wwPDB EM Validation Summary Report (i)

Oct 6, 2024 – 11:54 am BST

PDB ID	:	8ASL
EMDB ID	:	EMD-15618
Title	:	RCII/PSI complex, class 2
Authors	:	Zhao, Z.; Vercellino, I.; Knoppova, J.; Sobotka, R.; Murray, J.W.; Nixon, P.J.; Sazanov, L.A.; Komenda, J.
Deposited on	:	2022-08-19
Resolution	:	3.15 Å(reported)
Based on initial models	:	2XBG, 5OY0, 6WJ6

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 (i) 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 (i)) were used in the production of this report:

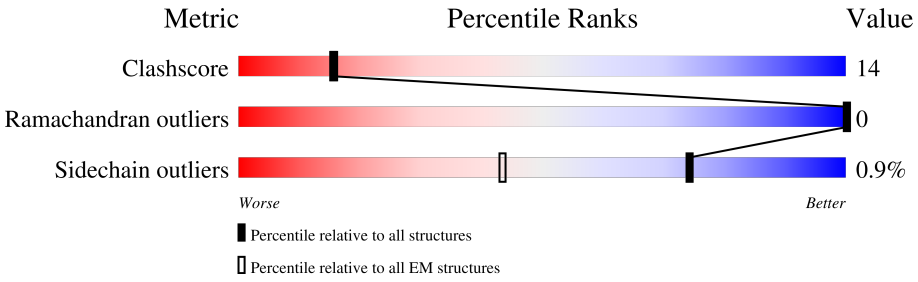
EMDB validation analysis	:	0.0.1.dev113
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.15 Å.

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



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

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

Mol	Chain	Length	Quality of chain
1	a	751	98%
2	b	731	99%
3	c	81	96%
4	d	141	99%
5	e	74	93% 7%
6	f	165	5% 86% 14%
7	i	40	5% 100%
8	j	40	5% 100%

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Mol	Chain	Length	Quality of chain
9	k	86	8% 87% 13%
10	l	157	10% 90% 9%
11	m	31	6% 94% 6%
12	A	344	12% 65% 19% 16%
13	D	336	18% 61% 21% 17%
14	E	81	7% 35% 20% 46%
15	F	44	9% 30% 34% 36%
16	I	38	32% 61% 11% 29%
17	S	342	33% 67% 22% 11%

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
18	CL0	a	801	X	-	-	-
19	CLA	A	402	X	-	-	-
19	CLA	A	403	X	-	-	-
19	CLA	A	405	X	-	-	-
19	CLA	D	401	X	-	-	-
19	CLA	D	403	X	-	-	-
19	CLA	D	404	X	-	-	-
19	CLA	a	802	X	-	-	-
19	CLA	a	803	X	-	-	-
19	CLA	a	804	X	-	-	-
19	CLA	a	805	X	-	-	-
19	CLA	a	806	X	-	-	-
19	CLA	a	807	X	-	-	-
19	CLA	a	808	X	-	-	-
19	CLA	a	809	X	-	-	-
19	CLA	a	810	X	-	-	-
19	CLA	a	811	X	-	-	-
19	CLA	a	812	X	-	-	-
19	CLA	a	813	X	-	-	-
19	CLA	a	815	X	-	-	-
19	CLA	a	816	X	-	-	-
19	CLA	a	817	X	-	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
19	CLA	a	818	X	-	-	-
19	CLA	a	819	X	-	-	-
19	CLA	a	820	X	-	-	-
19	CLA	a	821	X	-	-	-
19	CLA	a	822	X	-	-	-
19	CLA	a	823	X	-	-	-
19	CLA	a	824	X	-	-	-
19	CLA	a	825	X	-	-	-
19	CLA	a	826	X	-	-	-
19	CLA	a	827	X	-	-	-
19	CLA	a	828	X	-	-	-
19	CLA	a	829	X	-	-	-
19	CLA	a	830	X	-	-	-
19	CLA	a	831	X	-	-	-
19	CLA	a	832	X	-	-	-
19	CLA	a	833	X	-	-	-
19	CLA	a	834	X	-	-	-
19	CLA	a	835	X	-	-	-
19	CLA	a	836	X	-	-	-
19	CLA	a	837	X	-	-	-
19	CLA	a	839	X	-	-	-
19	CLA	a	840	X	-	-	-
19	CLA	a	841	X	-	-	-
19	CLA	a	842	X	-	-	-
19	CLA	a	843	X	-	-	-
19	CLA	a	855	X	-	-	-
19	CLA	a	856	X	-	-	-
19	CLA	a	858	X	-	-	-
19	CLA	b	3002	X	-	-	-
19	CLA	b	3003	X	-	-	-
19	CLA	b	3004	X	-	-	-
19	CLA	b	3005	X	-	-	-
19	CLA	b	3006	X	-	-	-
19	CLA	b	3007	X	-	-	-
19	CLA	b	3008	X	-	-	-
19	CLA	b	3009	X	-	-	-
19	CLA	b	3010	X	-	-	-
19	CLA	b	3011	X	-	-	-
19	CLA	b	3012	X	-	-	-
19	CLA	b	3013	X	-	-	-
19	CLA	b	3014	X	-	-	-
19	CLA	b	3015	X	-	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
19	CLA	b	3016	X	-	-	-
19	CLA	b	3017	X	-	-	-
19	CLA	b	3018	X	-	-	-
19	CLA	b	3019	X	-	-	-
19	CLA	b	3020	X	-	-	-
19	CLA	b	3021	X	-	-	-
19	CLA	b	3022	X	-	-	-
19	CLA	b	3023	X	-	-	-
19	CLA	b	3024	X	-	-	-
19	CLA	b	3025	X	-	-	-
19	CLA	b	3026	X	-	-	-
19	CLA	b	3027	X	-	-	-
19	CLA	b	3028	X	-	-	-
19	CLA	b	3029	X	-	-	-
19	CLA	b	3030	X	-	-	-
19	CLA	b	3031	X	-	-	-
19	CLA	b	3032	X	-	-	-
19	CLA	b	3033	X	-	-	-
19	CLA	b	3034	X	-	-	-
19	CLA	b	3035	X	-	-	-
19	CLA	b	3036	X	-	-	-
19	CLA	b	3037	X	-	-	-
19	CLA	b	3038	X	-	-	-
19	CLA	b	3039	X	-	-	-
19	CLA	b	3040	X	-	-	-
19	CLA	b	3041	X	-	-	-
19	CLA	f	201	X	-	-	-
19	CLA	f	203	X	-	-	-
19	CLA	f	204	X	-	-	-
19	CLA	j	102	X	-	-	-
19	CLA	j	103	X	-	-	-
19	CLA	k	4002	X	-	-	-
19	CLA	k	4003	X	-	-	-
19	CLA	l	1501	X	-	-	-
19	CLA	l	1502	X	-	-	-
19	CLA	l	1503	X	-	-	-

2 Entry composition (i)

There are 32 unique types of molecules in this entry. The entry contains 32739 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
			Total	C	N	O	S		
1	a	741	5795	3797	984	987	27	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	b	729	5770	3798	967	990	15	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	c	80	600	369	103	117	11	0	0

- Molecule 4 is a protein called Photosystem I reaction center subunit II.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	d	139	1087	688	188	208	3	0	0

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

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
5	e	69	538	337	95	106	0	0

- Molecule 6 is a protein called Photosystem I reaction center subunit III.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	f	142	1108	715	184	204	5	0	0

- Molecule 7 is a protein called Photosystem I reaction center subunit VIII.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	i	40	Total	C	N	O	S	0	0
			311	209	44	55	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
8	j	40	Total	C	N	O	S	0	0
			319	215	47	54	3		

- Molecule 9 is a protein called Photosystem I reaction center subunit PsaK 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	k	75	Total	C	N	O	S	0	0
			524	343	87	90	4		

- Molecule 10 is a protein called Photosystem I reaction center subunit XI.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	l	143	Total	C	N	O	S	0	0
			1069	697	173	197	2		

- Molecule 11 is a protein called Photosystem I reaction center subunit XII.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	m	31	Total	C	N	O	S	0	0
			238	159	36	42	1		

- Molecule 12 is a protein called Photosystem II protein D1 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	A	289	Total	C	N	O	S	0	0
			2248	1478	366	389	15		

- Molecule 13 is a protein called Photosystem II D2 protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	D	278	Total	C	N	O	S	0	0
			2188	1465	351	360	12		

There are 7 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
D	-5	MET	-	initiating methionine	UNP P09192
D	-4	HIS	-	expression tag	UNP P09192
D	-3	HIS	-	expression tag	UNP P09192
D	-2	HIS	-	expression tag	UNP P09192
D	-1	HIS	-	expression tag	UNP P09192
D	0	HIS	-	expression tag	UNP P09192
D	1	HIS	-	expression tag	UNP P09192

- Molecule 14 is a protein called Cytochrome b559 subunit alpha.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	E	44	Total	C	N	O	S	0	0
			360	245	54	60	1		

- Molecule 15 is a protein called Cytochrome b559 subunit beta.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	F	28	Total	C	N	O	S	0	0
			222	149	39	33	1		

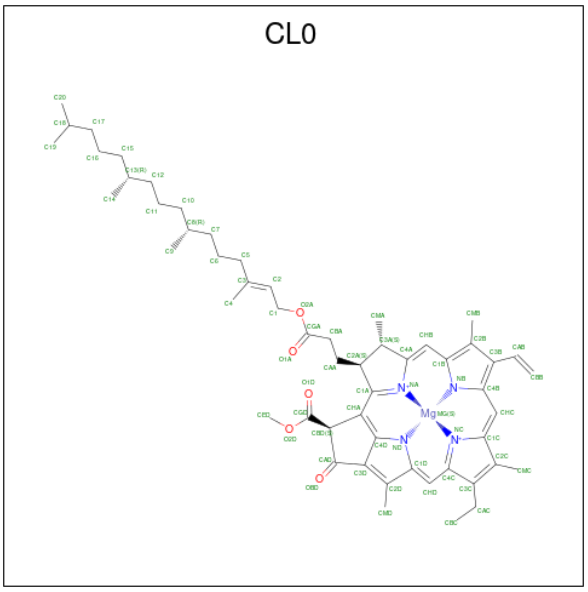
- Molecule 16 is a protein called Photosystem II reaction center protein I.

Mol	Chain	Residues	Atoms				AltConf	Trace
16	I	27	Total	C	N	O	0	0
			211	149	28	34		

- Molecule 17 is a protein called Photosystem II assembly lipoprotein Ycf48.

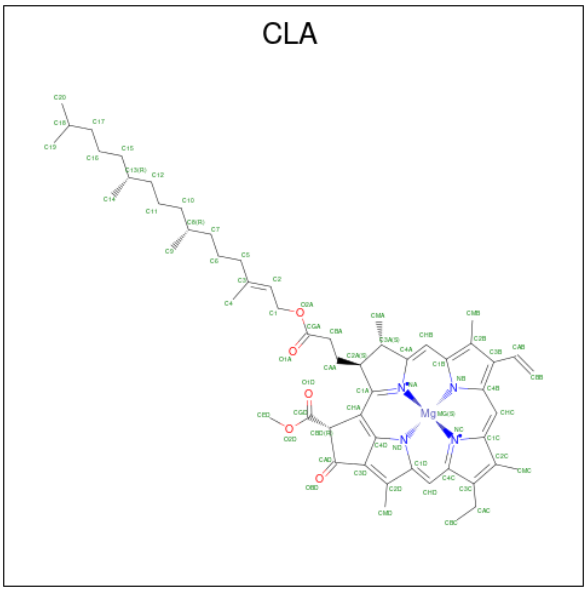
Mol	Chain	Residues	Atoms					AltConf	Trace
17	S	303	Total	C	N	O	S	0	0
			2328	1481	393	451	3		

- Molecule 18 is CHLOROPHYLL A ISOMER (three-letter code: CL0) (formula: $C_{55}H_{72}MgN_4O_5$).



Mol	Chain	Residues	Atoms					AltConf
18	a	1	Total	C	Mg	N	O	0
			65	55	1	4	5	

- Molecule 19 is CHLOROPHYLL A (three-letter code: CLA) (formula: $C_{55}H_{72}MgN_4O_5$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
19	a	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
19	a	1	Total	C	Mg	N	O	0
			65	55	1	4	5	

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Mol	Chain	Residues	Atoms					AltConf
19	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	a	1	Total 51	C 41	Mg 1	N 4	O 5	0
19	a	1	Total 50	C 40	Mg 1	N 4	O 5	0
19	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	a	1	Total 60	C 50	Mg 1	N 4	O 5	0
19	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	a	1	Total 46	C 36	Mg 1	N 4	O 5	0
19	a	1	Total 46	C 36	Mg 1	N 4	O 5	0
19	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	a	1	Total 65	C 55	Mg 1	N 4	O 5	0

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
19	a	1	60	50	1	4	5	0
19	a	1	65	55	1	4	5	0
19	a	1	65	55	1	4	5	0
19	a	1	65	55	1	4	5	0
19	a	1	65	55	1	4	5	0
19	a	1	65	55	1	4	5	0
19	a	1	65	55	1	4	5	0
19	a	1	56	46	1	4	5	0
19	a	1	60	50	1	4	5	0
19	a	1	65	55	1	4	5	0
19	a	1	65	55	1	4	5	0
19	a	1	65	55	1	4	5	0
19	a	1	65	55	1	4	5	0
19	a	1	51	41	1	4	5	0
19	a	1	65	55	1	4	5	0
19	a	1	65	55	1	4	5	0
19	a	1	65	55	1	4	5	0
19	a	1	65	55	1	4	5	0
19	a	1	56	46	1	4	5	0
19	a	1	65	55	1	4	5	0
19	a	1	65	55	1	4	5	0

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Mol	Chain	Residues	Atoms					AltConf
19	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	b	1	Total 56	C 46	Mg 1	N 4	O 5	0
19	b	1	Total 56	C 46	Mg 1	N 4	O 5	0
19	b	1	Total 50	C 40	Mg 1	N 4	O 5	0
19	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	b	1	Total 55	C 45	Mg 1	N 4	O 5	0
19	b	1	Total 56	C 46	Mg 1	N 4	O 5	0
19	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	b	1	Total 60	C 50	Mg 1	N 4	O 5	0
19	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
19	b	1	Total 60	C 50	Mg 1	N 4	O 5	0

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Mol	Chain	Residues	Atoms					AltConf
19	b	1	Total	C	Mg	N	O	0
			46	36	1	4	5	
19	b	1	Total	C	Mg	N	O	0
			57	47	1	4	5	
19	b	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
19	b	1	Total	C	Mg	N	O	0
			55	45	1	4	5	
19	b	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
19	b	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
19	b	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
19	b	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
19	b	1	Total	C	Mg	N	O	0
			51	41	1	4	5	
19	b	1	Total	C	Mg	N	O	0
			50	40	1	4	5	
19	b	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
19	b	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
19	b	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
19	b	1	Total	C	Mg	N	O	0
			50	40	1	4	5	
19	b	1	Total	C	Mg	N	O	0
			52	42	1	4	5	
19	b	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
19	b	1	Total	C	Mg	N	O	0
			50	40	1	4	5	
19	b	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
19	b	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
19	b	1	Total	C	Mg	N	O	0
			46	36	1	4	5	
19	f	1	Total	C	Mg	N	O	0
			65	55	1	4	5	

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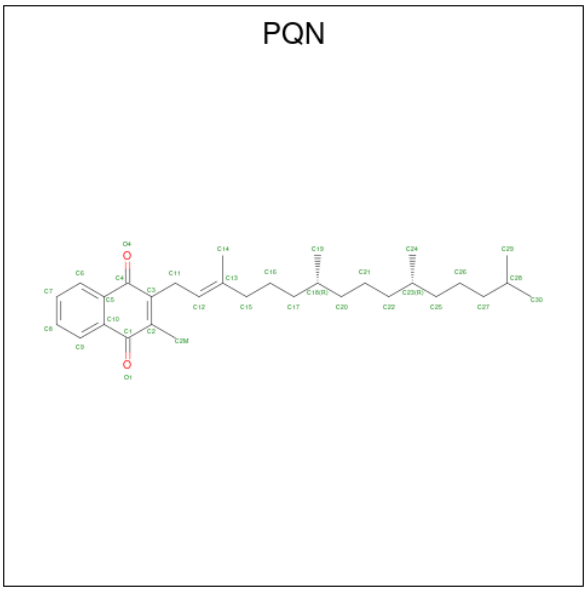
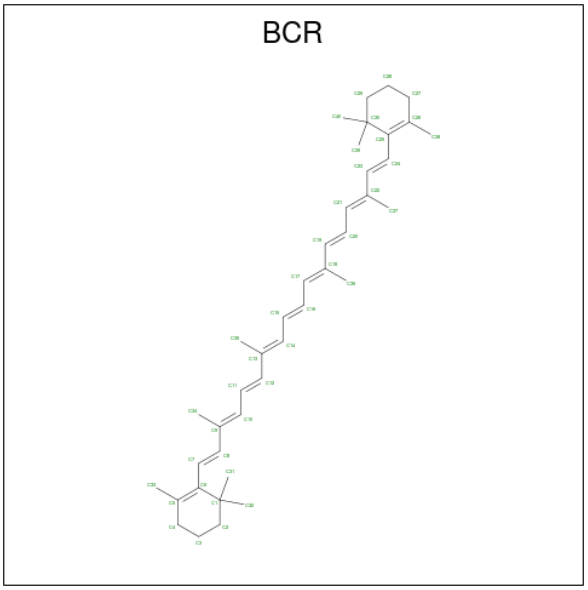
Mol	Chain	Residues	Atoms					AltConf
19	f	1	Total	C	Mg	N	O	0
			50	40	1	4	5	
19	f	1	Total	C	Mg	N	O	0
			50	40	1	4	5	
19	j	1	Total	C	Mg	N	O	0
			55	45	1	4	5	
19	j	1	Total	C	Mg	N	O	0
			46	36	1	4	5	
19	k	1	Total	C	Mg	N	O	0
			46	36	1	4	5	
19	k	1	Total	C	Mg	N	O	0
			45	35	1	4	5	
19	l	1	Total	C	Mg	N	O	0
			50	40	1	4	5	
19	l	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
19	l	1	Total	C	Mg	N	O	0
			52	42	1	4	5	
19	A	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
19	A	1	Total	C	Mg	N	O	0
			46	36	1	4	5	
19	A	1	Total	C	Mg	N	O	0
			50	40	1	4	5	
19	D	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
19	D	1	Total	C	Mg	N	O	0
			55	45	1	4	5	
19	D	1	Total	C	Mg	N	O	0
			46	36	1	4	5	

- Molecule 20 is PHYLLOQUINONE (three-letter code: PQN) (formula: $C_{31}H_{46}O_2$).



Mol	Chain	Residues	Atoms	AltConf
20	a	1	Total C O 33 31 2	0
20	b	1	Total C O 33 31 2	0

- Molecule 21 is BETA-CAROTENE (three-letter code: BCR) (formula: $C_{40}H_{56}$).



Mol	Chain	Residues	Atoms	AltConf
21	a	1	Total C 40 40	0
21	a	1	Total C 40 40	0

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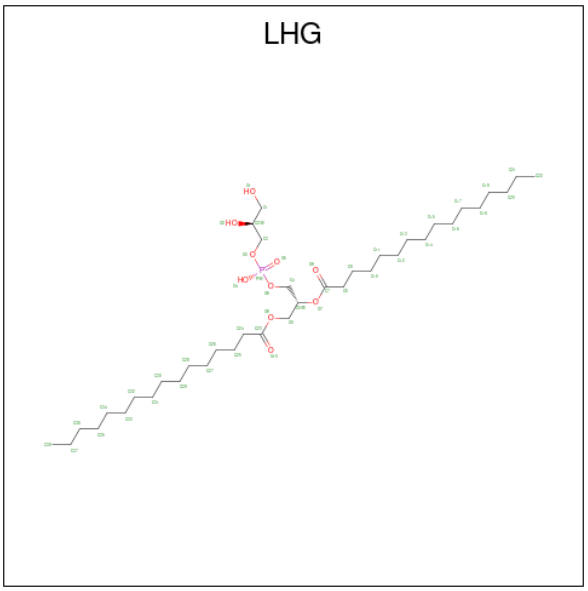
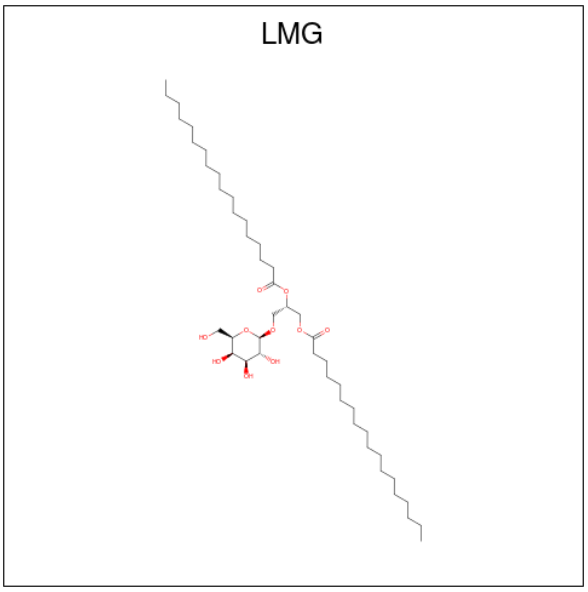
Mol	Chain	Residues	Atoms	AltConf
21	a	1	Total C 40 40	0
21	a	1	Total C 40 40	0
21	a	1	Total C 25 25	0
21	b	1	Total C 40 40	0
21	b	1	Total C 40 40	0
21	b	1	Total C 40 40	0
21	b	1	Total C 40 40	0
21	b	1	Total C 40 40	0
21	f	1	Total C 40 40	0
21	i	1	Total C 40 40	0
21	j	1	Total C 40 40	0
21	j	1	Total C 40 40	0
21	k	1	Total C 40 40	0
21	k	1	Total C 40 40	0
21	l	1	Total C 40 40	0
21	A	1	Total C 40 40	0

- Molecule 22 is 1,2-DIPALMITOYL-PHOSPHATIDYL-GLYCEROLE (three-letter code: LHG) (formula: $C_{38}H_{75}O_{10}P$).



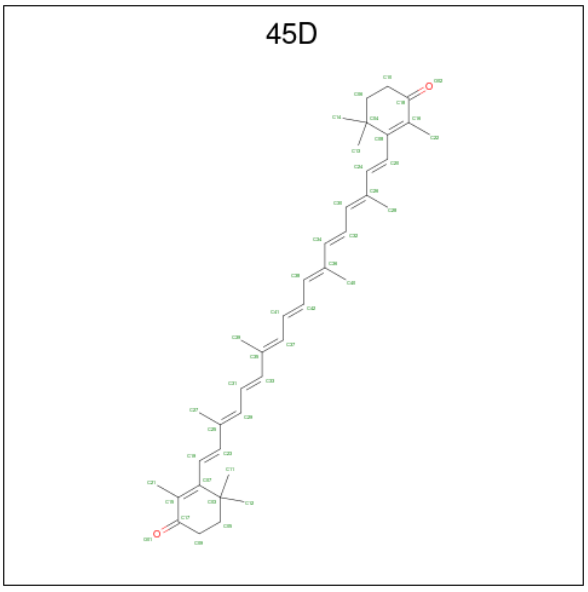
Mol	Chain	Residues	Atoms				AltConf
22	a	1	Total	C	O	P	0
			49	38	10	1	
22	a	1	Total	C	O	P	0
			49	38	10	1	
22	a	1	Total	C	O	P	0
			49	38	10	1	
22	b	1	Total	C	O	P	0
			38	27	10	1	
22	f	1	Total	C	O	P	0
			49	38	10	1	

- Molecule 23 is 1,2-DISTEAROYL-MONOGALACTOSYL-DIGLYCERIDE (three-letter code: LMG) (formula: $C_{45}H_{86}O_{10}$).



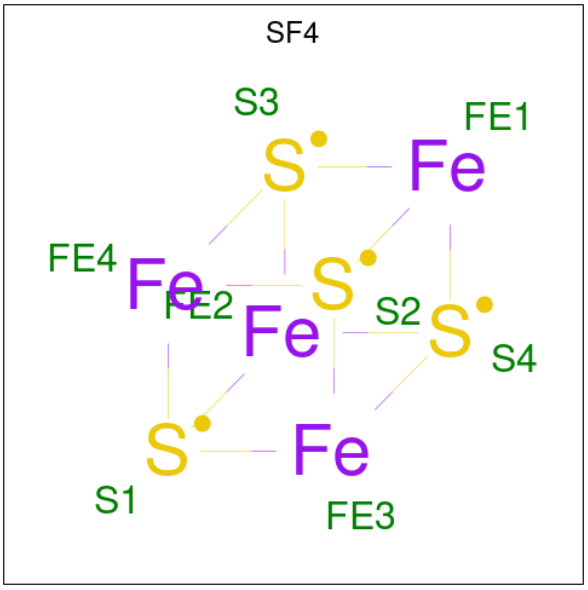
Mol	Chain	Residues	Atoms			AltConf
23	a	1	Total	C	O	0
			50	40	10	
23	a	1	Total	C	O	0
			40	30	10	
23	b	1	Total	C	O	0
			55	45	10	
23	b	1	Total	C	O	0
			55	45	10	

- Molecule 24 is beta,beta-carotene-4,4'-dione (three-letter code: 45D) (formula: $C_{40}H_{52}O_2$).



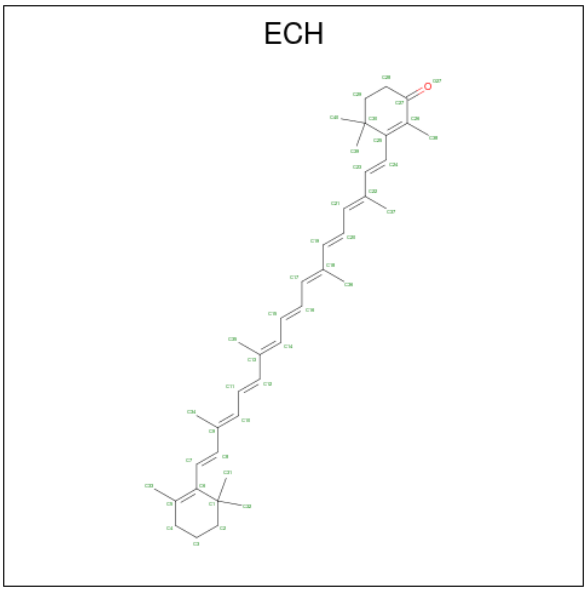
Mol	Chain	Residues	Atoms	AltConf
24	a	1	Total C O 42 40 2	0

- Molecule 25 is IRON/SULFUR CLUSTER (three-letter code: SF4) (formula: Fe_4S_4).



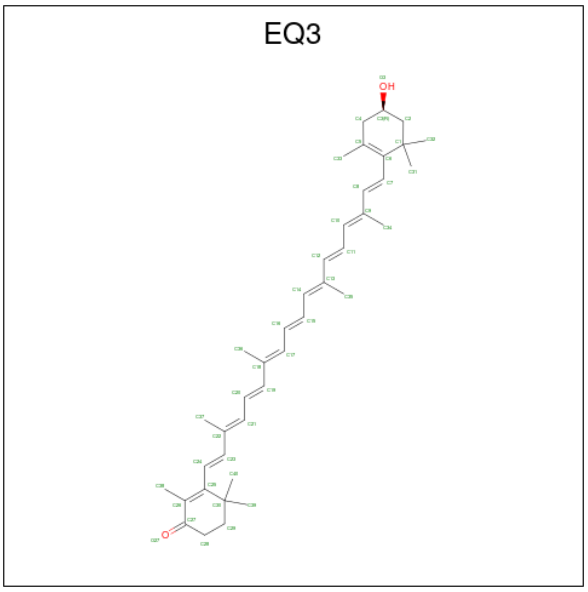
Mol	Chain	Residues	Atoms	AltConf
25	b	1	Total Fe S 8 4 4	0
25	c	1	Total Fe S 8 4 4	0
25	c	1	Total Fe S 8 4 4	0

- Molecule 26 is beta,beta-caroten-4-one (three-letter code: ECH) (formula: $C_{40}H_{54}O$).



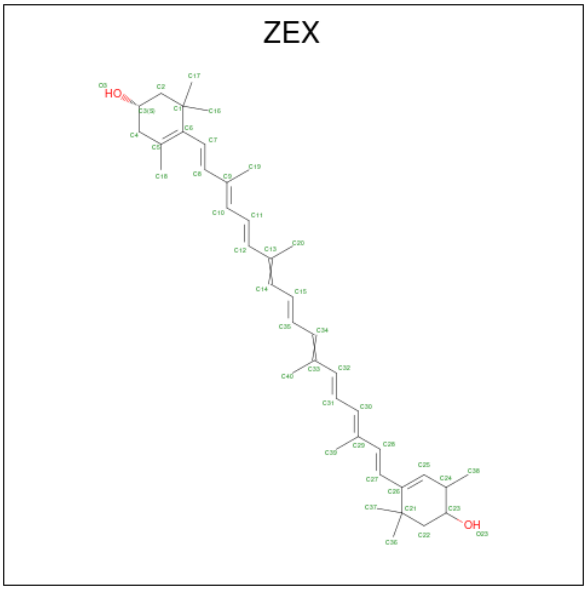
Mol	Chain	Residues	Atoms			AltConf
26	b	1	Total	C	O	0
			41	40	1	
26	m	1	Total	C	O	0
			41	40	1	

- Molecule 27 is (3'R)-3'-hydroxy-beta,beta-caroten-4-one (three-letter code: EQ3) (formula: $C_{40}H_{54}O_2$).



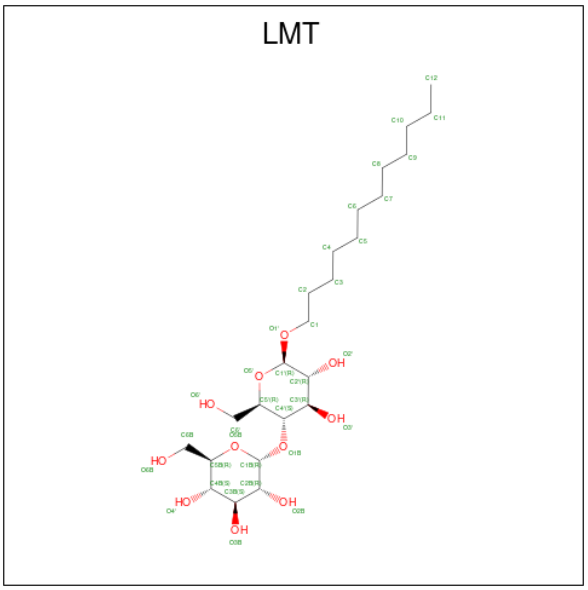
Mol	Chain	Residues	Atoms			AltConf
27	b	1	Total	C	O	0
			42	40	2	

- Molecule 28 is (1R,2S)-4-{(1E,3E,5E,7E,9E,11E,13E,15E,17E)-18-[(4S)-4-hydroxy-2,6,6-trimethylcyclohex-1-en-1-yl]-3,7,12,16-tetramethyloctadeca-1,3,5,7,9,11,13,15,17-nonaen-1-yl}-2,5,5-trimethylcyclohex-3-en-1-ol (three-letter code: ZEX) (formula: $C_{40}H_{56}O_2$).



Mol	Chain	Residues	Atoms			AltConf
28	b	1	Total	C	O	0
			42	40	2	
28	f	1	Total	C	O	0
			42	40	2	

- Molecule 29 is DODECYL-BETA-D-MALTOSIDE (three-letter code: LMT) (formula: $C_{24}H_{46}O_{11}$).

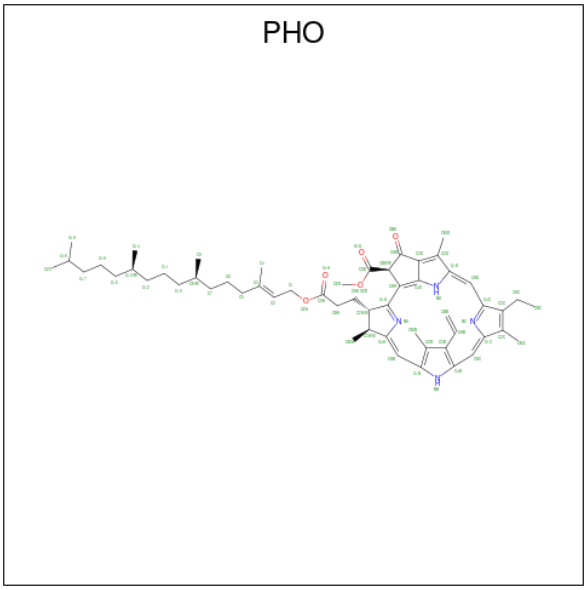


Mol	Chain	Residues	Atoms			AltConf
29	f	1	Total	C	O	0
			35	24	11	

- Molecule 30 is FE (II) ION (three-letter code: FE2) (formula: Fe).

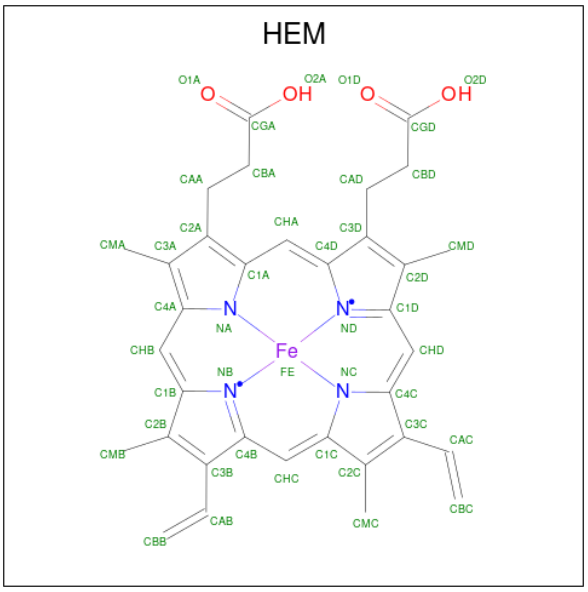
Mol	Chain	Residues	Atoms		AltConf
30	A	1	Total	Fe	0
			1	1	

- Molecule 31 is PHEOPHYTIN A (three-letter code: PHO) (formula: $C_{55}H_{74}N_4O_5$).



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

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



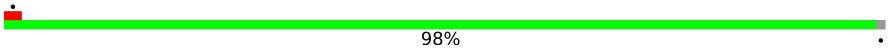
Mol	Chain	Residues	Atoms					AltConf
32	F	1	Total	C	Fe	N	O	0
			43	34	1	4	4	

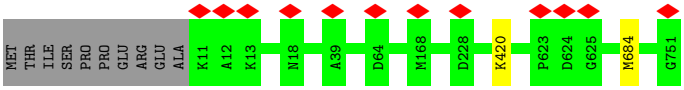
3 Residue-property plots (i)

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

• Molecule 1: Photosystem I P700 chlorophyll a apoprotein A1

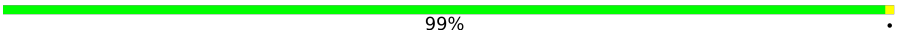
Chain a:





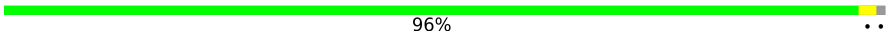
• Molecule 2: Photosystem I P700 chlorophyll a apoprotein A2

Chain b:



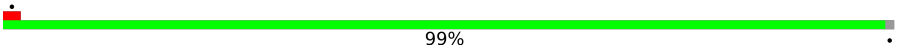
• Molecule 3: Photosystem I iron-sulfur center

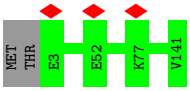
Chain c:



• Molecule 4: Photosystem I reaction center subunit II

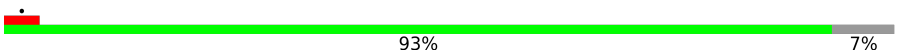
Chain d:

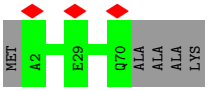




• Molecule 5: Photosystem I reaction center subunit IV

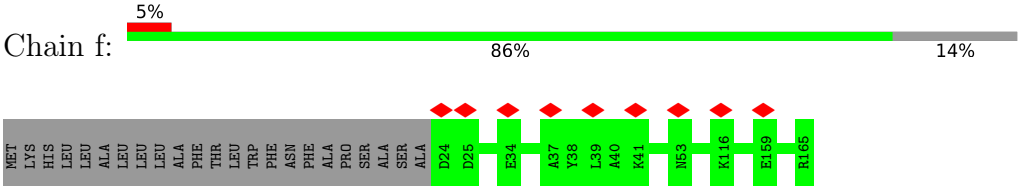
Chain e:





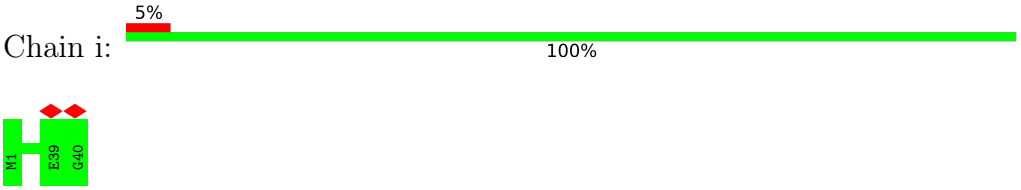
• Molecule 6: Photosystem I reaction center subunit III

Chain f:



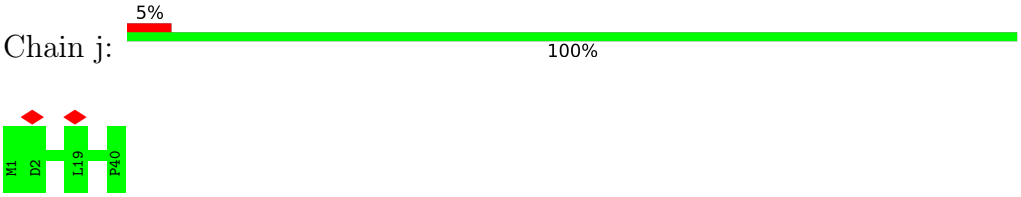
• Molecule 7: Photosystem I reaction center subunit VIII

Chain i:



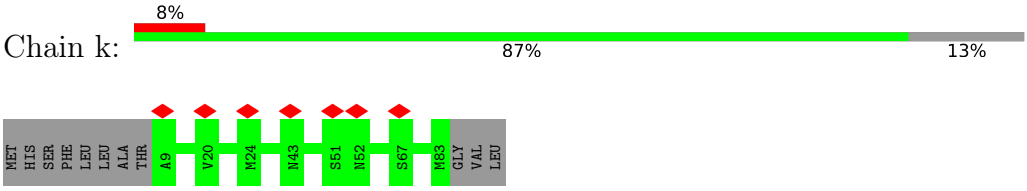
• Molecule 8: Photosystem I reaction center subunit IX

Chain j:



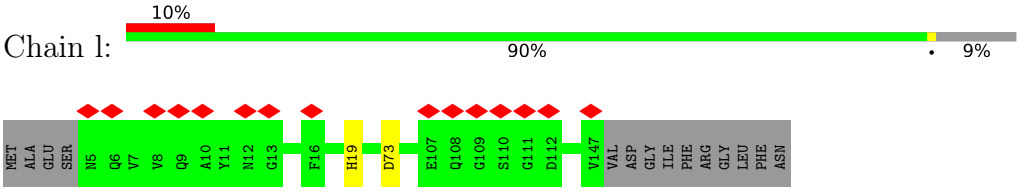
• Molecule 9: Photosystem I reaction center subunit PsaK 1

Chain k:



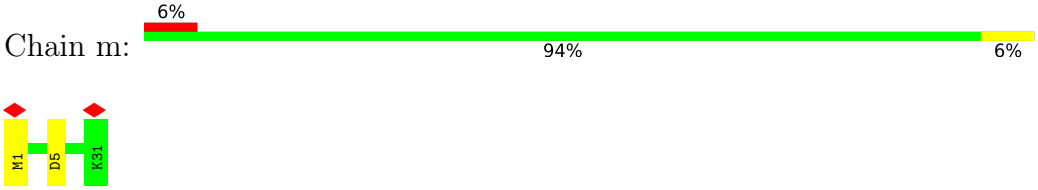
• Molecule 10: Photosystem I reaction center subunit XI

Chain l:



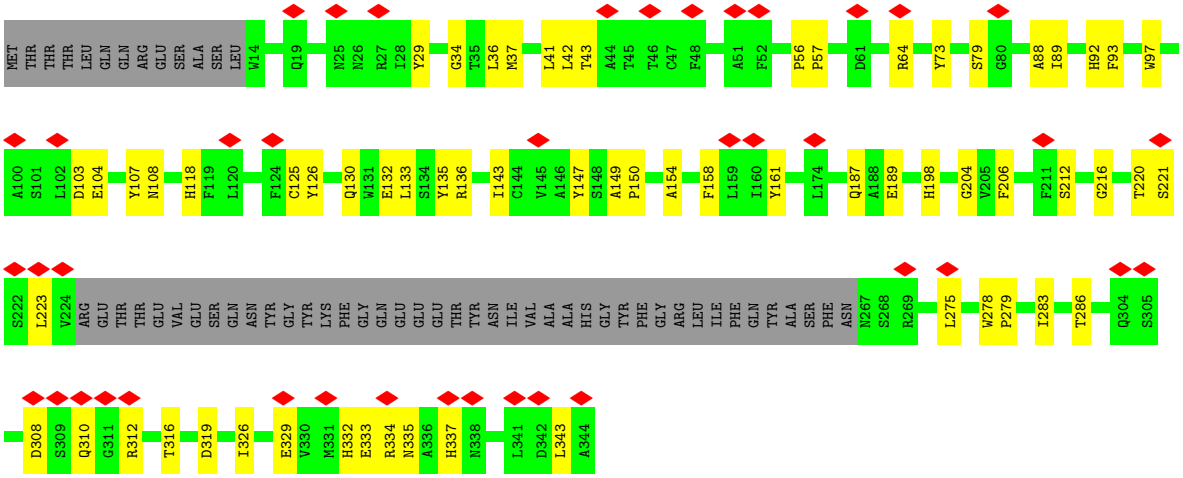
• Molecule 11: Photosystem I reaction center subunit XII

Chain m:



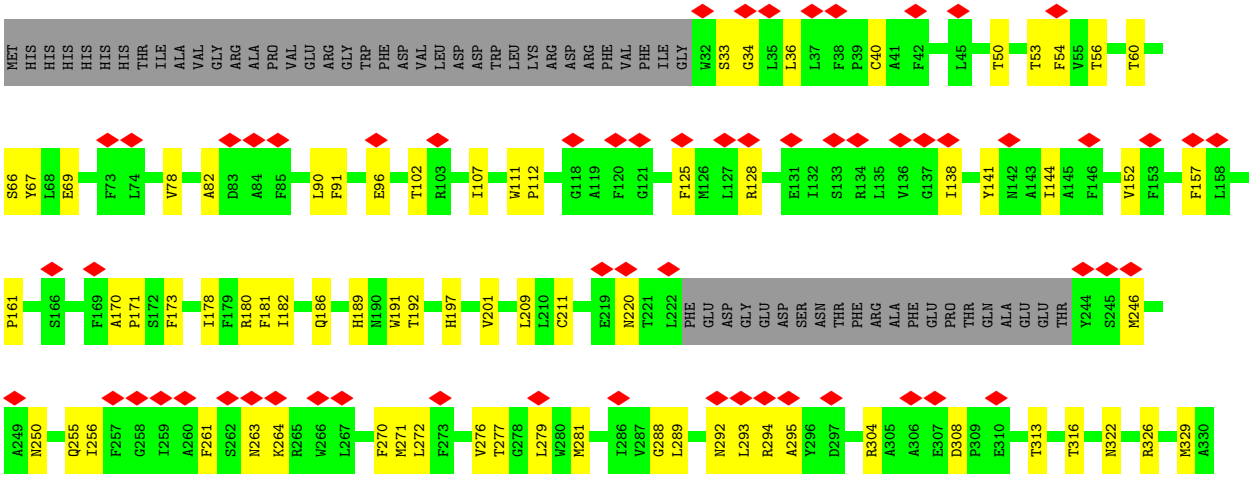
• Molecule 12: Photosystem II protein D1 2

Chain A:



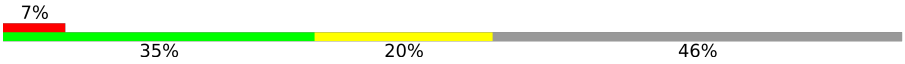
• Molecule 13: Photosystem II D2 protein

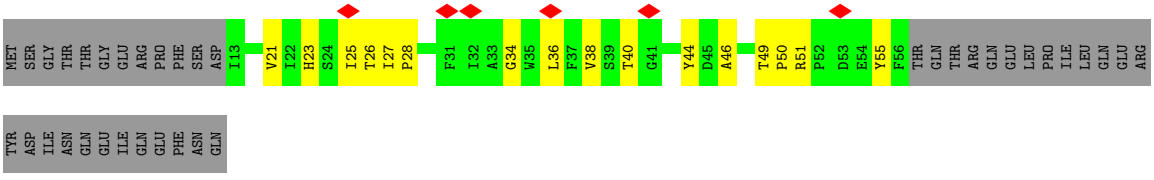
Chain D:



• Molecule 14: Cytochrome b559 subunit alpha

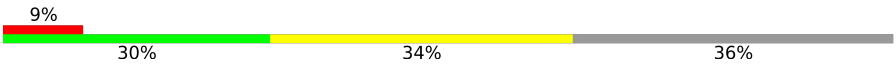
Chain E:

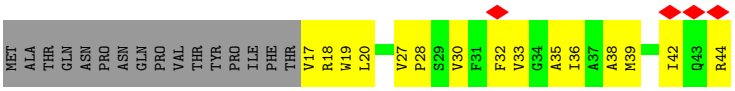




• Molecule 15: Cytochrome b559 subunit beta

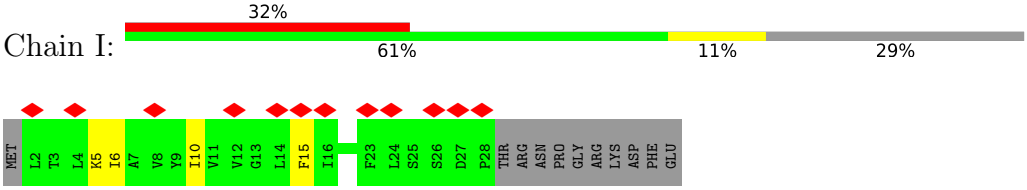
Chain F:





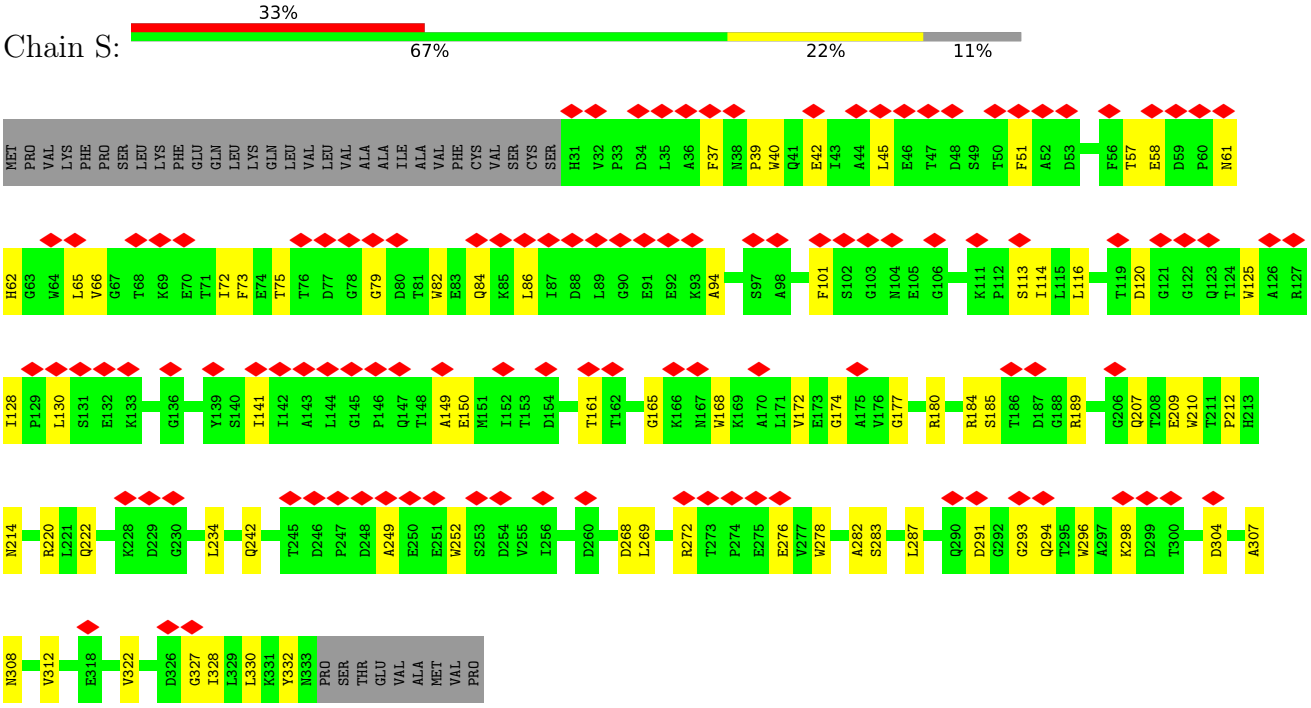
• Molecule 16: Photosystem II reaction center protein I

Chain I:



• Molecule 17: Photosystem II assembly lipoprotein Ycf48

Chain S:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	178513	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS GLACIOS	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/Å^2$)	90.9	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	120000	Depositor
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	0.510	Depositor
Minimum map value	-0.112	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.010	Depositor
Recommended contour level	0.0801	Depositor
Map size (Å)	488.0, 488.0, 488.0	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.22, 1.22, 1.22	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, LMT, SF4, CL0, PQN, LMG, ECH, PHO, CLA, 45D, FE2, HEM, EQ3, ZEX, BCR

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\#\|Z\| > 5$	RMSZ	$\#\|Z\| > 5$
1	a	0.29	0/5993	0.44	0/8169
2	b	0.29	0/5981	0.44	0/8178
3	c	0.30	0/610	0.56	0/826
4	d	0.29	0/1111	0.49	0/1497
5	e	0.30	0/547	0.51	0/741
6	f	0.27	0/1138	0.46	0/1546
7	i	0.29	0/322	0.44	0/438
8	j	0.27	0/328	0.43	0/443
9	k	0.26	0/535	0.46	0/726
10	l	0.28	0/1097	0.44	0/1493
11	m	0.27	0/241	0.41	0/326
12	A	0.27	0/2322	0.46	0/3169
13	D	0.27	0/2266	0.44	0/3086
14	E	0.27	0/374	0.46	0/513
15	F	0.29	0/228	0.56	0/309
16	I	0.27	0/216	0.43	0/293
17	S	0.25	0/2390	0.50	0/3258
All	All	0.28	0/25699	0.46	0/35011

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen

atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	a	5795	0	5653	0	0
2	b	5770	0	5547	0	0
3	c	600	0	581	0	0
4	d	1087	0	1082	0	0
5	e	538	0	514	0	0
6	f	1108	0	1100	0	0
7	i	311	0	304	0	0
8	j	319	0	328	0	0
9	k	524	0	547	0	0
10	l	1069	0	1044	0	0
11	m	238	0	260	0	0
12	A	2248	0	2170	48	0
13	D	2188	0	2129	55	0
14	E	360	0	352	12	0
15	F	222	0	230	10	0
16	I	211	0	227	4	0
17	S	2328	0	2227	51	0
18	a	65	0	72	0	0
19	A	161	0	144	11	0
19	D	166	0	154	19	0
19	a	2811	0	2986	0	0
19	b	2410	0	2456	0	0
19	f	165	0	150	0	0
19	j	101	0	82	0	0
19	k	91	0	66	0	0
19	l	167	0	154	0	0
20	a	33	0	46	0	0
20	b	33	0	46	0	0
21	A	40	0	56	2	0
21	a	185	0	257	0	0
21	b	200	0	280	0	0
21	f	40	0	56	0	0
21	i	40	0	56	0	0
21	j	80	0	112	0	0
21	k	80	0	112	0	0
21	l	40	0	56	0	0
22	a	147	0	222	0	0
22	b	38	0	49	0	0
22	f	49	0	74	0	0
23	a	90	0	123	0	0
23	b	110	0	172	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
24	a	42	0	52	0	0
25	b	8	0	0	0	0
25	c	16	0	0	0	0
26	b	41	0	54	0	0
26	m	41	0	54	0	0
27	b	42	0	0	0	0
28	b	42	0	56	0	0
28	f	42	0	56	0	0
29	f	35	0	45	0	0
30	A	1	0	0	0	0
31	A	64	0	74	5	0
31	D	64	0	74	4	0
32	F	43	0	30	4	0
All	All	32739	0	32771	173	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 14.

The worst 5 of 173 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:D:186:GLN:HB2	19:D:403:CLA:HBC1	1.60	0.83
15:F:39:MET:HA	15:F:42:ILE:HG12	1.65	0.77
12:A:133:LEU:HD23	13:D:256:ILE:HG12	1.68	0.76
12:A:143:ILE:HB	13:D:220:ASN:HD21	1.52	0.74
12:A:42:LEU:HB3	21:A:406:BCR:H353	1.69	0.73

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	a	739/751 (98%)	711 (96%)	28 (4%)	0	100	100
2	b	727/731 (100%)	707 (97%)	20 (3%)	0	100	100
3	c	78/81 (96%)	73 (94%)	5 (6%)	0	100	100
4	d	137/141 (97%)	128 (93%)	9 (7%)	0	100	100
5	e	67/74 (90%)	64 (96%)	3 (4%)	0	100	100
6	f	140/165 (85%)	135 (96%)	5 (4%)	0	100	100
7	i	38/40 (95%)	38 (100%)	0	0	100	100
8	j	38/40 (95%)	38 (100%)	0	0	100	100
9	k	73/86 (85%)	72 (99%)	1 (1%)	0	100	100
10	l	141/157 (90%)	137 (97%)	4 (3%)	0	100	100
11	m	29/31 (94%)	29 (100%)	0	0	100	100
12	A	285/344 (83%)	273 (96%)	12 (4%)	0	100	100
13	D	274/336 (82%)	268 (98%)	6 (2%)	0	100	100
14	E	42/81 (52%)	42 (100%)	0	0	100	100
15	F	26/44 (59%)	24 (92%)	2 (8%)	0	100	100
16	I	25/38 (66%)	24 (96%)	1 (4%)	0	100	100
17	S	301/342 (88%)	295 (98%)	6 (2%)	0	100	100
All	All	3160/3482 (91%)	3058 (97%)	102 (3%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	a	593/603 (98%)	591 (100%)	2 (0%)	91	95
2	b	582/583 (100%)	575 (99%)	7 (1%)	67	82
3	c	68/69 (99%)	66 (97%)	2 (3%)	37	63
4	d	114/116 (98%)	114 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
5	e	57/60 (95%)	57 (100%)	0	100 100
6	f	119/137 (87%)	119 (100%)	0	100 100
7	i	32/32 (100%)	32 (100%)	0	100 100
8	j	35/35 (100%)	35 (100%)	0	100 100
9	k	53/62 (86%)	53 (100%)	0	100 100
10	l	107/118 (91%)	105 (98%)	2 (2%)	52 73
11	m	25/25 (100%)	23 (92%)	2 (8%)	10 33
12	A	235/283 (83%)	233 (99%)	2 (1%)	75 87
13	D	220/271 (81%)	215 (98%)	5 (2%)	45 69
14	E	38/73 (52%)	38 (100%)	0	100 100
15	F	22/37 (60%)	21 (96%)	1 (4%)	23 52
16	I	24/34 (71%)	24 (100%)	0	100 100
17	S	239/279 (86%)	239 (100%)	0	100 100
All	All	2563/2817 (91%)	2540 (99%)	23 (1%)	74 87

5 of 23 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
11	m	5	ASP
13	D	180	ARG
12	A	135	TYR
13	D	246	MET
2	b	408	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such sidechains are listed below:

Mol	Chain	Res	Type
2	b	630	ASN
9	k	28	ASN
10	l	105	GLN
12	A	337	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 oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 145 ligands modelled in this entry, 1 is monoatomic - leaving 144 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	$\#\|Z\| > 2$
21	BCR	k	4004	-	41,41,41	1.15	2 (4%)	56,56,56	1.25	6 (10%)
19	CLA	a	818	-	65,73,73	1.42	6 (9%)	76,113,113	1.44	8 (10%)
19	CLA	b	3007	-	65,73,73	1.44	7 (10%)	76,113,113	1.39	9 (11%)
19	CLA	b	3032	-	65,73,73	1.51	7 (10%)	76,113,113	1.34	7 (9%)
19	CLA	a	839	-	65,73,73	1.47	7 (10%)	76,113,113	1.35	7 (9%)
19	CLA	b	3028	-	65,73,73	1.44	7 (10%)	76,113,113	1.35	7 (9%)
26	ECH	b	3045	-	42,42,42	1.70	8 (19%)	55,58,58	2.27	14 (25%)
21	BCR	a	847	-	41,41,41	1.19	3 (7%)	56,56,56	1.22	6 (10%)
19	CLA	a	830	-	65,73,73	1.46	7 (10%)	76,113,113	1.36	8 (10%)
19	CLA	k	4003	9	45,53,73	1.79	6 (13%)	52,89,113	1.57	7 (13%)
21	BCR	i	101	-	41,41,41	1.19	2 (4%)	56,56,56	1.21	5 (8%)
19	CLA	l	1503	-	52,60,73	1.63	6 (11%)	60,97,113	1.54	6 (10%)
19	CLA	f	203	-	50,58,73	1.67	6 (12%)	58,95,113	1.57	8 (13%)
21	BCR	b	3047	-	41,41,41	1.20	2 (4%)	56,56,56	1.18	7 (12%)
19	CLA	b	3016	-	56,64,73	1.57	7 (12%)	65,102,113	1.46	7 (10%)
19	CLA	D	401	-	65,73,73	1.48	5 (7%)	76,113,113	1.36	6 (7%)
21	BCR	a	845	-	41,41,41	1.19	2 (4%)	56,56,56	1.22	6 (10%)
19	CLA	b	3010	-	56,64,73	1.61	7 (12%)	65,102,113	1.42	6 (9%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
19	CLA	b	3038	-	50,58,73	1.71	7 (14%)	58,95,113	1.51	8 (13%)
19	CLA	b	3039	-	65,73,73	1.46	6 (9%)	76,113,113	1.40	8 (10%)
19	CLA	A	402	-	65,73,73	1.47	7 (10%)	76,113,113	1.40	6 (7%)
23	LMG	b	3049	-	55,55,55	0.69	0	63,63,63	1.40	8 (12%)
19	CLA	a	812	-	65,73,73	1.45	6 (9%)	76,113,113	1.38	7 (9%)
20	PQN	a	844	-	34,34,34	0.36	0	42,45,45	0.42	0
19	CLA	a	809	1	65,73,73	1.46	8 (12%)	76,113,113	1.40	9 (11%)
21	BCR	j	104	-	41,41,41	1.19	3 (7%)	56,56,56	1.23	7 (12%)
19	CLA	b	3025	-	55,63,73	1.57	6 (10%)	64,101,113	1.51	7 (10%)
19	CLA	a	828	-	65,73,73	1.46	7 (10%)	76,113,113	1.39	8 (10%)
29	LMT	f	207	-	36,36,36	1.19	5 (13%)	47,47,47	1.03	3 (6%)
19	CLA	a	842	-	65,73,73	1.47	7 (10%)	76,113,113	1.41	7 (9%)
19	CLA	a	856	-	65,73,73	1.48	8 (12%)	76,113,113	1.36	6 (7%)
19	CLA	a	833	-	60,68,73	1.51	9 (15%)	70,107,113	1.39	7 (10%)
18	CL0	a	801	-	65,73,73	1.47	6 (9%)	76,113,113	1.38	9 (11%)
28	ZEX	b	3053	-	42,43,43	1.64	8 (19%)	55,60,60	1.60	11 (20%)
19	CLA	a	858	-	65,73,73	1.48	7 (10%)	76,113,113	1.35	7 (9%)
19	CLA	a	829	-	65,73,73	1.44	7 (10%)	76,113,113	1.46	8 (10%)
21	BCR	b	3043	-	41,41,41	1.22	2 (4%)	56,56,56	1.25	6 (10%)
19	CLA	b	3020	-	65,73,73	1.48	7 (10%)	76,113,113	1.35	7 (9%)
19	CLA	b	3013	-	65,73,73	1.45	8 (12%)	76,113,113	1.45	9 (11%)
19	CLA	b	3021	-	60,68,73	1.50	6 (10%)	70,107,113	1.45	7 (10%)
19	CLA	a	806	-	65,73,73	1.43	7 (10%)	76,113,113	1.49	8 (10%)
21	BCR	j	101	-	41,41,41	1.15	2 (4%)	56,56,56	1.26	7 (12%)
21	BCR	k	4001	-	41,41,41	1.18	2 (4%)	56,56,56	1.29	7 (12%)
19	CLA	l	1502	-	65,73,73	1.46	7 (10%)	76,113,113	1.41	7 (9%)
19	CLA	D	404	-	46,54,73	1.72	6 (13%)	53,90,113	1.60	6 (11%)
19	CLA	a	815	-	65,73,73	1.47	7 (10%)	76,113,113	1.40	8 (10%)
19	CLA	b	3022	-	46,54,73	1.75	6 (13%)	53,90,113	1.55	6 (11%)
19	CLA	b	3040	-	65,73,73	1.49	8 (12%)	76,113,113	1.42	6 (7%)
26	ECH	m	101	-	42,42,42	1.78	9 (21%)	55,58,58	1.71	13 (23%)
19	CLA	b	3023	-	57,65,73	1.55	6 (10%)	66,103,113	1.43	7 (10%)
19	CLA	k	4002	-	46,54,73	1.76	6 (13%)	53,90,113	1.53	6 (11%)
19	CLA	a	827	-	65,73,73	1.46	7 (10%)	76,113,113	1.38	8 (10%)
19	CLA	a	824	-	65,73,73	1.48	7 (10%)	76,113,113	1.41	6 (7%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
19	CLA	b	3008	-	65,73,73	1.46	8 (12%)	76,113,113	1.39	8 (10%)
21	BCR	f	202	-	41,41,41	1.19	2 (4%)	56,56,56	1.18	5 (8%)
19	CLA	A	405	-	50,58,73	1.69	6 (12%)	58,95,113	1.54	7 (12%)
19	CLA	a	802	-	65,73,73	1.46	7 (10%)	76,113,113	1.44	8 (10%)
19	CLA	b	3018	-	65,73,73	1.45	6 (9%)	76,113,113	1.41	7 (9%)
19	CLA	a	855	-	65,73,73	1.46	7 (10%)	76,113,113	1.37	6 (7%)
21	BCR	b	3048	-	41,41,41	1.13	2 (4%)	56,56,56	1.18	4 (7%)
25	SF4	c	101	3	0,12,12	-	-	-		
19	CLA	a	817	-	46,54,73	1.71	6 (13%)	53,90,113	1.60	6 (11%)
19	CLA	a	825	-	60,68,73	1.52	7 (11%)	70,107,113	1.45	6 (8%)
19	CLA	a	841	-	65,73,73	1.45	7 (10%)	76,113,113	1.43	8 (10%)
19	CLA	f	201	-	65,73,73	1.47	7 (10%)	76,113,113	1.36	6 (7%)
27	EQ3	b	3052	-	43,43,43	1.65	9 (20%)	56,60,60	1.57	12 (21%)
19	CLA	a	813	-	60,68,73	1.55	7 (11%)	70,107,113	1.39	7 (10%)
22	LHG	a	854	-	48,48,48	0.61	1 (2%)	51,54,54	1.25	6 (11%)
22	LHG	a	852	19	48,48,48	0.60	1 (2%)	51,54,54	1.28	6 (11%)
19	CLA	b	3006	-	65,73,73	1.46	7 (10%)	76,113,113	1.39	8 (10%)
25	SF4	c	102	3	0,12,12	-	-	-		
19	CLA	b	3017	-	65,73,73	1.46	7 (10%)	76,113,113	1.42	9 (11%)
19	CLA	a	811	-	50,58,73	1.64	6 (12%)	58,95,113	1.63	8 (13%)
19	CLA	a	820	-	65,73,73	1.46	7 (10%)	76,113,113	1.41	8 (10%)
19	CLA	a	821	-	65,73,73	1.48	6 (9%)	76,113,113	1.37	7 (9%)
19	CLA	b	3009	2	65,73,73	1.47	7 (10%)	76,113,113	1.38	7 (9%)
19	CLA	a	819	-	65,73,73	1.48	9 (13%)	76,113,113	1.37	8 (10%)
19	CLA	b	3031	-	50,58,73	1.63	7 (14%)	58,95,113	1.54	9 (15%)
19	CLA	b	3011	-	56,64,73	1.58	7 (12%)	65,102,113	1.48	6 (9%)
19	CLA	b	3036	-	52,60,73	1.62	7 (13%)	60,97,113	1.55	7 (11%)
21	BCR	b	3044	-	41,41,41	1.16	2 (4%)	56,56,56	1.20	5 (8%)
19	CLA	b	3030	-	51,59,73	1.68	6 (11%)	59,96,113	1.47	7 (11%)
23	LMG	a	853	-	40,40,55	0.81	0	48,48,63	1.32	5 (10%)
25	SF4	b	3001	1,2	0,12,12	-	-	-		
31	PHO	D	402	-	51,69,69	1.02	4 (7%)	47,99,99	1.21	7 (14%)
19	CLA	a	814	-	65,73,73	1.44	7 (10%)	76,113,113	1.44	8 (10%)
19	CLA	l	1501	-	50,58,73	1.70	5 (10%)	58,95,113	1.57	8 (13%)
21	BCR	A	406	-	41,41,41	1.16	2 (4%)	56,56,56	1.22	6 (10%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
19	CLA	j	103	-	46,54,73	1.76	5 (10%)	53,90,113	1.52	6 (11%)
21	BCR	a	846	-	41,41,41	1.17	2 (4%)	56,56,56	1.21	6 (10%)
19	CLA	a	826	-	65,73,73	1.45	6 (9%)	76,113,113	1.43	8 (10%)
19	CLA	a	823	-	65,73,73	1.46	6 (9%)	76,113,113	1.40	7 (9%)
19	CLA	a	804	-	65,73,73	1.46	8 (12%)	76,113,113	1.39	8 (10%)
19	CLA	a	803	-	65,73,73	1.43	7 (10%)	76,113,113	1.42	7 (9%)
21	BCR	l	1504	-	41,41,41	1.14	2 (4%)	56,56,56	1.27	8 (14%)
19	CLA	a	822	-	65,73,73	1.46	7 (10%)	76,113,113	1.40	7 (9%)
19	CLA	b	3004	-	65,73,73	1.48	7 (10%)	76,113,113	1.39	8 (10%)
32	HEM	F	101	15,14	41,50,50	1.50	3 (7%)	45,82,82	1.27	4 (8%)
19	CLA	a	805	-	65,73,73	1.48	6 (9%)	76,113,113	1.39	7 (9%)
19	CLA	A	403	-	46,54,73	1.72	6 (13%)	53,90,113	1.60	6 (11%)
23	LMG	b	3051	-	55,55,55	0.76	1 (1%)	63,63,63	1.34	8 (12%)
19	CLA	b	3002	-	65,73,73	1.48	7 (10%)	76,113,113	1.34	6 (7%)
31	PHO	A	404	-	51,69,69	1.02	4 (7%)	47,99,99	1.10	5 (10%)
19	CLA	a	808	-	65,73,73	1.44	7 (10%)	76,113,113	1.43	6 (7%)
21	BCR	a	849	-	25,25,41	1.18	1 (4%)	33,33,56	1.33	5 (15%)
22	LHG	a	850	-	48,48,48	0.62	1 (2%)	51,54,54	1.27	6 (11%)
19	CLA	b	3003	-	65,73,73	1.46	7 (10%)	76,113,113	1.44	9 (11%)
19	CLA	a	831	-	65,73,73	1.45	6 (9%)	76,113,113	1.50	8 (10%)
19	CLA	a	836	-	65,73,73	1.46	8 (12%)	76,113,113	1.38	8 (10%)
21	BCR	a	848	-	41,41,41	1.22	2 (4%)	56,56,56	1.27	7 (12%)
19	CLA	b	3015	-	55,63,73	1.62	8 (14%)	64,101,113	1.48	8 (12%)
19	CLA	b	3037	-	65,73,73	1.43	7 (10%)	76,113,113	1.42	8 (10%)
19	CLA	f	204	6	50,58,73	1.69	6 (12%)	58,95,113	1.53	8 (13%)
19	CLA	b	3024	-	65,73,73	1.45	6 (9%)	76,113,113	1.40	7 (9%)
23	LMG	a	851	-	50,50,55	0.76	0	58,58,63	1.33	7 (12%)
19	CLA	b	3033	-	65,73,73	1.46	7 (10%)	76,113,113	1.39	8 (10%)
19	CLA	b	3034	-	65,73,73	1.46	6 (9%)	76,113,113	1.41	9 (11%)
19	CLA	b	3019	-	60,68,73	1.53	8 (13%)	70,107,113	1.39	7 (10%)
20	PQN	b	3042	-	34,34,34	0.38	0	42,45,45	0.39	0
22	LHG	b	3050	19	37,37,48	0.70	1 (2%)	40,43,54	1.22	3 (7%)
19	CLA	b	3026	-	65,73,73	1.47	7 (10%)	76,113,113	1.39	7 (9%)
19	CLA	b	3041	22	46,54,73	1.70	6 (13%)	53,90,113	1.58	7 (13%)
19	CLA	a	810	1	51,59,73	1.62	7 (13%)	59,96,113	1.59	8 (13%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
19	CLA	b	3014	-	65,73,73	1.44	6 (9%)	76,113,113	1.44	7 (9%)
28	ZEX	f	205	-	42,43,43	1.65	8 (19%)	55,60,60	1.53	10 (18%)
19	CLA	a	843	22	56,64,73	1.57	7 (12%)	65,102,113	1.48	8 (12%)
19	CLA	a	838	-	51,59,73	1.63	7 (13%)	59,96,113	1.58	8 (13%)
24	45D	a	857	-	43,43,43	1.70	9 (20%)	54,60,60	1.61	10 (18%)
19	CLA	a	837	1	65,73,73	1.47	6 (9%)	76,113,113	1.40	8 (10%)
19	CLA	b	3029	-	65,73,73	1.47	7 (10%)	76,113,113	1.47	9 (11%)
19	CLA	b	3027	-	65,73,73	1.44	7 (10%)	76,113,113	1.41	6 (7%)
19	CLA	a	840	-	65,73,73	1.50	7 (10%)	76,113,113	1.41	7 (9%)
19	CLA	b	3012	-	50,58,73	1.68	7 (14%)	58,95,113	1.49	8 (13%)
19	CLA	a	807	-	65,73,73	1.46	6 (9%)	76,113,113	1.42	7 (9%)
19	CLA	b	3035	-	50,58,73	1.69	6 (12%)	58,95,113	1.55	8 (13%)
19	CLA	a	832	-	56,64,73	1.57	6 (10%)	65,102,113	1.46	6 (9%)
19	CLA	a	835	-	65,73,73	1.45	6 (9%)	76,113,113	1.46	8 (10%)
19	CLA	j	102	8	55,63,73	1.61	6 (10%)	64,101,113	1.47	7 (10%)
19	CLA	D	403	-	55,63,73	1.57	7 (12%)	64,101,113	1.50	8 (12%)
19	CLA	a	816	-	46,54,73	1.72	6 (13%)	53,90,113	1.59	7 (13%)
22	LHG	f	206	-	48,48,48	0.57	0	51,54,54	1.26	6 (11%)
21	BCR	b	3046	-	41,41,41	1.14	2 (4%)	56,56,56	1.25	7 (12%)
19	CLA	b	3005	-	65,73,73	1.44	7 (10%)	76,113,113	1.45	7 (9%)
19	CLA	a	834	-	65,73,73	1.44	6 (9%)	76,113,113	1.45	8 (10%)

