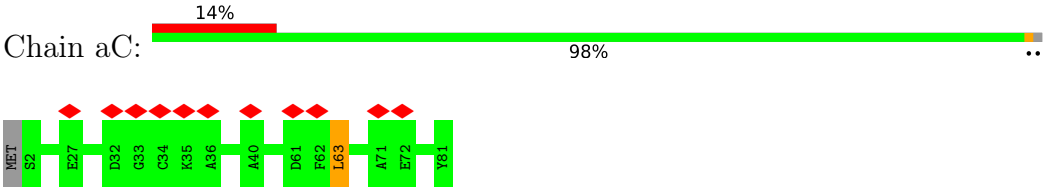






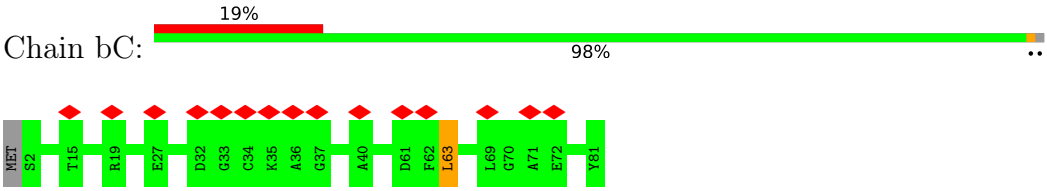
• Molecule 3: Photosystem I iron-sulfur center

Chain aC:



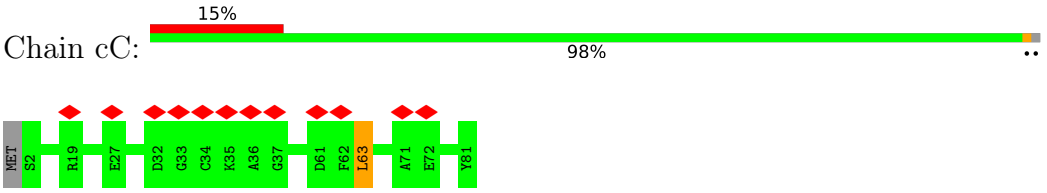
• Molecule 3: Photosystem I iron-sulfur center

Chain bC:



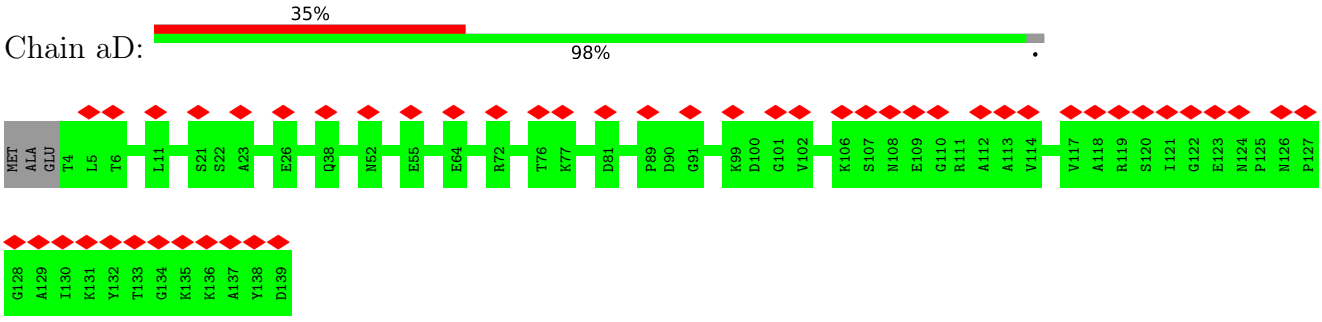
• Molecule 3: Photosystem I iron-sulfur center

Chain cC:



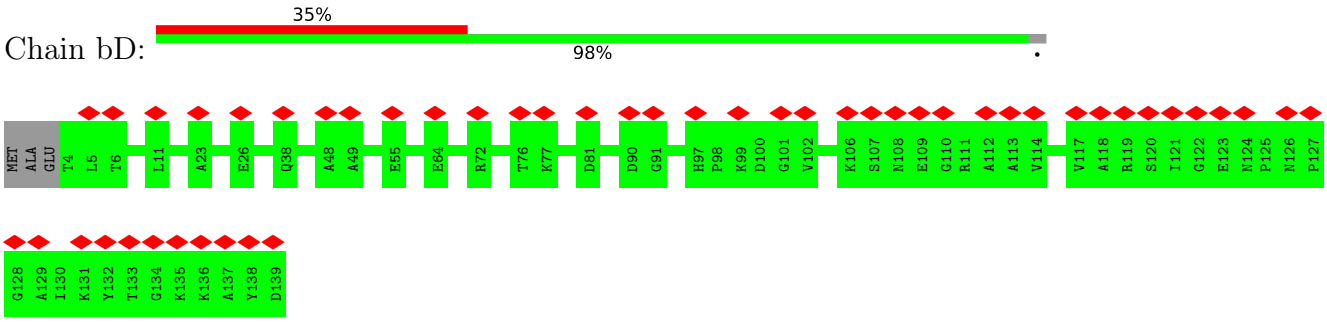
• Molecule 4: Photosystem I protein PsaD

Chain aD:



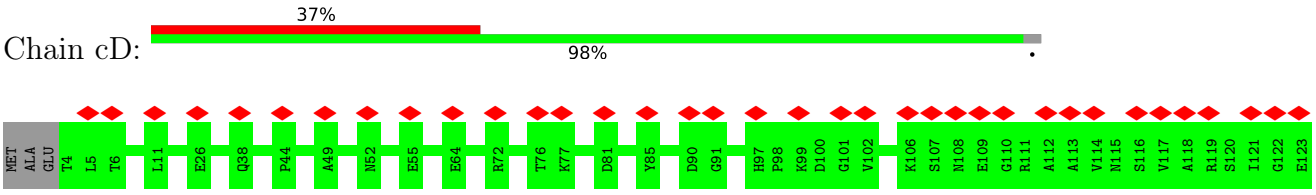
• Molecule 4: Photosystem I protein PsaD

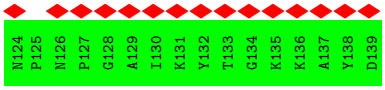
Chain bD:



• Molecule 4: Photosystem I protein PsaD

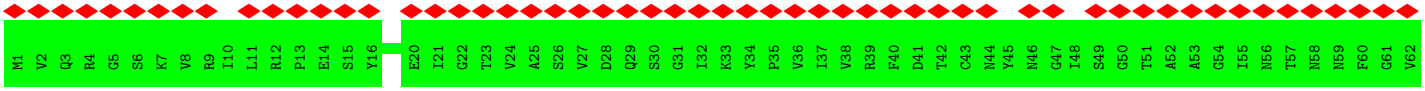
Chain cD:

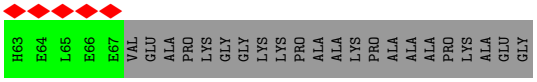




• Molecule 5: Photosystem I reaction center subunit IV

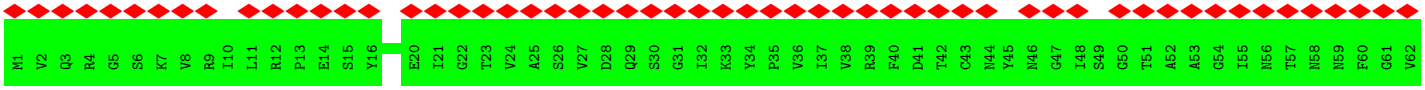
Chain aE:

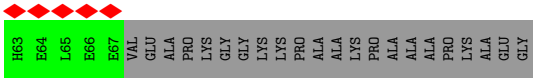




• Molecule 5: Photosystem I reaction center subunit IV

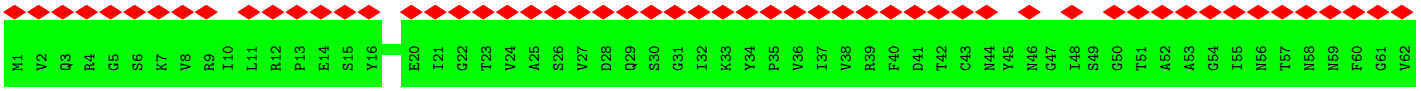
Chain bE:

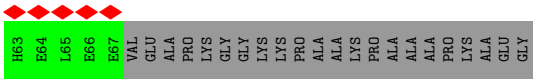




• Molecule 5: Photosystem I reaction center subunit IV

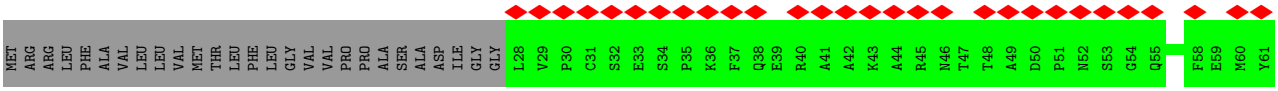
Chain cE:

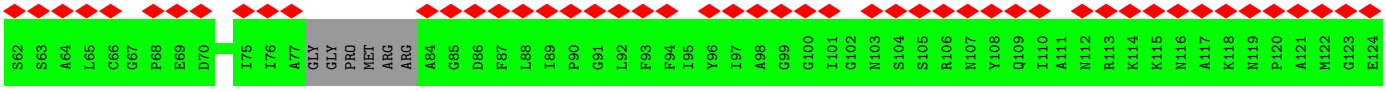


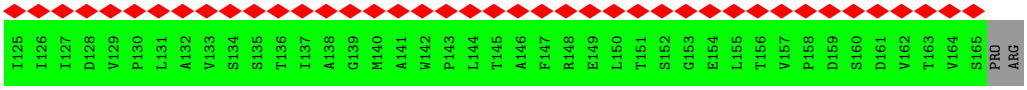


• Molecule 6: Photosystem I protein PsaF

Chain aF:

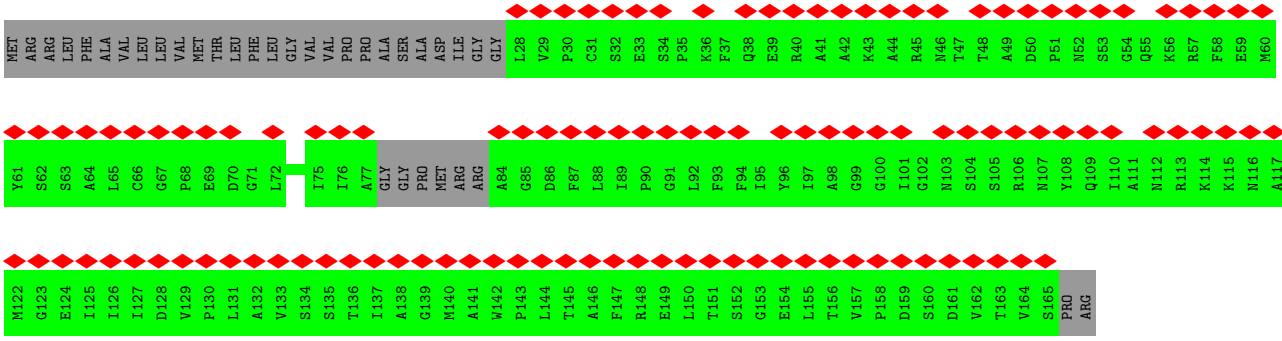






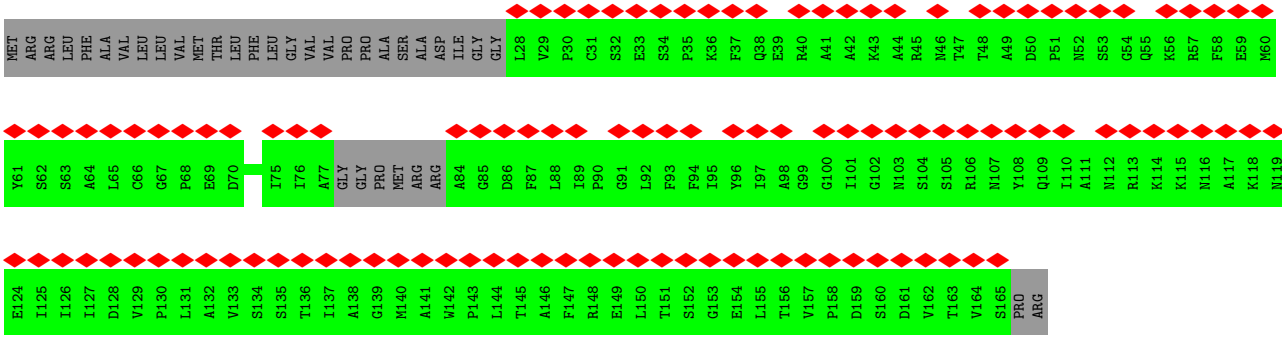
• Molecule 6: Photosystem I protein PsaF

Chain bF:



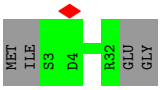
• Molecule 6: Photosystem I protein PsaF

Chain cF:



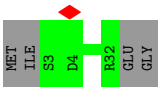
• Molecule 7: Photosystem I protein Psa27

Chain aI:



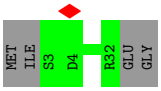
• Molecule 7: Photosystem I protein Psa27

Chain bI:



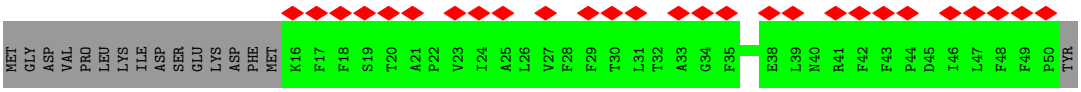
• Molecule 7: Photosystem I protein Psa27

Chain cI:



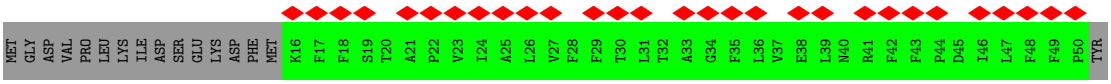
• Molecule 8: Photosystem I reaction center subunit IX

Chain aJ:



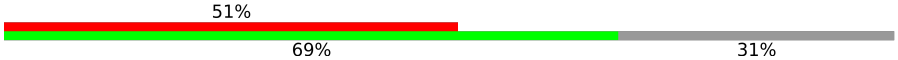
• Molecule 8: Photosystem I reaction center subunit IX

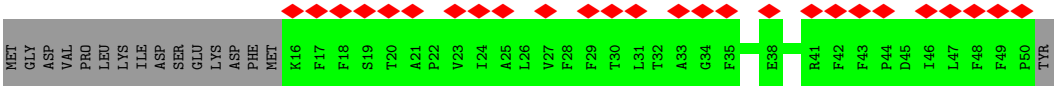
Chain bJ:



• Molecule 8: Photosystem I reaction center subunit IX

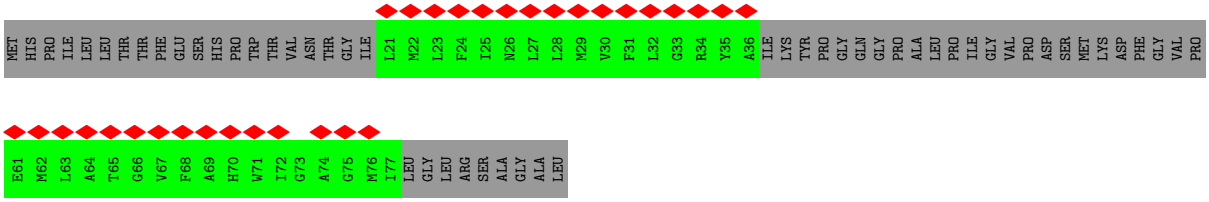
Chain cJ:





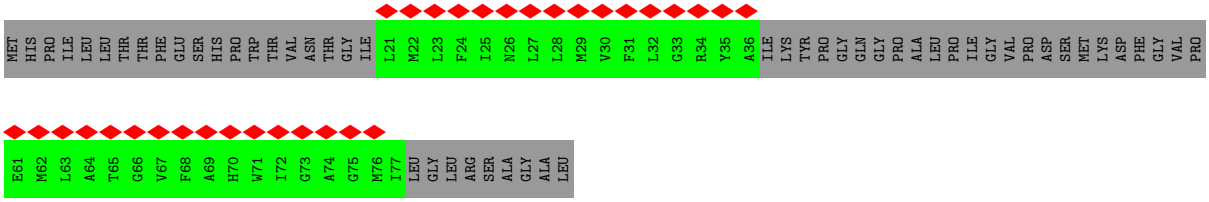
• Molecule 9: Photosystem I reaction center subunit PsaK

Chain aK:



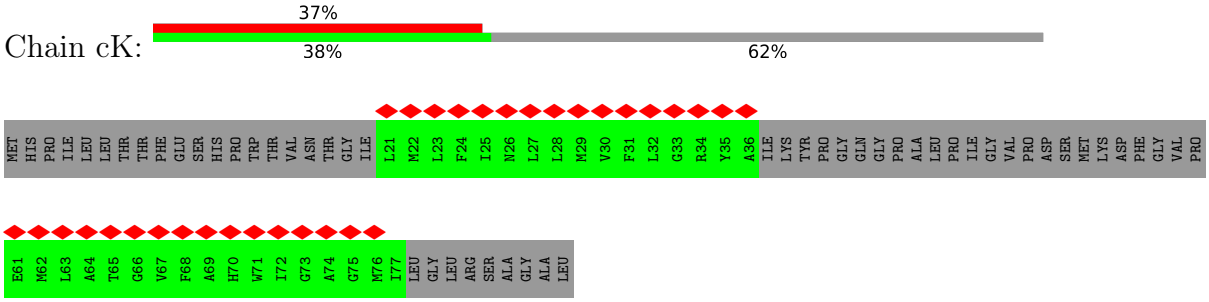
• Molecule 9: Photosystem I reaction center subunit PsaK

Chain bK:



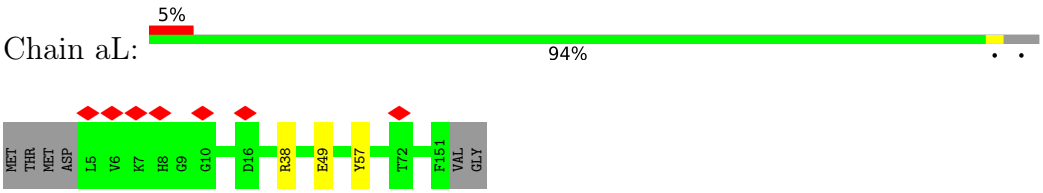
• Molecule 9: Photosystem I reaction center subunit PsaK

Chain cK:



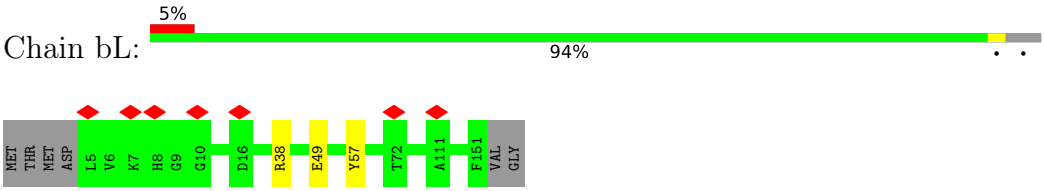
• Molecule 10: Photosystem I protein PsaL

Chain aL:



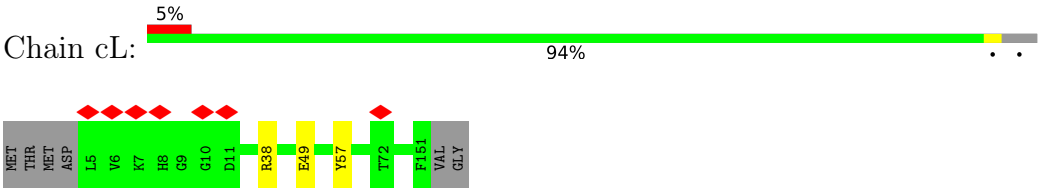
• Molecule 10: Photosystem I protein PsaL

Chain bL:



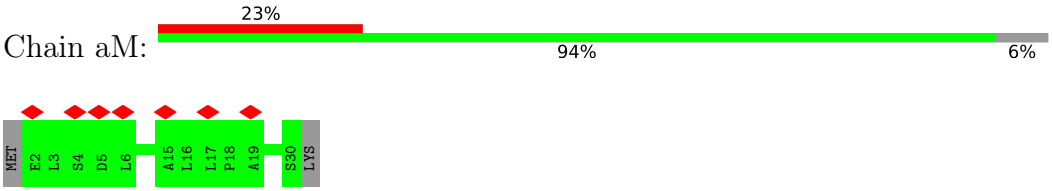
• Molecule 10: Photosystem I protein PsaL

Chain cL:



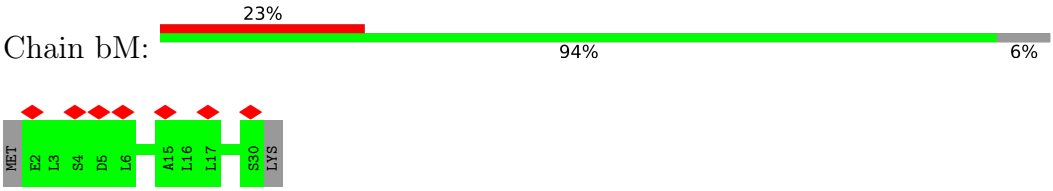
• Molecule 11: Photosystem I protein PsaM

Chain aM:



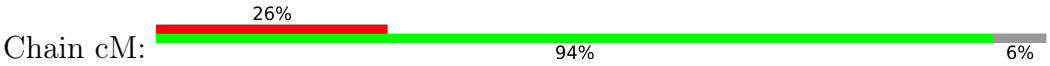
• Molecule 11: Photosystem I protein PsaM

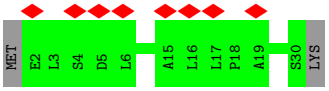
Chain bM:



• Molecule 11: Photosystem I protein PsaM

Chain cM:




MET
E2
L3
S4
D5
L6
A15
L16
L17
P18
A19
S30
LYS

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	86419	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	JEOL CRYO ARM 300	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	85.7	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.075	Depositor
Minimum map value	-0.047	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.001	Depositor
Recommended contour level	0.00637	Depositor
Map size (Å)	356.40002, 356.40002, 356.40002	wwPDB
Map dimensions	330, 330, 330	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.08, 1.08, 1.08	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: LHG, LMG, G9R, UNL, PHO, SF4, CL7, PQN

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	aA	0.77	2/5369 (0.0%)	0.78	0/7326
1	bA	0.77	2/5369 (0.0%)	0.78	0/7326
1	cA	0.77	2/5369 (0.0%)	0.78	0/7326
2	aB	0.74	1/5185 (0.0%)	0.75	1/7107 (0.0%)
2	bB	0.74	1/5185 (0.0%)	0.76	1/7107 (0.0%)
2	cB	0.74	1/5185 (0.0%)	0.76	1/7107 (0.0%)
3	aC	0.70	0/582	0.79	0/792
3	bC	0.70	0/582	0.78	0/792
3	cC	0.70	0/582	0.78	0/792
4	aD	0.62	0/1018	0.68	0/1379
4	bD	0.62	0/1018	0.68	0/1379
4	cD	0.62	0/1018	0.68	0/1379
5	aE	0.77	0/379	0.67	0/524
5	bE	0.75	0/379	0.67	0/524
5	cE	0.77	0/379	0.67	0/524
6	aF	0.67	0/863	0.66	0/1183
6	bF	0.66	0/863	0.65	0/1183
6	cF	0.66	0/863	0.66	0/1183
7	aI	0.67	0/230	0.79	0/313
7	bI	0.68	0/230	0.79	0/313
7	cI	0.68	0/230	0.79	0/313
8	aJ	0.57	0/273	0.59	0/373
8	bJ	0.58	0/273	0.59	0/373
8	cJ	0.57	0/273	0.59	0/373
9	aK	0.81	0/159	0.69	0/217
9	bK	0.81	0/159	0.69	0/217
9	cK	0.81	0/159	0.69	0/217
10	aL	0.82	1/1020 (0.1%)	0.79	1/1394 (0.1%)
10	bL	0.82	1/1020 (0.1%)	0.79	1/1394 (0.1%)
10	cL	0.81	1/1020 (0.1%)	0.79	1/1394 (0.1%)
11	aM	0.66	0/205	0.70	0/281
11	bM	0.66	0/205	0.71	0/281

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
11	cM	0.66	0/205	0.71	0/281
All	All	0.74	12/45849 (0.0%)	0.75	6/62667 (0.0%)

The worst 5 of 12 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	cB	212	PHE	C-N	8.20	1.52	1.34
2	bB	212	PHE	C-N	8.20	1.52	1.34
2	aB	212	PHE	C-N	8.12	1.52	1.34
10	aL	49	GLU	CD-OE2	-5.71	1.19	1.25
10	bL	49	GLU	CD-OE2	-5.43	1.19	1.25

The worst 5 of 6 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	cB	671	ARG	NE-CZ-NH2	-6.26	117.17	120.30
2	aB	671	ARG	NE-CZ-NH2	-6.25	117.18	120.30
2	bB	671	ARG	NE-CZ-NH2	-6.14	117.23	120.30
10	cL	38	ARG	NE-CZ-NH2	-5.34	117.63	120.30
10	bL	38	ARG	NE-CZ-NH2	-5.29	117.66	120.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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	aA	5203	0	4894	0	0
1	bA	5203	0	4894	0	0
1	cA	5203	0	4894	0	0
2	aB	5007	0	4607	0	0
2	bB	5007	0	4607	0	0
2	cB	5007	0	4607	0	0
3	aC	573	0	543	0	0
3	bC	573	0	543	0	0
3	cC	573	0	543	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	aD	999	0	981	0	0
4	bD	999	0	981	0	0
4	cD	999	0	981	0	0
5	aE	375	0	218	0	0
5	bE	375	0	218	0	0
5	cE	375	0	218	0	0
6	aF	847	0	707	0	0
6	bF	847	0	707	0	0
6	cF	847	0	707	0	0
7	aI	225	0	231	0	0
7	bI	225	0	231	0	0
7	cI	225	0	231	0	0
8	aJ	264	0	237	0	0
8	bJ	264	0	237	0	0
8	cJ	264	0	237	0	0
9	aK	161	0	80	0	0
9	bK	161	0	80	0	0
9	cK	161	0	80	0	0
10	aL	999	0	976	0	0
10	bL	999	0	976	0	0
10	cL	999	0	976	0	0
11	aM	205	0	232	0	0
11	bM	205	0	232	0	0
11	cM	205	0	232	0	0
12	aA	65	0	0	0	0
12	bA	65	0	0	0	0
12	cA	65	0	0	0	0
13	aA	64	0	74	0	0
13	aB	64	0	74	0	0
13	bB	128	0	148	0	0
13	cB	128	0	148	0	0
14	aA	1862	0	1586	0	0
14	aB	1410	0	1250	0	0
14	aF	38	0	24	0	0
14	aJ	42	0	28	0	0
14	aK	37	0	23	0	0
14	aL	172	0	169	0	0
14	bA	1862	0	1586	0	0
14	bB	1410	0	1250	0	0
14	bF	38	0	24	0	0
14	bJ	42	0	28	0	0
14	bK	37	0	23	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
14	bL	172	0	169	0	0
14	cA	1862	0	1586	0	0
14	cB	1410	0	1250	0	0
14	cF	38	0	24	0	0
14	cJ	42	0	28	0	0
14	cK	37	0	23	0	0
14	cL	172	0	169	0	0
15	aA	150	0	0	0	0
15	aB	120	0	0	0	0
15	aI	80	0	0	0	0
15	aJ	40	0	0	0	0
15	aL	80	0	0	0	0
15	bA	150	0	0	0	0
15	bB	120	0	0	0	0
15	bI	80	0	0	0	0
15	bJ	40	0	0	0	0
15	bL	80	0	0	0	0
15	cA	110	0	0	0	0
15	cB	120	0	0	0	0
15	cF	40	0	0	0	0
15	cI	80	0	0	0	0
15	cJ	40	0	0	0	0
15	cL	80	0	0	0	0
16	aA	70	0	91	0	0
16	bA	70	0	90	0	0
16	cA	70	0	90	0	0
17	aA	33	0	46	0	0
17	aB	33	0	46	0	0
17	bA	33	0	46	0	0
17	bB	33	0	46	0	0
17	cA	33	0	46	0	0
17	cB	33	0	46	0	0
18	aB	8	0	0	0	0
18	aC	16	0	0	0	0
18	bB	8	0	0	0	0
18	bC	16	0	0	0	0
18	cB	8	0	0	0	0
18	cC	16	0	0	0	0
19	aB	52	0	77	0	0
19	bB	52	0	77	0	0
19	cB	52	0	77	0	0
20	aA	13	0	0	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
20	aB	12	0	0	0	0
20	aL	3	0	0	0	0
20	bA	12	0	0	0	0
20	bB	13	0	0	0	0
20	bL	3	0	0	0	0
20	cA	13	0	0	0	0
20	cB	12	0	0	0	0
20	cL	3	0	0	0	0
All	All	57966	0	51580	0	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 11.

There are no clashes within the asymmetric unit.

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	aA	681/753 (90%)	637 (94%)	44 (6%)	0	100	100
1	bA	681/753 (90%)	635 (93%)	46 (7%)	0	100	100
1	cA	681/753 (90%)	637 (94%)	44 (6%)	0	100	100
2	aB	652/736 (89%)	616 (94%)	36 (6%)	0	100	100
2	bB	652/736 (89%)	616 (94%)	36 (6%)	0	100	100
2	cB	652/736 (89%)	616 (94%)	36 (6%)	0	100	100
3	aC	78/81 (96%)	72 (92%)	5 (6%)	1 (1%)	12	21
3	bC	78/81 (96%)	72 (92%)	5 (6%)	1 (1%)	12	21
3	cC	78/81 (96%)	72 (92%)	5 (6%)	1 (1%)	12	21
4	aD	134/139 (96%)	126 (94%)	8 (6%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	bD	134/139 (96%)	126 (94%)	8 (6%)	0	100	100
4	cD	134/139 (96%)	126 (94%)	8 (6%)	0	100	100
5	aE	65/89 (73%)	61 (94%)	4 (6%)	0	100	100
5	bE	65/89 (73%)	61 (94%)	4 (6%)	0	100	100
5	cE	65/89 (73%)	61 (94%)	4 (6%)	0	100	100
6	aF	128/167 (77%)	120 (94%)	8 (6%)	0	100	100
6	bF	128/167 (77%)	120 (94%)	8 (6%)	0	100	100
6	cF	128/167 (77%)	119 (93%)	9 (7%)	0	100	100
7	aI	28/34 (82%)	27 (96%)	1 (4%)	0	100	100
7	bI	28/34 (82%)	27 (96%)	1 (4%)	0	100	100
7	cI	28/34 (82%)	27 (96%)	1 (4%)	0	100	100
8	aJ	33/51 (65%)	31 (94%)	2 (6%)	0	100	100
8	bJ	33/51 (65%)	31 (94%)	2 (6%)	0	100	100
8	cJ	33/51 (65%)	31 (94%)	2 (6%)	0	100	100
9	aK	29/86 (34%)	29 (100%)	0	0	100	100
9	bK	29/86 (34%)	29 (100%)	0	0	100	100
9	cK	29/86 (34%)	29 (100%)	0	0	100	100
10	aL	145/153 (95%)	142 (98%)	3 (2%)	0	100	100
10	bL	145/153 (95%)	142 (98%)	3 (2%)	0	100	100
10	cL	145/153 (95%)	142 (98%)	3 (2%)	0	100	100
11	aM	27/31 (87%)	27 (100%)	0	0	100	100
11	bM	27/31 (87%)	27 (100%)	0	0	100	100
11	cM	27/31 (87%)	27 (100%)	0	0	100	100
All	All	6000/6960 (86%)	5661 (94%)	336 (6%)	3 (0%)	54	73

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	aC	63	LEU
3	cC	63	LEU
3	bC	63	LEU

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	aA	500/606 (82%)	497 (99%)	3 (1%)	86 95
1	bA	500/606 (82%)	497 (99%)	3 (1%)	86 95
1	cA	500/606 (82%)	497 (99%)	3 (1%)	86 95
2	aB	471/594 (79%)	471 (100%)	0	100 100
2	bB	471/594 (79%)	471 (100%)	0	100 100
2	cB	471/594 (79%)	471 (100%)	0	100 100
3	aC	60/69 (87%)	59 (98%)	1 (2%)	60 82
3	bC	60/69 (87%)	59 (98%)	1 (2%)	60 82
3	cC	60/69 (87%)	59 (98%)	1 (2%)	60 82
4	aD	99/112 (88%)	99 (100%)	0	100 100
4	bD	99/112 (88%)	99 (100%)	0	100 100
4	cD	99/112 (88%)	99 (100%)	0	100 100
5	aE	11/69 (16%)	11 (100%)	0	100 100
5	bE	11/69 (16%)	11 (100%)	0	100 100
5	cE	11/69 (16%)	11 (100%)	0	100 100
6	aF	62/133 (47%)	62 (100%)	0	100 100
6	bF	62/133 (47%)	62 (100%)	0	100 100
6	cF	62/133 (47%)	62 (100%)	0	100 100
7	aI	23/26 (88%)	23 (100%)	0	100 100
7	bI	23/26 (88%)	23 (100%)	0	100 100
7	cI	23/26 (88%)	23 (100%)	0	100 100
8	aJ	23/46 (50%)	23 (100%)	0	100 100
8	bJ	23/46 (50%)	23 (100%)	0	100 100
8	cJ	23/46 (50%)	23 (100%)	0	100 100
10	aL	96/112 (86%)	95 (99%)	1 (1%)	76 90
10	bL	96/112 (86%)	95 (99%)	1 (1%)	76 90

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
10	cL	96/112 (86%)	95 (99%)	1 (1%)	76 90
11	aM	23/25 (92%)	23 (100%)	0	100 100
11	bM	23/25 (92%)	23 (100%)	0	100 100
11	cM	23/25 (92%)	23 (100%)	0	100 100
All	All	4104/5376 (76%)	4089 (100%)	15 (0%)	91 97

5 of 15 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	bA	744	PHE
3	cC	63	LEU
3	bC	63	LEU
10	cL	57	TYR
1	cA	372	TYR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 27 such sidechains are listed below:

Mol	Chain	Res	Type
1	bA	608	ASN
3	bC	38	GLN
2	cB	337	HIS
2	bB	685	HIS
1	cA	94	HIS

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 279 ligands modelled in this entry, 36 are unknown - leaving 243 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	$\#\|Z\| > 2$
12	G9R	cA	3101	-	65,71,71	2.77	19 (29%)	71,104,104	2.86	31 (43%)
14	CL7	aB	3007	-	66,73,73	2.28	19 (28%)	65,113,113	1.86	15 (23%)
14	CL7	bA	3102	-	66,73,73	2.65	21 (31%)	65,113,113	2.24	19 (29%)
14	CL7	aB	3023	-	57,64,73	2.40	16 (28%)	54,102,113	1.60	11 (20%)
14	CL7	cA	3108	1	43,50,73	2.69	17 (39%)	36,85,113	1.98	13 (36%)
14	CL7	cA	3124	-	66,73,73	2.48	24 (36%)	65,113,113	2.15	18 (27%)
14	CL7	bB	825	-	39,46,73	2.69	15 (38%)	30,80,113	1.50	3 (10%)
14	CL7	cB	825	-	39,46,73	2.73	15 (38%)	30,80,113	1.54	5 (16%)
14	CL7	aA	3141	-	66,73,73	2.19	19 (28%)	65,113,113	1.57	14 (21%)
14	CL7	bA	3107	-	66,73,73	2.31	19 (28%)	65,113,113	1.59	10 (15%)
14	CL7	cA	3127	-	52,59,73	2.68	18 (34%)	48,96,113	1.99	15 (31%)
14	CL7	aA	3124	-	52,59,73	2.66	19 (36%)	48,96,113	2.15	17 (35%)
14	CL7	aA	3133	-	66,73,73	2.47	24 (36%)	65,113,113	1.91	19 (29%)
14	CL7	bA	3108	-	43,50,73	2.78	19 (44%)	36,85,113	1.81	11 (30%)
14	CL7	cA	3113	-	42,49,73	2.72	15 (35%)	36,84,113	1.78	10 (27%)
14	CL7	cB	806	-	66,73,73	2.42	20 (30%)	65,113,113	1.64	12 (18%)
14	CL7	bJ	101	8	43,50,73	2.64	15 (34%)	35,85,113	1.35	3 (8%)
17	PQN	bA	3143	-	34,34,34	2.06	12 (35%)	42,45,45	1.67	6 (14%)
17	PQN	cB	828	-	34,34,34	2.55	13 (38%)	42,45,45	1.51	6 (14%)
14	CL7	bA	3127	-	52,59,73	2.63	16 (30%)	48,96,113	2.03	17 (35%)
14	CL7	aA	3132	-	42,49,73	2.68	15 (35%)	36,84,113	1.83	9 (25%)
18	SF4	aC	101	3	0,12,12	-	-	-		
14	CL7	bA	3111	-	39,46,73	2.80	16 (41%)	30,80,113	1.35	3 (10%)
14	CL7	bA	3120	-	52,59,73	2.49	16 (30%)	48,96,113	1.91	14 (29%)
18	SF4	bC	102	3	0,12,12	-	-	-		
14	CL7	cA	3123	-	52,59,73	2.74	22 (42%)	48,96,113	2.44	16 (33%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
14	CL7	bB	813	-	39,46,73	2.74	16 (41%)	30,80,113	1.43	4 (13%)
14	CL7	bA	3128	-	66,73,73	2.44	22 (33%)	65,113,113	1.94	22 (33%)
14	CL7	cA	3139	-	66,73,73	2.20	16 (24%)	65,113,113	1.54	8 (12%)
14	CL7	bA	3139	-	66,73,73	2.22	18 (27%)	65,113,113	1.52	8 (12%)
14	CL7	cA	3105	-	42,49,73	2.90	15 (35%)	36,84,113	2.18	14 (38%)
14	CL7	cB	816	-	51,58,73	2.70	21 (41%)	47,95,113	1.97	12 (25%)
17	PQN	cA	3143	-	34,34,34	2.07	10 (29%)	42,45,45	1.62	6 (14%)
14	CL7	aA	3134	16	42,49,73	2.57	15 (35%)	36,84,113	1.70	6 (16%)
14	CL7	bB	811	-	42,49,73	2.75	18 (42%)	36,84,113	1.93	9 (25%)
14	CL7	cB	811	-	42,49,73	2.73	16 (38%)	36,84,113	1.77	7 (19%)
14	CL7	bA	3105	-	42,49,73	2.91	17 (40%)	36,84,113	2.24	15 (41%)
14	CL7	cB	813	-	39,46,73	2.75	16 (41%)	30,80,113	1.45	3 (10%)
13	PHO	bB	801	-	51,69,69	3.70	13 (25%)	47,99,99	1.70	8 (17%)
19	LMG	bB	830	-	52,52,55	0.97	3 (5%)	60,60,63	1.28	6 (10%)
14	CL7	cA	3111	-	39,46,73	2.79	16 (41%)	30,80,113	1.38	3 (10%)
14	CL7	cA	3109	-	42,49,73	2.62	15 (35%)	36,84,113	1.67	9 (25%)
14	CL7	cA	3120	-	52,59,73	2.50	18 (34%)	48,96,113	1.87	13 (27%)
14	CL7	cA	3130	-	42,49,73	2.71	18 (42%)	36,84,113	1.63	7 (19%)
14	CL7	bA	3121	-	42,49,73	2.77	24 (57%)	36,84,113	2.00	9 (25%)
14	CL7	cA	3142	-	66,73,73	2.41	19 (28%)	65,113,113	1.65	12 (18%)
14	CL7	aA	3127	1	54,61,73	2.43	16 (29%)	51,97,113	1.28	7 (13%)
14	CL7	cB	826	-	66,73,73	2.59	21 (31%)	65,113,113	1.50	16 (24%)
16	LHG	cA	3138	14	20,20,48	1.60	4 (20%)	22,25,54	1.17	2 (9%)
14	CL7	aA	3111	-	42,49,73	2.60	14 (33%)	36,84,113	1.66	5 (13%)
14	CL7	cA	3128	-	66,73,73	2.37	21 (31%)	65,113,113	1.83	19 (29%)
14	CL7	bA	3109	-	42,49,73	2.64	15 (35%)	36,84,113	1.68	9 (25%)
14	CL7	cB	807	-	66,73,73	2.19	18 (27%)	65,113,113	1.74	17 (26%)
16	LHG	bA	3138	14	20,20,48	1.64	4 (20%)	22,25,54	1.25	2 (9%)
14	CL7	cA	3110	-	42,49,73	2.63	15 (35%)	36,84,113	1.67	5 (13%)
14	CL7	aA	3117	-	54,61,73	2.35	18 (33%)	50,98,113	1.84	14 (28%)
18	SF4	cC	101	3	0,12,12	-	-	-		
14	CL7	cB	831	-	55,62,73	2.30	16 (29%)	51,99,113	1.63	12 (23%)
14	CL7	aB	3008	2	51,58,73	2.62	19 (37%)	47,95,113	2.04	16 (34%)
14	CL7	bB	812	-	39,46,73	2.79	17 (43%)	30,80,113	1.43	3 (10%)
12	G9R	bA	3101	-	65,71,71	2.73	23 (35%)	71,104,104	3.11	32 (45%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
14	CL7	bA	3104	-	42,49,73	2.62	14 (33%)	36,84,113	1.71	8 (22%)
14	CL7	cB	817	-	42,49,73	2.67	17 (40%)	36,84,113	1.85	8 (22%)
14	CL7	aL	204	-	43,50,73	2.98	21 (48%)	36,85,113	1.74	8 (22%)
14	CL7	cB	827	-	66,73,73	2.51	26 (39%)	65,113,113	1.97	19 (29%)
14	CL7	cB	812	-	39,46,73	2.78	17 (43%)	30,80,113	1.46	5 (16%)
14	CL7	bB	804	-	66,73,73	2.79	27 (40%)	65,113,113	1.84	18 (27%)
14	CL7	aA	3130	-	42,49,73	3.10	21 (50%)	36,84,113	2.30	16 (44%)
14	CL7	aA	3105	-	42,49,73	2.61	14 (33%)	36,84,113	1.71	8 (22%)
14	CL7	aB	3020	-	39,46,73	2.72	16 (41%)	30,80,113	1.27	2 (6%)
14	CL7	bB	819	-	57,64,73	3.14	21 (36%)	54,102,113	1.84	14 (25%)
14	CL7	aB	3018	-	57,64,73	3.14	20 (35%)	54,102,113	1.92	14 (25%)
14	CL7	cA	3133	16	42,49,73	2.55	14 (33%)	36,84,113	1.79	8 (22%)
19	LMG	cB	830	-	52,52,55	0.92	3 (5%)	60,60,63	1.35	7 (11%)
14	CL7	aF	201	-	39,46,73	2.76	17 (43%)	30,80,113	1.58	2 (6%)
14	CL7	aA	3112	-	39,46,73	2.77	17 (43%)	30,80,113	1.34	2 (6%)
14	CL7	bA	3116	-	54,61,73	2.41	19 (35%)	50,98,113	1.91	13 (26%)
14	CL7	aB	3012	-	39,46,73	2.75	17 (43%)	30,80,113	1.44	5 (16%)
14	CL7	cA	3132	-	66,73,73	2.48	24 (36%)	65,113,113	1.99	21 (32%)
16	LHG	bA	3137	-	48,48,48	1.08	5 (10%)	51,54,54	0.97	3 (5%)
14	CL7	cB	803	-	66,73,73	2.46	20 (30%)	65,113,113	2.11	17 (26%)
14	CL7	bB	821	-	39,46,73	2.69	16 (41%)	30,80,113	1.27	2 (6%)
14	CL7	cA	3102	-	66,73,73	2.64	20 (30%)	65,113,113	2.29	21 (32%)
14	CL7	cA	3114	-	66,73,73	2.15	17 (25%)	65,113,113	1.88	20 (30%)
13	PHO	aA	3102	-	51,69,69	3.64	14 (27%)	47,99,99	1.74	8 (17%)
14	CL7	bA	3129	-	42,49,73	3.24	23 (54%)	36,84,113	2.39	17 (47%)
14	CL7	bA	3122	-	51,58,73	2.38	16 (31%)	47,95,113	2.29	15 (31%)
14	CL7	aA	3114	-	42,49,73	2.66	15 (35%)	36,84,113	1.64	7 (19%)
14	CL7	cA	3125	-	66,73,73	2.38	21 (31%)	65,113,113	2.12	20 (30%)
14	CL7	cA	3117	-	39,46,73	2.71	16 (41%)	30,80,113	1.57	6 (20%)
14	CL7	aB	3014	-	42,49,73	2.67	17 (40%)	36,84,113	1.60	7 (19%)
14	CL7	aB	3026	-	66,73,73	2.65	27 (40%)	65,113,113	1.97	19 (29%)
14	CL7	bA	3123	-	52,59,73	2.67	19 (36%)	48,96,113	2.26	16 (33%)
14	CL7	bL	203	10	66,73,73	2.29	17 (25%)	65,113,113	1.80	17 (26%)
12	G9R	aA	3101	-	65,71,71	2.56	20 (30%)	71,104,104	2.95	31 (43%)
14	CL7	cA	3116	-	54,61,73	2.41	19 (35%)	50,98,113	1.99	15 (30%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
16	LHG	cA	3137	-	48,48,48	0.97	5 (10%)	51,54,54	1.02	3 (5%)
14	CL7	bA	3130	-	42,49,73	2.70	18 (42%)	36,84,113	1.58	7 (19%)
14	CL7	aB	3022	-	42,49,73	2.64	15 (35%)	36,84,113	2.03	12 (33%)
14	CL7	aA	3116	-	39,46,73	2.66	17 (43%)	30,80,113	1.41	6 (20%)
14	CL7	bA	3126	1	54,61,73	2.44	15 (27%)	51,97,113	1.32	7 (13%)
14	CL7	cB	824	-	57,64,73	2.37	15 (26%)	54,102,113	1.65	11 (20%)
14	CL7	aA	3125	-	66,73,73	2.39	25 (37%)	65,113,113	1.92	16 (24%)
14	CL7	bB	824	-	57,64,73	2.37	15 (26%)	54,102,113	1.63	12 (22%)
14	CL7	cF	201	-	39,46,73	2.77	17 (43%)	30,80,113	1.55	4 (13%)
14	CL7	aA	3129	-	66,73,73	2.23	16 (24%)	65,113,113	1.79	17 (26%)
18	SF4	aC	102	3	0,12,12	-	-	-		
14	CL7	aL	202	10	66,73,73	2.26	17 (25%)	65,113,113	1.79	15 (23%)
13	PHO	cB	805	-	51,69,69	2.98	21 (41%)	47,99,99	2.21	12 (25%)
17	PQN	aB	3027	-	34,34,34	2.53	14 (41%)	42,45,45	1.47	6 (14%)
14	CL7	aA	3115	-	66,73,73	2.07	15 (22%)	65,113,113	1.73	18 (27%)
14	CL7	aB	3019	-	66,73,73	2.31	21 (31%)	65,113,113	1.72	13 (20%)
14	CL7	aA	3128	-	52,59,73	2.63	17 (32%)	48,96,113	1.87	15 (31%)
14	CL7	bB	823	-	42,49,73	2.63	13 (30%)	36,84,113	2.07	12 (33%)
14	CL7	cA	3122	-	51,58,73	2.42	16 (31%)	47,95,113	2.29	14 (29%)
14	CL7	bB	833	-	56,63,73	2.53	20 (35%)	53,101,113	1.69	14 (26%)
14	CL7	cA	3131	-	42,49,73	2.74	16 (38%)	36,84,113	1.76	10 (27%)
14	CL7	aB	3021	-	42,49,73	2.59	15 (35%)	36,84,113	1.88	9 (25%)
14	CL7	aA	3107	-	66,73,73	2.18	21 (31%)	65,113,113	1.69	15 (23%)
17	PQN	bB	828	-	34,34,34	2.48	13 (38%)	42,45,45	1.55	6 (14%)
14	CL7	aB	3013	-	42,49,73	2.56	15 (35%)	36,84,113	1.71	9 (25%)
14	CL7	bA	3103	-	42,49,73	2.64	17 (40%)	36,84,113	1.69	9 (25%)
14	CL7	cA	3126	1	54,61,73	2.48	16 (29%)	51,97,113	1.63	9 (17%)
14	CL7	aB	3009	-	66,73,73	2.35	22 (33%)	65,113,113	1.76	18 (27%)
14	CL7	aA	3126	-	66,73,73	2.31	18 (27%)	65,113,113	1.78	17 (26%)
14	CL7	aA	3146	-	42,49,73	2.60	15 (35%)	36,84,113	1.77	7 (19%)
14	CL7	cL	204	-	66,73,73	2.35	21 (31%)	65,113,113	1.93	20 (30%)
14	CL7	bL	204	-	66,73,73	2.30	18 (27%)	65,113,113	2.02	18 (27%)
13	PHO	aB	3004	-	51,69,69	2.99	19 (37%)	47,99,99	2.30	12 (25%)
14	CL7	bA	3125	-	66,73,73	2.41	21 (31%)	65,113,113	2.14	18 (27%)
14	CL7	aA	3110	-	42,49,73	2.57	14 (33%)	36,84,113	1.65	8 (22%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
14	CL7	aB	3002	-	66,73,73	2.40	19 (28%)	65,113,113	1.84	12 (18%)
14	CL7	cJ	101	8	43,50,73	2.60	17 (39%)	35,85,113	1.31	3 (8%)
14	CL7	bB	803	-	66,73,73	2.45	20 (30%)	65,113,113	2.11	14 (21%)
14	CL7	aA	3120	-	47,54,73	2.67	17 (36%)	42,90,113	2.06	11 (26%)
16	LHG	aA	3138	-	48,48,48	0.97	4 (8%)	51,54,54	0.95	3 (5%)
14	CL7	aB	3006	-	66,73,73	2.19	20 (30%)	65,113,113	1.78	18 (27%)
14	CL7	bA	3115	-	39,46,73	2.68	17 (43%)	30,80,113	1.40	6 (20%)
14	CL7	cA	3144	-	42,49,73	2.59	15 (35%)	36,84,113	1.60	6 (16%)
14	CL7	bB	817	-	42,49,73	2.65	17 (40%)	36,84,113	1.86	8 (22%)
18	SF4	cC	102	3	0,12,12	-	-	-		
18	SF4	aB	3001	2,1	0,12,12	-	-	-		
14	CL7	aA	3131	-	42,49,73	2.68	18 (42%)	36,84,113	1.63	7 (19%)
14	CL7	bB	806	-	66,73,73	2.45	20 (30%)	65,113,113	1.53	11 (16%)
14	CL7	cB	809	2	51,58,73	2.63	19 (37%)	47,95,113	2.08	13 (27%)
14	CL7	cB	822	-	42,49,73	2.54	16 (38%)	36,84,113	2.03	7 (19%)
16	LHG	aA	3139	14	20,20,48	1.51	3 (15%)	22,25,54	1.28	3 (13%)
14	CL7	bB	822	-	42,49,73	2.58	15 (35%)	36,84,113	1.83	7 (19%)
14	CL7	cA	3140	-	66,73,73	2.33	20 (30%)	65,113,113	1.78	16 (24%)
14	CL7	cA	3121	-	42,49,73	2.76	19 (45%)	36,84,113	1.96	9 (25%)
14	CL7	aA	3113	-	42,49,73	2.63	15 (35%)	36,84,113	1.75	8 (22%)
14	CL7	cB	804	-	66,73,73	2.74	29 (43%)	65,113,113	1.80	15 (23%)
14	CL7	cB	819	-	57,64,73	3.21	22 (38%)	54,102,113	1.89	12 (22%)
14	CL7	bA	3140	-	66,73,73	2.32	20 (30%)	65,113,113	1.80	14 (21%)
14	CL7	aA	3121	-	52,59,73	2.40	16 (30%)	48,96,113	2.00	12 (25%)
14	CL7	cA	3112	-	42,49,73	2.68	15 (35%)	36,84,113	1.74	9 (25%)
14	CL7	cA	3129	-	42,49,73	3.28	19 (45%)	36,84,113	2.51	18 (50%)
14	CL7	bB	818	-	42,49,73	2.65	15 (35%)	36,84,113	1.76	8 (22%)
14	CL7	cB	832	-	66,73,73	2.28	20 (30%)	65,113,113	1.82	15 (23%)
13	PHO	bB	805	-	51,69,69	2.96	19 (37%)	47,99,99	2.14	11 (23%)
14	CL7	aB	3030	-	55,62,73	2.34	17 (30%)	51,99,113	1.56	11 (21%)
14	CL7	bB	832	-	66,73,73	2.25	19 (28%)	65,113,113	1.83	14 (21%)
14	CL7	bA	3133	16	42,49,73	2.56	15 (35%)	36,84,113	1.82	6 (16%)
14	CL7	aB	3017	-	42,49,73	2.65	14 (33%)	36,84,113	1.70	8 (22%)
14	CL7	aL	203	-	66,73,73	2.30	19 (28%)	65,113,113	1.97	20 (30%)
14	CL7	aA	3119	-	39,46,73	2.73	18 (46%)	30,80,113	1.68	6 (20%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
14	CL7	cA	3118	-	39,46,73	2.75	18 (46%)	30,80,113	1.69	6 (20%)
14	CL7	cB	823	-	42,49,73	2.65	15 (35%)	36,84,113	2.05	12 (33%)
14	CL7	cA	3107	-	66,73,73	2.31	18 (27%)	65,113,113	1.55	10 (15%)
17	PQN	aA	3144	-	34,34,34	2.03	11 (32%)	42,45,45	1.34	5 (11%)
14	CL7	bB	814	-	42,49,73	2.56	16 (38%)	36,84,113	1.68	9 (25%)
14	CL7	aB	3010	-	42,49,73	2.72	17 (40%)	36,84,113	1.97	10 (27%)
14	CL7	aA	3118	-	39,46,73	2.70	16 (41%)	30,80,113	1.44	5 (16%)
14	CL7	bA	3118	-	39,46,73	2.77	19 (48%)	30,80,113	1.67	5 (16%)
14	CL7	bF	201	-	39,46,73	2.74	18 (46%)	30,80,113	1.57	5 (16%)
19	LMG	aB	3029	-	52,52,55	0.86	1 (1%)	60,60,63	1.22	7 (11%)
14	CL7	aK	101	-	38,45,73	2.85	14 (36%)	31,78,113	1.61	6 (19%)
14	CL7	bK	101	-	38,45,73	2.93	17 (44%)	31,78,113	1.68	6 (19%)
14	CL7	bB	807	-	66,73,73	2.20	19 (28%)	65,113,113	1.76	16 (24%)
14	CL7	aA	3108	-	66,73,73	2.27	18 (27%)	65,113,113	1.52	10 (15%)
14	CL7	aB	3005	-	66,73,73	2.45	20 (30%)	65,113,113	1.61	13 (20%)
14	CL7	bA	3142	-	66,73,73	2.42	19 (28%)	65,113,113	1.63	11 (16%)
14	CL7	bB	826	-	66,73,73	2.56	21 (31%)	65,113,113	1.49	14 (21%)
14	CL7	cA	3103	-	42,49,73	2.65	16 (38%)	36,84,113	1.64	8 (22%)
14	CL7	cL	203	10	66,73,73	2.24	19 (28%)	65,113,113	1.74	12 (18%)
14	CL7	cL	205	-	43,50,73	2.99	21 (48%)	36,85,113	1.78	8 (22%)
14	CL7	bL	205	-	43,50,73	2.99	22 (51%)	36,85,113	1.73	9 (25%)
14	CL7	bA	3114	-	66,73,73	2.17	16 (24%)	65,113,113	1.89	17 (26%)
14	CL7	aA	3140	-	66,73,73	2.17	16 (24%)	65,113,113	1.36	5 (7%)
14	CL7	cK	101	-	38,45,73	2.86	17 (44%)	31,78,113	1.44	4 (12%)
14	CL7	cB	810	-	66,73,73	2.38	24 (36%)	65,113,113	1.76	16 (24%)
14	CL7	bB	810	-	66,73,73	2.38	22 (33%)	65,113,113	1.69	15 (23%)
14	CL7	bA	3106	-	66,73,73	2.28	20 (30%)	65,113,113	1.74	16 (24%)
14	CL7	aJ	101	8	43,50,73	2.63	16 (37%)	35,85,113	1.31	3 (8%)
14	CL7	bB	809	2	51,58,73	2.71	20 (39%)	47,95,113	2.13	15 (31%)
14	CL7	cB	815	-	42,49,73	2.72	16 (38%)	36,84,113	1.77	8 (22%)
14	CL7	bB	815	-	42,49,73	2.71	15 (35%)	36,84,113	1.78	9 (25%)
14	CL7	cB	818	-	42,49,73	2.64	16 (38%)	36,84,113	1.56	6 (16%)
14	CL7	bB	827	-	66,73,73	2.53	25 (37%)	65,113,113	2.10	24 (36%)
14	CL7	cB	833	-	56,63,73	2.52	19 (33%)	53,101,113	1.73	12 (22%)
14	CL7	bA	3110	-	42,49,73	2.64	14 (33%)	36,84,113	1.64	6 (16%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
14	CL7	cB	821	-	39,46,73	2.72	15 (38%)	30,80,113	1.29	2 (6%)
14	CL7	cB	808	-	66,73,73	2.23	19 (28%)	65,113,113	1.86	13 (20%)
14	CL7	bB	808	-	66,73,73	2.29	18 (27%)	65,113,113	1.85	13 (20%)
14	CL7	cB	820	-	66,73,73	2.29	21 (31%)	65,113,113	1.64	10 (15%)
14	CL7	bA	3117	-	39,46,73	2.71	16 (41%)	30,80,113	1.58	6 (20%)
14	CL7	bB	820	-	66,73,73	2.32	23 (34%)	65,113,113	1.69	12 (18%)
14	CL7	aA	3122	-	42,49,73	2.70	19 (45%)	36,84,113	1.96	6 (16%)
14	CL7	aB	3011	-	39,46,73	2.81	17 (43%)	30,80,113	1.41	3 (10%)
14	CL7	aB	3024	-	39,46,73	2.72	16 (41%)	30,80,113	1.54	6 (20%)
14	CL7	aB	3016	-	42,49,73	2.64	17 (40%)	36,84,113	1.88	8 (22%)
14	CL7	bA	3119	-	47,54,73	2.79	15 (31%)	42,90,113	2.23	11 (26%)
14	CL7	cA	3115	-	39,46,73	2.66	17 (43%)	30,80,113	1.39	5 (16%)
14	CL7	bA	3113	-	42,49,73	2.72	15 (35%)	36,84,113	1.72	8 (22%)
14	CL7	bA	3145	-	42,49,73	2.62	16 (38%)	36,84,113	1.61	4 (11%)
14	CL7	cB	814	-	42,49,73	2.56	16 (38%)	36,84,113	1.69	9 (25%)
14	CL7	cA	3141	-	66,73,73	2.15	15 (22%)	65,113,113	1.71	10 (15%)
14	CL7	bA	3112	-	42,49,73	2.69	15 (35%)	36,84,113	1.75	9 (25%)
14	CL7	bA	3131	-	42,49,73	2.75	17 (40%)	36,84,113	1.76	9 (25%)
13	PHO	cB	801	-	51,69,69	3.70	13 (25%)	47,99,99	1.74	8 (17%)
14	CL7	aA	3109	1	43,50,73	2.71	17 (39%)	36,85,113	1.73	9 (25%)
14	CL7	aA	3142	-	66,73,73	2.11	17 (25%)	65,113,113	1.55	12 (18%)
14	CL7	aB	3015	-	51,58,73	2.70	24 (47%)	47,95,113	1.92	8 (17%)
14	CL7	aB	3025	-	66,73,73	2.56	21 (31%)	65,113,113	1.67	15 (23%)
14	CL7	bA	3141	-	66,73,73	2.15	17 (25%)	65,113,113	1.63	11 (16%)
14	CL7	cA	3106	-	66,73,73	2.31	20 (30%)	65,113,113	1.75	15 (23%)
14	CL7	bB	816	-	51,58,73	2.68	22 (43%)	47,95,113	2.05	11 (23%)
14	CL7	aA	3103	-	66,73,73	2.50	21 (31%)	65,113,113	2.16	17 (26%)
14	CL7	aB	3003	-	66,73,73	2.63	28 (42%)	65,113,113	1.78	15 (23%)
14	CL7	bA	3124	-	66,73,73	2.51	23 (34%)	65,113,113	2.12	16 (24%)
14	CL7	bB	831	-	55,62,73	2.35	17 (30%)	51,99,113	1.62	12 (23%)
18	SF4	bB	802	2,1	0,12,12	-	-	-		
14	CL7	bA	3132	-	66,73,73	2.53	24 (36%)	65,113,113	1.89	18 (27%)
18	SF4	bC	101	3	0,12,12	-	-	-		
14	CL7	aA	3106	-	42,49,73	2.84	16 (38%)	36,84,113	2.11	12 (33%)
18	SF4	cB	802	2,1	0,12,12	-	-	-		

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
14	CL7	aB	3032	-	56,63,73	2.51	20 (35%)	53,101,113	1.69	12 (22%)
14	CL7	aB	3031	-	66,73,73	2.29	20 (30%)	65,113,113	1.93	14 (21%)
14	CL7	aA	3123	-	51,58,73	2.36	17 (33%)	47,95,113	2.23	15 (31%)
14	CL7	cA	3104	-	42,49,73	2.62	14 (33%)	36,84,113	1.72	7 (19%)
14	CL7	cA	3119	-	47,54,73	2.82	19 (40%)	42,90,113	2.28	11 (26%)
14	CL7	aA	3104	-	42,49,73	2.62	16 (38%)	36,84,113	1.62	8 (22%)
14	CL7	aA	3143	-	66,73,73	2.39	19 (28%)	65,113,113	1.55	10 (15%)

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
12	G9R	cA	3101	-	1/1/17/22	7/48/107/107	-
14	CL7	aB	3007	-	2/2/15/20	13/37/115/115	-
14	CL7	bA	3102	-	1/1/15/20	6/37/115/115	-
14	CL7	aB	3023	-	2/2/13/20	14/27/105/115	-
14	CL7	cA	3108	1	1/1/10/20	4/10/88/115	-
14	CL7	cA	3124	-	2/2/15/20	9/37/115/115	-
14	CL7	bB	825	-	2/2/9/20	0/2/80/115	-
14	CL7	cB	825	-	2/2/9/20	0/2/80/115	-
14	CL7	aA	3141	-	2/2/15/20	16/37/115/115	-
14	CL7	bA	3107	-	1/1/15/20	14/37/115/115	-
14	CL7	cA	3127	-	2/2/12/20	9/21/99/115	-
14	CL7	aA	3124	-	2/2/12/20	4/21/99/115	-
14	CL7	aA	3133	-	2/2/15/20	16/37/115/115	-
14	CL7	bA	3108	-	1/1/10/20	4/10/88/115	-
14	CL7	cA	3113	-	1/1/10/20	0/8/86/115	-
14	CL7	cB	806	-	2/2/15/20	13/37/115/115	-
14	CL7	bJ	101	8	1/1/10/20	4/7/85/115	-
17	PQN	bA	3143	-	-	15/23/43/43	0/2/2/2
17	PQN	cB	828	-	-	8/23/43/43	0/2/2/2
14	CL7	bA	3127	-	2/2/12/20	8/21/99/115	-
14	CL7	aA	3132	-	2/2/10/20	5/8/86/115	-
18	SF4	aC	101	3	-	-	0/6/5/5

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
14	CL7	bA	3111	-	2/2/9/20	0/2/80/115	-
14	CL7	bA	3120	-	2/2/12/20	7/21/99/115	-
18	SF4	bC	102	3	-	-	0/6/5/5
14	CL7	cA	3123	-	2/2/12/20	5/21/99/115	-
14	CL7	bB	813	-	2/2/9/20	0/2/80/115	-
14	CL7	bA	3128	-	2/2/15/20	17/37/115/115	-
14	CL7	cA	3139	-	2/2/15/20	16/37/115/115	-
14	CL7	bA	3139	-	2/2/15/20	17/37/115/115	-
14	CL7	cA	3105	-	2/2/10/20	3/8/86/115	-
14	CL7	cB	816	-	2/2/12/20	6/19/97/115	-
17	PQN	cA	3143	-	-	13/23/43/43	0/2/2/2
14	CL7	aA	3134	16	2/2/10/20	6/8/86/115	-
14	CL7	bB	811	-	2/2/10/20	1/8/86/115	-
14	CL7	cB	811	-	2/2/10/20	4/8/86/115	-
14	CL7	bA	3105	-	2/2/10/20	2/8/86/115	-
14	CL7	cB	813	-	2/2/9/20	0/2/80/115	-
13	PHO	bB	801	-	-	12/37/103/103	0/5/6/6
19	LMG	bB	830	-	-	18/47/67/70	0/1/1/1
14	CL7	cA	3111	-	2/2/9/20	0/2/80/115	-
14	CL7	cA	3109	-	2/2/10/20	1/8/86/115	-
14	CL7	cA	3120	-	2/2/12/20	5/21/99/115	-
14	CL7	cA	3130	-	2/2/10/20	4/8/86/115	-
14	CL7	bA	3121	-	2/2/10/20	3/8/86/115	-
14	CL7	cA	3142	-	2/2/15/20	17/37/115/115	-
14	CL7	aA	3127	1	1/1/11/20	11/24/98/115	-
14	CL7	cB	826	-	2/2/15/20	16/37/115/115	-
16	LHG	cA	3138	14	-	12/23/23/53	-
14	CL7	aA	3111	-	1/1/10/20	2/8/86/115	-
14	CL7	cA	3128	-	2/2/15/20	19/37/115/115	-
14	CL7	bA	3109	-	2/2/10/20	2/8/86/115	-
14	CL7	cB	807	-	1/1/15/20	14/37/115/115	-
16	LHG	bA	3138	14	-	11/23/23/53	-
14	CL7	cA	3110	-	1/1/10/20	2/8/86/115	-
14	CL7	aA	3117	-	2/2/12/20	8/23/101/115	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
18	SF4	cC	101	3	-	-	0/6/5/5
14	CL7	cB	831	-	2/2/12/20	7/24/102/115	-
14	CL7	aB	3008	2	2/2/12/20	4/19/97/115	-
14	CL7	bB	812	-	2/2/9/20	0/2/80/115	-
14	CL7	bA	3104	-	2/2/10/20	4/8/86/115	-
12	G9R	bA	3101	-	-	12/48/107/107	-
14	CL7	cB	817	-	2/2/10/20	4/8/86/115	-
14	CL7	aL	204	-	2/2/10/20	0/10/88/115	-
14	CL7	cB	827	-	1/1/15/20	18/37/115/115	-
14	CL7	cB	812	-	2/2/9/20	0/2/80/115	-
14	CL7	bB	804	-	2/2/15/20	7/37/115/115	-
14	CL7	aA	3130	-	1/1/10/20	3/8/86/115	-
14	CL7	aA	3105	-	2/2/10/20	3/8/86/115	-
14	CL7	aB	3020	-	1/1/9/20	0/2/80/115	-
14	CL7	bB	819	-	2/2/13/20	9/27/105/115	-
14	CL7	aB	3018	-	2/2/13/20	9/27/105/115	-
14	CL7	cA	3133	16	2/2/10/20	2/8/86/115	-
19	LMG	cB	830	-	-	18/47/67/70	0/1/1/1
14	CL7	aF	201	-	2/2/9/20	0/2/80/115	-
14	CL7	aA	3112	-	2/2/9/20	0/2/80/115	-
14	CL7	bA	3116	-	2/2/12/20	9/23/101/115	-
14	CL7	aB	3012	-	2/2/9/20	0/2/80/115	-
14	CL7	cA	3132	-	2/2/15/20	18/37/115/115	-
16	LHG	bA	3137	-	-	17/53/53/53	-
14	CL7	cB	803	-	2/2/15/20	13/37/115/115	-
14	CL7	bB	821	-	1/1/9/20	0/2/80/115	-
14	CL7	cA	3102	-	1/1/15/20	8/37/115/115	-
14	CL7	cA	3114	-	1/1/15/20	19/37/115/115	-
14	CL7	bA	3129	-	1/1/10/20	2/8/86/115	-
13	PHO	aA	3102	-	-	9/37/103/103	0/5/6/6
14	CL7	bA	3122	-	2/2/12/20	7/19/97/115	-
14	CL7	aA	3114	-	2/2/10/20	0/8/86/115	-
14	CL7	cA	3125	-	2/2/15/20	9/37/115/115	-
14	CL7	cA	3117	-	2/2/9/20	0/2/80/115	-
14	CL7	aB	3014	-	1/1/10/20	1/8/86/115	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
14	CL7	aB	3026	-	2/2/15/20	18/37/115/115	-
14	CL7	bA	3123	-	2/2/12/20	6/21/99/115	-
14	CL7	bL	203	10	2/2/15/20	21/37/115/115	-
12	G9R	aA	3101	-	1/1/17/22	5/48/107/107	-
14	CL7	cA	3116	-	2/2/12/20	8/23/101/115	-
16	LHG	cA	3137	-	-	15/53/53/53	-
14	CL7	bA	3130	-	2/2/10/20	4/8/86/115	-
14	CL7	aB	3022	-	2/2/10/20	4/8/86/115	-
14	CL7	aA	3116	-	1/1/9/20	2/2/80/115	-
14	CL7	bA	3126	1	1/1/11/20	10/24/98/115	-
14	CL7	cB	824	-	2/2/13/20	13/27/105/115	-
14	CL7	aA	3125	-	2/2/15/20	7/37/115/115	-
14	CL7	bB	824	-	2/2/13/20	10/27/105/115	-
14	CL7	cF	201	-	2/2/9/20	0/2/80/115	-
14	CL7	aA	3129	-	2/2/15/20	18/37/115/115	-
18	SF4	aC	102	3	-	-	0/6/5/5
14	CL7	aL	202	10	2/2/15/20	19/37/115/115	-
13	PHO	cB	805	-	-	18/37/103/103	0/5/6/6
17	PQN	aB	3027	-	-	8/23/43/43	0/2/2/2
14	CL7	aA	3115	-	2/2/15/20	17/37/115/115	-
14	CL7	aB	3019	-	2/2/15/20	16/37/115/115	-
14	CL7	aA	3128	-	2/2/12/20	10/21/99/115	-
14	CL7	bB	823	-	2/2/10/20	5/8/86/115	-
14	CL7	cA	3122	-	2/2/12/20	8/19/97/115	-
14	CL7	bB	833	-	2/2/13/20	11/25/103/115	-
14	CL7	cA	3131	-	2/2/10/20	5/8/86/115	-
14	CL7	aB	3021	-	1/1/10/20	3/8/86/115	-
14	CL7	aA	3107	-	2/2/15/20	21/37/115/115	-
17	PQN	bB	828	-	-	7/23/43/43	0/2/2/2
14	CL7	aB	3013	-	1/1/10/20	3/8/86/115	-
14	CL7	bA	3103	-	2/2/10/20	2/8/86/115	-
14	CL7	cA	3126	1	2/2/11/20	10/24/98/115	-
14	CL7	aB	3009	-	2/2/15/20	18/37/115/115	-
14	CL7	aA	3126	-	2/2/15/20	11/37/115/115	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
14	CL7	aA	3146	-	2/2/10/20	5/8/86/115	-
14	CL7	cL	204	-	2/2/15/20	17/37/115/115	-
14	CL7	bL	204	-	2/2/15/20	11/37/115/115	-
14	CL7	bA	3125	-	2/2/15/20	7/37/115/115	-
13	PHO	aB	3004	-	-	20/37/103/103	0/5/6/6
14	CL7	aA	3110	-	2/2/10/20	0/8/86/115	-
14	CL7	aB	3002	-	2/2/15/20	19/37/115/115	-
14	CL7	cJ	101	8	1/1/10/20	2/7/85/115	-
14	CL7	bB	803	-	2/2/15/20	11/37/115/115	-
14	CL7	aA	3120	-	2/2/11/20	3/15/93/115	-
16	LHG	aA	3138	-	-	16/53/53/53	-
14	CL7	aB	3006	-	1/1/15/20	13/37/115/115	-
14	CL7	bA	3115	-	1/1/9/20	2/2/80/115	-
14	CL7	cA	3144	-	2/2/10/20	3/8/86/115	-
14	CL7	bB	817	-	2/2/10/20	4/8/86/115	-
18	SF4	cC	102	3	-	-	0/6/5/5
18	SF4	aB	3001	2,1	-	-	0/6/5/5
14	CL7	aA	3131	-	1/1/10/20	3/8/86/115	-
14	CL7	bB	806	-	2/2/15/20	15/37/115/115	-
14	CL7	cB	809	2	2/2/12/20	4/19/97/115	-
14	CL7	cB	822	-	1/1/10/20	3/8/86/115	-
16	LHG	aA	3139	14	-	9/23/23/53	-
14	CL7	bB	822	-	1/1/10/20	2/8/86/115	-
14	CL7	cA	3140	-	2/2/15/20	15/37/115/115	-
14	CL7	cA	3121	-	2/2/10/20	1/8/86/115	-
14	CL7	aA	3113	-	2/2/10/20	3/8/86/115	-
14	CL7	cB	804	-	1/1/15/20	6/37/115/115	-
14	CL7	cB	819	-	2/2/13/20	9/27/105/115	-
14	CL7	bA	3140	-	2/2/15/20	15/37/115/115	-
14	CL7	aA	3121	-	2/2/12/20	6/21/99/115	-
14	CL7	cA	3112	-	2/2/10/20	4/8/86/115	-
14	CL7	cA	3129	-	1/1/10/20	2/8/86/115	-
14	CL7	bB	818	-	2/2/10/20	6/8/86/115	-
14	CL7	cB	832	-	2/2/15/20	18/37/115/115	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
14	CL7	bB	832	-	2/2/15/20	16/37/115/115	-
14	CL7	aB	3030	-	2/2/12/20	7/24/102/115	-
13	PHO	bB	805	-	-	18/37/103/103	0/5/6/6
14	CL7	bA	3133	16	2/2/10/20	3/8/86/115	-
14	CL7	aB	3017	-	2/2/10/20	6/8/86/115	-
14	CL7	aL	203	-	2/2/15/20	14/37/115/115	-
14	CL7	aA	3119	-	1/1/9/20	0/2/80/115	-
14	CL7	cA	3118	-	1/1/9/20	0/2/80/115	-
14	CL7	cB	823	-	2/2/10/20	5/8/86/115	-
14	CL7	cA	3107	-	1/1/15/20	13/37/115/115	-
17	PQN	aA	3144	-	-	14/23/43/43	0/2/2/2
14	CL7	bB	814	-	1/1/10/20	3/8/86/115	-
14	CL7	aB	3010	-	2/2/10/20	3/8/86/115	-
14	CL7	aA	3118	-	2/2/9/20	0/2/80/115	-
14	CL7	bA	3118	-	2/2/9/20	0/2/80/115	-
14	CL7	bF	201	-	2/2/9/20	0/2/80/115	-
19	LMG	aB	3029	-	-	20/47/67/70	0/1/1/1
14	CL7	aK	101	-	2/2/8/20	0/2/76/115	-
14	CL7	bK	101	-	2/2/8/20	0/2/76/115	-
14	CL7	bB	807	-	1/1/15/20	13/37/115/115	-
14	CL7	aA	3108	-	1/1/15/20	14/37/115/115	-
14	CL7	aB	3005	-	2/2/15/20	8/37/115/115	-
14	CL7	bA	3142	-	2/2/15/20	14/37/115/115	-
14	CL7	bB	826	-	2/2/15/20	15/37/115/115	-
14	CL7	cA	3103	-	2/2/10/20	3/8/86/115	-
14	CL7	cL	203	10	2/2/15/20	21/37/115/115	-
14	CL7	cL	205	-	2/2/10/20	2/10/88/115	-
14	CL7	bL	205	-	2/2/10/20	1/10/88/115	-
14	CL7	bA	3114	-	2/2/15/20	19/37/115/115	-
14	CL7	aA	3140	-	2/2/15/20	18/37/115/115	-
14	CL7	cK	101	-	2/2/8/20	0/2/76/115	-
14	CL7	cB	810	-	2/2/15/20	17/37/115/115	-
14	CL7	bB	810	-	2/2/15/20	20/37/115/115	-
14	CL7	bA	3106	-	2/2/15/20	20/37/115/115	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
14	CL7	aJ	101	8	1/1/10/20	2/7/85/115	-
14	CL7	bB	809	2	2/2/12/20	5/19/97/115	-
14	CL7	cB	815	-	2/2/10/20	1/8/86/115	-
14	CL7	bB	815	-	2/2/10/20	1/8/86/115	-
14	CL7	cB	818	-	2/2/10/20	3/8/86/115	-
14	CL7	bB	827	-	2/2/15/20	15/37/115/115	-
14	CL7	cB	833	-	2/2/13/20	11/25/103/115	-
14	CL7	bA	3110	-	2/2/10/20	3/8/86/115	-
14	CL7	cB	821	-	1/1/9/20	0/2/80/115	-
14	CL7	cB	808	-	2/2/15/20	16/37/115/115	-
14	CL7	bB	808	-	2/2/15/20	13/37/115/115	-
14	CL7	cB	820	-	2/2/15/20	15/37/115/115	-
14	CL7	bA	3117	-	2/2/9/20	0/2/80/115	-
14	CL7	bB	820	-	2/2/15/20	12/37/115/115	-
14	CL7	aA	3122	-	1/1/10/20	2/8/86/115	-
14	CL7	aB	3011	-	2/2/9/20	0/2/80/115	-
14	CL7	aB	3024	-	2/2/9/20	0/2/80/115	-
14	CL7	aB	3016	-	2/2/10/20	4/8/86/115	-
14	CL7	bA	3119	-	2/2/11/20	2/15/93/115	-
14	CL7	cA	3115	-	1/1/9/20	2/2/80/115	-
14	CL7	bA	3113	-	1/1/10/20	0/8/86/115	-
14	CL7	bA	3145	-	2/2/10/20	3/8/86/115	-
14	CL7	cB	814	-	1/1/10/20	2/8/86/115	-
14	CL7	cA	3141	-	2/2/15/20	16/37/115/115	-
14	CL7	bA	3112	-	2/2/10/20	3/8/86/115	-
14	CL7	bA	3131	-	2/2/10/20	4/8/86/115	-
14	CL7	aA	3109	1	1/1/10/20	3/10/88/115	-
14	CL7	bA	3141	-	2/2/15/20	13/37/115/115	-
14	CL7	aA	3142	-	2/2/15/20	16/37/115/115	-
14	CL7	aB	3015	-	2/2/12/20	6/19/97/115	-
14	CL7	aB	3025	-	2/2/15/20	14/37/115/115	-
13	PHO	cB	801	-	-	10/37/103/103	0/5/6/6
14	CL7	cA	3106	-	2/2/15/20	18/37/115/115	-
14	CL7	bB	816	-	1/1/12/20	3/19/97/115	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
14	CL7	aA	3103	-	1/1/15/20	8/37/115/115	-
14	CL7	aB	3003	-	2/2/15/20	4/37/115/115	-
14	CL7	bA	3124	-	2/2/15/20	9/37/115/115	-
14	CL7	bB	831	-	2/2/12/20	6/24/102/115	-
18	SF4	bB	802	2,1	-	-	0/6/5/5
14	CL7	bA	3132	-	2/2/15/20	16/37/115/115	-
18	SF4	bC	101	3	-	-	0/6/5/5
14	CL7	aA	3106	-	2/2/10/20	3/8/86/115	-
18	SF4	cB	802	2,1	-	-	0/6/5/5
14	CL7	aB	3032	-	2/2/13/20	10/25/103/115	-
14	CL7	aB	3031	-	2/2/15/20	15/37/115/115	-
14	CL7	aA	3123	-	2/2/12/20	7/19/97/115	-
14	CL7	cA	3104	-	2/2/10/20	4/8/86/115	-
14	CL7	cA	3119	-	2/2/11/20	3/15/93/115	-
14	CL7	aA	3104	-	2/2/10/20	2/8/86/115	-
14	CL7	aA	3143	-	1/1/15/20	18/37/115/115	-

The worst 5 of 4062 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
12	bA	3101	G9R	CHC-C1C	15.30	1.47	1.35
12	cA	3101	G9R	CHC-C1C	15.15	1.47	1.35
13	cB	801	PHO	C3A-C2A	-14.42	1.41	1.54
13	bB	801	PHO	C3A-C2A	-14.37	1.41	1.54
13	aA	3102	PHO	C3A-C2A	-13.81	1.42	1.54

The worst 5 of 2539 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
12	bA	3101	G9R	C1D-ND-C4D	-12.65	96.34	106.41
12	aA	3101	G9R	C1D-ND-C4D	-11.65	97.13	106.41
12	cA	3101	G9R	C1D-ND-C4D	-9.58	98.78	106.41
14	cA	3124	CL7	O2D-CGD-O1D	-9.45	105.36	123.84
14	cA	3119	CL7	C1A-NA-C4A	-9.09	100.80	106.30

5 of 376 chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
12	aA	3101	G9R	ND

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atom
12	cA	3101	G9R	ND
14	aA	3103	CL7	NC
14	aA	3104	CL7	NA
14	aA	3104	CL7	NC

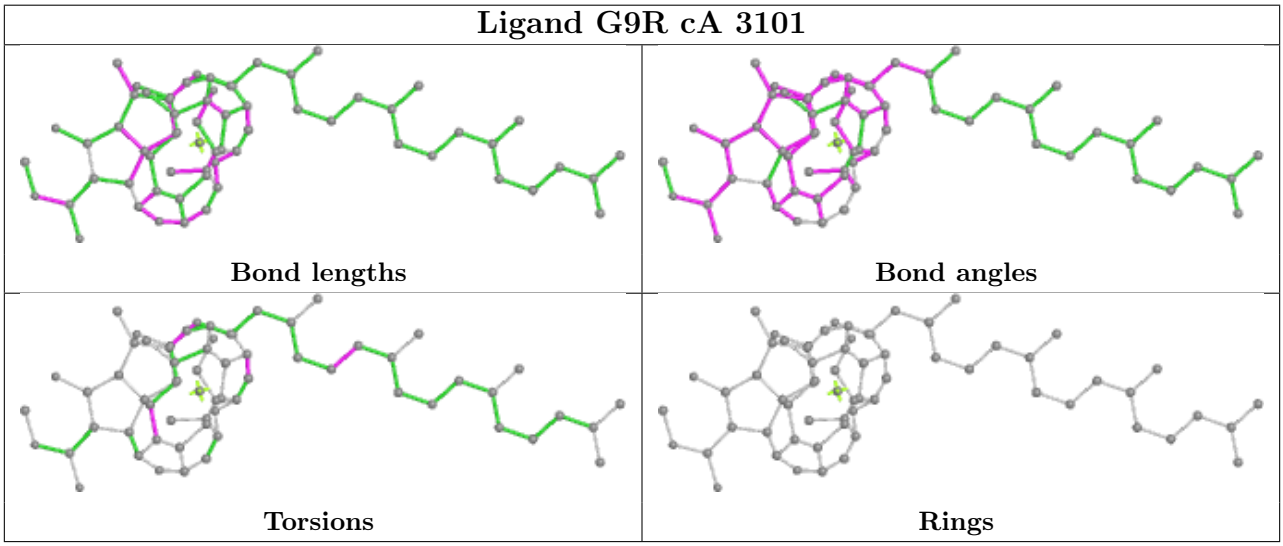
5 of 1852 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
12	bA	3101	G9R	NB-C4B-CHC-C1C
12	bA	3101	G9R	NC-C1C-CHC-C4B
13	aA	3102	PHO	CBA-CGA-O2A-C1
13	aA	3102	PHO	O1A-CGA-O2A-C1
13	bB	801	PHO	CBA-CGA-O2A-C1

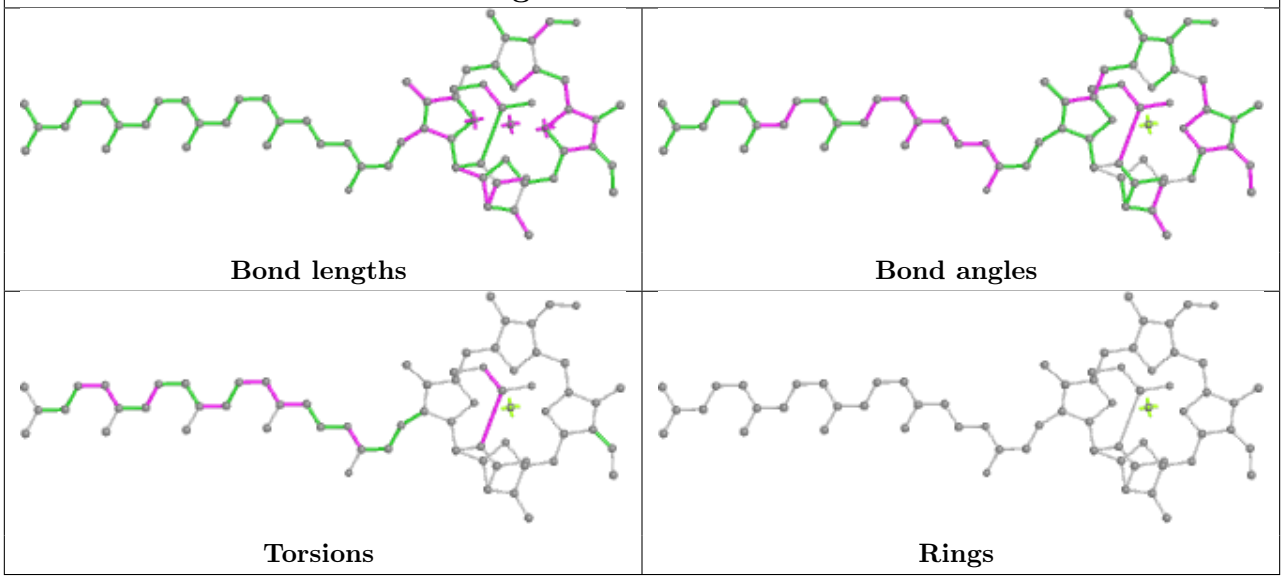
There are no ring outliers.

No monomer is involved in short contacts.

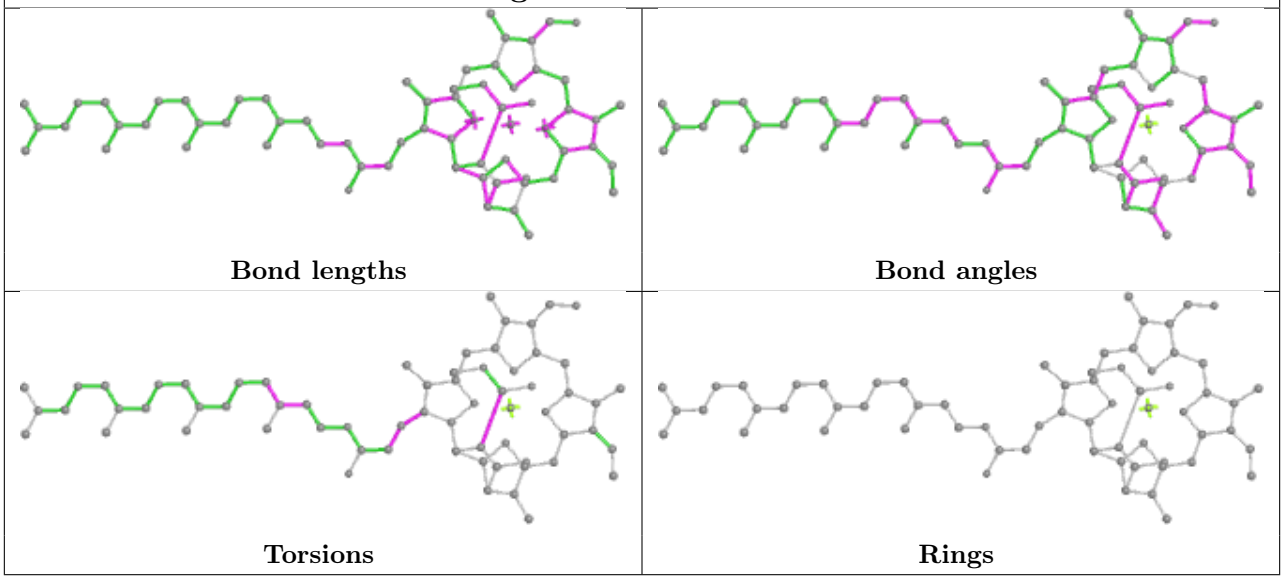
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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



