



wwPDB EM Validation Summary Report ⓘ

Feb 2, 2025 – 01:15 am GMT

PDB ID : 9GRX
EMDB ID : EMD-51527
Title : NDH-PSI-LHCI supercomplex from *S. oleracea*
Authors : Introini, B.; Hahn, A.; Kuehlbrandt, W.
Deposited on : 2024-09-13
Resolution : 3.19 Å (reported)
Based on initial models : 4y28, ., 6khj

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

EMDB validation analysis : 0.0.1.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) : 2.40

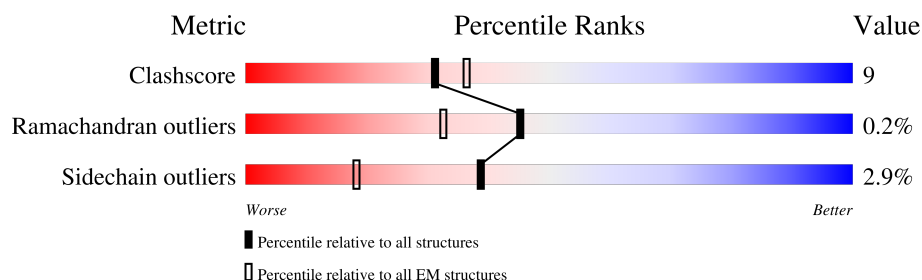
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.19 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.















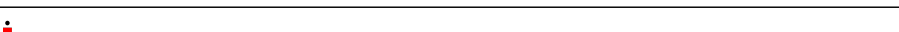

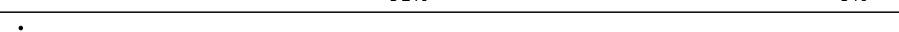

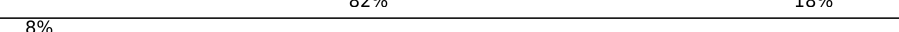


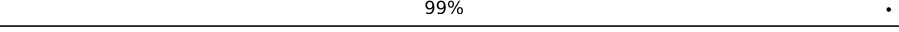
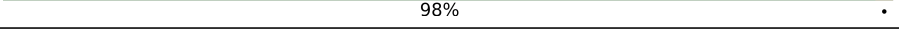
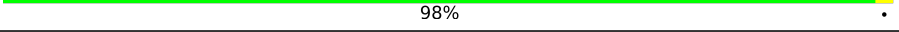
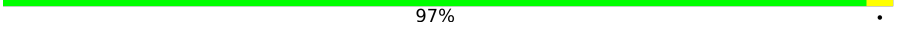
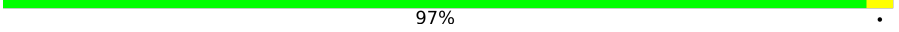
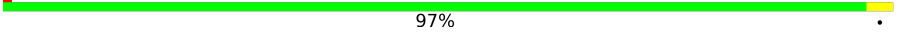
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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 $\leq 5\%$. 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	0	157	
2	1	403	
3	2	372	
4	3	139	
5	4	93	
6	5	154	
7	6	125	
8	7	144	

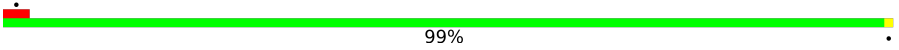
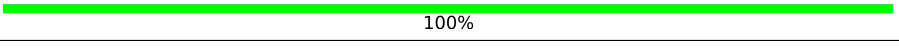
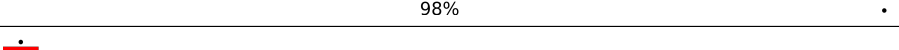
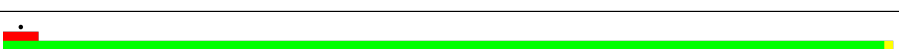
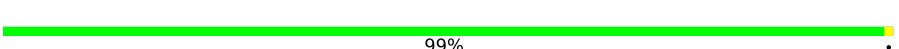
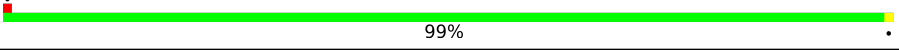
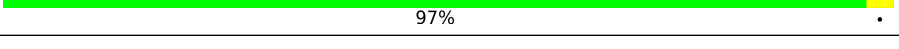
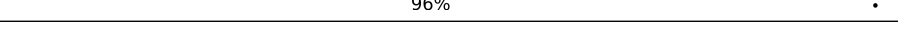
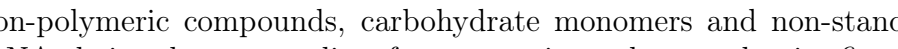
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Mol	Chain	Length	Quality of chain
9	8	143	 80% 19% .
10	9	174	 81% 17% .
11	A	350	 82% 17% .
12	B	488	 74% 25% .
13	C	115	 82% 17% .
14	D	498	 81% 19% .
15	E	100	 79% 20% .
16	F	742	 78% 19% . .
17	G	176	 80% 20% .
18	H	389	 77% 17% . 5%
19	I	163	 82% 18% .
20	J	158	 76% 23% .
21	K	202	 74% 22% .
22	L	109	 91% 9% .
23	M	141	 79% 19% .
24	N	165	 82% 18% .
25	O	95	 8% 91% 8% .
26	U	240	 5% 57% 10% . 32%
27	a	742	 99% .
28	b	733	 98% .
29	c	81	 98% .
30	d	143	 97% .
31	e	68	 6% 97% .
32	f	153	 97% .
33	g	97	 6% 97% .

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Mol	Chain	Length	Quality of chain
34	h	95	 99%
35	i	31	 100%
36	j	42	 98%
37	k	130	 48% 49%
38	l	160	 99%
39	w	215	 99%
40	x	198	 99%
41	y	221	 97%
42	z	193	 96%

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
50	CLA	a	801	X	-	-	-
50	CLA	a	802	X	-	-	-
50	CLA	a	809	X	-	-	-
50	CLA	a	811	X	-	-	-
50	CLA	a	812	X	-	-	-
50	CLA	a	813	X	-	-	-
50	CLA	a	814	X	-	-	-
50	CLA	a	815	X	-	-	-
50	CLA	a	816	X	-	-	-
50	CLA	a	817	X	-	-	-
50	CLA	a	818	X	-	-	-
50	CLA	a	819	X	-	-	-
50	CLA	a	820	X	-	-	-
50	CLA	a	821	X	-	-	-
50	CLA	a	822	X	-	-	-
50	CLA	a	823	X	-	-	-
50	CLA	a	824	X	-	-	-
50	CLA	a	826	X	-	-	-
50	CLA	a	833	X	-	-	-
50	CLA	a	834	X	-	-	-
50	CLA	a	835	X	-	-	-
50	CLA	a	836	X	-	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
50	CLA	a	837	X	-	-	-
50	CLA	a	838	X	-	-	-
50	CLA	a	839	X	-	-	-
50	CLA	a	840	X	-	-	-
50	CLA	a	841	X	-	-	-
50	CLA	a	842	X	-	-	-
50	CLA	a	843	X	-	-	-
50	CLA	a	844	X	-	-	-
50	CLA	a	845	X	-	-	-
50	CLA	a	846	X	-	-	-
50	CLA	a	847	X	-	-	-
50	CLA	a	848	X	-	-	-
50	CLA	a	849	X	-	-	-
50	CLA	a	850	X	-	-	-
50	CLA	a	851	X	-	-	-
50	CLA	a	852	X	-	-	-
50	CLA	a	853	X	-	-	-
50	CLA	a	854	X	-	-	-
50	CLA	a	855	X	-	-	-
50	CLA	a	856	X	-	-	-
50	CLA	a	857	X	-	-	-
50	CLA	a	858	X	-	-	-
50	CLA	b	801	X	-	-	-
50	CLA	b	802	X	-	-	-
50	CLA	b	803	X	-	-	-
50	CLA	b	804	X	-	-	-
50	CLA	b	805	X	-	-	-
50	CLA	b	806	X	-	-	-
50	CLA	b	807	X	-	-	-
50	CLA	b	808	X	-	-	-
50	CLA	b	809	X	-	-	-
50	CLA	b	810	X	-	-	-
50	CLA	b	811	X	-	-	-
50	CLA	b	812	X	-	-	-
50	CLA	b	813	X	-	-	-
50	CLA	b	814	X	-	-	-
50	CLA	b	815	X	-	-	-
50	CLA	b	822	X	-	-	-
50	CLA	b	823	X	-	-	-
50	CLA	b	824	X	-	-	-
50	CLA	b	825	X	-	-	-
50	CLA	b	826	X	-	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
50	CLA	b	828	X	-	-	-
50	CLA	b	832	X	-	-	-
50	CLA	b	833	X	-	-	-
50	CLA	b	834	X	-	-	-
50	CLA	b	835	X	-	-	-
50	CLA	b	836	X	-	-	-
50	CLA	b	837	X	-	-	-
50	CLA	b	838	X	-	-	-
50	CLA	b	839	X	-	-	-
50	CLA	b	840	X	-	-	-
50	CLA	b	841	X	-	-	-
50	CLA	b	842	X	-	-	-
50	CLA	b	843	X	-	-	-
50	CLA	b	844	X	-	-	-
50	CLA	b	845	X	-	-	-
50	CLA	b	846	X	-	-	-
50	CLA	b	847	X	-	-	-
50	CLA	b	848	X	-	-	-
50	CLA	b	849	X	-	-	-
50	CLA	b	851	X	-	-	-
50	CLA	f	301	X	-	-	-
50	CLA	f	302	X	-	-	-
50	CLA	f	303	X	-	-	-
50	CLA	g	201	X	-	-	-
50	CLA	g	203	X	-	-	-
50	CLA	g	204	X	-	-	-
50	CLA	h	201	X	-	-	-
50	CLA	j	102	X	-	-	-
50	CLA	k	203	X	-	-	-
50	CLA	k	204	X	-	-	-
50	CLA	k	205	X	-	-	-
50	CLA	l	301	X	-	-	-
50	CLA	l	305	X	-	-	-
50	CLA	l	306	X	-	-	-
50	CLA	w	302	X	-	-	-
50	CLA	w	303	X	-	-	-
50	CLA	w	305	X	-	-	-
50	CLA	w	306	X	-	-	-
50	CLA	w	307	X	-	-	-
50	CLA	w	308	X	-	-	-
50	CLA	w	310	X	-	-	-
50	CLA	w	314	X	-	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
50	CLA	w	315	X	-	-	-
50	CLA	w	316	X	-	-	-
50	CLA	x	302	X	-	-	-
50	CLA	x	303	X	-	-	-
50	CLA	x	304	X	-	-	-
50	CLA	x	306	X	-	-	-
50	CLA	x	307	X	-	-	-
50	CLA	x	308	X	-	-	-
50	CLA	x	309	X	-	-	-
50	CLA	x	310	X	-	-	-
50	CLA	x	312	X	-	-	-
50	CLA	x	313	X	-	-	-
50	CLA	x	316	X	-	-	-
50	CLA	x	318	X	-	-	-
50	CLA	y	302	X	-	-	-
50	CLA	y	303	X	-	-	-
50	CLA	y	304	X	-	-	-
50	CLA	y	305	X	-	-	-
50	CLA	y	306	X	-	-	-
50	CLA	y	307	X	-	-	-
50	CLA	y	308	X	-	-	-
50	CLA	y	309	X	-	-	-
50	CLA	y	310	X	-	-	-
50	CLA	y	311	X	-	-	-
50	CLA	y	312	X	-	-	-
50	CLA	y	313	X	-	-	-
50	CLA	y	314	X	-	-	-
50	CLA	z	302	X	-	-	-
50	CLA	z	303	X	-	-	-
50	CLA	z	305	X	-	-	-
50	CLA	z	306	X	-	-	-
50	CLA	z	307	X	-	-	-
50	CLA	z	308	X	-	-	-
50	CLA	z	309	X	-	-	-
50	CLA	z	310	X	-	-	-
50	CLA	z	311	X	-	-	-
50	CLA	z	316	X	-	-	-
50	CLA	z	319	X	-	-	-
52	CL0	a	808	X	-	-	-
54	CHL	w	304	X	-	-	-
54	CHL	w	309	X	-	-	-
54	CHL	w	311	X	-	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
54	CHL	x	301	X	-	-	-
54	CHL	x	305	X	-	-	-
54	CHL	x	311	X	-	-	-
54	CHL	x	319	X	-	-	-
54	CHL	z	304	X	-	-	-
54	CHL	z	312	X	-	-	-

2 Entry composition

There are 55 unique types of molecules in this entry. The entry contains 83864 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 Photosynthetic NDH subunit of lumenal location 1, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	0	157	Total	C	N	O	S	0	0
			1317	840	227	248	2		

- Molecule 2 is a protein called Photosynthetic NDH subunit of subcomplex B 1, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	1	403	Total	C	N	O	S	0	0
			3133	1994	515	607	17		

- Molecule 3 is a protein called Photosynthetic NDH subunit of subcomplex B 2, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	2	300	Total	C	N	O	S	0	0
			2305	1463	383	452	7		

- Molecule 4 is a protein called Photosynthetic NDH subunit of subcomplex B 3, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	3	139	Total	C	N	O	S	0	0
			1093	690	185	210	8		

- Molecule 5 is a protein called Photosynthetic NDH subunit of subcomplex B 4, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	4	93	Total	C	N	O	S	0	0
			756	482	125	143	6		

- Molecule 6 is a protein called Photosynthetic NDH subunit of subcomplex B 5, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	5	154	Total	C	N	O	S	0	0
			1258	816	194	242	6		

- Molecule 7 is a protein called Photosynthetic NDH subunit of luminal location 2, chloro-
plastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	6	125	Total	C	N	O	S	0	0
			1048	675	174	193	6		

- Molecule 8 is a protein called Photosynthetic NDH subunit of luminal location 3, chloro-
plastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	7	144	Total	C	N	O	S	0	0
			1156	739	198	213	6		

- Molecule 9 is a protein called peptidylprolyl isomerase.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	8	143	Total	C	N	O	S	0	0
			1075	680	187	201	7		

- Molecule 10 is a protein called Peptidyl-prolyl cis-trans isomerase.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	9	174	Total	C	N	O	S	0	0
			1326	836	233	251	6		

- Molecule 11 is a protein called NAD(P)H-quinone oxidoreductase subunit 1, chloro-
plastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	A	350	Total	C	N	O	S	0	0
			2728	1821	420	482	5		

- Molecule 12 is a protein called NAD(P)H-quinone oxidoreductase subunit 2 A, chloro-
plastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	B	488	Total	C	N	O	S	0	0
			3799	2506	583	683	27		

- Molecule 13 is a protein called NAD(P)H-quinone oxidoreductase subunit 3, chloro-
plastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	C	115	Total	C	N	O	S	0	0
			944	653	133	155	3		

- Molecule 14 is a protein called NAD(P)H-quinone oxidoreductase chain 4, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	D	498	Total	C	N	O	S	0	0
			3955	2660	607	665	23		

- Molecule 15 is a protein called NAD(P)H-quinone oxidoreductase subunit 4L, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	E	100	Total	C	N	O	S	0	0
			780	509	133	135	3		

- Molecule 16 is a protein called NAD(P)H-quinone oxidoreductase subunit 5, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	F	722	Total	C	N	O	S	0	0
			5796	3885	889	990	32		

- Molecule 17 is a protein called NAD(P)H-quinone oxidoreductase subunit 6, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	G	176	Total	C	N	O	S	0	0
			1357	910	204	238	5		

- Molecule 18 is a protein called NAD(P)H-quinone oxidoreductase subunit H, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	H	371	Total	C	N	O	S	0	0
			3008	1948	506	535	19		

- Molecule 19 is a protein called NAD(P)H-quinone oxidoreductase subunit I, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	I	163	Total	C	N	O	S	0	0
			1329	845	226	246	12		

- Molecule 20 is a protein called NAD(P)H-quinone oxidoreductase subunit J, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	J	158	Total	C	N	O	S	0	0
			1324	864	224	231	5		

- Molecule 21 is a protein called NAD(P)H-quinone oxidoreductase subunit K, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	K	202	Total	C	N	O	S	0	0
			1597	1020	272	294	11		

- Molecule 22 is a protein called NAD(P)H-quinone oxidoreductase subunit L, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	L	109	Total	C	N	O	S	0	0
			936	639	147	144	6		

- Molecule 23 is a protein called NAD(P)H-quinone oxidoreductase subunit M, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	M	141	Total	C	N	O	S	0	0
			1169	743	196	221	9		

- Molecule 24 is a protein called NAD(P)H-quinone oxidoreductase subunit N, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	N	165	Total	C	N	O	S	0	0
			1323	862	228	228	5		

- Molecule 25 is a protein called NAD(P)H-quinone oxidoreductase subunit O, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	O	95	Total	C	N	O	S	0	0
			786	515	127	142	2		

- Molecule 26 is a protein called NAD(P)H-quinone oxidoreductase subunit U, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	U	163	Total	C	N	O	S	0	0
			1266	802	218	243	3		

- Molecule 27 is a protein called Photosystem I P700 chlorophyll a apoprotein A1.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	a	742	Total	C	N	O	S	0	0
			5827	3817	991	1001	18		

- Molecule 28 is a protein called Photosystem I P700 chlorophyll a apoprotein A2.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	b	733	Total	C	N	O	S	0	0
			5855	3841	996	1003	15		

- Molecule 29 is a protein called Photosystem I iron-sulfur center.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	c	81	Total	C	N	O	S	0	0
			623	385	108	118	12		

- Molecule 30 is a protein called Photosystem I reaction center subunit II, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	d	143	Total	C	N	O	S	0	0
			1132	729	194	205	4		

- Molecule 31 is a protein called Photosystem I reaction center subunit IV, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	e	68	Total	C	N	O	S	0	0
			546	348	98	99	1		

- Molecule 32 is a protein called Photosystem I reaction center subunit III, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	f	153	Total	C	N	O	S	0	0
			1211	785	206	217	3		

- Molecule 33 is a protein called Photosystem I reaction center subunit V, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	g	97	Total	C	N	O	S	0	0
			759	493	123	141	2		

- Molecule 34 is a protein called Photosystem I reaction center subunit VI, chloroplastic.

Mol	Chain	Residues	Atoms				AltConf	Trace
34	h	95	Total	C	N	O	0	0
			737	479	120	138		

- Molecule 35 is a protein called Photosystem I reaction center subunit VIII.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	i	31	Total	C	N	O	S	0	0
			244	168	36	38	2		

- Molecule 36 is a protein called Photosystem I reaction center subunit IX.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	j	42	Total	C	N	O	S	0	0
			345	236	51	57	1		

- Molecule 37 is a protein called PSI-K.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	k	66	Total	C	N	O	S	0	0
			462	294	78	87	3		

- Molecule 38 is a protein called Photosystem I reaction center subunit XI, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	l	160	Total	C	N	O	S	0	0
			1200	791	192	212	5		

- Molecule 39 is a protein called Chlorophyll a-b binding protein, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	w	215	Total	C	N	O	S	0	0
			1689	1096	281	300	12		

- Molecule 40 is a protein called Chlorophyll a-b binding protein, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	x	198	Total	C	N	O	S	0	0
			1568	1023	256	284	5		

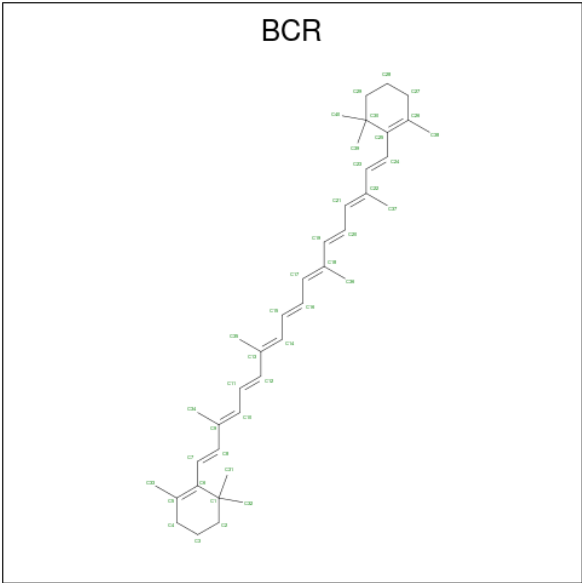
- Molecule 41 is a protein called Chlorophyll a-b binding protein, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	y	221	Total	C	N	O	S	0	0
			1713	1125	277	306	5		

- Molecule 42 is a protein called Chlorophyll a-b binding protein, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	z	193	Total	C	N	O	S	0	0
			1498	973	250	270	5		

- Molecule 43 is BETA-CAROTENE (three-letter code: BCR) (formula: C₄₀H₅₆) (labeled as "Ligand of Interest" by depositor).



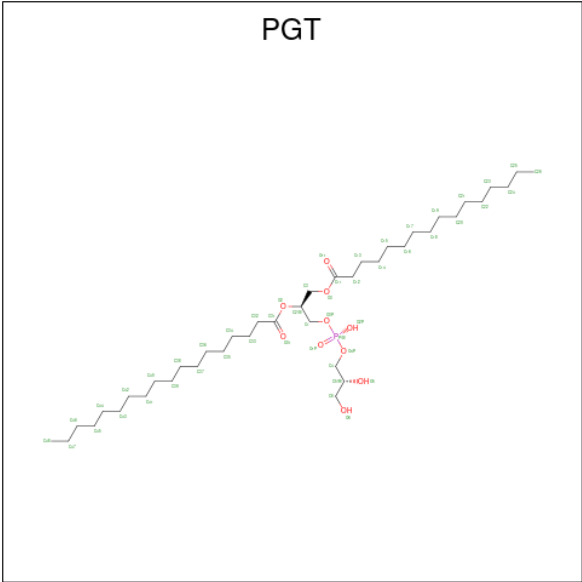
Mol	Chain	Residues	Atoms		AltConf
43	4	1	Total	C	0
			40	40	
43	a	1	Total	C	0
			27	27	
43	a	1	Total	C	0
			30	30	
43	a	1	Total	C	0
			39	39	
43	a	1	Total	C	0
			40	40	
43	a	1	Total	C	0
			40	40	
43	a	1	Total	C	0
			40	40	
43	a	1	Total	C	0
			39	39	
43	b	1	Total	C	0
			40	40	
43	b	1	Total	C	0
			40	40	

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Mol	Chain	Residues	Atoms	AltConf
43	b	1	Total C 40 40	0
43	b	1	Total C 40 40	0
43	b	1	Total C 40 40	0
43	b	1	Total C 40 40	0
43	b	1	Total C 40 40	0
43	f	1	Total C 40 40	0
43	g	1	Total C 40 40	0
43	i	1	Total C 40 40	0
43	j	1	Total C 40 40	0
43	j	1	Total C 40 40	0
43	k	1	Total C 40 40	0
43	k	1	Total C 40 40	0
43	l	1	Total C 40 40	0
43	l	1	Total C 40 40	0
43	l	1	Total C 40 40	0
43	w	1	Total C 40 40	0
43	x	1	Total C 40 40	0
43	y	1	Total C 40 40	0
43	z	1	Total C 40 40	0

- Molecule 44 is (1S)-2-{{[(2R)-2,3-DIHYDROXYPROPYL]OXY}(HYDROXY)PHOSPHORYL]OXY}-1-[(PALMITOYLOXY)METHYL]ETHYL STEARATE (three-letter code: PGT) (formula: C₄₀H₇₉O₁₀P) (labeled as "Ligand of Interest" by depositor).



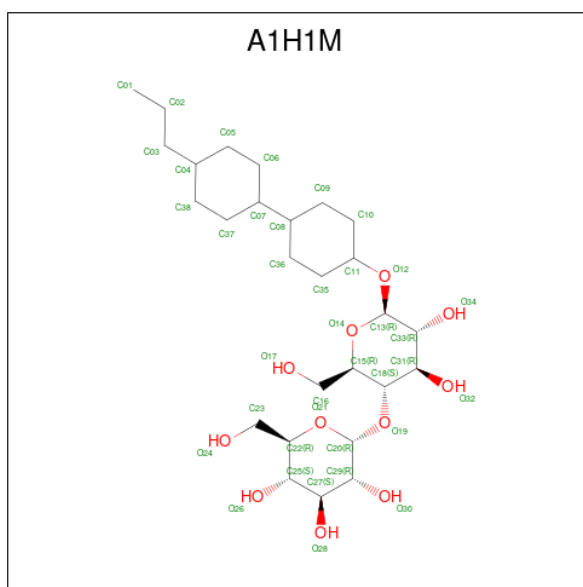
Mol	Chain	Residues	Atoms				AltConf
44	5	1	Total	C	O	P	0
			35	24	10	1	
44	A	1	Total	C	O	P	0
			32	21	10	1	
44	A	1	Total	C	O	P	0
			37	26	10	1	
44	A	1	Total	C	O	P	0
			38	27	10	1	
44	A	1	Total	C	O	P	0
			44	33	10	1	
44	B	1	Total	C	O	P	0
			34	23	10	1	
44	B	1	Total	C	O	P	0
			42	31	10	1	
44	B	1	Total	C	O	P	0
			46	35	10	1	
44	B	1	Total	C	O	P	0
			35	24	10	1	
44	D	1	Total	C	O	P	0
			34	23	10	1	
44	F	1	Total	C	O	P	0
			43	32	10	1	
44	I	1	Total	C	O	P	0
			44	33	10	1	
44	L	1	Total	C	O	P	0
			40	29	10	1	
44	N	1	Total	C	O	P	0
			26	15	10	1	

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Mol	Chain	Residues	Atoms				AltConf
			Total	C	O	P	
44	a	1	Total 32	21	10	1	0
44	a	1	Total 33	22	10	1	0
44	a	1	Total 46	35	10	1	0
44	b	1	Total 48	37	10	1	0
44	b	1	Total 39	28	10	1	0
44	f	1	Total 39	28	10	1	0
44	w	1	Total 40	29	10	1	0
44	z	1	Total 45	34	10	1	0
44	z	1	Total 33	22	10	1	0
44	z	1	Total 46	35	10	1	0

- Molecule 45 is 4-trans-(4-trans-Propylcyclohexyl)-cyclohexyl alpha-maltoside (three-letter code: A1H1M) (formula: C₂₇H₄₈O₁₁) (labeled as "Ligand of Interest" by depositor).



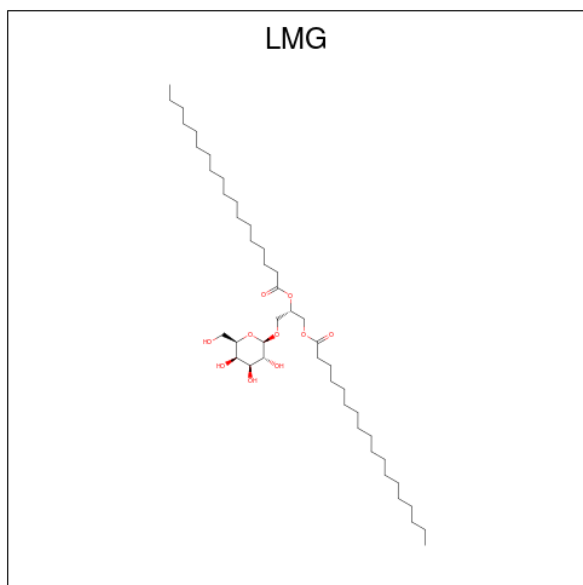
Mol	Chain	Residues	Atoms			AltConf
45	5	1	Total	C	O	0
			38	27	11	

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Mol	Chain	Residues	Atoms			AltConf
45	F	1	Total	C	O	0
			38	27	11	

- Molecule 46 is 1,2-DISTEAROYL-MONOGALACTOSYL-DIGLYCERIDE (three-letter code: LMG) (formula: C₄₅H₈₆O₁₀) (labeled as "Ligand of Interest" by depositor).



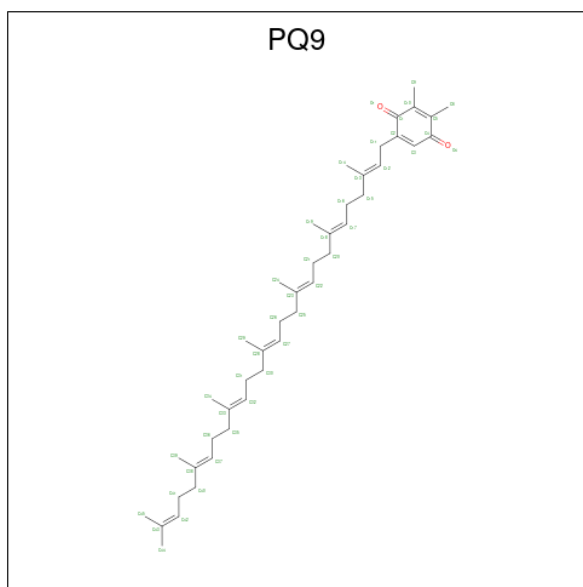
Mol	Chain	Residues	Atoms			AltConf
46	7	1	Total	C	O	0
			41	31	10	
46	B	1	Total	C	O	0
			37	27	10	
46	D	1	Total	C	O	0
			34	24	10	
46	F	1	Total	C	O	0
			28	18	10	
46	H	1	Total	C	O	0
			33	23	10	
46	f	1	Total	C	O	0
			34	24	10	
46	j	1	Total	C	O	0
			34	24	10	
46	j	1	Total	C	O	0
			37	27	10	
46	w	1	Total	C	O	0
			40	30	10	
46	x	1	Total	C	O	0
			48	38	10	

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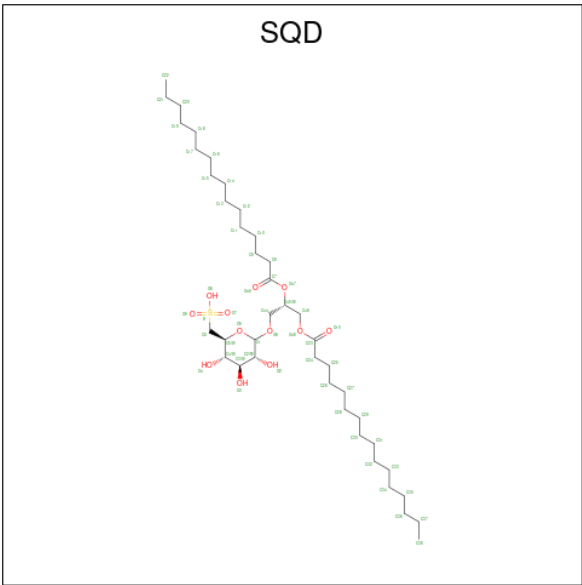
Mol	Chain	Residues	Atoms			AltConf
46	z	1	Total	C	O	0
			40	30	10	
46	z	1	Total	C	O	0
			36	26	10	

- Molecule 47 is 5-[(2E,6E,10E,14E,18E,22E)-3,7,11,15,19,23,27-HEPTAMETHYLOCTACOSA-2,6,10,14,18,22,26-HEPTAENYL]-2,3-DIMETHYLBENZO-1,4-QUINONE (three-letter code: PQ9) (formula: C₄₃H₆₄O₂) (labeled as "Ligand of Interest" by depositor).



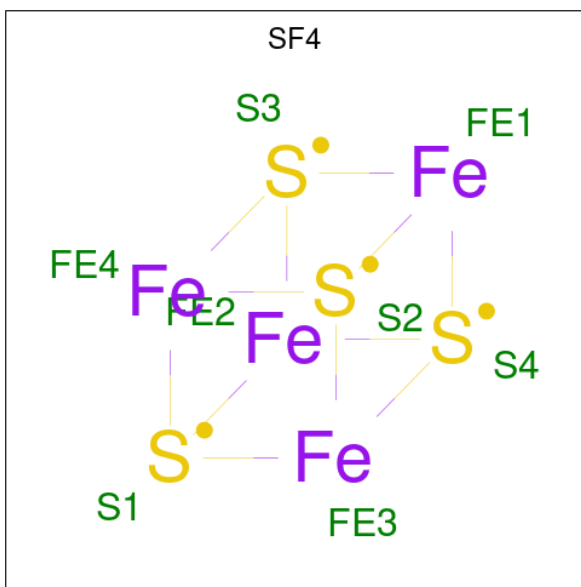
Mol	Chain	Residues	Atoms			AltConf
47	A	1	Total	C	O	0
			36	34	2	

- Molecule 48 is 1,2-DI-O-ACYL-3-O-[6-DEOXY-6-SULFO-ALPHA-D-GLUCOPYRANOSYL]-SN-GLYCEROL (three-letter code: SQD) (formula: C₄₁H₇₈O₁₂S) (labeled as "Ligand of Interest" by depositor).



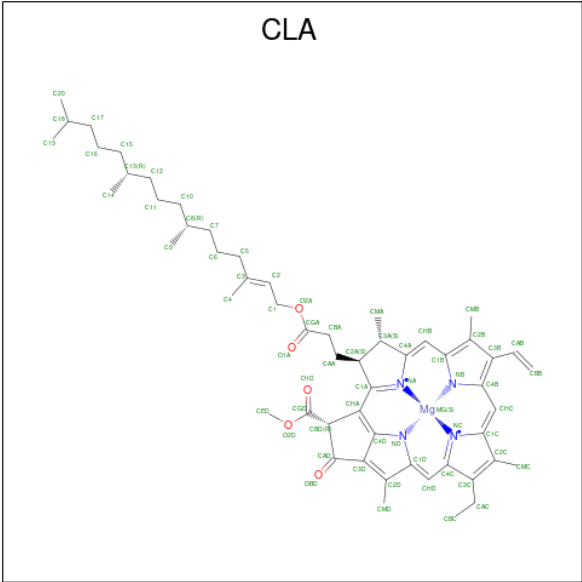
Mol	Chain	Residues	Atoms				AltConf
48	B	1	Total	C	O	S	0
			40	27	12	1	
48	F	1	Total	C	O	S	0
			41	28	12	1	
48	F	1	Total	C	O	S	0
			43	30	12	1	
48	a	1	Total	C	O	S	0
			36	23	12	1	
48	j	1	Total	C	O	S	0
			42	29	12	1	
48	w	1	Total	C	O	S	0
			31	18	12	1	
48	w	1	Total	C	O	S	0
			41	28	12	1	

- Molecule 49 is IRON/SULFUR CLUSTER (three-letter code: SF4) (formula: Fe₄S₄) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms			AltConf
49	I	1	Total	Fe	S	0
			8	4	4	
49	I	1	Total	Fe	S	0
			8	4	4	
49	K	1	Total	Fe	S	0
			8	4	4	
49	a	1	Total	Fe	S	0
			8	4	4	
49	c	1	Total	Fe	S	0
			8	4	4	
49	c	1	Total	Fe	S	0
			8	4	4	

- Molecule 50 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
50	a	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
50	a	1	Total	C	Mg	N	O	0
			60	50	1	4	5	
50	a	1	Total	C	Mg	N	O	0
			57	47	1	4	5	
50	a	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
50	a	1	Total	C	Mg	N	O	0
			59	49	1	4	5	
50	a	1	Total	C	Mg	N	O	0
			52	42	1	4	5	
50	a	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
50	a	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
50	a	1	Total	C	Mg	N	O	0
			42	34	1	4	3	
50	a	1	Total	C	Mg	N	O	0
			41	33	1	4	3	
50	a	1	Total	C	Mg	N	O	0
			59	49	1	4	5	
50	a	1	Total	C	Mg	N	O	0
			60	50	1	4	5	
50	a	1	Total	C	Mg	N	O	0
			65	55	1	4	5	
50	a	1	Total	C	Mg	N	O	0
			63	53	1	4	5	

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Mol	Chain	Residues	Atoms					AltConf
50	a	1	Total 51	C 41	Mg 1	N 4	O 5	0
50	a	1	Total 55	C 45	Mg 1	N 4	O 5	0
50	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	a	1	Total 45	C 35	Mg 1	N 4	O 5	0
50	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	a	1	Total 58	C 48	Mg 1	N 4	O 5	0
50	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	a	1	Total 42	C 34	Mg 1	N 4	O 3	0
50	a	1	Total 55	C 45	Mg 1	N 4	O 5	0
50	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	a	1	Total 57	C 47	Mg 1	N 4	O 5	0
50	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	a	1	Total 42	C 35	Mg 1	N 3	O 3	0
50	a	1	Total 52	C 42	Mg 1	N 4	O 5	0
50	a	1	Total 65	C 55	Mg 1	N 4	O 5	0

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Mol	Chain	Residues	Atoms					AltConf
50	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	a	1	Total 46	C 36	Mg 1	N 4	O 5	0
50	a	1	Total 51	C 41	Mg 1	N 4	O 5	0
50	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	a	1	Total 42	C 34	Mg 1	N 4	O 3	0
50	a	1	Total 64	C 54	Mg 1	N 4	O 5	0
50	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	a	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	b	1	Total 41	C 33	Mg 1	N 4	O 3	0
50	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	b	1	Total 52	C 42	Mg 1	N 4	O 5	0
50	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	b	1	Total 43	C 35	Mg 1	N 4	O 3	0
50	b	1	Total 59	C 49	Mg 1	N 4	O 5	0
50	b	1	Total 50	C 40	Mg 1	N 4	O 5	0
50	b	1	Total 45	C 35	Mg 1	N 4	O 5	0
50	b	1	Total 62	C 52	Mg 1	N 4	O 5	0

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Mol	Chain	Residues	Atoms					AltConf
50	b	1	Total 43	C 35	Mg 1	N 4	O 3	0
50	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	b	1	Total 58	C 48	Mg 1	N 4	O 5	0
50	b	1	Total 55	C 45	Mg 1	N 4	O 5	0
50	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	b	1	Total 55	C 45	Mg 1	N 4	O 5	0
50	b	1	Total 60	C 50	Mg 1	N 4	O 5	0
50	b	1	Total 54	C 44	Mg 1	N 4	O 5	0
50	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	b	1	Total 45	C 35	Mg 1	N 4	O 5	0
50	b	1	Total 59	C 49	Mg 1	N 4	O 5	0
50	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	b	1	Total 52	C 42	Mg 1	N 4	O 5	0
50	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	b	1	Total 55	C 45	Mg 1	N 4	O 5	0
50	b	1	Total 57	C 47	Mg 1	N 4	O 5	0
50	b	1	Total 65	C 55	Mg 1	N 4	O 5	0

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Mol	Chain	Residues	Atoms					AltConf
50	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	b	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	b	1	Total 60	C 50	Mg 1	N 4	O 5	0
50	b	1	Total 42	C 34	Mg 1	N 4	O 3	0
50	b	1	Total 50	C 40	Mg 1	N 4	O 5	0
50	b	1	Total 47	C 37	Mg 1	N 4	O 5	0
50	f	1	Total 57	C 47	Mg 1	N 4	O 5	0
50	f	1	Total 42	C 34	Mg 1	N 4	O 3	0
50	f	1	Total 41	C 33	Mg 1	N 4	O 3	0
50	g	1	Total 49	C 39	Mg 1	N 4	O 5	0
50	g	1	Total 52	C 42	Mg 1	N 4	O 5	0
50	g	1	Total 43	C 35	Mg 1	N 4	O 3	0
50	h	1	Total 46	C 36	Mg 1	N 4	O 5	0
50	j	1	Total 42	C 34	Mg 1	N 4	O 3	0
50	k	1	Total 41	C 33	Mg 1	N 4	O 3	0
50	k	1	Total 57	C 47	Mg 1	N 4	O 5	0
50	k	1	Total 42	C 34	Mg 1	N 4	O 3	0
50	l	1	Total 45	C 35	Mg 1	N 4	O 5	0
50	l	1	Total 40	C 32	Mg 1	N 4	O 3	0
50	l	1	Total 60	C 50	Mg 1	N 4	O 5	0

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Mol	Chain	Residues	Atoms					AltConf
50	w	1	Total 50	C 40	Mg 1	N 4	O 5	0
50	w	1	Total 45	C 35	Mg 1	N 4	O 5	0
50	w	1	Total 51	C 41	Mg 1	N 4	O 5	0
50	w	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	w	1	Total 45	C 35	Mg 1	N 4	O 5	0
50	w	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	w	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	w	1	Total 44	C 35	Mg 1	N 4	O 4	0
50	w	1	Total 46	C 36	Mg 1	N 4	O 5	0
50	w	1	Total 50	C 40	Mg 1	N 4	O 5	0
50	x	1	Total 41	C 33	Mg 1	N 4	O 3	0
50	x	1	Total 57	C 47	Mg 1	N 4	O 5	0
50	x	1	Total 47	C 37	Mg 1	N 4	O 5	0
50	x	1	Total 60	C 50	Mg 1	N 4	O 5	0
50	x	1	Total 60	C 50	Mg 1	N 4	O 5	0
50	x	1	Total 50	C 40	Mg 1	N 4	O 5	0
50	x	1	Total 42	C 34	Mg 1	N 4	O 3	0
50	x	1	Total 43	C 35	Mg 1	N 4	O 3	0
50	x	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	x	1	Total 53	C 43	Mg 1	N 4	O 5	0
50	x	1	Total 45	C 35	Mg 1	N 4	O 5	0

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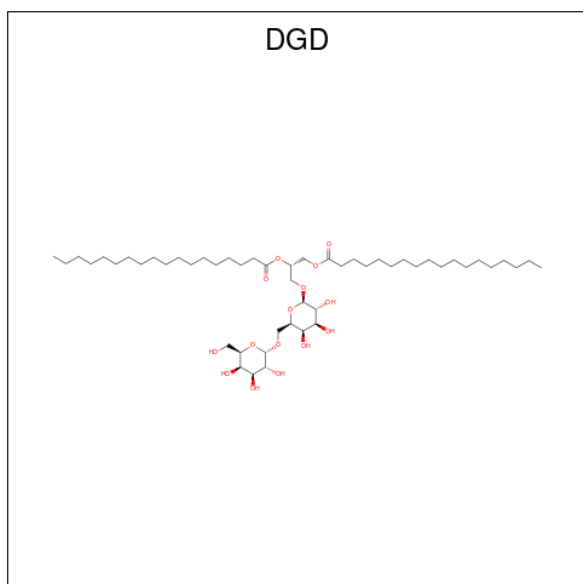
Mol	Chain	Residues	Atoms					AltConf
50	x	1	Total 45	C 35	Mg 1	N 4	O 5	0
50	y	1	Total 52	C 42	Mg 1	N 4	O 5	0
50	y	1	Total 55	C 45	Mg 1	N 4	O 5	0
50	y	1	Total 39	C 33	Mg 1	N 4	O 1	0
50	y	1	Total 45	C 35	Mg 1	N 4	O 5	0
50	y	1	Total 40	C 32	Mg 1	N 4	O 3	0
50	y	1	Total 41	C 33	Mg 1	N 4	O 3	0
50	y	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	y	1	Total 42	C 34	Mg 1	N 4	O 3	0
50	y	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	y	1	Total 51	C 41	Mg 1	N 4	O 5	0
50	y	1	Total 51	C 41	Mg 1	N 4	O 5	0
50	y	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	y	1	Total 65	C 55	Mg 1	N 4	O 5	0
50	z	1	Total 55	C 45	Mg 1	N 4	O 5	0
50	z	1	Total 41	C 33	Mg 1	N 4	O 3	0
50	z	1	Total 50	C 40	Mg 1	N 4	O 5	0
50	z	1	Total 56	C 46	Mg 1	N 4	O 5	0
50	z	1	Total 60	C 50	Mg 1	N 4	O 5	0
50	z	1	Total 43	C 33	Mg 1	N 4	O 5	0
50	z	1	Total 42	C 34	Mg 1	N 4	O 3	0

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Mol	Chain	Residues	Atoms					AltConf
50	z	1	Total	C	Mg	N	O	0
			41	33	1	4	3	
50	z	1	Total	C	Mg	N	O	0
			55	45	1	4	5	
50	z	1	Total	C	Mg	N	O	0
			47	37	1	4	5	
50	z	1	Total	C	Mg	N	O	0
			42	34	1	4	3	

- Molecule 51 is DIGALACTOSYL DIACYL GLYCEROL (DGDG) (three-letter code: DGD) (formula: C₅₁H₉₆O₁₅) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms			AltConf
51	a	1	Total	C	O	0
			66	51	15	
51	b	1	Total	C	O	0
			59	44	15	
51	x	1	Total	C	O	0
			48	33	15	

- Molecule 52 is CHLOROPHYLL A ISOMER (three-letter code: CL0) (formula: C₅₅H₇₂MgN₄O₅) (labeled as "Ligand of Interest" by depositor).



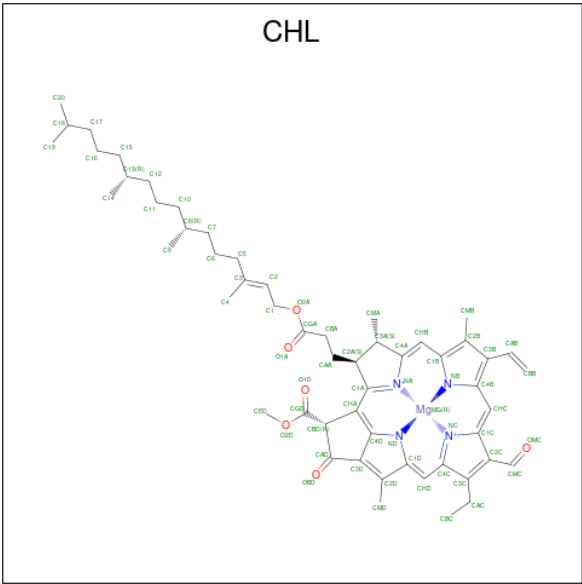
Mol	Chain	Residues	Atoms					AltConf
52	a	1	Total 61	C 52	Mg 1	N 4	O 4	0

- Molecule 53 is PHYLLOQUINONE (three-letter code: PQN) (formula: $\text{C}_{31}\text{H}_{46}\text{O}_2$) (labeled as "Ligand of Interest" by depositor).



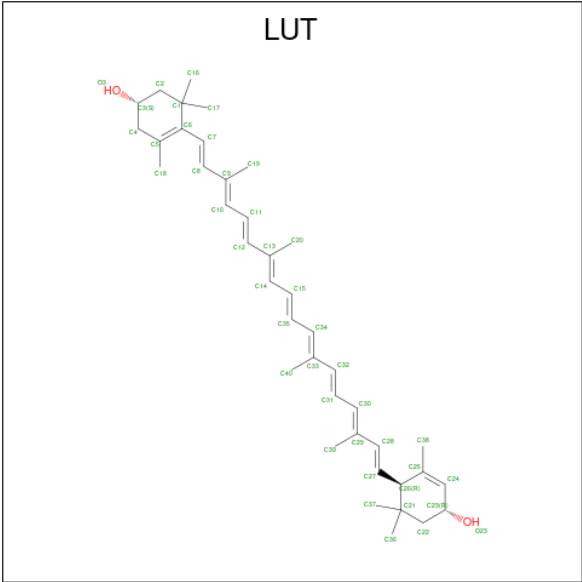
Mol	Chain	Residues	Atoms			AltConf
53	a	1	Total 33	C 31	O 2	0
53	b	1	Total 33	C 31	O 2	0

- Molecule 54 is CHLOROPHYLL B (three-letter code: CHL) (formula: $C_{55}H_{70}MgN_4O_6$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
54	w	1	Total	C	Mg	N	O	0
			45	34	1	4	6	
54	w	1	Total	C	Mg	N	O	0
			43	34	1	4	4	
54	w	1	Total	C	Mg	N	O	0
			47	37	1	4	5	
54	x	1	Total	C	Mg	N	O	0
			43	34	1	4	4	
54	x	1	Total	C	Mg	N	O	0
			46	35	1	4	6	
54	x	1	Total	C	Mg	N	O	0
			40	31	1	4	4	
54	x	1	Total	C	Mg	N	O	0
			50	39	1	4	6	
54	z	1	Total	C	Mg	N	O	0
			42	33	1	4	4	
54	z	1	Total	C	Mg	N	O	0
			61	50	1	4	6	

- Molecule 55 is (3R,3'R,6S)-4,5-DIDEHYDRO-5,6-DIHYDRO-BETA,BETA-CAROTENE-3,3'-DIOL (three-letter code: LUT) (formula: $C_{40}H_{56}O_2$) (labeled as "Ligand of Interest" by depositor).

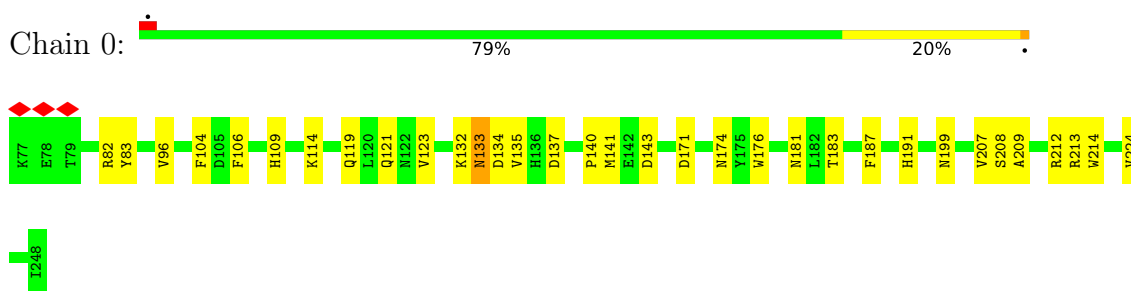


Mol	Chain	Residues	Atoms			AltConf
55	w	1	Total	C	O	0
			42	40	2	
55	w	1	Total	C	O	0
			42	40	2	
55	x	1	Total	C	O	0
			42	40	2	
55	x	1	Total	C	O	0
			42	40	2	
55	y	1	Total	C	O	0
			42	40	2	
55	y	1	Total	C	O	0
			42	40	2	
55	z	1	Total	C	O	0
			42	40	2	
55	z	1	Total	C	O	0
			42	40	2	

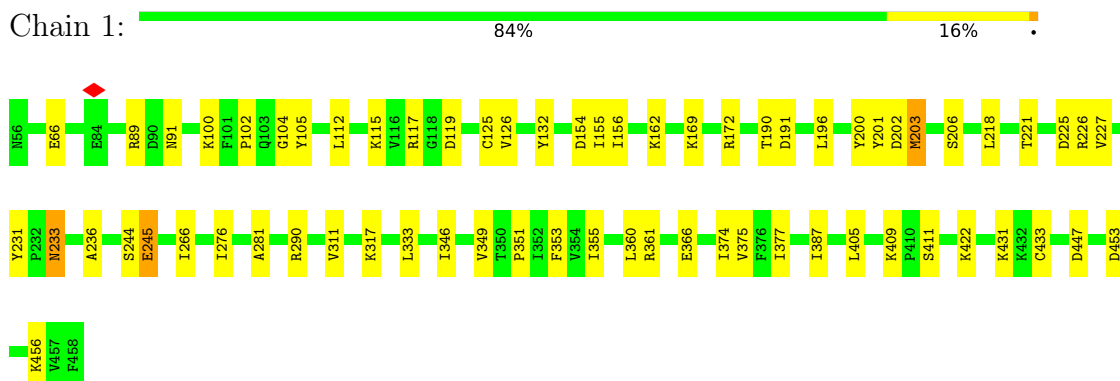
3 Residue-property plots [i](#)

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.

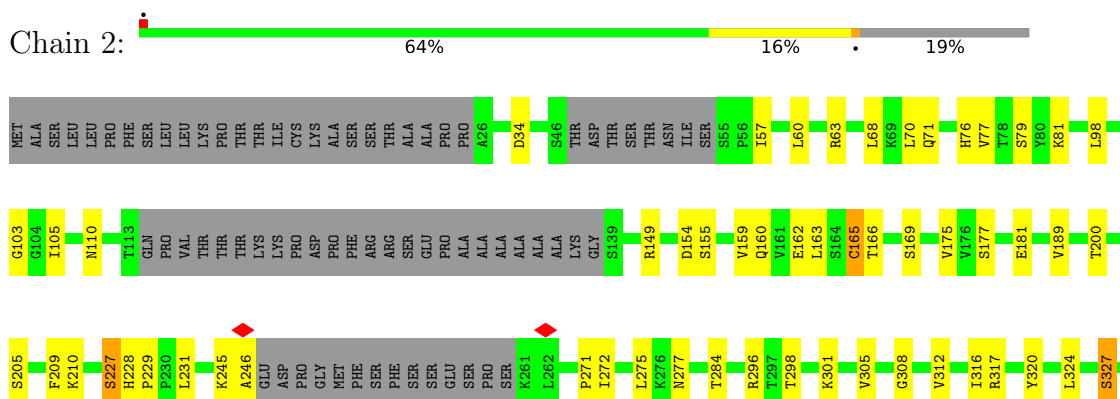
- Molecule 1: Photosynthetic NDH subunit of luminal location 1, chloroplastic



- Molecule 2: Photosynthetic NDH subunit of subcomplex B 1, chloroplastic

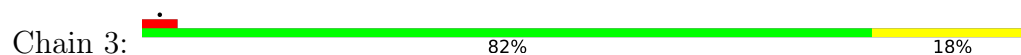


- Molecule 3: Photosynthetic NDH subunit of subcomplex B 2, chloroplastic

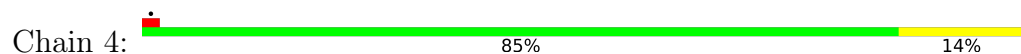




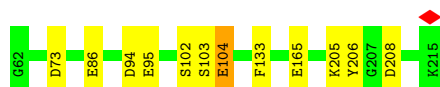
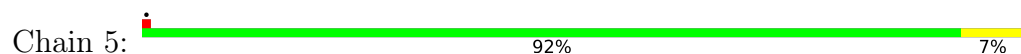
- Molecule 4: Photosynthetic NDH subunit of subcomplex B 3, chloroplatic



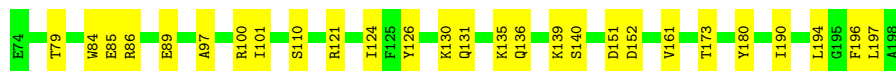
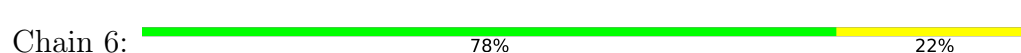
- Molecule 5: Photosynthetic NDH subunit of subcomplex B 4, chloroplatic



- Molecule 6: Photosynthetic NDH subunit of subcomplex B 5, chloroplatic



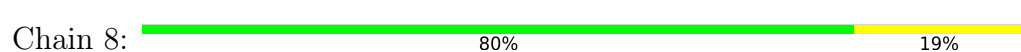
- Molecule 7: Photosynthetic NDH subunit of luminal location 2, chloroplatic



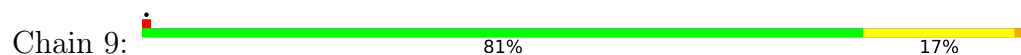
- Molecule 8: Photosynthetic NDH subunit of luminal location 3, chloroplatic

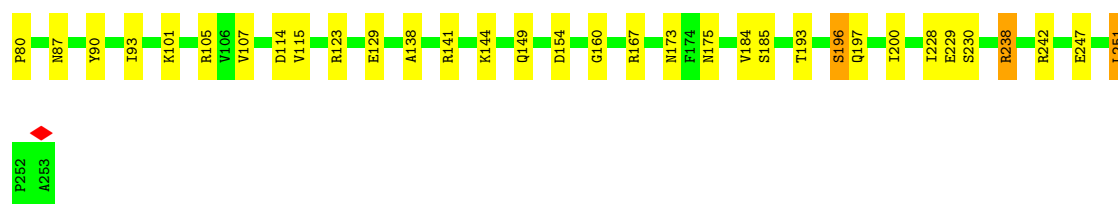


- Molecule 9: peptidylprolyl isomerase



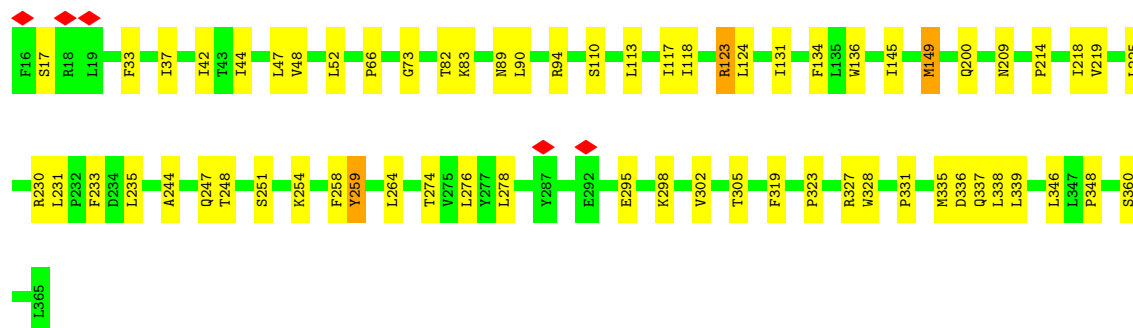
- Molecule 10: Peptidyl-prolyl cis-trans isomerase





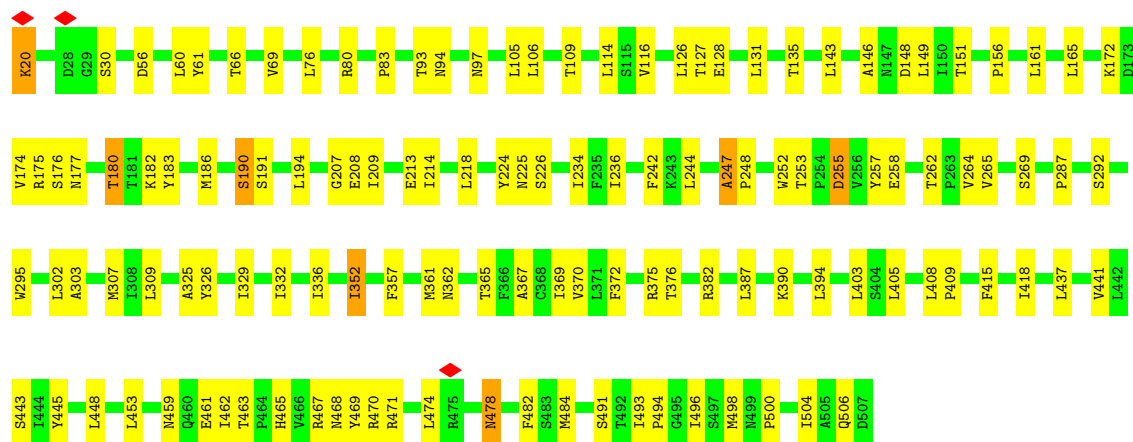
- Molecule 11: NAD(P)H-quinone oxidoreductase subunit 1, chloroplastic

Chain A: 82% 17%



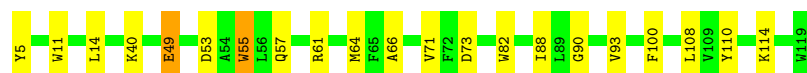
- Molecule 12: NAD(P)H-quinone oxidoreductase subunit 2 A, chloroplastic

Chain B: 74% 25%




- Molecule 13: NAD(P)H-quinone oxidoreductase subunit 3, chloroplastic

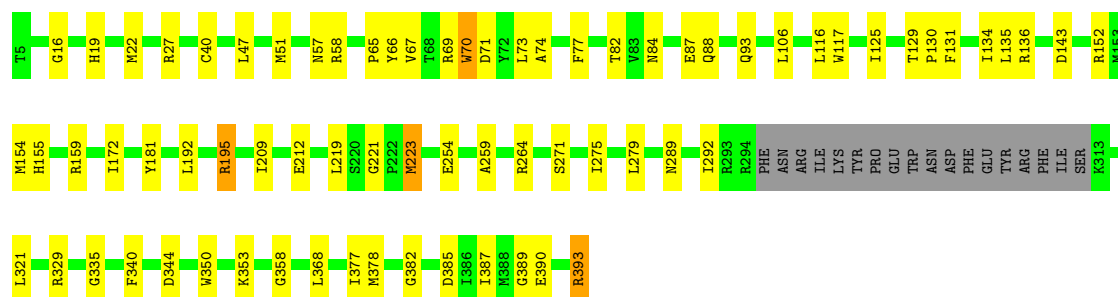
Chain C: 82% 17%




- Molecule 14: NAD(P)H-quinone oxidoreductase chain 4, chloroplastic

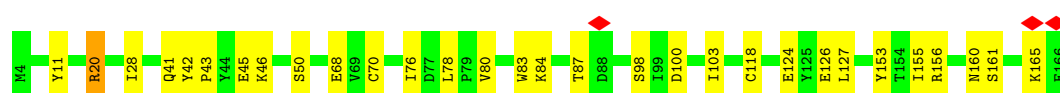
Chain D: 81% 19%

Chain H:  77% 17% 5%



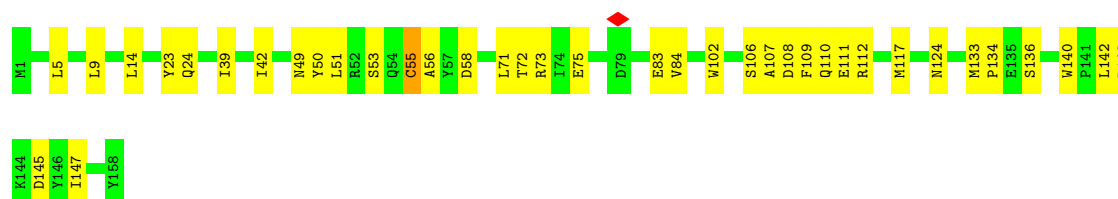
- Molecule 19: NAD(P)H-quinone oxidoreductase subunit I, chloroplastic

Chain I:  82% 18% 0%



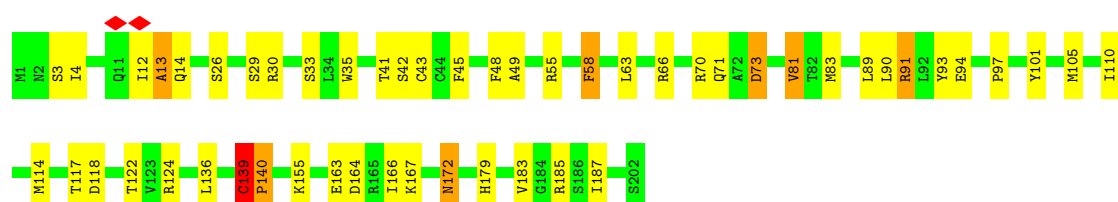
- Molecule 20: NAD(P)H-quinone oxidoreductase subunit J, chloroplastic

Chain J:  76% 23% 0%



- Molecule 21: NAD(P)H-quinone oxidoreductase subunit K, chloroplastic

Chain K:  74% 22% 0%




- Molecule 22: NAD(P)H-quinone oxidoreductase subunit L, chloroplastic

Chain L:  91% 9% 0%




- Molecule 23: NAD(P)H-quinone oxidoreductase subunit M, chloroplastic

Chain M:  79% 19%



- Molecule 24: NAD(P)H-quinone oxidoreductase subunit N, chloroplastic

Chain N:  82% 18%



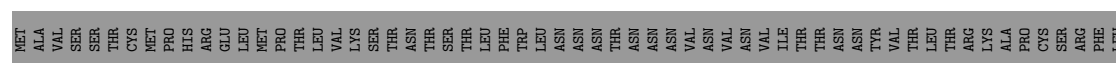
- Molecule 25: NAD(P)H-quinone oxidoreductase subunit O, chloroplastic

Chain O:  8% 91% 8%



- Molecule 26: NAD(P)H-quinone oxidoreductase subunit U, chloroplastic

Chain U:  5% 57% 10% 32%



- Molecule 27: Photosystem I P700 chlorophyll a apoprotein A1

Chain a:  99%



- Molecule 28: Photosystem I P700 chlorophyll a apoprotein A2

Chain b:  98%



- Molecule 29: Photosystem I iron-sulfur center

Chain c:  98%



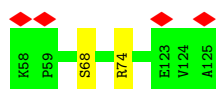
- Molecule 30: Photosystem I reaction center subunit II, chloroplastic

Chain d:  97%



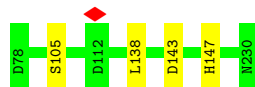
- Molecule 31: Photosystem I reaction center subunit IV, chloroplastic

Chain e:  97%



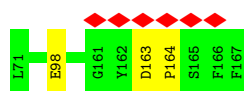
- Molecule 32: Photosystem I reaction center subunit III, chloroplastic

Chain f:  97%



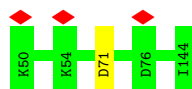
- Molecule 33: Photosystem I reaction center subunit V, chloroplastic

Chain g:  97%



- Molecule 34: Photosystem I reaction center subunit VI, chloroplastic

Chain h:  99%

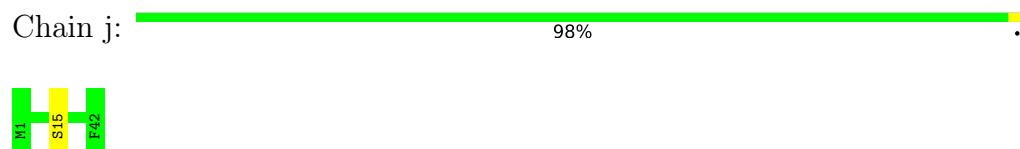


- Molecule 35: Photosystem I reaction center subunit VIII

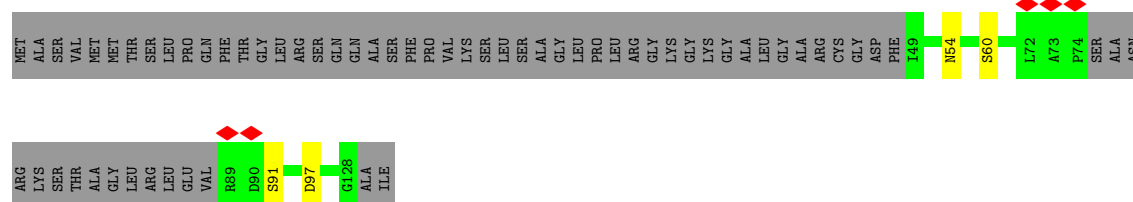
Chain i:  100%

There are no outlier residues recorded for this chain.

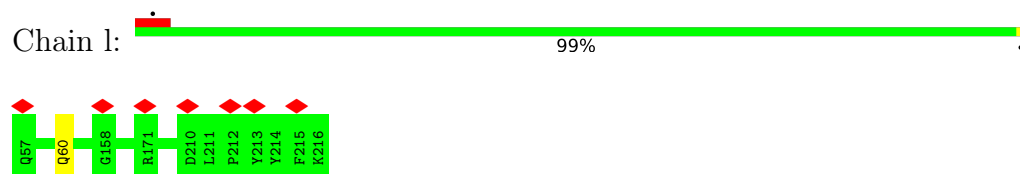
- Molecule 36: Photosystem I reaction center subunit IX



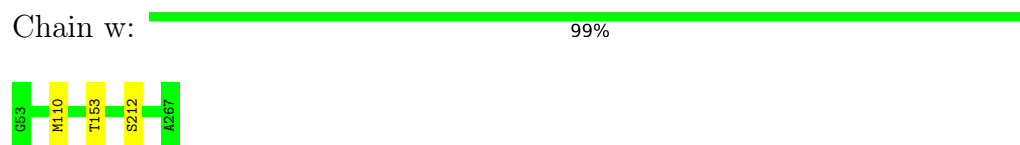
- Molecule 37: PSI-K



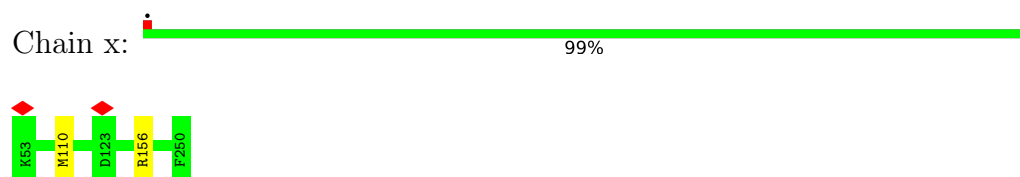
- Molecule 38: Photosystem I reaction center subunit XI, chloroplastic



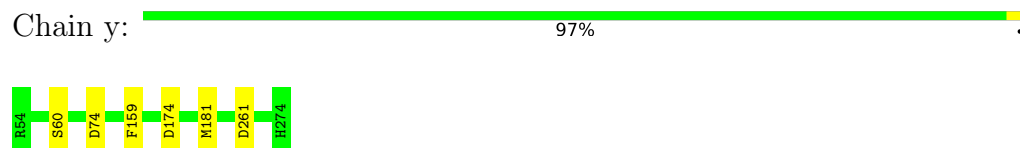
- Molecule 39: Chlorophyll a-b binding protein, chloroplastic



- Molecule 40: Chlorophyll a-b binding protein, chloroplastic



- Molecule 41: Chlorophyll a-b binding protein, chloroplastic



- Molecule 42: Chlorophyll a-b binding protein, chloroplastic



E48	
R55	
H58	
V134	
S179	
K180	
D181	
D236	
I237	
V238	
I239	
P240	

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	38385	Depositor
Resolution determination method	OTHER	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	40	Depositor
Minimum defocus (nm)	700	Depositor
Maximum defocus (nm)	1700	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	3.744	Depositor
Minimum map value	-0.387	Depositor
Average map value	0.043	Depositor
Map value standard deviation	0.080	Depositor
Recommended contour level	0.3	Depositor
Map size (Å)	428.544, 428.544, 428.544	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.837, 0.837, 0.837	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: PQ9, A1H1M, PGT, LUT, DGD, SF4, LMG, CHL, CL0, CLA, SQD, PQN, 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	0	0.27	0/1351	0.55	0/1831
2	1	0.26	0/3200	0.50	1/4340 (0.0%)
3	2	0.26	0/2350	0.51	1/3186 (0.0%)
4	3	0.26	0/1118	0.55	0/1512
5	4	0.28	0/777	0.55	1/1051 (0.1%)
6	5	0.29	0/1301	0.48	0/1770
7	6	0.27	0/1075	0.52	0/1448
8	7	0.29	0/1178	0.52	0/1589
9	8	0.28	0/1101	0.53	0/1494
10	9	0.26	0/1352	0.55	2/1821 (0.1%)
11	A	0.28	0/2795	0.49	1/3810 (0.0%)
12	B	0.29	0/3890	0.52	1/5290 (0.0%)
13	C	0.32	0/977	0.51	0/1333
14	D	0.27	0/4072	0.47	0/5535
15	E	0.27	0/791	0.54	0/1070
16	F	0.29	0/5965	0.50	1/8100 (0.0%)
17	G	0.27	0/1388	0.44	0/1893
18	H	0.27	0/3081	0.51	0/4170
19	I	0.27	0/1357	0.54	0/1839
20	J	0.27	0/1369	0.50	1/1862 (0.1%)
21	K	0.27	0/1633	0.54	0/2212
22	L	0.28	0/975	0.51	0/1328
23	M	0.28	0/1193	0.55	0/1611
24	N	0.25	0/1363	0.51	1/1852 (0.1%)
25	O	0.28	0/811	0.51	0/1100
26	U	0.28	0/1297	0.56	2/1764 (0.1%)
27	a	0.26	0/6024	0.45	0/8220
28	b	0.26	0/6067	0.46	0/8282
29	c	0.26	0/636	0.54	0/860
30	d	0.27	0/1162	0.53	0/1569
31	e	0.29	0/559	0.53	0/757
32	f	0.25	0/1239	0.47	0/1671

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
33	g	0.27	0/779	0.46	0/1055
34	h	0.25	0/758	0.46	0/1029
35	i	0.27	0/251	0.46	0/339
36	j	0.27	0/357	0.46	0/484
37	k	0.25	0/467	0.44	0/630
38	l	0.26	0/1235	0.45	0/1685
39	w	0.28	0/1750	0.52	1/2389 (0.0%)
40	x	0.26	0/1619	0.43	0/2206
41	y	0.28	0/1768	0.51	3/2400 (0.1%)
42	z	0.26	0/1546	0.44	0/2104
All	All	0.27	0/73977	0.50	16/100491 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
11	A	0	1
18	H	0	1
21	K	0	2
39	w	0	1
All	All	0	5

There are no bond length outliers.

The worst 5 of 16 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	4	13	ASP	CB-CG-OD2	7.87	125.39	118.30
16	F	499	MET	CA-CB-CG	7.77	126.51	113.30
26	U	87	PRO	N-CA-CB	6.97	111.67	103.30
41	y	174	ASP	CB-CG-OD2	6.68	124.31	118.30
2	1	191	ASP	CB-CG-OD2	6.35	124.02	118.30

There are no chirality outliers.

All (5) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
11	A	123	ARG	Sidechain
18	H	195	ARG	Sidechain
21	K	139	CYS	Peptide

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Mol	Chain	Res	Type	Group
21	K	91	ARG	Sidechain
39	w	212	SER	Peptide

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	0	1317	0	1268	16	0
2	1	3133	0	3096	41	0
3	2	2305	0	2298	34	0
4	3	1093	0	1078	17	0
5	4	756	0	700	13	0
6	5	1258	0	1147	10	0
7	6	1048	0	1020	17	0
8	7	1156	0	1172	6	0
9	8	1075	0	1051	15	0
10	9	1326	0	1307	16	0
11	A	2728	0	2807	53	0
12	B	3799	0	3881	87	0
13	C	944	0	951	20	0
14	D	3955	0	4064	64	0
15	E	780	0	824	16	0
16	F	5796	0	5847	107	0
17	G	1357	0	1415	31	0
18	H	3008	0	3025	52	0
19	I	1329	0	1310	17	0
20	J	1324	0	1283	21	0
21	K	1597	0	1619	41	0
22	L	936	0	930	9	0
23	M	1169	0	1155	23	0
24	N	1323	0	1334	16	0
25	O	786	0	789	6	0
26	U	1266	0	1182	13	0
27	a	5827	0	5685	0	0
28	b	5855	0	5629	0	0
29	c	623	0	602	0	0
30	d	1132	0	1145	0	0
31	e	546	0	555	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
32	f	1211	0	1236	0	0
33	g	759	0	736	0	0
34	h	737	0	733	0	0
35	i	244	0	262	0	0
36	j	345	0	347	0	0
37	k	462	0	474	0	0
38	l	1200	0	1208	0	0
39	w	1689	0	1617	0	0
40	x	1568	0	1516	0	0
41	y	1713	0	1679	0	0
42	z	1498	0	1471	0	0
43	4	40	0	56	4	0
43	a	255	0	348	0	0
43	b	280	0	392	0	0
43	f	40	0	56	0	0
43	g	40	0	56	0	0
43	i	40	0	56	0	0
43	j	80	0	112	0	0
43	k	80	0	112	0	0
43	l	120	0	168	0	0
43	w	40	0	56	0	0
43	x	40	0	55	0	0
43	y	40	0	56	0	0
43	z	40	0	55	0	0
44	5	35	0	40	2	0
44	A	151	0	185	3	0
44	B	157	0	200	6	0
44	D	34	0	38	1	0
44	F	43	0	59	0	0
44	I	44	0	61	0	0
44	L	40	0	50	2	0
44	N	26	0	22	2	0
44	a	111	0	132	0	0
44	b	87	0	117	0	0
44	f	39	0	48	0	0
44	w	40	0	53	0	0
44	z	124	0	164	0	0
45	5	38	0	0	0	0
45	F	38	0	0	6	0
46	7	41	0	52	0	0
46	B	37	0	44	1	0
46	D	34	0	38	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
46	F	28	0	26	1	0
46	H	33	0	36	1	0
46	f	34	0	38	0	0
46	j	71	0	82	0	0
46	w	40	0	50	0	0
46	x	48	0	66	0	0
46	z	76	0	92	0	0
47	A	36	0	45	16	0
48	B	40	0	44	10	0
48	F	84	0	96	18	0
48	a	36	0	36	0	0
48	j	42	0	51	0	0
48	w	72	0	72	0	0
49	I	16	0	0	1	0
49	K	8	0	0	0	0
49	a	8	0	0	0	0
49	c	16	0	0	0	0
50	a	2583	0	2598	0	0
50	b	2314	0	2287	0	0
50	f	140	0	113	0	0
50	g	144	0	115	0	0
50	h	46	0	33	0	0
50	j	42	0	31	0	0
50	k	140	0	108	0	0
50	l	145	0	116	0	0
50	w	526	0	461	0	0
50	x	608	0	518	0	0
50	y	676	0	603	0	0
50	z	532	0	432	0	0
51	a	66	0	96	0	0
51	b	59	0	79	0	0
51	x	48	0	54	0	0
52	a	61	0	62	0	0
53	a	33	0	46	0	0
53	b	33	0	46	0	0
54	w	135	0	88	0	0
54	x	179	0	115	0	0
54	z	103	0	84	0	0
55	w	84	0	112	0	0
55	x	84	0	112	0	0
55	y	84	0	112	0	0
55	z	84	0	112	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
All	All	83864	0	83596	652	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 9.

The worst 5 of 652 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)
11:A:259:TYR:CE2	47:A:405:PQ9:H161	1.65	1.29
11:A:259:TYR:CD2	47:A:405:PQ9:H161	1.74	1.21
11:A:259:TYR:HD2	47:A:405:PQ9:C18	1.70	1.05
16:F:712:GLY:HA3	45:F:804:A1H1M:C38	1.97	0.94
11:A:259:TYR:CD2	47:A:405:PQ9:C16	2.56	0.89

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	0	155/157 (99%)	152 (98%)	3 (2%)	0	100	100
2	1	401/403 (100%)	393 (98%)	8 (2%)	0	100	100
3	2	292/372 (78%)	286 (98%)	5 (2%)	1 (0%)	37	69
4	3	137/139 (99%)	129 (94%)	8 (6%)	0	100	100
5	4	91/93 (98%)	90 (99%)	1 (1%)	0	100	100
6	5	152/154 (99%)	149 (98%)	3 (2%)	0	100	100
7	6	123/125 (98%)	122 (99%)	1 (1%)	0	100	100
8	7	142/144 (99%)	141 (99%)	1 (1%)	0	100	100
9	8	141/143 (99%)	136 (96%)	5 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
10	9	172/174 (99%)	167 (97%)	5 (3%)	0	100	100
11	A	348/350 (99%)	340 (98%)	8 (2%)	0	100	100
12	B	486/488 (100%)	453 (93%)	32 (7%)	1 (0%)	44	75
13	C	113/115 (98%)	103 (91%)	9 (8%)	1 (1%)	14	49
14	D	496/498 (100%)	483 (97%)	12 (2%)	1 (0%)	44	75
15	E	98/100 (98%)	96 (98%)	2 (2%)	0	100	100
16	F	718/742 (97%)	683 (95%)	33 (5%)	2 (0%)	37	69
17	G	174/176 (99%)	165 (95%)	9 (5%)	0	100	100
18	H	367/389 (94%)	352 (96%)	15 (4%)	0	100	100
19	I	161/163 (99%)	157 (98%)	4 (2%)	0	100	100
20	J	156/158 (99%)	152 (97%)	4 (3%)	0	100	100
21	K	200/202 (99%)	189 (94%)	8 (4%)	3 (2%)	8	38
22	L	107/109 (98%)	104 (97%)	3 (3%)	0	100	100
23	M	139/141 (99%)	129 (93%)	9 (6%)	1 (1%)	19	54
24	N	163/165 (99%)	156 (96%)	6 (4%)	1 (1%)	22	57
25	O	93/95 (98%)	90 (97%)	1 (1%)	2 (2%)	5	30
26	U	161/240 (67%)	151 (94%)	7 (4%)	3 (2%)	6	34
27	a	740/742 (100%)	721 (97%)	19 (3%)	0	100	100
28	b	731/733 (100%)	716 (98%)	15 (2%)	0	100	100
29	c	79/81 (98%)	77 (98%)	2 (2%)	0	100	100
30	d	141/143 (99%)	135 (96%)	6 (4%)	0	100	100
31	e	66/68 (97%)	62 (94%)	4 (6%)	0	100	100
32	f	151/153 (99%)	150 (99%)	1 (1%)	0	100	100
33	g	95/97 (98%)	91 (96%)	2 (2%)	2 (2%)	5	31
34	h	93/95 (98%)	92 (99%)	1 (1%)	0	100	100
35	i	29/31 (94%)	28 (97%)	1 (3%)	0	100	100
36	j	40/42 (95%)	40 (100%)	0	0	100	100
37	k	62/130 (48%)	61 (98%)	1 (2%)	0	100	100
38	l	158/160 (99%)	152 (96%)	6 (4%)	0	100	100
39	w	213/215 (99%)	202 (95%)	11 (5%)	0	100	100
40	x	196/198 (99%)	194 (99%)	2 (1%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
41	y	219/221 (99%)	214 (98%)	5 (2%)	0	100	100
42	z	191/193 (99%)	188 (98%)	3 (2%)	0	100	100
All	All	8990/9337 (96%)	8691 (97%)	281 (3%)	18 (0%)	45	75

5 of 18 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
16	F	501	ASN
21	K	140	PRO
23	M	94	LEU
25	O	61	LYS
26	U	86	SER

5.3.2 Protein sidechains ⓘ

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	0	143/143 (100%)	137 (96%)	6 (4%)	25	58
2	1	340/340 (100%)	334 (98%)	6 (2%)	54	77
3	2	260/321 (81%)	254 (98%)	6 (2%)	45	72
4	3	120/120 (100%)	119 (99%)	1 (1%)	79	90
5	4	76/76 (100%)	73 (96%)	3 (4%)	27	60
6	5	131/131 (100%)	128 (98%)	3 (2%)	45	72
7	6	112/112 (100%)	106 (95%)	6 (5%)	18	51
8	7	123/123 (100%)	121 (98%)	2 (2%)	58	79
9	8	114/115 (99%)	109 (96%)	5 (4%)	24	57
10	9	143/144 (99%)	133 (93%)	10 (7%)	12	42
11	A	296/304 (97%)	291 (98%)	5 (2%)	56	78
12	B	424/424 (100%)	403 (95%)	21 (5%)	20	54
13	C	99/99 (100%)	95 (96%)	4 (4%)	27	59
14	D	430/430 (100%)	420 (98%)	10 (2%)	45	72

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
15	E	86/86 (100%)	80 (93%)	6 (7%)	12	42
16	F	626/652 (96%)	611 (98%)	15 (2%)	44	71
17	G	153/153 (100%)	150 (98%)	3 (2%)	50	75
18	H	321/339 (95%)	313 (98%)	8 (2%)	42	71
19	I	150/150 (100%)	140 (93%)	10 (7%)	13	44
20	J	140/140 (100%)	135 (96%)	5 (4%)	30	62
21	K	180/180 (100%)	172 (96%)	8 (4%)	24	57
22	L	99/99 (100%)	97 (98%)	2 (2%)	50	75
23	M	129/129 (100%)	125 (97%)	4 (3%)	35	66
24	N	139/139 (100%)	135 (97%)	4 (3%)	37	67
25	O	87/87 (100%)	86 (99%)	1 (1%)	70	86
26	U	127/212 (60%)	120 (94%)	7 (6%)	18	51
27	a	598/598 (100%)	590 (99%)	8 (1%)	65	83
28	b	599/599 (100%)	581 (97%)	18 (3%)	36	66
29	c	71/71 (100%)	69 (97%)	2 (3%)	38	68
30	d	122/122 (100%)	118 (97%)	4 (3%)	33	64
31	e	60/60 (100%)	58 (97%)	2 (3%)	33	64
32	f	126/126 (100%)	122 (97%)	4 (3%)	34	65
33	g	82/82 (100%)	81 (99%)	1 (1%)	67	85
34	h	79/79 (100%)	78 (99%)	1 (1%)	65	83
35	i	27/27 (100%)	27 (100%)	0	100	100
36	j	37/37 (100%)	36 (97%)	1 (3%)	40	69
37	k	49/97 (50%)	45 (92%)	4 (8%)	9	36
38	l	123/123 (100%)	122 (99%)	1 (1%)	79	90
39	w	177/177 (100%)	176 (99%)	1 (1%)	84	92
40	x	166/166 (100%)	164 (99%)	2 (1%)	67	85
41	y	173/173 (100%)	170 (98%)	3 (2%)	56	78
42	z	154/154 (100%)	147 (96%)	7 (4%)	23	56
All	All	7691/7939 (97%)	7471 (97%)	220 (3%)	39	67

5 of 220 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
18	H	159	ARG
22	L	121	MET
42	z	238	VAL
33	g	98	GLU
18	H	393	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 11 such sidechains are listed below:

Mol	Chain	Res	Type
21	K	172	ASN
28	b	156	HIS
42	z	209	GLN
39	w	240	GLN
17	G	142	GLN

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](#)

248 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
50	CLA	b	814	-	65,73,73	1.36	7 (10%)	76,113,113	1.86	12 (15%)
44	PGT	F	803	-	42,42,50	0.52	0	45,48,56	0.47	0
50	CLA	a	845	-	65,73,73	1.35	7 (10%)	76,113,113	1.70	10 (13%)
50	CLA	a	819	-	60,68,73	1.40	7 (11%)	70,107,113	1.75	9 (12%)
50	CLA	a	818	-	59,67,73	1.40	7 (11%)	68,105,113	1.72	11 (16%)
44	PGT	5	301	-	34,34,50	0.57	0	37,40,56	0.58	0
46	LMG	B	605	-	37,37,55	0.99	2 (5%)	45,45,63	1.06	2 (4%)
50	CLA	b	825	-	65,73,73	1.35	7 (10%)	76,113,113	1.65	11 (14%)
44	PGT	f	305	-	38,38,50	0.54	0	41,44,56	0.50	0
50	CLA	a	855	-	42,50,73	1.60	7 (16%)	48,85,113	1.97	7 (14%)
50	CLA	b	802	-	65,73,73	1.34	7 (10%)	76,113,113	1.60	9 (11%)
54	CHL	w	304	-	45,53,74	1.77	10 (22%)	52,89,114	2.17	13 (25%)
47	PQ9	A	405	-	36,36,45	2.93	19 (52%)	45,46,57	11.16	23 (51%)
50	CLA	a	851	27	46,54,73	1.56	7 (15%)	53,90,113	1.90	8 (15%)
50	CLA	x	306	-	60,68,73	1.40	8 (13%)	70,107,113	1.75	8 (11%)
44	PGT	w	313	50	39,39,50	0.54	0	42,45,56	0.50	0
46	LMG	j	104	-	34,34,55	1.03	1 (2%)	42,42,63	1.15	2 (4%)
55	LUT	w	320	-	42,43,43	0.74	0	51,60,60	0.62	0
44	PGT	B	601	-	33,33,50	0.58	0	36,39,56	0.56	0
44	PGT	B	606	-	34,34,50	0.54	0	37,40,56	0.72	1 (2%)
50	CLA	a	812	-	59,66,73	1.36	8 (13%)	70,101,113	1.72	9 (12%)
43	BCR	b	850	-	41,41,41	0.70	0	56,56,56	1.18	6 (10%)
50	CLA	a	821	-	63,71,73	1.33	6 (9%)	77,110,113	1.89	12 (15%)
51	DGD	a	804	-	67,67,67	1.02	2 (2%)	81,81,81	1.00	1 (1%)
50	CLA	a	813	-	52,60,73	1.50	7 (13%)	60,97,113	1.75	9 (15%)
43	BCR	k	202	-	41,41,41	0.70	0	56,56,56	1.14	4 (7%)
43	BCR	x	314	-	41,41,41	0.61	0	56,56,56	1.16	4 (7%)
50	CLA	x	302	-	41,49,73	1.62	7 (17%)	47,84,113	2.08	9 (19%)
50	CLA	b	832	-	54,62,73	1.49	7 (12%)	62,99,113	1.82	9 (14%)
50	CLA	z	307	42	60,68,73	1.40	7 (11%)	70,107,113	1.76	10 (14%)
43	BCR	b	831	-	41,41,41	0.64	0	56,56,56	1.33	10 (17%)
46	LMG	j	105	-	37,37,55	0.96	1 (2%)	45,45,63	1.08	2 (4%)
50	CLA	z	311	-	55,63,73	1.46	7 (12%)	64,101,113	1.68	10 (15%)
50	CLA	y	307	-	41,49,73	1.57	6 (14%)	51,84,113	2.07	8 (15%)
51	DGD	x	317	-	49,49,67	1.12	0	63,63,81	1.05	2 (3%)
50	CLA	b	835	-	59,67,73	1.40	7 (11%)	68,105,113	1.73	10 (14%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
50	CLA	a	858	-	65,73,73	1.36	7 (10%)	76,113,113	1.54	8 (10%)
49	SF4	I	202	19	0,12,12	-	-	-		
50	CLA	a	838	-	65,73,73	1.32	7 (10%)	76,113,113	1.78	10 (13%)
54	CHL	x	311	-	41,48,74	1.97	9 (21%)	42,82,114	2.05	6 (14%)
50	CLA	a	843	-	65,73,73	1.37	7 (10%)	76,113,113	1.73	10 (13%)
44	PGT	a	805	-	31,31,50	0.59	0	34,37,56	0.56	0
50	CLA	a	853	-	65,73,73	1.34	7 (10%)	76,113,113	1.73	11 (14%)
44	PGT	b	830	50	38,38,50	0.54	0	41,44,56	0.50	0
43	BCR	l	304	-	41,41,41	0.68	0	56,56,56	1.08	4 (7%)
50	CLA	a	814	-	65,73,73	1.35	7 (10%)	76,113,113	1.75	9 (11%)
50	CLA	x	312	40	65,73,73	1.34	7 (10%)	76,113,113	1.68	10 (13%)
50	CLA	y	314	41	65,73,73	1.36	7 (10%)	76,113,113	1.67	13 (17%)
43	BCR	f	304	-	41,41,41	0.67	0	56,56,56	1.05	4 (7%)
50	CLA	b	828	-	60,68,73	1.43	7 (11%)	70,107,113	1.66	8 (11%)
50	CLA	b	845	-	65,73,73	1.35	7 (10%)	76,113,113	1.49	11 (14%)
50	CLA	b	847	-	60,68,73	1.39	6 (10%)	70,107,113	1.85	12 (17%)
50	CLA	a	802	-	60,68,73	1.41	7 (11%)	70,107,113	1.72	10 (14%)
48	SQD	F	805	-	42,43,54	0.45	0	51,54,65	0.80	2 (3%)
49	SF4	c	101	29	0,12,12	-	-	-		
46	LMG	7	301	-	41,41,55	1.00	2 (4%)	49,49,63	1.23	4 (8%)
43	BCR	b	818	-	41,41,41	0.66	0	56,56,56	1.03	3 (5%)
48	SQD	F	801	-	40,41,54	0.44	1 (2%)	49,52,65	1.06	3 (6%)
50	CLA	b	805	28	65,73,73	1.35	7 (10%)	76,113,113	1.77	10 (13%)
44	PGT	z	317	50	45,45,50	0.51	0	48,51,56	0.48	0
50	CLA	a	815	27	65,73,73	1.34	8 (12%)	76,113,113	1.74	11 (14%)
50	CLA	w	303	39	45,53,73	1.58	8 (17%)	52,89,113	1.93	9 (17%)
50	CLA	a	850	-	65,73,73	1.34	6 (9%)	76,113,113	1.63	12 (15%)
50	CLA	z	303	-	41,49,73	1.64	8 (19%)	47,84,113	1.91	10 (21%)
49	SF4	I	201	19	0,12,12	-	-	-		
50	CLA	y	306	-	39,48,73	1.57	7 (17%)	43,82,113	2.09	9 (20%)
50	CLA	w	316	39	50,58,73	1.53	7 (14%)	58,95,113	2.00	12 (20%)
43	BCR	i	101	-	41,41,41	0.65	0	56,56,56	1.13	2 (3%)
43	BCR	b	817	-	41,41,41	0.67	0	56,56,56	1.18	6 (10%)
50	CLA	a	816	-	42,50,73	1.57	7 (16%)	48,85,113	1.84	7 (14%)
50	CLA	a	854	-	65,73,73	1.34	7 (10%)	76,113,113	1.61	12 (15%)
50	CLA	b	849	-	50,58,73	1.53	7 (14%)	58,95,113	1.92	7 (12%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
50	CLA	j	102	36	42,50,73	1.58	7 (16%)	48,85,113	2.02	7 (14%)
50	CLA	y	308	-	65,73,73	1.35	7 (10%)	76,113,113	1.74	10 (13%)
50	CLA	a	833	-	65,73,73	1.36	7 (10%)	76,113,113	1.65	11 (14%)
50	CLA	b	846	-	65,73,73	1.34	7 (10%)	76,113,113	1.68	9 (11%)
54	CHL	x	305	-	46,54,74	1.73	10 (21%)	49,90,114	2.22	14 (28%)
51	DGD	b	821	-	60,60,67	1.02	0	74,74,81	1.03	3 (4%)
50	CLA	z	319	-	42,50,73	1.62	7 (16%)	48,85,113	1.89	5 (10%)
43	BCR	w	301	-	41,41,41	0.63	0	56,56,56	1.05	4 (7%)
53	PQN	b	827	-	34,34,34	1.02	3 (8%)	42,45,45	1.88	10 (23%)
50	CLA	z	305	-	50,58,73	1.53	7 (14%)	58,95,113	1.84	9 (15%)
55	LUT	x	320	-	42,43,43	0.82	0	51,60,60	0.58	0
50	CLA	b	842	-	57,65,73	1.44	7 (12%)	66,103,113	1.67	11 (16%)
50	CLA	z	316	44	47,55,73	1.53	7 (14%)	54,91,113	1.83	8 (14%)
50	CLA	b	826	-	55,63,73	1.47	7 (12%)	64,101,113	1.85	9 (14%)
43	BCR	4	101	-	41,41,41	0.64	0	56,56,56	1.19	4 (7%)
50	CLA	k	205	-	42,50,73	1.58	7 (16%)	48,85,113	1.97	8 (16%)
55	LUT	y	315	-	42,43,43	0.85	0	51,60,60	0.61	0
44	PGT	A	404	-	43,43,50	0.51	0	46,49,56	0.46	0
44	PGT	I	203	-	43,43,50	0.52	0	46,49,56	0.47	0
50	CLA	b	833	-	65,73,73	1.32	7 (10%)	76,113,113	1.75	11 (14%)
43	BCR	a	827	-	40,40,41	0.67	0	54,54,56	1.13	5 (9%)
44	PGT	A	403	-	37,37,50	0.31	0	40,43,56	0.37	0
54	CHL	x	301	-	43,51,74	1.68	8 (18%)	45,86,114	2.20	8 (17%)
50	CLA	b	838	-	52,60,73	1.52	7 (13%)	60,97,113	1.88	10 (16%)
43	BCR	l	303	-	41,41,41	0.63	0	56,56,56	1.20	5 (8%)
50	CLA	k	203	-	41,49,73	1.65	8 (19%)	47,84,113	1.97	7 (14%)
44	PGT	b	829	-	47,47,50	0.50	0	50,53,56	0.45	0
46	LMG	w	312	-	40,40,55	0.95	1 (2%)	48,48,63	1.11	2 (4%)
50	CLA	b	823	-	55,63,73	1.47	8 (14%)	64,101,113	1.78	11 (17%)
50	CLA	x	304	40	47,55,73	1.54	7 (14%)	54,91,113	1.84	7 (12%)
43	BCR	z	318	-	41,41,41	0.68	0	56,56,56	1.41	6 (10%)
50	CLA	w	314	44	44,52,73	1.57	7 (15%)	49,87,113	2.03	8 (16%)
50	CLA	x	303	40	57,65,73	1.48	7 (12%)	66,103,113	1.73	12 (18%)
50	CLA	x	307	40	60,68,73	1.40	7 (11%)	70,107,113	1.81	11 (15%)
50	CLA	z	310	42	41,49,73	1.60	7 (17%)	47,84,113	2.07	10 (21%)
48	SQD	w	318	-	40,41,54	0.43	1 (2%)	49,52,65	0.92	3 (6%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
43	BCR	a	831	-	40,40,41	0.64	0	54,54,56	1.16	5 (9%)
50	CLA	b	836	-	65,73,73	1.36	7 (10%)	76,113,113	1.69	10 (13%)
50	CLA	w	310	-	65,73,73	1.36	7 (10%)	76,113,113	1.81	15 (19%)
50	CLA	z	306	42	56,64,73	1.43	6 (10%)	65,102,113	1.88	14 (21%)
50	CLA	a	842	-	65,73,73	1.34	7 (10%)	76,113,113	1.66	11 (14%)
50	CLA	b	840	-	65,73,73	1.34	7 (10%)	76,113,113	1.70	9 (11%)
50	CLA	a	849	-	65,73,73	1.36	7 (10%)	76,113,113	1.64	11 (14%)
50	CLA	y	305	41	45,53,73	1.57	7 (15%)	52,89,113	1.87	7 (13%)
50	CLA	b	834	-	45,53,73	1.57	7 (15%)	52,89,113	1.81	7 (13%)
50	CLA	z	308	-	42,50,73	2.14	11 (26%)	40,82,113	2.30	8 (20%)
43	BCR	a	828	-	41,41,41	0.71	0	56,56,56	1.09	3 (5%)
43	BCR	a	810	-	30,30,41	0.83	1 (3%)	39,39,56	1.34	6 (15%)
50	CLA	g	201	-	49,57,73	1.53	7 (14%)	55,93,113	1.72	8 (14%)
43	BCR	a	830	-	41,41,41	0.70	0	56,56,56	1.03	3 (5%)
44	PGT	A	401	-	31,31,50	0.58	0	34,37,56	0.60	0
43	BCR	k	201	-	41,41,41	0.69	0	56,56,56	1.47	11 (19%)
50	CLA	b	851	-	47,55,73	1.52	7 (14%)	54,91,113	1.91	8 (14%)
43	BCR	y	301	-	41,41,41	0.66	0	56,56,56	1.04	3 (5%)
50	CLA	w	308	39	65,73,73	1.35	6 (9%)	76,113,113	1.77	12 (15%)
46	LMG	H	401	-	33,33,55	1.07	2 (6%)	41,41,63	1.26	4 (9%)
50	CLA	y	304	-	38,47,73	1.68	7 (18%)	45,81,113	1.98	8 (17%)
43	BCR	g	202	-	41,41,41	0.69	0	56,56,56	1.01	3 (5%)
44	PGT	B	603	-	45,45,50	0.51	0	48,51,56	0.46	0
50	CLA	b	808	-	43,51,73	1.58	7 (16%)	49,86,113	1.91	7 (14%)
54	CHL	w	311	-	47,55,74	1.59	8 (17%)	49,90,114	2.10	10 (20%)
46	LMG	z	314	-	40,40,55	1.12	4 (10%)	48,48,63	1.07	1 (2%)
52	CL0	a	808	-	61,69,73	2.35	18 (29%)	70,107,113	2.52	21 (30%)
50	CLA	b	812	-	62,70,73	1.39	7 (11%)	72,109,113	1.71	12 (16%)
50	CLA	l	305	38	40,48,73	1.66	7 (17%)	46,83,113	1.90	8 (17%)
43	BCR	a	803	-	27,27,41	0.70	0	34,35,56	1.23	2 (5%)
50	CLA	g	204	33	43,51,73	1.58	7 (16%)	49,86,113	1.85	8 (16%)
50	CLA	a	801	-	65,73,73	1.35	7 (10%)	76,113,113	1.70	10 (13%)
50	CLA	x	313	40	53,61,73	1.52	8 (15%)	61,98,113	1.76	12 (19%)
50	CLA	a	836	27	65,73,73	1.34	7 (10%)	76,113,113	1.65	10 (13%)
46	LMG	f	306	-	34,34,55	1.02	1 (2%)	42,42,63	1.15	2 (4%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
50	CLA	y	302	41	52,60,73	1.47	8 (15%)	65,97,113	2.11	12 (18%)
49	SF4	K	301	21	0,12,12	-	-	-		
45	A1H1M	F	804	-	41,41,41	1.27	5 (12%)	58,58,58	1.85	16 (27%)
48	SQD	a	859	-	35,36,54	0.49	1 (2%)	44,47,65	0.84	2 (4%)
55	LUT	z	321	-	42,43,43	0.81	0	51,60,60	0.64	0
50	CLA	b	801	-	65,73,73	1.35	7 (10%)	76,113,113	1.67	11 (14%)
50	CLA	b	822	-	58,66,73	1.42	7 (12%)	67,104,113	1.82	9 (13%)
50	CLA	f	303	-	41,49,73	1.62	7 (17%)	47,84,113	1.97	8 (17%)
50	CLA	b	803	-	65,73,73	1.34	6 (9%)	76,113,113	1.88	12 (15%)
44	PGT	A	402	-	36,36,50	0.56	0	39,42,56	0.51	0
50	CLA	b	806	-	52,60,73	1.50	7 (13%)	60,97,113	1.89	9 (15%)
50	CLA	x	318	-	44,53,73	1.51	6 (13%)	49,88,113	1.99	8 (16%)
50	CLA	a	847	-	40,48,73	1.78	7 (17%)	40,76,113	1.50	7 (17%)
50	CLA	a	822	-	51,59,73	1.48	7 (13%)	59,96,113	2.07	10 (16%)
50	CLA	a	809	-	57,65,73	1.43	7 (12%)	66,103,113	1.83	12 (18%)
44	PGT	z	313	-	32,32,50	0.58	0	35,38,56	0.53	0
50	CLA	f	301	-	57,65,73	1.43	7 (12%)	66,103,113	1.89	10 (15%)
50	CLA	l	301	-	45,53,73	1.59	7 (15%)	52,89,113	1.91	7 (13%)
50	CLA	y	312	-	51,59,73	1.49	7 (13%)	59,96,113	1.83	8 (13%)
50	CLA	a	835	-	58,66,73	1.43	7 (12%)	67,104,113	1.81	10 (14%)
43	BCR	b	819	-	41,41,41	0.73	1 (2%)	56,56,56	1.23	6 (10%)
50	CLA	a	823	-	55,63,73	1.47	7 (12%)	64,101,113	1.78	9 (14%)
44	PGT	D	602	-	33,33,50	0.57	0	36,39,56	0.60	0
46	LMG	z	315	-	36,36,55	0.98	1 (2%)	44,44,63	1.14	2 (4%)
50	CLA	w	306	39	65,73,73	1.36	7 (10%)	76,113,113	1.67	11 (14%)
54	CHL	x	319	42	50,58,74	1.67	9 (18%)	52,94,114	2.14	11 (21%)
50	CLA	w	315	39	46,54,73	1.57	7 (15%)	53,90,113	1.94	8 (15%)
50	CLA	b	815	-	65,73,73	1.35	7 (10%)	76,113,113	1.77	10 (13%)
55	LUT	y	316	-	42,43,43	0.83	0	51,60,60	0.75	1 (1%)
49	SF4	a	832	27,28	0,12,12	-	-	-		
50	CLA	f	302	-	42,50,73	1.59	7 (16%)	48,85,113	2.04	7 (14%)
43	BCR	b	820	-	41,41,41	0.70	0	56,56,56	1.15	5 (8%)
50	CLA	b	848	-	42,50,73	1.60	7 (16%)	48,85,113	2.02	8 (16%)
43	BCR	b	816	-	41,41,41	0.67	0	56,56,56	1.15	4 (7%)
46	LMG	x	315	-	48,48,55	0.84	1 (2%)	56,56,63	1.10	2 (3%)
50	CLA	x	308	-	50,58,73	1.54	7 (14%)	58,95,113	1.90	9 (15%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
50	CLA	y	303	-	55,63,73	1.47	7 (12%)	64,101,113	1.85	7 (10%)
50	CLA	z	302	-	55,63,73	1.47	8 (14%)	64,101,113	1.77	8 (12%)
50	CLA	x	310	-	43,51,73	1.57	7 (16%)	49,86,113	1.84	8 (16%)
50	CLA	a	841	-	55,63,73	1.45	7 (12%)	64,101,113	1.78	10 (15%)
50	CLA	b	837	-	65,73,73	1.34	7 (10%)	76,113,113	1.74	10 (13%)
48	SQD	B	604	-	39,40,54	0.51	1 (2%)	48,51,65	0.61	0
50	CLA	a	844	-	57,65,73	1.43	7 (12%)	66,103,113	1.73	11 (16%)
44	PGT	z	301	-	44,44,50	0.50	0	47,50,56	0.50	0
50	CLA	a	857	-	65,73,73	1.36	7 (10%)	76,113,113	1.72	9 (11%)
44	PGT	N	301	-	25,25,50	0.65	0	28,31,56	0.58	0
54	CHL	z	304	42	42,50,74	1.69	7 (16%)	44,85,114	2.31	8 (18%)
43	BCR	l	302	-	41,41,41	0.64	0	56,56,56	1.03	2 (3%)
50	CLA	w	307	-	45,53,73	1.60	7 (15%)	52,89,113	1.83	9 (17%)
44	PGT	a	806	50	32,32,50	0.60	0	35,38,56	0.53	0
44	PGT	L	201	-	39,39,50	0.54	0	42,45,56	0.54	0
50	CLA	x	309	-	42,50,73	1.58	7 (16%)	48,85,113	1.96	7 (14%)
45	A1H1M	5	302	-	41,41,41	1.08	2 (4%)	58,58,58	1.94	13 (22%)
50	CLA	a	837	-	65,73,73	1.36	7 (10%)	76,113,113	1.69	9 (11%)
53	PQN	a	825	-	34,34,34	1.01	3 (8%)	42,45,45	1.81	10 (23%)
50	CLA	y	313	41	65,73,73	1.36	7 (10%)	76,113,113	1.84	10 (13%)
54	CHL	z	312	42	61,69,74	1.54	10 (16%)	67,108,114	2.20	14 (20%)
50	CLA	a	839	-	65,73,73	1.34	7 (10%)	76,113,113	1.63	11 (14%)
54	CHL	w	309	-	43,51,74	1.69	7 (16%)	45,86,114	2.17	8 (17%)
50	CLA	l	306	-	60,68,73	1.41	8 (13%)	70,107,113	1.78	12 (17%)
50	CLA	b	804	-	41,49,73	1.62	8 (19%)	47,84,113	1.95	9 (19%)
50	CLA	b	813	-	43,51,73	1.59	7 (16%)	49,86,113	1.76	7 (14%)
44	PGT	a	807	-	45,45,50	0.51	0	48,51,56	0.50	0
55	LUT	w	319	-	42,43,43	0.80	0	51,60,60	0.86	1 (1%)
50	CLA	k	204	-	57,65,73	1.44	7 (12%)	66,103,113	1.86	10 (15%)
46	LMG	F	802	-	28,28,55	1.10	1 (3%)	36,36,63	1.16	2 (5%)
50	CLA	a	811	-	65,73,73	1.35	7 (10%)	76,113,113	1.75	10 (13%)
50	CLA	a	846	-	65,73,73	1.36	7 (10%)	76,113,113	1.76	11 (14%)
50	CLA	b	810	-	50,58,73	1.54	7 (14%)	58,95,113	1.83	7 (12%)
50	CLA	g	203	-	52,60,73	1.50	7 (13%)	60,97,113	1.76	8 (13%)
49	SF4	c	102	29	0,12,12	-	-	-	-	-
50	CLA	a	834	-	65,73,73	1.34	7 (10%)	76,113,113	1.69	8 (10%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
50	CLA	y	309	-	42,50,73	1.61	7 (16%)	48,85,113	1.76	7 (14%)
50	CLA	y	310	41	65,73,73	1.33	7 (10%)	76,113,113	1.74	10 (13%)
50	CLA	a	848	-	52,60,73	1.50	7 (13%)	60,97,113	1.78	9 (15%)
55	LUT	x	321	-	42,43,43	0.84	0	51,60,60	0.86	2 (3%)
46	LMG	D	601	-	34,34,55	1.01	1 (2%)	42,42,63	1.14	2 (4%)
48	SQD	w	317	-	30,31,54	0.52	1 (3%)	39,42,65	0.58	0
43	BCR	j	103	-	41,41,41	0.69	0	56,56,56	1.16	5 (8%)
50	CLA	a	820	-	65,73,73	1.35	7 (10%)	76,113,113	1.67	11 (14%)
50	CLA	w	302	-	50,58,73	1.55	7 (14%)	58,95,113	1.89	8 (13%)
55	LUT	z	320	-	42,43,43	0.90	0	51,60,60	0.70	0
50	CLA	b	844	28	65,73,73	1.37	7 (10%)	76,113,113	1.70	9 (11%)
50	CLA	a	852	-	51,59,73	1.50	7 (13%)	59,96,113	1.87	12 (20%)
44	PGT	B	602	-	41,41,50	0.53	0	44,47,56	0.44	0
50	CLA	b	807	-	65,73,73	1.34	7 (10%)	76,113,113	1.75	10 (13%)
43	BCR	j	101	-	41,41,41	0.70	0	56,56,56	1.15	3 (5%)
50	CLA	z	309	-	42,50,73	1.58	7 (16%)	48,85,113	1.95	8 (16%)
50	CLA	a	817	-	41,49,73	1.63	7 (17%)	47,84,113	1.89	7 (14%)
50	CLA	b	824	44	65,73,73	1.33	7 (10%)	76,113,113	1.79	9 (11%)
50	CLA	y	311	-	51,59,73	1.54	8 (15%)	59,96,113	1.97	9 (15%)
50	CLA	w	305	-	51,59,73	1.50	7 (13%)	59,96,113	1.98	9 (15%)
50	CLA	a	840	-	42,50,73	1.58	7 (16%)	48,85,113	1.89	6 (12%)
50	CLA	b	841	-	55,63,73	1.47	8 (14%)	64,101,113	1.87	9 (14%)
50	CLA	b	839	-	65,73,73	1.35	7 (10%)	76,113,113	1.72	10 (13%)
50	CLA	a	824	-	65,73,73	1.35	7 (10%)	76,113,113	1.77	10 (13%)
43	BCR	a	829	-	41,41,41	0.75	0	56,56,56	1.16	6 (10%)
48	SQD	j	106	-	41,42,54	0.44	1 (2%)	50,53,65	0.57	1 (2%)
50	CLA	a	826	44	45,53,73	1.55	7 (15%)	52,89,113	1.88	7 (13%)
50	CLA	a	856	-	64,72,73	1.34	7 (10%)	74,111,113	1.53	10 (13%)
50	CLA	b	811	-	45,53,73	1.58	7 (15%)	52,89,113	1.90	9 (17%)
50	CLA	x	316	-	45,53,73	1.57	7 (15%)	52,89,113	1.88	8 (15%)
50	CLA	b	843	-	65,73,73	1.34	8 (12%)	76,113,113	1.77	9 (11%)
50	CLA	h	201	34	46,54,73	1.56	7 (15%)	53,90,113	1.94	7 (13%)
50	CLA	b	809	-	59,67,73	1.42	7 (11%)	68,105,113	1.74	11 (16%)