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
21	BCR	k	4004	-	-	6/29/63/63	0/2/2/2
19	CLA	a	818	-	1/1/15/20	10/37/115/115	-
19	CLA	b	3007	-	1/1/15/20	15/37/115/115	-
19	CLA	b	3032	-	1/1/15/20	11/37/115/115	-
19	CLA	a	839	-	1/1/15/20	13/37/115/115	-
19	CLA	b	3028	-	1/1/15/20	14/37/115/115	-
26	ECH	b	3045	-	-	9/29/66/66	0/2/2/2
21	BCR	a	847	-	-	7/29/63/63	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
19	CLA	a	830	-	1/1/15/20	16/37/115/115	-
19	CLA	k	4003	9	1/1/11/20	4/13/91/115	-
21	BCR	i	101	-	-	8/29/63/63	0/2/2/2
19	CLA	l	1503	-	1/1/12/20	9/22/100/115	-
19	CLA	f	203	-	1/1/12/20	5/19/97/115	-
21	BCR	b	3047	-	-	6/29/63/63	0/2/2/2
19	CLA	b	3016	-	1/1/13/20	9/27/105/115	-
19	CLA	D	401	-	1/1/15/20	16/37/115/115	-
21	BCR	a	845	-	-	11/29/63/63	0/2/2/2
19	CLA	b	3010	-	1/1/13/20	9/27/105/115	-
19	CLA	b	3038	-	1/1/12/20	5/19/97/115	-
19	CLA	b	3039	-	1/1/15/20	15/37/115/115	-
19	CLA	A	402	-	1/1/15/20	18/37/115/115	-
23	LMG	b	3049	-	-	27/50/70/70	0/1/1/1
19	CLA	a	812	-	1/1/15/20	14/37/115/115	-
20	PQN	a	844	-	-	1/23/43/43	0/2/2/2
19	CLA	a	809	1	1/1/15/20	17/37/115/115	-
21	BCR	j	104	-	-	8/29/63/63	0/2/2/2
19	CLA	b	3025	-	1/1/13/20	6/25/103/115	-
19	CLA	a	828	-	1/1/15/20	14/37/115/115	-
29	LMT	f	207	-	-	15/21/61/61	0/2/2/2
19	CLA	a	842	-	1/1/15/20	15/37/115/115	-
19	CLA	a	856	-	1/1/15/20	17/37/115/115	-
19	CLA	a	833	-	1/1/14/20	13/31/109/115	-
18	CL0	a	801	-	3/3/20/25	10/37/135/135	-
28	ZEX	b	3053	-	-	5/29/67/67	0/2/2/2
19	CLA	a	858	-	1/1/15/20	11/37/115/115	-
19	CLA	a	829	-	1/1/15/20	7/37/115/115	-
21	BCR	b	3043	-	-	10/29/63/63	0/2/2/2
19	CLA	b	3020	-	1/1/15/20	15/37/115/115	-
19	CLA	b	3013	-	1/1/15/20	21/37/115/115	-
19	CLA	b	3021	-	1/1/14/20	10/31/109/115	-
19	CLA	a	806	-	1/1/15/20	11/37/115/115	-
21	BCR	j	101	-	-	6/29/63/63	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
21	BCR	k	4001	-	-	9/29/63/63	0/2/2/2
19	CLA	l	1502	-	1/1/15/20	11/37/115/115	-
19	CLA	D	404	-	1/1/11/20	5/15/93/115	-
19	CLA	a	815	-	1/1/15/20	13/37/115/115	-
19	CLA	b	3022	-	1/1/11/20	3/15/93/115	-
19	CLA	b	3040	-	1/1/15/20	9/37/115/115	-
26	ECH	m	101	-	-	3/29/66/66	0/2/2/2
19	CLA	b	3023	-	1/1/13/20	9/28/106/115	-
19	CLA	k	4002	-	1/1/11/20	5/15/93/115	-
19	CLA	a	827	-	1/1/15/20	12/37/115/115	-
19	CLA	a	824	-	1/1/15/20	16/37/115/115	-
19	CLA	b	3008	-	1/1/15/20	10/37/115/115	-
21	BCR	f	202	-	-	16/29/63/63	0/2/2/2
19	CLA	A	405	-	1/1/12/20	7/19/97/115	-
19	CLA	a	802	-	1/1/15/20	15/37/115/115	-
19	CLA	b	3018	-	1/1/15/20	11/37/115/115	-
19	CLA	a	855	-	1/1/15/20	8/37/115/115	-
21	BCR	b	3048	-	-	18/29/63/63	0/2/2/2
25	SF4	c	101	3	-	-	0/6/5/5
19	CLA	a	817	-	1/1/11/20	8/15/93/115	-
19	CLA	a	825	-	1/1/14/20	13/31/109/115	-
19	CLA	a	841	-	1/1/15/20	12/37/115/115	-
19	CLA	f	201	-	1/1/15/20	19/37/115/115	-
27	EQ3	b	3052	-	-	4/29/68/68	0/2/2/2
19	CLA	a	813	-	1/1/14/20	13/31/109/115	-
22	LHG	a	854	-	-	23/53/53/53	-
22	LHG	a	852	19	-	23/53/53/53	-
19	CLA	b	3006	-	1/1/15/20	12/37/115/115	-
25	SF4	c	102	3	-	-	0/6/5/5
19	CLA	b	3017	-	1/1/15/20	13/37/115/115	-
19	CLA	a	811	-	1/1/12/20	8/19/97/115	-
19	CLA	a	820	-	1/1/15/20	17/37/115/115	-
19	CLA	a	821	-	1/1/15/20	23/37/115/115	-
19	CLA	b	3009	2	1/1/15/20	15/37/115/115	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
19	CLA	a	819	-	1/1/15/20	22/37/115/115	-
19	CLA	b	3031	-	1/1/12/20	6/19/97/115	-
19	CLA	b	3011	-	1/1/13/20	8/27/105/115	-
19	CLA	b	3036	-	1/1/12/20	8/22/100/115	-
21	BCR	b	3044	-	-	7/29/63/63	0/2/2/2
19	CLA	b	3030	-	1/1/12/20	7/21/99/115	-
23	LMG	a	853	-	-	15/35/55/70	0/1/1/1
25	SF4	b	3001	1,2	-	-	0/6/5/5
31	PHO	D	402	-	-	10/37/103/103	0/5/6/6
19	CLA	l	1501	-	1/1/12/20	8/19/97/115	-
19	CLA	a	814	-	-	16/37/115/115	-
21	BCR	A	406	-	-	8/29/63/63	0/2/2/2
19	CLA	j	103	-	1/1/11/20	5/15/93/115	-
21	BCR	a	846	-	-	6/29/63/63	0/2/2/2
19	CLA	a	826	-	1/1/15/20	18/37/115/115	-
19	CLA	a	823	-	1/1/15/20	14/37/115/115	-
19	CLA	a	804	-	1/1/15/20	6/37/115/115	-
19	CLA	a	803	-	1/1/15/20	12/37/115/115	-
21	BCR	l	1504	-	-	10/29/63/63	0/2/2/2
19	CLA	a	822	-	1/1/15/20	12/37/115/115	-
19	CLA	b	3004	-	1/1/15/20	17/37/115/115	-
32	HEM	F	101	15,14	-	3/12/54/54	-
19	CLA	a	805	-	1/1/15/20	13/37/115/115	-
19	CLA	A	403	-	1/1/11/20	8/15/93/115	-
23	LMG	b	3051	-	-	28/50/70/70	0/1/1/1
19	CLA	b	3002	-	1/1/15/20	15/37/115/115	-
31	PHO	A	404	-	-	11/37/103/103	0/5/6/6
19	CLA	a	808	-	1/1/15/20	14/37/115/115	-
21	BCR	a	849	-	-	5/18/35/63	0/1/1/2
22	LHG	a	850	-	-	27/53/53/53	-
19	CLA	b	3003	-	1/1/15/20	20/37/115/115	-
19	CLA	a	831	-	1/1/15/20	18/37/115/115	-
19	CLA	a	836	-	1/1/15/20	11/37/115/115	-
21	BCR	a	848	-	-	8/29/63/63	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
19	CLA	b	3015	-	1/1/13/20	11/25/103/115	-
19	CLA	b	3037	-	1/1/15/20	16/37/115/115	-
19	CLA	f	204	6	1/1/12/20	7/19/97/115	-
19	CLA	b	3024	-	1/1/15/20	11/37/115/115	-
23	LMG	a	851	-	-	26/45/65/70	0/1/1/1
19	CLA	b	3033	-	1/1/15/20	19/37/115/115	-
19	CLA	b	3034	-	1/1/15/20	14/37/115/115	-
19	CLA	b	3019	-	1/1/14/20	6/31/109/115	-
20	PQN	b	3042	-	-	0/23/43/43	0/2/2/2
22	LHG	b	3050	19	-	21/42/42/53	-
19	CLA	b	3026	-	1/1/15/20	9/37/115/115	-
19	CLA	b	3041	22	1/1/11/20	11/15/93/115	-
19	CLA	a	810	1	1/1/12/20	3/21/99/115	-
19	CLA	b	3014	-	1/1/15/20	15/37/115/115	-
28	ZEX	f	205	-	-	6/29/67/67	0/2/2/2
19	CLA	a	843	22	1/1/13/20	9/27/105/115	-
19	CLA	a	838	-	-	7/21/99/115	-
24	45D	a	857	-	-	4/29/69/69	0/2/2/2
19	CLA	a	837	1	1/1/15/20	13/37/115/115	-
19	CLA	b	3029	-	1/1/15/20	16/37/115/115	-
19	CLA	b	3027	-	1/1/15/20	13/37/115/115	-
19	CLA	a	840	-	1/1/15/20	15/37/115/115	-
19	CLA	b	3012	-	1/1/12/20	7/19/97/115	-
19	CLA	a	807	-	1/1/15/20	16/37/115/115	-
19	CLA	b	3035	-	1/1/12/20	8/19/97/115	-
19	CLA	a	832	-	1/1/13/20	15/27/105/115	-
19	CLA	a	835	-	1/1/15/20	15/37/115/115	-
19	CLA	j	102	8	1/1/13/20	9/25/103/115	-
19	CLA	D	403	-	1/1/13/20	12/25/103/115	-
19	CLA	a	816	-	1/1/11/20	9/15/93/115	-
22	LHG	f	206	-	-	28/53/53/53	-
21	BCR	b	3046	-	-	6/29/63/63	0/2/2/2
19	CLA	b	3005	-	1/1/15/20	18/37/115/115	-
19	CLA	a	834	-	1/1/15/20	8/37/115/115	-

The worst 5 of 793 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
19	l	1501	CLA	C4B-NB	7.58	1.42	1.35
19	b	3010	CLA	C4B-NB	7.57	1.42	1.35
19	b	3032	CLA	C4B-NB	7.56	1.42	1.35
19	a	805	CLA	C4B-NB	7.56	1.42	1.35
19	a	840	CLA	C4B-NB	7.56	1.42	1.35

The worst 5 of 1002 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
26	b	3045	ECH	C15-C16-C17	8.19	140.25	123.47
19	a	818	CLA	C4A-NA-C1A	7.47	110.07	106.71
19	a	840	CLA	C4A-NA-C1A	7.37	110.02	106.71
19	a	842	CLA	C4A-NA-C1A	7.35	110.01	106.71
19	a	806	CLA	C4A-NA-C1A	7.34	110.00	106.71

5 of 102 chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
18	a	801	CL0	NC
18	a	801	CL0	NA
18	a	801	CL0	ND
19	a	802	CLA	ND
19	a	803	CLA	ND

5 of 1651 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
19	a	802	CLA	CBD-CGD-O2D-CED
19	a	802	CLA	C4-C3-C5-C6
19	a	803	CLA	CBA-CGA-O2A-C1
19	a	803	CLA	O1A-CGA-O2A-C1
19	a	803	CLA	CHA-CBD-CGD-O1D

There are no ring outliers.

10 monomers are involved in 42 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
19	D	401	CLA	6	0
19	A	402	CLA	6	0
19	D	404	CLA	3	0
19	A	405	CLA	3	0

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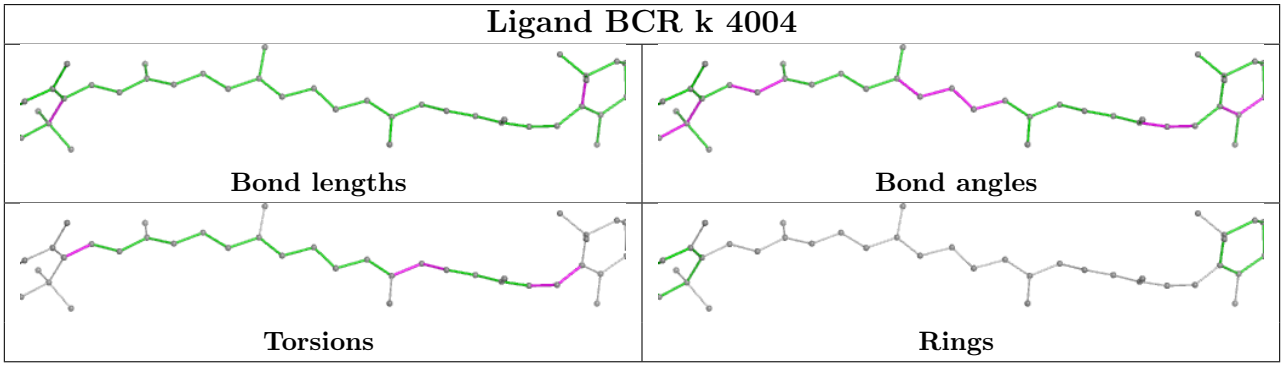
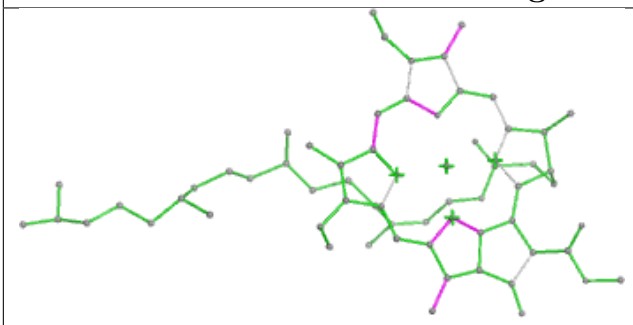
Mol	Chain	Res	Type	Clashes	Symm-Clashes
31	D	402	PHO	4	0
21	A	406	BCR	2	0
32	F	101	HEM	4	0
19	A	403	CLA	2	0
31	A	404	PHO	5	0
19	D	403	CLA	10	0

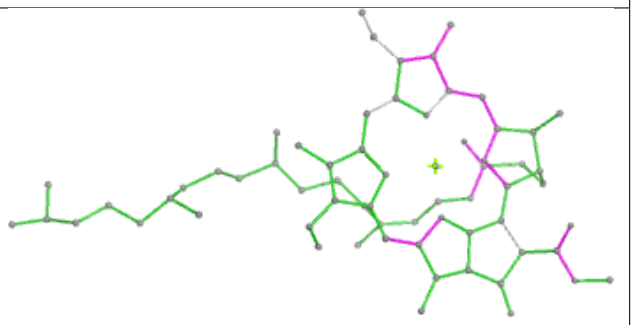
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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



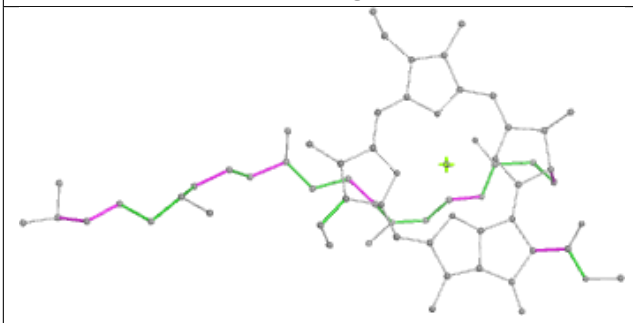
Ligand CLA a 818



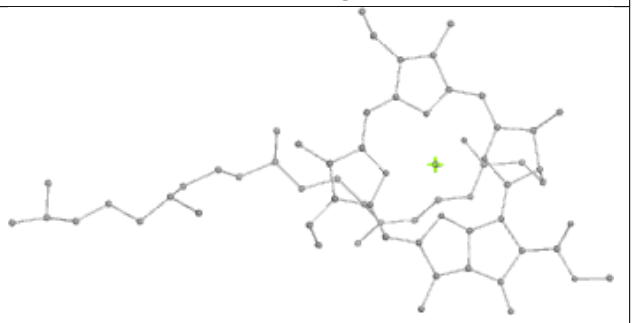
Bond lengths



Bond angles

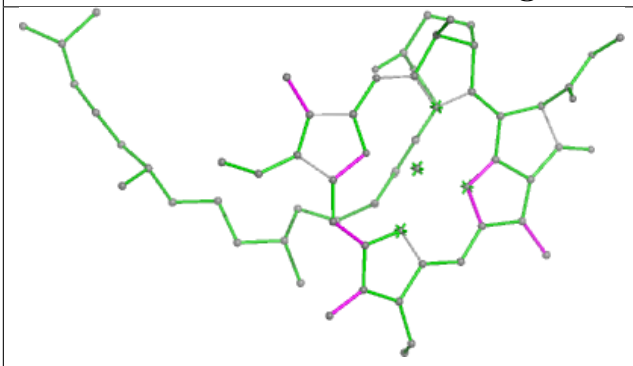


Torsions

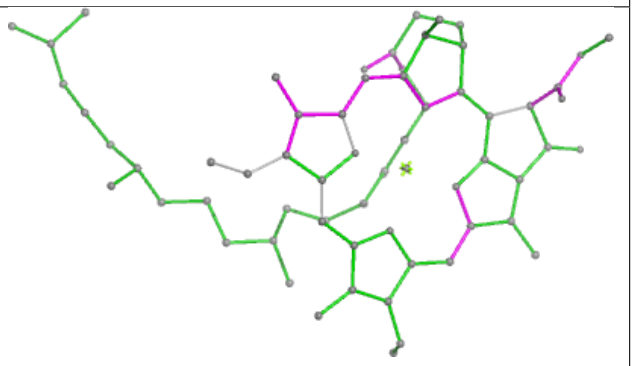


Rings

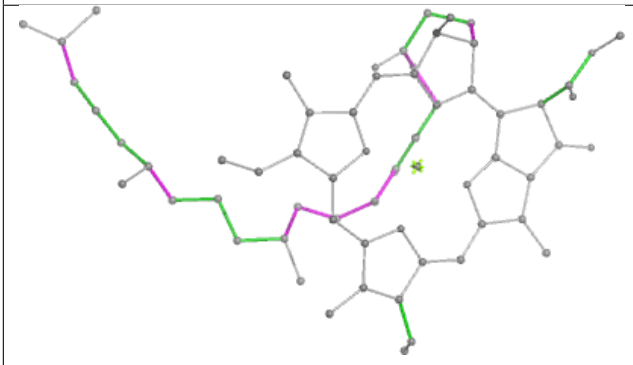
Ligand CLA b 3007



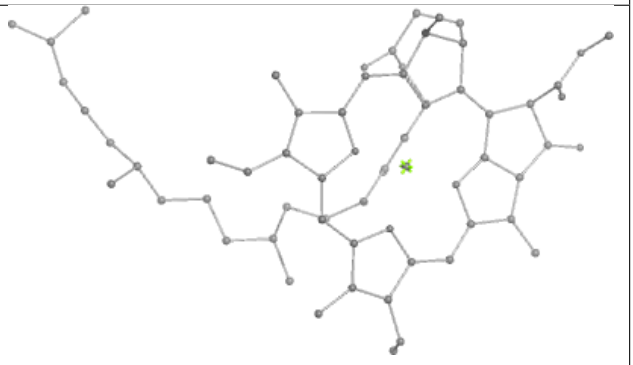
Bond lengths



Bond angles

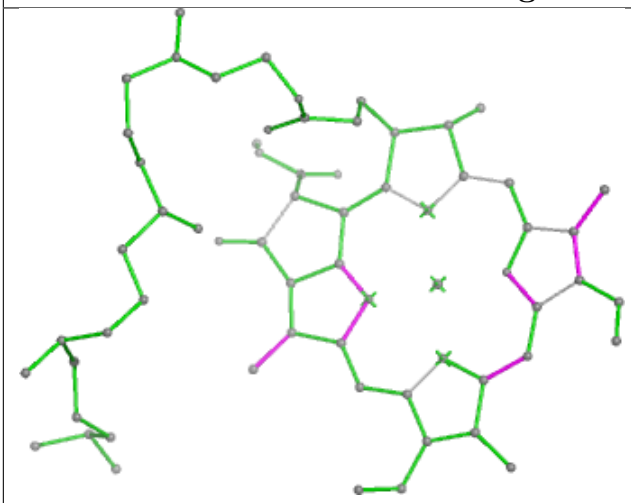


Torsions

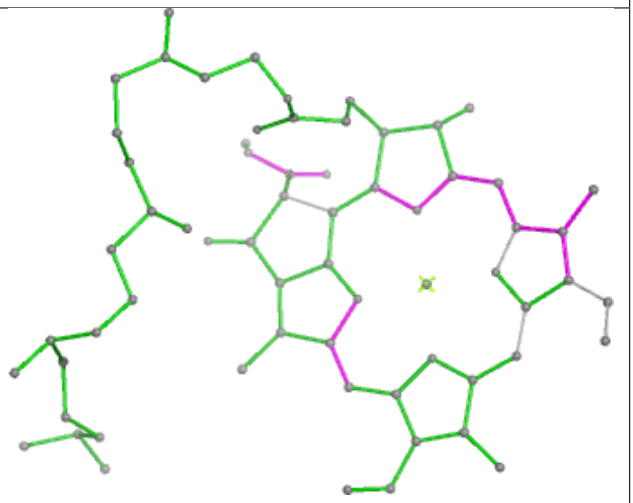


Rings

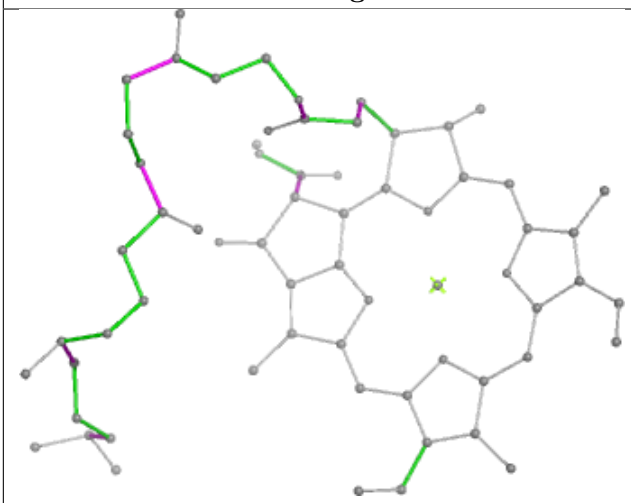
Ligand CLA b 3032



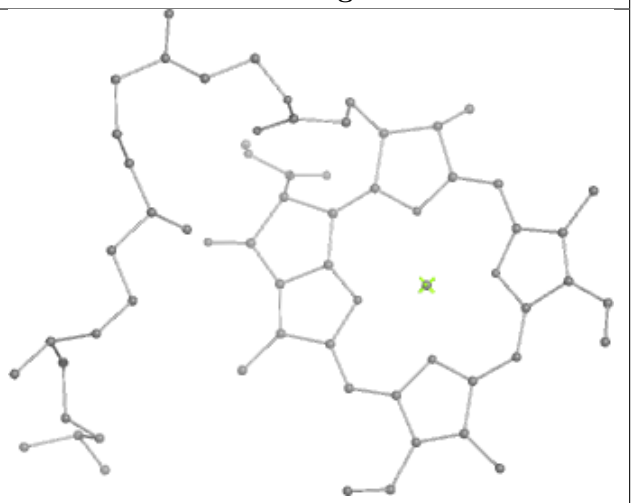
Bond lengths



Bond angles

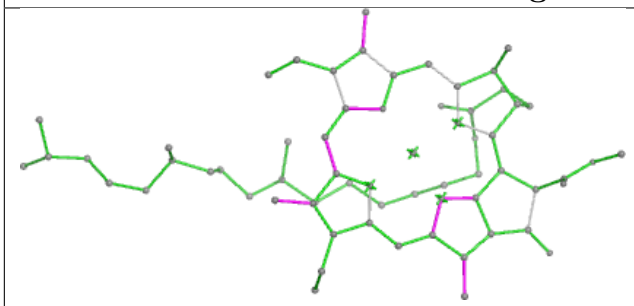


Torsions

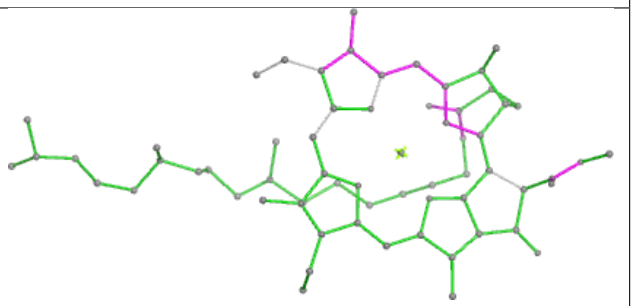


Rings

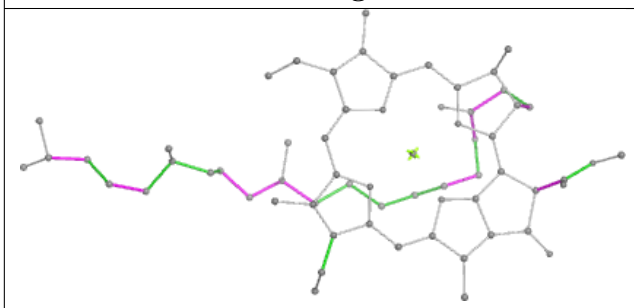
Ligand CLA a 839



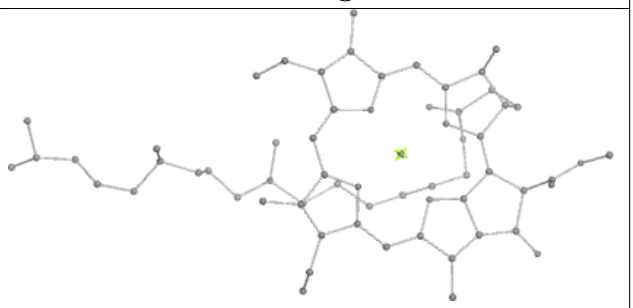
Bond lengths



Bond angles

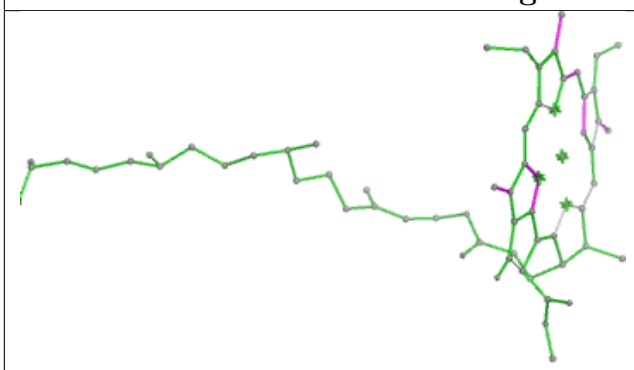


Torsions

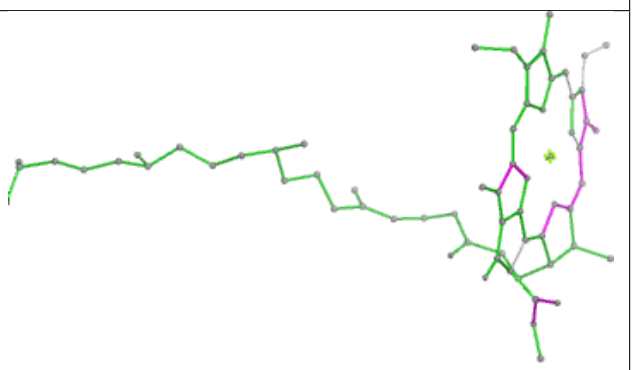


Rings

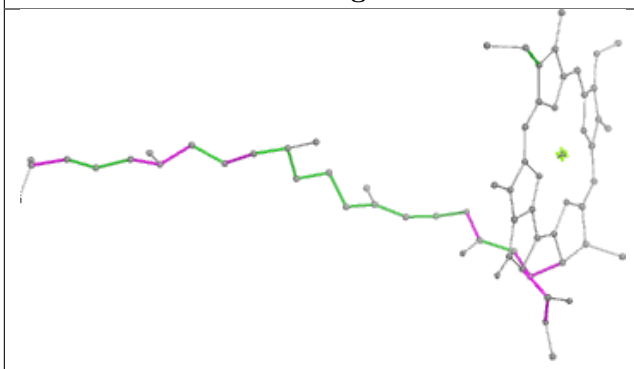
Ligand CLA b 3028



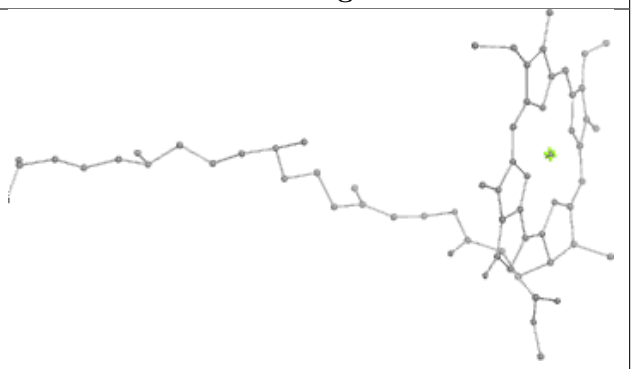
Bond lengths



Bond angles



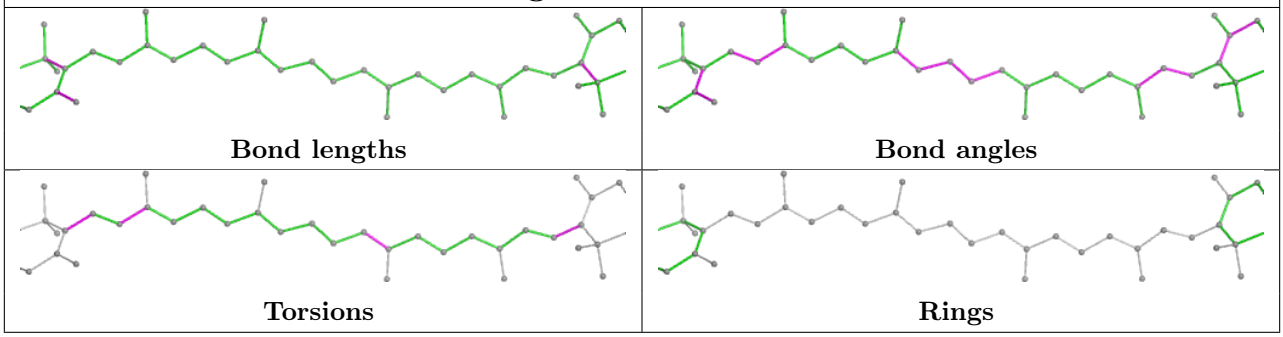
Torsions



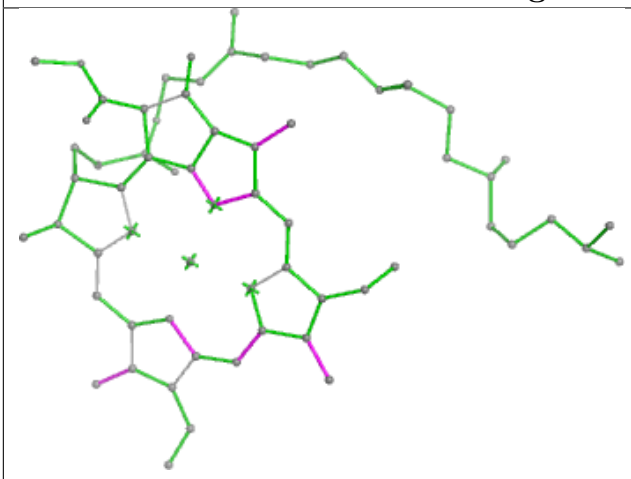
Rings

Ligand ECH b 3045

Ligand BCR a 847



Ligand CLA a 830



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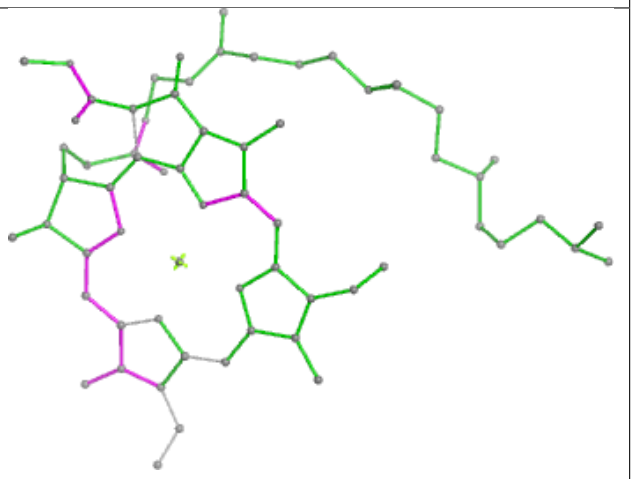
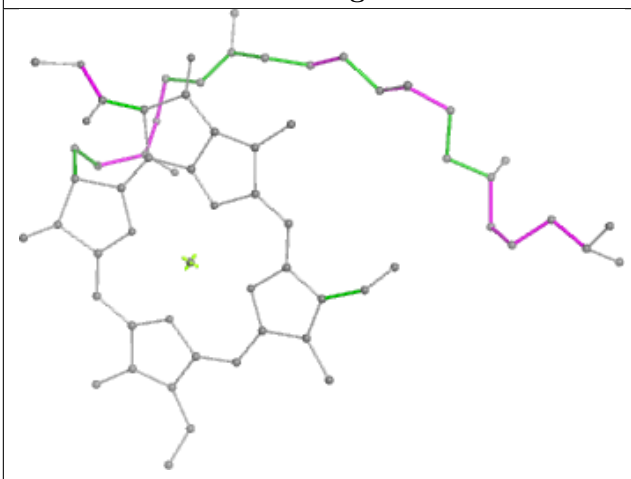
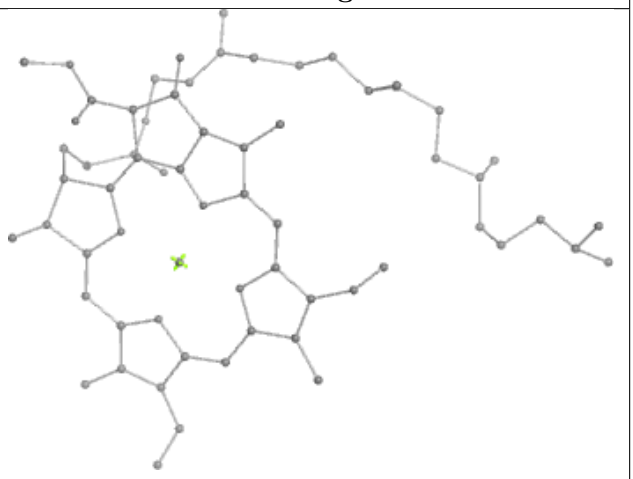


Bond angles

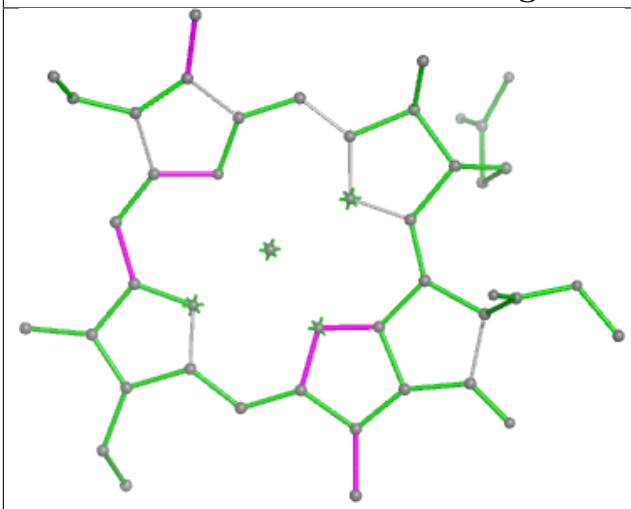


Torsions



Rings

Ligand CLA k 4003



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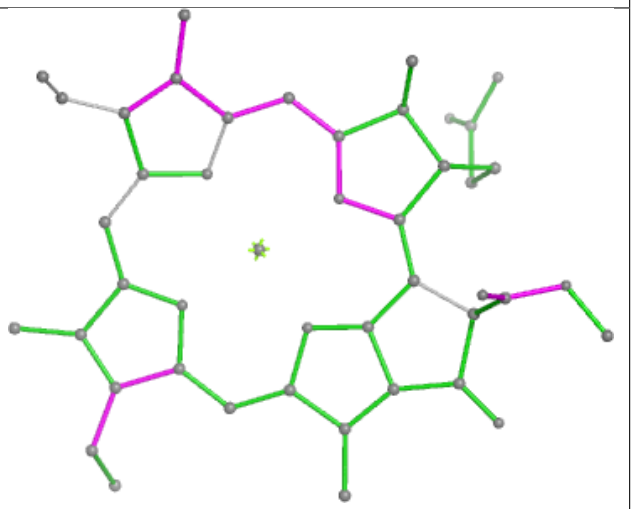
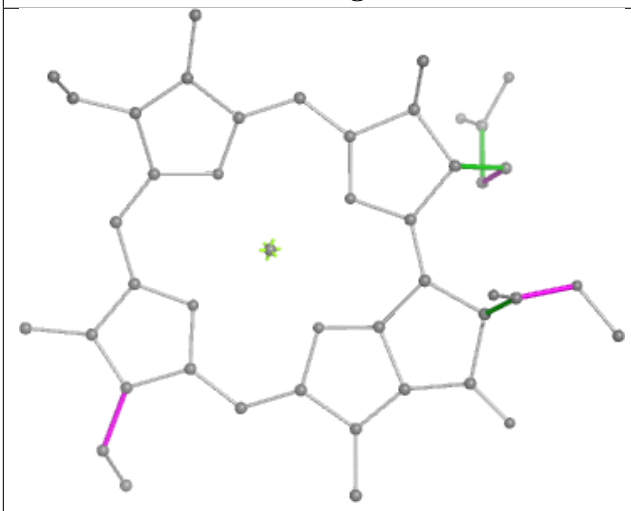
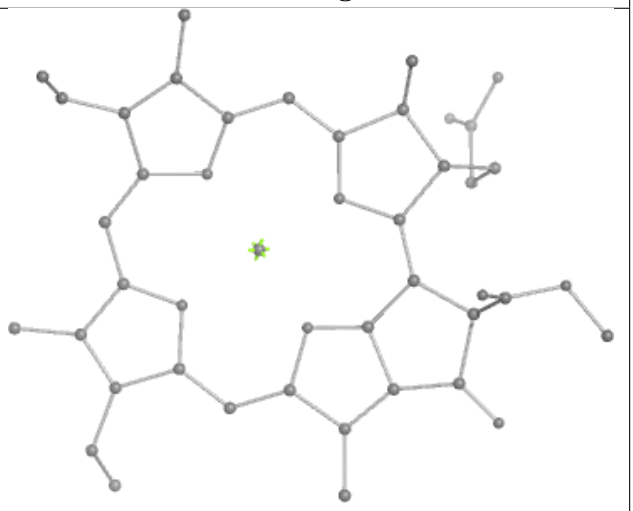


Bond angles

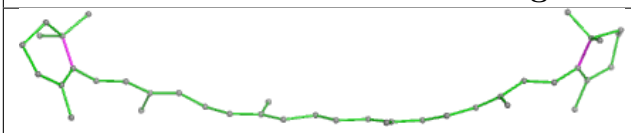


Torsions

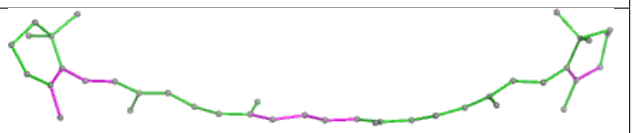


Rings

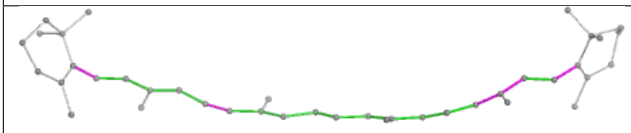
Ligand BCR i 101



Bond lengths



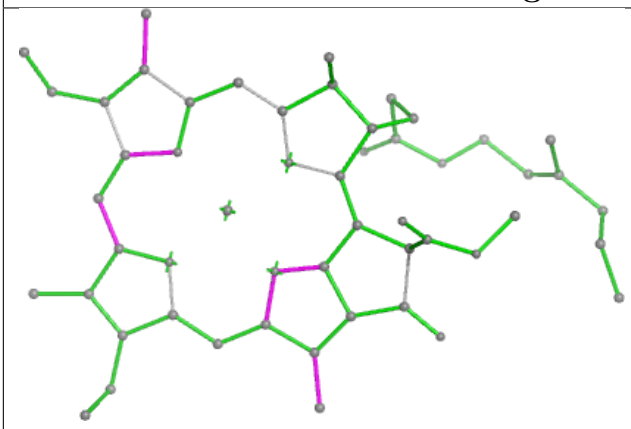
Bond angles



Torsions

Rings

Ligand CLA l 1503



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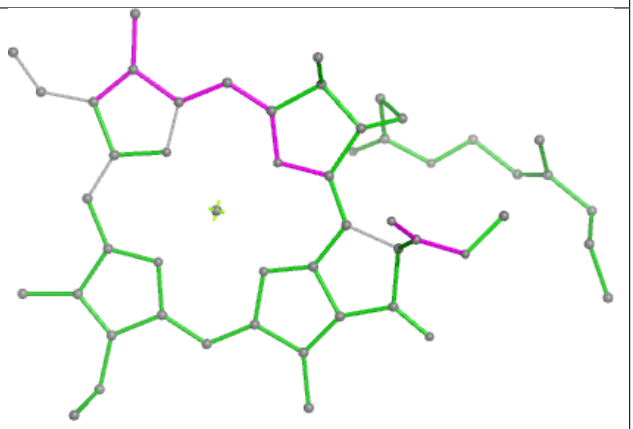
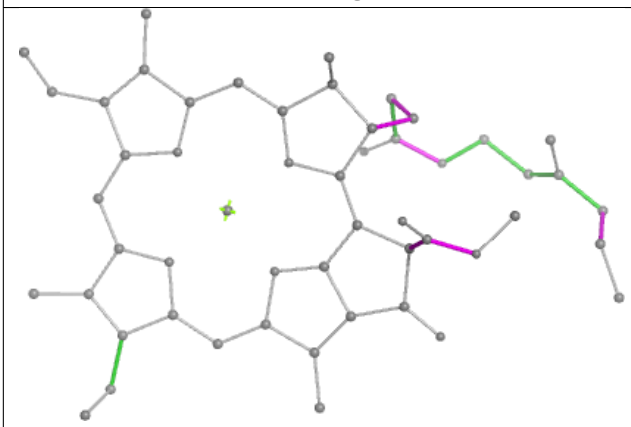


Bond angles



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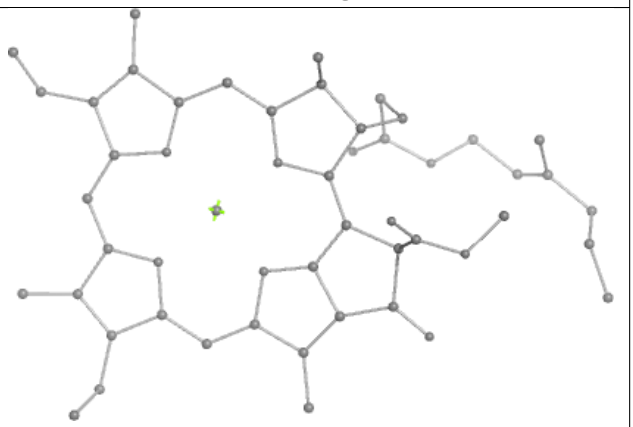
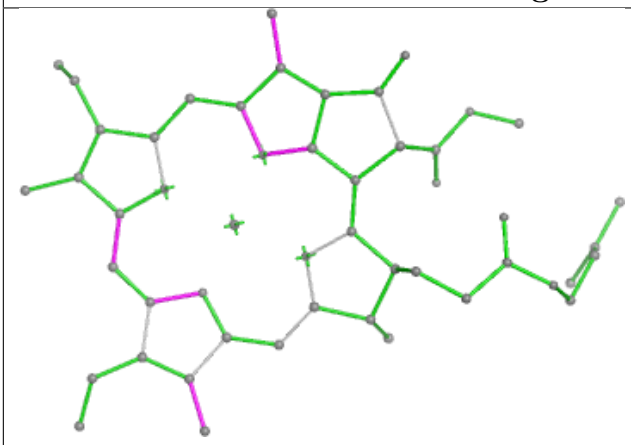


Rings

Ligand CLA f 203



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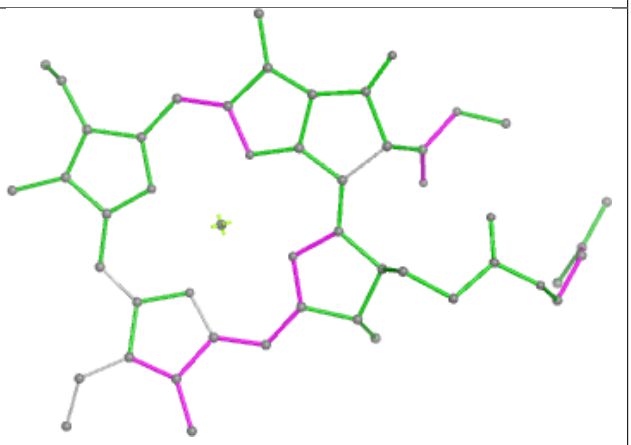
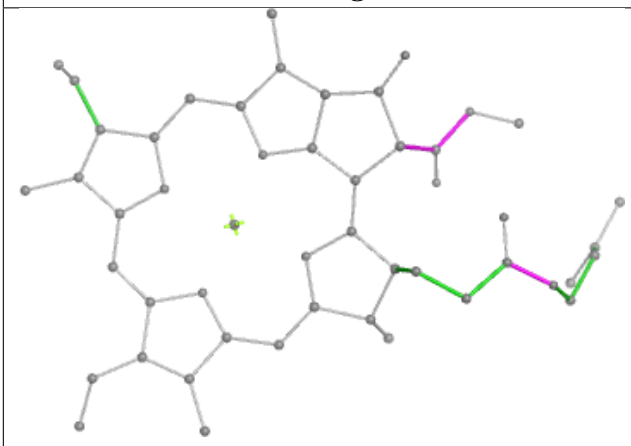


Bond angles



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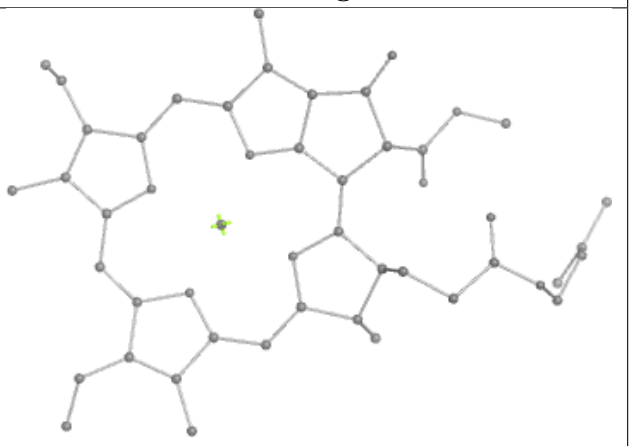
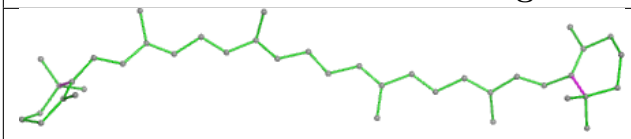


Rings

Ligand BCR b 3047



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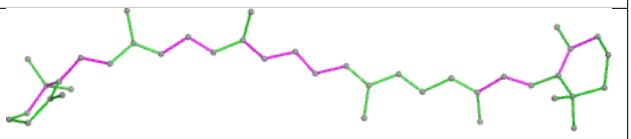
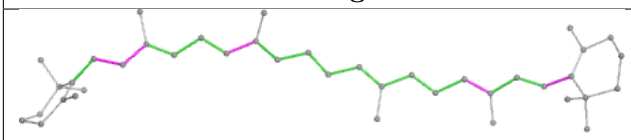


Bond angles



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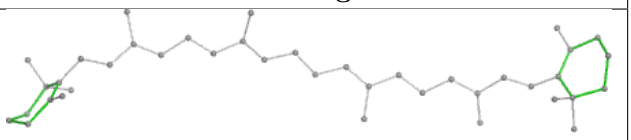
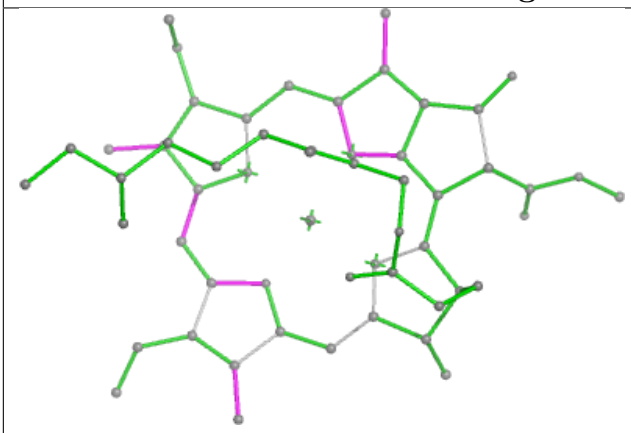


Rings

Ligand CLA b 3016



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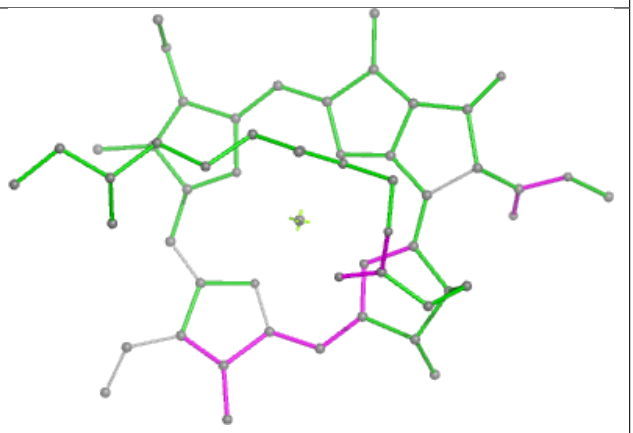
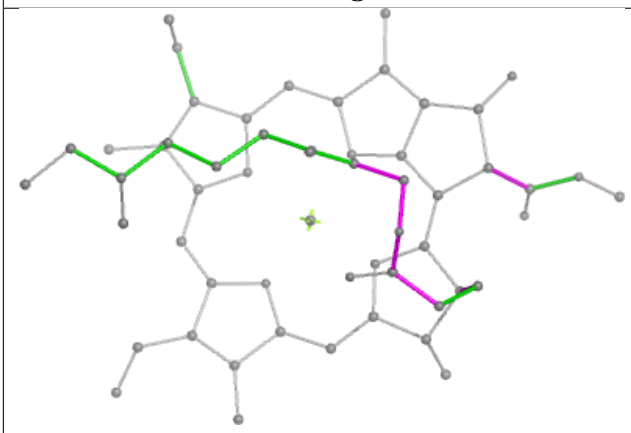
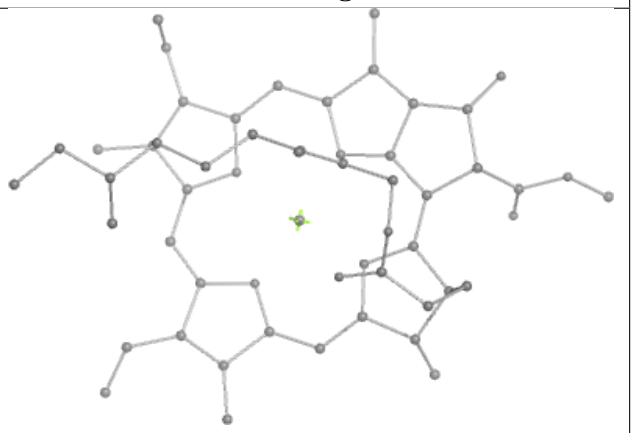