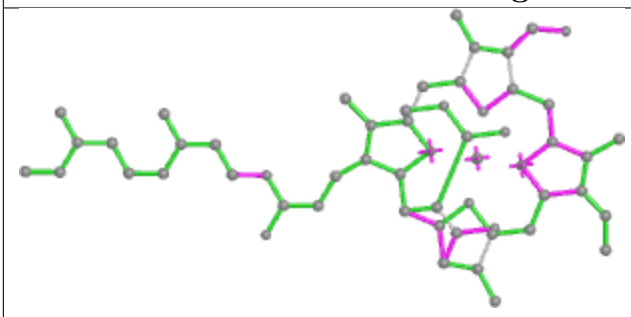
Ligand CL7 aB 3007



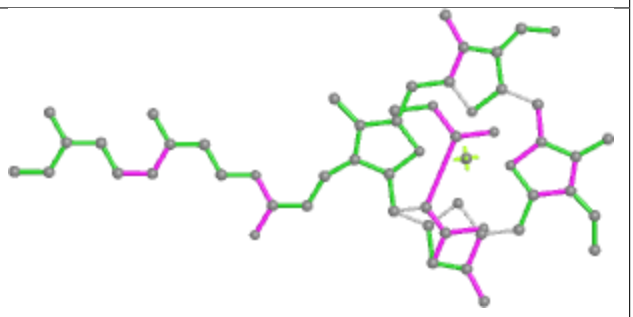
Ligand CL7 bA 3102



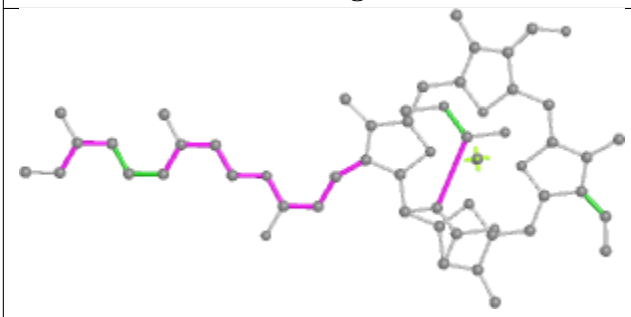
Ligand CL7 aB 3023



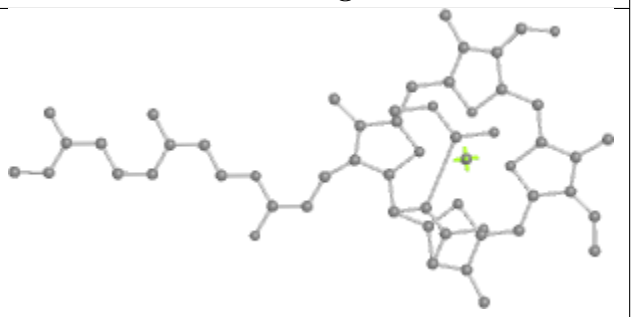
Bond lengths



Bond angles

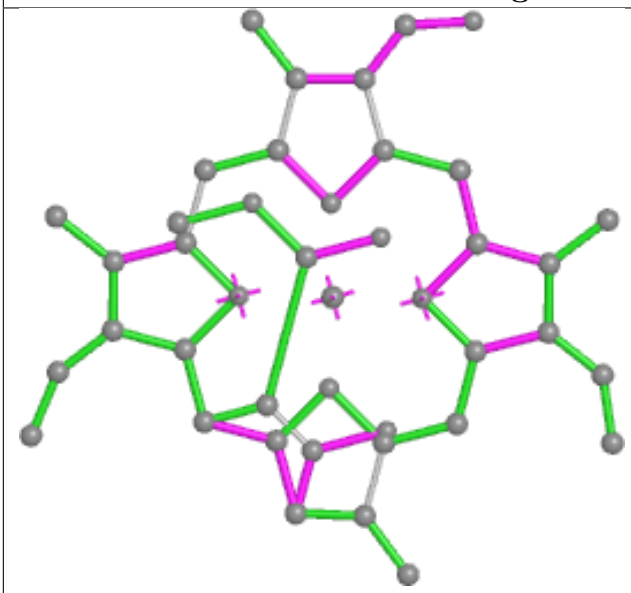


Torsions

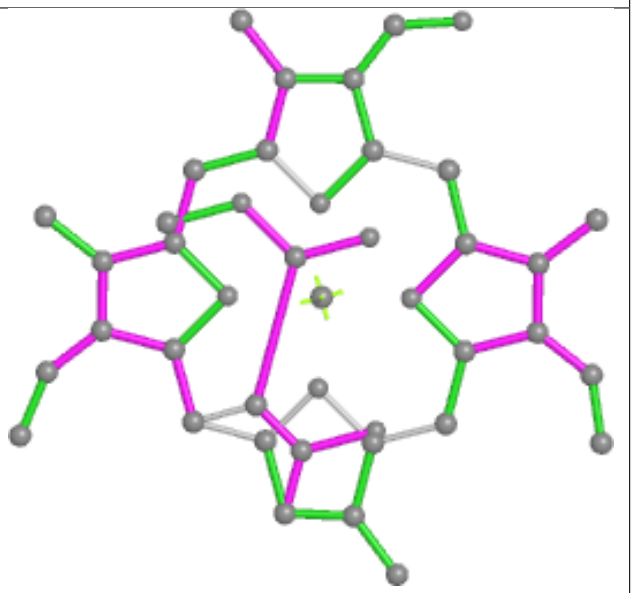


Rings

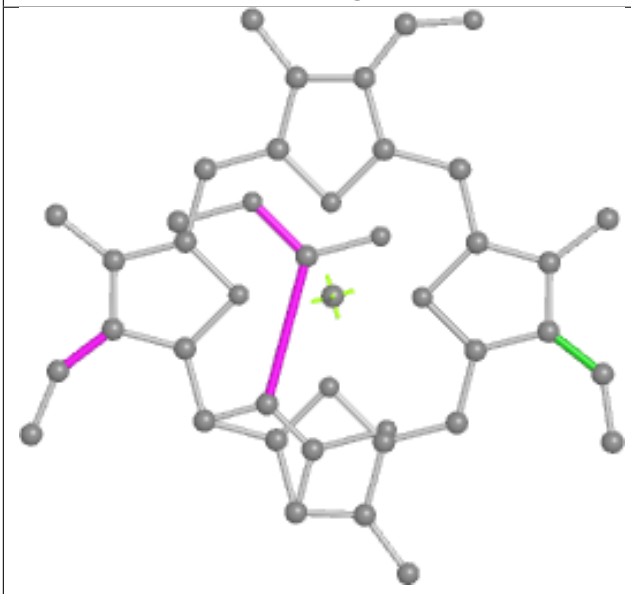
Ligand CL7 cA 3108



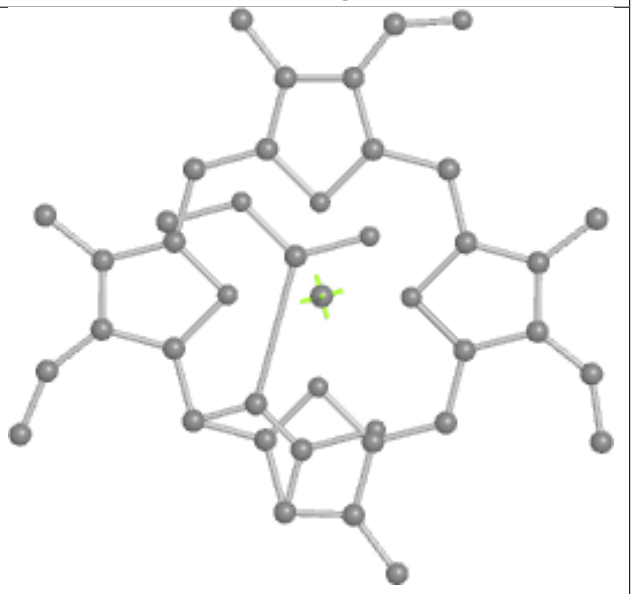
Bond lengths



Bond angles

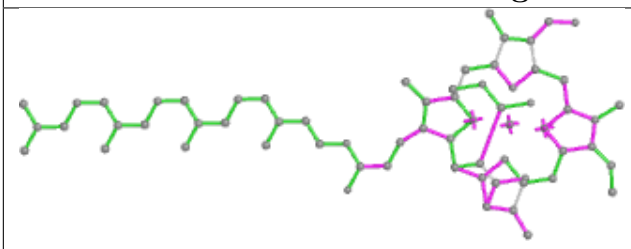


Torsions

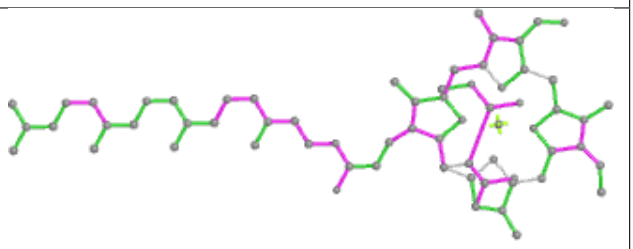


Rings

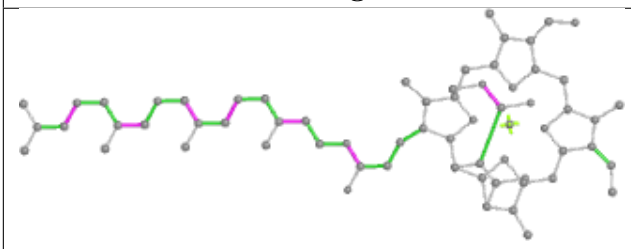
Ligand CL7 cA 3124



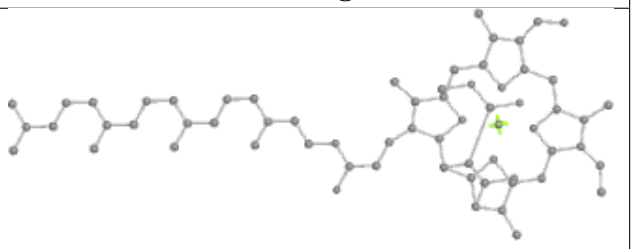
Bond lengths



Bond angles

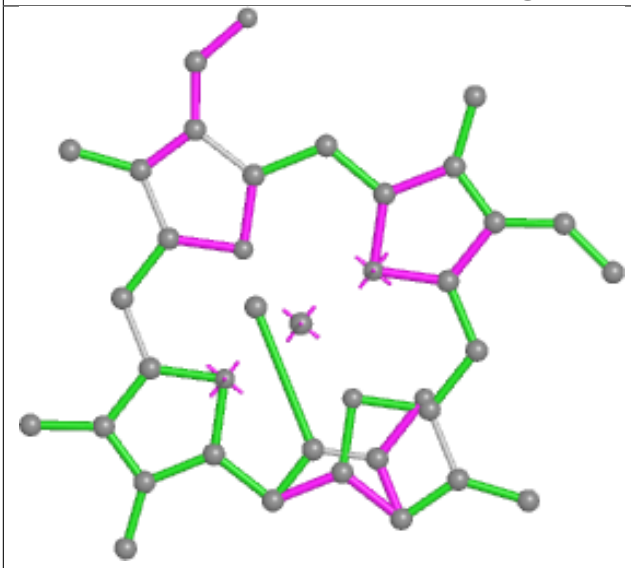


Torsions

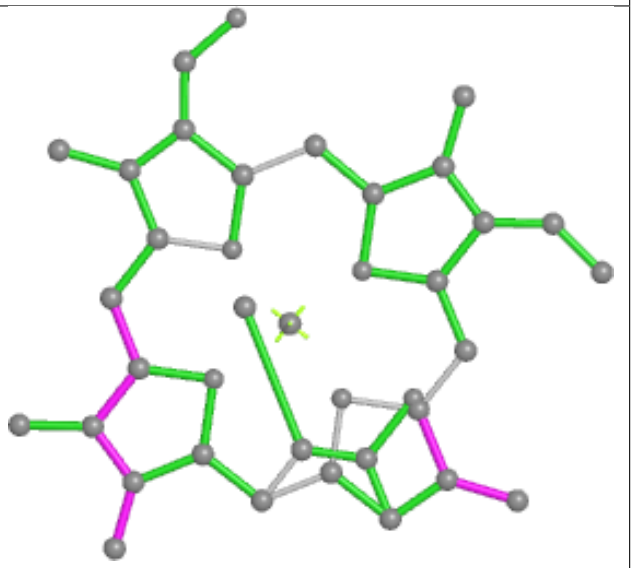


Rings

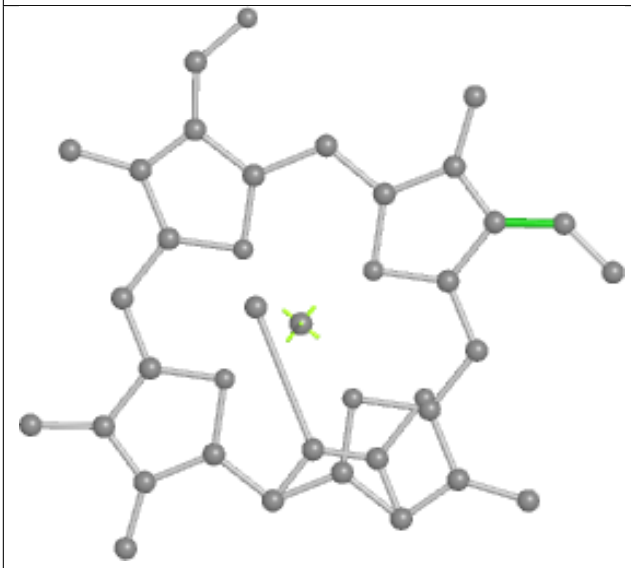
Ligand CL7 bB 825



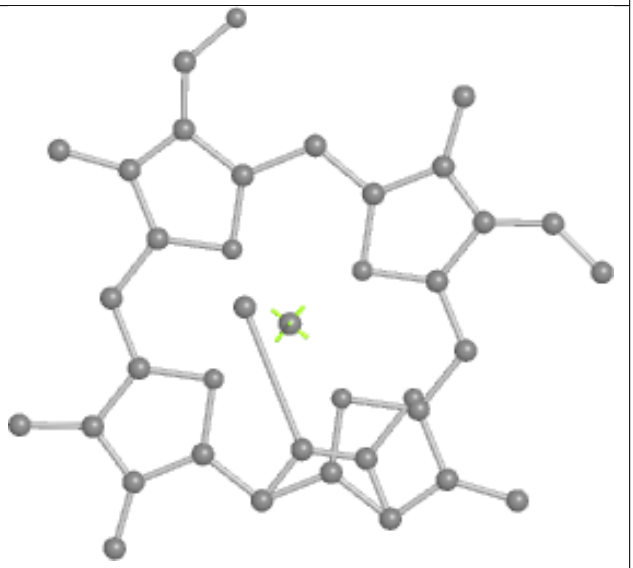
Bond lengths



Bond angles

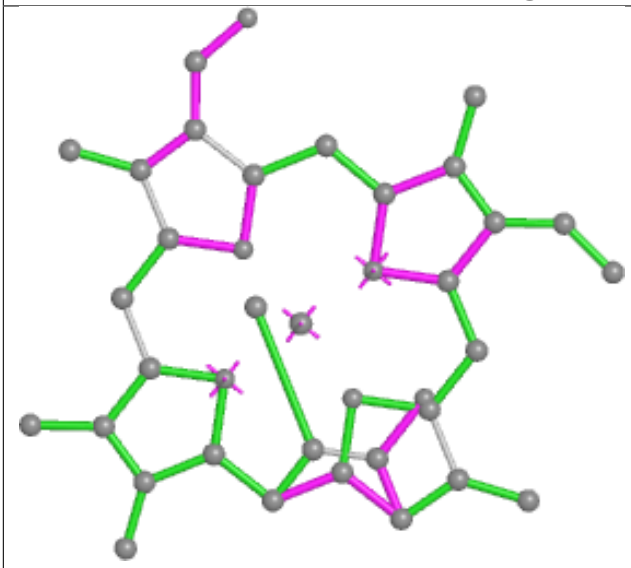


Torsions

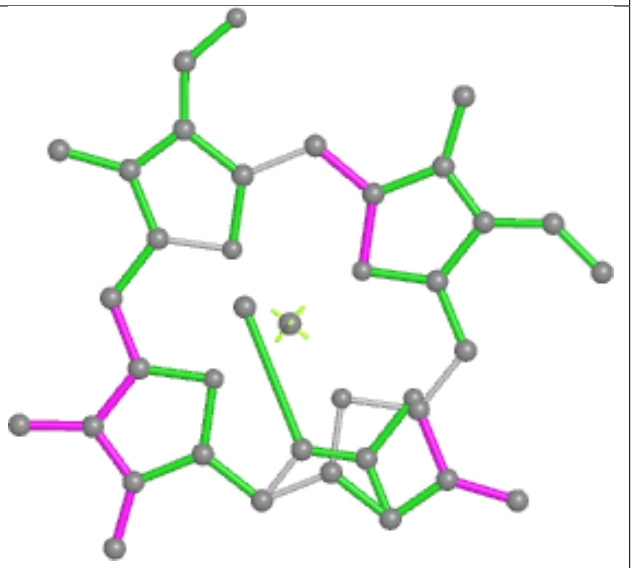


Rings

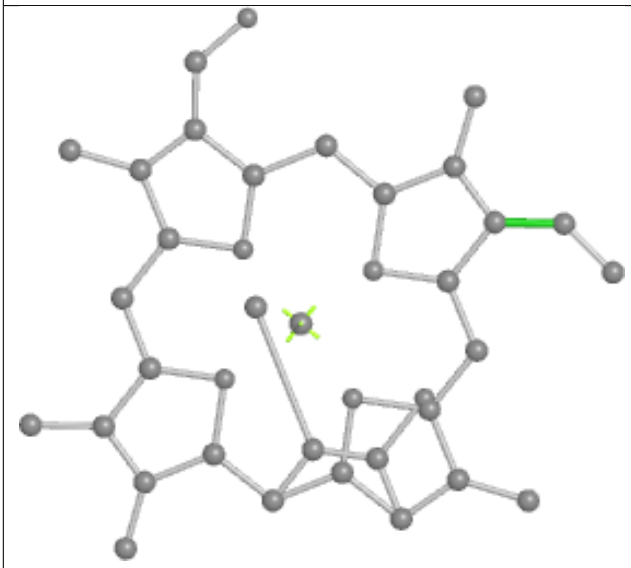
Ligand CL7 cB 825



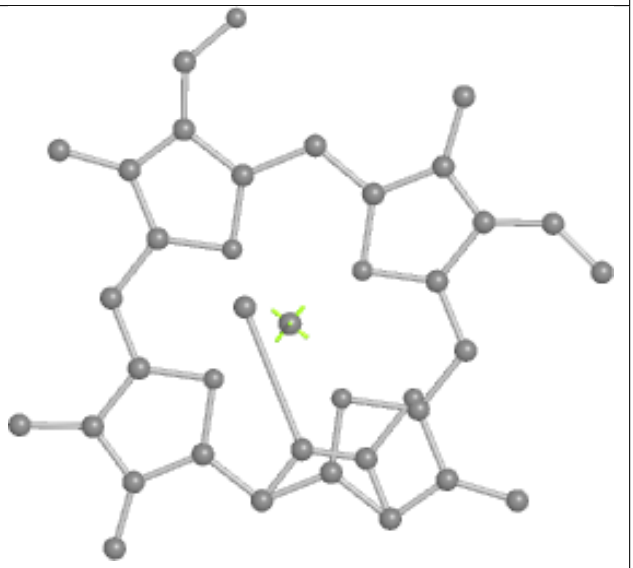
Bond lengths



Bond angles

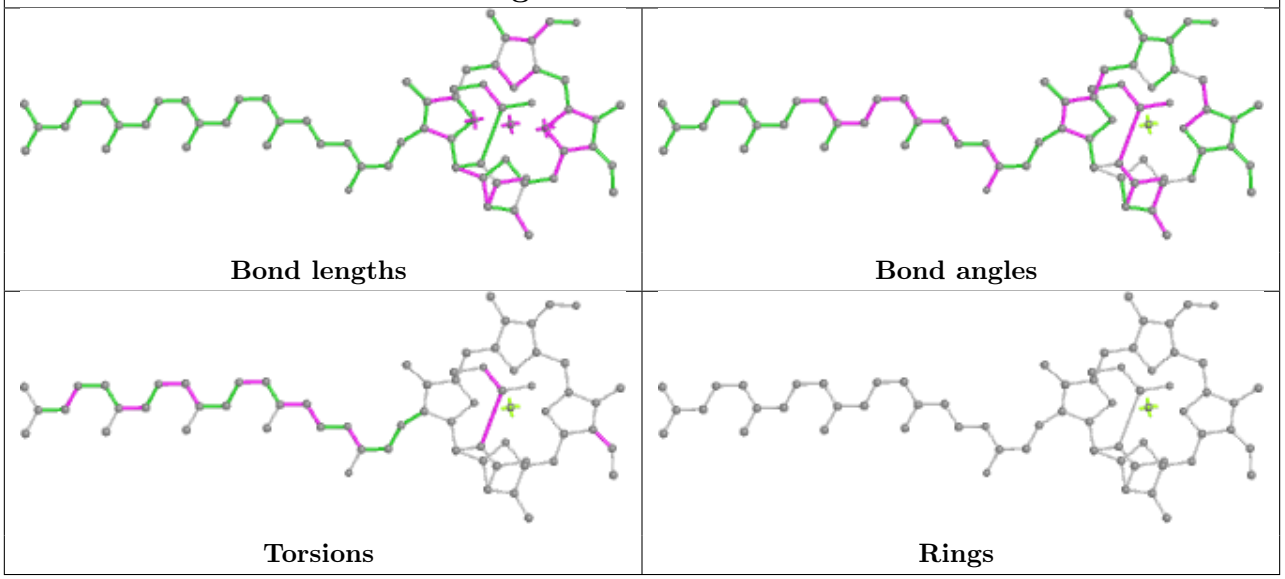


Torsions

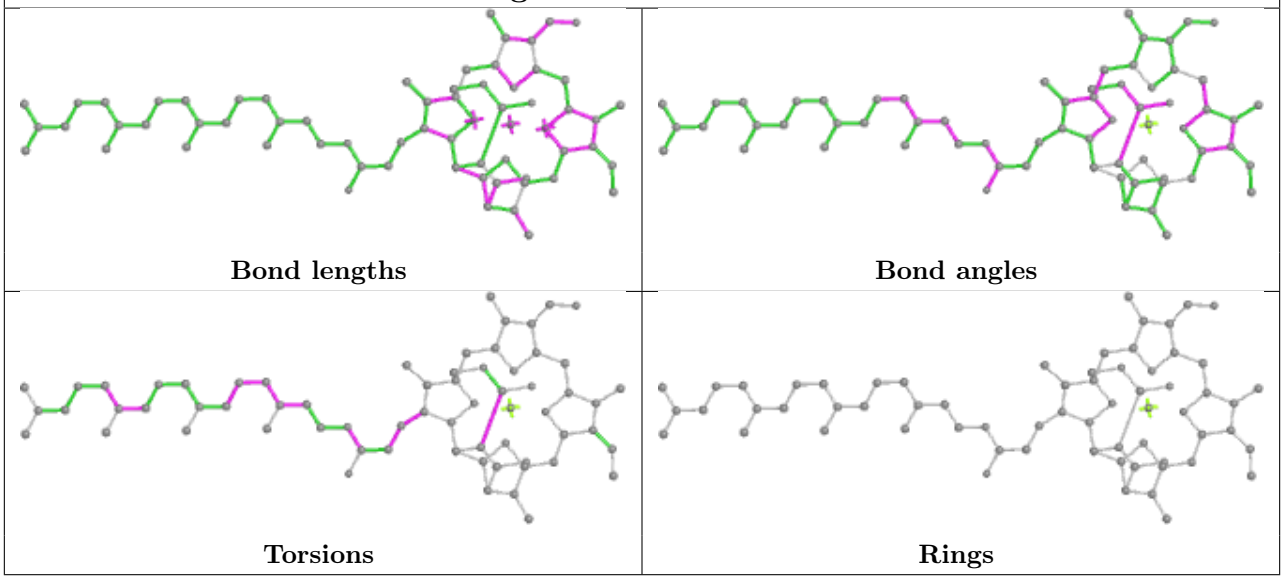


Rings

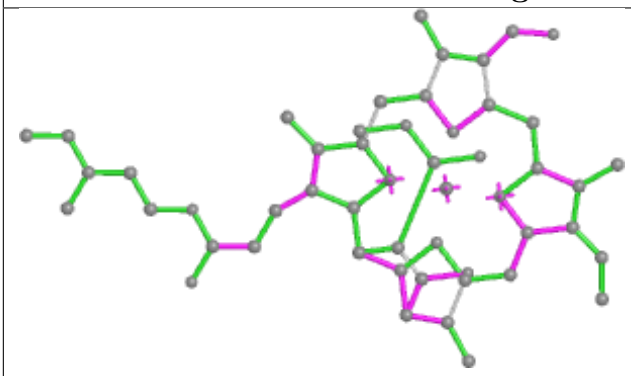
Ligand CL7 aA 3141



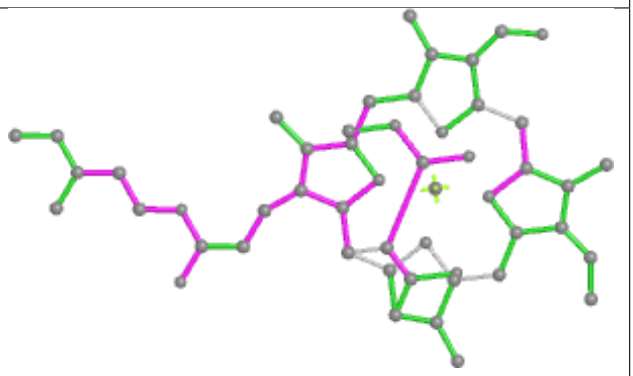
Ligand CL7 bA 3107



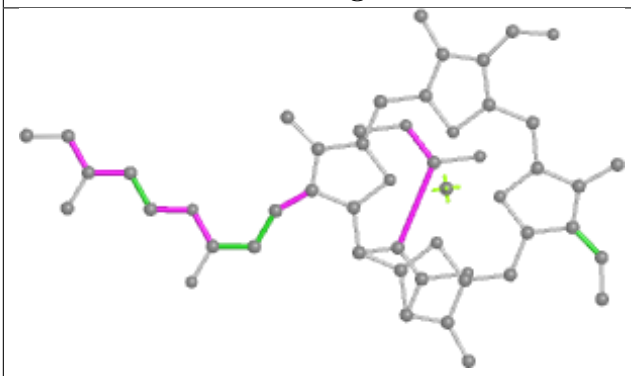
Ligand CL7 cA 3127



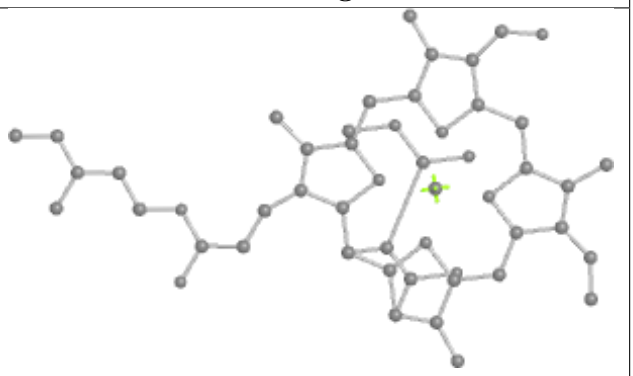
Bond lengths



Bond angles

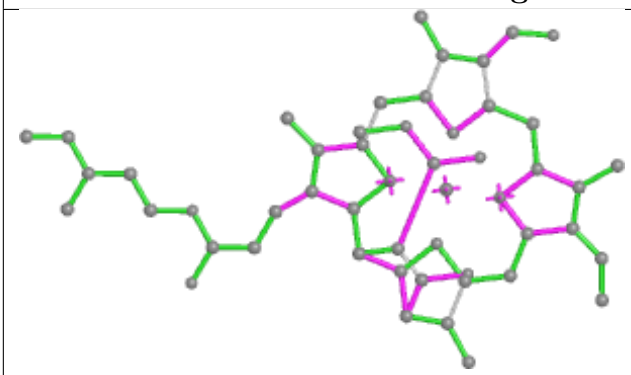


Torsions

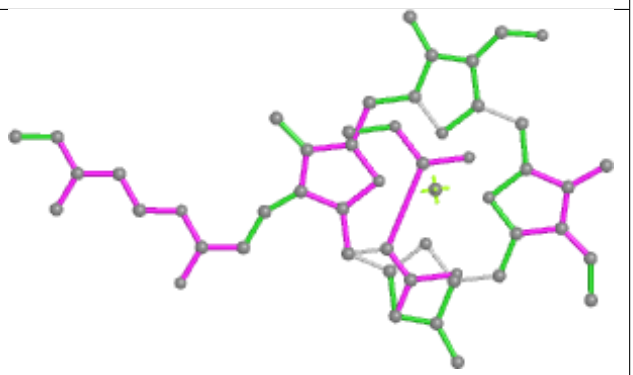


Rings

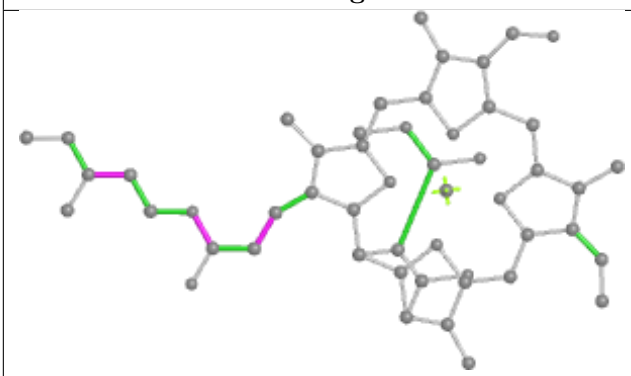
Ligand CL7 aA 3124



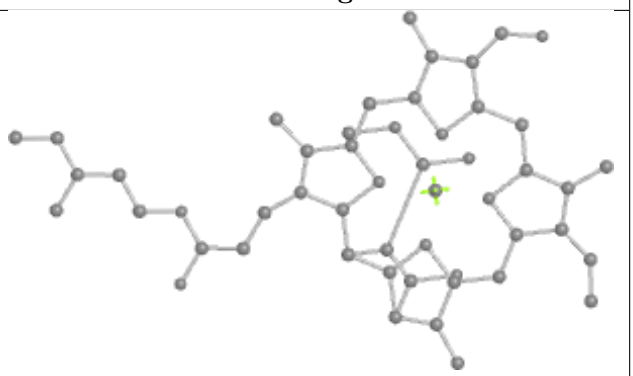
Bond lengths



Bond angles

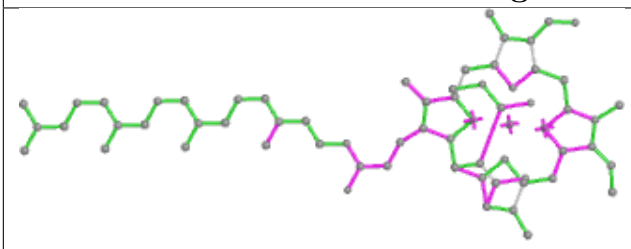


Torsions

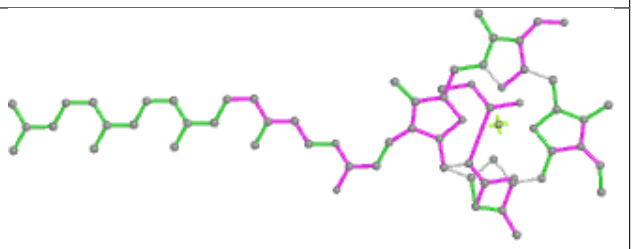


Rings

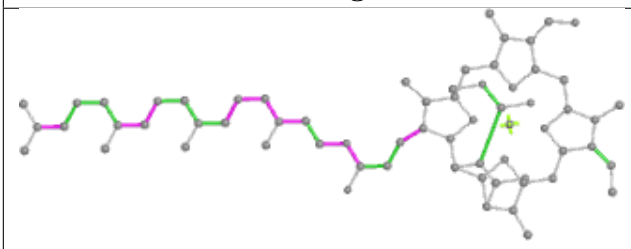
Ligand CL7 aA 3133



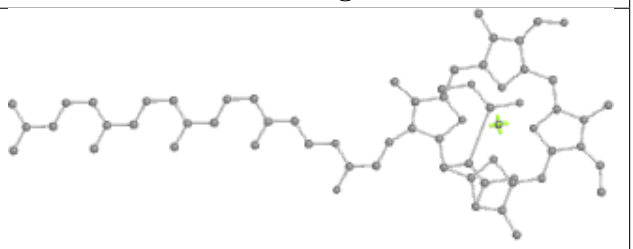
Bond lengths



Bond angles

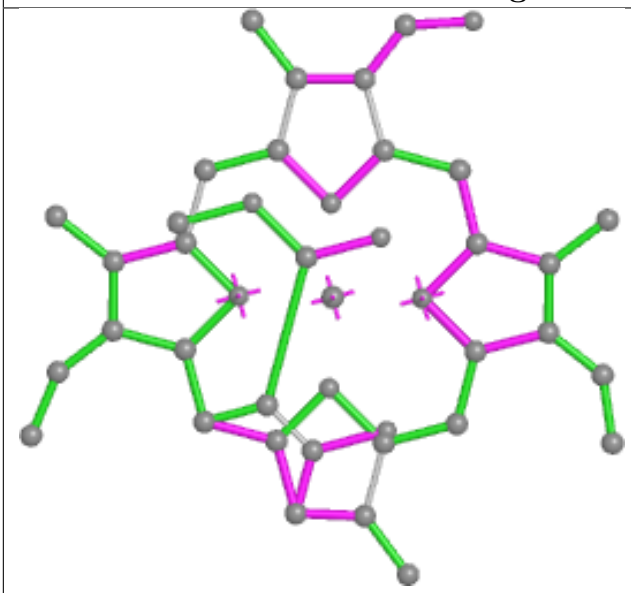


Torsions

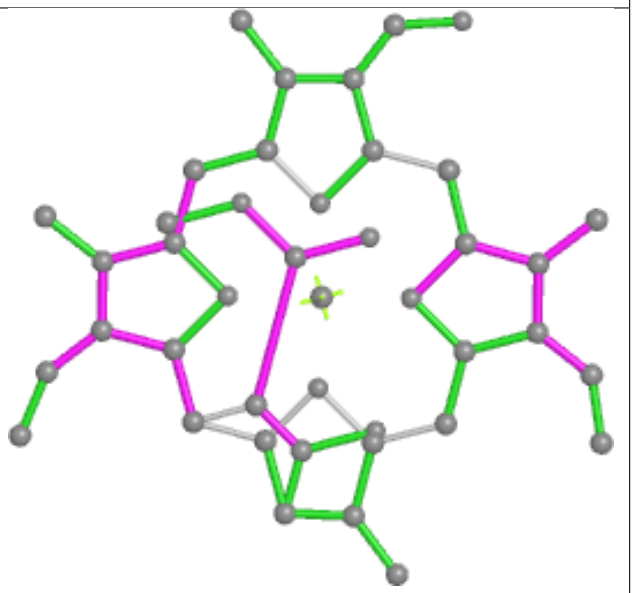


Rings

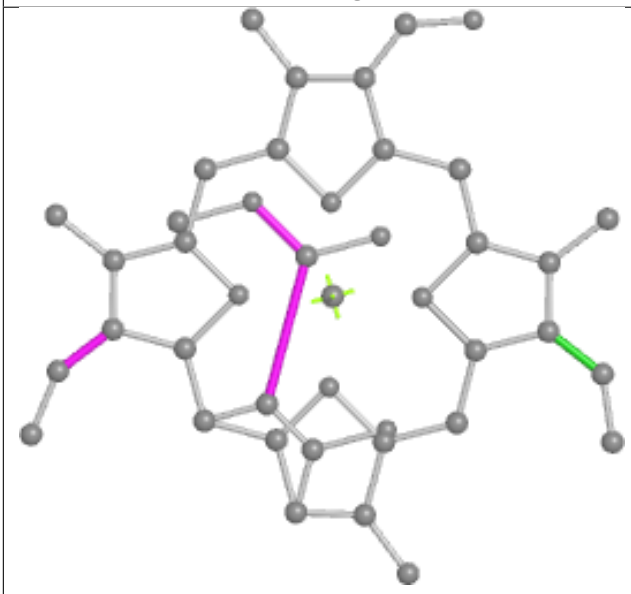
Ligand CL7 bA 3108



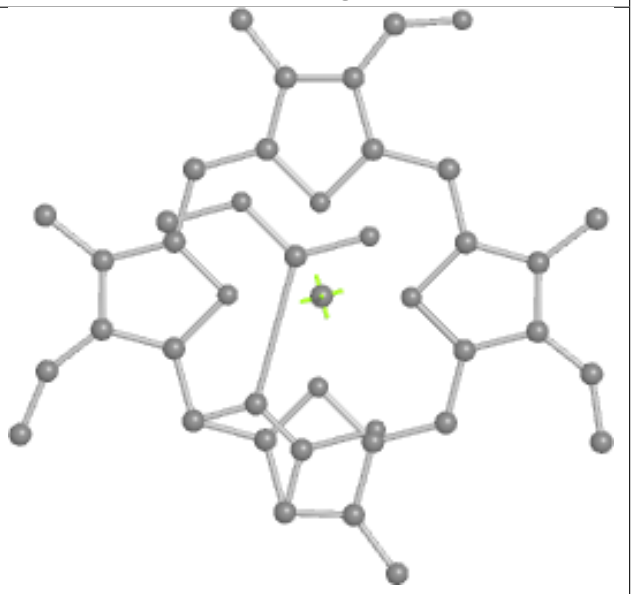
Bond lengths



Bond angles

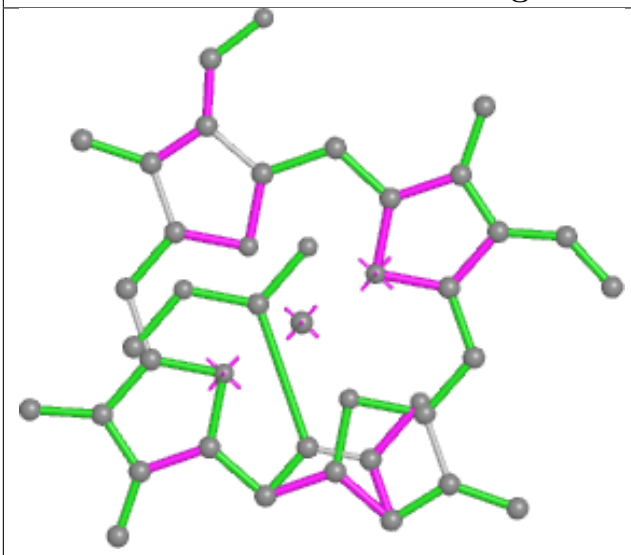


Torsions

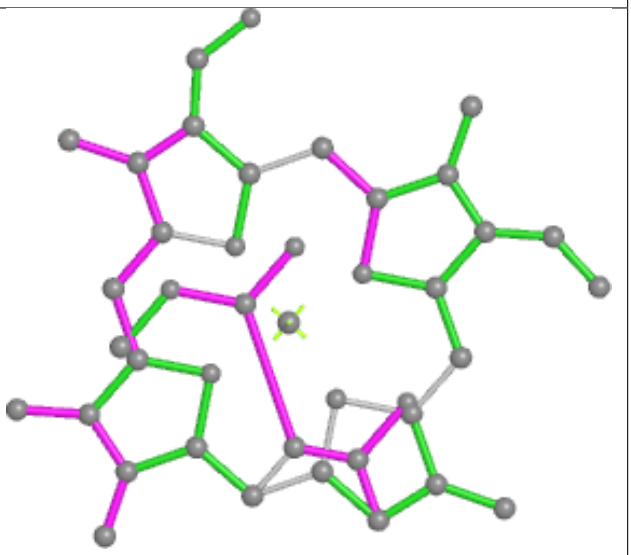


Rings

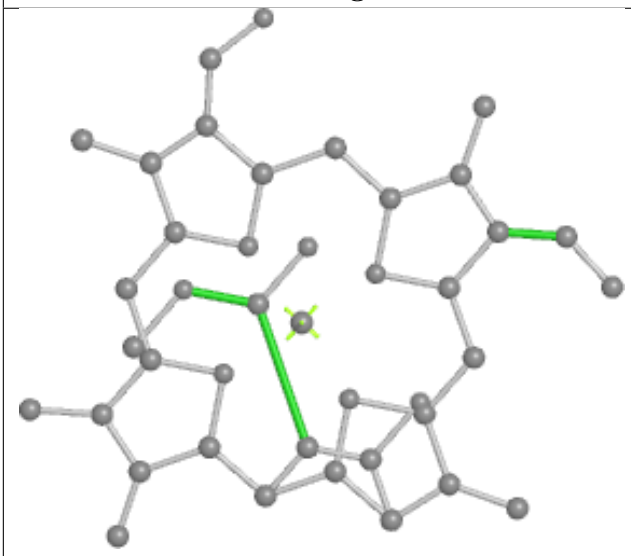
Ligand CL7 cA 3113



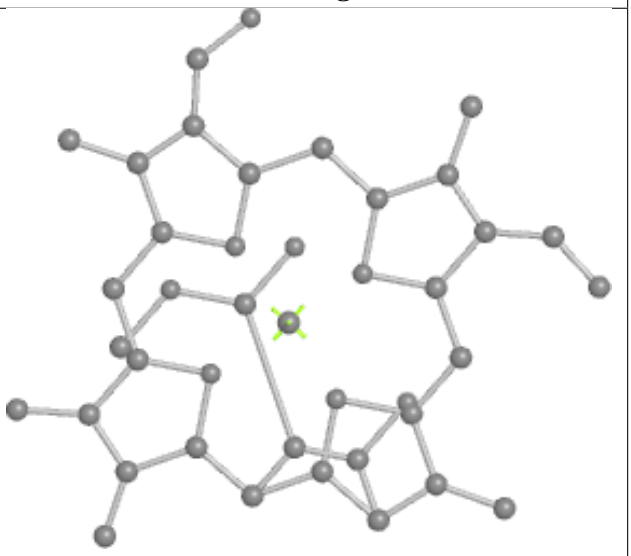
Bond lengths



Bond angles

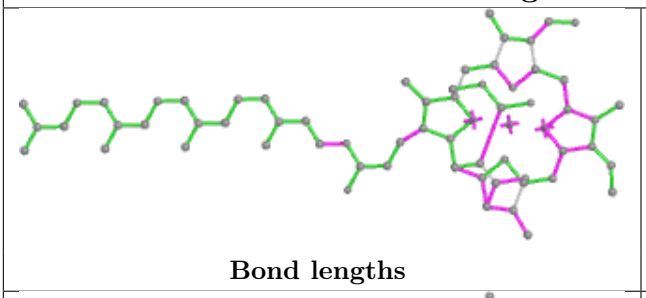


Torsions

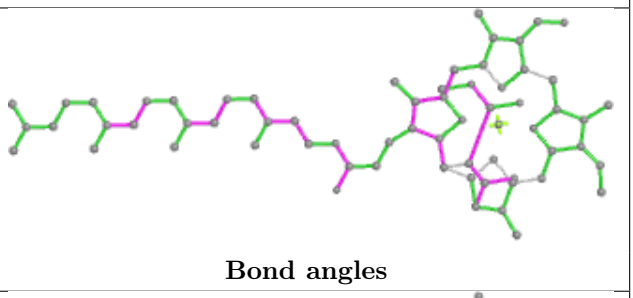


Rings

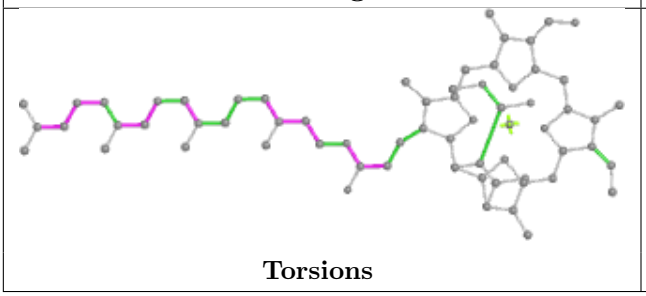
Ligand CL7 cB 806



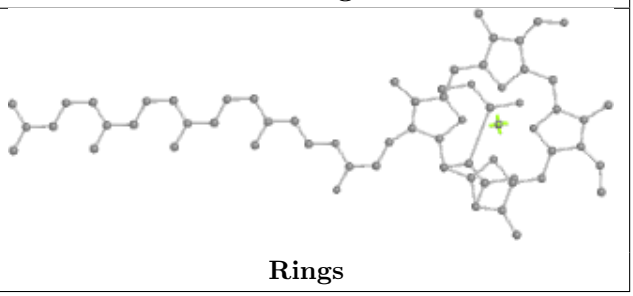
Bond lengths



Bond angles

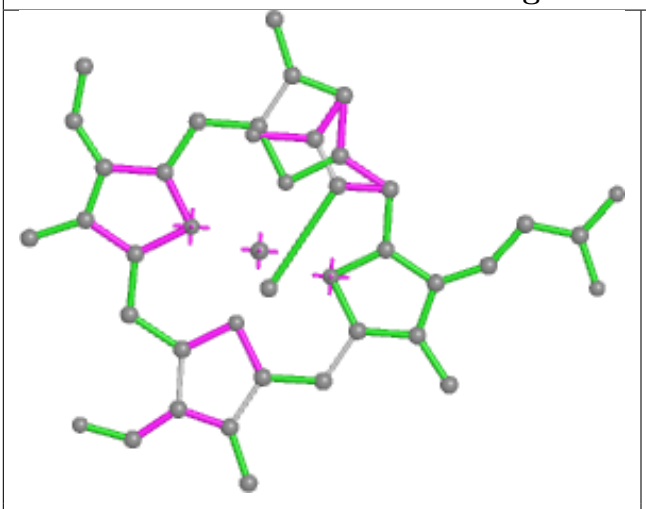


Torsions

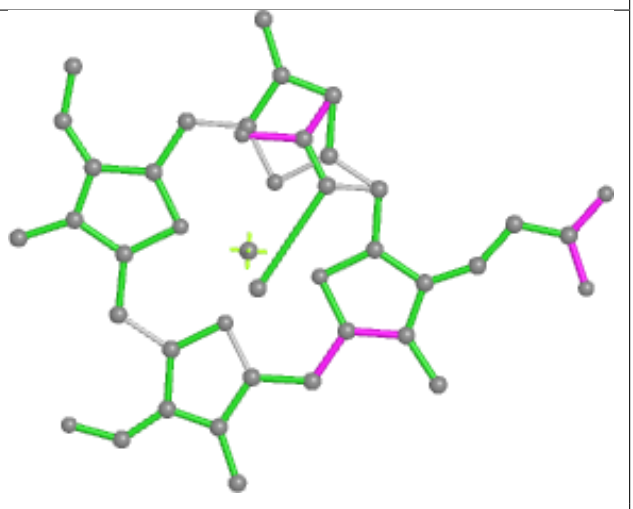


Rings

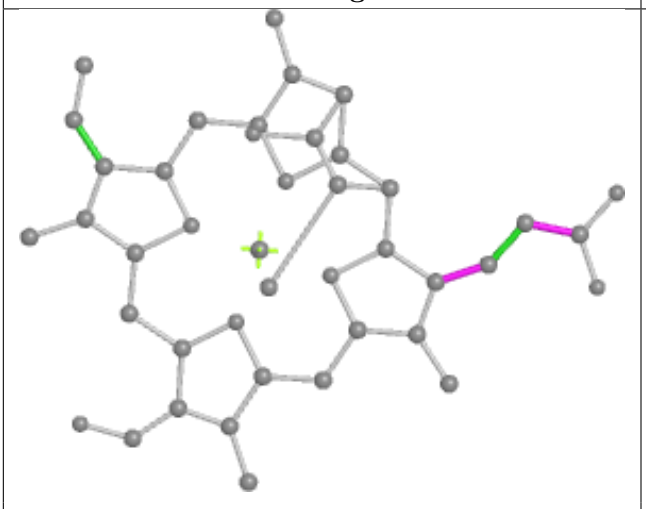
Ligand CL7 bJ 101



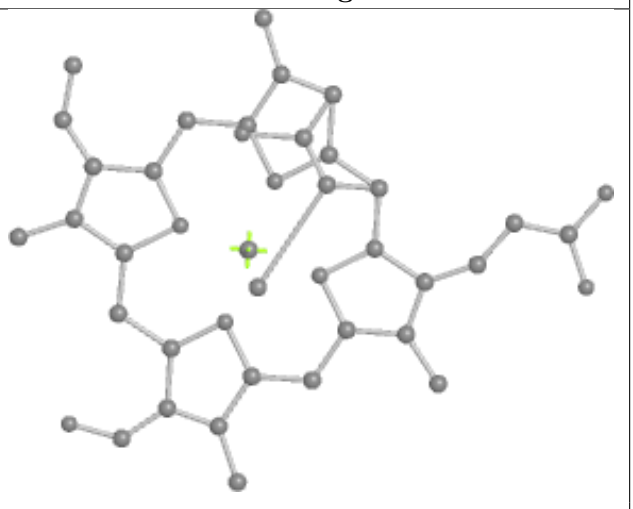
Bond lengths



Bond angles

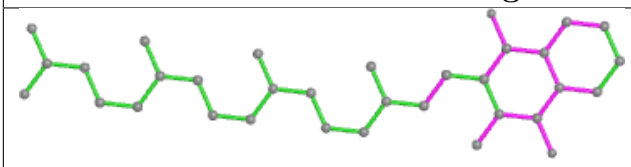


Torsions

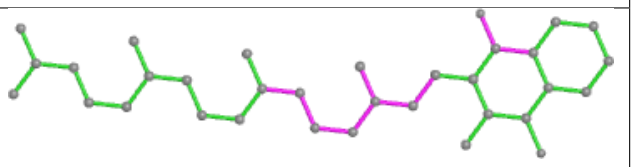


Rings

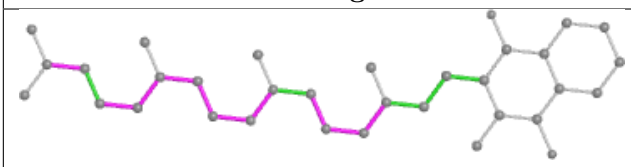
Ligand PQN bA 3143



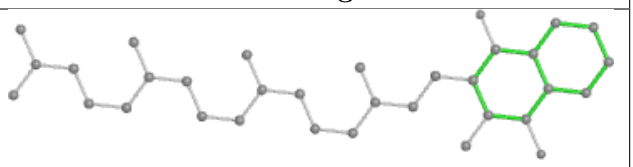
Bond lengths



Bond angles

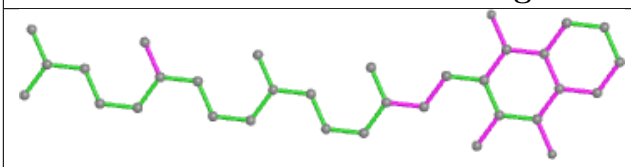


Torsions

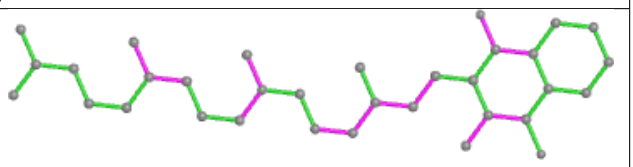


Rings

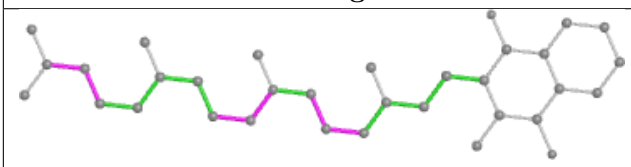
Ligand PQN cB 828



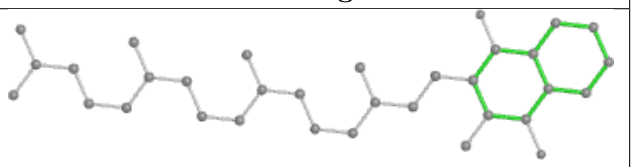
Bond lengths



Bond angles

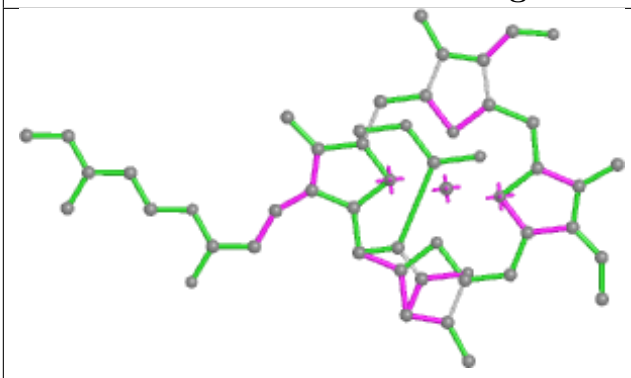


Torsions

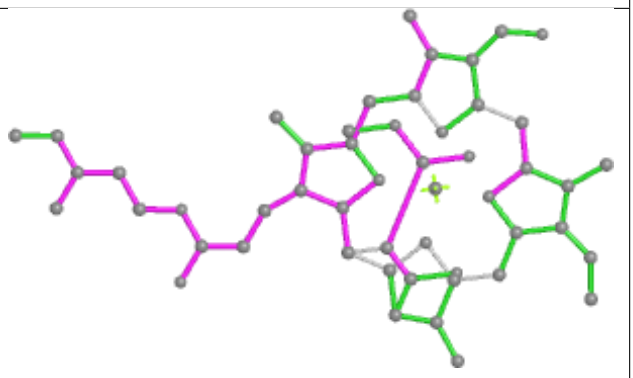


Rings

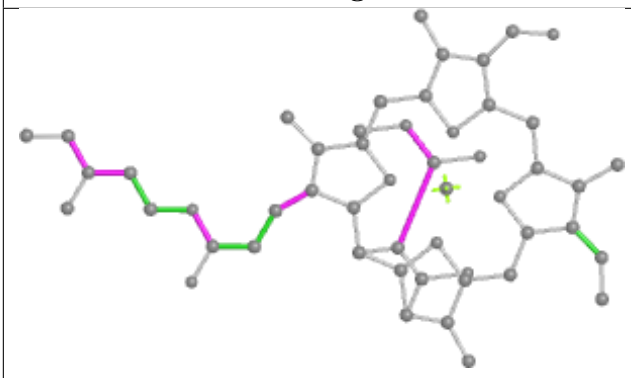
Ligand CL7 bA 3127



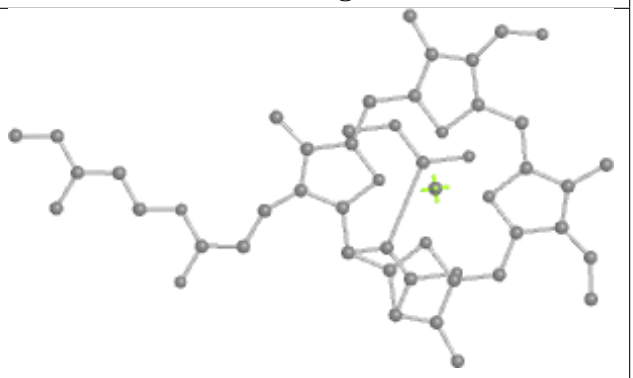
Bond lengths



Bond angles

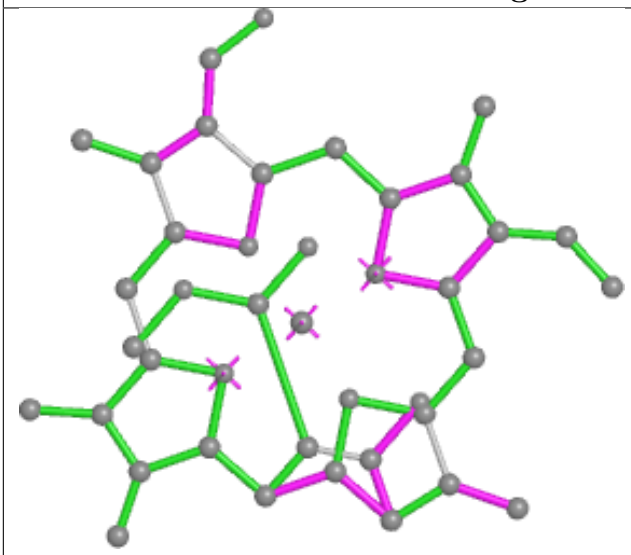


Torsions

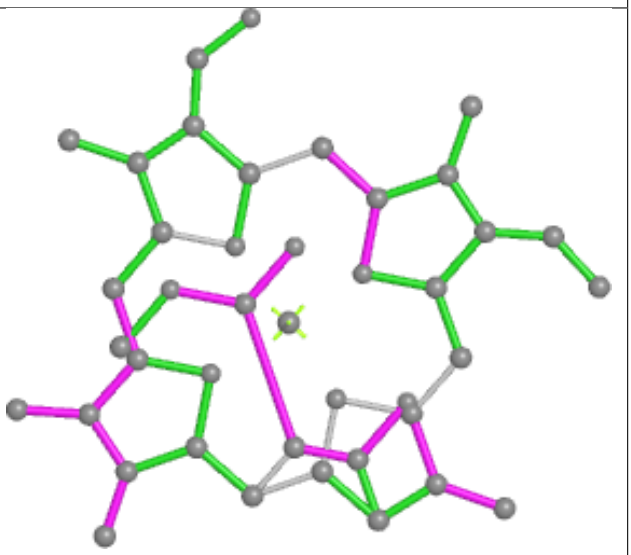


Rings

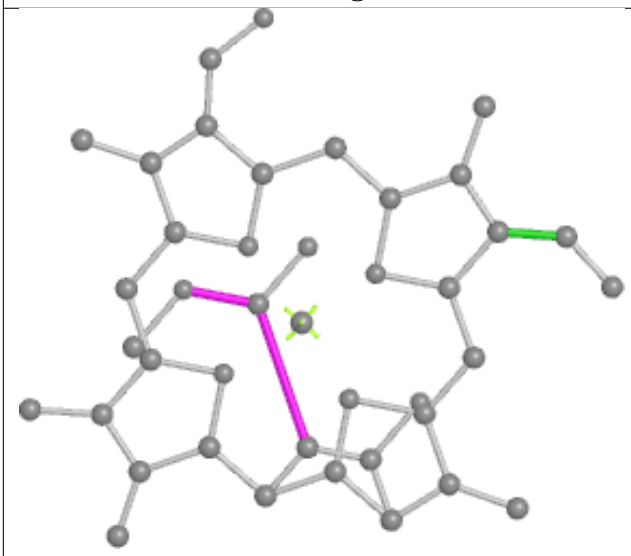
Ligand CL7 aA 3132



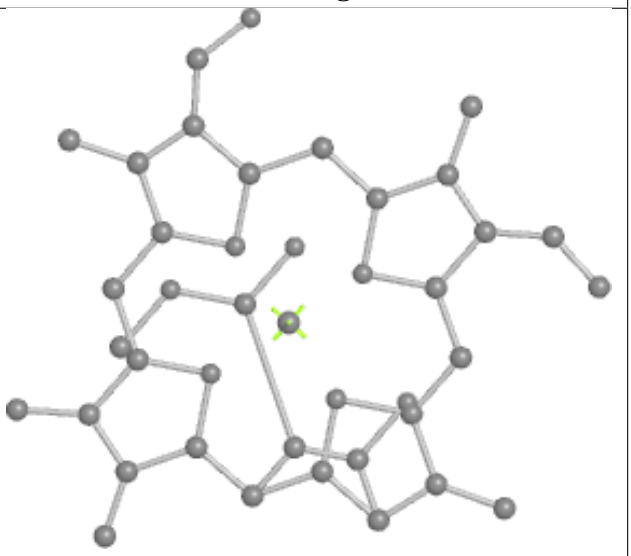
Bond lengths



Bond angles

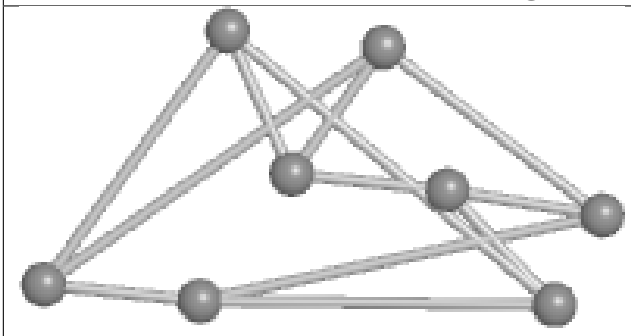


Torsions

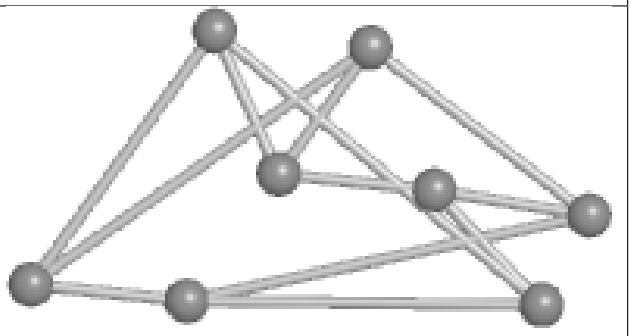


Rings

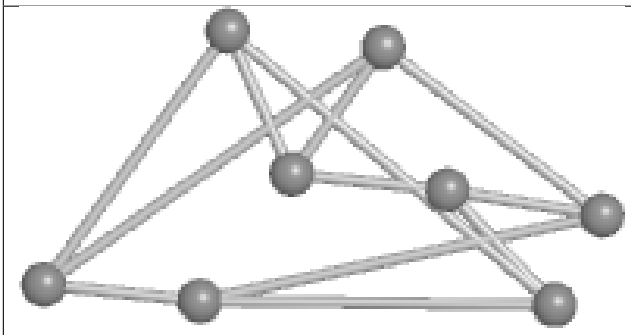
Ligand SF4 aC 101



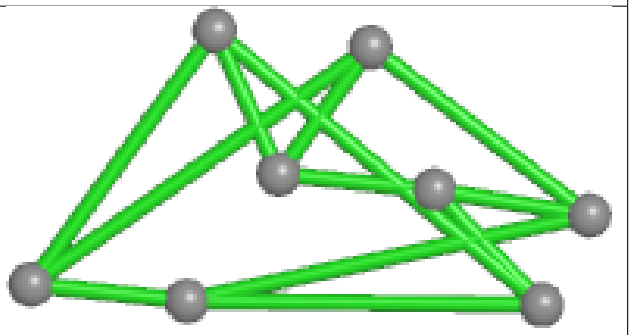
Bond lengths



Bond angles

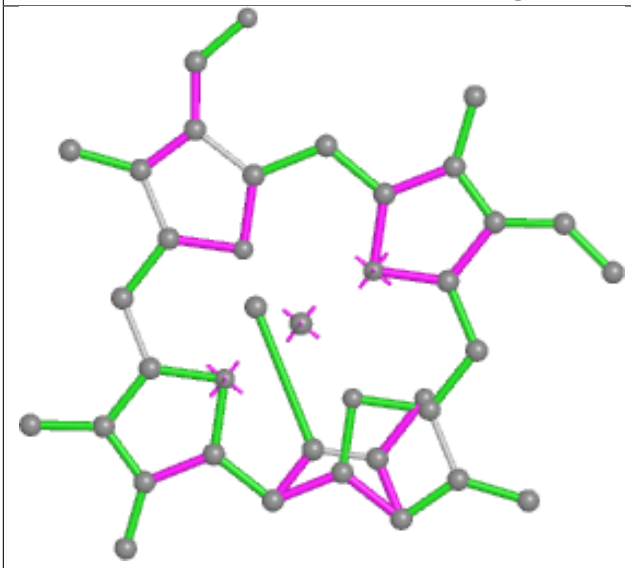


Torsions

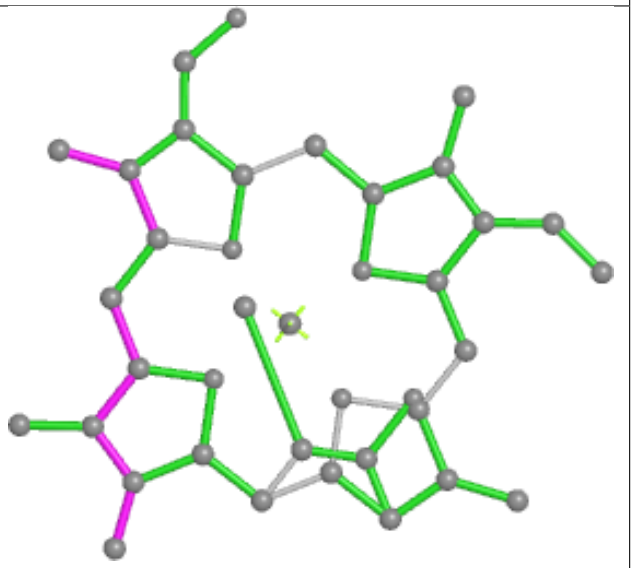


Rings

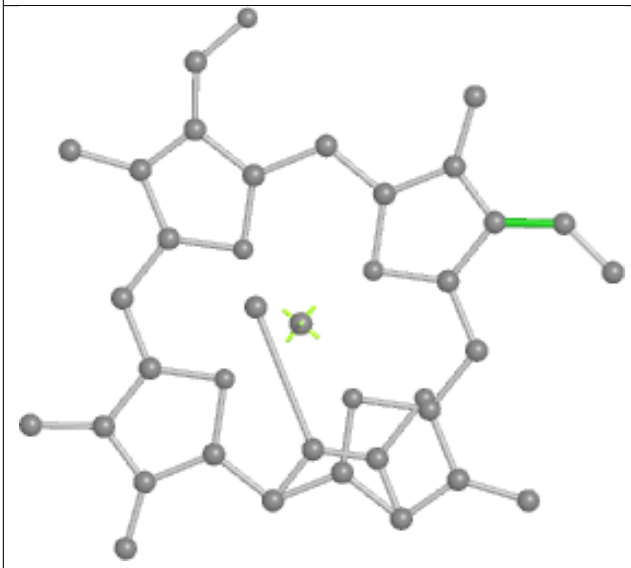
Ligand CL7 bA 3111



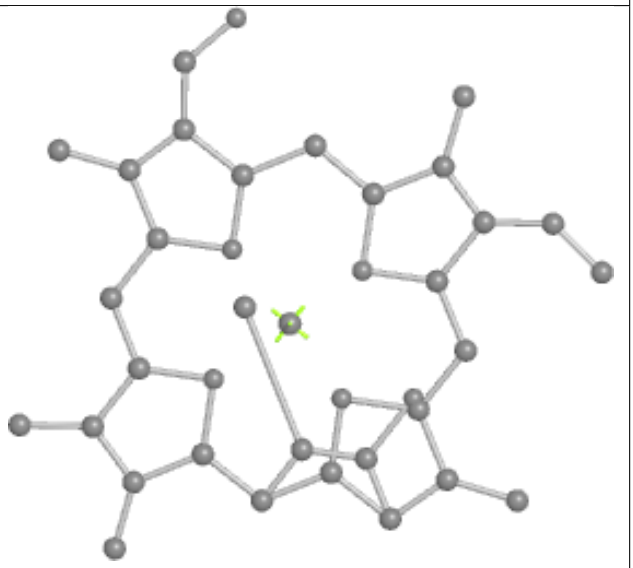
Bond lengths



Bond angles

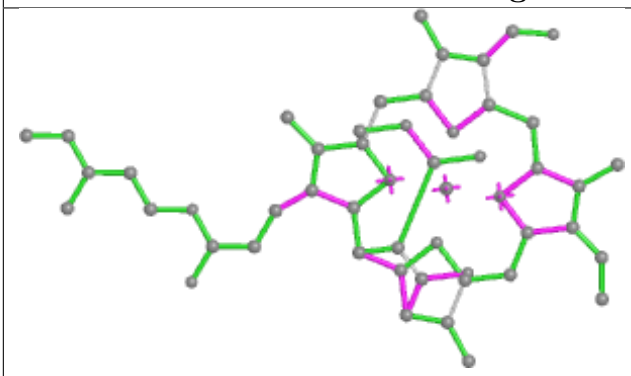


Torsions

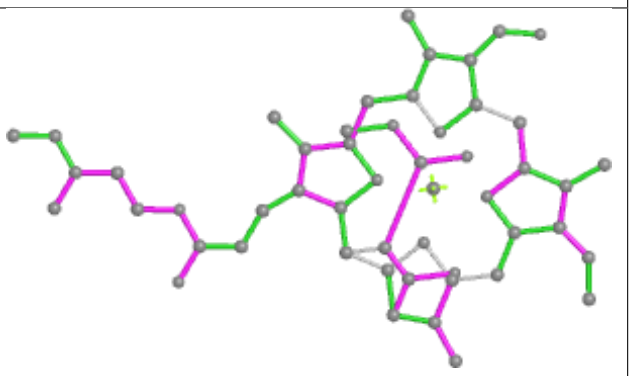


Rings

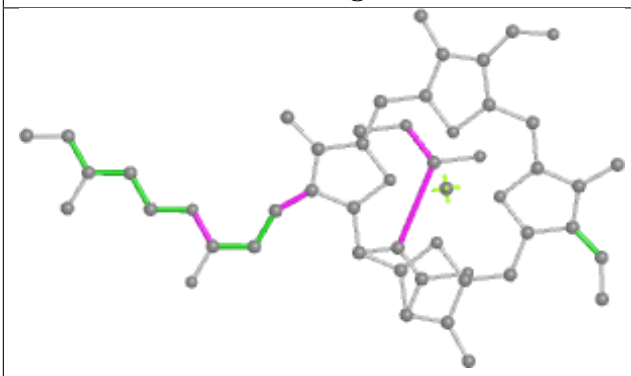
Ligand CL7 bA 3120



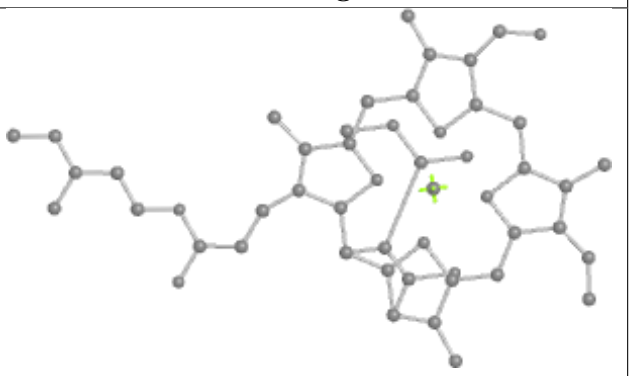
Bond lengths



Bond angles

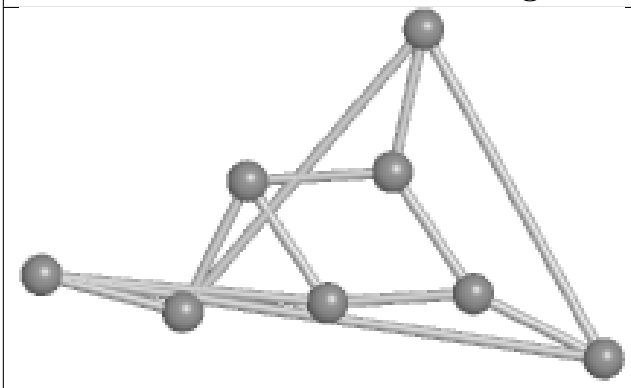


Torsions

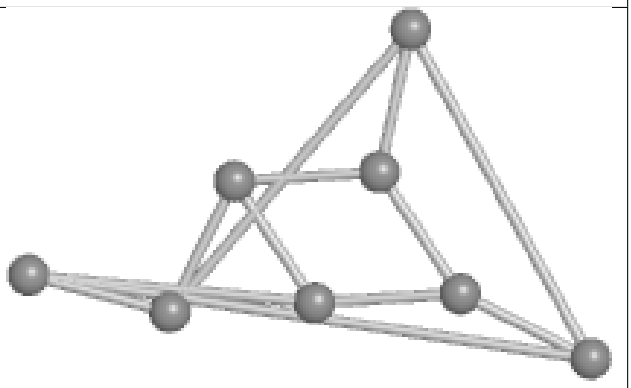


Rings

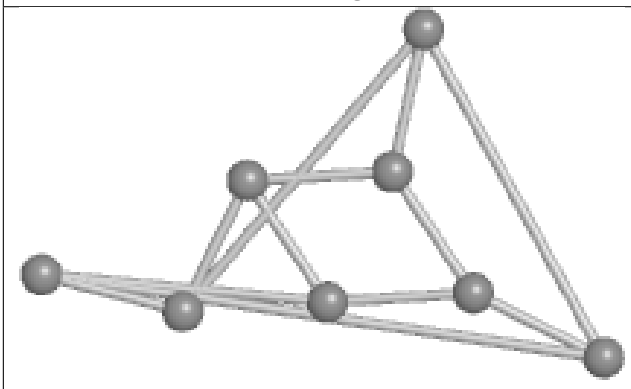
Ligand SF4 bC 102



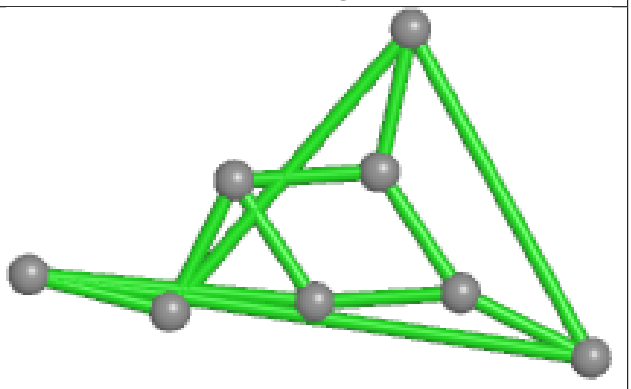
Bond lengths



Bond angles

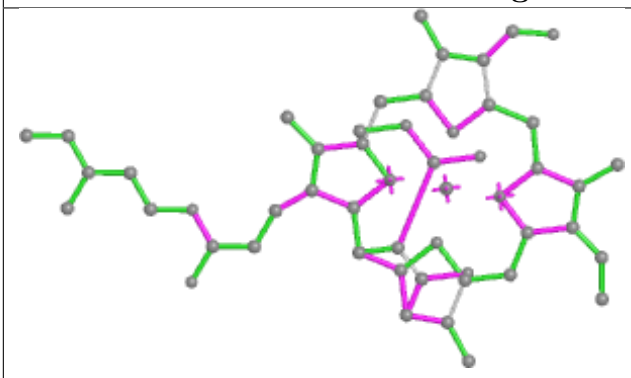


Torsions

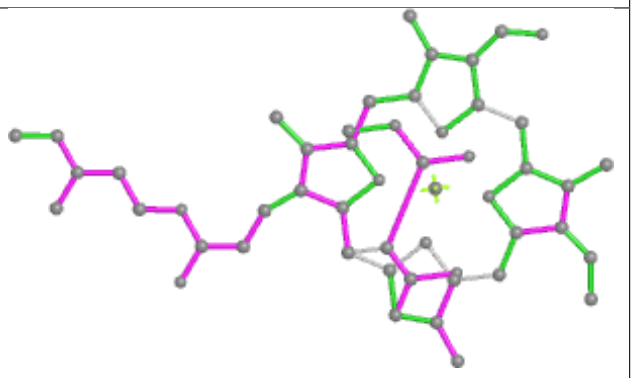


Rings

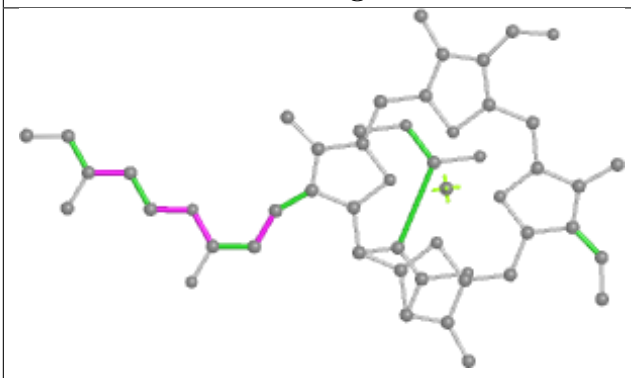
Ligand CL7 cA 3123



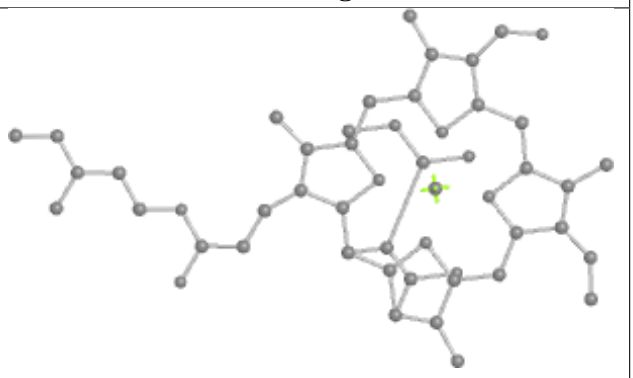
Bond lengths



Bond angles

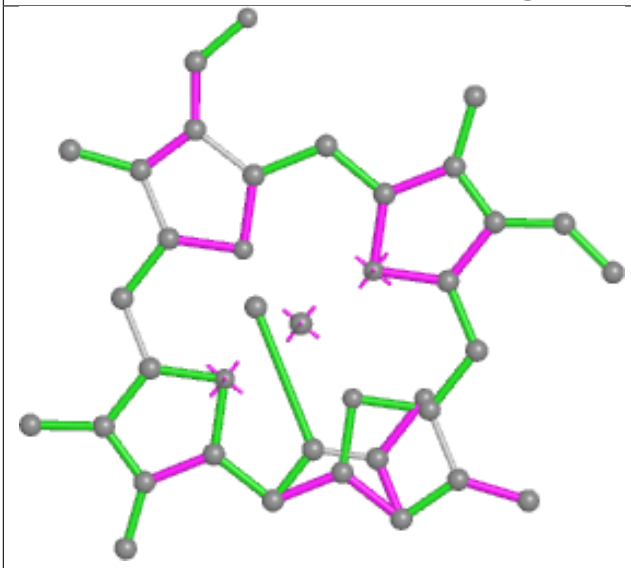


Torsions

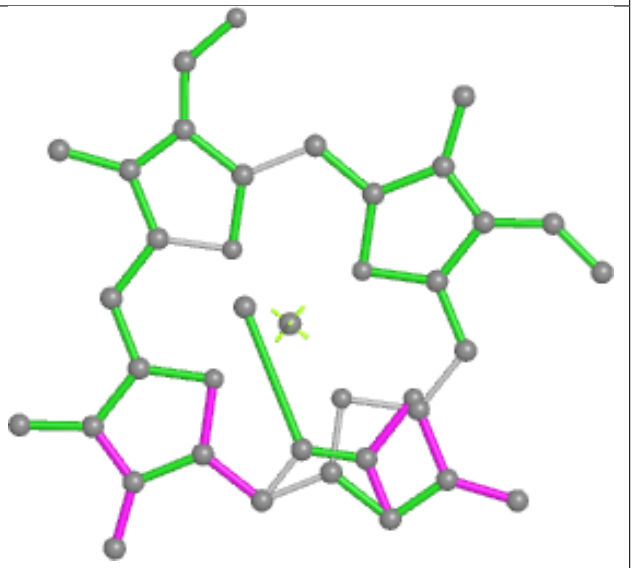


Rings

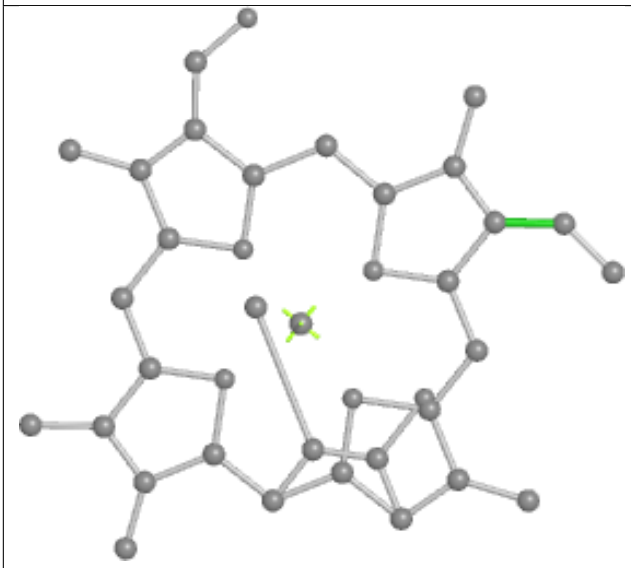
Ligand CL7 bB 813



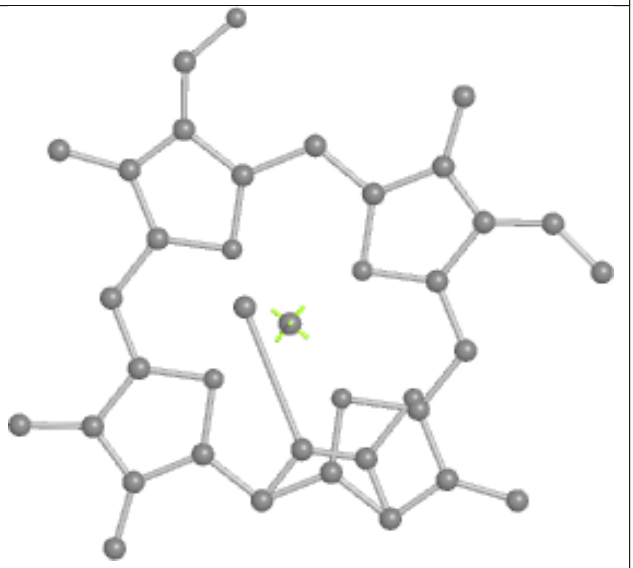
Bond lengths



Bond angles

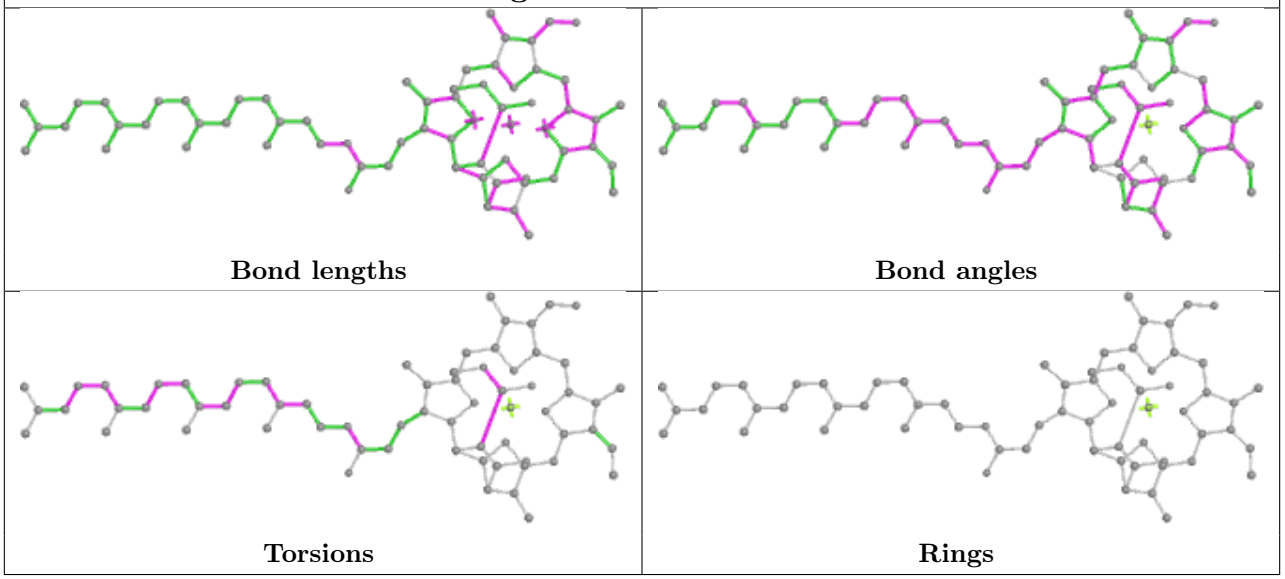


Torsions

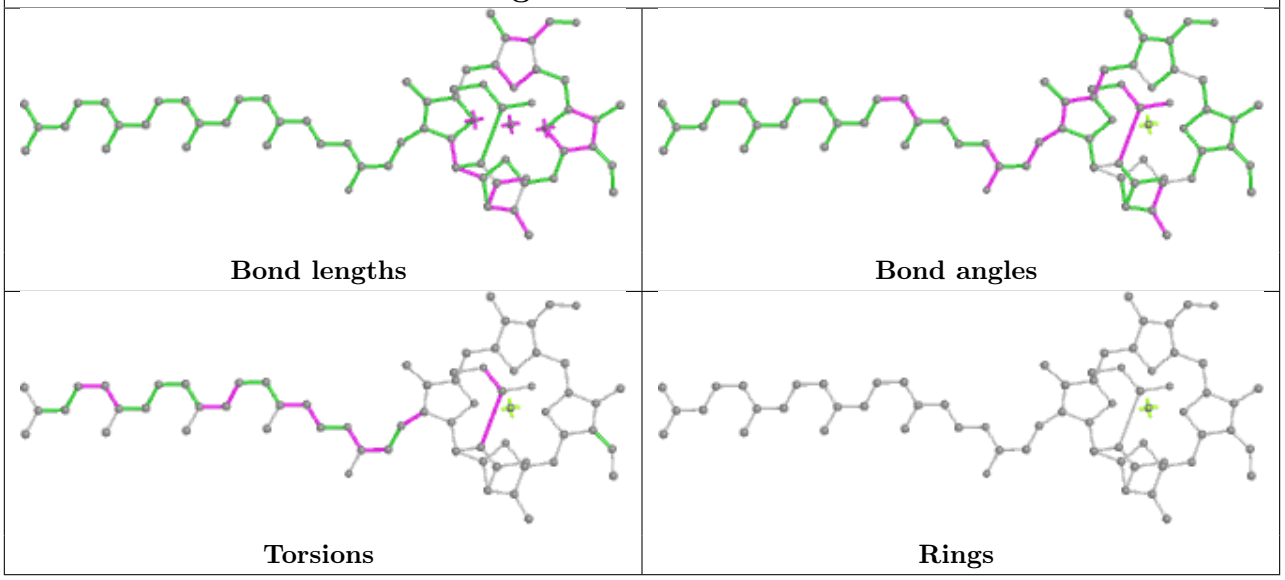


Rings

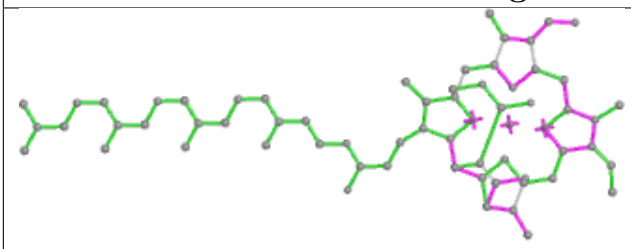
Ligand CL7 bA 3128



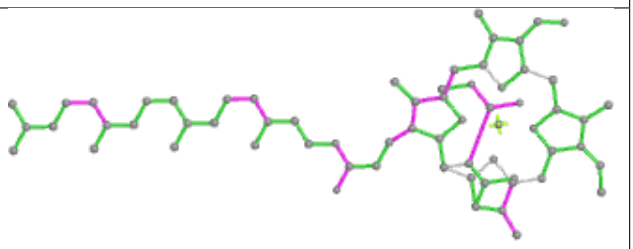
Ligand CL7 cA 3139



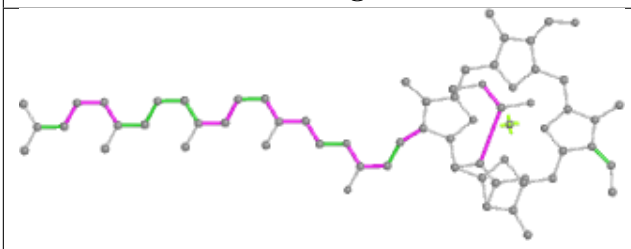
Ligand CL7 bA 3139



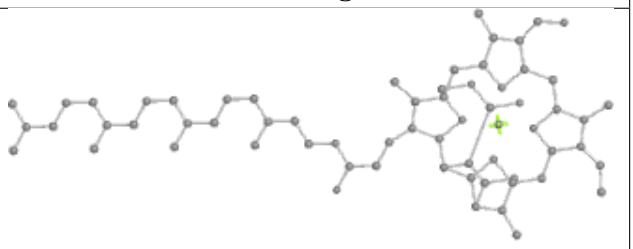
Bond lengths



Bond angles

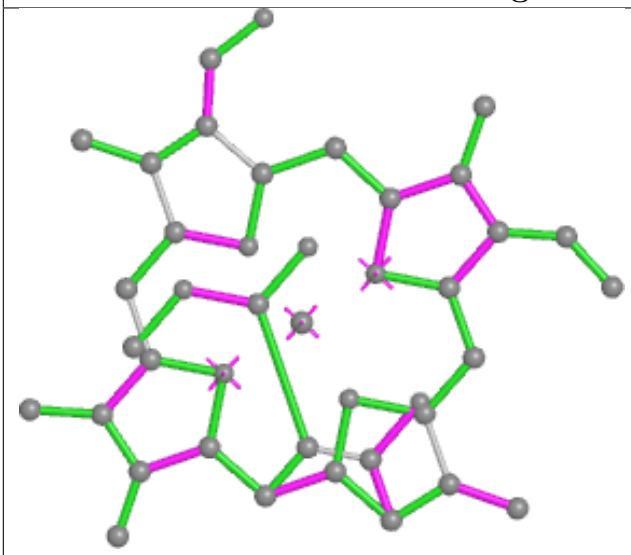


Torsions

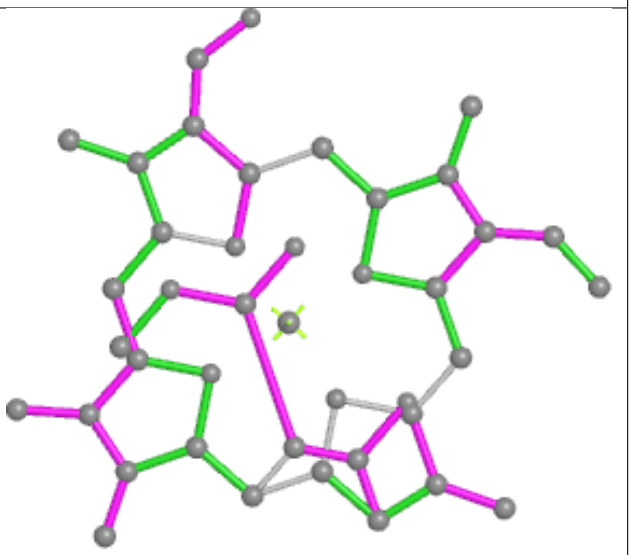


Rings

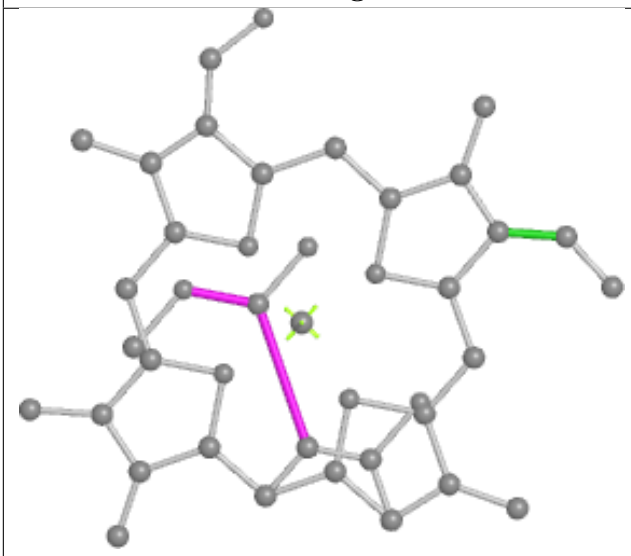
Ligand CL7 cA 3105



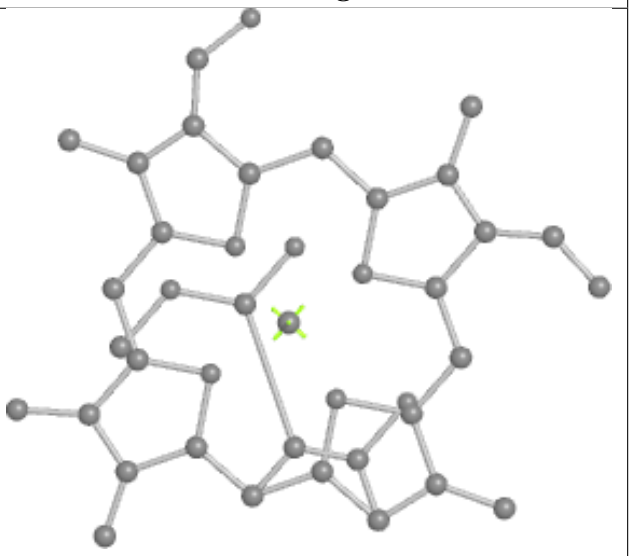
Bond lengths



Bond angles

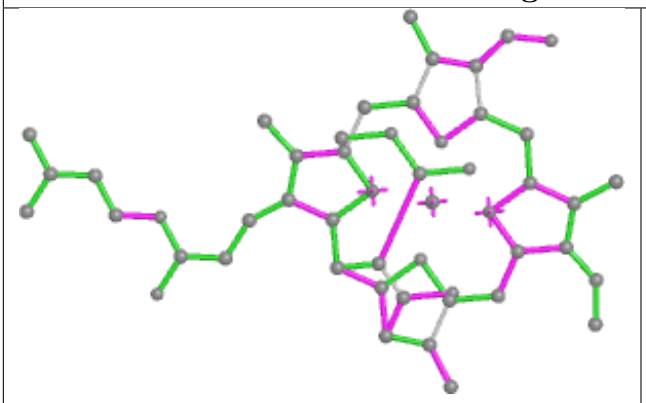


Torsions

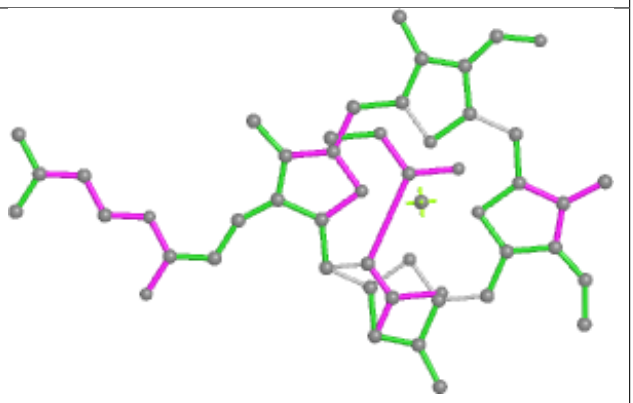


Rings

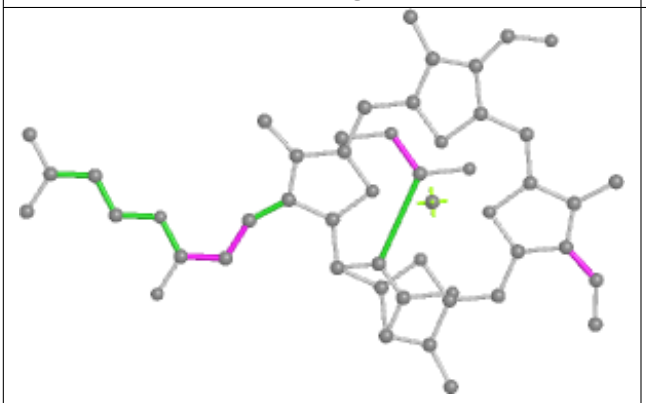
Ligand CL7 cB 816



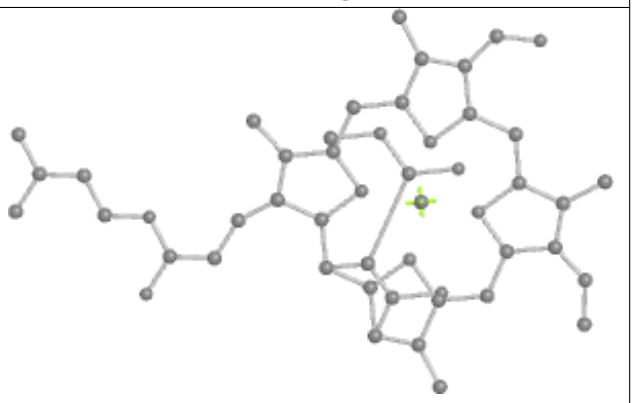
Bond lengths



Bond angles

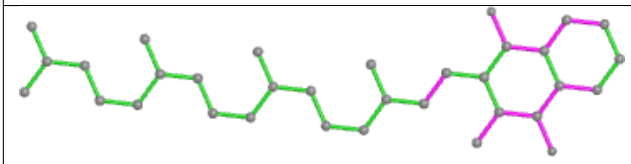


Torsions

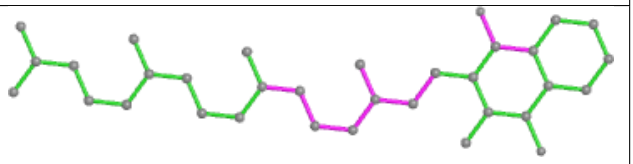


Rings

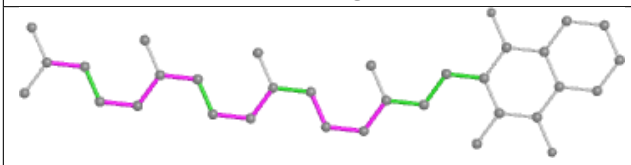
Ligand PQN cA 3143



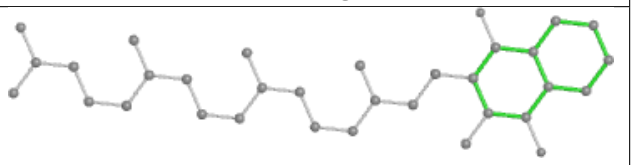
Bond lengths



Bond angles

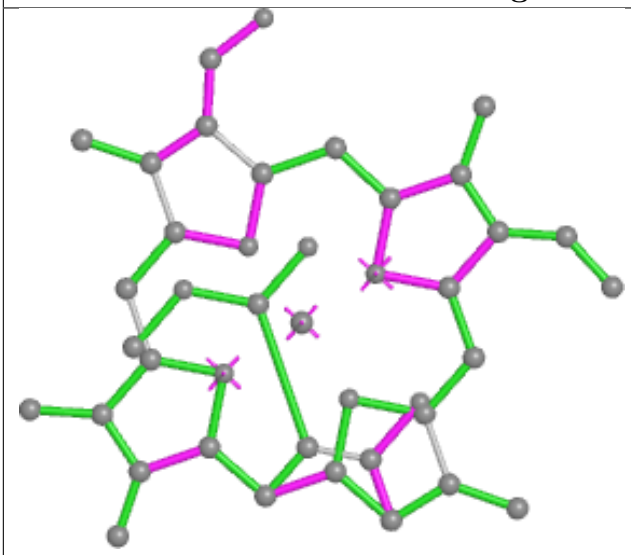


Torsions

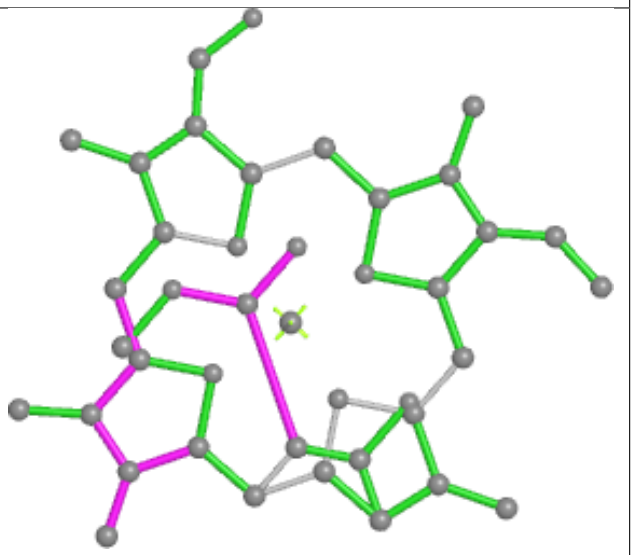


Rings

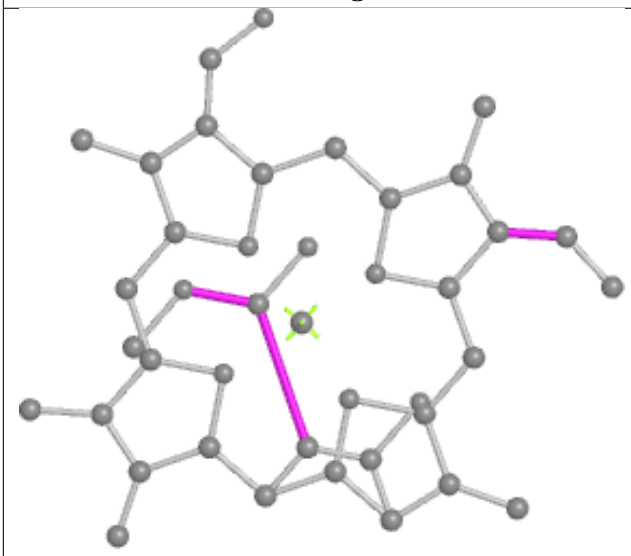
Ligand CL7 aA 3134



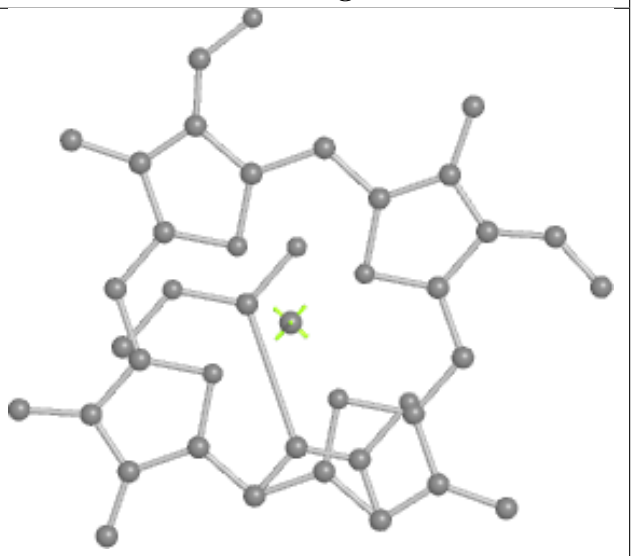
Bond lengths



Bond angles

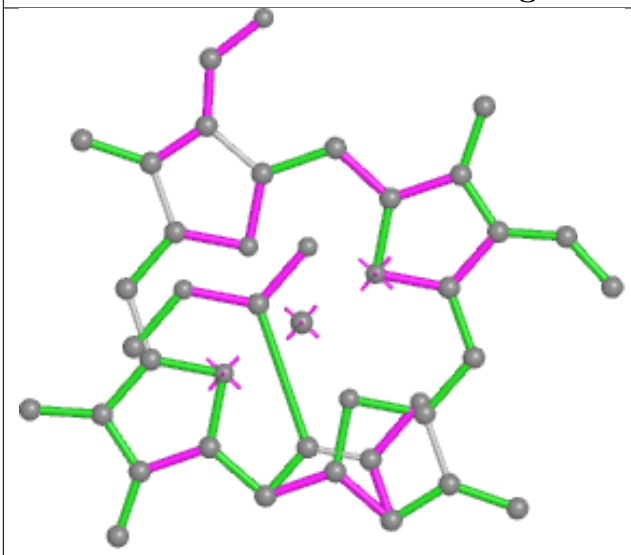


Torsions

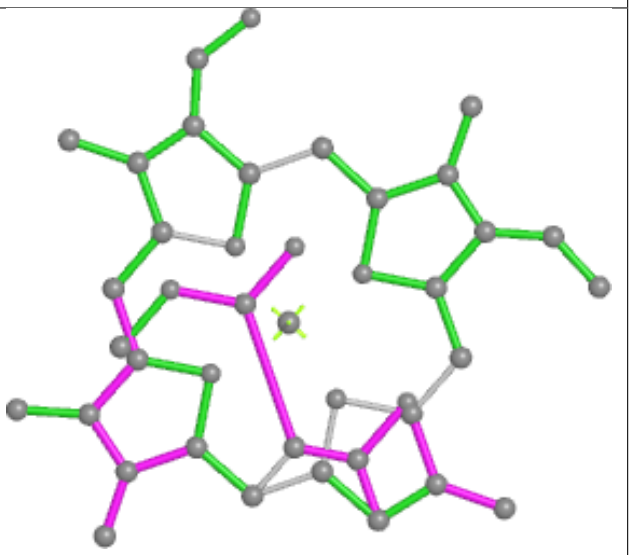


Rings

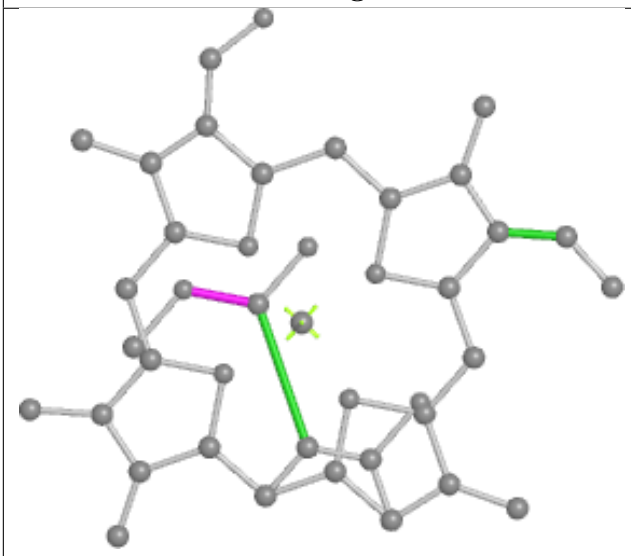
Ligand CL7 bB 811



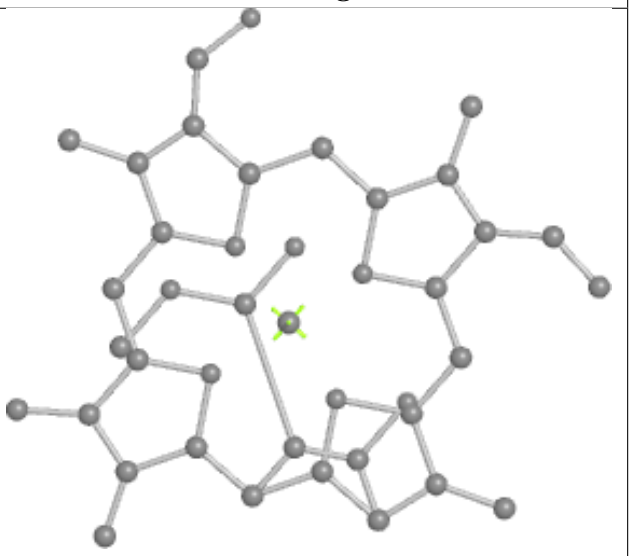
Bond lengths



Bond angles

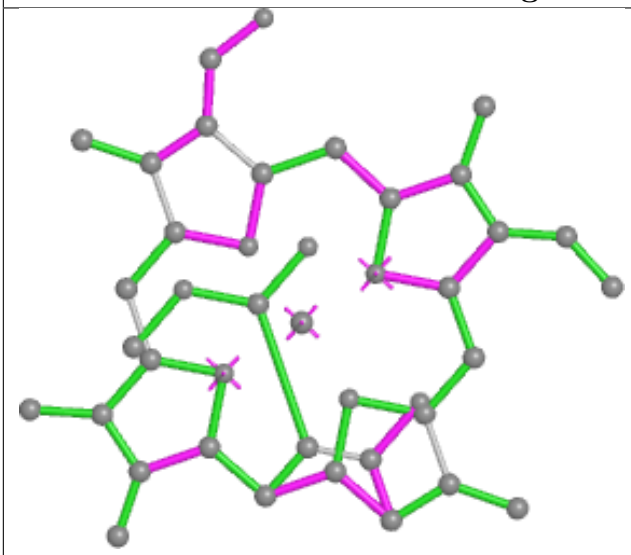


Torsions

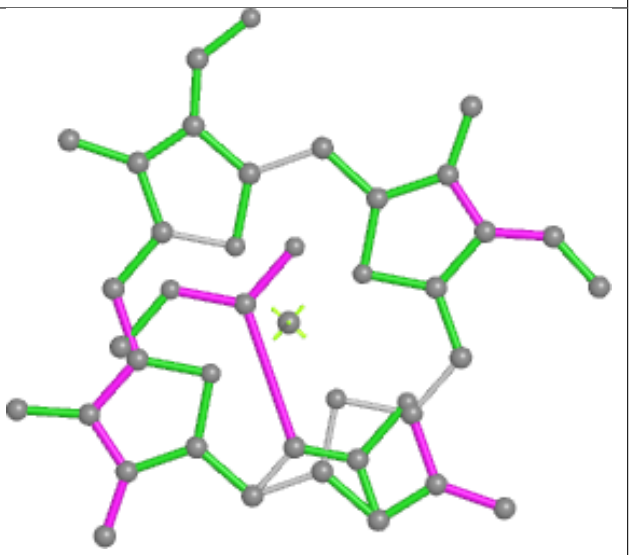


Rings

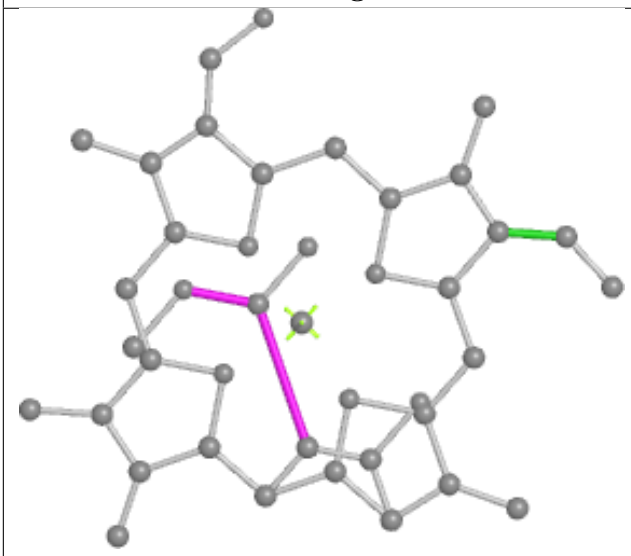
Ligand CL7 cB 811



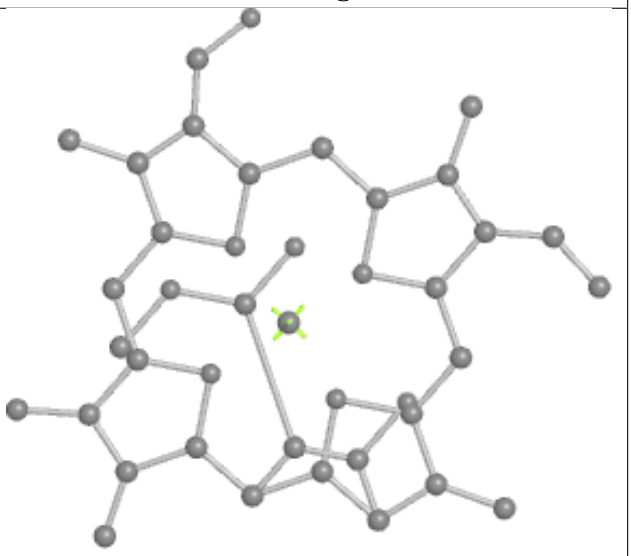
Bond lengths



Bond angles