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
50	CLA	b	814	-	1/1/15/20	12/37/115/115	-
44	PGT	F	803	-	-	12/47/47/55	-
50	CLA	a	845	-	1/1/15/20	15/37/115/115	-
50	CLA	a	819	-	1/1/14/20	12/31/109/115	-
50	CLA	a	818	-	1/1/13/20	11/30/108/115	-
44	PGT	5	301	-	-	17/39/39/55	-
46	LMG	B	605	-	-	17/32/52/70	0/1/1/1
50	CLA	b	825	-	1/1/15/20	14/37/115/115	-
44	PGT	f	305	-	-	14/43/43/55	-
50	CLA	a	855	-	1/1/10/20	2/10/88/115	-
50	CLA	b	802	-	1/1/15/20	23/37/115/115	-
54	CHL	w	304	-	3/3/16/26	6/15/111/137	-
50	CLA	a	851	27	1/1/11/20	6/15/93/115	-
47	PQ9	A	405	-	-	4/31/51/61	0/1/1/1
50	CLA	x	306	-	1/1/14/20	13/31/109/115	-
44	PGT	w	313	50	-	10/44/44/55	-
46	LMG	j	104	-	-	10/29/49/70	0/1/1/1
55	LUT	w	320	-	-	1/29/67/67	0/2/2/2
44	PGT	B	601	-	-	16/38/38/55	-
50	CLA	a	812	-	1/1/14/20	18/33/109/115	-
44	PGT	B	606	-	-	24/39/39/55	-
43	BCR	b	850	-	-	2/29/63/63	0/2/2/2
50	CLA	a	821	-	1/1/14/20	14/35/111/115	-
51	DGD	a	804	-	-	32/55/95/95	0/2/2/2
50	CLA	a	813	-	1/1/12/20	5/22/100/115	-
43	BCR	k	202	-	-	4/29/63/63	0/2/2/2
43	BCR	x	314	-	-	11/29/63/63	0/2/2/2
50	CLA	x	302	-	1/1/10/20	2/8/86/115	-
50	CLA	b	832	-	1/1/12/20	13/24/102/115	-
50	CLA	z	307	42	1/1/14/20	10/31/109/115	-
50	CLA	z	311	-	1/1/13/20	9/25/103/115	-
43	BCR	b	831	-	-	5/29/63/63	0/2/2/2
46	LMG	j	105	-	-	18/32/52/70	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
50	CLA	y	307	-	1/1/10/20	4/10/86/115	-
51	DGD	x	317	-	-	24/37/77/95	0/2/2/2
50	CLA	b	835	-	1/1/13/20	9/30/108/115	-
50	CLA	a	858	-	1/1/15/20	13/37/115/115	-
49	SF4	I	202	19	-	-	0/6/5/5
50	CLA	a	838	-	1/1/15/20	14/37/115/115	-
54	CHL	x	311	-	3/3/14/26	4/8/102/137	-
50	CLA	a	843	-	1/1/15/20	18/37/115/115	-
44	PGT	a	805	-	-	15/36/36/55	-
50	CLA	a	853	-	1/1/15/20	14/37/115/115	-
50	CLA	a	814	-	1/1/15/20	20/37/115/115	-
43	BCR	l	304	-	-	7/29/63/63	0/2/2/2
50	CLA	y	314	41	1/1/15/20	18/37/115/115	-
50	CLA	x	312	40	1/1/15/20	19/37/115/115	-
44	PGT	b	830	50	-	16/43/43/55	-
43	BCR	f	304	-	-	2/29/63/63	0/2/2/2
50	CLA	b	828	-	1/1/14/20	14/31/109/115	-
50	CLA	b	845	-	1/1/15/20	19/37/115/115	-
50	CLA	b	847	-	1/1/14/20	12/31/109/115	-
50	CLA	a	802	-	1/1/14/20	8/31/109/115	-
48	SQD	F	805	-	-	7/38/58/69	0/1/1/1
49	SF4	c	101	29	-	-	0/6/5/5
46	LMG	7	301	-	-	14/36/56/70	0/1/1/1
43	BCR	b	818	-	-	6/29/63/63	0/2/2/2
48	SQD	F	801	-	-	3/36/56/69	0/1/1/1
50	CLA	b	805	28	1/1/15/20	23/37/115/115	-
44	PGT	z	317	50	-	17/50/50/55	-
50	CLA	a	815	27	1/1/15/20	15/37/115/115	-
50	CLA	w	303	39	1/1/11/20	3/13/91/115	-
50	CLA	a	850	-	1/1/15/20	13/37/115/115	-
50	CLA	z	303	-	1/1/10/20	3/8/86/115	-
49	SF4	I	201	19	-	-	0/6/5/5
50	CLA	y	306	-	1/1/10/20	5/8/86/115	-
50	CLA	w	316	39	1/1/12/20	8/19/97/115	-
43	BCR	i	101	-	-	7/29/63/63	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
43	BCR	b	817	-	-	3/29/63/63	0/2/2/2
50	CLA	a	816	-	1/1/10/20	4/10/88/115	-
50	CLA	a	854	-	1/1/15/20	14/37/115/115	-
50	CLA	b	849	-	1/1/12/20	7/19/97/115	-
50	CLA	j	102	36	1/1/10/20	5/10/88/115	-
50	CLA	y	308	-	1/1/15/20	17/37/115/115	-
50	CLA	a	833	-	1/1/15/20	19/37/115/115	-
50	CLA	b	846	-	1/1/15/20	16/37/115/115	-
54	CHL	x	305	-	3/3/16/26	2/15/113/137	-
51	DGD	b	821	-	-	22/48/88/95	0/2/2/2
50	CLA	z	319	-	1/1/10/20	3/10/88/115	-
43	BCR	w	301	-	-	3/29/63/63	0/2/2/2
53	PQN	b	827	-	-	8/23/43/43	0/2/2/2
50	CLA	z	305	-	1/1/12/20	6/19/97/115	-
55	LUT	x	320	-	-	2/29/67/67	0/2/2/2
50	CLA	b	842	-	1/1/13/20	19/28/106/115	-
50	CLA	z	316	44	1/1/11/20	3/16/94/115	-
50	CLA	b	826	-	1/1/13/20	12/25/103/115	-
43	BCR	4	101	-	-	8/29/63/63	0/2/2/2
50	CLA	k	205	-	1/1/10/20	6/10/88/115	-
55	LUT	y	315	-	-	0/29/67/67	0/2/2/2
50	CLA	b	833	-	1/1/15/20	15/37/115/115	-
44	PGT	A	404	-	-	16/48/48/55	-
44	PGT	I	203	-	-	15/48/48/55	-
43	BCR	a	827	-	-	3/27/61/63	0/2/2/2
44	PGT	A	403	-	-	18/42/42/55	-
54	CHL	x	301	-	3/3/15/26	4/12/110/137	-
50	CLA	b	838	-	1/1/12/20	9/22/100/115	-
43	BCR	l	303	-	-	6/29/63/63	0/2/2/2
50	CLA	k	203	-	1/1/10/20	2/8/86/115	-
44	PGT	b	829	-	-	20/52/52/55	-
50	CLA	b	823	-	1/1/13/20	11/25/103/115	-
46	LMG	w	312	-	-	16/35/55/70	0/1/1/1
50	CLA	x	304	40	1/1/11/20	3/16/94/115	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
50	CLA	w	314	44	1/1/10/20	9/11/90/115	-
50	CLA	x	307	40	1/1/14/20	11/31/109/115	-
50	CLA	x	303	40	1/1/13/20	9/28/106/115	-
50	CLA	z	310	42	1/1/10/20	6/8/86/115	-
43	BCR	z	318	-	-	9/29/63/63	0/2/2/2
48	SQD	w	318	-	-	8/36/56/69	0/1/1/1
50	CLA	b	836	-	1/1/15/20	13/37/115/115	-
50	CLA	w	310	-	1/1/15/20	20/37/115/115	-
43	BCR	a	831	-	-	10/27/61/63	0/2/2/2
50	CLA	z	306	42	1/1/13/20	9/27/105/115	-
50	CLA	a	842	-	1/1/15/20	24/37/115/115	-
50	CLA	b	840	-	1/1/15/20	18/37/115/115	-
50	CLA	a	849	-	1/1/15/20	19/37/115/115	-
50	CLA	y	305	41	1/1/11/20	3/13/91/115	-
50	CLA	b	834	-	1/1/11/20	4/13/91/115	-
50	CLA	z	308	-	1/1/11/20	6/13/88/115	-
43	BCR	a	828	-	-	0/29/63/63	0/2/2/2
43	BCR	a	810	-	-	12/24/41/63	0/1/1/2
50	CLA	g	201	-	1/1/11/20	10/18/96/115	-
43	BCR	a	830	-	-	8/29/63/63	0/2/2/2
44	PGT	A	401	-	-	11/36/36/55	-
50	CLA	b	851	-	1/1/11/20	1/16/94/115	-
43	BCR	k	201	-	-	5/29/63/63	0/2/2/2
43	BCR	y	301	-	-	6/29/63/63	0/2/2/2
50	CLA	w	308	39	1/1/15/20	21/37/115/115	-
46	LMG	H	401	-	-	10/28/48/70	0/1/1/1
50	CLA	y	304	-	1/1/9/20	0/4/82/115	-
43	BCR	g	202	-	-	6/29/63/63	0/2/2/2
50	CLA	b	808	-	1/1/10/20	6/11/89/115	-
44	PGT	B	603	-	-	21/50/50/55	-
54	CHL	w	311	-	3/3/15/26	5/16/114/137	-
46	LMG	z	314	-	-	13/35/55/70	0/1/1/1
52	CL0	a	808	-	3/3/18/25	5/33/125/135	-
50	CLA	b	812	-	1/1/14/20	9/34/112/115	-
50	CLA	l	305	38	1/1/10/20	1/6/84/115	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
43	BCR	a	803	-	-	5/21/38/63	0/1/1/2
50	CLA	g	204	33	1/1/10/20	7/11/89/115	-
50	CLA	a	801	-	1/1/15/20	14/37/115/115	-
50	CLA	x	313	40	1/1/12/20	7/23/101/115	-
50	CLA	a	836	27	1/1/15/20	16/37/115/115	-
50	CLA	y	302	41	1/1/13/20	6/23/99/115	-
46	LMG	f	306	-	-	12/29/49/70	0/1/1/1
49	SF4	K	301	21	-	-	0/6/5/5
45	A1H1M	F	804	-	-	13/19/79/79	1/4/4/4
48	SQD	a	859	-	-	6/31/51/69	0/1/1/1
55	LUT	z	321	-	-	0/29/67/67	0/2/2/2
50	CLA	b	801	-	1/1/15/20	19/37/115/115	-
50	CLA	b	822	-	1/1/13/20	8/29/107/115	-
50	CLA	f	303	-	1/1/10/20	2/8/86/115	-
50	CLA	b	803	-	1/1/15/20	17/37/115/115	-
44	PGT	A	402	-	-	13/41/41/55	-
50	CLA	b	806	-	1/1/12/20	6/22/100/115	-
50	CLA	x	318	-	1/1/11/20	9/15/93/115	-
50	CLA	a	847	-	1/1/7/20	7/22/62/115	-
50	CLA	a	822	-	1/1/12/20	7/21/99/115	-
50	CLA	a	809	-	1/1/13/20	6/28/106/115	-
44	PGT	z	313	-	-	14/37/37/55	-
50	CLA	f	301	-	1/1/13/20	13/28/106/115	-
50	CLA	l	301	-	1/1/11/20	5/13/91/115	-
50	CLA	y	312	-	1/1/12/20	6/21/99/115	-
50	CLA	a	835	-	1/1/13/20	13/29/107/115	-
50	CLA	a	823	-	1/1/13/20	8/25/103/115	-
43	BCR	b	819	-	-	5/29/63/63	0/2/2/2
50	CLA	w	306	39	1/1/15/20	16/37/115/115	-
54	CHL	x	319	42	3/3/16/26	8/20/118/137	-
44	PGT	D	602	-	-	11/38/38/55	-
46	LMG	z	315	-	-	9/31/51/70	0/1/1/1
50	CLA	w	315	39	1/1/11/20	6/15/93/115	-
50	CLA	b	815	-	1/1/15/20	10/37/115/115	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
55	LUT	y	316	-	-	4/29/67/67	0/2/2/2
49	SF4	a	832	27,28	-	-	0/6/5/5
50	CLA	f	302	-	1/1/10/20	1/10/88/115	-
50	CLA	b	848	-	1/1/10/20	5/10/88/115	-
50	CLA	x	308	-	1/1/12/20	7/19/97/115	-
43	BCR	b	816	-	-	6/29/63/63	0/2/2/2
50	CLA	y	303	-	1/1/13/20	10/25/103/115	-
50	CLA	z	302	-	1/1/13/20	9/25/103/115	-
43	BCR	b	820	-	-	2/29/63/63	0/2/2/2
46	LMG	x	315	-	-	16/43/63/70	0/1/1/1
50	CLA	x	310	-	1/1/10/20	3/11/89/115	-
50	CLA	b	837	-	1/1/15/20	19/37/115/115	-
50	CLA	a	841	-	1/1/13/20	9/25/103/115	-
50	CLA	a	844	-	1/1/13/20	10/28/106/115	-
48	SQD	B	604	-	-	5/35/55/69	0/1/1/1
44	PGT	z	301	-	-	18/49/49/55	-
50	CLA	a	857	-	1/1/15/20	12/37/115/115	-
44	PGT	N	301	-	-	15/30/30/55	-
54	CHL	z	304	42	3/3/15/26	5/10/108/137	-
43	BCR	l	302	-	-	8/29/63/63	0/2/2/2
50	CLA	w	307	-	1/1/11/20	6/13/91/115	-
44	PGT	a	806	50	-	14/37/37/55	-
44	PGT	L	201	-	-	11/44/44/55	-
50	CLA	x	309	-	1/1/10/20	4/10/88/115	-
50	CLA	a	837	-	1/1/15/20	11/37/115/115	-
45	A1H1M	5	302	-	-	10/19/79/79	0/4/4/4
53	PQN	a	825	-	-	7/23/43/43	0/2/2/2
50	CLA	y	313	41	1/1/15/20	19/37/115/115	-
54	CHL	z	312	42	3/3/19/26	12/33/131/137	-
50	CLA	a	839	-	1/1/15/20	15/37/115/115	-
54	CHL	w	309	-	3/3/15/26	4/12/110/137	-
50	CLA	l	306	-	1/1/14/20	16/31/109/115	-
50	CLA	b	804	-	1/1/10/20	0/8/86/115	-
50	CLA	b	813	-	1/1/10/20	5/11/89/115	-
44	PGT	a	807	-	-	16/50/50/55	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
55	LUT	w	319	-	-	6/29/67/67	0/2/2/2
50	CLA	k	204	-	1/1/13/20	7/28/106/115	-
50	CLA	a	846	-	1/1/15/20	17/37/115/115	-
50	CLA	a	811	-	1/1/15/20	21/37/115/115	-
50	CLA	b	810	-	1/1/12/20	5/19/97/115	-
50	CLA	g	203	-	1/1/12/20	4/22/100/115	-
50	CLA	y	310	41	1/1/15/20	9/37/115/115	-
50	CLA	a	834	-	1/1/15/20	12/37/115/115	-
46	LMG	F	802	-	-	5/23/43/70	0/1/1/1
50	CLA	y	309	-	1/1/10/20	4/10/88/115	-
49	SF4	c	102	29	-	-	0/6/5/5
50	CLA	a	848	-	1/1/12/20	7/22/100/115	-
55	LUT	x	321	-	-	6/29/67/67	0/2/2/2
46	LMG	D	601	-	-	13/29/49/70	0/1/1/1
48	SQD	w	317	-	-	5/26/46/69	0/1/1/1
43	BCR	j	103	-	-	8/29/63/63	0/2/2/2
50	CLA	a	820	-	1/1/15/20	15/37/115/115	-
50	CLA	w	302	-	1/1/12/20	11/19/97/115	-
55	LUT	z	320	-	-	7/29/67/67	0/2/2/2
50	CLA	b	844	28	1/1/15/20	21/37/115/115	-
50	CLA	a	852	-	1/1/12/20	8/21/99/115	-
44	PGT	B	602	-	-	11/46/46/55	-
50	CLA	b	807	-	1/1/15/20	17/37/115/115	-
43	BCR	j	101	-	-	10/29/63/63	0/2/2/2
50	CLA	z	309	-	1/1/10/20	2/10/88/115	-
50	CLA	a	817	-	1/1/10/20	2/8/86/115	-
50	CLA	b	824	44	1/1/15/20	20/37/115/115	-
50	CLA	y	311	-	1/1/12/20	5/21/99/115	-
50	CLA	w	305	-	1/1/12/20	4/21/99/115	-
50	CLA	a	840	-	1/1/10/20	4/10/88/115	-
50	CLA	b	841	-	1/1/13/20	9/25/103/115	-
50	CLA	b	839	-	1/1/15/20	19/37/115/115	-
50	CLA	a	824	-	1/1/15/20	13/37/115/115	-
50	CLA	a	856	-	1/1/14/20	8/35/113/115	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
50	CLA	a	826	44	1/1/11/20	10/13/91/115	-
50	CLA	b	811	-	1/1/11/20	6/13/91/115	-
43	BCR	a	829	-	-	2/29/63/63	0/2/2/2
48	SQD	j	106	-	-	8/37/57/69	0/1/1/1
50	CLA	x	316	-	1/1/11/20	6/13/91/115	-
50	CLA	b	843	-	1/1/15/20	19/37/115/115	-
50	CLA	h	201	34	1/1/11/20	8/15/93/115	-
50	CLA	b	809	-	1/1/13/20	14/30/108/115	-

The worst 5 of 1175 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
52	a	808	CL0	MG-NA	9.16	2.28	2.06
47	A	405	PQ9	C3-C2	7.67	1.54	1.34
50	z	308	CLA	C3D-C4D	-7.02	1.41	1.51
47	A	405	PQ9	C11-C2	6.76	1.58	1.51
54	x	311	CHL	CHB-C4A	6.19	1.39	1.34

The worst 5 of 1719 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
47	A	405	PQ9	C34-C33-C35	-28.08	83.87	115.98
47	A	405	PQ9	C19-C18-C20	-27.38	69.21	115.27
47	A	405	PQ9	C24-C23-C25	-27.28	69.37	115.27
47	A	405	PQ9	C14-C13-C15	-26.98	69.88	115.27
47	A	405	PQ9	C29-C28-C27	17.84	169.45	123.68

5 of 174 chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
50	a	801	CLA	ND
50	a	802	CLA	ND
50	a	809	CLA	ND
50	a	811	CLA	ND
50	a	812	CLA	ND

5 of 2407 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
43	4	101	BCR	C5-C6-C7-C8

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Mol	Chain	Res	Type	Atoms
43	4	101	BCR	C7-C8-C9-C10
43	4	101	BCR	C7-C8-C9-C34
43	4	101	BCR	C21-C22-C23-C24
43	4	101	BCR	C37-C22-C23-C24

All (1) ring outliers are listed below:

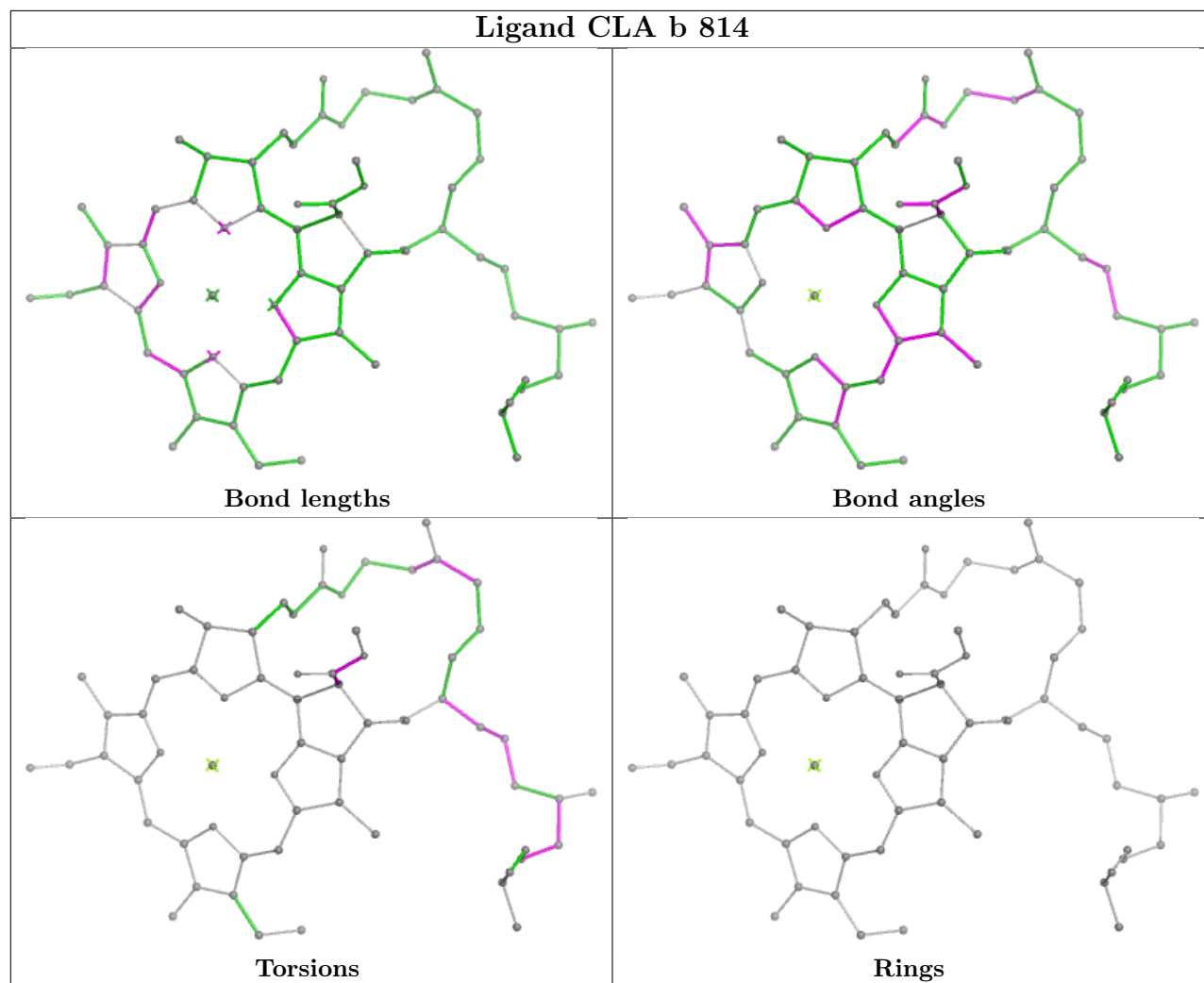
Mol	Chain	Res	Type	Atoms
45	F	804	A1H1M	C08-C09-C10-C11-C35-C36

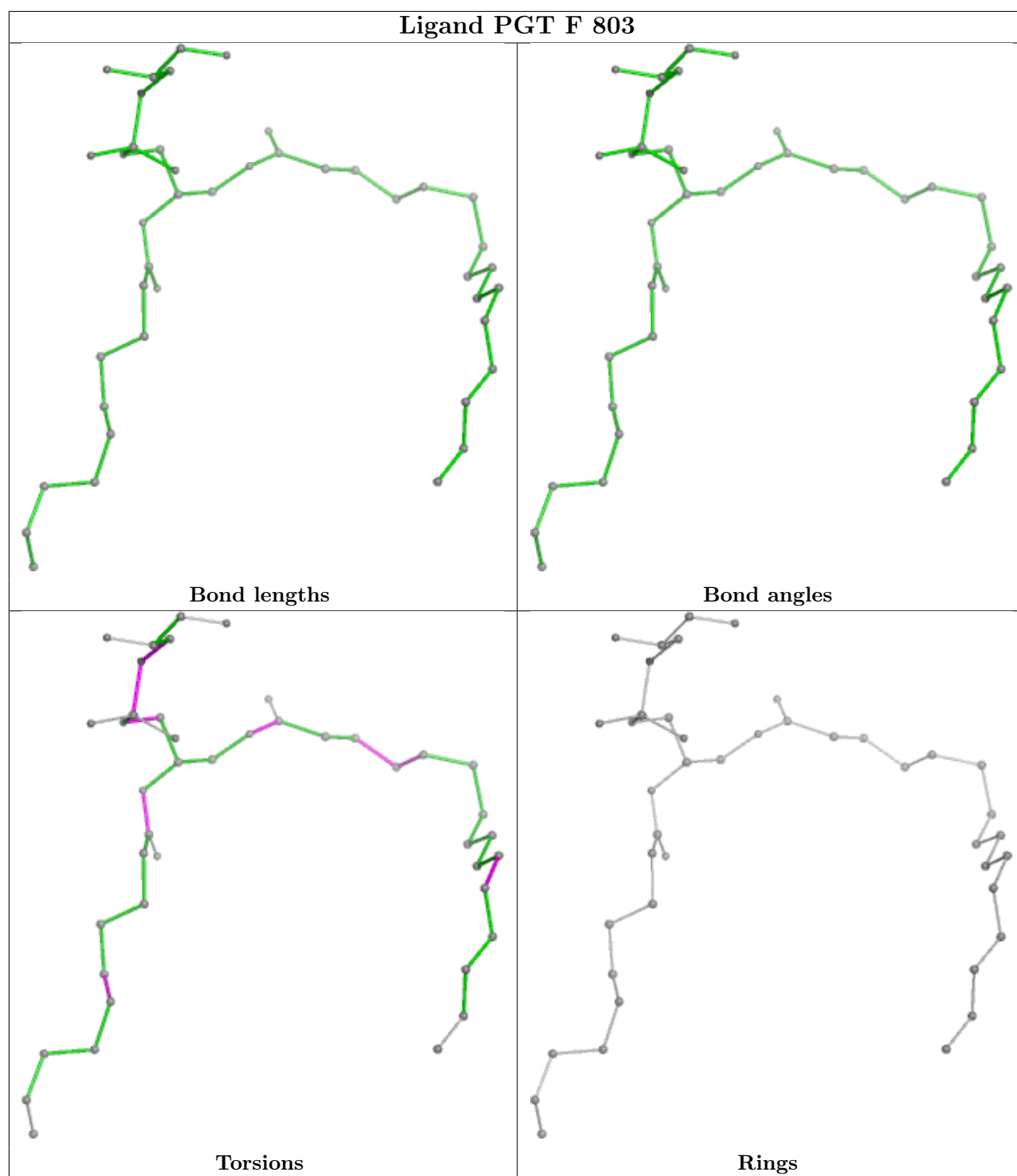
20 monomers are involved in 75 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
44	5	301	PGT	2	0
46	B	605	LMG	1	0
47	A	405	PQ9	16	0
44	B	606	PGT	1	0
49	I	202	SF4	1	0
48	F	805	SQD	11	0
48	F	801	SQD	7	0
43	4	101	BCR	4	0
44	A	403	PGT	2	0
46	H	401	LMG	1	0
44	B	603	PGT	3	0
45	F	804	A1H1M	6	0
44	A	402	PGT	1	0
44	D	602	PGT	1	0
48	B	604	SQD	10	0
44	N	301	PGT	2	0
44	L	201	PGT	2	0
46	F	802	LMG	1	0
46	D	601	LMG	1	0
44	B	602	PGT	2	0

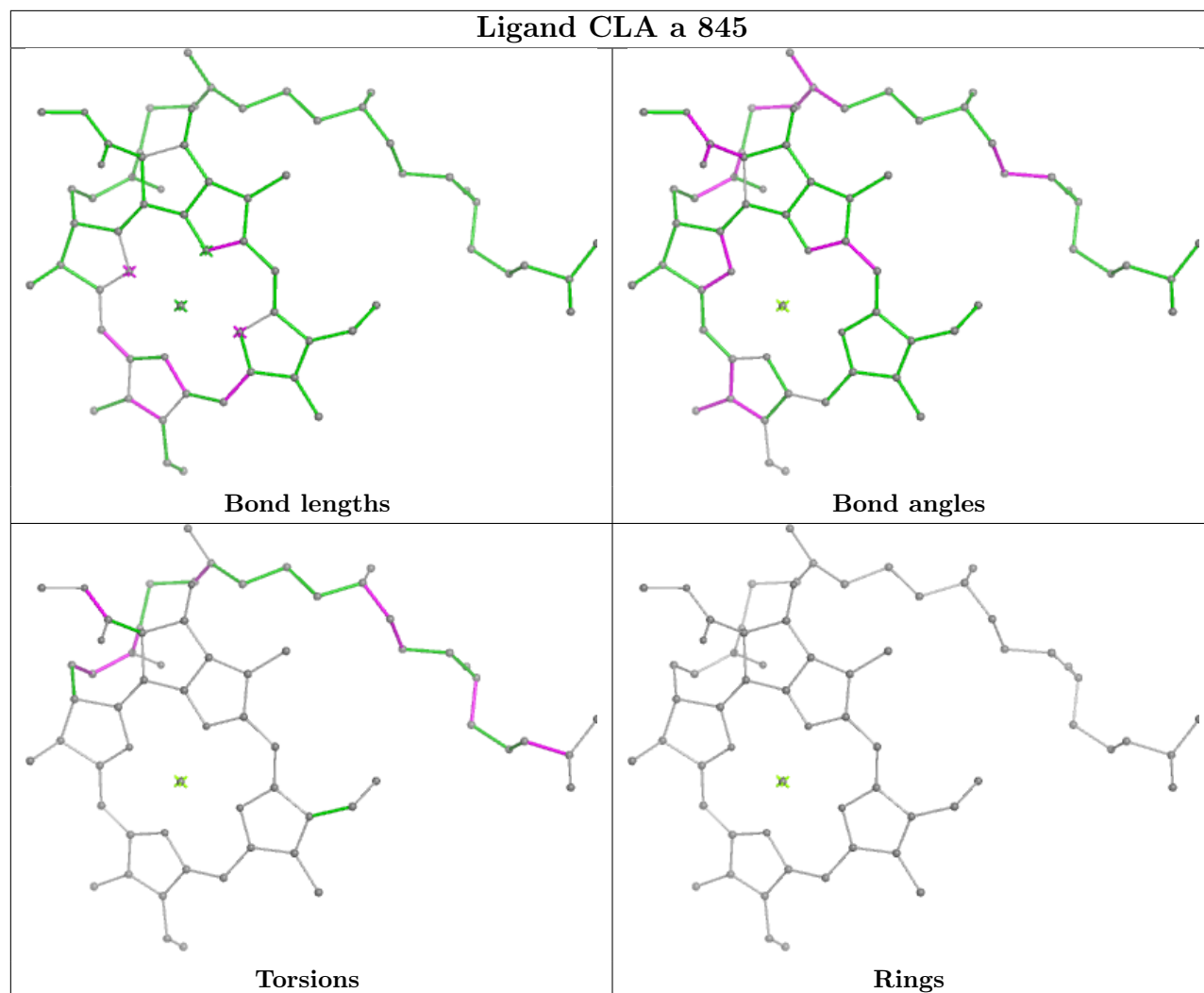
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

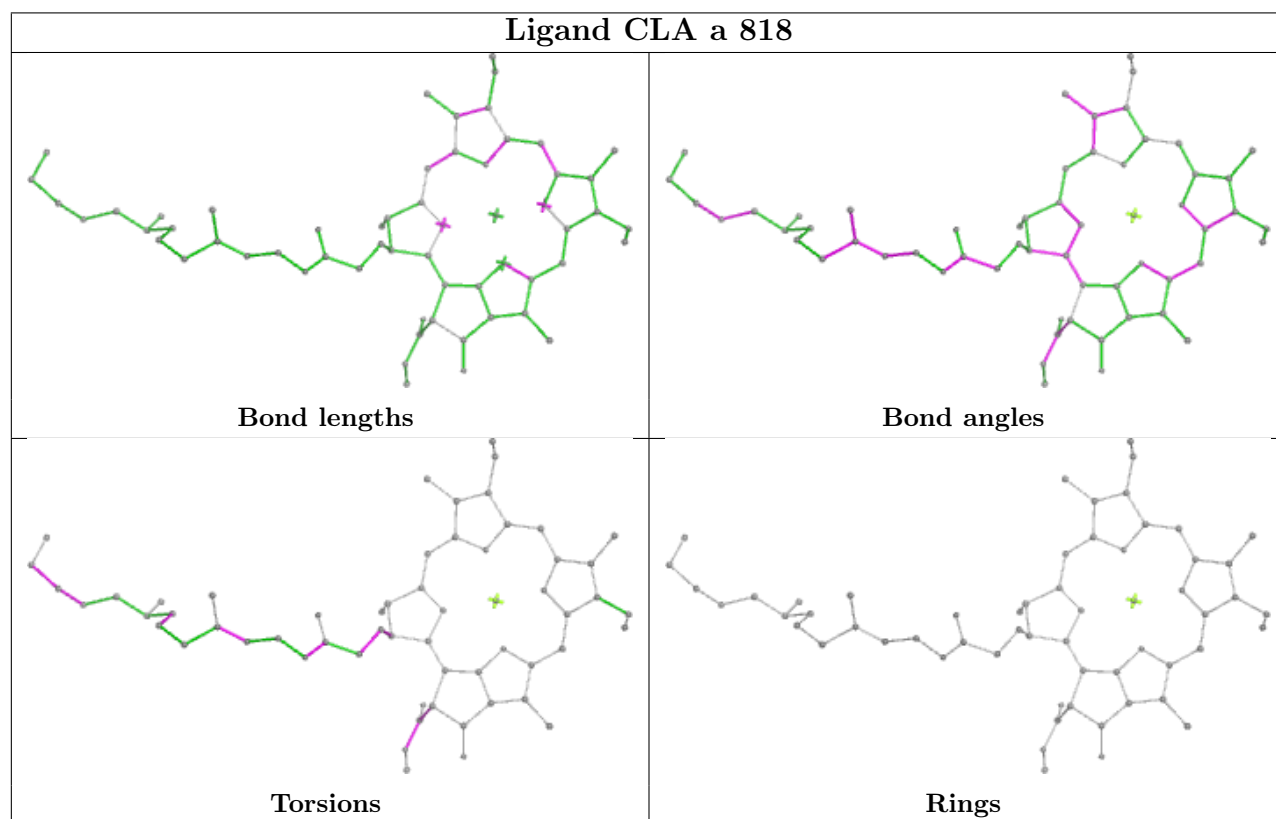
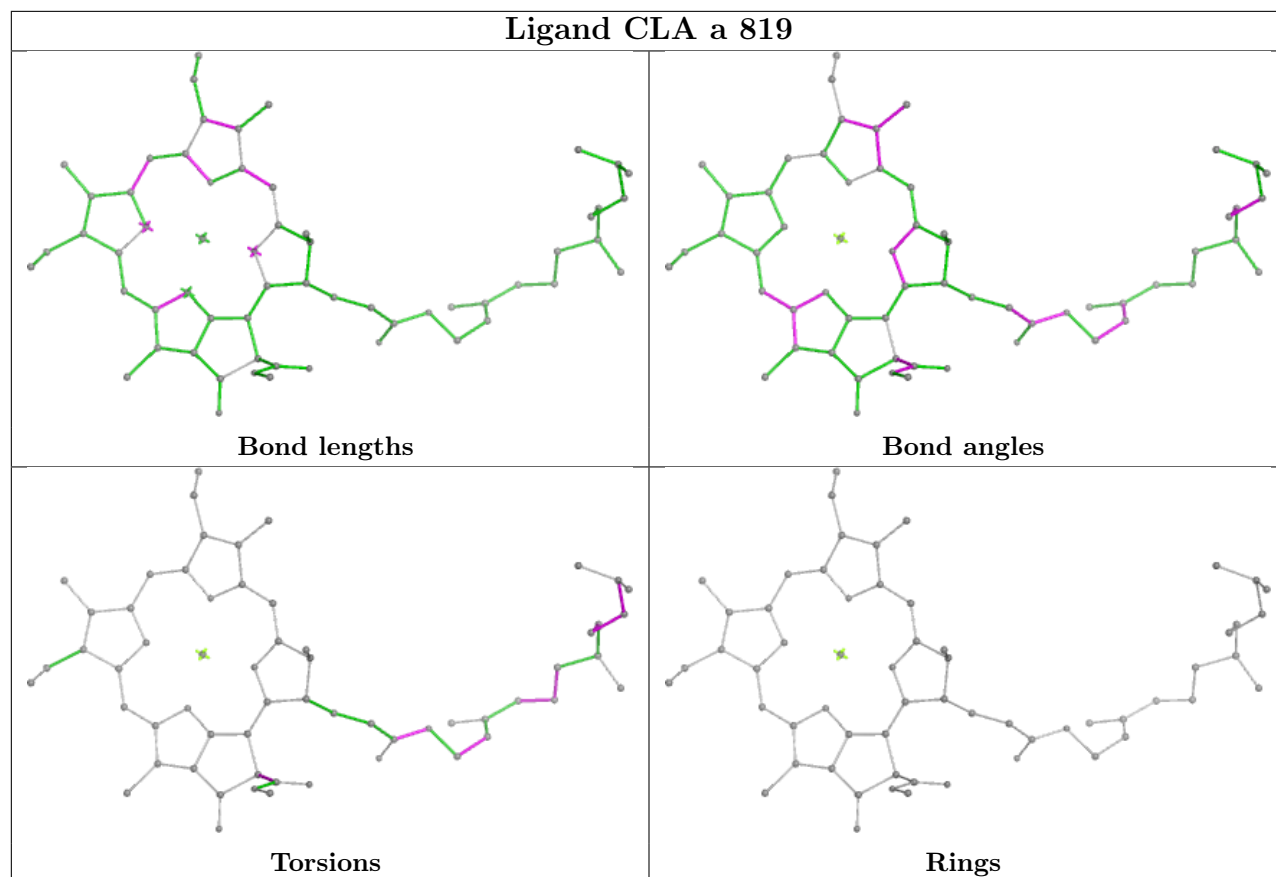
any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

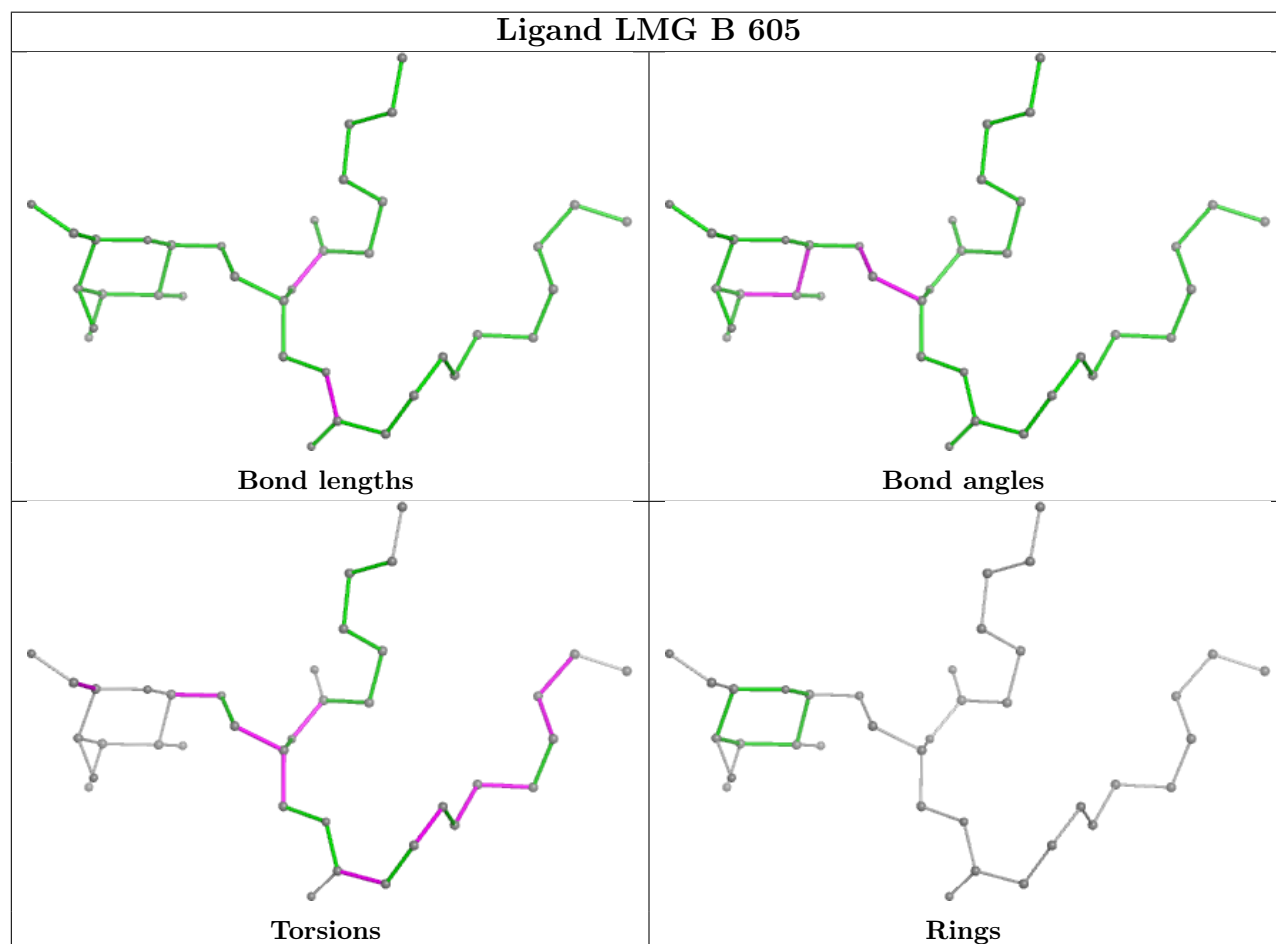
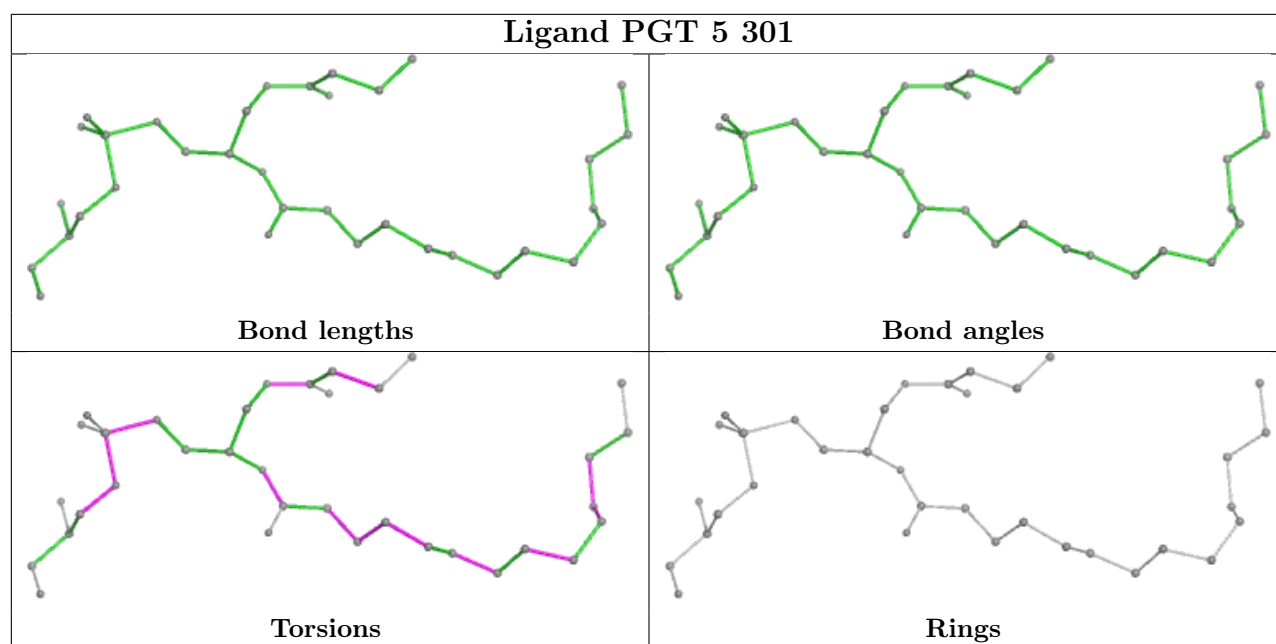


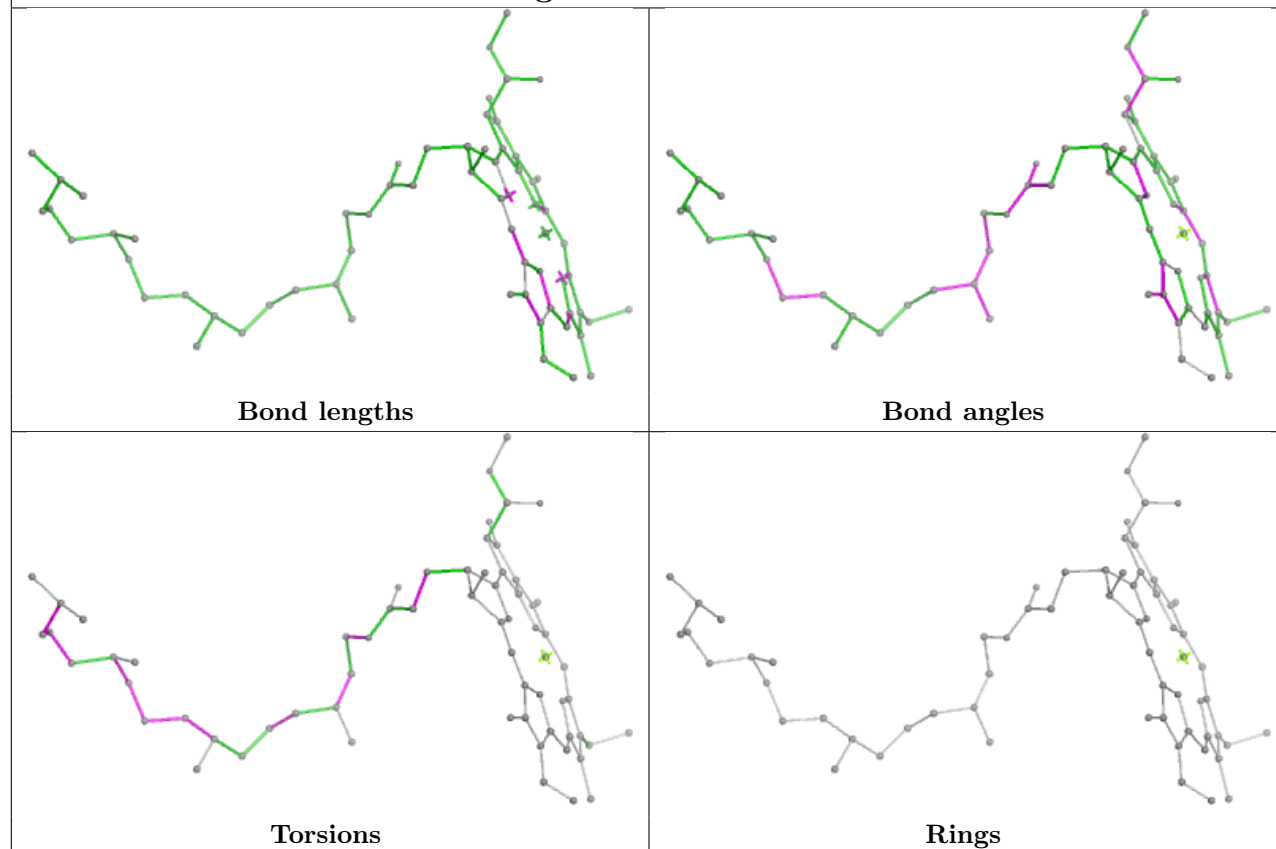
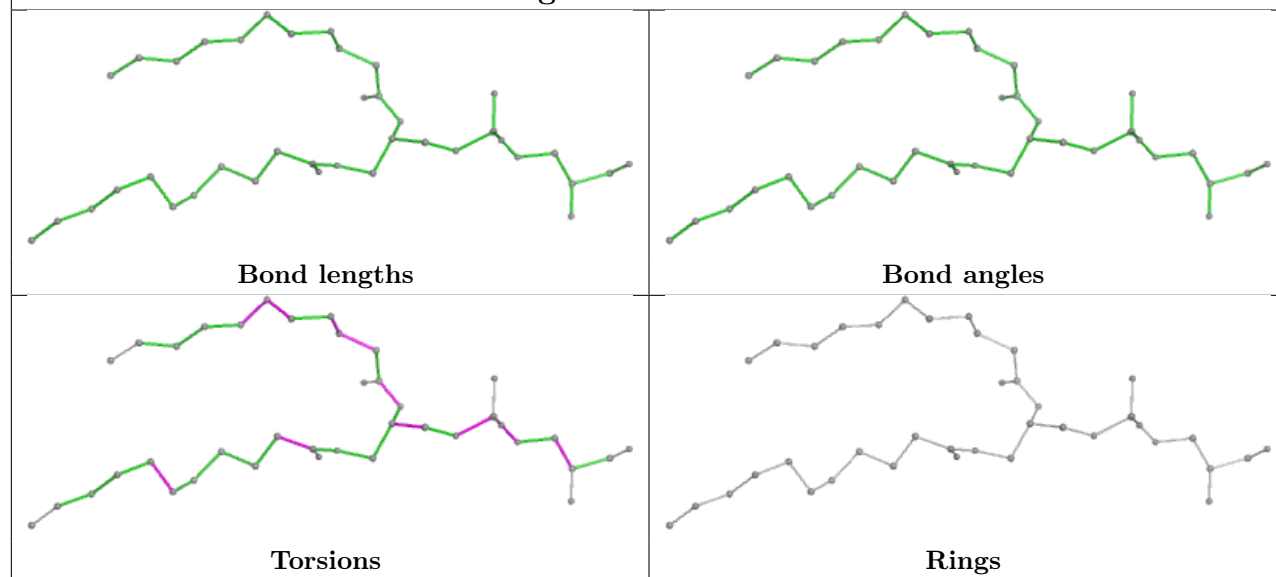


Ligand CLA a 845

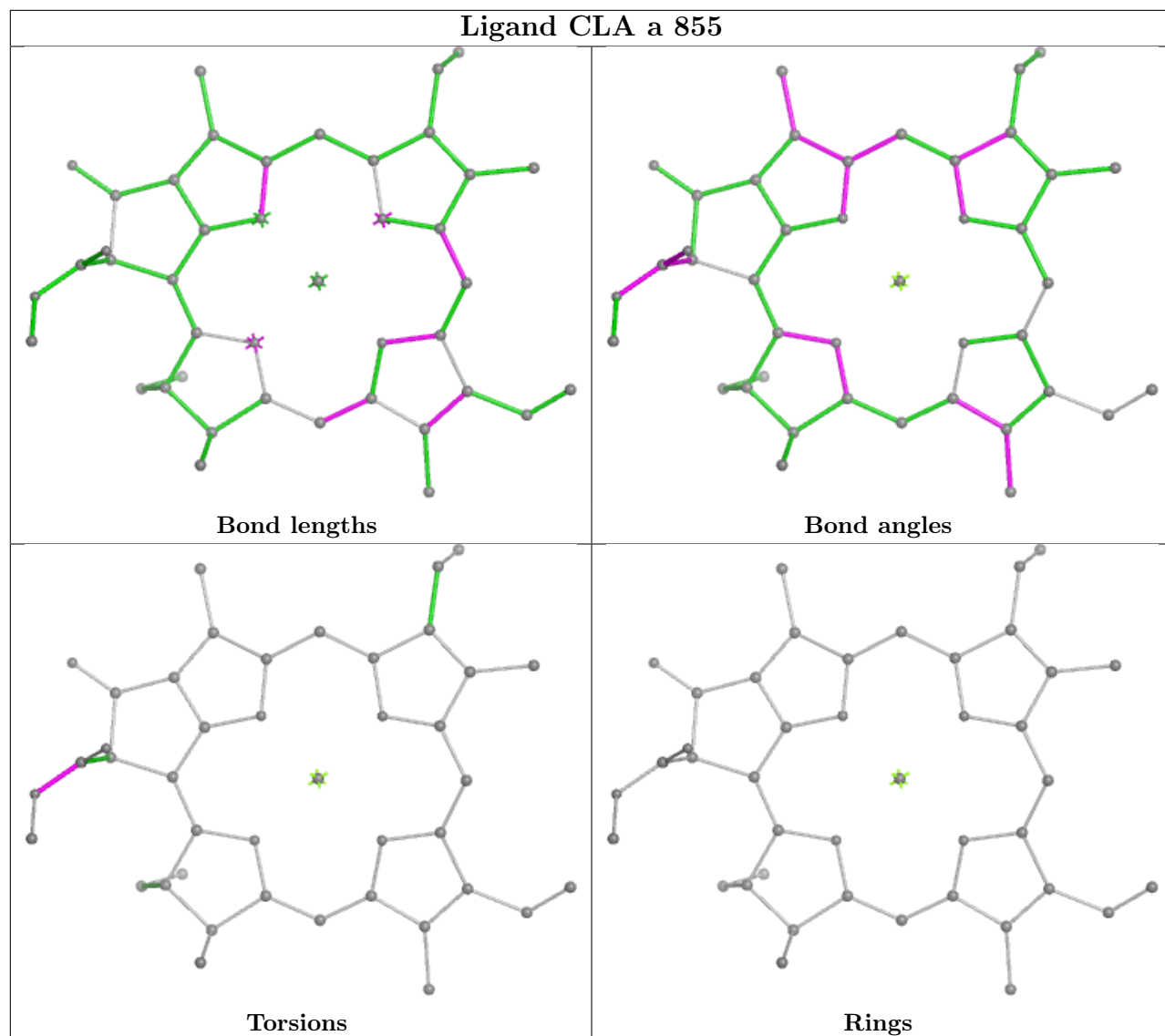


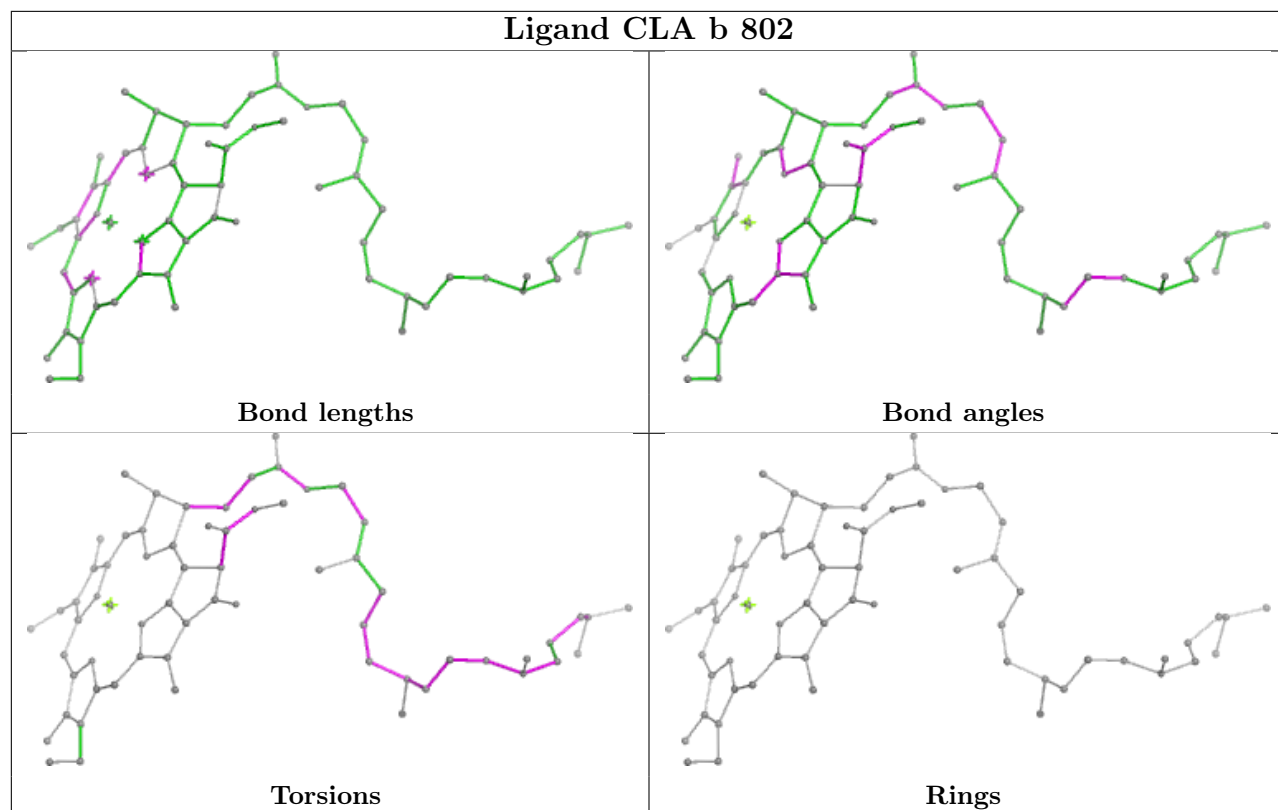




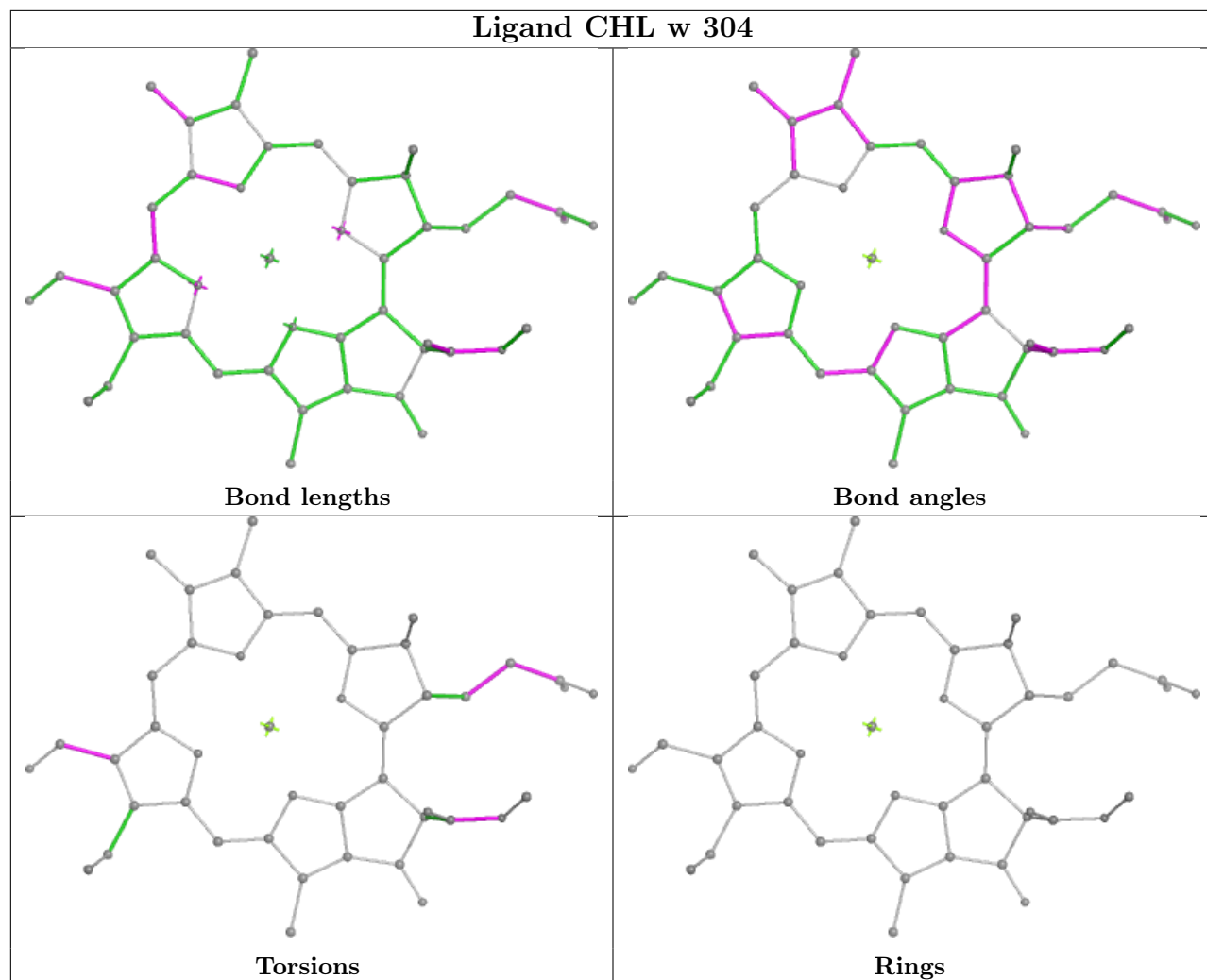
Ligand CLA b 825**Ligand PGT f 305**

Ligand CLA a 855

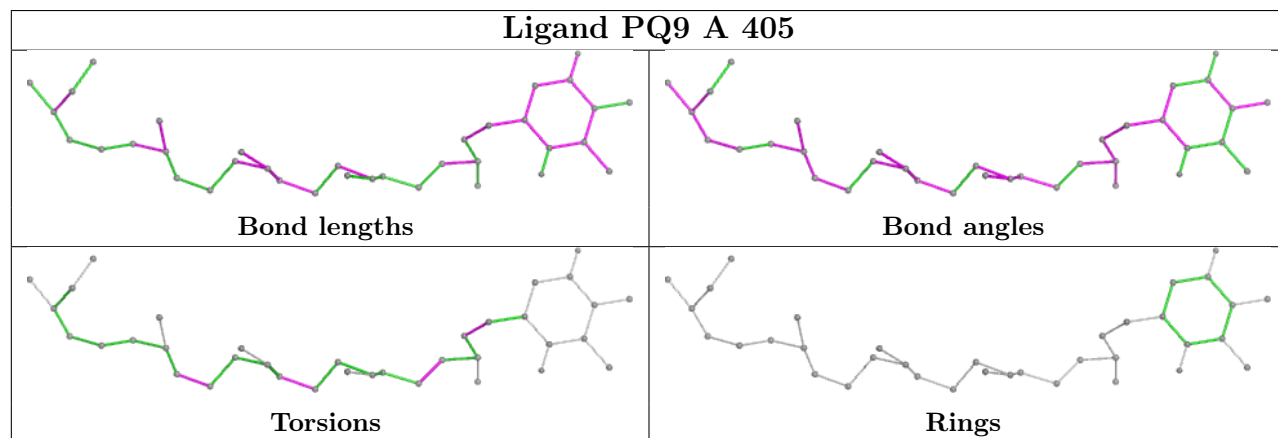




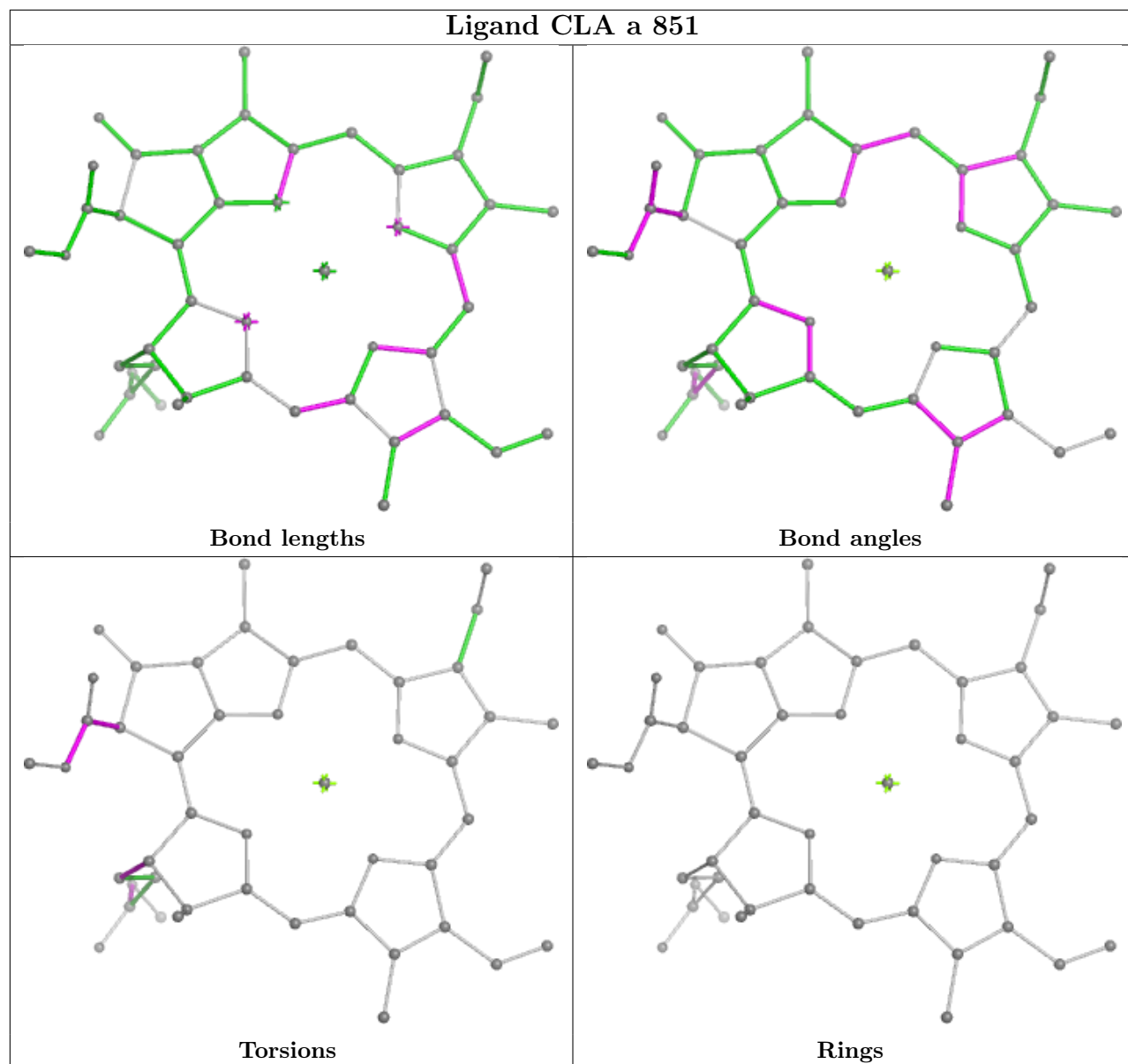
Ligand CHL w 304



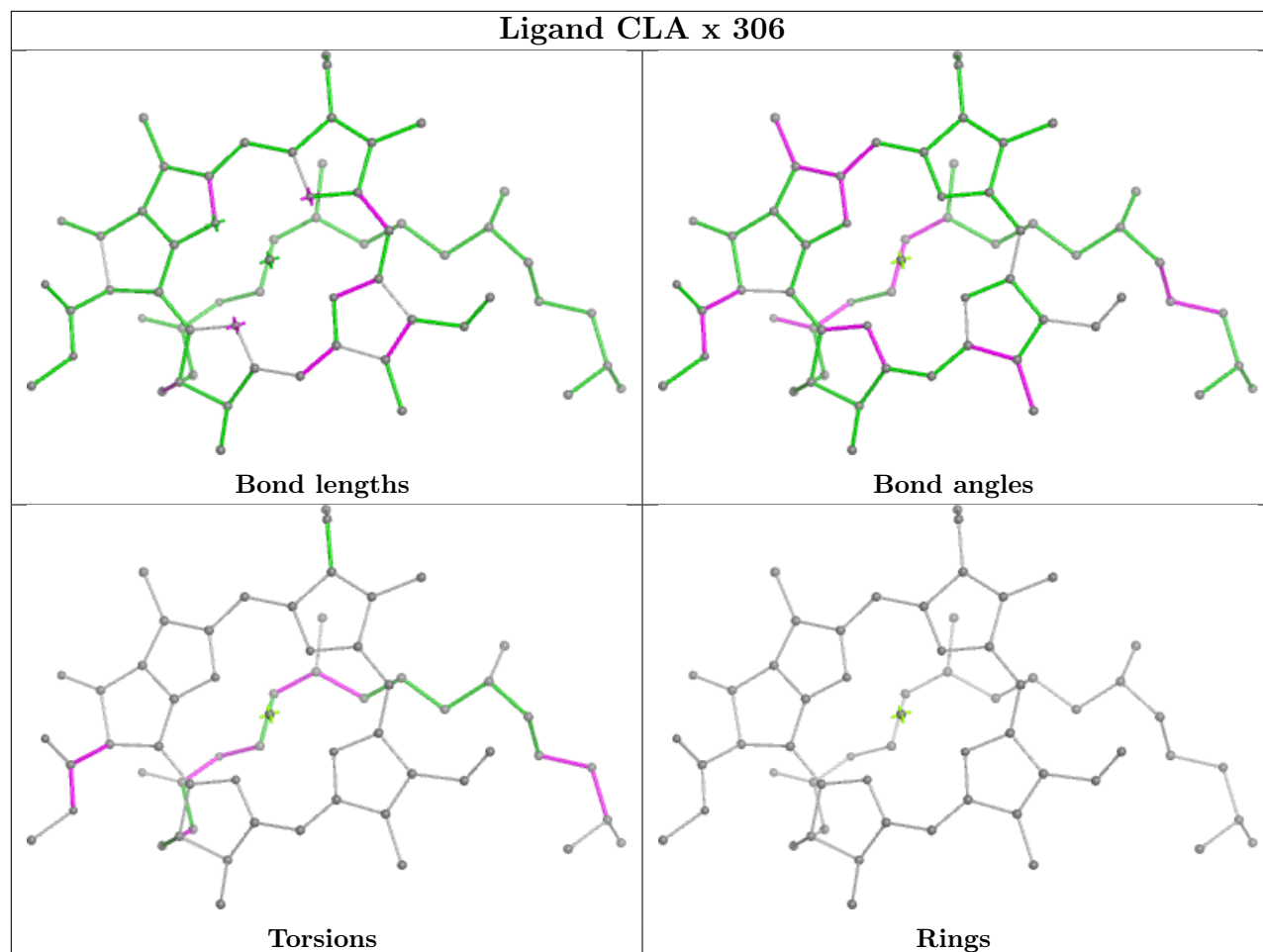
Ligand PQ9 A 405



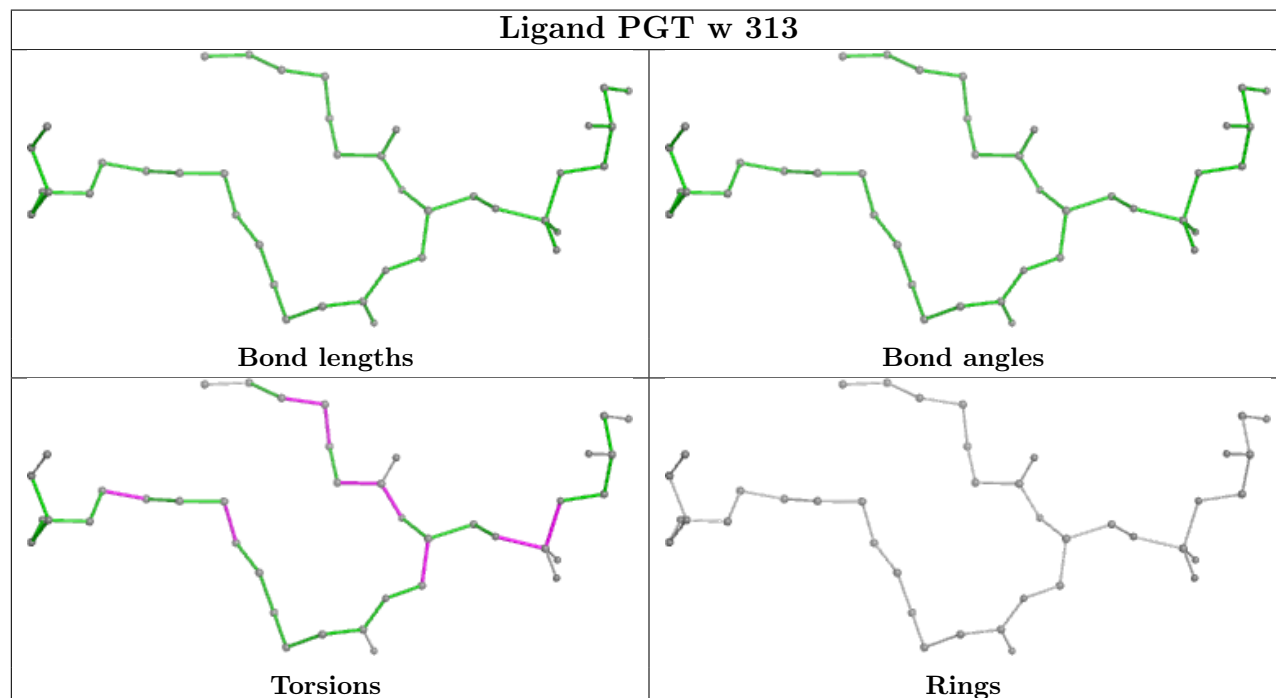
Ligand CLA a 851

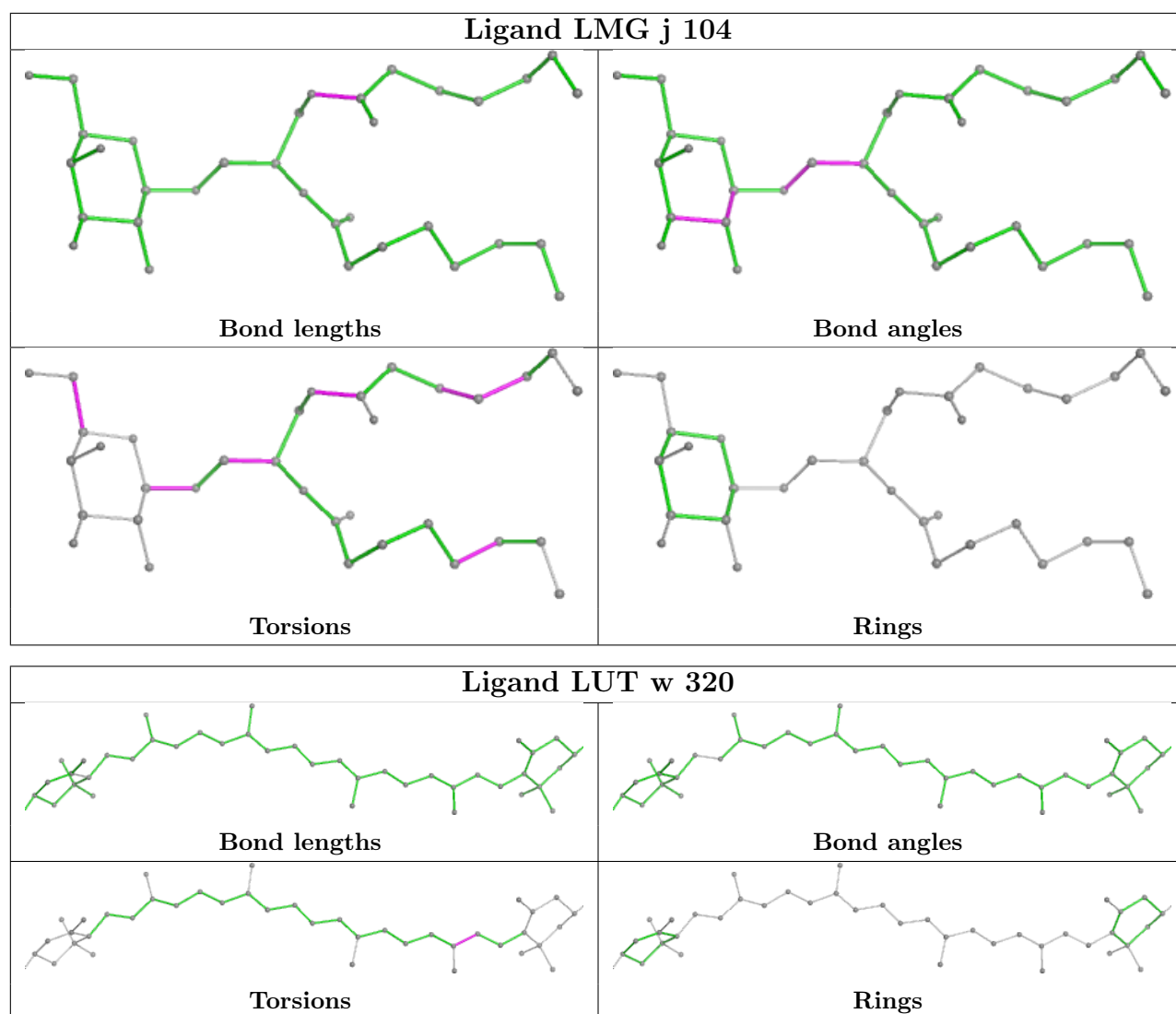


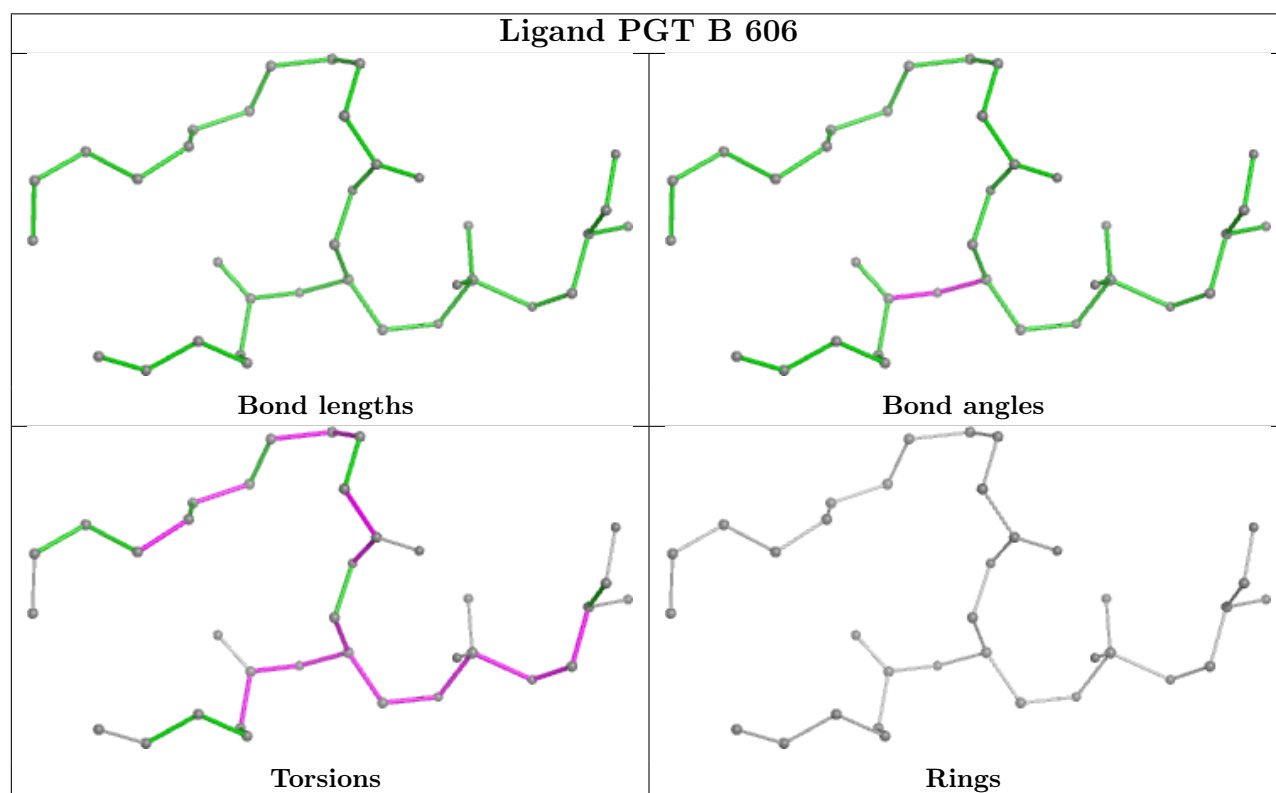
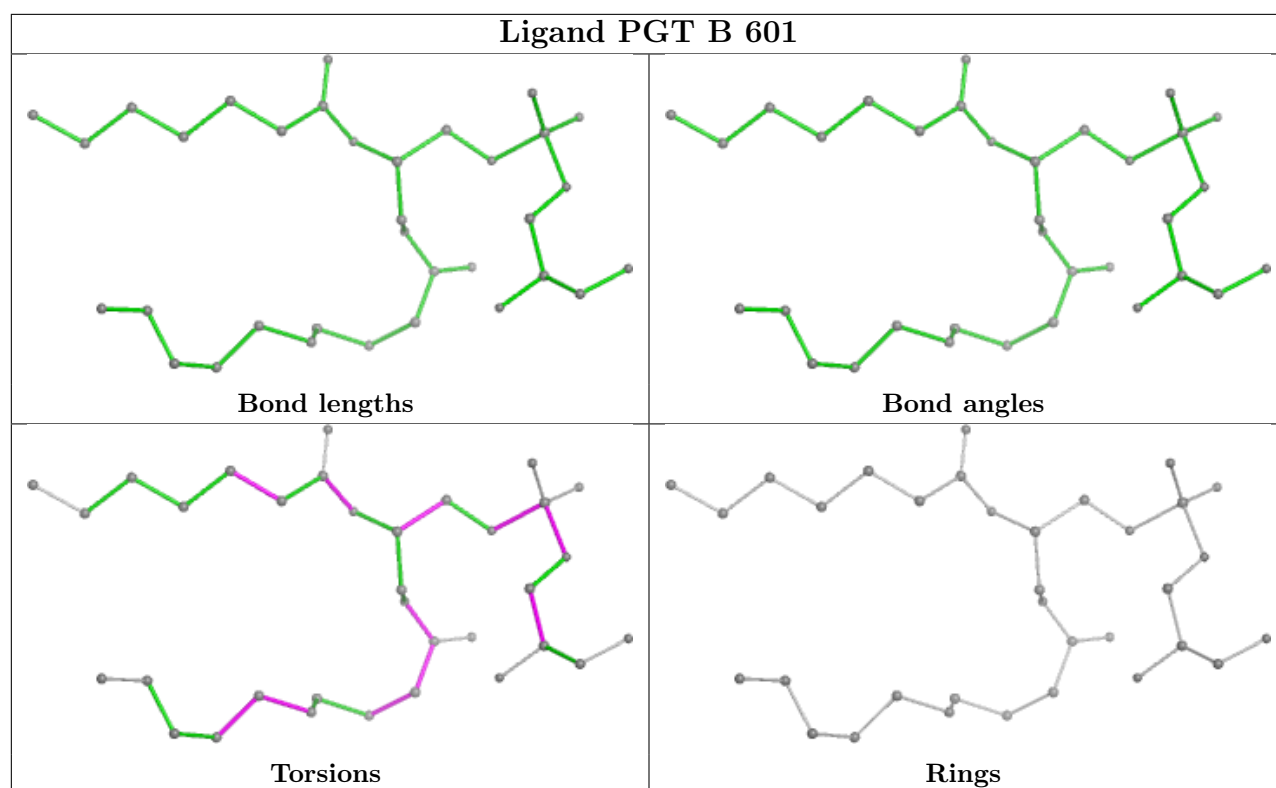
Ligand CLA x 306



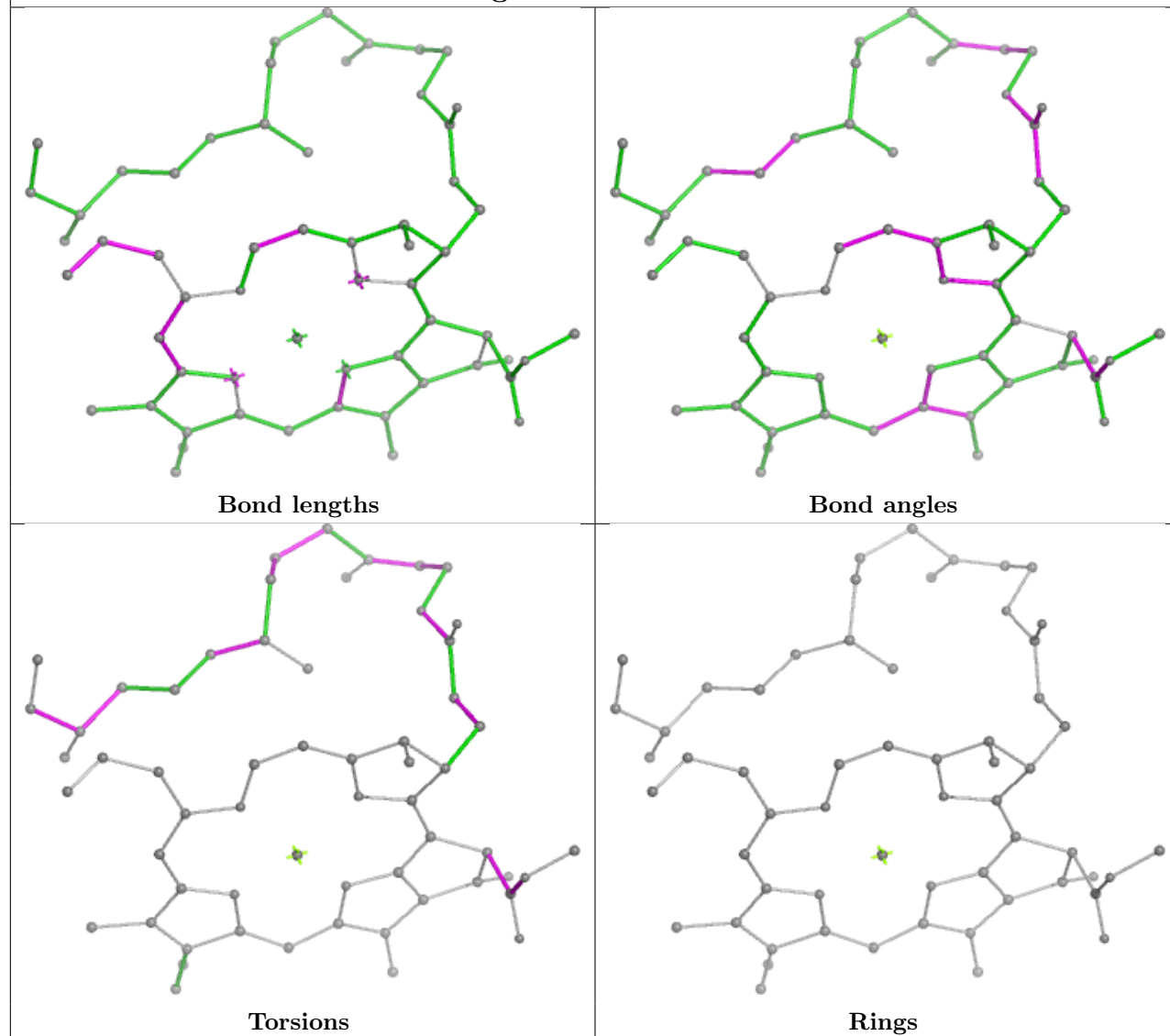
Ligand PGT w 313



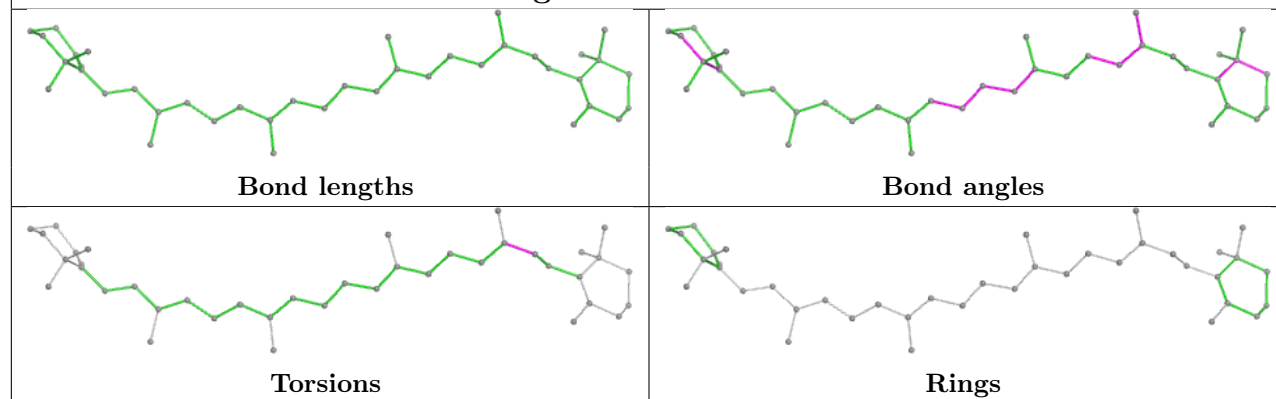


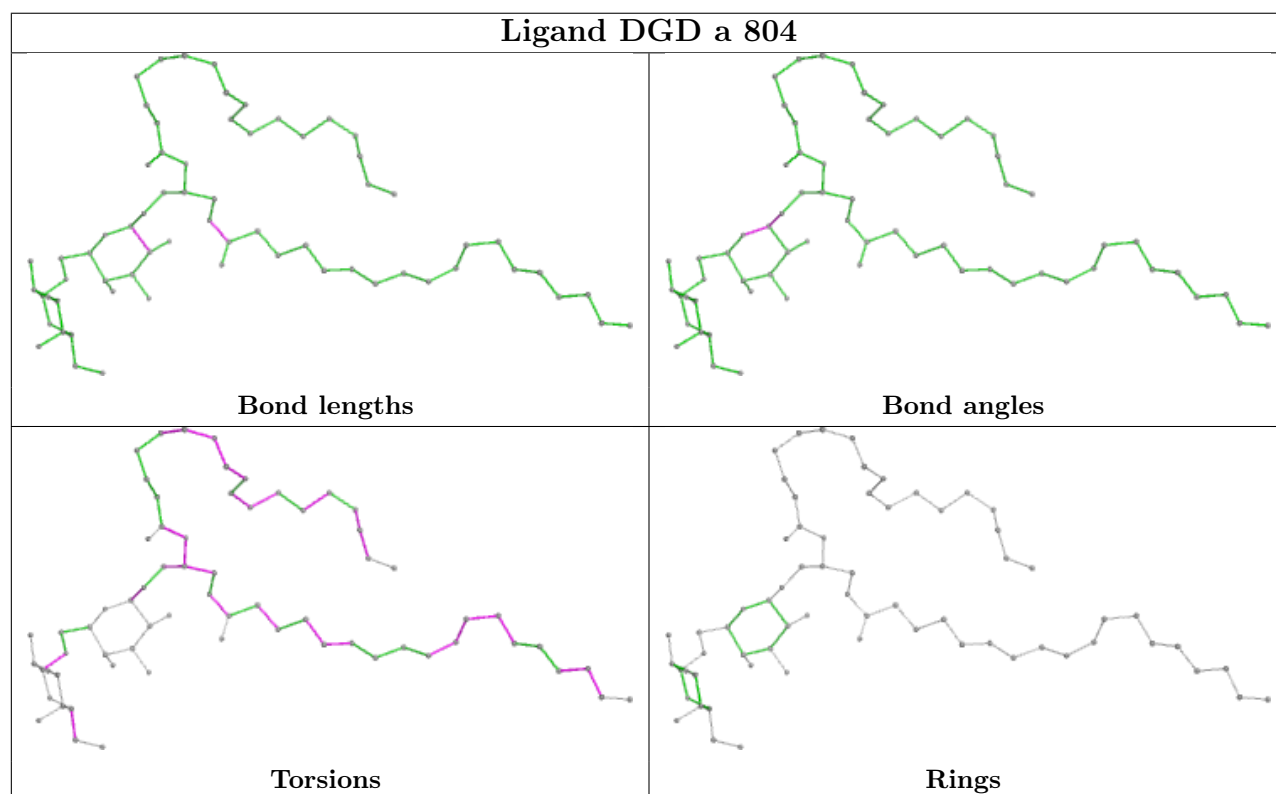
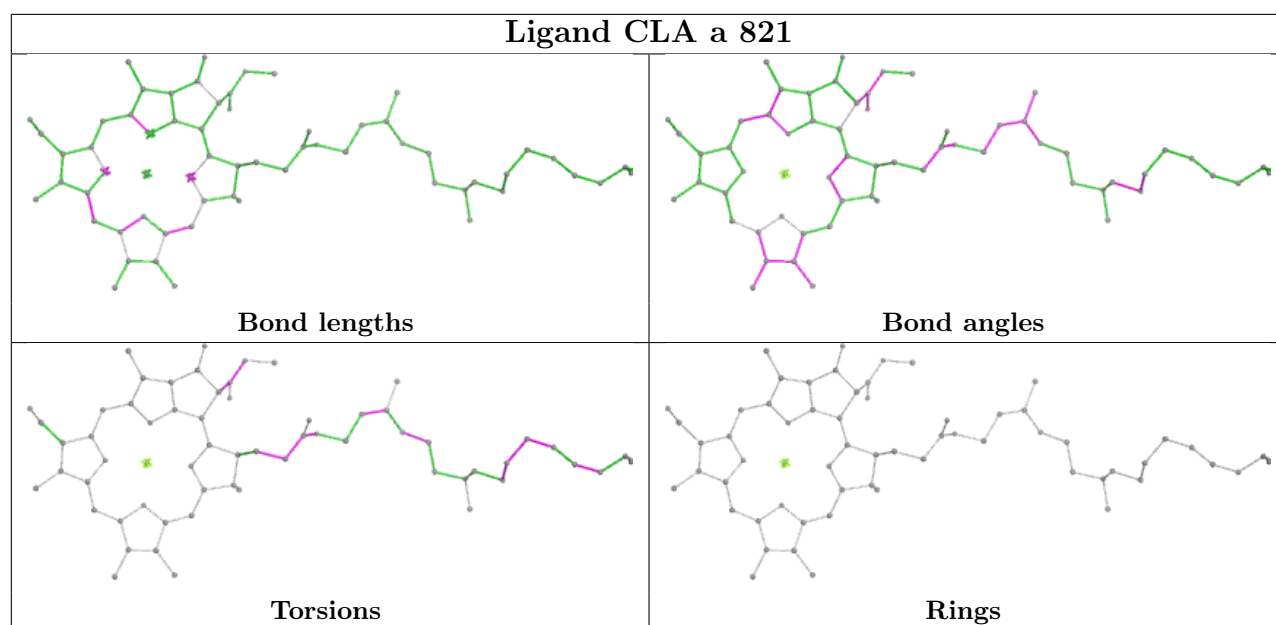


Ligand CLA a 812

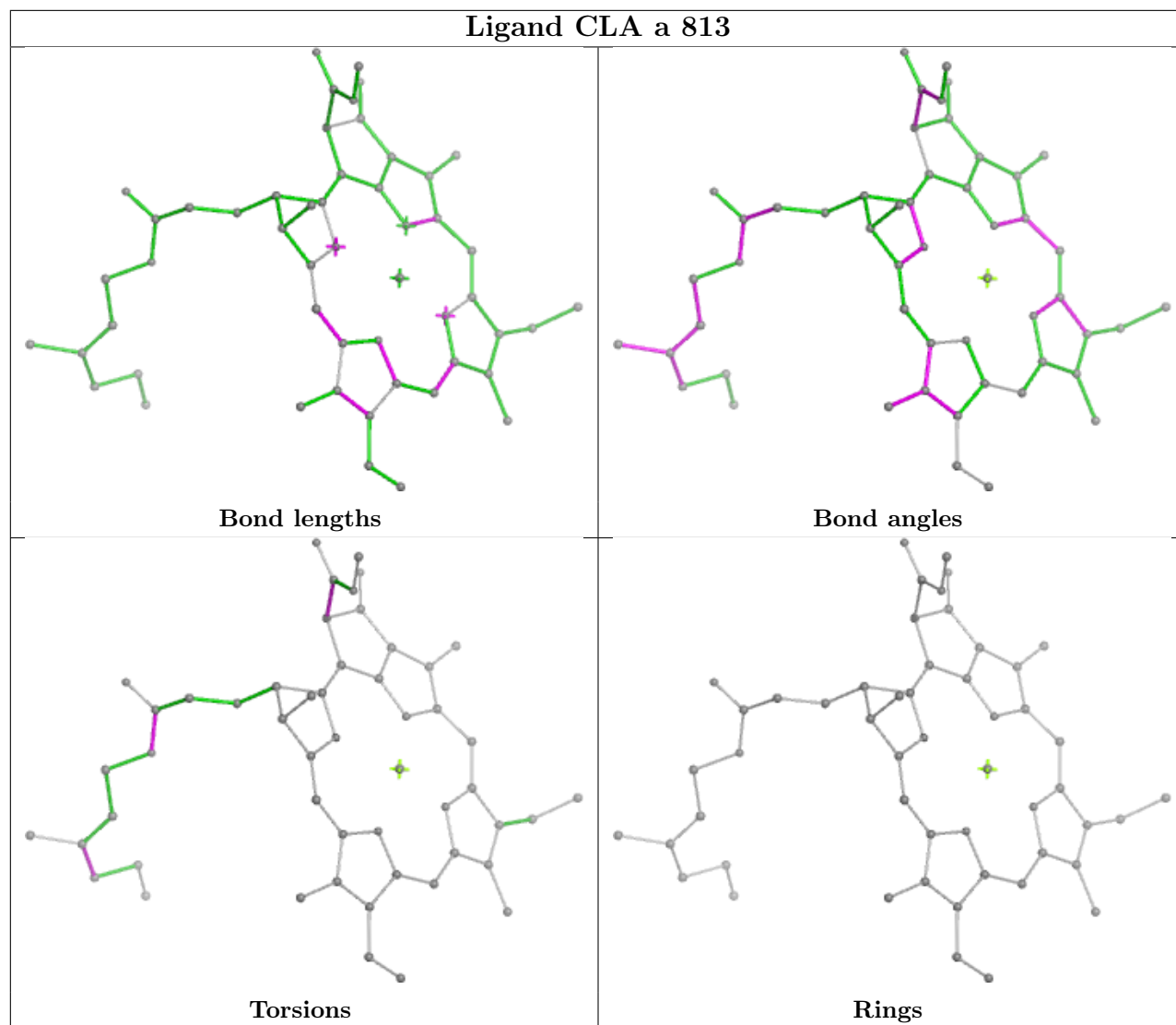


Ligand BCR b 850

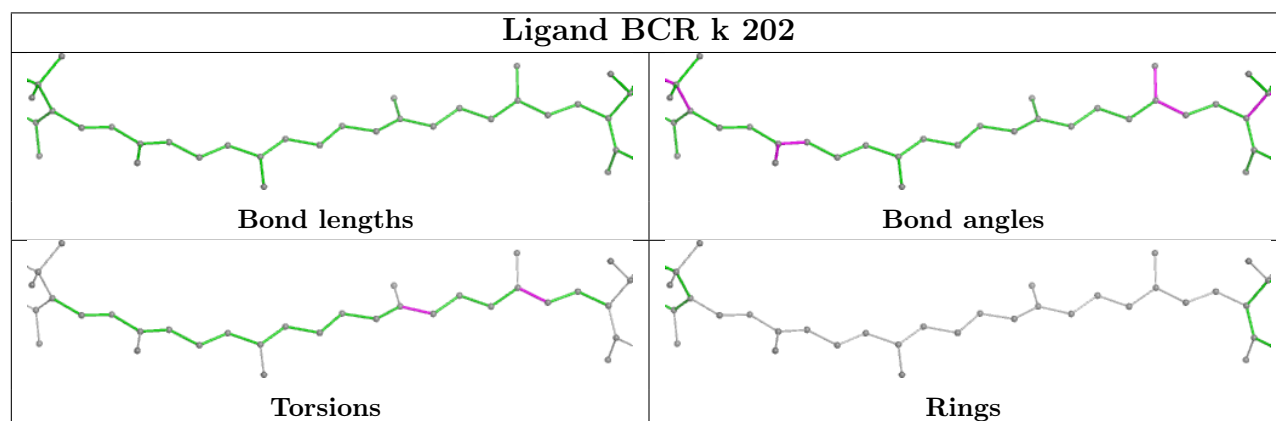


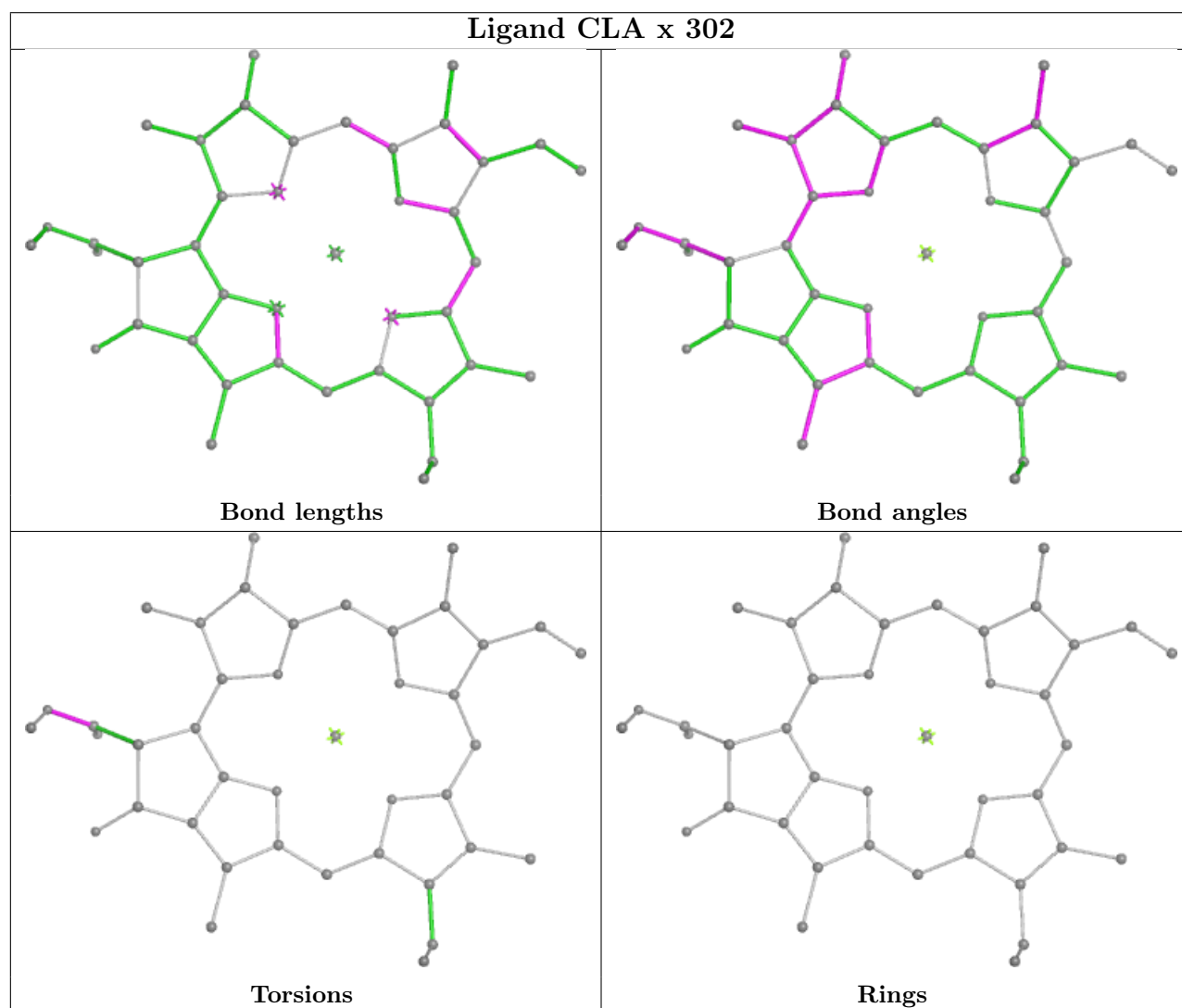
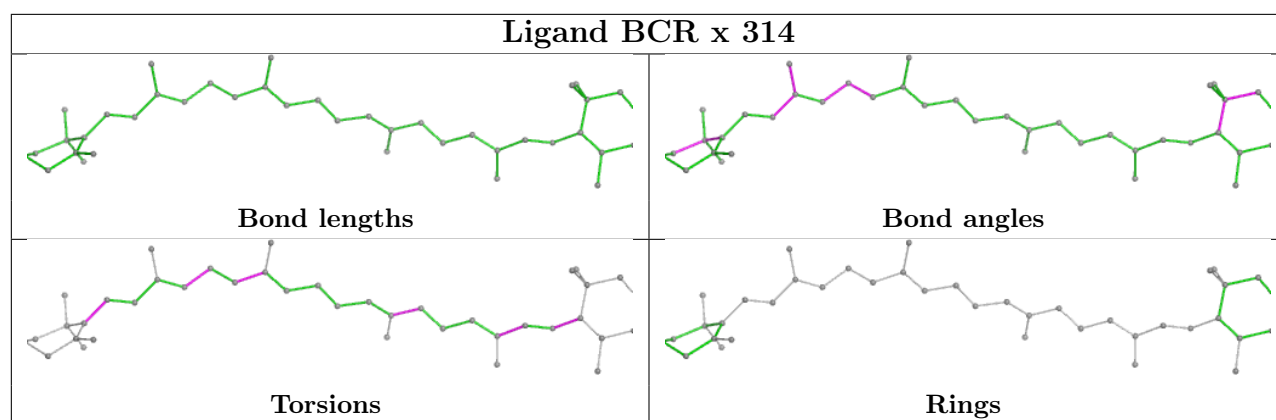