Bond angles

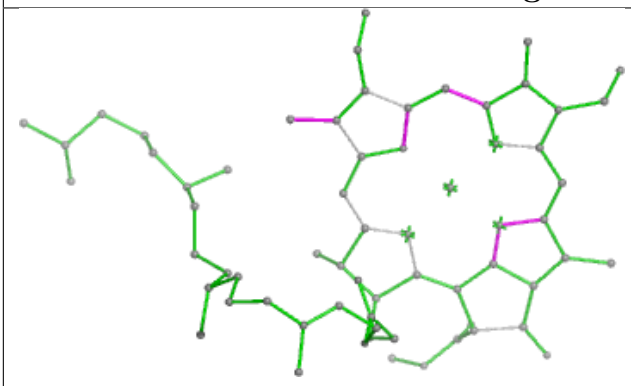


Torsions

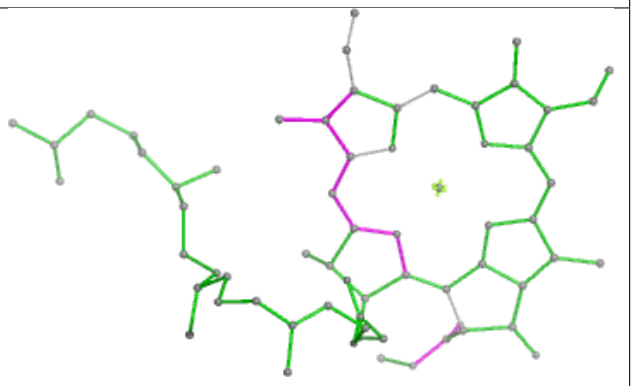


Rings

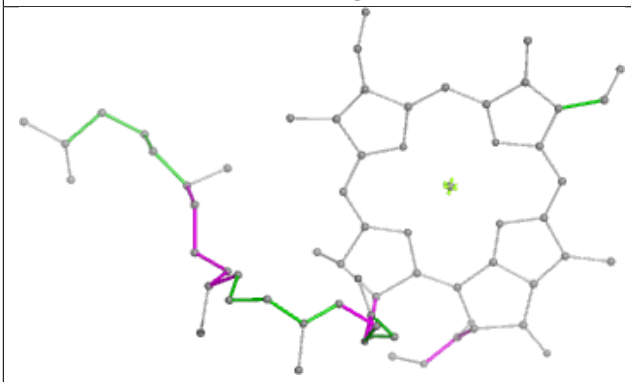
Ligand CLA D 401



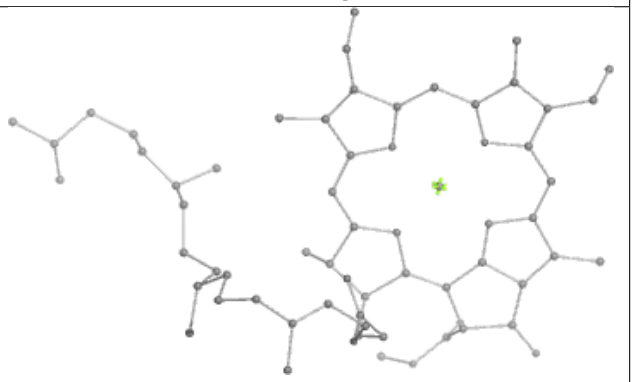
Bond lengths



Bond angles

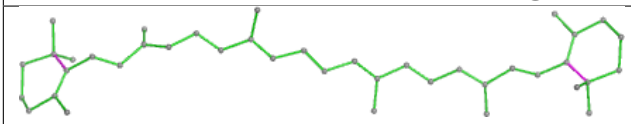


Torsions

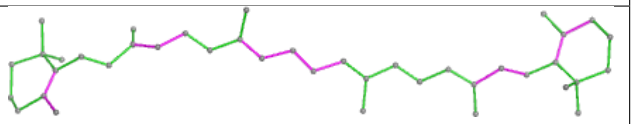


Rings

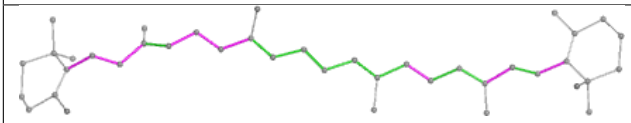
Ligand BCR a 845



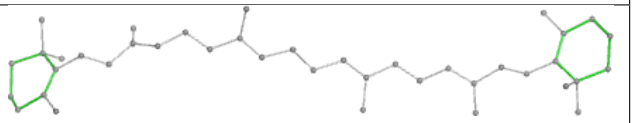
Bond lengths



Bond angles

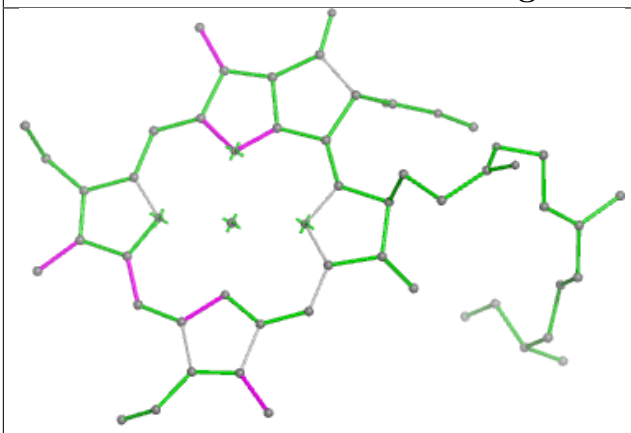


Torsions

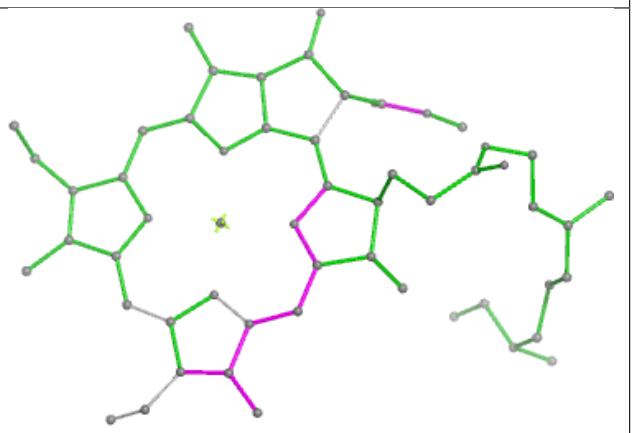


Rings

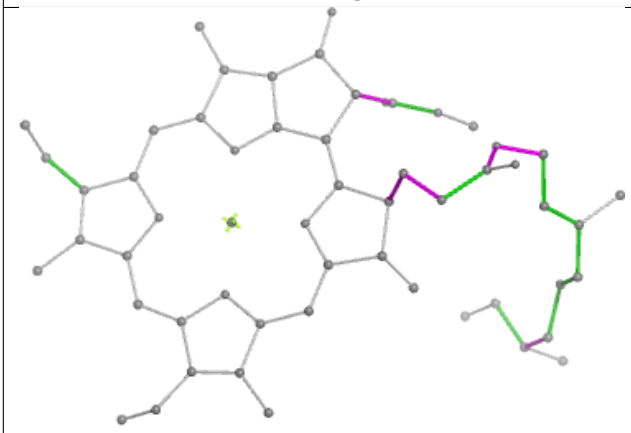
Ligand CLA b 3010



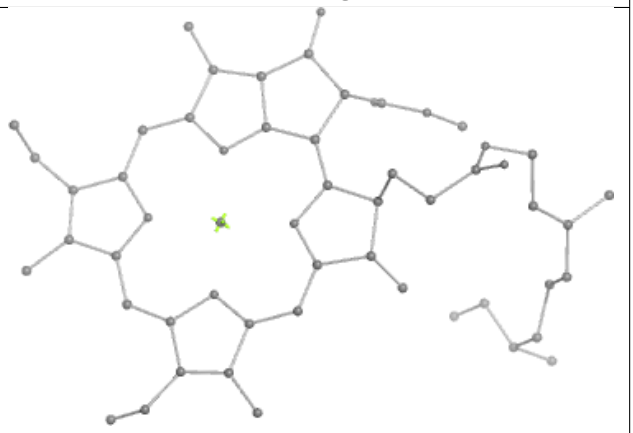
Bond lengths



Bond angles

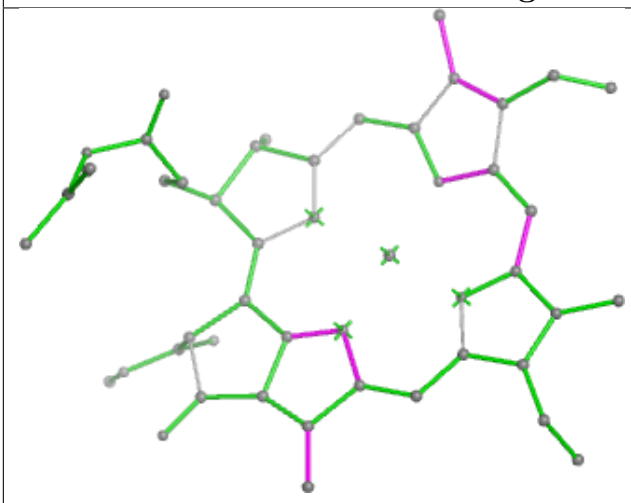


Torsions

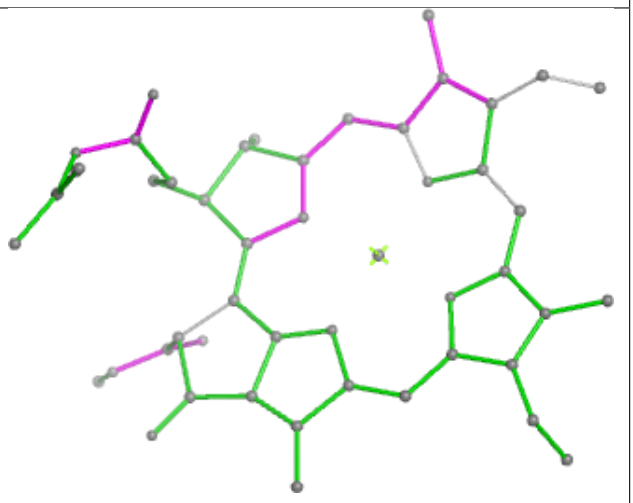


Rings

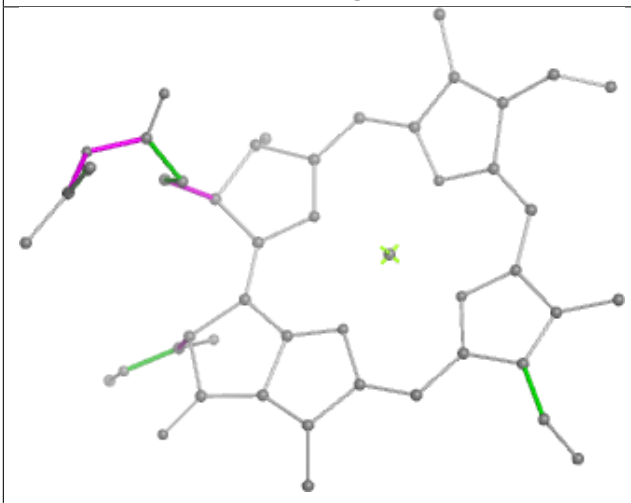
Ligand CLA b 3038



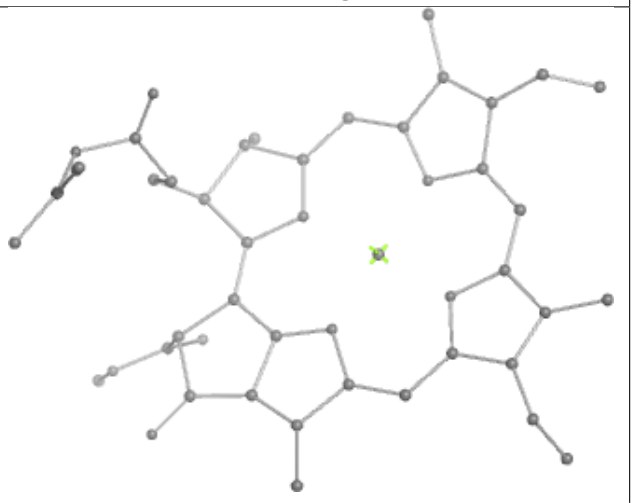
Bond lengths



Bond angles

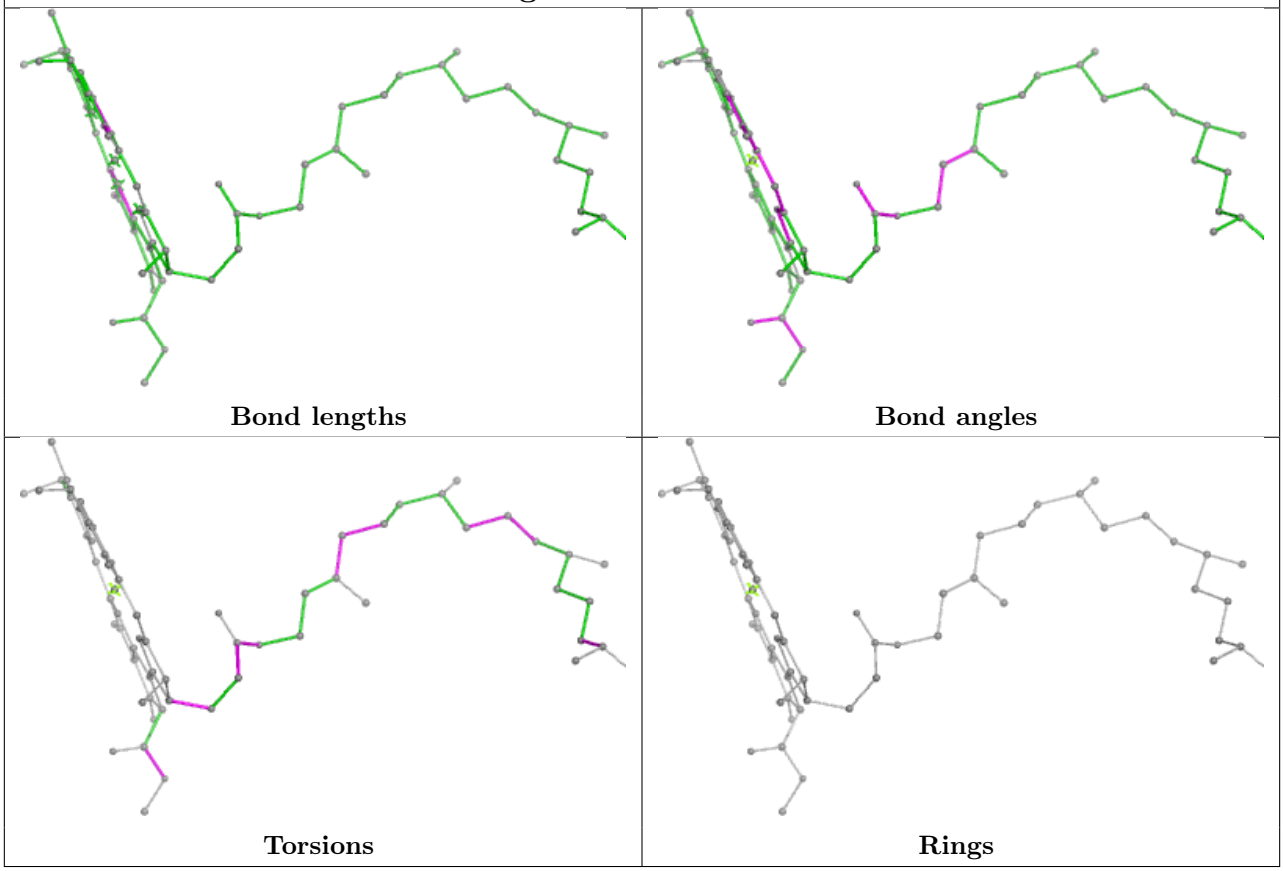


Torsions

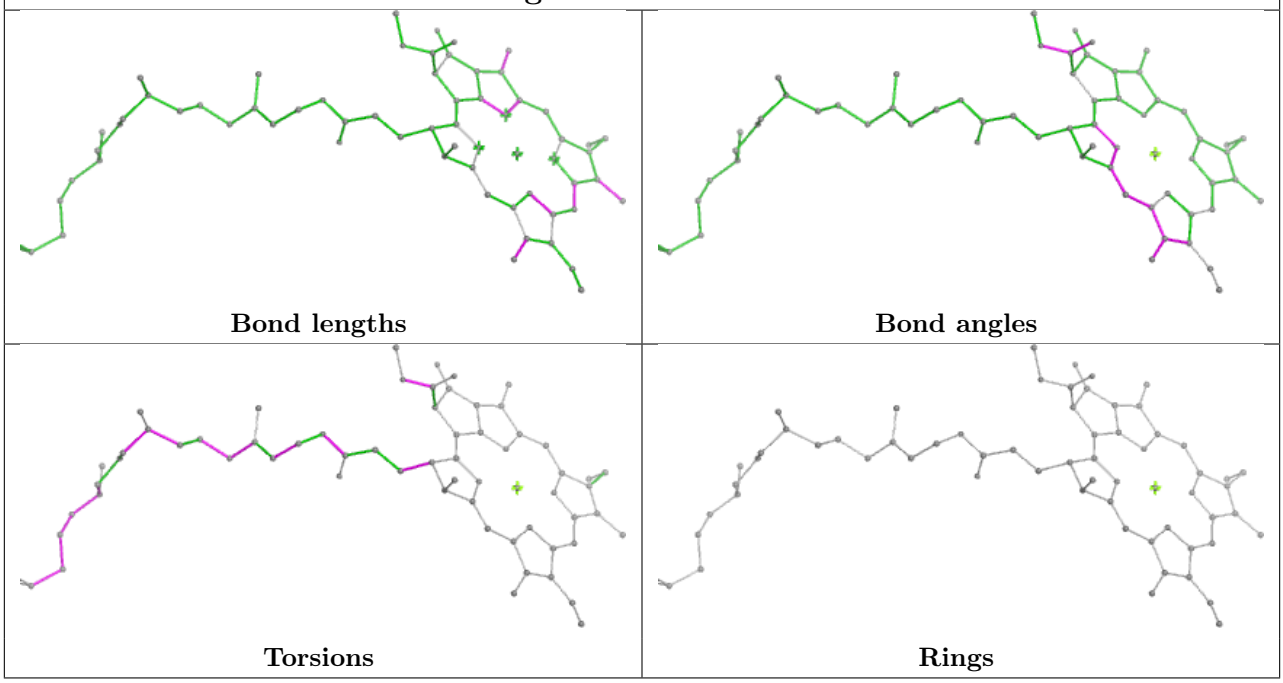


Rings

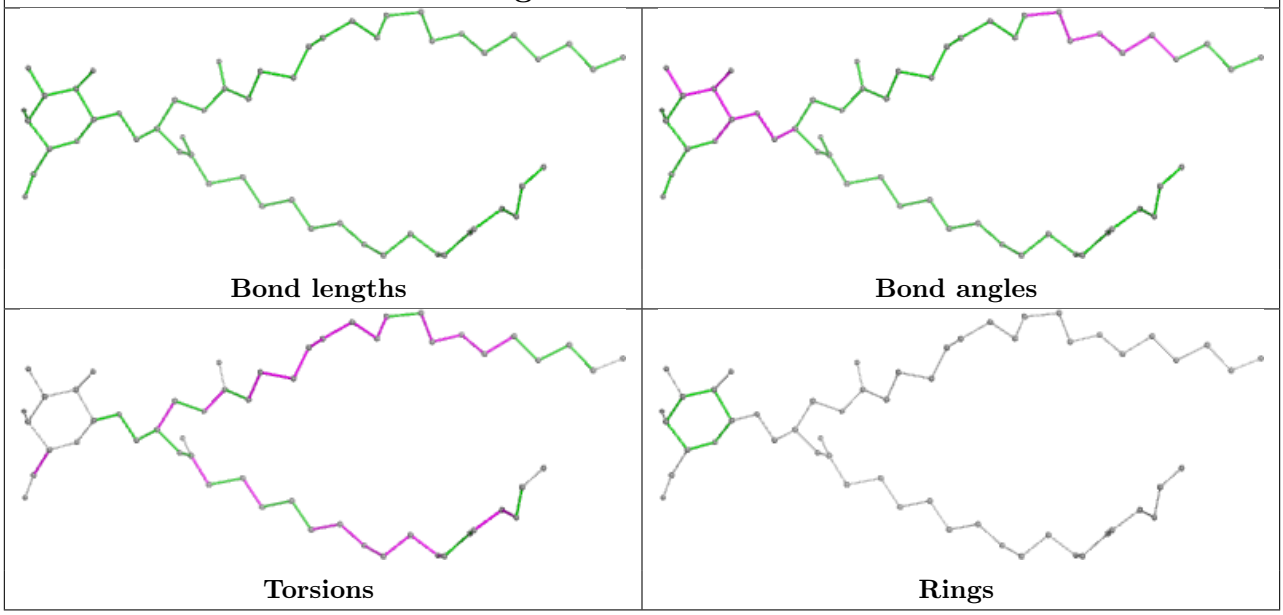
Ligand CLA b 3039



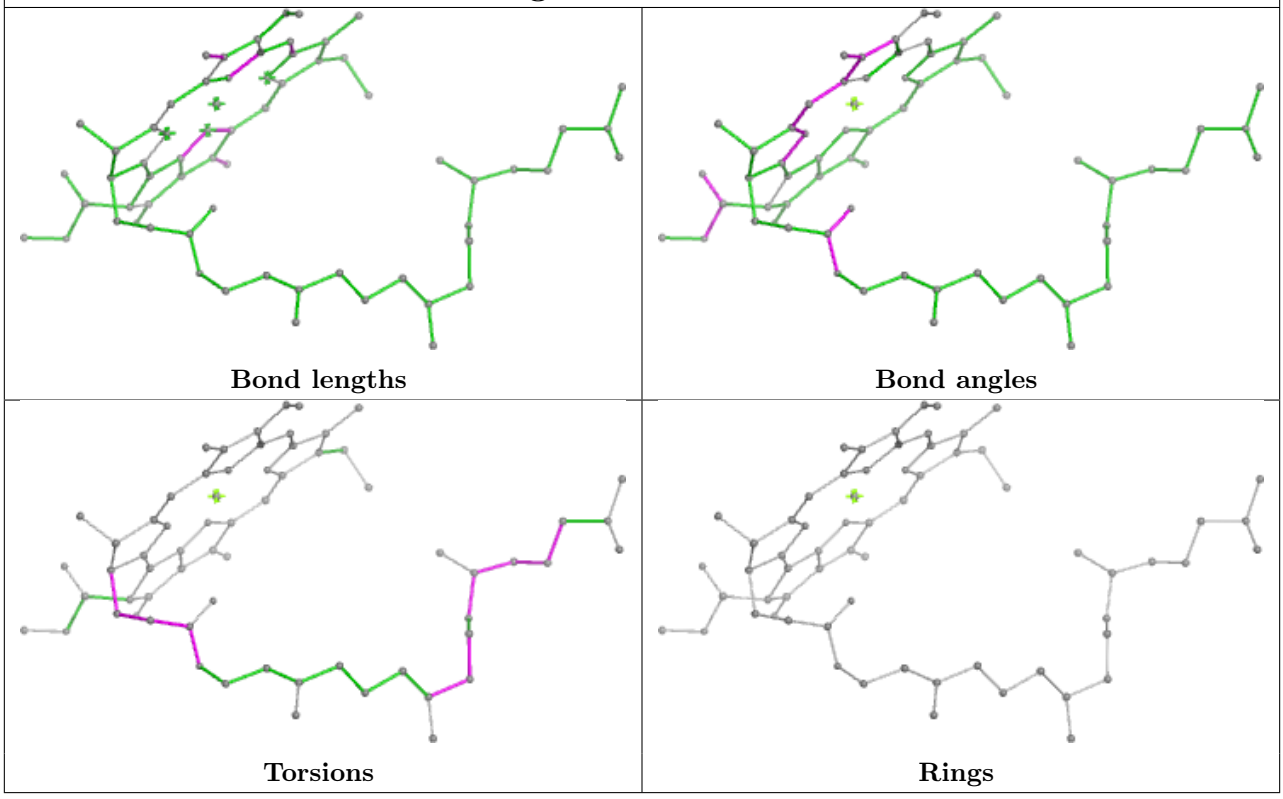
Ligand CLA A 402



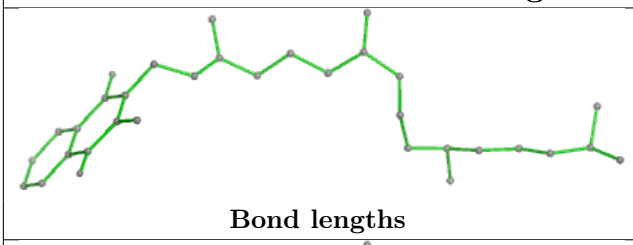
Ligand LMG b 3049



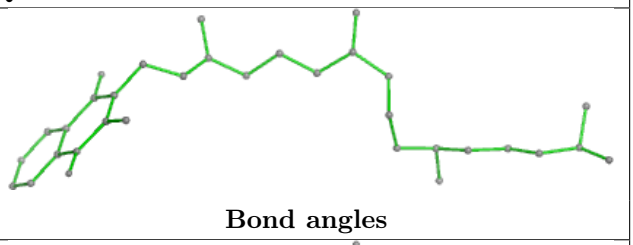
Ligand CLA a 812



Ligand PQN a 844

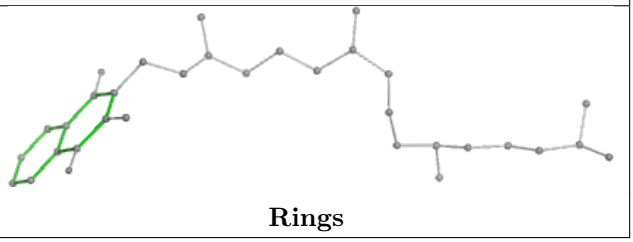


Bond lengths



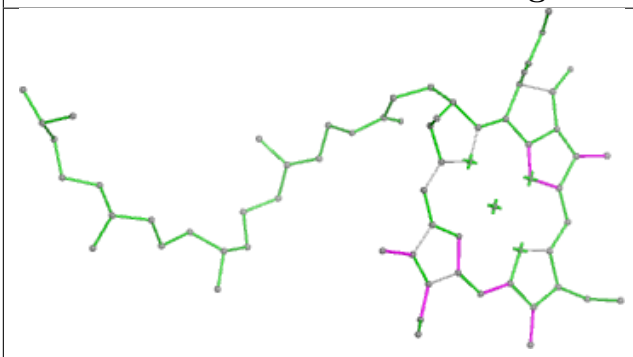
Bond angles

Torsions

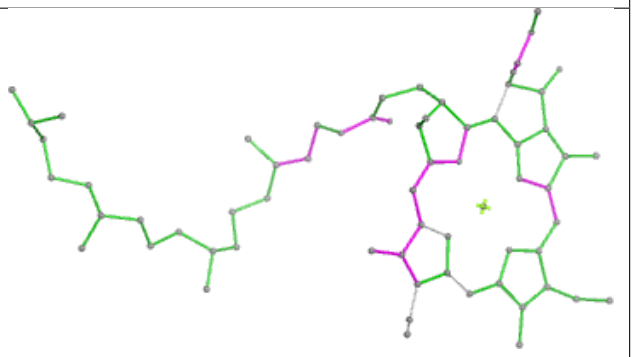


Rings

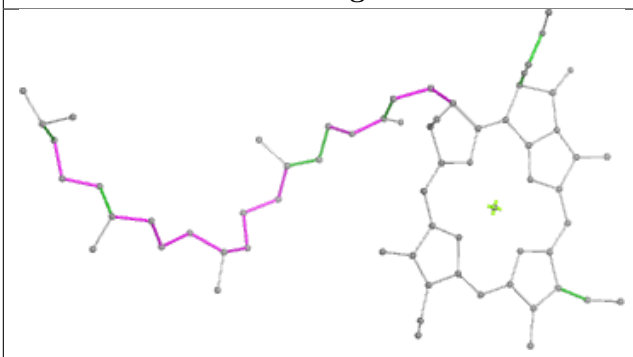
Ligand CLA a 809



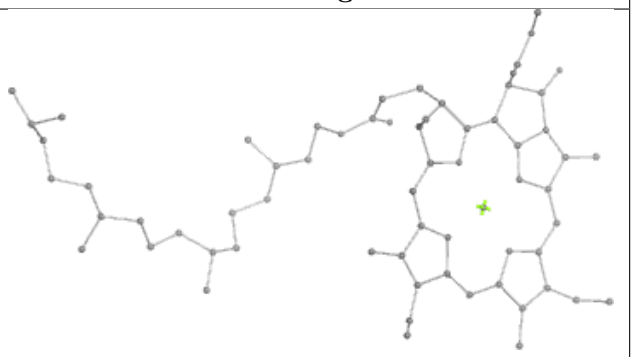
Bond lengths



Bond angles

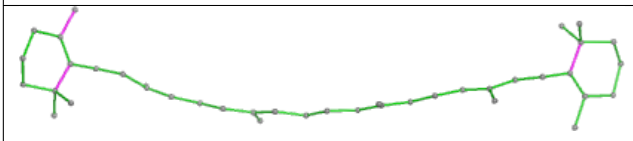


Torsions

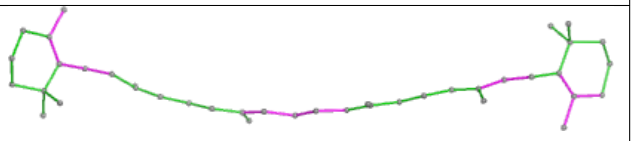


Rings

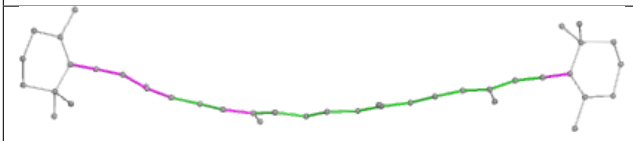
Ligand BCR j 104



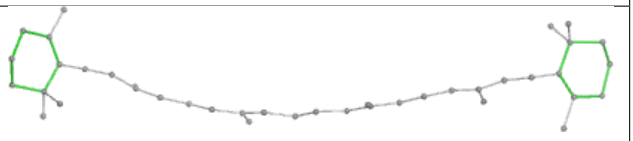
Bond lengths



Bond angles

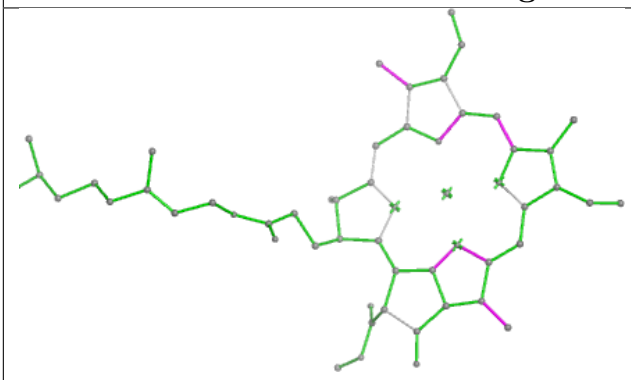


Torsions

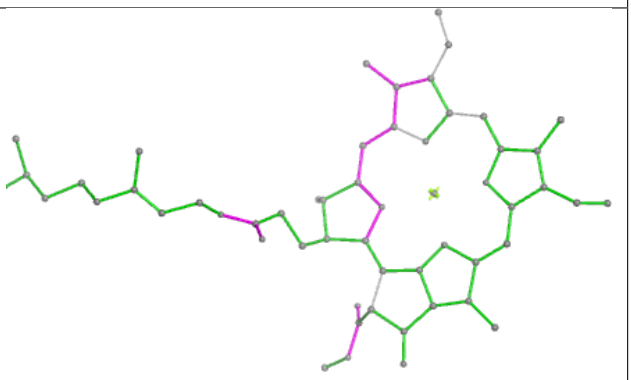


Rings

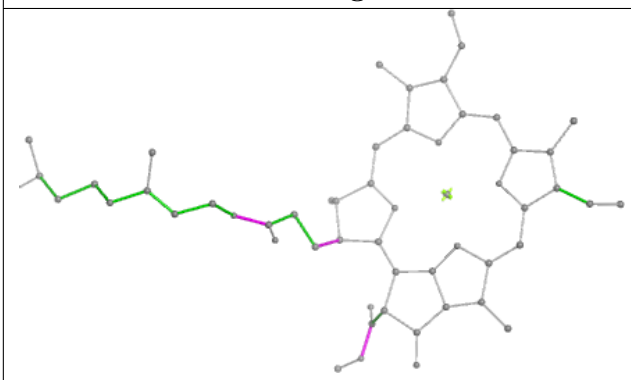
Ligand CLA b 3025



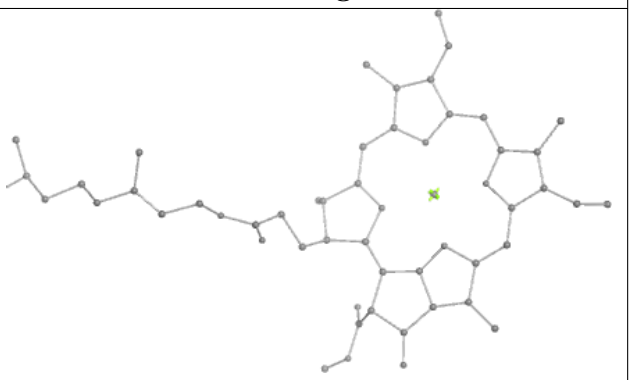
Bond lengths



Bond angles

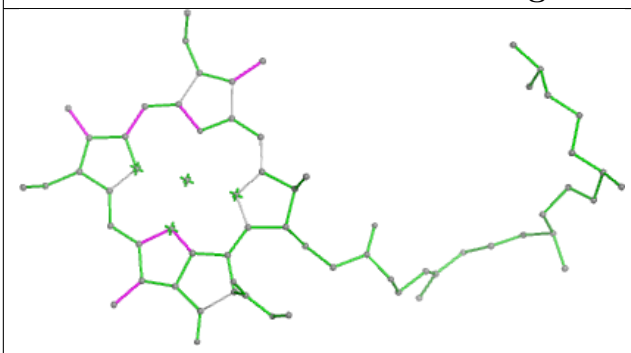


Torsions

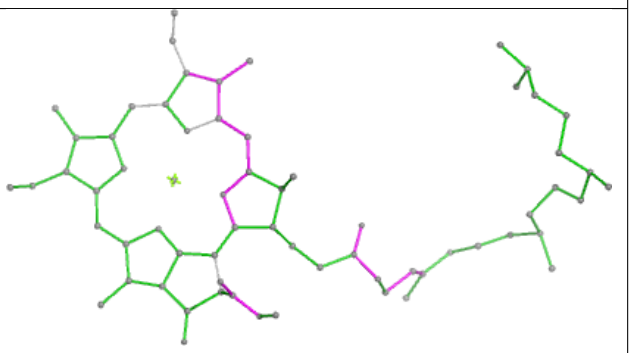


Rings

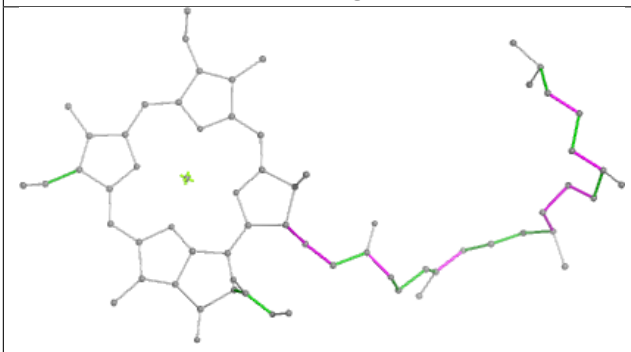
Ligand CLA a 828



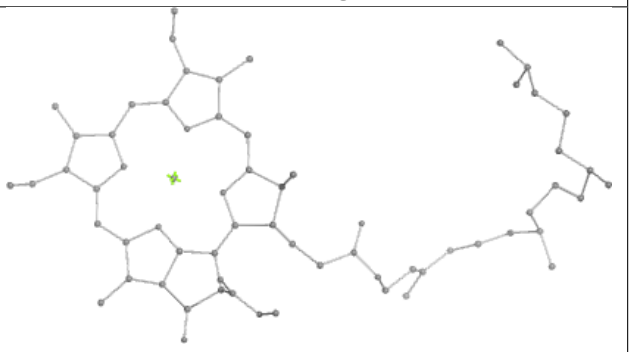
Bond lengths



Bond angles

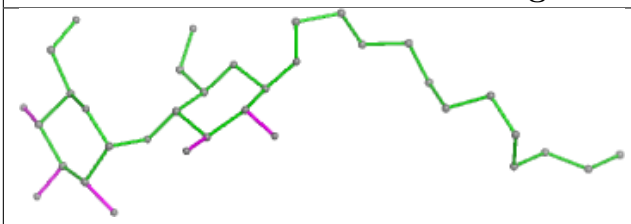


Torsions



Rings

Ligand LMT f 207



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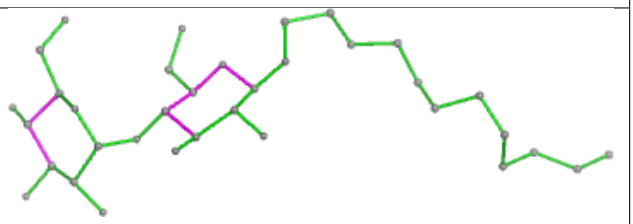
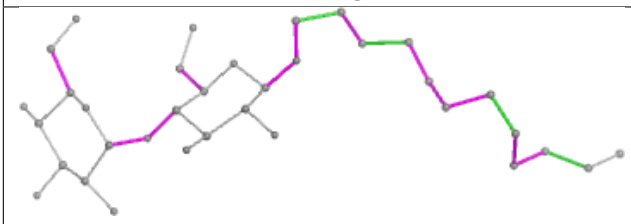


Bond angles



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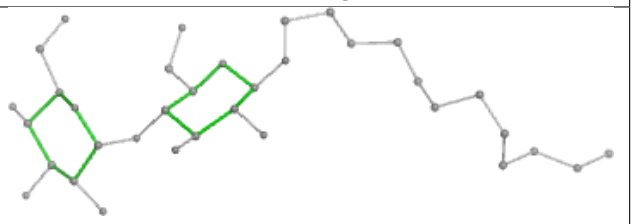
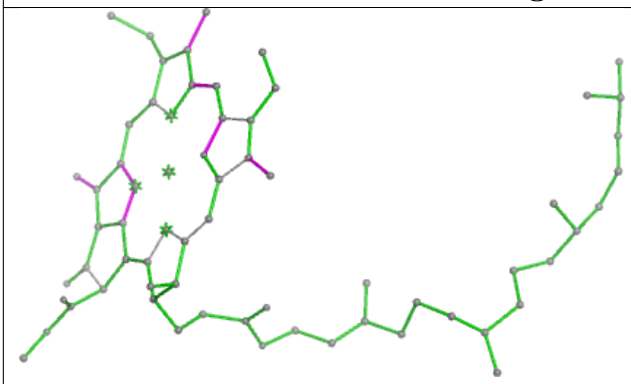
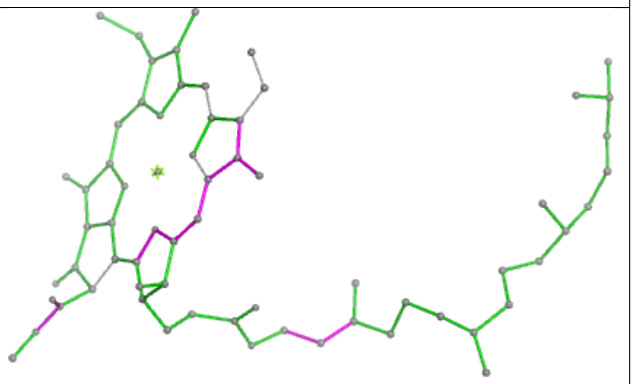


Rings

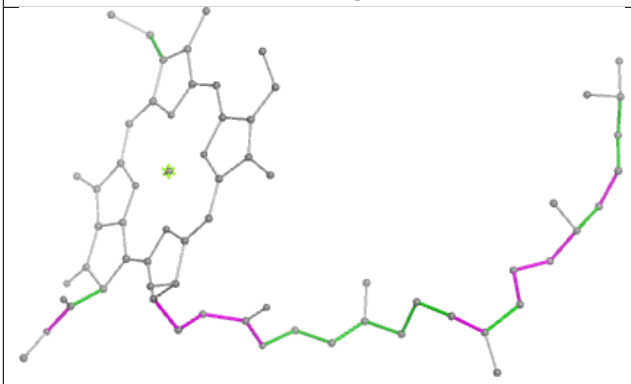
Ligand CLA a 842



Bond lengths



Bond angles



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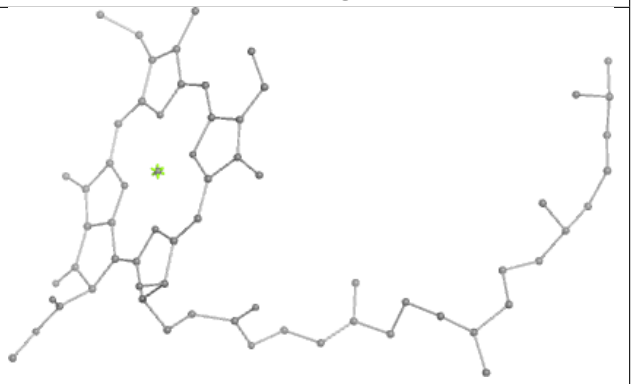
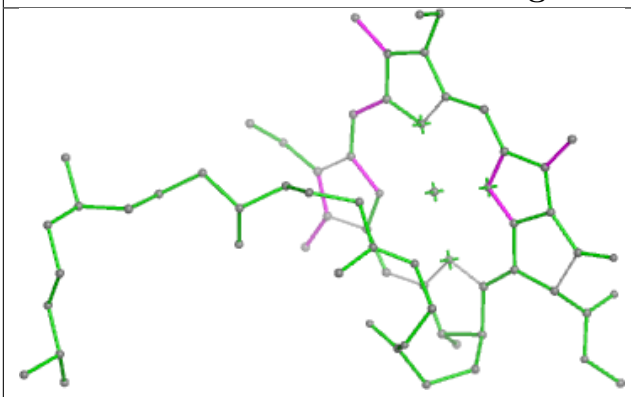
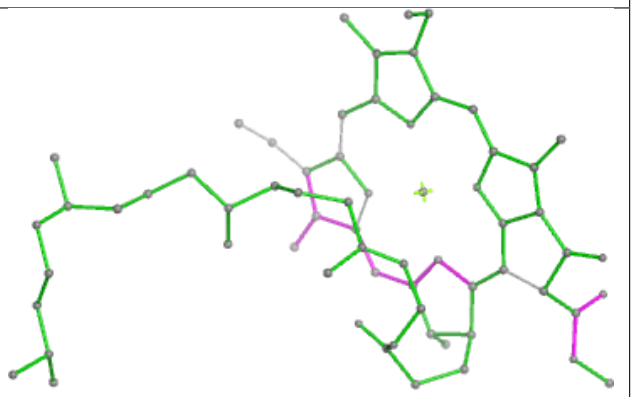


Rings

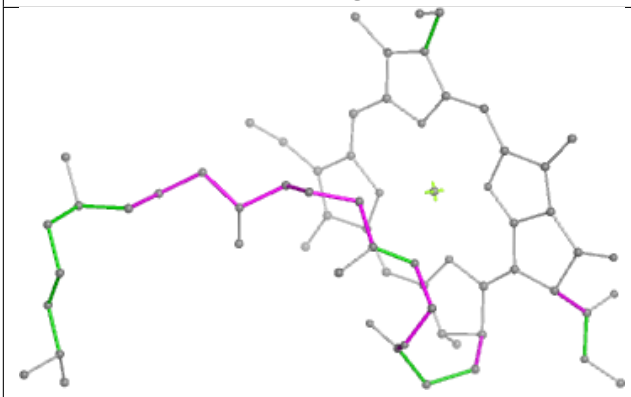
Ligand CLA a 856



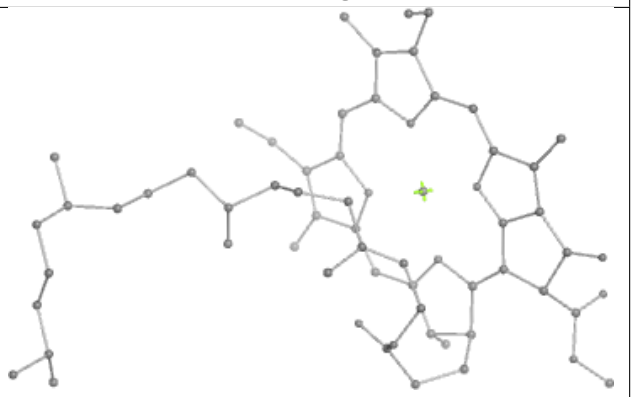
Bond lengths



Bond angles

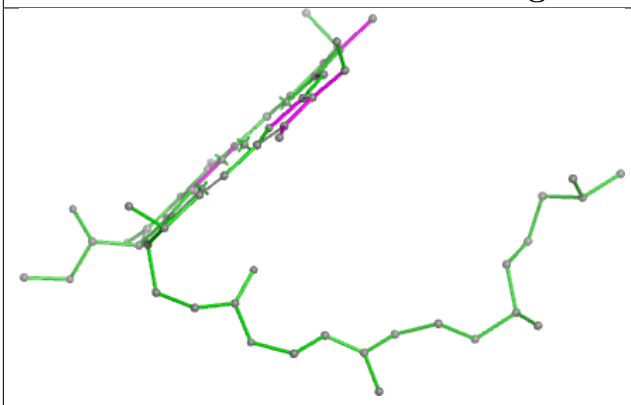


Torsions

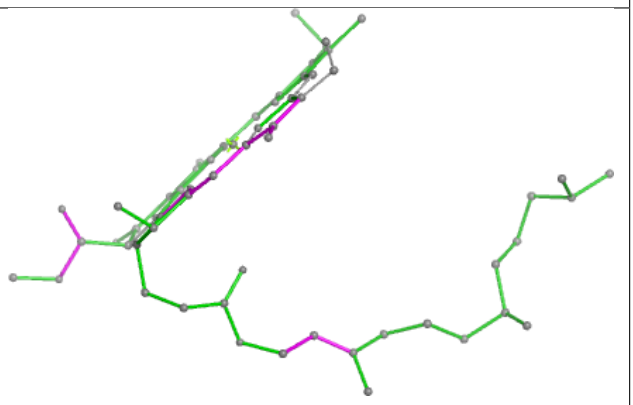


Rings

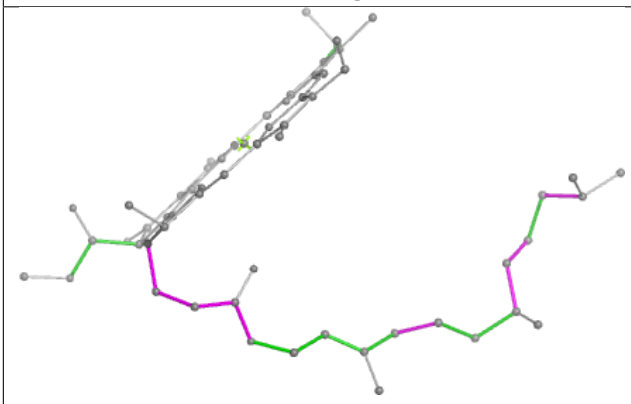
Ligand CLA a 833



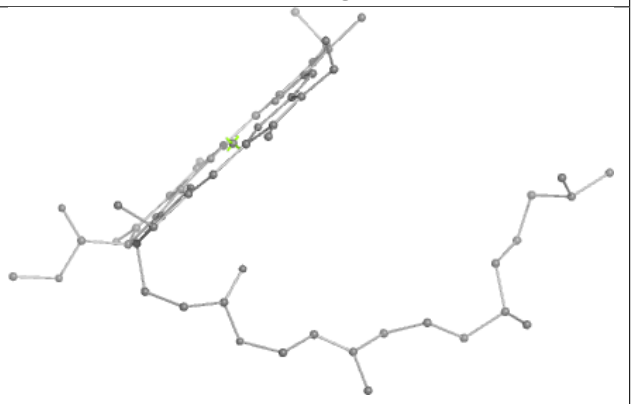
Bond lengths



Bond angles

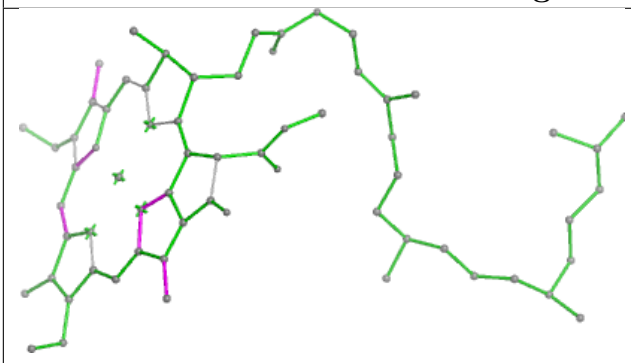


Torsions

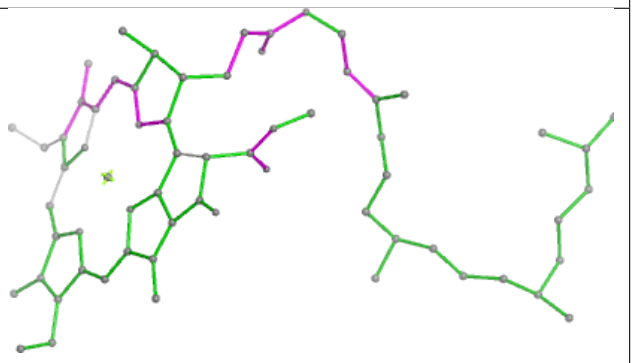


Rings

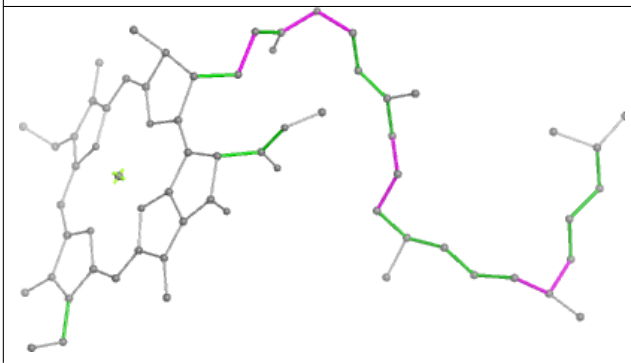
Ligand CL0 a 801



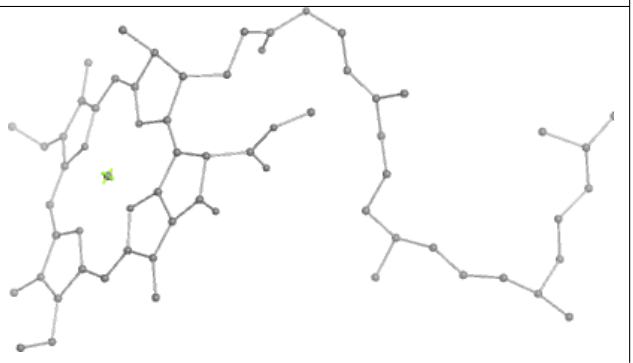
Bond lengths



Bond angles

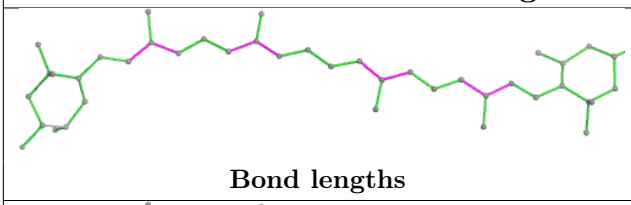


Torsions

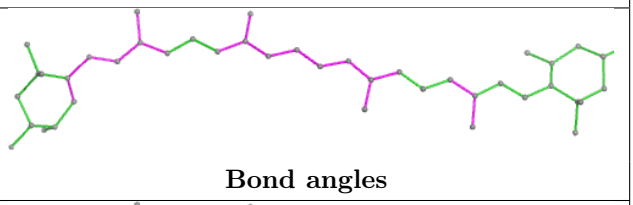


Rings

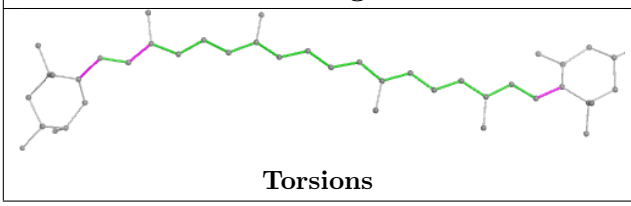
Ligand ZEX b 3053



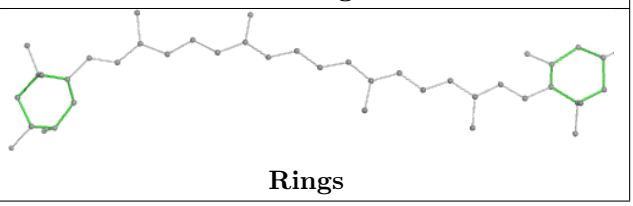
Bond lengths



Bond angles

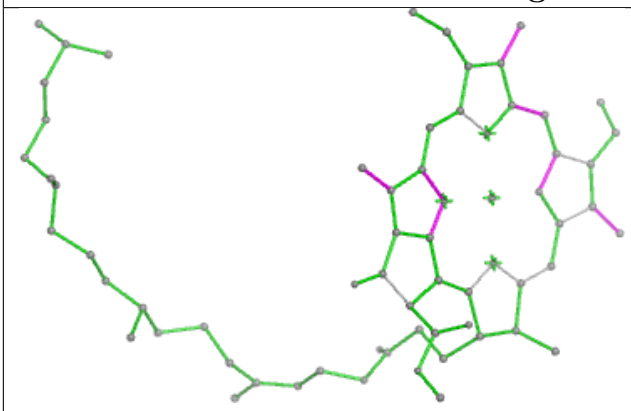


Torsions

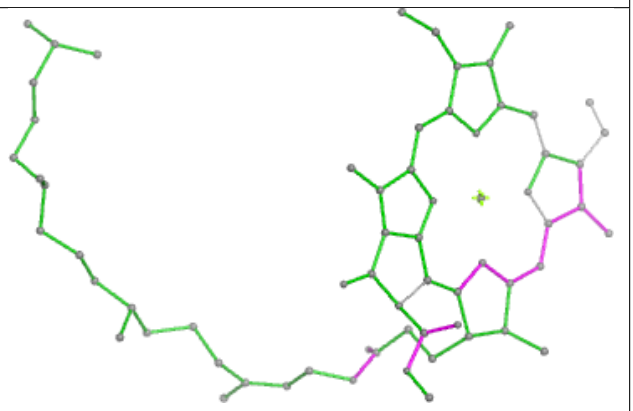


Rings

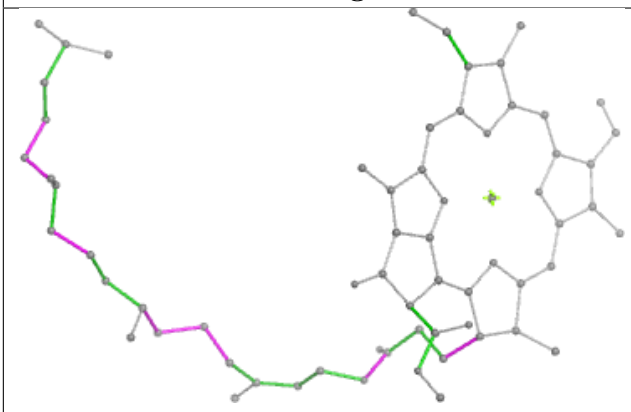
Ligand CLA a 858



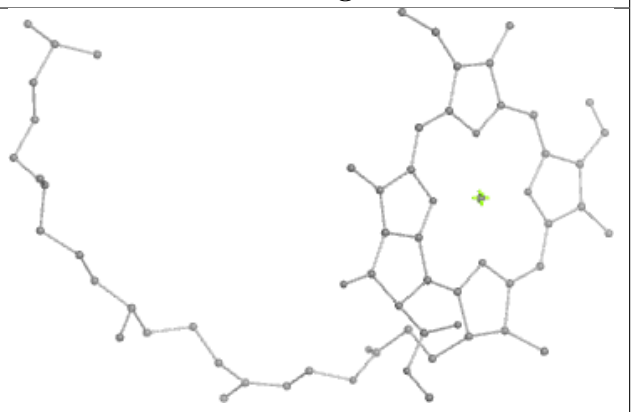
Bond lengths



Bond angles

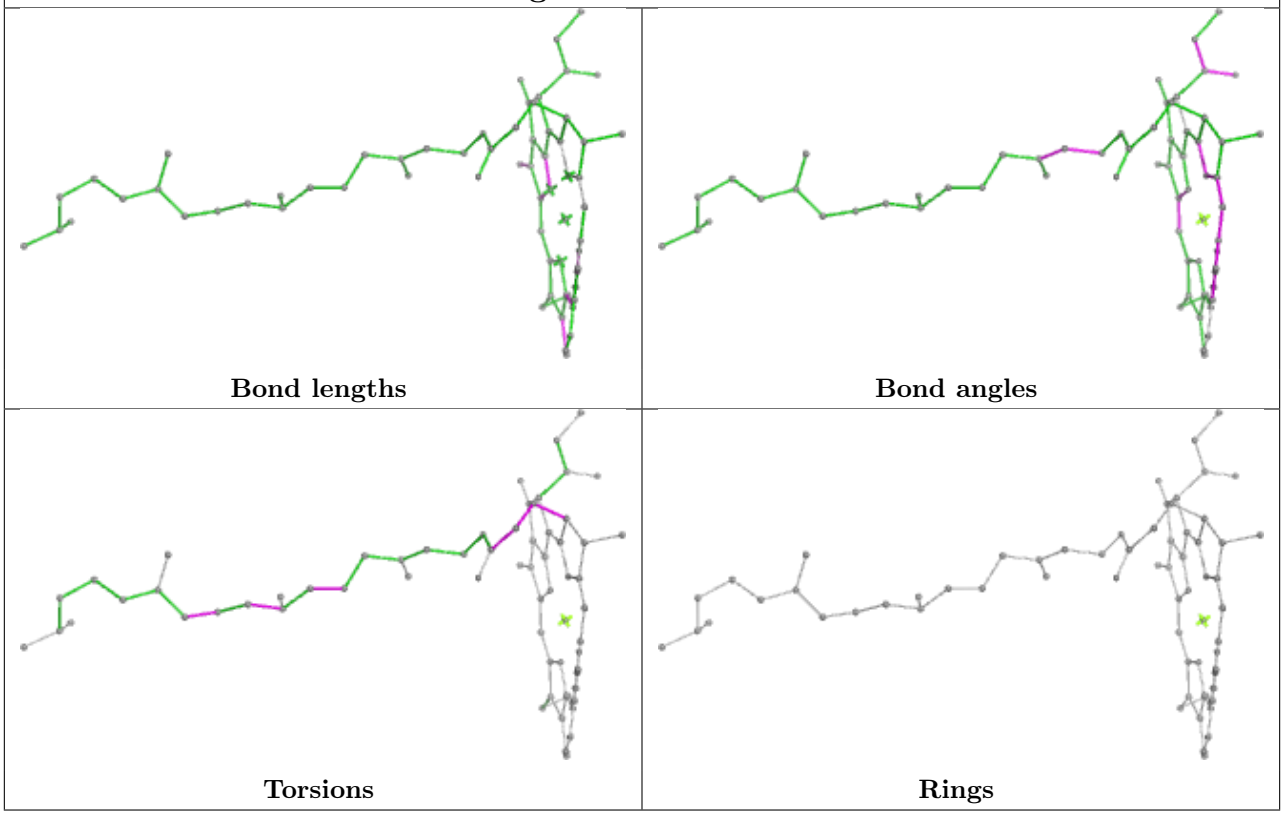


Torsions

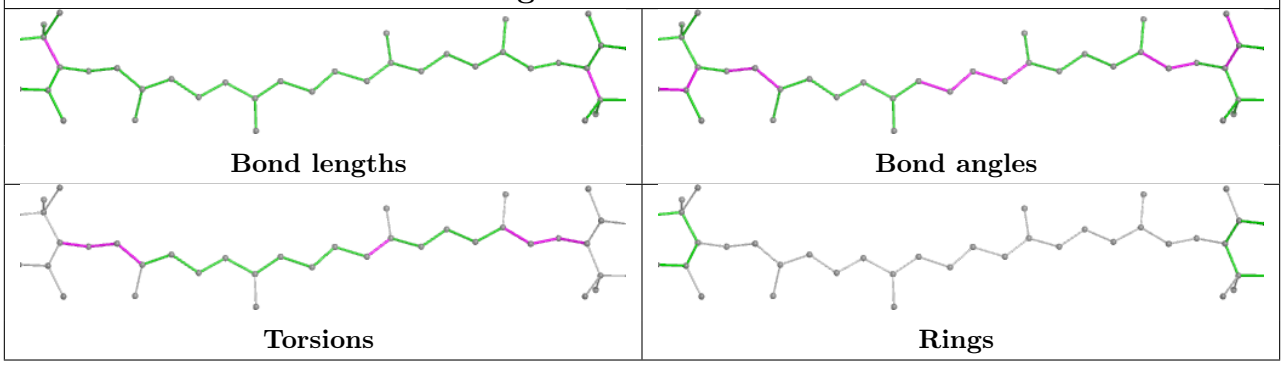


Rings

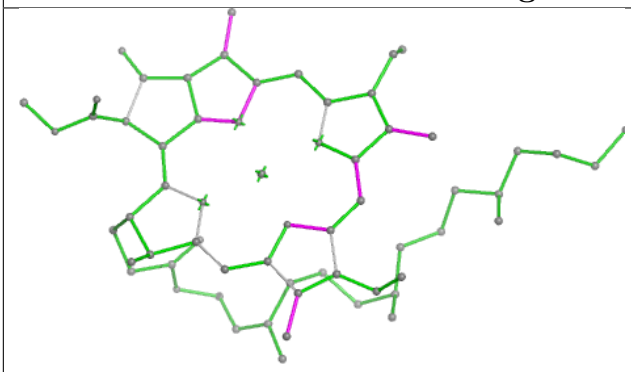
Ligand CLA a 829



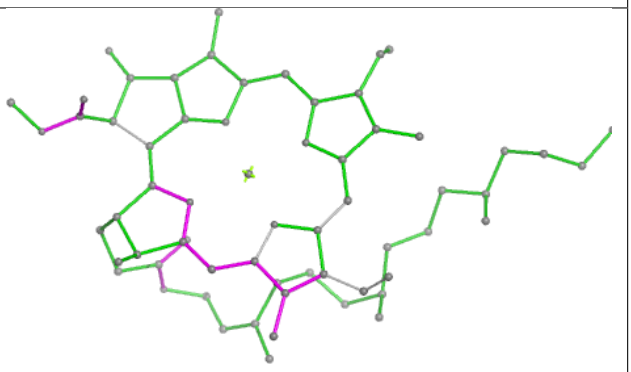
Ligand BCR b 3043



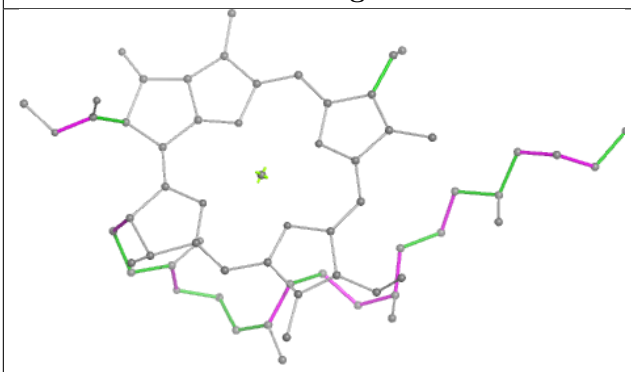
Ligand CLA b 3020



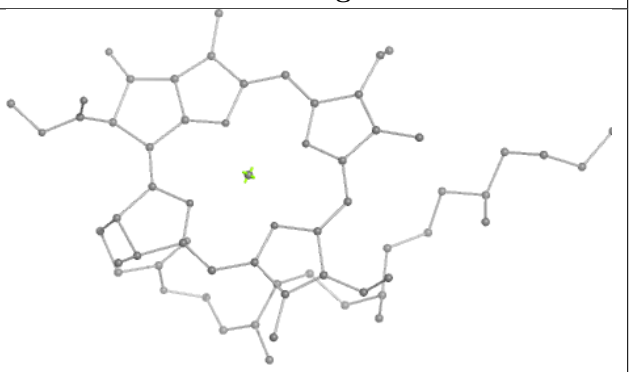
Bond lengths



Bond angles

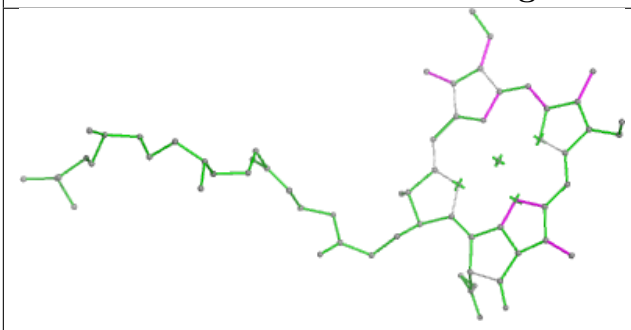


Torsions

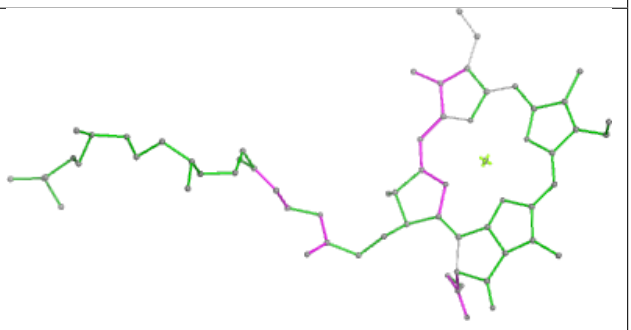


Rings

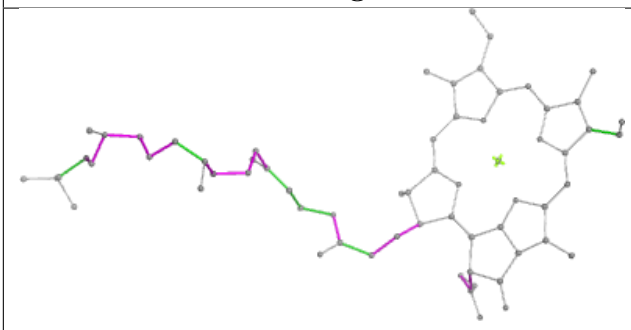
Ligand CLA b 3013



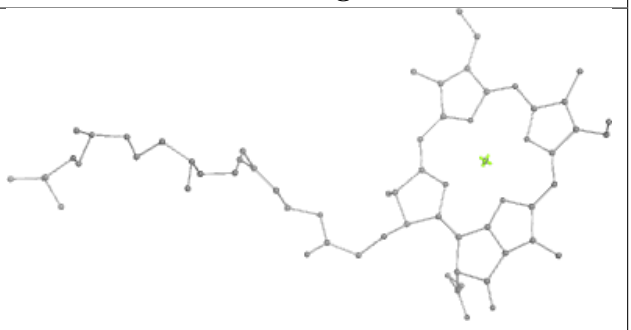
Bond lengths



Bond angles

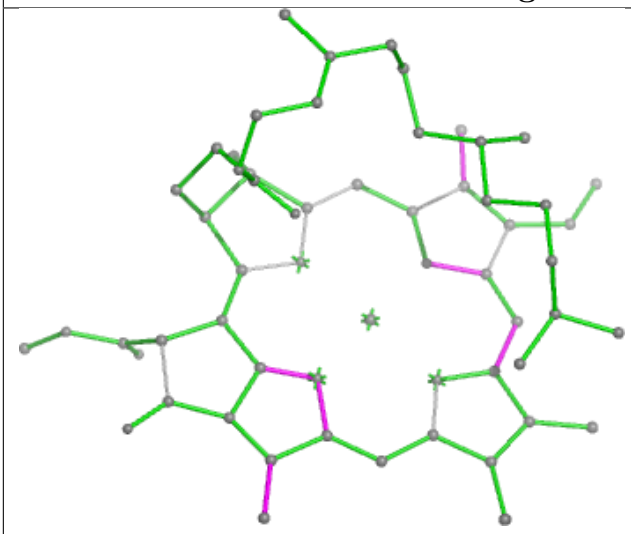


Torsions

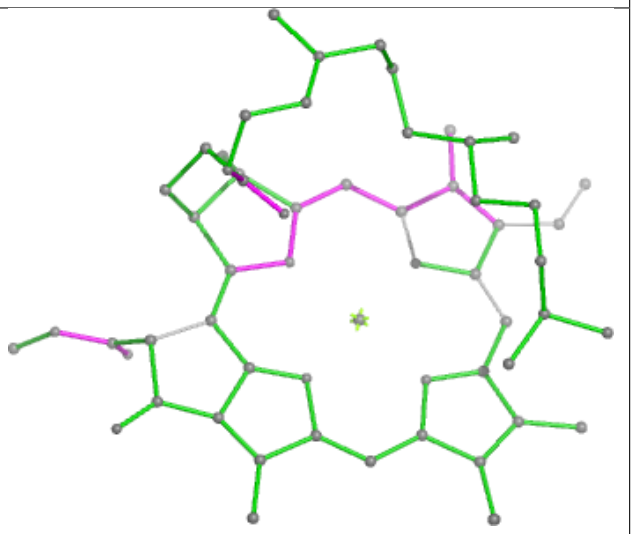


Rings

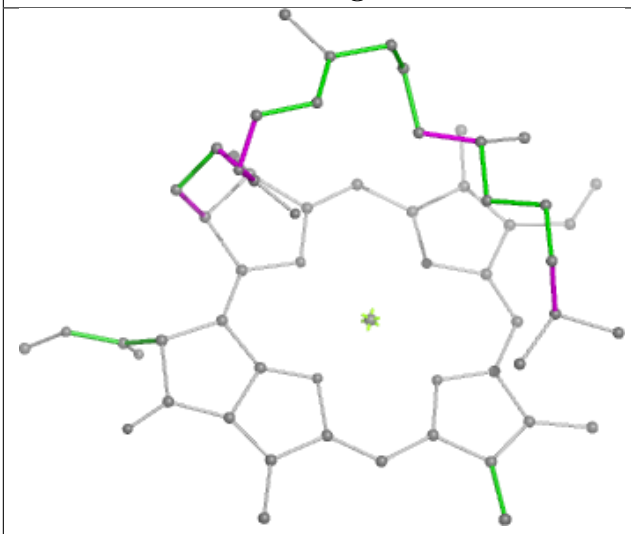
Ligand CLA b 3021



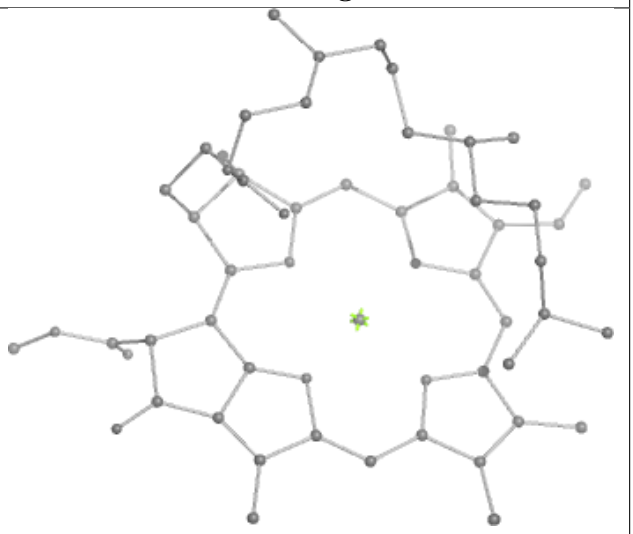
Bond lengths



Bond angles

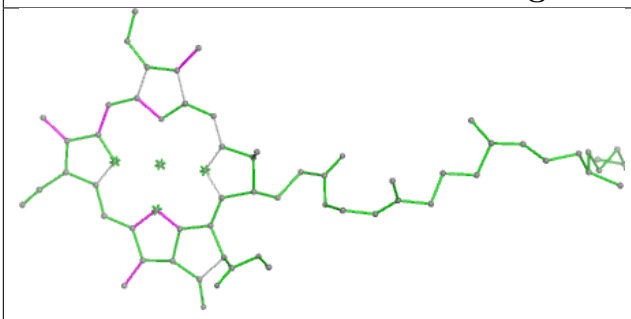


Torsions

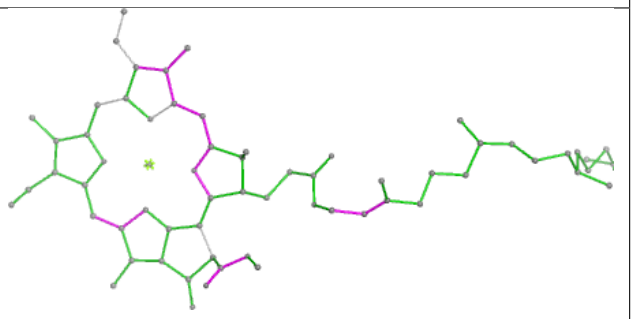


Rings

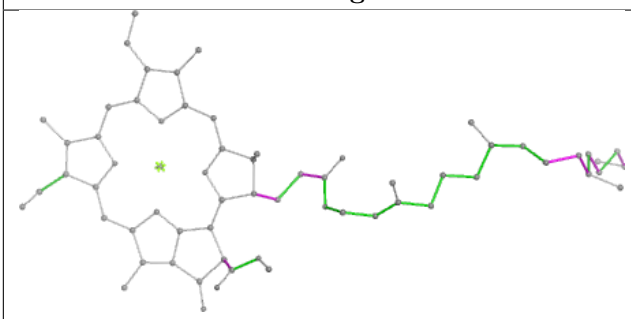
Ligand CLA a 806



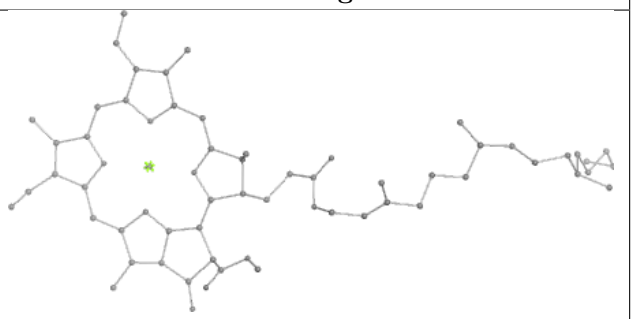
Bond lengths



Bond angles

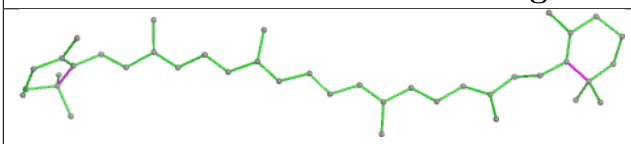


Torsions

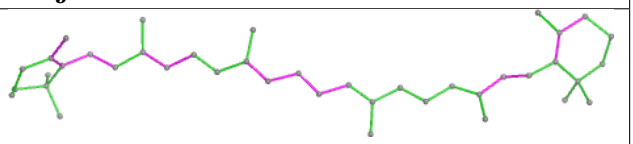


Rings

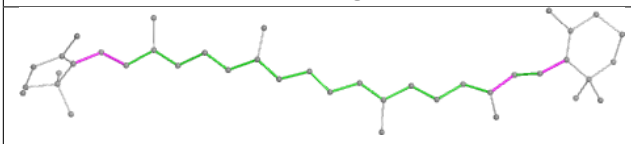
Ligand BCR j 101



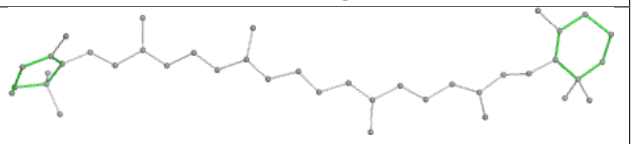
Bond lengths



Bond angles

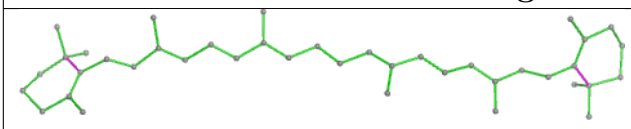


Torsions

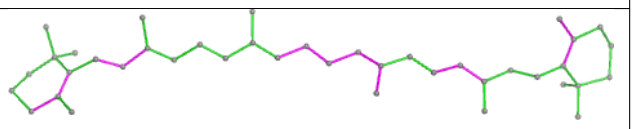


Rings

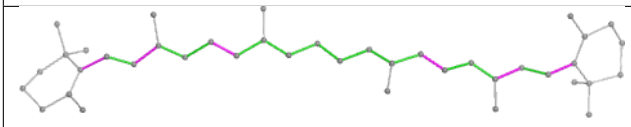
Ligand BCR k 4001



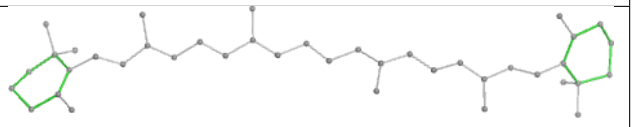
Bond lengths



Bond angles

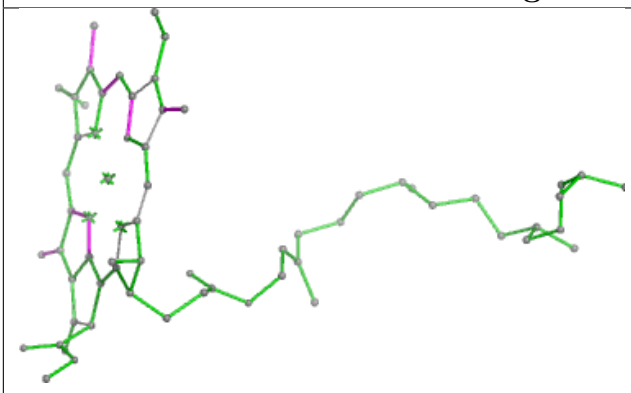


Torsions

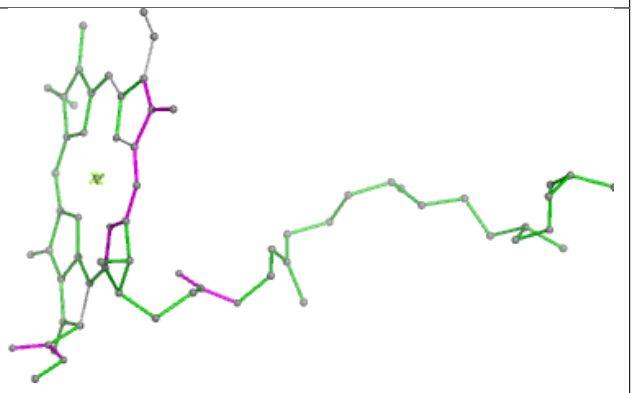


Rings

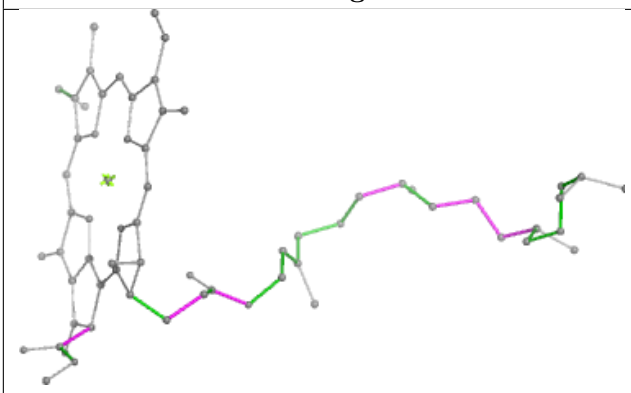
Ligand CLA l 1502



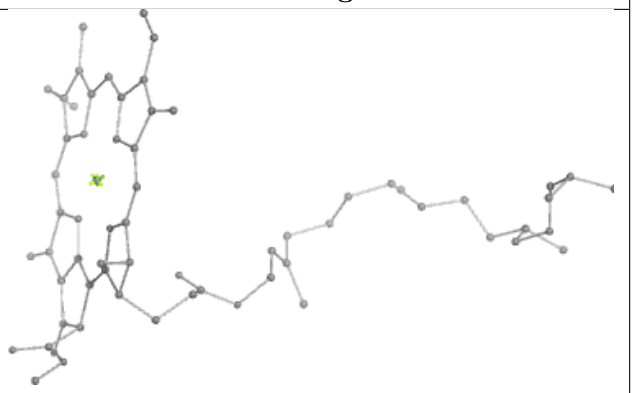
Bond lengths



Bond angles

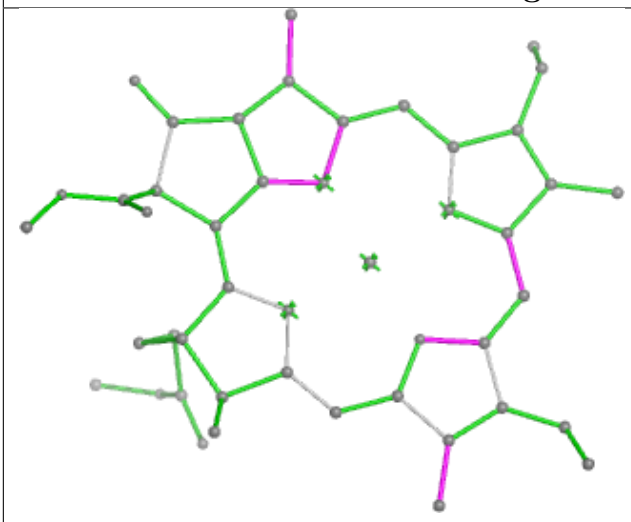


Torsions

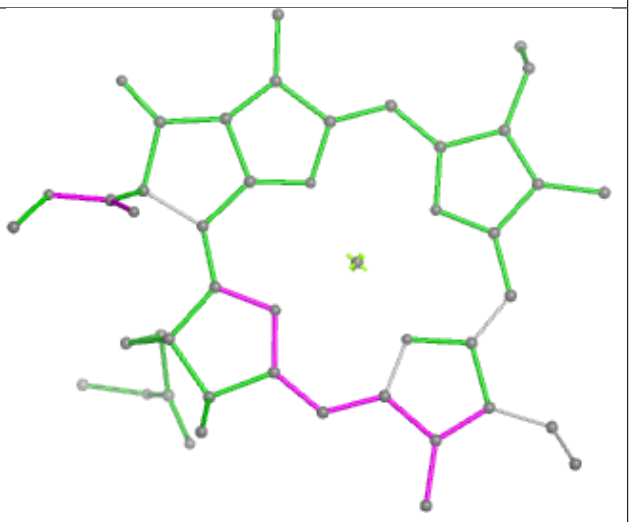


Rings

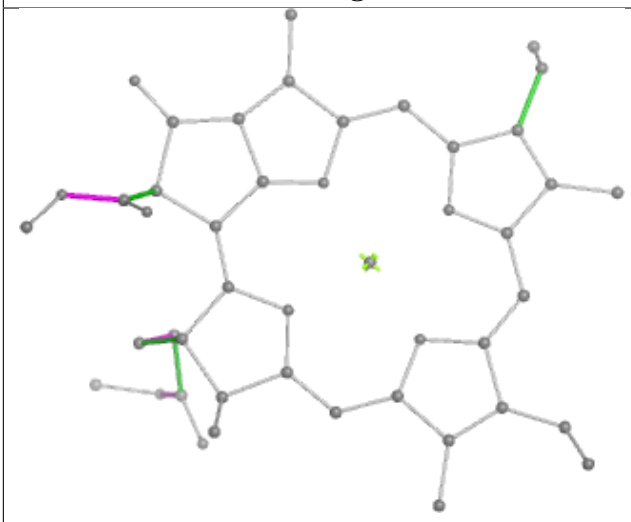
Ligand CLA D 404



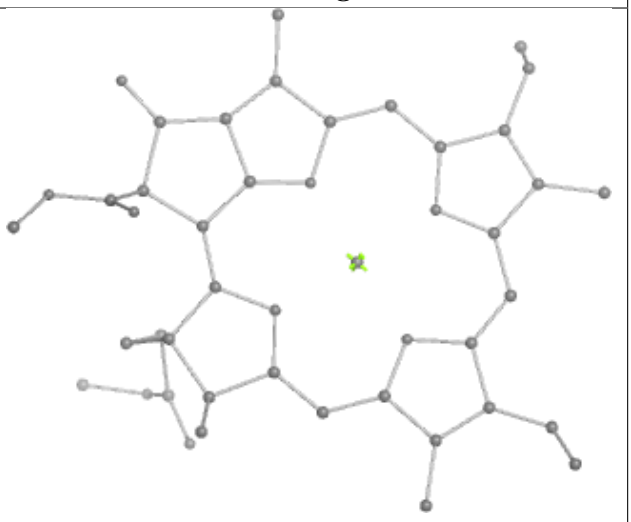
Bond lengths



Bond angles

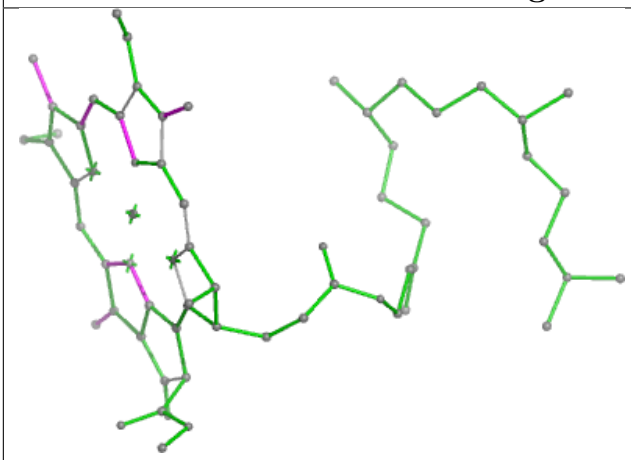


Torsions

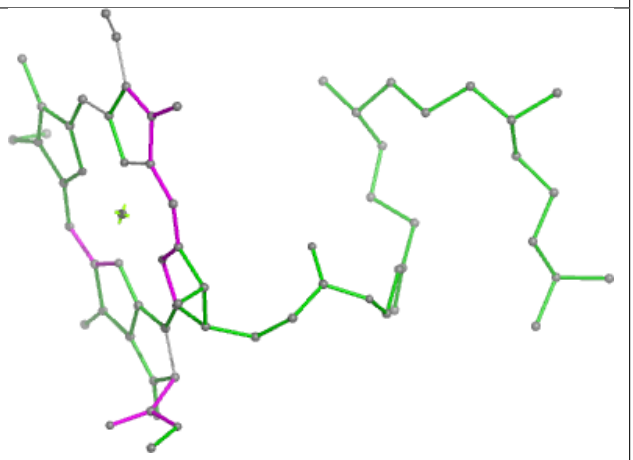


Rings

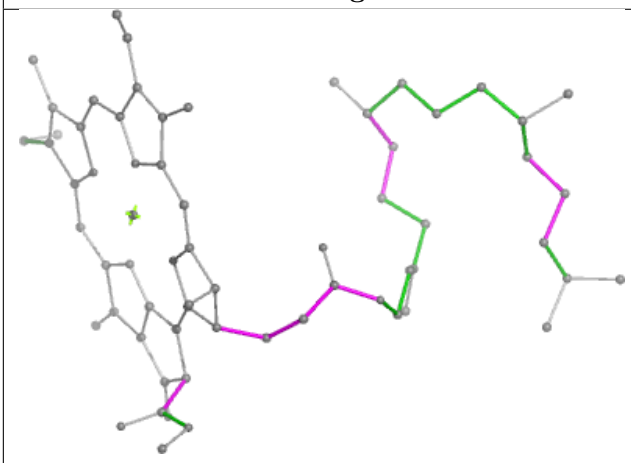
Ligand CLA a 815



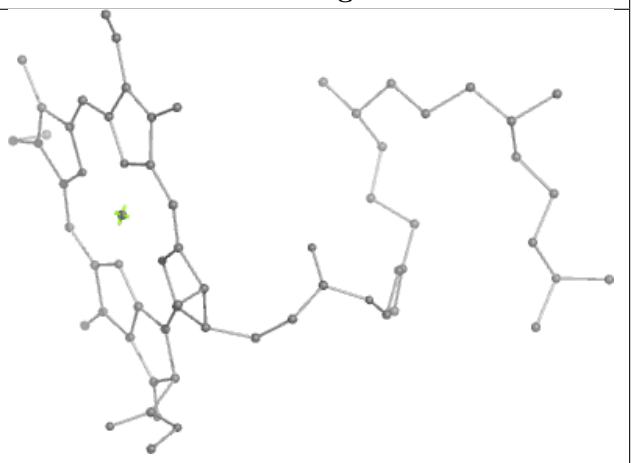
Bond lengths



Bond angles

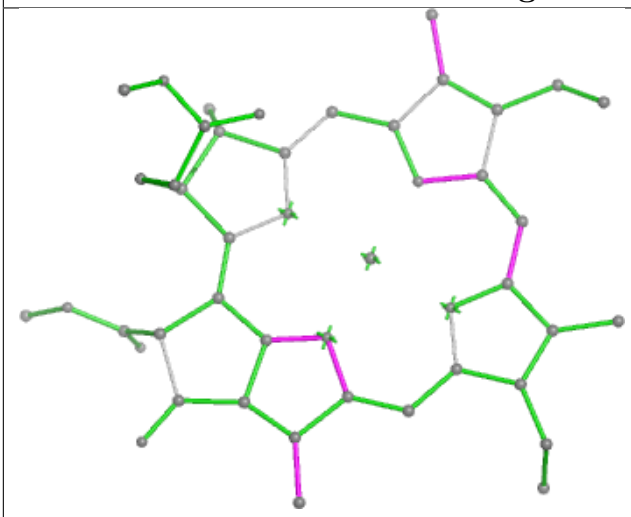


Torsions

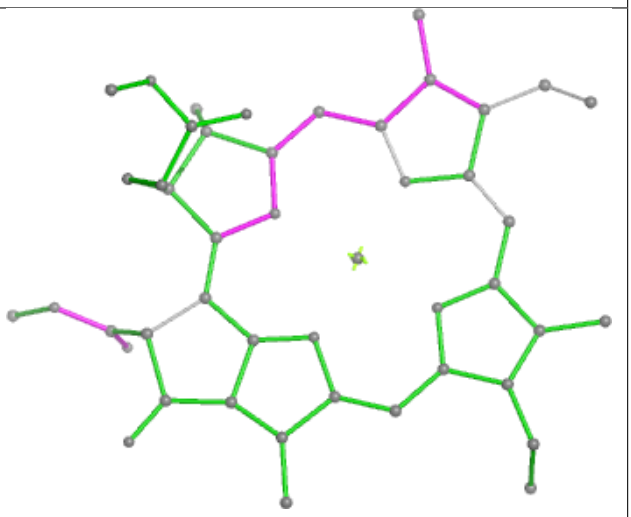


Rings

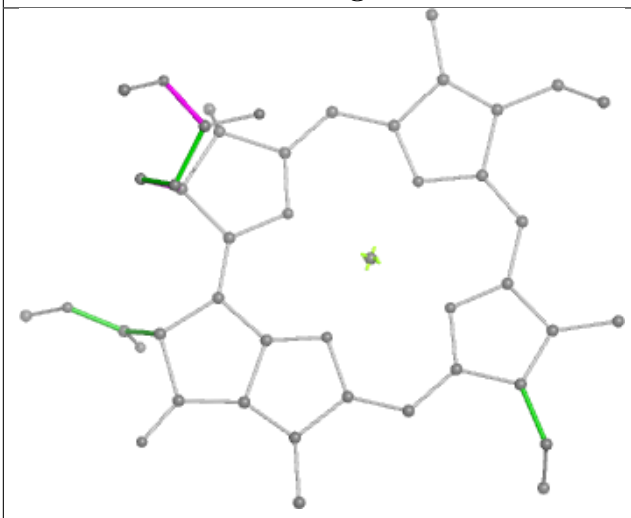
Ligand CLA b 3022



Bond lengths



Bond angles



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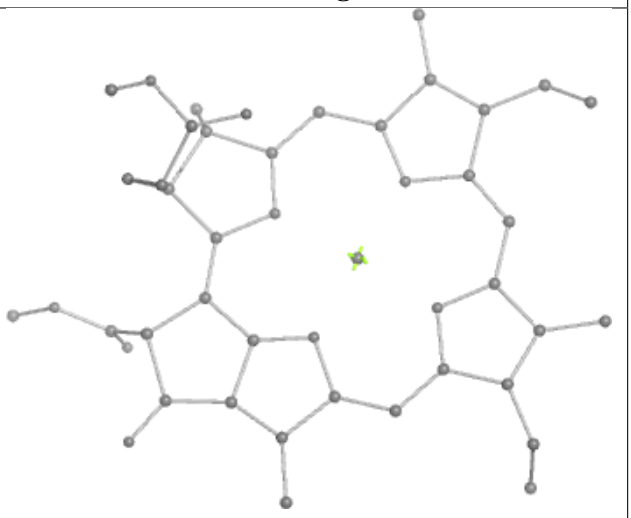
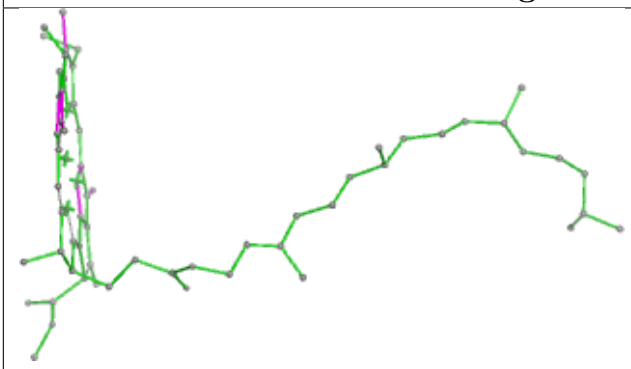
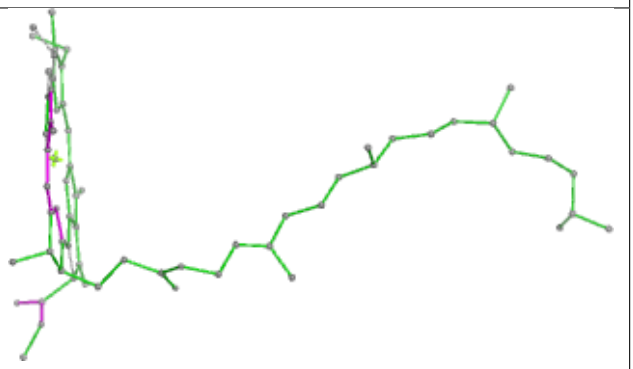