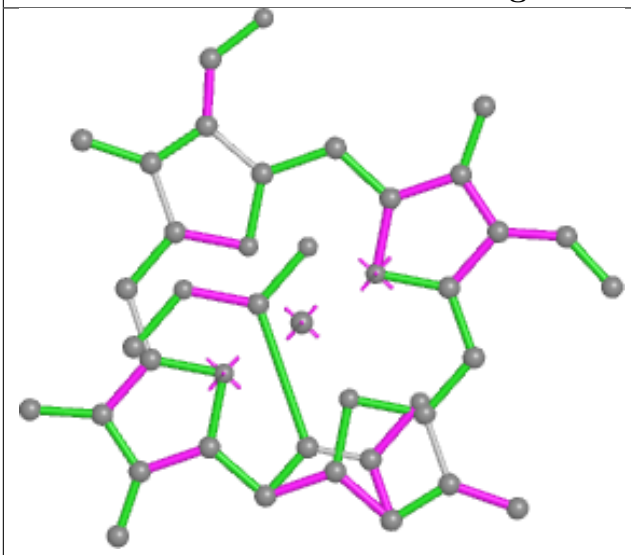


Torsions

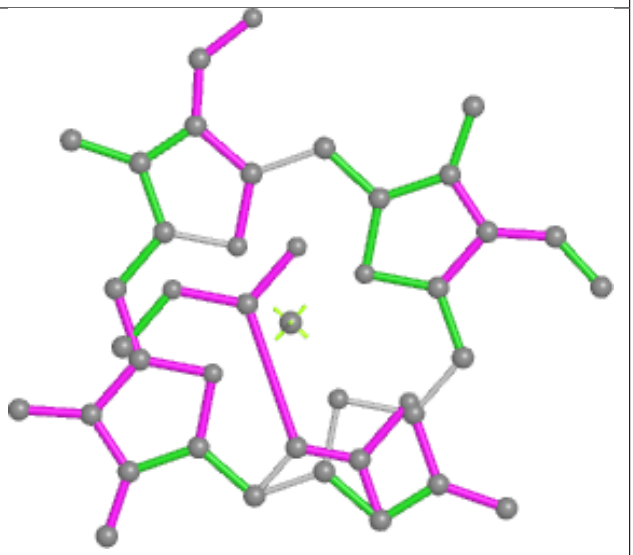


Rings

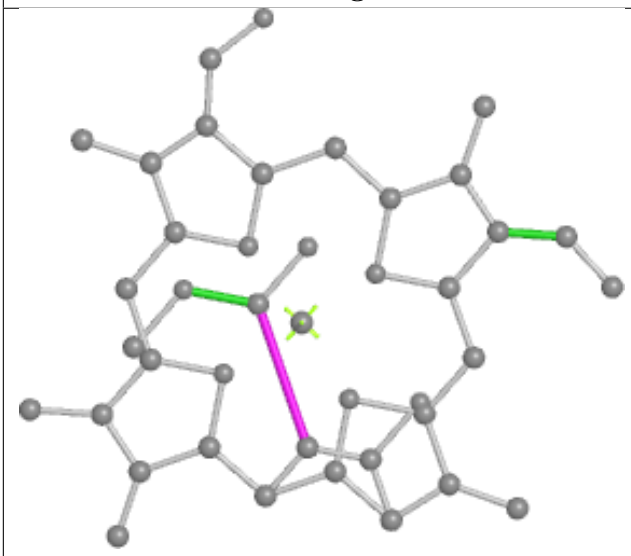
Ligand CL7 bA 3105



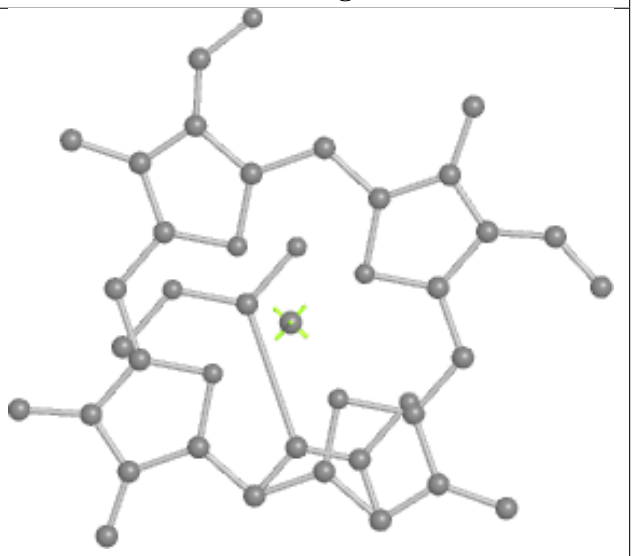
Bond lengths



Bond angles

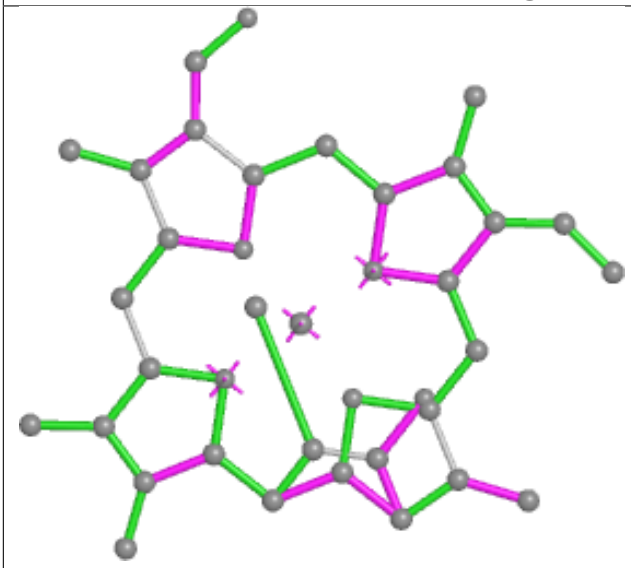


Torsions

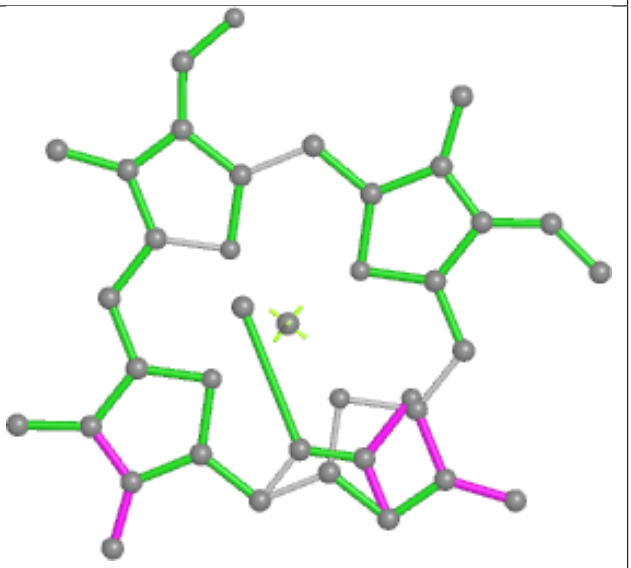


Rings

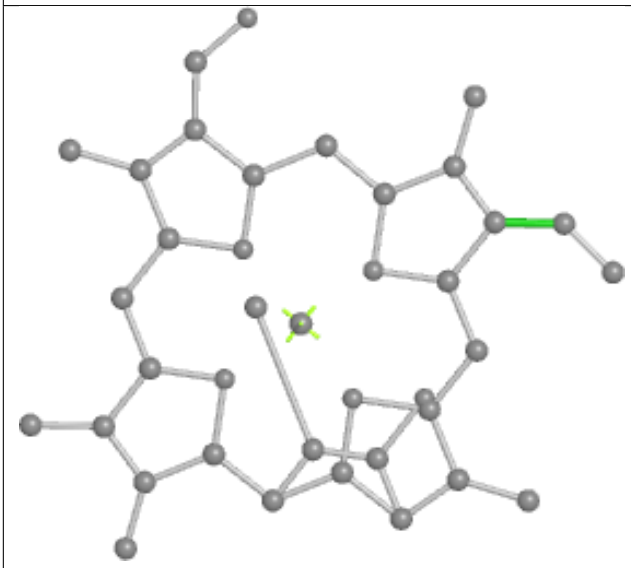
Ligand CL7 cB 813



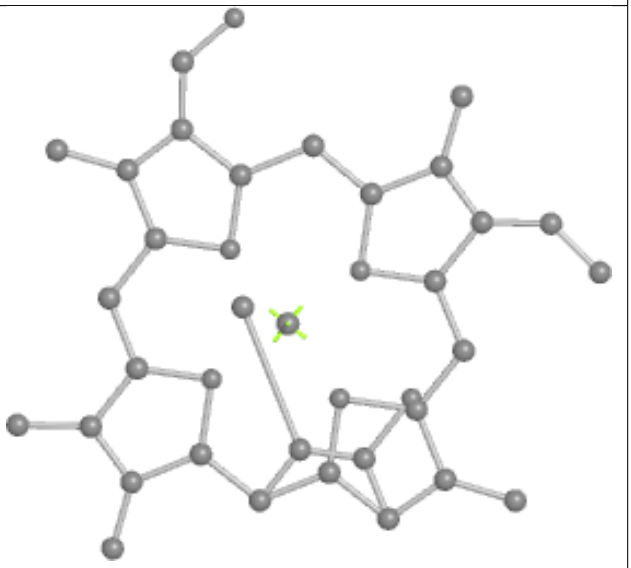
Bond lengths



Bond angles

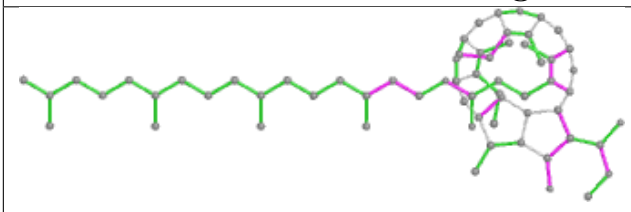


Torsions

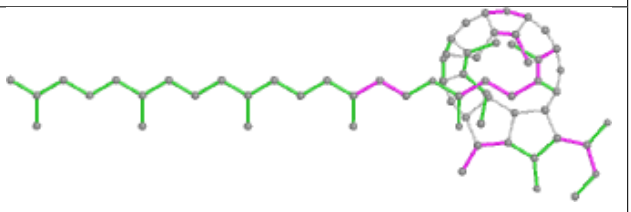


Rings

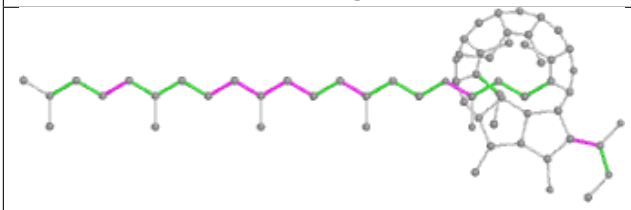
Ligand PHO bB 801



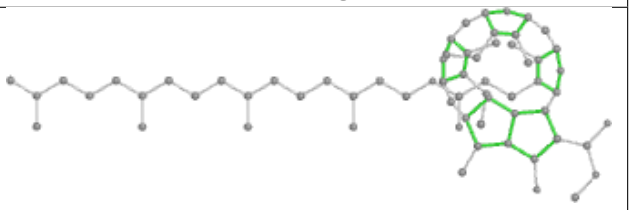
Bond lengths



Bond angles

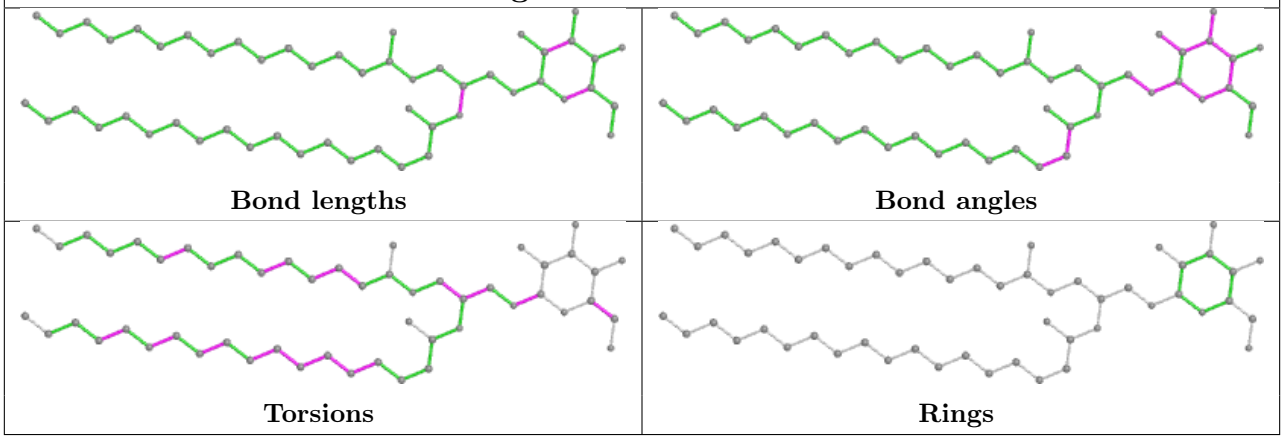


Torsions

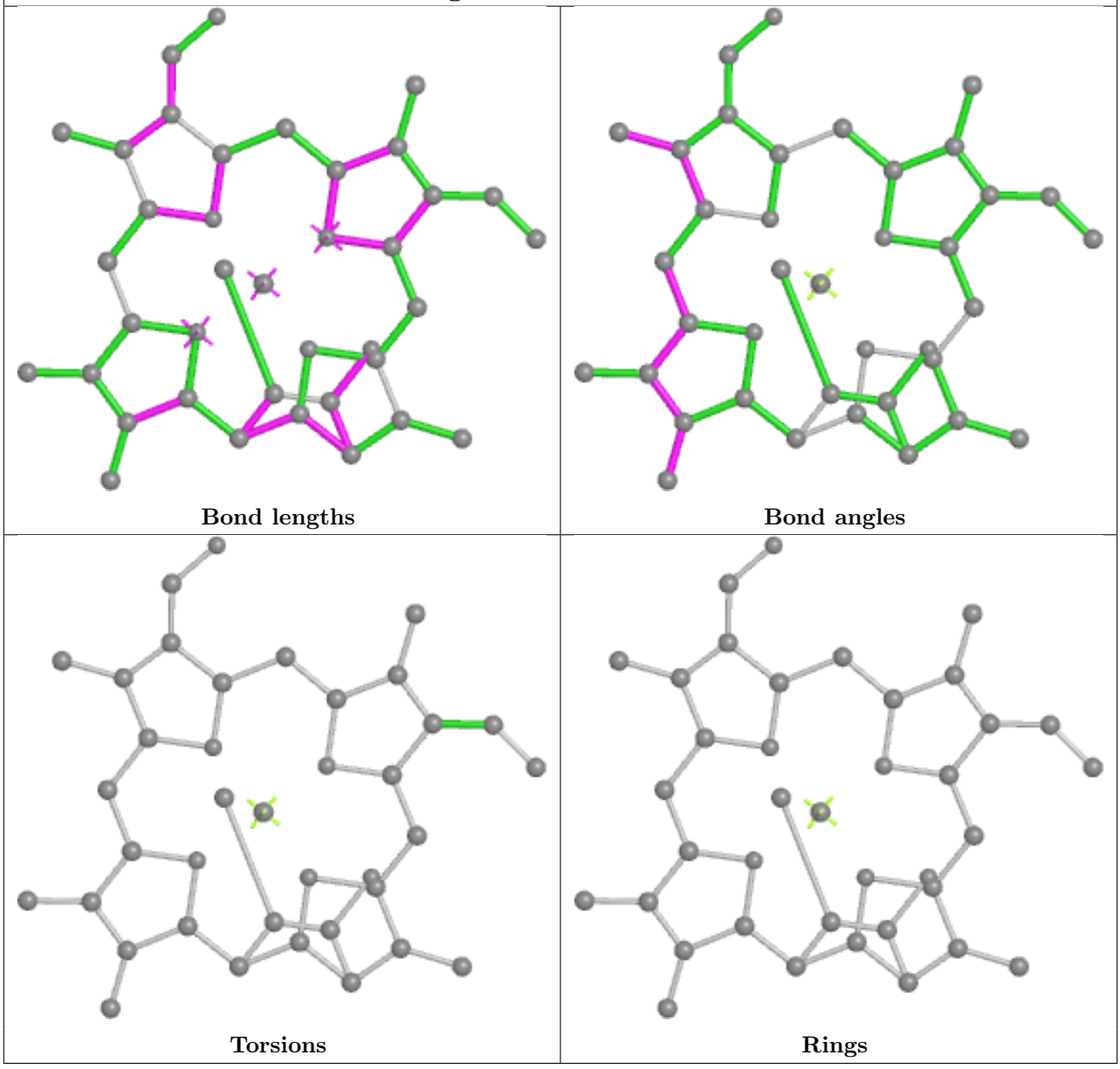


Rings

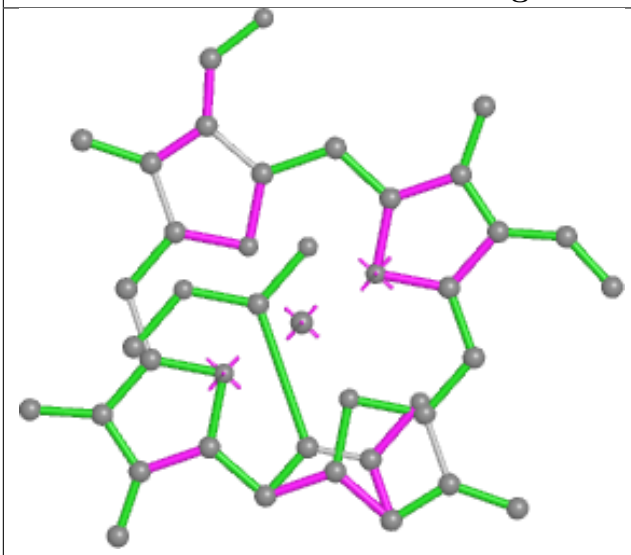
Ligand LMG bB 830



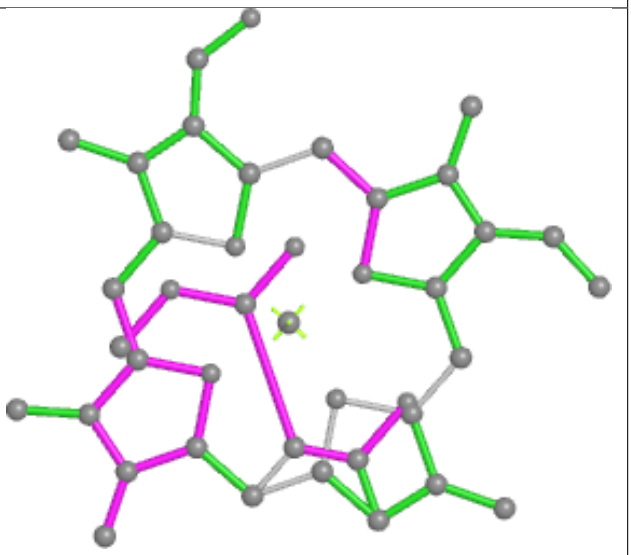
Ligand CL7 cA 3111



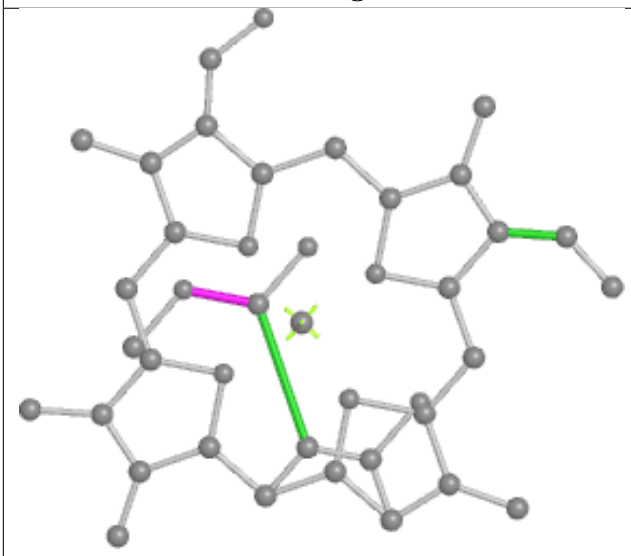
Ligand CL7 cA 3109



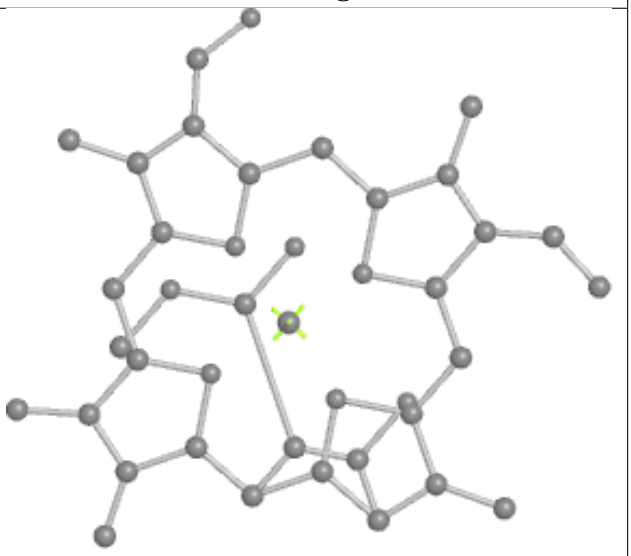
Bond lengths



Bond angles

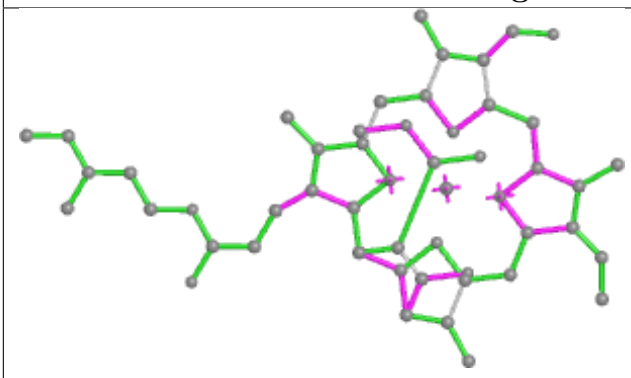


Torsions

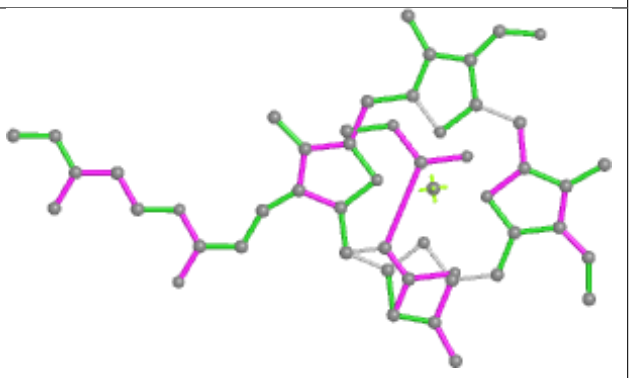


Rings

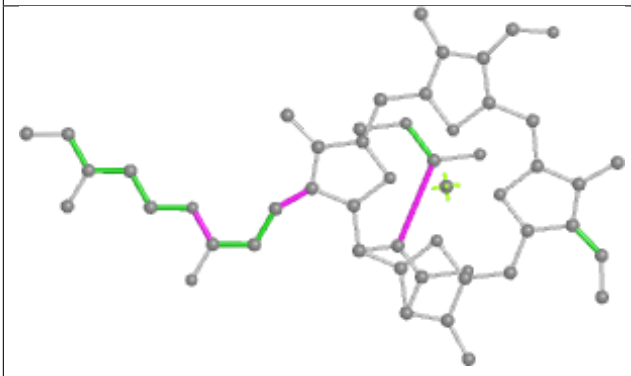
Ligand CL7 cA 3120



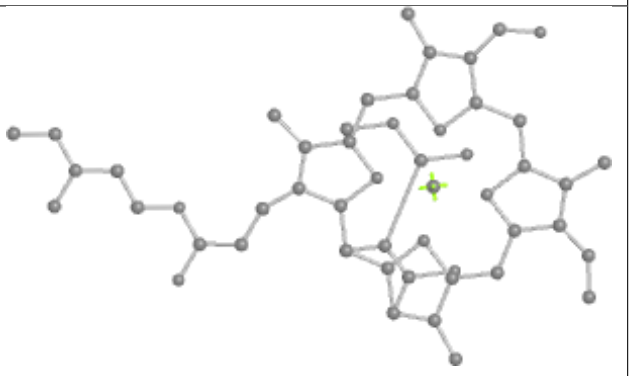
Bond lengths



Bond angles

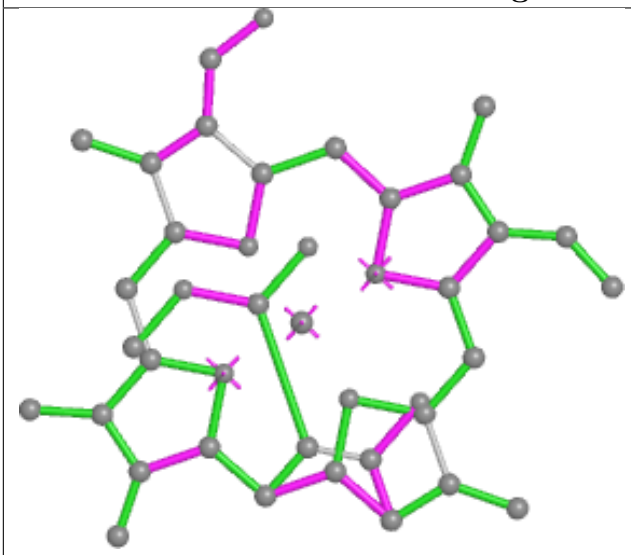


Torsions

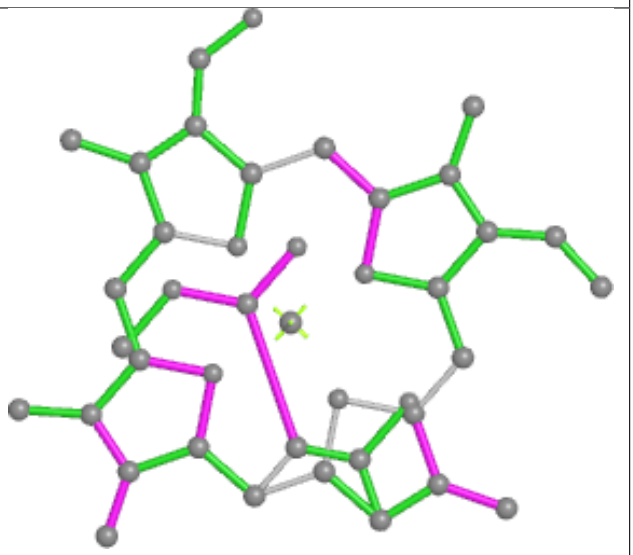


Rings

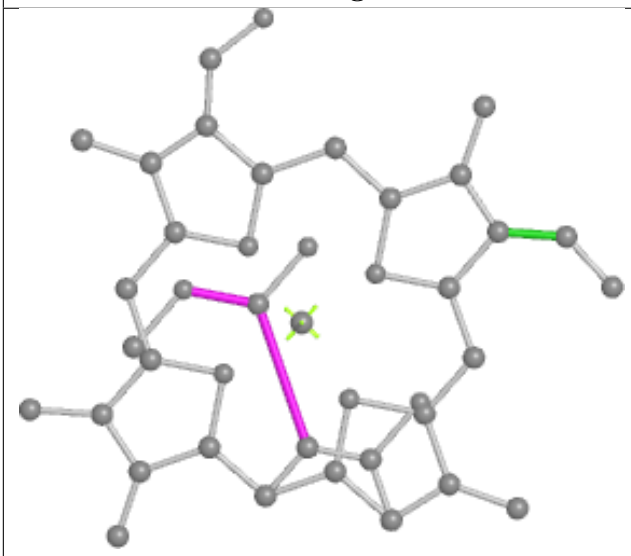
Ligand CL7 cA 3130



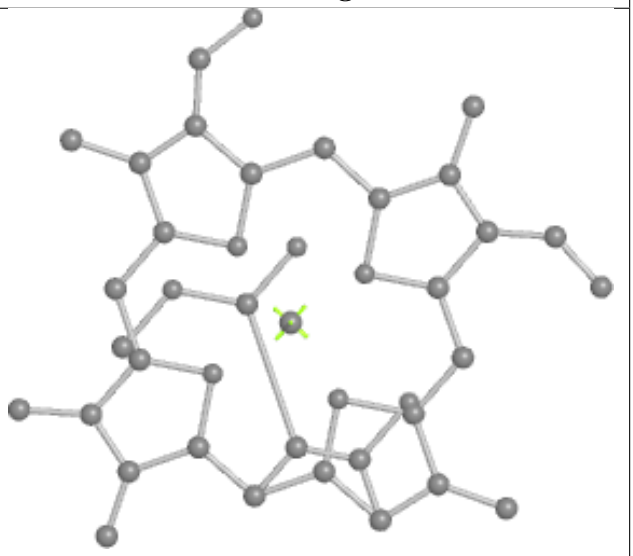
Bond lengths



Bond angles

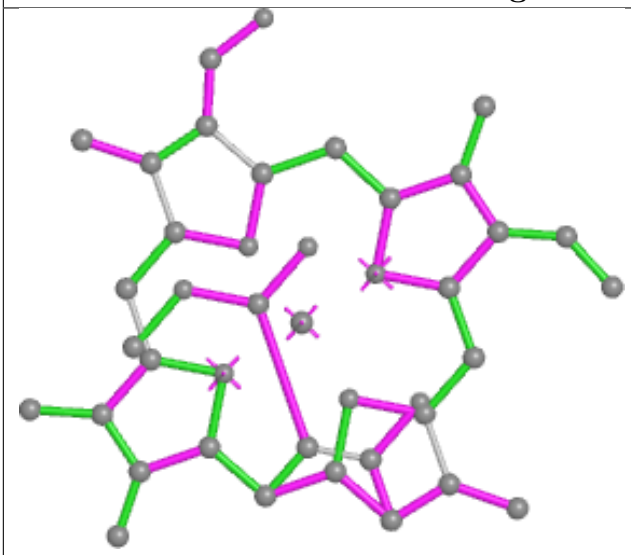


Torsions

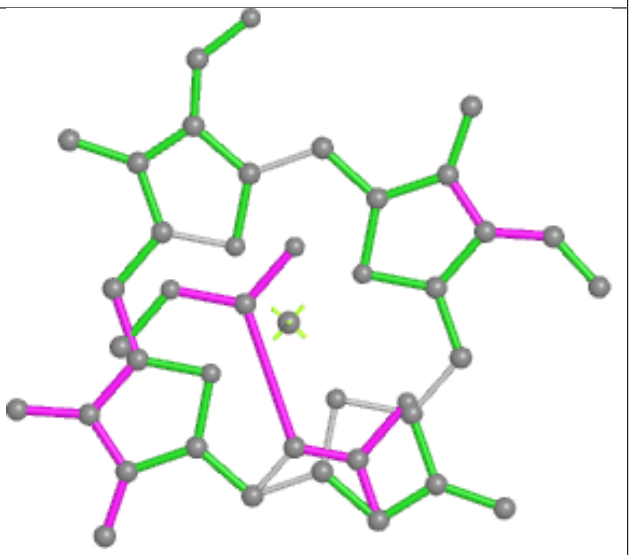


Rings

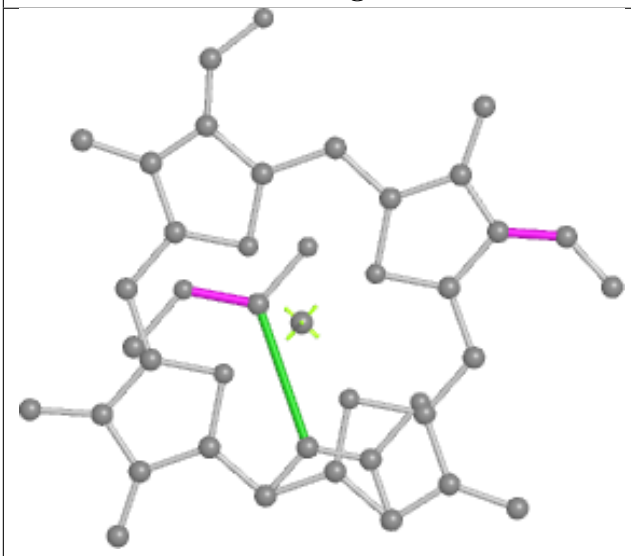
Ligand CL7 bA 3121



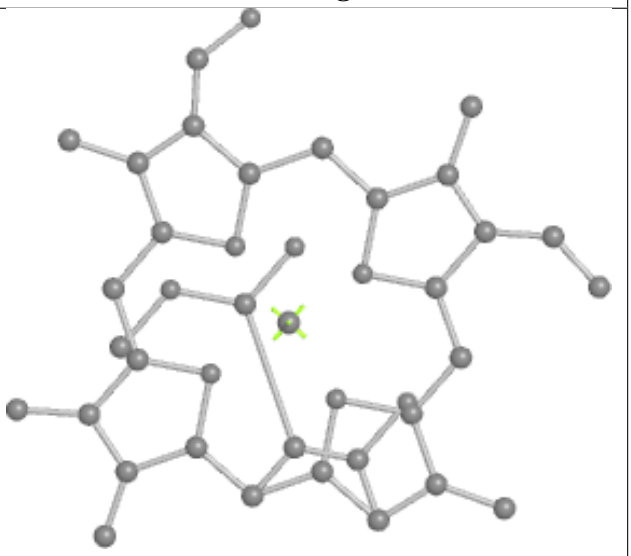
Bond lengths



Bond angles

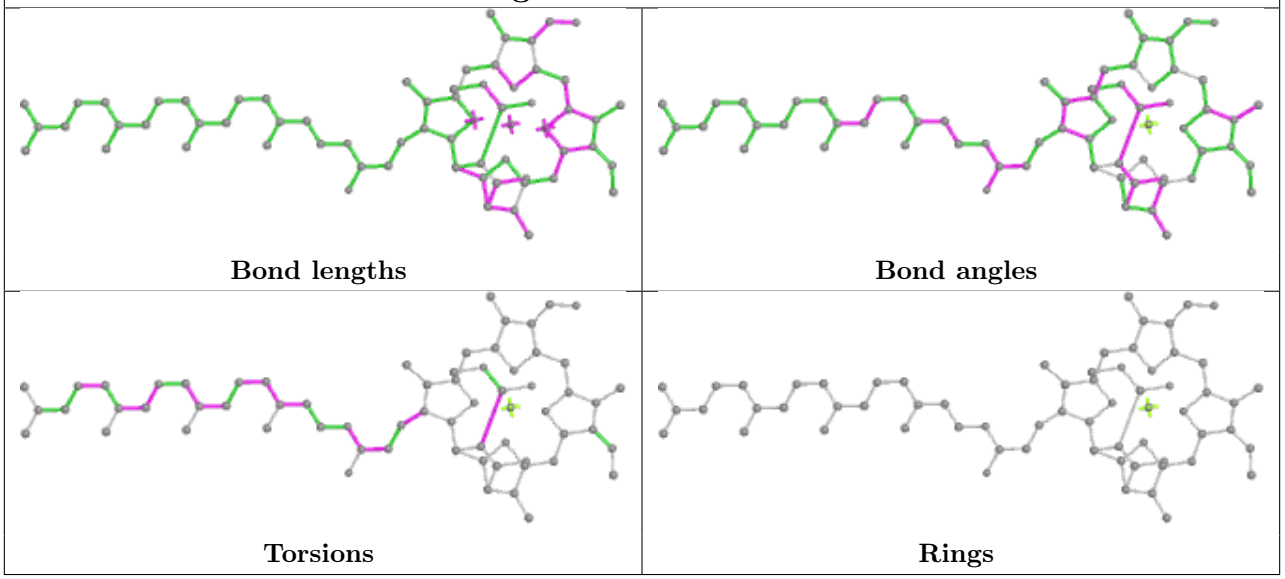


Torsions

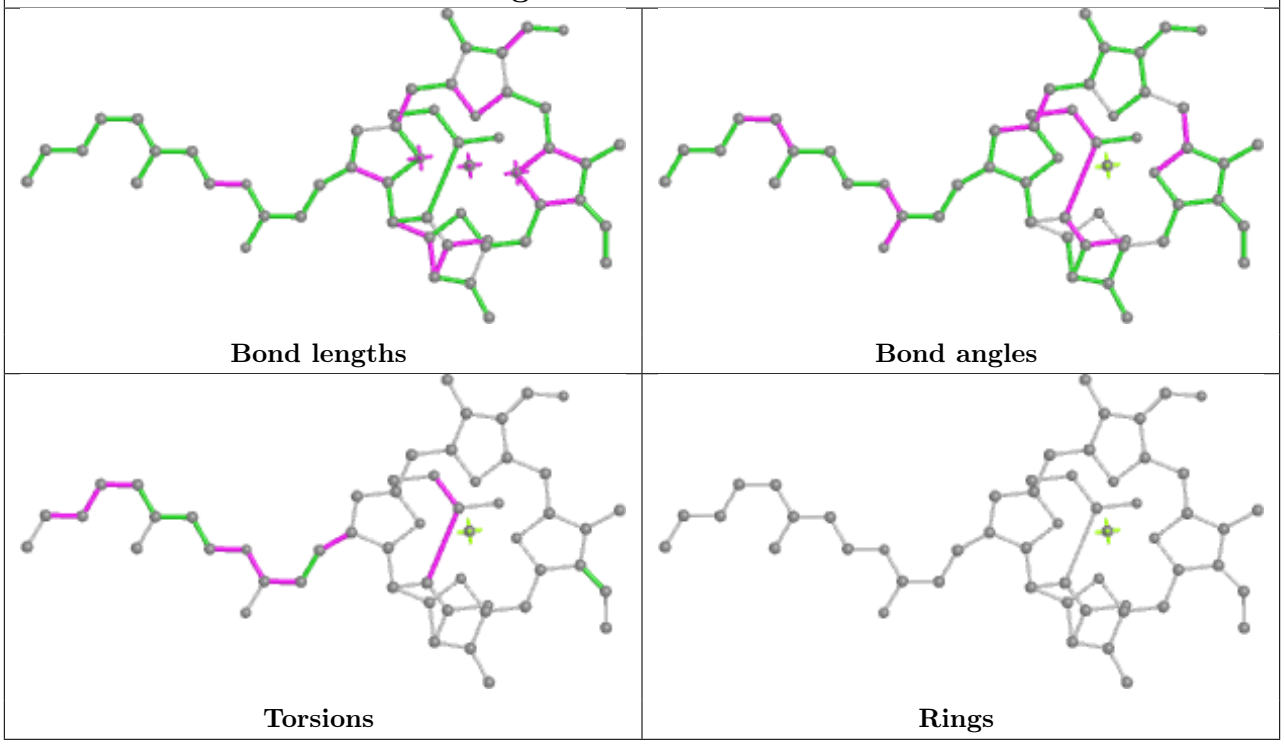


Rings

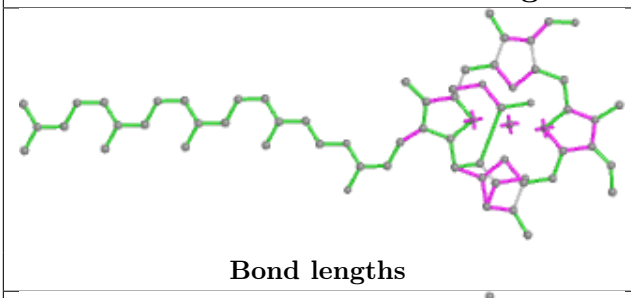
Ligand CL7 cA 3142



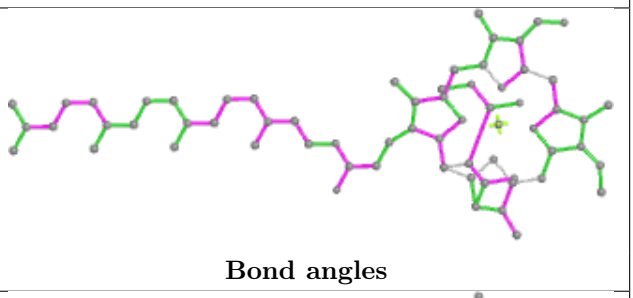
Ligand CL7 aA 3127



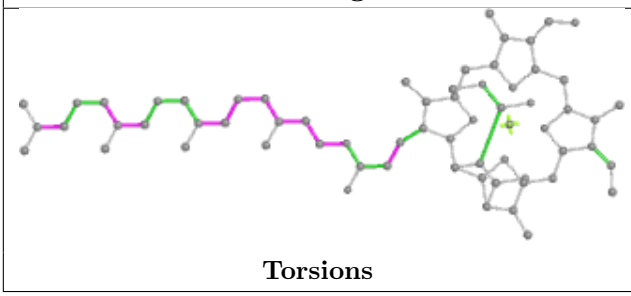
Ligand CL7 cB 826



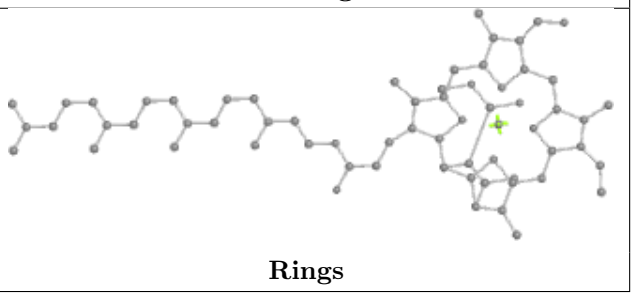
Bond lengths



Bond angles

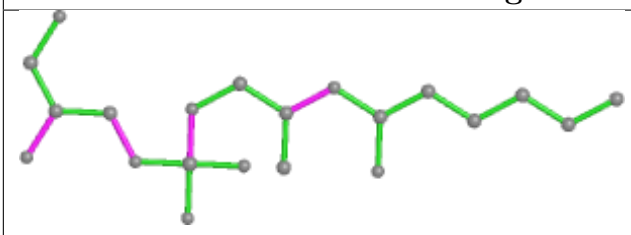


Torsions

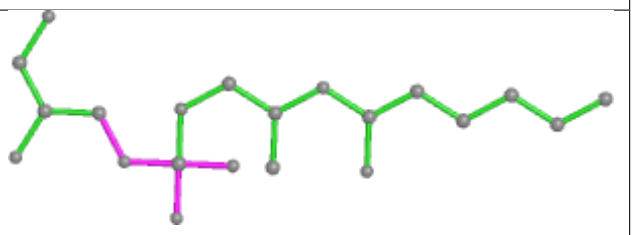


Rings

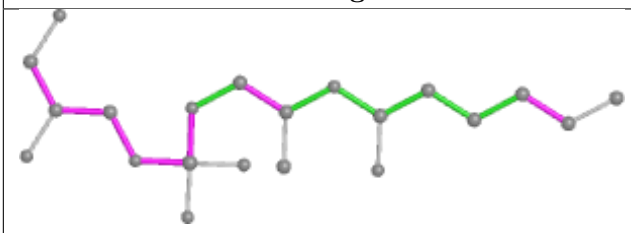
Ligand LHG cA 3138



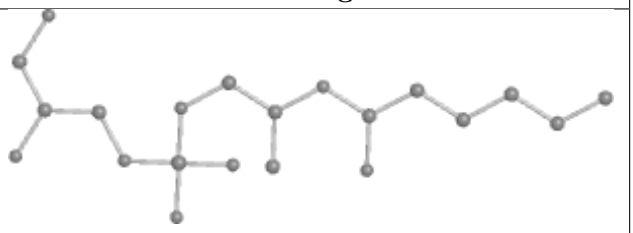
Bond lengths



Bond angles

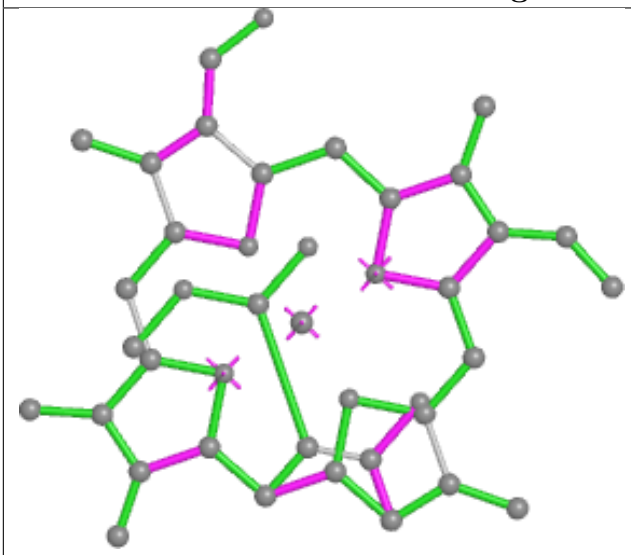


Torsions

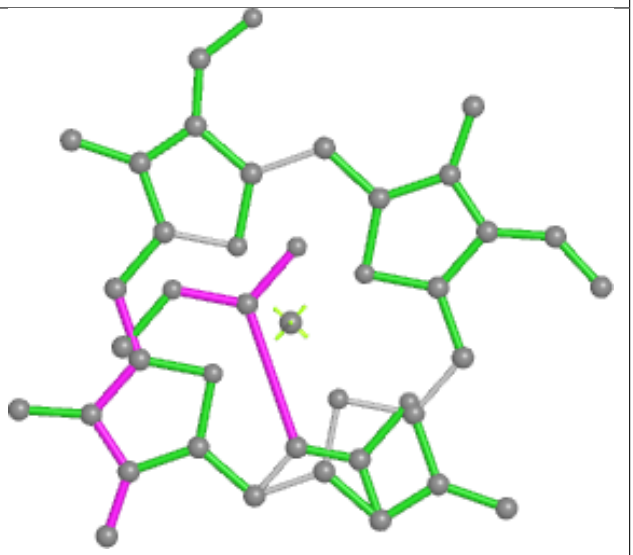


Rings

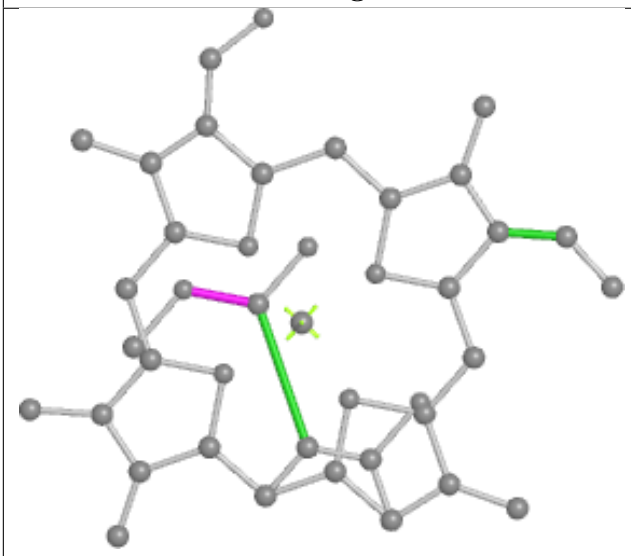
Ligand CL7 aA 3111



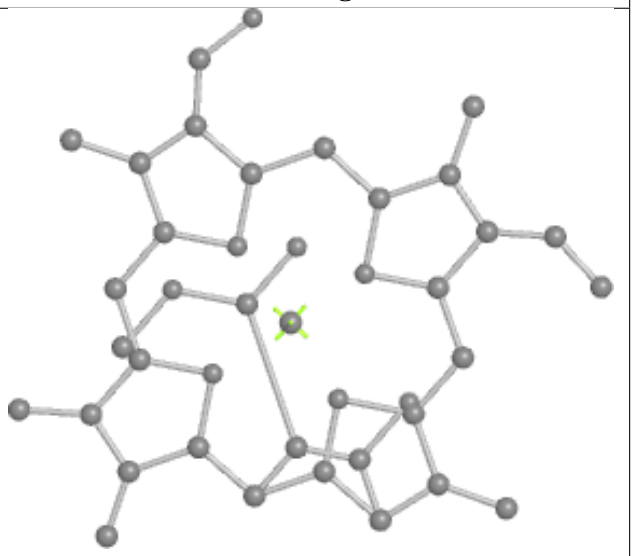
Bond lengths



Bond angles

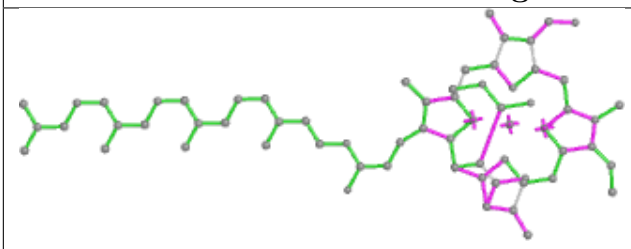


Torsions

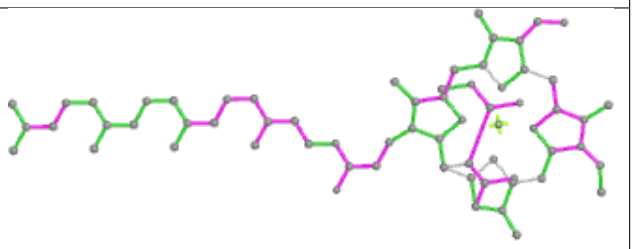


Rings

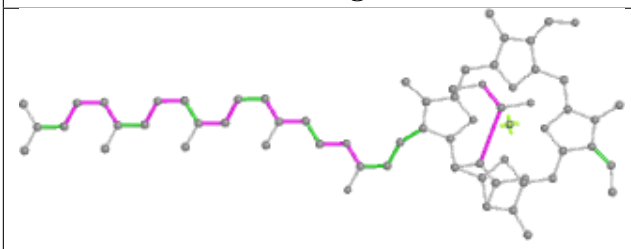
Ligand CL7 cA 3128



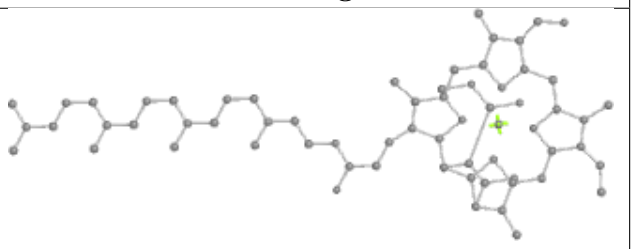
Bond lengths



Bond angles

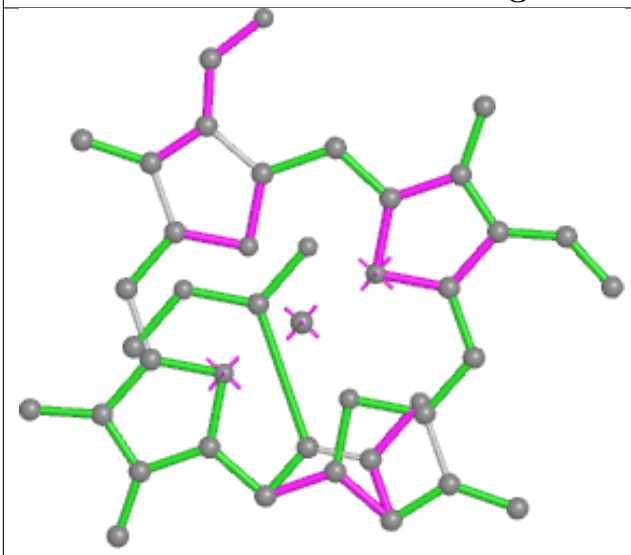


Torsions

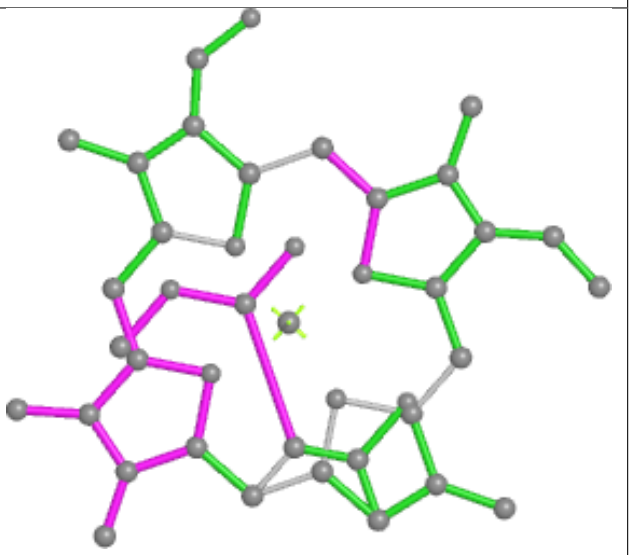


Rings

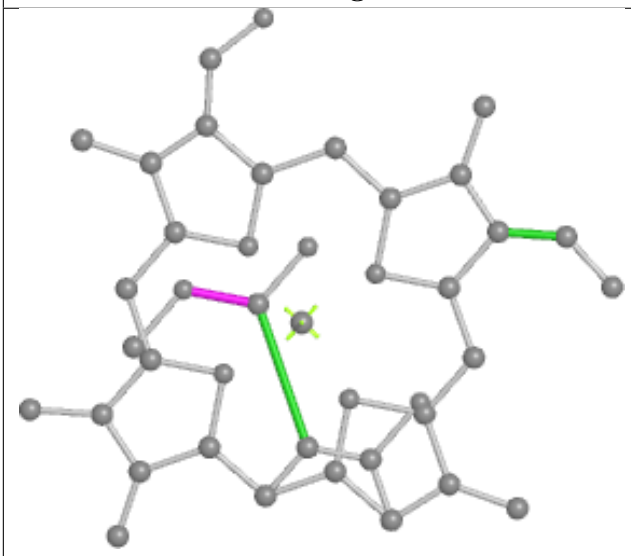
Ligand CL7 bA 3109



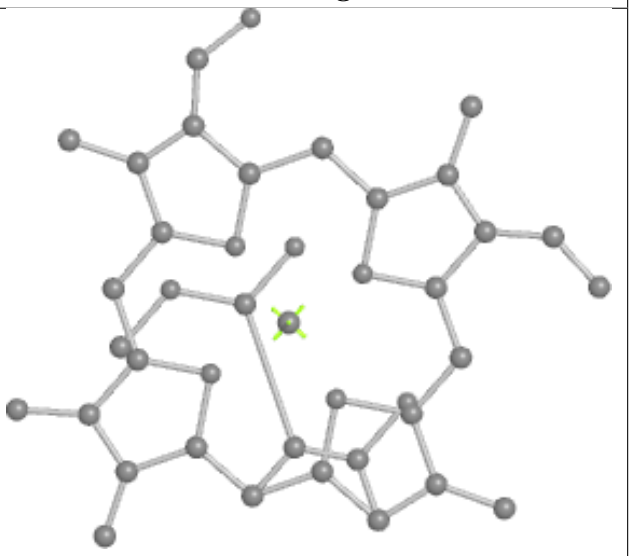
Bond lengths



Bond angles

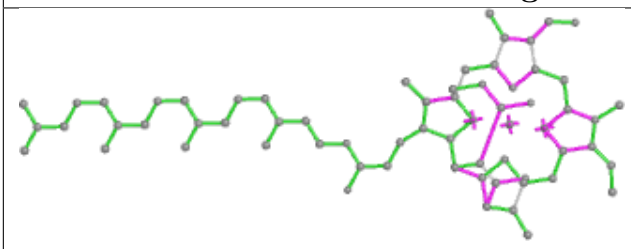


Torsions

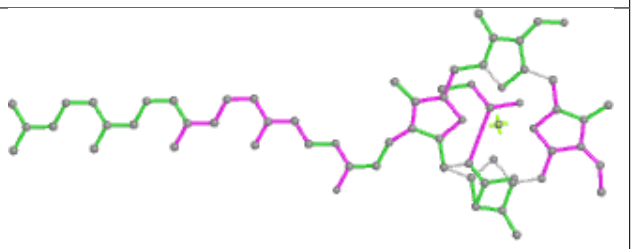


Rings

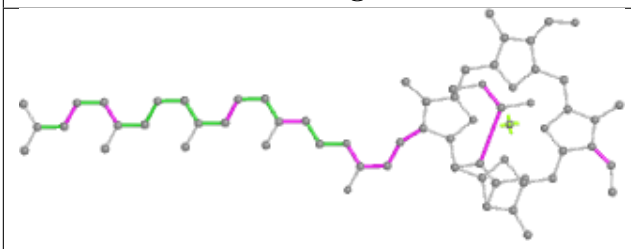
Ligand CL7 cB 807



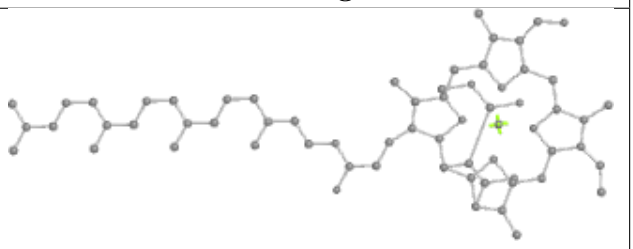
Bond lengths



Bond angles

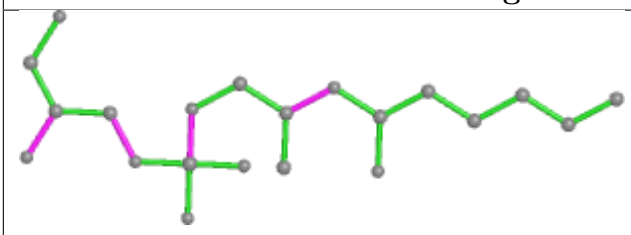


Torsions

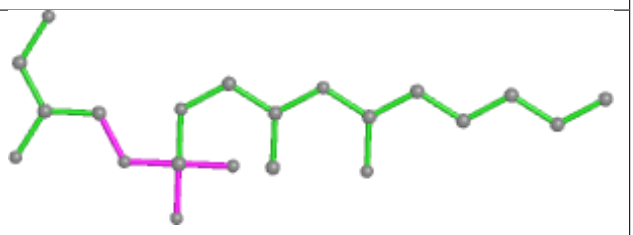


Rings

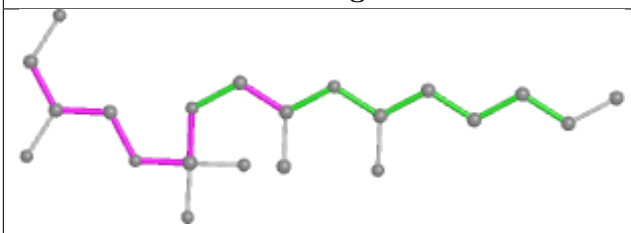
Ligand LHG bA 3138



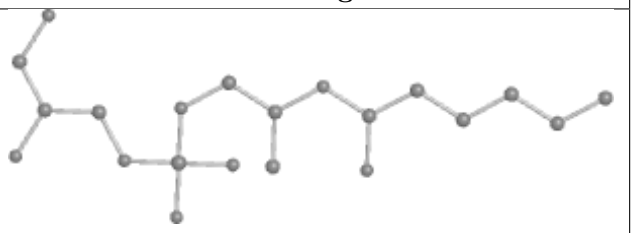
Bond lengths



Bond angles

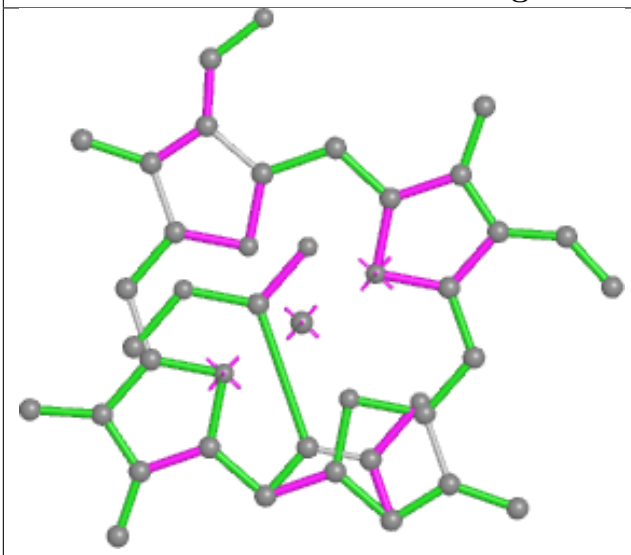


Torsions

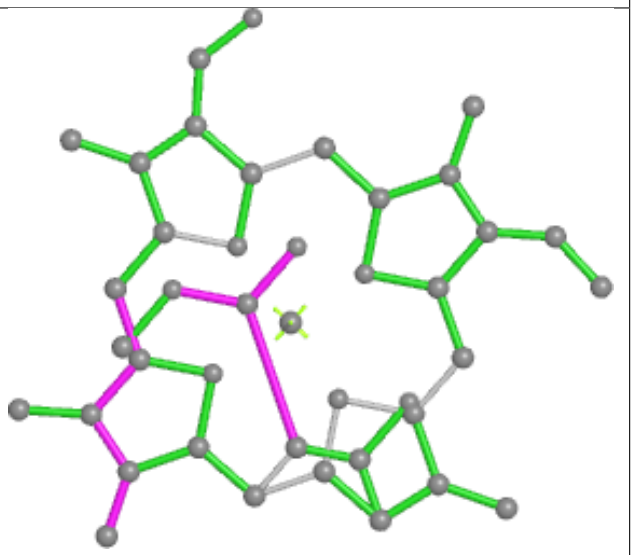


Rings

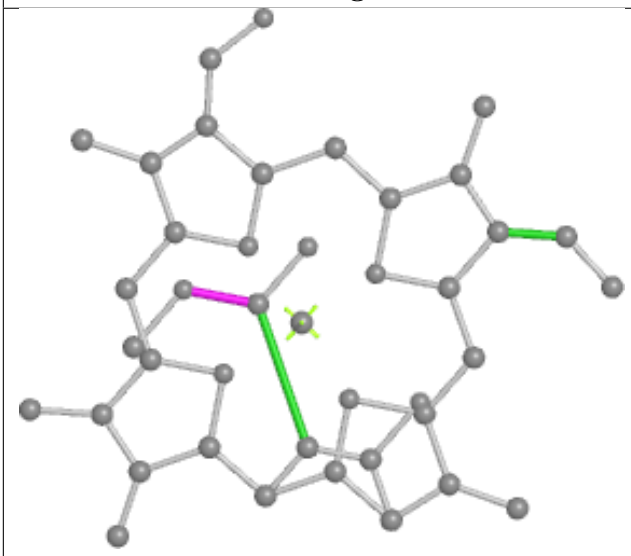
Ligand CL7 cA 3110



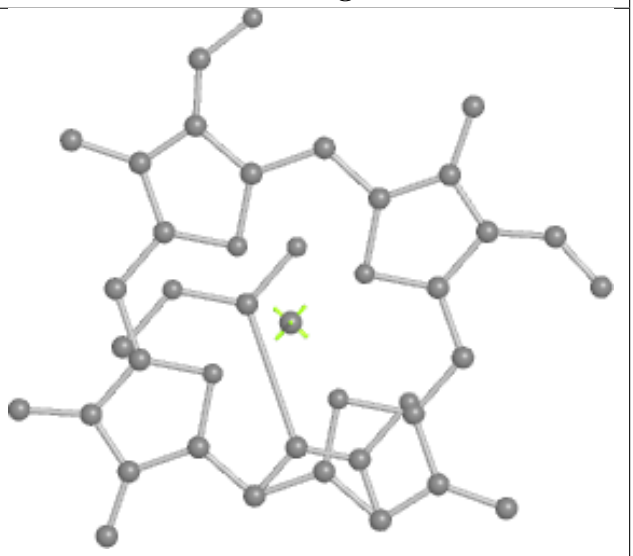
Bond lengths



Bond angles

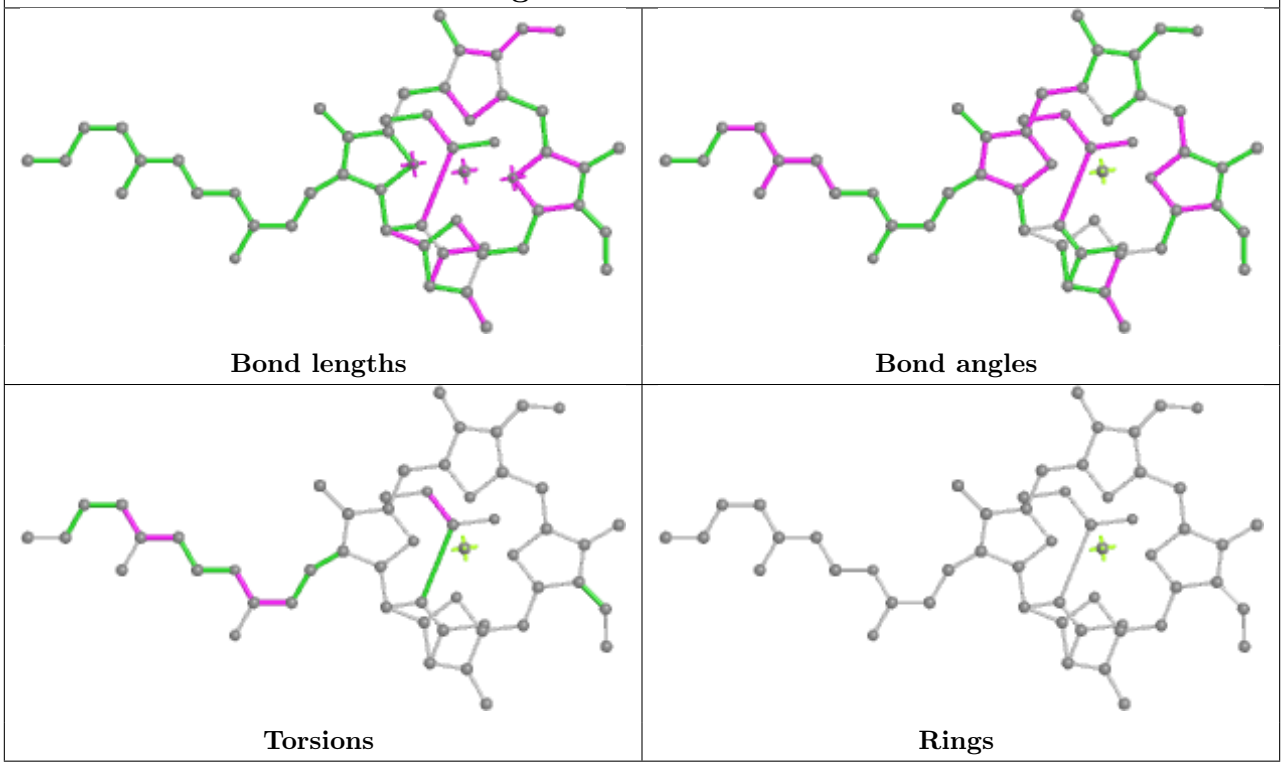


Torsions

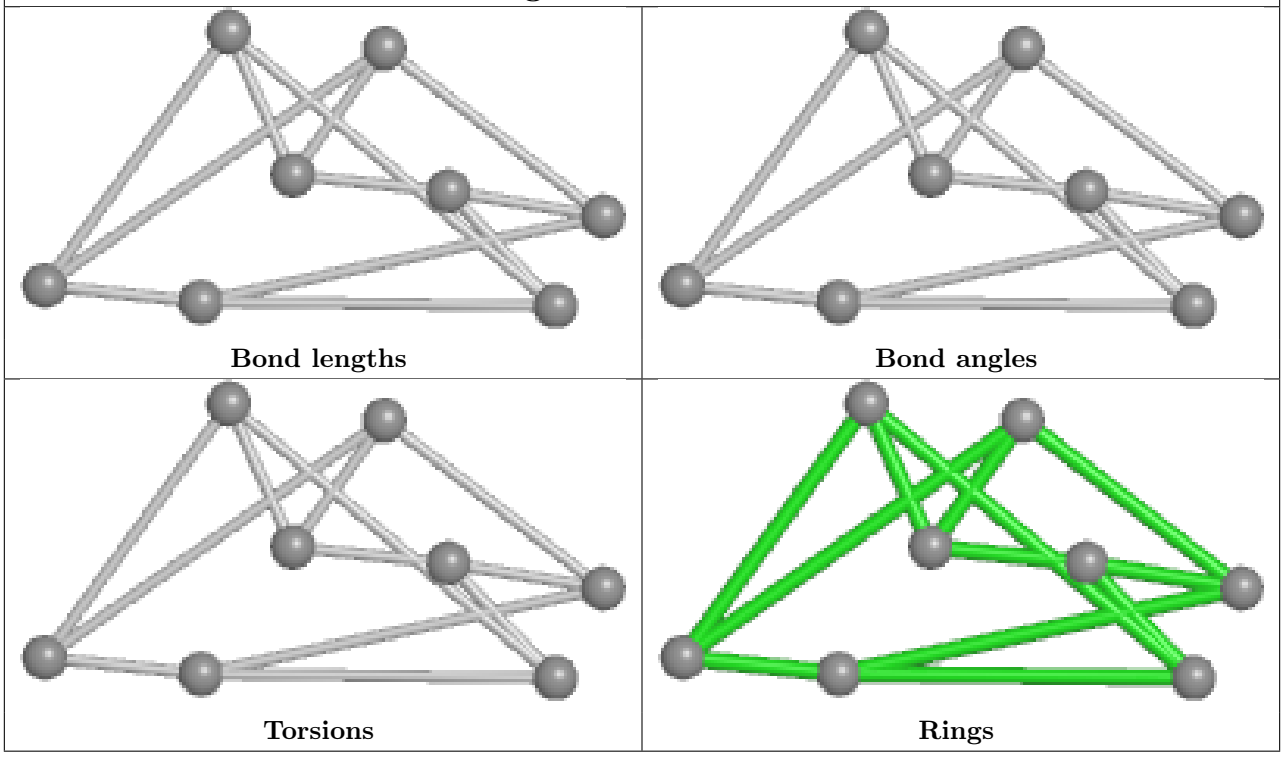


Rings

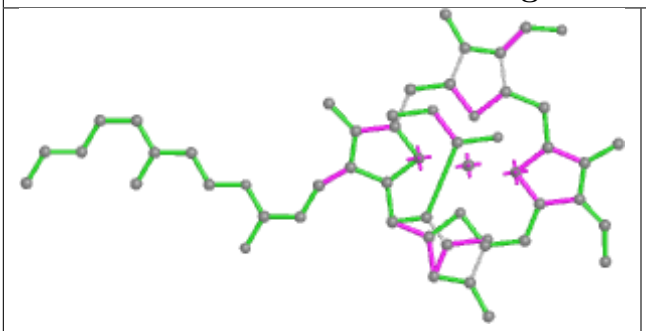
Ligand CL7 aA 3117



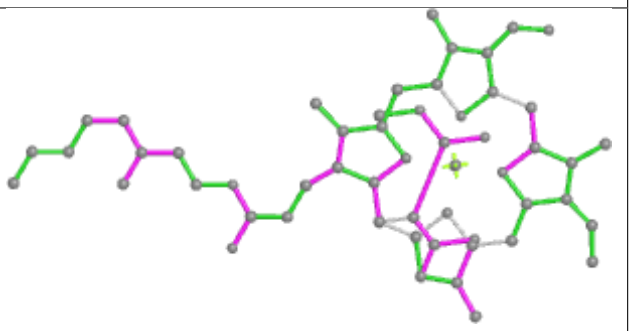
Ligand SF4 cC 101



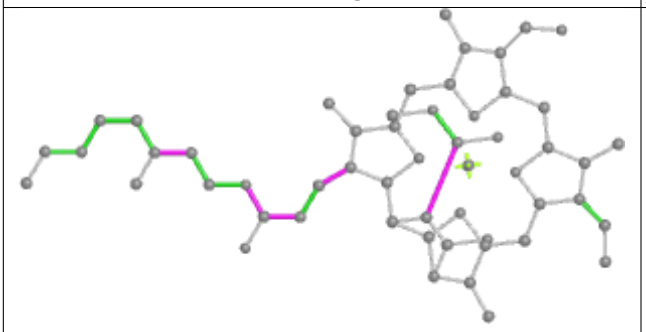
Ligand CL7 cB 831



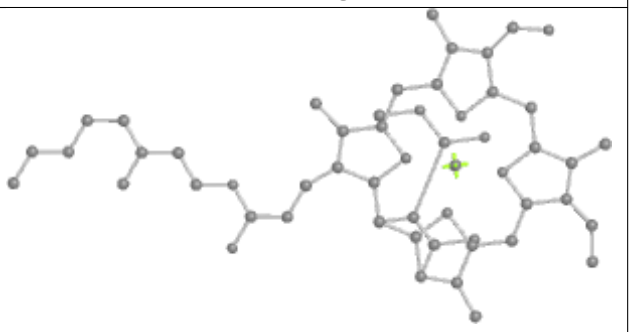
Bond lengths



Bond angles

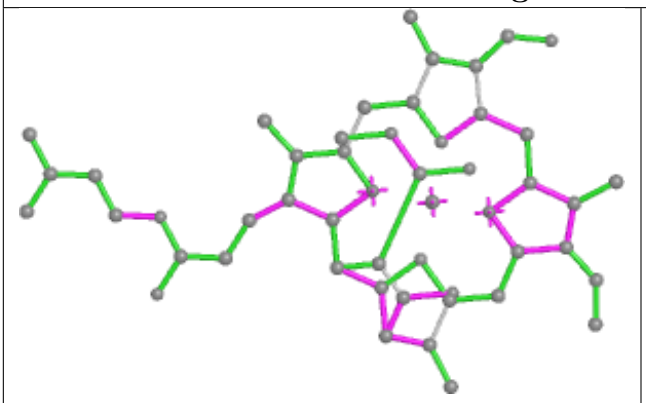


Torsions

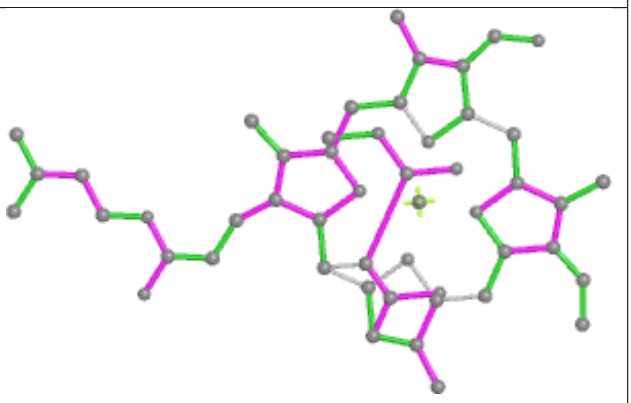


Rings

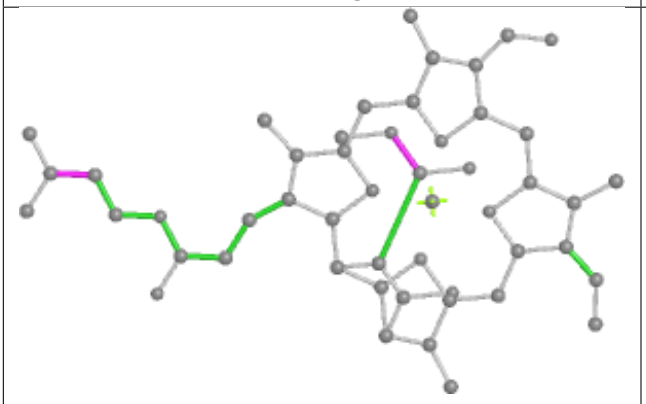
Ligand CL7 aB 3008



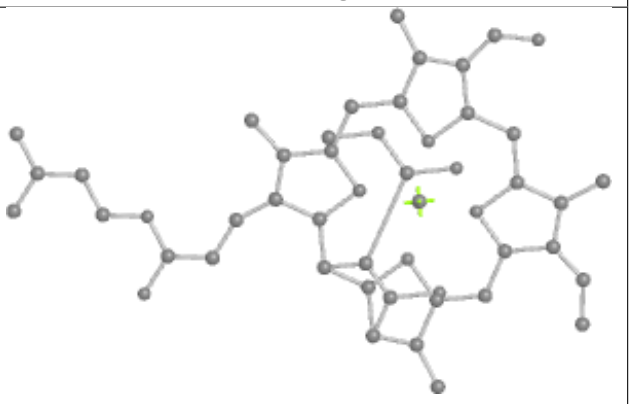
Bond lengths



Bond angles

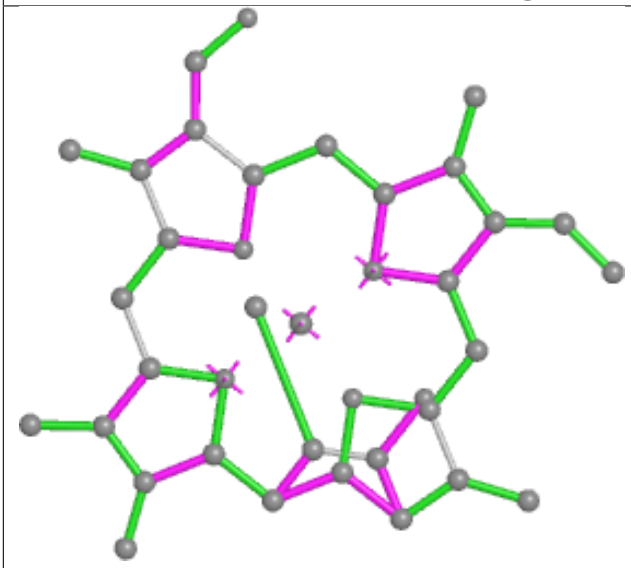


Torsions

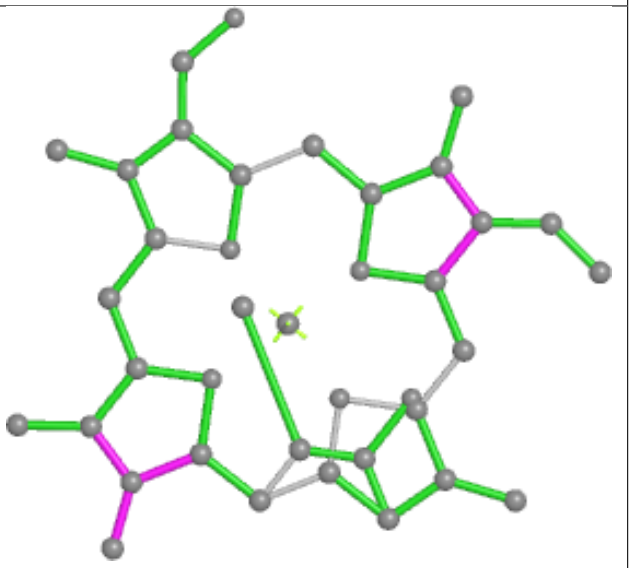


Rings

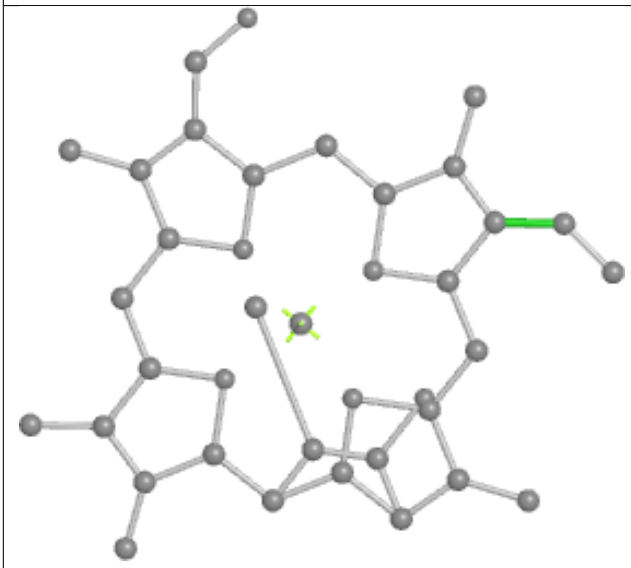
Ligand CL7 bB 812



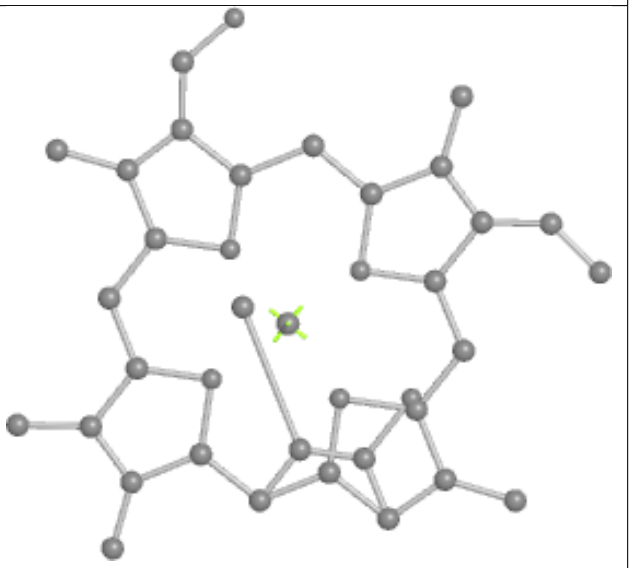
Bond lengths



Bond angles

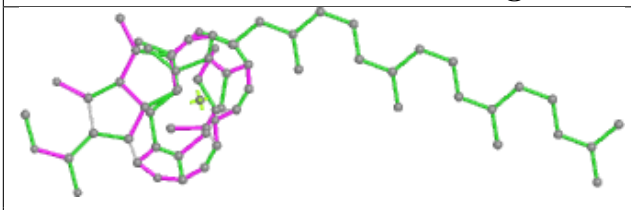


Torsions

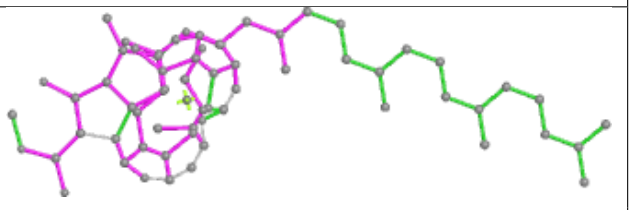


Rings

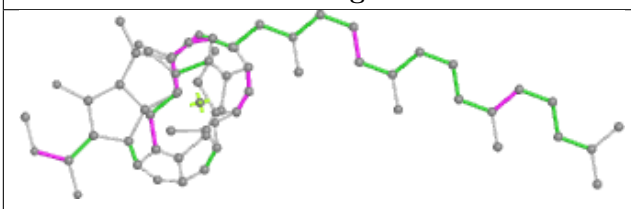
Ligand G9R bA 3101



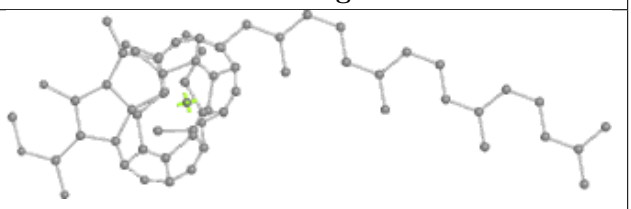
Bond lengths



Bond angles

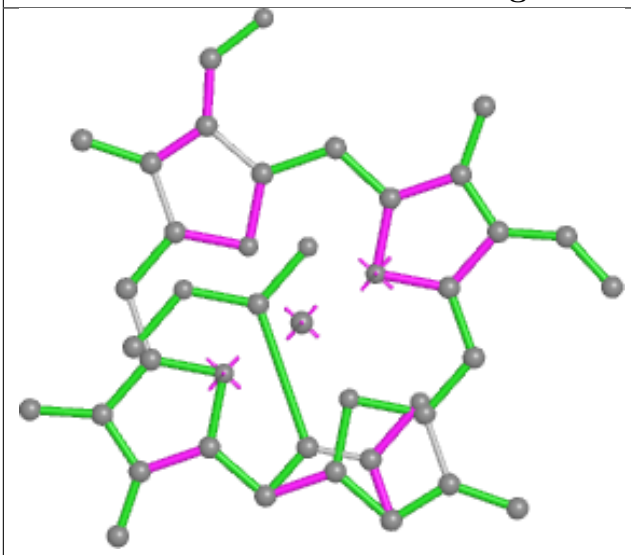


Torsions

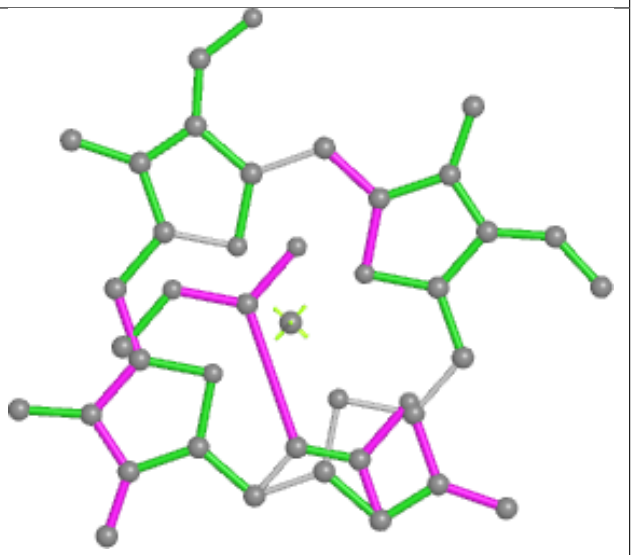


Rings

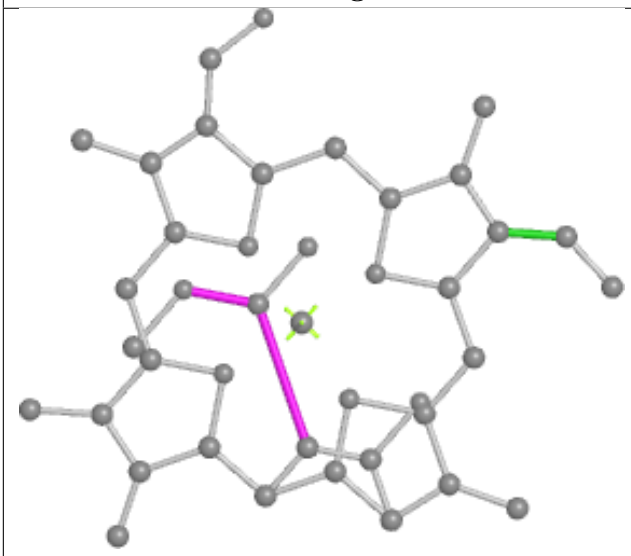
Ligand CL7 bA 3104



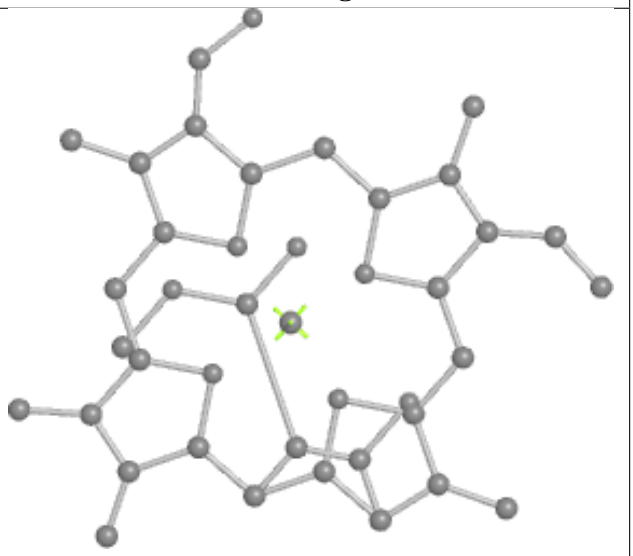
Bond lengths



Bond angles

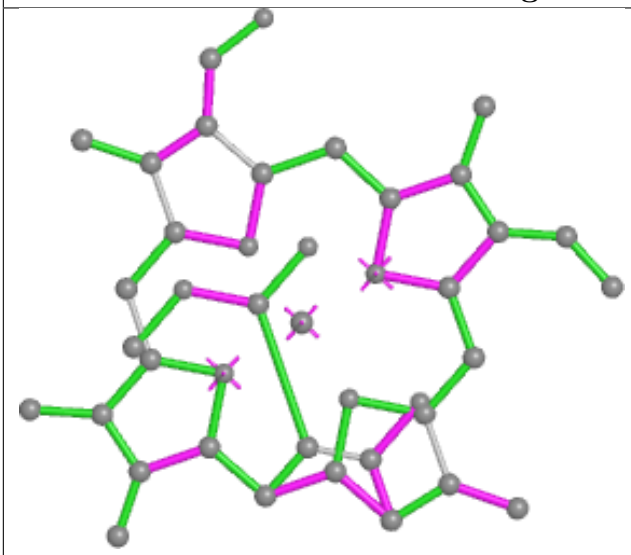


Torsions

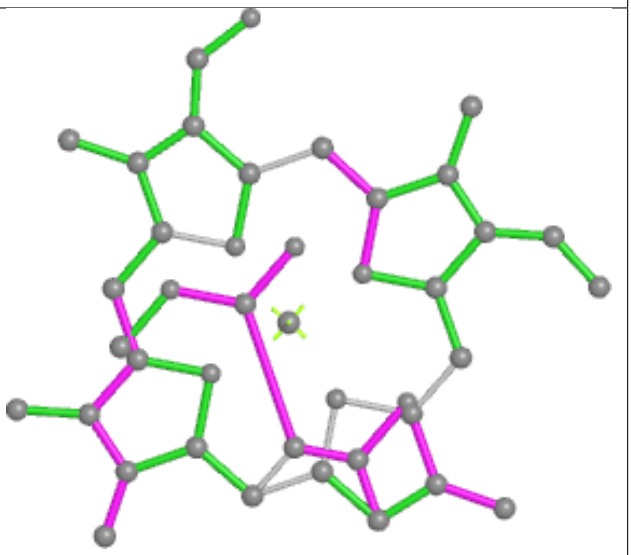


Rings

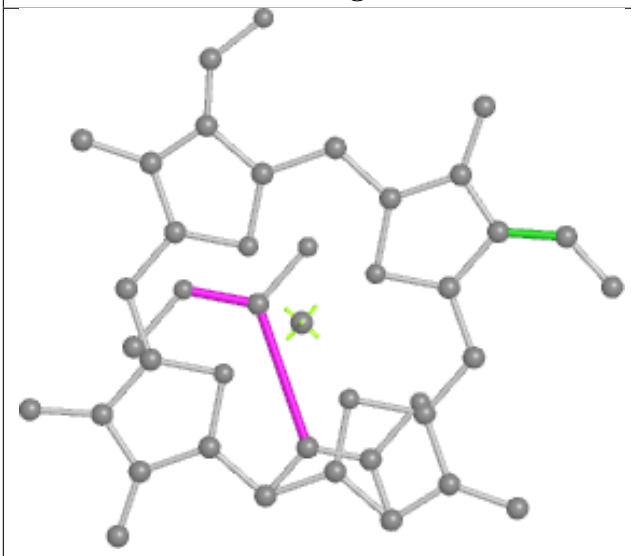
Ligand CL7 cB 817



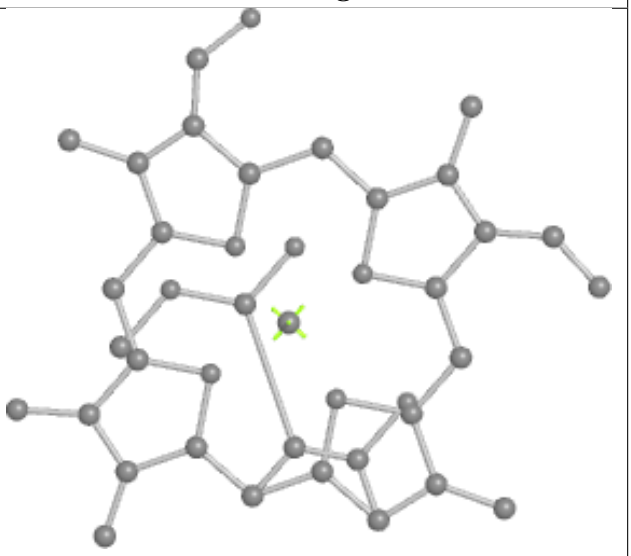
Bond lengths



Bond angles

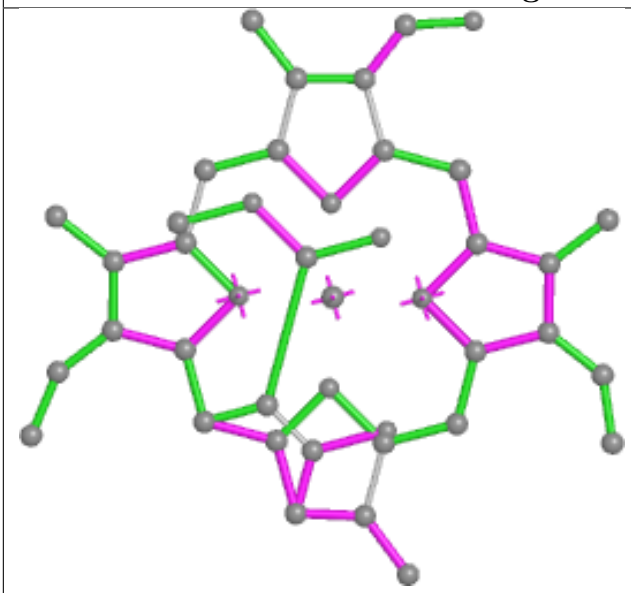


Torsions

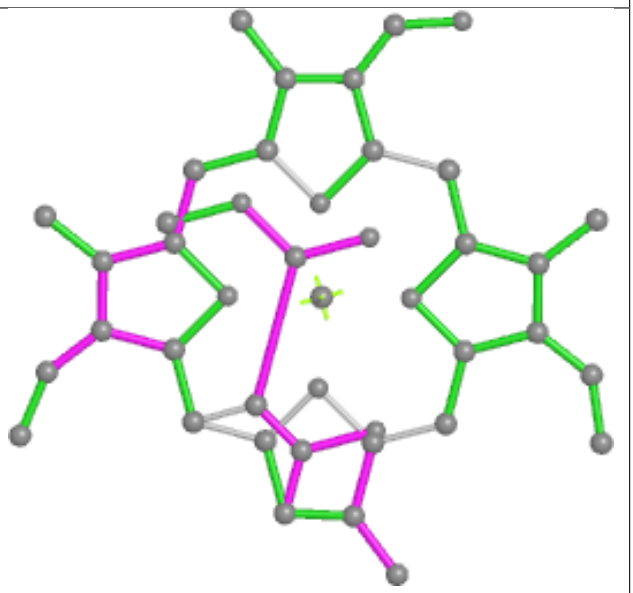


Rings

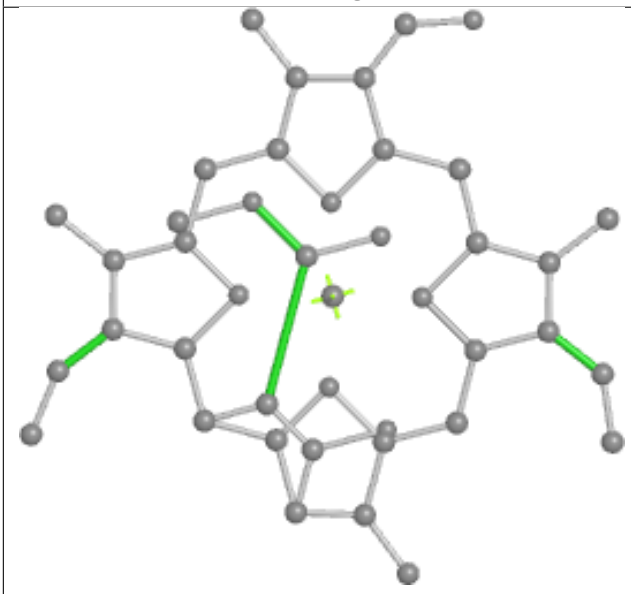
Ligand CL7 aL 204



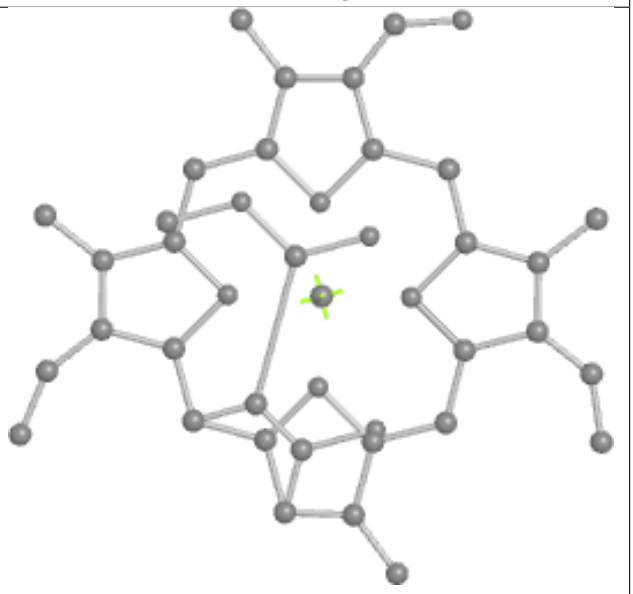
Bond lengths



Bond angles

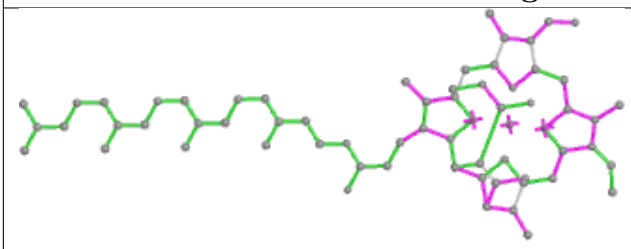


Torsions

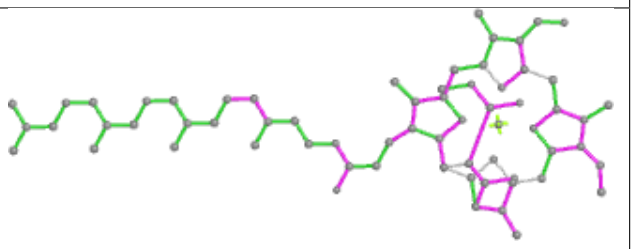


Rings

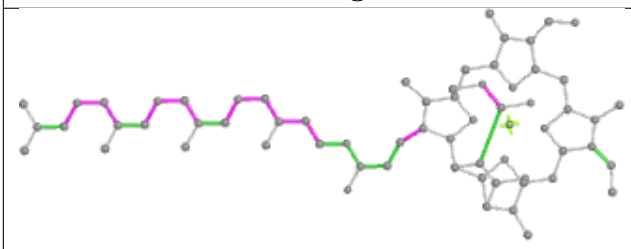
Ligand CL7 cB 827



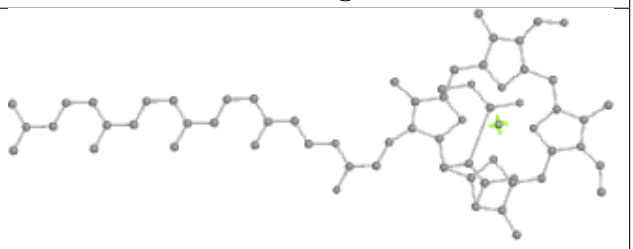
Bond lengths



Bond angles

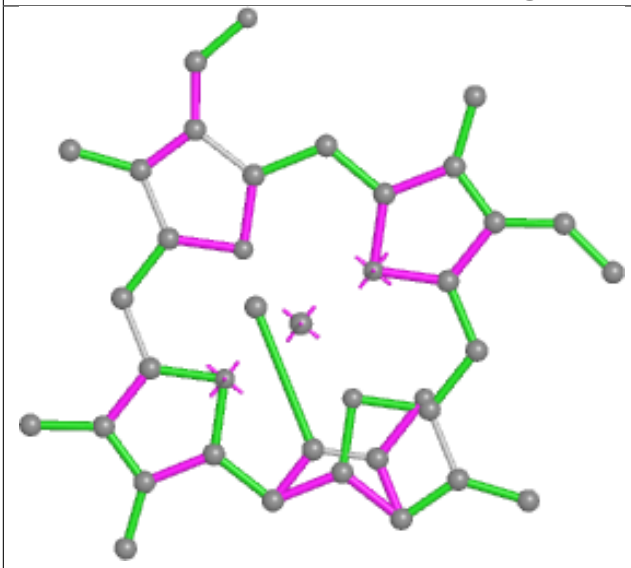


Torsions

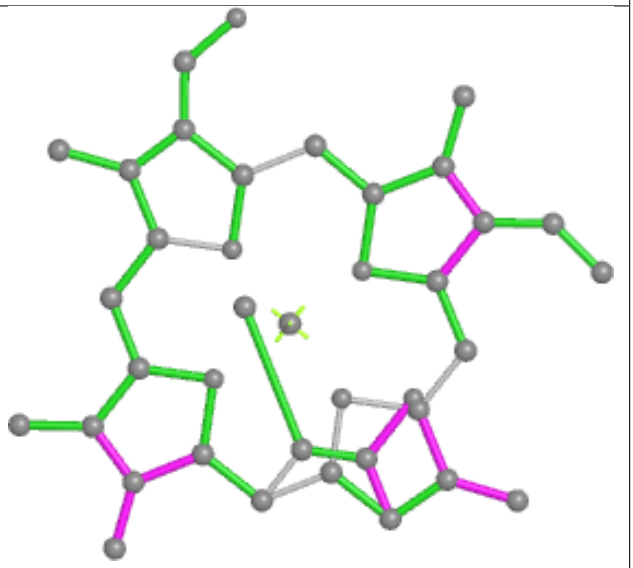


Rings

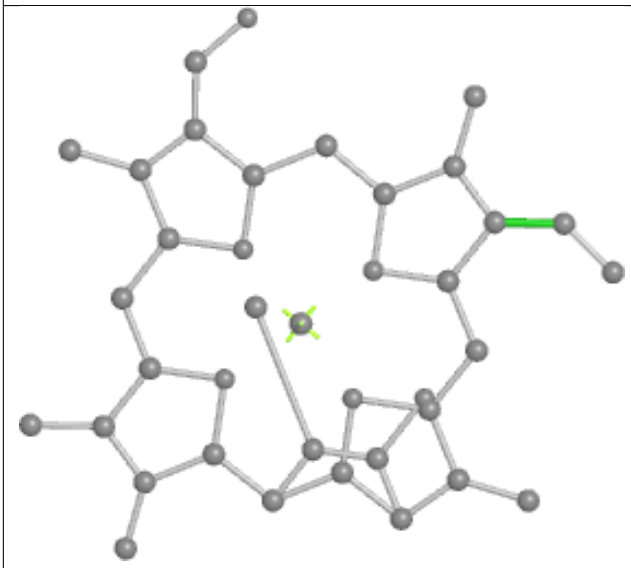
Ligand CL7 cB 812



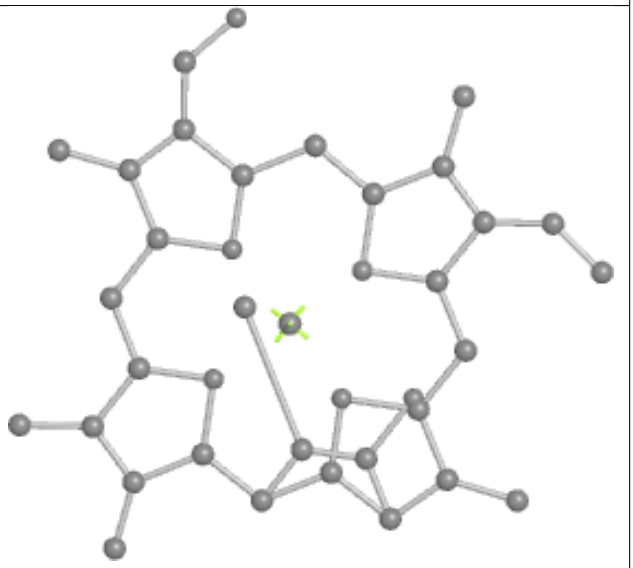
Bond lengths



Bond angles

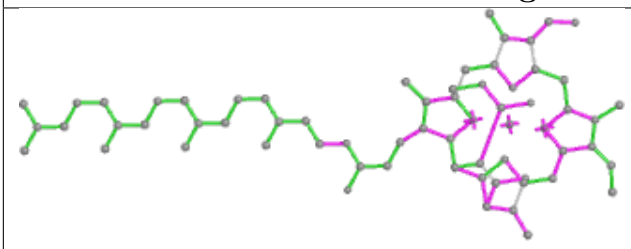


Torsions

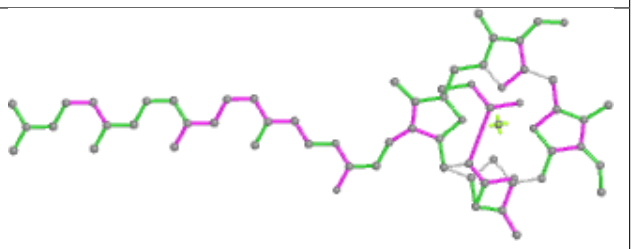


Rings

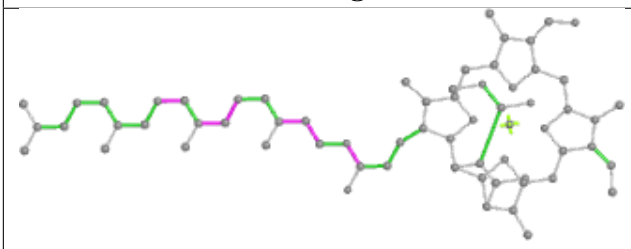
Ligand CL7 bB 804



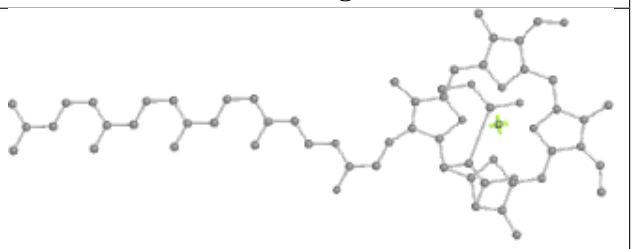
Bond lengths



Bond angles

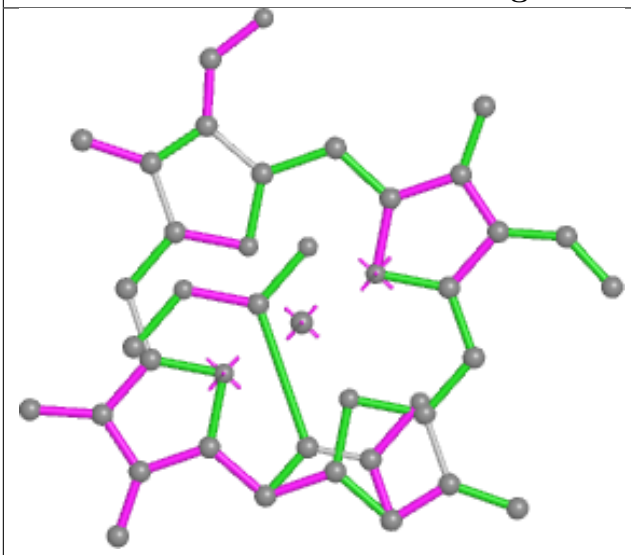


Torsions

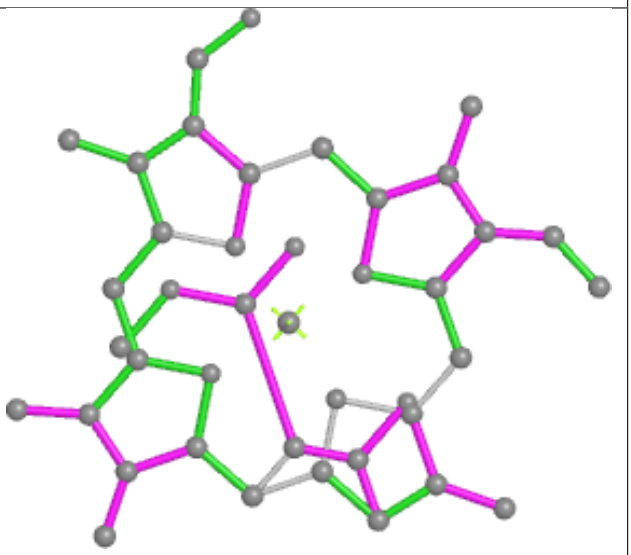


Rings

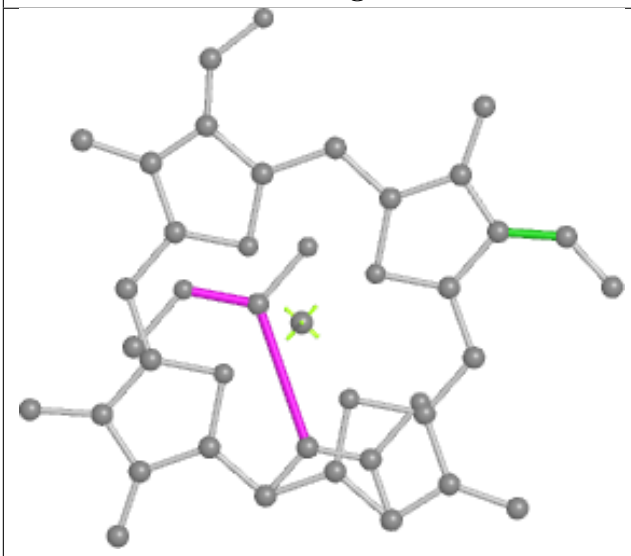
Ligand CL7 aA 3130



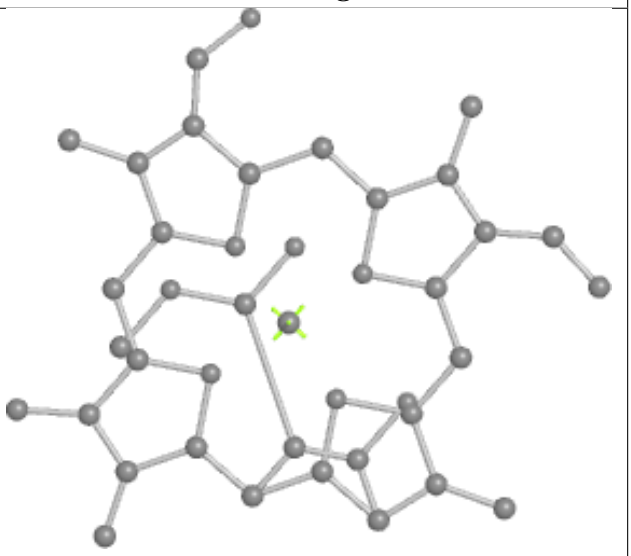
Bond lengths



Bond angles

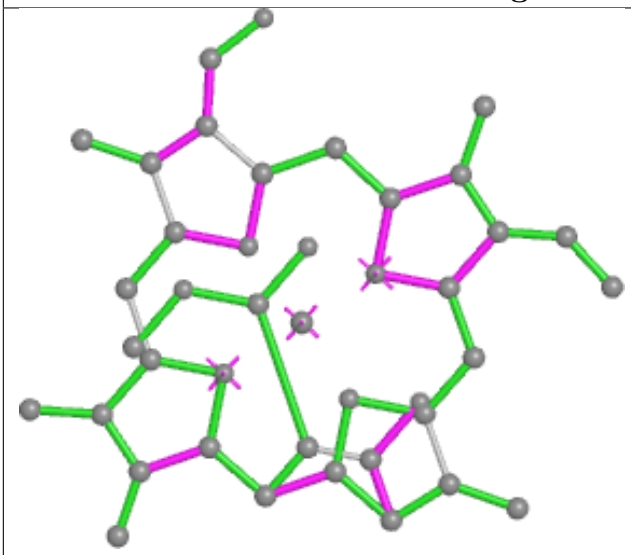


Torsions

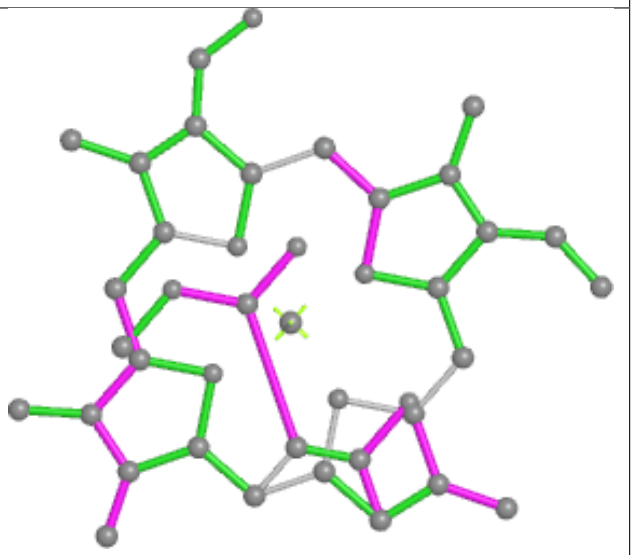


Rings

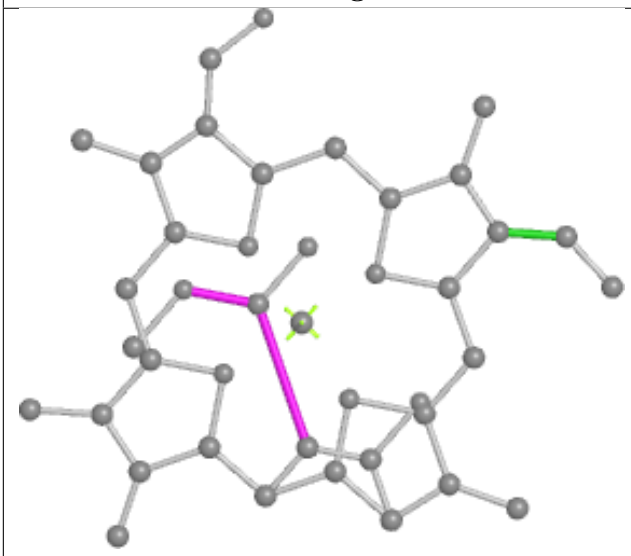
Ligand CL7 aA 3105



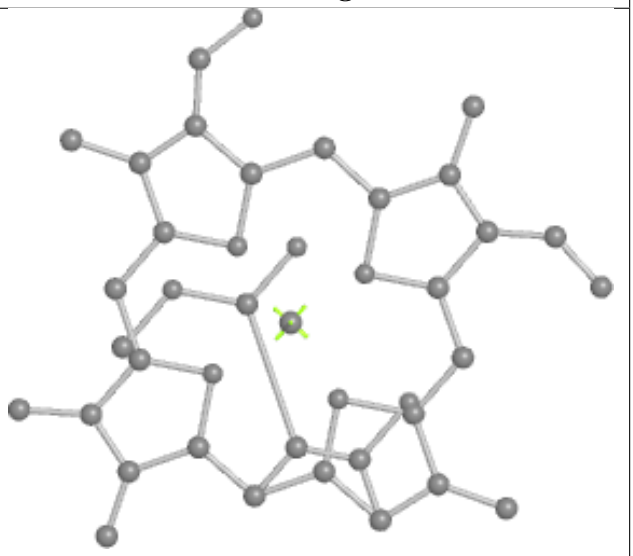
Bond lengths



Bond angles

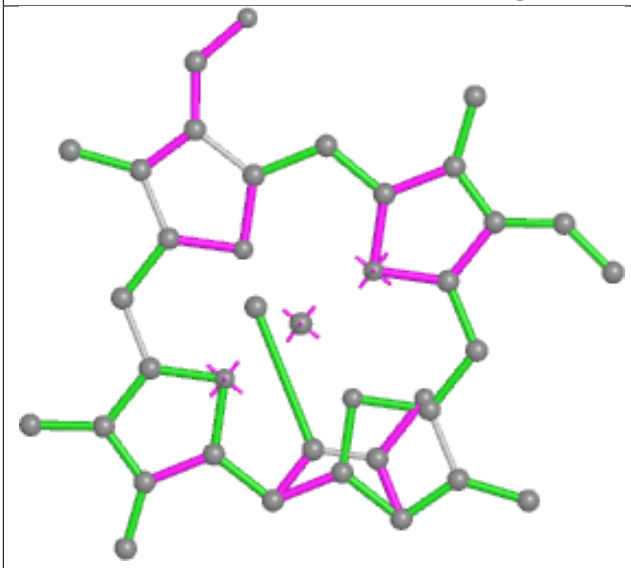


Torsions

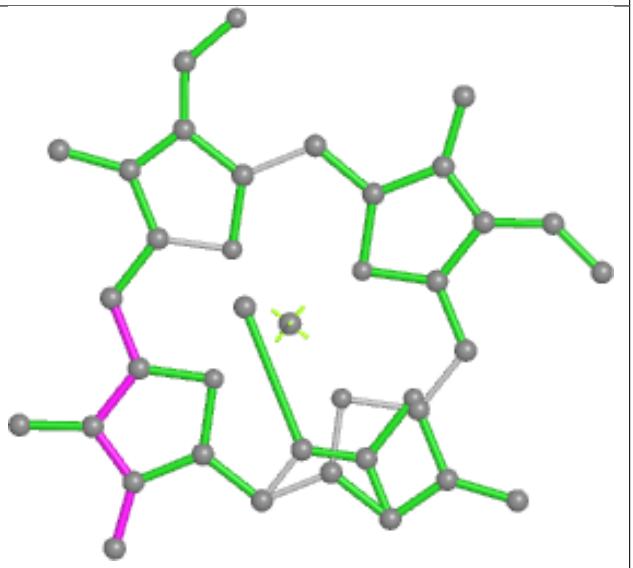


Rings

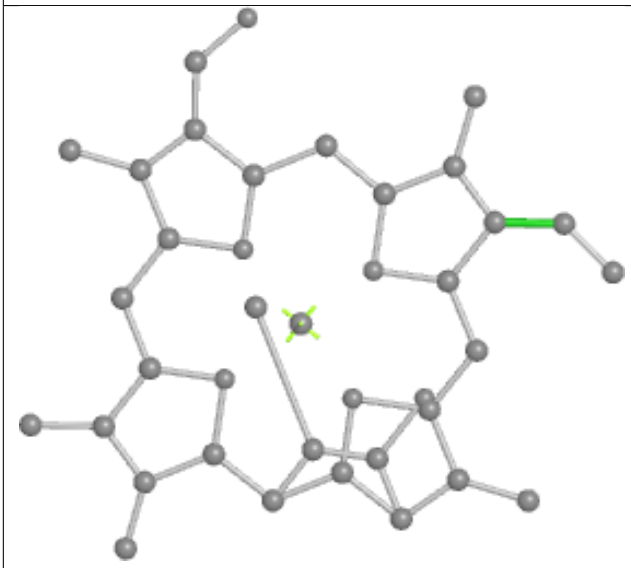
Ligand CL7 aB 3020



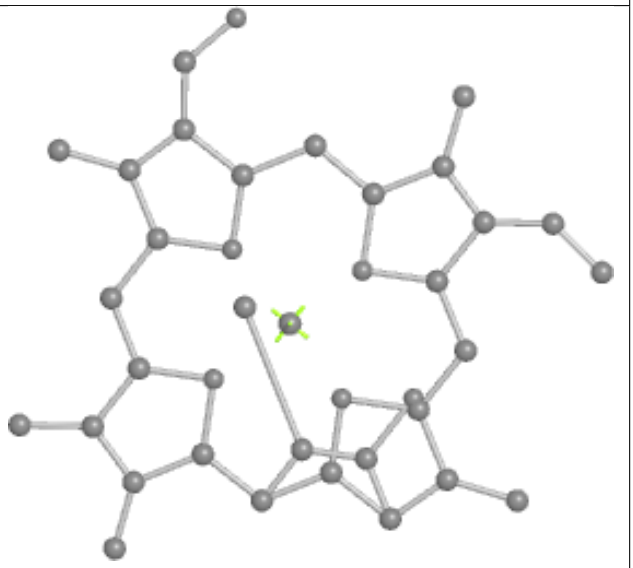
Bond lengths



Bond angles

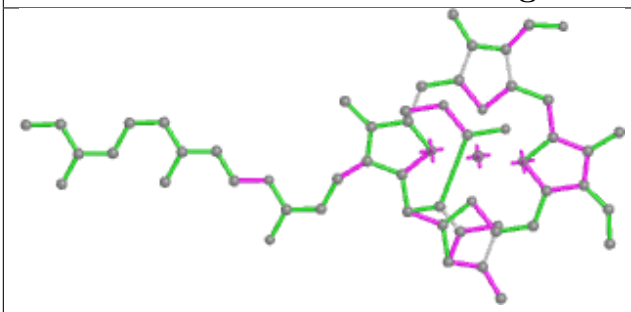


Torsions

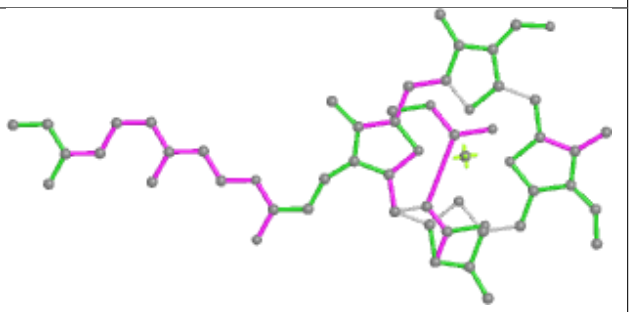


Rings

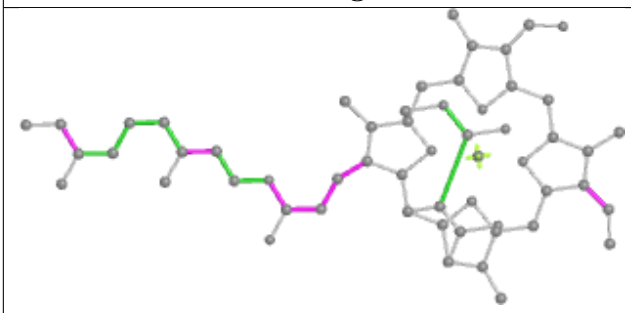