Ligand CLA a 813

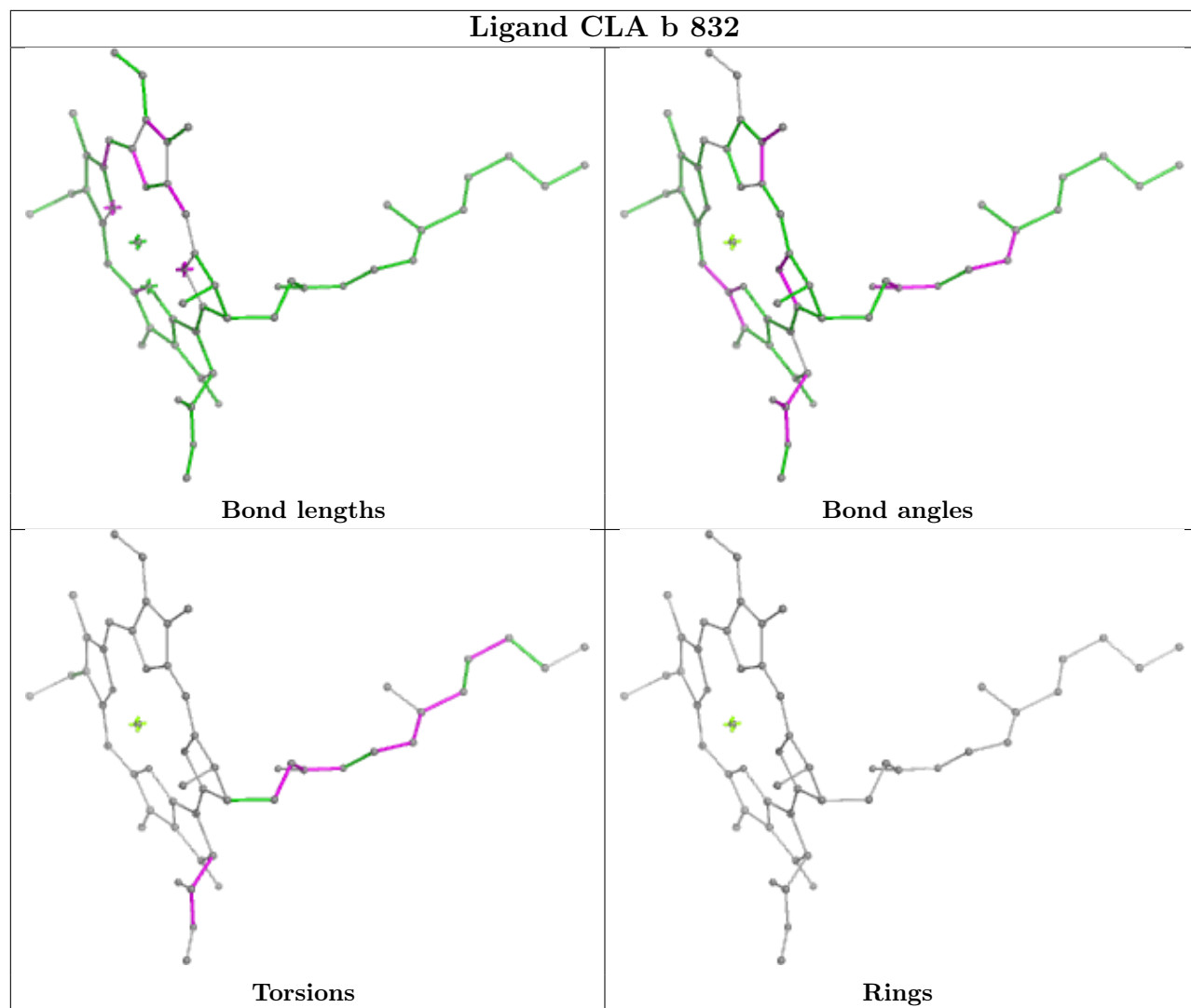


Ligand BCR k 202

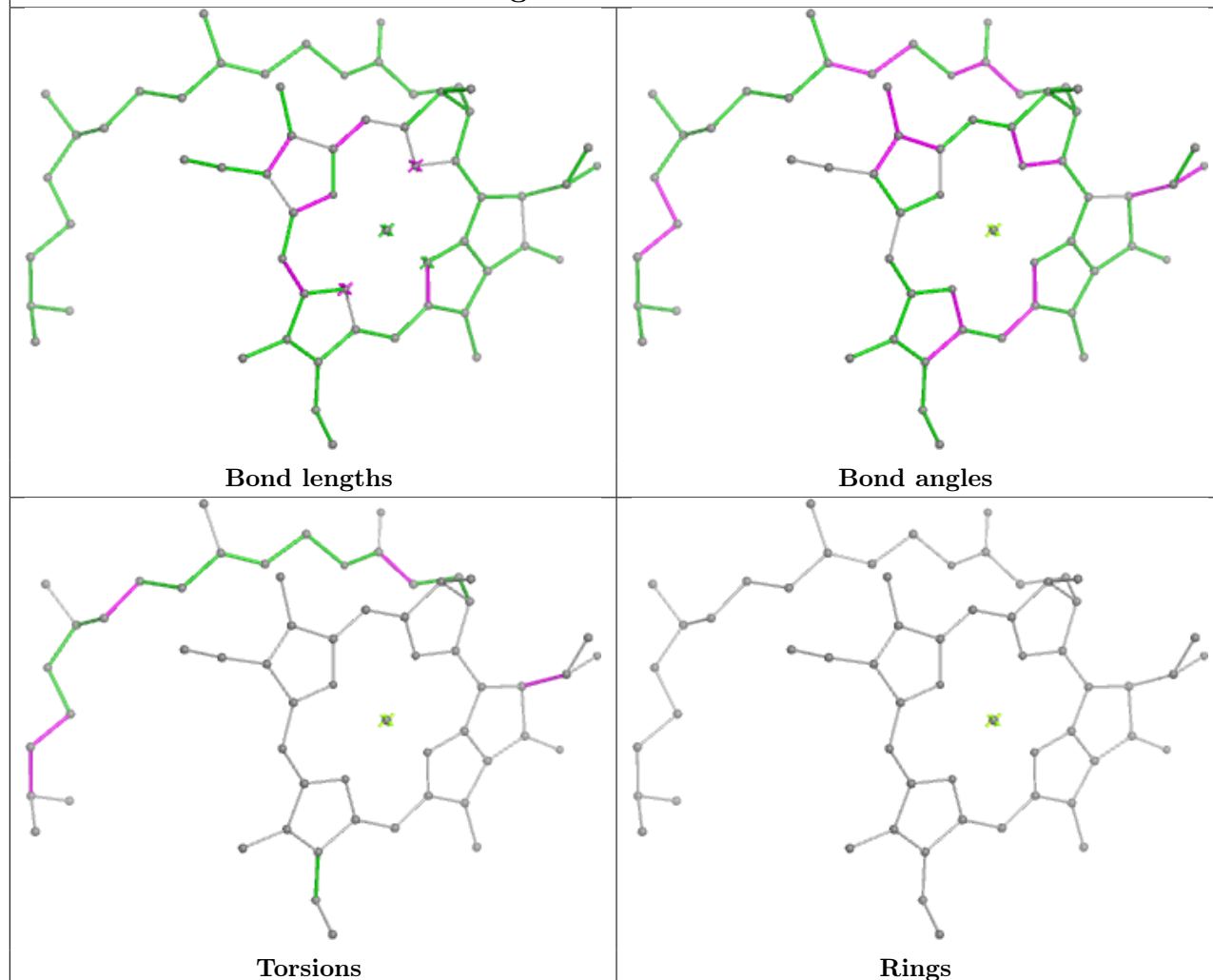




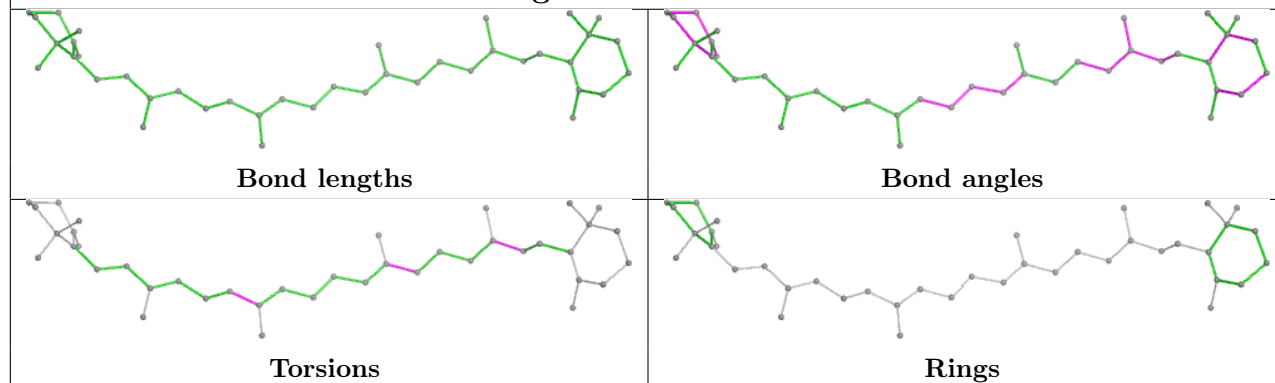
Ligand CLA b 832

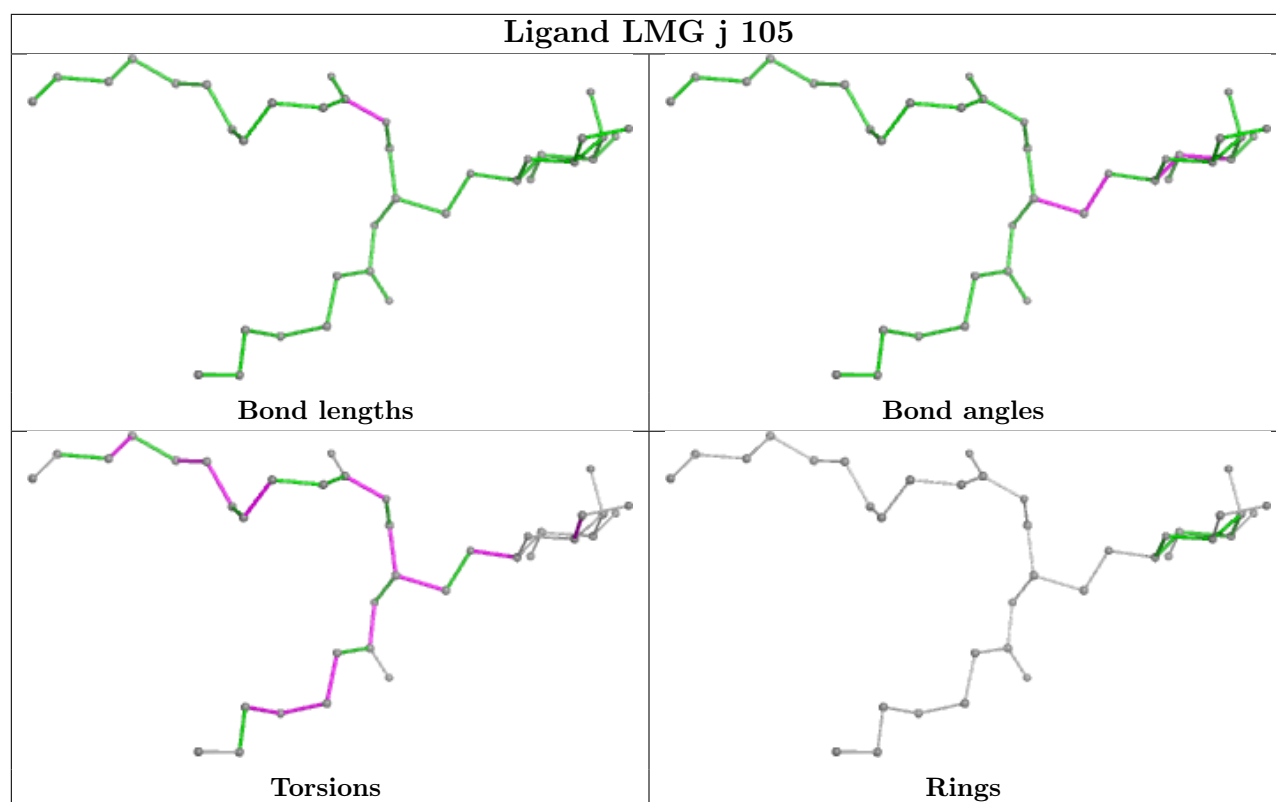


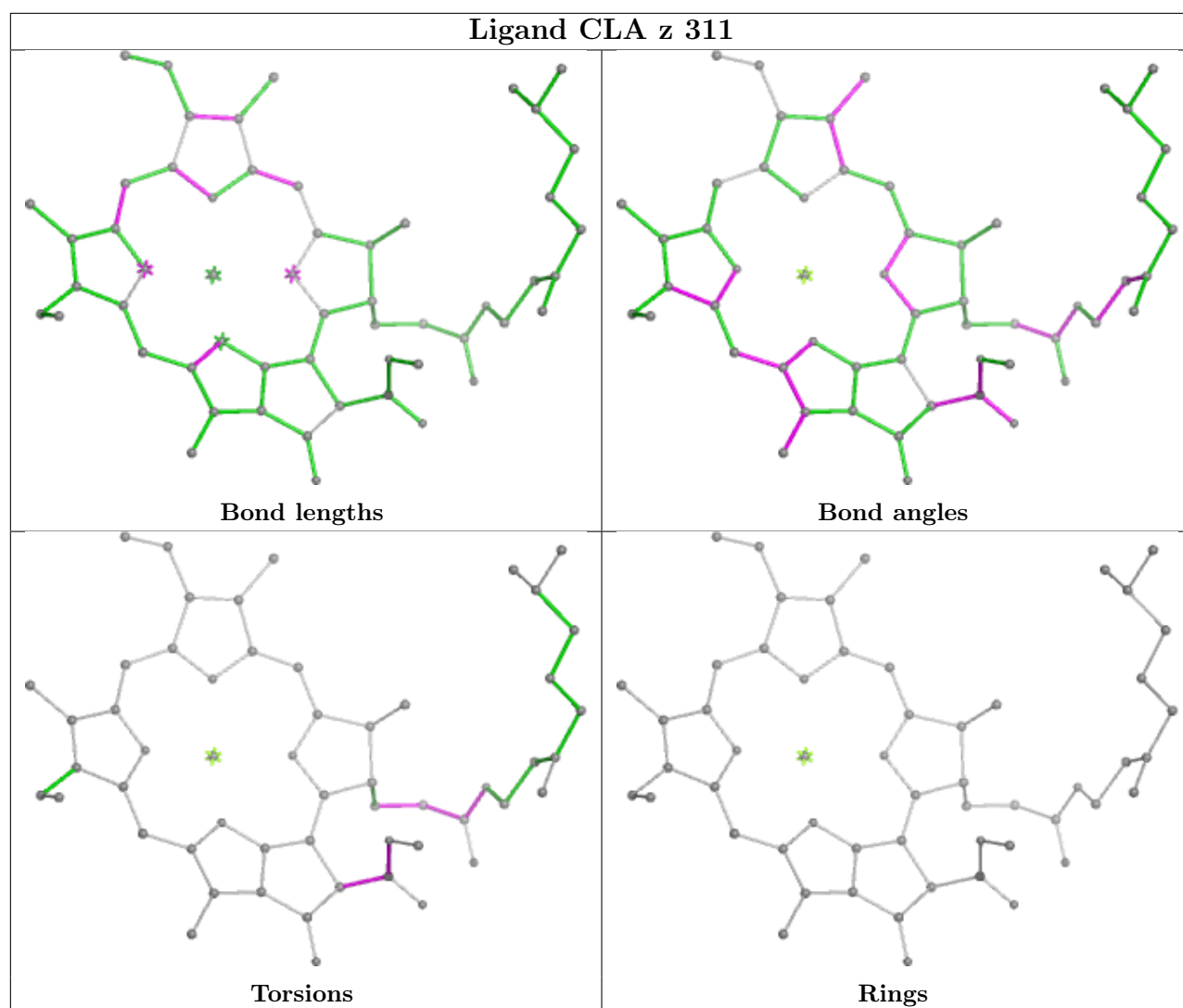
Ligand CLA z 307

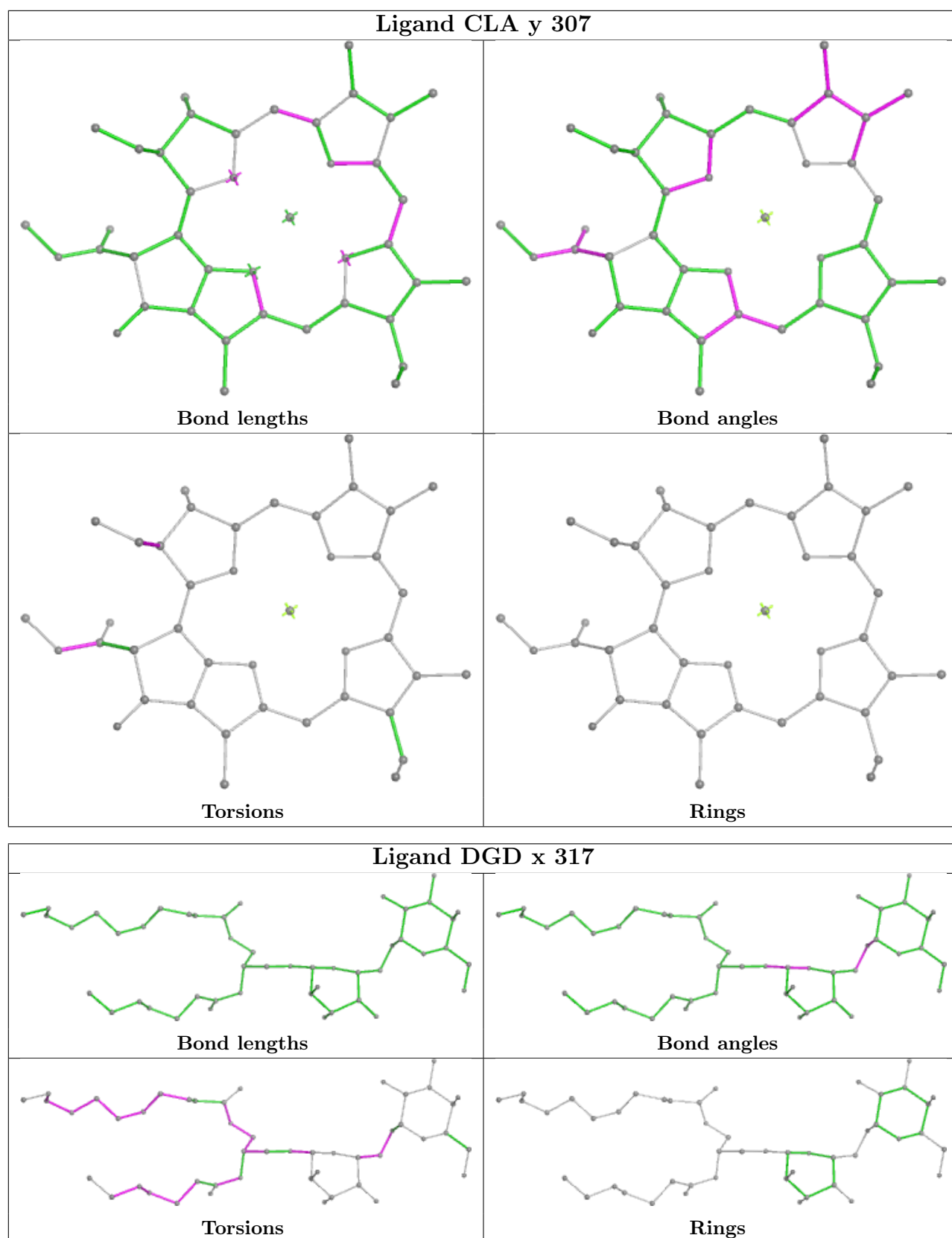


Ligand BCR b 831

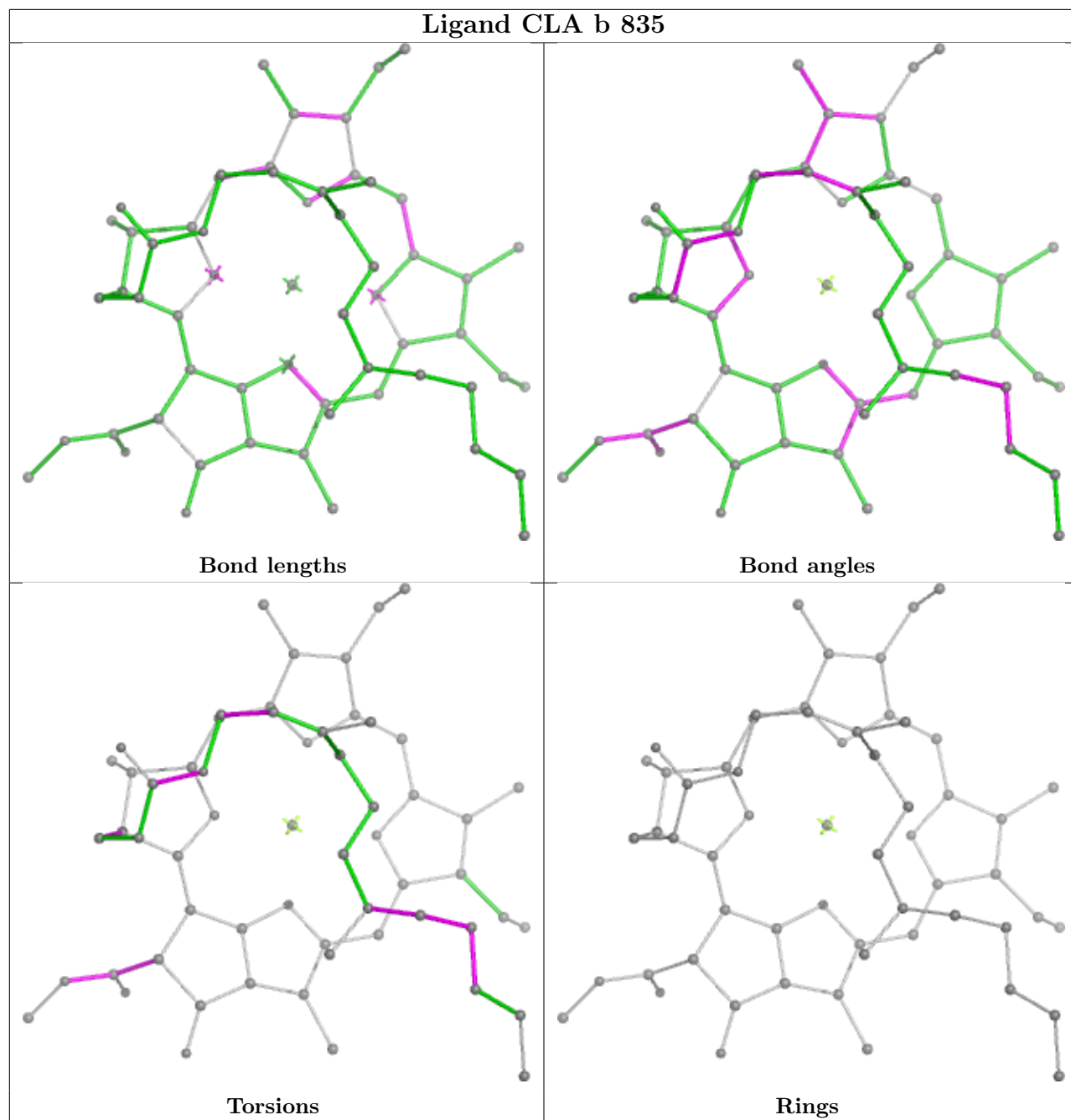


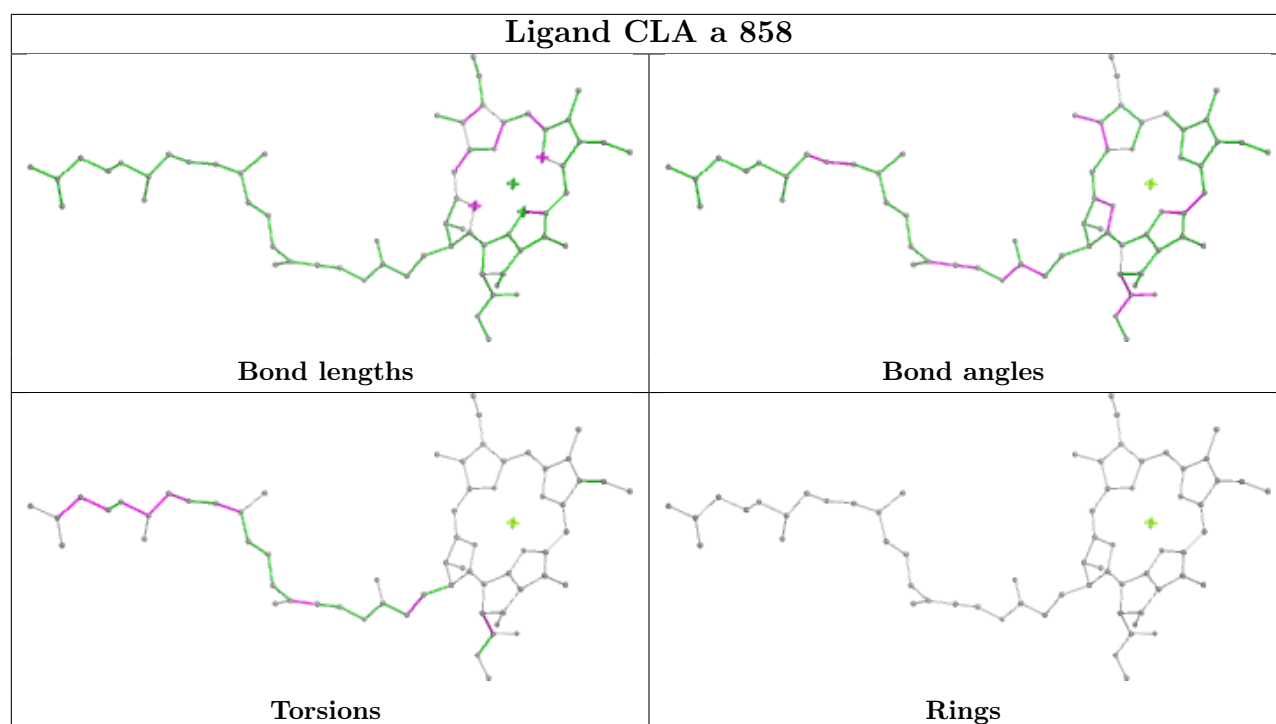




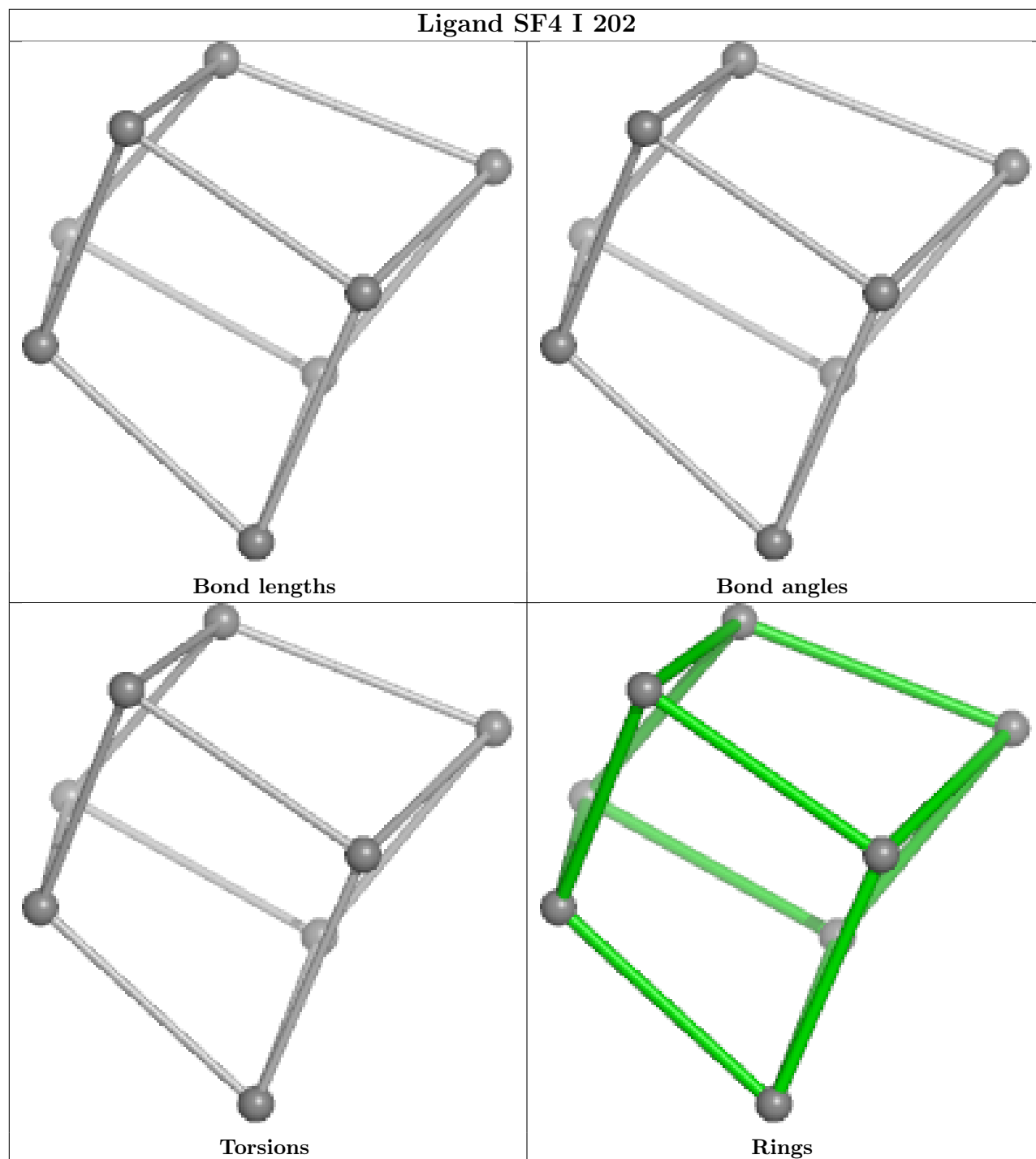


Ligand CLA b 835

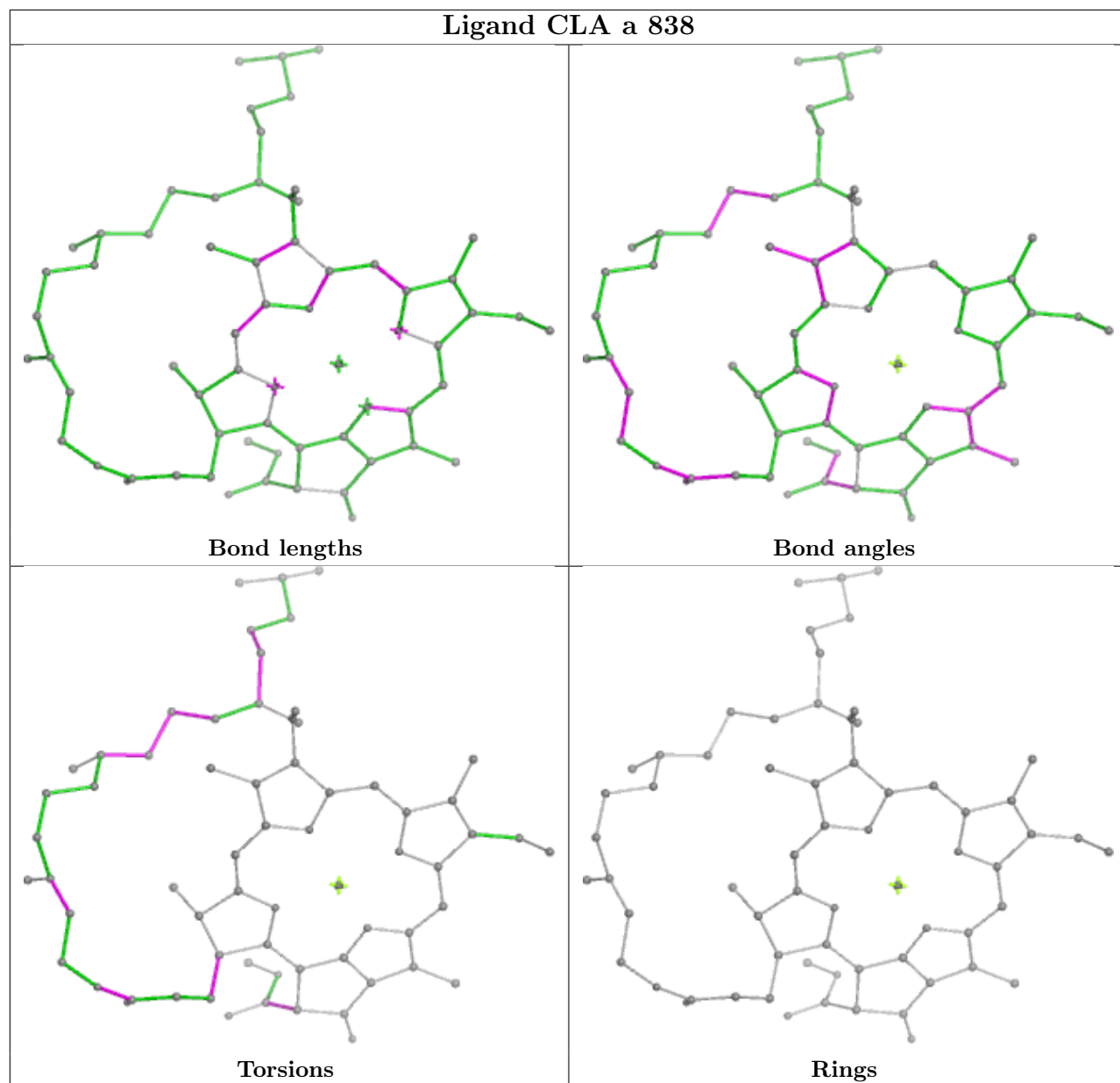


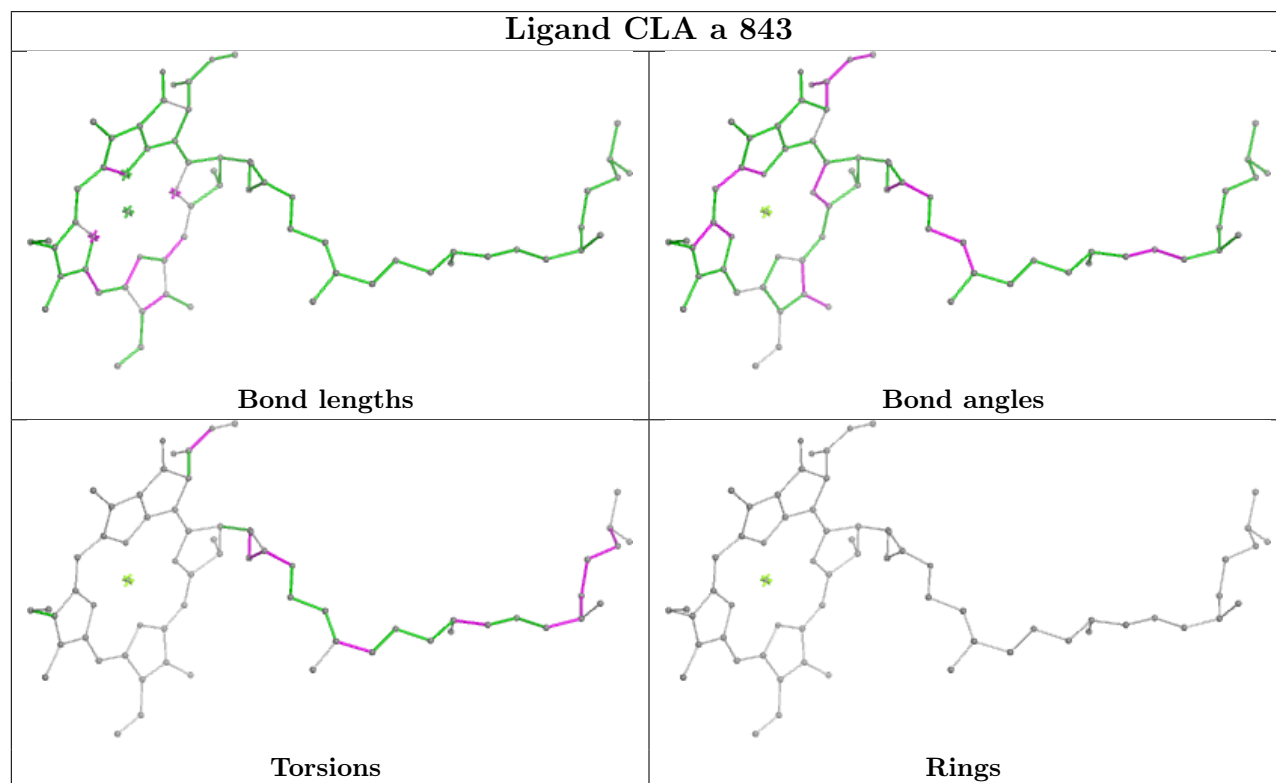
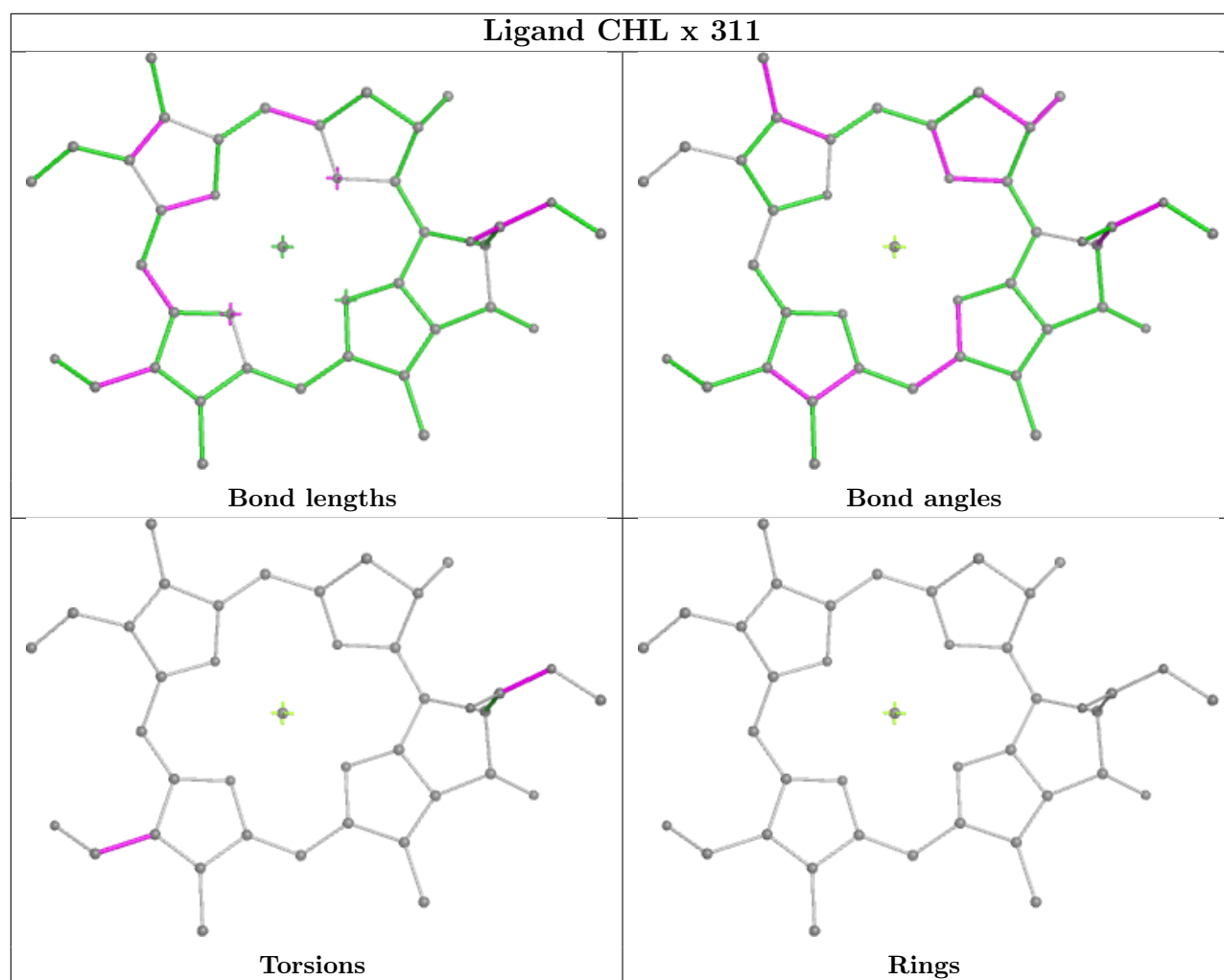


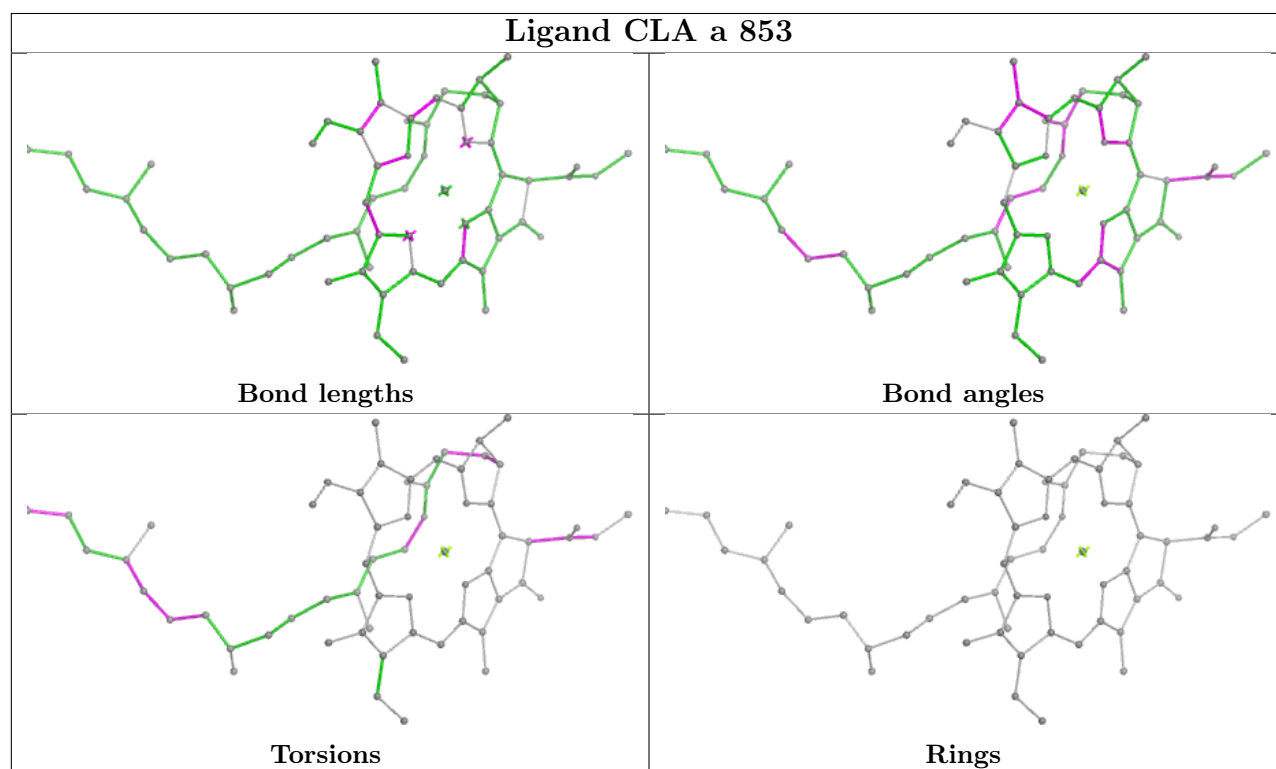
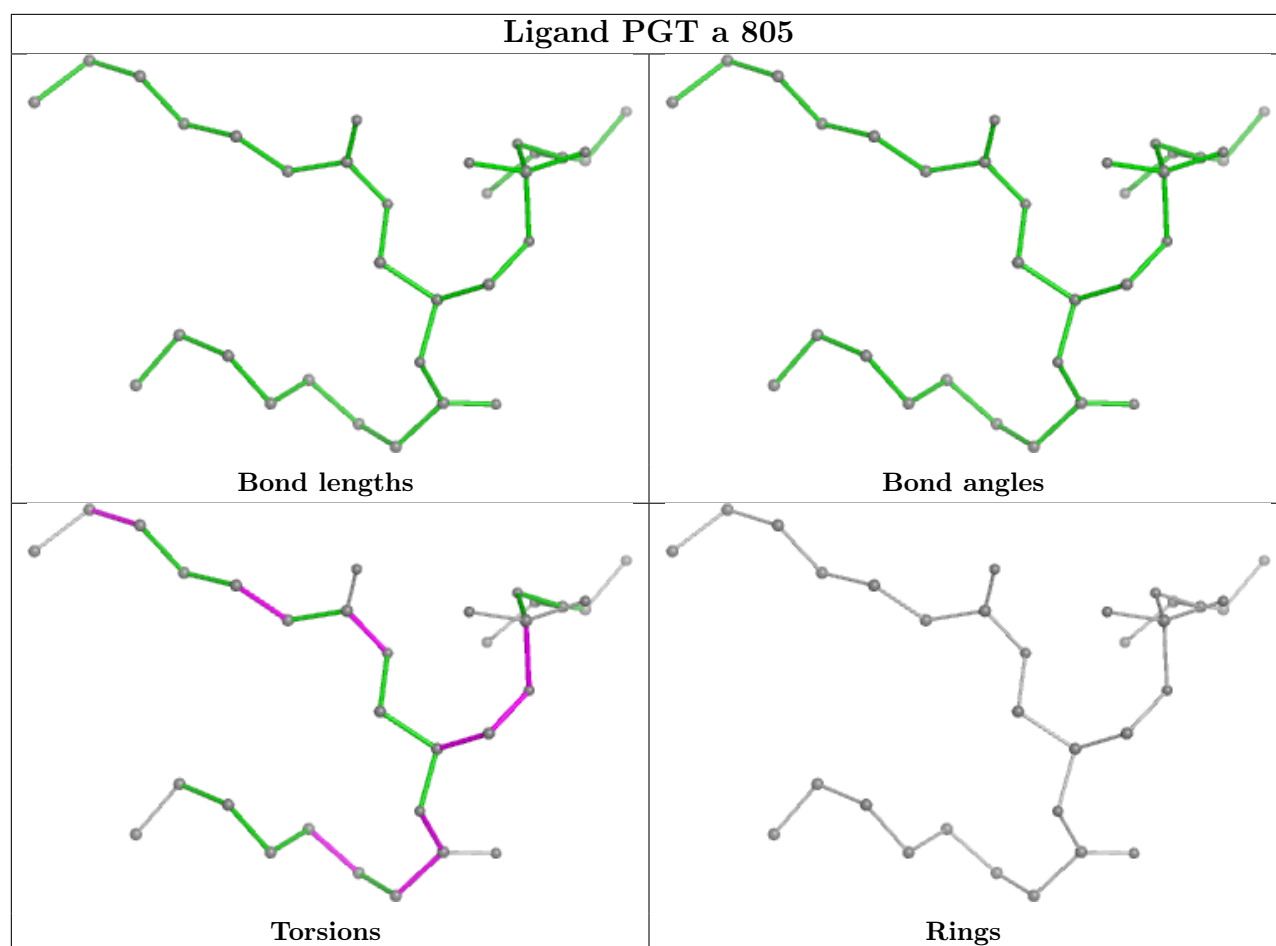
Ligand SF4 I 202

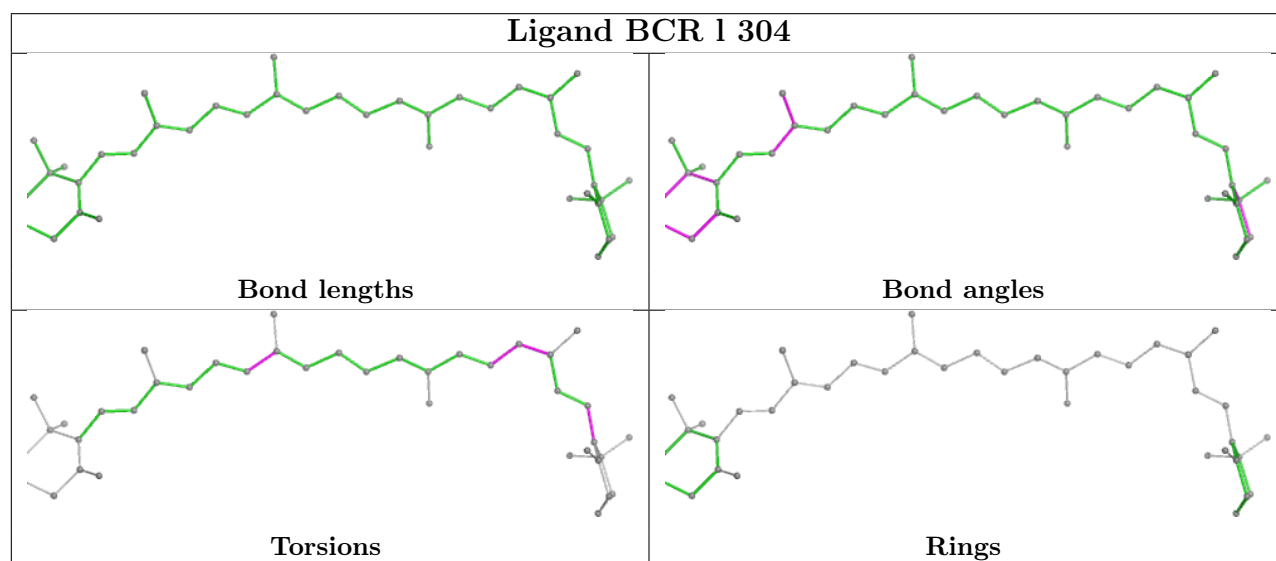
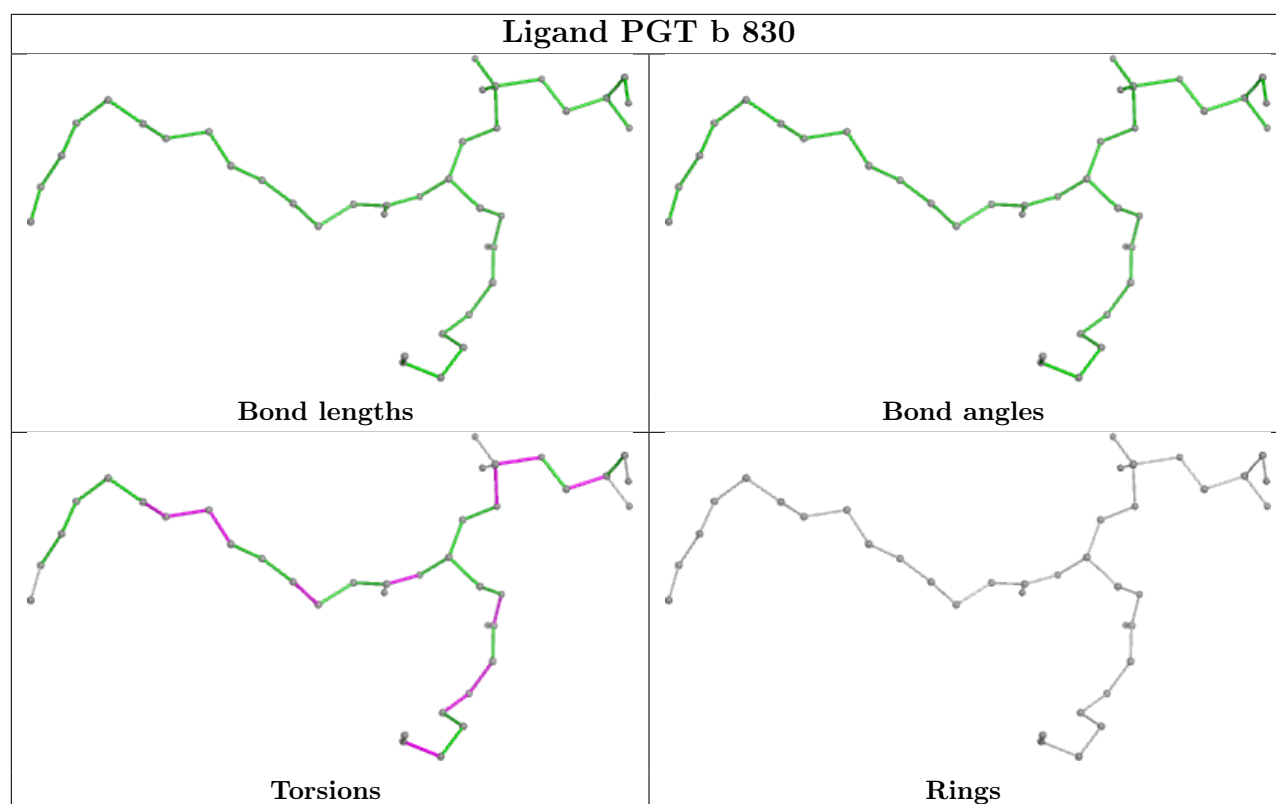


Ligand CLA a 838

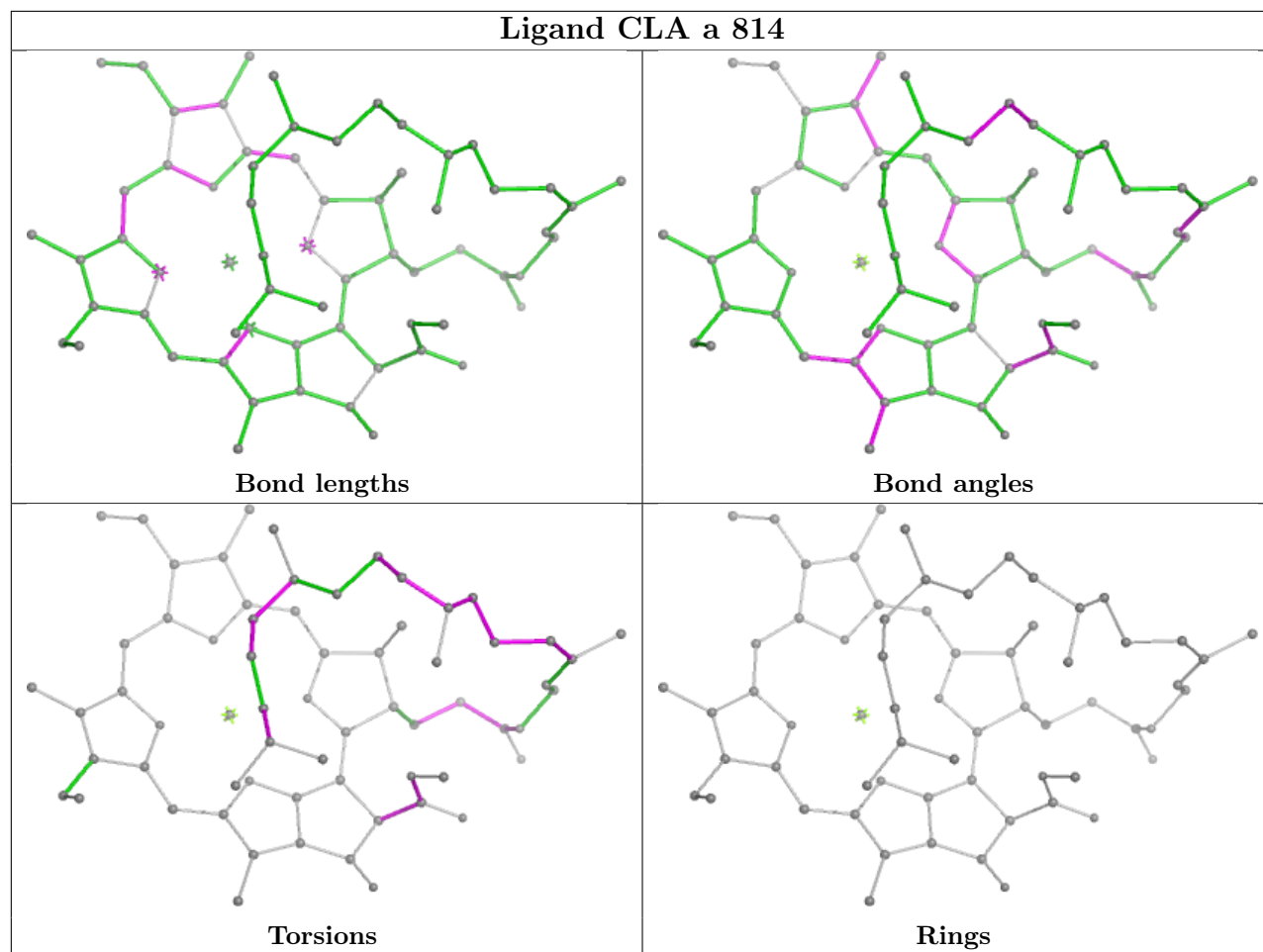


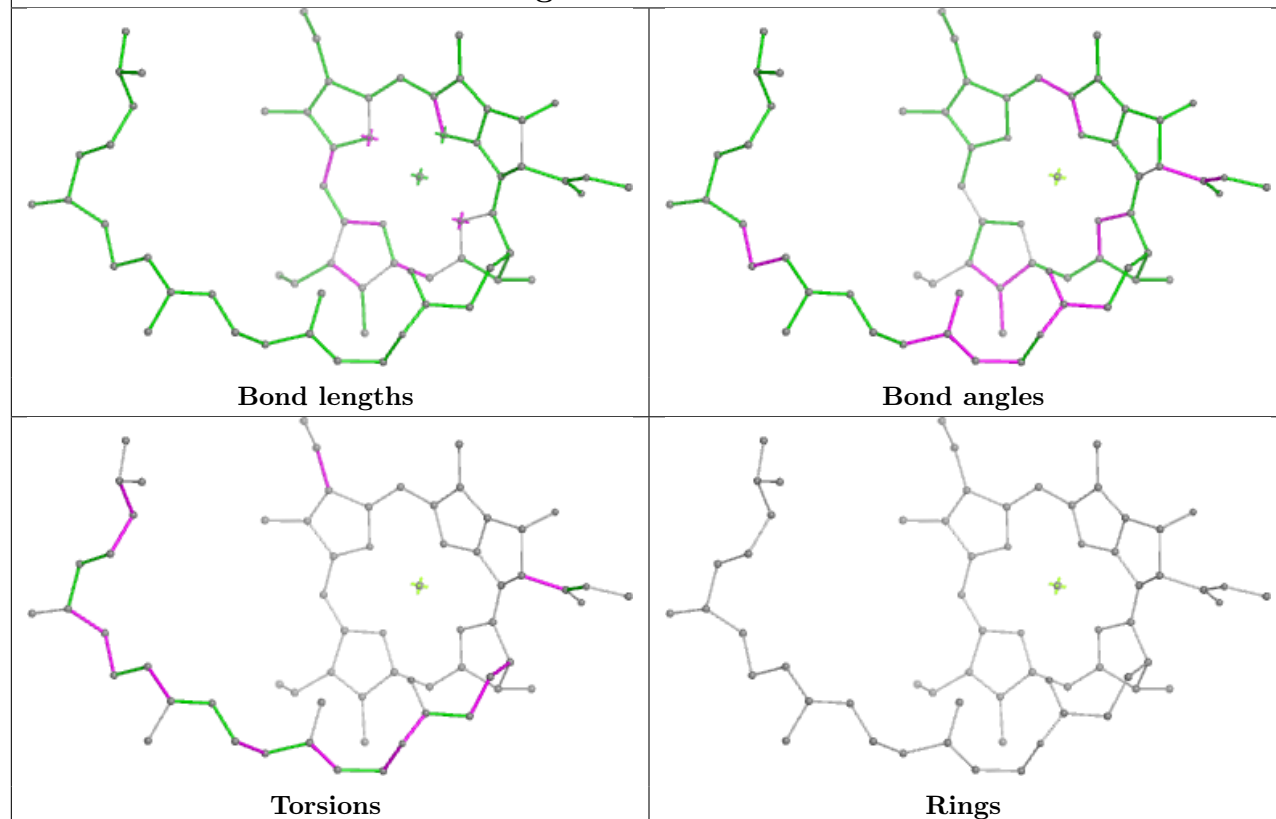
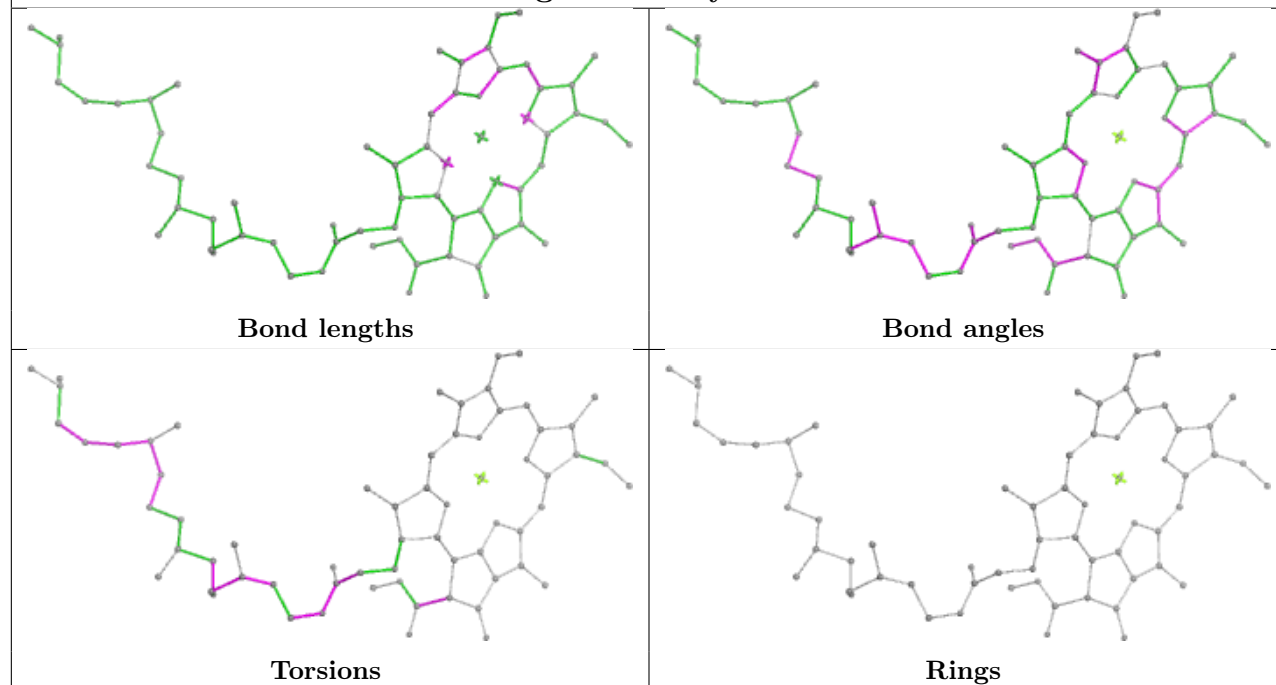


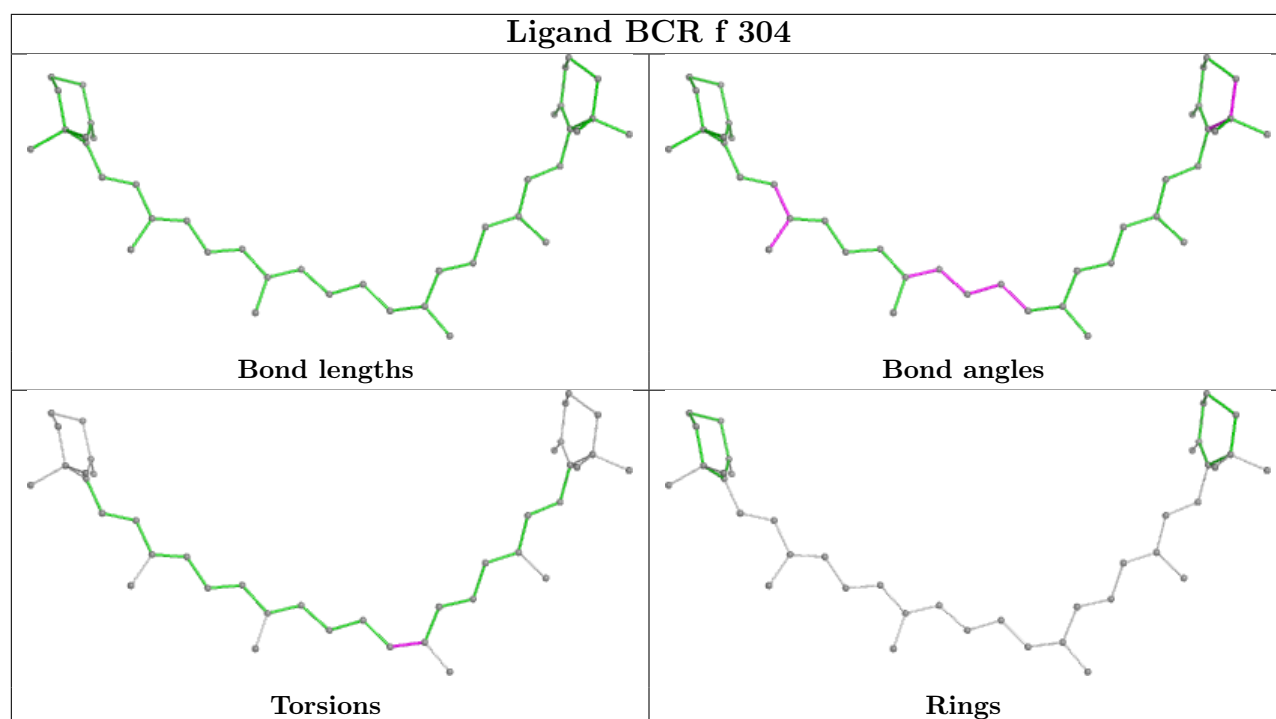




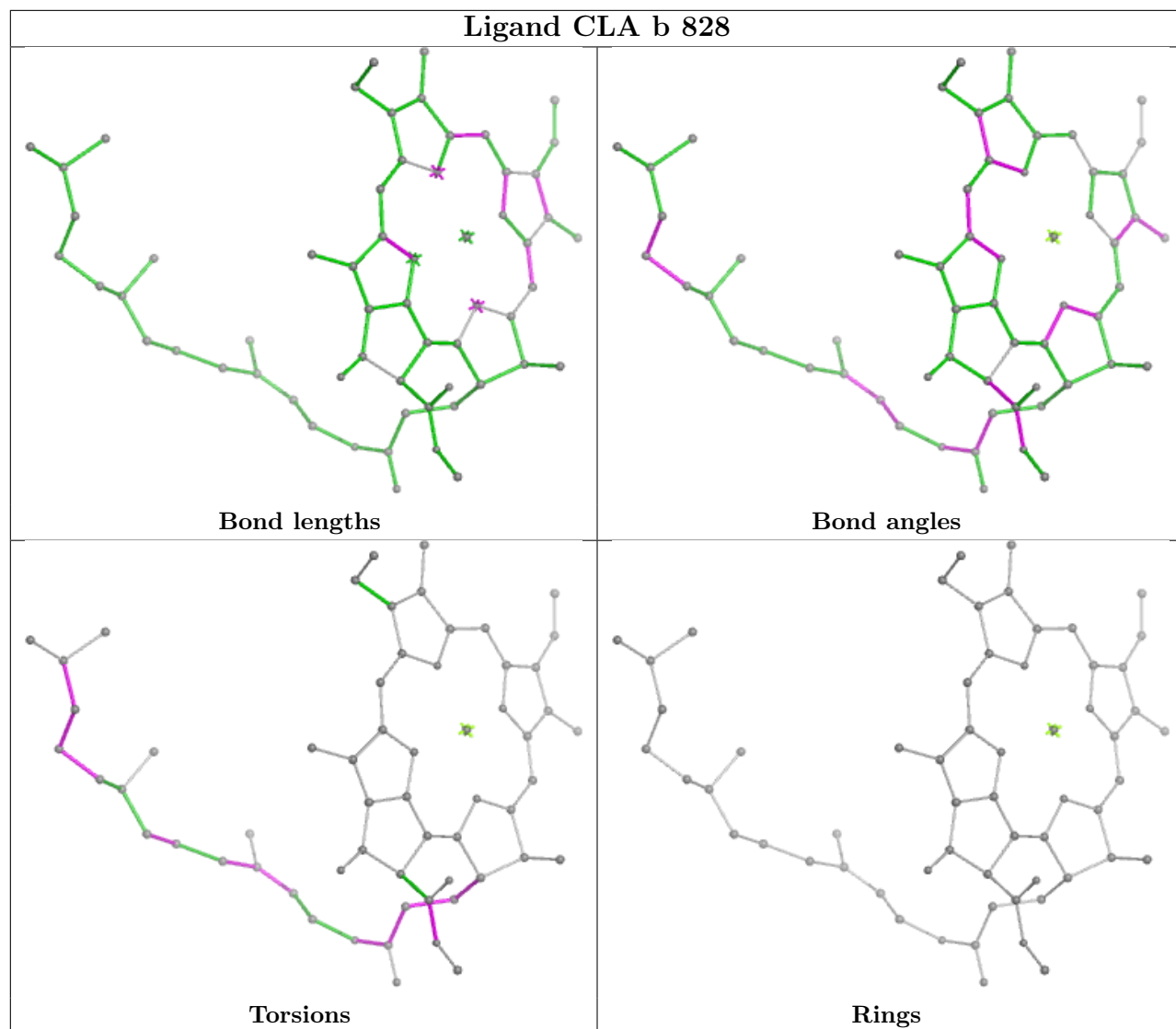
Ligand CLA a 814

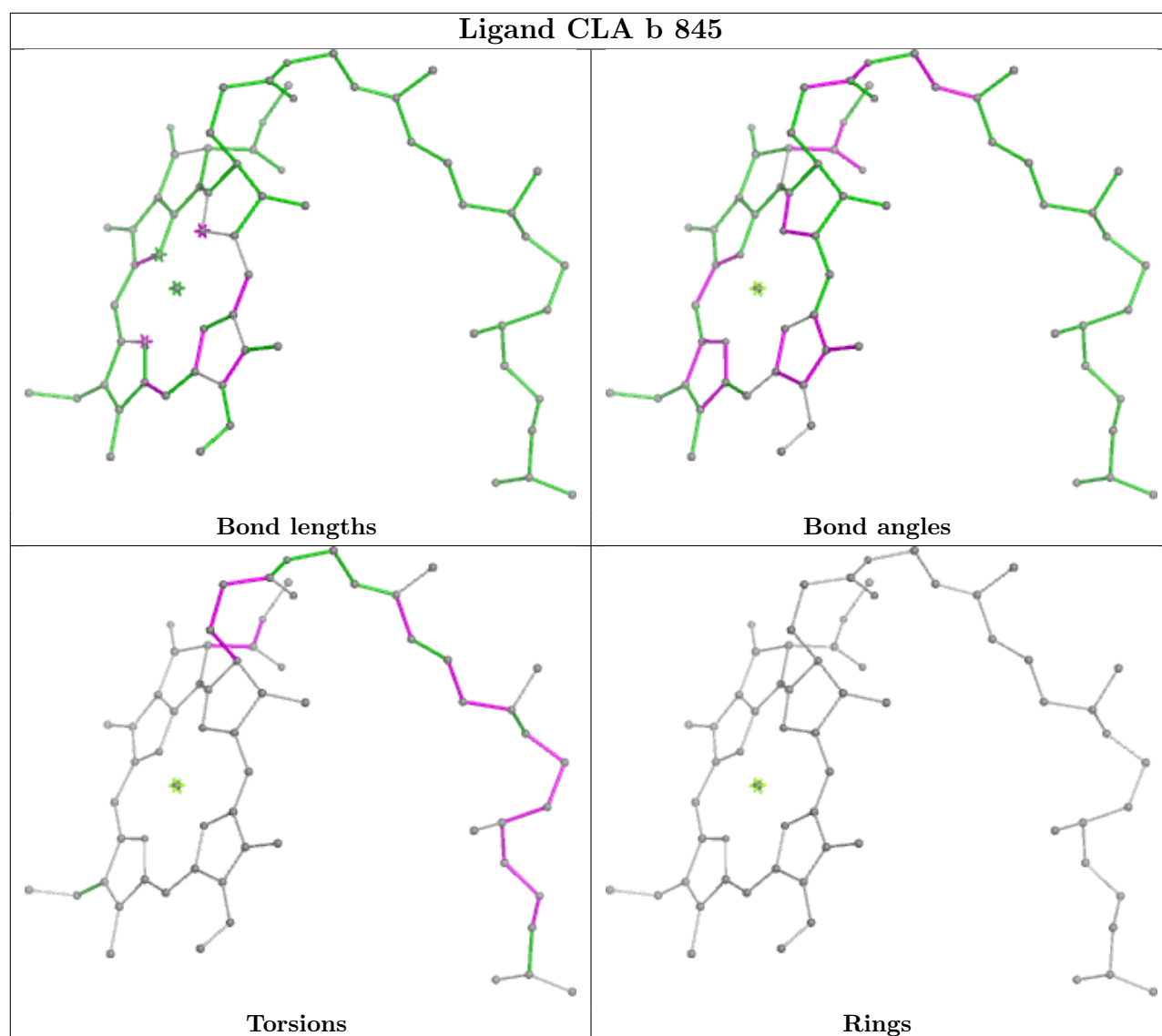


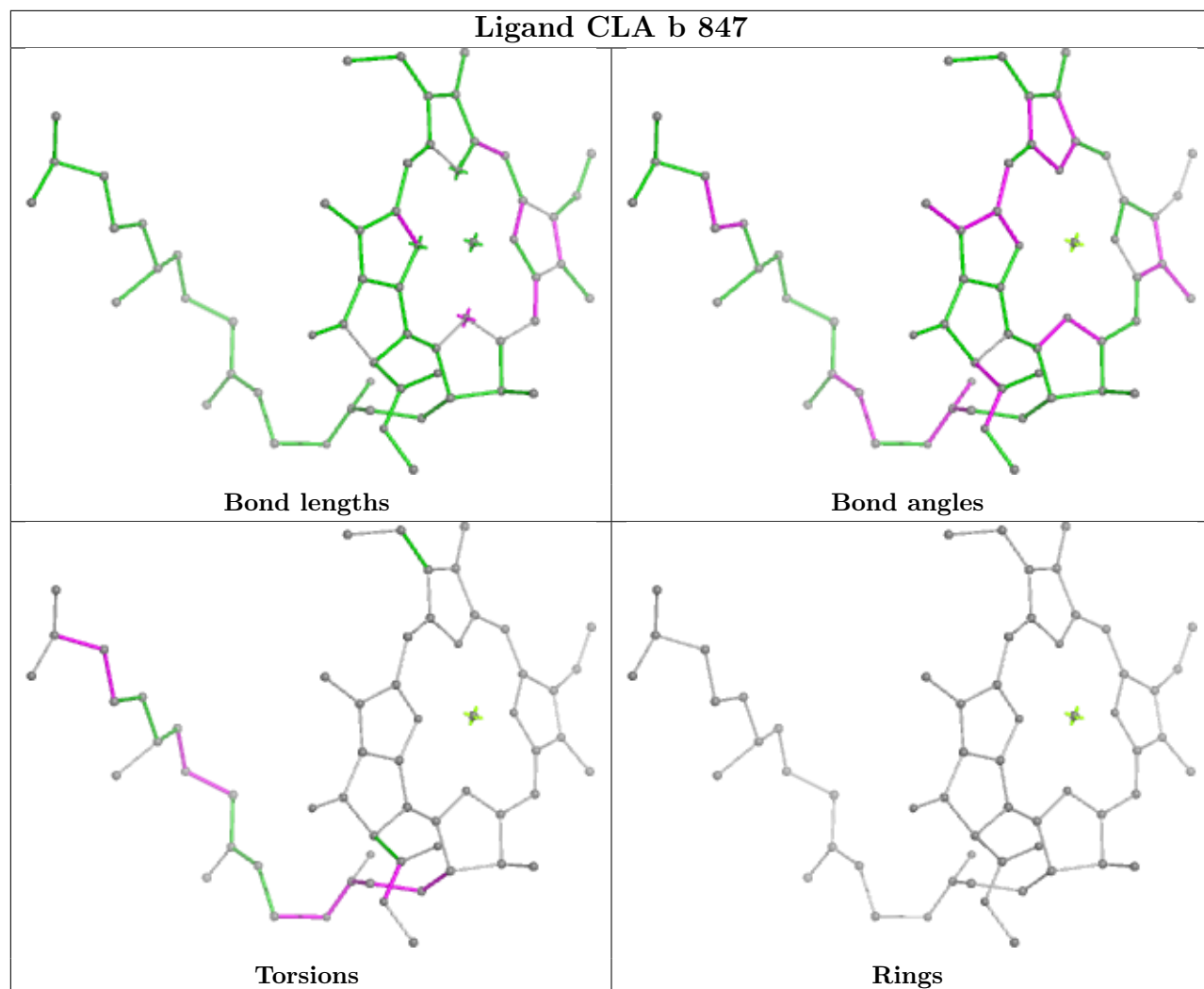
Ligand CLA x 312**Ligand CLA y 314**

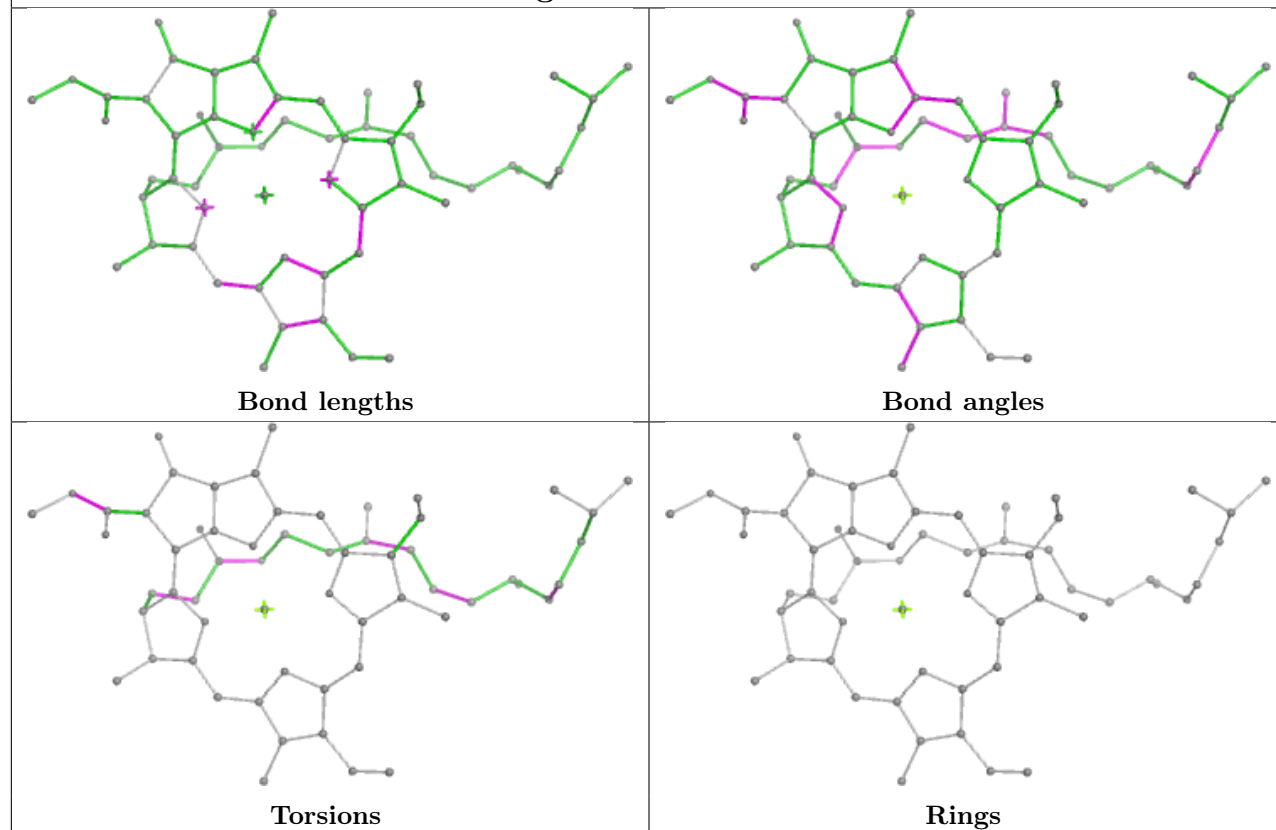
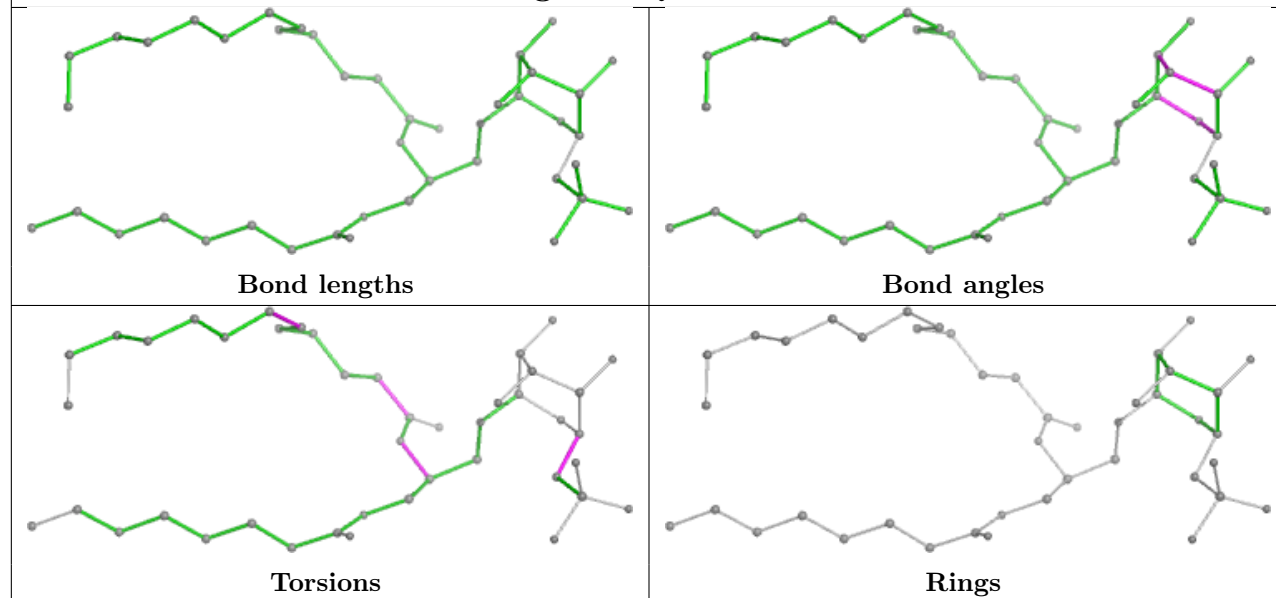


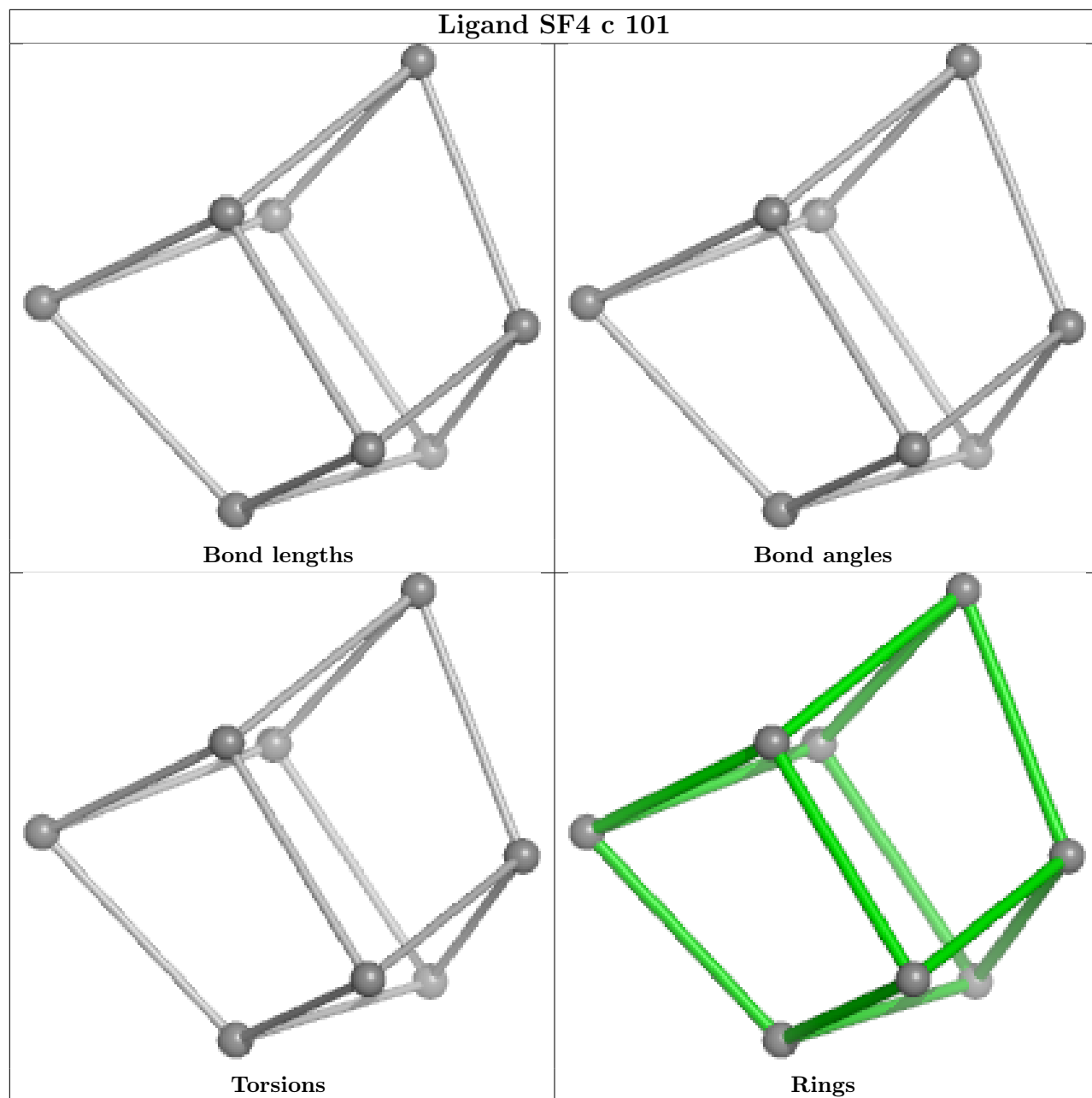
Ligand CLA b 828

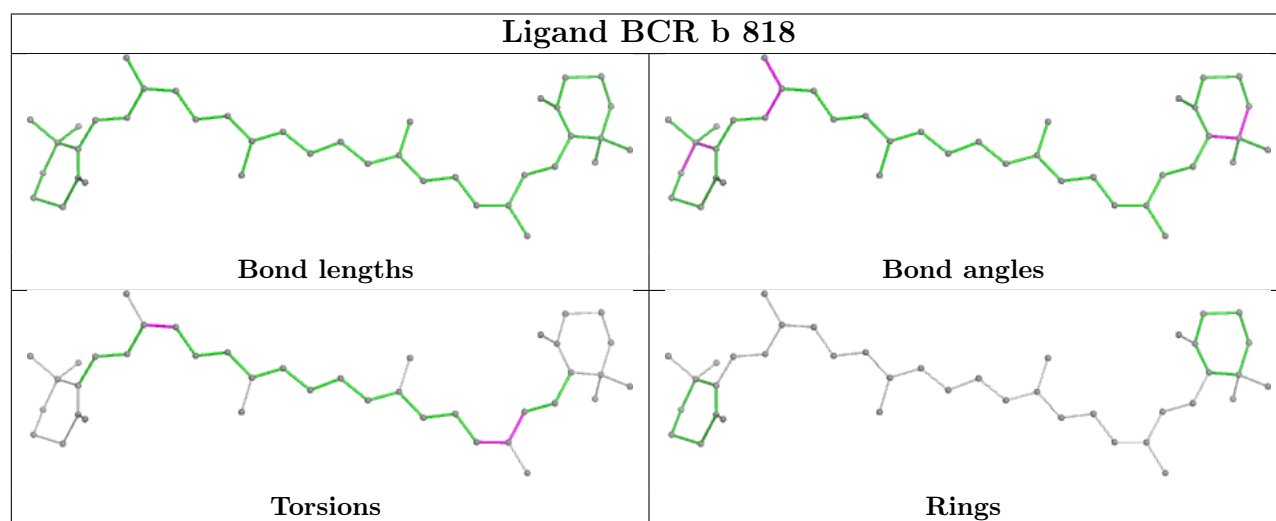
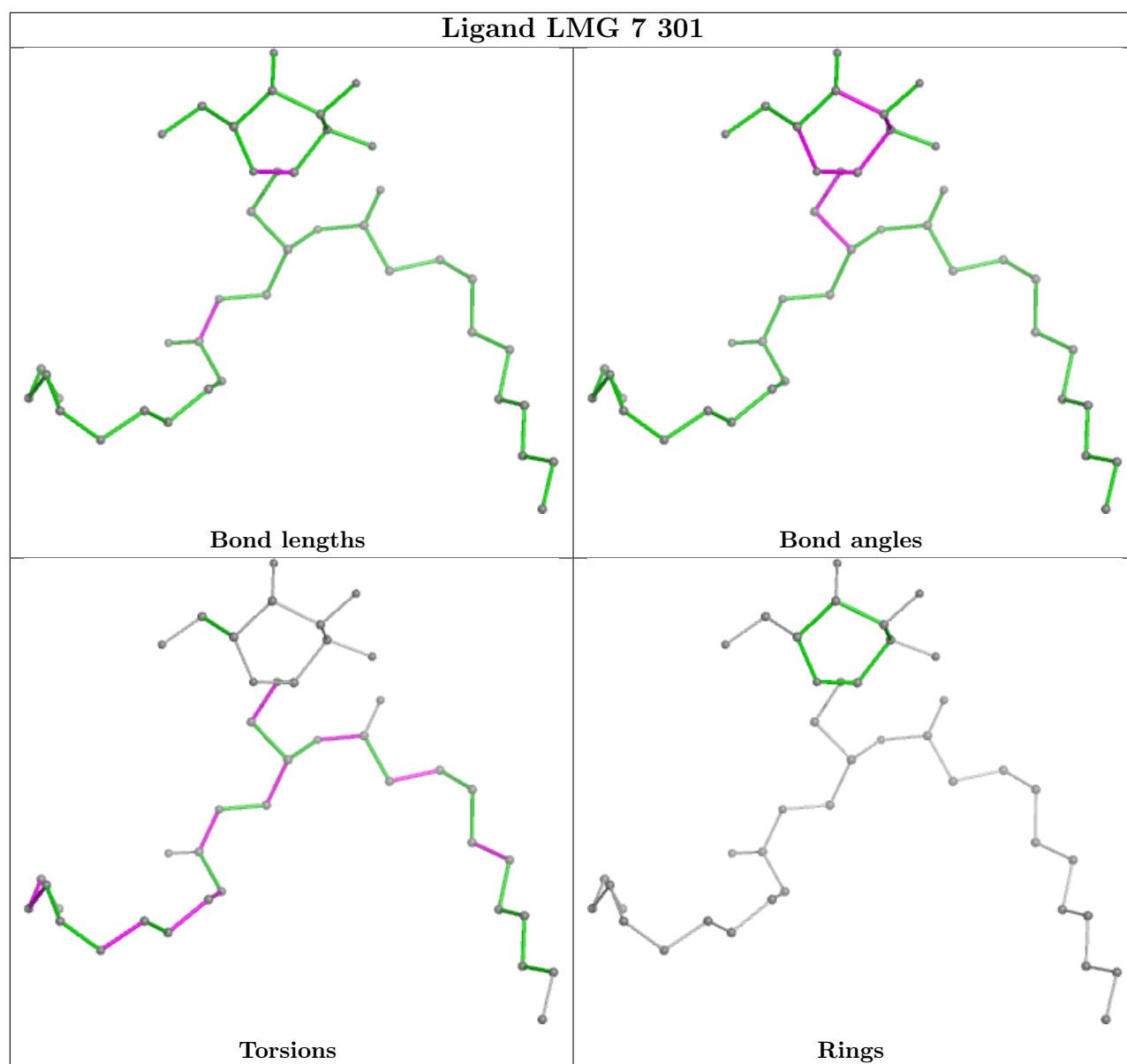


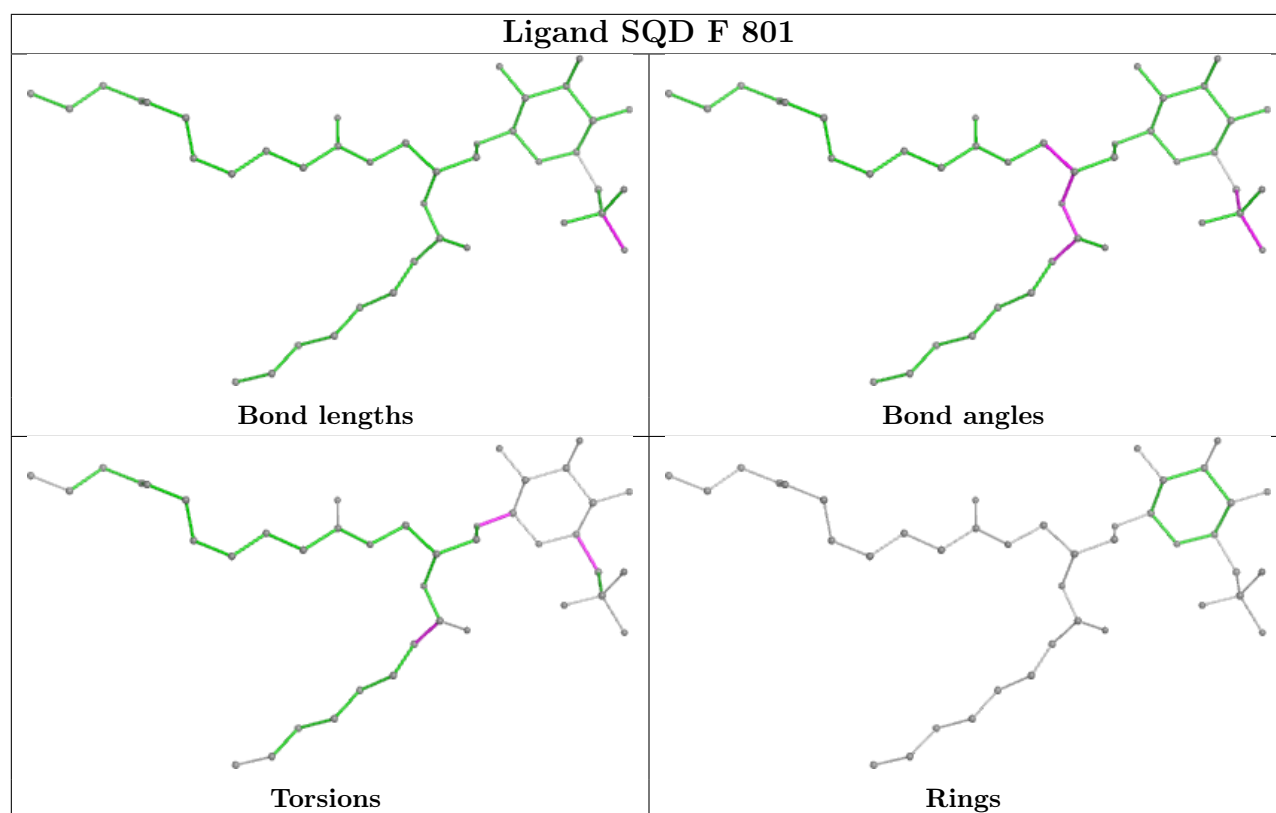




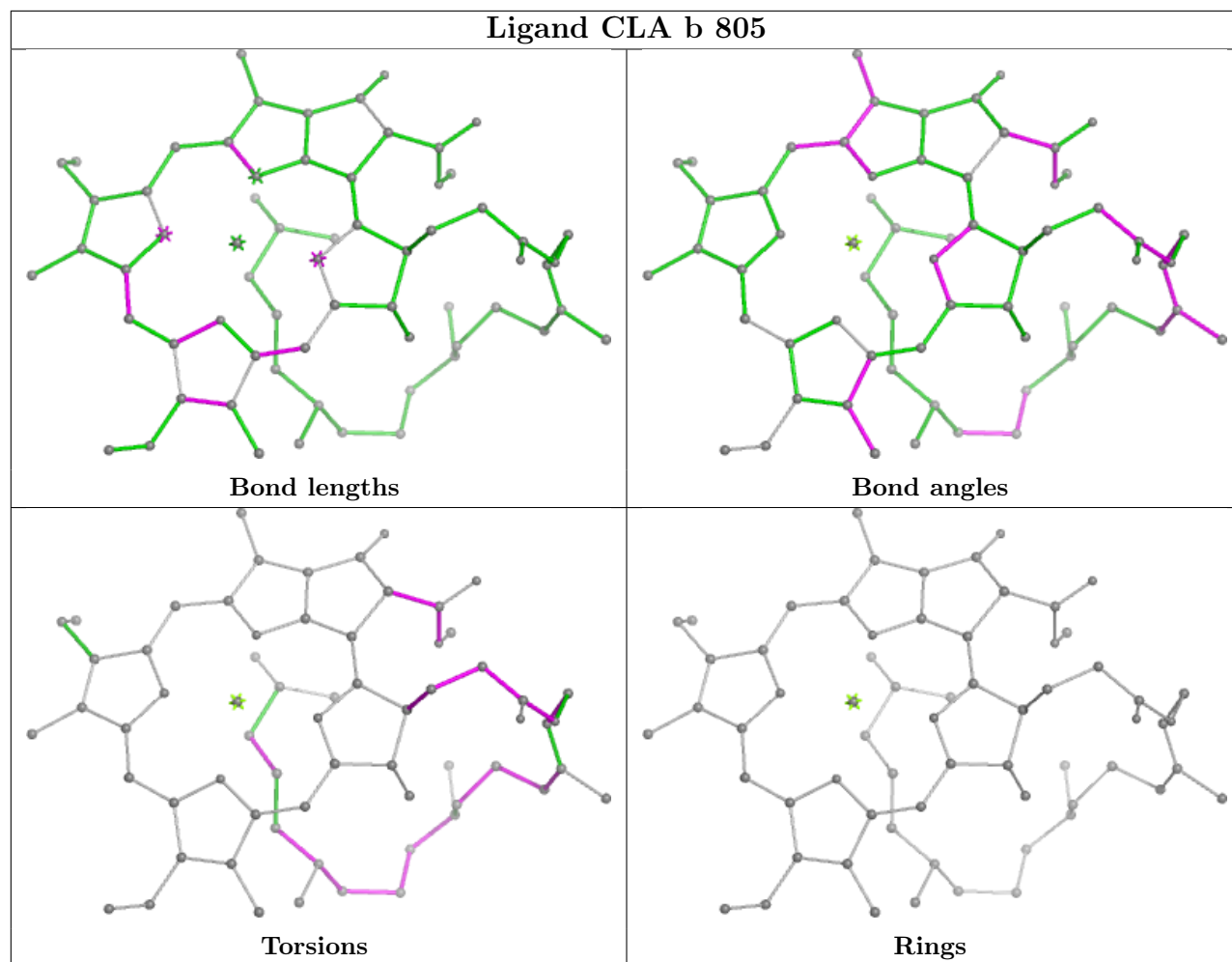
Ligand CLA a 802**Ligand SQD F 805**



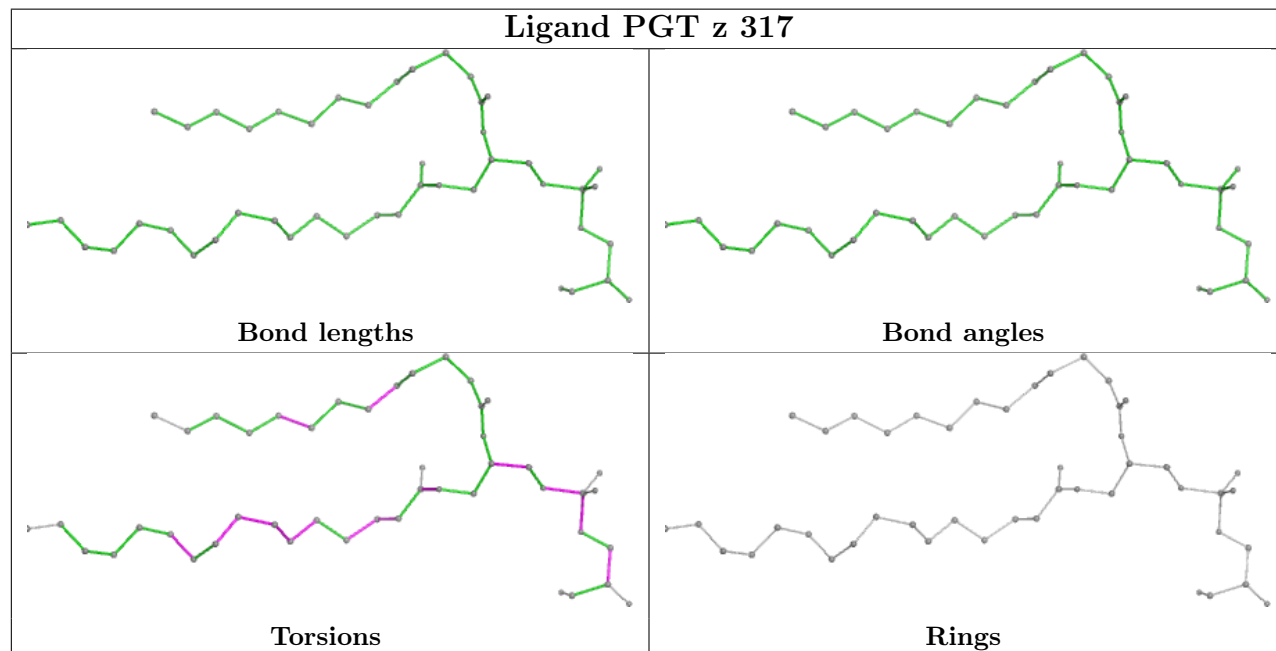


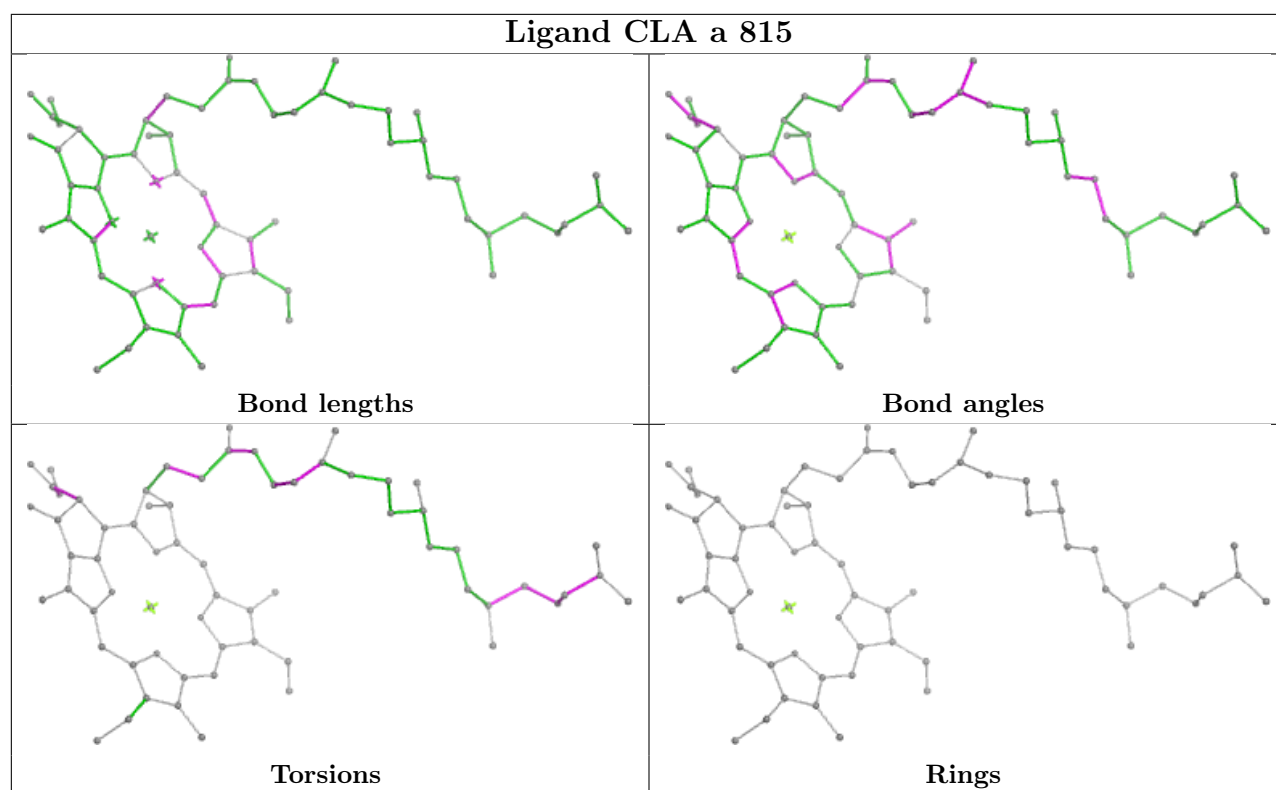


Ligand CLA b 805

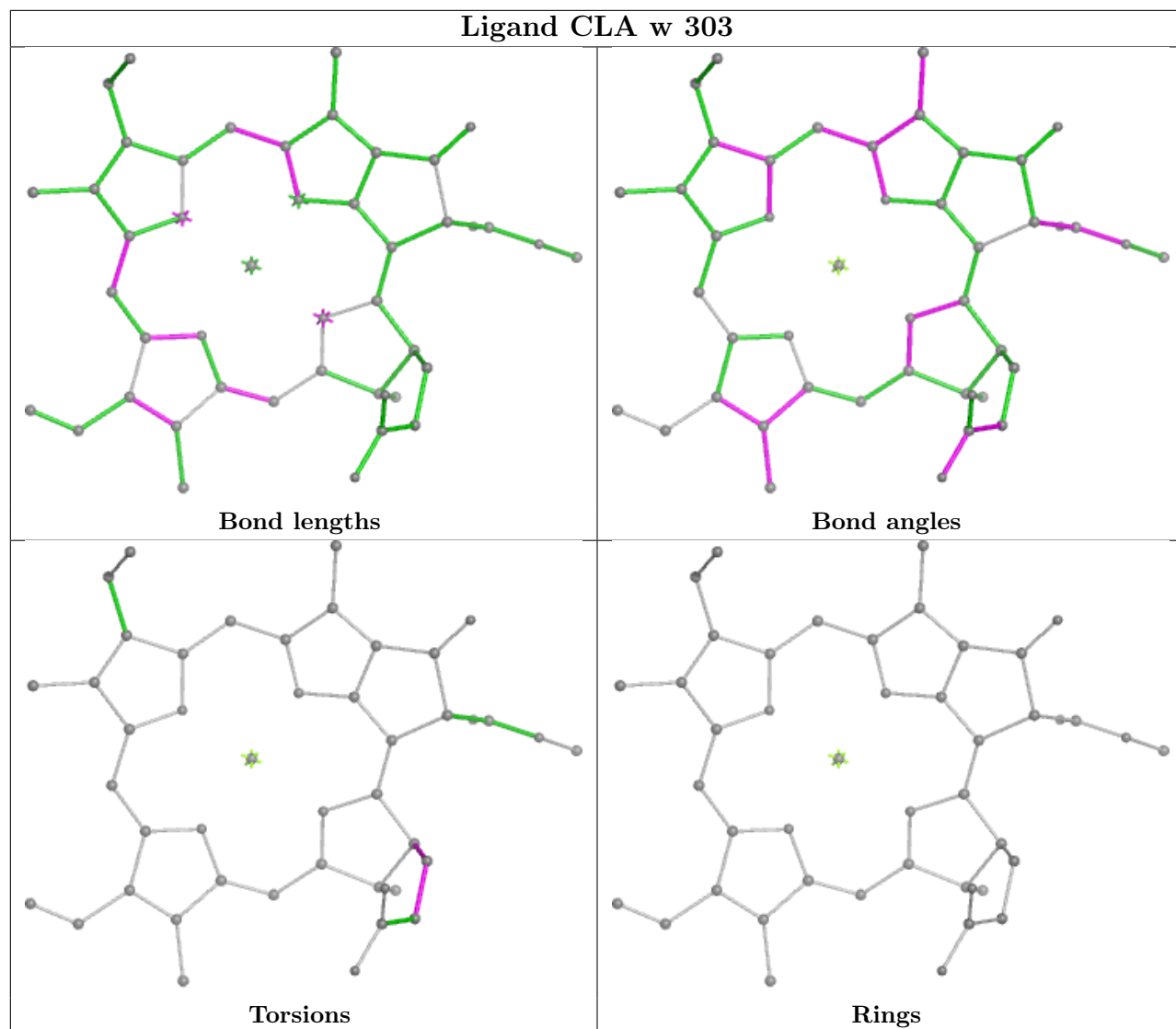


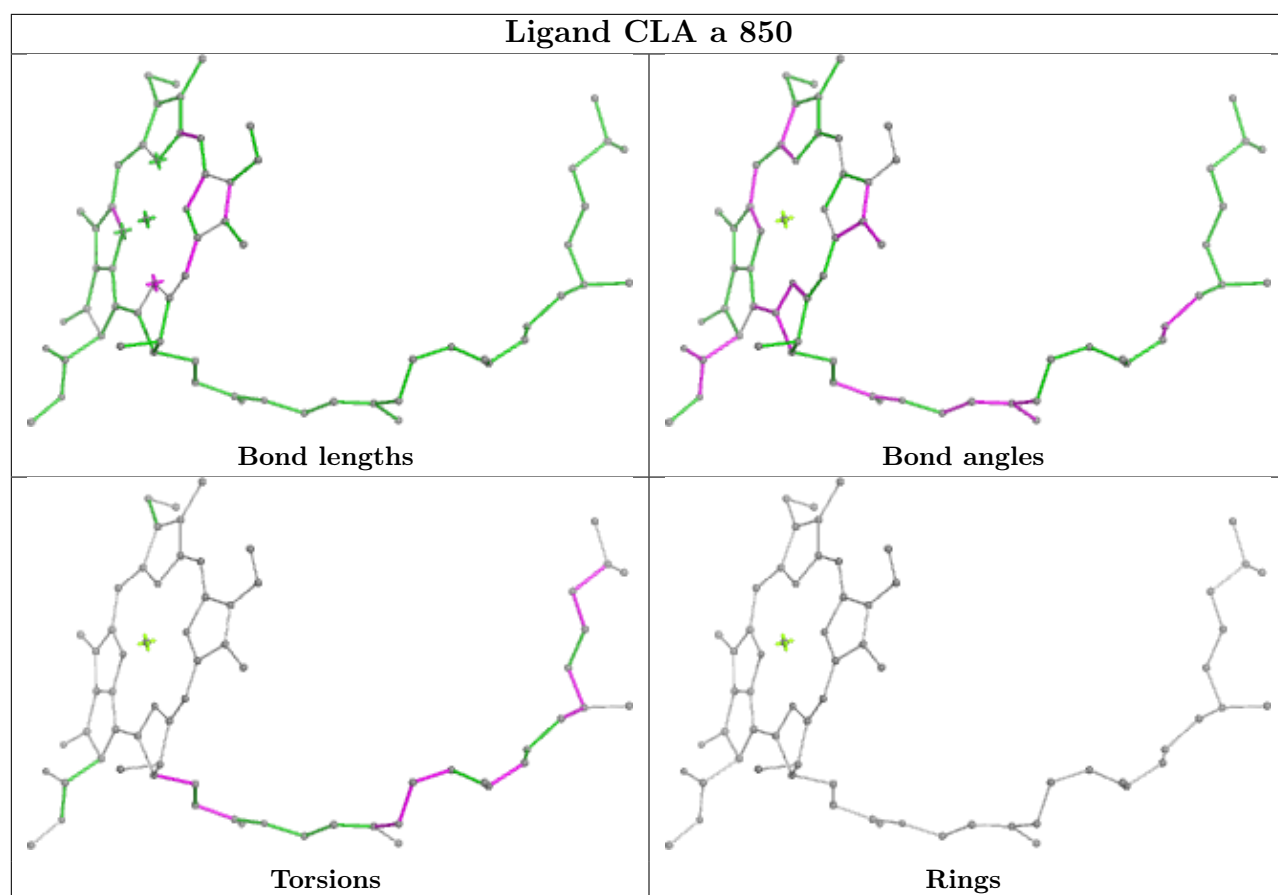
Ligand PGT z 317



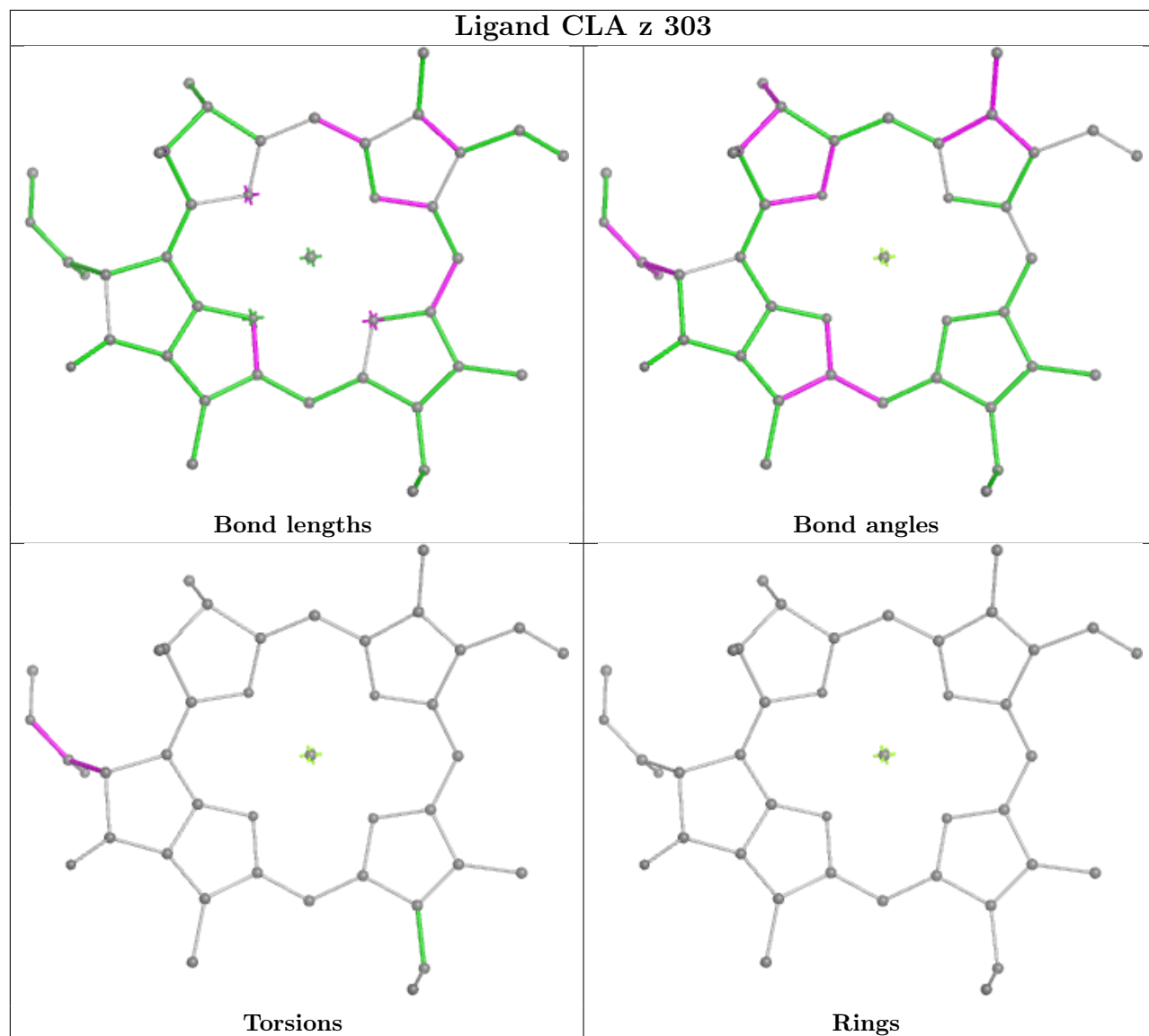


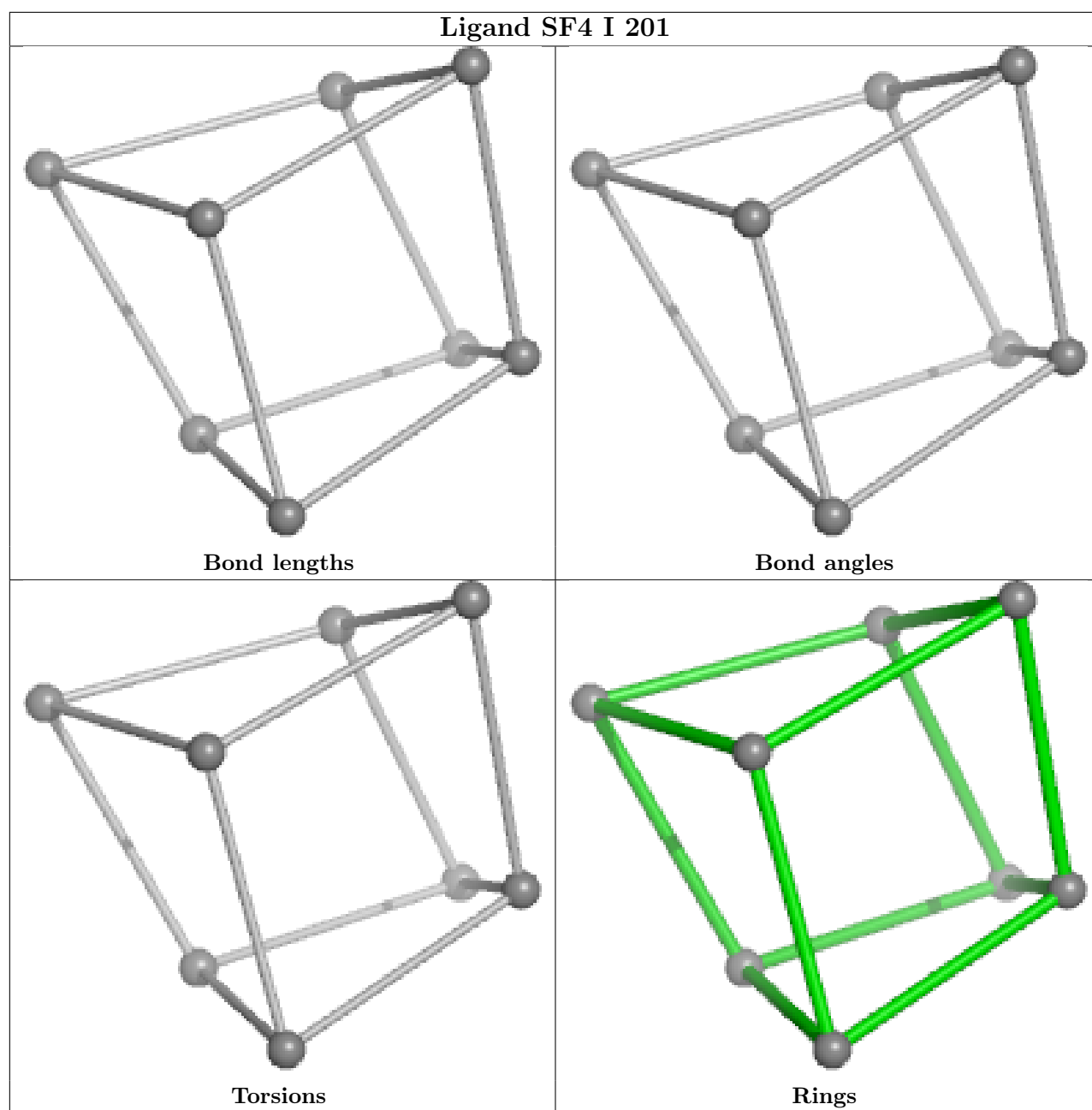
Ligand CLA w 303



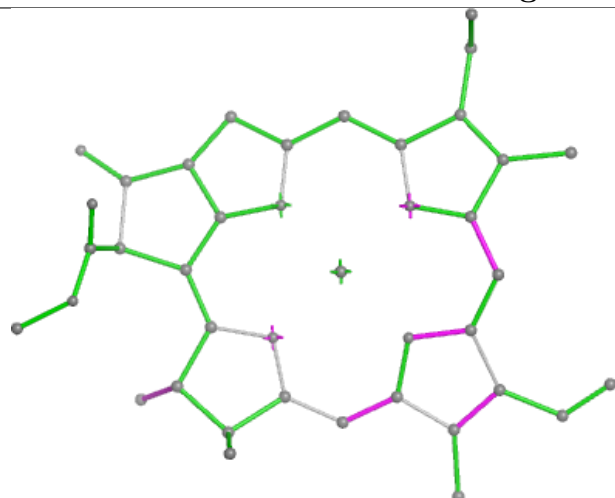


Ligand CLA z 303

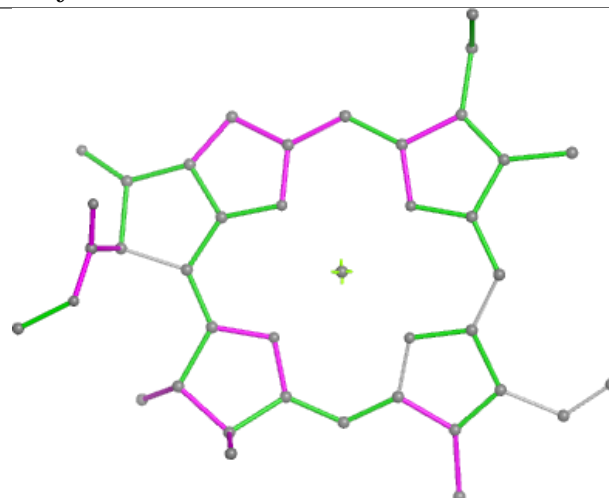




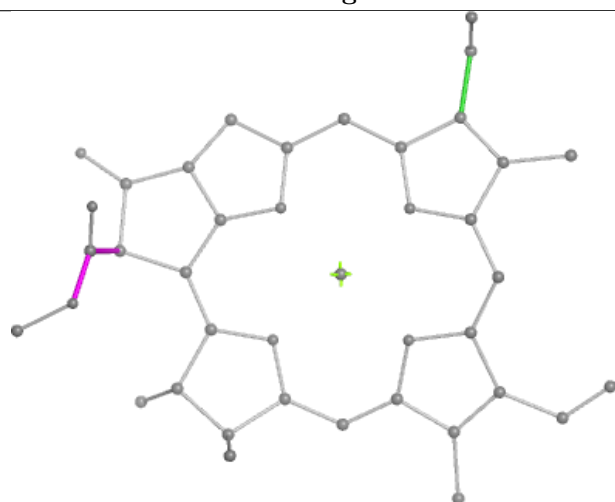
Ligand CLA y 306



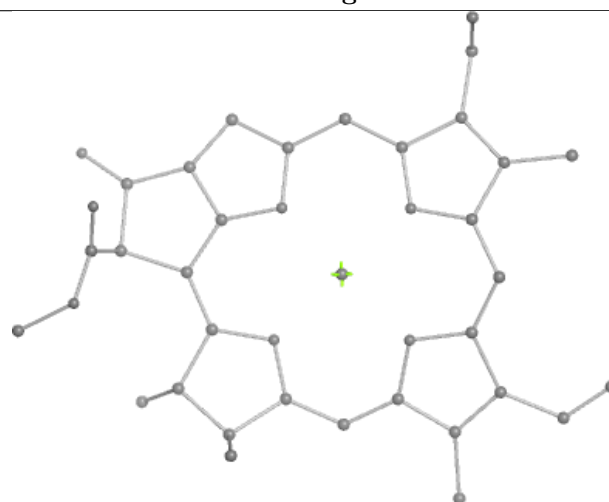
Bond lengths



Bond angles

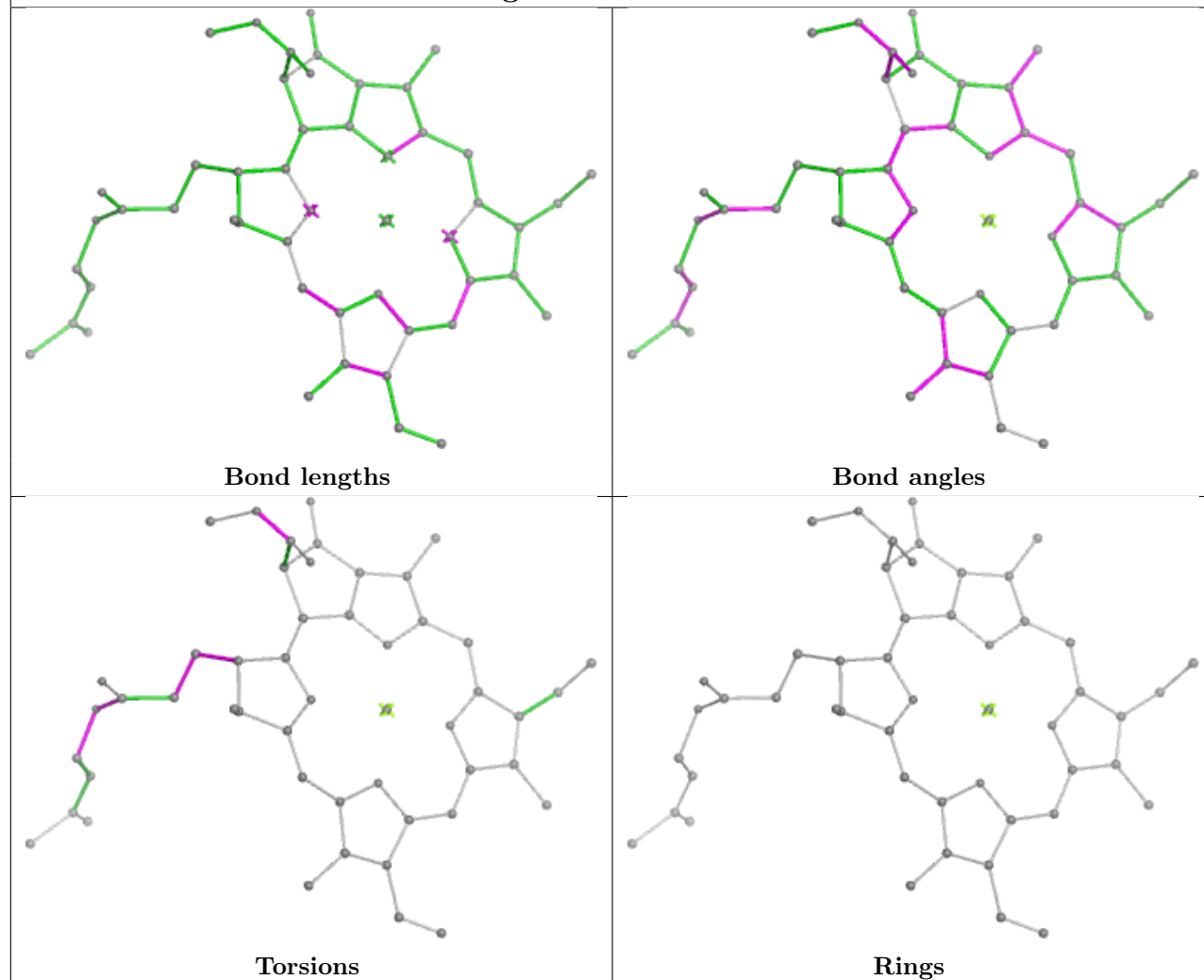


Torsions

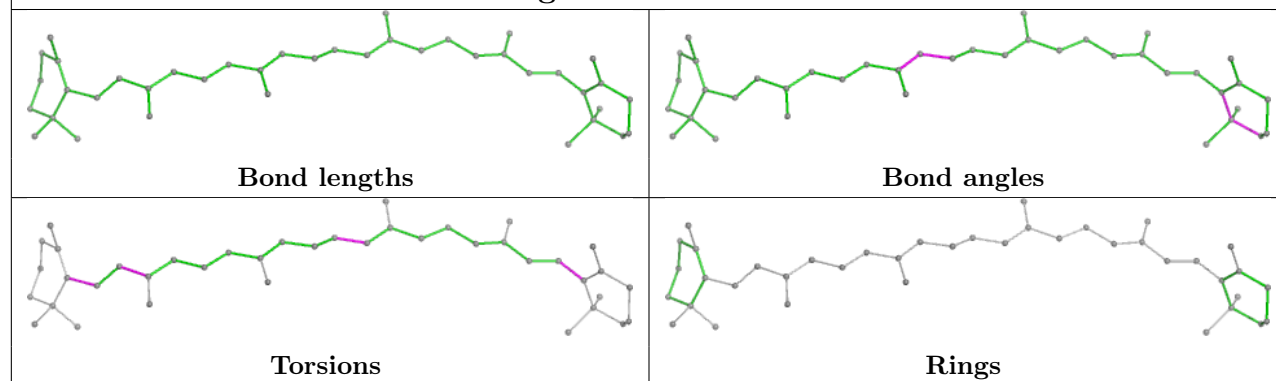


Rings

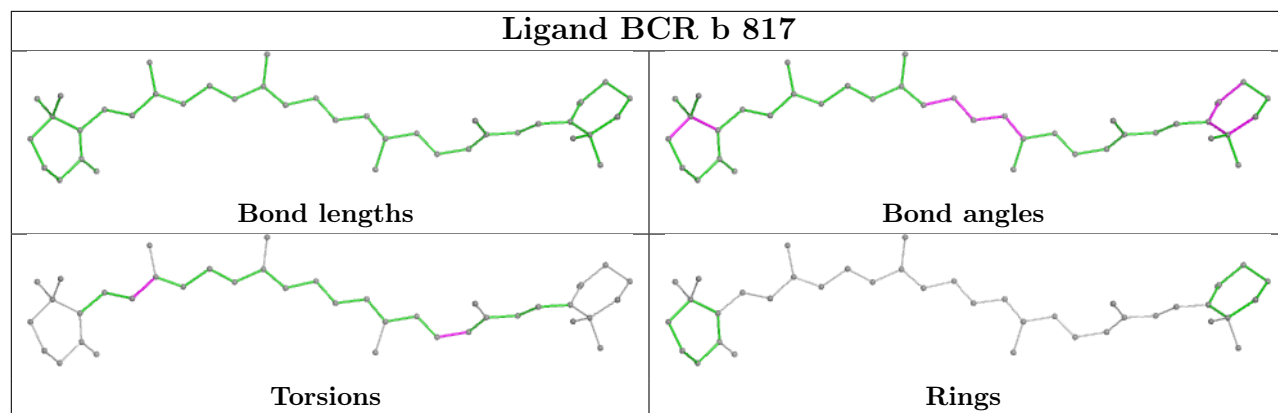
Ligand CLA w 316



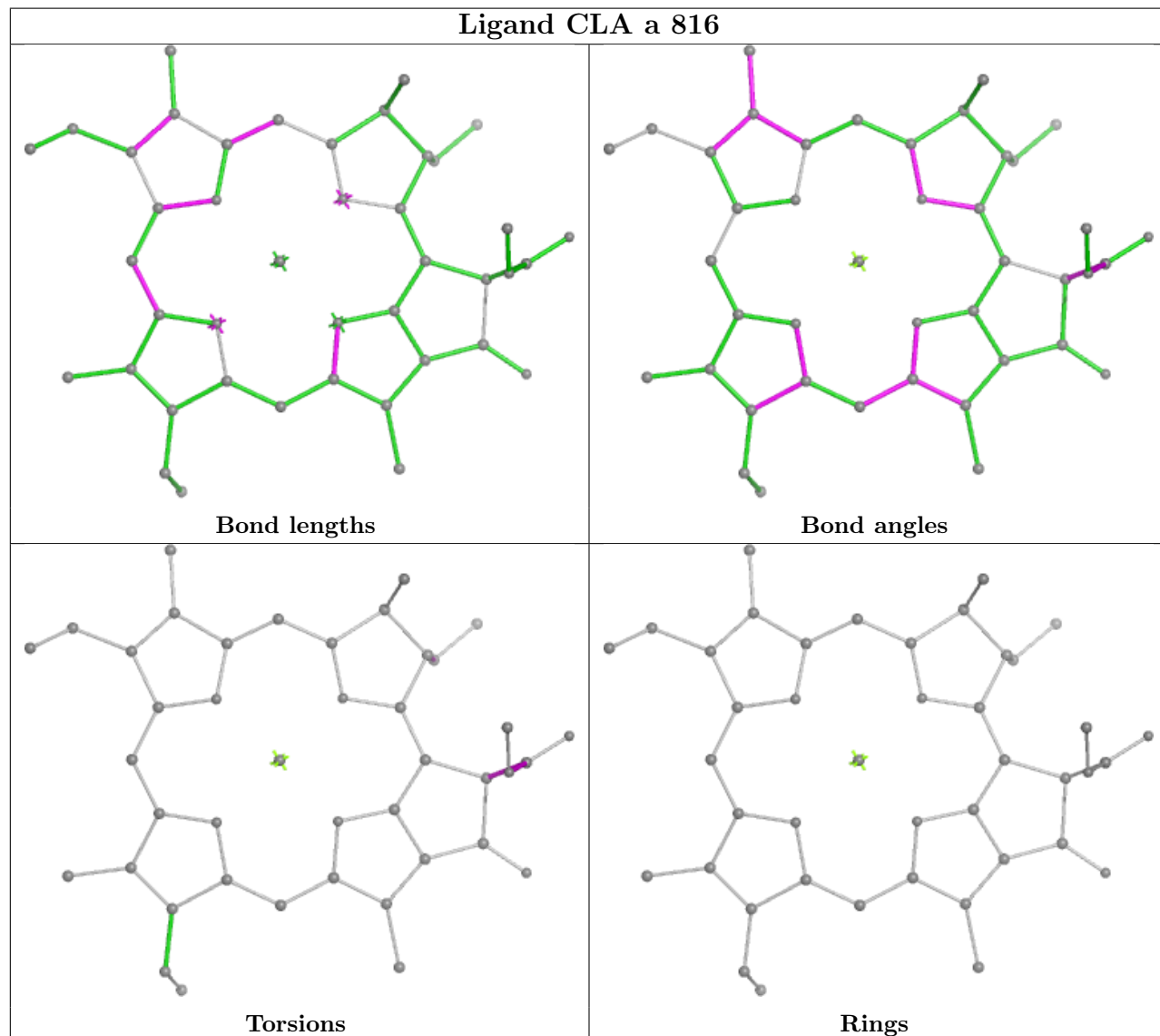
Ligand BCR i 101

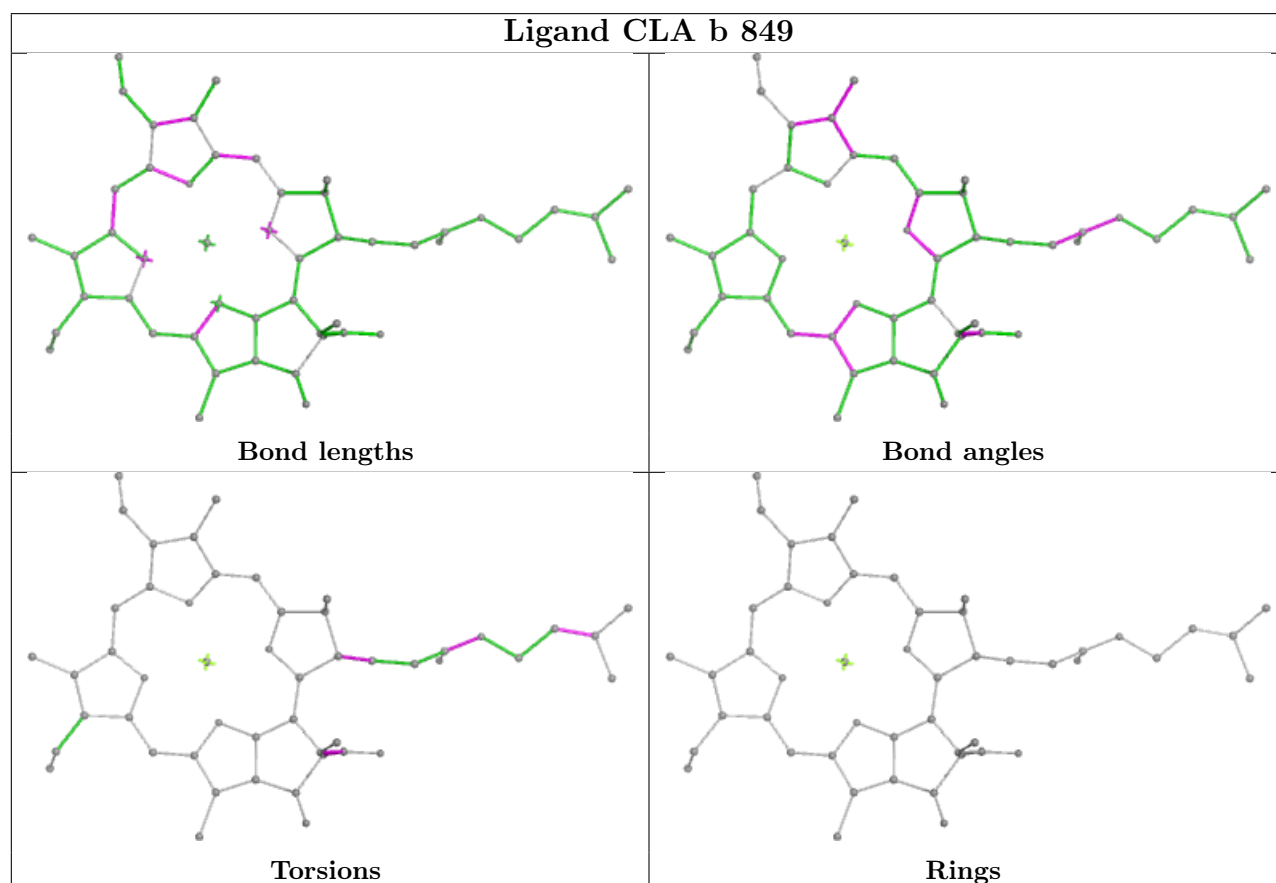
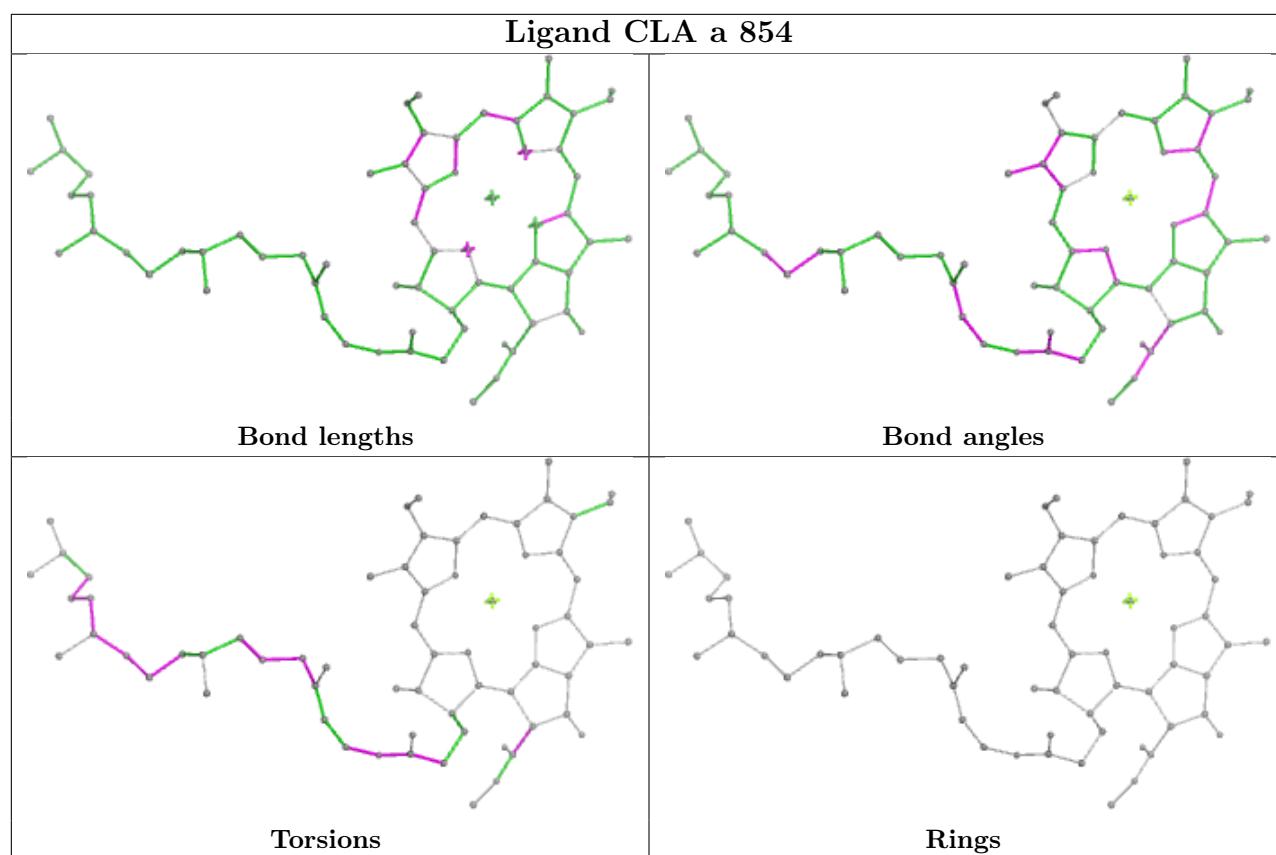