Rings

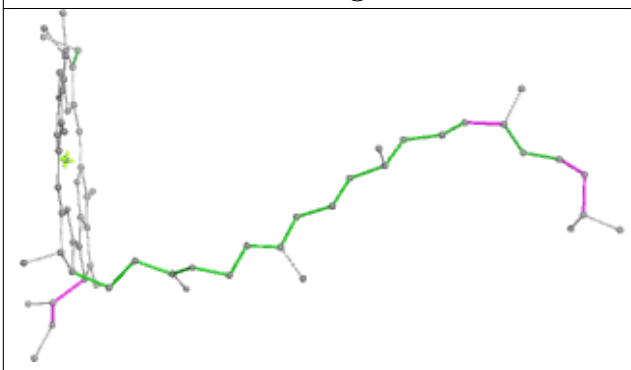
Ligand CLA b 3040



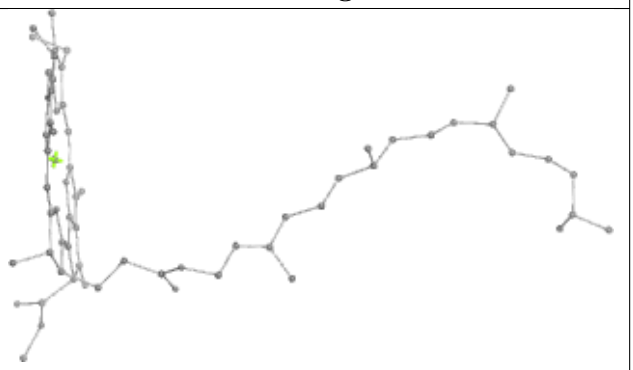
Bond lengths



Bond angles

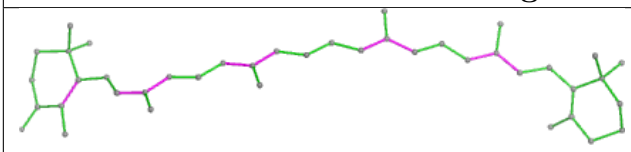


Torsions



Rings

Ligand ECH m 101



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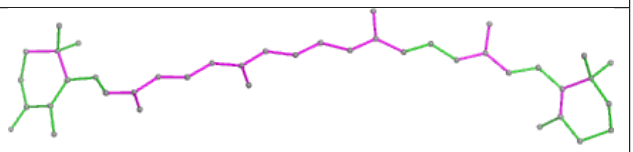
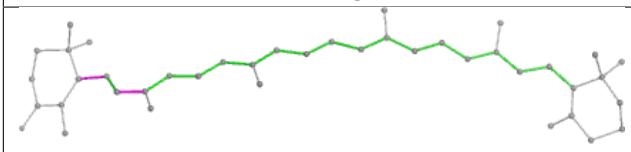


Bond angles



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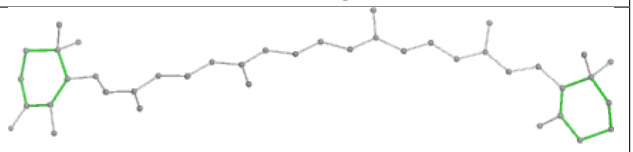
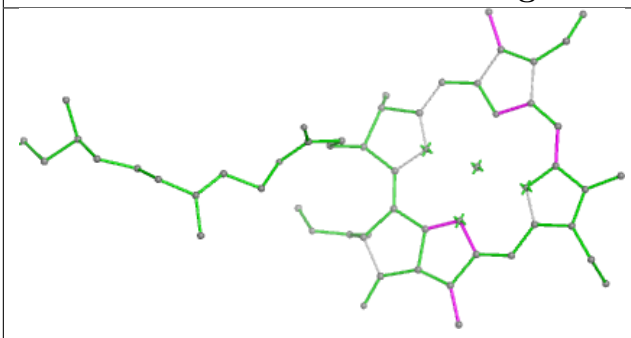
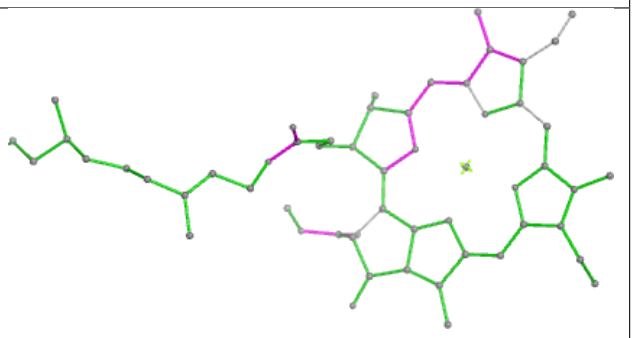


Rings

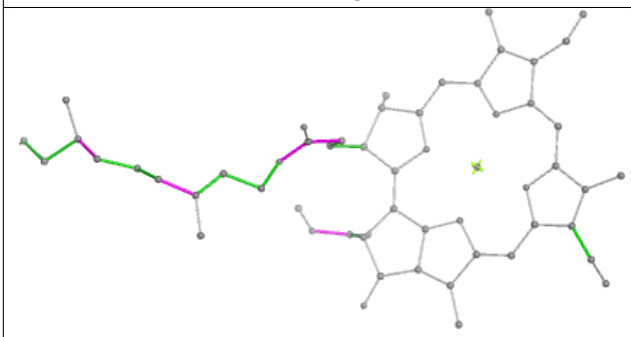
Ligand CLA b 3023



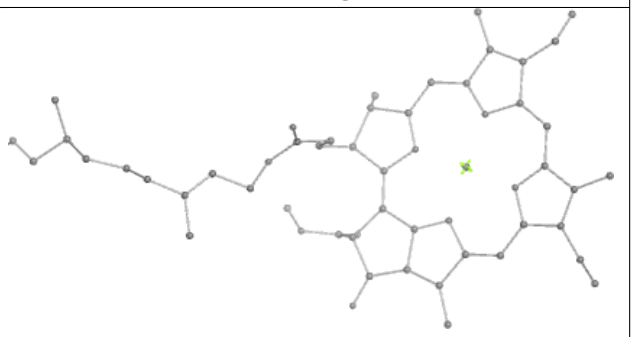
Bond lengths



Bond angles

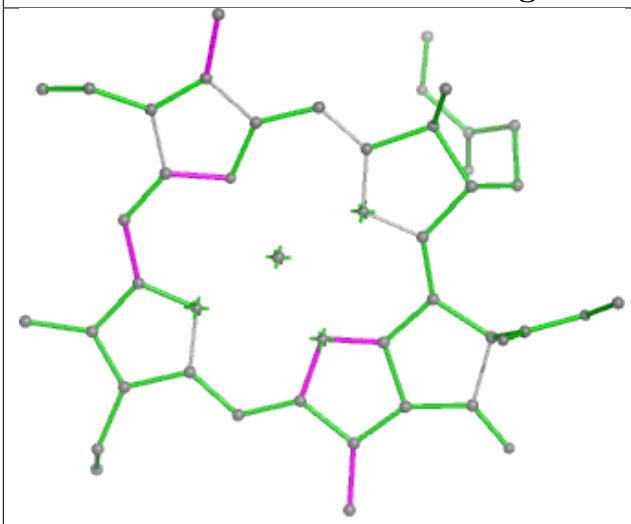


Torsions

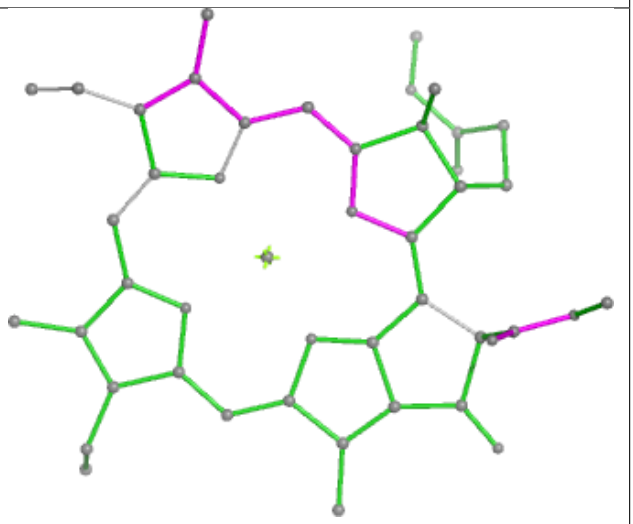


Rings

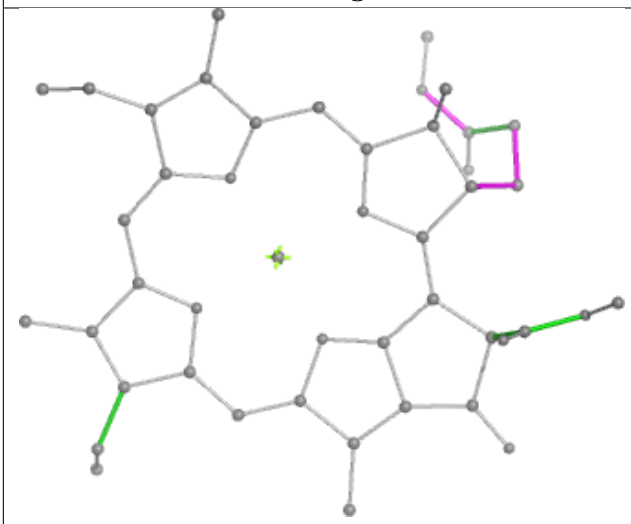
Ligand CLA k 4002



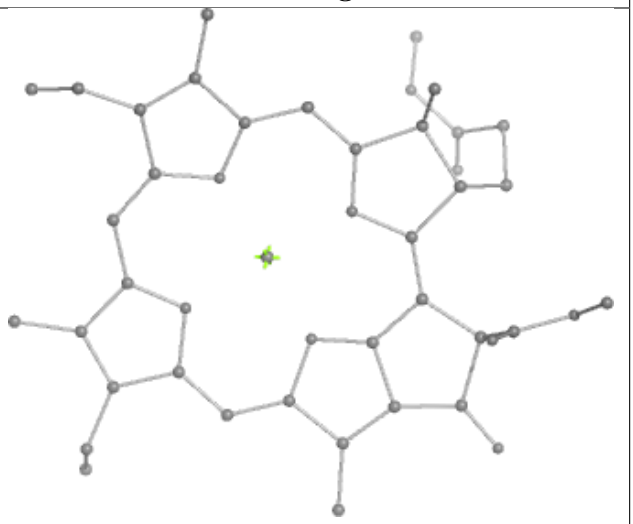
Bond lengths



Bond angles

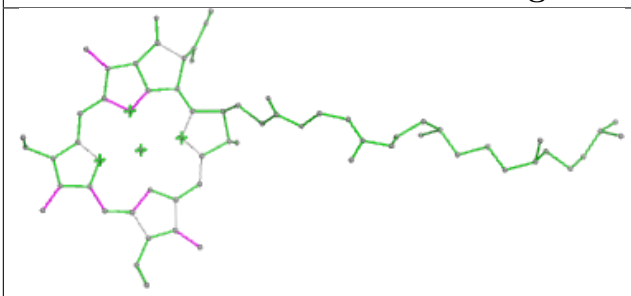


Torsions



Rings

Ligand CLA a 827



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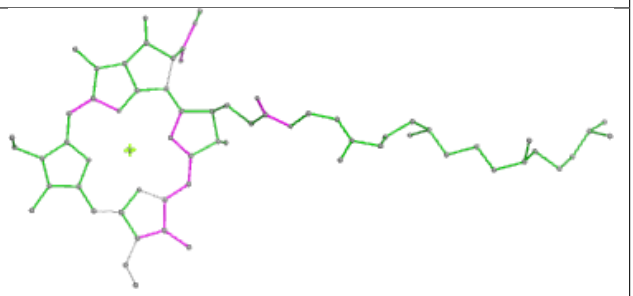
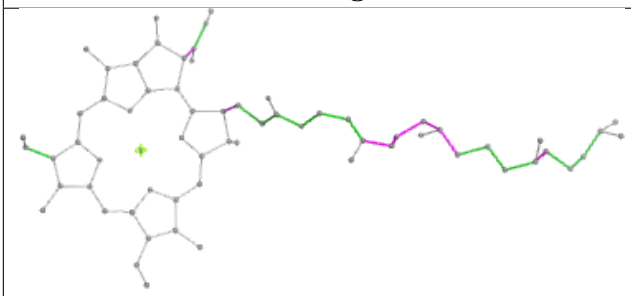
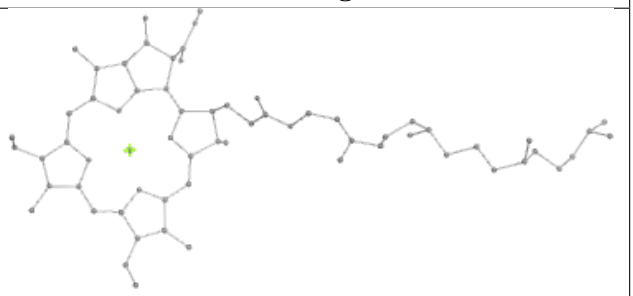


Bond angles

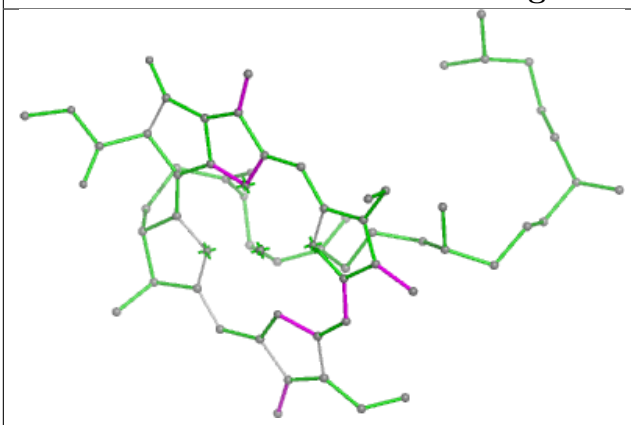


Torsions



Rings

Ligand CLA a 824



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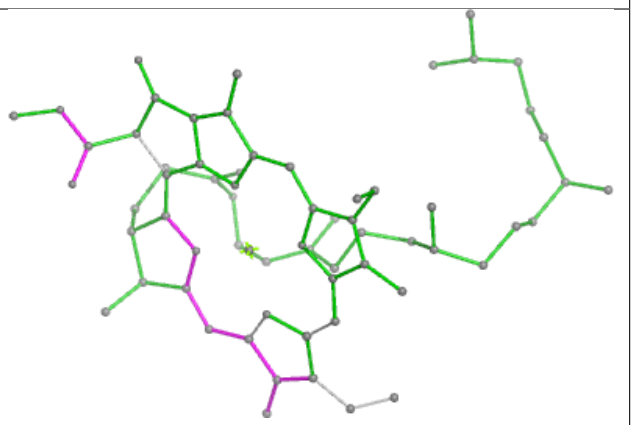
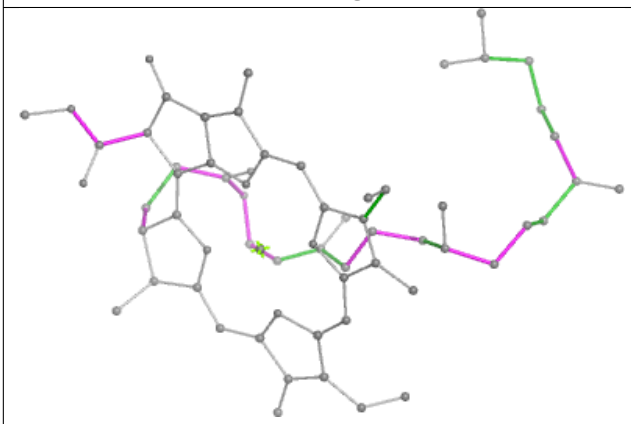
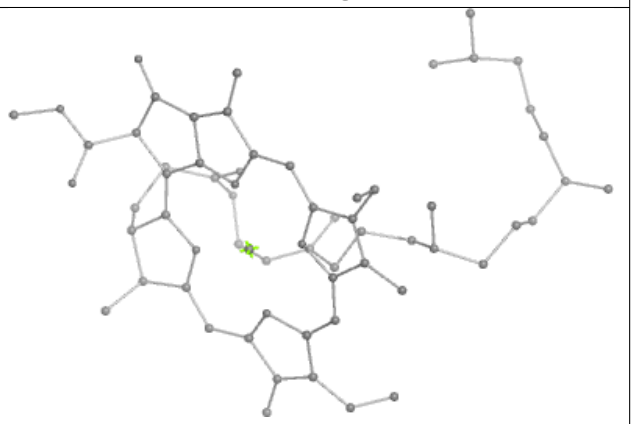


Bond angles

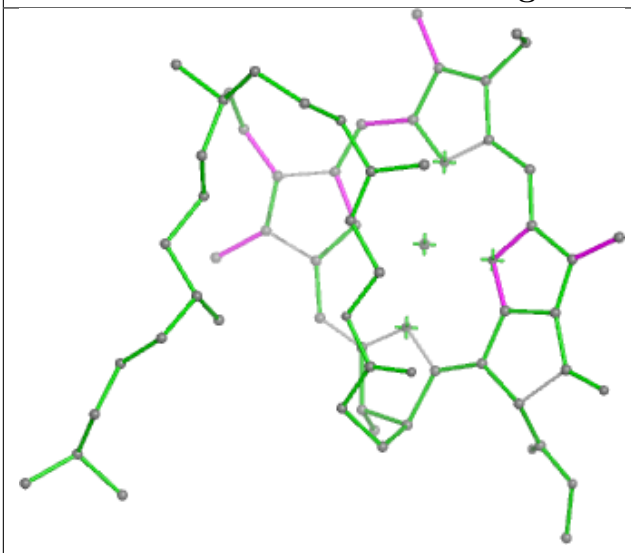


Torsions

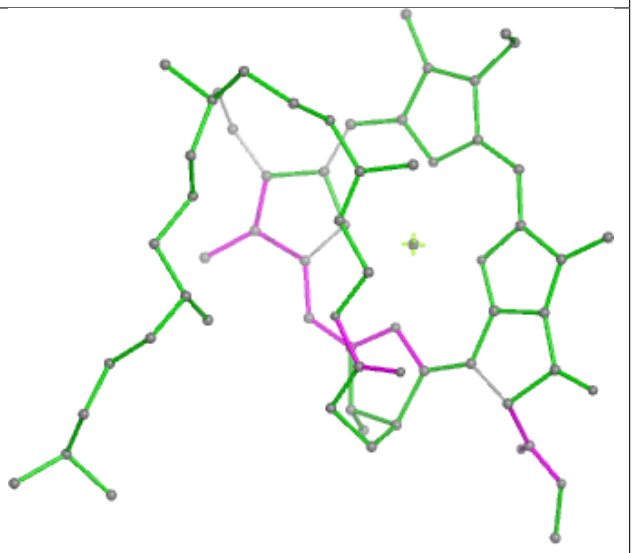


Rings

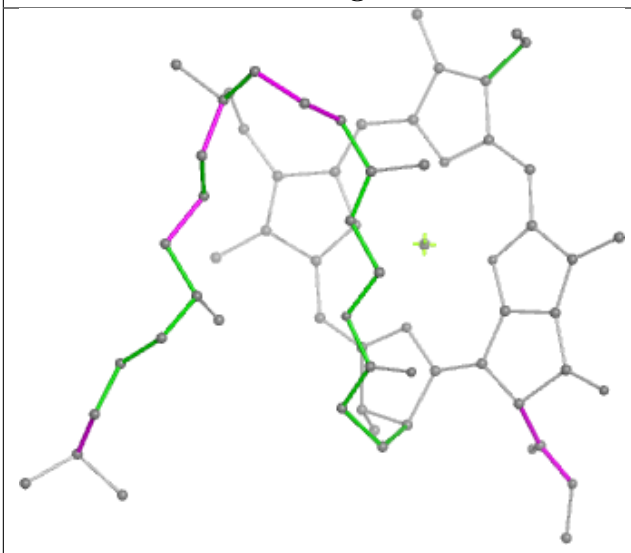
Ligand CLA b 3008



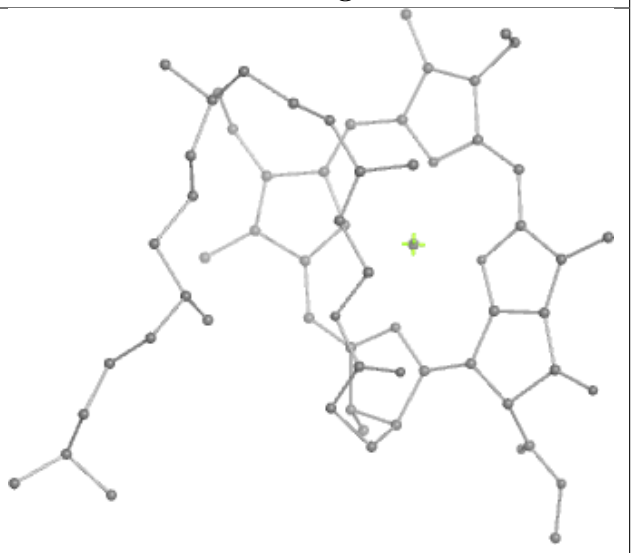
Bond lengths



Bond angles

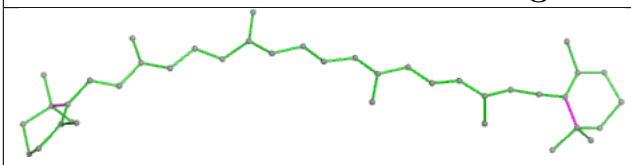


Torsions

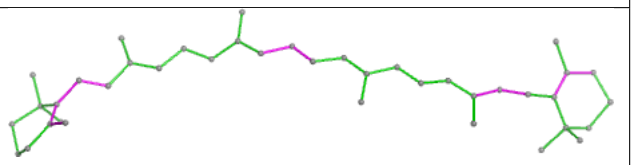


Rings

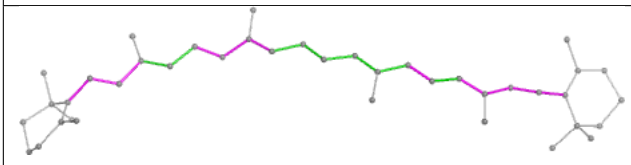
Ligand BCR f 202



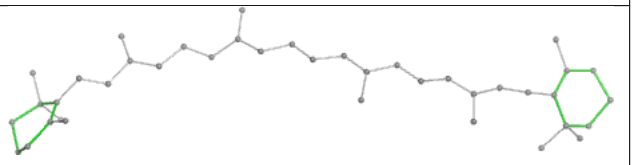
Bond lengths



Bond angles

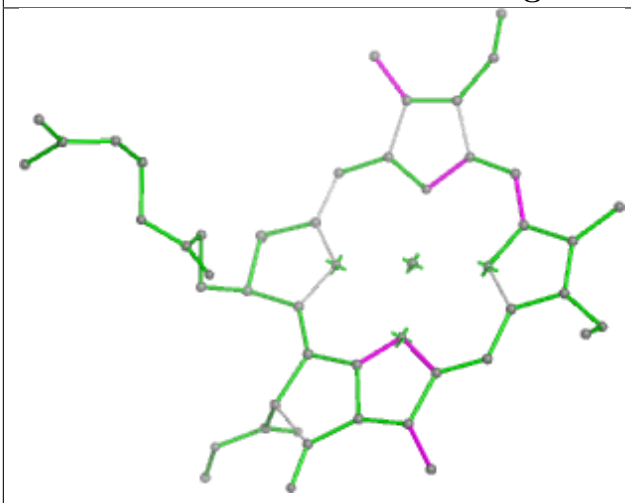


Torsions

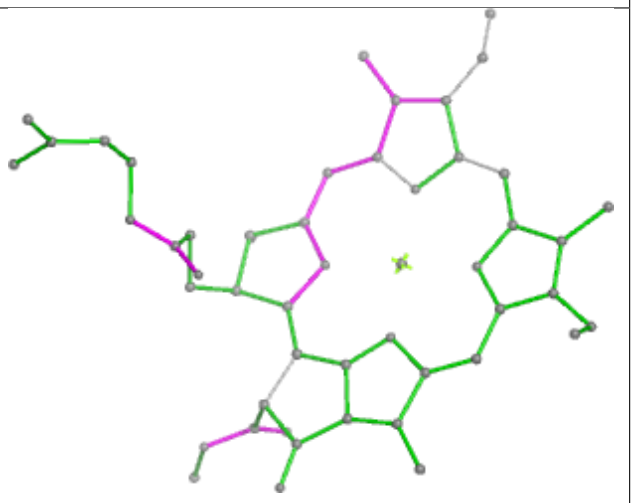


Rings

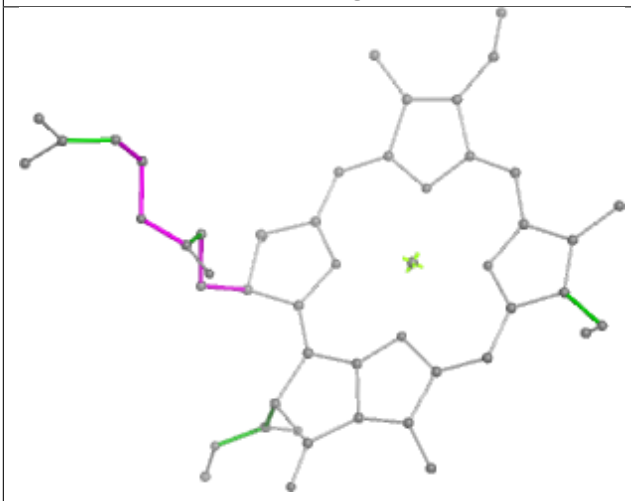
Ligand CLA A 405



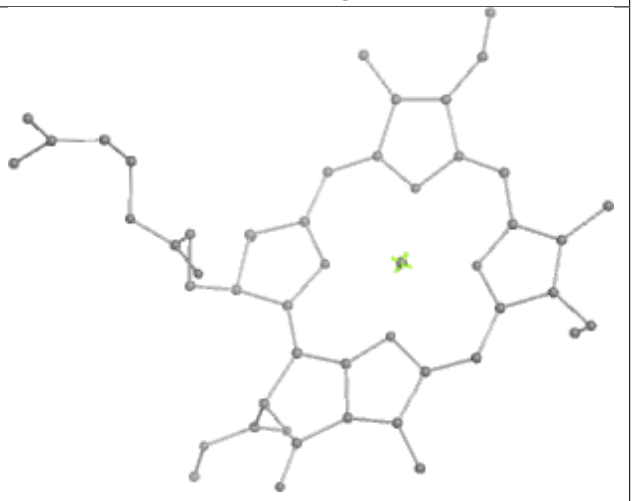
Bond lengths



Bond angles

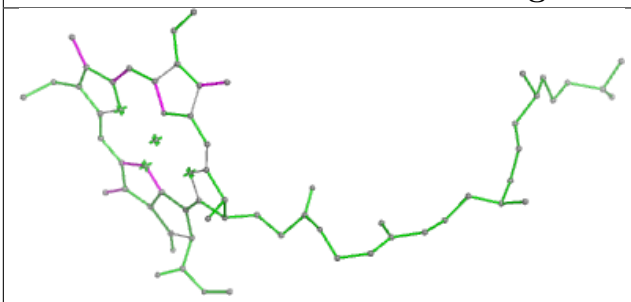


Torsions

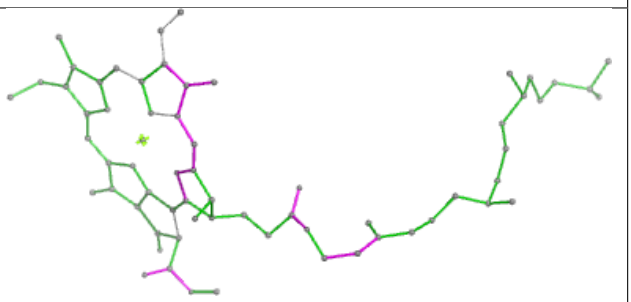


Rings

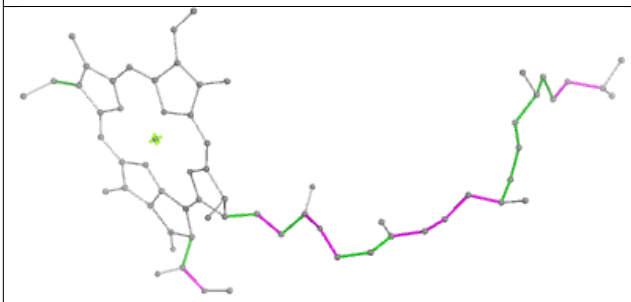
Ligand CLA a 802



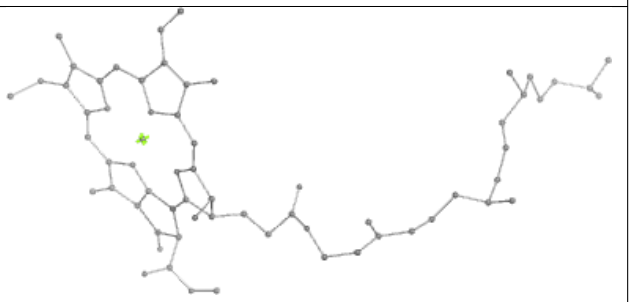
Bond lengths



Bond angles

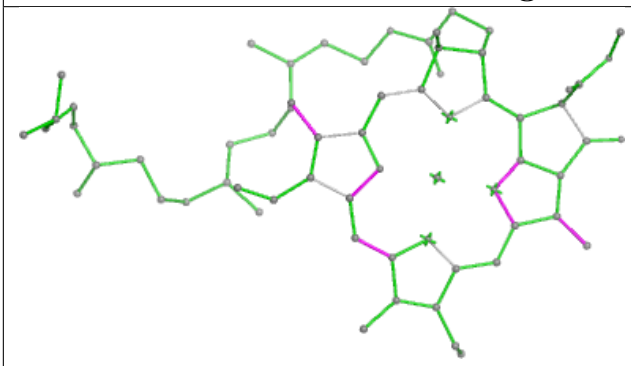


Torsions

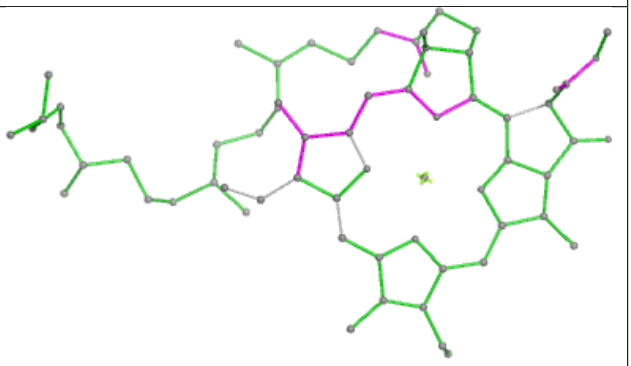


Rings

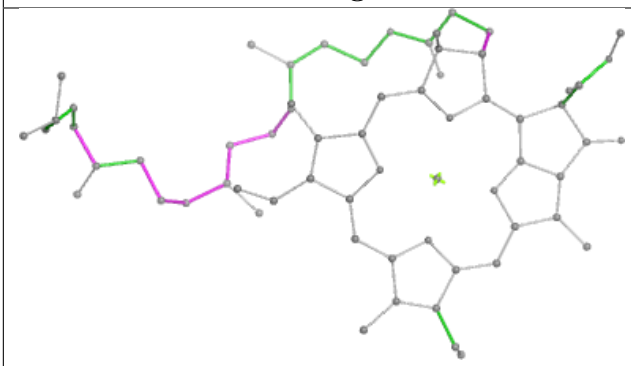
Ligand CLA b 3018



Bond lengths



Bond angles



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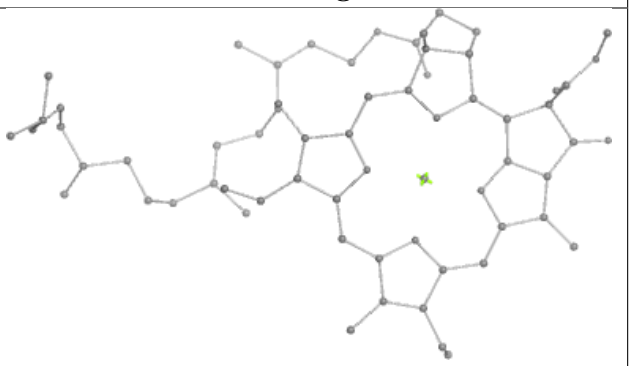
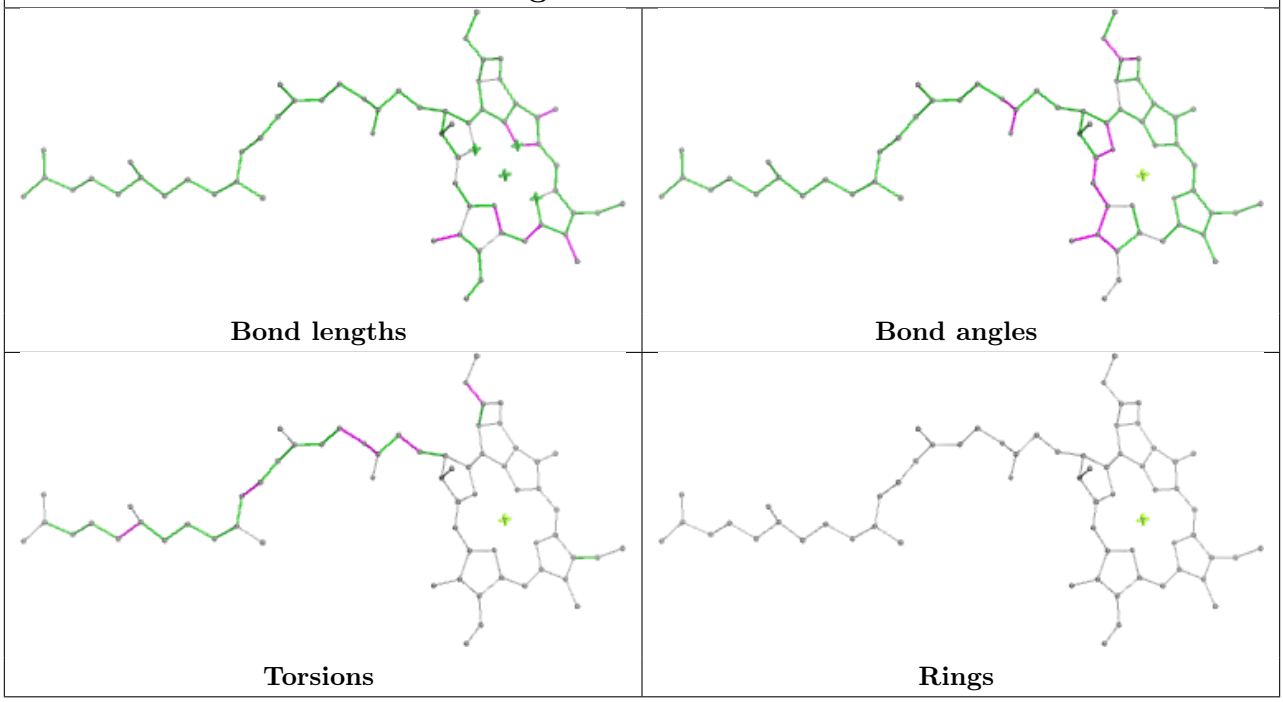
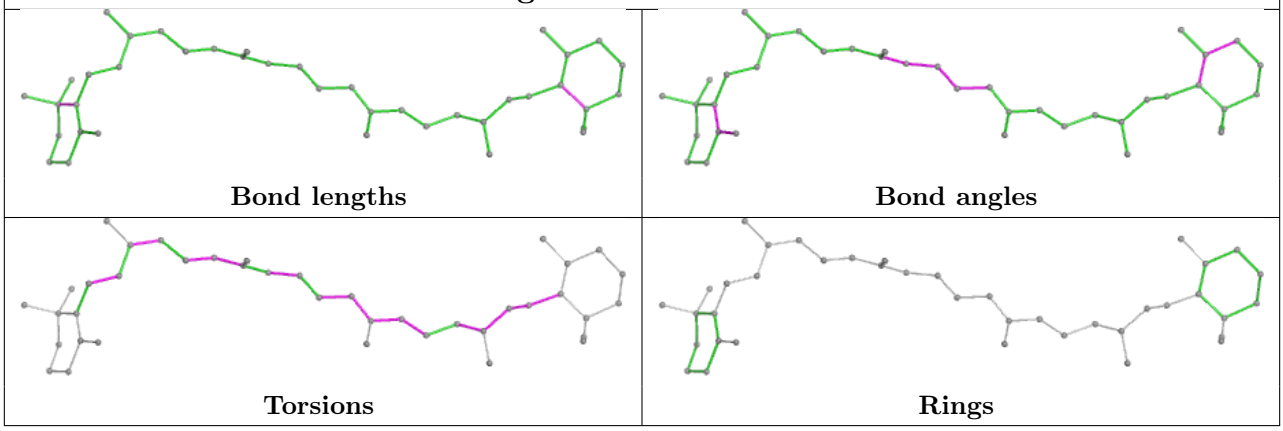