Ligand CL7 bB 819



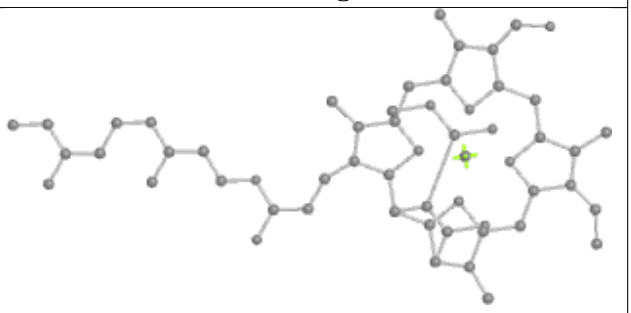
Bond lengths



Bond angles

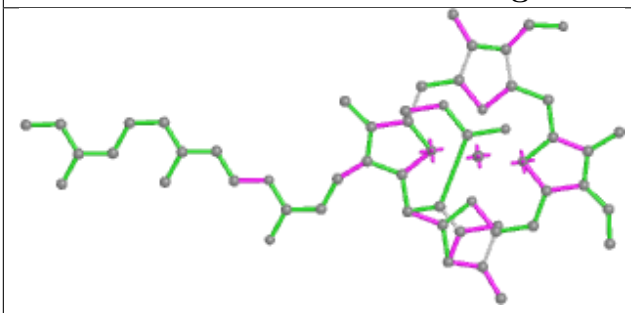


Torsions

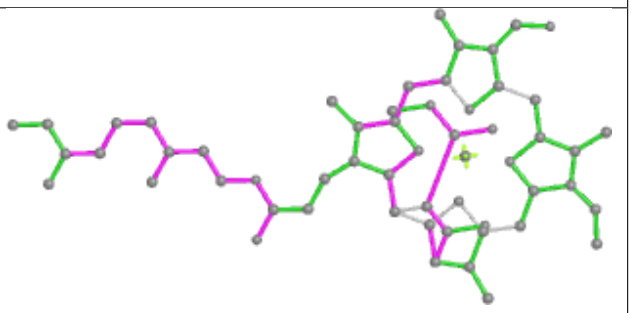


Rings

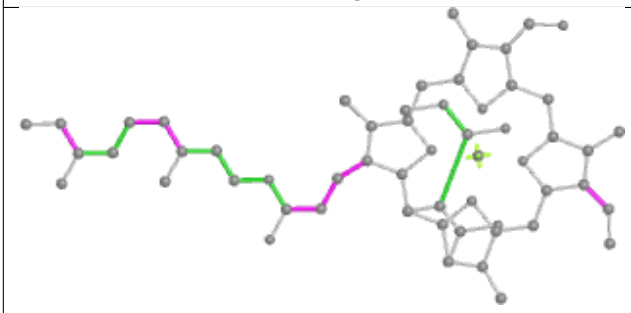
Ligand CL7 aB 3018



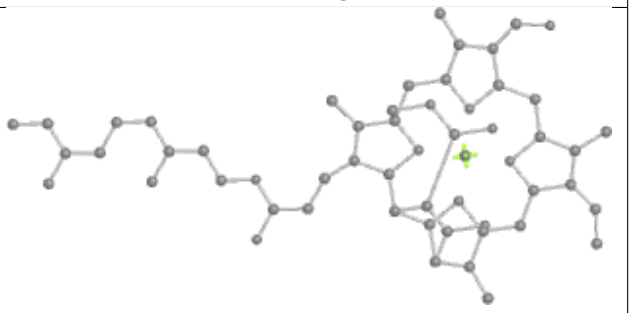
Bond lengths



Bond angles

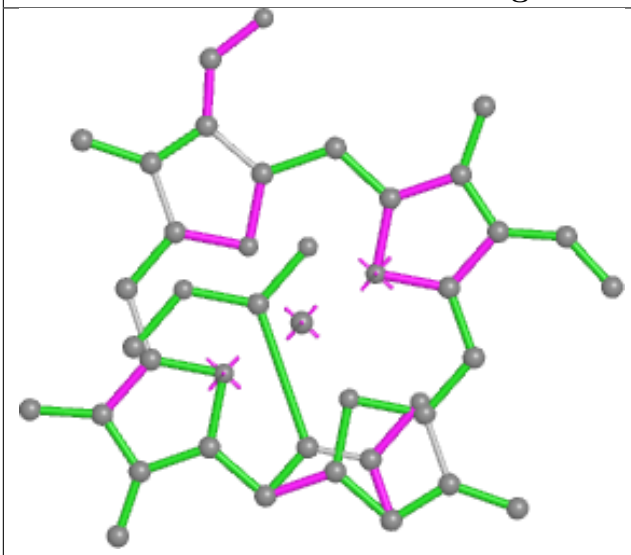


Torsions

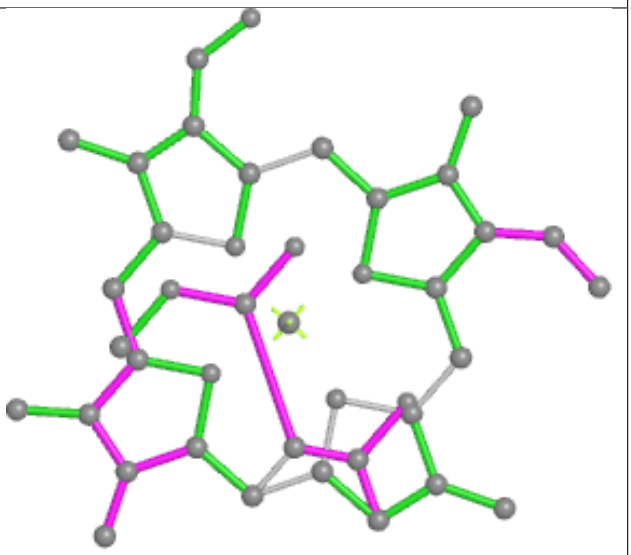


Rings

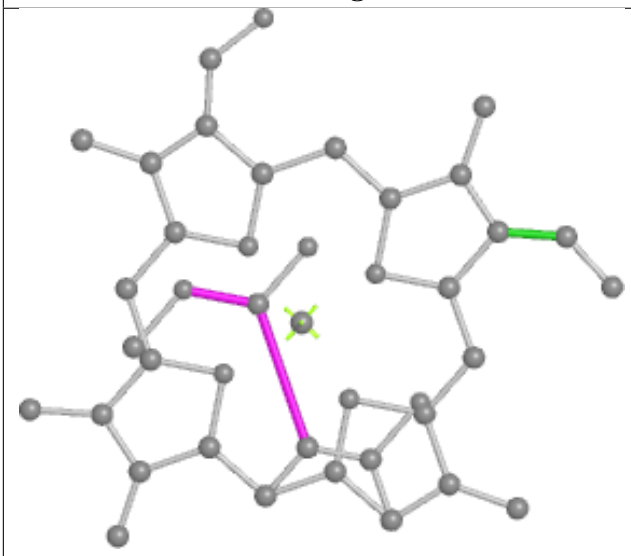
Ligand CL7 cA 3133



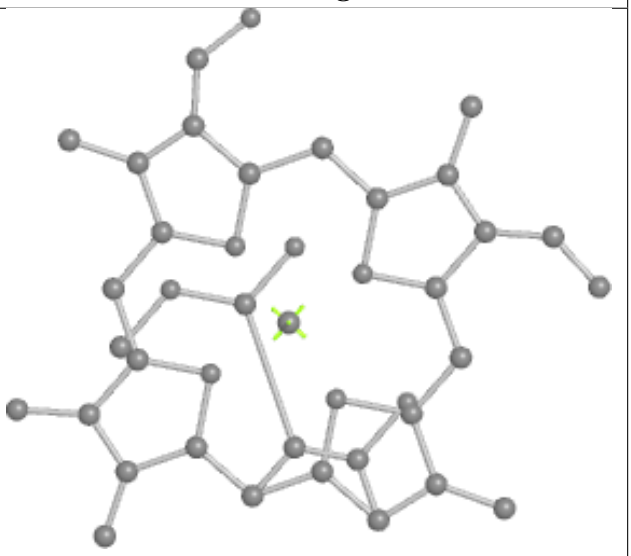
Bond lengths



Bond angles

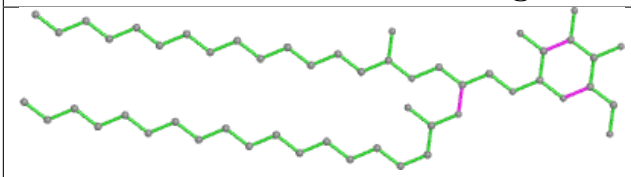


Torsions

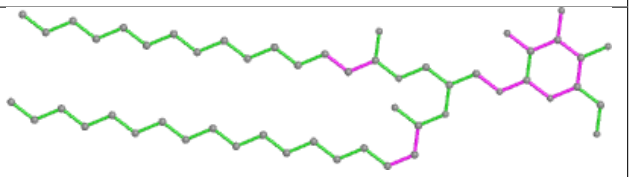


Rings

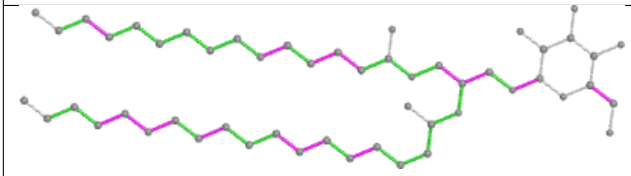
Ligand LMG cB 830



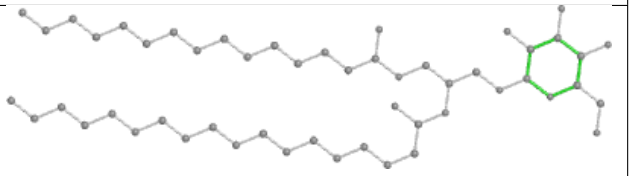
Bond lengths



Bond angles

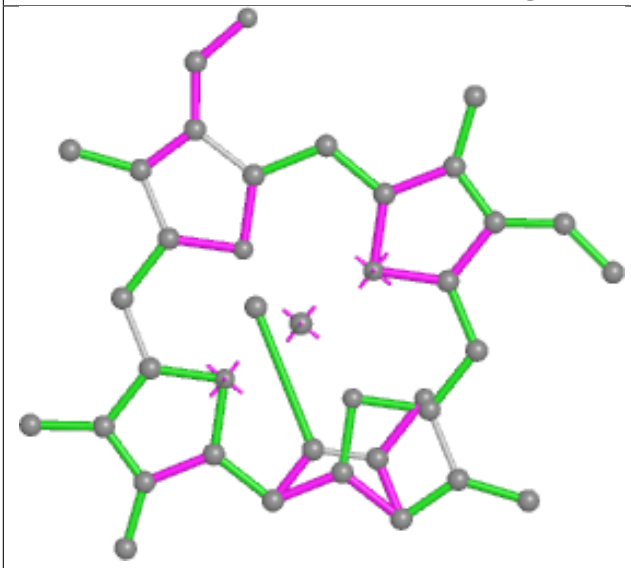


Torsions

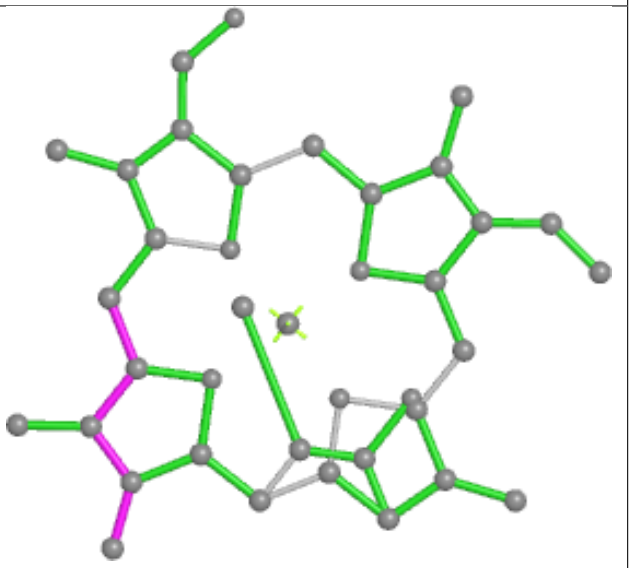


Rings

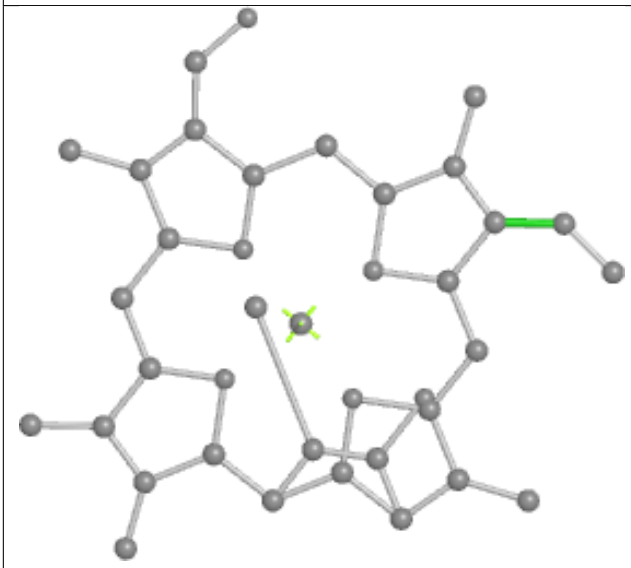
Ligand CL7 aF 201



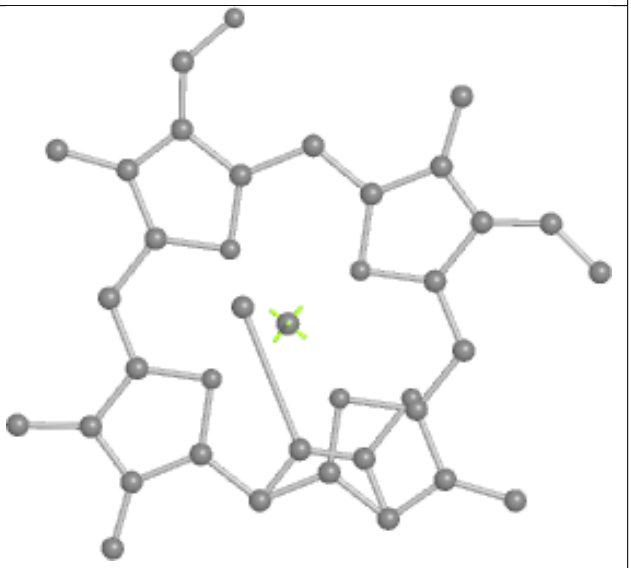
Bond lengths



Bond angles

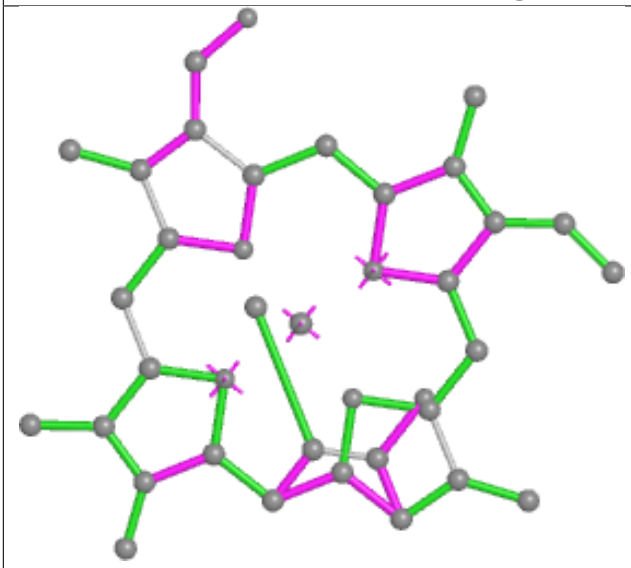


Torsions

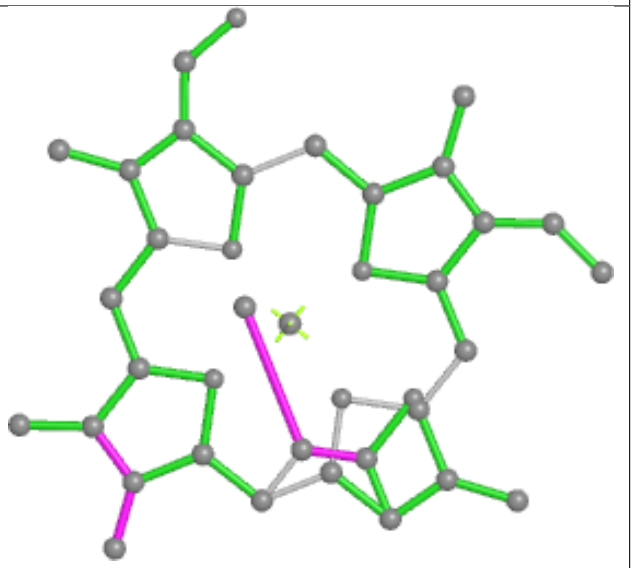


Rings

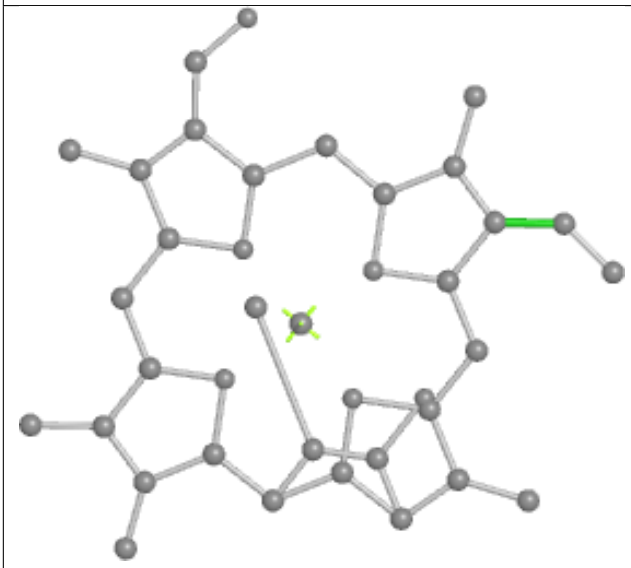
Ligand CL7 aA 3112



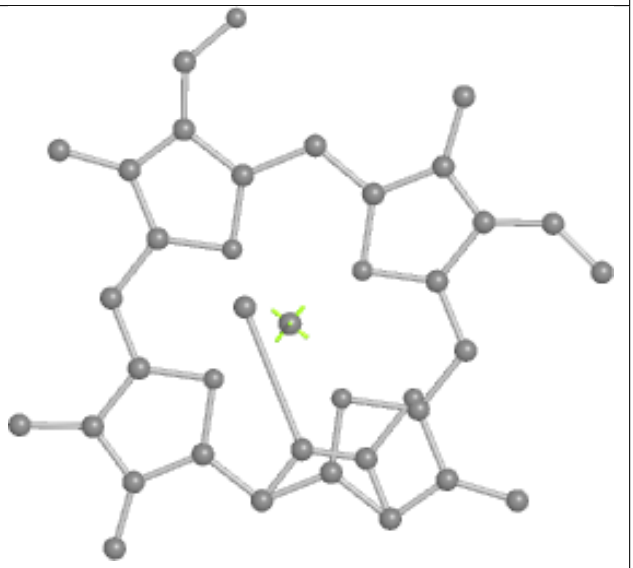
Bond lengths



Bond angles

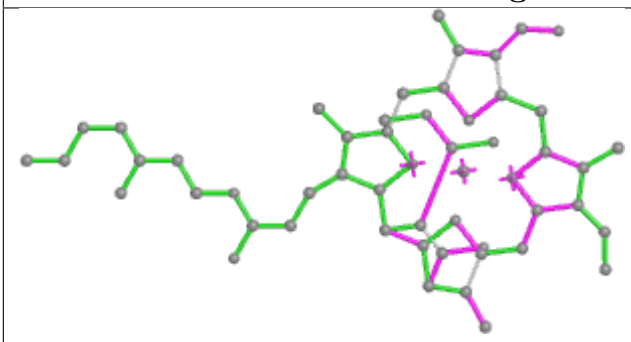


Torsions

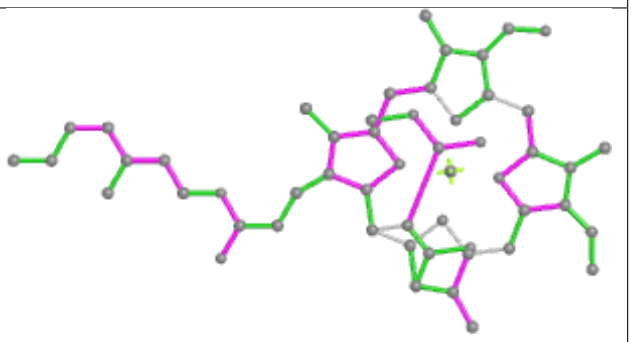


Rings

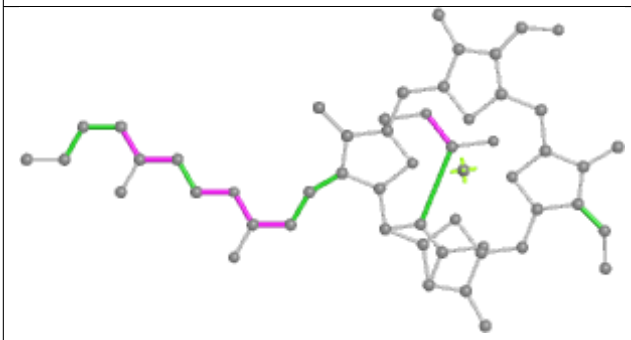
Ligand CL7 bA 3116



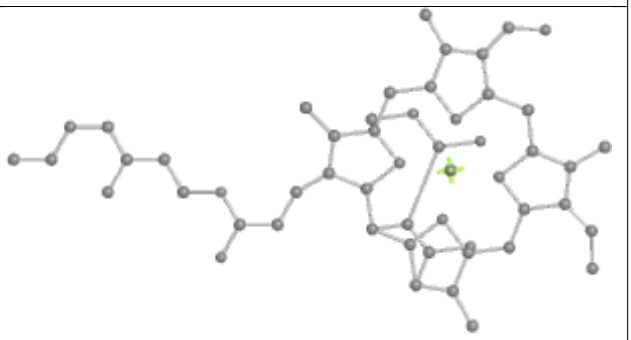
Bond lengths



Bond angles

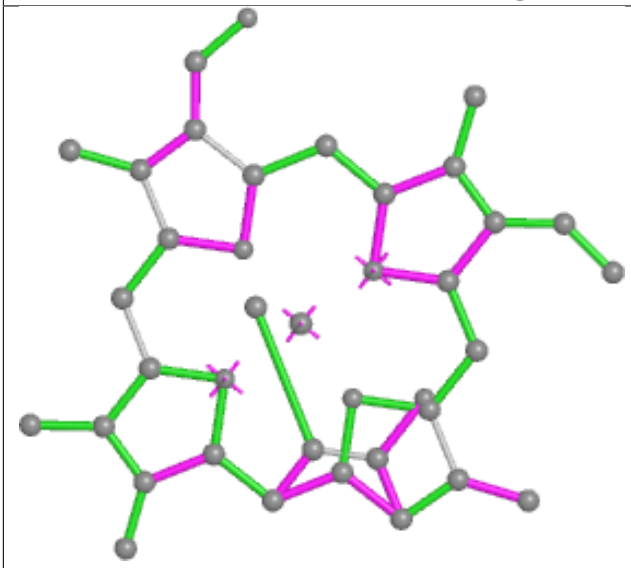


Torsions

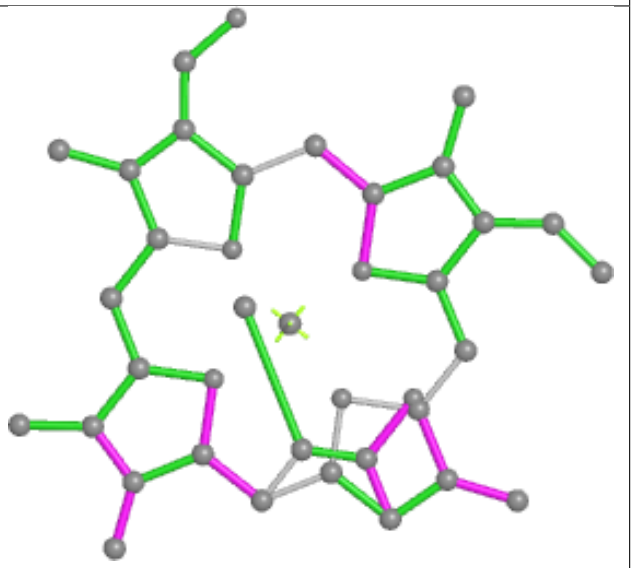


Rings

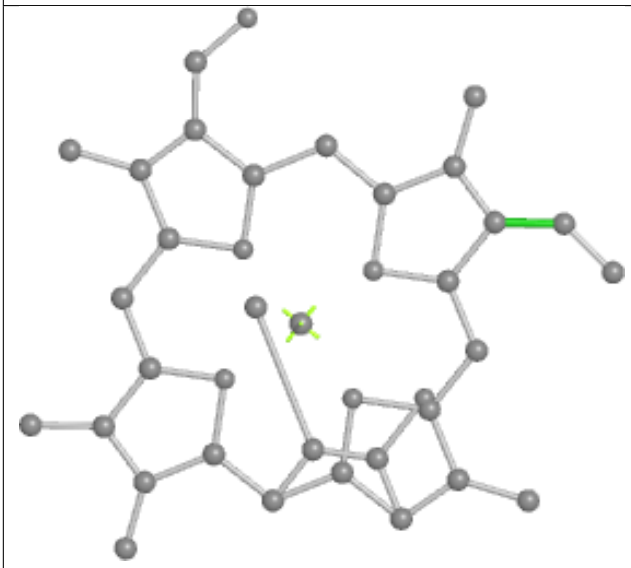
Ligand CL7 aB 3012



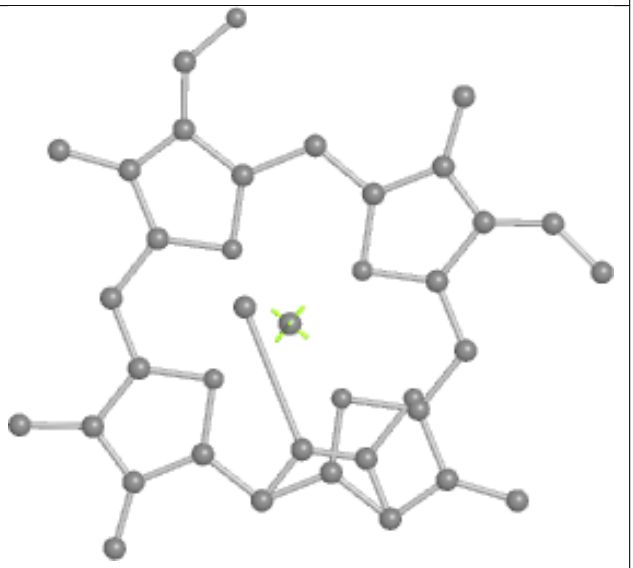
Bond lengths



Bond angles

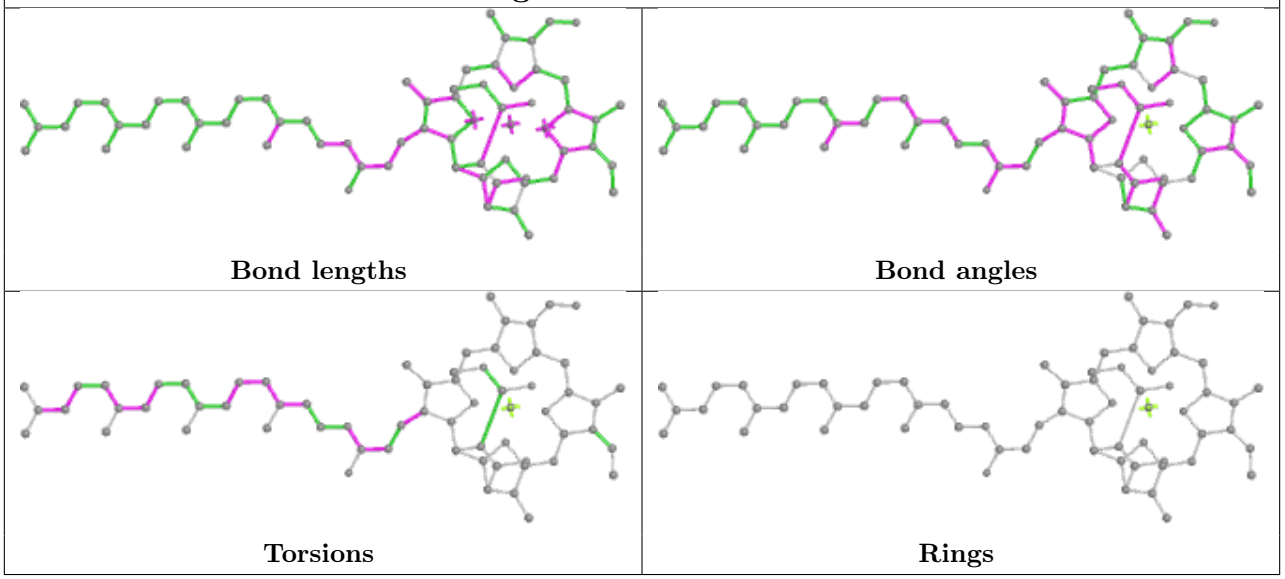


Torsions

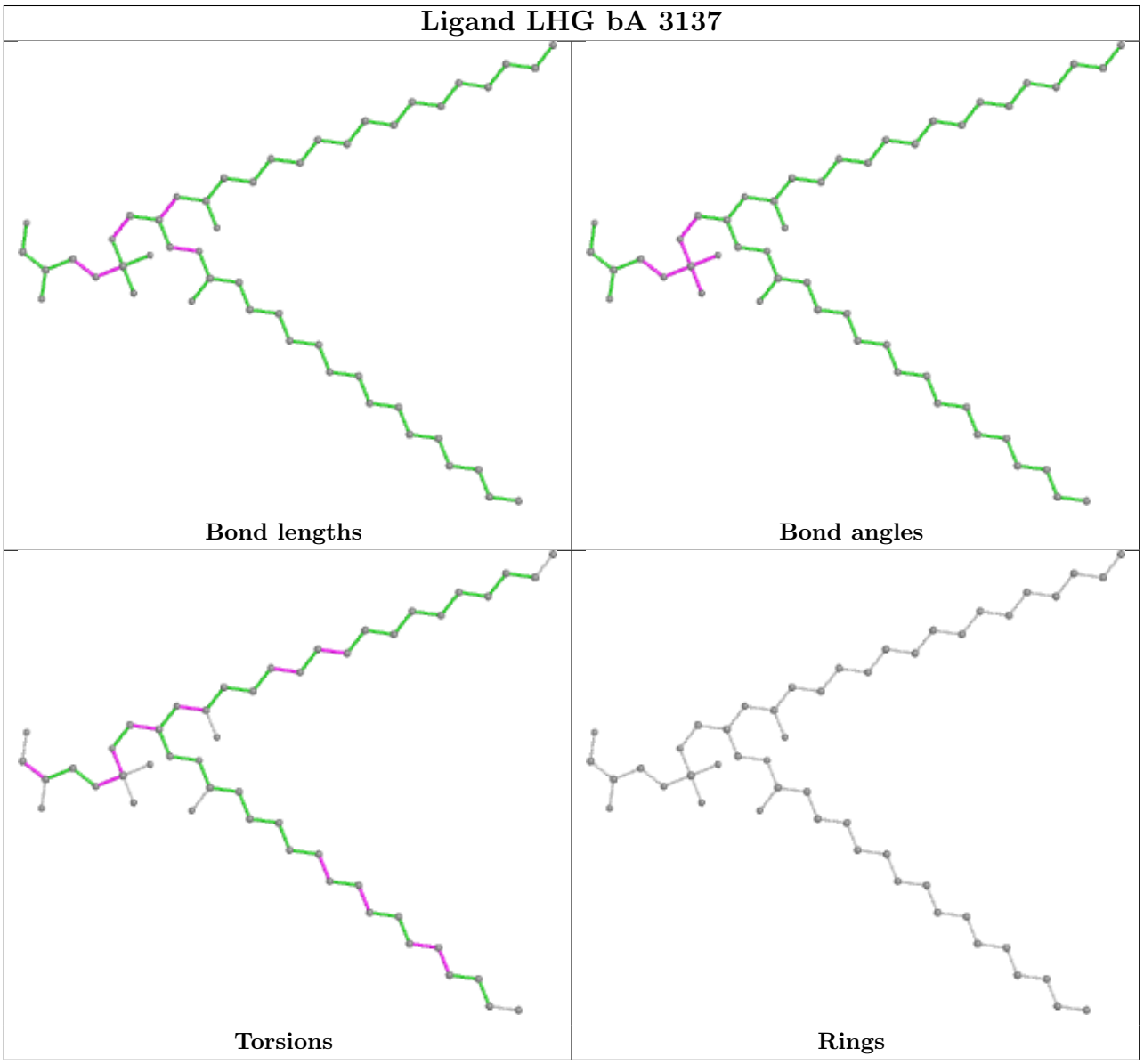


Rings

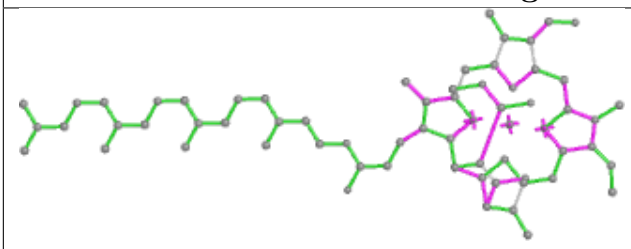
Ligand CL7 cA 3132



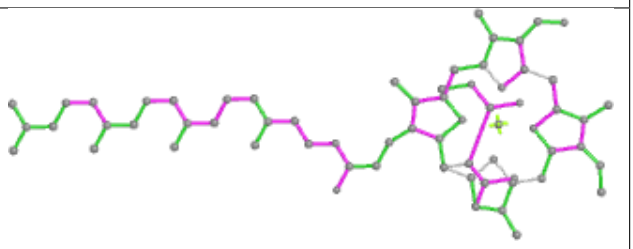
Ligand LHG bA 3137



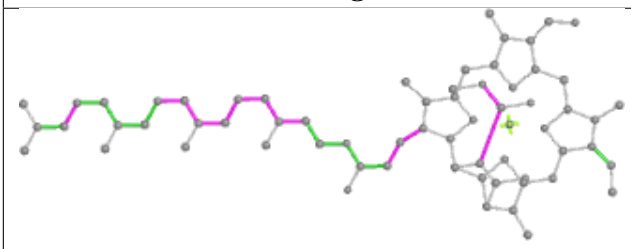
Ligand CL7 cB 803



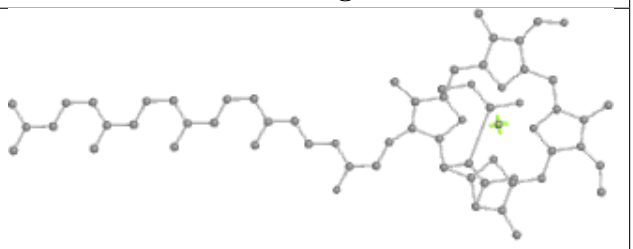
Bond lengths



Bond angles

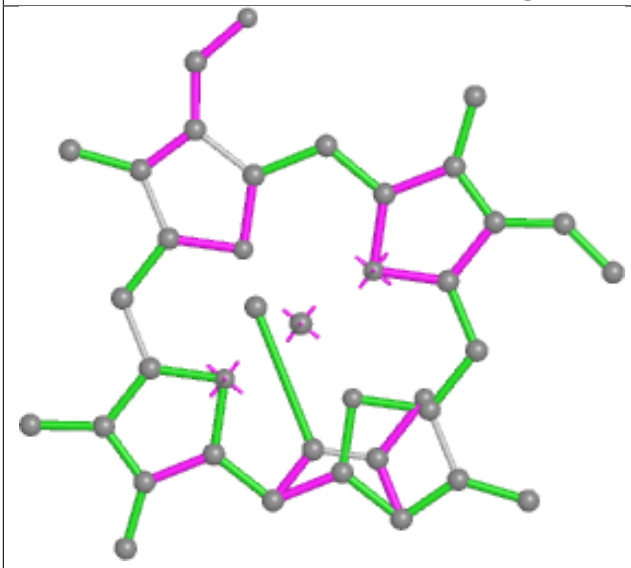


Torsions

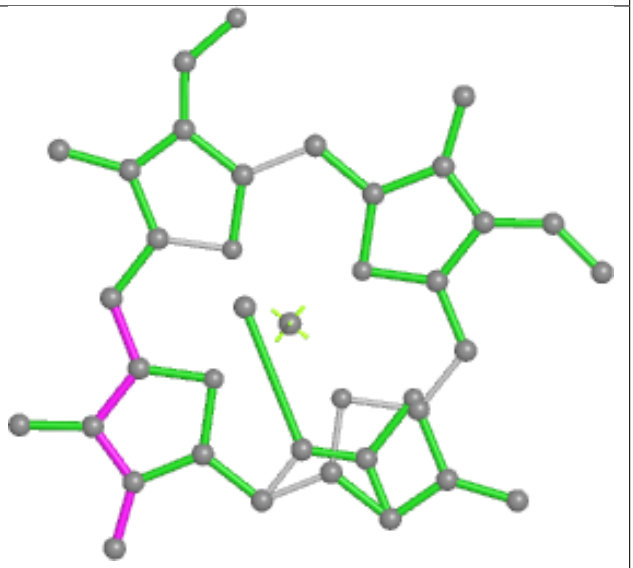


Rings

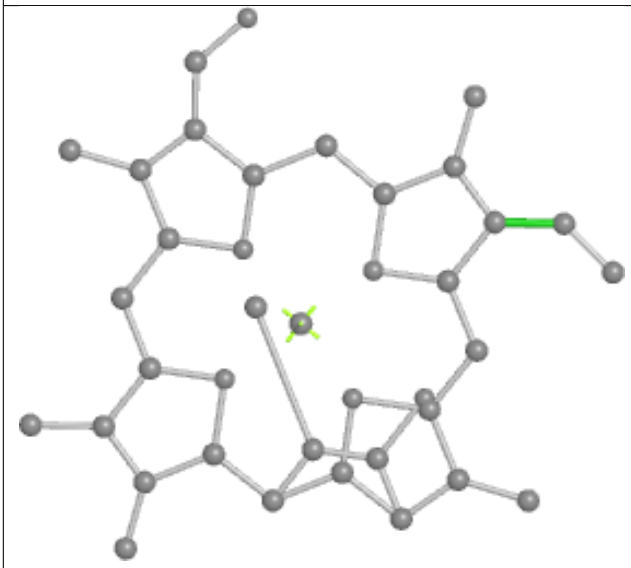
Ligand CL7 bB 821



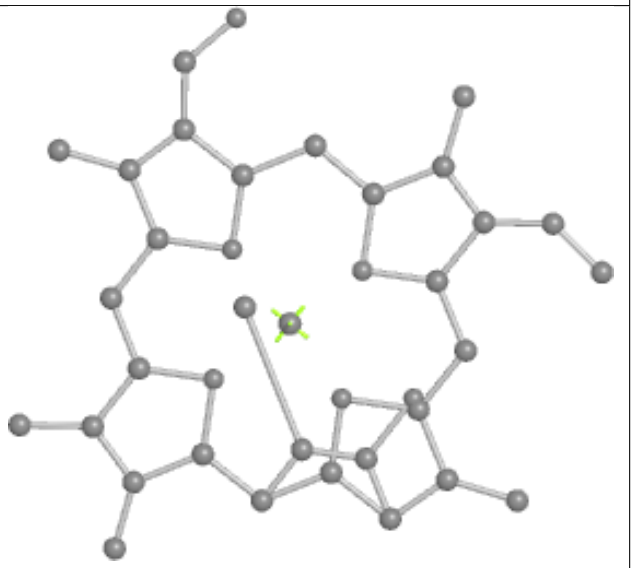
Bond lengths



Bond angles

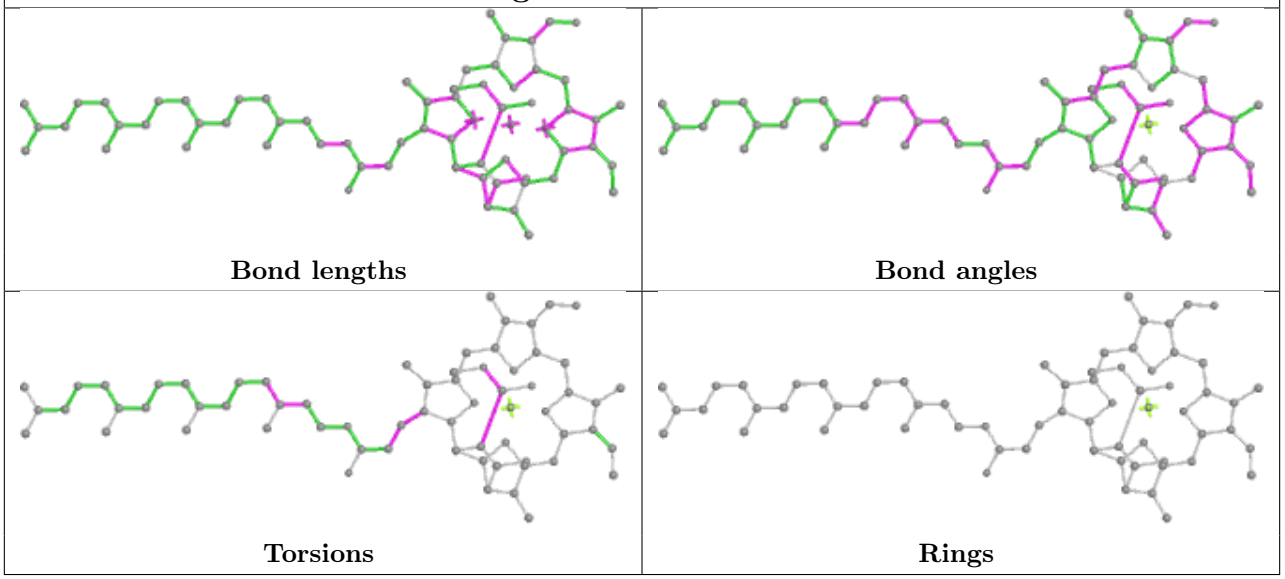


Torsions

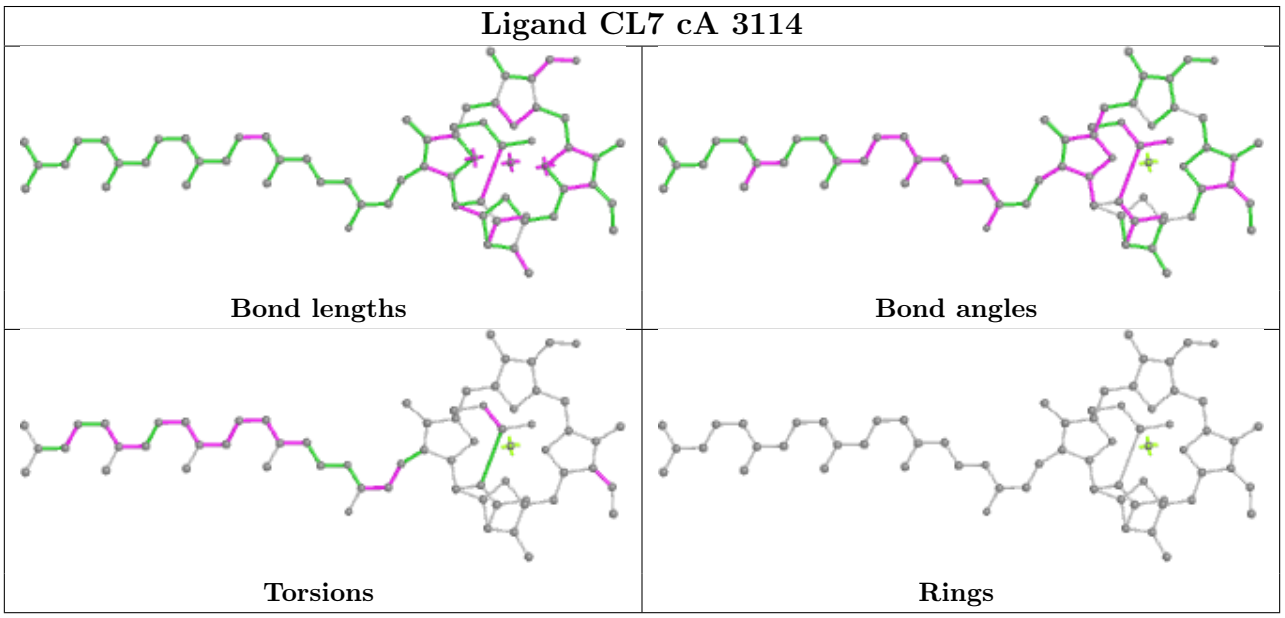


Rings

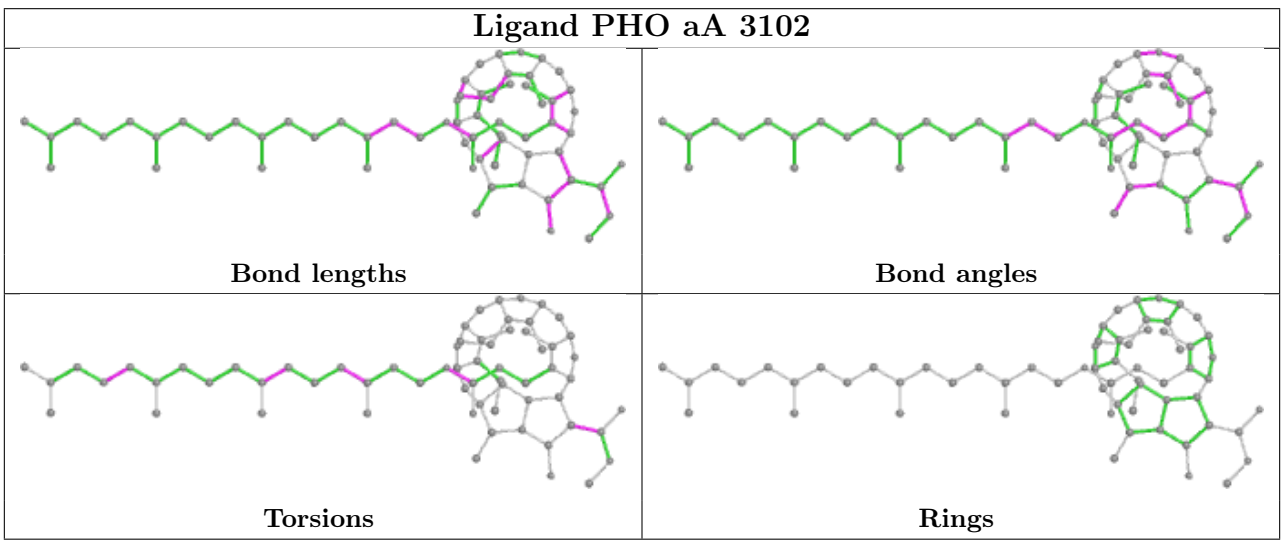
Ligand CL7 cA 3102



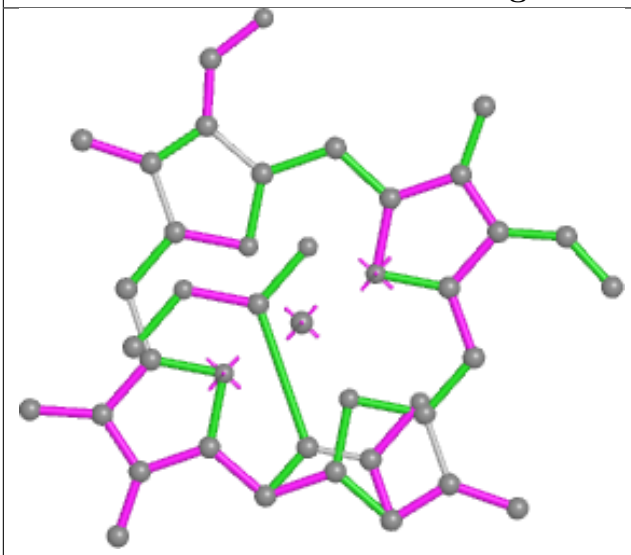
Ligand CL7 cA 3114



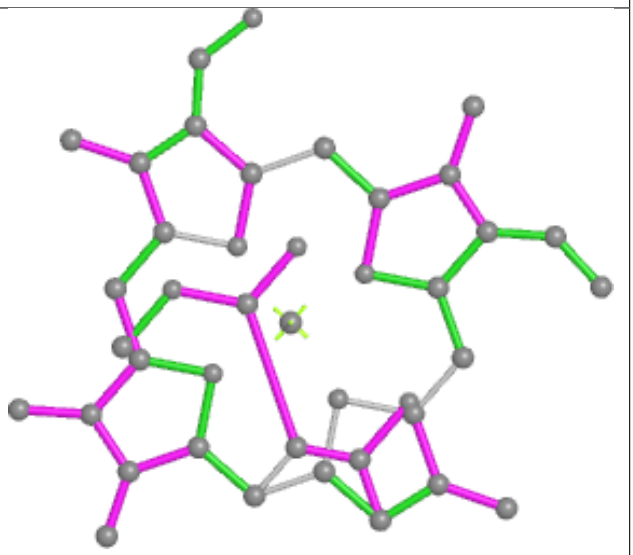
Ligand PHO aA 3102



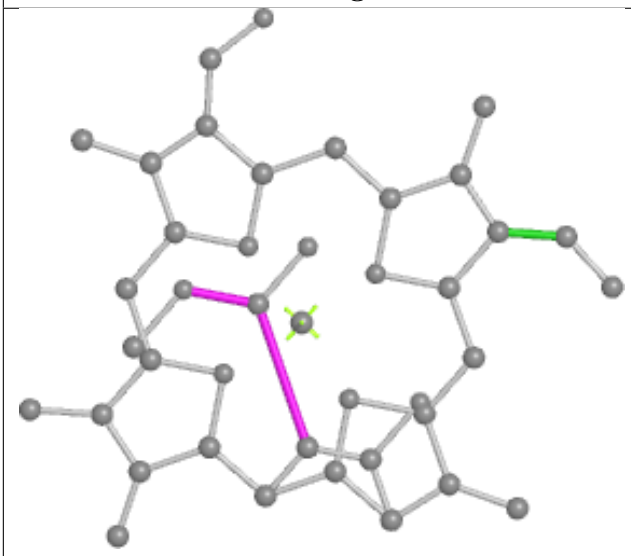
Ligand CL7 bA 3129



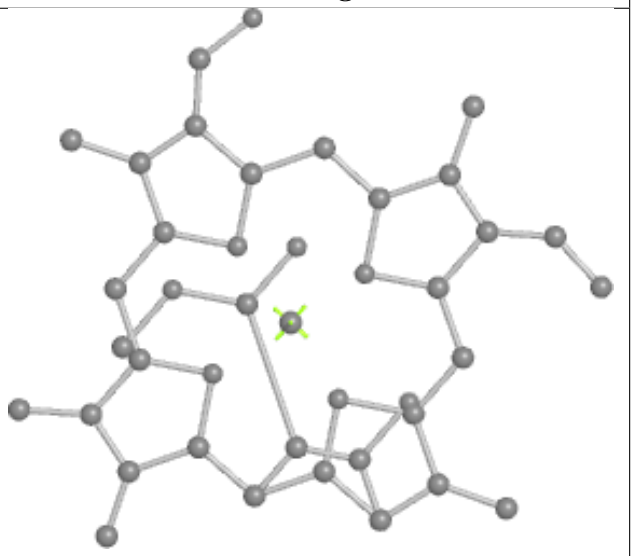
Bond lengths



Bond angles

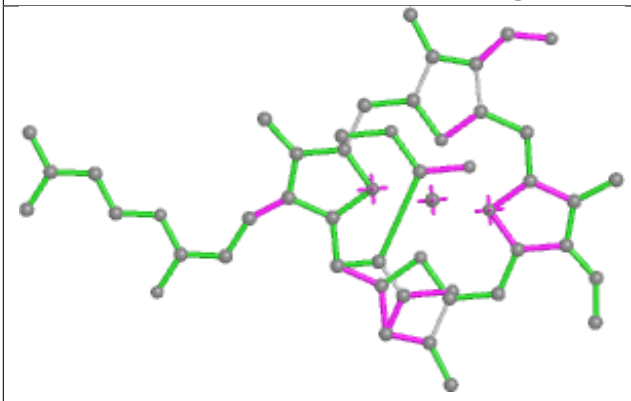


Torsions

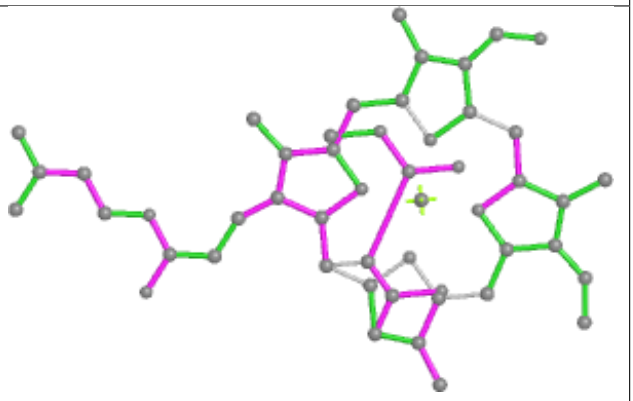


Rings

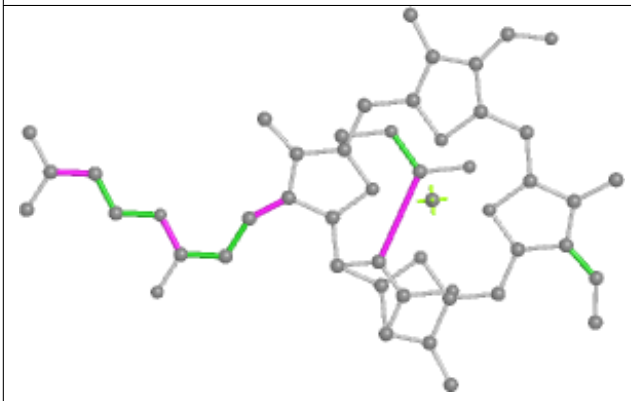
Ligand CL7 bA 3122



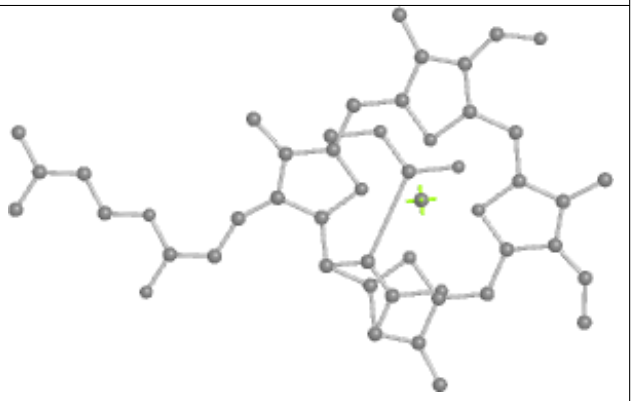
Bond lengths



Bond angles

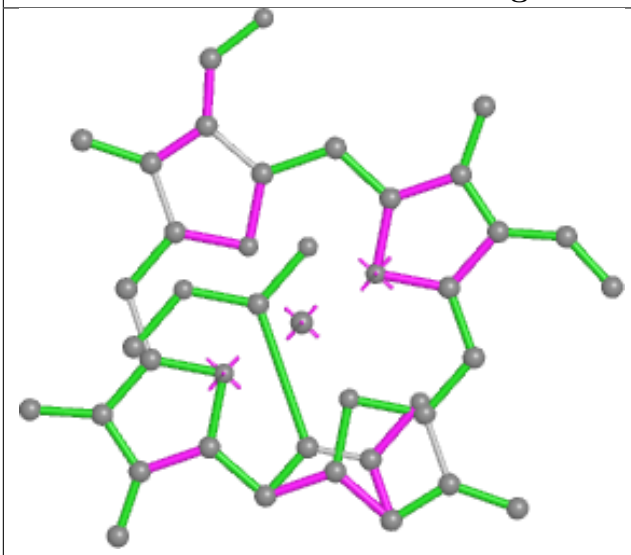


Torsions

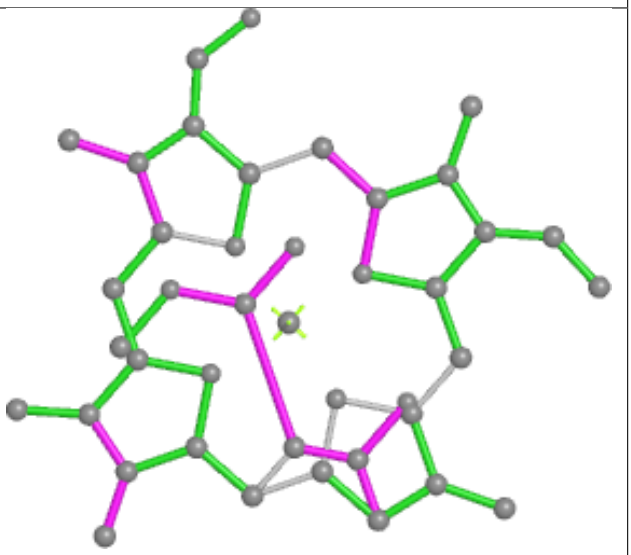


Rings

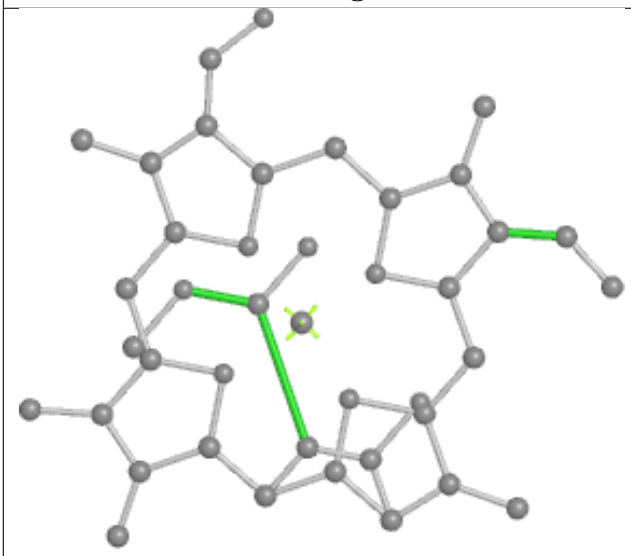
Ligand CL7 aA 3114



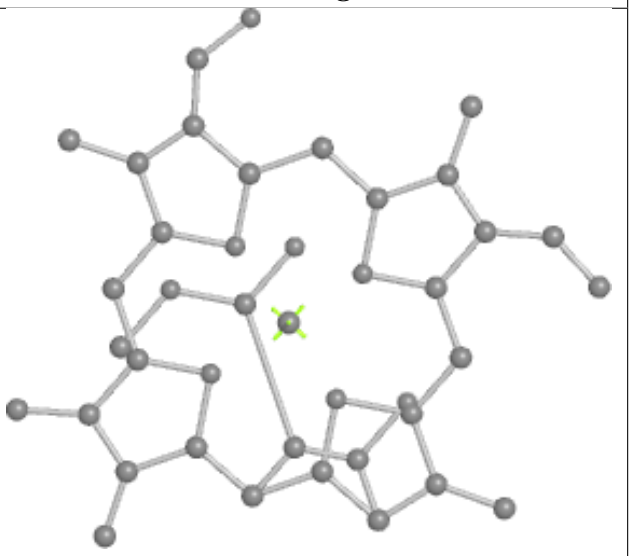
Bond lengths



Bond angles

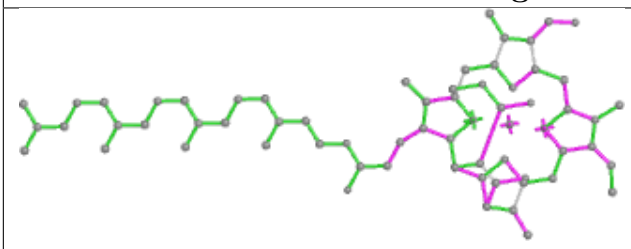


Torsions

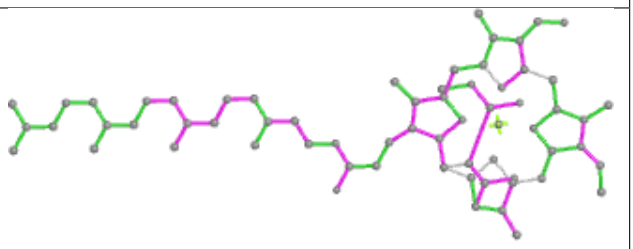


Rings

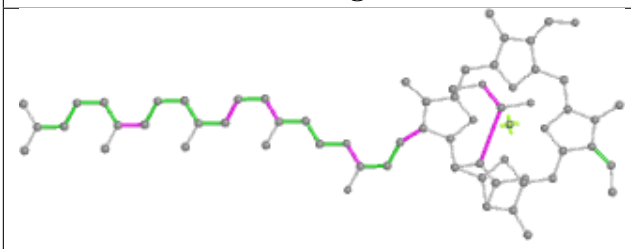
Ligand CL7 cA 3125



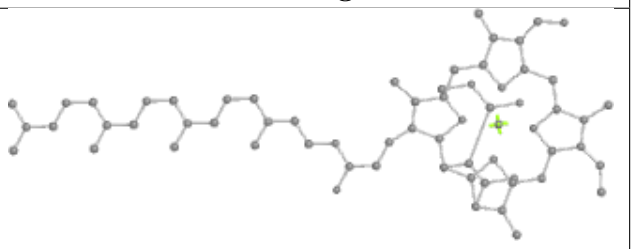
Bond lengths



Bond angles

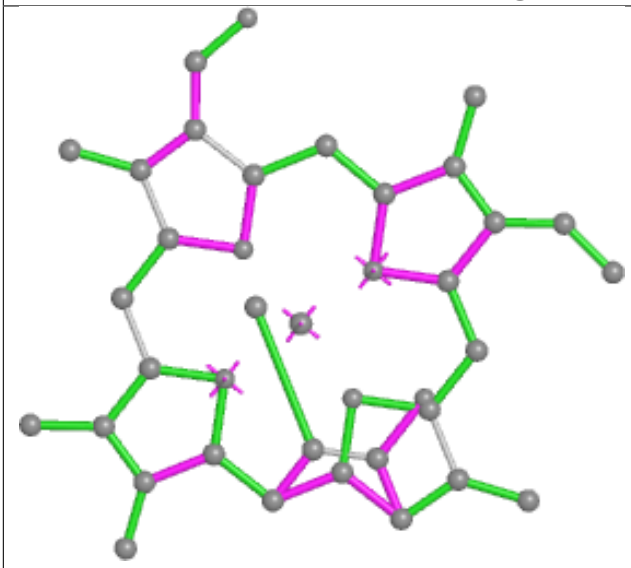


Torsions

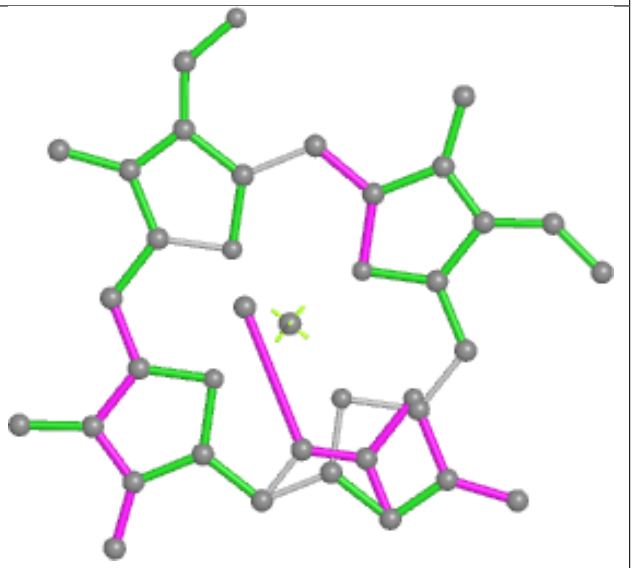


Rings

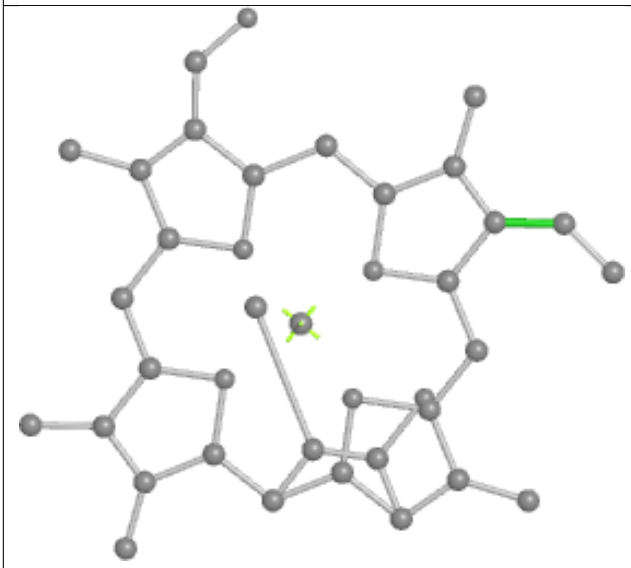
Ligand CL7 cA 3117



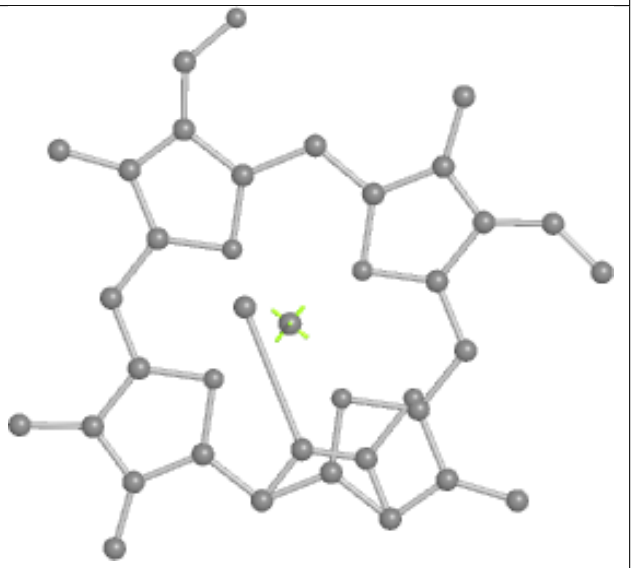
Bond lengths



Bond angles

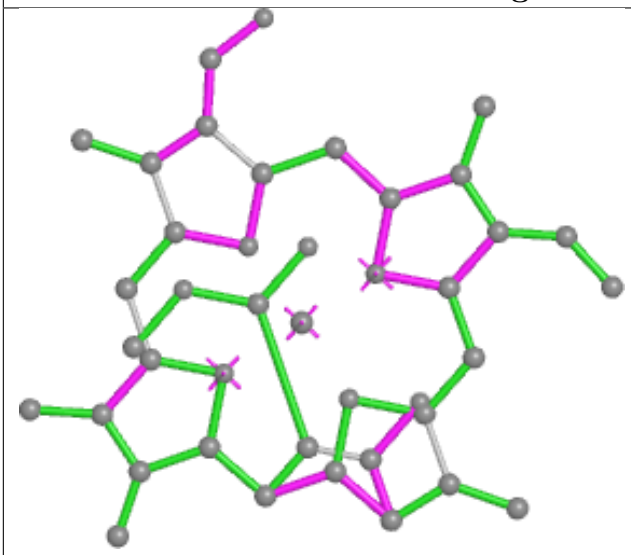


Torsions

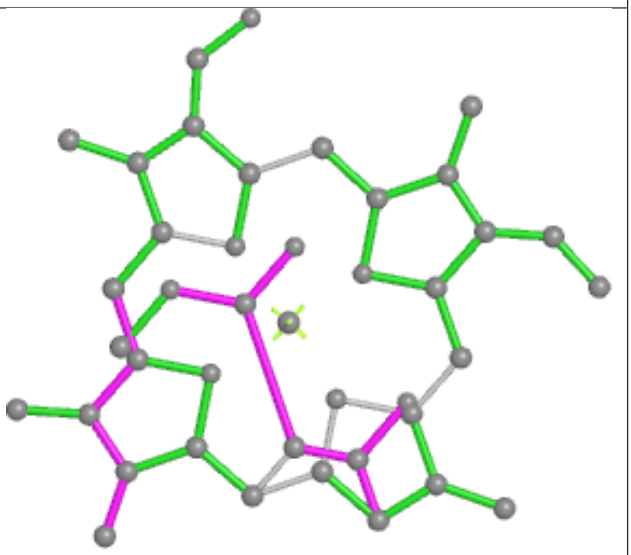


Rings

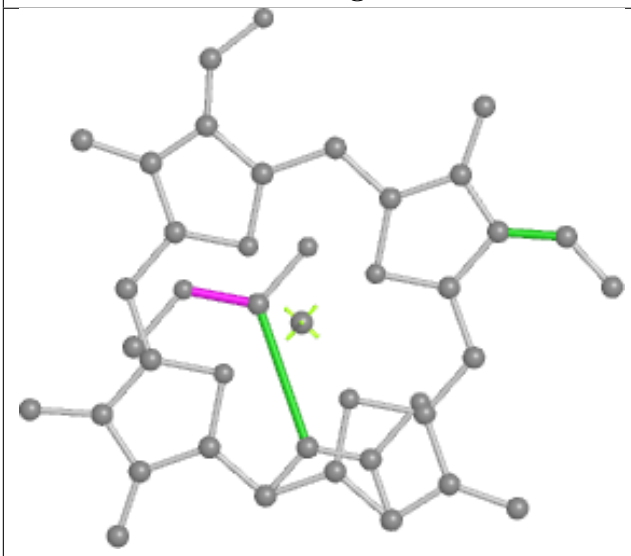
Ligand CL7 aB 3014



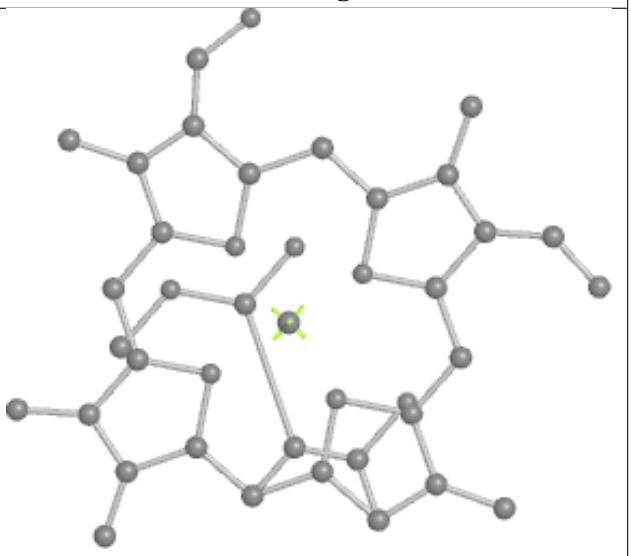
Bond lengths



Bond angles

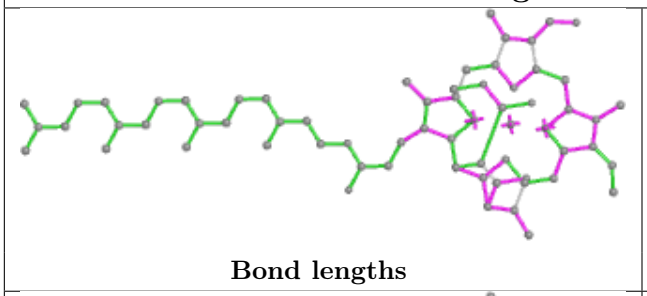


Torsions

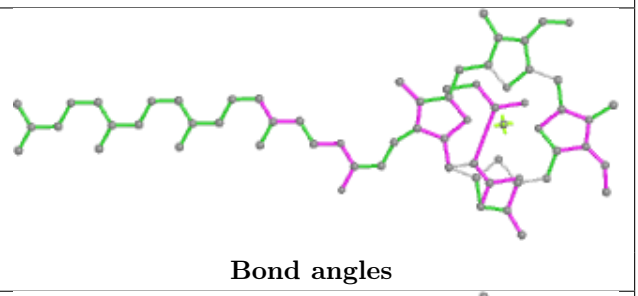


Rings

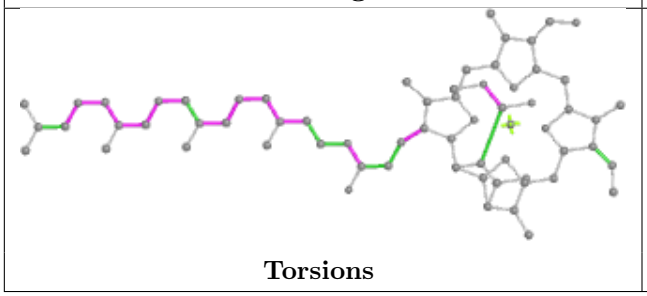
Ligand CL7 aB 3026



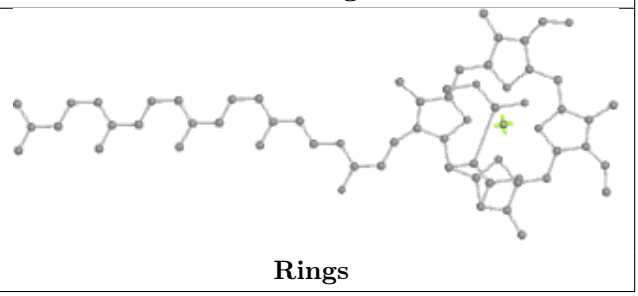
Bond lengths



Bond angles

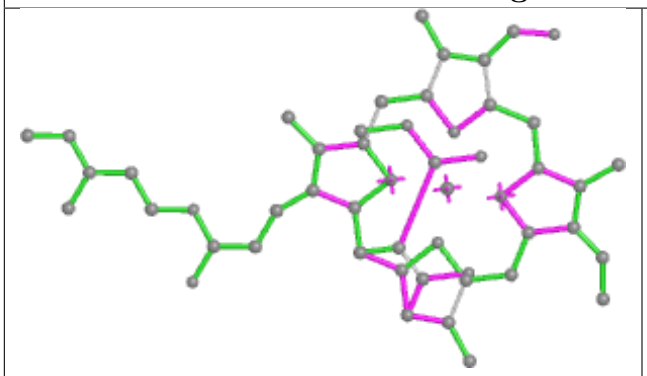


Torsions

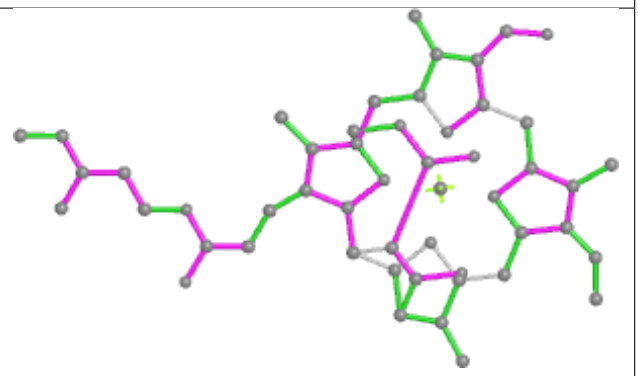


Rings

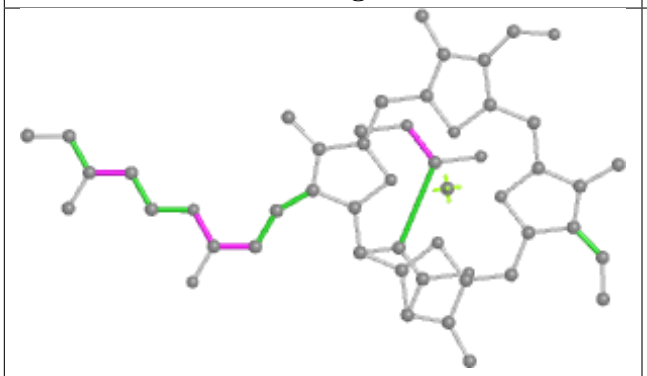
Ligand CL7 bA 3123



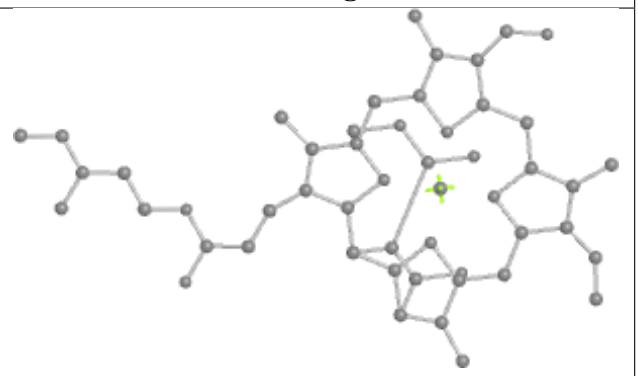
Bond lengths



Bond angles

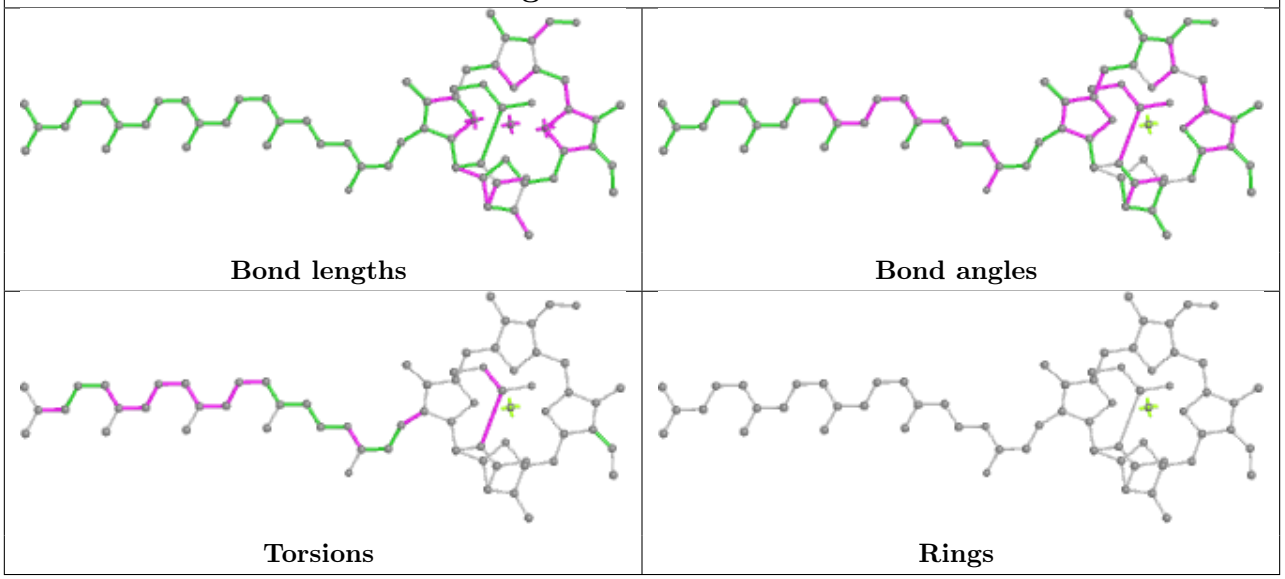


Torsions

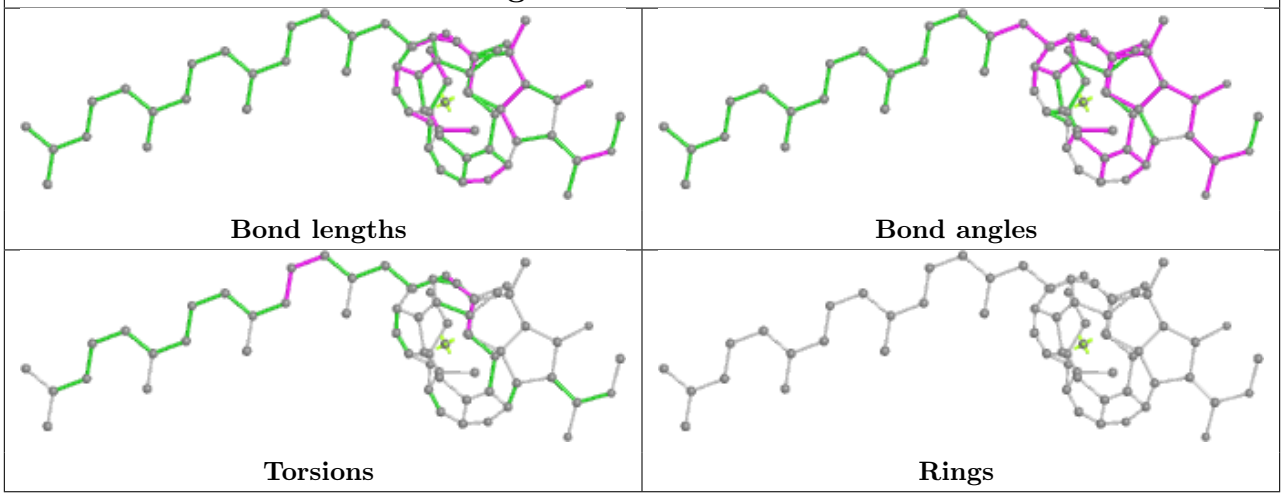


Rings

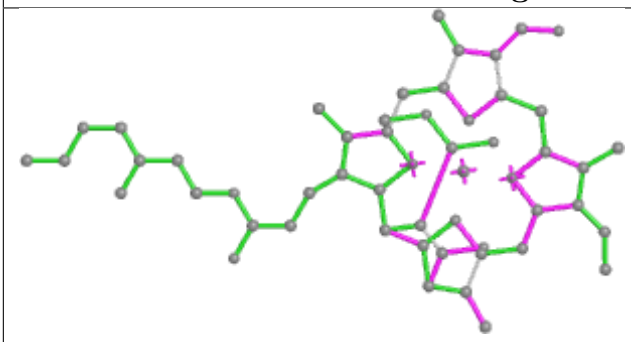
Ligand CL7 bL 203



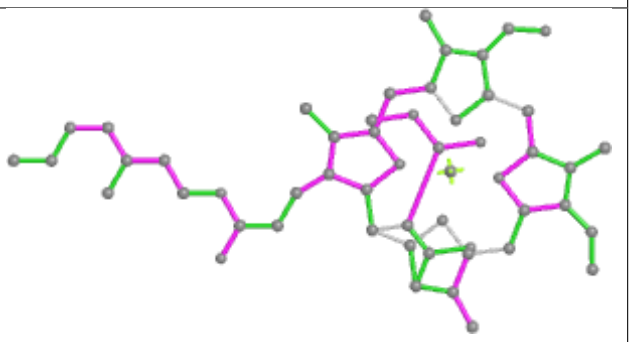
Ligand G9R aA 3101



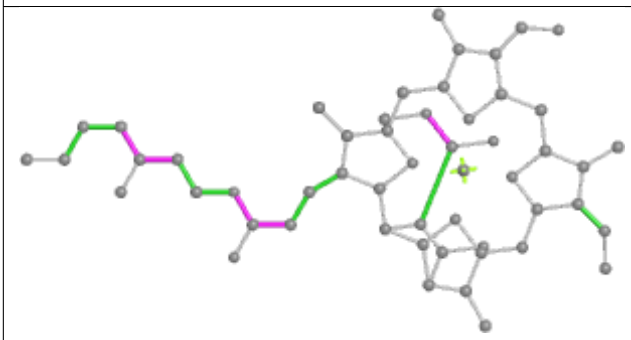
Ligand CL7 cA 3116



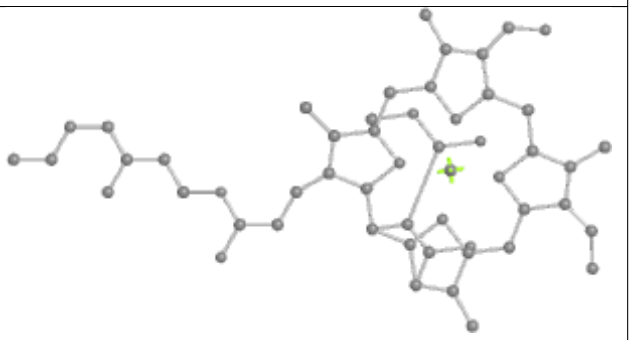
Bond lengths



Bond angles

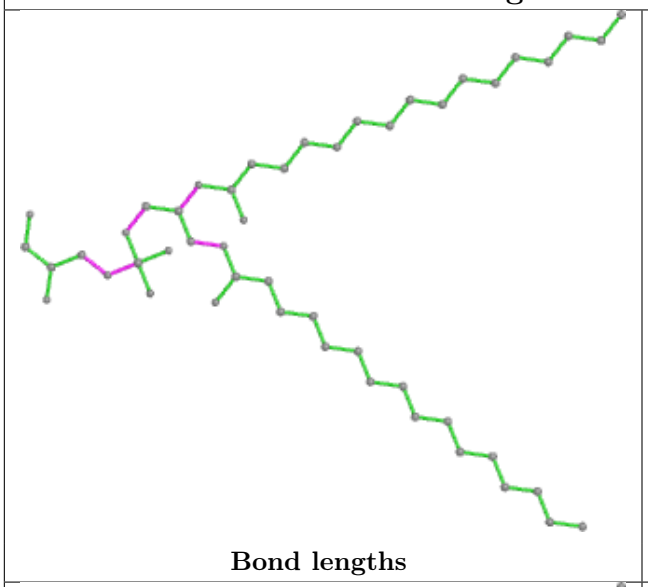


Torsions

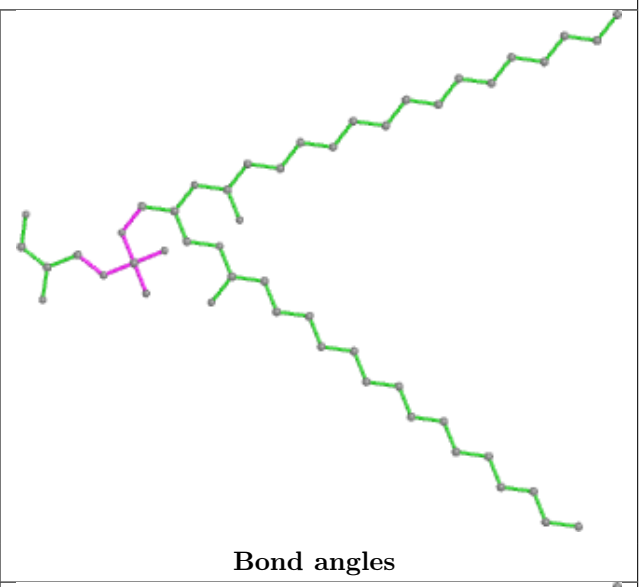


Rings

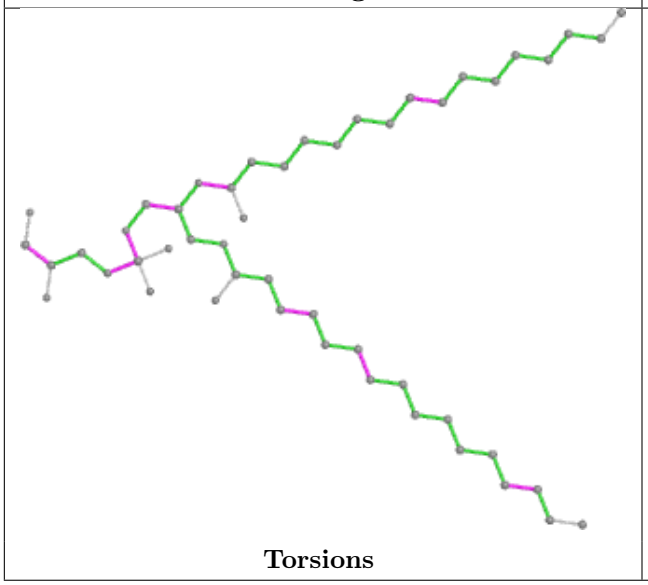
Ligand LHG cA 3137



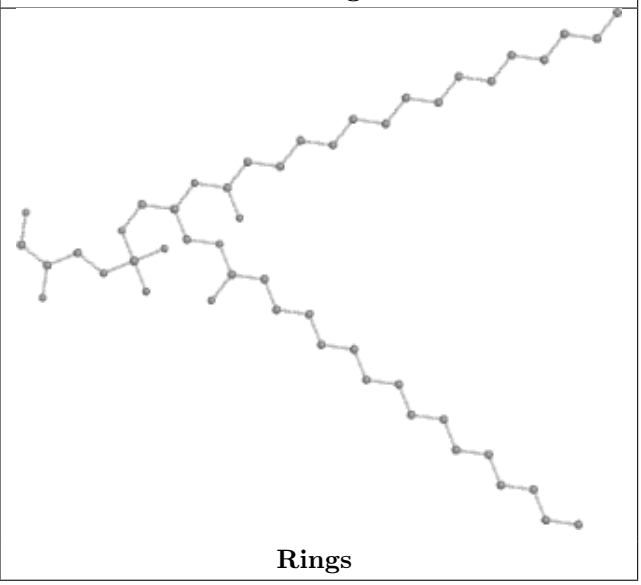
Bond lengths



Bond angles

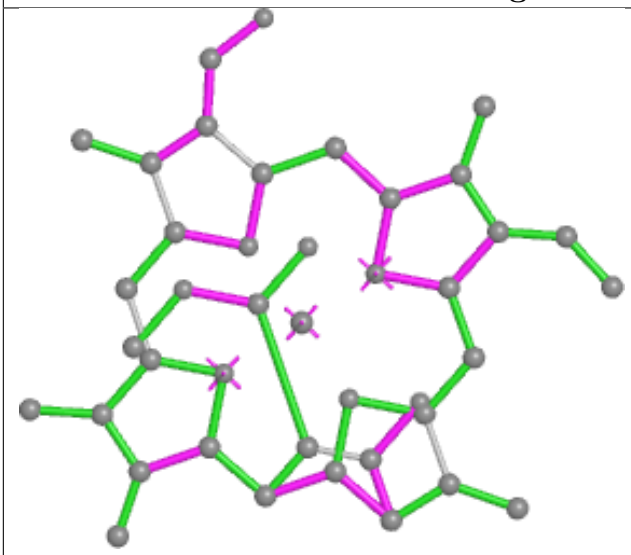


Torsions

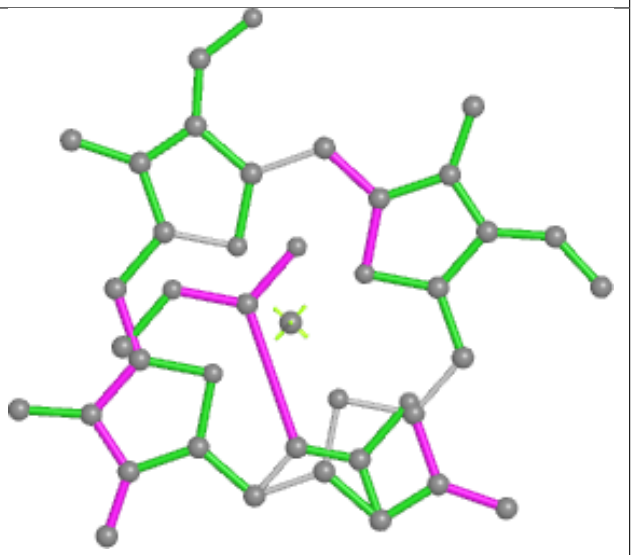


Rings

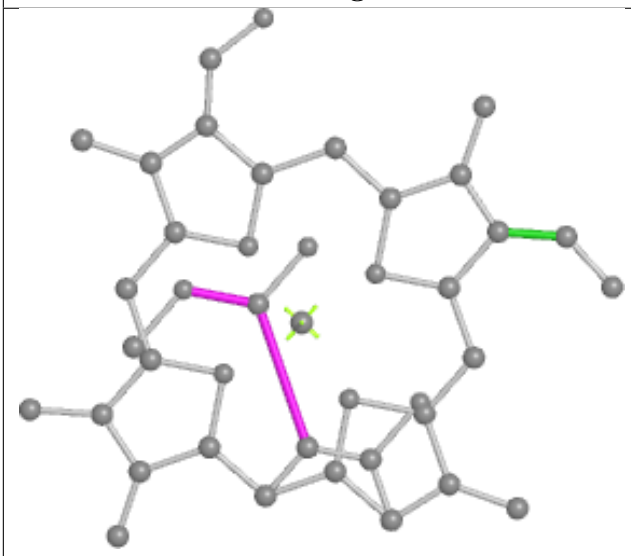
Ligand CL7 bA 3130



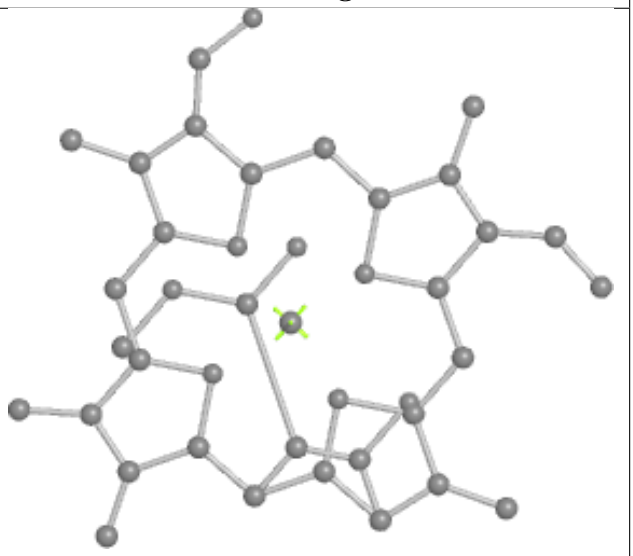
Bond lengths



Bond angles

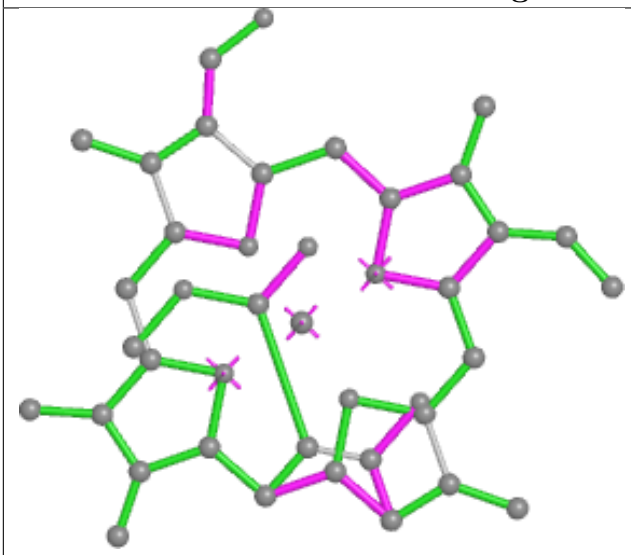


Torsions

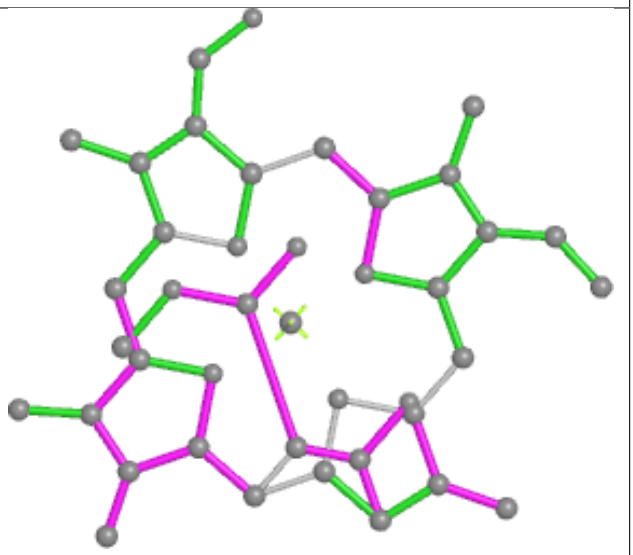


Rings

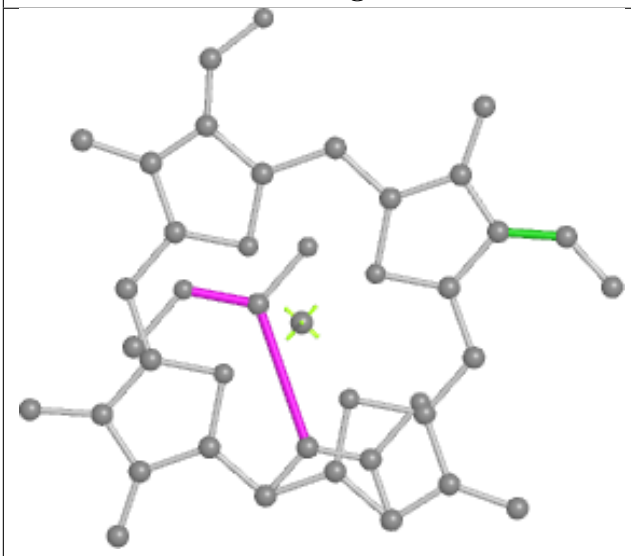
Ligand CL7 aB 3022



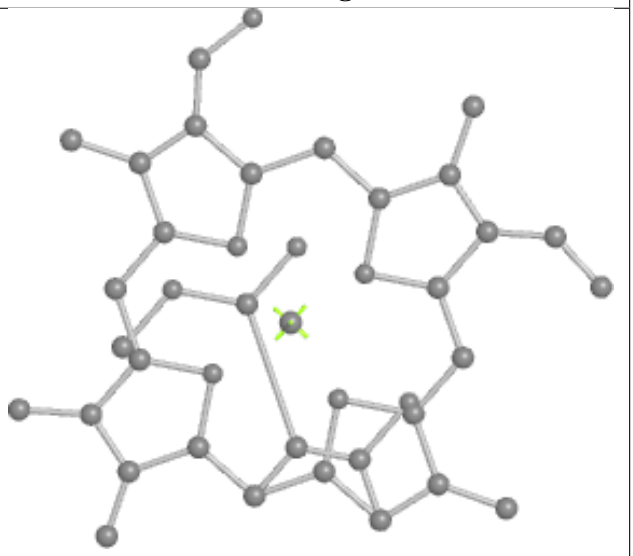
Bond lengths



Bond angles

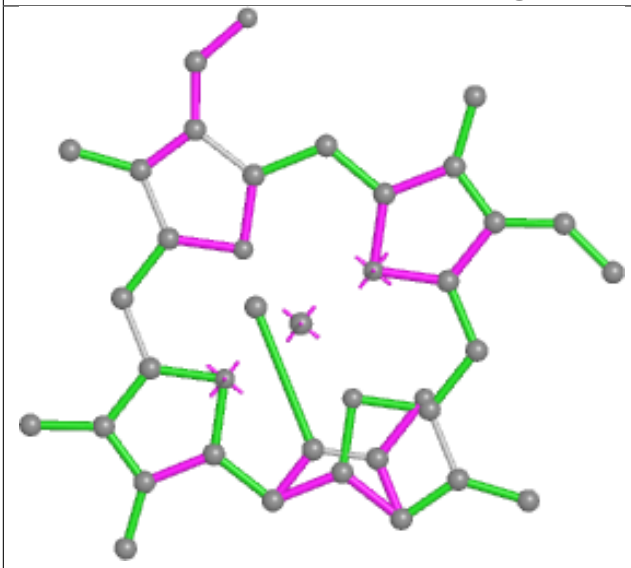


Torsions

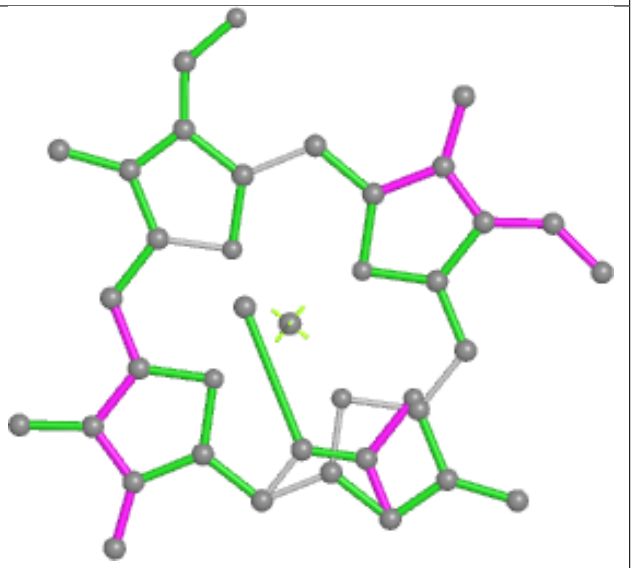


Rings

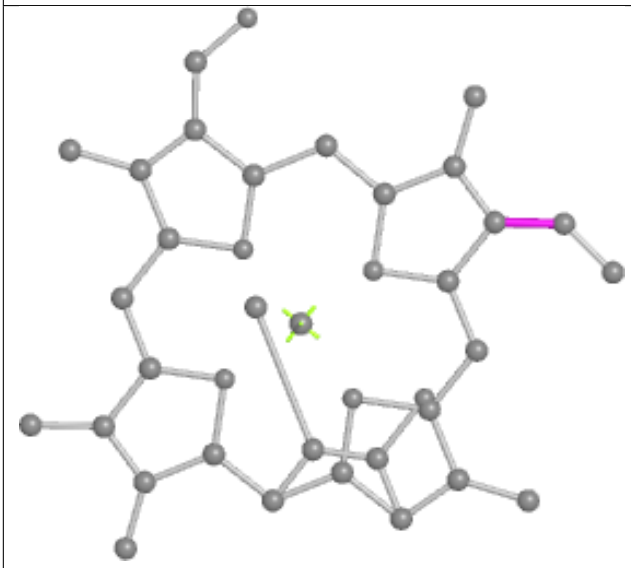
Ligand CL7 aA 3116



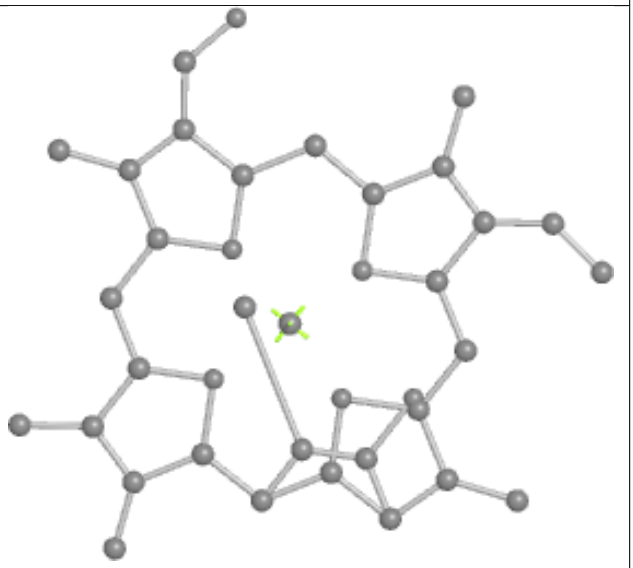
Bond lengths



Bond angles

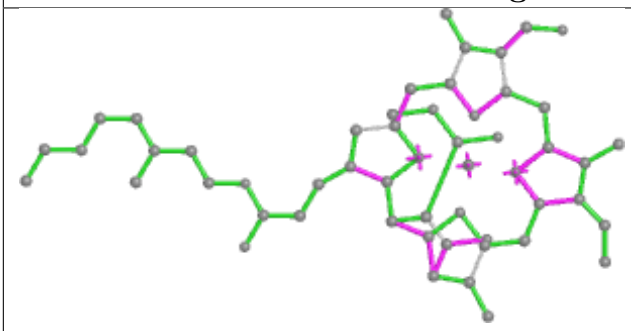


Torsions

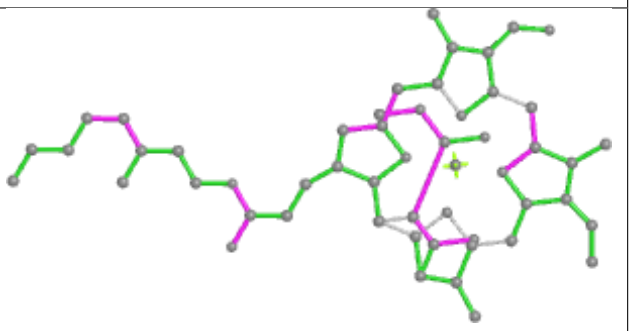


Rings

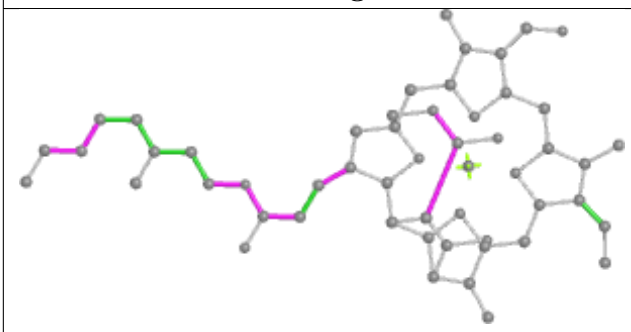
Ligand CL7 bA 3126



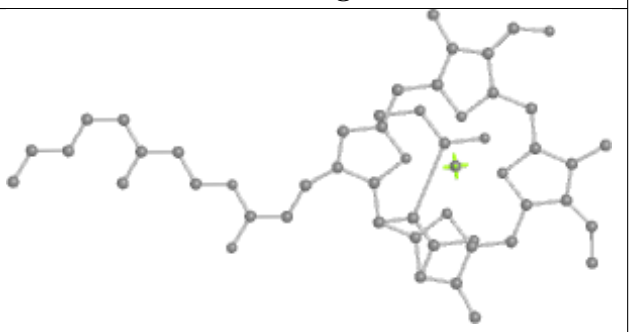
Bond lengths



Bond angles

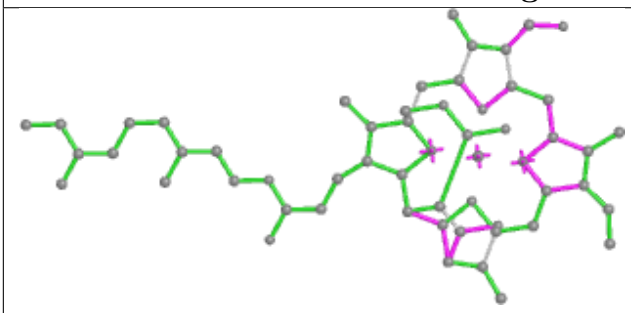


Torsions

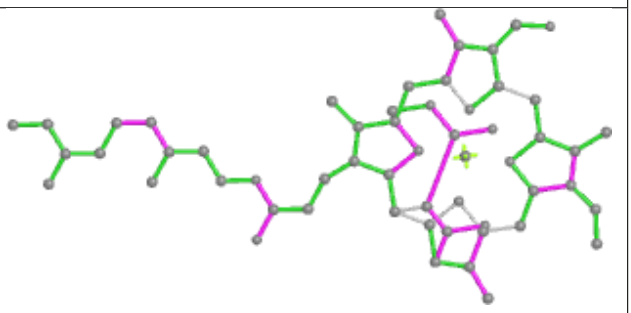


Rings

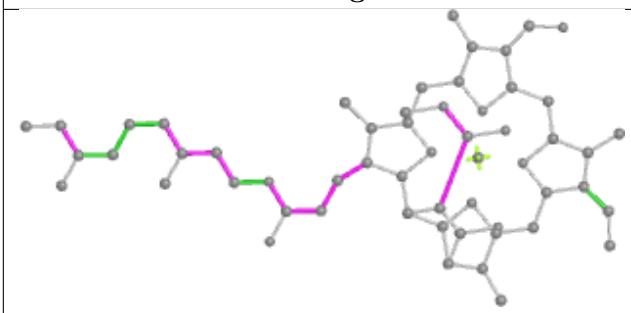
Ligand CL7 cB 824



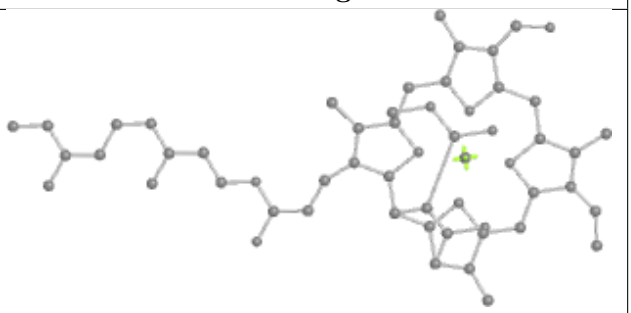
Bond lengths



Bond angles

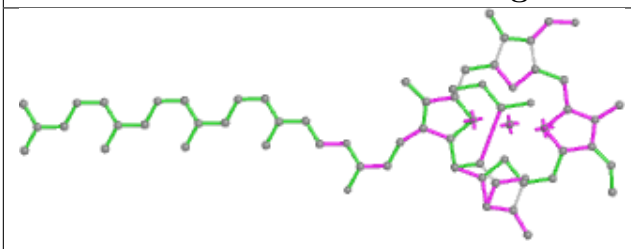


Torsions

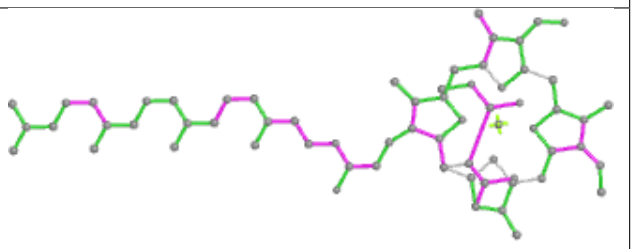


Rings

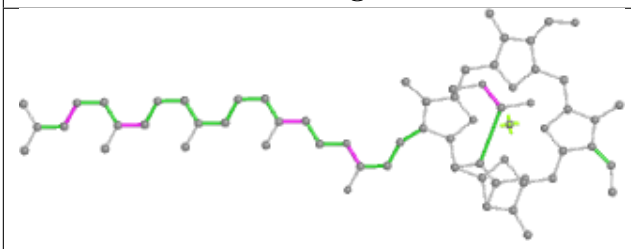
Ligand CL7 aA 3125



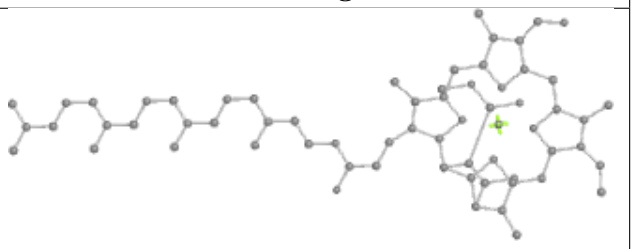
Bond lengths



Bond angles

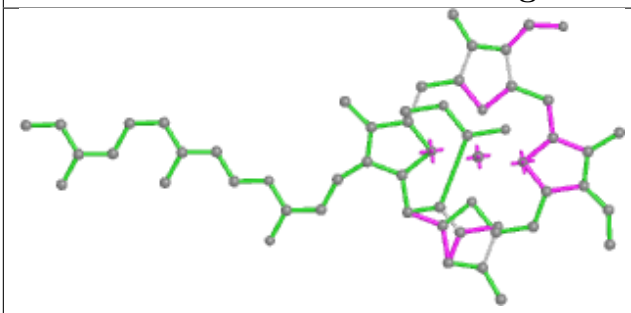


Torsions

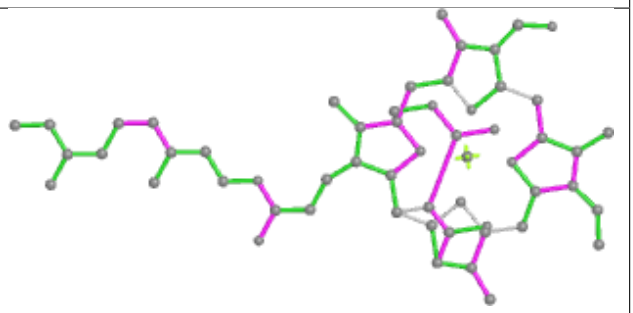


Rings

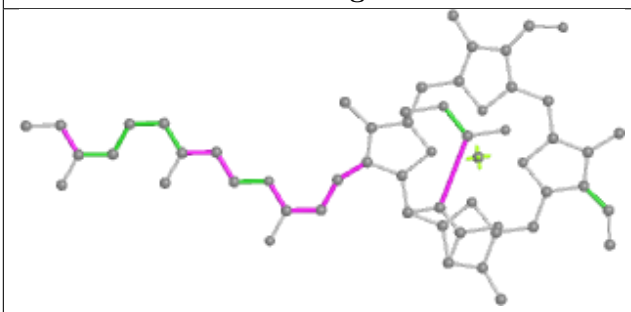
Ligand CL7 bB 824



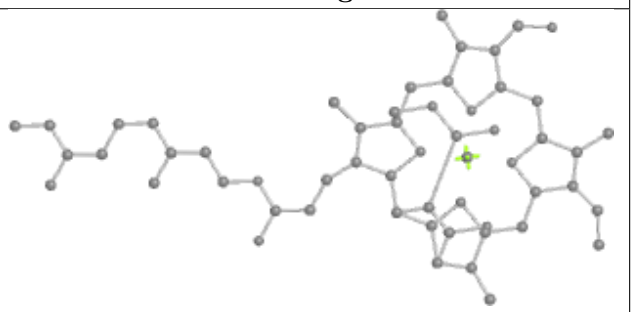
Bond lengths



Bond angles

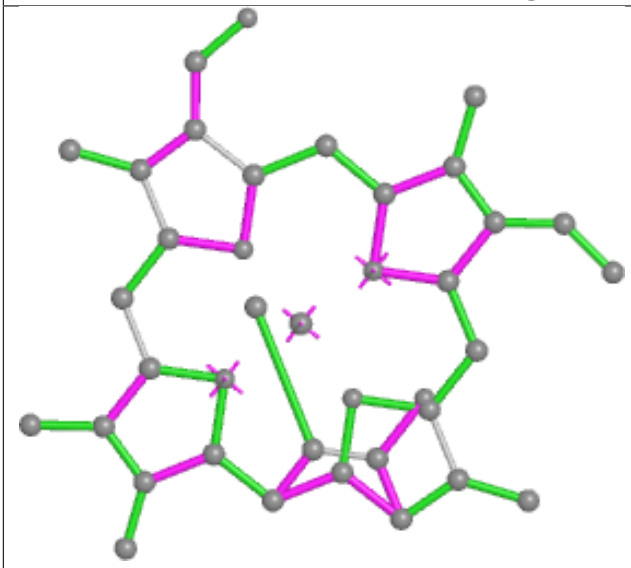


Torsions

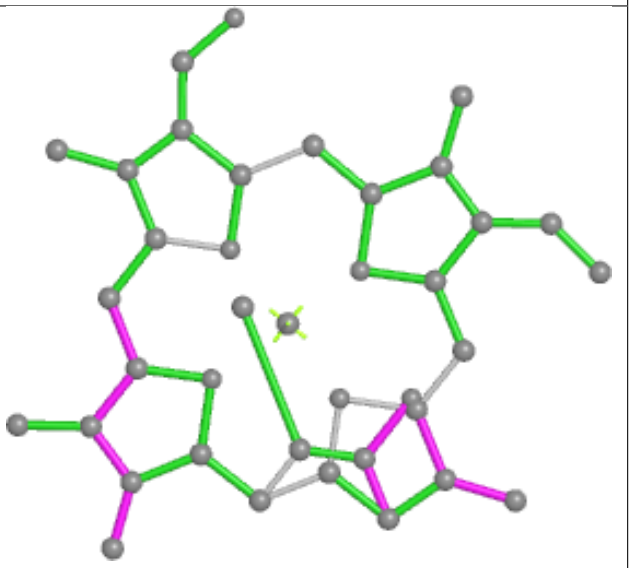


Rings

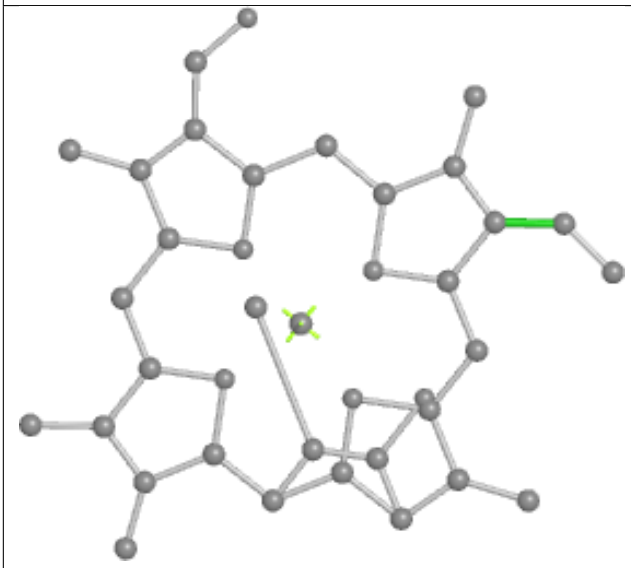
Ligand CL7 cF 201



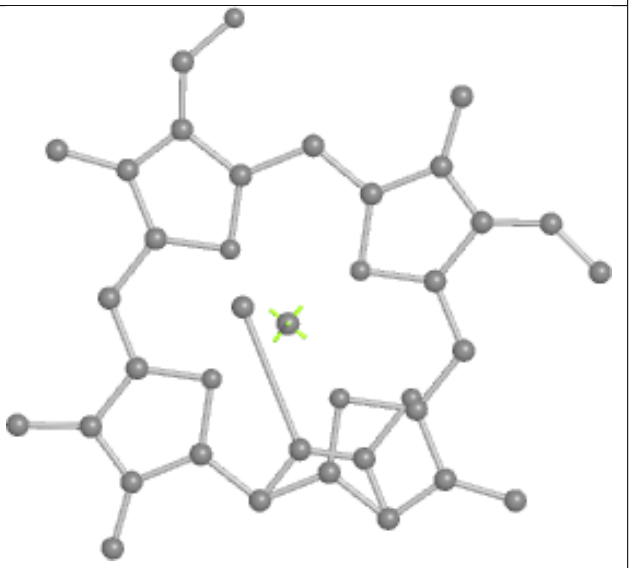
Bond lengths



Bond angles

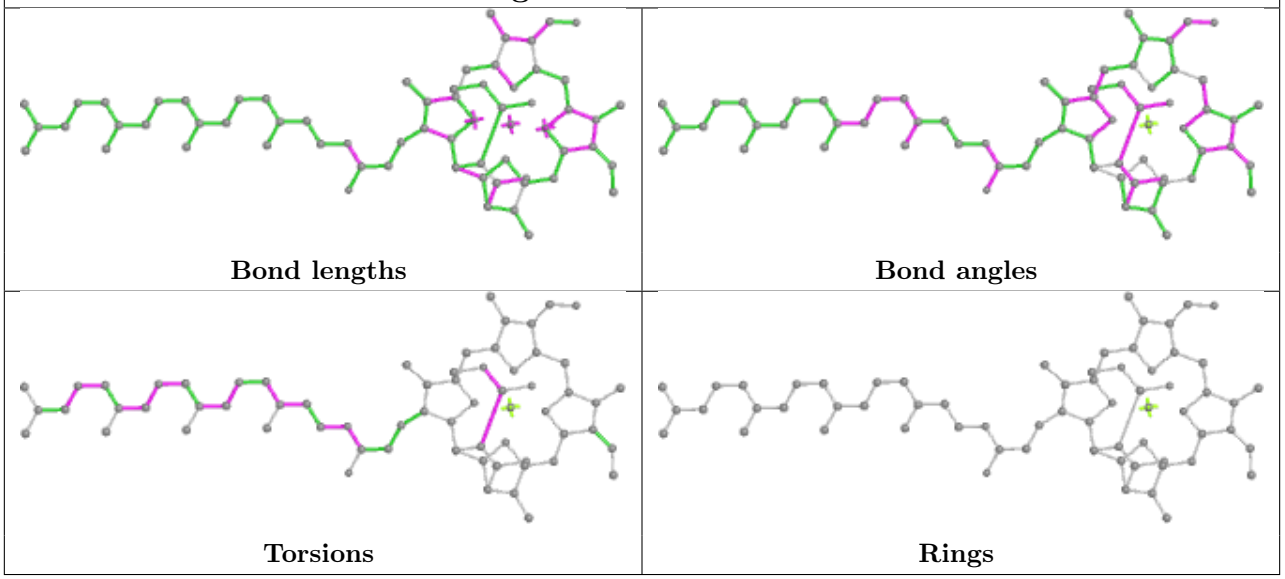


Torsions

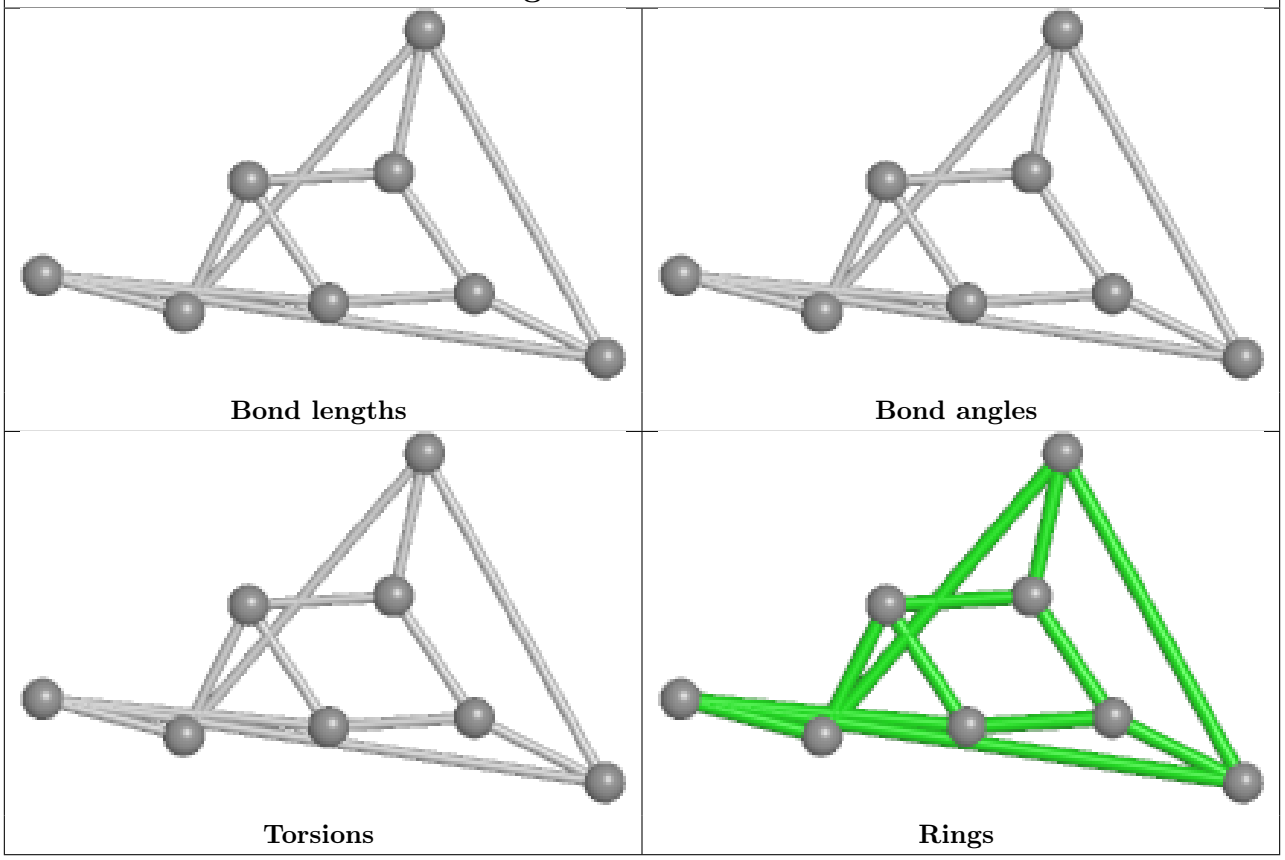


Rings

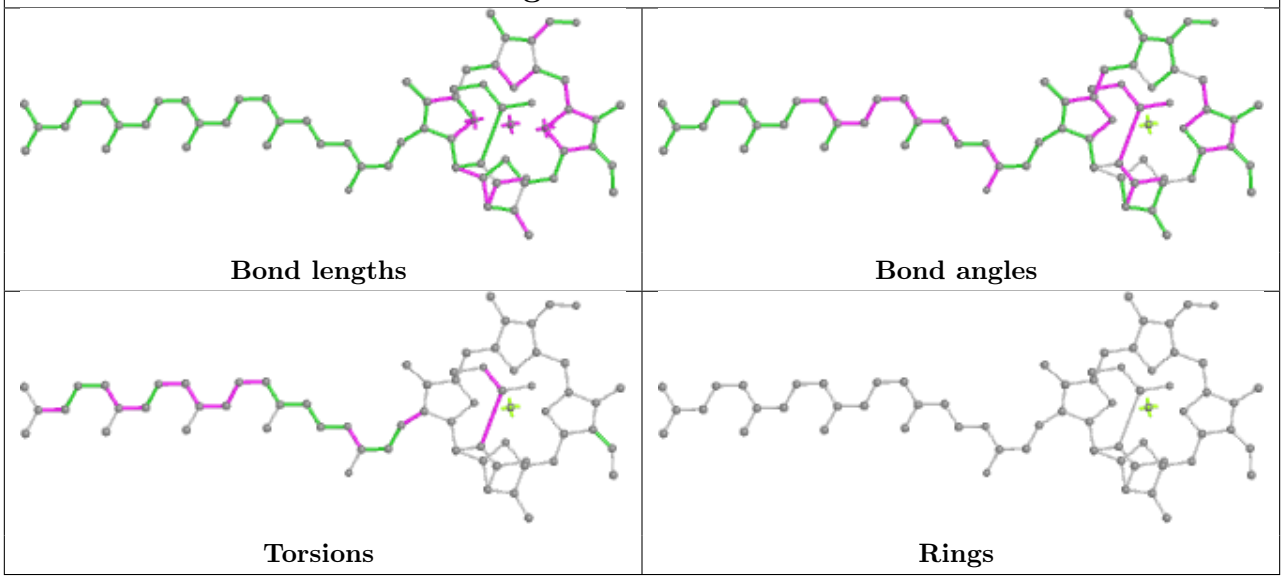
Ligand CL7 aA 3129



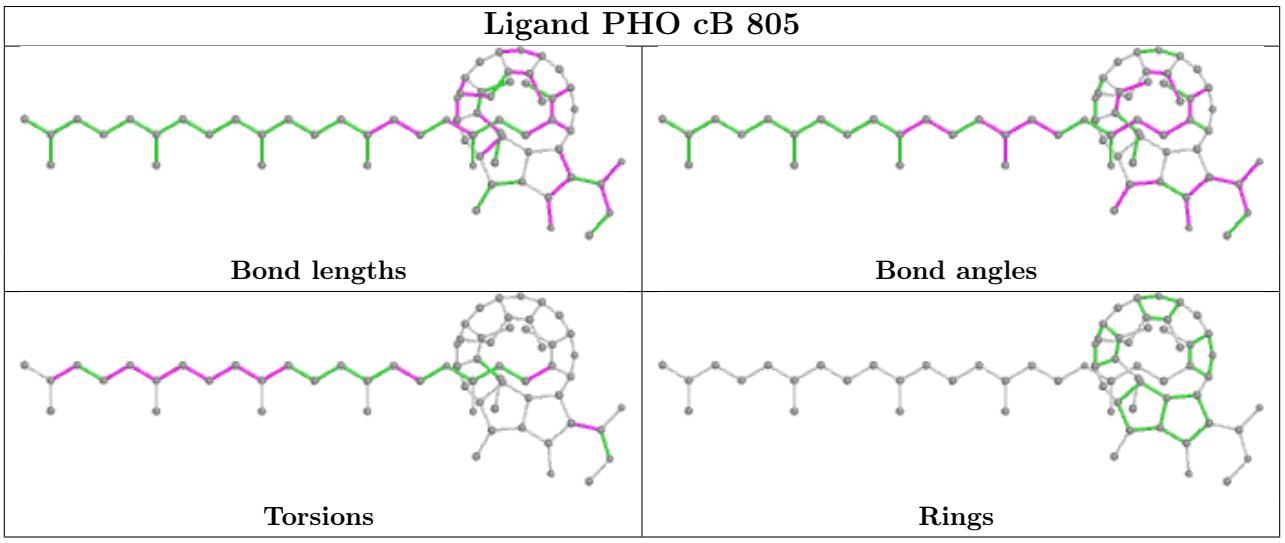