Ligand BCR b 817

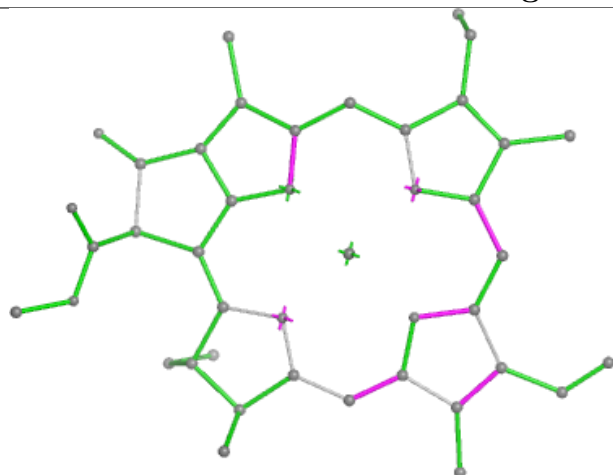


Ligand CLA a 816

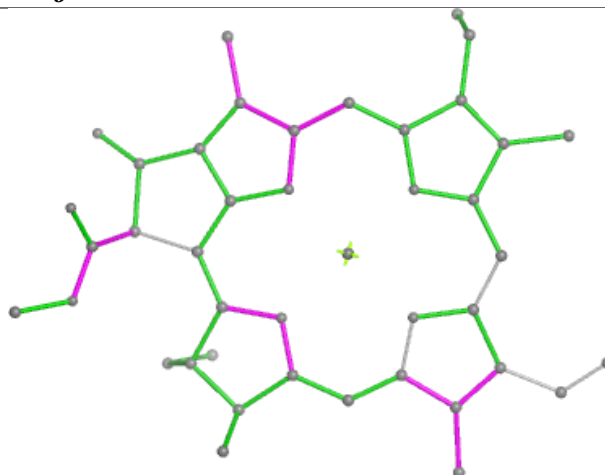




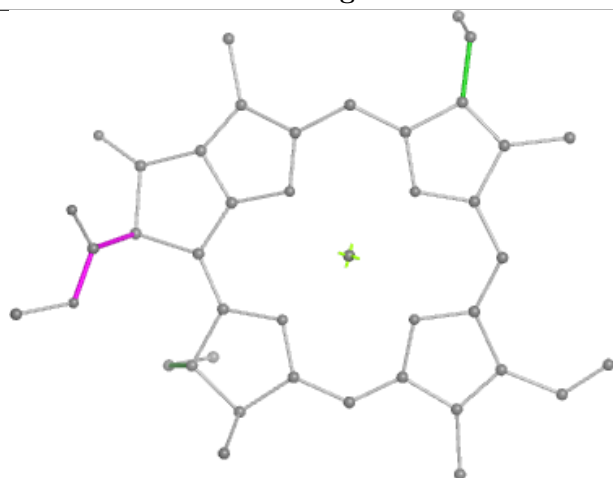
Ligand CLA j 102



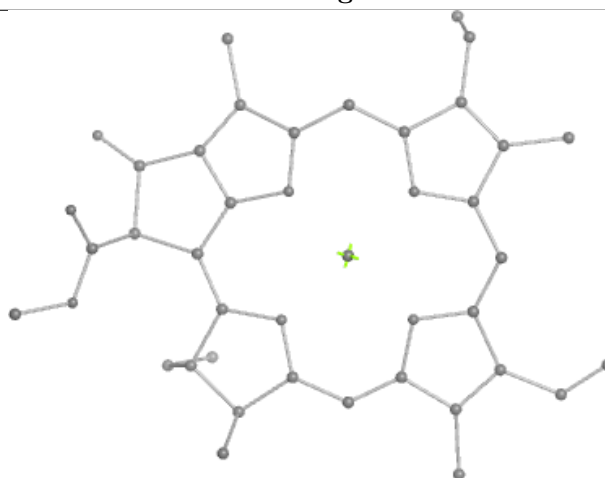
Bond lengths



Bond angles

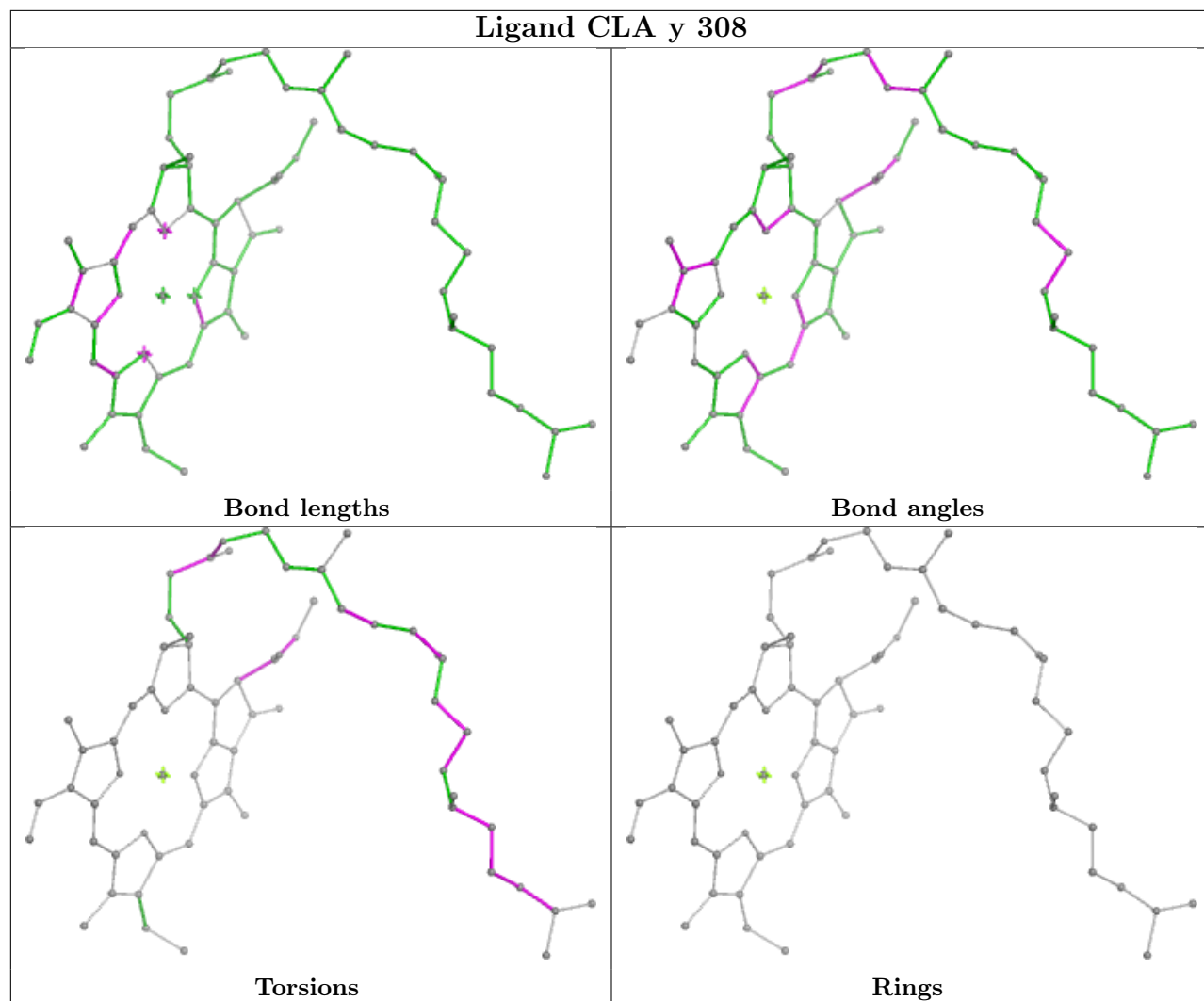


Torsions

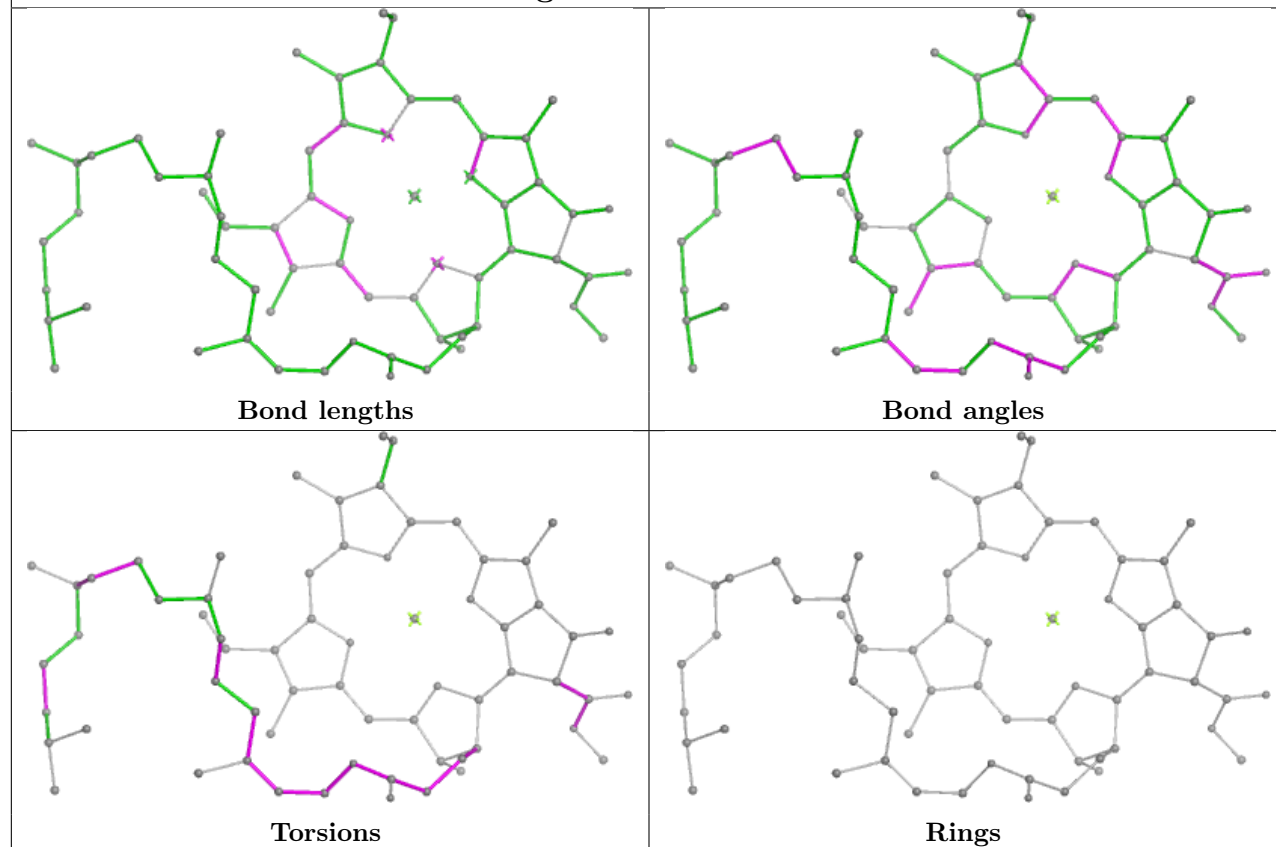


Rings

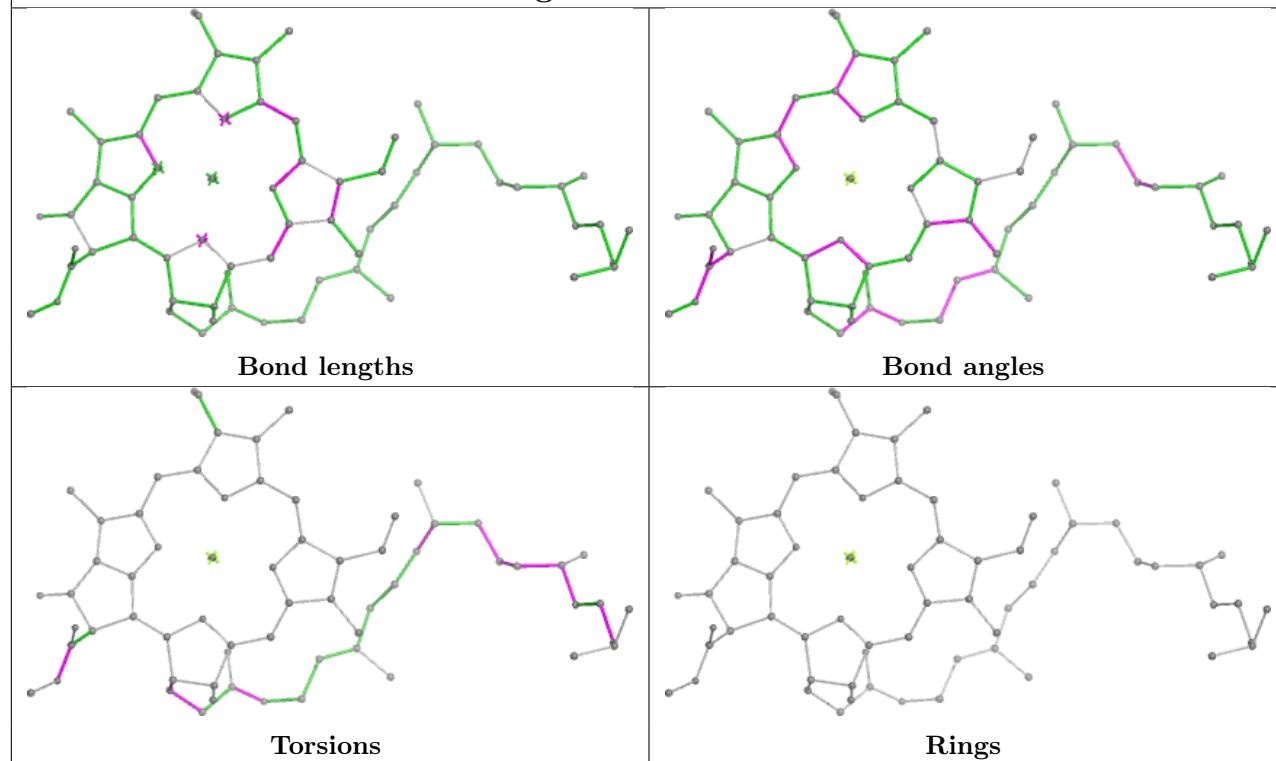
Ligand CLA y 308



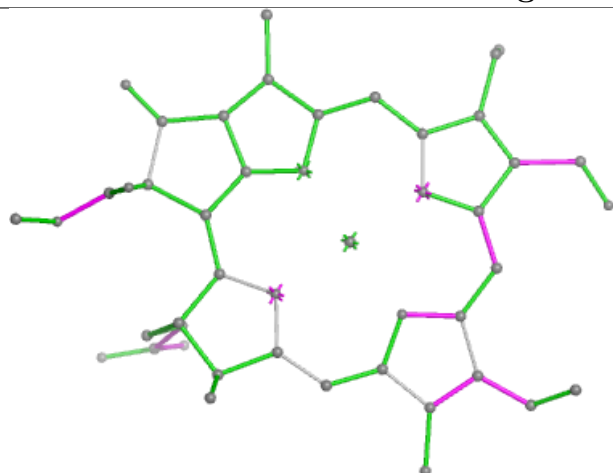
Ligand CLA a 833



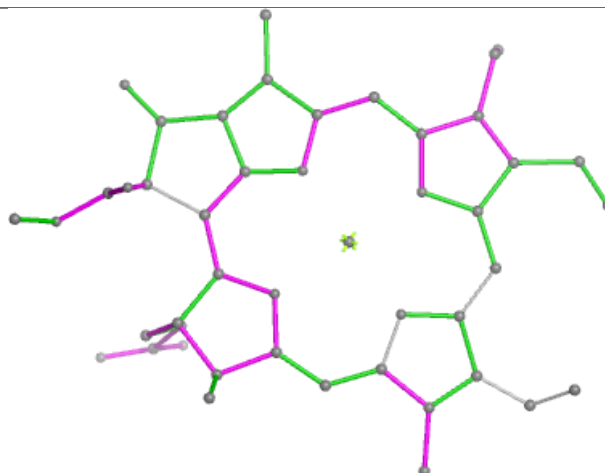
Ligand CLA b 846



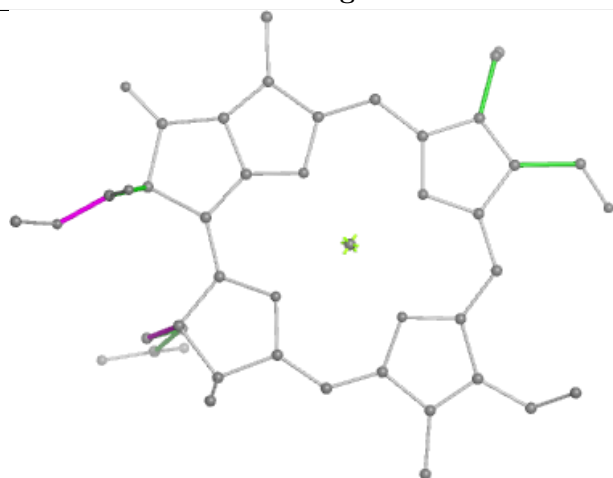
Ligand CHL x 305



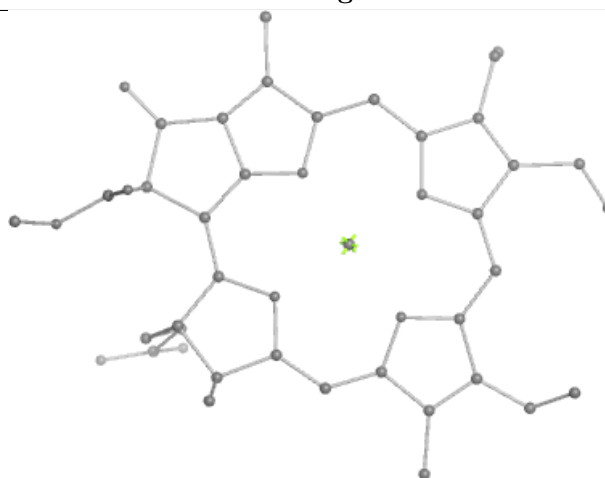
Bond lengths



Bond angles

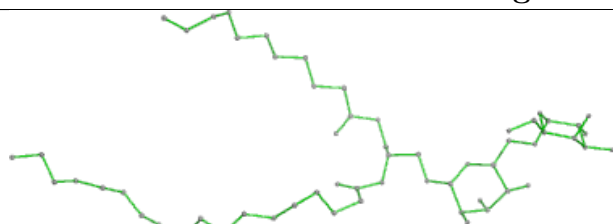


Torsions

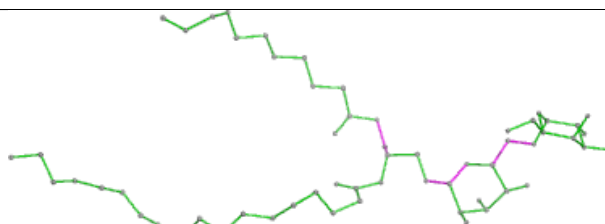


Rings

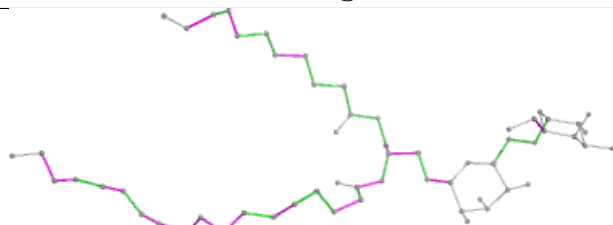
Ligand DGD b 821



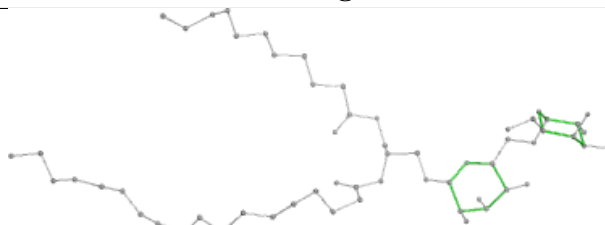
Bond lengths



Bond angles

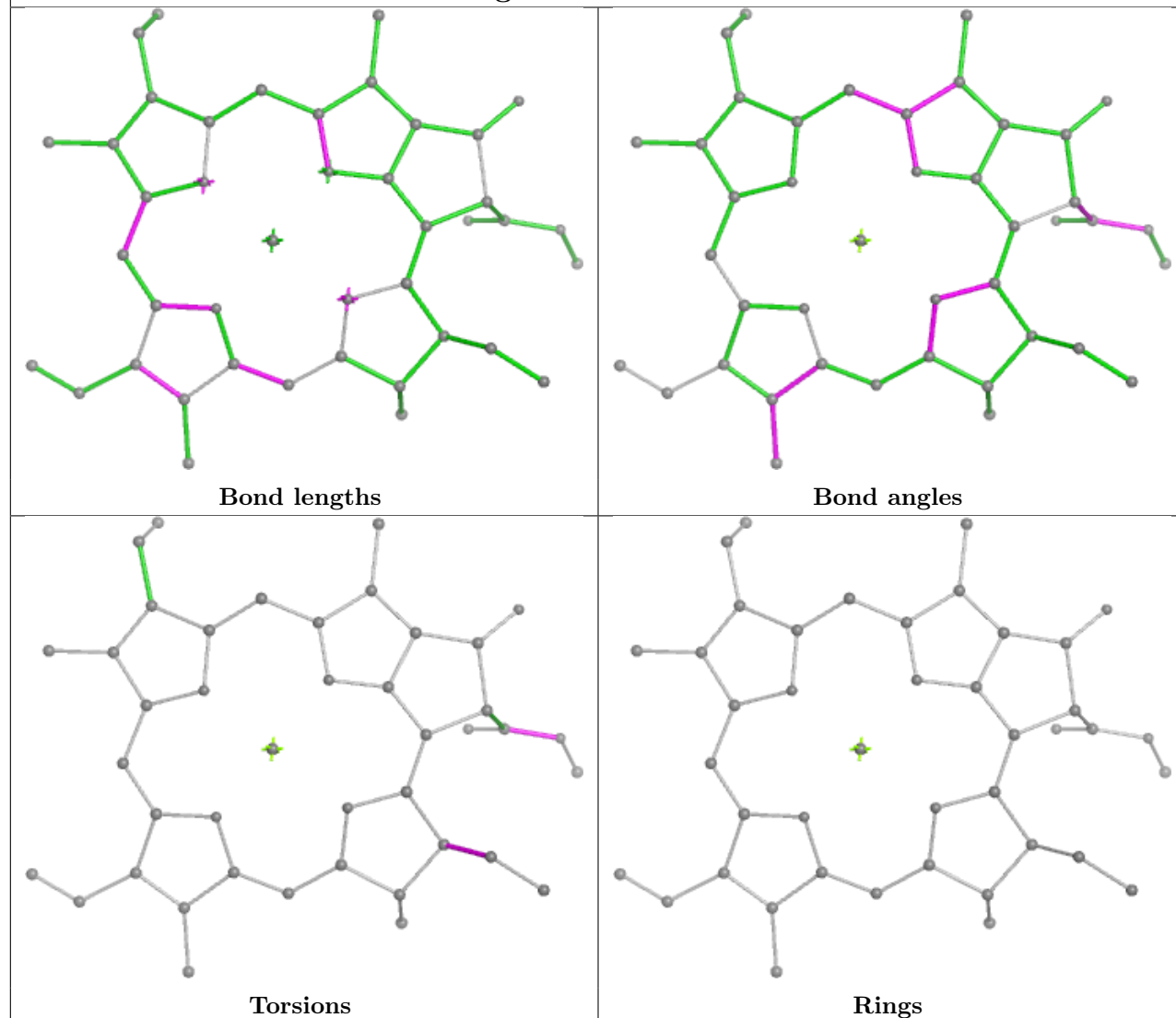


Torsions

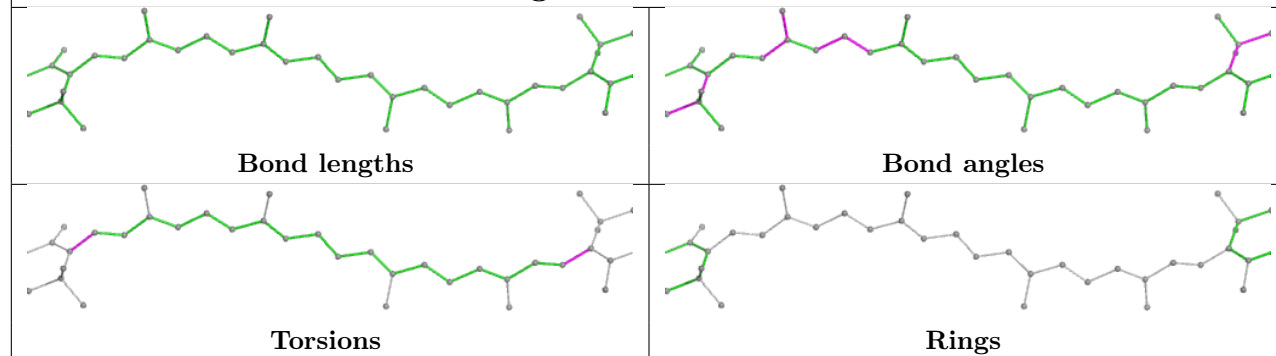


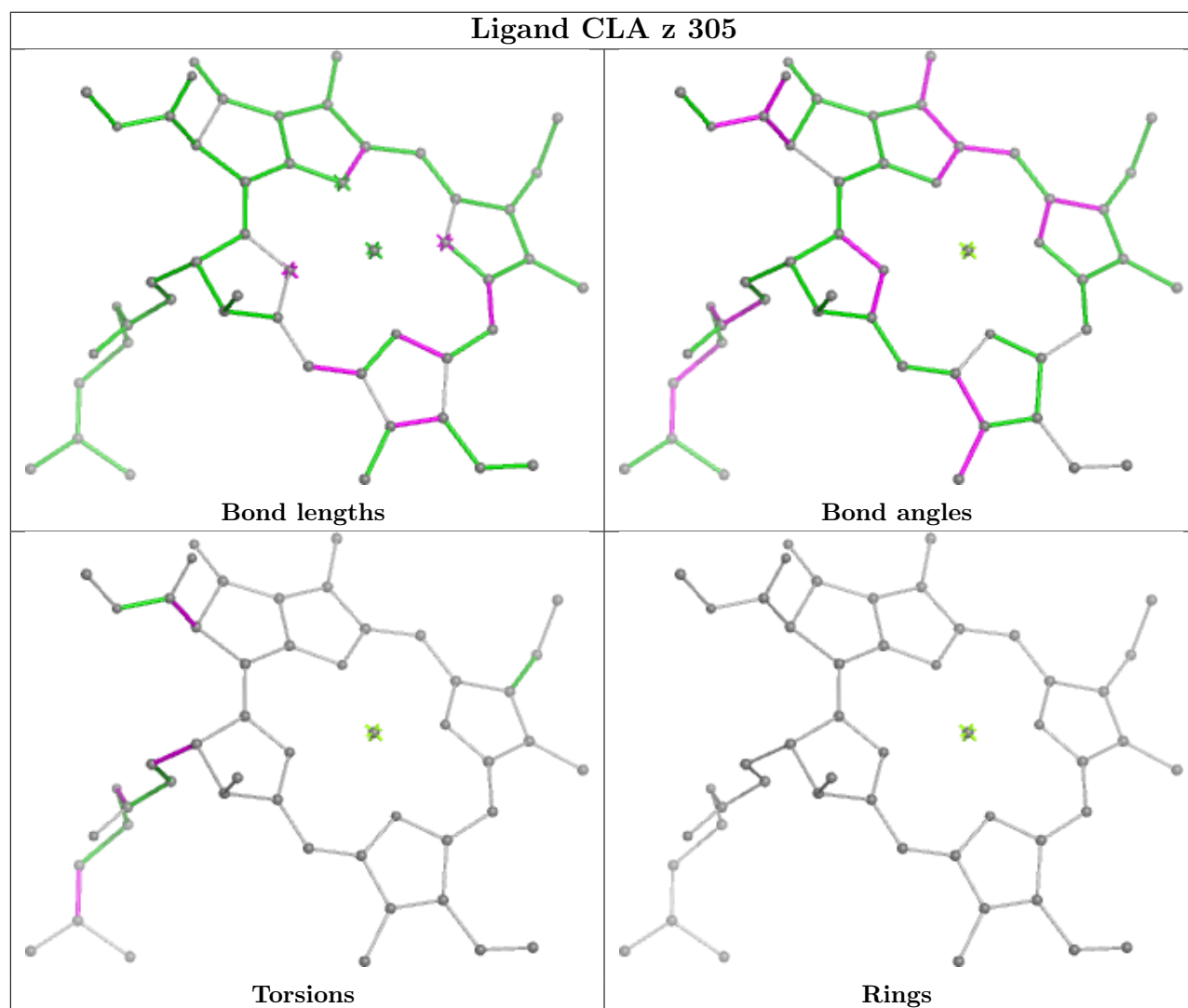
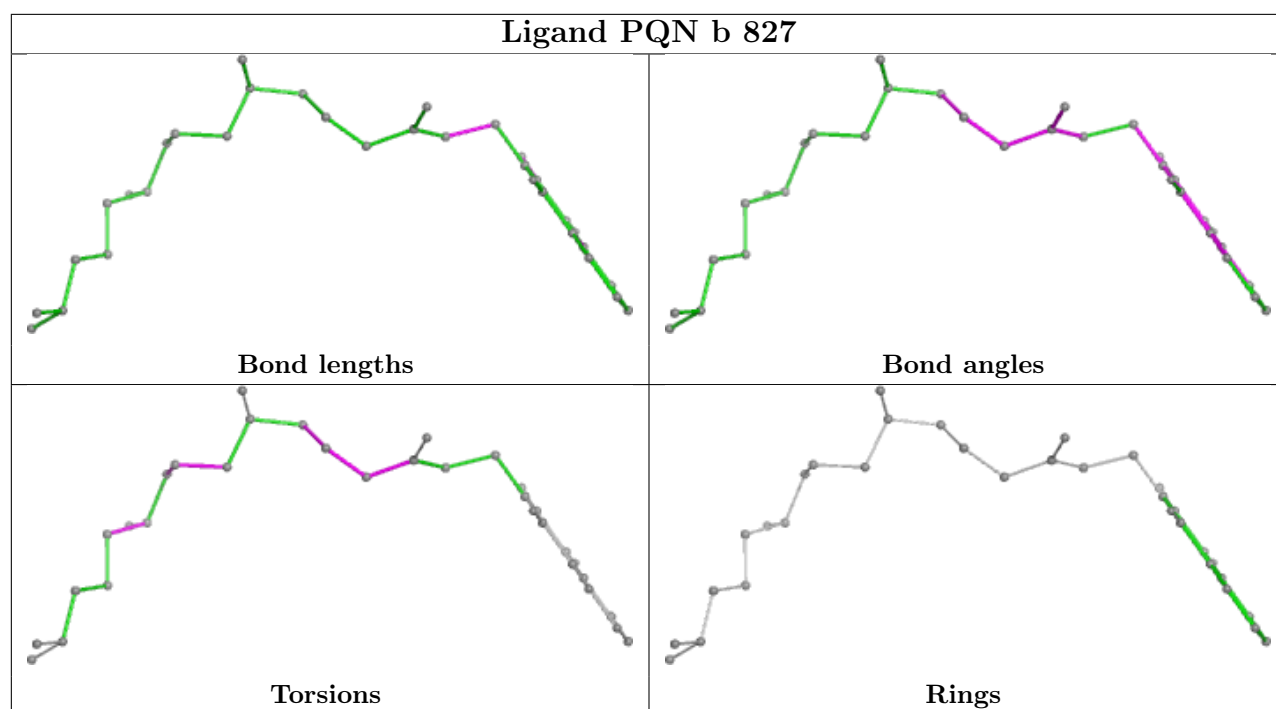
Rings

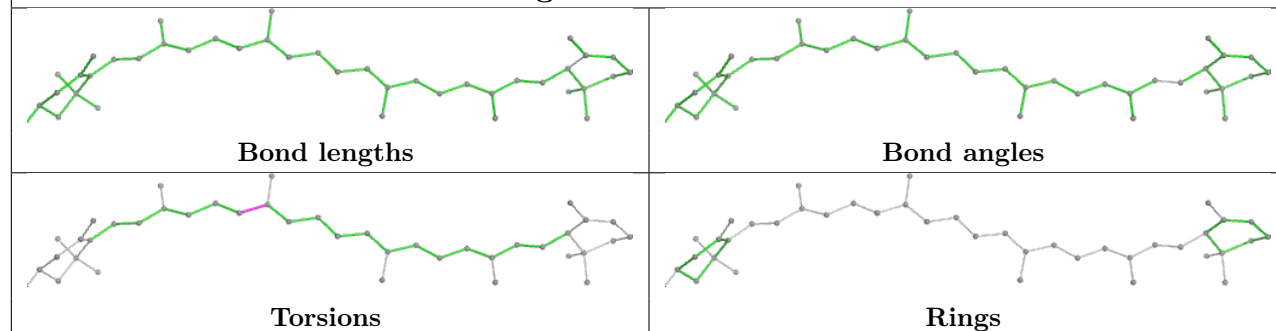
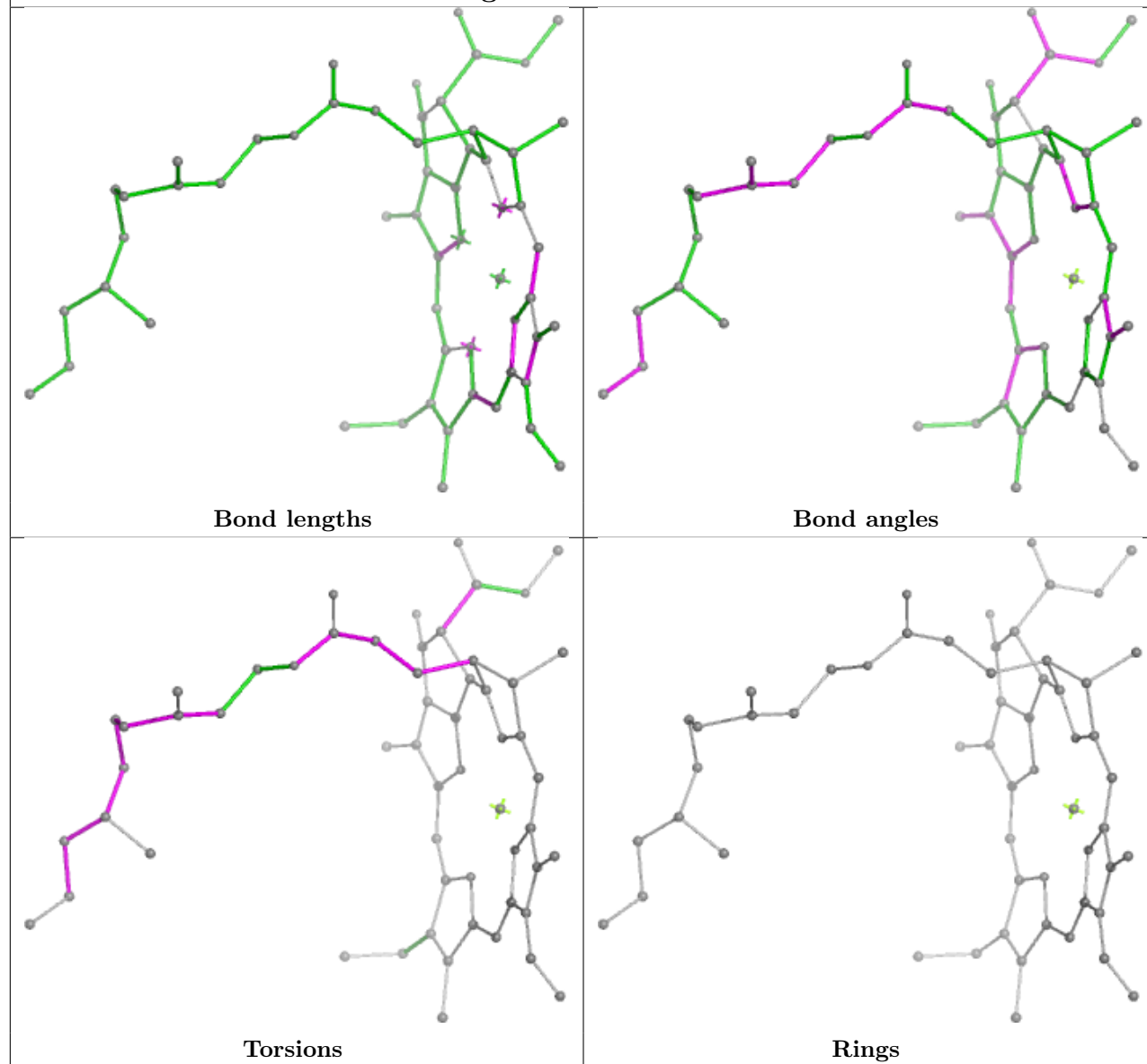
Ligand CLA z 319



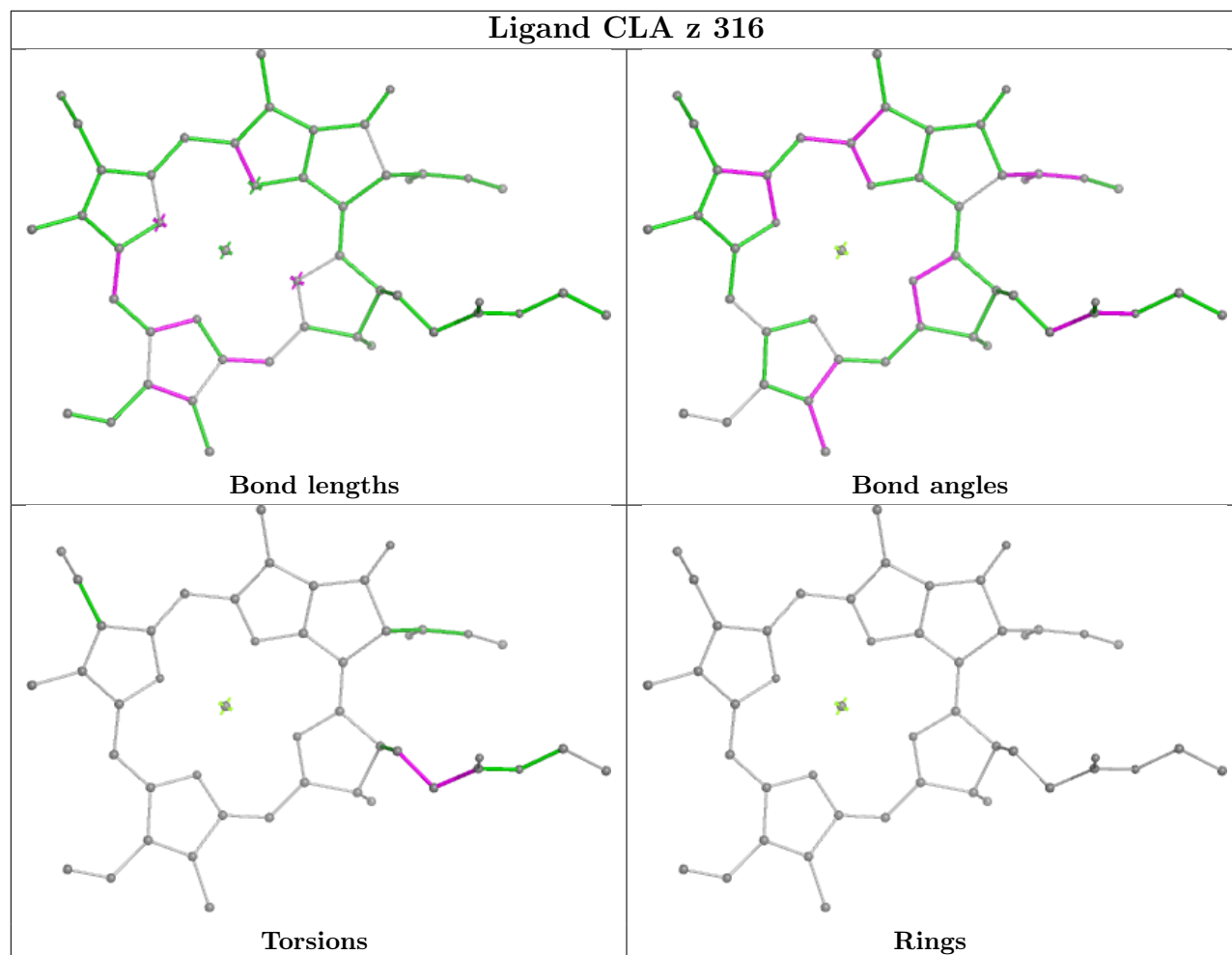
Ligand BCR w 301



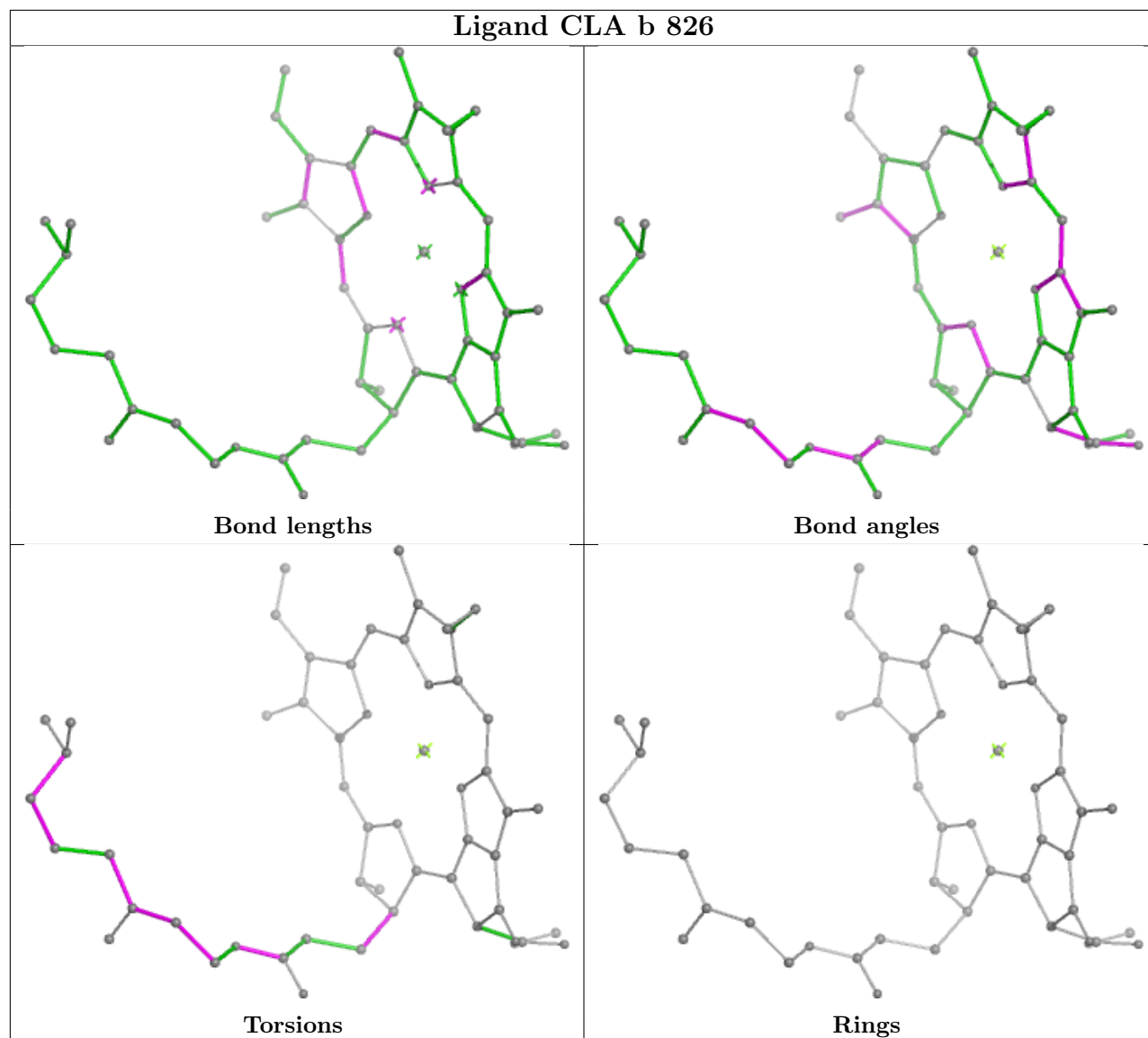


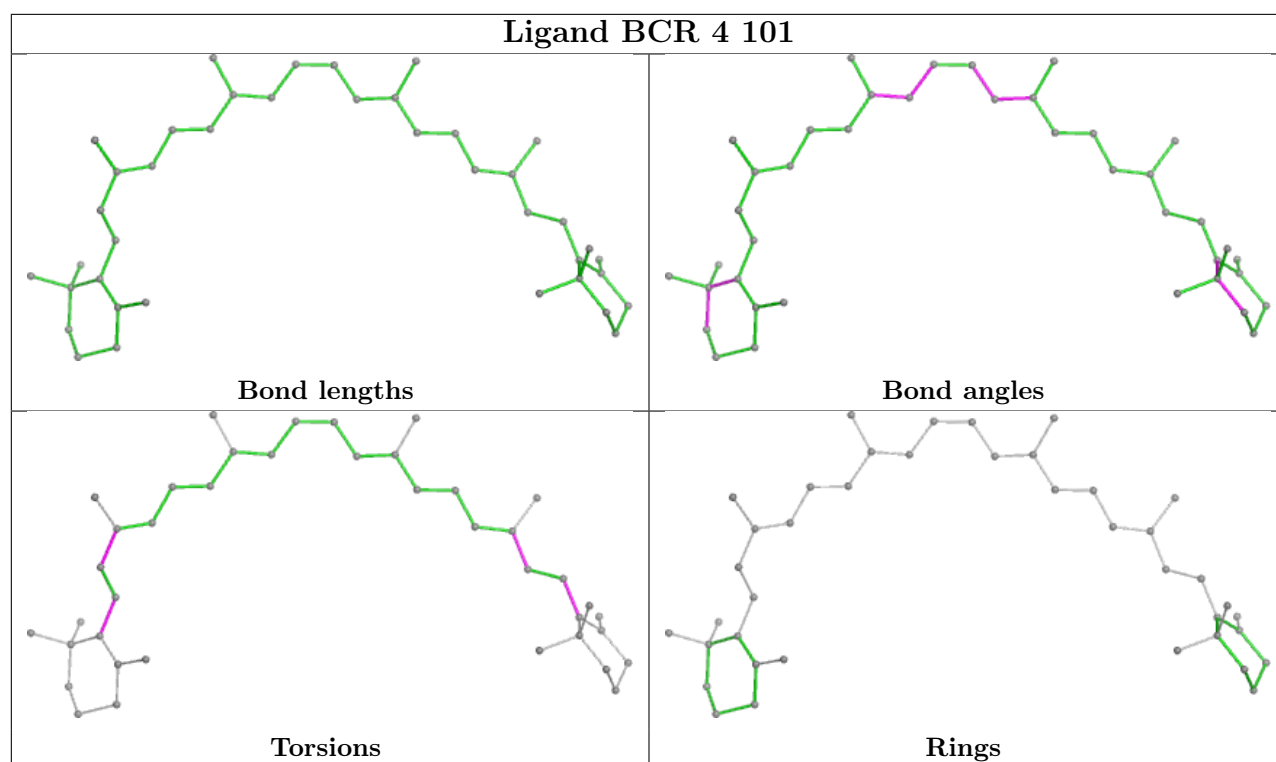
Ligand LUT x 320**Ligand CLA b 842**

Ligand CLA z 316

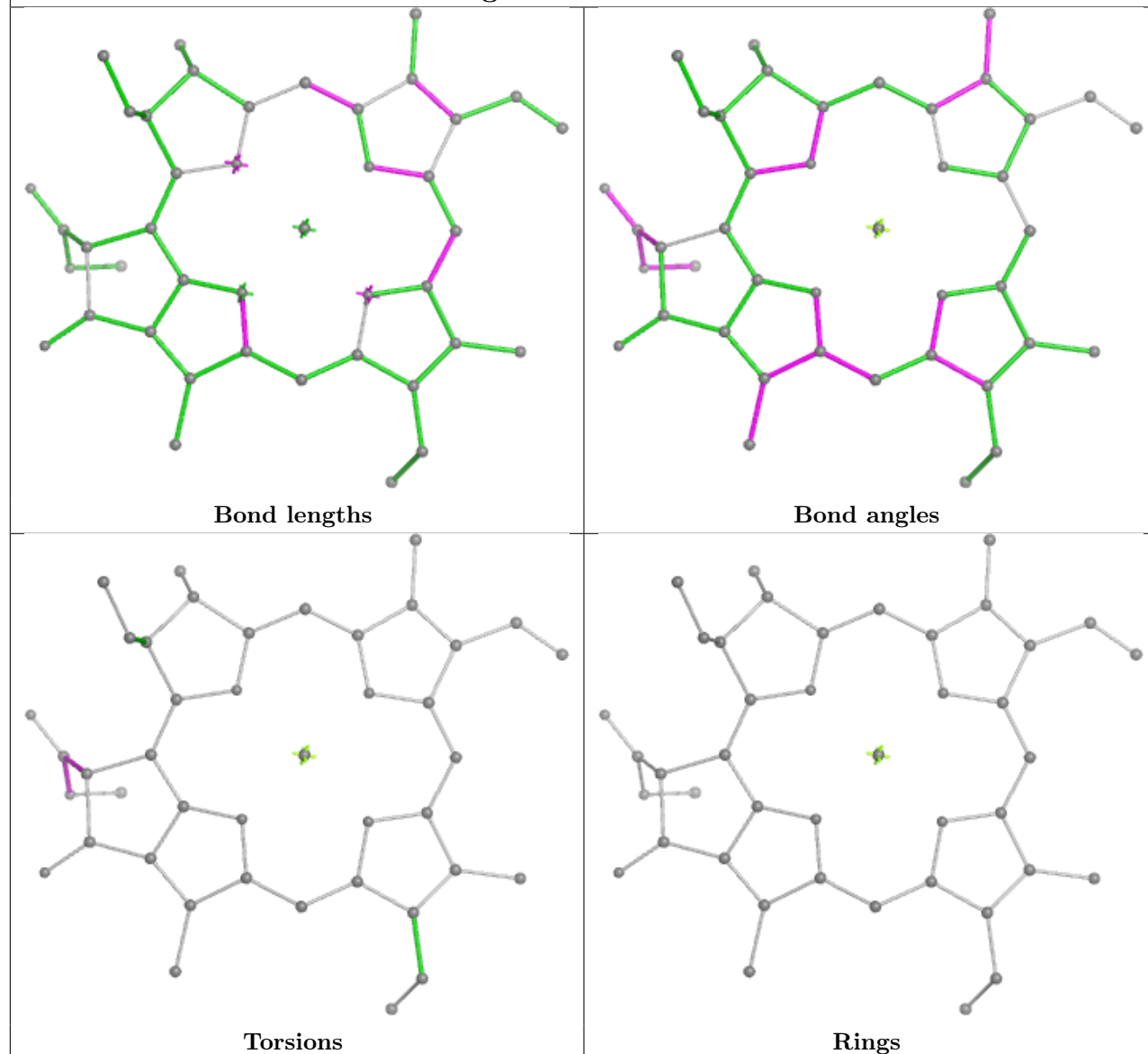


Ligand CLA b 826

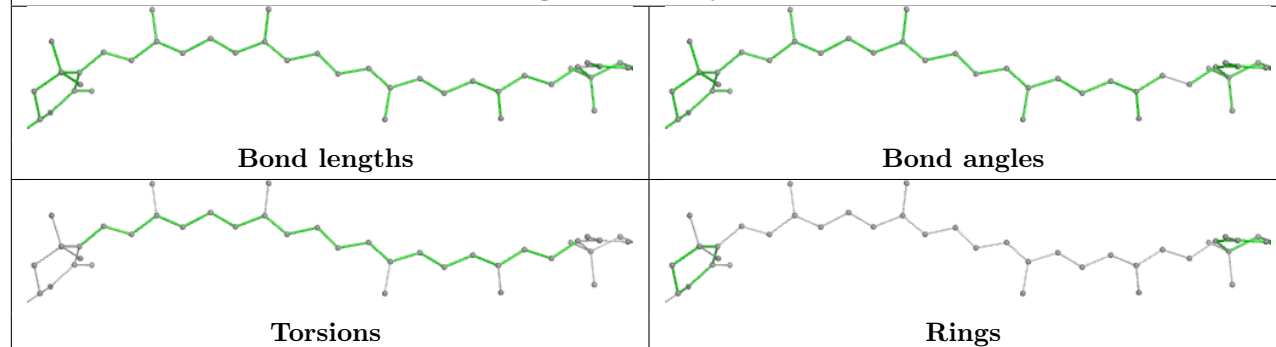


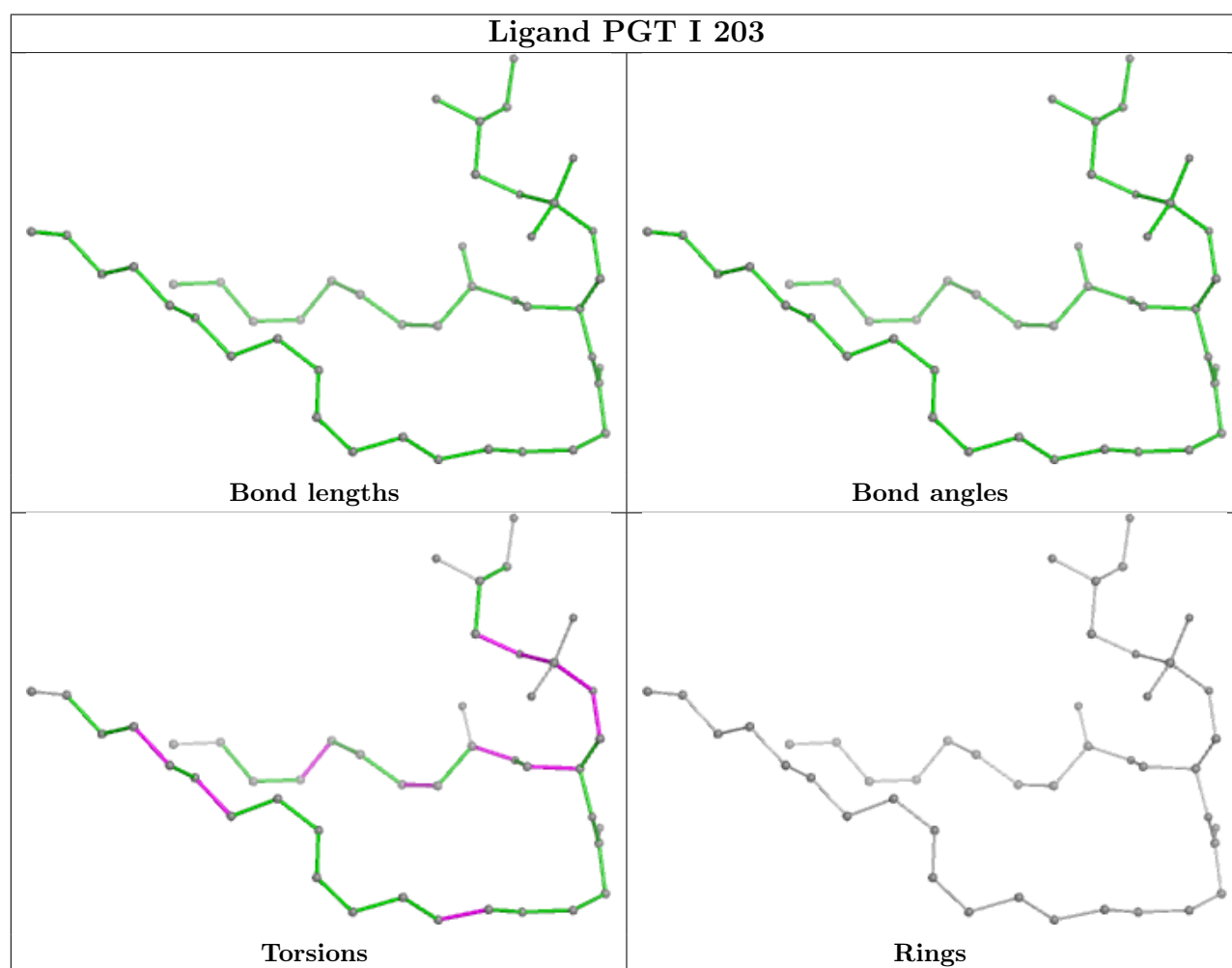
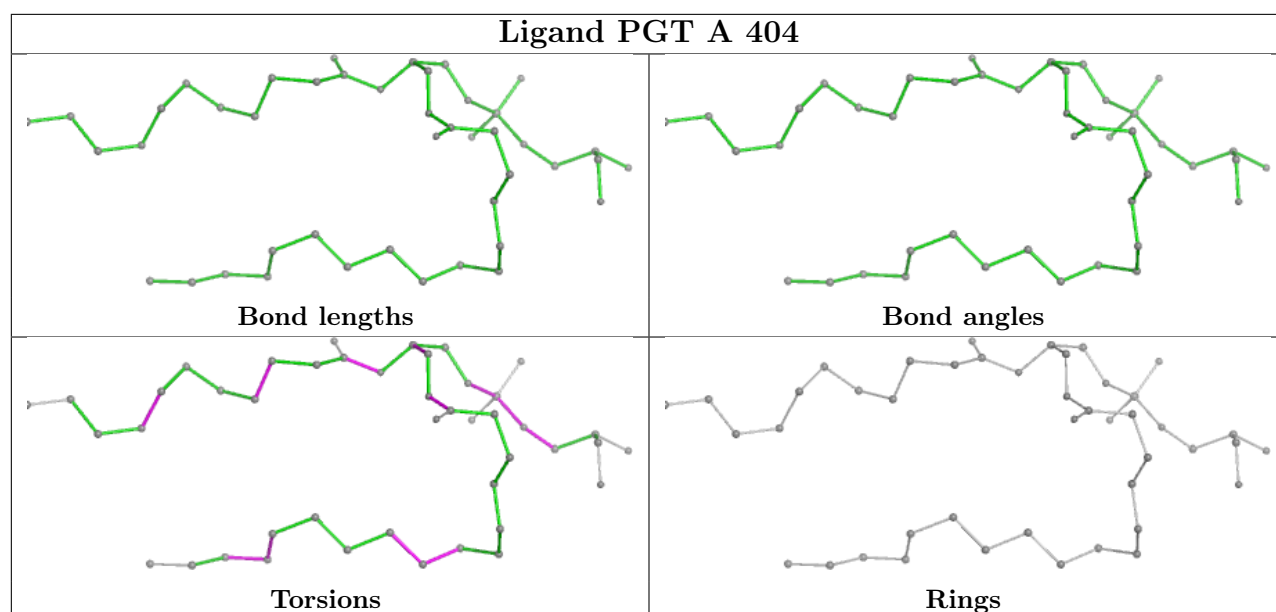


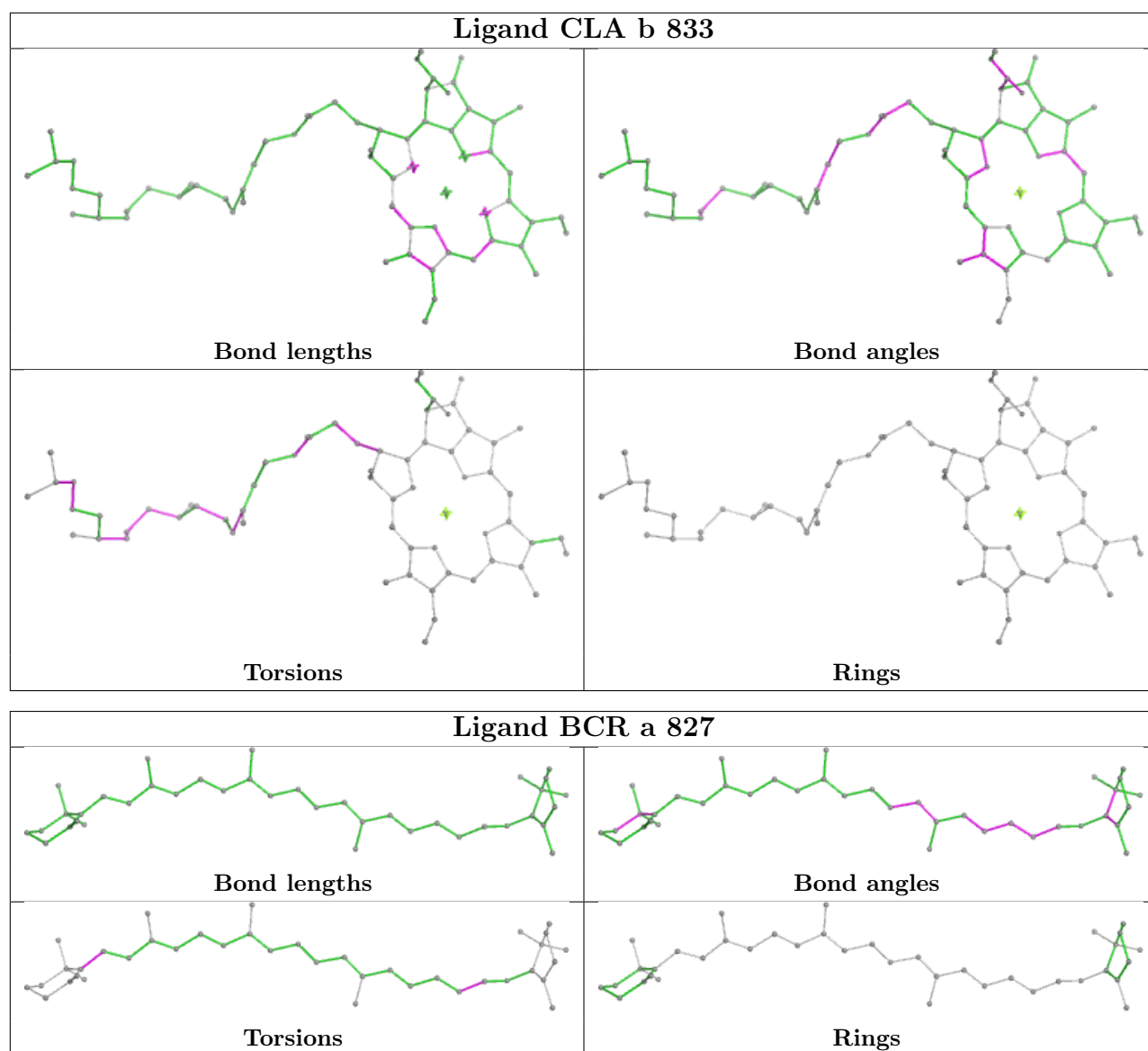
Ligand CLA k 205

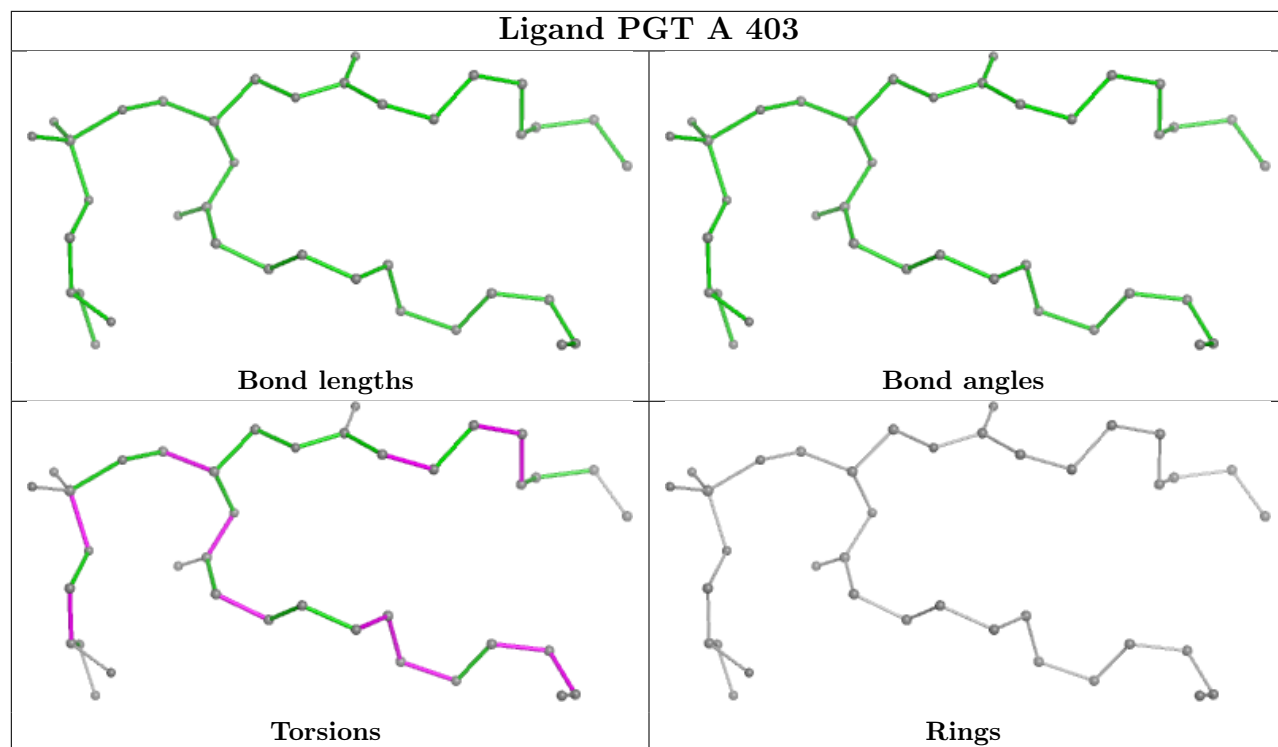


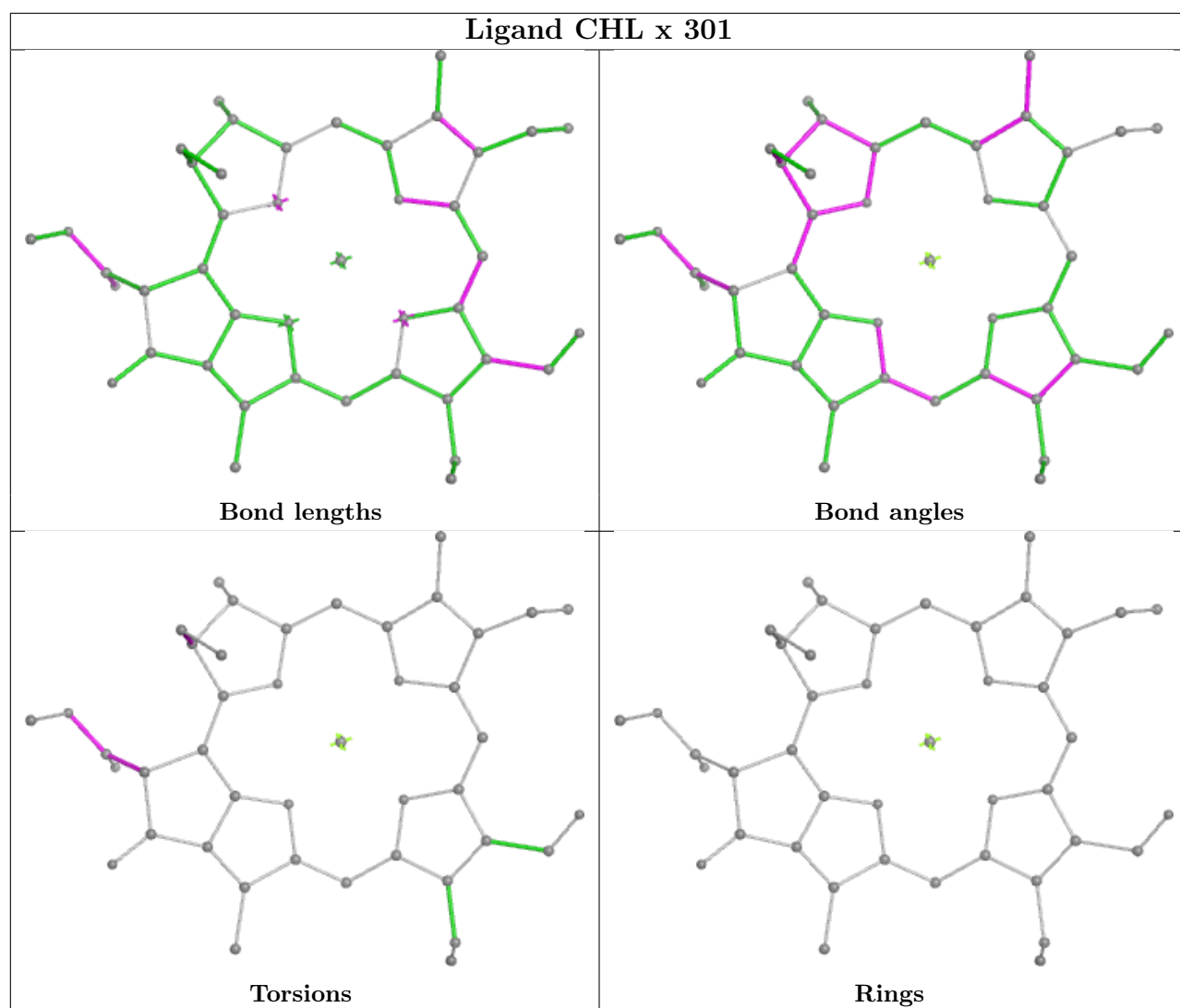
Ligand LUT y 315



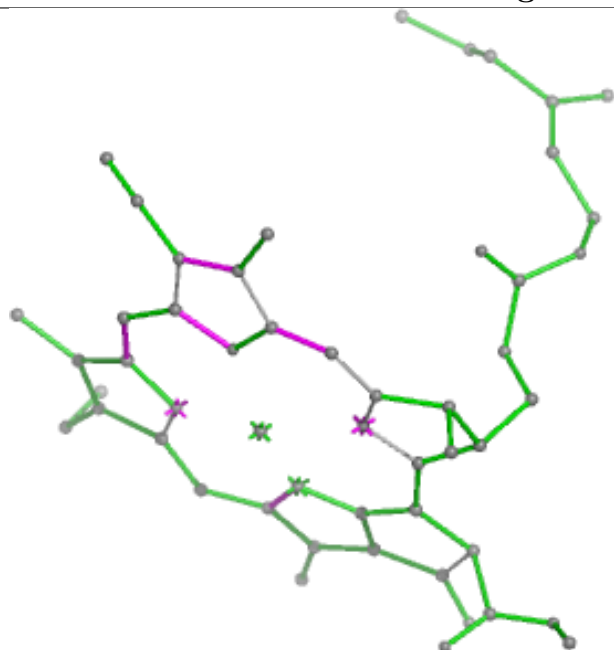




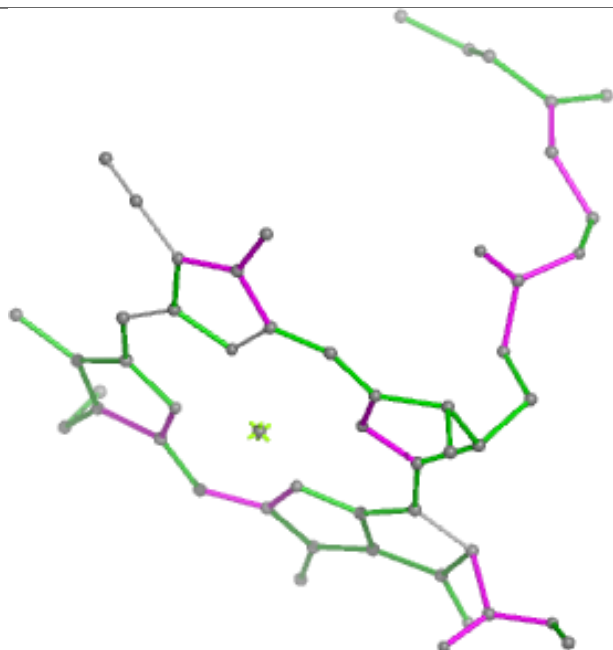




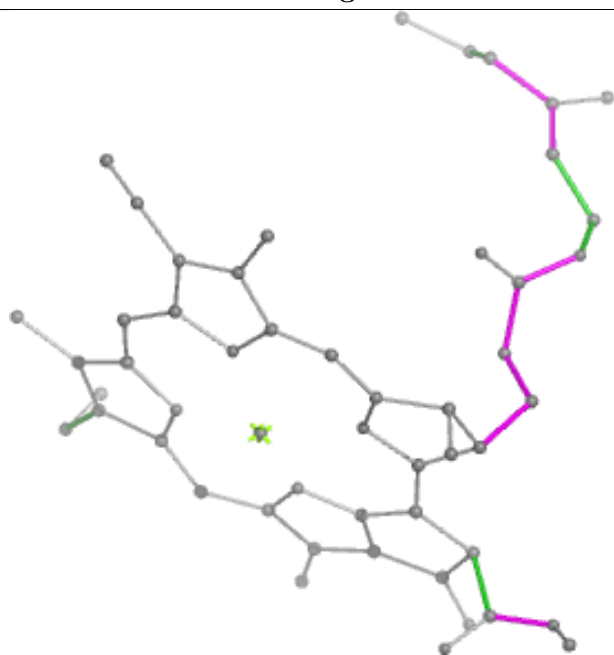
Ligand CLA b 838



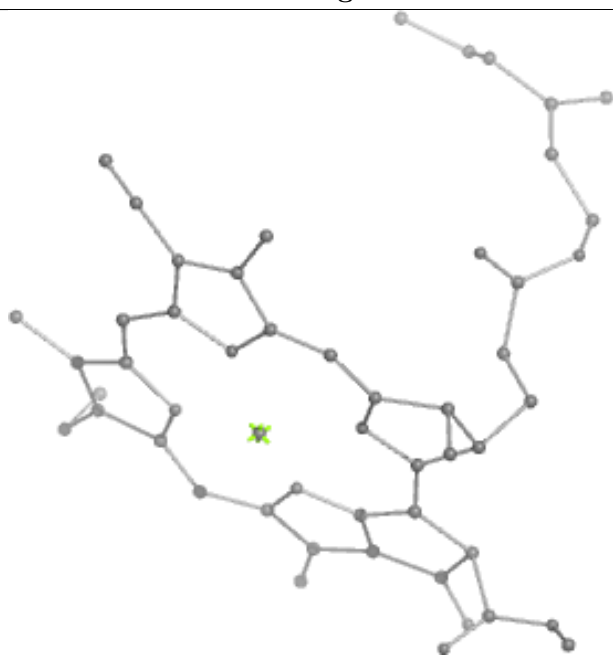
Bond lengths



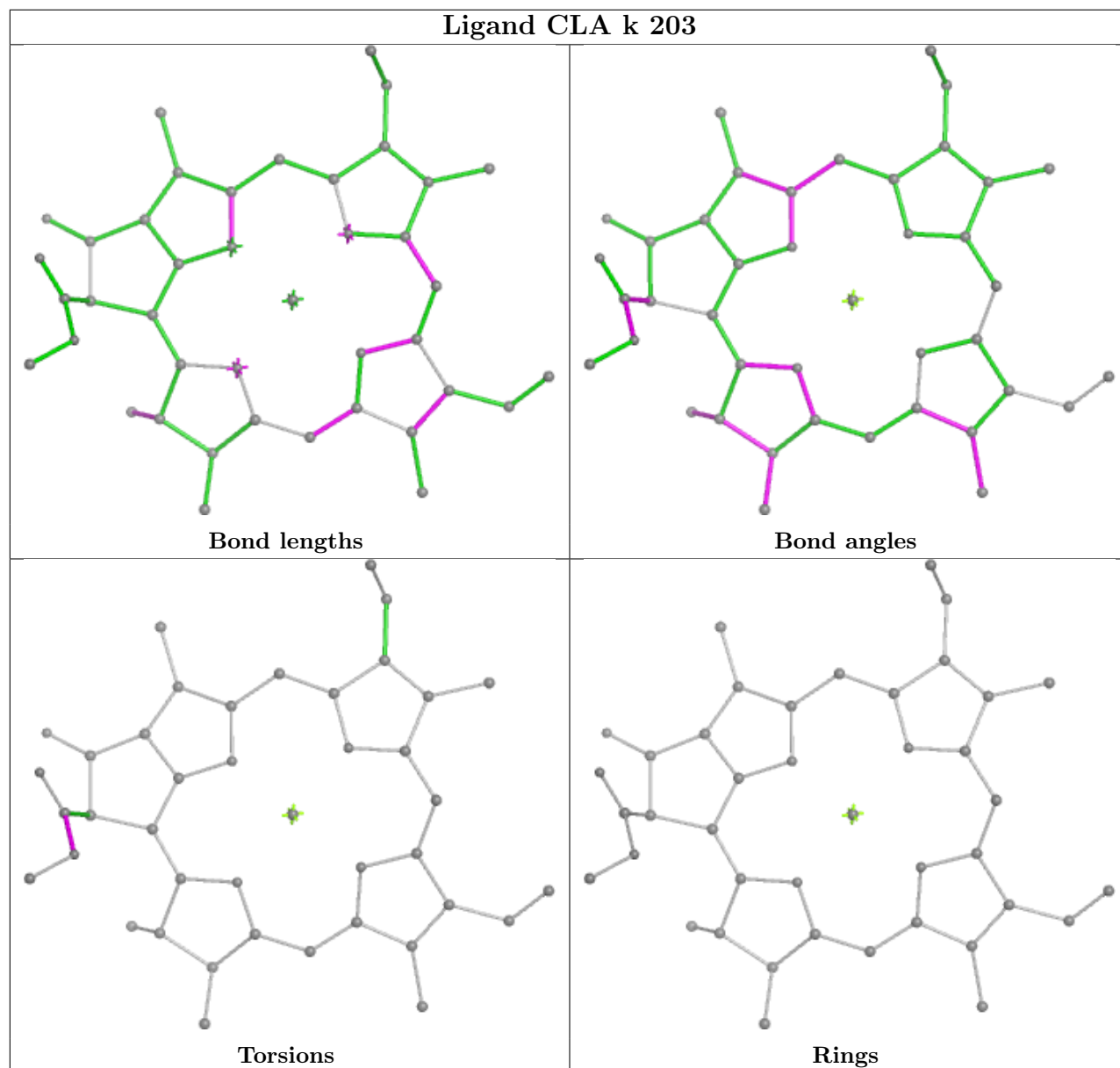
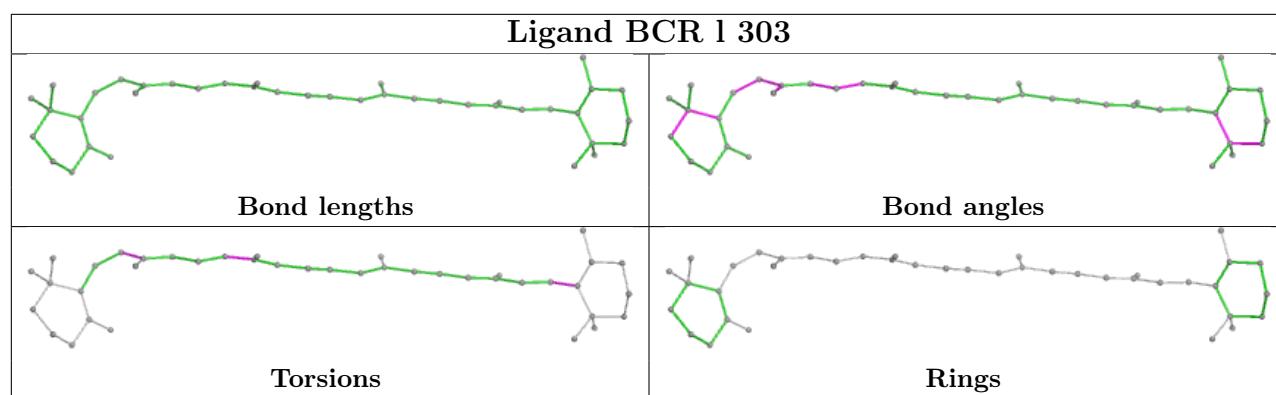
Bond angles

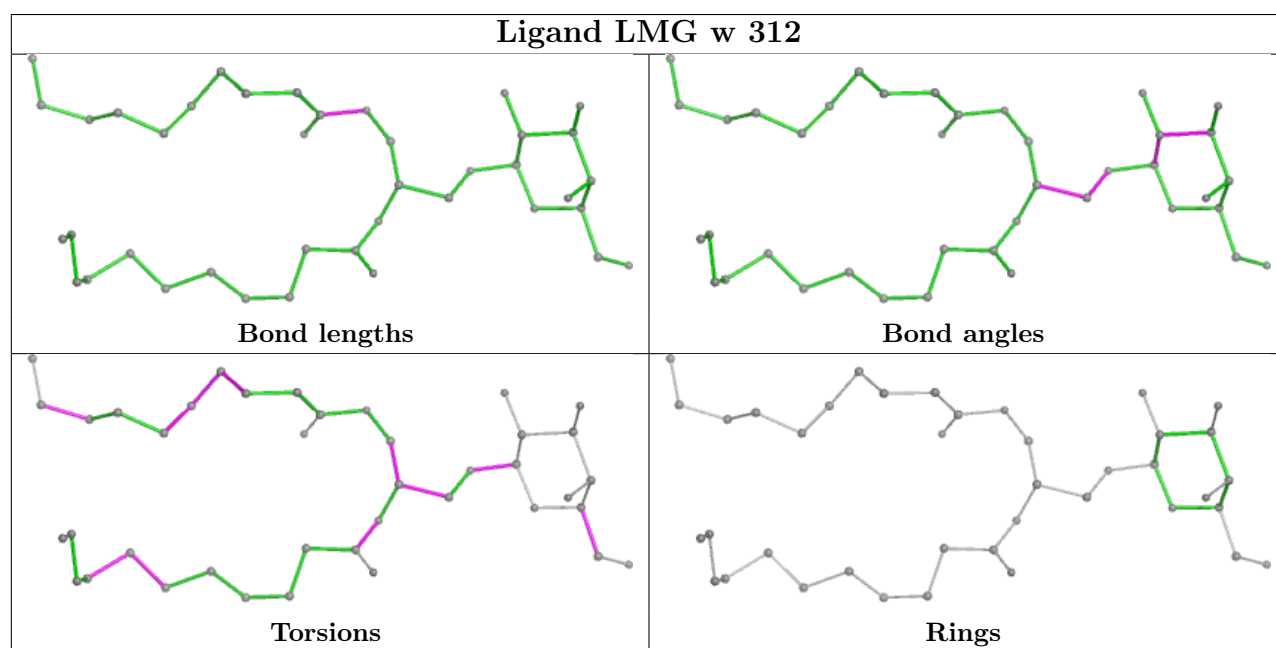
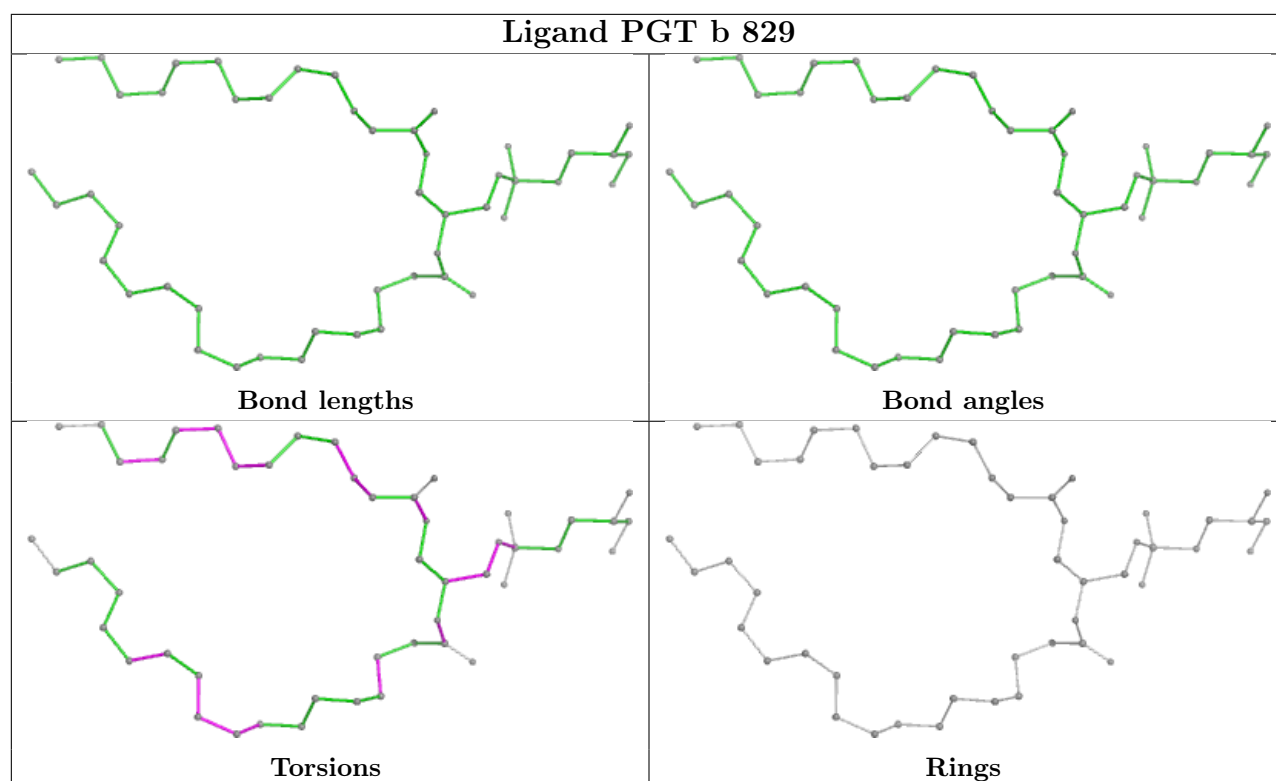