Rings

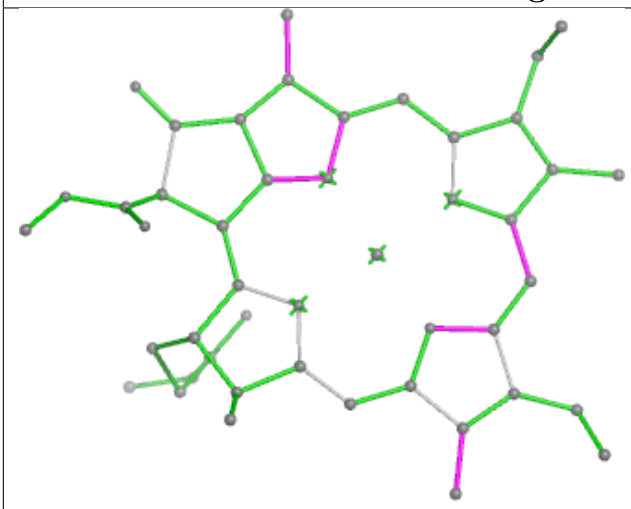
Ligand CLA a 855



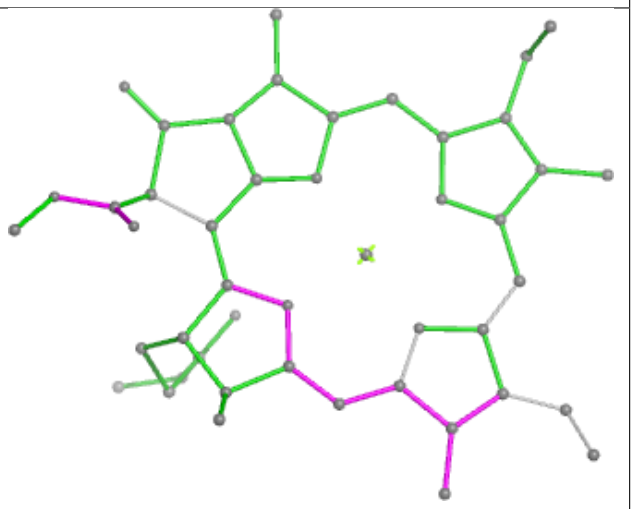
Ligand BCR b 3048



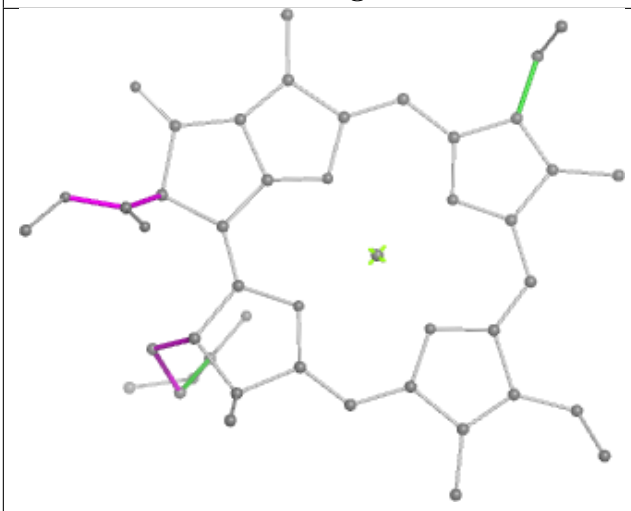
Ligand CLA a 817



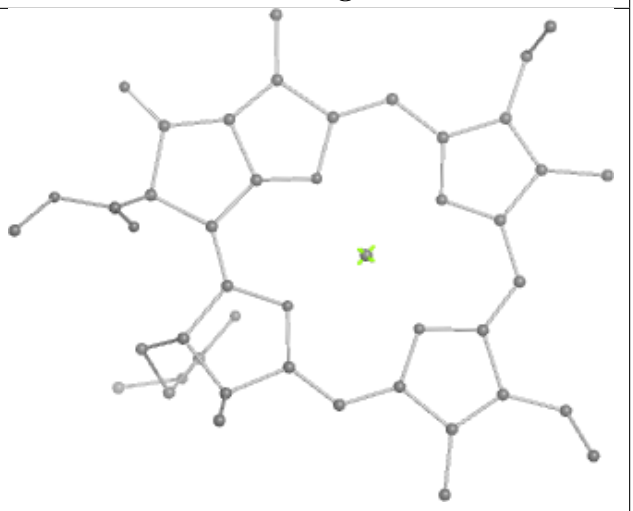
Bond lengths



Bond angles

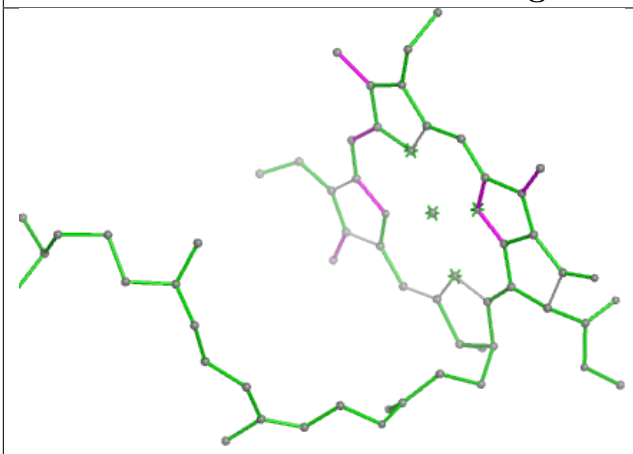


Torsions

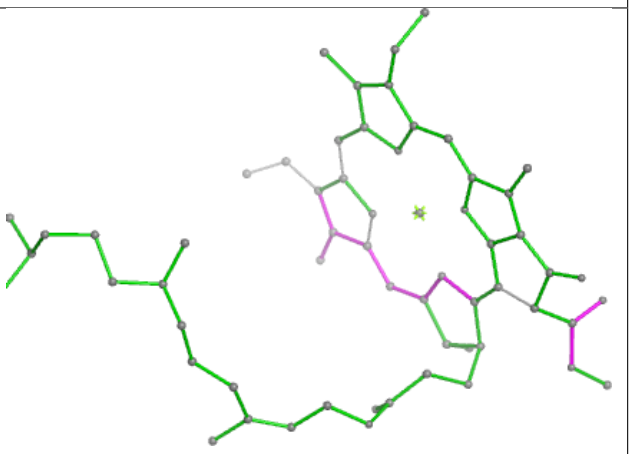


Rings

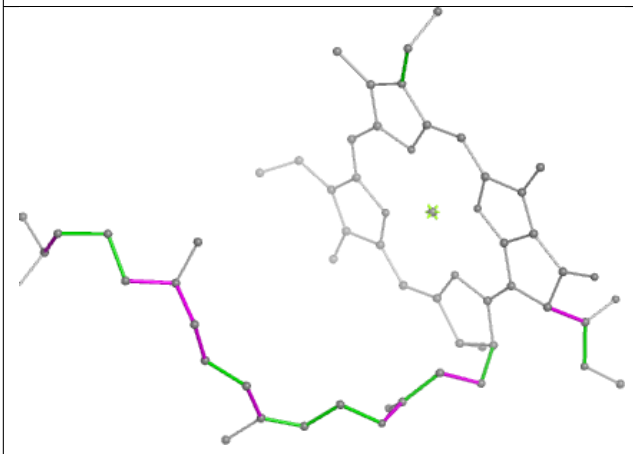
Ligand CLA a 825



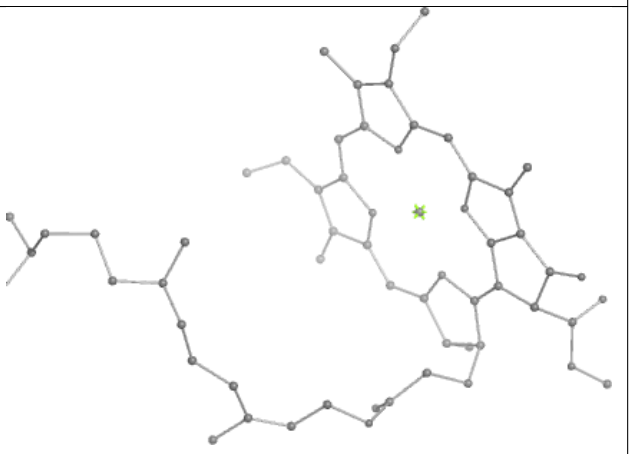
Bond lengths



Bond angles

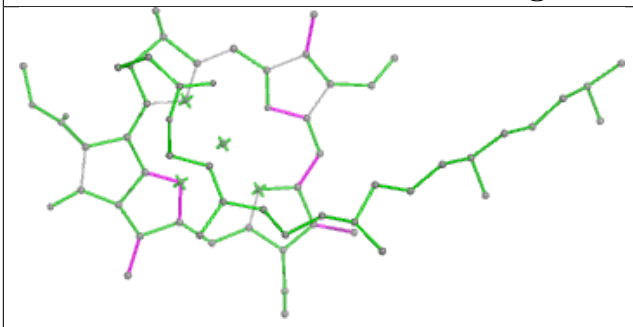


Torsions

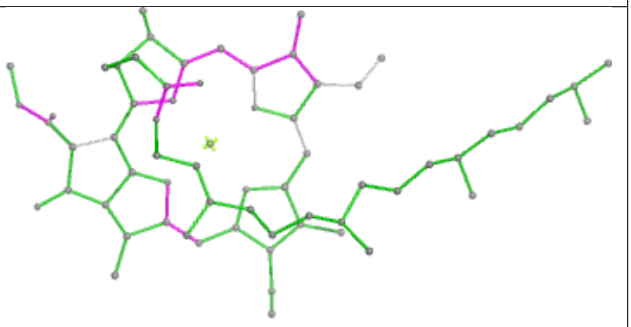


Rings

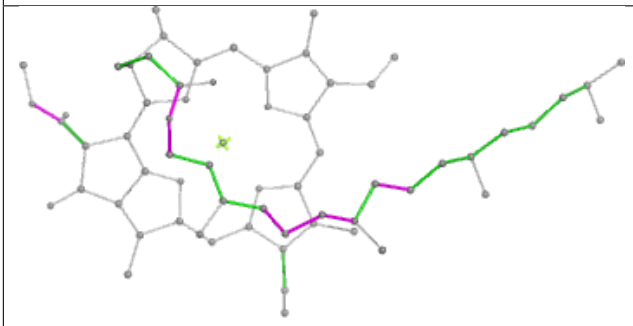
Ligand CLA a 841



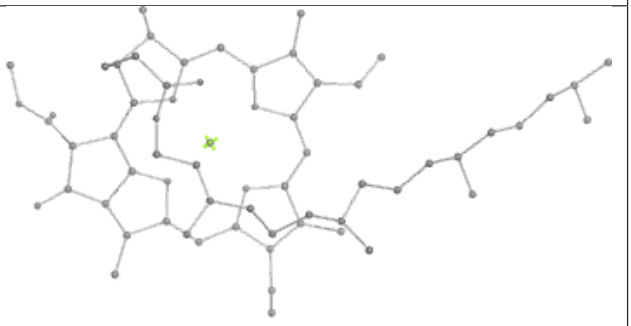
Bond lengths



Bond angles

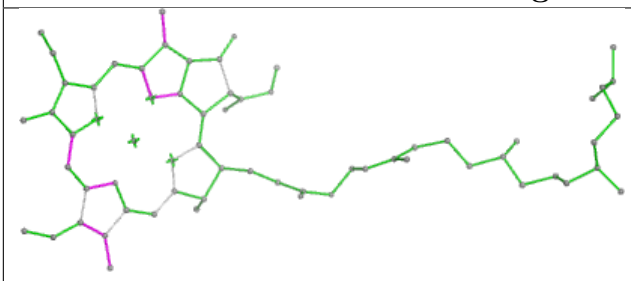


Torsions

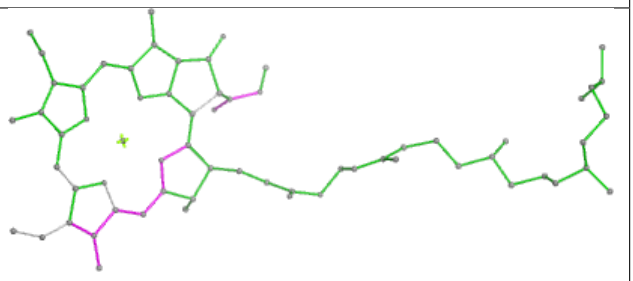


Rings

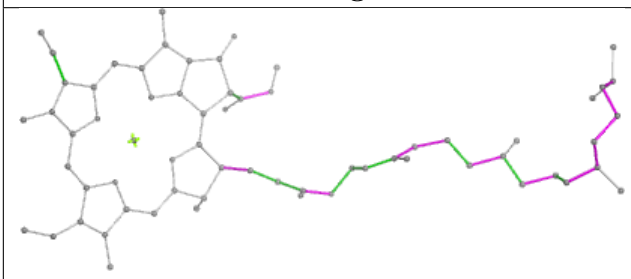
Ligand CLA f 201



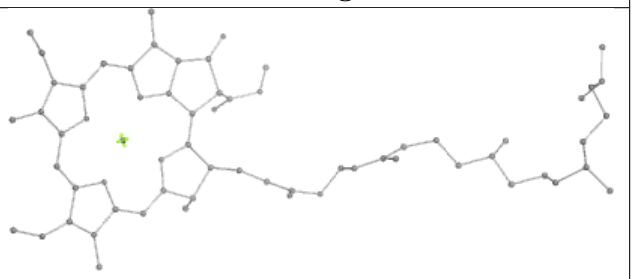
Bond lengths



Bond angles

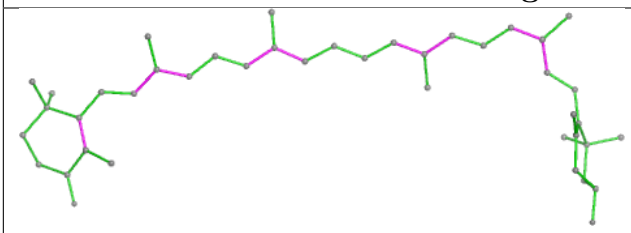


Torsions

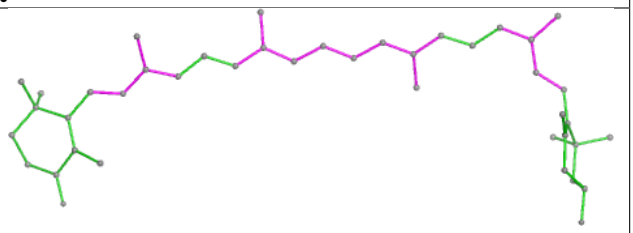


Rings

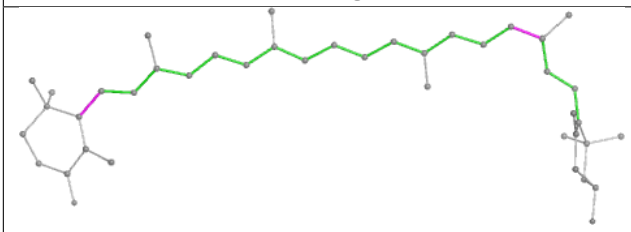
Ligand EQ3 b 3052



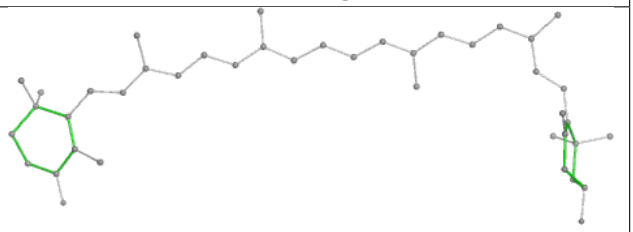
Bond lengths



Bond angles

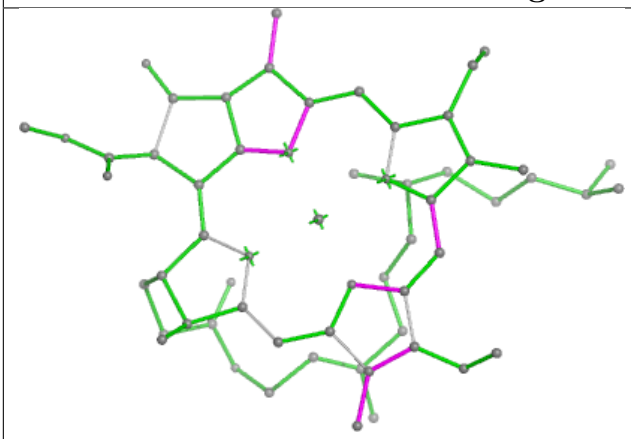


Torsions

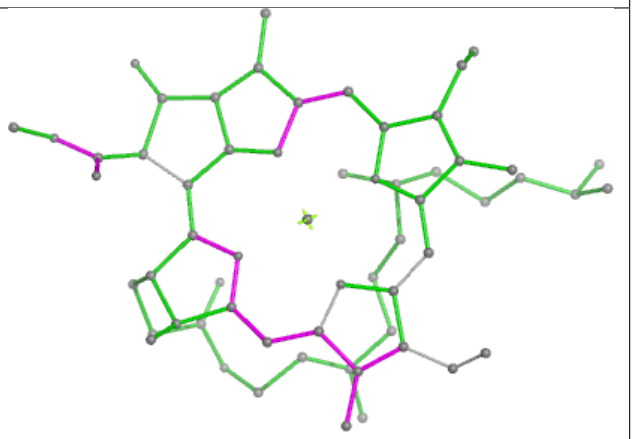


Rings

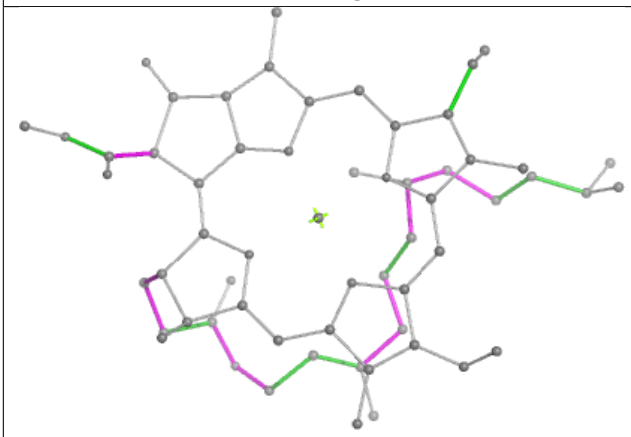
Ligand CLA a 813



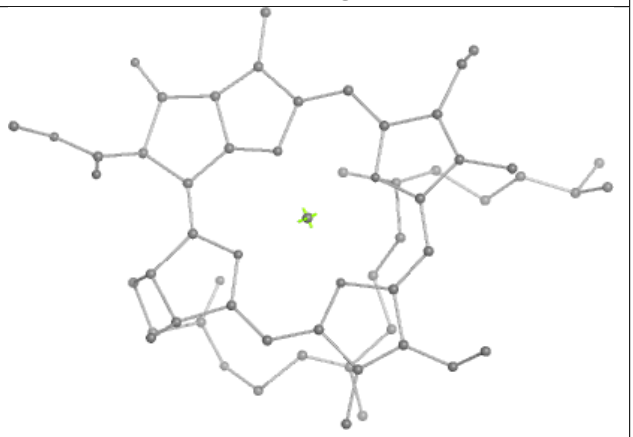
Bond lengths



Bond angles

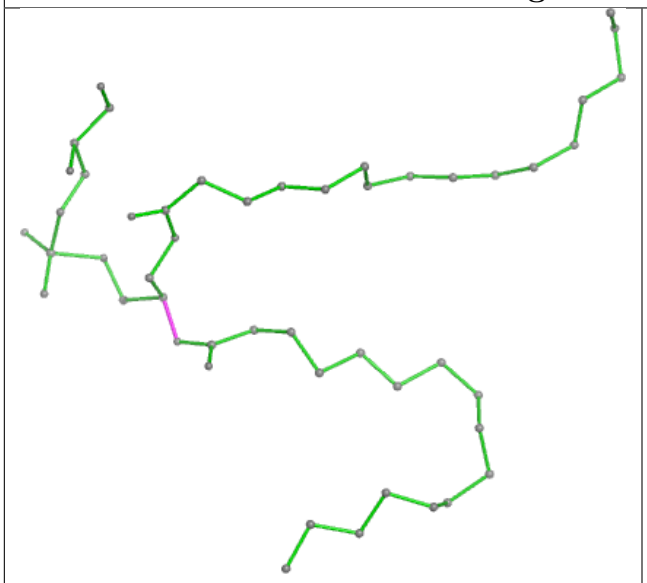


Torsions

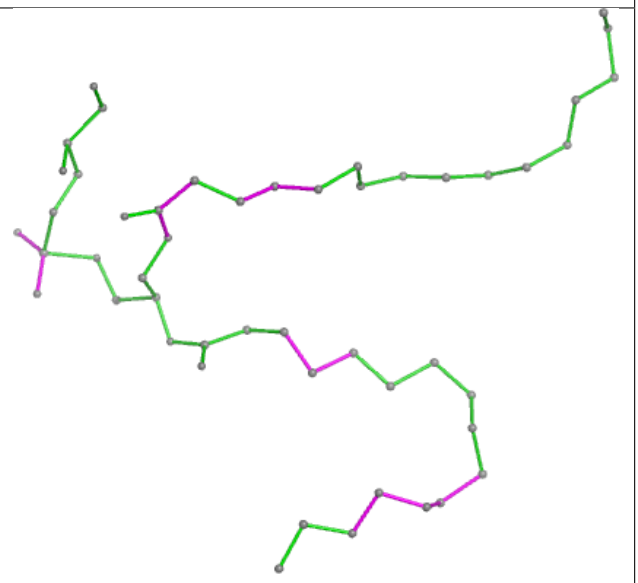


Rings

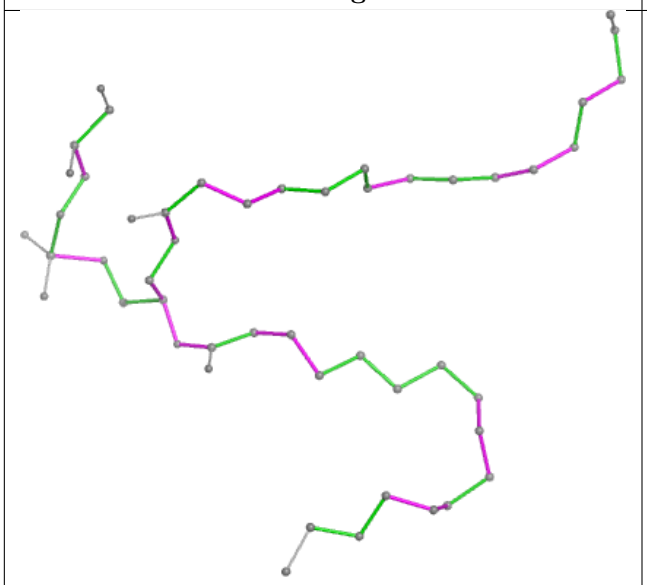
Ligand LHG a 854



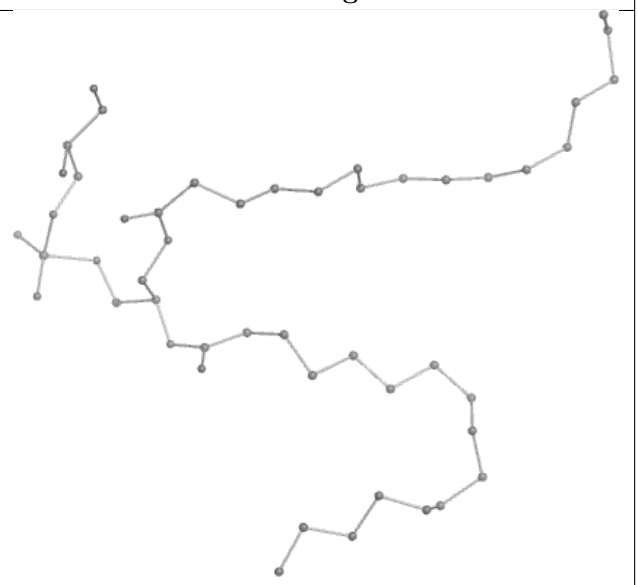
Bond lengths



Bond angles

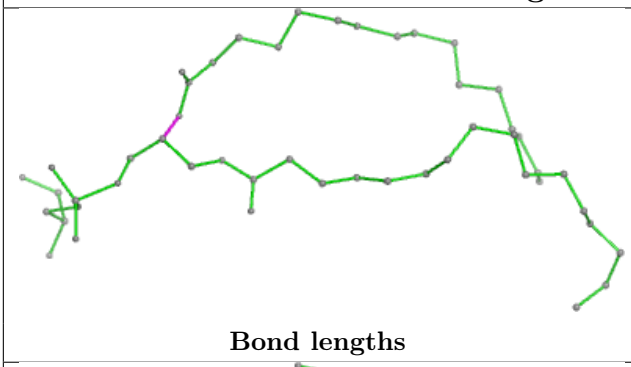


Torsions

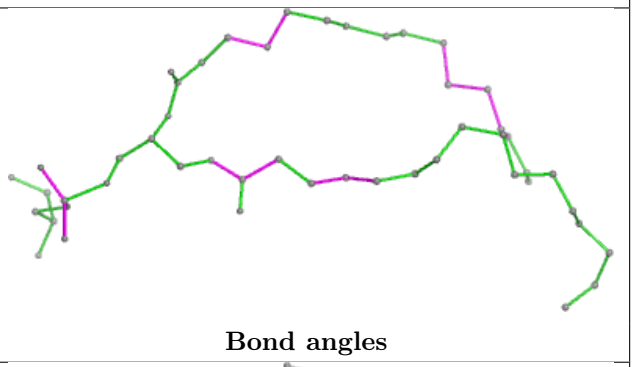


Rings

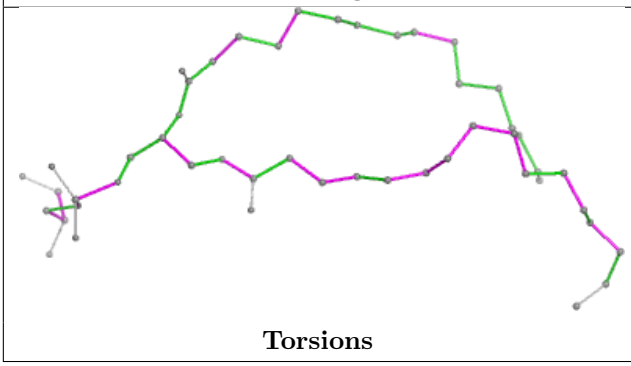
Ligand LHG a 852



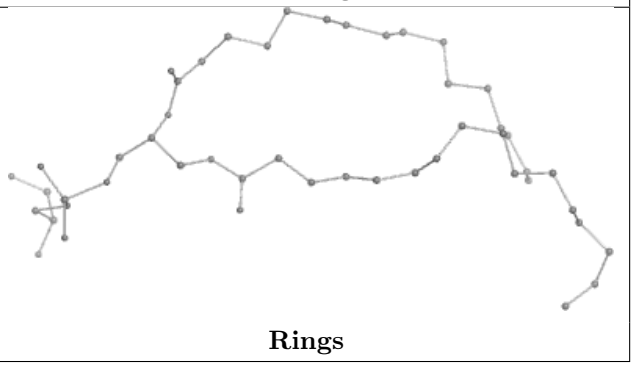
Bond lengths



Bond angles

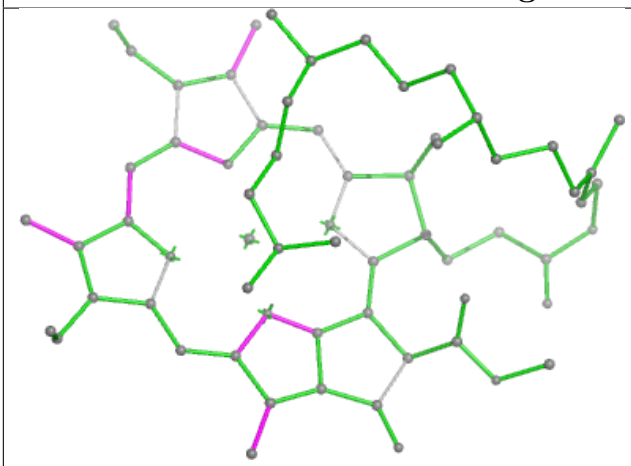


Torsions

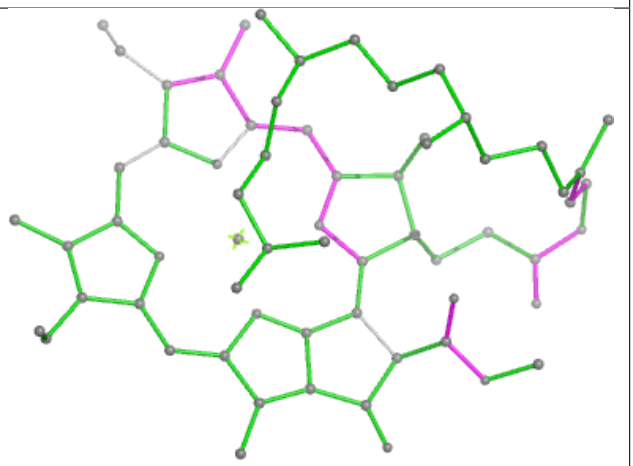


Rings

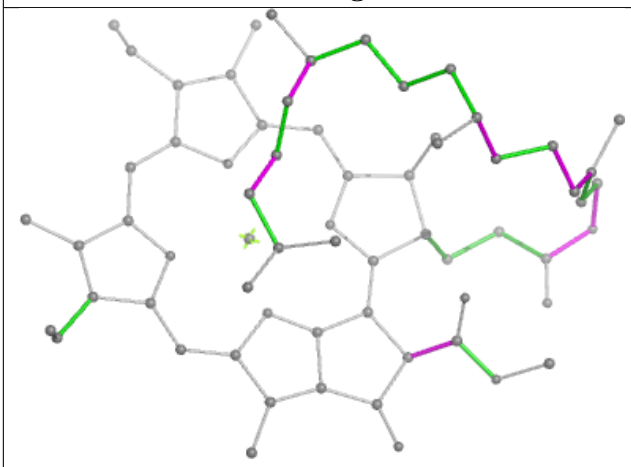
Ligand CLA b 3006



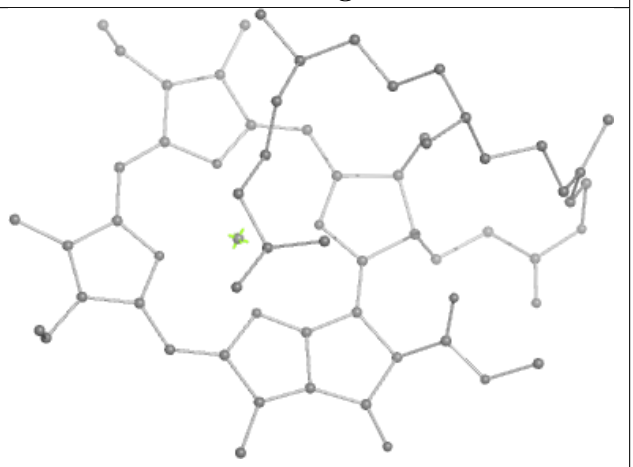
Bond lengths



Bond angles

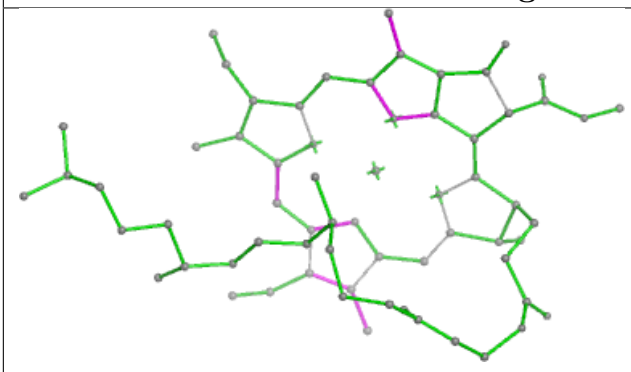


Torsions

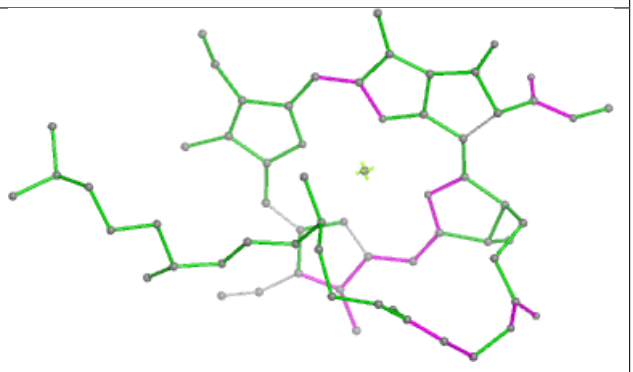


Rings

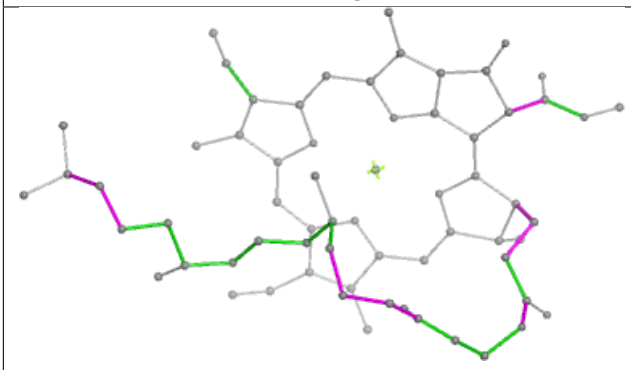
Ligand CLA b 3017



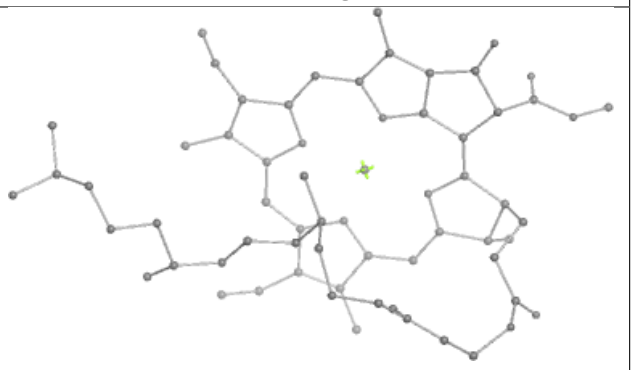
Bond lengths



Bond angles

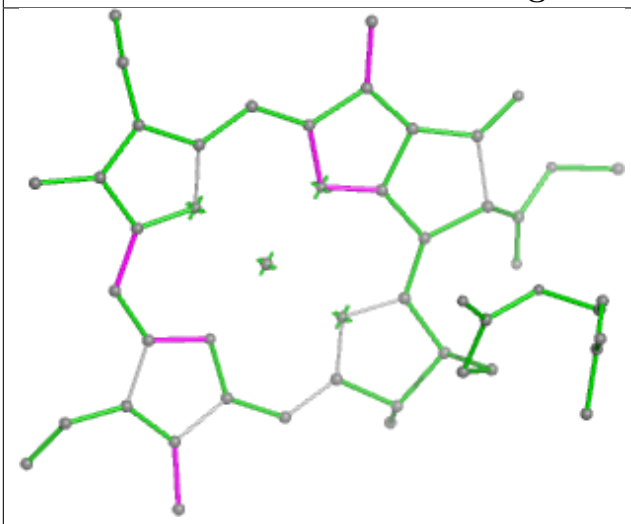


Torsions

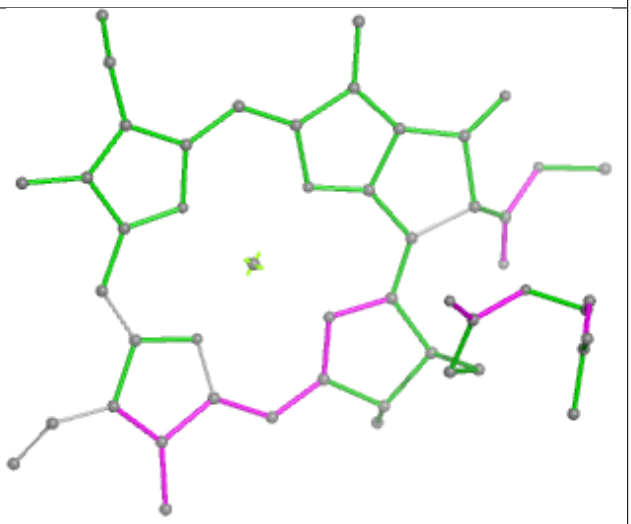


Rings

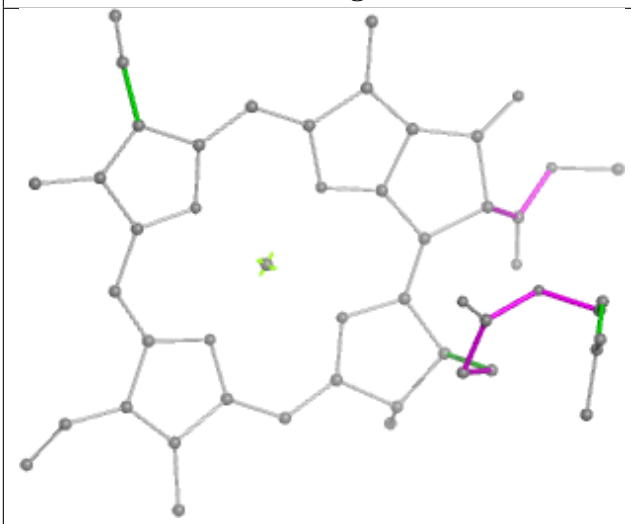
Ligand CLA a 811



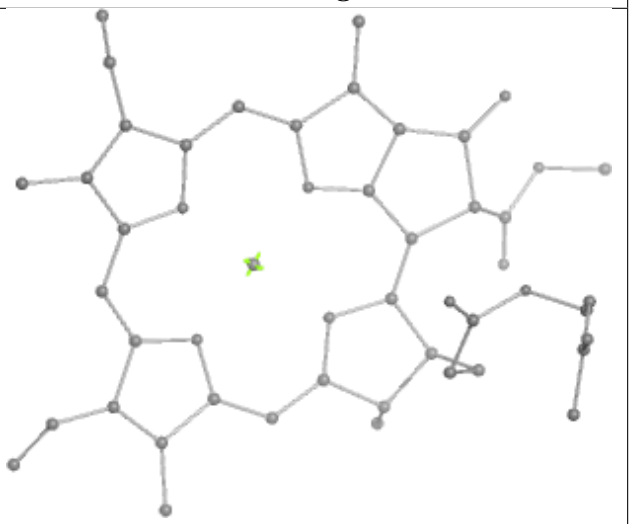
Bond lengths



Bond angles

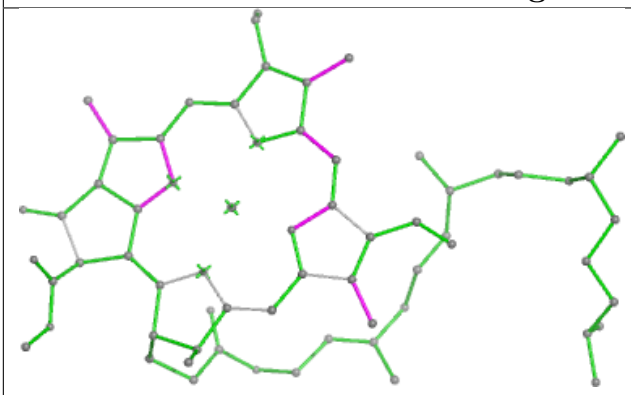


Torsions

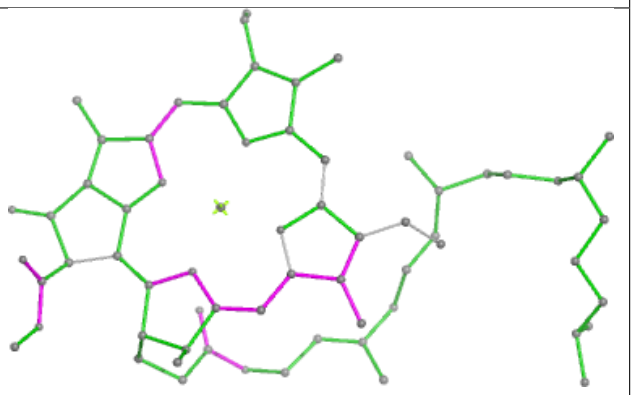


Rings

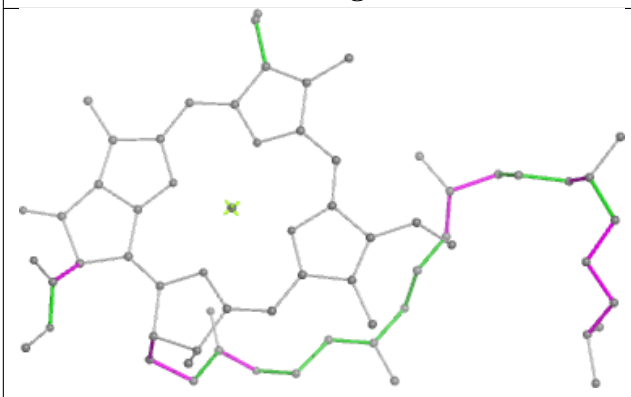
Ligand CLA a 820



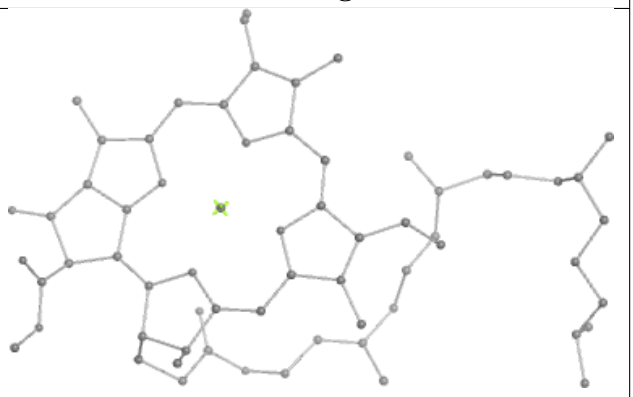
Bond lengths



Bond angles

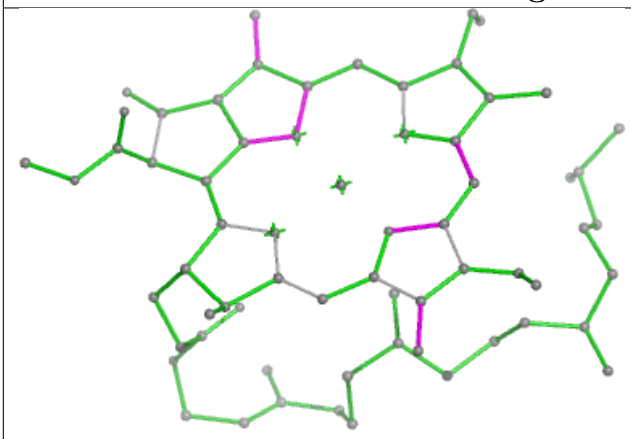


Torsions

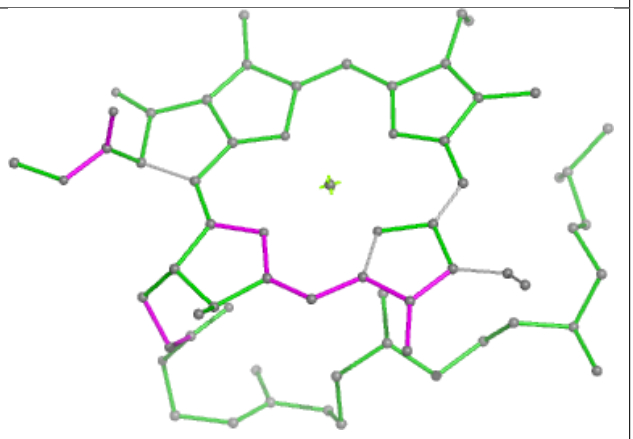


Rings

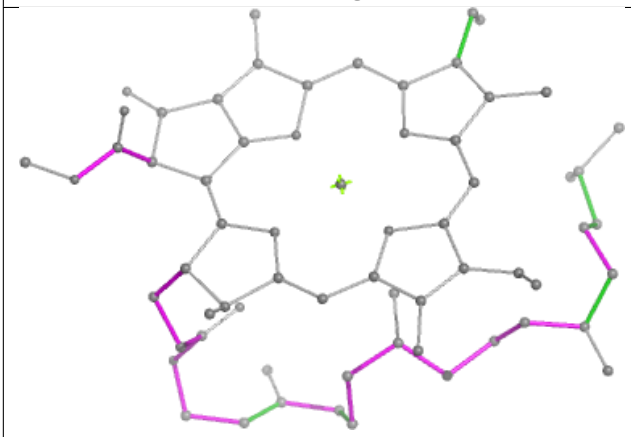
Ligand CLA a 821



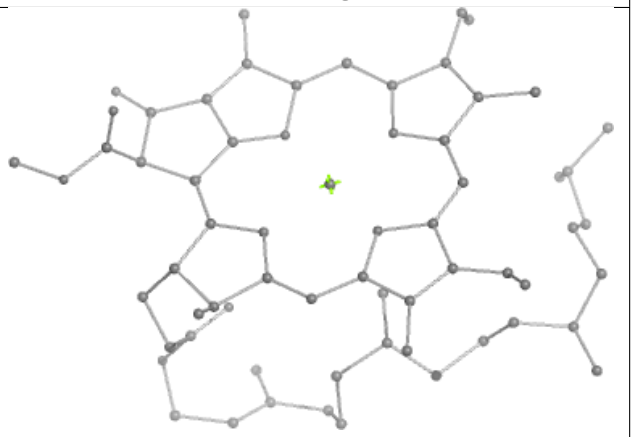
Bond lengths



Bond angles

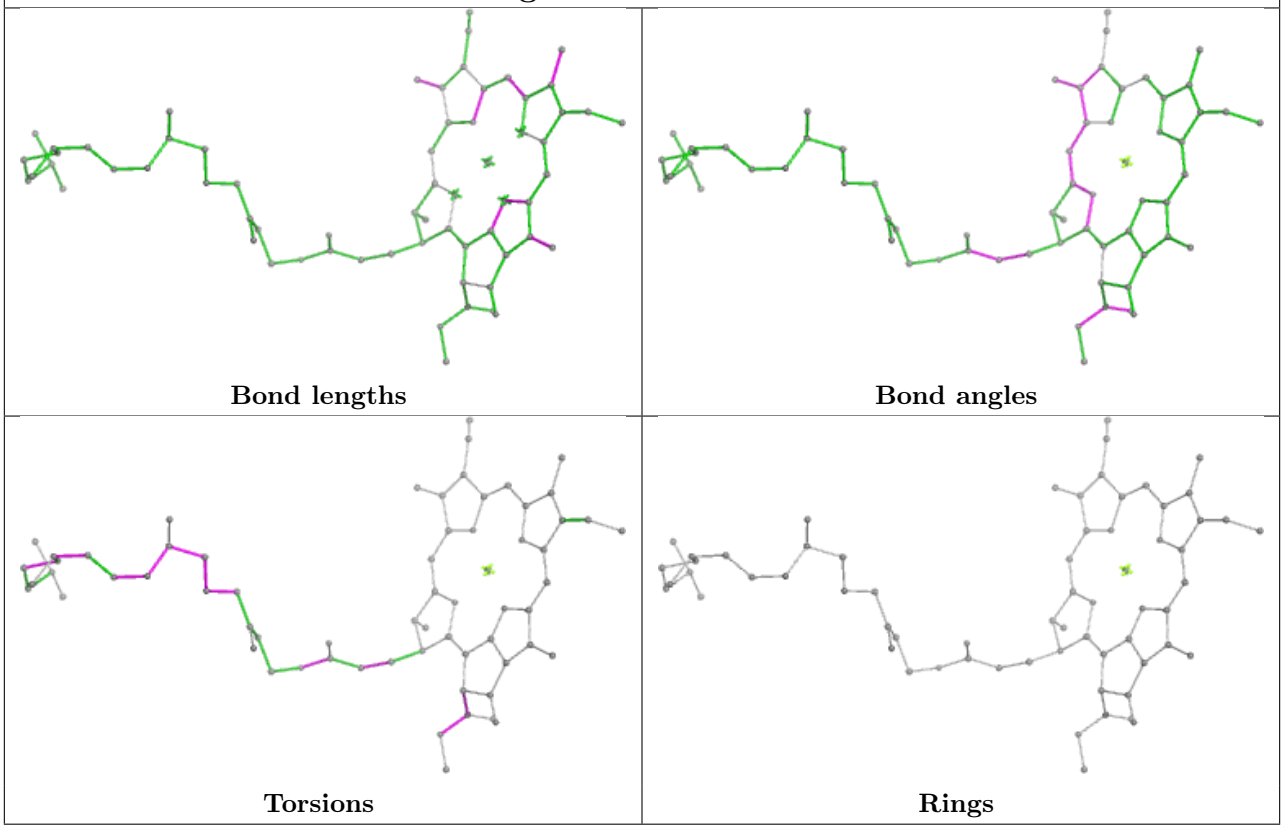


Torsions



Rings

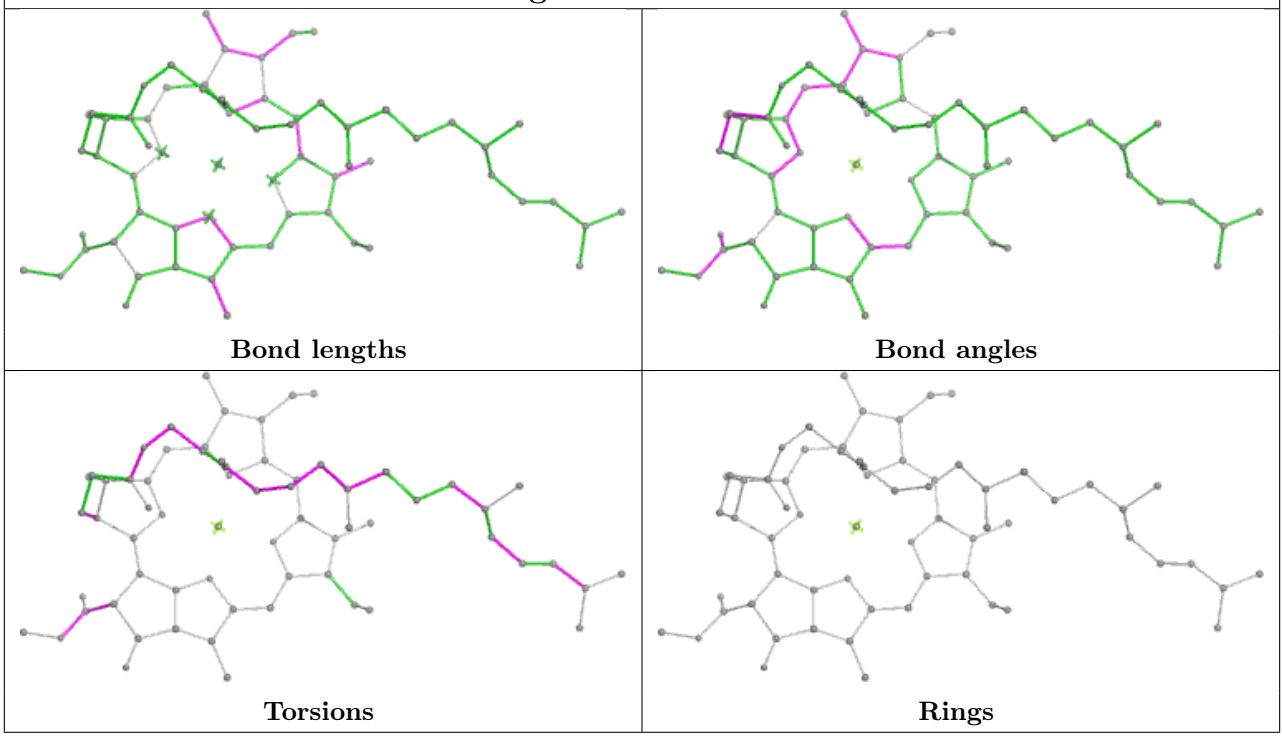
Ligand CLA b 3009



Bond lengths | Bond angles

Torsions | Rings

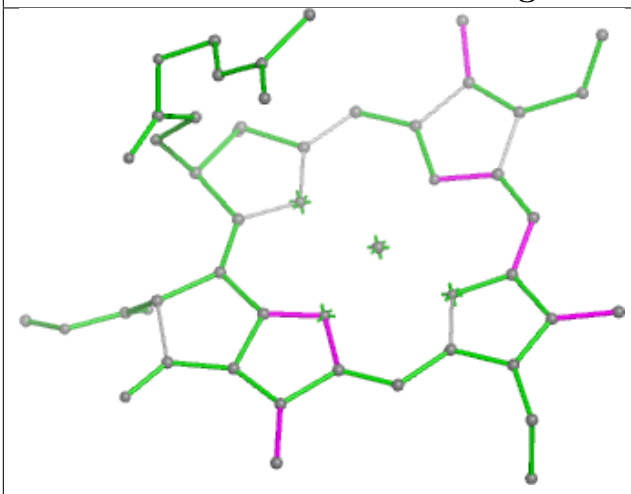
Ligand CLA a 819



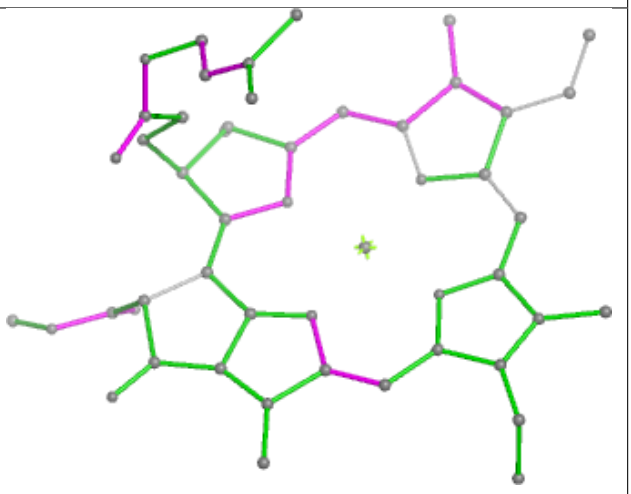
Bond lengths | Bond angles

Torsions | Rings

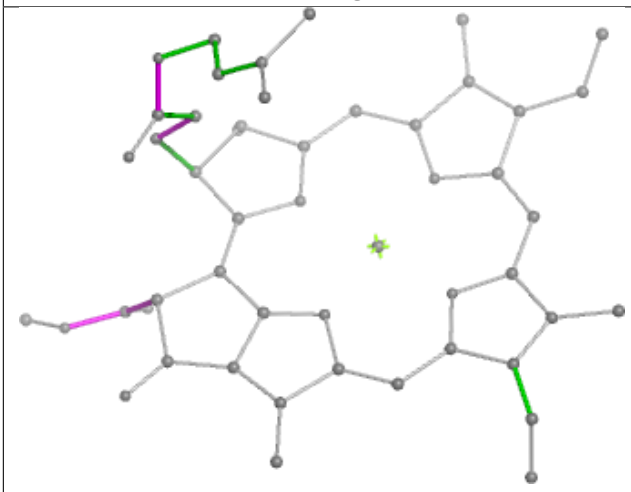
Ligand CLA b 3031



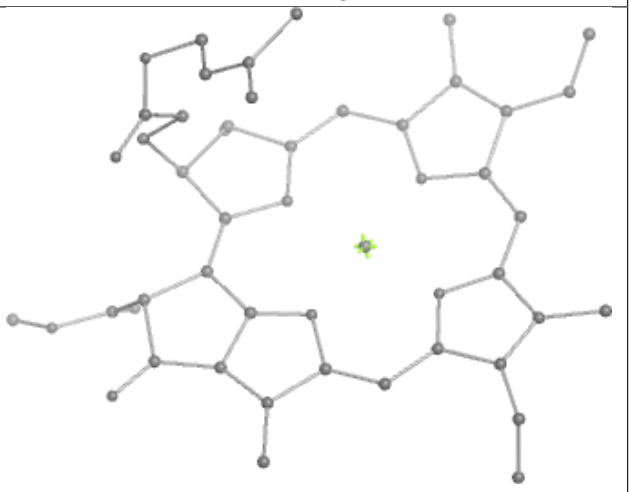
Bond lengths



Bond angles

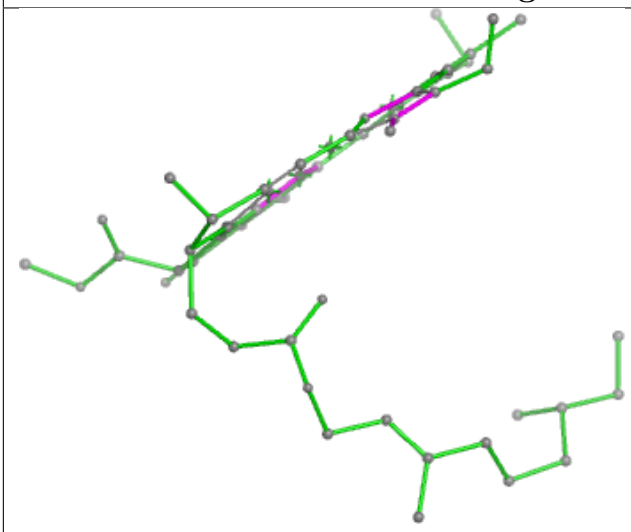


Torsions

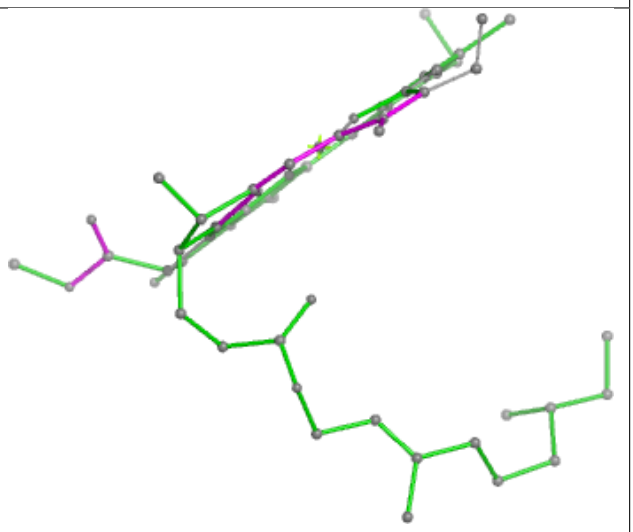


Rings

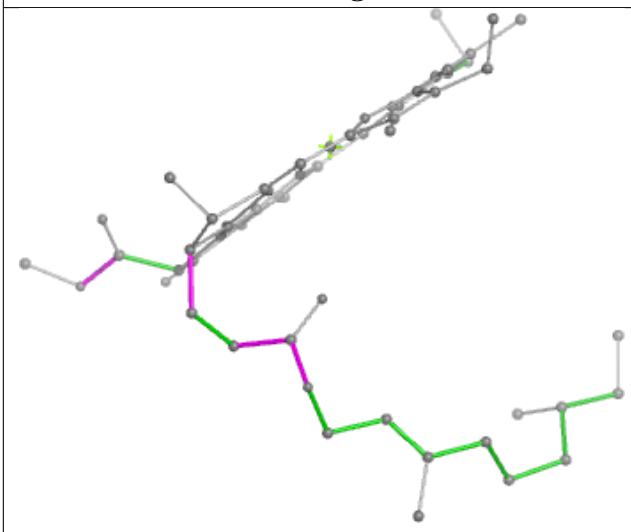
Ligand CLA b 3011



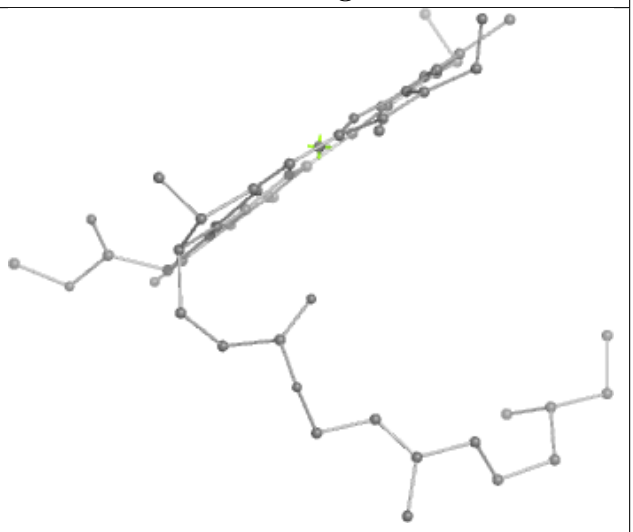
Bond lengths



Bond angles

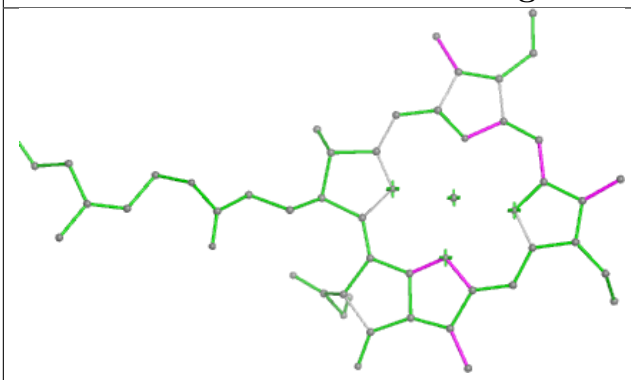


Torsions

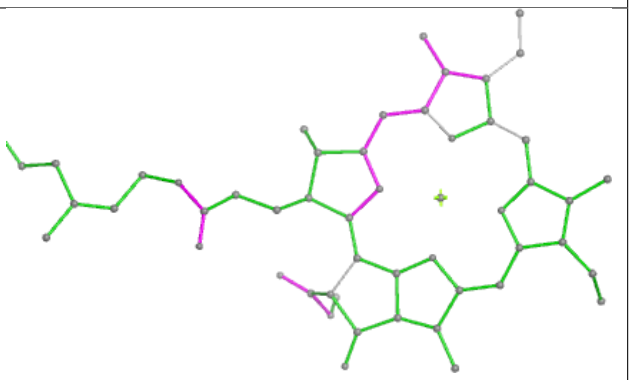


Rings

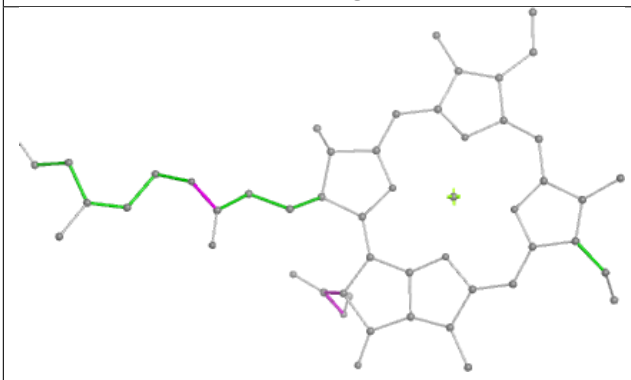
Ligand CLA b 3036



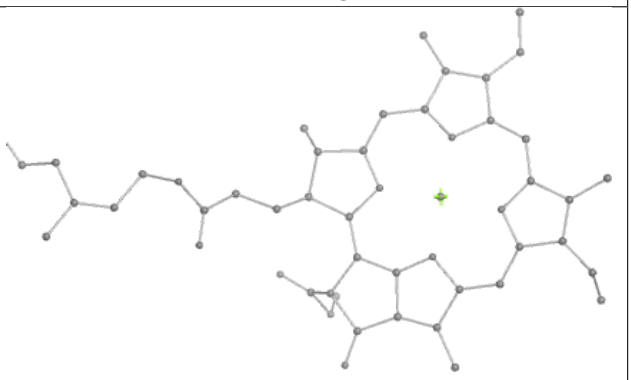
Bond lengths



Bond angles

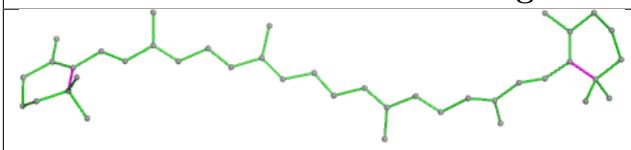


Torsions

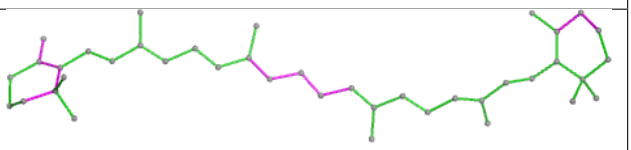


Rings

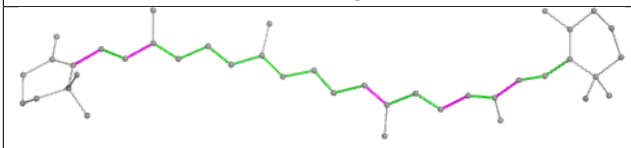
Ligand BCR b 3044



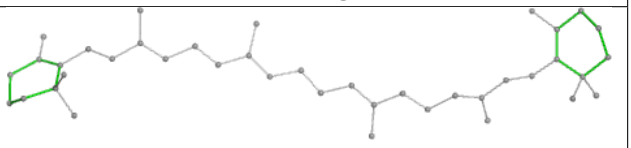
Bond lengths



Bond angles

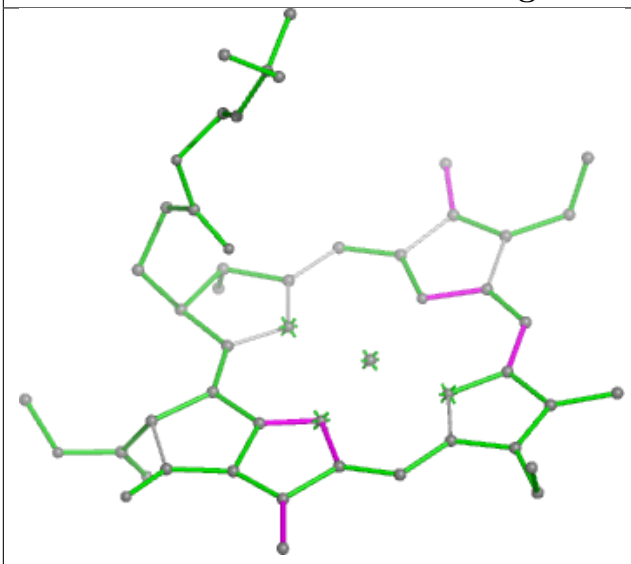


Torsions

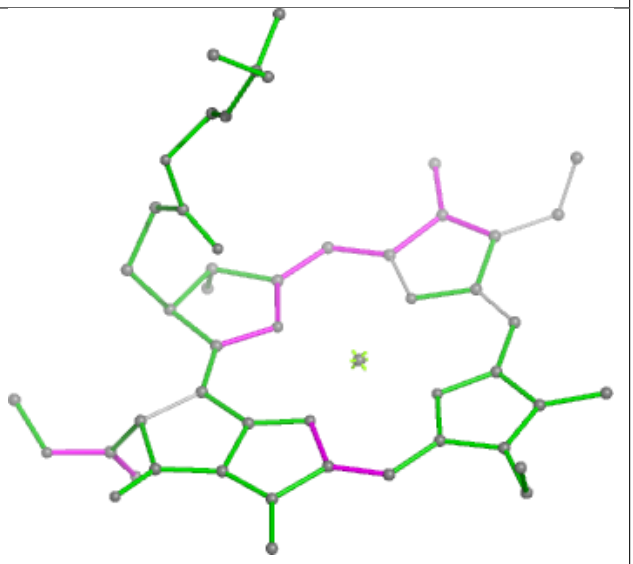


Rings

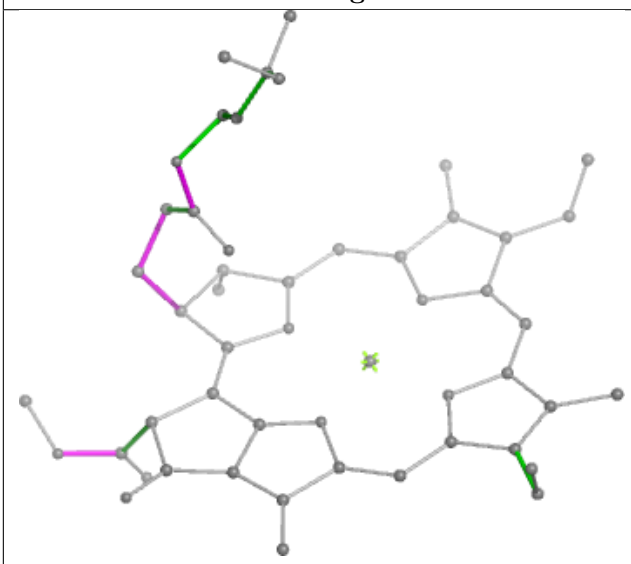
Ligand CLA b 3030



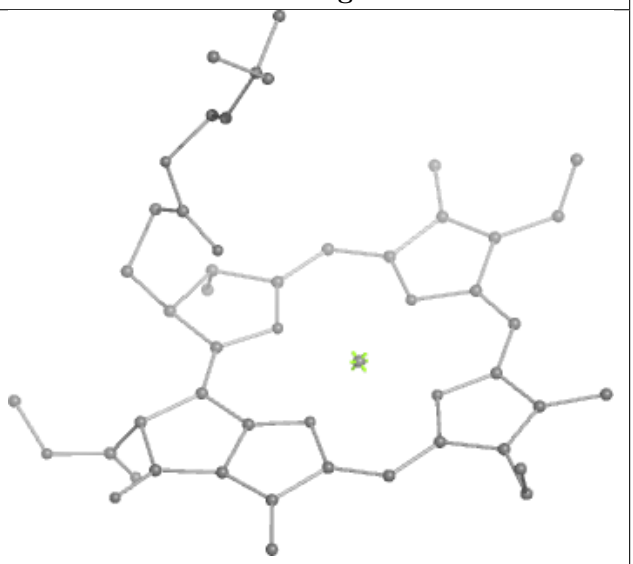
Bond lengths



Bond angles

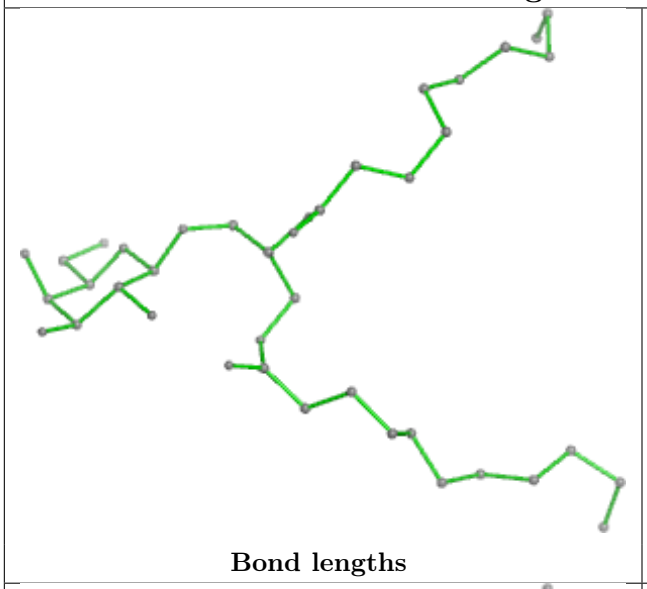


Torsions

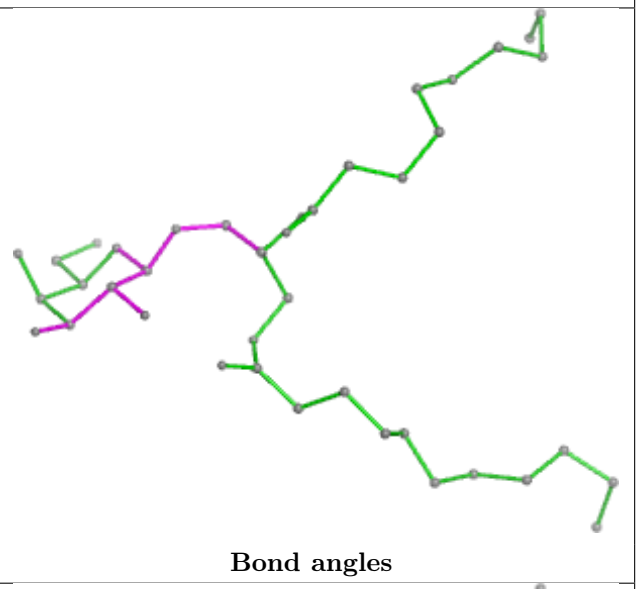


Rings

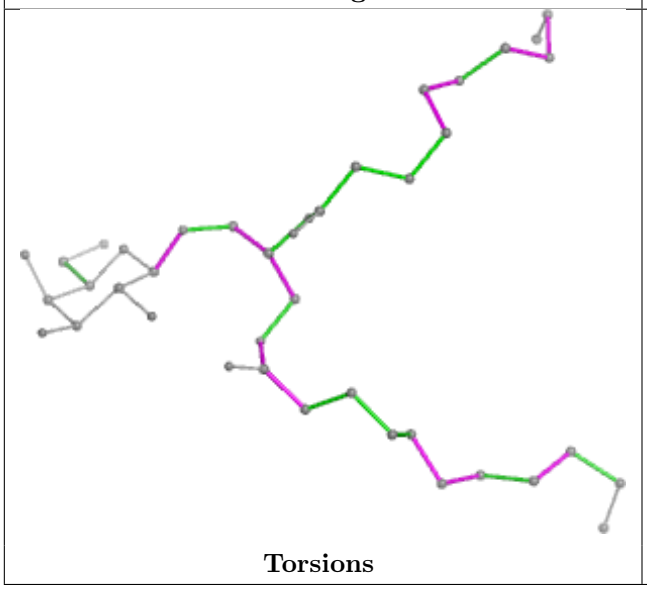
Ligand LMG a 853



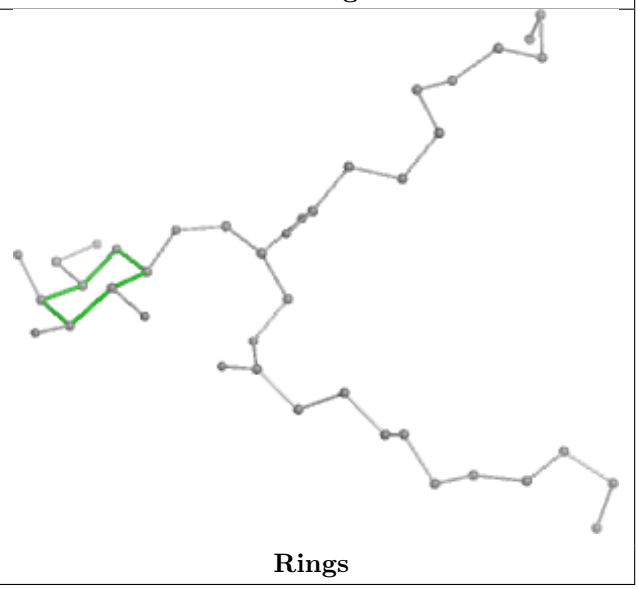
Bond lengths



Bond angles

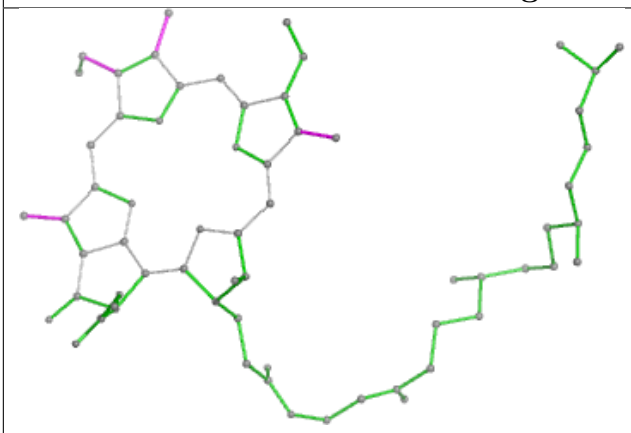


Torsions

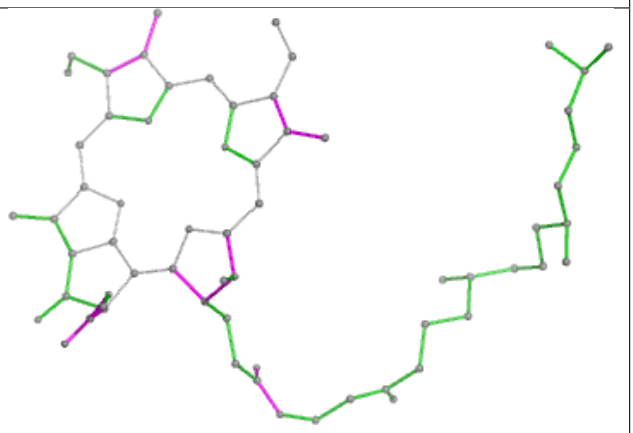


Rings

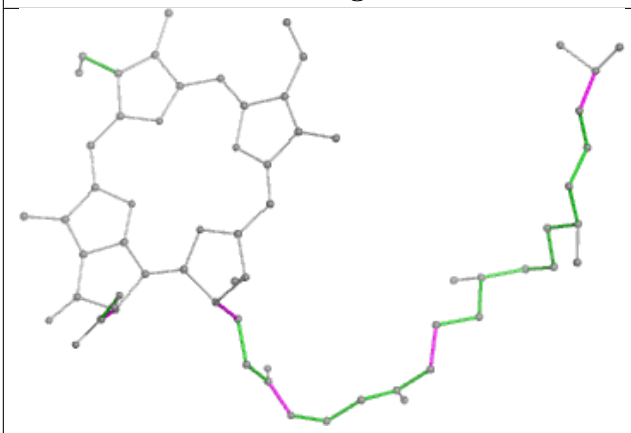
Ligand PHO D 402



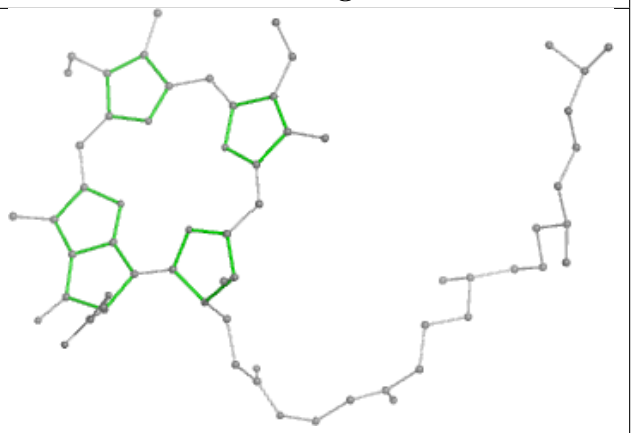
Bond lengths



Bond angles

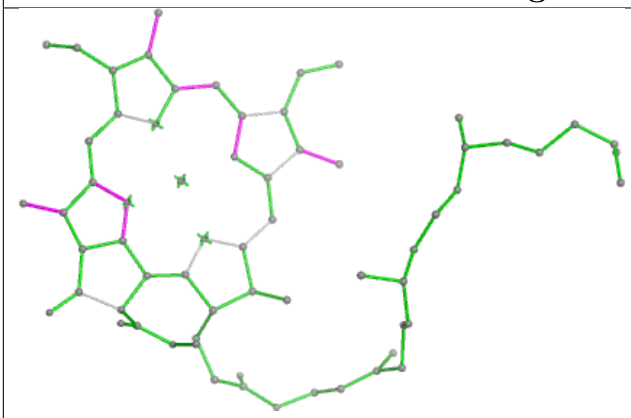


Torsions

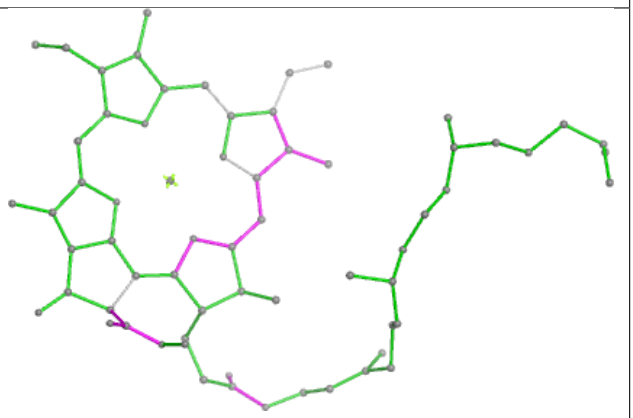


Rings

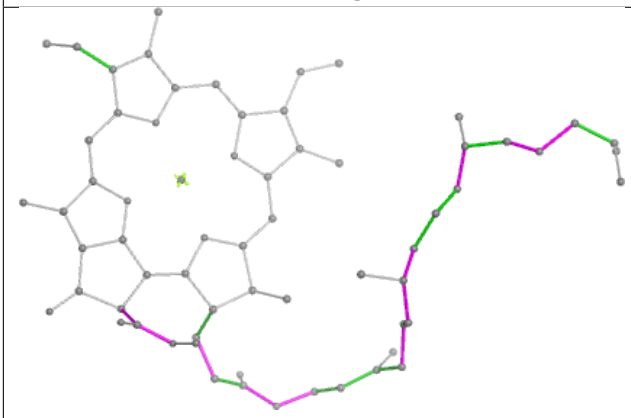
Ligand CLA a 814



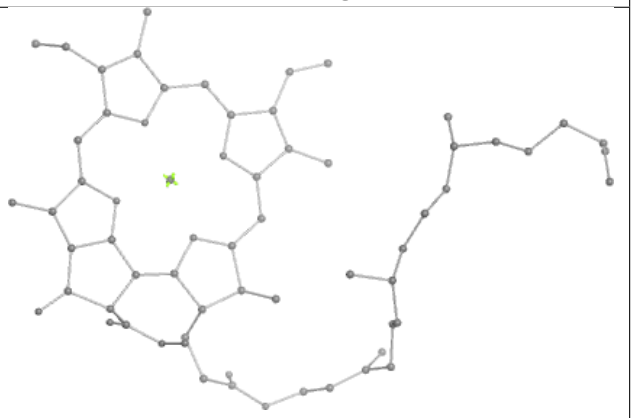
Bond lengths



Bond angles

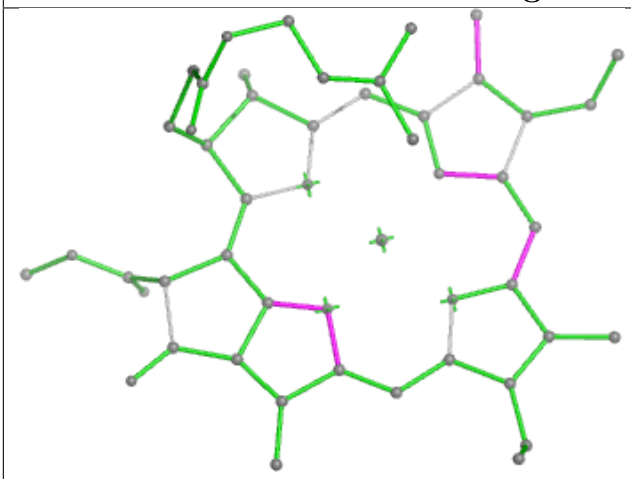


Torsions

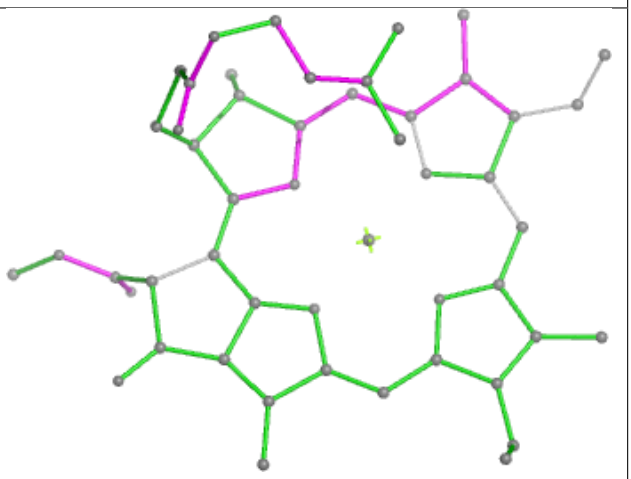


Rings

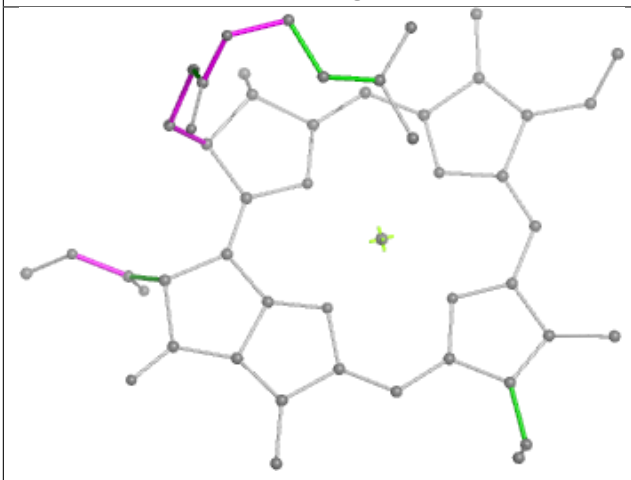
Ligand CLA l 1501



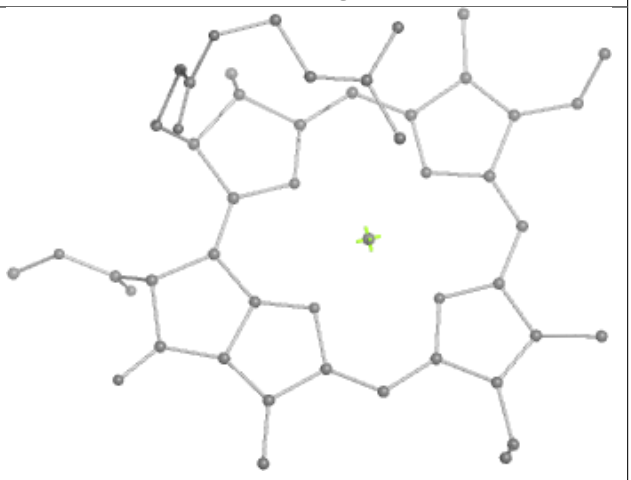
Bond lengths



Bond angles

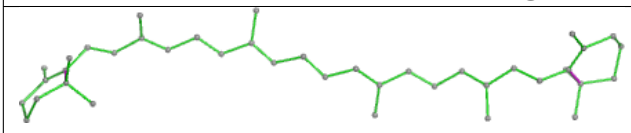


Torsions

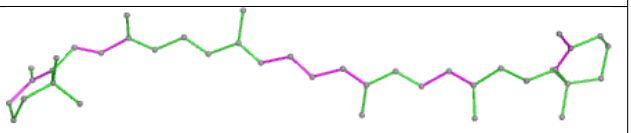


Rings

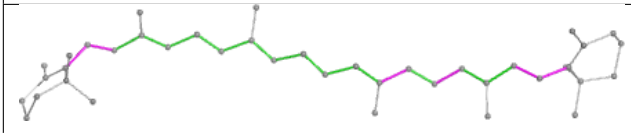
Ligand BCR A 406



Bond lengths



Bond angles



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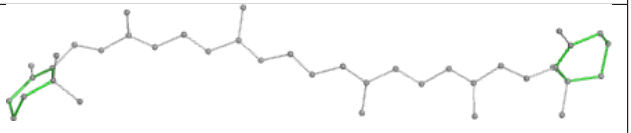
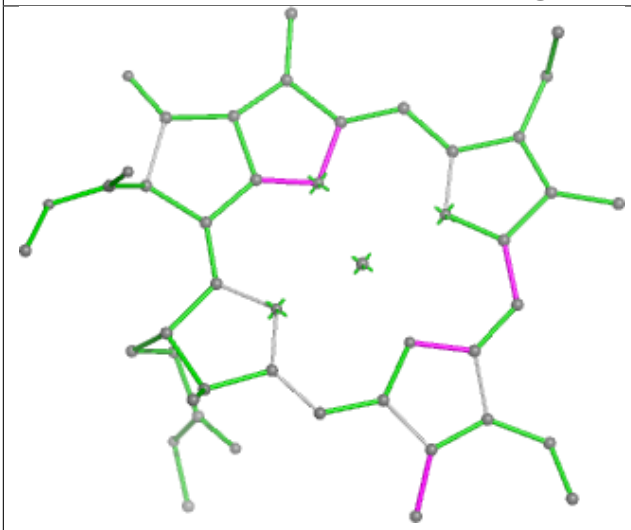
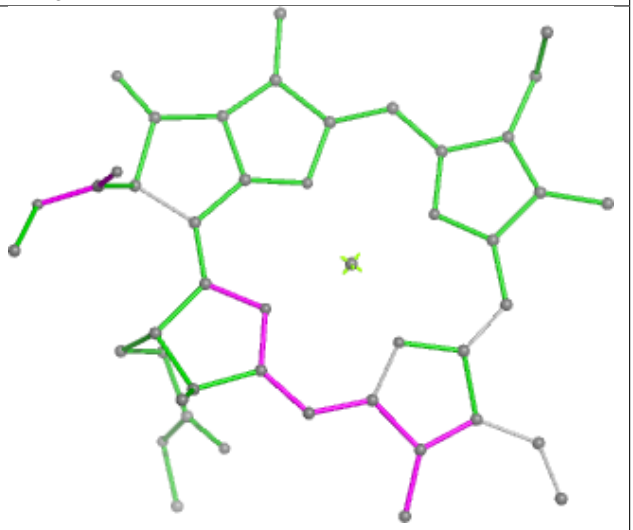