Ligand SF4 aC 102



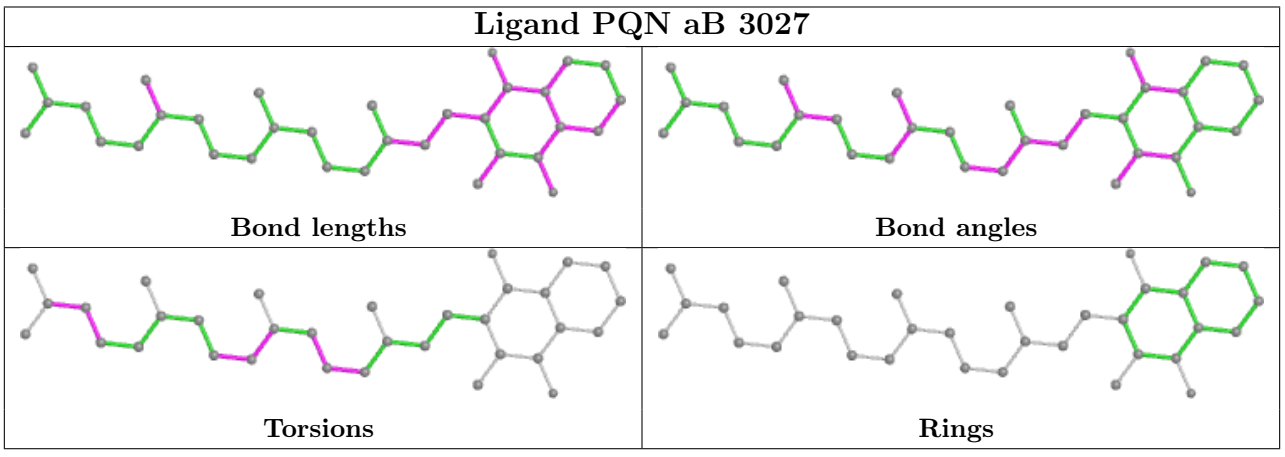
Ligand CL7 aL 202



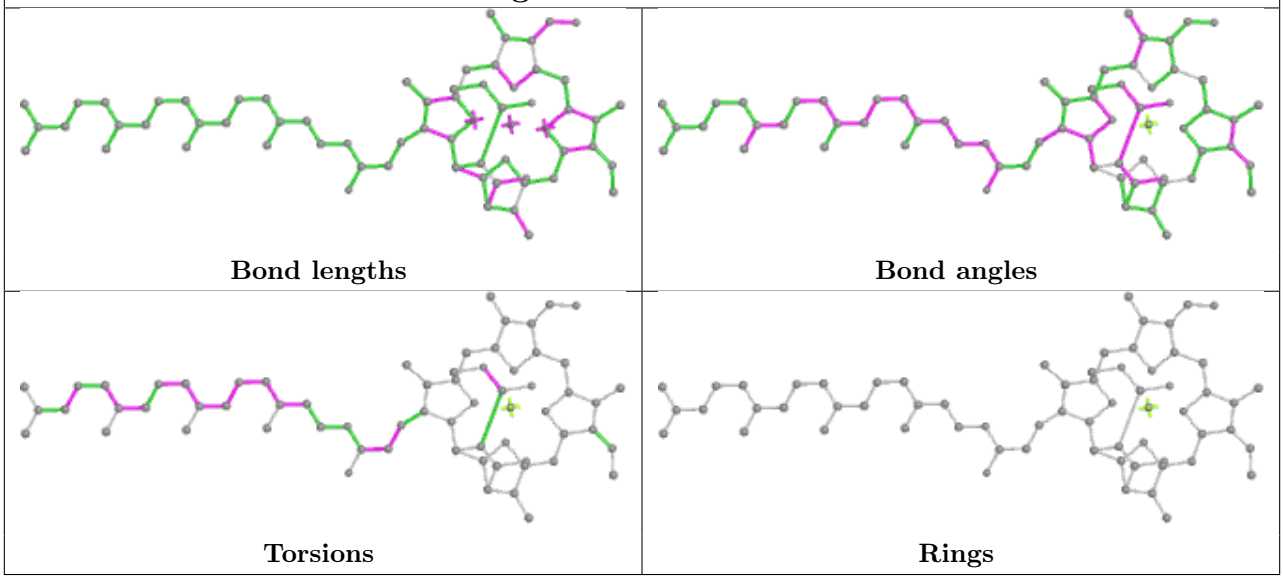
Ligand PHO cB 805



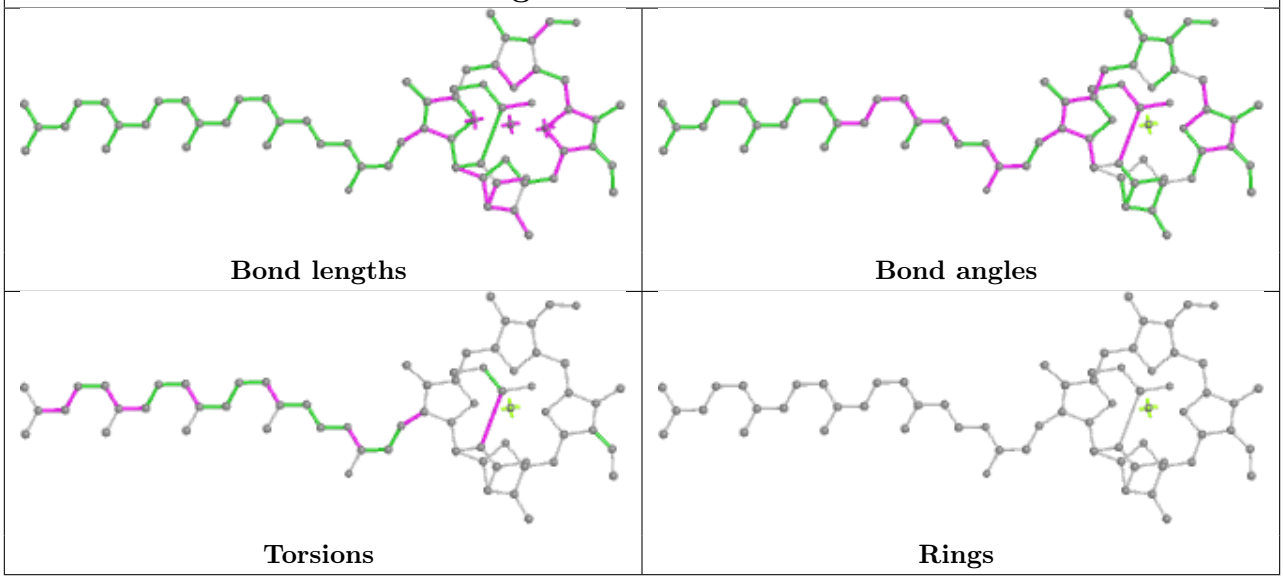
Ligand PQN aB 3027



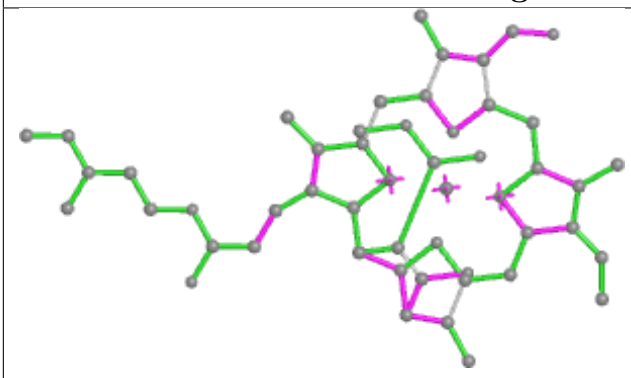
Ligand CL7 aA 3115



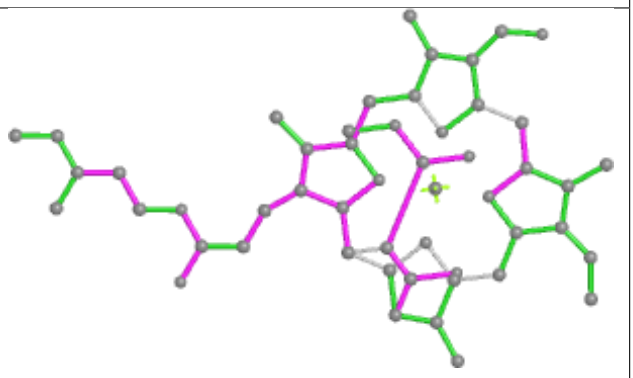
Ligand CL7 aB 3019



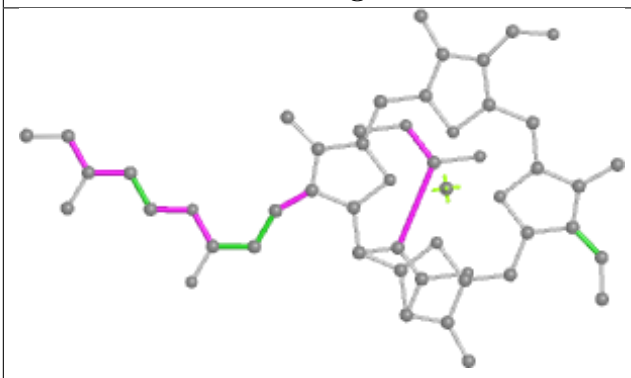
Ligand CL7 aA 3128



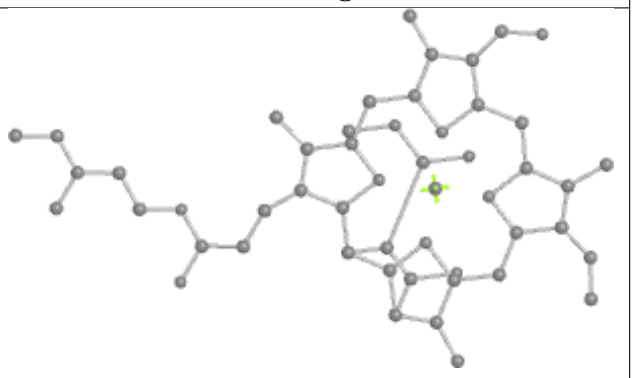
Bond lengths



Bond angles

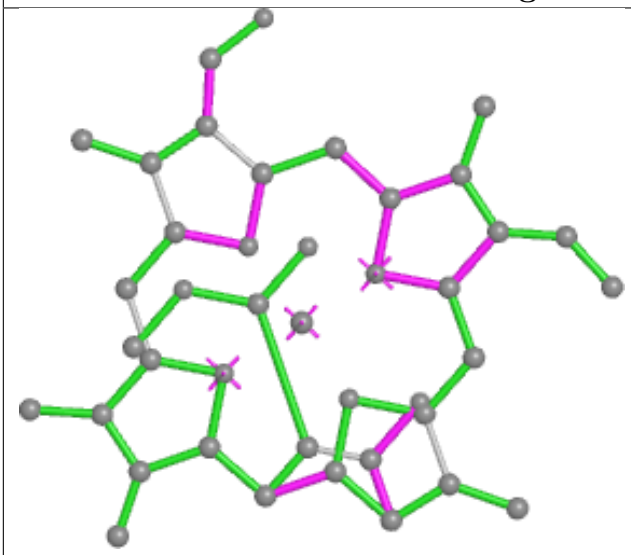


Torsions

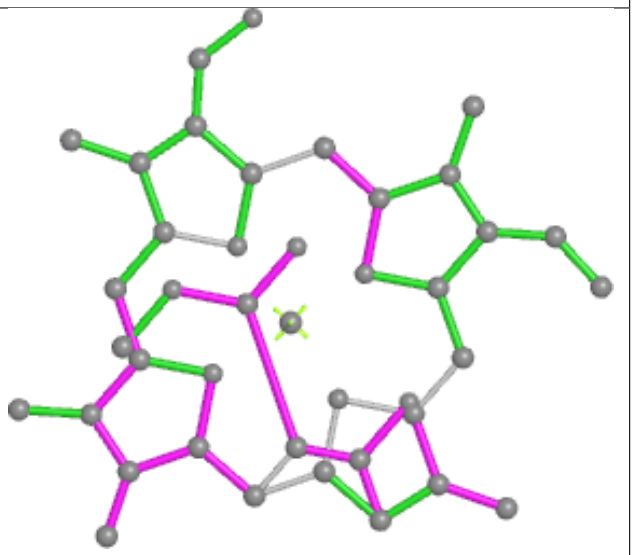


Rings

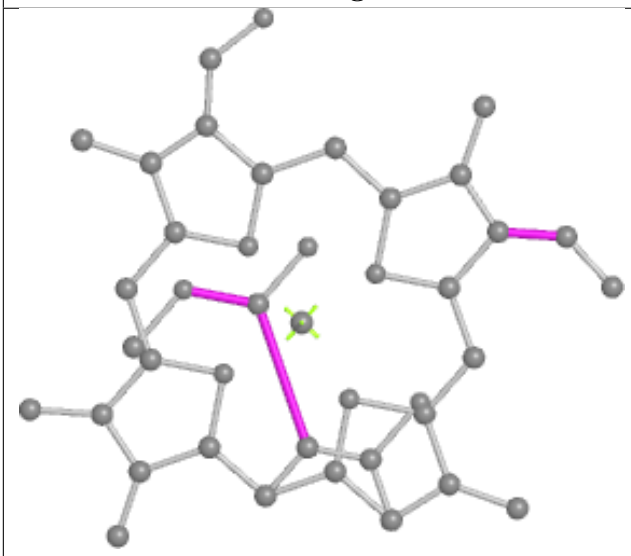
Ligand CL7 bB 823



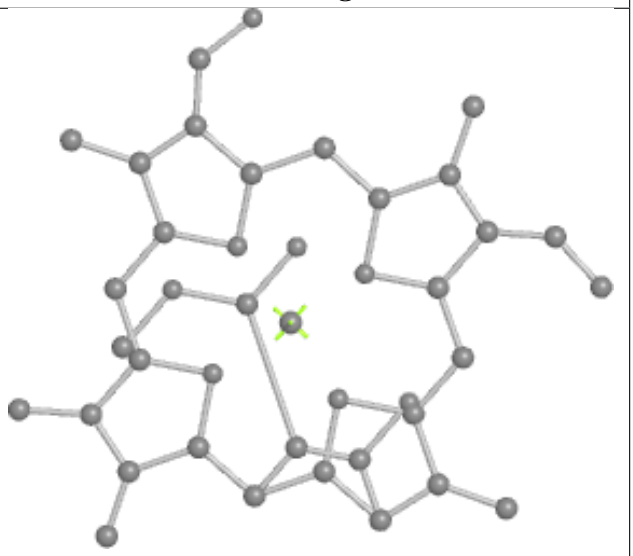
Bond lengths



Bond angles

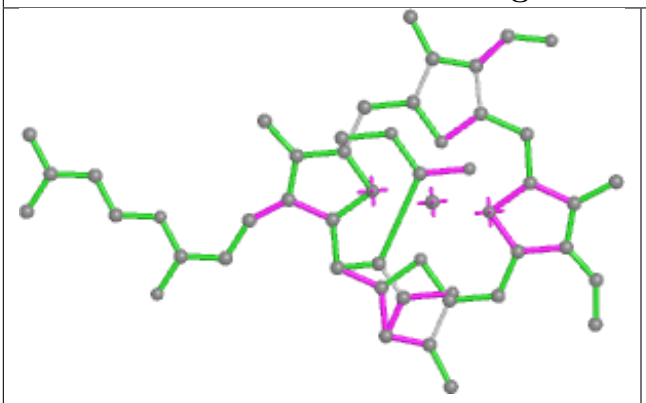


Torsions

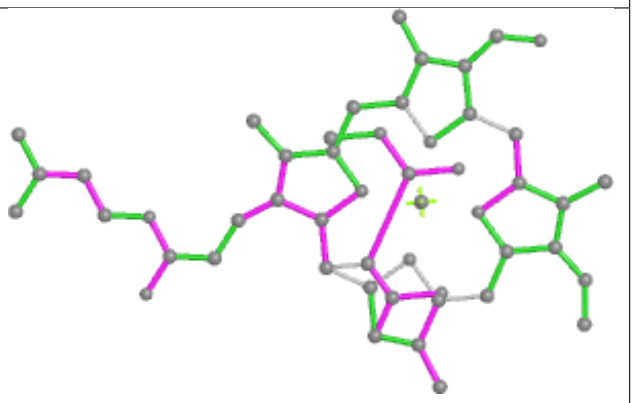


Rings

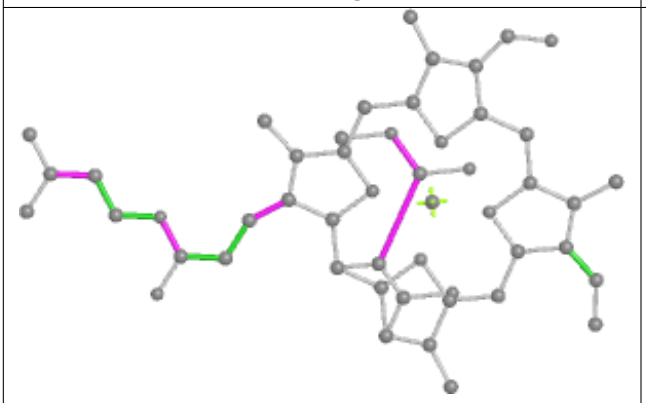
Ligand CL7 cA 3122



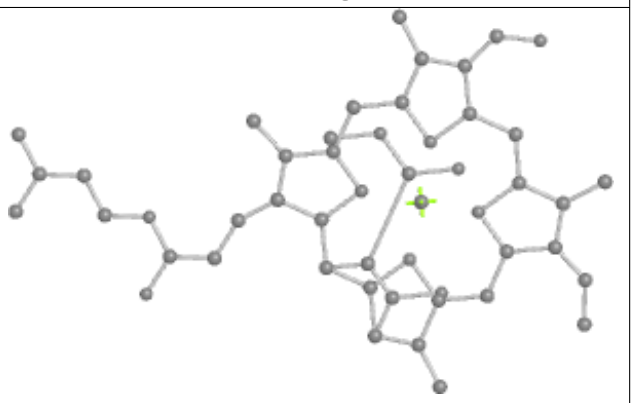
Bond lengths



Bond angles

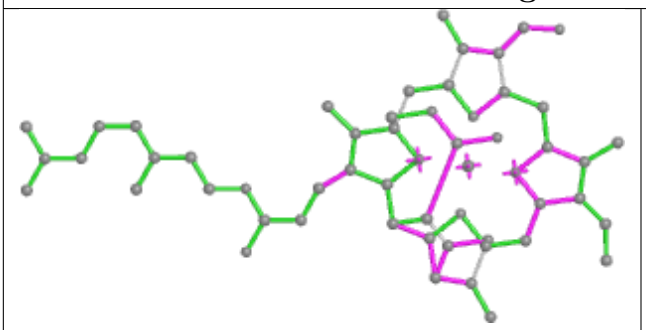


Torsions

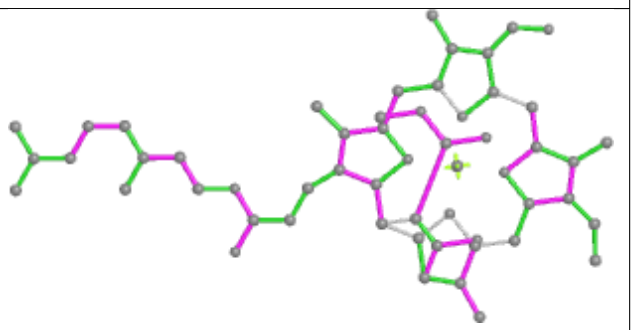


Rings

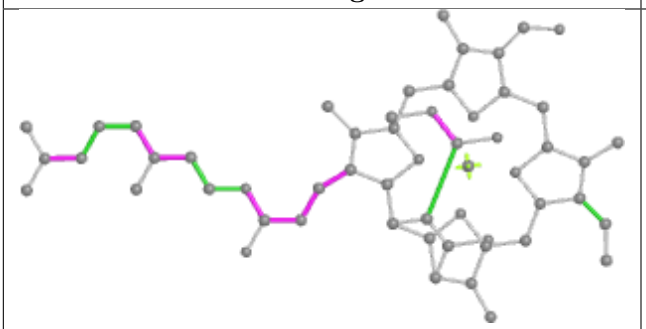
Ligand CL7 bB 833



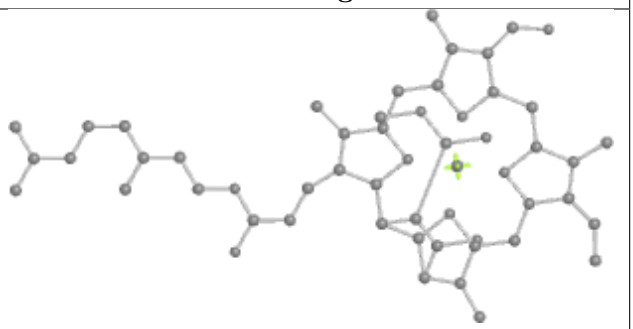
Bond lengths



Bond angles

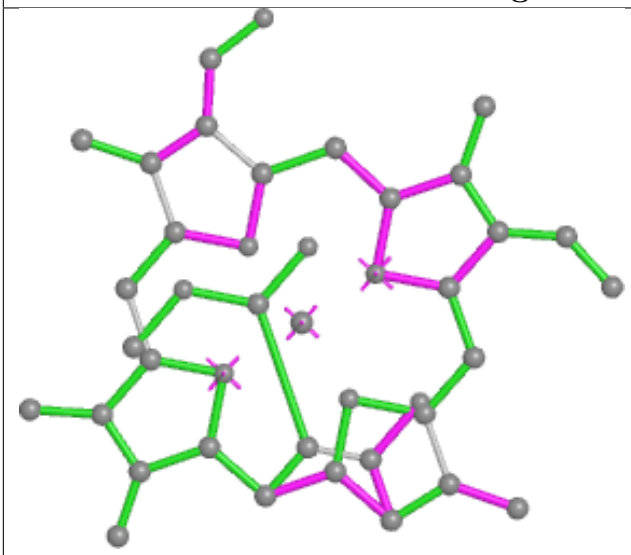


Torsions

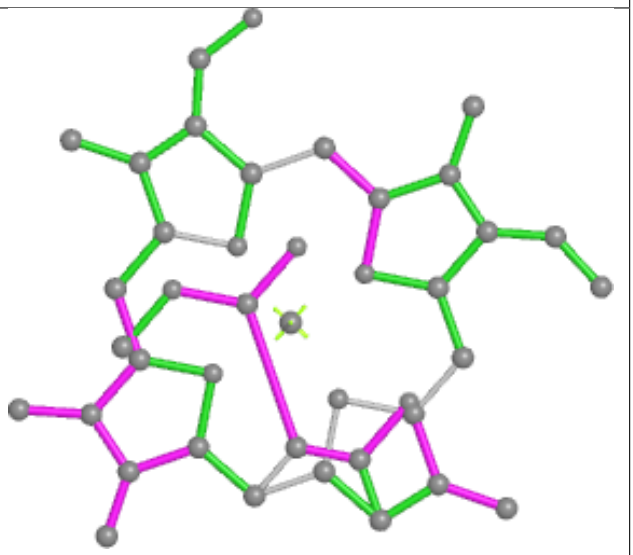


Rings

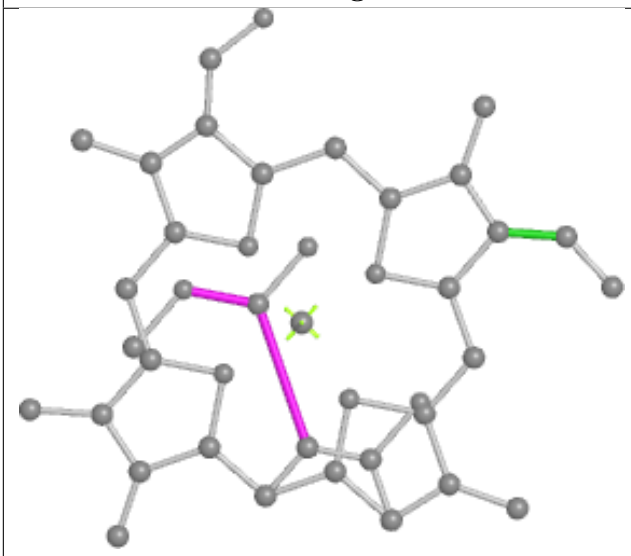
Ligand CL7 cA 3131



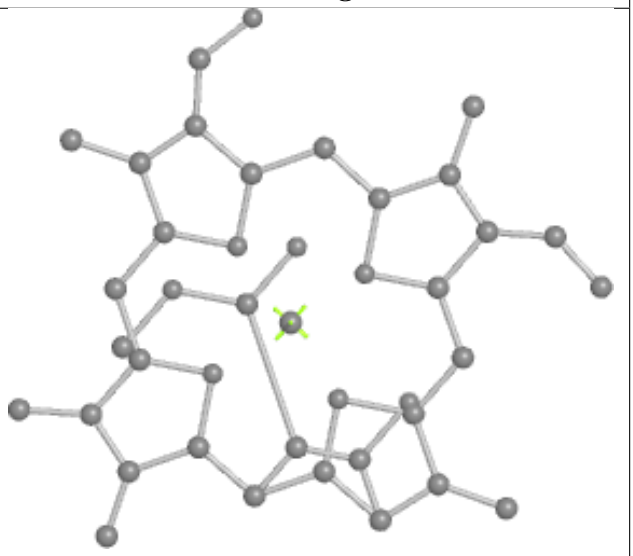
Bond lengths



Bond angles

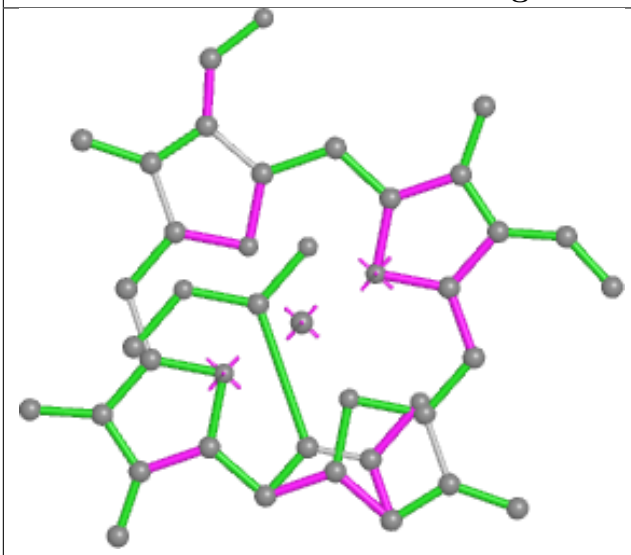


Torsions

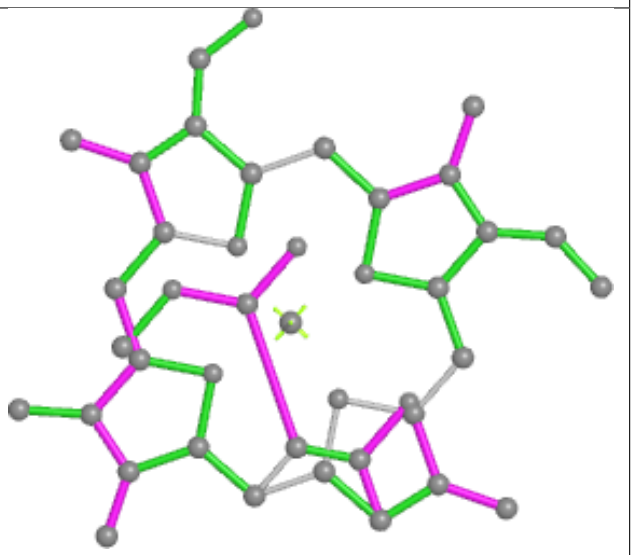


Rings

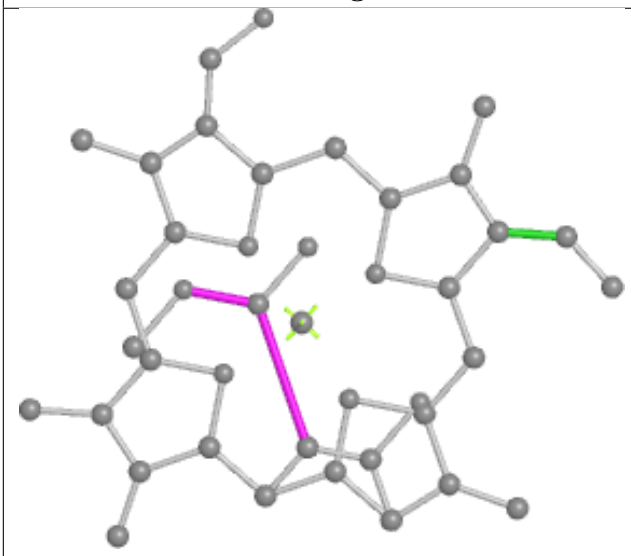
Ligand CL7 aB 3021



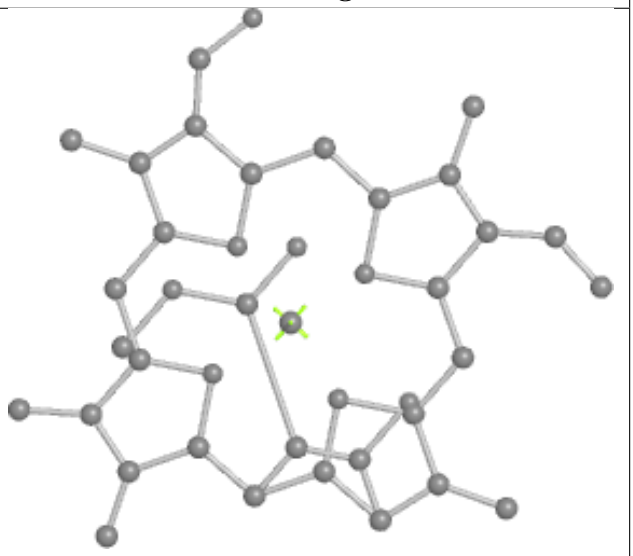
Bond lengths



Bond angles

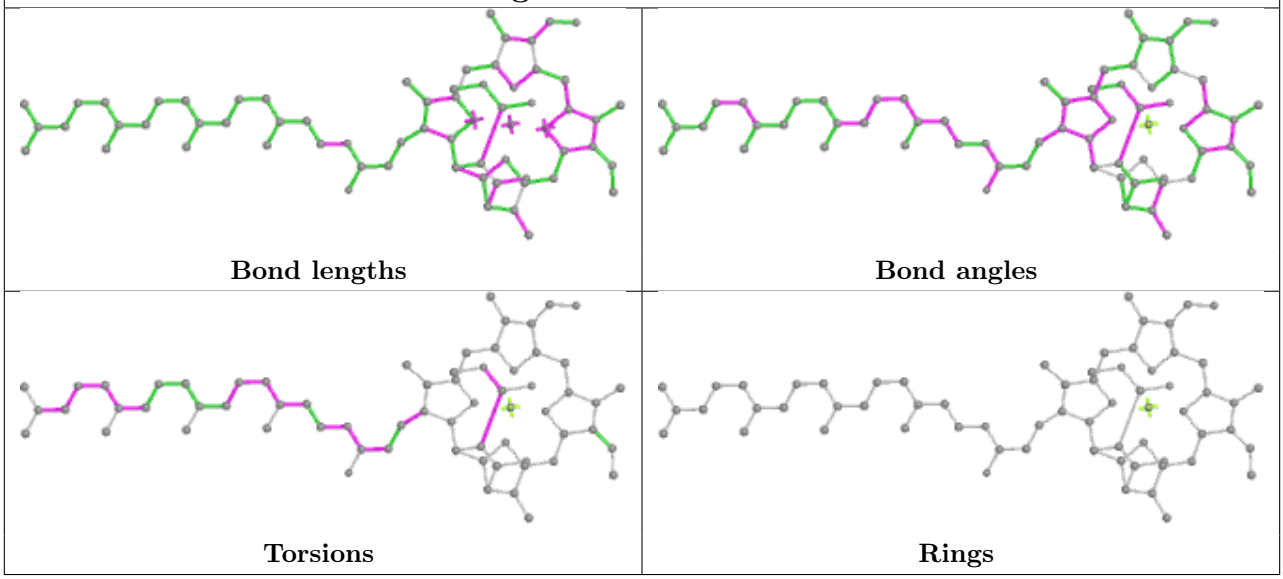


Torsions

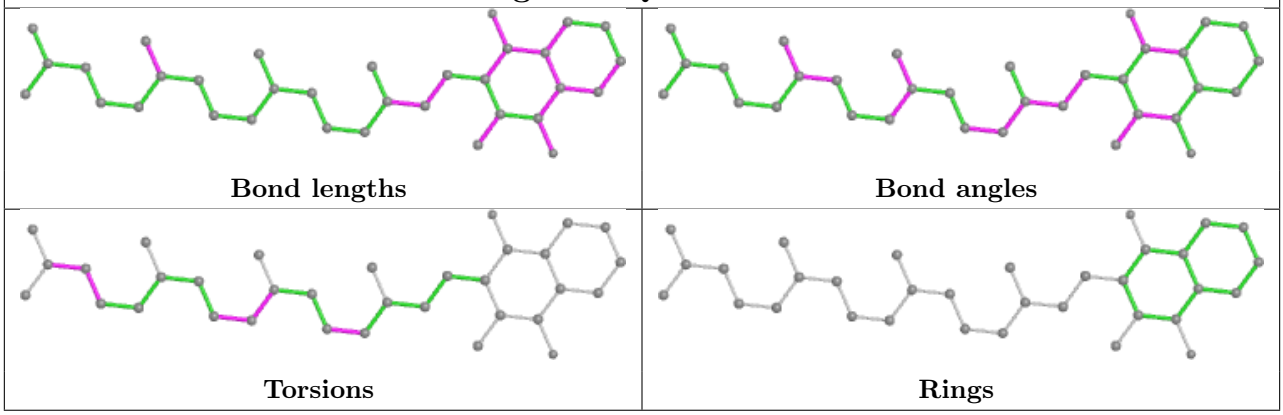


Rings

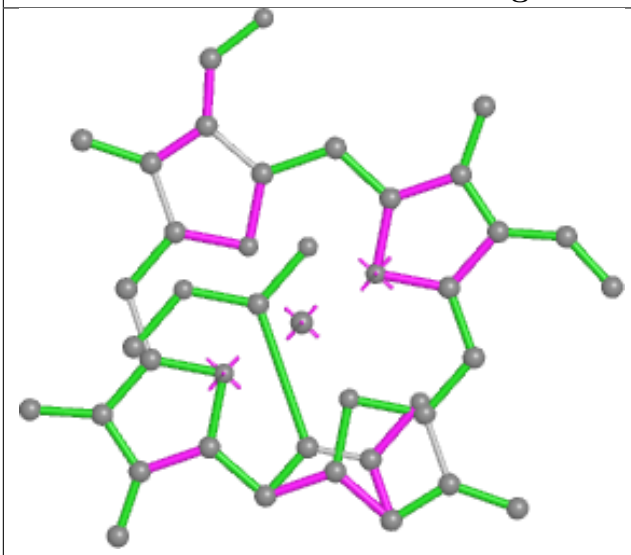
Ligand CL7 aA 3107



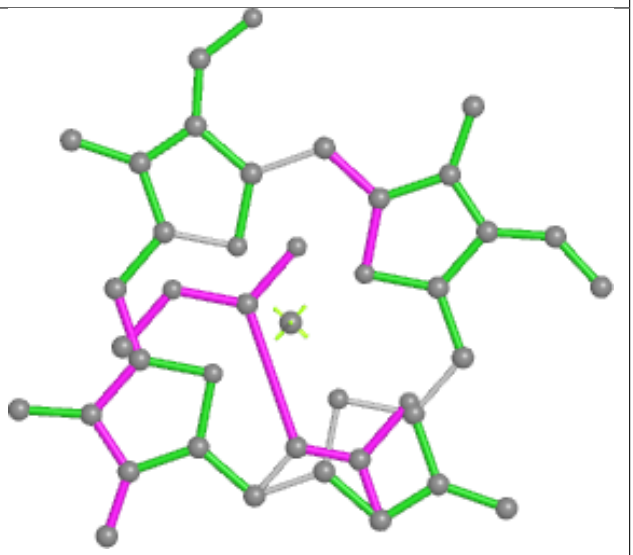
Ligand PQN bB 828



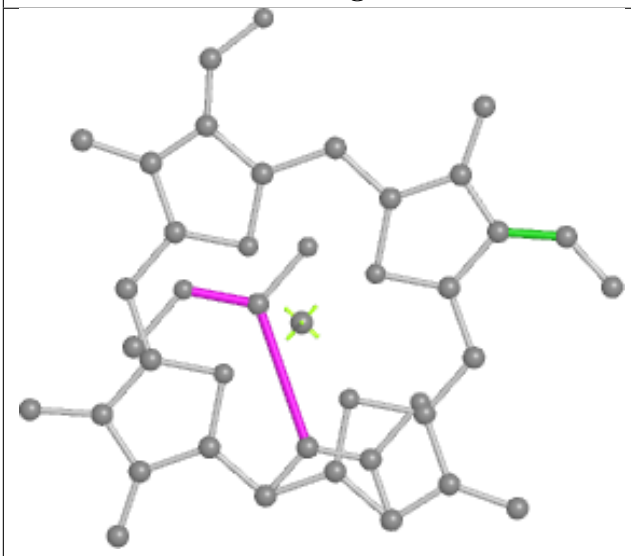
Ligand CL7 aB 3013



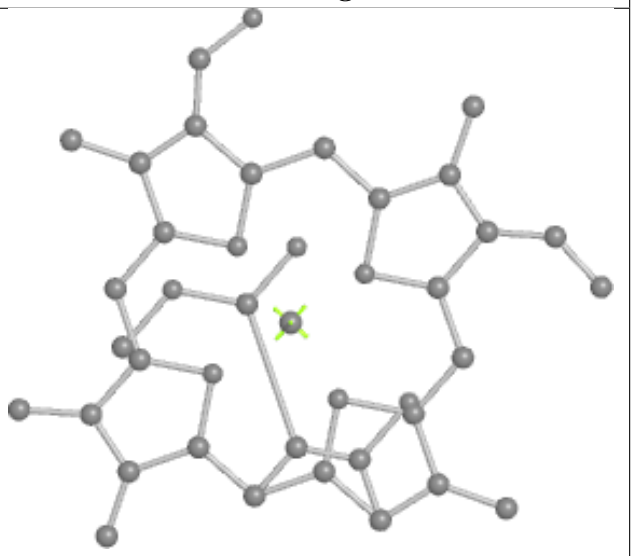
Bond lengths



Bond angles

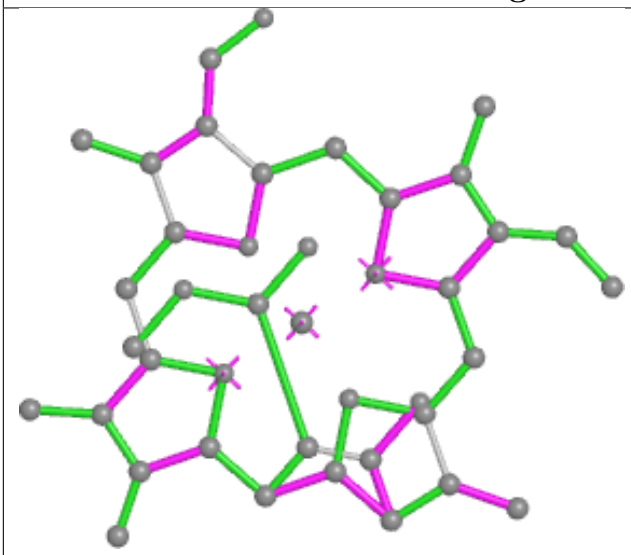


Torsions

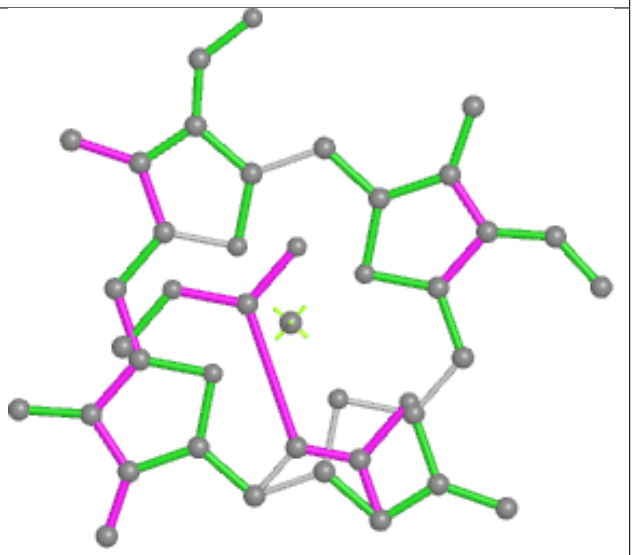


Rings

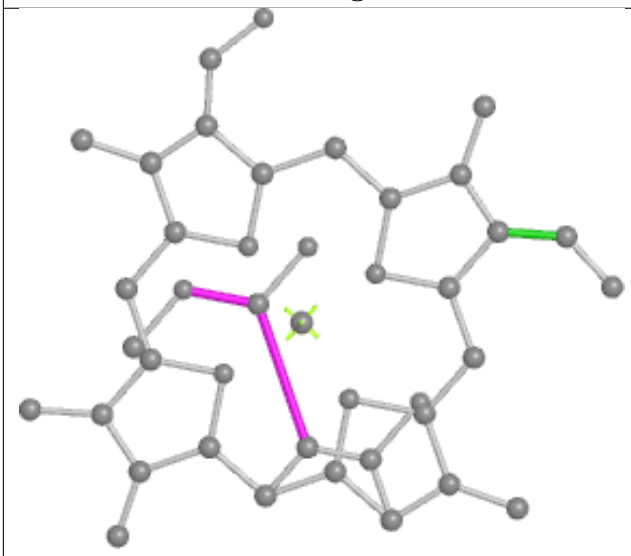
Ligand CL7 bA 3103



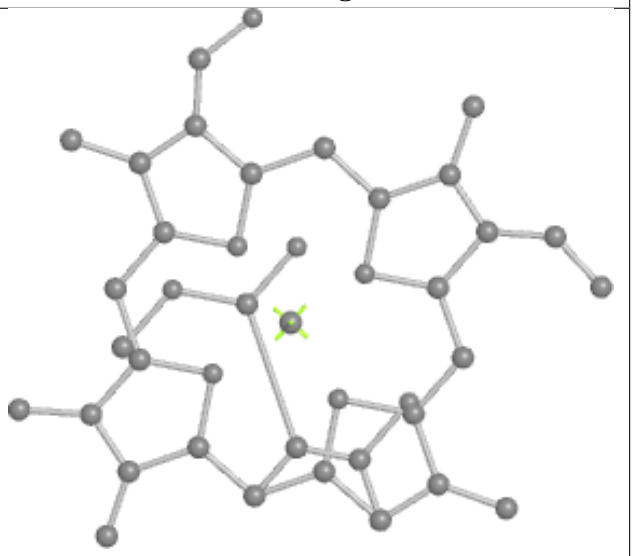
Bond lengths



Bond angles

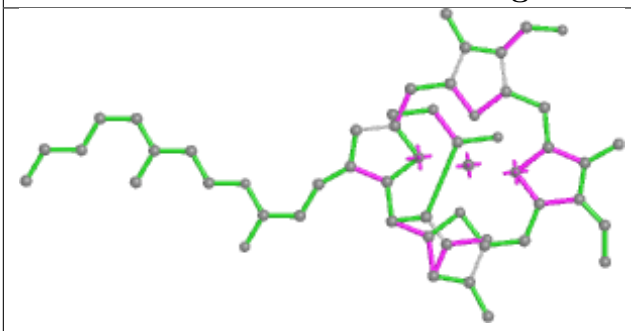


Torsions

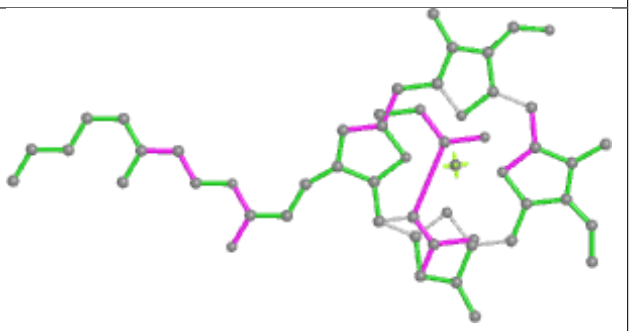


Rings

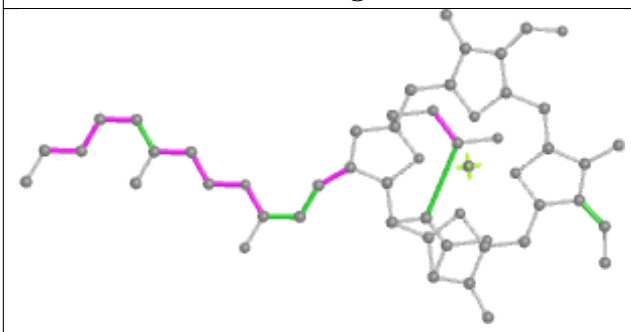
Ligand CL7 cA 3126



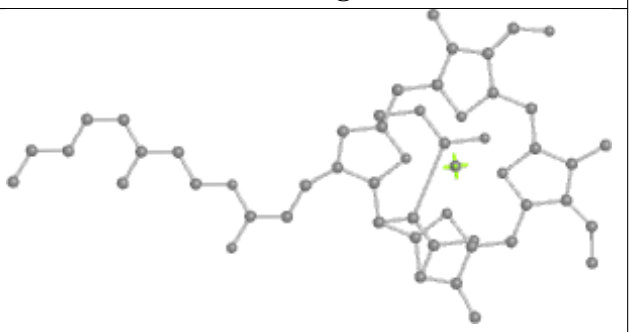
Bond lengths



Bond angles

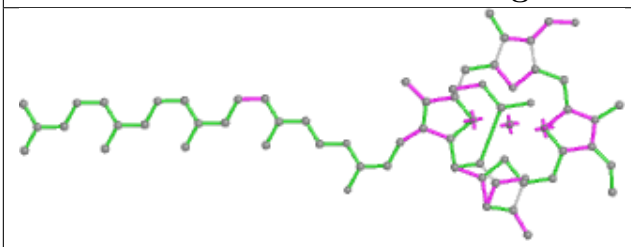


Torsions

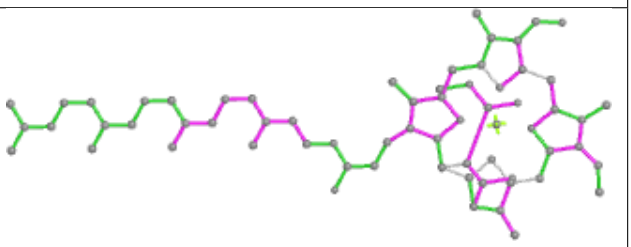


Rings

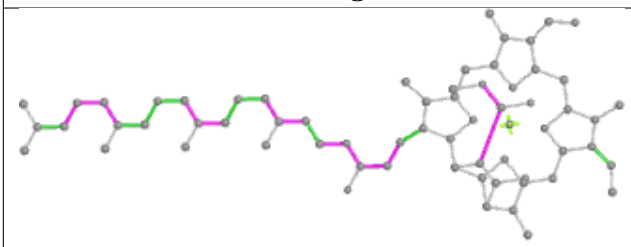
Ligand CL7 aB 3009



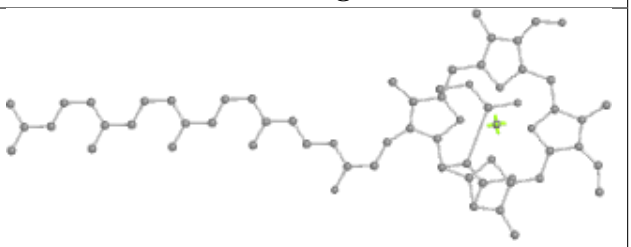
Bond lengths



Bond angles

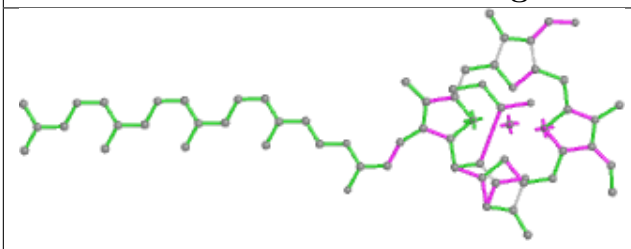


Torsions

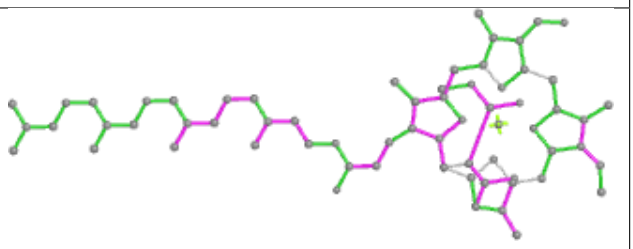


Rings

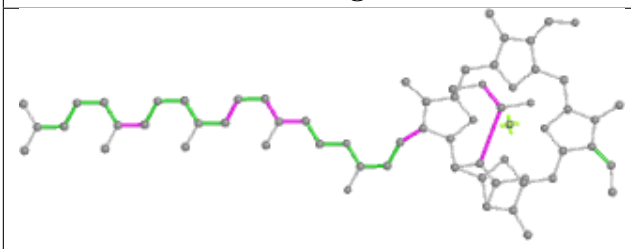
Ligand CL7 aA 3126



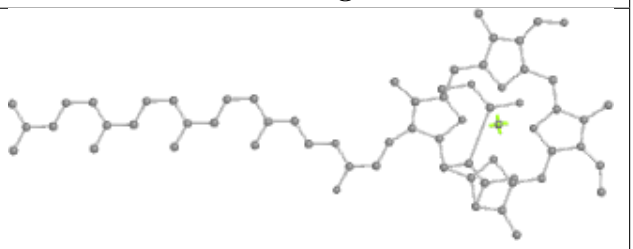
Bond lengths



Bond angles

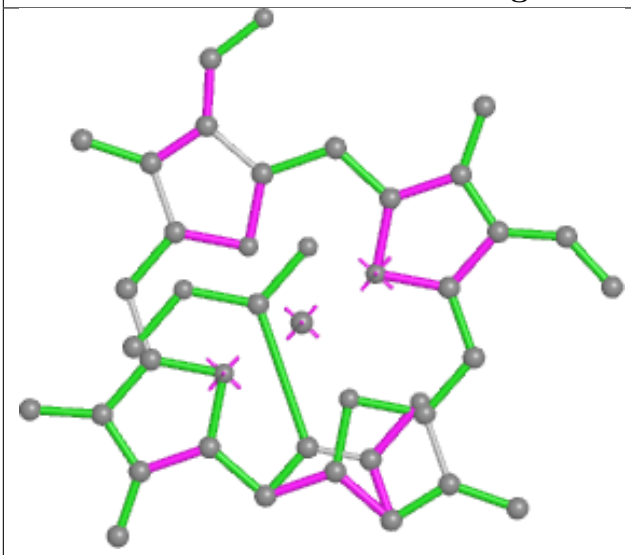


Torsions

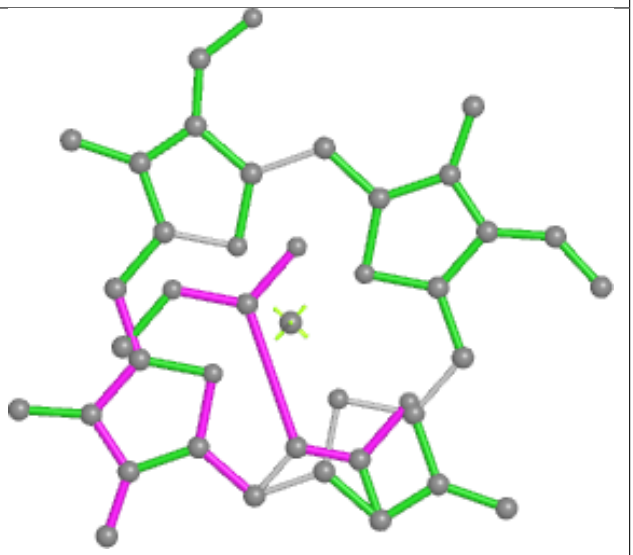


Rings

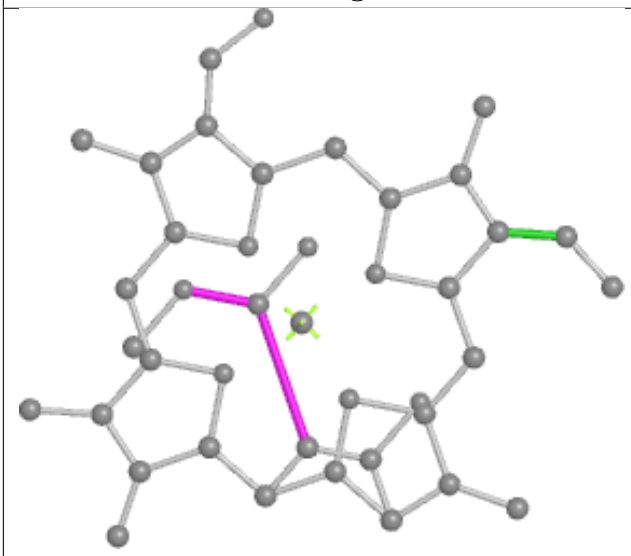
Ligand CL7 aA 3146



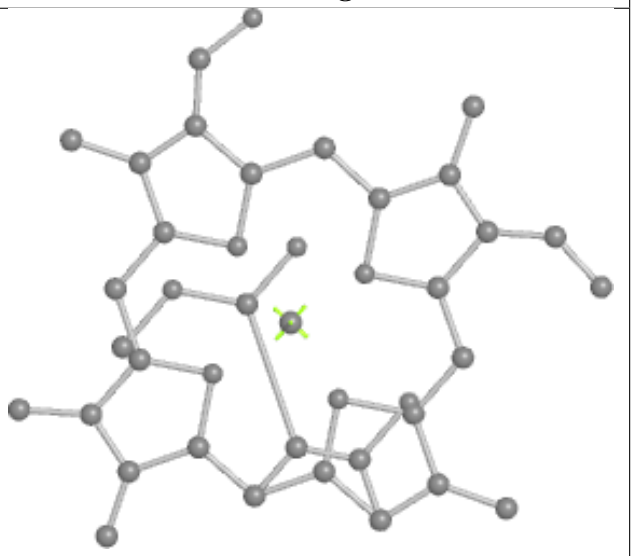
Bond lengths



Bond angles

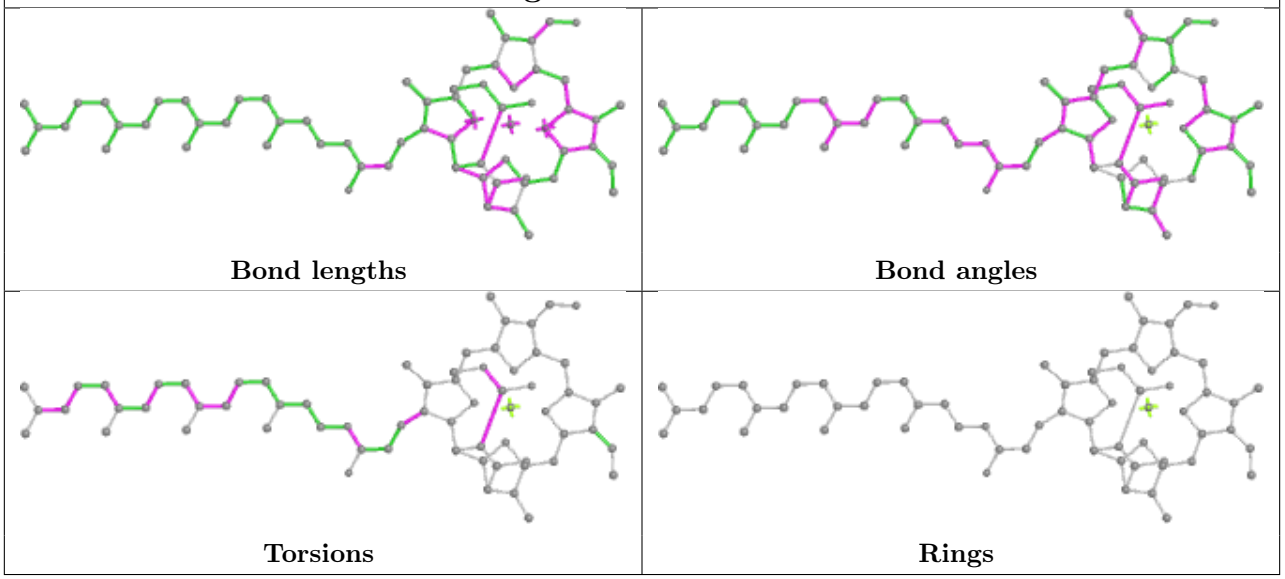


Torsions

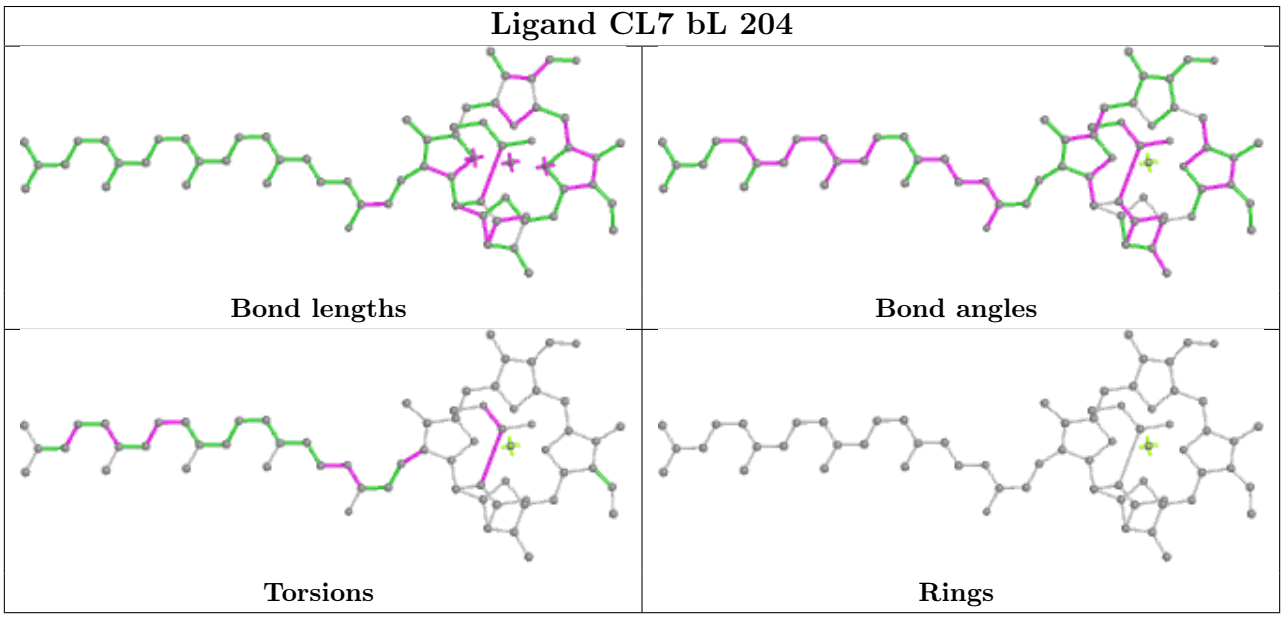


Rings

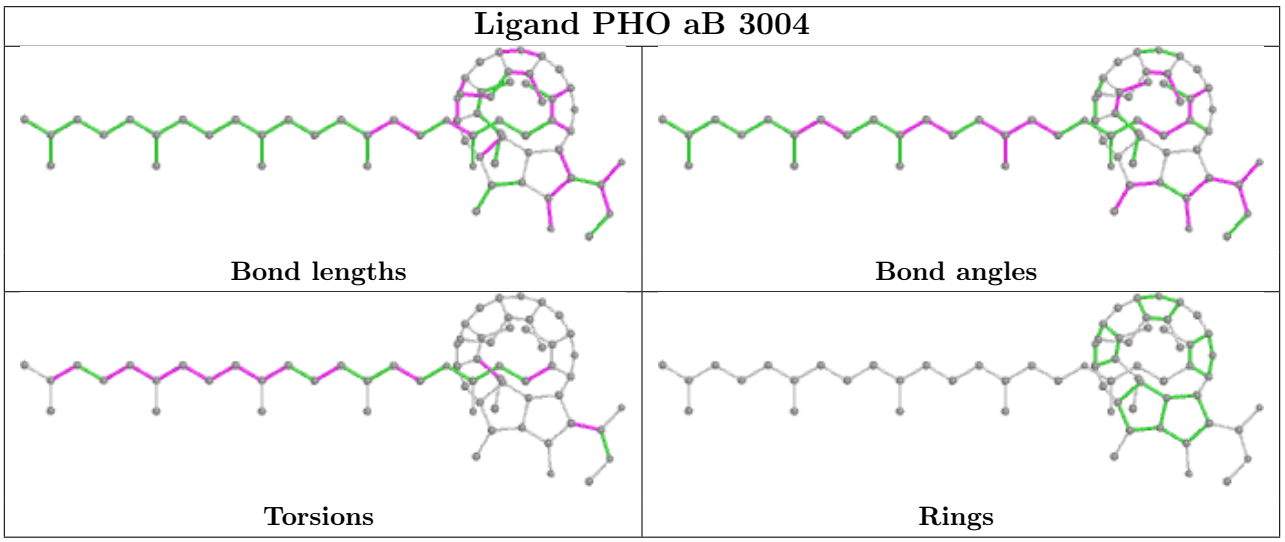
Ligand CL7 cL 204



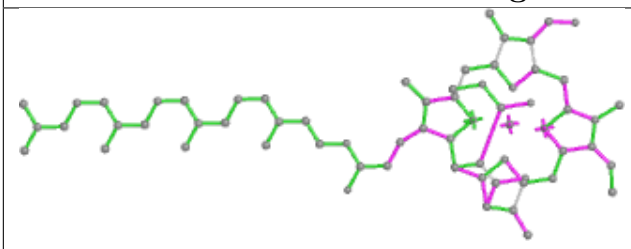
Ligand CL7 bL 204



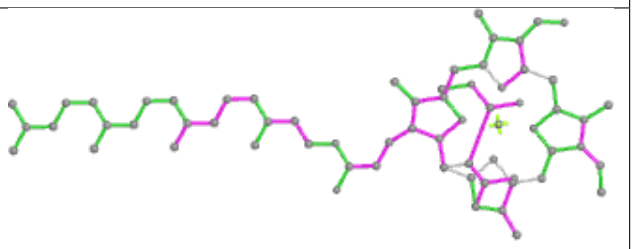
Ligand PHO aB 3004



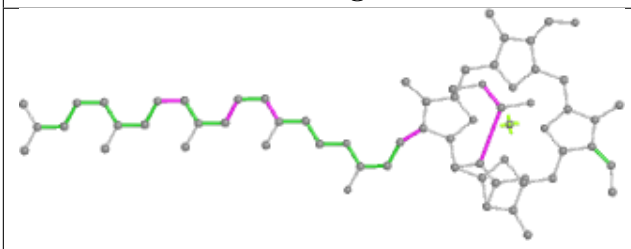
Ligand CL7 bA 3125



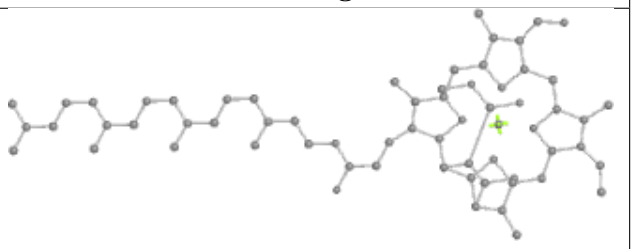
Bond lengths



Bond angles

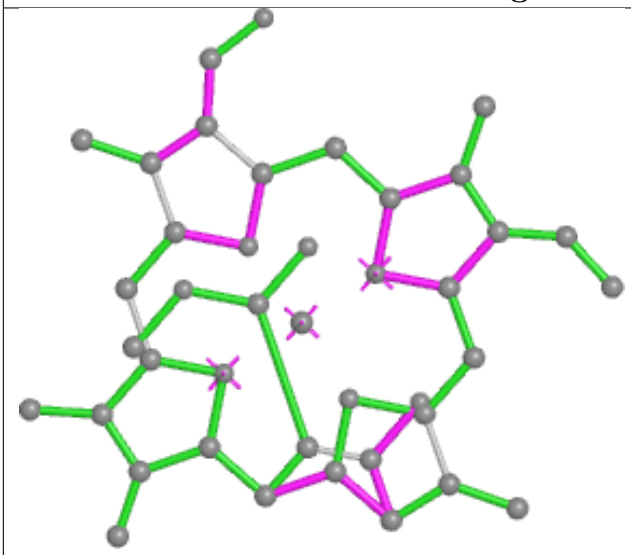


Torsions

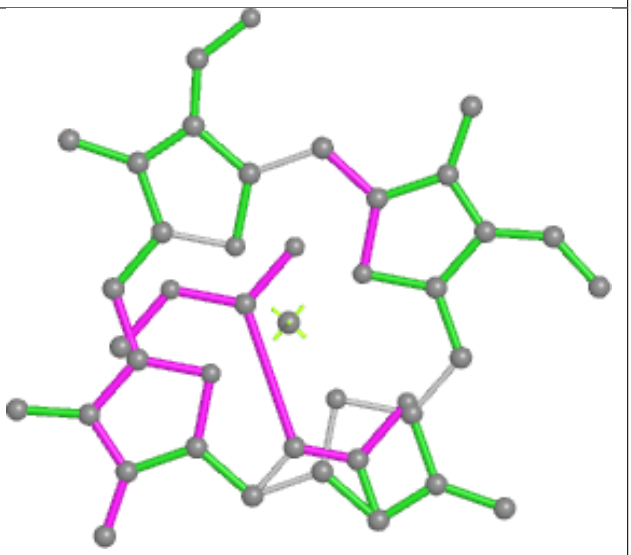


Rings

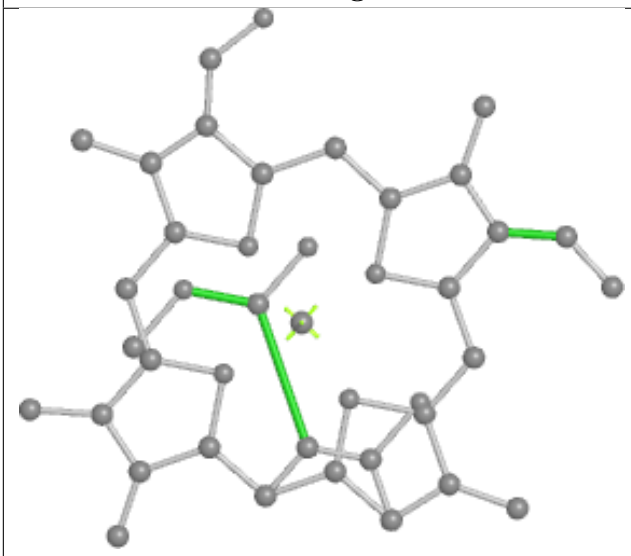
Ligand CL7 aA 3110



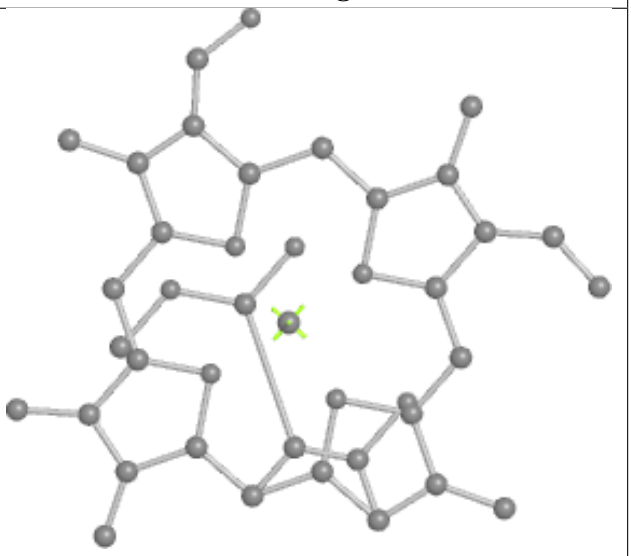
Bond lengths



Bond angles

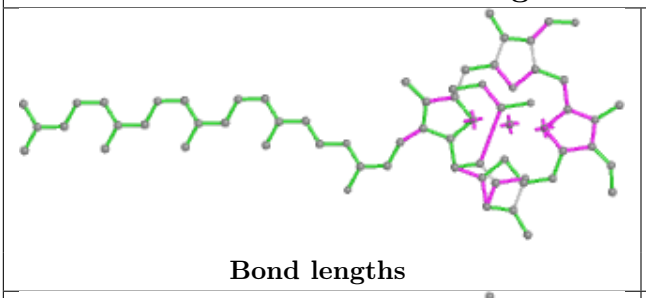


Torsions

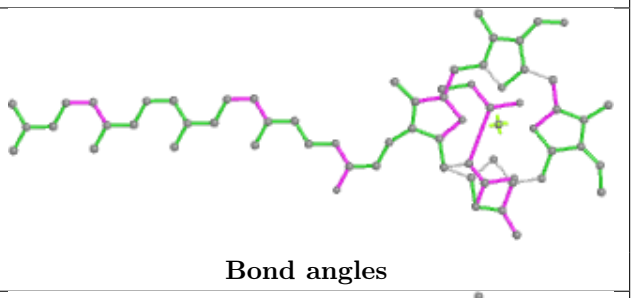


Rings

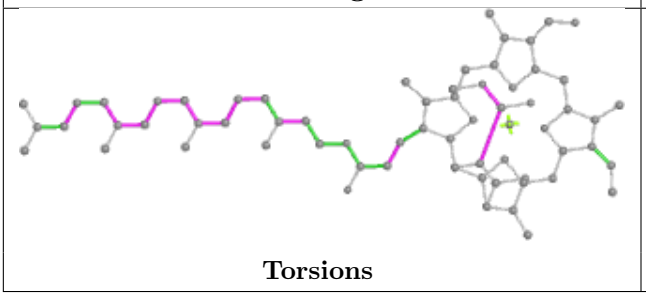
Ligand CL7 aB 3002



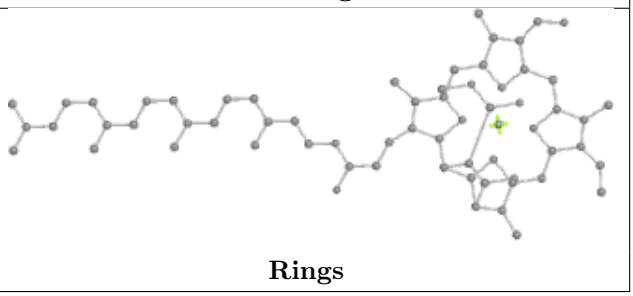
Bond lengths



Bond angles

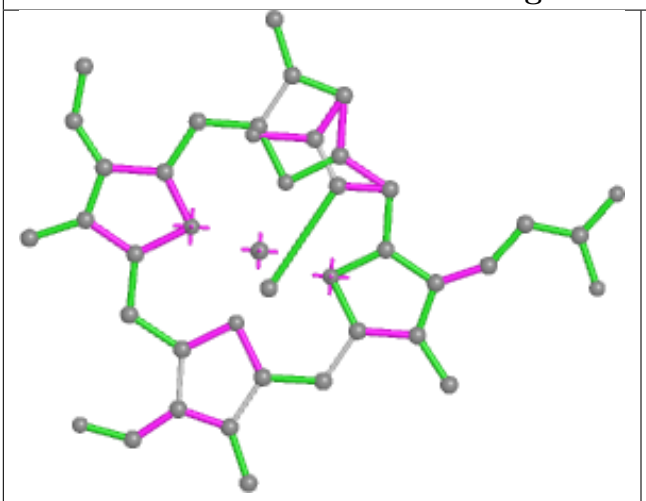


Torsions

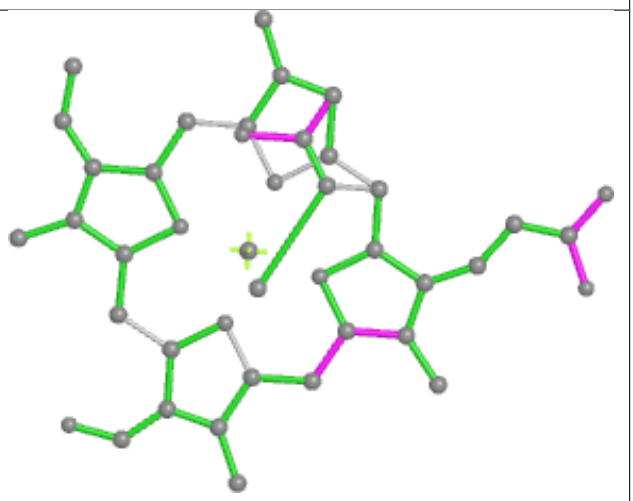


Rings

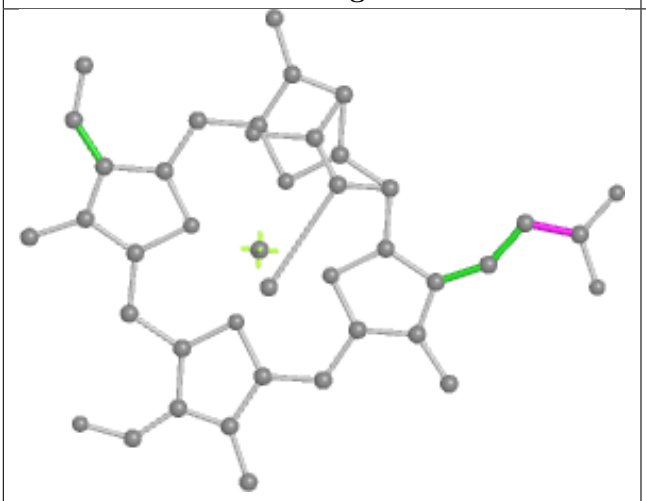
Ligand CL7 cJ 101



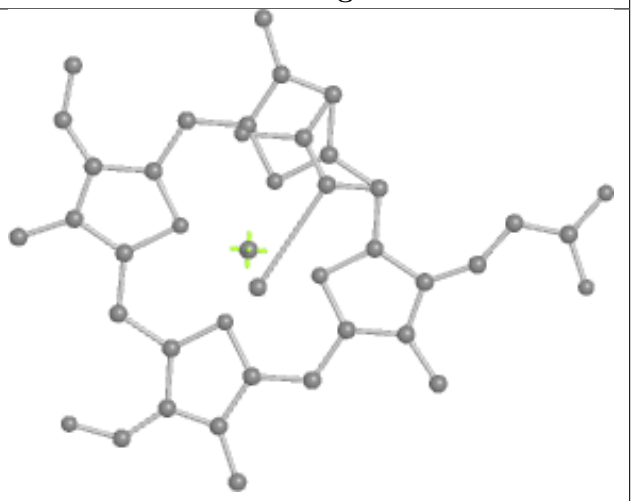
Bond lengths



Bond angles

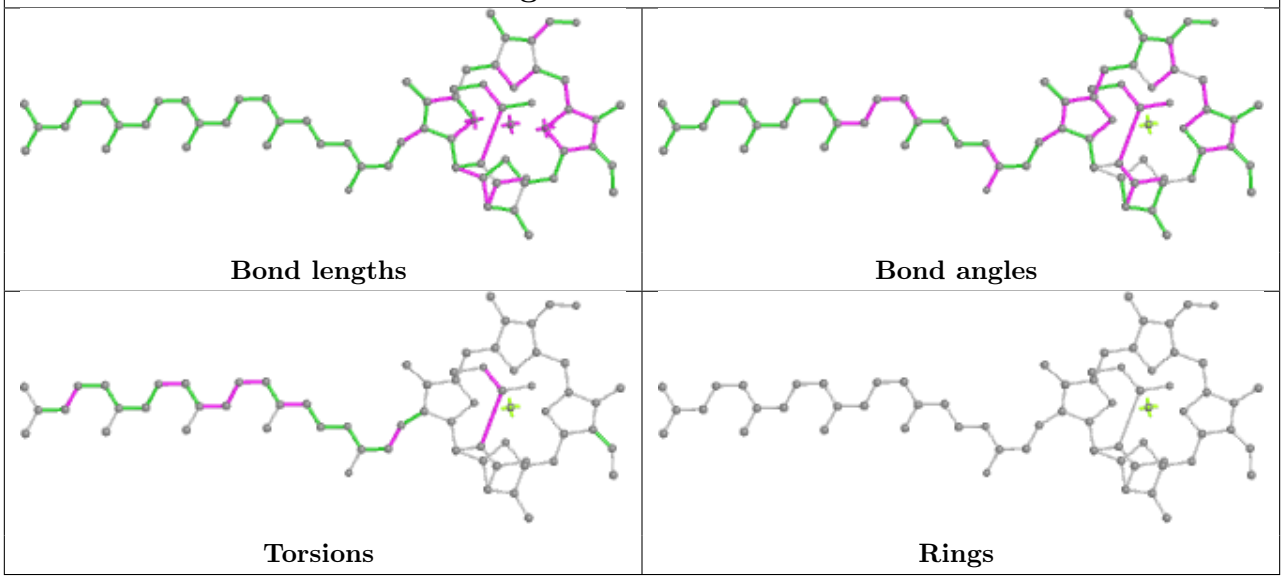


Torsions

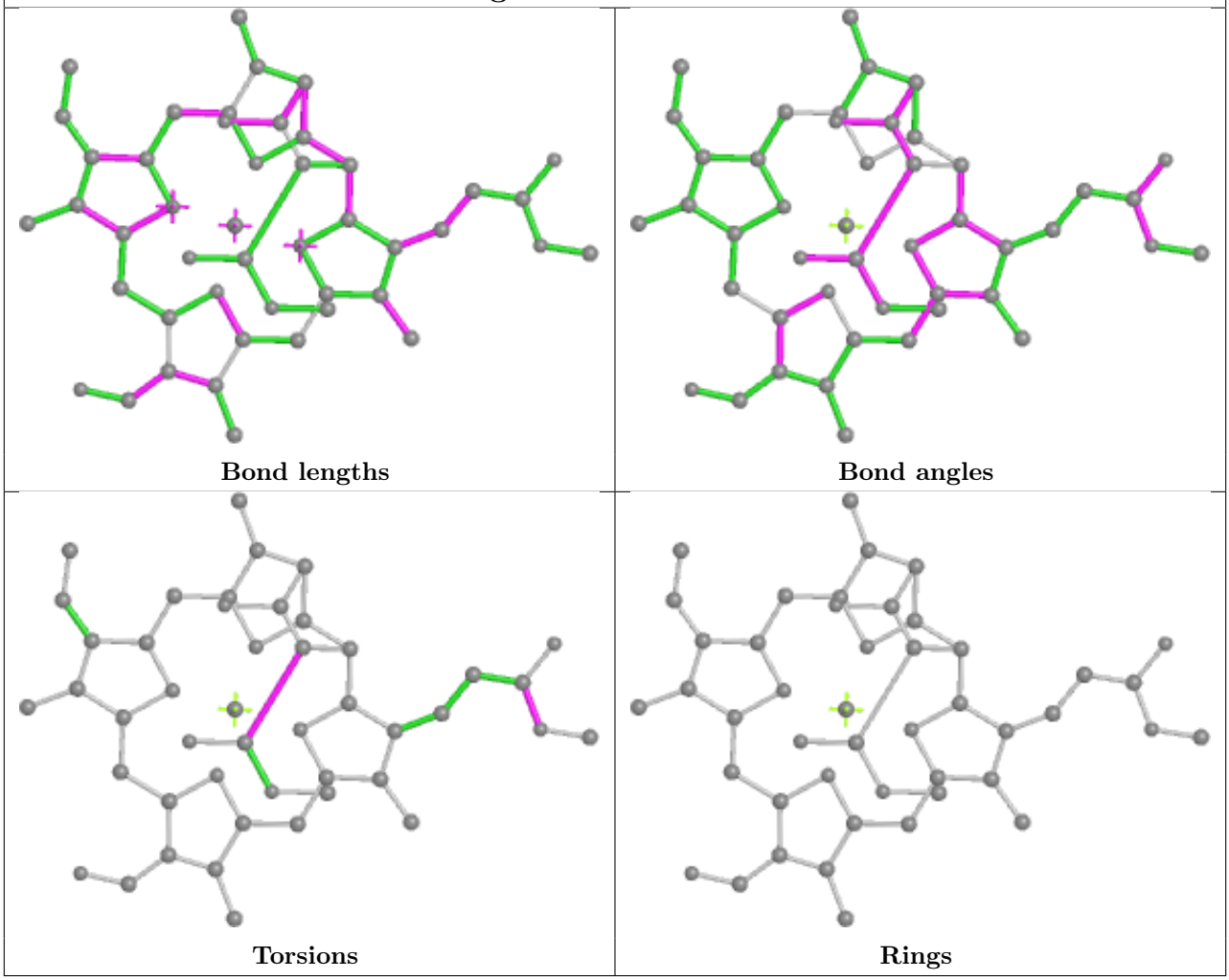


Rings

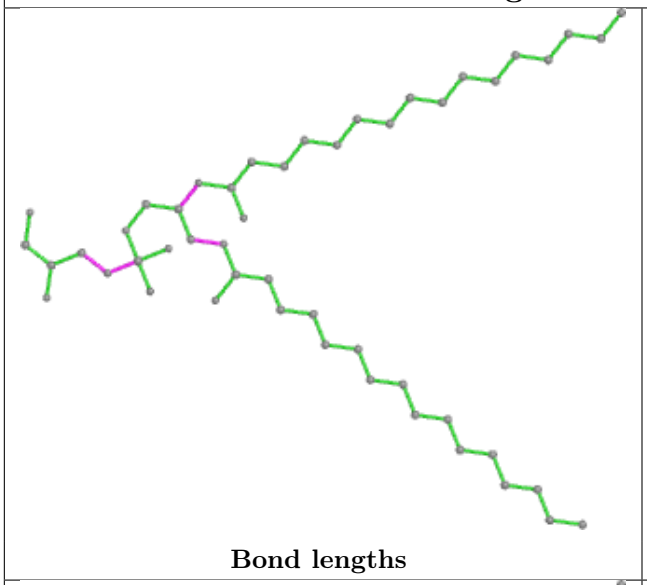
Ligand CL7 bB 803



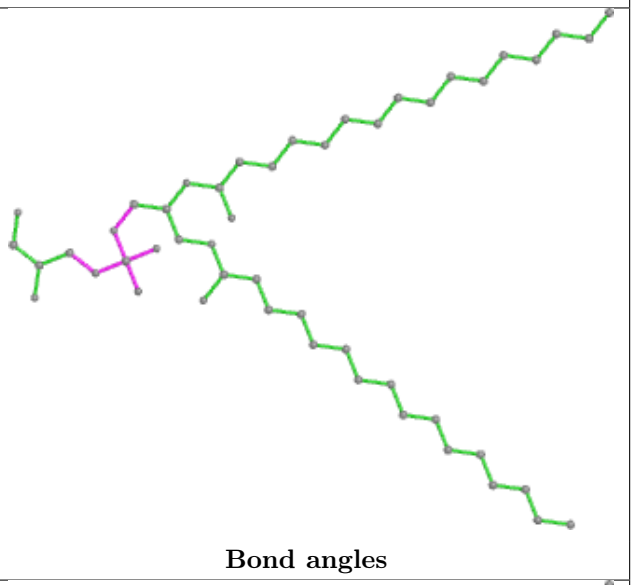
Ligand CL7 aA 3120



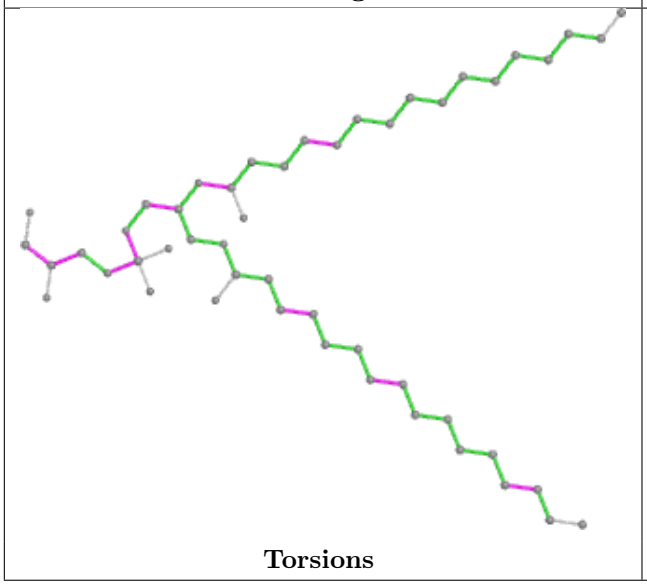
Ligand LHG aA 3138



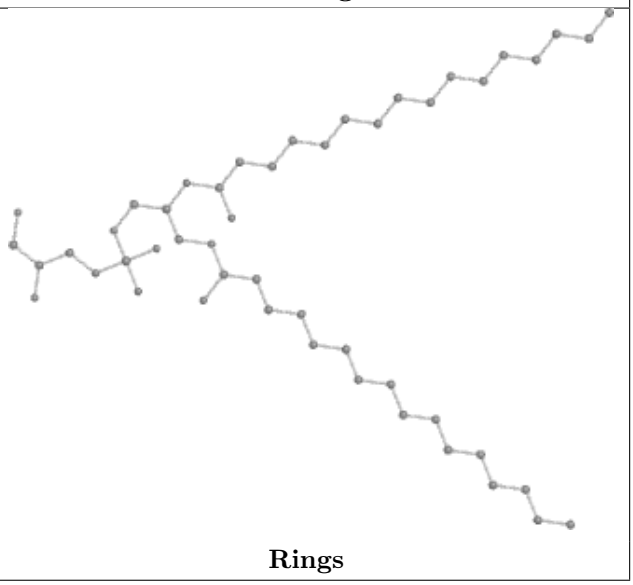
Bond lengths



Bond angles

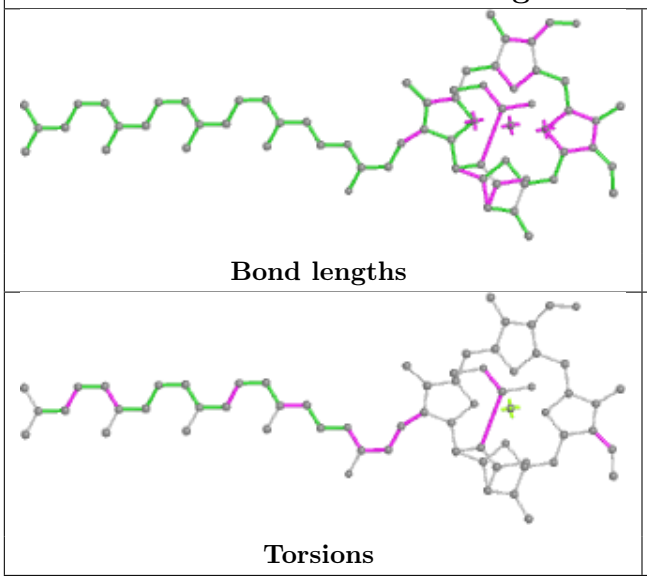


Torsions

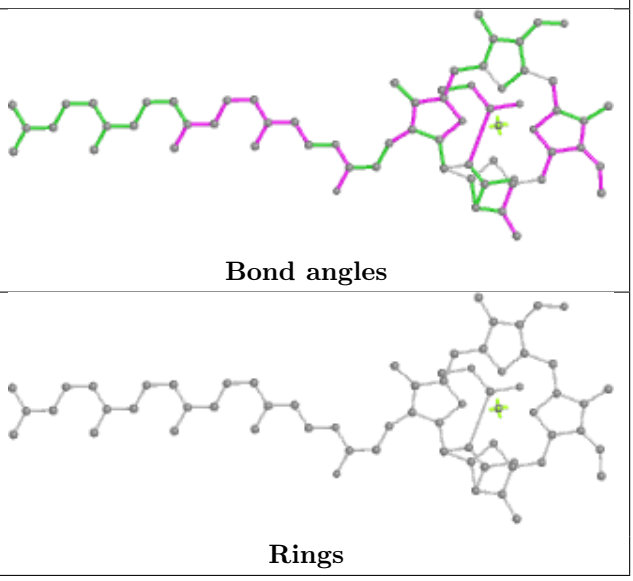


Rings

Ligand CL7 aB 3006



Bond lengths

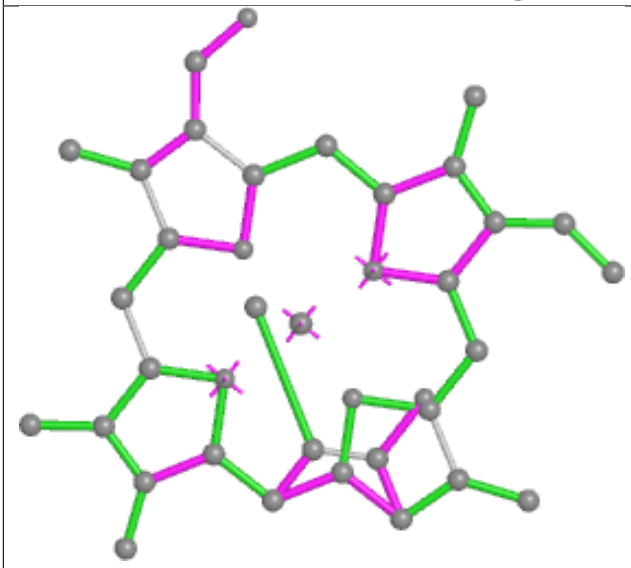


Bond angles

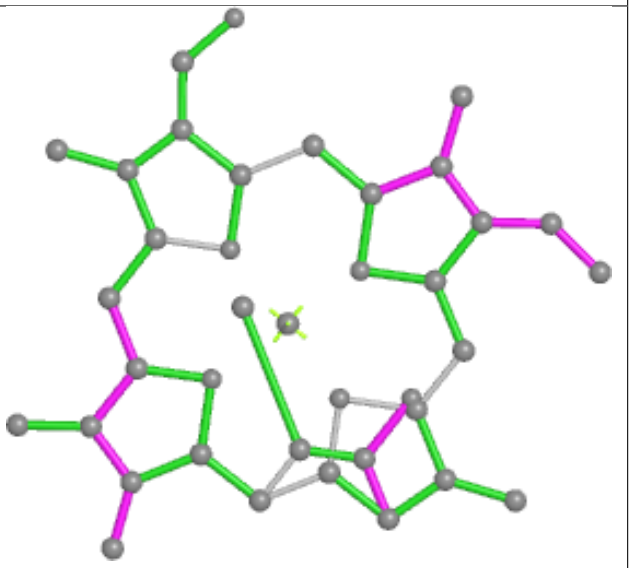
Torsions

Rings

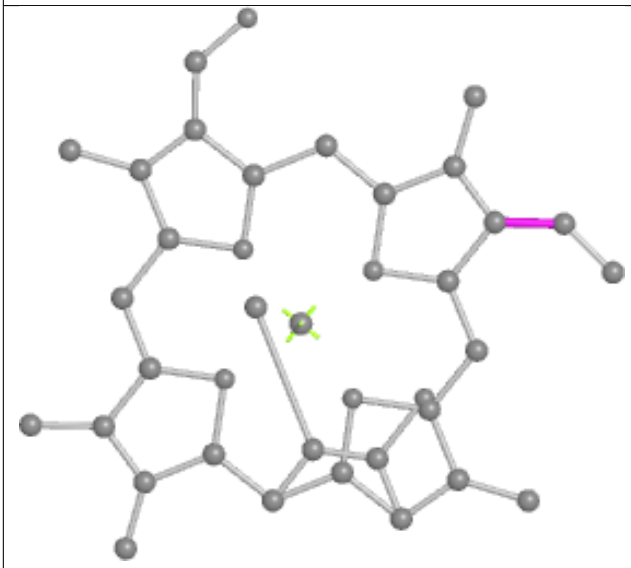
Ligand CL7 bA 3115



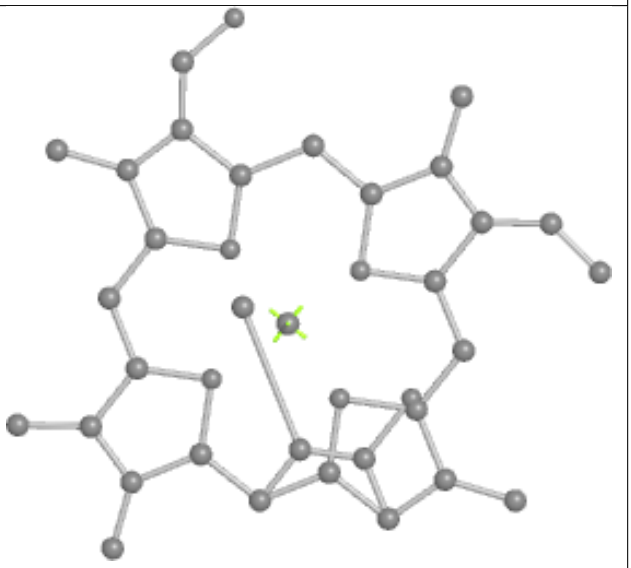
Bond lengths



Bond angles

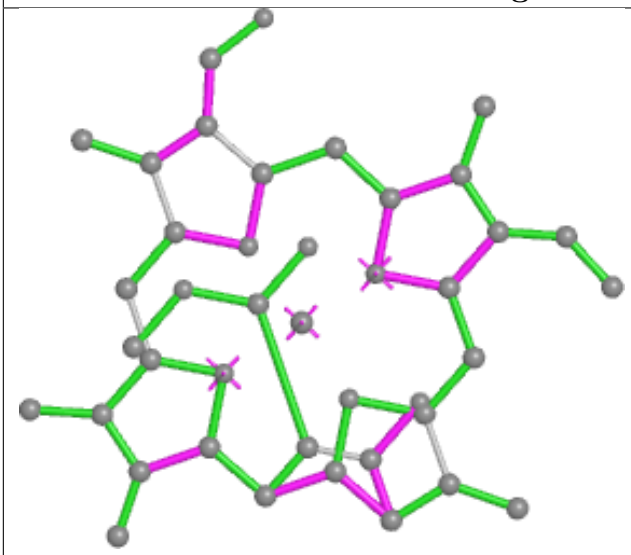


Torsions

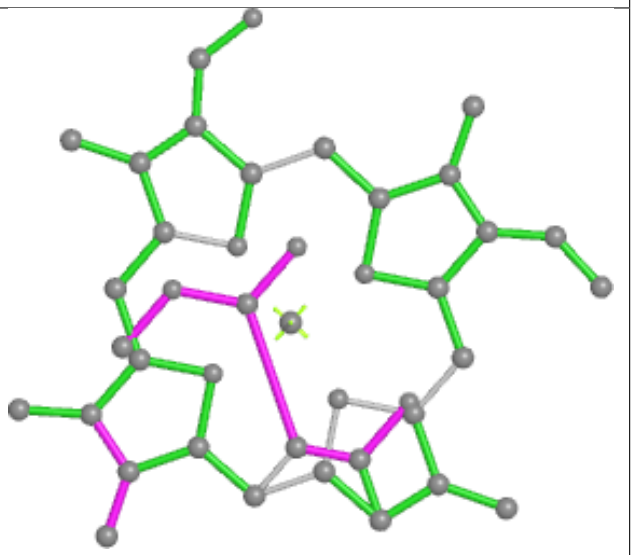


Rings

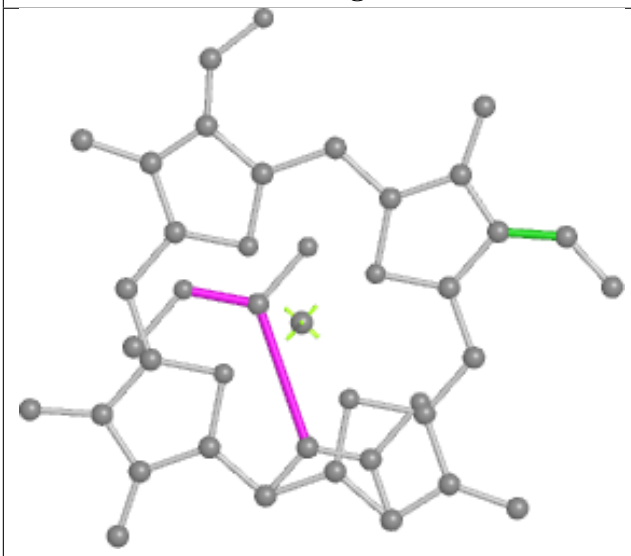
Ligand CL7 cA 3144



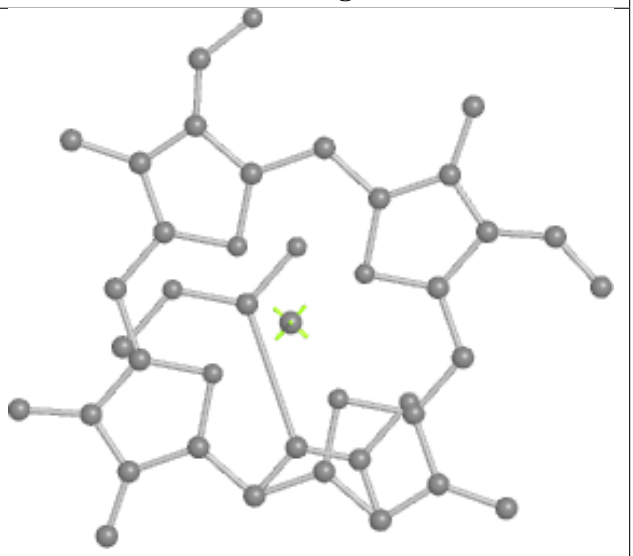
Bond lengths



Bond angles

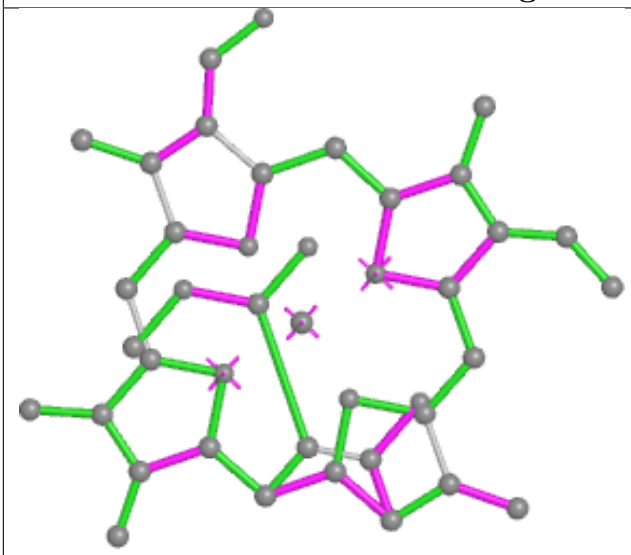


Torsions

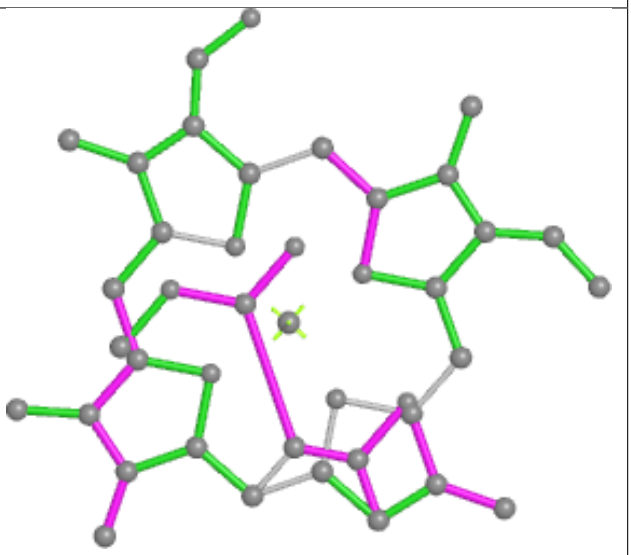


Rings

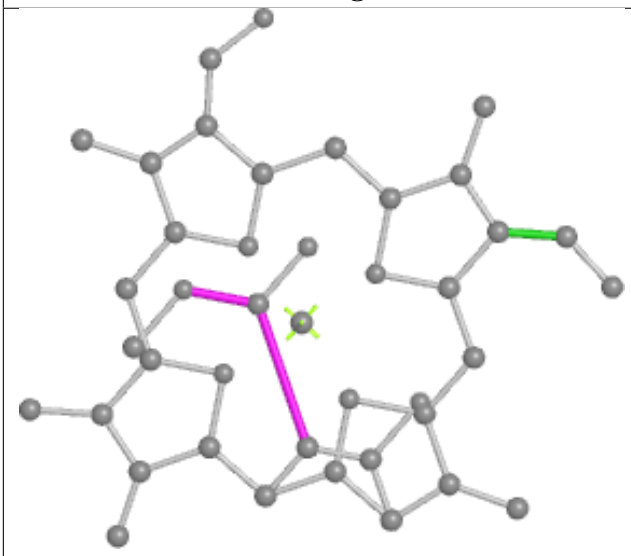
Ligand CL7 bB 817



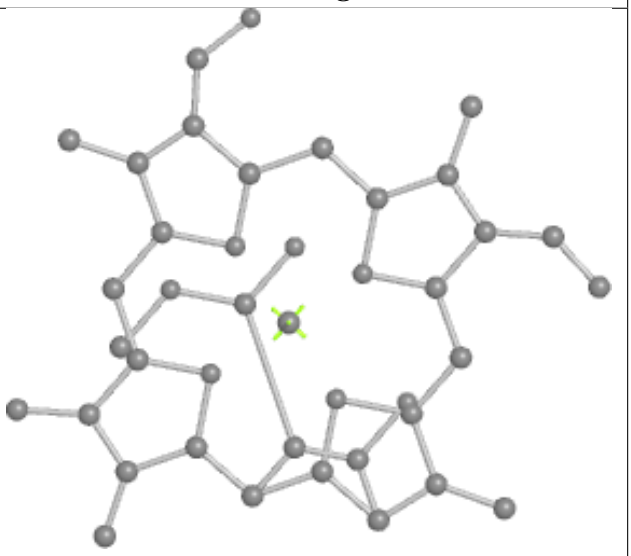
Bond lengths



Bond angles

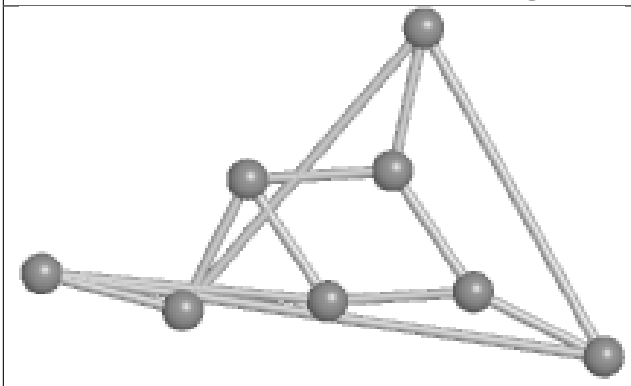


Torsions

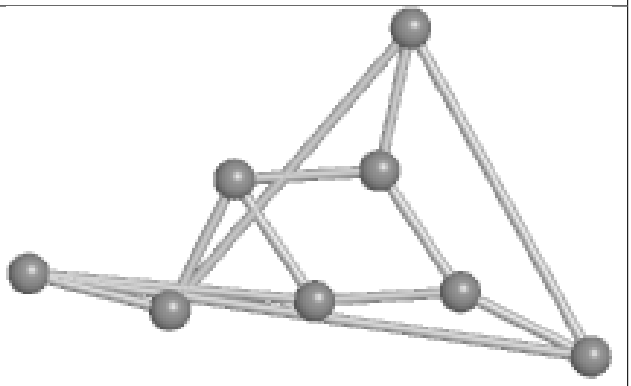


Rings

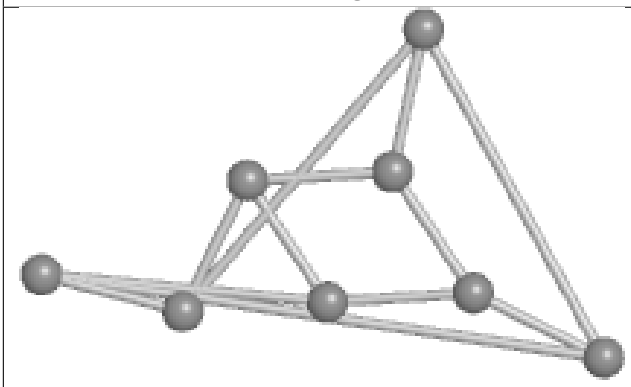
Ligand SF4 cC 102



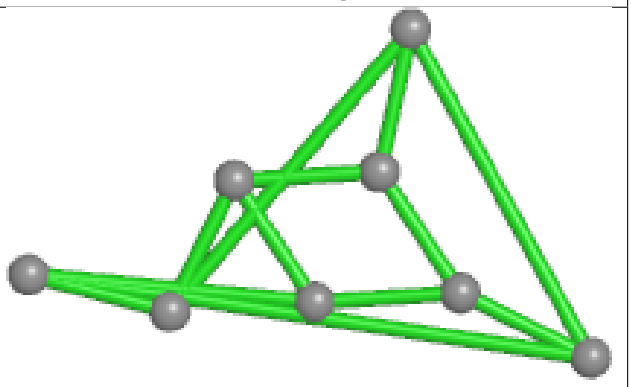
Bond lengths



Bond angles

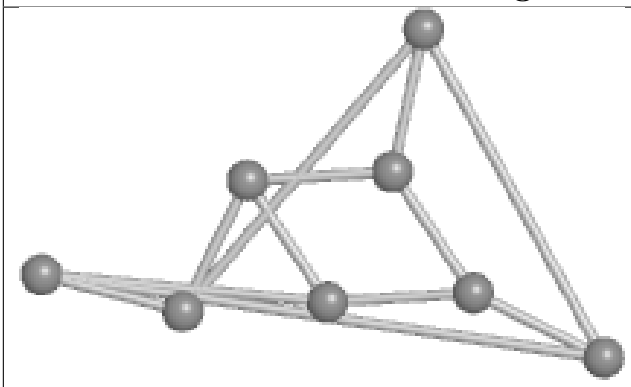


Torsions

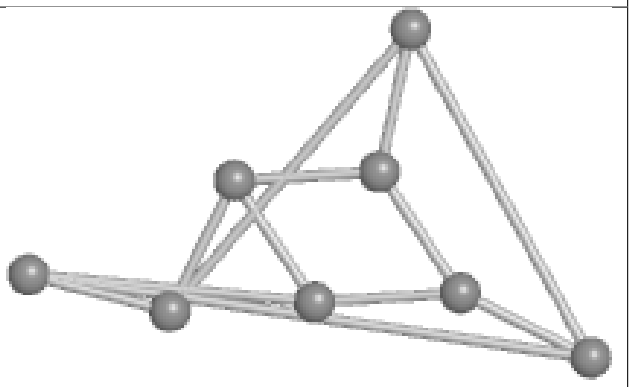


Rings

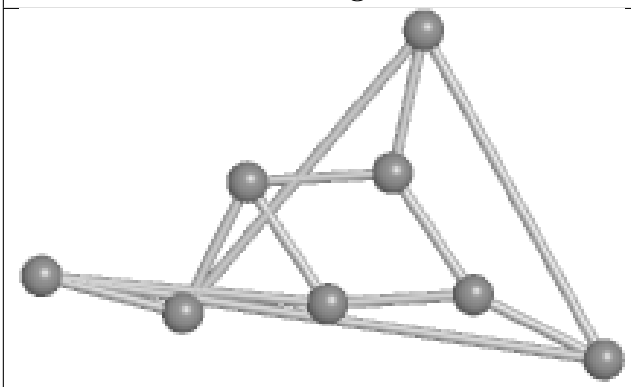
Ligand SF4 aB 3001



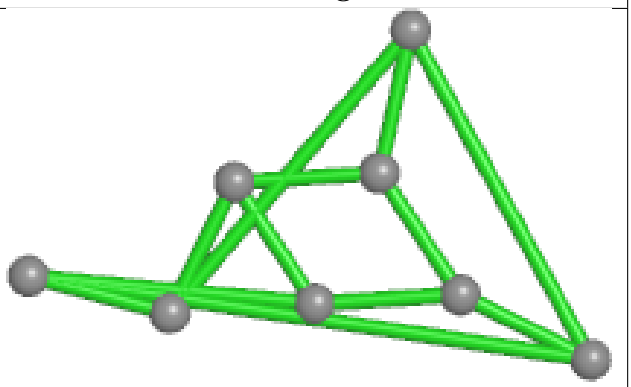
Bond lengths



Bond angles

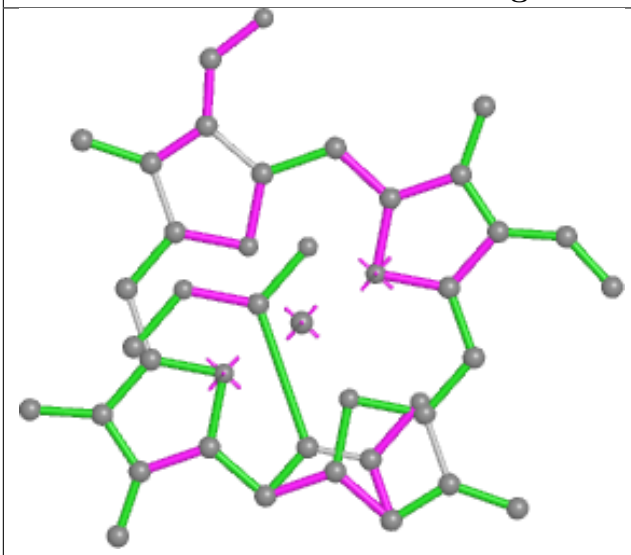


Torsions

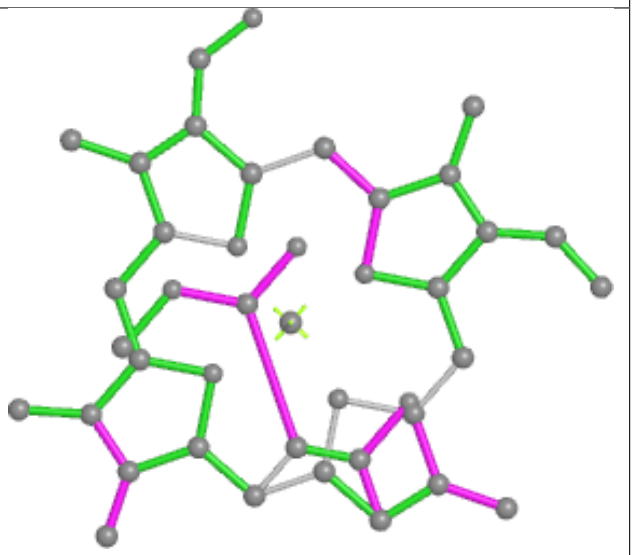


Rings

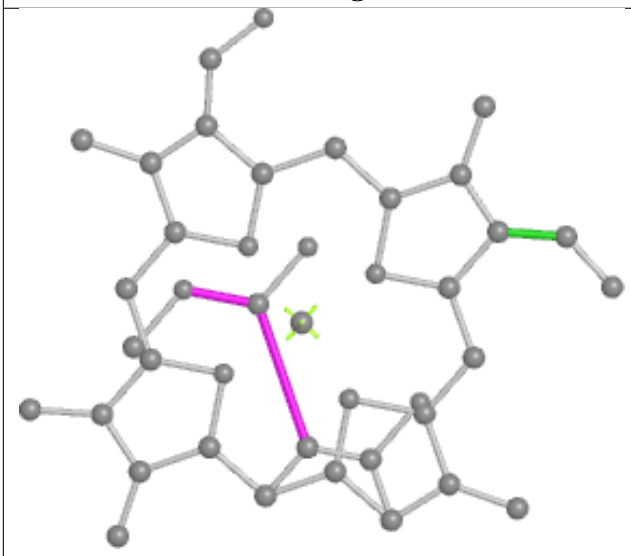
Ligand CL7 aA 3131



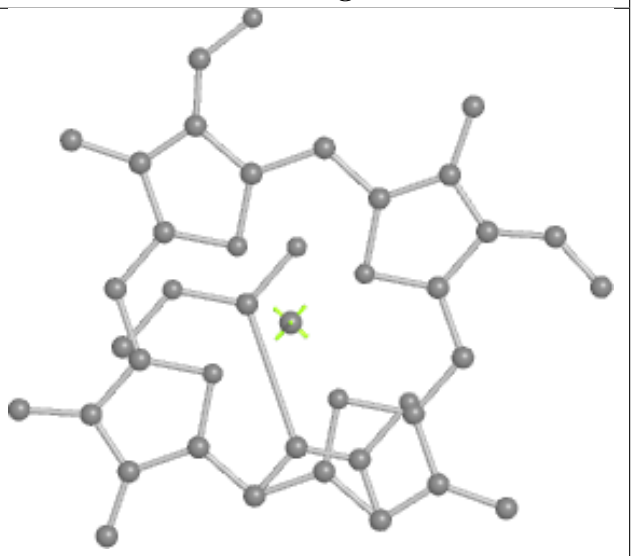
Bond lengths



Bond angles

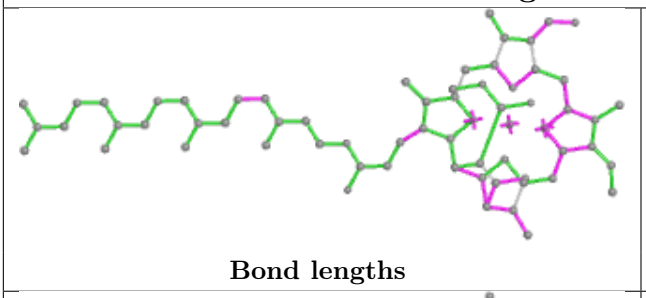


Torsions

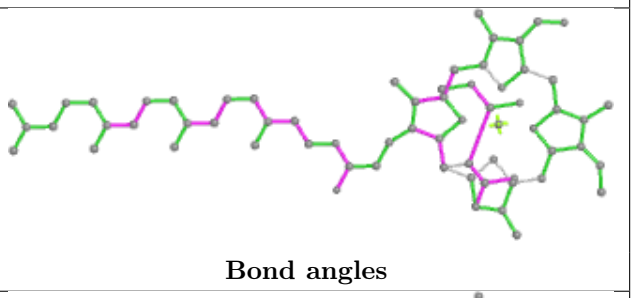


Rings

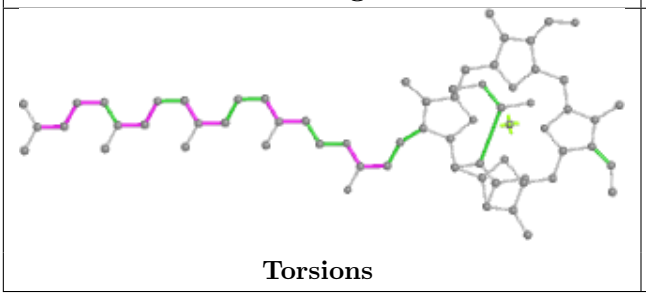
Ligand CL7 bB 806



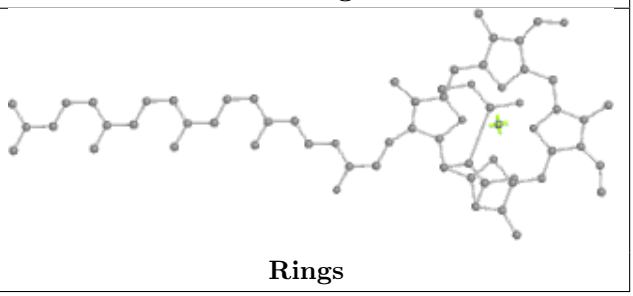
Bond lengths



Bond angles

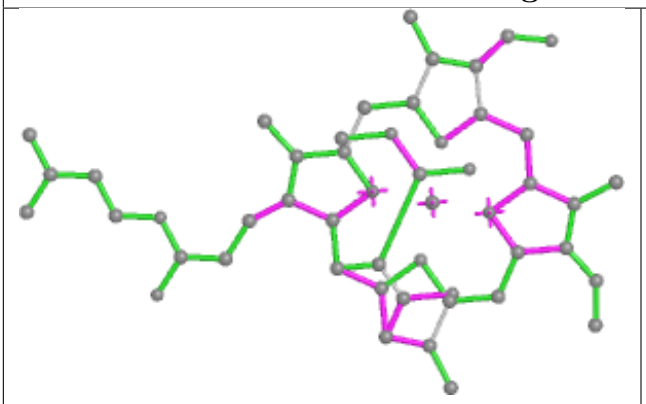


Torsions

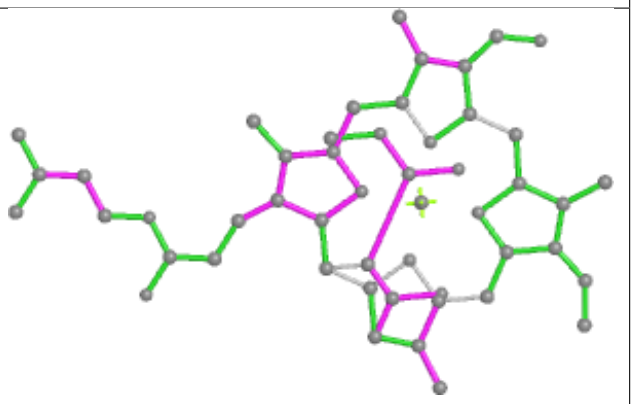


Rings

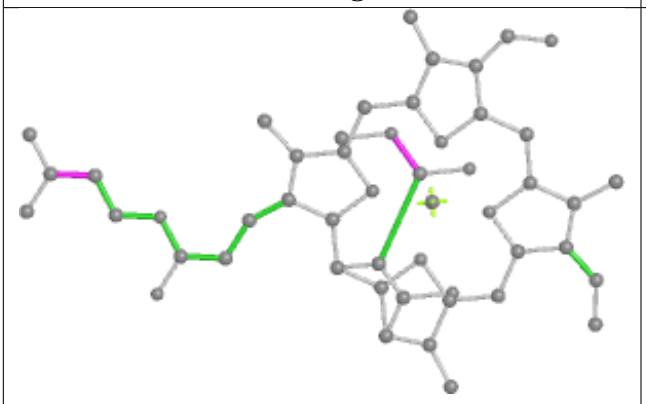
Ligand CL7 cB 809



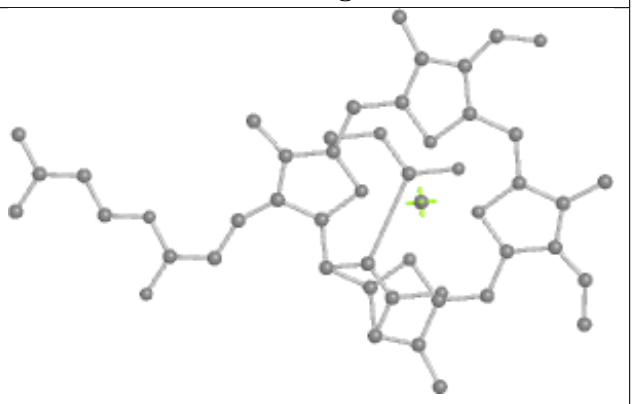
Bond lengths



Bond angles

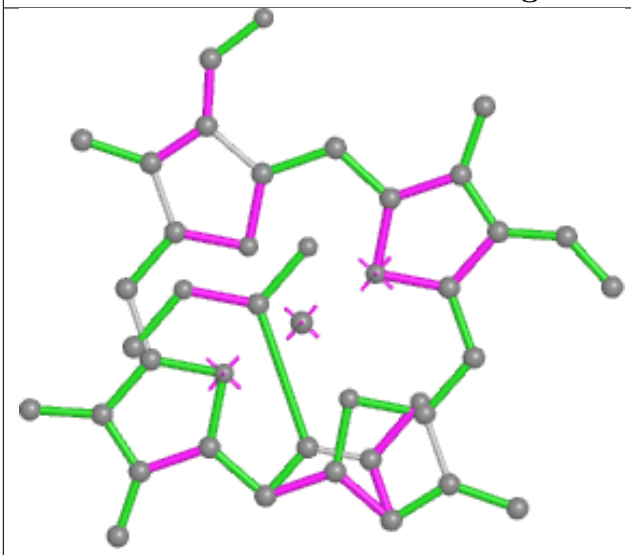


Torsions

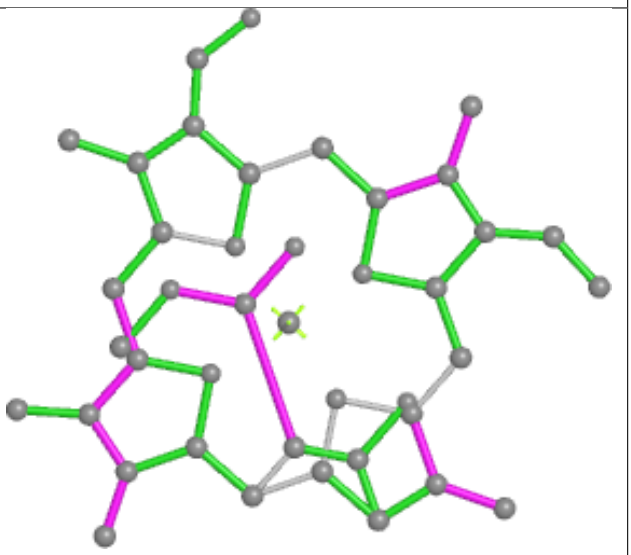


Rings

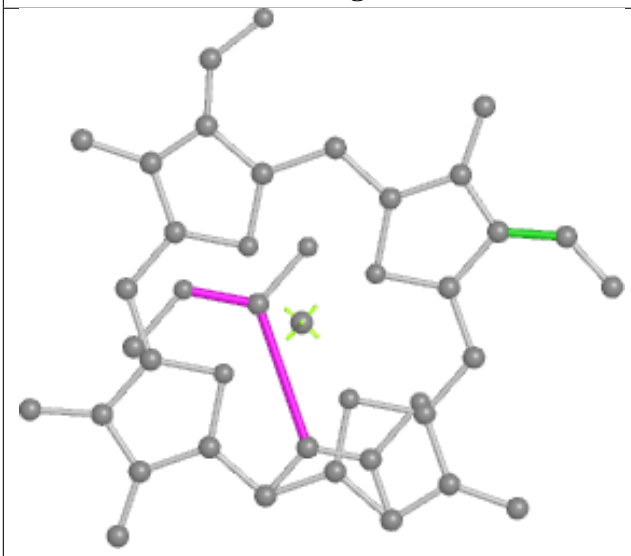
Ligand CL7 cB 822



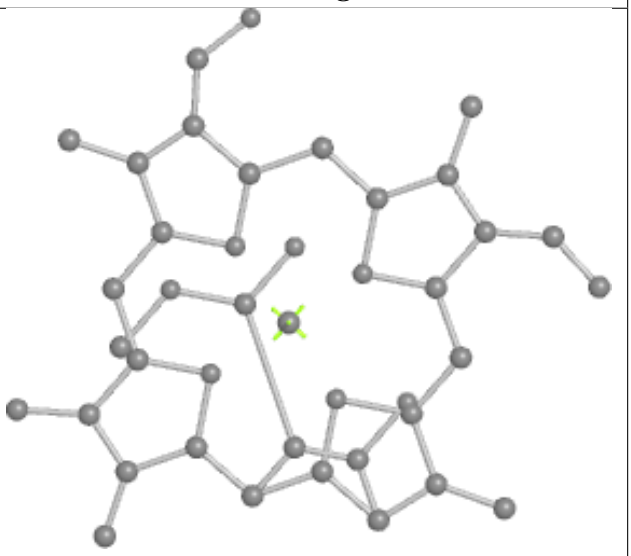
Bond lengths



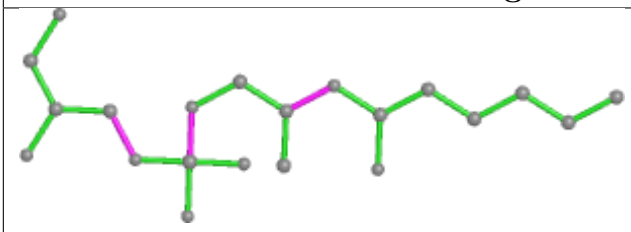
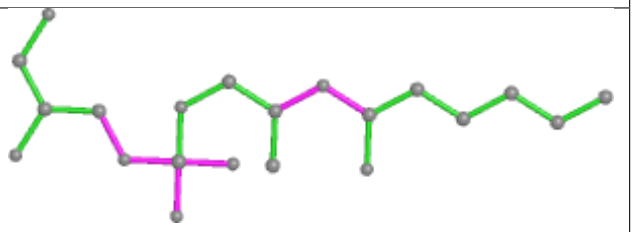
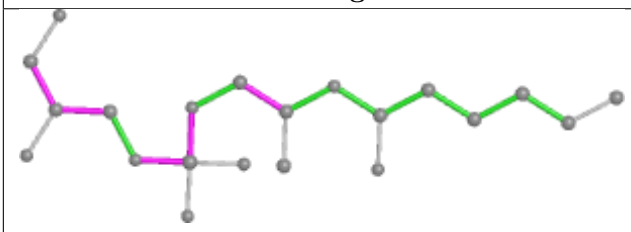
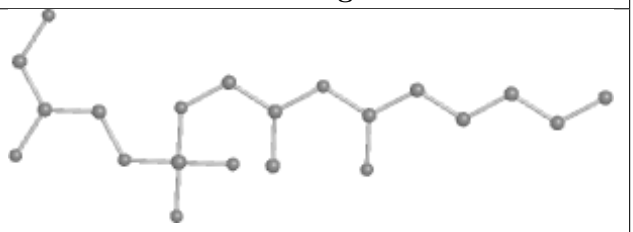
Bond angles