Torsions

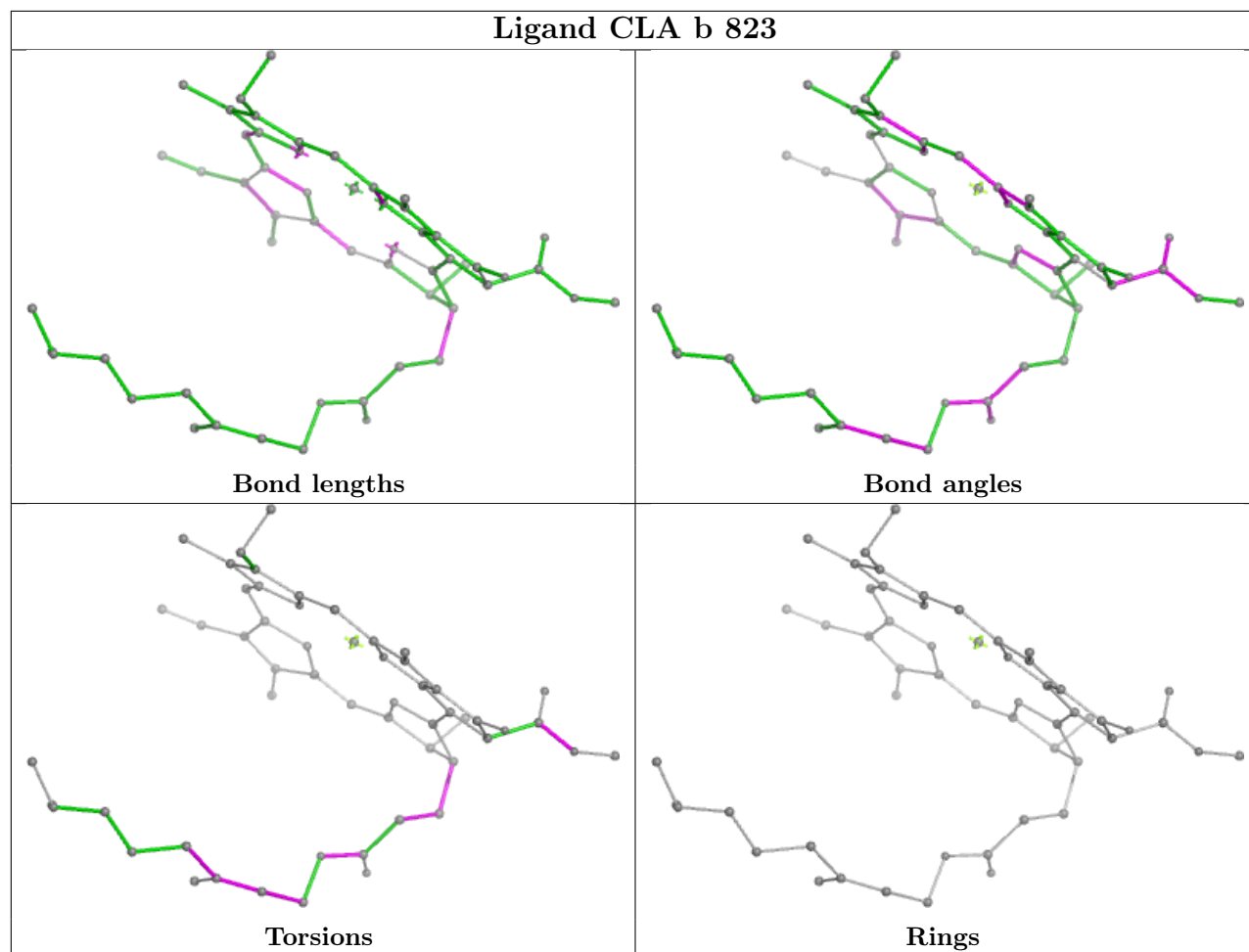


Rings

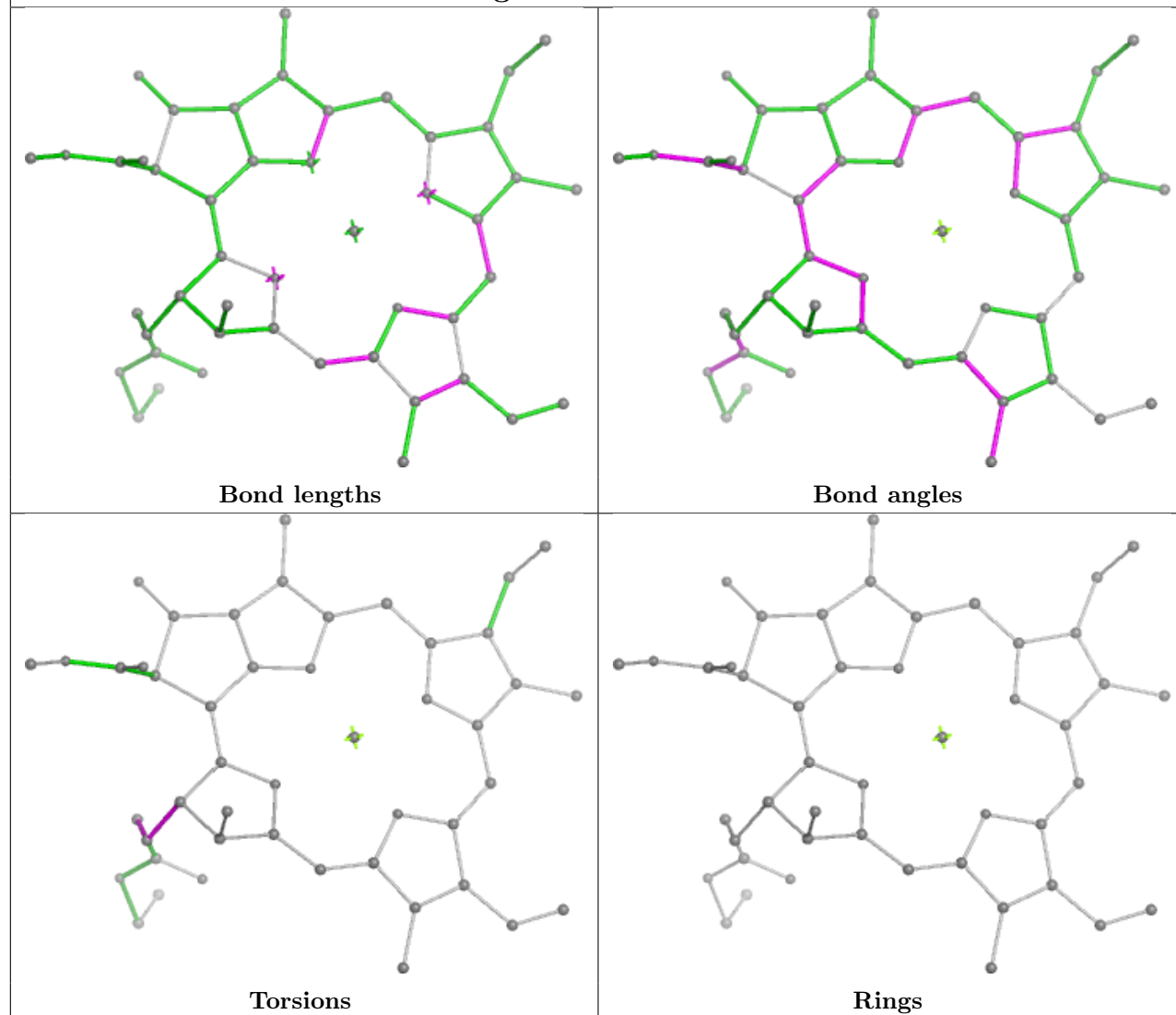




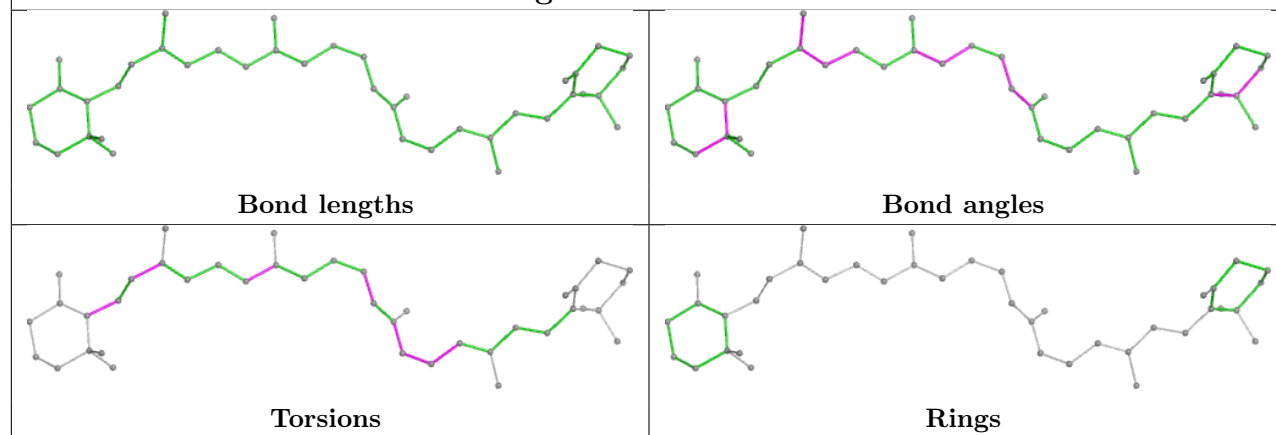
Ligand CLA b 823



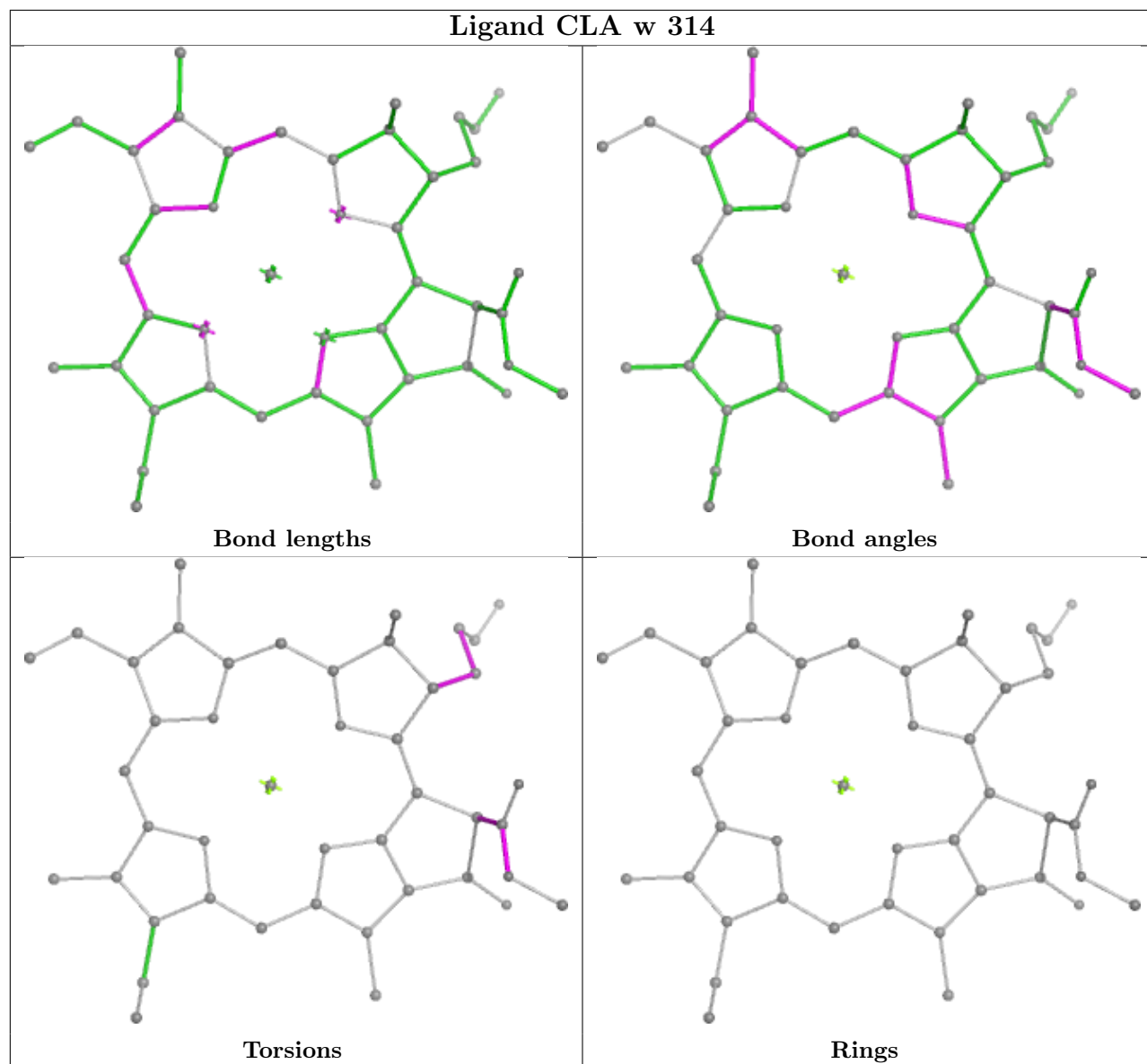
Ligand CLA x 304



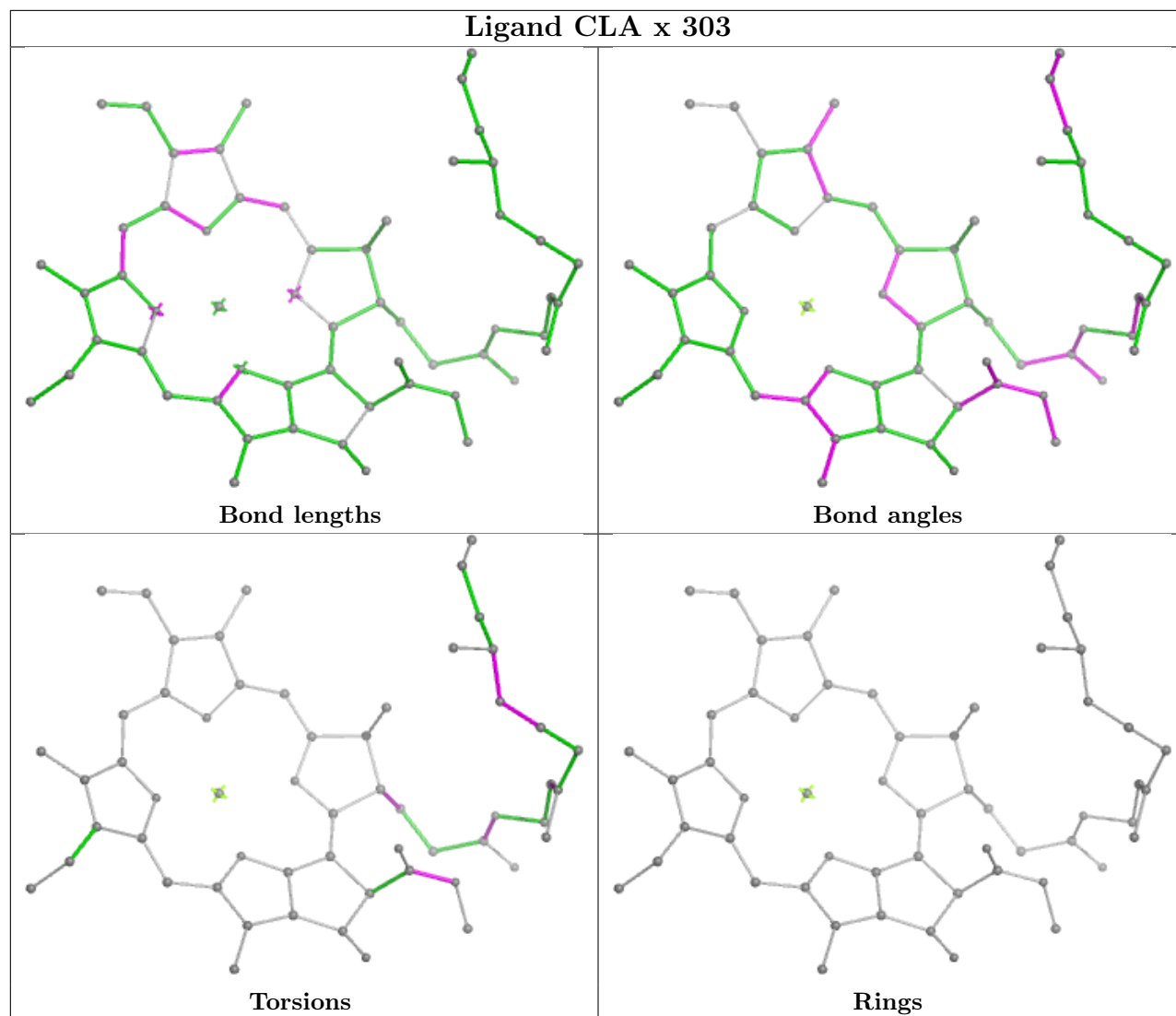
Ligand BCR z 318

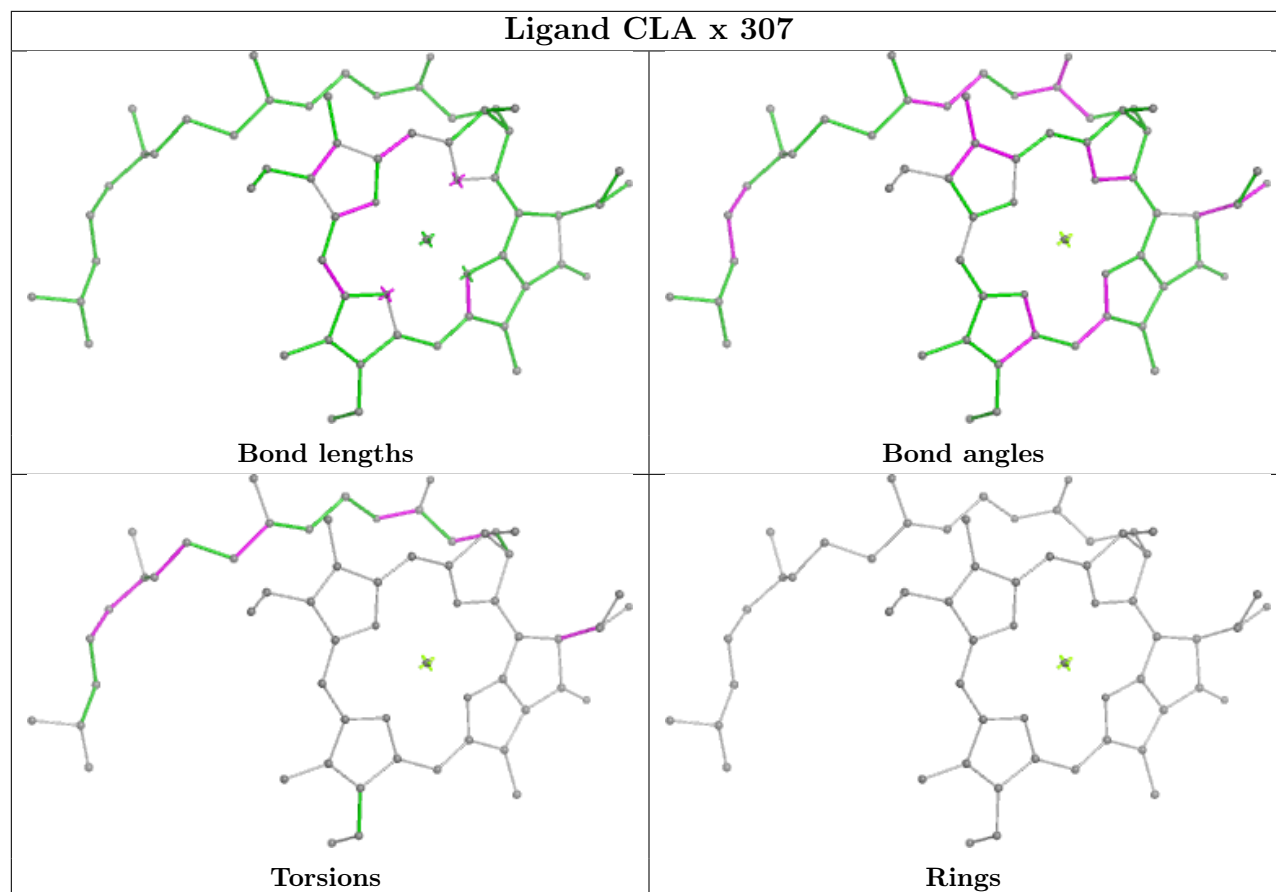


Ligand CLA w 314

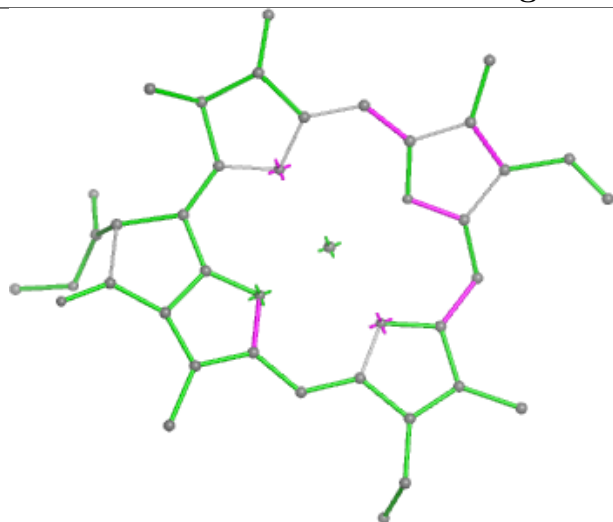


Ligand CLA x 303

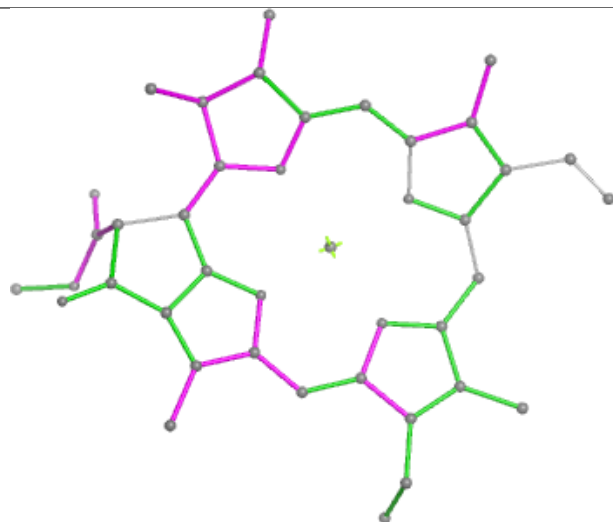




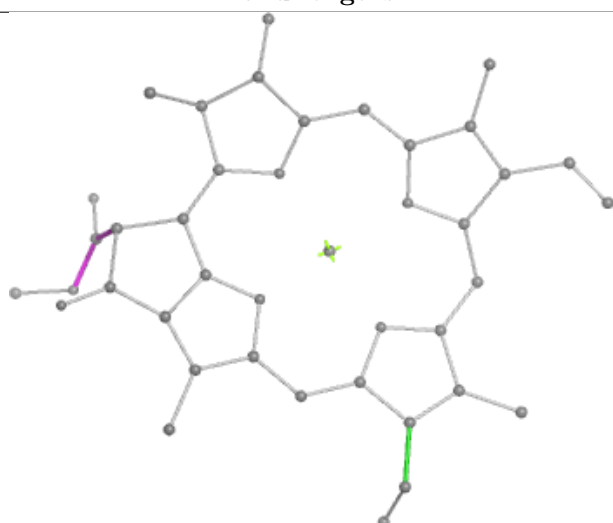
Ligand CLA z 310



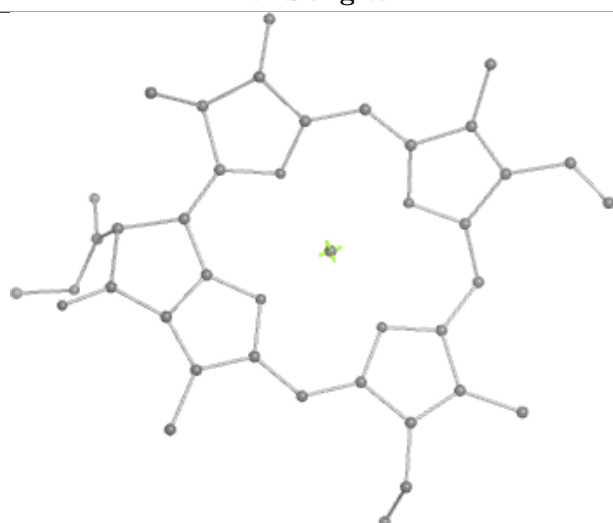
Bond lengths



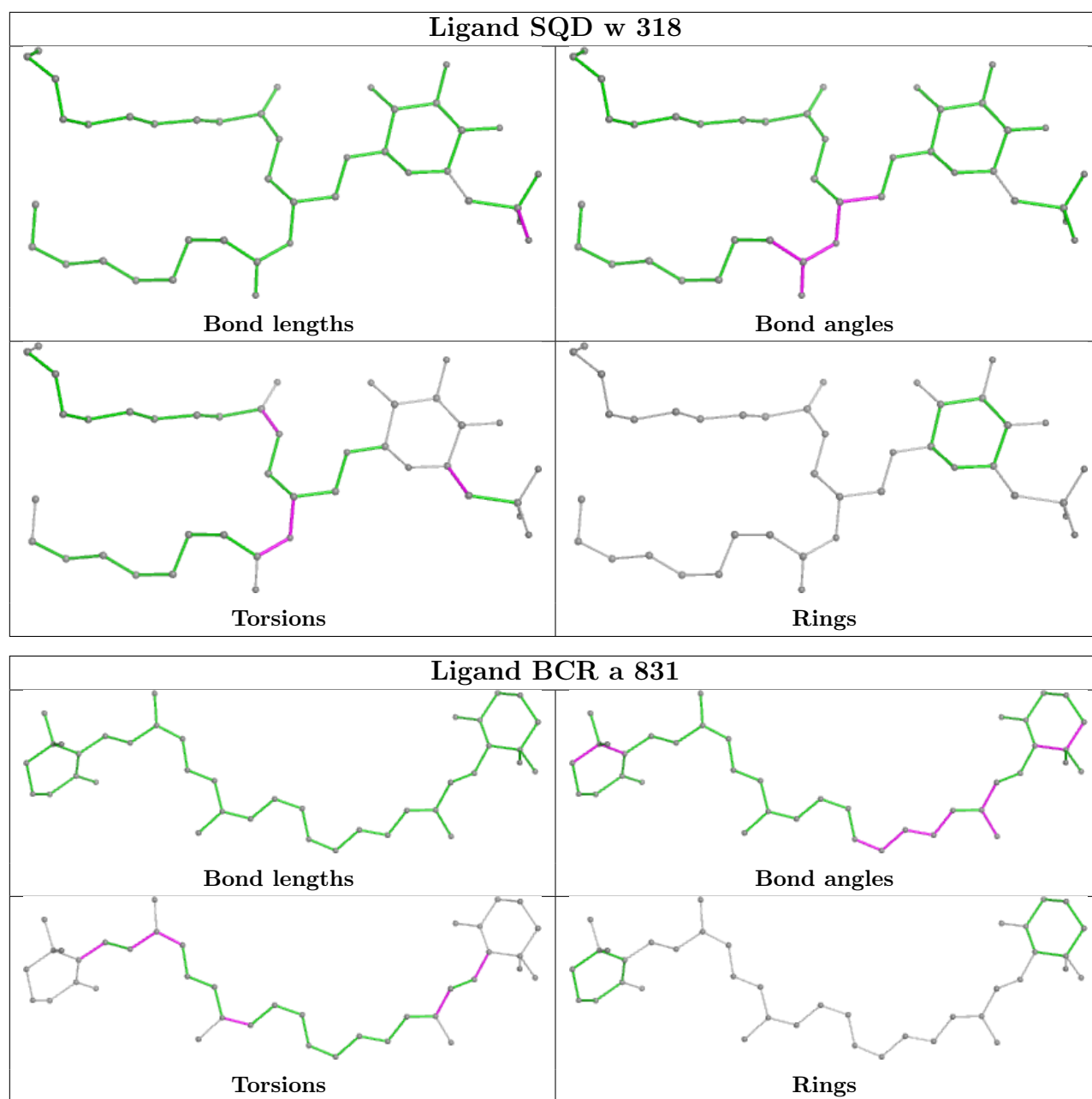
Bond angles

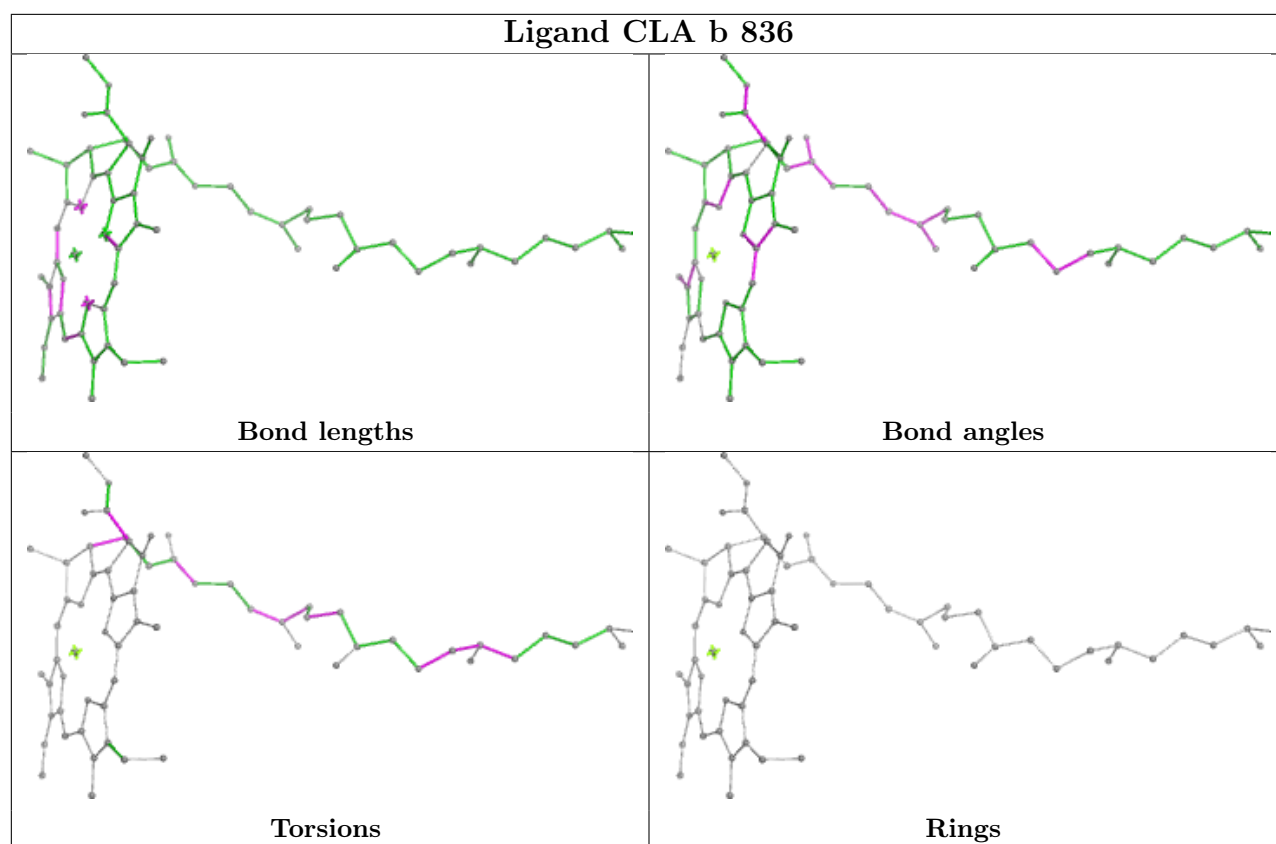


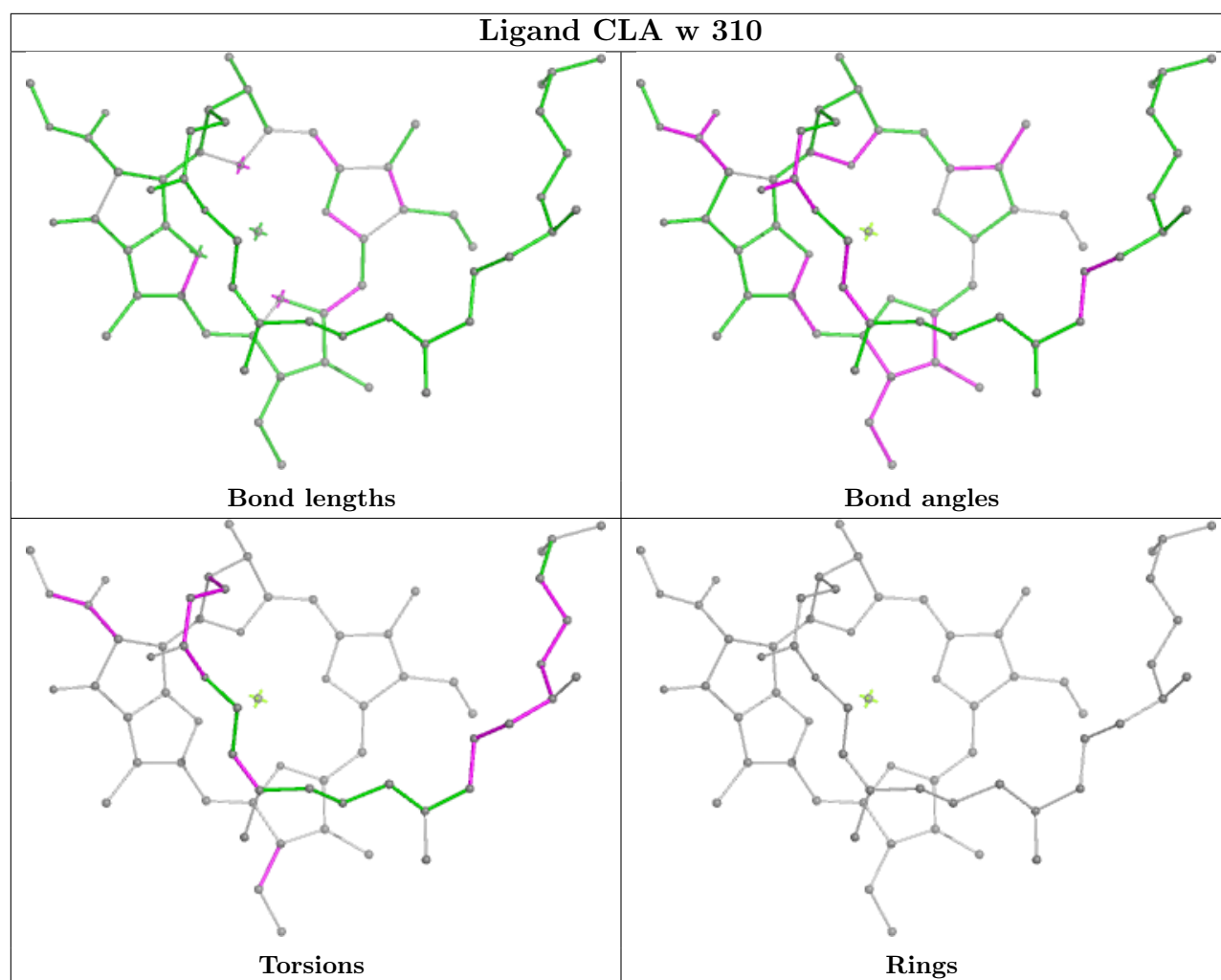
Torsions

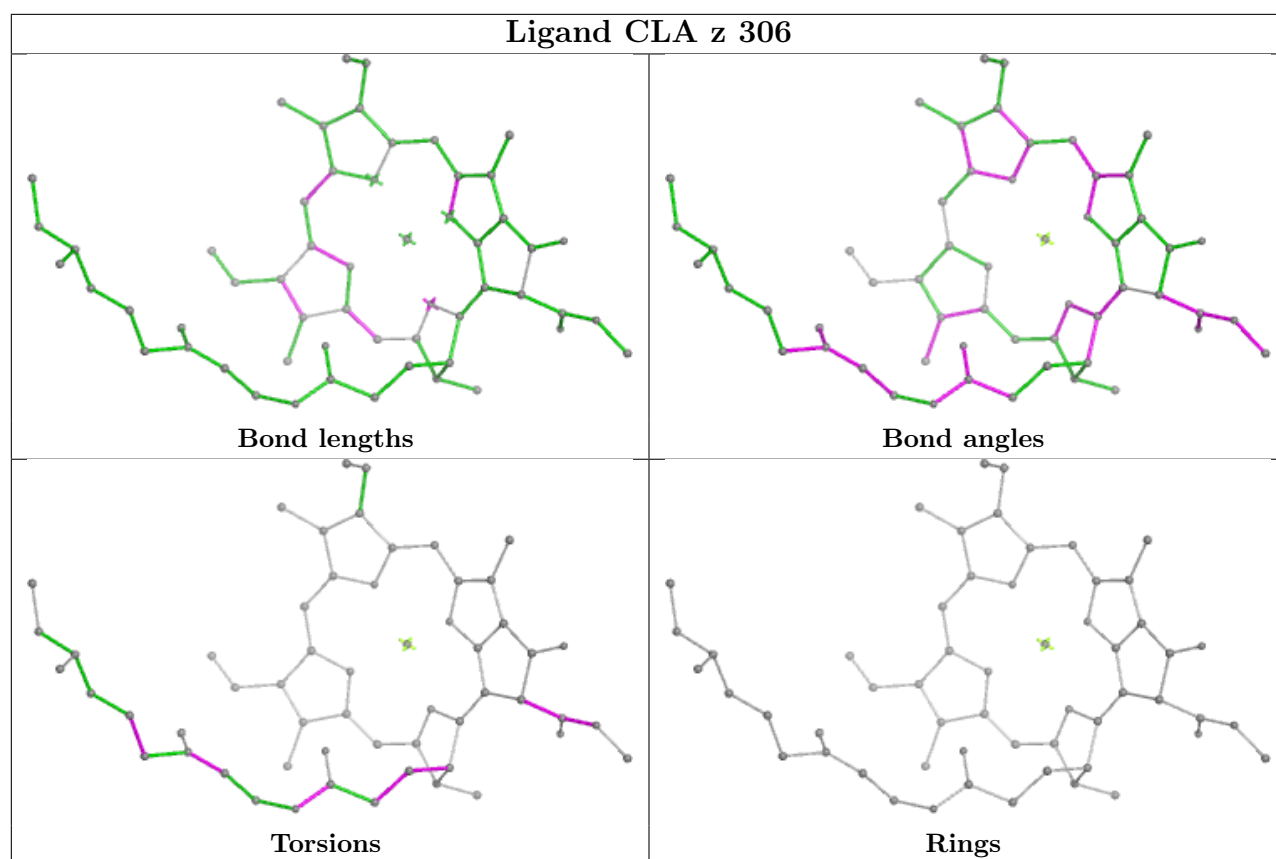


Rings

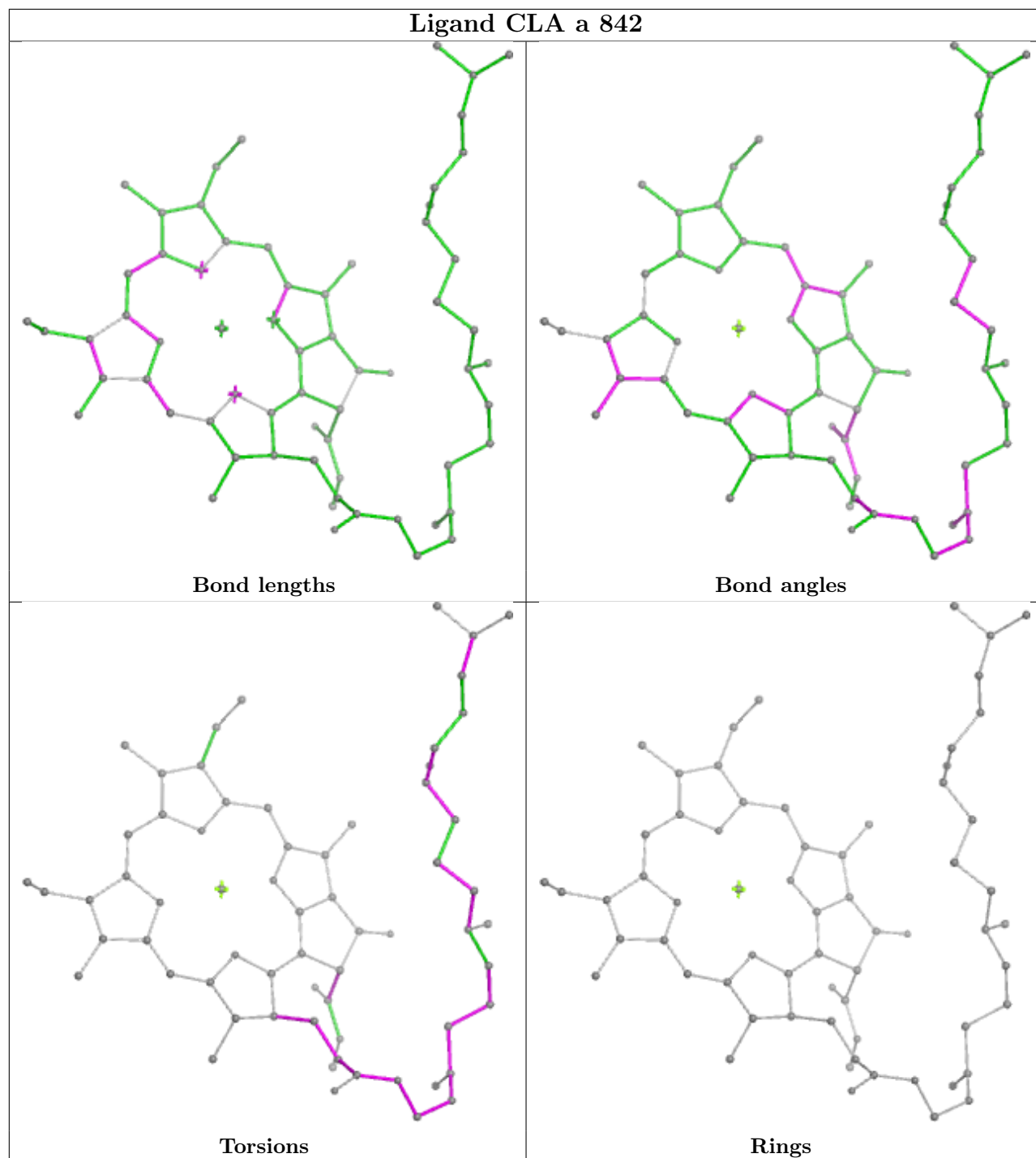




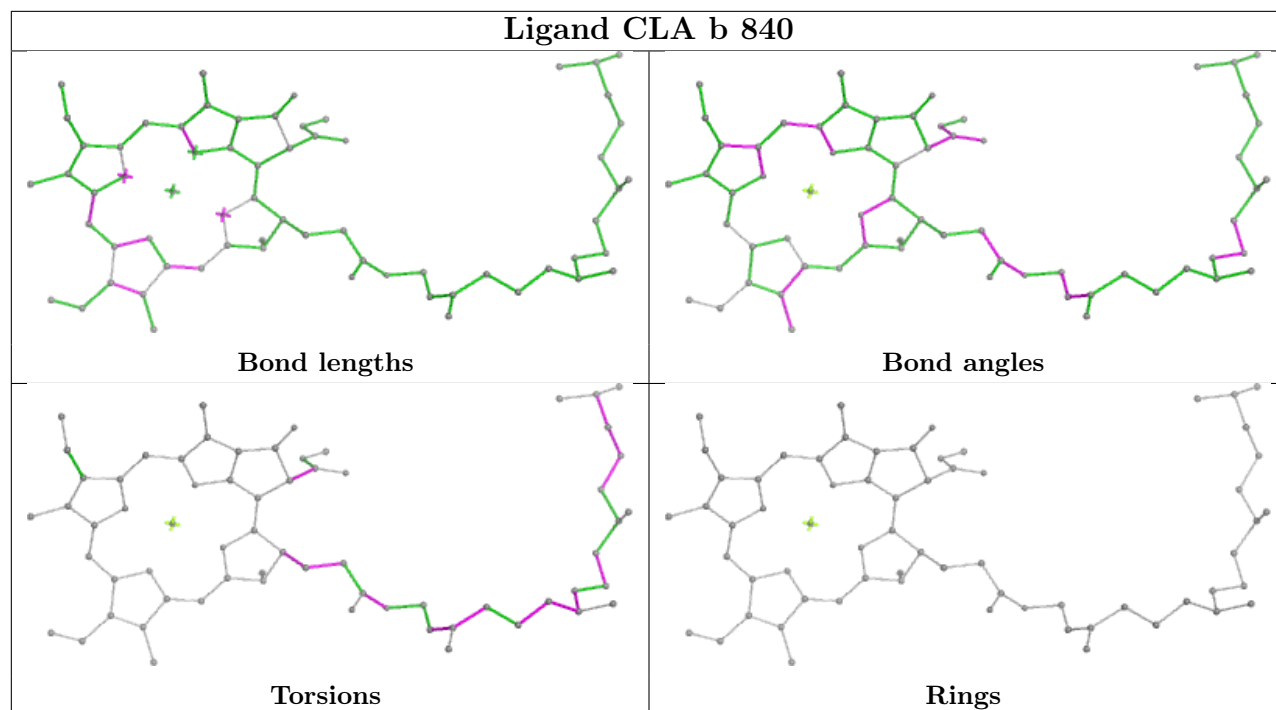




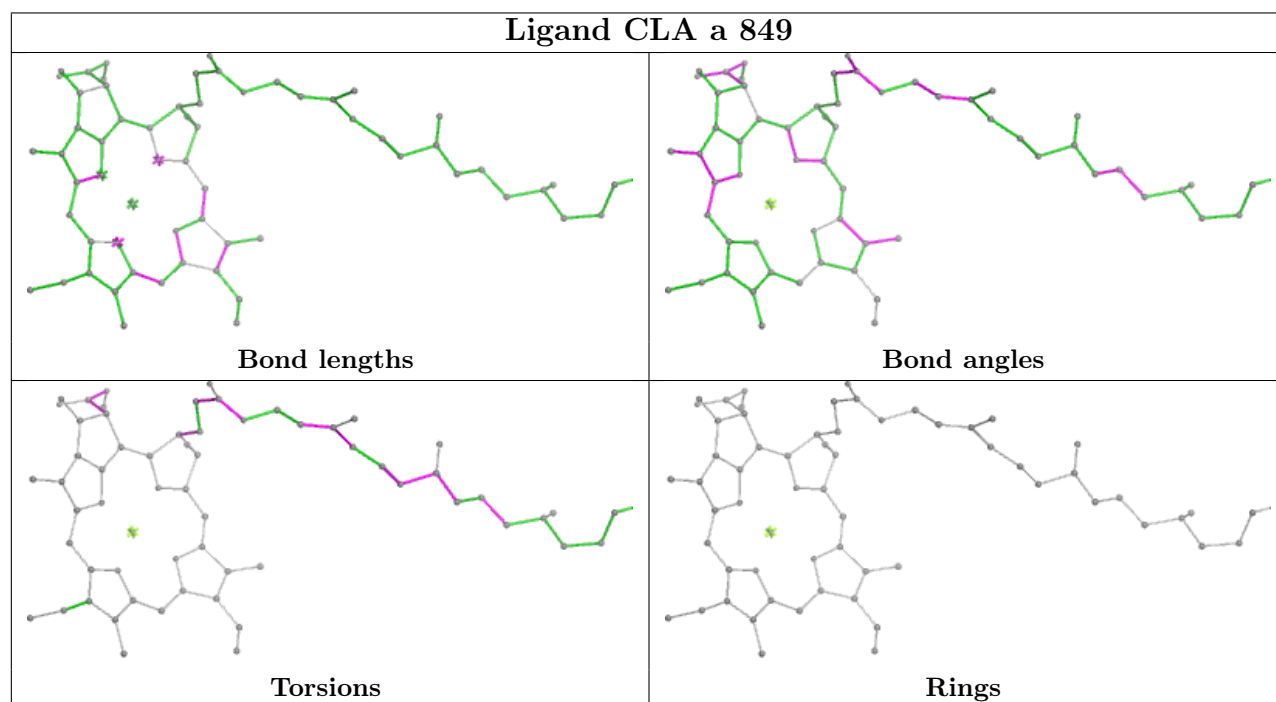
Ligand CLA a 842



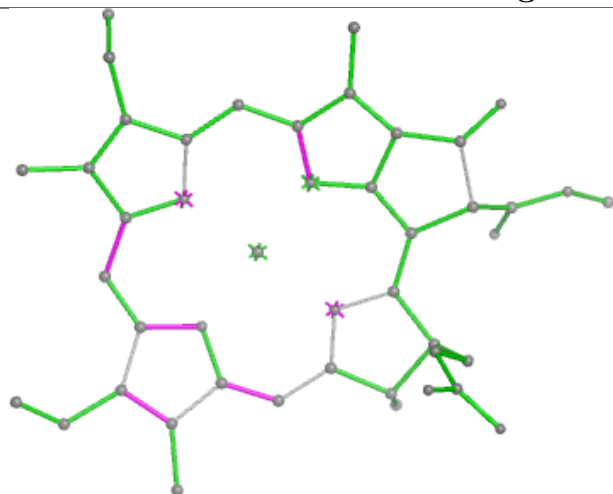
Ligand CLA b 840



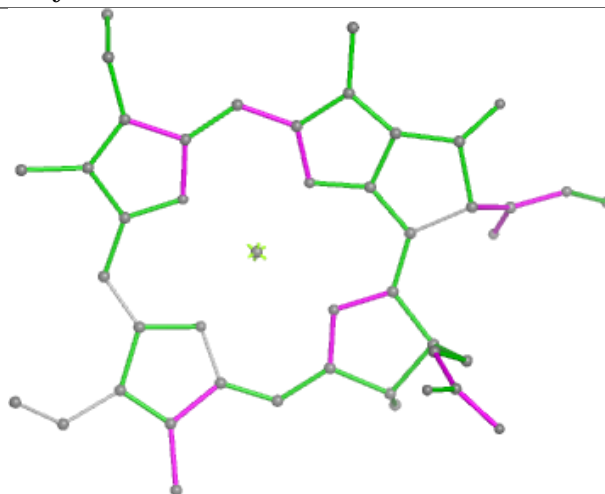
Ligand CLA a 849



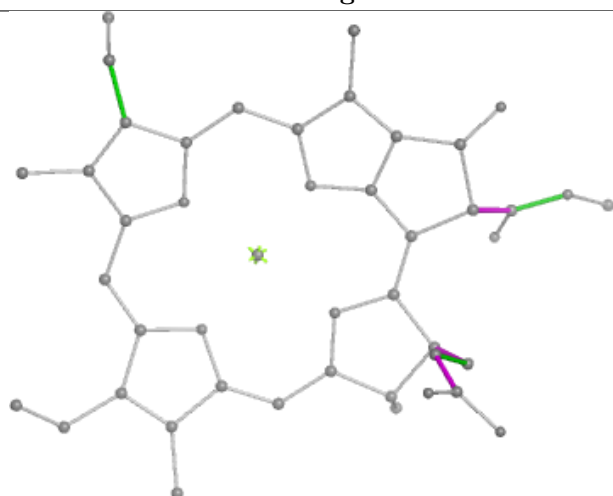
Ligand CLA y 305



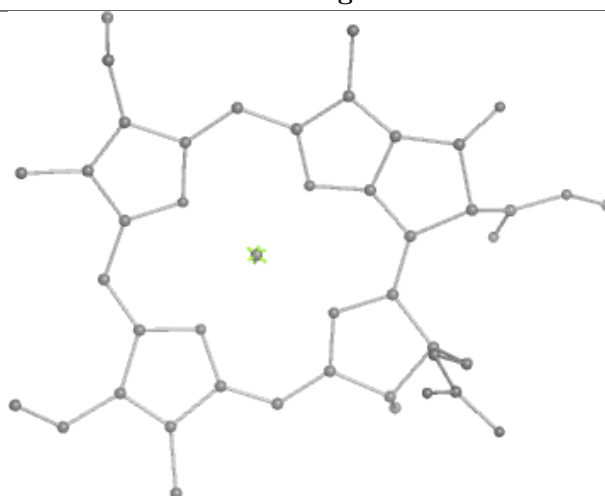
Bond lengths



Bond angles

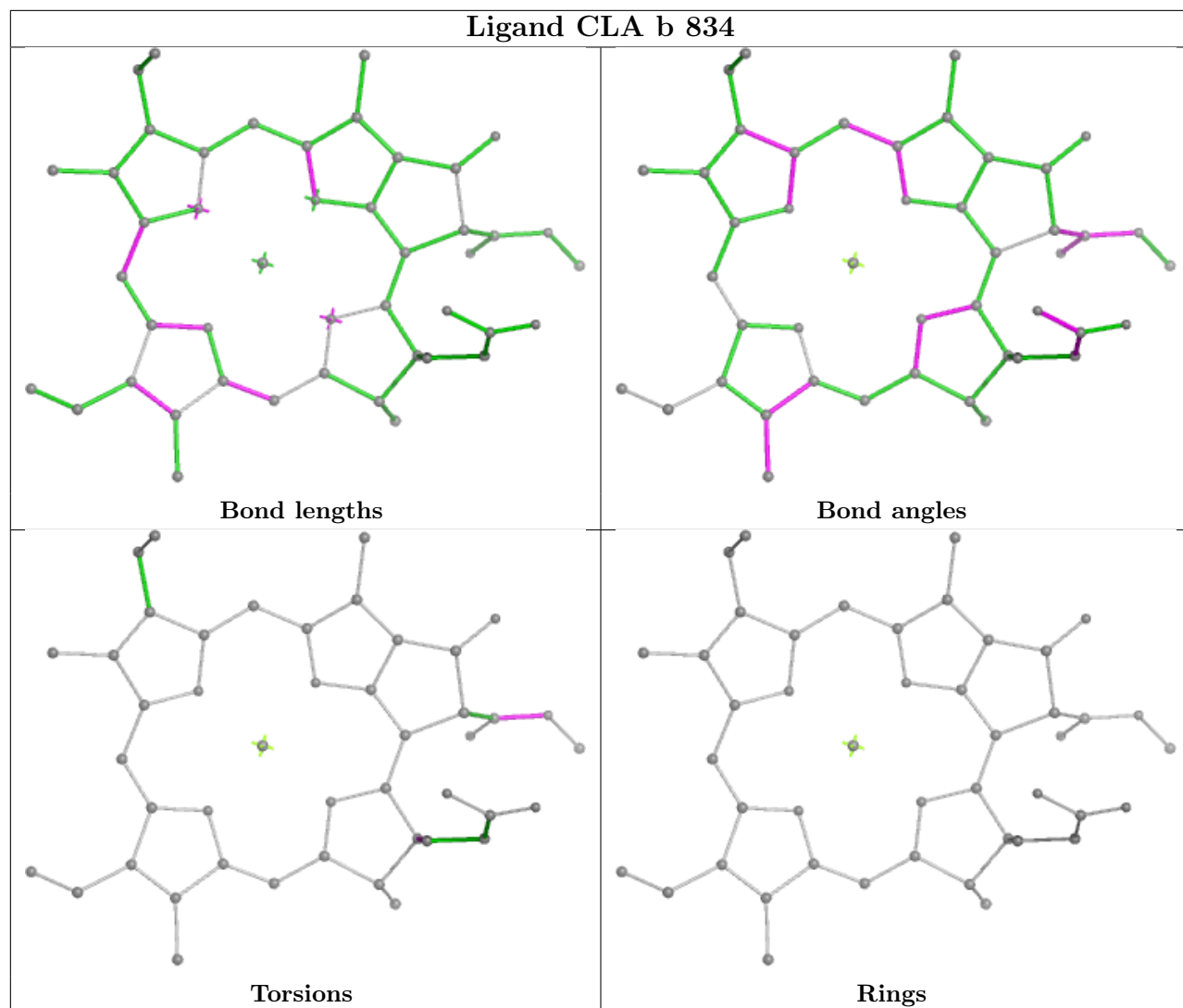


Torsions

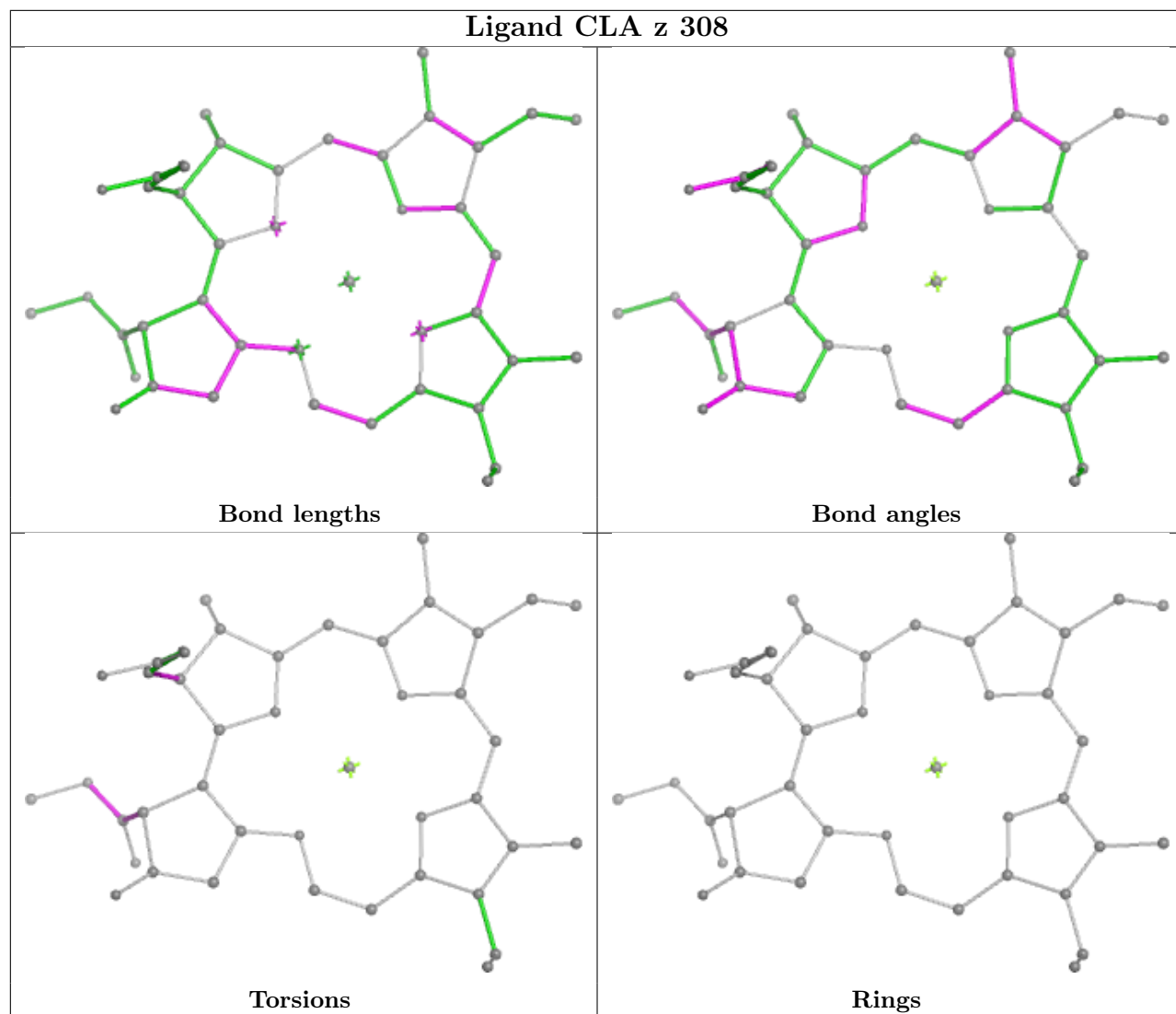


Rings

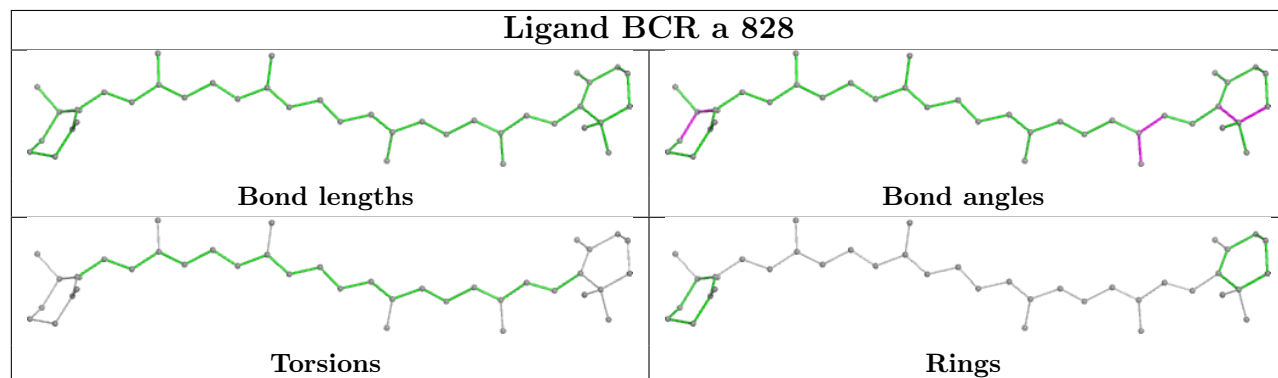
Ligand CLA b 834

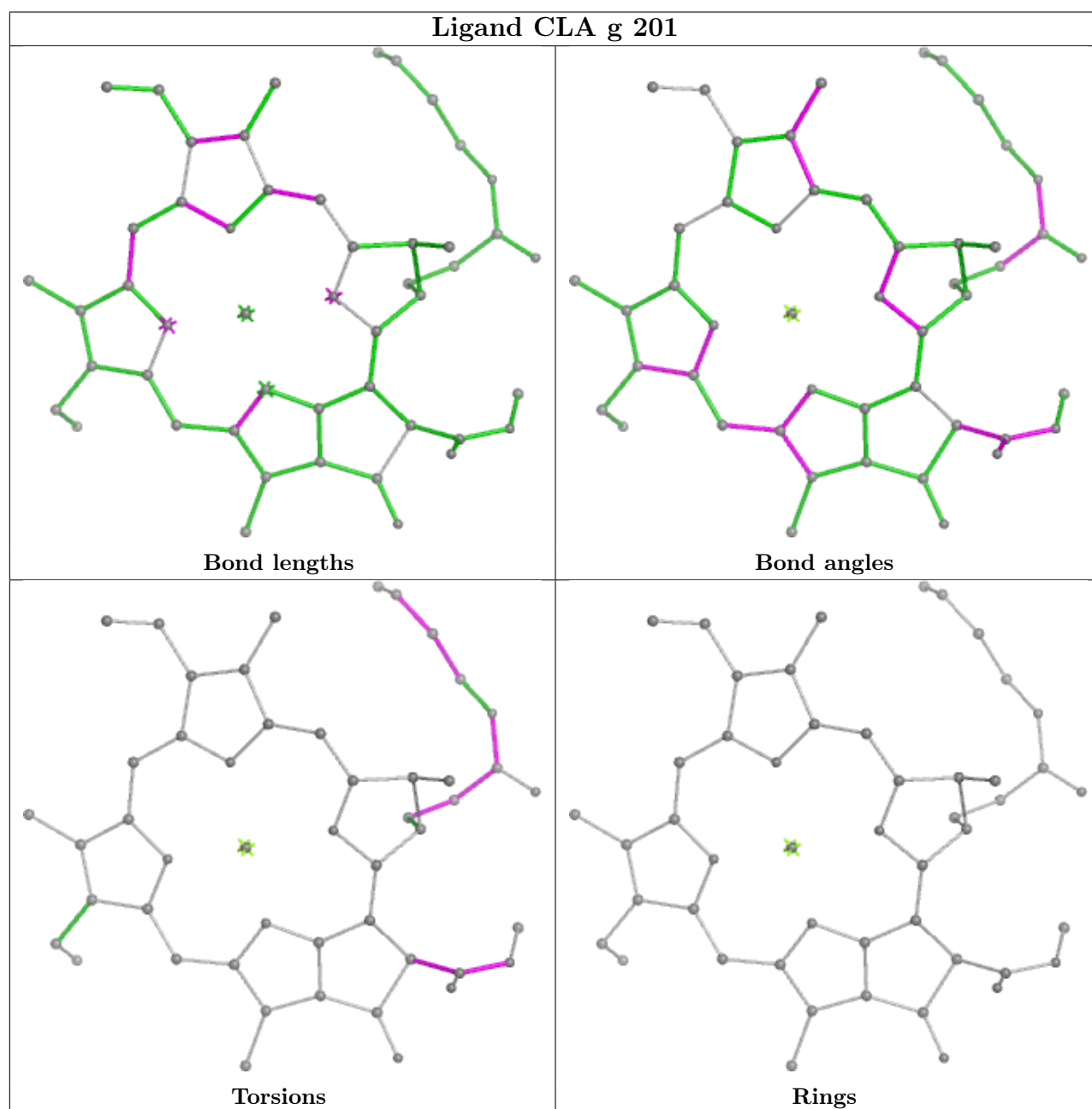
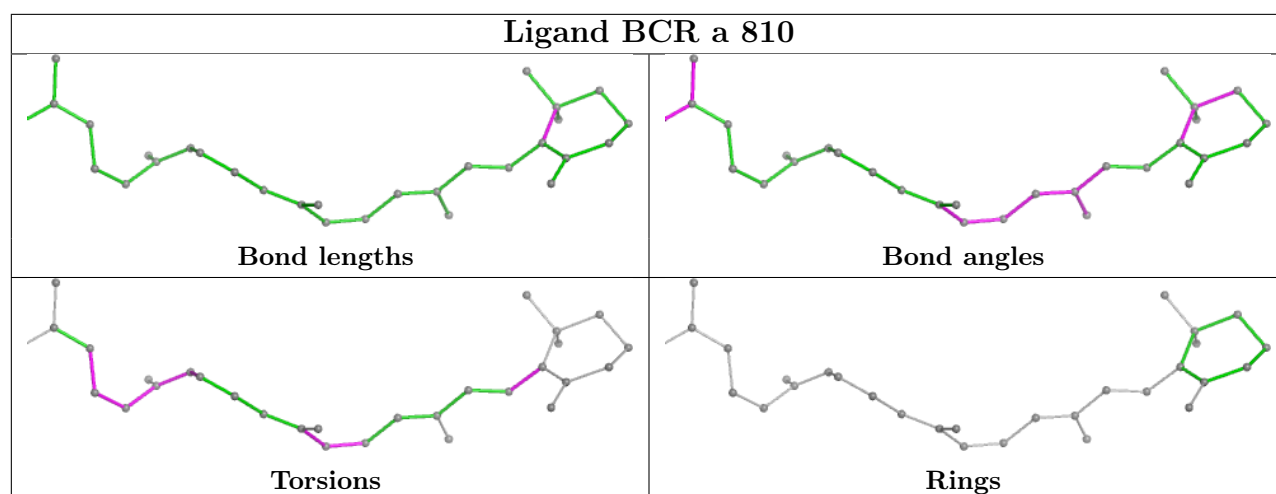


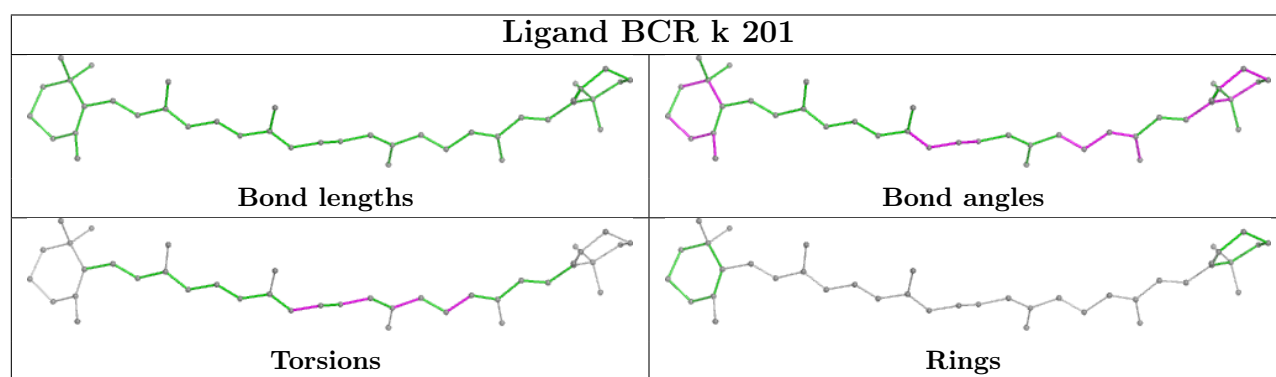
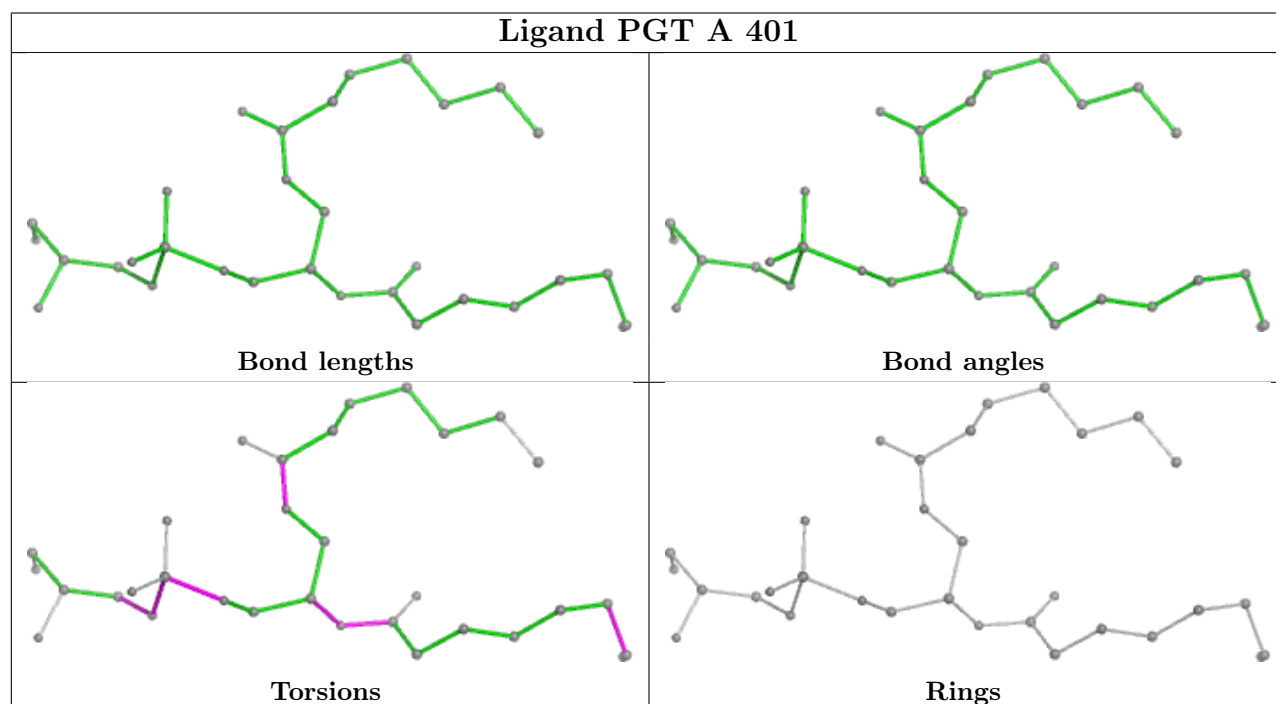
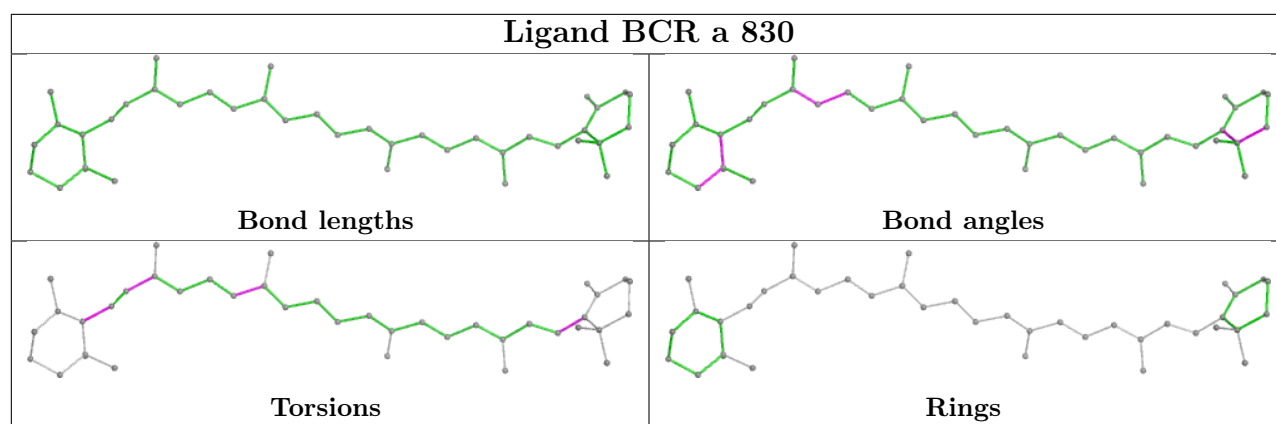
Ligand CLA z 308



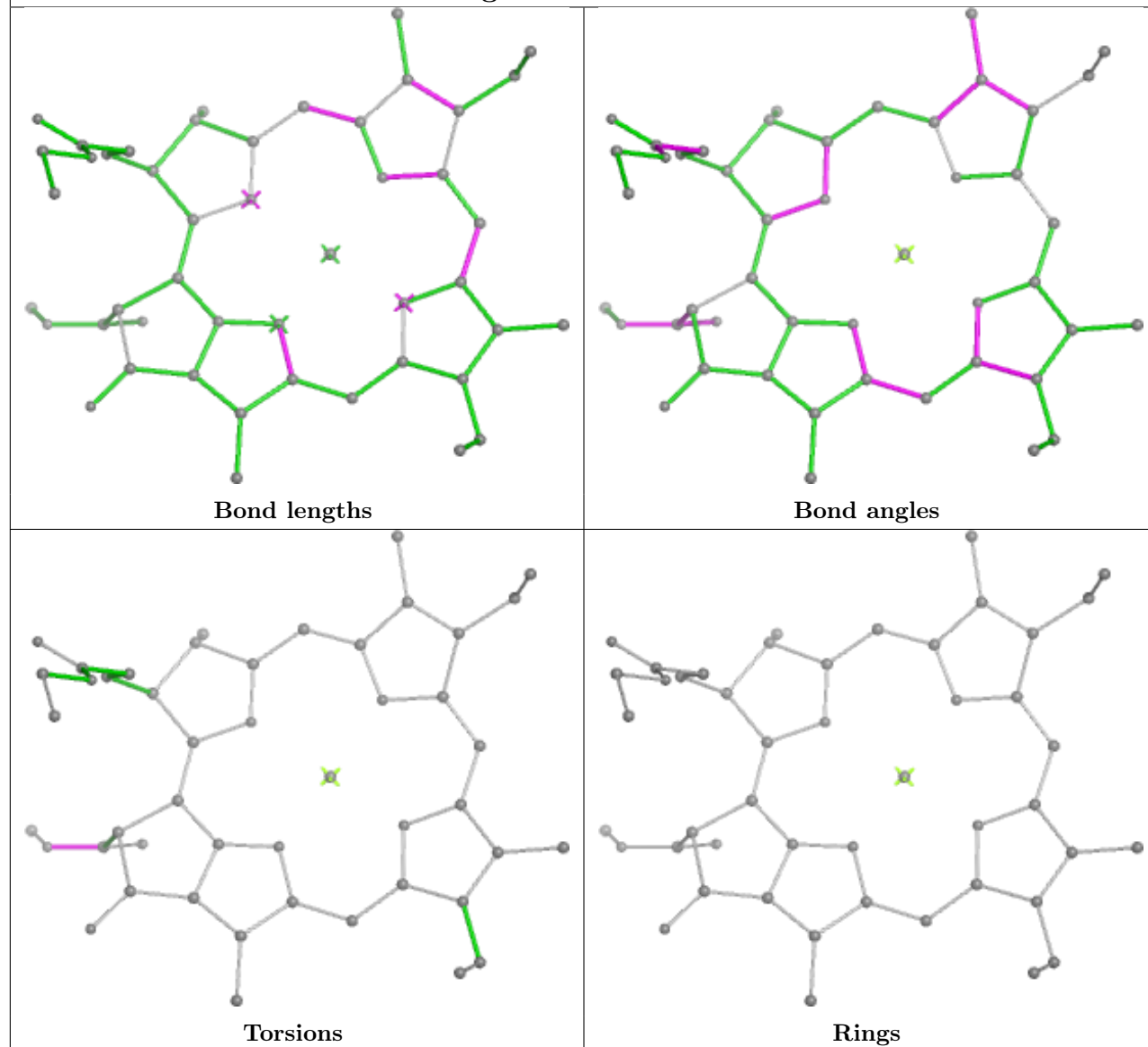
Ligand BCR a 828



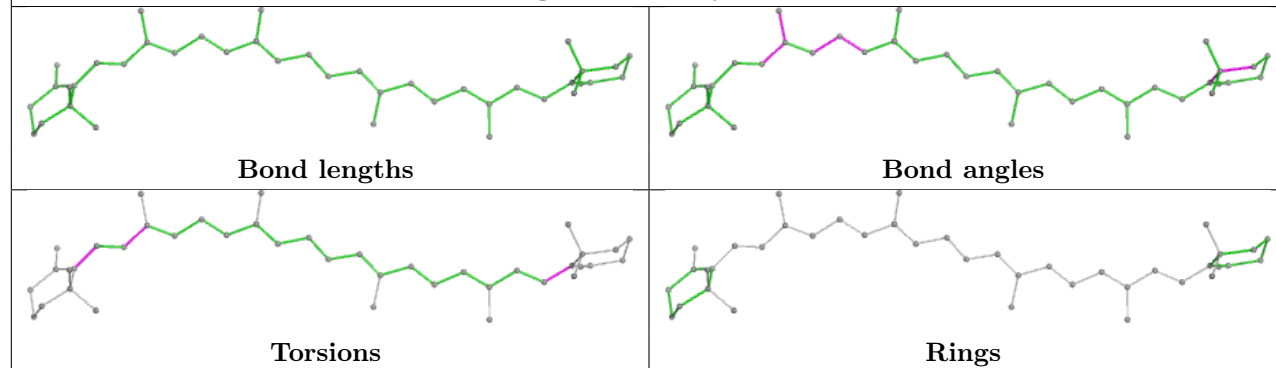


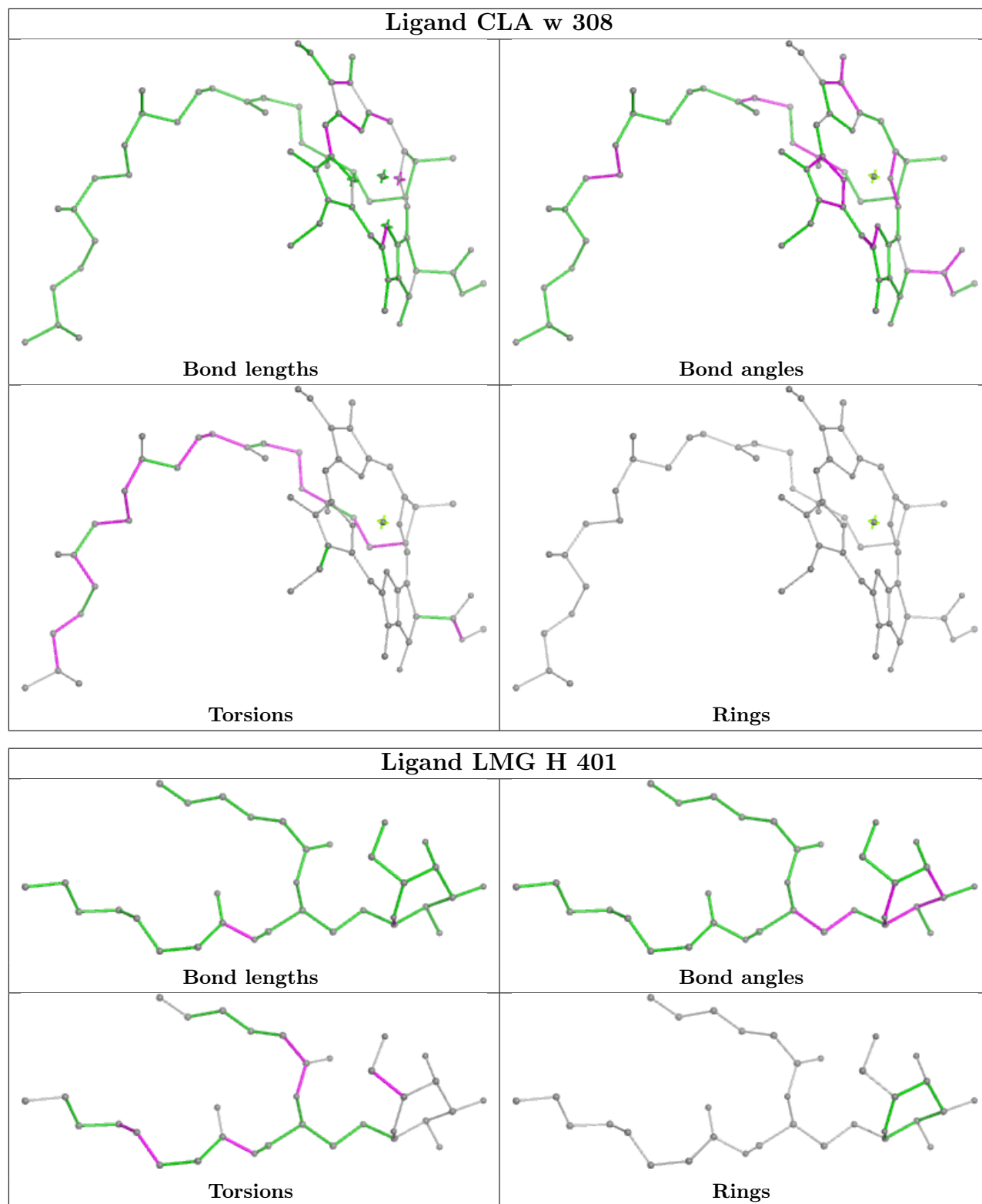


Ligand CLA b 851

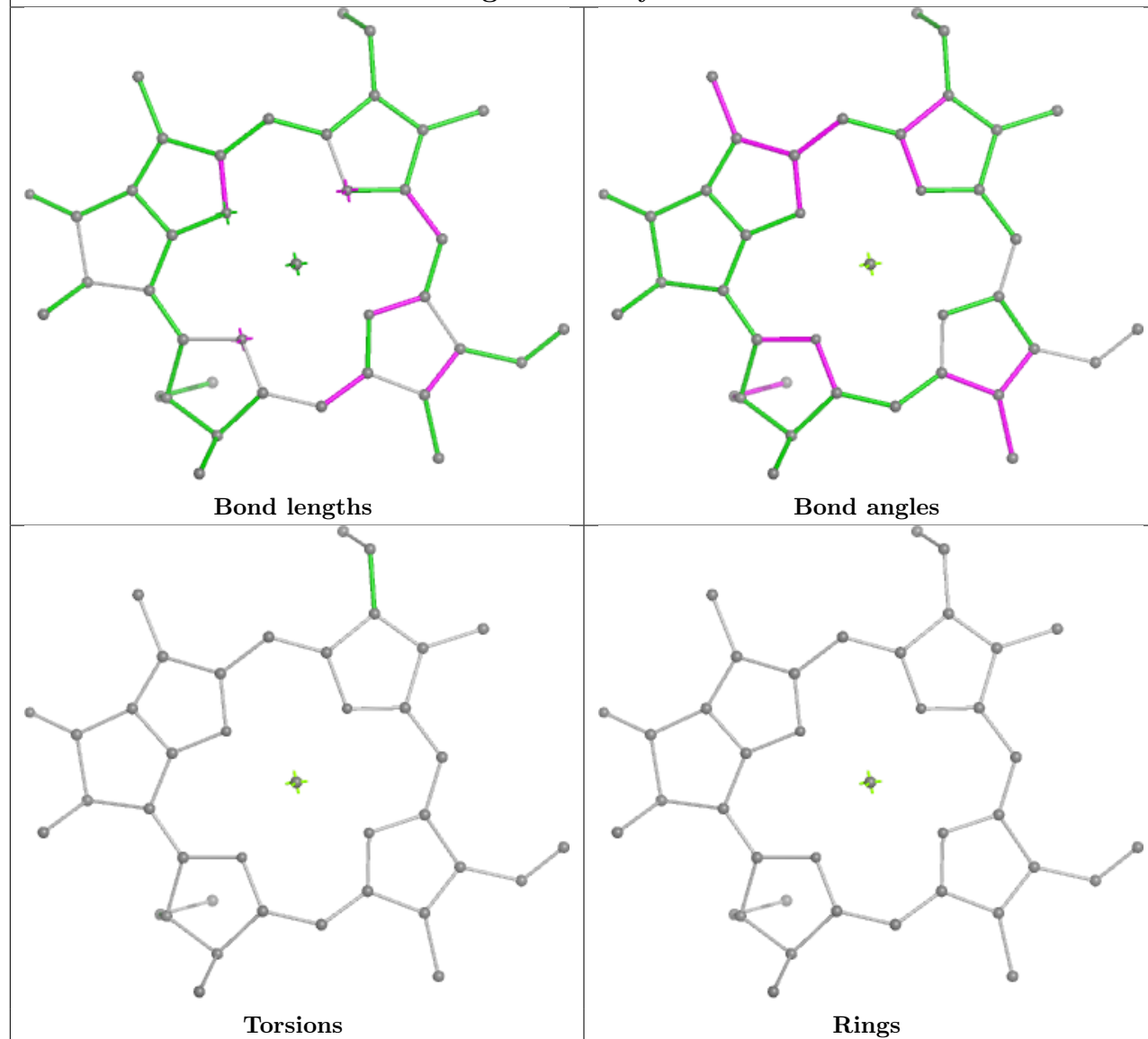


Ligand BCR y 301

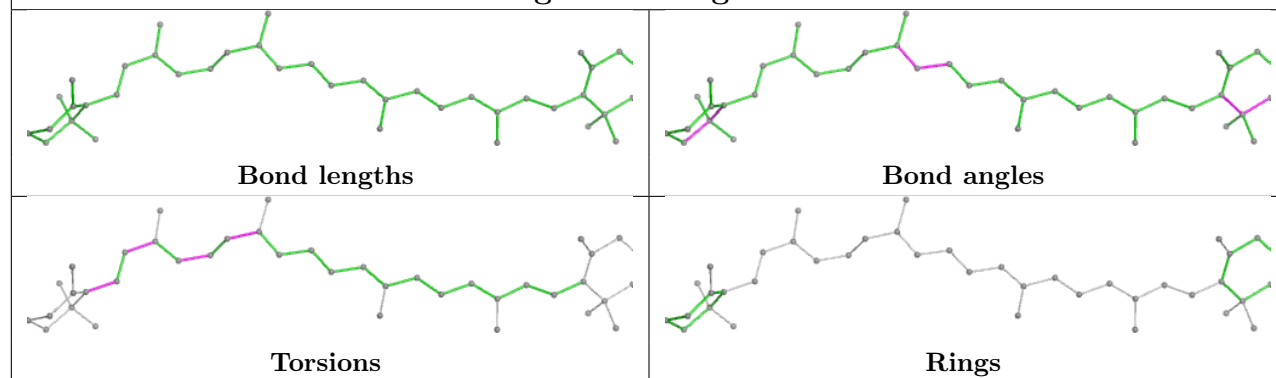


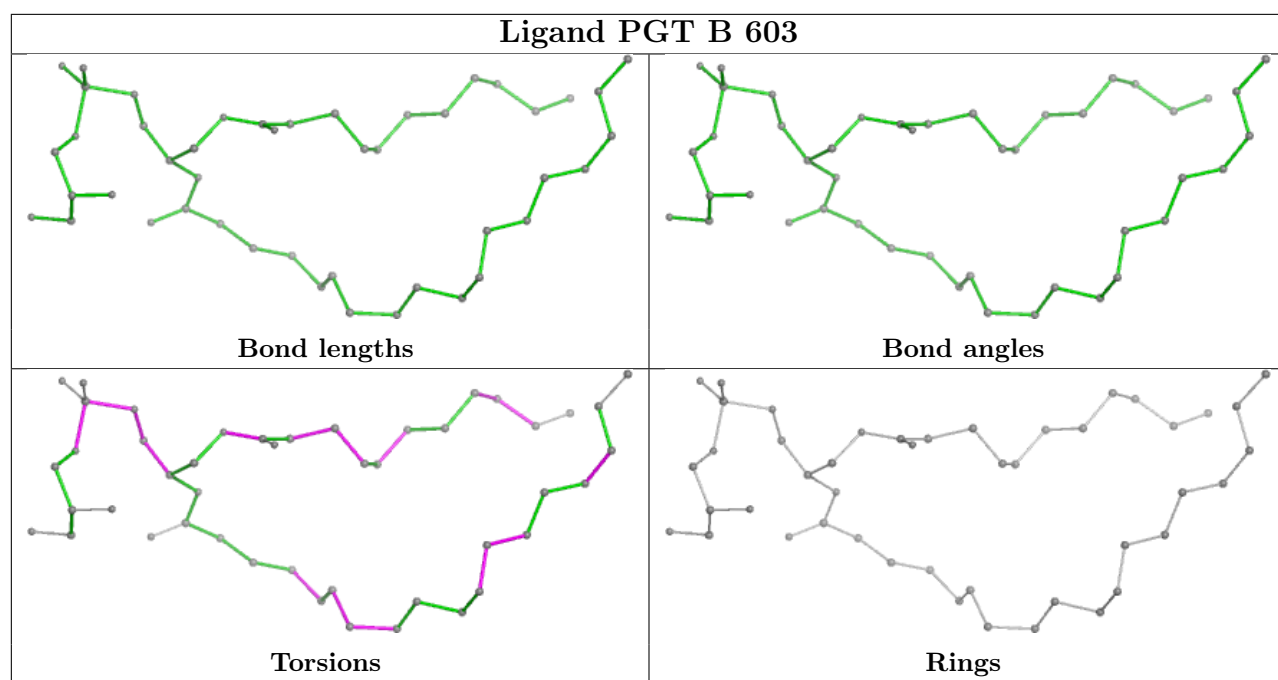


Ligand CLA y 304

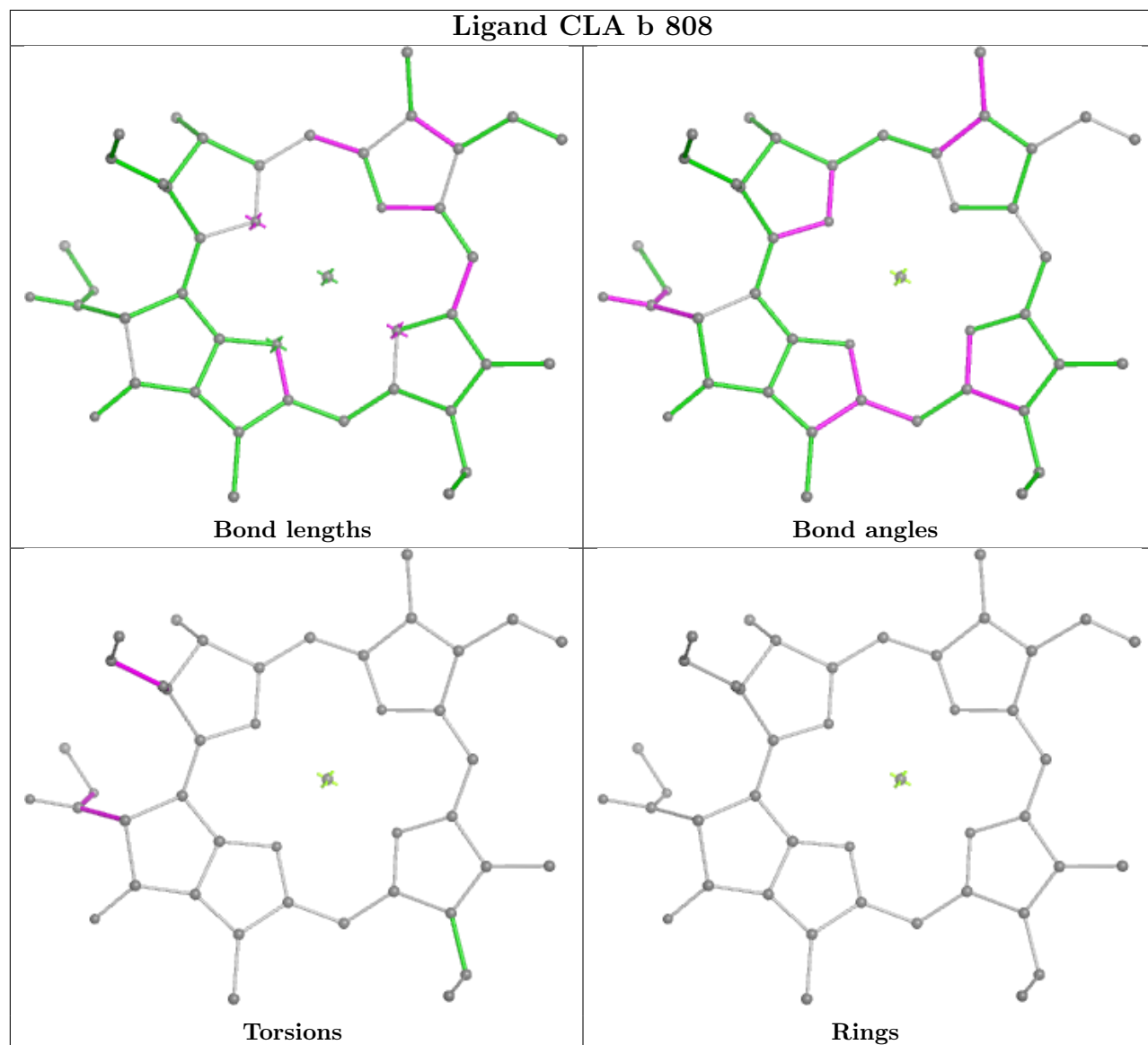


Ligand BCR g 202

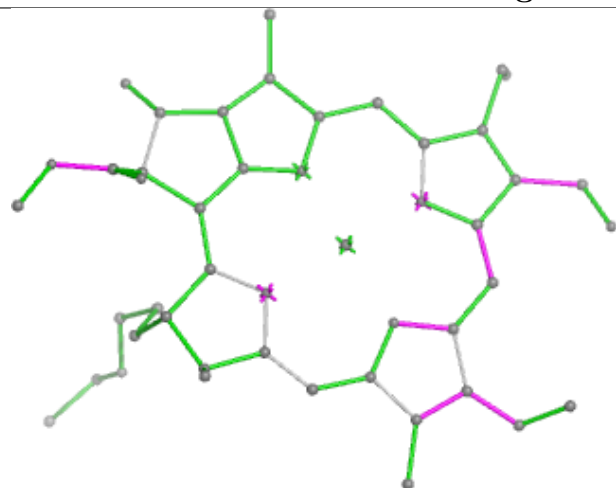




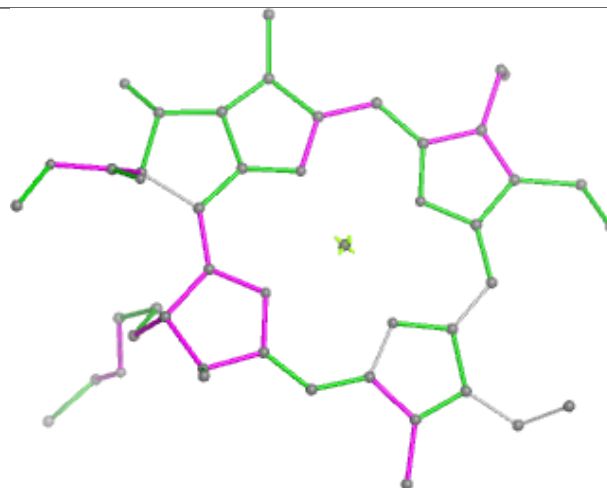
Ligand CLA b 808



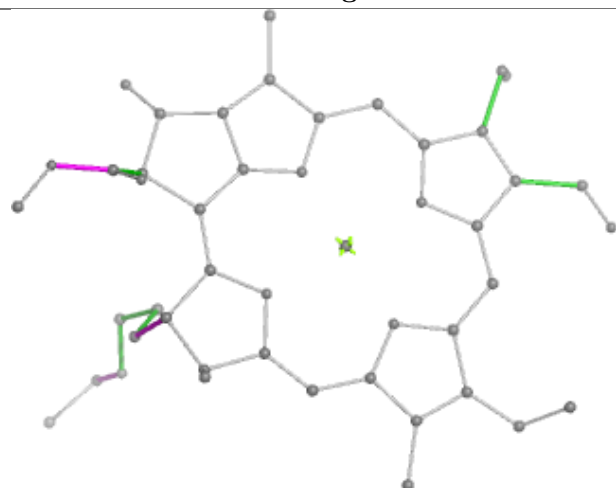
Ligand CHL w 311



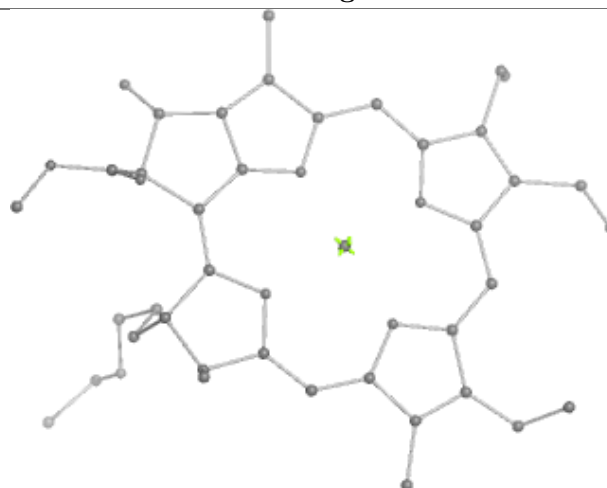
Bond lengths



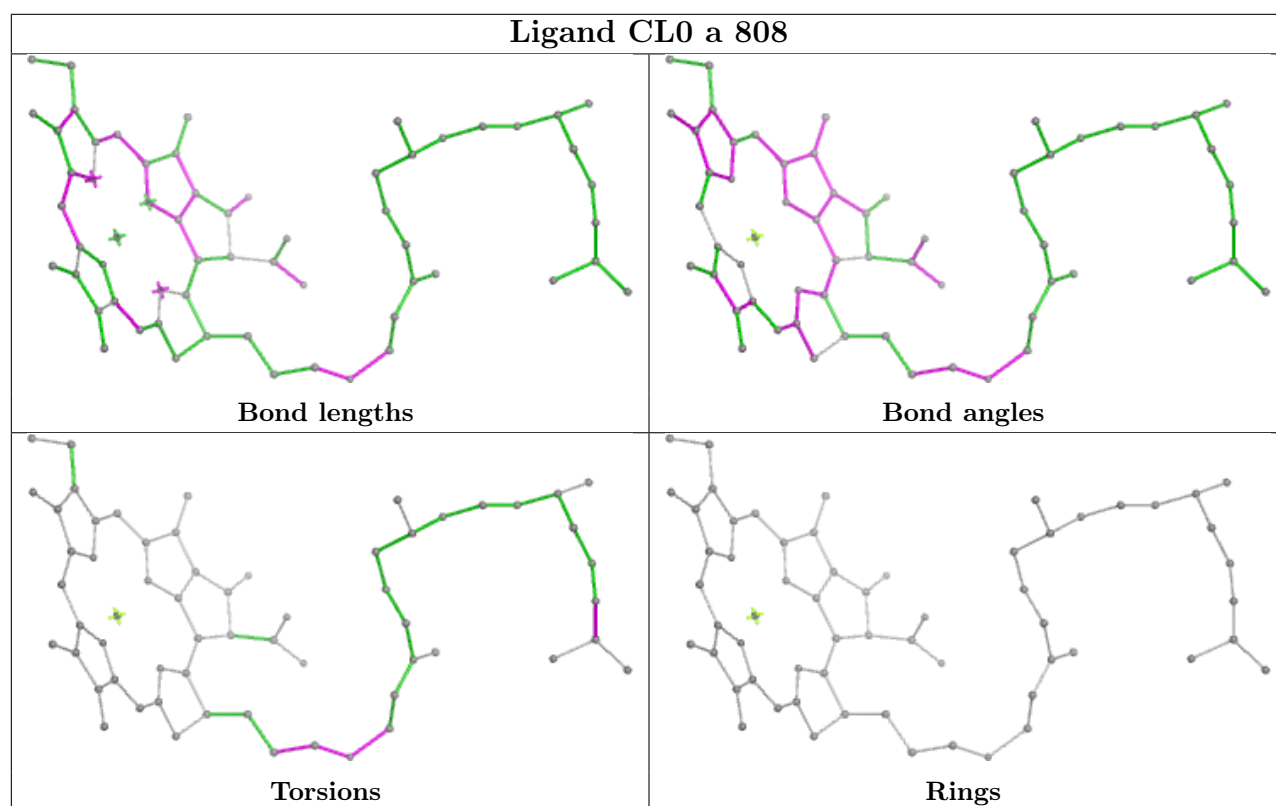
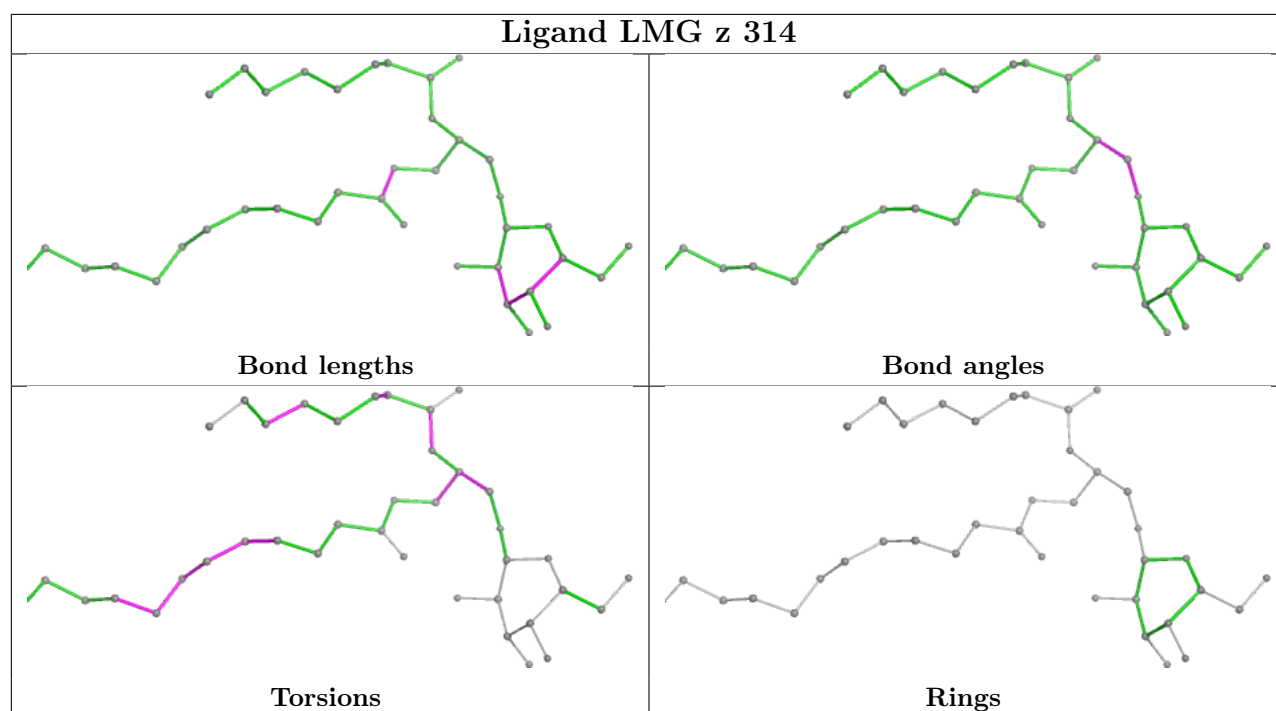
Bond angles

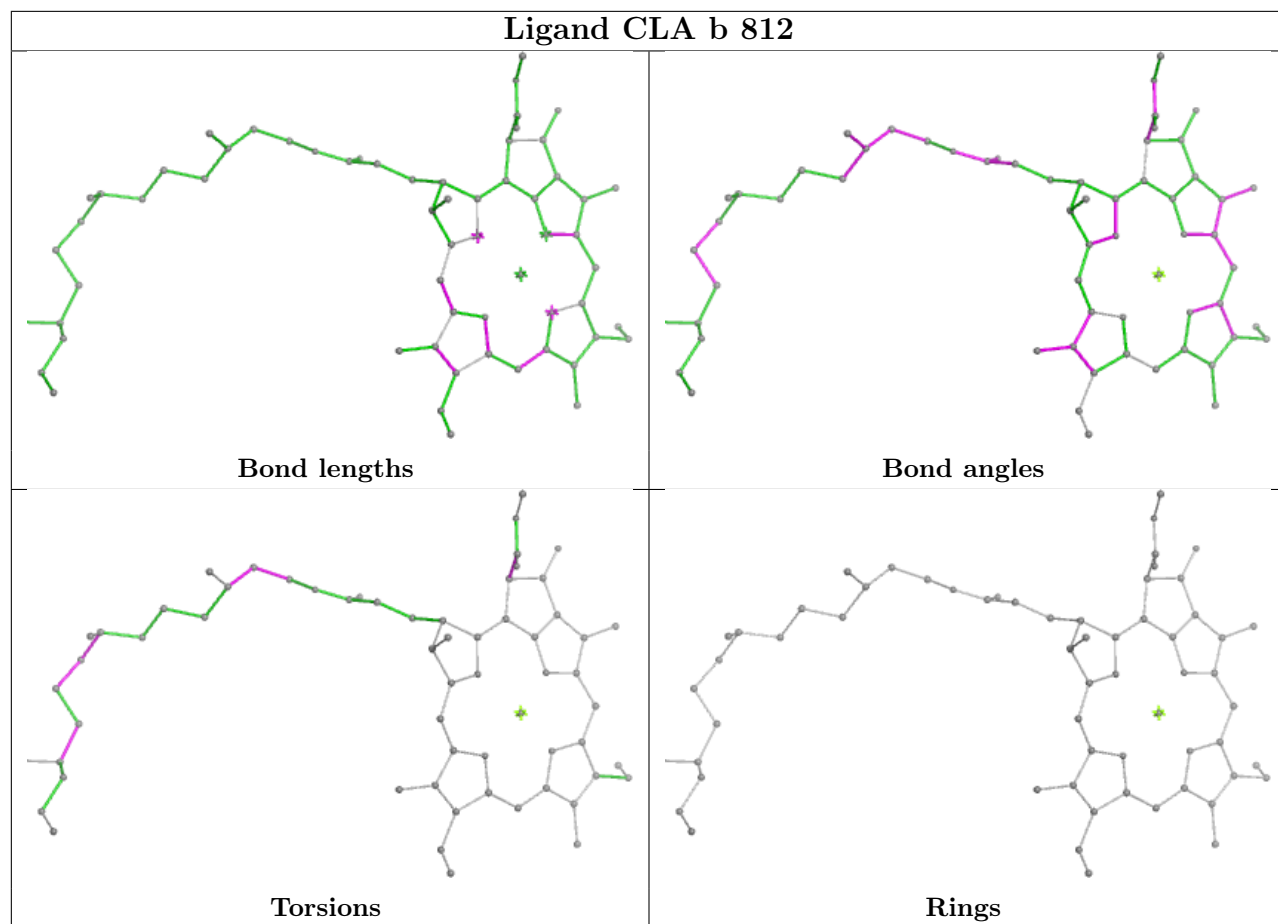


Torsions

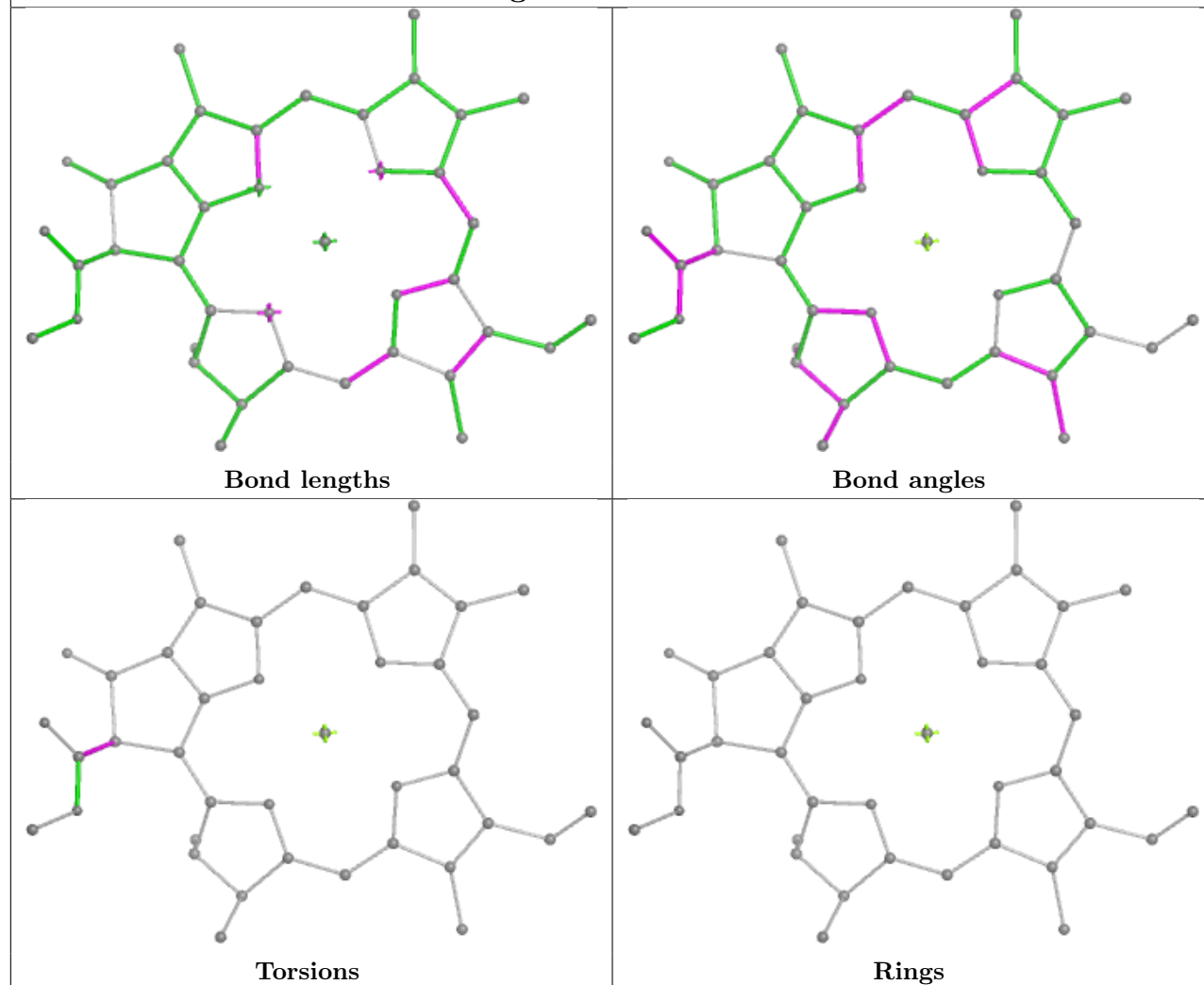


Rings

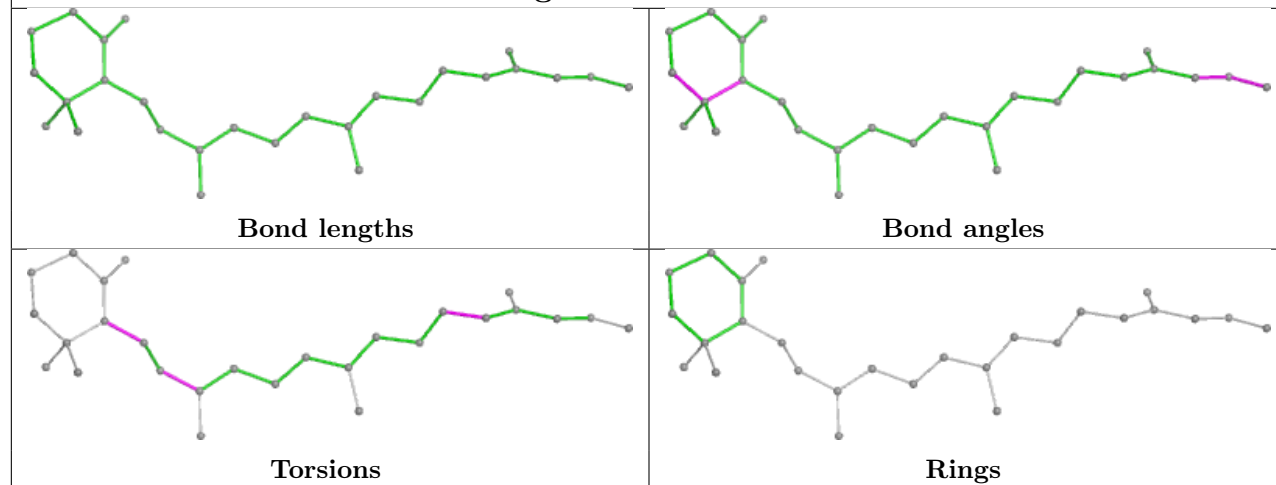




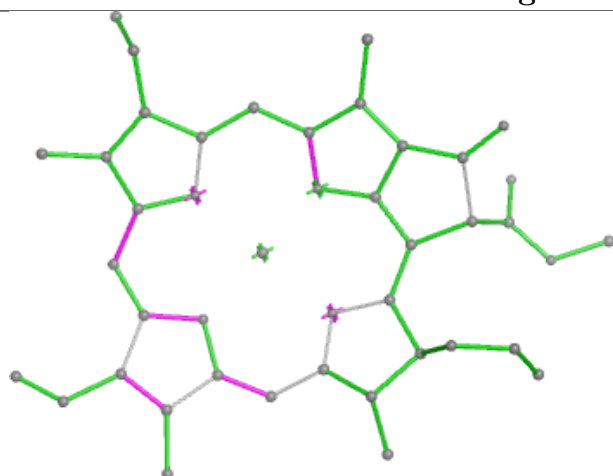
Ligand CLA 1 305



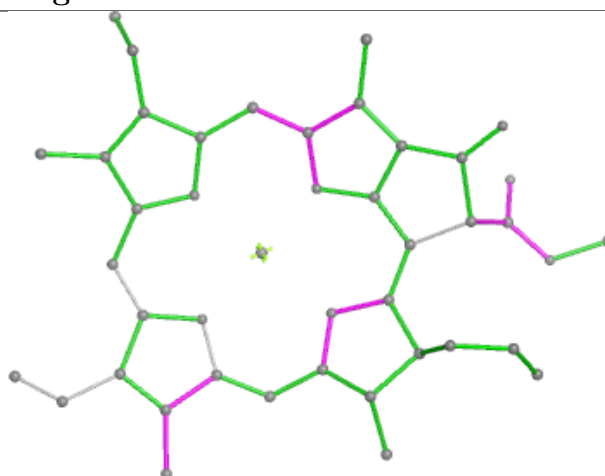
Ligand BCR a 803



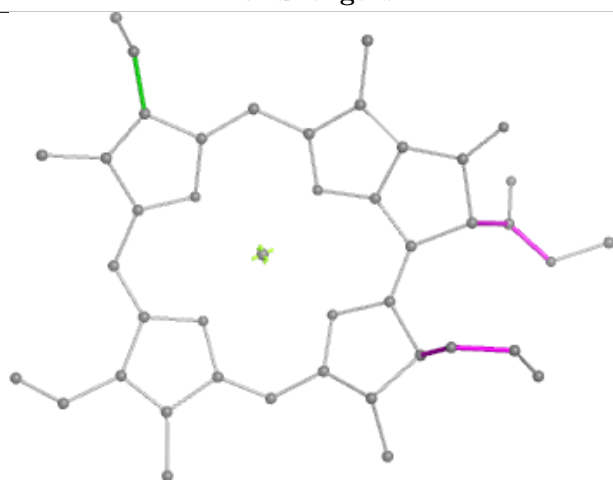
Ligand CLA g 204



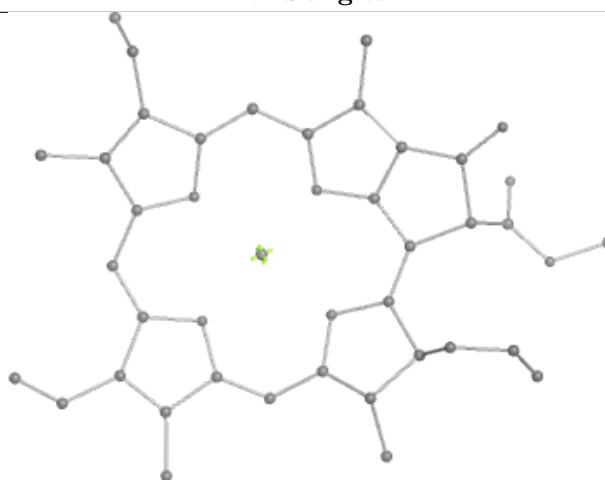
Bond lengths



Bond angles

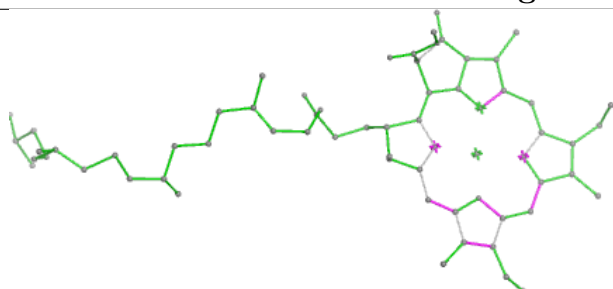


Torsions

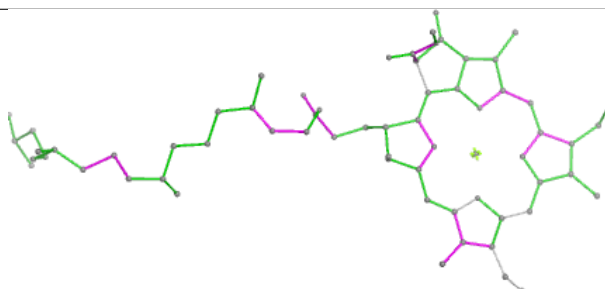


Rings

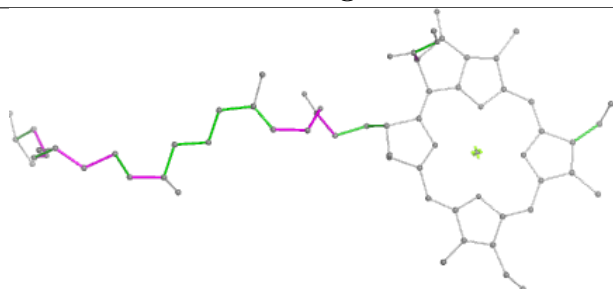
Ligand CLA a 801



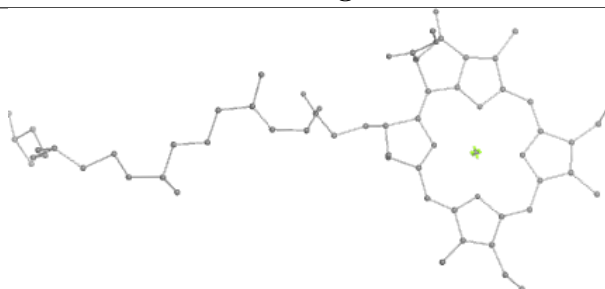
Bond lengths



Bond angles

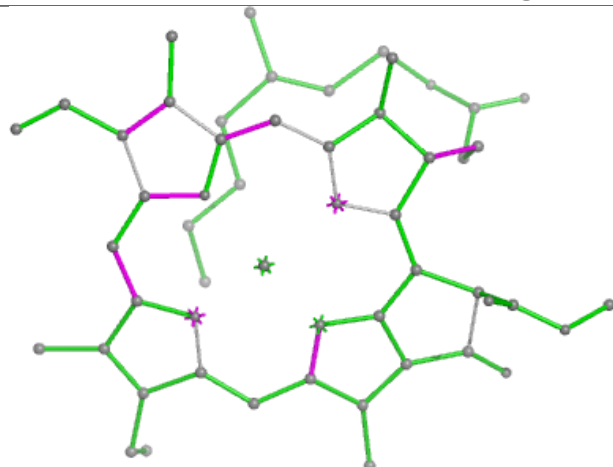


Torsions

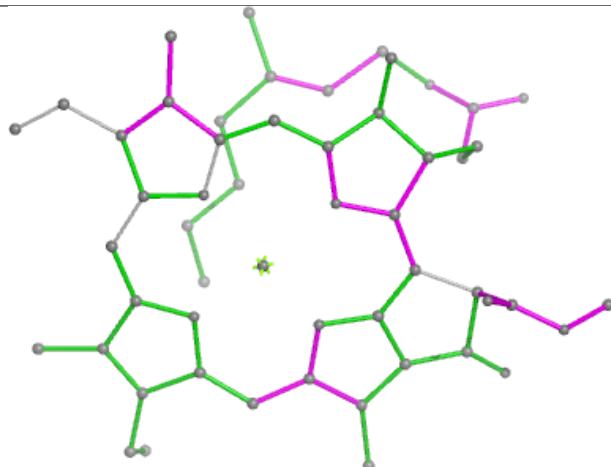


Rings

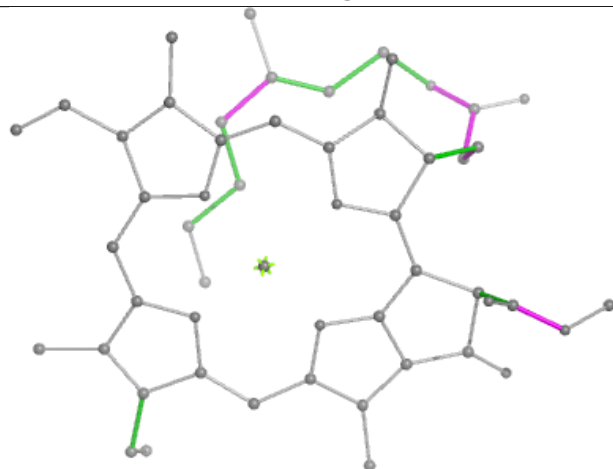
Ligand CLA x 313



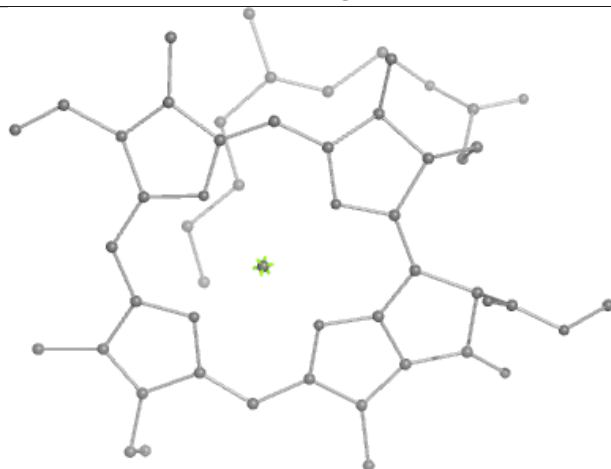
Bond lengths



Bond angles

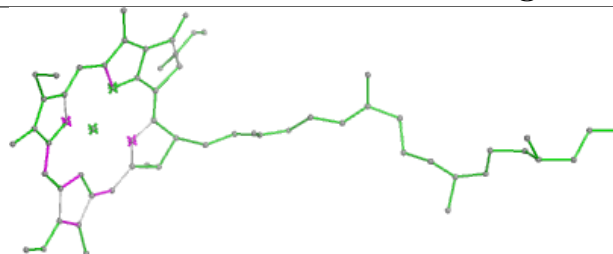


Torsions

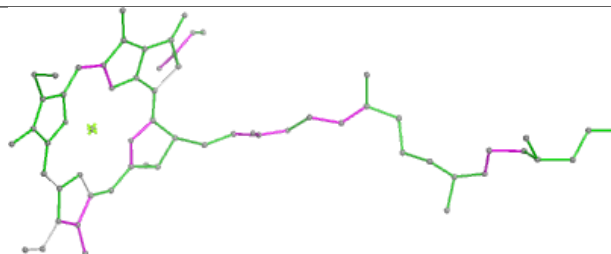


Rings

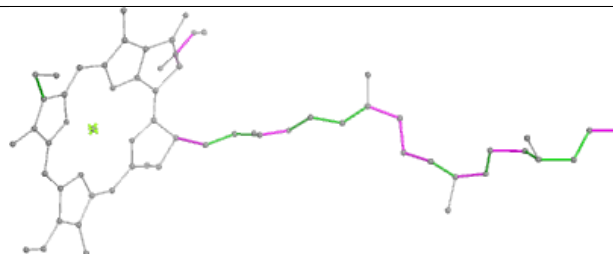
Ligand CLA a 836



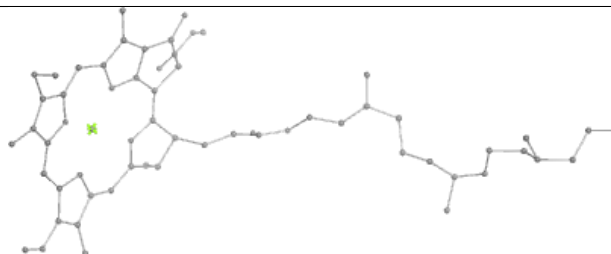
Bond lengths



Bond angles

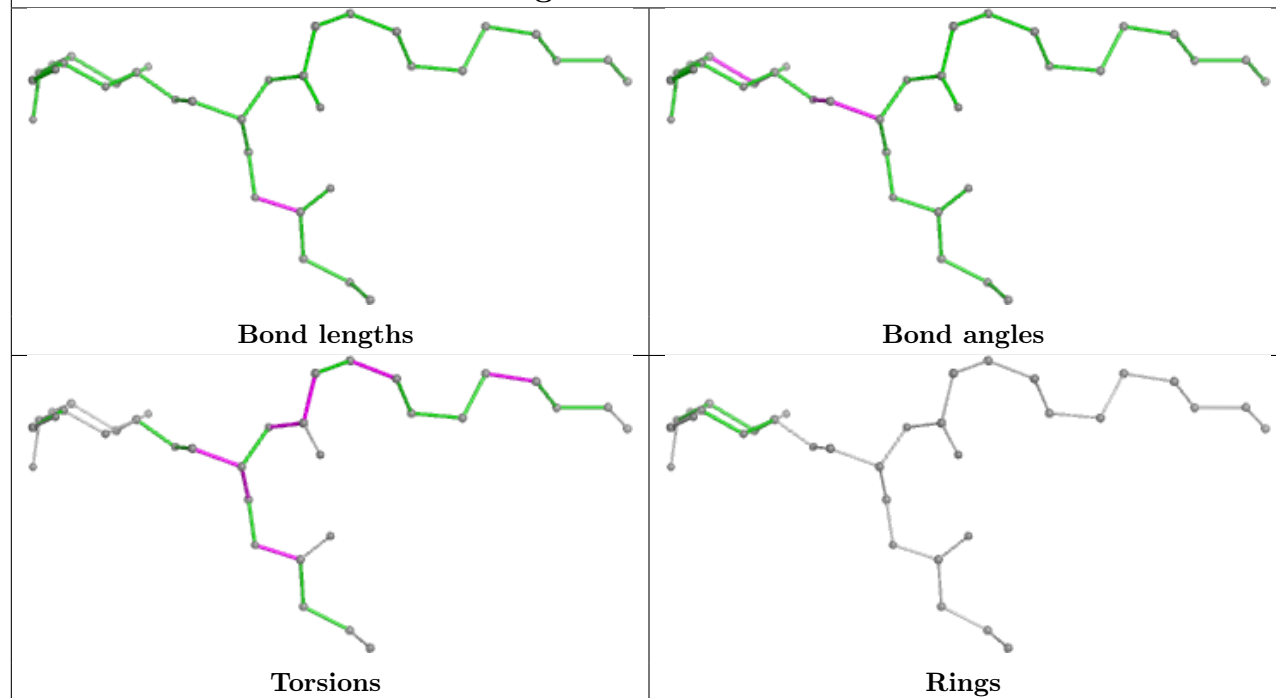


Torsions

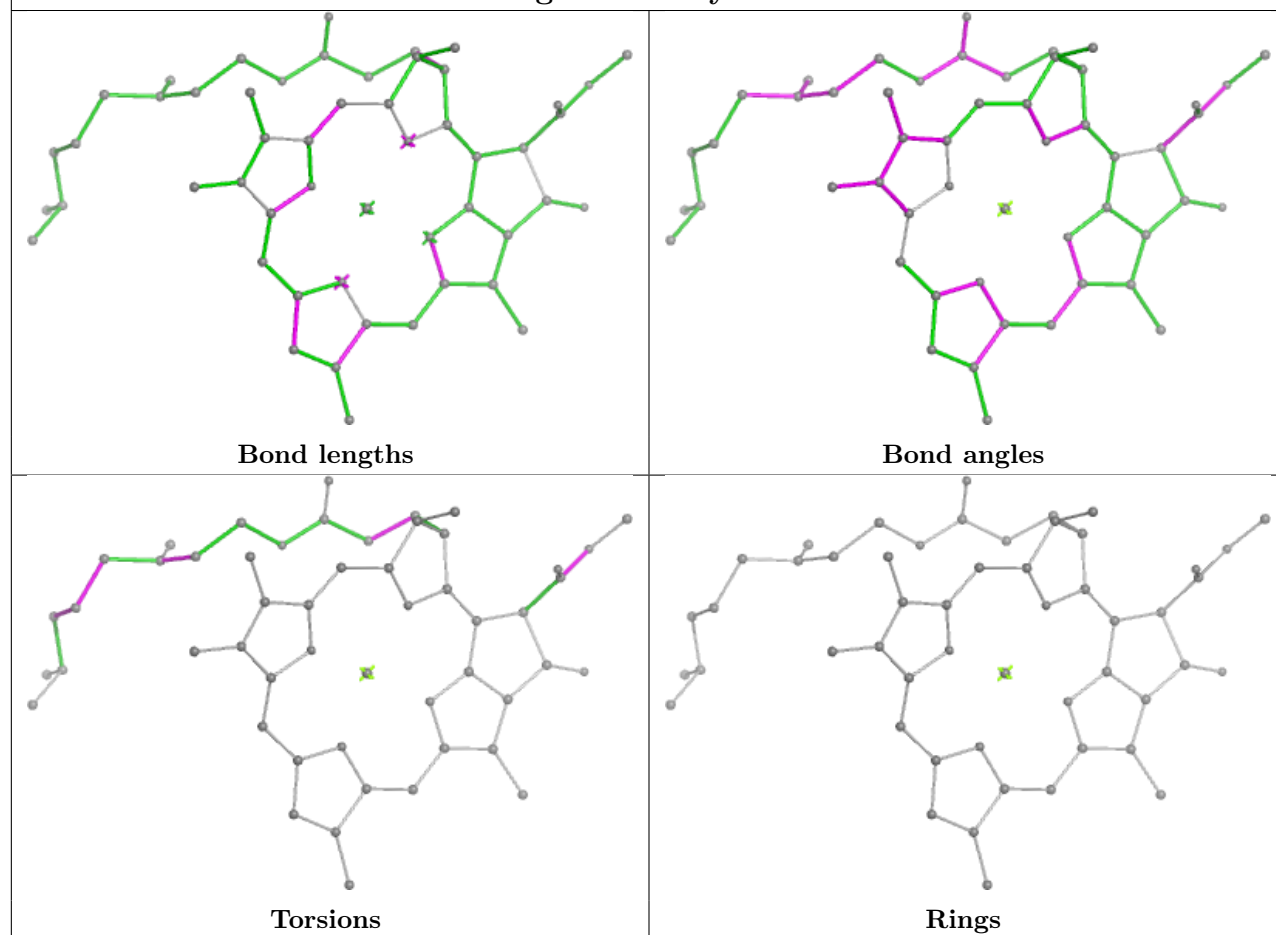


Rings

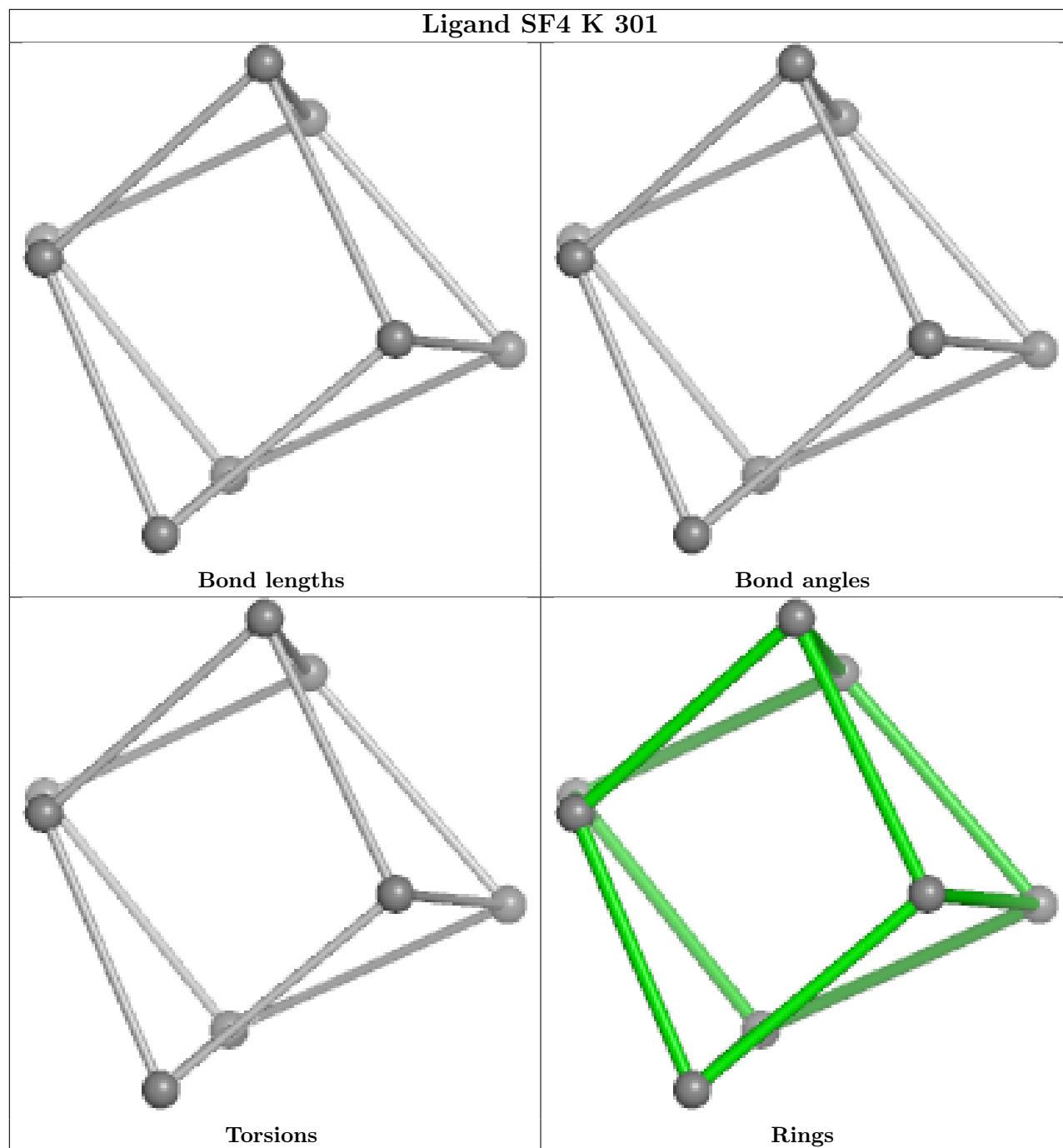
Ligand LMG f 306

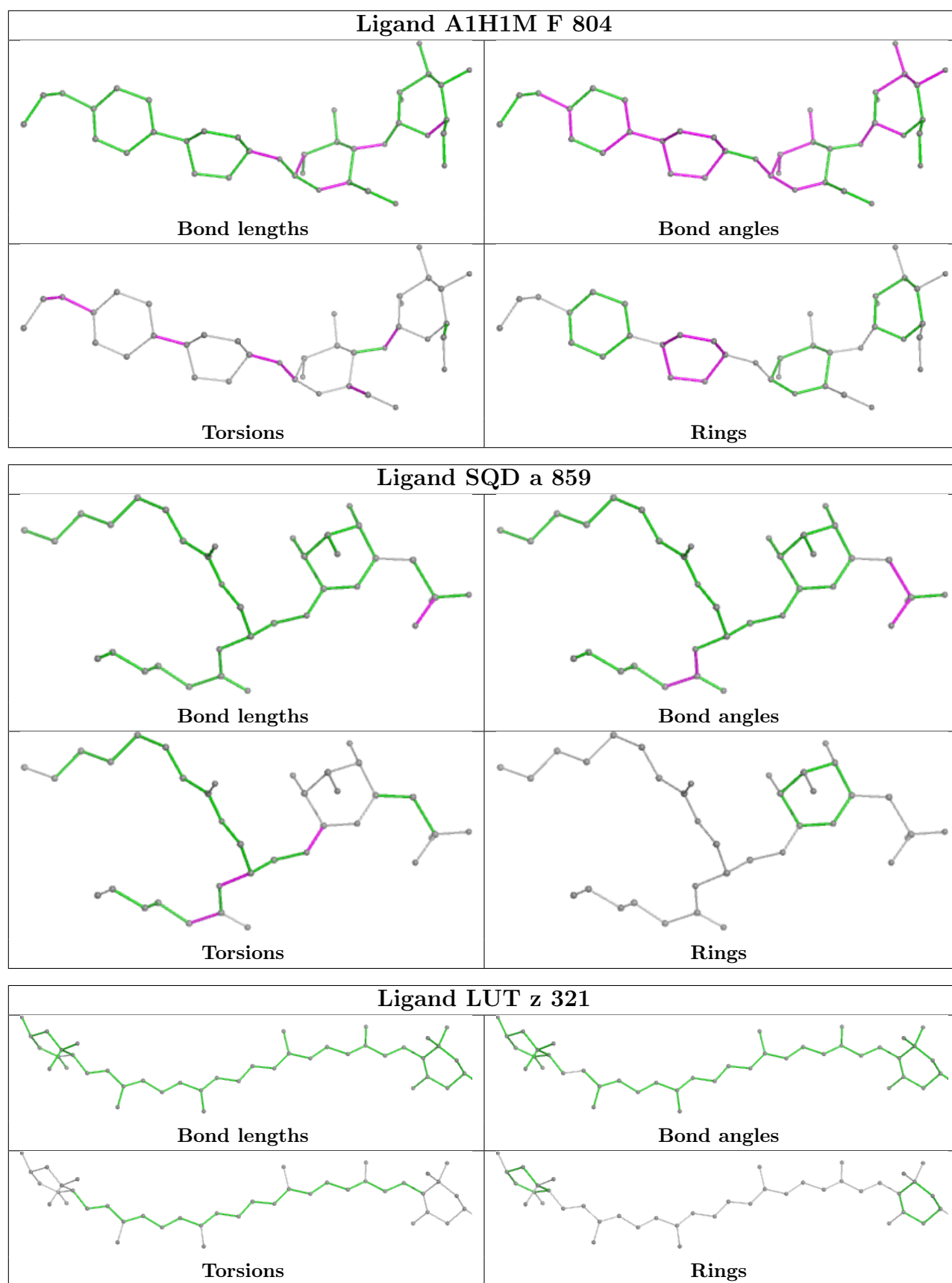


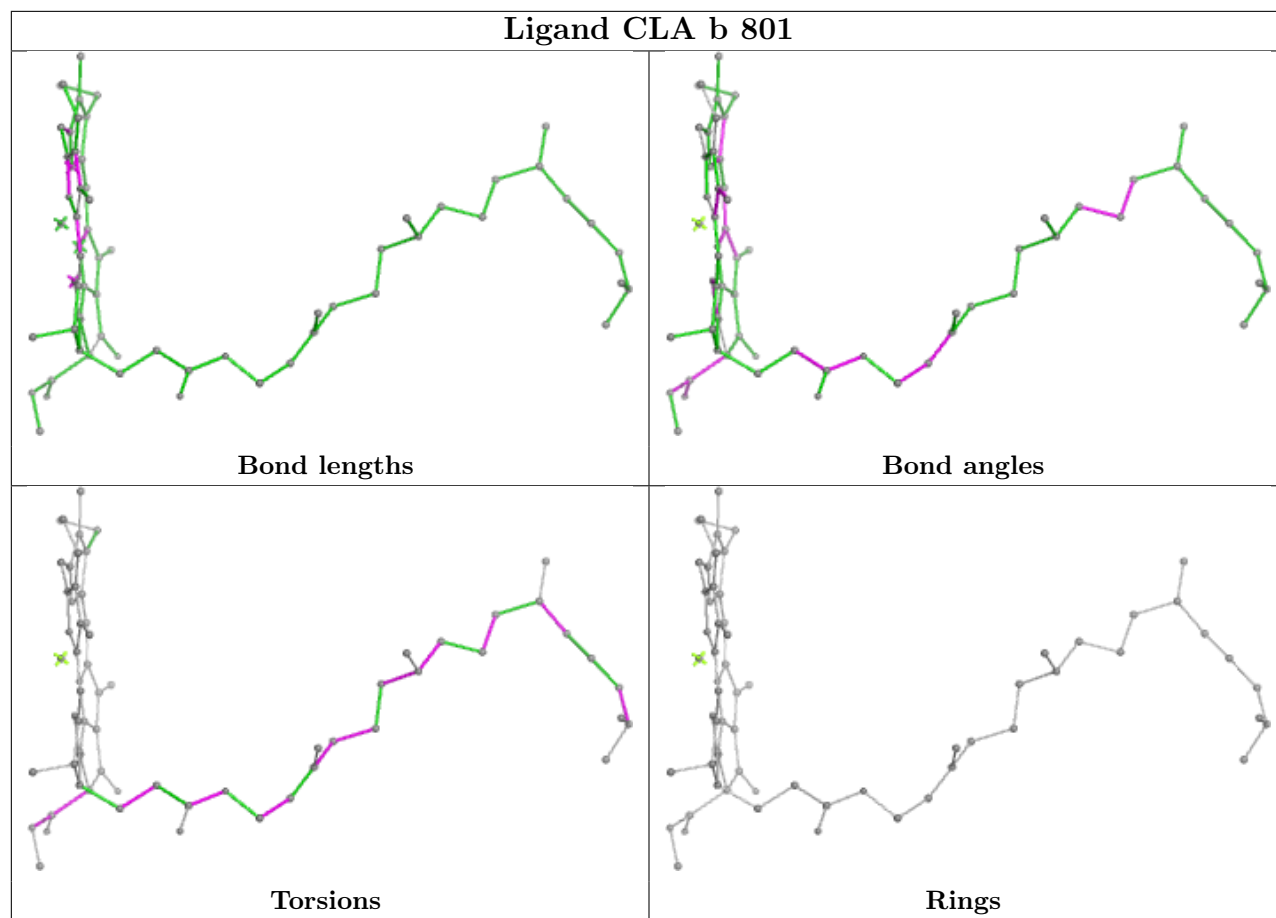
Ligand CLA y 302

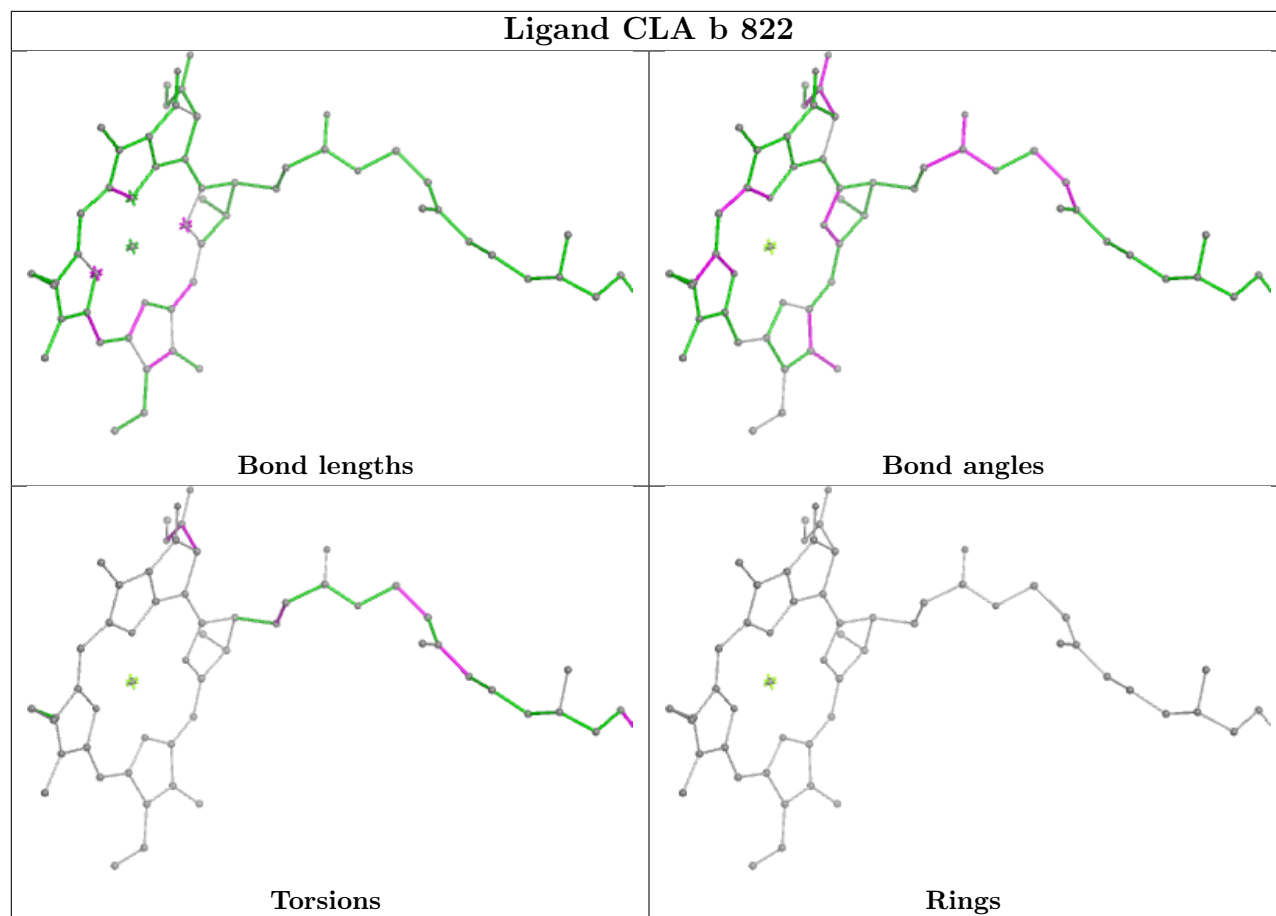


Ligand SF4 K 301

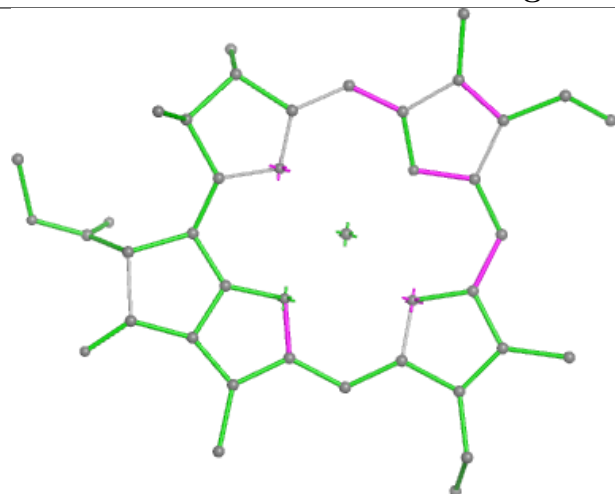




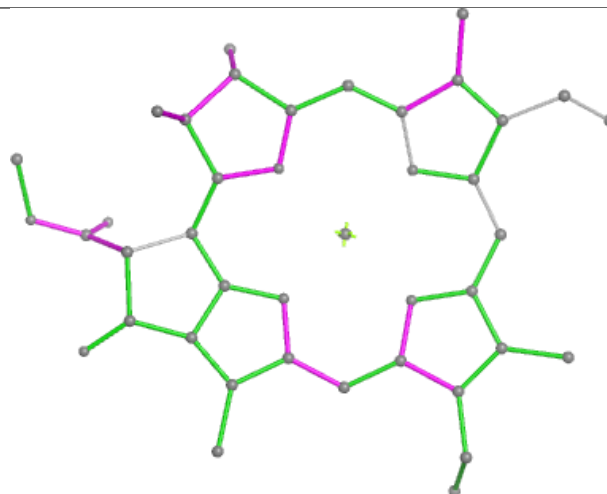




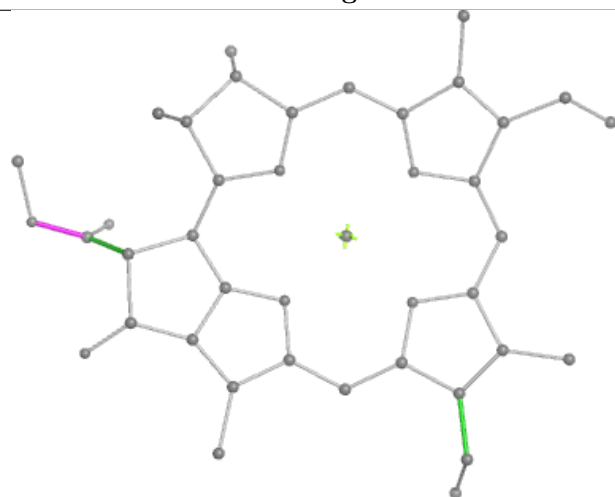
Ligand CLA f 303



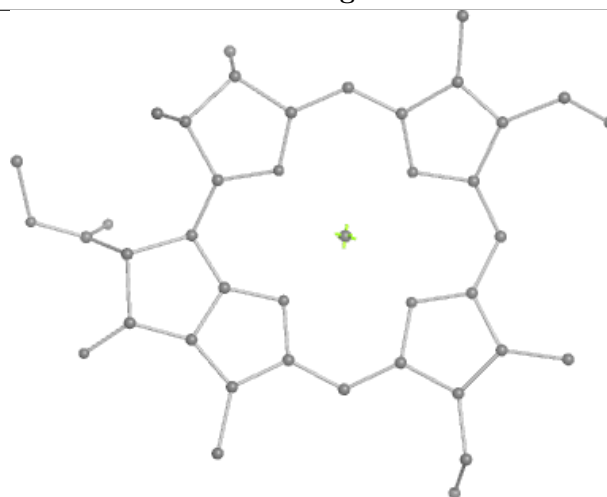
Bond lengths



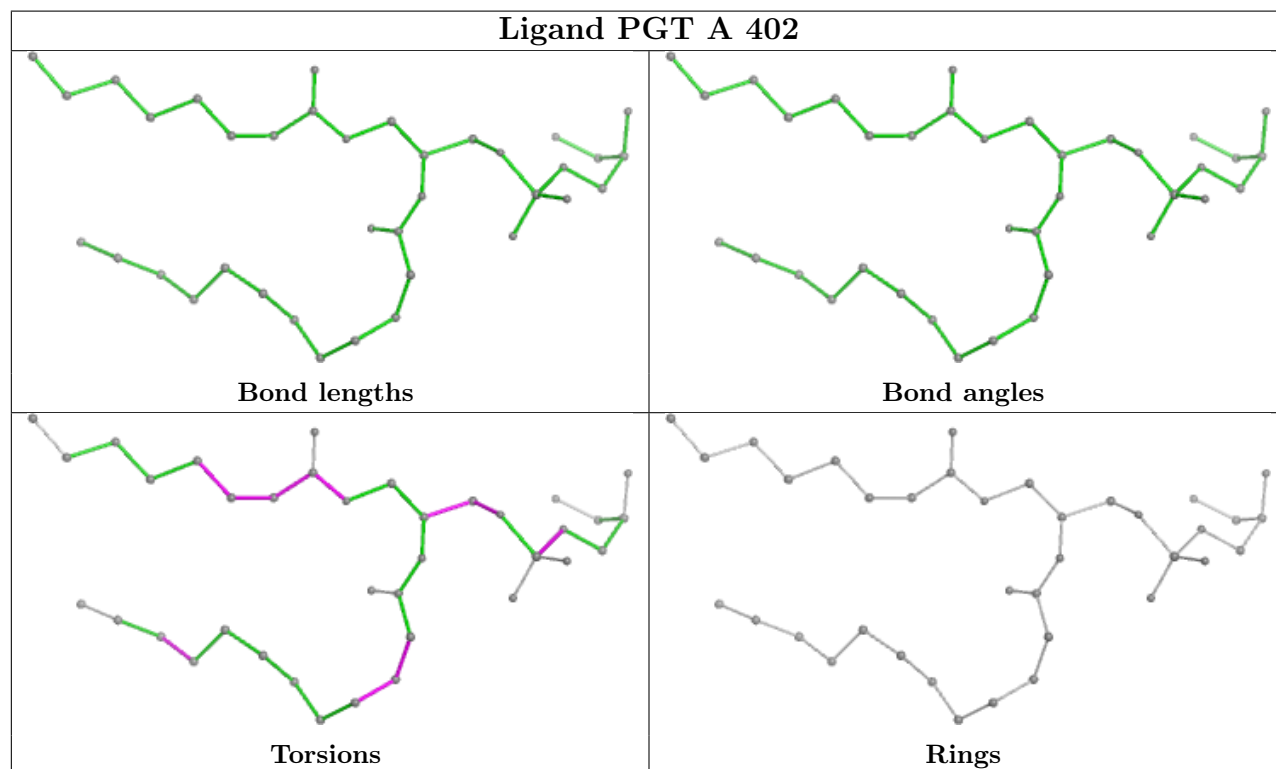
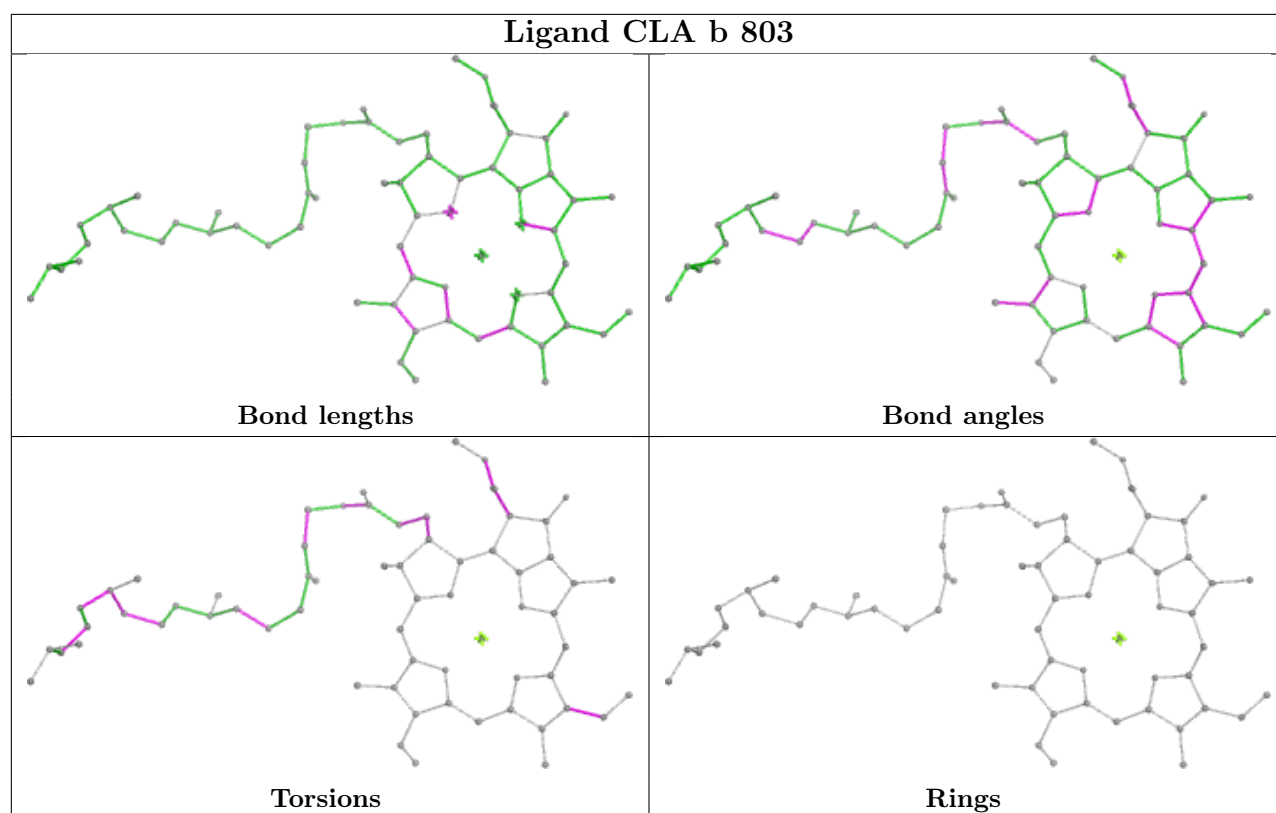
Bond angles