Rings

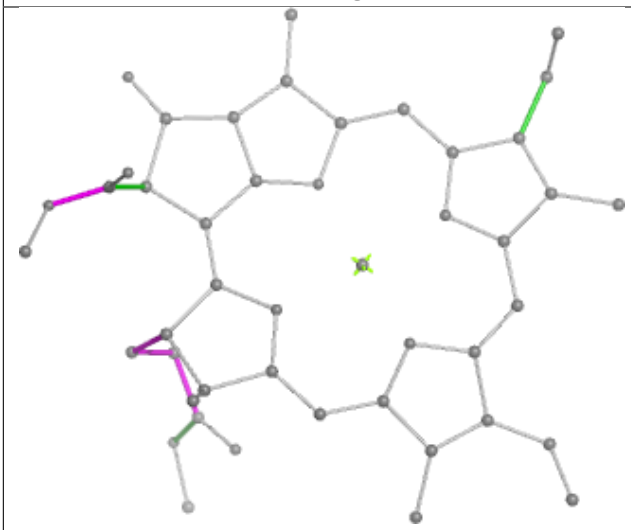
Ligand CLA j 103



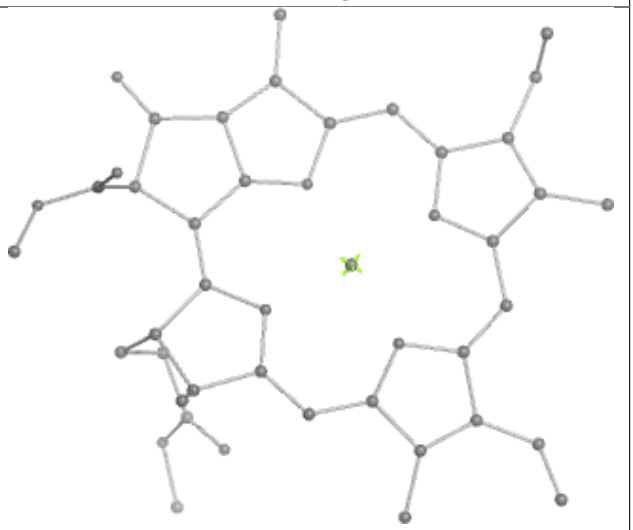
Bond lengths



Bond angles

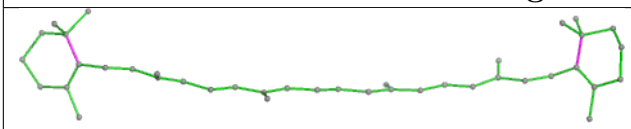


Torsions

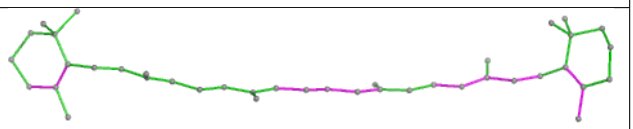


Rings

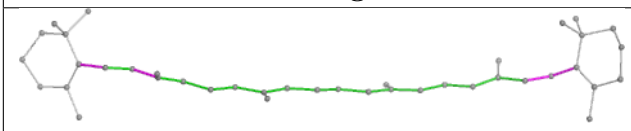
Ligand BCR a 846



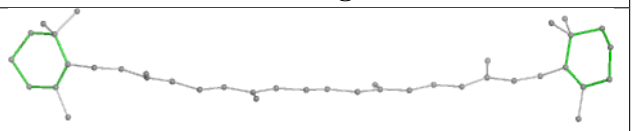
Bond lengths



Bond angles

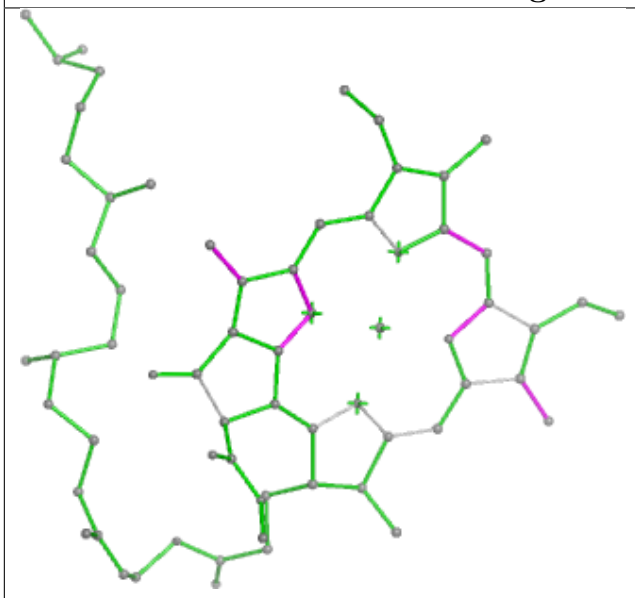


Torsions

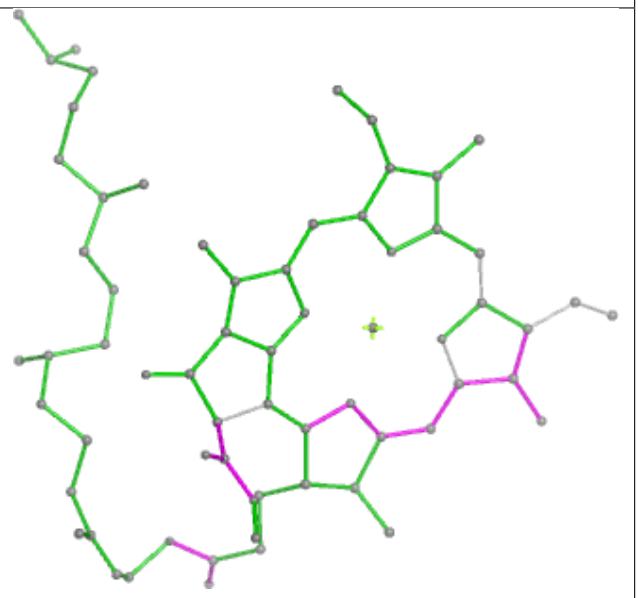


Rings

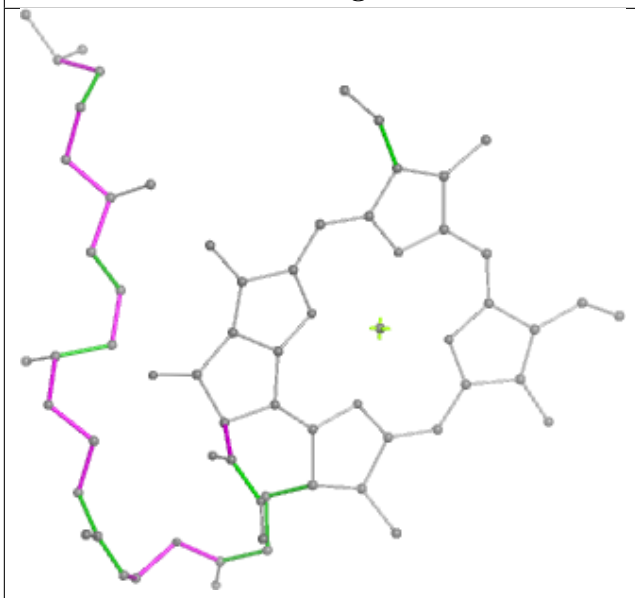
Ligand CLA a 826



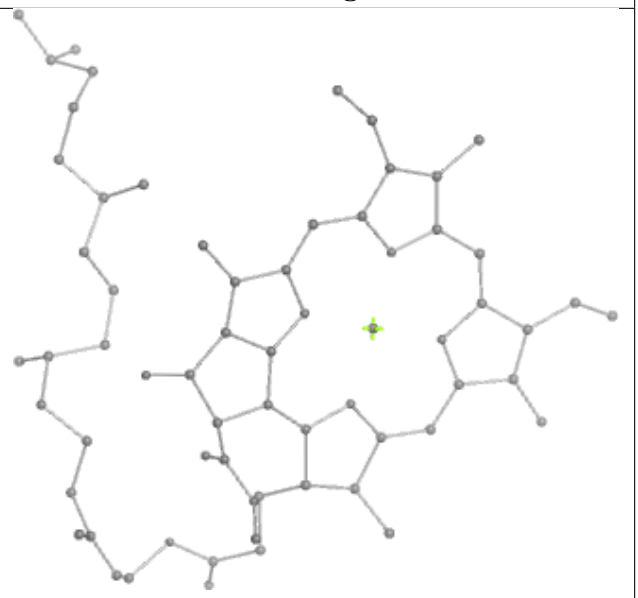
Bond lengths



Bond angles

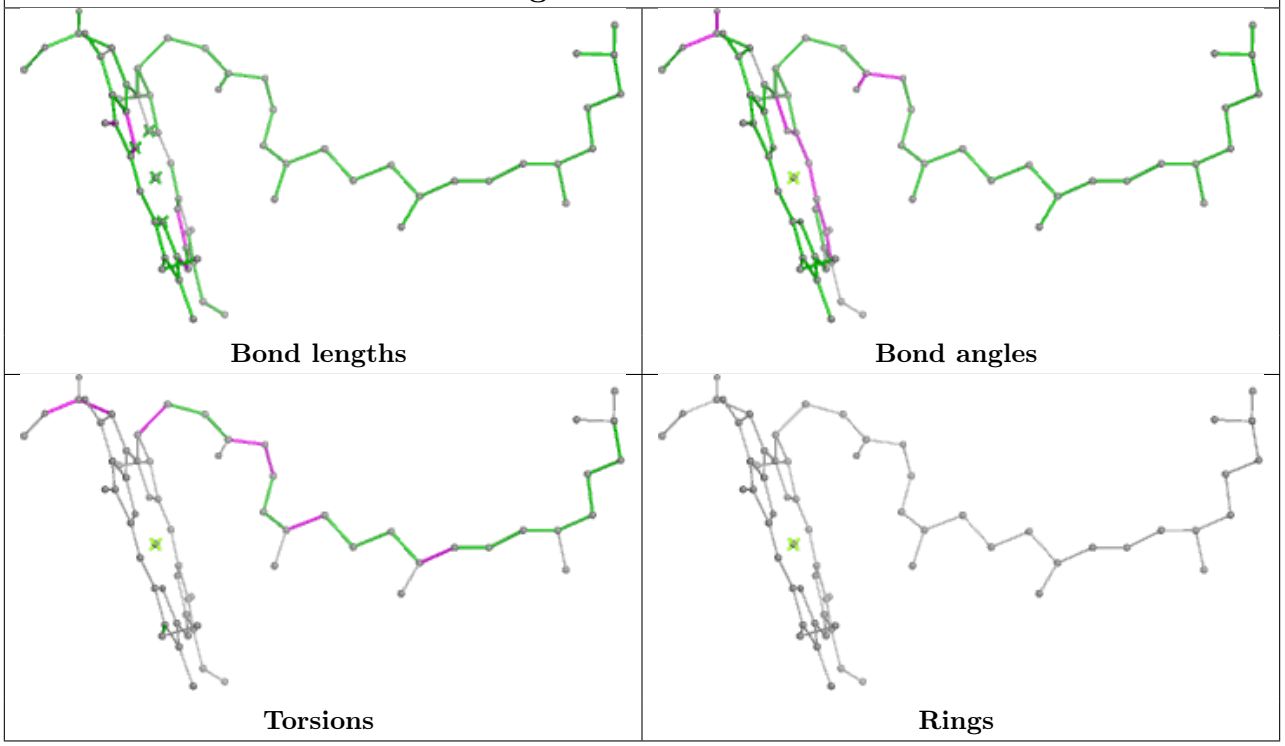


Torsions

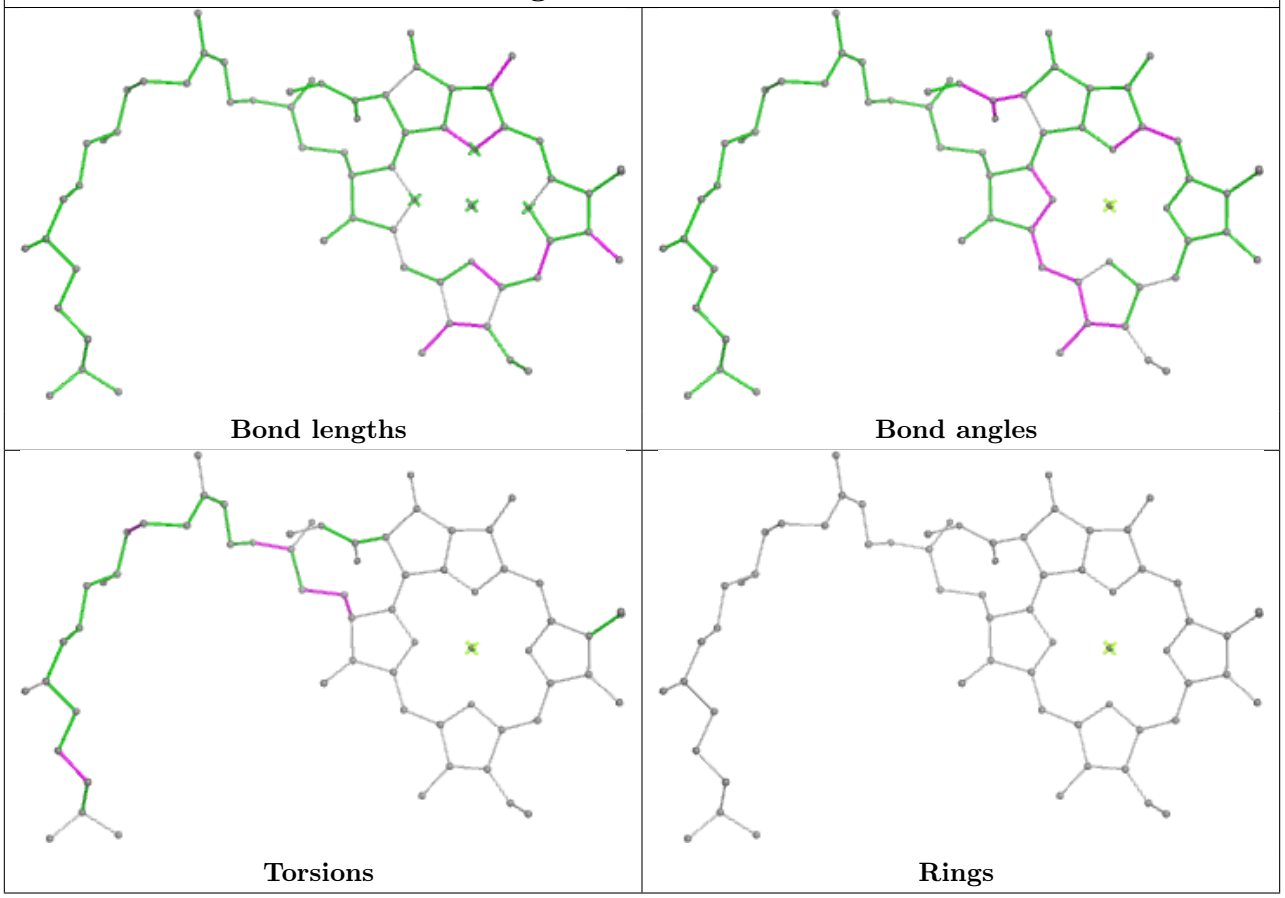


Rings

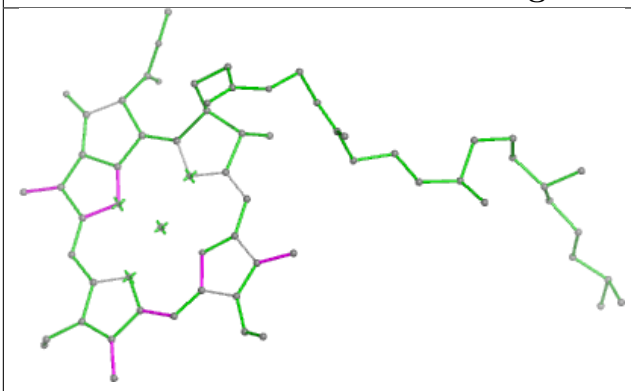
Ligand CLA a 823



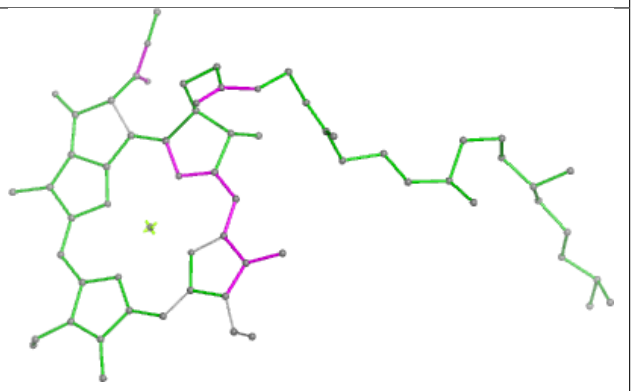
Ligand CLA a 804



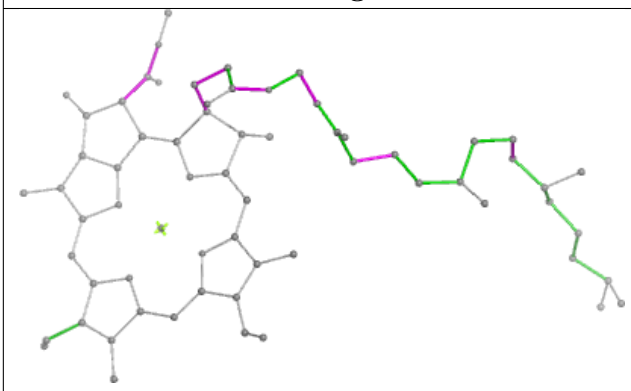
Ligand CLA a 803



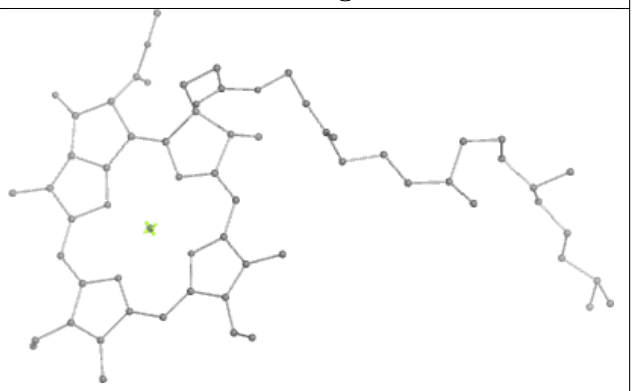
Bond lengths



Bond angles

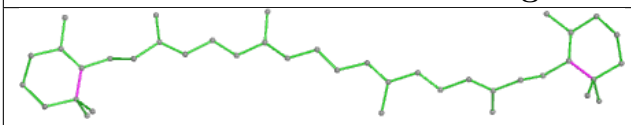


Torsions

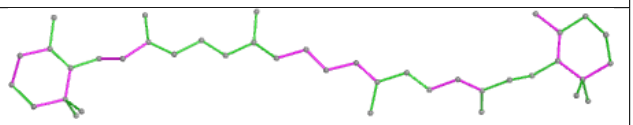


Rings

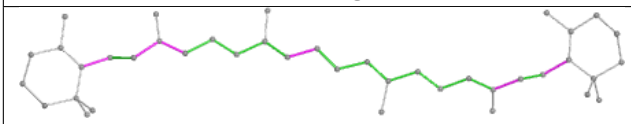
Ligand BCR l 1504



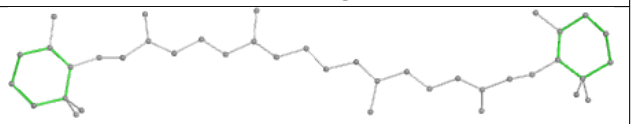
Bond lengths



Bond angles

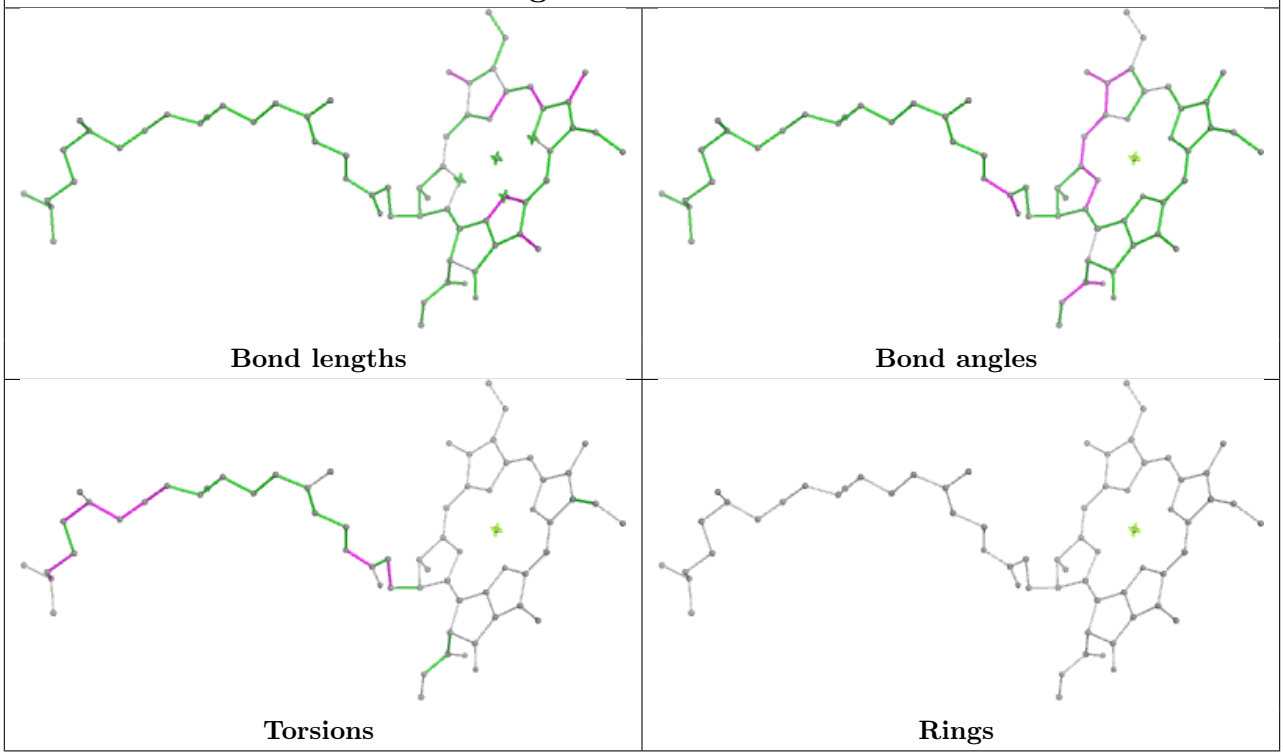


Torsions

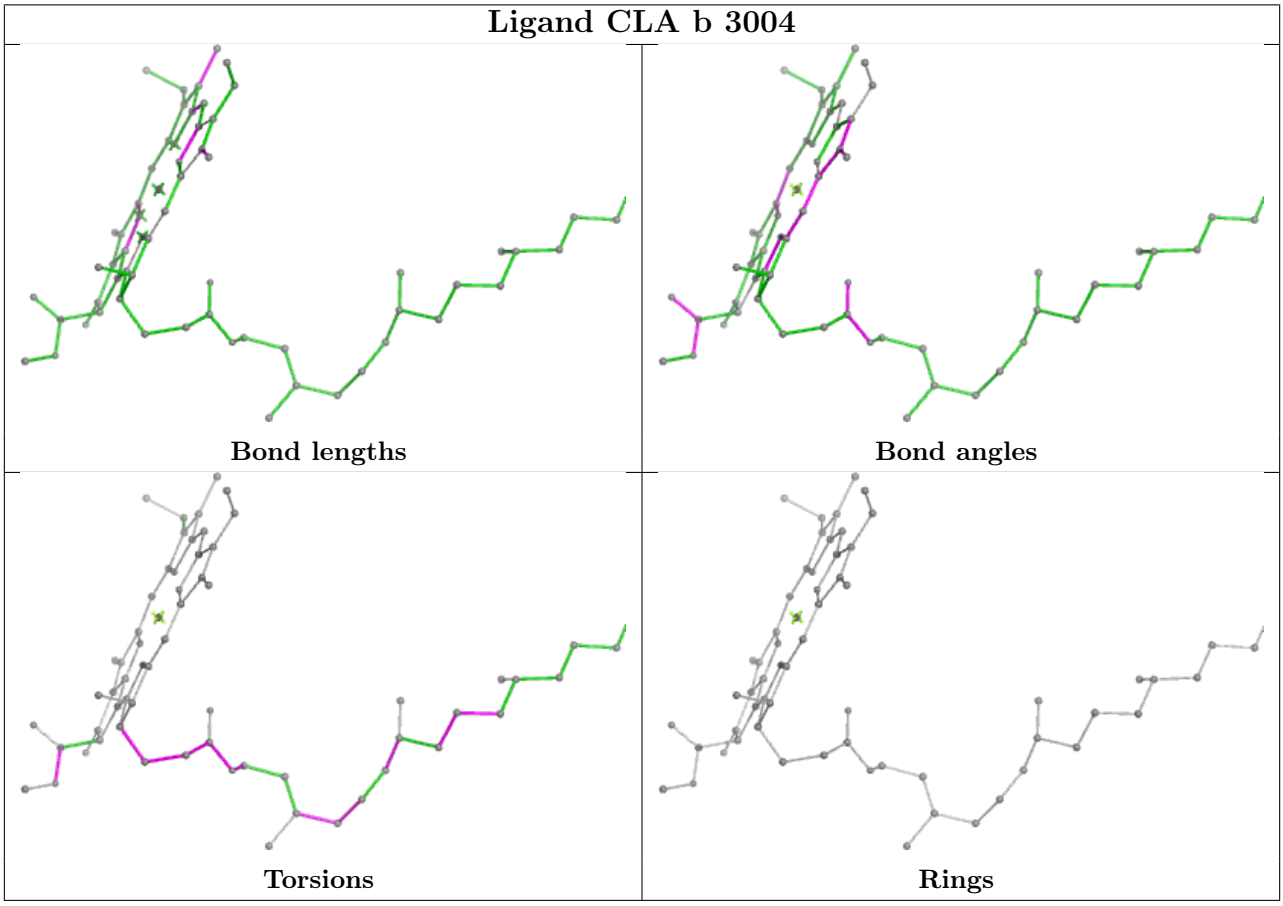


Rings

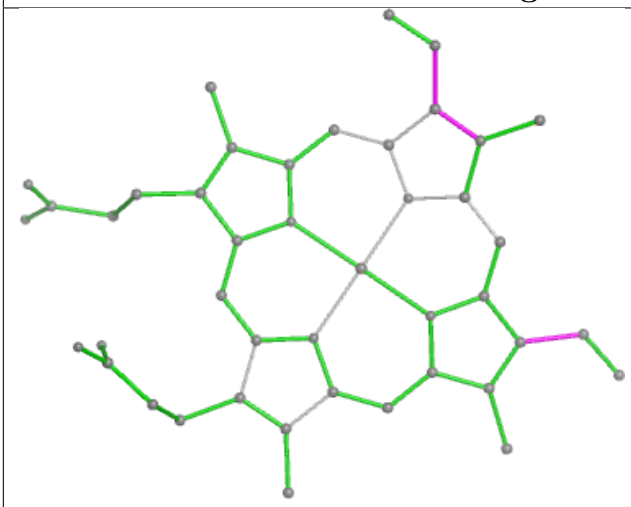
Ligand CLA a 822



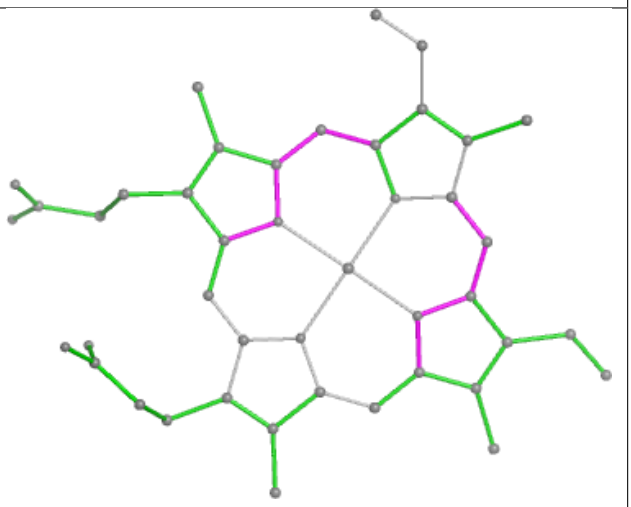
Ligand CLA b 3004



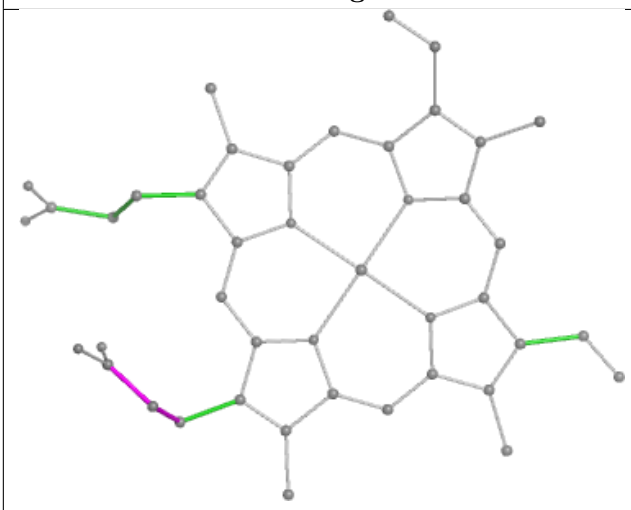
Ligand HEM F 101



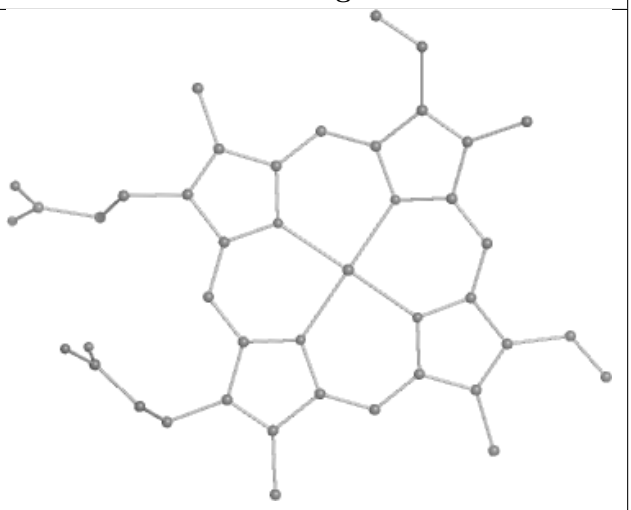
Bond lengths



Bond angles

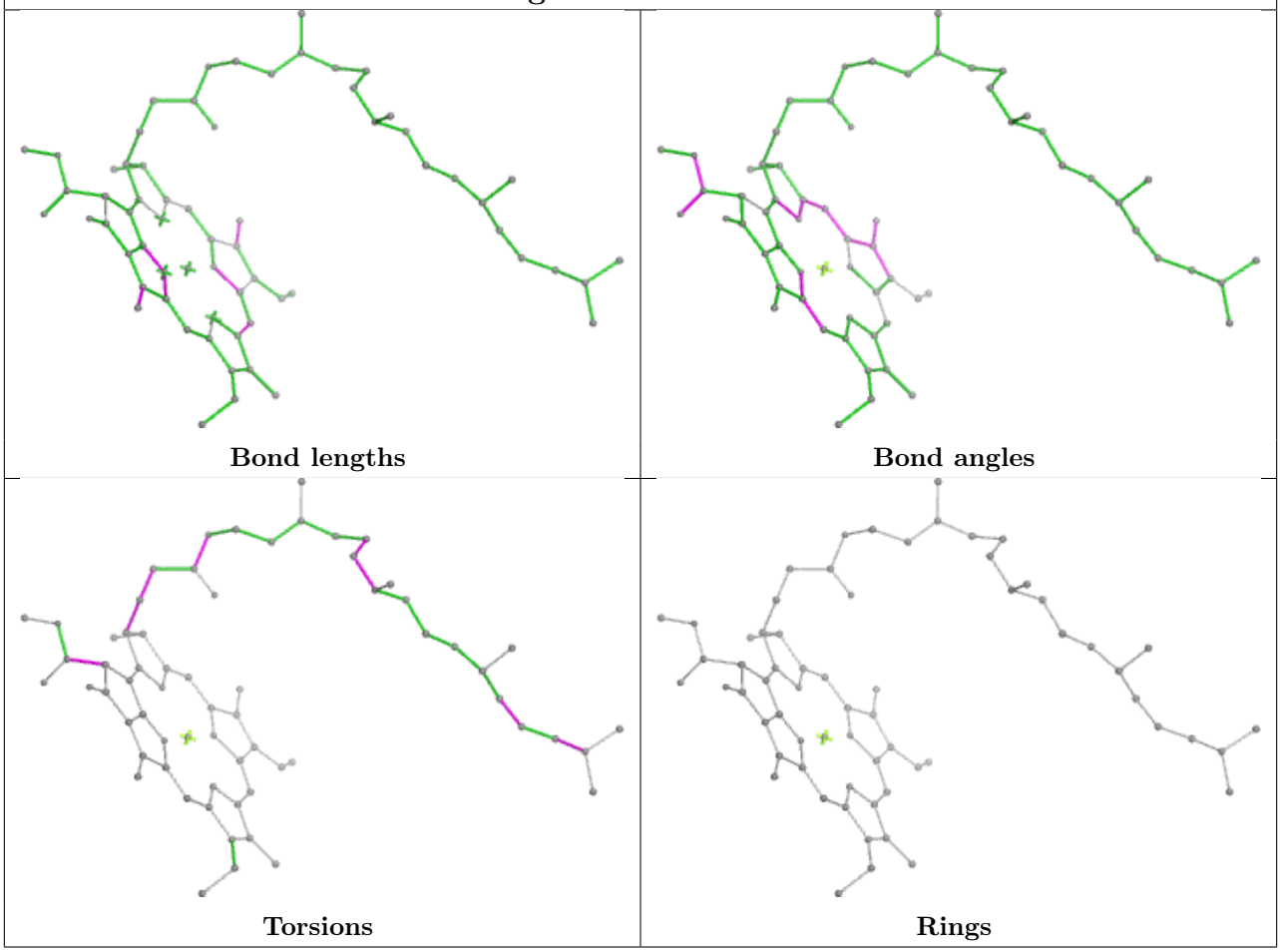


Torsions

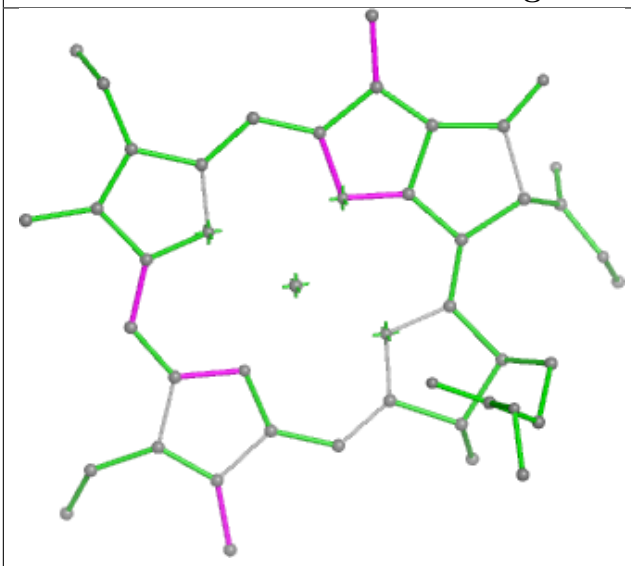


Rings

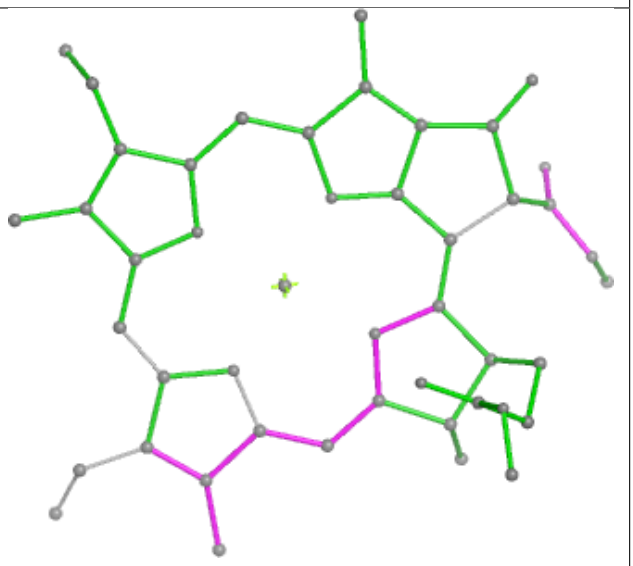
Ligand CLA a 805



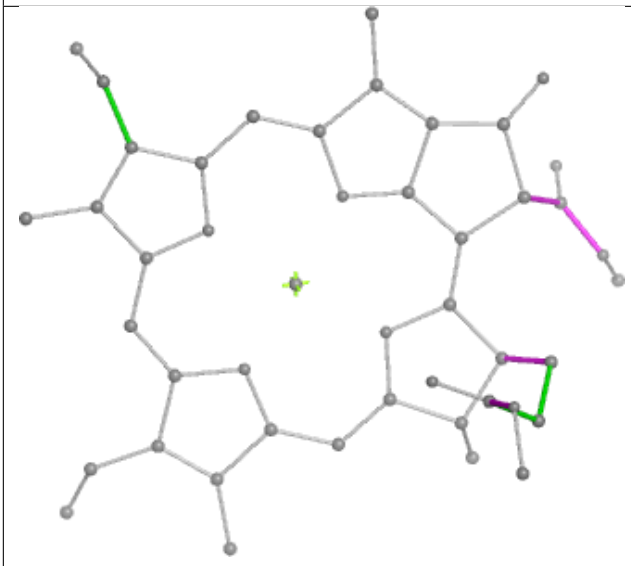
Ligand CLA A 403



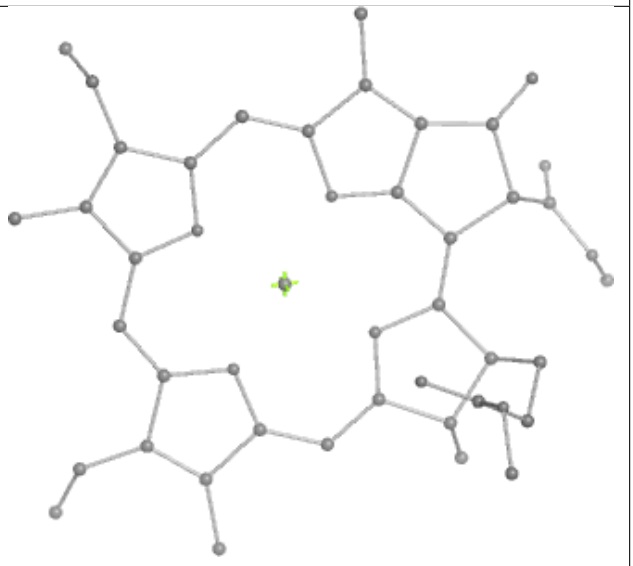
Bond lengths



Bond angles

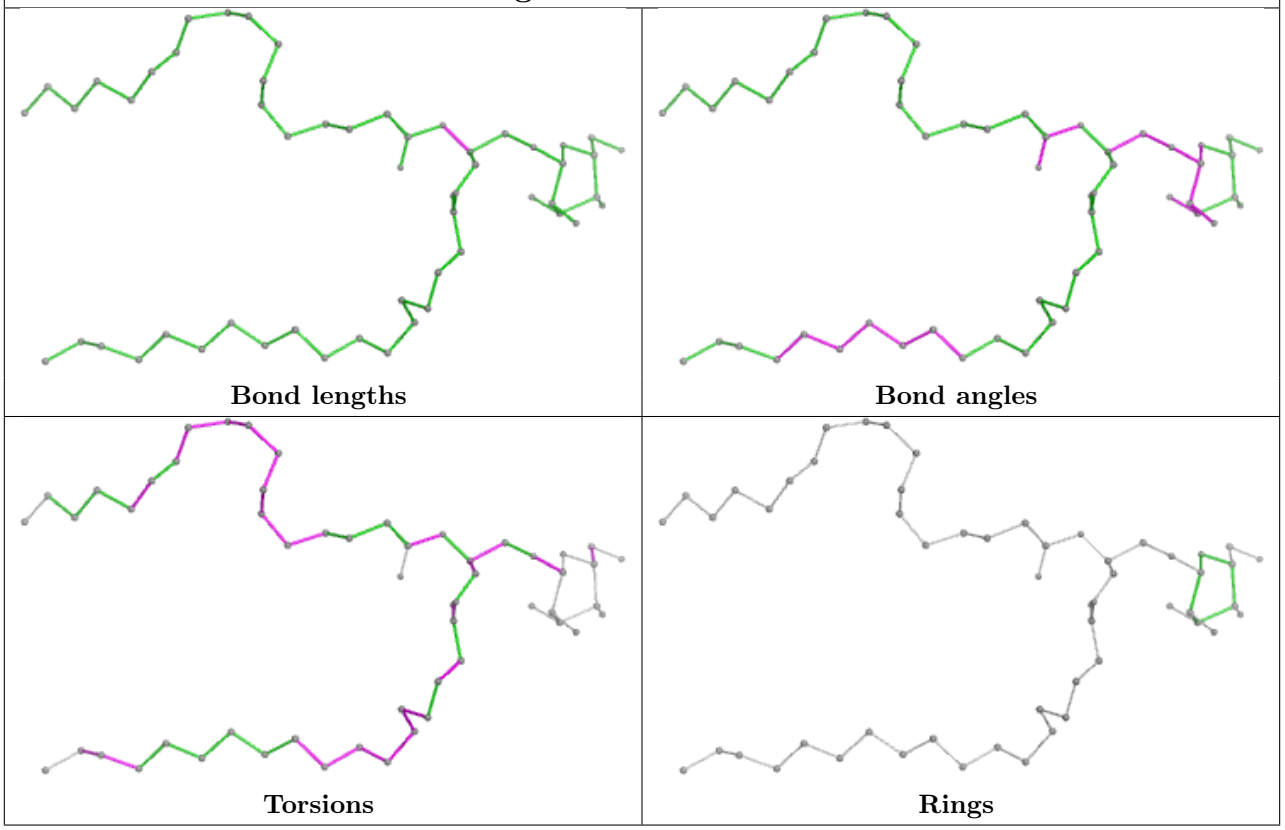


Torsions

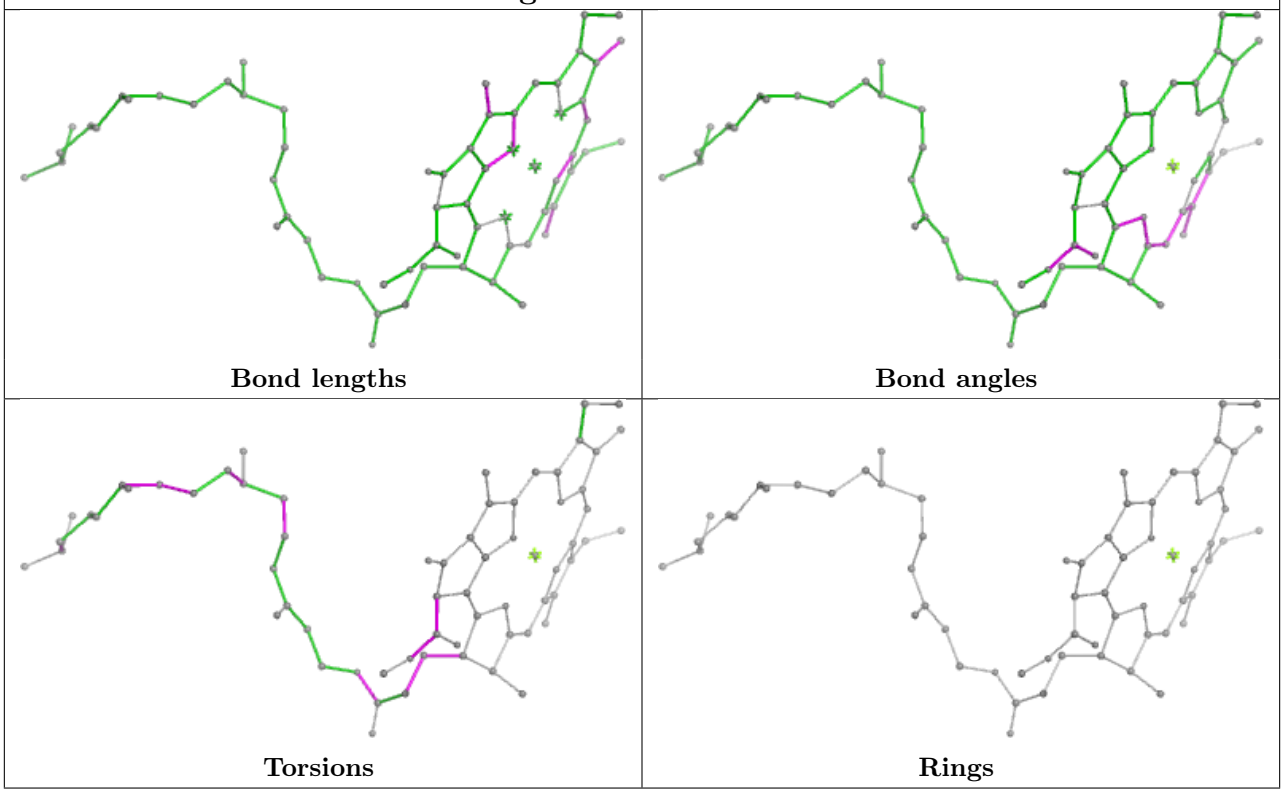


Rings

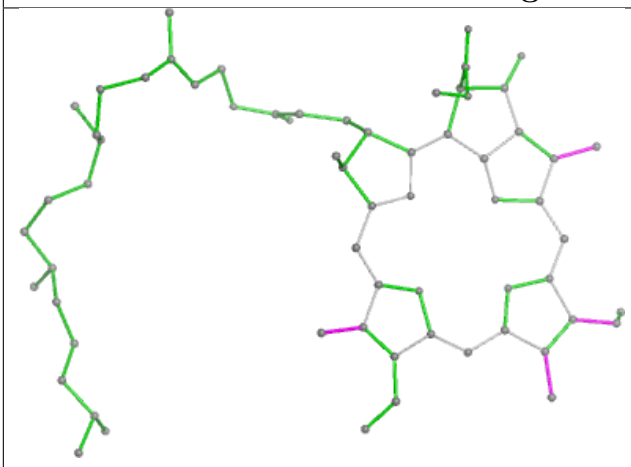
Ligand LMG b 3051



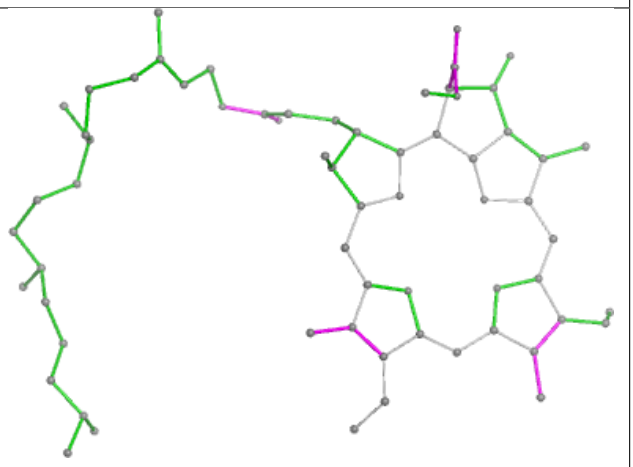
Ligand CLA b 3002



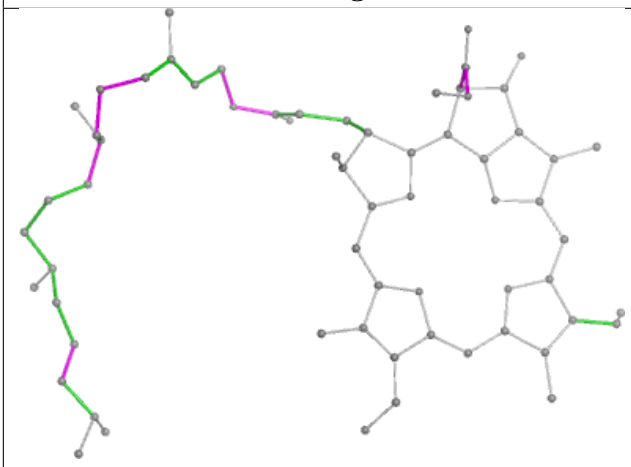
Ligand PHO A 404



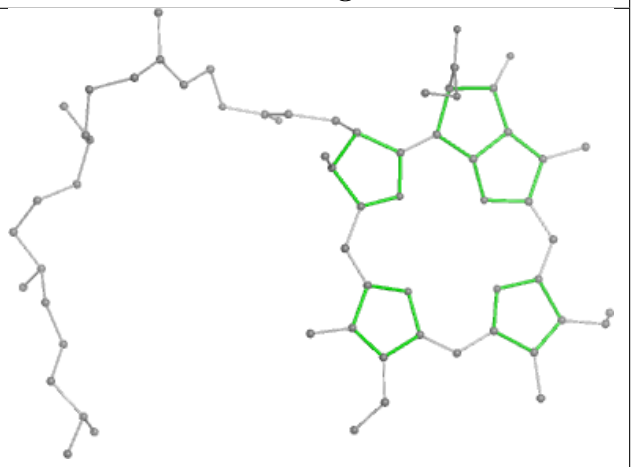
Bond lengths



Bond angles

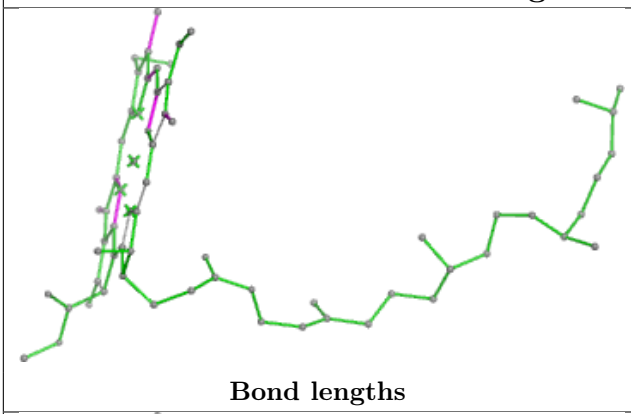


Torsions

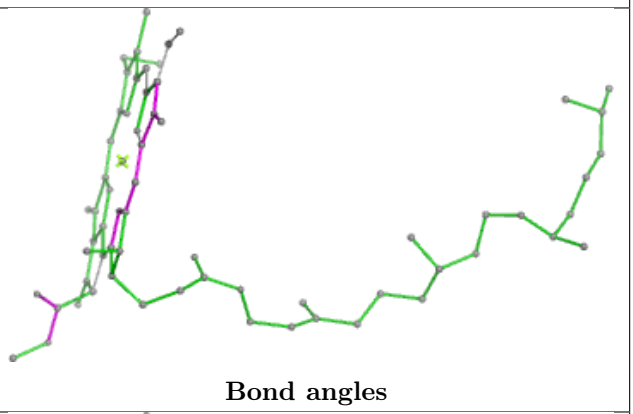


Rings

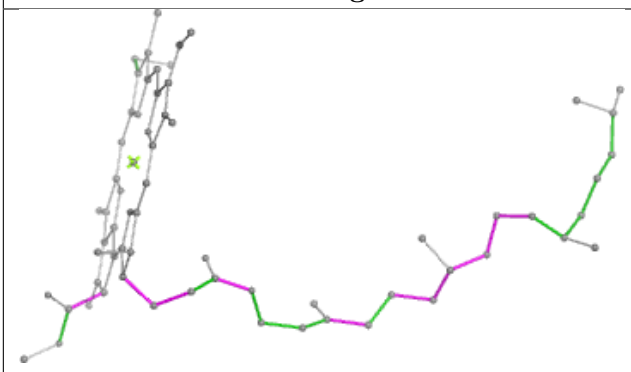
Ligand CLA a 808



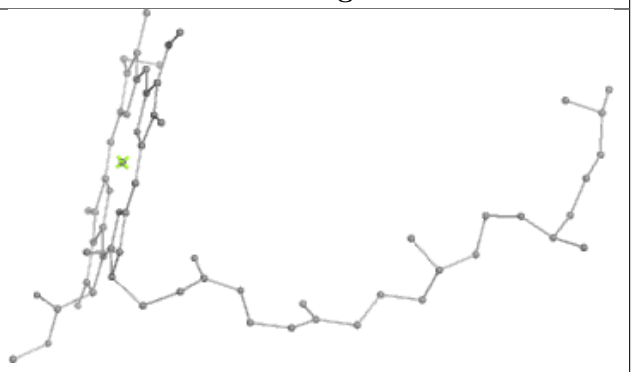
Bond lengths



Bond angles

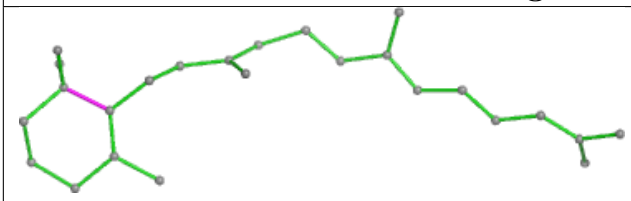


Torsions

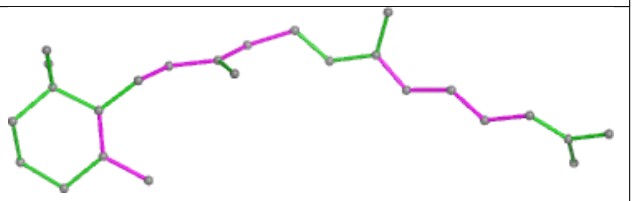


Rings

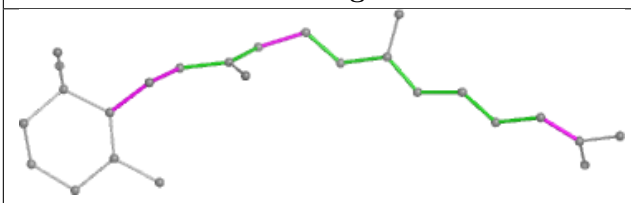
Ligand BCR a 849



Bond lengths



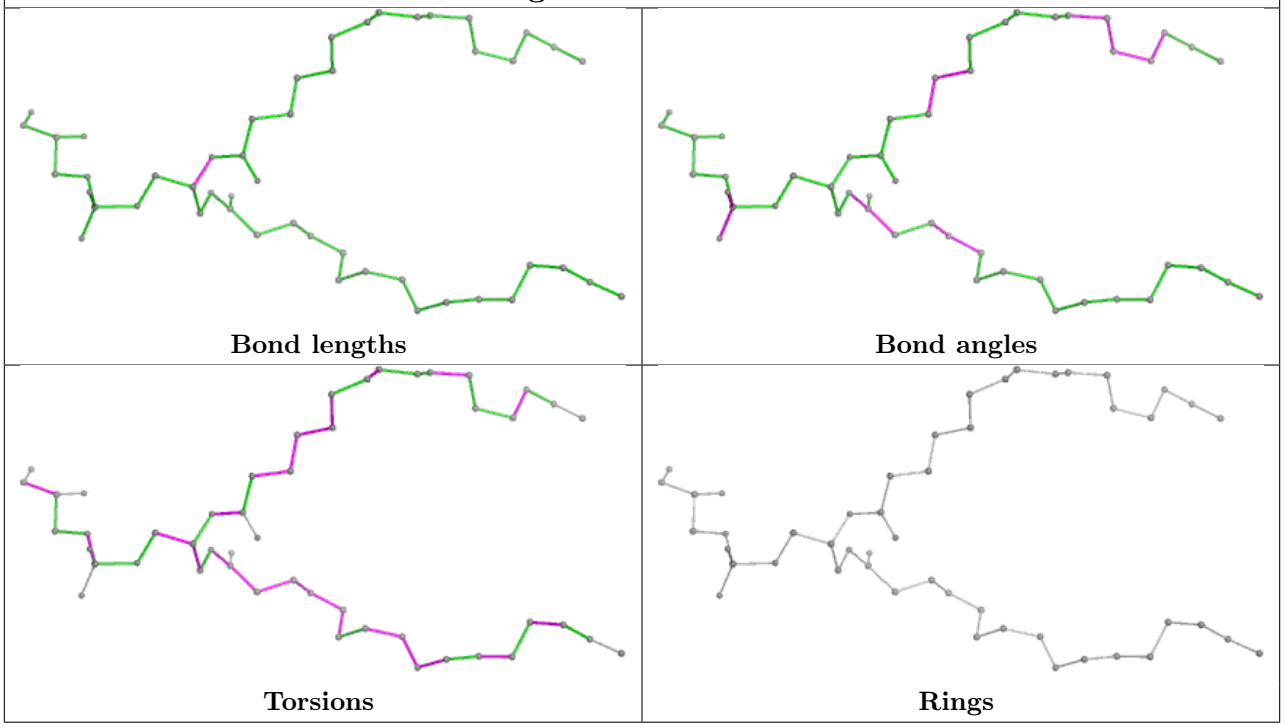
Bond angles



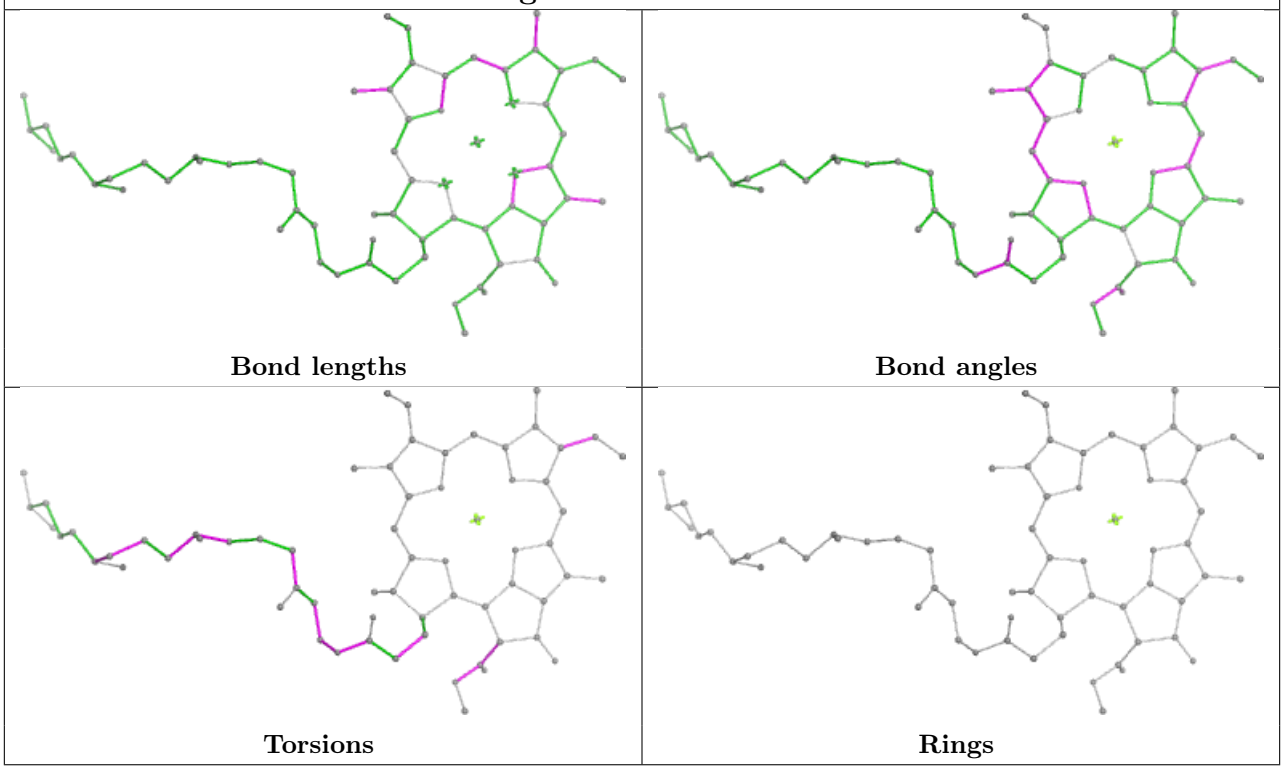
Torsions

Rings

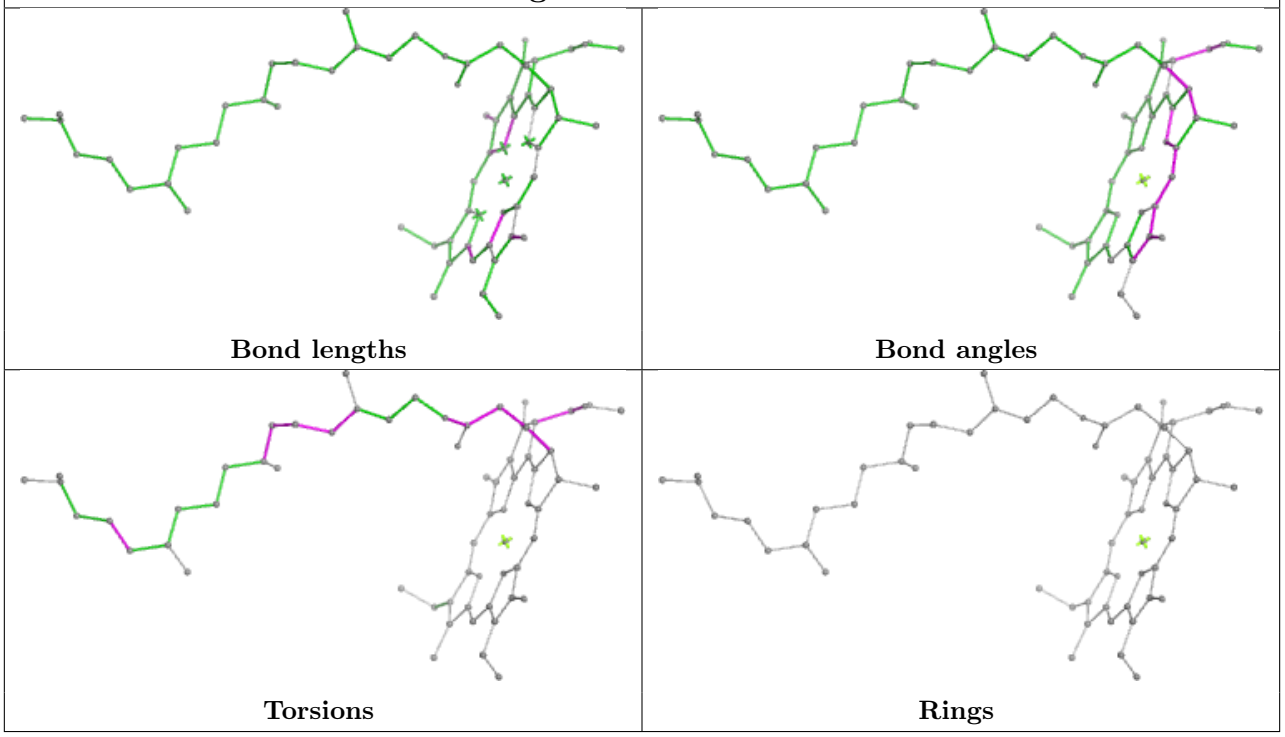
Ligand LHG a 850



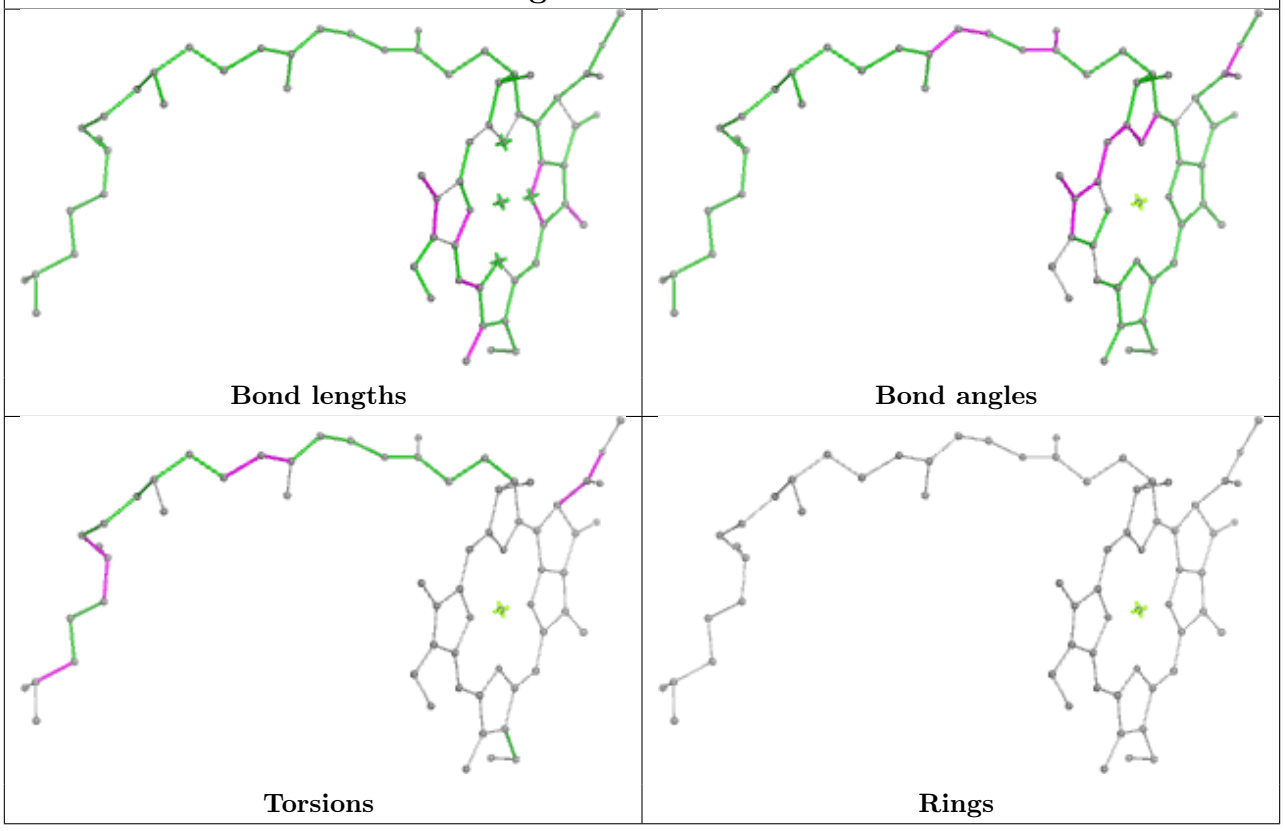
Ligand CLA b 3003



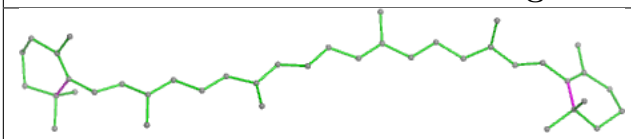
Ligand CLA a 831



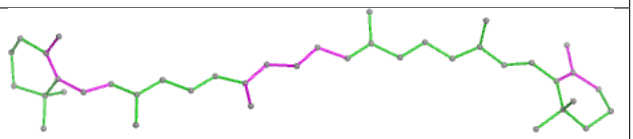
Ligand CLA a 836



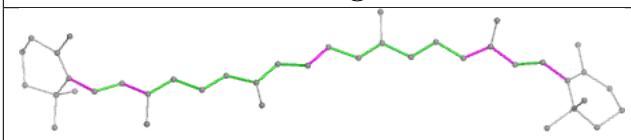
Ligand BCR a 848



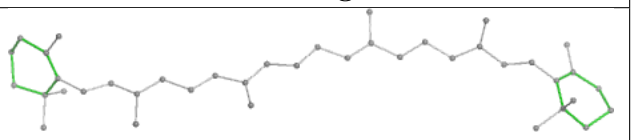
Bond lengths



Bond angles

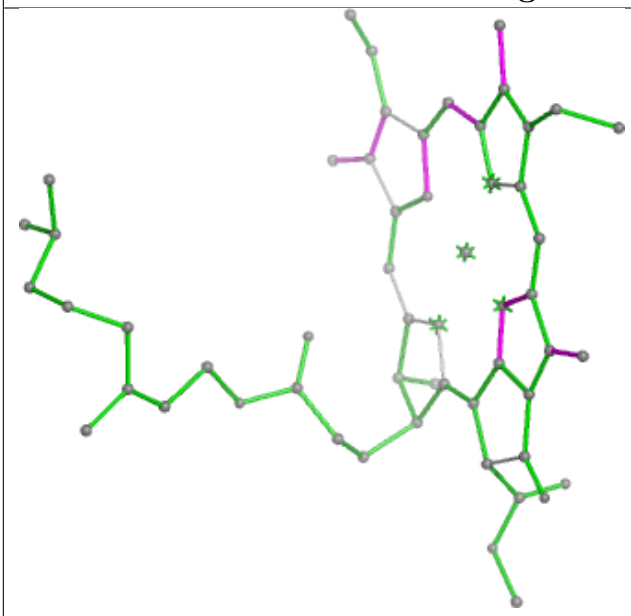


Torsions

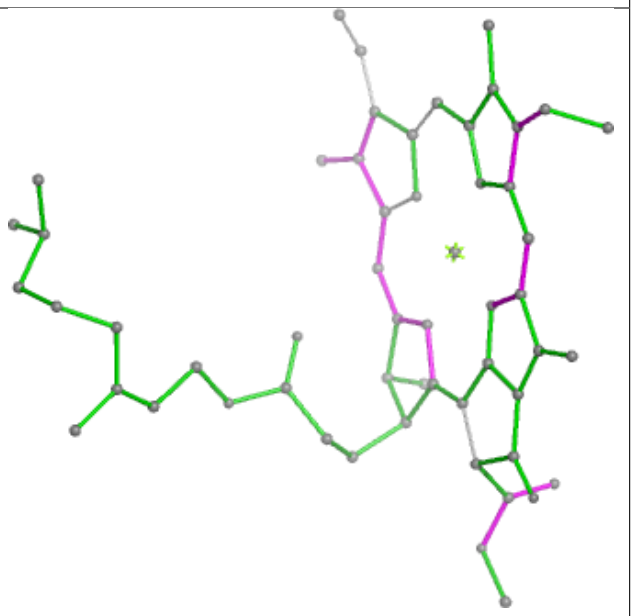


Rings

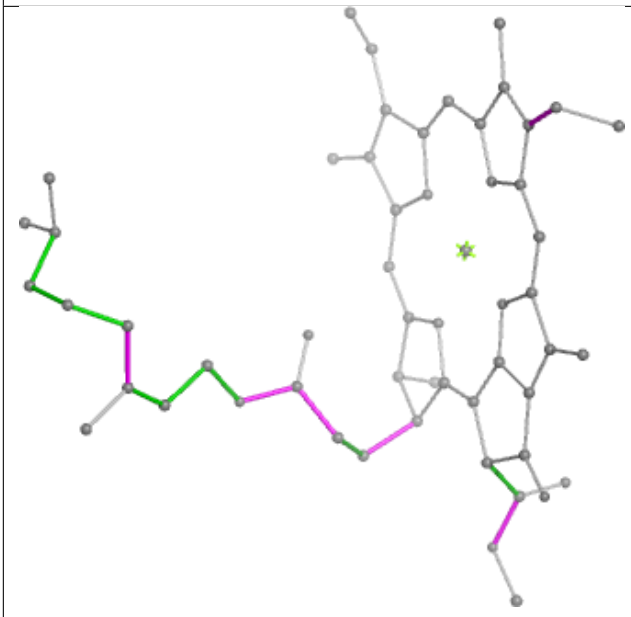
Ligand CLA b 3015



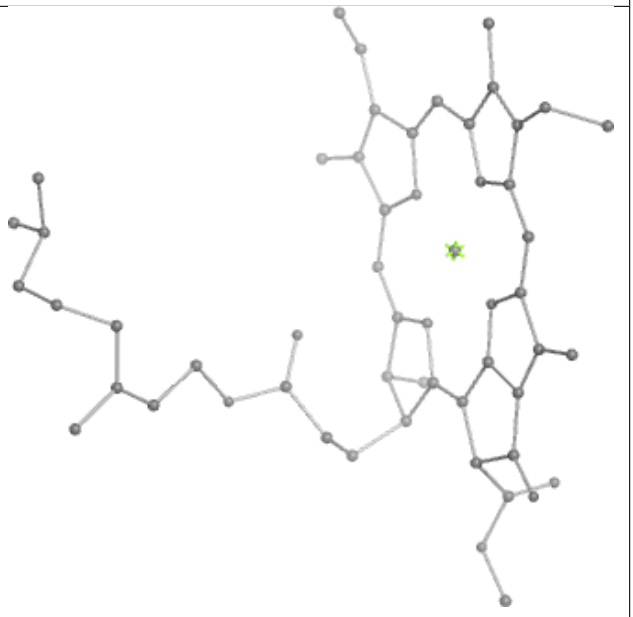
Bond lengths



Bond angles

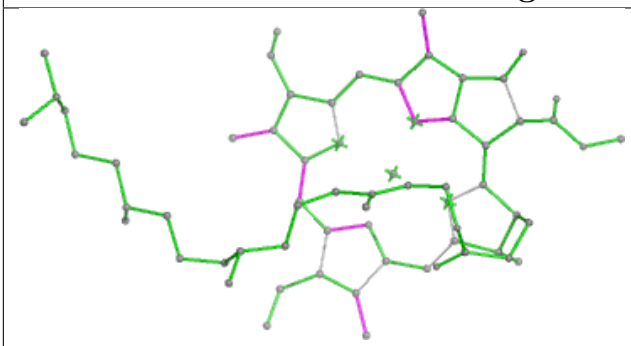


Torsions

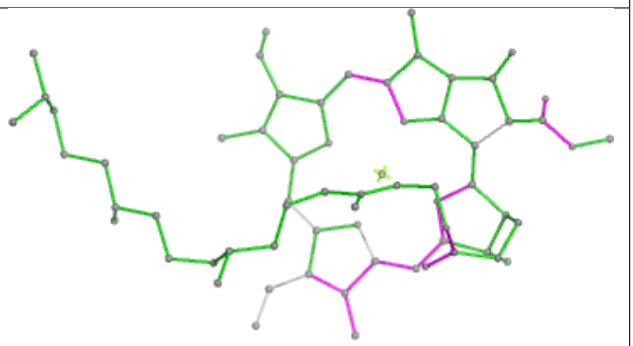


Rings

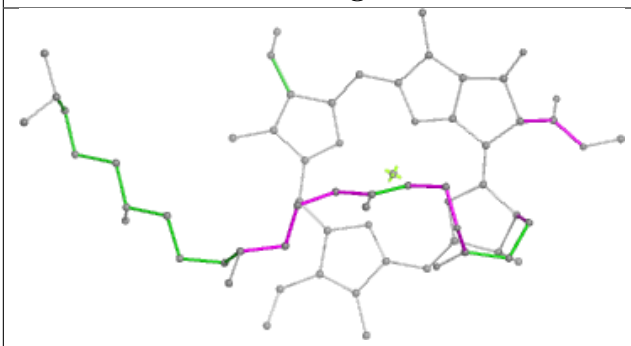
Ligand CLA b 3037



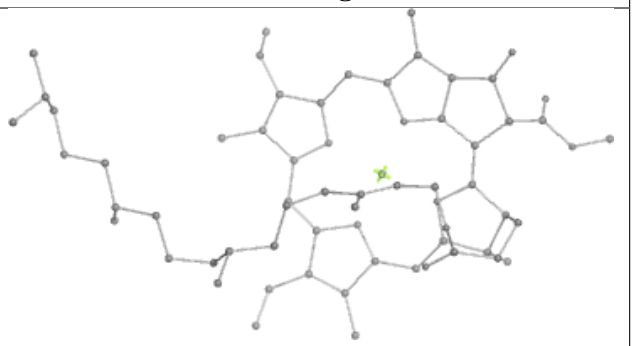
Bond lengths



Bond angles

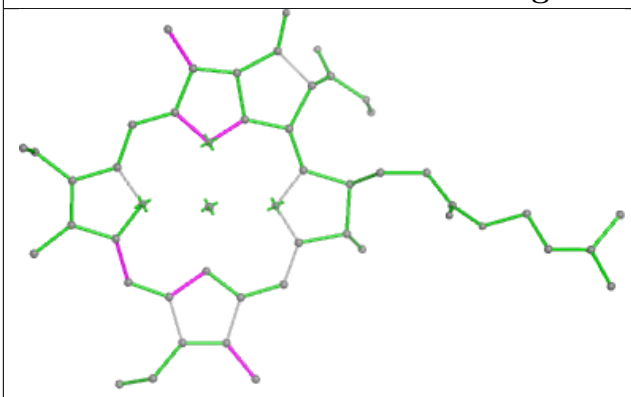


Torsions

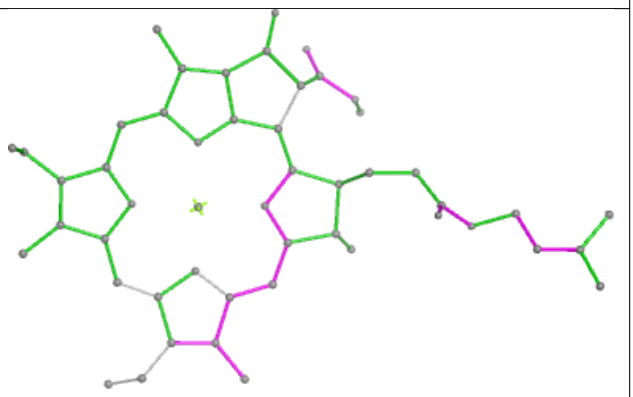


Rings

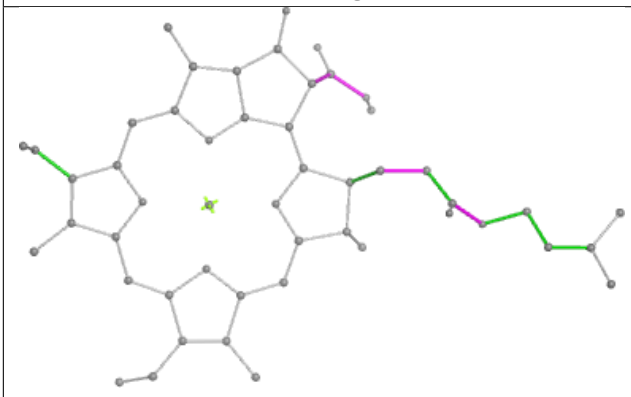
Ligand CLA f 204



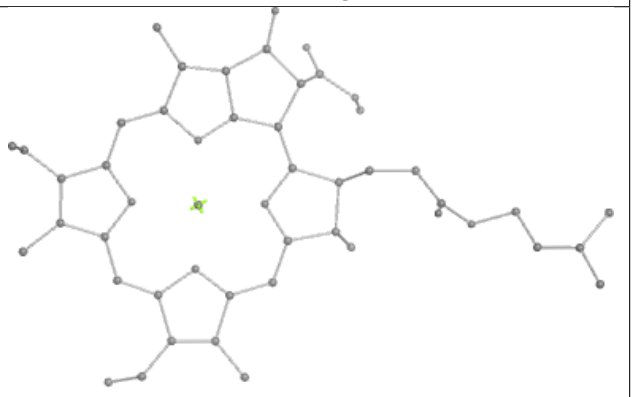
Bond lengths



Bond angles

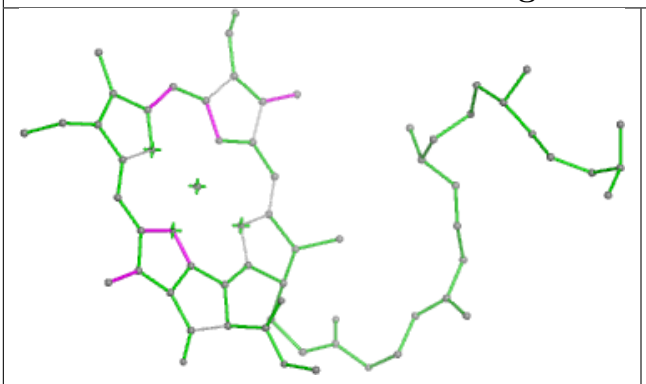


Torsions

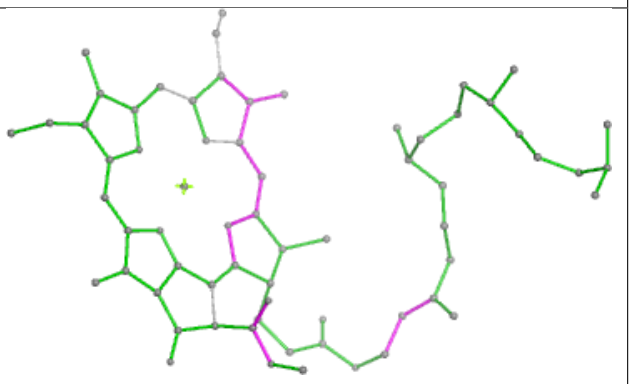