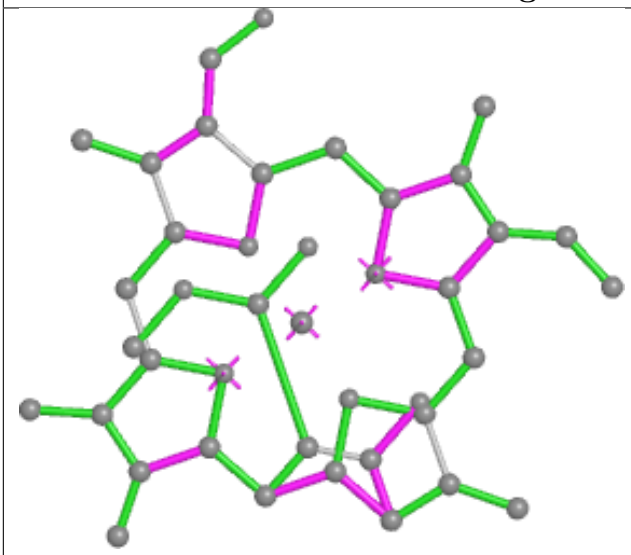
Torsions



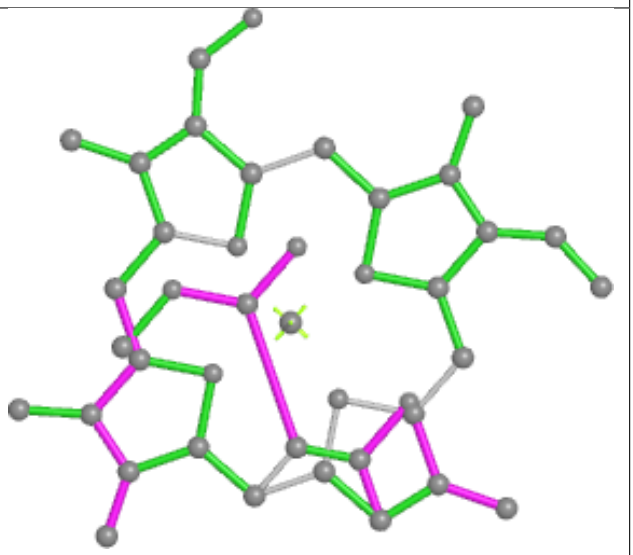
Rings

Ligand LHG aA 3139	
	
Bond lengths	**Bond angles**
	
Torsions	**Rings**

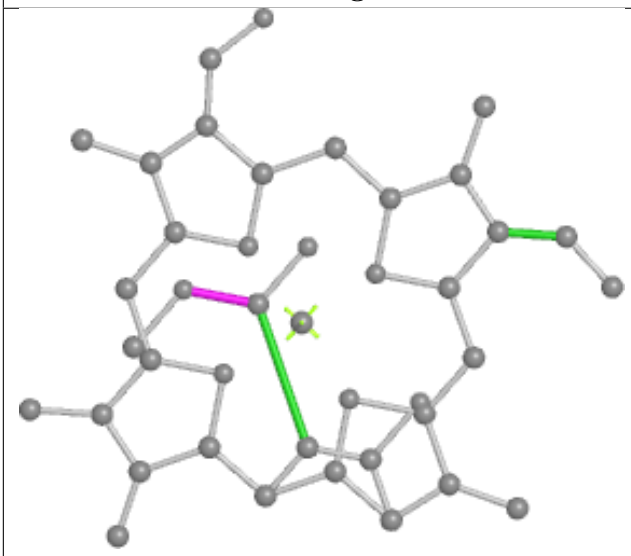
Ligand CL7 bB 822



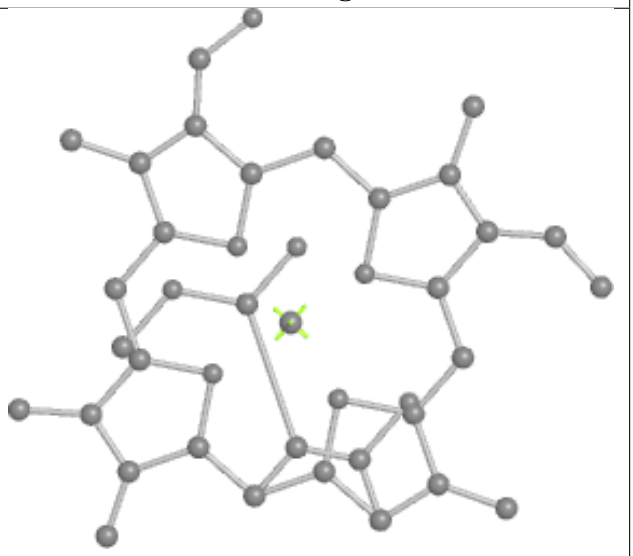
Bond lengths



Bond angles

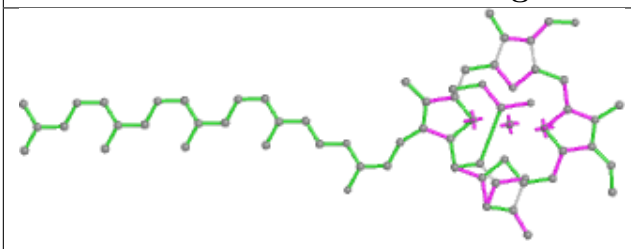


Torsions

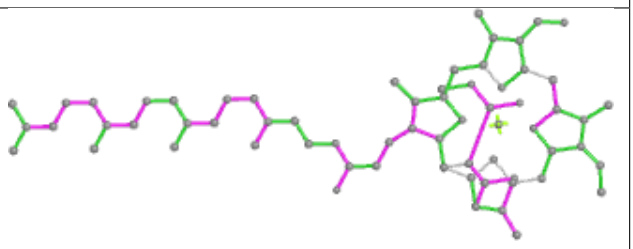


Rings

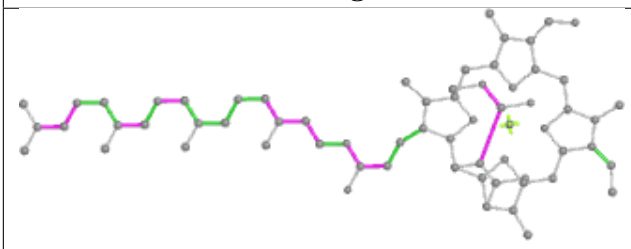
Ligand CL7 cA 3140



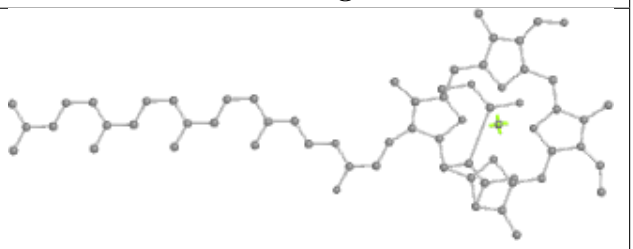
Bond lengths



Bond angles

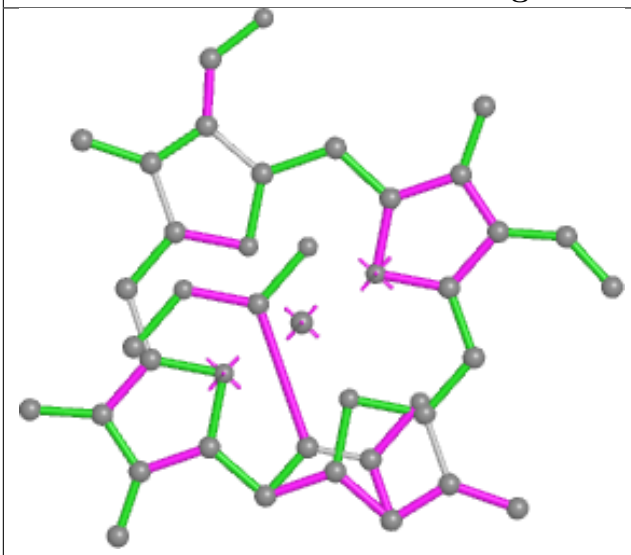


Torsions

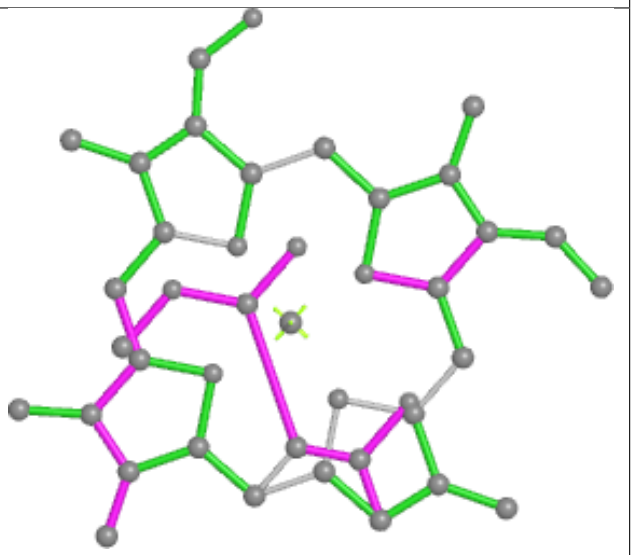


Rings

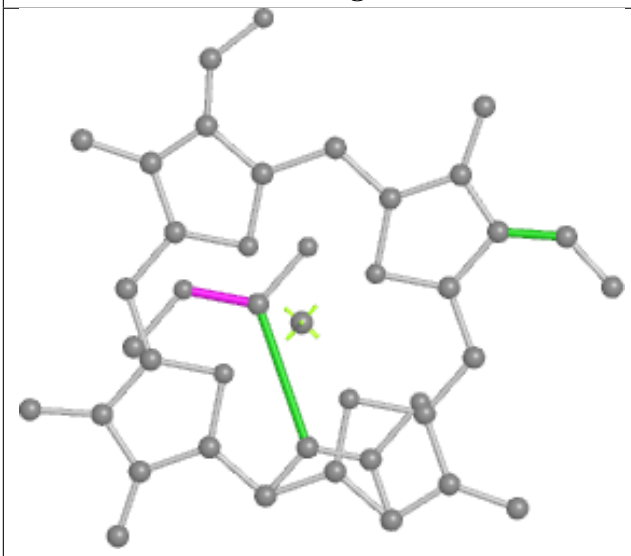
Ligand CL7 cA 3121



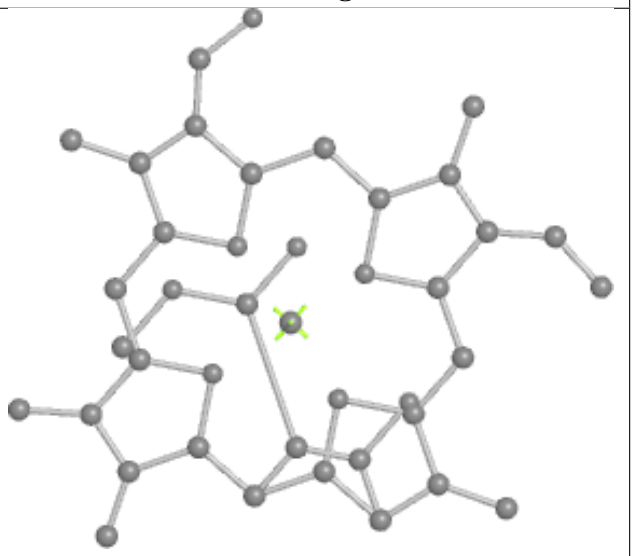
Bond lengths



Bond angles

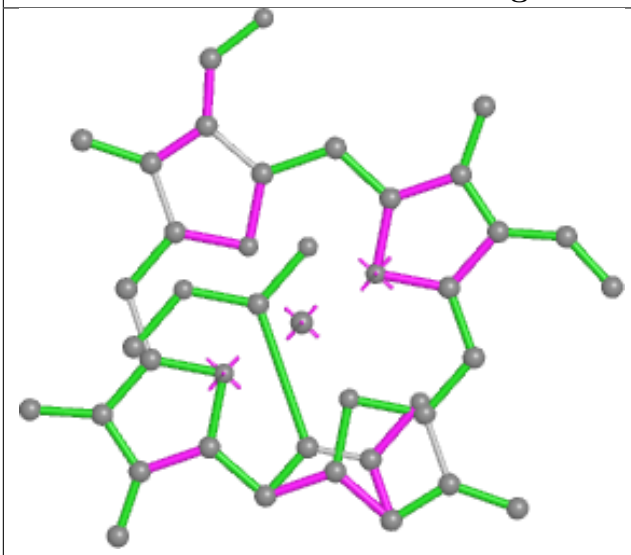


Torsions

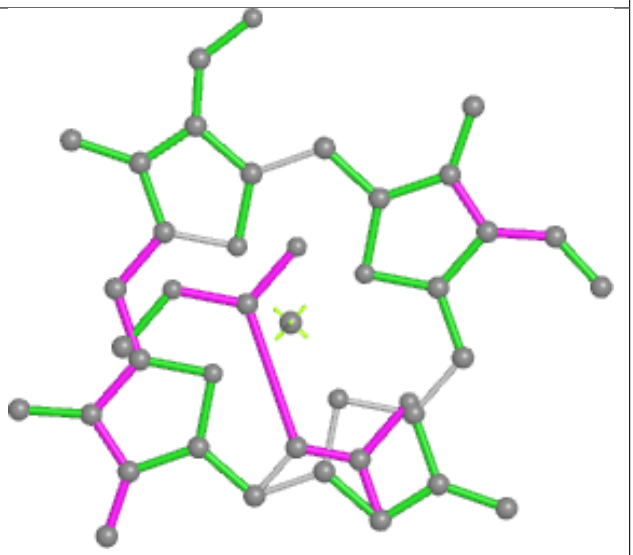


Rings

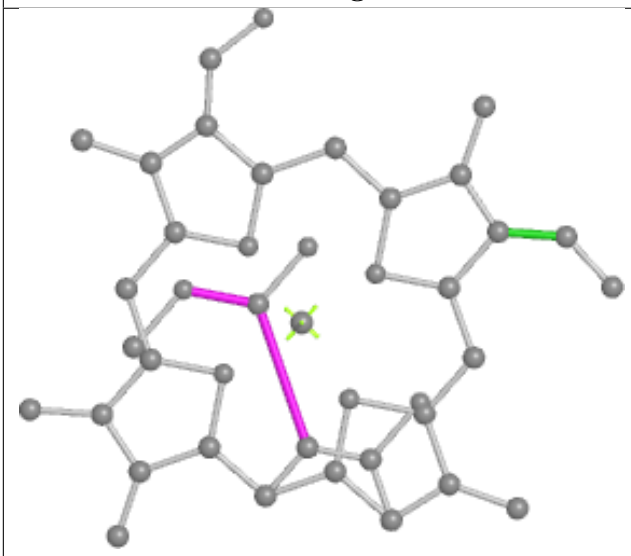
Ligand CL7 aA 3113



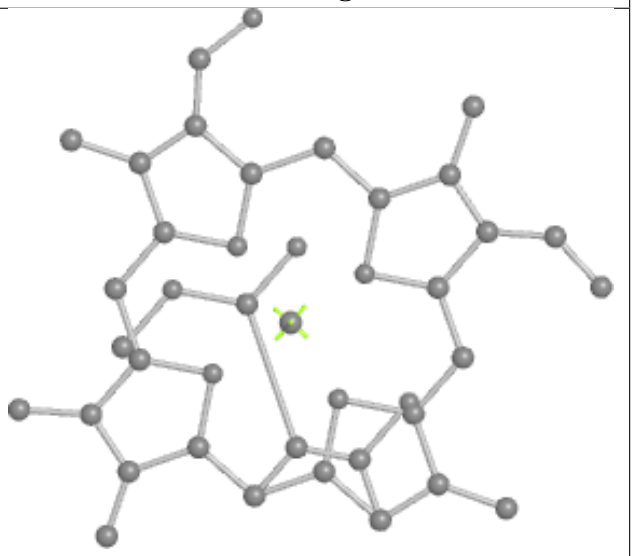
Bond lengths



Bond angles

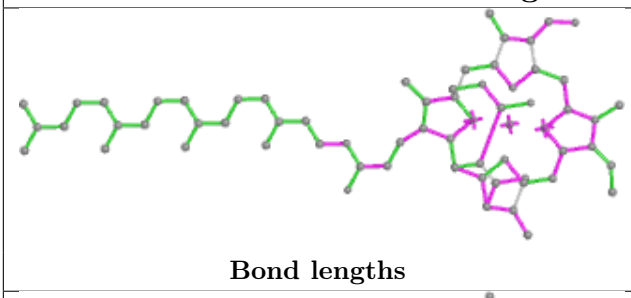


Torsions

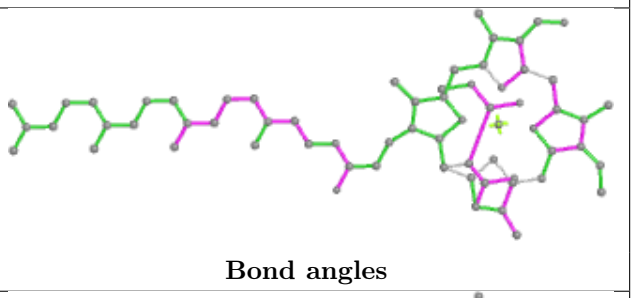


Rings

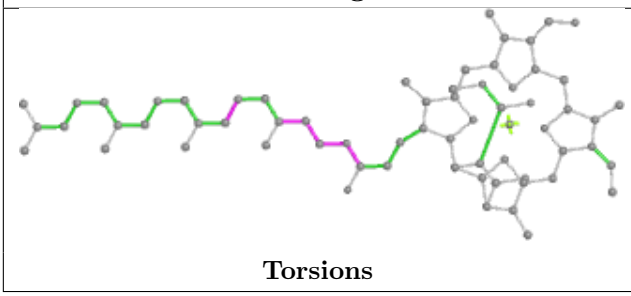
Ligand CL7 cB 804



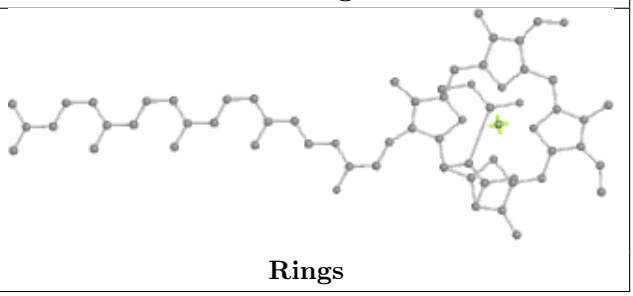
Bond lengths



Bond angles

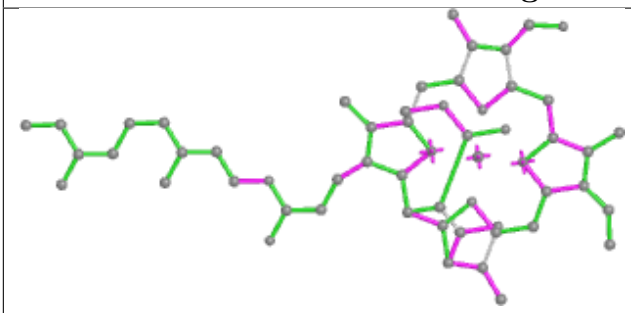


Torsions

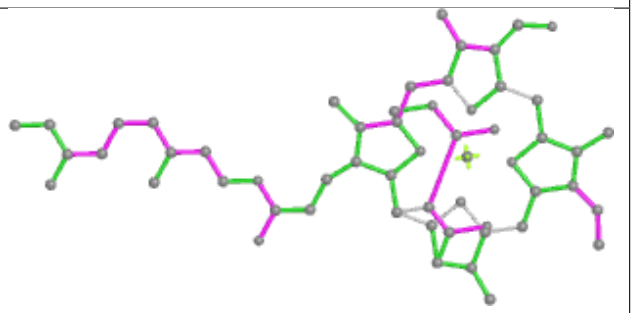


Rings

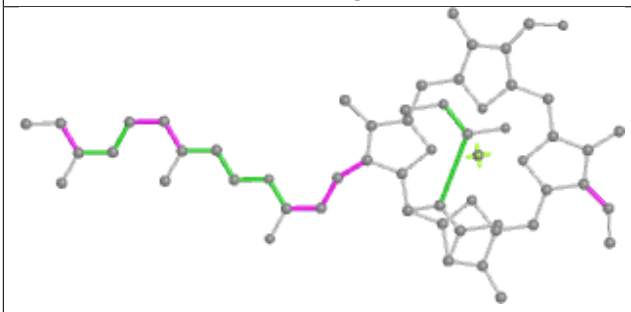
Ligand CL7 cB 819



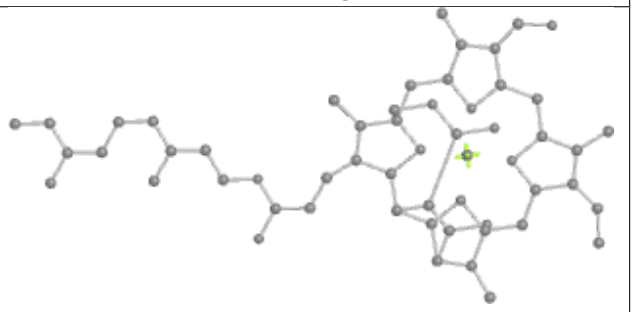
Bond lengths



Bond angles

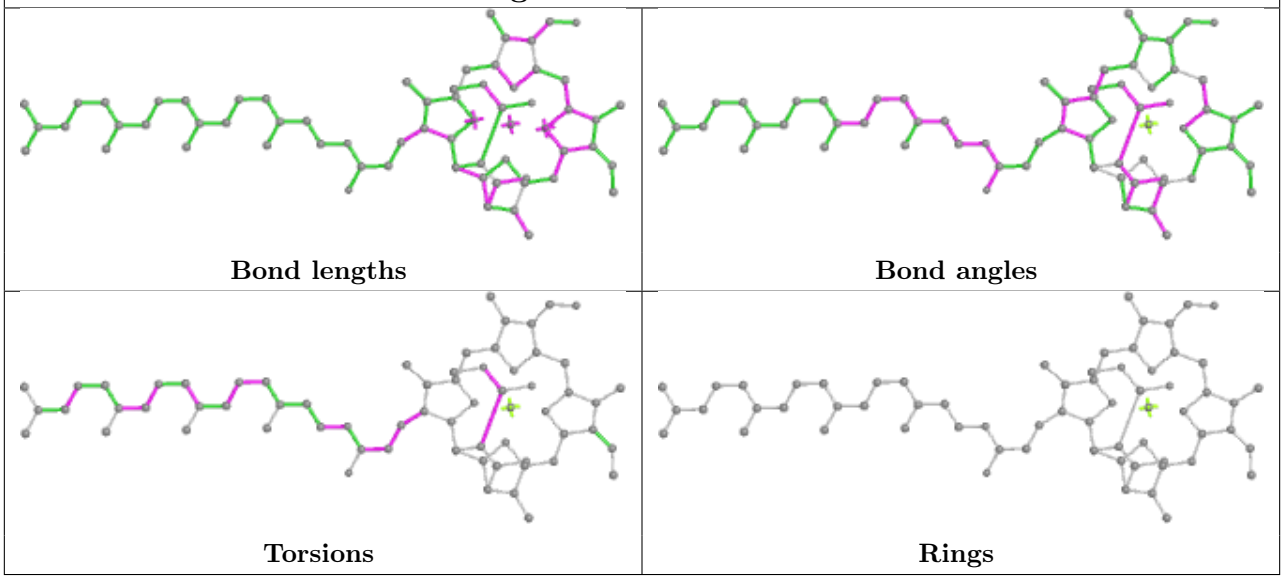


Torsions

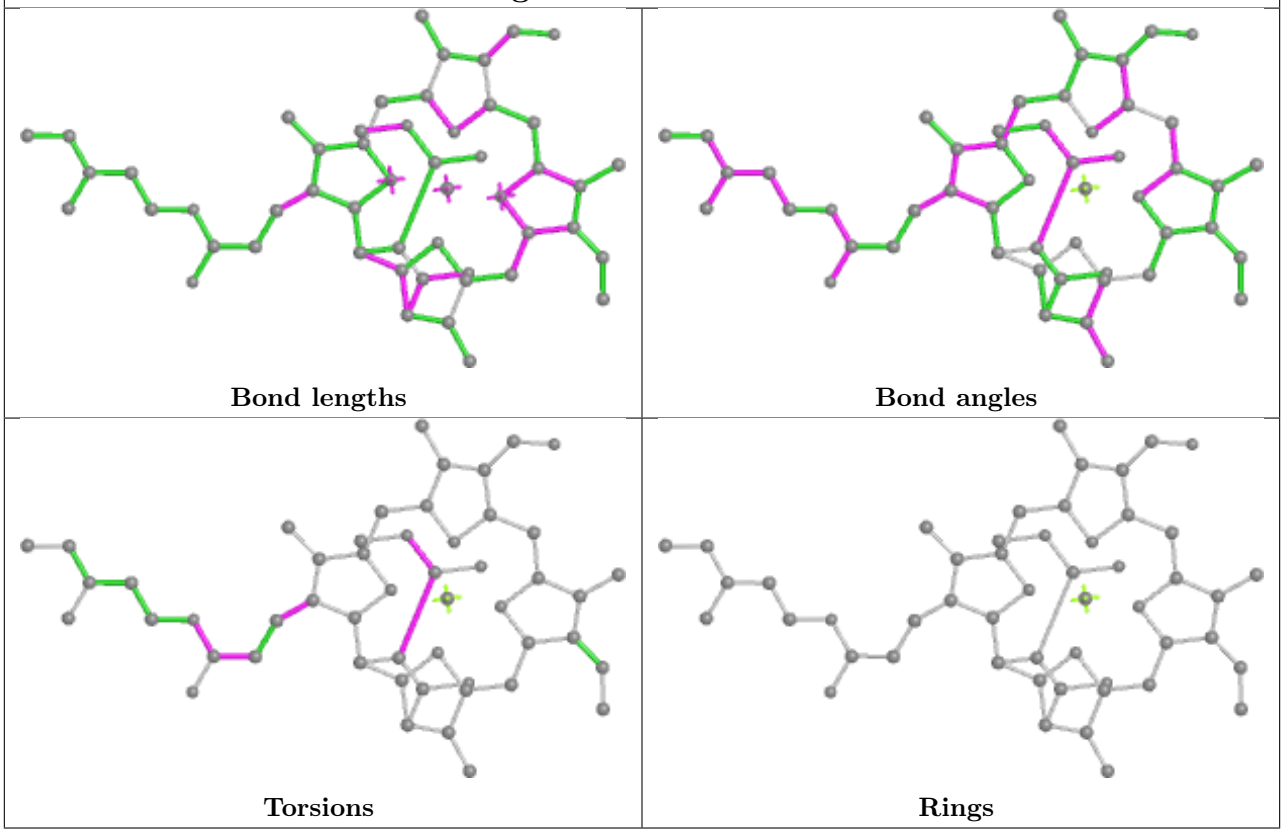


Rings

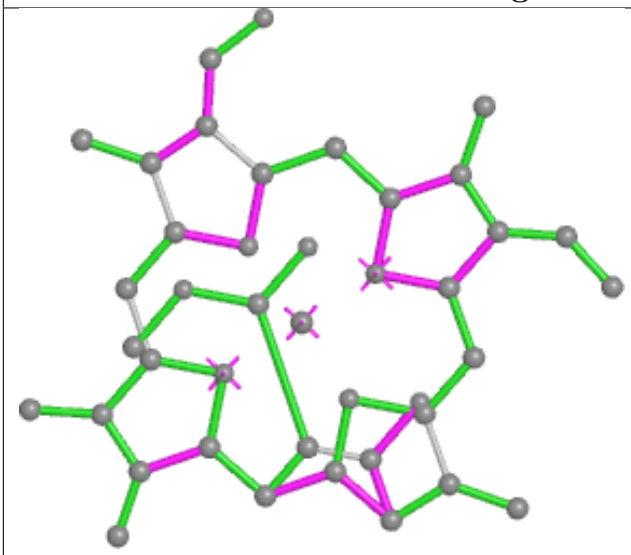
Ligand CL7 bA 3140



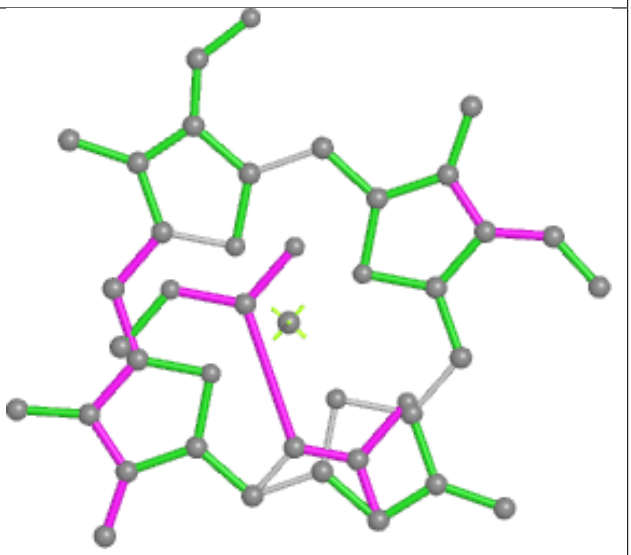
Ligand CL7 aA 3121



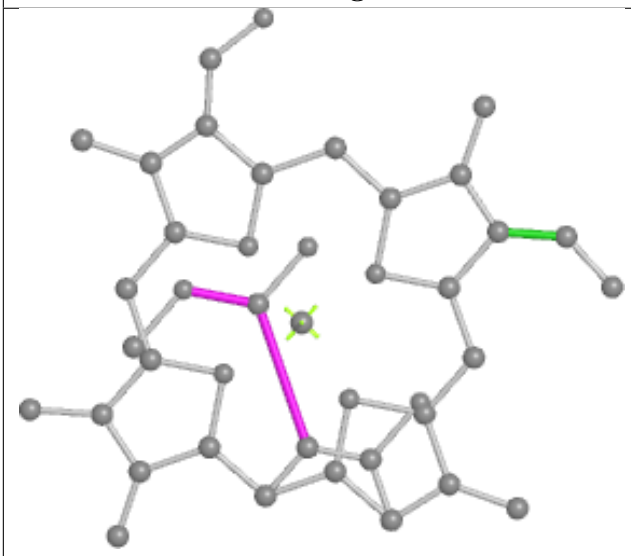
Ligand CL7 cA 3112



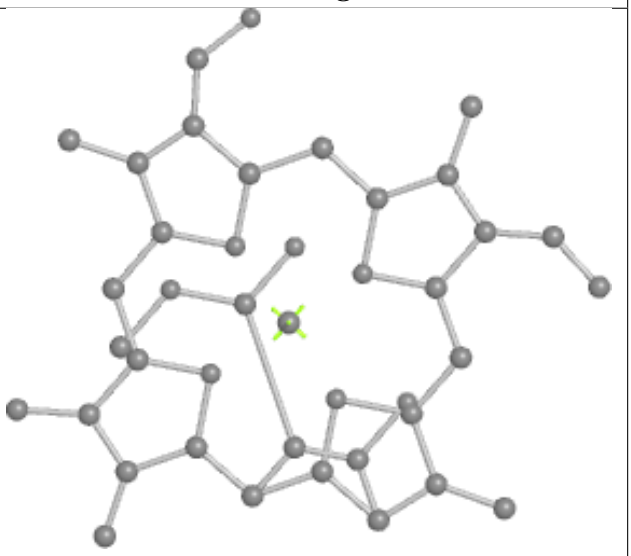
Bond lengths



Bond angles

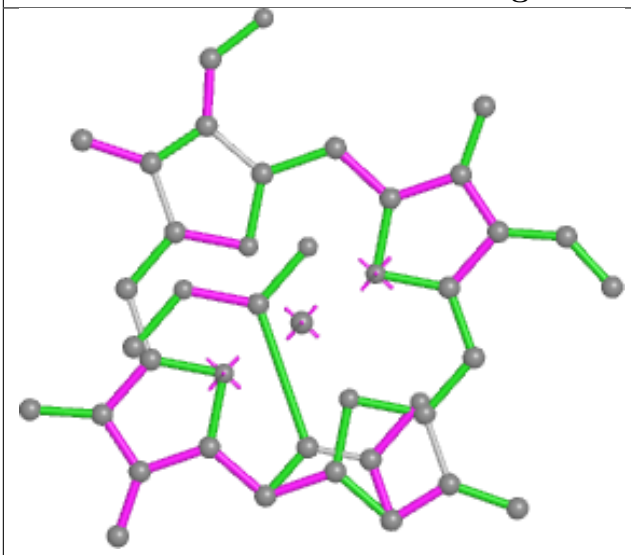


Torsions

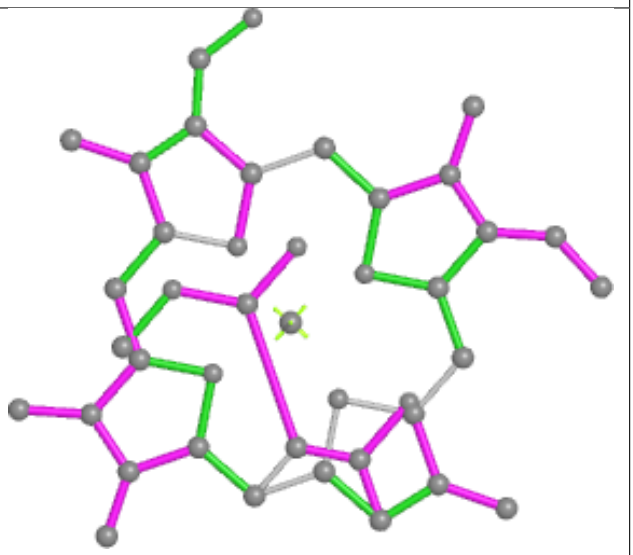


Rings

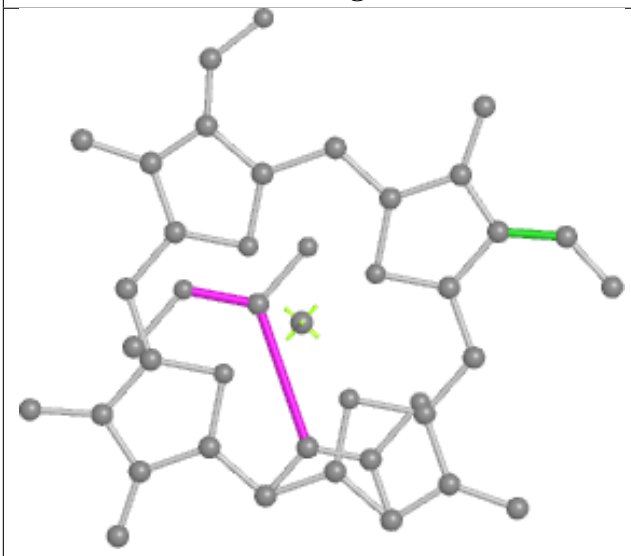
Ligand CL7 cA 3129



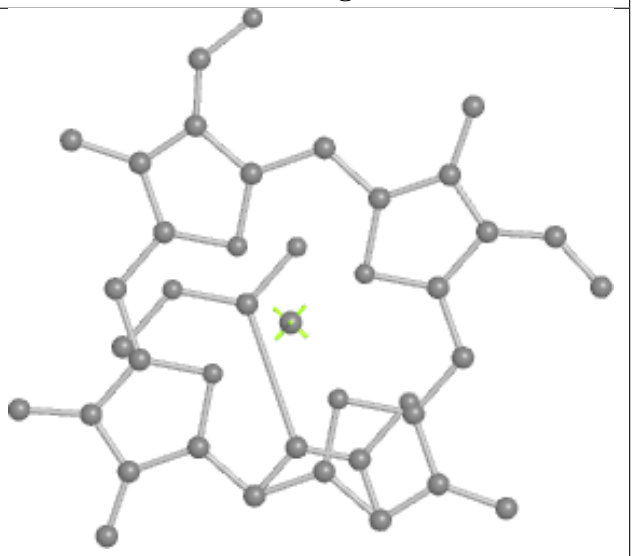
Bond lengths



Bond angles

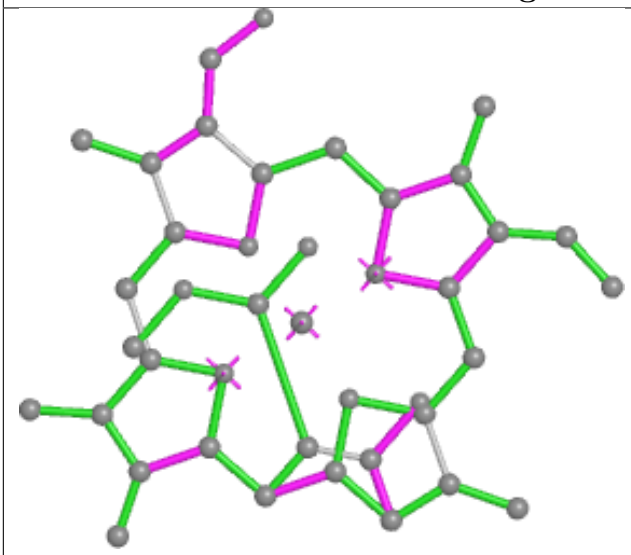


Torsions

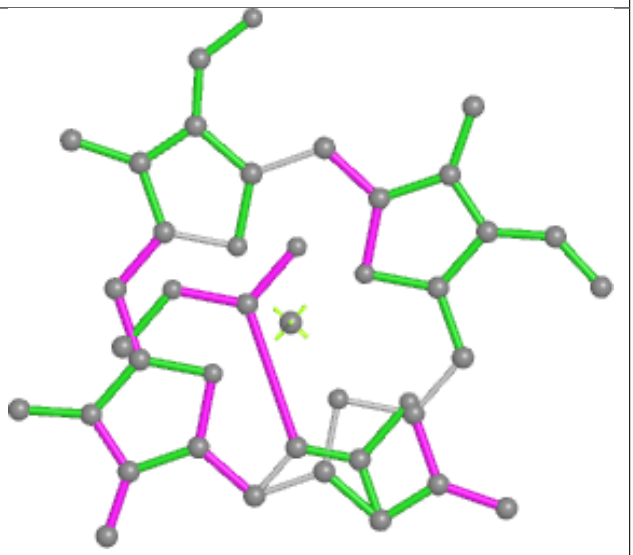


Rings

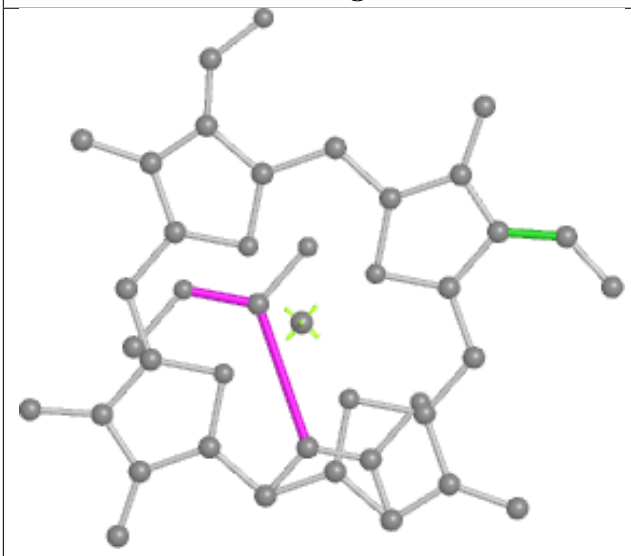
Ligand CL7 bB 818



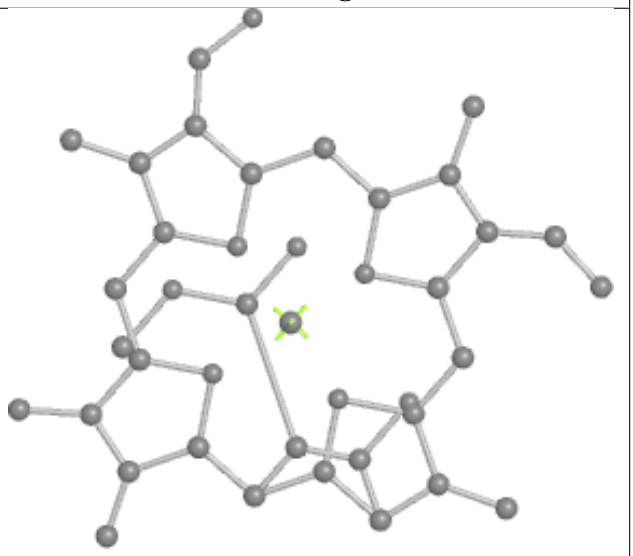
Bond lengths



Bond angles

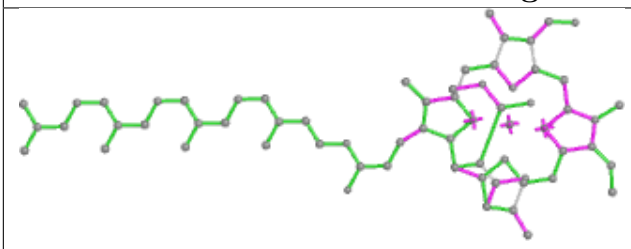


Torsions

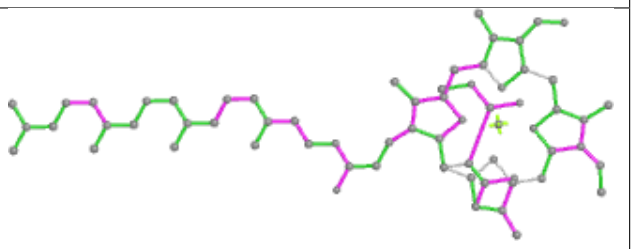


Rings

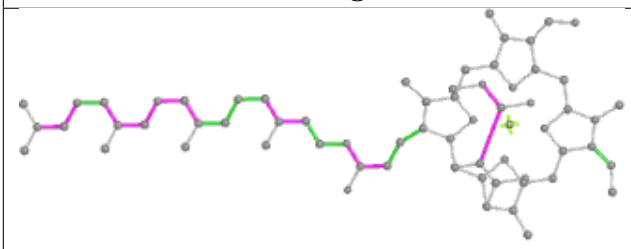
Ligand CL7 cB 832



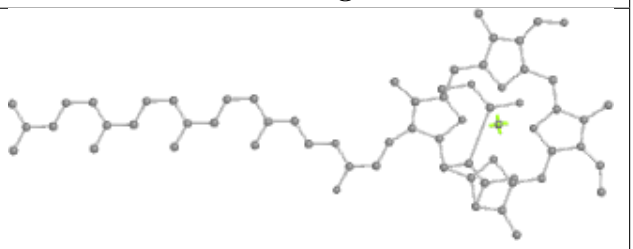
Bond lengths



Bond angles

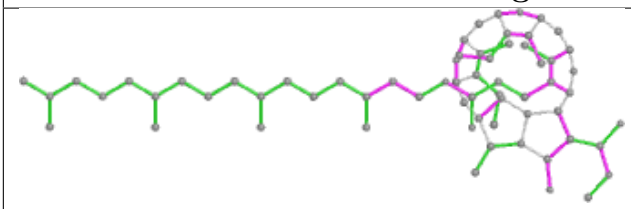


Torsions

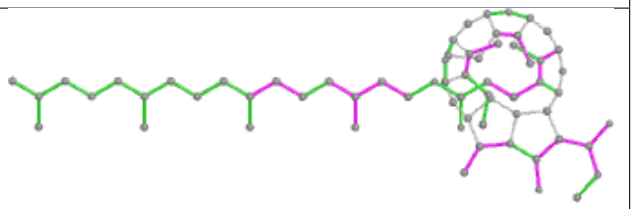


Rings

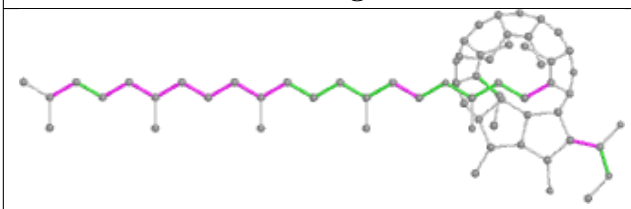
Ligand PHO bB 805



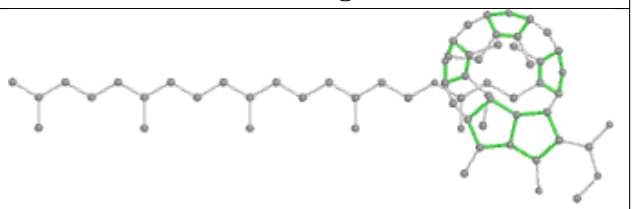
Bond lengths



Bond angles

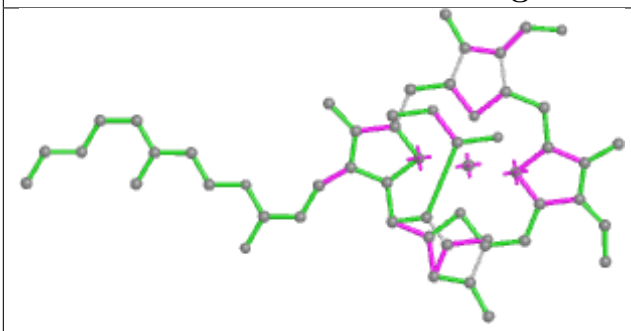


Torsions

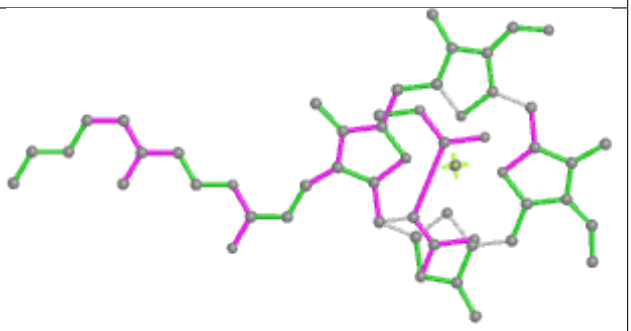


Rings

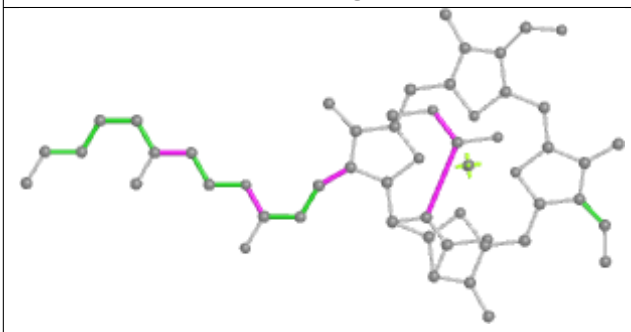
Ligand CL7 aB 3030



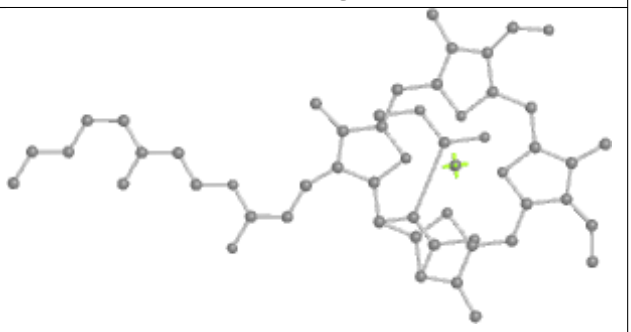
Bond lengths



Bond angles

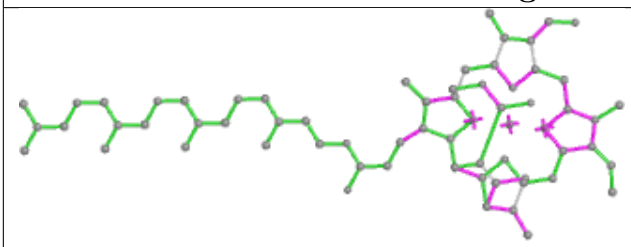


Torsions

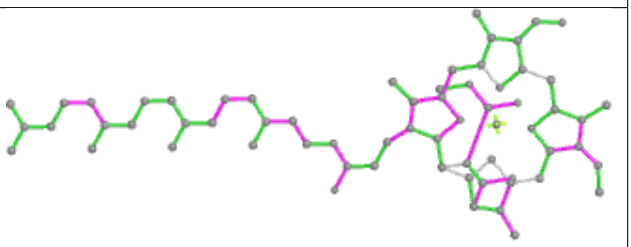


Rings

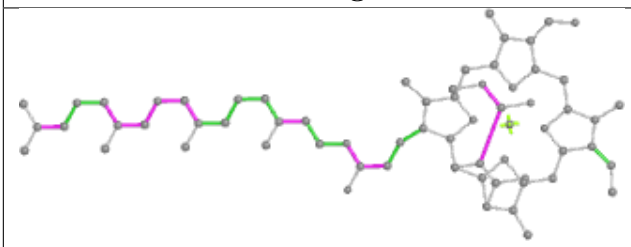
Ligand CL7 bB 832



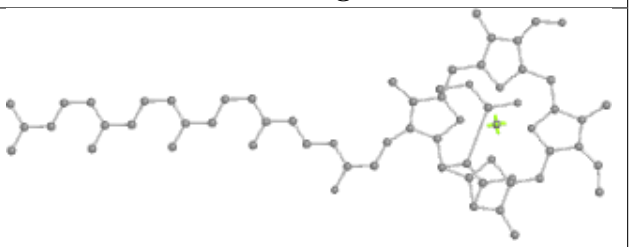
Bond lengths



Bond angles

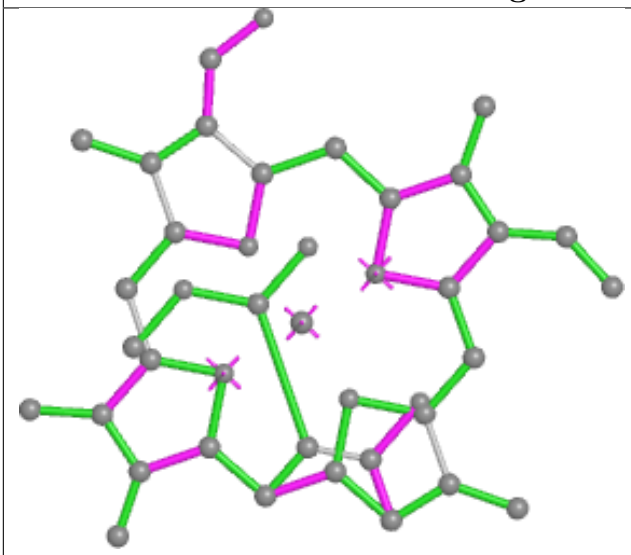


Torsions

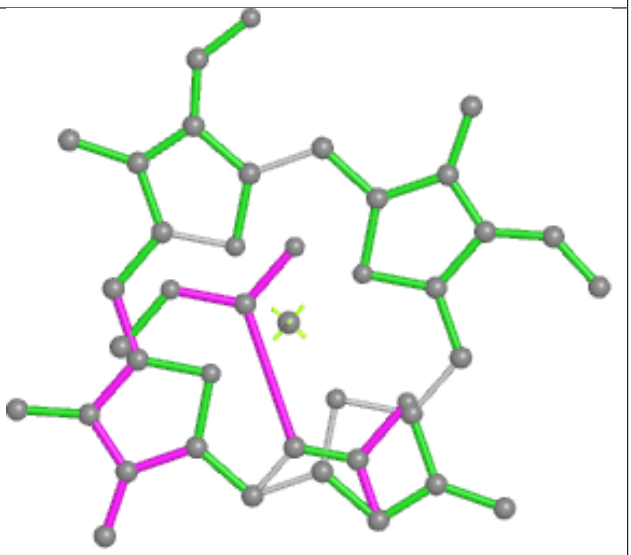


Rings

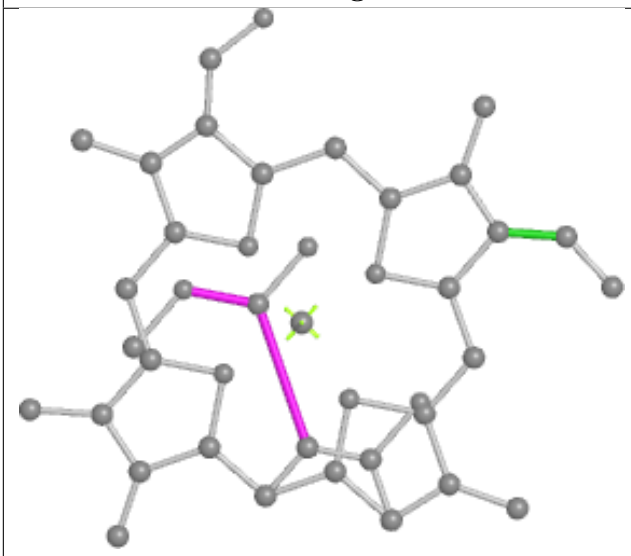
Ligand CL7 bA 3133



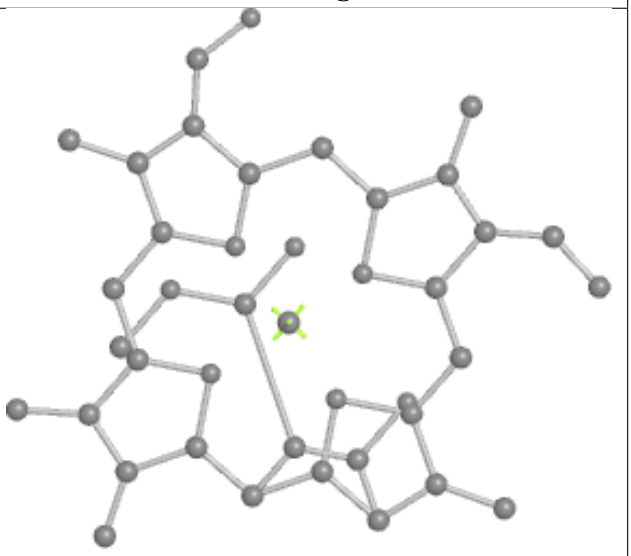
Bond lengths



Bond angles

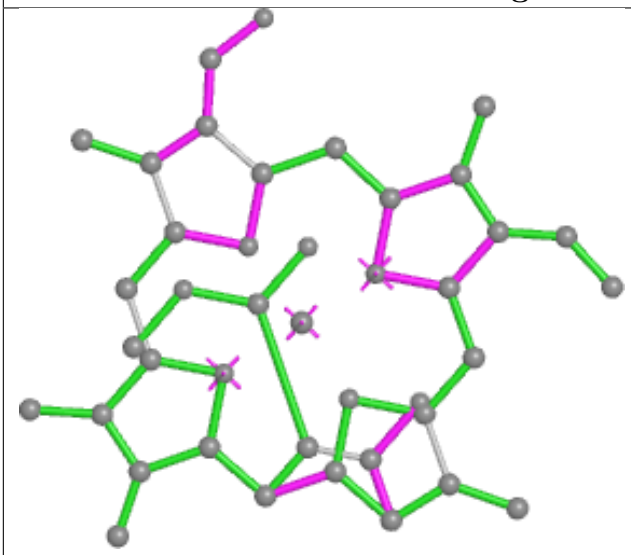


Torsions

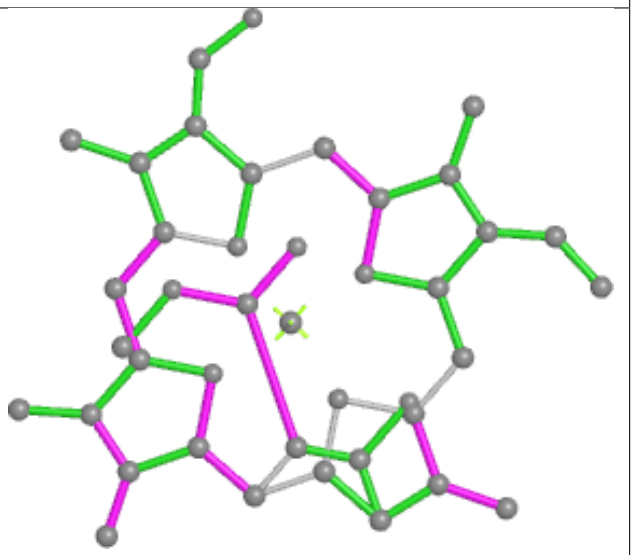


Rings

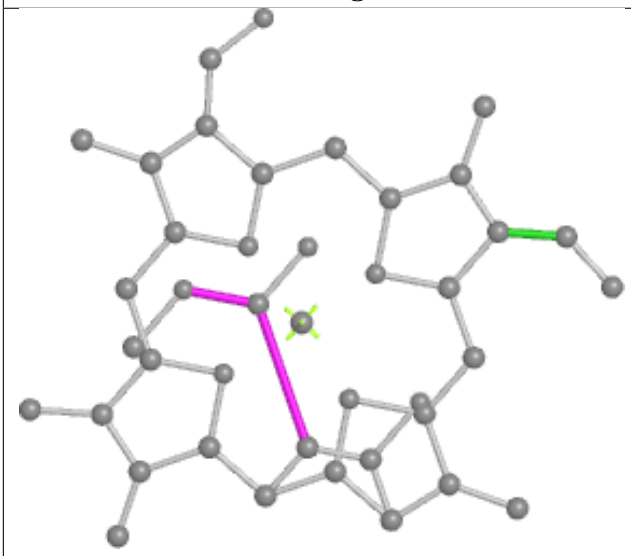
Ligand CL7 aB 3017



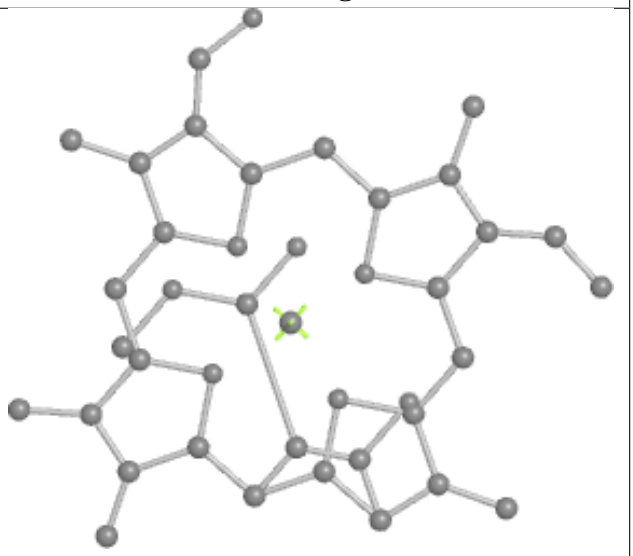
Bond lengths



Bond angles

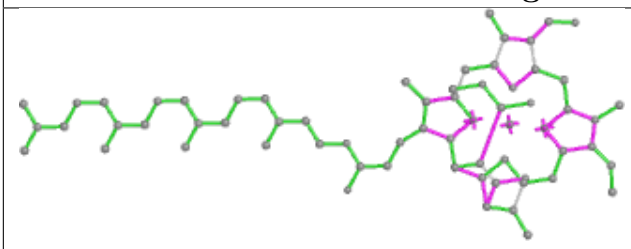


Torsions

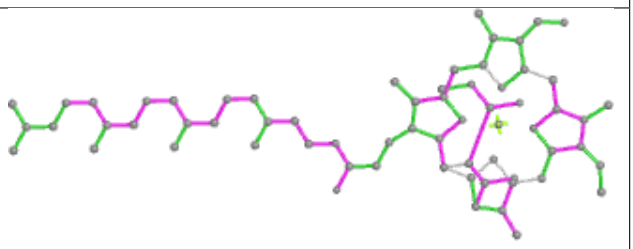


Rings

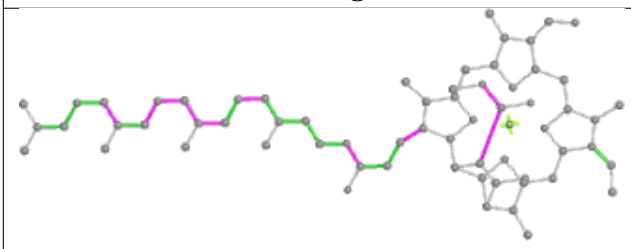
Ligand CL7 aL 203



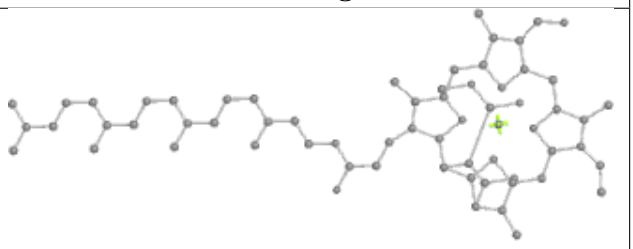
Bond lengths



Bond angles

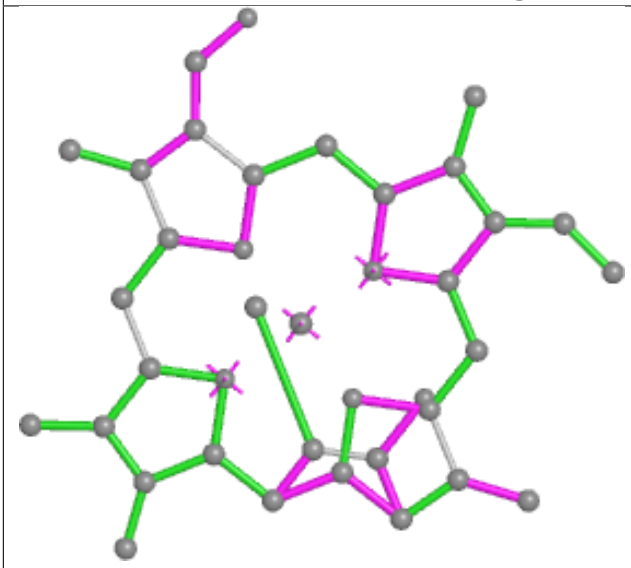


Torsions

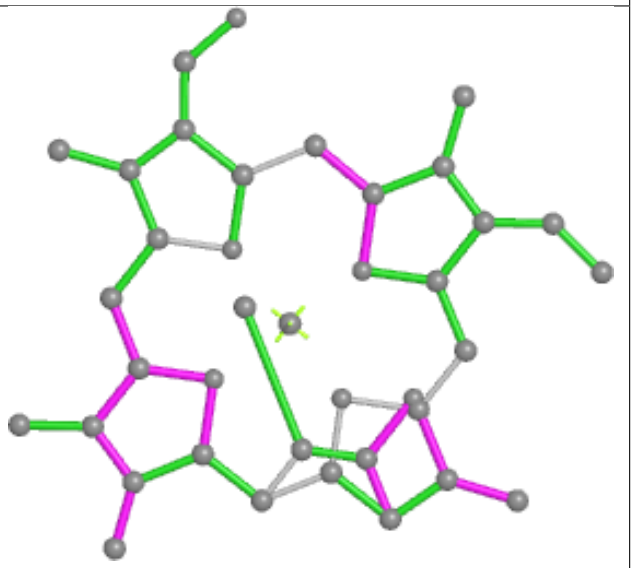


Rings

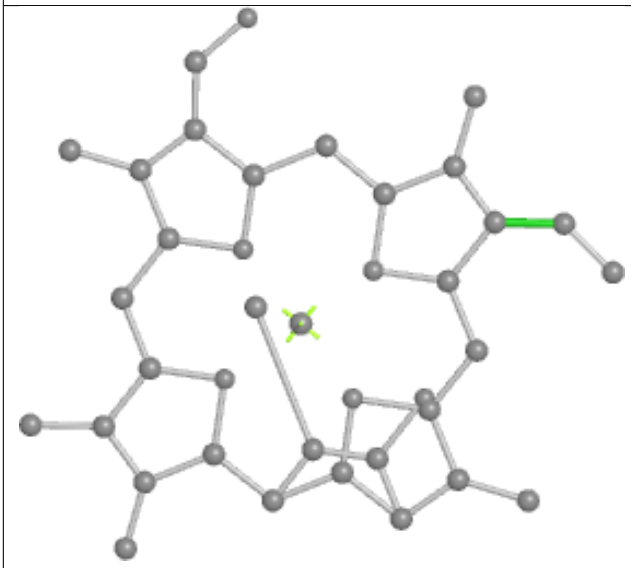
Ligand CL7 aA 3119



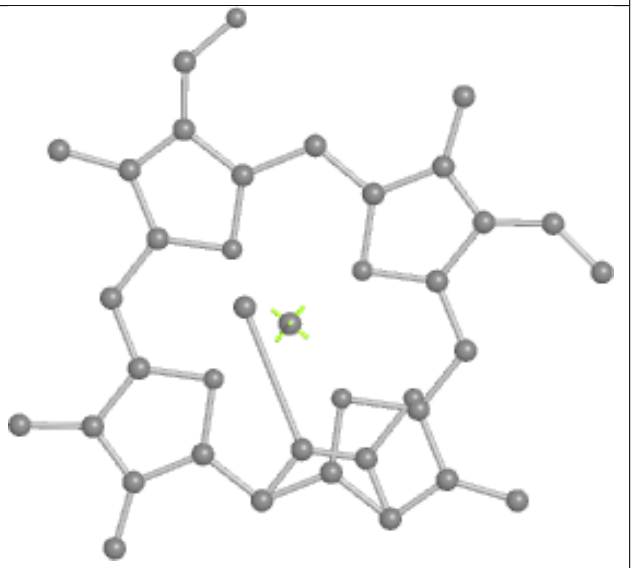
Bond lengths



Bond angles

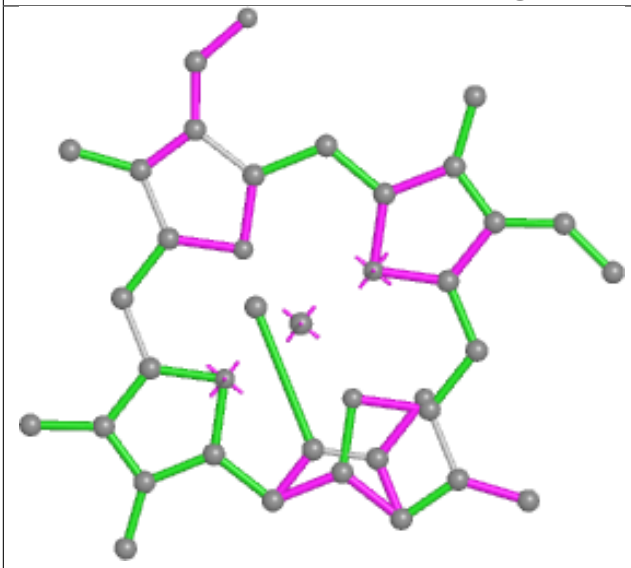


Torsions

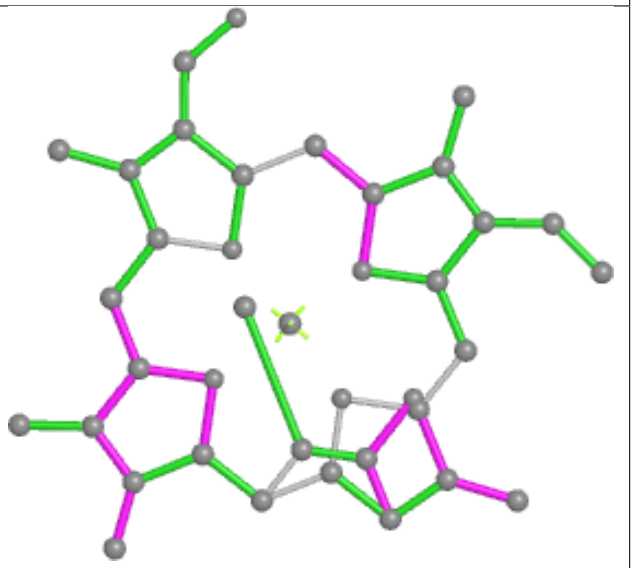


Rings

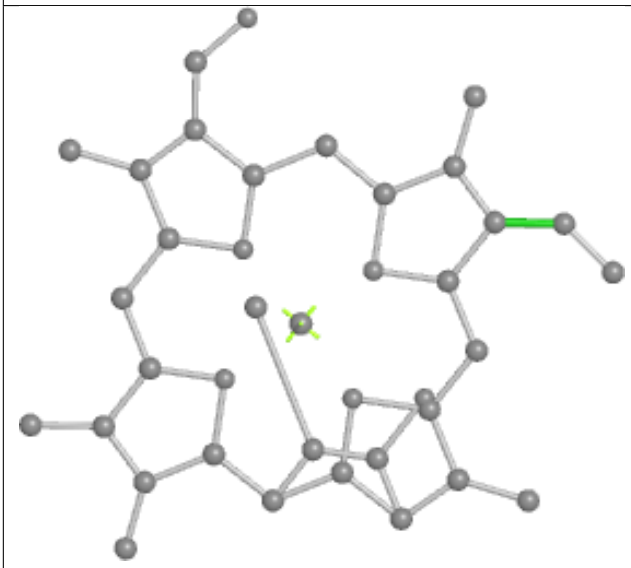
Ligand CL7 cA 3118



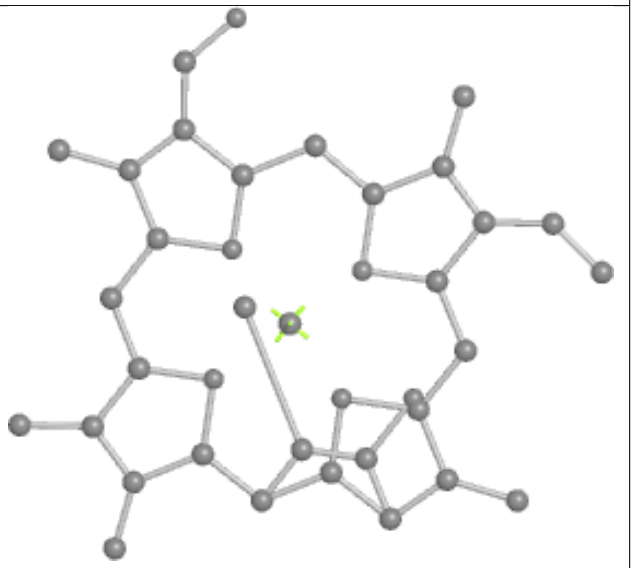
Bond lengths



Bond angles

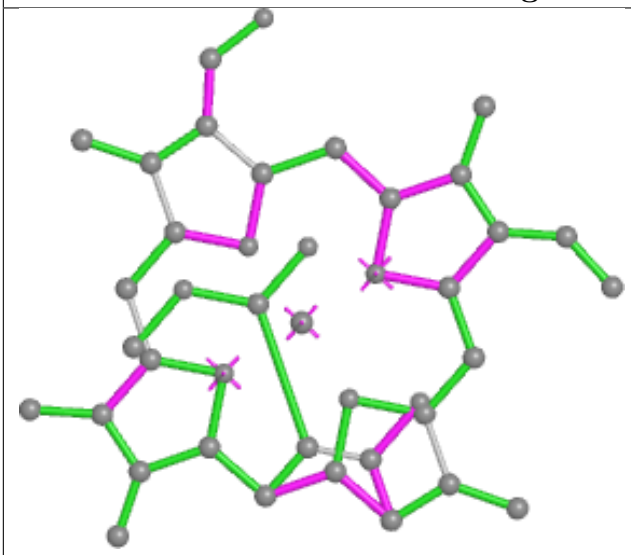


Torsions

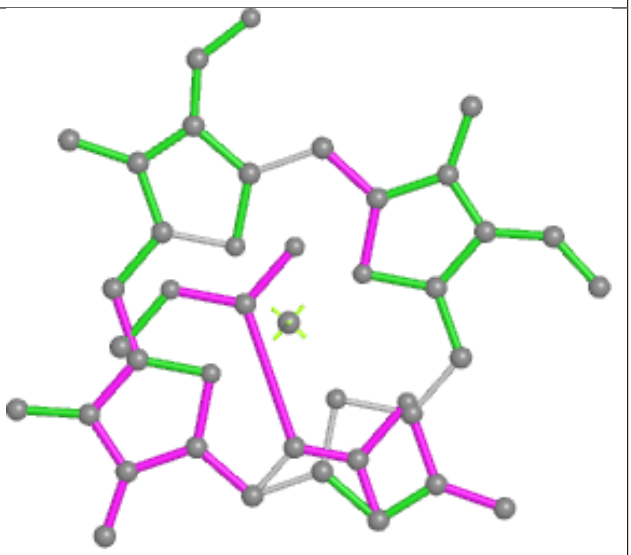


Rings

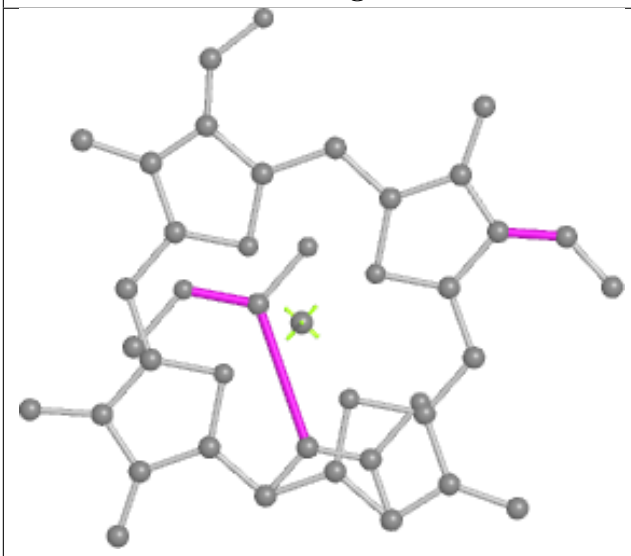
Ligand CL7 cB 823



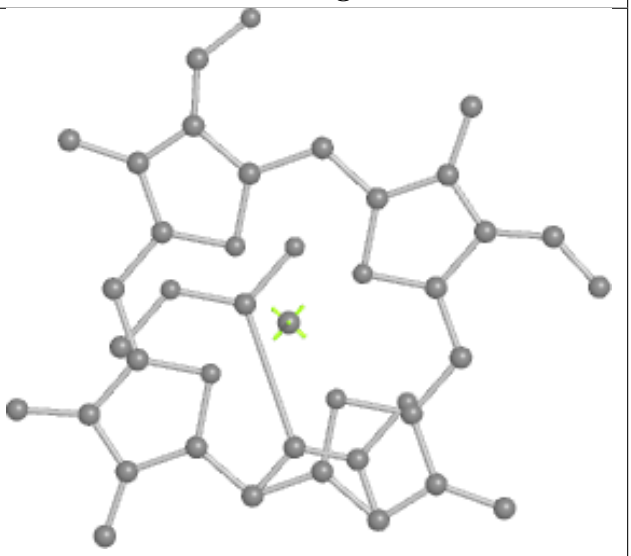
Bond lengths



Bond angles

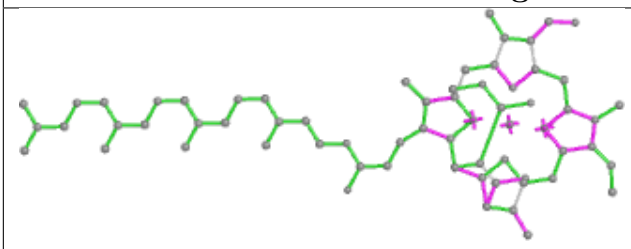


Torsions

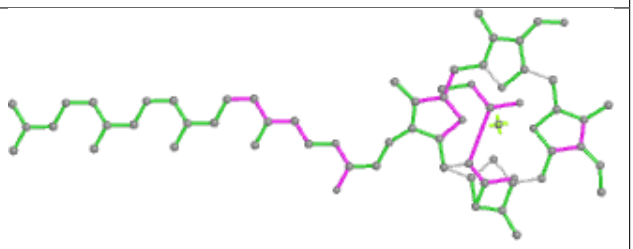


Rings

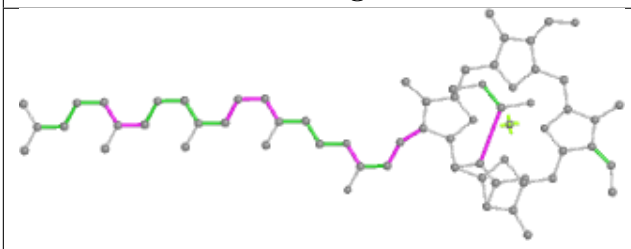
Ligand CL7 cA 3107



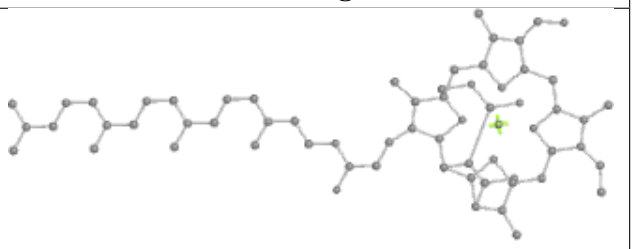
Bond lengths



Bond angles

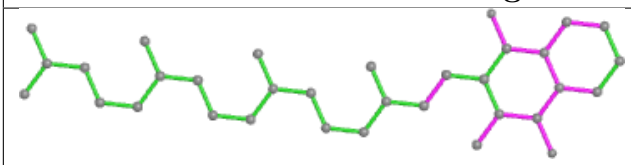


Torsions

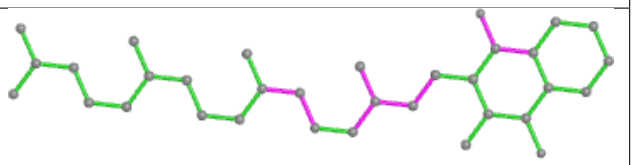


Rings

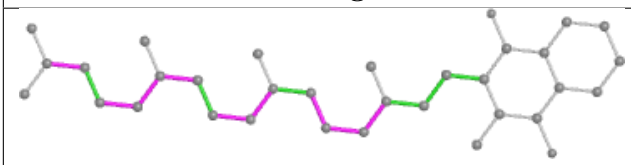
Ligand PQN aA 3144



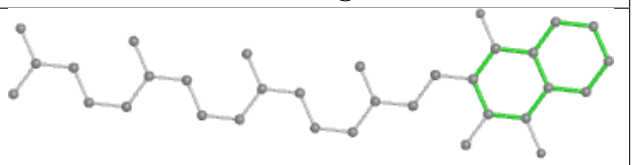
Bond lengths



Bond angles

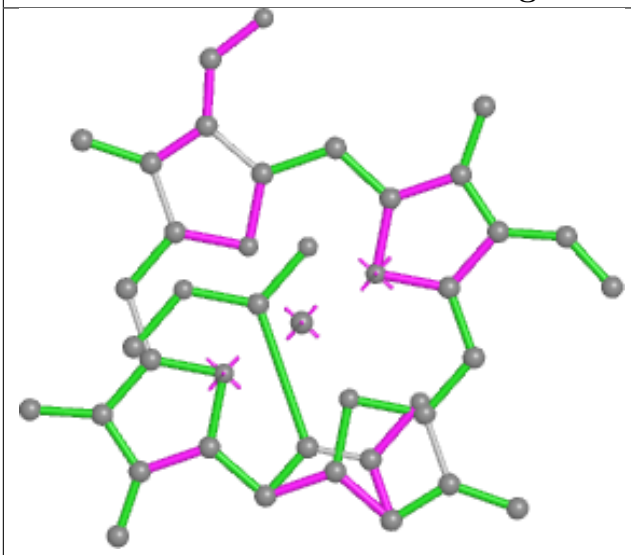


Torsions

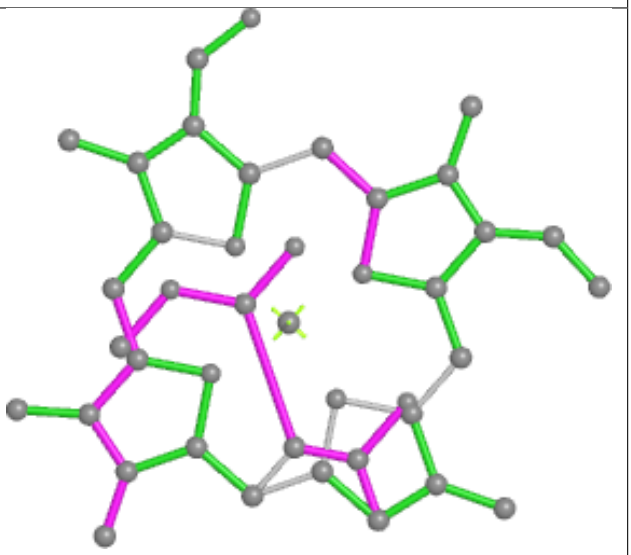


Rings

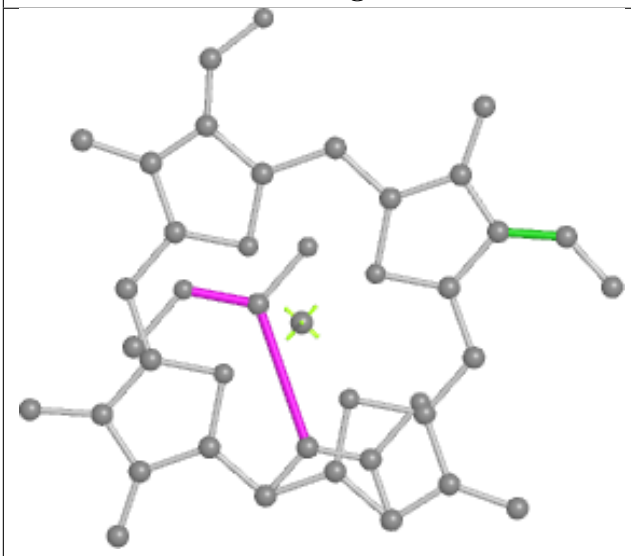
Ligand CL7 bB 814



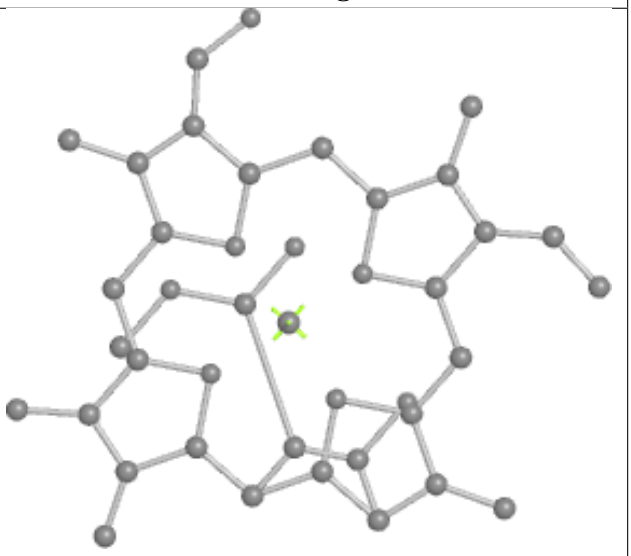
Bond lengths



Bond angles

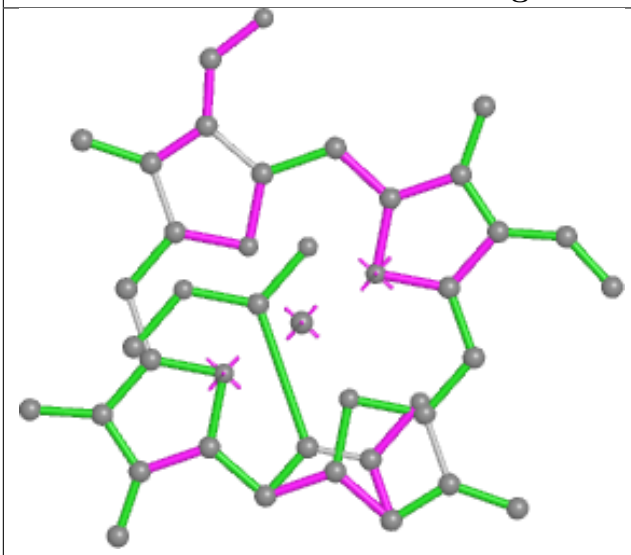


Torsions

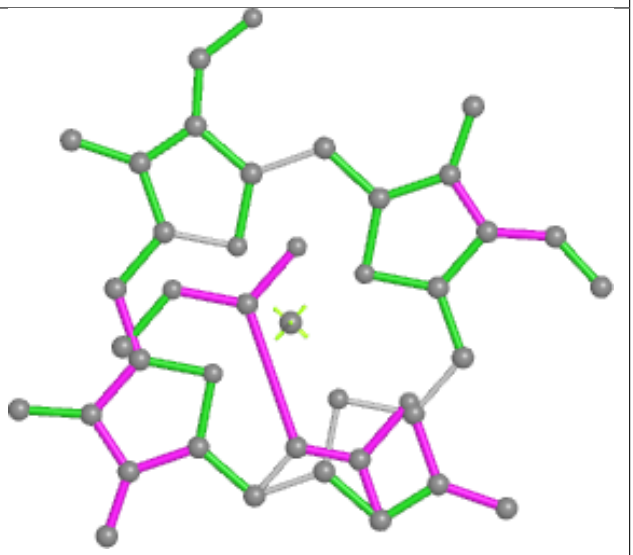


Rings

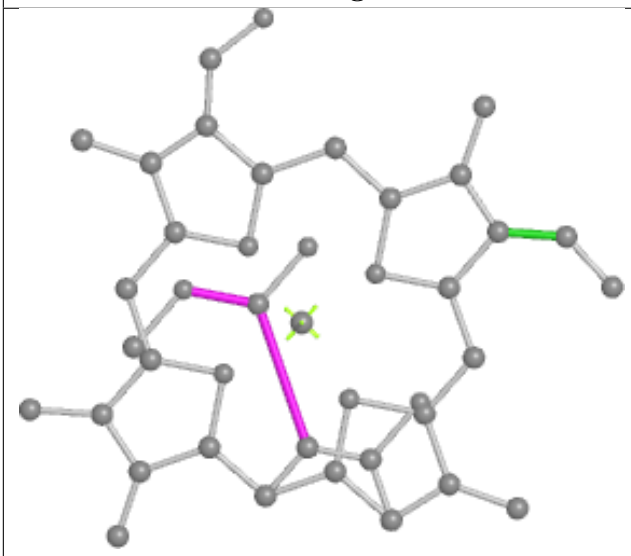
Ligand CL7 aB 3010



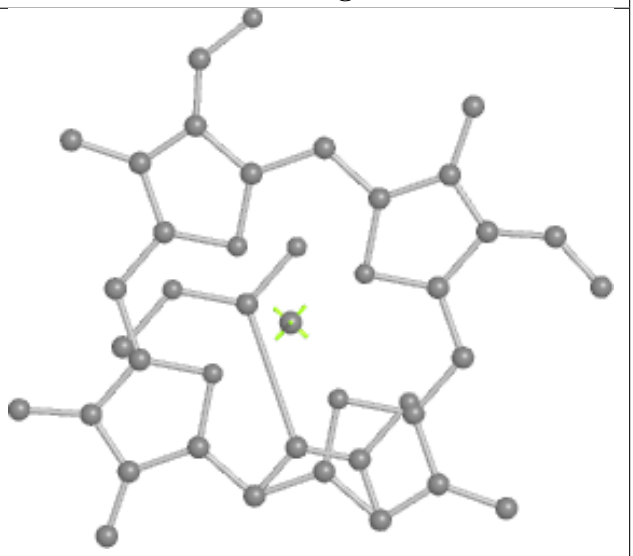
Bond lengths



Bond angles

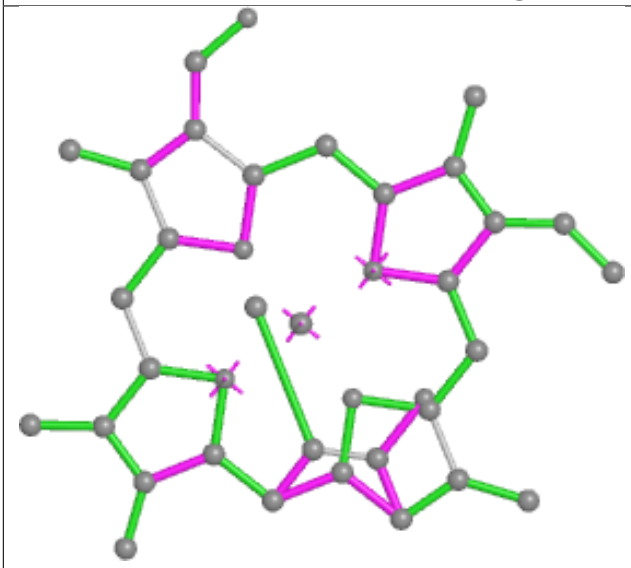


Torsions

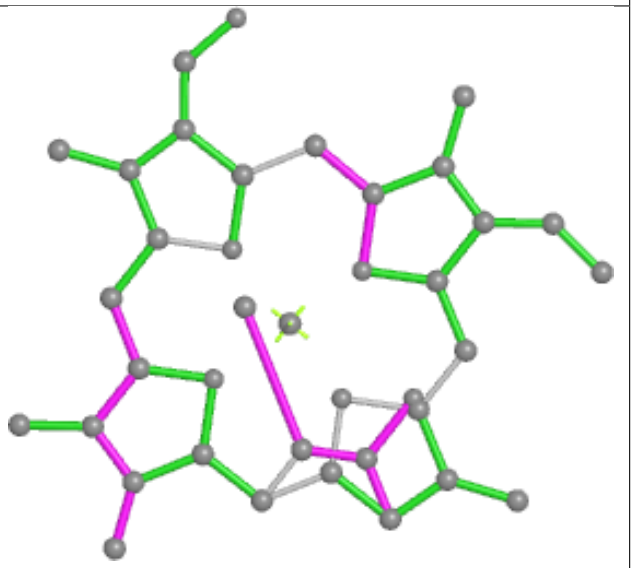


Rings

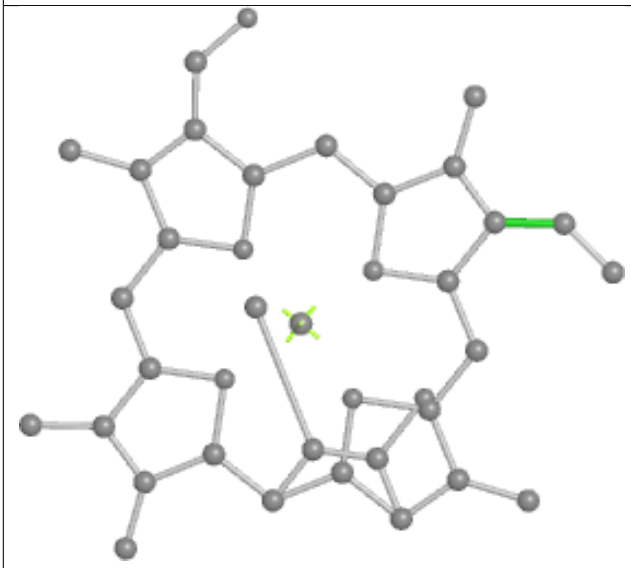
Ligand CL7 aA 3118



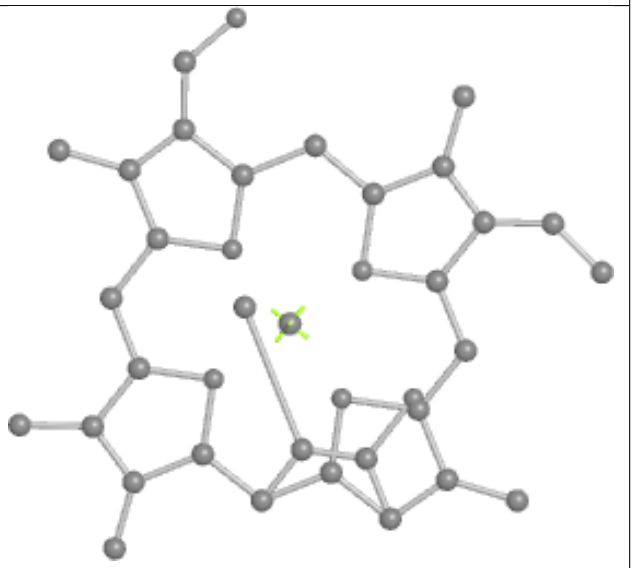
Bond lengths



Bond angles

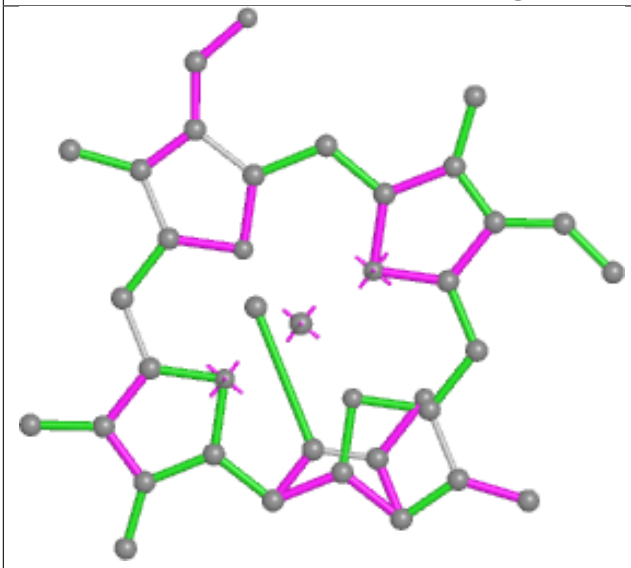


Torsions

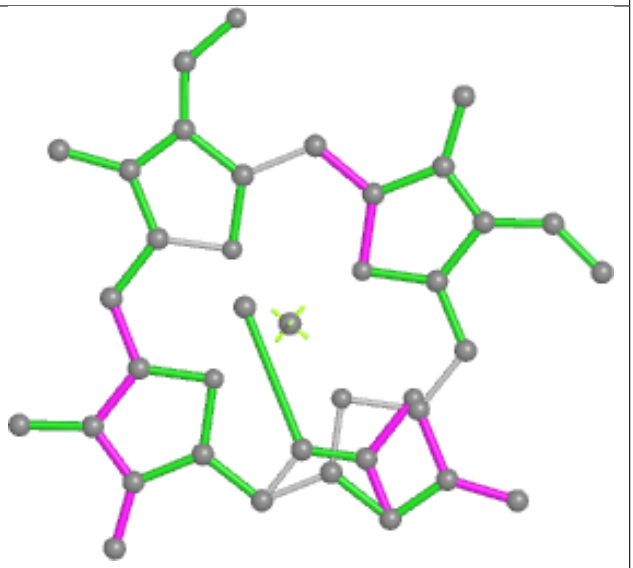


Rings

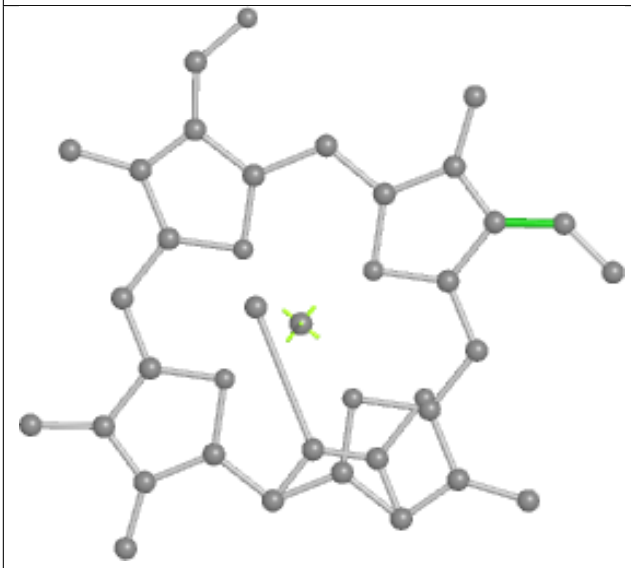
Ligand CL7 bA 3118



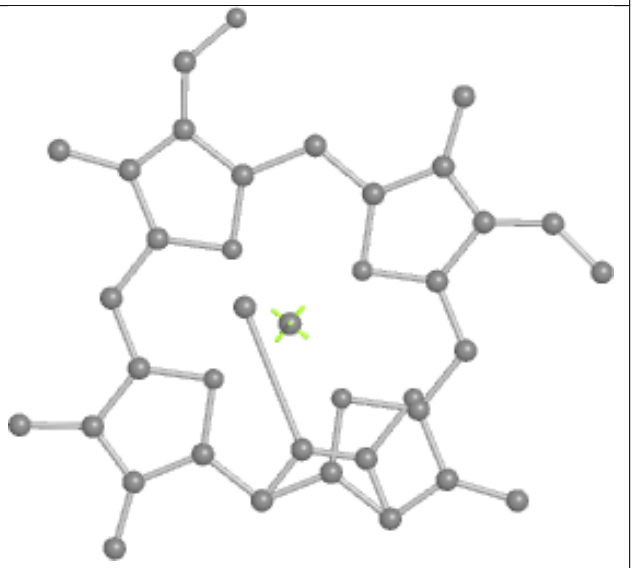
Bond lengths



Bond angles

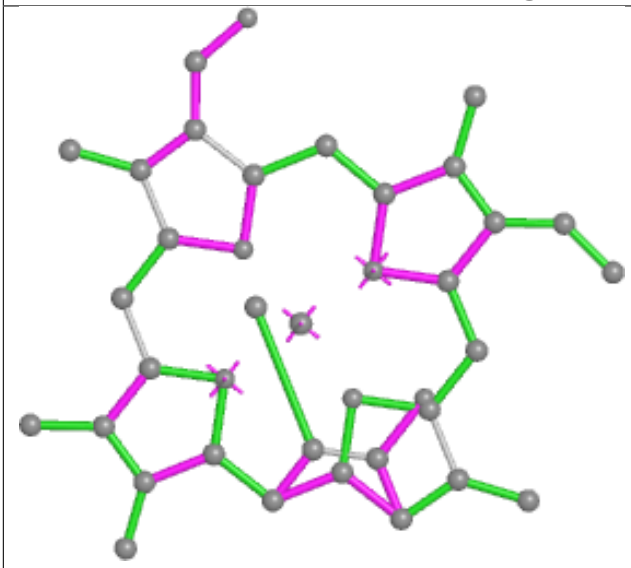


Torsions

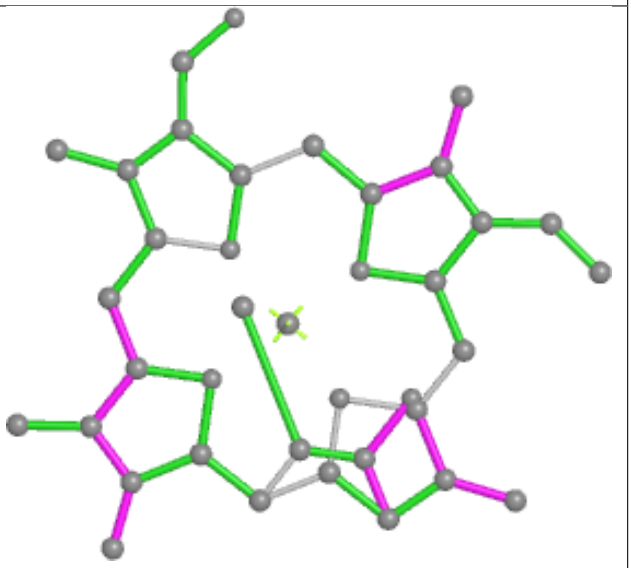


Rings

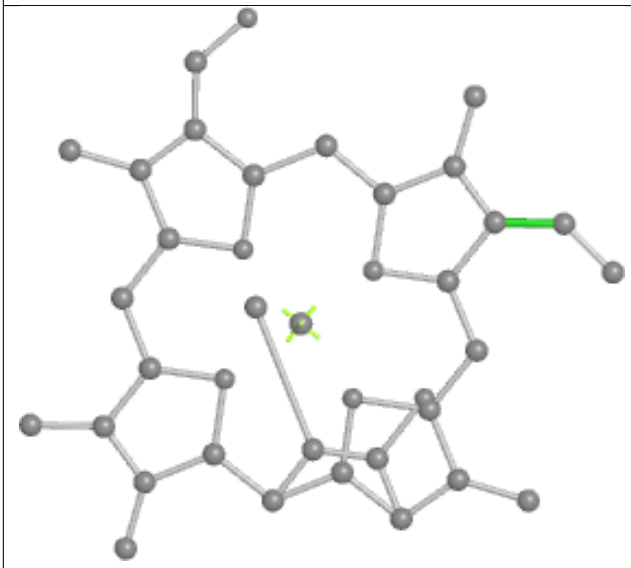
Ligand CL7 bF 201



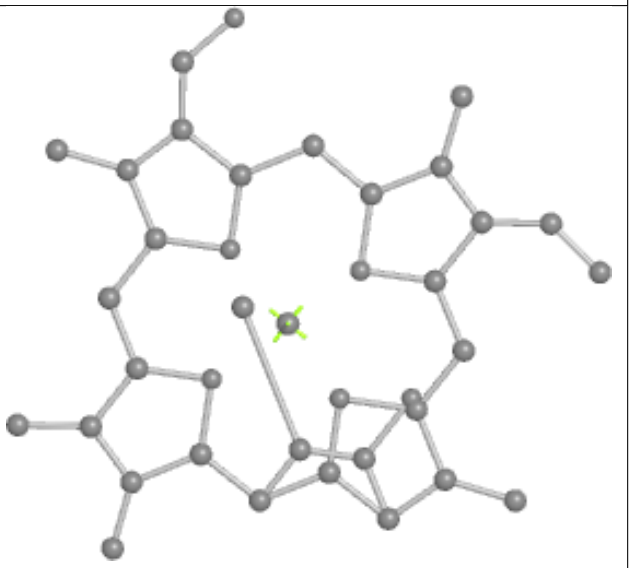
Bond lengths



Bond angles

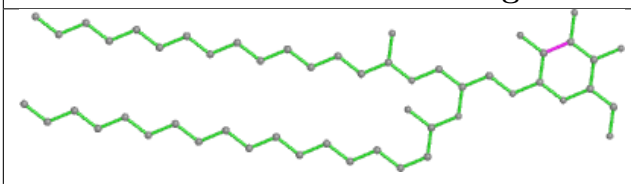


Torsions

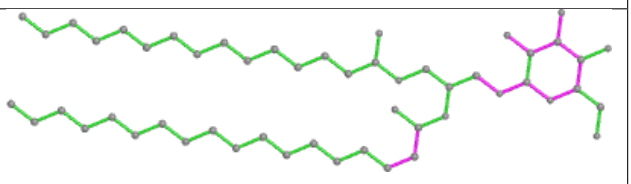


Rings

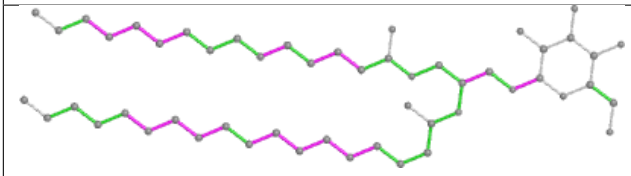
Ligand LMG aB 3029



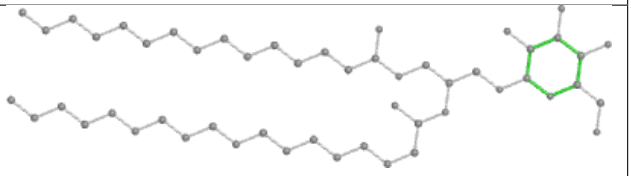
Bond lengths



Bond angles

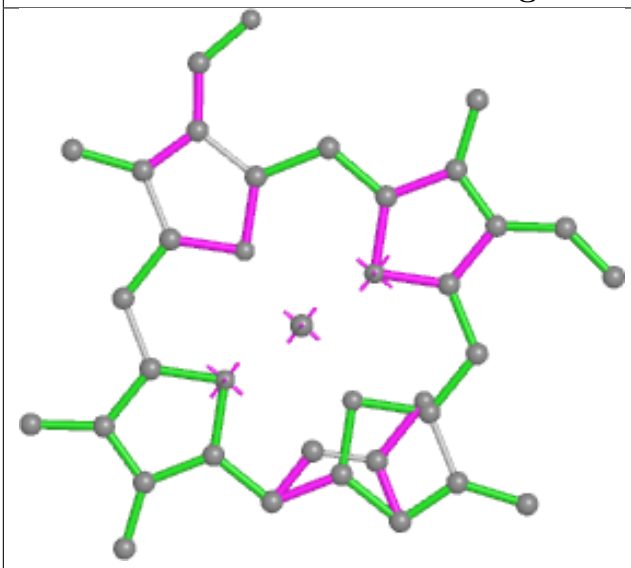


Torsions

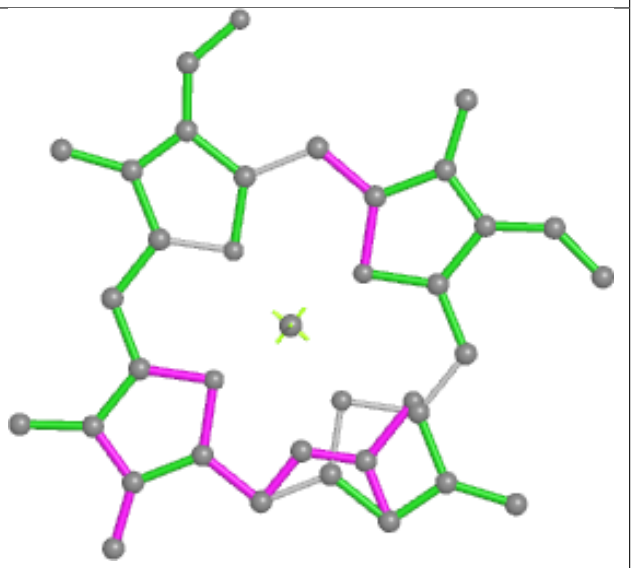


Rings

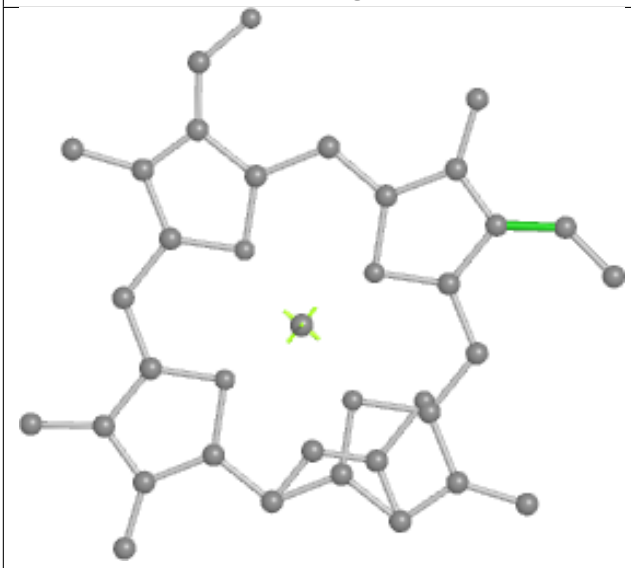
Ligand CL7 aK 101



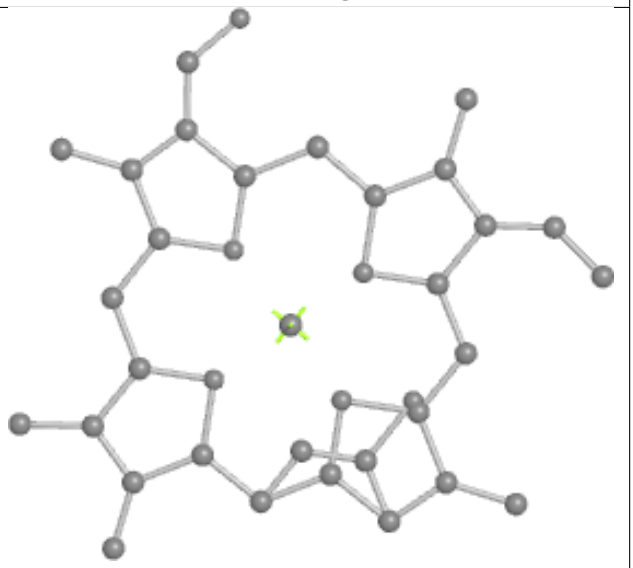
Bond lengths



Bond angles

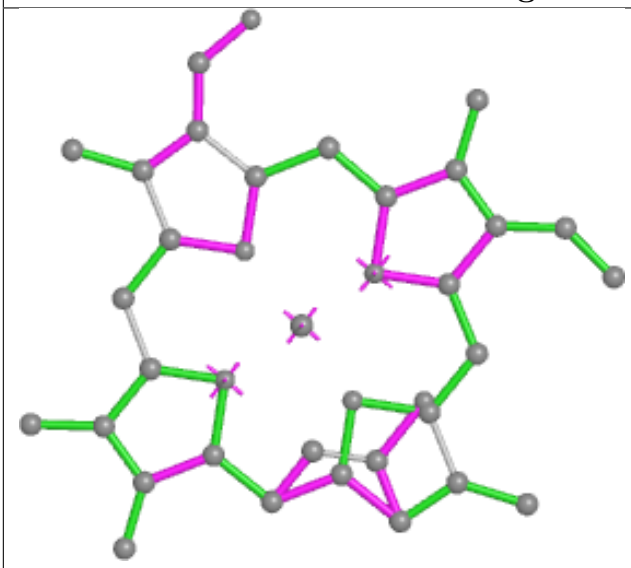


Torsions

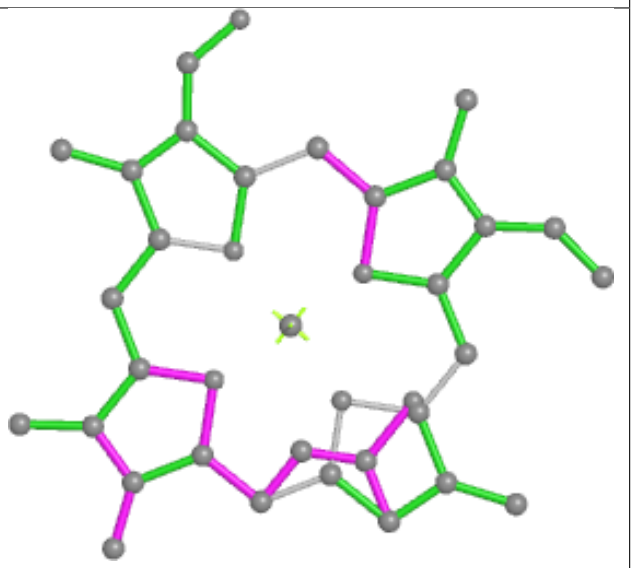


Rings

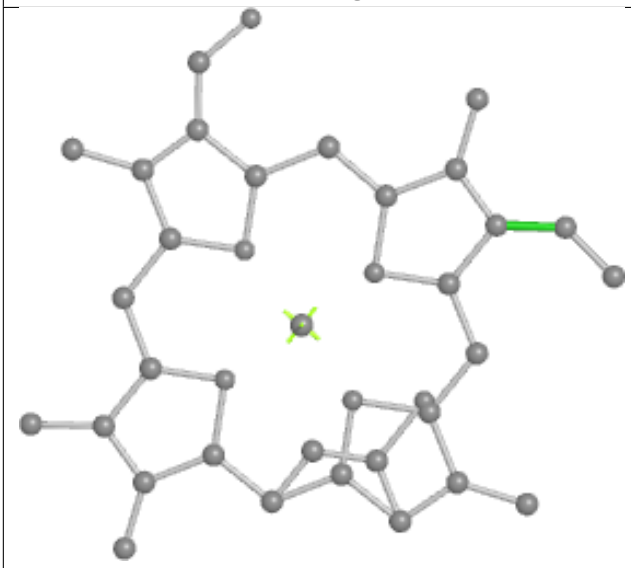
Ligand CL7 bK 101



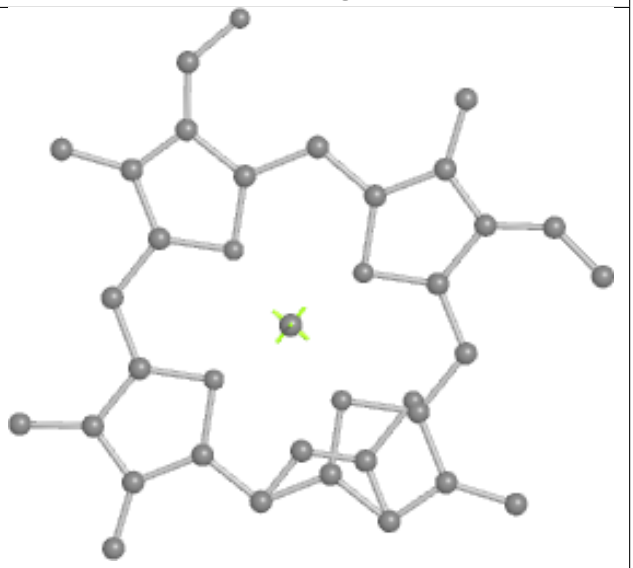
Bond lengths



Bond angles

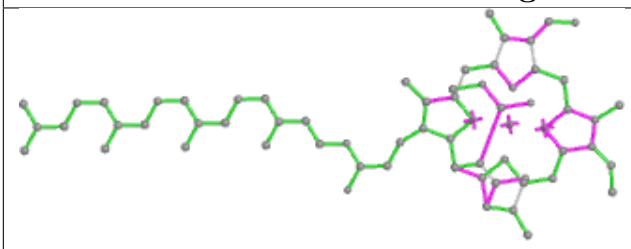


Torsions

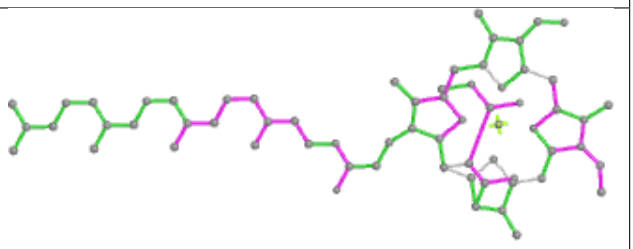


Rings

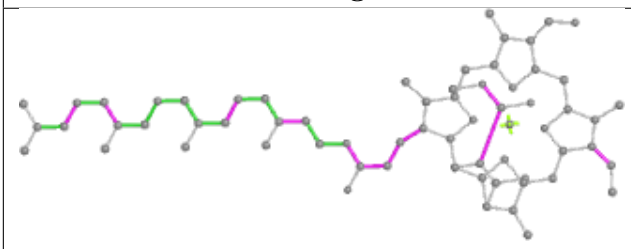
Ligand CL7 bB 807



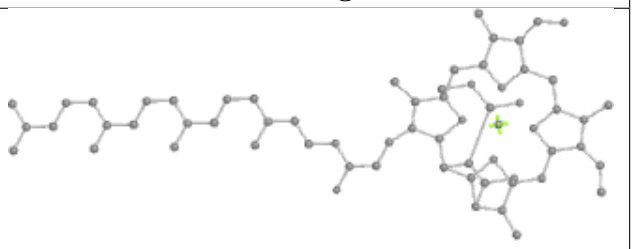
Bond lengths



Bond angles

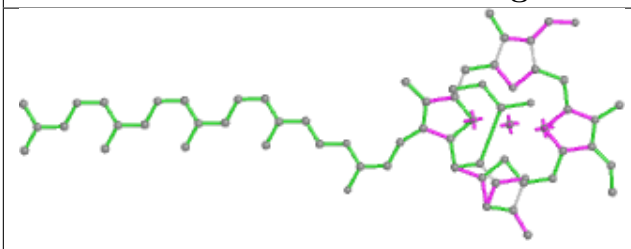


Torsions

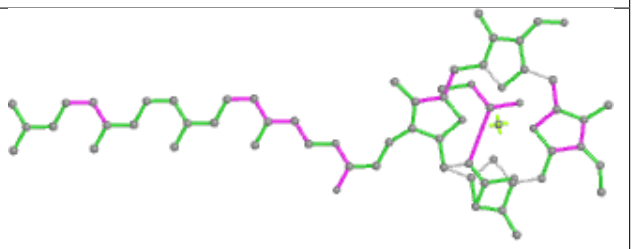


Rings

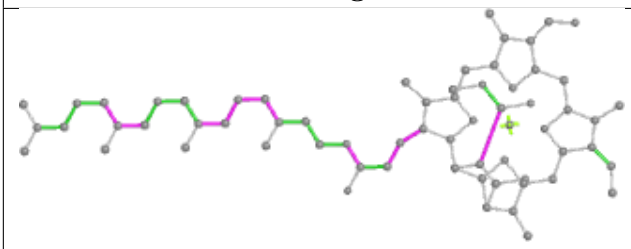
Ligand CL7 aA 3108



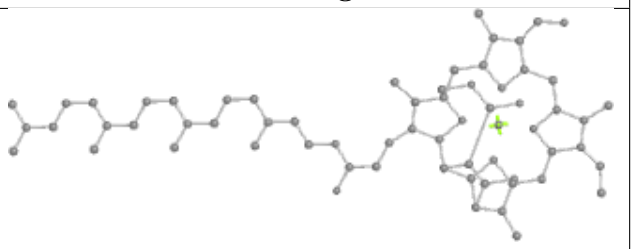
Bond lengths



Bond angles

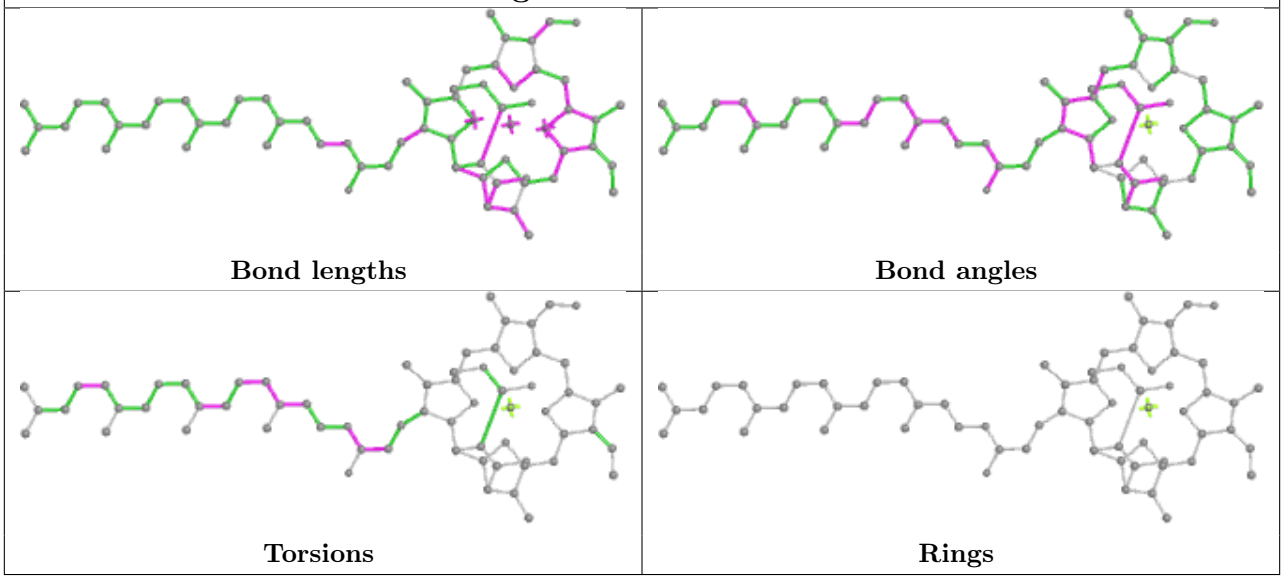


Torsions

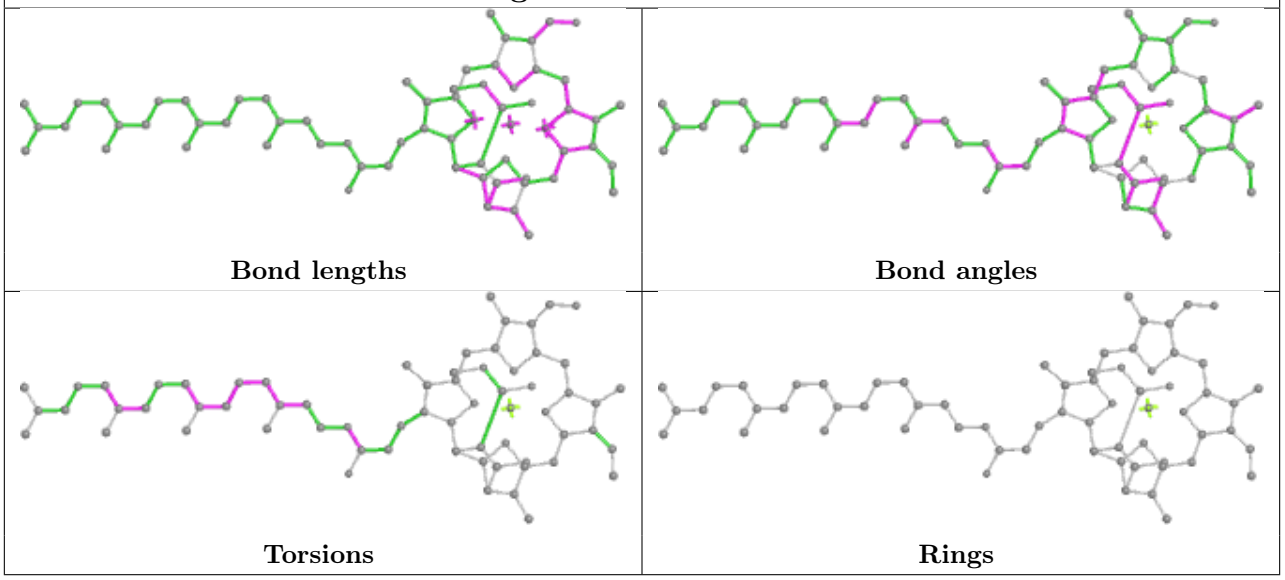


Rings

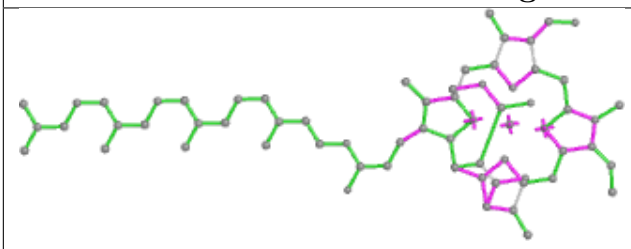
Ligand CL7 aB 3005



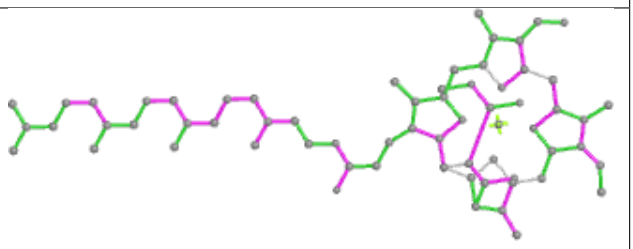
Ligand CL7 bA 3142



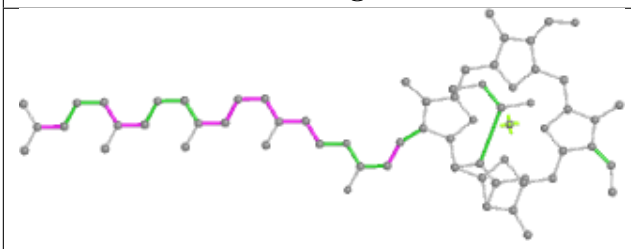
Ligand CL7 bB 826



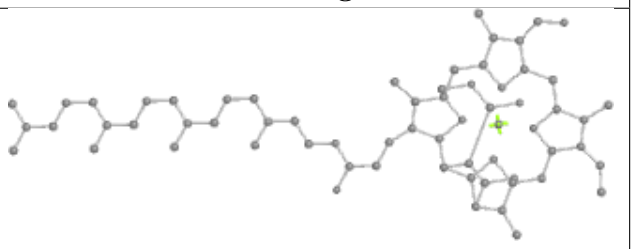
Bond lengths



Bond angles

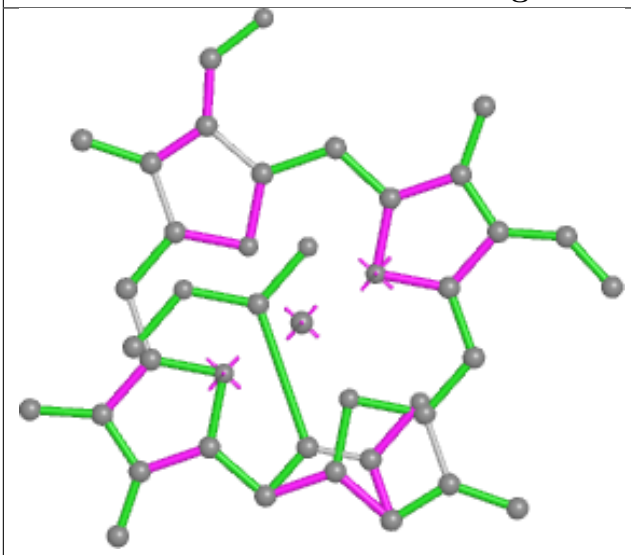


Torsions

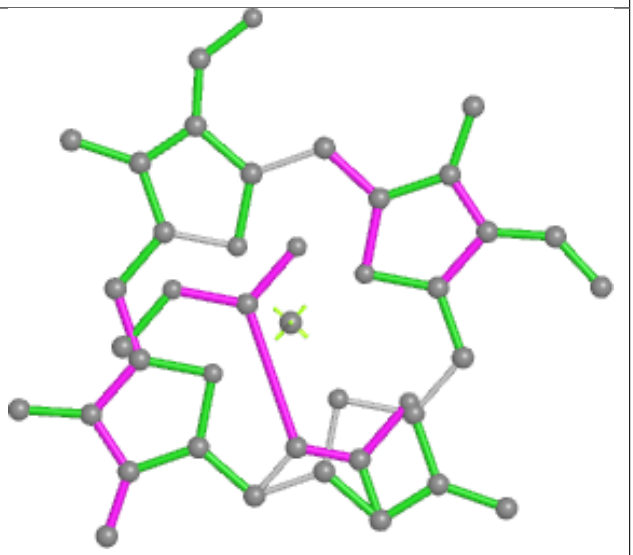


Rings