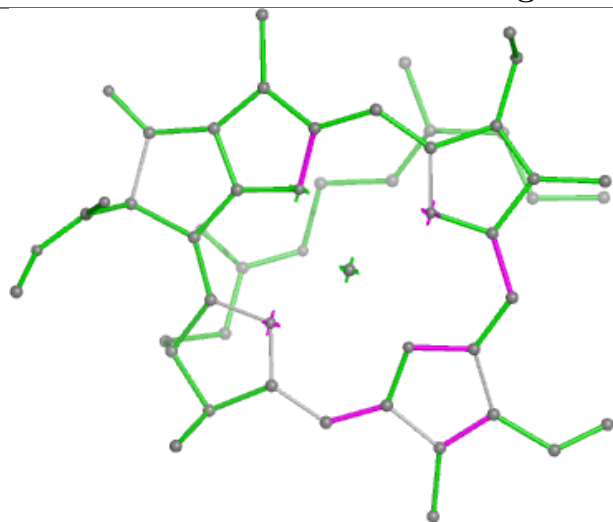
Torsions



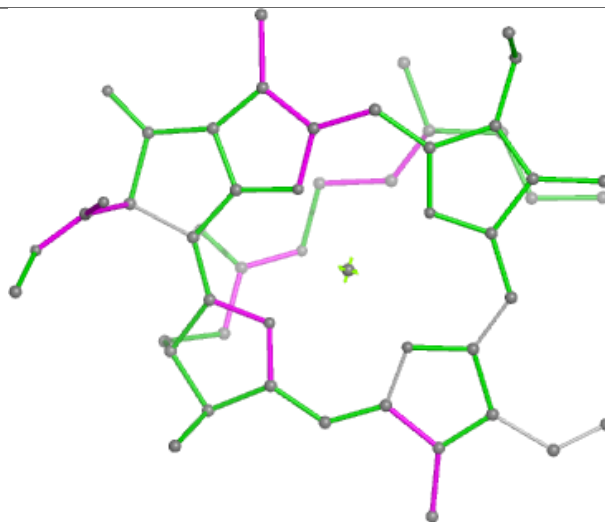
Rings



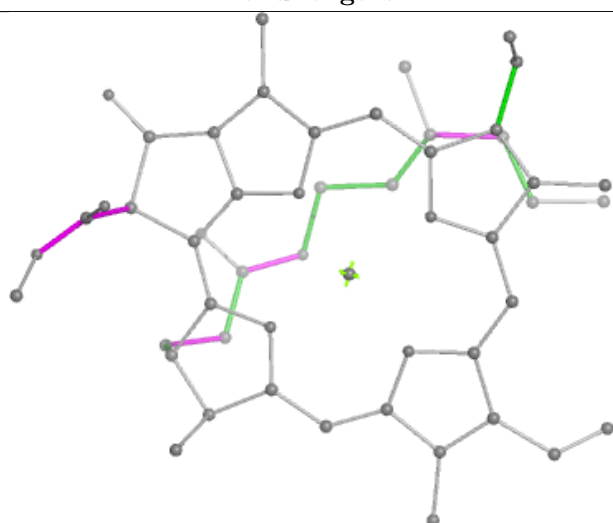
Ligand CLA b 806



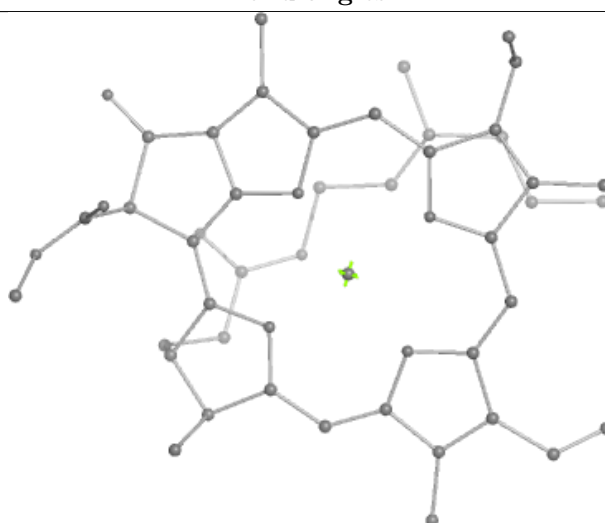
Bond lengths



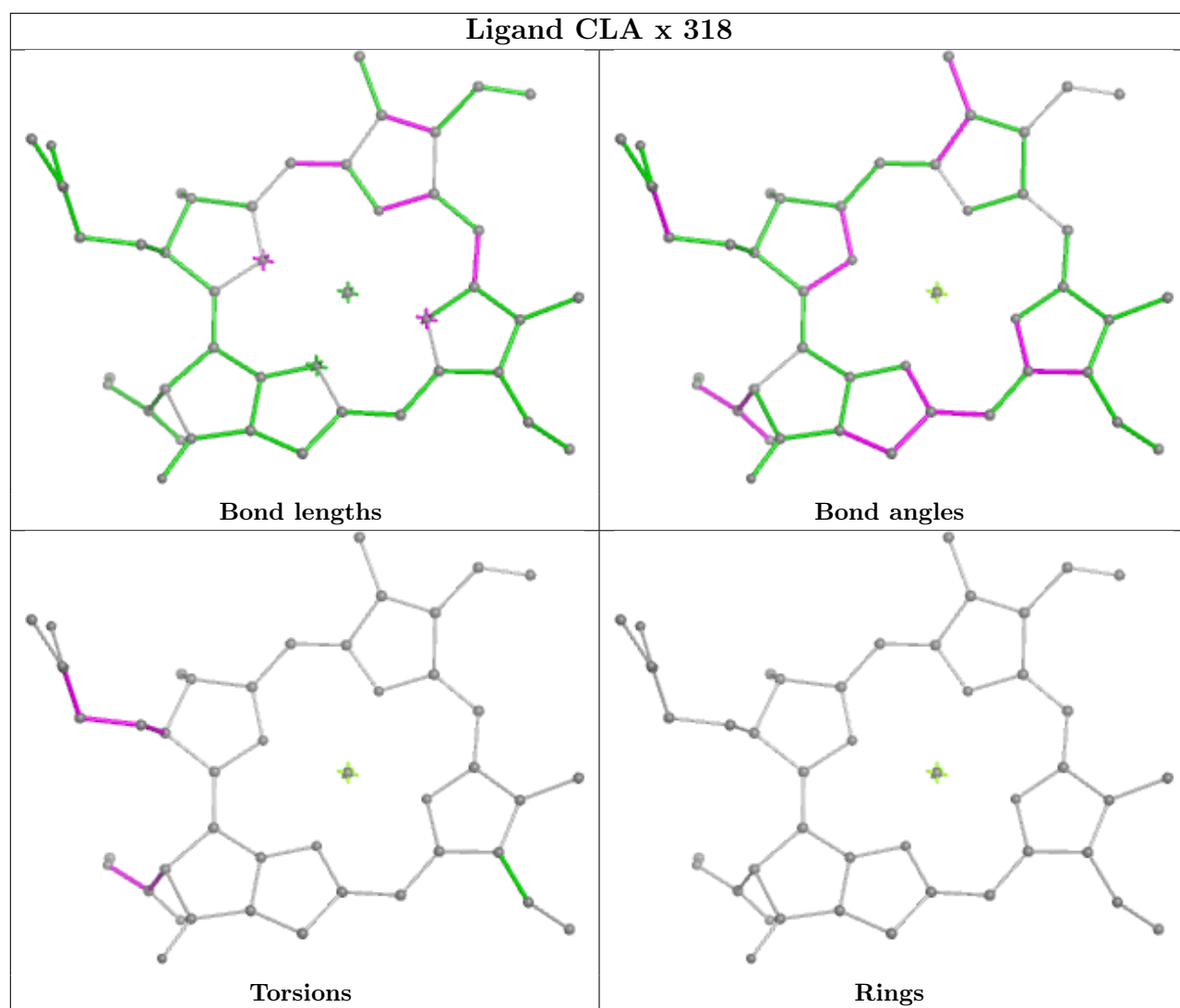
Bond angles



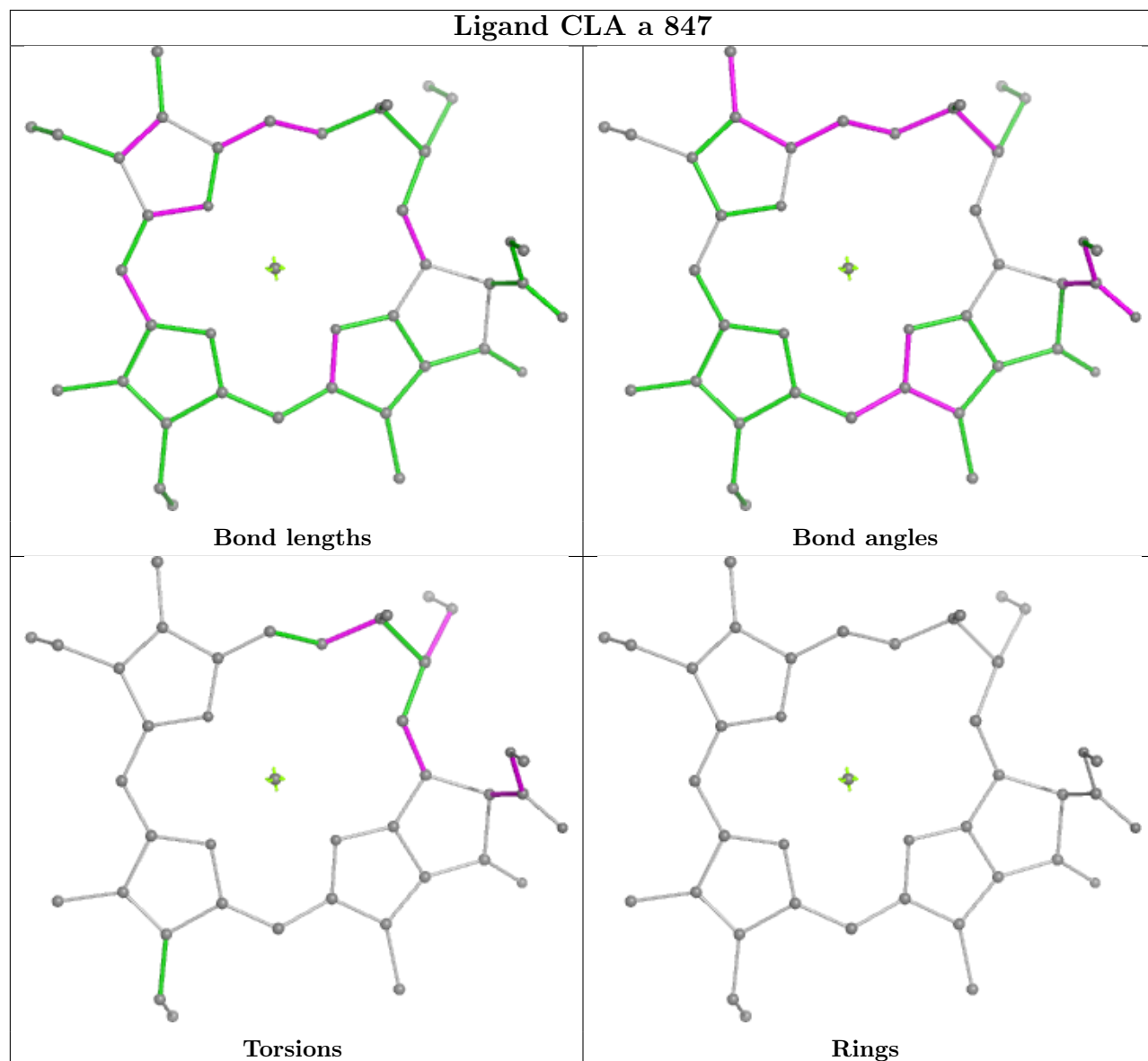
Torsions



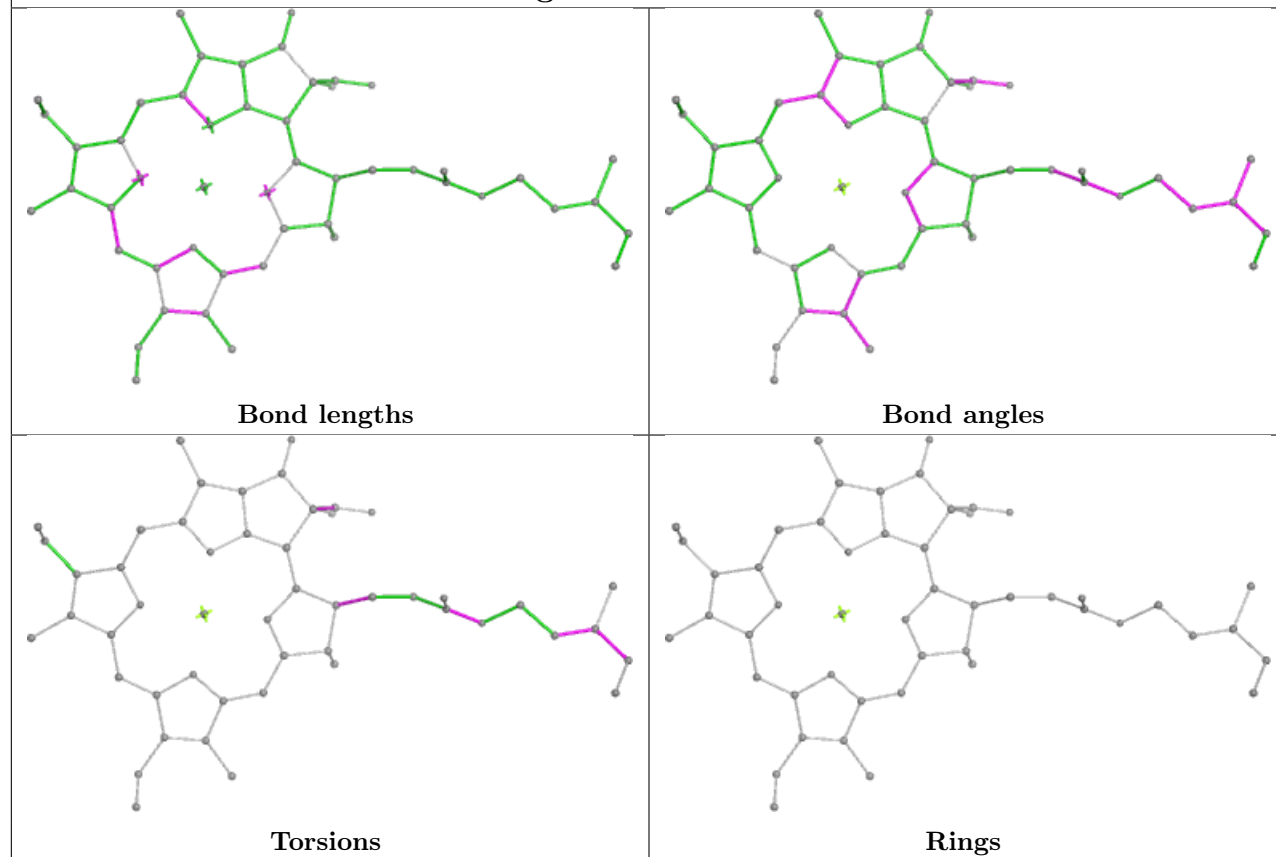
Rings



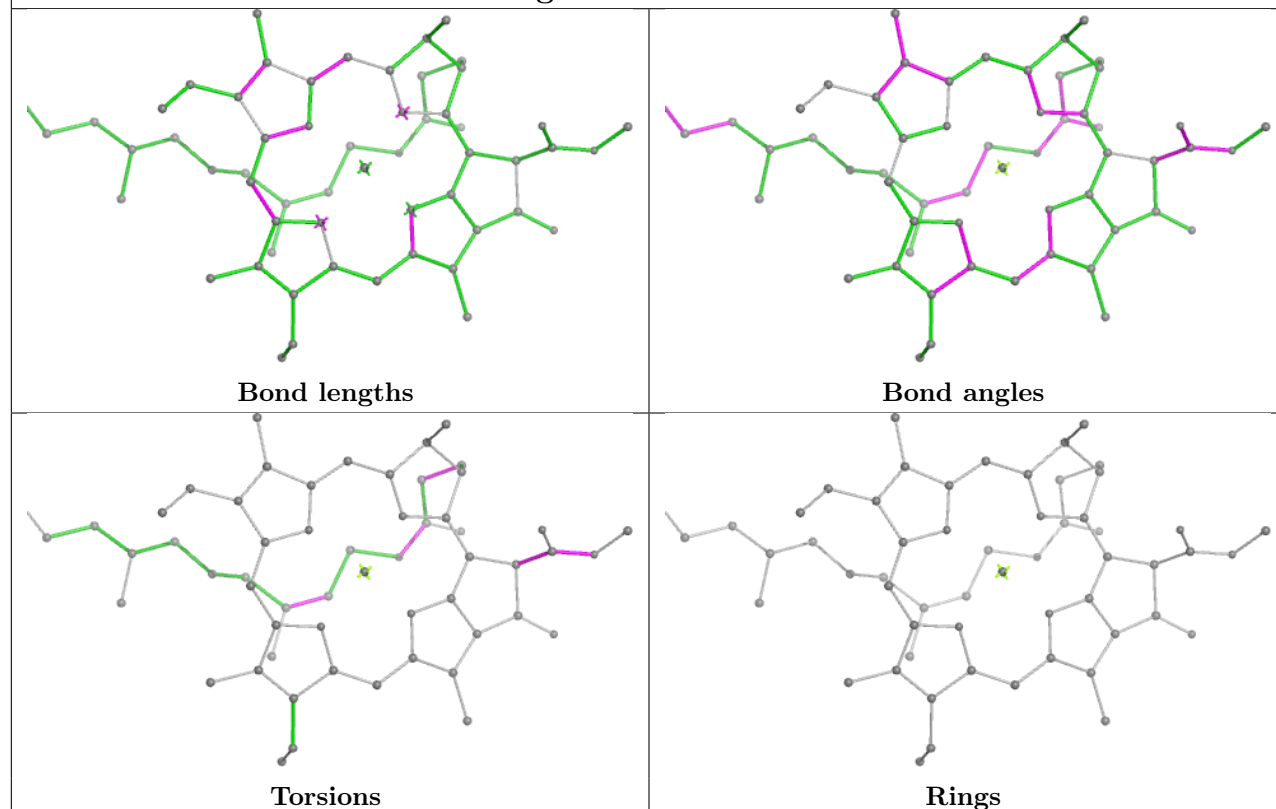
Ligand CLA a 847

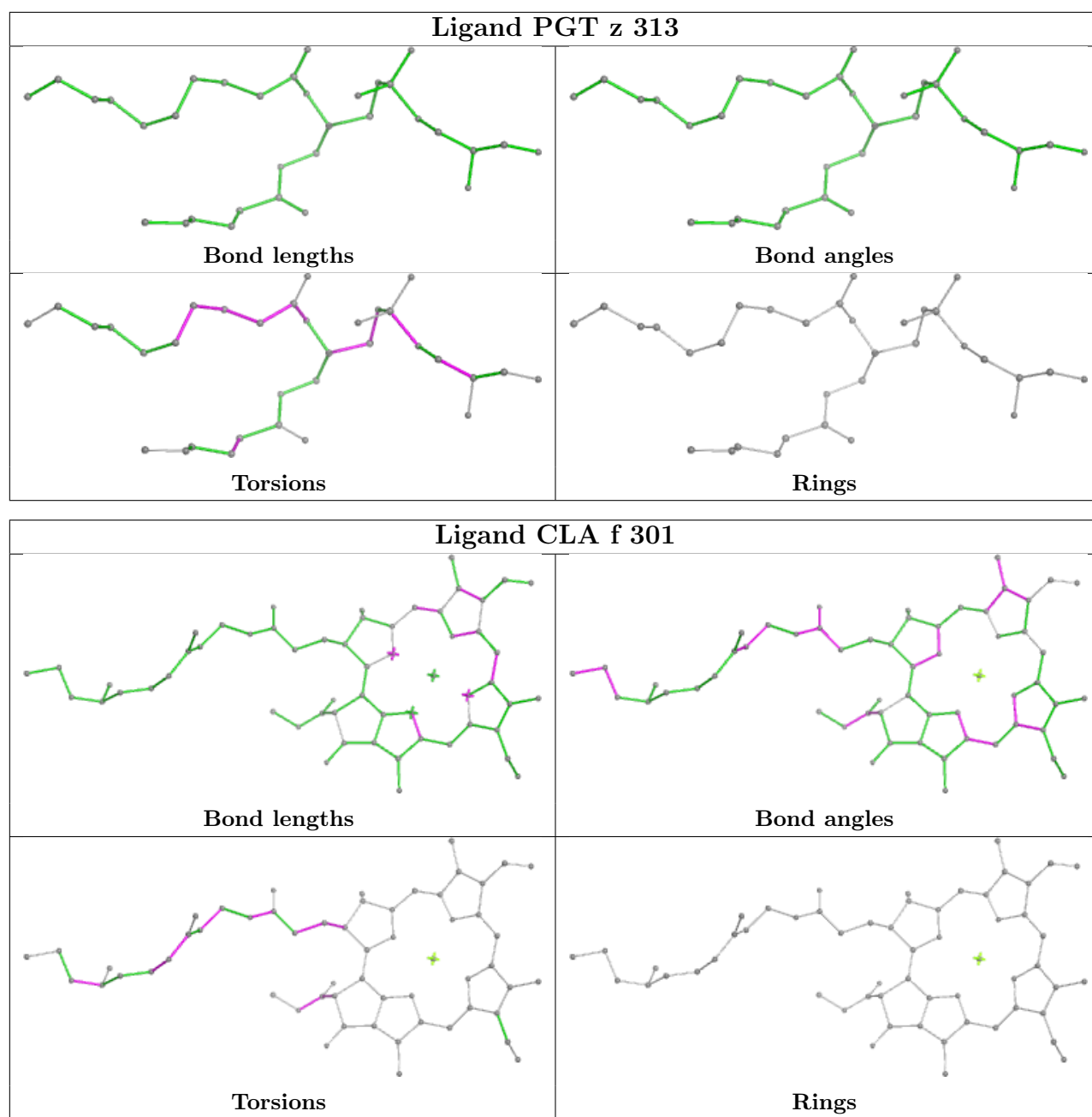


Ligand CLA a 822

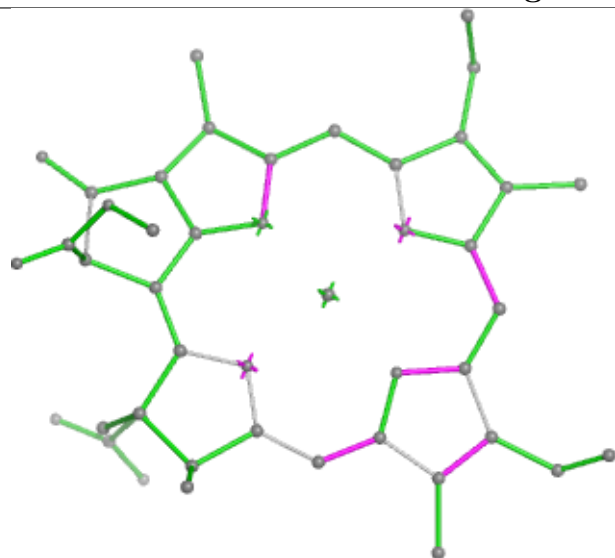


Ligand CLA a 809

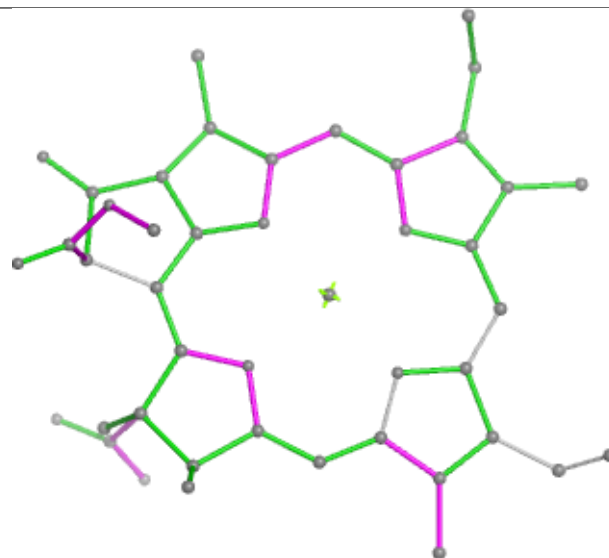




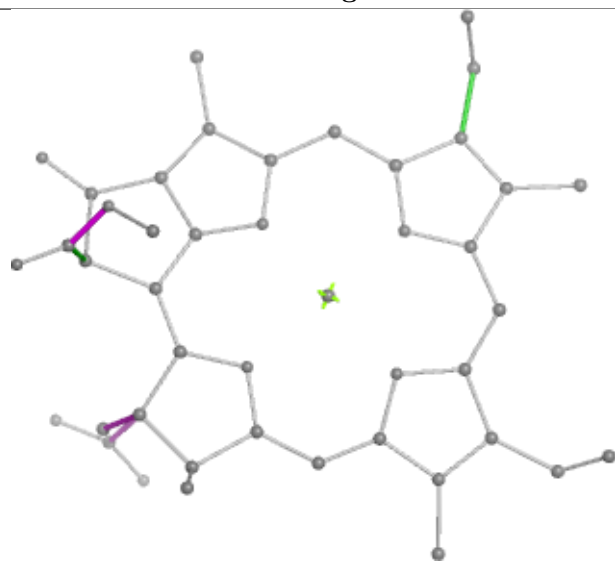
Ligand CLA 1 301



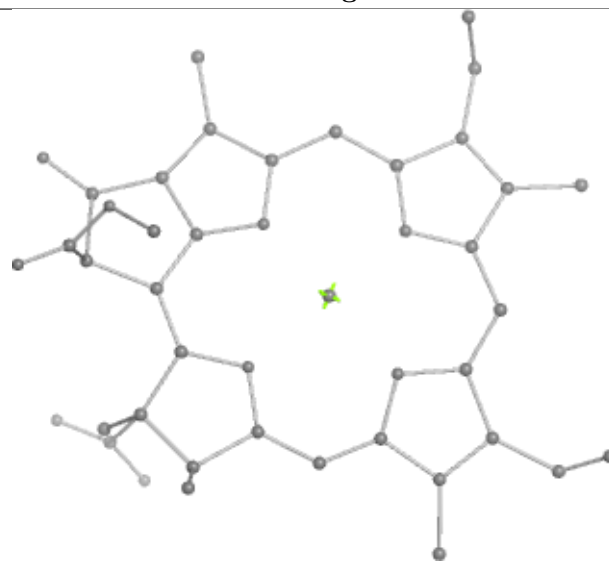
Bond lengths



Bond angles

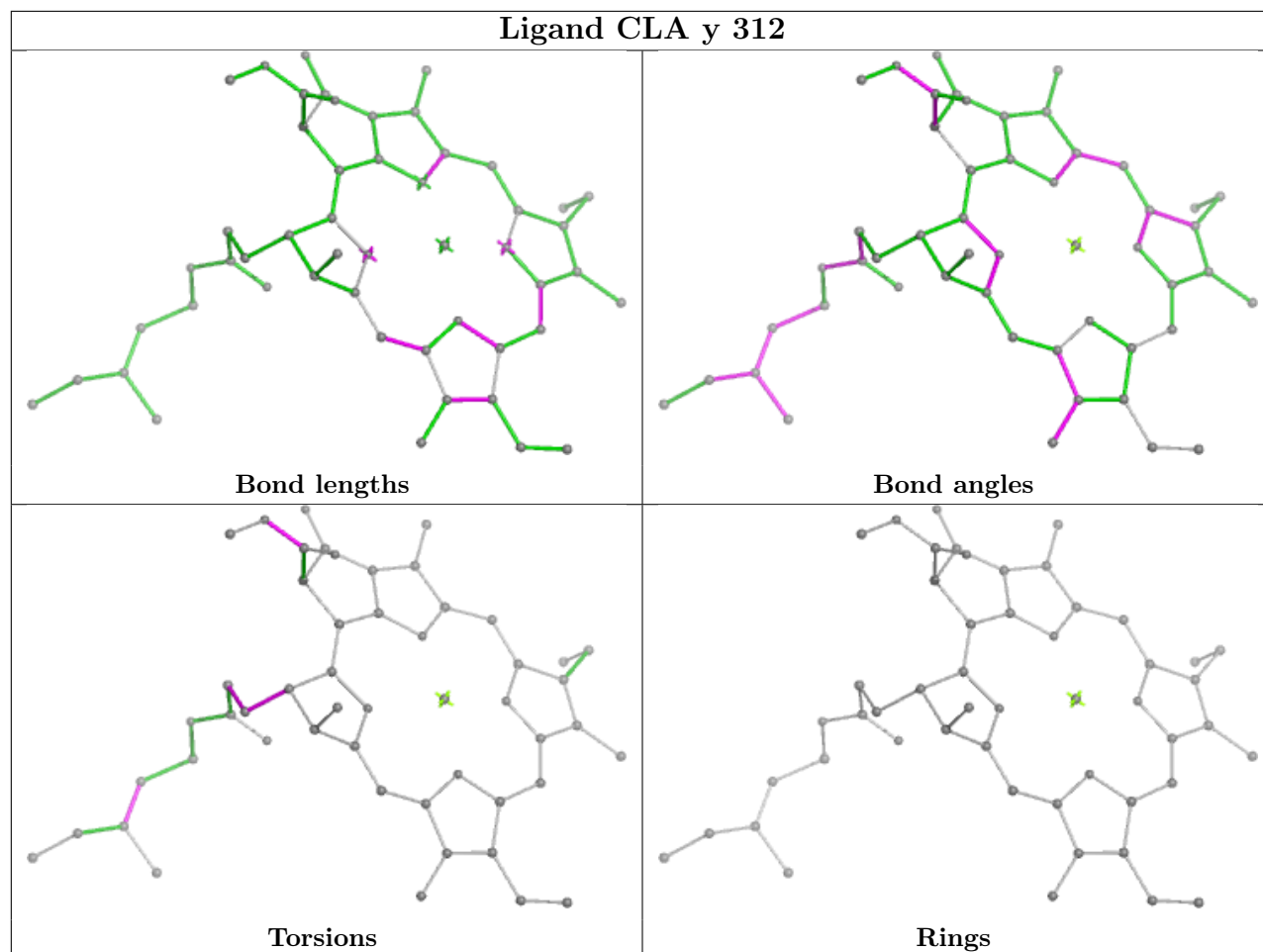


Torsions

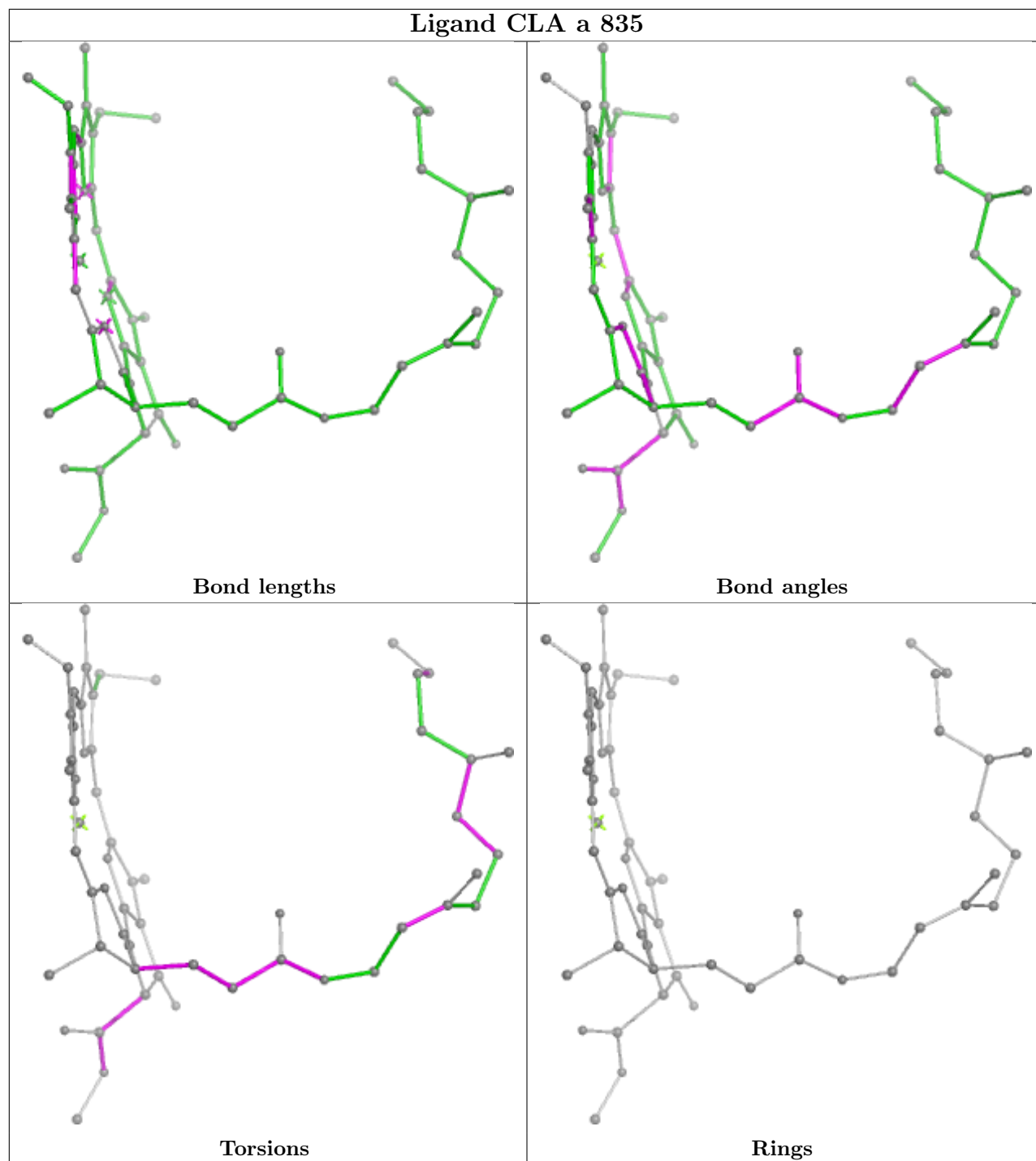


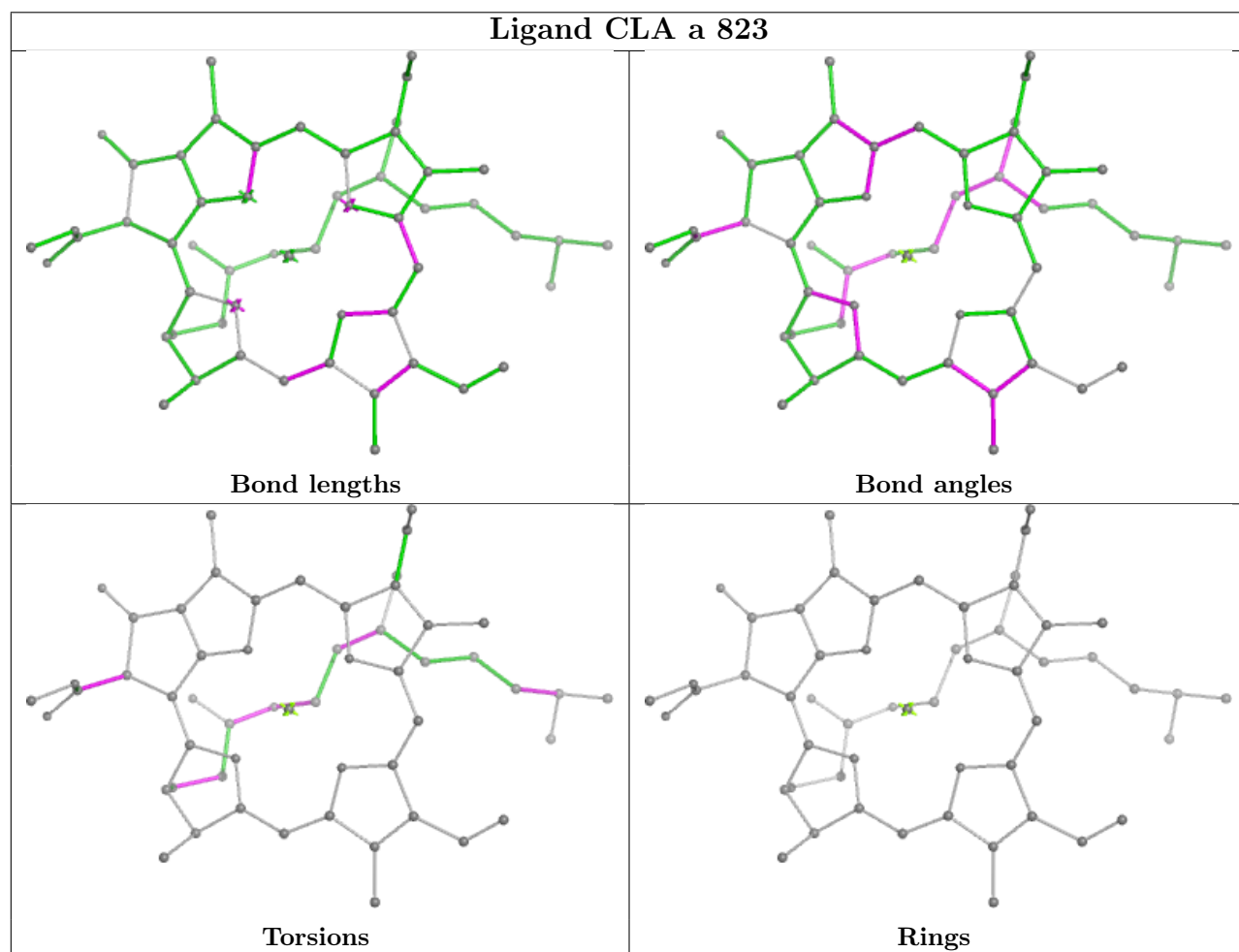
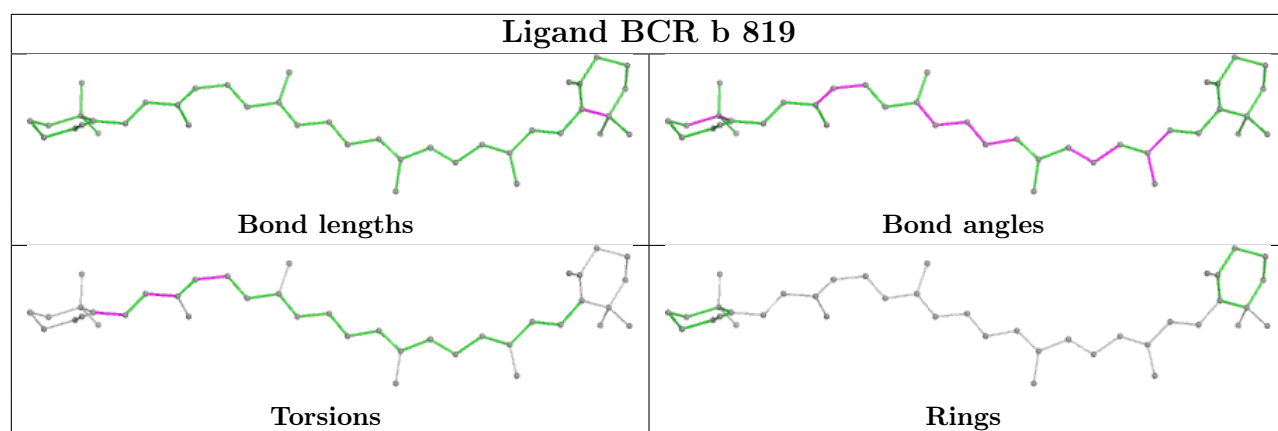
Rings

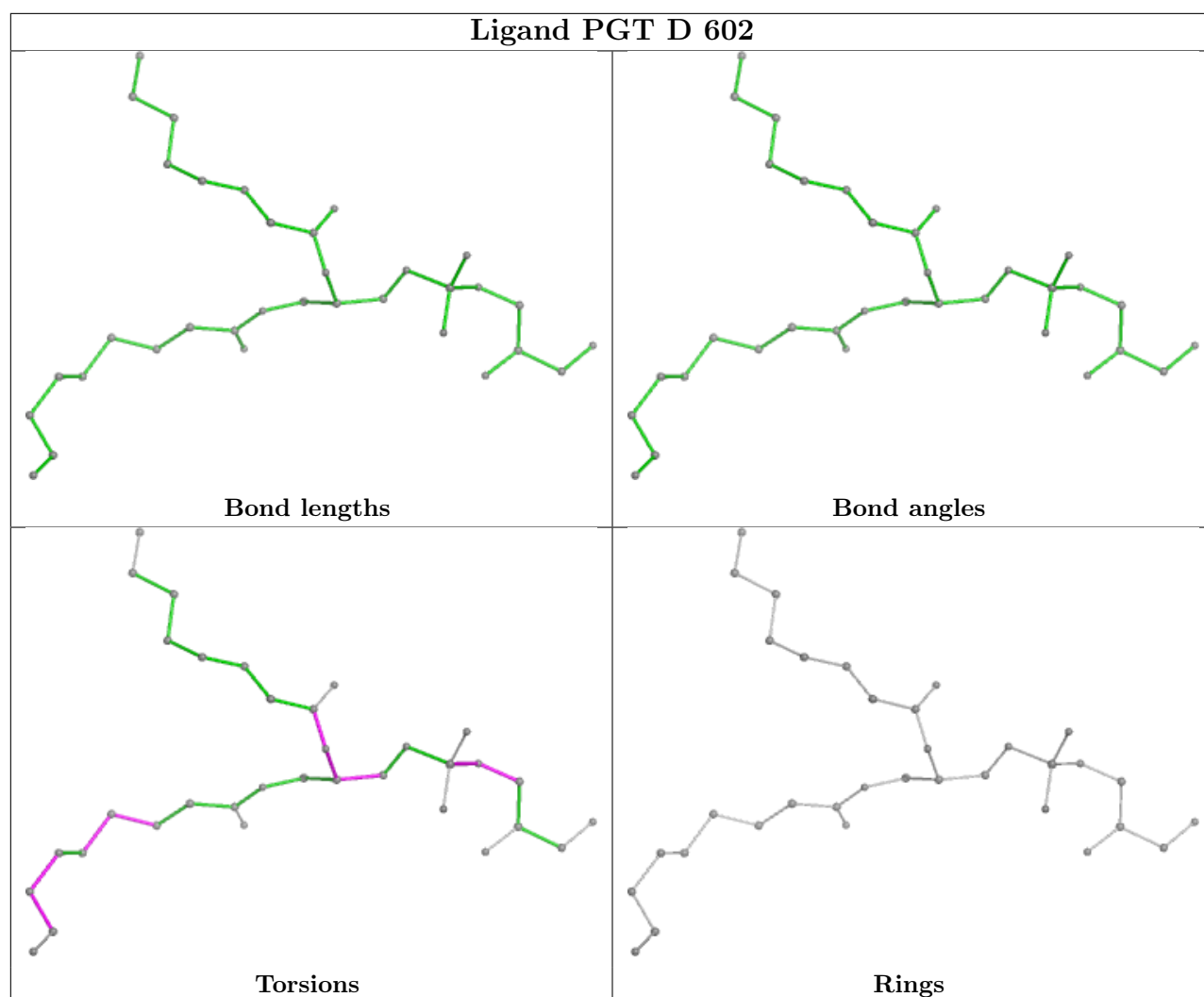
Ligand CLA y 312

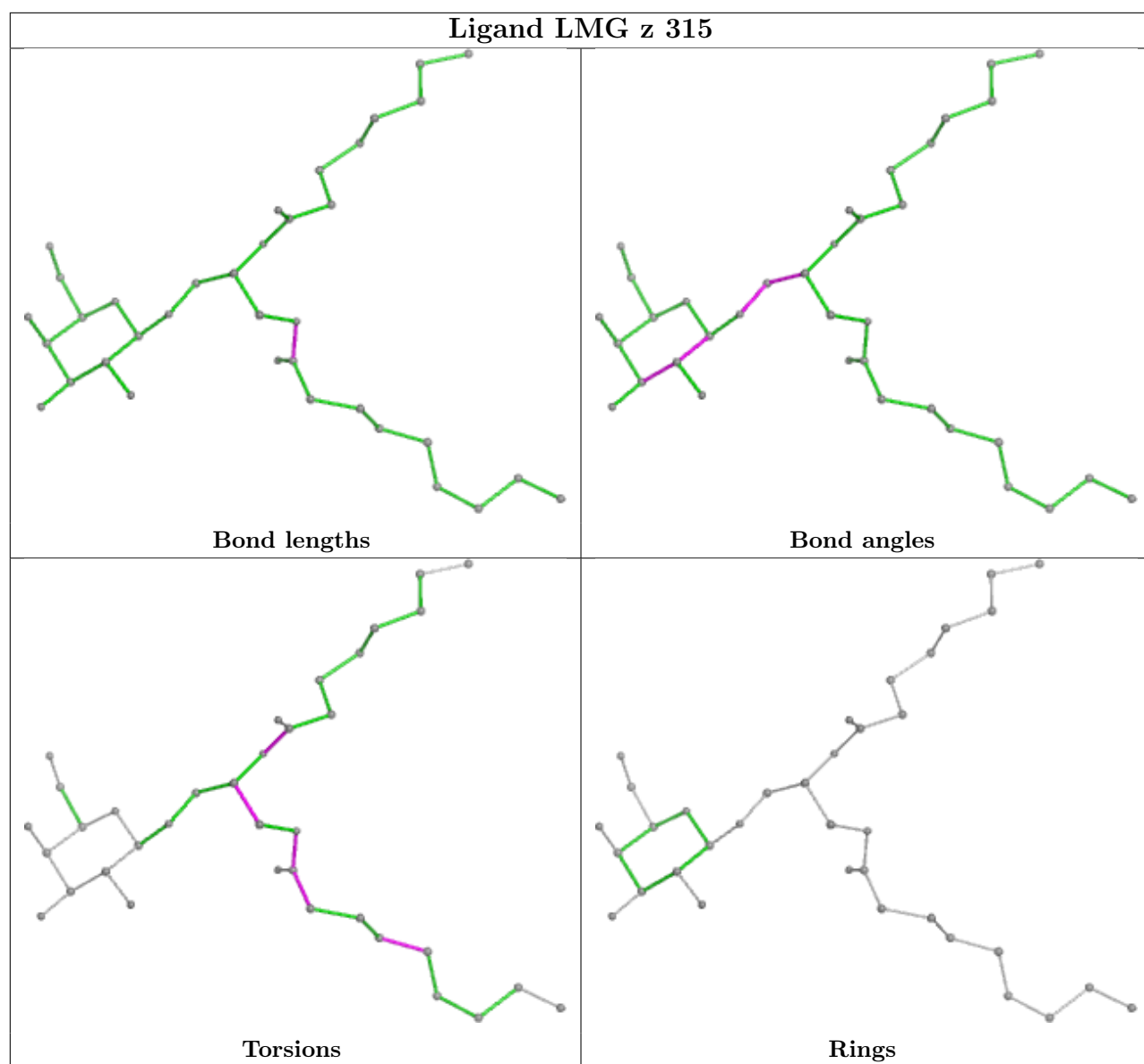


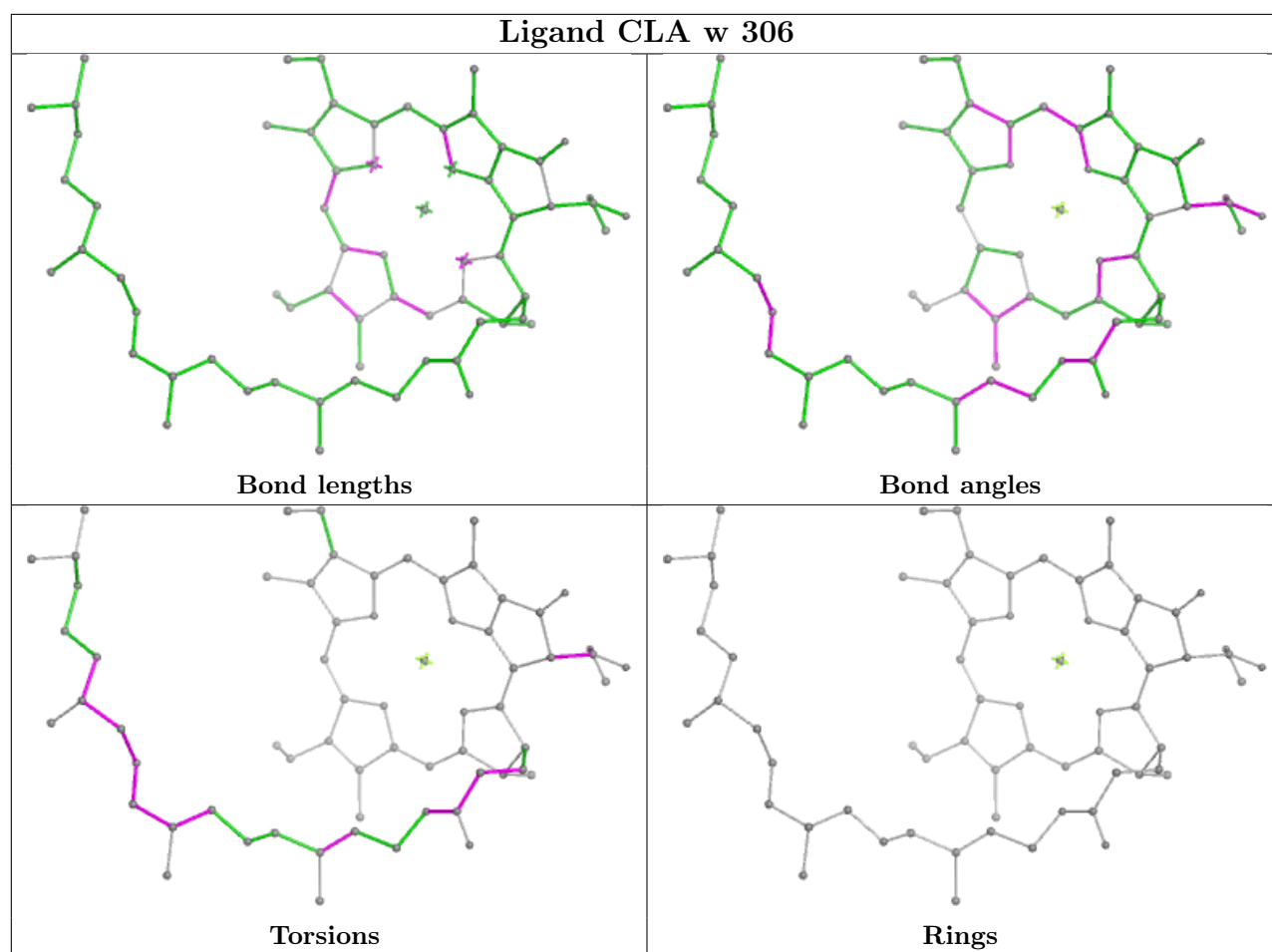
Ligand CLA a 835



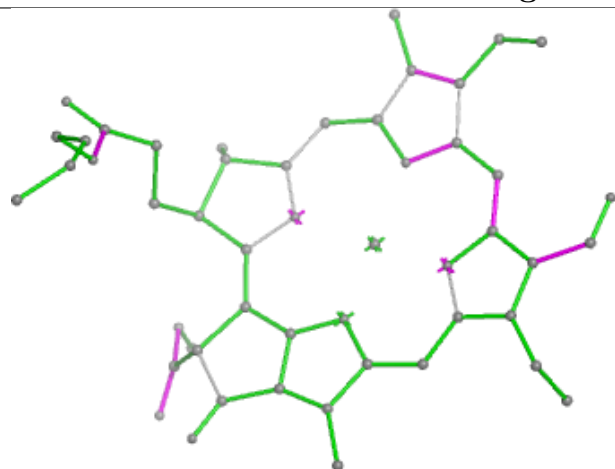




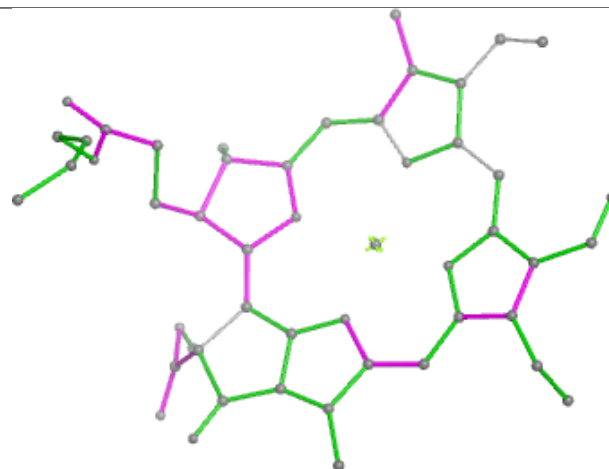




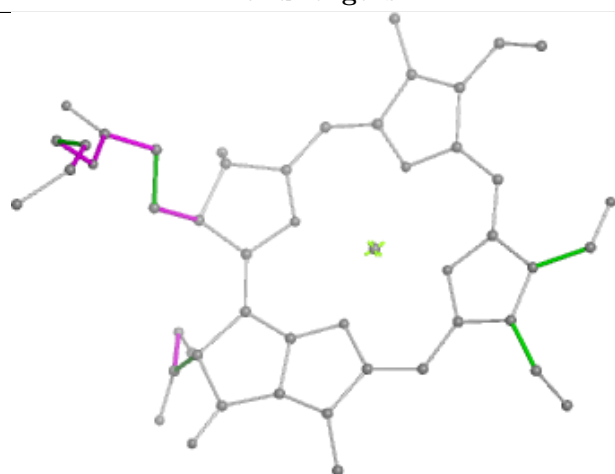
Ligand CHL x 319



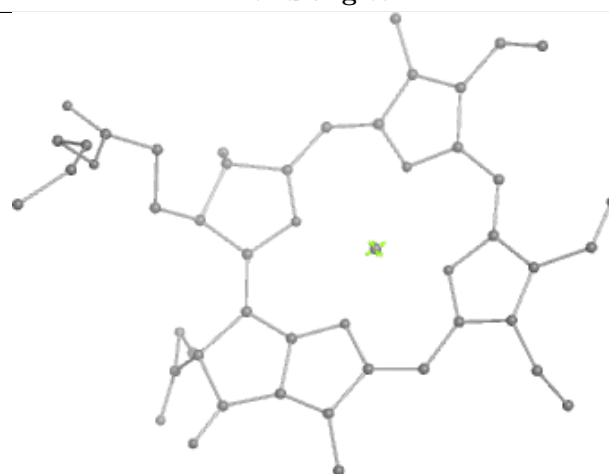
Bond lengths



Bond angles

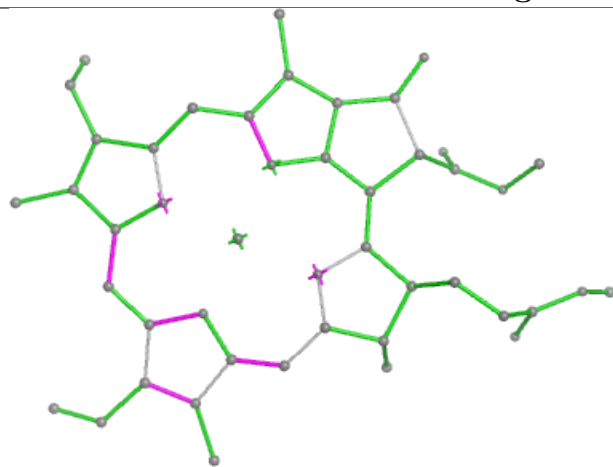


Torsions

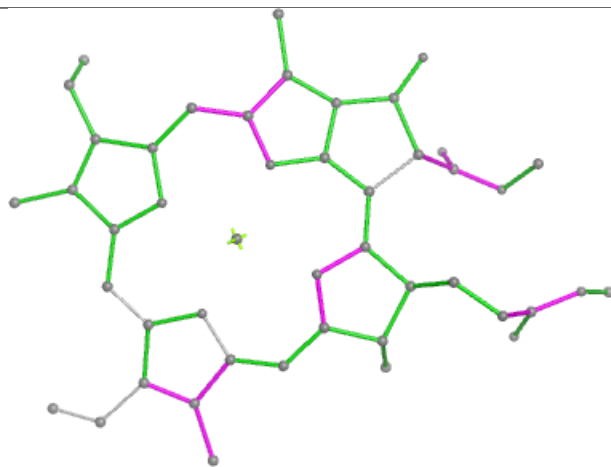


Rings

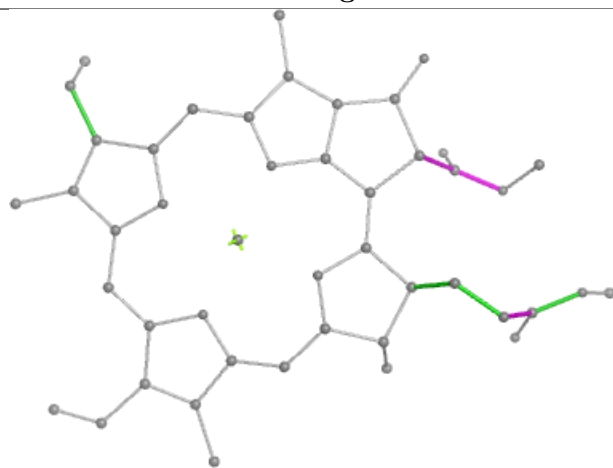
Ligand CLA w 315



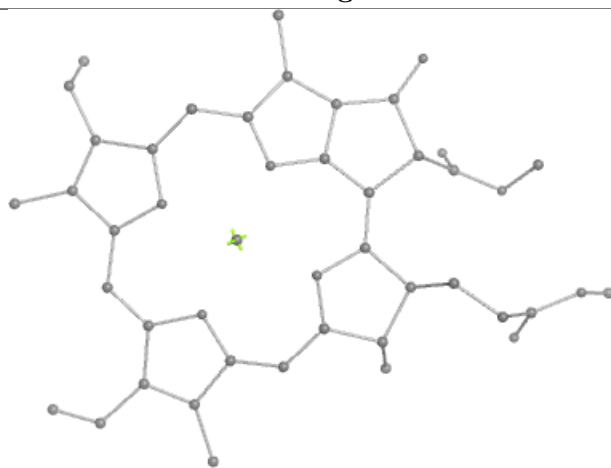
Bond lengths



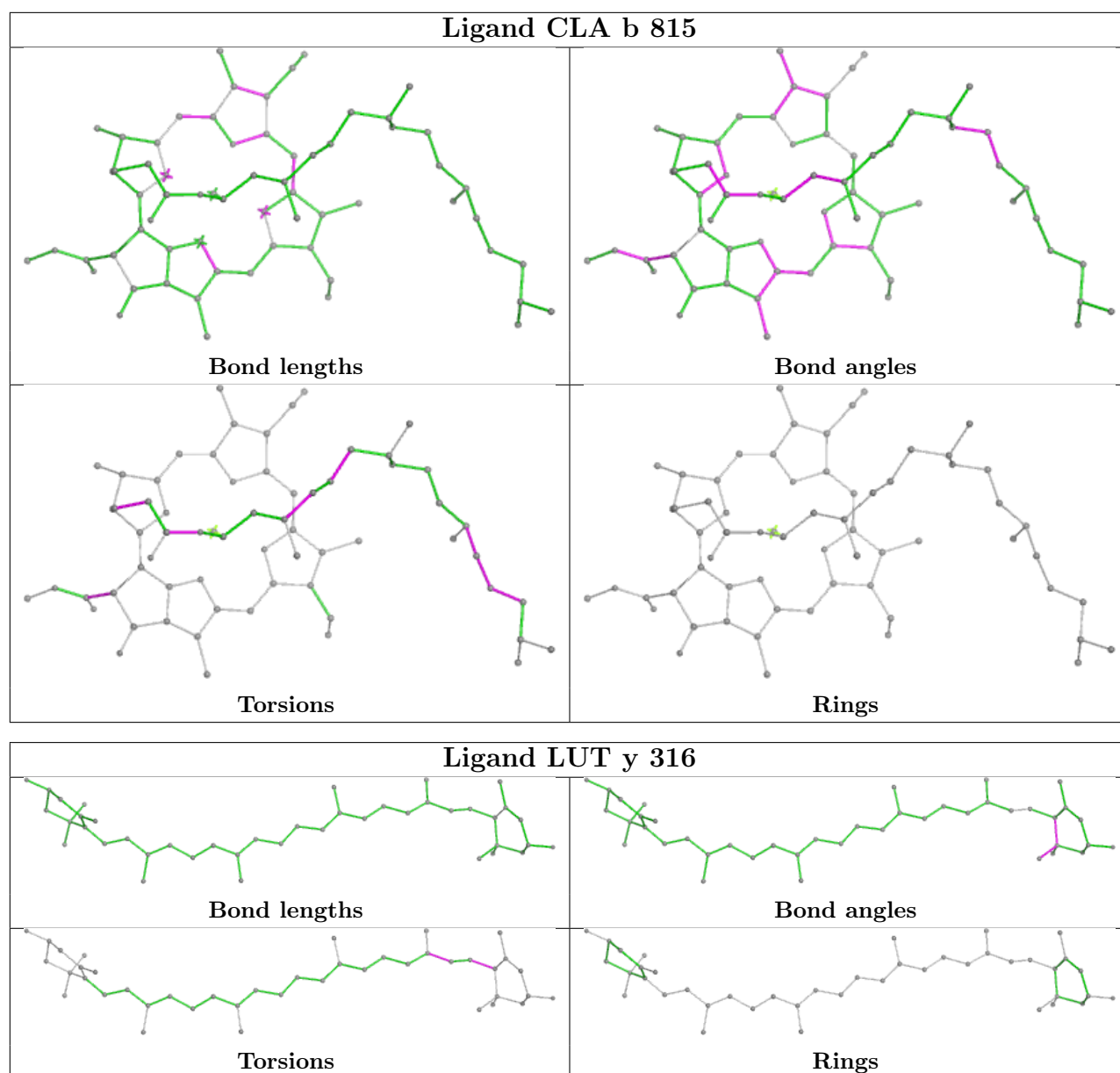
Bond angles



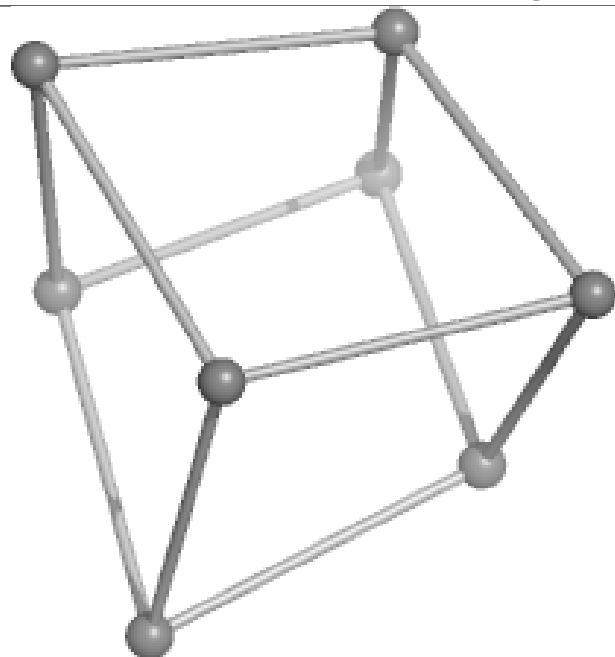
Torsions



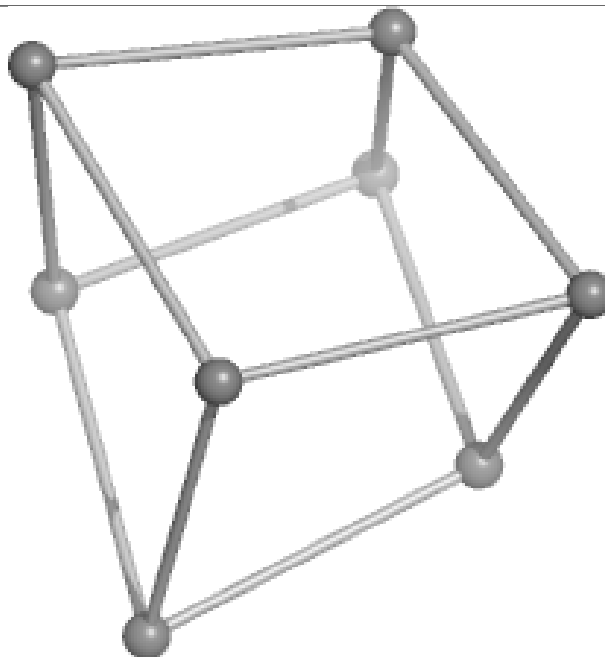
Rings



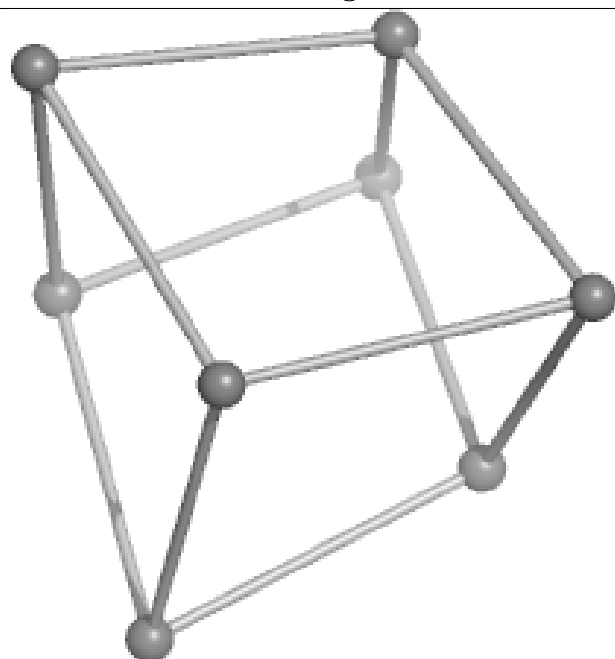
Ligand SF4 a 832



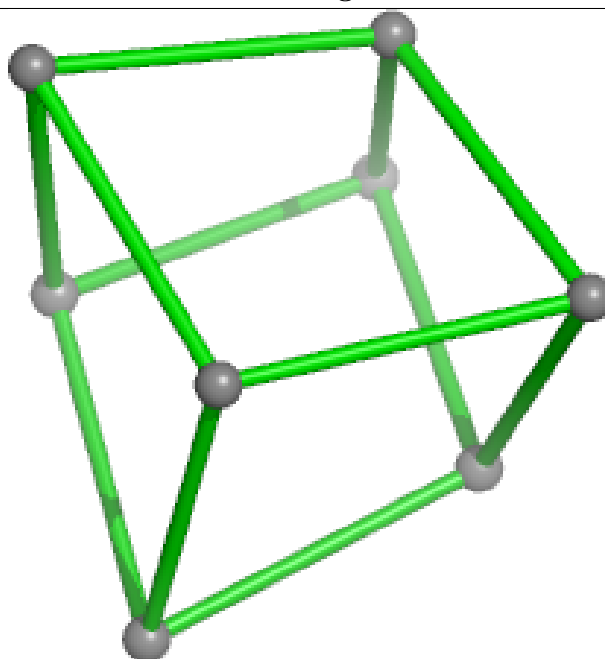
Bond lengths



Bond angles

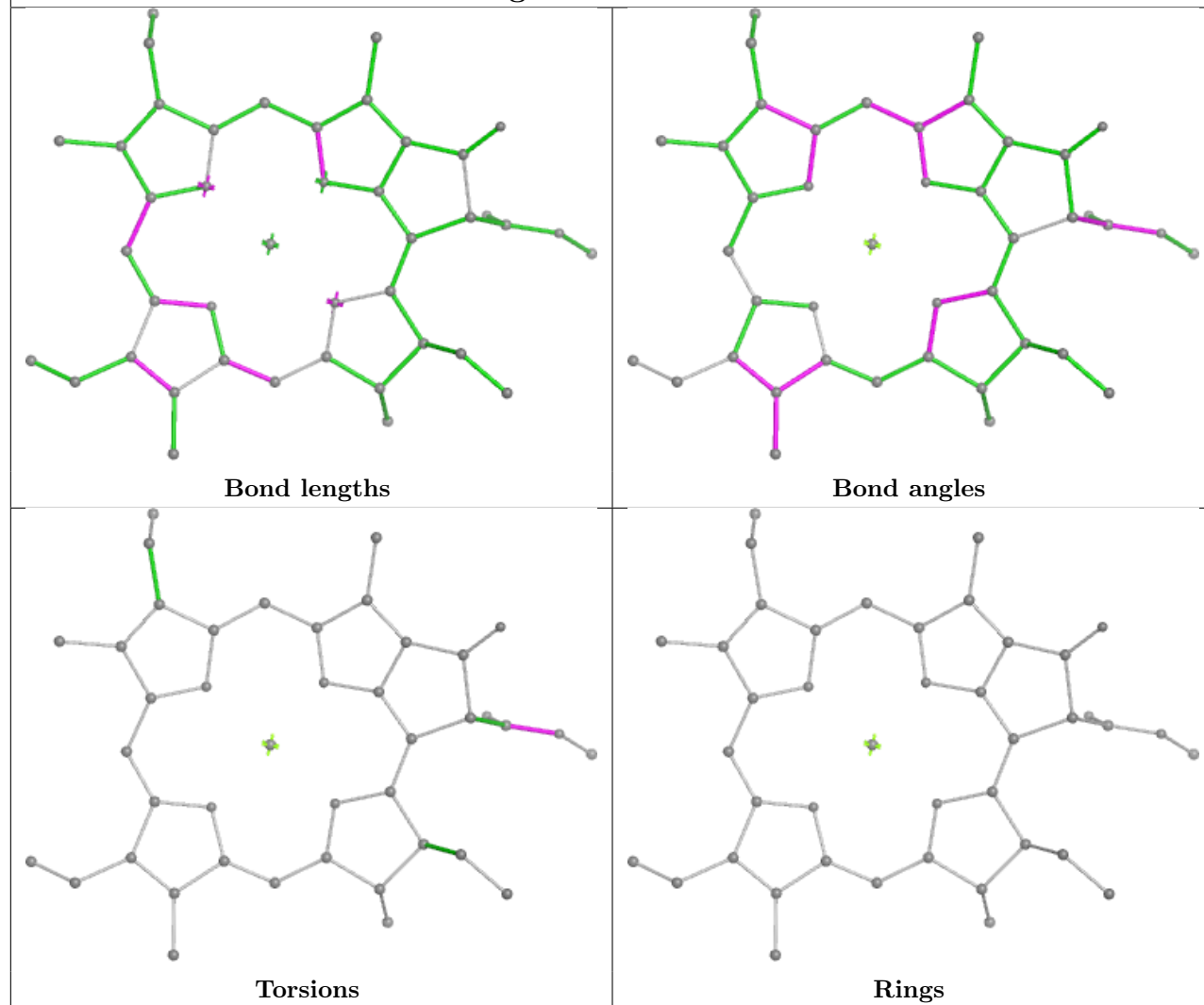


Torsions

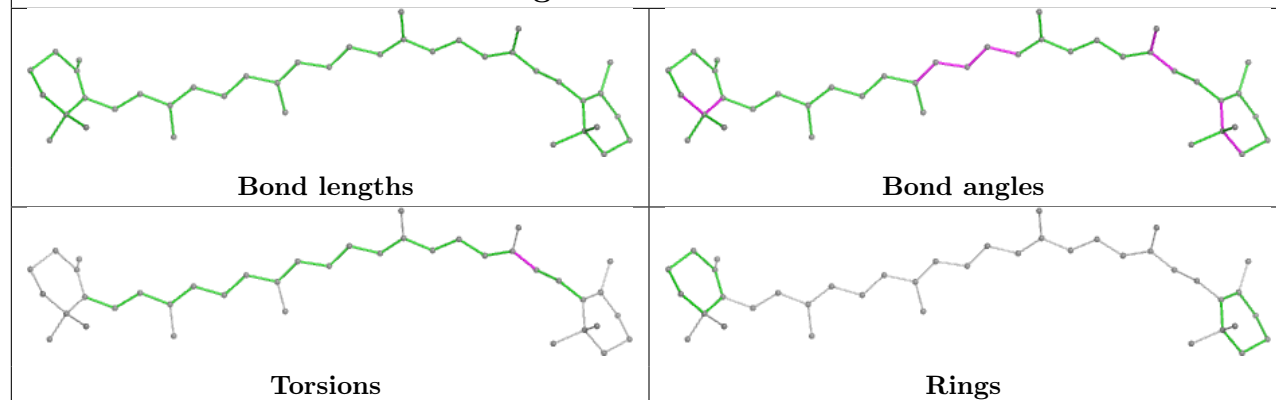


Rings

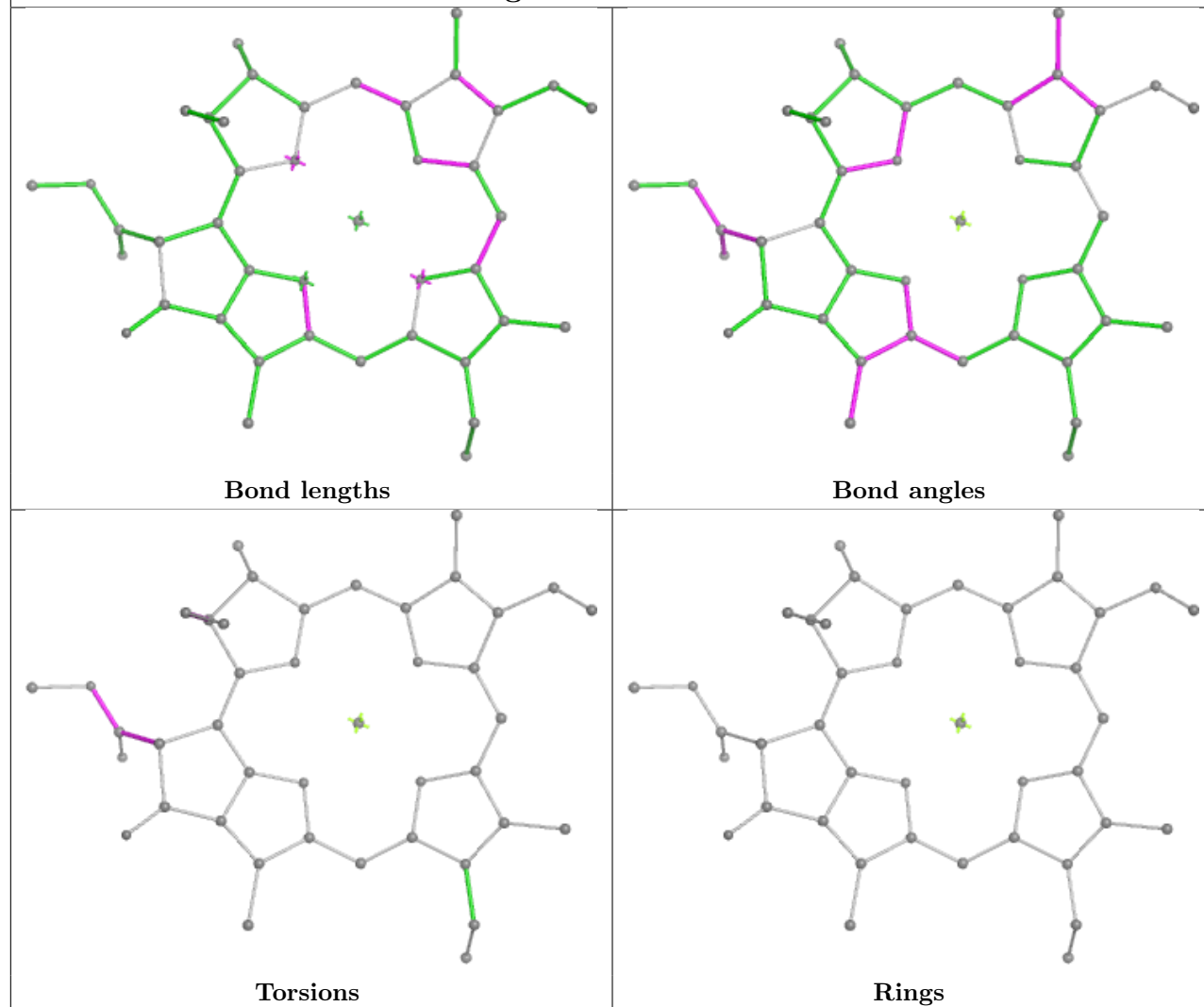
Ligand CLA f 302



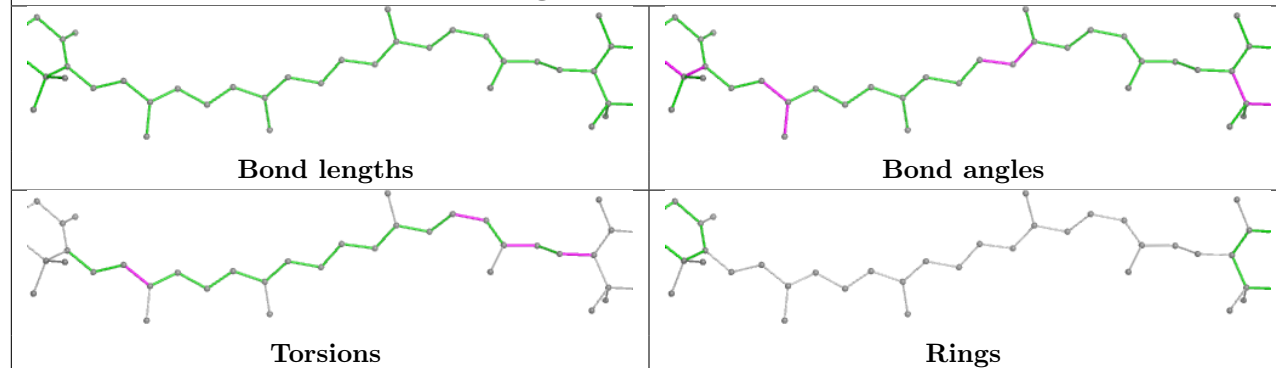
Ligand BCR b 820

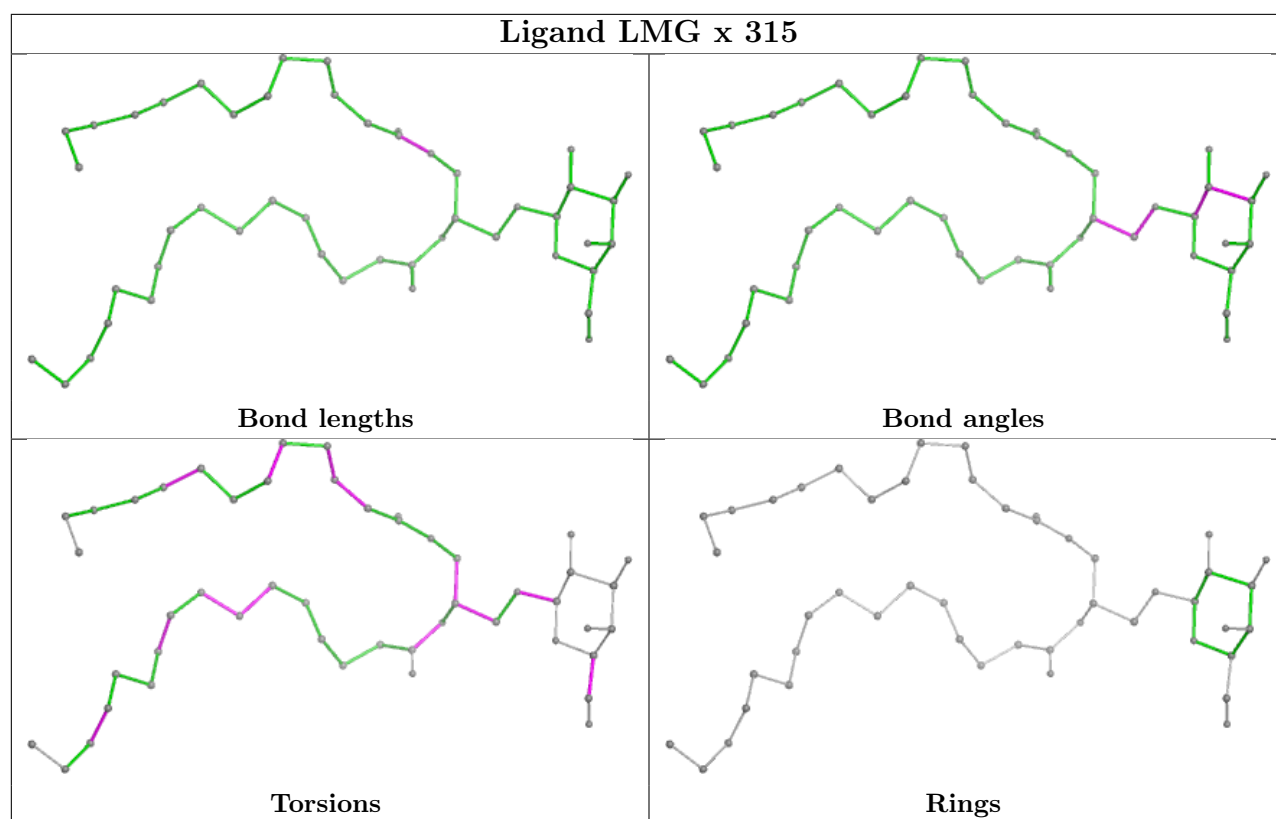


Ligand CLA b 848

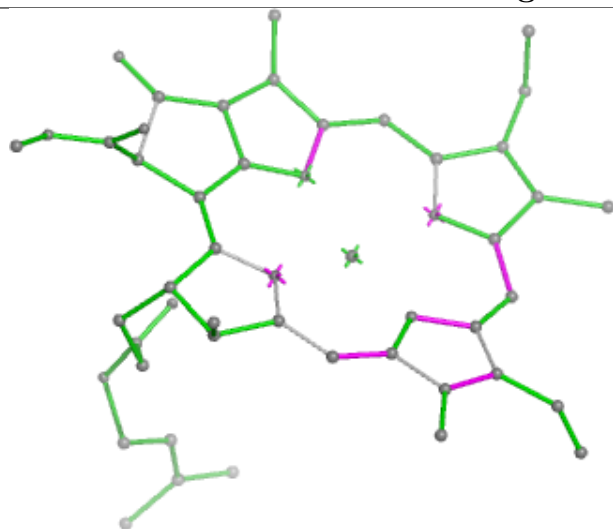


Ligand BCR b 816

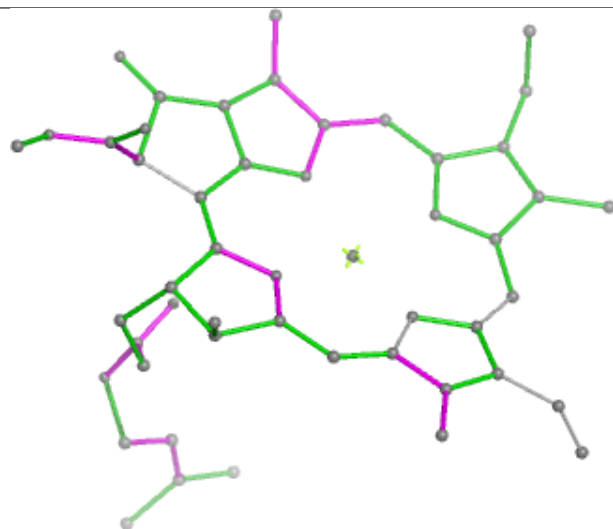




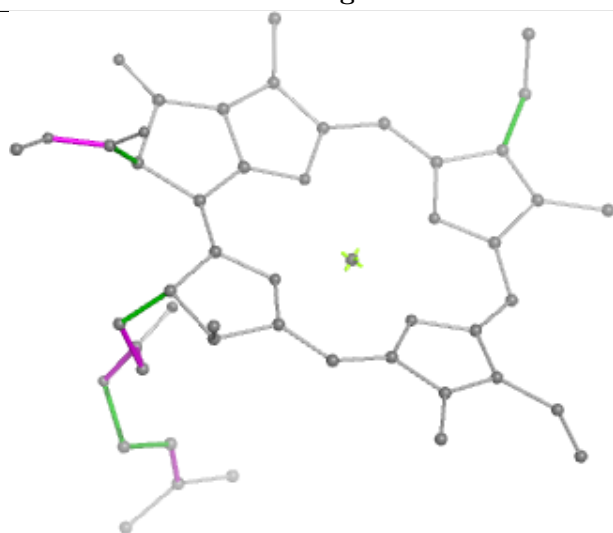
Ligand CLA x 308



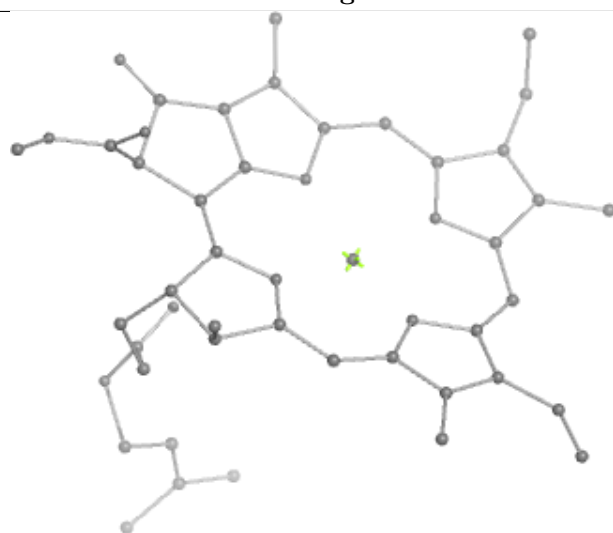
Bond lengths



Bond angles

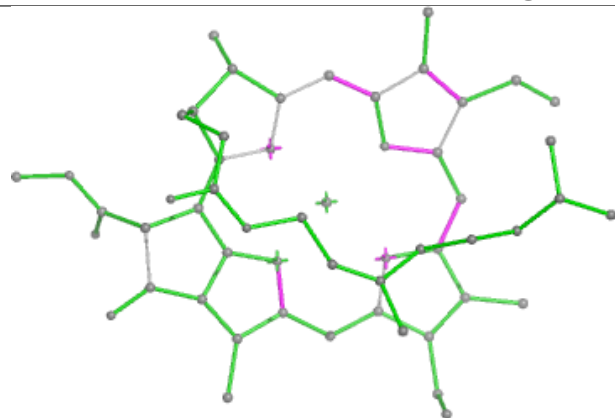


Torsions

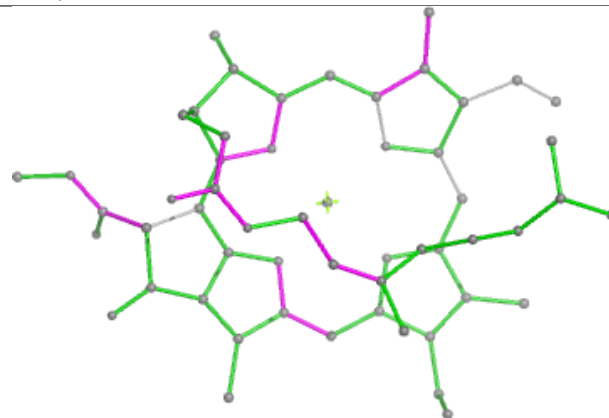


Rings

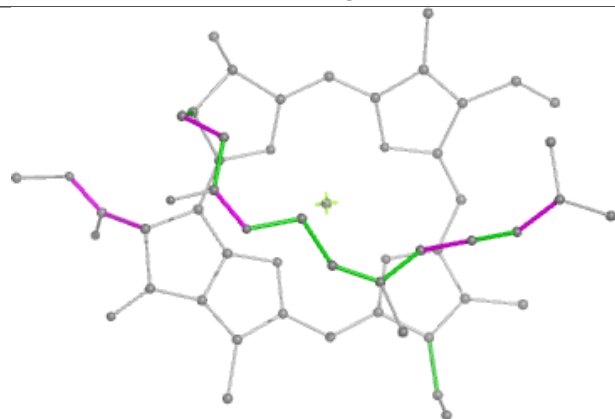
Ligand CLA y 303



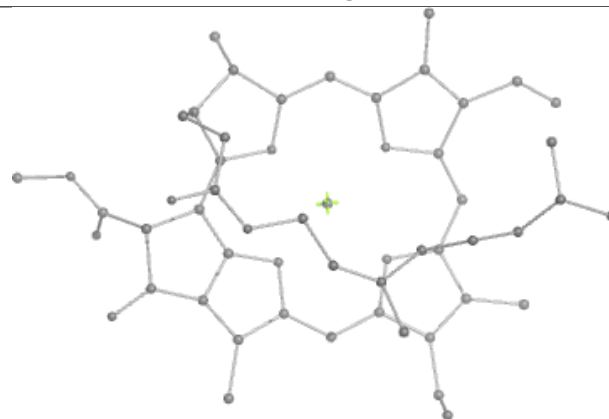
Bond lengths



Bond angles

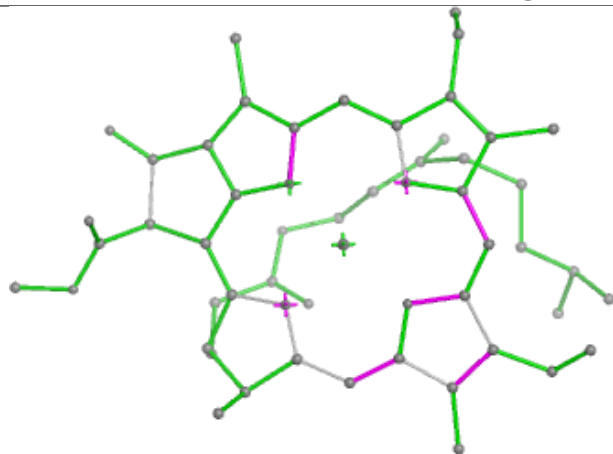


Torsions

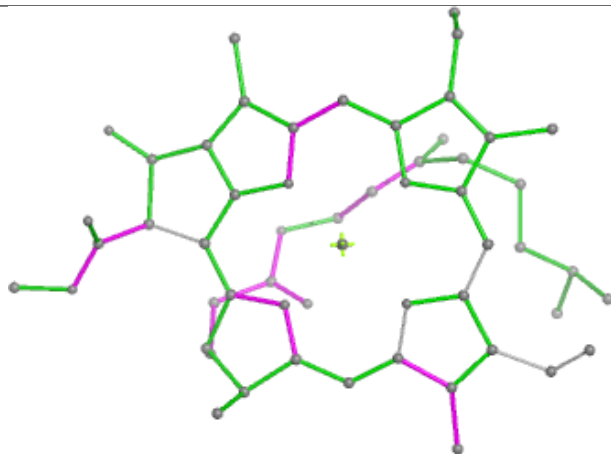


Rings

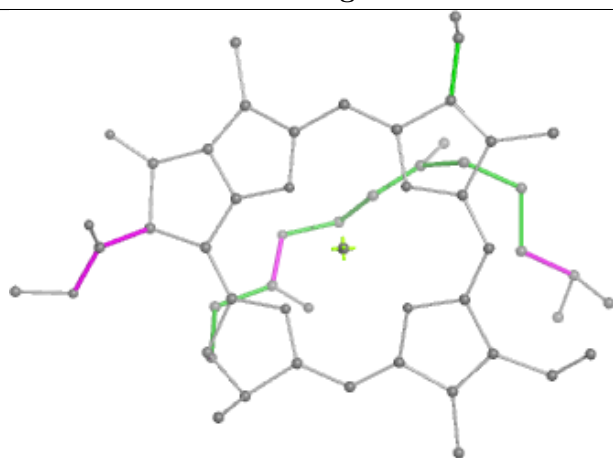
Ligand CLA z 302



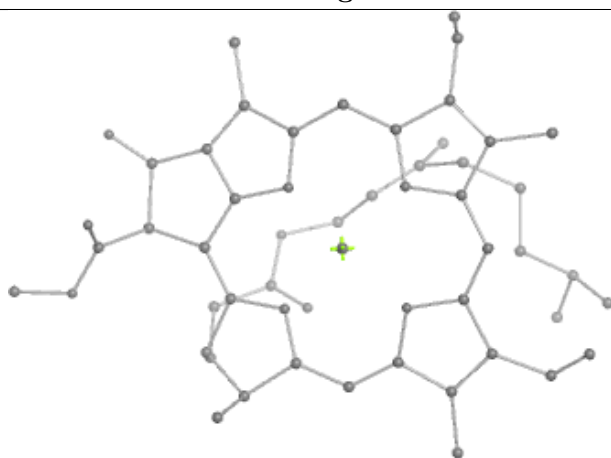
Bond lengths



Bond angles

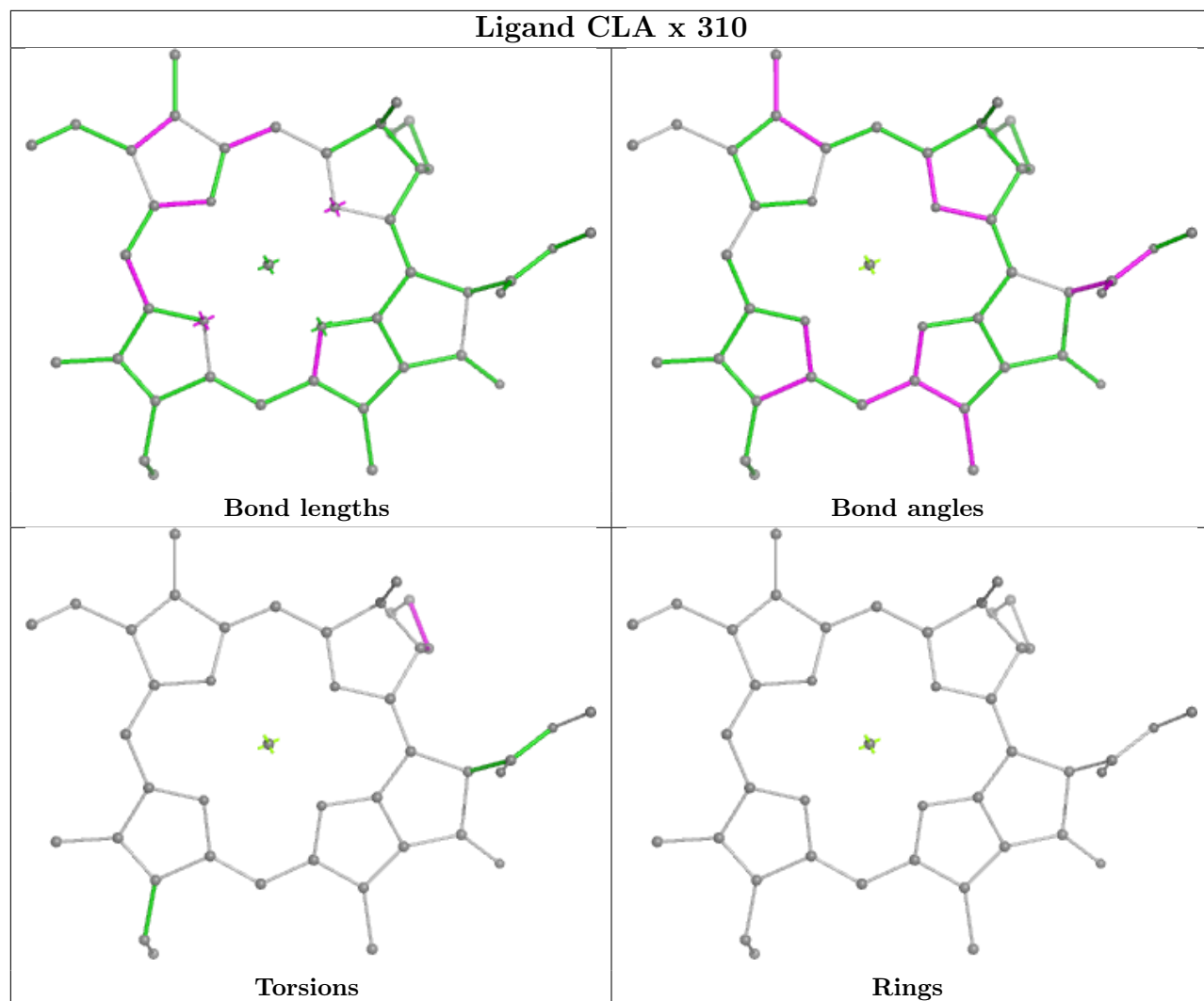


Torsions

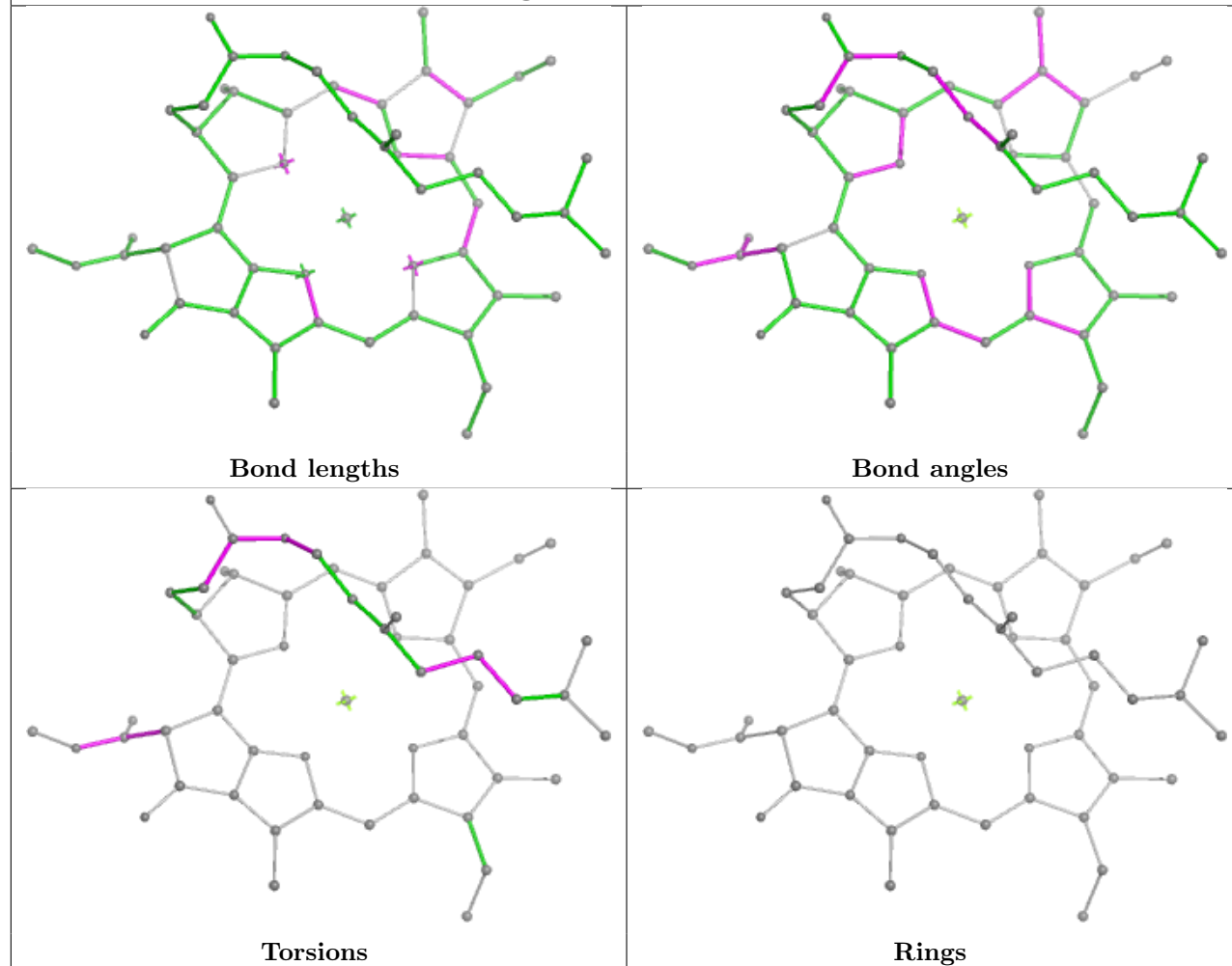


Rings

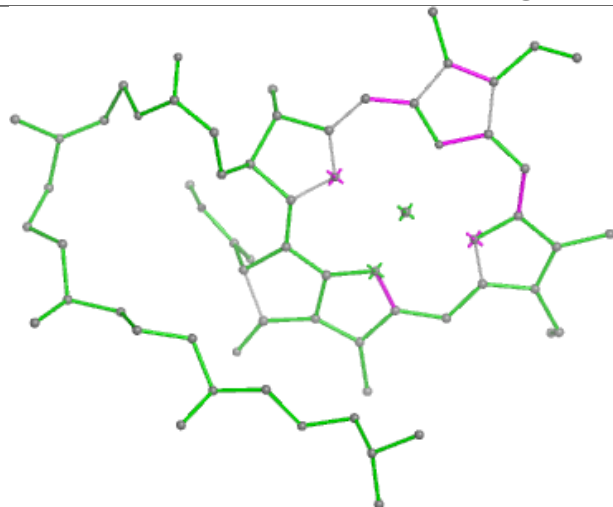
Ligand CLA x 310



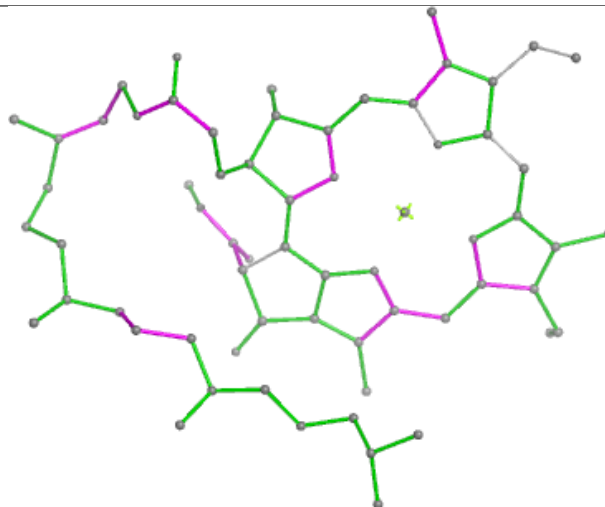
Ligand CLA a 841



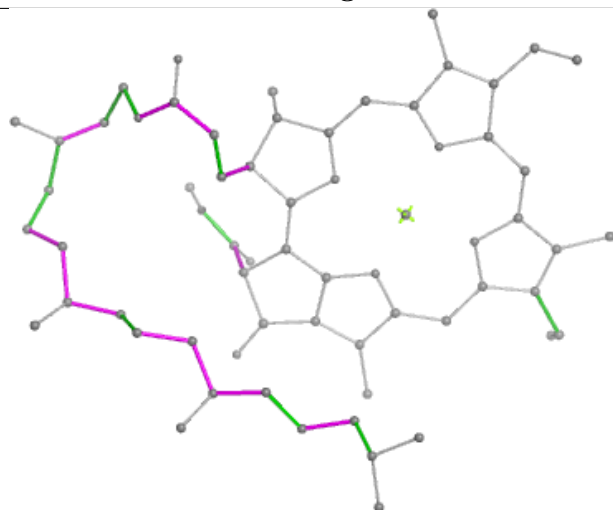
Ligand CLA b 837



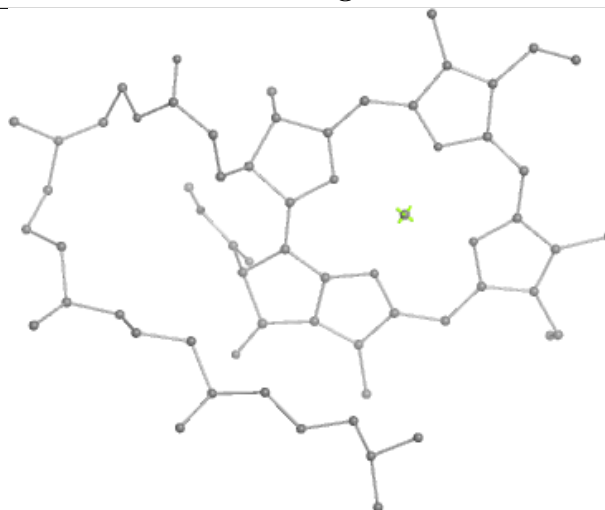
Bond lengths



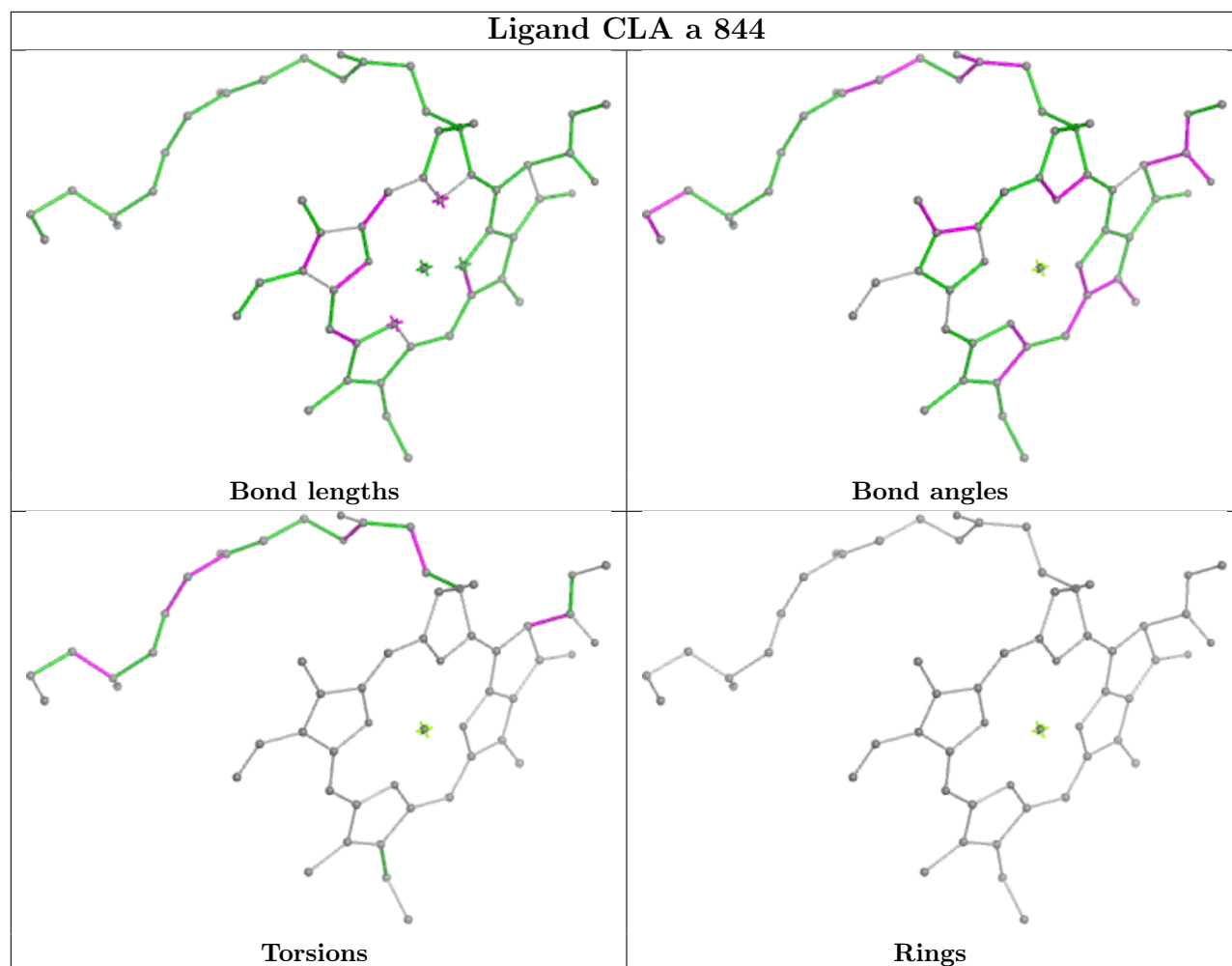
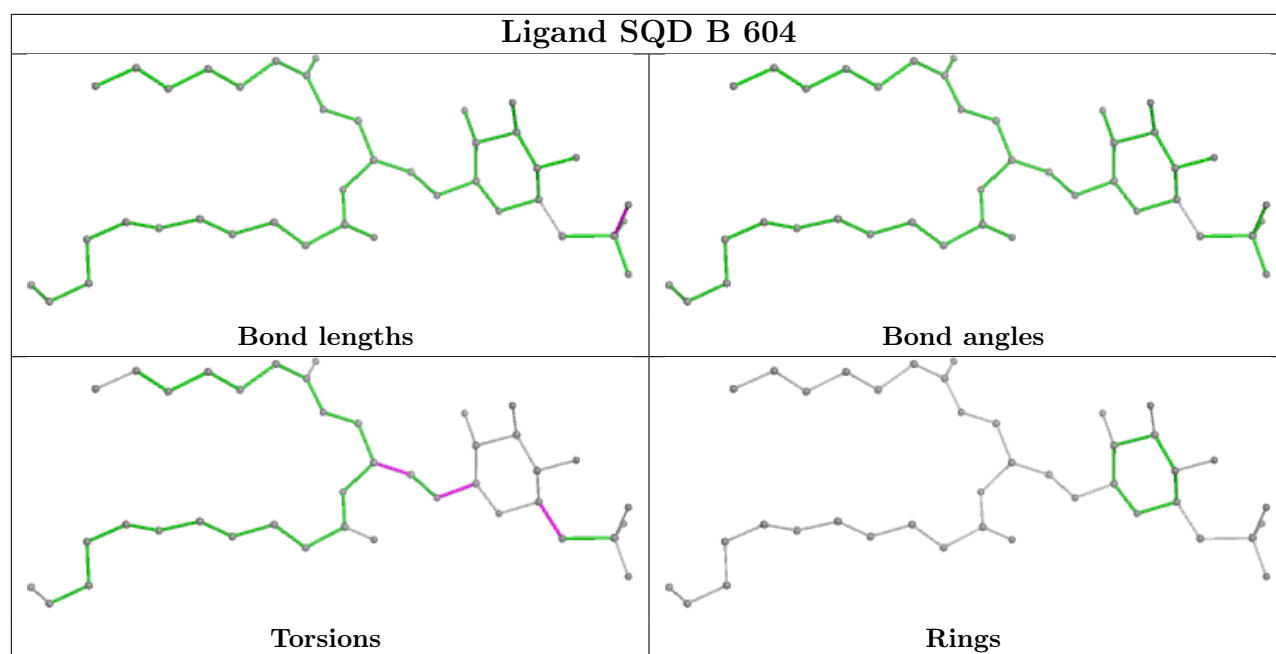
Bond angles