Rings

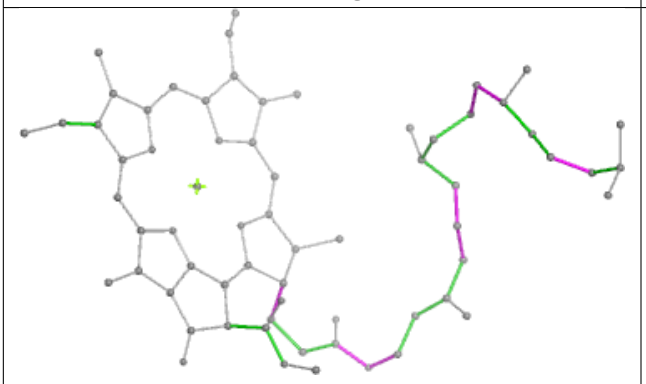
Ligand CLA b 3024



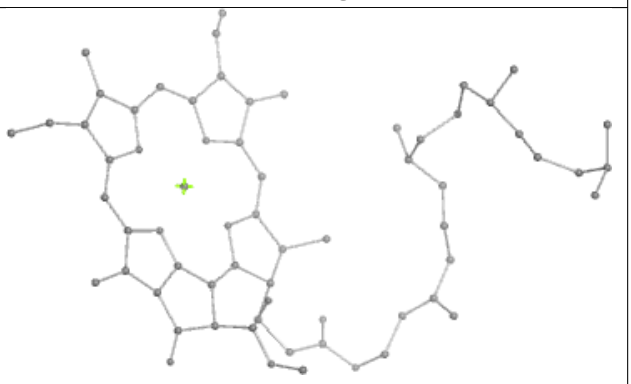
Bond lengths



Bond angles

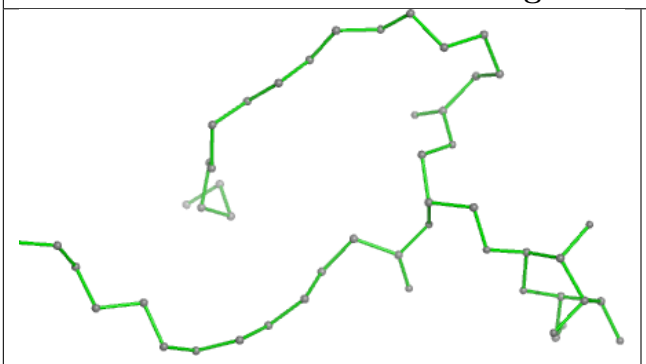


Torsions



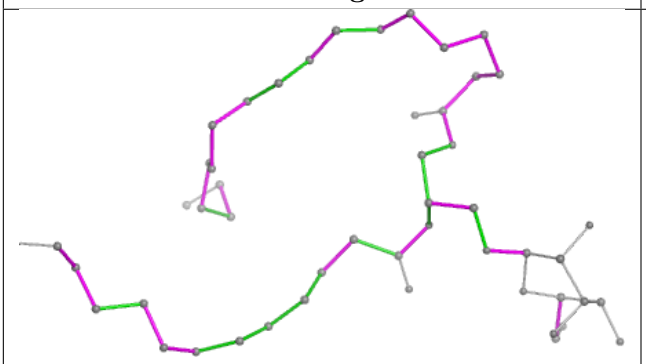
Rings

Ligand LMG a 851

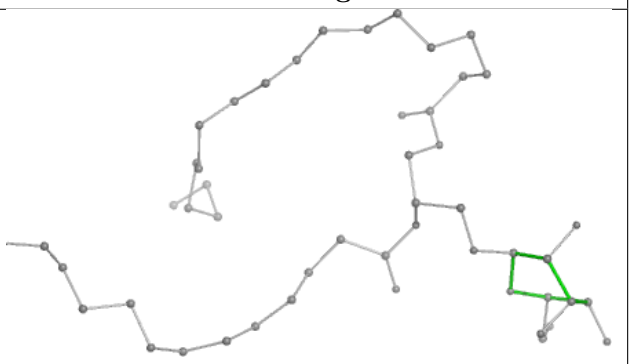


Bond lengths

Bond angles

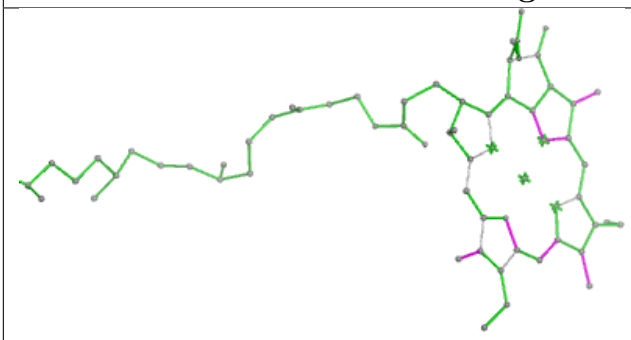


Torsions

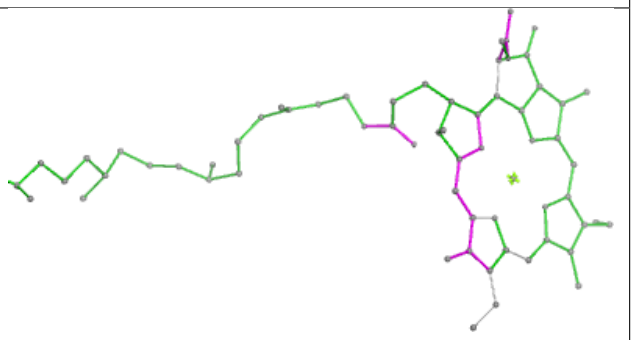


Rings

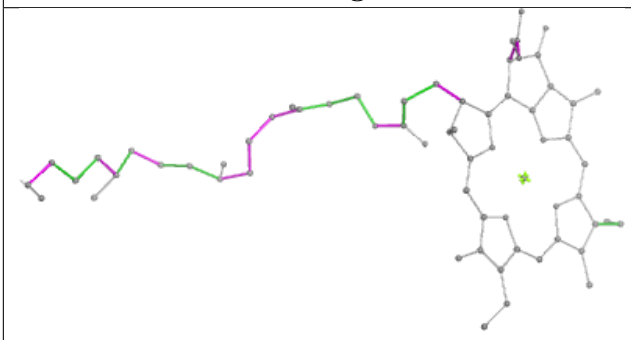
Ligand CLA b 3033



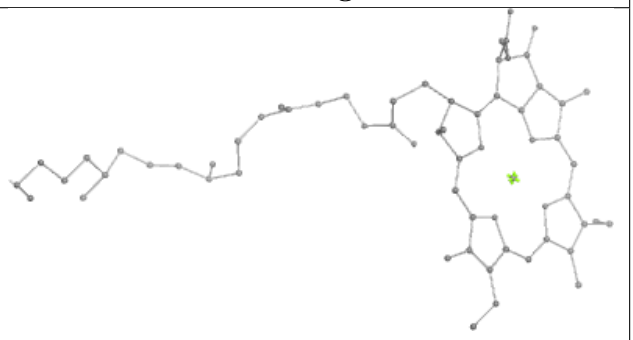
Bond lengths



Bond angles

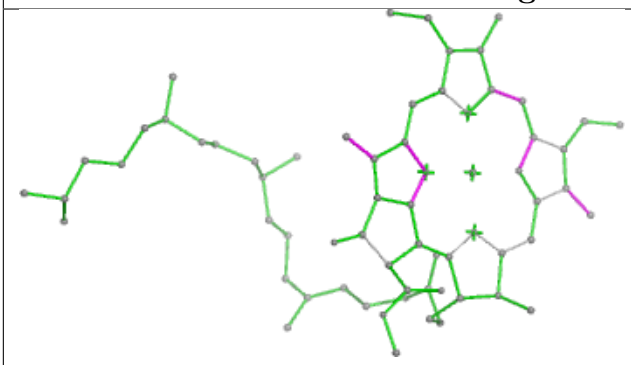


Torsions

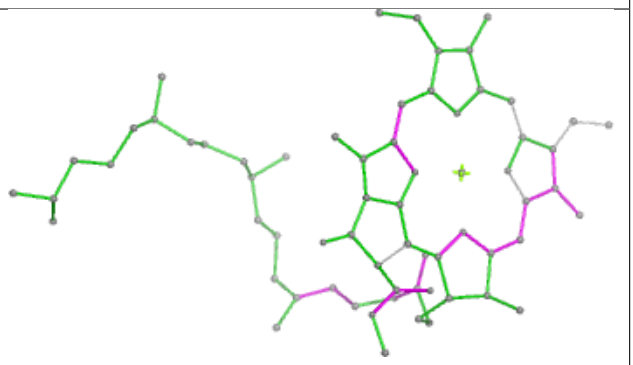


Rings

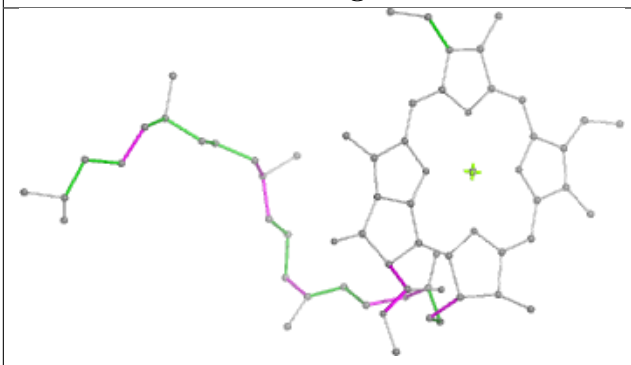
Ligand CLA b 3034



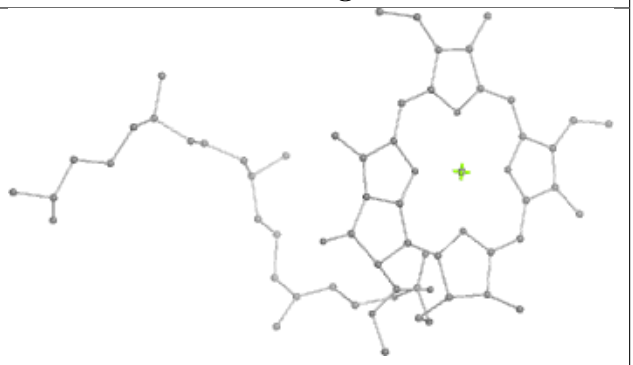
Bond lengths



Bond angles

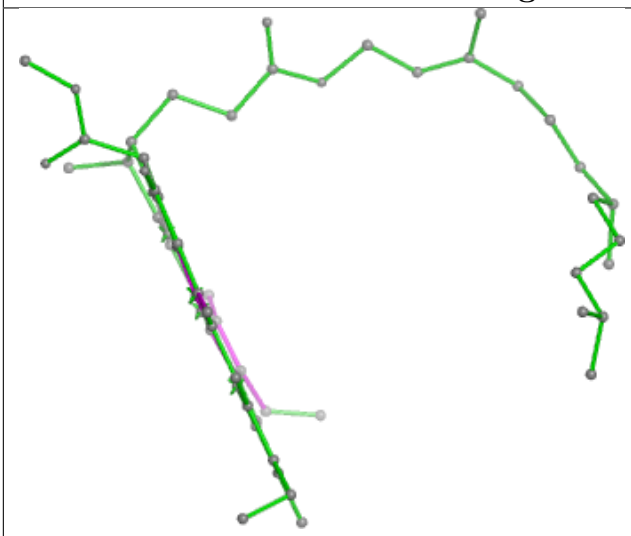


Torsions

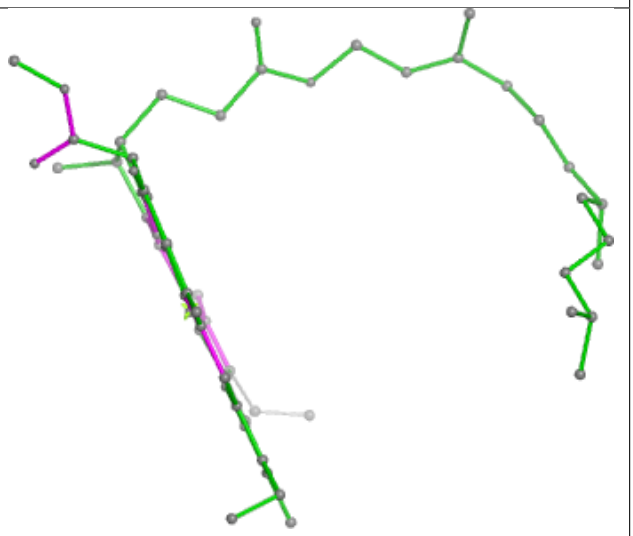


Rings

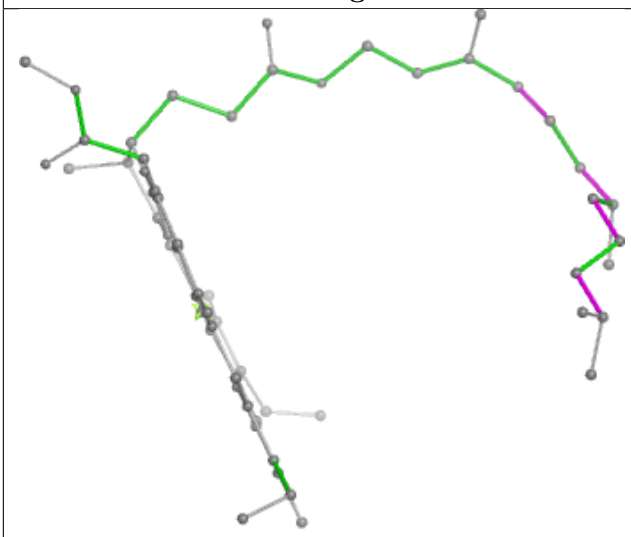
Ligand CLA b 3019



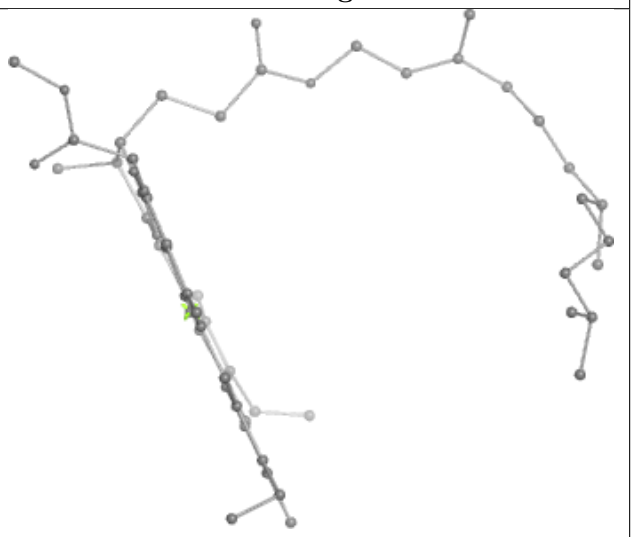
Bond lengths



Bond angles

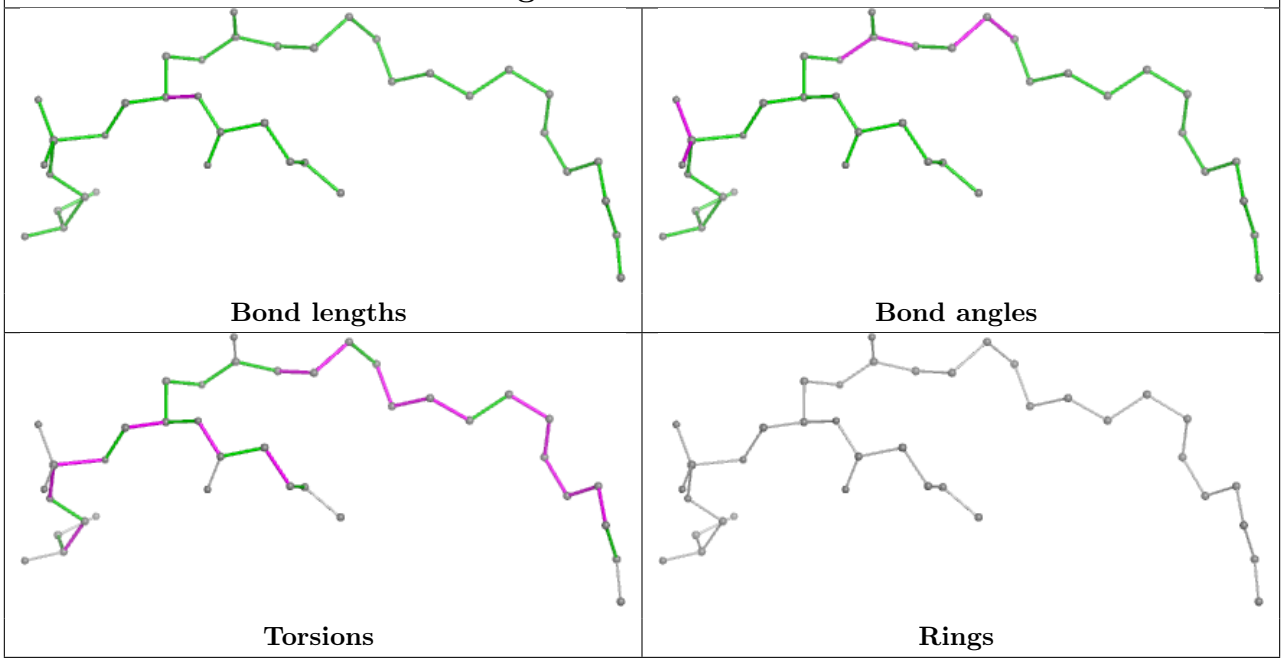


Torsions

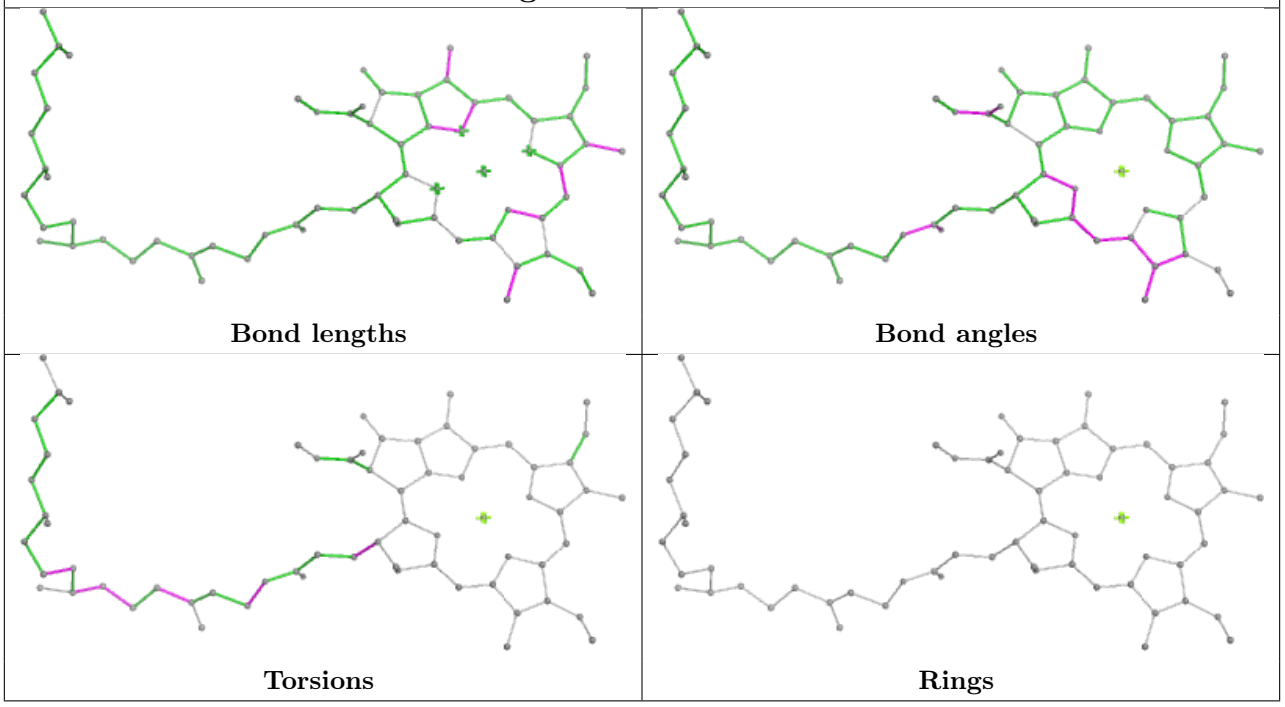


Rings

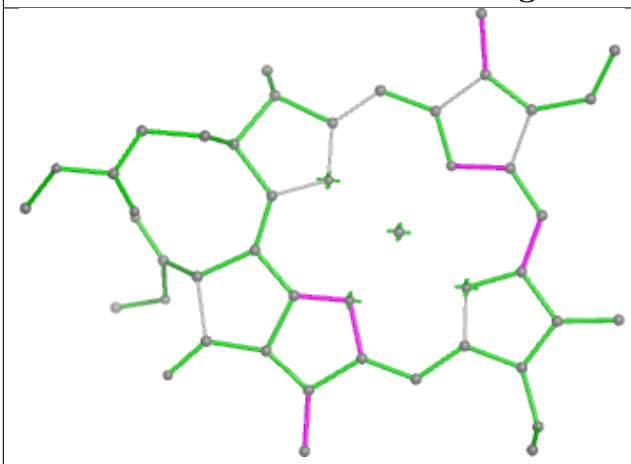
Ligand LHG b 3050



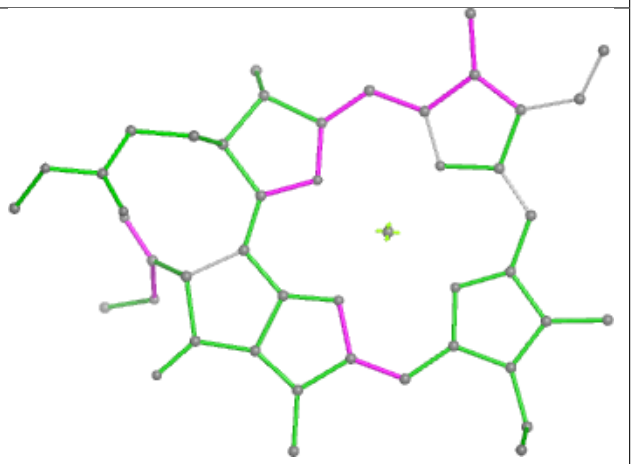
Ligand CLA b 3026



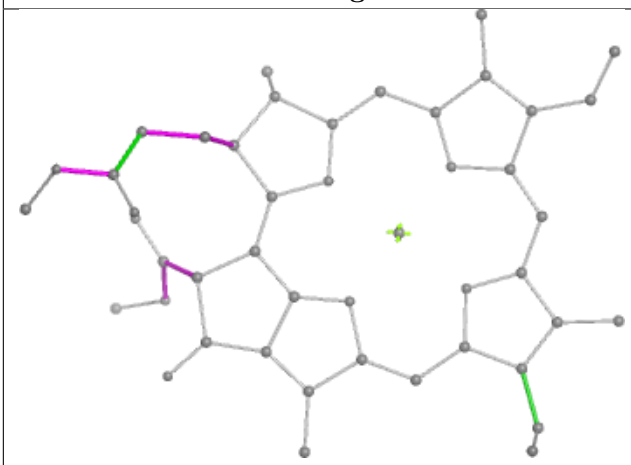
Ligand CLA b 3041



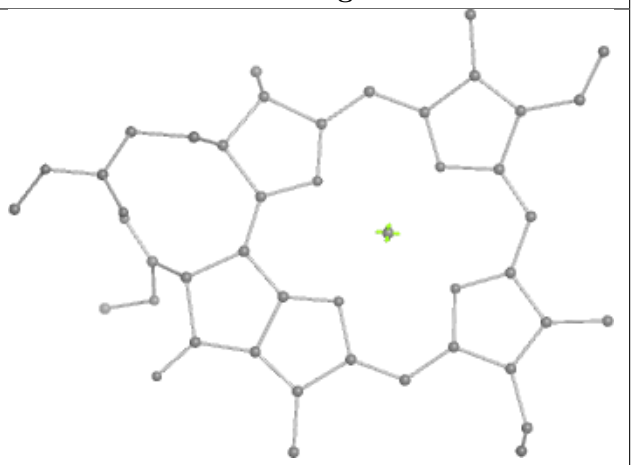
Bond lengths



Bond angles

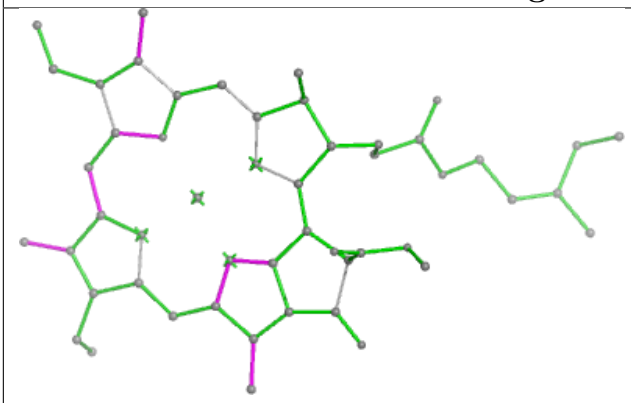


Torsions

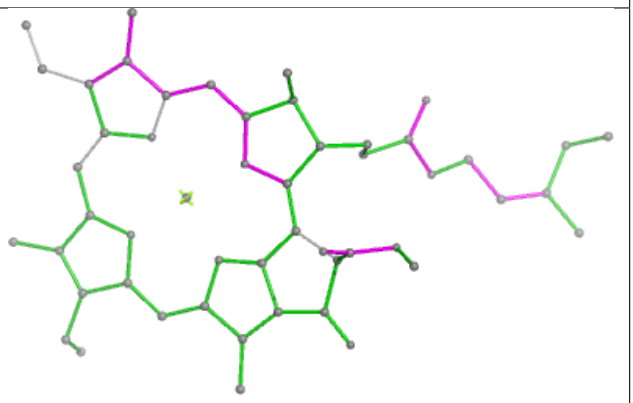


Rings

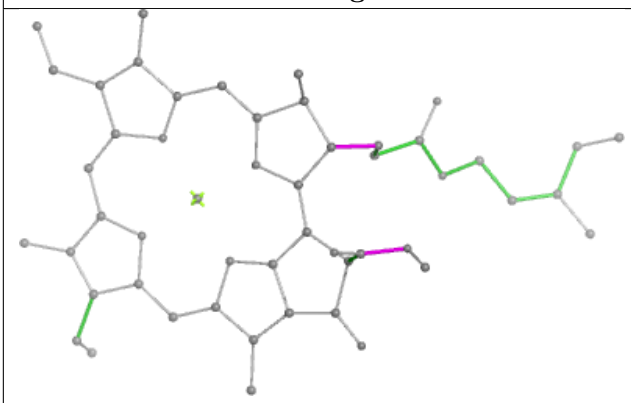
Ligand CLA a 810



Bond lengths



Bond angles



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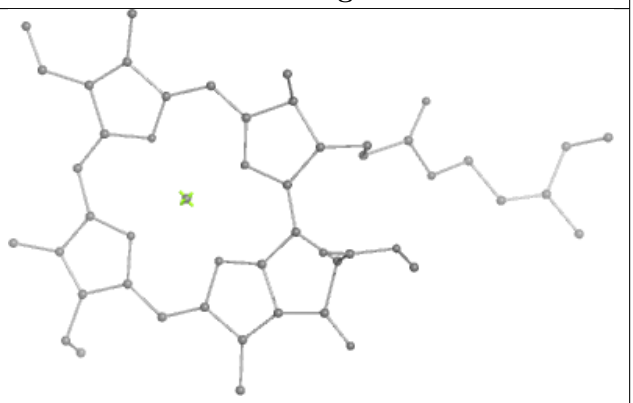
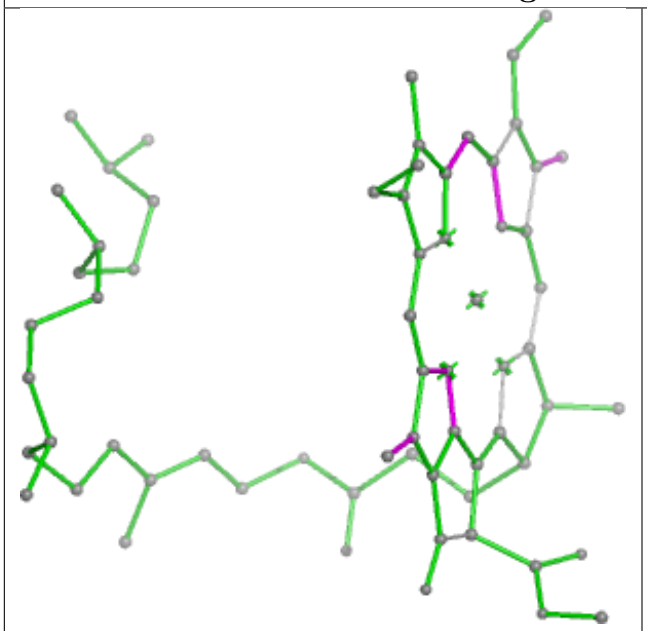
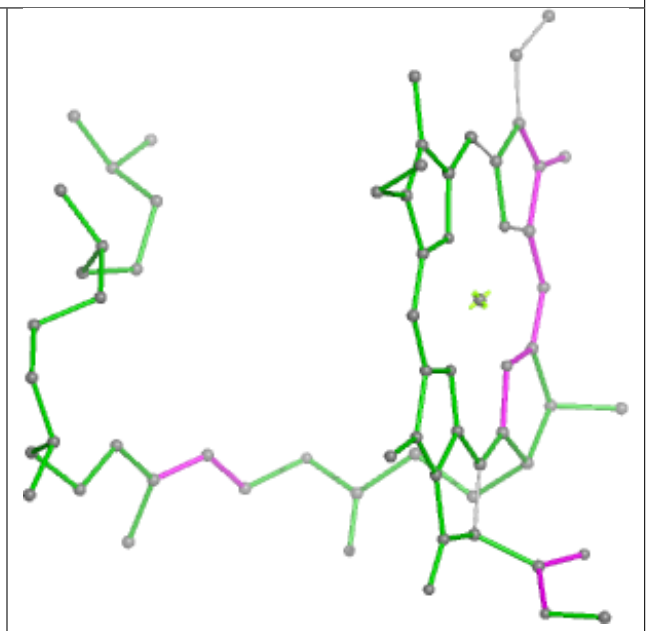


Rings

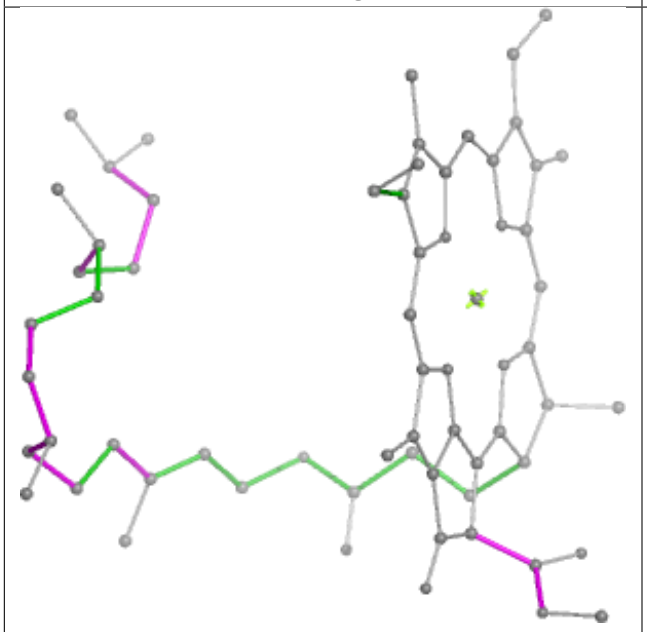
Ligand CLA b 3014



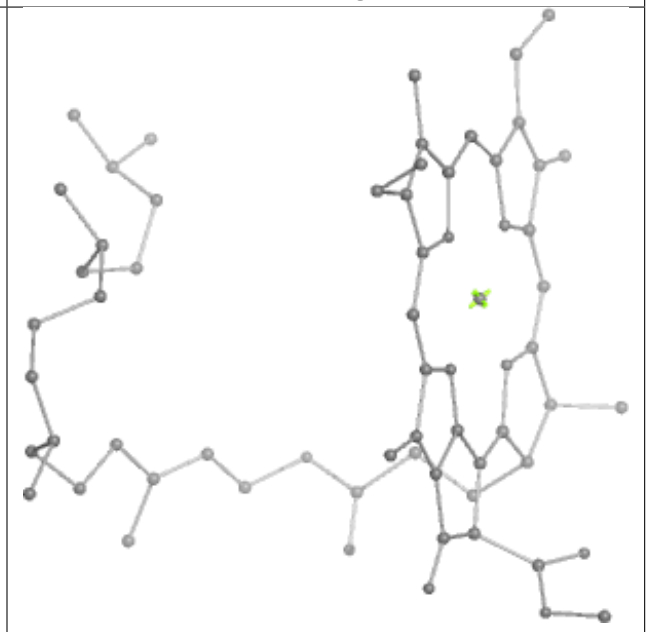
Bond lengths



Bond angles

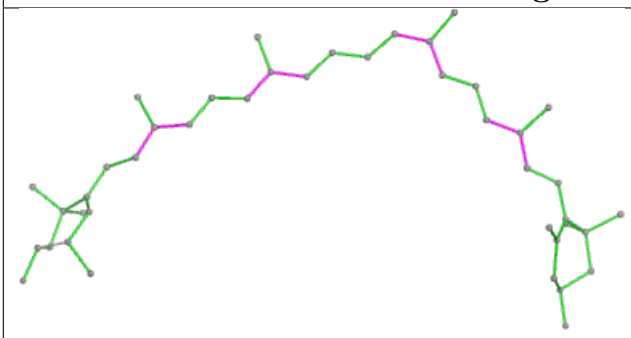


Torsions

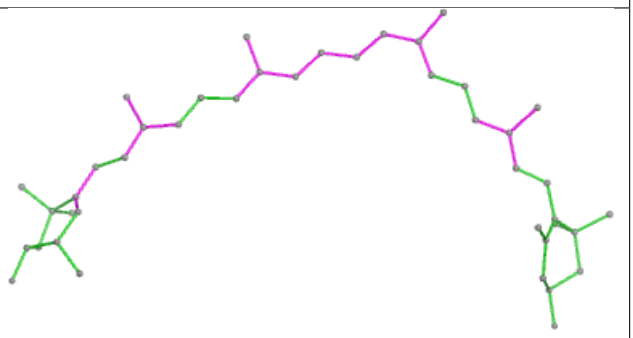


Rings

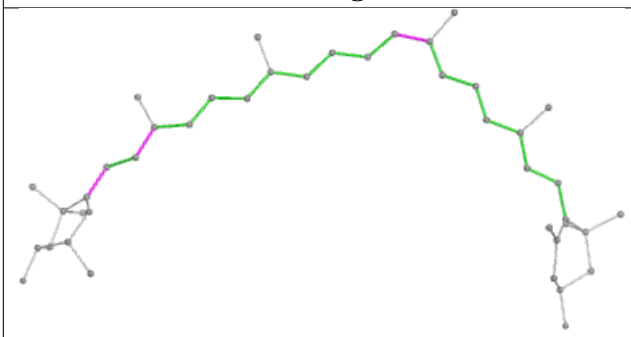
Ligand ZEX f 205



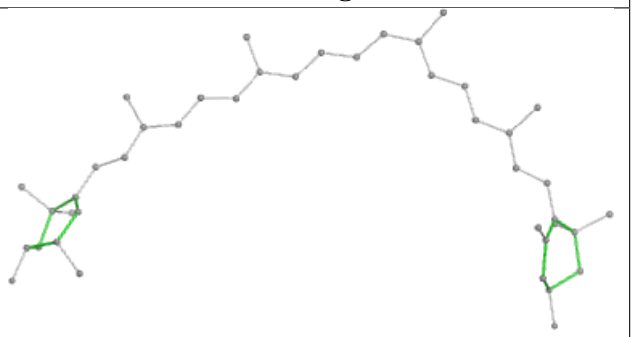
Bond lengths



Bond angles

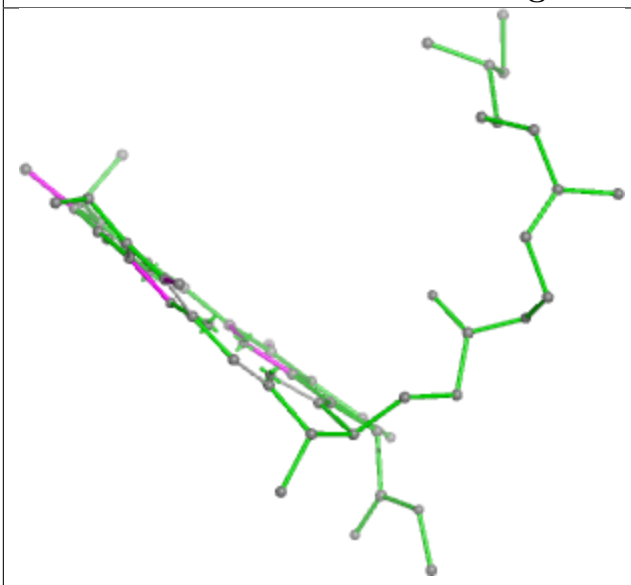


Torsions

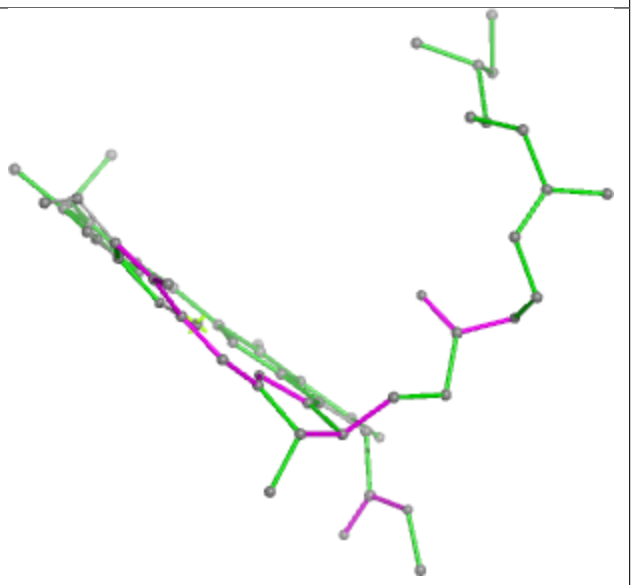


Rings

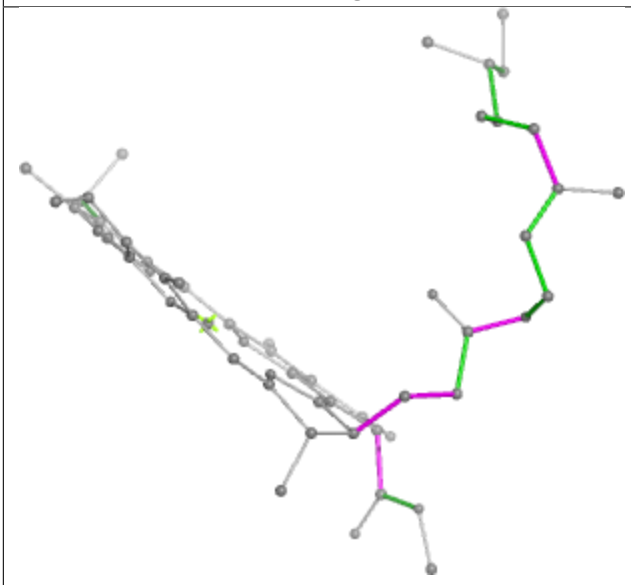
Ligand CLA a 843



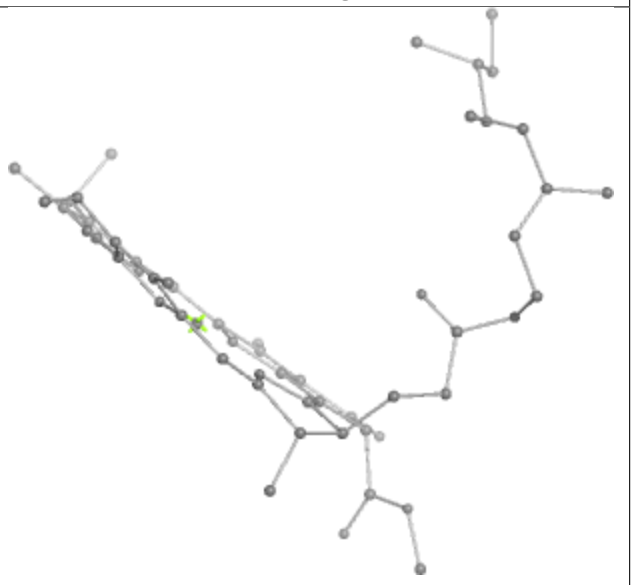
Bond lengths



Bond angles

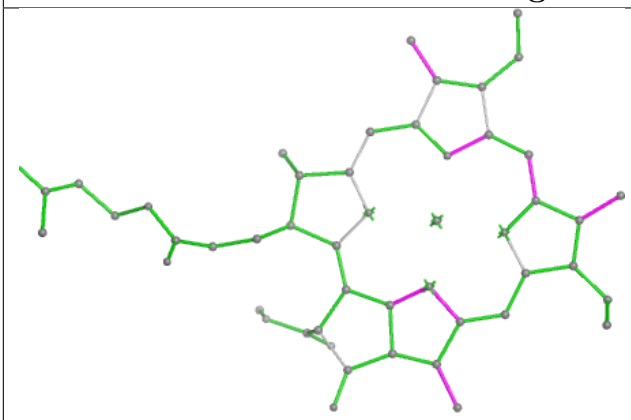


Torsions

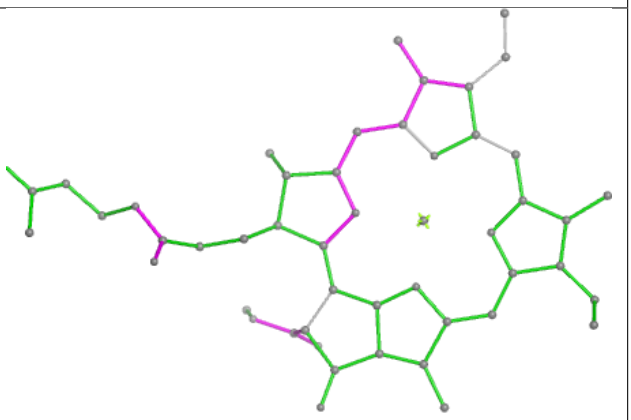


Rings

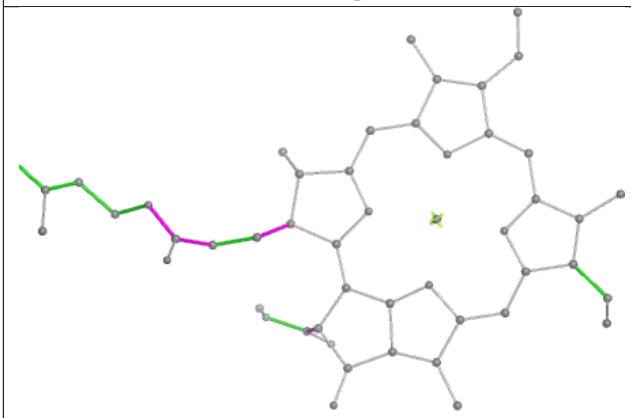
Ligand CLA a 838



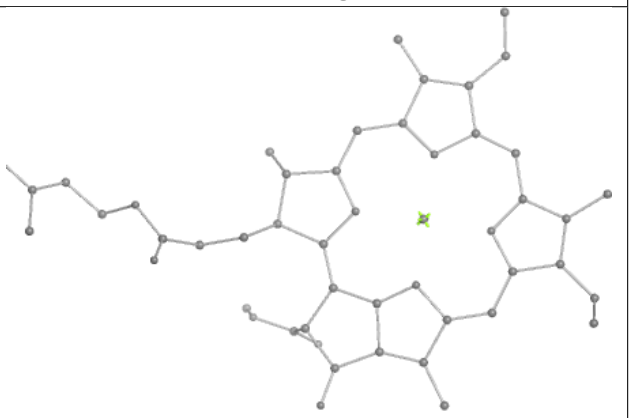
Bond lengths



Bond angles

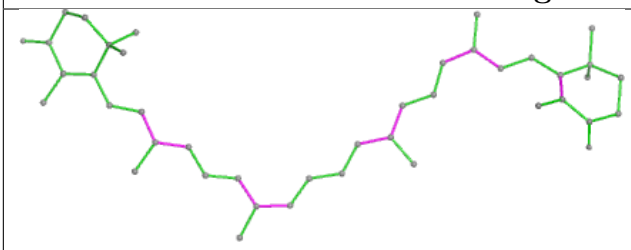


Torsions

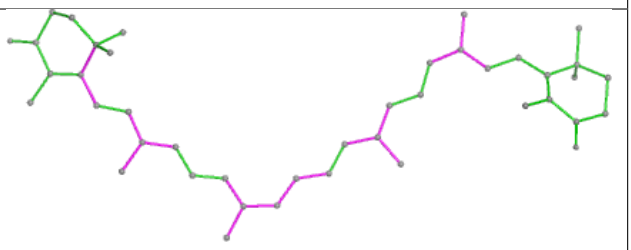


Rings

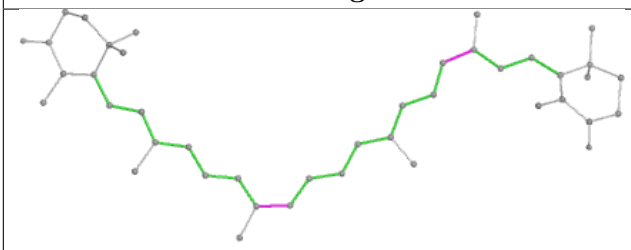
Ligand 45D a 857



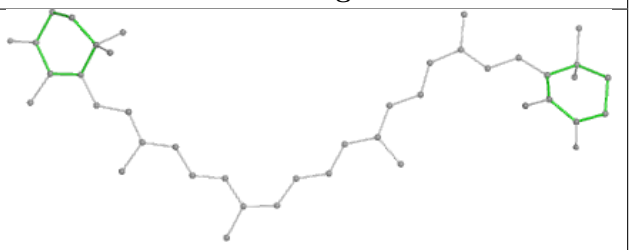
Bond lengths



Bond angles

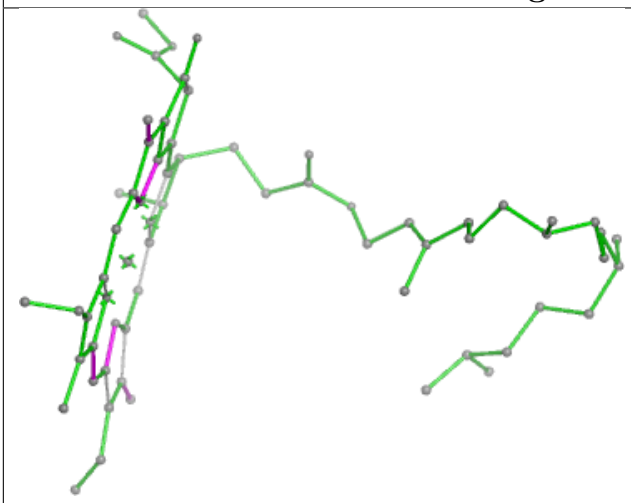


Torsions

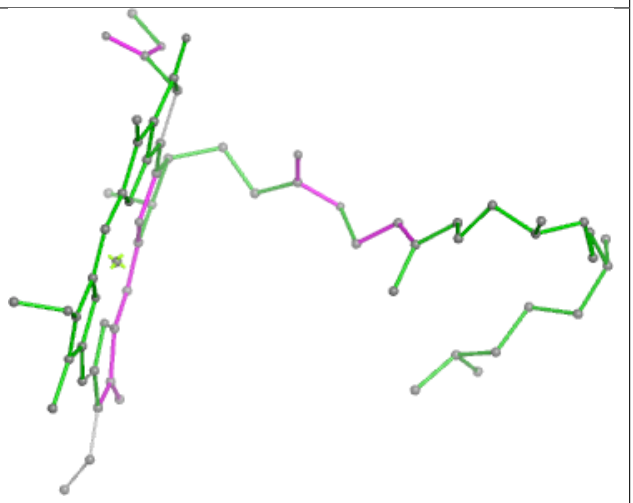


Rings

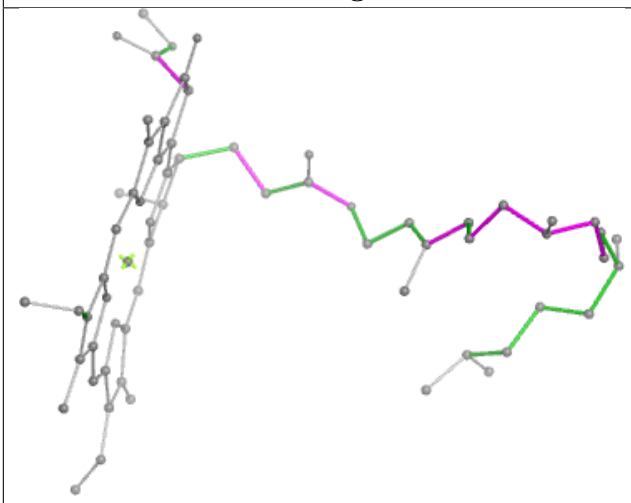
Ligand CLA a 837



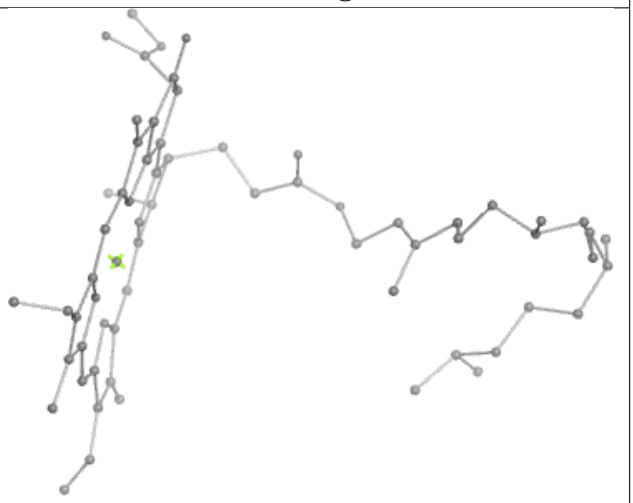
Bond lengths



Bond angles

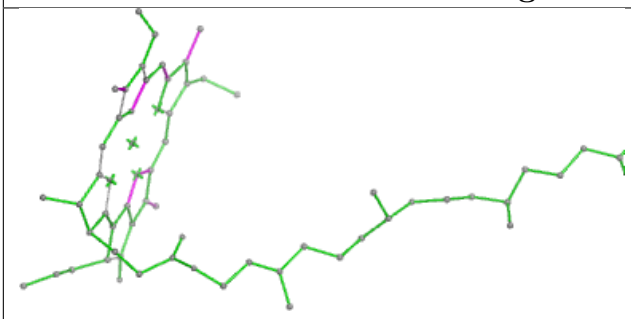


Torsions

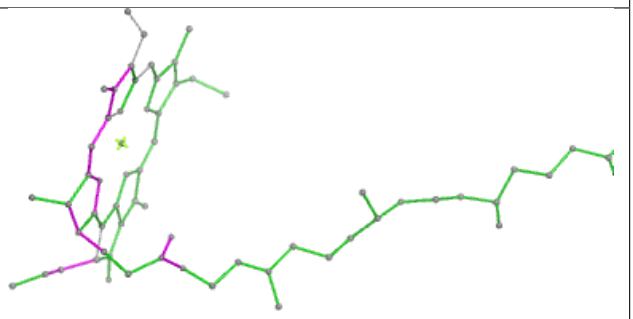


Rings

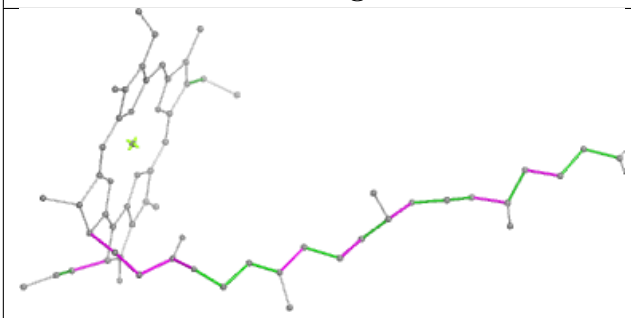
Ligand CLA b 3029



Bond lengths



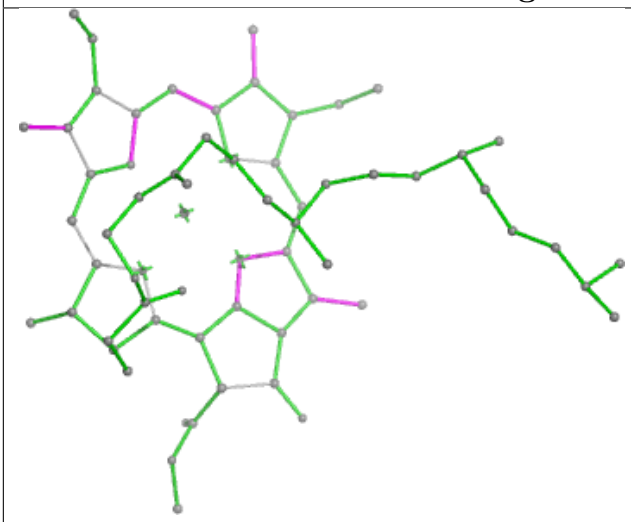
Bond angles



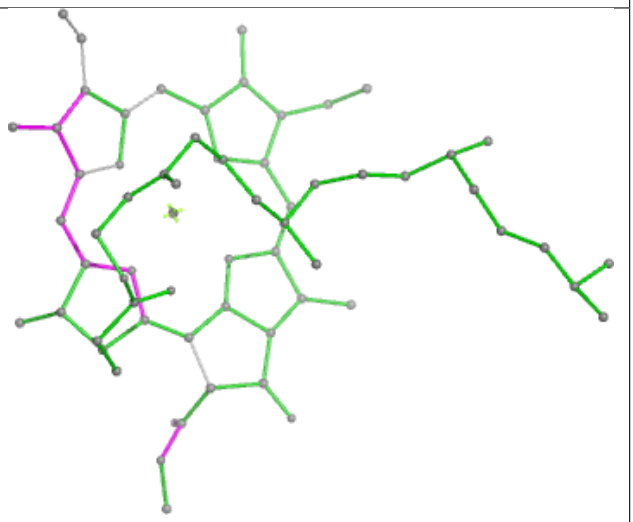
Torsions

Rings

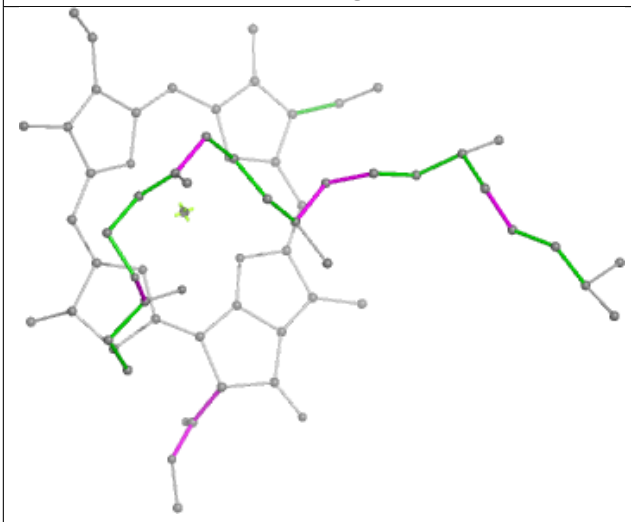
Ligand CLA b 3027



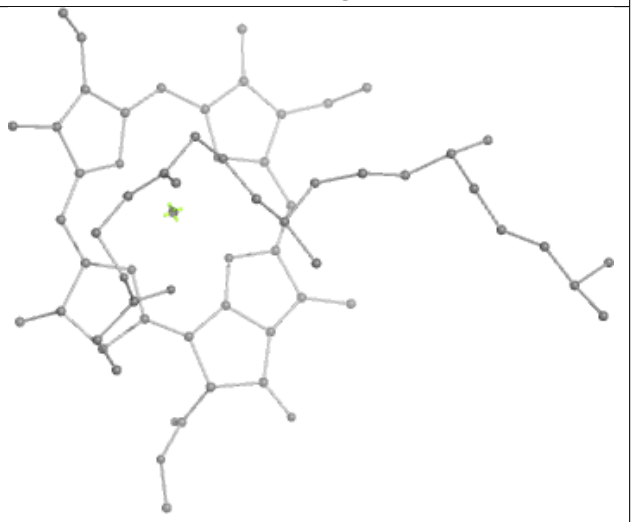
Bond lengths



Bond angles

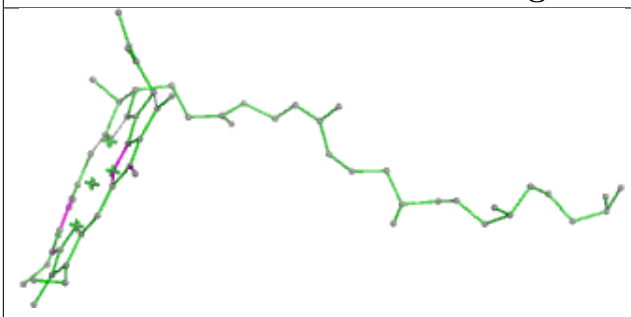


Torsions

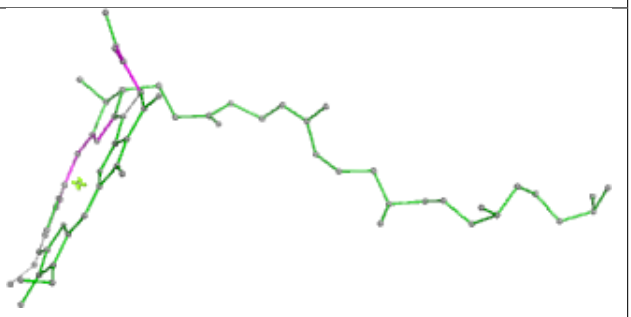


Rings

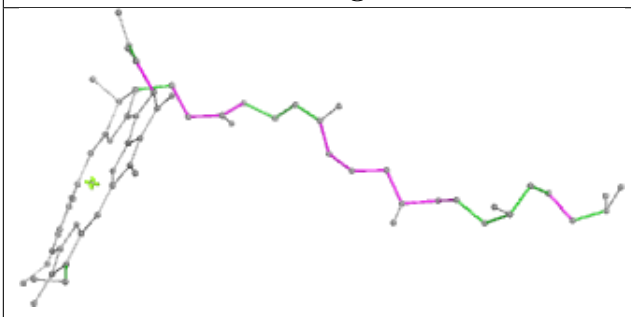
Ligand CLA a 840



Bond lengths



Bond angles



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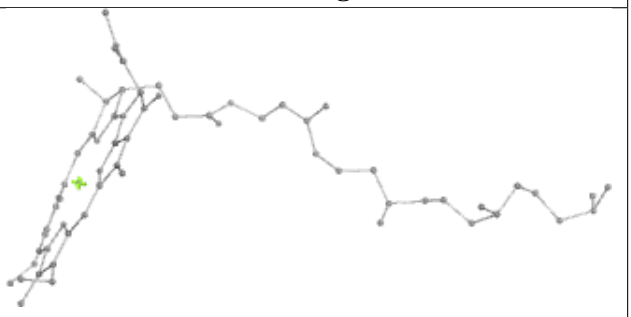
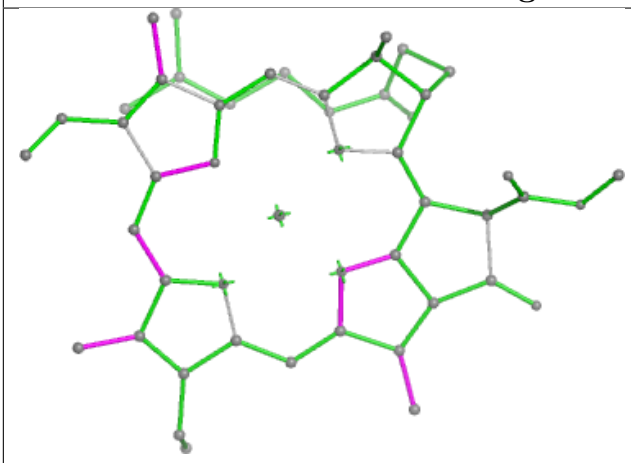
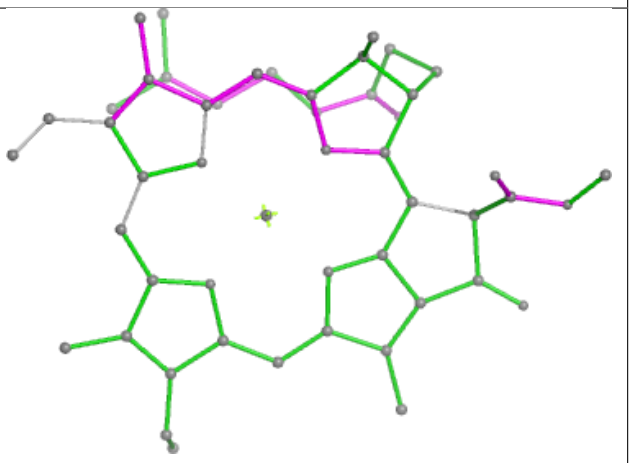