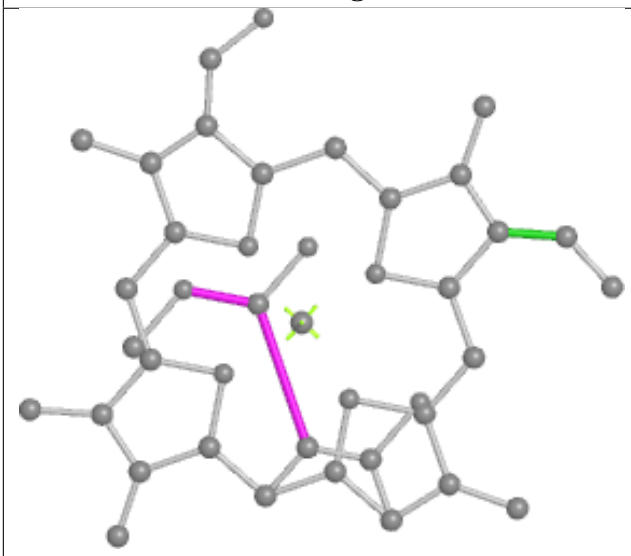
Ligand CL7 cA 3103



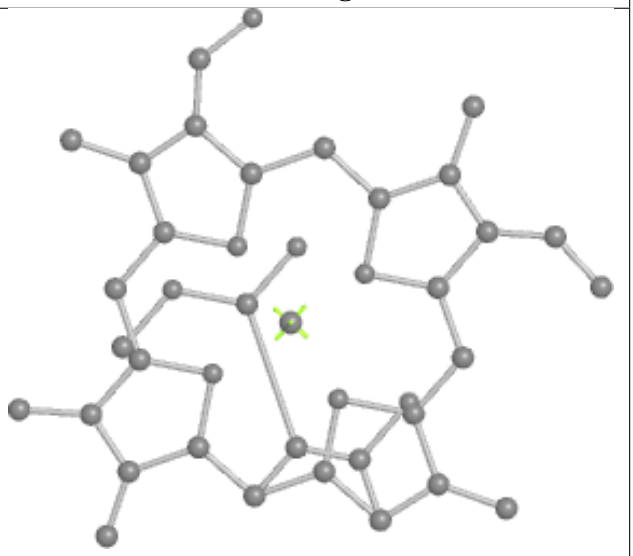
Bond lengths



Bond angles

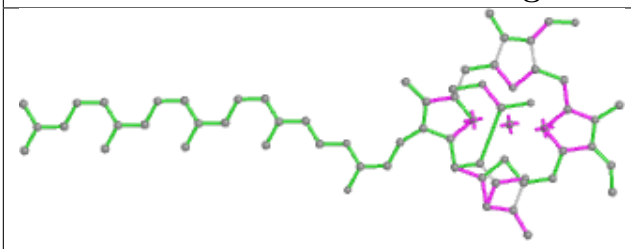


Torsions

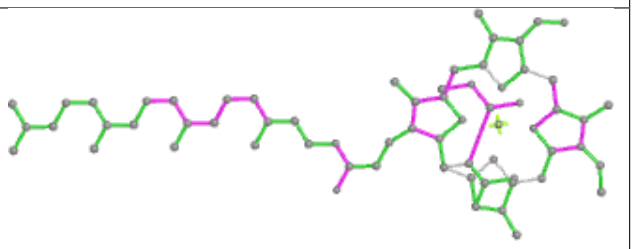


Rings

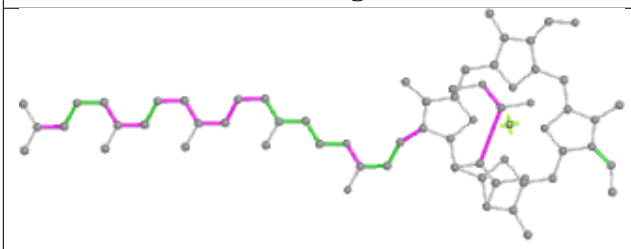
Ligand CL7 cL 203



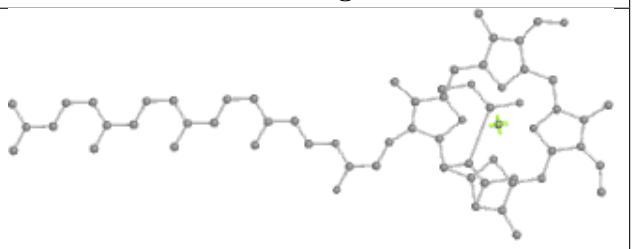
Bond lengths



Bond angles

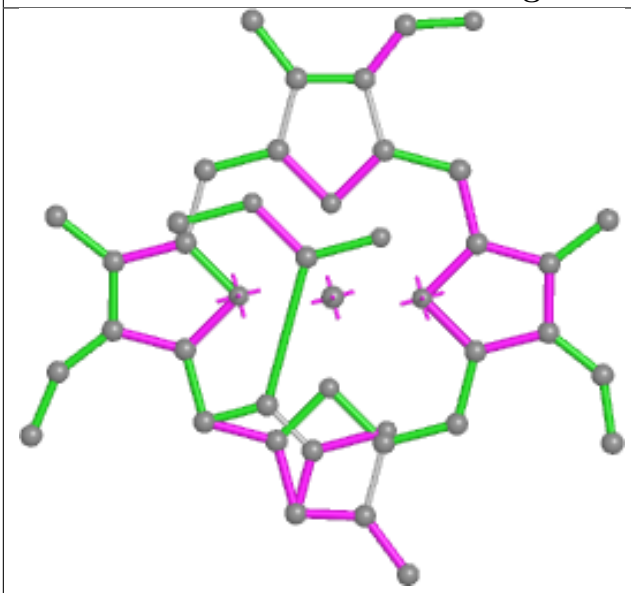


Torsions

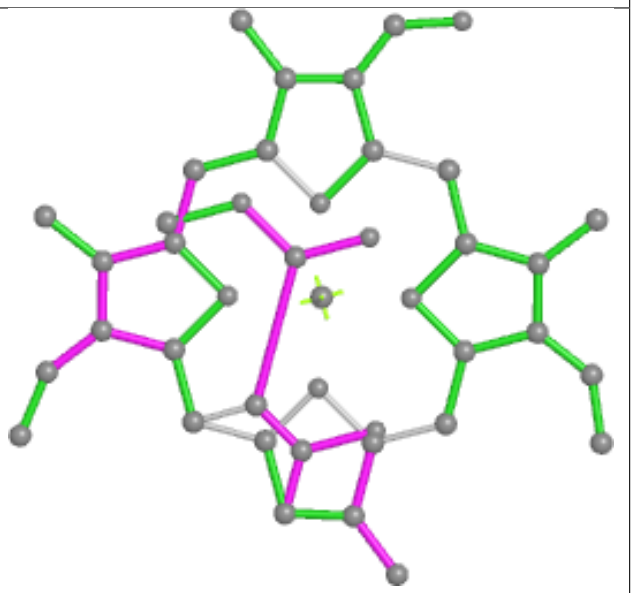


Rings

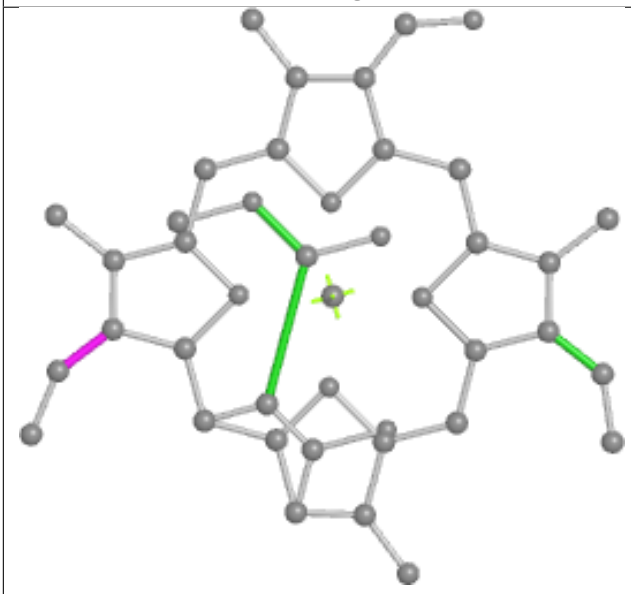
Ligand CL7 cL 205



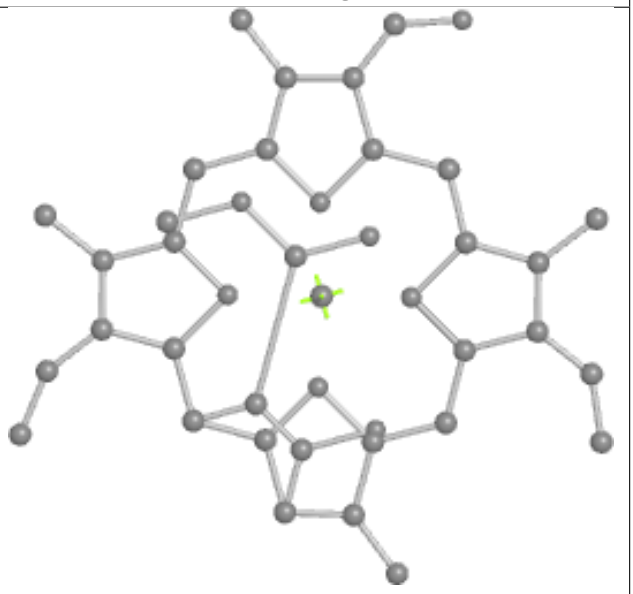
Bond lengths



Bond angles

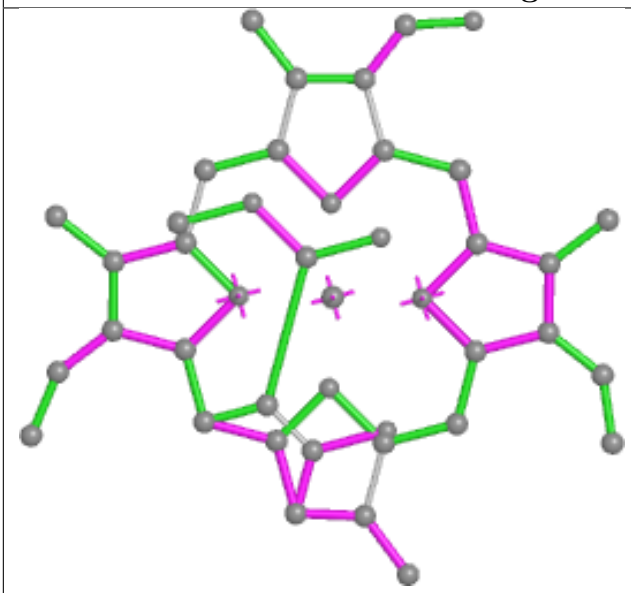


Torsions

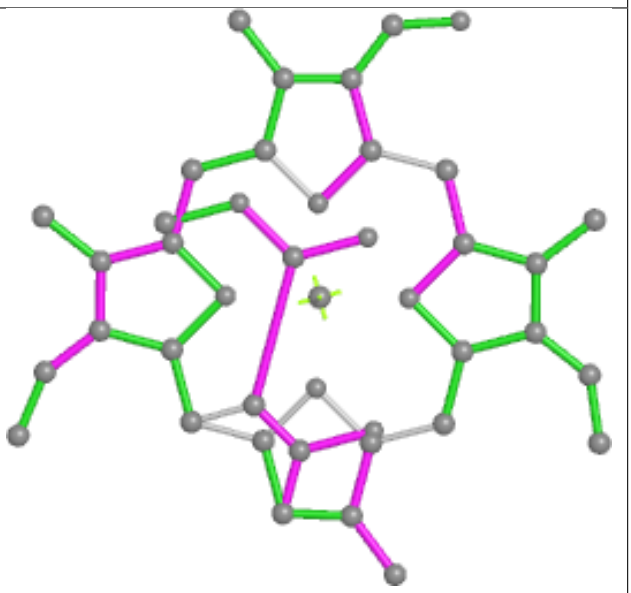


Rings

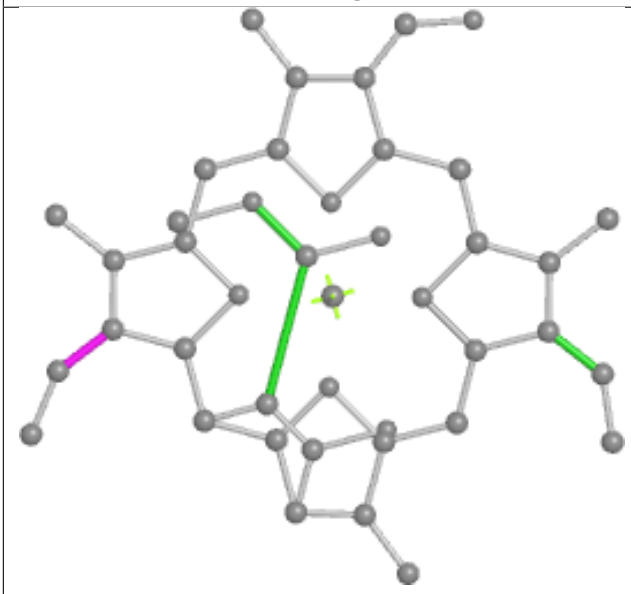
Ligand CL7 bL 205



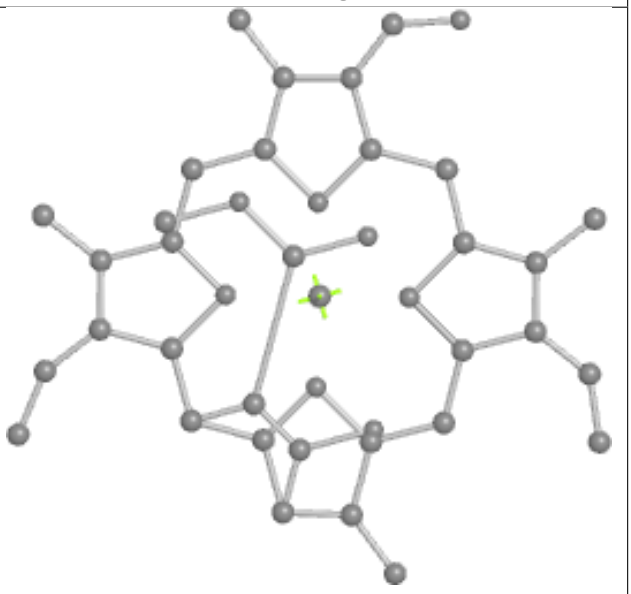
Bond lengths



Bond angles

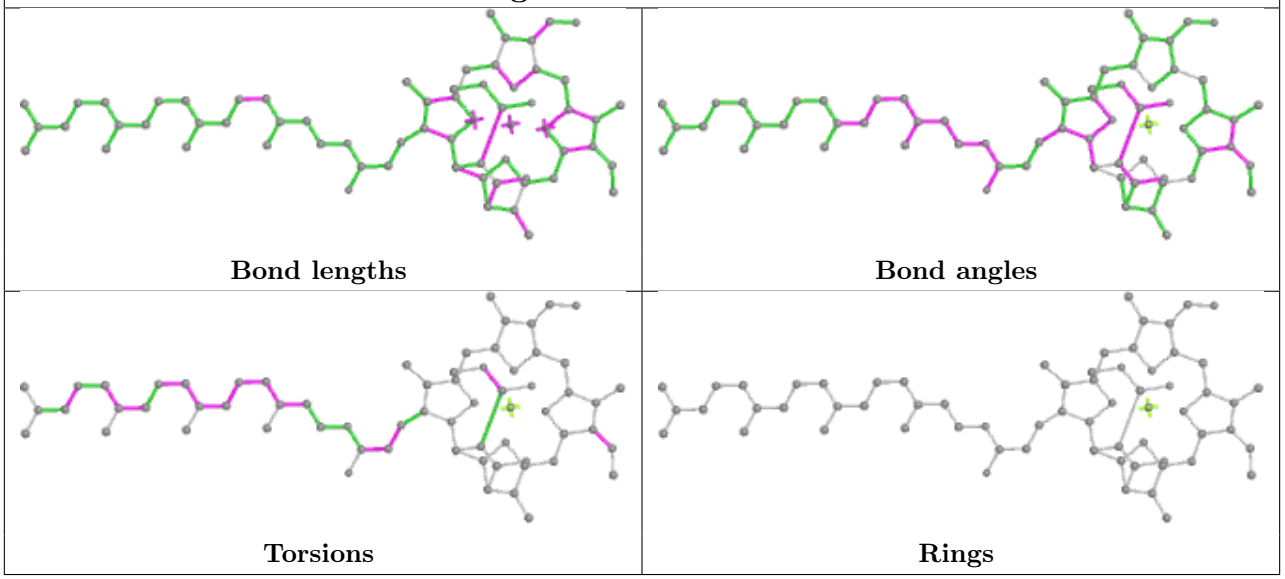


Torsions

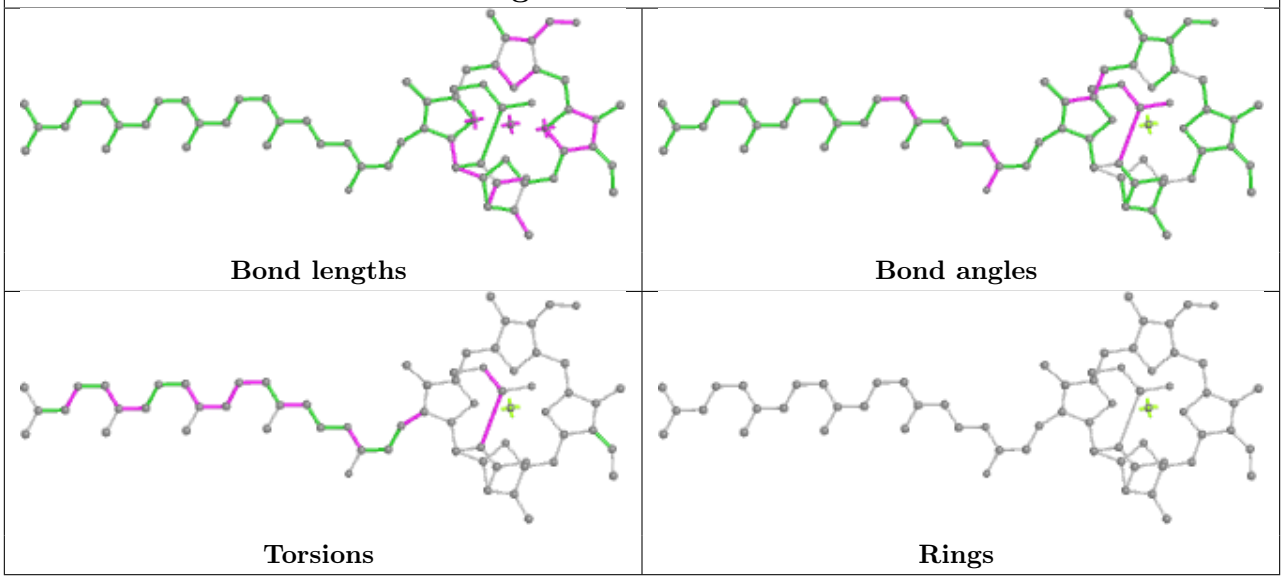


Rings

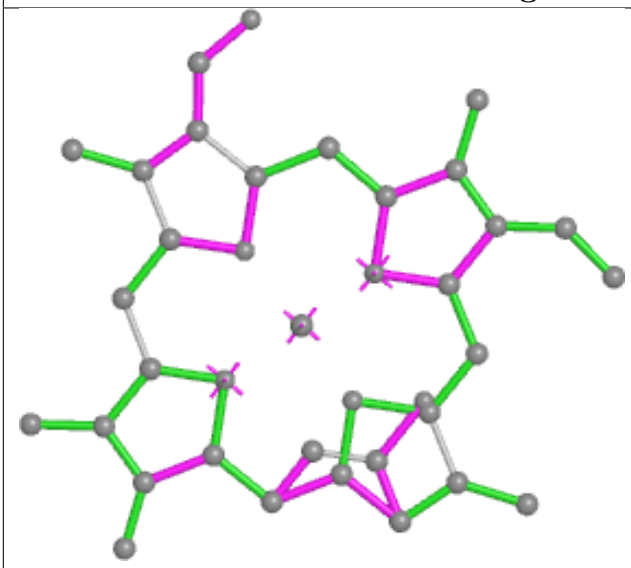
Ligand CL7 bA 3114



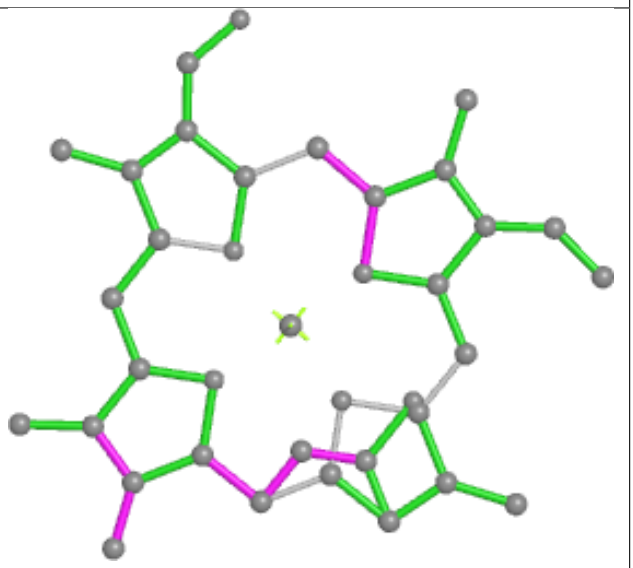
Ligand CL7 aA 3140



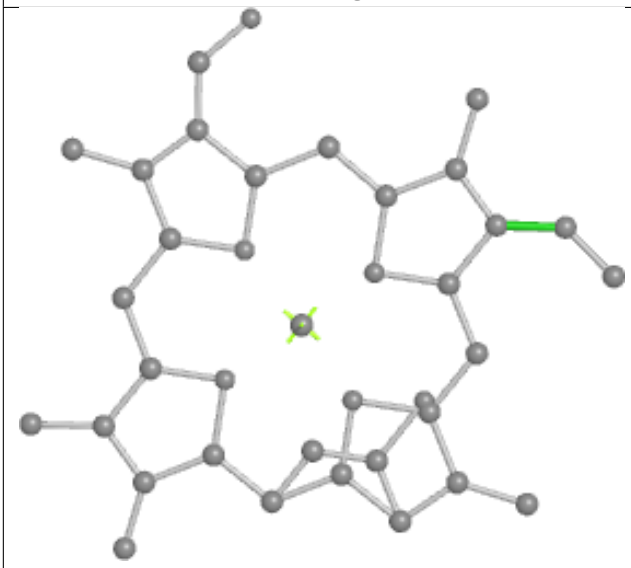
Ligand CL7 cK 101



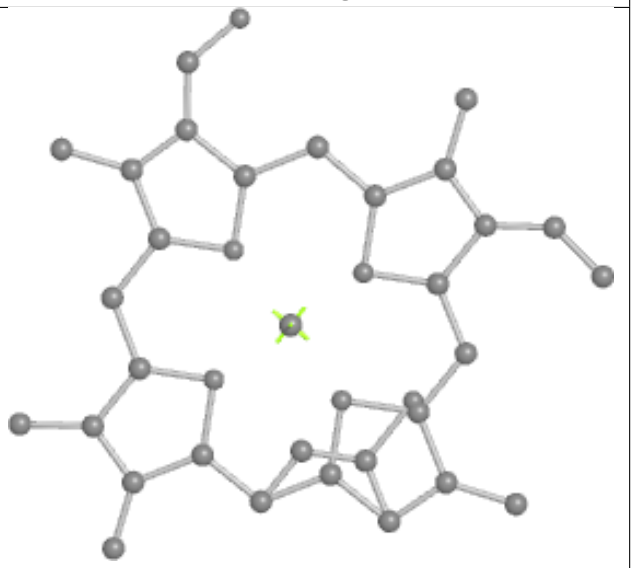
Bond lengths



Bond angles

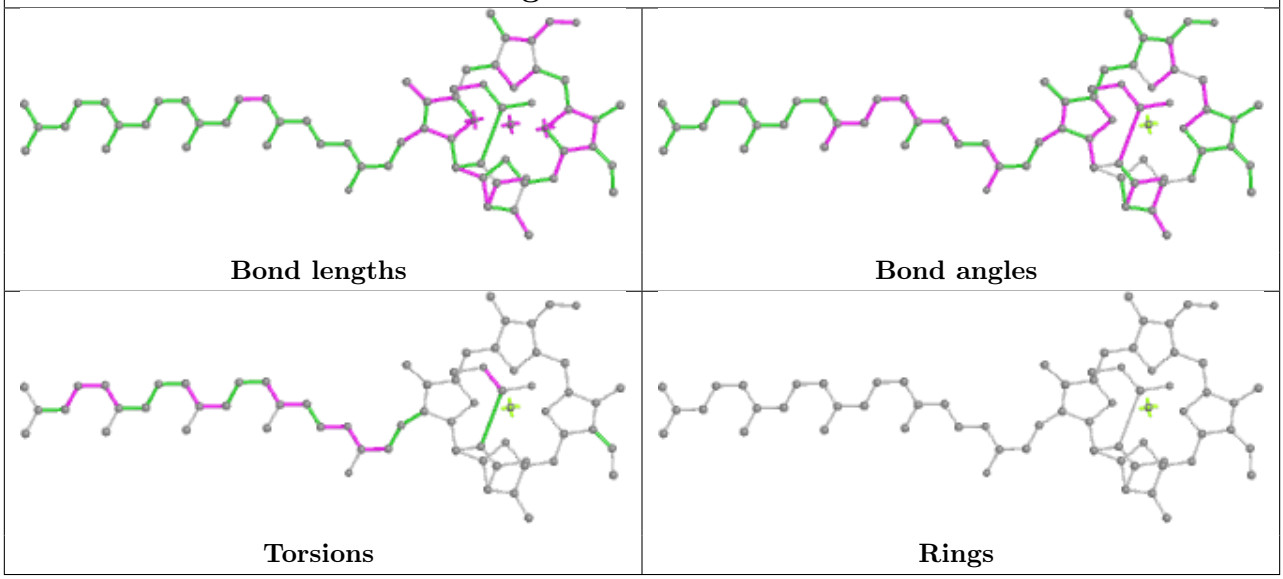


Torsions

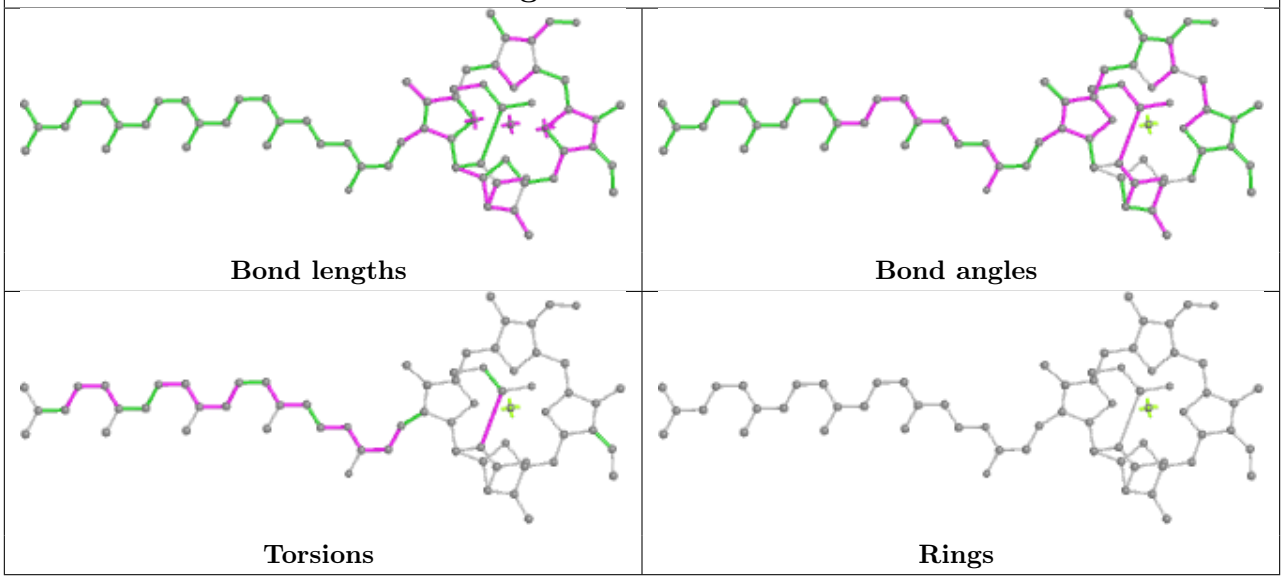


Rings

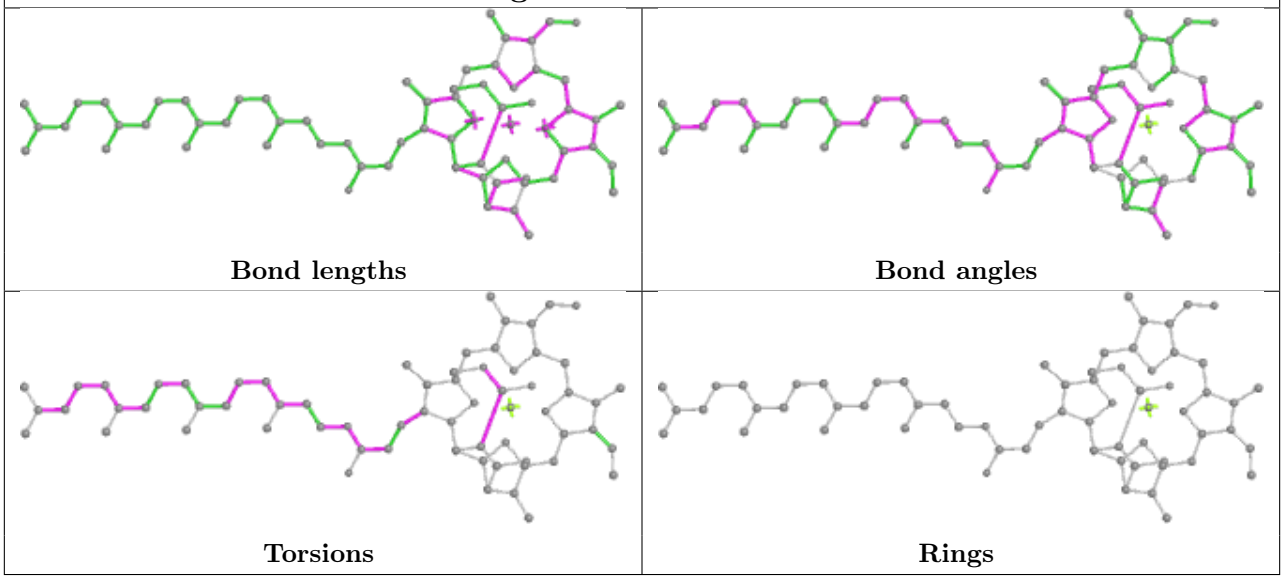
Ligand CL7 cB 810



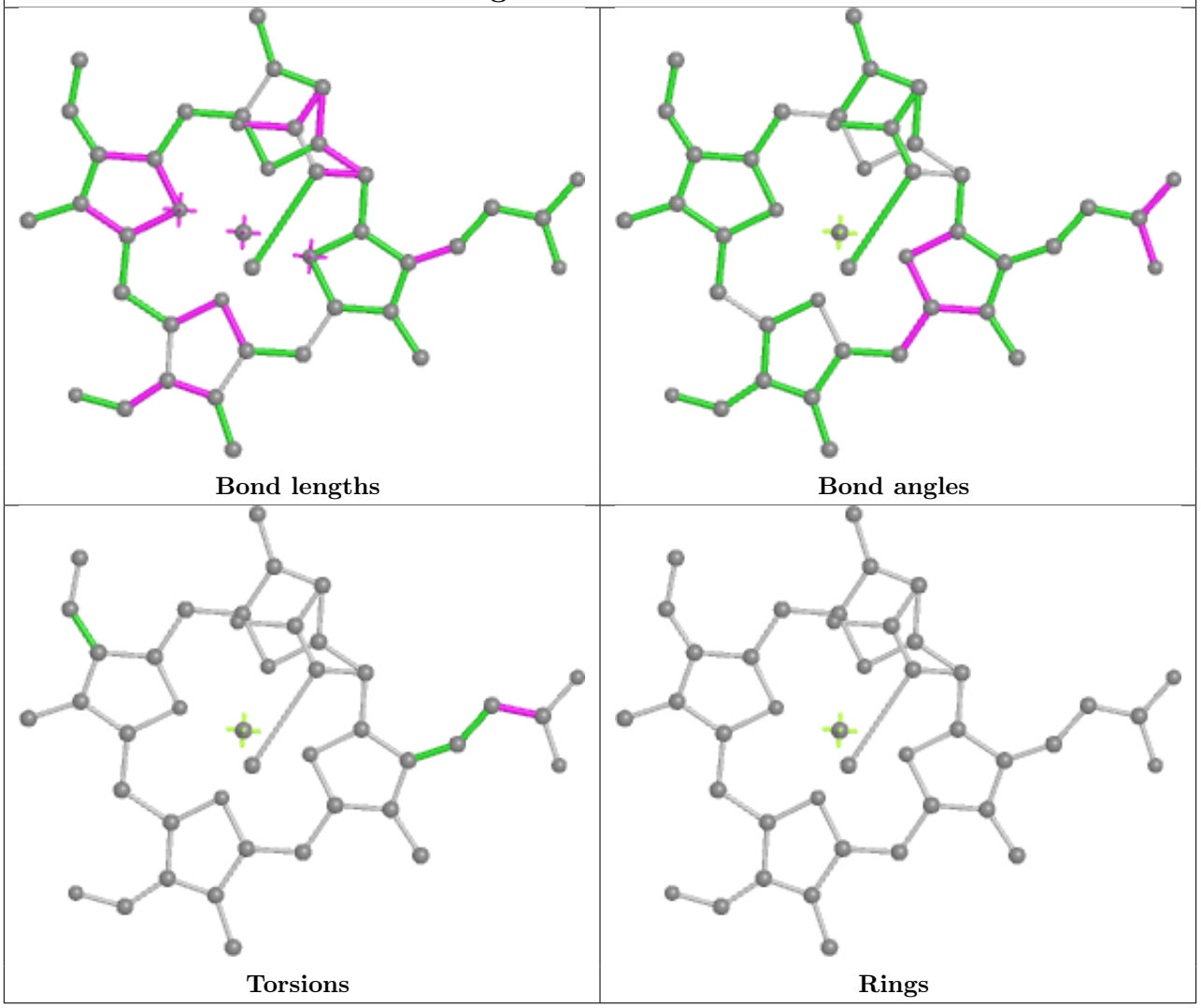
Ligand CL7 bB 810



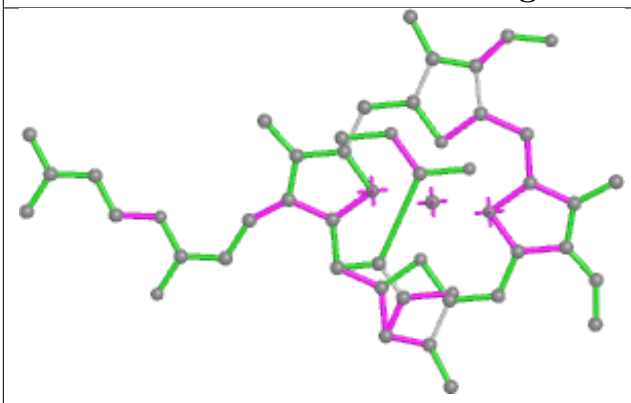
Ligand CL7 bA 3106



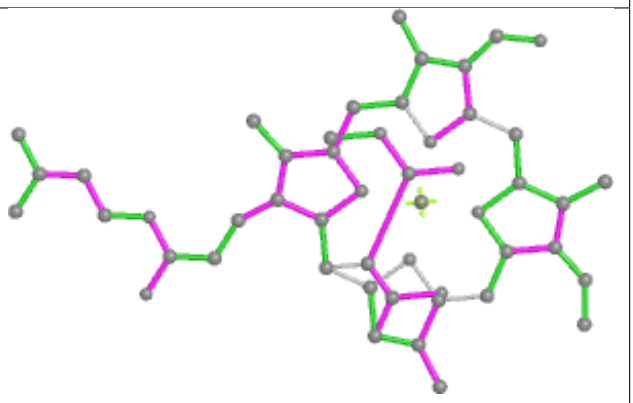
Ligand CL7 aJ 101



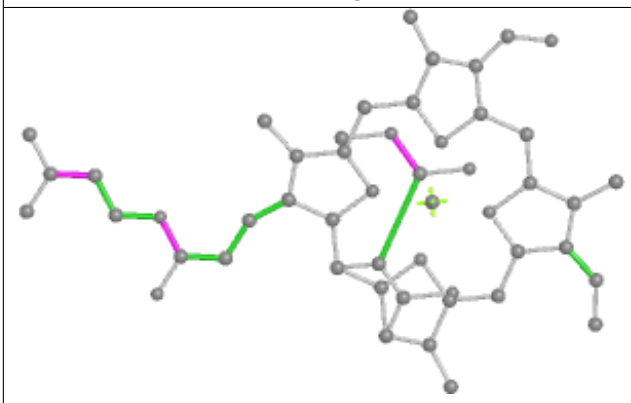
Ligand CL7 bB 809



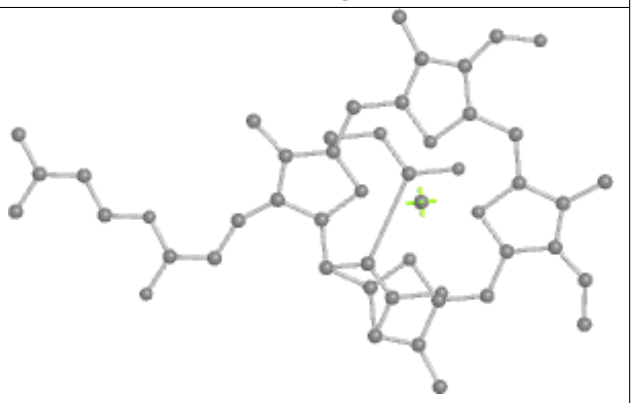
Bond lengths



Bond angles

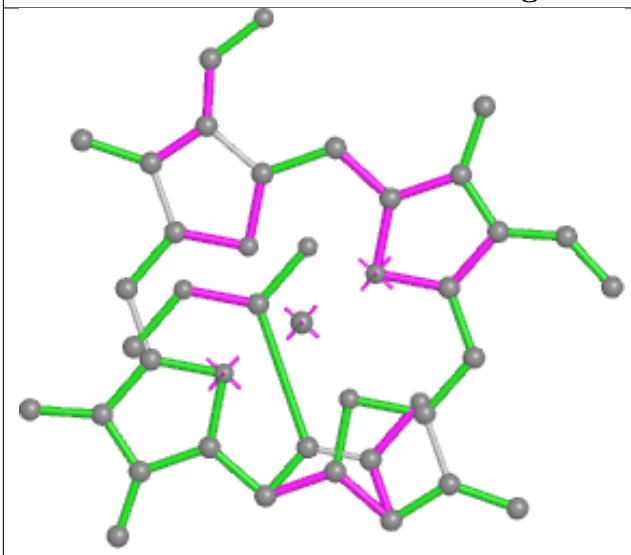


Torsions

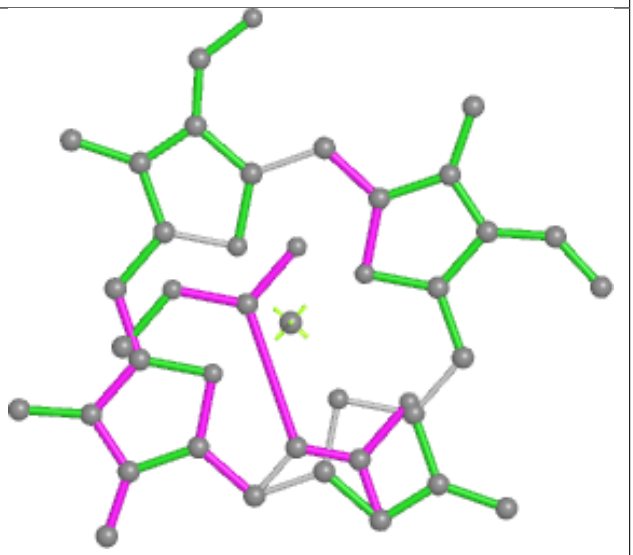


Rings

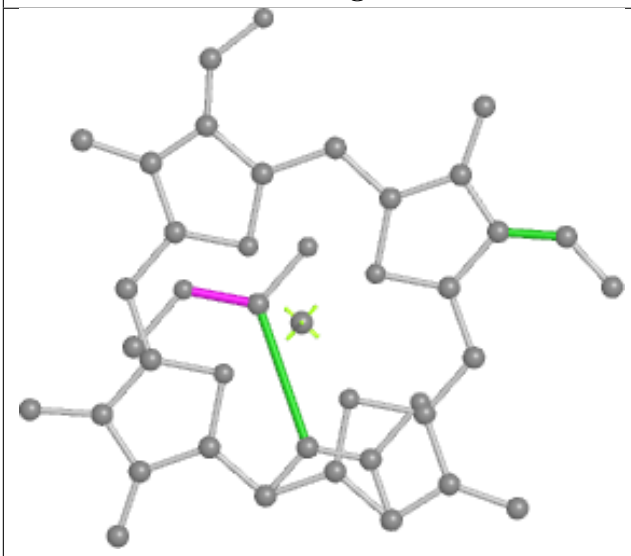
Ligand CL7 cB 815



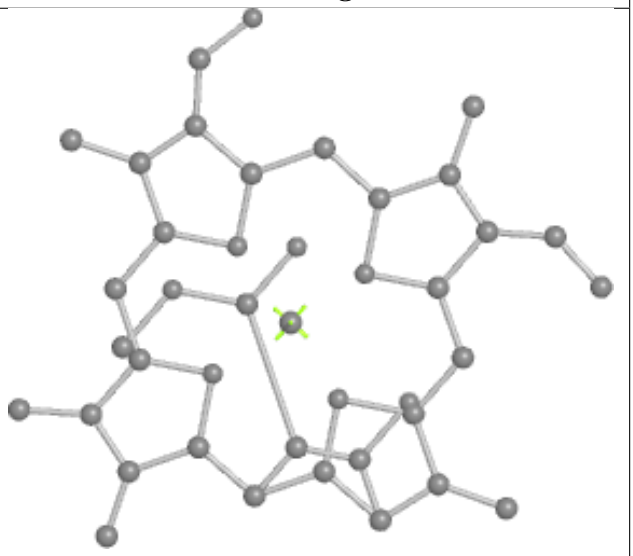
Bond lengths



Bond angles

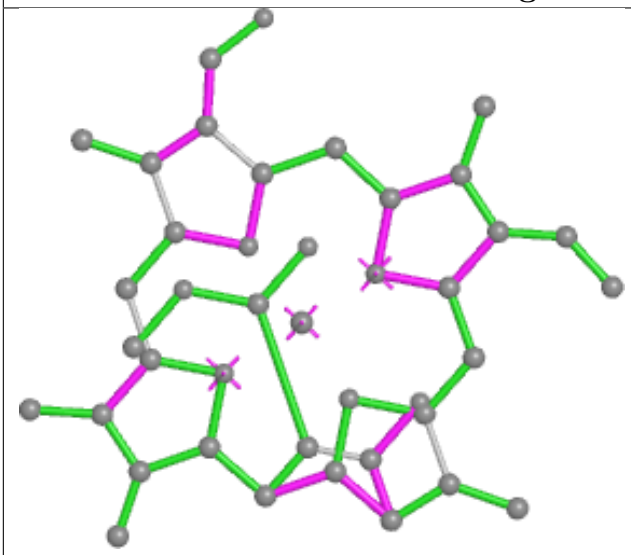


Torsions

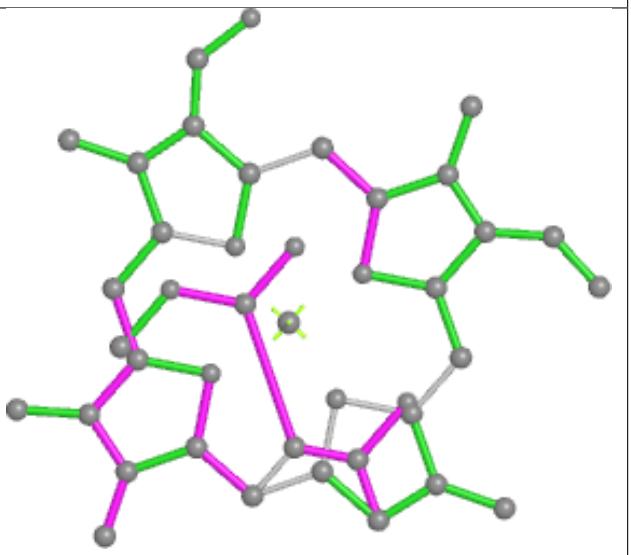


Rings

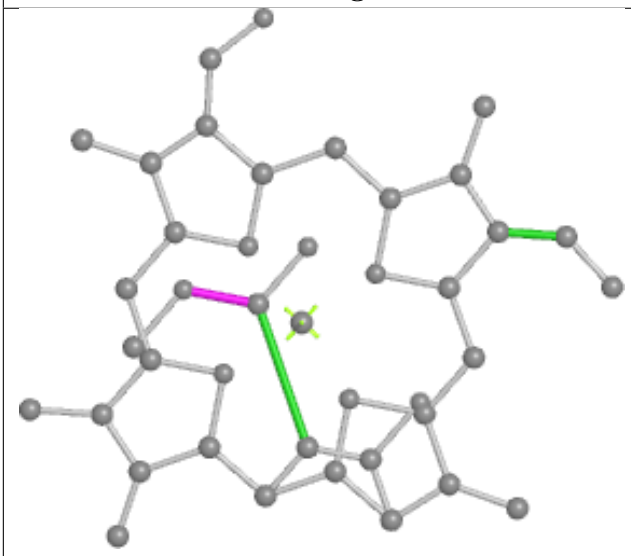
Ligand CL7 bB 815



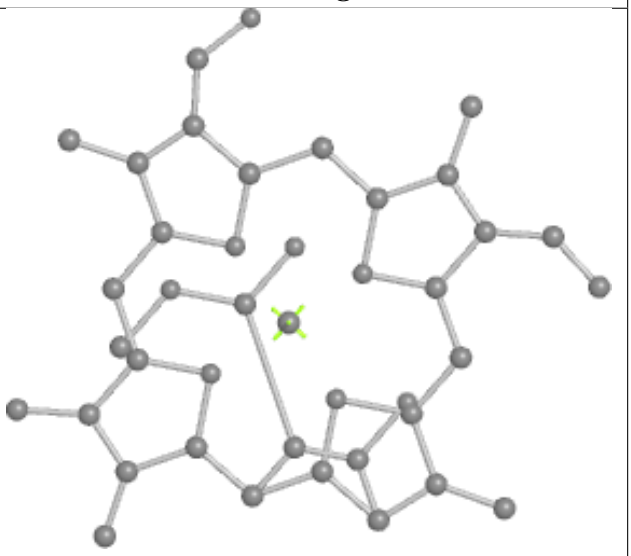
Bond lengths



Bond angles

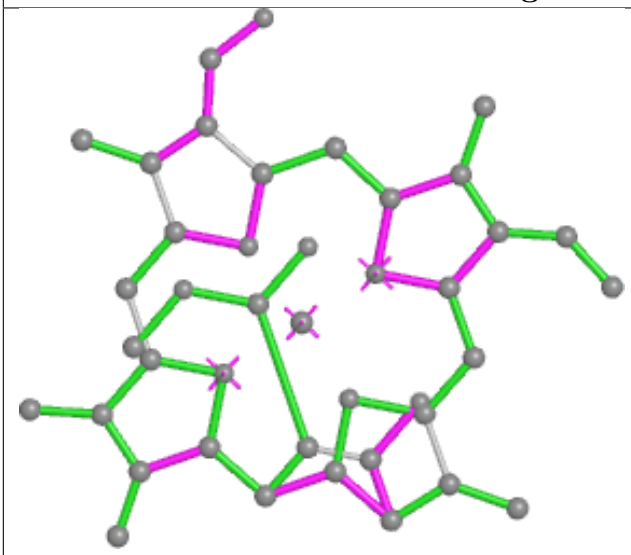


Torsions

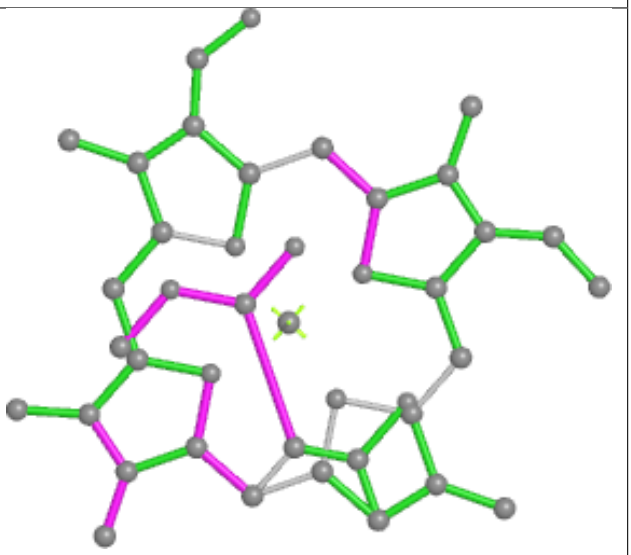


Rings

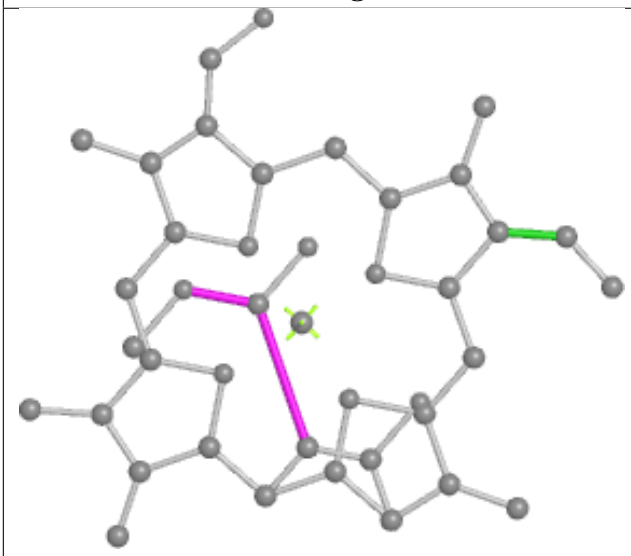
Ligand CL7 cB 818



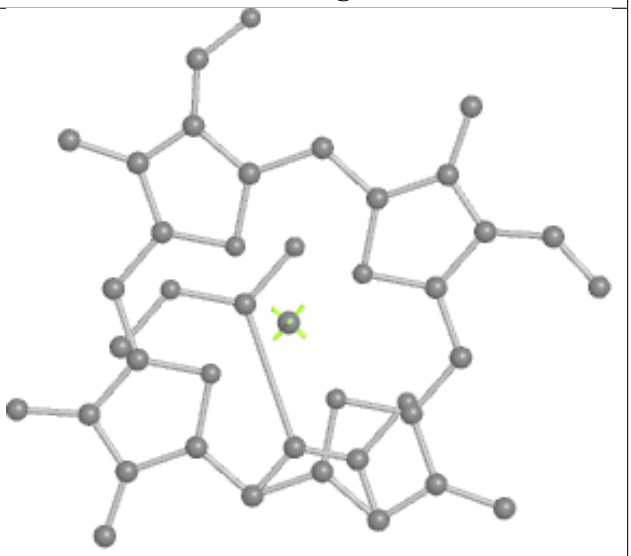
Bond lengths



Bond angles

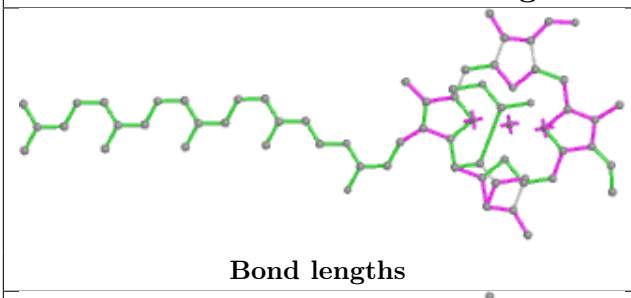


Torsions

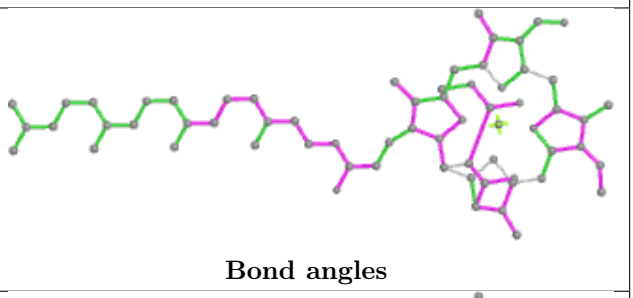


Rings

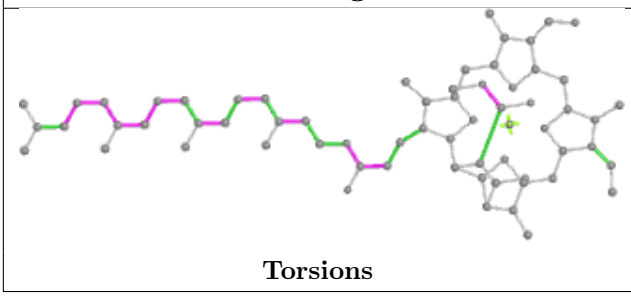
Ligand CL7 bB 827



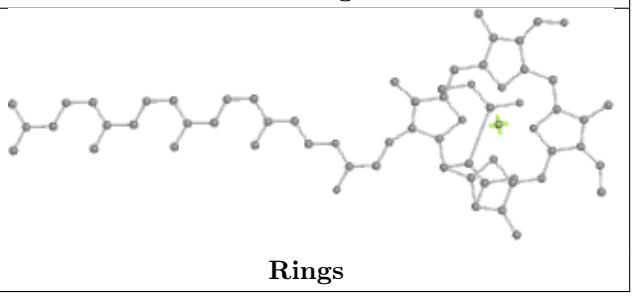
Bond lengths



Bond angles

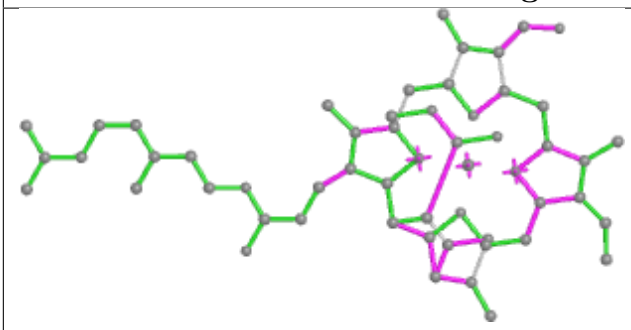


Torsions

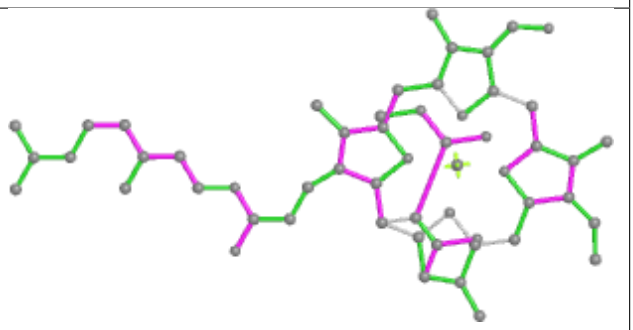


Rings

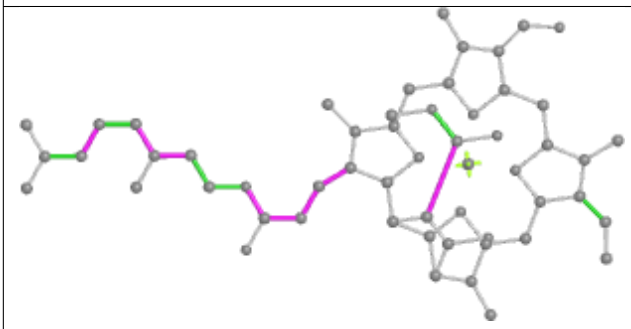
Ligand CL7 cB 833



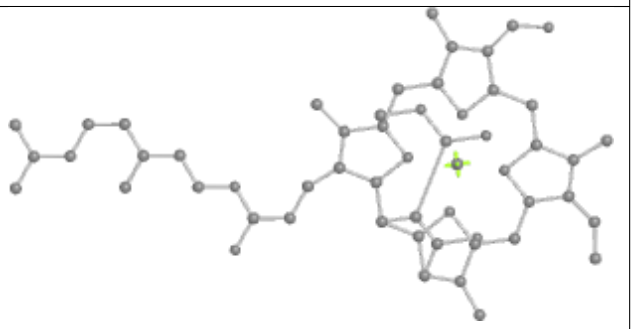
Bond lengths



Bond angles

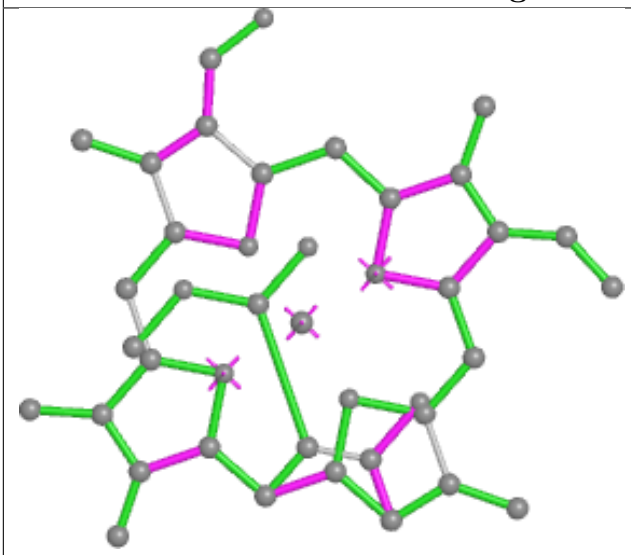


Torsions

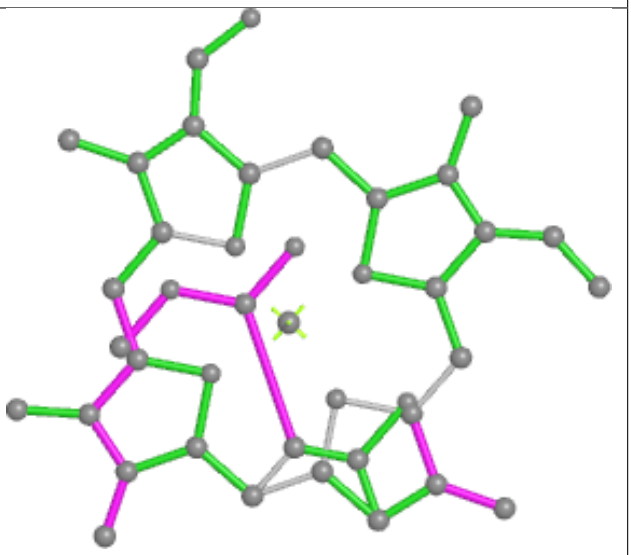


Rings

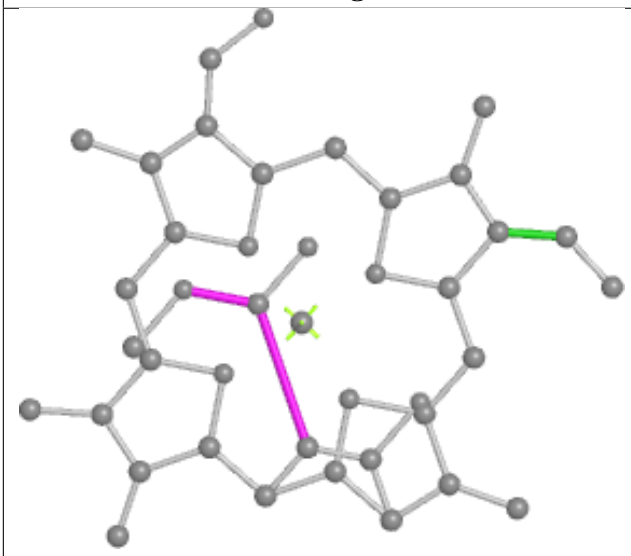
Ligand CL7 bA 3110



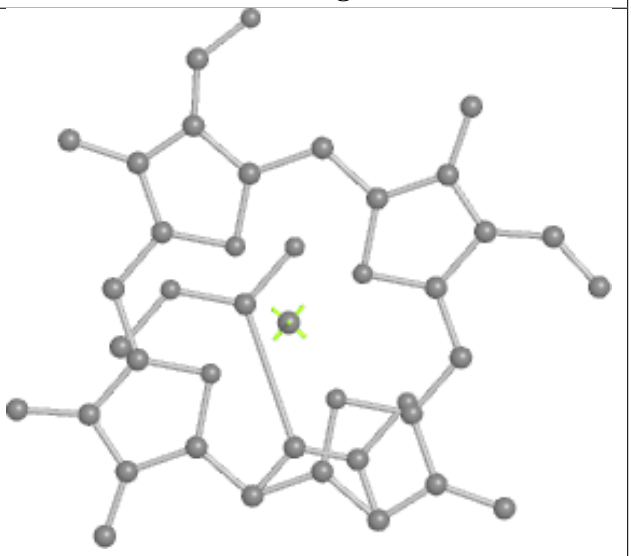
Bond lengths



Bond angles

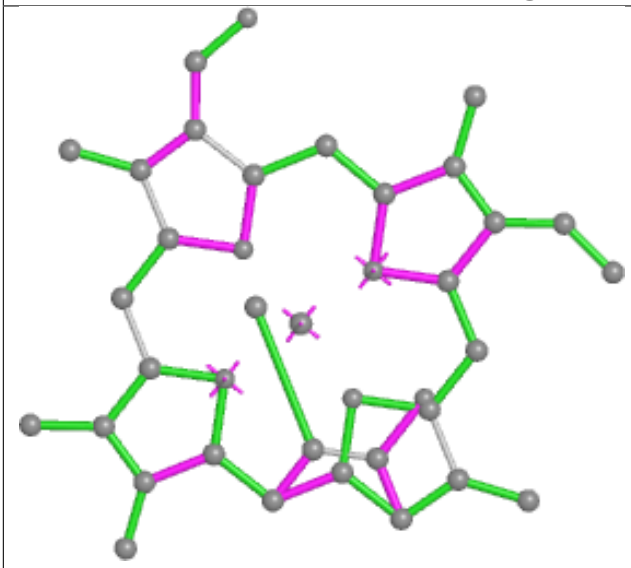


Torsions

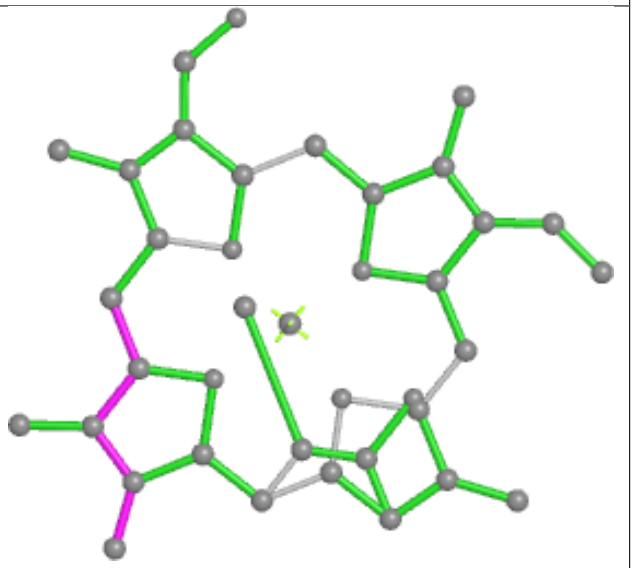


Rings

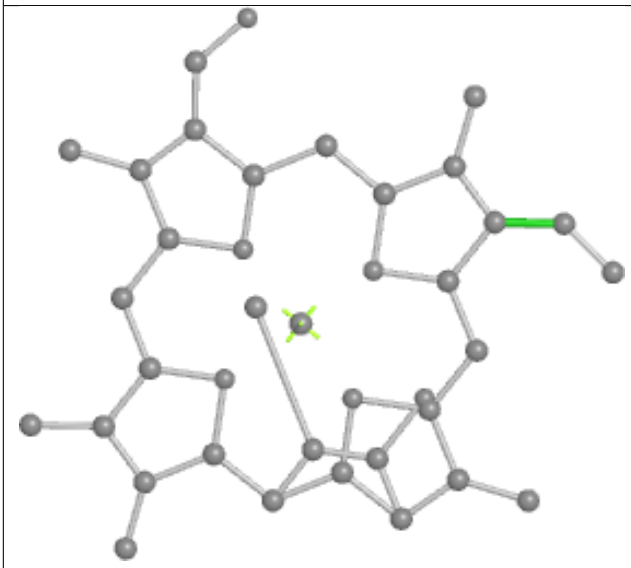
Ligand CL7 cB 821



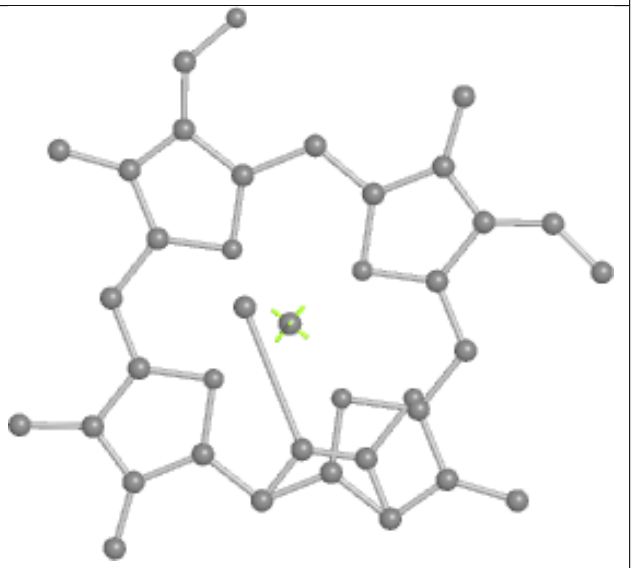
Bond lengths



Bond angles

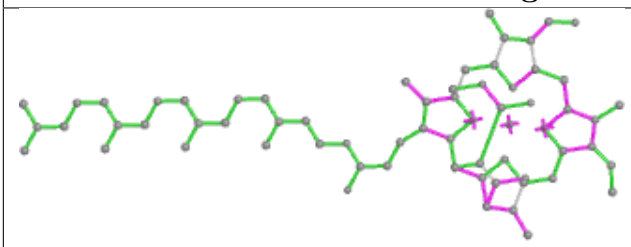


Torsions

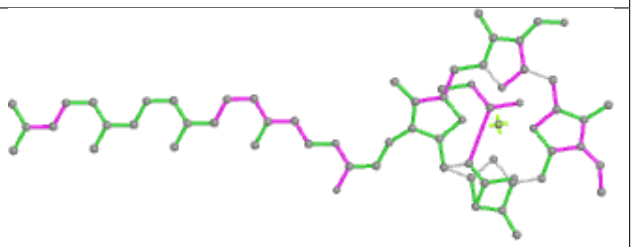


Rings

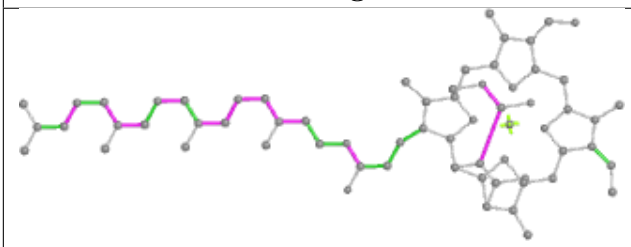
Ligand CL7 cB 808



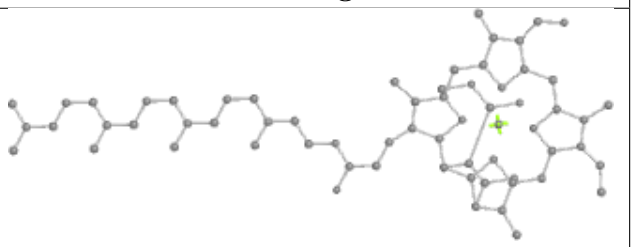
Bond lengths



Bond angles

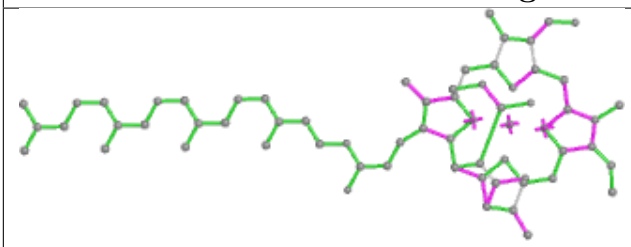


Torsions

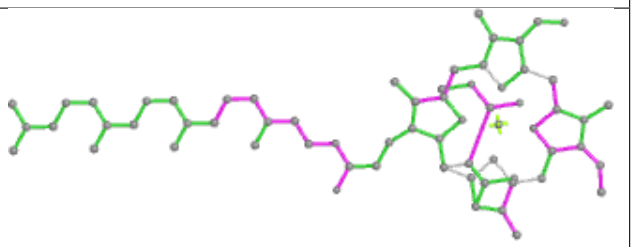


Rings

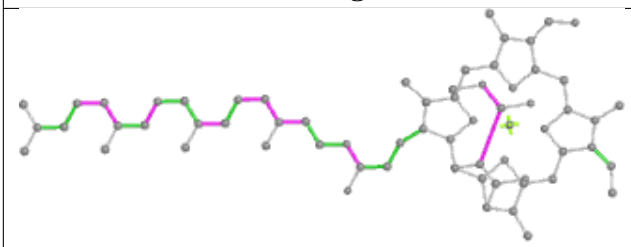
Ligand CL7 bB 808



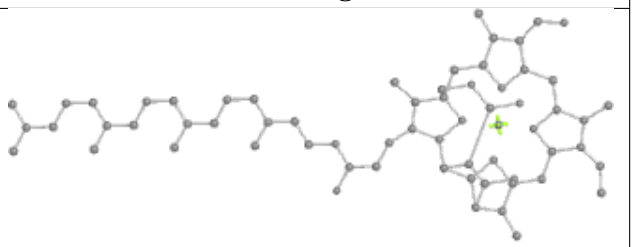
Bond lengths



Bond angles

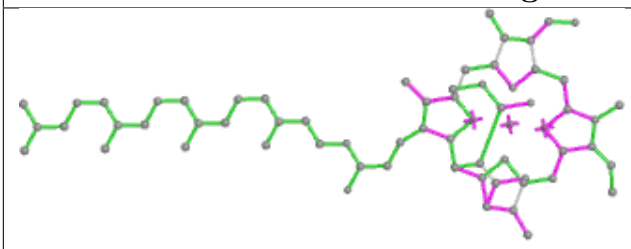


Torsions

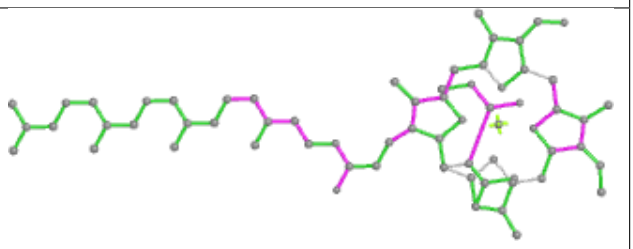


Rings

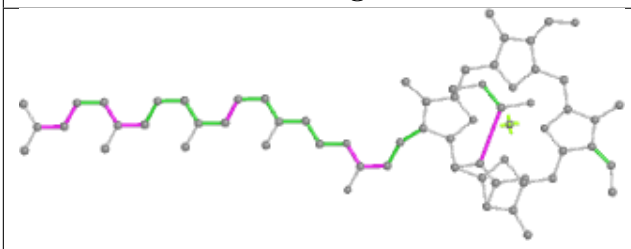
Ligand CL7 cB 820



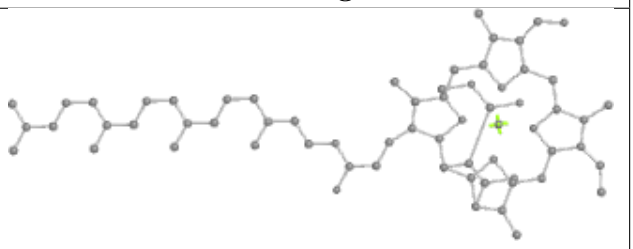
Bond lengths



Bond angles

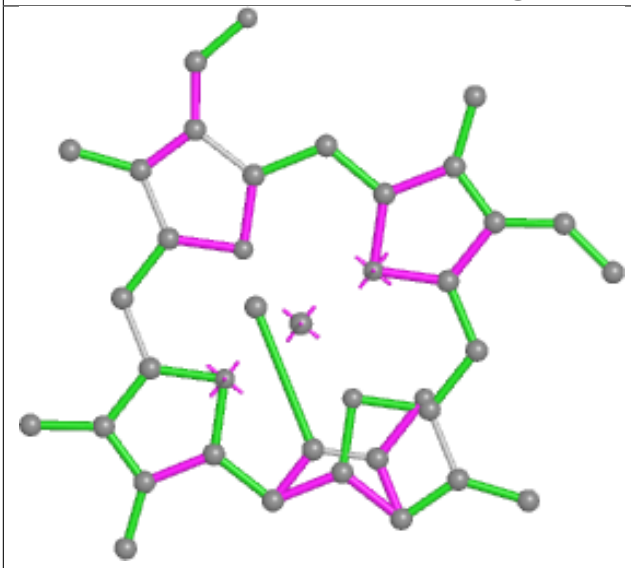


Torsions

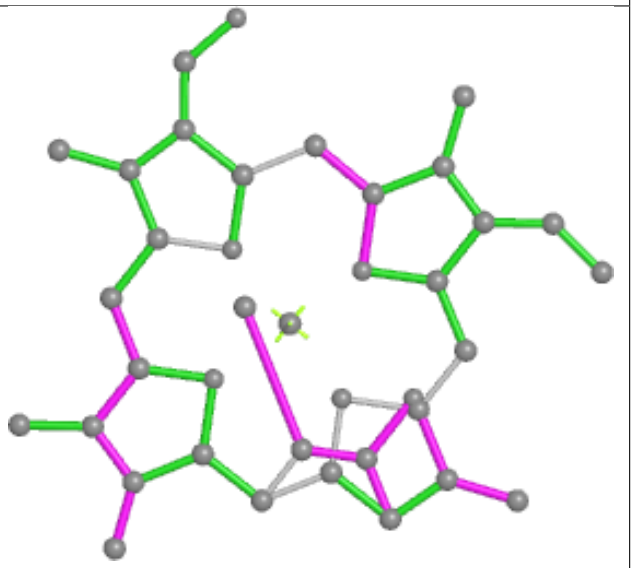


Rings

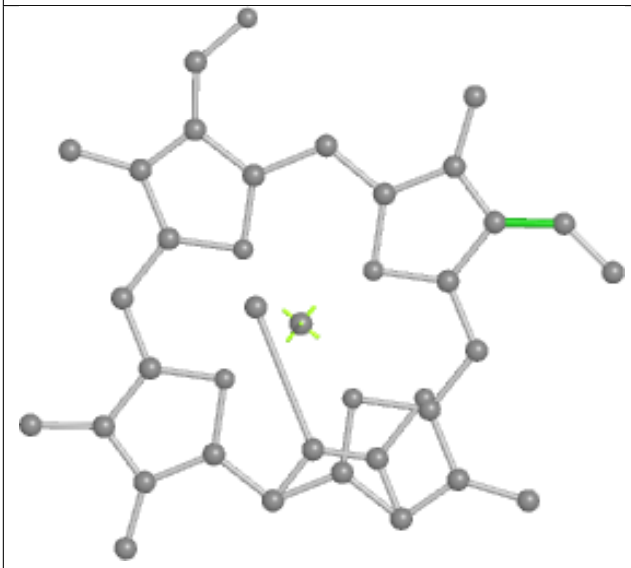
Ligand CL7 bA 3117



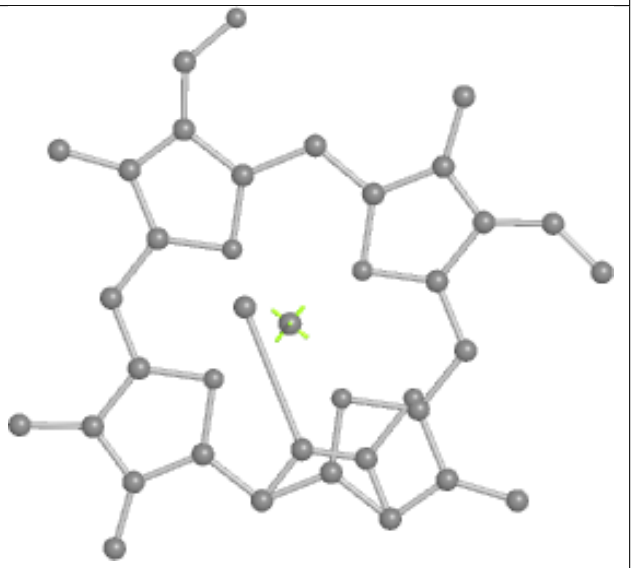
Bond lengths



Bond angles

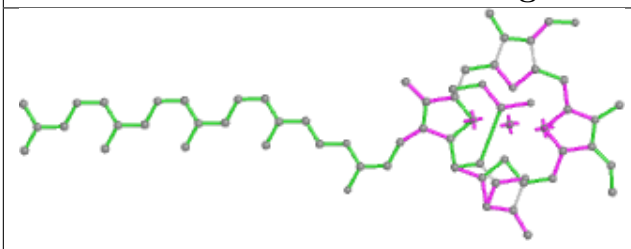


Torsions

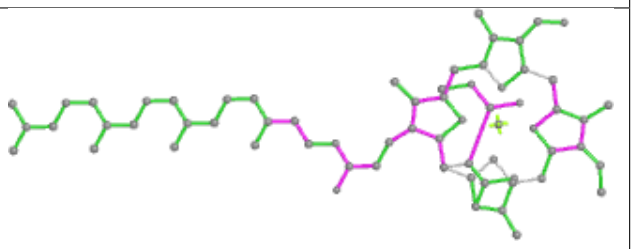


Rings

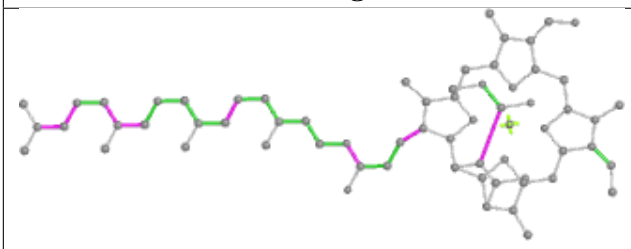
Ligand CL7 bB 820



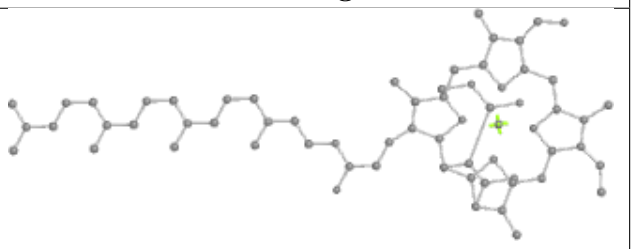
Bond lengths



Bond angles

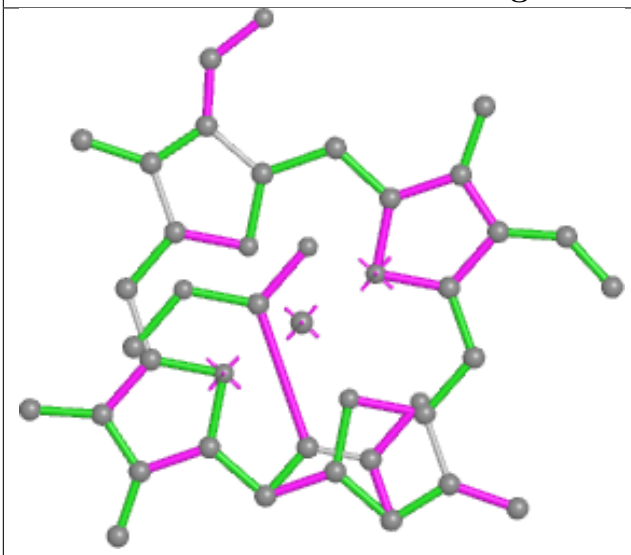


Torsions

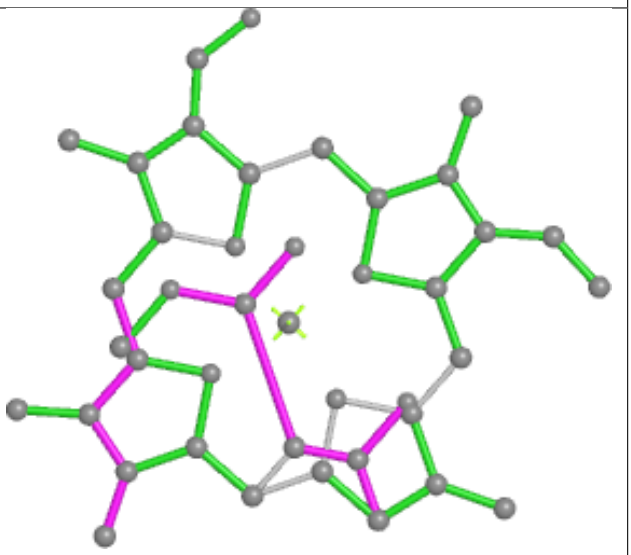


Rings

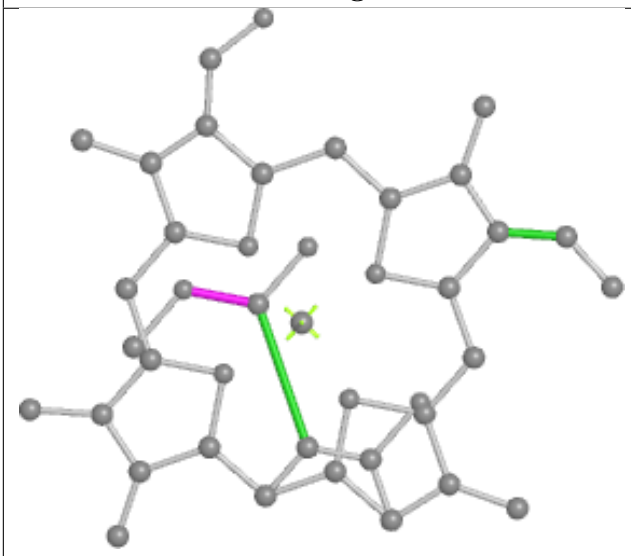
Ligand CL7 aA 3122



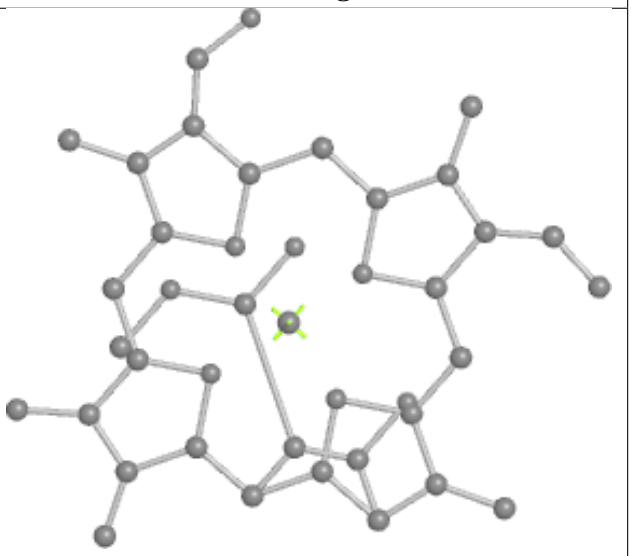
Bond lengths



Bond angles

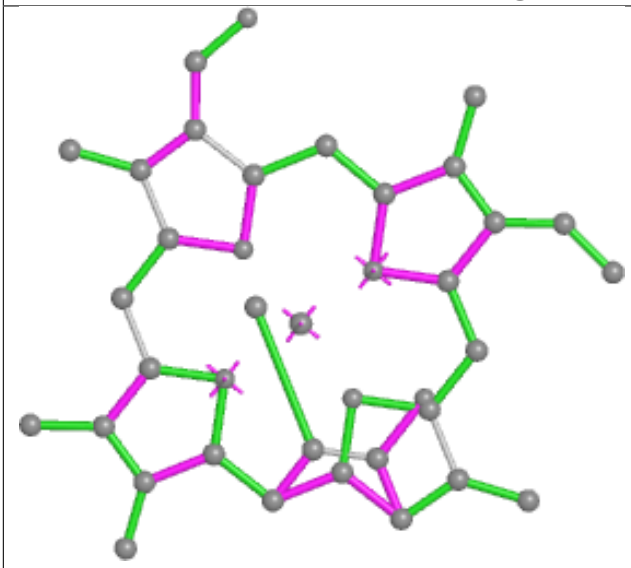


Torsions

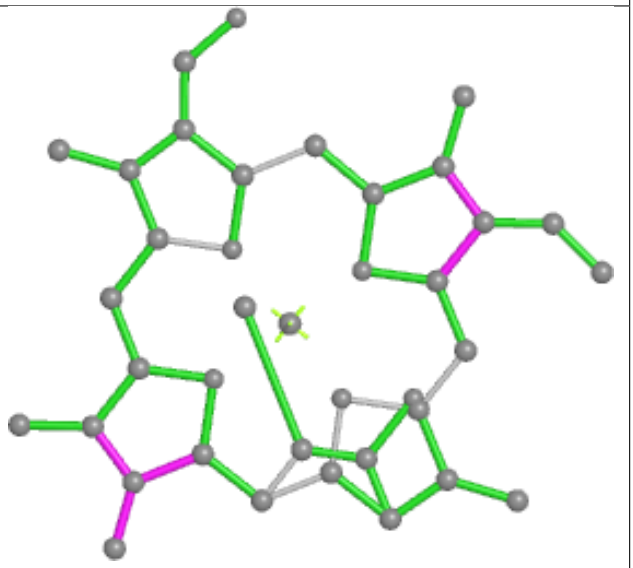


Rings

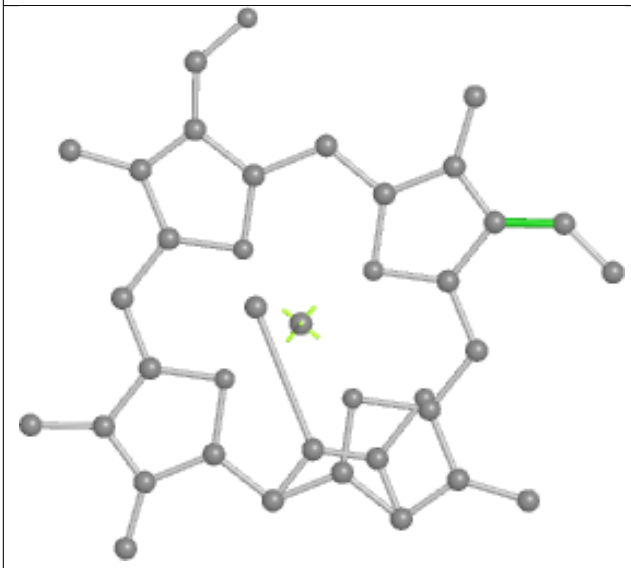
Ligand CL7 aB 3011



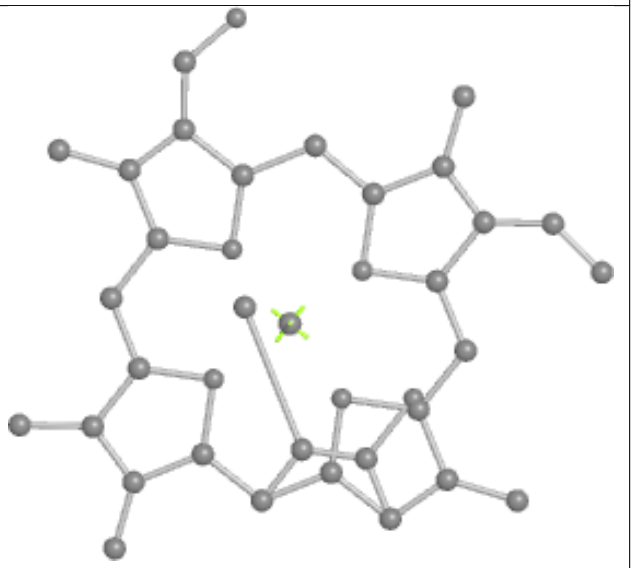
Bond lengths



Bond angles

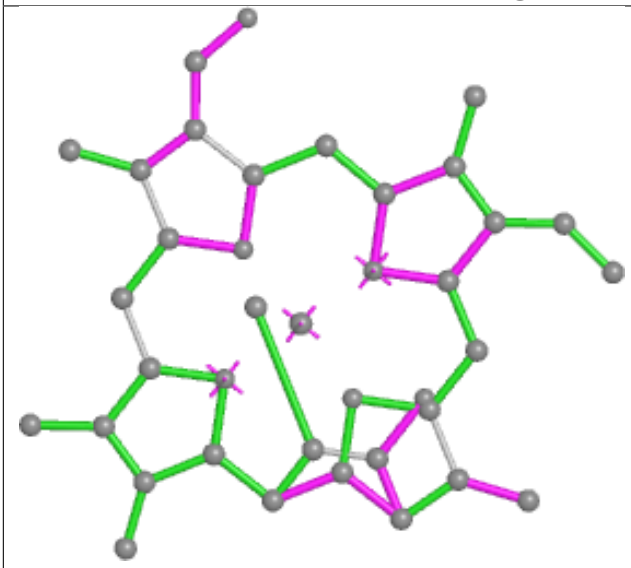


Torsions

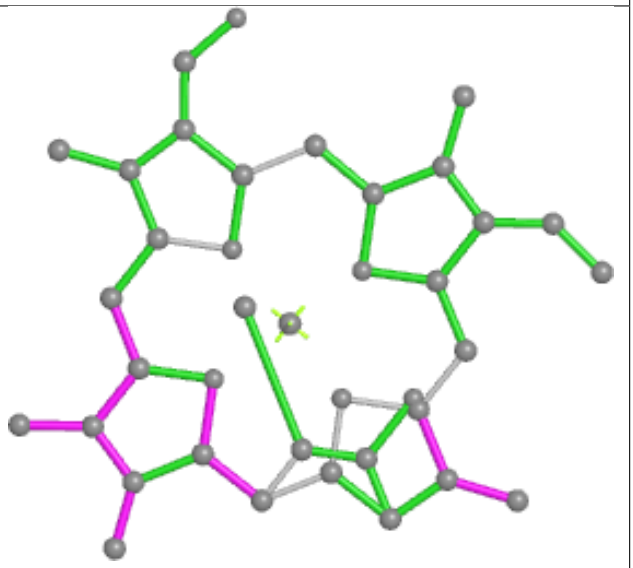


Rings

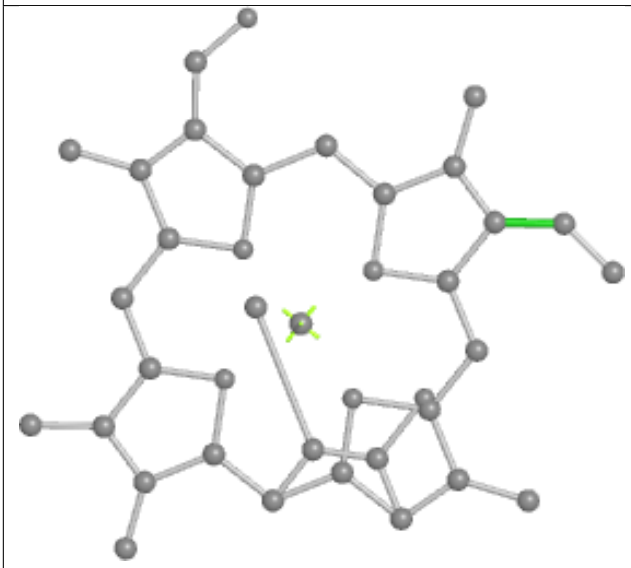
Ligand CL7 aB 3024



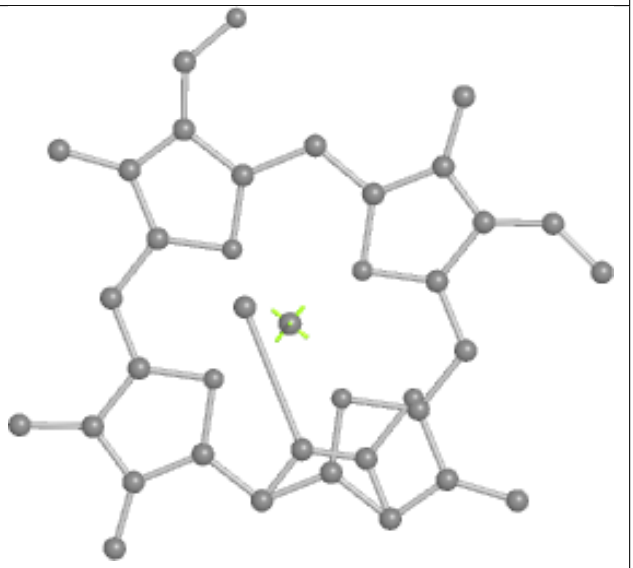
Bond lengths



Bond angles

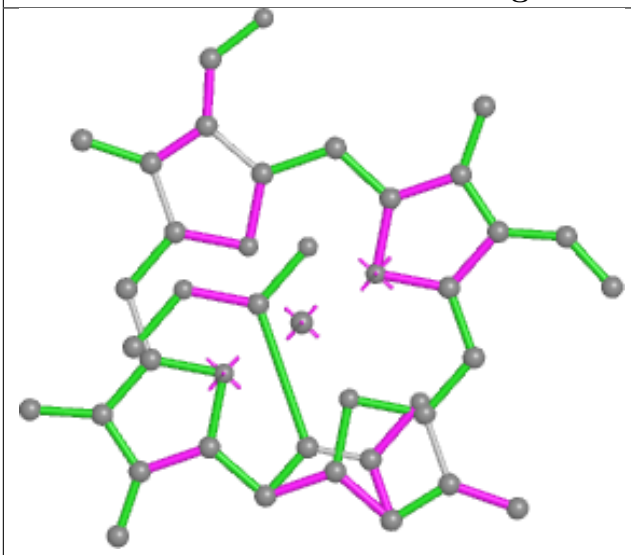


Torsions

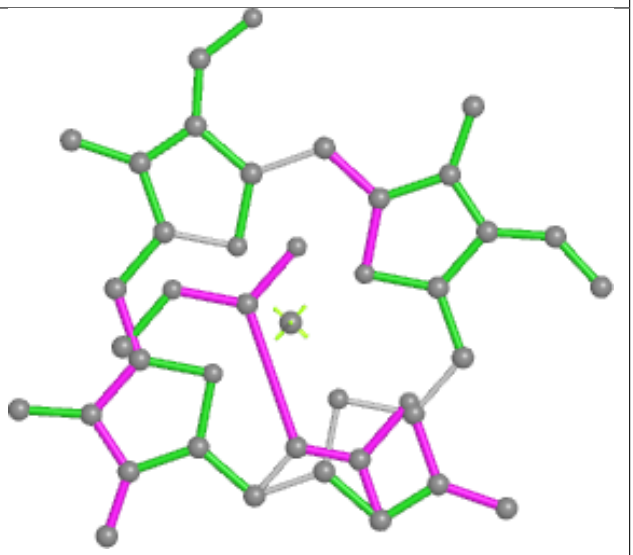


Rings

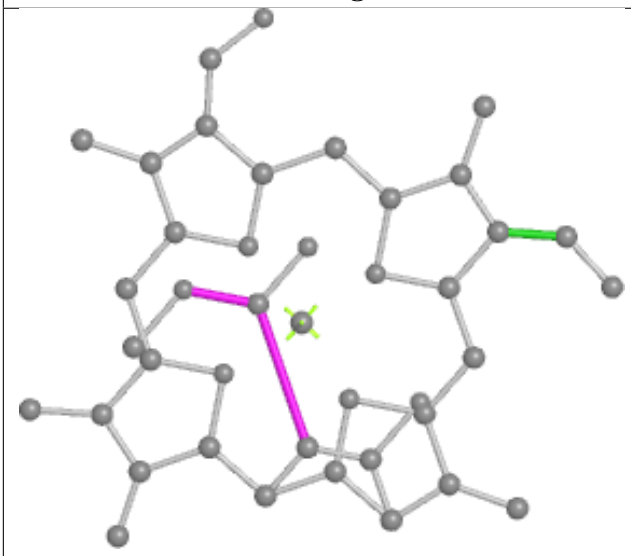
Ligand CL7 aB 3016



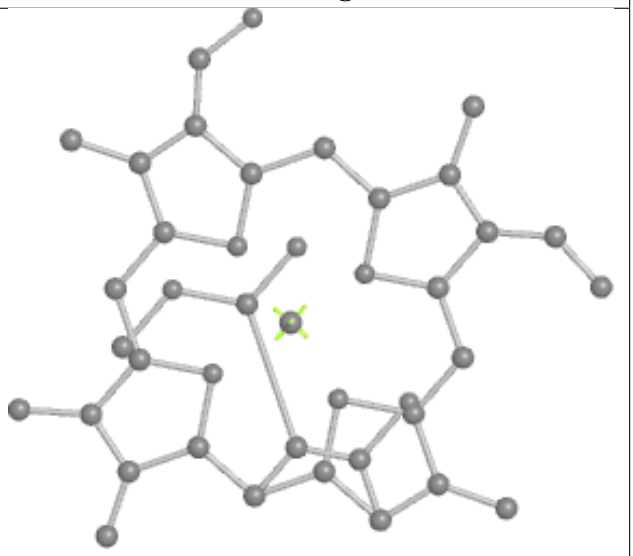
Bond lengths



Bond angles

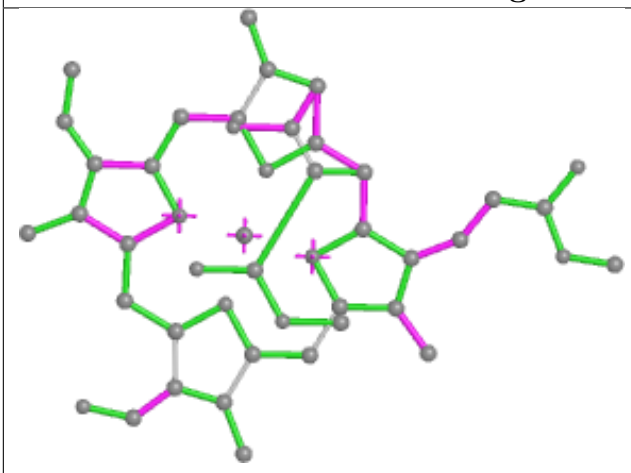


Torsions

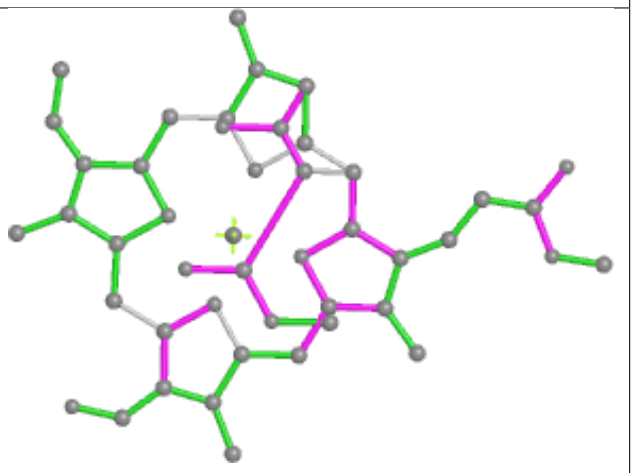


Rings

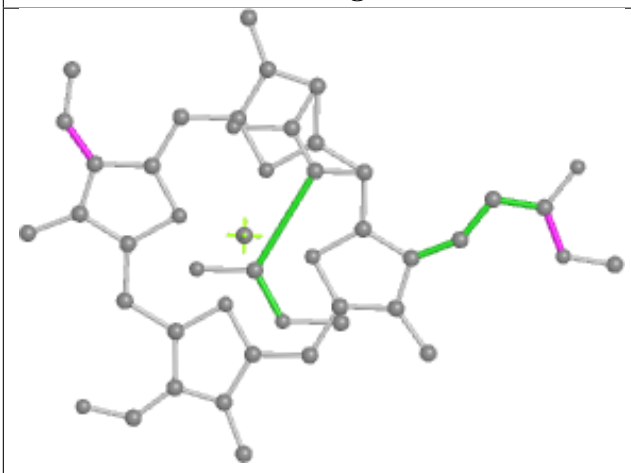
Ligand CL7 bA 3119



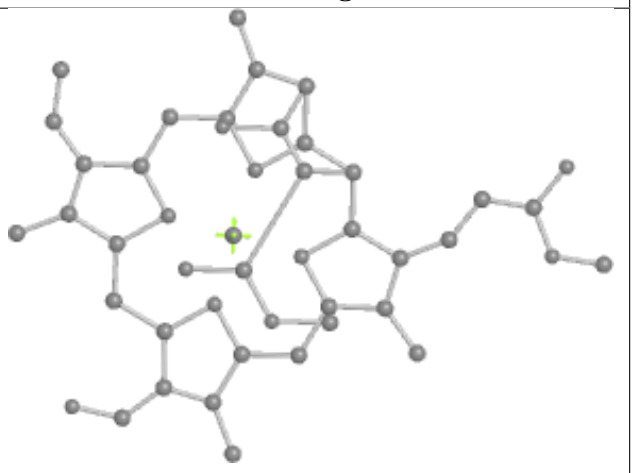
Bond lengths



Bond angles

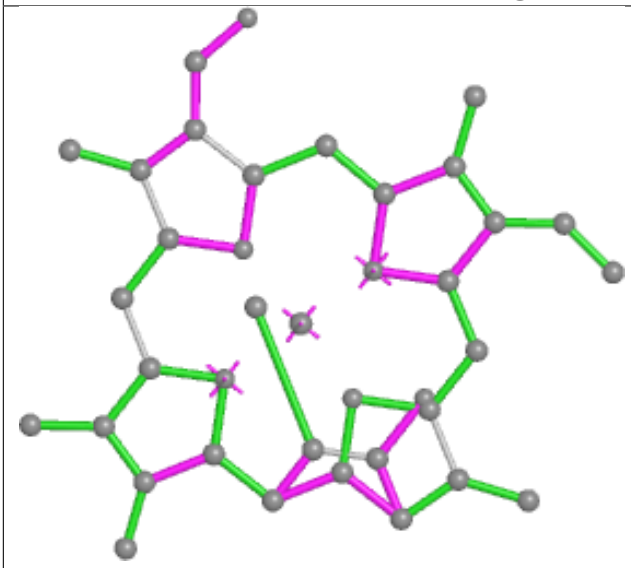


Torsions

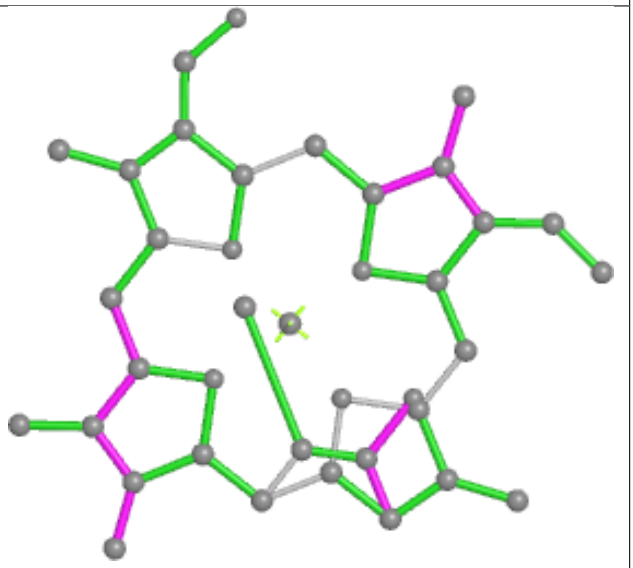


Rings

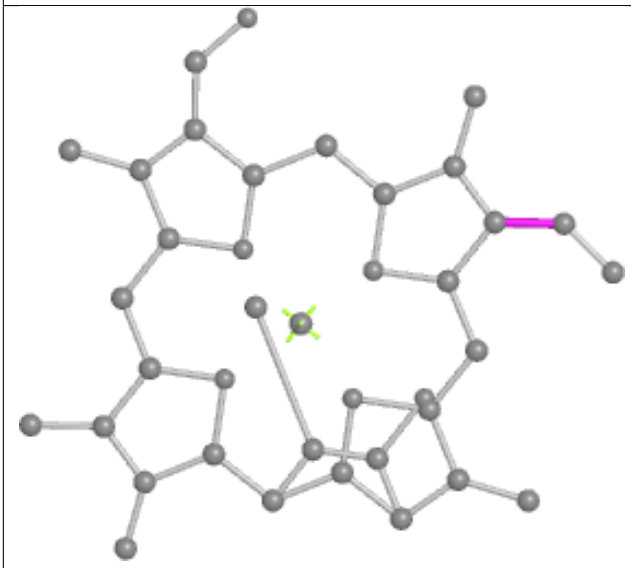
Ligand CL7 cA 3115



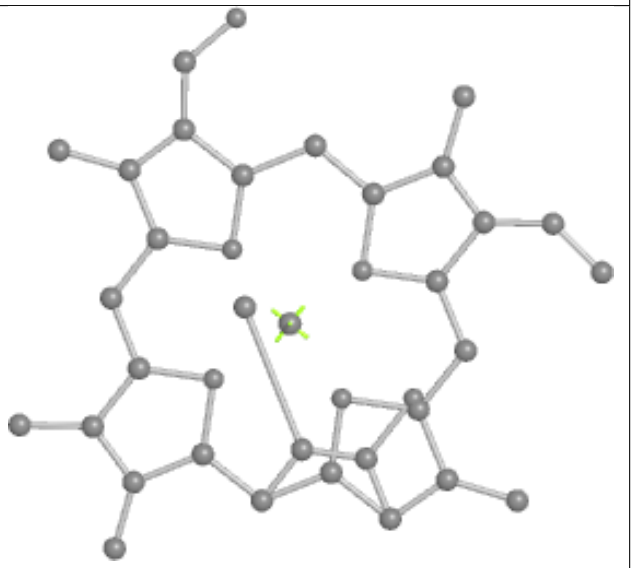
Bond lengths



Bond angles

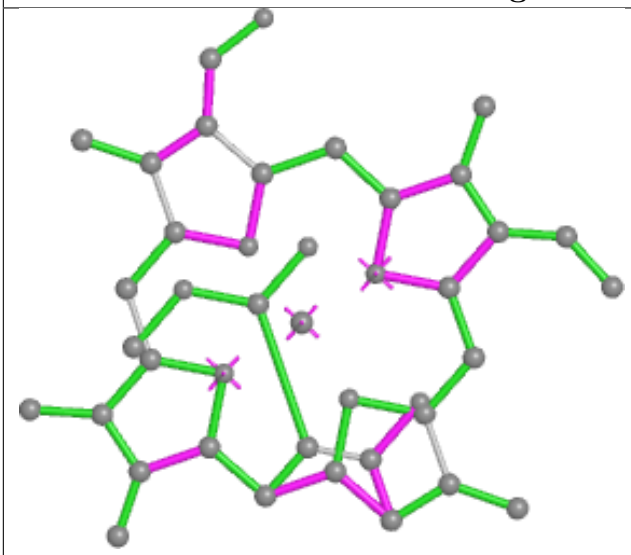


Torsions

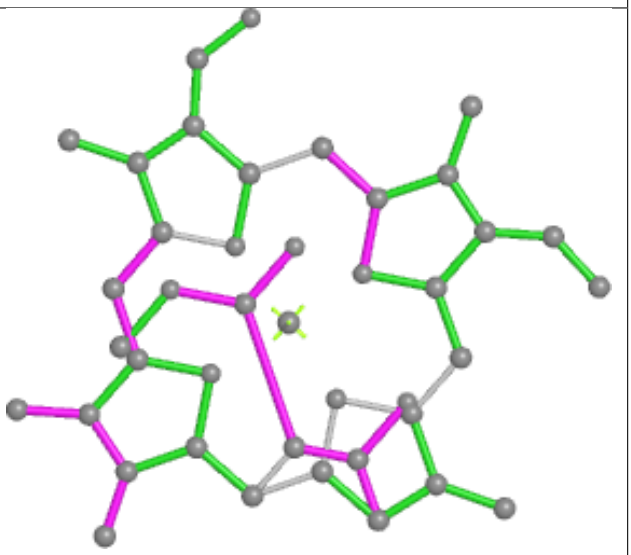


Rings

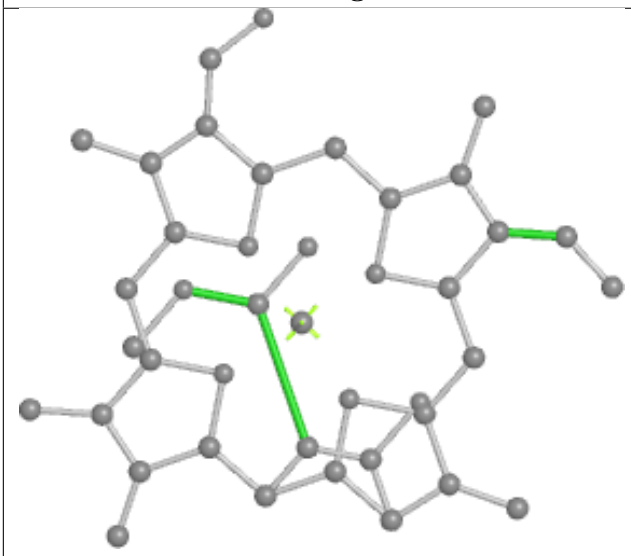
Ligand CL7 bA 3113



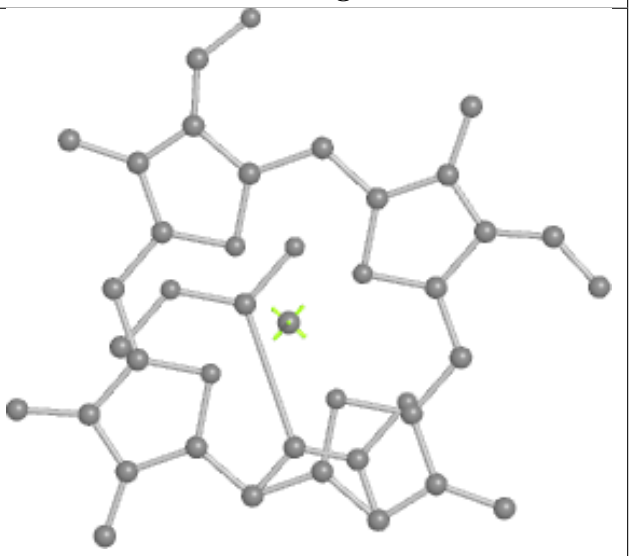
Bond lengths



Bond angles

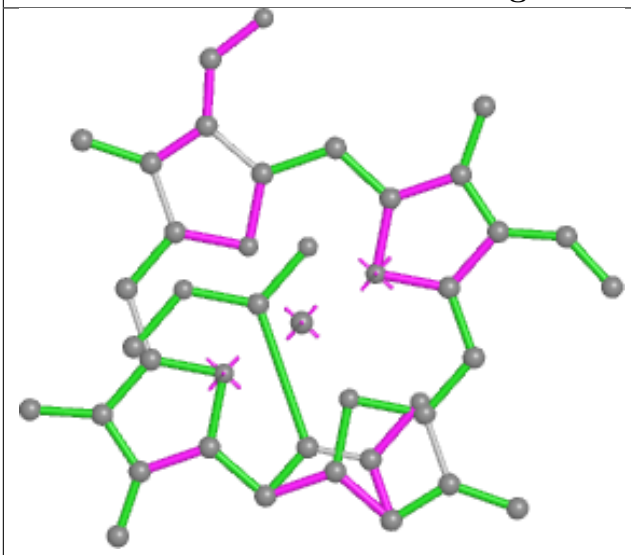


Torsions

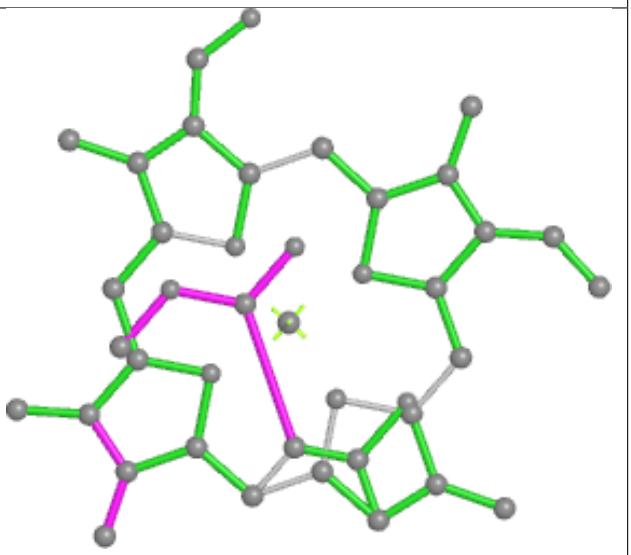


Rings

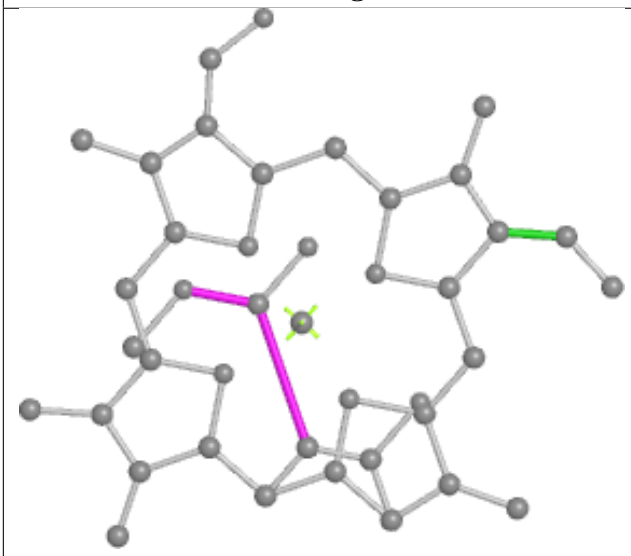
Ligand CL7 bA 3145



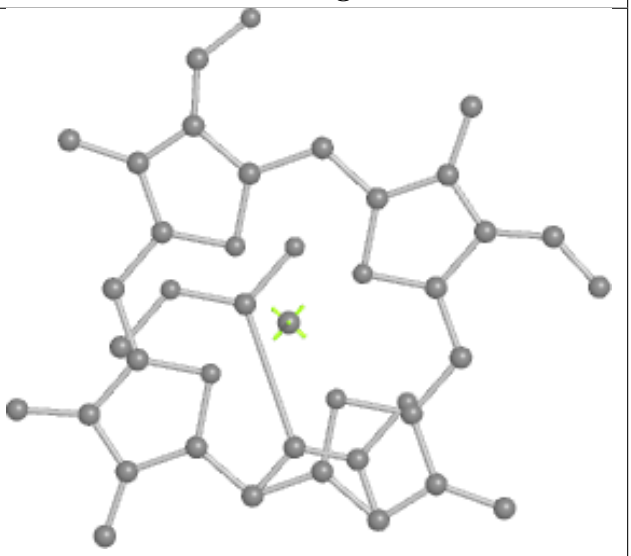
Bond lengths



Bond angles

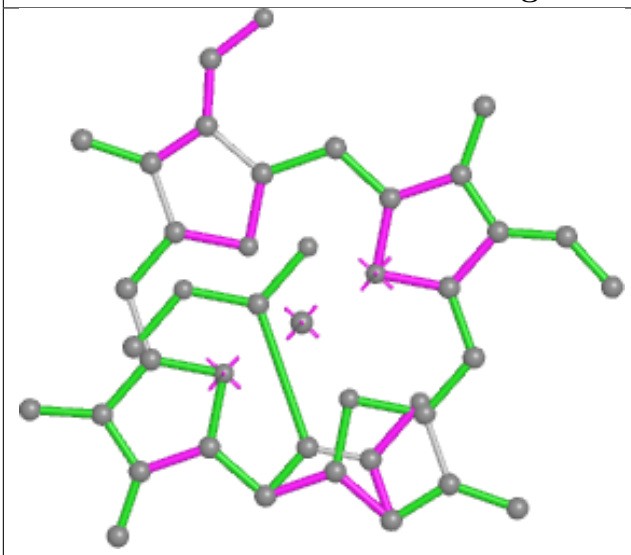


Torsions

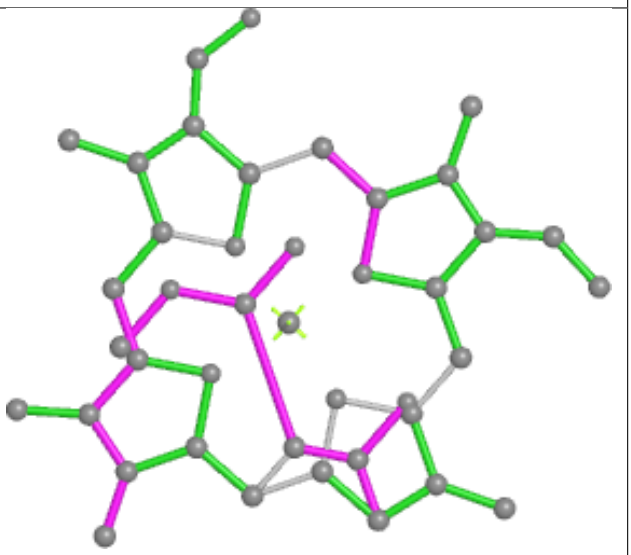


Rings

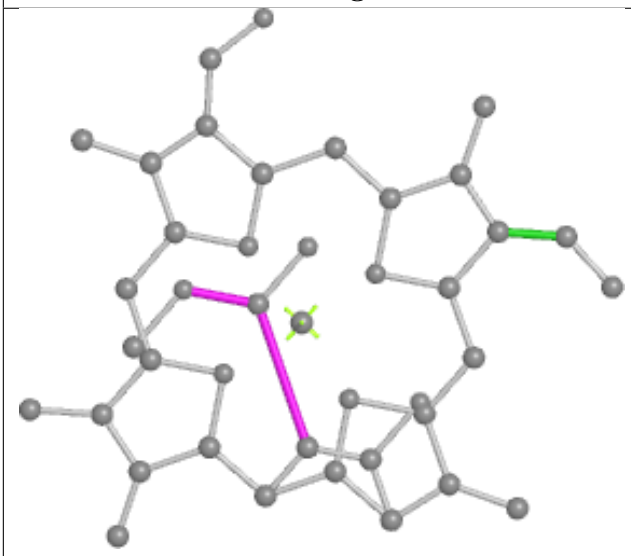
Ligand CL7 cB 814



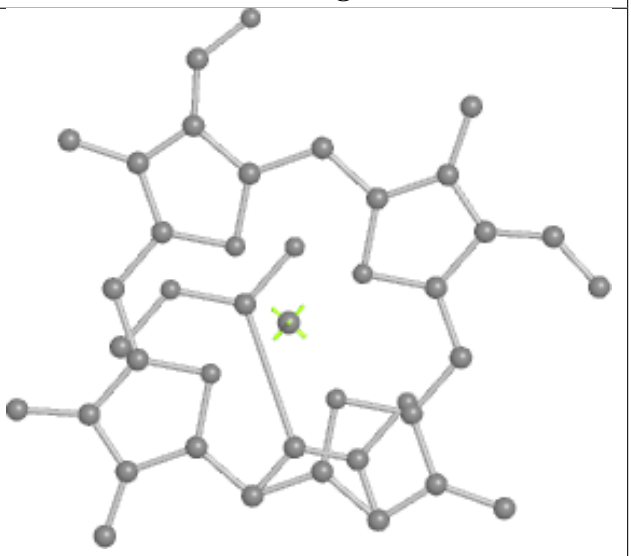
Bond lengths



Bond angles

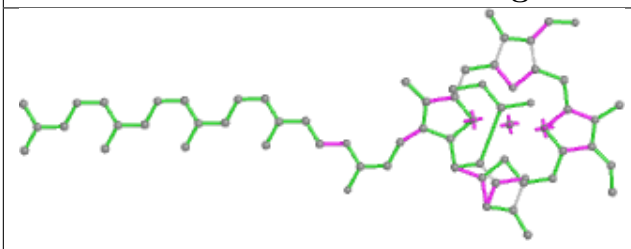


Torsions

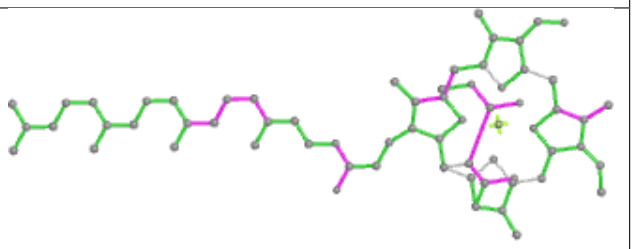


Rings

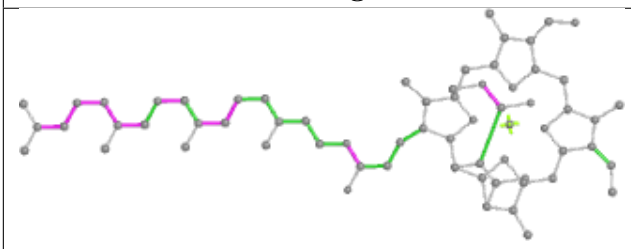
Ligand CL7 cA 3141



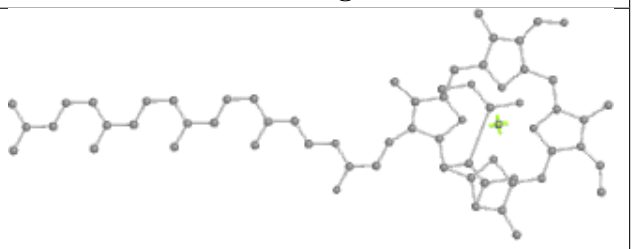
Bond lengths



Bond angles

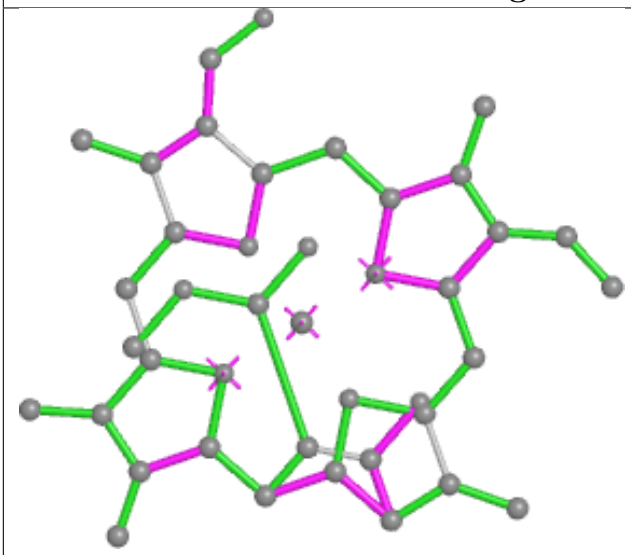


Torsions

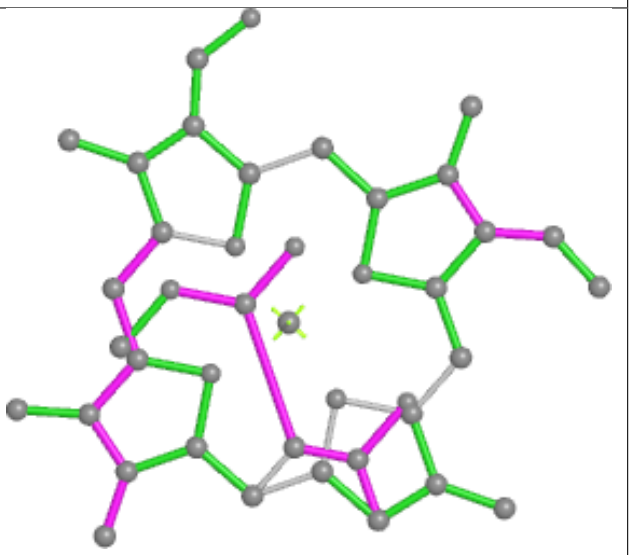


Rings

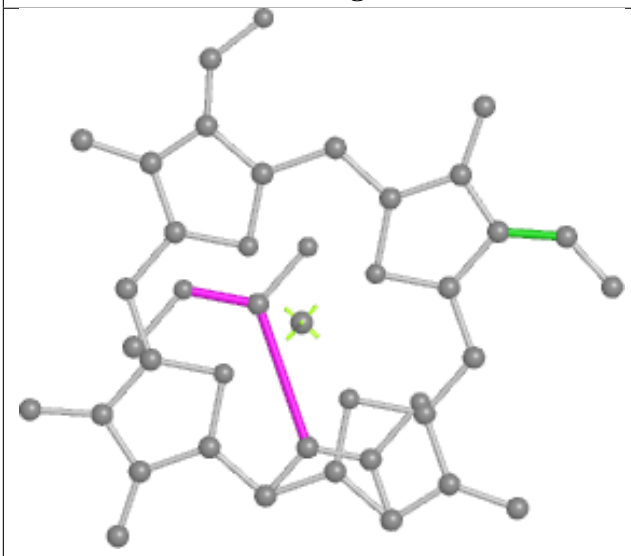
Ligand CL7 bA 3112



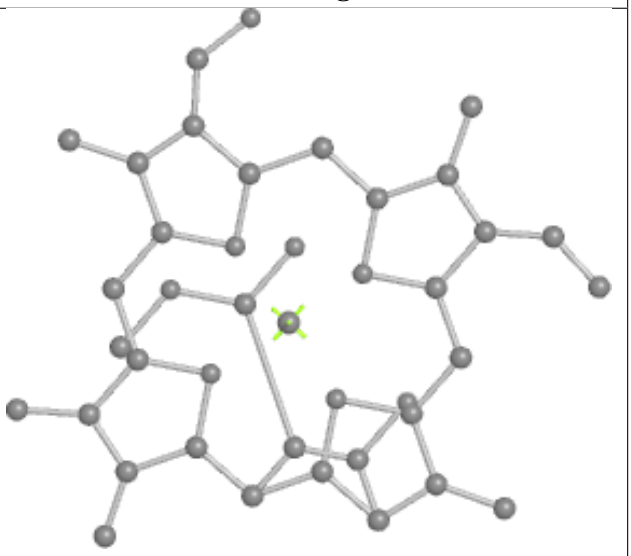
Bond lengths



Bond angles

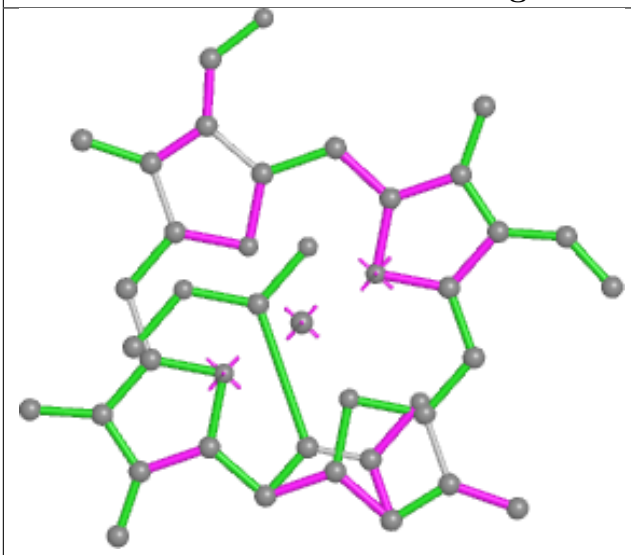


Torsions

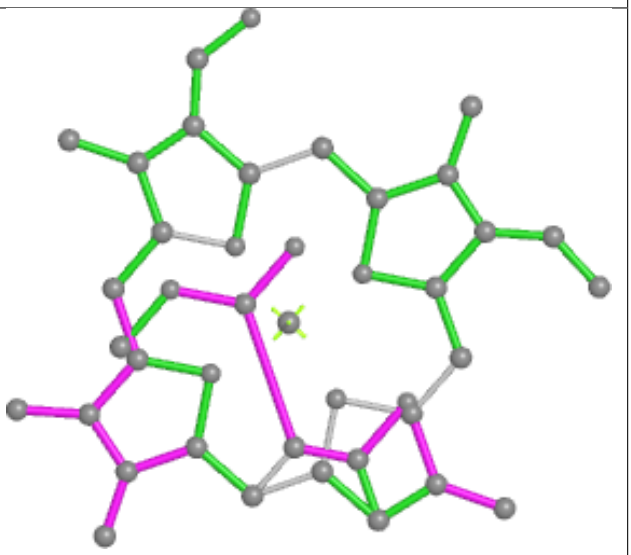


Rings

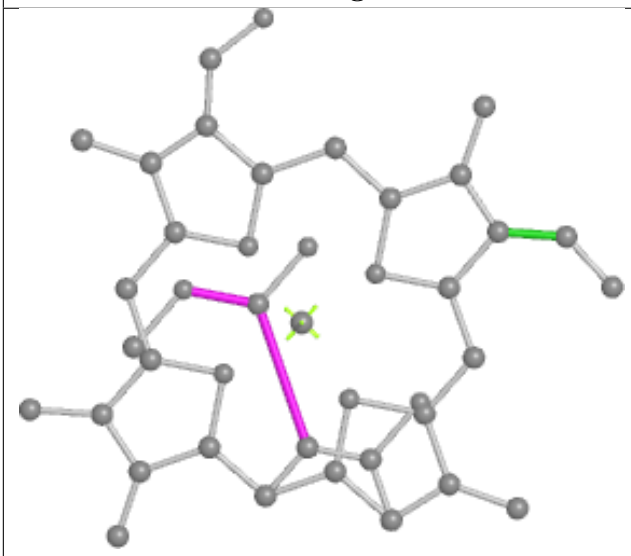
Ligand CL7 bA 3131



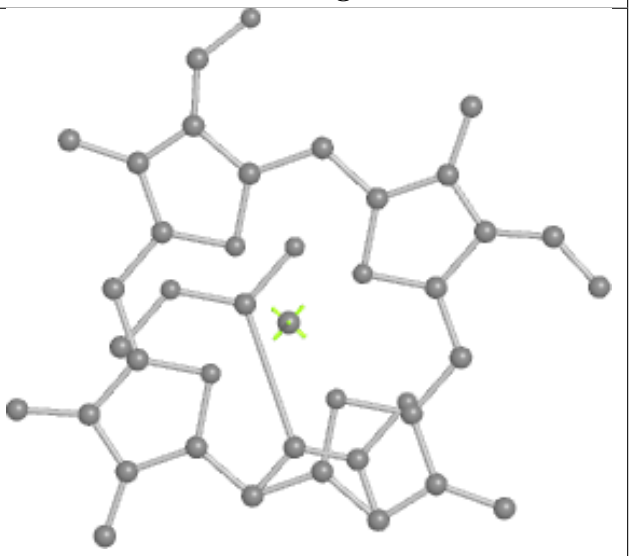
Bond lengths



Bond angles

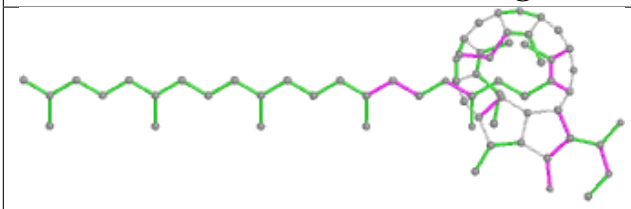


Torsions

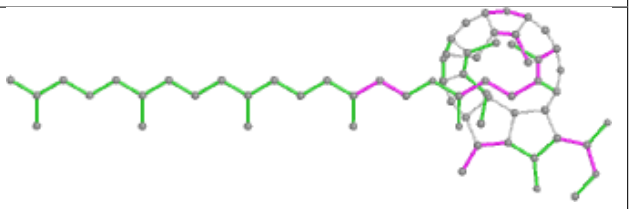


Rings

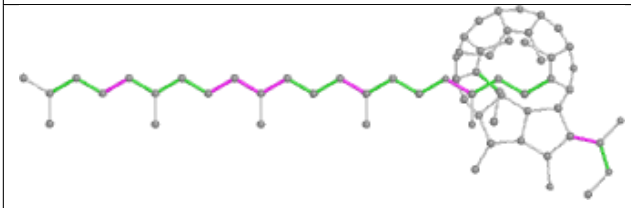
Ligand PHO cB 801



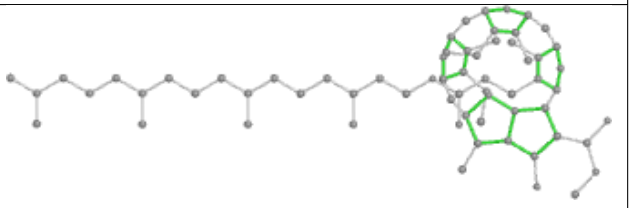
Bond lengths



Bond angles

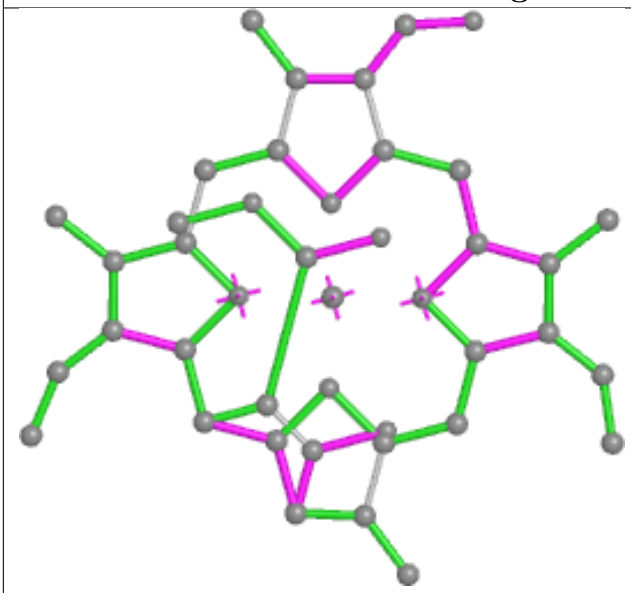


Torsions

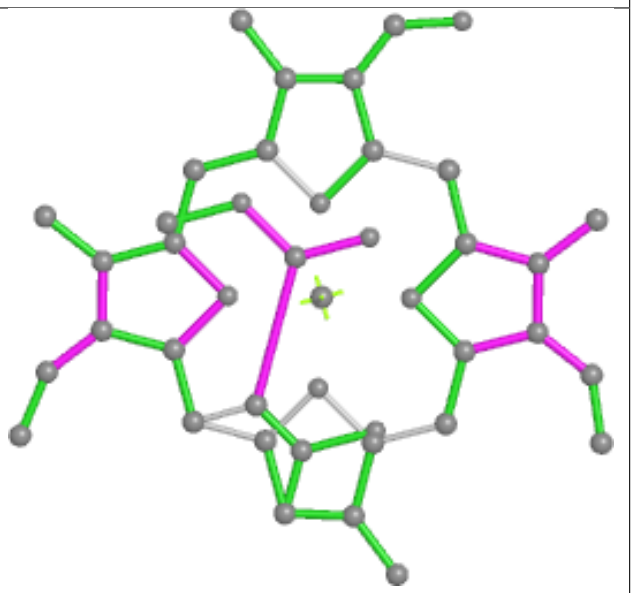


Rings

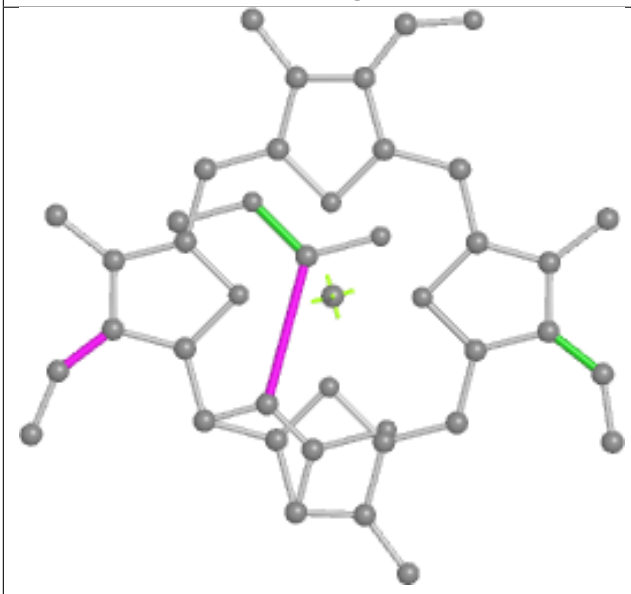
Ligand CL7 aA 3109



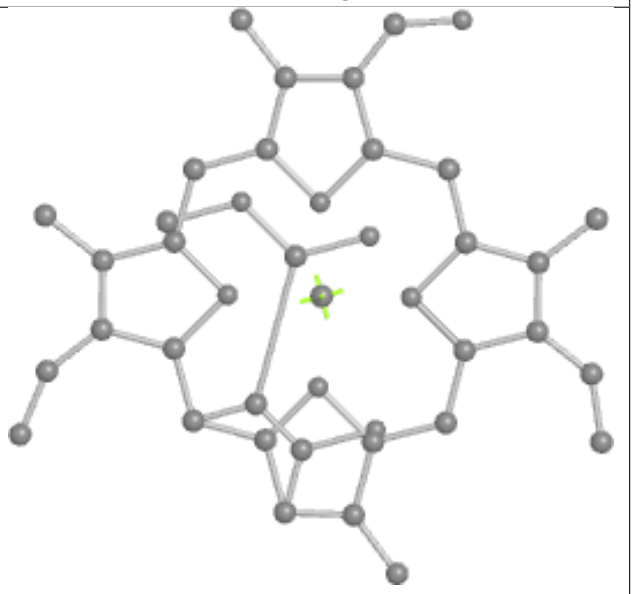
Bond lengths



Bond angles

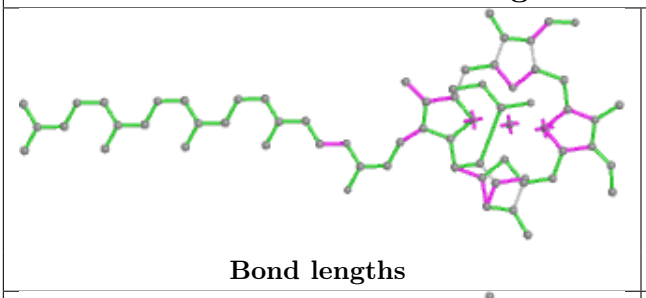


Torsions

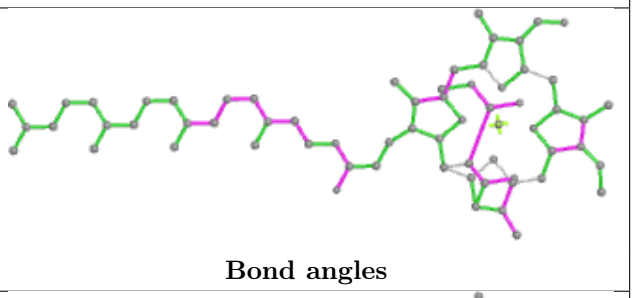


Rings

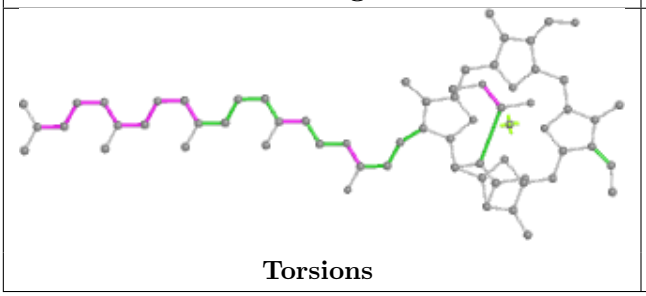
Ligand CL7 aA 3142



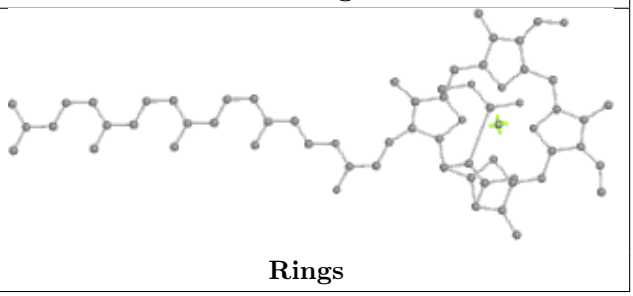