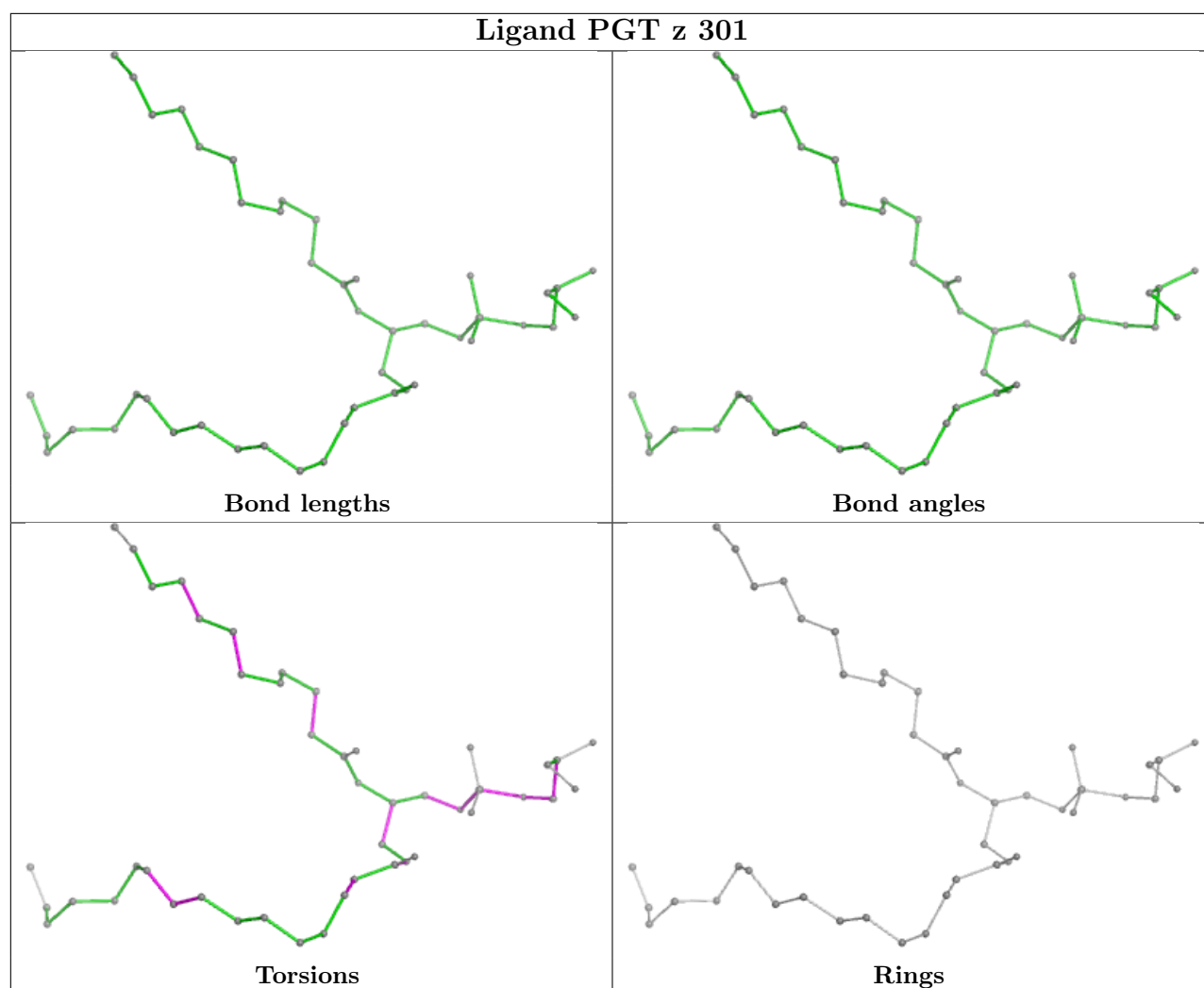


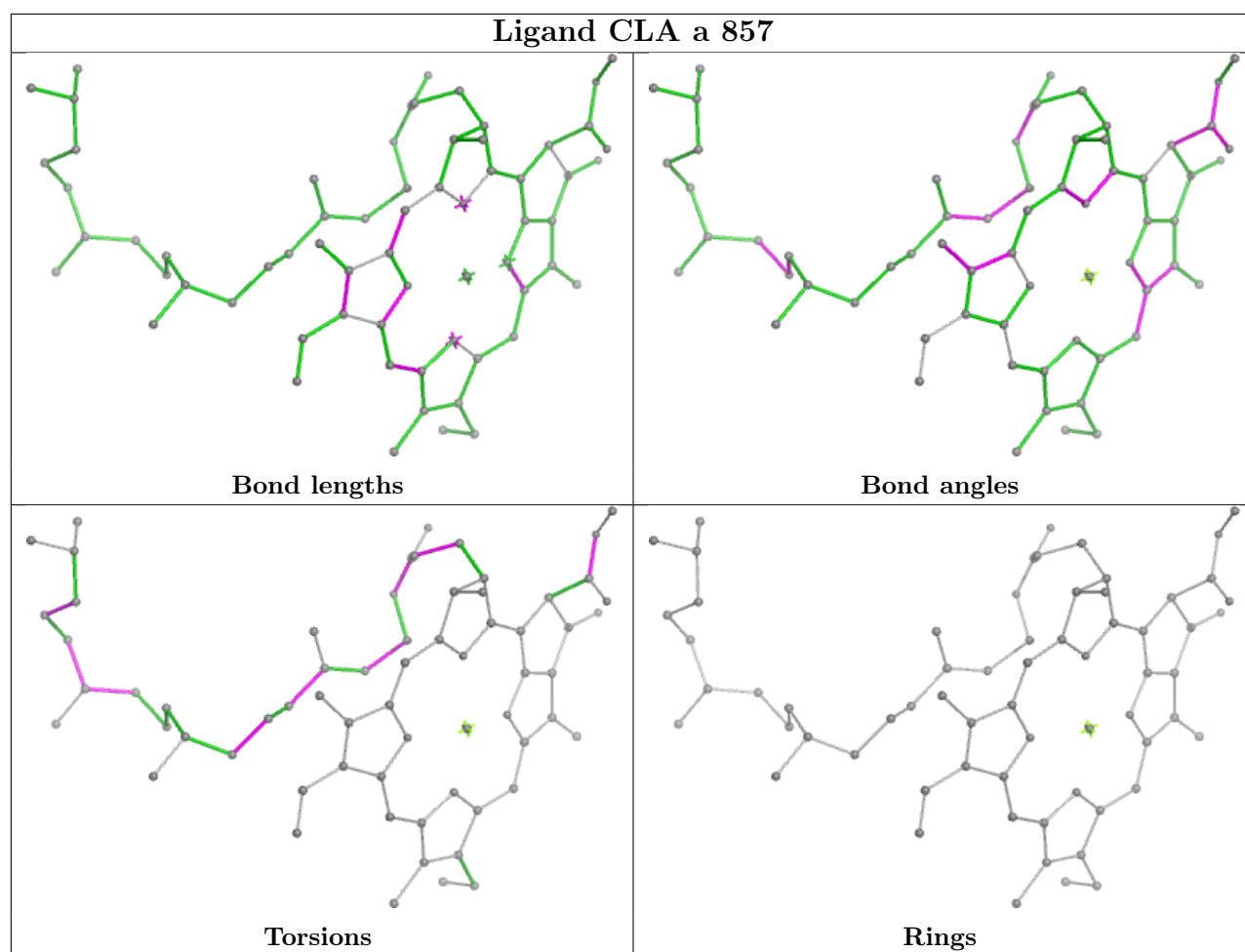
Torsions

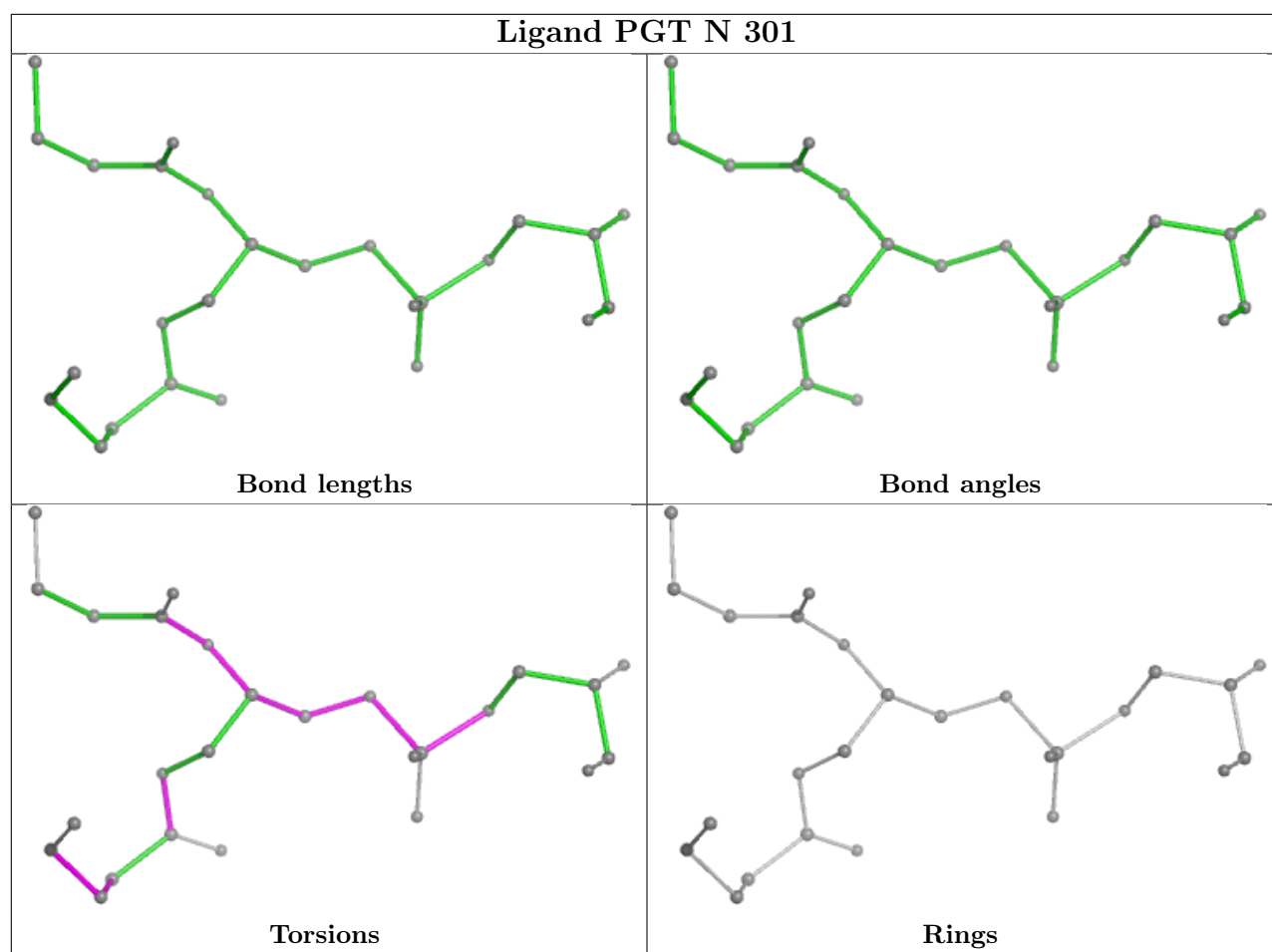


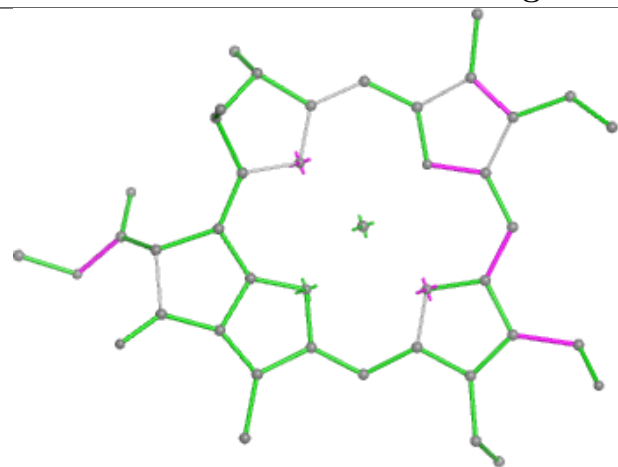
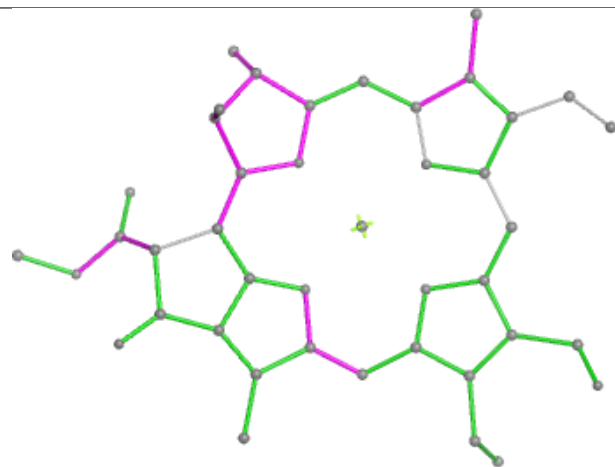
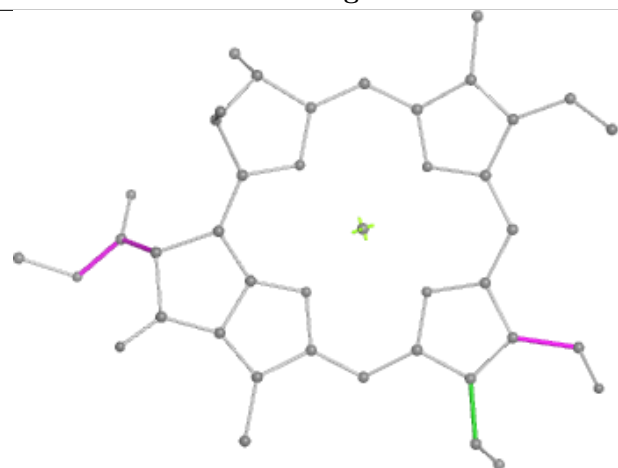
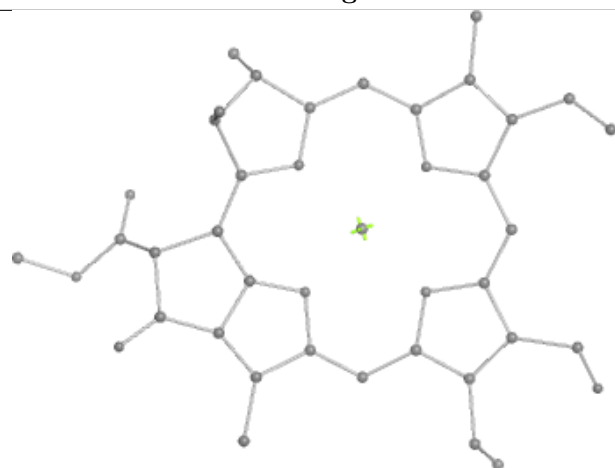
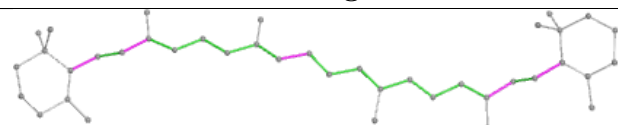
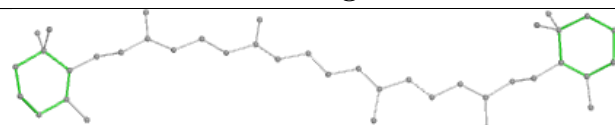
Rings



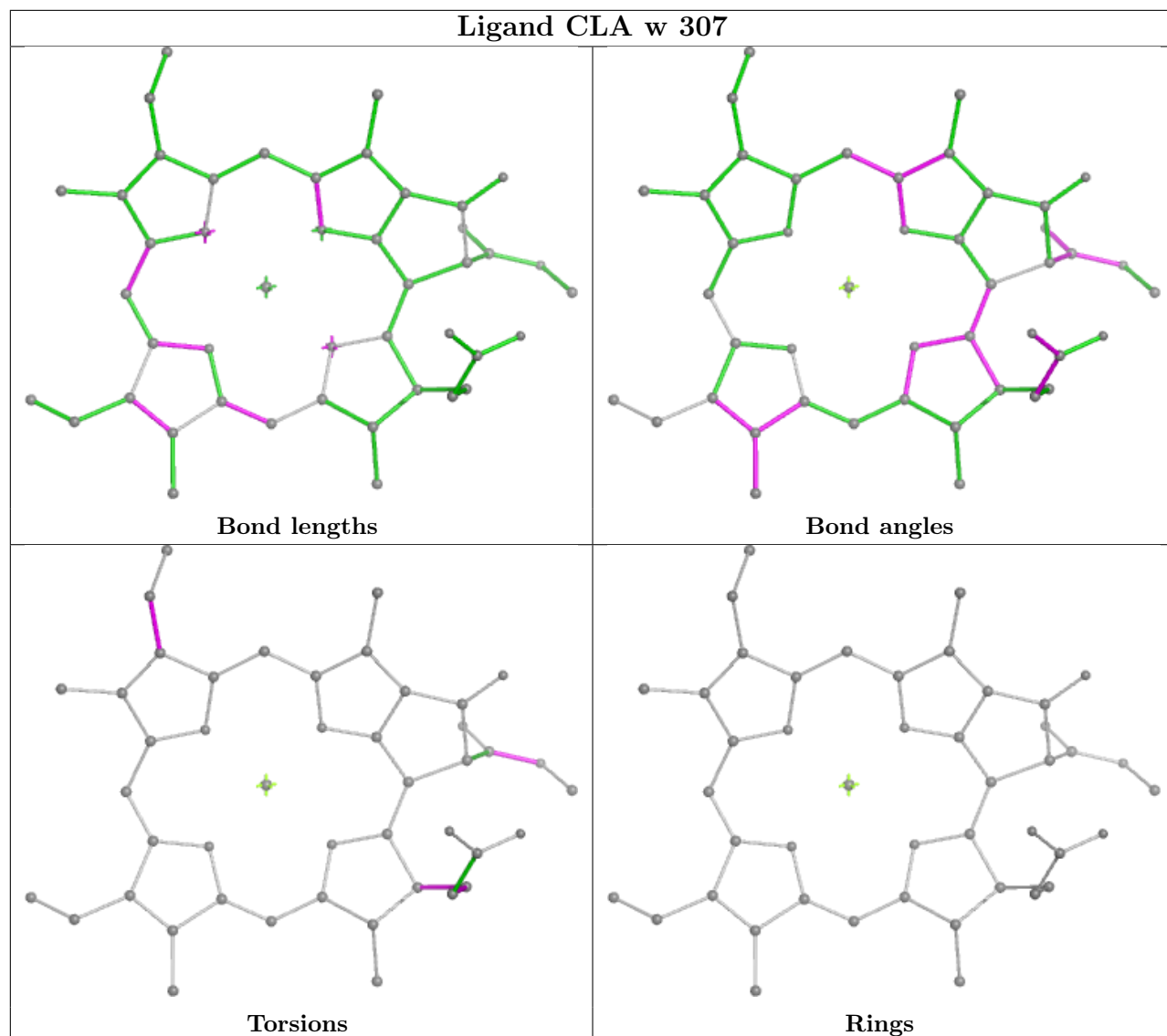




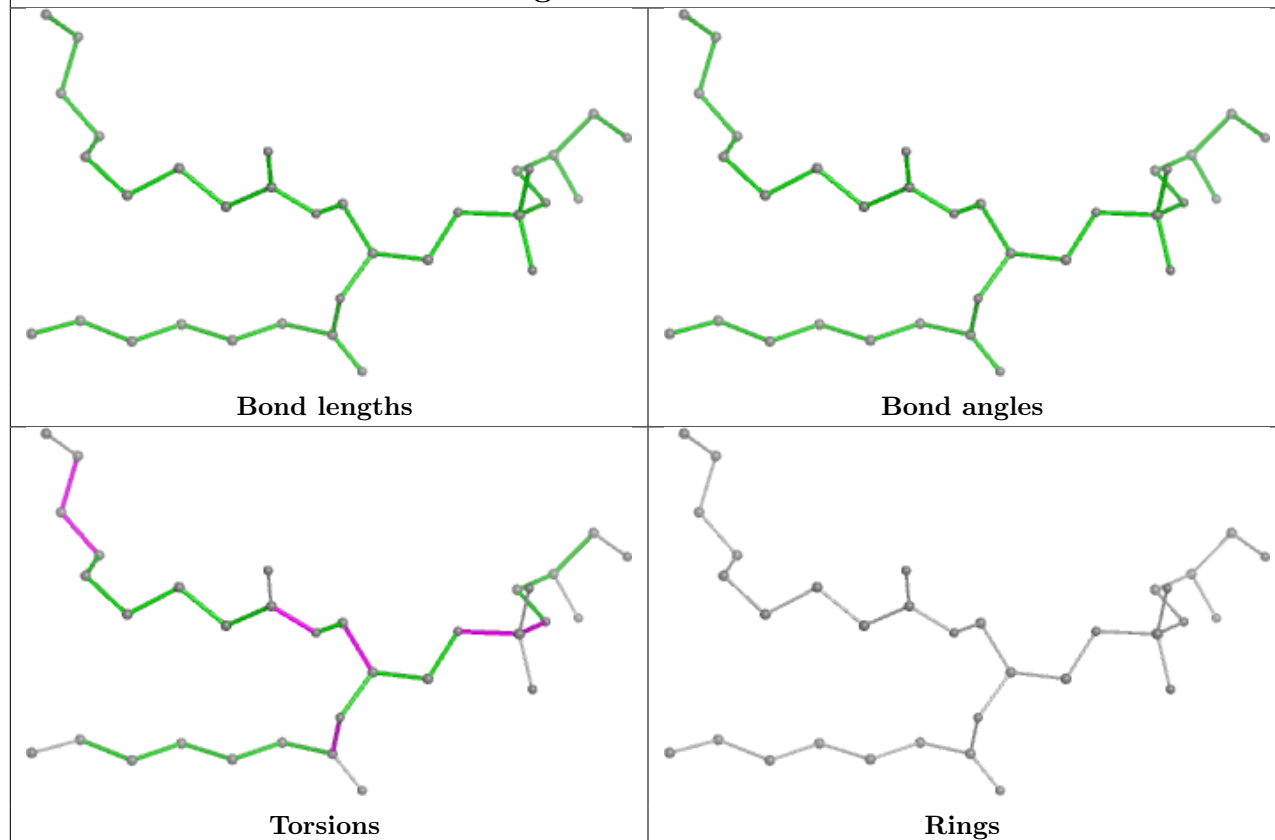


Ligand CHL z 304**Bond lengths****Bond angles****Torsions****Rings****Ligand BCR 1 302****Bond lengths****Bond angles****Torsions****Rings**

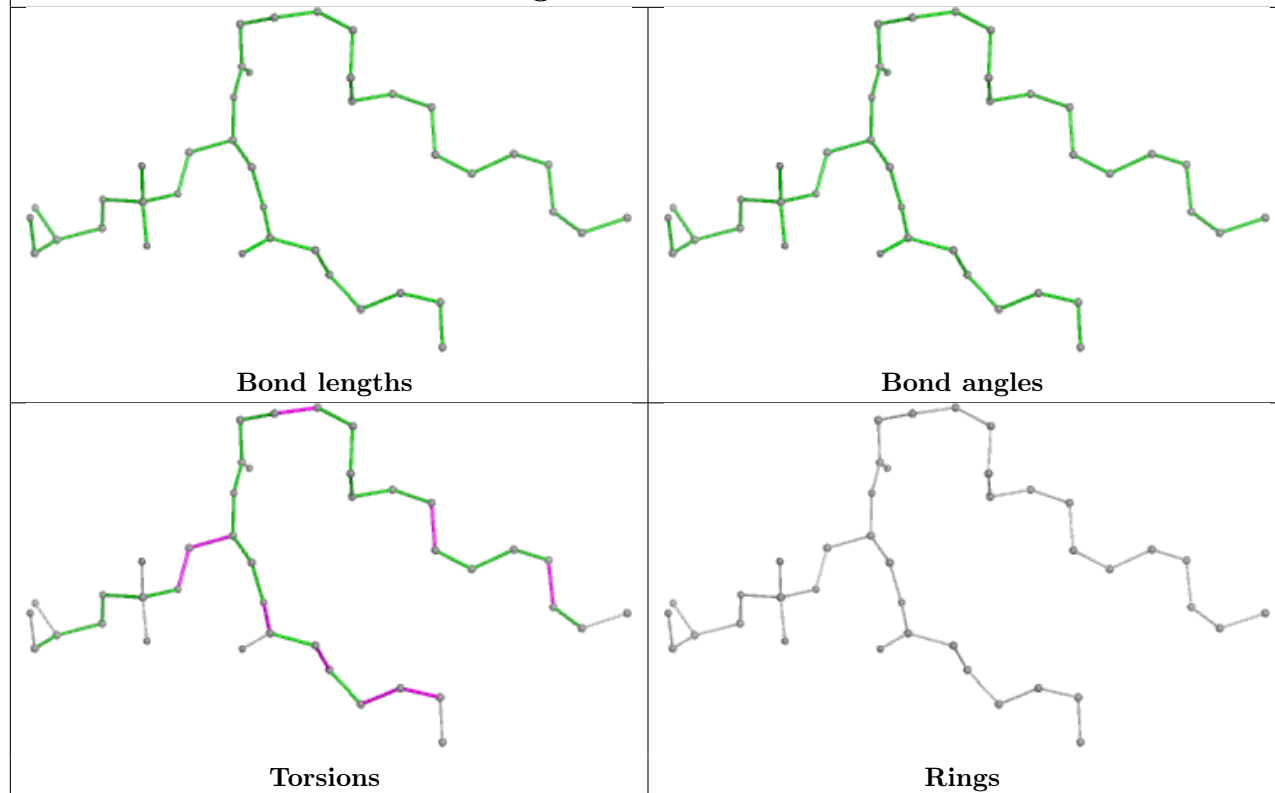
Ligand CLA w 307

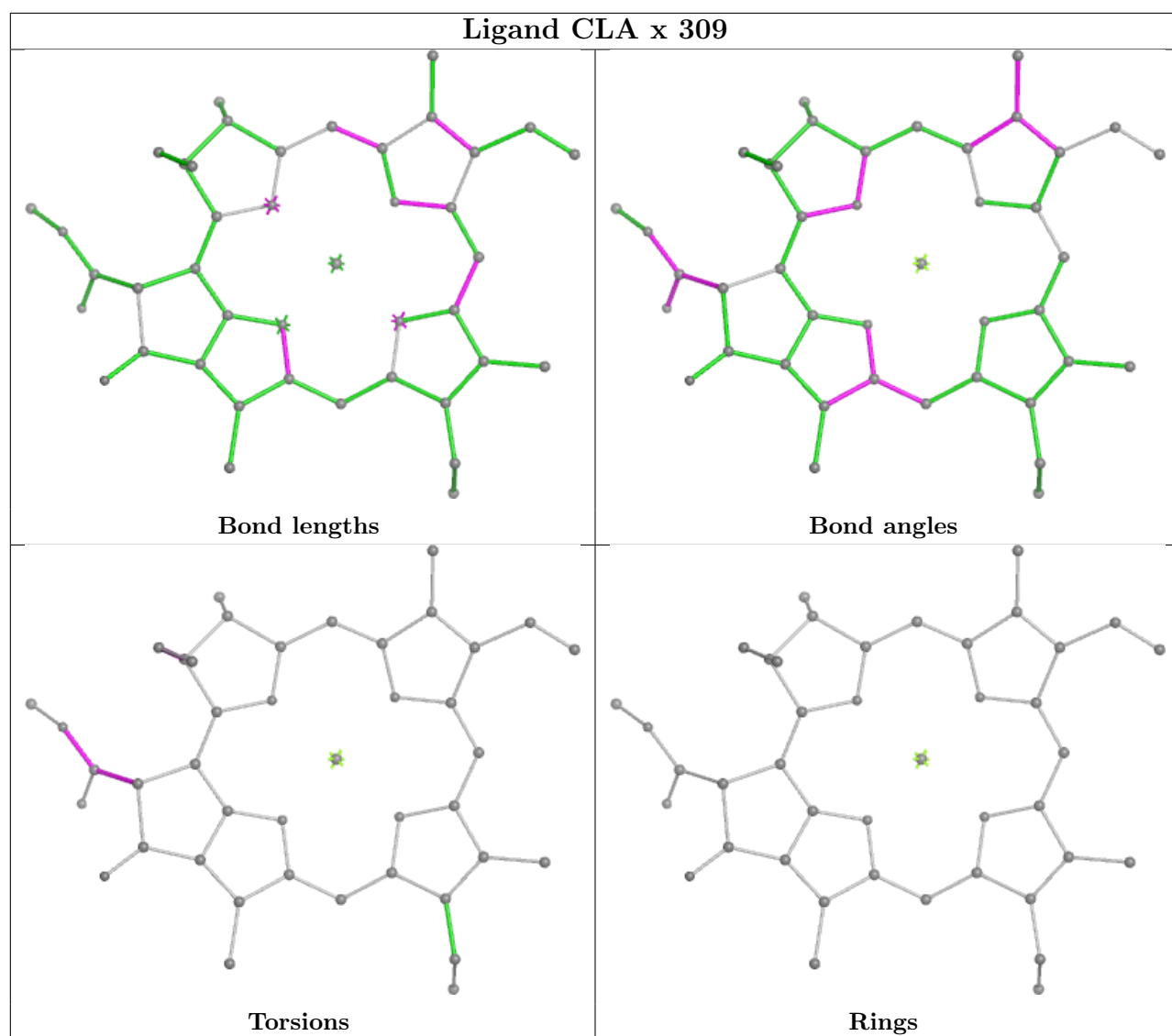


Ligand PGT a 806

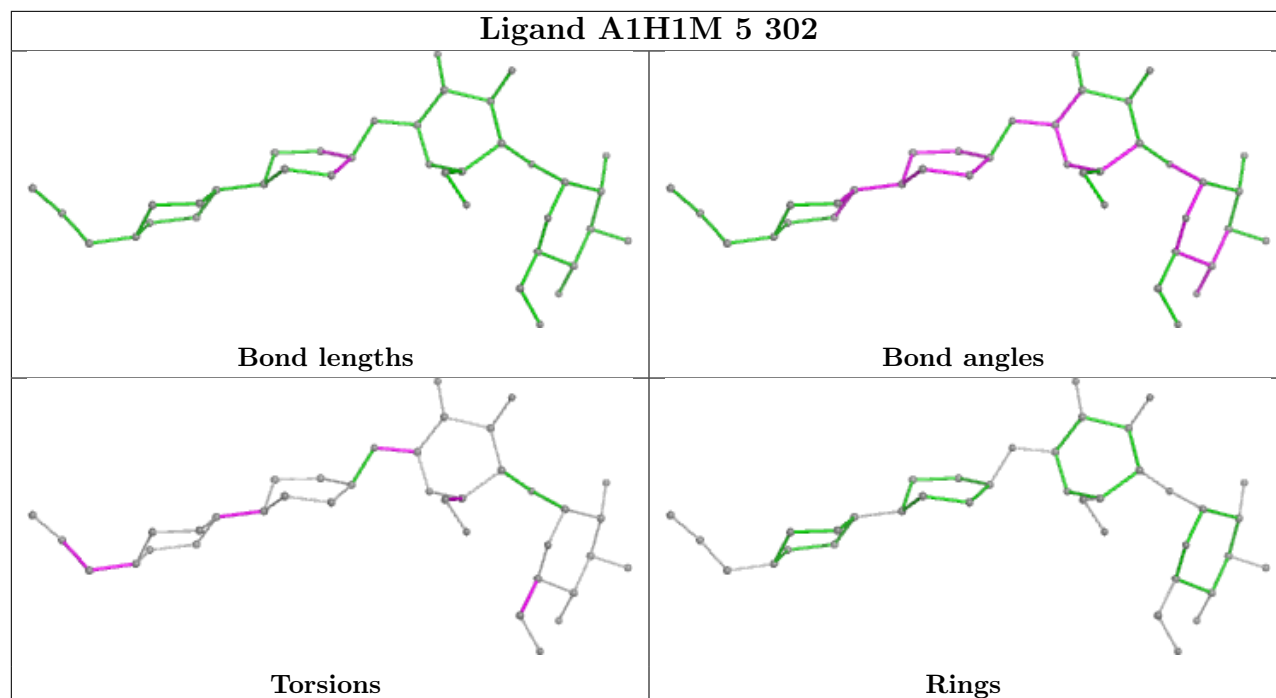


Ligand PGT L 201

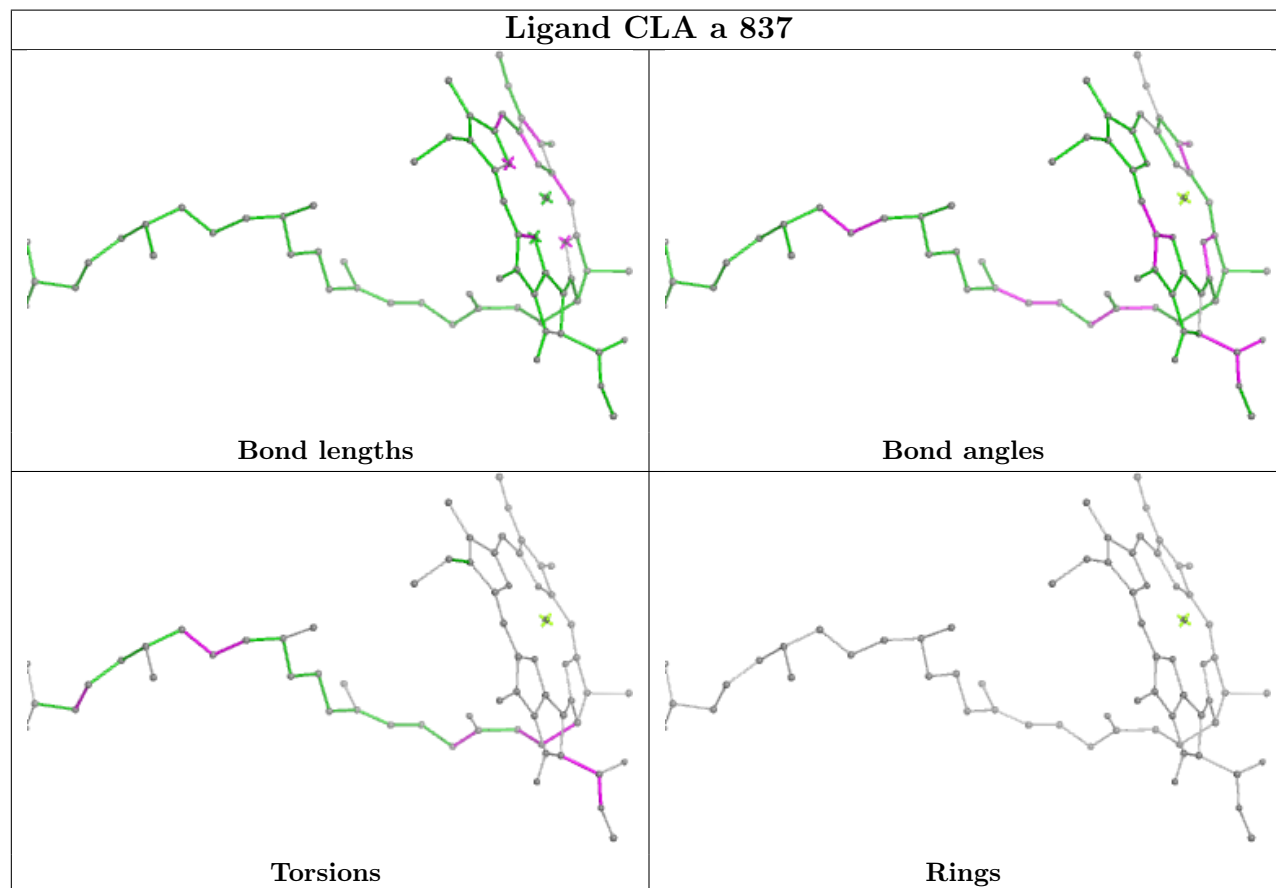


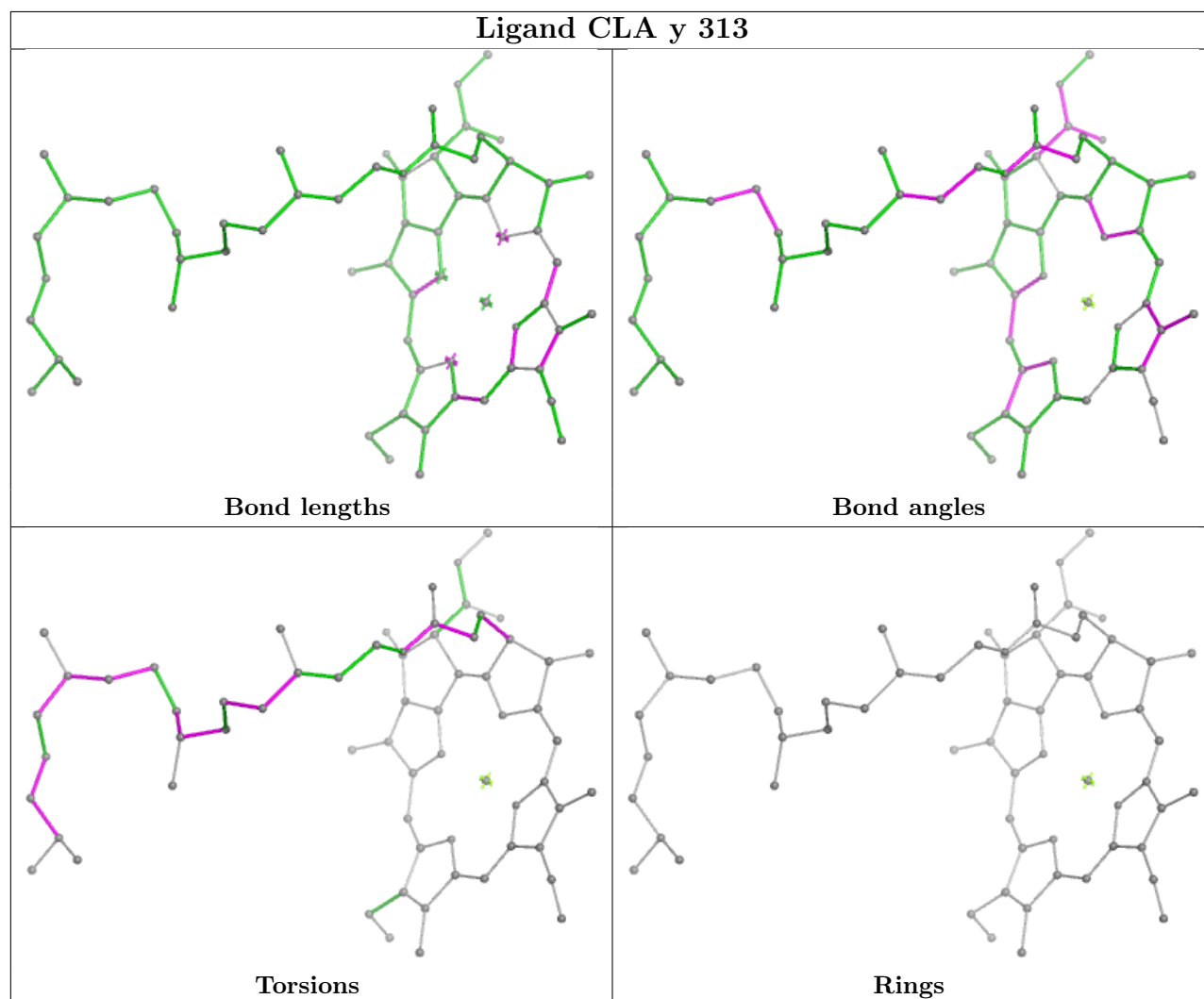
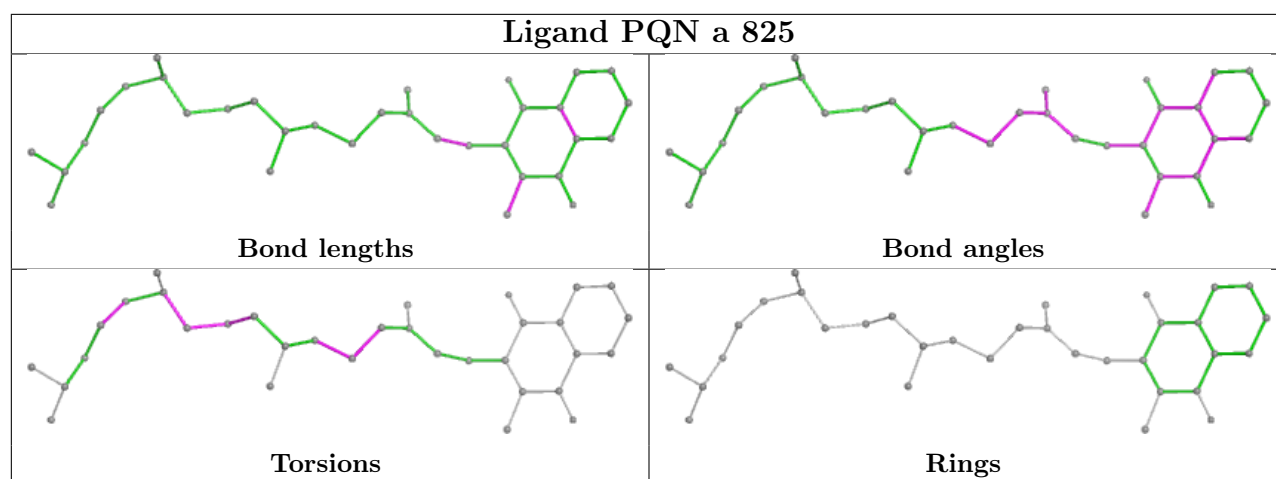


Ligand A1H1M 5 302

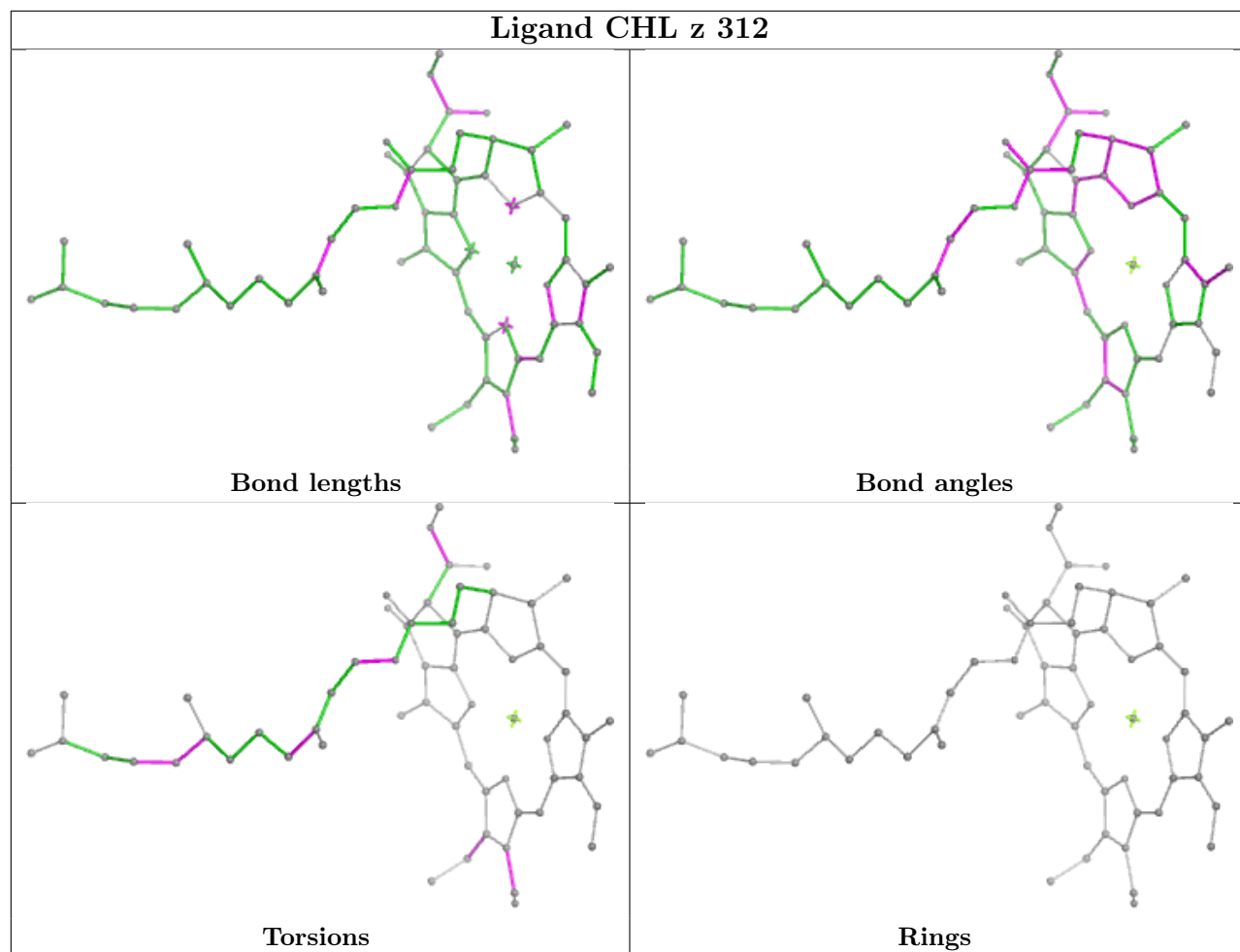


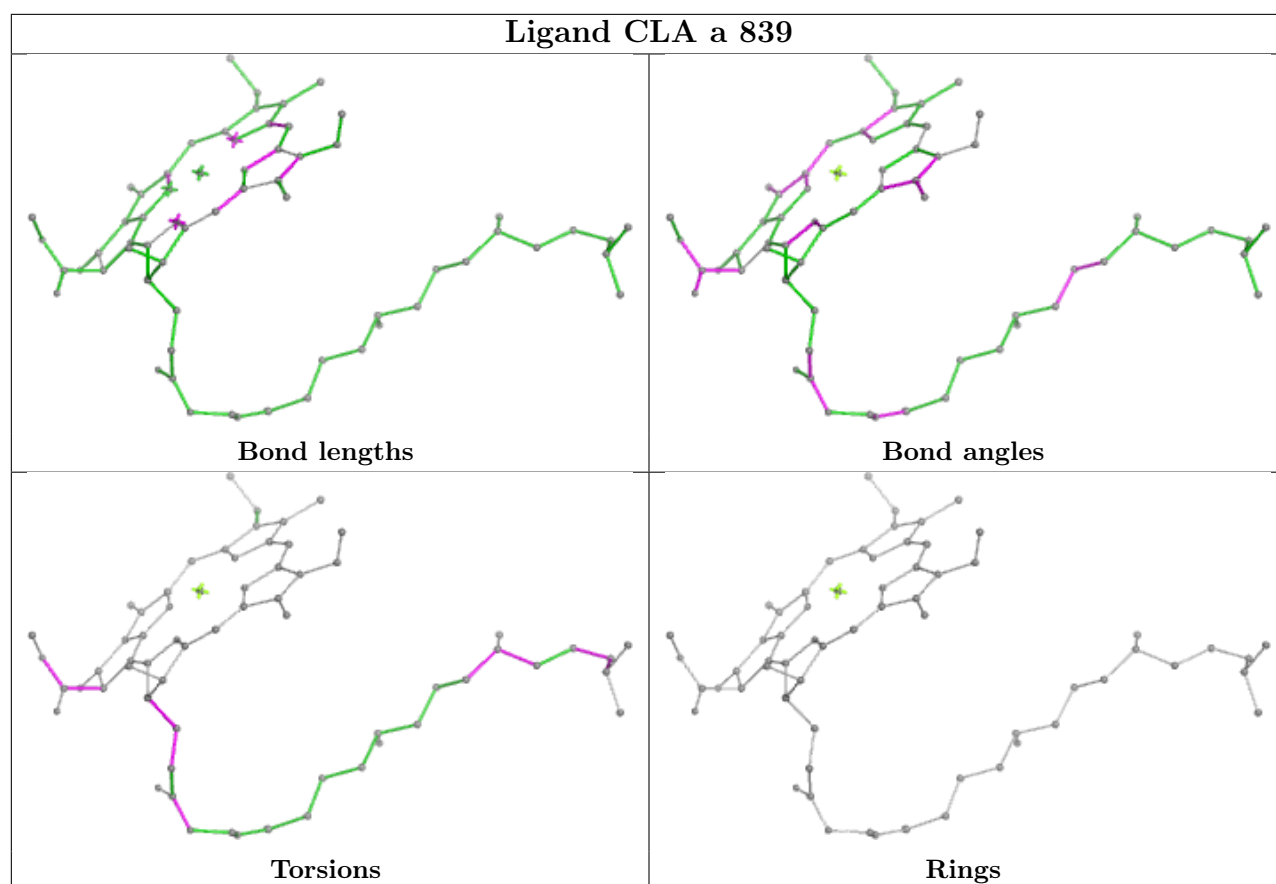
Ligand CLA a 837

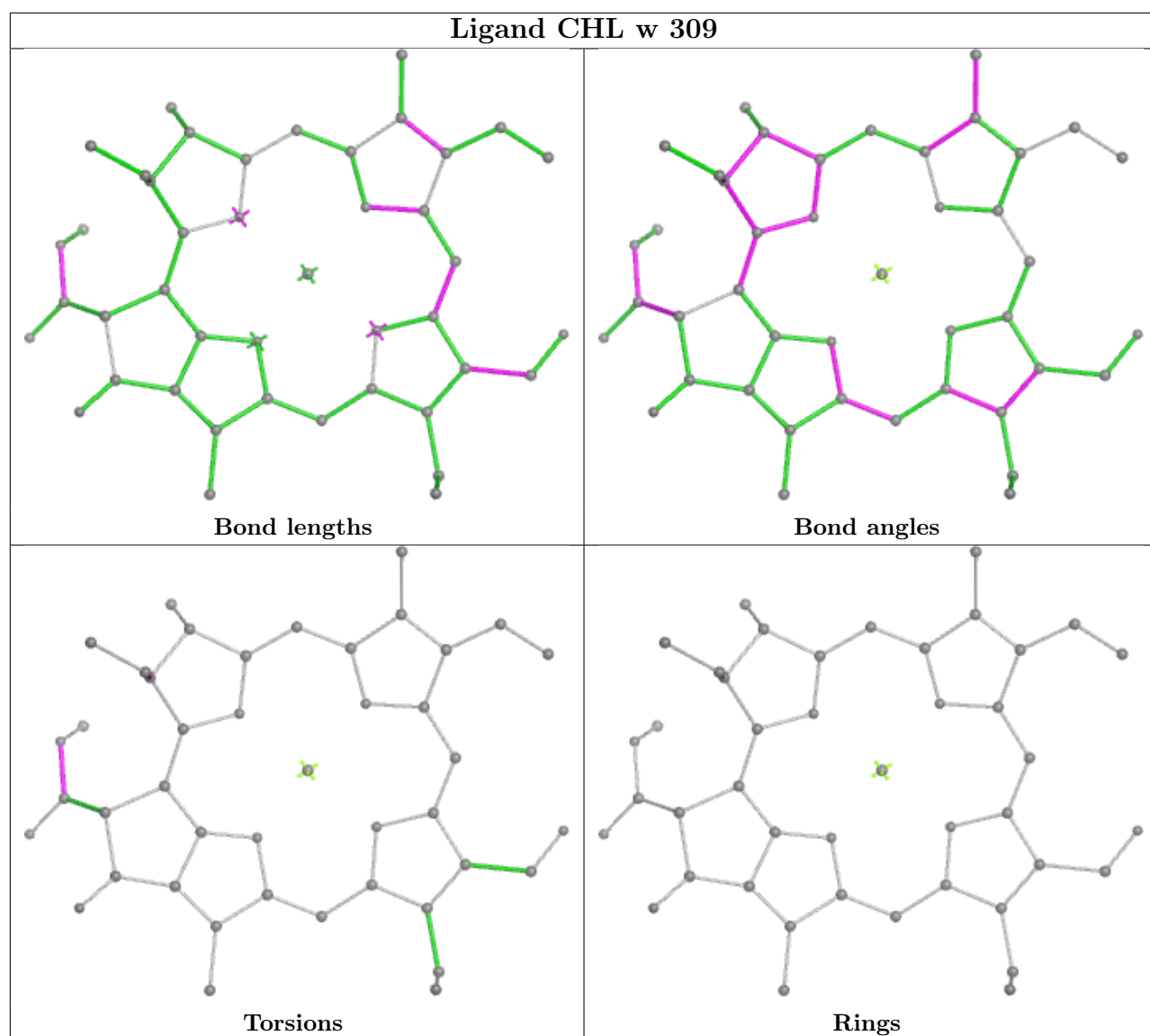


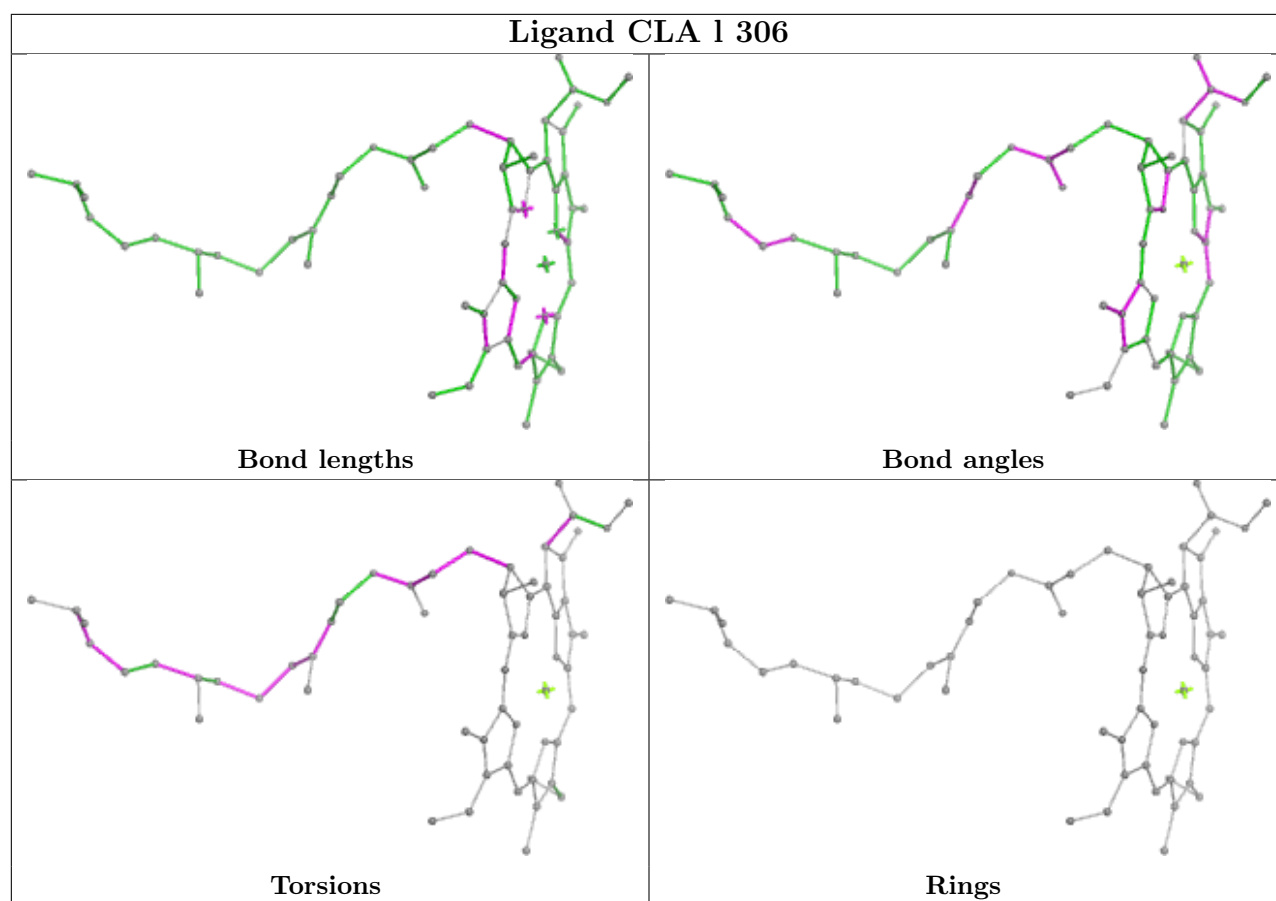


Ligand CHL z 312

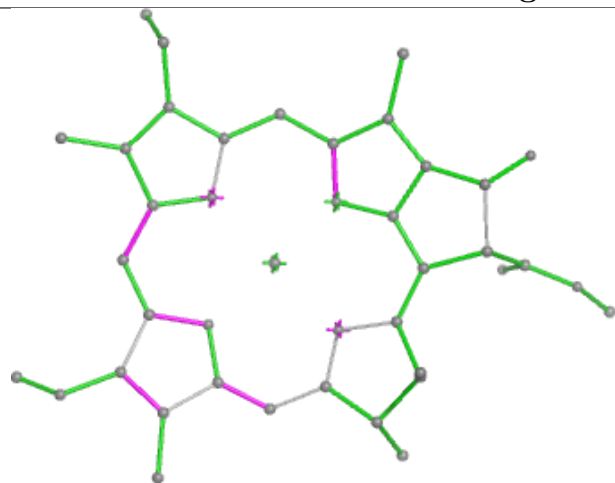




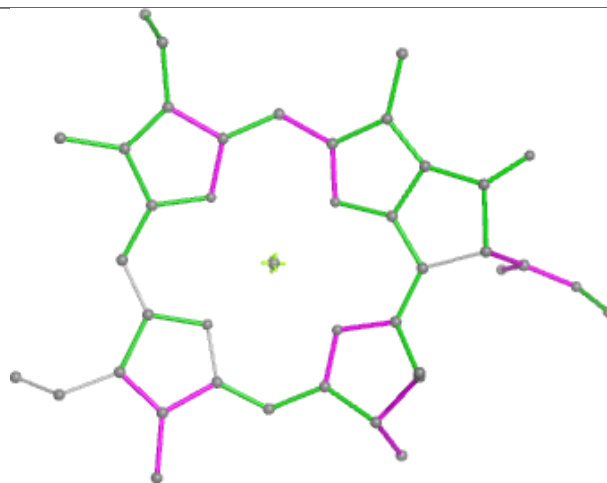




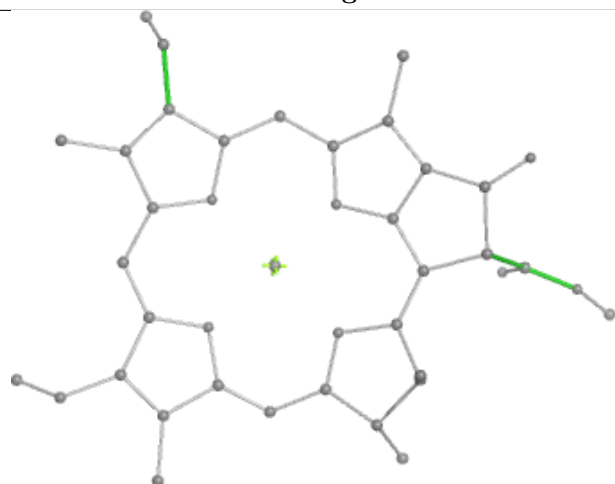
Ligand CLA b 804



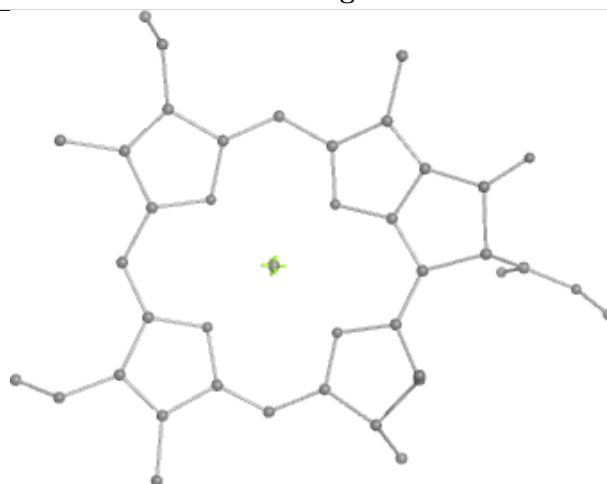
Bond lengths



Bond angles

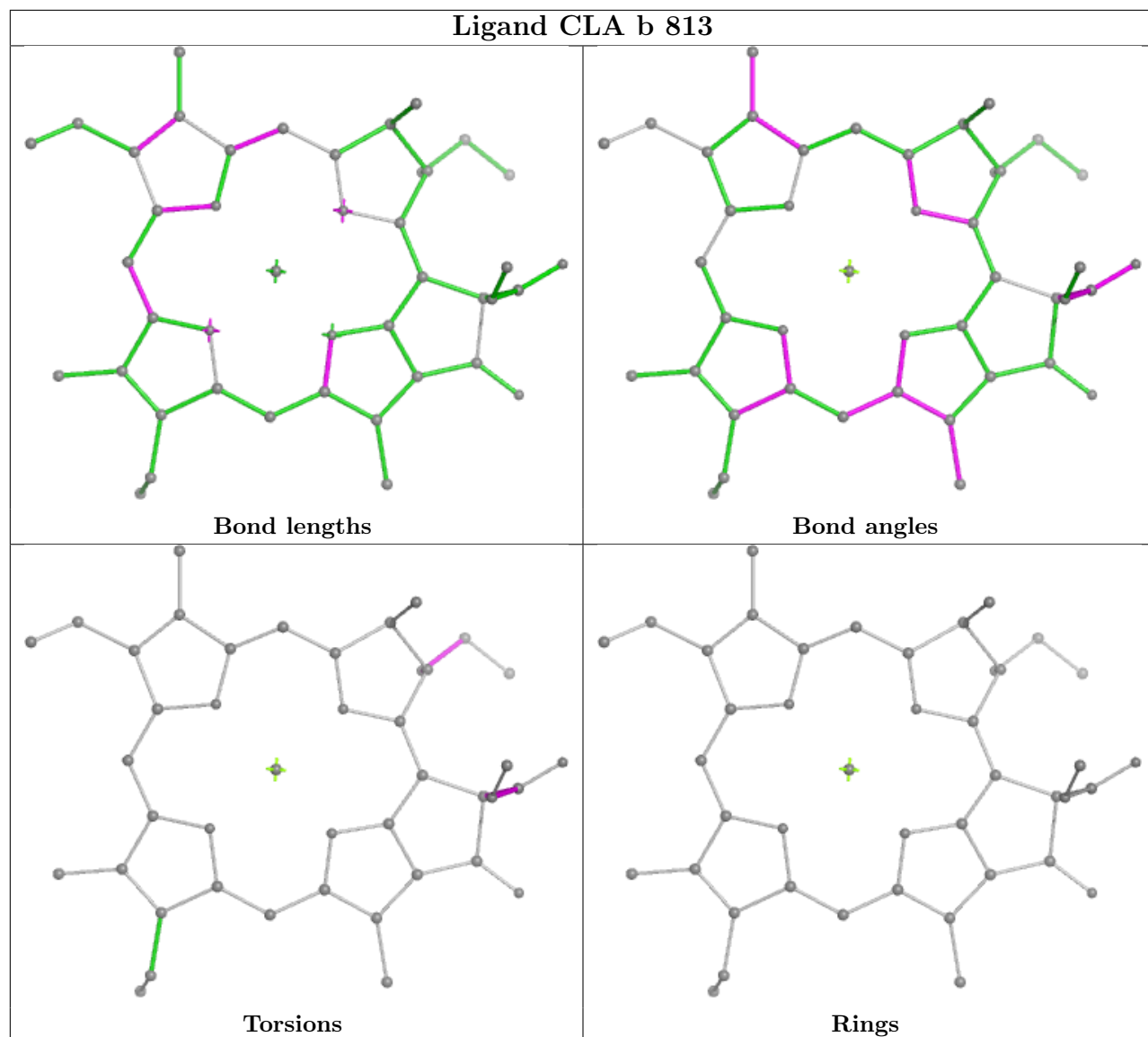


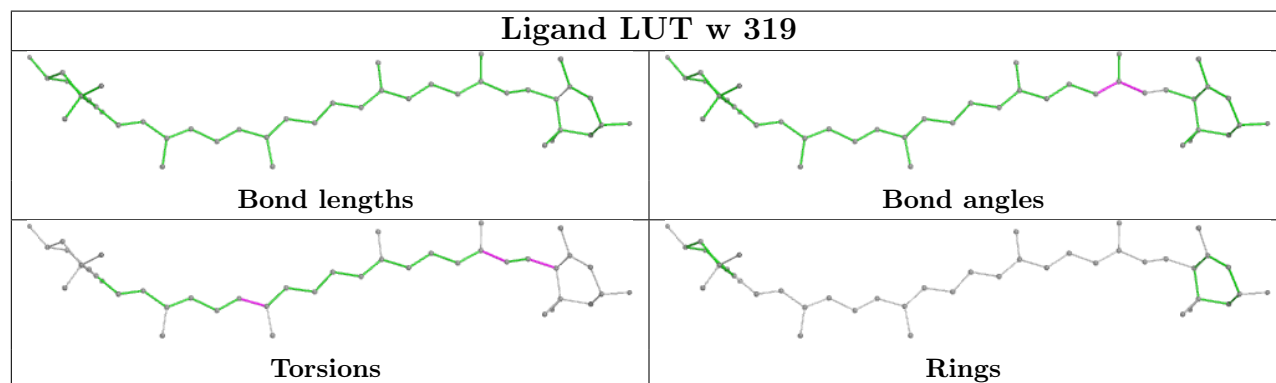
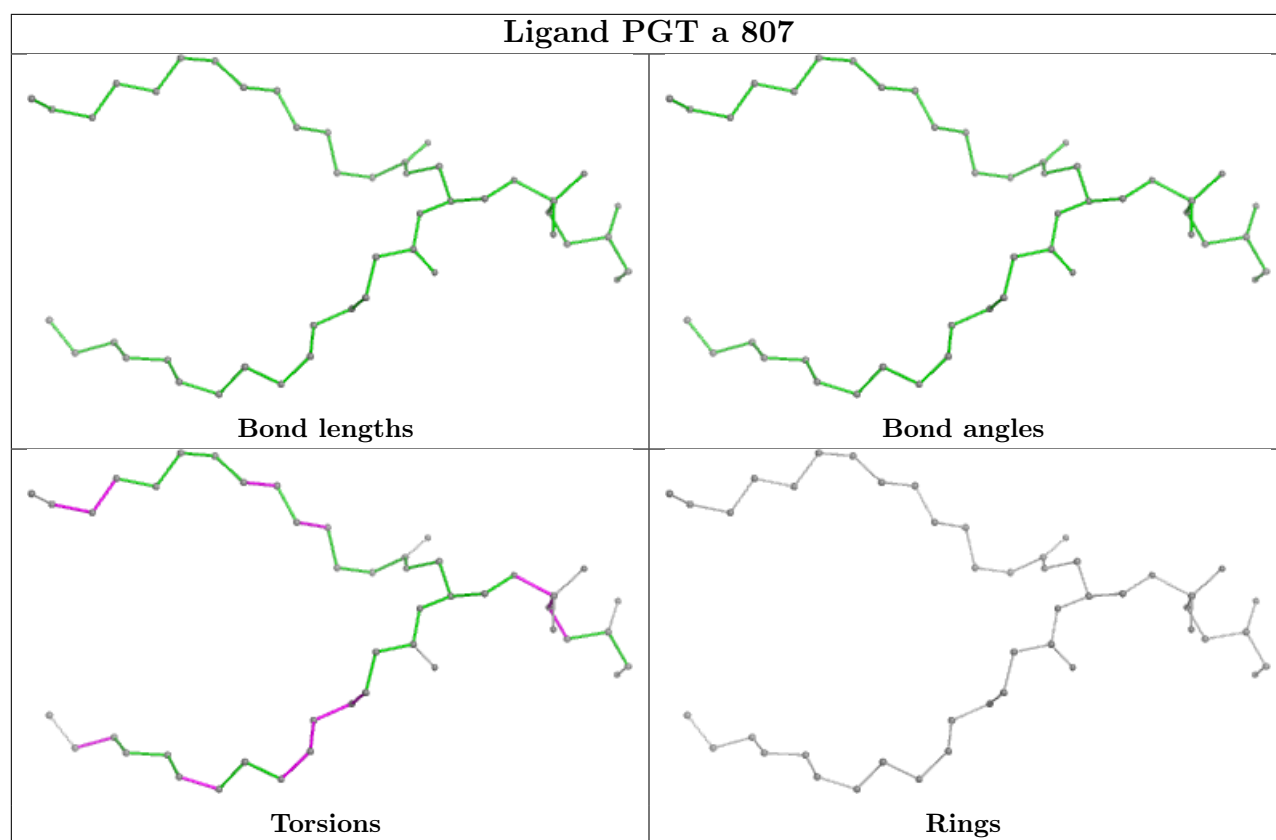
Torsions

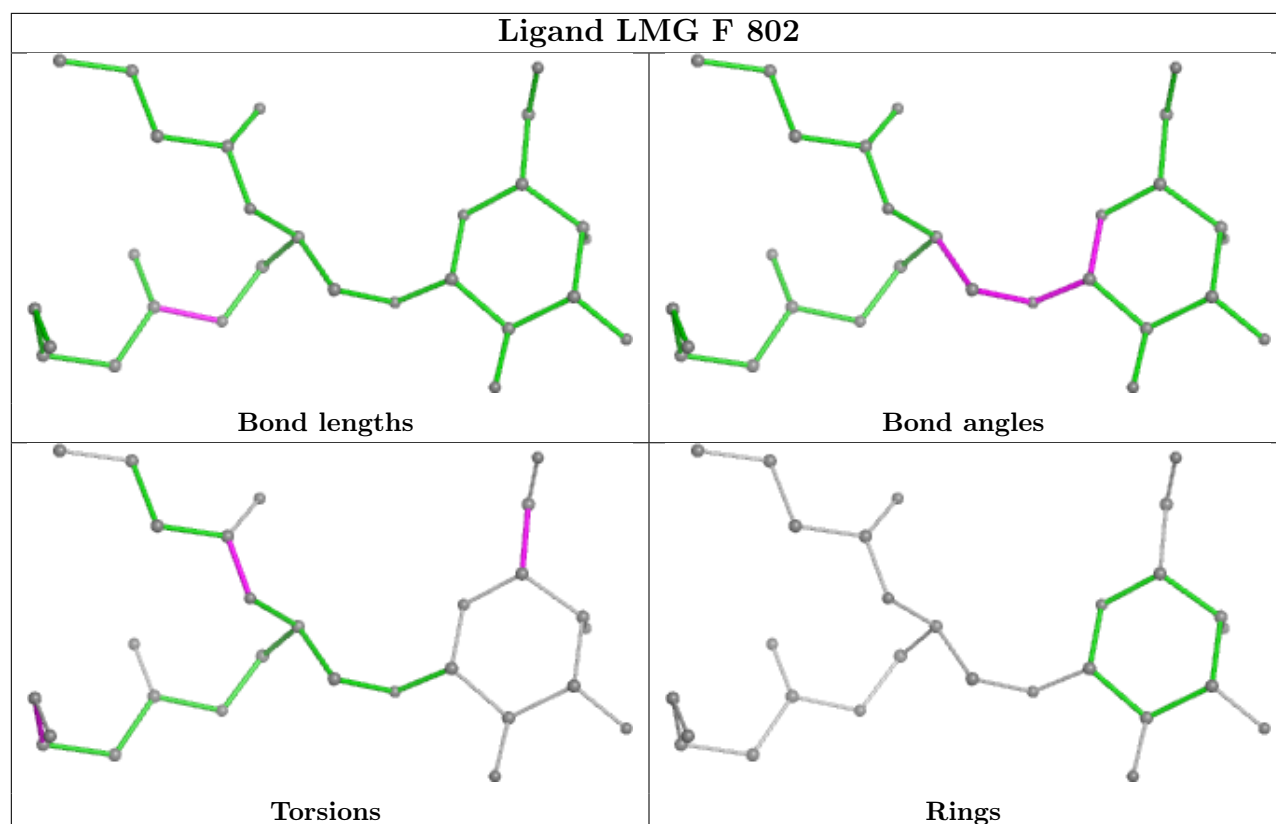
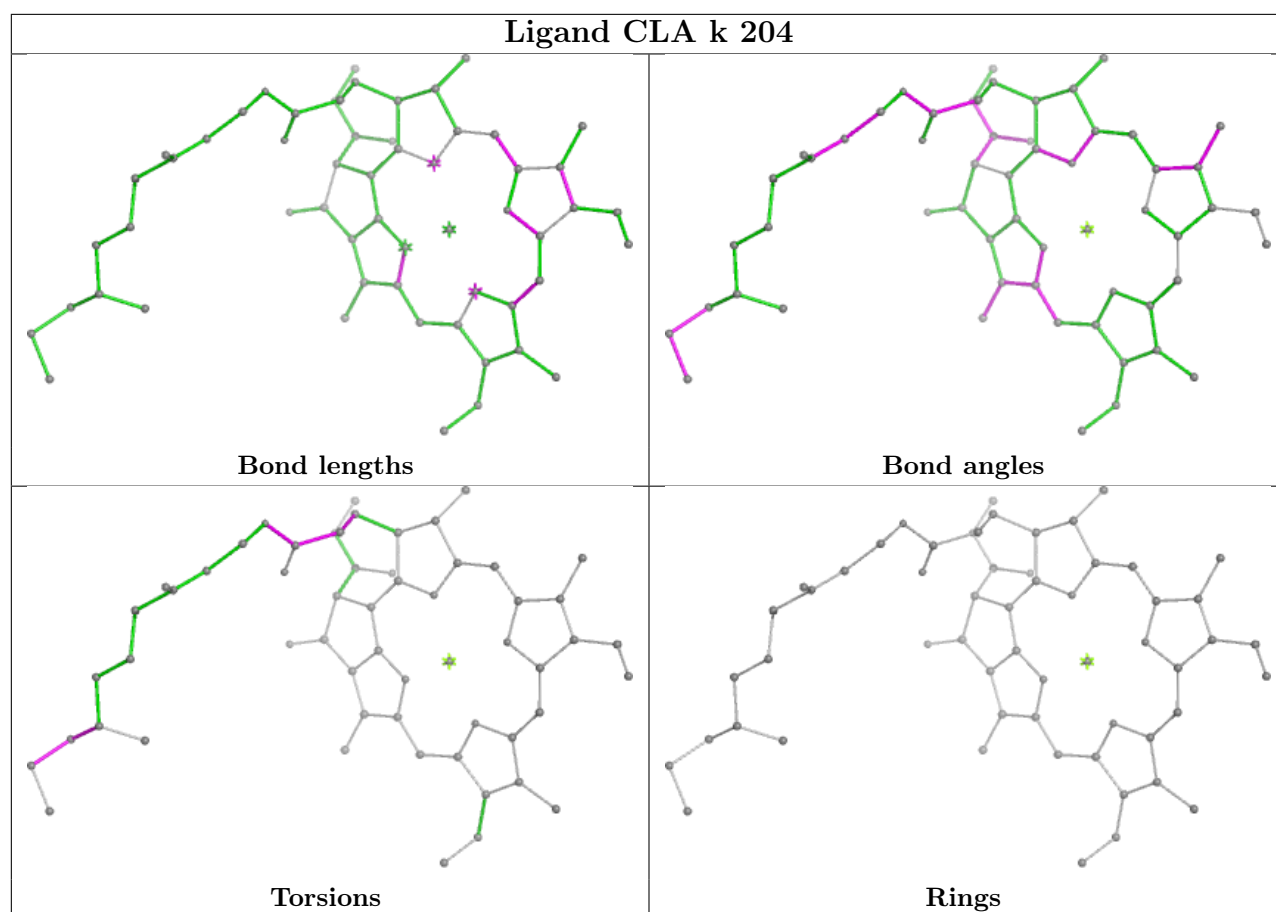


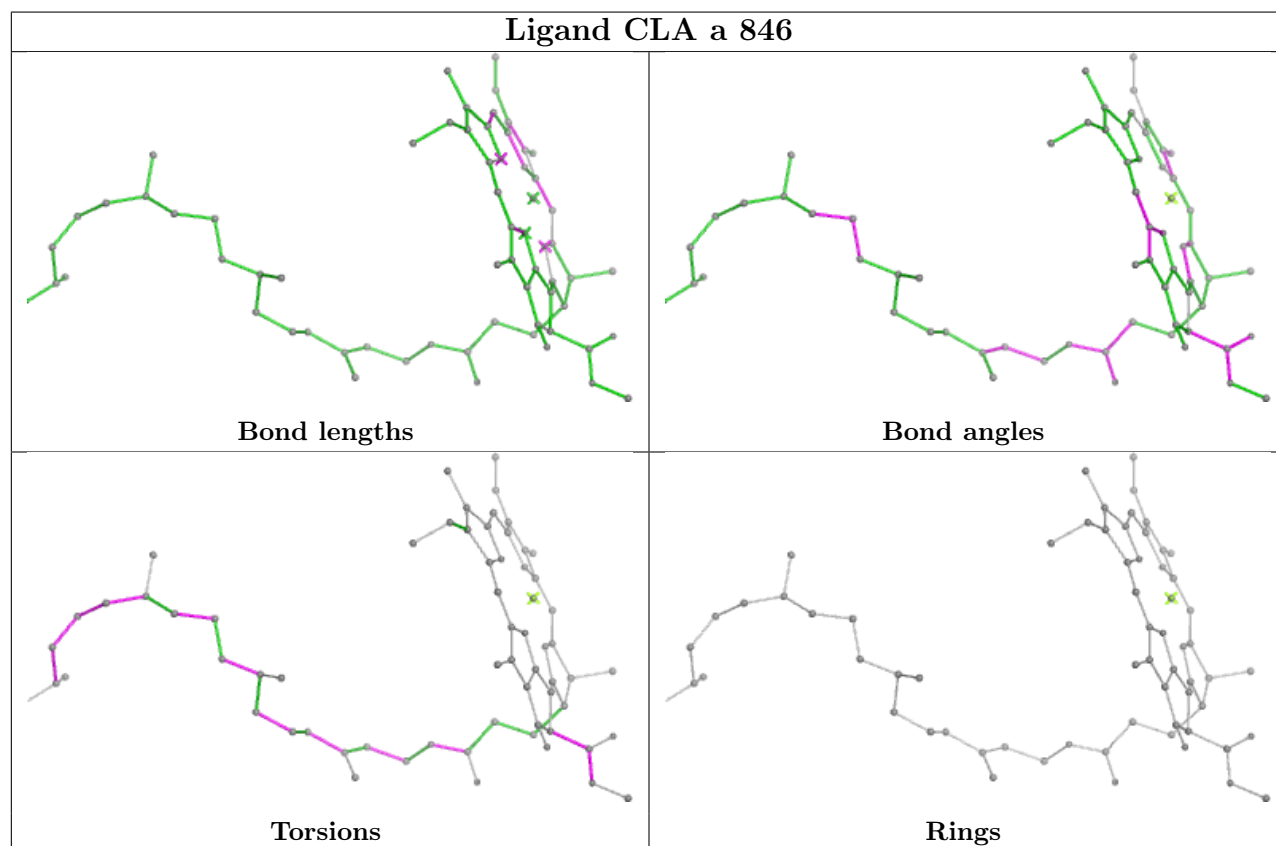
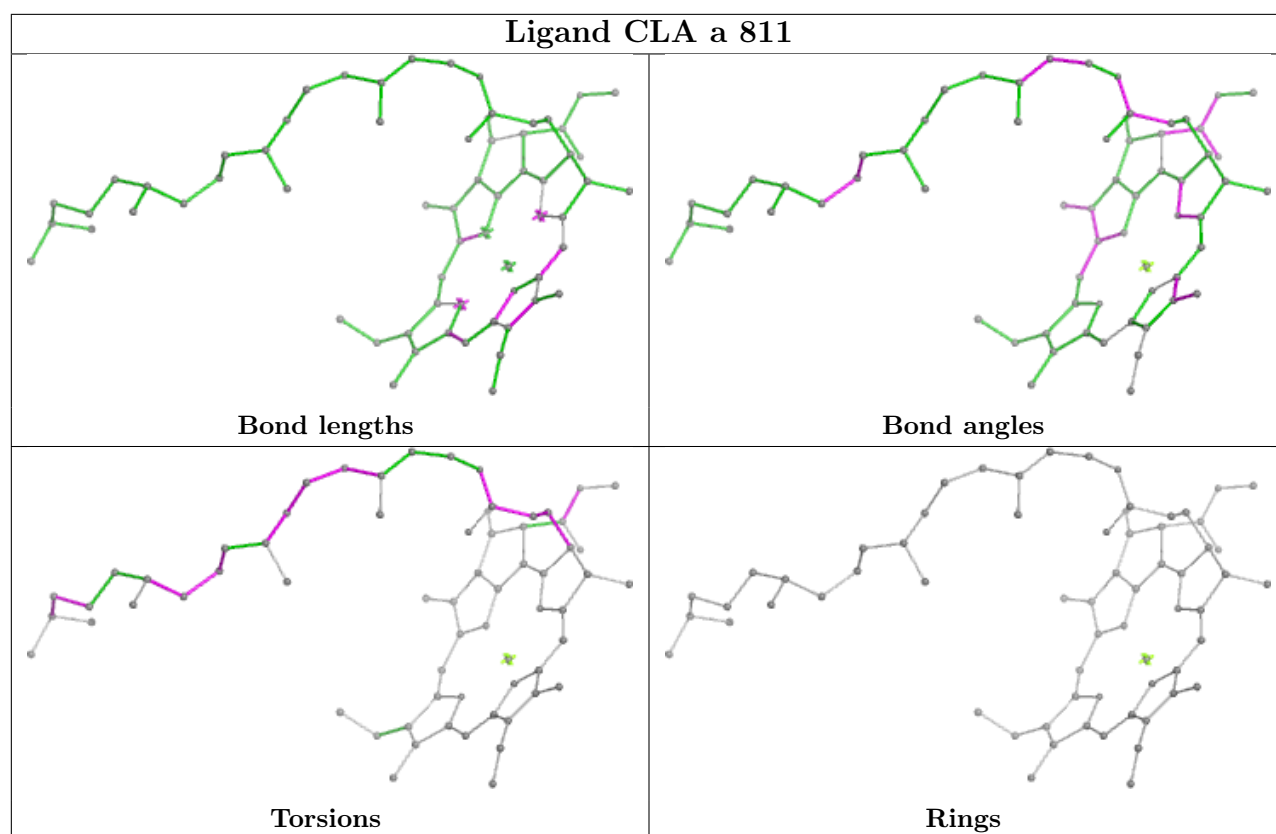
Rings

Ligand CLA b 813

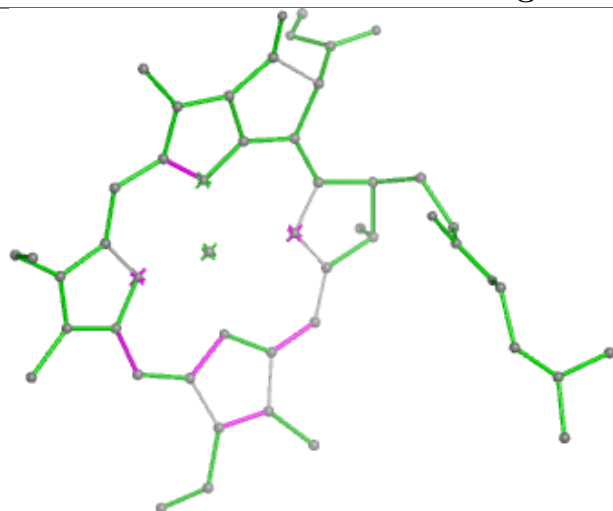




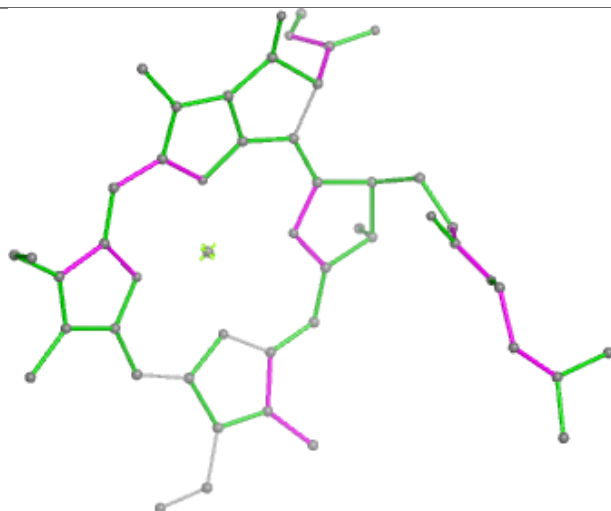




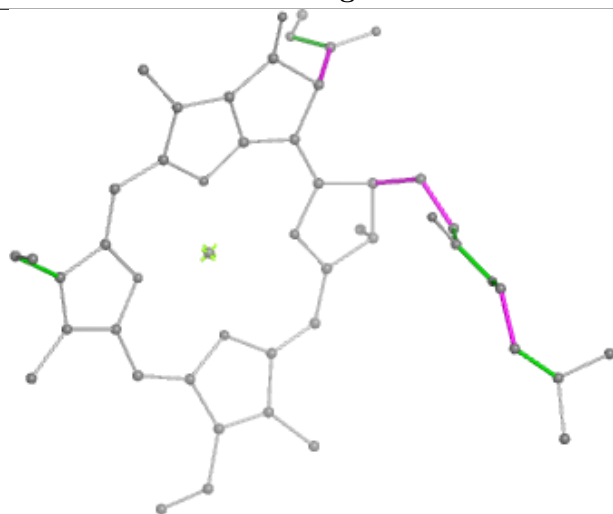
Ligand CLA b 810



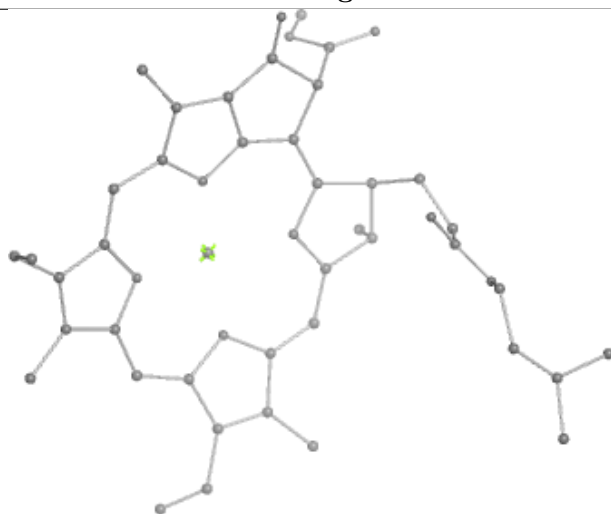
Bond lengths



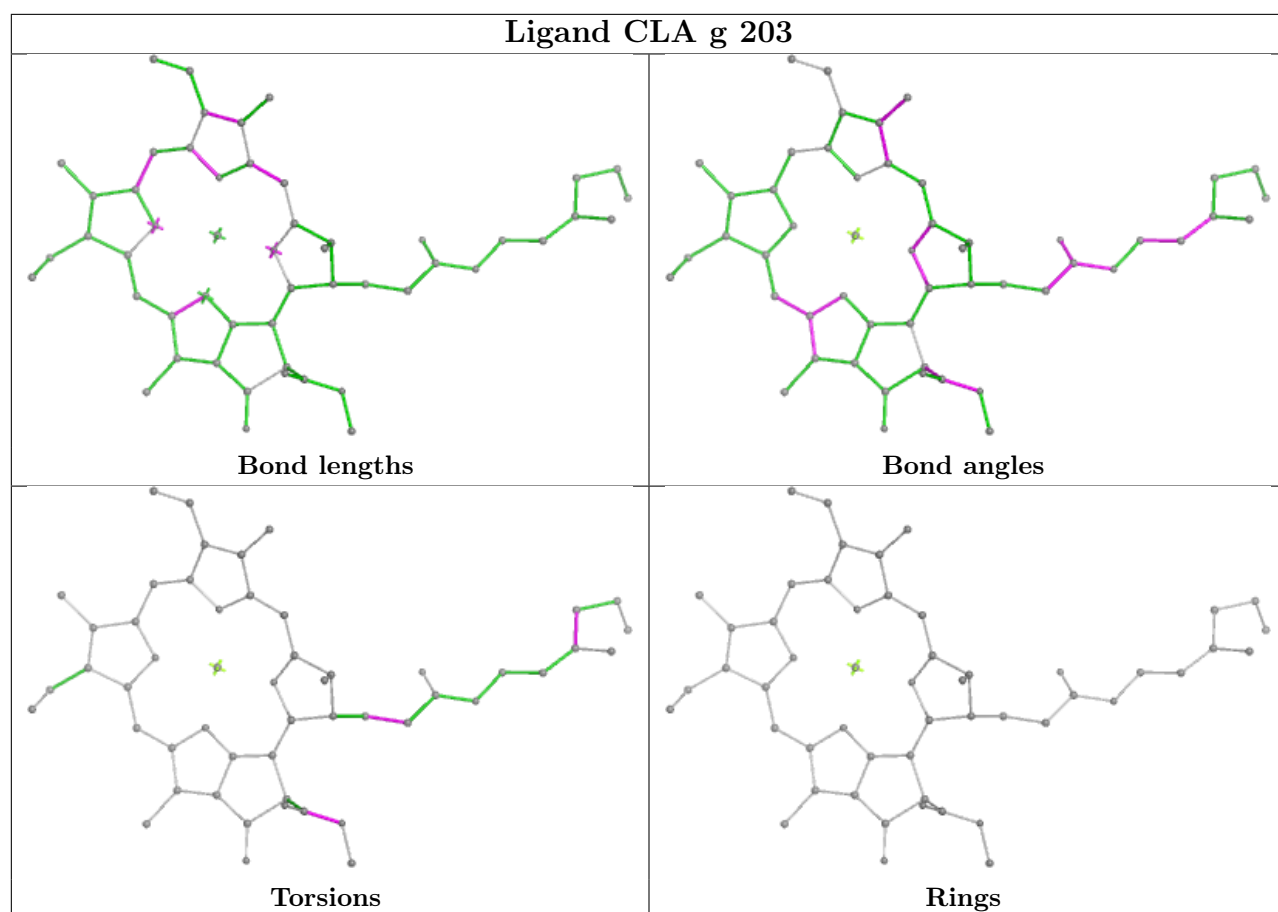
Bond angles

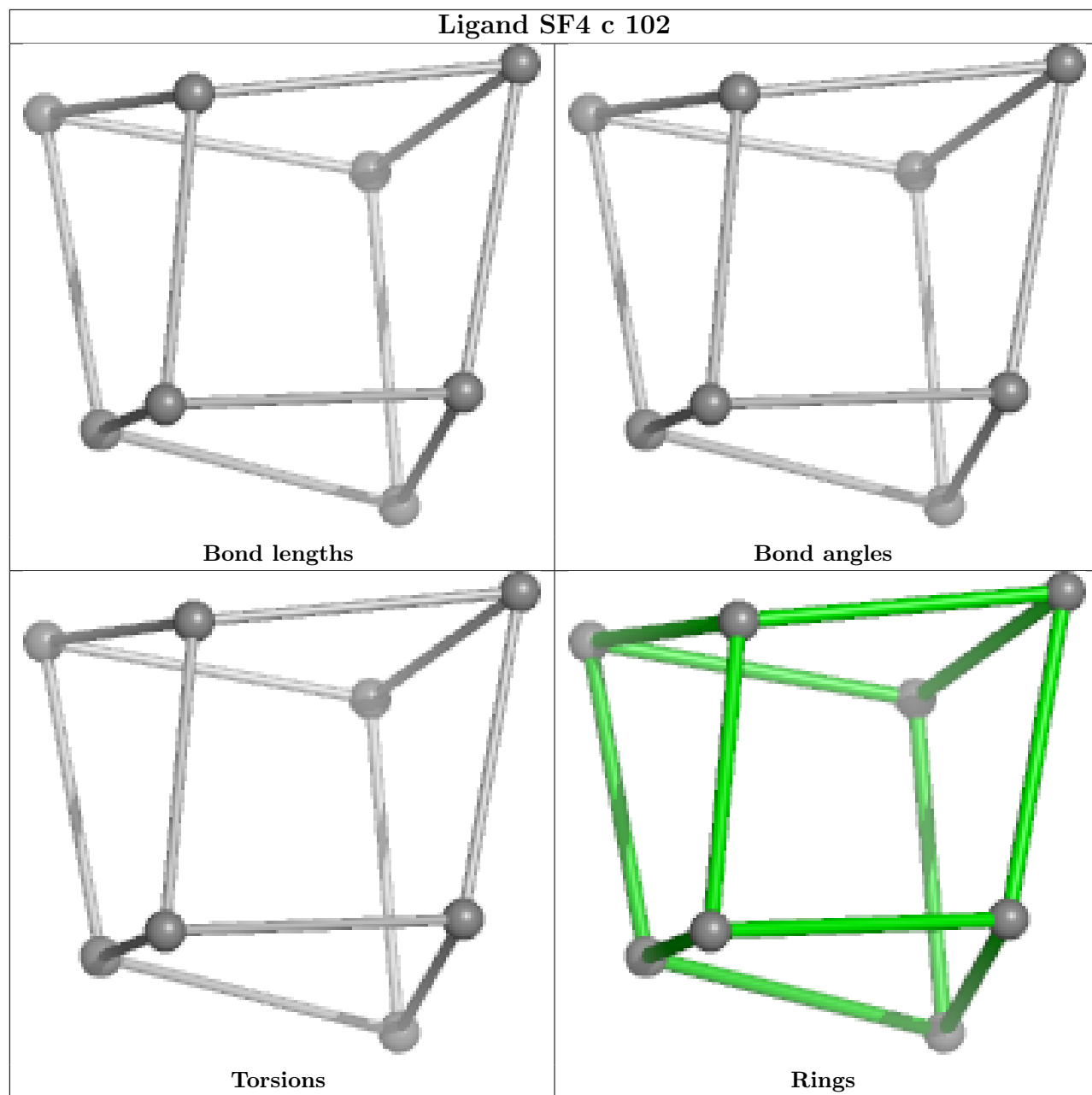


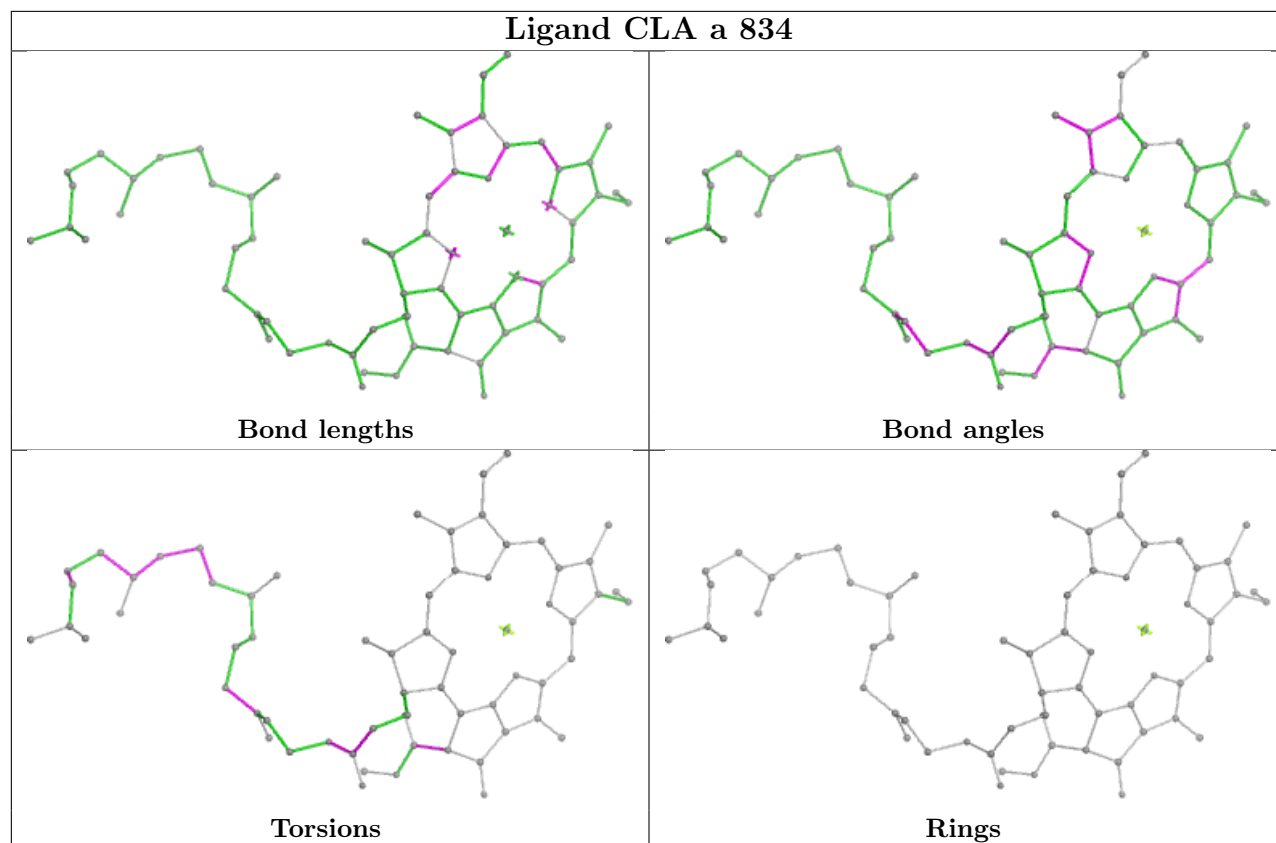
Torsions



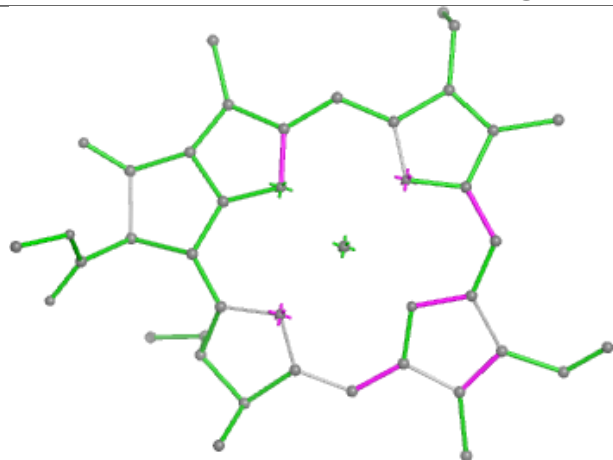
Rings



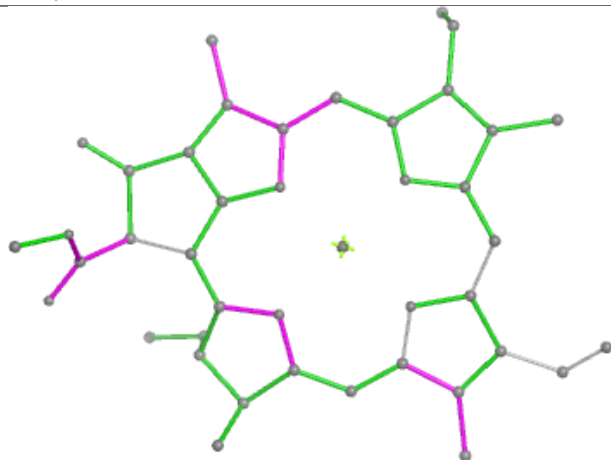




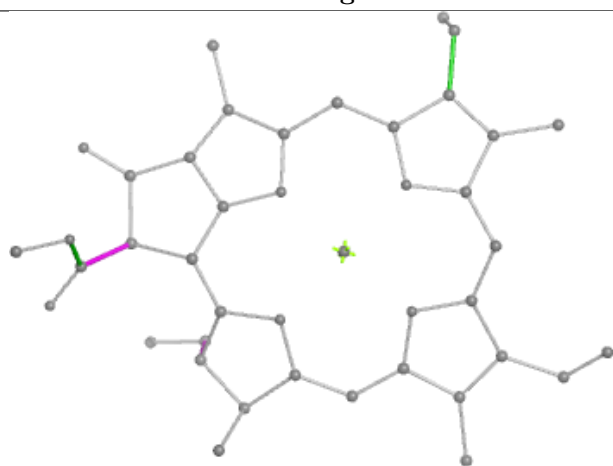
Ligand CLA y 309



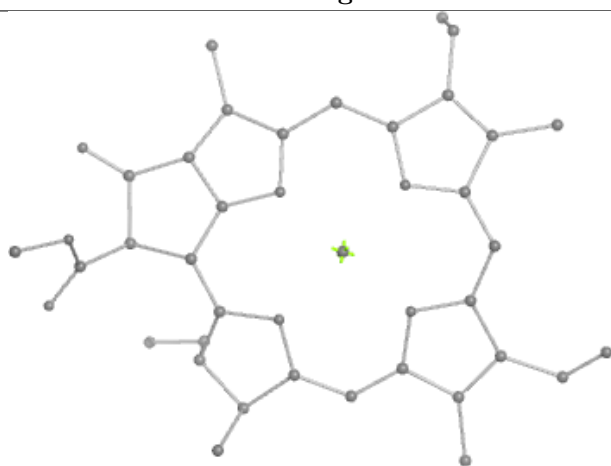
Bond lengths



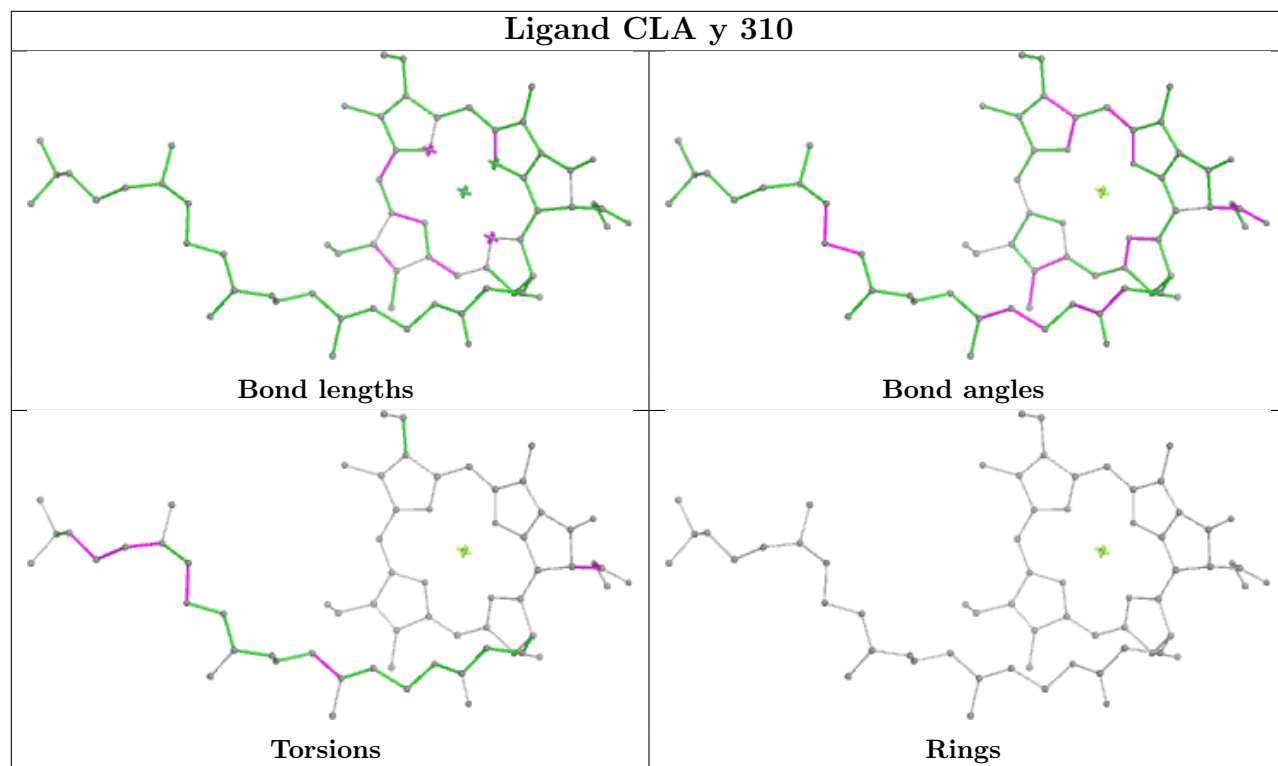
Bond angles

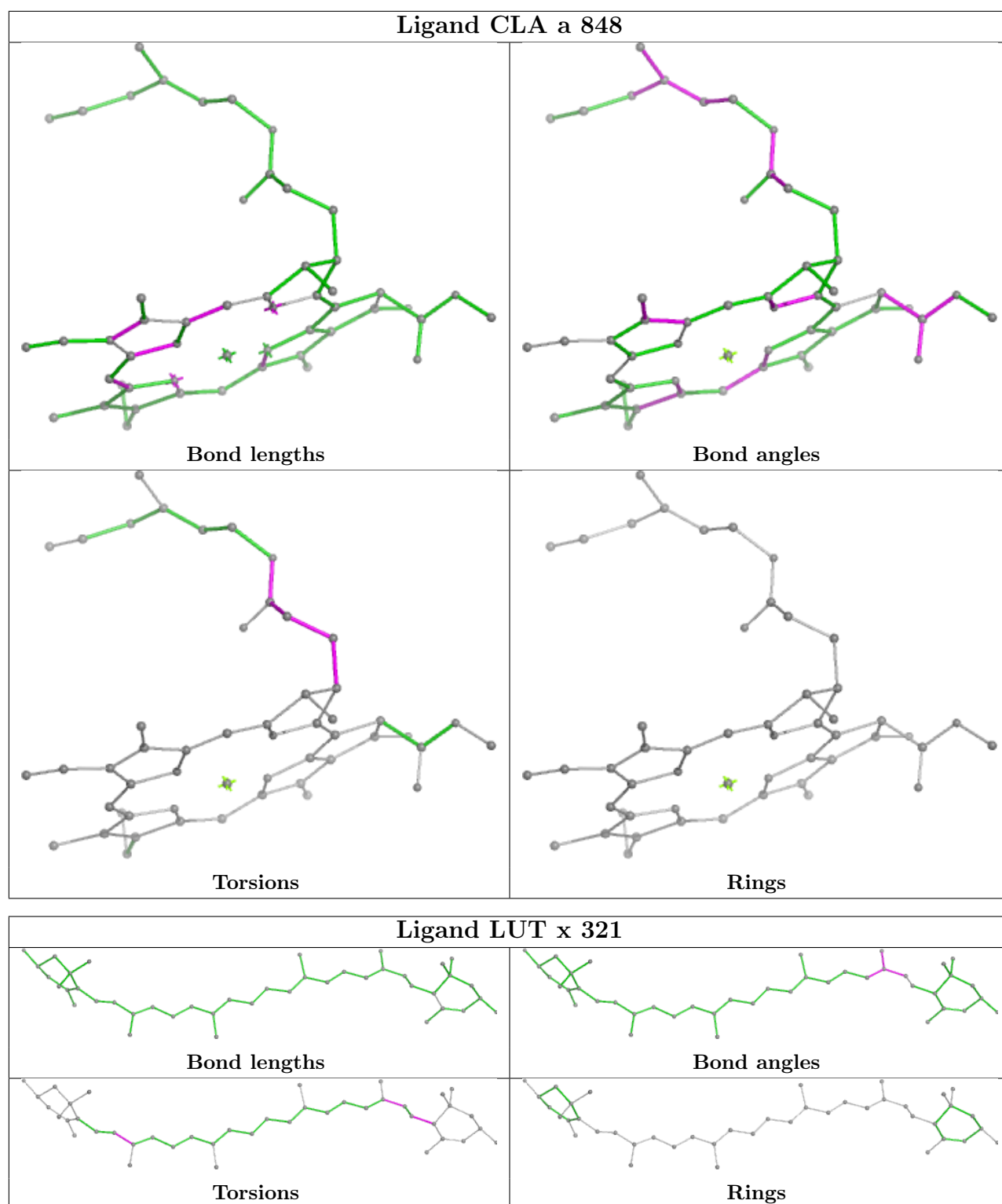


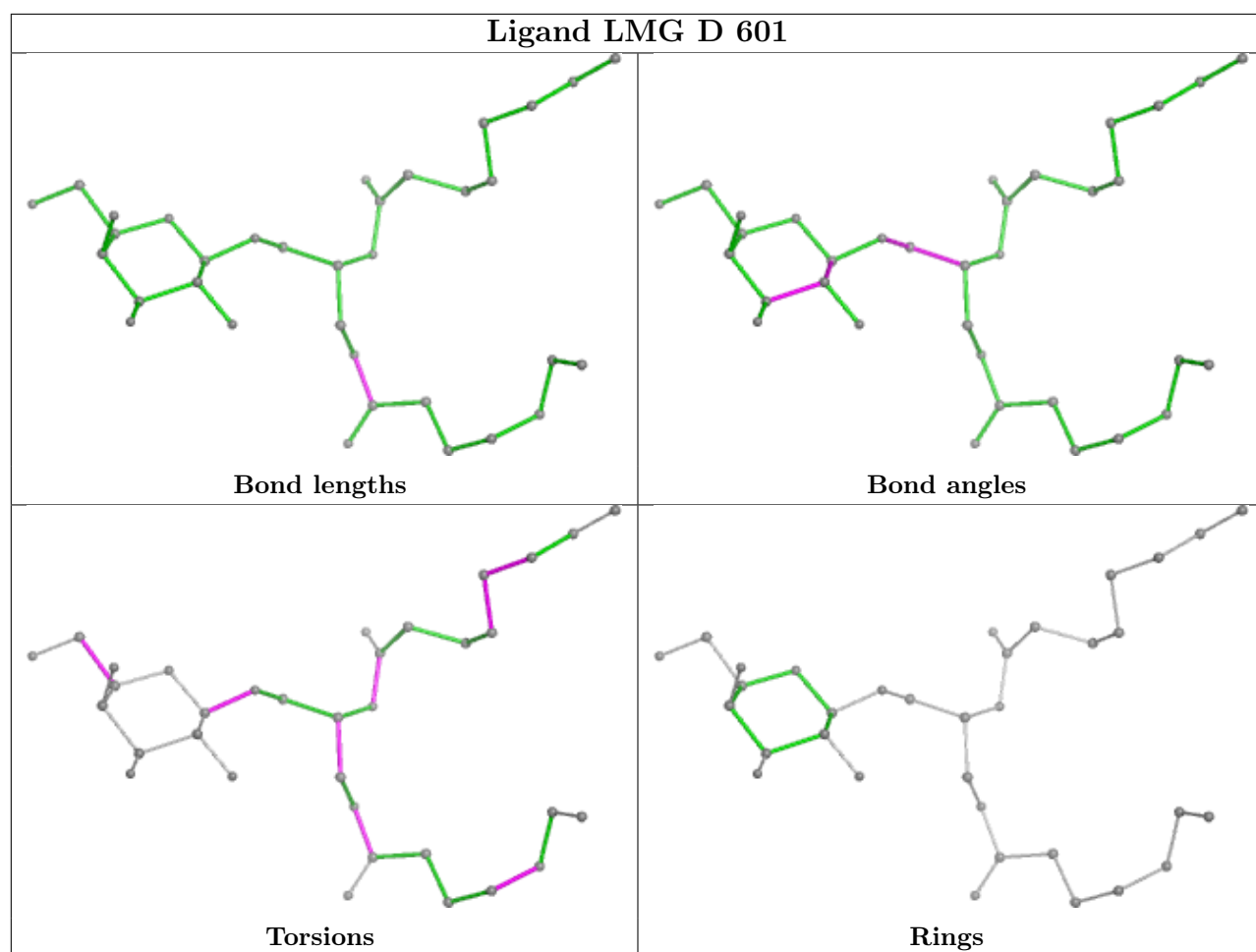
Torsions

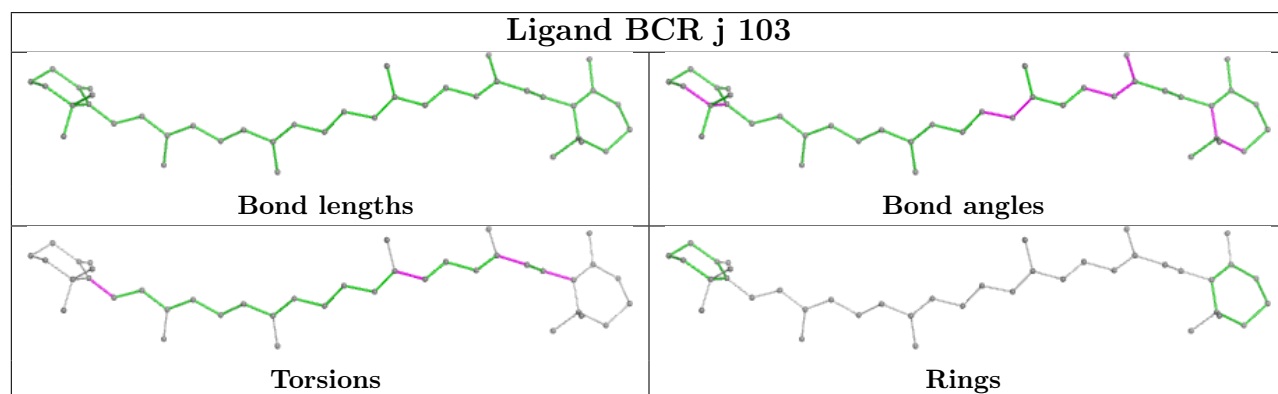
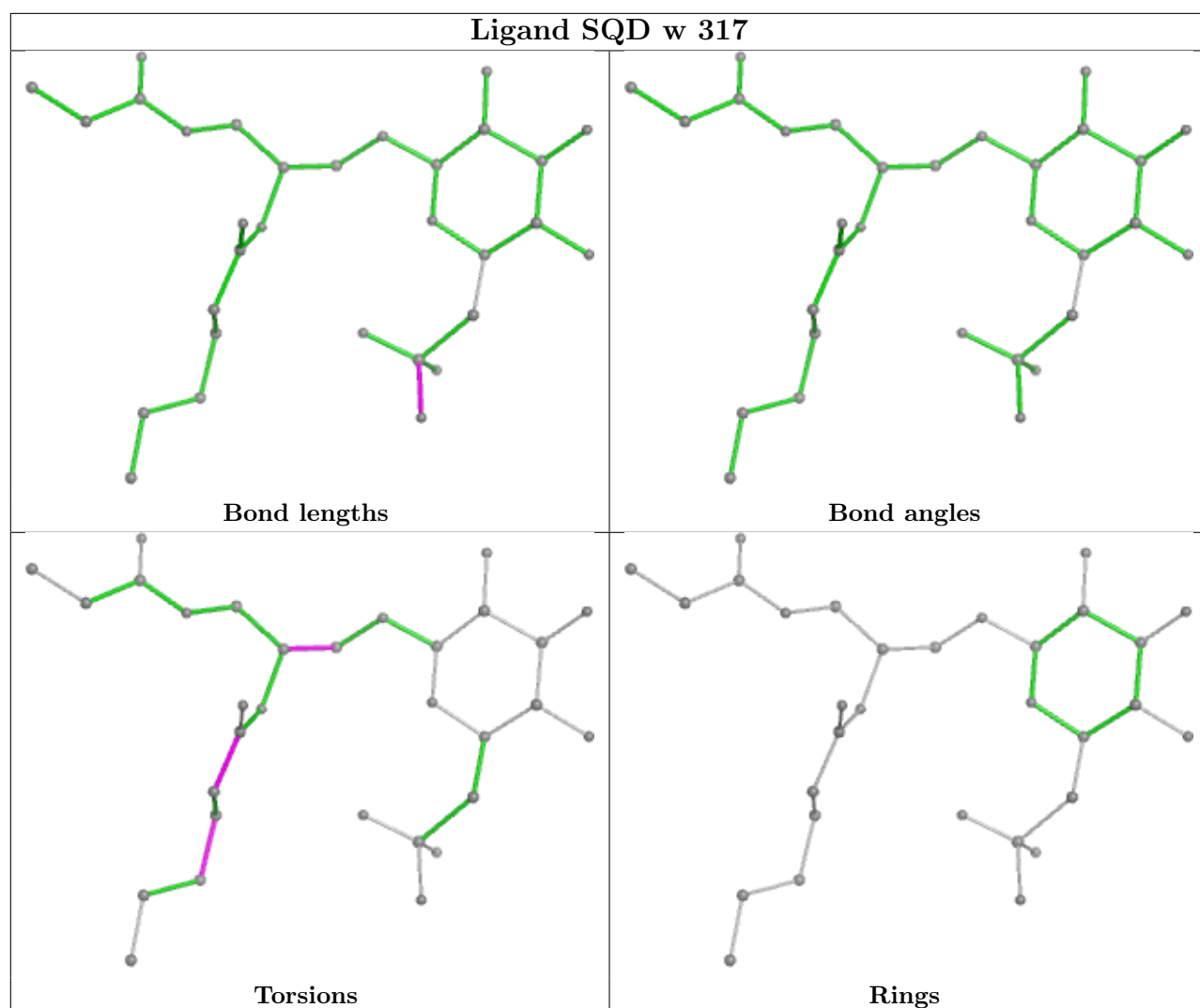