Rings

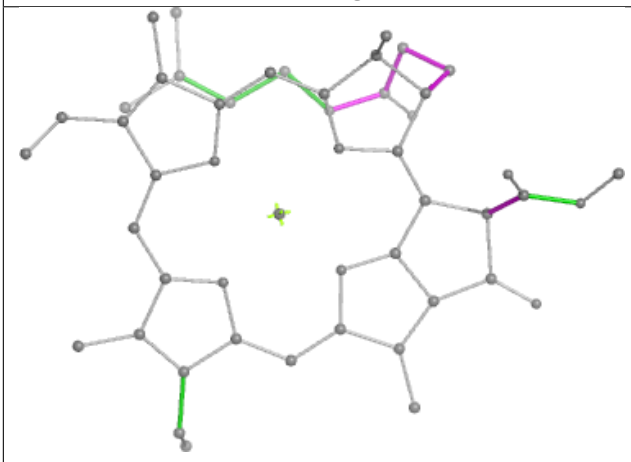
Ligand CLA b 3012



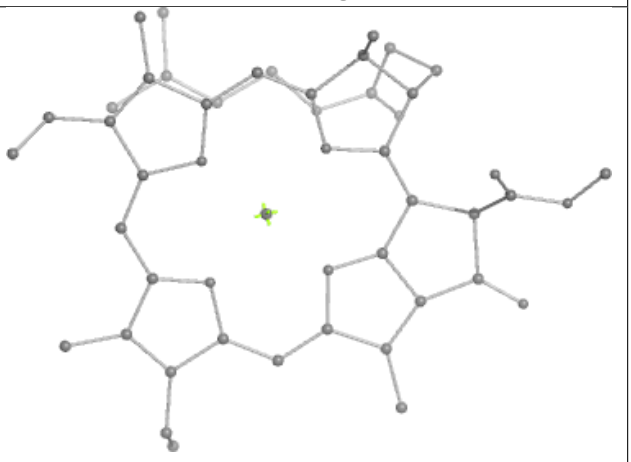
Bond lengths



Bond angles

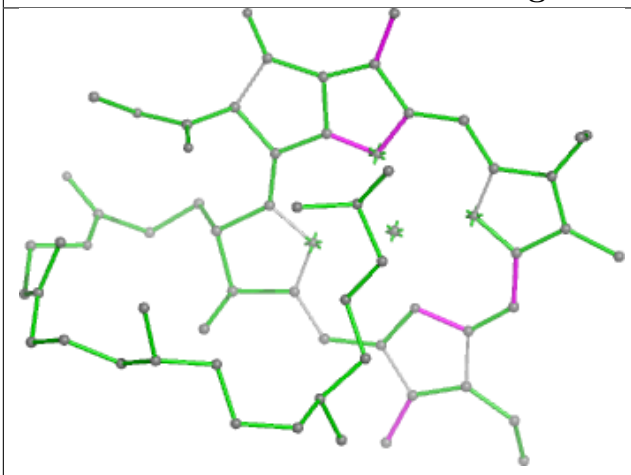


Torsions

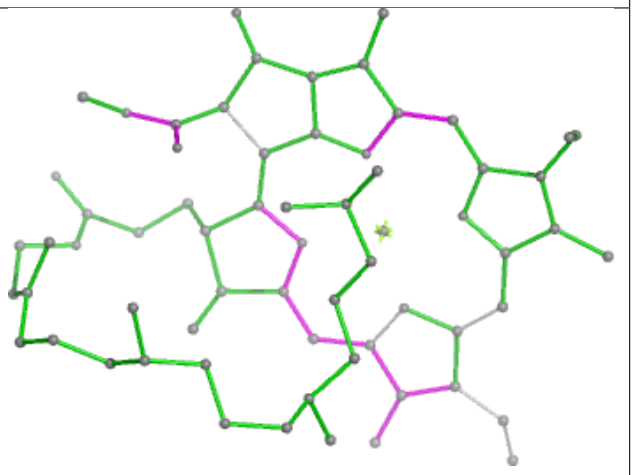


Rings

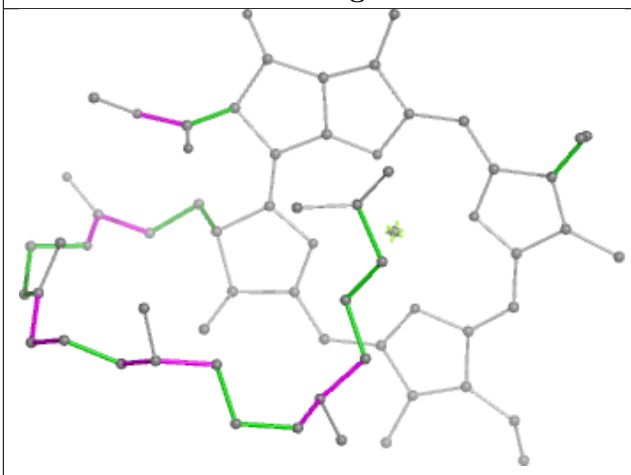
Ligand CLA a 807



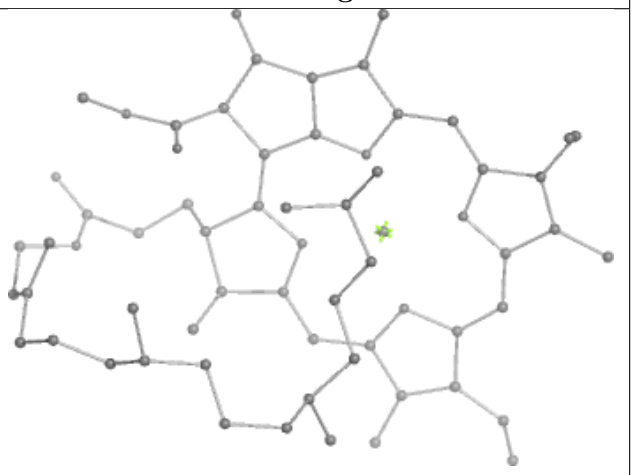
Bond lengths



Bond angles

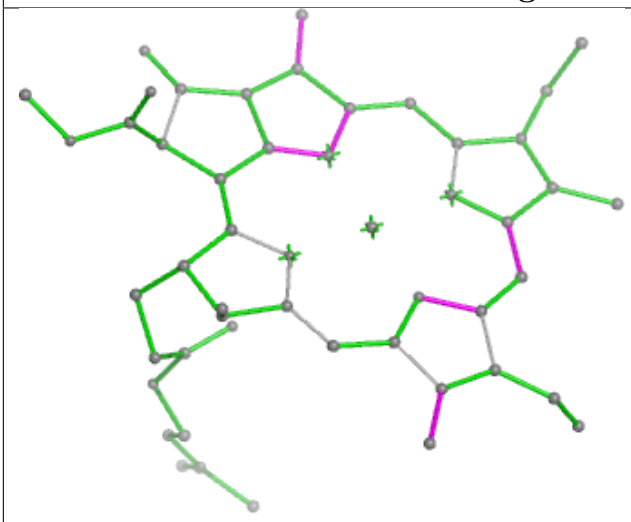


Torsions

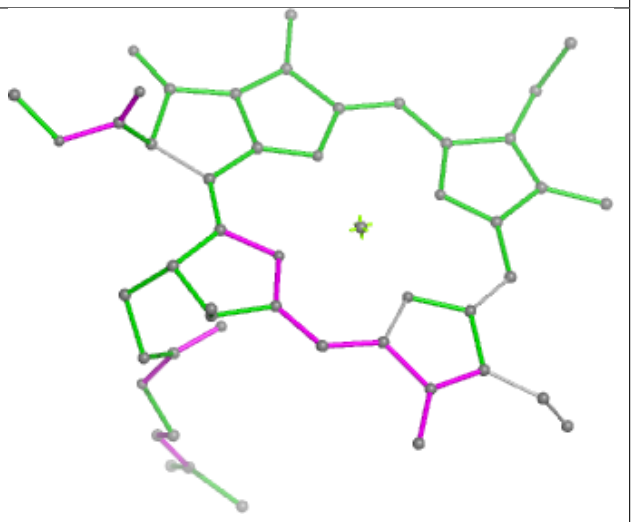


Rings

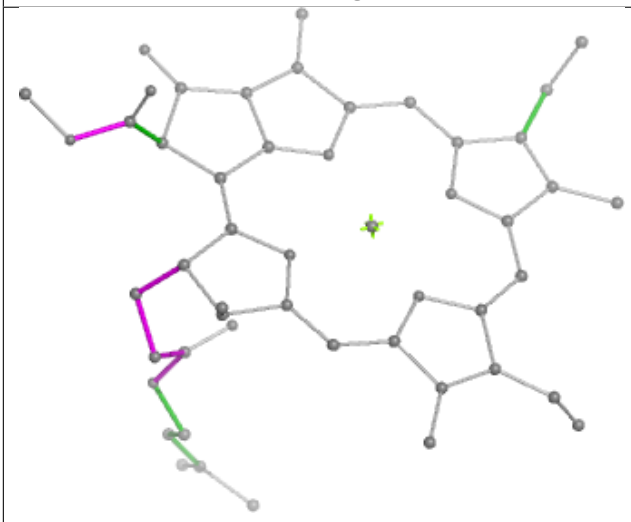
Ligand CLA b 3035



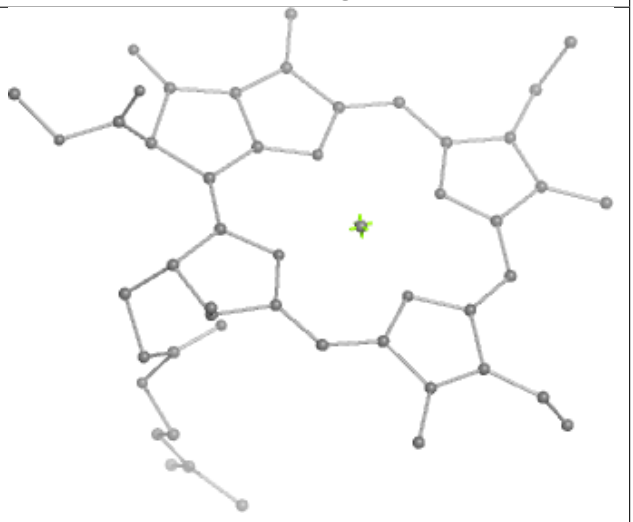
Bond lengths



Bond angles

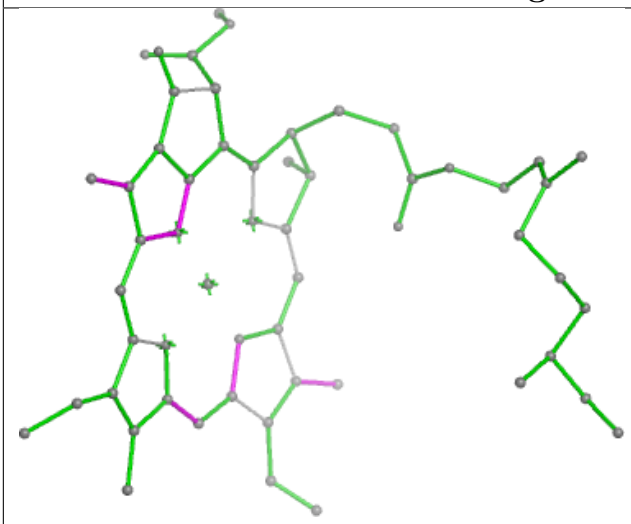


Torsions

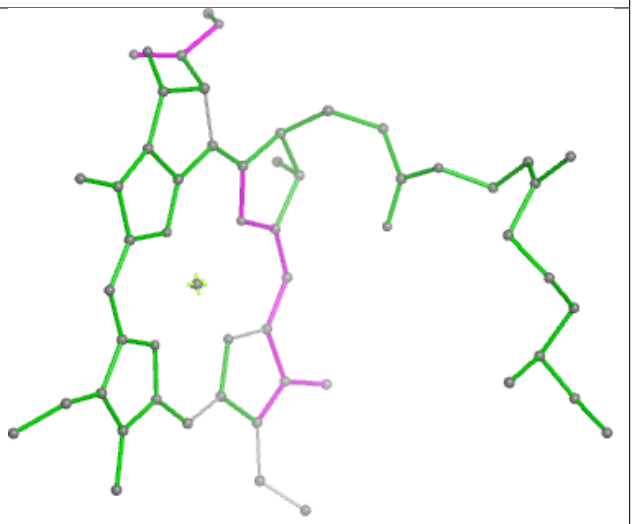


Rings

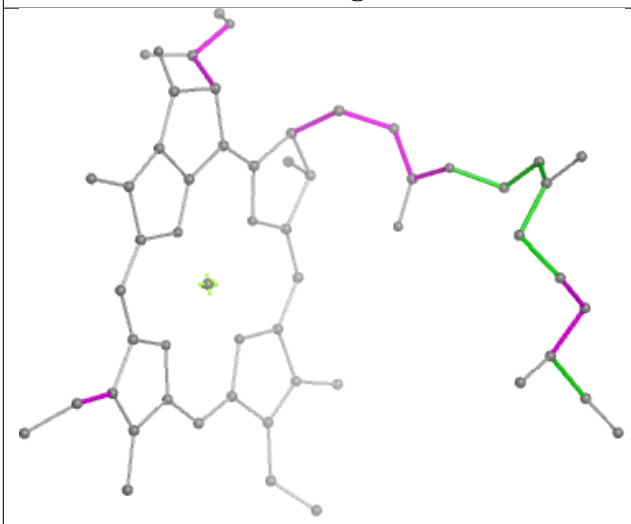
Ligand CLA a 832



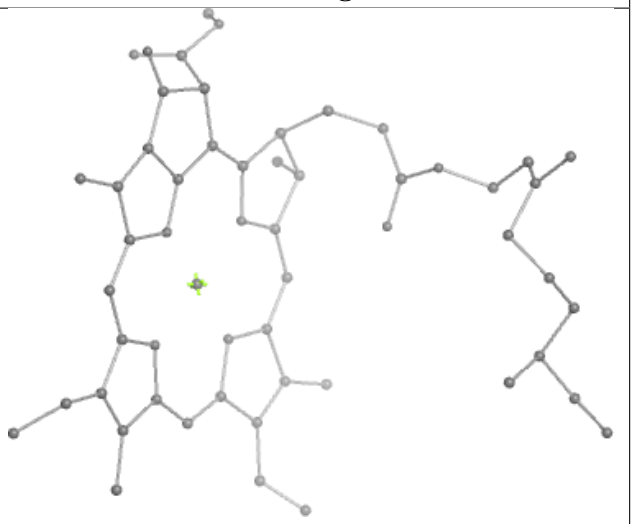
Bond lengths



Bond angles

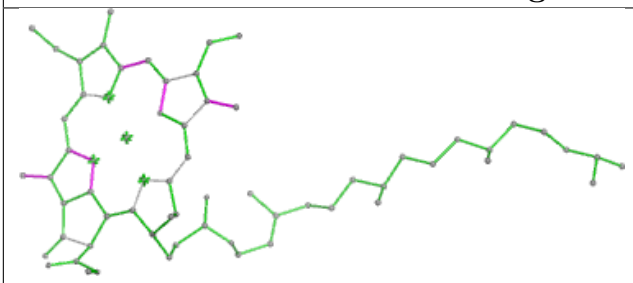


Torsions

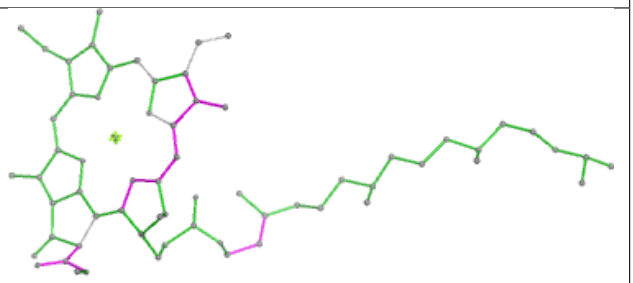


Rings

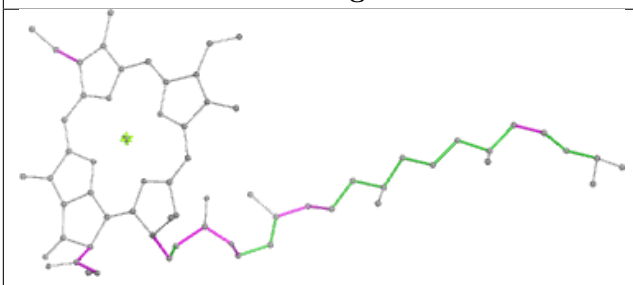
Ligand CLA a 835



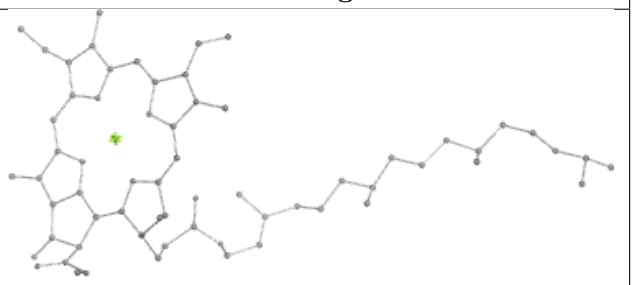
Bond lengths



Bond angles

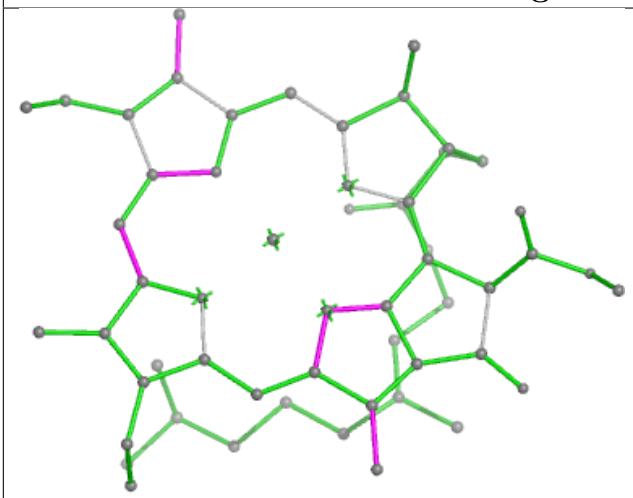


Torsions

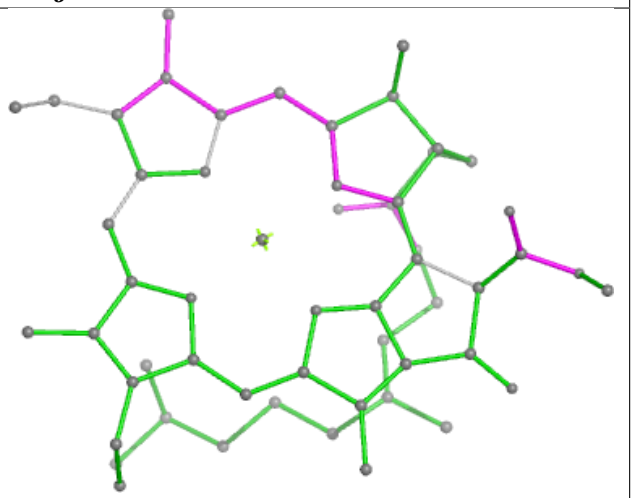


Rings

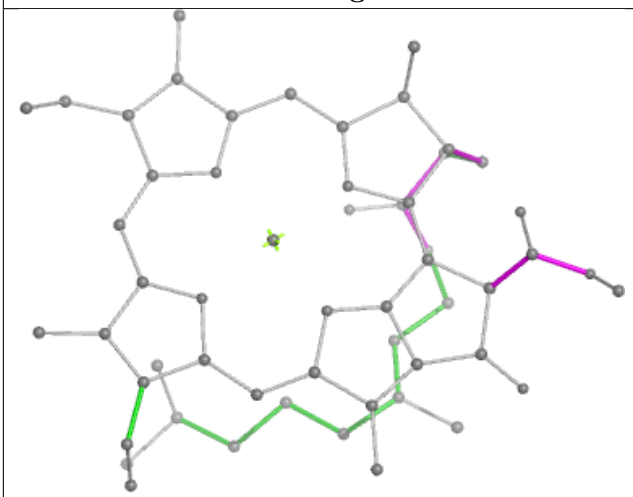
Ligand CLA j 102



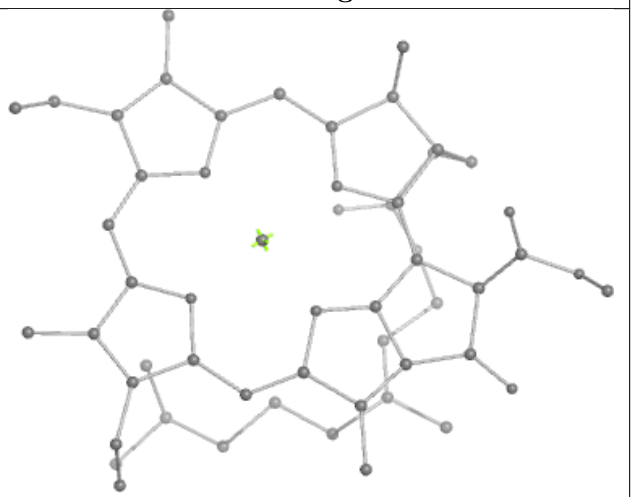
Bond lengths



Bond angles

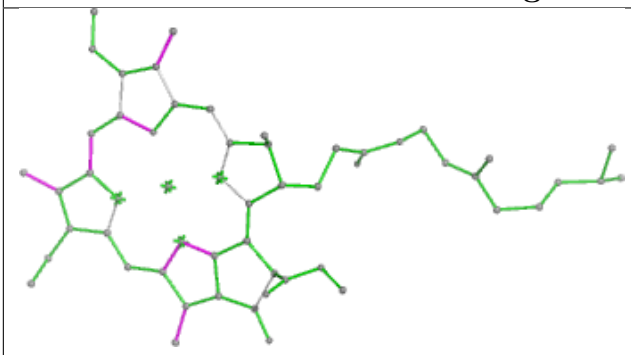


Torsions

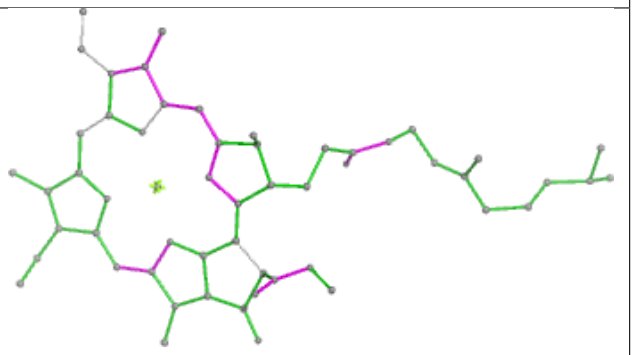


Rings

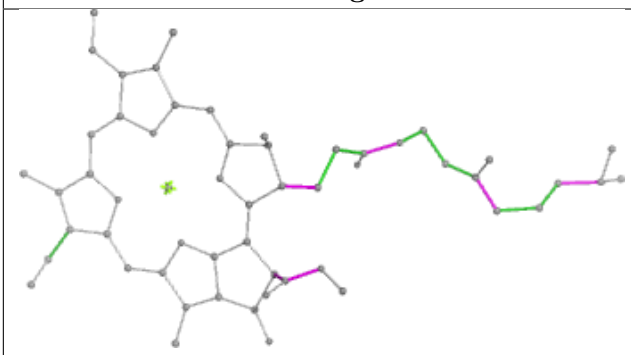
Ligand CLA D 403



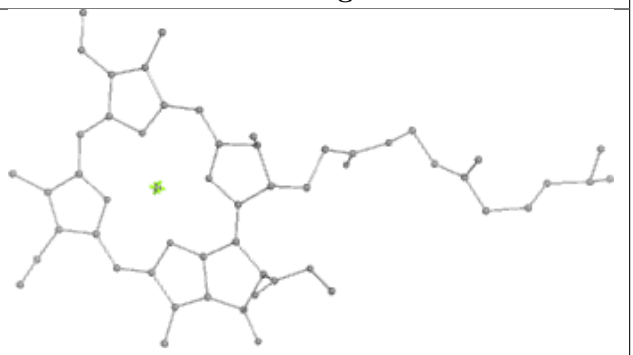
Bond lengths



Bond angles

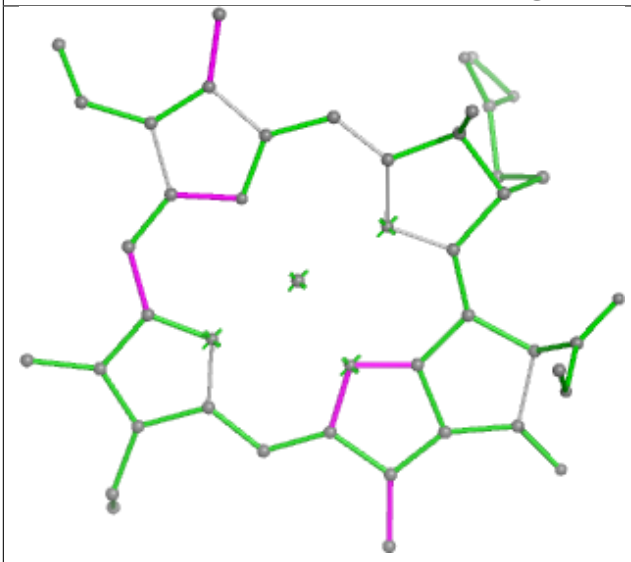


Torsions

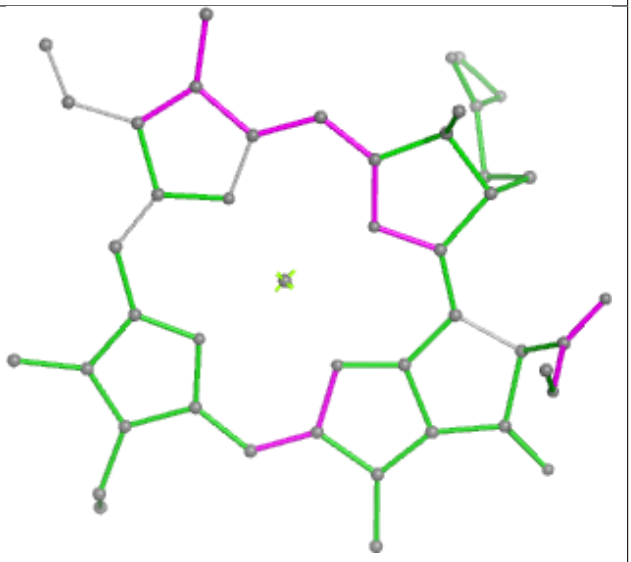


Rings

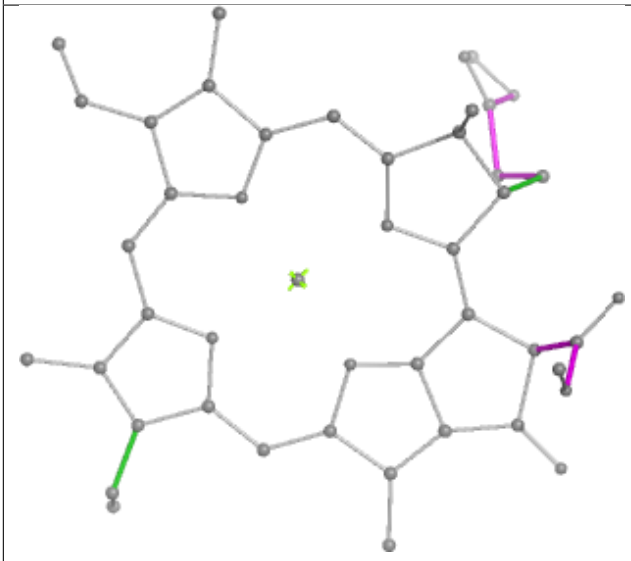
Ligand CLA a 816



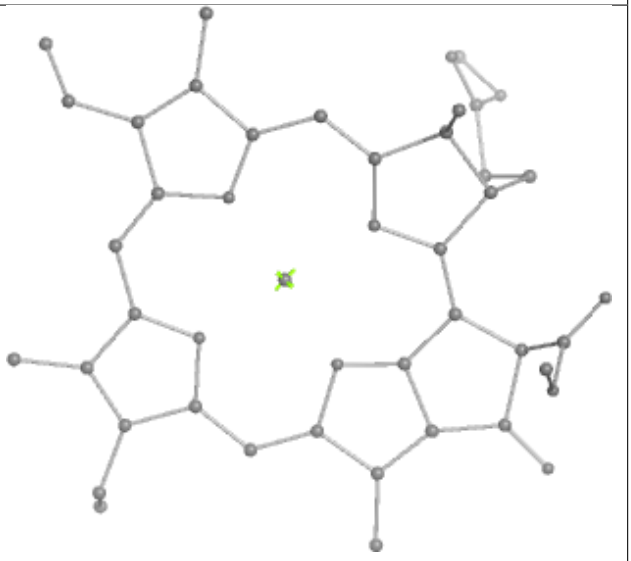
Bond lengths



Bond angles

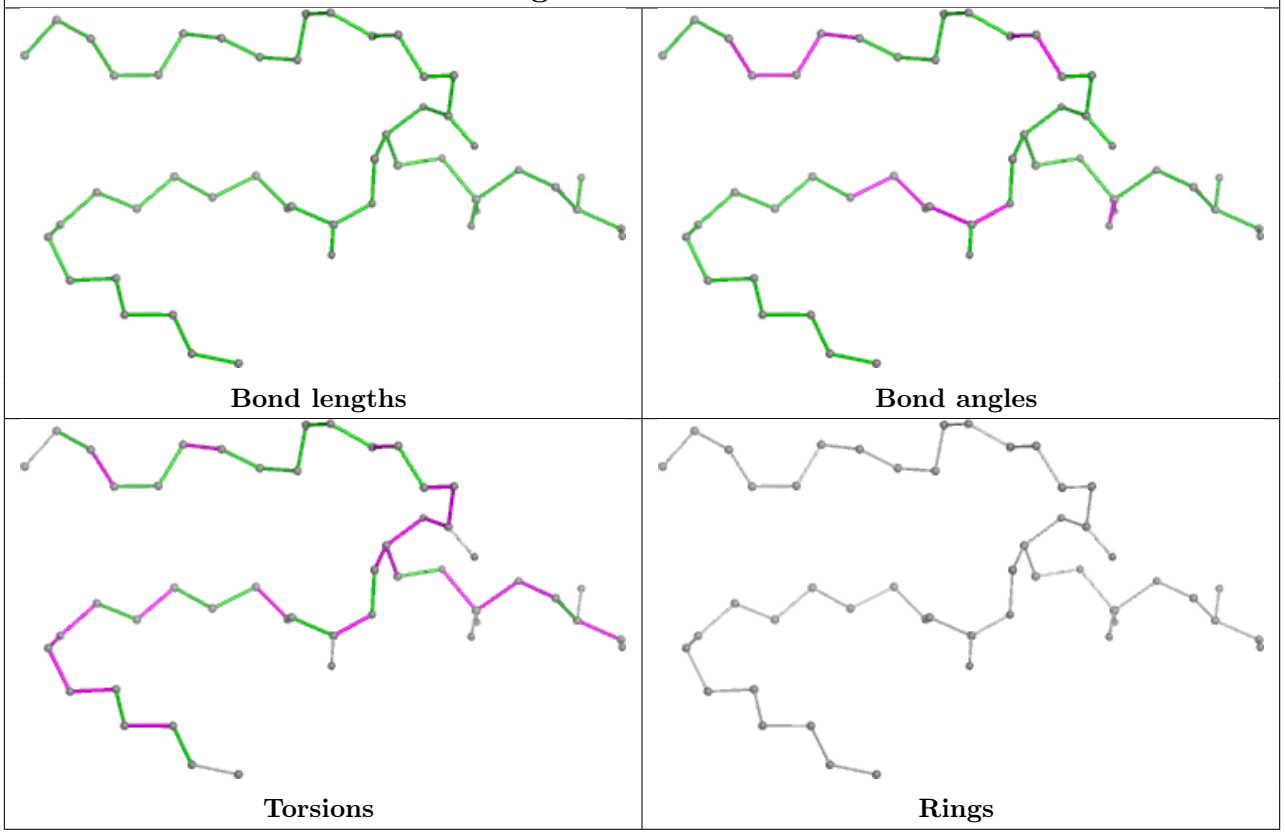


Torsions

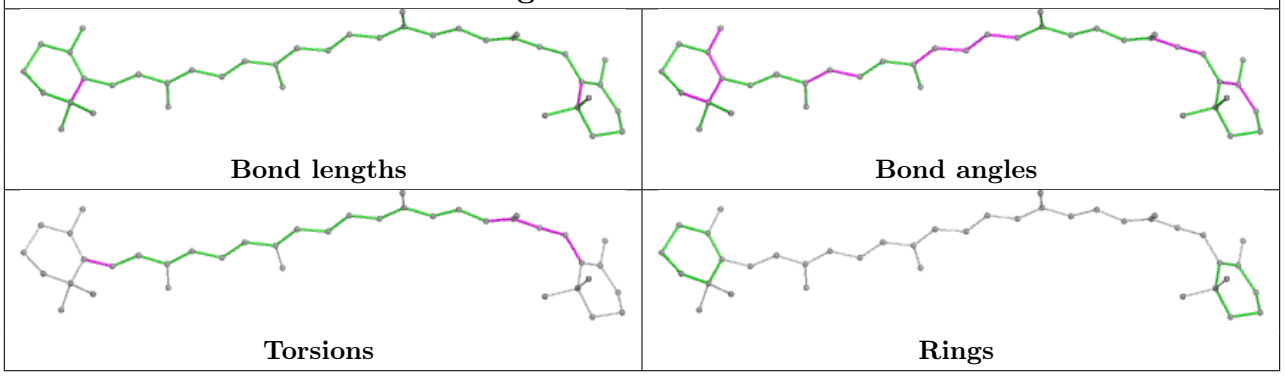


Rings

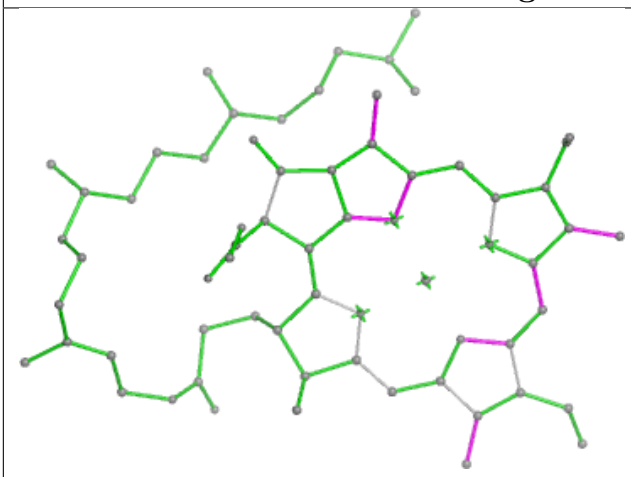
Ligand LHG f 206



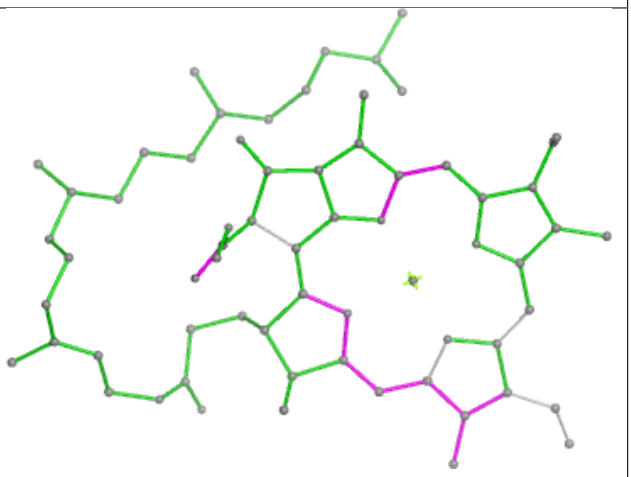
Ligand BCR b 3046



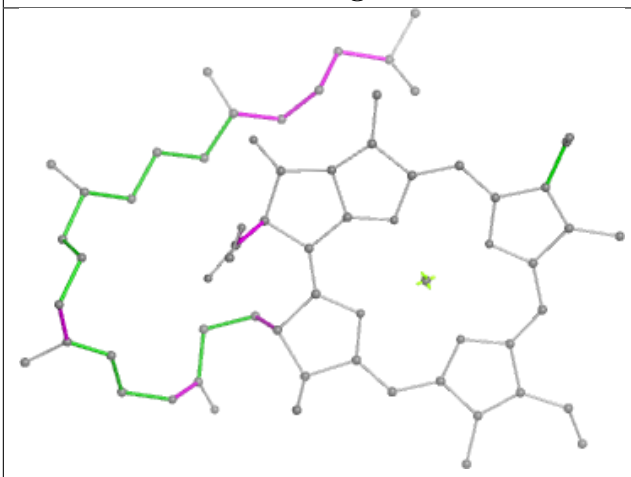
Ligand CLA b 3005



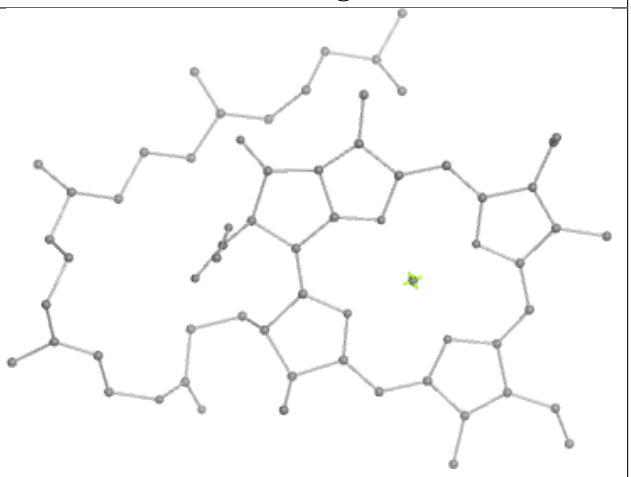
Bond lengths



Bond angles

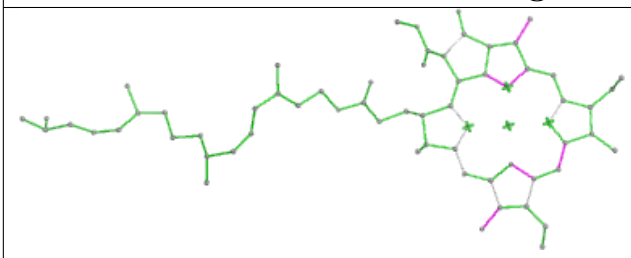


Torsions

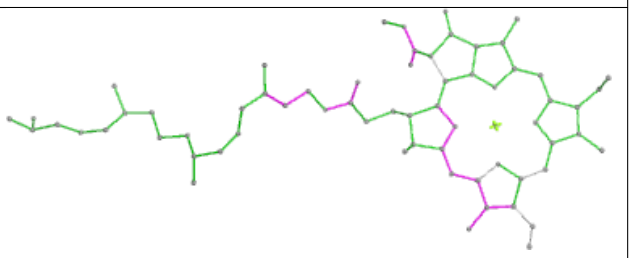


Rings

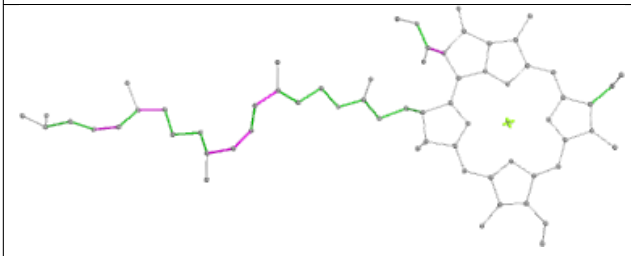
Ligand CLA a 834



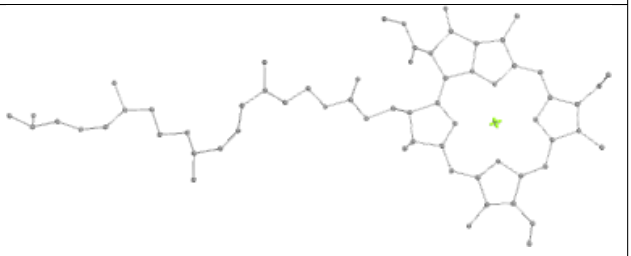
Bond lengths



Bond angles



Torsions



Rings

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

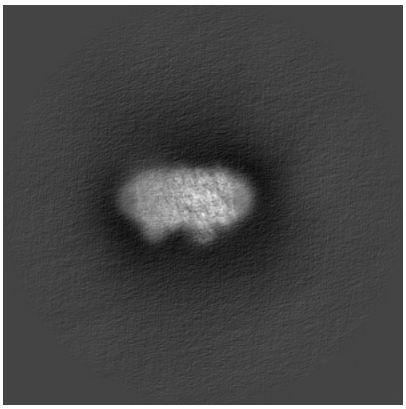
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-15618. These allow visual inspection of the internal detail of the map and identification of artifacts.

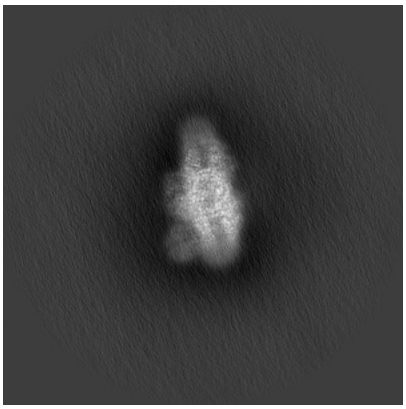
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

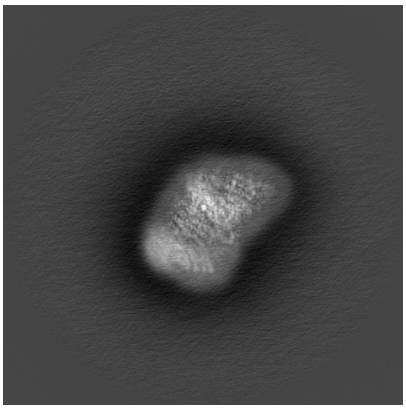
6.1.1 Primary map



X

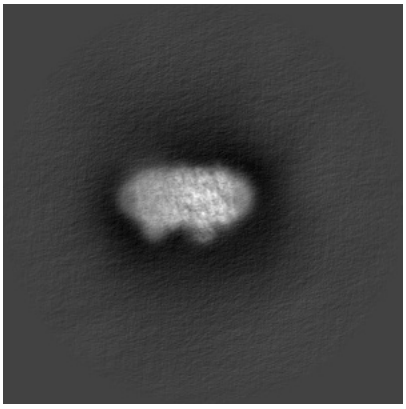


Y

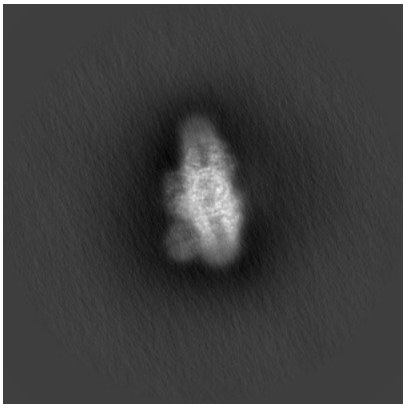


Z

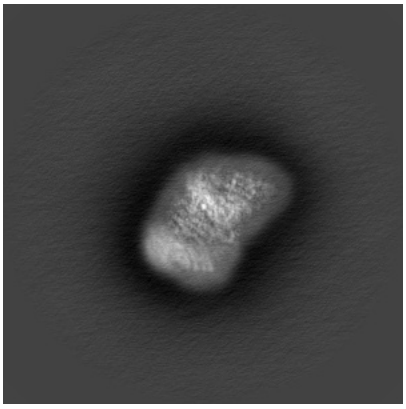
6.1.2 Raw map



X



Y

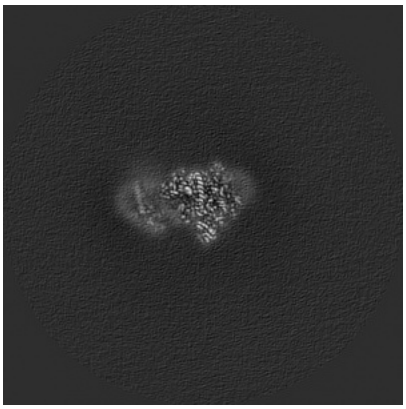


Z

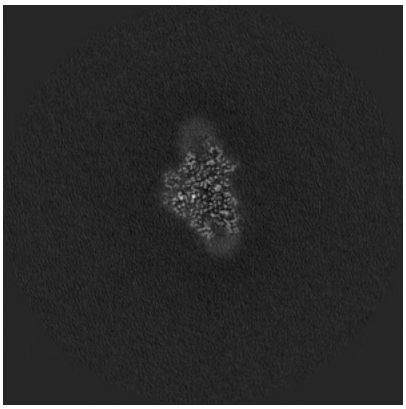
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

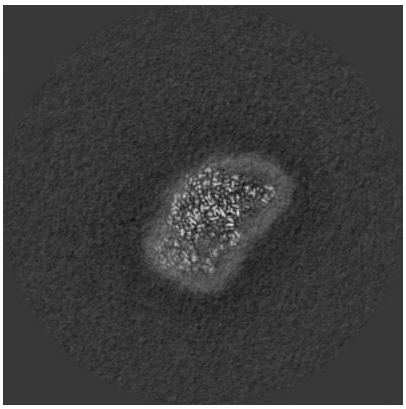
6.2.1 Primary map



X Index: 200

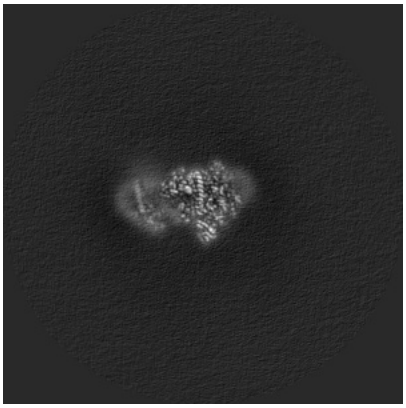


Y Index: 200

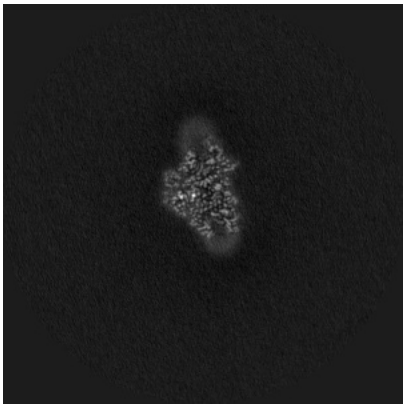


Z Index: 200

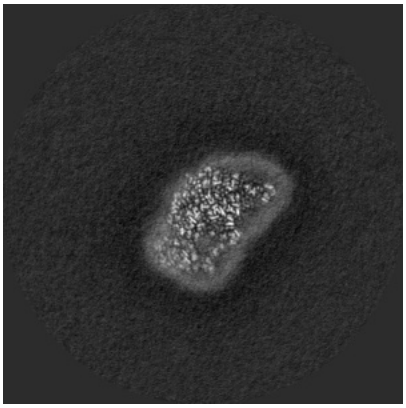
6.2.2 Raw map



X Index: 200



Y Index: 200

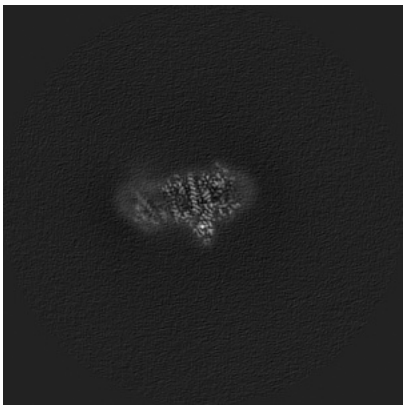


Z Index: 200

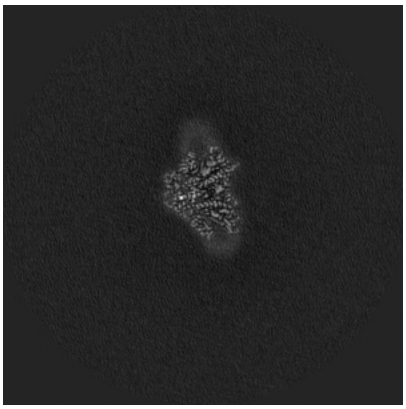
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

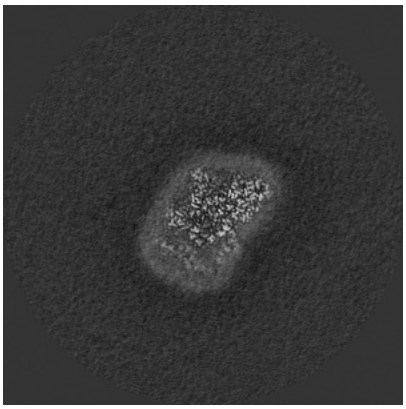
6.3.1 Primary map



X Index: 206

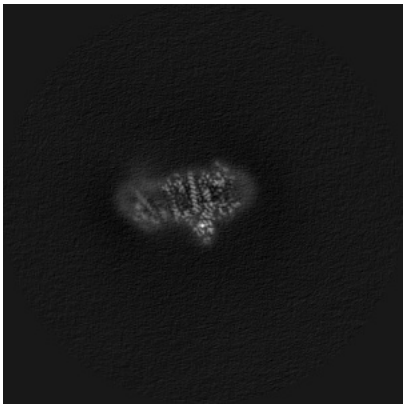


Y Index: 199

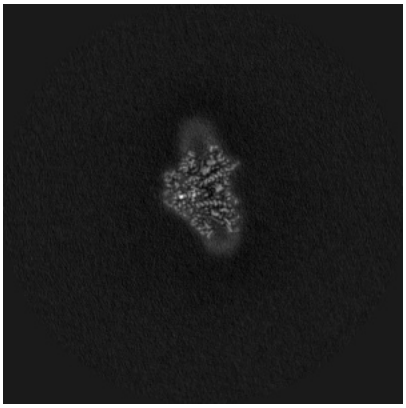


Z Index: 210

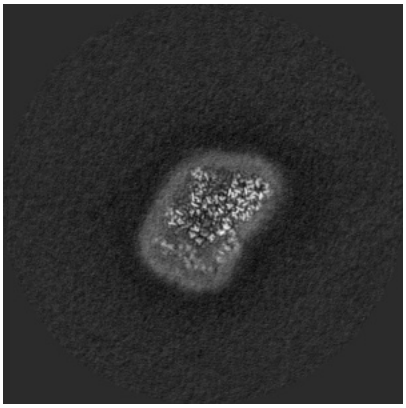
6.3.2 Raw map



X Index: 206



Y Index: 199

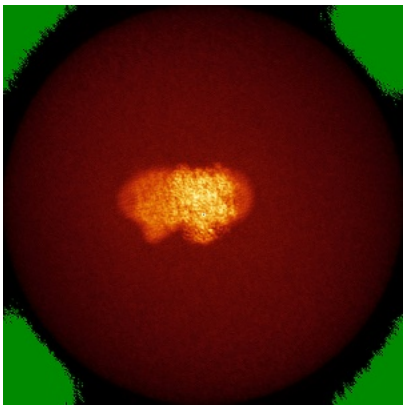


Z Index: 210

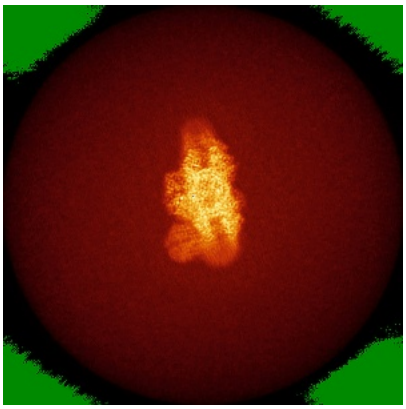
The images above show the largest variance slices of the map in three orthogonal directions.

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

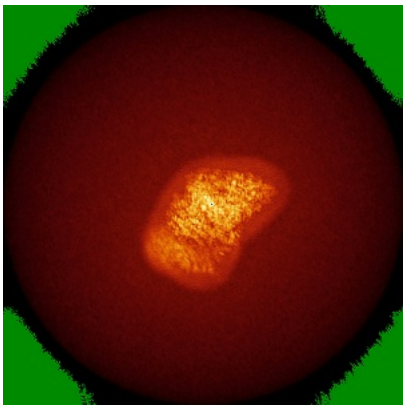
6.4.1 Primary map



X

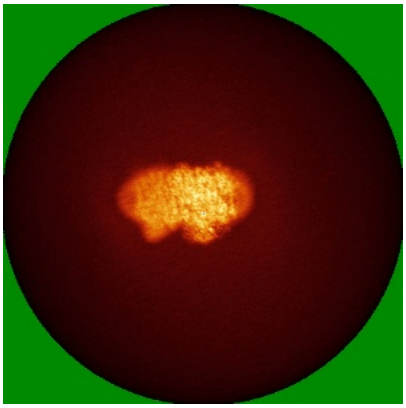


Y

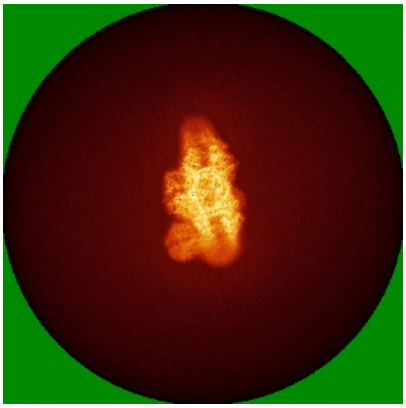


Z

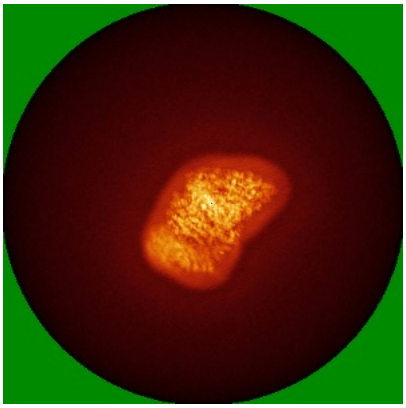
6.4.2 Raw map



X



Y



Z

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

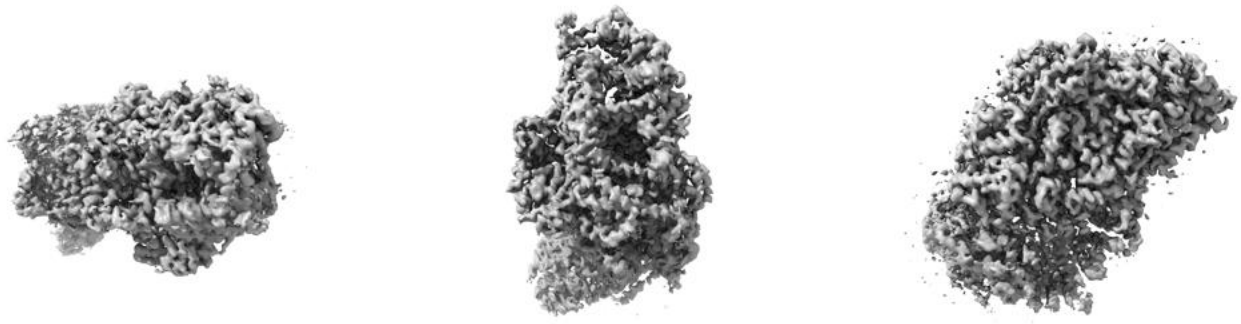
6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.0801. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



X Y Z

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

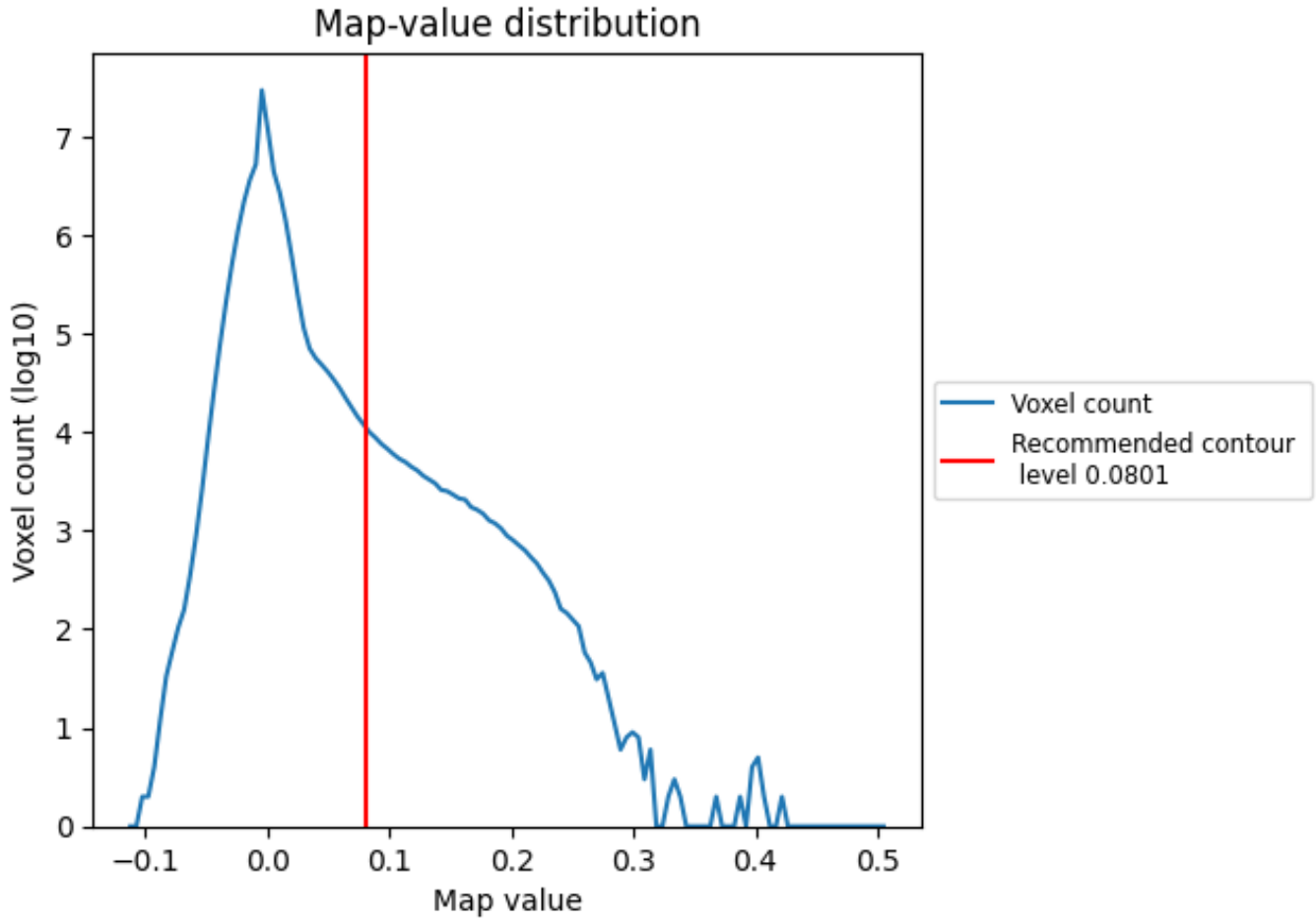
6.6 Mask visualisation (i)

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

7 Map analysis

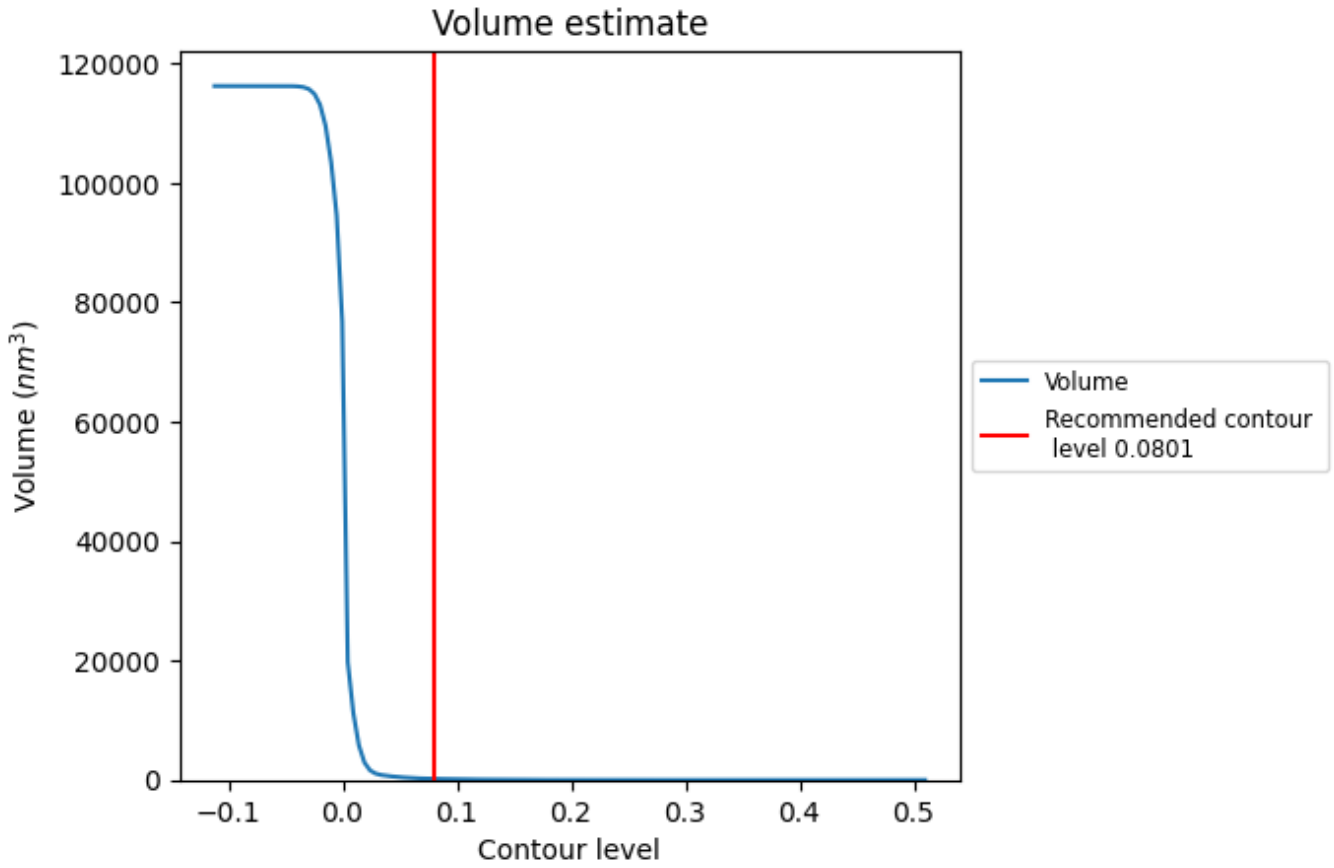
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

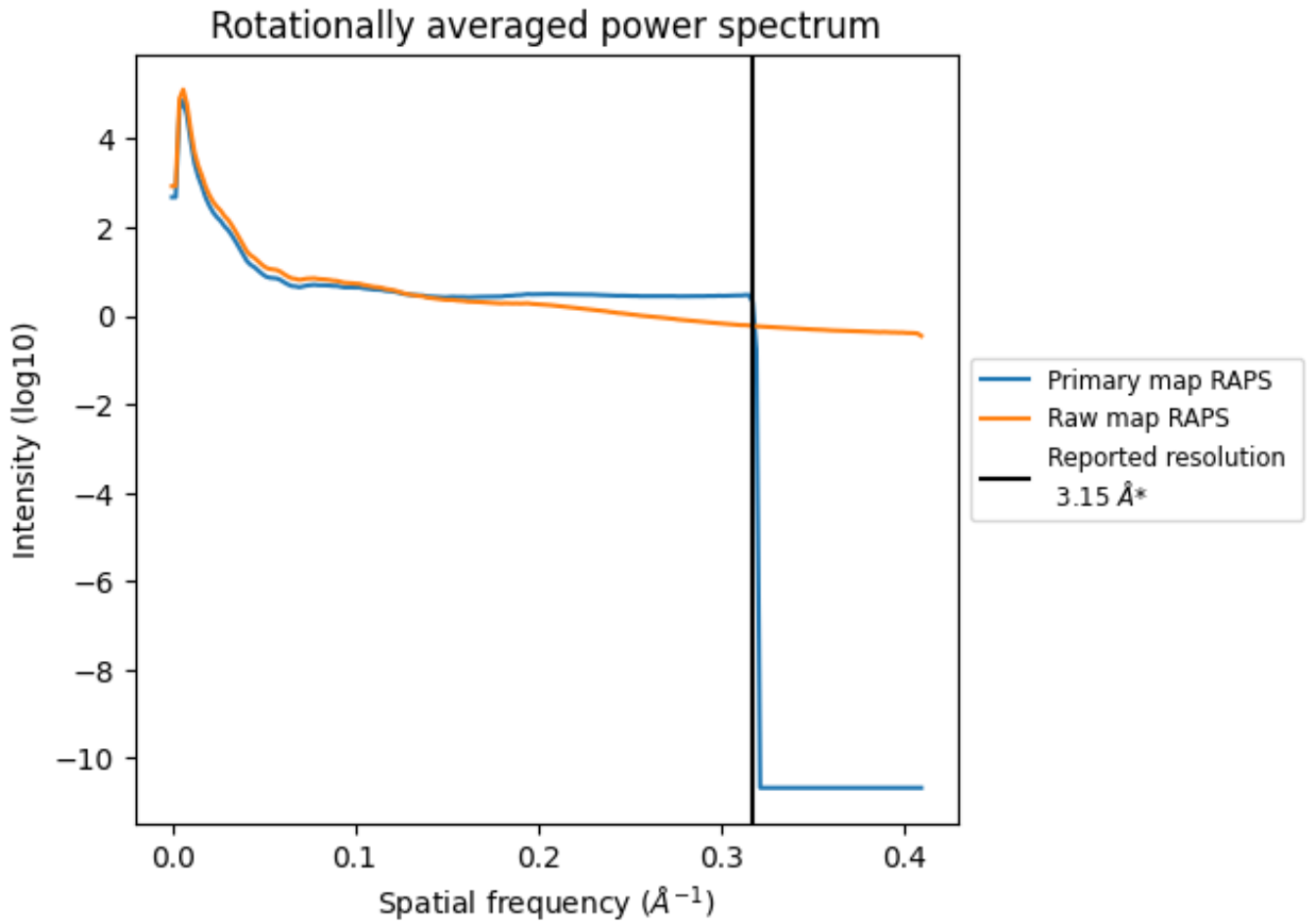
7.2 Volume estimate (i)



The volume at the recommended contour level is 187 nm^3; this corresponds to an approximate mass of 169 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)

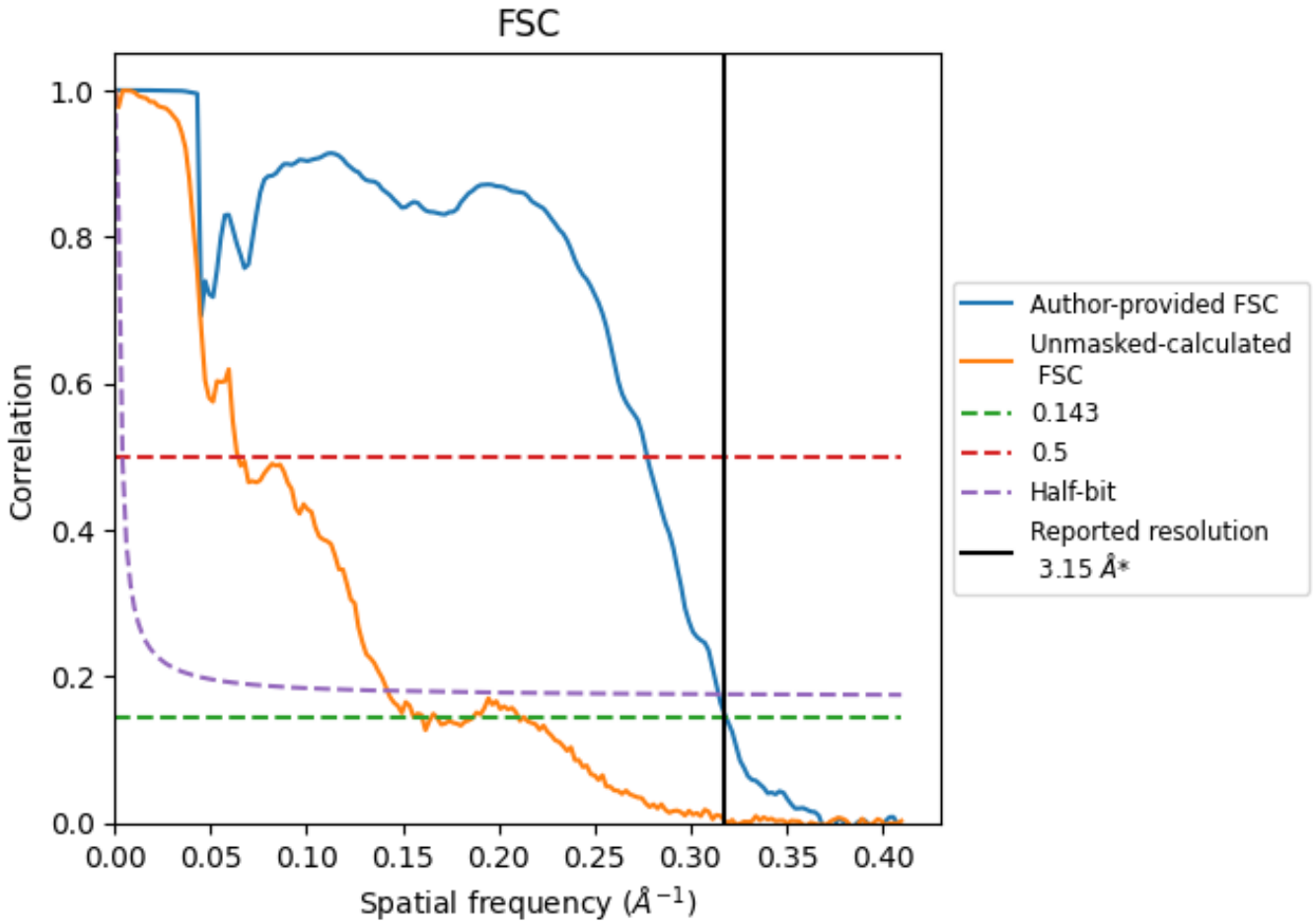


*Reported resolution corresponds to spatial frequency of 0.317 Å^{-1}

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 0.317 Å^{-1}

8.2 Resolution estimates (i)

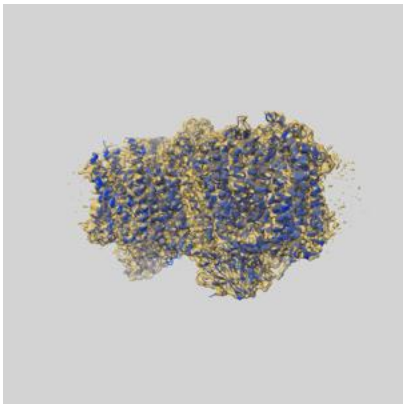
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.15	-	-
Author-provided FSC curve	3.14	3.60	3.18
Unmasked-calculated*	6.24	15.58	7.04

*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 6.24 differs from the reported value 3.15 by more than 10 %

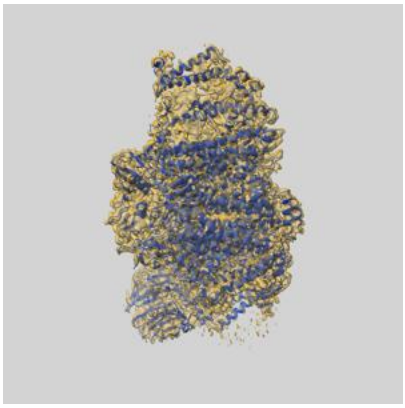
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-15618 and PDB model 8ASL. Per-residue inclusion information can be found in section 3 on page 24.

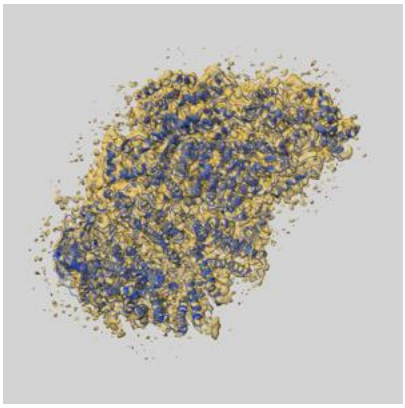
9.1 Map-model overlay



X



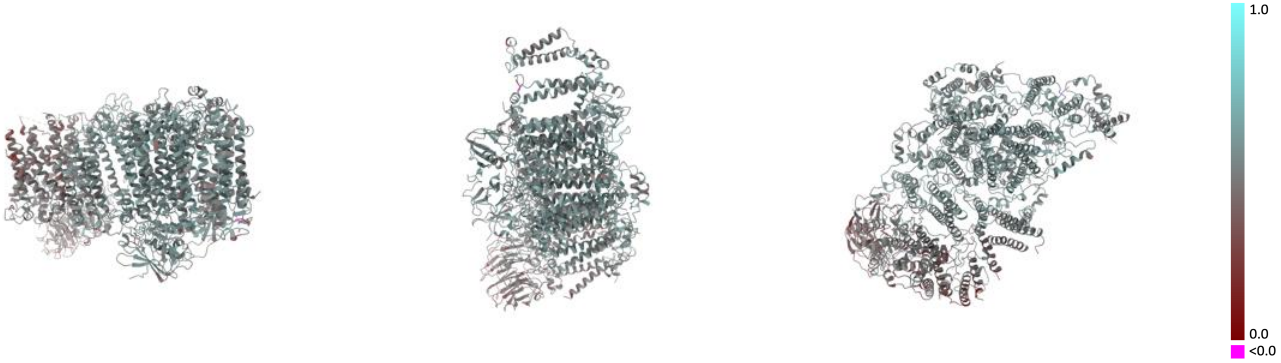
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0801 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

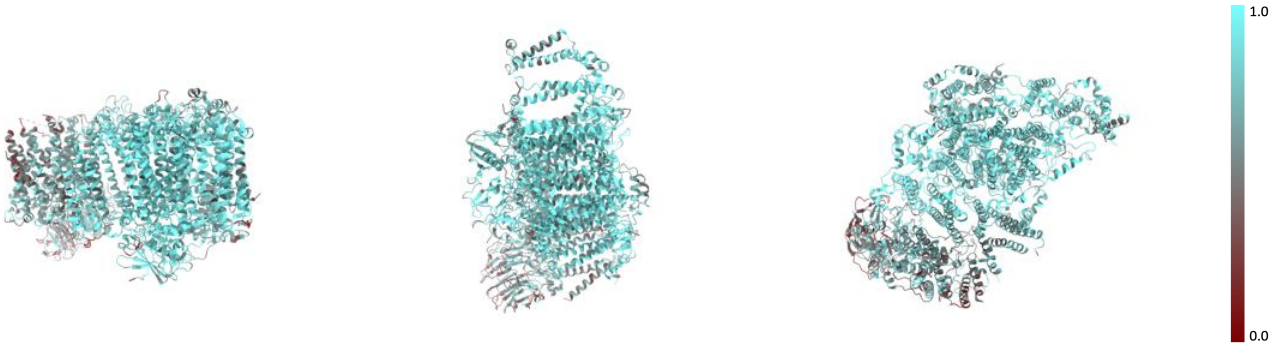
9.2 Q-score mapped to coordinate model



X Y Z

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

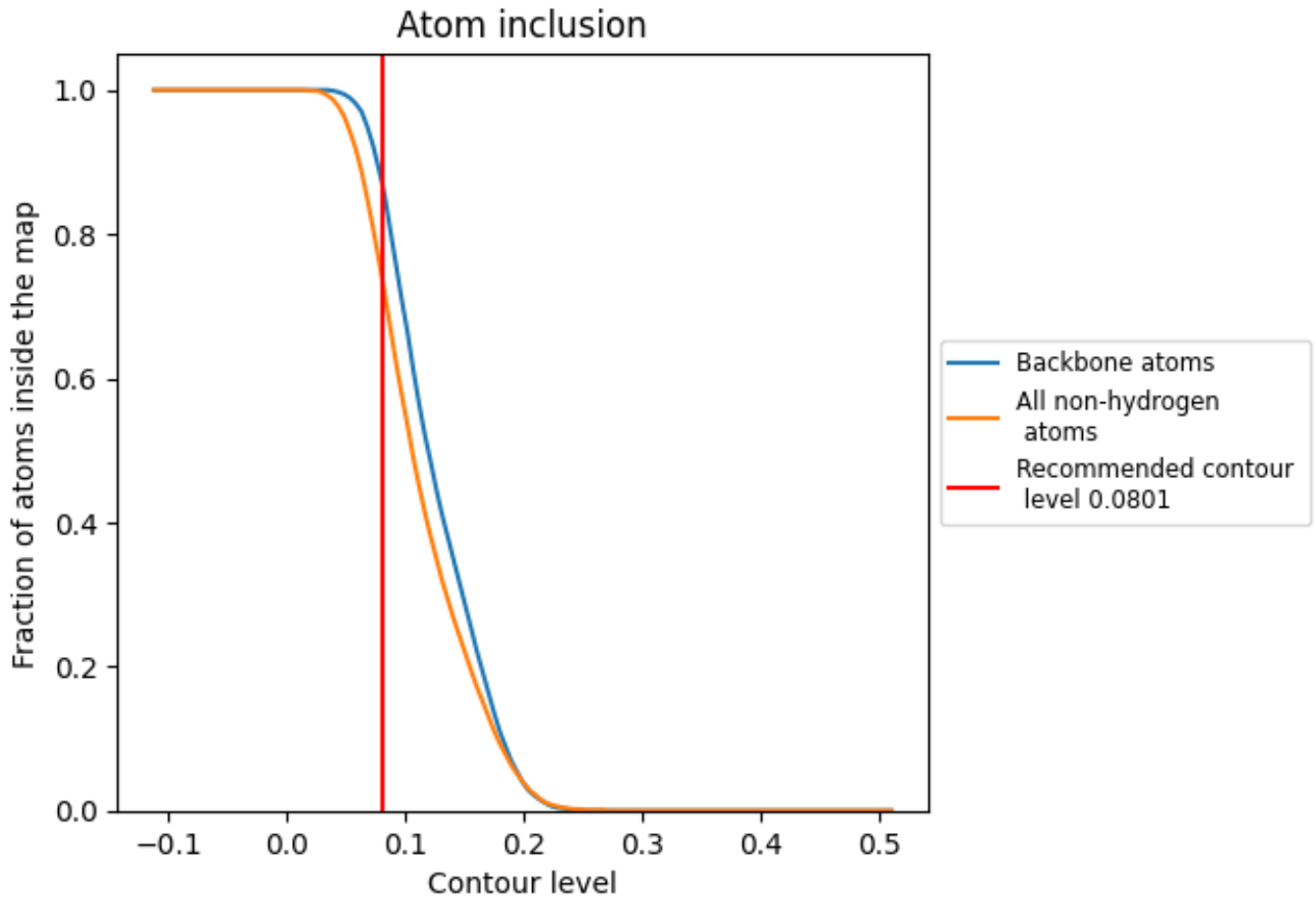
9.3 Atom inclusion mapped to coordinate model



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.0801).

9.4 Atom inclusion (i)



At the recommended contour level, 87% of all backbone atoms, 74% 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 (0.0801) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7400	0.5180
A	0.6210	0.4580
D	0.5850	0.4470
E	0.6500	0.4520
F	0.6210	0.4440
I	0.4290	0.3910
S	0.5100	0.3970
a	0.8130	0.5560
b	0.8260	0.5550
c	0.9200	0.5460
d	0.8060	0.5380
e	0.7670	0.5320
f	0.6810	0.5230
i	0.7550	0.5400
j	0.6140	0.4920
k	0.6310	0.5060
l	0.7110	0.4970
m	0.7360	0.5420