Bond lengths



Bond angles

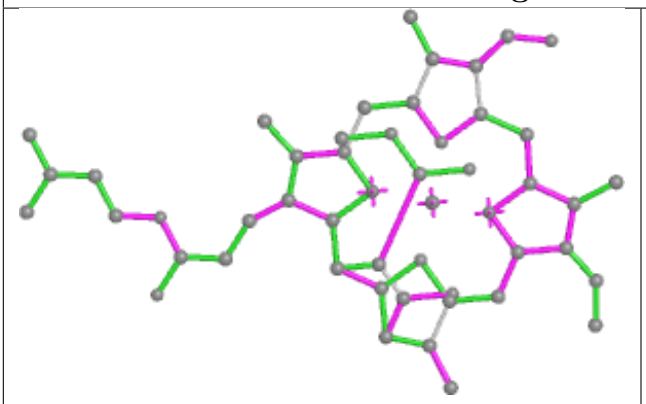


Torsions

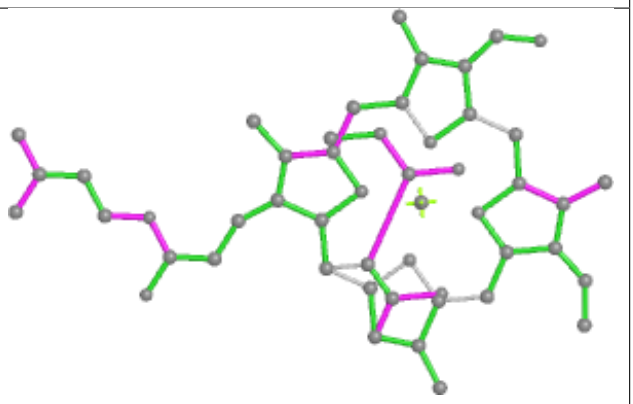


Rings

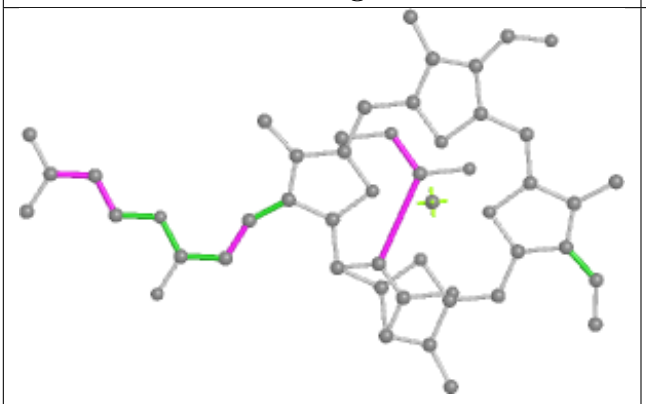
Ligand CL7 aB 3015



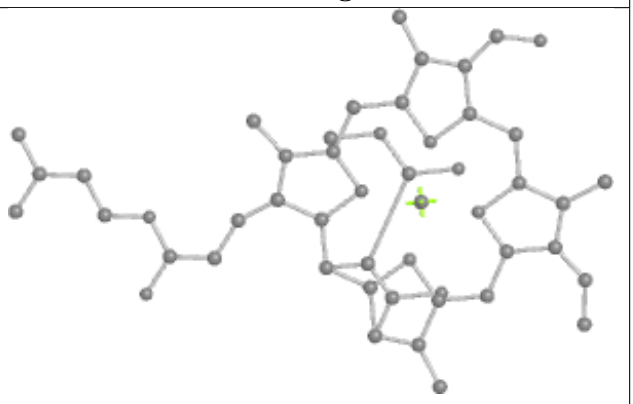
Bond lengths



Bond angles

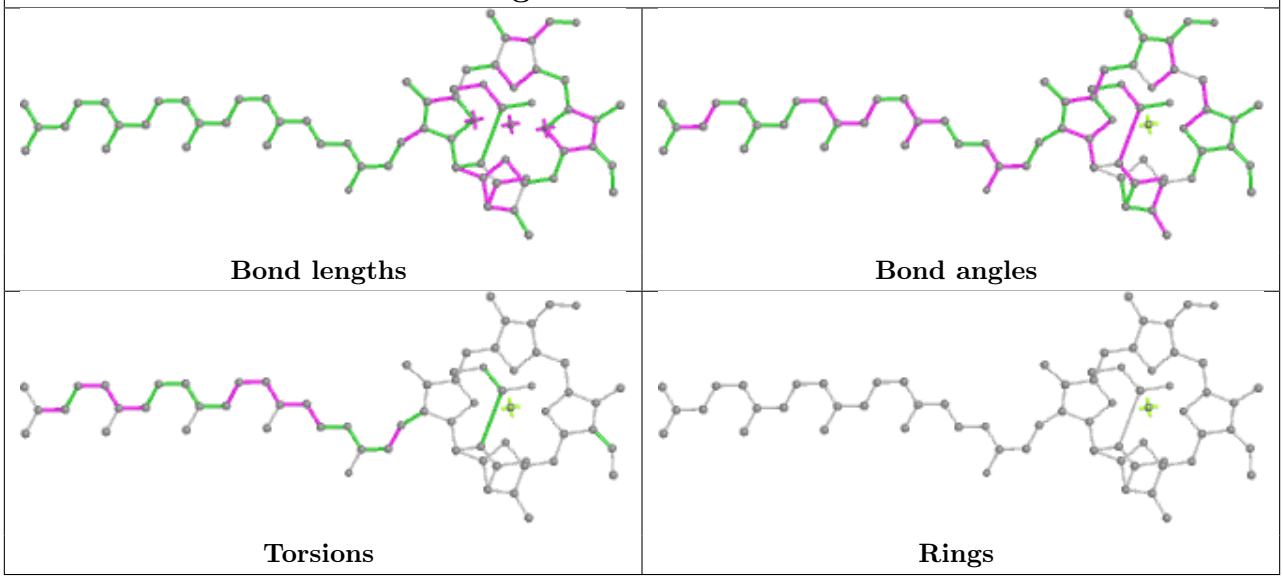


Torsions

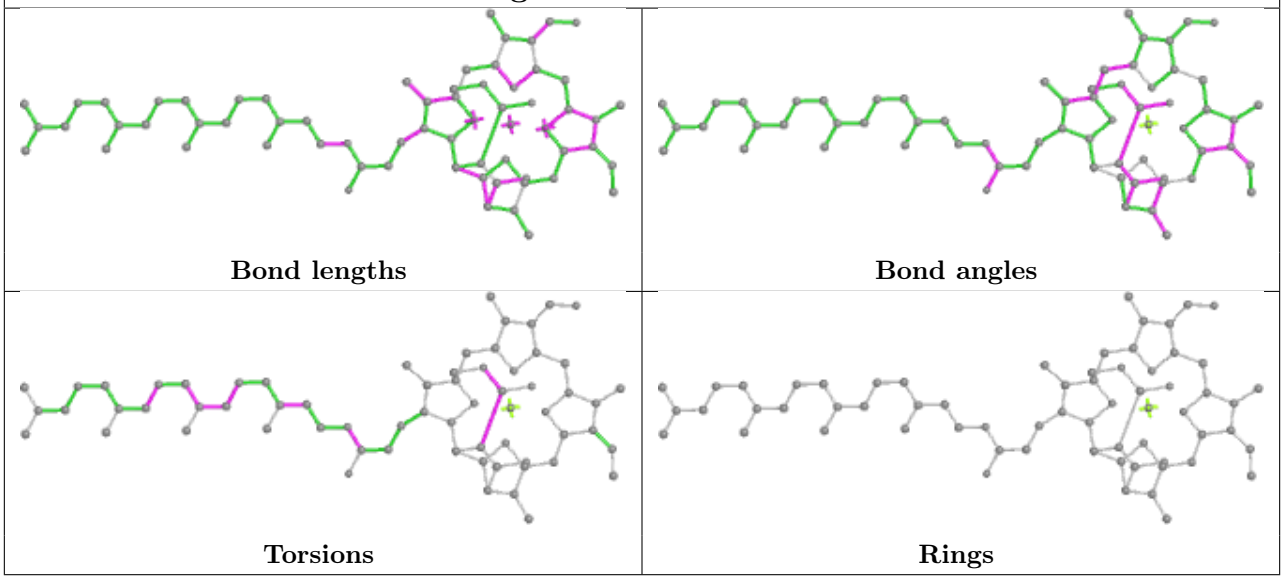


Rings

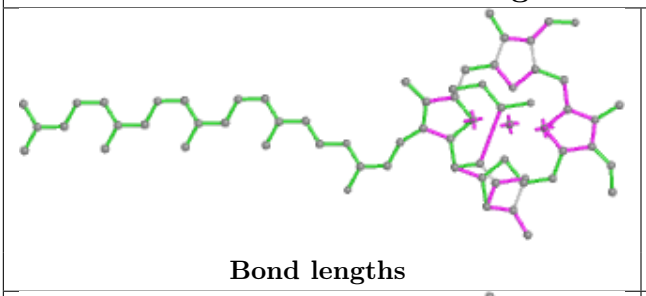
Ligand CL7 aB 3025



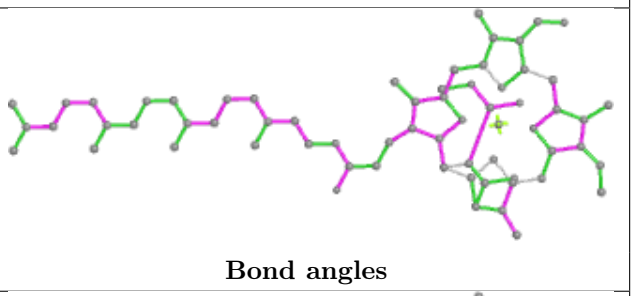
Ligand CL7 bA 3141



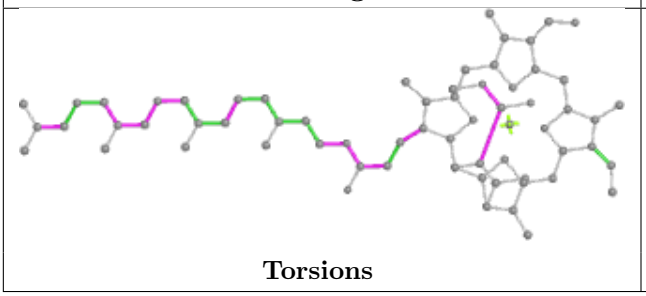
Ligand CL7 cA 3106



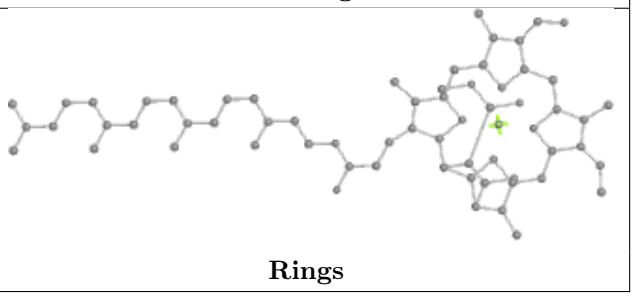
Bond lengths



Bond angles

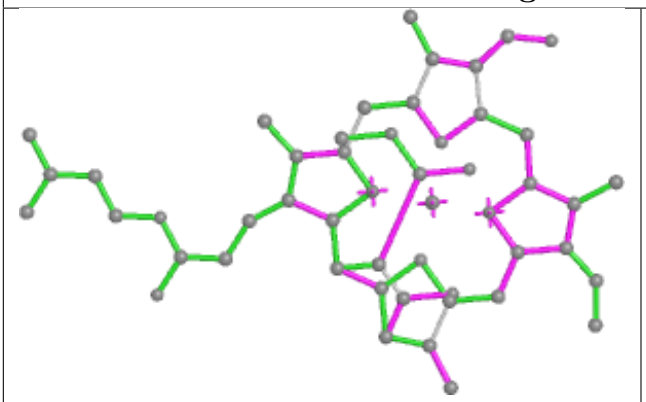


Torsions

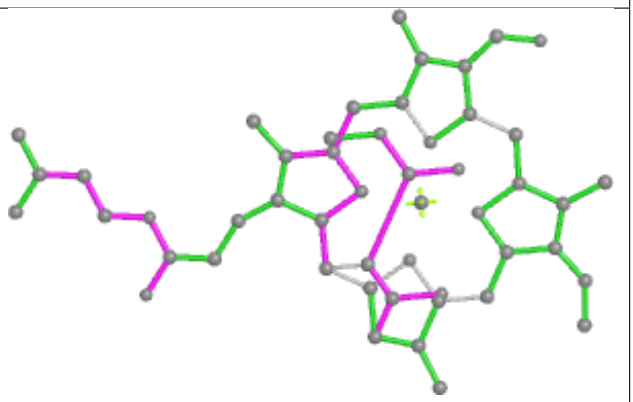


Rings

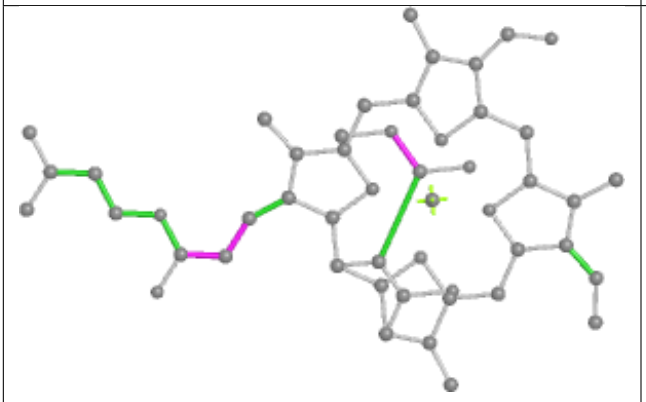
Ligand CL7 bB 816



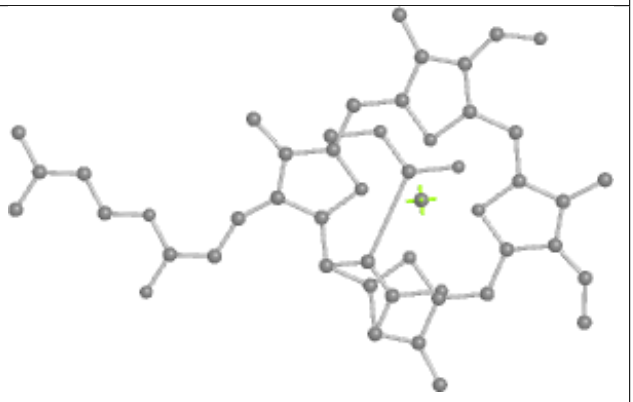
Bond lengths



Bond angles

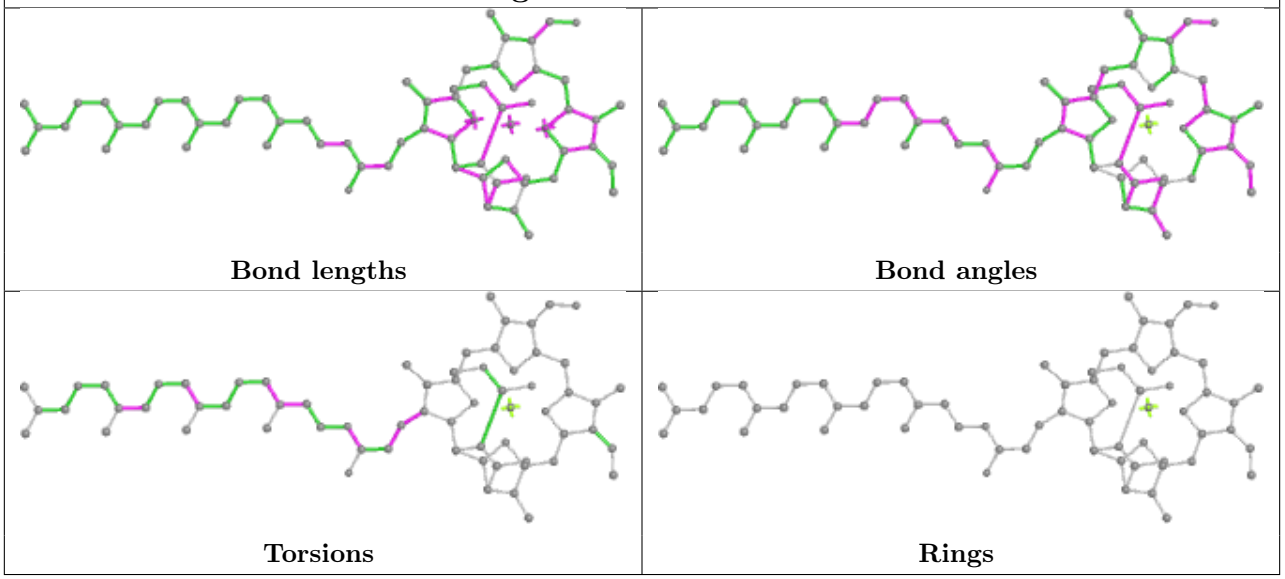


Torsions

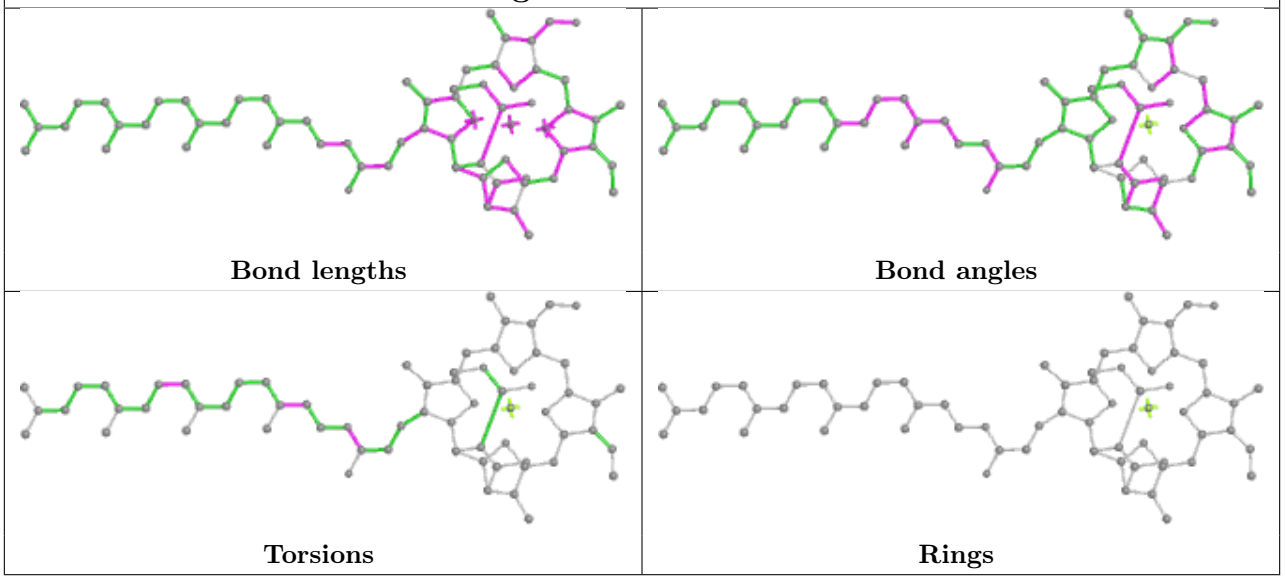


Rings

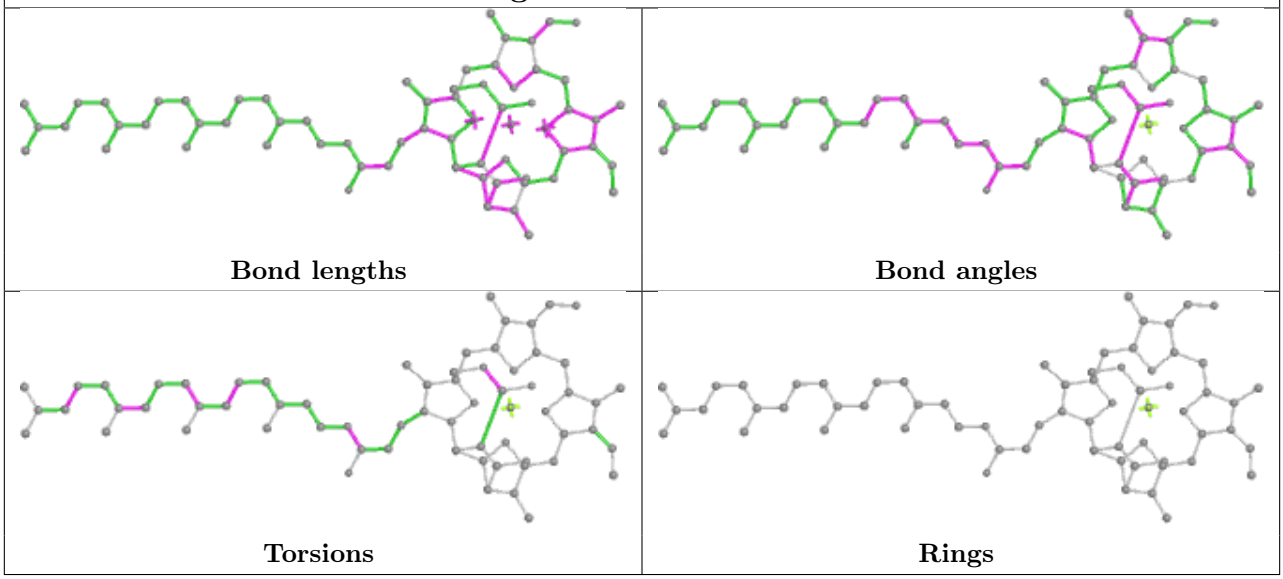
Ligand CL7 aA 3103



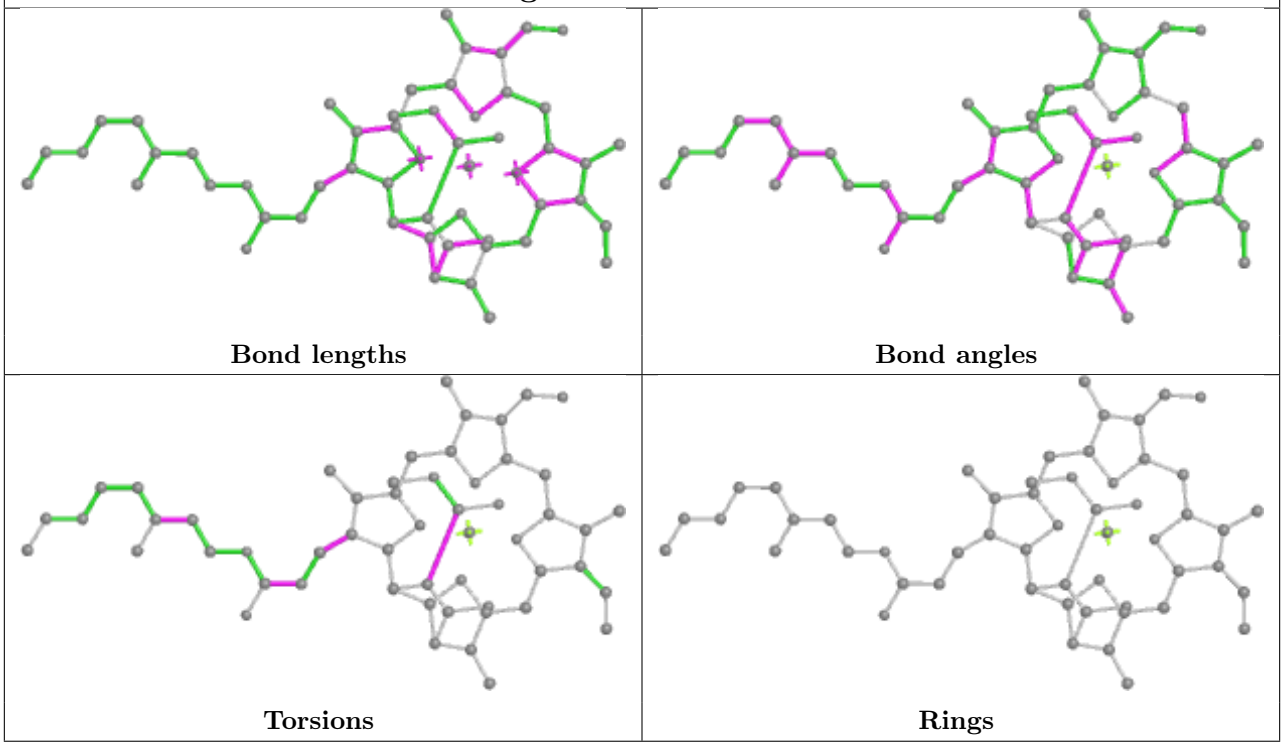
Ligand CL7 aB 3003



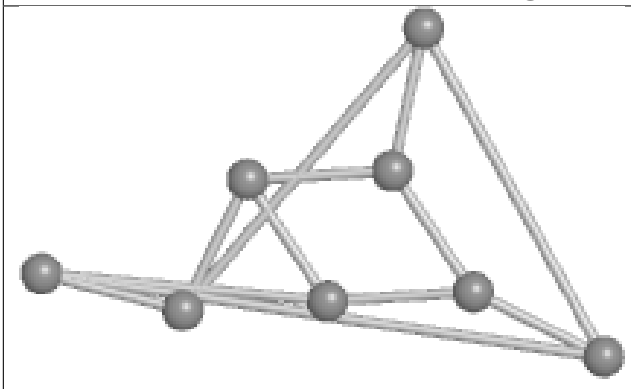
Ligand CL7 bA 3124



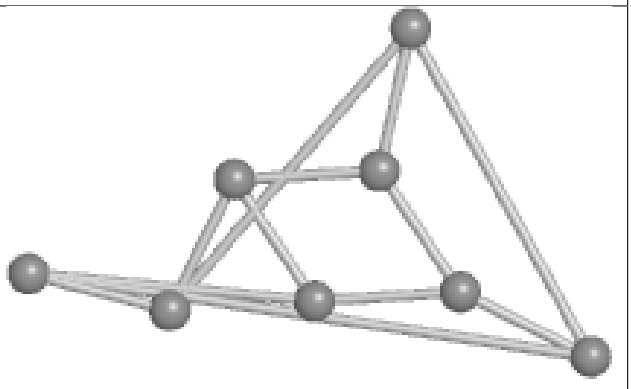
Ligand CL7 bB 831



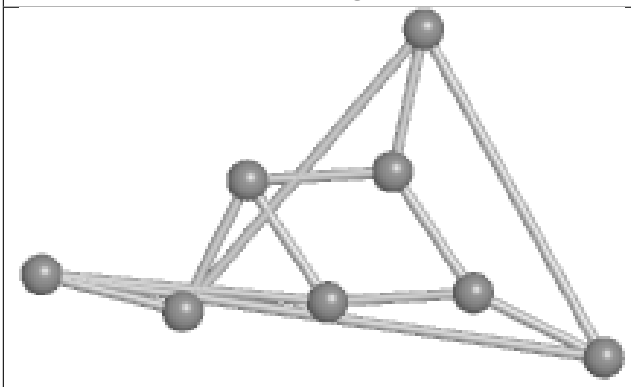
Ligand SF4 bB 802



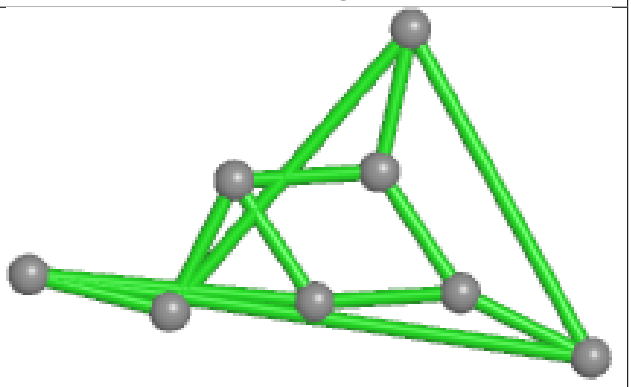
Bond lengths



Bond angles

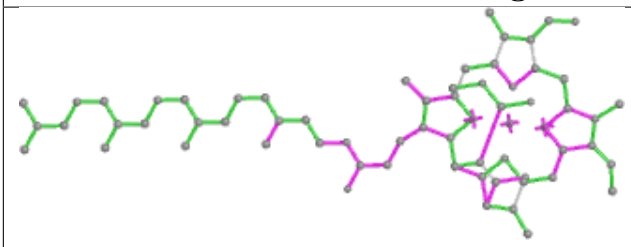


Torsions

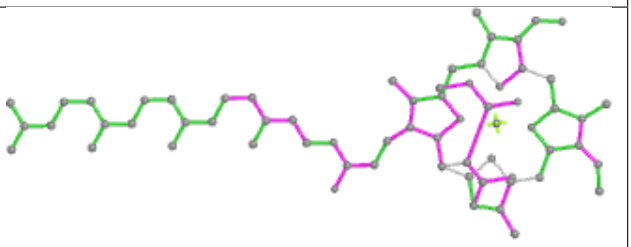


Rings

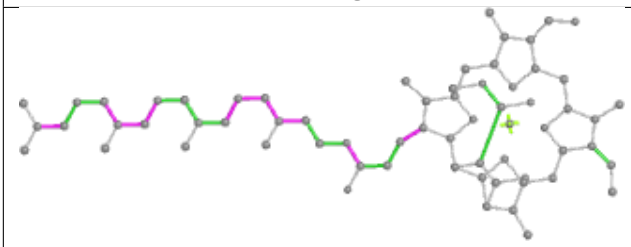
Ligand CL7 bA 3132



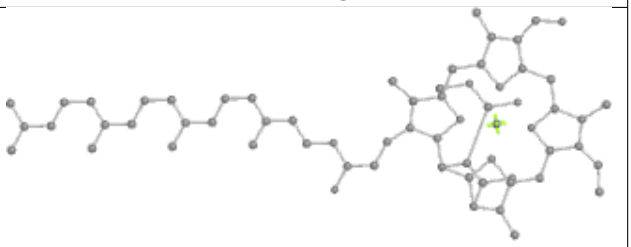
Bond lengths



Bond angles

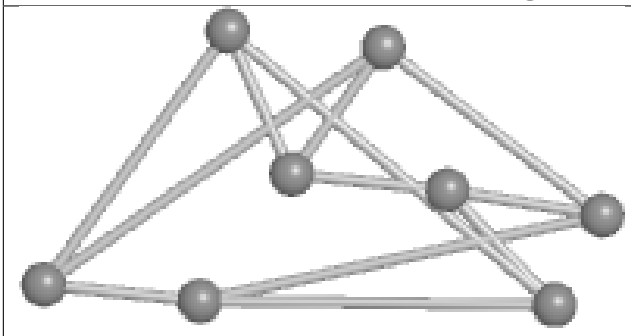


Torsions

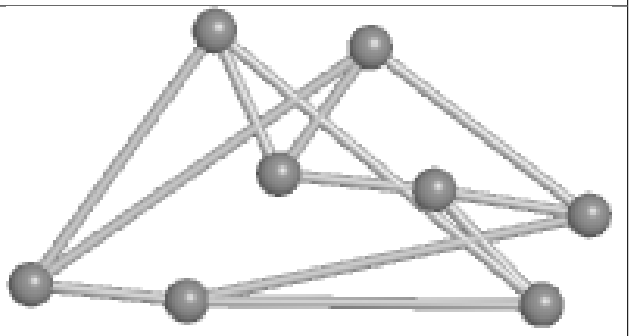


Rings

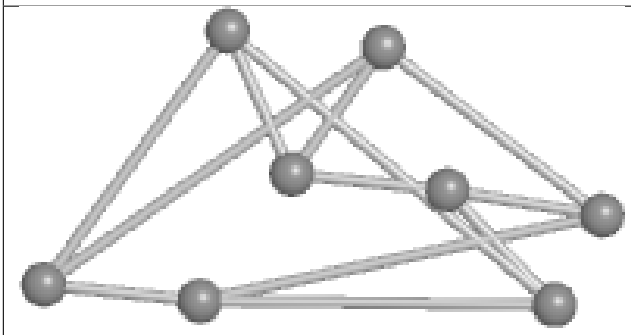
Ligand SF4 bC 101



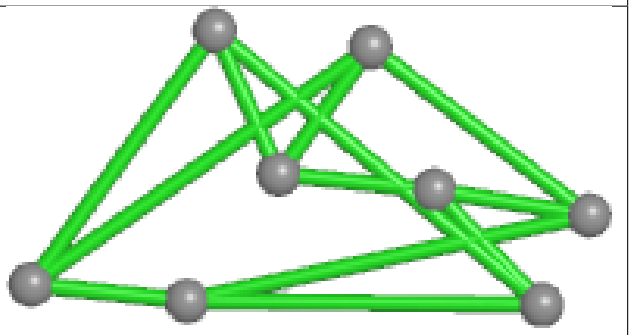
Bond lengths



Bond angles

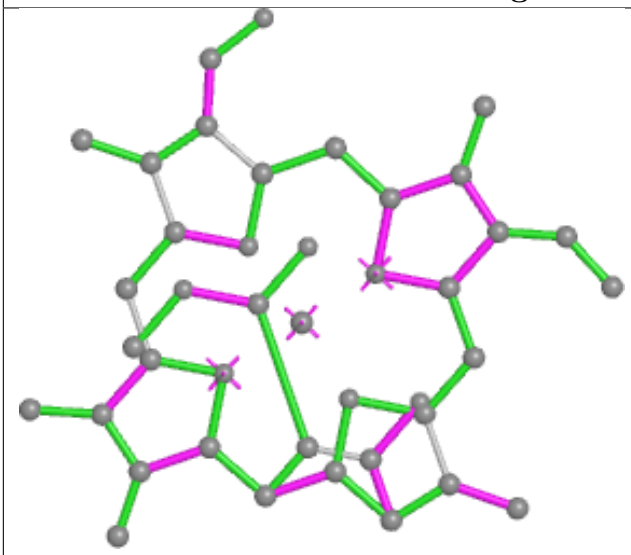


Torsions

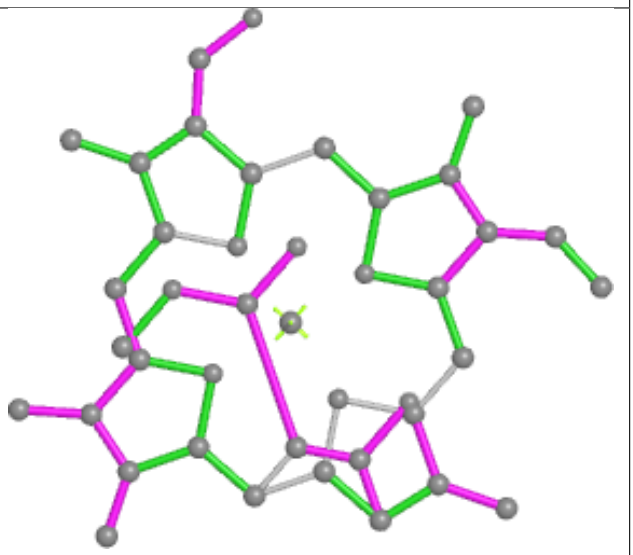


Rings

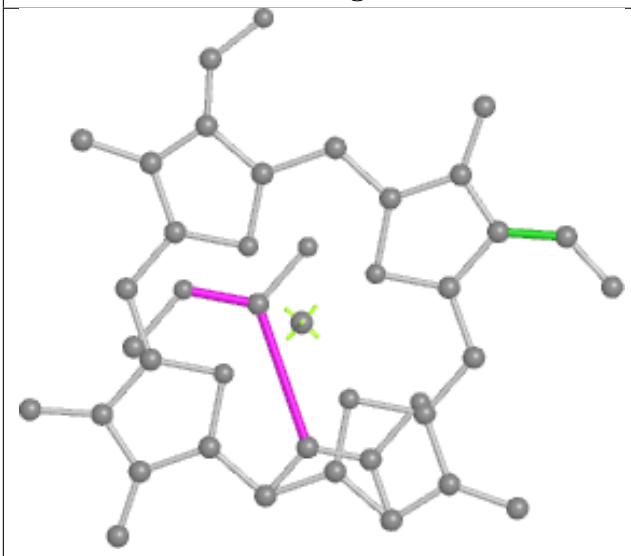
Ligand CL7 aA 3106



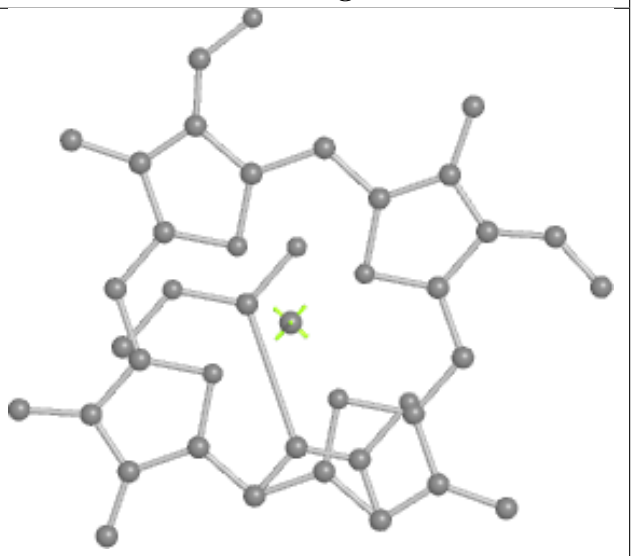
Bond lengths



Bond angles

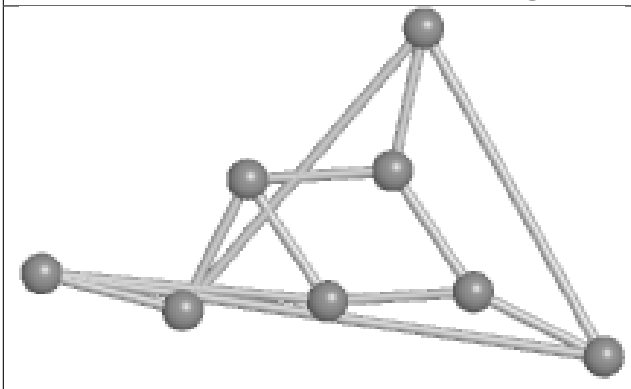


Torsions

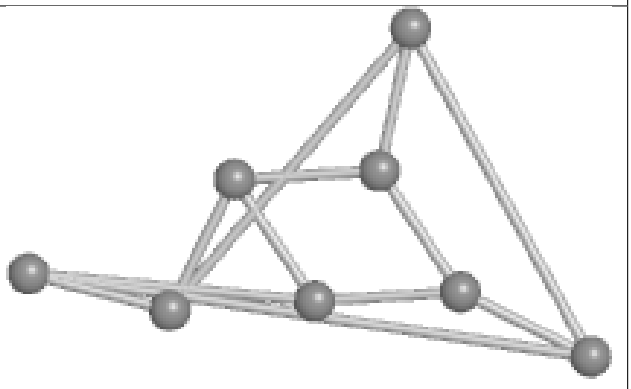


Rings

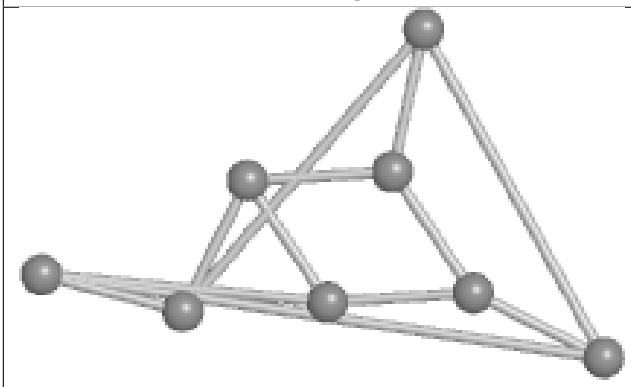
Ligand SF4 cB 802



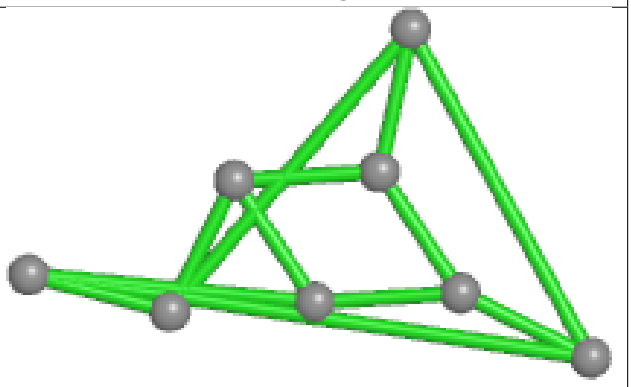
Bond lengths



Bond angles

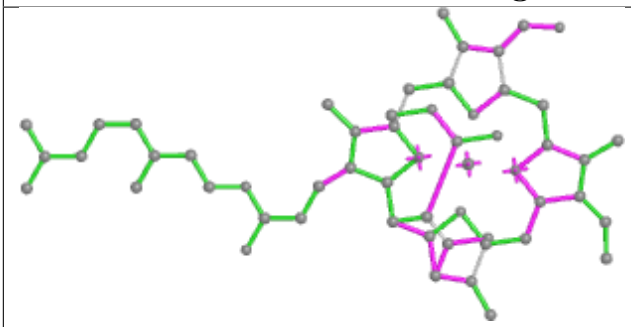


Torsions

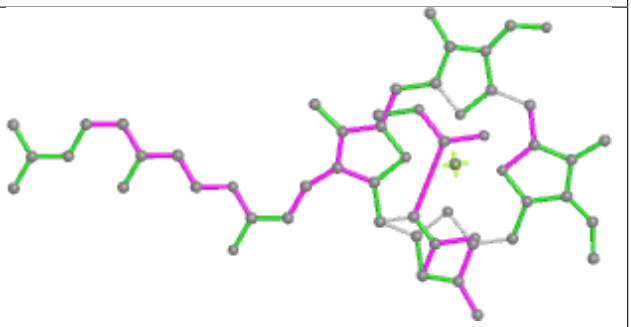


Rings

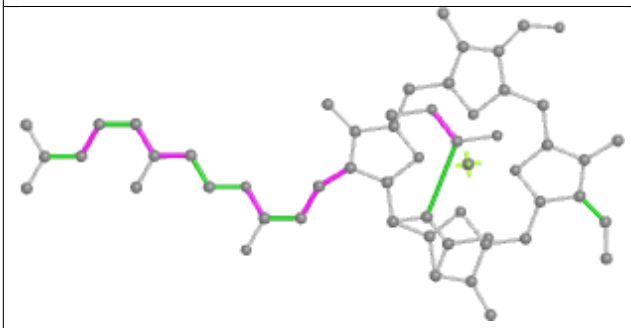
Ligand CL7 aB 3032



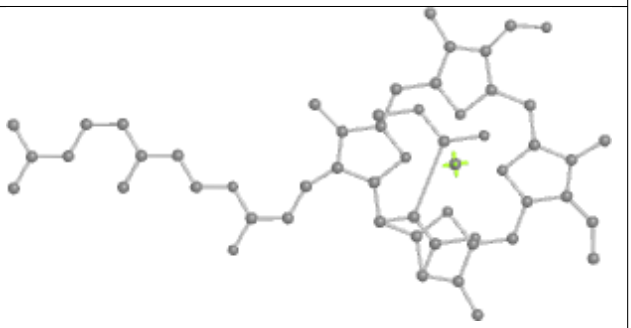
Bond lengths



Bond angles

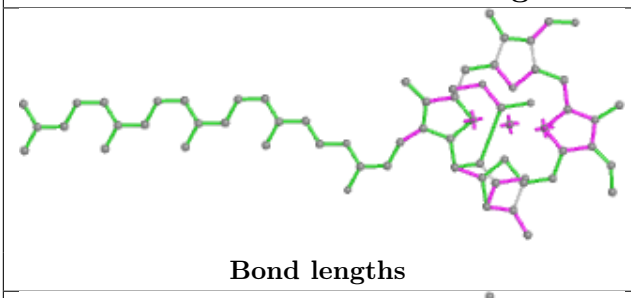


Torsions

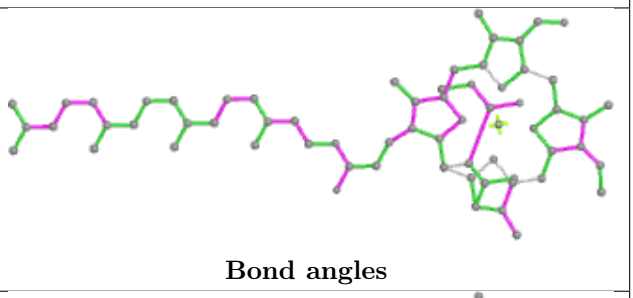


Rings

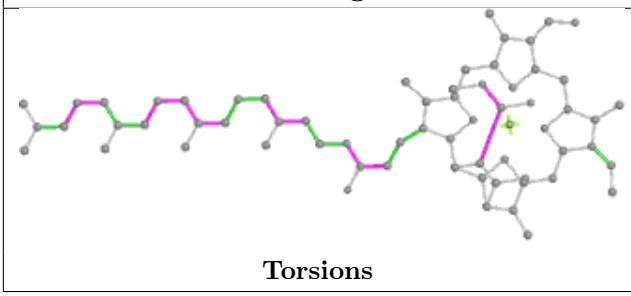
Ligand CL7 aB 3031



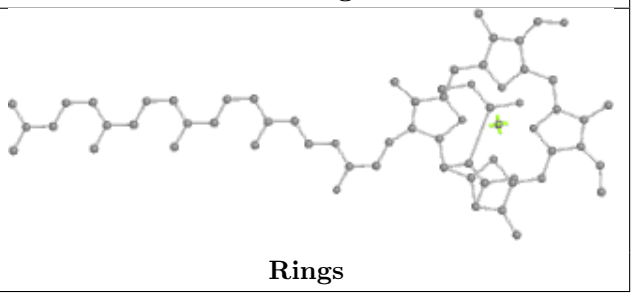
Bond lengths



Bond angles

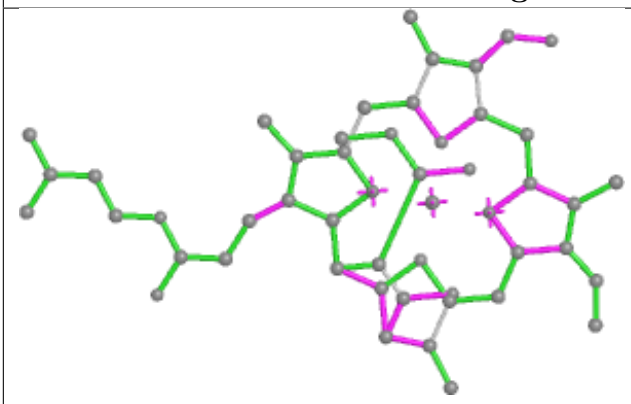


Torsions

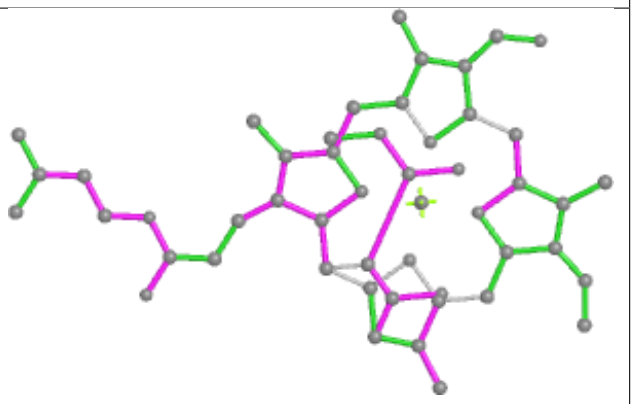


Rings

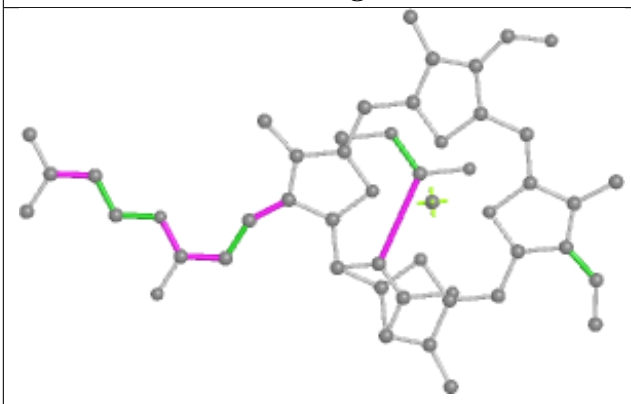
Ligand CL7 aA 3123



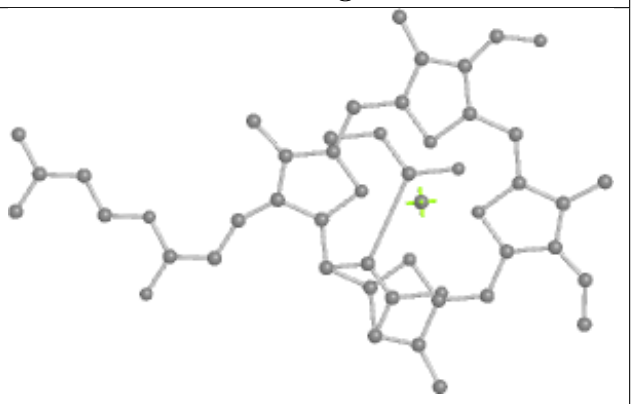
Bond lengths



Bond angles

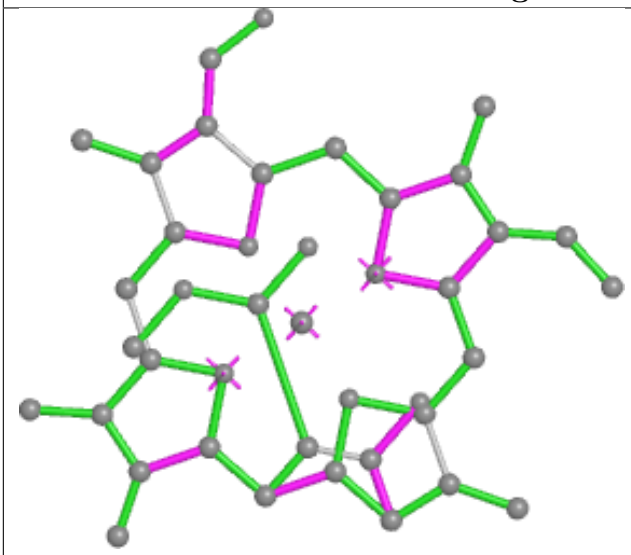


Torsions

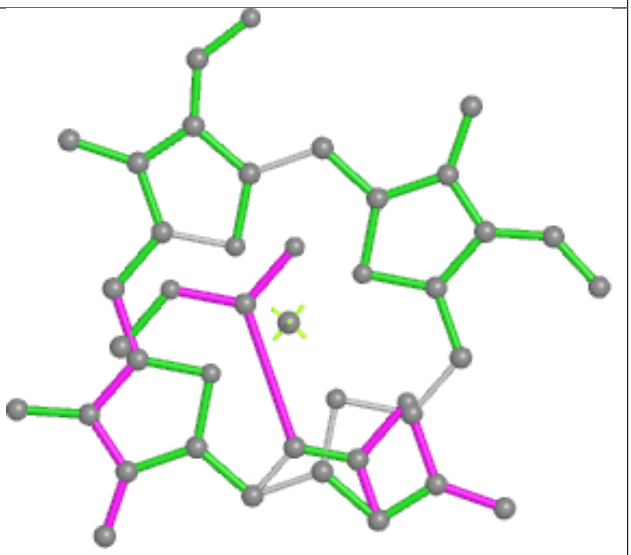


Rings

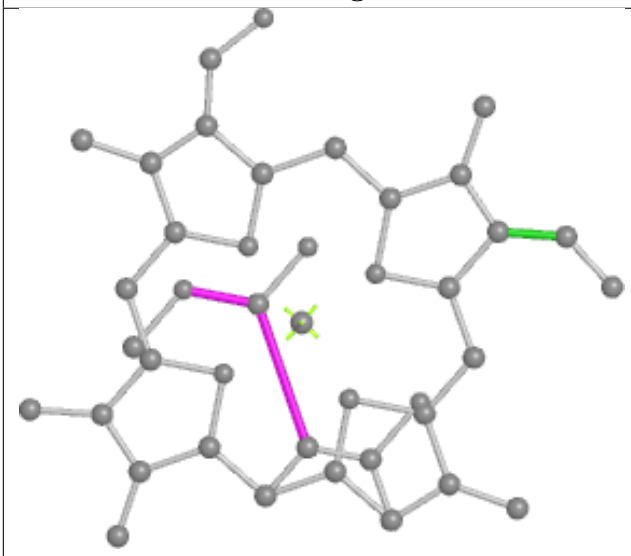
Ligand CL7 cA 3104



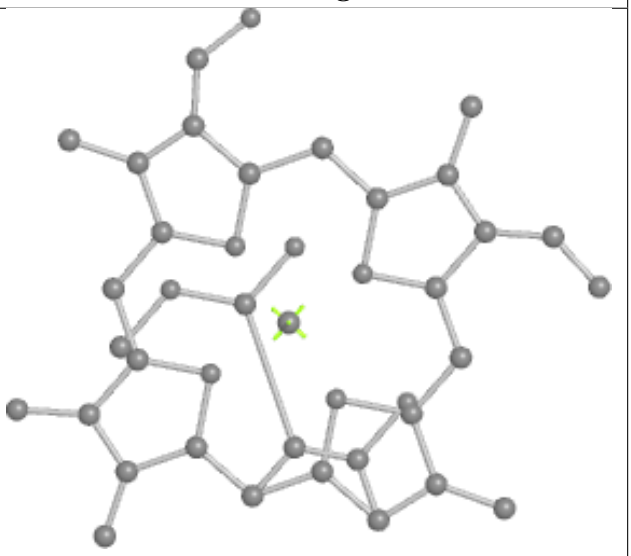
Bond lengths



Bond angles

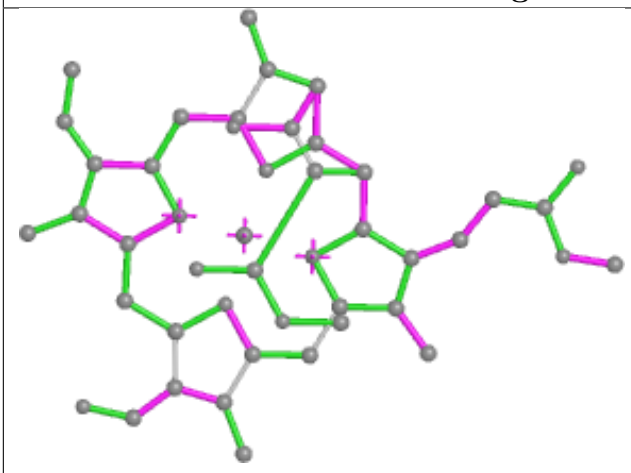


Torsions

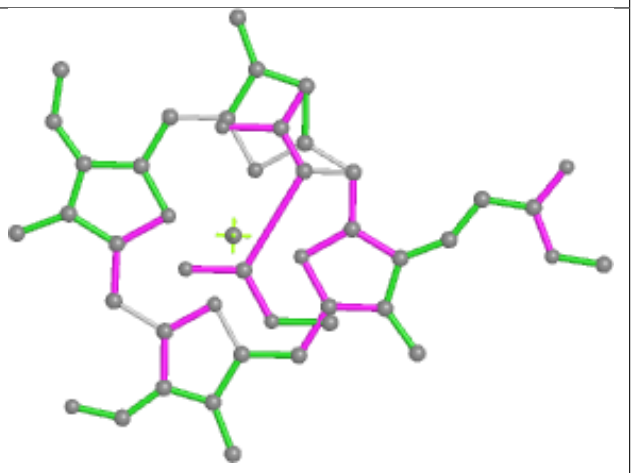


Rings

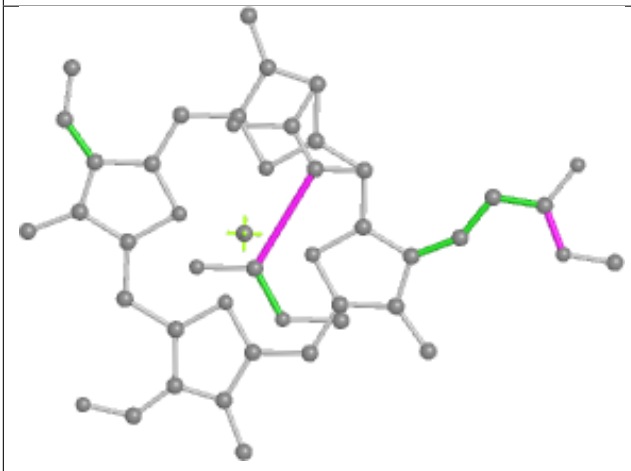
Ligand CL7 cA 3119



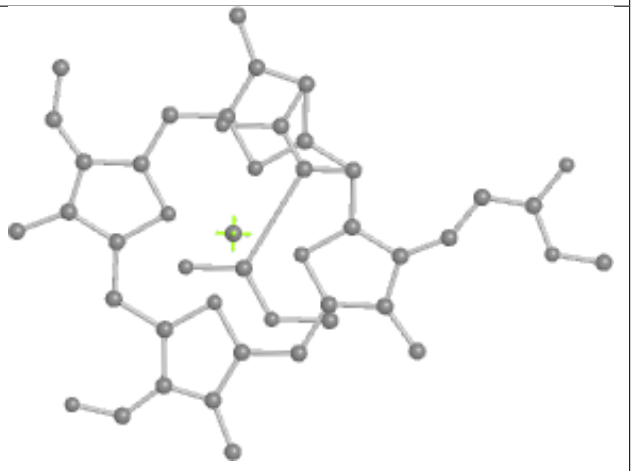
Bond lengths



Bond angles

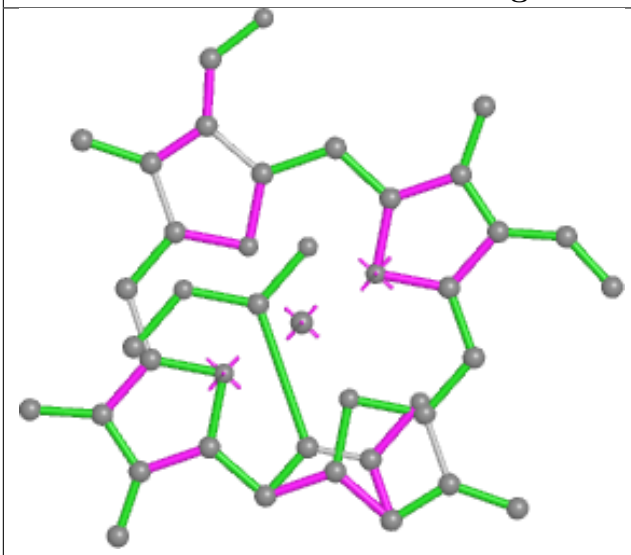


Torsions

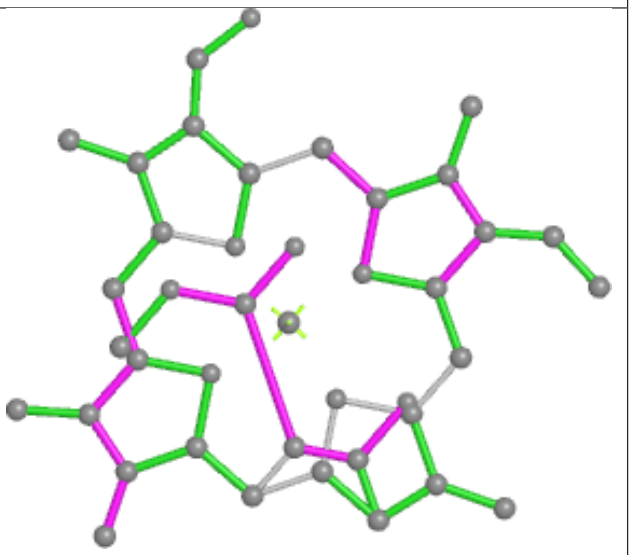


Rings

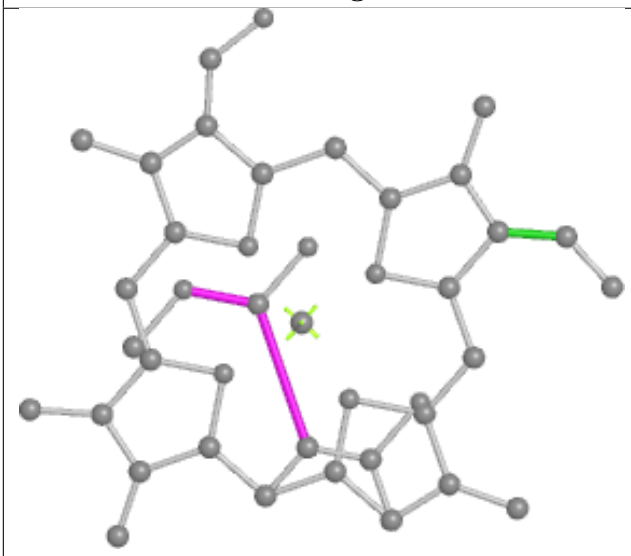
Ligand CL7 aA 3104



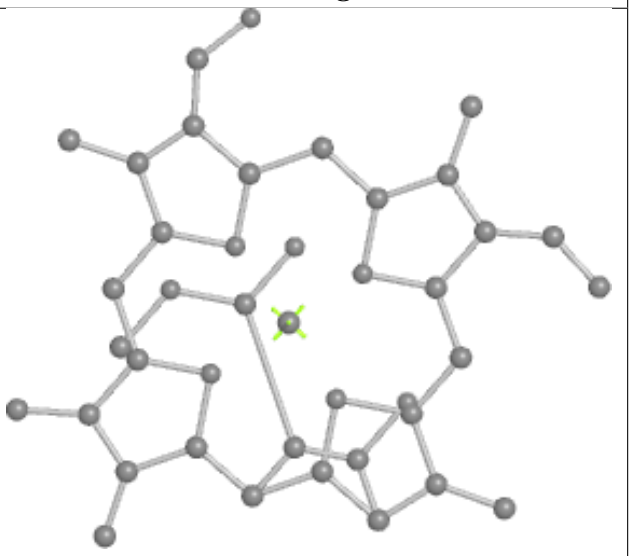
Bond lengths



Bond angles

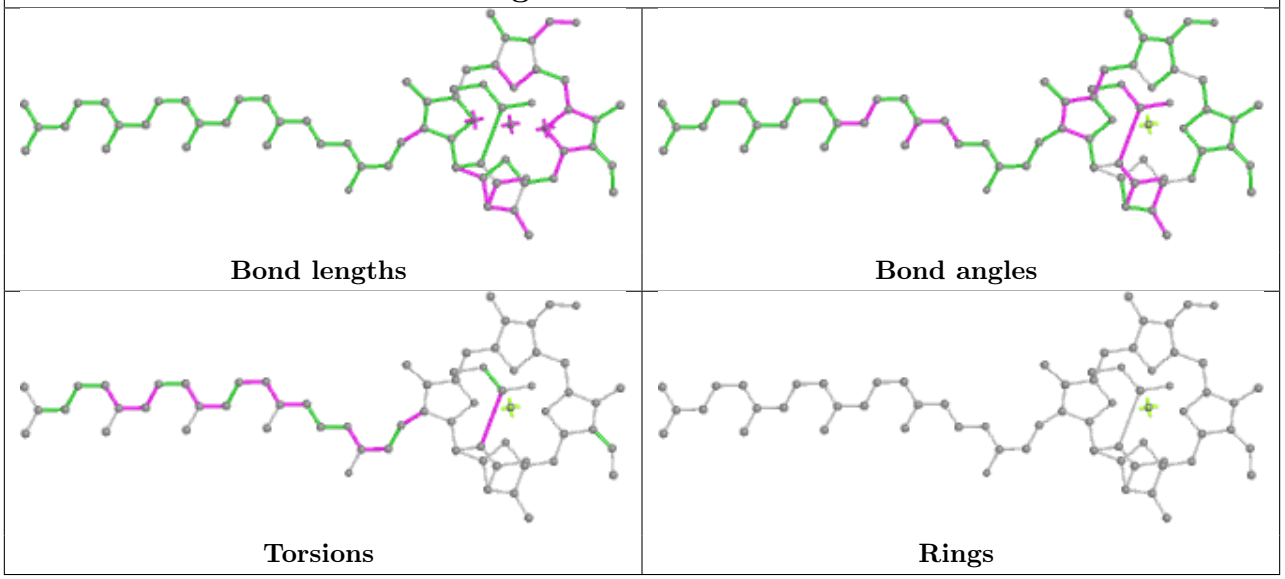


Torsions



Rings

Ligand CL7 aA 3143



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.

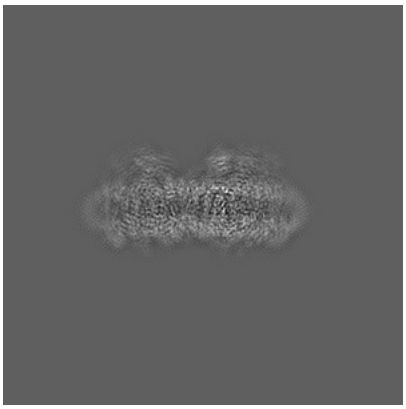
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-30420. These allow visual inspection of the internal detail of the map and identification of artifacts.

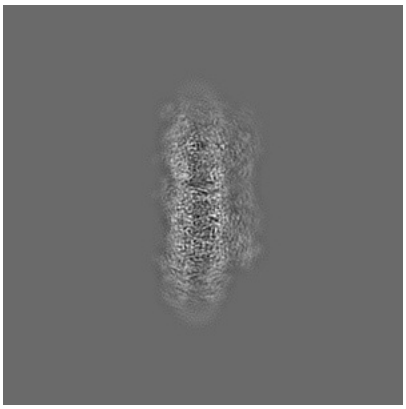
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

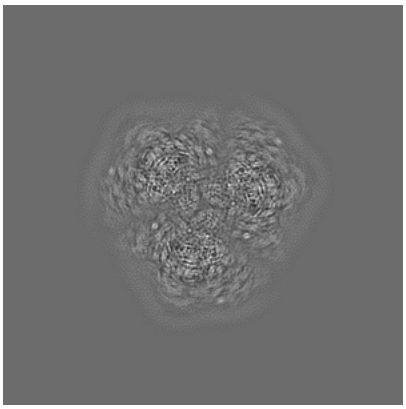
6.1.1 Primary map



X

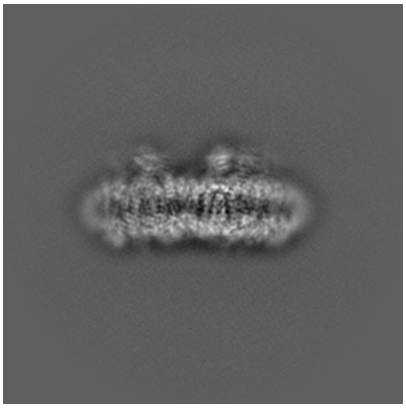


Y

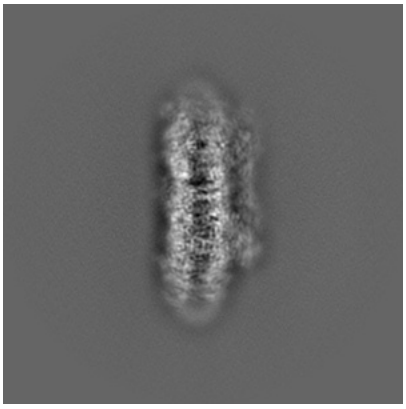


Z

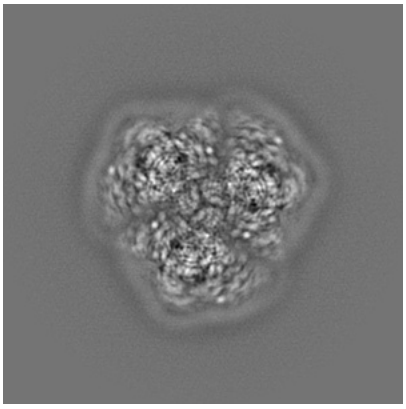
6.1.2 Raw map



X



Y



Z

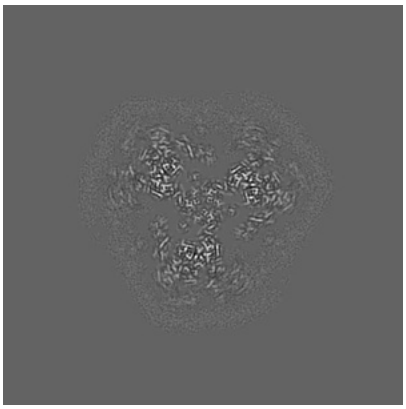
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

6.2.1 Primary map

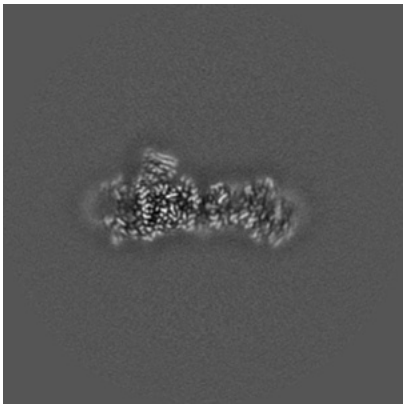
X Index: 165

Y Index: 165

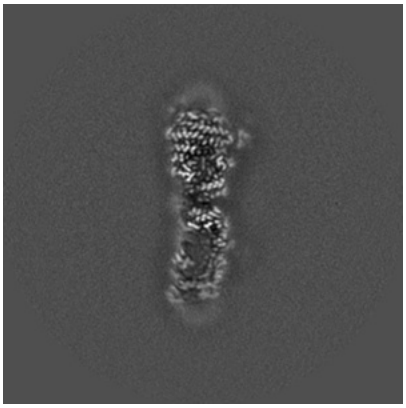


Z Index: 165

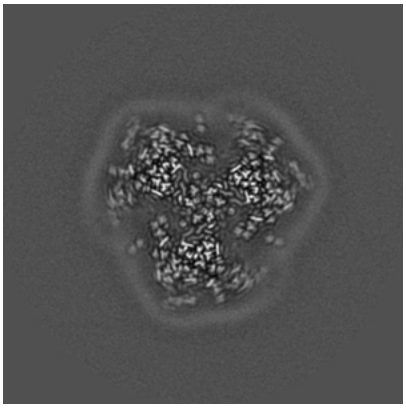
6.2.2 Raw map



X Index: 165



Y Index: 165



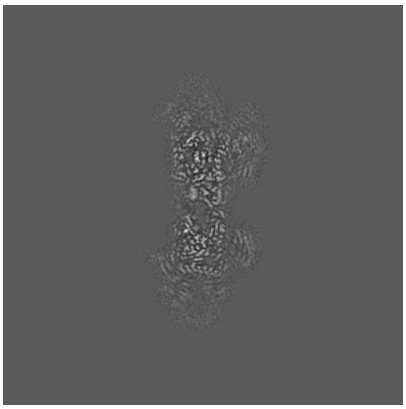
Z Index: 165

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

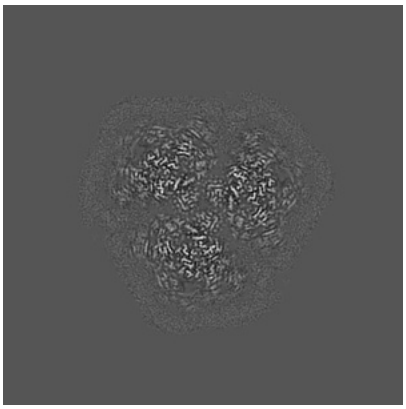
6.3 Largest variance slices (i)

6.3.1 Primary map

X Index: 153

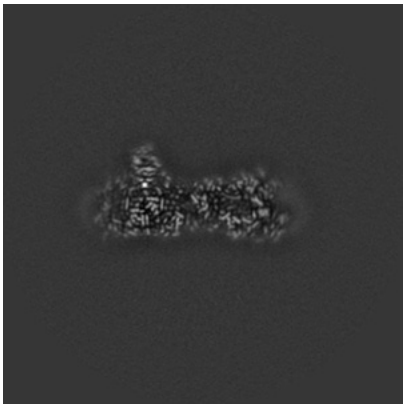


Y Index: 181

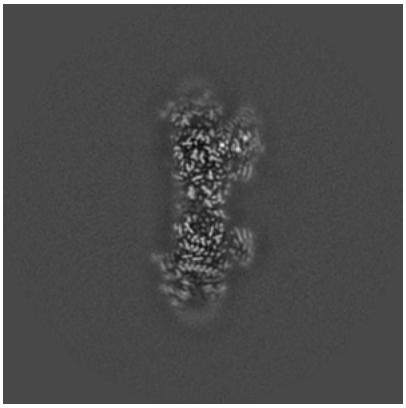


Z Index: 155

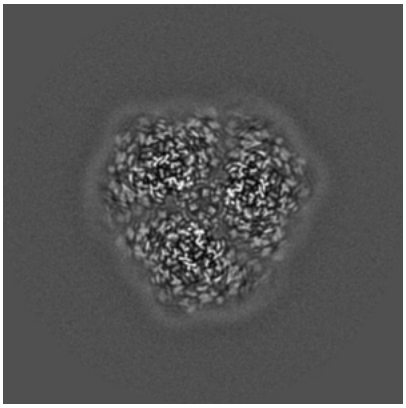
6.3.2 Raw map



X Index: 153



Y Index: 180

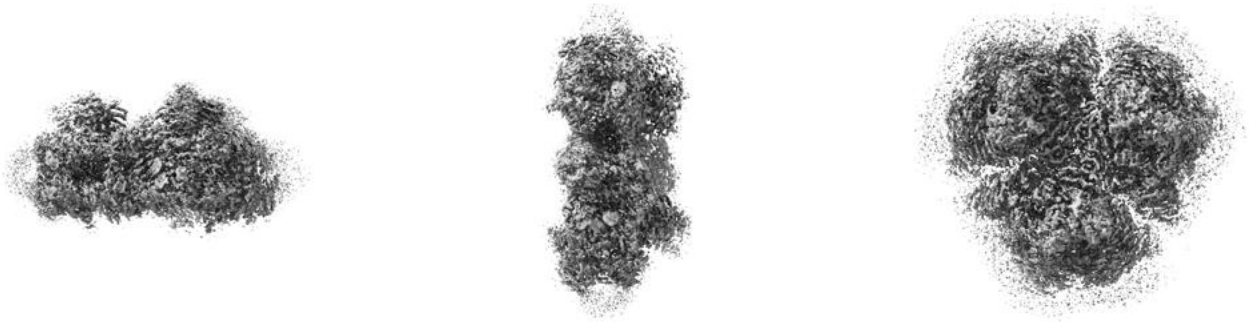


Z Index: 152

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

6.4 Orthogonal surface views (i)

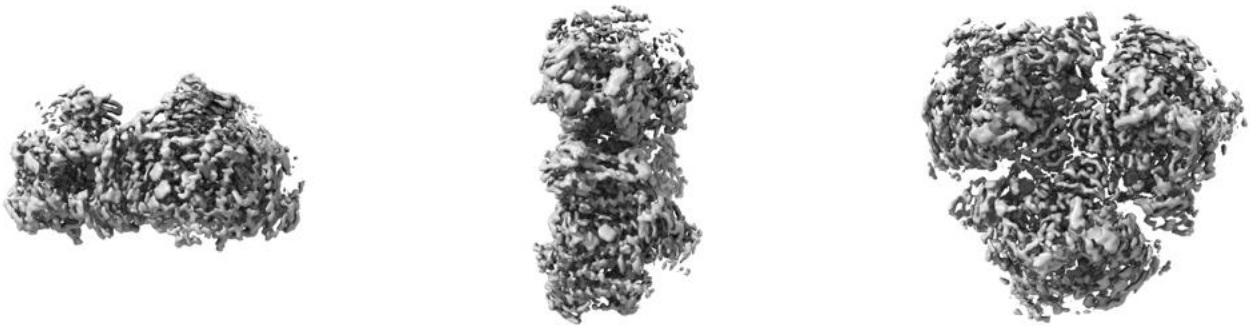
6.4.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.00637. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.4.2 Raw map



X Y Z

These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

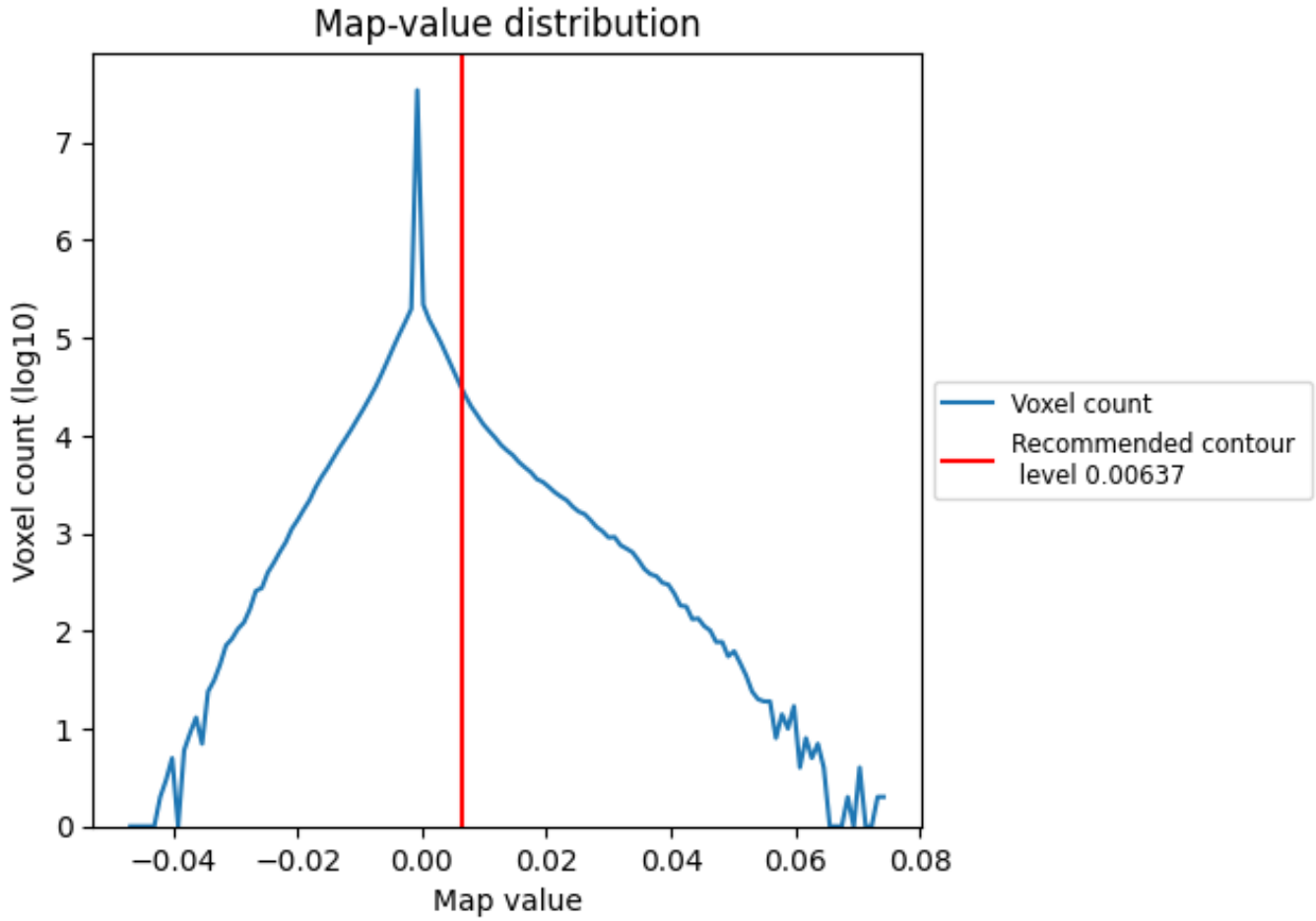
6.5 Mask visualisation (i)

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

7 Map analysis

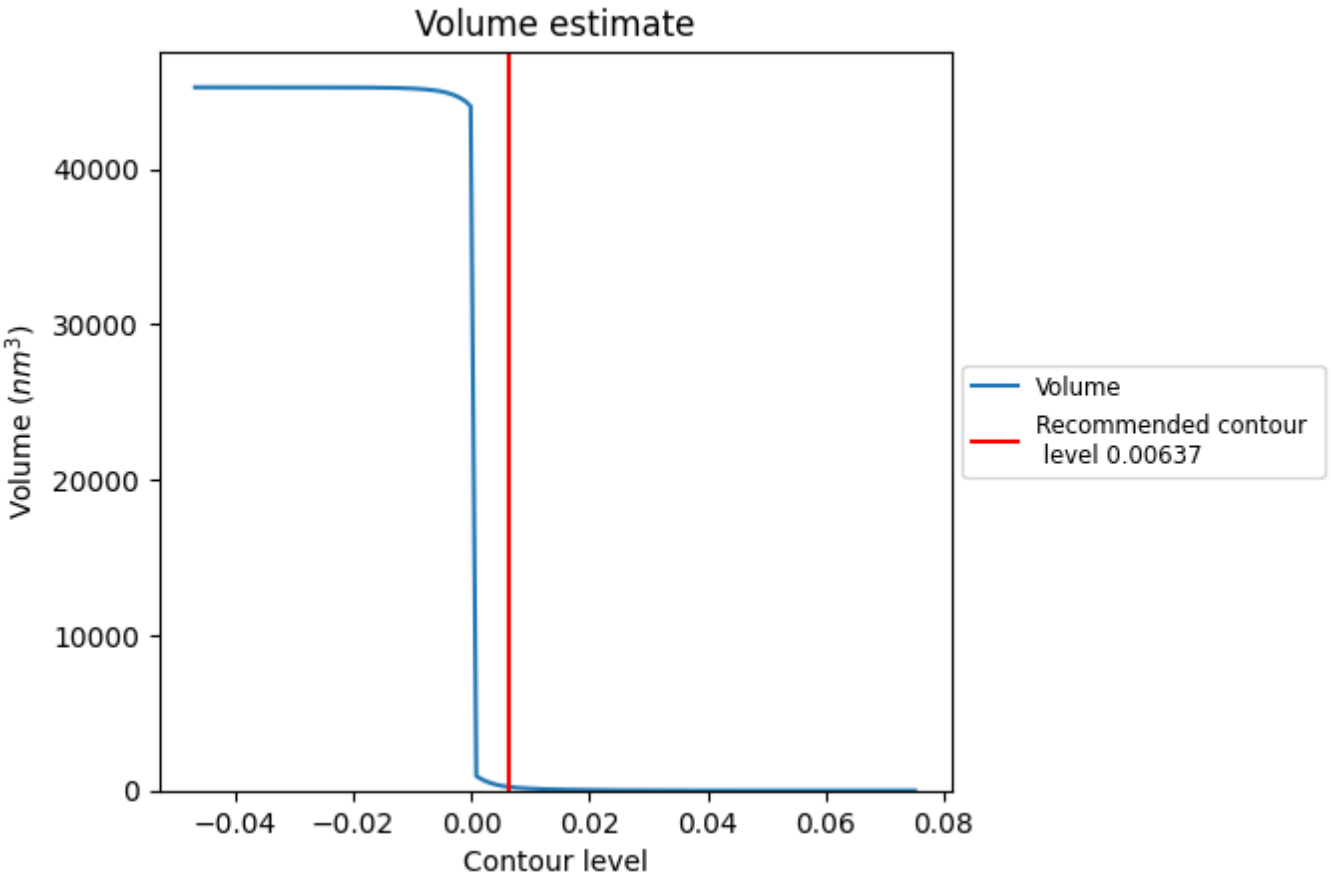
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

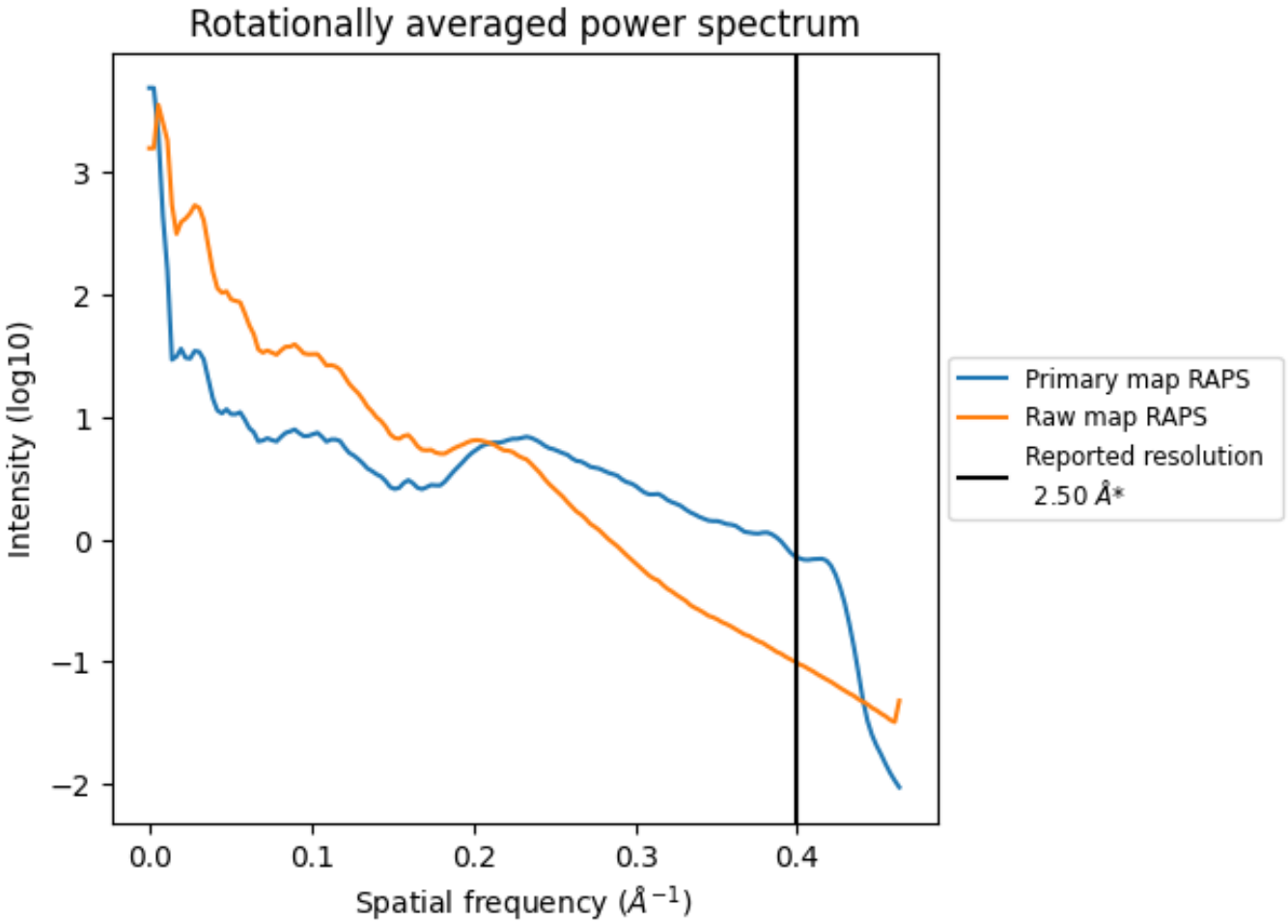
7.2 Volume estimate



The volume at the recommended contour level is 234 nm^3; this corresponds to an approximate mass of 211 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)

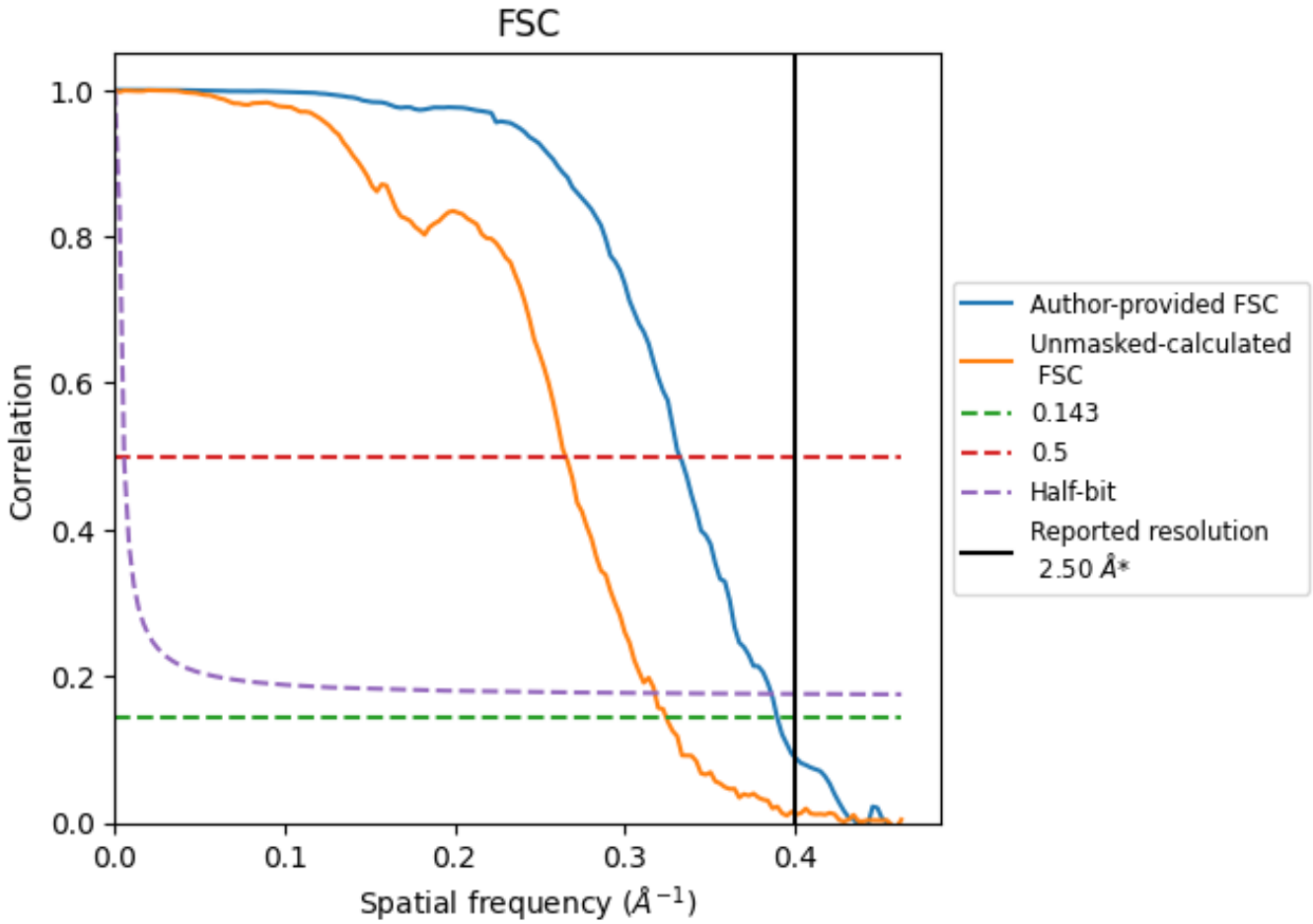


*Reported resolution corresponds to spatial frequency of 0.400 $Å^{-1}$

8 Fourier-Shell correlation

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC



*Reported resolution corresponds to spatial frequency of 0.400 Å^{-1}

8.2 Resolution estimates (i)

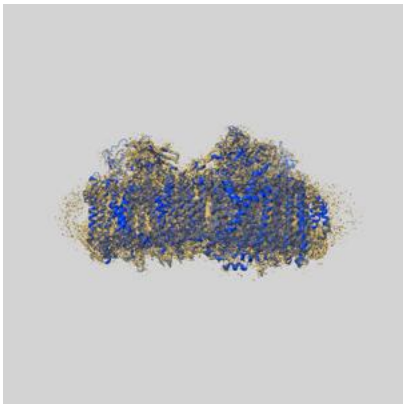
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.50	-	-
Author-provided FSC curve	2.56	3.01	2.59
Unmasked-calculated*	3.08	3.77	3.15

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.08 differs from the reported value 2.5 by more than 10 %

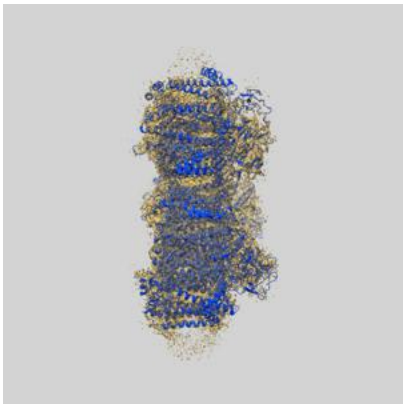
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-30420 and PDB model 7COY. Per-residue inclusion information can be found in section 3 on page 30.

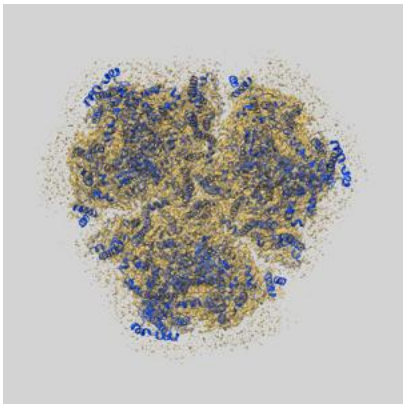
9.1 Map-model overlay



X



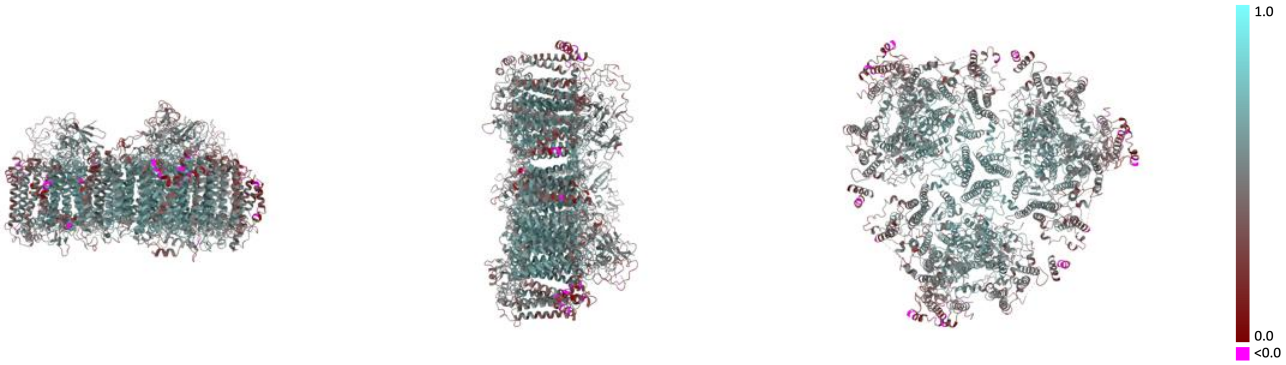
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.00637 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

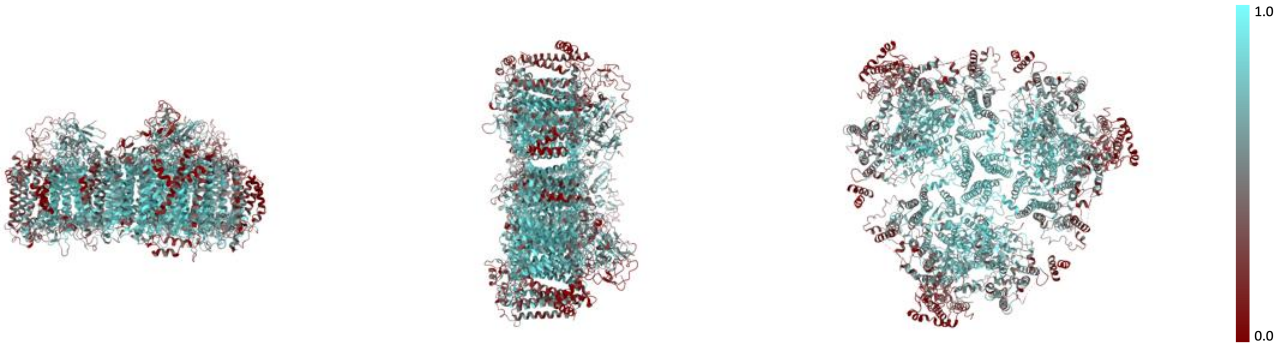
9.2 Q-score mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

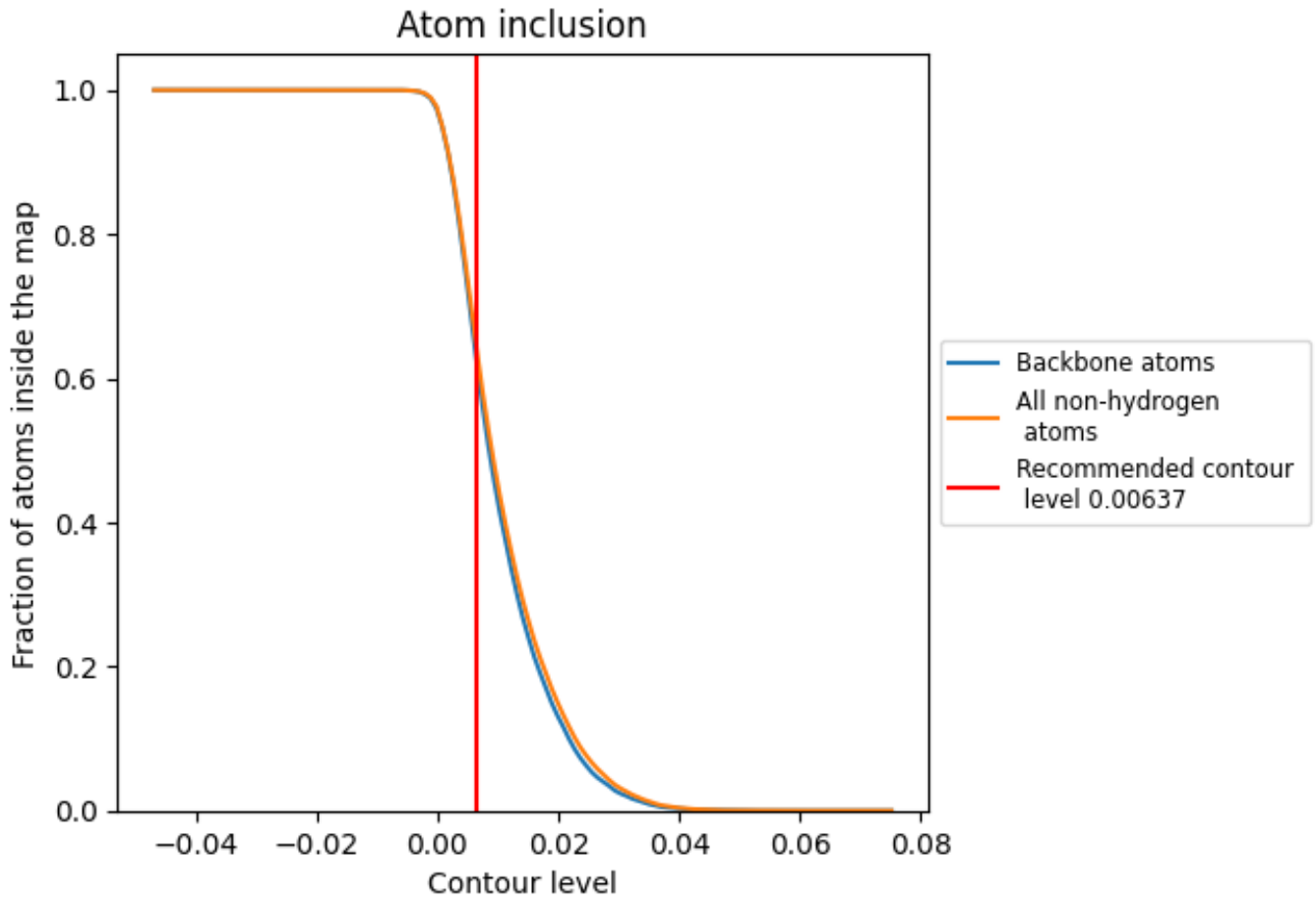
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.00637).

9.4 Atom inclusion (i)



At the recommended contour level, 63% of all backbone atoms, 65% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.00637) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.6508	0.5530
aA	0.6986	0.5750
aB	0.6994	0.5740
aC	0.6748	0.5290
aD	0.5082	0.4760
aE	0.2156	0.3930
aF	0.2069	0.3320
aI	0.7973	0.6330
aJ	0.2618	0.4220
aK	0.0876	0.2480
aL	0.8269	0.6390
aM	0.5561	0.5030
bA	0.7031	0.5760
bB	0.6976	0.5740
bC	0.6783	0.5310
bD	0.5082	0.4790
bE	0.2075	0.4020
bF	0.1954	0.3290
bI	0.8040	0.6290
bJ	0.2588	0.4280
bK	0.0825	0.2480
bL	0.8318	0.6390
bM	0.5561	0.5060
cA	0.7066	0.5790
cB	0.6982	0.5740
cC	0.6904	0.5280
cD	0.5102	0.4790
cE	0.1995	0.3960
cF	0.1956	0.3370
cI	0.8173	0.6330
cJ	0.2647	0.4260
cK	0.0722	0.2680
cL	0.8335	0.6370
cM	0.5317	0.4980