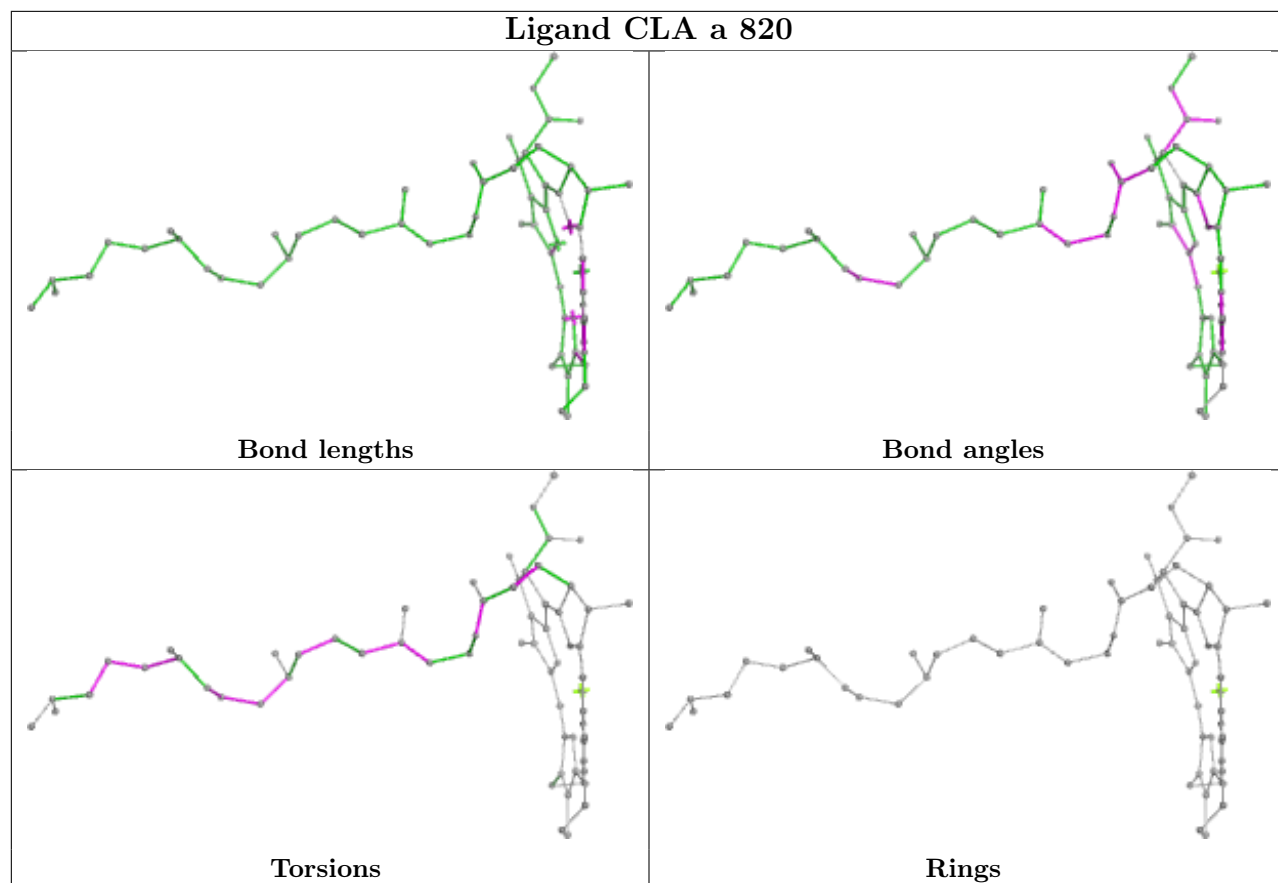
Rings



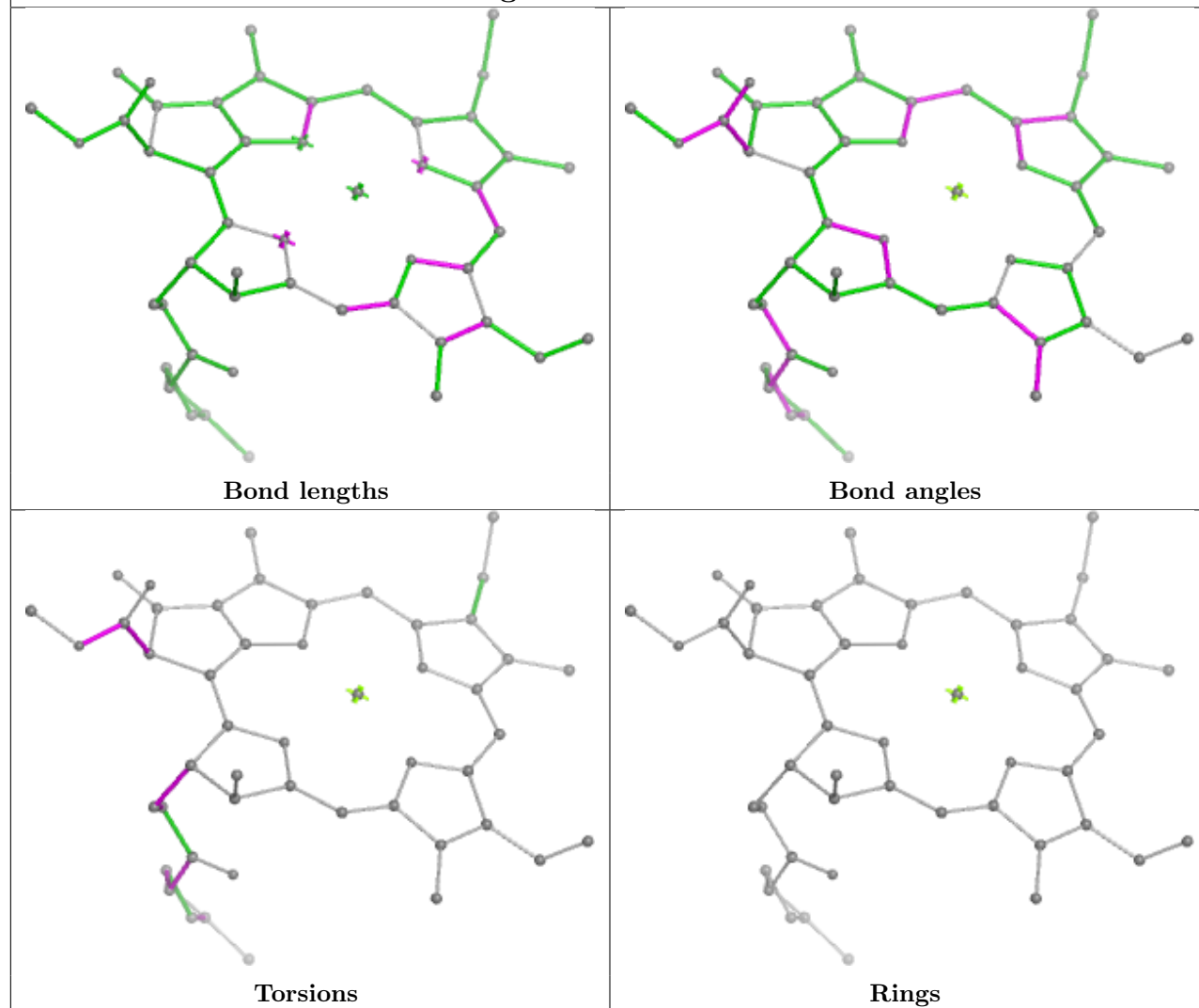




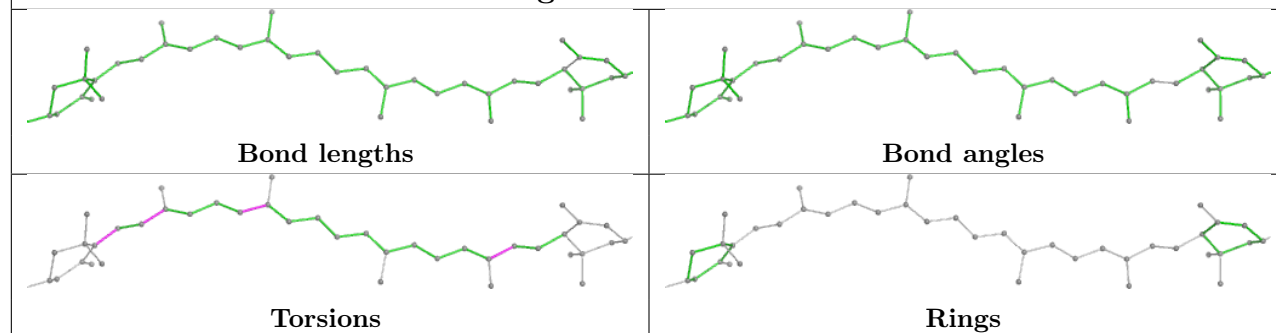


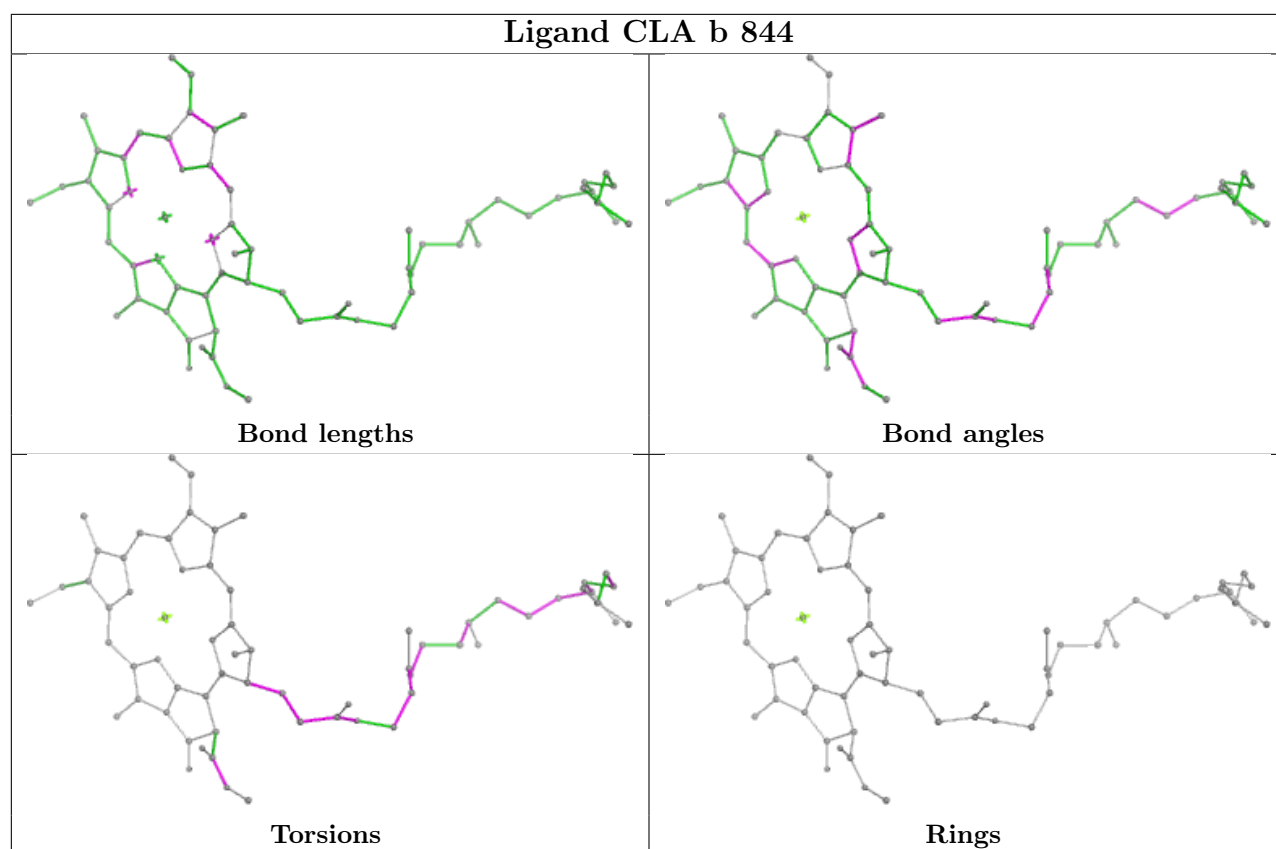


Ligand CLA w 302

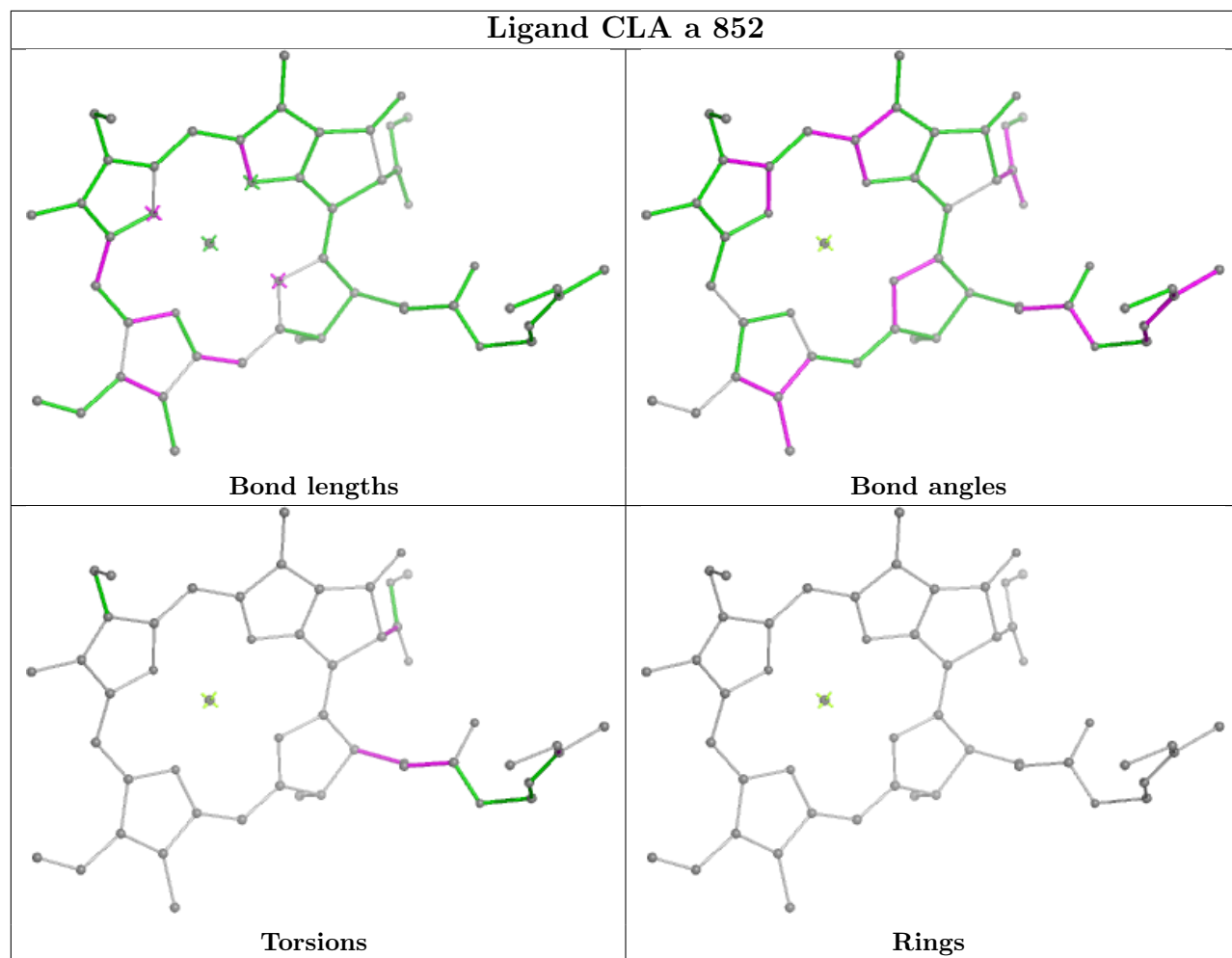


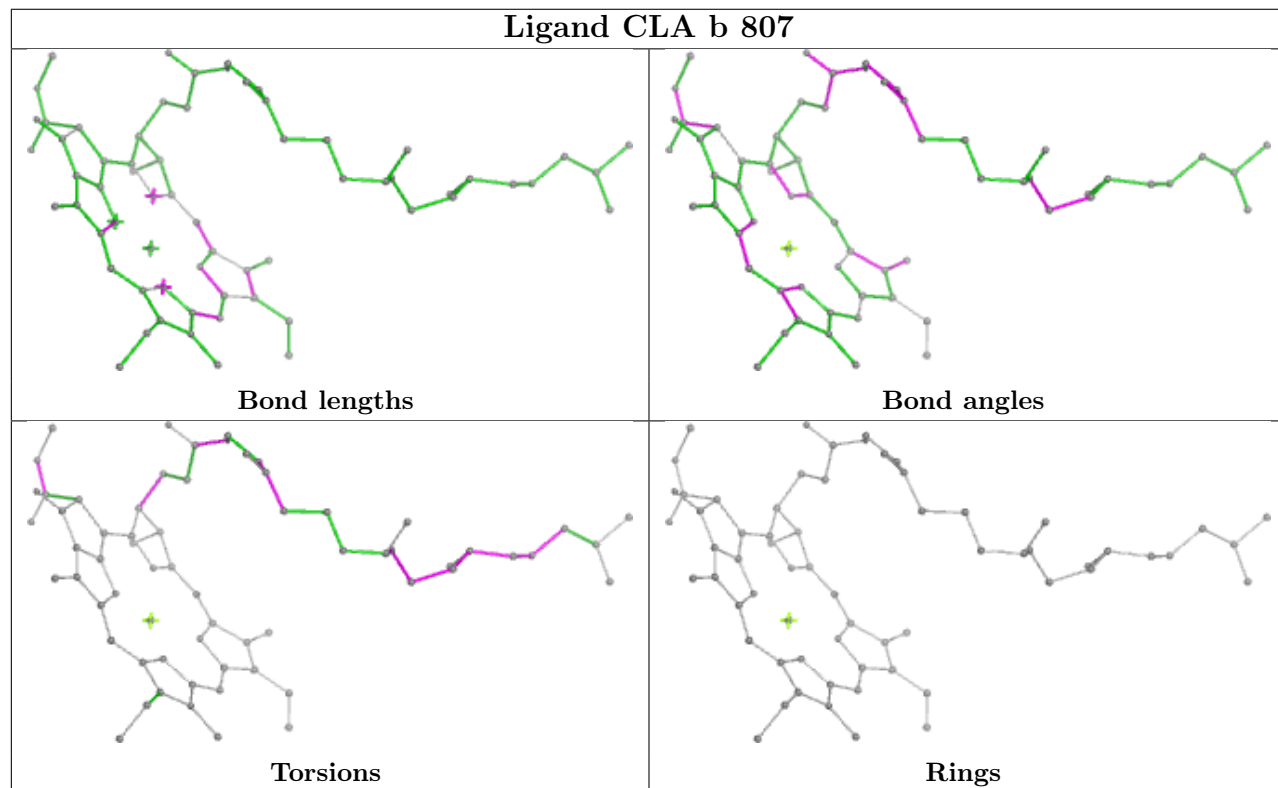
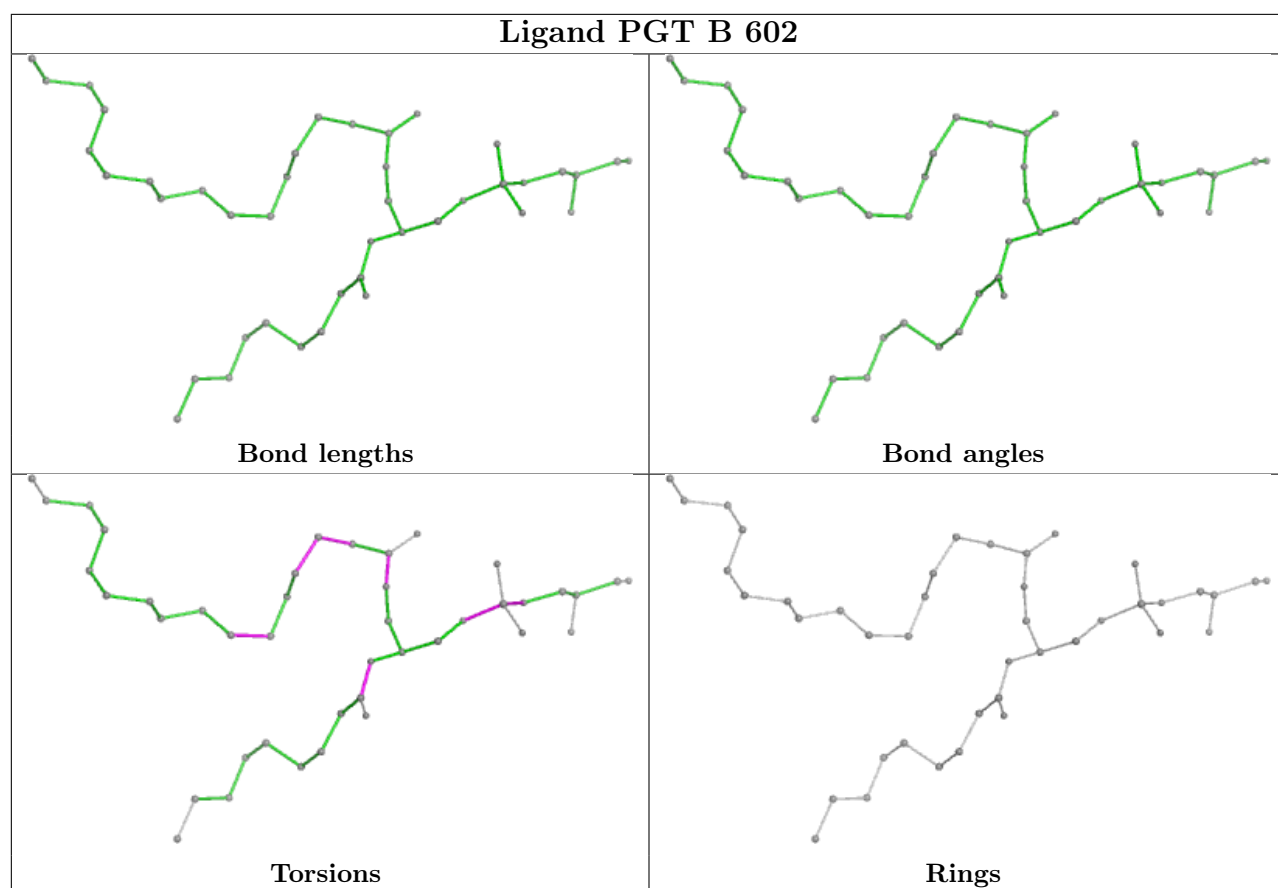
Ligand LUT z 320

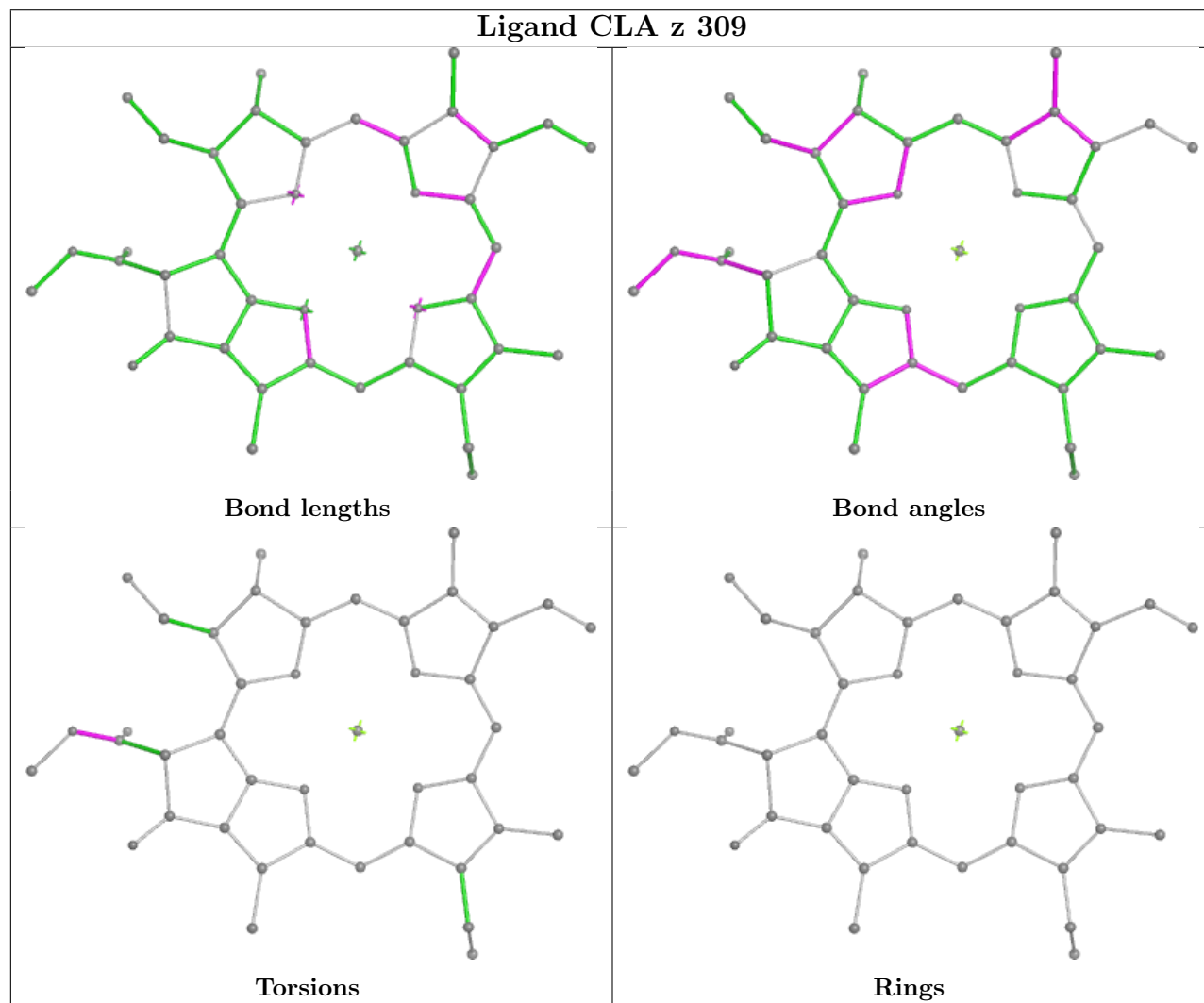
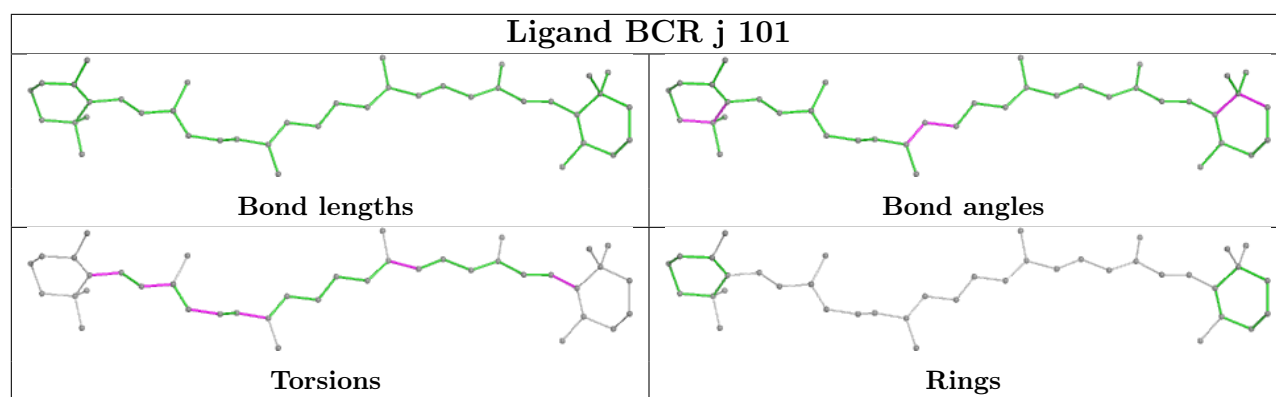




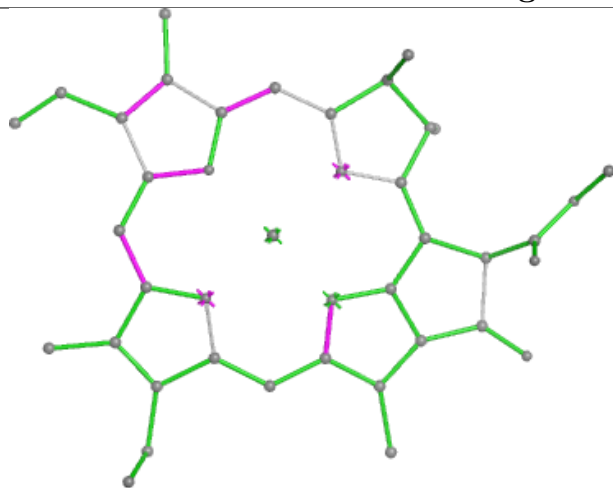
Ligand CLA a 852



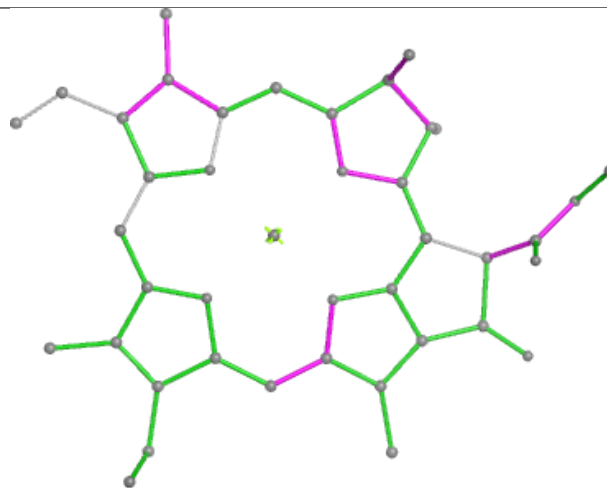




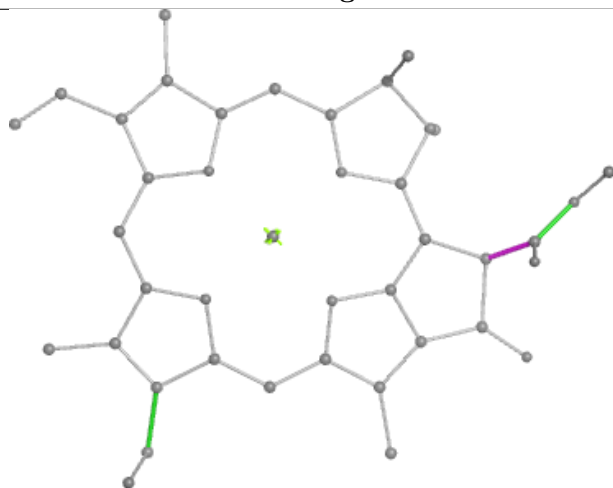
Ligand CLA a 817



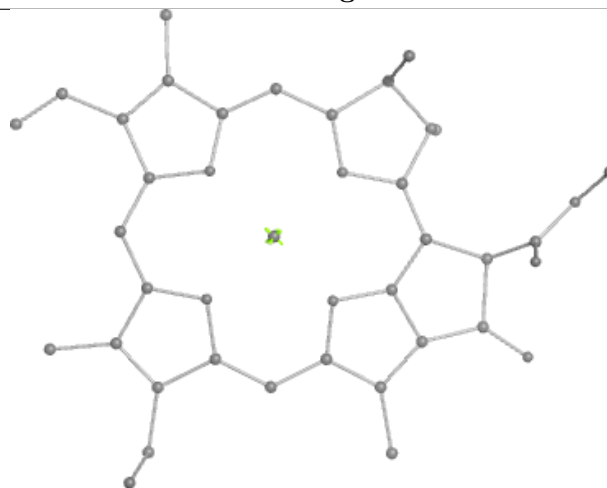
Bond lengths



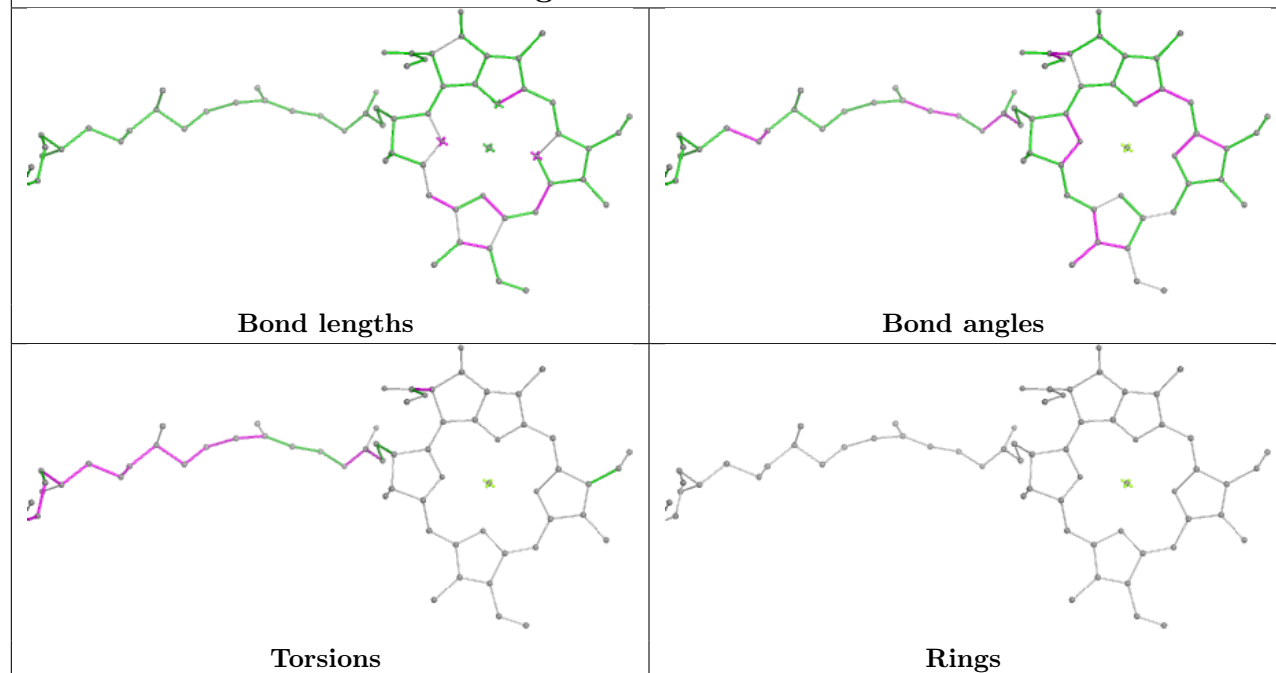
Bond angles



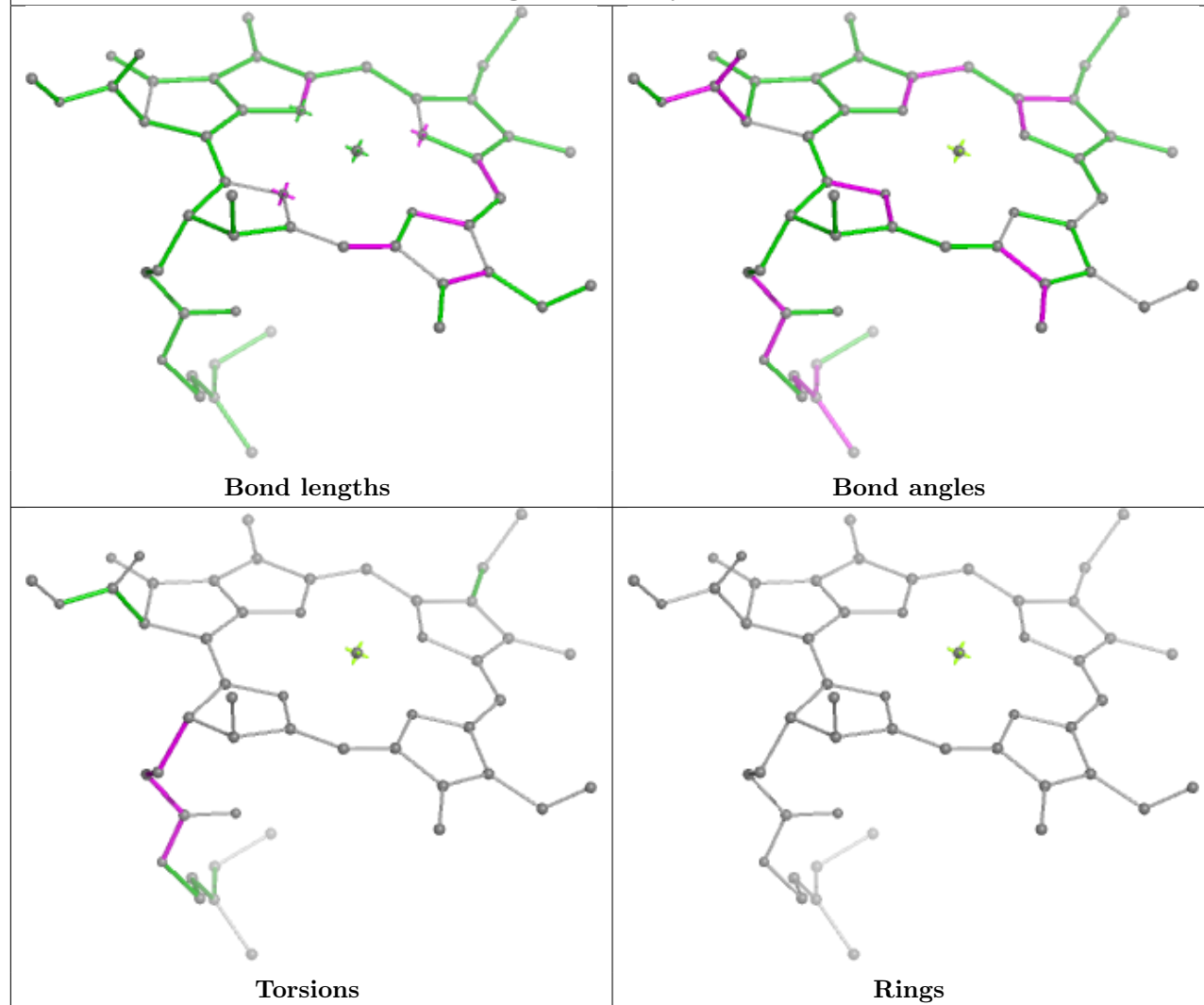
Torsions

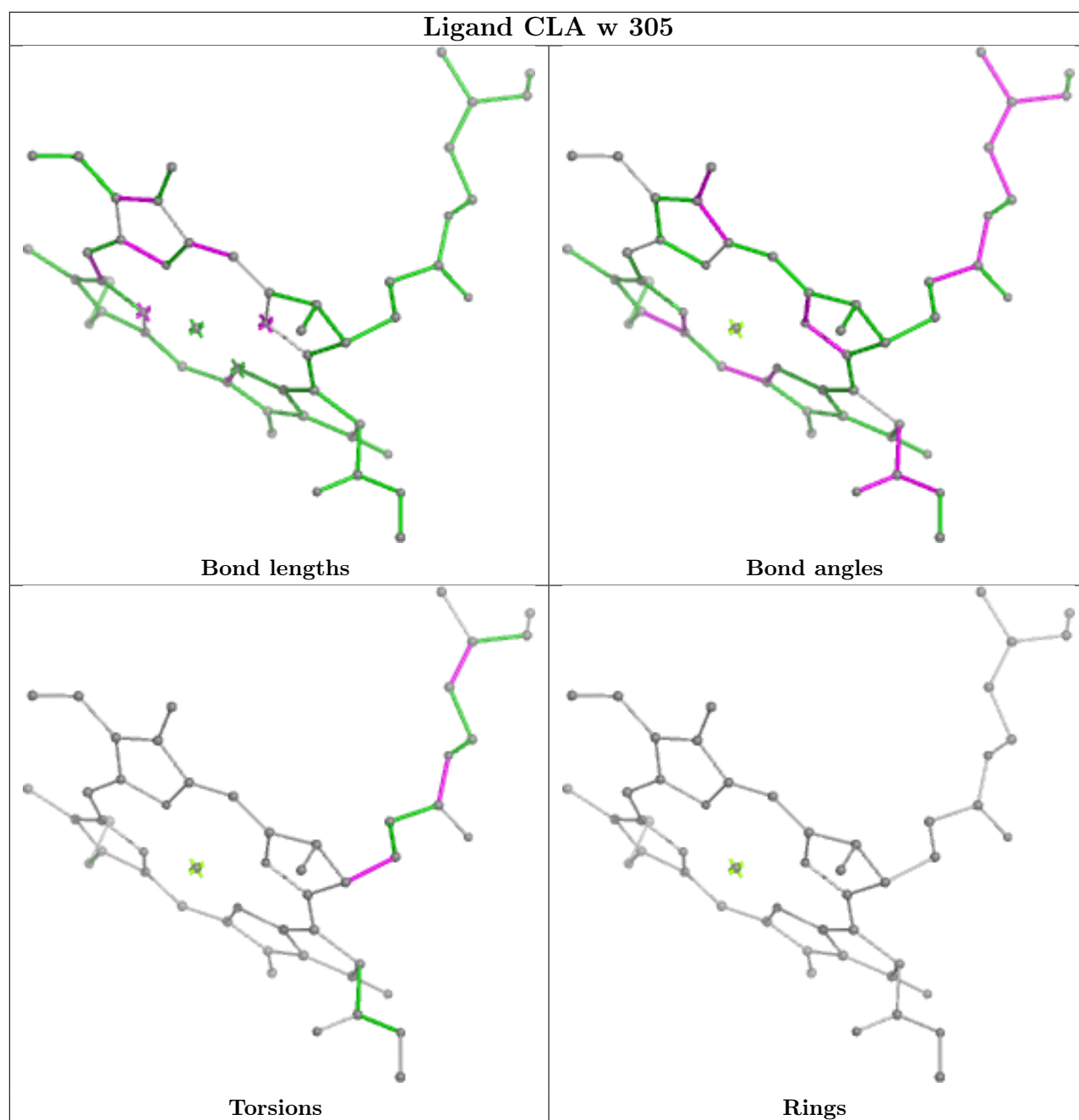


Rings

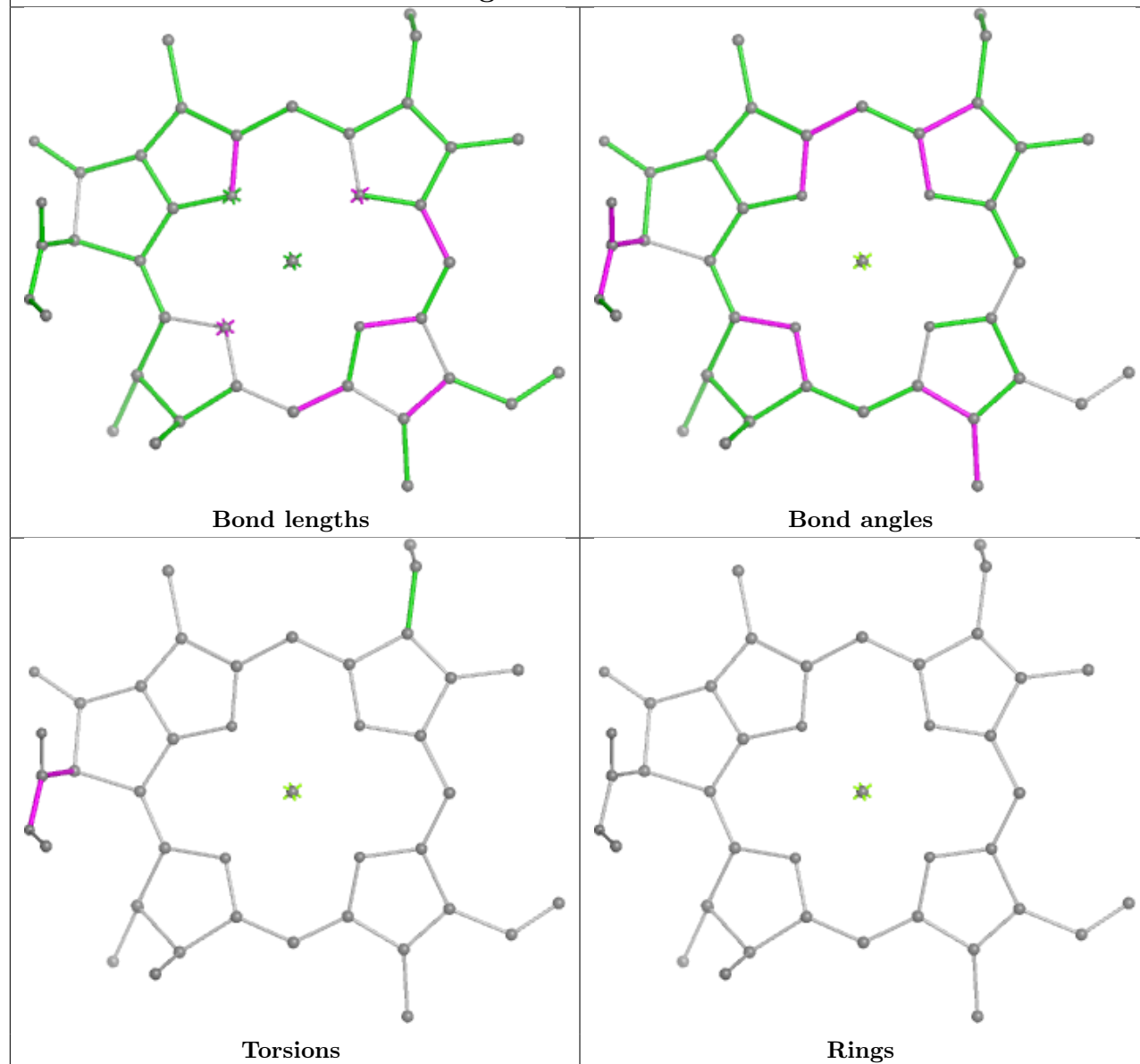
Ligand CLA b 824

Ligand CLA y 311

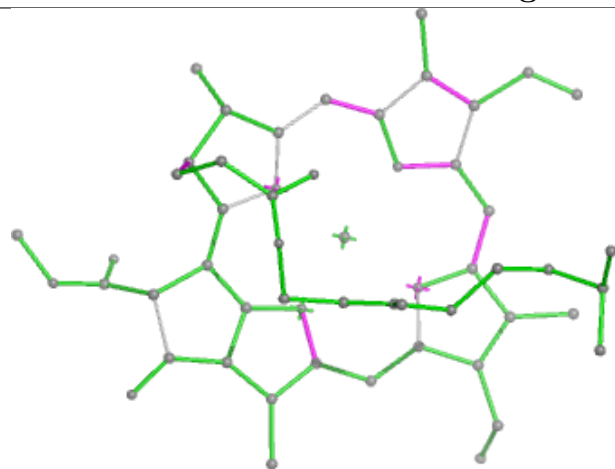




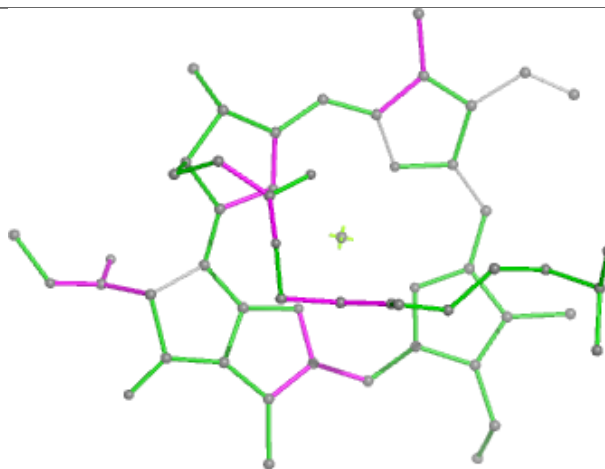
Ligand CLA a 840



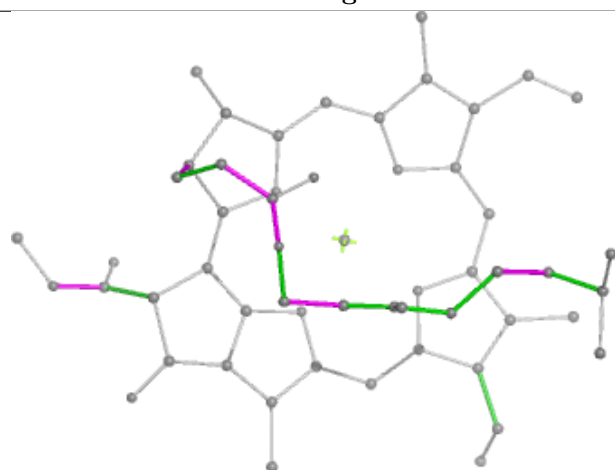
Ligand CLA b 841



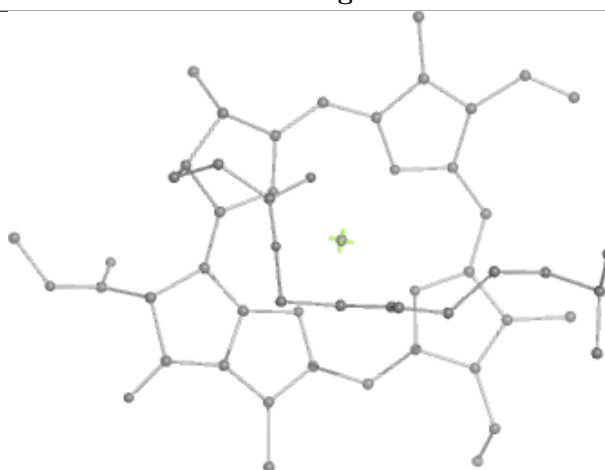
Bond lengths



Bond angles

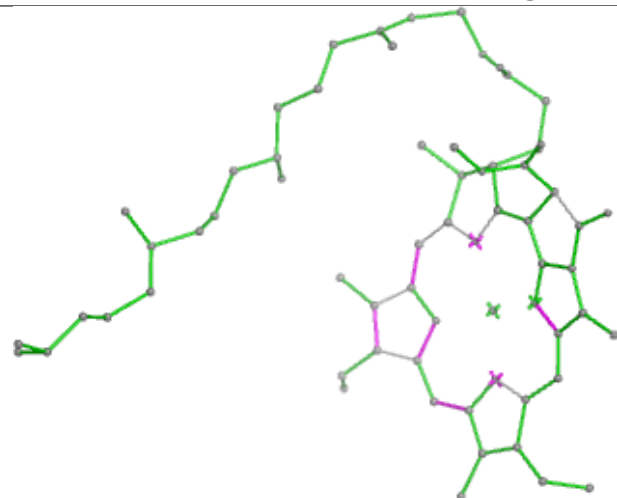


Torsions

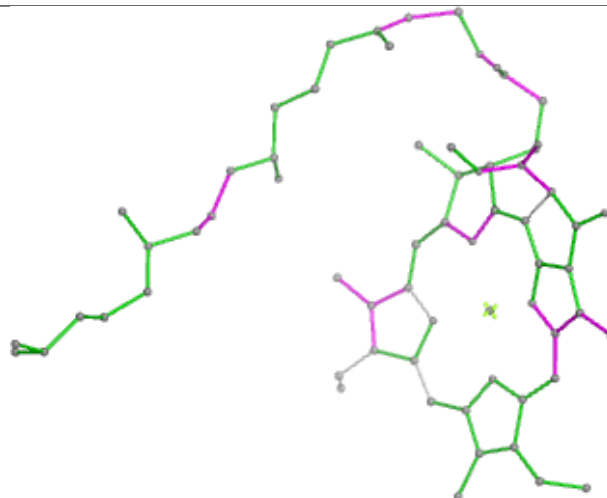


Rings

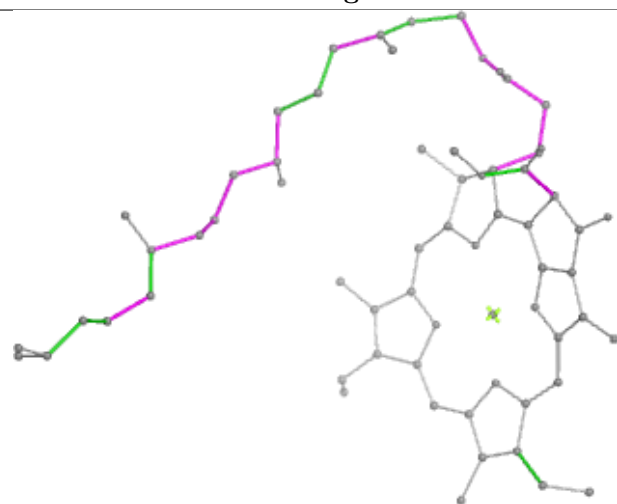
Ligand CLA b 839



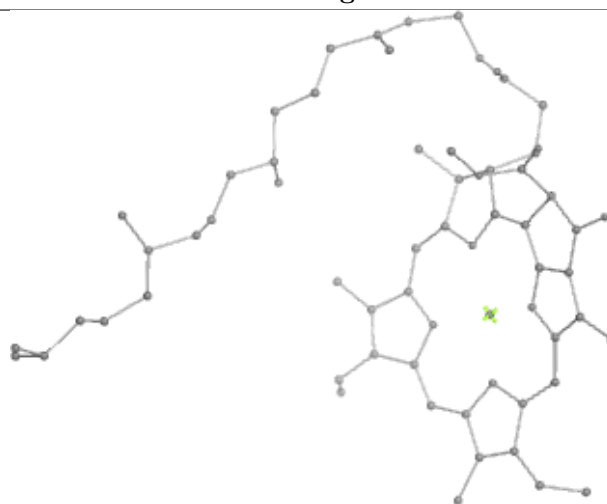
Bond lengths



Bond angles

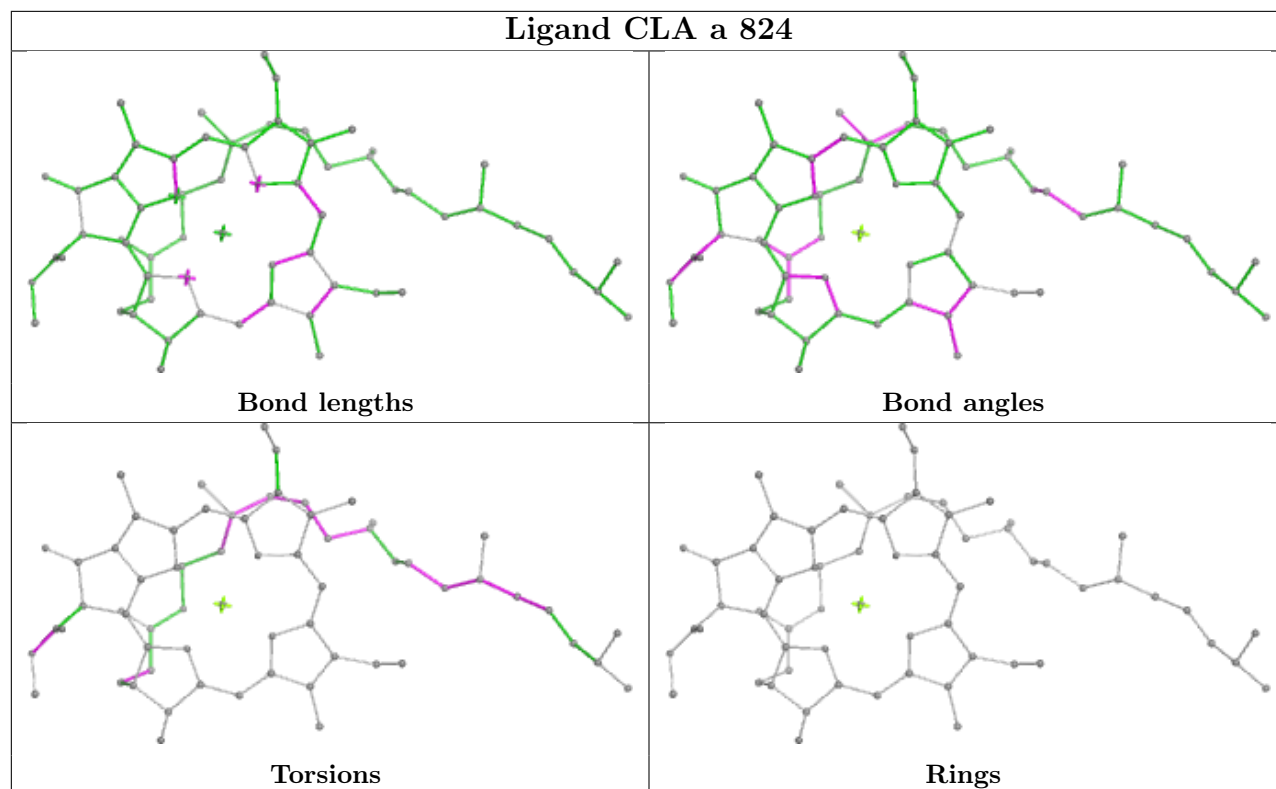


Torsions

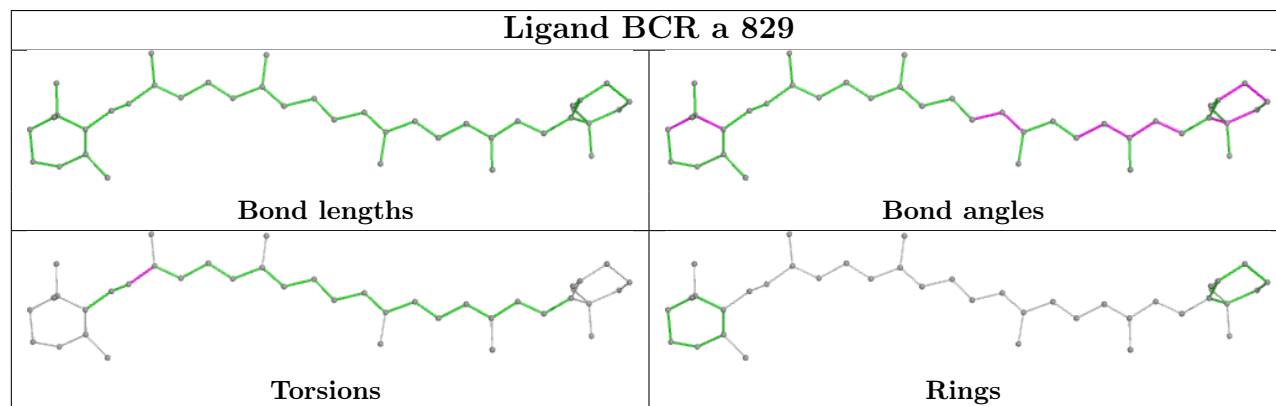


Rings

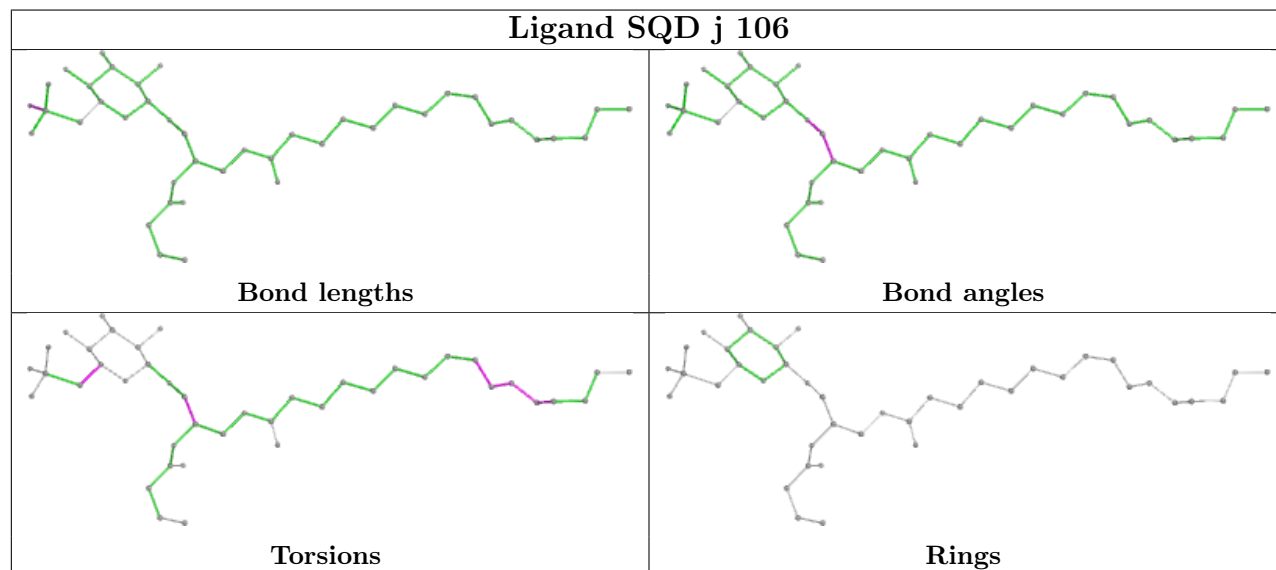
Ligand CLA a 824



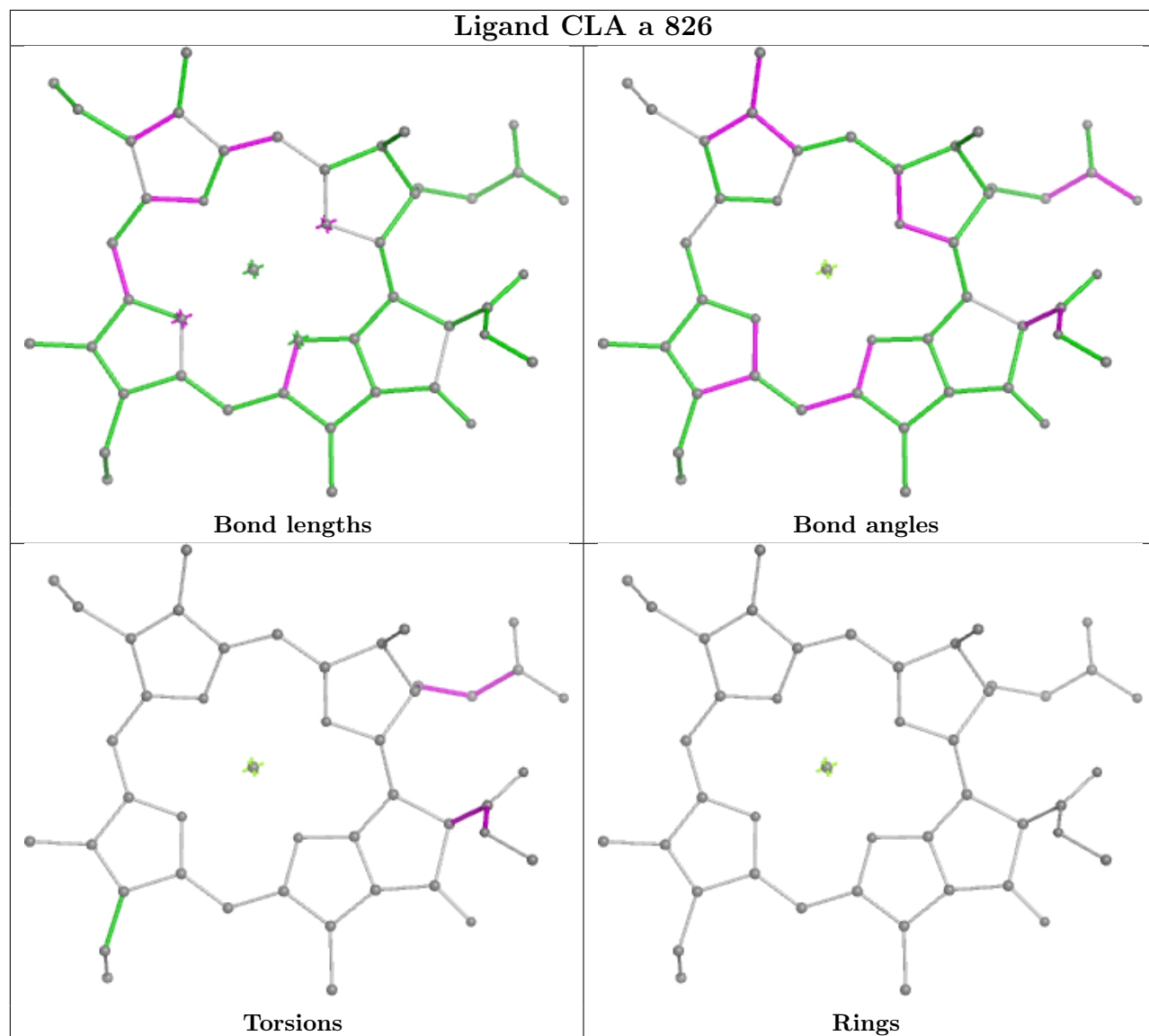
Ligand BCR a 829

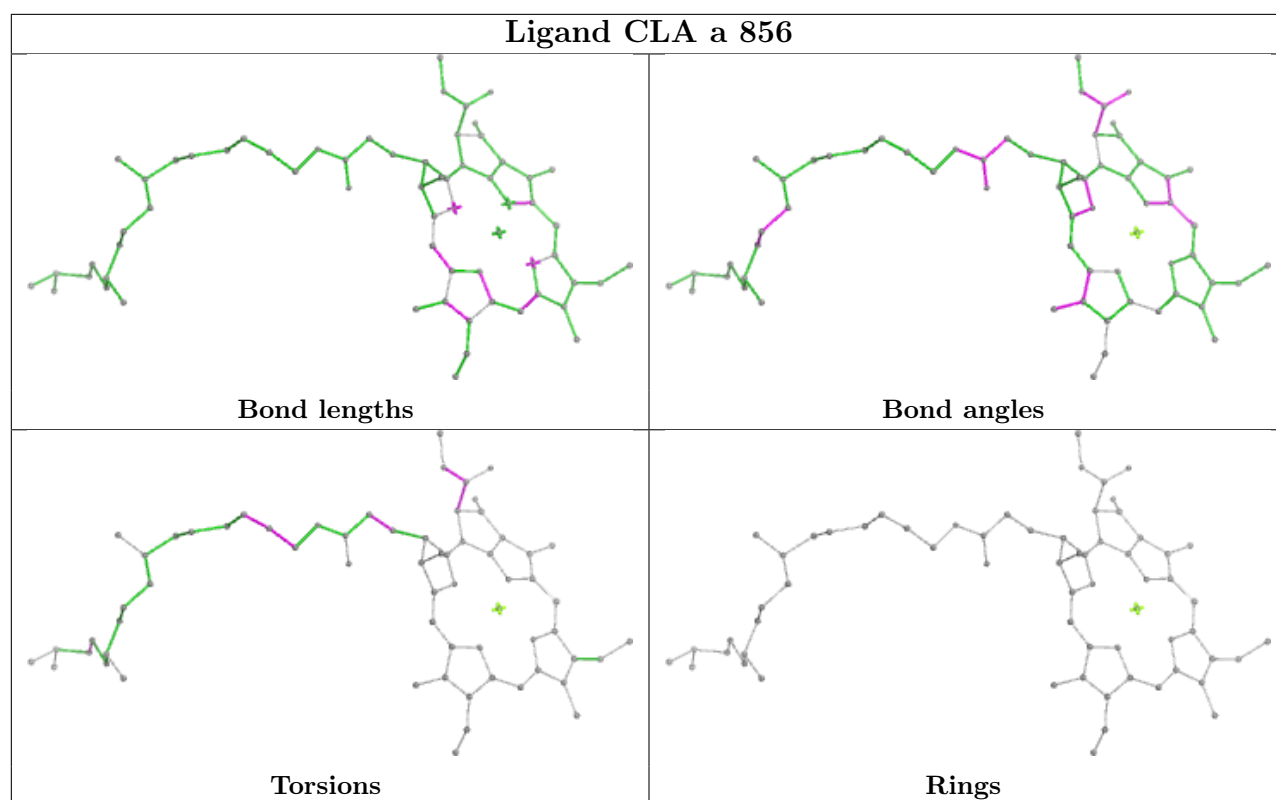


Ligand SQD j 106

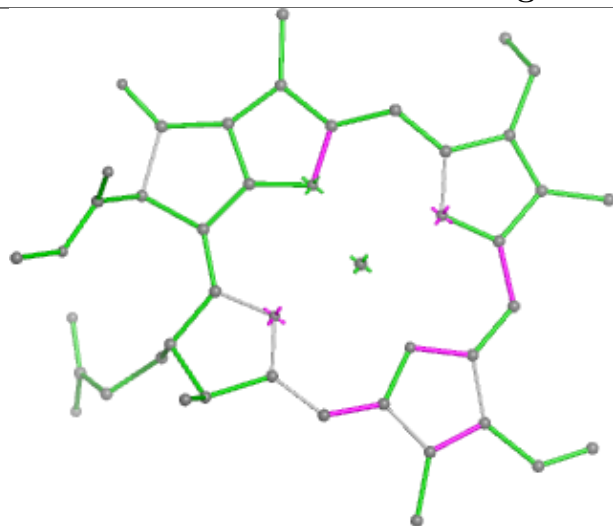


Ligand CLA a 826

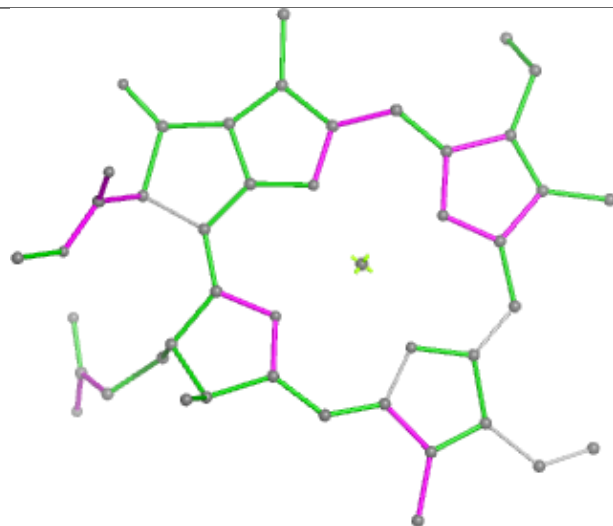




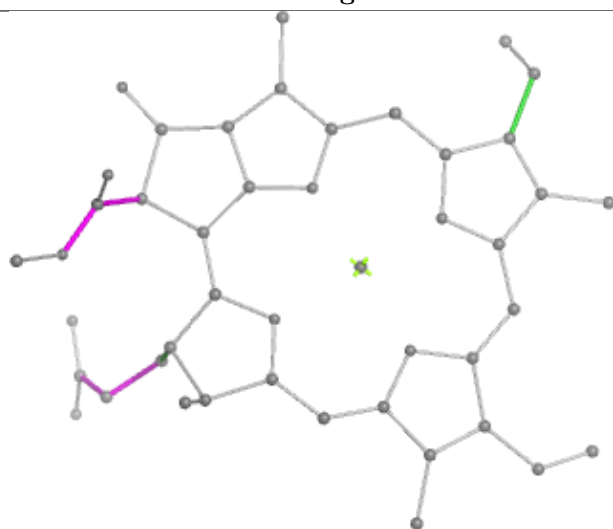
Ligand CLA b 811



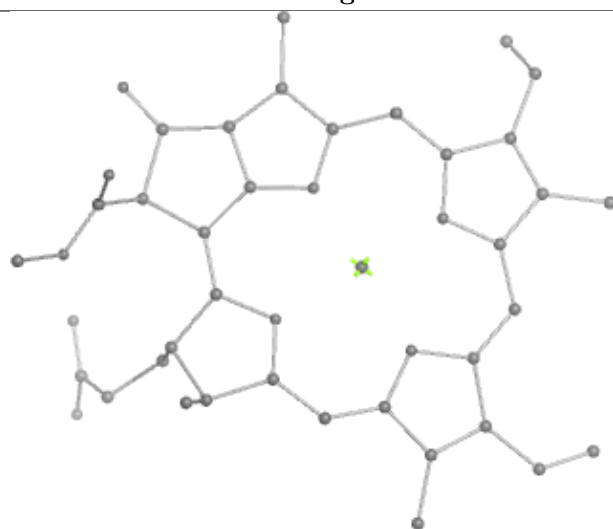
Bond lengths



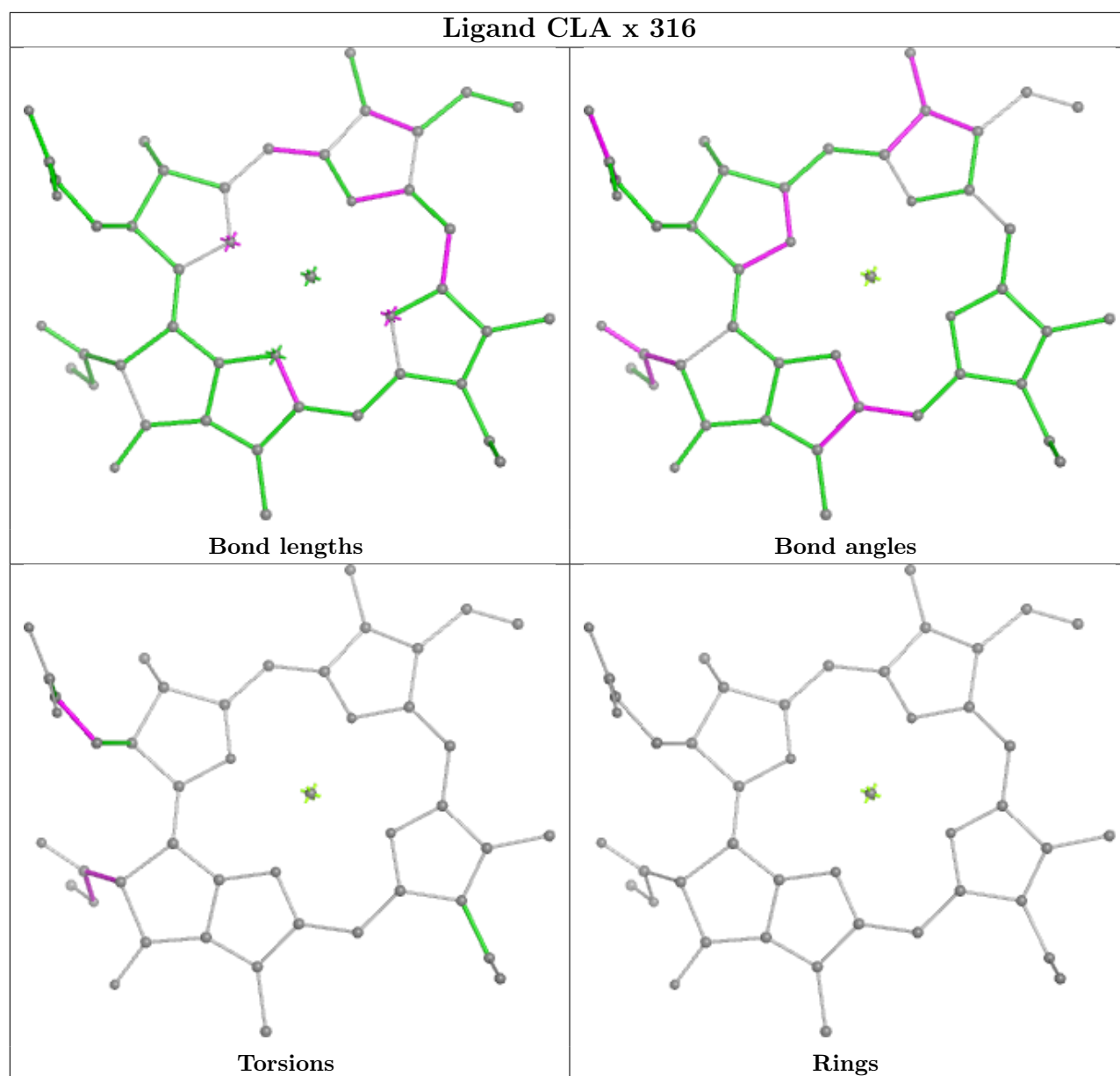
Bond angles



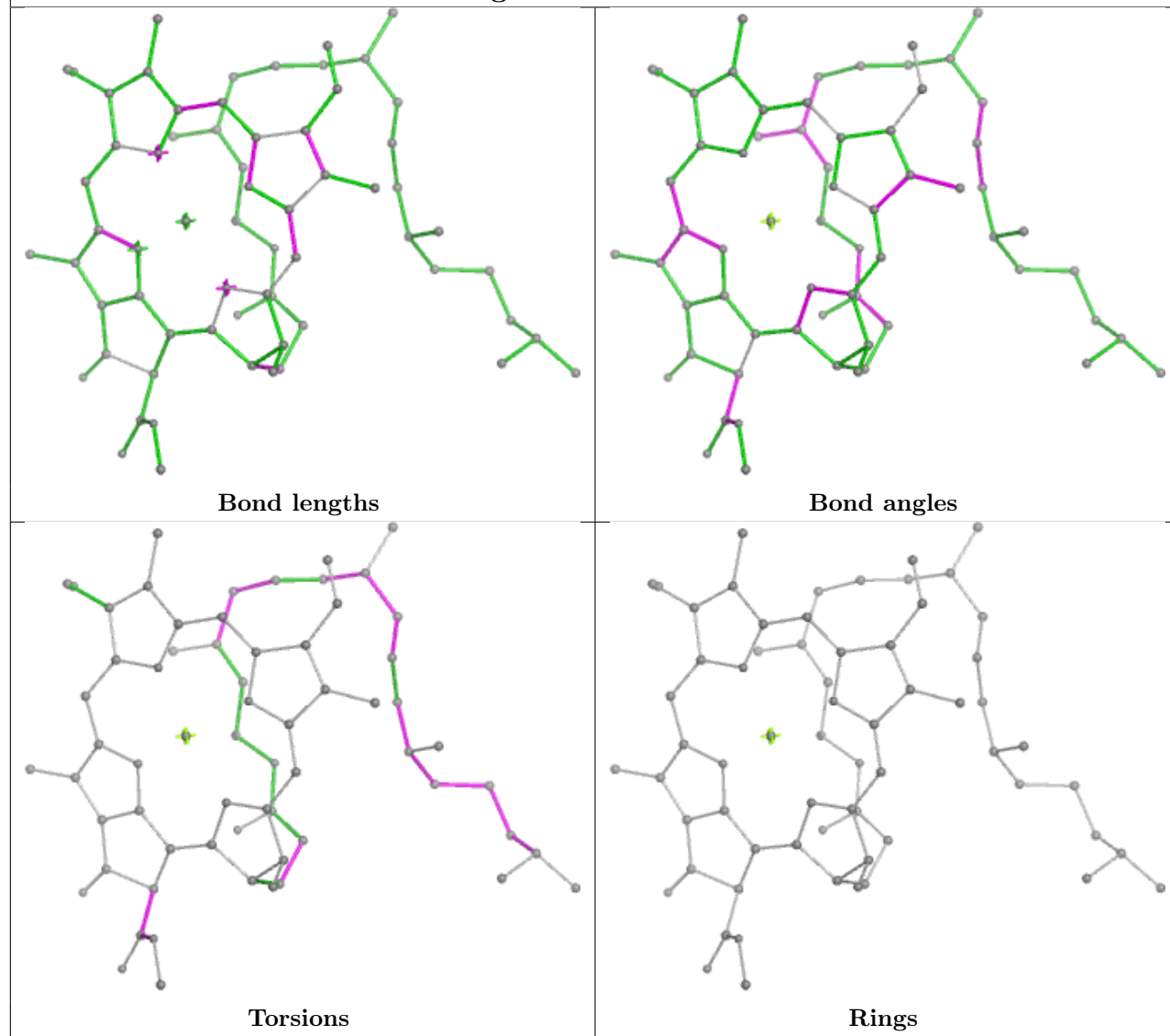
Torsions



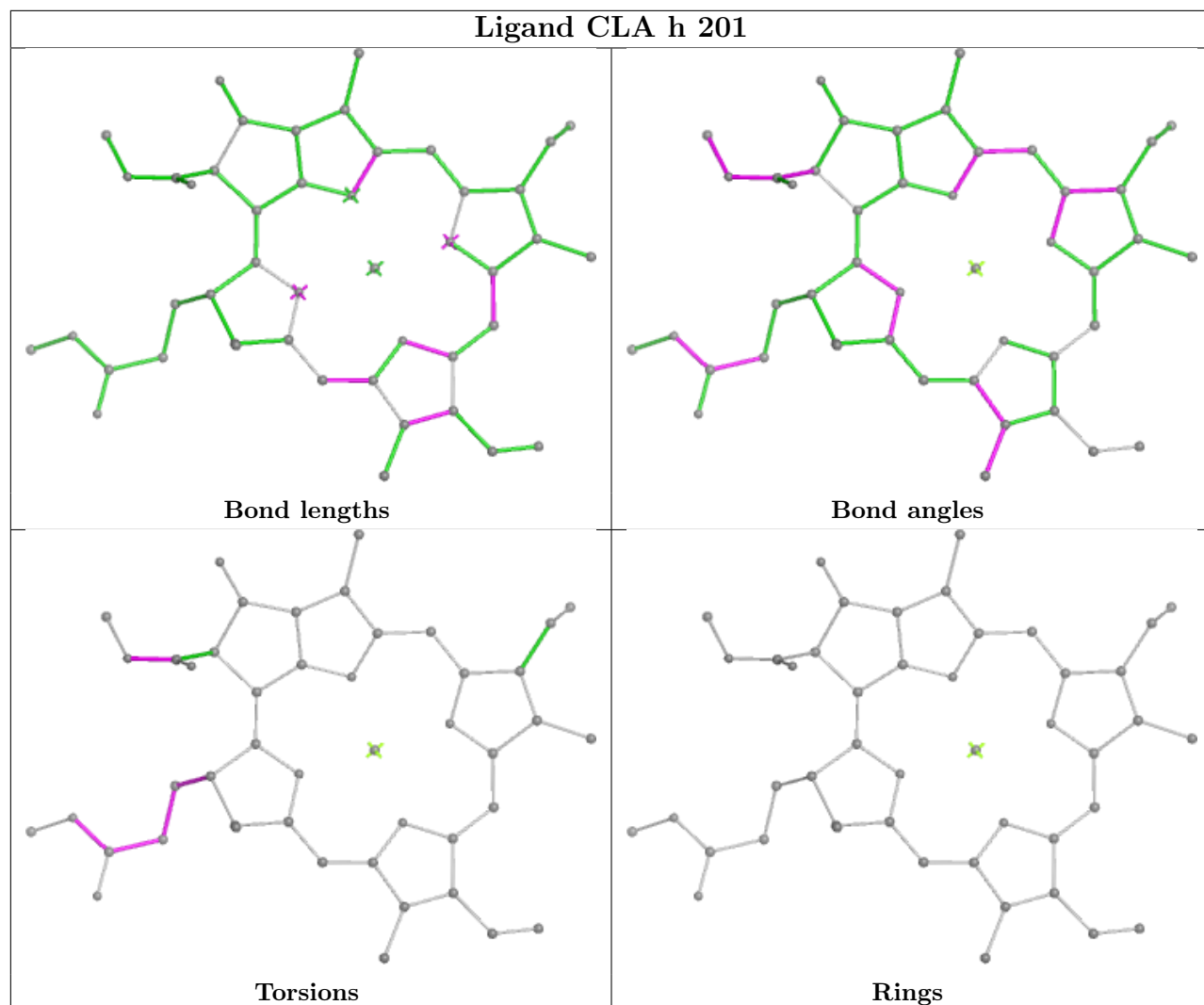
Rings

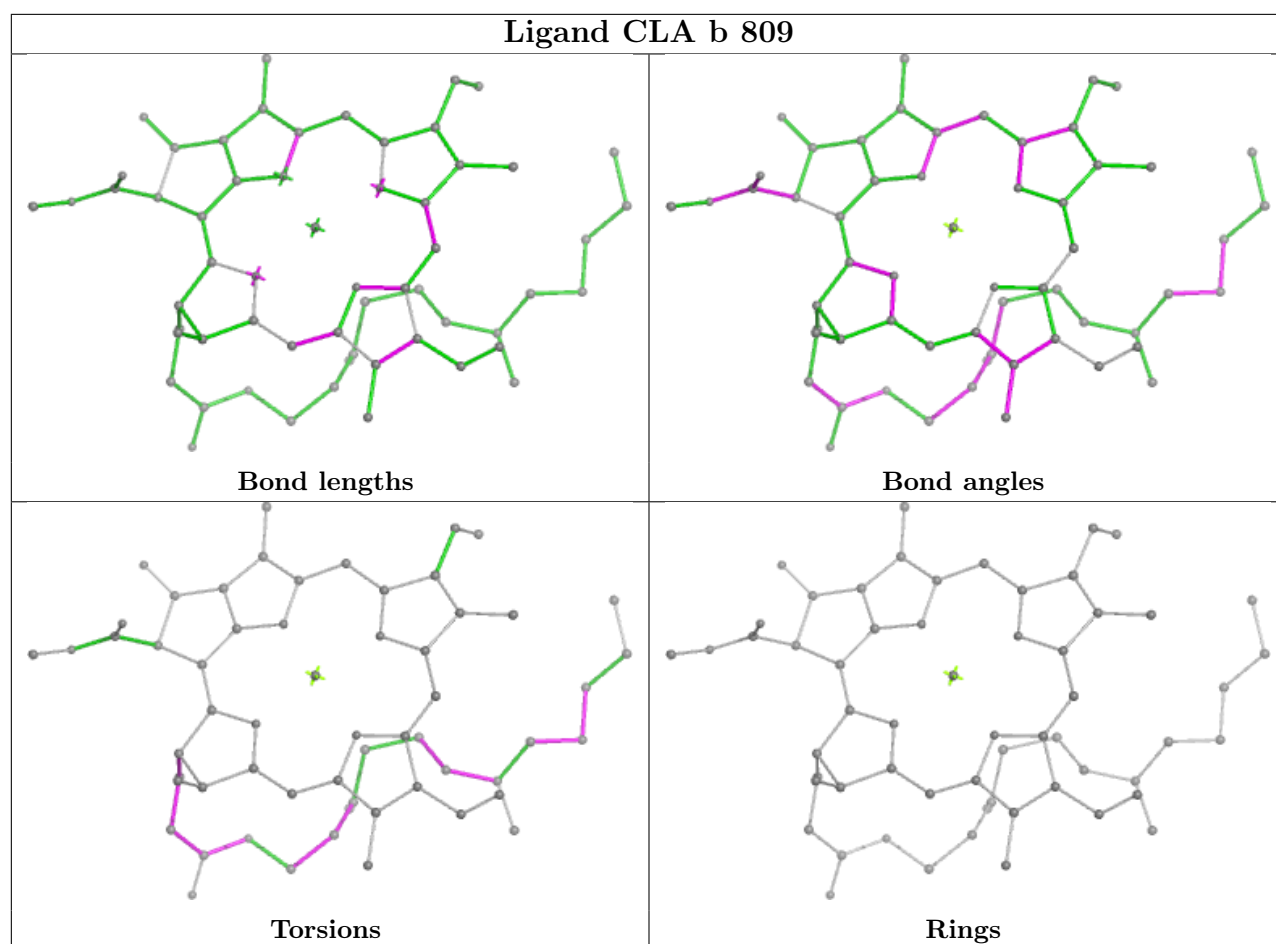


Ligand CLA b 843



Ligand CLA h 201





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.

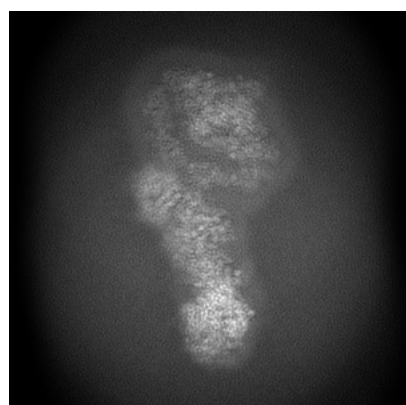
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-51527. These allow visual inspection of the internal detail of the map and identification of artifacts.

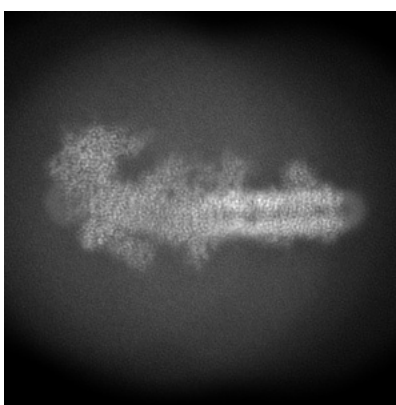
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

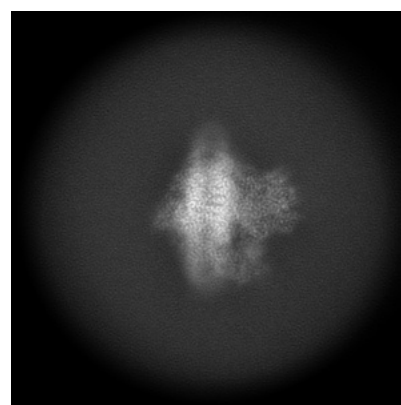
6.1.1 Primary map



X



Y

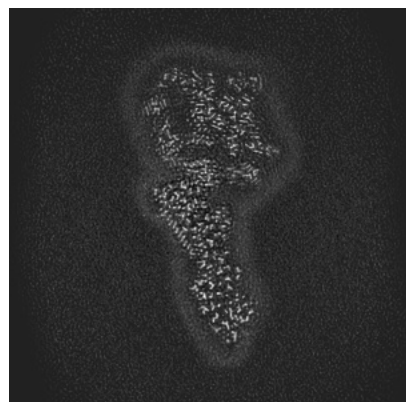


Z

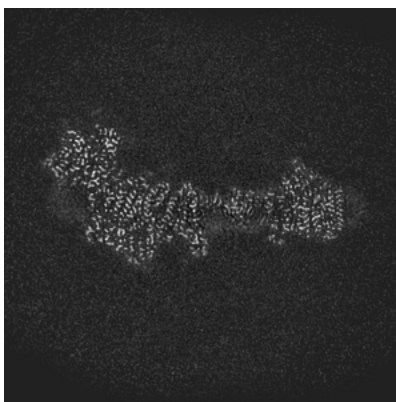
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

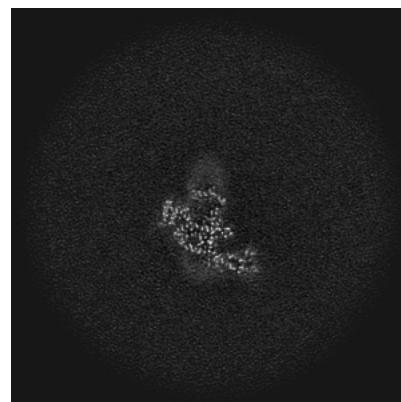
6.2.1 Primary map



X Index: 256



Y Index: 256



Z Index: 256

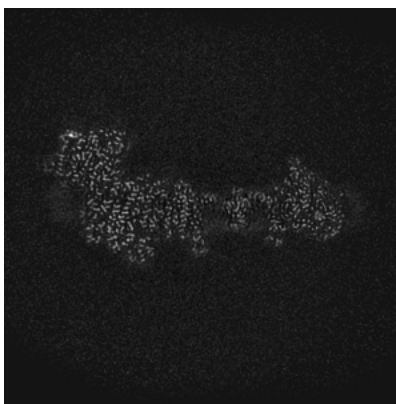
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

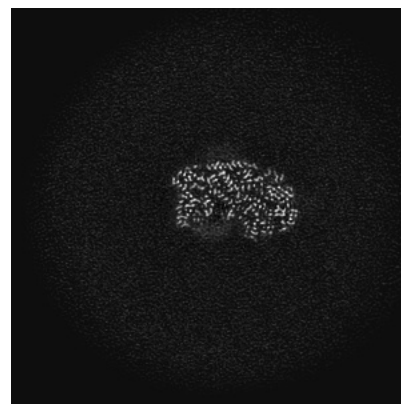
6.3.1 Primary map



X Index: 265



Y Index: 260

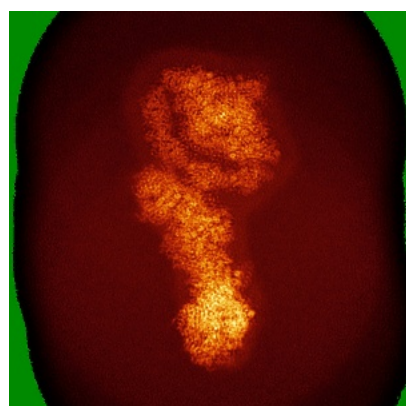


Z Index: 125

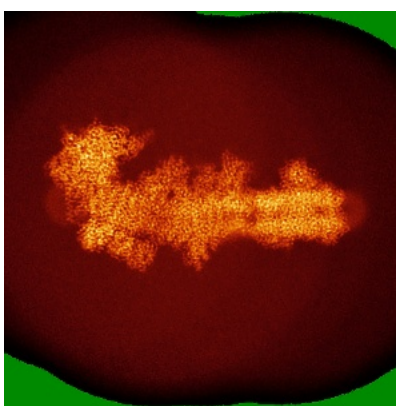
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

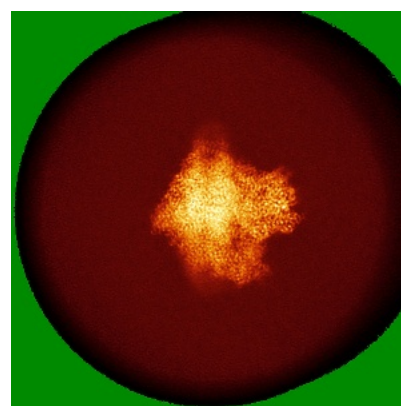
6.4.1 Primary map



X



Y

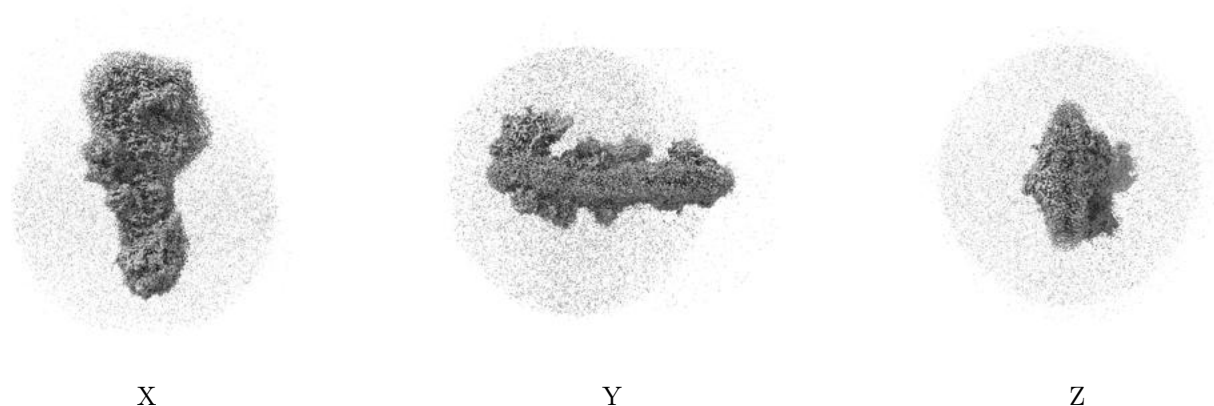


Z

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



The images above show the 3D surface view of the map at the recommended contour level 0.3. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

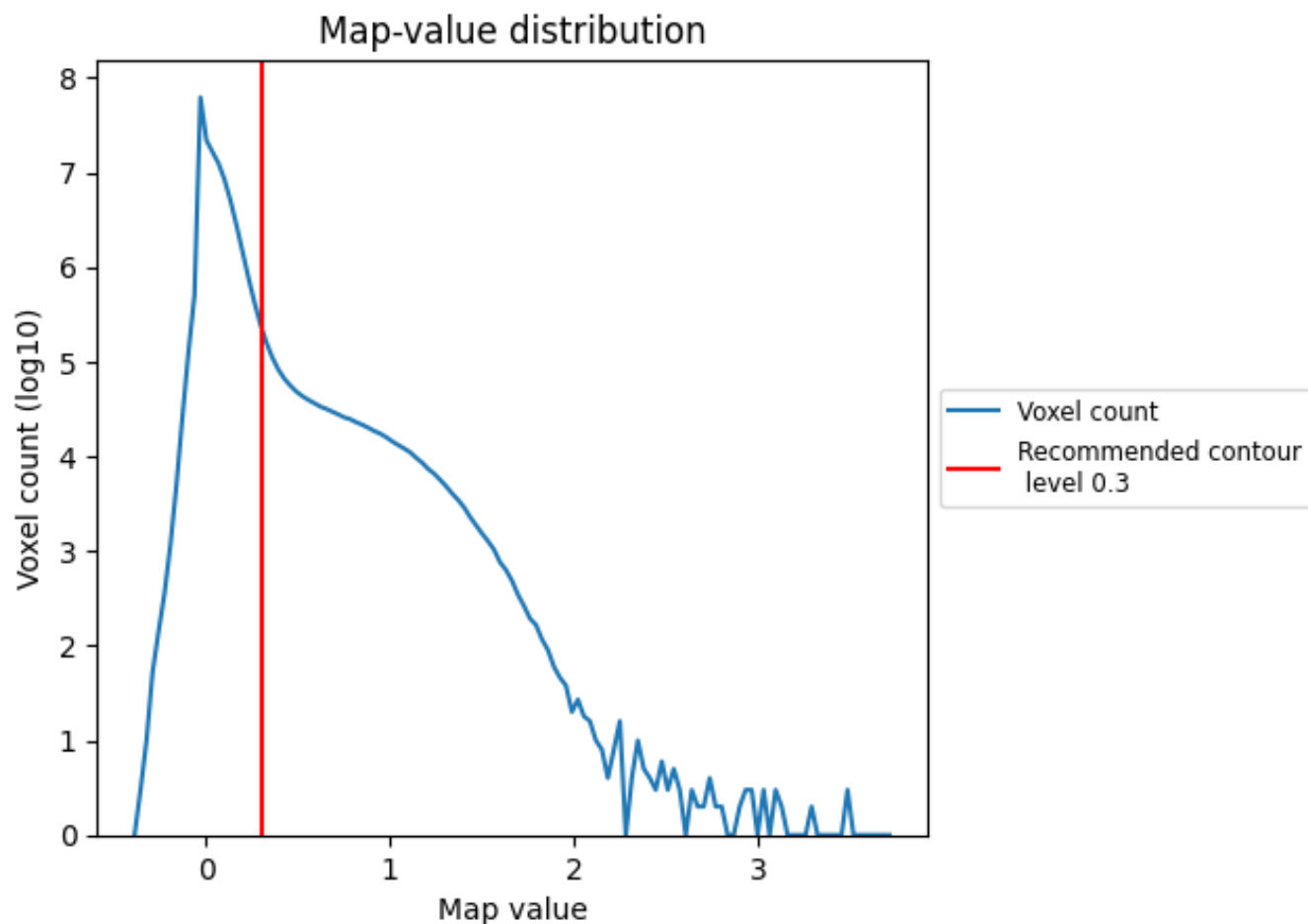
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

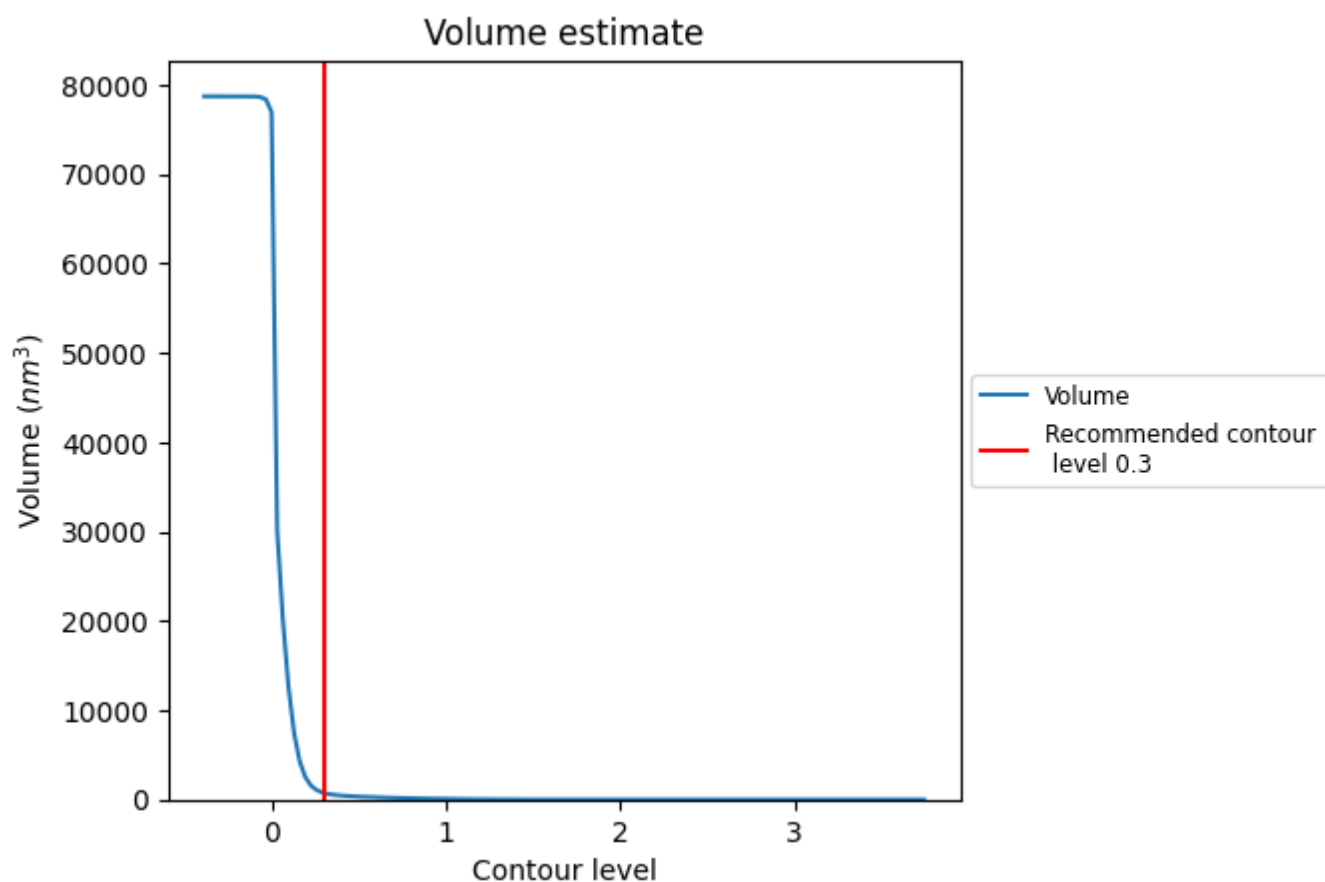
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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.

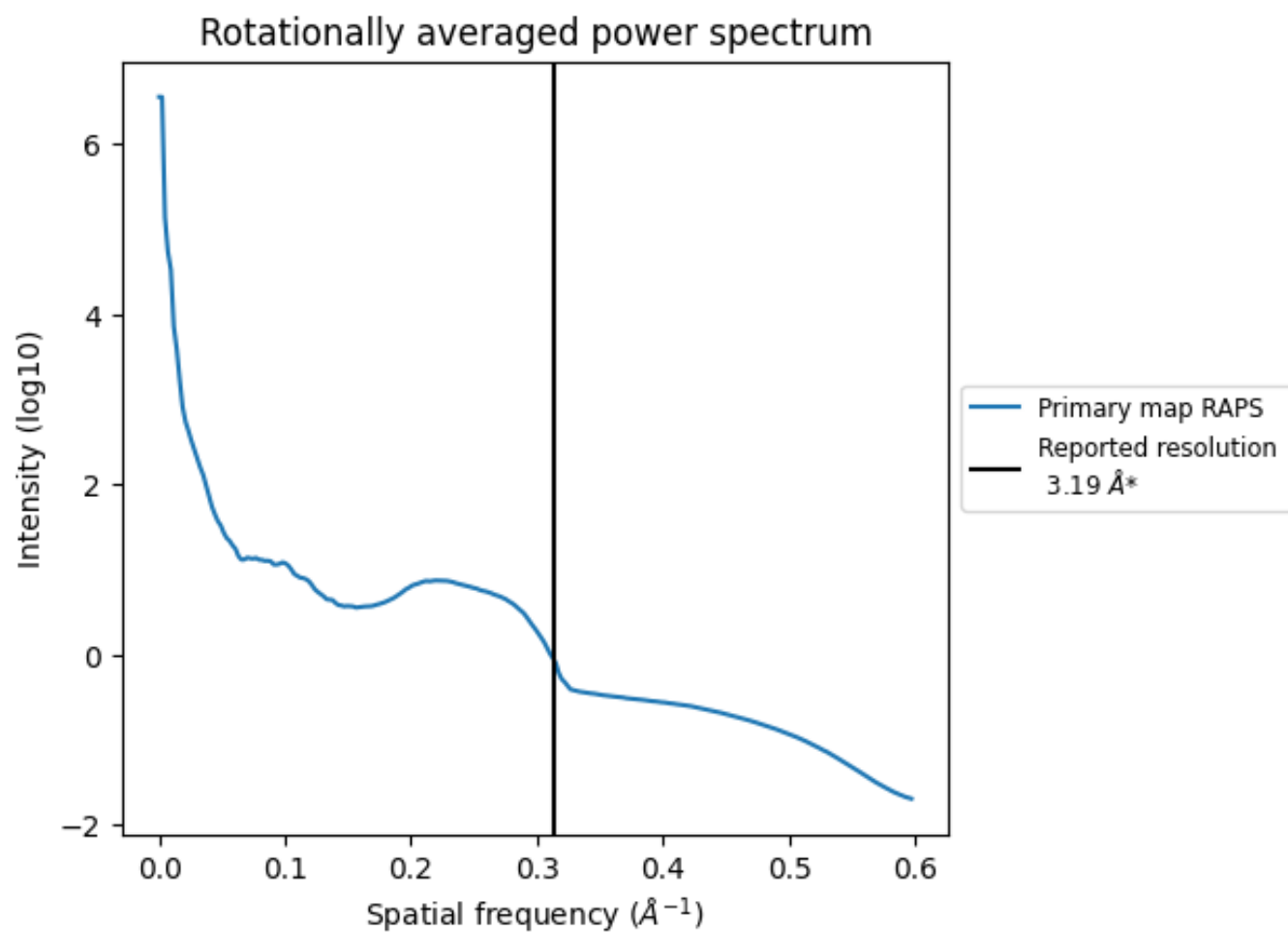
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 747 nm³; this corresponds to an approximate mass of 675 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 ⓘ



*Reported resolution corresponds to spatial frequency of 0.313 Å⁻¹

8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

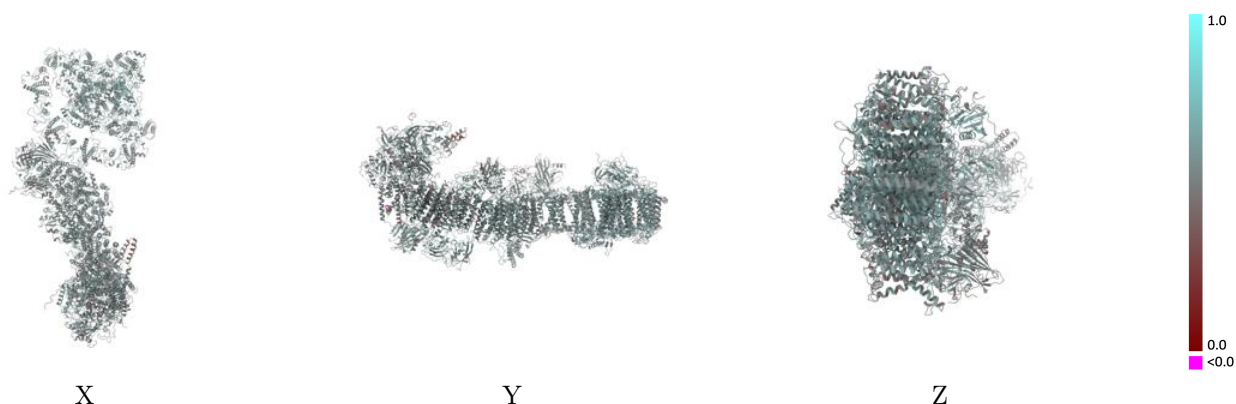
This section contains information regarding the fit between EMDB map EMD-51527 and PDB model 9GRX. Per-residue inclusion information can be found in section [3](#) on page [34](#).

9.1 Map-model overlay [i](#)



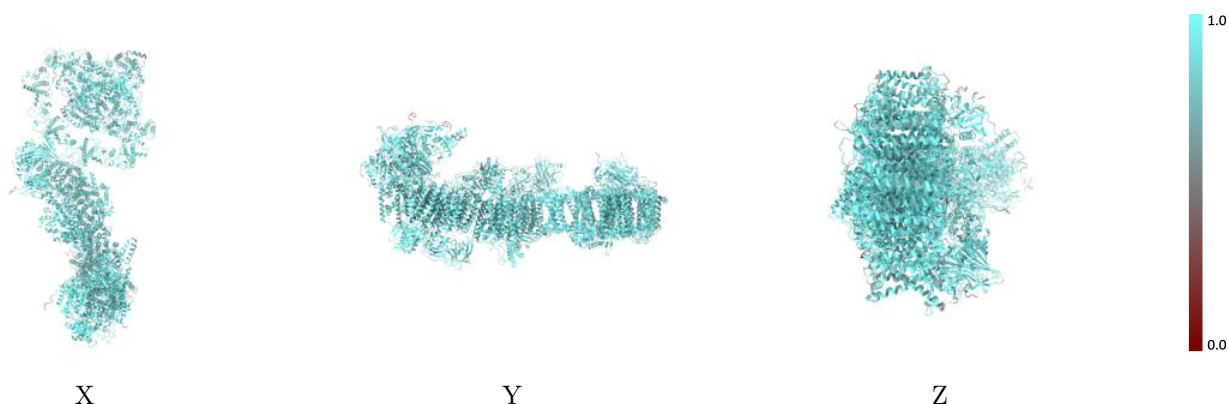
The images above show the 3D surface view of the map at the recommended contour level 0.3 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model [i](#)



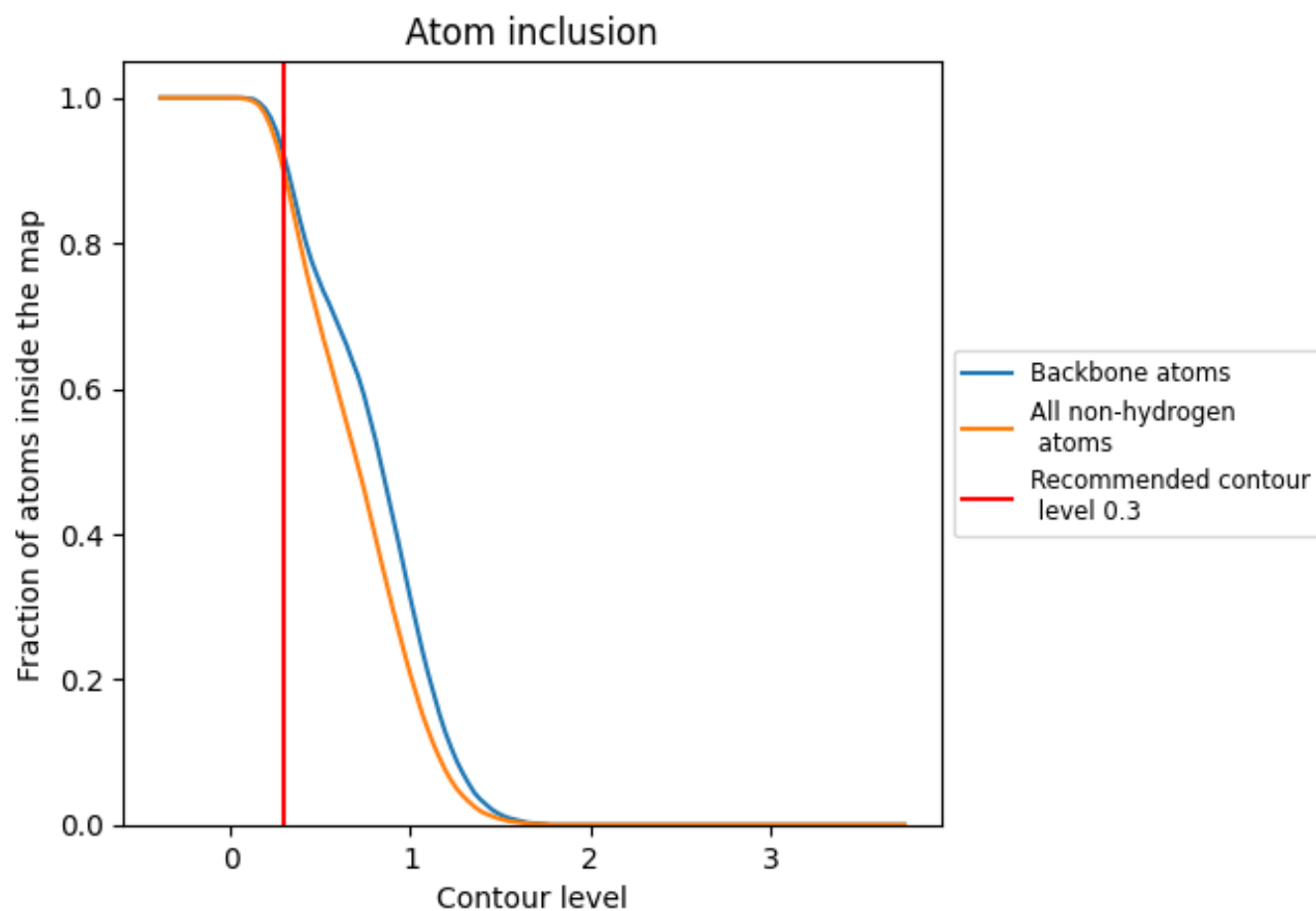
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

9.3 Atom inclusion mapped to coordinate model [i](#)



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 (0.3).







































































9.4 Atom inclusion [i](#)



At the recommended contour level, 92% of all backbone atoms, 90% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

















The table lists the average atom inclusion at the recommended contour level (0.3) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8960	 0.5410
0	 0.9360	 0.5380
1	 0.9010	 0.5310
2	 0.9130	 0.5190
3	 0.8660	 0.5090
4	 0.9060	 0.5410
5	 0.9090	 0.5360
6	 0.9370	 0.5290
7	 0.9390	 0.5360
8	 0.9580	 0.5540
9	 0.9370	 0.5460
A	 0.8730	 0.5200
B	 0.8910	 0.5230
C	 0.8800	 0.5150
D	 0.9330	 0.5510
E	 0.9290	 0.5410
F	 0.9090	 0.5240
G	 0.8980	 0.5220
H	 0.8970	 0.5250
I	 0.9000	 0.5250
J	 0.9310	 0.5430
K	 0.8970	 0.5220
L	 0.9000	 0.5250
M	 0.8910	 0.5260
N	 0.9000	 0.5150
O	 0.8800	 0.5110
U	 0.8480	 0.4840
a	 0.9150	 0.5790
b	 0.9070	 0.5780
c	 0.9210	 0.5590
d	 0.9030	 0.5710
e	 0.8230	 0.5320
f	 0.8740	 0.5640
g	 0.7850	 0.5270
h	 0.7260	 0.5120



Continued on next page...

Continued from previous page...

Chain	Atom inclusion	Q-score
i	 0.8970	 0.5740
j	 0.8510	 0.5490
k	 0.8000	 0.4920
l	 0.8070	 0.5390
w	 0.9280	 0.5470
x	 0.8710	 0.5420
y	 0.9030	 0.5330
z	 0.8010	 0.5160